

**digital**

**GT48A**

**Engineering Drawings**

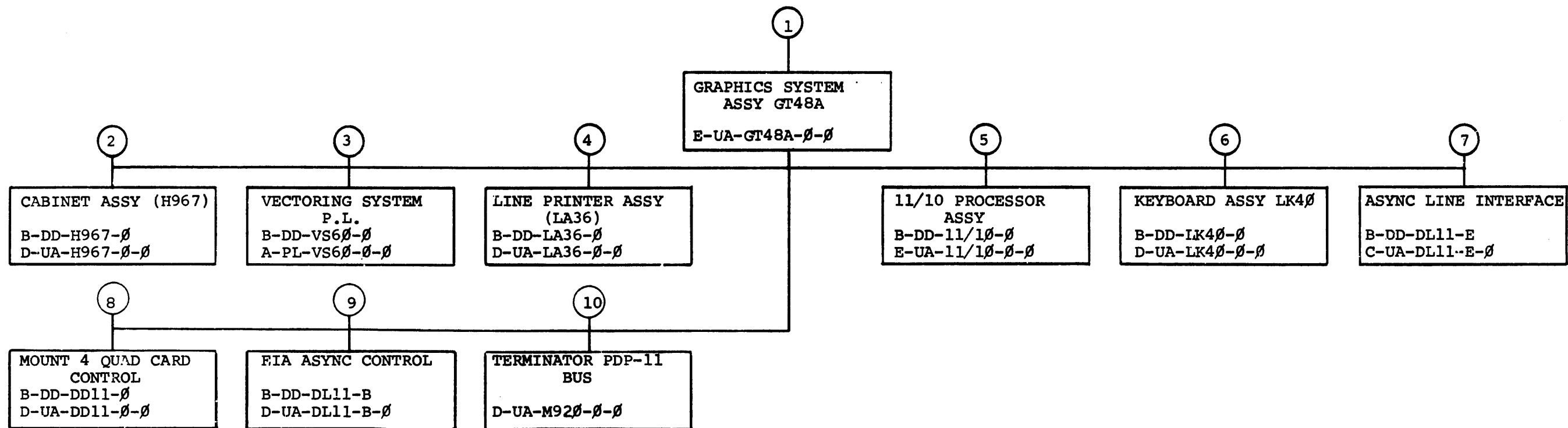
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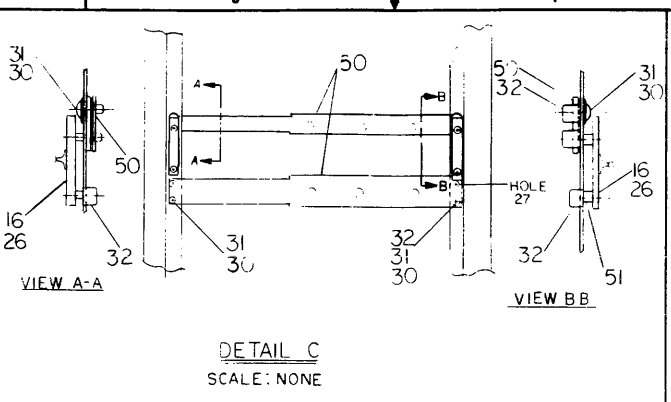
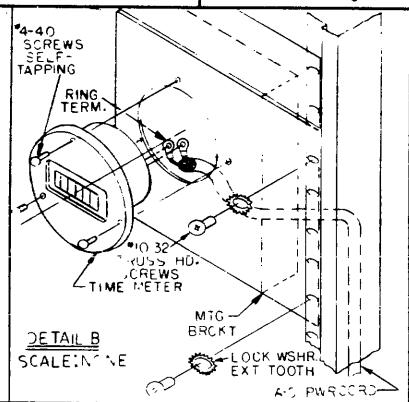
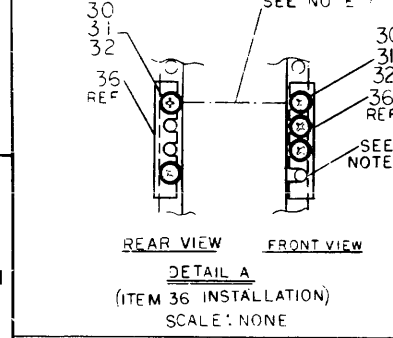


| TITLE                 | SHEET  | SIZE | CODE | NUMBER  | REV |
|-----------------------|--------|------|------|---------|-----|
| GRAPHICS SYSTEM GT48A | 2 OF 4 | B    | DD   | GT48A-Ø |     |





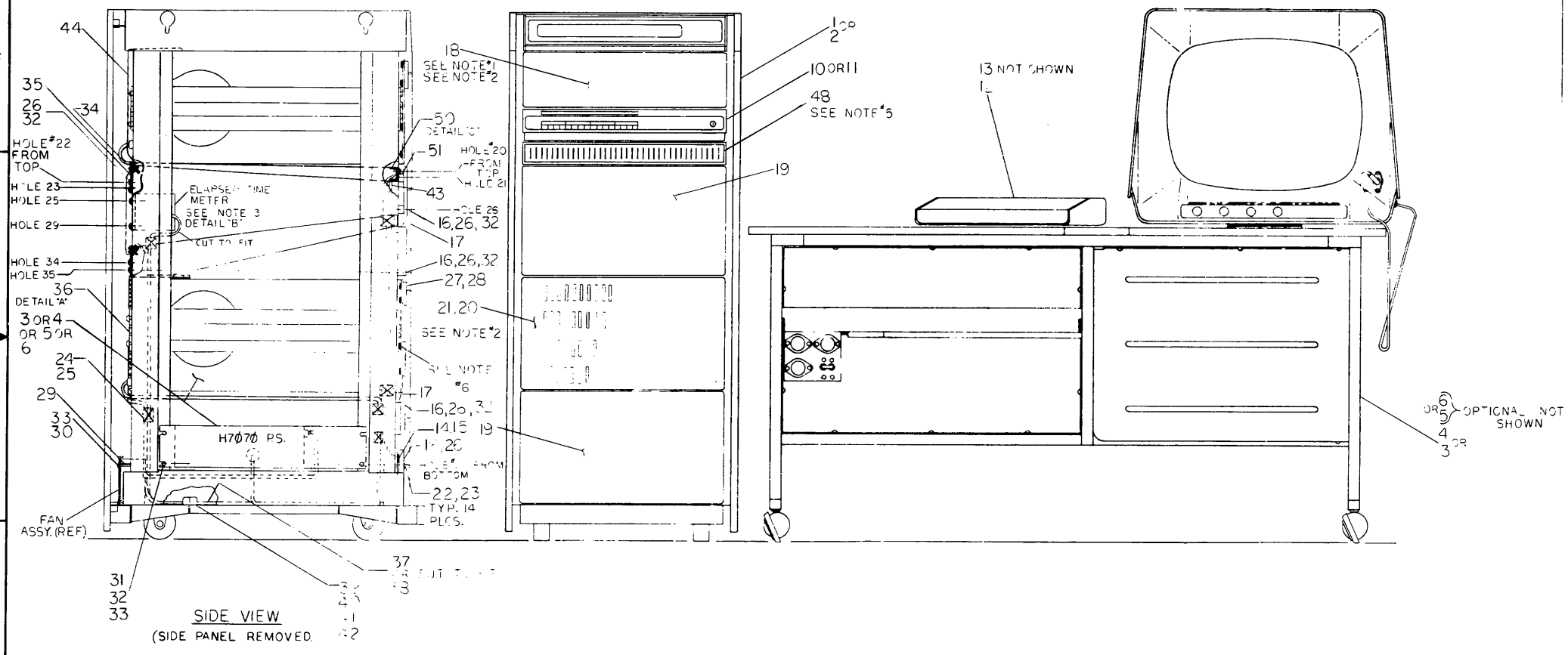
1. Remove and replace the front panel of the graphics system with the 5.25" floppy diskette panel (item #18) and return to stock. Replace with 5.25" panel (item #18).



**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" FLOPPY DISKETTE PANEL FROM 1110 PROCESSOR (ITEM 10 OR 11) AND RETURN TO STOCK. REPLACE WITH 5.25" PANEL (ITEM #18).
  - USE OFF-CENTER BALL STUDS FOR 5.25" FLOPPY DISKETTE PANEL AND 10.5" SLOTTED FLOPPY DISKETTE PANEL ONLY. ALL OTHER CONFIGURATIONS USE STRIP STUDS (ITEM #16).
  - MTG. HARDWARE AND AC PWR CORD SUPPLIED WITH 1560 OPTIONS (ITEMS 3 OR 4, 5 OR 6).
  - 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 (DIE GREY) ITEM #48.
  - THREE SCREWS USED IN MTG FRONT OF CHASSIS TRACKS (ITEM #36) TO BE LOCATED SUCH THAT SCREW HEADS 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. HOLE #48 FROM TOP IS GUIDE FOR 1110 EXPANDER BOX.
  - REF DWG. E-1C-GT48A-0-1 FOR ALL WIRING CONNECTIONS.



OPTIONAL NOT SHOWN

SEE A-PL-GT48A-0-0

| QTY | DESCRIPTION           | UNIT | PRICE |
|-----|-----------------------|------|-------|
| 1   | GRAPHICS SYSTEM GT48A |      |       |
| 1   | GT48A                 |      |       |
| 1   | GT48A-0-1             |      |       |

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES  
TOLERANCES: FRACTIONS DECIMALS ANGLES  
FRACTIONS DECIMALS ANGLES  
FRACTIONS DECIMALS ANGLES  
FRACTIONS DECIMALS ANGLES

GRAPHICAL EQUIPMENT CORPORATION  
GRAPHICS SYSTEM GT48A  
GT48A  
GT48A-0-1

| DIGITAL EQUIPMENT CORPORATION<br>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. C. C.</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.              |          |          |           |          |          |          |          |

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| DIGITAL EQUIPMENT CORPORATION<br>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. C. C.</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.              |          |          |           |          |          |          |          |

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| DIGITAL EQUIPMENT CORPORATION<br>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. C. C.</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 5/8 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, TINNEMAN #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                       | 2PR                | 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  | 1209378-03         | 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.              |          |          |           |          |          |          |          |

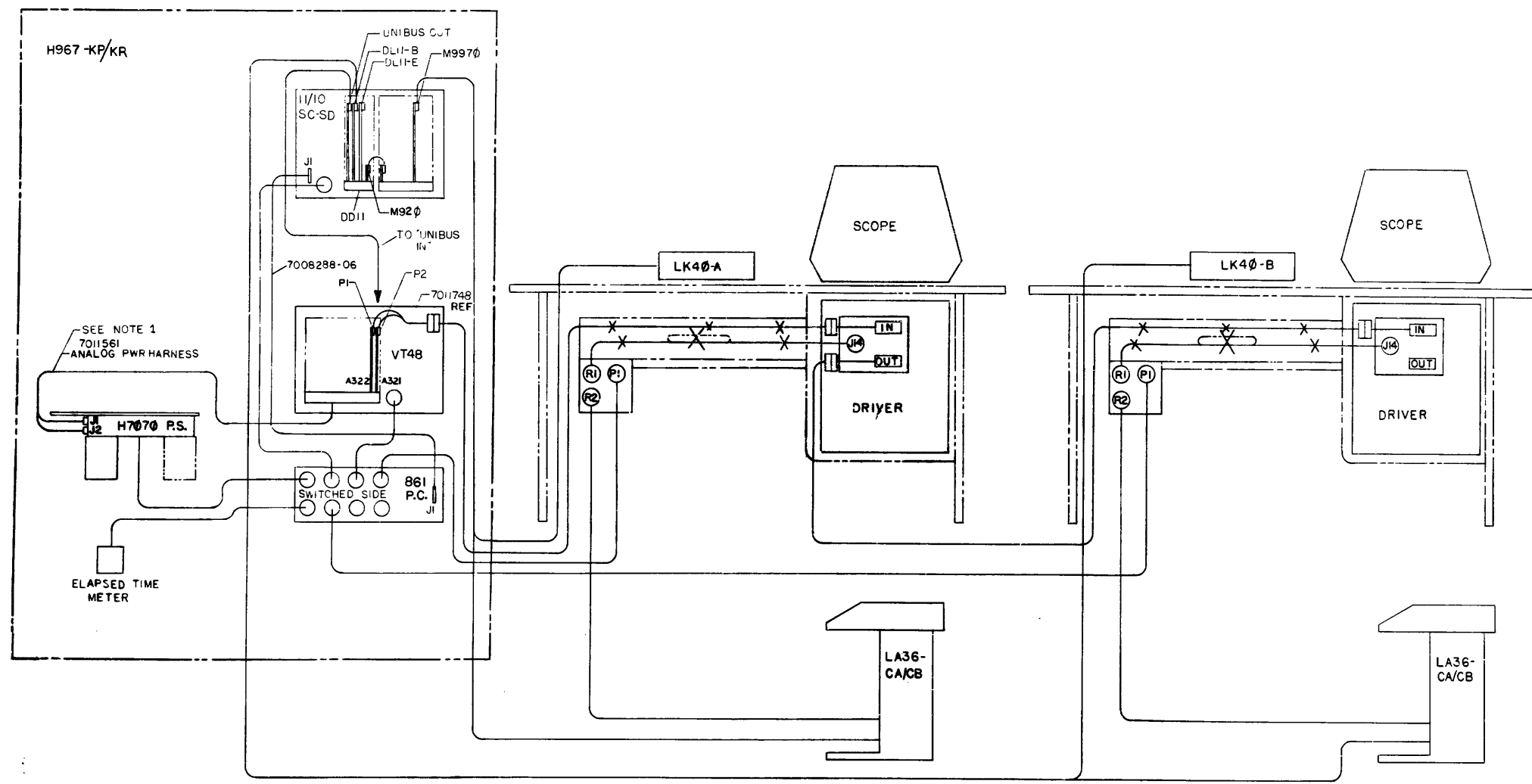
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NOTES:  
 1. REFERENCE FOR CONNECTIONS:  
 D-UA-VT48-D-Q.  
 2. REF P/L: A-PL-GT48A-3-D AND  
 E-UA-GT48A-D-Q.

H  
F  
E  
D  
C  
B

H  
F  
E  
D  
C  
B



| QUANTITY & VARIATION | DESCRIPTION                    | DRG. PART NO. | ITEM NO. |
|----------------------|--------------------------------|---------------|----------|
| 1                    | INTERCONNECTING CABLES (GT48A) | GT48A         | 1        |
| 1                    | DRIVER                         | GT48A-3-D     | 2        |
| 1                    | SCOPE                          | GT48A-D-Q     | 3        |

THIRD ANGLE PROJECTION  
 DIMENSIONS IN INCHES  
 UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES  
 SURFACE FINISH  
 DIMENSIONS  
 FINISH  
 DO NOT SCALE DIMS  
 MATERIAL  
 FINISH

TITLE: INTERCONNECTING CABLES (GT48A)  
 PART NO: GT48A-3-1  
 REV: 1

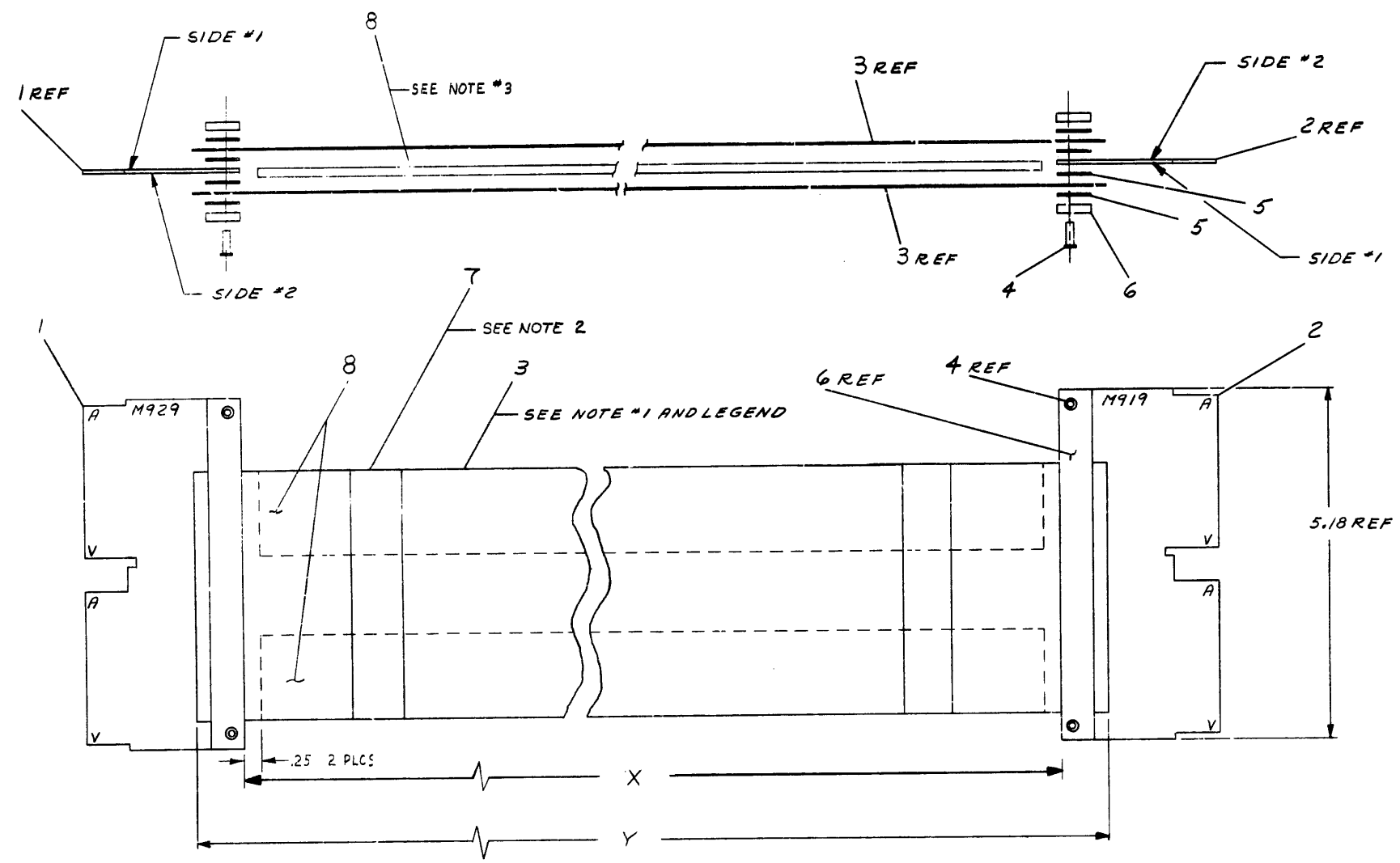


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**NOTES:**

- 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 "W" 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.   | REV. |
|------|--------------------------------|------------|------|
|      | A/R GRAY FOAM                  | 900881     | 1    |
|      | A/R BLK ELECTRICAL TAPE        | 900826     | 1    |
|      | 4 CLAMP, CABLE                 | C-3C-12076 | 6    |
|      | A/R TAPE #4032 1/2" X 3/4" W/L | 900783+    | 5    |
|      | 4 EYELET GS-9-11 STIMSON       | 900833     | 4    |
|      | 2 CABLE, FLEXPRINT             | 1700002-01 | 3    |
|      | 1 EXT. BUS CONN                | A-PL-10019 | 2    |
|      | 1 BUS CONN                     | A-PL-10019 | 1    |

| REV. | CHG. NO. | DATE | BY | APP. | DESCRIPTION |
|------|----------|------|----|------|-------------|
| 1    | 00001    | A    |    |      | INITIAL     |
| 2    | 00002    | B    |    |      | INITIAL     |
| 3    | 00003    | C    |    |      | INITIAL     |
| 4    | 00004    | D    |    |      | INITIAL     |
| 5    | 00005    | E    |    |      | INITIAL     |
| 6    | 00006    | F    |    |      | INITIAL     |

FIRST USED ON OPT. ON / MODEL  
PDPII

| DO NOT SCALE DRAWING                                       |           |
|--|-----------|
| UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES             |           |
| DECIMALS   | FRACTIONS |
| ± .005   | ± 1/32    |
| FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS |           |
| MATERIAL   | FINISH    |
| +  | +         |

| PARTS LIST |            |
|------------|------------|
| DATE       | 11/1/67    |
| BY         | W. J. B.   |
| CHK'D      | W. J. B.   |
| APP'D      | W. J. B.   |
| TITLE      | CABLE ASSY |
| SCALE      | 1/1        |
| SHEET      | 2 OF 2     |

0-0-VICIA-0-0

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1

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LEGEND

| NUMBER   | DIM X" VARIATION | DIM Y" (PRE-CUT) 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"                |

| REVISIONS |           |     |
|-----------|-----------|-----|
| CHK       | CHANGE NO | REV |
|           |           |     |

|                    |    |       |           |      |
|--------------------|----|-------|-----------|------|
| TITLE              | SZ | CODE  | NUMBER    | REV. |
| CABLE ASSY (BC11A) | D  | UA    | BC11A-0-0 | F    |
| SHEET 2 OF 2       |    | DIST. |           |      |

8

7

6

5

4

3

2

1

D

C

B

A

F

F

F

F

F

F

F

F

F

F

F

F

F

F

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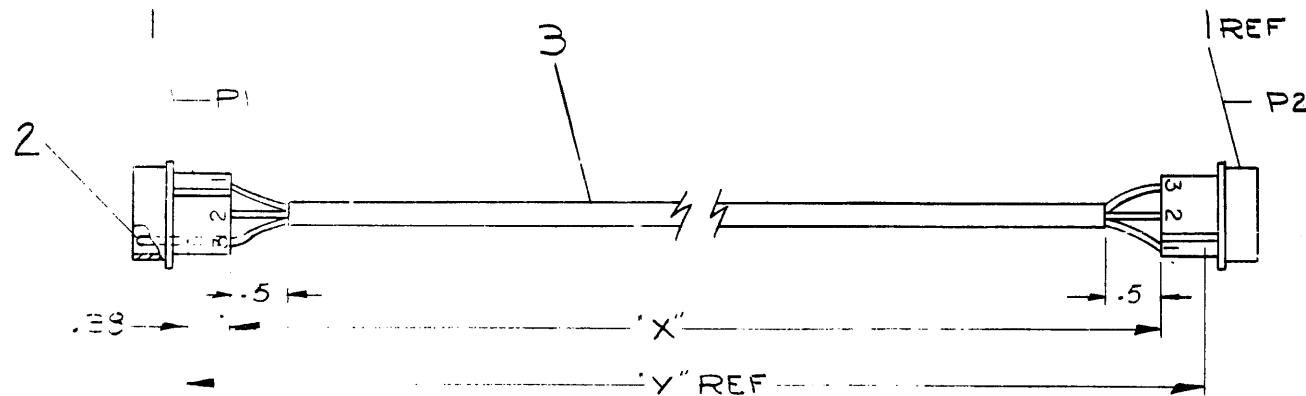
### WIRE TABLE

| 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)~~



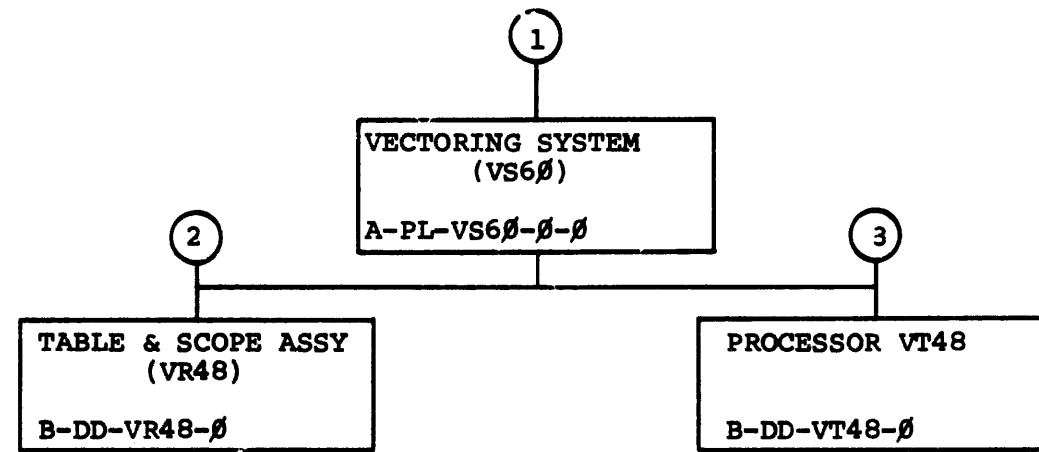
| REVISIONS    |                 |
|--------------|-----------------|
| CHK          | CHANGE NO. REV. |
| Y.S.         | 7008288-00001 A |
| R. BURTON    |                 |
| J.H.         | 7008288-00002 B |
| D. LEWIS     |                 |
| J.H.         | 7008288-00003 C |
| B. MINOR     |    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

|                                      |           |   |  |
|--------------------------------------|-----------|---|--|
| FIRST USED ON C-100/145L             |           | PDP/11  |  |
| UNLESS OTHERWISE SPECIFIED           |           |   |  |
| DIMENSION IN INCHES                  |           |   |  |
| TOLERANCES                           |           |   |  |
| DECIMALS                             | FRACTIONS | ANGLES  |  |
| ± .006                               | ± 1/64    | ± 0°30'   |  |
| FINAL SURFACE QUALITY                |           |   |  |
| REMOVE BURRS AND BREAK SHARP CORNERS |           |   |  |
| MATERIAL                             |           | SEE PARTS LIST  |  |
| FINISH                               |           |   |  |
| SCALE                                |           | SHEET 1 OF 1  |  |
| DRN. <i>of...</i>                    |           | DATE 3/22/71  |  |
| CHK'D. <i>T...</i>                   |           | DATE 3/31/71  |  |
| ENG. <i>J.H.</i>                     |           | DATE 4/1/71   |  |
| PROJ. ENG. <i>J.H.</i>               |           | DATE 4/1/71   |  |
| PROD. <i>J.H.</i>                    |           | DATE 4/1/71   |  |
| TITLE                                |           | digital EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS |  |
| TITLE                                |           | CABLE ASSY  |  |
| SIZE CODE                            |           | NUMBER  |  |
| CIA 7008288-0-0                      |           | 7008288-0-0   |  |
| REV.                                 |           | F   |  |

| 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        |

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



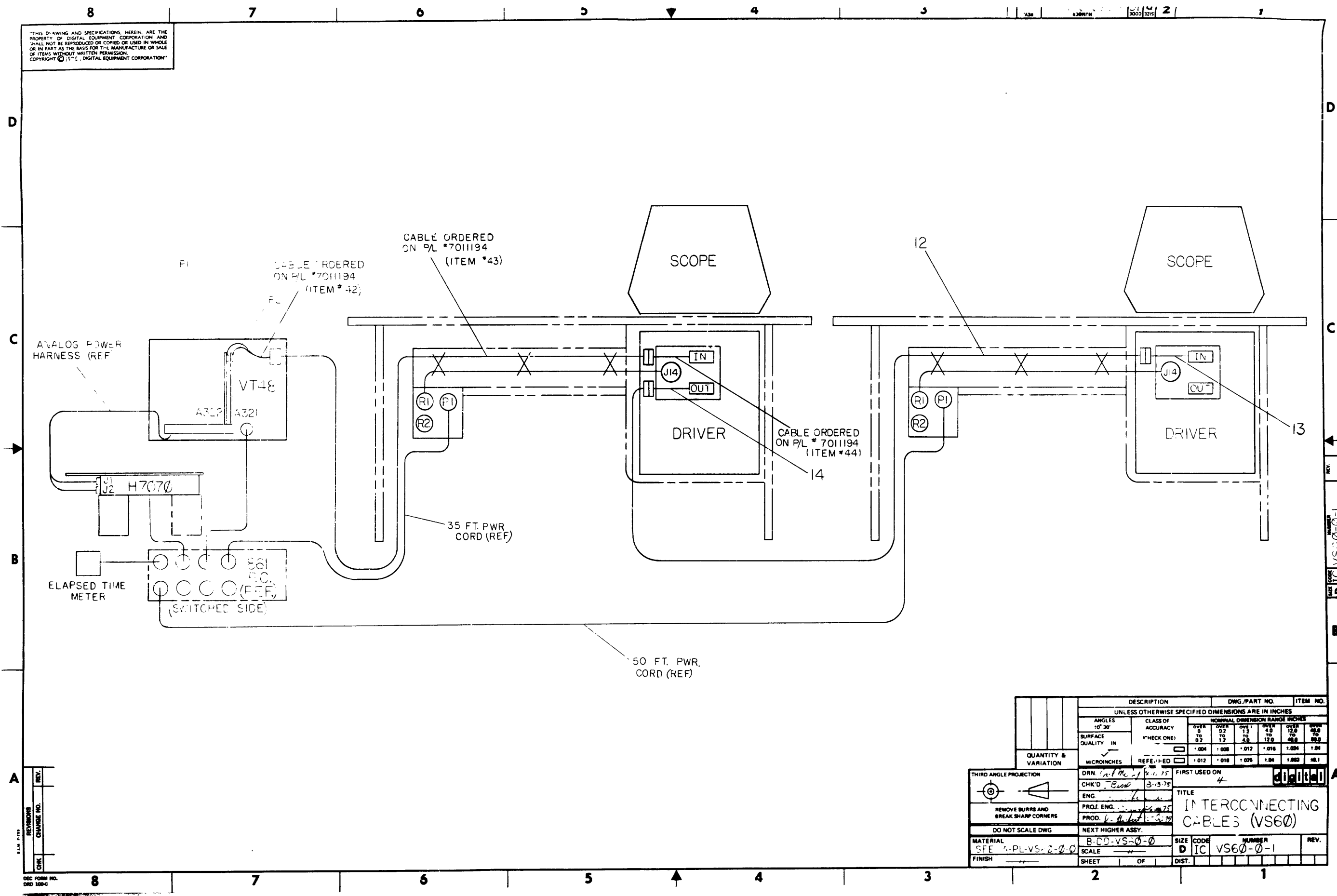


| TITLE                     | SHEET  | SIZE | CODE | NUMBER | REV |
|---------------------------|--------|------|------|--------|-----|
| VECTORIZING SYSTEM (VS60) | 2 OF 3 | B    | DD   | VS60-0 | A   |





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REV. 1  
D I C I C VS60-0-1

|             |  |
|-------------|--|
| REV.        |  |
| CHG         |  |
| RESUBMITTED |  |
| CHANGE NO.  |  |

|   |  |                       |  |                                |          |             |          |
|---|--|-----------------------|--|--------------------------------|----------|-------------|----------|
| THIRD ANGLE PROJECTION                              |  | DESCRIPTION           |  | DWG./PART NO.                  |          | ITEM NO.    |          |
| UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES |  |                       |  |                                |          |             |          |
| ANGLES  |  | CLASS OF ACCURACY     |  | NOMINAL DIMENSION RANGE INCHES |          |             |          |
| 10° 30'   |  | H                     |  | OVER 0                         | OVER 0.2 | OVER 0.5    | OVER 1.0 |
| SURFACE QUALITY                                     |  | FINISH                |  | TO 0.2                         | TO 0.5   | TO 1.0      | TO 1.0   |
| IN  |  | MICROINCHES           |  | 0.004                          | 0.008    | 0.012       | 0.016    |
|   |  | REF: HED              |  | 0.012                          | 0.016    | 0.025       | 0.031    |
| DRN. <i>Paul Me...</i>                              |  | FIRST USED ON         |  | 4                              |          |             |          |
| CHK'D <i>Book</i>                                   |  | TITLE                 |  | INTERCONNECTING CABLES (VS60)  |          |             |          |
| ENG. <i>...</i>                                     |  | PROJ. ENG. <i>...</i> |  | SIZE                           |          |             |          |
| PROD. <i>...</i>                                    |  | NEXT HIGHER ASSY.     |  | CODE                           |          |             |          |
| MATERIAL  |  | SCALE                 |  | SHEET                          |          | OF          |          |
| SFE 4-PL-VS-2-0-0                                   |  | B-CD-VS-0-0           |  | D                              |          | IC VS60-0-1 |          |
| FINISH  |  | SHEET                 |  | OF                             |          | DIST.       |          |

DEC FORM NO. D10 100-C

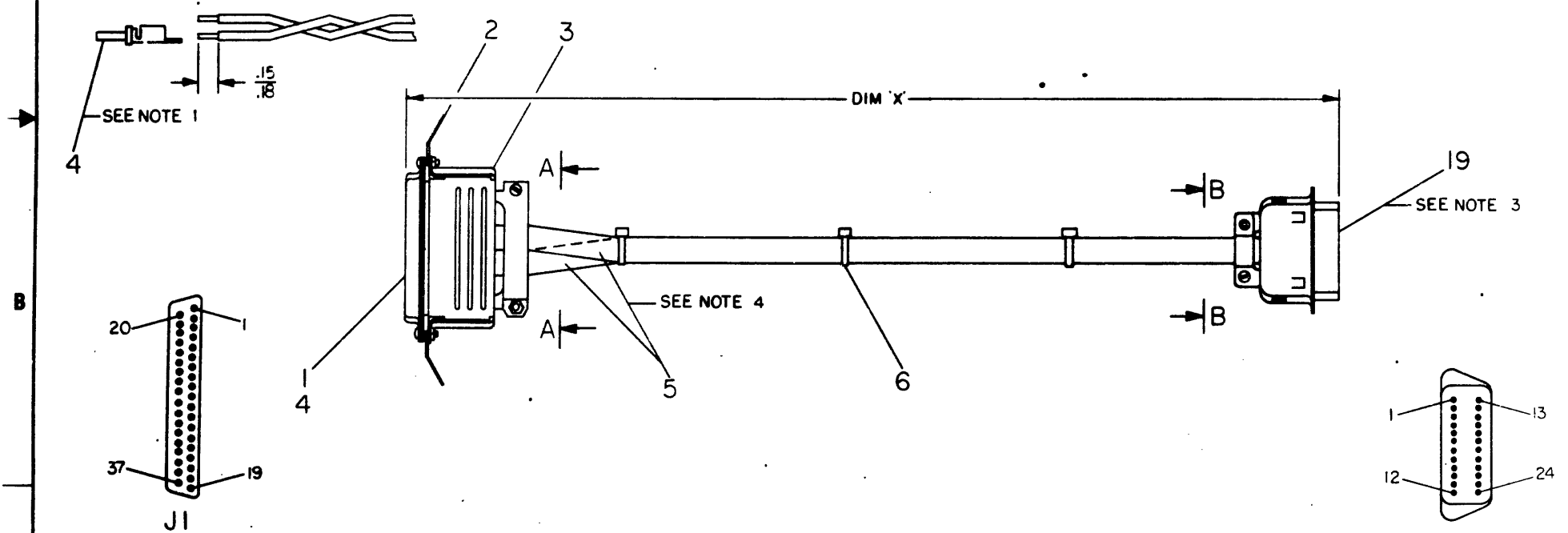


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| WIRE TABLE |        |       |       |        |       |        |            |
|------------|--------|-------|-------|--------|-------|--------|------------|
| ITEM NO.   | AWG    | COLOR | FROM  |        | TO    |        | REMARKS    |
|            |        |       | CONN  | WITH   | CONN  | WITH   |            |
| 14         | 26     | WHT   | J1-1  | 4      | J1-3  | 4      | GND D      |
| 14         |        | WHT   | J1-17 | 4      | J1-3  | 4      | GND D      |
| 14         |        | WHT   |       |        | J1-19 | 4      | GND D      |
| 11         |        | ORN   | PI-5  | SOLDER | J1-19 | 4      | GND D      |
| 7          |        | GRN   | J1-16 | 4      | 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   | J1-12 |        | PI-8  |        | SPARE      |
|            |        | WHT   | J1-30 |        | PI-13 |        | COLOR BUSY |
| 16         | 26 TWP | BLU   | J1-29 | 4      | PI-10 | SOLDER | X IN       |
|            |        | WHT   | PI-9  | SOLDER | J1-28 | 4      | GND A      |
| 14         | 26     | WHT   | J1-31 | 4      |       |        | GND A      |
| 17         | 26 TWP | GRY   | J1-11 | 4      | PI-12 | SOLDER | Y IN       |
|            |        | WHT   | PI-11 | SOLDER |       |        | GND A      |
| 14         | 26     | WHT   | J1-13 | 4      | J1-9  | 4      | GND A      |
| 7          | 26     | GRN   | J1-18 | 4      | PI-15 | SOLDER | COLOR 1    |
| 9          | 26     | BLU   | J1-36 | 4      | PI-14 | SOLDER | COLOR Ø    |

| WIRE TABLE |        |       |       |        |       |        |         |
|------------|--------|-------|-------|--------|-------|--------|---------|
| ITEM NO.   | AWG    | COLOR | FROM  |        | TO    |        | REMARKS |
|            |        |       | CONN  | WITH   | CONN  | WITH   |         |
| 14         | 26     | WHT   | J1-20 | 4      | J1-22 | 4      | GND D   |
| 14         | 26     | WHT   | J1-37 | 4      | J1-22 | 4      | GND D   |
| 14         | 26     | WHT   |       |        | J1-35 | 4      | GND D   |
| 12         | 26 TWP | BLK   | PI-16 | SOLDER | J1-35 | 4      | GND D   |
|            |        | WHT   | J1-6  | 4      | PI-17 | SOLDER | Z IN    |
| 12         | 26 TWP | BLK   | J1-27 | 4      | PI-19 | SOLDER | X MINOR |
| 14         | 26     | WHT   | PI-18 | SOLDER | J1-24 | 4      | GND A   |
| 14         | 26     | WHT   | J1-26 | 4      | J1-33 | 4      | GND A   |
| 15         | 26 TWP | BRN   | J1-8  | 4      | PI-21 | SOLDER | Y MINOR |
|            |        | WHT   | PI-20 | SOLDER | J1-5  | 4      | GND A   |
| 14         | 26     | WHT   | J1-7  | 4      | J1-15 | 4      | GND A   |
| 14         | 26     | WHT   |       |        | J1-15 | 4      | GND A   |
| 14         | 26     | BRN   | J1-25 | 4      | PI-22 | SOLDER | +5V     |
| 8          | 26     | BLK   | J1-32 | 4      | PI-24 | SOLDER | -15V    |
| 7          | 26     | GRN   | J1-14 | 4      | 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 A \* TO BE BUNDLED TOGETHER USING ITEM #5 (TUBING). ALL OTHER WIRES TO BE BUNDLED IN SEPARATE TUBING ALSO USING ITEM #5.



|     |                            |            |    |
|-----|----------------------------|------------|----|
| 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 BLK | 9107636-99 | 14 |
| A/R | WIRE, 26 AWG STRD IPVC WHT | 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             | 122701     | 2  |
|     | CONN. BODY                 | 12244      | 1  |

VIEW A-A  
NO SCALE

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

VIEW B-B  
NO SCALE

| QUANTITY & VARIATION                                |      | DESCRIPTION                    | DWG PART NO | ITEM NO |
|---|------|--------------------------------|-------------|---------|
| UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES |      |                                |             |         |
| CLASS OF ACCURACY                                   |      | NOMINAL DIMENSION RANGE INCHES |             |         |
| ANGLES  | ±.10 | 0.00                           | 0.01        | 0.02    |
| SURFACE QUALITY                                     | 12   | 0.01                           | 0.02        | 0.04    |
| FINISH  | 12   | 0.01                           | 0.02        | 0.04    |
| FINISH  | 12   | 0.01                           | 0.02        | 0.04    |

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL SEE PARTS LIST

FINISH

DRN: [Signature]

CHK: [Signature]

ENG: [Signature]

PROJ: [Signature]

PHYS: [Signature]

DATE: 11/17/75

VS60

CHAPTER CABLE, SCOPE (2)

REV. 1

DATE 11/17/75

DIST



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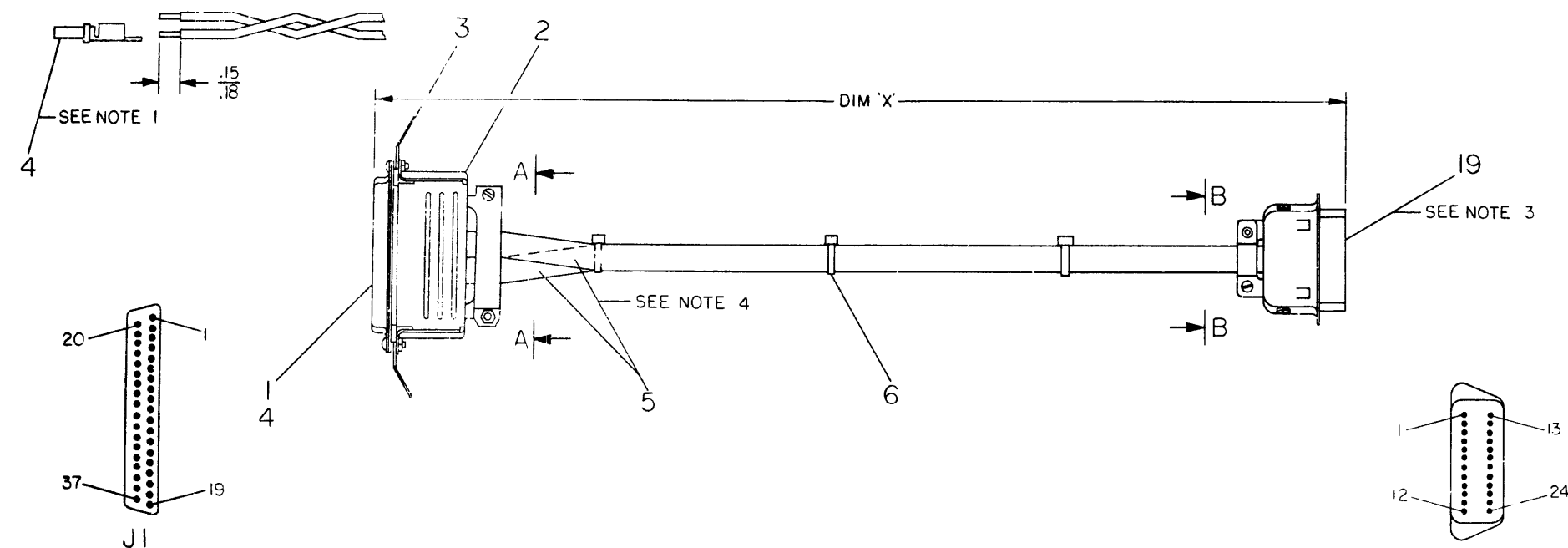
| WIRE TABLE |             |       |       |                    |  |  |  |
|------------|-------------|-------|-------|--------------------|--|--|--|
| ITEM NO.   | DESCRIPTION | FROM  | TO    | REMARKS            |  |  |  |
| 12         | 26 AWG BLK  | J1-16 | PI-2  | SOLDER LP SW 0     |  |  |  |
| 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 SOLDER 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            |  |  |  |
| 11         | 26 AWG CRN  | PI-16 | J1-22 | 4 SOLDER 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 SOLDER +5V REV A |  |  |  |
| 8          | 26 AWG ELK  | J1-28 | J1-8  | 4                  |  |  |  |
| *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  | J1-11 | J1-7  | 4 A GND        |  |  |  |
| 7          | 26 AWG GRN  | J1-2  | PI-15 | SOLDER COLOR 1 |  |  |  |
| 9          | 26 AWG BLU  | J1-21 | PI-14 | SOLDER COLOR 0 |  |  |  |
| *17        | 26 AWG GRY  | J1-32 | PI-22 | SOLDER +5V     |  |  |  |
| 17         | 26 AWG WHT  | J1-14 | PI-17 | SOLDER Z OUT   |  |  |  |
| 12         | 26 AWG BLK  | J1-30 | PI-19 | SOLDER 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.

SEE NOTE 2

SEE NOTE 2



VIEW A-A  
NO SCALE

VIEW B-B  
NO SCALE

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

| ITEM NO. | DESCRIPTION                | DWG./PART NO. | ITEM NO. |
|----------|----------------------------|---------------|----------|
| 1        | CONN, 24 PIN               | 1203466       | 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 BRN | 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                     | 9107244       | 5        |
| 36       | SOCKET CONTACT             | 9009762-00    | 4        |
| 2        | LATCH SPRING               | 1212702       | 3        |
| 1        | JUNCTION SHELL             | 1212701       | 2        |
| 1        | CONN. BODY                 | 1211244       | 1        |

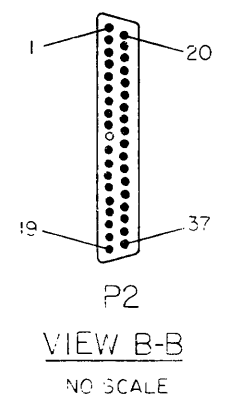
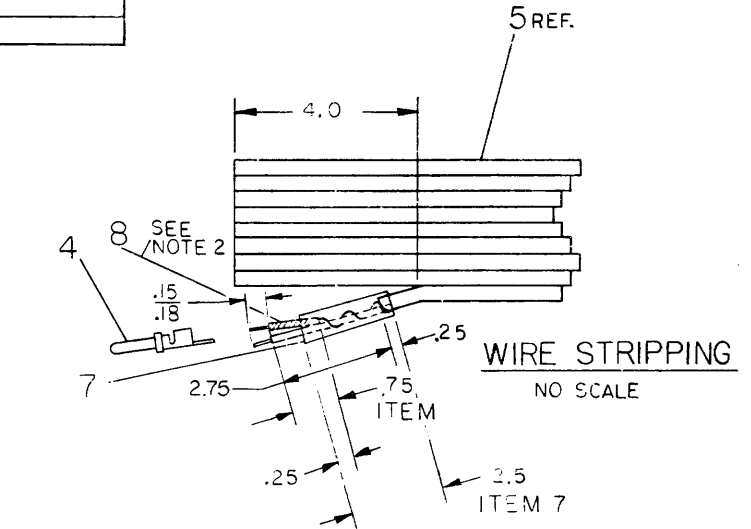
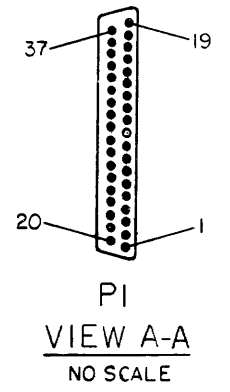
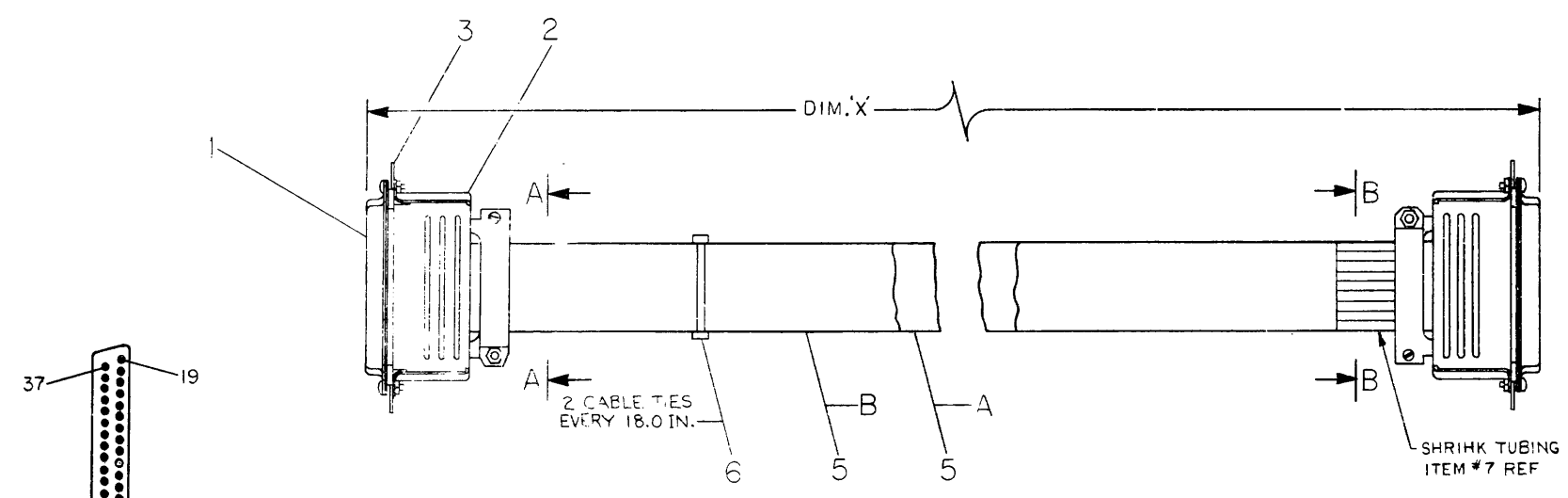
|   |                                     |   |   |
|---|-------------------------------------|---|---|
| QUANTITY & VARIATION                                | DESCRIPTION                         | DWG./PART NO.                             | ITEM NO.                                  |
| UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES |                                     |   |   |
| ANGLES ±0° 30'                                      | CLASS OF ACCURACY (CHECK ONE)       | NOMINAL DIMENSION RANGE INCHES            |   |
| SURFACE QUALITY IN                                  | MEDIUM                              | OVER 0 TO 0.2                             | OVER 0.2 TO 1.2                           |
| MICROINCHES   | PREFERRED                           | ±.004 ±.008 ±.012 ±.016 ±.020 ±.024 ±.028 | ±.004 ±.008 ±.012 ±.016 ±.020 ±.024 ±.028 |
| THIRD ANGLE PROJECTION                              | DRN. <i>Car McG</i> 8-25-75         | FIRST USED ON VS60                        |   |
| REMOVE BURRS AND BREAK SHARP CORNERS                | CHK'D <i>JK</i> 5-Sept-75           | TITLE ADAPTER CABLE, SCOPE (1)            |   |
| DO NOT SCALE DWG                                    | ENG. <i>B. Langston</i> 5-20-75     | NEXT HIGHER ASSY.                         |   |
| MATERIAL SEE PARTS LIST                             | PROJ. ENG. <i>H. H. H.</i> 11-24-75 | SIZE CODE A-PL-VS60-0-0                   |   |
| FINISH  | PROD. <i>W. H. H.</i> 11-24-75      | SCALE 1 OF 1                              |   |
| SHEET   |                                     | DIST.                                     |   |

|      |          |          |       |
|------|----------|----------|-------|
| REV. | DATE     | BY       | CHK'D |
| 1    | 11-24-75 | H. H. H. | JK    |
| 2    | 11-24-75 | H. H. H. | JK    |

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

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

NOTES:  
 1. CRIMP AND ASSEMBLY TOOLS:  
 CCT-DXG-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     | DIM. 'X'       |
|            | VARIATION      |

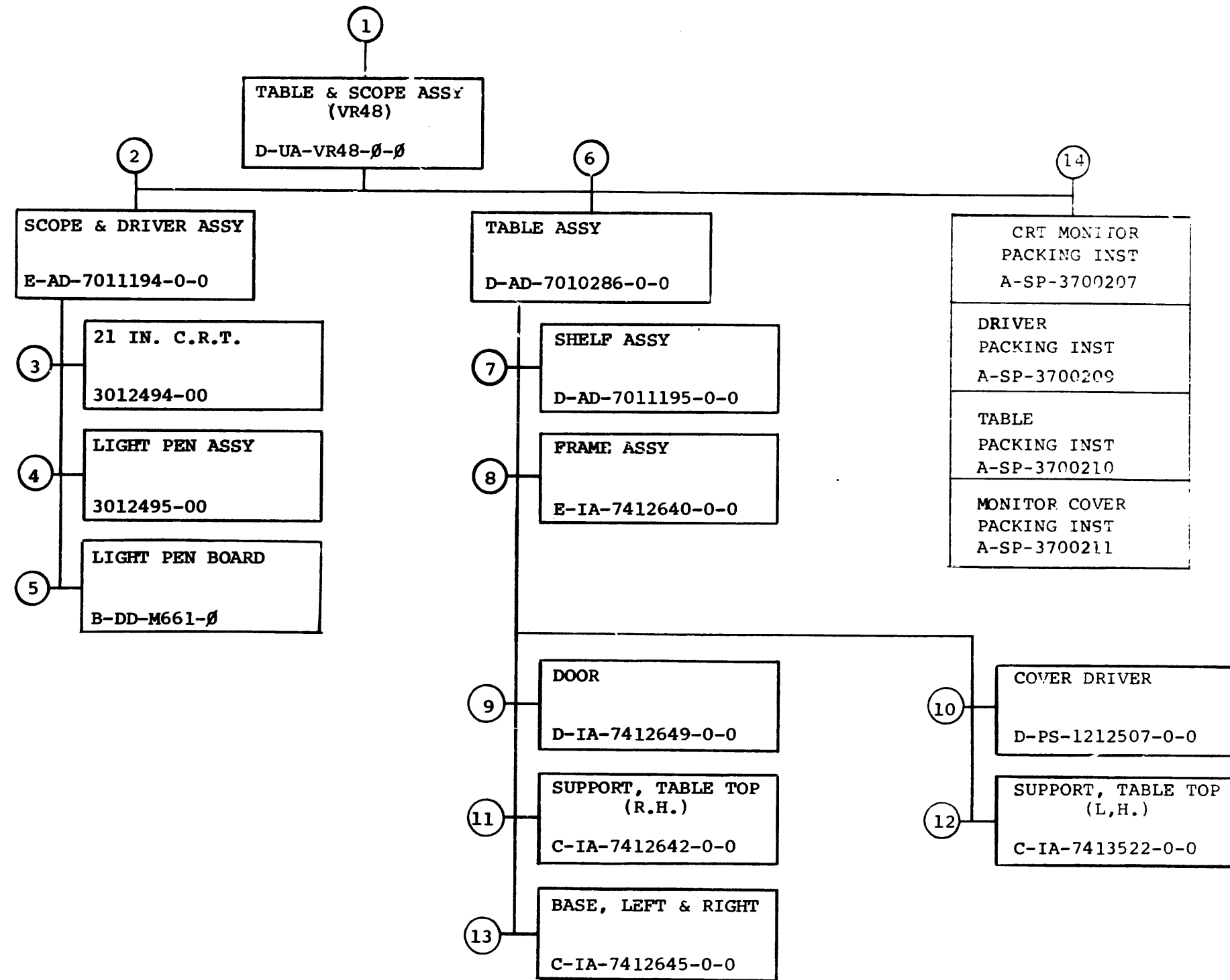
LEGEND

|        |        |                                |            |   |
|--------|--------|--------------------------------|------------|---|
| 1/4" R | 1/4" R | TUBING TFE (BLK) .027 I.D.     | 9107256-00 | 8 |
| 1/4" R | 1/4" R | TUBING, SHRINK (WHT) 3/16 I.D. | 9107305-09 | 7 |
| 1/4" R | 1/4" R | CABLE T.C. 5-3/4 X 3/32 W      | 9007031    | 6 |
| 1/4" R | 1/4" 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 |

|   |                                     |                                |            |            |
|---|-------------------------------------|--------------------------------|------------|------------|
| DESCRIPTION   |                                     | DWG. PART NO.                  |            | ITEM NO.   |
| UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES |                                     |                                |            |            |
| ANGLES<br>45° 30°                                   | CLASS OF<br>ACCURACY<br>(CHECK ONE) | NOMINAL DIMENSION RANGE INCHES |            |            |
|   |                                     | OVER 0 TO 0.2                  | 0.2 TO 0.4 | 0.4 TO 1.0 |
| SURFACE<br>QUALITY IN                               | MEDIUM                              | ±.004                          | ±.008      | ±.012      |
|   |                                     | ±.016                          | ±.020      | ±.025      |
| QUANTITY & VARIATION                                |                                     | MICROINCHES PREFERRED          |            |            |
| DRN. <i>Carl Mc Coy</i>                             | 8-14-75                             | FIRST USED ON                  |            |            |
| CHK'D <i>W.C. Callahan</i>                          | 8-14-75                             | VR48                           |            |            |
| ENG. <i>E. Thompson</i>                             | 5-20-75                             | TITLE                          |            |            |
| PROJ. ENG. <i>James J. S. Jr.</i>                   | 5-20-75                             | CABLE, INTER-SCOPE             |            |            |
| PROD. <i>Edmund</i>                                 | 5-20-75                             | MATERIAL                       |            |            |
| NEXT HIGHER ASSY.                                   |                                     | A-PL-VS60-0-0                  |            |            |
| DO NOT SCALE DWG                                    |                                     | SCALE 1/1                      |            |            |
| SEE PARTS LIST                                      |                                     | SHEET 1/1                      |            |            |
| FINISH  |                                     | DIST. 7011746-00               |            |            |

REVISIONS  
 CHANGE NO. REV.  
 7011746-00001 A  
 H. LAVOIE  
 13-Nov-75





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

| CUSTOMER PRINT SET |          | ELECTRICAL |                  |     |           |                                  | CUSTOMER PRINT SET   |          | ELECTRICAL |                  |     |           |                |                      |
|--------------------|----------|------------|------------------|-----|-----------|----------------------------------|----------------------|----------|------------|------------------|-----|-----------|----------------|----------------------|
| VR48               | 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 |
| 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                  |                      |          |            |                  |     |           |                |                      |

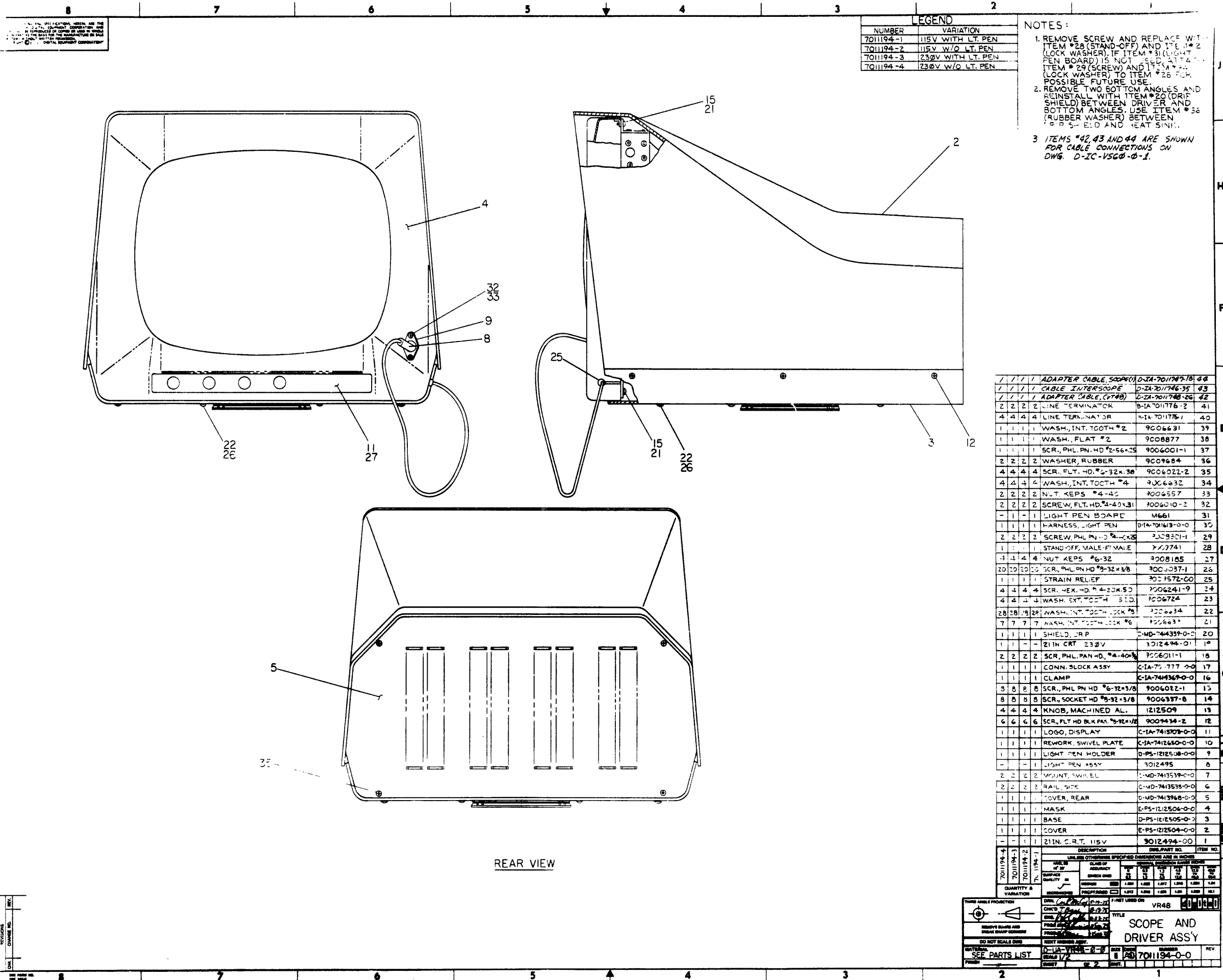
CUSTOMER PRINT SET CODES  
X = PRINT OF DOCUMENT INCLUDED IN PRINT SET  
C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT  
S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED

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

| 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-VR48-Ø-Ø    | #   | 1         | TABLE & SCOPE ASSY (VR48)        |                      |                           |              | 3         | 3012494          | #                | 2         | 21 IN. CRT     |                      |
|                          |          |  | A-PL-VR48-Ø-Ø    | #   | 2         | TABLE & SCOPE ASSY (VR48)        |                      |                           |              |           |                  |                  |           |                |                      |
|                          |          |  | A-PL-VR48-Ø-1    | #   | 1         | TABLE & SCOPE ASSY SHIPPING LIST |                      |                           |              |           |                  |                  |           |                |                      |
|                          |          |  |                  |     |           |                                  |                      |                           |              |           |                  |                  |           |                |                      |
|                          |          |  |                  |     |           |                                  |                      |                           |              | 4         | 3012495          | #                | 1         | LIGHT PEN ASSY |                      |
|                          |          |  |                  |     |           |                                  |                      |                           |              |           |                  |                  |           |                |                      |
|                          |          |  |                  |     |           |                                  |                      |                           |              | X 6       | D-AD-7010286-0-0 | #                | 1         | TABLE ASSY     |                      |
|                          |          |  |                  |     |           |                                  |                      |                           |              |           | D-PS-3412053-0-0 | #                | 1         | TABLE TOP      |                      |
|                          |          |  |                  |     |           |                                  |                      |                           |              |           | D-MD-7412636-0-0 | #                | 1         | PANEL, SIDE    |                      |
|                          |          |  |                  |     |           |                                  |                      |                           |              |           | D-MD-7412637-0-0 | #                | 1         | PANEL, FRONT   |                      |
|                          |          |  |                  |     |           |                                  |                      |                           |              |           | B-IA-7414153-0-0 | #                | 1         | BRKT, ANGLE    |                      |
|                          |          |  |                  |     |           |                                  |                      |                           |              |           | A-SP-1212305-0-0 | #                | 1         | CASTER         |                      |
|                          |          |  |                  |     |           |                                  |                      |                           |              |           |                  |                  |           |                |                      |
|                          |          | 2  | E-AD-7011194-0-0 | #   | 2         | SCOPE & DRIVER ASSY              |                      |                           |              |           |                  |                  |           |                |                      |
|                          |          |  | E-PS-1212504-0-0 | #   | 1         | COVER                            |                      |                           |              |           |                  |                  |           |                |                      |
|                          |          |  | D-PS-1212505-0-0 | #   | 1         | BASE                             |                      |                           |              |           |                  |                  |           |                |                      |
|                          |          |  | E-PS-1212506-0-0 | #   | 2         | MASK                             |                      |                           |              |           |                  |                  |           |                |                      |
|                          |          |  | D-MD-7413968-0-0 | #   | 1         | COVER REAR                       |                      |                           |              |           |                  |                  |           |                |                      |
|                          |          |  | C-MD-7413538-0-0 | #   | 1         | RAIL, SIDE                       |                      |                           |              |           |                  |                  |           |                |                      |
|                          |          |  | C-MD-7413539-0-0 | #   | 1         | MOUNT SWIVEL                     |                      |                           |              |           |                  |                  |           |                |                      |
|                          |          |  | D-PS-1212508-0-0 | #   | 1         | LIGHT PEN HOLDER                 |                      |                           |              |           |                  |                  |           |                |                      |
|                          |          |  | C-IA-7412650-0-0 | #   | 1         | REWORK, SWIVEL PLATE             |                      |                           |              |           | 7                | D-AD-7011195-0-0 | #         | 1              | SHELF ASSY           |
|                          |          |  | C-IA-7413703-0-0 | #   | 1         | LOGO DISPLAY                     |                      |                           |              |           |                  | D-IA-7412638-0-0 | #         | 1              | SHELF                |
|                          |          |  | A-PS-1212509-0-0 | #   | 1         | KNOB, MACHINED ASSY              |                      |                           |              |           |                  | A-PS-1210191-3   | #         | 2              | CIRCUIT BREAKER 15A  |
|                          |          |  | C-IA-7414369-0-0 | #   | 1         | CLAMP                            |                      |                           |              |           |                  | A-PS-1210191-4   | #         | 2              | CIRCUIT BREAKER 6A   |
|                          |          |  | D-MD-7414339-0-0 | #   | 1         | SHIELD, DRIP                     |                      |                           |              |           |                  | A-PS-1209983-0   | #         | 1              | FLANGED INLET        |
|                          |          |  |                  |     |           |                                  |                      |                           |              |           |                  | A-PS-1210203-0-0 | #         | 1              | RECEPTICLE, PWR 125V |
|                          |          |  |                  |     |           |                                  |                      |                           |              |           |                  | A-PS-1210202-0-0 | #         | 1              | RECEPTICLE, PWR 250V |
|                          |          |  |                  |     |           |                                  |                      |                           |              |           |                  |                  |           |                |                      |
| CUSTOMER PRINT SET CODES |          | X = PRINT OF DOCUMENT INCLUDED IN PRINT SET<br>C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT<br>S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED |                  |     |           |                                  | TITLE                | TABLE & SCOPE ASSY (VR48) | SHEET 4 OF 5 | SIZE CODE | B DD             | NUMBER           | VR48-Ø    | REV            | A                    |







|    |    |    |                                    |                  |    |
|----|----|----|------------------------------------|------------------|----|
| 1  | 1  | 1  | ADAPTER CABLE, SCOPE               | D-IA-701194-18   | 40 |
| 1  | 1  | 1  | CABLE INTERSCOPE                   | D-IA-701194-35   | 43 |
| 1  | 1  | 1  | ADAPTER CABLE, (VT#8)              | D-IA-701194-26   | 42 |
| 2  | 2  | 2  | LINE TERMINATOR                    | B-IA-7011776-2   | 41 |
| 4  | 4  | 4  | LINE TERMINATOR                    | B-IA-7011776-1   | 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.30           | 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-7011613-0-0 | 30 |
| 2  | 2  | 2  | SCREW, PHL. PN. HD #4-40x.25       | 9009301-1        | 29 |
| 1  | 1  | 1  | STAND-OFF, MALE-FEMALE             | 7002741          | 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., EX. HD. #4-20x.50            | 9006241-9        | 24 |
| 4  | 4  | 4  | WASH., EXT. TOOTH #1 STD.          | 9006724          | 23 |
| 28 | 28 | 28 | WASH., INT. TOOTH LOCK #5          | 9006634          | 22 |
| 7  | 7  | 7  | WASH., INT. TOOTH LOCK #6          | 9006633          | 21 |
| 1  | 1  | 1  | SHIELD, DRP                        | C-MD-744339-0-0  | 20 |
| 1  | 1  | 1  | 21IN CRT 230V                      | 3012494-01       | 19 |
| 2  | 2  | 2  | SCR., PHL. PAN HD. #4-40x.25       | 9006011-1        | 18 |
| 1  | 1  | 1  | CONN. BLOCK ASSY                   | C-IA-7011777-0-0 | 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 #5-32x3/8          | 9006337-8        | 14 |
| 4  | 4  | 4  | KNOB, MACHINED AL.                 | 1212509          | 13 |
| 4  | 4  | 4  | SCR., FLT. HD. BLK. PAS. #5-32x1/8 | 9009434-2        | 12 |
| 1  | 1  | 1  | LOGO, DISPLAY                      | C-IA-7415703-0-0 | 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                     | 3012495          | 8  |
| 2  | 2  | 2  | MOUNT, SWIVEL                      | C-MD-7413539-0-0 | 7  |
| 2  | 2  | 2  | RAIL, SIDE                         | C-MD-7413539-0-0 | 6  |
| 1  | 1  | 1  | COVER, REAR                        | C-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                    | 3012494-00       | 1  |

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

| DATE     | CLASS OF APPROVAL | REVISION | DESCRIPTION           |
|----------|-------------------|----------|-----------------------|
| 11/15/54 | DRG               | 1        | ISSUED FOR PRODUCTION |
| 11/15/54 | CHKD              | 2        | REVISED               |
| 11/15/54 | APPD              | 3        | APPROVED              |

QUANTITY & VARIATION: 701194-1, 701194-2, 701194-3, 701194-4

FINISH USED ON: VR48

SCOPE AND DRIVER ASSY

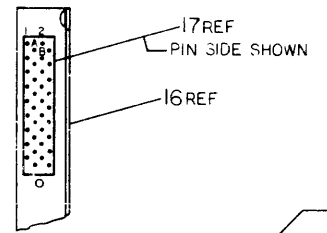
701194-0-0

8 7 6 5 4 3 2 1

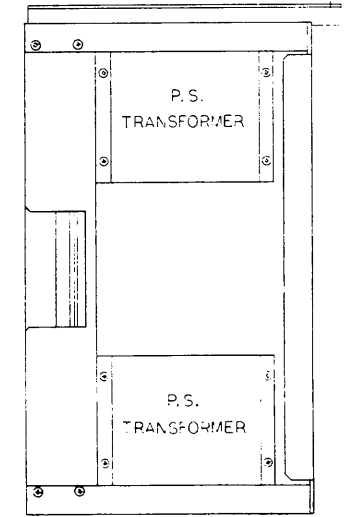
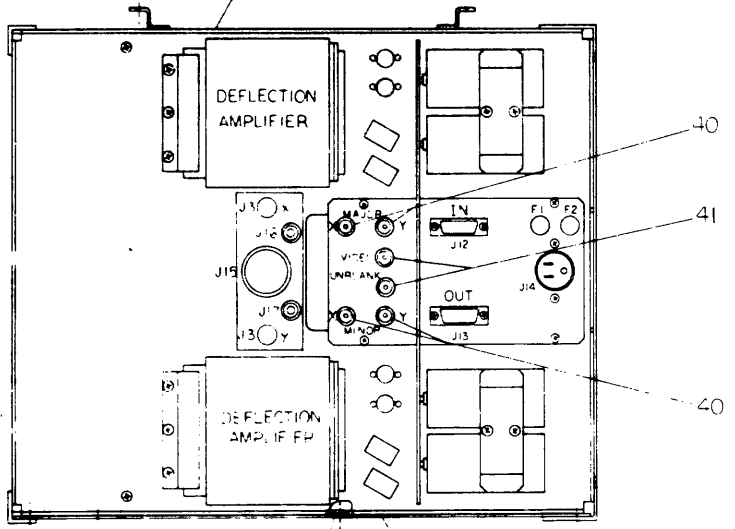
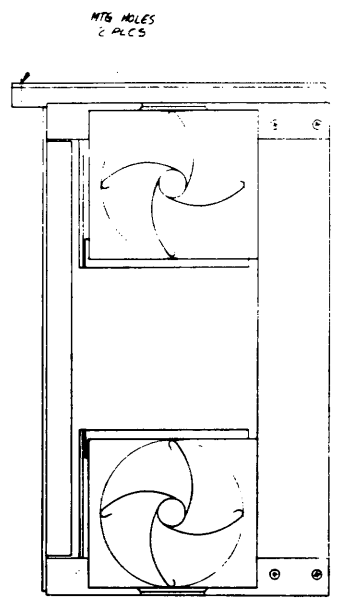
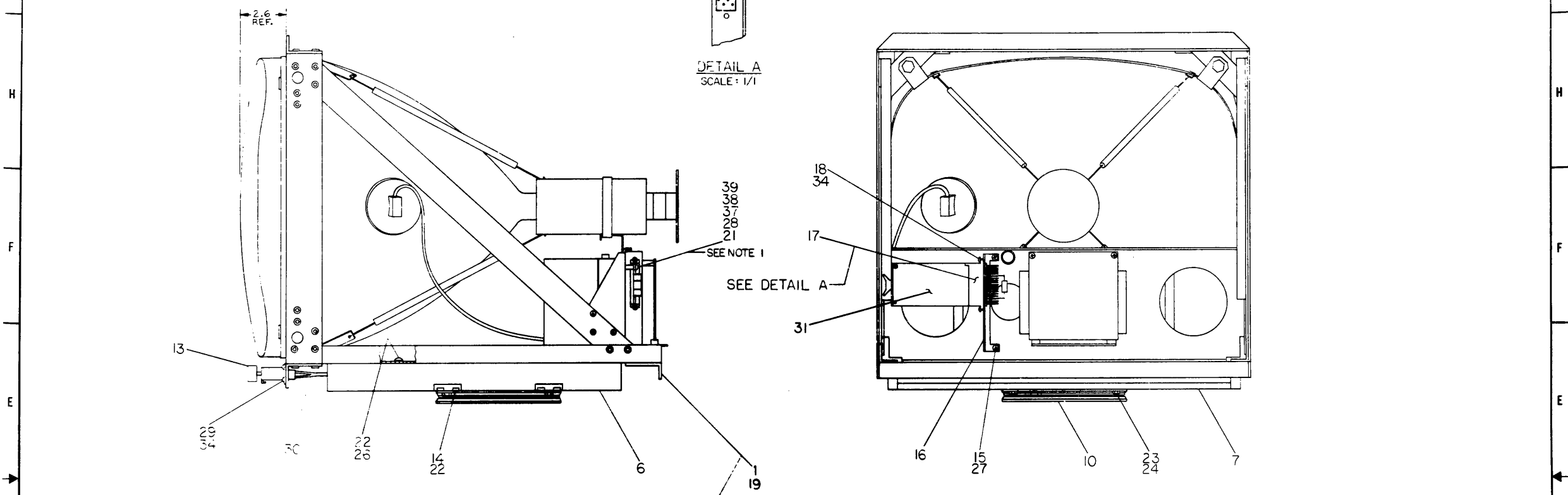
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LIGHT PEN HARNESS CONNECTIONS

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



DETAIL A  
SCALE: 1/1

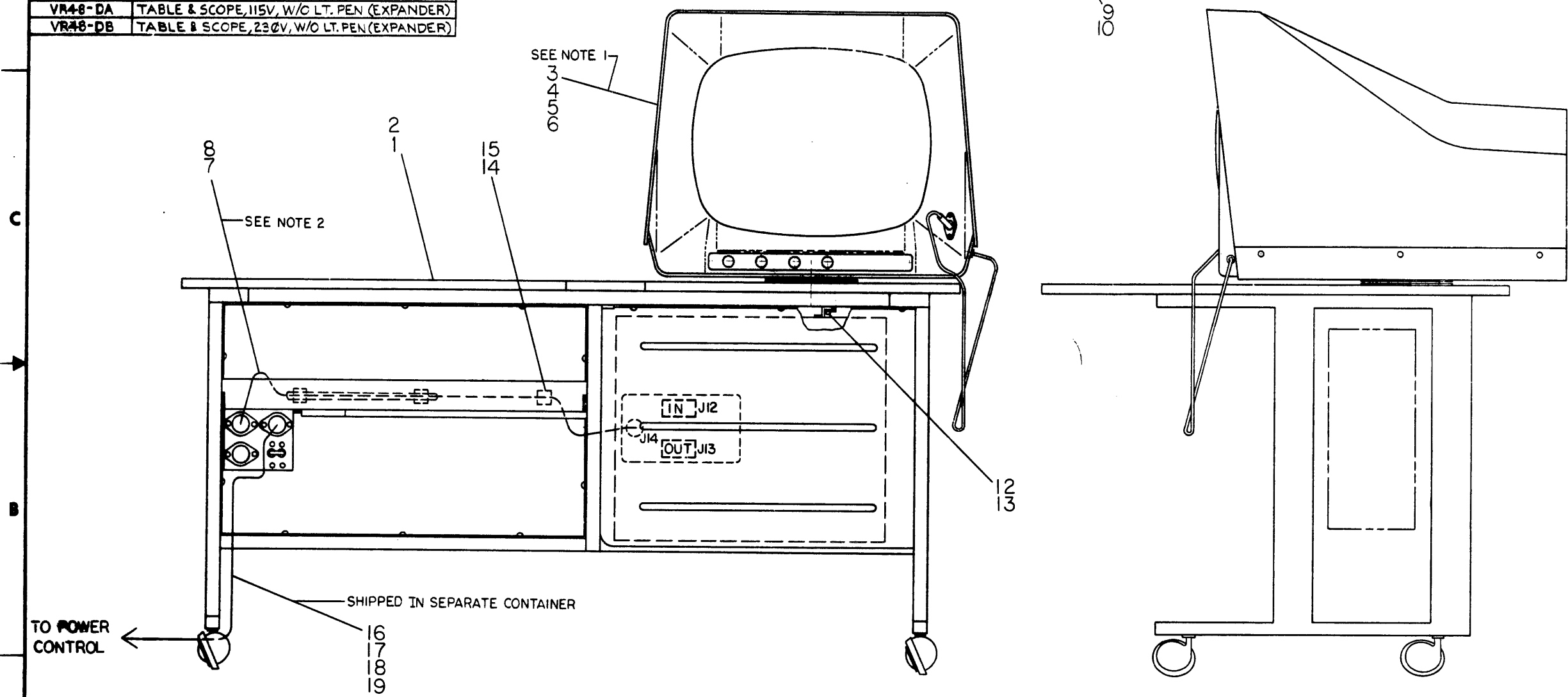


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| LEGEND  |  |
|---------|--|
| NUMBER  | VARIATION                                    |
| VR48-AA | TABLE & SCOPE, 115V, WITH LT. PEN            |
| VR48-AB | TABLE & SCOPE, 230V, WITH LT. PEN            |
| VR48-BA | TABLE & SCOPE, 115V, WITH LT. 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 ASSY FROM TO ASSEMBLY OF MONITOR TO TABLE TOP.  
 2. DRESS BEHIND SHELF AND LOOP EXCESS CORD TO BE HIDDEN FROM VIEW.

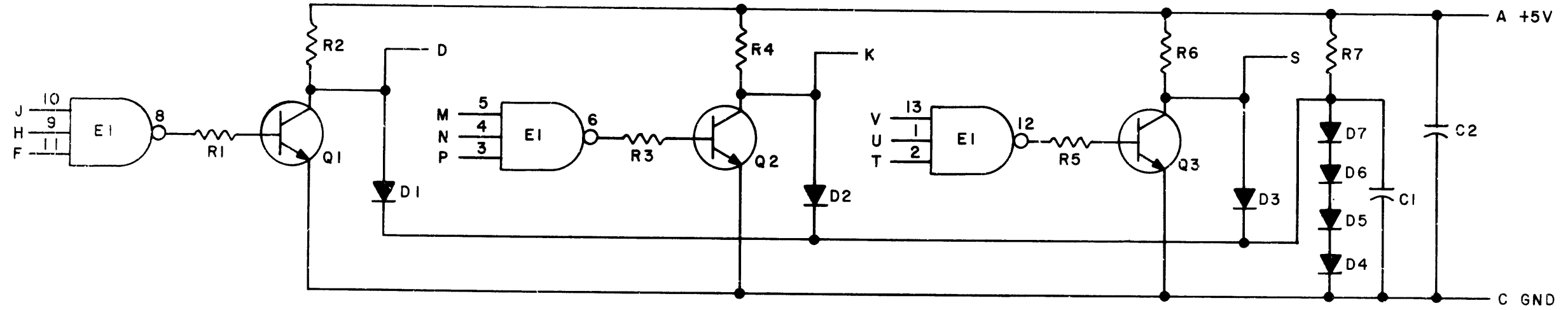


|          |            |
|----------|------------|
| REV.     | A          |
| CHG. NO. | VR48-00002 |
| DATE     | 1 JAN 76   |
| BY       | DK CRABBE  |

|                            |   |                                 |                                |                           |                 |                  |                   |                   |
|----------------------------|---|---------------------------------|--------------------------------|---------------------------|-----------------|------------------|-------------------|-------------------|
| QUANTITY & VARIATION       | DESCRIPTION   | DWG./PART NO.                   | ITEM NO.                       |                           |                 |                  |                   |                   |
|                            | UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES |                                 |                                |                           |                 |                  |                   |                   |
| THIRD ANGLE PROJECTION     | ANGLES 10° 30'                                      | CLASS OF ACCURACY               | NOMINAL DIMENSION RANGE INCHES |                           |                 |                  |                   |                   |
|                            | REMOVE BURRS AND BREAK SHARP CORNERS                | (CHECK ONE)                     | OVER 0 TO 0.2                  | OVER 0.2 TO 1.2           | OVER 1.2 TO 4.0 | OVER 4.0 TO 12.0 | OVER 12.0 TO 40.0 | OVER 40.0 TO 80.0 |
| DO NOT SCALE DWG           | NEXT HIGHER ASSY.                                   | MEDIUM                          | ±.004                          | ±.008                     | ±.012           | ±.016            | ±.024             | ±.04              |
| MATERIAL SEE A-PL-VR48-0-0 | B-DD-VR43-0   | PREFERRED                       | ±.012                          | ±.016                     | ±.025           | ±.04             | ±.063             | ±.1               |
| FINISH                     | SCALE 1/4   | DRN. <i>Carl Moran</i> 5-9-75   | FIRST USED ON                  | VR48                      | digital         |                  |                   |                   |
|                            |   | CHK'D <i>J. Blawie</i> 3-3-75   | TITLE                          | TABLE & SCOPE ASSY (VR48) |                 |                  |                   |                   |
|                            |   | ENG. <i>K. G. ...</i> 11 SEP 75 | SIZE                           | D                         | CODE            | NUMBER           | REV.              |                   |
|                            |   | PROD. <i>...</i> 11 SEP 75      | SCALE                          | 1/4                       | UA              | VR48-0-0         | A                 |                   |
|                            |   |                                 | SHEET                          | OF                        | DIST.           |                  |                   |                   |



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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.      |

PARTS LIST

REVISIONS

|                           |                 |
|---------------------------|-----------------|
| DRN.<br><i>M. Miller</i>  | DATE<br>6-20-68 |
| CHK'D<br><i>M. Miller</i> | DATE<br>6/28/68 |
| ENG.<br><i>TC</i>         | DATE<br>7/7/68  |
| PROD                      | DATE            |

| TRANSISTOR & DIODE CONVERSION CHART |  |        |  |
|-------------------------------------|--|--------|--|
| DEC                                 |  | EIA    |  |
| DEC3009B                            |  | 2N3009 |  |
| D662                                |  | 1N645  |  |
| D664                                |  | 1N3806 |  |



TITLE: POSITIVE LEVEL DRIVER M661

|      |      |          |     |
|------|------|----------|-----|
| SIZE | CODE | NUMBER   | REV |
| B    | CS   | M661-0-1 |     |

PRINTED CIRCUIT REV: A

**DIGITAL EQUIPMENT CORPORATION**  
MAYNARD, MASSACHUSETTS  
**PARTS LIST**

MADE BY D.K.Crabbe  
DATE 5 August 1975  
ENG D.K.Crabbe  
DATE 10 Oct. 1975

CHECKED J.Bisol  
DATE 29 Sept. 1975  
PROD R.E.Powers  
DATE 31 Oct. 1975

SECTION 1  
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.<br>D-UA-VR48-Ø-Ø | SIZE<br>A | CODE<br>PL | NUMBER<br>VR48-Ø-1 | REV.<br>A | ECO NO.<br>VR48-Ø-Ø-Ø2 |
|                                   | SHEET 1 OF 1              | DIST.     |            |                    |           |                        |



EQUIPMENT CORPORATION  
MAYNARD MASSACHUSETTS

# DRAWING DIRECTORY

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## CUSTOMER PRINT SET INDEX

SEQUENCE

SEQUENCE

|                     |                |
|---------------------|----------------|
| PROCESSOR VT48      | D-UA-VT48-Ø-Ø  |
| DWG. DIR. A321      | B-DD-A321-Ø    |
| DWG. DIR. A322      | B-DD-A322-Ø    |
| DWG. DIR. M7Ø51     | B-DD-M7Ø51-Ø   |
| DWG. DIR. M7Ø52     | B-DD-M7Ø52-Ø   |
| DWG. DIR. M7Ø53     | B-DD-M7Ø53-Ø   |
| DWG. DIR. M7Ø54     | B-DD-M7Ø54-Ø   |
| DWG. DIR. M7Ø55     | B-DD-M7Ø55-Ø   |
| DWG. DIR. M7Ø56     | B-DD-M7Ø56-Ø   |
| DWG. DIR. M7Ø57     | B-DD-M7Ø57-Ø   |
| DWG. DIR. M7Ø58     | B-DD-M7Ø58-Ø   |
| DWG. DIR. M7Ø59     | B-DD-M7Ø59-Ø   |
| POWER SUPPLY H7Ø7Ø  | B-DD-H7Ø7Ø-Ø   |
| WIRELIST (VT48)     | K-WL-VT48-Ø-WL |
| SHIPPING LIST       | A-PL-VT48-Ø-1  |
| AWT REVISION STATUS | A-WT-7011429-0 |

THIS IS PRINT SET

| VAR     | TITLE                 | PRINT SET |  |  |
|---------|-----------------------|-----------|--|--|
|         |                       |           |  |  |
| VT48-AA | PROCESSOR VT48 (115V) | X         |  |  |
| VT48-AB | PROCESSOR VT48 (23ØV) | X         |  |  |
|         |                       |           |  |  |
|         |                       |           |  |  |
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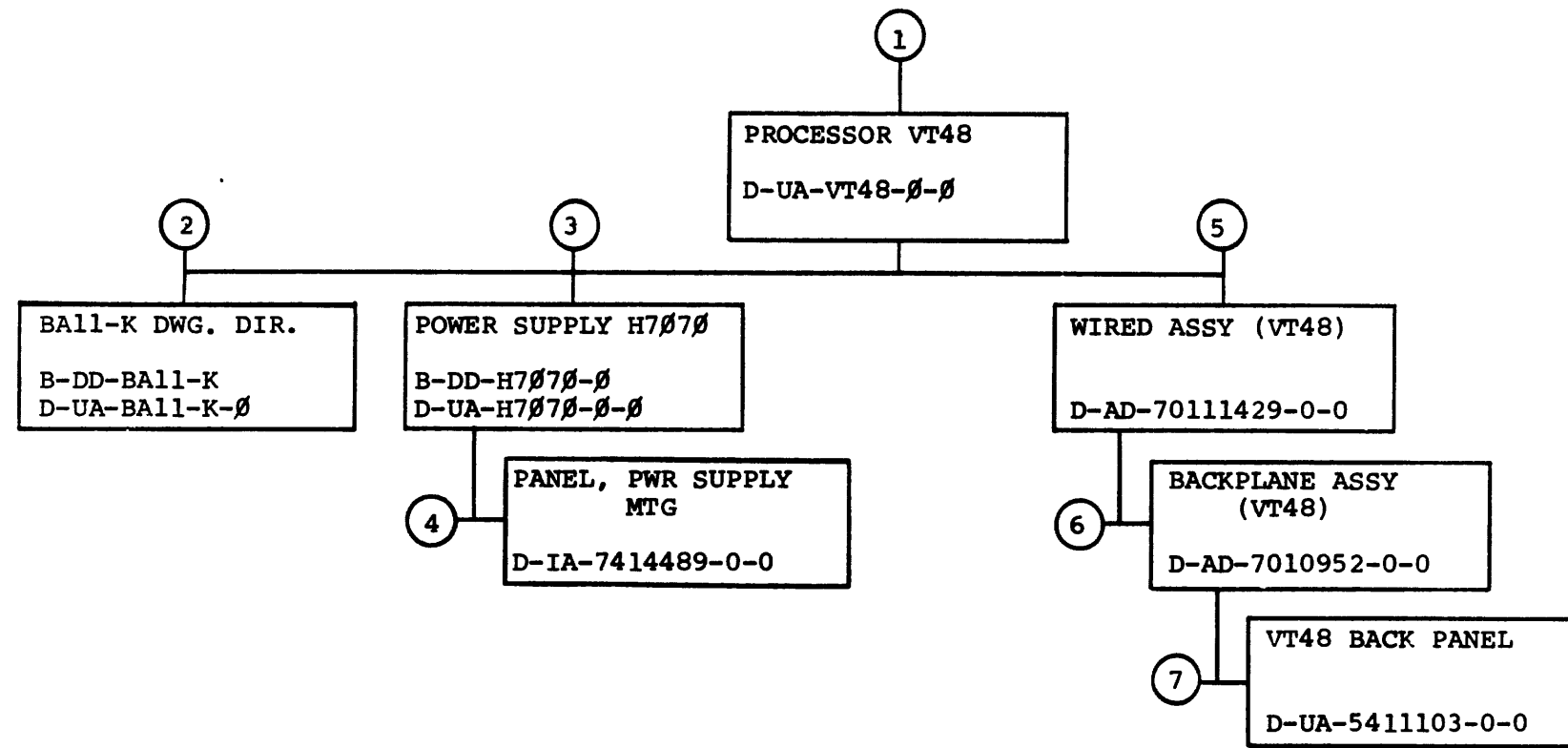
EN-01062-1A-16-R972-(325)

|          |        |
|----------|--------|
| REV      | A      |
| CHG. NO. | VT48-1 |
| DATE     | 12-75  |

DRB 106

|                      |                   |           |                 |      |        |
|----------------------|-------------------|-----------|-----------------|------|--------|
| USED ON OPTION/MODEL | DRN               | DATE      | TITLE           |      |        |
| VT48                 | <i>J. Bion</i>    | 15 OCT 75 | PROCESSOR, VT48 |      |        |
|                      | CHK'D             | DATE      |                 |      |        |
|                      | <i>Bob Castle</i> | 27 Oct 75 |                 |      |        |
|                      | PROJ ENG.         | DATE      |                 |      |        |
|                      | <i>Harold</i>     | 27 Oct 75 |                 |      |        |
|                      | PROD.             | DATE      | SIZE            | CODE | NUMBER |
|                      | <i>RE</i>         | 27 Oct 75 | B               | DD   | VT48-Ø |
|                      | FIELD SERV.       | DATE      |                 |      | REV    |
|                      | <i>Bob</i>        | 27 Oct 75 |                 |      | A      |
| SHEET 1 OF 4         |                   |           | DIST            |      |        |





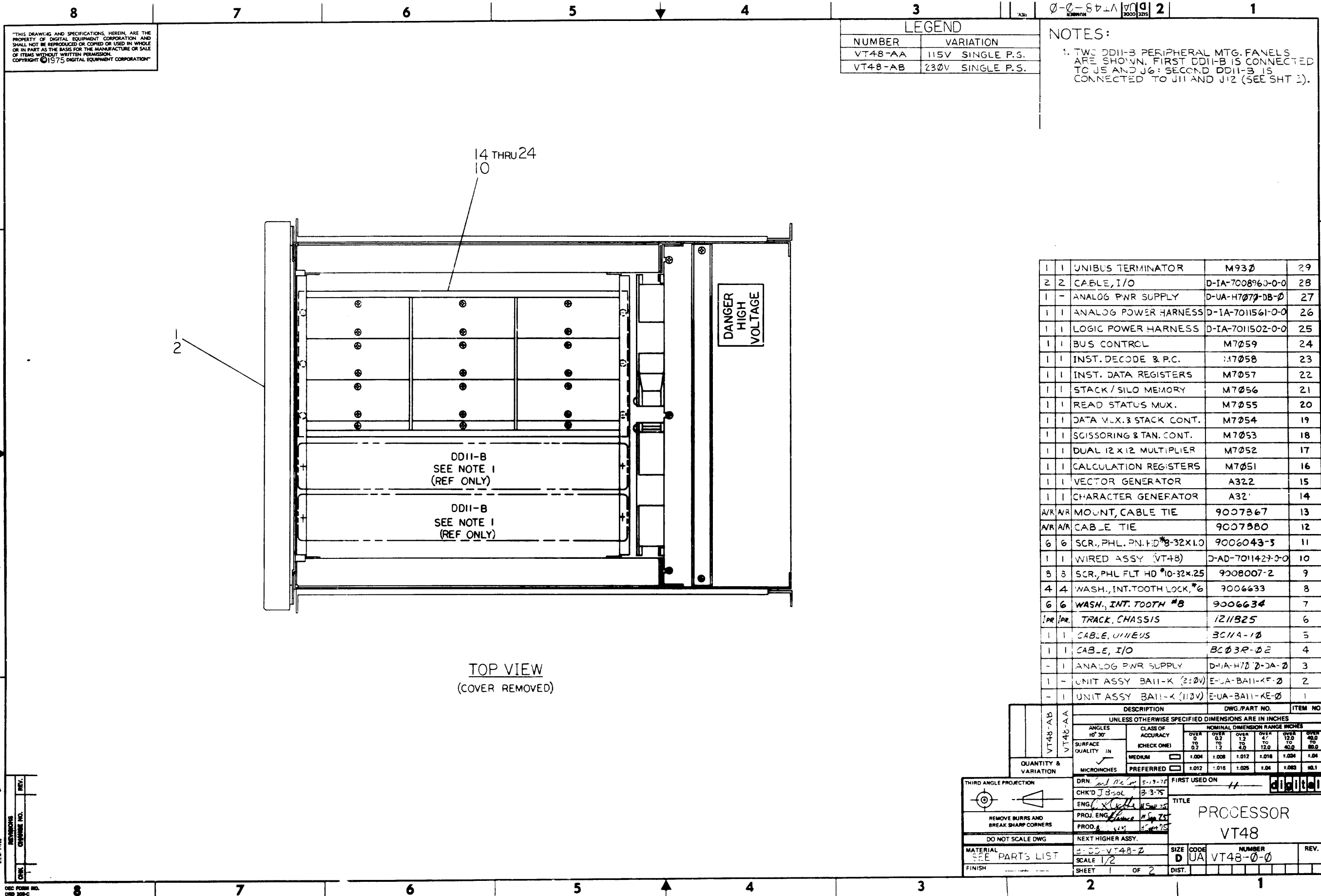
| TITLE           | SHEET | OF | SIZE | CODE | NUMBER | REV |
|-----------------|-------|----|------|------|--------|-----|
| PROCESSOR, VT48 | 2     | OF | 4    | B DD | VT48-Ø | A   |



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

|     |     |                             |                  |    |
|-----|-----|-----------------------------|------------------|----|
| 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 (230V)     | E-IA-BA11-KF-0   | 2  |
| -   | 1   | UNIT ASSY BA11-K (115V)     | E-UA-BA11-KE-0   | 1  |

TOP VIEW  
(COVER REMOVED)

| DESCRIPTION   |                      | DWG./PART NO.                  | ITEM NO.   |
|---|----------------------|--------------------------------|------------|
| UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES |                      |                                |            |
| ANGLES<br>10° 30'                                   | CLASS OF<br>ACCURACY | NOMINAL DIMENSION RANGE INCHES |            |
| SURFACE<br>QUALITY                                  | (CHECK ONE)          | OVER<br>TO                     | OVER<br>TO |
| IN  | MEDIUM               | 0.004                          | 0.008      |
| MICROINCHES   | PREFERRED            | 0.012                          | 0.016      |
| QUANTITY &<br>VARIATION                             |                      | 0.025                          | 0.031      |
|   |                      | 0.04                           | 0.051      |
|   |                      | 0.063                          | 0.081      |
|   |                      | 0.1                            | 0.125      |
|   |                      | 0.156                          | 0.2        |
|   |                      | 0.25                           | 0.315      |
|   |                      | 0.375                          | 0.5        |
|   |                      | 0.5                            | 0.625      |
|   |                      | 0.75                           | 1.0        |
|   |                      | 1.0                            | 1.25       |
|   |                      | 1.5                            | 2.0        |
|   |                      | 2.0                            | 2.5        |
|   |                      | 3.0                            | 3.75       |
|   |                      | 5.0                            | 5.0        |
|   |                      | 7.5                            | 7.5        |
|   |                      | 10.0                           | 10.0       |
|   |                      | 15.0                           | 15.0       |
|   |                      | 20.0                           | 20.0       |
|   |                      | 30.0                           | 30.0       |
|   |                      | 40.0                           | 40.0       |
|   |                      | 50.0                           | 50.0       |
|   |                      | 60.0                           | 60.0       |
|   |                      | 70.0                           | 70.0       |
|   |                      | 80.0                           | 80.0       |
|   |                      | 90.0                           | 90.0       |
|   |                      | 100.0                          | 100.0      |

| REV. | DESCRIPTION            |
|------|------------------------|
| 1    | ISSUED FOR MANUFACTURE |
| 2    | REVISIONS              |
| 3    | CHANGE NO.             |
| 4    | DATE                   |

DEC FORM NO. 100-100-C

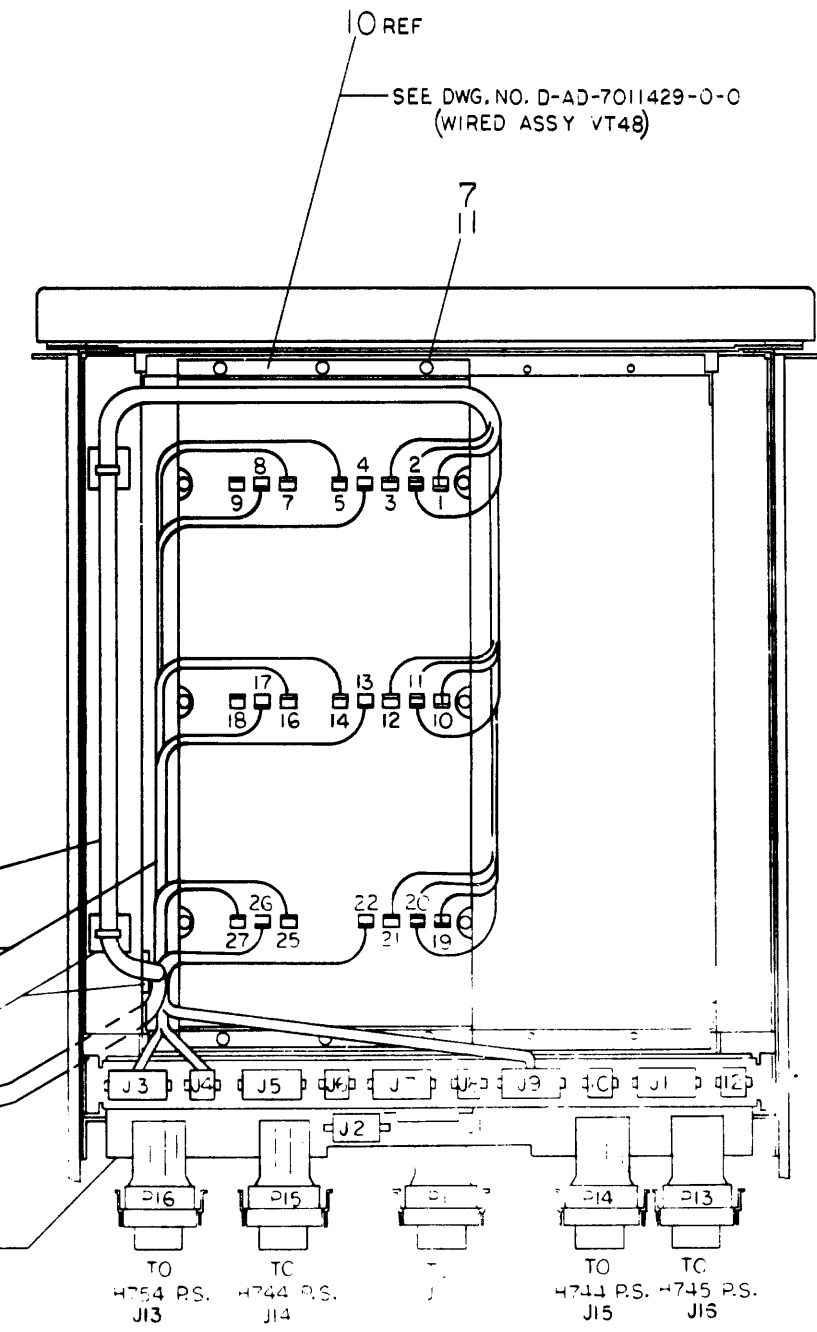
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### INTERCONNECTIONS

| 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 |   |



SEE DWG. NO. D-1A-7011561-0-0  
(ANALOG POWER HARNESS)

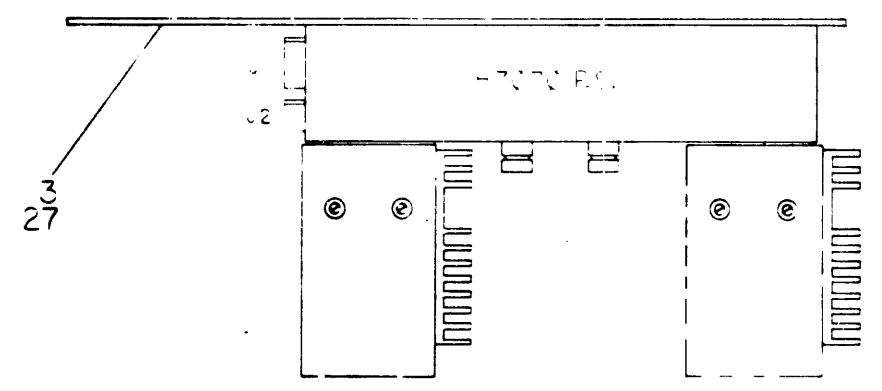
SEE DWG. NO. D-1A-7011502-0-0  
(LOGIC POWER HARNESS)

TO J13 J2  
H7070 P.S.

SEE DWG. NO. D-CS-5410864-0-1  
(POWER DISTRIBUTION BOARD)

TO H754 P.S. J13  
TC H744 P.S. J14

TO H744 P.S. J15  
TC H745 P.S. J15



| REVISIONS |            |      |
|-----------|------------|------|
| CHK       | CHANGE NO. | REV. |
|           |            |      |

### CUSTOMER PRINT SET INDEX

SEQUENCE

GT48 CHARACTER GENERATOR  
GT48 CHARACTER GENERATOR

D-UA-A321-Ø-Ø  
D-CS-A321-Ø-1

SEQUENCE

THIS IS PRINT SET [ ] [ ] [ ] [ ] [ ]

| UNIT VARIATIONS |                          | PRINT SET |  |  |  |
|-----------------|--------------------------|-----------|--|--|--|
| VAR             | TITLE                    |           |  |  |  |
| A321            | GT48 CHARACTER GENERATOR |           |  |  |  |
|                 |                          |           |  |  |  |
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|                 |                          |           |  |  |  |

DEC 16-13251-1062-1A-R-972

| <b>REVISIONS</b> <table><thead><tr><th>REV</th><th>CHG. NO.</th><th>DATE</th></tr></thead><tbody><tr><td>A</td><td>1000</td><td>12-16-75</td></tr></tbody></table> |  | REV                        | CHG. NO. | DATE        | A | 1000                     | 12-16-75 | <b>USED ON OPTION/MODEL</b> |  | <b>DATE</b>   |  | <b>TITLE</b> |            |  |  |  |
|--|--|----------------------------|----------|-------------|---|--------------------------|----------|-----------------------------|--|---------------|--|--------------|------------|--|--|--|
|  |  | REV                        | CHG. NO. | DATE        |   |                          |          |                             |  |               |  |              |            |  |  |  |
|  |  | A                          | 1000     | 12-16-75    |   |                          |          |                             |  |               |  |              |            |  |  |  |
| GT48   |  | [Signature]                |          | 75 SEP 75   |   | GT48 CHARACTER GENERATOR |          |                             |  |               |  |              |            |  |  |  |
|  |  | PROJ. ENG.                 |          | [Signature] |   | 75 SEP 75                |          |                             |  |               |  |              |            |  |  |  |
|  |  | PROD.                      |          | [Signature] |   | 25 SEP 75                |          | <b>SIZE CODE</b>            |  | <b>NUMBER</b> |  |              | <b>REV</b> |  |  |  |
|  |  | FIELD SERV.                |          | [Signature] |   | 22 SEP 75                |          | B DD                        |  | A321-Ø        |  |              | A          |  |  |  |
|  |  | <b>SHEET</b> 1 <b>OF</b> 2 |          |             |   |                          |          | <b>DIST</b>                 |  |               |  |              |            |  |  |  |

CUSTOMER  
PRINT SET

MFG SET

REVISION CONTROL SHEET

DRAWING NO

NO  
OF  
SHT

DESCRIPTION

OPTION  
NO/FILE  
DATE

REVISIONS

D-UA-A321-0-0

5

GT48 CHARACTER GENERATOR

B C

D-CS-A321-2-1

3

GT48 CHARACTER GENERATOR

C

K-CO-A321-0-4

1

GT48 CHARACTER GENERATOR  
(CALDEC DATA BASE)

C C

D-AH-A321-0-5

2

GT48 CHARACTER GENERATOR

B C

B-MH-A321-0-6

1

MODULE ECO HISTORY

- A

5011051

-

ETCH CIRCUIT BOARD

C C

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  
00001

TITLE

GT48 CHARACTER GENERATOR

SHEET 2 OF 2

SIZE CODE

B DD

NUMBER

A321-0

REV

A

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**NOTES:**

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

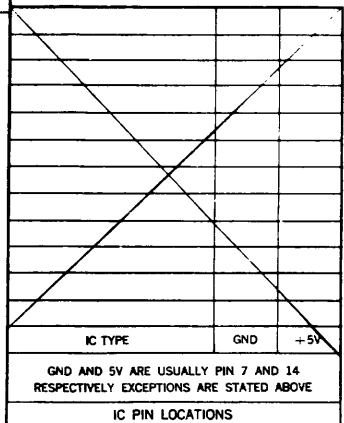
|                |     |     |     |     |      |
|----------------|-----|-----|-----|-----|------|
| PACKAGE TYPE   | VCC | GND | ANG | GAL | -VCC |
| 16 PIN DIP     | 16  | 9   | -   | -   | -    |
| 14 PIN DIP     | 14  | 7   | -   | -   | -    |
| I.C. DEC 318   | 7   | -   | -   | -   | 4    |
| I.C. DEC 0002  | 1,2 | -   | -   | -   | 4,5  |
| I.C. DEC 301   | 7   | -   | -   | -   | 4    |
| I.C. DEC 75452 | 9   | 4   | -   | -   | 6    |
- TAB ORIENTATION OF TRANSISTORS Q9, Q10 & Q11 ARE AS SHOWN.
- POLARITY OF CAPACITORS C12, C15, C16, C18, C22, C24 & C27 HAVE BEEN REVERSED TO POSITIONS SHOWN.
- FOR REWORK INSTRUCTIONS, SEE SHEET #2.

| QTY | REF. DESIGNATION | DESCRIPTION                 | PART NO.   | ITEM NO. |
|-----|------------------|-----------------------------|------------|----------|
| 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    | 59       |
| 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) | 23269A2    | 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) | 23264A2    | 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) | 23268A2    | 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. 100PF, 5%, 100V        | 1002606    | 73       |
| 4   | SEE SHEET #2     | GRIPLET                     | 1210244    | 74       |

| QTY | REF. DESIGNATION                                | DESCRIPTION                    | PART NO.   | ITEM NO. |
|-----|---|--------------------------------|------------|----------|
| 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       |
| 9   | Q1 THRU Q8                                      | 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. HI200-5 DUAL ANALOG SW    | 2111285-02 | 42       |
| 2   | E4, E9  | I.C. DEC D002                  | 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 74S11                 | 1910537    | 47       |
| 1   | E16   | I.C. DEC 74S10                 | 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       |

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REVISIONS

|     |            |     |
|-----|------------|-----|
| CHG | CHANGE NO. | REV |
|     |            |     |
|     |            |     |
|     |            |     |

DATE 6/19/78

CHK D

ENG

PROJ. ENG.

PROD.

NEXT HIGHER ASSY

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

SCALE      SHEET OF 5

ETCH BOARD REV

DR. DATE

CHK D. DATE

ENG. DATE

PROJ. ENG. DATE

PROD. DATE

TITLE

**digital**

GT48 CHARACTER GENERATOR

SIZE CODE DUA321-0-0

NUMBER 0-0

REV. C

SEMICONDUCTOR CONVERSION CHART



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### REWORK INSTRUCTIONS

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

- 1. CUT ETCH AT E16(10).
- 2. CUT ETCH AT E17(5).

ETCH CUTS SIDE #2 AS SHOWN (SEE SHEET #3)

- 1. CUT ETCH AT E17(5).

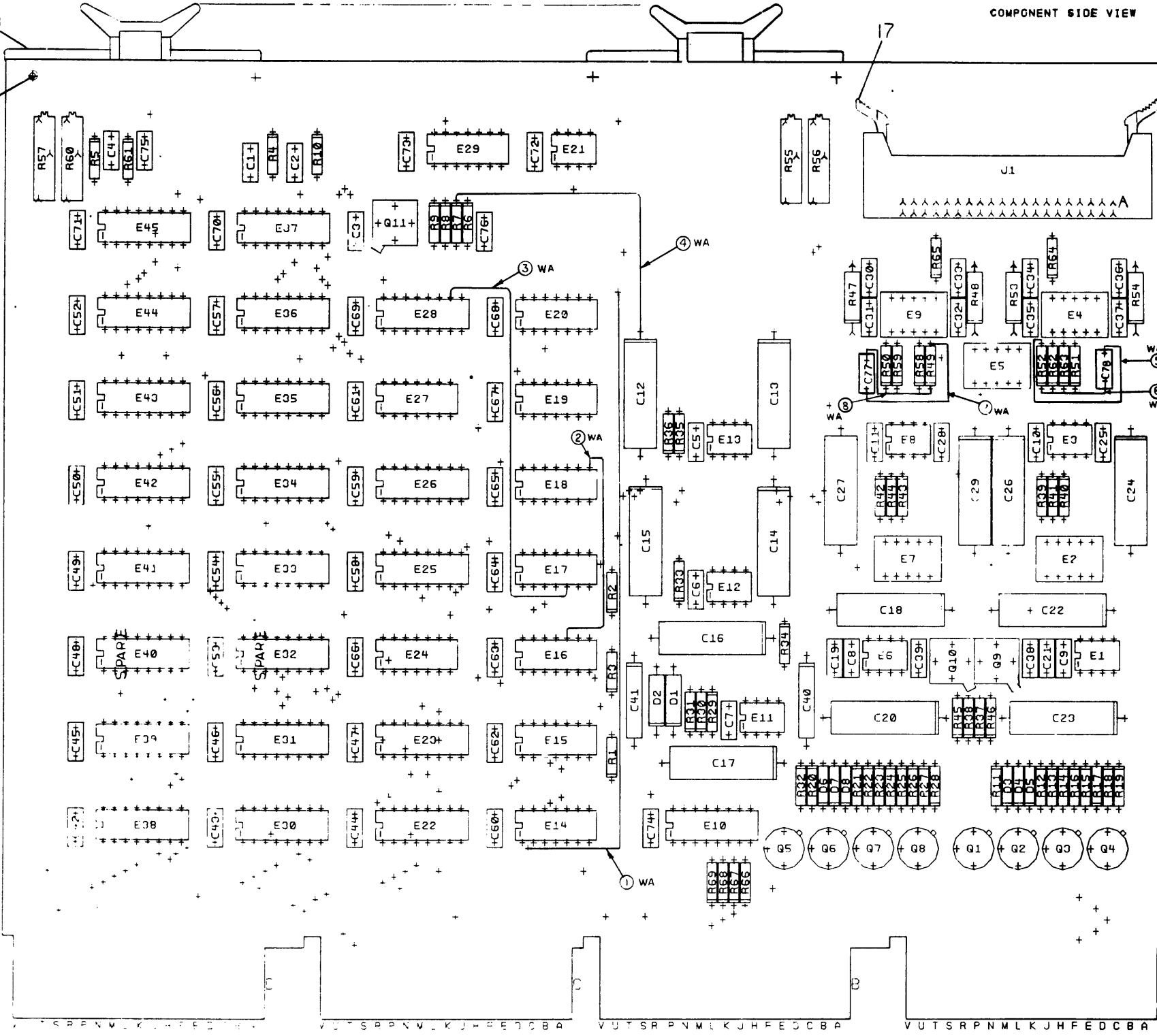
WIRE ADDS SIDE #1 AS SHOWN (ITEM #10) (SEE SHEET #3)

- 1. ADD WIRE FROM PTH HEAD E11(1) TO PTH TO THE RIGHT OF C13(2).
- 2. ADD WIRE FROM E16(10) TO C12(2).
- 3. ADD WIRE FROM E17(5) TO C12(2).
- 4. ADD WIRE FROM C12 TO R1.
- 5. ADD WIRE FROM C78 TO R52.
- 6. ADD WIRE FROM C78 TO R42.
- 7. ADD WIRE FROM C77 TO R49.
- 8. ADD WIRE FROM C77 TO R49.

DRILL HOLES (SEE SHEET #3).

- 1. DRILL (4) HOLES AS PER SHEET #3 AND INSTALL GRIPLETS. HOLE = .54 DRILL.

70(QTY 6)



NOTES:

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CHANGE NO. REV.

| SIGNATURES                    | DATE    |
|-------------------------------|---------|
| DRN. <i>[Signature]</i>       | 6/27/77 |
| CHK'D <i>[Signature]</i>      | 7/11/77 |
| ENG. <i>[Signature]</i>       | 7/11/77 |
| PROJ. ENG. <i>[Signature]</i> | 7/11/77 |
| PROD. <i>[Signature]</i>      | 7/22/77 |

|                           |             |                    |       |
|---------------------------|-------------|--------------------|-------|
| TITLE CHARACTER GENERATOR |             |                    |       |
| SCALE 2 TO 1              | SIZE CODE D | NUMBER UA A321-0-0 | REV C |
| SHT. 2 OF 5               |             |                    |       |
| ETCH REV C FIRST USED ON  |             |                    |       |

1 MS# 30097

8

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DUA A321-0-0 2

1

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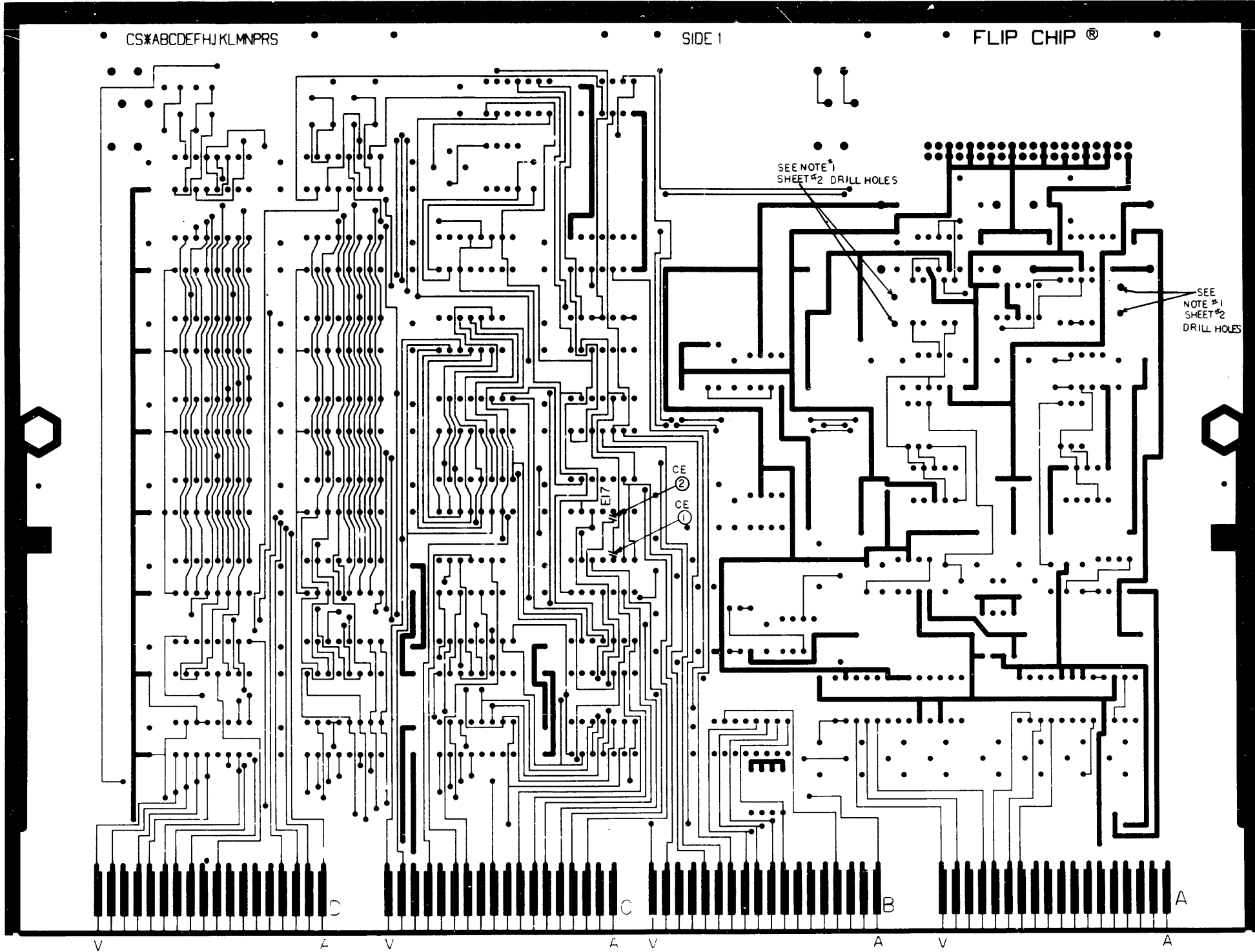
MS30097 A321 5011051C

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DUA A321-0-0

| REVISIONS |           |     |
|-----------|-----------|-----|
| CHK       | CHANGE NO | REV |
|           |           |     |

(SIDE 1)

|       |                          |           |               |        |  |      |   |
|-------|--------------------------|-----------|---------------|--------|--|------|---|
| TITLE | GT48 CHARACTER GENERATOR | SIZE CODE | D UA A321-0-0 | NUMBER |  | REV. | C |
| SCALE | 2 TO 1                   | SHEET     | 3 OF 5        | DIST.  |  |      |   |

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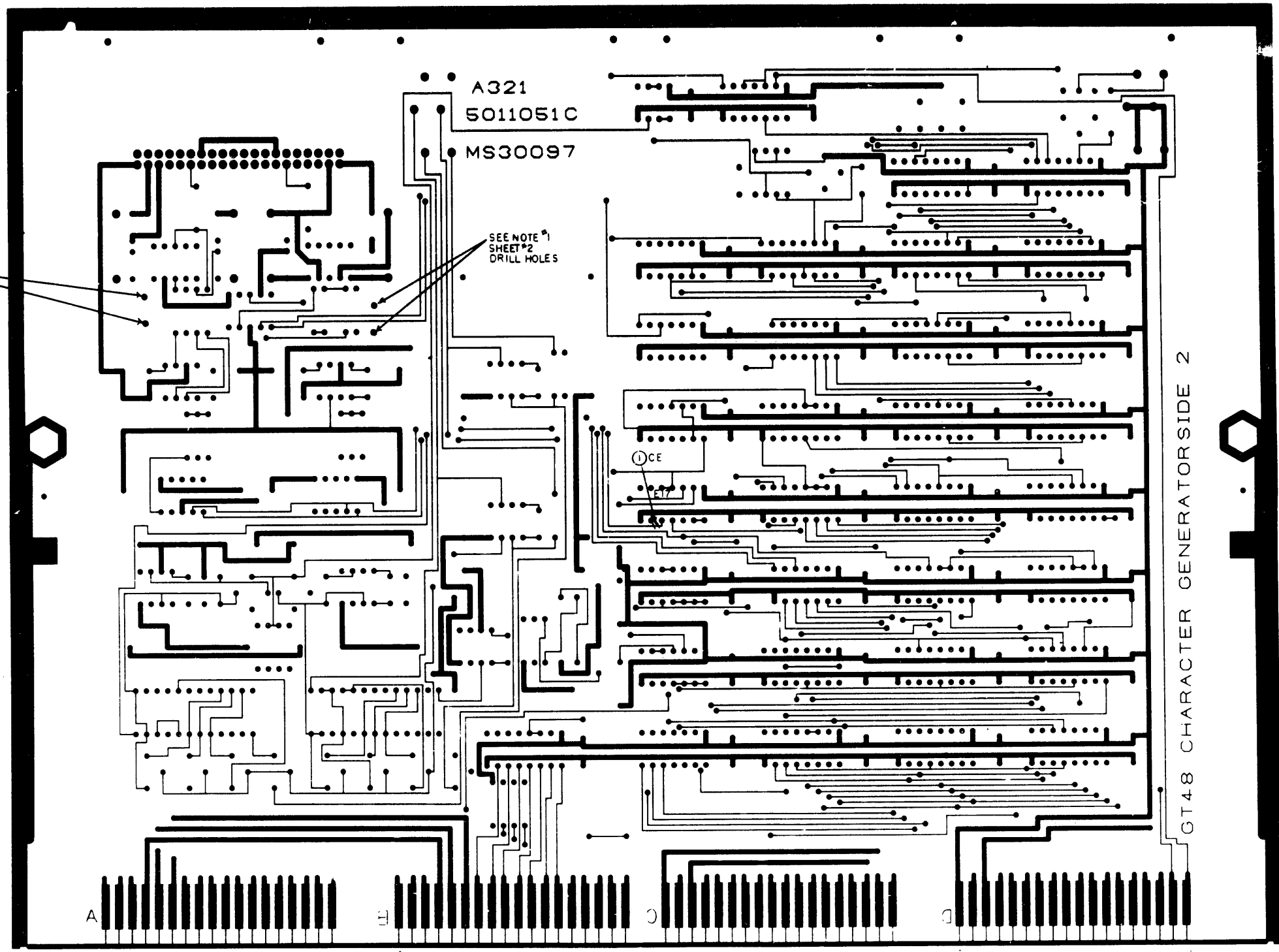
4

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1

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SEE NOTE #1 SHEET #2 DRILL HOLES

A321  
5011051C  
MS30097

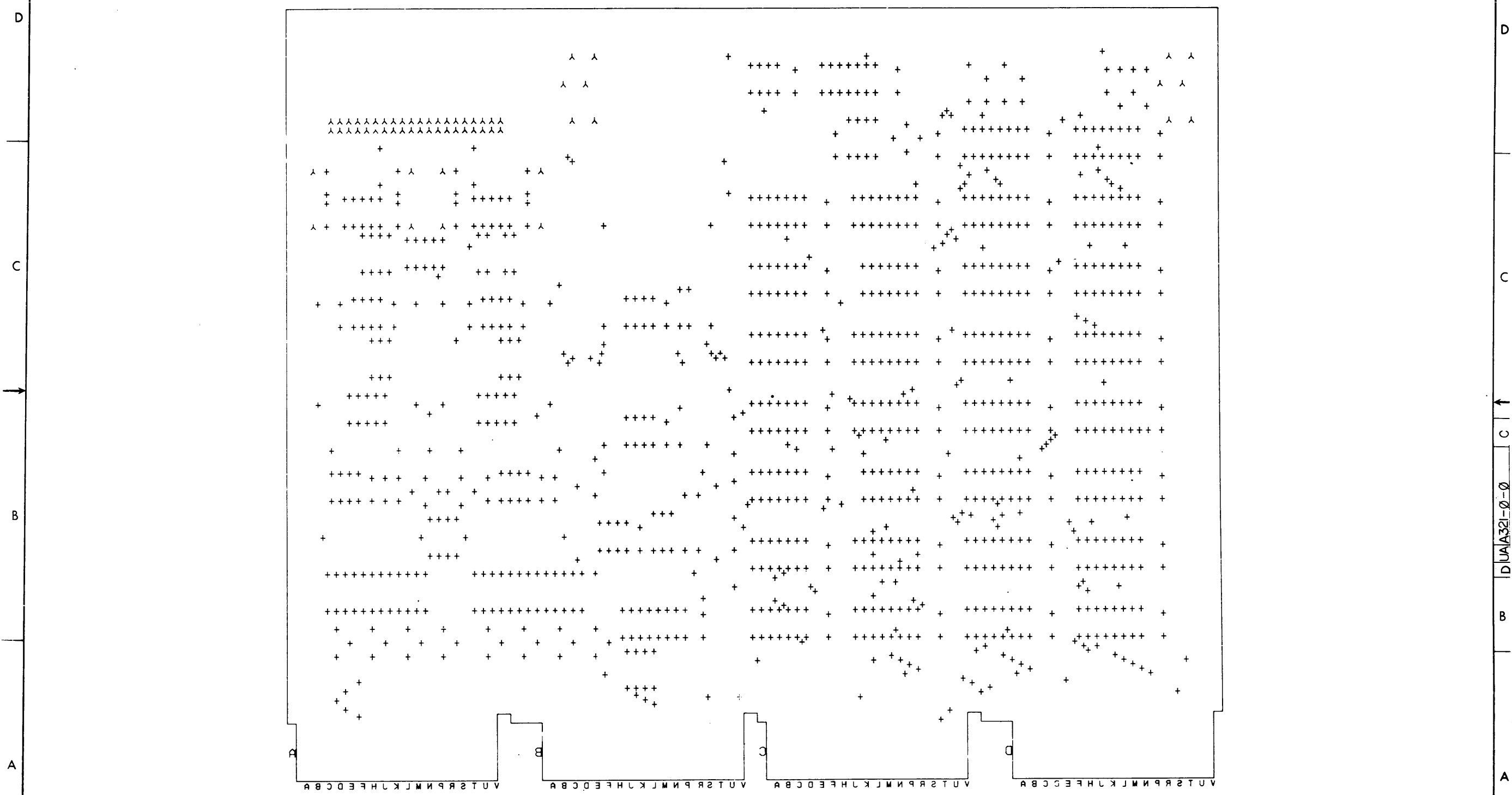
SEE NOTE #1 SHEET #2 DRILL HOLES

ICE

GT48 CHARACTER GENERATOR SIDE 2

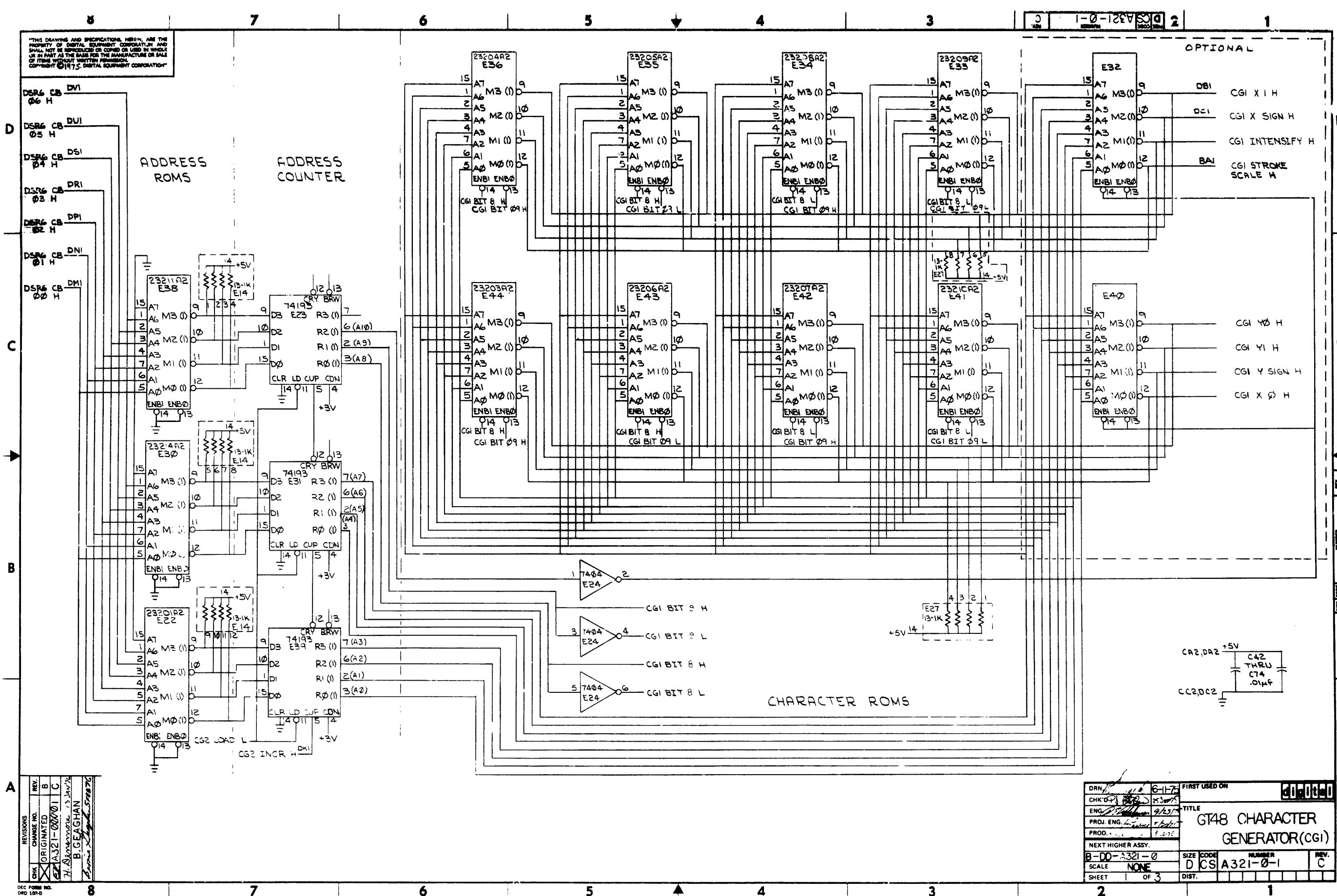
| REVISIONS |           |     |
|-----------|-----------|-----|
| CHK       | CHANGE NO | REV |
|           |           |     |

|                          |      |              |          |      |
|--------------------------|------|--------------|----------|------|
| (SITE 2)                 |      | SIZE CODE    | NUMBER   | REV. |
| GT48 CHARACTER GENERATOR |      | DUA          | A321-0-0 | C    |
| 2                        | TC 1 | SHEET 4 OF 5 |          | DIST |



| REVISIONS |           |     |
|-----------|-----------|-----|
| CHK       | CHANGE NO | REV |
|           |           |     |

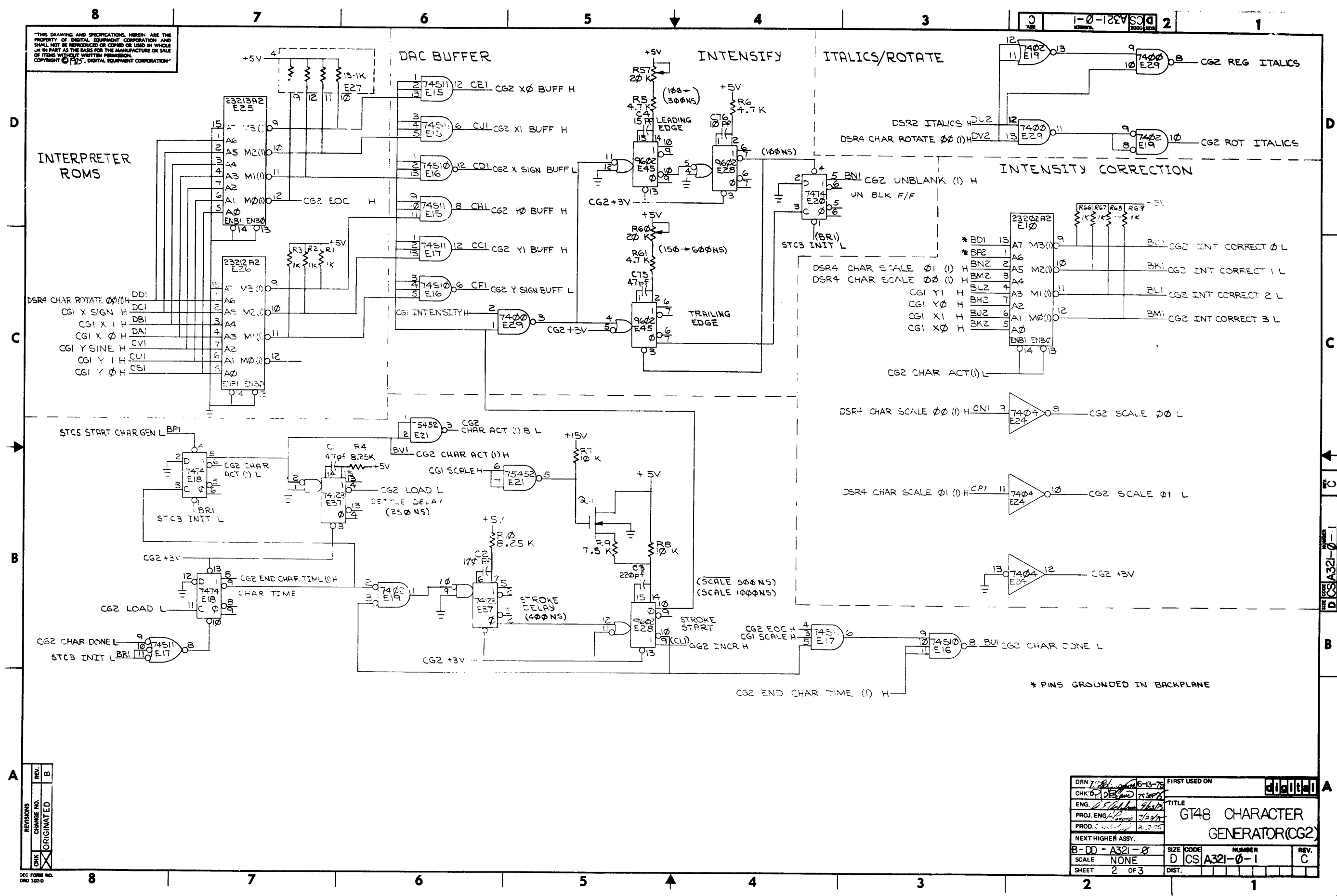
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| REV. | CHG. | DATE     | BY         | CHK. |
|------|------|----------|------------|------|
| A    | 1    | 12/15/75 | B. GEACHAN |      |
| B    | 2    | 1/13/76  | B. GEACHAN |      |
| C    | 3    | 1/13/76  | B. GEACHAN |      |

|                   |         |               |                                |
|-------------------|---------|---------------|--------------------------------|
| DRN               | 6-1175  | FIRST USED ON |                                |
| CHK'D BY          | 253     | TITLE         | GT48 CHARACTER GENERATOR (CGI) |
| ENG.              | 9/23/75 | SCALE         | NONE                           |
| PROJ. ENG.        | 5/24/75 | SIZE          | D                              |
| PROD.             | 9/23/75 | CODE          | CSA321-0-1                     |
| NEXT HIGHER ASSY. |         | NUMBER        | C                              |
| B-DD-A321-0       |         | REV.          | C                              |
| SHEET             | OF 3    | DIST.         |                                |

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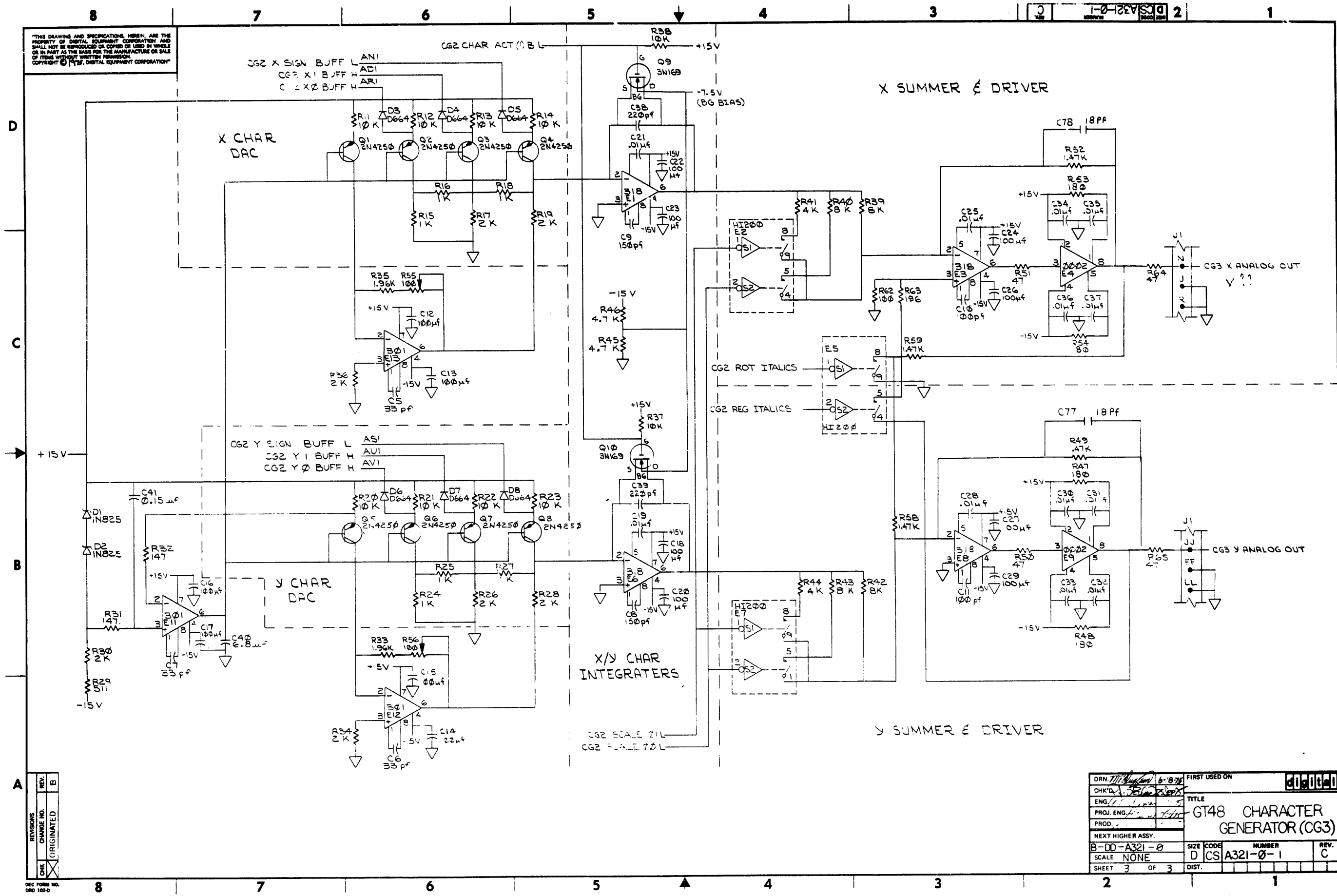
|                        |                     |               |                                |
|------------------------|---------------------|---------------|--------------------------------|
| DRN 7-178              | REV. 6-13-75        | FIRST USED ON |                                |
| CHK'D: [Signature]     | DESIGN: [Signature] | DATE: 25-3-75 |                                |
| ENG. [Signature]       | DATE: 4/2/75        | TITLE         | GT48 CHARACTER GENERATOR (CG2) |
| PROJ. ENG. [Signature] | DATE: 7/23/75       | SCALE         | NONE                           |
| PROD. [Signature]      | DATE: 2-3-75        | SIZE          | D                              |
| NEXT HIGHER ASSY.      |                     | CODE          | A321-0-1                       |
| B-DD-A321-0            |                     | NUMBER        | 1                              |
| SCALE                  | NONE                | REV.          | C                              |
| SHEET 2 OF 3           |                     | DIST.         |                                |

|        |            |
|--------|------------|
| REV. B | ORIGINATED |
| REV. A | CHANGED    |
| REV. 1 | CHANGED    |
| REV. 0 | ORIGINATED |

D CS A321-0-1

\* PINS GROUNDED IN BACKPLANE

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|            |         |
|------------|---------|
| REV. B     | REV. A  |
| ORIGINATED | CHANGED |
| CHK        | CHK     |

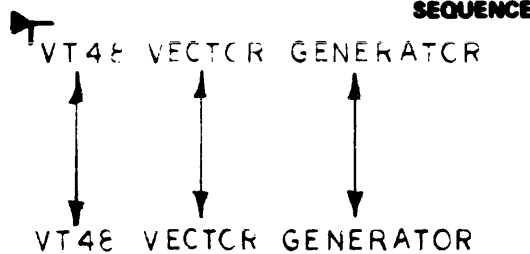
|                               |                                |
|-------------------------------|--------------------------------|
| DRN. <i>[Signature]</i>       | FIRST USED ON                  |
| CHK'D. <i>[Signature]</i>     | TITLE                          |
| ENG. <i>[Signature]</i>       |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

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**CUSTOMER PRINT SET INDEX**

THIS IS PRINT SET



- SEQUENCE
- D-UA-A322-0-0
  - D-CS-A322-0-VG1
  - D-CS-A322-0-VG2
  - D-CS-A322-0-VG3
  - D-CS-A322-0-VG4
  - D-CS-A322-0-VG5
  - D-CS-A322-0-VG6

| UNIT VARIATIONS |                       | PRINT SET |  |
|-----------------|-----------------------|-----------|--|
| VAR             | TITLE                 |           |  |
| A322            | VT48 VECTOR GENERATOR |           |  |
|                 |                       |           |  |
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|------------------|--|-----------------------------|--|-----------------------------------|--------------------------|---|-------------|---------------|------------|
| <b>REVISIONS</b> |  | <b>USED ON OPTION/MODEL</b> |  | <b>DRN.</b><br>Counter            | <b>DATE</b><br>6-3-75    | <b>TITLE</b><br><br>VT48 VECTOR GENERATOR |             |               |            |
|                  |  | VT48                        |  | <b>CHK'D.</b><br>[Signature]      | <b>DATE</b><br>25 Sep 75 |   |             |               |            |
| <b>REV</b>       |  |                             |  | <b>PROJ. ENG.</b><br>[Signature]  | <b>DATE</b><br>          | <b>SIZE</b>                               | <b>CODE</b> | <b>NUMBER</b> | <b>REV</b> |
| <b>CHG. NO.</b>  |  |                             |  | <b>PROD.</b><br>R. Wa...          | <b>DATE</b><br>25 Sep 75 |   |             |               |            |
| <b>DATE</b>      |  |                             |  | <b>FIELD SERV.</b><br>[Signature] | <b>DATE</b><br>25 Sep 75 | <b>DIST</b>                               |             |               |            |
|                  |  |                             |  | <b>SHEET</b> 1 OF 2               |                          |   |             |               |            |

DEC 16-13291-1063-1A-R072





| QTY  |  | REF DESIGNATION                        | DESCRIPTION              | PART NO.   | ITEM NO. | QTY |  | REF DESIGNATION | DESCRIPTION | PART NO. | ITEM NO. |
|------|--|--|--------------------------|------------|----------|-----|--|-----------------|-------------|----------|----------|
| 2    |  | R59, R126                              | RES. 1.4K 1% 1/4W        | 1305108    | 42       | 1   |  |                 |             |          |          |
| 7    |  | R28, R72, R104, R105, R106, R107, R108 | RES. 220 5% 1/4W         | 1300271    | 43       | 9   |  |                 |             |          |          |
| 5    |  | R73, R81, R89, R122, R130              | RES. 330 5% 1/4W         | 1300295    | 44       | 2   |  |                 |             |          |          |
| 4    |  | R80, R86, R99, R121                    | RES. 820 5% 1/4W         | 1301775    | 45       | 13  |  |                 |             |          |          |
| 1    |  | R95                                    | RES. 3.9K 5% 1/4W        | 1300444    | 46       |     |  |                 |             |          |          |
| 1    |  | R83                                    | RES. 10 5% 1/4W          | 1301317    | 47       | 3   |  |                 |             |          |          |
| 3    |  | R75, R76, R84                          | RES. 1.96K 1% 1/4W       | 1304833    | 48       | 92  |  |                 |             |          |          |
| 3    |  | R1, R92, R117                          | RES. 12K 5% 1/4W         | 1300498    | 49       |     |  |                 |             |          |          |
| 7    |  | R40, R50, R63, R74, R85, R101, R129    | RES. 5.11K 1% 1/4W       | 1304854    | 50       |     |  |                 |             |          |          |
| 1    |  | R153                                   | RES. 7.2 1% 1/4W         | 1303205    | 51       |     |  |                 |             |          |          |
| 3    |  | R21, R99, R127                         | RES. 68.1K 1% 1/4W       | 1305252    | 52       |     |  |                 |             |          |          |
| 2    |  | R119, R151                             | RES. 2.2K 5% 1/4W        | 1300417    | 53       | 11  |  |                 |             |          |          |
| 3    |  | R123, R124, R125                       | RES. 27 5% 1/4W          | 1301522    | 54       | 2   |  |                 |             |          |          |
| 1    |  | R131                                   | RES. 1.69K 1% 1/4W       | 1309297    | 55       |     |  |                 |             |          |          |
| 1    |  | R132                                   | RES. 500 10% 3/4W POT    | 1309143-06 | 56       | 6   |  |                 |             |          |          |
| 3    |  | R100, R128, R143                       | RES. 2K 10% 3/4W POT     | 1309143-08 | 57       | 1   |  |                 |             |          |          |
| 2    |  | Q1, Q13                                | TRANS. DEC 2219-2        | 1501983    | 58       | 10  |  |                 |             |          |          |
| 2    |  | Q2, Q3                                 | TRANS. DEC 511           | 1505254    | 59       |     |  |                 |             |          |          |
| 3    |  | Q4, Q5, Q11                            | TRANS. DEC 65340         | 1503409    | 60       | 3   |  |                 |             |          |          |
| 5    |  | Q6, Q7, Q8, Q12, Q14                   | TRANS. DEC 65318         | 1509338    | 61       | 9   |  |                 |             |          |          |
| 1    |  | Q9                                     | TRANS. 3N189             | 1510234    | 62       | 2   |  |                 |             |          |          |
| 1    |  | Q10                                    | TRANS. 2N5638            | 1511095    | 63       | 1   |  |                 |             |          |          |
| 4    |  | E1, E5, E34, E37                       | I.C. DEC 1489L8          | 1911629    | 64       |     |  |                 |             |          |          |
| 8    |  | E2, E8, E13, E23, E31, E32, E38, E48   | I.C. DEC ADX318          | 1910735-01 | 65       | 1   |  |                 |             |          |          |
| 2    |  | E3, E4                                 | I.C. DEC 75451           | 1910406    | 66       | 5   |  |                 |             |          |          |
| 3    |  | E7, E14, E24                           | I.C. DEC NH8882          | 1910446    | 67       | 1   |  |                 |             |          |          |
| 1    |  | E8                                     | I.C. DEC 8202            | 1910275    | 68       | 13  |  |                 |             |          |          |
| 6    |  | E9, E10, E16, E17, E50, E51            | I.C. DEC 74174           | 1910652    | 69       | 24  |  |                 |             |          |          |
| 3    |  | E12, E22, E54                          | I.C. DEC AD562           | 1912401    | 70       |     |  |                 |             |          |          |
| 1    |  | E15                                    | I.C. DEC 7404            | 1909686    | 71       |     |  |                 |             |          |          |
| 3    |  | E19, E28, E35                          | I.C. DEC LM318           | 1910235    | 72       | 3   |  |                 |             |          |          |
| 4    |  | E20, E21, E29, E30                     | I.C. DEC H1288-5         | 2111285-02 | 73       | 7   |  |                 |             |          |          |
| 1    |  | E25                                    | I.C. DEC 74175           | 1910651    | 74       |     |  |                 |             |          |          |
| 2    |  | E26, E27                               | I.C. DEC 74155           | 1910656    | 75       | 3   |  |                 |             |          |          |
| 1    |  | E33                                    | I.C. DEC 723             | 1910415    | 76       | 1   |  |                 |             |          |          |
| 1    |  | E36                                    | I.C. DEC H.S. 399D-12-WB | 1912529    | 77       | 2   |  |                 |             |          |          |
| 2    |  | E39, E40                               | I.C. DEC 74193           | 1910019    | 78       | 1   |  |                 |             |          |          |
| 3    |  | E41, E42, E43                          | I.C. DEC 7495            | 1909055    | 79       | 2   |  |                 |             |          |          |
| 1    |  | E44                                    | I.C. DEC 7400            | 1905575    | 80       | 3   |  |                 |             |          |          |
| 3    |  | E45, E52, E53                          | I.C. DEC 2602            | 1910257    | 81       | 1   |  |                 |             |          |          |
| 2    |  | E46, E47                               | I.C. DEC 7474            | 1905547    | 82       | 6   |  |                 |             |          |          |
| 1    |  | E55                                    | I.C. DEC LM211           | 1911290    | 83       |     |  |                 |             |          |          |
| 16   |  | W1 THRU W16                            | JUMPER, INSULATED WHT    | 9007912-02 | 84       | 9   |  |                 |             |          |          |
| 29   |  |  | SOCKET, SPRING I.C.      | 9007912-02 | 85       | 4   |  |                 |             |          |          |
| 12   |  |  | EYELET                   | 9006732    | 86       | 2   |  |                 |             |          |          |
| 10FT |  |  | WIRE #30 AWG GRN         | 9105740-55 | 87       | 2   |  |                 |             |          |          |
| 1    |  | E49                                    | I.C. DEC 7405            | 1909930    | 88       | 2   |  |                 |             |          |          |
| 1    |  | R139                                   | RES. 39 10% 1W           | 1301478    | 89       |     |  |                 |             |          |          |
| 1    |  | D7                                     | DIODE IN782 ZENER        | 1100144    | 90       | 1   |  |                 |             |          |          |
|      |  |  |                          |            |          | 5   |  |                 |             |          |          |
|      |  |  |                          |            |          | 4   |  |                 |             |          |          |
|      |  |  |                          |            |          | 6   |  |                 |             |          |          |

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   | 7      | 6    |
| DEC 723      | 12   | ---    | ---  |
| DEC H5390D   | 29   | 16, 28 | 27   |
| DEC LM211    | 8    | 1      | 4    |

ETCH CUTS SIDE #1  
1. CUT ETCH BETWEEN C110 AND R147

ETCH CUTS SIDE #2  
1. CUT ETCH BETWEEN E45(7) AND E46(11)  
2. CUT ETCH BETWEEN E45(5) AND E46(1)  
3. CUT ETCH BETWEEN E39(11) AND E39(10)  
4. CUT ETCH BETWEEN E40(11) AND E40(10)  
5. CUT ETCH BETWEEN E25(14) AND E28(14)

WIRE ADDS SIDE #1  
1. ADD WIRE FROM E45(6) TO E46(11)  
2. ADD WIRE FROM E45(5) TO E46(5)  
3. ADD WIRE FROM E39(11) TO E40(11)  
4. ADD WIRE FROM E40(11) TO FINGER FE1  
5. ADD WIRE FROM E45(13) TO FINGER FJ1  
6. ADD WIRE FROM C110 (BOTTOM) TO C83 (TOP)  
7. ADD WIRE FROM E46(8) TO E28(2)

TRANSISTOR ORIENTATION  
1. Q10 HAS ITS FLAT SIDE TOWARD THE TOP (HANDLE SIDE) OF THE BOARD.  
2. 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           | DATE      |
|---------------|-----------|
| R. N. CAUNTER | 3-JUN-75  |
| CHK'D         | DATE      |
| P. E. BLANC   | 22-SEP-75 |
| ENG.          | DATE      |
| B. GEAGHAN    | 22-SEP-75 |
| PROJ. ENG.    | DATE      |
| H. LAVOIE     | 22-SEP-75 |
| PROD.         | DATE      |
| R. WAKEFIELD  | 22-SEP-75 |

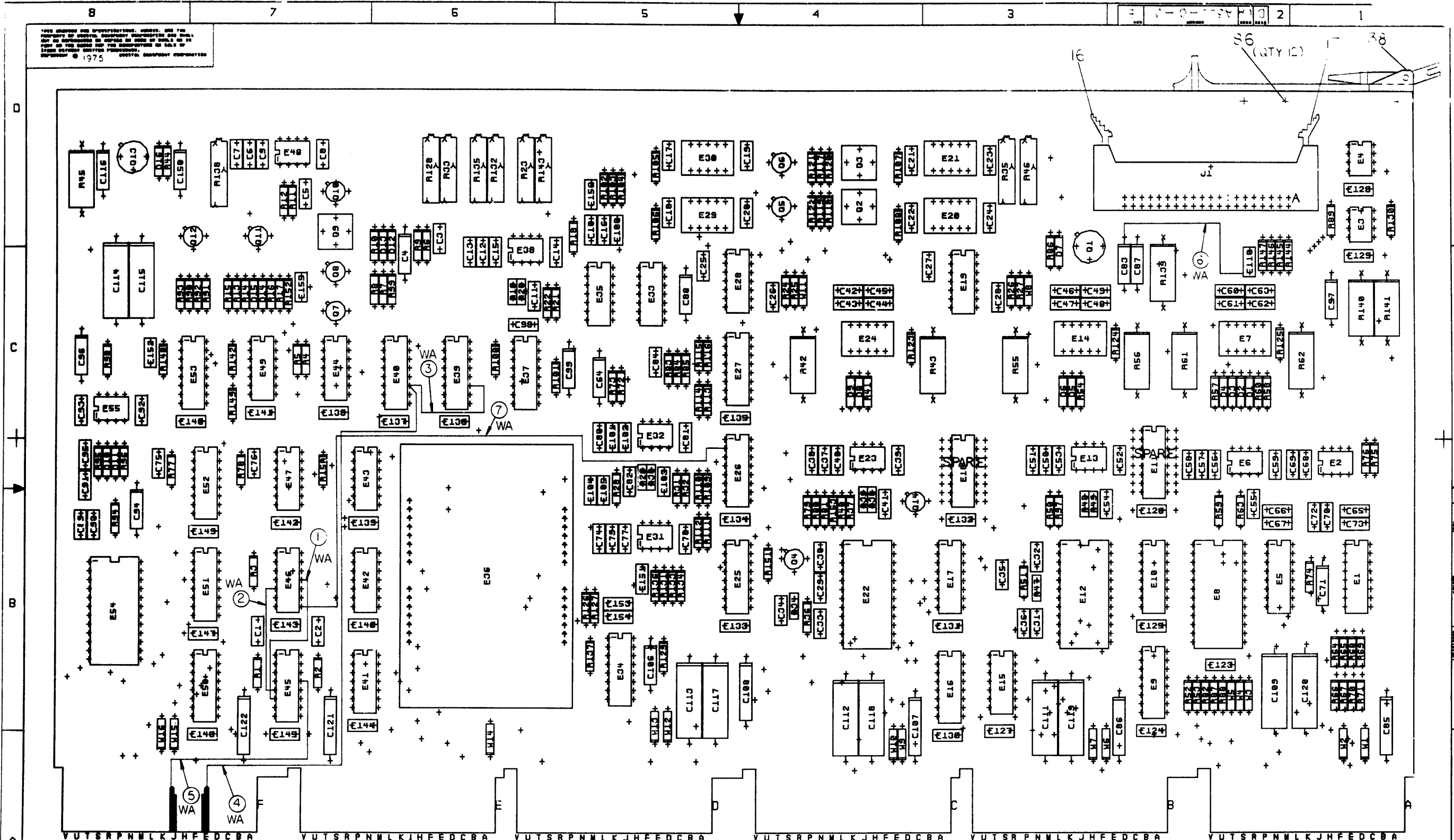
TITLE  
VT48 VECTOR GENERATOR

DEC NO. EIA NO. DEC NO. EIA NO.  
B-DD-A322-0  
SCALE OF 5  
SHEET OF 5

digital EQUIPMENT CORPORATION  
MAYNARD MASSACHUSETTS

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

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NOTES:

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| CHK | CHANGE NO | REV |
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| SIGNATURES           | DATE        | digital                                 | TITLE VT48 VECTOR GENERATOR |
|----------------------|-------------|---|-----------------------------|
| DRN. [Signature]     | [Date]      |   |                             |
| CHK. D.P. LEBLANC    | 22 SEP 75   | SIZE CODE NUMBER REV<br>0 UA A322-0-0 B |                             |
| ENG. B. GEAGHAN      | 22 SEP 75   |   |                             |
| PROJ. ENG. H. LAVOIE | 22 SEP 75   |   |                             |
| PROD. R. WAKEFIELD   | 22 SEP 75   |   |                             |
| SCALE 2/1            | SHT. 2 OF 5 | ETCH REV C                              | FIRST USED ON VT48          |

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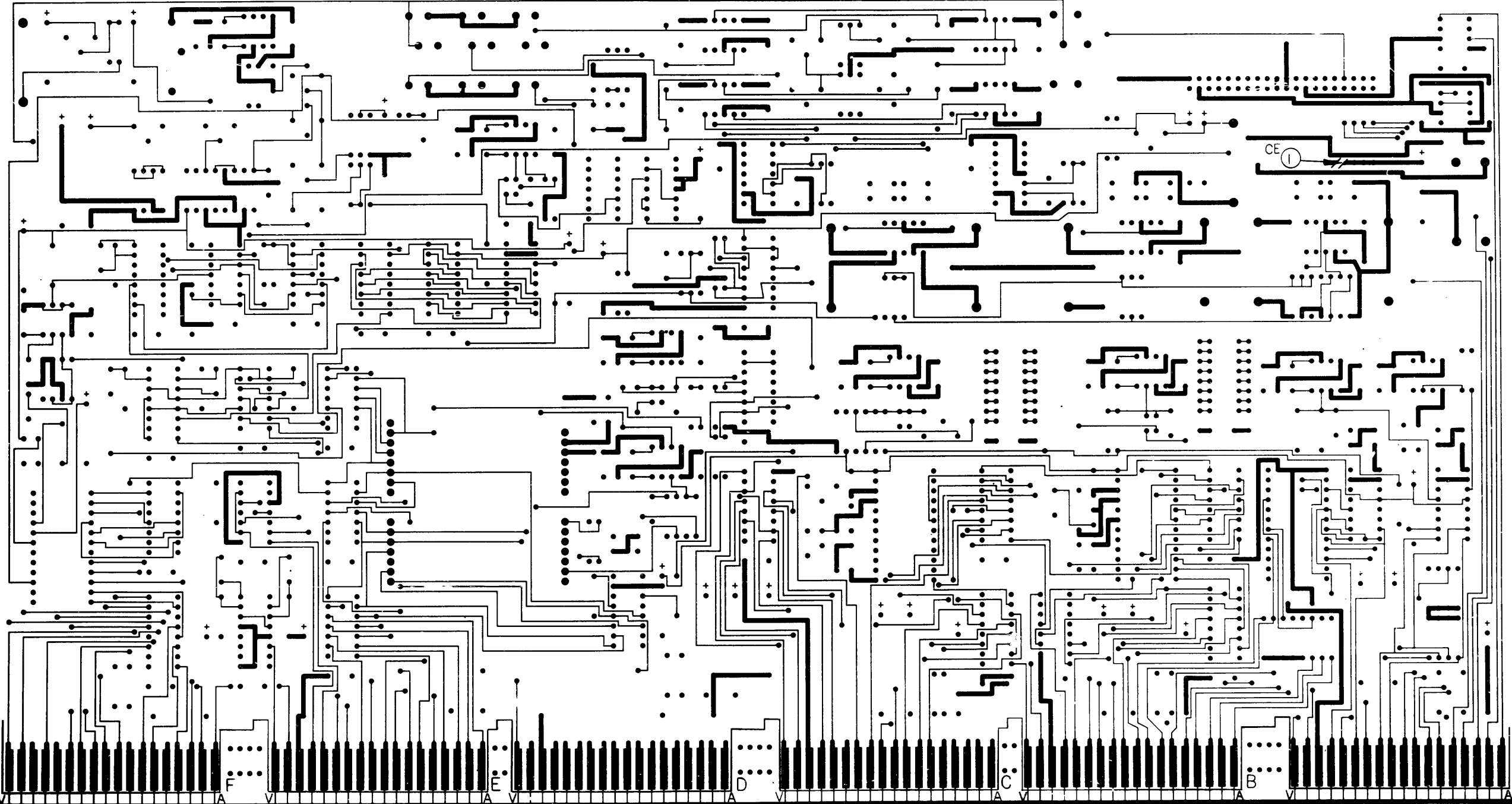
D U/A A322-0-0 B

Q1975

# LAYER 1

A322 MS30098 5011126CP1

CS\*ABCDEFGHIJKLMNPRS SIDE 1 FLIP CHIP



| REVISIONS |           |     |
|-----------|-----------|-----|
| CHK       | CHANGE NO | REV |
|           |           |     |
|           |           |     |

|                                 |        |           |        |      |
|---------------------------------|--------|-----------|--------|------|
| /T43 VECTOR GENERATOR (LAYER 1) |        | SIZE CODE | NUMBER | REV. |
| D U/A A322-0-0                  |        |           | B      |      |
| 2/1                             | 3 OF 5 |           |        |      |

DEC FORM NO

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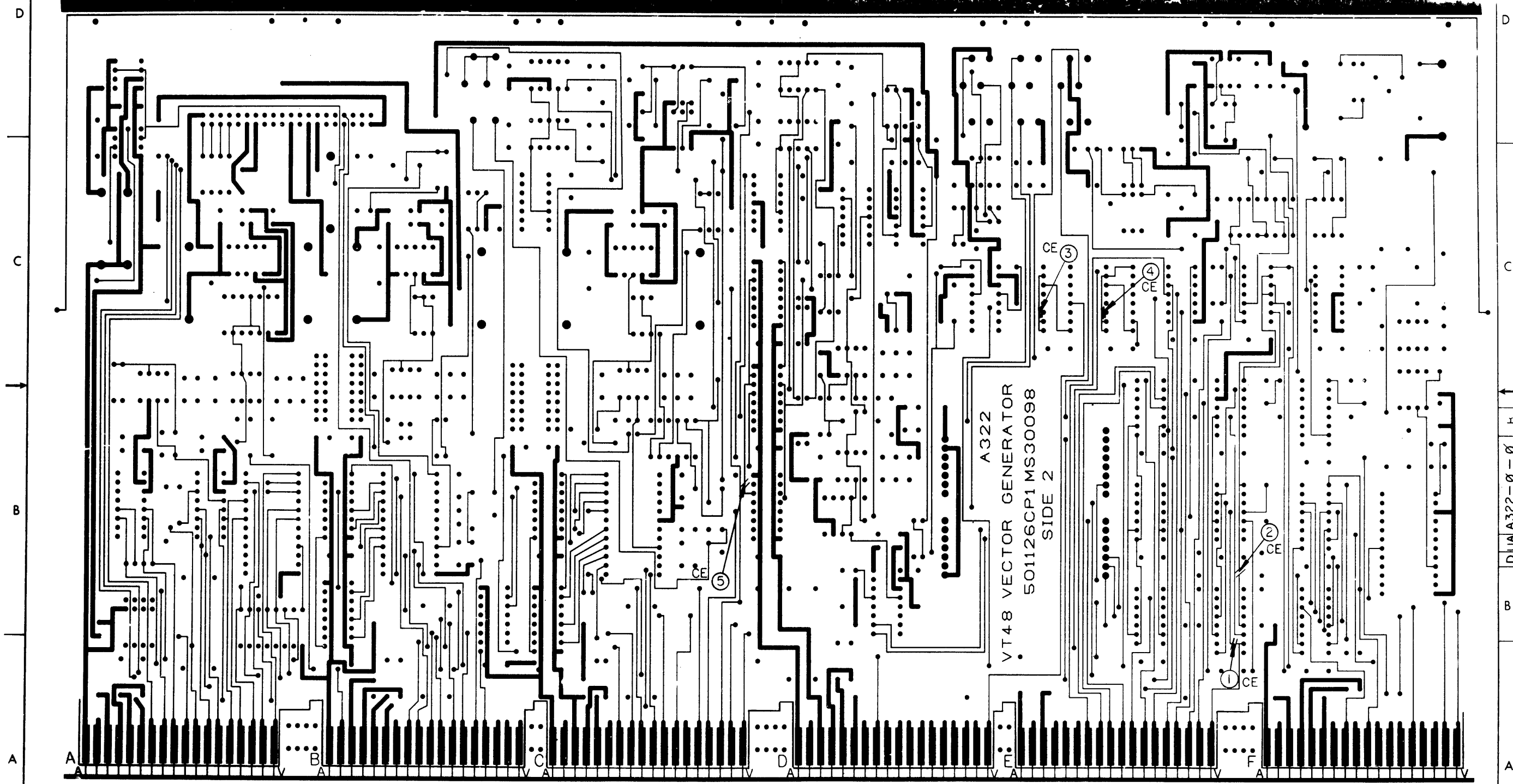
4

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DUA A322-0-0 2

1975

A322 MS30098 501126CP1



| REVISIONS |           |     |
|-----------|-----------|-----|
| CHK       | CHANGE NO | REV |
|           |           |     |

VT48 VECTOR GENERATOR (LAYER 4)  
 DUA A322-0-0 B  
 SCALE 2/1 SHEET 4 OF 5

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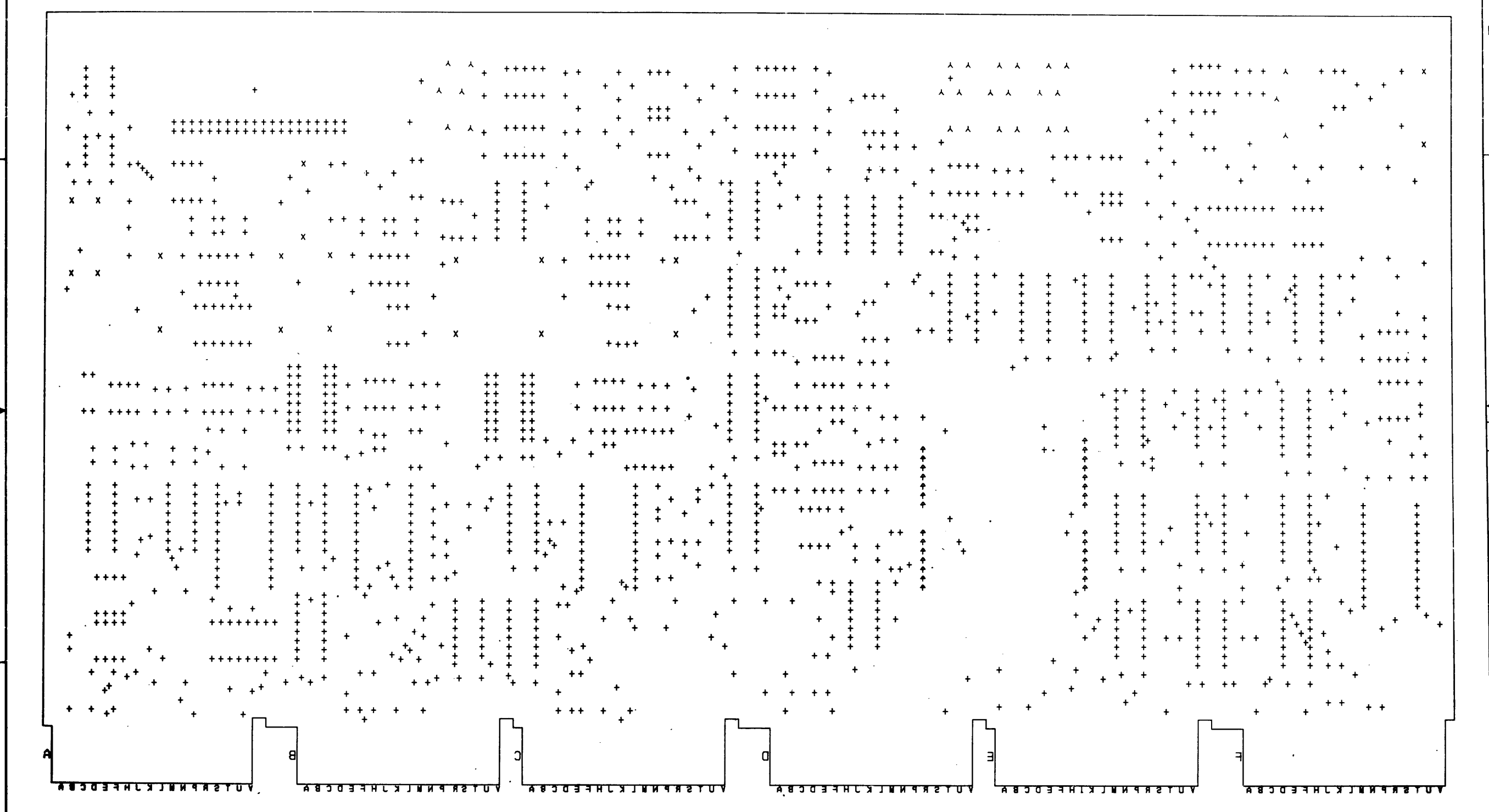
A

B

A

DUA A322-0-0 B

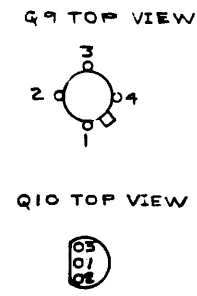
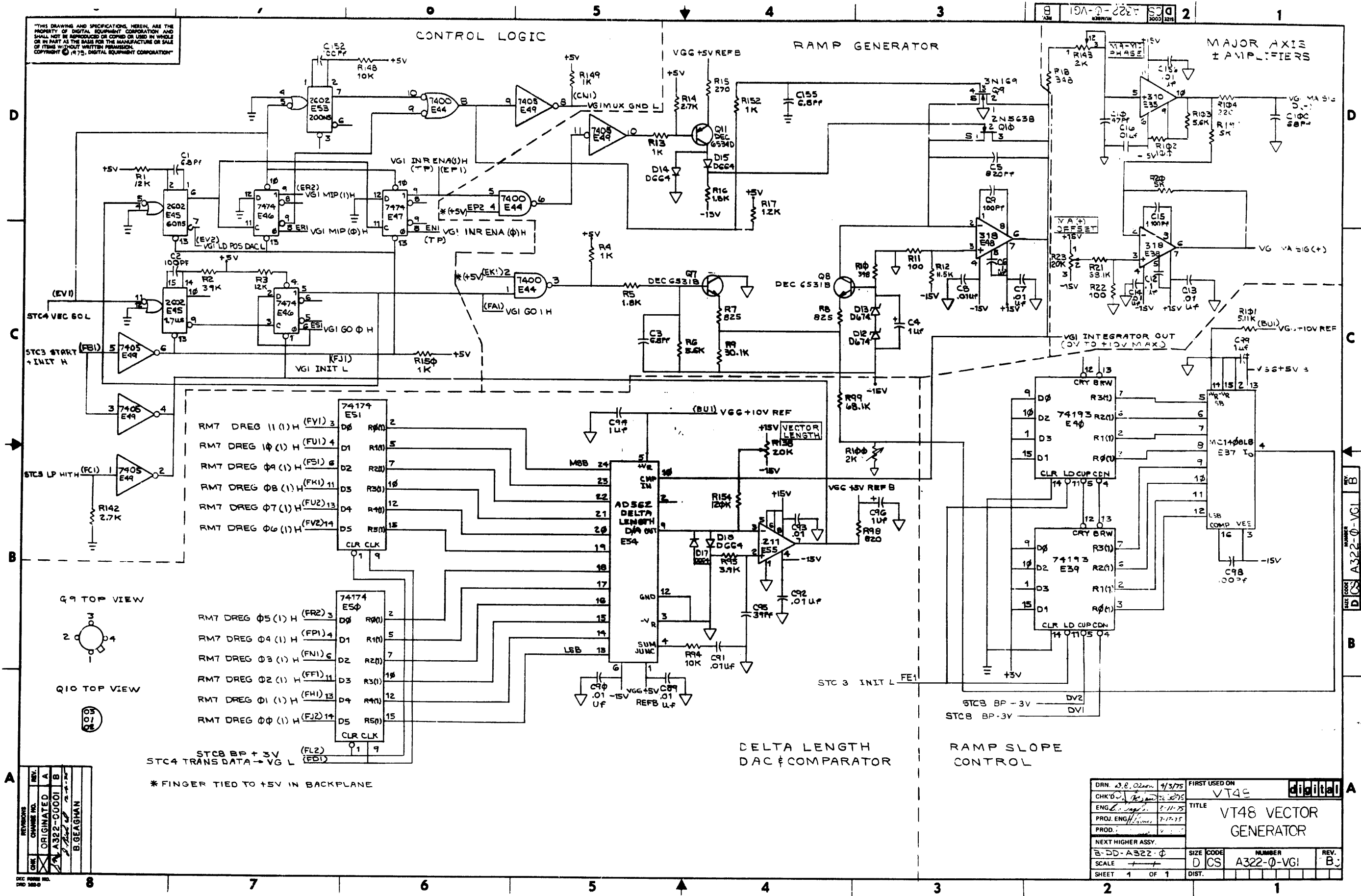
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| REVISIONS |           |     |
|-----------|-----------|-----|
| CHK       | CHANGE NO | REV |
|           |           |     |
|           |           |     |

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

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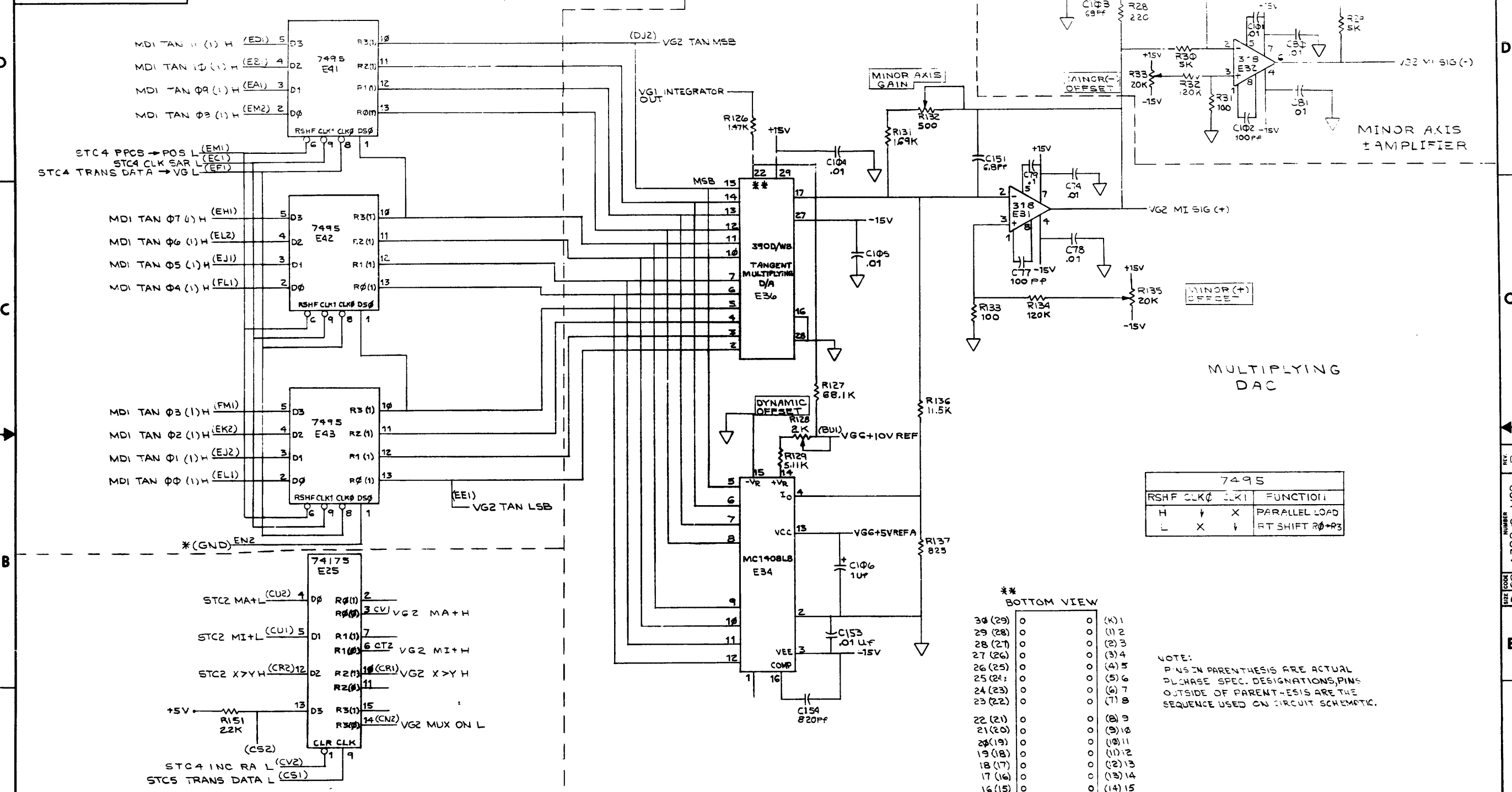
STC8 BP +3V (FL2)  
STC4 TRANS DATA → VG L (E81)  
\* FINGER TIED TO +5V IN BACKPLANE

|            |              |          |
|------------|--------------|----------|
| REV.       | REV.         | REV.     |
| A          | B            | C        |
| ORIGINATED | DESIGNED     | APPROVED |
| A322-0001  | B. G. GAGHAN |          |

|                    |         |               |                       |
|--------------------|---------|---------------|-----------------------|
| DRN. 3. E. O'Brien | 4/3/75  | FIRST USED ON | VT48                  |
| CHK'D. J. P. ...   | 2/20/75 | TITLE         | VT48 VECTOR GENERATOR |
| ENG. ...           | 2-11-75 | SIZE CODE     | D CS                  |
| PROJ. ENG. ...     | 7-17-75 | NUMBER        | A322-0-VGI            |
| PROD. ...          |         | REV.          | B                     |
| NEXT HIGHER ASSY.  |         | SCALE         | 1 OF 1                |
| B-DD-A322-0        |         | DIST.         |                       |

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MULTIPLYING DAC REG



| 7495     |     |          |                |
|----------|-----|----------|----------------|
| RSHF CLK | CLK | 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 | (2) 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. | DATE | BY        | CHKD. |
|------|------|-----------|-------|
| 1    |      | B. GEHMAN |       |

MUX CONTROL REG.  
\* FINGER GROUNDED IN BACKPLANE

|                       |               |                       |
|-----------------------|---------------|-----------------------|
| DRN. D.P. 2/25/75     | FIRST USED ON | VT48                  |
| CHK'D. J. 2/25/75     | TITLE         | VT48 VECTOR GENERATOR |
| ENG. J. 2/11/75       | SIZE CODE     | D CS                  |
| PROJ. ENG. J. 2/11/75 | NUMBER        | A322-0-VG2            |
| PROD.                 | REV.          | B                     |
| NEXT HIGHER ASSY.     | SCALE         | 1 OF 1                |
| B-5D-A322-0           | DIST.         |                       |



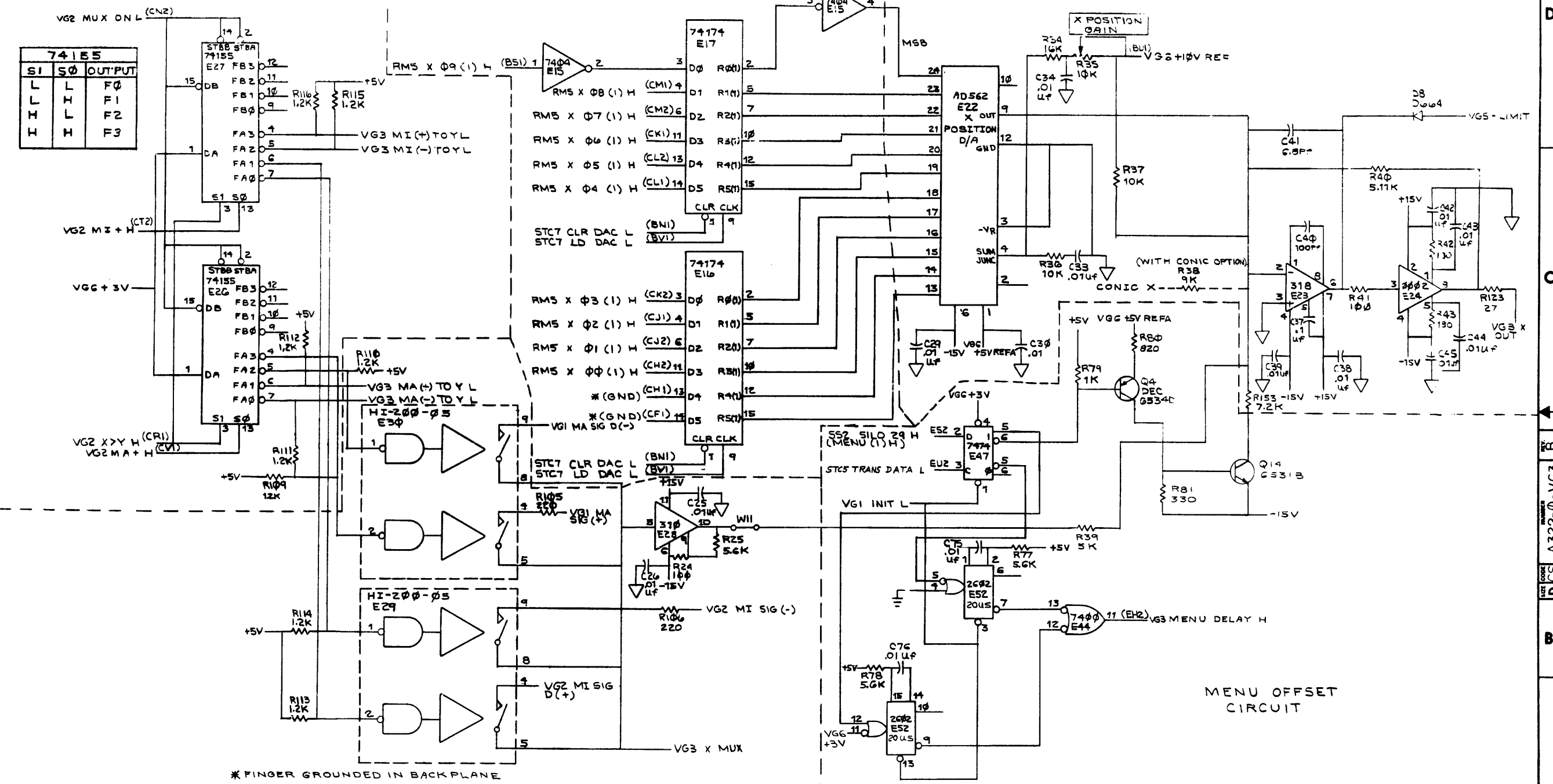
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MUX CONTROL

X POSITION DAC REG

X POSITION DAC AND OUTPUT SUMMER

| SI | S0 | OUTPUT |
|----|----|--------|
| L  | L  | F0     |
| L  | H  | F1     |
| H  | L  | F2     |
| H  | H  | F3     |



\* FINGER GROUNDED IN BACKPLANE

X MUX

MENU OFFSET CIRCUIT

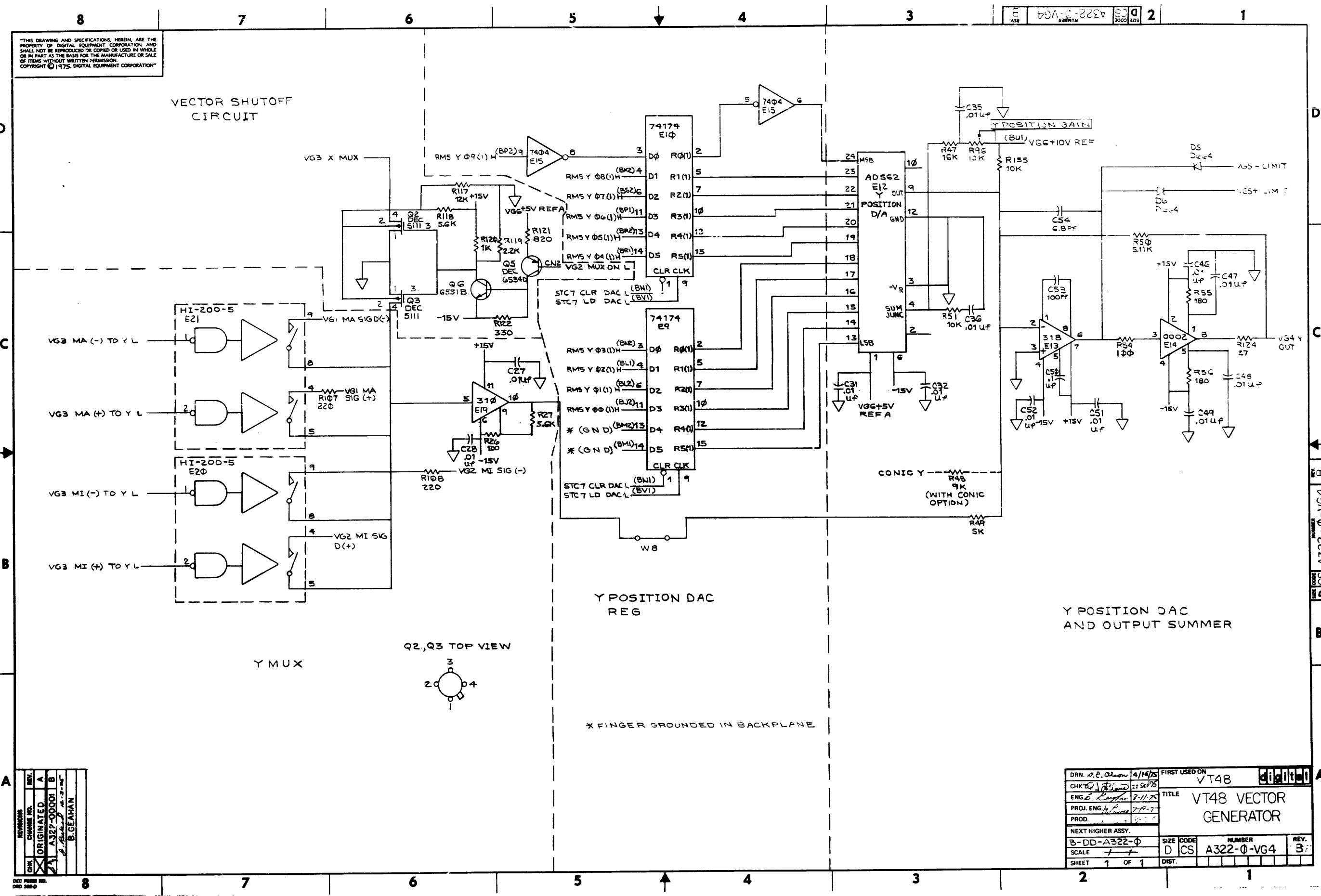
|             |            |      |    |
|-------------|------------|------|----|
| REVISED     | NO.        | DATE | BY |
| CHANGED     | NO.        | DATE | BY |
| ORIGINATED  | NO.        | DATE | BY |
| DESIGNED    | NO.        | DATE | BY |
| ENGINEERED  | NO.        | DATE | BY |
| PRODUCED    | NO.        | DATE | BY |
| CHECKED     | NO.        | DATE | BY |
| APPROVED    | NO.        | DATE | BY |
| DESIGNED BY | B. GEAGHAN |      |    |

|            |         |               |                       |
|------------|---------|---------------|-----------------------|
| DRN. 2.9.3 | 4/19/75 | FIRST USED ON | VT43                  |
| CHK'D      |         | TITLE         | VT48 VECTOR GENERATOR |
| ENG.       |         | PROD.         |                       |
| SCALE      |         | SIZE          | D CS                  |
| SHEET      | 1 OF 1  | NUMBER        | A322-0-VG3            |
|            |         | REV.          | B7                    |

A322-0-VG3

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CS A322-0-VG4 2



|              |      |
|--------------|------|
| REV.         | REV. |
| ORIGINATED A | REV. |
| A322-0001 B  | REV. |
| B. GEHMAN    | REV. |

|                                       |               |                       |
|---------------------------------------|---------------|-----------------------|
| DRN. <i>v. e. Olson</i> 4/16/75       | FIRST USED ON | VT48                  |
| CHK. <i>[Signature]</i> 2-26-75       | TITLE         | VT48 VECTOR GENERATOR |
| ENG. <i>[Signature]</i> 2-11-75       | SIZE          | D CS                  |
| PROJ. ENG. <i>[Signature]</i> 7-19-75 | NUMBER        | A322-0-VG4            |
| PROD.                                 | REV.          | 3                     |
| NEXT HIGHER ASSY.                     | SCALE         | 1 OF 1                |
| B-DD-A322-0                           | DIST.         |                       |

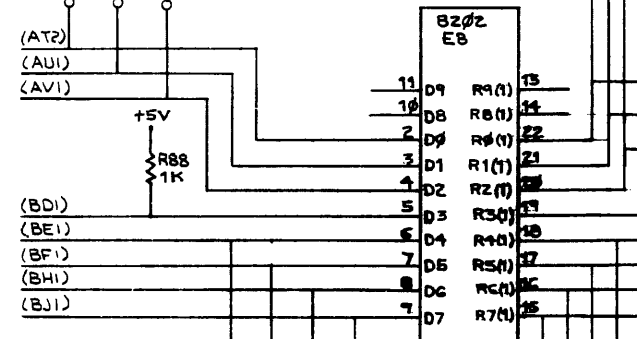
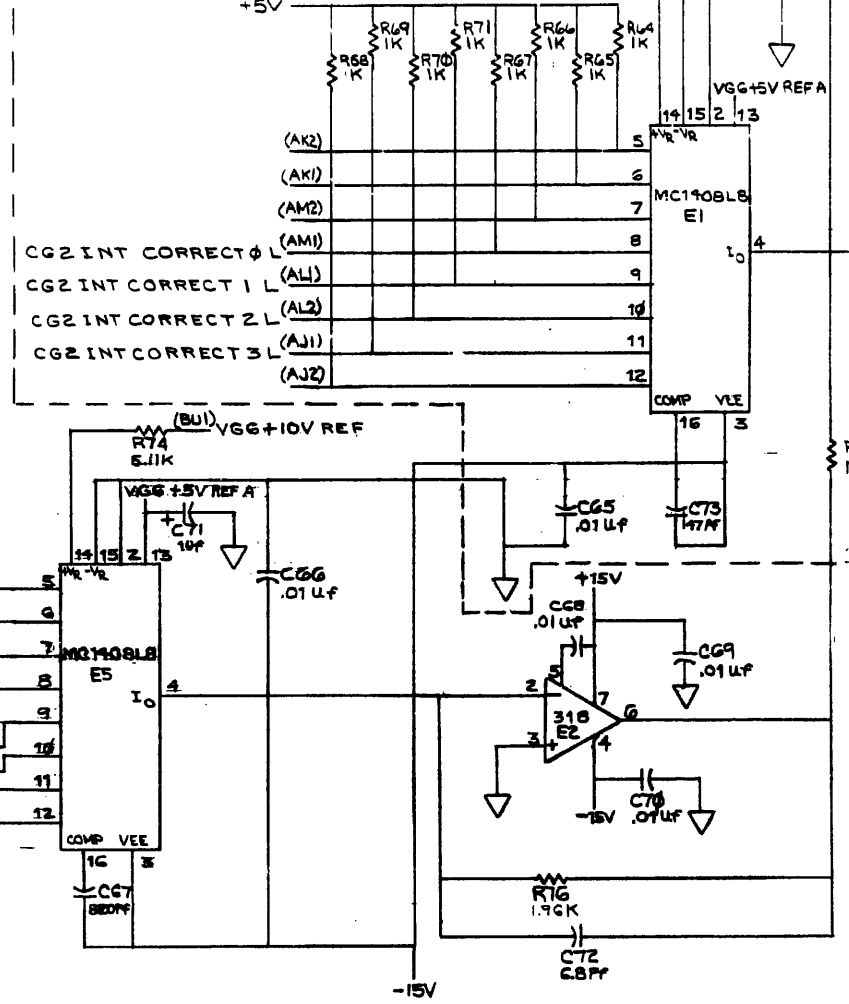
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SS2 SILO  $\Phi 6$  H (BC1)  
 (INTENSITY  $\Phi 2$  (1) H)  
 SS2 SILO  $\Phi 5$  H (BB1)  
 (INTENSITY  $\Phi 1$  (1) H)  
 SS2 SILO  $\Phi 4$  H (BA1)  
 (INTENSITY  $\Phi 0$  (1) H)

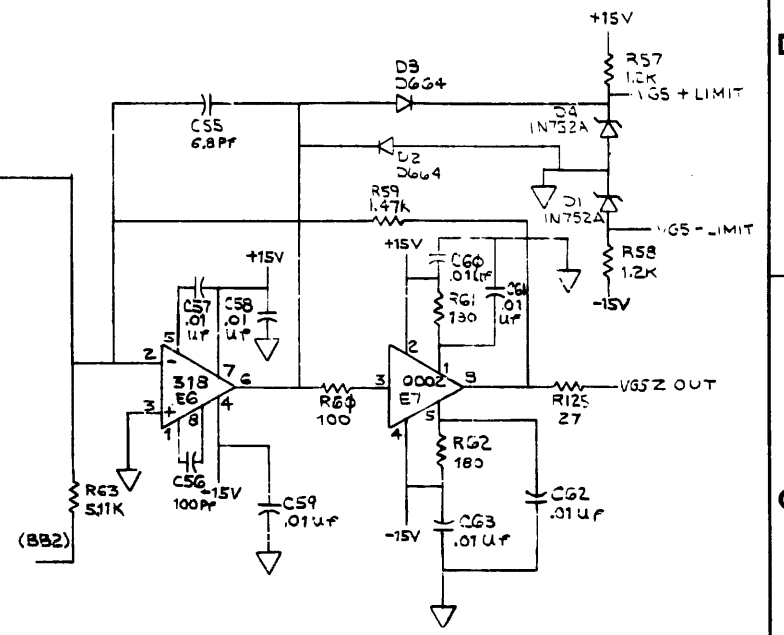
VGS Z  $\Phi 4$  (1) H (AS2)  
 VGS Z  $\Phi 5$  (1) H (AS1)  
 VGS Z  $\Phi 6$  (1) H (AR2)  
 VGS Z  $\Phi 7$  (1) H (AR1)

VGS Z  $\Phi 0$  (1) H (AN4)  
 VGS Z  $\Phi 1$  (1) H (AN2)  
 VGS Z  $\Phi 2$  (1) H (AP1)  
 VGS Z  $\Phi 3$  (1) H (AP2)

Z DYNAMIC MODULATION DAC



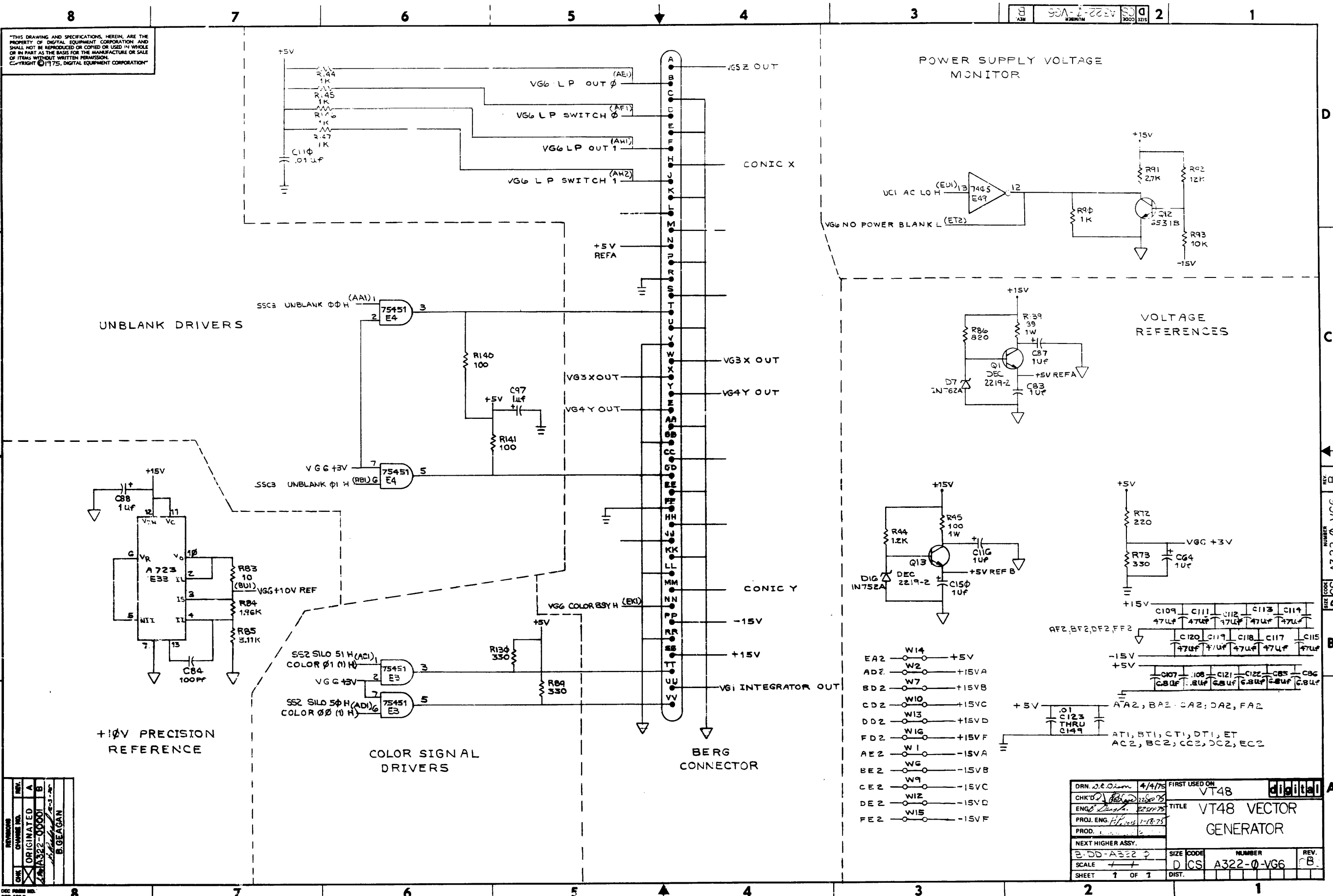
Z POSITION DAC



Z OUTPUT SUMMER

|        |      |    |
|--------|------|----|
| REV. A | DATE | BY |
| REV. B | DATE | BY |
| REV. C | DATE | BY |
| REV. D | DATE | BY |
| REV. E | DATE | BY |
| REV. F | DATE | BY |
| REV. G | DATE | BY |
| REV. H | DATE | BY |
| REV. I | DATE | BY |
| REV. J | DATE | BY |
| REV. K | DATE | BY |
| REV. L | DATE | BY |
| REV. M | DATE | BY |
| REV. N | DATE | BY |
| REV. O | DATE | BY |
| REV. P | DATE | BY |
| REV. Q | DATE | BY |
| REV. R | DATE | BY |
| REV. S | DATE | BY |
| REV. T | DATE | BY |
| REV. U | DATE | BY |
| REV. V | DATE | BY |
| REV. W | DATE | BY |
| REV. X | DATE | BY |
| REV. Y | DATE | BY |
| REV. Z | DATE | BY |

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



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33A-1-7723 2

| REV. | BY  | DATE |
|------|-----|------|
| A    | ... | ...  |
| B    | ... | ...  |

|                               |          |               |                       |                |
|-------------------------------|----------|---------------|-----------------------|----------------|
| DRN. <i>J. O. Olson</i>       | 4/4/75   | FIRST USED ON | VT48                  | <b>digital</b> |
| CHK'D <i>[Signature]</i>      | 11/20/75 | TITLE         | VT48 VECTOR GENERATOR |                |
| ENG. <i>[Signature]</i>       | 2/20/75  |               |                       |                |
| PROJ. ENG. <i>[Signature]</i> | 1-18-75  |               |                       |                |
| PROD. <i>[Signature]</i>      |          |               |                       |                |
| NEXT HIGHER ASSY.             |          | SIZE          | CODE                  | NUMBER         |
|                               |          |               | D CS                  | A322-0-VGG     |
| SCALE                         | 1:1      | SHEET         | 1 OF 1                | REV. B         |

- 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



| CUSTOMER PRINT SET       |  |                  |           | REVISION CONTROL SHEET   |                     |              |       |         |      |        |  |     |  |  |  |  |  |  |
|--------------------------|--|------------------|-----------|--|---------------------|--------------|-------|---------|------|--------|--|-----|--|--|--|--|--|--|
| MFG SET                  |  | DRAWING NO       | NO OF SHT | DESCRIPTION  | OPTION NO/FILE DATE | REVISIONS    |       |         |      |        |  |     |  |  |  |  |  |  |
| X                        |  | D-UA-M7051-0-0   | 5         | VT48 MUX AND REG   | A                   |              |       |         |      |        |  |     |  |  |  |  |  |  |
| X                        |  | D-CS-M7051-0-RM1 | 1         | REGISTER & MUX BOARD   | A                   |              |       |         |      |        |  |     |  |  |  |  |  |  |
| X                        |  | D-CS-M7051-0-RM2 | 1         | REGISTER & MUX BOARD   | A                   |              |       |         |      |        |  |     |  |  |  |  |  |  |
| X                        |  | D-CS-M7051-0-RM3 | 1         | REGISTER & MUX BOARD   | A                   |              |       |         |      |        |  |     |  |  |  |  |  |  |
| X                        |  | D-CS-M7051-0-RM4 | 1         | REGISTER & MUX BOARD   | A                   |              |       |         |      |        |  |     |  |  |  |  |  |  |
| X                        |  | D-CS-M7051-0-RM5 | 1         | REGISTER & MUX BOARD   | A                   |              |       |         |      |        |  |     |  |  |  |  |  |  |
| X                        |  | D-CS-M7051-0-RM6 | 1         | REGISTER & MUX BOARD   | A                   |              |       |         |      |        |  |     |  |  |  |  |  |  |
| X                        |  | D-CS-M7051-0-RM7 | 1         | REGISTER & MUX BOARD   | A                   |              |       |         |      |        |  |     |  |  |  |  |  |  |
| X                        |  | D-CS-M7051-0-RM8 | 1         | REGISTER & MUX BOARD   | A                   |              |       |         |      |        |  |     |  |  |  |  |  |  |
|                          |  | K-CO-M7051-0-4   | 1         | VT48 MUX AND REG   | B                   |              |       |         |      |        |  |     |  |  |  |  |  |  |
|                          |  | D-AH-M7051-0-5   | 4         | VT48 MUX AND REG   | A                   |              |       |         |      |        |  |     |  |  |  |  |  |  |
|                          |  | B-MH-M7051-0-6   | 1         | MODULE ECO HISTORY   | -                   |              |       |         |      |        |  |     |  |  |  |  |  |  |
|                          |  | 5011009          | -         | ETCHED CIRCUIT BOARD   | B                   |              |       |         |      |        |  |     |  |  |  |  |  |  |
| CUSTOMER PRINT SET CODES |  |                  |           | X = PRINT OF DOCUMENT INCLUDED IN PRINT SET<br>C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT<br>S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED |                     | ECO NO       | ORIG. |         |      |        |  |     |  |  |  |  |  |  |
|                          |  |                  |           |  | TITLE               | SHEET 2 OF 2 |       | SIZE    | CODE | NUMBER |  | REV |  |  |  |  |  |  |
|                          |  |                  |           |  | VT48 MUX AND REG    | B DD         |       | M7051-0 |      |        |  |     |  |  |  |  |  |  |

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- NOTES:**
- FOR DRAWING DIRECTORY, REFER TO B-DD-M7051-0
  - UNLESS OTHERWISE SPECIFIED, THE FOLLOWING PIN NUMBERS APPLY:  

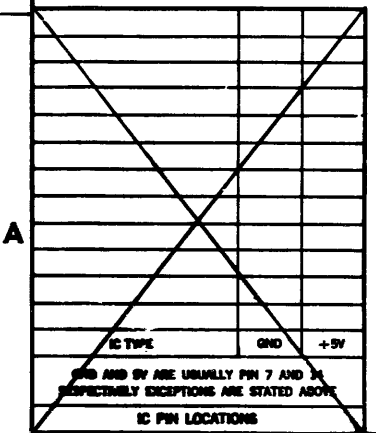
|               |     |     |
|---------------|-----|-----|
| PACKAGE TYPE  | VCC | GND |
| 14 PIN DIP    | 14  | 7   |
| 16 PIN DIP    | 16  | 8   |
| I.C. DEC 7483 | 5   | 12  |
| I.C. DEC 8263 | 24  | 12  |

- 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(16) 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. 6.8mf 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        |
| 49  | R1 THRU R49   | RES. 1K 5% 1/4W                | 1300365    | 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 74565                 | 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       |
| 1   | IFT   | 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 6-28-75     | DRN. R.W. Counter      |
| CHANGE NO. | REV.   | DATE 8-22-75     | DRN. [Signature]       |
| REVISIONS  |        | DATE 8-30-75     | ENG. [Signature]       |
|            |        | DATE [Signature] | PROJ. ENG. [Signature] |
|            |        | DATE [Signature] | PROD. [Signature]      |

VT48 MUX AND REG

3-DD-M7051-0

SCALE NONE

SHEET 1 OF 5

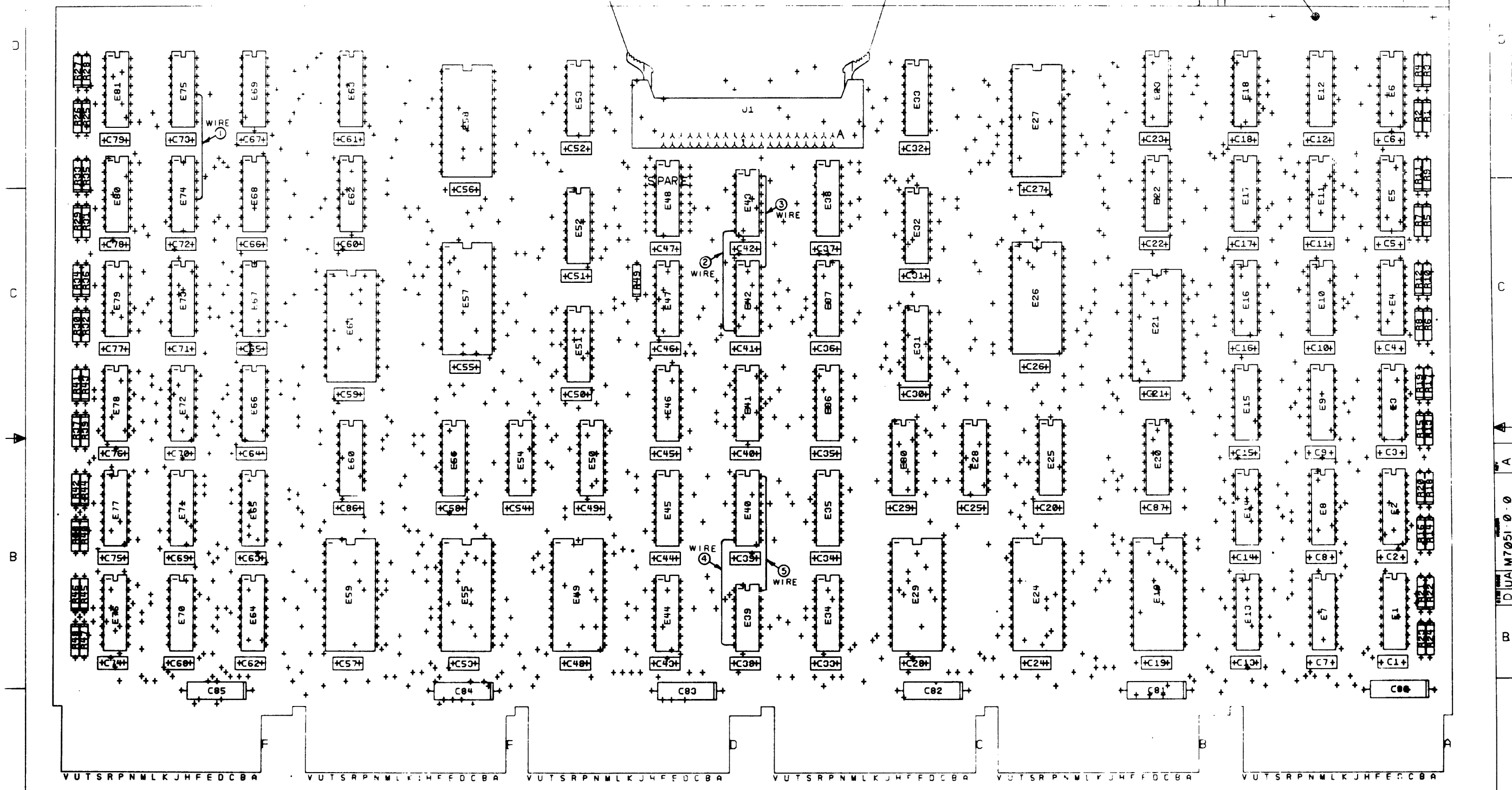
SEMICONDUCTOR CONVERSION CHART

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

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

REV. A  
M7051-0-0

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NOTES:

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| CHANGE NO | REV |
|-----------|-----|
|           |     |
|           |     |
|           |     |

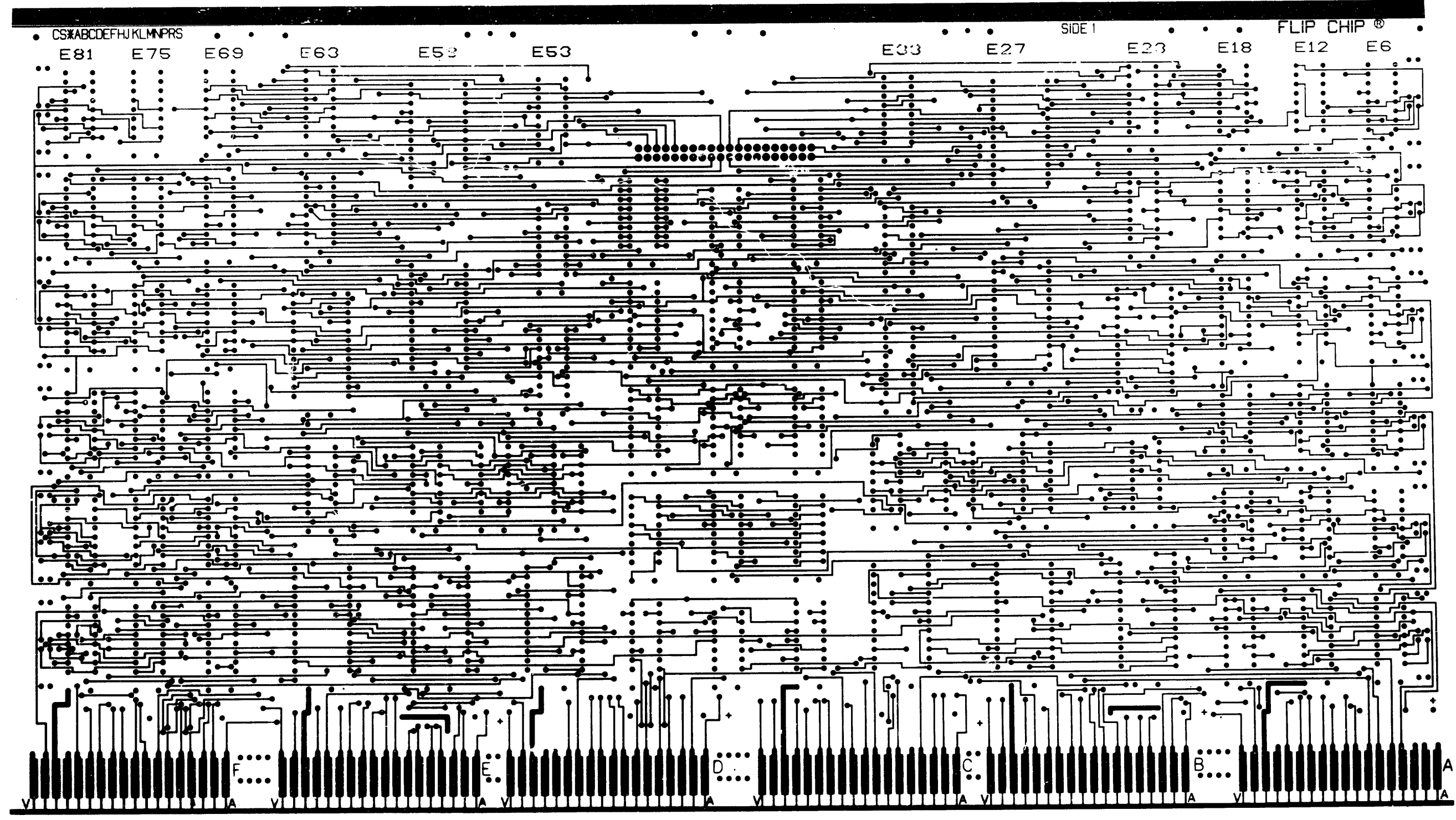
|                               |                |         |                           |
|-------------------------------|----------------|---------|---------------------------|
| SIGNATURES                    |                | DATE    | digital                   |
| DRN. <i>[Signature]</i>       |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



8 7 6 5 4 3 2 1

M7051 MS30088'5011009B

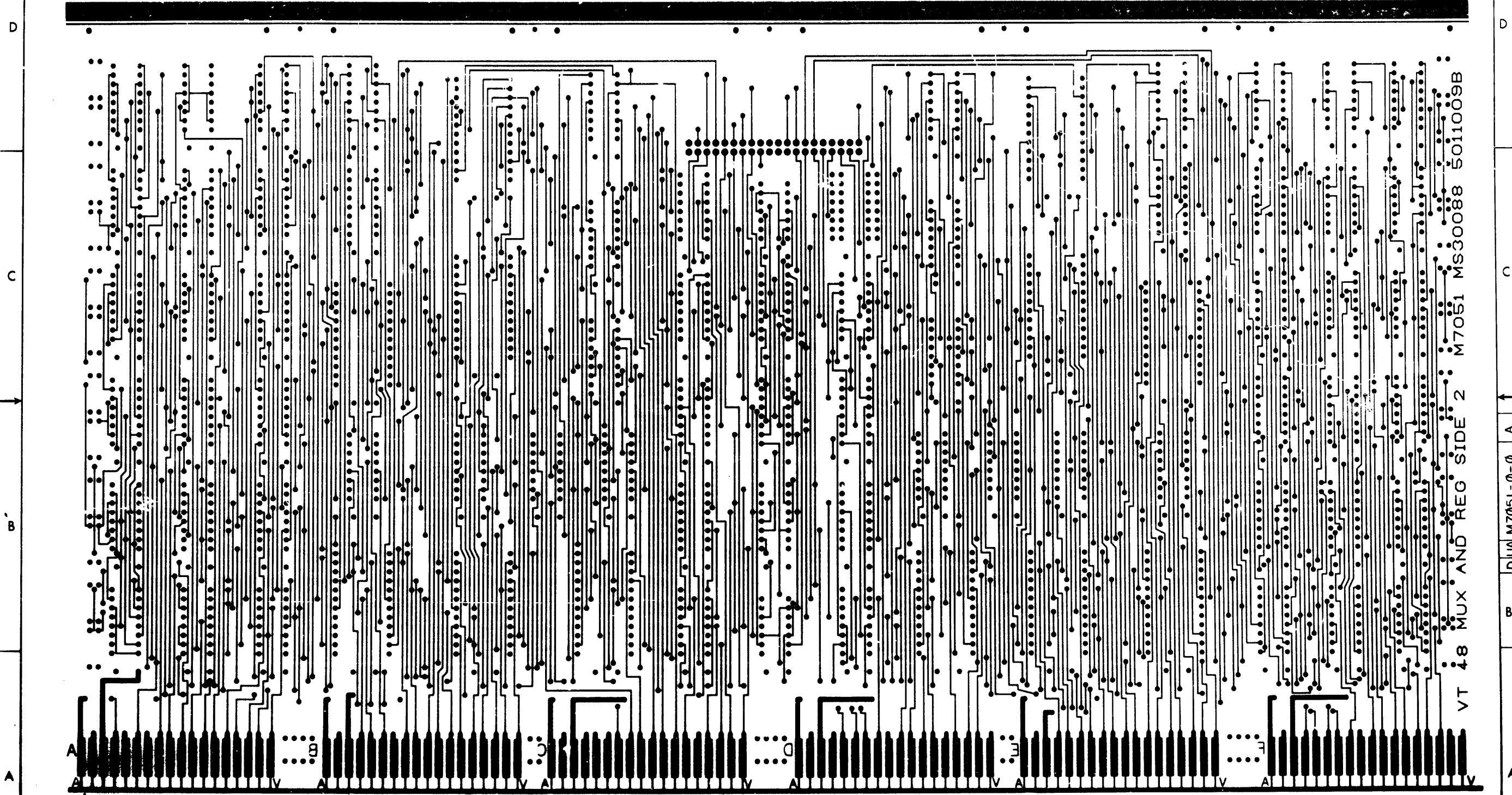
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 FOR WHICH IT IS SPECIFICALLY...  
 NO PART OF THIS DRAWING...  
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| REVISIONS |            |     | TITLE            |   |       |   | SIZE CODE | NUMBER    | REV. |
|-----------|------------|-----|------------------|---|-------|---|-----------|-----------|------|
| CHK       | CHANGE NO. | REV | VT48 MUX AND REG |   |       |   | DUA       | M7051-0-0 | A    |
|           |            |     | SCALE            |   | SHEET |   | DIST.     |           |      |
|           |            |     | 2/1              | 3 | OF    | 5 |           |           |      |
|           |            |     |                  |   |       |   |           |           |      |
|           |            |     |                  |   |       |   |           |           |      |
|           |            |     |                  |   |       |   |           |           |      |
|           |            |     |                  |   |       |   |           |           |      |
|           |            |     |                  |   |       |   |           |           |      |
|           |            |     |                  |   |       |   |           |           |      |
|           |            |     |                  |   |       |   |           |           |      |
|           |            |     |                  |   |       |   |           |           |      |
|           |            |     |                  |   |       |   |           |           |      |

IPC FORM NO. 860-1

C 975



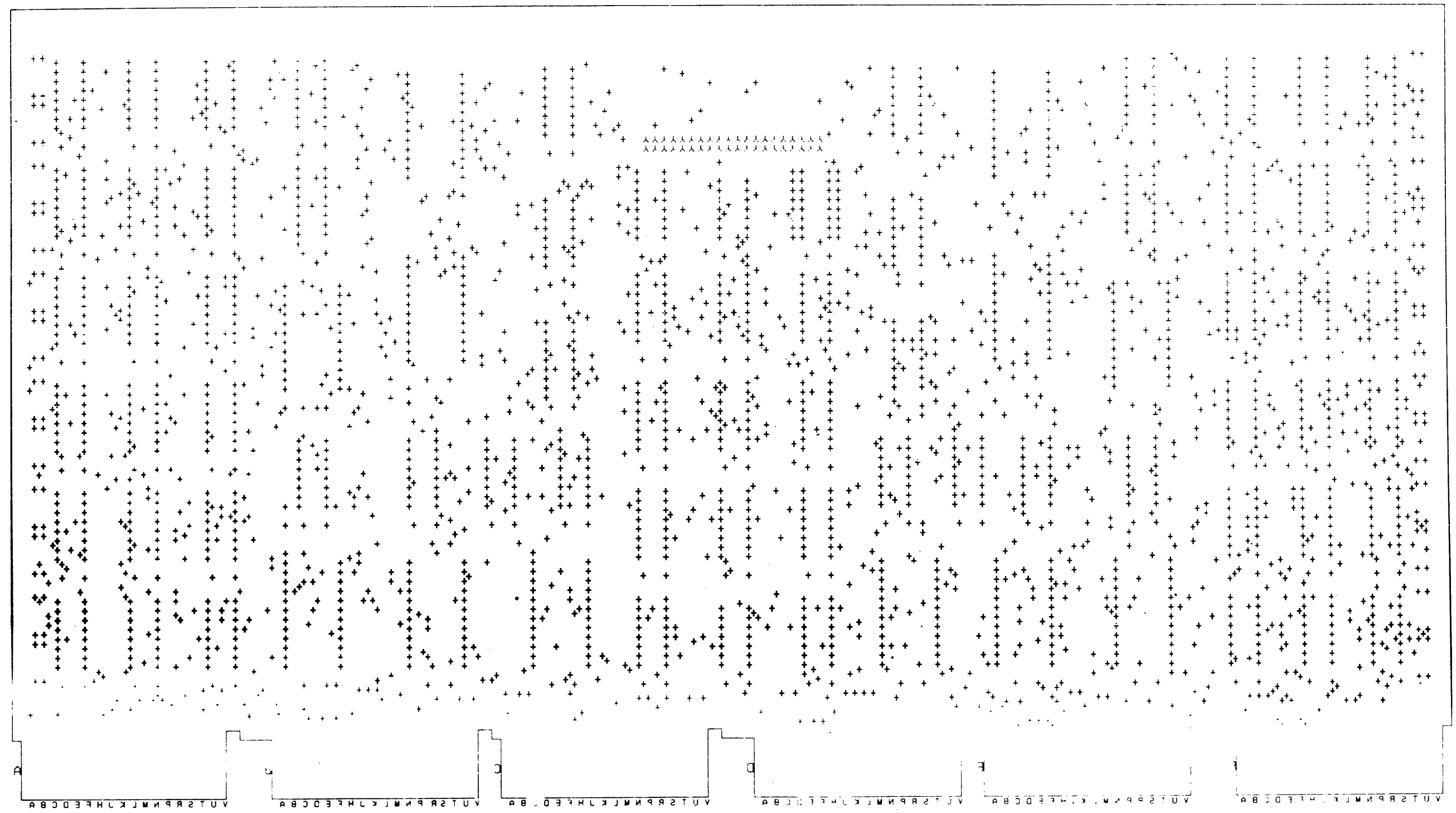
VT 48 MUX AND REG SIDE 2 M7051 MS30088 5011009B

| 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. |   |

DUA M7051-0-0 A

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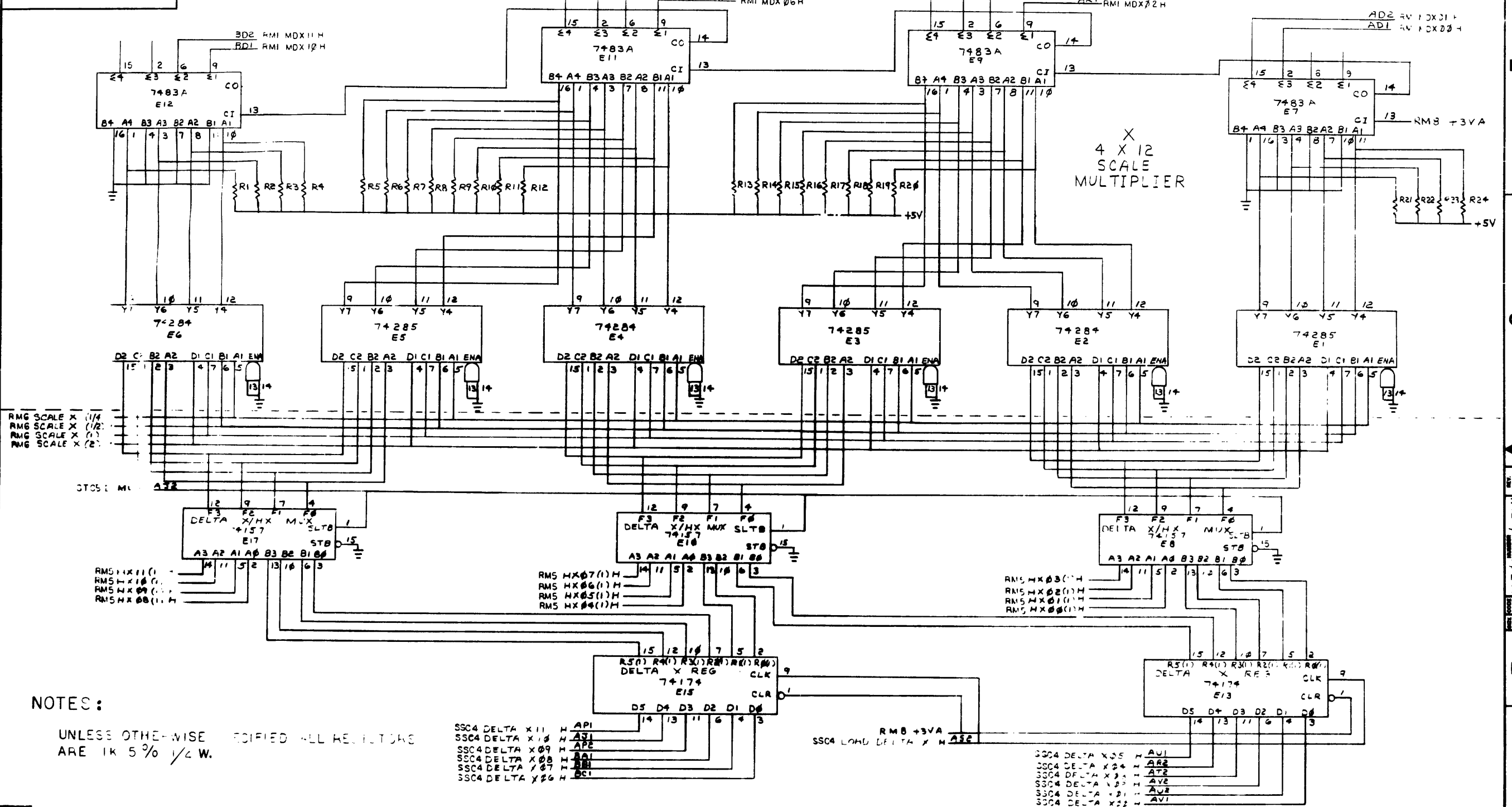


NOTES:  
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| CHANGE NO. | REV. |
|------------|------|
|            |      |
|            |      |
|            |      |

|                            |                    |                      |
|----------------------------|--------------------|----------------------|
| SIGNATURES                 | DATE               | <b>digital</b>       |
| DRN. <i>[Signature]</i>    | <i>[Date]</i>      |                      |
| CHK. D. <i>[Signature]</i> |                    | TITLE VT48           |
| ENG. <i>[Signature]</i>    |                    | MUX AND REG          |
| PROD. <i>[Signature]</i>   |                    | SCALE 2/1            |
| SHT. 5 OF 5                |                    | SIZE CODE NUMBER REV |
| ETCH REV                   | FIRST USED ON VT48 | D UA M7051-0-0 A     |

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X  
4 X 12  
SCALE  
MULTIPLIER

NOTES:

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

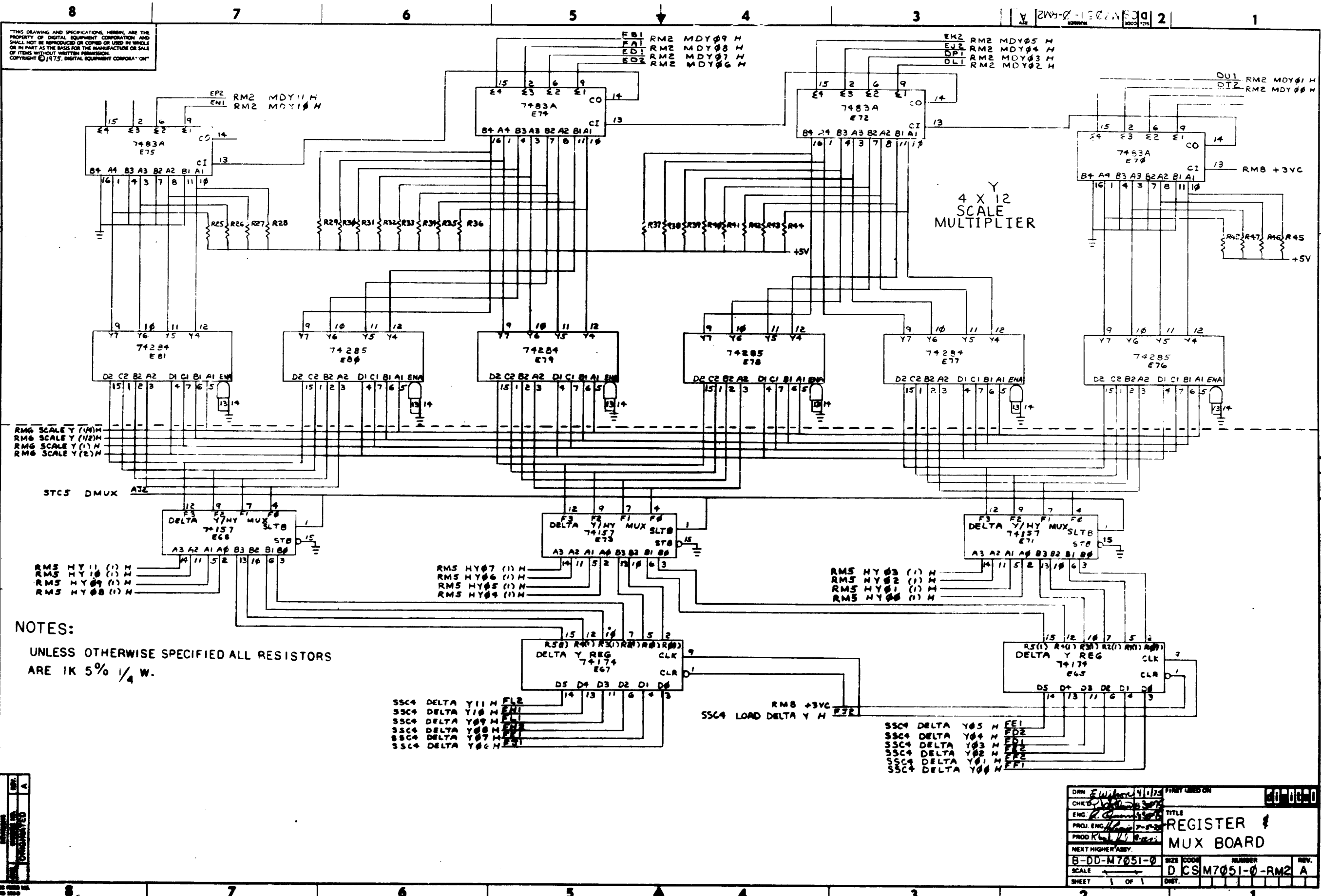
- SSC4 DELTA X11 H API
- SSC4 DELTA X10 H A31
- SSC4 DELTA X09 H A22
- SSC4 DELTA X08 H A21
- SSC4 DELTA X07 H A20
- SSC4 DELTA X06 H A19
- SSC4 DELTA X05 H A18

- SSC4 DELTA X05 H A11
- SSC4 DELTA X04 H A22
- SSC4 DELTA X03 H A21
- SSC4 DELTA X02 H A20
- SSC4 DELTA X01 H A19
- SSC4 DELTA X00 H A18

|            |   |
|------------|---|
| REV.       | A |
| ORIGINATED | A |
| CHK.       |   |

|                  |         |                    |                      |
|------------------|---------|--------------------|----------------------|
| DRN. E. Williams | 4/1/75  | FIRST USED ON      | 80-00-00             |
| CHKD. J. Brown   | 5/20/75 | TITLE              | REGISTER & MUX BOARD |
| ENG. D. Brown    | 5/20/75 | PROJ. ENG. Wallace | 7-5-75               |
| PROD.            |         | NEXT HIGHER ASSY.  | B-00-M7051-0         |
| SCALE            |         | SIZE CODE          | D CSM7051-0-RMI      |
| SHEET 1          | OF 1    | NUMBER             | REV. A               |

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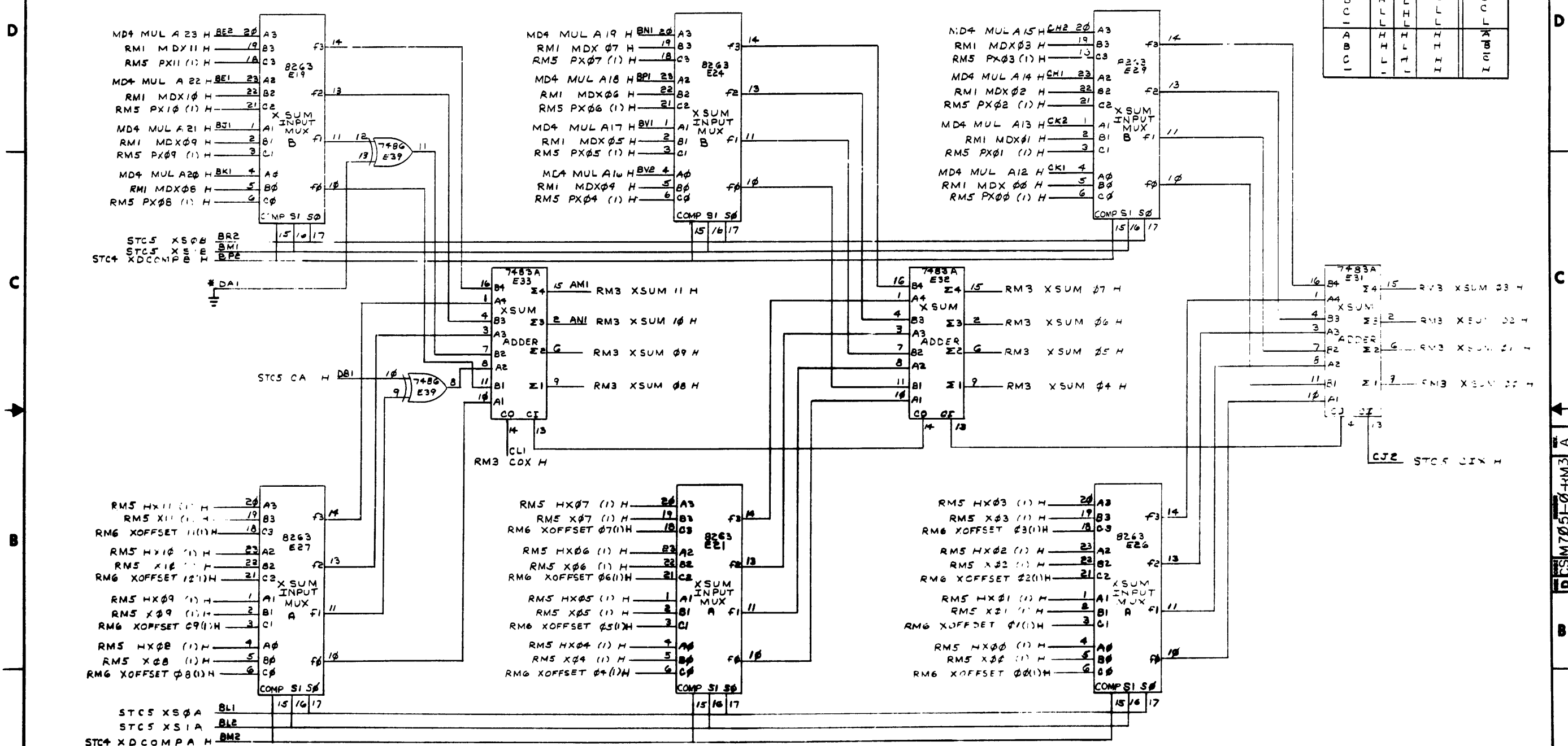


NOTES:  
UNLESS OTHERWISE SPECIFIED ALL RESISTORS ARE 1K 5% 1/4 W.

|                   |                  |               |                      |
|-------------------|------------------|---------------|----------------------|
| DRN               | E. Wilson 4/1/75 | FIRST USED ON | 20-0000              |
| CHKD              |                  | TITLE         | REGISTER & MUX BOARD |
| ENG               |                  | SIZE          | CODE                 |
| PROJ. ENG.        |                  | NUMBER        | REV.                 |
| PROD. ENG.        |                  | SCALE         | D. CSM7051-0-RM2 A   |
| NEXT HIGHER ASSY. |                  | SHEET         | 1 OF 1               |

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| 8263  |    |    |      |        |
|-------|----|----|------|--------|
| INPUT | SI | S0 | CUMP | OUTPUT |
| A     | H  | H  | L    | A      |
| B     | L  | L  | L    | B      |
| C     | L  | L  | L    | C      |
| A     | H  | H  | L    | K      |
| B     | L  | L  | L    | B      |
| C     | L  | L  | L    | C      |



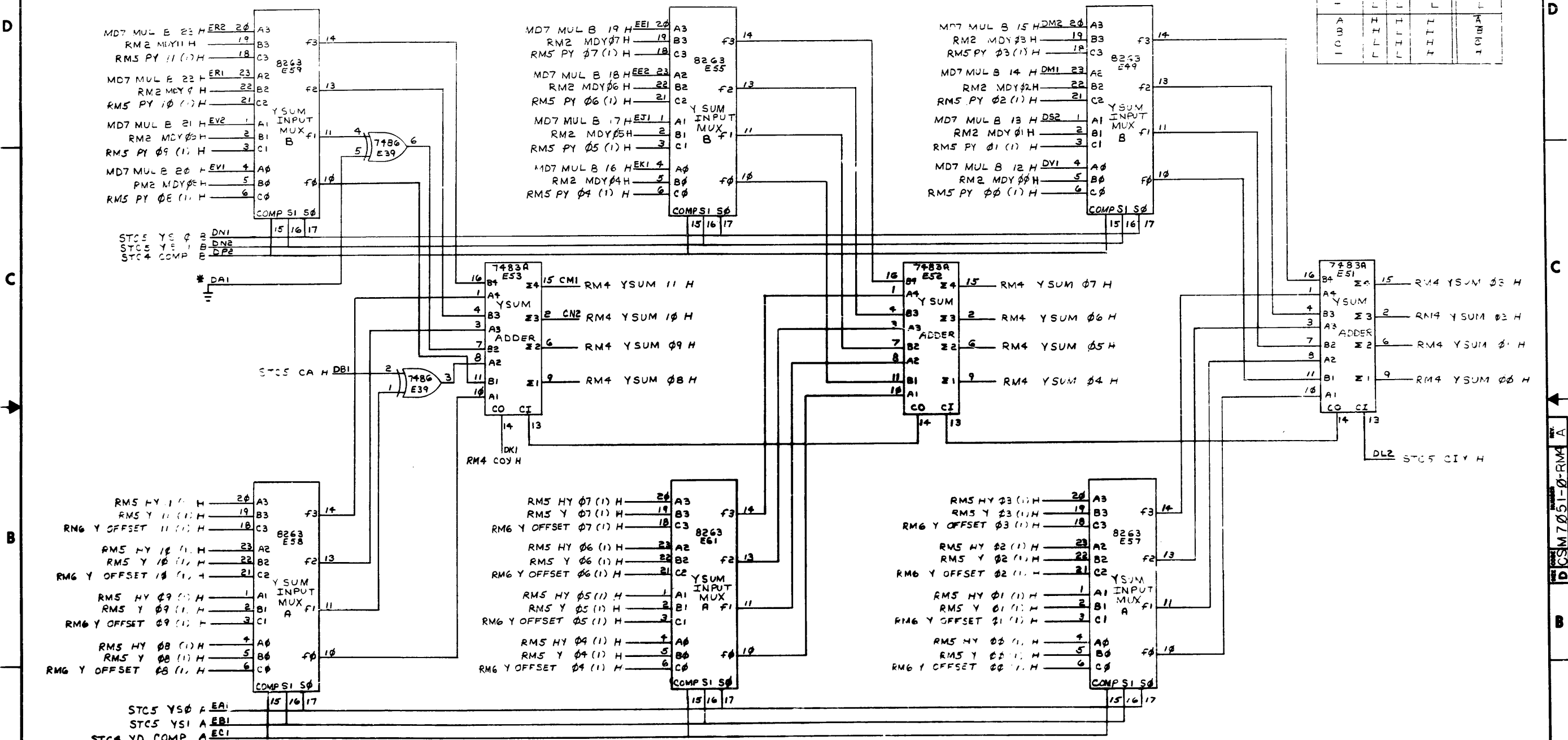
\* INDICATES GROUNDED ON BACKPLANE

|        |      |            |
|--------|------|------------|
| REV. A | DATE | ORIGINATED |
|--------|------|------------|

|                      |         |               |                      |
|----------------------|---------|---------------|----------------------|
| DRN. G. Wilson       | 3/24/75 | FIRST USED ON |                      |
| CHKD. J. G. Wilson   | 4/2/75  | TITLE         | REGISTER & MUX BOARD |
| ENG. G. Wilson       | 1/28/75 | NUMBER        | D CSM7051-0-RM3      |
| PROJ. ENG. G. Wilson | 7-8-75  | REV.          | A                    |
| PROD.                |         | SCALE         | 1 OF 1               |
| NEXT HIGHER ASSY.    |         | SHEET         | 1 OF 1               |

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| 8263  |    |    |      |        |
|-------|----|----|------|--------|
| INPUT | SI | SP | COMP | OUTPUT |
| A     | H  | L  | L    | A      |
| B     | H  | L  | L    | B      |
| C     | L  | L  | L    | C      |
| A     | H  | L  | L    | A      |
| B     | L  | L  | L    | B      |
| C     | L  | L  | L    | C      |



\* INDICATES GROUNDED ON BACKPLANE

| REV. | NO. | DATE | BY | CHKD. |
|------|-----|------|----|-------|
| 1    | A   |      |    |       |

|                                      |                 |            |
|--------------------------------------|-----------------|------------|
| DRN. <i>W. Wilson</i> 3/17/75        | FIRST USED ON   | 80-0000    |
| CHK'D. <i>A. DeSantis</i> 4/1/75     | TITLE           | REGISTER & |
| ENG. <i>V. Quinn</i> 8/25/75         |                 | MUX BOARD  |
| PROJ. ENG. <i>W. Lavelle</i> 7-15-75 |                 |            |
| PROD.                                |                 |            |
| NEXT HIGHER ASSY.                    |                 |            |
| B-DD-M7051-0                         | SIZE CODE       | NUMBER     |
| SCALE                                | D CSM7051-0-RM4 | REV. A     |
| SHEET                                | OF              | DRT.       |

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Y-HOLDING REG

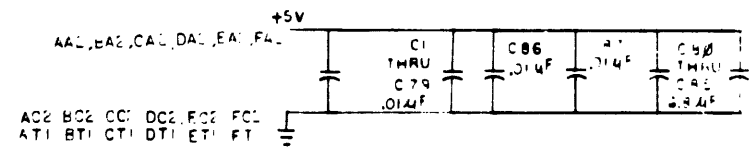
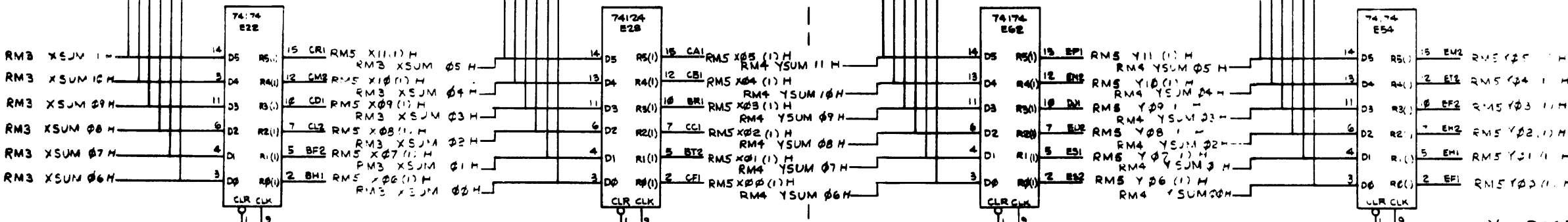
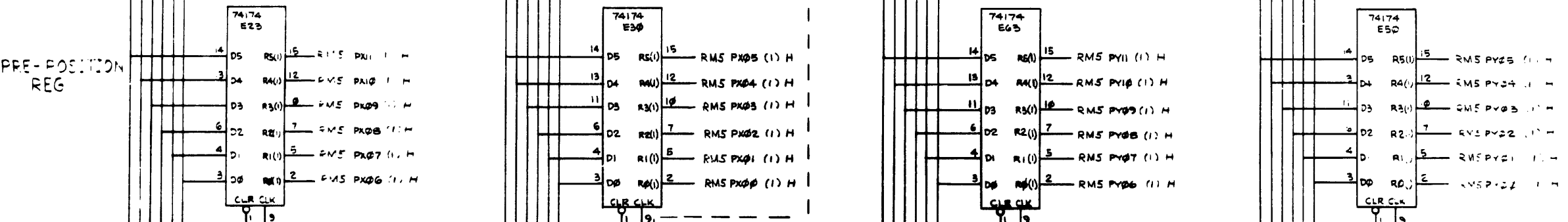
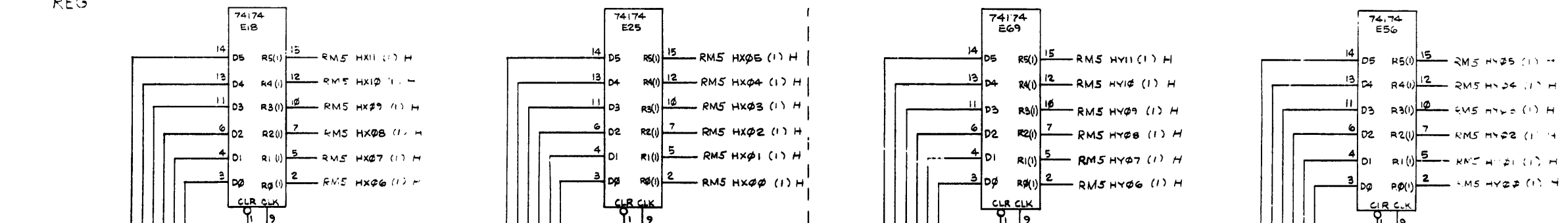
X-HOLDING REG

Y-PRE-POSITION REG

X-PRE-POSITION REG

Y-POSITION REG

X-POSITION REG



|              |         |                   |                      |
|--------------|---------|-------------------|----------------------|
| DRN          | 3/10/75 | FIRST USED ON     |                      |
| CHK'D        |         |                   |                      |
| ENG          |         | TITLE             | REGISTER & MUX BOARD |
| PROJ. ENG.   |         | SCALE             |                      |
| PROD. R.     |         | NEXT HIGHER ASSY. |                      |
| B-DD-M7051-0 |         | SIZE              | D CS                 |
|              |         | NUMBER            | M7051-0-RM5          |
|              |         | REV.              | A                    |
| SHEET        | 1       | OF 1              | DIST.                |

REV. 10/75

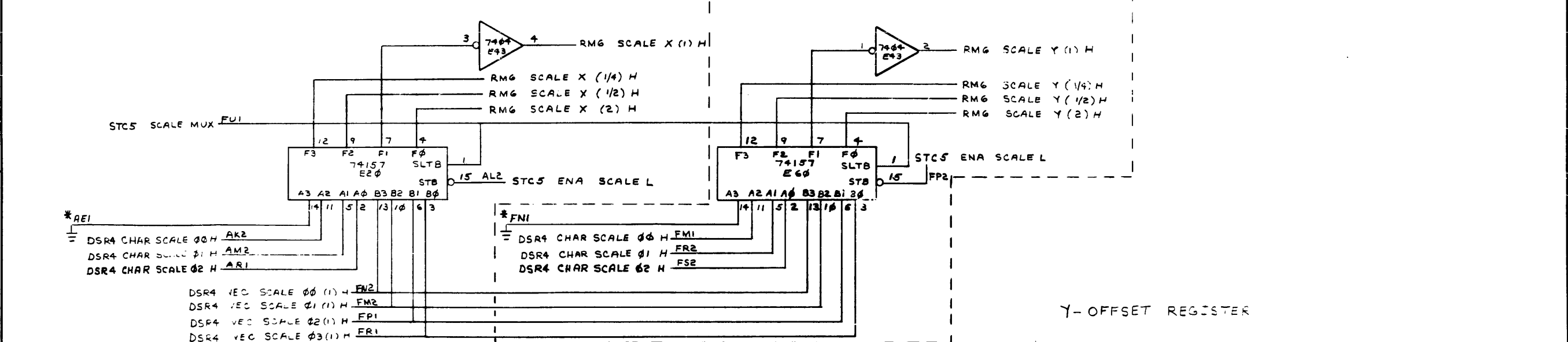
M7051-0-RM5-A



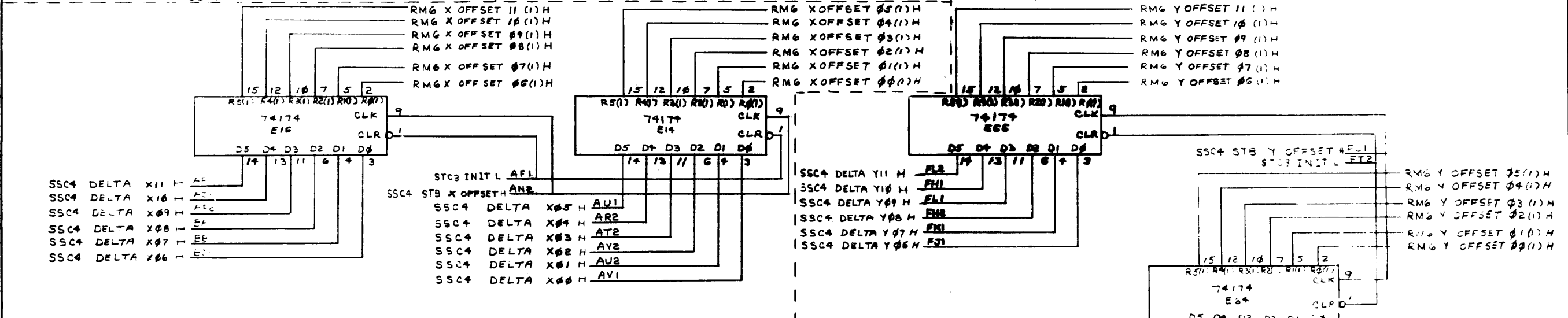
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X - CHARACTER + VECTOR SCALE MUX

Y - CHARACTER + VECTOR SCALE MUX



Y - OFFSET REGISTER



X - OFFSET REGISTER

\*INDICATES GROUNDED ON BACKPLANE

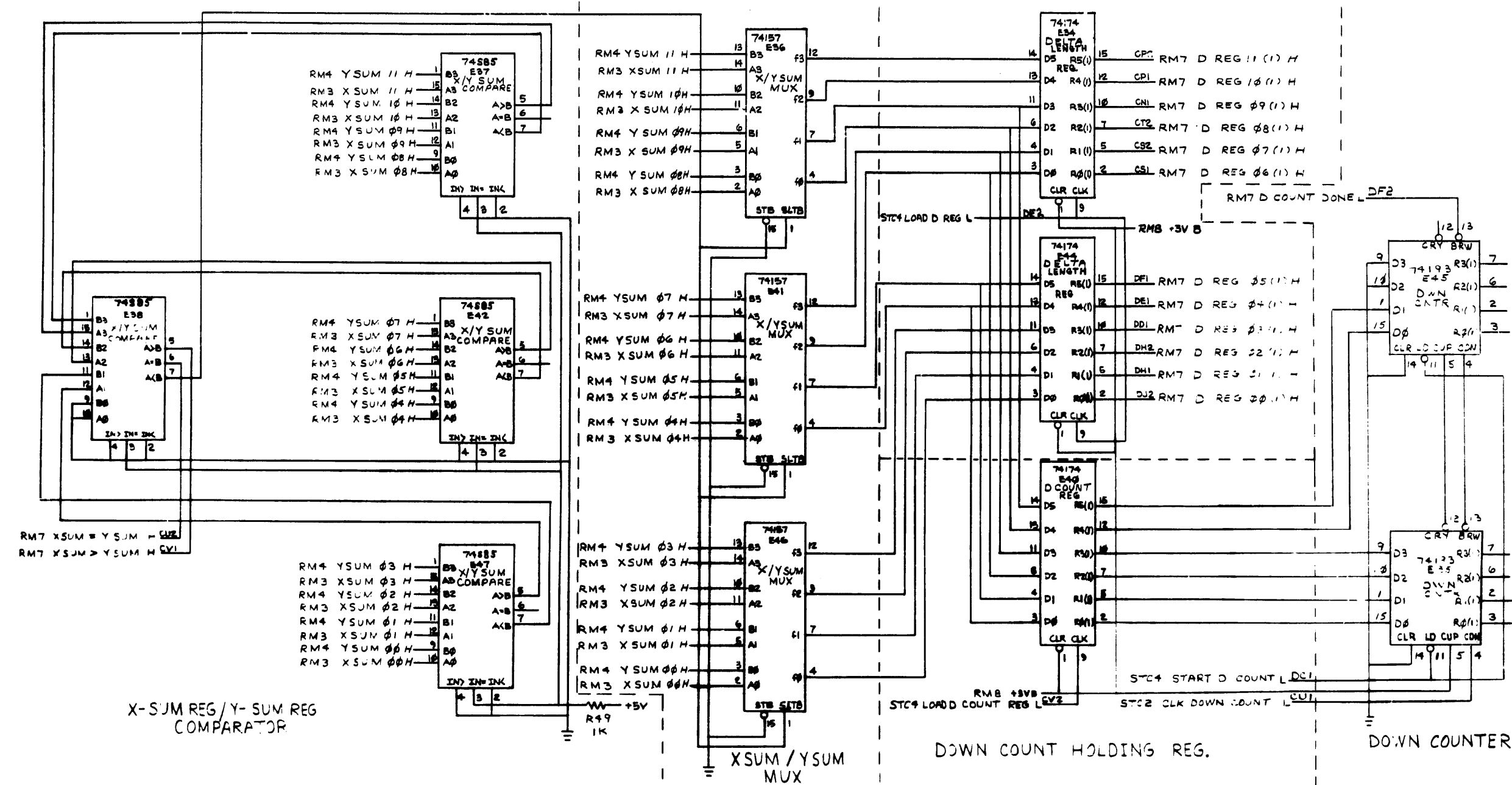
|            |      |
|------------|------|
| REV. NO.   | REV. |
| ORIGINATED | A    |

|            |         |                   |                      |
|------------|---------|-------------------|----------------------|
| DRN        | 4/2/76  | FIRST USED ON     | 20-00-0              |
| 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      |         | SIZE              | D                    |
| SHEET      | 1 OF 1  | REV.              | A                    |

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CS M7051-0-RM7 A

### DELTA LENGTH REG



X-SUM REG / Y-SUM REG COMPARATOR

XSUM / YSUM MUX

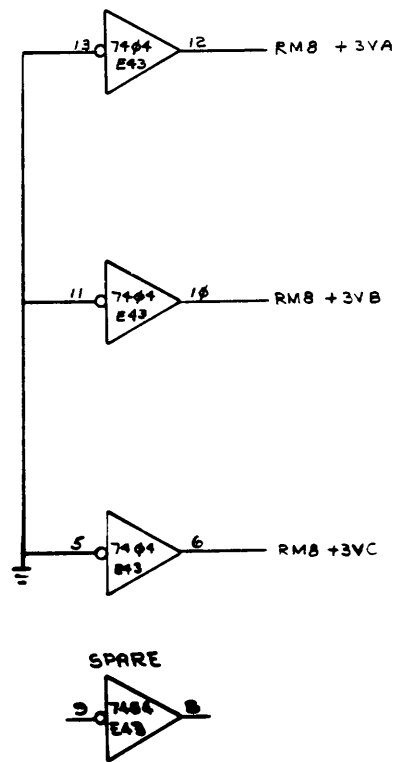
DOWN COUNT HOLDING REG.

DOWN COUNTER

|     |            |   |
|-----|------------|---|
| REV | ORIGINATED | A |
|-----|------------|---|

|              |           |                    |                      |
|--------------|-----------|--------------------|----------------------|
| DRN          | 5/17/75   | FIRST USED ON      | 00-0000              |
| CHK'D        | 5/20/75   | TITLE              | REGISTER & MUX BOARD |
| ENG.         | 7-4-75    | PROJ. ENG.         | 7-4-75               |
| PROD.        |           | NEXT HIGHER ARBY.  |                      |
| 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 10 (1) H | 1   | A     |
| RM6 X OFFSET 00 (1) H | 2   | BB    |
| RM6 X OFFSET 11 (1) H | 3   | CC    |
| RM6 X OFFSET 01 (1) H | 4   | DD    |
| RMS X 04 (1) H (CB1)  | 5   | EE    |
| RM6 X OFFSET 02 (1) H | 6   | FF    |
| RMS X 05 (1) H (CR1)  | 7   | HH    |
| RM6 X OFFSET 03 (1) H | 8   | JJ    |
| RMS X 06 (1) H (BH1)  | 9   | KK    |
| RM6 X OFFSET 04 (1) H | 10  | LL    |
| RMS X 07 (1) H (BF2)  | 11  | MM    |
| RM6 X OFFSET 05 (1) H | 12  | NN    |
| RMS X 08 (1) H (CL2)  | 13  | PP    |
| RM6 X OFFSET 06 (1) H | 14  | RR    |
| RMS X 09 (1) H (CD1)  | 15  | SS    |
| RM6 X OFFSET 07 (1) H | 16  | TT    |
| RMS X 10 (1) H (CM2)  | 17  | UU    |
| RM6 X OFFSET 08 (1) H | 18  | VV    |
| RMS X 11 (1) H (CR1)  | 19  | WW    |
| RM6 X OFFSET 09 (1) H | 20  | XX    |
| RMS Y 11 (1) H (EP1)  | 21  | YY    |
| RM6 Y OFFSET 09 (1) H | 22  | ZZ    |
| RMS Y 10 (1) H (EM2)  | 23  | AA    |
| RM6 Y OFFSET 08 (1) H | 24  | BB    |
| RMS Y 09 (1) H (DJ1)  | 25  | CC    |
| RM6 Y OFFSET 07 (1) H | 26  | DD    |
| RMS Y 08 (1) H (EU2)  | 27  | EE    |
| RM6 Y OFFSET 06 (1) H | 28  | FF    |
| RMS Y 07 (1) H (ES1)  | 29  | HH    |
| RM6 Y OFFSET 05 (1) H | 30  | JJ    |
| RMS Y 06 (1) H (ES2)  | 31  | KK    |
| RM6 Y OFFSET 04 (1) H | 32  | LL    |
| RMS Y 05 (1) H (EM2)  | 33  | MM    |
| RM6 Y OFFSET 03 (1) H | 34  | NN    |
| RMS Y 04 (1) H (ET2)  | 35  | PP    |
| RM6 Y OFFSET 02 (1) H | 36  | RR    |
| RM6 Y OFFSET 11 (1) H | 37  | SS    |
| RM6 Y OFFSET 01 (1) H | 38  | TT    |
| RM6 Y OFFSET 10 (1) H | 39  | UU    |
| RM6 Y OFFSET 00 (1) H | 40  | VV    |

CONN TO M7055

|                                |                                       |
|--------------------------------|---------------------------------------|
| DRN: <i>Wilson</i>             | FIRST USED ON: <i>401000</i>          |
| CHK'D: <i>Wilson</i>           | TITLE: REGISTER & MUX BOARD           |
| ENG: <i>Wilson</i>             | SCALE: 1 OF 1                         |
| PROJ. ENG: <i>Wilson</i>       | SHEET: 1 OF 1                         |
| PROD. ENG: <i>Wilson</i>       | DIST.:                                |
| NEXT HIGHER ASSY: B-DD-M7051-0 | SIZE CODE: D                          |
| SCALE: 1 OF 1                  | NUMBER: D C S M 7 0 5 1 - 0 - R M S A |
| SHEET: 1 OF 1                  | DIST.:                                |

## CUSTOMER PRINT SET INDEX

THIS IS PRINT SET 

|  |  |  |
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SEQUENCE

DUAL 12 X 12 MULTIPLIER  
DUAL 12 X 12 MULTIPLIER  
DUAL 12 X 12 MULTIPLIER  
DUAL 12 X 12 MULTIPLIER  
DUAL 12 X 12 MULTIPLIER  
DUAL 12 X 12 MULTIPLIER  
DUAL 12 X 12 MULTIPLIER

SEQUENCE

D-UA-M7Ø52-Ø-Ø  
D-CS-M7Ø52-Ø-MD1  
D-CS-M7Ø52-Ø-MD2  
D-CS-M7Ø52-Ø-MD3  
D-CS-M7Ø52-Ø-MD4  
D-CS-M7Ø52-Ø-MD5  
D-CS-M7Ø52-Ø-MD6  
D-CS-M7Ø52-Ø-MD7

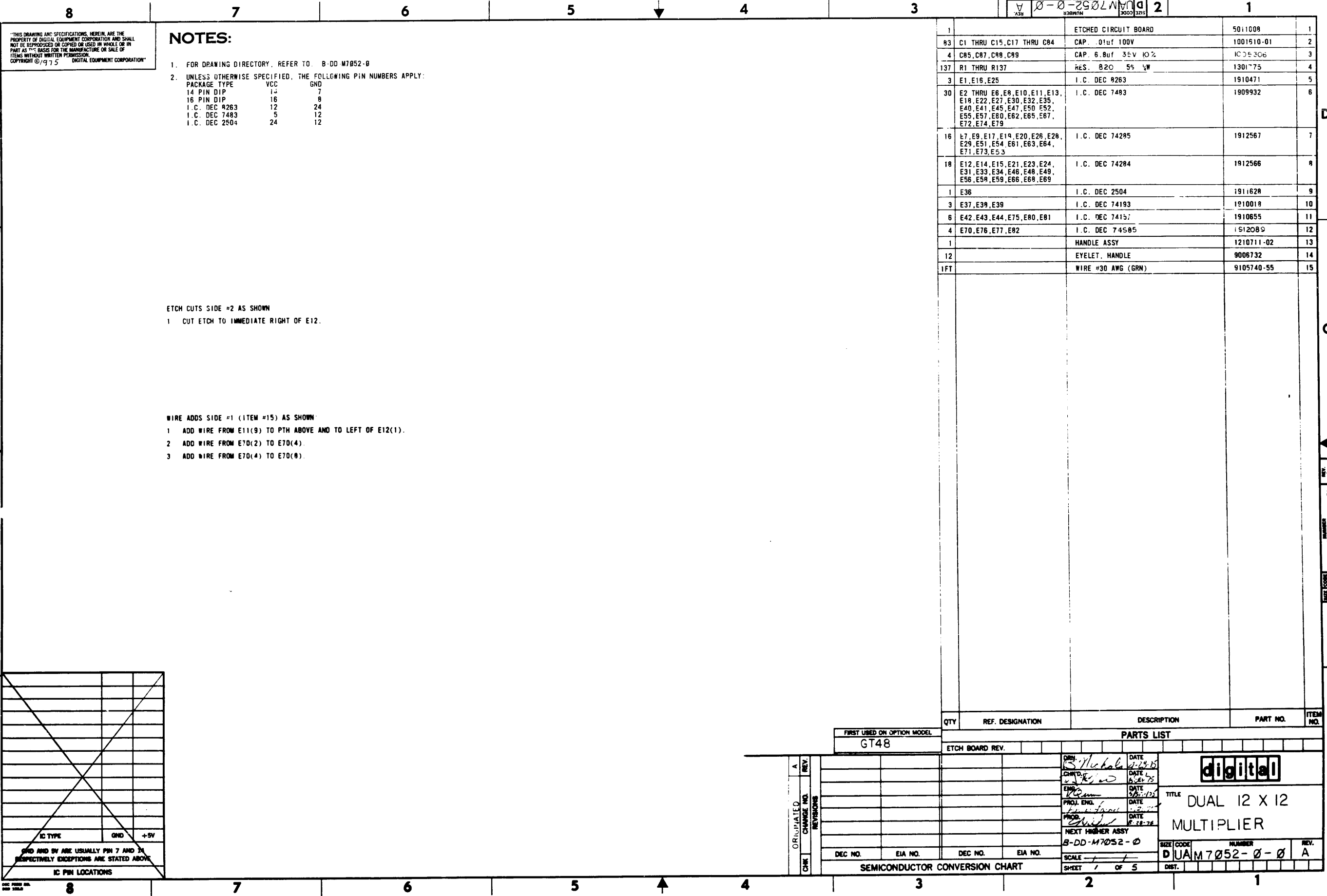
| UNIT VARIATIONS |                         | PRINT SET |
|-----------------|-------------------------|-----------|
| VAR             | TITLE                   |           |
| M7Ø52           | DUAL 12 X 12 MULTIPLIER |           |
|                 |                         |           |
|                 |                         |           |
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|--------------|----------------------|----------|---------|-----------|--|-------------------------|-----|---|------|---------|--|--|--|---------|--|--|--|------|-------------------------|--|--|--|----------|--|--|--|------|------|------|--------|-----|--|--|---------|--|---|----|---------|--|--|--|--|------|------|--|--|--|--|--|--|--|--|--|--|--|
| REVISIONS    | REV                  |          |         |           | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="3">USED ON OPTION/MODEL</td> <td>DATE</td> <td colspan="2" rowspan="2">TITLE</td> </tr> <tr> <td></td> <td></td> <td>2/12/75</td> </tr> <tr> <td colspan="3"></td> <td>DATE</td> <td colspan="2" rowspan="2">DUAL 12 X 12 MULTIPLIER</td> </tr> <tr> <td></td> <td></td> <td>8 SEP 75</td> </tr> <tr> <td colspan="3"></td> <td>DATE</td> <td rowspan="2">SIZE</td> <td rowspan="2">CODE</td> <td rowspan="2">NUMBER</td> <td rowspan="2">REV</td> </tr> <tr> <td></td> <td></td> <td>7-17-75</td> <td></td> <td>B</td> <td>DD</td> <td>M7Ø52-Ø</td> <td></td> </tr> <tr> <td colspan="3"></td> <td>DATE</td> <td colspan="2">DIST</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | USED ON OPTION/MODEL    |     |   | DATE | TITLE   |  |  |  | 2/12/75 |  |  |  | DATE | DUAL 12 X 12 MULTIPLIER |  |  |  | 8 SEP 75 |  |  |  | DATE | SIZE | CODE | NUMBER | REV |  |  | 7-17-75 |  | B | DD | M7Ø52-Ø |  |  |  |  | DATE | DIST |  |  |  |  |  |  |  |  |  |  |  |
|              | USED ON OPTION/MODEL |          |         | DATE      |  | TITLE                   |     |   |      |         |  |  |  |         |  |  |  |      |                         |  |  |  |          |  |  |  |      |      |      |        |     |  |  |         |  |   |    |         |  |  |  |  |      |      |  |  |  |  |  |  |  |  |  |  |  |
|              |                      |          | 2/12/75 |           |  |                         |     |   |      |         |  |  |  |         |  |  |  |      |                         |  |  |  |          |  |  |  |      |      |      |        |     |  |  |         |  |   |    |         |  |  |  |  |      |      |  |  |  |  |  |  |  |  |  |  |  |
|              |                      |          |         | DATE      |  | DUAL 12 X 12 MULTIPLIER |     |   |      |         |  |  |  |         |  |  |  |      |                         |  |  |  |          |  |  |  |      |      |      |        |     |  |  |         |  |   |    |         |  |  |  |  |      |      |  |  |  |  |  |  |  |  |  |  |  |
|              |                      | 8 SEP 75 |         |           |  |                         |     |   |      |         |  |  |  |         |  |  |  |      |                         |  |  |  |          |  |  |  |      |      |      |        |     |  |  |         |  |   |    |         |  |  |  |  |      |      |  |  |  |  |  |  |  |  |  |  |  |
|              |                      |          | DATE    | SIZE      | CODE   | NUMBER                  | REV |   |      |         |  |  |  |         |  |  |  |      |                         |  |  |  |          |  |  |  |      |      |      |        |     |  |  |         |  |   |    |         |  |  |  |  |      |      |  |  |  |  |  |  |  |  |  |  |  |
|              |                      | 7-17-75  |         |           |  |                         |     | B | DD   | M7Ø52-Ø |  |  |  |         |  |  |  |      |                         |  |  |  |          |  |  |  |      |      |      |        |     |  |  |         |  |   |    |         |  |  |  |  |      |      |  |  |  |  |  |  |  |  |  |  |  |
|              |                      |          | DATE    | DIST      |  |                         |     |   |      |         |  |  |  |         |  |  |  |      |                         |  |  |  |          |  |  |  |      |      |      |        |     |  |  |         |  |   |    |         |  |  |  |  |      |      |  |  |  |  |  |  |  |  |  |  |  |
|              |                      |          |         |           |  |                         |     |   |      |         |  |  |  |         |  |  |  |      |                         |  |  |  |          |  |  |  |      |      |      |        |     |  |  |         |  |   |    |         |  |  |  |  |      |      |  |  |  |  |  |  |  |  |  |  |  |
| CHG. NO.     |                      |          |         |           |  |                         |     |   |      |         |  |  |  |         |  |  |  |      |                         |  |  |  |          |  |  |  |      |      |      |        |     |  |  |         |  |   |    |         |  |  |  |  |      |      |  |  |  |  |  |  |  |  |  |  |  |
| DATE         |                      |          |         |           |  |                         |     |   |      |         |  |  |  |         |  |  |  |      |                         |  |  |  |          |  |  |  |      |      |      |        |     |  |  |         |  |   |    |         |  |  |  |  |      |      |  |  |  |  |  |  |  |  |  |  |  |
| SHEET 1 OF 2 |                      |          | DATE    | 8 SEPT 75 |  |                         |     |   |      |         |  |  |  |         |  |  |  |      |                         |  |  |  |          |  |  |  |      |      |      |        |     |  |  |         |  |   |    |         |  |  |  |  |      |      |  |  |  |  |  |  |  |  |  |  |  |

DEC 16-12831-1005-1A-R072

# REVISION CONTROL SHEET

| CUSTOMER<br>PRINT SET             | MFG SET  | DRAWING NO       | NO<br>OF<br>SHT | DESCRIPTION                                   | OPTION<br>NO/FILE<br>DATE | REVISIONS               |  |  |  |              |  |  |  |           |  |      |  |        |  |  |  |         |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|--|------------------|-----------------|---|---------------------------|-------------------------|--|--|--|--------------|--|--|--|-----------|--|------|--|--------|--|--|--|---------|--|--|--|-----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
|                                   | X  | 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<br>(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<br>PRINT<br>SET<br>CODES | X = PRINT OF DOCUMENT INCLUDED IN PRINT SET<br>C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT<br>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 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |



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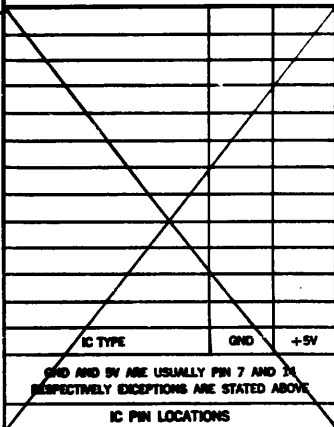
NOTES:

- 1. FOR DRAWING DIRECTORY, REFER TO: B-DD-M7052-B
- 2. 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 #263 | 12  | 24  |
| I.C. DEC 7483 | 5   | 12  |
| I.C. DEC 2504 | 24  | 12  |

ETCH CUTS SIDE #2 AS SHOWN  
1 CUT ETCH TO IMMEDIATE RIGHT OF E12.

WIRE ADDS SIDE #1 (ITEM #15) AS SHOWN  
1 ADD WIRE FROM E11(9) TO PTH ABOVE AND TO LEFT OF E12(1).  
2 ADD WIRE FROM E7D(2) TO E7D(4).  
3 ADD WIRE FROM E7D(4) TO E7D(8).



| 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%   | 1035306    | 3        |
| 137 | R1 THRU R137   | RES. B20 5% 1/4W     | 1301175    | 4        |
| 3   | E1, E16, E25   | I.C. DEC #263        | 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, E39, E39  | I.C. DEC 74193       | 1910018    | 10       |
| 6   | E42, E43, E44, E75, E80, E81   | I.C. DEC 74151       | 1910855    | 11       |
| 4   | E70, E76, E77, E82   | I.C. DEC 74585       | 1912089    | 12       |
| 1   |  | HANDLE ASSY          | 1210711-02 | 13       |
| 12  |  | EYELET, HANDLE       | 9006732    | 14       |
| 1FT |  | WIRE #30 AWG (GRN)   | 9105740-55 | 15       |

| FIRST USED ON OPTION MODEL |                  | PARTS LIST       |                  |
|----------------------------|------------------|------------------|------------------|
| GT48                       |                  | ETCH BOARD REV.  |                  |
| DATE                       | DATE             | DATE             | DATE             |
| 12-28-75                   | 12-28-75         | 12-28-75         | 12-28-75         |
| CHKD. BY                   | CHKD. BY         | CHKD. BY         | CHKD. BY         |
| 12-28-75                   | 12-28-75         | 12-28-75         | 12-28-75         |
| ENG.                       | ENG.             | ENG.             | ENG.             |
| 12-28-75                   | 12-28-75         | 12-28-75         | 12-28-75         |
| PROJ. ENG.                 | PROJ. ENG.       | PROJ. ENG.       | PROJ. ENG.       |
| 12-28-75                   | 12-28-75         | 12-28-75         | 12-28-75         |
| PROD.                      | PROD.            | PROD.            | PROD.            |
| 12-28-75                   | 12-28-75         | 12-28-75         | 12-28-75         |
| NEXT HIGHER ASSY           | NEXT HIGHER ASSY | NEXT HIGHER ASSY | NEXT HIGHER ASSY |
| B-DD-M7052-0               | B-DD-M7052-0     | B-DD-M7052-0     | B-DD-M7052-0     |
| DEC NO.                    | EIA NO.          | DEC NO.          | EIA NO.          |
|                            |                  |                  |                  |
| SCALE                      |                  | SCALE            |                  |
| 1 OF 5                     |                  | 1 OF 5           |                  |
| SHEET                      |                  | SHEET            |                  |
|                            |                  |                  |                  |
|                            |                  |                  |                  |

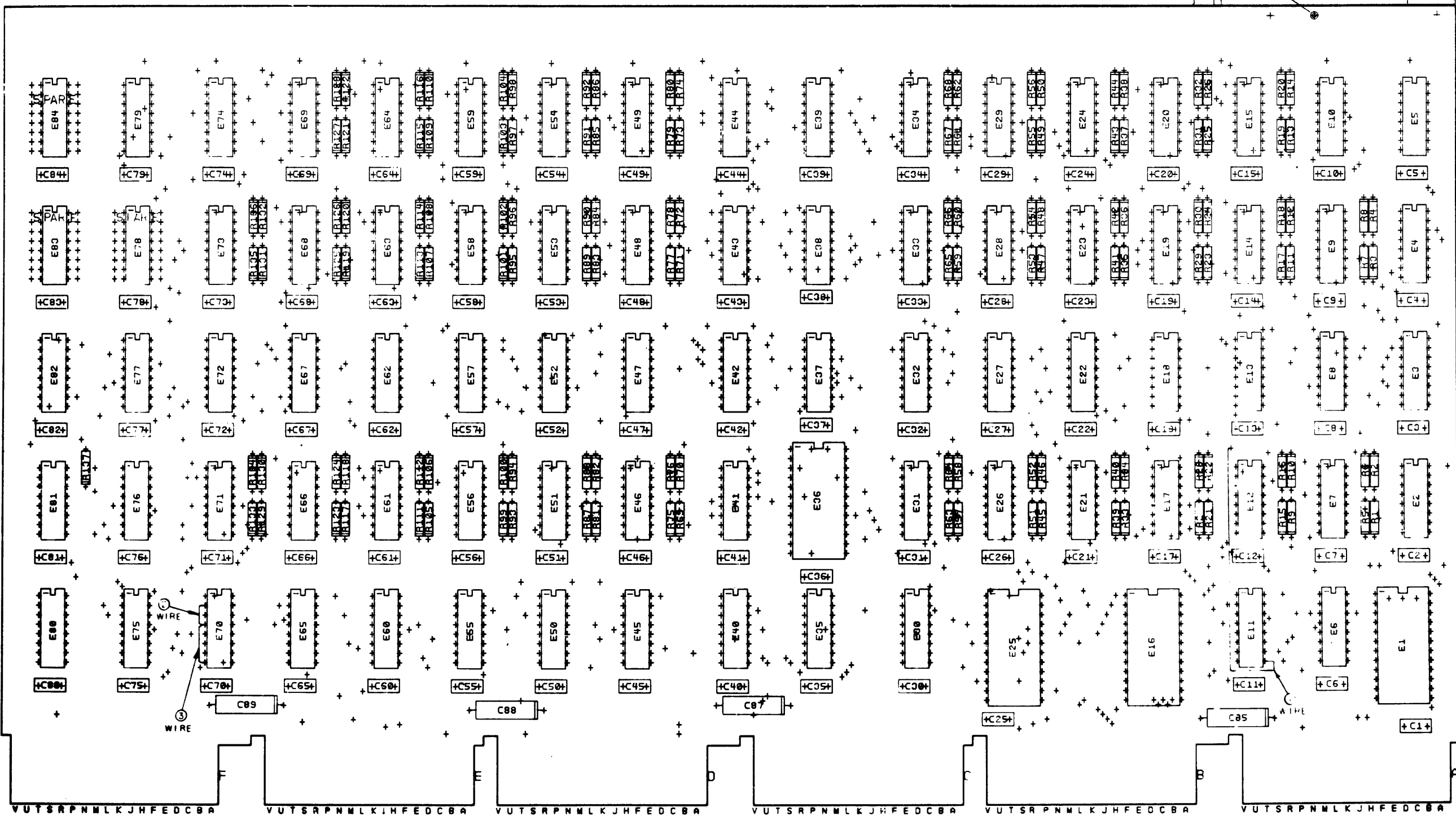
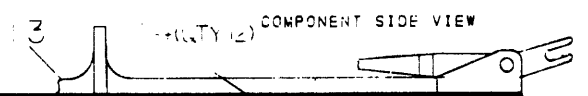


TITLE  
DUAL 12 X 12  
MULTIPLIER

|                |        |      |
|----------------|--------|------|
| SIZE CODE      | NUMBER | REV. |
| DUAL M7052-0-0 | A      |      |

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7-1-23-24-1 2 1



NOTES:  
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 \_\_\_\_\_  
 \_\_\_\_\_

| CHANGE NO | REV |
|-----------|-----|
|           |     |
|           |     |
|           |     |

|                  |                    |                  |
|------------------|--------------------|------------------|
| SIGNATURES       | DATE               | <b>digital</b>   |
| DRN. _____       | 1975               |                  |
| CHK'D. _____     | 1975               | TITLE            |
| ENG. P. _____    | 1975               | DUAL 12 X 12     |
| PROJ. ENG. _____ | 1975               | MULTIPLIER       |
| PROD. _____      | 1975               | SCALE 2X1        |
| ETCH REV         | FIRST USED ON V148 | SIZE CODE NUMBER |
|                  |                    | DUA M7052-0-01A  |
|                  |                    | REV              |
|                  |                    |                  |

8 7 6 5 4 3 2 1 MS#

8

7

6

5

4

3

2 DUAL M7052-0-0 A

C 975

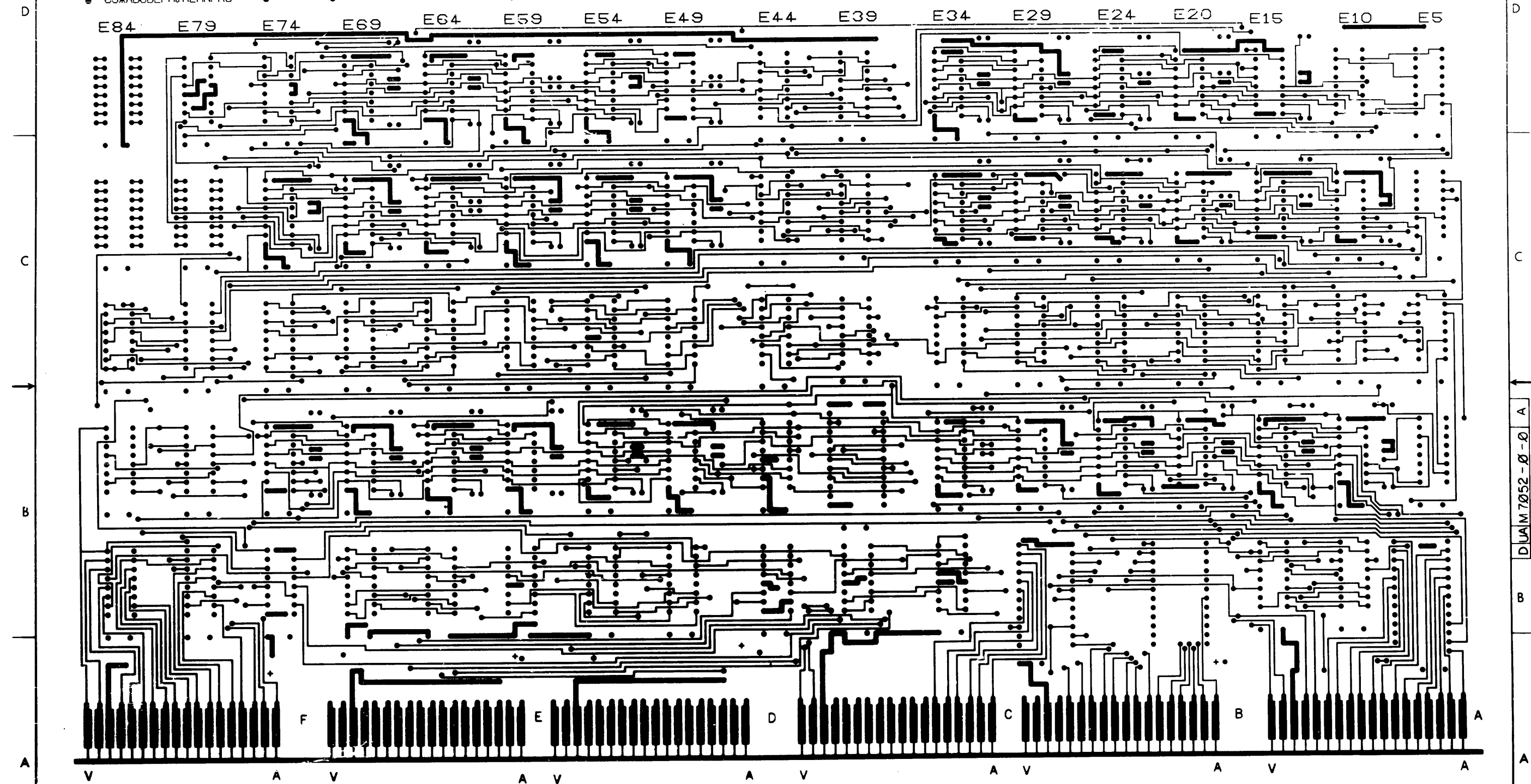
MS30089 M7052 5011008B

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<br>MULTIPLIER | SIZE CODE | NUMBER | REV.             |
| SCALE | 1/8"                       | SHEET     | 3 OF 5 | DIST.            |
|       |                            |           |        | DUAL M7052-0-0 A |

INC FORM NO. 800 137

8

7

6

5

4

3

2

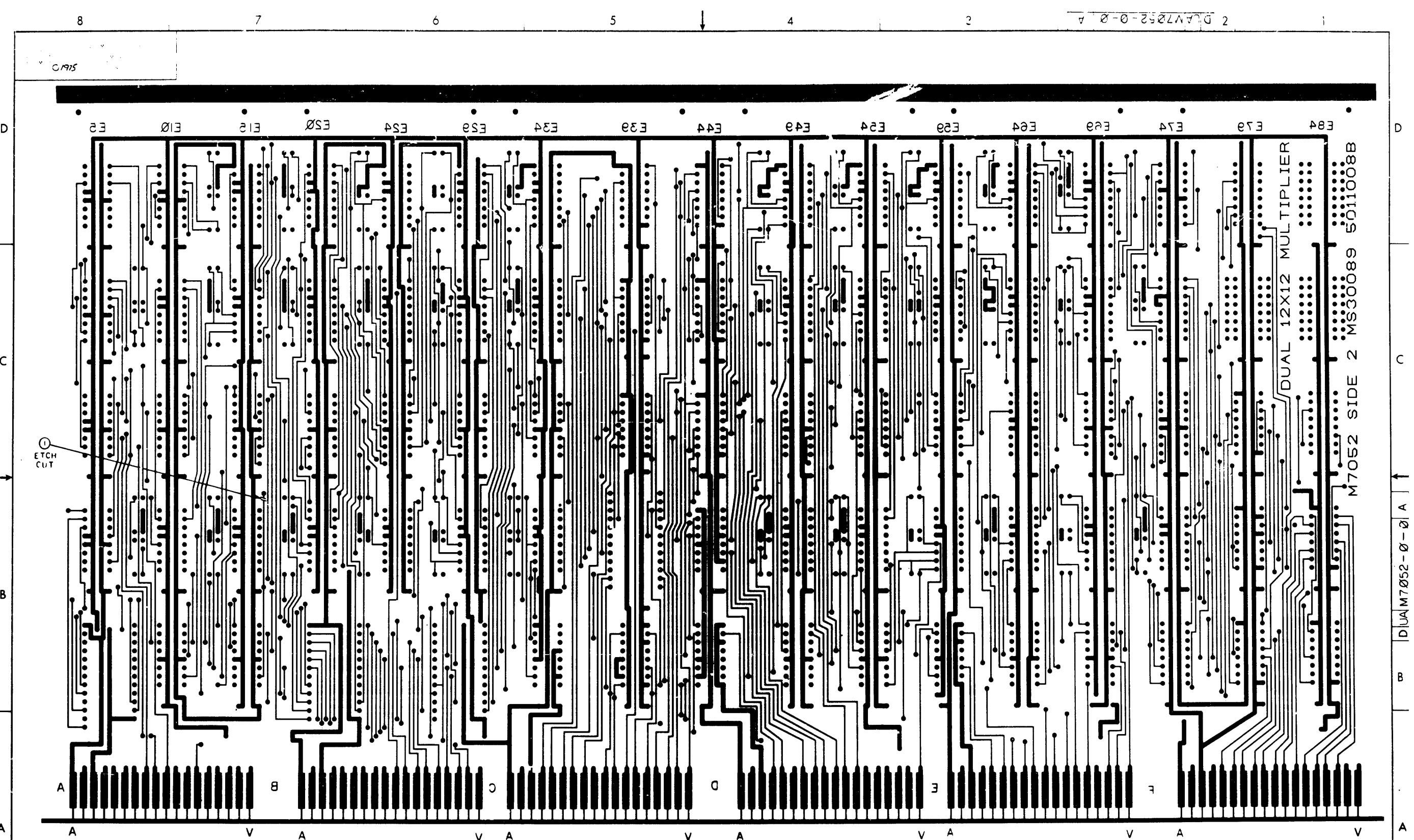
1

DUAL M7052-0-0

B

A



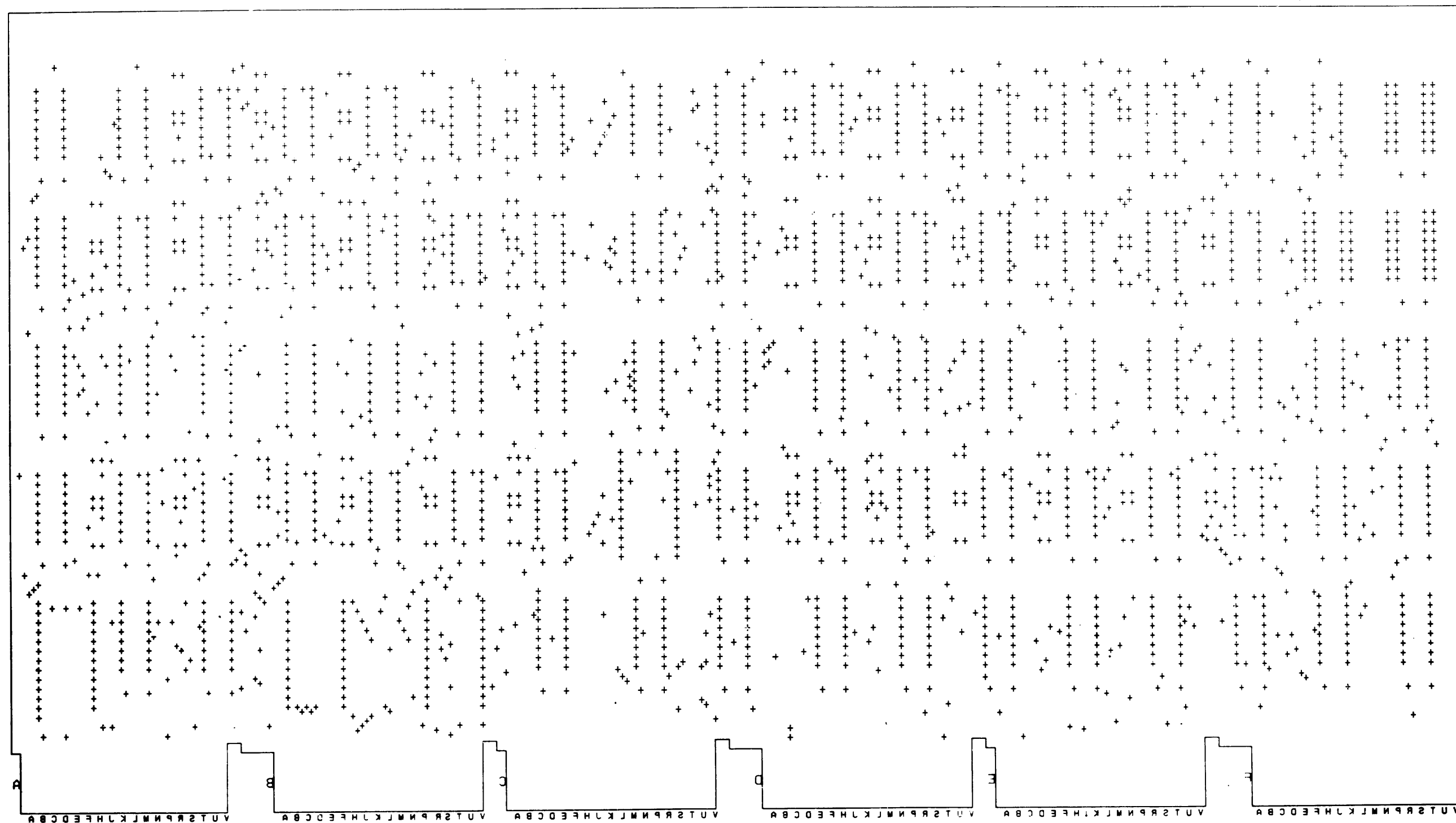


| REVISIONS |           |     |
|-----------|-----------|-----|
| CHK       | CHANGE NO | REV |
|           |           |     |

|                            |              |                   |                     |           |
|----------------------------|--------------|-------------------|---------------------|-----------|
| DUAL 12 X 12<br>MULTIPLIER |              | SIZE CODE<br>D UA | NUMBER<br>M7052-0-0 | REV.<br>A |
| SCALE                      | SHEET 4 OF 5 | DIST              |                     |           |

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2 DUA M7052-0-0



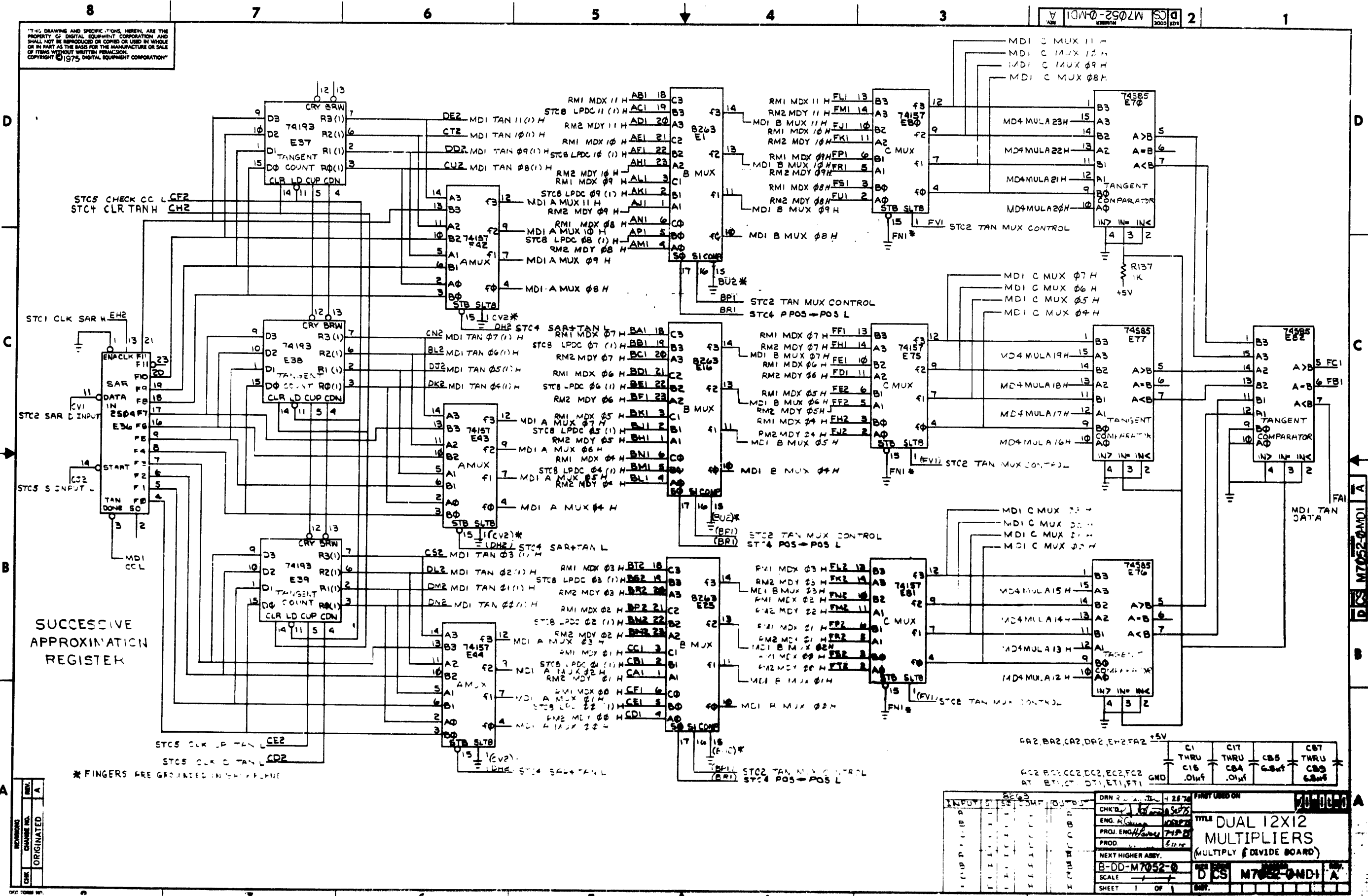
NOTES:  
 \_\_\_\_\_  
 \_\_\_\_\_  
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 \_\_\_\_\_

| CHK | CHANGE | NO | REV |
|-----|--------|----|-----|
|     |        |    |     |
|     |        |    |     |
|     |        |    |     |

|                               |                         |         |                    |
|-------------------------------|-------------------------|---------|--------------------|
| SIGNATURES                    |                         | DATE    | digital            |
| DRN. P. <i>[Signature]</i>    |                         | 8/14/75 |                    |
| CHK'D.                        |                         |         | TITLE DUAL 12 X 12 |
| ENG. R. <i>[Signature]</i>    |                         |         | MULTIPLIER         |
| PROJ. ENG. <i>[Signature]</i> |                         |         |                    |
| PROD. <i>[Signature]</i>      |                         |         |                    |
| SCALE 2/1                     | SIZE CODE               | NUMBER  | REV                |
| SHT. 5 OF 5                   | D U A M 7 0 5 2 - 0 - 0 |         | A                  |
| ETCH REV                      | FIRST USED ON VT48      |         |                    |

1 MS#

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SUCCESSIVE APPROXIMATION REGISTER

\* FINGERS ARE GROUNDED IN BOARD

|                              |       |
|------------------------------|-------|
| FA2, BA2, CA2, DA2, EA2, FA2 | +5V   |
| CA1 THRU C16                 | .01µf |
| C17 THRU C24                 | .01µf |
| CB5 THRU CB9                 | 6.8µf |
| CB7 THRU CB9                 | 6.8µf |

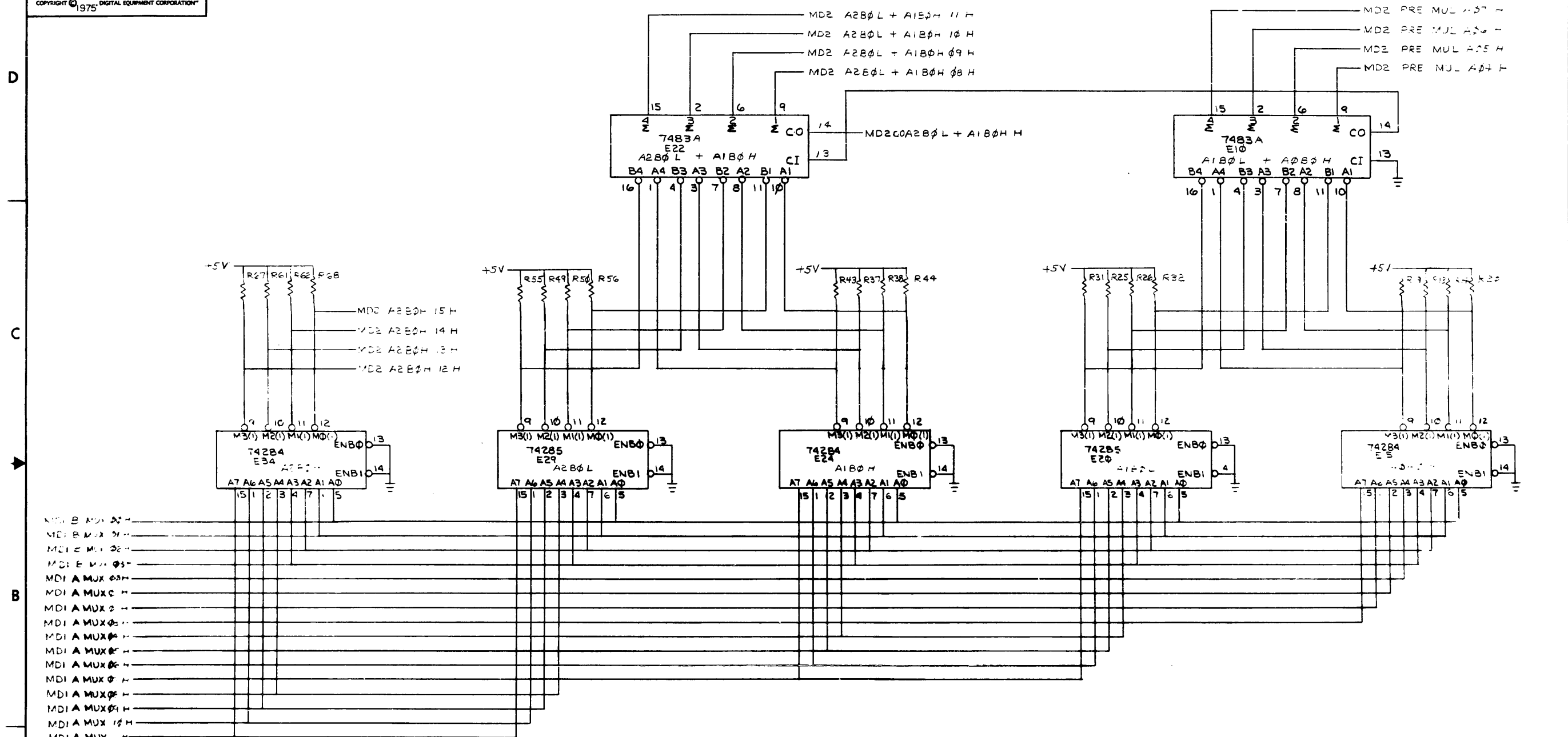
|            |   |
|------------|---|
| REV        | A |
| ORIGINATED |   |

|       |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|-------|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| INPUT | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| ...   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

|                   |              |               |  |
|-------------------|--------------|---------------|--|
| DRN               | 4-28-76      | FIRST USED ON | M7052-0  |
| CHK'D             | ...          | TITLE         | DUAL 12X12 MULTIPLIERS (MULTIPLY & DIVIDE BOARD) |
| ENG.              | ...          | PROJ. ENG.    | ...  |
| PROD.             | ...          | SCALE         | DCS M7052-0MD1 A                                 |
| NEXT HIGHER ASSY. | B-DD-M7052-0 | SHEET         | 1 OF 1   |

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AB MULTIPLIER (SHEET OF 3)  
 AB0

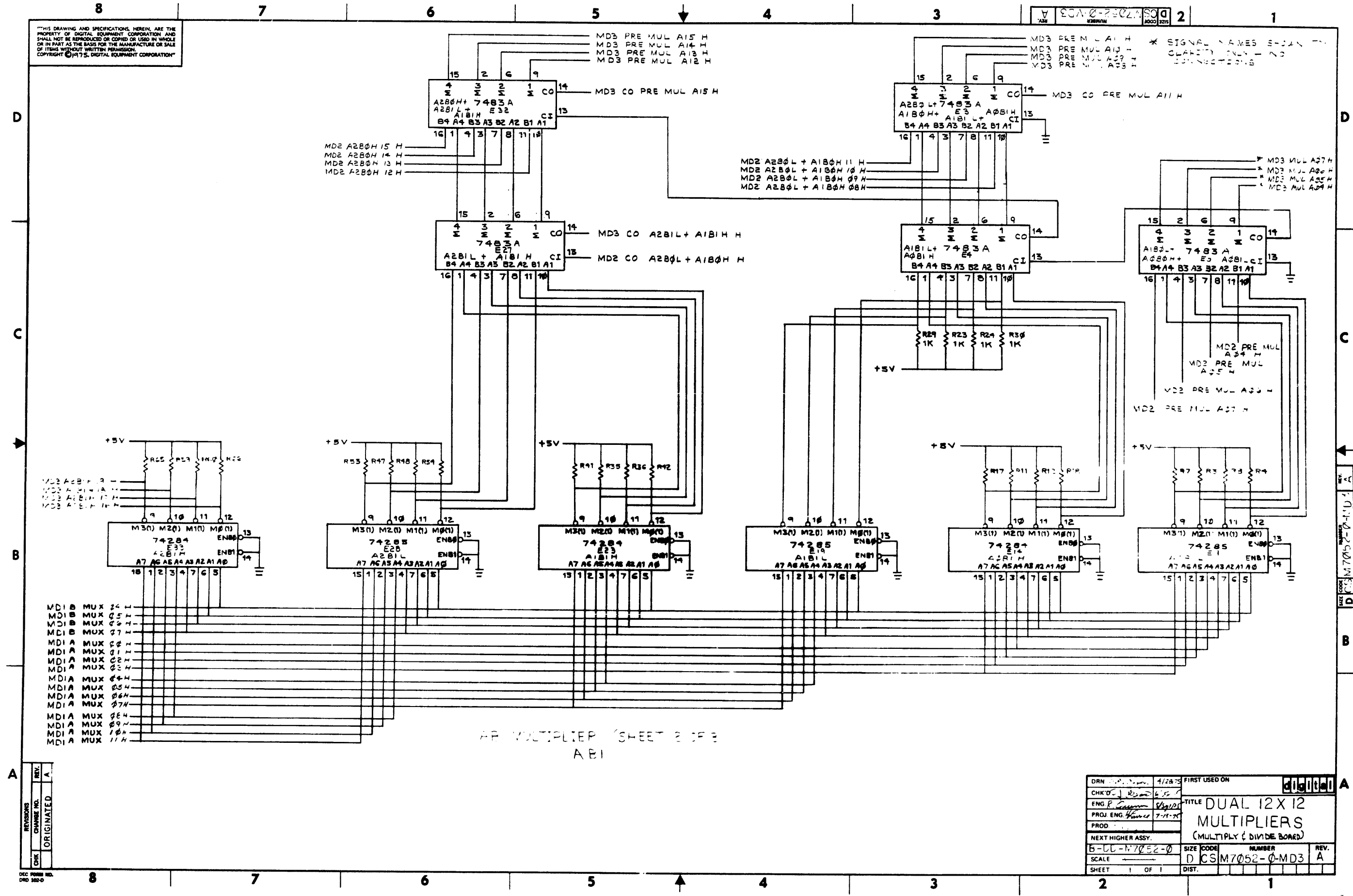
|            |   |
|------------|---|
| REV.       | A |
| ORIGINATED |   |
| CHG.       |   |

|                  |                  |                           |                          |
|------------------|------------------|---------------------------|--------------------------|
| DRN. RW. Counter | 5/27/75          | FIRST USED ON             |                          |
| CHK'D            | 5/15/75          | TITLE                     | DUAL 12 X 12 MULTIPLIERS |
| ENG.             | 5/15/75          | (MULTIPLY & DIVIDE BOARD) |                          |
| PROJ. ENGR.      | H. J. J. 7-15-75 | NEXT HIGHER ASSY.         |                          |
| PROD.            |                  | B-00-M7052-0              | SIZE CODE D CS           |
|                  |                  | SCALE                     | NUMBER M7052-0-MD2       |
|                  |                  | SHEET 1 OF 1              | REV. A                   |

REV. A  
 NUMBER M7052-0-MD2  
 DCS

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\* SIGNAL NAMES SHOWN FOR CLARITY ONLY - NO CONNECTIONS



4-BIT MULTIPLIER (SHEET 2 OF 3)  
A B1

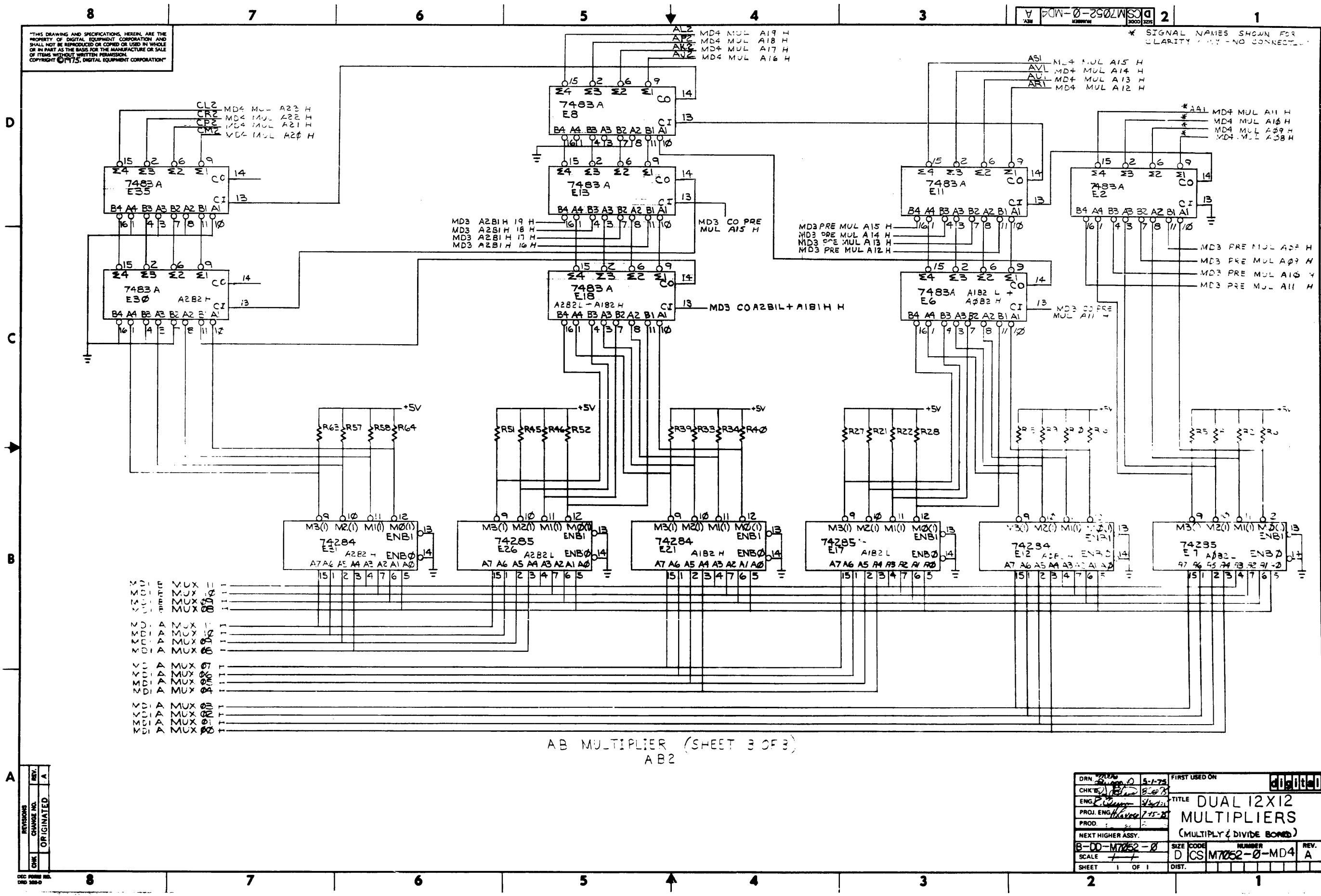
|            |
|------------|
| REV. A     |
| ORIGINATED |
| CHG        |
| REVISIONS  |

|                   |               |                           |                        |
|-------------------|---------------|---------------------------|------------------------|
| DRN               | 4/28/75       | FIRST USED ON             | Digital                |
| CHK'D             | 6/5/75        | TITLE                     | DUAL 12X12 MULTIPLIERS |
| ENG               | P. Sawyer     | (MULTIPLY & DIVIDE BOARD) |                        |
| PROJ              | ENG. H. H. H. | SIZE                      | CODE                   |
| PROD              |               | NUMBER                    | D CSM7052-0 MD3        |
| NEXT HIGHER ASSY. |               | REV.                      | A                      |
| B-LL-N7052-0      |               | SCALE                     |                        |
| SHEET 1 OF 1      |               | DIST.                     |                        |

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CSM7052-0-MD4

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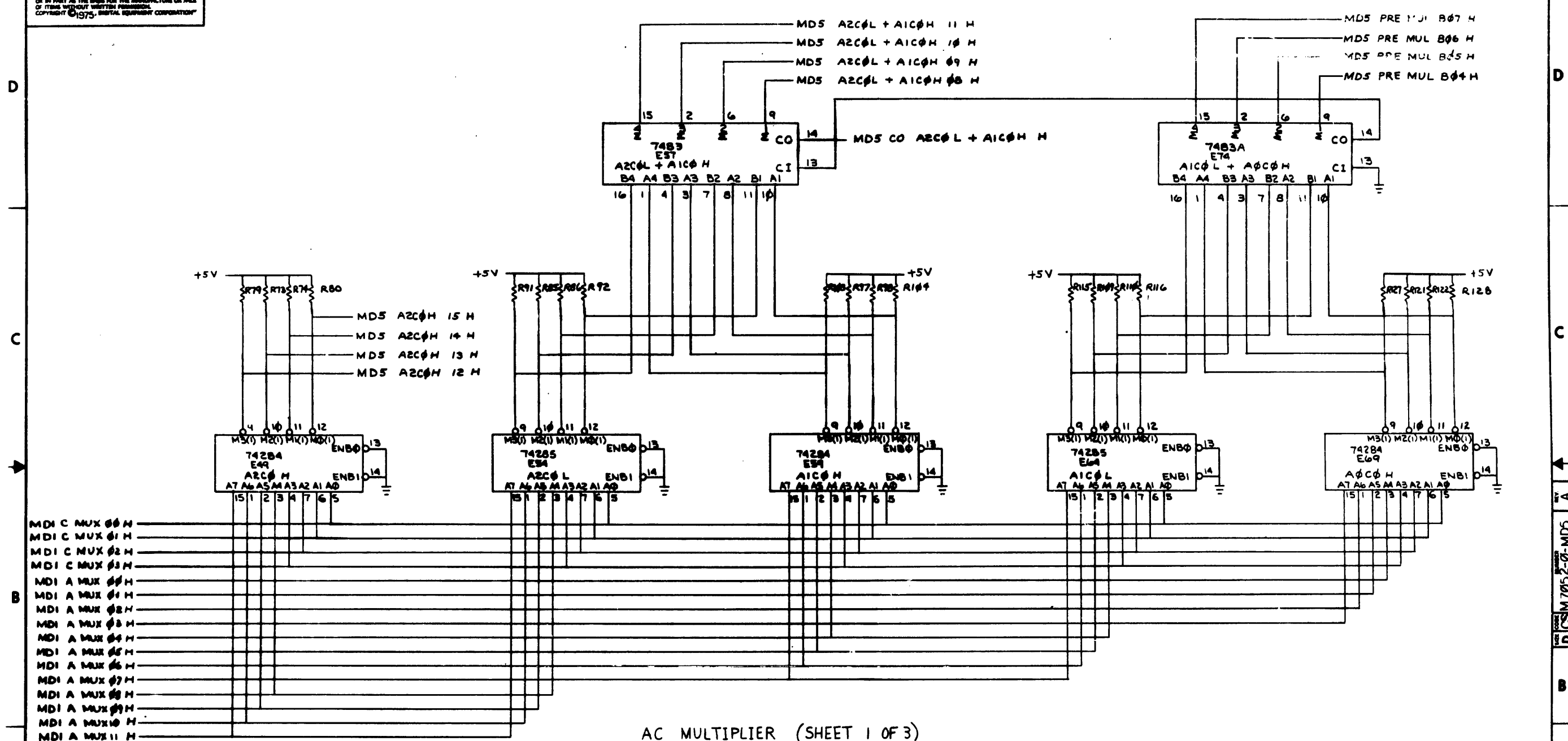


AB MULTIPLIER (SHEET 3 OF 3)  
AB2

|            |   |
|------------|---|
| REV.       | A |
| ORIGINATED |   |
| CHG        |   |
| REVISED    |   |

|                   |         |                           |                        |
|-------------------|---------|---------------------------|------------------------|
| DRN               | 5-1-75  | FIRST USED ON             |                        |
| CHK'D             | 5-1-75  | TITLE                     | DUAL 12X12 MULTIPLIERS |
| ENG               | 5-1-75  | (MULTIPLY & DIVIDE BOARD) |                        |
| PROJ. ENG.        | 7-15-81 | SIZE                      | D                      |
| PROD.             |         | CODE                      | CSM7052-0-MD4          |
| NEXT HIGHER ASSY. |         | NUMBER                    |                        |
| B-DD-M7052-0      |         | SCALE                     | 1                      |
| SCALE             | 1       | DIST.                     |                        |
| SHEET 1 OF 1      |         | REV.                      | A                      |

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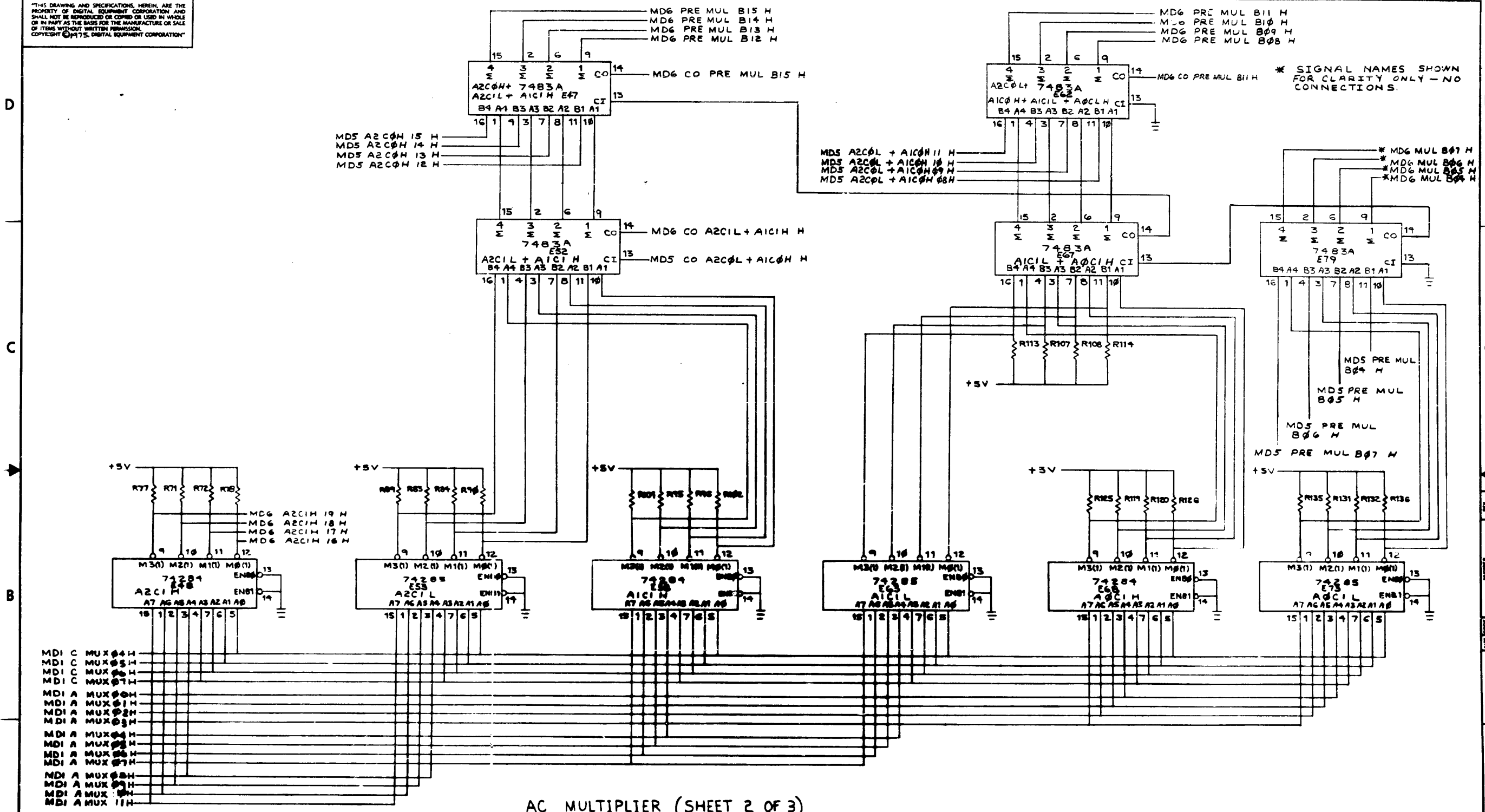
AC MULTIPLIER (SHEET 1 OF 3)  
AC0

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

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

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\* SIGNAL NAMES SHOWN FOR CLARITY ONLY - NO CONNECTIONS.



AC MULTIPLIER (SHEET 2 OF 3)  
 AC1

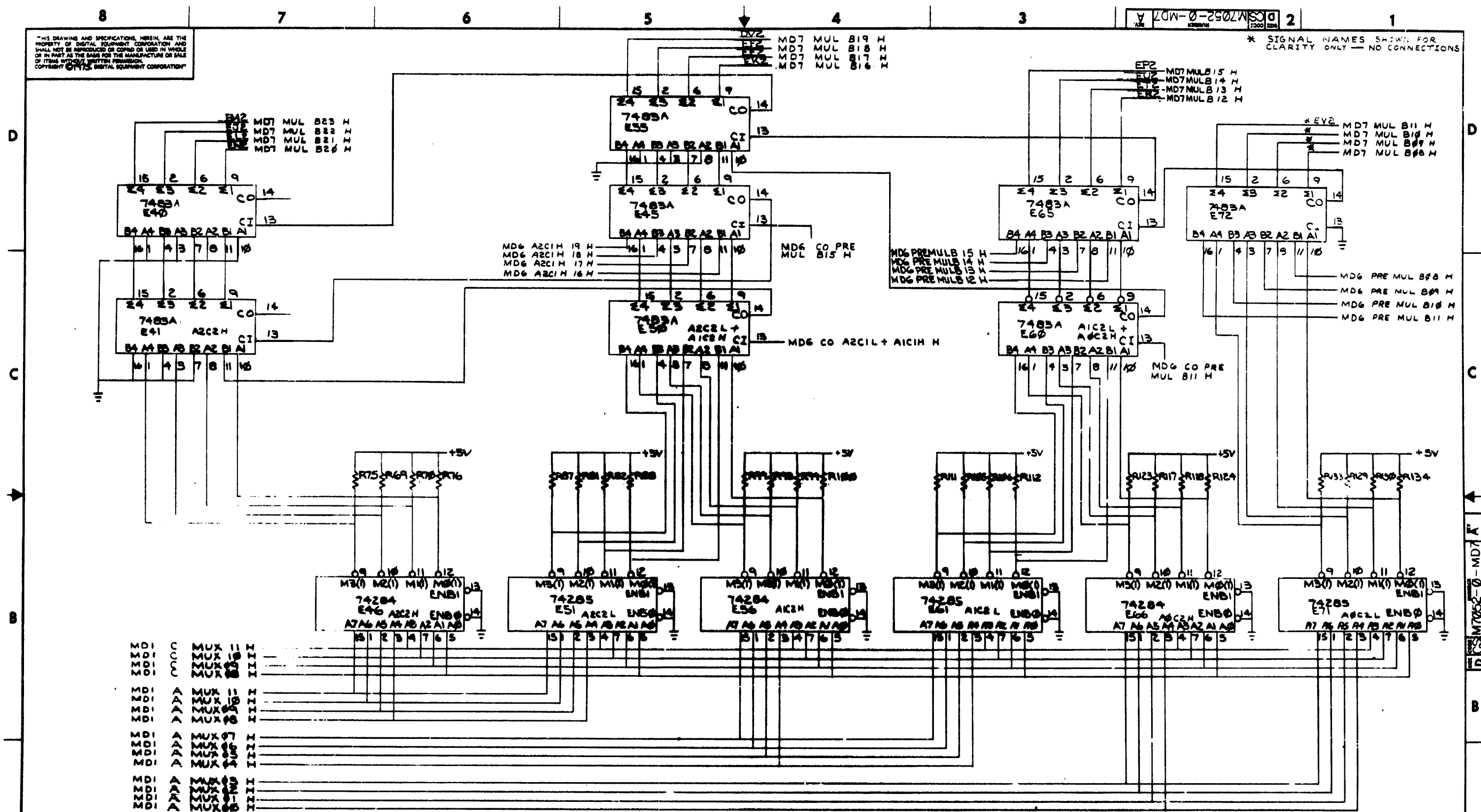
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| REV.        | 1       | DATE | 4/28/75 |
| DESIGNED BY | D.E.O.  |      |         |
| CHECKED BY  | P. G.   |      |         |
| APPROVED BY | D.E.O.  |      |         |
| DATE        | 4/28/75 |      |         |

|              |        |               |                   |   |
|--------------|--------|---------------|-------------------|---|
| DRN          | D.E.O. | 4/28/75       | FIRST USED ON     |   |
| CHK'D        | P. G.  | 4/28/75       | TITLE             | DUAL 12 X 12 MULTIPLIERS (MULTIPLY (MDS & MD6)) |
| ENG.         | P. G.  | 4/28/75       | PROJ. ENG.        | P. G.   |
| PROD.        | P. G.  | 4/28/75       | NEXT HIGHER ASSY. |   |
| B-DD-M7052-0 | SIZE   | CODE          | REV.              | A   |
| SCALE        | D      | CSM7052-0-MD6 |                   |   |
| SHEET        | 1      | OF            | 1                 |   |



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AC MULTIPLIER (SHEET 3 OF 3)  
AC2

|            |   |
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| ORIGINATED | A |
| CHK.       |   |
| DATE       |   |

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| DRN.              | 4-1-75 | FIRST USED ON             | 40-00-0                |
| CHKD.             | 8-2-75 | TITLE                     | DUAL 12X12 MULTIPLIERS |
| ENG.              | 8-2-75 | (MULTIPLY (DIVIDE BOARD)) |                        |
| PROJ. ENG.        | 8-2-75 | SCALE                     | 1                      |
| PROD. RULL.       | 8-2-75 | SIZE                      | D                      |
| NEXT HIGHER ASBY. |        | CODE                      | CS                     |
| 8-00-M7052-0      |        | NUMBER                    | M7052-0-MD7            |
| SCALE             | 1      | REV.                      | A                      |
| SHEET             | 1      | OF                        | 1                      |
| DIST.             |        |                           |                        |





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NOTES: E56, E81, SHOULD BE MMI 6301

ECO\*1=○

ETCH CUTS SIDE #1 AS SHOWN (SEE SHEET #5):

- 1. CUT ETCH FROM E74(9)
2. CUT ETCH FROM E75(11)
3. CUT ETCH FROM S1(5)
4. CUT ETCH FROM E24(5)
5. CUT ETCH FROM PTH BELOW E23(9)
6. CUT ETCH FROM E24(9)
7. CUT ETCH TO LEFT FROM E19(2)
8. CUT ETCH TO RIGHT E19(2)
9. CUT ETCH BETWEEN E21(1) AND E26(1)
10. CUT ETCH FROM E46(5)
11. CUT ETCH FROM E64(1)
12. CUT ETCH FROM E35(4)
13. CUT ETCH FROM PTH TO RIGHT OF E12(13) E14

- 14. CUT ETCH AT E13(5)
15. CUT ETCH TO RIGHT OF E55(13)
16. CUT ETCH TO LEFT OF E55(13)
17. CUT ETCH AT E32(2)
18. CUT ETCH FROM E28(11)
19. CUT ETCH FROM E82(20)

ETCH CUTS SIDE #2 AS SHOWN (SEE SHEET #6):

- 1. CUT ETCH FROM E13(1)
2. CUT ETCH FROM 5V SOURCE OF R45
3. CUT ETCH FROM PTH ABOVE E65(14)
4. CUT ETCH FROM E75(2)
5. CUT ETCH AT E70(7)
6. CUT ETCH AT E26(1)
7. CUT ETCH AT E64(5)
8. CUT ETCH BETWEEN E14(3) AND PTH ABOVE E14
9. CUT ETCH BETWEEN FIRST AND SECOND PTH AFTER E78(3)

- 10. CUT ETCH FROM E78(4)
11. CUT ETCH AFTER FIRST PTH FROM E25(2)
12. CUT ETCH AT E05(7)
13. CUT ETCH AT E28(4)
14. CUT ETCH AT E05(6)
15. CUT ETCH AFTER FIRST PTH FROM E71(20)
16. CUT ETCH AFTER FIRST PTH AFTER CVI

WIRE ADDS SIDE #1 AS SHOWN (ITEM #7) (SEE SHEET #3):

- 1. ADD WIRE FROM E75(5) TO PTH ABOVE AND TO RIGHT OF E65(14)
2. ADD WIRE FROM E75(11) TO E70(5)
3. ADD WIRE FROM E70(6) TO E68(13)
4. ADD WIRE FROM E74(9) TO PTH FROM FINGER FL1
5. ADD WIRE FROM PTH TO LEFT OF E77(3) TO PTH TO RIGHT OF E35(13)
6. ADD WIRE FROM PTH TO LEFT OF E53(4) TO PTH TO LEFT OF E29(2)
7. ADD WIRE FROM PTH TO LEFT OF E53(3) TO PTH TO LEFT OF E27(6)
8. ADD WIRE FROM DL1(7) TO TOP LEAD OF R45
9. ADD WIRE FROM BOTTOM LEAD OF R45 TO E47(8)
10. ADD WIRE FROM E27(8) TO E27(9)
11. ADD WIRE FROM PTH TO LEFT OF E40(4) TO PTH TO LEFT OF E36(6)
12. ADD WIRE FROM FIRST PTH TO LEFT OF E53(6) TO PTH TO LEFT OF E29(5)
13. ADD WIRE FROM PTH TO RIGHT OF E52(9) TO PTH TO LEFT OF E12(1)
14. ADD WIRE FROM E27(13) TO PTH TO LEFT OF E25(1)

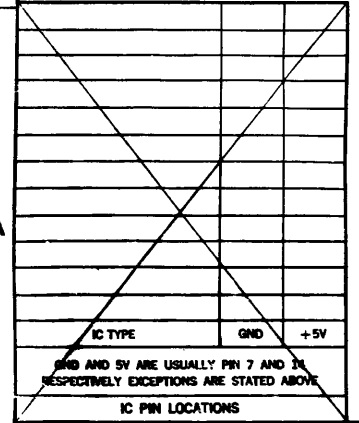
WIRE ADDS SIDE #1 CONTINUED:

- 15. ADD WIRE FROM PTH TO LEFT OF E19(5) TO PTH BELOW TOP LEAD OF R21
16. ADD WIRE FROM E24(9) TO PTH TO RIGHT OF E38(8)
17. ADD WIRE FROM PTH TO RIGHT OF E36(8) TO PTH TO LEFT OF E53(2)
18. ADD WIRE BETWEEN E27(12) AND PTH ABOVE E18(1)
19. ADD WIRE FROM E27(11) TO E27(9)
20. ADD WIRE FROM E13(1) TO PTH BELOW AND TO RIGHT OF E12(9)
21. ADD WIRE FROM PTH BELOW AND TO RIGHT OF E12(14) TO E11(1)
22. ADD WIRE FROM E75(2) TO PTH ABOVE AND TO LEFT OF E47(1)
23. ADD WIRE FROM PTH BETWEEN LEADS OF CR1 AND PTH ABOVE AND LEFT OF C27
24. ADD WIRE FROM PTH TO RIGHT OF E46(10) TO PTH TO RIGHT OF E74(12)
25. ADD WIRE FROM E45(7) TO PTH TO LEFT OF E64(3)
26. ADD WIRE FROM PTH TO LEFT OF E64(4) TO PTH TO RIGHT OF E50(5)
27. ADD WIRE FROM PTH TO RIGHT OF E82(18) TO SECOND PTH TO LEFT OF E53(6)
28. ADD WIRE FROM PTH TO LEFT OF E69(3) TO SECOND PTH TO LEFT OF E40(6)
29. ADD WIRE FROM PTH TO LEFT OF E35(3) TO PTH AT FINGER EA1
30. ADD WIRE FROM PTH TO RIGHT OF E66(11) TO PTH TO LEFT OF E40(3)
31. ADD WIRE FROM PTH TO RIGHT OF E49(12) TO PTH TO LEFT OF E79(1)
32. ADD WIRE FROM PTH TO RIGHT OF E24(13) TO PTH TO LEFT OF E42(4)
33. ADD WIRE FROM PTH TO RIGHT OF E24(13) TO PTH TO LEFT OF E12(2 & 3)
34. ADD WIRE FROM PTH TO LEFT OF E29(1) TO E60(9)
35. ADD WIRE FROM PTH TO LEFT OF E63(4) TO PTH TO LEFT OF E13(2)
36. ADD WIRE FROM PTH TO RIGHT OF E61(10) TO PTH TO LEFT OF E13(3)
37. ADD WIRE FROM E35(4) TO PTH TO RIGHT OF E50(6)

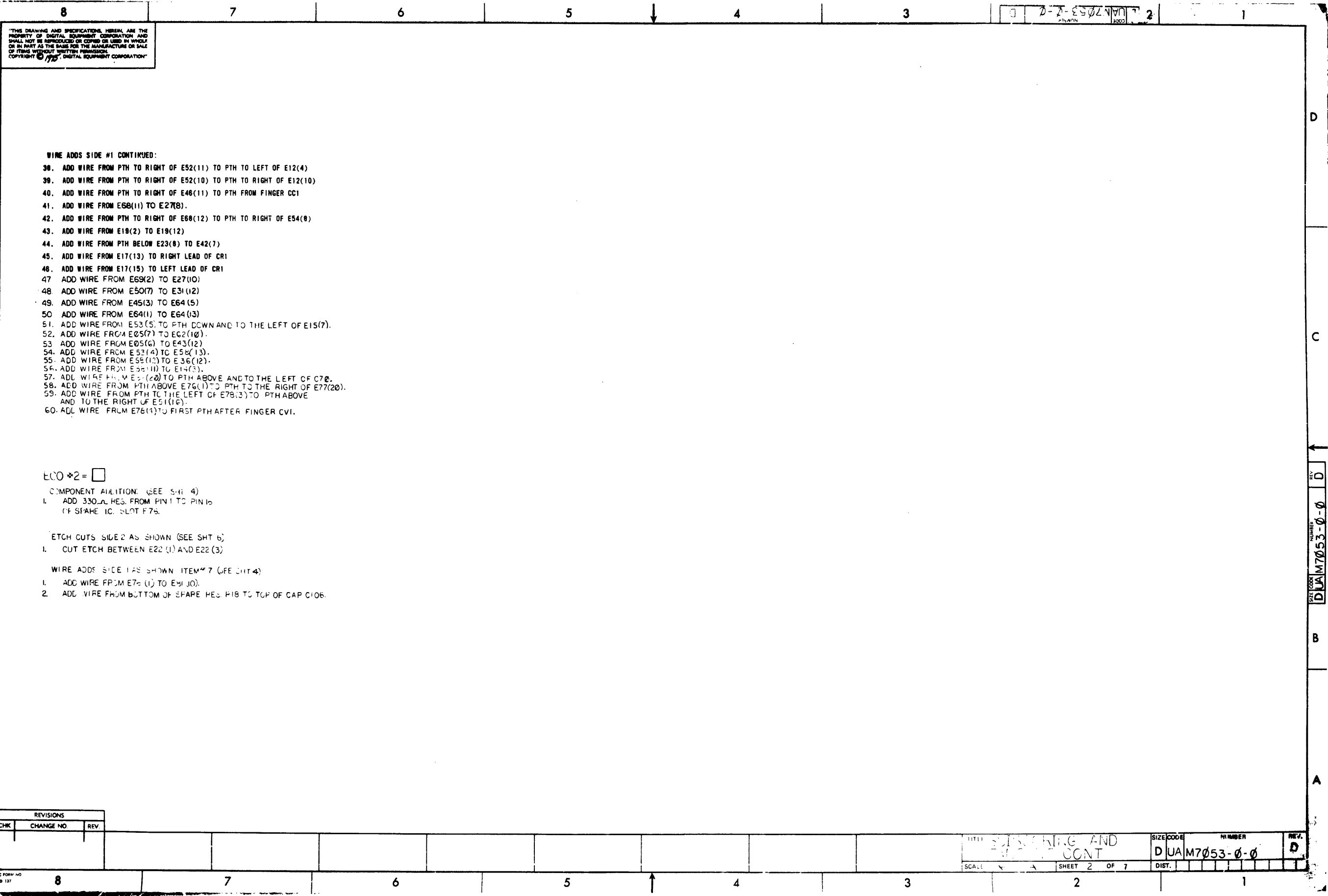
SEE SHEET #4

Table with columns for item number, description (e.g., ROM MM6301, I.C. DEC 7476), and quantity.

Table with columns for item number, description (e.g., ETCHED CIRCUIT BOARD, CAP 10nf 100V), and quantity.



SEMICONDUCTOR CONVERSION CHART and PARTS LIST section with revision table and title 'SCISSORING AND TANGENT CNT'.



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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 E46(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 E53(4) TO E58(13).
- 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(1E).
- 60. ADD WIRE FROM E76(1) TO FIRST PTH AFTER FINGER CV1.

ECC \*2 =

COMPONENT ALIATION: (SEE SHT 4)  
 1. ADD 330Ω RES. FROM PIN1 TO PIN10 OF SQUARE 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 E91(10).  
 2. ADD WIRE FROM BOTTOM OF SQUARE RES. R18 TO TOP OF CAP C106.

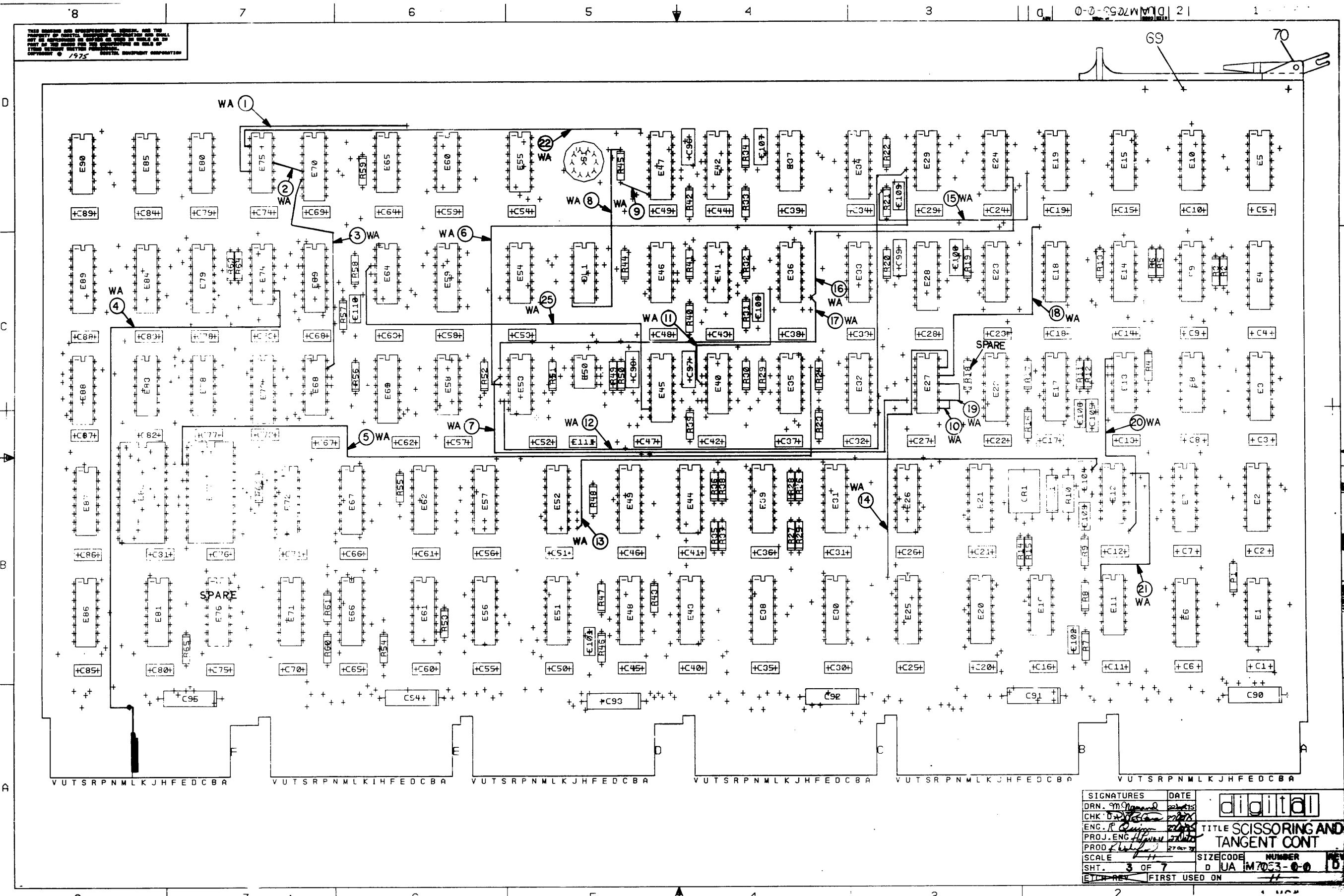
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| TITLE: <b>ETCHING AND</b>  |  | SIZE CODE: <b>D</b> | NUMBER: <b>UA M7053-0-0</b> | REV: <b>D</b> |
| SHEET <b>2</b> OF <b>7</b> |  | DIST.               |                             |               |

FILE CODE: **DUA M7053-0-0** REV: **D**

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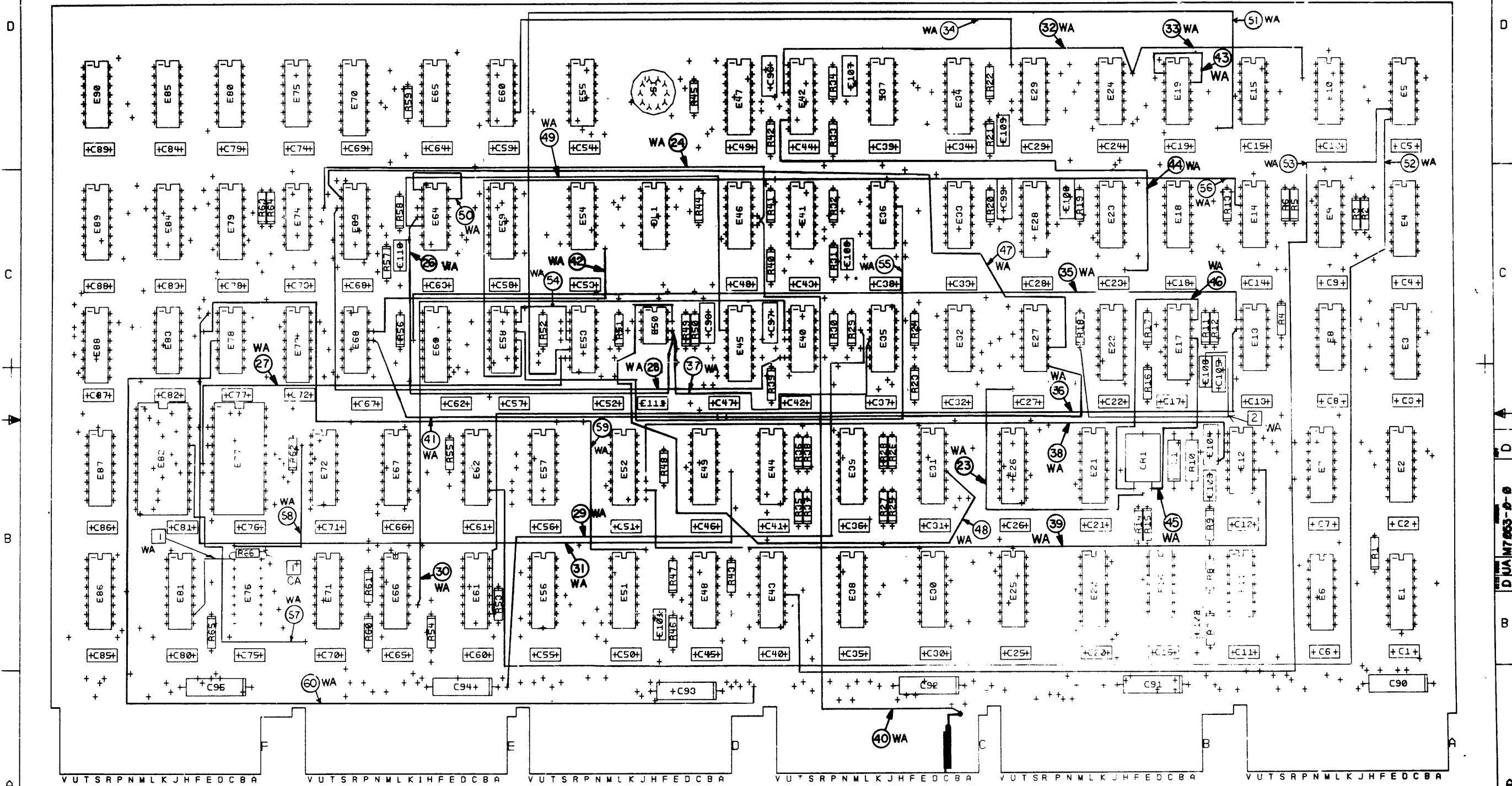
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| SIGNATURES                 | DATE          | digital                           |           |
|----------------------------|---------------|-----------------------------------|-----------|
| DRN. <i>M. J. Quinn</i>    | 2/27/75       | TITLE SCISSORING AND TANGENT CONT |           |
| CHK. <i>D. J. Quinn</i>    | 2/27/75       |                                   |           |
| ENG. <i>R. Quinn</i>       | 2/27/75       |                                   |           |
| PROD. ENG. <i>H. Quinn</i> | 2/27/75       | SIZE CODE                         | NUMBER    |
|                            |               | D. UA                             | M7053-0-0 |
| SCALE 3 OF 7               |               |                                   |           |
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D. UA M7053-0-0

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| SIGNATURES             | DATE          | digital                   |
| DRN: [Signature]       | 7 Oct 75      |                           |
| CHK'D: [Signature]     | 27 Oct 75     | TITLE                     |
| ENG: [Signature]       | 27 Oct 75     |                           |
| PROJ. ENG: [Signature] | 27 Oct 75     | SCALE NONE                |
| PROD. [Signature]      | 27 Oct 75     |                           |
| SHT. 4 OF 7            |               | D U A M 7 0 5 3 - 0 - 0 1 |
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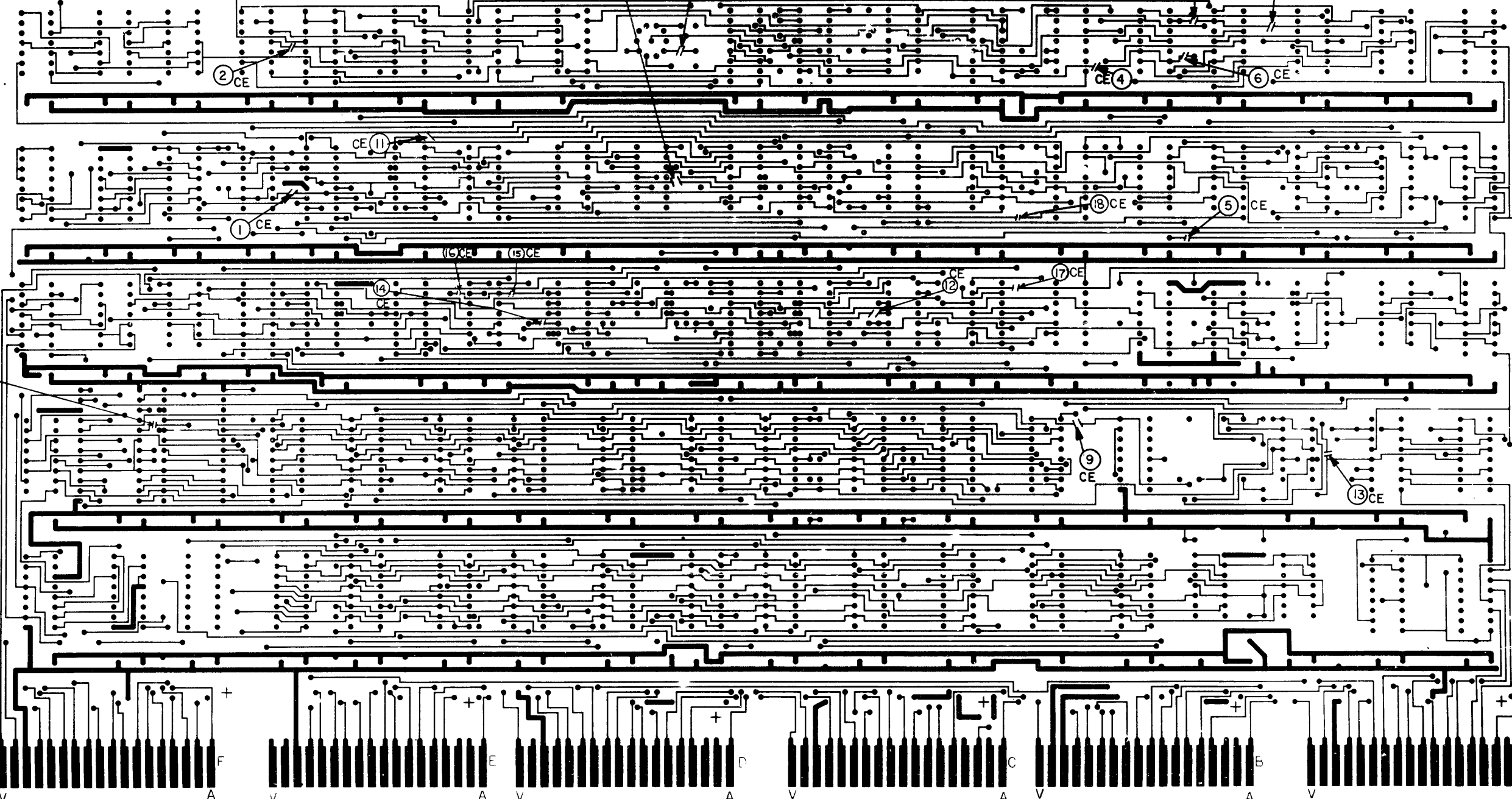
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E90 E85 E80 E75 E70 E65 E60 E55 E47 E42 E37 E34 E29 E24 E19 E15 E10 E5



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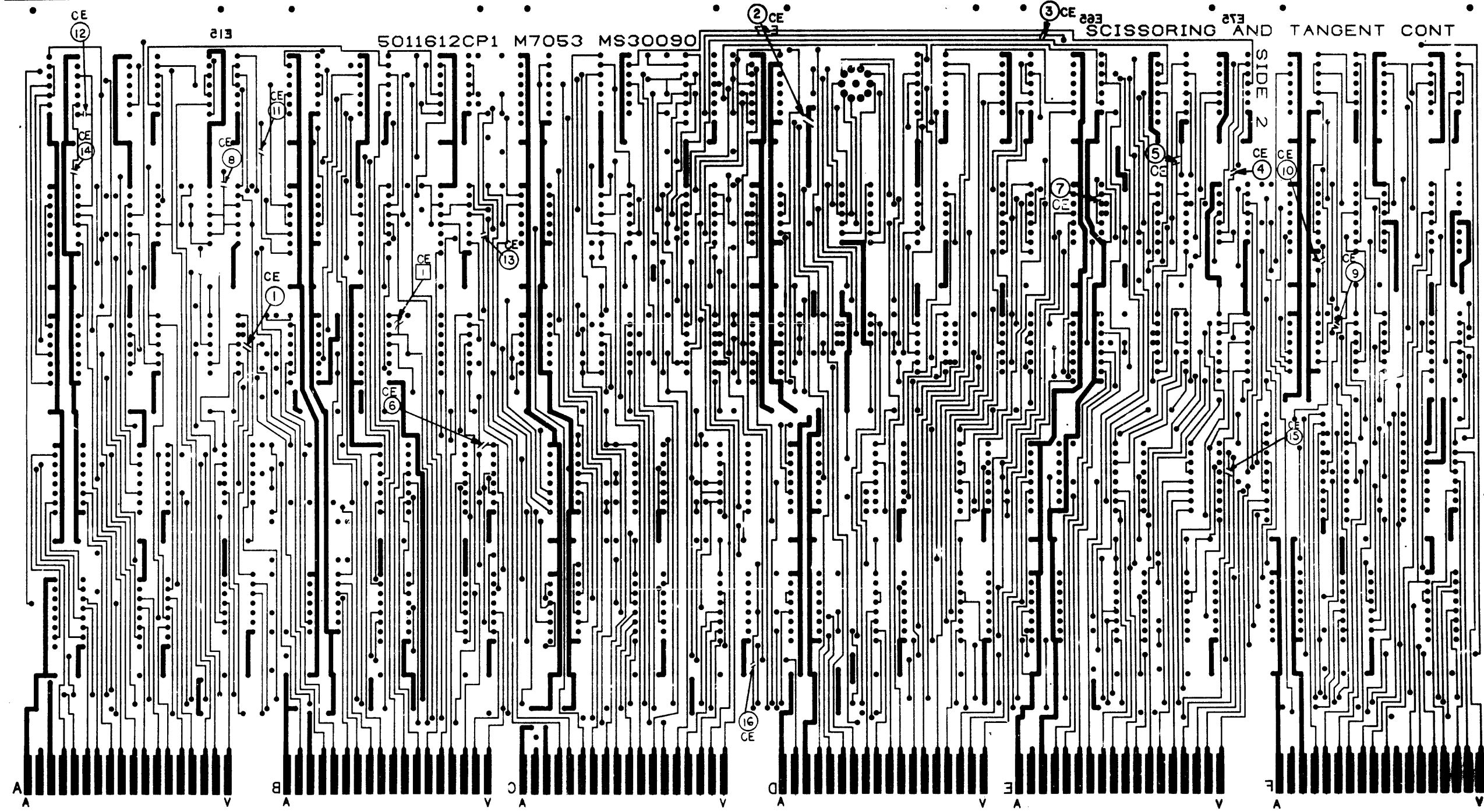
TITLE SCISSORING AND TANGENT CONTROL  
 SCALE H SHEET 5 OF 7  
 SIZE CODE DIST JA M7053-0-0 NUMBER REV. D



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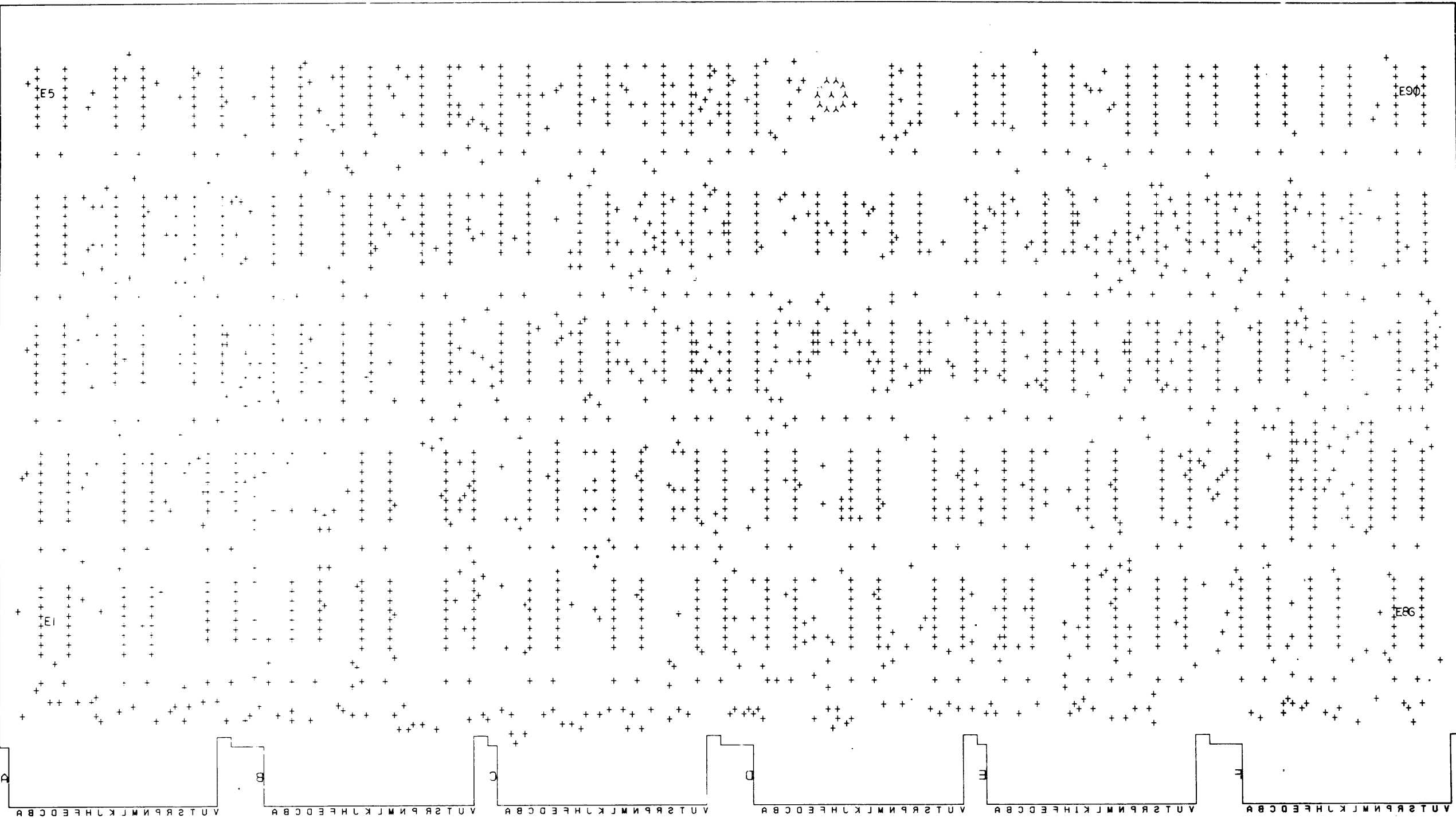
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TITLE SCISSORING AND TANGENT CONTROL  
 SCALE 1:1 SHEET 7 OF 7  
 SIZE CODE D U A M 7 0 5 3 - 0 - 0  
 NUMBER 1  
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PAGE REVISION CONTROL SHEET

| SH NO. | PAGE REVISIONS | REMARKS |
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FIRST USED ON OPTION/MODEL  
GT48



TITLE  
SCISSORING AND TANGENT CONTROL

|            |               |      |             |
|------------|---------------|------|-------------|
| DRN.       | B.NICHOLS     | DATE | 5-15-75     |
| CHK'D.     | R.J. LE BLANC | DATE | 27 OCT. '75 |
| ENG.       | R. QUINN      | DATE | 27 OCT. '75 |
| PROJ. ENG. | H. LAVOIE     | DATE | 27 OCT. '75 |
| PROD.      | R. WAKEFIELD  | DATE | 27 OCT. '75 |

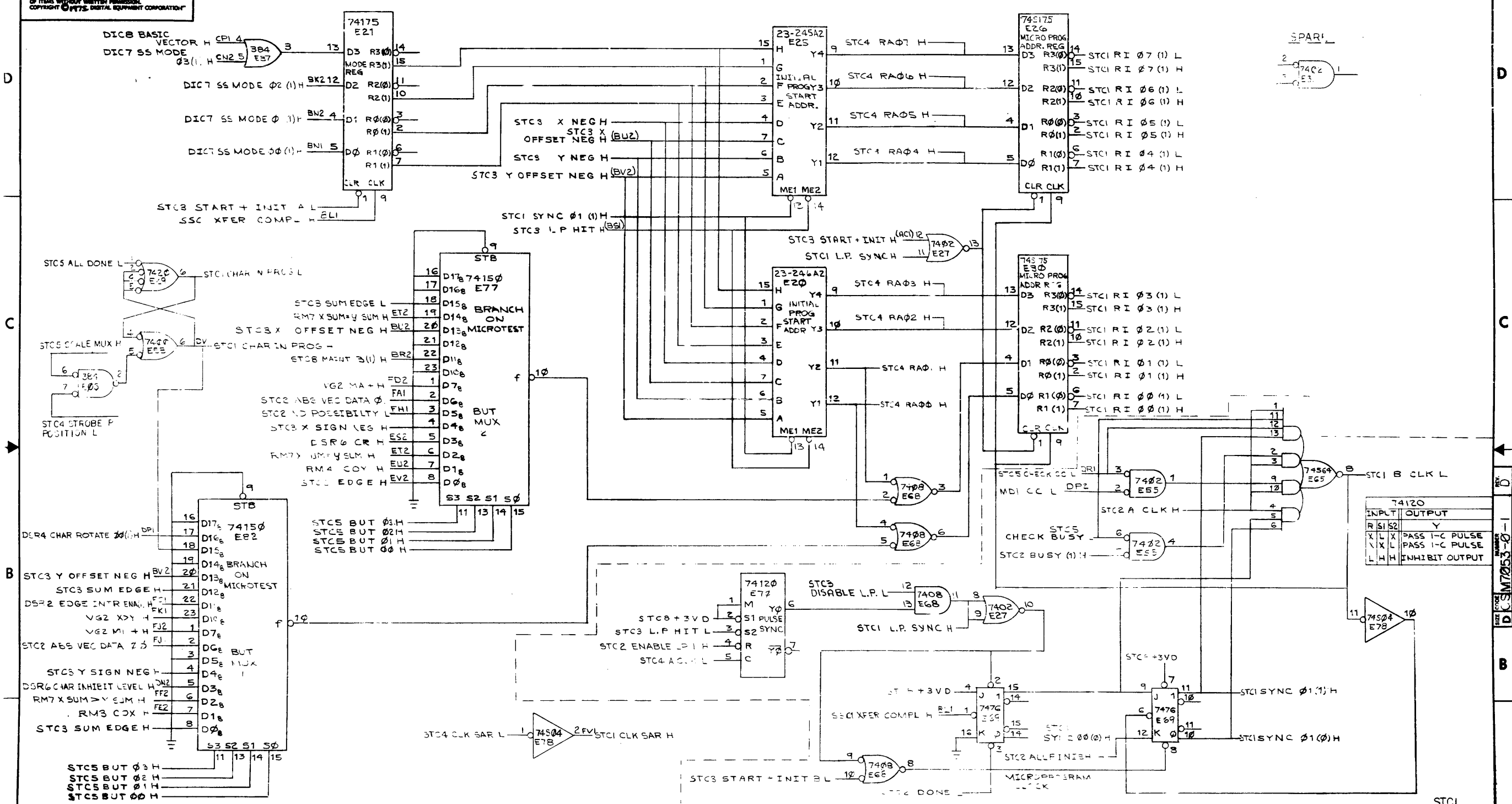
NEXT HIGHER ASSY.  
B-DD-M7053-0  
SCALE  $\frac{1}{11}$   
SHEET 1 OF 9

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| SIZE  | CODE | NUMBER    | REV. |
| B     | CS   | M7053-0-1 | D    |
| DIST. |      |           |      |

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MICROPROGRAM ADDRESS CONTROL

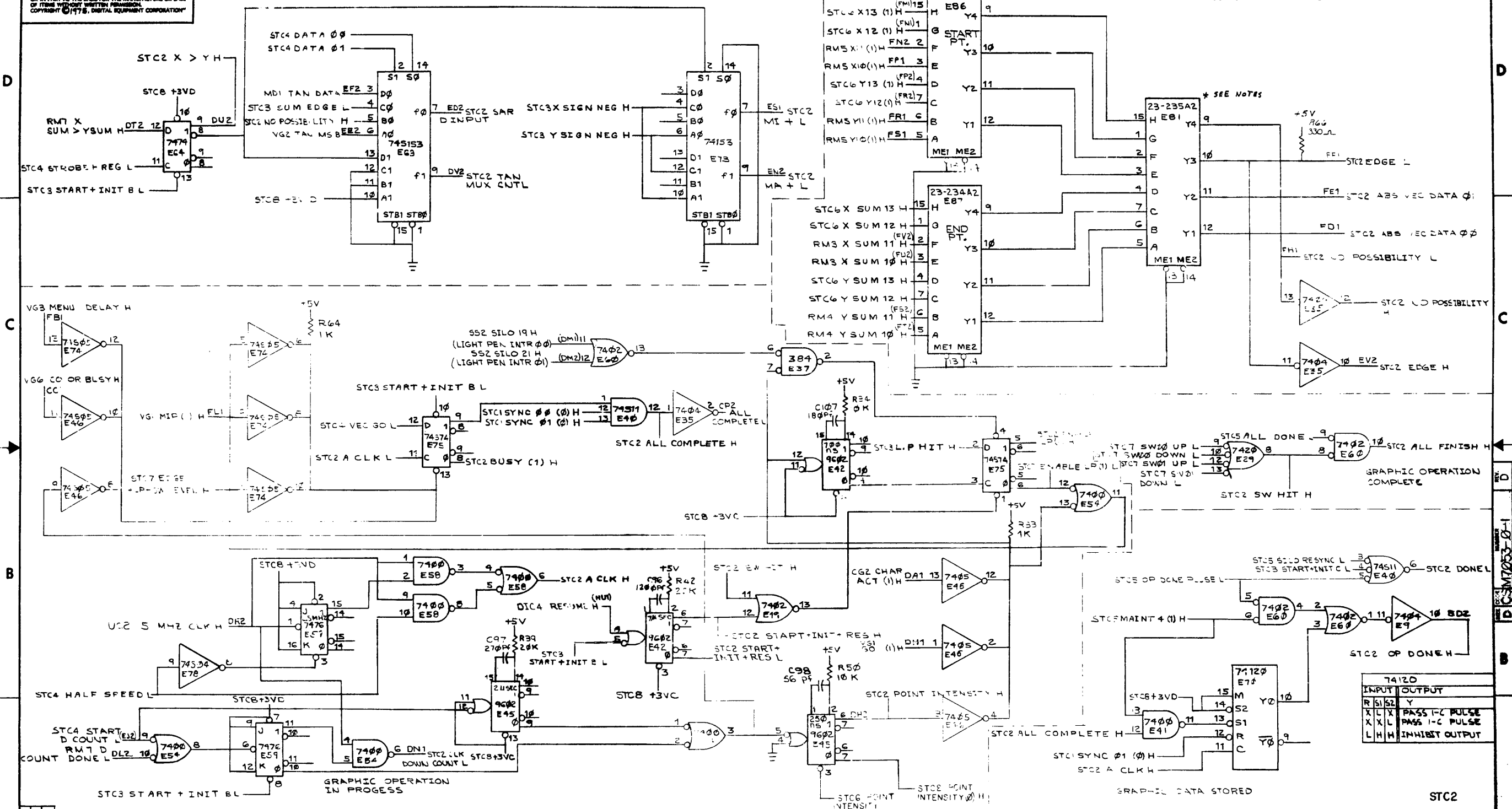


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|-------------------|--------------|---------------|--------------------------------|
| DRN               | J.C. O'Brien | FIRST USED ON | GT48                           |
| CHKD              | R. O'Brien   | TITLE         | SCISSORING AND TANGENT CONTROL |
| ENG               | R. O'Brien   | SCALE         | 2 OF 9                         |
| PROJ. ENG.        | R. O'Brien   | SHEET         | 2 OF 9                         |
| PROD.             | R. O'Brien   | DIST.         |                                |
| NEXT HIGHER ASSY. |              |               |                                |
| B-DD-M7053-0      | SIZE         | CODE          | D C S M 7053-0-1               |

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TANGENT CONTROL

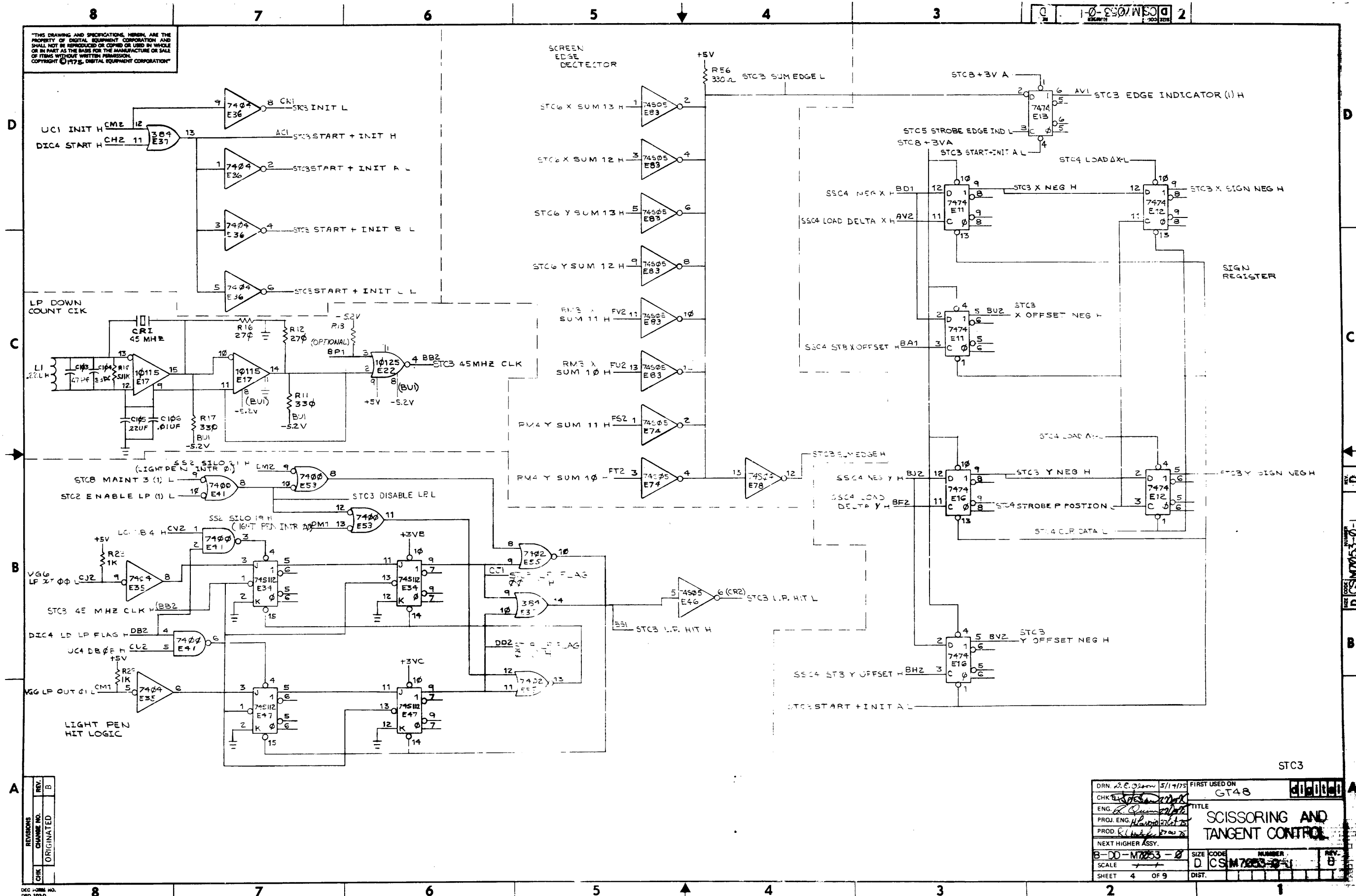


|            |   |   |
|------------|---|---|
| REV.       | A | B |
| ORIGINATED |   |   |
| CHANGE NO. |   |   |
| CHK        |   |   |

|                     |               |                                |
|---------------------|---------------|--------------------------------|
| DRN. R.C. 3/8/75    | FIRST USED ON | GT48                           |
| CHK. R. Quinn       | TITLE         | SCISSORING AND TANGENT CONTROL |
| PROJ. ENG. H. Quinn |               |                                |
| PROD. R. Quinn      |               |                                |
| NEXT HIGHER ASSY.   |               |                                |
| B-D0-M7053-0        | SIZE CODE     | NUMBER                         |
| SCALE               | 0             | CSM7053-0-1                    |
| SHEET 3 OF 9        | DIST.         |                                |

| 74120    |                |
|----------|----------------|
| INPUT    | OUTPUT         |
| R S1 Z Y |                |
| X L X    | PASS I-C PULSE |
| X X L    | PASS I-C PULSE |
| L H H    | INHIBIT OUTPUT |

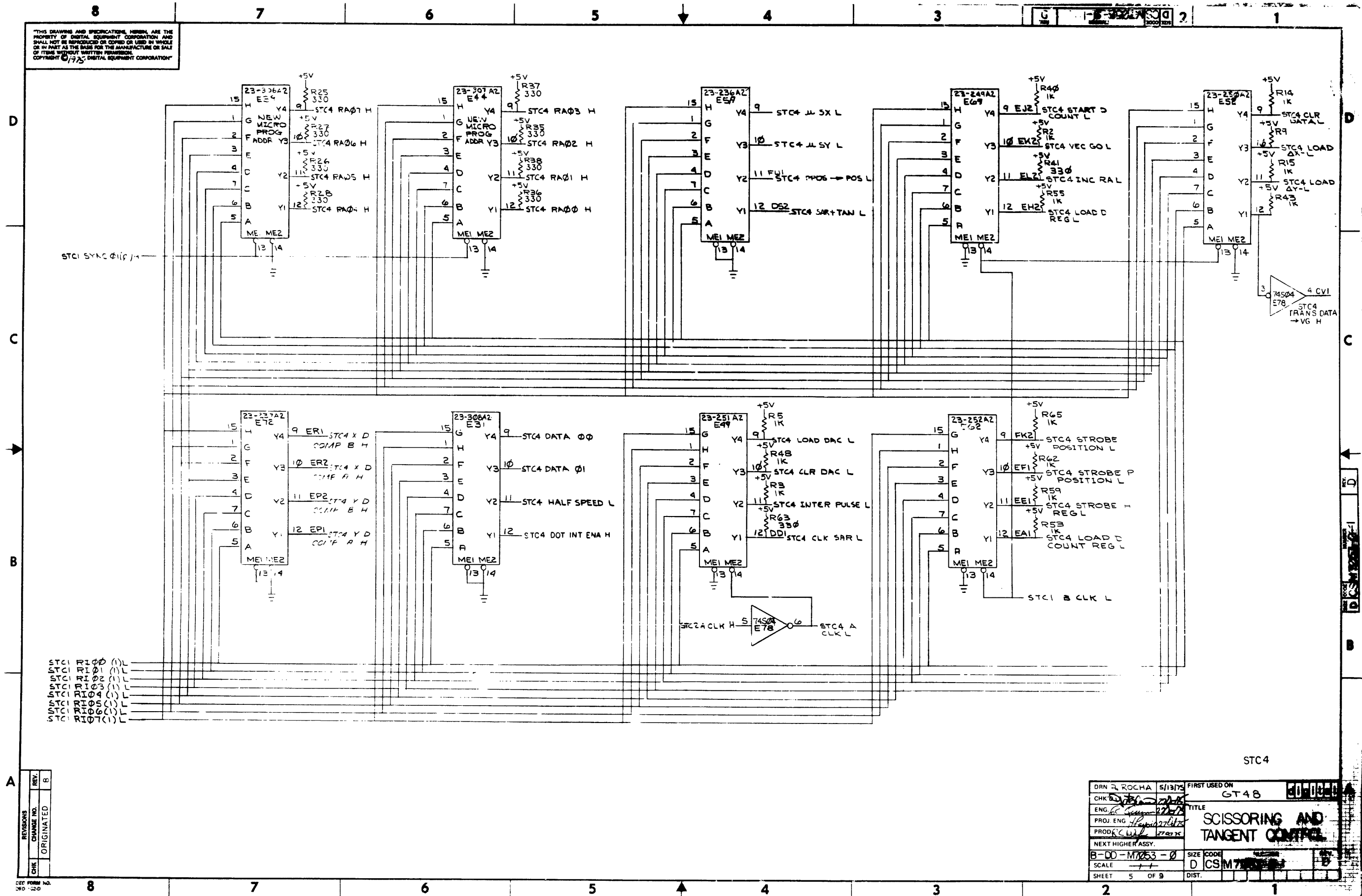
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|                         |               |                   |
|-------------------------|---------------|-------------------|
| DRN 23 E 022000 5/17/75 | FIRST USED ON | GT48              |
| CHK 1                   | ENG 1         | PROJ. ENG. 1      |
| PROJ. ENG. 1            | PROD. 1       | NEXT HIGHER ASSY. |
| B-DD-M7053-0            | SIZE          | CODE              |
| SCALE                   | D             | CSM7053-0-1       |
| SHEET 4 OF 9            | DIST.         |                   |

|        |            |
|--------|------------|
| REV. 1 | ORIGINATED |
| REV. 2 | CHANGED    |
| REV. 3 | REVISIONS  |

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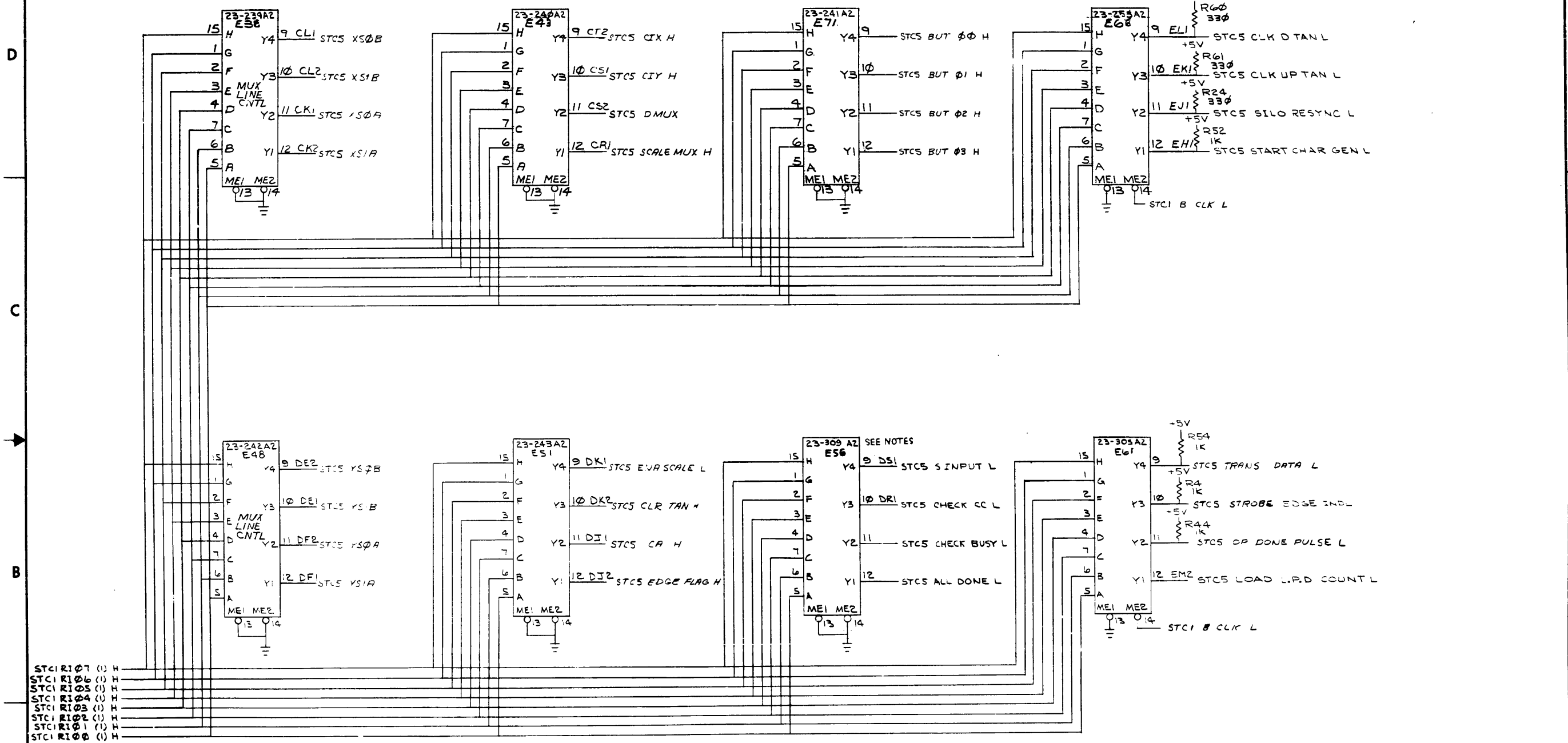
STC4

|             |   |
|-------------|---|
| REV.        | B |
| ORIGINATED  |   |
| CHANGED NO. |   |
| REVISIONS   |   |

|                   |           |                   |                                |
|-------------------|-----------|-------------------|--------------------------------|
| DRN R. ROCHA      | 5/13/75   | FIRST USED ON     | GT48                           |
| CHKD              |           | TITLE             | SCISSORING AND TANGENT CONTROL |
| ENG. R. ROCHA     |           | PROJ. ENG.        |                                |
| PROD. C. W. ROCHA |           | NEXT HIGHER ASSY. |                                |
| B-DD-M7053-0      | SIZE CODE | D                 | CSM7053                        |
| SCALE             | 1:1       | SHEET             | 5 OF 9                         |

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1-0-301 WSC 2



STC1 R107 ( ) H  
 STC1 R106 ( ) H  
 STC1 R105 ( ) H  
 STC1 R104 ( ) H  
 STC1 R103 ( ) H  
 STC1 R102 ( ) H  
 STC1 R101 ( ) H  
 STC1 R100 ( ) H

STCS

|        |            |
|--------|------------|
| REV. B | ORIGINATED |
| REV. A | CHANGED    |
| REV. C | CHANGED    |
| REV. D | CHANGED    |

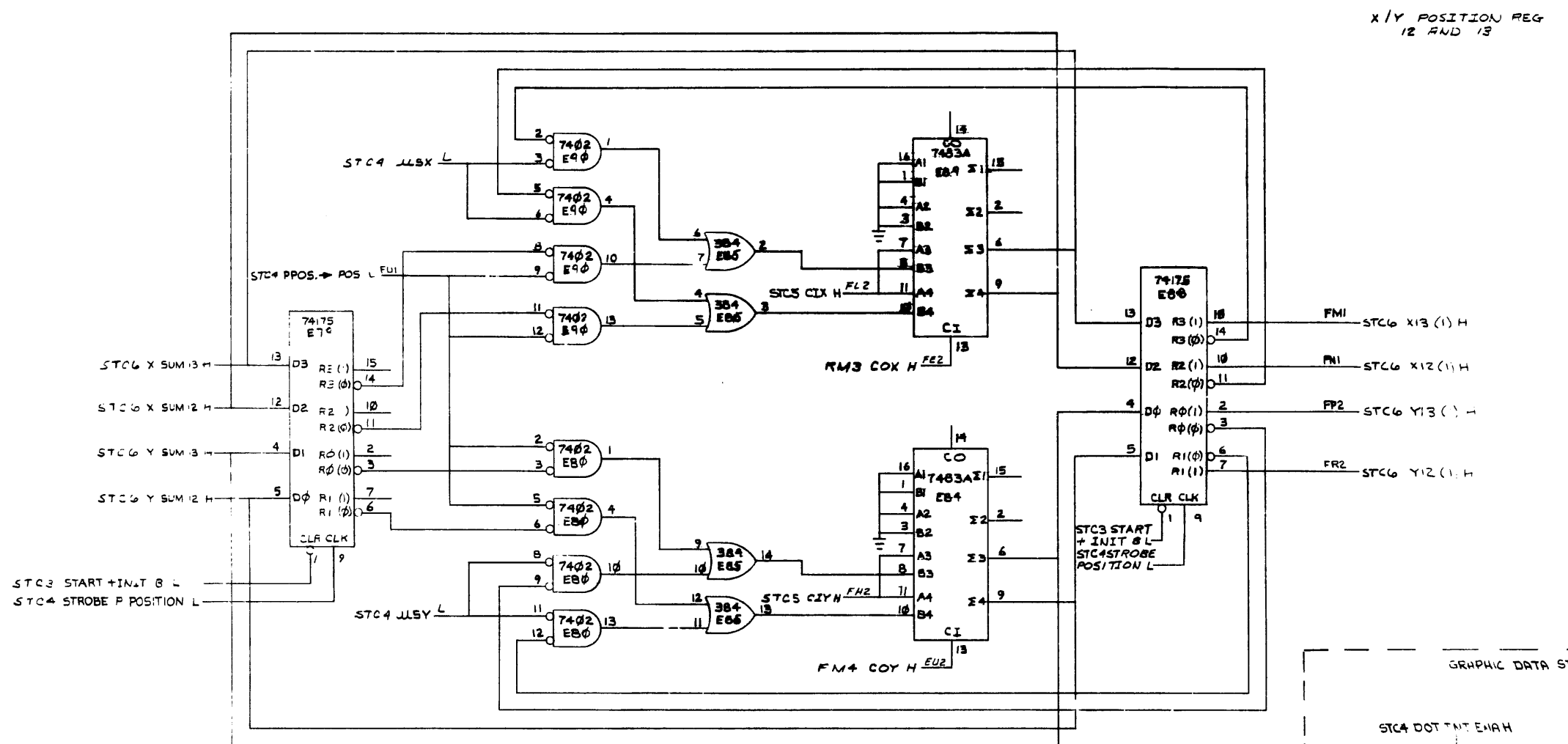
|                        |                                |
|------------------------|--------------------------------|
| DRN. DUGGAN 5-13-75    | FIRST USED ON GT48             |
| CHKD. [Signature]      | TITLE                          |
| ENG. [Signature]       | SCISSORING AND TANGENT CONTROL |
| PROJ. ENG. [Signature] |                                |
| PROD. [Signature]      |                                |
| NEXT HIGHER ASSY.      | SIZE CODE NUMBER               |
| SCALE + +              | D CSM7053-01                   |
| SHEET 6 OF 9           | DIST.                          |

DCSM7053-01



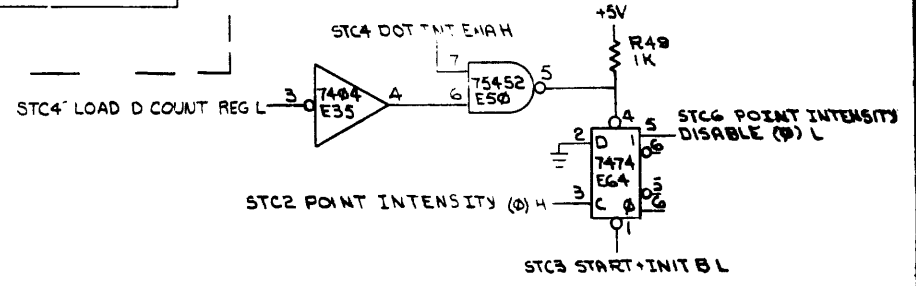
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1-0-09021/MSD 2



X/Y POSITION REG  
12 AND 13

GRAPHIC DATA STORED

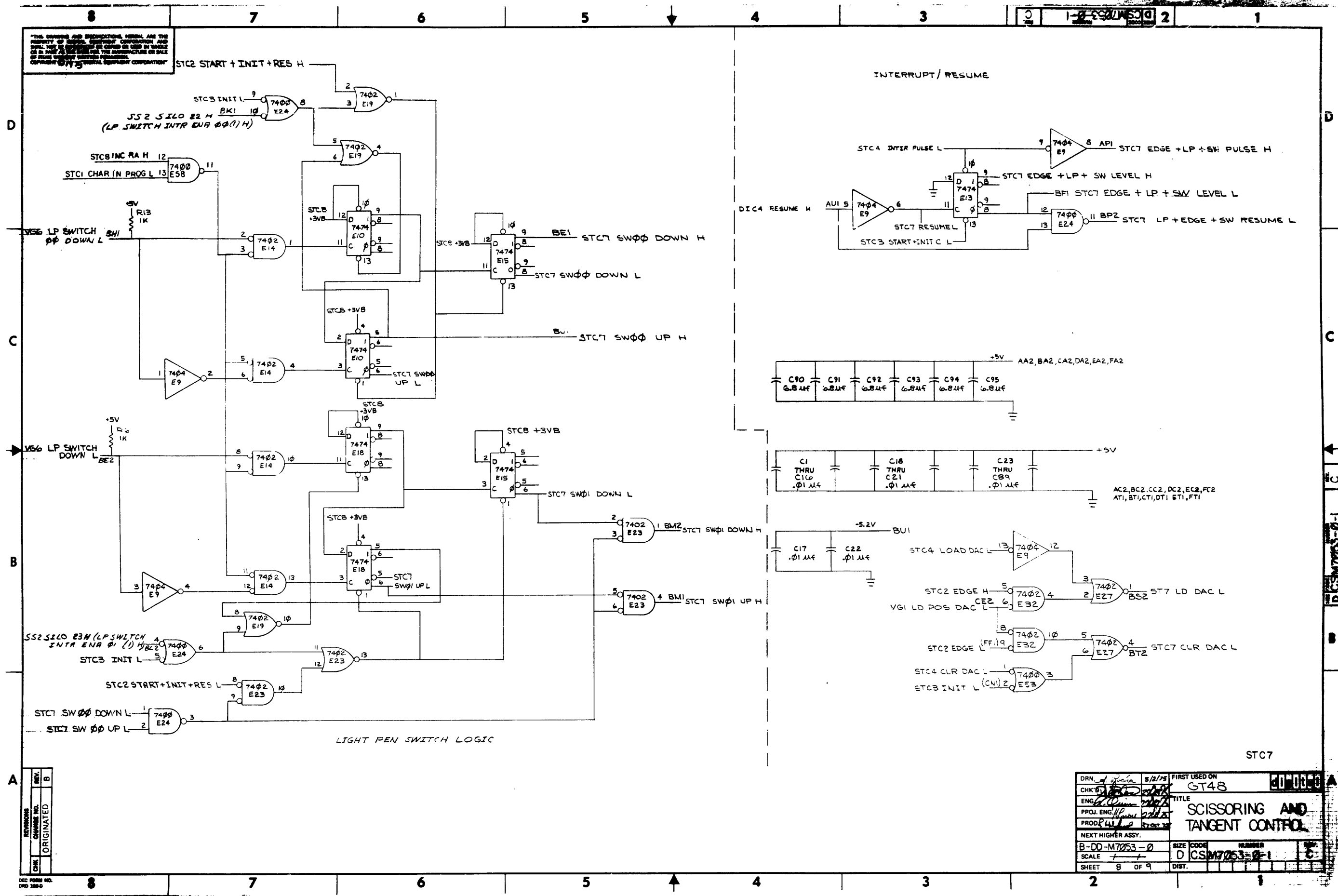


STC6

|            |
|------------|
| REV. B     |
| ORIGINATED |
| CHANGE NO. |
| REVISIONS  |

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

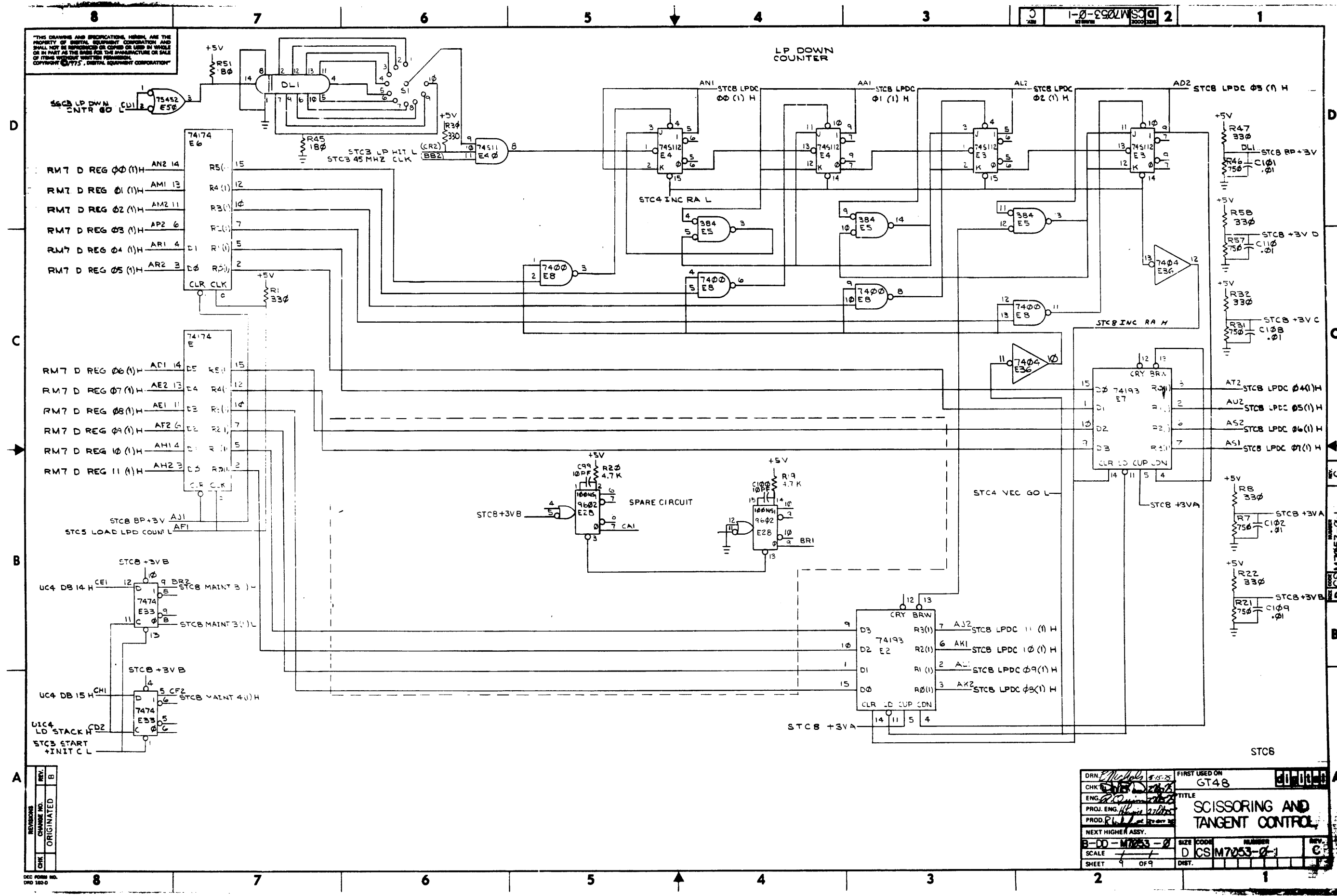
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|            |   |
|------------|---|
| REV.       | B |
| ORIGINATED |   |
| CHG.       |   |

|                   |        |               |                                |
|-------------------|--------|---------------|--------------------------------|
| DRN               | 5/2/75 | FIRST USED ON | GT48                           |
| CHK               |        | TITLE         | SCISSORING AND TANGENT CONTROL |
| ENG               |        | PROJECT       |                                |
| PROJ. ENG.        |        | PROD. PLAN    |                                |
| NEXT HIGHER ASSY. |        | SIZE          | CODE                           |
| B-DD-M7053-0      |        | D             | CSM7053-0-1                    |
| SCALE             | +      | SHEET         | 8 OF 9                         |
| DRST.             |        |               |                                |

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|            |   |
|------------|---|
| REV.       | B |
| ORIGINATED |   |

|          |        |                   |                                |
|----------|--------|-------------------|--------------------------------|
| DRN      | 15-75  | FIRST USED ON     | GT48                           |
| CHK      |        | TITLE             | SCISSORING AND TANGENT CONTROL |
| ENG      |        | PROJ. ENG.        |                                |
| PROD. R. |        | NEXT HIGHER ASSY. |                                |
| SCALE    | 1/1    | SIZE CODE         | D                              |
| SHEET    | 1 OF 9 | NUMBER            | CSM7053-0-1                    |

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POINT

|       | 8  | 7  | 6  | 5  | 4  | 3  | 2  | 1  |  |  |  |  |  |  |  |  |  |  |  |  |
|-------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| ΔX    | +  | +  | +  | +  | +  | -  | -  | -  | ΔX   |  |  |  |  |  |  |  |  |  |  |  |
| ΔY    | +  | +  | +  | +  | +  | +  | +  | +  | ΔY   |  |  |  |  |  |  |  |  |  |  |  |
| X-OFF | -  | -  | -  | -  | -  | -  | -  | -  | X-OFF  |  |  |  |  |  |  |  |  |  |  |  |
| Y-OFF | -  | -  | -  | -  | -  | -  | -  | -  | Y-OFF  |  |  |  |  |  |  |  |  |  |  |  |
|       | 002  | 003  | 004  | 005  | 006  | 007  | 010  | 011  |  |  |  |  |  |  |  |  |  |  |  |  |
|       | (ΔX)(SCALE)+XOFF → PX<br>(ΔY)(SCALE)+YOFF → PY<br>OP DONE<br>GO TO 047<br>BUT 00 | (ΔX)(SCALE)+XOFF → PX<br>(ΔY)(SCALE)+YOFF → PY<br>OP DONE<br>GO TO 047<br>BUT 00 | (ΔX)(SCALE)+XOFF → PX<br>(ΔY)(SCALE)+YOFF → PY<br>OP DONE<br>GO TO 047<br>BUT 00 | (ΔX)(SCALE)+XOFF → PX<br>(ΔY)(SCALE)+YOFF → PY<br>OP DONE<br>GO TO 047<br>BUT 00 | (ΔX)(SCALE)+XOFF → PX<br>(ΔY)(SCALE)+YOFF → PY<br>OP DONE<br>GO TO 041 | (ΔX)(SCALE)+XOFF → PX<br>(ΔY)(SCALE)+YOFF → PY<br>OP DONE<br>GO TO 047<br>BUT 00 | (ΔX)(SCALE)+XOFF → PX<br>(ΔY)(SCALE)+YOFF → PY<br>OP DONE<br>GO TO 041 | XOFF-(ΔX)(SCALE) → PX<br>(ΔY)(SCALE)+YOFF → PY<br>OP DONE<br>GO TO 047<br>BUT 00 | XOFF-(ΔX)(SCALE) → PX<br>(ΔY)(SCALE)+YOFF → PY<br>OP DONE<br>GO TO 047<br>BUT 00 |  |  |  |  |  |  |  |  |  |  |  |

RELATIVE POINT

|       | +  | +  | -  | -  |
|-------|--|--|--|--|
| ΔX    | +  | +  | -  | -  |
| ΔY    | +  | +  | -  | -  |
| X-OFF | NA   | NA   | NA   | NA   |
| Y-OFF | NA   | NA   | NA   | NA   |
|       | 021  | 022  | 023  | 024  |
|       | X+(ΔX)(SCALE) → PX<br>Y+(ΔY)(SCALE) → PY<br>OP DONE<br>GO TO 047<br>BUT 00 | X+(ΔX)(SCALE) → PX<br>Y-(ΔY)(SCALE) → PY<br>OP DONE<br>GO TO 047<br>BUT 00 | X-(ΔX)(SCALE) → PX<br>Y+(ΔY)(SCALE) → PY<br>OP DONE<br>GO TO 047<br>BUT 00 | X-(ΔX)(SCALE) → PX<br>Y-(ΔY)(SCALE) → PY<br>OP DONE<br>GO TO 047<br>BUT 00 |

GRAPH PLOT X

|    | +   | -   |
|----|---|---|
| NA | NA  | NA  |
| NA | NA  | NA  |
| +  | -   | -   |
| NA | NA  | NA  |
|    | 025   | 026   |
|    | (ΔX)(SCALE)+XOFF → PX<br>Y+(ΔY)(SCALE) → PY<br>OP DONE<br>GO TO 047<br>BUT 00 | (ΔX)(SCALE)+XOFF → PX<br>Y-(ΔY)(SCALE) → PY<br>OP DONE<br>GO TO 047<br>BUT 00 |

GRAPH PLOT Y

|    | +   | -   |
|----|---|---|
| NA | NA  | NA  |
| NA | NA  | NA  |
| +  | -   | -   |
| NA | NA  | NA  |
|    | 027   | 030   |
|    | X-(ΔX)(SCALE) → PX<br>(ΔY)(SCALE)+YOFF → PY<br>OP DONE<br>GO TO 047<br>BUT 00 | X-(ΔX)(SCALE) → PX<br>(ΔY)(SCALE)+YOFF → PY<br>OP DONE<br>GO TO 047<br>BUT 00 |

041  
PX → PX  
PY + 1 → PY  
GO TO 047  
BUT 00

042  
PX + 1 → PX  
PY + 1 → PY  
GO TO 047  
BUT 00

043  
PX + 1 → PX  
PY + 1 → PY  
GO TO 047  
BUT 00

OFF → OFF  
244  
PX → X  
PY → Y  
INC RA  
CHECK BUSY  
GO TO 104

OFF → ON  
045  
PX - 1000  
PY - 1000  
CHECK BUSY  
LOAD D COUNT  
GO TO 053  
BUT 01

ON → OFF  
046  
PX → X  
PY → Y  
CHECK BUSY  
INC RA  
LOAD EDGE IND  
GO TO 060

ON → ON  
047  
PX - X  
PY - Y  
CHECK BUSY  
LOAD D COUNT  
GO TO 057  
BUT 01

326  
LOAD DAC  
TRANS DATA  
GO TO 142

COX  
COY  
050  
PX → X  
PY → Y  
INC RA  
CHECK BUSY  
LOAD EDGE IND.  
GO TO 326

COX  
COY  
051  
1000 - PX  
1000 - PY  
LOAD D COUNT  
GO TO 050

COX  
COY  
052  
PX - 1000  
1000 - PY  
LOAD D COUNT  
GO TO 050

060  
CLR DAC  
TRANS DATA  
ALL DONE  
GO TO 374  
(SHEET 9)

COX  
COY  
053  
000 - PX  
000 - PY  
LOAD D COUNT  
GO TO 050

142  
START D COUNT  
CHECK BUSY  
GO TO 104

COX  
COY  
054  
PX → X  
PY → Y  
INC RA  
CHECK BUSY  
GO TO 326

COX  
COY  
055  
X - PX  
Y - PY  
LOAD D COUNT  
GO TO 054

COX  
COY  
056  
PX - X  
Y - PY  
LOAD D COUNT  
GO TO 054

COX  
COY  
057  
X - PX  
Y - PY  
LOAD D COUNT  
GO TO 054

104  
ALL DONE  
GO TO 374  
(SHEET 9)

REVISIONS

| CHK | CHANGE NO. | REV. |
|-----|------------|------|
|     | 1          | A    |

M7053-00001  
R. QUINN

FIRST USED ON M7053

| DRN     | CHK'D | ENG. | PROJ. ENG. | PROD. | SIZE | CODE | NUMBER     | REV. |
|---------|-------|------|------------|-------|------|------|------------|------|
| M7053-0 |       |      |            |       | D    | FD   | M7053-0-11 | A    |

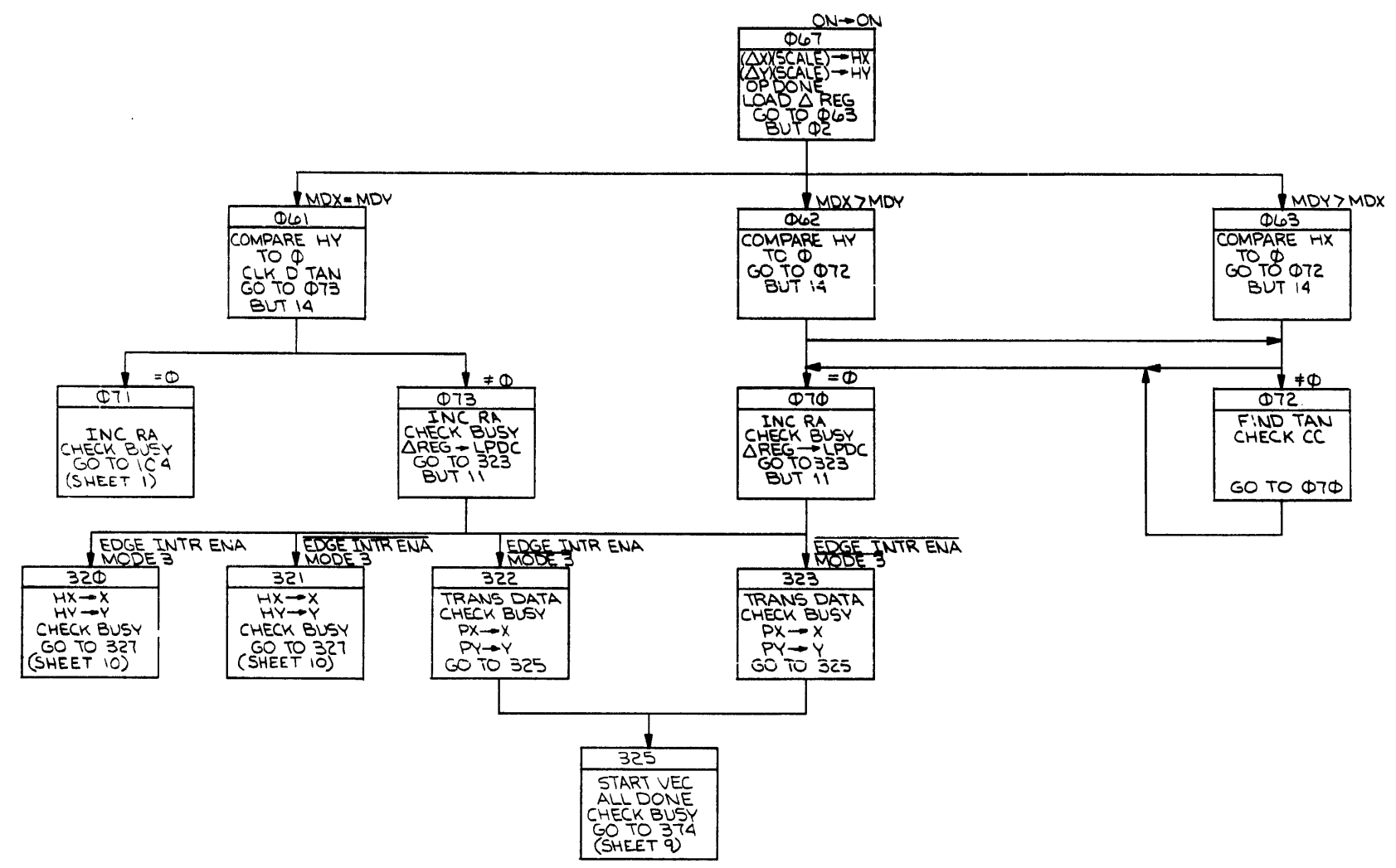
TITLE  
M7053 PROGRAM  
FLOW DIAGRAM

SHEET 1 OF 12

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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<br>Y+(ΔY)SCALE)→PY<br>CLR SAR<br>CLR TAN<br>GO TO Φ67<br>BUT ΦΦ | X+(ΔX)SCALE)→PX<br>Y+(ΔY)SCALE)→PY<br>CLR SAR<br>CLR TAN<br>GO TO Φ67<br>BUT ΦΦ | X-(ΔX)SCALE)→PX<br>Y-(ΔY)SCALE)→PY<br>CLR SAR<br>CLR TAN<br>GO TO Φ67<br>BUT ΦΦ | X-(ΔX)SCALE)→PX<br>Y-(ΔY)SCALE)→PY<br>CLR SAR<br>CLR TAN<br>GO TO Φ67<br>BUT ΦΦ |



|                     |           |                   |                               |
|---------------------|-----------|-------------------|-------------------------------|
| DRN. R. W. Cantor   | 9 OCT 75  | FIRST USED ON     | M7053                         |
| CHK. D. [Signature] | 9 NOV 75  | TITLE             | M7053 PROGRAM<br>FLOW DIAGRAM |
| ENG. J. [Signature] | 2 DEC 75  | PROJ. ENG.        | [Signature]                   |
| PROD. [Signature]   | 1 DEC 75  | NEXT HIGHER ASSY. |                               |
| B-DD-M7053-0        | SIZE CODE | NUMBER            | REV.                          |
| SCALE               | D FD      | M7053-0-11        | A                             |
| SHEET               | 2 OF 12   | DIST.             |                               |

REVISIONS  
CHANGE NO.  
REV.

D F D M 7 0 5 3 - 0 - 1 1 A

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**VECTOR**

|            |                                      |                                      |                                      |                                      |
|------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| $\Delta X$ | +                                    | +                                    | -                                    | -                                    |
| $\Delta Y$ | +                                    | -                                    | +                                    | -                                    |
| X-OFF      | NA                                   | NA                                   | NA                                   | NA                                   |
| Y-OFF      | NA                                   | NA                                   | NA                                   | NA                                   |
|            | $\phi 31$                            | $\phi 32$                            | $\phi 33$                            | $\phi 34$                            |
|            | $X+(\Delta X)(SCALE) \rightarrow PX$ | $X+(\Delta X)(SCALE) \rightarrow PX$ | $X-(\Delta X)(SCALE) \rightarrow PX$ | $X-(\Delta X)(SCALE) \rightarrow PX$ |
|            | $Y+(\Delta Y)(SCALE) \rightarrow PY$ | $Y-(\Delta Y)(SCALE) \rightarrow PY$ | $Y+(\Delta Y)(SCALE) \rightarrow PY$ | $Y-(\Delta Y)(SCALE) \rightarrow PY$ |
|            | CLR SAR                              | CLR SAR                              | CLR SAR                              | CLR SAR                              |
|            | CLR TAN                              | CLR TAN                              | CLR TAN                              | CLR TAN                              |
|            | GO TO $\phi 67$                      | GO TO $\phi 67$                      | GO TO $\phi 67$                      | GO TO $\phi 67$                      |
|            | BUT $\phi 6$                         | BUT $\phi 6$                         | BUT $\phi 6$                         | BUT $\phi 6$                         |

ON → OFF

$\phi 66$

$(\Delta X)(SCALE) \rightarrow NX$   
 $(\Delta Y)(SCALE) \rightarrow NY$   
 OP DONE  
 LOAD  $\Delta$  REG  
 GO TO  $\phi 63$   
 BUT  $\phi 6$



$\phi 66$

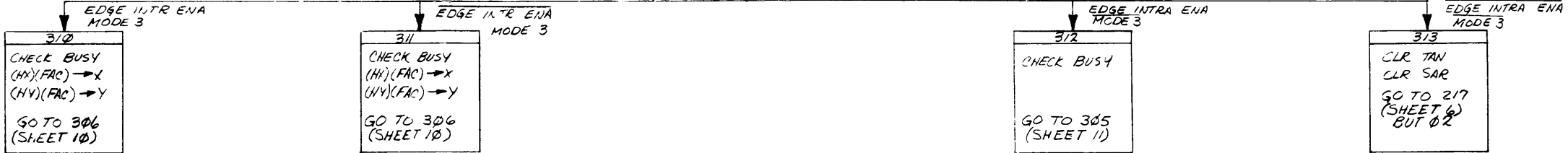
CLK D FAC

GO TO  $\phi 67$

$\phi 67$

LOAD  $\Delta$  REG  
 $\Delta$  REG → LADC

GO TO  $\phi 63$   
 BUT 11



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

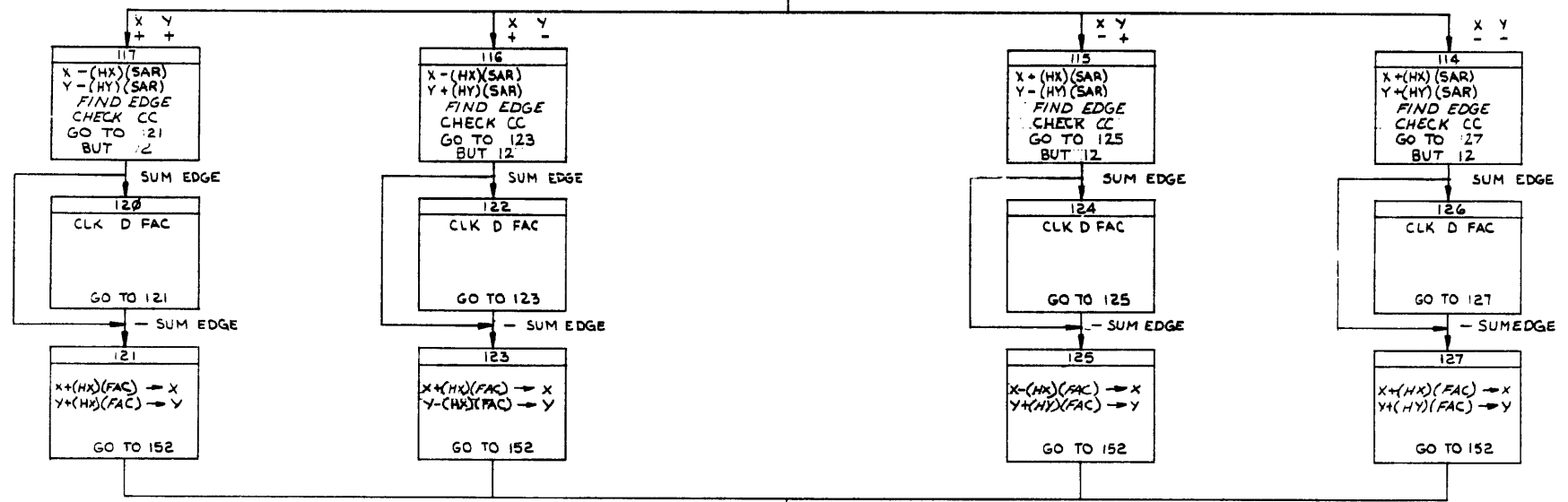
REVISIONS  
 CHANGE NO. REV.

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

OFF  $\rightarrow$  ON  
 065  
 $(\Delta X)(SCALE) \rightarrow HX$   
 $(\Delta Y)(SCALE) \rightarrow HY$   
 OP DONE  
 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

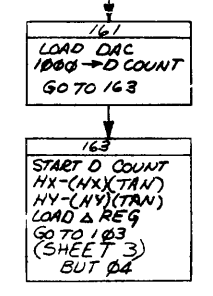
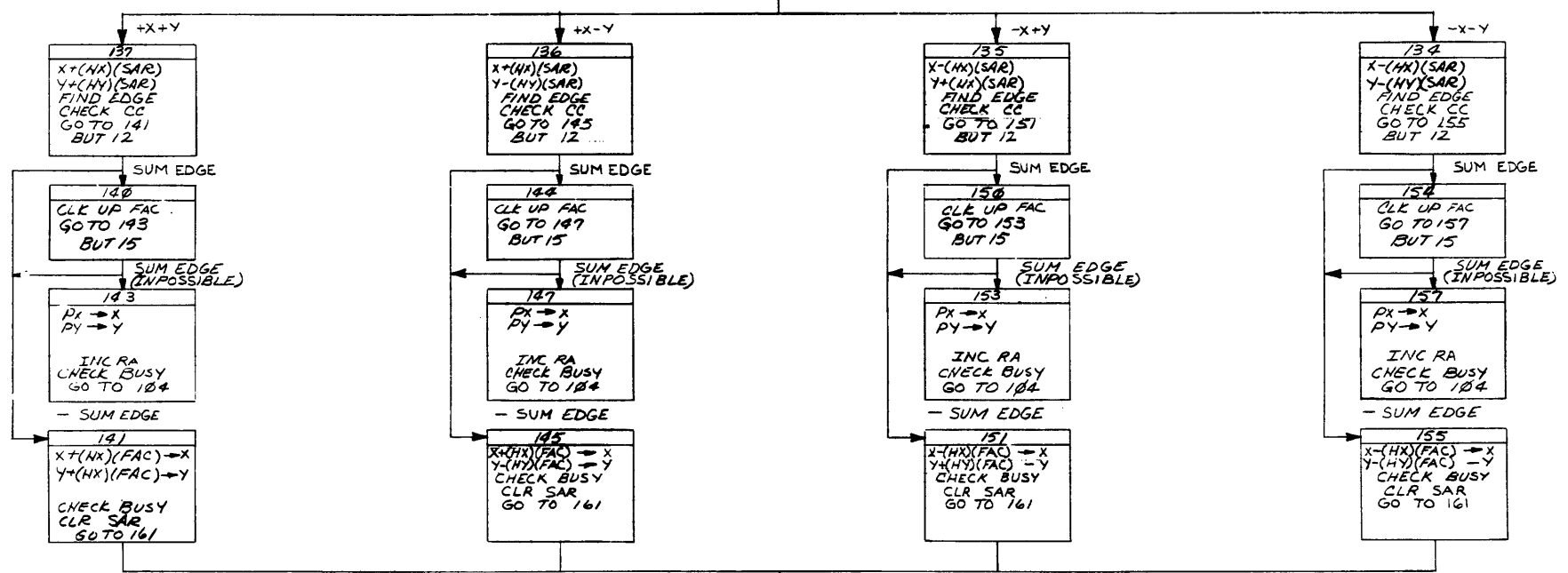
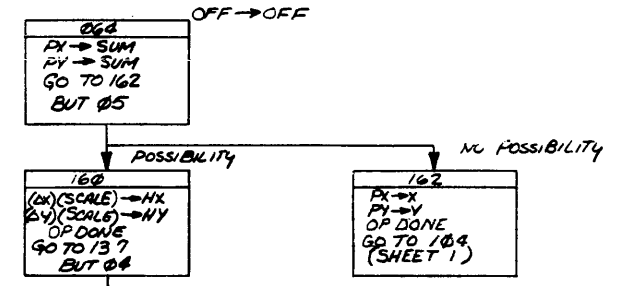
156  
 START D COUNT  
 LOAD  $\Delta$  REG  
 $(HX)(FAC) \rightarrow SUM$   
 $(HY)(FAC) \rightarrow SUM$   
 $\rightarrow 0$  TO 107  
 (SHEET 3)

REV. 1  
 CHANGE INC.  
 CHK

|                            |               |               |
|----------------------------|---------------|---------------|
| DRN. M. G. G. 31 Oct 75    | FIRST USED ON | M7053         |
| CHK'D. J. J. 3 Nov 75      | TITLE         | M7053 PROGRAM |
| ENG. J. J. 2 Dec 75        |               | FLOW DIAGRAM  |
| PROJ. ENG. J. J. 11 Dec 75 |               |               |
| PROD. J. J. 17 Dec 75      |               |               |
| NEXT HIGHER ASSY.          | SIZE CODE     | NUMBER        |
| B-D-M7053-0                | D FD          | M7053-0-11    |
| SCALE                      |               |               |
| SHEET 4 OF 12              | DIST.         |               |

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| VECTOR     |                                      |                                      |                                      |                                      |
|------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
|            | +                                    | -                                    | +                                    | -                                    |
| $\Delta X$ | +                                    | -                                    | +                                    | -                                    |
| $\Delta Y$ | +                                    | -                                    | +                                    | -                                    |
| X-OFF      | NA                                   | NA                                   | NA                                   | NA                                   |
| Y-OFF      | NA                                   | NA                                   | NA                                   | NA                                   |
|            | 031                                  | 032                                  | 033                                  | 034                                  |
|            | $X+(\Delta X)(SCALE) \rightarrow PX$ | $X+(\Delta X)(SCALE) \rightarrow PX$ | $X-(\Delta X)(SCALE) \rightarrow PX$ | $X-(\Delta X)(SCALE) \rightarrow PX$ |
|            | $Y+(\Delta Y)(SCALE) \rightarrow PY$ | $Y+(\Delta Y)(SCALE) \rightarrow PY$ | $Y+(\Delta Y)(SCALE) \rightarrow PY$ | $Y-(\Delta Y)(SCALE) \rightarrow PY$ |
|            | 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                               |



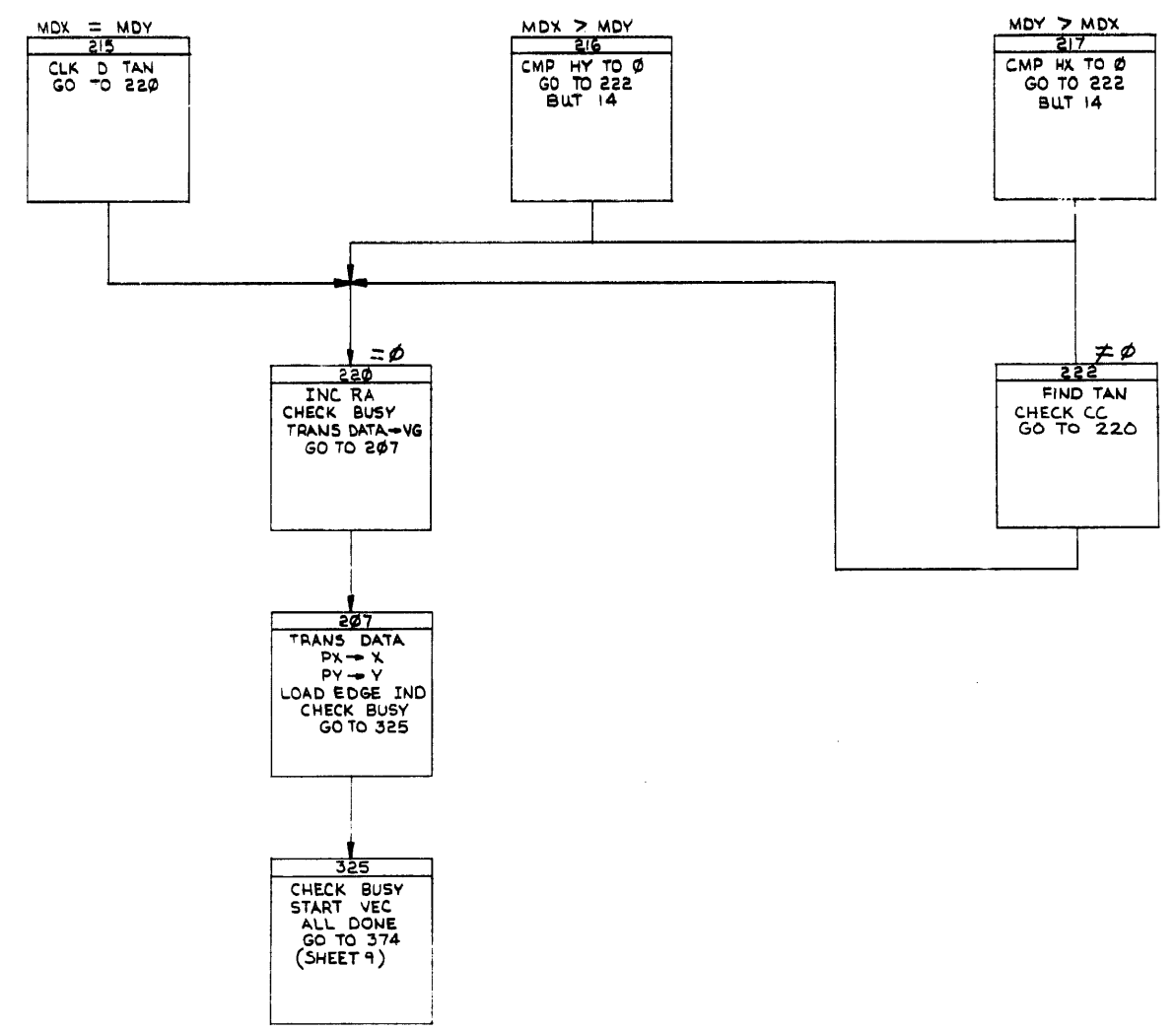
|            |  |
|------------|--|
| REV.       |  |
| CHG        |  |
| EXTENSIONS |  |
| CHANGE NO. |  |

|                   |             |                        |                            |
|-------------------|-------------|------------------------|----------------------------|
| DRN. J.B. 1000    | 4 NOV 70    | FIRST USED ON          | M7053                      |
| CHKD. [Signature] | 8 DEC 70    | TITLE                  | M7053 PROGRAM FLOW DIAGRAM |
| ENG. [Signature]  | [Signature] | PROJ. ENG. [Signature] | [Signature]                |
| PROD. [Signature] | [Signature] | NEXT HIGHER ASSY.      |                            |
| B-DD-M7053-0      | SIZE CODE   | NUMBER                 | REV.                       |
| SCALE 1:1         | D           | FDM7053-0-11           | A                          |
| SHEET 5 OF 12     | DIST.       |                        |                            |



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TANGENT CALCULATION FOR SCISSORED VECTORS.



REV. NO. 1  
CHG. NO. 1

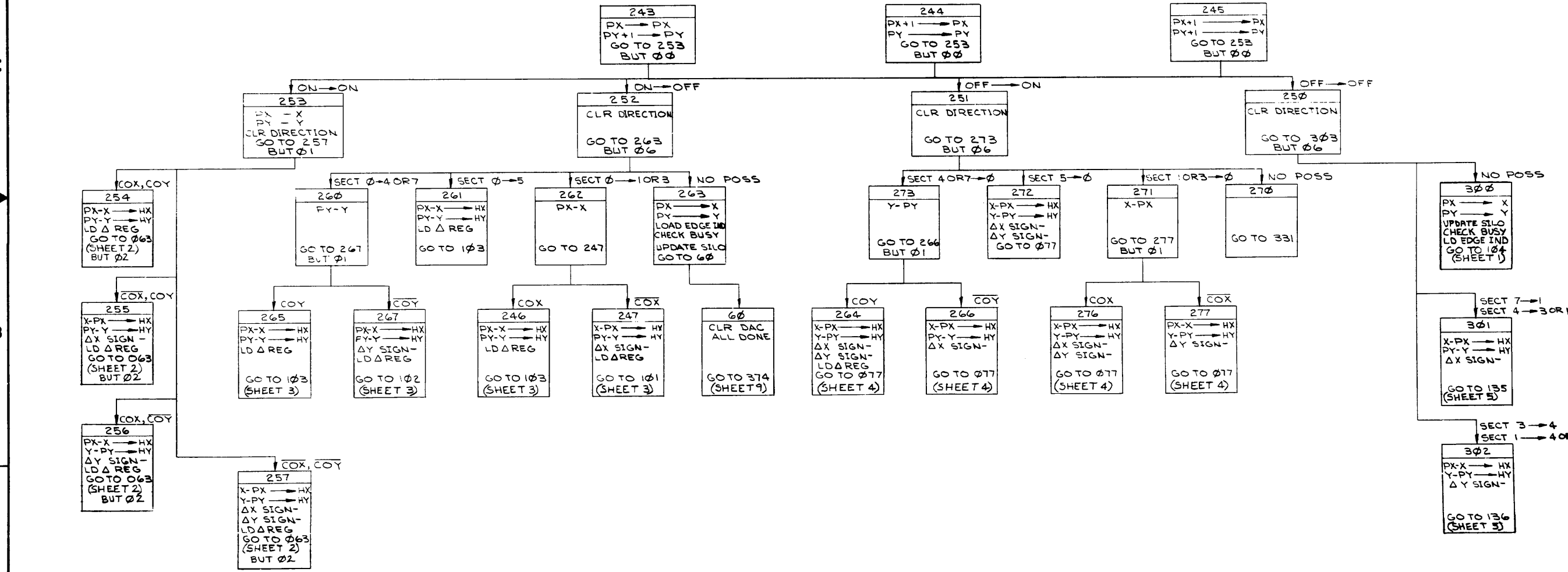
|                   |           |               |               |
|-------------------|-----------|---------------|---------------|
| DRN. M. G. ...    | 3 Nov 75  | FIRST USED ON | M7053         |
| CHK'D. ...        | 3 Nov 75  | TITLE         | M7053 PROGRAM |
| ENG. ...          | 11 Dec 75 |               | FLOW DIAGRAM  |
| PROJ. ENG. ...    | 11 Dec 75 |               |               |
| PROD. ...         | 11 Dec 75 |               |               |
| NEXT HIGHER ASSY. |           |               |               |
| B-DD-M7053-0      |           | SIZE CODE     | D FD          |
| SCALE             |           | NUMBER        | M7053-0-H     |
| SHEET 6 OF 12     |           | REV.          | A             |

D F D M7053-0-11 A

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ABSOLUTE VECTOR

|            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| $\Delta X$ | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  |
| $\Delta Y$ | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  |
| SCALE      | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  |
| OFF        | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  |
|            | 223  | 224  | 225  | 226  | 227  | 230  | 231  | 232  | 233  | 234  | 235  | 236  | 237  | 240  | 241  | 242  |
|            | $(\Delta X)(SCALE)+X OFF \rightarrow PX$             | $(\Delta X)(SCALE)+X OFF \rightarrow PX$             | $(\Delta X)(SCALE)-X OFF \rightarrow PX$             | $(\Delta X)(SCALE)-X OFF \rightarrow PX$             | $(\Delta X)(SCALE)+X OFF \rightarrow PX$             | $(\Delta X)(SCALE)+X OFF \rightarrow PX$             | $(\Delta X)(SCALE)-X OFF \rightarrow PX$             | $(\Delta X)(SCALE)-X OFF \rightarrow PX$             | $X OFF-(\Delta X)(SCALE) \rightarrow PX$             | $X OFF-(\Delta X)(SCALE) \rightarrow PX$             | $(\Delta X)(SCALE)-X OFF \rightarrow PX$             | $(\Delta X)(SCALE)-X OFF \rightarrow PX$             | $X OFF-(\Delta X)(SCALE) \rightarrow PX$             | $X OFF-(\Delta X)(SCALE) \rightarrow PX$             | $(\Delta X)(SCALE)-X OFF \rightarrow PX$             | $(\Delta X)(SCALE)-X OFF \rightarrow PX$             |
|            | $(\Delta Y)(SCALE)+Y OFF \rightarrow PY$             | $(\Delta Y)(SCALE)+Y OFF \rightarrow PY$             | $(\Delta Y)(SCALE)+Y OFF \rightarrow PY$             | $(\Delta Y)(SCALE)-Y OFF \rightarrow PY$             | $(\Delta Y)(SCALE)+Y OFF \rightarrow PY$             | $(\Delta Y)(SCALE)-Y OFF \rightarrow PY$             | $(\Delta Y)(SCALE)-Y OFF \rightarrow PY$             | $(\Delta Y)(SCALE)-Y OFF \rightarrow PY$             | $(\Delta Y)(SCALE)+Y OFF \rightarrow PY$             | $(\Delta Y)(SCALE)-Y OFF \rightarrow PY$             | $(\Delta Y)(SCALE)+Y OFF \rightarrow PY$             | $(\Delta Y)(SCALE)-Y OFF \rightarrow PY$             | $(\Delta Y)(SCALE)-Y OFF \rightarrow PY$             | $(\Delta Y)(SCALE)-Y OFF \rightarrow PY$             | $(\Delta Y)(SCALE)-Y OFF \rightarrow PY$             | $(\Delta Y)(SCALE)-Y OFF \rightarrow PY$             |
|            | CLR TAN<br>CLR SAR<br>OP DONE<br>GO TO 253<br>BUT 00 | CLR TAN<br>CLR SAR<br>OP DONE<br>GO TO 253<br>BUT 00 | CLR TAN<br>CLR SAR<br>OP DONE<br>GO TO 253<br>BUT 00 | CLR TAN<br>CLR SAR<br>OP DONE<br>GO TO 253<br>BUT 00 | CLR TAN<br>CLR SAR<br>OP DONE<br>GO TO 253<br>BUT 00 | CLR TAN<br>CLR SAR<br>OP DONE<br>GO TO 243<br>BUT 00 | CLR TAN<br>CLR SAR<br>OP DONE<br>GO TO 253<br>BUT 00 | CLR TAN<br>CLR SAR<br>OP DONE<br>GO TO 243<br>BUT 00 | CLR TAN<br>CLR SAR<br>OP DONE<br>GO TO 253<br>BUT 00 | CLR TAN<br>CLR SAR<br>OP DONE<br>GO TO 253<br>BUT 00 | CLR TAN<br>CLR SAR<br>OP DONE<br>GO TO 244<br>BUT 00 | CLR TAN<br>CLR SAR<br>OP DONE<br>GO TO 244<br>BUT 00 | CLR TAN<br>CLR SAR<br>OP DONE<br>GO TO 253<br>BUT 00 | CLR TAN<br>CLR SAR<br>OP DONE<br>GO TO 243<br>BUT 00 | CLR TAN<br>CLR SAR<br>OP DONE<br>GO TO 244<br>BUT 00 | CLR TAN<br>CLR SAR<br>OP DONE<br>GO TO 245<br>BUT 00 |

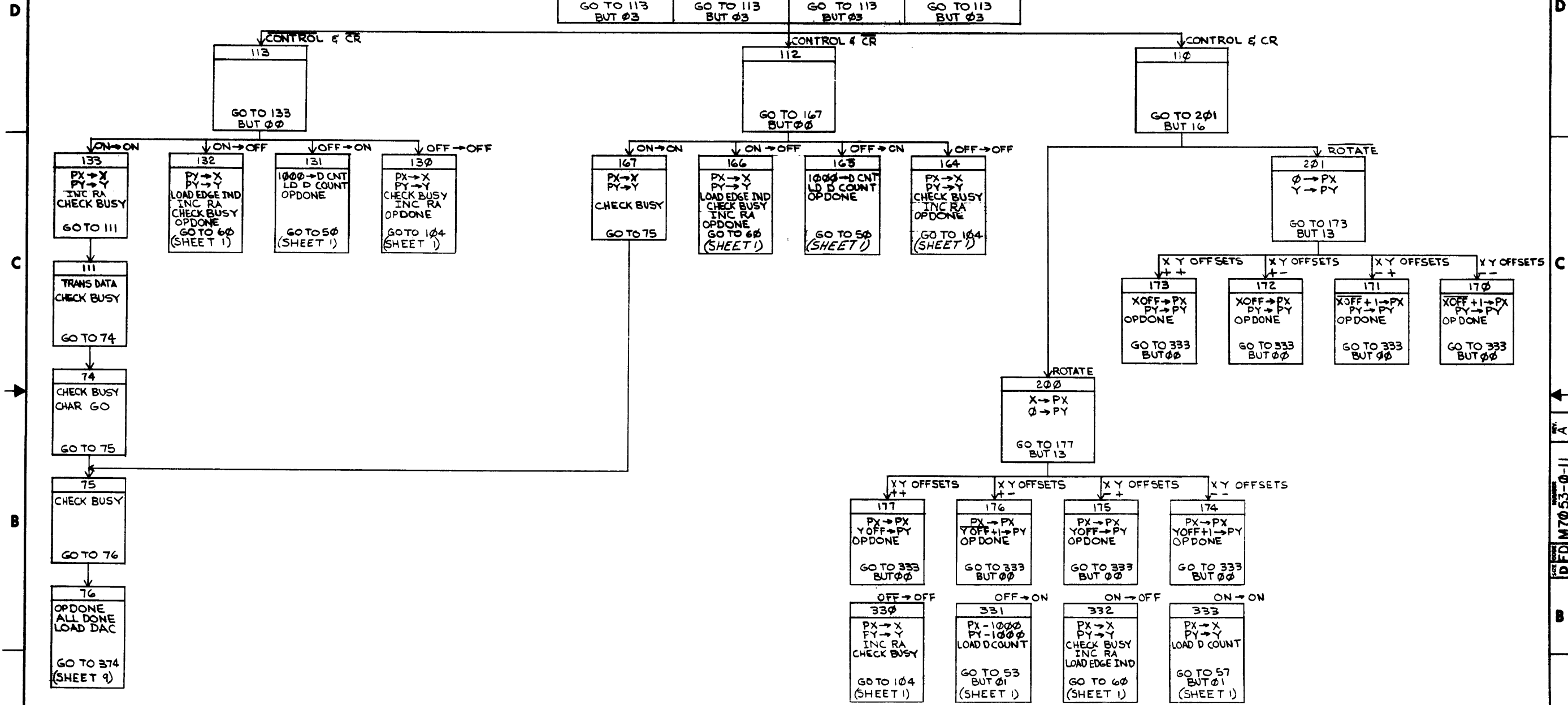


|            |  |
|------------|--|
| REV.       |  |
| CHANGE NO. |  |
| CHK        |  |

|                   |      |               |        |
|-------------------|------|---------------|--------|
| DRN               | APL  | FIRST USED ON | M7053  |
| CHK'D             |      |               |        |
| ENG.              |      |               |        |
| PROJ. ENG.        |      |               |        |
| PROD.             |      |               |        |
| NEXT HIGHER ASSY. |      |               |        |
| B-DD-M7053-0      | SIZE | CODE          | NUMBER |
| SCALE             | D    | FDM7053-0-11  |        |
| SHEET             | 7    | OF            | 12     |

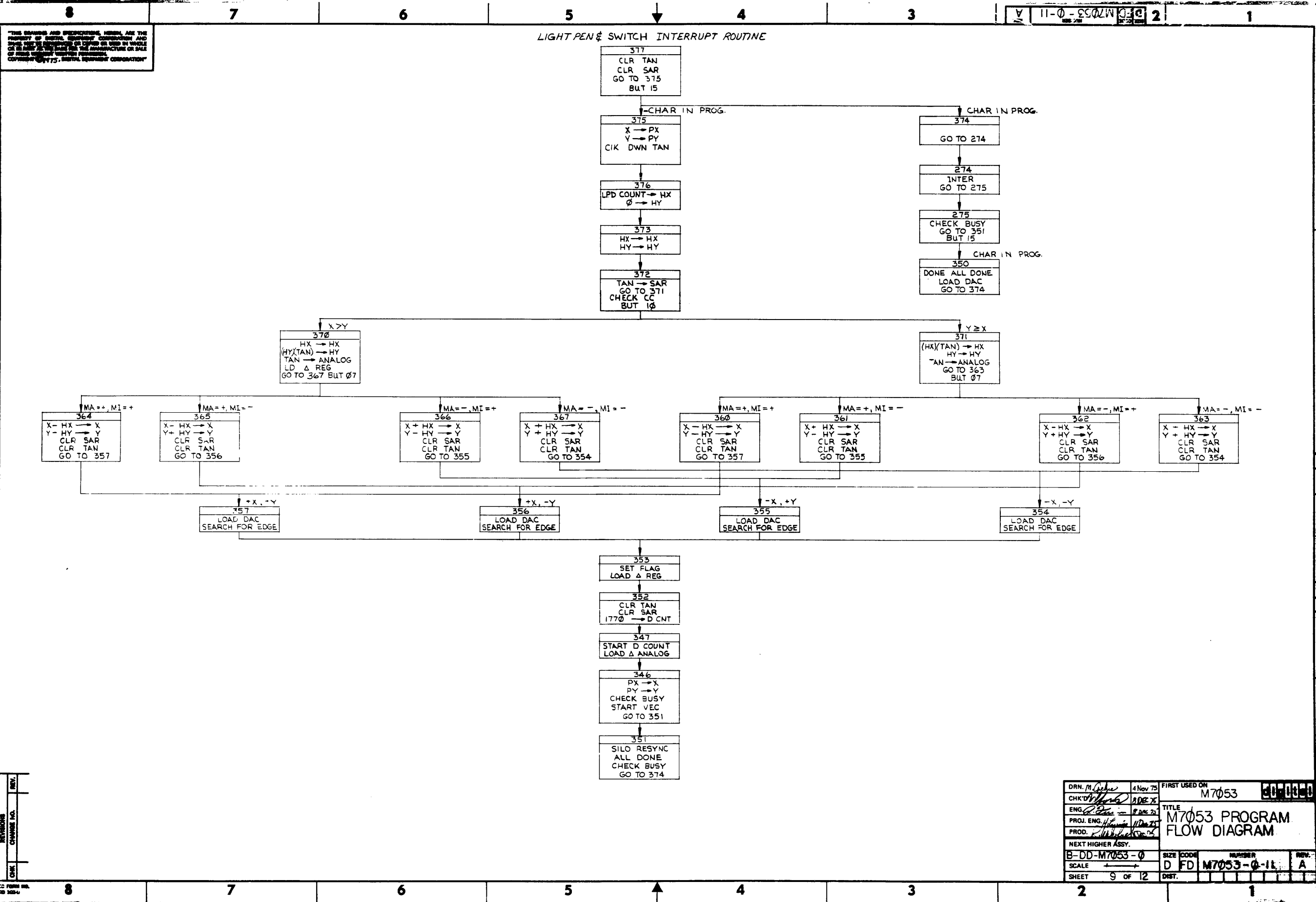
CHARACTER

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



|                          |           |                               |                            |
|--------------------------|-----------|-------------------------------|----------------------------|
| DRN: <i>[Signature]</i>  | 31 OCT 75 | FIRST USED ON                 | M7053                      |
| CHK: <i>[Signature]</i>  |           | TITLE                         | M7053 PROGRAM FLOW DIAGRAM |
| ENG: <i>[Signature]</i>  |           | PROJ. ENG. <i>[Signature]</i> |                            |
| PROD. <i>[Signature]</i> |           | NEXT HIGHER ASSY.             |                            |
| B-DD-M7053-0             | SCALE     | SIZE CODE                     | NUMBER                     |
| SHEET 8 OF 12            |           | D F D                         | M7053-0-11 A               |

REV. 1  
REV. 2  
REV. 3  
REV. 4  
REV. 5  
REV. 6  
REV. 7  
REV. 8  
REV. 9  
REV. 10



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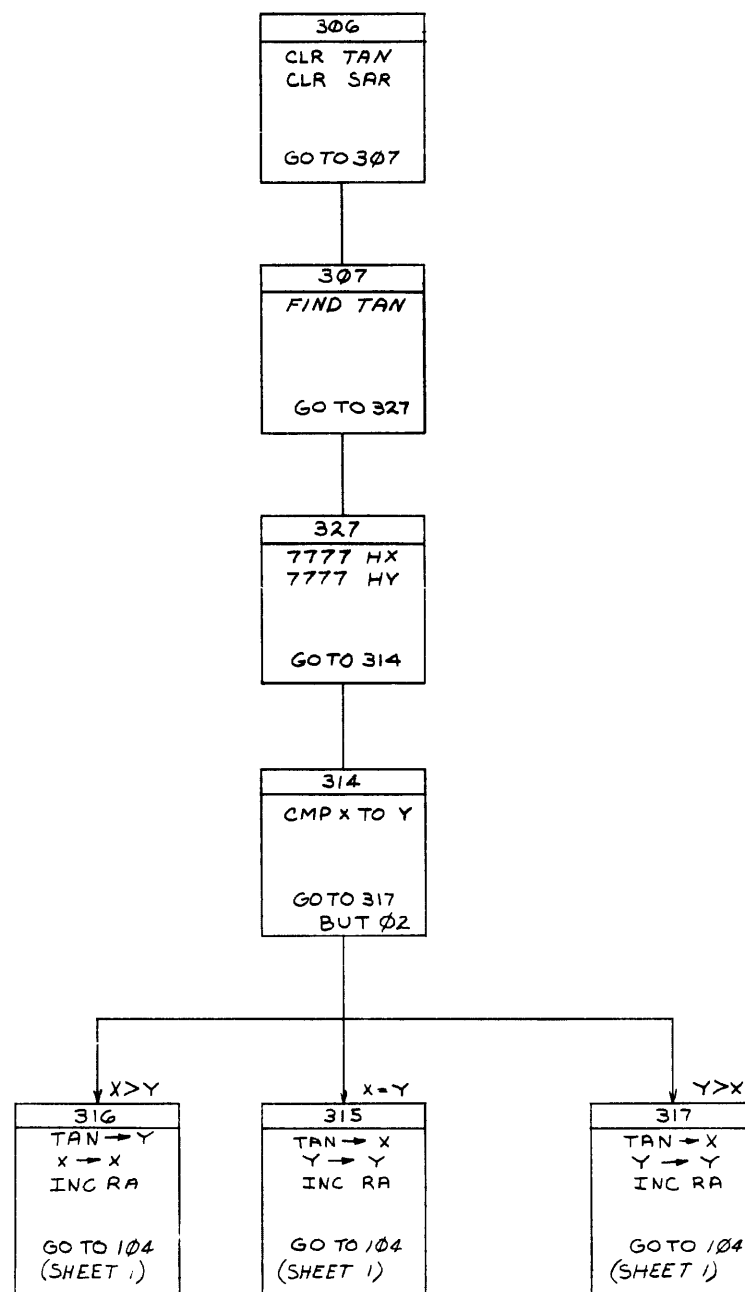
|                          |           |                               |                            |
|--------------------------|-----------|-------------------------------|----------------------------|
| DRN. <i>M. G. Jones</i>  | 4 Nov 75  | FIRST USED ON                 | M7Ø53                      |
| CHK. <i>[Signature]</i>  | 8 DEC 75  | TITLE                         | M7Ø53 PROGRAM FLOW DIAGRAM |
| ENG. <i>[Signature]</i>  | 8 DEC 75  | PROJ. ENG. <i>[Signature]</i> |                            |
| PROD. <i>[Signature]</i> |           | NEXT HIGHER ASSY.             |                            |
| B-DD-M7Ø53-Ø             | SIZE CODE | NUMBER                        | REV.                       |
| SCALE                    | D FD      | M7Ø53-Ø-11                    | A                          |
| SHEET 9 OF 12            | DIST.     |                               |                            |

|      |  |
|------|--|
| REV. |  |
| CHG. |  |

D FD M7Ø53-Ø-11 A

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MAINTENANCE MODE 3



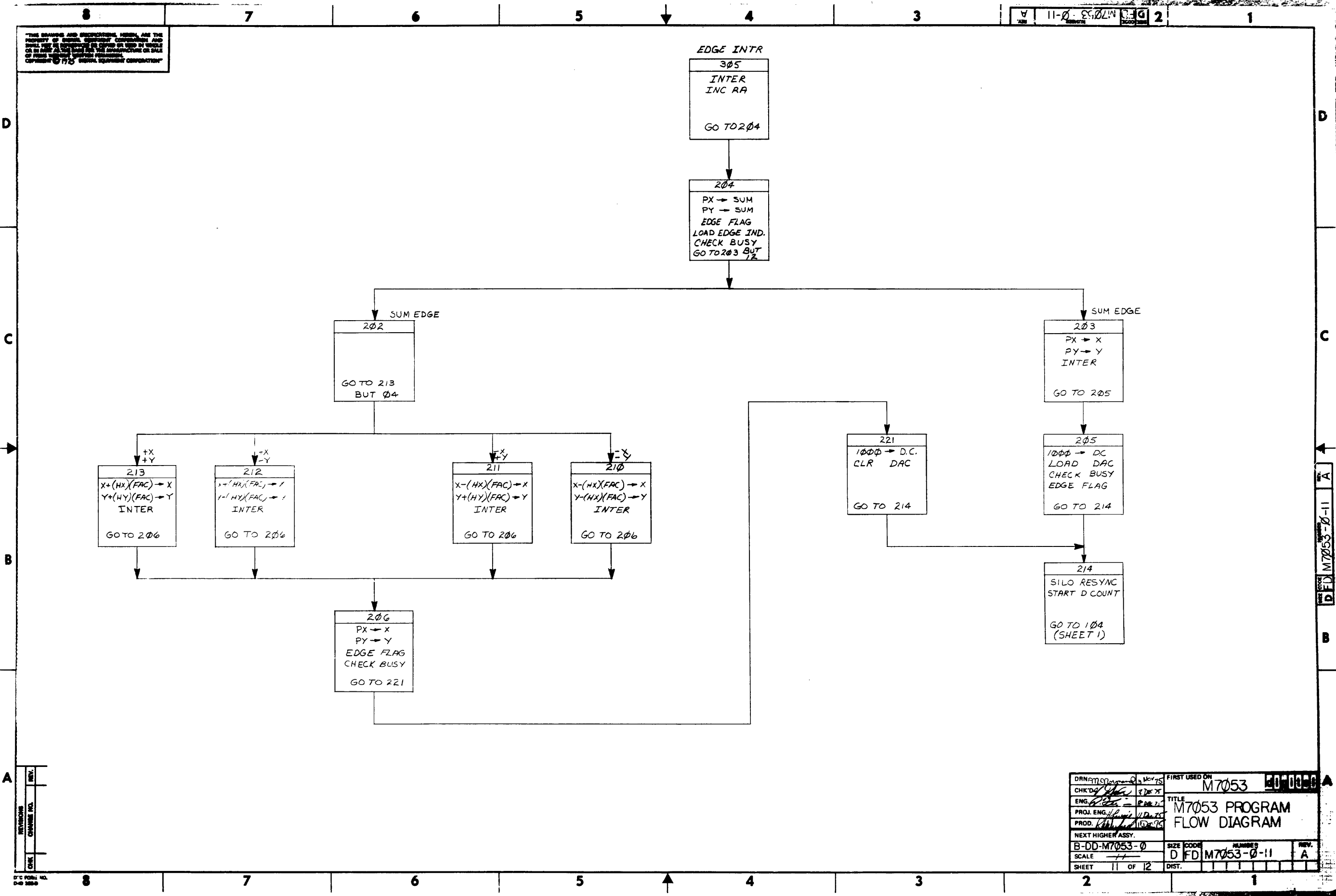
NOTE:  
A TANGENT OF ØØØØ(Ø) WILL READ OUT AS ØØØØ(Ø) WITH MAINTENANCE SWITCH 3 SET. ALL OTHERS ARE CORRECT.

|                             |          |                               |                            |
|-----------------------------|----------|-------------------------------|----------------------------|
| DRN. <i>M. M. M.</i>        | NOV. 15  | FIRST USED ON                 | M7053                      |
| CHK'D BY <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.                         |                            |

REF M7053-0-11 A

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11-0-54021A M7053 2



A  
B  
C  
D  
 M7053-0-11  
 D FD

|                               |                          |               |                            |
|-------------------------------|--------------------------|---------------|----------------------------|
| DRG. NO. <i>11-0-54021A</i>   | REV. <i>1</i>            | FIRST USED ON | <i>10/10/75</i>            |
| CHK'D <i>[Signature]</i>      | ENG. <i>[Signature]</i>  | TITLE         | M7053 PROGRAM FLOW DIAGRAM |
| PROJ. ENG. <i>[Signature]</i> | PROD. <i>[Signature]</i> | SIZE          | D                          |
| NEXT HIGHER ASSY.             | SCALE                    | NUMBER        | 11                         |
| B-DD-M7053-0                  | SCALE                    | REV.          | A                          |
| SHEET 11 OF 12                | DIST.                    |               |                            |

A  
B  
C  
D  
 M7053-0-11  
 D FD

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SECTOR MAP

NOTE:

- 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 26. THIS NUMBER IS ALSO THE INPUT OF THE START AND END POINT ROMS - 23-234A2.
- BINARY NUMBERS REPRESENT THE OUTPUT OF THE START AND END POINT ROMS AND ARE USED AS INPUT TO THE SCISSORING DECODE ROM - 23-235A2. FOR EXAMPLE: AN ARBITRARY VECTOR IS DRAWN FROM SECTOR 26. 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.
- THE CROSS HATCH AREA, SECTOR 2, 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 |
|      | 206  | 226  | 247  | 266  | 306  | 326  | 346  | 366  | 6    | 26   | 46   | 66   | 106  | 126  | 146  | 166  |
| 0110 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 |
|      | 205  | 225  | 245  | 265  | 305  | 325  | 345  | 365  | 5    | 25   | 45   | 65   | 105  | 125  | 145  | 165  |
| 0101 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 |
|      | 204  | 224  | 244  | 264  | 304  | 324  | 344  | 364  | 4    | 24   | 44   | 64   | 104  | 124  | 144  | 164  |
| 0100 | 1111 | 1111 | 1111 | 1111 | 1001 | 1001 | 1001 | 1001 | 1100 | 1101 | 1101 | 1101 | 0101 | 1111 | 1111 | 1111 |
|      | 203  | 223  | 243  | 263  | 303  | 323  | 343  | 363  | 3    | 23   | 43   | 63   | 103  | 123  | 143  | 163  |
| 0011 | 1111 | 1111 | 1111 | 1111 | 1001 | 1001 | 1001 | 1001 | 0011 | 0101 | 0101 | 0101 | 0101 | 1111 | 1111 | 1111 |
|      | 202  | 222  | 242  | 262  | 302  | 322  | 342  | 362  | 2    | 22   | 42   | 62   | 102  | 122  | 142  | 162  |
| 0010 | 1111 | 1111 | 1111 | 1111 | 1001 | 1001 | 1001 | 1001 | 0011 | 0101 | 0101 | 0101 | 0101 | 1111 | 1111 | 1111 |
|      | 201  | 221  | 241  | 261  | 301  | 321  | 341  | 361  | 1    | 21   | 41   | 61   | 101  | 121  | 141  | 161  |
| 0001 | 1111 | 1111 | 1111 | 1111 | 1001 | 1001 | 1001 | 1001 | 0001 | 0101 | 0101 | 0101 | 0101 | 1111 | 1111 | 1111 |
|      | 200  | 220  | 240  | 260  | 300  | 320  | 340  | 360  | 0    | 20   | 40   | 60   | 100  | 120  | 140  | 160  |
| 0000 | 1111 | 1111 | 1111 | 1111 | 1000 | 1000 | 1000 | 1000 | 0000 | 0100 | 0111 | 0111 | 1011 | 1111 | 1111 | 1111 |
|      | 217  | 237  | 257  | 277  | 317  | 337  | 357  | 377  | 17   | 37   | 57   | 77   | 117  | 137  | 157  | 177  |
| 1111 | 1111 | 1111 | 1111 | 1111 | 1010 | 1010 | 1010 | 1010 | 0011 | 0110 | 0110 | 0110 | 0110 | 1111 | 1111 | 1111 |
|      | 216  | 236  | 256  | 276  | 316  | 336  | 356  | 376  | 16   | 36   | 56   | 76   | 116  | 136  | 156  | 176  |
| 1110 | 1111 | 1111 | 1111 | 1111 | 1010 | 1010 | 1010 | 1010 | 1110 | 0110 | 0110 | 0110 | 0110 | 1111 | 1111 | 1111 |
|      | 215  | 235  | 255  | 275  | 315  | 335  | 355  | 375  | 15   | 35   | 55   | 75   | 115  | 135  | 155  | 175  |
| 1101 | 1111 | 1111 | 1111 | 1111 | 1010 | 1010 | 1010 | 1010 | 1110 | 0110 | 0110 | 0110 | 0110 | 1111 | 1111 | 1111 |
|      | 214  | 234  | 254  | 274  | 314  | 334  | 354  | 374  | 14   | 34   | 54   | 74   | 114  | 134  | 154  | 174  |
| 1100 | 1111 | 1111 | 1111 | 1111 | 1010 | 1010 | 1010 | 1010 | 1110 | 0110 | 0110 | 0110 | 0110 | 1111 | 1111 | 1111 |
|      | 213  | 233  | 253  | 273  | 313  | 333  | 353  | 373  | 13   | 33   | 53   | 73   | 113  | 133  | 153  | 173  |
| 1011 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 |
|      | 212  | 232  | 252  | 272  | 312  | 332  | 352  | 372  | 12   | 32   | 52   | 72   | 112  | 132  | 152  | 172  |
| 1010 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 |
|      | 211  | 231  | 251  | 271  | 311  | 331  | 351  | 371  | 11   | 31   | 51   | 71   | 111  | 131  | 151  | 171  |
| 1001 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 |
|      | 210  | 230  | 250  | 270  | 310  | 330  | 350  | 370  | 10   | 30   | 50   | 70   | 100  | 130  | 150  | 170  |
| 1000 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 |

Y SECTOR

X SECTOR

|          |            |
|----------|------------|
| REV. NO. | REV.       |
| CHK      | CHANGE NO. |

|                        |                        |                            |            |
|------------------------|------------------------|----------------------------|------------|
| DRN: M. J. [Signature] | FIRST USED ON          | M7053                      | 20-02-0    |
| CHK: D. [Signature]    | TITLE                  | M7053 PROGRAM FLOW DIAGRAM |            |
| ENG: R. [Signature]    | PROJ. ENG: [Signature] | SIZE CODE                  | D          |
| PROD. R.C. [Signature] | NEXT HIGHER ASSY.      | NUMBER                     | M7053-0-11 |
| B-DD-M7053-0           | SCALE                  | DIST.                      | A          |
| SHEET 12 OF 12         |                        |                            |            |

REV. NO. 11-0-5502W





CUSTOMER PRINT SET

MFC SET

# REVISION CONTROL SHEET

## REVISIONS

| DRAWING NO       | NO OF SHT | DESCRIPTION                                     | OPTION NO/FILE DATE |
|------------------|-----------|---|---------------------|
|                  |           |   | A B                 |
| D-UA-M7054-0-0   | 5         | STACK & SILO CONTROL                            | - B                 |
| E/D-CS-M7054-0-1 | 5         | STACK & SILO CONTROL                            |                     |
|                  |           |   |                     |
|                  |           |   |                     |
|                  |           |   |                     |
|                  |           |   |                     |
|                  |           |   |                     |
| K-CO-M7054-0-4   | 1         | VT48 SILO & STACK CONTROL<br>(CALDEC DATA BASE) | B B                 |
| D-AH-M7054-0-5   | 2         | VT48 SILO & STACK CONTROL                       | A A                 |
| B-MH-M7054-0-6   | 1         | MODULE ECO HISTORY                              | - A                 |
|                  |           |   |                     |
|                  |           |   |                     |
|                  |           |   |                     |
|                  |           |   |                     |
|                  |           |   |                     |
|                  |           |   |                     |
|                  |           |   |                     |
| 5011388          | -         | ETCH CIRCUIT BOARD                              | B 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  
 00001

|                           |              |           |         |     |
|---------------------------|--------------|-----------|---------|-----|
| TITLE                     | SHEET 2 OF 2 | SIZE CODE | NUMBER  | REV |
| VT48 SILO & STACK CONTROL |              | B DD      | M7054-0 | A   |

8

7

6

5

4

3

2

1

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**NOTES:**

- FOR DRAWING DIRECTORY, REFER TO: B-DD-M7054-B
- UNLESS OTHERWISE SPECIFIED THE FOLLOWING PIN NUMBERS APPLY:  

|            |     |     |
|------------|-----|-----|
| IC TYPE    | VCC | GND |
| 2 PIN DIP  | 14  | 7   |
| 18 PIN DIP | 16  | 8   |
| DEC 7476   | 5   | 13  |
| DEC 75453  | 6   | 4   |
| DEC 314    | 8   | 1   |
- COMPONENT DESIGNATIONS NOT USED R14, R15.
- OPTIONAL COMPONENTS NOT INSERTED WITHRU W10, E4, E5 & E77.

**REWORK INSTRUCTIONS**

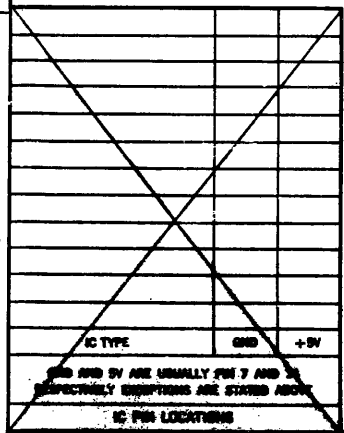
- ETCH CUTS SIDE #1 AS SHOWN (SEE SHEET #3)  
 C CUT ETCH AT ETCH PAD TO LEFT OF E34 (1).
- WIRE ADD TO SIDE #1 AS SHOWN (ITEM #34) (SEE SHEET #2)
- ADD WIRE FROM W1 TO E51(1)
  - ADD WIRE FROM E51(1) TO E51(2)
  - ADD WIRE FROM E51(3) TO PTH TO LEFT OF E34(2)
  - ADD WIRE FROM E33-3 TO E1C-11
  - ADD WIRE FROM E10-12 TO E10-13
  - ADD WIRE FROM E10-13 TO E10-B
  - ADD WIRE FROM E10-9 TO E13-1
  - ADD WIRE FROM E10-10 TO E53-4
  - ADD WIRE FROM E13-2 TO E45-1

- ETCH CUTS SIDE #2 AS SHOWN(SEE SHEET #4)
- CUT ETCH BETWEEN E33-3 AND FEED THRU
  - CUT ETCH BETWEEN E13-5 AND FEED THRU

| QTY | REF. DESIGNATION                                     | DESCRIPTION                | PART NO.   | ITEM NO. |
|-----|--|----------------------------|------------|----------|
| 1   |  | ETCHED CIRCUIT BOARD       | 5011388    | 1        |
| 78  | C1 THRU C77, C89                                     | CAP. .01uf 100V 20%        | 1001810-01 | 2        |
| 3   | C87  | CAP. 88pf 5% 100V          | 1000014    | 3        |
| 8   | C81 THRU C86   | CAP. 6.8uf 35V 10%         | 1005306    | 4        |
| 2   | D1, D2   | DIODE DSU-4                | 1100114    | 5        |
| 1   | R1   | RES. 330 5% 1/4W           | 1300295    | 6        |
| 1   | R2   | RES. 750 5% 1/4W           | 1301401    | 7        |
| 3   | R3, R9, R18  | RES. 22K 5% 1/4W           | 1301905    | 8        |
| 2   | R4, R8   | RES. 100 5% 1/4W           | 1300229    | 9        |
| 3   | R5, R6, R11  | RES. 4.7K 5% 1/4W          | 1300427    | 10       |
| 4   | R12, R13, R16, R17                                   | RES. 180 5% 1/4W           | 1301322    | 11       |
| 2   | R7, R10  | RES. POT. 5K 10% 3/4W 76PR | 1309143-09 | 12       |
| 2   | DL1, DL2   | DELAY LINE 500ns           | 1811197    | 13       |
| 2   | E1, E16  | I.C. DEC 7437              | 1910091    | 14       |
| 4   | E2, E3, E39, E95                                     | I.C. DEC 7478              | 1905585    | 15       |
| 11  | E6, E29, E58, E62, E63, E65, E66, E68, E69, E72, E73 | I.C. DEC 74157             | 1910655    | 16       |
| 2   | E7, E38  | I.C. DEC 7427              | 1910878    | 17       |
| 8   | E8, E20, E21, E37, E45, E59                          | I.C. DEC 7404              | 1909888    | 18       |
| 2   | E9, E61  | I.C. DEC 74193             | 1910018    | 19       |
| 10  | E10, E12, E15, E24, E25, E30, E43, E51, E54, E57     | I.C. DEC 7400              | 1905575    | 20       |
| 1   | E11  | I.C. DEC 74511             | 1910537    | 21       |
| 4   | E13, E28, E36, E64                                   | I.C. DEC 7408              | 1910155    | 22       |
| 9   | E14, E18, E31, E32, E42, E46, E47, E53, E56          | I.C. DEC 7410              | 1905578    | 23       |
| 3   | E17, E40, E52  | I.C. DEC 7440              | 1905579    | 24       |
| 7   | E19, E44, E50, E70, E71, E74, E76                    | I.C. DEC 74153             | 1909897    | 25       |
| 8   | E22, E26, E34, E35, E41, E90                         | I.C. DEC 7402              | 1909804    | 26       |
| 1   | E23  | I.C. DEC 7442              | 1910046    | 27       |
| 1   | E27  | I.C. DEC 314               | 1909704    | 28       |
| 2   | E33, E87   | I.C. DEC 7474              | 1905547    | 29       |
| 2   | E48, E49   | I.C. DEC 75453             | 1911036    | 30       |
| 2   | E75, E78   | I.C. DEC 2602              | 1910257    | 31       |
| 1   |  | HANDLE ASSY                | 1210711-2  | 32       |
| 12  |  | EYELET, HANDLE             | 9006732    | 33       |
| A/R |  | WIRE #30 AWG (GRN)         | 9105740-55 | 34       |
| 2   | C88, C90   | CAP 220 PF 5% 100V         | 1000021    | 35       |
| 2   | W5, W10  | JUMPER, INS. WHT           | 9009185    | 36       |

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B  
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FIRST USED ON OPTION MODEL

ETCH BOARD-REV.

|                             |              |
|-----------------------------|--------------|
| DRN. <i>A. Kocak</i>        | DATE 4/23/75 |
| CHKD. <i>J. G. ...</i>      | DATE 4/23/75 |
| ENR. <i>J. G. ...</i>       | DATE 8/26/75 |
| ENCL. ENR. <i>J. G. ...</i> | DATE 8/26/75 |
| PROD. <i>R. W. ...</i>      | DATE 8-22-75 |

TITLE VT48 SILO + STACK CONTROL

digital

BDD-M7054-B

SCALE NONE

SHEET 2 of 5

SEMICONDUCTOR CONVERSION CHART

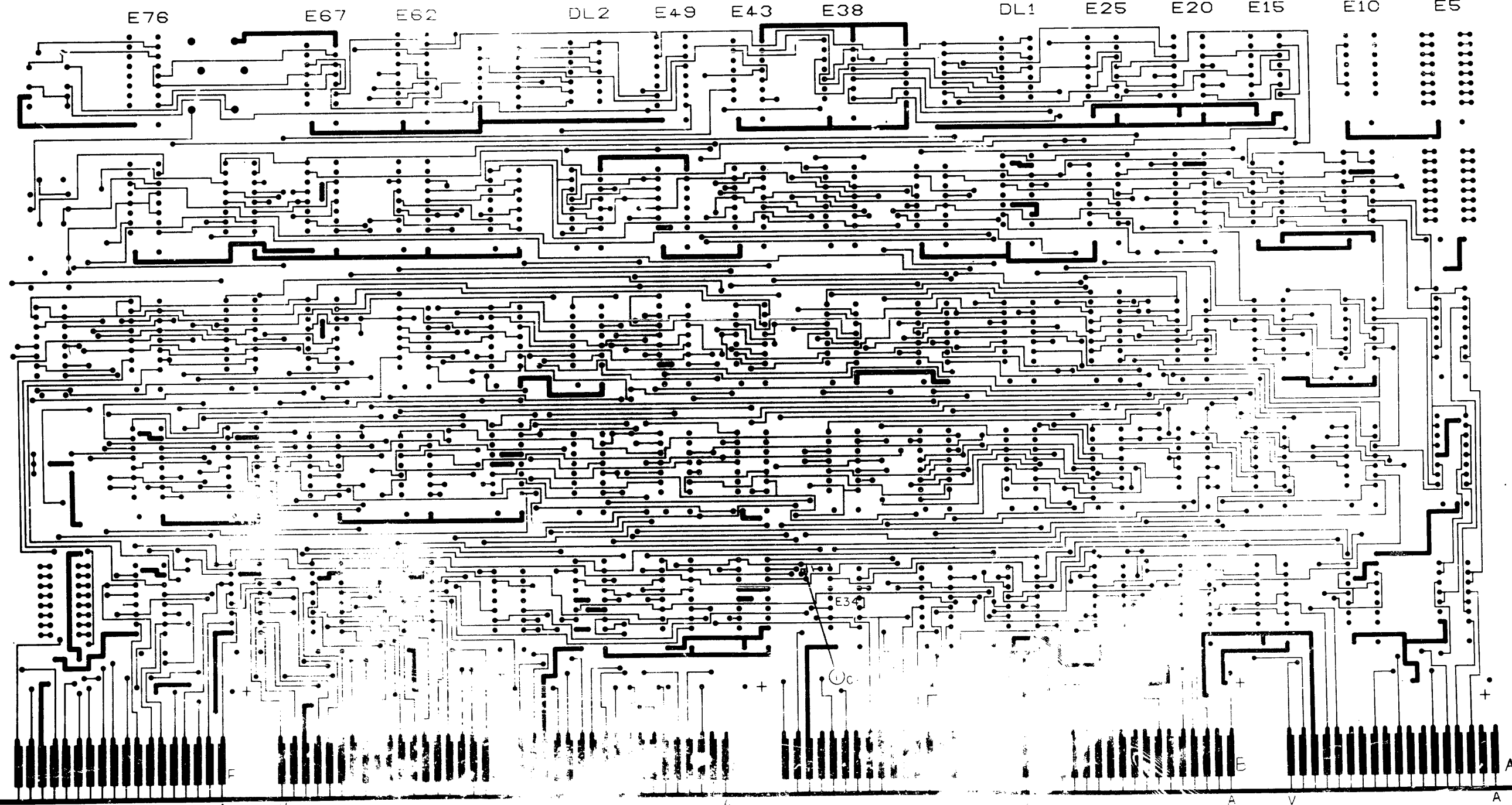
|          |         |          |         |
|----------|---------|----------|---------|
| DEC. NO. | EIA NO. | DEC. NO. | EIA NO. |
|          |         |          |         |



M7054 MS30091 5011388B

3 2 1

CS\*ABCDEFGHIJKLMNPRS SIDE 1 FLIP CHIP



| REVISIONS |           |     |
|-----------|-----------|-----|
| CHK       | CHANGE NO | REV |
|           |           |     |
|           |           |     |

|                           |  |           |           |      |
|---------------------------|--|-----------|-----------|------|
| 143 SILIC + STACK CONTROL |  | SIZE CODE | NUMBER    | REV. |
| NONE                      |  | D UA      | M7054-0-0 | B    |

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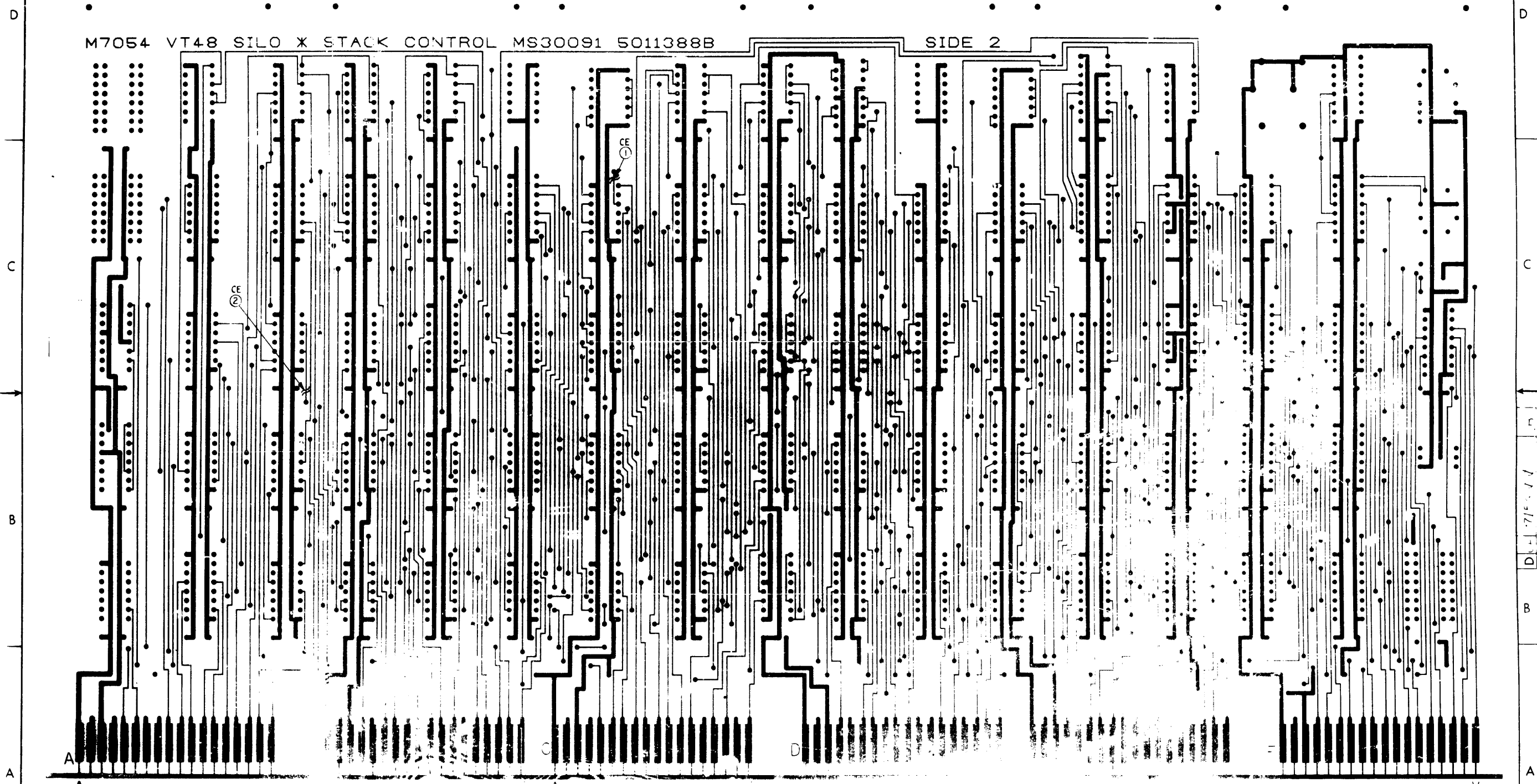
0-0-0-0-0-0-0-0-0-0

1

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M7054 VT48 SILO X STACK CONTROL MS30091 5011388B

SIDE 2



| REVISIONS |           |     |
|-----------|-----------|-----|
| CHK       | CHANGE NO | REV |
|           |           |     |

|         |        |     |
|---------|--------|-----|
| CONTROL | NUMBER | REV |
| D       | 4-0-0  | B   |

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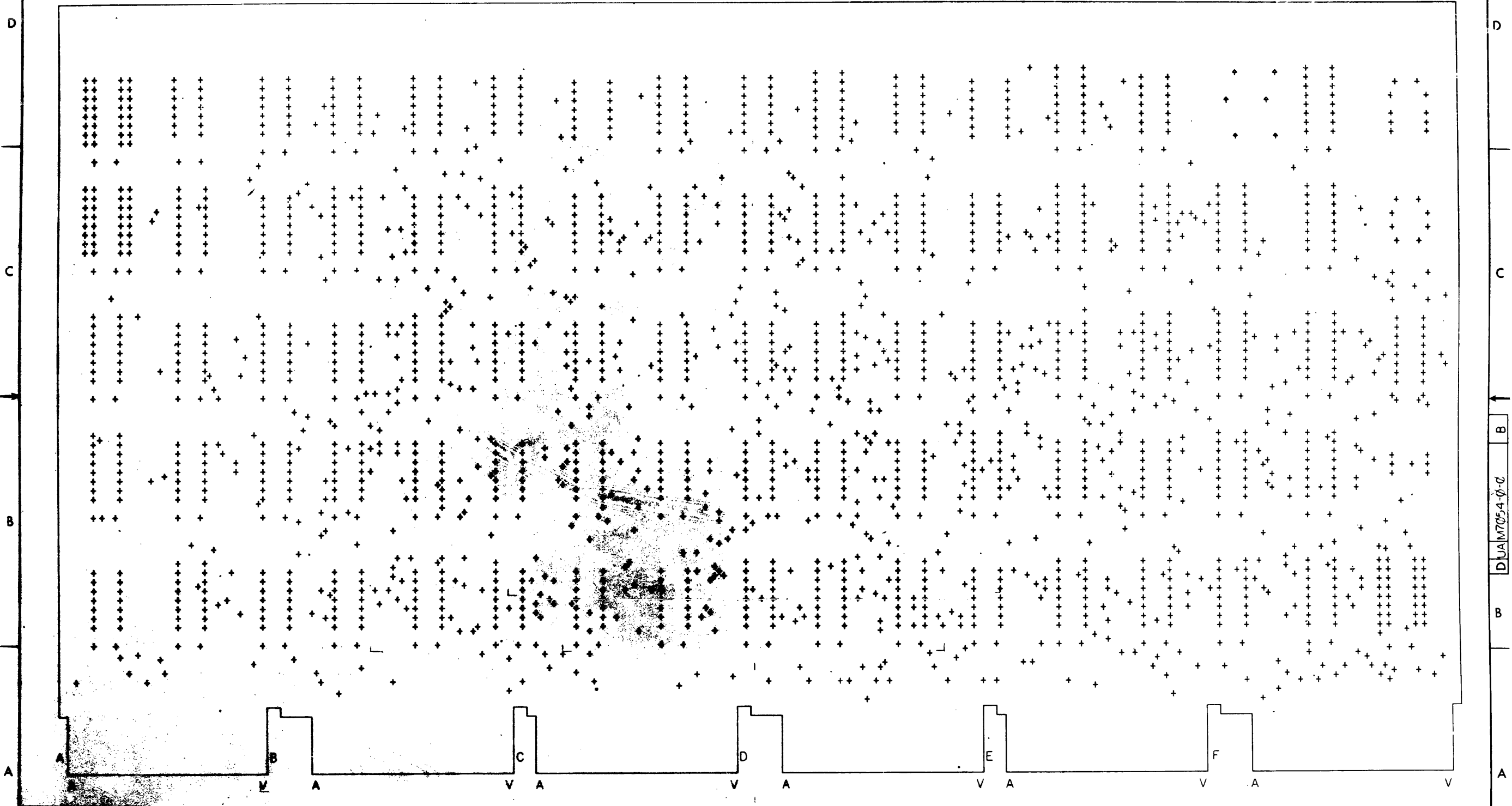
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D U A M 7 0 5 4 - 0 - 0

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|                                   |                 |                    |                     |           |
|-----------------------------------|-----------------|--------------------|---------------------|-----------|
| TITLE<br>VT45 SILO + STACK CONTRL |                 | SIZE CODE<br>D U A | NUMBER<br>M7054-0-0 | REV.<br>B |
| SCALE<br>NONE                     | SHEET<br>5 OF 5 | DIST.              |                     |           |

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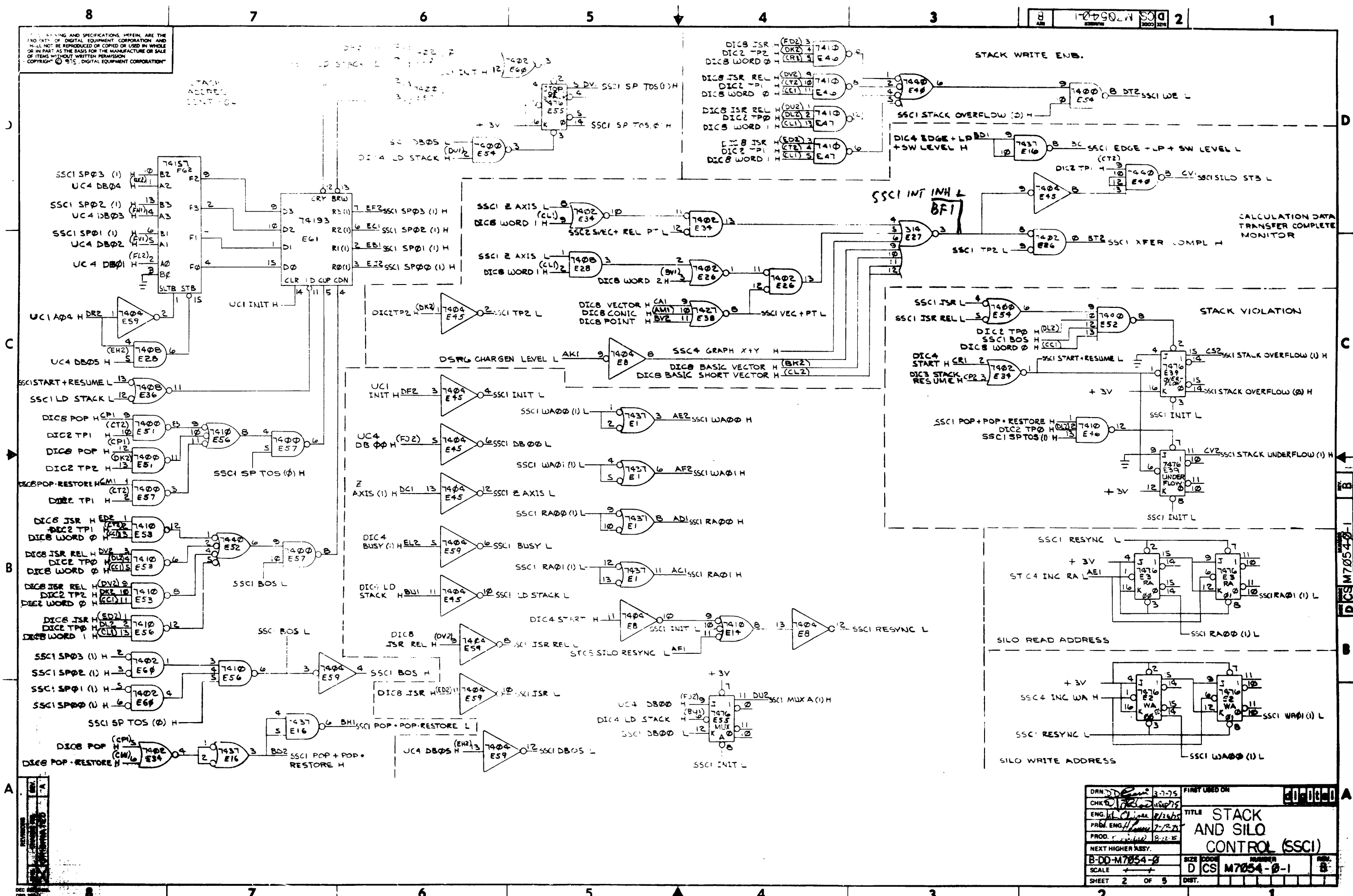
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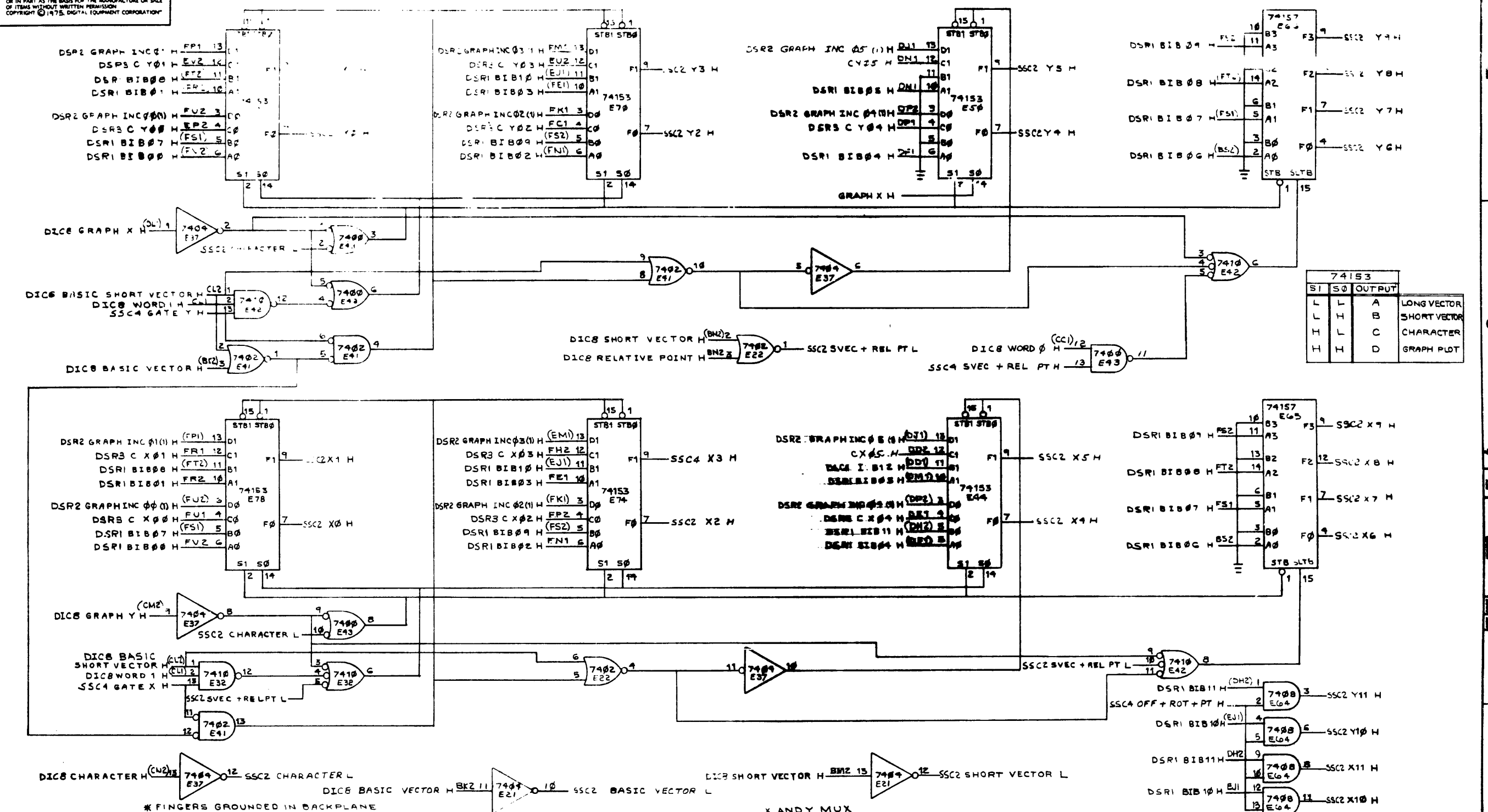


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|                         |                              |   |
|-------------------------|------------------------------|---|
| DRN: <i>3-7-75</i>      | FIRST USED ON: <i>118075</i> | TITLE: <b>STACK AND SILO CONTROL (SSCI)</b>                   |
| CHK: <i>118075</i>      |                              |   |
| ENG: <i>118075</i>      |                              | SIZE CODE: <b>D</b> NUMBER: <b>CS M7054-0-1</b> REV: <b>8</b> |
| PRD. ENG: <i>118075</i> |                              |   |
| PROD. T: <i>118075</i>  |                              | SCALE: <b>+</b>   |
| NEXT HIGHER ASSY:       |                              | SHEET: <b>2</b> OF <b>5</b> DWT:                              |
| B-DD-M7054-0            |                              |   |



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|     |      |    |       |
|-----|------|----|-------|
| REV | DATE | BY | CHK'D |
| 1   |      |    |       |
| 2   |      |    |       |
| 3   |      |    |       |
| 4   |      |    |       |
| 5   |      |    |       |
| 6   |      |    |       |
| 7   |      |    |       |
| 8   |      |    |       |

\* FINGERS GROUNDED IN BACKPLANE

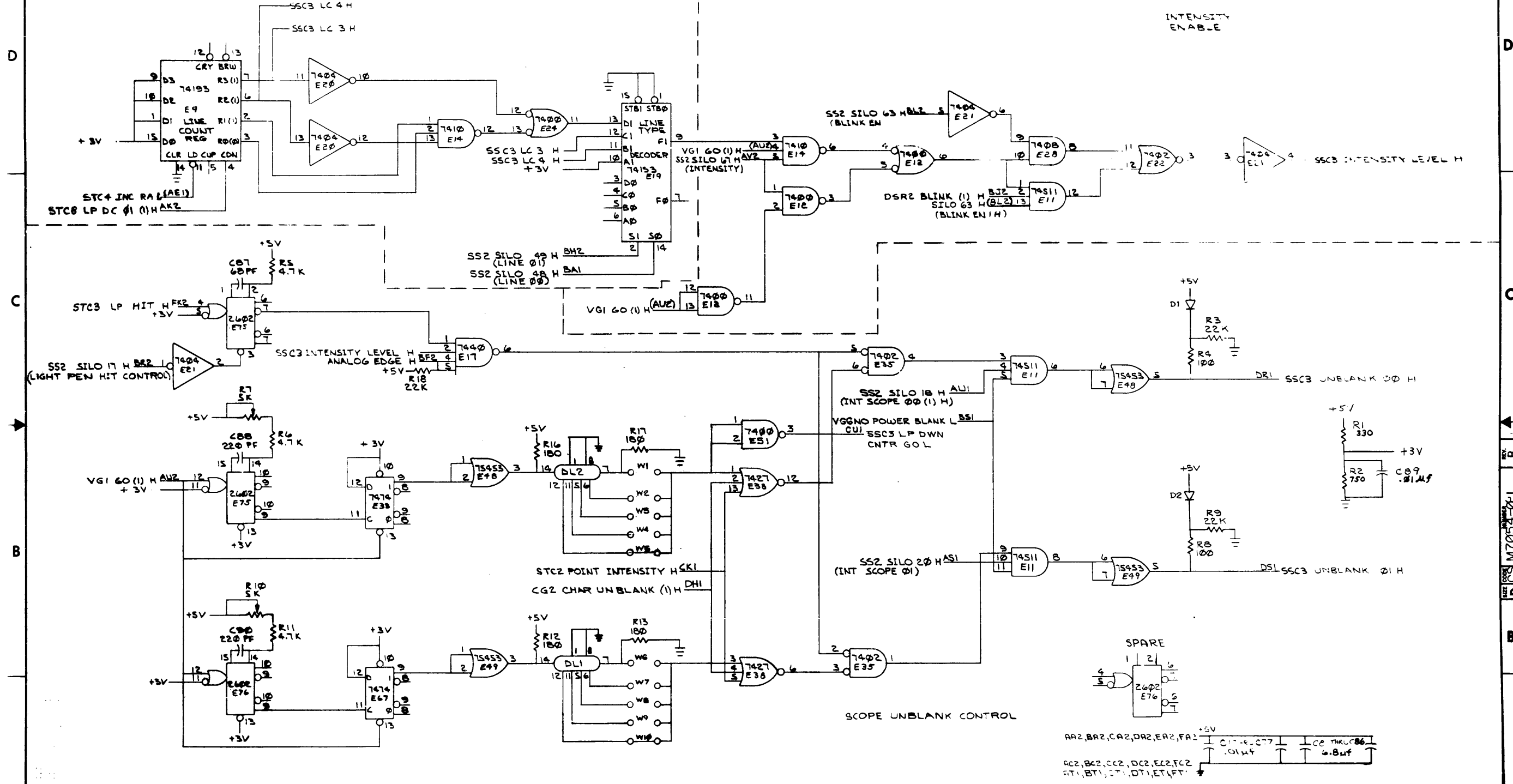
X ANDY MUX

|                               |         |               |                               |
|-------------------------------|---------|---------------|-------------------------------|
| DRN. <i>D.E. O'Brien</i>      | 2/27/75 | FIRST USED ON | <i>100000</i>                 |
| CHK'D <i>[Signature]</i>      |         | TITLE         | STACK AND SILO CONTROL (SSC2) |
| ENG. <i>[Signature]</i>       | 8/15/75 |               |                               |
| PROD. ENG. <i>[Signature]</i> | 7-18-75 |               |                               |
| PROD. <i>[Signature]</i>      | 8-22-75 |               |                               |
| NEXT HIGHER ASSY.             |         |               |                               |
| B-DD-M7054-0                  | SIZE    | CODE          | NUMBER                        |
| SCALE                         | D       | CS            | M7054-0-1                     |
| SHEET 3 OF 5                  | DIST.   |               |                               |

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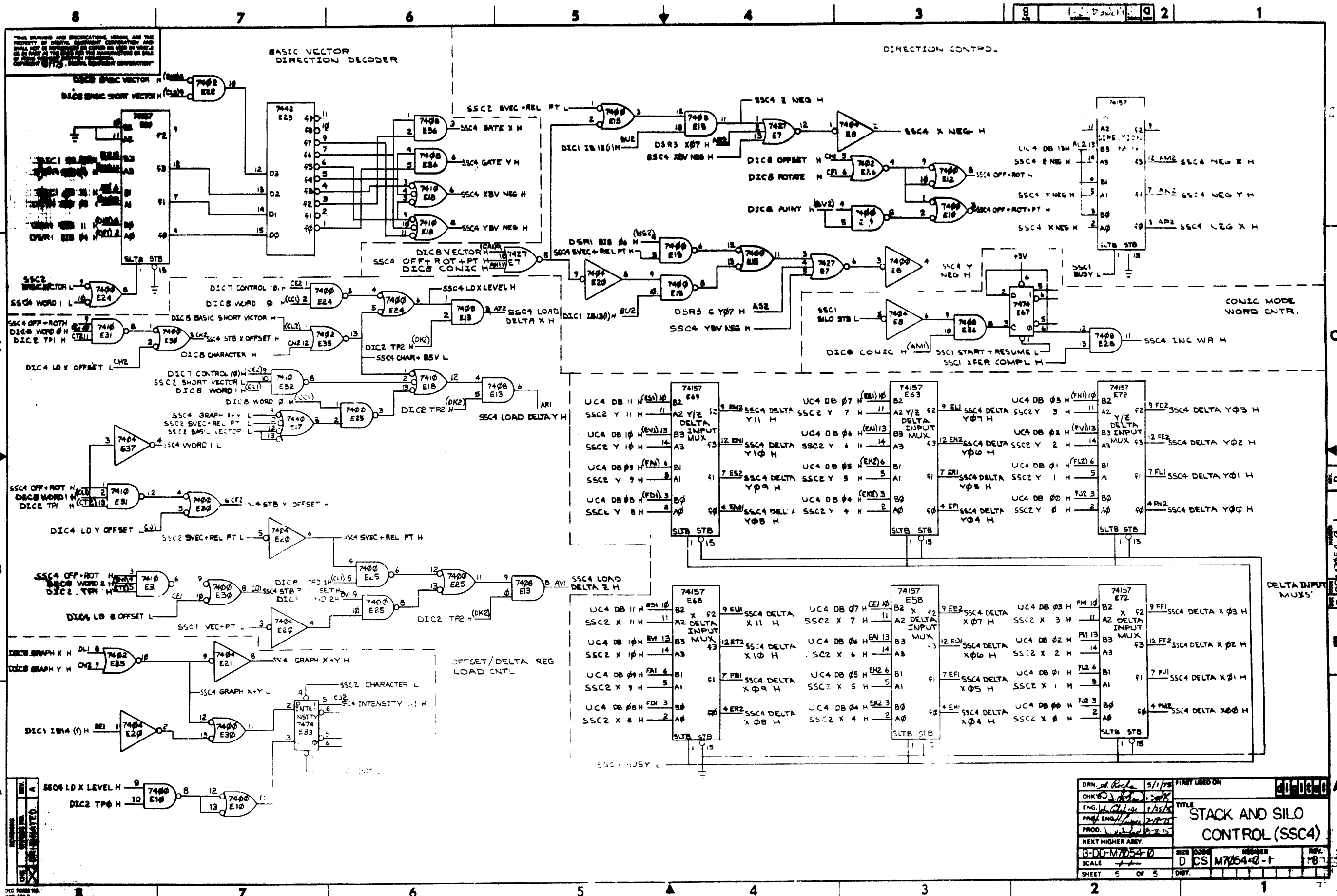
LINE TYPE INTENSITY CNTL

INTENSITY ENABLE



|                   |            |               |           |
|-------------------|------------|---------------|-----------|
| DRN               | 1-5-7502 W | FIRST USED ON |           |
| CHK'D             |            |               |           |
| ENG               |            |               |           |
| PRG               |            |               |           |
| PROD              |            |               |           |
| NEXT HIGHER ASSY. |            |               |           |
| B-00              | M7054-0    | SIZE          | CODE      |
| SCALE             |            | D             | CS        |
| SHEET             | 4 OF 5     | NUMBER        | M7054-0-1 |
|                   |            | REV.          |           |
|                   |            | DIST.         |           |

STACK AND SILO CONTROL (SSC3)



|                            |        |               |         |
|----------------------------|--------|---------------|---------|
| DRN. <i>W. R. ...</i>      | 5/1/75 | FIRST USED ON | 00-10-0 |
| CHK'D <i>W. R. ...</i>     |        |               |         |
| ENG. <i>W. R. ...</i>      |        |               |         |
| PRG. ENG. <i>W. R. ...</i> |        |               |         |
| PROD. <i>W. R. ...</i>     |        |               |         |
| NEXT HIGHER ASSY.          |        |               |         |
| 13-DU-M7054-D              |        |               |         |
| SCALE                      |        |               |         |
| SHEET 5 OF 5               |        |               |         |

TITLE: **STACK AND SILO CONTROL (SSC4)**

REV: **D** CS M7054-D-1

## CUSTOMER PRINT SET INDEX

THIS IS PRINT SET

SEQUENCE  $\Upsilon$   $\Upsilon$   
 DISPLAY STATUS MUX D-UA-M7055-0-0  
 VT48 READ STATUS MULTIPLEXER B/D-CS-M7055-0-1

SEQUENCE  $\Upsilon$   $\Upsilon$

| UNIT VARIATIONS |                    | PRINT SET |
|-----------------|--------------------|-----------|
| VAR             | TITLE              |           |
| M7055           | DISPLAY STATUS MUX |           |
|                 |                    |           |
|                 |                    |           |
|                 |                    |           |
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|           |          |             |             |                      |             |        |       |      |      |        |       |
|-----------|----------|-------------|-------------|----------------------|-------------|--------|-------|------|------|--------|-------|
| REVISIONS | REV      | A           | F           | USED ON OPTION/MODEL | DRN         | DATE   | TITLE | SIZE | CODE | NUMBER | REV B |
|           | CHG. NO. | M7055-00001 | M7055-00002 |                      | VT48        | CHK'D. |       |      |      |        |       |
| DATE      | B-7 75   |             |             |                      | PROJ ENG.   | DATE   |       |      |      |        |       |
|           |          |             |             |                      | PROD.       | DATE   |       |      |      |        |       |
|           |          |             |             |                      | FIELD SERV. | DATE   |       |      |      |        |       |
|           |          |             |             |                      | SHEET       | 1 OF 2 |       |      |      |        |       |

DEC 16-13251-1062-1A-R972

| CUSTOMER PRINT SET                  |                  |           |  | REVISION CONTROL SHEET   |           |   |              |        |        |       |         |  |   |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------------------|------------------|-----------|--|--|-----------|---|--------------|--------|--------|-------|---------|--|---|--|--|--|--|--|--|--|--|--|--|--|
| MFG SET                             | DRAWING NO       | NO OF SMT | DESCRIPTION                              | OPTION NO/FILE DATE  | REVISIONS |   |              |        |        |       |         |  |   |  |  |  |  |  |  |  |  |  |  |  |
|                                     |                  |           |  |  |           |   |              |        |        |       |         |  |   |  |  |  |  |  |  |  |  |  |  |  |
| <input checked="" type="checkbox"/> | D-UA-M7055-0-0   | 5         | DISPLAY STATUS MUX                       |  | -         | A | B            |        |        |       |         |  |   |  |  |  |  |  |  |  |  |  |  |  |
| <input checked="" type="checkbox"/> | B/D-CS-M7055-0-1 | 4         | VT48 READ STATUS MULTIPLEXER             |  | -         | - | B            |        |        |       |         |  |   |  |  |  |  |  |  |  |  |  |  |  |
|                                     |                  |           |  |  |           |   |              |        |        |       |         |  |   |  |  |  |  |  |  |  |  |  |  |  |
|                                     | K-CO-M7055-0-4   | 1         | DISPLAY STATUS MUX<br>(CALDEC DATA BASE) |  | B         | B | B            |        |        |       |         |  |   |  |  |  |  |  |  |  |  |  |  |  |
|                                     | D-AH-M7055-0-5   | 2         | DISPLAY STATUS MUX                       |  | A         | A | A            |        |        |       |         |  |   |  |  |  |  |  |  |  |  |  |  |  |
|                                     | B-MH-M7055-0-6   | 1         | MODULE ECO HISTORY                       |  | -         | A | B            |        |        |       |         |  |   |  |  |  |  |  |  |  |  |  |  |  |
|                                     |                  |           |  |  |           |   |              |        |        |       |         |  |   |  |  |  |  |  |  |  |  |  |  |  |
|                                     | 5011221          | -         | ETCHED CIRCUIT BOARD                     |  | B         | B | B            |        |        |       |         |  |   |  |  |  |  |  |  |  |  |  |  |  |
|                                     |                  |           |  |  |           |   |              |        |        |       |         |  |   |  |  |  |  |  |  |  |  |  |  |  |
| CUSTOMER PRINT SET CODES            |                  |           |  | X = PRINT OF DOCUMENT INCLUDED IN PRINT SET<br>C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT<br>S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED |           |   |              | ECO NO | ORIG   | 00001 | 00002   |  |   |  |  |  |  |  |  |  |  |  |  |  |
| TITLE                               |                  |           |  |  |           |   | SIZE CODE    |        | NUMBER |       | REV     |  |   |  |  |  |  |  |  |  |  |  |  |  |
| DISPLAY STATUS MUX                  |                  |           |  |  |           |   | SHEET 2 OF 2 |        | B DD   |       | M7055-0 |  | B |  |  |  |  |  |  |  |  |  |  |  |

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- 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)

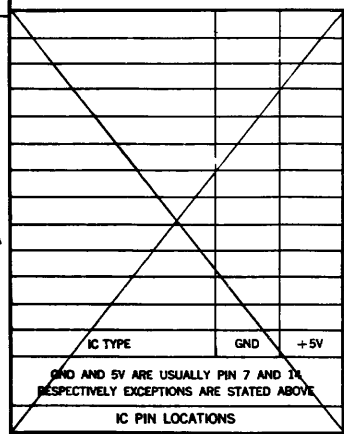
- AT TOP OF BOARD WITH DIMENSIONS SHOWN

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  
C  
B  
A

D  
C  
B  
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, E19, E20   | I.C. DEC 7404        | 1909006    | 7        |
| 1   | E9   | I.C. DEC 0815        | 1909713    | 8        |
| 16  | 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       | <p>TITLE: DISPLAY STATUS MUX</p> <p>SIZE CODE NUMBER: DUA M7055-0-0</p> <p>SCALE: NONE</p> <p>SHEET 1 OF 5</p> |
| CHKD. DATE 6-24-75      |  |
| ENG. DATE 6-20-75       |  |
| PROJ. ENG. DATE 6-20-75 |  |
| PROD. DATE 6-20-75      |  |

NEXT HIGHER ASSY: B-DD-M7055-0

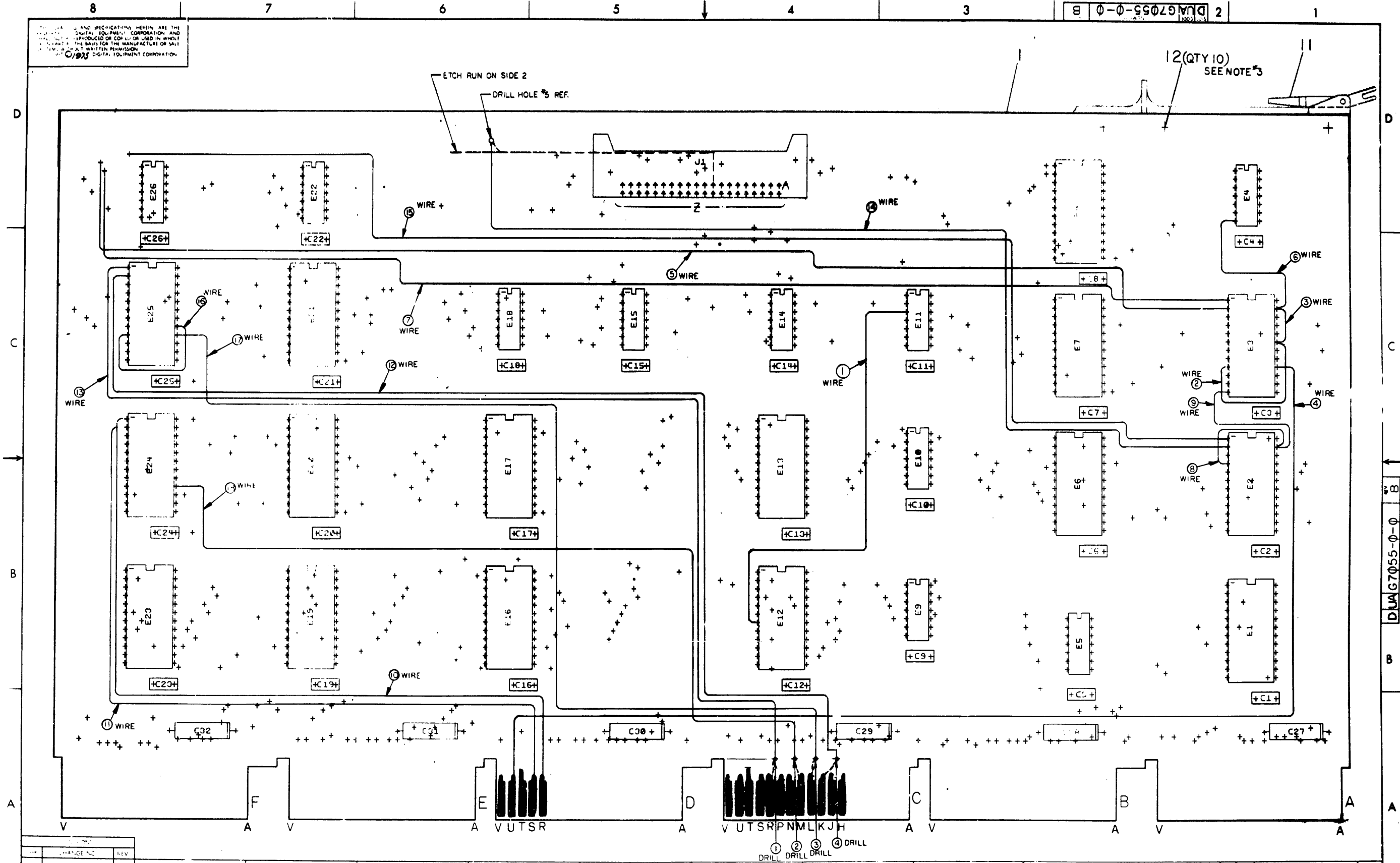
SEMICONDUCTOR CONVERSION CHART

|          |         |          |         |
|----------|---------|----------|---------|
| DEC. NO. | EIA NO. | DEC. NO. | EIA NO. |
|----------|---------|----------|---------|

DUA M7055-0-0 B

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2 DUA67055-0-0



| REV | CHANGE NO |
|-----|-----------|
|     |           |

① DRILL ② DRILL ③ DRILL ④ DRILL

DISPLAY STATUS MUX D U A M 7 0 5 5 - 0 - 0 B  
 SCALE 2/1 SHEET 2 OF 5

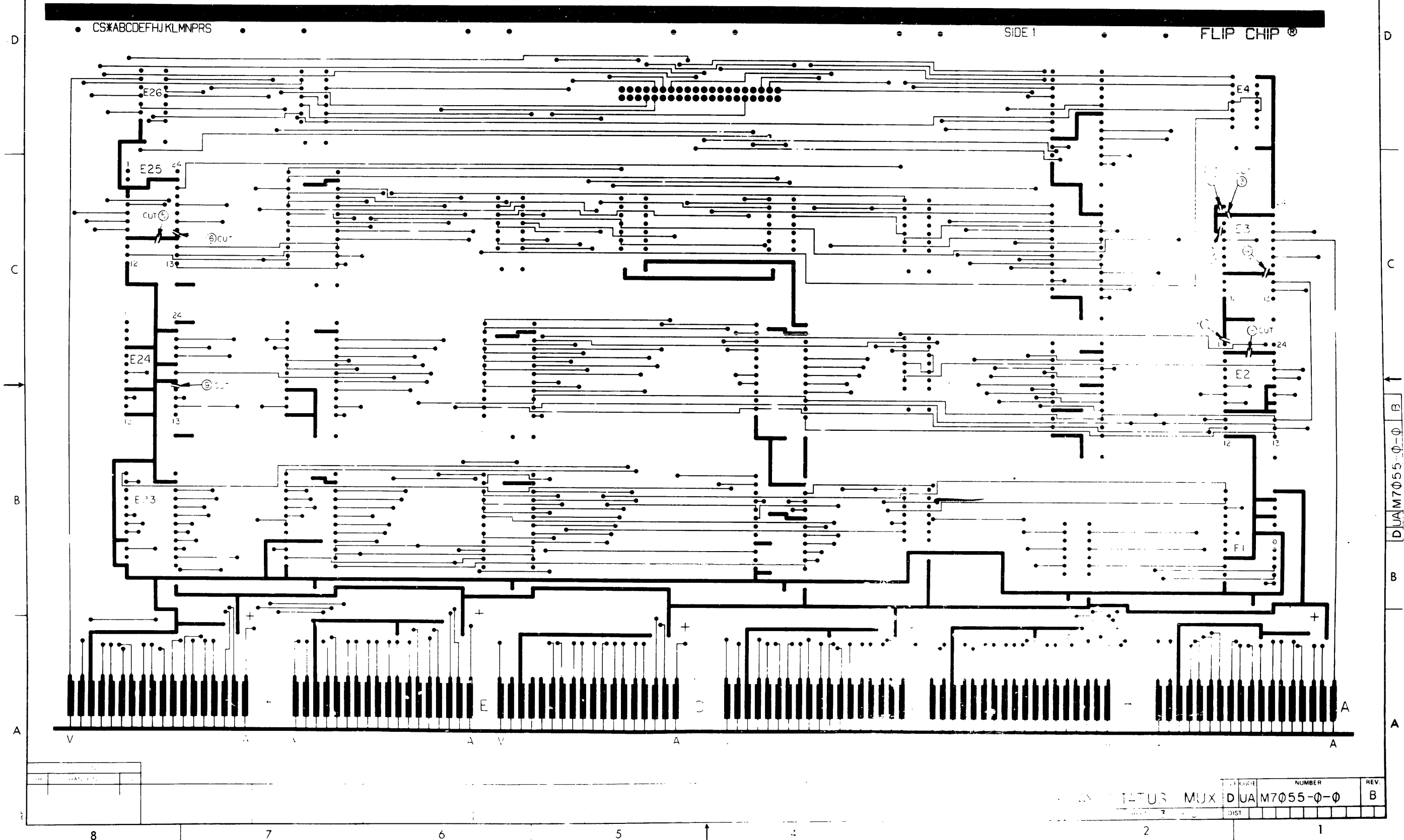
8 7 6 5 4 3 2 1

DUA67055-0-0 B

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MS30092 M7055 5011221B

2 DUA M7055-0-0 B 1



CS\*ABCDEFGHIJKLMNPRS

SIDE 1

FLIP CHIP Ⓞ

DUA M7055-0-0 B

| REV. | DATE | BY | CHKD. |
|------|------|----|-------|
|      |      |    |       |

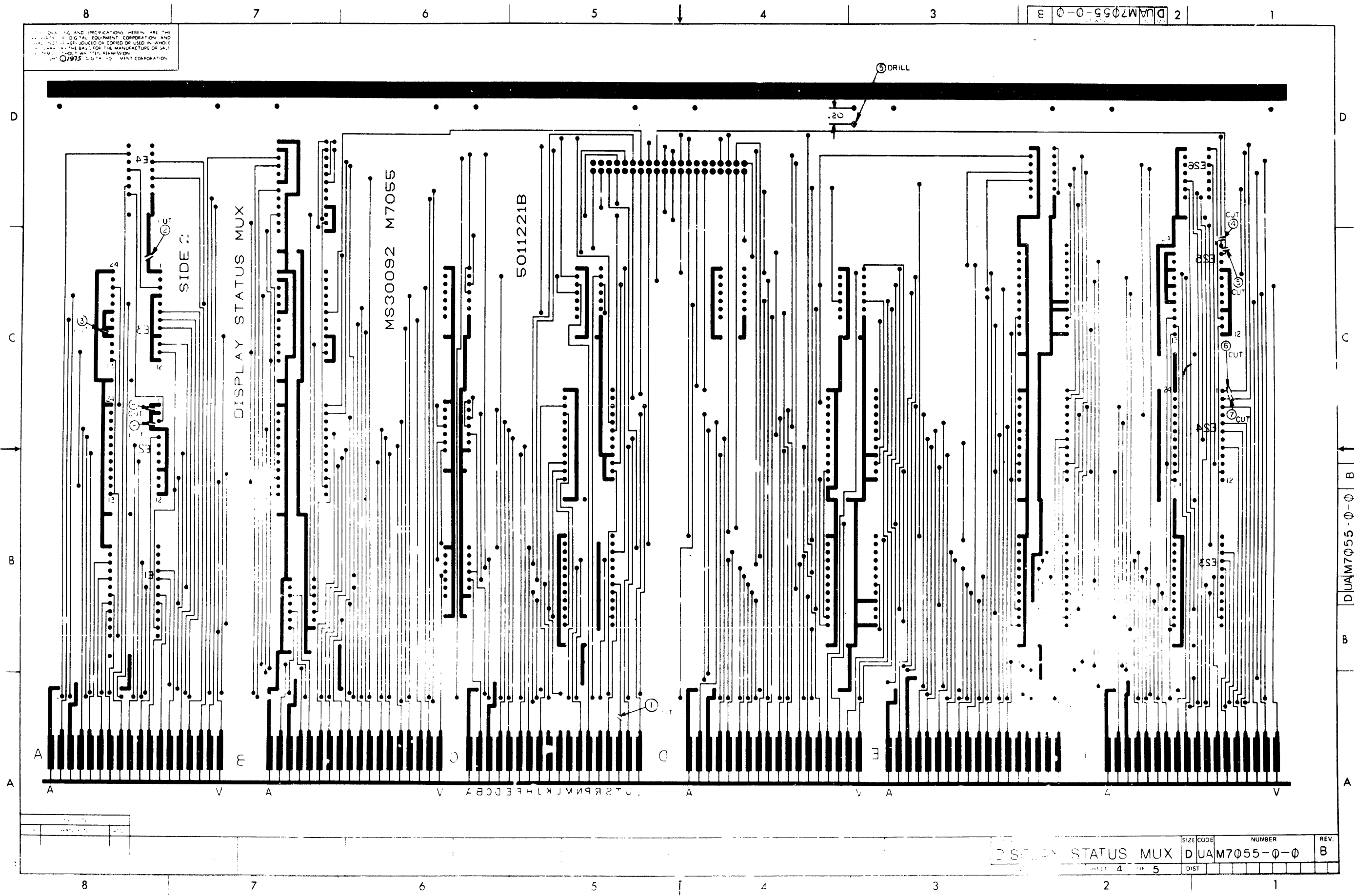
| REV. | NUMBER        | DESCRIPTION |
|------|---------------|-------------|
| B    | DUA M7055-0-0 | STATUS MUX  |

8 7 6 5 4 3 2 1



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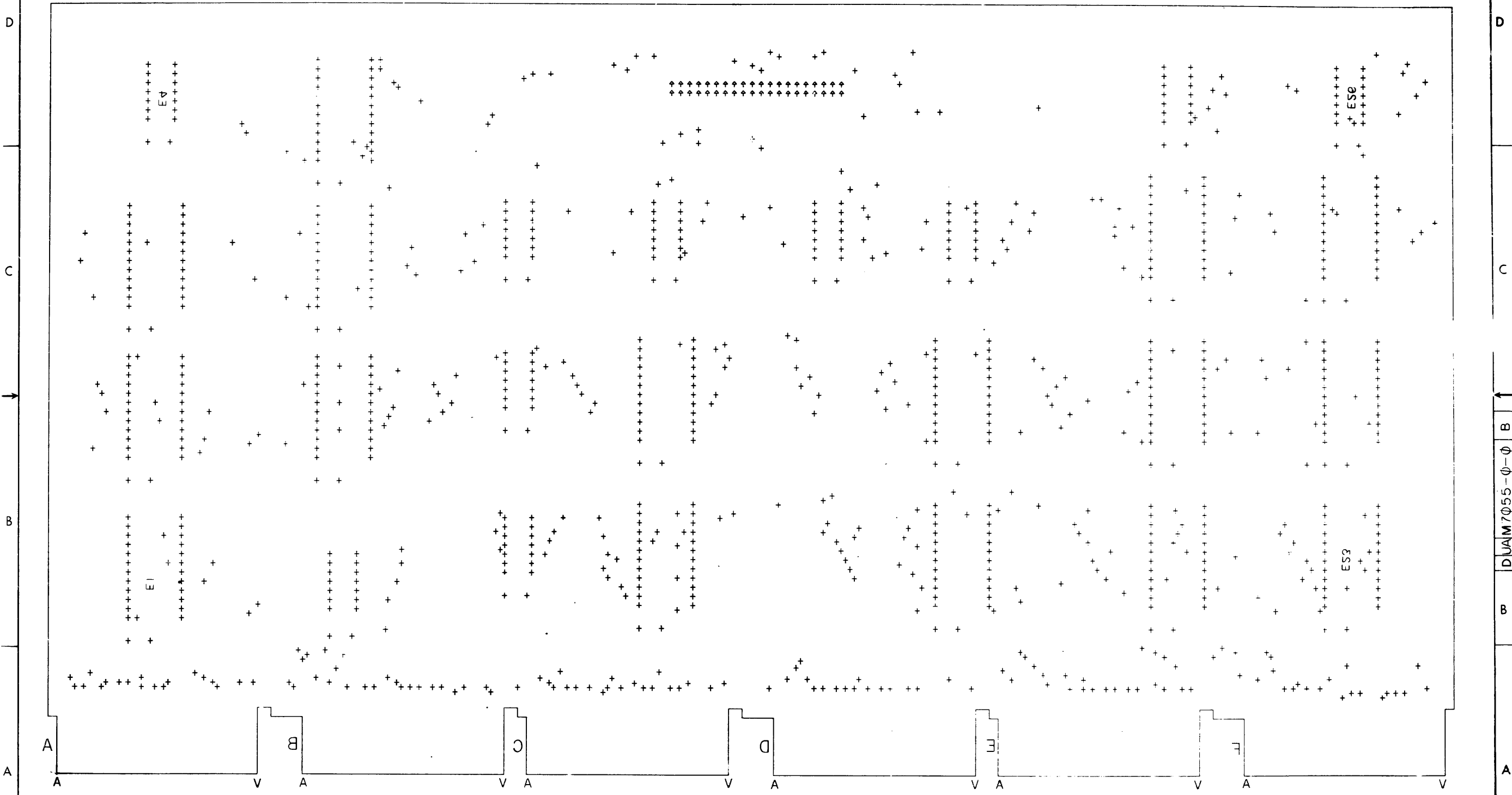
DUALM7055-0-0 B 2



|                    |  |           |               |      |
|--------------------|--|-----------|---------------|------|
| DISPLAY STATUS MUX |  | SIZE CODE | NUMBER        | REV. |
| DIST               |  |           | DUALM7055-0-0 | B    |

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DUAL M7055-0-0 2



| REVISIONS |            |     |
|-----------|------------|-----|
| CHK       | CHANGE NO. | REV |
|           |            |     |
|           |            |     |

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

8 7 6 5 4 3 2 1

PAGE REVISION CONTROL SHEET

| SH NO. | PAGE REVISIONS |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | REMARKS |      |
|--------|----------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---------|------|
|        |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |         |      |
| 1      | B              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |         |      |
| 2      | A              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |         |      |
| 3      | A              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |         | RSM1 |
| 4      | A              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |         | RSM2 |
|        |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |         | RSM3 |

ECO NO. 00002  
 ETCH REV. A  
 ENG. DATE 5-10-76

FIRST USED ON OPTION/MODEL  
 VT48

**digital** EQUIPMENT CORPORATION  
 MAYNARD MASSACHUSETTS

TITLE  
 VT48 STACK & SILO CONTROL

|                      |              |
|----------------------|--------------|
| DRN. D. DiCierrri    | DATE 4-16-75 |
| CHK'D. P.J. LeBlanc  | DATE 4-20-75 |
| ENG. G. Ganong       | DATE 6-20-75 |
| PROJ. ENG. H. Lavoie | DATE 6-20-75 |
| PROD. R. Wakefield   | DATE 6-20-75 |

NEXT HIGHER ASSY.  
 B-DD-M7Ø55-Ø

SCALE

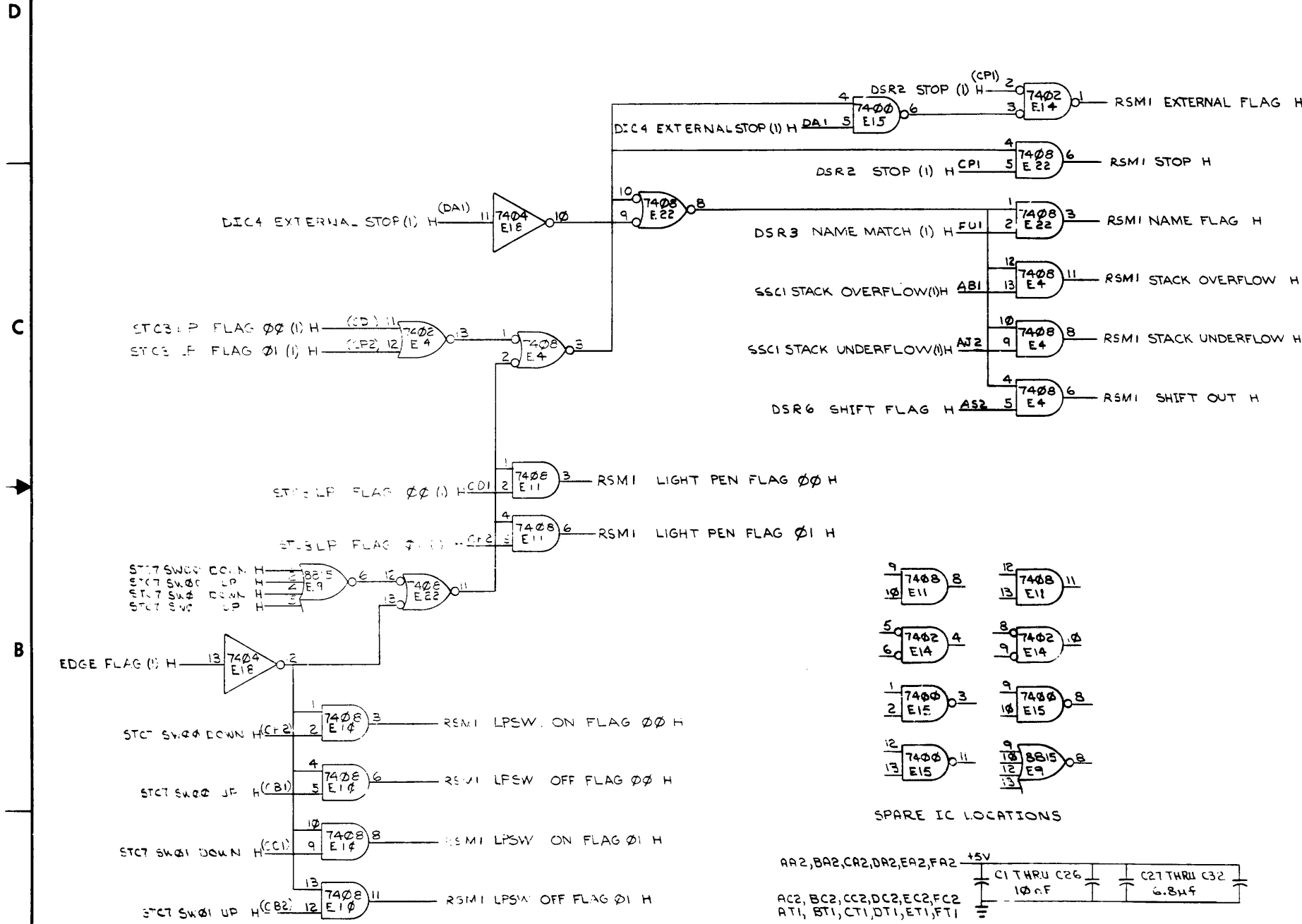
SHEET 1 OF 4

|           |           |      |
|-----------|-----------|------|
| SIZE CODE | NUMBER    | REV. |
| B CS      | M7Ø55-Ø-1 | B    |

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### FLAG PRIORITY ARBITRATION



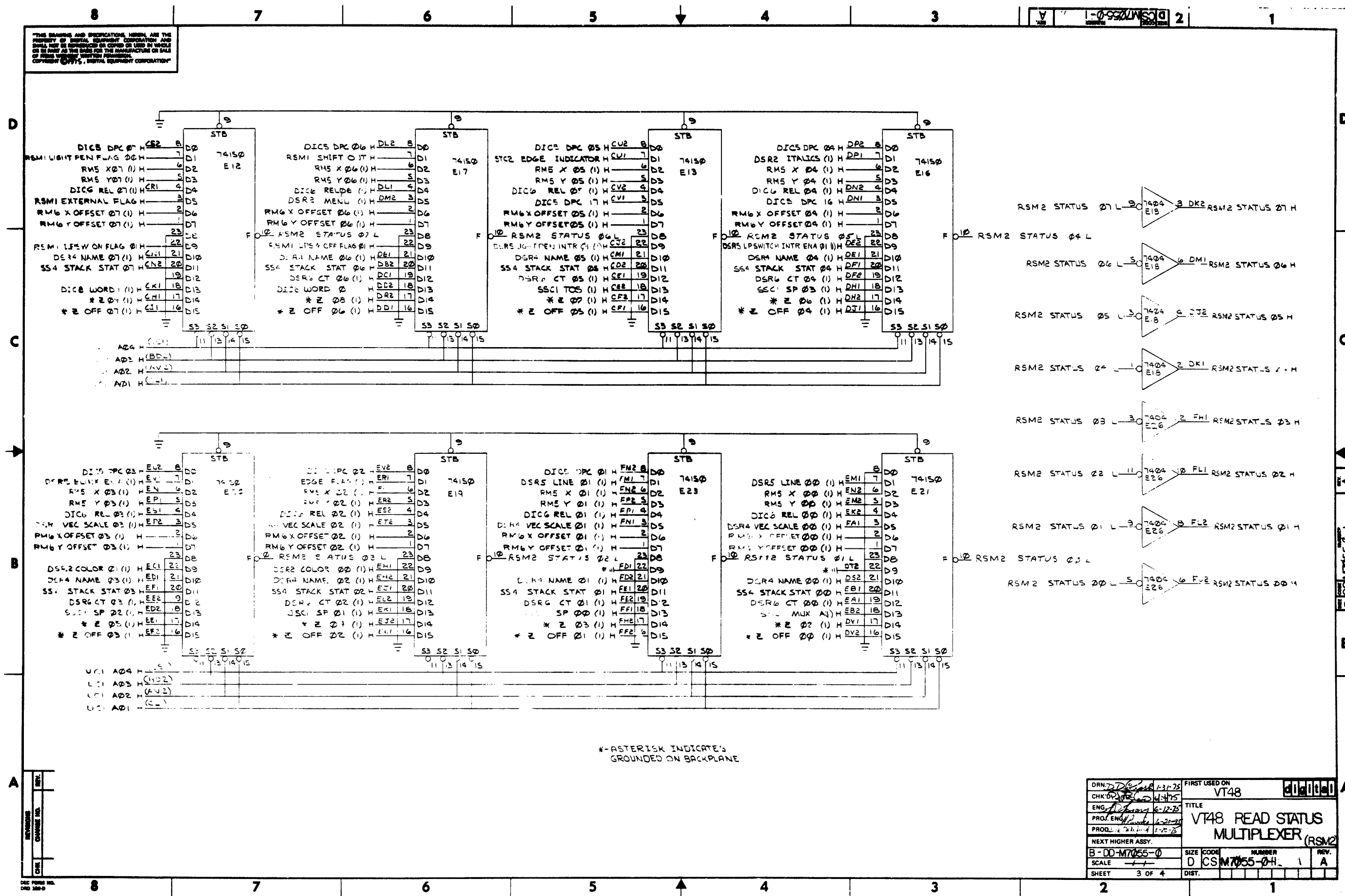
| Signal                | Connector Pin |
|-----------------------|---------------|
| RM6 X OFFSET 10 (1) H | A             |
| RM6 X OFFSET 00 (1) H | B             |
| RM6 X OFFSET 11 (1) H | C             |
| RM6 X OFFSET 01 (1) H | D             |
| RMS X 04 (1) H        | E             |
| RM6 X 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 | BB            |
| RMS Y 07 (1) H        | CC            |
| RM6 Y OFFSET 05 (1) H | DD            |
| RMS Y 06 (1) H        | EE            |
| RM6 Y OFFSET 04 (1) H | FF            |
| RMS Y 05 (1) H        | HH            |
| RM6 Y OFFSET 03 (1) H | J             |
| RMS Y 04 (1) H        | KK            |
| RM6 Y OFFSET 02 (1) H | L             |
| RMS Y 03 (1) H        | MM            |
| RM6 Y OFFSET 01 (1) H | NN            |
| RMS Y 02 (1) H        | PP            |
| RM6 Y OFFSET 11 (1) H | RR            |
| RM6 Y OFFSET 10 (1) H | SS            |
| RM6 Y OFFSET 10 (1) H | TT            |
| RM6 Y OFFSET 00 (1) H | UU            |
| RM6 Y OFFSET 00 (1) H | VV            |

CONNECTOR FROM M7051

|                          |         |               |                                     |
|--------------------------|---------|---------------|-------------------------------------|
| DRN: <i>310000</i>       | 1-31-75 | FIRST USED ON | VT48                                |
| CHK'D: <i>310000</i>     | 4/1/75  | TITLE         | VT48 READ STATUS MULTIPLEXER (RSMI) |
| ENG: <i>310000</i>       | 6-12-75 | SCALE         | D CS                                |
| PROJ. ENG: <i>310000</i> | 6-20-75 | NUMBER        | M7055-011                           |
| PROJ. MGR: <i>310000</i> | 6-20-75 | REV.          | A                                   |
| NEXT HIGHER ASSY.        |         | SIZE          | CODE                                |
| B-DD-M7055-0             |         | SCALE         | D CS                                |
| SHEET 2 OF 4             |         | DIST.         |                                     |

|      |  |
|------|--|
| REV. |  |
| CHG  |  |

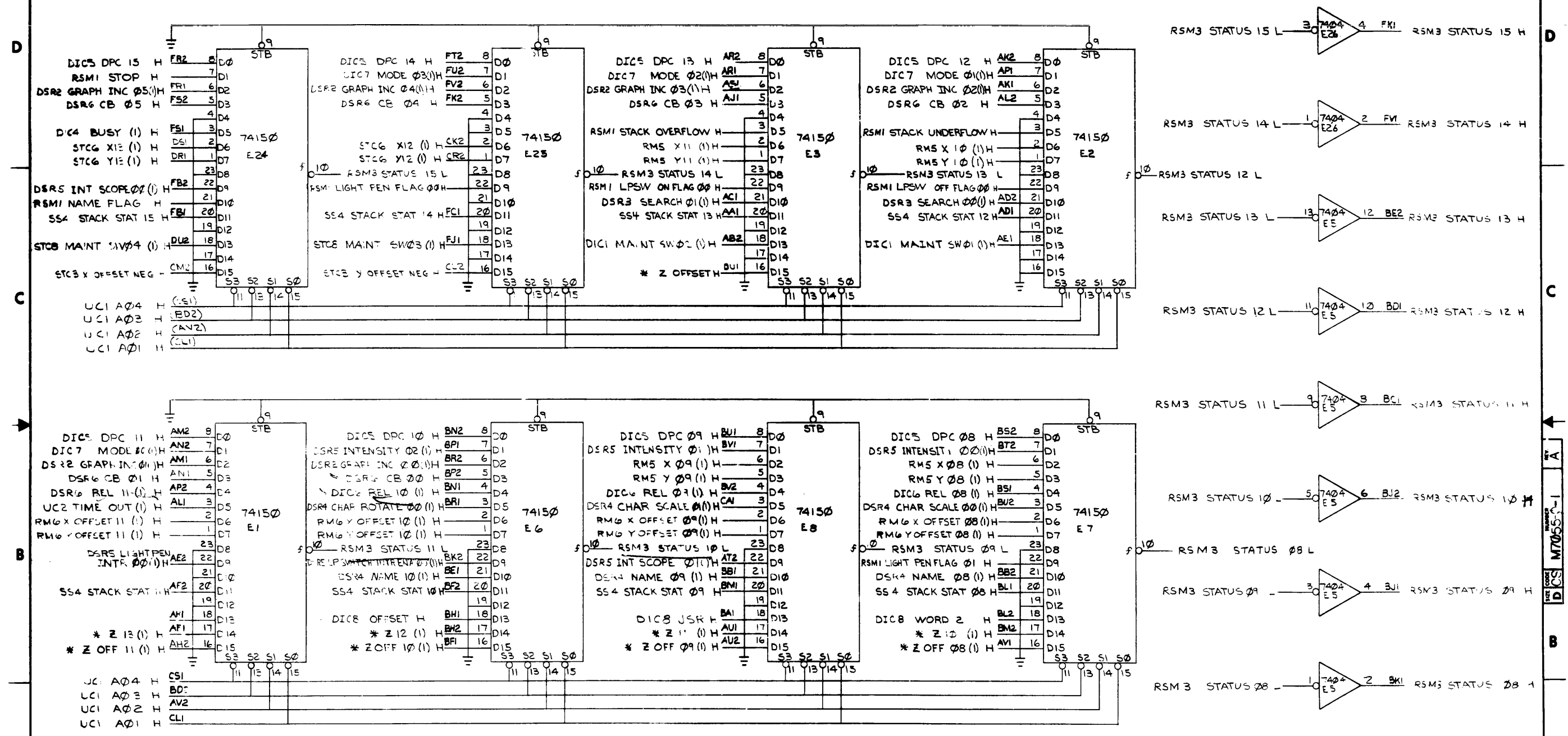
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\*-ASTERISK INDICATE'S GROUNDED ON BACKPLANE

|                    |                                     |            |
|--------------------|-------------------------------------|------------|
| DRN: 7-26-75       | FIRST USED ON                       | VT48       |
| CHK: 7-26-75       | TITLE                               |            |
| ENG: 7-26-75       | VT48 READ STATUS MULTIPLEXER (RSM2) |            |
| PROJ. ENG: 7-26-75 | NEXT HIGHER ASSY.                   |            |
| B-DD-M7055-0       | SIZE CODE                           | NUMBER     |
| SCALE              | D                                   | CSM7055-0H |
| SHEET 3 OF 4       | DIST.                               | REV. A     |

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\*-ASTERISK INDICATES GROUNDED ON BACKPLANE

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

|      |  |
|------|--|
| REV. |  |
| CHG. |  |
| REV. |  |
| CHG. |  |







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0-0-9502771012

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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 CDI.

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

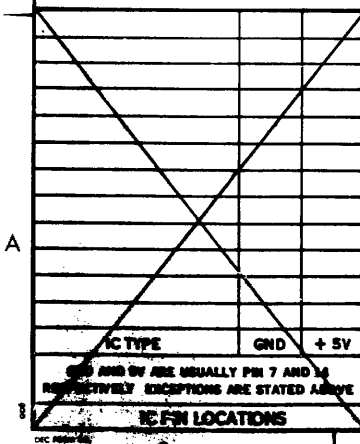
WIRE ADDS TO SIDE 1 AS SHOWN: (ITEM 15) (SEE SHEET #2).  
 ① ADD WIRE FROM E11-7 TO BNI.  
 ② ADD WIRE FROM E11-9 TO BLI.

| QTY | REF DESIGNATION                              | DESCRIPTION             | PART NO.    | ITEM NO. |
|-----|--|-------------------------|-------------|----------|
| 1   |  | ETCHED CIRCUIT BOARD    | 5011230     | 1        |
| 53  | C1 THRU C53                                  | CAP. 10nf 5% 100V       | K001610-D1  | 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  | E8 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       |
| 1   |  | WIRE #30 AWG (GRN)      | 9105740-55  | 15       |

D  
C  
B  
A

D  
C  
B  
A

DUA M7056-a-a



FIRST USED ON OPTION MODEL  
GT48

| PARTS LIST |         | TITLE  |              |
|------------|---------|--|--------------|
| DATE       | 3-9-75  | digital EQUIPMENT CORPORATION<br>MAYNARD MASSACHUSETTS | STACK & SILO |
| DATE       | 8/25/75 |  |              |
| DATE       | 8/25/75 |  |              |
| DATE       | 8/25/75 |  |              |
| DATE       | 8/25/75 | B-DD-M7056-a   |              |
| SCALE      | 2/1     | SIZE CODE  | NUMBER       |
| SHEET      | 1 OF 5  | DIST.  |              |

| CHK | CHANGE NO. | REV |
|-----|------------|-----|
|     |            |     |
|     |            |     |
|     |            |     |

| DEC NO. | EIA NO. | DEC NO. | EIA NO. |
|---------|---------|---------|---------|
|         |         |         |         |

SEMICONDUCTOR CONVERSION CHART

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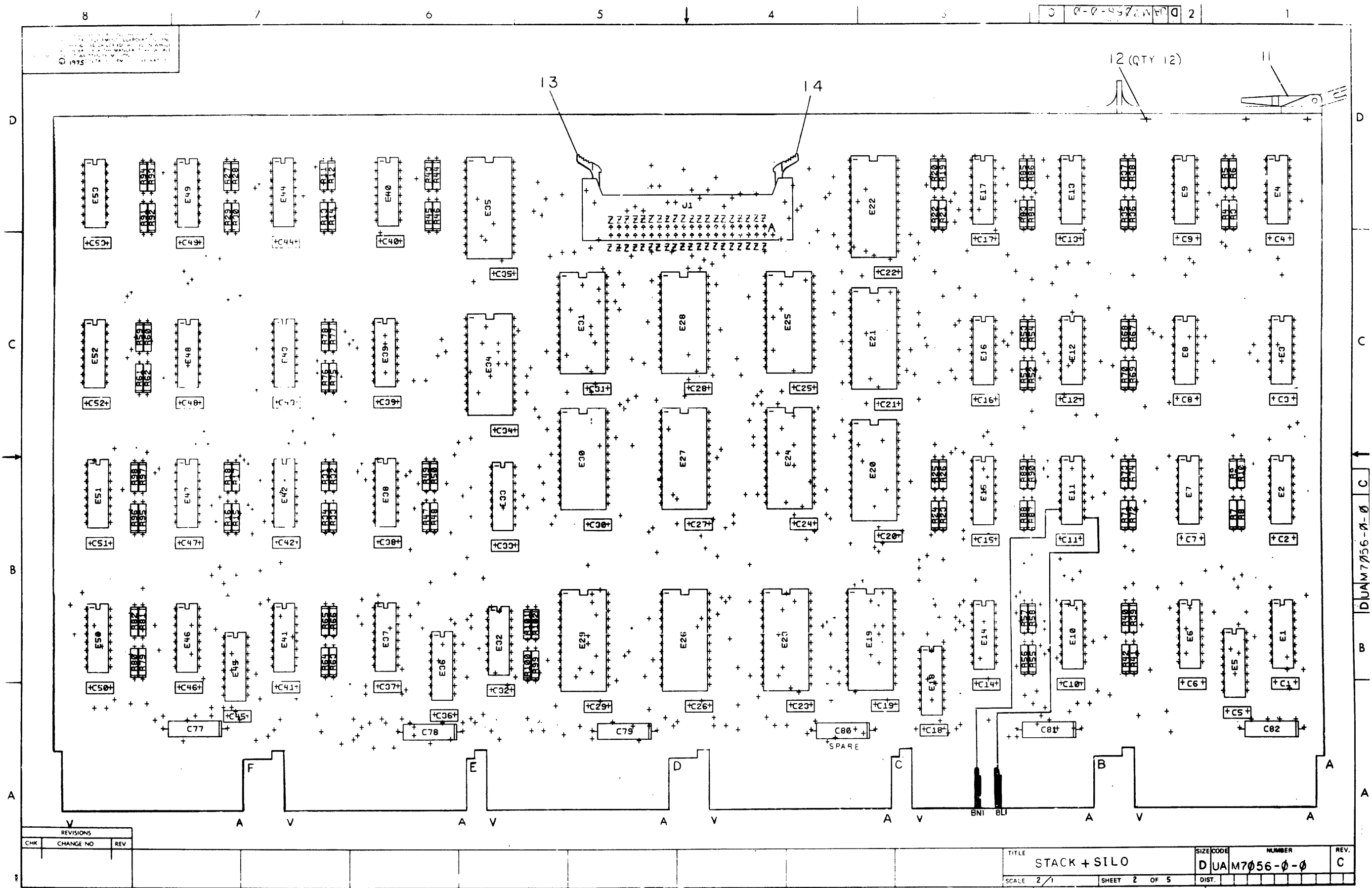
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4

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1



| REVISIONS |           |     |
|-----------|-----------|-----|
| CHK       | CHANGE NO | REV |
|           |           |     |

|                       |                 |                                      |             |
|-----------------------|-----------------|--------------------------------------|-------------|
| TITLE<br>STACK + SILO |                 | SIZE CODE<br>D U A M 7 0 5 6 - 0 - 0 | NUMBER<br>C |
| SCALE<br>2 / 1        | SHEET<br>2 OF 5 | DIST.                                |             |

D U A M 7 0 5 6 - 0 - 0 C

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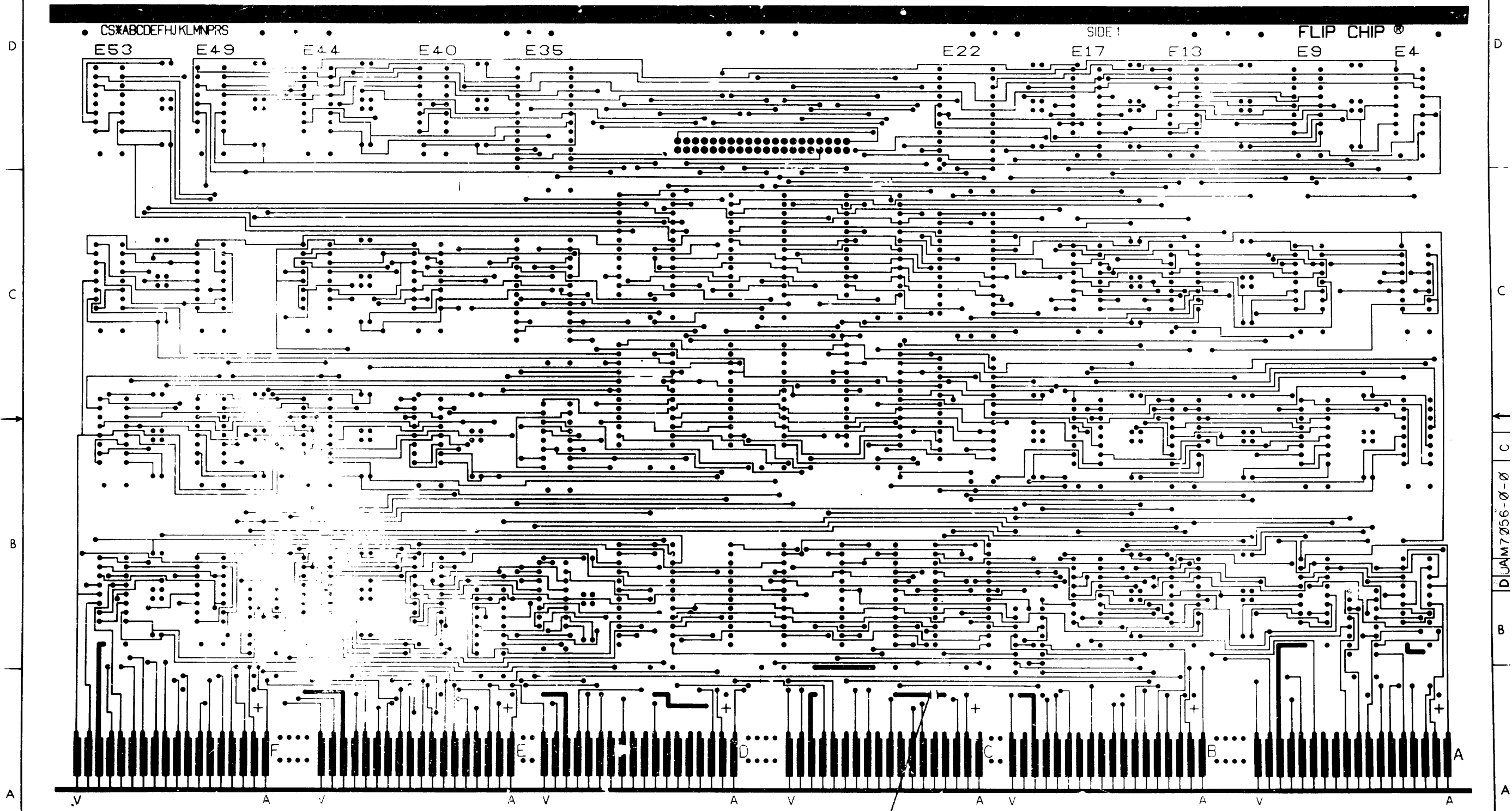
3

D JAM 7056-0-0 2

1

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M7056 MS30093 5012300 LAYER 1



| REVISIONS |           |     |
|-----------|-----------|-----|
| CHK       | CHANGE NO | REV |
|           |           |     |

|                    |              |           |              |      |
|--------------------|--------------|-----------|--------------|------|
| (LAYER 1)          |              | SIZE CODE | NUMBER       | REV. |
| TITLE STACK + SILO |              | D         | JAM 7056-0-0 | C    |
| SCALE: 2/1         | SHEET 3 OF 5 | DIST.     |              |      |

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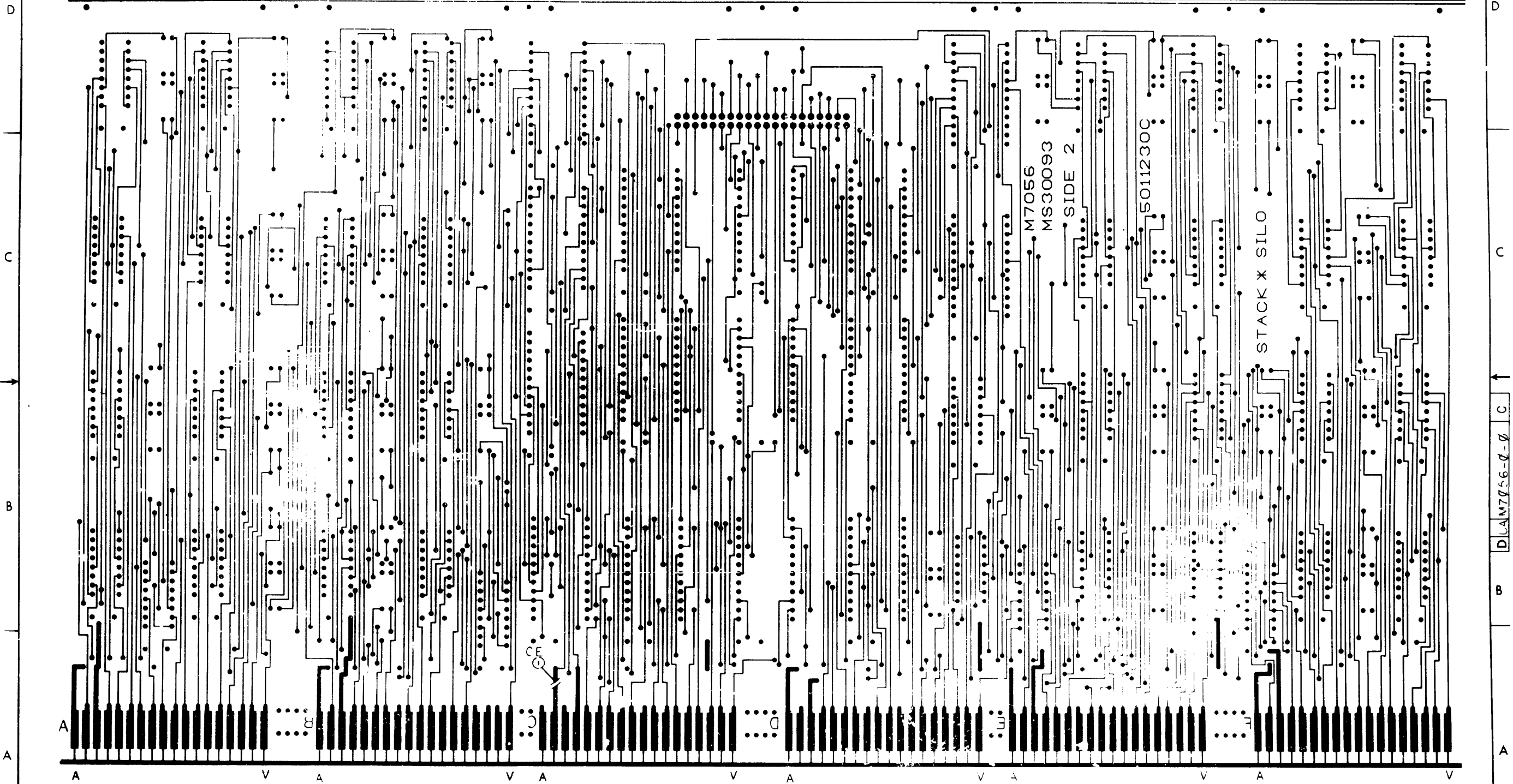
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H 834AJ



| REVISIONS |           |     |
|-----------|-----------|-----|
| CHK       | CHANGE NO | REV |
|           |           |     |

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

8

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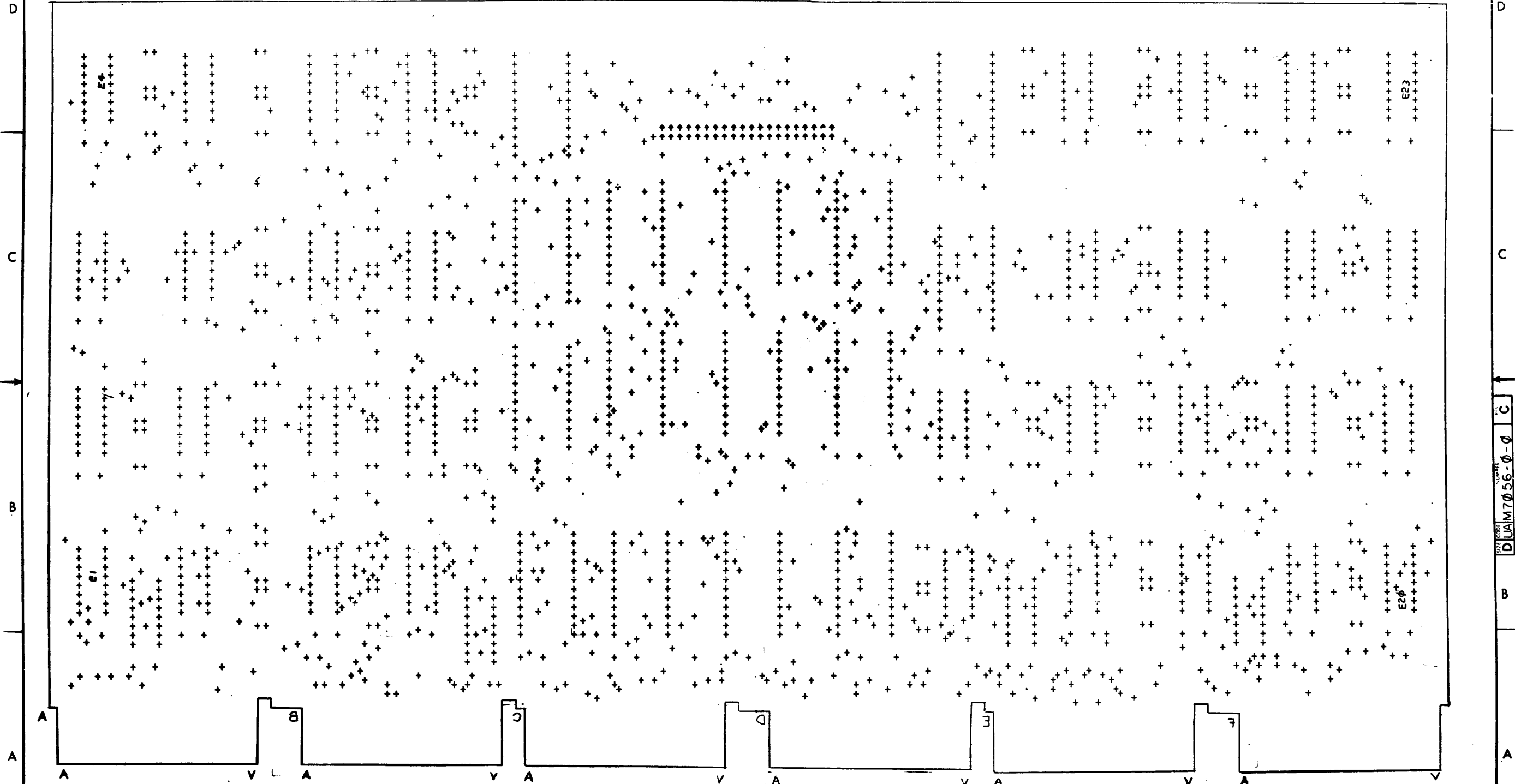
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3

DJAM7056-0-0 2

1

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DJAM7056-0-0

| REVISIONS |            |      |
|-----------|------------|------|
| CHK       | CHANGE NO. | REV. |
|           |            |      |
|           |            |      |

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

8

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5

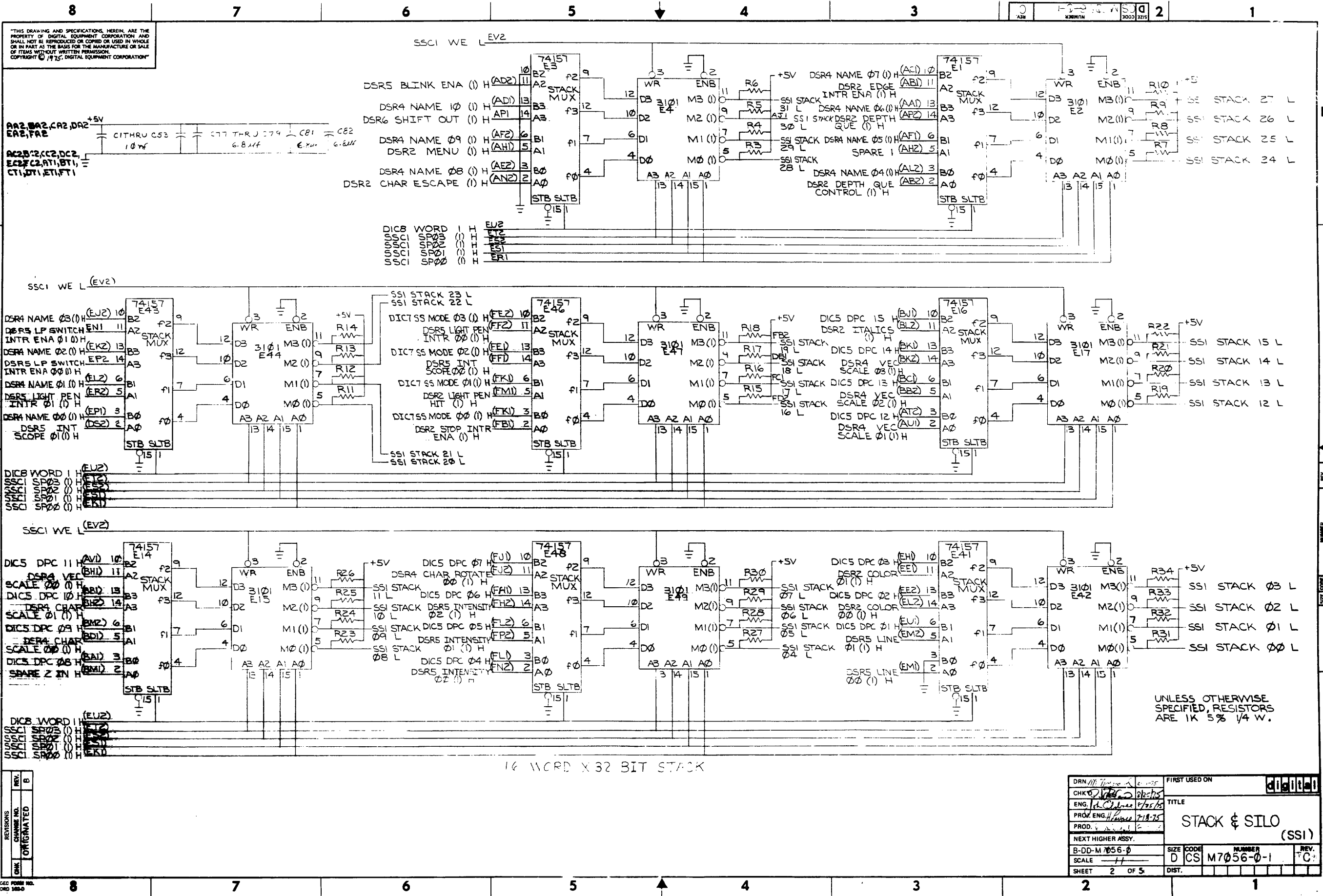
4

3

2

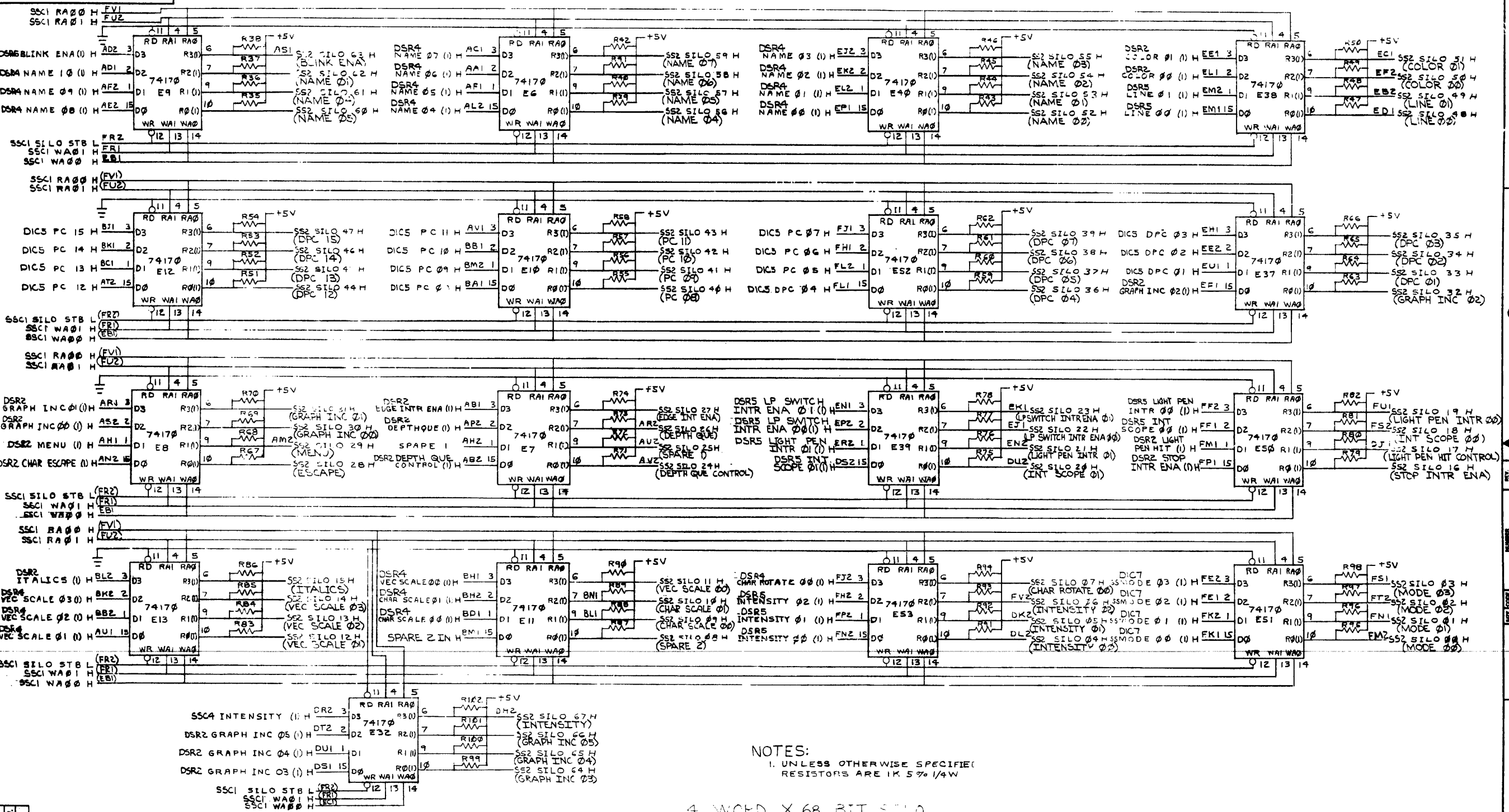
1





|                   |          |               |                    |
|-------------------|----------|---------------|--------------------|
| DRN 017           | 01755    | FIRST USED ON | <b>digital</b>     |
| CHK'D             | 01/25/75 | TITLE         | STACK & SILO (SSI) |
| ENG. J. C. ...    | 01/25/75 | SIZE          | D CS M7056-0-1     |
| PROD. ENG. ...    | 7-19-75  | NUMBER        | TC                 |
| SCALE             | 1        | SHEET         | 2 OF 5             |
| NEXT HIGHER ASSY. |          | DIST.         |                    |

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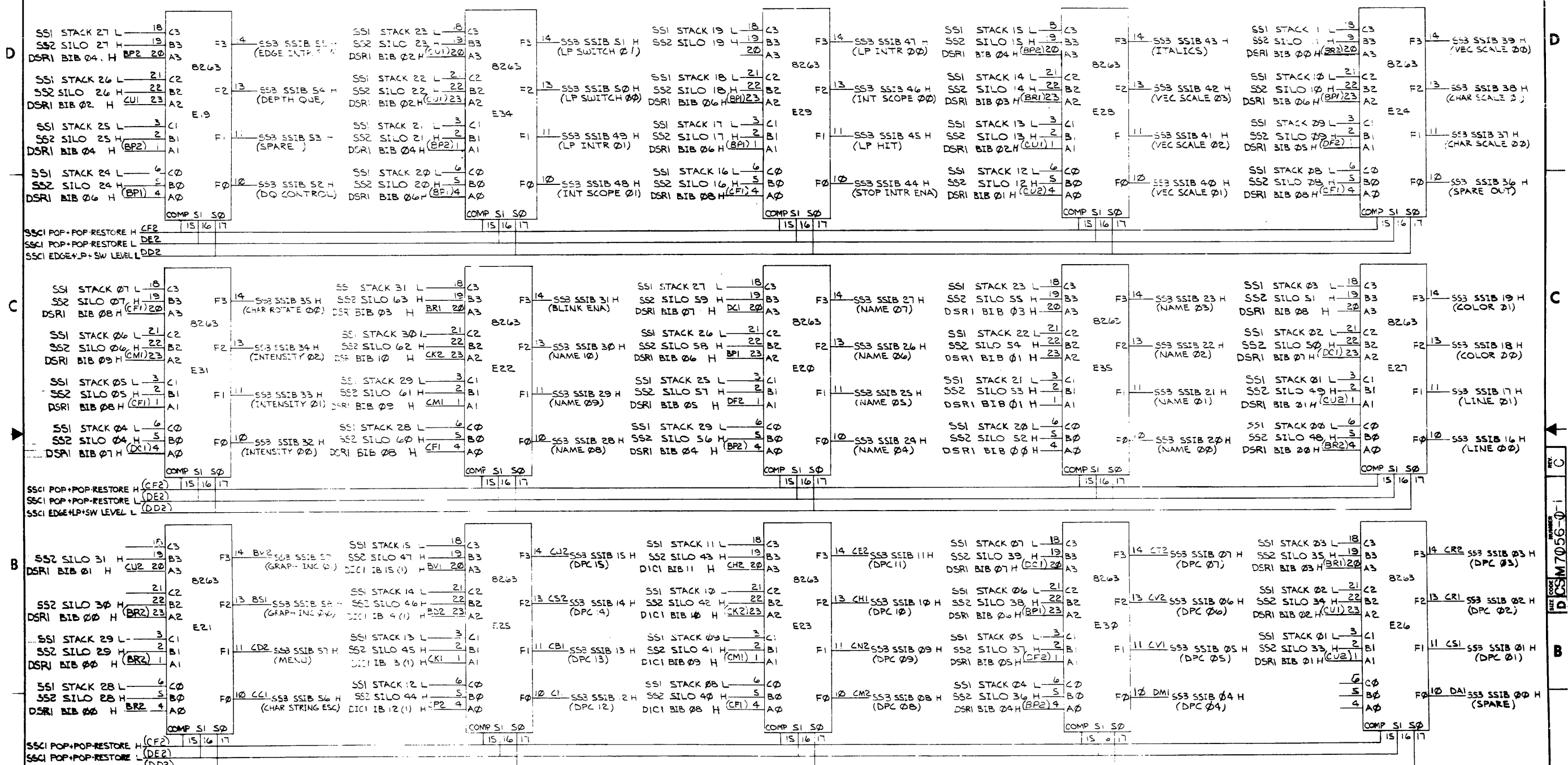


| REV. | CHG. | DATE | BY |
|------|------|------|----|
| 1    |      |      |    |
| 2    |      |      |    |
| 3    |      |      |    |
| 4    |      |      |    |
| 5    |      |      |    |
| 6    |      |      |    |
| 7    |      |      |    |
| 8    |      |      |    |
| 9    |      |      |    |
| 10   |      |      |    |

|                           |           |                   |                               |
|---------------------------|-----------|-------------------|-------------------------------|
| DRN. <i>D.E. Olson</i>    | 1/29/75   | FIRST USED ON     | <b>digital</b>                |
| CHK'D BY <i>J. K. ...</i> | 4/25/75   | TITLE             | <b>STACK &amp; SILO (SS2)</b> |
| ENG. <i>J. K. ...</i>     | 5/25/75   | PROD. ENG.        |                               |
| PROD. R. <i>J. K. ...</i> | 7/17-75   | NEXT HIGHER ASSY. |                               |
| B-DD-M7056-0              | SIZE CODE | NUMBER            | REV. <b>C</b>                 |
| SCALE                     | D         | CSM7056-0-r       |                               |
| SHEET 3                   | OF 5      | DIST.             |                               |



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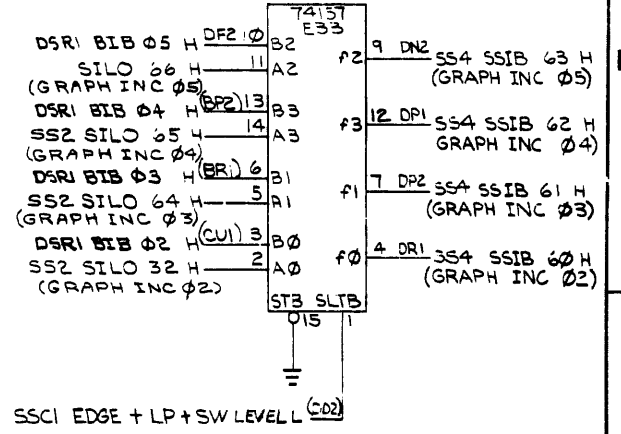
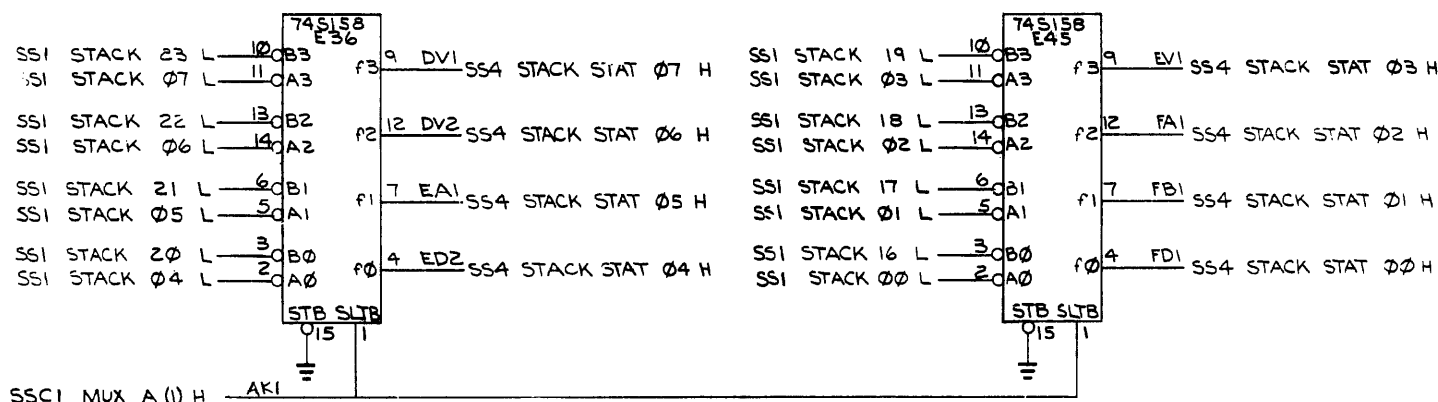
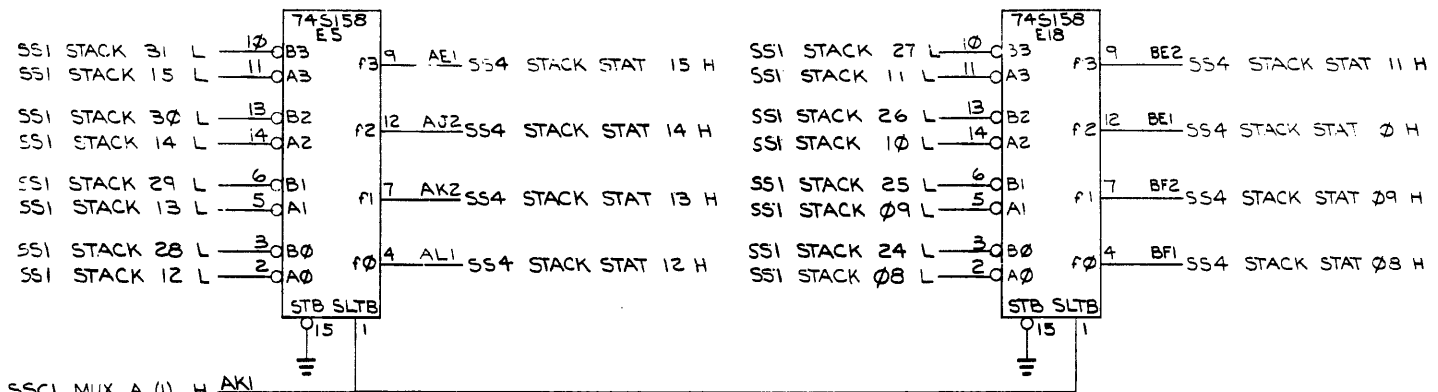
STACK & SILO INPUT BUFFER MUX (00-59)

| INPUT |   | COMP |   | OUTPUT |   |
|-------|---|------|---|--------|---|
| A     | B | L    | H | A      | B |
| L     | L | L    | L | L      | L |
| L     | L | L    | L | L      | L |
| L     | L | L    | L | L      | L |
| L     | L | L    | L | L      | L |
| L     | L | L    | L | L      | L |

|     |    |      |
|-----|----|------|
| REV | BY | DATE |
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|  |                    |                |
|--|--------------------|----------------|
| DRN: <i>[Signature]</i> 1-29-75        | FIRST USED ON      | <b>digital</b> |
| CHK'D: <i>[Signature]</i> 2/25/75      | TITLE              |                |
| ENG: <i>[Signature]</i> 3/25/75        | STACK & SILO (SS3) |                |
| PROD. ENG: <i>[Signature]</i> 10/27/75 |                    |                |
| PROD. T: <i>[Signature]</i> 2/25/75    |                    |                |
| NEXT HIGHER ASSY.                      | SIZE CODE          | NUMBER         |
| B-DD-M7056-0                           | D                  | CSM7056-0-1    |
| SCALE                                  | DIST.              | REV.           |
|  |                    |                |
| SHEET 4 OF 5                           |                    |                |

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STACK STATUS MUX

STACK & SILO INPUT BUFFER MUX(60-63)

- 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

|            |   |
|------------|---|
| REV.       | B |
| ORIGINATED |   |
| CHANGED    |   |
| CHK        |   |

|                   |         |               |                    |
|-------------------|---------|---------------|--------------------|
| DRN.              | 2-11-75 | FIRST USED ON |                    |
| CHK'D             |         | TITLE         | STACK & SILO (SS4) |
| ENG.              |         | NUMBER        | D CS M7056-0-1     |
| PROD. ENG.        |         | REV.          | Ci                 |
| NEXT HIGHER ASSY. |         | SCALE         |                    |
| B-DD-M7056-0-0    |         | SHEET         | 5 OF 5             |

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## CUSTOMER PRINT SET INDEX

SEQUENCE

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SEQUENCE

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THIS IS PRINT SET 

|  |  |  |  |
|--|--|--|--|
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DISPLAY STATUS REG  
DISPLAY STATUS REG  
DATA ROM PATTERN

D-UA-M7057-0-0  
B-CS-M7057-0-1  
D-CS-M7057-0-9

| UNIT VARIATIONS |                    | PRINT SET |  |  |  |
|-----------------|--------------------|-----------|--|--|--|
| VAR             | TITLE              |           |  |  |  |
| M7057           | DISPLAY STATUS REG |           |  |  |  |
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|------------------|------|----------|-----|----------------------|--------------|---------|--------------------|------|---------|-----|--|
| <b>REVISIONS</b> | DATE | CHG. NO. | REV | USED ON OPTION/MODEL | DRN.         | DATE    | TITLE              |      |         |     |  |
|                  | 1-76 | M7057-1  | A   | GT48                 | B. Nichols   | 6-27-75 |                    |      |         |     |  |
|                  | 3-76 | M7057-2  | B   |                      | P.J. LeBlanc | 26Sep75 | DISPLAY STATUS REG |      |         |     |  |
|                  |      |          |     |                      |              |         |                    |      |         |     |  |
|                  |      |          |     |                      |              |         |                    |      |         |     |  |
|                  |      |          |     |                      |              |         |                    |      |         |     |  |
|                  |      |          |     |                      |              |         | SIZE               | CODE | NUMBER  | REV |  |
|                  |      |          |     |                      |              |         | B                  | DD   | M7057-0 | 8   |  |
|                  |      |          |     |                      |              |         | DIST               |      |         |     |  |
| SHEET 1 OF 2     |      |          |     |                      |              |         |                    |      |         |     |  |

CUSTOMER  
PRINT SET

MFG SET

REVISION CONTROL SHEET

DRAWING NO

NO  
OF  
SMT

DESCRIPTION

OPTION  
NO/FILE  
DATE

REVISIONS

| CUSTOMER PRINT SET | MFG SET | DRAWING NO                   | NO OF SMT | DESCRIPTION                              | OPTION NO/FILE DATE | REVISIONS |
|--------------------|---------|------------------------------|-----------|--|---------------------|-----------|
|                    | X       | D-UA-M7057-0-0               | 5         | DISPLAY STATUS REG                       |                     | A A B     |
|                    | X       | <del>B/D</del> -CS-M7057-0-1 | 7         | DISPLAY STATUS REG                       |                     | - B C     |
|                    | X       | D-CS-M7057-0-9               | 1         | DATA ROM PATTERN                         |                     | - A A     |
|                    |         | K-CO-M7057-0-4               | 1         | DISPLAY STATUS REG<br>(CALDEC DATA BASE) |                     | B B B     |
|                    |         | D-AH-M7057-0-5               | 4         | DISPLAY STATUS REG                       |                     | A B B     |
|                    |         | B-MH-M7057-0-6               | 1         | MODULE ECO HISTORY                       |                     | - A B     |
|                    |         | 5011251                      | -         | ETCH CIRCUIT BOARD                       |                     | B B 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.  
00001  
00002

TITLE  
DISPIAY STATUS REG

SHEET 2 OF 2

SIZE CODE  
B DD

NUMBER  
M7057-0

REV  
B

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**NOTES:**

- FOR DRAWING DIRECTORY, REFER TO: 8-DD-M7057-0
- UNLESS OTHERWISE SPECIFIED, THE FOLLOWING PIN NUMBERS APPLY:
 

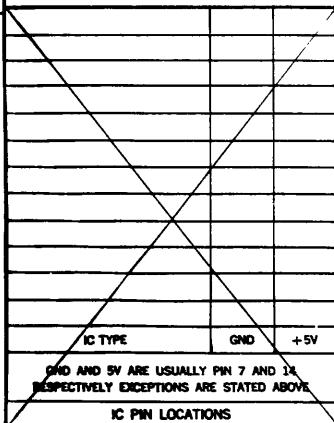
|              |     |     |
|--------------|-----|-----|
| PACKAGE TYPE | VCC | GND |
| 14 PIN DIP   | 14  | 7   |
| 16 PIN DIP   | 16  | 8   |
| DEC 384      | 8   | 1   |
| DEC 7476     | 5   | 13  |
| DEC 7493     | 5   | 10  |
- DO NOT INSTALL EYELET IN THE TWO HOLES ABOVE THE BERG CONNECTOR.

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

WIRE ADDS SIDE #2 AS SHOWN (SEE SHEET #5)  
 1. ADD WIRE FROM ETCH LINE TO RIGHT OF E90(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%              | 1000078    | 2        |
| 90  | C1 THRU C89, C98   | CAP. .01mf 100V                | 1001610-01 | 3        |
| 6   | C90 THRU C95   | CAP. 6.8mf 35V 10%             | 1005308    | 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                | 1303885    | 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, E87  | I.C. DEC 7476                  | 1905585    | 15       |
| 6   | E49, E57, E65, E66, E71, E80   | 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       |
| 8   | E16, E17, E18, E19, E20, E35, E36  | I.C. DEC 74174                 | 1910652    | 28       |
| 9   | E12, E14, E27, E37, E39, E82, 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       |
| 3   |  | WIRE, 22 AWG                   | 9103740-55 | 34       |
| 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       |  |

TITLE: DISPLAY STATUS REG

NEXT HIGHER ASSY: B-DD-M7057-0

SCALE: 2:1

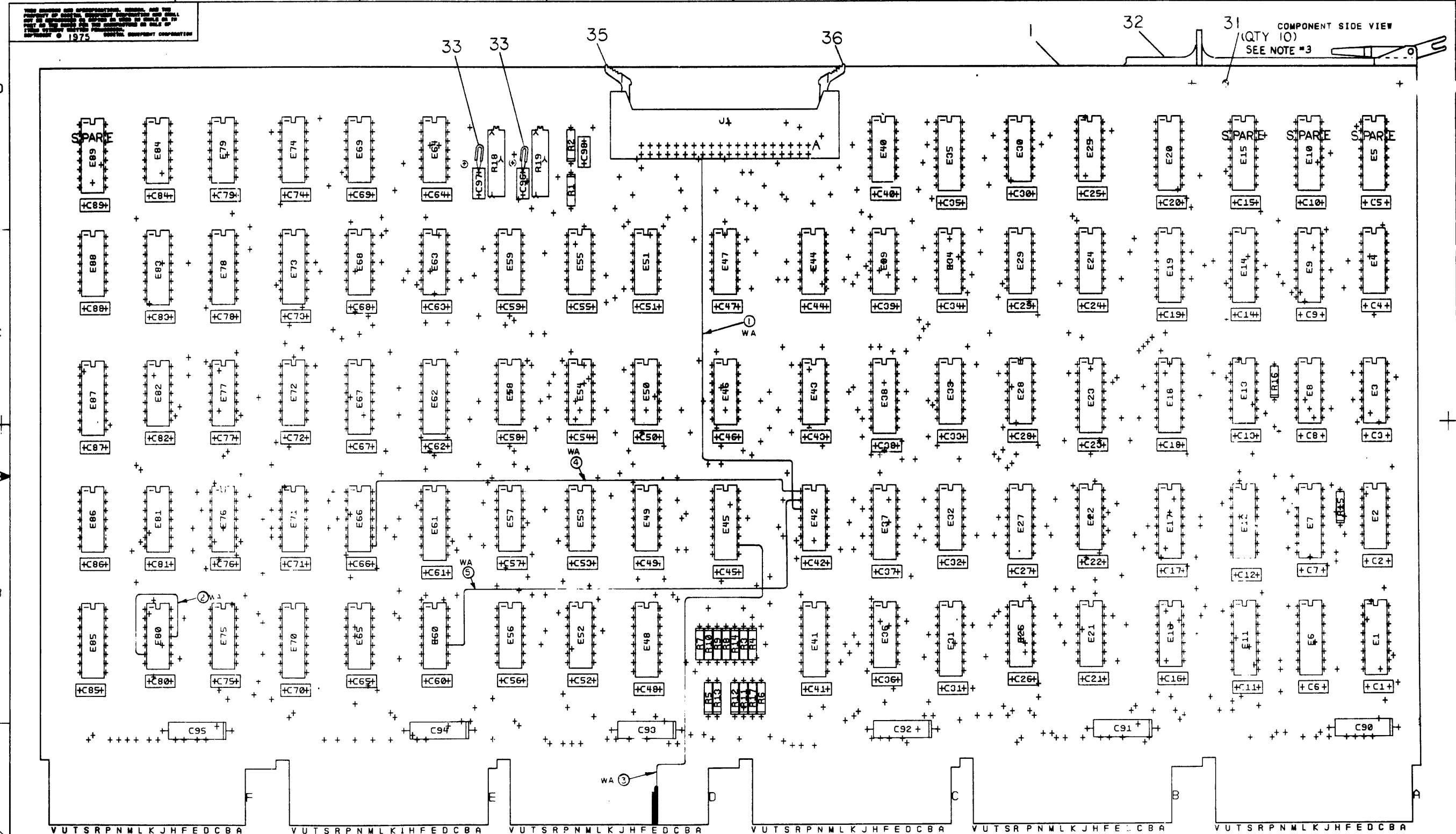
SHEET 1 OF 5

SIZE CODE: D UAM7057-0-0

NUMBER: B

| CHK | CHANGE NO. | REV.       |
|-----|------------|------------|
|     |            | ORIGINATED |
|     |            | 8-2-75     |
|     |            | 8-2-75     |

COMPONENT SIDE VIEW  
(QTY 10)  
SEE NOTE #3



NOTES:

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|-------------------------------|---------|--------------------|-----|
| SIGNATURES                    | DATE    |                    |     |
| DRN. <i>[Signature]</i>       | 1/24/75 |                    |     |
| CHK. <i>[Signature]</i>       | 1/30/75 |                    |     |
| ENG. <i>[Signature]</i>       | 2-21-75 |                    |     |
| PROJ. ENG. <i>[Signature]</i> | 2/2/75  |                    |     |
| TITLE                         |         | DISPLAY STATUS REG |     |
| SCALE 2:1                     |         |                    |     |
| SHT. 2 OF 5                   |         |                    |     |
| ETCH REV E                    |         |                    |     |
| FIRST USED ON                 |         |                    |     |
| SIZE                          | CODE    | NUMBER             | REV |
| 0                             | UA      | M 7057-0-0         | B   |

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DJAM7057-0-0 2

1

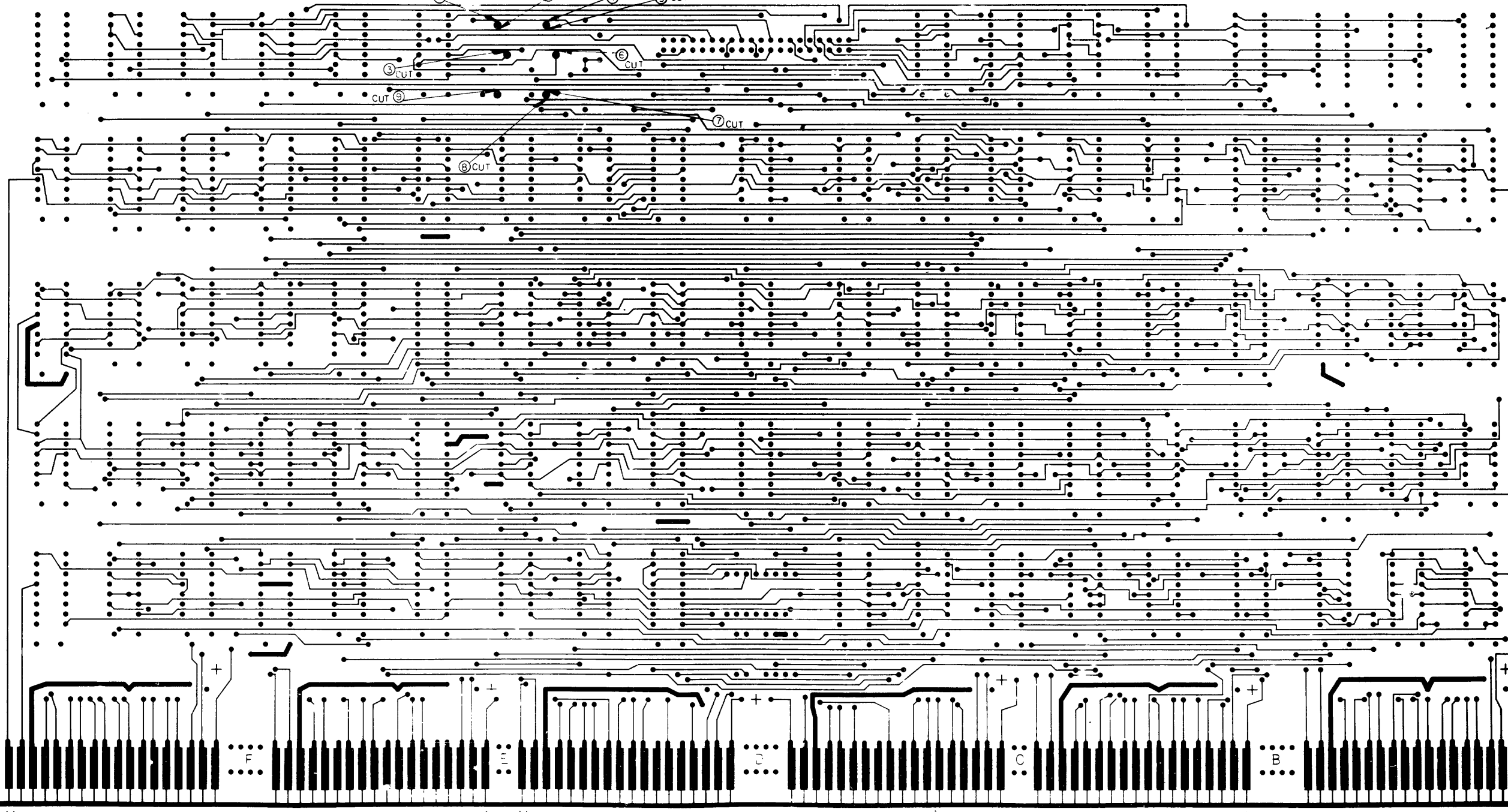
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# LAYER 1

MS30094 M7057 5011251B

CS:ABCDEFGHIJKLMNPRS SIDE 1 FLIP CHIP

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



V A V A V A V A V A V A V A V A

| 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.  | 1    |

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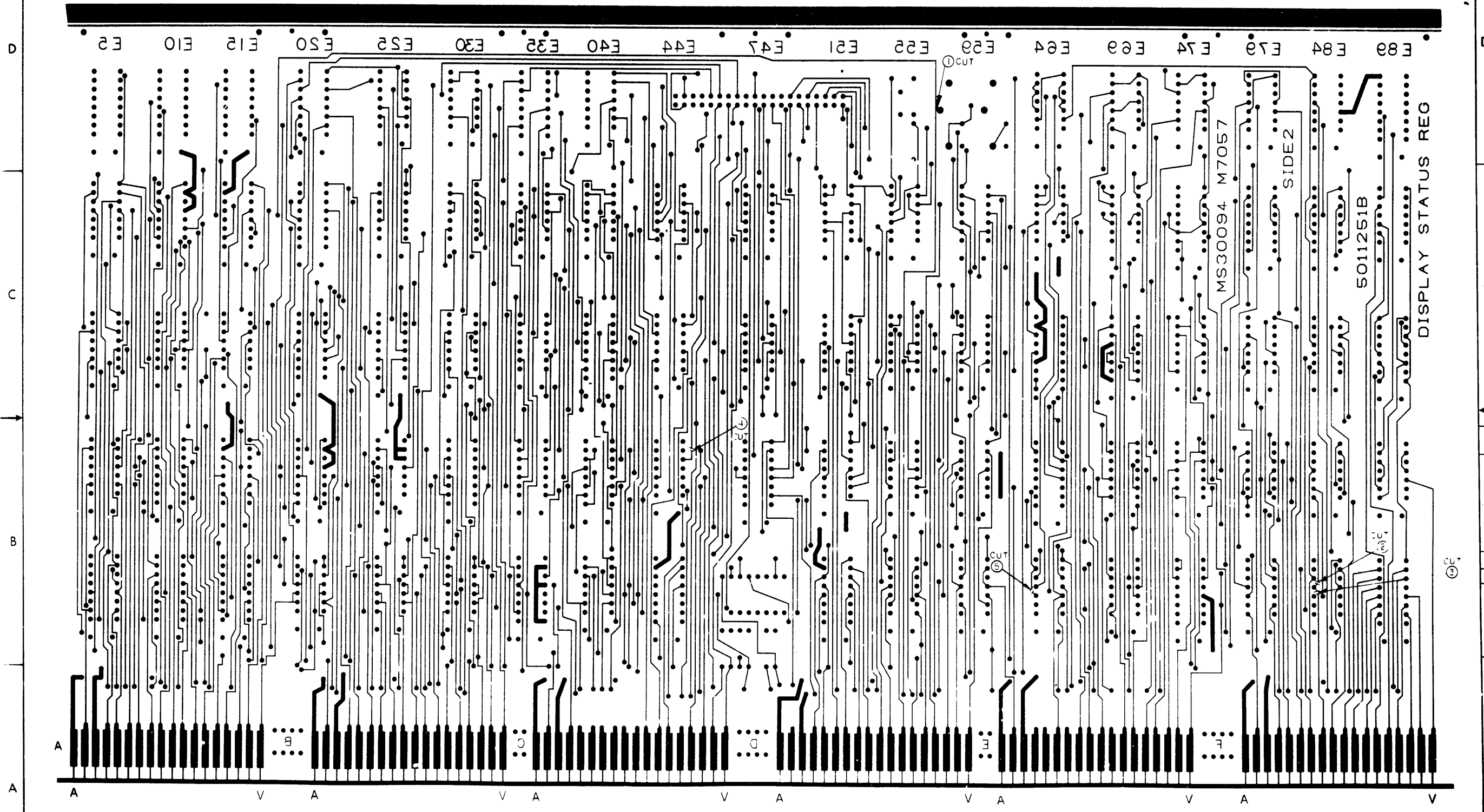
3

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LAYER 4

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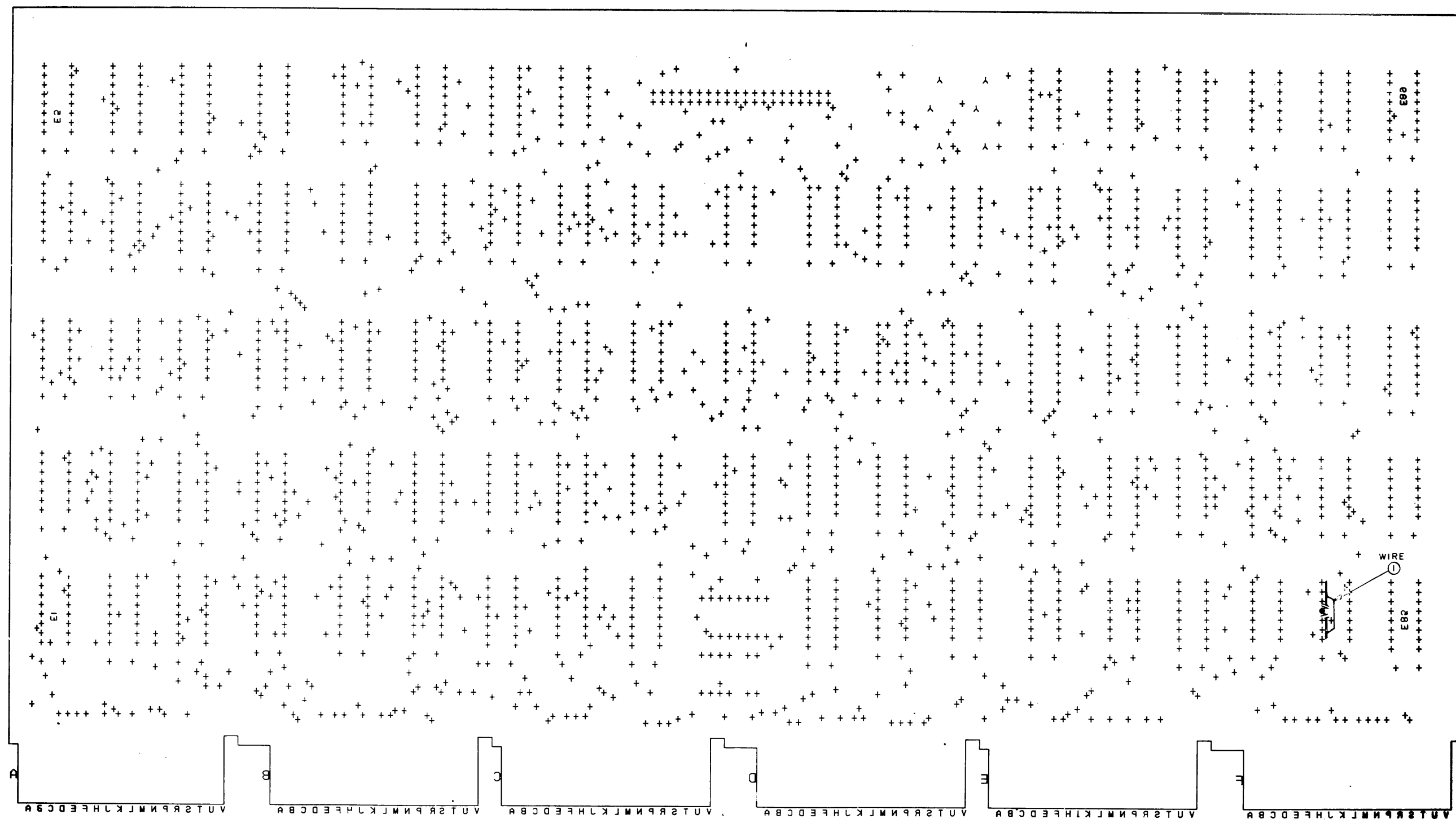
| REV. 01 |           |     |
|---------|-----------|-----|
| CHK     | CHANGE NO | REV |
|         |           |     |

|                    |  |           |              |      |
|--------------------|--|-----------|--------------|------|
| DISPLAY STATUS REG |  | SIZE CODE | NUMBER       | REV. |
| SHEET 4 OF 5       |  | D         | UA M7057-0-0 | 8    |
| DIST.              |  |           |              |      |



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DUALM7057-0-0 2



| REVISIONS |           |     |
|-----------|-----------|-----|
| CHK       | CHANGE NO | REV |
|           |           |     |

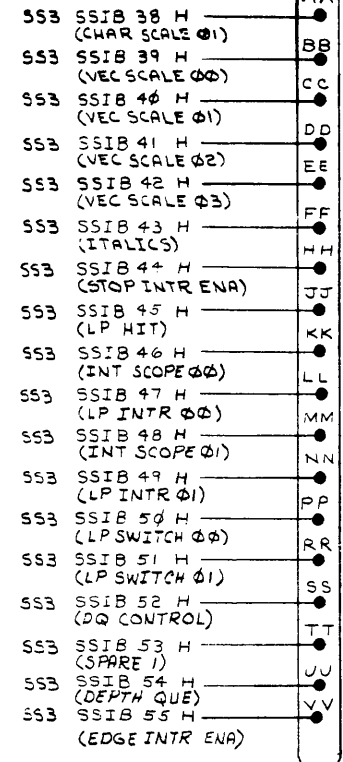
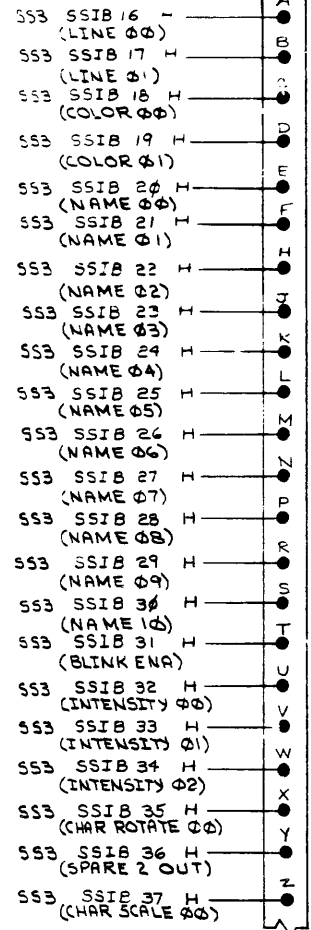
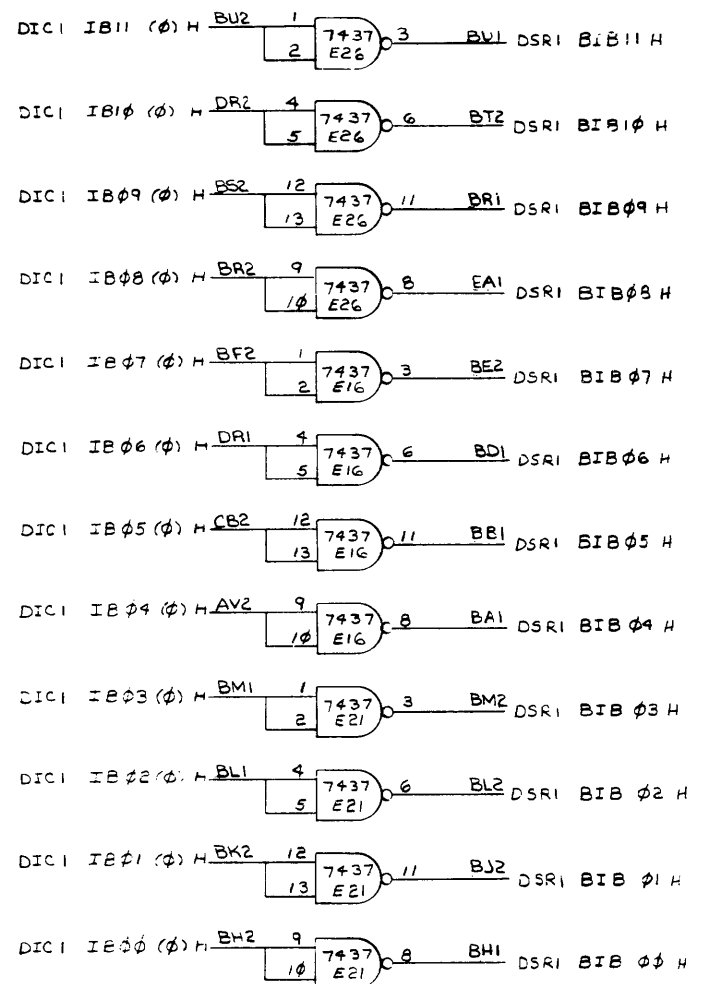
TITLE: DISPLAY STATUS REG  
 SCALE: 2/1  
 SHEET: 5 OF 5  
 SIZE CODE: DUALM7057-0-0  
 NUMBER: 1

DUALM7057-0-0 B

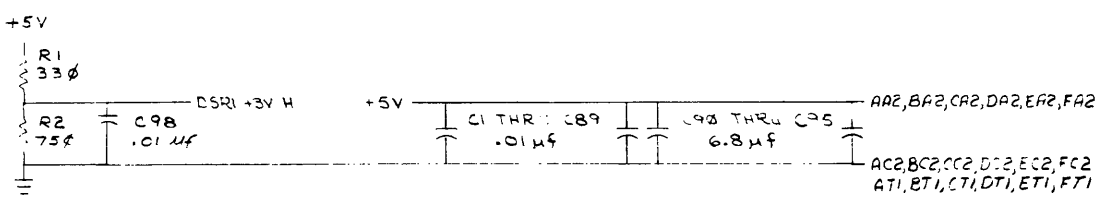


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BUFFERED INPUT BUFFER (φ → 11)

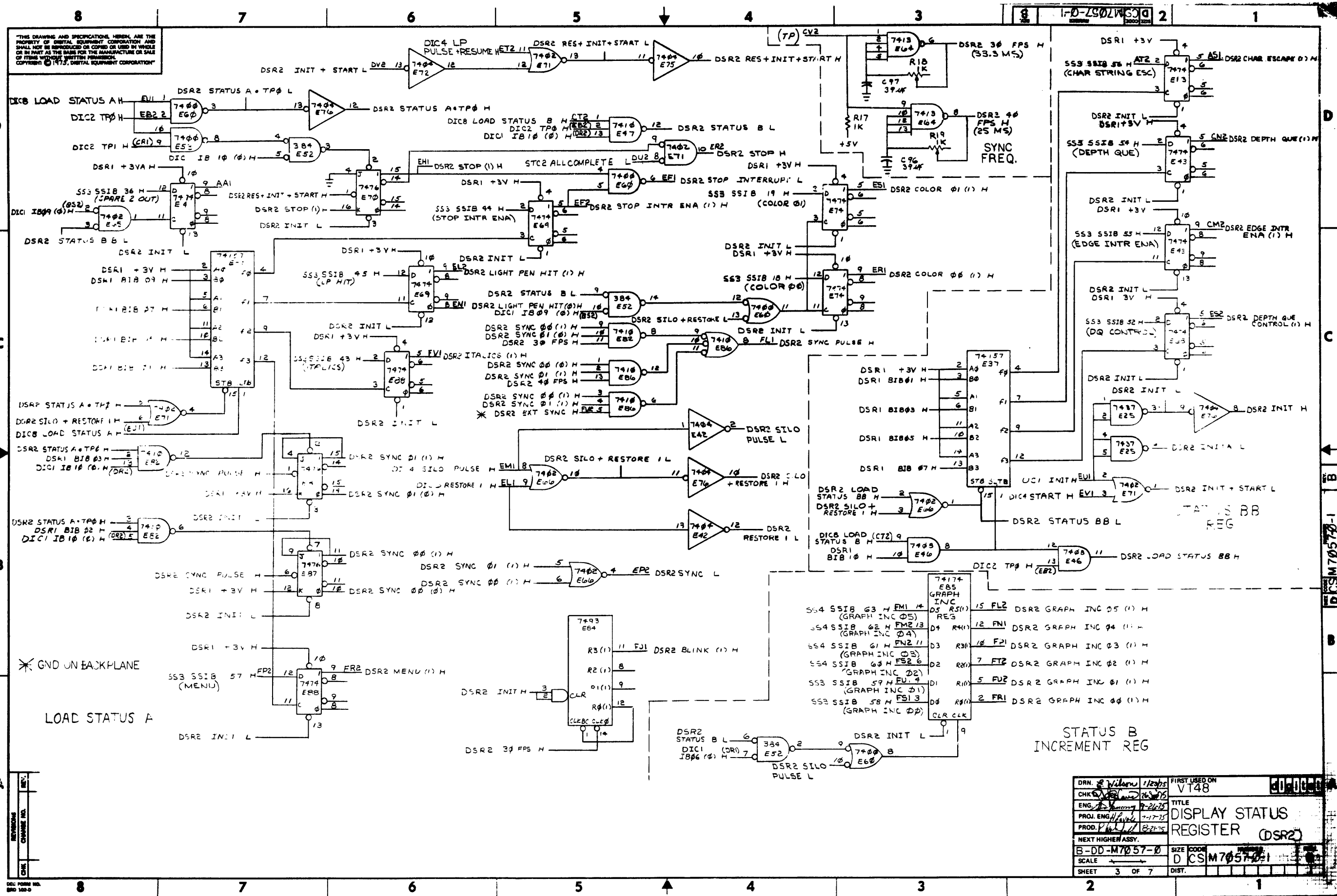


CONNECTOR FROM M7056



|            |  |
|------------|--|
| REV.       |  |
| CHG        |  |
| REVISIONS  |  |
| CHANGE NO. |  |

|              |         |                   |                         |
|--------------|---------|-------------------|-------------------------|
| DRN. #       | 1/21/75 | FIRST USED ON     | VT48                    |
| CHKD. #      | 1/21/75 | TITLE             | DISPLAY STATUS REGISTER |
| ENG. #       | 1/21/75 | PROJ. ENG. #      | 1/21/75                 |
| PROJ. ENG. # | 1/21/75 | NEXT HIGHER ASSY. |                         |
| SCALE        |         | SIZE              | D                       |
| SHEET        | 2 OF 7  | CODE              | CSM7057-01              |
|              |         | DIST.             |                         |



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|            |  |
|------------|--|
| REV.       |  |
| CHANGE NO. |  |
| DATE       |  |
| BY         |  |
| CHK        |  |

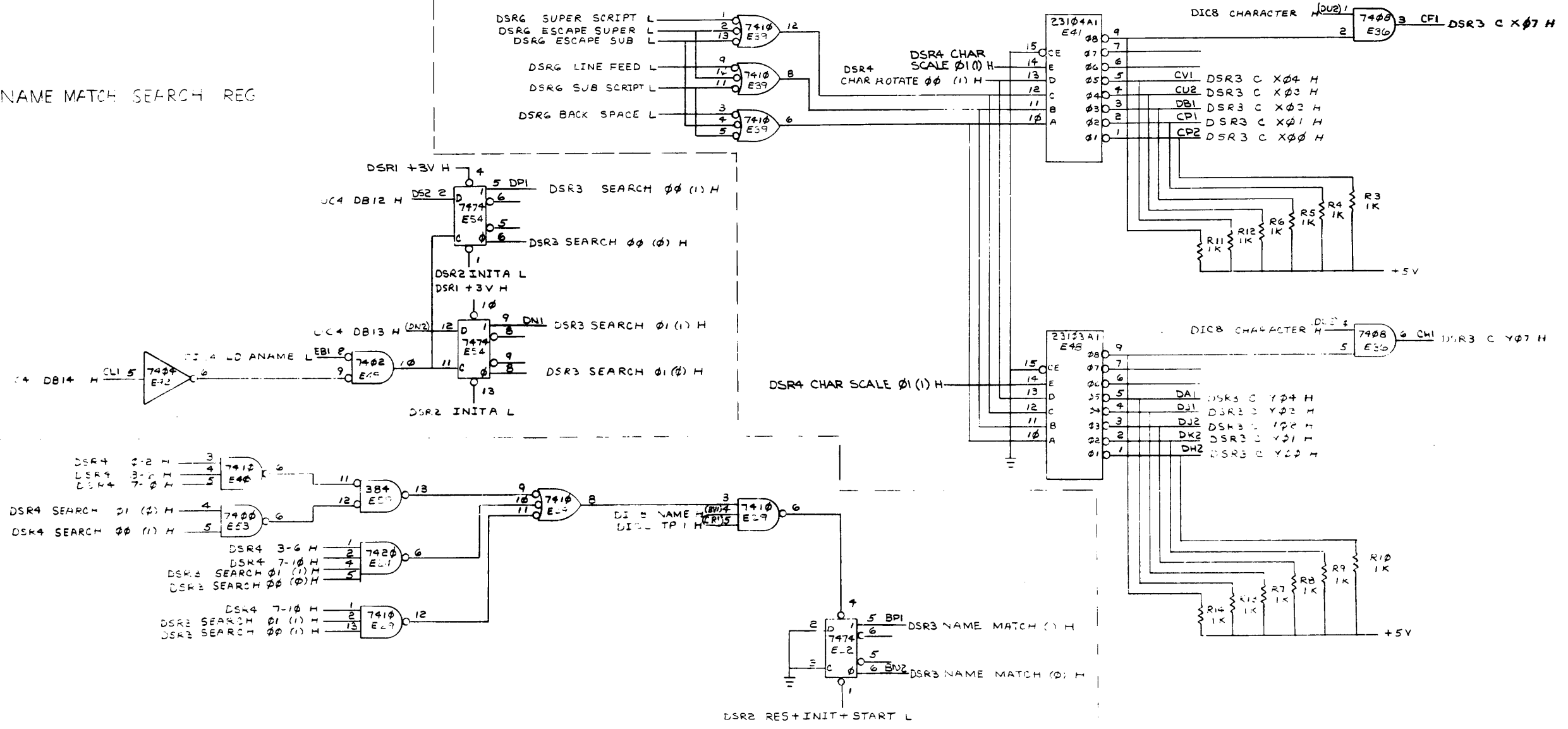
|                        |           |                             |                                |
|------------------------|-----------|-----------------------------|--------------------------------|
| DRN. <i>E. Wilson</i>  | 1/20/75   | FIRST USED ON               | VT48                           |
| CHK. <i>J. Wilson</i>  | 2/26/75   | TITLE                       | DISPLAY STATUS REGISTER (DSR2) |
| ENG. <i>J. Wilson</i>  | 2-26-75   | PROJ. ENG. <i>H. Wilson</i> | 2-17-75                        |
| PROD. <i>J. Wilson</i> | 2-21-75   | NEXT HIGHER ASSY.           |                                |
| B-DD-M7057-0           | SIZE CODE | D                           | CSM7057-0-1                    |
| SCALE                  |           | SHEET                       | 3 OF 7                         |
|                        |           | DIST.                       |                                |

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1-07502 WSOI 2

CHARACTER DELTA X AND DELTA Y DATA

NAME MATCH SEARCH REG



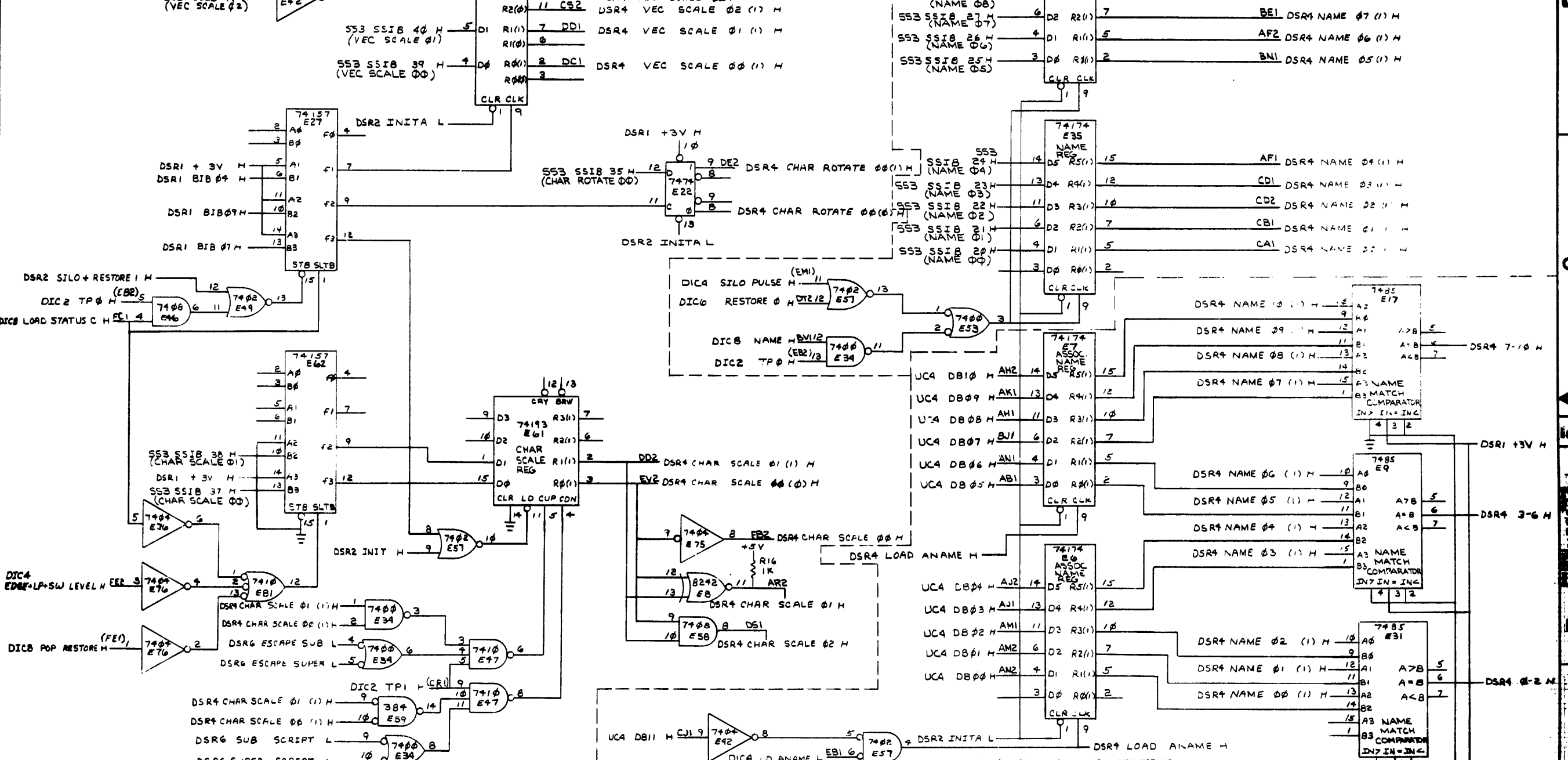
NAME MATCH REG

|                     |         |               |                                |
|---------------------|---------|---------------|--------------------------------|
| DRN. E. Wilson      | 1/24/75 | FIRST USED ON | 80-0655                        |
| CHK'D. J. J. Jones  | 2/10/75 | TITLE         | DISPLAY STATUS REGISTER (DSR3) |
| ENG. D. Young       | 9-26-75 | SCALE         | D                              |
| PROJ. ENG. H. Fagan | 7-17-75 | SHEET         | 4 OF 7                         |
| PROD. J. J. Jones   | 6-2-75  | SIZE CODE     | D CSM7057-0-1                  |
| NEXT HIGHER ASSY.   |         | DIST.         |                                |

D CSM7057-0-1

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### STATUS C VECTOR & CHARACTER SCALE REGS CHARACTER ROTATE



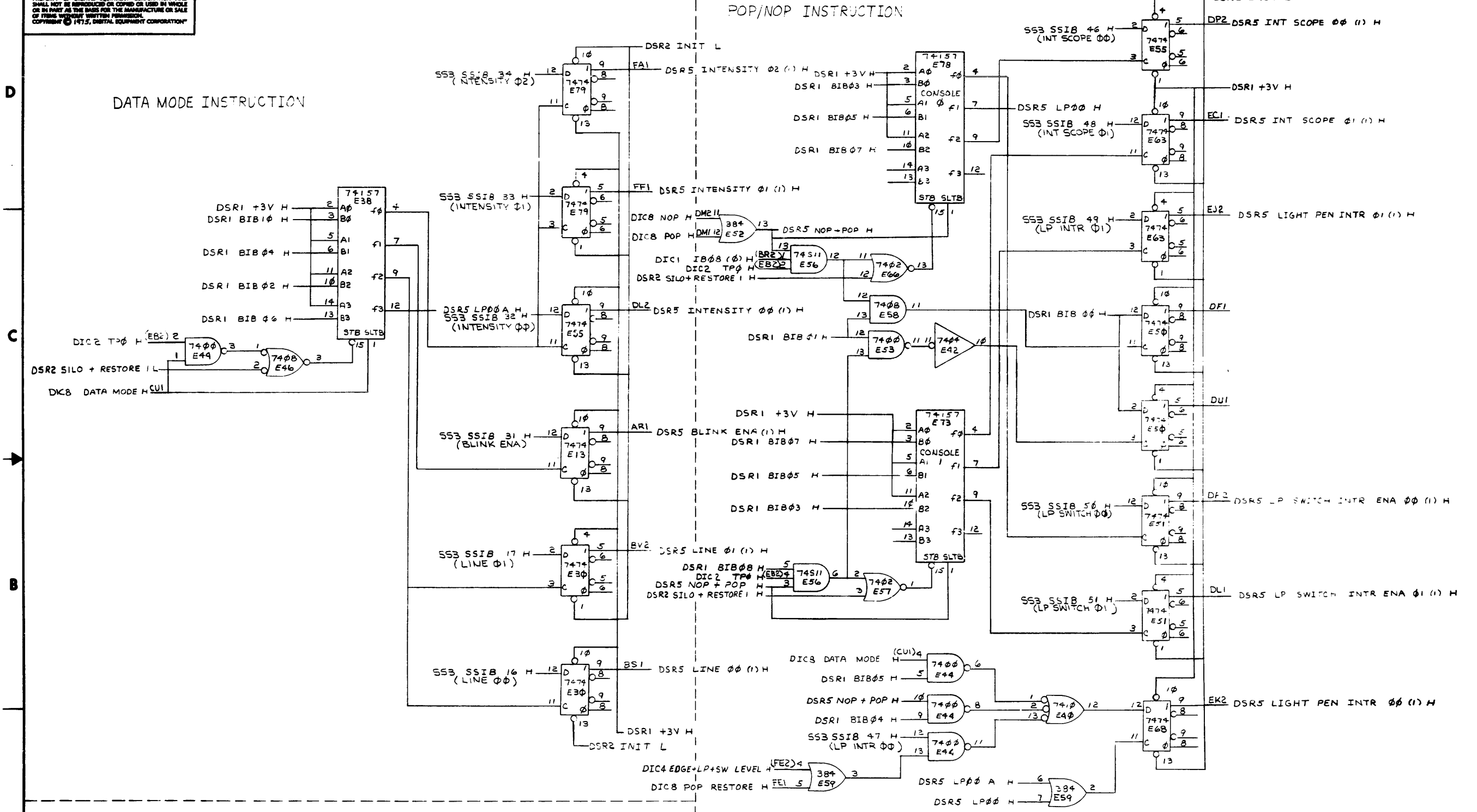
### NAME AND ASSOCIATIVE NAME REGS (0-14)

|                        |               |                                |
|------------------------|---------------|--------------------------------|
| DRN. E. Wilson 1/24/75 | FIRST USED ON | VT48                           |
| CHKD. J. D. [unclear]  | TITLE         | DISPLAY STATUS REGISTER (DSR4) |
| ENG. B. [unclear]      | SCALE         | D CSM7057                      |
| PROJ. ENG. [unclear]   | SHEET         | 5 OF 7                         |
| PROD. [unclear]        | DIST.         |                                |
| NEXT HIGHER ASSY.      |               |                                |
| B-DD-M7057-0           |               |                                |

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POP/NOP INSTRUCTION

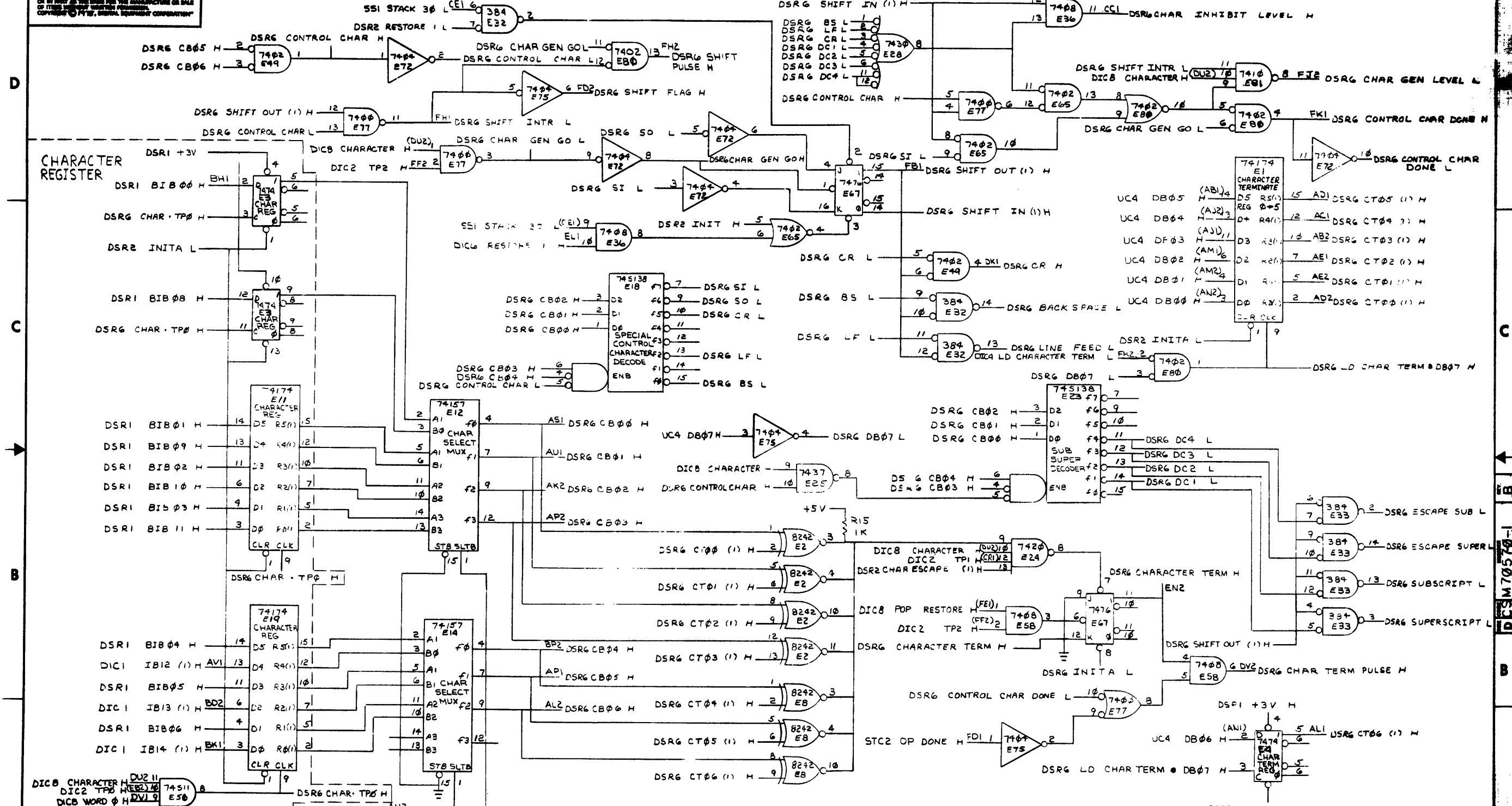
DATA MODE INSTRUCTION



|     |      |    |
|-----|------|----|
| REV | DATE | BY |
|     |      |    |
|     |      |    |
|     |      |    |

|                                     |               |                               |
|-------------------------------------|---------------|-------------------------------|
| DRN. <i>E. Wilson</i> 1/28/75       | FIRST USED ON | VT48                          |
| CHKD. <i>A. Johnson</i> 2/2/75      | TITLE         | DISPLAY STATUS REGISTER (DSR) |
| ENG. <i>B. Sperry</i> 7-26-75       | SIZE          | CODE                          |
| PROJ. ENG. <i>A. Pappas</i> 7-17-75 | B-DD-M7057-0  | D CSM7057-0                   |
| PROD. <i>M. Lee</i> 8-21-75         | SCALE         | SHEET '6 OF 7                 |
| NEXT HIGHER ASSY.                   | SCALE         | DRST.                         |

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REVISIONS

| REV. | DATE | DESCRIPTION |
|------|------|-------------|
| 1    |      |             |
| 2    |      |             |
| 3    |      |             |
| 4    |      |             |
| 5    |      |             |
| 6    |      |             |
| 7    |      |             |
| 8    |      |             |

|                       |         |               |                         |
|-----------------------|---------|---------------|-------------------------|
| DRN. <i>Wilson</i>    | 1/29/75 | FIRST USED ON | VT48                    |
| CHKD. <i>...</i>      |         |               |                         |
| ENG. <i>...</i>       | 7-26-75 | TITLE         | DISPLAY STATUS REGISTER |
| PROJ. ENG. <i>...</i> | 7-17-75 |               |                         |
| PROD. <i>...</i>      | 8-2-75  |               |                         |
| NEXT HIGHER ASSY.     |         | SIZE          | CODE                    |
| B-DD-M7057-0          |         | D             | CSM7057-1               |
| SCALE                 |         | SHEET         | 7 OF 7                  |
|                       |         | DIST.         |                         |



8 7 6 5 4 3 2 1  
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REV. 1 3000 1215 2

C X ROM E41

| CHARACTER    | ADDRESS        |                |                |                |                | DATA            |
|--------------|----------------|----------------|----------------|----------------|----------------|-----------------|
|              | A <sub>4</sub> | A <sub>3</sub> | A <sub>2</sub> | A <sub>1</sub> | A <sub>0</sub> |                 |
| SPACE        | 0              | 0              | 0              | 0              | 0              | 0 0 0 0 1 1 1 0 |
| BACKSPACE    | 0              | 0              | 0              | 0              | 1              | 1 0 0 0 1 1 1 0 |
|              | 0              | 0              | 0              | 1              | 0              | 0 0 0 0 0 0 0 0 |
| SUBSCRIPT    | 0              | 0              | 0              | 1              | 1              | 1 0 0 0 1 0 0 0 |
| SUPERSCRIP   | 0              | 0              | 1              | 0              | 0              | 1 0 0 0 0 0 1 0 |
| ESCAPE SUB   | 0              | 0              | 1              | 0              | 1              | 0 0 0 0 0 0 1 0 |
| ESCAPE SUPER | 0              | 0              | 1              | 1              | 0              | 0 0 0 0 0 0 1 0 |
|              | 0              | 0              | 1              | 1              | 1              | 0 0 0 0 0 0 0 0 |
|              | 0              | 1              | 0              | 0              | 0              | 0 0 0 0 0 0 0 0 |
|              | 0              | 1              | 0              | 0              | 1              | 0 0 0 0 0 0 0 0 |
| LINE FEED    | 0              | 1              | 0              | 1              | 0              | 0 0 0 0 1 1 0 0 |
| SUBSCRIPT    | 0              | 1              | 0              | 1              | 1              | 0 0 0 0 0 0 1 0 |
| SUPERSCRIP   | 0              | 1              | 1              | 0              | 0              | 1 0 0 0 1 0 0 1 |
| ESCAPE SUB   | 0              | 1              | 1              | 0              | 1              | 1 0 0 0 0 0 1 1 |
| ESCAPE SUPER | 0              | 1              | 1              | 1              | 0              | 0 0 0 0 1 0 0 1 |
|              | 0              | 1              | 1              | 1              | 1              | 0 0 0 0 0 0 0 0 |
| SPACE        | 1              | 0              | 0              | 0              | 0              | 0 0 0 0 1 1 1 0 |
| BACKSPACE    | 1              | 0              | 0              | 0              | 1              | 1 0 0 0 1 1 1 0 |
|              | 1              | 0              | 0              | 1              | 0              | 0 0 0 0 0 0 0 0 |
| SUBSCRIPT    | 1              | 0              | 0              | 1              | 1              | 1 0 0 0 0 0 0 1 |
| SUPERSCRIP   | 1              | 0              | 1              | 0              | 0              | 1 0 0 0 0 0 0 1 |
| ESCAPE SUB   | 1              | 0              | 1              | 0              | 1              | 0 0 0 0 0 0 0 0 |
| ESCAPE SUPER | 1              | 0              | 1              | 1              | 0              | 0 0 0 0 0 0 0 0 |
|              | 1              | 0              | 1              | 1              | 1              | 0 0 0 0 0 0 0 0 |
|              | 1              | 1              | 0              | 0              | 0              | 0 0 0 0 0 0 0 0 |
|              | 1              | 1              | 0              | 0              | 1              | 0 0 0 0 0 0 0 0 |
| LINE FEED    | 1              | 1              | 0              | 1              | 0              | 0 0 0 0 1 1 1 1 |
| SUBSCRIPT    | 1              | 1              | 0              | 1              | 1              | 0 0 0 0 0 0 1 0 |
| SUPERSCRIP   | 1              | 1              | 1              | 0              | 0              | 1 0 0 0 1 0 0 0 |
| ESCAPE SUB   | 1              | 1              | 1              | 0              | 1              | 1 0 0 0 0 0 1 0 |
| ESCAPE SUPER | 1              | 1              | 1              | 1              | 0              | 0 0 0 0 1 1 0 0 |
|              | 1              | 1              | 1              | 1              | 1              | 0 0 0 0 0 0 0 0 |

SIGNAL NAME  
 DSR3 CXB7 H  
  
 DSR3 CXB4 H  
 DSR3 CXB3 H  
 DSR3 CXB2 H  
 DSR3 CXB1 H  
 DSR3 CXB0 H

C Y ROM E48

| CHARACTER    | ADDRESS        |                |                |                |                | DATA              |
|--------------|----------------|----------------|----------------|----------------|----------------|-------------------|
|              | A <sub>4</sub> | A <sub>3</sub> | A <sub>2</sub> | A <sub>1</sub> | A <sub>0</sub> |                   |
|              | 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   |
| LINE FEED    | 0              | 0              | 0              | 1              | 0              | 1 0 0 0 1 1 0 0   |
| SUBSCRIPT    | 0              | 0              | 0              | 1              | 1              | 1 0 0 0 0 0 1 1   |
| SUPERSCRIP   | 0              | 0              | 1              | 0              | 0              | 0 0 0 0 1 0 0 1   |
| ESCAPE SUB   | 0              | 0              | 1              | 0              | 1              | 0 0 0 0 0 0 1 1   |
| ESCAPE SUPER | 0              | 0              | 1              | 1              | 0              | 1 0 0 0 0 1 0 1   |
|              | 0              | 0              | 1              | 1              | 1              | 0 0 0 0 0 0 0 0   |
| SPACE        | 0              | 1              | 0              | 0              | 0              | 0 0 0 0 1 1 1 0   |
| BACKSPACE    | 0              | 1              | 0              | 0              | 1              | 1 0 0 0 1 1 1 0   |
|              | 0              | 1              | 0              | 1              | 0              | 0 0 0 0 0 0 0 0   |
| SUBSCRIPT    | 0              | 1              | 0              | 1              | 1              | 1 0 0 0 0 0 1 0   |
| SUPERSCRIP   | 0              | 1              | 1              | 0              | 0              | 1 0 0 0 0 0 1 0   |
| ESCAPE SUB   | 0              | 1              | 1              | 0              | 1              | 0 0 0 0 0 0 1 0   |
| ESCAPE SUPER | 0              | 1              | 1              | 1              | 0              | 0 0 0 0 0 0 1 0   |
|              | 0              | 1              | 1              | 1              | 1              | 0 0 0 0 0 0 0 0   |
|              | 1              | 0              | 0              | 0              | 0              | 0 0 0 0 0 0 0 0   |
|              | 1              | 0              | 0              | 0              | 1              | 0 0 0 0 0 0 0 0   |
| LINE FEED    | 1              | 0              | 0              | 1              | 0              | 1 0 0 0 1 1 1 1   |
| SUBSCRIPT    | 1              | 0              | 0              | 1              | 1              | 1 0 0 0 0 0 1 0   |
| SUPERSCRIP   | 1              | 0              | 1              | 0              | 0              | 0 0 0 0 1 0 0 0   |
| ESCAPE SUB   | 1              | 0              | 1              | 0              | 1              | 0 0 0 0 0 0 1 0   |
| ESCAPE SUPER | 1              | 0              | 1              | 1              | 0              | 1 0 0 0 0 1 1 0   |
|              | 1              | 0              | 1              | 1              | 1              | 0 0 0 0 0 0 0 0   |
| SPACE        | 1              | 1              | 0              | 0              | 0              | 0 0 0 0 1 1 1 0   |
| BACKSPACE    | 1              | 1              | 0              | 0              | 1              | 1 0 0 0 0 1 1 1 0 |
|              | 1              | 1              | 0              | 1              | 0              | 0 0 0 0 0 0 0 0   |
| SUBSCRIPT    | 1              | 1              | 0              | 1              | 1              | 0 0 0 0 0 0 0 0   |
| SUPERSCRIP   | 1              | 1              | 1              | 0              | 0              | 0 0 0 0 0 0 0 0   |
| ESCAPE SUB   | 1              | 1              | 1              | 0              | 1              | 0 0 0 0 0 0 0 0   |
| ESCAPE SUPER | 1              | 1              | 1              | 1              | 0              | 0 0 0 0 0 0 0 0   |
|              | 1              | 1              | 1              | 1              | 1              | 0 0 0 0 0 0 0 0   |

SIGNAL NAME  
 DSR3 CYB7 H  
  
 DSR3 CYB4 H  
 DSR3 CYB3 H  
 DSR3 CYB2 H  
 DSR3 CYB1 H  
 DSR3 CYB0 H

REV. 1  
 CHANGE NO. 1  
 DATE 1/21/75  
 U. J. GANONGS  
 2/1/75

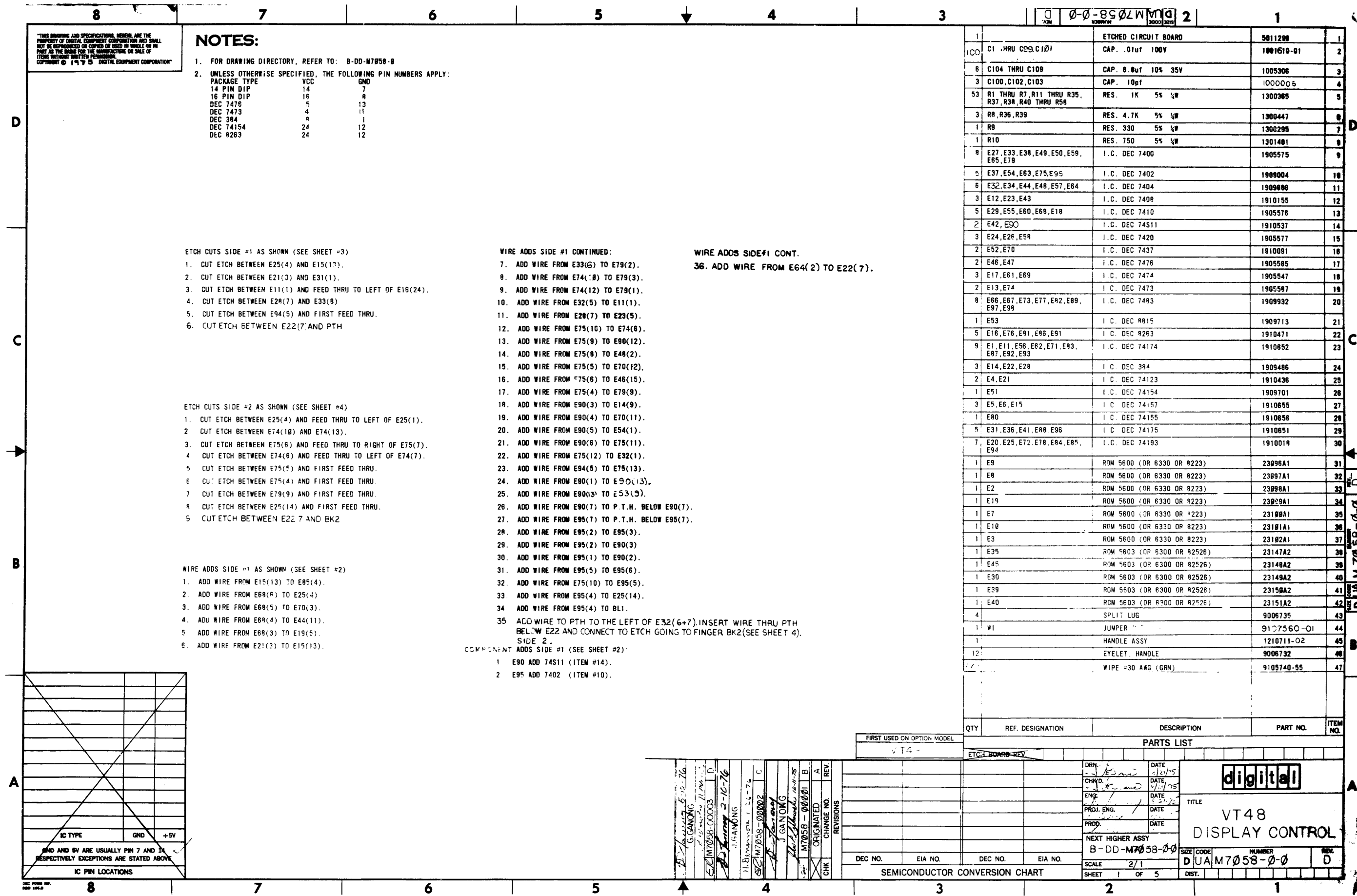
DRN. 3-2475  
 CHK'D. [Signature]  
 ENG. [Signature]  
 PROJ. ENG. [Signature]  
 PROD. [Signature]  
 NEXT HIGHER ASSY.  
 B-DD-M7057-0  
 SCALE 1 OF 1  
 SHEET 1 OF 1

FIRST USED ON [Signature]  
 TITLE DATA ROM PATTERN  
 SIZE CODE D CS  
 NUMBER M7057-0-9  
 REV. A

REV. A  
 NUMBER M7057-0-9  
 SITE CODE D CS



| CUSTOMER PRINT SET       |   |  |           |  |                      | REVISION CONTROL SHEET |              |       |           |       |      |  |        |  |         |  |     |  |   |  |  |  |  |  |  |  |
|--------------------------|---|--|-----------|--|----------------------|------------------------|--------------|-------|-----------|-------|------|--|--------|--|---------|--|-----|--|---|--|--|--|--|--|--|--|
| MFG SET                  |   | DRAWING NO   | NO OF SHT | DESCRIPTION                                | OPTION NO/FILE DATE  | REVISIONS              |              |       |           |       |      |  |        |  |         |  |     |  |   |  |  |  |  |  |  |  |
|                          | X | D-UA-M7058-0-0   | 5         | VT48 DISPLAY CONTROL                       |                      | A                      | B            | C     | C         | D     |      |  |        |  |         |  |     |  |   |  |  |  |  |  |  |  |
|                          | X | B/D-CS-M7058-0-1   | 9         | VT48 DISPLAY CONTROL                       |                      | -                      | -            | B     | B         | C     |      |  |        |  |         |  |     |  |   |  |  |  |  |  |  |  |
|                          | X | D-CS-M7058-0-9   | 4         | DATA ROM PATTERN                           |                      | -                      | -            | -     | -         | -     |      |  |        |  |         |  |     |  |   |  |  |  |  |  |  |  |
|                          |   | K-CO-M7058-0-4   | 1         | VT48 DISPLAY CONTROL<br>(CALDEC DATA BASE) |                      | B                      | B            | B     | B         | B     |      |  |        |  |         |  |     |  |   |  |  |  |  |  |  |  |
|                          |   | D-AH-M7058-0-5   | 4         | VT48 DISPLAY CONTROL                       |                      | A                      | A            | B     | B         | B     |      |  |        |  |         |  |     |  |   |  |  |  |  |  |  |  |
|                          |   | B-MH-M7058-0-6   | 1         | MODULE ECO HISTORY                         |                      | -                      | A            | B     | C         | D     |      |  |        |  |         |  |     |  |   |  |  |  |  |  |  |  |
|                          |   | 5011299  | -         | ETCH CIRCUIT BOARD                         |                      | B                      | B            | B     | B         | B     |      |  |        |  |         |  |     |  |   |  |  |  |  |  |  |  |
| CUSTOMER PRINT SET CODES |   | X = PRINT OF DOCUMENT INCLUDED IN PRINT SET<br>C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT<br>S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED |           |  | ECO NO               | ORIG.                  | 00001        | 00002 | 00002A    | 00003 |      |  |        |  |         |  |     |  |   |  |  |  |  |  |  |  |
| TITLE                    |   |  |           |  | VT48 DISPLAY CONTROL |                        | SHEET 2 OF 2 |       | SIZE CODE |       | B DD |  | NUMBER |  | M7058-0 |  | REV |  | C |  |  |  |  |  |  |  |



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**NOTES:**

- FOR DRAWING DIRECTORY, REFER TO: B-DD-M7058-B
- 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      | 9   | 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 E29(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(18) 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 E95(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(18) 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(8).
  - 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.
  - ADD WIRE TO PTH TO THE LEFT OF E32(6+7). INSERT WIRE THRU PTH BELOW E22 AND CONNECT TO ETCH GOING TO FINGER BK2 (SEE SHEET 4), SIDE 2.
- COMPONENT ADDS SIDE #1 (SEE SHEET #2):
- E90 ADD 74511 (ITEM #14).
  - E95 ADD 7402 (ITEM #10).

WIRE ADDS SIDE #1 CONT.  
36. ADD WIRE FROM E64(2) TO E22(7).

0-0-8502W M70 2  
E25(13) E15(1) E7(1) E10(1) E13(1) E16(24) E21(3) E29(7) E33(8) E37(2) E44(11) E49(2) E54(1) E57(13) E64(15) E69(3) E70(3) E74(6) E74(7) E74(13) E74(18) E75(4) E75(5) E75(6) E75(7) E75(8) E75(9) E75(10) E75(11) E75(12) E79(2) E79(3) E79(9) E82(1) E84(11) E86(15) E88(15) E90(1) E90(12) E90(13) E94(5) E95(4) E95(5) E95(6)

| QTY | REF. DESIGNATION                              | DESCRIPTION                 | PART NO.   | ITEM NO. |
|-----|---|-----------------------------|------------|----------|
|     |   | ETCHED CIRCUIT BOARD        | 5011200    | 1        |
| 100 | C1 .HRU C09.C101                              | CAP. .01uf 100V             | 1001510-01 | 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 R59 | RES. 1K 5% 1/4W             | 1300365    | 5        |
| 3   | R8,R36,R39                                    | RES. 4.7K 5% 1/4W           | 1300447    | 6        |
| 1   | R9  | RES. 330 5% 1/4W            | 1300295    | 7        |
| 1   | R10   | RES. 750 5% 1/4W            | 1301401    | 8        |
| 9   | E27,E33,E36,E49,E50,E59,E65,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 74511              | 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 9815               | 1909713    | 21       |
| 5   | E16,E76,E91,E98,E91                           | I.C. DEC 9263               | 1910471    | 22       |
| 9   | E1,E11,E56,E62,E71,E93,E87,E92,E93            | I.C. DEC 74174              | 1910852    | 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              | 1910856    | 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              | 1910019    | 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   | E10   | 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       |
| 2   |   | WIPE .30 ANG (GRN)          | 9105740-55 | 47       |

FIRST USED ON OPTION MODEL VT4-

ETCHED BOARD REV.

**digital**

TITLE: VT48 DISPLAY CONTROL

SEMICONDUCTOR CONVERSION CHART

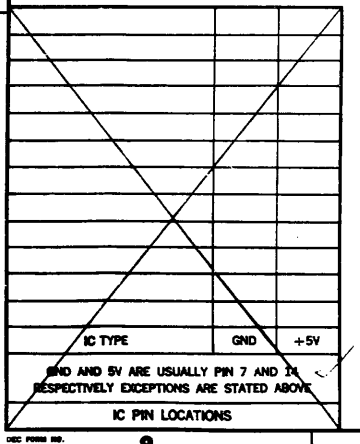
SCALE: 2/1

SHEET 1 OF 5

SIZE CODE: D U A M 70 58 - 0 - 0

NUMBER: D

DIST.

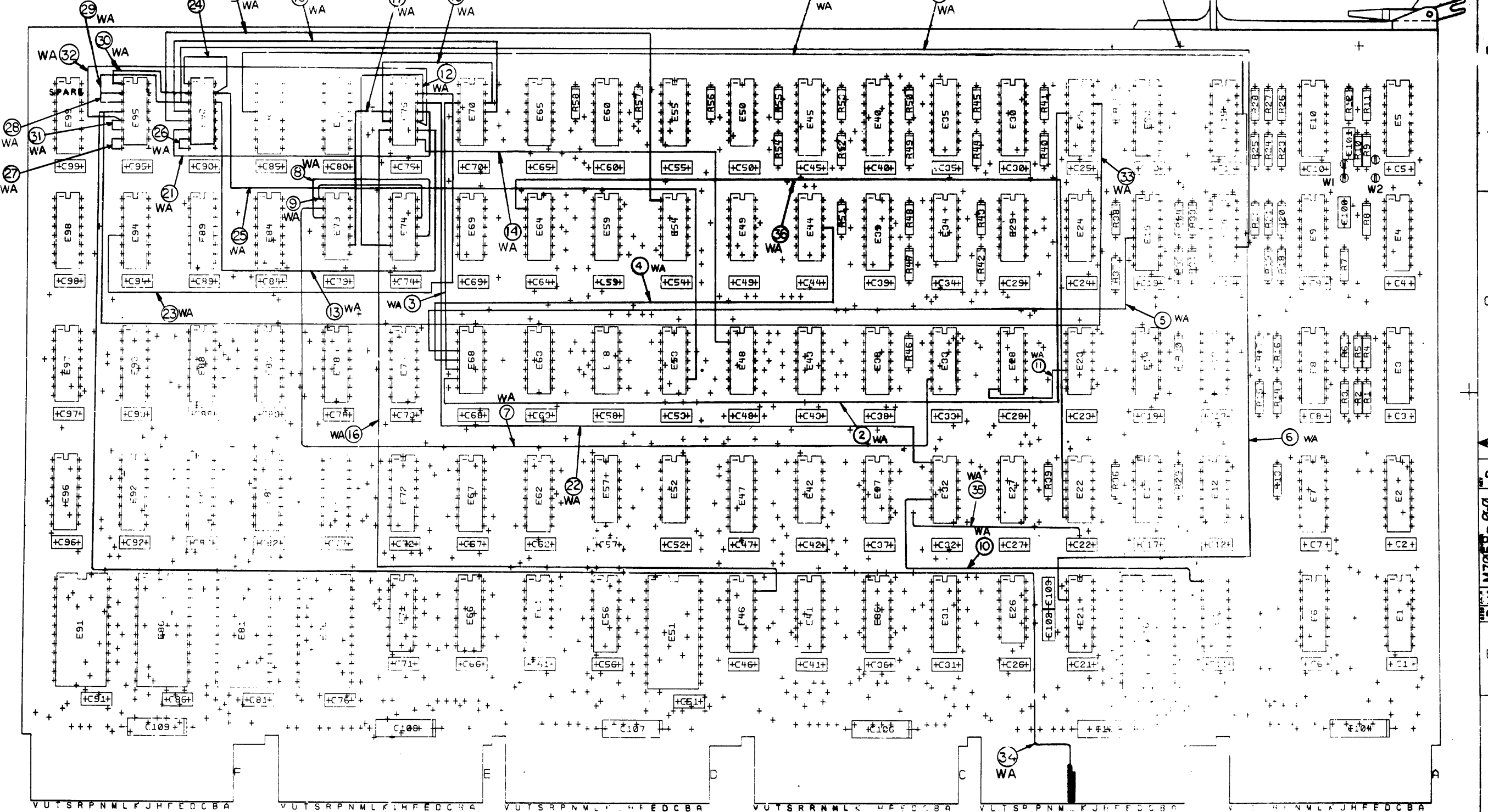


| CHK | CHANGE NO. | REVISIONS     |
|-----|------------|---------------|
|     |            | ORIGINATED A  |
|     |            | M7058-00001 B |
|     |            | J GANONG      |
|     |            | 11/10/74      |
|     |            | M7058-00002 C |
|     |            | J GANONG      |
|     |            | 11/10/74      |
|     |            | M7058-00003 D |
|     |            | J GANONG      |
|     |            | 11/10/74      |

DL 17058-0-0

COMPONENT SIDE VIEW

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NOTES:

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| CHK | CHANGE | NO. | REV. |
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| DATE    | 10/15                 | DIGITAL |
| TITLE   | VT 48 DISPLAY CONTROL |         |
| NO.     | 2                     | OF 5    |
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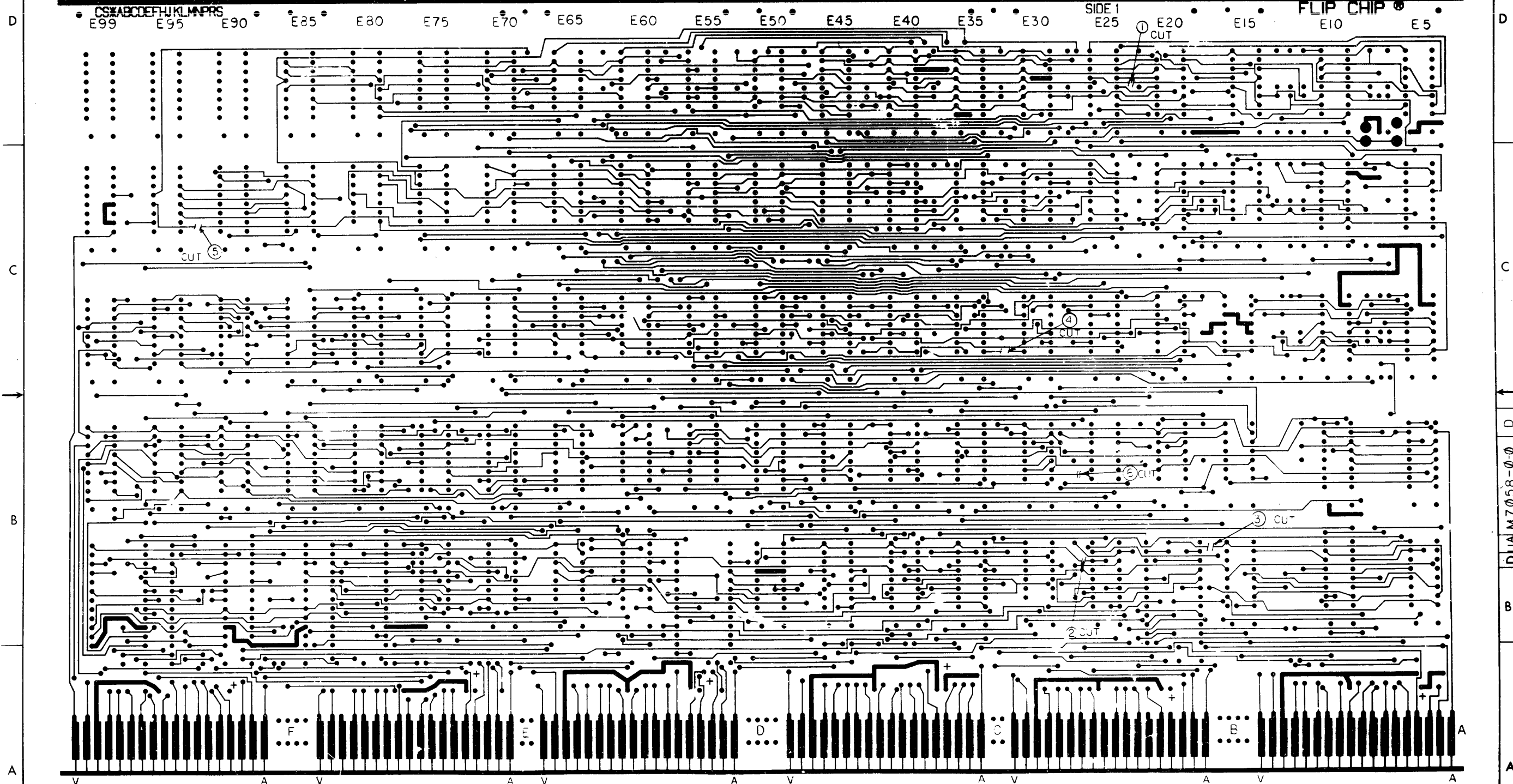
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1

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# LAYER 1

MS30095 M7058 5011299 B



DJA M7058-0-0

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(LAYER 1)

VT48 DISPLAY CONTROL

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SHEET 3 OF 5

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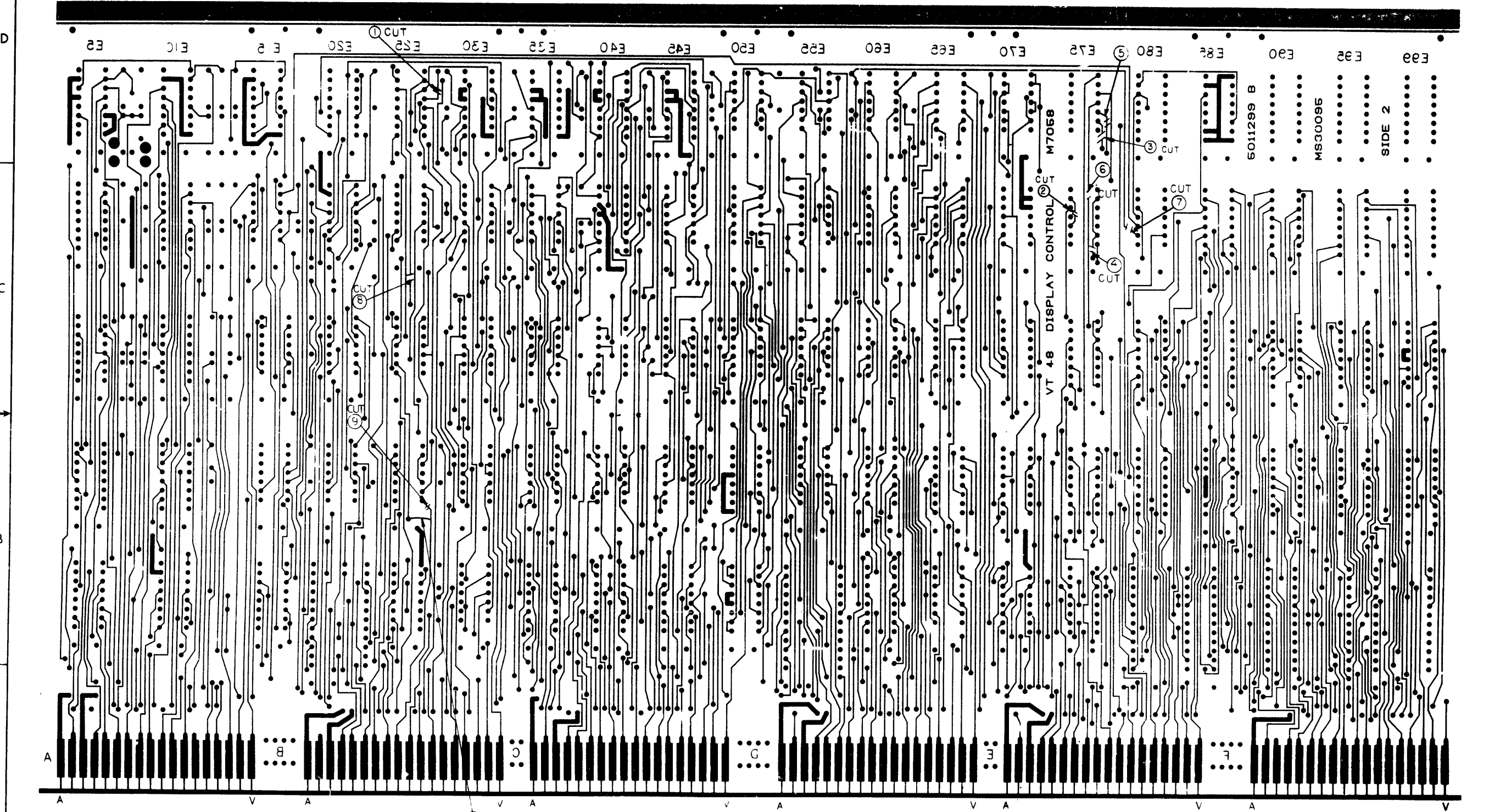
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LAYER H

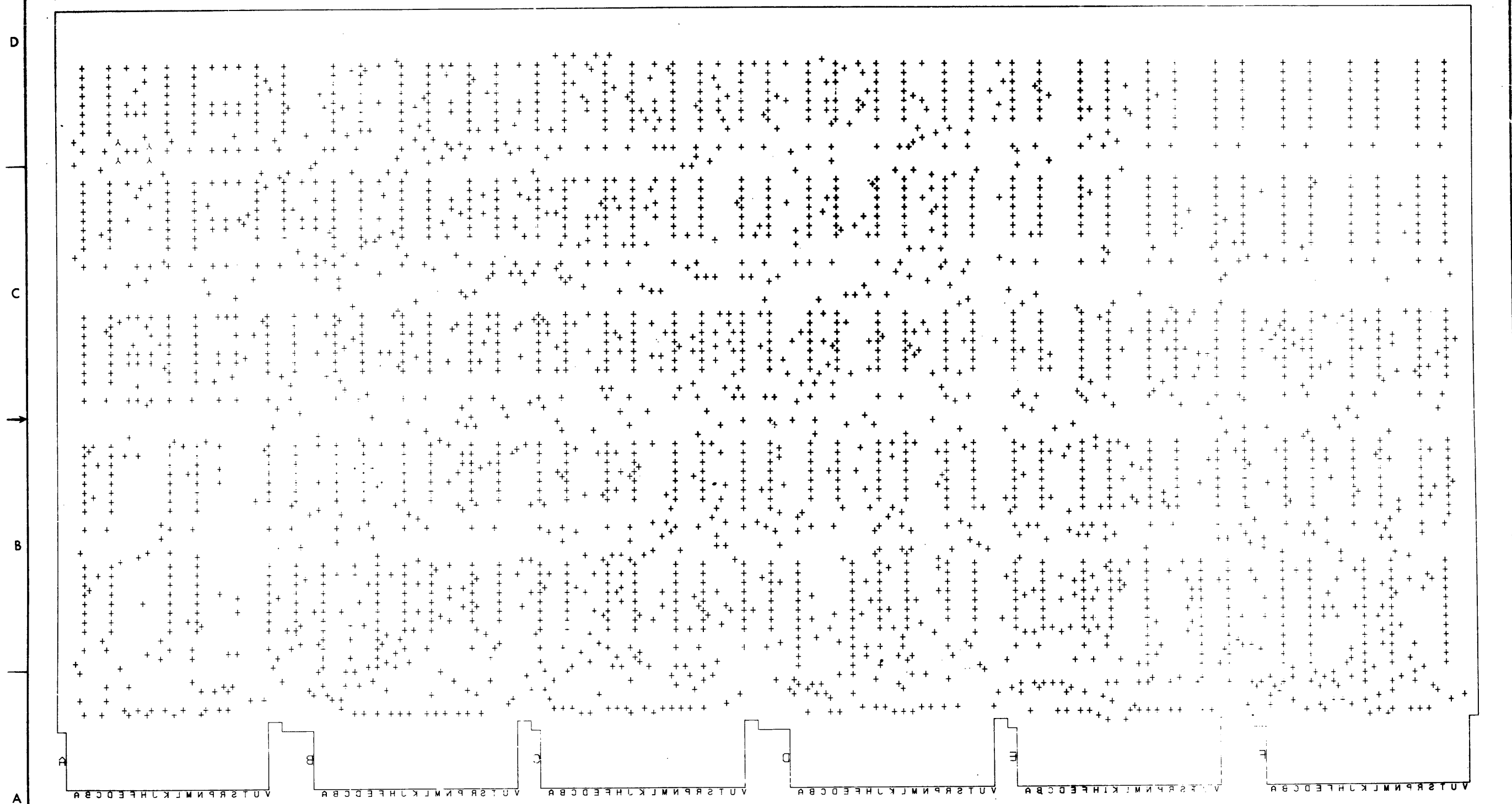


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VT48 DISPLAY CONTROL  
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TITLE: VT48 DISPLAY CONTROL  
 SIZE CODE: D U A M7058-0-0  
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 SCALE: 2/i SHEET: 5 OF 5 DIST: 1



### PAGE REVISION CONTROL SHEET

| SH NO. | PAGE REVISIONS |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  | REMARKS |
|--------|----------------|---|---|---|--|--|--|--|--|--|--|--|--|--|--|--|---------|
|        | B              | C |   |   |  |  |  |  |  |  |  |  |  |  |  |  |         |
| 1      |                |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  | (DIC1)  |
| 2      | A              | B | B |   |  |  |  |  |  |  |  |  |  |  |  |  | (DIC2)  |
| 3      | A              | A | B | C |  |  |  |  |  |  |  |  |  |  |  |  | (DIC3)  |
| 4      | A              | A | B | B |  |  |  |  |  |  |  |  |  |  |  |  | (DIC4)  |
| 5      | A              | A | B | B |  |  |  |  |  |  |  |  |  |  |  |  | (DIC5)  |
| 6      | A              | A | B | B |  |  |  |  |  |  |  |  |  |  |  |  | (DIC6)  |
| 7      | A              | A | B | B |  |  |  |  |  |  |  |  |  |  |  |  | (DIC7)  |
| 8      | A              | A | B | B |  |  |  |  |  |  |  |  |  |  |  |  | (DIC8)  |
| 9      | A              | A | B | B |  |  |  |  |  |  |  |  |  |  |  |  |         |
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FIRST USED ON OPTION/MODEL  
VT48

digital

**EQUIPMENT CORPORATION**  
MAYNARD MA MASSACHUSETTS

VT48 DISPLAY CONTROL

|            |               |      |         |
|------------|---------------|------|---------|
| DRN.       | B. Nichols    | DATE | 4-17-75 |
| CHK'D      | P. J. LeBlanc | DATE | 30ct 75 |
| ENG.       | J. Ganong     | DATE | 10/2/75 |
| PROJ. ENG. | H. Lavoie     | DATE | 7/17/75 |
| PROD.      | R. Wakefield  | DATE | 8/21/75 |

NEXT HIGHER ASSY.  
B-DD-M7058-0

SCALE ---

SHEET 1 OF 9

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| SIZE | CODE | NUMBER    | REV. |
| B    | CS   | M7058-0-1 | C    |

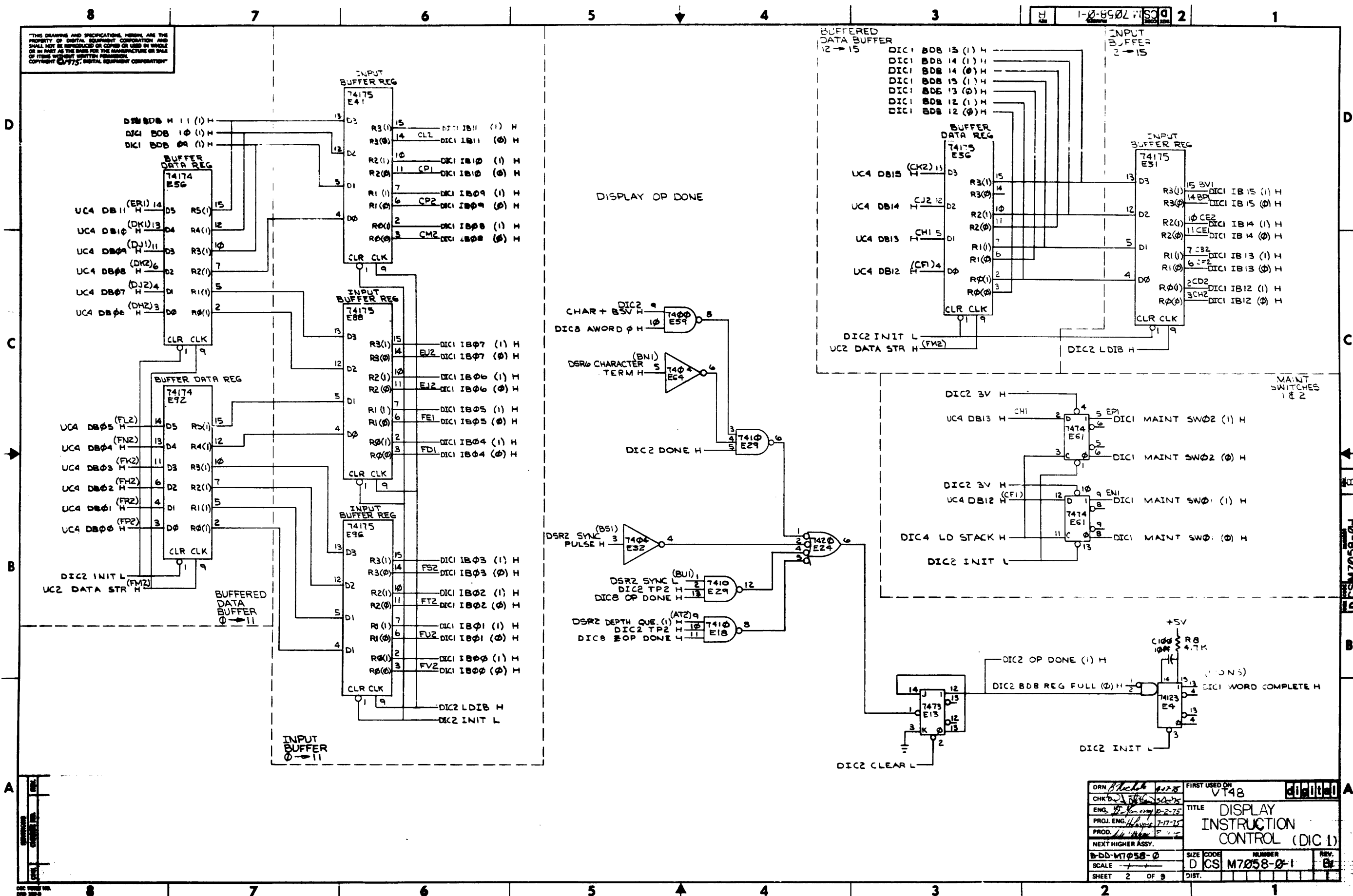
DATE  
11-8-75  
11-11-75  
10-MAY-76

ETCH REV. NO.  
B  
B  
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ECO NO.  
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0002  
0003

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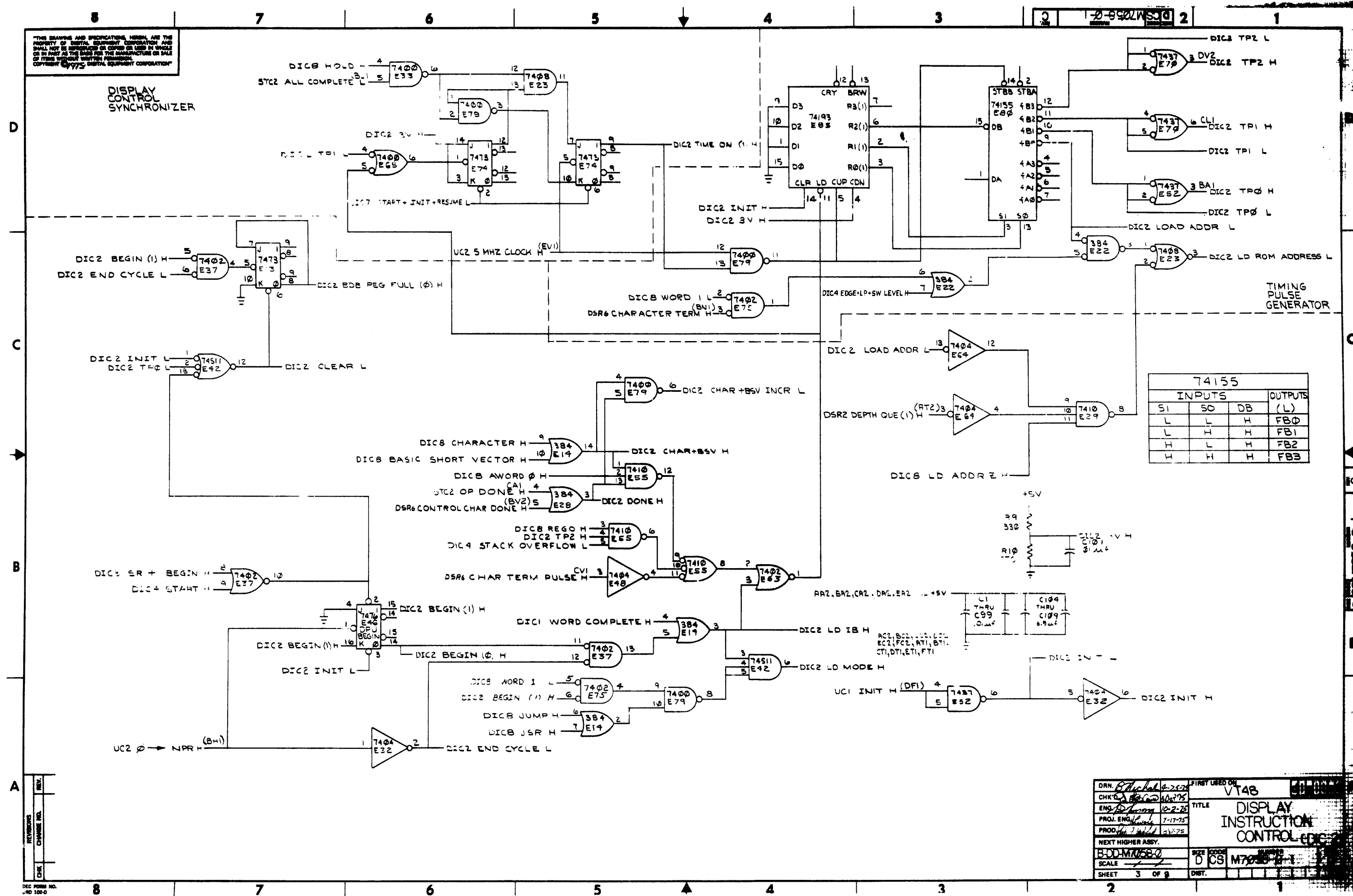
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|                                 |  |                     |
|---------------------------------|--|---------------------|
| DRN <i>B. Beck</i> 11/75        | FIRST USED ON<br>VT48                        | DIGITAL             |
| CHK'D <i>[Signature]</i> 12/75  | TITLE<br>DISPLAY INSTRUCTION CONTROL (DIC 1) |                     |
| ENG. <i>[Signature]</i> 12-2-75 | PROJECT<br>11-17-75                          |                     |
| PROD. <i>[Signature]</i> 1/76   | NEXT HIGHER ASSY.                            |                     |
| B-BD-M7058-0                    | SIZE CODE<br>D CS                            | NUMBER<br>M7058-0-1 |
| SCALE<br>SHEET 2 OF 3           | DIST.  | REV.<br>B           |

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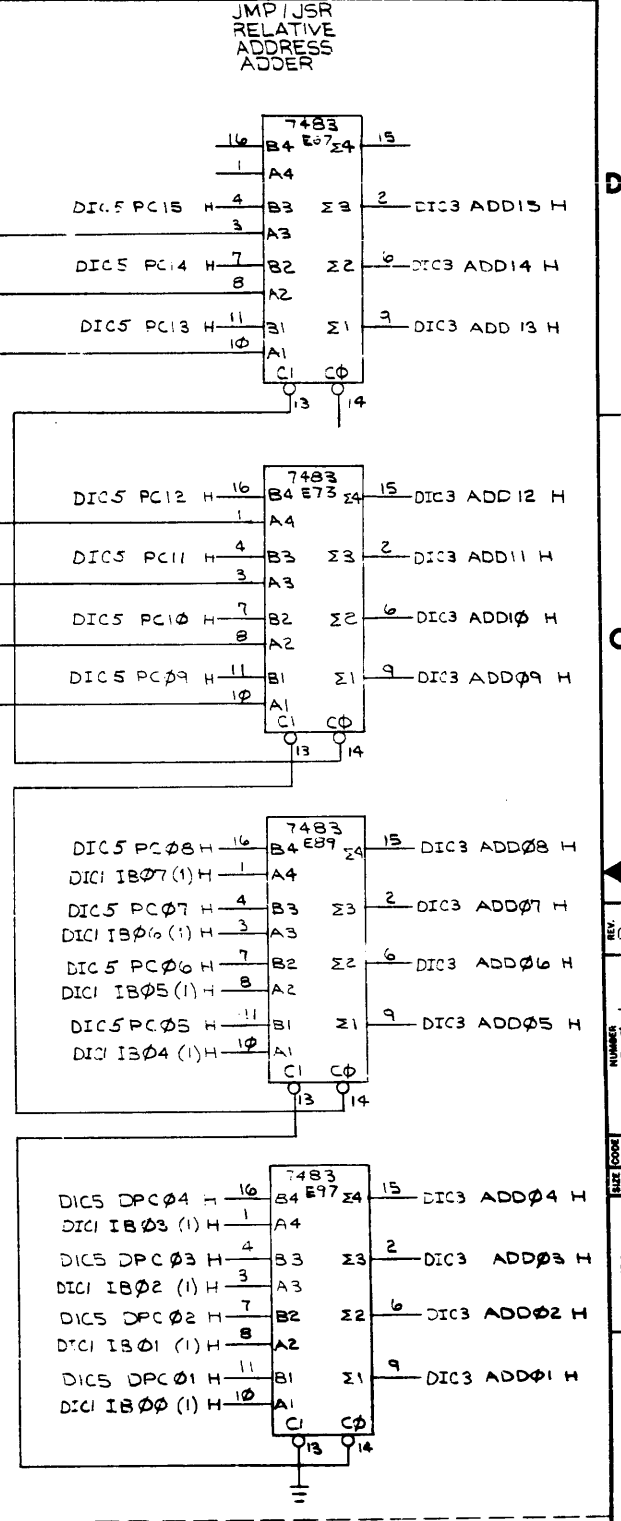
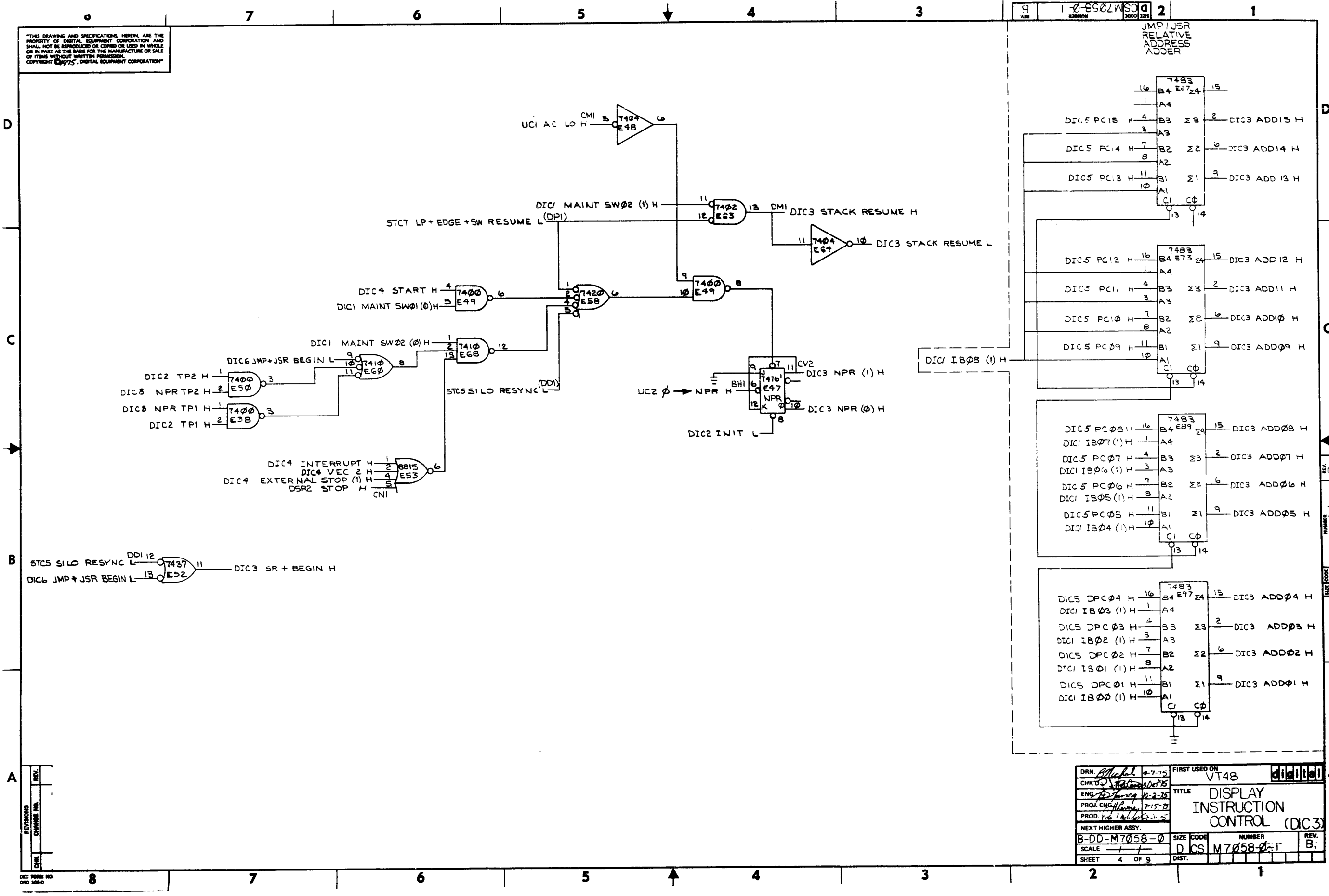
DISPLAY CONTROL SYNCHRONIZER



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

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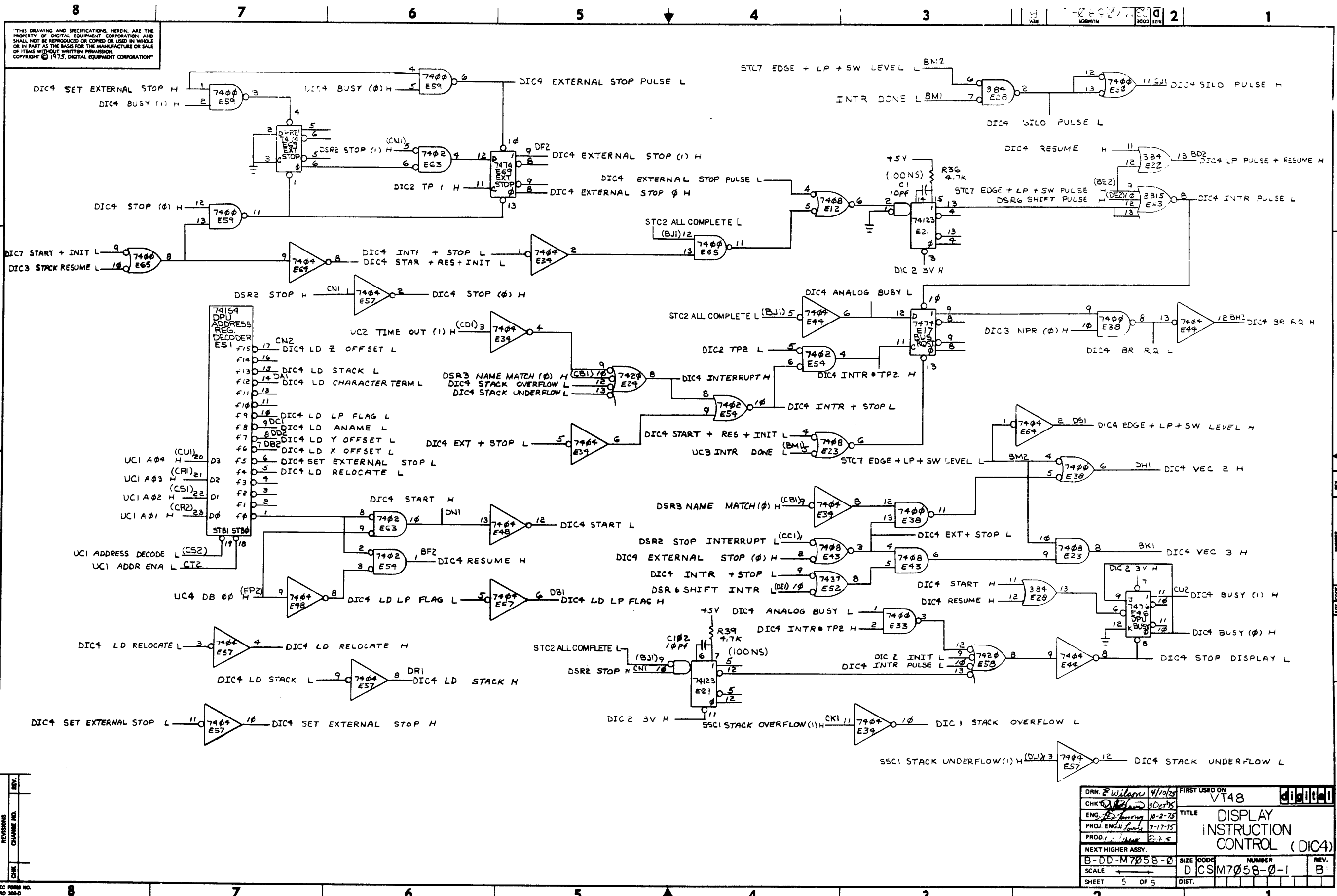
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|                            |         |               |                                    |         |
|----------------------------|---------|---------------|------------------------------------|---------|
| DRN. <i>B. H. H.</i>       | 6-7-75  | FIRST USED ON | VT48                               | digital |
| CHK'D. <i>B. H. H.</i>     | 6-7-75  | TITLE         | DISPLAY INSTRUCTION CONTROL (DIC3) |         |
| ENG. <i>B. H. H.</i>       | 6-2-75  | SCALE         | 1/1                                | REV. B. |
| PROJ. ENG. <i>B. H. H.</i> | 7-15-75 | SHEET         | 4 OF 9                             |         |
| PROD. <i>B. H. H.</i>      | 7-15-75 | SIZE          | D                                  | NUMBER  |
| NEXT HIGHER ASSY.          |         | CODE          | CS                                 |         |
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REV. B. NUMBER CS M7058-0-1

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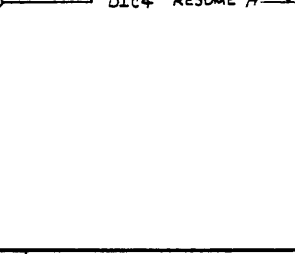
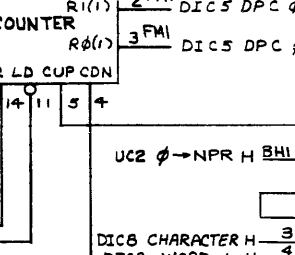
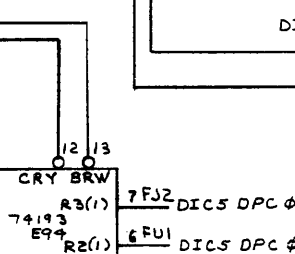
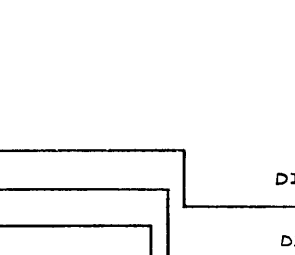
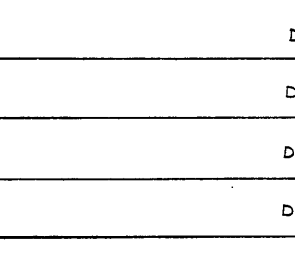
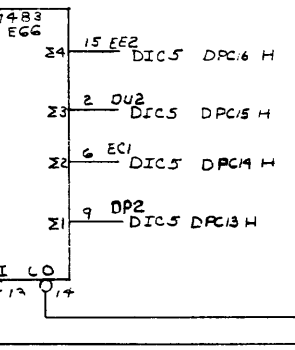
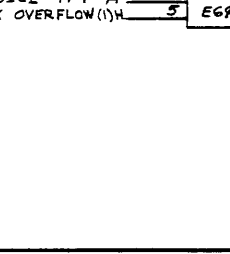
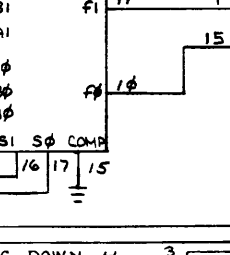
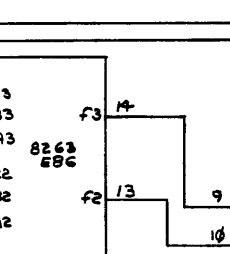
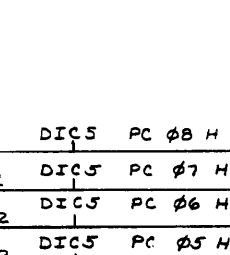
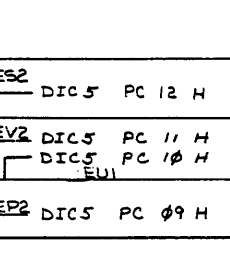
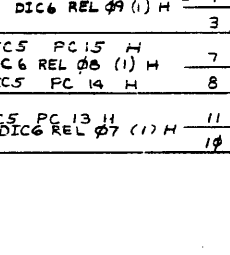
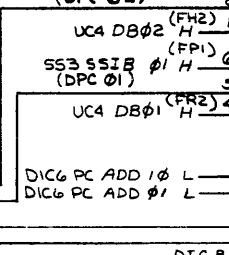
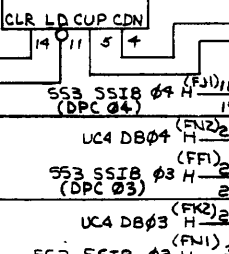
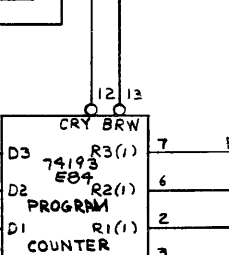
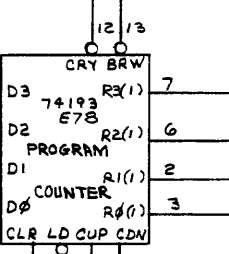
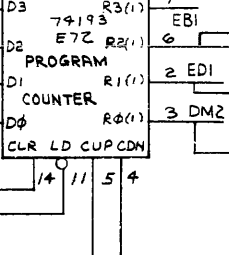
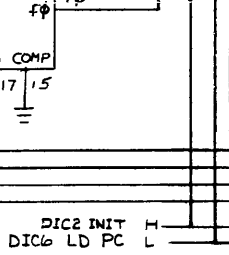
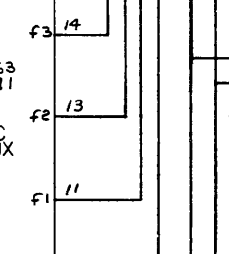
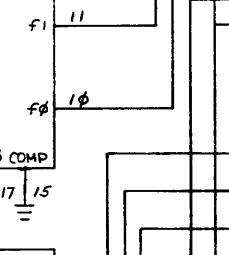
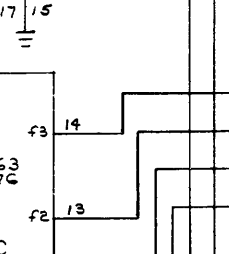
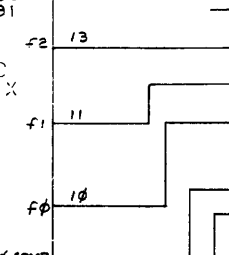
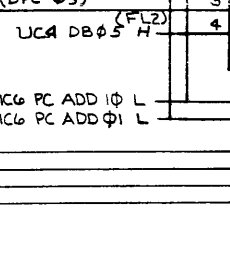
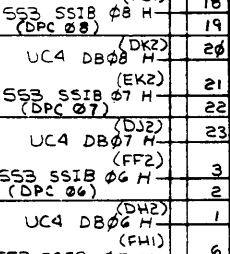
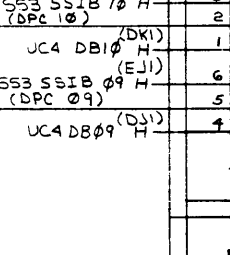
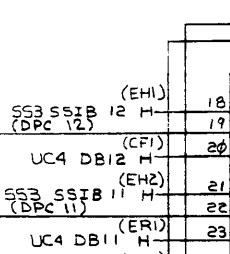
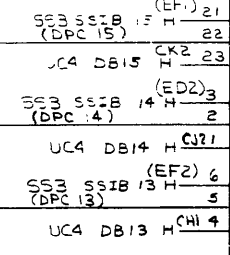
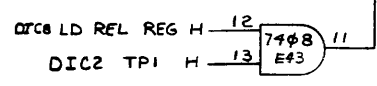
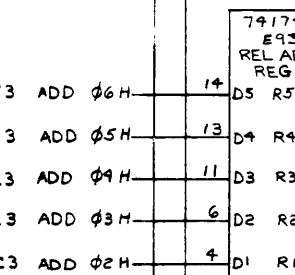
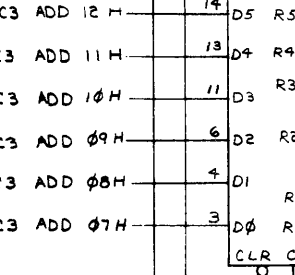
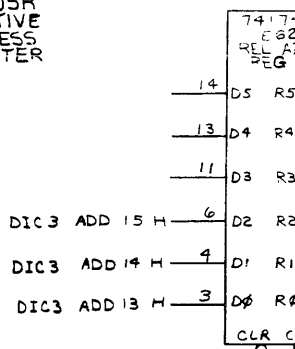
|                             |                                 |                                    |
|-----------------------------|---------------------------------|------------------------------------|
| DRN. E. Wilson 4/10/75      | FIRST USED ON                   | VT48                               |
| CHK. J. [Signature] 8/20/75 | TITLE                           | DISPLAY INSTRUCTION CONTROL (DIC4) |
| ENG. [Signature] 10-2-75    | PROJ. ENGR. [Signature] 7-17-75 |                                    |
| PROD. [Signature] 8-7-75    | NEXT HIGHER ASSY.               |                                    |
| B-DD-M7058-0                | SIZE CODE                       | NUMBER                             |
| SCALE                       | D                               | CSM7058-0-1                        |
| SHEET 5 OF 5                | DIST.                           | REV. B                             |

REV. B  
DATE 10/25/75  
DRAWN BY E. WILSON  
CHECKED BY J. [Signature]

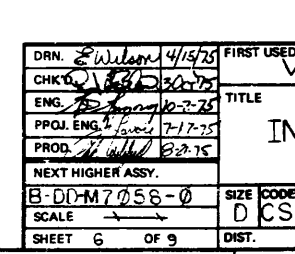
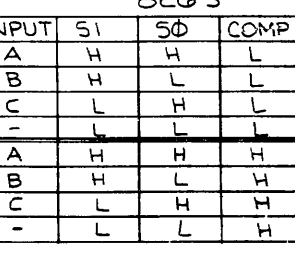
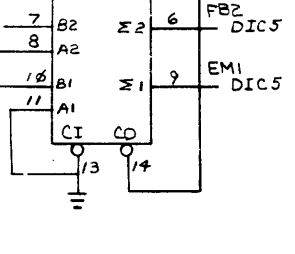
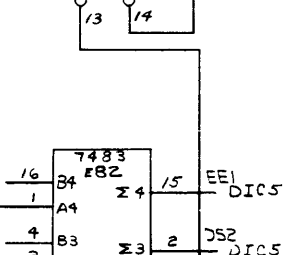
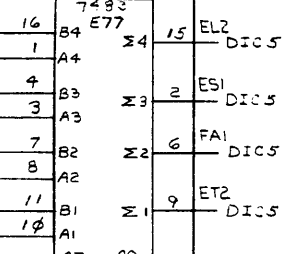
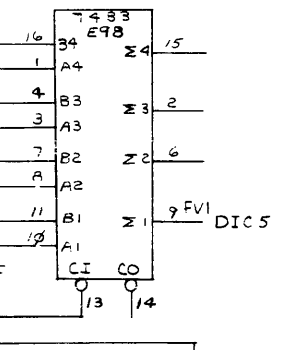
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1-0-SS02WSD 2

JMP/JSR  
RELATIVE  
ADDRESS  
REGISTER



DISPLAY  
PROGRAM  
COUNTER



| 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    | L      |

REV. 1  
CHG  
REVISIONS  
CHANGE NO.

|                        |   |
|------------------------|---|
| DRN: Wilson 4/15/75    | FIRST USED ON: V148                       |
| CHK: [Signature]       | TITLE: DISPLAY INSTRUCTION CONTROL (DIC5) |
| ENG: [Signature]       | SIZE CODE: DCSM7058-0-1                   |
| PROJ. ENG: [Signature] | NUMBER: [Blank]                           |
| PROD: [Signature]      | REV: B                                    |
| NEXT HIGHER ASSY:      | SCALE: 1/8"                               |
| B-DDM7058-0            | SHEET 6 OF 9                              |

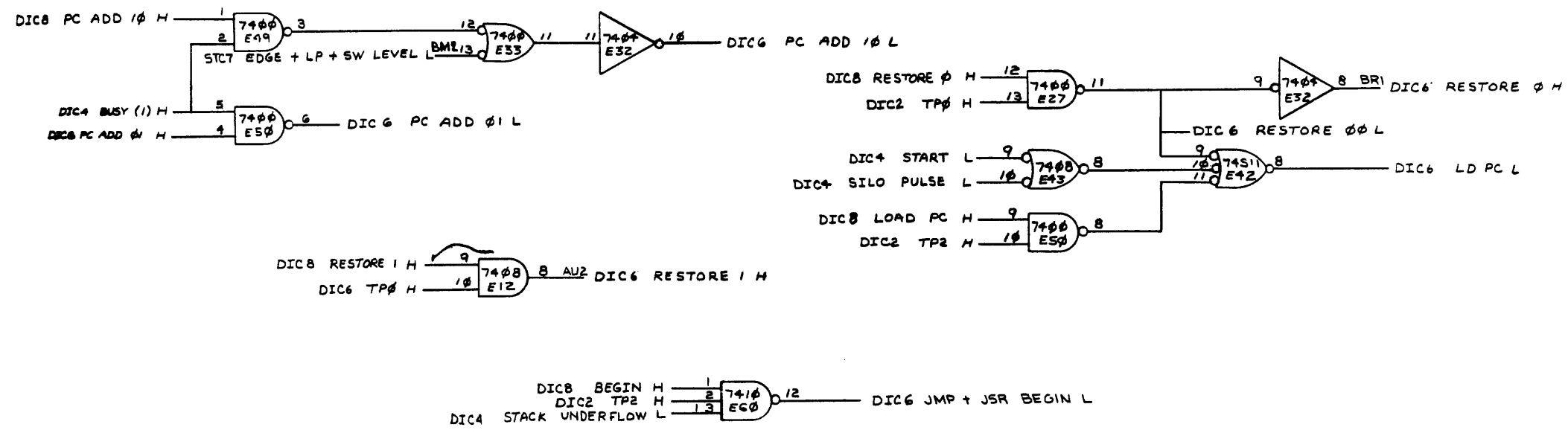
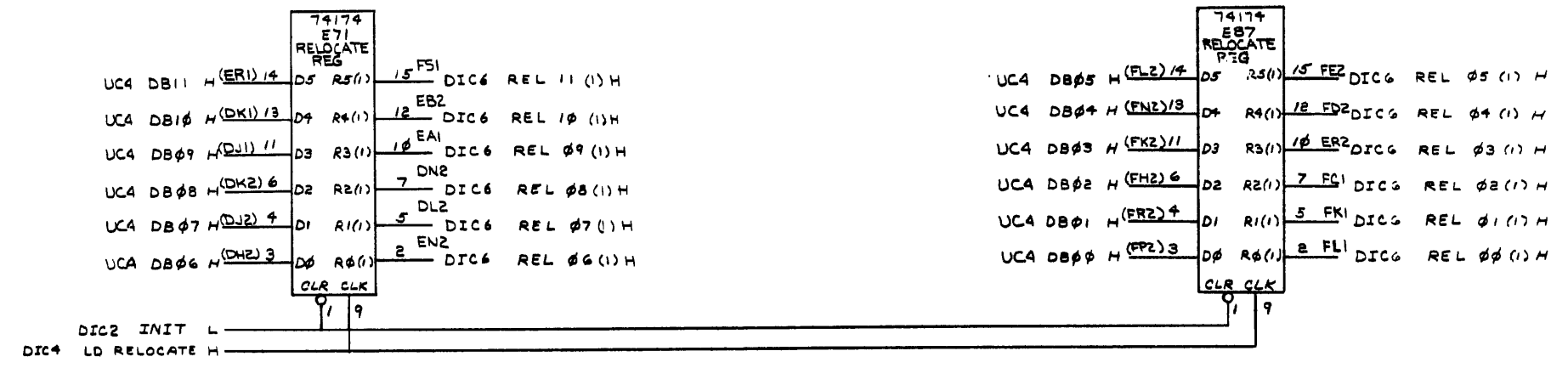
REV. 1  
CHG  
REVISIONS  
CHANGE NO.

REV. 1  
CHG  
REVISIONS  
CHANGE NO.

REV. 1  
CHG  
REVISIONS  
CHANGE NO.

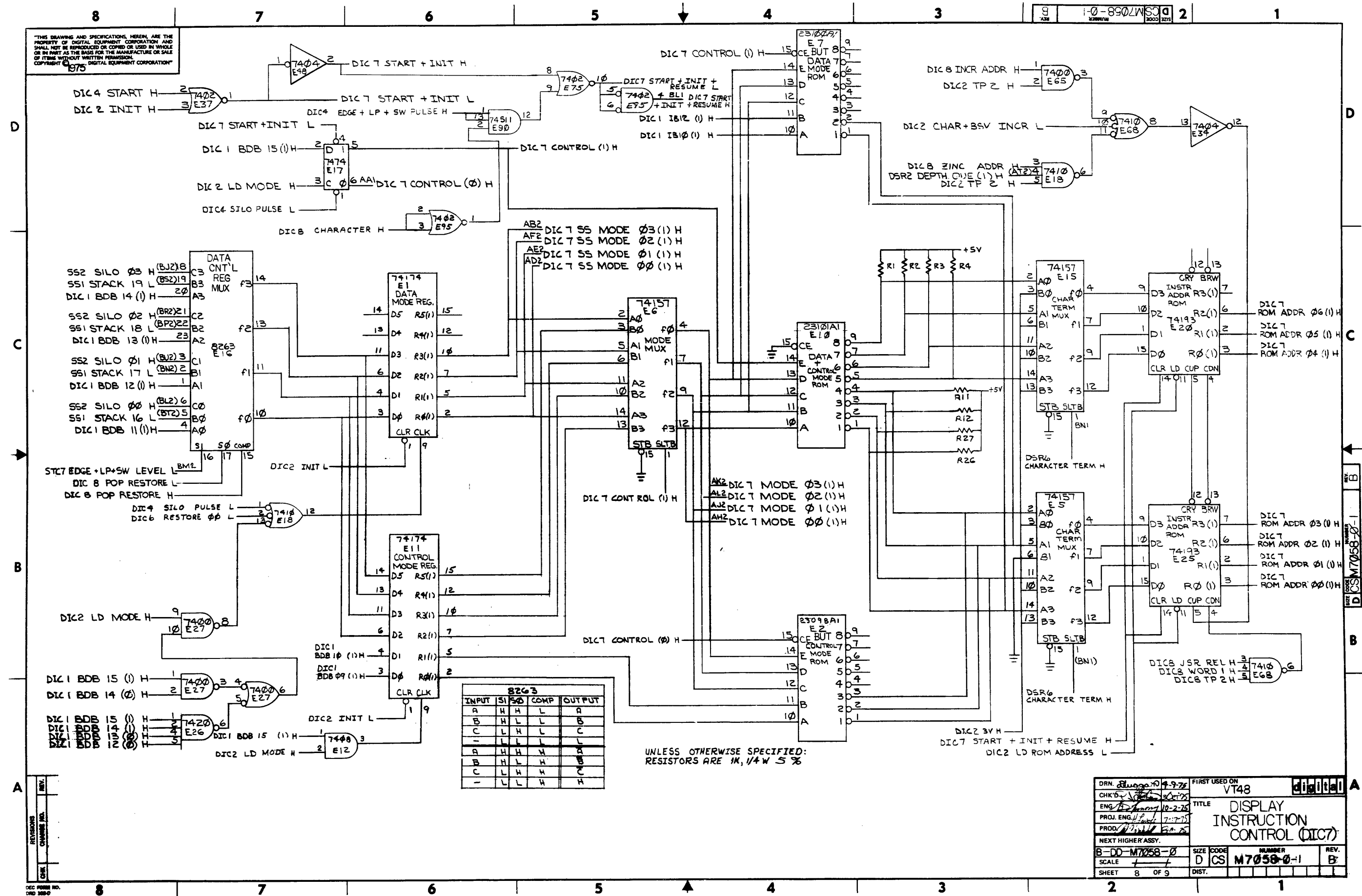
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RELOCATE REGISTER



|                   |         |                   |                                    |         |
|-------------------|---------|-------------------|------------------------------------|---------|
| DRN: Wilson       | 9/14/75 | FIRST USED ON     | VT48                               | digital |
| CHK'D: Wilson     | 10-2-75 | TITLE             | DISPLAY INSTRUCTION CONTROL (DIC6) |         |
| ENG: Wilson       | 10-2-75 | PROD. ENG: Wilson | 7-17-75                            |         |
| PROD. ENG: Wilson | 7-2-75  | NEXT HIGHER ASSY. |                                    |         |
| B-D0-M7058-0      |         | SIZE              | D                                  | CODE    |
| SCALE             |         | NUMBER            | CSM7058-0-1                        | REV.    |
| SHEET 7 OF 9      |         | DIST.             |                                    |         |

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8263

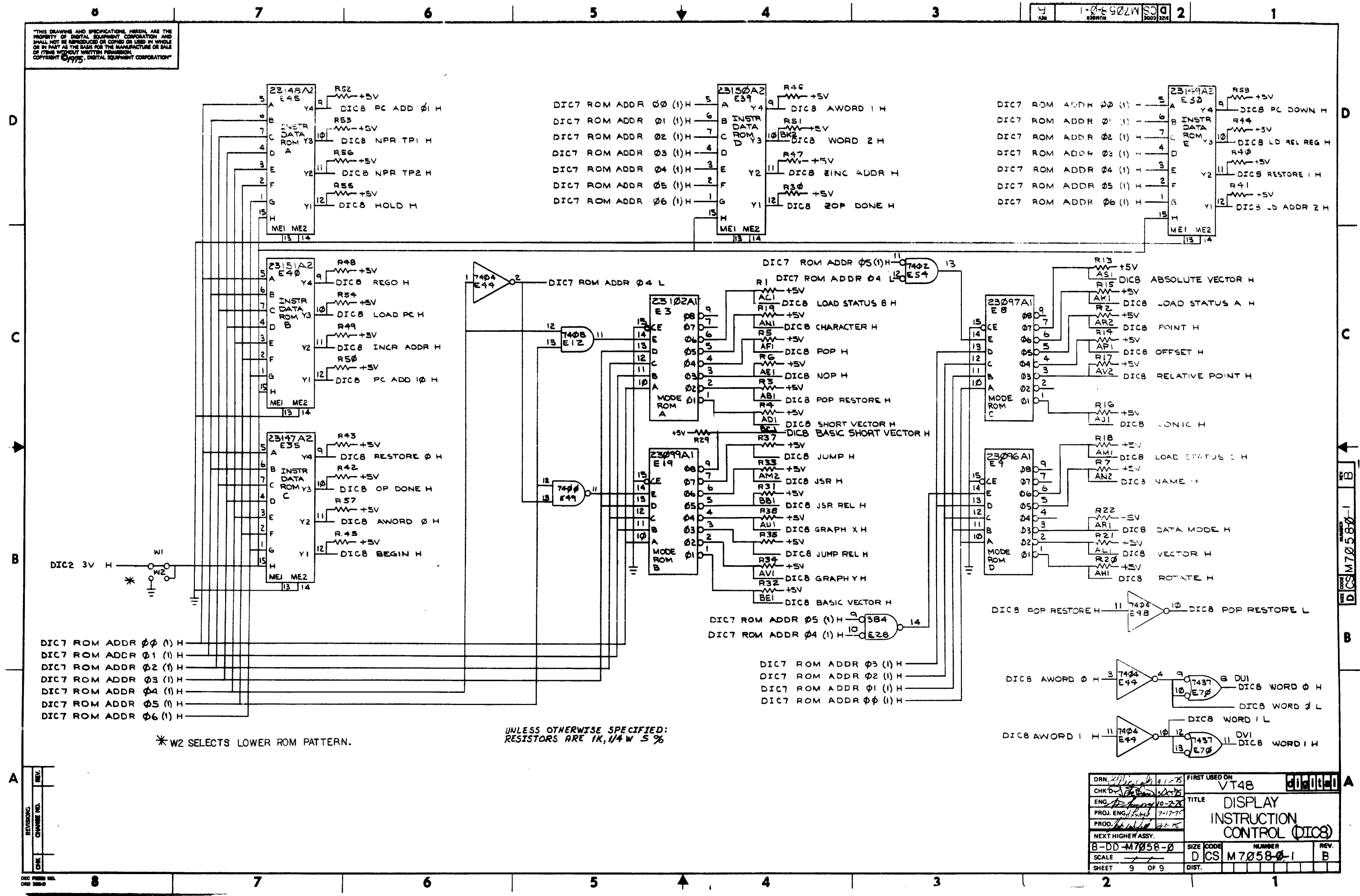
| INPUT | SI | SO | COMP | OUTPUT |
|-------|----|----|------|--------|
| A     | H  | H  | L    | A      |
| B     | H  | L  | L    | B      |
| C     | L  | H  | L    | C      |
| -     | L  | L  | L    | L      |
| A     | H  | H  | H    | A      |
| B     | H  | L  | H    | B      |
| C     | L  | H  | H    | C      |
| -     | L  | L  | H    | H      |

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

|  |                               |   |                |
|--|-------------------------------|---|----------------|
| DRN. <i>Allegro</i> 4-9-75             | FIRST USED ON                 | <b>VT48</b>                               | <b>digital</b> |
| CHK'D <i>[Signature]</i> 8-21-75       | TITLE                         | <b>DISPLAY INSTRUCTION CONTROL (DIC7)</b> |                |
| ENG. <i>[Signature]</i> 10-2-75        | PROJECT                       | <b>VT48</b>                               |                |
| PROJ. ENGR. <i>[Signature]</i> 7-17-75 | PROOF <i>[Signature]</i> 8-25 |   |                |
| NEXT HIGHER ASSY.                      | SIZE CODE                     | NUMBER                                    | REV.           |
| B-DD-M7058-0                           | D CS                          | M7058-0-1                                 | B              |
| SCALE                                  | DIST.                         |   |                |
| SHEET 8 OF 9                           |                               |   |                |



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DICS ROM ADDR 00 (1) H  
 DICS ROM ADDR 01 (1) H  
 DICS ROM ADDR 02 (1) H  
 DICS ROM ADDR 03 (1) H  
 DICS ROM ADDR 04 (1) H  
 DICS ROM ADDR 05 (1) H  
 DICS ROM ADDR 06 (1) H

\* W2 SELECTS LOWER ROM PATTERN.

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

|                        |   |                   |
|------------------------|---|-------------------|
| DRN: 217               | FIRST USED ON: VT48                       | DIGITAL           |
| CHK'D: [Signature]     | TITLE: DISPLAY INSTRUCTION CONTROL (DICS) |                   |
| ENG: [Signature]       | SCALE: 1/1                                | REV. B            |
| PROJ. ENG: [Signature] | SIZE CODE: DCS                            | NUMBER: M7058-0-1 |
| PROD: [Signature]      | SHEET: 9 OF 9                             | DIST.             |



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D  
C  
B  
A

D  
C  
B  
A

INSTR DATA FROM E  
DIC LD ADDR 2 H  
DIC8 RESTORE 1 H  
DIC8 LD REL REG H  
DIC8 PC DOWN H

INSTR DATA FROM D  
DIC ZOP DONE H  
DIC8 ZINC ADDR H  
DIC8 WORD 2 H  
DIC8 AWORD 1 H

INSTR DATA FROM C  
DIC8 BEGIN H  
DIC8 AWORD 0 H  
DIC8 OP DONE H  
DIC8 RESTORE 0 H

INSTR DATA FROM B  
DIC8 PC ADD 10 H  
DIC8 INCR ADDR H  
DIC8 LOAD PC H  
DIC8 REGO H

INSTR DATA FROM A  
DIC8 HOLD H  
DIC8 NPR TP2 H  
DIC8 NPR TP1 H  
DIC8 PC ADD 01 H

| ADDRESSES |     | MODE |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------|-----|------|-----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| DEC       | OCT | DEC  | OCT |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0         | 0   | 129  | 200 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1         | 1   | 129  | 201 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2         | 2   | 130  | 202 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3         | 3   | 131  | 203 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4         | 4   | 132  | 204 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5         | 5   | 133  | 205 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6         | 6   | 134  | 206 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7         | 7   | 135  | 207 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8         | 10  | 136  | 210 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9         | 11  | 137  | 211 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10        | 12  | 138  | 212 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11        | 13  | 139  | 213 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12        | 14  | 140  | 214 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13        | 15  | 141  | 215 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14        | 16  | 142  | 216 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15        | 17  | 143  | 217 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16        | 20  | 144  | 220 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17        | 21  | 145  | 221 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18        | 22  | 146  | 222 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 19        | 23  | 147  | 223 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20        | 24  | 148  | 224 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 21        | 25  | 149  | 225 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 22        | 26  | 150  | 226 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 23        | 27  | 151  | 227 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 24        | 30  | 152  | 230 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 25        | 31  | 153  | 231 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 26        | 32  | 154  | 232 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 27        | 33  | 155  | 233 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 28        | 34  | 156  | 234 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 29        | 35  | 157  | 235 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 30        | 36  | 158  | 236 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 31        | 37  | 159  | 237 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 32        | 40  | 160  | 240 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 33        | 41  | 161  | 241 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 34        | 42  | 162  | 242 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 35        | 43  | 163  | 243 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 36        | 44  | 164  | 244 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 37        | 45  | 165  | 245 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 38        | 46  | 166  | 246 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 39        | 47  | 167  | 247 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 40        | 50  | 168  | 250 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 41        | 51  | 169  | 251 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 42        | 52  | 170  | 252 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 43        | 53  | 171  | 253 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 44        | 54  | 172  | 254 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 45        | 55  | 173  | 255 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 46        | 56  | 174  | 256 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 47        | 57  | 175  | 257 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 48        | 60  | 176  | 260 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 49        | 61  | 177  | 261 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 50        | 62  | 178  | 262 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 51        | 63  | 179  | 263 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 52        | 64  | 180  | 264 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 53        | 65  | 181  | 265 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 54        | 66  | 182  | 266 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 55        | 67  | 183  | 267 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 56        | 70  | 184  | 270 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 57        | 71  | 185  | 271 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 58        | 72  | 186  | 272 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 59        | 73  | 187  | 273 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 60        | 74  | 188  | 274 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 61        | 75  | 189  | 275 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 62        | 76  | 190  | 276 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 63        | 77  | 191  | 277 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|            |  |
|------------|--|
| REV.       |  |
| CHANGE NO. |  |
| DATE       |  |

|                   |               |             |        |
|-------------------|---------------|-------------|--------|
| DRN.              | FIRST USED ON | DATE        |        |
| CHK'D.            | TITLE         | DATA        |        |
| ENG.              |               | RUM PATTERN |        |
| PROJ. ENG.        |               |             |        |
| PROD.             |               |             |        |
| NEXT HIGHER ASSY. |               |             |        |
| B I D M7058-0     | SIZE          | CODE        | NUMBER |
| SCALE             | D             | CSM7058-0.9 | REV.   |
| SHEET 2 OF 4      | DIST.         |             |        |

B I D M7058-0.9

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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<sub>2</sub> TO D<sub>1</sub>  
 D<sub>3</sub> TO D<sub>2</sub>  
 D<sub>4</sub> TO D<sub>3</sub>

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<sub>1</sub> TO D<sub>1</sub>  
 D<sub>3</sub> TO D<sub>2</sub>

| MODES                          | ADDRESS   | DATA & CONTROL MODE ROM |                |                |                |                |                |                | CONTROL MODE BUT ROM |                |                |                |                |                |                | DATA MODE BUT ROM |                |                |                |                |                |                | REMARKS        |                |                |                           |
|--------------------------------|-----------|-------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------------------|
|                                |           | E10                     |                |                |                |                |                |                | E2                   |                |                |                |                |                |                | E7                |                |                |                |                |                |                |                |                |                |                           |
|                                |           | D <sub>8</sub>          | D <sub>7</sub> | D <sub>6</sub> | D <sub>5</sub> | D <sub>4</sub> | D <sub>3</sub> | D <sub>2</sub> | D <sub>1</sub>       | D <sub>8</sub> | D <sub>7</sub> | D <sub>6</sub> | D <sub>5</sub> | D <sub>4</sub> | D <sub>3</sub> | D <sub>2</sub>    | D <sub>1</sub> | D <sub>8</sub> | D <sub>7</sub> | D <sub>6</sub> | D <sub>5</sub> | D <sub>4</sub> | D <sub>3</sub> | D <sub>2</sub> | D <sub>1</sub> |                           |
| 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              | 1                    | 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              | 1              | 0              | 1              | 0              | 1                    | 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              | 1              | 0              | 1              | 0              | 1                    | 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              | 1              | 0              | 1              | 0              | 1                    | 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              | 1              | 0              | 1              | 0              | 1                    | 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              | (POP) (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              | 1              | 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              | 1              | 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              | 1              | 1              | 1              | 1                    | 1              | 1              | 1              | 1              | 1              | 1              | 1                 | 1              | 1              | 1              | 1              | 1              | 1              | 1              | 1              | 1              |                           |

|      |  |
|------|--|
| REV. |  |
| CHG. |  |
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| CHG. |  |

|                   |         |                  |               |      |
|-------------------|---------|------------------|---------------|------|
| DRN               | M7058-0 | 3-26-75          | FIRST USED ON |      |
| CHKD              |         |                  |               |      |
| ENG               |         |                  |               |      |
| PROJ. ENG.        |         |                  |               |      |
| PROD. REV.        |         |                  |               |      |
| NEXT HIGHER ASSY. |         |                  |               |      |
| SCALE             | 1/4"    | SIZE             | D             | CODE |
| SHEET             | 3       | OF               | 4             | DBT. |
| TITLE             |         | DATA ROM PATTERN |               |      |
| NUMBER            |         | M7058-0-9        |               |      |
| REV.              |         |                  |               |      |

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MODE ROM A E3      MODE ROM B E19      MODE ROM C E9      MODE ROM D E9

| ADDRESS   | MODE ROM A E3  |                |                |                |                |                      |                  |            | MODE ROM B E19 |                    |                     |                           |             |                |                |                | MODE ROM C E9   |                |                     |                        |                      |              |               |                       | MODE ROM D E9 |                      |             |                  |               |               |  |  |
|-----------|----------------|----------------|----------------|----------------|----------------|----------------------|------------------|------------|----------------|--------------------|---------------------|---------------------------|-------------|----------------|----------------|----------------|-----------------|----------------|---------------------|------------------------|----------------------|--------------|---------------|-----------------------|---------------|----------------------|-------------|------------------|---------------|---------------|--|--|
|           | A <sub>4</sub> | A <sub>3</sub> | A <sub>2</sub> | A <sub>1</sub> | A <sub>0</sub> | DIC8 LOAD STATUS B H | DIC8 CHARACTER H | DIC8 POP H | DIC8 NOP H     | DIC8 POP RESTORE H | DIC8 SHORT VECTOR H | DIC8 BASIC SHORT VECTOR H | DIC8 JUMP H | DIC8 JSR REL H | DIC8 JSR REL H | DIC8 GRAPH X H | DIC8 JUMP REL H | DIC8 GRAPH Y H | DIC8 BASIC VECTOR H | DIC8 ABSOLUTE VECTOR H | DIC8 LOAD STATUS A H | DIC8 POINT H | DIC8 OFFSET H | DIC8 RELATIVE POINT H | DIC8 CONIC H  | DIC8 LOAD STATUS C H | DIC8 NAME H | DIC8 DATA MODE H | DIC8 VECTOR H | DIC8 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 0 0 0 1 | 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 1 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 1 1 | 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 1 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 1 0 1 | 0              | 0              | 1              | 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 1 1 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 0 1 1 1 | 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 1 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 1 0 0 1 | 0              | 1              | 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 1 0 1 0 | 0              | 1              | 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 1 0 1 1 | 0              | 1              | 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 1 1 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             |               |  |  |
| 0 1 1 0 1 | 0              | 1              | 1              | 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 1 1 1 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 1 1 1 1 | 0              | 1              | 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             |               |  |  |
| 1 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             |               |  |  |
| 1 0 0 0 1 | 1              | 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             |               |  |  |
| 1 0 0 1 0 | 1              | 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             |               |  |  |
| 1 0 0 1 1 | 1              | 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             |               |  |  |
| 1 0 1 0 0 | 1              | 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             |               |  |  |
| 1 0 1 0 1 | 1              | 0              | 1              | 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             |               |  |  |
| 1 0 1 1 0 | 1              | 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             |               |  |  |
| 1 0 1 1 1 | 1              | 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             |               |  |  |
| 1 1 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                | 0             |               |  |  |
| 1 1 0 0 1 | 1              | 1              | 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             |               |  |  |
| 1 1 0 1 0 | 1              | 1              | 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             |               |  |  |
| 1 1 0 1 1 | 1              | 1              | 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             |               |  |  |
| 1 1 1 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             |               |  |  |
| 1 1 1 0 1 | 1              | 1              | 1              | 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             |               |  |  |
| 1 1 1 1 0 | 1              | 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             |               |  |  |
| 1 1 1 1 1 | 1              | 1              | 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             |               |  |  |

|            |  |
|------------|--|
| REV.       |  |
| CHANGE NO. |  |
| REVISIONS  |  |
| CHK        |  |

|                       |                               |
|-----------------------|-------------------------------|
| DRN: <i>Morgan</i>    | FIRST USED ON: <i>80-08-0</i> |
| CHK: <i>...</i>       | TITLE: DATA RCM PATTERN       |
| ENG: <i>...</i>       | SCALE: <i>...</i>             |
| PROJ. ENG: <i>...</i> | SHEET: 4 OF 4                 |
| PROD. <i>...</i>      | SIZE CODE: D CS M7058-0-9     |
| NEXT HIGHER ASS.      | NUMBER: <i>...</i>            |
| SCALE: <i>...</i>     | REV.:                         |
| SHEET: 4 OF 4         | DIST.:                        |

CS M7058-0-9



CUSTOMER  
PRINT SET

# REVISION CONTROL SHEET

MFG SET

DRAWING NO

NO  
OF  
SHT

DESCRIPTION

OPTION  
NO./FILE  
DATE

## REVISIONS

|                  |   |                  |   |
|------------------|---|------------------|---|
| D-UA-M7059-0-0   | 5 | VT48 BUS CONTROL | A |
| D-CS-M7059-0-UC1 | 1 | UNIBUS CONTROL   | A |
| D-CS-M7059-0-UC2 | 1 | UNIBUS CONTROL   | A |
| D-CS-M7059-0-UC3 | 1 | UNIBUS CONTROL   | A |
| D-CS-M7059-0-UC4 | 1 | UNIBUS CONTROL   | A |

|                |   |  |   |
|----------------|---|--|---|
| K-CO-M7059-0-4 | 1 | VT48 BUS CONTROL<br>(CALDEC DATA BASE) | B |
| D-AH-M7059-0-5 | 2 | VT48 BUS CONTROL                       | A |
| B-MH-M7059-0-6 | 1 | MODULE ECO HISTORY                     | - |

|         |   |                    |   |
|---------|---|--------------------|---|
| 5011048 | - | ETCH CIRCUIT BOARD | B |
|---------|---|--------------------|---|

|                  |   |                                     |  |
|------------------|---|-------------------------------------|--|
| C-IA-5408776-0-0 | 1 | PRIORITY JUMPER LEVEL #4            |  |
| B-CS-5408776-0-1 | 1 | PRIORITY JUMPER LEVEL #4<br>5408776 |  |
| D-IA-5008775-0-0 | 1 | ETCH BOARD                          |  |
| C-AH-5408776-0-5 | 1 | ASSY/DRILLING HOLE LAYOUT           |  |
| 1402230          | 1 | GLASS EPOXY BD BLANK                |  |
| PC-5008775       | 1 | PC ETCH PATTERN                     |  |

CUSTOMER  
PRINT  
SET  
CODES

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S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED

ECO NO

ORIG

TITLE

VT48 BUS CONTROL

SHEET 2 OF 2

SIZE CODE

B DD

NUMBER

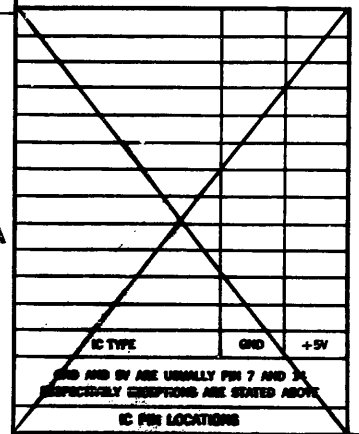
M7059-0

REV

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**NOTES:**  
1. FOR DRAWING DIRECTORY REFER TO B-DD-M7059-0

| QTY | REF. DESIGNATION                                    | DESCRIPTION                | PART NO.         | ITEM NO. |
|-----|---|----------------------------|------------------|----------|
| 1   |   | ETCHED CIRCUIT BOARD       | 5011048          | 1        |
| 7   | C44 THRU C50  | CAP. 10pf 5% 100V          | 1000006          | 2        |
| 1   | C1  | CAP. 1000pf 5% 100V        | 1000042          | 3        |
| 42  | C2 THRU C43   | CAP. 10nf 5% 100V          | 1001610-C1       | 4        |
| 4   | C51 THRU C54  | CAP. 68uf 10% 35V          | 1005306          | 5        |
| 1   | EX1   | I. C. SOCKET               | 1209838          | 6        |
| 1   | E29   | RES. 1K RES. PACK          | 1300005-1        | 7        |
| 5   | R2, R14, R15, R16, R17                              | RES. 330 5% 1/4W           | 1300295          | 8        |
| 4   | R4, R7, R11, R13                                    | RES. 390 5% 1/4W           | 1300309          | 9        |
| 1   | R1  | RES. 4.7K 5% 1/4W          | 1300447          | 10       |
| 6   | R6, R9, R10, R12, R19, R21                          | RES. 180 5% 1/4W           | 1301322          | 11       |
| 1   | R19   | RES. 68K 5% 1/4W           | 1301327          | 12       |
| 1   | R3  | RES. 750 5% 1/4W           | 1301401          | 13       |
| 2   | R5, R8  | RES. 5.11K 1% 1/4W         | 1304854          | 14       |
| 1   | Q1  | TRANS. DEC 3009B           | 1503100          | 15       |
| 1   | E20   | OSC. 20 MHZ                | 1811660          | 16       |
| 4   | E2, E4, E24, E41                                    | I. C. DEC 7474             | 1905547          | 17       |
| 4   | E8, E23, E25, E37                                   | I. C. DEC 7400             | 1905575          | 18       |
| 2   | E12, E42  | I. C. DEC 7402             | 1909004          | 19       |
| 1   | E19   | I. C. DEC 7404             | 1909686          | 20       |
| 1   | E27   | I. C. DEC 314A             | 1909704          | 21       |
| 5   | E6, E14, E16, E22, E26                              | I. C. DEC 8881             | 1909705          | 22       |
| 2   | E35, E40  | I. C. DEC 8242             | 1909712          | 23       |
| 3   | E17, E19, E36                                       | I. C. DEC 7408             | 1910155          | 24       |
| 1   | E7  | I. C. DEC 74H103           | 1910409          | 25       |
| 2   | E3, E29   | I. C. DEC 74123            | 1910436          | 26       |
| 2   | E9, E30   | I. C. DEC 74S74            | 1910544          | 27       |
| 2   | E13, E39  | I. C. DEC 8640             | 1911469          | 28       |
| 9   | E5, E10, E11, E15, E21, E33, E34, E36               | I. C. DEC 8641             | 1911579          | 29       |
| 1   | E1  | PRIORITY JUMPER (LEVEL 4)  | D-1A-5408776-0-0 | 30       |
| 13  | W1, A5, A6, A7, A8, A9, A11, W4, V2, V3, V4, V6, V7 | INSULATED JUMPER           | 9009195          | 31       |
| 4   |   | HANDLE FLIP-CHIP (MAGENTA) | 9008337-06       | 32       |
| 8   |   | EYELET                     | 9006732          | 33       |



|                                |  |              |  |         |  |         |  |                 |  |
|--------------------------------|--|--------------|--|---------|--|---------|--|-----------------|--|
| ORIGINATED                     |  | A            |  | REV.    |  | DATE    |  | 7/10/75         |  |
| CHANGE NO.                     |  | 1            |  | REV.    |  | DATE    |  | 8/25/75         |  |
| REVISIONS                      |  | 1            |  | REV.    |  | DATE    |  | 8/25/75         |  |
| CHK                            |  | 1            |  | REV.    |  | DATE    |  | 8/25/75         |  |
| NEXT HIGHER ASSY               |  | B-DD-M7059-0 |  | SCALE   |  | 1 OF 5  |  | SHEET           |  |
| DEC NO.                        |  | EIA NO.      |  | DEC NO. |  | EIA NO. |  | SIZE CODE       |  |
|                                |  |              |  |         |  |         |  | D UA M 7059-0-0 |  |
| SEMICONDUCTOR CONVERSION CHART |  |              |  |         |  |         |  | REV. A          |  |

REV. A  
NUMBER 7059-0-0  
DATE CODE D UA M 7059-0-0

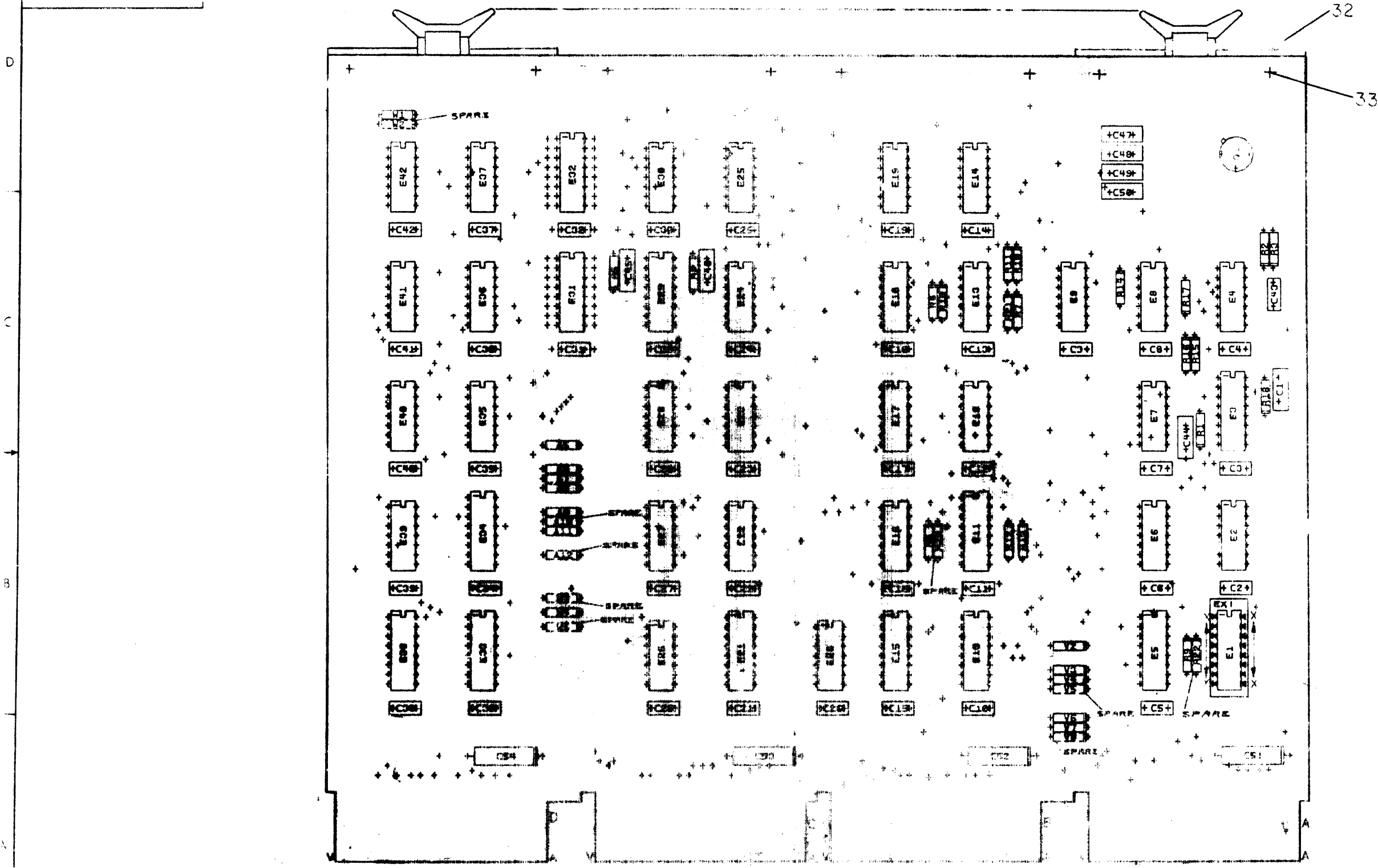


TITLE  
VT48  
BUS CONTROL



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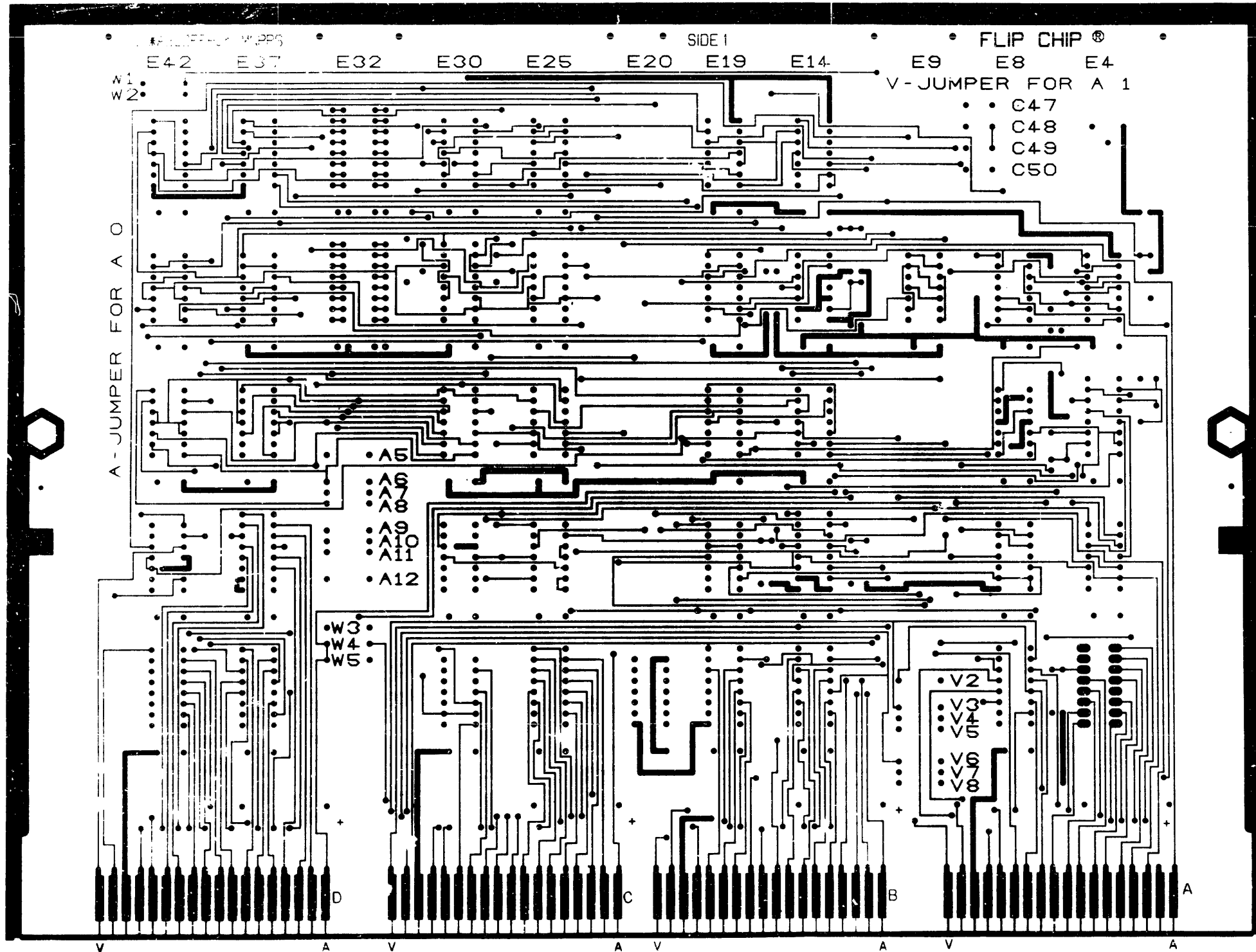
|     |     |
|-----|-----|
| CHK | REV |
|     |     |

CONTROL PANELS CONTROL DUA M7059-0-0

SIZE: COOH NUMBER  
DUA M7059-0-0

MS30096 M7059 5011048B

0/95



(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

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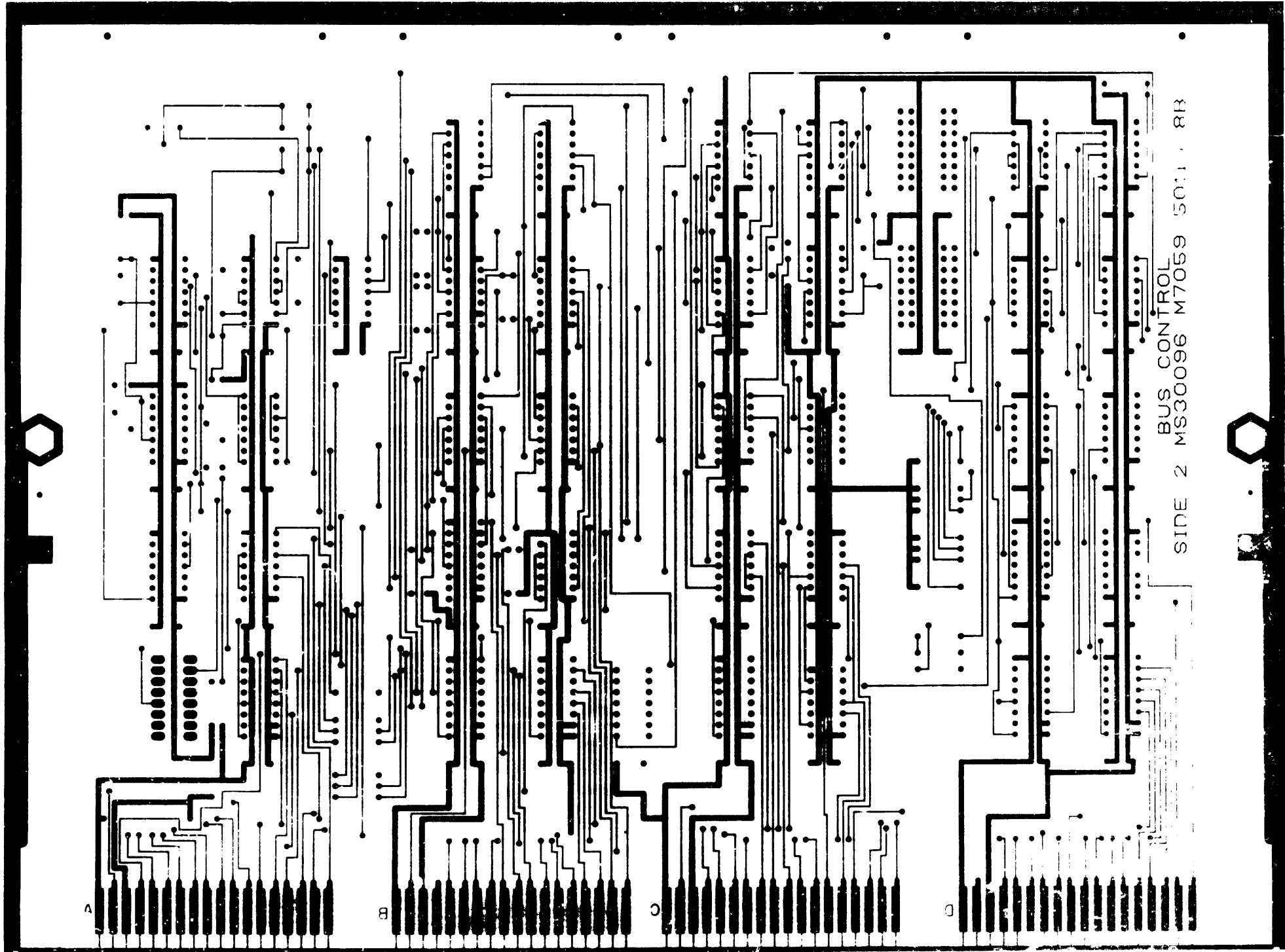
3

2

D UAM 7059-0-0

01915

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C  
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A

D UAM 7059-0-0

| REVISIONS |           |     |
|-----------|-----------|-----|
| CHK       | CHANGE NO | REV |
|           |           |     |

OF 2)

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

4 OF 5

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DUA M 7 0 5 9 - 0 - 0 2

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D

C

B

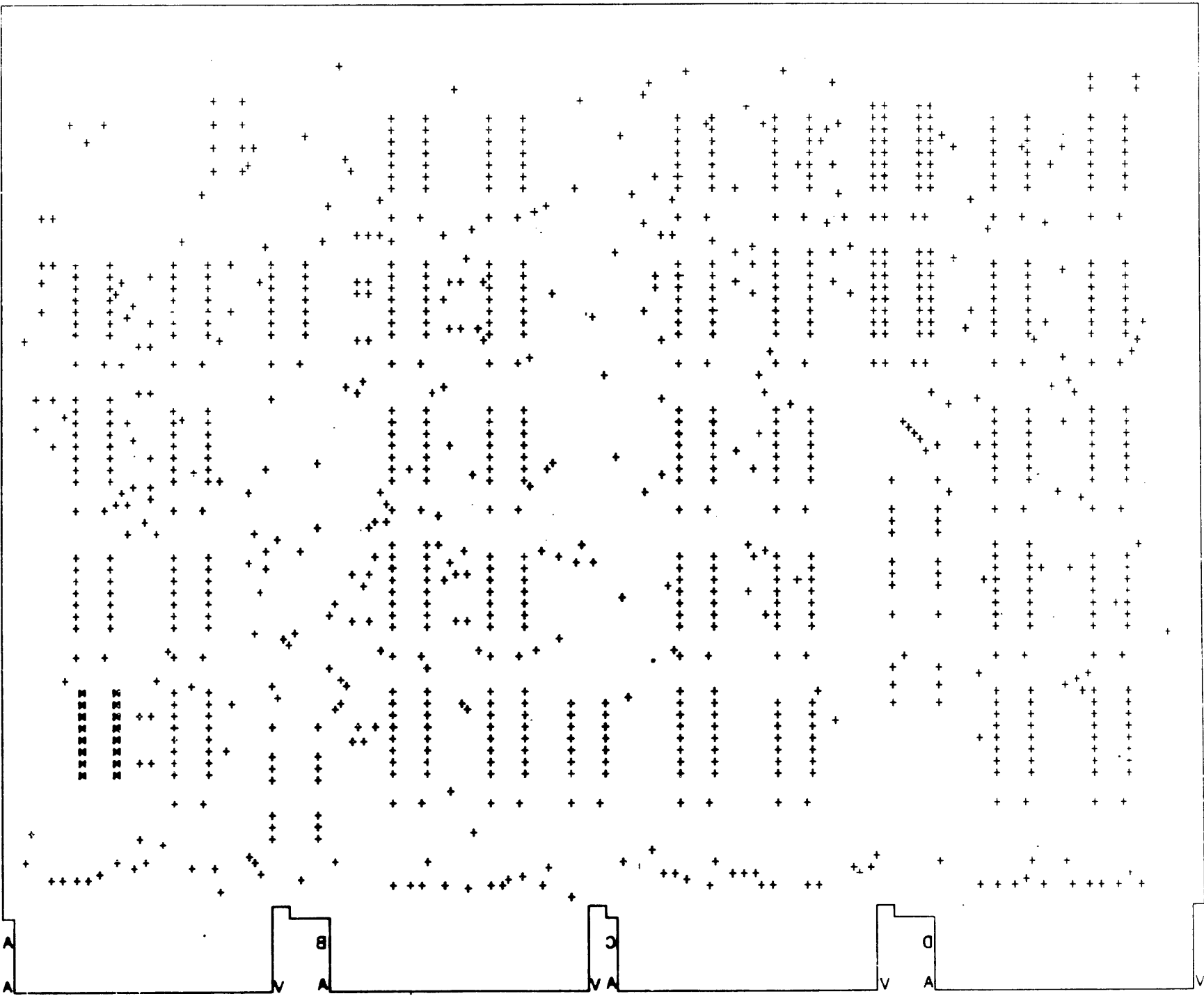
A

D

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DUA M 7 0 5 9 - 0 - 0 A

| REVISIONS |            |      |
|-----------|------------|------|
| CHK       | CHANGE NO. | REV. |
|           |            |      |

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

9C FORM NO. 280 11/75

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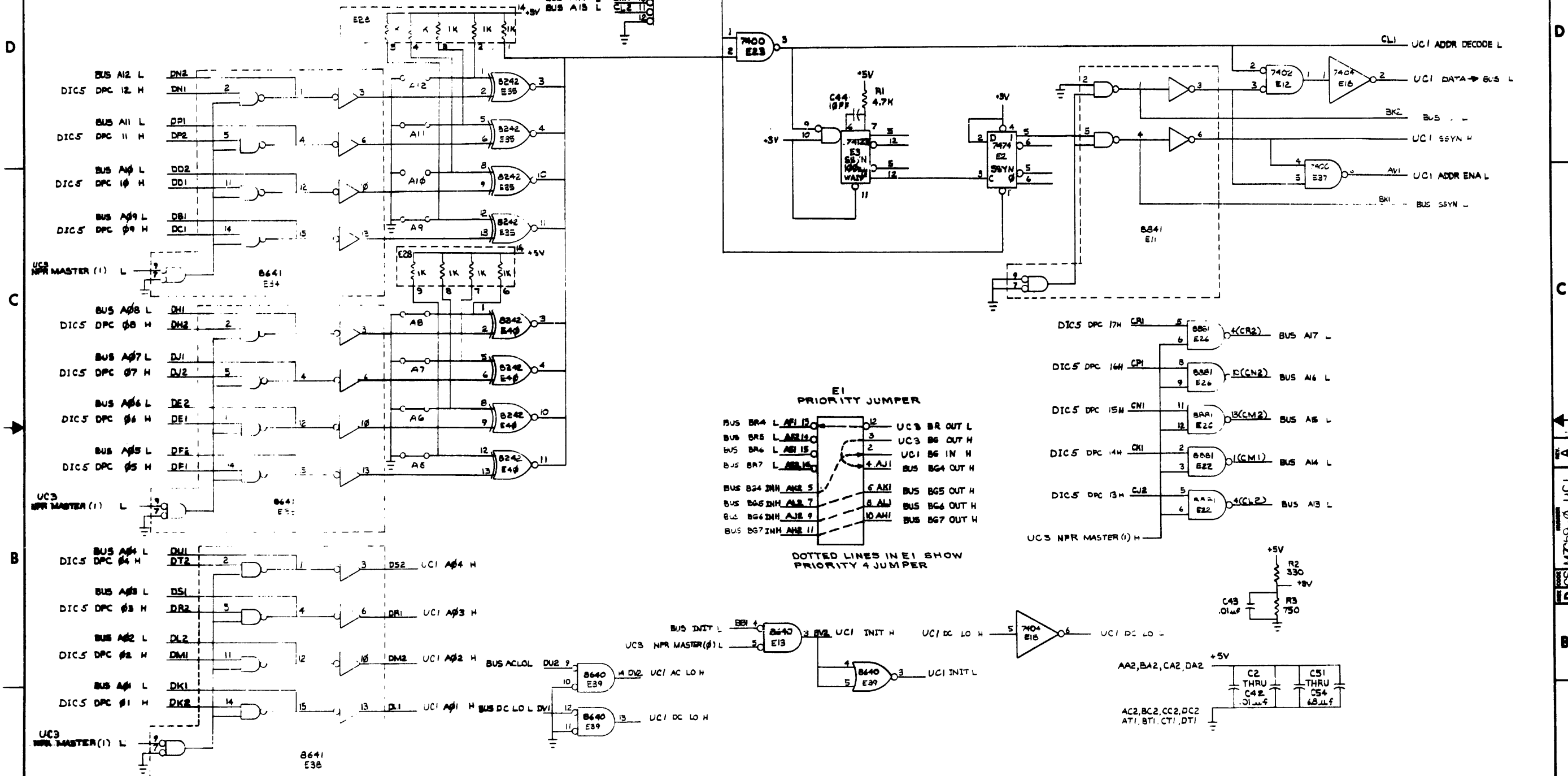
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1

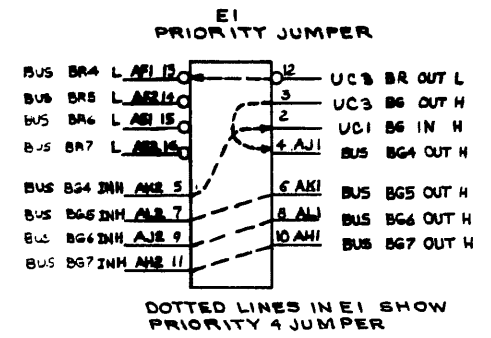
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NOTE: A5 → A12  
CUT JUMPER FOR A1

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



BUS ADDRESS RECEIVERS AND DRIVERS

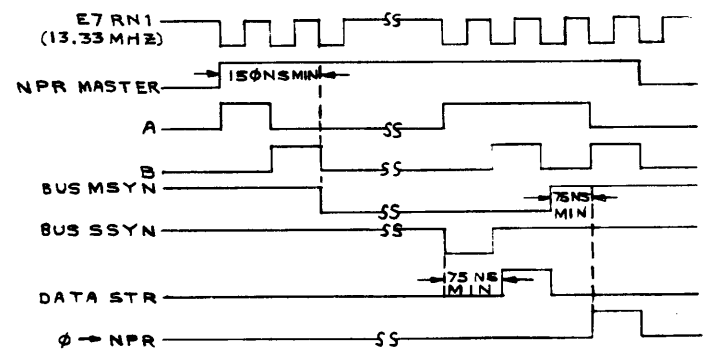
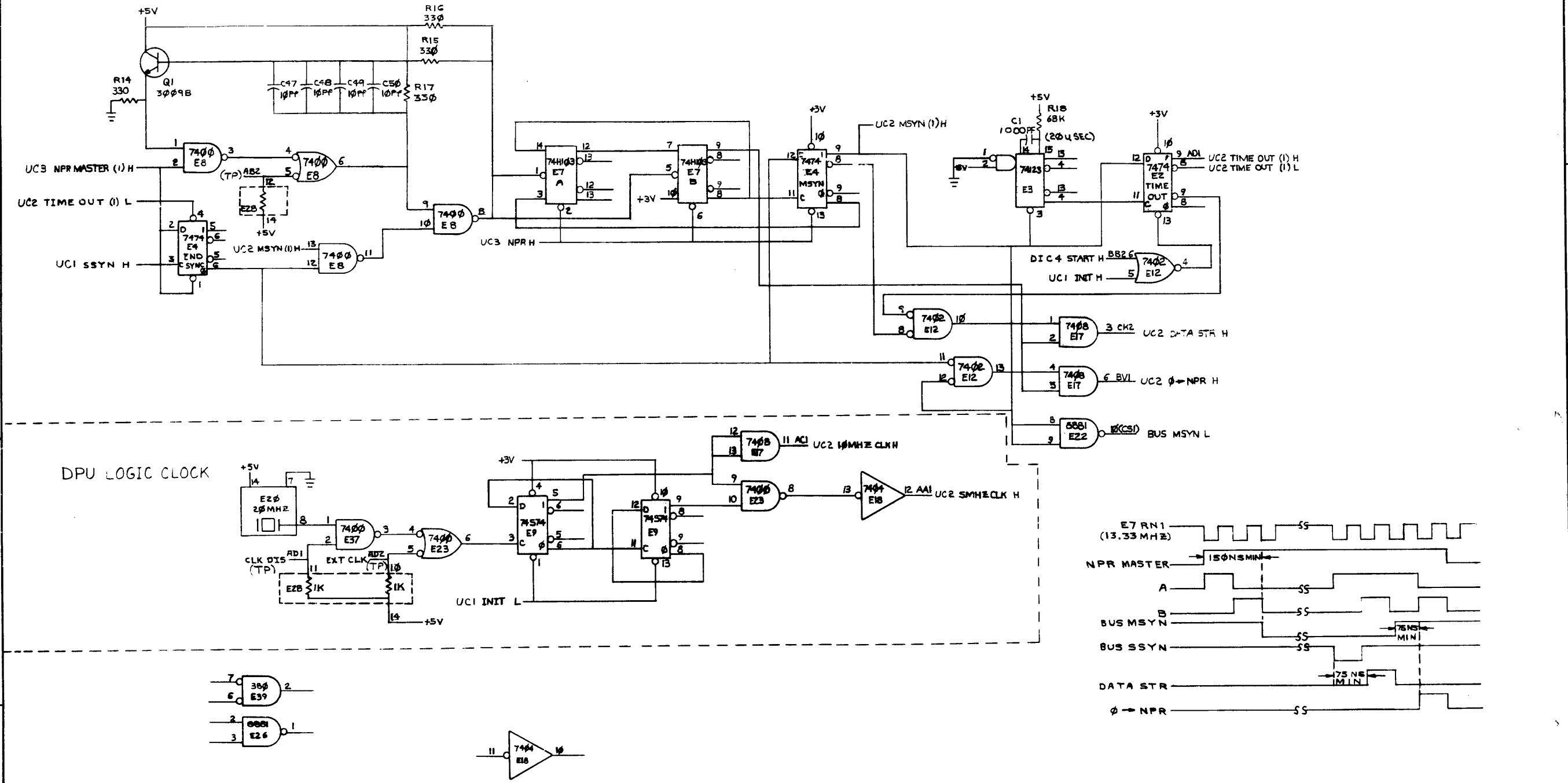


|                   |         |               |                |
|-------------------|---------|---------------|----------------|
| DRN               | 2/25/75 | FIRST USED ON | 20-0000        |
| CHK'D             | 7/1/75  | TITLE         | UNIBUS CONTROL |
| ENG.              | 1/2/75  | SIZE          | D CS           |
| PROJ. ENG.        | 1/2/75  | NUMBER        | M7059-0-UC1    |
| PROD.             |         | REV.          | A              |
| NEXT HIGHER ASSY. |         | SCALE         |                |
| B DD-M7059-0      |         | DIST.         |                |

|        |            |
|--------|------------|
| REV. A | ORIGINATED |
|--------|------------|

UNIBUS TIMING CONTROL

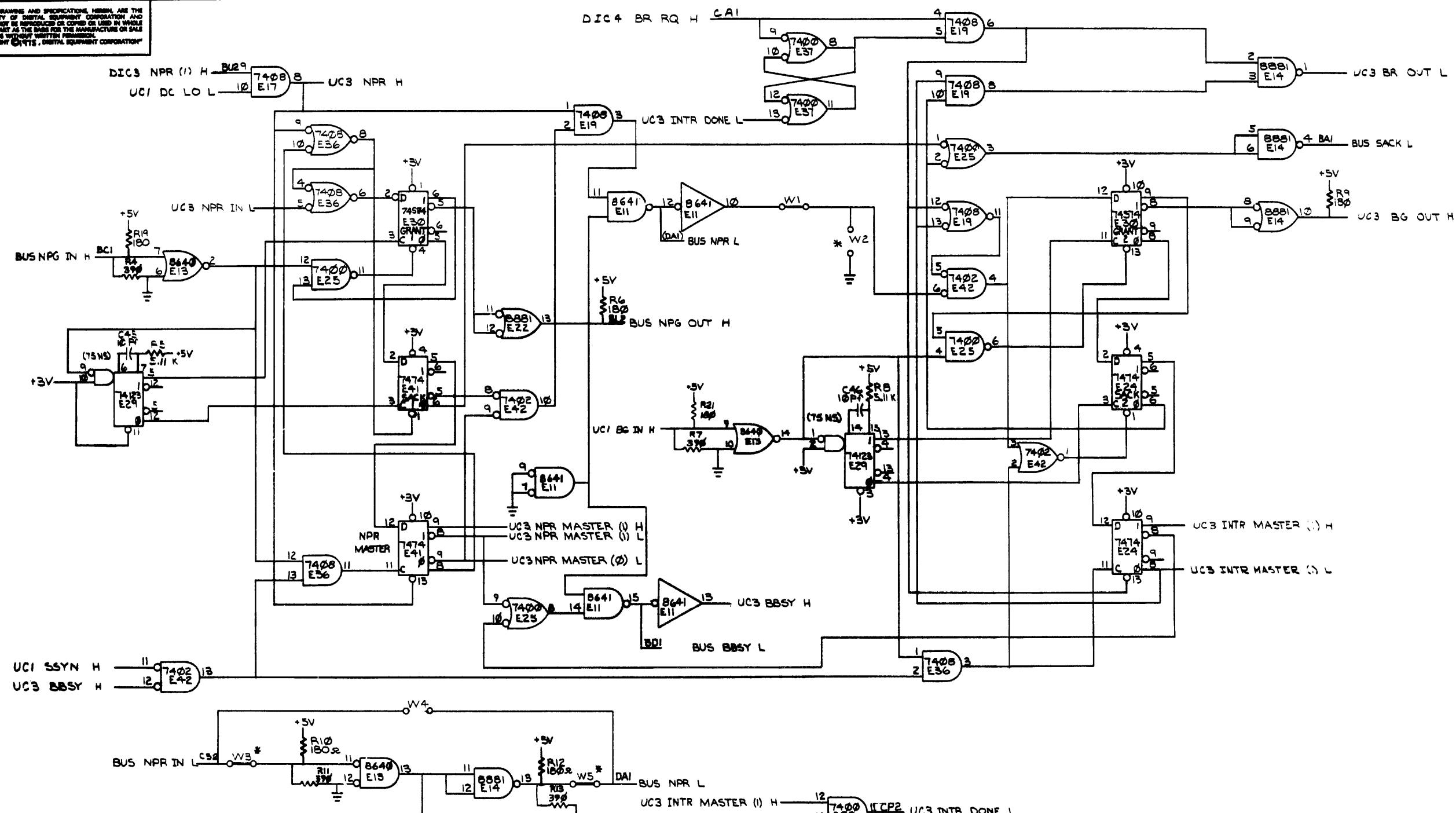
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|                   |         |               |                    |
|-------------------|---------|---------------|--------------------|
| DRN               | 2-28-75 | FIRST USED ON | 40-0001            |
| CHK'D             |         | TITLE         | UNIBUS CONTROL     |
| ENG.              |         | SCALE         | D CS M7059-0-UC2 A |
| PRD/ENG.          |         | SHEET         | 1 OF 1             |
| PROD.             |         | DIST.         |                    |
| NEXT HIGHER ASSY. |         |               |                    |

REVISED BY: [Signature]  
 DATE: [Date]  
 CHECKED BY: [Signature]  
 DATE: [Date]

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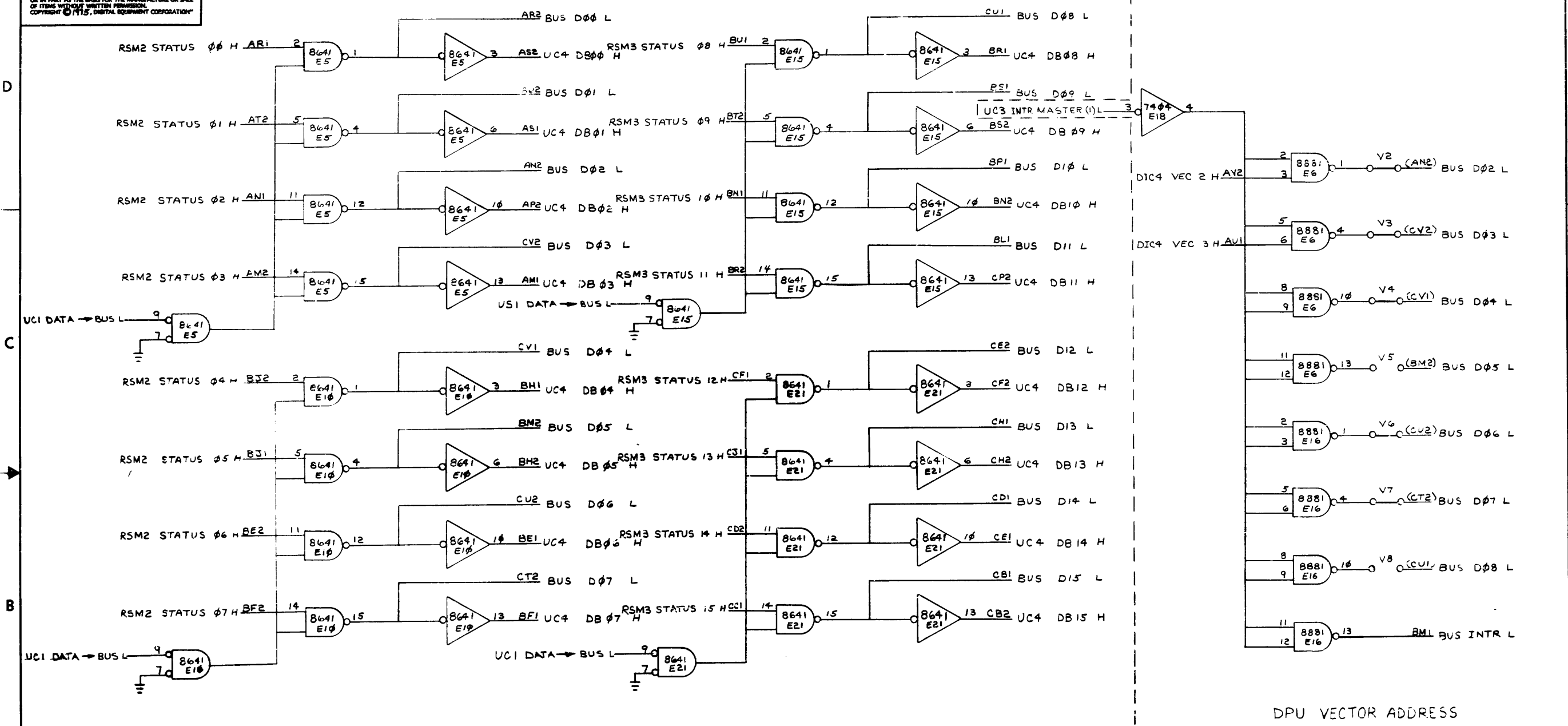


NOTE:  
 1. W3 IN MAKES VT48 LOOK LIKE LAST NPR DEVICE ON BUS - REMOVE W4  
 2. IN 1/18 OR 1/20 WITHOUT KH11 OPTION, INSTALL W2 AND REMOVE W1

NPR/BR CONTROL LOGIC

|                   |        |               |                |
|-------------------|--------|---------------|----------------|
| DRN. NO.          | 228-75 | FIRST USED ON | 01-0880        |
| CHK'D.            |        | TITLE         | UNIBUS CONTROL |
| ENG.              |        | PROJ. NO.     |                |
| PROD. ENG.        |        | REV.          |                |
| NEXT HIGHER ASSY. |        | SIZE          | D              |
| B-DD-M7059-0      |        | CODE          | CSM7059-0-UC3  |
| SCALE             |        | DIST.         |                |
| SHEET 1 OF 1      |        |               |                |

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DPU STATUS → BUS DATA LINES

DPU VECTOR ADDRESS

|        |      |
|--------|------|
| REV. A | DATE |
| REV. A | DATE |
| REV. A | DATE |

|                        |                  |         |
|------------------------|------------------|---------|
| DRN. E. Wilson 2/23/75 | FIRST USED ON    | 40-0000 |
| CHKD. J. Brown 9/25/74 | TITLE            |         |
| ENG. H. G. 11/25/75    |                  |         |
| PRD. ENG. H.P. 7-18-76 |                  |         |
| PROD. L. 10-12-75      |                  |         |
| NEXT HIGHER AUTH.      |                  |         |
| SCALE                  | D CSM7059-0 UC 4 | REV. A  |
| SHEET 1 OF 1           |                  |         |



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## CUSTOMER PRINT SET INDEX

THIS IS PRINT SET

SEQUENCE

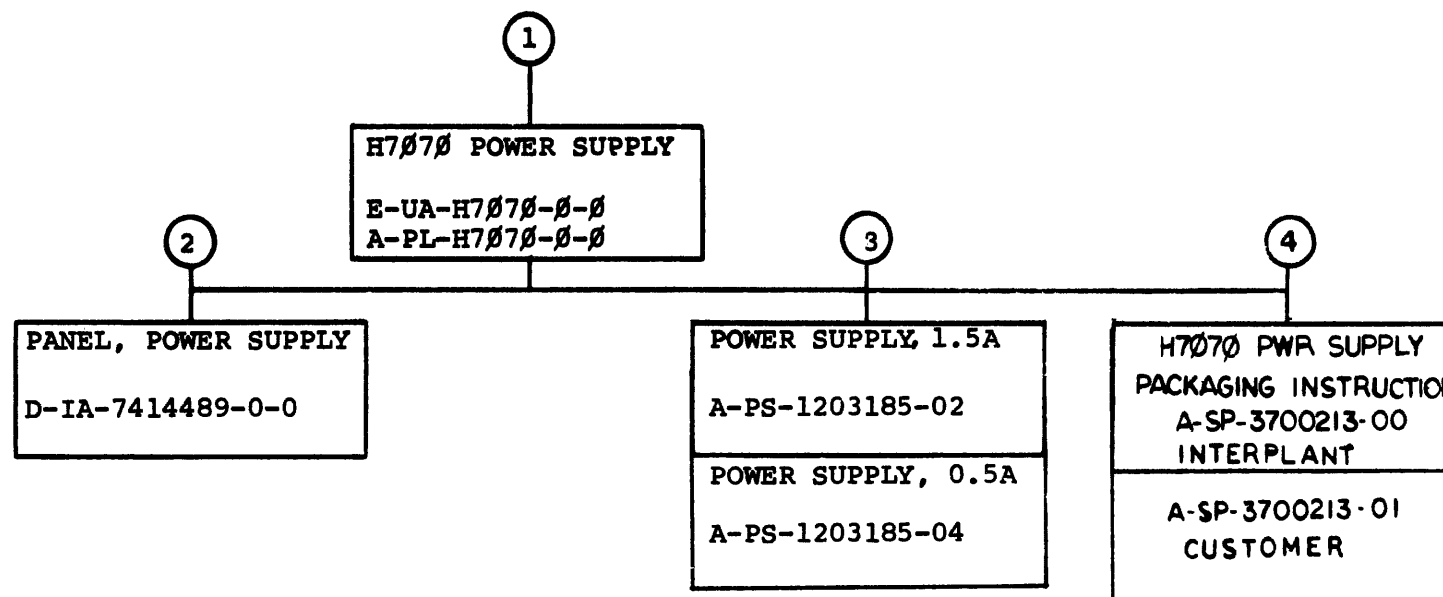
SEQUENCE

|                |                    |
|----------------|--------------------|
| B-DD-H7070-0-0 | POWER SUPPLY       |
| E-UA-H7070-0-0 | POWER SUPPLY ASSY. |
| A-PL-H7070-0-0 | POWER SUPPLY ASSY. |

| UNIT VARIATIONS |              | PRINT SET |  |  |  |
|-----------------|--------------|-----------|--|--|--|
| VAR             | TITLE        | H7070     |  |  |  |
| H7070-A         | POWER SUPPLY | X         |  |  |  |
| H7070-B         | POWER SUPPLY | X         |  |  |  |
| H7070-DA        | POWER SUPPLY | X         |  |  |  |
| H7070-DB        | POWER SUPPLY | X         |  |  |  |
| H7070-CA        | POWER SUPPLY | X         |  |  |  |
| H7070-CB        | POWER SUPPLY | X         |  |  |  |
|                 |              |           |  |  |  |
|                 |              |           |  |  |  |
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|                 |              |           |  |  |  |

| REVISIONS<br><table border="1"> <thead> <tr> <th>DATE</th> <th>CHG. NO.</th> <th>REV</th> </tr> </thead> <tbody> <tr> <td>11-75</td> <td>H7070-1</td> <td>A</td> </tr> <tr> <td>12-75</td> <td>H7070-2</td> <td>B</td> </tr> <tr> <td>3-76</td> <td>H7070-3</td> <td>C</td> </tr> </tbody> </table> | DATE        | CHG. NO.           | REV                | 11-75 | H7070-1 | A | 12-75 | H7070-2 | B | 3-76 | H7070-3 | C | USED ON OPTION/MODEL | DRN<br>J. Bisol | DATE<br>5 SEPT 75 | TITLE<br>POWER SUPPLY<br>H7070 | SIZE<br>B | CODE<br>DD | NUMBER<br>H7070-0 | REV<br>C |
|---|-------------|--------------------|--------------------|-------|---------|---|-------|---------|---|------|---------|---|----------------------|-----------------|-------------------|--------------------------------|-----------|------------|-------------------|----------|
|   | DATE        | CHG. NO.           | REV                |       |         |   |       |         |   |      |         |   |                      |                 |                   |                                |           |            |                   |          |
| 11-75   | H7070-1     | A                  |                    |       |         |   |       |         |   |      |         |   |                      |                 |                   |                                |           |            |                   |          |
| 12-75   | H7070-2     | B                  |                    |       |         |   |       |         |   |      |         |   |                      |                 |                   |                                |           |            |                   |          |
| 3-76  | H7070-3     | C                  |                    |       |         |   |       |         |   |      |         |   |                      |                 |                   |                                |           |            |                   |          |
| H7070   | CHK'D<br>OK | DATE<br>5 SEPT 75  |                    |       |         |   |       |         |   |      |         |   |                      |                 |                   |                                |           |            |                   |          |
|   |             | PROJ ENG.<br>Horn  | DATE<br>5 SEPT 75  |       |         |   |       |         |   |      |         |   |                      |                 |                   |                                |           |            |                   |          |
|   |             | PROD.<br>Horn      | DATE<br>11 SEPT 75 |       |         |   |       |         |   |      |         |   |                      |                 |                   |                                |           |            |                   |          |
|   |             | FIELD SERV.<br>BOS | DATE<br>5 SEPT 75  |       |         |   |       |         |   |      |         |   |                      |                 |                   |                                |           |            |                   |          |
| SHEET 1 OF 3  |             |                    |                    |       |         |   |       |         |   |      |         |   |                      |                 |                   |                                |           |            |                   |          |

DEC 16-1975-1045-1A-N-0725



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

| CUSTOMER PRINT SET |  | ELECTRICAL |          |                 |     |           | CUSTOMER PRINT SET               |                      | MECHANICAL |  |           |          |                  |     |                  |                           |                            |  |
|--------------------|--|------------|----------|-----------------|-----|-----------|----------------------------------|----------------------|------------|--|-----------|----------|------------------|-----|------------------|---------------------------|----------------------------|--|
| H7070              |  | MFPG. SET  | FIND NO. | DRAWING NO.     | REV | NO OF SHT | DESCRIPTION                      | OPTION NO./FILE DATE |            |  | MFPG. SET | FIND NO. | DRAWING NO.      | REV | NO OF SHT        | DESCRIPTION               | OPTION NO./FILE DATE       |  |
| X                  |  |            | 1        | E-UA-H7070-0-0  | A   | 2         | H7070 POWER SUPPLY               |                      |            |  |           | 1        | E-UA-H7070-0-0   |     | 2                | H7070 POWER SUPPLY        |                            |  |
| X                  |  |            |          | A-PL-H7070-0-0  | A   | 2         | H7070 POWER SUPPLY (P.L.)        |                      |            |  |           |          | A-PL-H7070-0-0   |     | 2                | H7070 POWER SUPPLY (P.L.) |                            |  |
|                    |  |            |          | A-PL-H7070-0-1  |     | 1         | H7070 POWER SUPPLY SHIPPING LIST |                      |            |  |           |          | D-MD-7414403-0-0 |     | 1                | H7070 MTG PANEL           |                            |  |
|                    |  |            |          |                 |     |           |                                  |                      |            |  |           |          | A-PS-7414817-0-0 |     | 1                | H7070 DECAL               |                            |  |
|                    |  |            | 3        | A-PS-1203185-02 |     | 12        | POWER SUPPLY, 1.5AMP             |                      |            |  |           |          |                  |     |                  |                           |                            |  |
|                    |  |            |          | A-PS-1203185-04 |     | 12        | POWER SUPPLY, 0.5AMP             |                      |            |  |           |          |                  | 2   | D-IA-7414489-0-0 | 1                         | PANEL, PWR SUPPLY MTG      |  |
|                    |  |            |          |                 |     |           |                                  |                      |            |  |           |          |                  |     | 1                | SILKSCREEN, PWR SUPPLY    |                            |  |
|                    |  |            |          |                 |     |           |                                  |                      |            |  |           |          |                  | 4   | A-SP-3700213-00  | 4                         | PACKAGING INST. INTERPLANT |  |
|                    |  |            |          |                 |     |           |                                  |                      |            |  |           |          |                  |     | A-PS-9905875     | 2                         | REGULAR SLOTTED CARTON     |  |
|                    |  |            |          |                 |     |           |                                  |                      |            |  |           |          |                  |     | A-PS-9905867     | 6                         | ITEMS A&B DIE CUT SHEETS   |  |
|                    |  |            |          |                 |     |           |                                  |                      |            |  |           |          |                  |     | ITEM A           |                           | DIE CUT SHEET              |  |
|                    |  |            |          |                 |     |           |                                  |                      |            |  |           |          |                  |     | ITEM B           |                           | DIE CUT SHEET              |  |
|                    |  |            |          |                 |     |           |                                  |                      |            |  |           |          |                  |     | A-PS-9905874     | 2                         | SCORED SHEET               |  |
|                    |  |            |          |                 |     |           |                                  |                      |            |  |           |          |                  |     | A-SP-3700213-01  |                           | PACKAGING INST. CUSTOMER   |  |
|                    |  |            |          |                 |     |           |                                  |                      |            |  |           |          |                  |     | A-PS-9905871     | 2                         | REGULAR SLOTTED CARTON     |  |
|                    |  |            |          |                 |     |           |                                  |                      |            |  |           |          |                  |     | A-PS-9905044-01  | 2                         | TORO PAD BLUE/WHITE        |  |

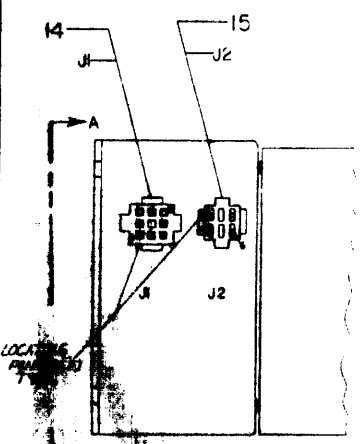
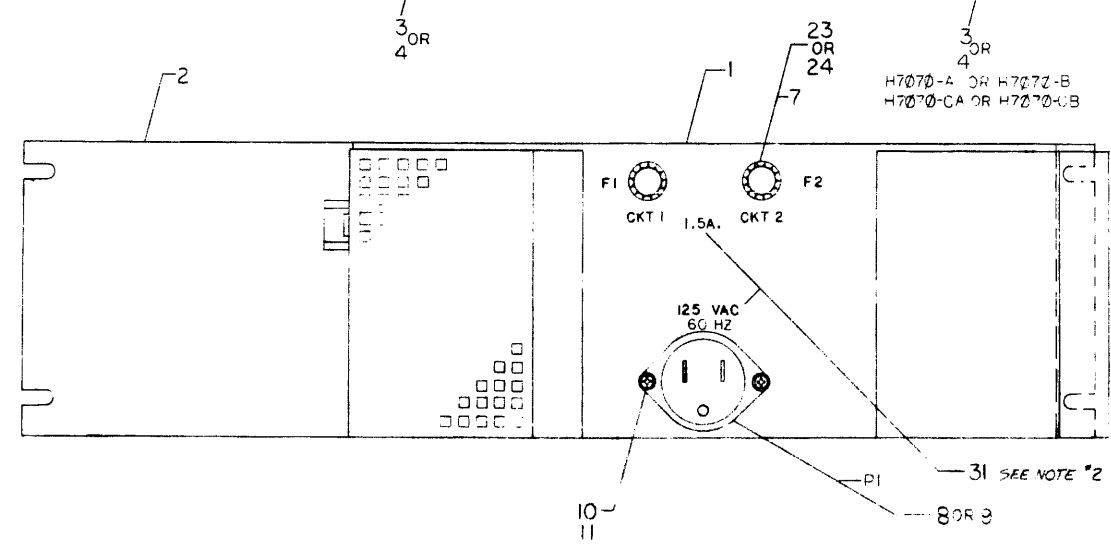
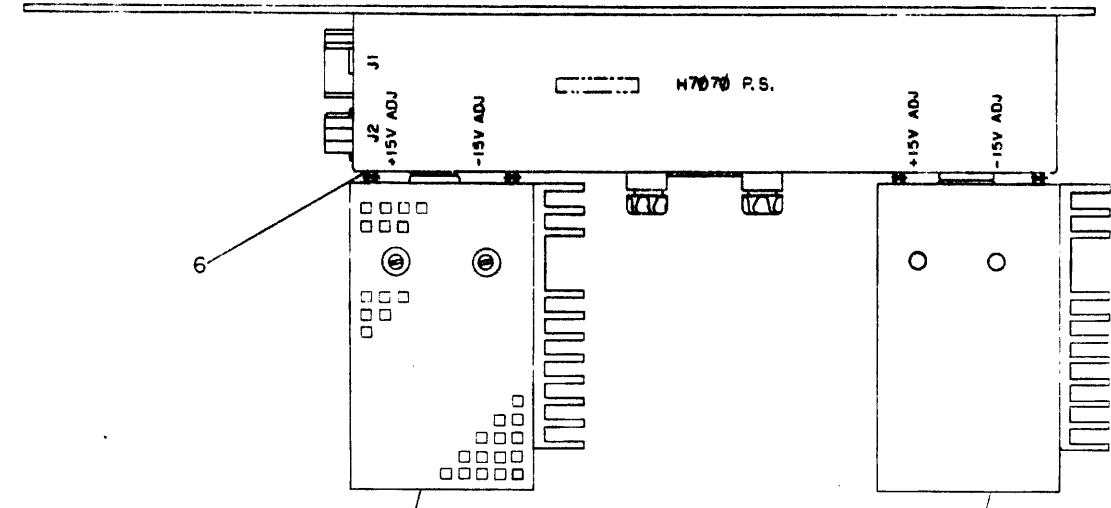
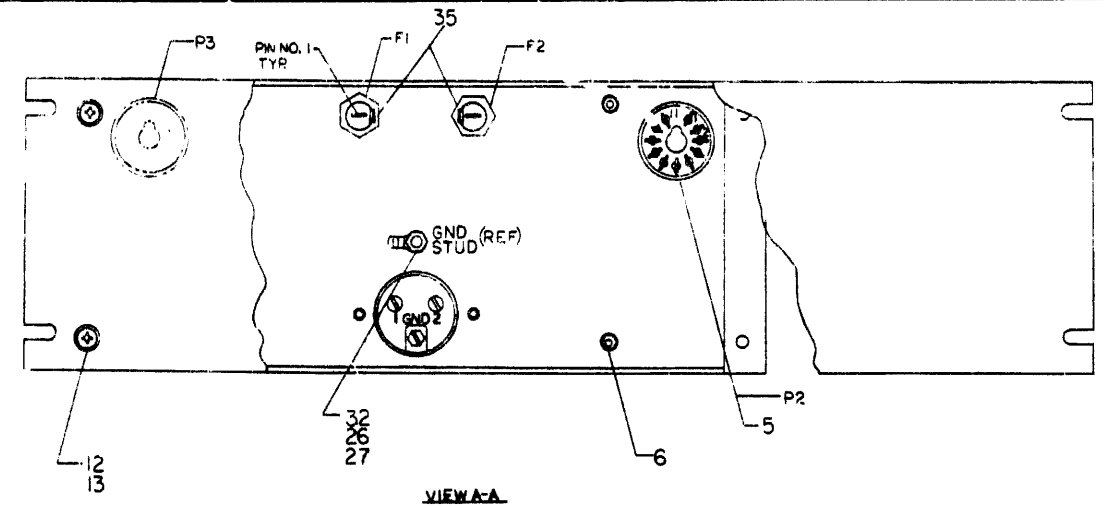
CUSTOMER PRINT SET CODES  
X = PRINT OF DOCUMENT INCLUDED IN PRINT SET  
C = INCLUDES ALL PRINTS INDICATED ON DOCUMENT  
S = CONFIDENTIAL AUTHORIZED SIGNATURE REQUIRED

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

**LEGEND**

|         |     |
|---------|-----|
| 7870-A  | ... |
| 7870-CA | ... |
| 7870-BA | ... |
| 7870-DA | ... |
| 7870-BA | ... |

**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        | EA   | 1        |

**REVISIONS**

|   |          |      |             |
|---|----------|------|-------------|
| 1 | INITIALS | DATE | DESCRIPTION |
|   |          |      |             |

**APPROVALS**

|  |  |  |  |
|--|--|--|--|
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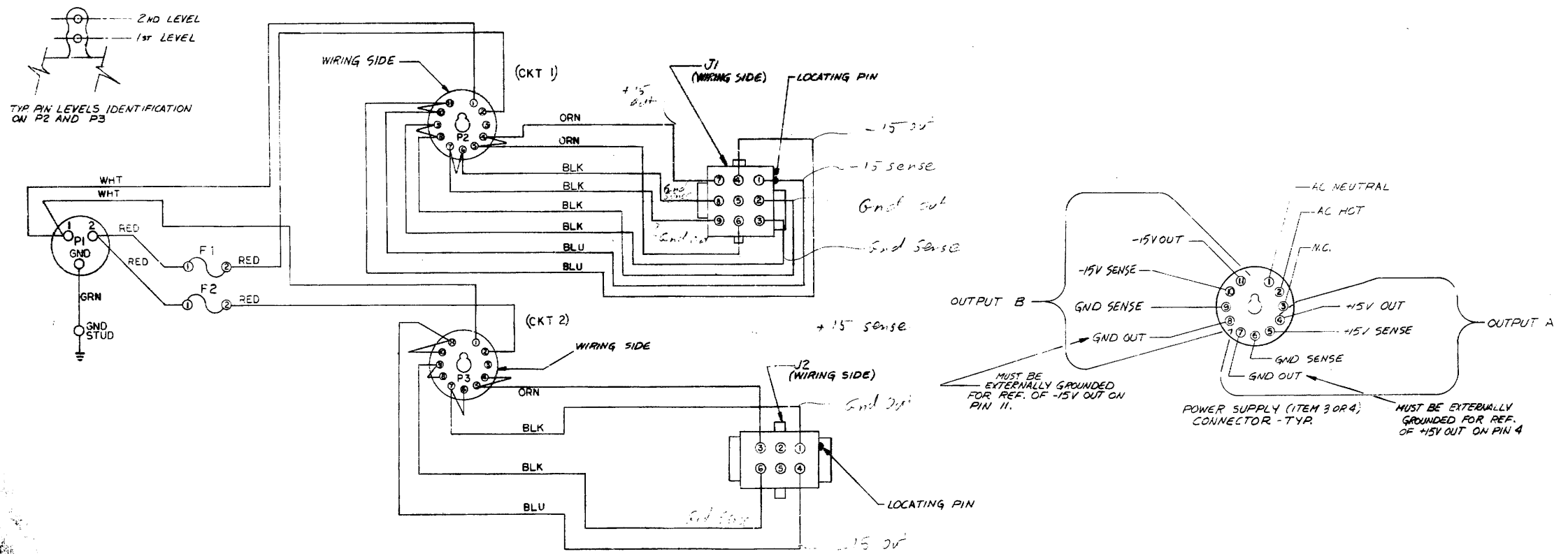
**GENERAL NOTES:**

- REMOVE BURRS AND BREAK SHARP CORNERS
- DO NOT SCALE DIMS
- SEE A-PL-H7070-0-0 FOR MATERIAL
- SCALE 1/1
- FINISH

| WIRE TABLE - H7070 (ALL OPTIONS) PWR. SUPPLY |        |      |      |         |       |      |              |     |     |
|--|--------|------|------|---------|-------|------|--------------|-----|-----|
| FROM   | TO     | ITEM | ITEM | REF DES | ITEM  | WITH | REMARKS      | QTY | QTY |
| P1-1   | F1-1   | 16   | 22   | F1-1    | 7     | 22   | SOLDER P1-1  | 1   | 1   |
| P1-2   | F2-1   | 16   | 22   | F2-1    | 7     | 22   | SOLDER P1-2  | 1   | 1   |
| P1-GND                                       | GNSTUD | 26   | 26   | GNSTUD  | 27F/B | 26   | FASTEN BORN  | 1   | 1   |
| P2-2   | P2-1   | 7    | 22   | P2-1    | 5     | 22   | SOLDER       | 2   | 2   |
| P2-2   | P3-1   | 7    | 22   | P3-1    | 5     | 22   | SOLDER       | 2   | 2   |
| P2-4   | P2-5   | 5    | —    | P2-5    | 5     | —    | SOLDER BORN  | 1   | 1   |
| P2-4   | J1-7   | 1    | 22   | J1-7    | 14    | 21   | SOLDER P2-4  | 2   | 2   |
| P2-5   | J1-6   | 1    | 22   | J1-6    | 14    | 21   | SOLDER P2-5  | 2   | 2   |
| P2-6   | P2-7   | 1    | —    | P2-7    | 5     | —    | —            | 1   | 1   |
| P2-6   | J1-8   | 1    | 22   | J1-8    | 14    | 21   | SOLDER P2-6  | 2   | 2   |
| P2-7   | J1-9   | 1    | 22   | J1-9    | 14    | 21   | SOLDER P2-7  | 2   | 2   |
| P2-8   | P2-9   | 1    | —    | P2-9    | 5     | —    | —            | 1   | 1   |
| P2-8   | U1-2   | 1    | 22   | U1-2    | 14    | 21   | SOLDER P2-8  | 2   | 2   |
| P2-9   | J1-3   | 1    | 22   | J1-3    | 14    | 21   | SOLDER P2-9  | 2   | 2   |
| P2-10  | P2-11  | 1    | —    | P2-11   | 5     | —    | —            | 1   | 1   |
| P2-10  | J1-1   | 1    | 22   | J1-1    | 14    | 21   | SOLDER P2-10 | 2   | 2   |
| P2-11  | J1-4   | 1    | 22   | J1-4    | 14    | 21   | SOLDER P2-11 | 2   | 2   |
| P3-4   | P3-5   | 1    | —    | P3-5    | 5     | —    | SOLDER P3-4  | 1   | 1   |
| P3-5   | J2-3   | 1    | 22   | J2-3    | 14    | 21   | SOLDER P3-5  | 2   | 2   |
| P3-6   | P3-7   | 1    | —    | P3-7    | 5     | —    | SOLDER P3-6  | 1   | 1   |
| P3-7   | J2-6   | 1    | 22   | J2-6    | 14    | 21   | SOLDER P3-7  | 2   | 2   |
| P3-8   | P3-9   | 1    | —    | P3-9    | 5     | —    | SOLDER P3-8  | 1   | 1   |
| P3-9   | J2-1   | 1    | 22   | J2-1    | 14    | 21   | SOLDER P3-9  | 2   | 2   |
| P3-10  | P3-11  | 1    | —    | P3-11   | 5     | —    | SOLDER P3-10 | 1   | 1   |
| P3-11  | J2-4   | 1    | 22   | J2-4    | 14    | 21   | SOLDER P3-11 | 2   | 2   |

+15 out  
Gnd Sense  
Gnd Out

-15 out  
MIC  
+15 sense  
Gnd Out  
Gnd Sense



UN H7070-0-0

**DIGITAL EQUIPMENT CORPORATION**  
MAYNARD, MASSACHUSETTS  
**PARTS LIST**

MADE BY J. BISOL  
DATE 7/7/75  
ENG *David S. Sivori*  
DATE 5 Sept 75

CHECKED *DK Cath*  
DATE 5 SEPT 75  
PROD *Yg 213461*  
DATE 11 Sept 75

SECTION /  
ISSUED SECT. /

| ITEM NO. | DWG NO. / PART NO.    | DESCRIPTION                          | QUANTITY | VARIATION |
|----------|-----------------------|--------------------------------------|----------|-----------|
| 1        | D-IA-7414489-0-0      | PANEL, PWR. SUPPLY MTG.              | 1        | H7070-CA  |
| 2        | D-MD-7414488-0-0      | H7070 MTG. PANEL                     | 1        | H7070-DB  |
| 3        | 1203185-02            | POWER SUPPLY 1.5 AMPS                | 1        | H7070-DA  |
| 4        | 1203185-04            | POWER SUPPLY 1.5 AMPS                | 2        | H7070-CB  |
| 5        | 1205952               | SOCKET #78511 OCTAL 11 PIN           | - 2      |           |
| 6        | 9006560               | NUT KEPS #6-32                       | 2        |           |
| 7        | 9007242-00            | FUSE HOLDER 20 AMP/250V              | 16       |           |
| 8        | 9008854               | INLET, FLANGED (MALE PINS) 250VAC    | 2        |           |
| 9        | 1209983               | INLET, FLANGED (MALE PINS) 125VAC    | - 1      |           |
| 10       | 9006020-3             | SCREW #6-32 X 1/4 LG                 | 2        |           |
| 11       | 9006633               | LOCKWASHER #6 (INT. TOOTH)           | 2        |           |
| 12       | 9006073-3             | SCREW #10-32 X 1/2 LG                | 2        |           |
| 13       | 9007651               | LOCKWASHER #10 (EXT. TOOTH)          | 4        |           |
| 14       | 1209350-09            | MATE-N-LOK SOCKET HOUSING 9 PIN      | 4        |           |
| 15       | 1209350-06            | MATE-N-LOK SOCKET HOUSING 6 PIN      | 4        |           |
| 16       | 9107430-29            | WIRE #18 AWG STRD INS TWP RED/WHT    | 1        |           |
| 17       | <del>9107360-99</del> | <del>WIRE #10 AWG STRD INS WHT</del> | A/R      |           |
| 18       | 9107360-33            | WIRE #18 AWG STRD INS ORN            | A/R      |           |
| 19       | 9107360-66            | WIRE #18 AWG STRD INS BLU            | A/R      |           |
| 20       | 910736 -00            | WIRE #18 AWG STRD INS BLK            | A/R      |           |
| 21       | 1209379-01            | PINS #60619-4                        | 12       |           |
| 22       | 9107305-02            | SHRINK TUBING 9/16" LG RED           | 24       |           |

TITLE H7070 PWR SUPPLY ASSY  
 ASSY NO. E-UA-H7070-0-0  
 SIZE CODE A PL  
 SHEET 1 OF 2  
 NUMBER H7070-0-0  
 REV. ECO NO. C H7070-00003

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

**DIGITAL EQUIPMENT CORPORATION**  
MAYNARD, MASSACHUSETTS  
**PARTS LIST**

MADE BY J. BISOL  
DATE 7/7/75  
ENG *David S. Sivori*  
DATE 5 Sept 75

CHECKED *DK Cath*  
DATE 5 SEPT 75  
PROD *Yg 213461*  
DATE 11 Sept 75

SECTION /  
ISSUED SECT. /

| ITEM NO. | DWG NO. / PART NO.    | DESCRIPTION                      | QUANTITY | VARIATION |
|----------|-----------------------|----------------------------------|----------|-----------|
| 23       | 9007213               | FUSE 1.5 AMPS 1.5 VOLTS S.B.     | 2        | H7070-CA  |
| 24       | 9007209               | FUSE .5 AMPS 250 VOLTS S.B.      | - 2      | H7070-DB  |
| 25       | <del>9007920-00</del> | <del>CONNECTOR SHUNT-PROOF</del> | 5        | H7070-DA  |
| 26       | 9007930-01            | TERMINAL, RING TONGUE INSULATED  | 6        | H7070-CB  |
| 27       | 9006563               | NUT, KEPS #8-32                  | 1        | H7070-CA  |
| 28       | 9107360-55            | WIRE #18AWG STRD,INS. GRN.       | A/R      |           |
| 29       | 9107560-03            | WIRE #18AWG SOLID, BARE          | A/R      |           |
| 30       | 9007031               | TIE WRAP                         | A/R      |           |
| 31       | A-DC-7-14817-0-0      | DECAL MARKING, H7070             | 1        |           |
| 32       | 9006634               | LOCKWASHER #6 (INT. TOOTH)       | 1        |           |
| 33       | 9107673-6             | POWER CORD 115VAC (6FT)          | 1        |           |
| 34       | D-IA-7009898-1        | POWER CORD 230VAC (6FT)          | - 1      |           |
| 35       | 9008292               | WASHER, LOCK, INT TOOTH          | 2        |           |
| 36       | A-SP-3700213          | H7070 PACKAGING INSTRUCTIONS     | 1        |           |

TITLE H7070 PWR SUPPLY ASSY  
 ASSY NO. E-UA-H7070-0-0  
 SIZE CODE A PL  
 SHEET 2 OF 2  
 NUMBER H7070-0-0  
 REV. ECO NO. C H7070-00003

DEC FORM DEC 16 (325)-1031-N870  
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DIGITAL EQUIP. CORP.

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


B

B



A

A

| FIRST USED ON OPTION MODEL  | QTY.           | DESCRIPTION  | PART NO. | ITEM NO. |
|-----------------------------|----------------|--|----------|----------|
| VS6Ø                        |                |  |          |          |
| PARTS LIST                  |                |  |          |          |
| DRN. <i>Carl McLay</i>      | DATE 2-17-75   | <br><b>digital EQUIPMENT CORPORATION</b><br><small>MAYNARD, MASSACHUSETTS</small> |          |          |
| CHFD. <i>Don Poulson</i>    | DATE 5-21-75   |  |          |          |
| ENG. <i>Don Poulson</i>     | DATE 6-9-75    |  |          |          |
| PROJ. ENG. <i>H. Lavoie</i> | DATE 6-9-75    |  |          |          |
| PROD. <i>P. D. ...</i>      | DATE 6-9-75    |  |          |          |
| NEXT HIGHER ASSEMBLY        |                | TITLE<br><b>WIRE LIST</b><br><b>(VT48)</b>   |          |          |
| D-AD-7011429-0-0            |                |  |          |          |
| SCALE <i>1/4"</i>           | SIZE CODE K WL | NUMBER VT48-Ø-WL   | REV. D   |          |
| SHEET 1 OF                  | DIST.          |  |          |          |

| REVISIONS        | CHANGE NO.    | REV. |
|------------------|---------------|------|
|                  | VT48-00001    | A    |
| <i>H. Lavoie</i> |               |      |
| <i>H. Lavoie</i> | 31 DEC 75 DP  | B    |
| <i>H. Lavoie</i> | 11 Feb 76     |      |
| <i>H. Lavoie</i> | 17 Feb 76 RTC | C    |
| <i>H. Lavoie</i> | VT48-00003    |      |
| <i>H. Lavoie</i> | VT48-00004    | D    |

DEC FORM NO. DRB 109

4

3



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1





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| DRAWING NUMBER   | INT REL | AUTOMATIC WIRE TESTER (AWT) REVISION STATUS |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  | REV. |  |  |  |  |   |  |
|------------------|---------|---|---|---|---|--|--|--|--|--|--|--|--|--|--|--|--|------|--|--|--|--|---|--|
|                  | ∅       | A   | B | C | D |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  | D |  |
| K-WL VT48 0-WL   | *       | A   | B | C | D |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |   |  |
| D-AD-7011429-0-0 | *       | A   | A | B | B |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |   |  |
|                  |         |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |   |  |
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|                  |         |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |   |  |
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|                  |         |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |   |  |
|                  |         |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |   |  |
|                  |         |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |   |  |
|                  |         |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |   |  |
|                  |         |   |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |   |  |

| REVISIONS |            | REV. |
|-----------|------------|------|
| CHK       | CHANGE NO. | A    |
|           | VT48-00001 |      |
|           | ORIGINATED |      |
|           | VT48-00002 | B    |
|           | VT48-00003 | C    |
|           | VT48-00004 | D    |

|                             |                          |   |
|-----------------------------|--------------------------|---|
| DRN.<br><i>J. J. ...</i>    | DATE<br><i>24 Nov 75</i> | <b>digital</b> EQUIPMENT CORPORATION<br>MAYNARD MASSACHUSETTS |
| CHK'D.<br><i>L. Hillcut</i> | DATE<br><i>29 Nov 75</i> |   |
| ENG.<br><i>J. ...</i>       | DATE<br><i>21 DEC 75</i> |   |
| PROJ. ENG.<br><i>H. ...</i> | DATE<br><i>31 DEC 75</i> |   |
| PROD.<br><i>D. ...</i>      | DATE<br><i>31 DEC 75</i> | TITLE   |
| FIRST USED ON<br>VT48       |                          | VT48  |
| SCALE<br>-1-                | SHEET                    | AWT REVISION STATUS   |
|                             | OF                       | SIZE CODE<br><b>A WT</b>                                      |
|                             | DIST.                    | NUMBER<br>7011429-0   |
|                             |                          | REV<br>D  |

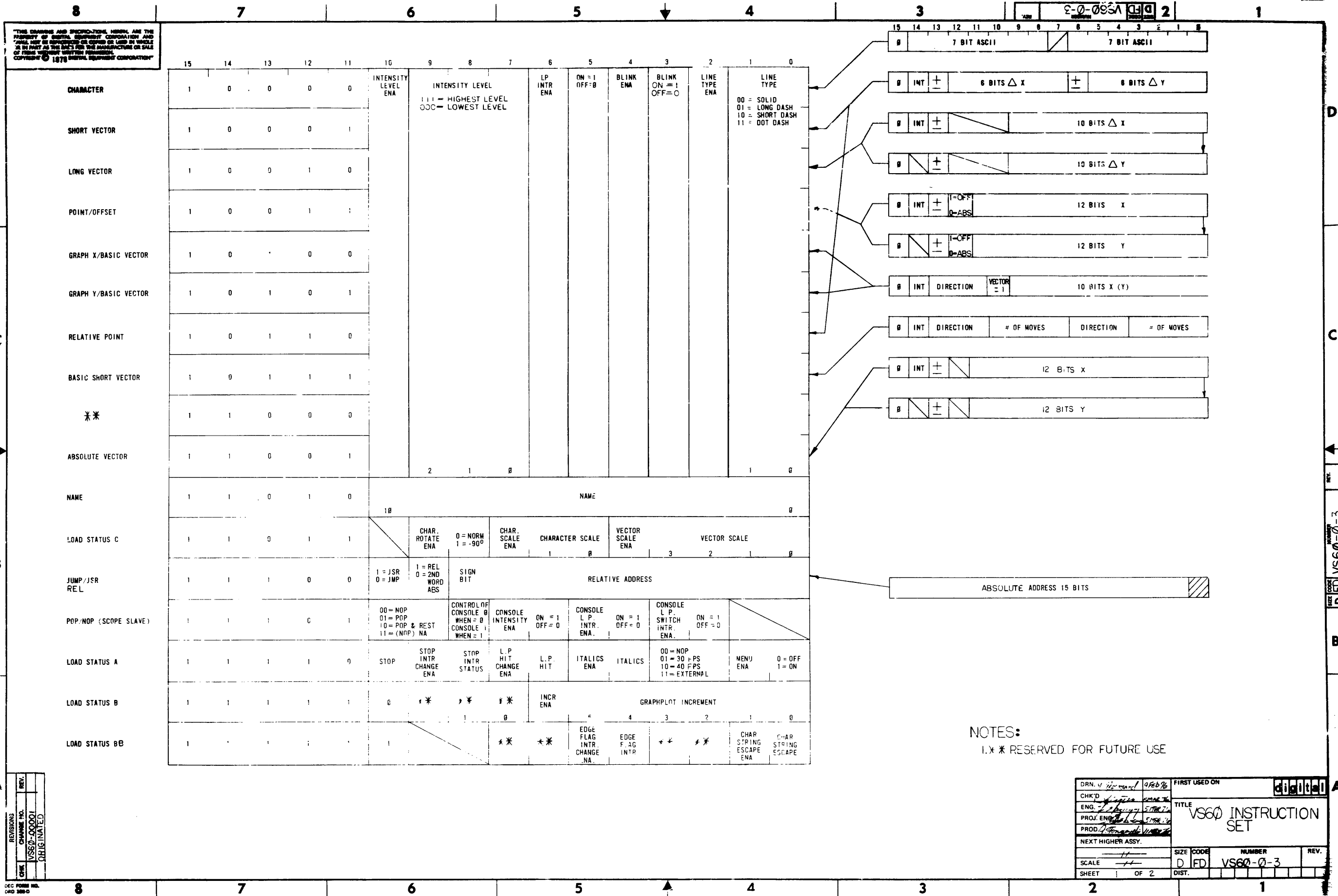
**DIGITAL EQUIPMENT CORPORATION**  
MAYNARD, MASSACHUSETTS  
**PARTS LIST**

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

QUANTITY / VARIATION

| ITEM NO. | DWG NO. / PART NO. | DESCRIPTION                            | QUANTITY / VARIATION |         |         |         |         |         |         |         |         |         |         |         |
|----------|--------------------|--|----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|          |                    |  | 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<br>VECTORING SYSTEM<br>SHIPPING LIST | ASSY NO. <i>---</i> | SIZE CODE<br><b>A PL</b> | NUMBER<br>VS60-0-2 | REV | ECONO |
|  | SHEET 1 OF 1        | DIST.                    |                    |     |       |



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| Instruction           | 15 | 14 | 13 | 12 | 11 | 10   | 9  | 8                     | 7                 | 6                          | 5                    | 4   | 3                       | 2                      | 1   | 0 |                          |
|-----------------------|----|----|----|----|----|--|--|-----------------------|-------------------|----------------------------|----------------------|---|-------------------------|------------------------|---|---|--------------------------|
| CHARACTER             | 1  | 0  | 0  | 0  | 0  | INTENSITY LEVEL ENA                                      | INTENSITY LEVEL<br>111 = HIGHEST LEVEL<br>000 = LOWEST LEVEL |                       |                   | LP INTR ENA                | ON = 1<br>OFF = 0    | BLINK ENA   | BLINK ON = 1<br>OFF = 0 | LINE TYPE ENA          | LINE TYPE<br>00 = SOLID<br>01 = LONG DASH<br>10 = SHORT DASH<br>11 = DOT DASH |   |                          |
| SHORT VECTOR          | 1  | 0  | 0  | 0  | 1  |  |  |                       |                   |                            |                      |   |                         |                        |   |   |                          |
| LONG VECTOR           | 1  | 0  | 0  | 1  | 0  |  |  |                       |                   |                            |                      |   |                         |                        |   |   |                          |
| POINT/OFFSET          | 1  | 0  | 0  | 1  | 1  |  |  |                       |                   |                            |                      |   |                         |                        |   |   |                          |
| GRAPH X/BASIC VECTOR  | 1  | 0  | 0  | 0  | 0  |  |  |                       |                   |                            |                      |   |                         |                        |   |   |                          |
| GRAPH Y/BASIC VECTOR  | 1  | 0  | 1  | 0  | 1  |  |  |                       |                   |                            |                      |   |                         |                        |   |   |                          |
| RELATIVE POINT        | 1  | 0  | 1  | 1  | 0  |  |  |                       |                   |                            |                      |   |                         |                        |   |   |                          |
| BASIC SHORT VECTOR    | 1  | 0  | 1  | 1  | 1  |  |  |                       |                   |                            |                      |   |                         |                        |   |   |                          |
| **                    | 1  | 1  | 0  | 0  | 0  |  |  |                       |                   |                            |                      |   |                         |                        |   |   |                          |
| ABSOLUTE VECTOR       | 1  | 1  | 0  | 0  | 1  |  |  |                       |                   |                            |                      |   |                         |                        |   |   |                          |
| NAME                  | 1  | 1  | 0  | 1  | 0  | NAME   |  |                       |                   |                            |                      |   |                         |                        |   |   |                          |
| LOAD STATUS C         | 1  | 1  | 0  | 1  | 1  | CHAR. ROTATE ENA   | 0 = NORM<br>1 = -90°   | CHAR. SCALE ENA       | CHARACTER SCALE   | VECTOR SCALE ENA           | VECTOR SCALE         |   |                         |                        |   |   |                          |
| JUMP/JSR REL          | 1  | 1  | 1  | 0  | 0  | 1 = JSR<br>0 = JMP                                       | 1 = REL<br>0 = 2ND WORD<br>ABS                               | SIGN BIT              | RELATIVE ADDRESS  |                            |                      |   |                         |                        |   |   | ABSOLUTE ADDRESS 15 BITS |
| POP/NOP (SCOPE SLAVE) | 1  | 1  | 1  | 0  | 1  | 00 = NOP<br>01 = POP<br>10 = POP & REST<br>11 = (NOP) NA | CONTROL OF CONSOLE WHEN = 0<br>CONSOLE 1 WHEN = 1            | CONSOLE INTENSITY ENA | ON = 1<br>OFF = 0 | CONSOLE L.P. INTR. ENA.    | ON = 1<br>OFF = 0    | CONSOLE L.P. SWITCH INTR. ENA.                          | ON = 1<br>OFF = 0       |                        |   |   |                          |
| LOAD STATUS A         | 1  | 1  | 1  | 1  | 0  | STOP INTR CHANGE ENA                                     | STOP INTR STATUS   | L.P. HIT CHANGE ENA   | L.P. HIT          | ITALICS ENA                | ITALICS              | 00 = NOP<br>01 = 30 FPS<br>10 = 40 FPS<br>11 = EXTERNAL | MENU ENA                | 0 = OFF<br>1 = ON      |   |   |                          |
| LOAD STATUS B         | 1  | 1  | 1  | 1  | 1  |  | **   | **                    | **                | INCR ENA                   | GRAPH PLOT INCREMENT |   |                         |                        |   |   |                          |
| LOAD STATUS BB        | 1  | 1  | 1  | 1  | 1  |  | **   | **                    | **                | EDGE FLAG INTR. CHANGE NA. | EDGE FLAG INTR.      | **  | **                      | CHAR STRING ESCAPE ENA | CHAR STRING ESCAPE  |   |                          |

NOTES:  
I.\* \* RESERVED FOR FUTURE USE

|             |  |
|-------------|--|
| REV.        |  |
| CHG         |  |
| VS60-0-0001 |  |
| ORIGINATED  |  |

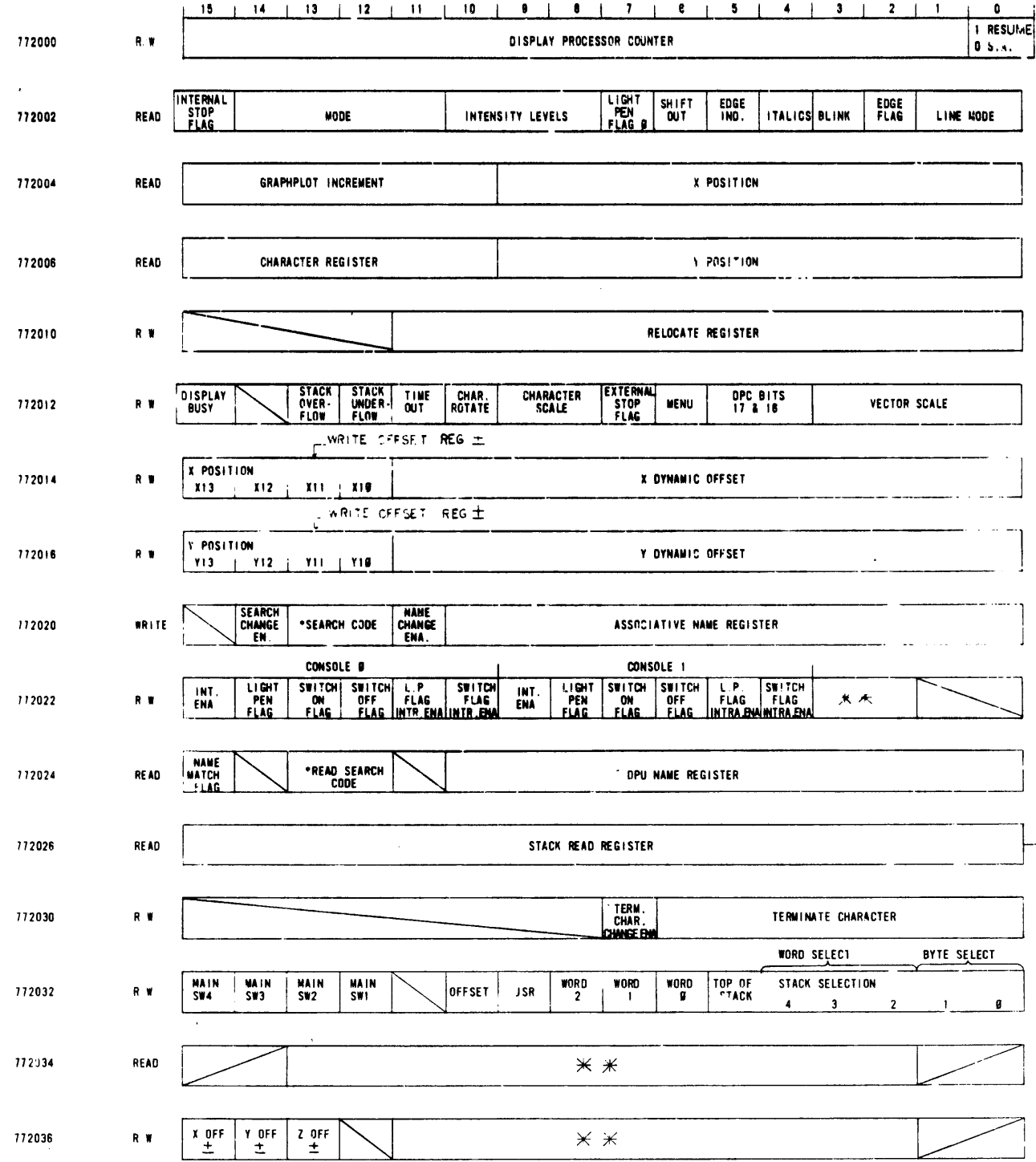
|                               |                         |                          |                      |
|-------------------------------|-------------------------|--------------------------|----------------------|
| DRN. <i>11/2/78</i>           | DATE <i>9/26/78</i>     | FIRST USED ON            | <b>digital</b>       |
| CHK'D <i>[Signature]</i>      | DATE <i>[Signature]</i> | TITLE                    | VS60 INSTRUCTION SET |
| ENG. <i>[Signature]</i>       | DATE <i>[Signature]</i> | PROD. ENG.               | <i>[Signature]</i>   |
| PROD. ENG. <i>[Signature]</i> | DATE <i>[Signature]</i> | PROD. <i>[Signature]</i> |                      |
| NEXT HIGHER ASSY.             |                         | SIZE                     | CODE                 |
| SCALE                         |                         | NUMBER                   | REV.                 |
| SHEET 1 OF 2                  | DIST.                   | 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            | 7720C2                   |
|                | 5                      | EXTERNAL STOP            | 772012                   |
| 324            | 2                      | LIGHT PEN SWITCH ON FLAG | 772022                   |
|                |                        | OFF FLAG                 | 772022                   |
|                | 3                      | LIGHT PEN FLAG           | 772002                   |
| 330            | 1                      | EDGE FLAG                | 772002                   |
|                | 6                      | SHIFT OUT                | 772002                   |
|                | 6                      | STACK OVERFLOW           | 772012                   |
|                | 6                      | STACK UNDERFLOW          | 772012                   |
| 334            | 6                      | TIME OUT                 | 772012                   |
|                |                        | NAME MATCH               | 772024                   |

(1) IS HIGHEST PRIORITY.

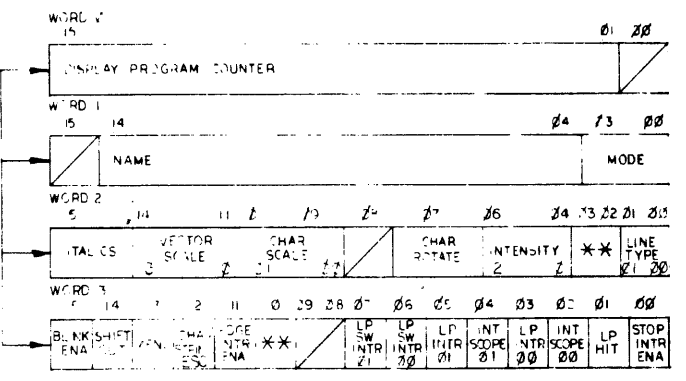


IN WRITE CONDITION, BIT 4 DICTATES OPERATION

WRITE CONDITION WILL ANSWER BELL CODE WITH SLAVE SYNC ONLY

WRITE CONDITION WITH BIT 7 ON A ONE FORCES EXTERNAL STOP

SEARCH CODE  
FULL HIT MAJ  
PART MAJ  
TOP HIT MAJ



\*\* RESERVED FOR FUTURE USE

|                 |          |                   |                                    |
|-----------------|----------|-------------------|------------------------------------|
| DRN: M. Hammond | 1 Feb 76 | FIRST USED ON     | 1960                               |
| CHK'D:          | S. Mack  | TITLE             | VS60 INSTRUCTION SET (READ STATUS) |
| ENG:            | S. Mack  | PROJECT           | VS60                               |
| PROD. ENV.:     | S. Mack  | NEXT HIGHER ASSY. |                                    |
| SCALE           |          | SIZE              | CODE                               |
| SHEET 2 OF 2    |          | DIST.             | NUMBER                             |

REV. VS60-0-3

## digital

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