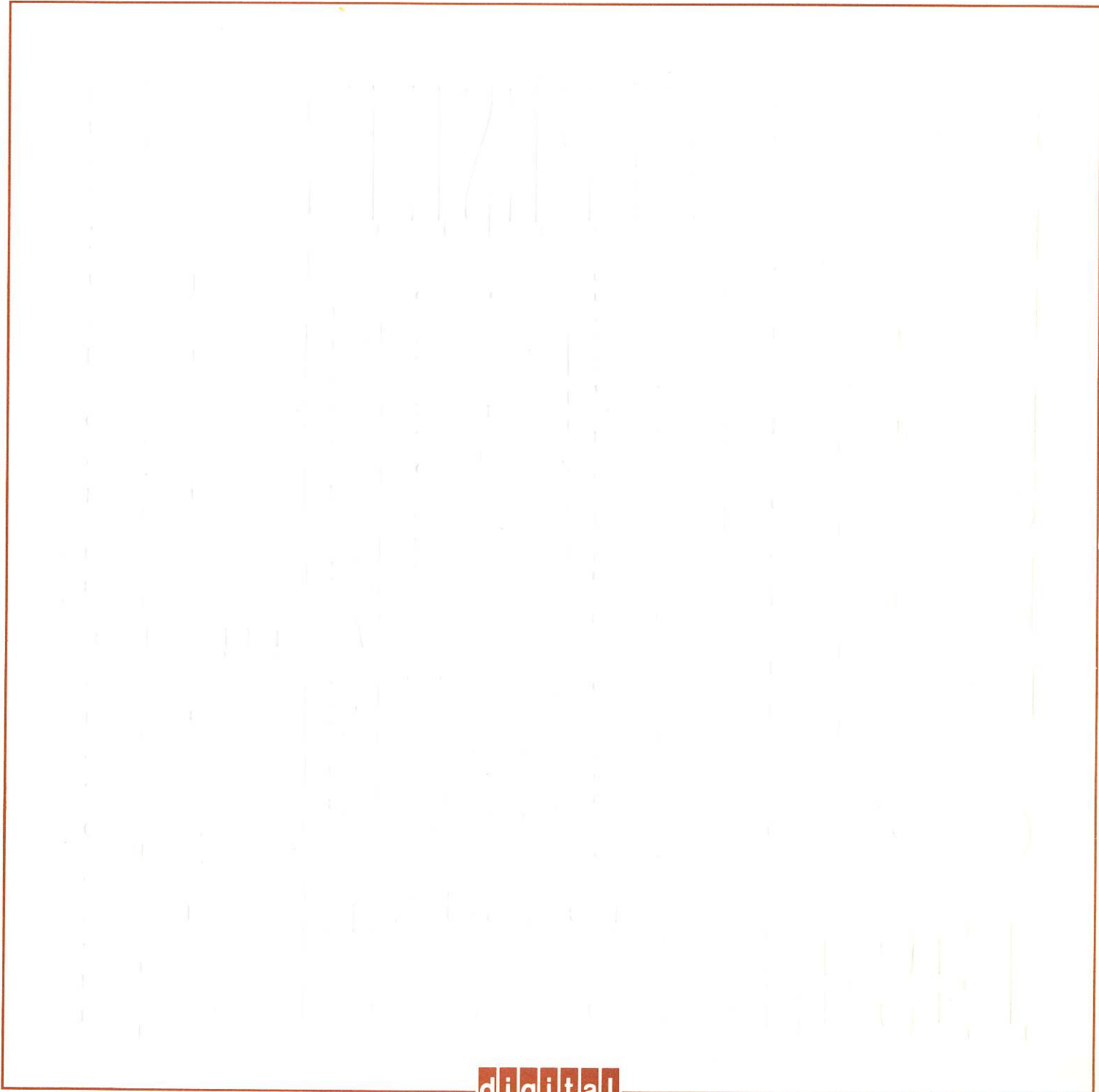


DIGITAL EQUIPMENT CORPORATION

**typeset8**  
...dedicated to the  
future of Graphic Arts

**typeset-8 systems—  
positive logic  
engineering drawings**



**digital**

**typeset-8 systems—  
positive logic  
engineering drawings**

DEC-08-HMMPA-A-D

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**TYPESET-8 – POSITIVE LOGIC, ENGINEERING DRAWINGS**

| Drawing No.             | Title   | No. of Sheets |
|-------------------------|---|---------------|
| A-ML-PA63-0             | Master Drawing List for PA63<br>16-Channel Reader/Punch<br>Multiplexer    | 2             |
| A-ML-PA68-F             | Master Drawing List for PA68-F<br>Reader/Punch Control and Interface Unit | 2             |
| A-ML-PR68-B             | Master Drawing List for PR68-B<br>High-Speed Paper-Tape Reader            | 1             |
| B-CS-G908-0-1           | G908 Photoamplifier Module  | 1             |
| A-ML-PR68-D             | Master Drawing List for PR68-D<br>High-Speed Paper-Tape Reader            | 2             |
| A-ML-PR68-DA            | Master Drawing List for PR68-DA<br>High-Speed Paper-Tape Reader           | 2             |
| A-ML-PP67-C             | Master Drawing List for PP67-C<br>High-Speed Paper-Tape Punch             | 2             |
| REFER TO<br>A-ML-PP67-C | Master Drawing List for PP67-D<br>High-Speed Paper-Tape Punch             | 2             |
| C-CS-G773-0-1           | Cable Connector   | 1             |



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# MASTER DRAWING LIST

| DWG. NO.                  | REV. LET. | NO. OF SHEETS | TITLE                        |
|---------------------------|-----------|---------------|------------------------------|
| D-UA-PA63-0-0             | L         | 2             | 16 CHANNEL READER/PUNCH MUX  |
| A-PL-PA63-0-0             | L         | 4             | 16 CHANNEL READER/PUNCH MUX  |
| D-DI-PA63-0-1             | J         | 1             | DRAWING INDEX LIST           |
| D-RS-PA63-0-02            | A         | 1             | PUNCH IN FOR SKIP AVAILABLE  |
| D-RS-PA63-0-03            | A         | 1             | PUNCH SELECT                 |
| D-RS-PA63-0-04            | C         | 1             | READER SEL                   |
| D-RS-PA63-0-05            |           | 1             | RDR HOLE FLIP-FLOP           |
| D-RS-PA63-0-06            |           | 2             | READER SOLENOIDS             |
| D-RS-PA63-0-07            | D         | 1             | IOT DECODE                   |
| D-RS-PA63-0-08            | C         | 2             | PUNCH CONTROL                |
| D-RS-PA63-0-09            | D         | 1             | READER CONTROL               |
| D-RS-PA63-0-10            | B         | 2             | RDR HOLE MATRIX (IN)         |
| D-IC-PA63-0-11            | E         | 1             | READER CABLE CONNECTORS      |
| D-IC-PA63-0-12            | C         | 1             | PUNCH CABLE CONNECTORS       |
| D-IC-PA63-0-13            |           | 1             | I/O CONNECTORS POSITIVE BUS  |
| D-BS-PA63-0-18            |           | 1             | PUNCH MATRIX                 |
| D-MU-PA63-0-14            | F         | 2             | MODULE UTILIZATION           |
| A-PL-PA63-0-14            | F         | 1             | MODULE UTILIZATION           |
| K-WL-PA63-0-15            | F         |               | WIRE LIST                    |
| D-AD-7006490-0-0          | C         | 1             | WIRED ASSY                   |
| A-PL-7006490-0-0          | C         | 1             | WIRED ASSY                   |
| C-IC-PA63-0-16            | C         | 1             | POWER WIRING (PA63)          |
| A-SP-PA63-0-17            | D         | 4             | ENGINEERING SPECS.           |
| A-SP-PA63-0-23            |           |               | FIELD ACCEPTANCE PROCEDURE   |
| - FOR IN HOUSE USE ONLY - |           |               |                              |
| A-SP-PA63-0-19            | B         | 2             | ACCEPTANCE CRITERIA          |
| A-AL-PA63-0-20            | A         | 1             | ACCESSORY LIST               |
| A-SP-PA63-0-22            |           |               | OPTION CHECKLIST             |
| A-SP-PA63-0-21            | A         | 6             | MANUFACTURING TEST PROCEDURE |

|           |       |          |        |                         |  |
|-----------|-------|----------|--------|-------------------------|--|
| REVISIONS |       |          |        | DRN. A. DATE 12/19/69   | <br><b>DIGITAL EQUIPMENT CORPORATION</b><br><small>MAYNARD, MASSACHUSETTS</small>  |
| REV.      | DATE  | CHG. NO. | APP'D. | CHK'D. A. DATE 12/19/69 |  |
| A         | 3/70  | PA63-2   | I.M.   | ENG. DATE               | TITLE<br>16 CHANNEL READER/PUNCH MUX<br><br>SIZE CODE NUMBER REV.<br>A ML PA63-0 P |
| B         | 6/70  | PA63-4   | D.C.   | PROJ. ENG. DATE         |  |
| C         | 7/70  | PA63-5   | H.J.   | PROD. DATE              |  |
| D         | 11/70 | PA63-7   | H.J.   | FIRST USED ON           |  |
| E         | 12/70 | PA63-8   | H.J.   |                         |  |
| F         | 12/70 | PA63-9   | H.J.   |                         |  |
| H         | 12/70 | PA63-10  | B.D.   |                         |  |
| J         | 3/71  | PA63-11  | H.J.   |                         |  |
| K         | 5/71  | PA63-12  | H.J.   |                         |  |
| L         | 12/71 | BC01H-2  | H.J.   |                         |  |
| M         | 12/71 | PA63-13  |        |                         |  |
| N         | 1/72  | PA63-14  |        |                         |  |
| P         | 4/73  | PA63-16  |        |                         |  |

## ADDITIONAL CUSTOMER PRINTS

| Drawing Number | Rev. Let. | Title                 |
|----------------|-----------|-----------------------|
| B-CS-M060-0-1  | #         | SOLENOID DRIVER       |
| D-CS-M710-0-1  | #         | PUNCH CONTROL M710    |
| D-UA-BC01F-0-0 | #         | PUNCH CABLE           |
| D-UA-BC01H-0-0 | #         | READER CABLE          |
| B-CS-798-0-1   | #         | DUAL 15V POWER SUPPLY |
| D-CS-H721-0-1  | #         | POWER SUPPLY          |
| D-CS-M978-0-1  | #         | CONNECTOR MODULE      |
| D-CS-M979-0-1  | #         | CONNECTOR MODULE      |

| Rev. | Date | Change Number |   |
|------|------|---------------|---|
|      |      |               | H. Jodice <span style="float: right;">3/22/71</span><br><u>Requested by</u> <span style="float: right;">Date</span> |
|      |      |               | <br><u>Authorized by</u> <span style="float: right;">3/22/71</span><br><span style="float: right;">Date</span>      |
|      |      |               | Rev. P.<br>Sheet 2 of 2 A-ML-PA63-0   |

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51, 72, 73, 74, 75

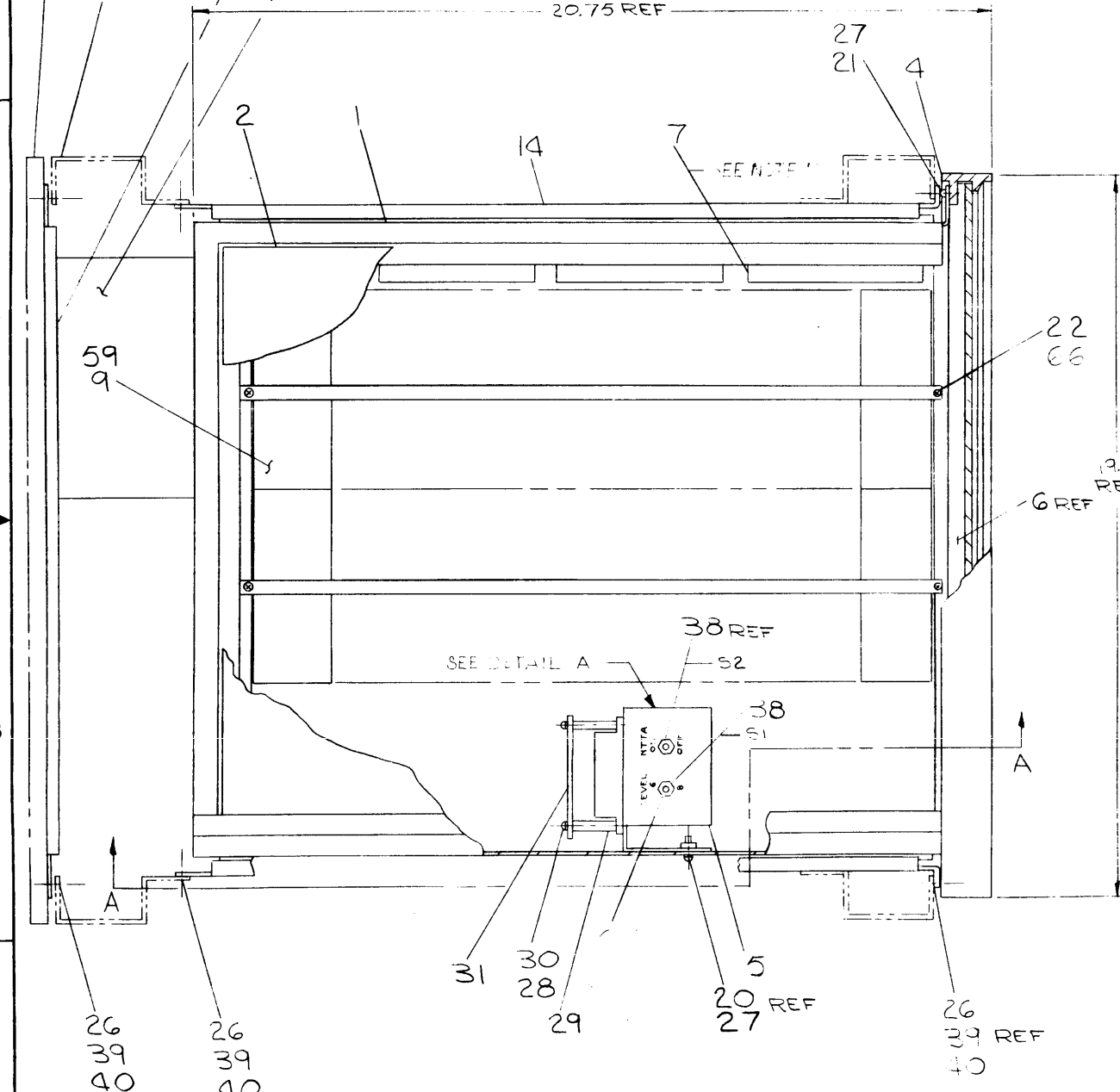
SEE DETAIL 'B' & NOTE #10

H950-BA OR H950-CA REF

SEE NOTE #5

DEC 19" CAB REF

20.75 REF

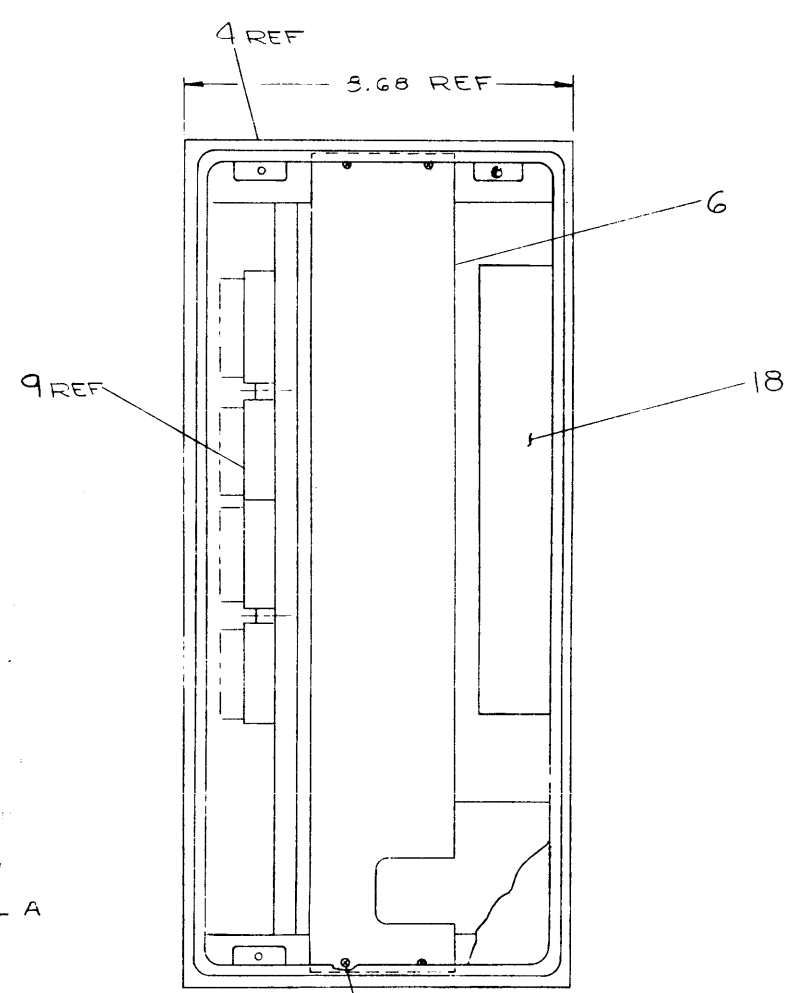


WIRE TABLE

| ITEM NO | AWG | COLOR   | FROM       |        | TO         |      |
|---------|-----|---------|------------|--------|------------|------|
|         |     |         | CONNECTION | WITH   | CONNECTION | WITH |
| 30      | 22  | RED/WHT | S1-C       | SOLDER | B2B D1     | WIRE |
| 31      |     | BRN/WHT | S1-NO      |        | D3B C2     |      |
| 34      |     | GRN/WHT | S2-1       |        | D2 V2      |      |
| 35      |     | YEL/WHT | S2-ND      |        | A1C2       |      |
| 36      |     | ORN/WHT | S2-NC      |        | A1C2Z      |      |
| 69      | 22  | FULL    | L11C       | WIRE   | F171       | WIRE |

NOTES:

- FOR DRAWING INDEX LIST REFER TO DWG D-DI-PAG3-0-1.
- FOR PWR WIRING REFER TO DWG C-1C-PAG3-0-16.
- IF FANS SUPPLIED ARE DEC # 1205033-02 (BOXER) MTG HDWR REQ'D IS ITEM #42 (SELF TAPPING SCR) ONLY. IF FANS ARE DEC # 1205033-01 (ROTRON) MTG HDWR REQ'D IS ITEM #23 (SCR) & #24 (MTG CLIP).
- ~~REMOVE EXISTING PLATE FROM POWER SUPPLY (REPLACE WITH ITEM #19 USING EXISTING HDWR, BEFORE ASSEMBLING IN CHASSIS.~~
- NOTE 778 OR H721 P/S CANNOT MOUNT BEHIND PAG3 UNIT. MUST BE MTG'ED ABOVE OR BELOW UNIT ON REAR DOOR OF CAB AS SHOWN.
- ~~TERMINATE C212 THRU C3672 AS SHOWN BELOW, 16 PLACES.~~
- AIR FLOW SHOULD BE FLOWING INTO CHASSIS.
- AC POWER TO FANS WILL HAVE TO BE TAKEN FROM CABINET AC BUSSES TABS PER C-1C-PAG3-0-16.
- ITEM 70 (MFD, 100V, CAP) WHICH GOES FROM A28 B1 TO GND MUST BE COMPLETELY INSULATED WITH TUBING ON ITS LEADS & TERMINAL POINT CONNECTORS.
- RESISTOR TO BE MOUNTED BELOW THE TRANSFORMERS AND SECURED TO THE 6-32 RIVNUT INCORPORATED IN THE BASEPLATE. CENTER RESISTOR BETWEEN THE TRANSFORMERS.



DETAIL A

| ITEM NO | COMP | POL | FROM  | TO  | POL | REMARKS |
|---------|------|-----|-------|-----|-----|---------|
| 71      | RES  |     | D21V1 | +5V |     | TERM    |
| 70      | CAP  |     | A28B1 | GND |     | TERM    |

EXTERNAL COMPONENT TABLE

| QTY. | DESCRIPTION | PART NO. | ITEM NO. |
|------|-------------|----------|----------|
|      |             |          |          |

| REV | DATE | BY | CHKD | APP'D | DESCRIPTION |
|-----|------|----|------|-------|-------------|
| A   |      |    |      |       | PA63-00002  |
| B   |      |    |      |       | PA63-00004  |
| C   |      |    |      |       | PA63-00005  |
| D   |      |    |      |       | PA63-00007  |
| E   |      |    |      |       | PA63-00010  |
| F   |      |    |      |       | PA63-00011  |
| G   |      |    |      |       | PA63-00012  |
| H   |      |    |      |       | PA63-00014  |
| I   |      |    |      |       | PA63-00016  |
| J   |      |    |      |       | PA63-00017  |
| K   |      |    |      |       | PA63-00018  |
| L   |      |    |      |       | PA63-00019  |
| M   |      |    |      |       | PA63-00020  |

FIRST USED ON OPTION/MODEL  
PAG3

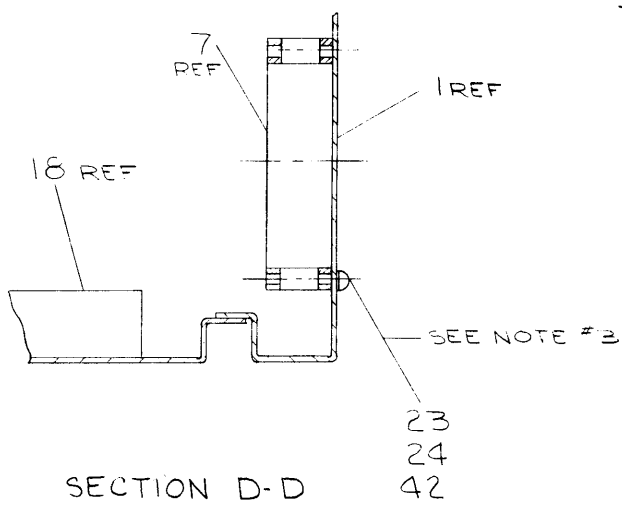
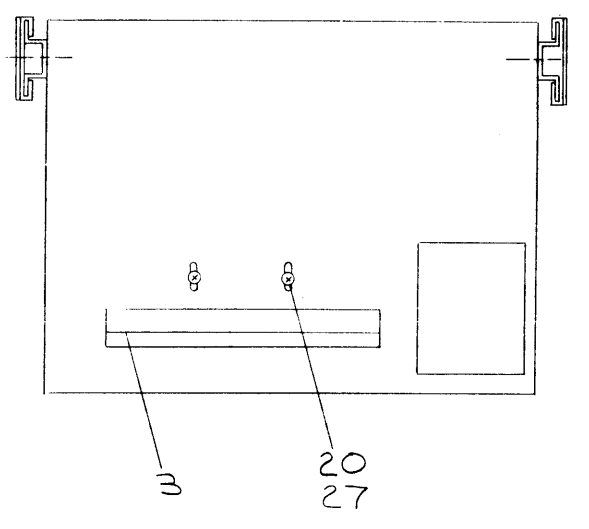
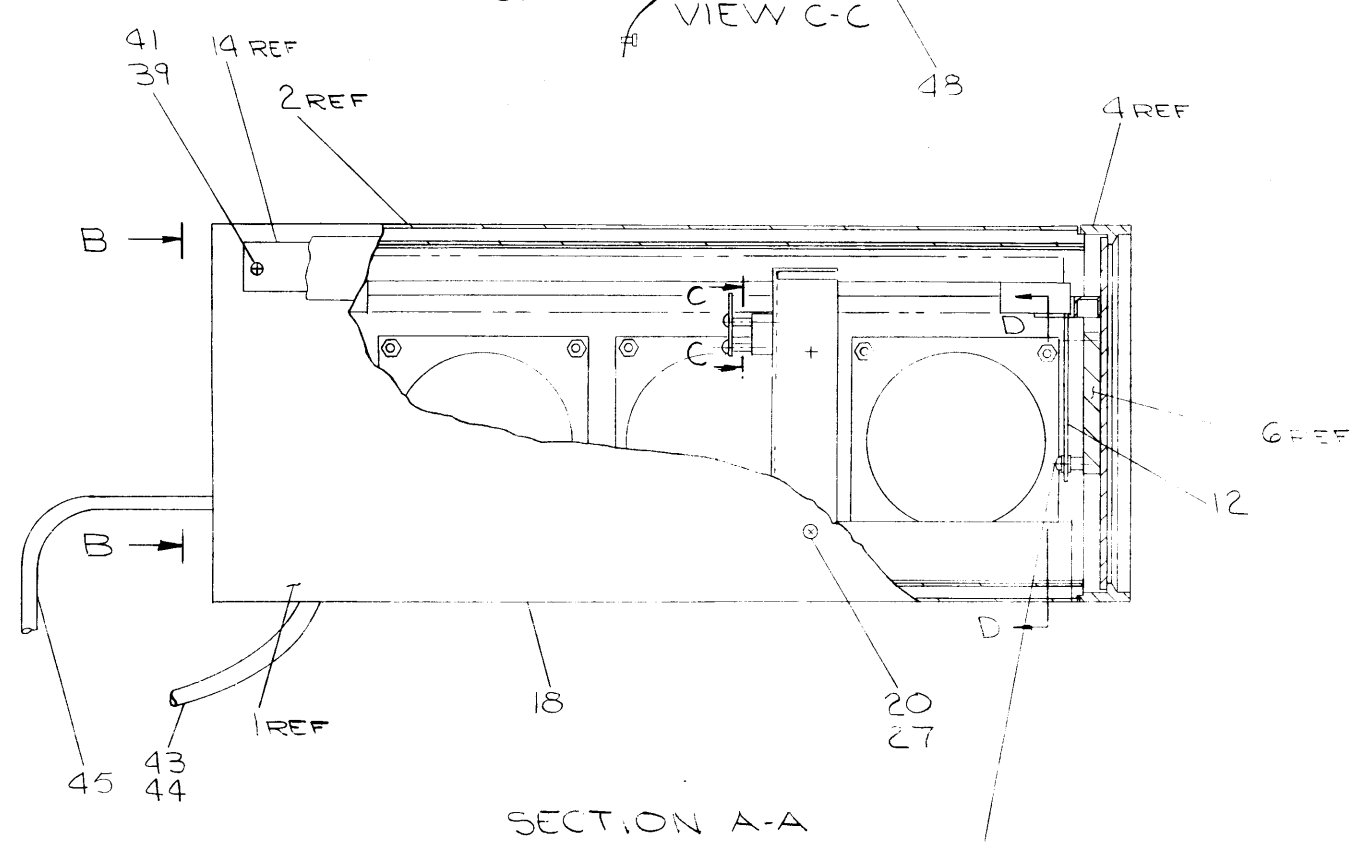
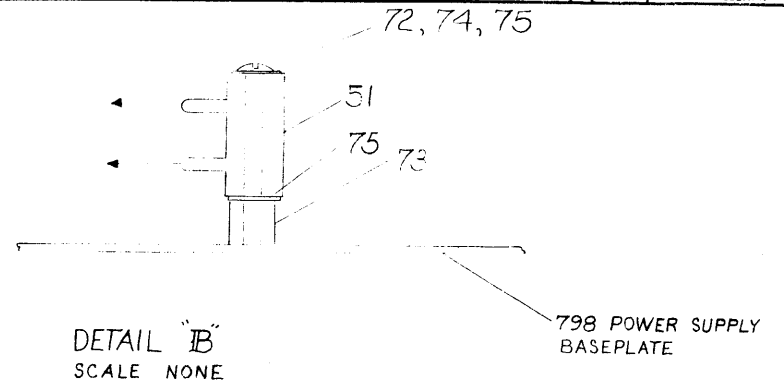
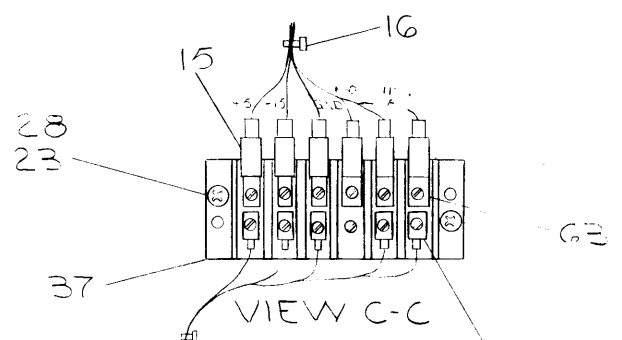
DO NOT SCALE DRAWING  
UNLESS OTHERWISE SPECIFIED  
DIMENSION IN INCHES  
TOLERANCES  
DECIMALS FRACTIONS ANGLES  
± .005 ± 1/64 ± 0°30'  
FINAL SURFACE QUALITY  
REMOVE BURRS AND BREAK SHARP CORNERS

DRN: [Signature]  
CHKD: [Signature]  
ENG: [Signature]  
PROJ. ENG: [Signature]  
PROD: [Signature]  
DATE: 1/28/70  
DATE: 1/28/70  
DATE: 1/28/70  
DATE: 1/28/70  
DATE: 1/28/70  
DATE: 1/28/70

digital EQUIPMENT CORPORATION  
MAYNARD, MASSACHUSETTS  
TITLE: 16 CHANNEL MULTIPLEXER (PAG3)  
SIZE CODE: D-PA63-0-0  
NUMBER: 00  
DIST: 00

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0-0-2947112  
 30003215



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

FIRST USED ON OPTION/ MODEL

DO NOT SCALE DRAWING  
 UNLESS OTHERWISE SPECIFIED  
 DIMENSION IN INCHES  
 TOLERANCES  
 DECIMALS FRACTIONS ANGLES  
 = .005 ± 1/64 = 0°30'  
 FINAL SURFACE QUALITY  
 REMOVE BURRS AND BREAK SHARP  
 CORNERS  
 MATERIAL  
 FINISH

| QTY.             | DESCRIPTION | PART NO.  | ITEM NO. |
|------------------|-------------|---|----------|
| PARTS LIST       |             |   |          |
| DRN              | DATE        | <b>digital</b> EQUIPMENT CORPORATION<br>MAYNARD MASSACHUSETTS<br>TITLE<br><b>16 CHANNEL MULTIPLEXER (PA63)</b><br>SIZE CODE NUMBER REV<br><b>DUA PA63 000</b> |          |
| CHK'D            | DATE        |   |          |
| ENG              | DATE        |   |          |
| PROJ. ENG.       | DATE        |   |          |
| PRQD.            | DATE        |   |          |
| NEXT HIGHER ASSY |             |   |          |
| SCALE            |             |   |          |
| SHEET 2 OF 2     |             |   |          |



# DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

## PARTS LIST

MADE BY G. FLANDERS  
 DATE 1/6/70  
 ENG *G. Flanders*  
 DATE 2/9/70

CHECKED K. RUSS  
 DATE 1/21/70  
 PROD *K. Russ*  
 DATE 3-10-70

SECTION 1  
 ISSUED SECT. 1

| ITEM NO.       | DWG NO./PART NO.<br>CL BASIC VAR. | DESCRIPTION                         | QTY/VAR           |      |                    | UNIT COST | UNIT QUANTITY         | QUANTITY ISSUED |
|----------------|-----------------------------------|-------------------------------------|-------------------|------|--------------------|-----------|-----------------------|-----------------|
|                |                                   |                                     |                   |      |                    |           |                       |                 |
| 1.             | E-IA-7406757-0-0                  | FRAME, CHASSIS                      | 1                 |      |                    |           |                       |                 |
| 2.             | D-IA-7406756-0-0                  | COVER CHASSIS                       | 1                 |      |                    |           |                       |                 |
| 3.             | C-MD-7406762-0-0                  | CABLE, RETAINER                     | 1                 |      |                    |           |                       |                 |
| 4.             | D-SC-1210065-0-0                  | BEZEL,                              | 1                 |      |                    |           |                       |                 |
| 5.             | D-IA-7407848-0-0                  | PWR SUPPLY MTG BRKT                 | 1                 |      |                    |           |                       |                 |
| 6.             | D-IA-7406738-0-0                  | SUPPORT, PLEXIGLASS                 | 1                 |      |                    |           |                       |                 |
| 7.             | 1205033                           | FAN                                 | 3                 |      |                    |           |                       |                 |
| 8              | D-IA-7407638-0-0                  | INDICATOR PANEL                     | 1                 |      |                    |           |                       |                 |
| 9.             | D-AD-7006490-0-0                  | WIRED ASSY                          | 1                 |      |                    |           |                       |                 |
| 10.            | D-UA-793-0-0                      | 793 POWER SUPPLY                    | 1                 |      |                    |           |                       |                 |
| 11.            | C-UA-H721-0-0                     | H721 POWER SUPPLY                   | 1                 |      |                    |           |                       |                 |
| 12.            | D-IA-5408582-0-0                  | CONTROL PANEL ASSY                  | 1                 |      |                    |           |                       |                 |
| 14.            | D-SC-1209154-0-0                  | CHASSIS SLIDES 22" TRAVEL           | 1                 |      |                    |           |                       |                 |
| 15.            | 9007917                           | CONN, SOLDERLESS #50902 ARKLESS     | 15                |      |                    |           |                       |                 |
| 16             | 9007031                           | TY RAP #SST-1-B                     | A/R               |      |                    |           |                       |                 |
| <del>17.</del> | <del>9007655</del>                | <del>TERM POINT CLIP #85952-3</del> | <del>5</del>      |      |                    |           |                       |                 |
| 18.            | D-IA-7407857-0-0                  | COVER, BOTTOM CHASSIS               | 1                 |      |                    |           |                       |                 |
| <del>19.</del> | <del>C-IA-7407852-0-0</del>       | <del>AC PROF BRACKET</del>          | <del>1</del>      |      |                    |           |                       |                 |
| 20.            | 9006037-1                         | SCR PHL HD PAN #8-32 X 3/8 LG SST   | 11                |      |                    |           |                       |                 |
| 21.            | 9006040-2                         | SCR FLAT HD #8-32 X 1/4 LG SST      | 4                 |      |                    |           |                       |                 |
| 22.            | 9006039-1                         | SCR PHL HD PAN #8-32 X 1/2 LG SST   | 4                 |      |                    |           |                       |                 |
| 23.            | 9006024-1                         | SCR PHL HD PAN #6-32 X 1/2 LG SST   | 14                |      |                    |           |                       |                 |
| TITLE          | 16 CHANNEL MULTIPLEXER (PA63)     | ASSY NO.<br>D-UA-PA63-0-0           | SIZE CODE<br>A PL | OF 4 | NUMBER<br>PA63-0-0 | P         | ECO NO.<br>PA63-00016 |                 |
|                |                                   | SHEET 1                             | DIST. G           |      |                    |           |                       |                 |

# DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

## PARTS LIST

MADE BY G. FLANDERS  
 DATE 1-6-70  
 ENG *G. Flanders*  
 DATE 3/9/70

CHECKED K. RUSS  
 DATE 1-21-70  
 PROD *K. Russ*  
 DATE 3-10-70

SECTION  
 ISSUED SECT.

| ITEM NO. | DWG NO./PART NO.<br>CL BASIC VAR. | DESCRIPTION                        | QTY/VAR           |      |                    | UNIT COST | UNIT QUANTITY | QUANTITY ISSUED |
|----------|-----------------------------------|------------------------------------|-------------------|------|--------------------|-----------|---------------|-----------------|
|          |                                   |                                    |                   |      |                    |           |               |                 |
| 24       | 9008202                           | MTG CLIP, FAN                      | 12                |      |                    |           |               |                 |
| 25.      | 9006563                           | NUT KEPS #8-32 SST                 | 1                 |      |                    |           |               |                 |
| 26       | 9006074-3                         | SCR PHL HD TRUSS 10-32 X 5/8 LG    | 12                |      |                    |           |               |                 |
| 27       | 9007903                           | WASH EXT TOOTH LOCK #8             | 12                |      |                    |           |               |                 |
| 28       | 9007649                           | WASH EXT TOOTH LOCK #6             | 4                 |      |                    |           |               |                 |
| 29       | 9006803                           | SPACER HEX 1/4 AF X 1/2 LG#6 HOLE  | 2                 |      |                    |           |               |                 |
| 30       | 9006029-1                         | SCR PHL HD PA #6-32 X 1 1/4 LG SST | 2                 |      |                    |           |               |                 |
| 31       | B-MD-7407856-0-0                  | PLATE, SIX TERM PROTECTION         | 1                 |      |                    |           |               |                 |
| 32       | 9107400-29                        | #22 AWG TRACER WIRE (RED/WHT)      | A/R               |      |                    |           |               |                 |
| 33       | 9107400-19                        | #22 AWG TRACER WIRE (BRN/WHT)      | A/R               |      |                    |           |               |                 |
| 34       | 9107400-59                        | #22 AWG TRACER WIRE (GRN/WHT)      | A/R               |      |                    |           |               |                 |
| 35       | 9107400-49                        | #22 AWG TRACER WIRE (YEL/WHT)      | A/R               |      |                    |           |               |                 |
| 36       | 9107400-39                        | #22 AWG TRACER WIRE (ORN/WHT)      | A/R               |      |                    |           |               |                 |
| 37       | 9006905                           | BARRIER TERMINAL STRIP #6-540      | 1                 |      |                    |           |               |                 |
| 38       | 1201168                           | TOGGLE SWITCH #6AT1-T2 MICROSWITCH | 2                 |      |                    |           |               |                 |
| 39       | 9007651                           | WASH LOCK EXT TOOTH #10            | 12                |      |                    |           |               |                 |
| 40       | 9007786                           | SPEED NUT 10-32 #C31758-032-27     | 12                |      |                    |           |               |                 |
| 41       | 9006070-3                         | SCR TRUSS HB 10-32 X 5/16 LG       | 6                 |      |                    |           |               |                 |
| 42       | 9006121                           | SCR SELF TAPPING #8-32 X 3/8 LG    | 12                |      |                    |           |               |                 |
| 43       | D-UA-BC01H-0-0                    | CONN. CABLE PR68D TO PA63          | 1                 |      |                    |           |               |                 |
| 44       | D-UA-BC01F-0-0                    | CONN. CABLE PP67-C TO PA63         | 1                 |      |                    |           |               |                 |
| 45       | D-UA-BC08A-0-0                    | BC08A CABLES                       | 3                 |      |                    |           |               |                 |
| TITLE    | 16 CHANNEL MULTIPLEXER (PA63)     | ASSY NO.<br>D-UA-PA63-0-0          | SIZE CODE<br>A PL | OF 4 | NUMBER<br>PA63-0-0 | P         | ECO NO.       |                 |
|          |                                   | SHEET 2                            | DIST. G           |      |                    |           |               |                 |

# DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS PARTS LIST

MADE BY G. FLANDERS  
 DATE 1-6-70  
 ENG Paul Reardon  
 DATE 3/9/70  
 CHECKED K. RUSS  
 DATE 1-21-70  
 PROD *A. Hirsch*  
 DATE 3-10-70  
 SECTION 1  
 ISSUED SECT. 1

| ITEM NO. | DWG NO. / PART NO. / CL BASIC VAR. | DESCRIPTION                           | QTY / VAR | UNIT COST | UNIT QUANTITY | QUANTITY ISSUED |
|----------|------------------------------------|---------------------------------------|-----------|-----------|---------------|-----------------|
| 46       | 9107430-29                         | #18 AWG TWP WIRE (RED & WHT)          |           |           | A/R           |                 |
| 47       | 9007927                            | CONN #50325 ARKLESS                   |           |           | 2             |                 |
| 48       | 9007930                            | CONN #50360 ARKLESS                   |           |           | 5             |                 |
| 49       | 9007919                            | CONN #50906 ARKLESS                   |           |           | 6             |                 |
| 50       | 9107255                            | HYSHRINK TUBING WHT                   |           |           | A/R           |                 |
| 51       | 1300333                            | RESISTOR 25W 500 OHM                  |           |           | 1             |                 |
| 52       | 9107360-22                         | #18 AWG STRD TEF WIRE (RED)           |           |           | A/R           |                 |
| 53       | 9107360-66                         | #18 AWG STRD TEF WIRE (BLU)           |           |           | A/R           |                 |
| 54       | 9107360-00                         | #18 AWG STRD TEF WIRE (BLK)           |           |           | A/R           |                 |
| 55       | 9107440-30                         | #14 AWG TWP WIRE (ORN & BLK)          |           |           | A/R           |                 |
| 56       | 9007245                            | TUBING SUFLEX 3/8 I.D                 |           |           | A/R           |                 |
| 57       | <del>9107673-0</del>               | <del>POWER CORD #14/3 600V 9 LG</del> |           |           | 1             |                 |
| 58       | 9107360-33                         | #18 AWG STRD TEF INS WIRE (ORN)       |           |           | A/R           |                 |
| 59       | A-PL-PA63-0-14                     | MODULE COUNT PA63                     |           |           | 1             |                 |
| 60       | 9006816                            | SPACER 5/16AF X 7/16LG WITH 7/32 HOLE |           |           | 4             |                 |
| 61       | 9006041-1                          | SCR PHL HD PAN #6-32 X 3/4 LG         |           |           | 4             |                 |
| 62       | 9006707                            | WASHER NYLON #8                       |           |           | 8             |                 |
| 63       | 9007112                            | CONN SICS #60145-1 AMP                |           |           | 6             |                 |
| REF      | C-IC-PA63-0-16                     | POWER WIRING DWG                      |           |           |               |                 |
| *        | ASTERISK                           | INDICATES ITEMS NOT SHOWN ON ASSY     |           |           |               |                 |
| 64       | 7407749                            | RESISTOR 1K 1/4W 5%                   |           |           | 16            |                 |
| 65       | 7404657                            | CAPACITOR 01MFD 200V 20%              |           |           | 16            |                 |

TITLE 16 CHANNEL MULTIPLEXER (PA63)  
 ASSY NO. D-UA-PA63-0-0  
 SHEET 3 OF 4  
 SIZE CODE A PL  
 NUMBER PA63-0-0  
 REV. ECO NO. L  
 DIST. G

# DIGITAL EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS PARTS LIST

MADE BY G. Flanders  
 DATE 1-6-70  
 ENG Paul Reardon  
 DATE 3-9-70  
 CHECKED K. Russ  
 DATE 1-21-70  
 PROD A. Hirsch  
 DATE 3-10-70  
 SECTION 1  
 ISSUED SECT. 1

| ITEM NO. | DWG NO. / PART NO. | DESCRIPTION                       | QTY / VAR | UNIT COST | UNIT QUANTITY | QUANTITY ISSUED |
|----------|--------------------|-----------------------------------|-----------|-----------|---------------|-----------------|
| 66       | 9006634            | LOCK WASHER #8 INT                |           |           | 4             |                 |
| 67       | 9006712            | WASHER NYLON                      |           |           | 2             |                 |
| 68       | 9107370-66         | #14 AWG STRD TEF WIRE BLU         |           |           | AR            |                 |
| 69       | 9107400-66         | #22 AWG TRACER WIRE BLU/WHT       |           |           | A/R           |                 |
| 70       | 1000030            | CAPACITOR .1MFD, 100V, 20%        |           |           | 1             |                 |
| *        | SEE NOTES 3 & 4    | OF C-IC-PA63-0-16                 |           |           |               |                 |
| 71       | 7407749            | RES 1K 1/4W 5%                    |           |           | 1             |                 |
| 72       | 9007658            | SCR PHL HD PAN #6-32 X 2 3/4      |           |           | 1             |                 |
| 73       | 9006831            | SPACER 1/2AF x 1/2LG #10 HOLE     |           |           | 1             |                 |
| 74       | 9006633            | WASHER LOCK INT. TH. #6           |           |           | 1             |                 |
| 75       | 9006674            | WASHER CENTERING WARD LEONARD 916 |           |           | 2             |                 |

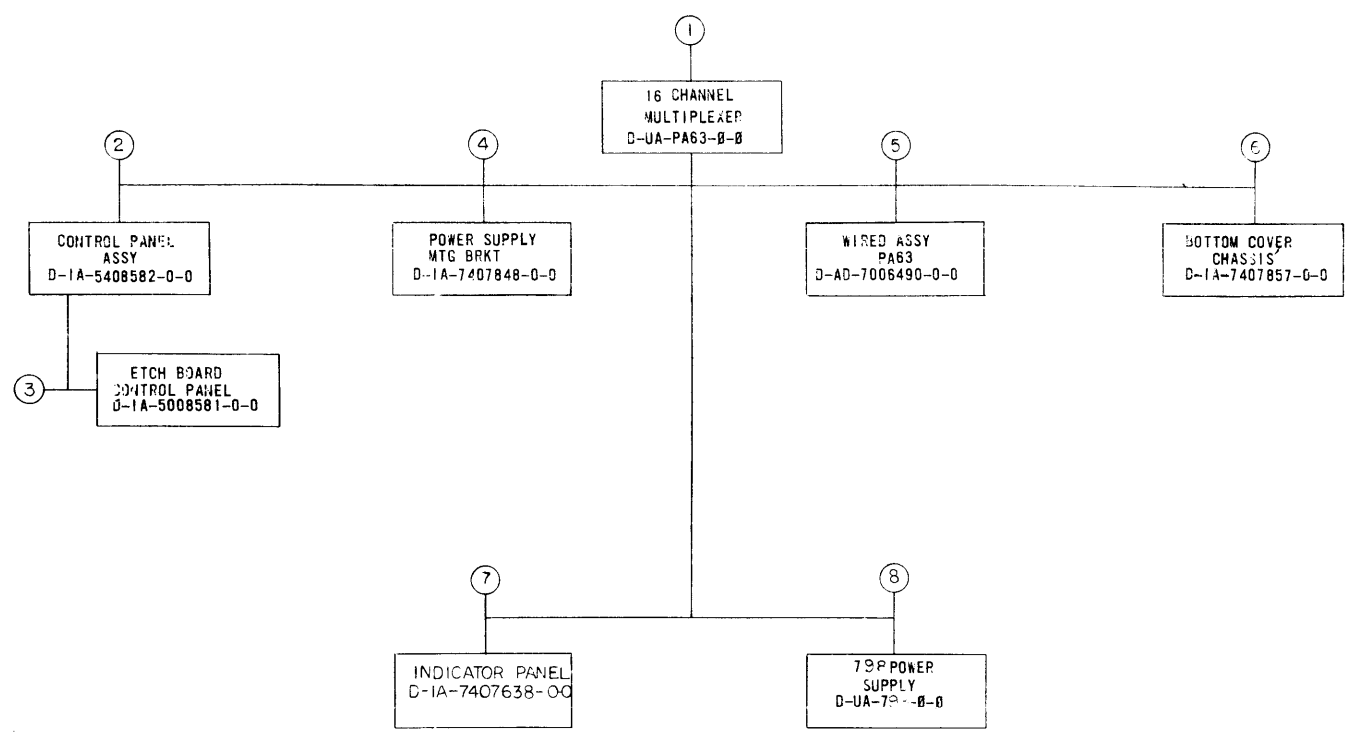
TITLE 16 CHANNEL MULTIPLEXER (PA63)  
 ASSY NO. D-UA-PA63-0-0  
 SHEET 4 OF 4  
 SIZE CODE A PL  
 NUMBER PA63-0-0  
 REV. ECO NO. L  
 DIST. G

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DI PA63-0-1  
 NUMBER 30003215

D  
C  
B  
A

D  
C  
B  
A



| MECHANICAL |  |  |      |      |     | DEPT USAGE |   |  | ELECTRICAL |      |     |          |  |  | DEPT USAGE |      |     |
|------------|--|--|------|------|-----|------------|---|--|------------|------|-----|----------|--|--|------------|------|-----|
| FIND NO.   | DESCRIPTION  | PART NO.   | PROD | CUST | F/C | FIND NO.   | DESCRIPTION   | PART NO.   | PROD       | CUST | F/C | FIND NO. | DESCRIPTION  | PART NO.   | PROD       | CUST | F/C |
| 1          | 16 CHANNEL MULTIPLEXER<br>16 CHANNEL MULTIPLEXER (PL)<br>BEZEL   | D-UA-PA63-0-0<br>A-PL-PA63-0-0<br>E-SC-1210005-C-C   |      |      |     | 1          | 16 CHANNEL MULTIPLEXER<br>PUNCH IN FOR SKIP AVAILABLE<br>PUNCH SELECT<br>READER SEL<br>RDR HOLE FLIP FLOP<br>READER SOLENOIDS<br>10T DECODE<br>PUNCH CONTROL<br>READER CONTROL<br>RDR HOLE MATRIX (1)<br>READER CABLE CONNECTIONS<br>PUNCH CABLE CONNECTIONS<br>170 CONNECTIONS POSITIVE BUS<br>MODULE UTILIZATION<br>MODULE UTILIZATION (PL)<br>POWER WIRING<br>H721PS CIRCUIT SCHEMATIC<br>ENGINEERING SPECS<br>PUNCH MATRIX<br>ACCEPTANCE CRITERIA<br>ACCESSORY LIST<br>MFG TEST PROCEDURE<br>OPTION CHECKLIST<br>FIELD ACCEPTANCE PROCEDURE | A-WL-PA63-0<br>D-BS-PA63-0-02<br>D-BS-PA63-0-03<br>D-BS-PA63-0-04<br>D-ES-PA63-0-05<br>D-BS-PA63-0-06<br>D-BS-PA63-0-07<br>D-BS-PA63-0-08<br>D-BS-PA63-0-09<br>D-BS-PA63-0-10<br>D-BS-PA63-0-11<br>D-IC-PA63-0-12<br>D-IC-PA63-0-13<br>D-MU-PA63-0-14<br>A-PL-PA63-0-15<br>C-IC-PA63-0-16<br>C-CS-H721-0-1<br>A-AL-PA63-0-17<br>D-BS-PA63-0-18<br>A-SP-PA63-0-19<br>A-AL-PA63-0-20<br>A-SP-PA63-0-21<br>A-SP-PA63-0-22<br>A-SP-PA63-0-23 |            |      |     |          |  |  |            |      |     |
|            | CABLE CONN PR68 D TO PA63<br>FRAME CHASSIS   | D-UA-9C01H-0-0<br>A-IA-7406757-0-0   |      |      |     | 2          | CONTROL PANEL ASSY<br>ASSY/DRILLING HOLE LAYOUT   | D-IA-5408582-0-0<br>D-AH-5408582-0-5   |            |      |     | 2        | CONTROL PANEL CIRCUIT SCHEMATIC                          | C-CS-5408582-0-1   |            |      |     |
|            | COVER CHASSIS<br>CHASSIS SLIDES<br>CABLE RETAINER<br>SUPPORT PLEXIGLASS<br>CONNECTOR CABLE (PP67-C TO PA63)<br>PLATE SIX TERM (PROT) | D-IA-7406756-0-0<br>D-SC-1209154-0-0<br>C-MD-7406762-0-0<br>D-IA-7406738-0-0<br>D-UA-9C01F-0-0<br>B-MD-7407856-0-0 |      |      |     | 3          | ETCH BOARD, CONTROL PANEL   | D-IA-5008581-0-0   |            |      |     | 3        | PRINTED CIRCUIT  | PC-5008581-0-1   |            |      |     |
|            | BRKT MTG POWER SUPPLY<br>BRKT MTG POWER SUPPLY SILK SCREEN<br>BRKT MTG POWER SUPPLY SILK SCREEN                                      | D-IA-7407848-0-0<br>A-SS-7407848-0-1<br>A-SS-7407848-0-2   |      |      |     | 4          | WIRE ASSY (PA63)<br>WIRE ASSY (PA63) (PL)<br>WIRE LIST  | D-AD-7006490-0-0<br>A-PL-7006490-0-0<br>K-WL-PA63-0-15   |            |      |     | 5        | 798 PS CIRCUIT SCHEMATIC                                 | C-CS-798-0-1   |            |      |     |
|            | WIRE ASSY PA63<br>WIRE ASSY PA63 (PL)<br>288 PIN CONN BLOCK<br>MTG BAP   | D-AD-7006490-0-0<br>A-PL-7006490-0-0<br>E-SC-1205348-0-0<br>D-IA-7406739-0-0                                       |      |      |     | 5          | ETCH BOARD, CONTROL PANEL   | D-IA-5008581-0-0   |            |      |     | 5        | WIRE ASSY (PA63)<br>WIRE ASSY (PA63) (PL)<br>WIRE LIST   | D-AD-7006490-0-0<br>A-PL-7006490-0-0<br>K-WL-PA63-0-15   |            |      |     |
|            | BOTTOM COVER CHASSIS<br>BACKING FOAM   | D-IA-7407857-0-0<br>B-MD-18C980-0-0  |      |      |     | 6          | 798 PS POWER SUPPLY   | D-UA-798-0-0<br>A-PL-798-0-0   |            |      |     | 6        | BOTTOM COVER CHASSIS<br>BACKING FOAM                     | D-IA-7407857-0-0<br>B-MD-18C980-0-0                      |            |      |     |
|            | INDICATOR PANEL<br>FRONT SILK SCREEN<br>REAR SILK SCREEN   | D-IA-7407638-0-0<br>D-SS-7407638-0-1<br>D-SS-7407638-0-2   |      |      |     | 7          | INDICATOR PANEL   | D-IA-7407638-0-0   |            |      |     | 7        | INDICATOR PANEL<br>FRONT SILK SCREEN<br>REAR SILK SCREEN | D-IA-7407638-0-0<br>D-SS-7407638-0-1<br>D-SS-7407638-0-2 |            |      |     |
|            | 798 PS POWER SUPPLY<br>798 PS POWER SUPPLY   | D-UA-798-0-0<br>A-PL-798-0-0   |      |      |     | 8          | 798 PS POWER SUPPLY   | D-UA-798-0-0<br>A-PL-798-0-0   |            |      |     | 8        | 798 PS POWER SUPPLY<br>798 PS POWER SUPPLY               | D-UA-798-0-0<br>A-PL-798-0-0                             |            |      |     |

| REV | CHANGE NO | CHK       | DATE    | BY |
|-----|-----------|-----------|---------|----|
| A   | 00002     | J. MORRIS | 1/16/70 |    |
| B   | 00004     | J. MORRIS | 1/16/70 |    |
| C   | 00005     | J. MORRIS | 1/16/70 |    |
| D   | 00007     | J. MORRIS | 1/16/70 |    |
| E   | 00010     | J. MORRIS | 1/16/70 |    |
| F   | 00011     | J. MORRIS | 1/16/70 |    |
| G   | 00012     | J. MORRIS | 1/16/70 |    |
| H   | 00013     | J. MORRIS | 1/16/70 |    |
| I   | 00014     | J. MORRIS | 1/16/70 |    |
| J   | 00015     | J. MORRIS | 1/16/70 |    |

FIRST USED ON OPTION / MODEL  
PA63

|                      |                            |                       |          |           |                                      |
|----------------------|----------------------------|-----------------------|----------|-----------|--------------------------------------|
| DO NOT SCALE DRAWING | UNLESS OTHERWISE SPECIFIED | TOLERANCES            | DECIMALS | FRACTIONS | ANGLES                               |
|                      |                            | ± .005                | ± 1/64   | ± 0°30'   |                                      |
|                      |                            | FINAL SURFACE QUALITY |          |           | REMOVE BURRS AND BREAK SHARP CORNERS |

|       |      |            |      |
|-------|------|------------|------|
| DRN.  | DATE | CHK'D.     | DATE |
| ENG.  | DATE | PROJ. ENG. | DATE |
| PROD. | DATE |            |      |

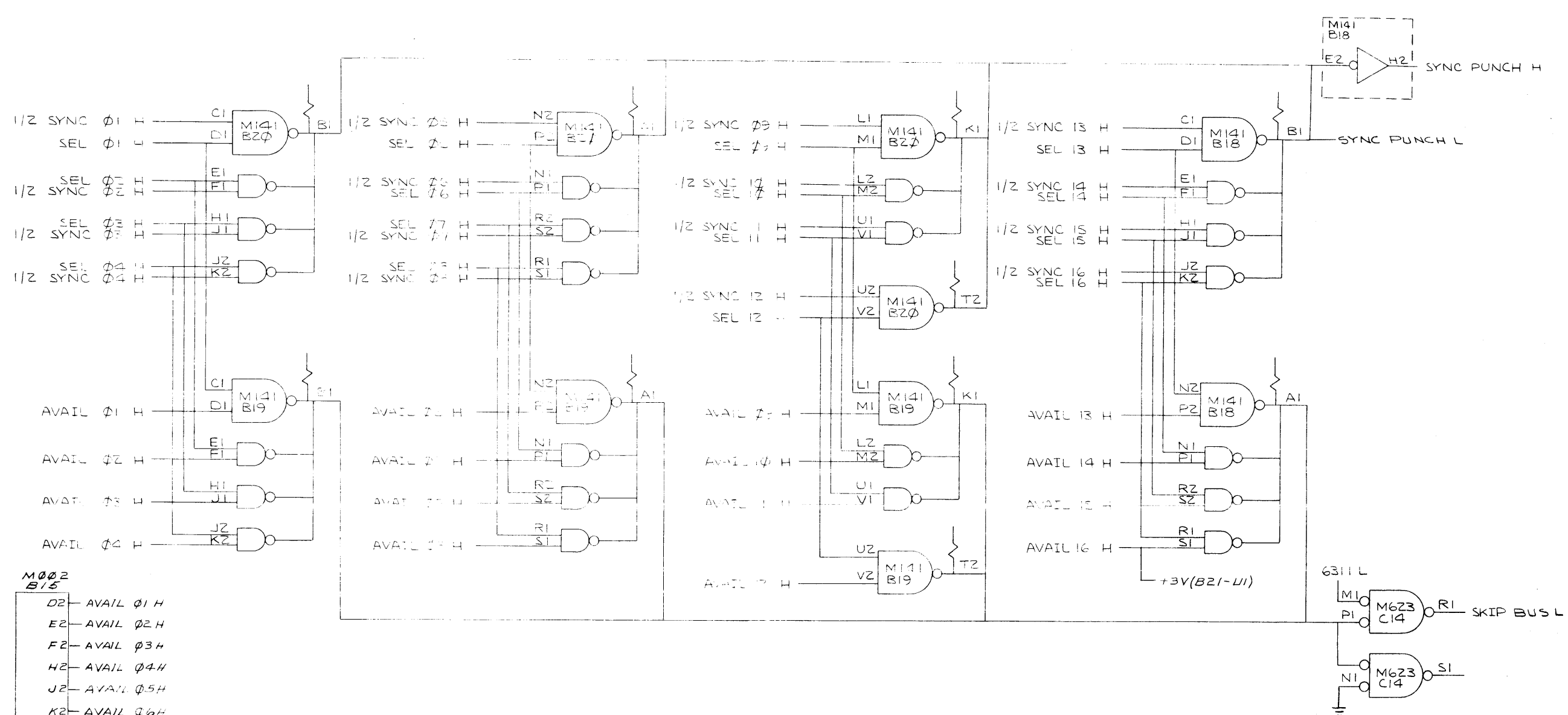
digital EQUIPMENT CORPORATION  
 WAYNARD, MASSACHUSETTS

TITLE  
DRAWING INDEX LIST (FA63)

|          |                  |       |       |    |
|----------|------------------|-------|-------|----|
| MATERIAL | NEXT HIGHER ASSY | SCALE | SHEET | OF |
|          |                  |       |       |    |

|               |        |     |
|---------------|--------|-----|
| SIZE CODE     | NUMBER | REV |
| D DI PA63-0-1 |        | J   |

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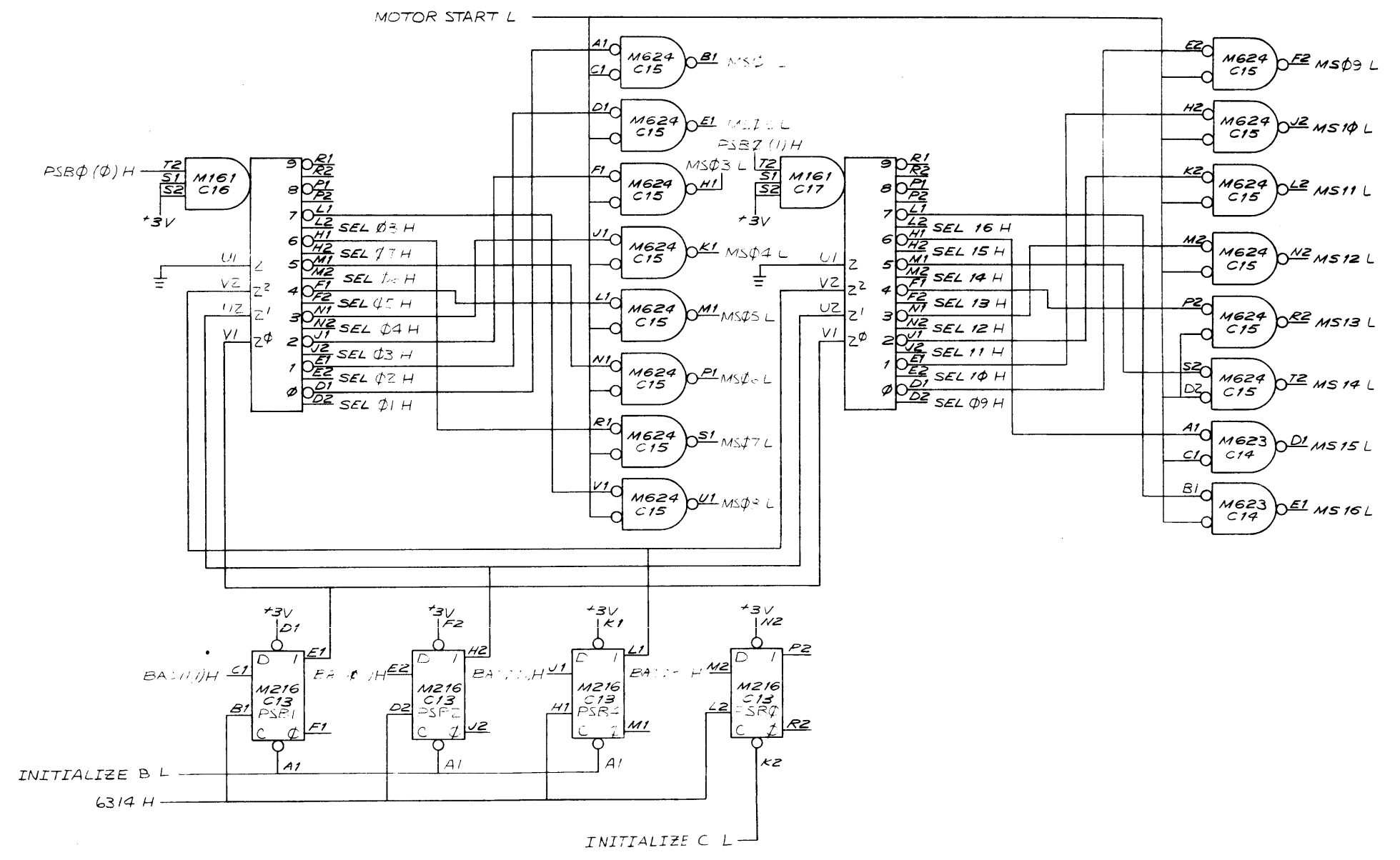
- M002  
B15
- D2- AVAIL 01 H
  - E2- AVAIL 02 H
  - F2- AVAIL 03 H
  - H2- AVAIL 04 H
  - J2- AVAIL 05 H
  - K2- AVAIL 06 H
  - L2- AVAIL 07 H
  - M- AVAIL 08 H
  - N2- AVAIL 09 H
  - P2- AVAIL 10 H
  - R2- AVAIL 11 H
  - S2- AVAIL 12 H
  - T2- AVAIL 13 H
  - U2- AVAIL 14 H
  - V2- AVAIL 15 H

| REV | CHANGE NO | DATE     |
|-----|-----------|----------|
| A   | 0013      | 10/13/69 |

JOYCE  
 M. J. Joyce

| FIRST USED ON OPTION/MODE   | QTY.      | DESCRIPTION | PART NO.  | ITEM NO. |
|-----------------------------|-----------|-------------|---|----------|
| PDP8                        |           |             |   |          |
| UNLESS OTHERWISE SPECIFIED  |           |             |   |          |
| DRN                         |           | DATE        | 9-11-69   |          |
| CHK'D                       |           | DATE        | 3-6-73  |          |
| ENG.                        |           | DATE        | 8/6/73  |          |
| PROJ. ENG.                  |           | DATE        | 2/7/73  |          |
| PROD.                       |           | DATE        | 2/10/73   |          |
| MATERIAL                    |           |             |   |          |
| NEXT HIGHER ASSY            |           |             |   |          |
| A-ML-PA63-0                 |           |             |   |          |
| FINISH                      |           |             |   |          |
| SCALE NONE                  |           |             |   |          |
| SHEET OF                    |           |             |   |          |
| PARTS LIST                  |           |             | digital EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS |          |
| TITLE                       |           |             |   |          |
| PUNCH IN FOR SKIP AVAILABLE |           |             |   |          |
| SIZE CODE                   | NUMBER    | REV         |   |          |
| D BS                        | PA63-0-02 | A           |   |          |

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| REV    | CHANGE NO. | DATE   |
|--------|------------|--------|
| A      | 00012      | 6-2-71 |
| JODICE |            |        |
| 6/1/71 |            |        |

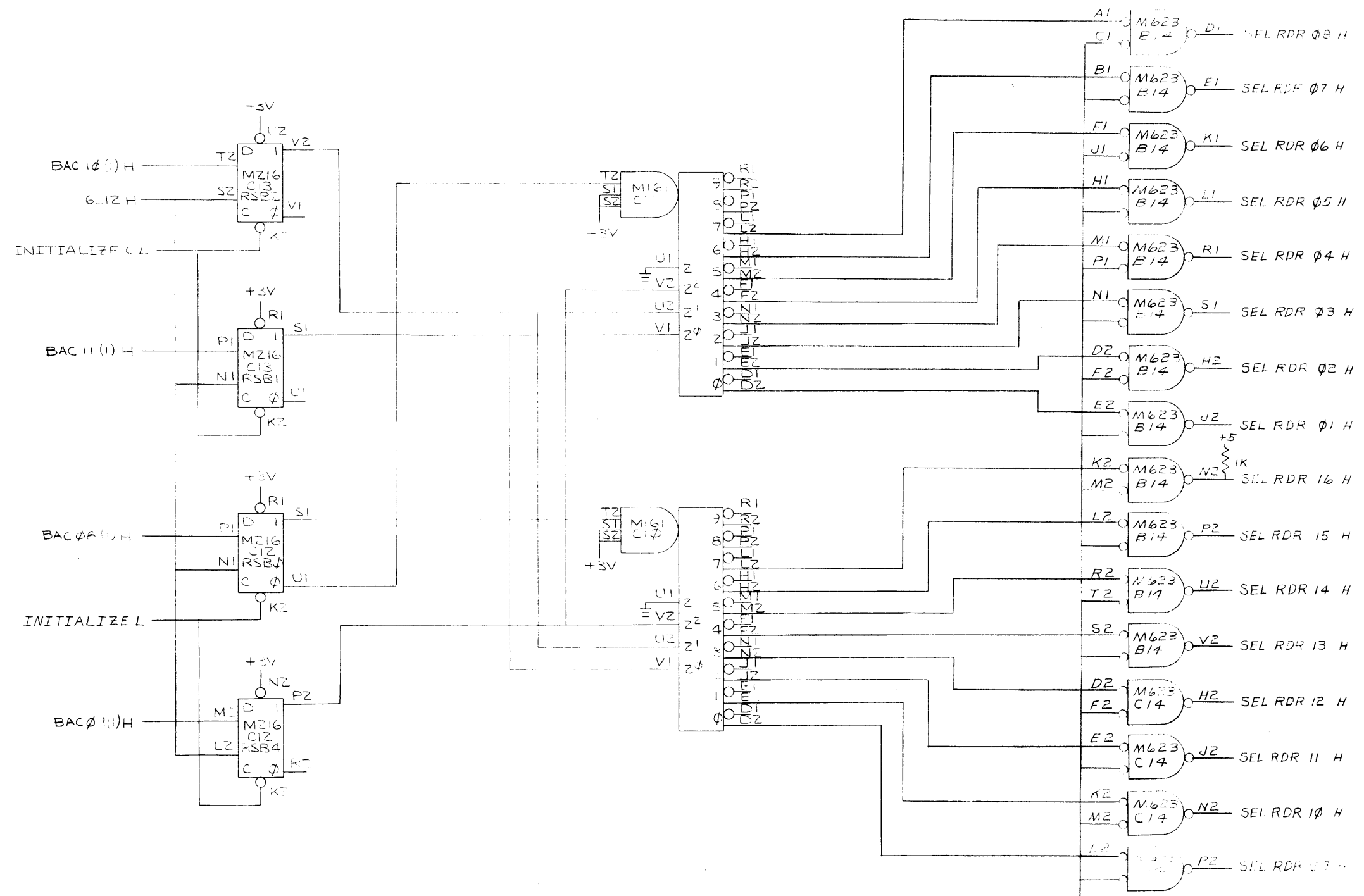
FIRST USED ON OPTION/MODEL  
PDP8

DO NOT SCALE DRAWING  
UNLESS OTHERWISE SPECIFIED  
DIMENSION IN INCHES  
TOLERANCES  
DECIMALS FRACTIONS ANGLES  
± .005 ± 1/64 ± 0°30'  
FINAL SURFACE QUALITY  
REMOVE BURRS AND BREAK SHARP CORNERS  
MATERIAL  
FINISH

| QTY.                            | DESCRIPTION  | PART NO.            | ITEM NO.  |
|---------------------------------|--------------|---------------------|---|
| PARTS LIST                      |              |                     |   |
| DRN: <i>K. Rytter</i>           |              | DATE: 6-26-71       | <b>digital</b> EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS<br>TITLE<br>PUNCH SELECT |
| CHK'D: <i>[Signature]</i>       | DATE: 7-2-71 |                     |   |
| ENG: <i>[Signature]</i>         | DATE: 6/1/71 |                     |   |
| PROJ. ENG: <i>[Signature]</i>   | DATE: 6/1/71 |                     |   |
| PROD: <i>[Signature]</i>        | DATE: 6/1/71 |                     |   |
| NEXT HIGHER ASSY<br>A-ML-PA63-0 |              | SCALE NONE          |   |
| SHEET 1 OF 1                    |              | DIST. DBS           |   |
|                                 |              | NUMBER<br>PA63-0-03 | REV<br>A  |

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- M002  
B13
- D2 SEL RDR 01 H
  - E2 SEL RDR 02 H
  - F2 SEL RDR 03 H
  - H2 SEL RDR 04 H
  - J2 SEL RDR 05 H
  - K2 SEL RDR 06 H
  - L2 SEL RDR 07 H
  - M2 SEL RDR 08 H
  - N2 SEL RDR 09 H
  - P2 SEL RDR 10 H
  - R2 SEL RDR 11 H
  - S2 SEL RDR 12 H
  - T2 SEL RDR 13 H
  - U2 SEL RDR 14 H
  - V2 SEL RDR 15 H



| REV | CHG | NO | DATE | BY | APP |
|-----|-----|----|------|----|-----|
| A   |     |    |      |    |     |
| B   |     |    |      |    |     |
| C   |     |    |      |    |     |

REVISIONS

CHK: JODICE  
 PA63-00013  
 PA63-00014  
 H. JODICE 2/1/72

| FIRST USED ON OPTION/MODE  | QTY. | DESCRIPTION                   | PART NO. | ITEM NO. |
|----------------------------|------|-------------------------------|----------|----------|
| PDP8                       |      |                               |          |          |
| UNLESS OTHERWISE SPECIFIED |      |                               |          |          |
| DRN: 5-18-69               | DATE | PARTS LIST                    |          |          |
| CHK'D: [Signature]         | DATE | digital EQUIPMENT CORPORATION |          |          |
| ENG: [Signature]           | DATE | TITLE                         |          |          |
| PROJ-ENG: [Signature]      | DATE | READER SEL                    |          |          |
| PROD: [Signature]          | DATE | MATERIAL                      |          |          |
| NEXT HIGHER ASSY           |      |                               |          |          |
| A-M-L-PA63-0               |      |                               |          |          |
| FINISH                     |      |                               |          |          |
| SCALE NONE                 |      |                               |          |          |
| SHEET OF                   |      |                               |          |          |
| DIST.                      |      |                               |          |          |
| SIZE CODE: D B S           |      |                               |          |          |
| NUMBER: PA63-0-04          |      |                               |          |          |
| REV: C                     |      |                               |          |          |

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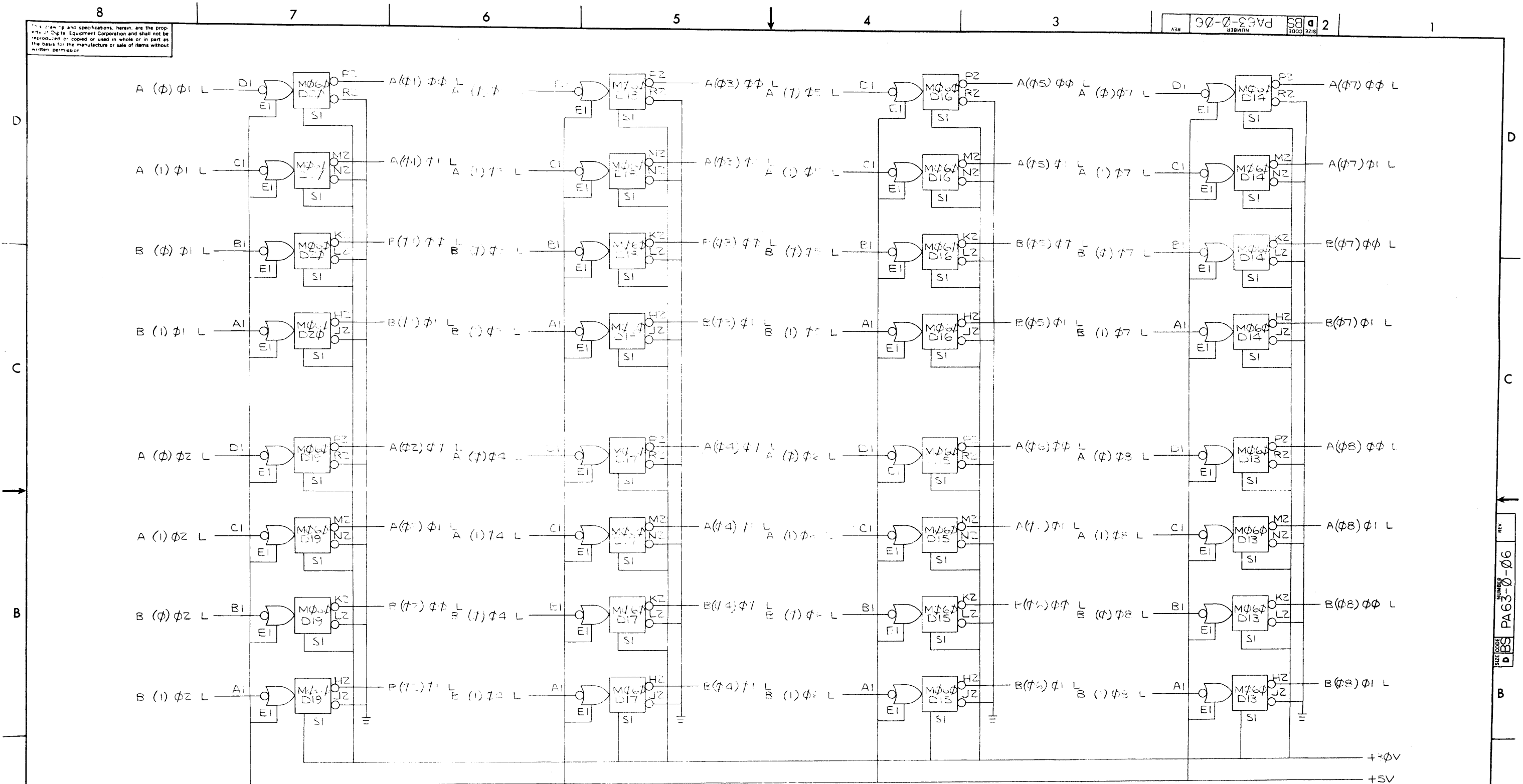
REV. 2  
 SIZE CODE DBS  
 NUMBER PA63-0-05



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

|  |                              |                |   |                     |
|--|------------------------------|----------------|---|---------------------|
| FIRST USED ON OPTION/MODEL<br>PDP8                               | QTY.                         | DESCRIPTION    | PART NO.  | ITEM NO.            |
| PARTS LIST   |                              |                |   |                     |
| UNLESS OTHERWISE SPECIFIED<br>DIMENSION IN INCHES                | DRN<br>DATE<br>9-16-69       | DATE<br>8-2-69 | digital EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS |                     |
| TOLERANCES<br>DECIMALS FRACTIONS ANGLES<br>= .005 ± 1/64 = 0°30' | CHK'D<br>DATE<br>8/1/69      | DATE<br>8/1/69 | TITLE<br>RDR HOLE<br>FLIP-FLOP                          |                     |
| FINAL SURFACE QUALITY<br>REMOVE BURRS AND BREAK SHARP CORNERS    | PROJ. ENG.<br>DATE<br>8/1/69 | DATE<br>8/1/69 | SCALE NONE  |                     |
| MATERIAL<br>+ / +  | PRGD.<br>DATE<br>8/1/69      | DATE<br>8/1/69 | NEXT HIGHER ASSY<br>A-MIL-1A63-0                        |                     |
| FINISH<br>+ / +  | SCALE NONE                   | SCALE NONE     | SIZE CODE<br>DBS  | NUMBER<br>PA63-0-05 |
|  | SHEET                        | OF             | DIST.   | REV                 |

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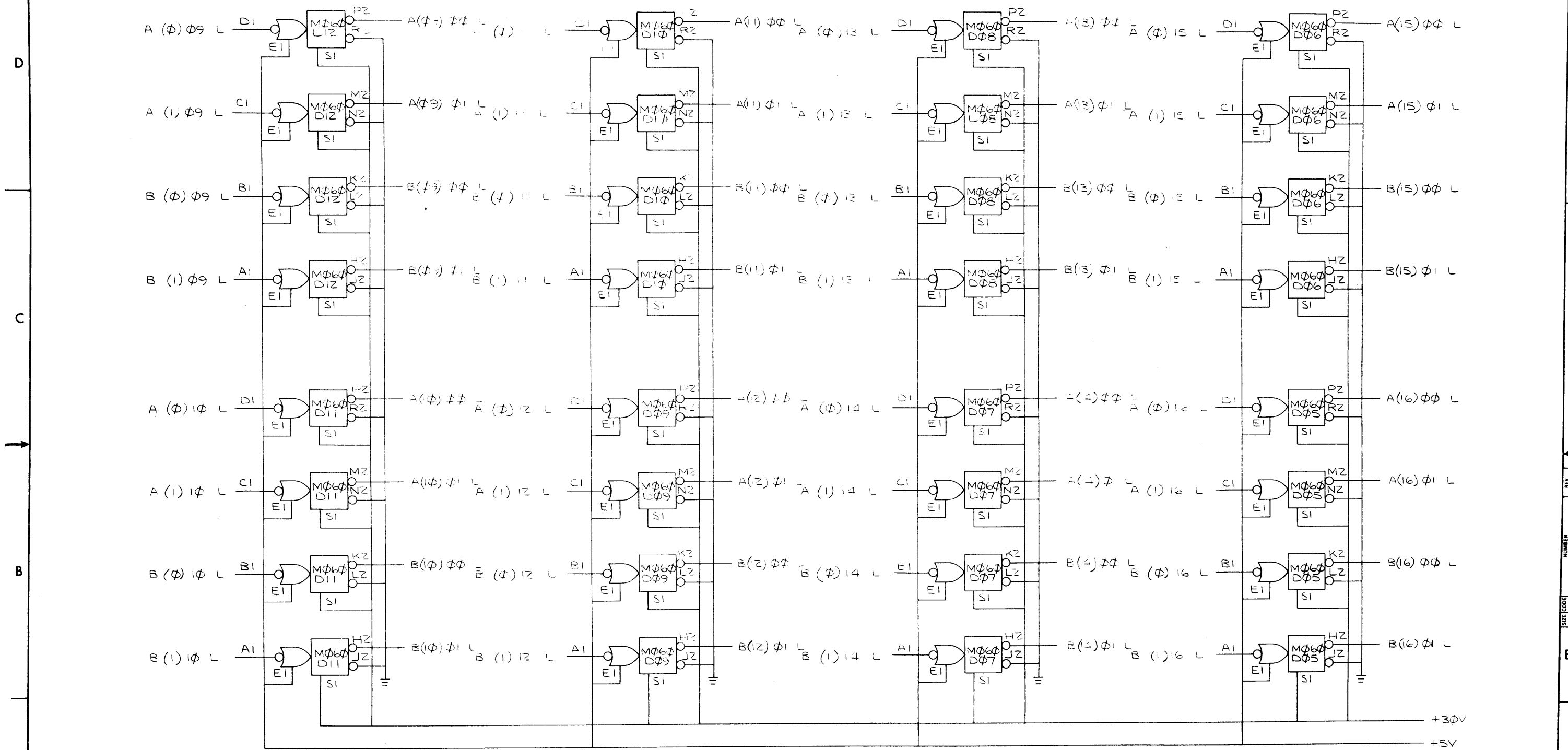


|           |  |
|-----------|--|
| REV       |  |
| CHANGE NO |  |
| CHK       |  |

|  |                  |             |   |          |
|--|------------------|-------------|---|----------|
| FIRST USED ON OPTION/MODE                                  | QTY              | DESCRIPTION | PART NO.  | ITEM NO. |
| PDP8   |                  |             |   |          |
| PARTS LIST   |                  |             |   |          |
| UNLESS OTHERWISE SPECIFIED                                 | DRN              | DATE        | digital EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS |          |
| UNLESS OTHERWISE SPECIFIED                                 | CHK'D            | DATE        | TITLE   |          |
| TOLERANCES   | ENG              | DATE        | READER SOLENOIDS  |          |
| DECIMALS FRACTIONS ANGLES                                  | PROJ. ENG        | DATE        | SIZE CODE NUMBER  |          |
| = .005 ± 1/64 = 0°30'                                      | PROD             | DATE        | D BS PA63-0-06 R F V                                    |          |
| FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS |                  |             | DIST  |          |
| MATERIAL   | NEXT HIGHER ASSY |             | SHEET 1 OF 2  |          |
| FINISH   | A-ML-PA63-0      |             |   |          |



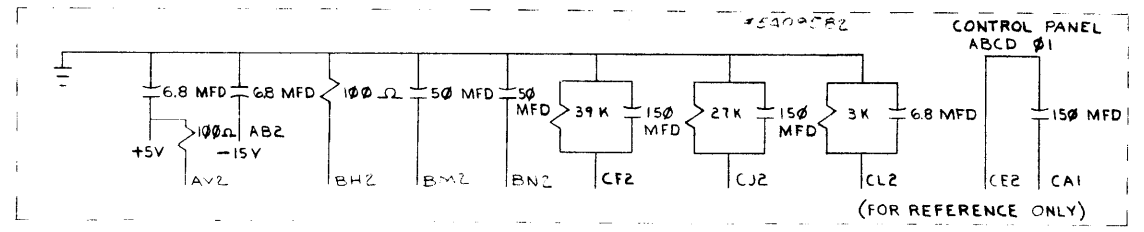
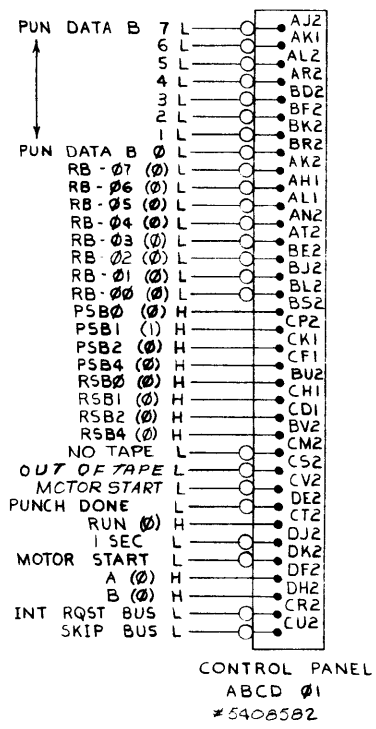
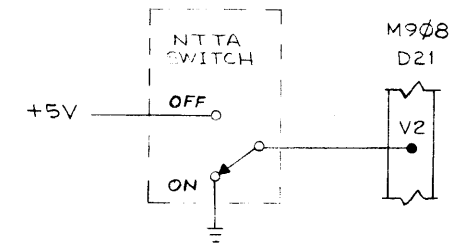
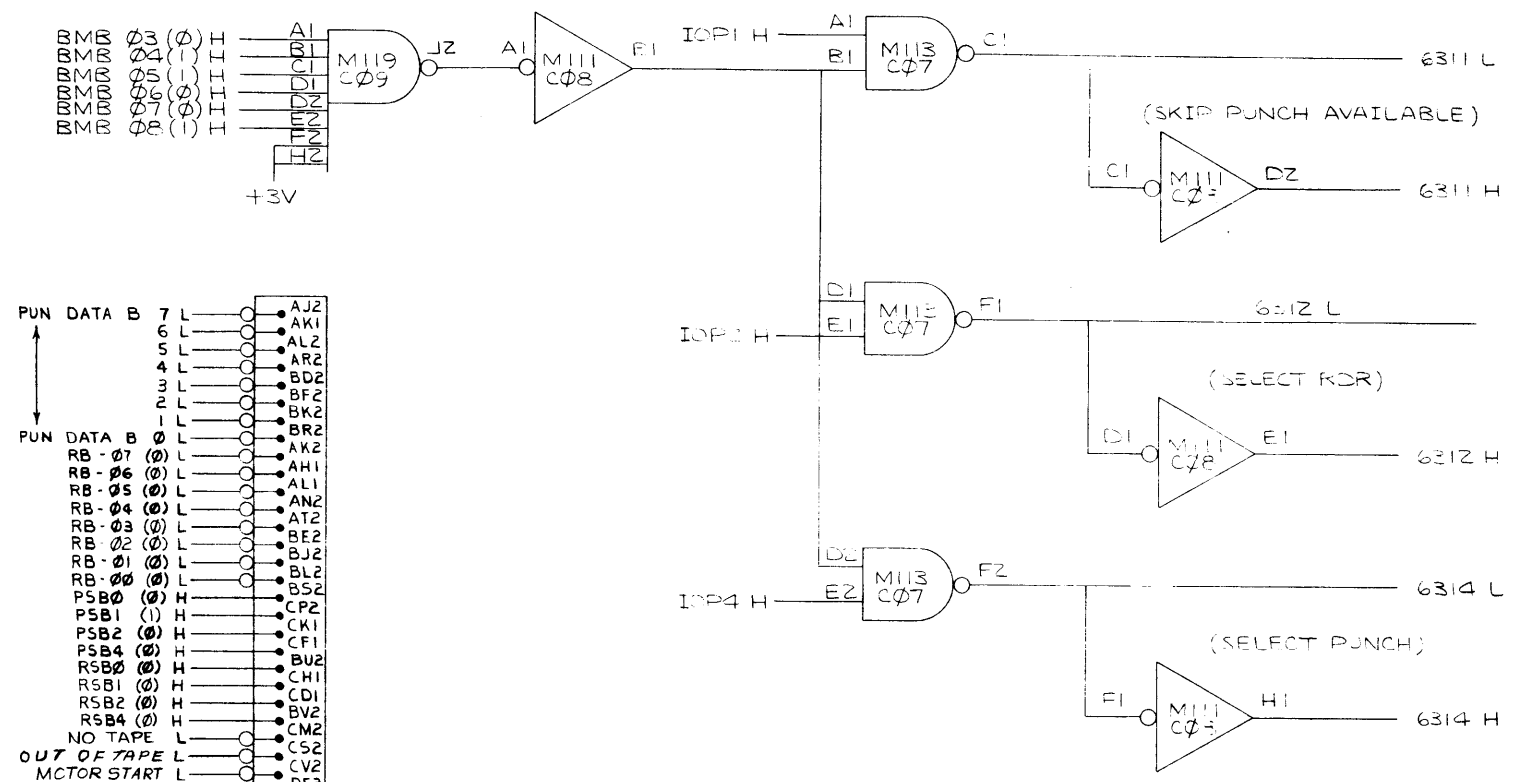
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|            |      |
|------------|------|
| REVISIONS  | REV. |
| CHANGE NO. |      |
| CHK        |      |

|                                      |            |             |   |          |
|--------------------------------------|------------|-------------|---|----------|
| FIRST USED ON OPTION/MODE<br>PDP8    | QTY.       | DESCRIPTION | PART NO.  | ITEM NO. |
| UNLESS OTHERWISE SPECIFIED           |            |             |   |          |
| DIMENSION IN INCHES                  |            |             |   |          |
| TOLERANCES                           |            |             |   |          |
| DECIMALS FRACTIONS ANGLES            |            |             |   |          |
| ± .005 ± 1/64 ± 0°30'                |            |             |   |          |
| FINAL SURFACE QUALITY                |            |             |   |          |
| REMOVE BURRS AND BREAK SHARP CORNERS |            |             |   |          |
| MATERIAL                             | DRN        | DATE        | PARTS LIST  |          |
| FINISH                               | CHKD.      | DATE        | digital EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS |          |
|                                      | ENG.       | DATE        | TITLE   |          |
|                                      | PROJ. ENG. | DATE        | READER SOLENOIDS  |          |
|                                      | PROO.      | DATE        | SIZE CODE NUMBER  |          |
|                                      |            |             | D/BS PA63-0-06  |          |
|                                      |            |             | REV.  |          |
|                                      |            |             | SCALE NONE  |          |
|                                      |            |             | SHEET 2 OF 2  |          |
|                                      |            |             | DIST.   |          |

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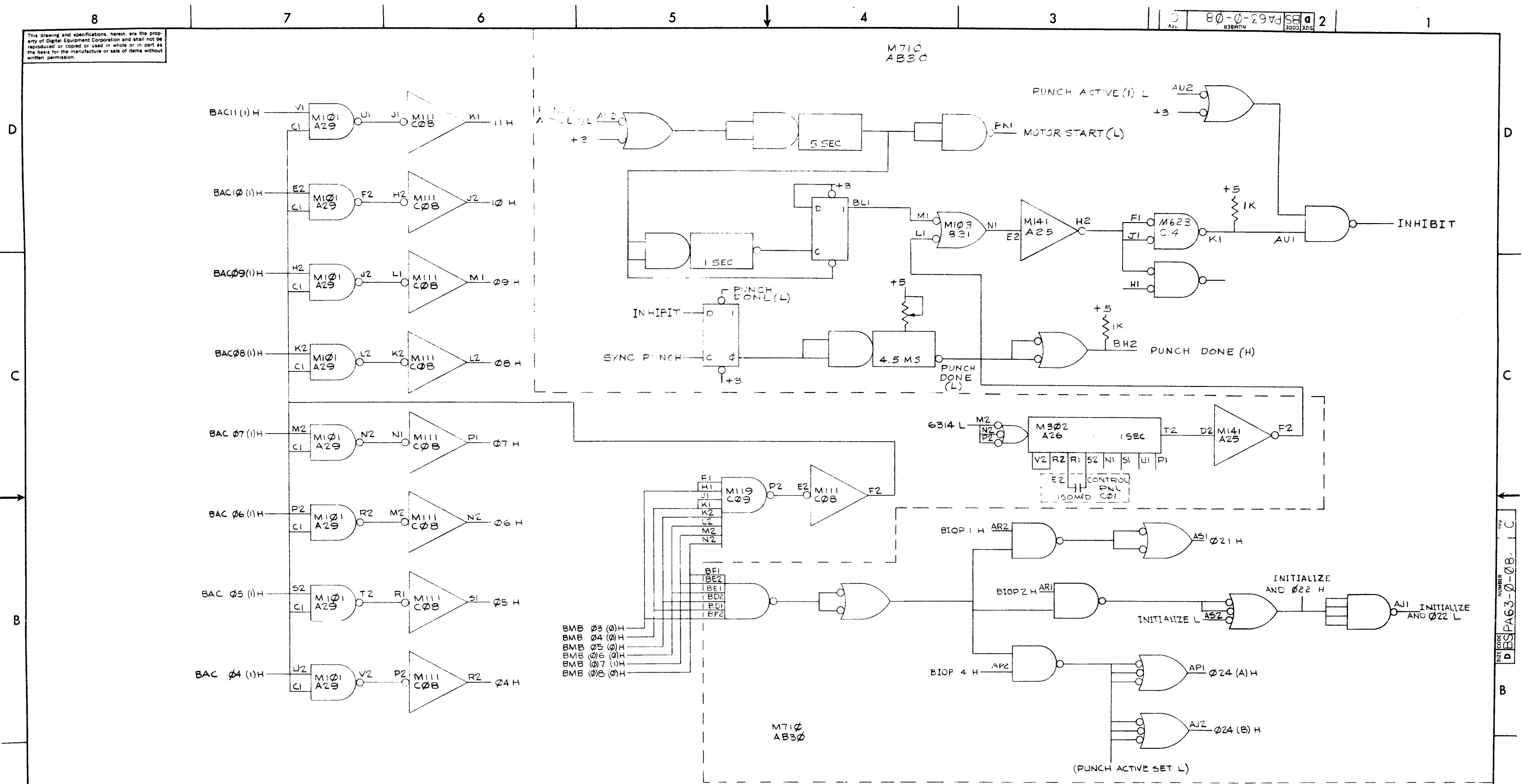
| CHK | CHANGE NO  | REV |
|-----|------------|-----|
| FV  | PA63-00004 | A   |
| H   | JODICE     | B   |
| H   | JODICE     | C   |
| H   | JODICE     | D   |

| FIRST USED ON OPTION/MODEL   | QTY.             | DESCRIPTION | PART NO. | ITEM NO. |                            |                  |           |         |                     |           |             |        |            |      |       |        |                           |            |      |        |                      |      |      |        |  |  |  |  |
|--|------------------|-------------|----------|----------|----------------------------|------------------|-----------|---------|---------------------|-----------|-------------|--------|------------|------|-------|--------|---------------------------|------------|------|--------|----------------------|------|------|--------|--|--|--|--|
| PDP8   |                  |             |          |          |                            |                  |           |         |                     |           |             |        |            |      |       |        |                           |            |      |        |                      |      |      |        |  |  |  |  |
| PARTS LIST   |                  |             |          |          |                            |                  |           |         |                     |           |             |        |            |      |       |        |                           |            |      |        |                      |      |      |        |  |  |  |  |
| <table border="1"> <tr> <td>UNLESS OTHERWISE SPECIFIED</td> <td>DRN.</td> <td>DATE</td> <td>9-10-68</td> </tr> <tr> <td>DIMENSION IN INCHES</td> <td>CHK'D.</td> <td>DATE</td> <td>3-2-73</td> </tr> <tr> <td>TOLERANCES</td> <td>ENG.</td> <td>DATE</td> <td>3-2-73</td> </tr> <tr> <td>DECIMALS FRACTIONS ANGLES</td> <td>PROJ. ENG.</td> <td>DATE</td> <td>3-2-73</td> </tr> <tr> <td>± .005 ± .001 ± .030</td> <td>PRD.</td> <td>DATE</td> <td>3-1-73</td> </tr> <tr> <td>FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS</td> <td></td> <td></td> <td></td> </tr> </table> |                  |             |          |          | UNLESS OTHERWISE SPECIFIED | DRN.             | DATE      | 9-10-68 | DIMENSION IN INCHES | CHK'D.    | DATE        | 3-2-73 | TOLERANCES | ENG. | DATE  | 3-2-73 | DECIMALS FRACTIONS ANGLES | PROJ. ENG. | DATE | 3-2-73 | ± .005 ± .001 ± .030 | PRD. | DATE | 3-1-73 | FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS |  |  |  |
| UNLESS OTHERWISE SPECIFIED   | DRN.             | DATE        | 9-10-68  |          |                            |                  |           |         |                     |           |             |        |            |      |       |        |                           |            |      |        |                      |      |      |        |  |  |  |  |
| DIMENSION IN INCHES  | CHK'D.           | DATE        | 3-2-73   |          |                            |                  |           |         |                     |           |             |        |            |      |       |        |                           |            |      |        |                      |      |      |        |  |  |  |  |
| TOLERANCES   | ENG.             | DATE        | 3-2-73   |          |                            |                  |           |         |                     |           |             |        |            |      |       |        |                           |            |      |        |                      |      |      |        |  |  |  |  |
| DECIMALS FRACTIONS ANGLES  | PROJ. ENG.       | DATE        | 3-2-73   |          |                            |                  |           |         |                     |           |             |        |            |      |       |        |                           |            |      |        |                      |      |      |        |  |  |  |  |
| ± .005 ± .001 ± .030   | PRD.             | DATE        | 3-1-73   |          |                            |                  |           |         |                     |           |             |        |            |      |       |        |                           |            |      |        |                      |      |      |        |  |  |  |  |
| FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS   |                  |             |          |          |                            |                  |           |         |                     |           |             |        |            |      |       |        |                           |            |      |        |                      |      |      |        |  |  |  |  |
| <table border="1"> <tr> <td>MATERIAL</td> <td colspan="4">NEXT HIGHER ASSY</td> </tr> <tr> <td>FINISH</td> <td colspan="4">A-ML-PA63-0</td> </tr> </table>   |                  |             |          |          | MATERIAL                   | NEXT HIGHER ASSY |           |         |                     | FINISH    | A-ML-PA63-0 |        |            |      |       |        |                           |            |      |        |                      |      |      |        |  |  |  |  |
| MATERIAL   | NEXT HIGHER ASSY |             |          |          |                            |                  |           |         |                     |           |             |        |            |      |       |        |                           |            |      |        |                      |      |      |        |  |  |  |  |
| FINISH   | A-ML-PA63-0      |             |          |          |                            |                  |           |         |                     |           |             |        |            |      |       |        |                           |            |      |        |                      |      |      |        |  |  |  |  |
| <table border="1"> <tr> <td>SCALE</td> <td>NONE</td> <td>SIZE CODE</td> <td>D/BS</td> <td>NUMBER</td> <td>PA63-0-07</td> <td>REV</td> <td>D</td> </tr> <tr> <td>SHEET</td> <td>OF</td> <td>DIST.</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>   |                  |             |          |          | SCALE                      | NONE             | SIZE CODE | D/BS    | NUMBER              | PA63-0-07 | REV         | D      | SHEET      | OF   | DIST. |        |                           |            |      |        |                      |      |      |        |  |  |  |  |
| SCALE  | NONE             | SIZE CODE   | D/BS     | NUMBER   | PA63-0-07                  | REV              | D         |         |                     |           |             |        |            |      |       |        |                           |            |      |        |                      |      |      |        |  |  |  |  |
| SHEET  | OF               | DIST.       |          |          |                            |                  |           |         |                     |           |             |        |            |      |       |        |                           |            |      |        |                      |      |      |        |  |  |  |  |
| <b>digital</b> EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS<br>TITLE: IOT DECODE  |                  |             |          |          |                            |                  |           |         |                     |           |             |        |            |      |       |        |                           |            |      |        |                      |      |      |        |  |  |  |  |

REV D PA63-0-07

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8-08-63 PA63-0-08 2



| REV. | CHG. NO. | DATE | BY | CHK. |
|------|----------|------|----|------|
| A    | 0007     |      |    |      |
| B    | 0011     |      |    |      |
| C    | 0013     |      |    |      |
| D    | 0015     |      |    |      |

DEC FORM NO. DRD 100

FIRST USED ON OPTION/MODEL  
PA63

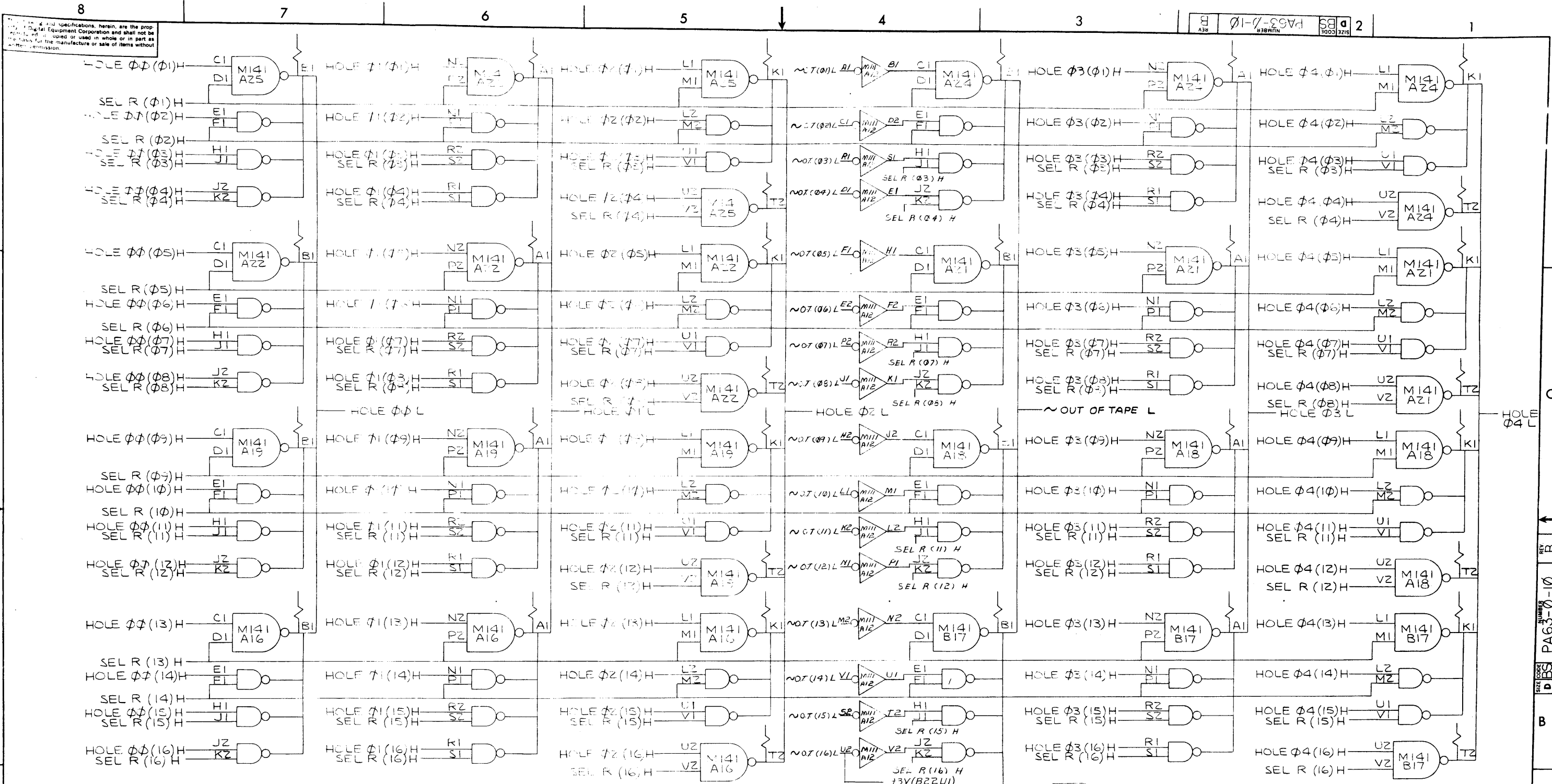
DO NOT SCALE DRAWING  
UNLESS OTHERWISE SPECIFIED  
DIMENSION IN INCHES  
TOLERANCES  
DECIMALS FRACTIONS ANGLES  
± .005 ± 1/64 ± 90°  
FINAL SURFACE QUALITY  
REMOVE BURRS AND BREAK SHARP CORNERS  
MATERIAL  
FINISH

| QTY.             | DESCRIPTION | PART NO.   | ITEM NO.  |
|------------------|-------------|--|-----------|
| PARTS LIST       |             |  |           |
| DRN.             | DATE        | <b>digital EQUIPMENT CORPORATION</b><br>WAYNARD, MASSACHUSETTS |           |
| CHKD.            | DATE        |  |           |
| ENG.             | DATE        |  |           |
| PROL. ENG.       | DATE        |  |           |
| PROD.            | DATE        | <b>PUNCH CONTROL</b>   |           |
| NEXT HIGHER ASSY |             | SIZE CODE  | NUMBER    |
| SCALE            |             | DBS  | PA63-0-08 |
| SHEET 1 OF 2     |             | DIST.  |           |

REV. C NUMBER DBS PA63-0-08







REVISIONS

| CHK | CHANGE NO  | REV |
|-----|------------|-----|
|     | PA63-00008 | A   |
|     | PA63-00013 | B   |
|     | PA63-00010 | C   |
|     | PA63-00011 | D   |

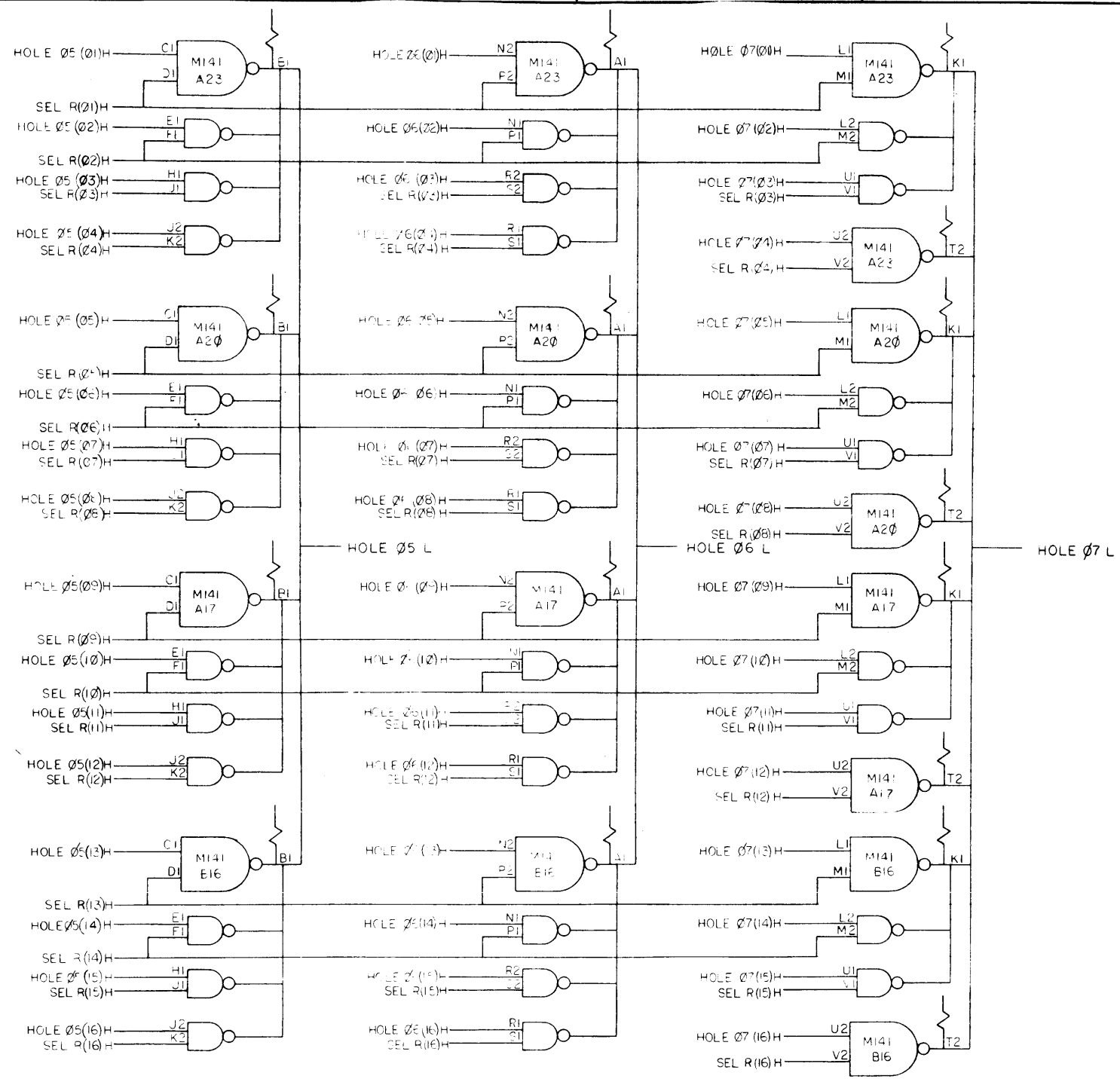
DATE: 10/22/68

|      |    |          |
|------|----|----------|
| M002 | D2 | NOT 01 L |
| B11  | E2 | NOT 02 L |
|      | F2 | NOT 03 L |
|      | H2 | NOT 04 L |
|      | J2 | NOT 05 L |
|      | K2 | NOT 06 L |
|      | L2 | NOT 07 L |
|      | M2 | NOT 08 L |
|      | N2 | NOT 09 L |
|      | P2 | NOT 10 L |
|      | R2 | NOT 11 L |
|      | S2 | NOT 12 L |
|      | T2 | NOT 13 L |
|      | U2 | NOT 14 L |
|      | V2 | NOT 15 L |

| FIRST USED ON OPTION/MODEL           | QTY.      | DESCRIPTION | PART NO. | ITEM NO. |
|--------------------------------------|-----------|-------------|----------|----------|
| PDP8                                 |           |             |          |          |
| UNLESS OTHERWISE SPECIFIED           |           |             |          |          |
| TOLERANCES                           |           |             |          |          |
| DECIMALS                             | FRACTIONS | ANGLES      |          |          |
| = .005                               | = 1/64    | = 0°30'     |          |          |
| REMOVE BURRS AND BREAK SHARP CORNERS |           |             |          |          |
| MATERIAL                             |           |             |          |          |
| FINISH                               |           |             |          |          |
| DATE: 9-24-68                        |           |             |          |          |
| digital CORPORATION                  |           |             |          |          |
| RDR HOLE MATRIX (IN)                 |           |             |          |          |
| SCALE: NONE                          |           |             |          |          |
| SHEET 1 OF 2                         |           |             |          |          |
| SIZE CODE: D B S                     |           |             |          |          |
| NUMBER: PA63-0-10                    |           |             |          |          |
| REV: B                               |           |             |          |          |

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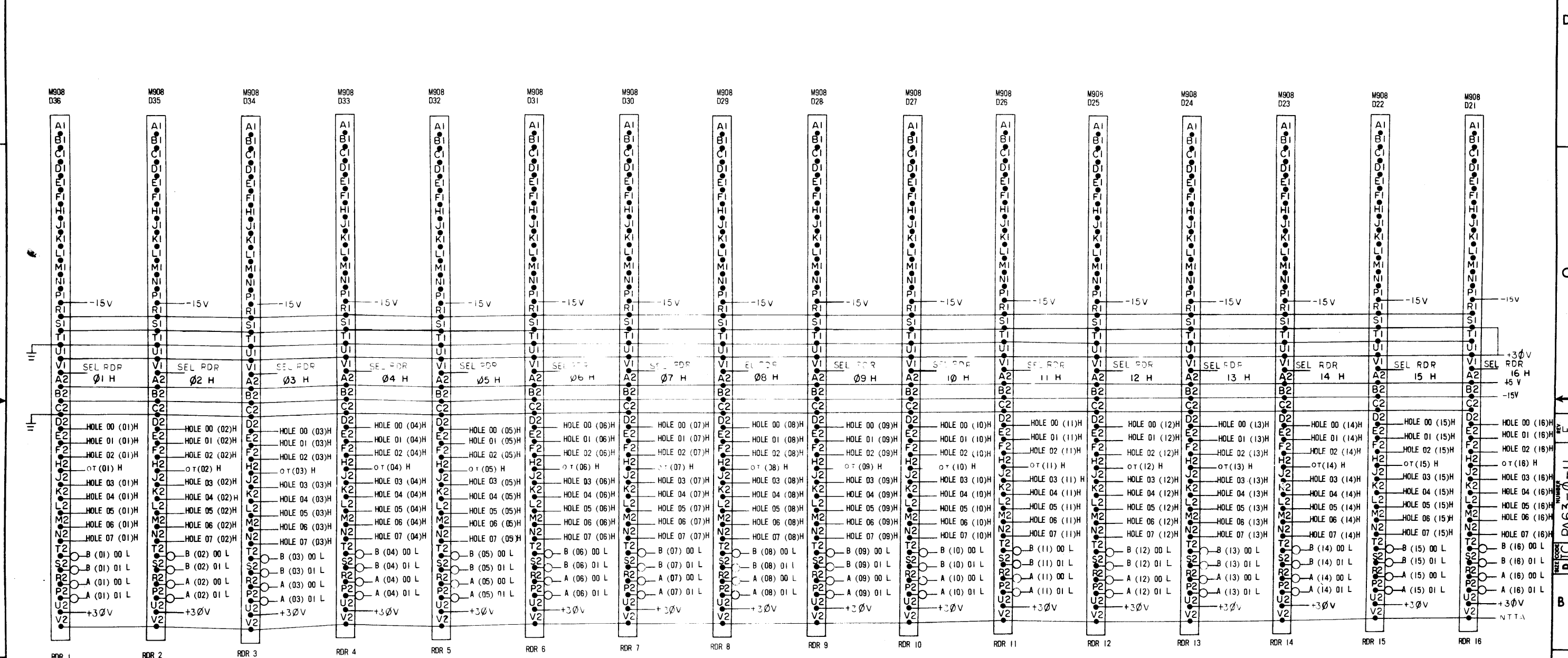
REV B  
 SIZE CODE D  
 NUMBER PA63-0-10  
 2



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

| FIRST USED OR OPTION/MODEL                                   | QTY.       | DESCRIPTION      | PART NO.     | ITEM NO.  |
|--|------------|------------------|--------------|---|
| PDP8   |            |                  |              |   |
| PARTS LIST   |            |                  |              |   |
| UNLESS OTHERWISE SPECIFIED                                   |            | DRN              | DATE         | <b>digital</b> EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS<br>TITLE<br><b>RDR HOLE MATRIX (IN)</b><br>SIZE CODE<br><b>D ES PA63-0-10</b><br>NUMBER<br>REV |
| UNLESS OTHERWISE SPECIFIED                                   |            | CHK'D            | DATE         |   |
| DIMENSION IN INCHES  |            | ENG              | DATE         |   |
| TOLERANCES   |            | PROJ. ENG.       | DATE         |   |
| DECIMALS FRACTIONS ANGLES                                    |            | PROD.            | DATE         |   |
| = .005 ± 1/64 = 0°30'  |            | NEXT HIGHER ASSY |              |   |
| FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS |            | A-M-L-PA63-0     |              |   |
| MATERIAL   | SCALE NONE |                  | SHEET 2 OF 2 |   |
| FINISH   | DIST.      |                  |              |   |

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| REV | CHANGE NO. | DATE     | BY        | CHK'D. | DATE |
|-----|------------|----------|-----------|--------|------|
| 1   | PA63-00004 | 1/10     | H. JODICE |        |      |
| 2   | PA63-00008 | 2/12/71  | H. JODICE |        |      |
| 3   | PA63-00011 | 4/19/71  | H. JODICE |        |      |
| 4   | PA63-00012 | 6-9-71   | H. JODICE |        |      |
| 5   | PA63-00013 | 11-27-71 | H. JODICE |        |      |
| 6   | PA63-00014 | 12-12-71 | H. JODICE |        |      |

| FIRST USED ON OPTION/MODEL           | QTY. | DESCRIPTION | PART NO. | ITEM NO. |
|--------------------------------------|------|-------------|----------|----------|
| PCF 8                                |      |             |          |          |
| UNLESS OTHERWISE SPECIFIED           |      |             |          |          |
| DIMENSION IN INCHES                  |      |             |          |          |
| TOLERANCES                           |      |             |          |          |
| DECIMALS FRACTIONS ANGLES            |      |             |          |          |
| ± .005 ± 1/64 ± 0°30'                |      |             |          |          |
| FINAL SURFACE QUALITY                |      |             |          |          |
| REMOVE BURRS AND BREAK SHARP CORNERS |      |             |          |          |
| MATERIAL                             |      |             |          |          |
| NEXT HIGHER ASSY                     |      |             |          |          |
| A-ML-PA63-0                          |      |             |          |          |
| FINISH                               |      |             |          |          |
| SCALE NONE                           |      |             |          |          |
| SHEET 2 OF 1                         |      |             |          |          |

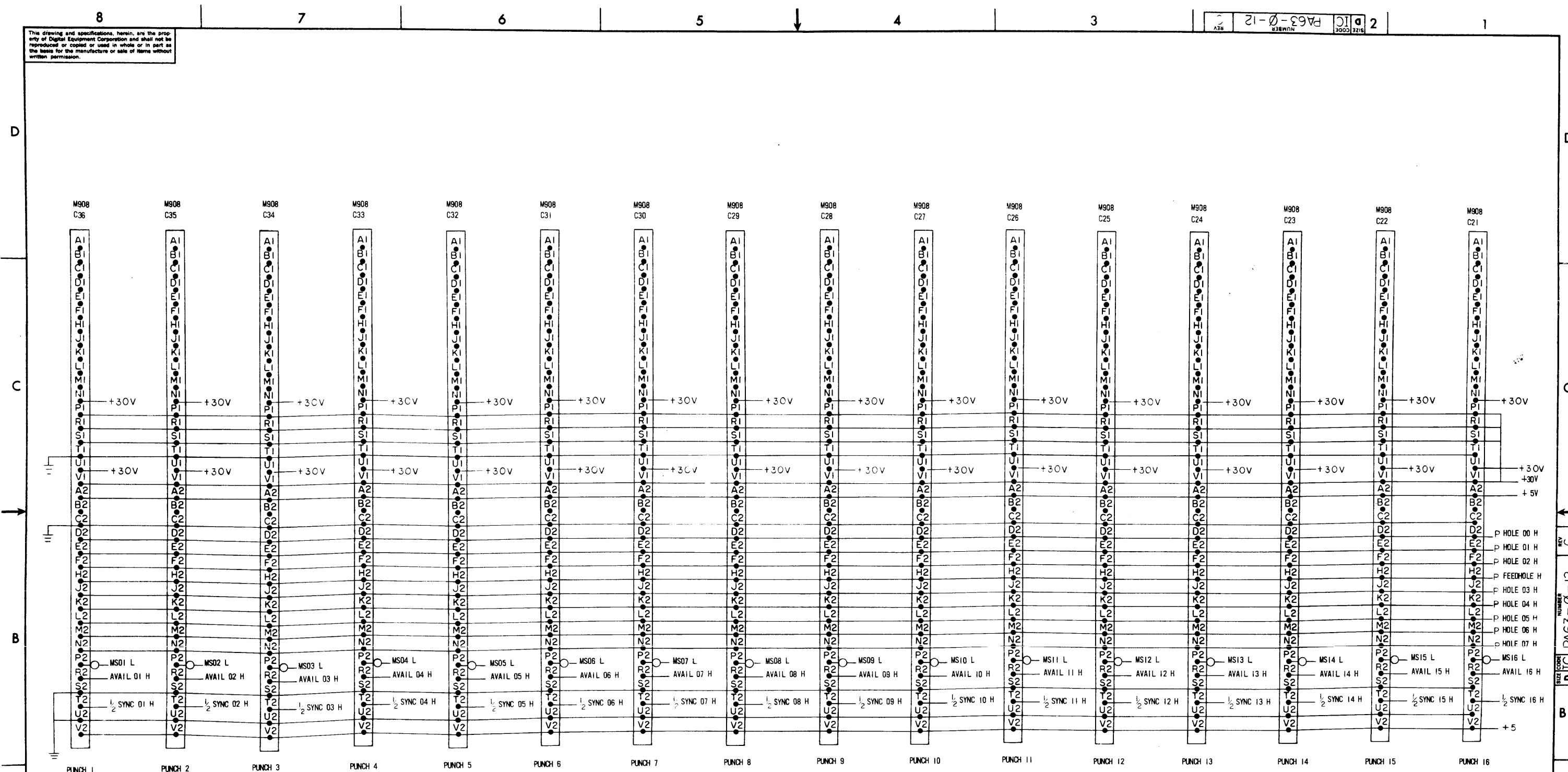


READER CABLE CONNECTORS

SIZE CODE: DTC NUMBER: PA63-0-11 REV: E



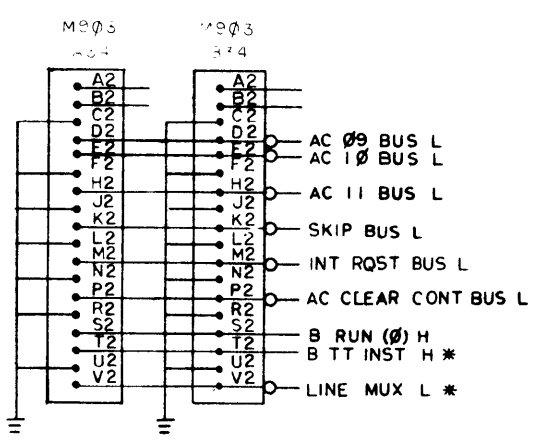
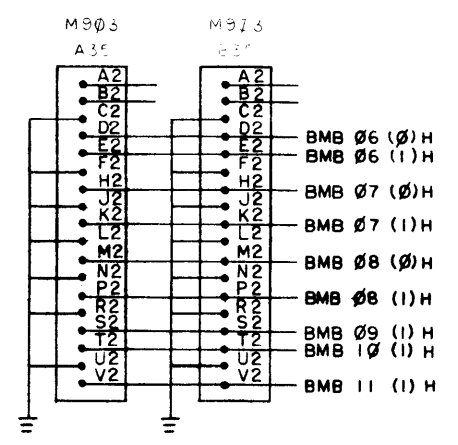
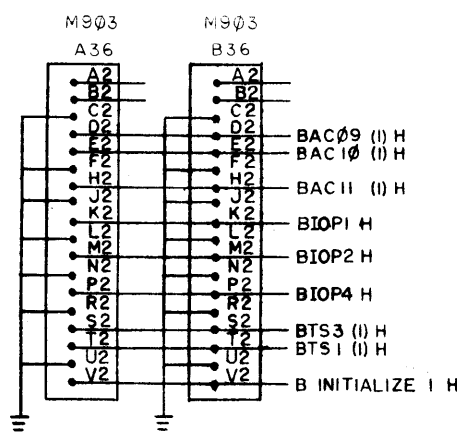
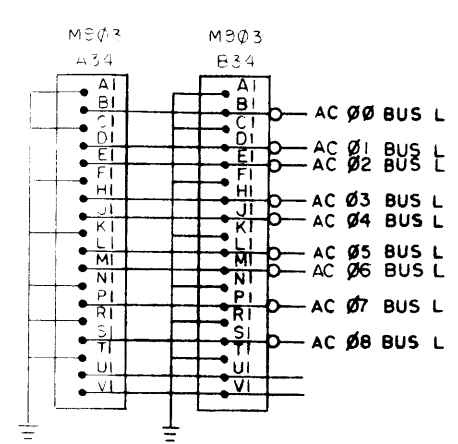
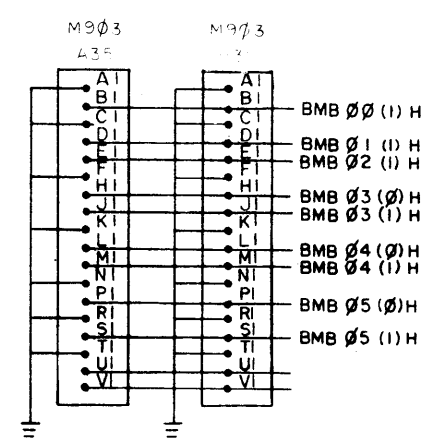
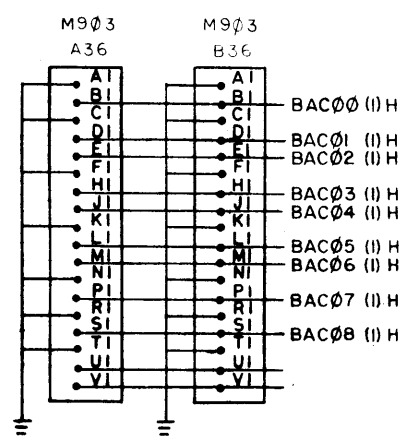
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| REV | CHANGE NO. | DATE    | BY     | REASON |
|-----|------------|---------|--------|--------|
| A   | PA63-00004 | 1/17/68 | JODICE |        |
| B   | PA63-00011 | 7/1/70  | JODICE |        |
| C   | PA63-00012 | 9-2-71  | JODICE |        |

| FIRST USED ON OPTION/MODEL                              | QTY.      | DESCRIPTION | PART NO. | ITEM NO. |
|---|-----------|-------------|----------|----------|
| PDP 8   |           |             |          |          |
| UNLESS OTHERWISE SPECIFIED                              |           |             |          |          |
| DIMENSION IN INCHES                                     |           |             |          |          |
| TOLERANCES  |           |             |          |          |
| DECIMALS  | FRACTIONS | ANGLES      |          |          |
| = .005  | = 1/64    | = 0°30'     |          |          |
| FINAL SURFACE QUALITY                                   |           |             |          |          |
| REMOVE BURRS AND BREAK SHARP CORNERS                    |           |             |          |          |
| MATERIAL  |           |             |          |          |
| FINISH  |           |             |          |          |
| NEXT HIGHER ASSY  |           |             |          |          |
| SCALE NONE  |           |             |          |          |
| SHEET OF  |           |             |          |          |
| PARTS LIST  |           |             |          |          |
| digital EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS |           |             |          |          |
| TITLE   |           |             |          |          |
| PUNCH CABLE CONNECTORS                                  |           |             |          |          |
| SIZE CODE   |           |             |          |          |
| D I C   |           |             |          |          |
| NUMBER  |           |             |          |          |
| PA63-0-12   |           |             |          |          |
| REV.  |           |             |          |          |
| C   |           |             |          |          |

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NOTES:

1. SIGNALS MARKED WITH AN ASTERISK ARE NOT USED IN PDP 8/L BUT RESERVED FOR SPECIFIC USE IN PDP 8/I
2. ALL DATA BREAK DEVICES MUST USE 'B INITIALIZE 2 H'

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

DEC 16 1972  
DRU 1024

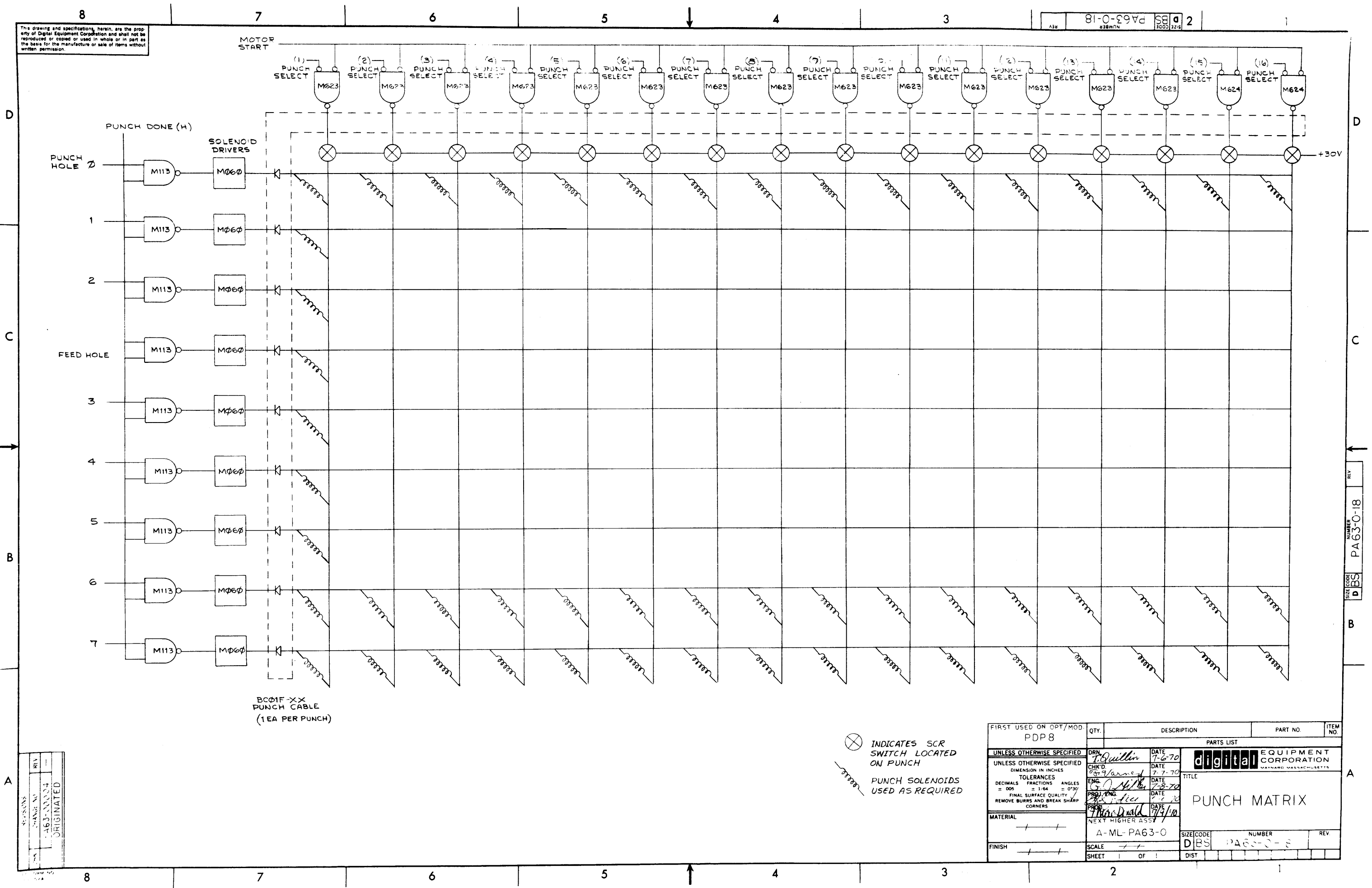
|   |                             |                |   |          |
|---|-----------------------------|----------------|---|----------|
| FIRST USED ON OPTION/MODEL<br>PDP-8   | QTY.                        | DESCRIPTION    | PART NO.  | ITEM NO. |
| PARTS LIST  |                             |                |   |          |
| UNLESS OTHERWISE SPECIFIED<br>DIMENSION IN INCHES<br>TOLERANCES<br>DECIMALS FRACTIONS ANGLES<br>± .005 ± 1/64 ± 0°30' | DRN<br>DATE<br>3-2-73       | DATE<br>3-2-73 | <b>digital</b> EQUIPMENT CORPORATION<br>MAYNARD MASSACHUSETTS<br>TITLE<br>I/O CONNECTORS<br>POSITIVE BUS<br>SIZE CODE NUMBER REV.<br>D I C PA 63-0-13 |          |
| FINAL SURFACE QUALITY<br>REMOVE BURRS AND BREAK SHARP CORNERS   | ENG<br>DATE<br>3/2/73       | DATE<br>3/2/73 |   |          |
| MATERIAL<br>/ /   | PROJ. ENG<br>DATE<br>3/2/73 | DATE<br>3/2/73 |   |          |
| FINISH<br>/ /   | PROD<br>DATE<br>3/2/73      | DATE<br>3/2/73 |   |          |
| NEXT HIGHER ASSY<br>Δ-ML-PA63-0   |                             | SCALE NONE     | SHEET 1 OF 1  |          |

G. J. H.

REV. NUMBER  
D I C PA 63-0-13

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81-0-18 BS 2



BC01F-XX  
PUNCH CABLE  
(1EA PER PUNCH)

⊗ INDICATES SCR SWITCH LOCATED ON PUNCH  
 ~~~~~ PUNCH SOLENOIDS USED AS REQUIRED

REV. NO. 1  
 CHANGE NO. 163-0004  
 ORIGINATED

| FIRST USED ON OPT/ MOD.                                       | QTY.             | DESCRIPTION | PART NO.                                                | ITEM NO. |
|---------------------------------------------------------------|------------------|-------------|---------------------------------------------------------|----------|
| PDP8                                                          |                  |             |                                                         |          |
| PARTS LIST                                                    |                  |             |                                                         |          |
| UNLESS OTHERWISE SPECIFIED                                    | DRN              | DATE        | digital EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS |          |
| UNLESS OTHERWISE SPECIFIED                                    | CHK'D            | DATE        |                                                         |          |
| TOLERANCES                                                    | ENG.             | DATE        | TITLE<br>PUNCH MATRIX                                   |          |
| DECIMALS FRACTIONS ANGLES                                     | PROJ. ENG.       | DATE        |                                                         |          |
| ± .005 ± .010 ± .030                                          | PRG. ENG.        | DATE        | NUMBER<br>PA63-0-5                                      |          |
| FINAL SURFACE QUALITY<br>REMOVE BURRS AND BREAK SHARP CORNERS | PRG. MGR.        | DATE        |                                                         |          |
| MATERIAL                                                      | NEXT HIGHER ASSY |             | SCALE                                                   |          |
| FINISH                                                        | A-ML-PA63-0      |             |                                                         |          |
| SHEET                                                         |                  | OF          | DIST                                                    | REV.     |

REV. NO. 1  
 CHANGE NO. 163-0-18  
 DBS

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SIZE CODE NUMBER PA63-0-14 2

|       |                                         |   |   |   |   |   |   |   |   |    |      |                           |    |      |             |         |         |           |         |            |            |            |            |            |         |           |         |         |         |
|-------|-----------------------------------------|---|---|---|---|---|---|---|---|----|------|---------------------------|----|------|-------------|---------|---------|-----------|---------|------------|------------|------------|------------|------------|---------|-----------|---------|---------|---------|
|       | 1                                       | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11   | 12                        | 13 | 14   | 15          | 16      | 17      | 18        | 19      | 20         | 21         | 22         |            |            |         |           |         |         |         |
| USAGE | 5408582                                 |   |   |   |   |   |   |   |   |    |      | M111                      |    |      | V401        | M141    | M141    | M141      | M141    | M141       | M141       | M141       |            |            |         |           |         |         |         |
| A     | CONTROL PANEL<br>(CONT. ON ROW C AND D) |   |   |   |   |   |   |   |   |    |      | OUT OF TAPE (H) PORS 1 16 |    |      |             | HOLE 01 | INIT BL | HOLE 06   | INIT L  | HOLE 03    |            | HOLE 01    |            | HOLE 06    |         | HOLE 03   |         | HOLE 01 |         |
| B     |                                         |   |   |   |   |   |   |   |   |    |      |                           |    |      | A & B CLOCK | HOLE 00 | INIT CL | HOLE 05   |         | FEED HOLE  |            | HOLE 00    |            | HOLE 05    |         | FEED HOLE |         | HOLE 00 |         |
| C     |                                         |   |   |   |   |   |   |   |   |    |      |                           |    |      |             |         | HOLE 02 | HOLE 02   | HOLE 07 | HOLE 07    | HOLE 04    | HOLE 04    | HOLE 02    | HOLE 02    | HOLE 07 | HOLE 07   | HOLE 04 | HOLE 04 | HOLE 02 |
| USAGE |                                         |   |   |   |   |   |   |   |   |    | M113 |                           |    | M113 |             | M141    | M141    | M141      | M141    | M141       | M141       | M141       | M141       | M141       | M141    | M113      | M113    |         |         |
| B     |                                         |   |   |   |   |   |   |   |   |    |      |                           |    |      |             | HOLE 06 |         | HOLE 03   |         | SKIP AVAIL | SYNC PUNCH | SKIP AVAIL |            | SYNC PUNCH |         |           | B(0)16  | A(0)14  | B(0)14  |
| C     |                                         |   |   |   |   |   |   |   |   |    |      |                           |    |      |             | HOLE 05 |         | FEED HOLE |         | SYNC PUNCH |            |            |            |            |         | B(1)16    | A(1)14  | B(1)14  |         |
| D     |                                         |   |   |   |   |   |   |   |   |    |      |                           |    |      |             | HOLE 07 | HOLE 07 | HOLE 04   | HOLE 04 |            |            | SKIP AVAIL | SYNC PUNCH |            |         | B(1)15    | A(1)15  | B(1)15  |         |
|       |                                         |   |   |   |   |   |   |   |   |    |      |                           |    |      |             |         |         |           |         |            |            | SKIP AVAIL | SYNC PUNCH |            |         | B(1)16    | A(1)16  | B(1)16  |         |

|       |         |           |         |         |            |        |        |        |      |      |      |      |      |      |    |    |    |    |    |    |    |    |
|-------|---------|-----------|---------|---------|------------|--------|--------|--------|------|------|------|------|------|------|----|----|----|----|----|----|----|----|
|       | 23      | 24        | 25      | 26      | 27         | 28     | 29     | 30     | 31   | 32   | 33   | 34   | 35   | 36   | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 |
| USAGE | M141    | M141      | M141    | M302    | M624       | M216   | M101   | M710   |      |      |      | M903 | M903 | M903 |    |    |    |    |    |    |    |    |
| A     | HOLE 06 | HOLE 03   | HOLE 01 | INHIBIT |            | AC 04  | AC 11  |        |      |      |      |      |      |      |    |    |    |    |    |    |    |    |
| B     | HOLE 05 | FEED HOLE | HOLE 00 |         | 6312 LEVEL |        |        |        |      |      |      |      |      |      |    |    |    |    |    |    |    |    |
| C     | HOLE 07 | HOLE 04   | HOLE 02 | HOLE 02 |            |        |        |        |      |      |      |      |      |      |    |    |    |    |    |    |    |    |
| D     |         |           |         |         |            |        |        |        |      |      |      |      |      |      |    |    |    |    |    |    |    |    |
| USAGE | M113    | M113      | M113    | M113    | M216       | M216   |        |        |      |      |      | M903 | M903 | M903 |    |    |    |    |    |    |    |    |
| A     | B(0)11  | A(0)12    | A(0)09  | B(0)09  | B(0)06     | A(0)07 | A(0)04 | B(0)04 |      |      |      |      |      |      |    |    |    |    |    |    |    |    |
| B     | B(1)11  | A(1)09    | B(1)09  | A(0)10  | B(0)07     | B(0)07 | A(1)04 | A(0)03 |      |      |      |      |      |      |    |    |    |    |    |    |    |    |
| C     | A(1)12  | B(0)12    | B(1)09  | A(1)07  | B(1)07     | A(1)07 | B(1)04 | B(0)05 |      |      |      |      |      |      |    |    |    |    |    |    |    |    |
| D     | B(1)12  | A(0)13    | A(1)10  | B(0)10  | B(1)07     | A(0)08 | A(1)05 | B(0)05 | FLAG | R505 | P004 |      |      |      |    |    |    |    |    |    |    |    |
|       | A(1)13  | B(0)13    | B(1)10  | A(0)11  | A(1)08     | B(0)08 | B(1)05 | A(0)06 |      |      |      |      |      |      |    |    |    |    |    |    |    |    |
|       | B(1)13  |           | A(1)11  |         | B(1)08     | A(1)06 |        |        |      |      |      |      |      |      |    |    |    |    |    |    |    |    |

| REV. | CHG. NO.   | DATE | BY | REASON |
|------|------------|------|----|--------|
| 1    | PA63-00107 |      |    |        |
| 2    | PA63-00008 |      |    |        |
| 3    | PA63-00011 |      |    |        |
| 4    | PA63-00012 |      |    |        |
| 5    | PA63-00013 |      |    |        |
| 6    | PA63-00014 |      |    |        |
| 7    | PA63-00015 |      |    |        |
| 8    | PA63-00016 |      |    |        |

NOTES:  
 ◆ = THESE CABLES ARE PLUGGED INTO THE APPROPRIATE LOCATION AS THE PUNCH OPTIONS ARE ADDED TO THE SYSTEM  
 ▼ = THESE CABLES ARE PLUGGED INTO THE APPROPRIATE LOCATION AS THE READER OPTIONS ARE ADDED TO THE SYSTEM  
 ▲ = THESE MODULES ARE ADDED IN THE SEQUENCE INDICATED AS EACH READER IS ADDED TO THE SYSTEM

FIRST USED ON OPTION/MODEL  
PA63

|                                                |           |                  |           |
|------------------------------------------------|-----------|------------------|-----------|
| DO NOT SCALE DRAWING                           |           | DRN              | DATE      |
| UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES |           | CHK'D            | DATE      |
| TOLERANCES                                     |           | ENG              | DATE      |
| DECIMALS                                       | FRACTIONS | PROJ. ENG        | DATE      |
| ± .005                                         | ± 1/64    | PROD             | DATE      |
| ANGLES = 0°30'                                 |           | NEXT HIGHER ASSY |           |
| FINAL SURFACE QUALITY                          |           | A-ML-PA63-0      |           |
| REMOVE BURRS AND BREAK SHARP CORNERS           |           | SIZE CODE        | NUMBER    |
| MATERIAL                                       |           | DJMU             | PA63-0-14 |
| FINISH                                         |           | SCALE            | NONE      |
| SHEET                                          |           | 1                | OF 2      |

digital EQUIPMENT CORPORATION  
MAYNARD, MASSACHUSETTS

MODULE UTILIZATION



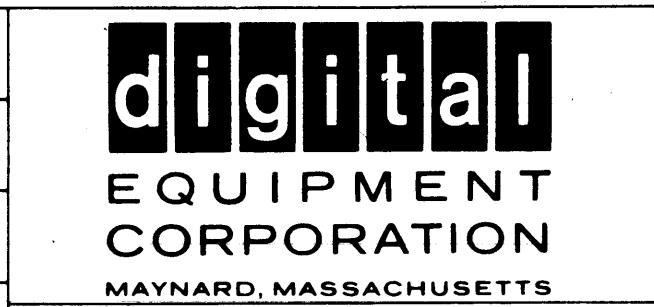


|                |         |
|----------------|---------|
| DRWG NO        | REV LTR |
| K-WL-PA63-Ø-15 | F       |

| REVISIONS |            |          |     |
|-----------|------------|----------|-----|
| REV LTR   | ECO NO     | DATE     | ENG |
| A         | PA63-00004 | 7-2-70   | AK  |
| B         | PA63-00008 | 10/22/70 | AK  |
| C         | PA63-00011 | 4/15/71  | AK  |
| D         | PA63-00012 | 6-2-71   | AK  |
| E         | PA63-00013 | 12-22/71 | AK  |
| F         | PA63-00014 | 1-31-72  | AK  |

FIRST USED ON OPTION/  
MODEL PA63

|             |         |
|-------------|---------|
| DRAWN       | DATE    |
| A. Rainaldi | 9-4-69  |
| CHECKED     | DATE    |
| T. Chalada  | 1-16-70 |
| ENG         | DATE    |
| [Signature] | 2/1/70  |
| PROJ ENG    | DATE    |
| [Signature] | 3/1/70  |
| PROD        | DATE    |
| [Signature] | 2/1/70  |



TITLE  
WIRE LIST

FOR TAPE # FILE #

ASSY NO  
D-AD-7006490-0-0

SCALE NONE SHEET | OF |

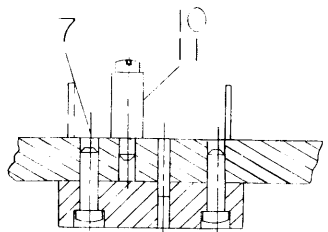
|       |      |           |         |
|-------|------|-----------|---------|
| SIZE  | CODE | DWG. NO.  | REV LTR |
| K     | WL   | PA63-Ø-15 | F       |
| DIST. |      |           |         |

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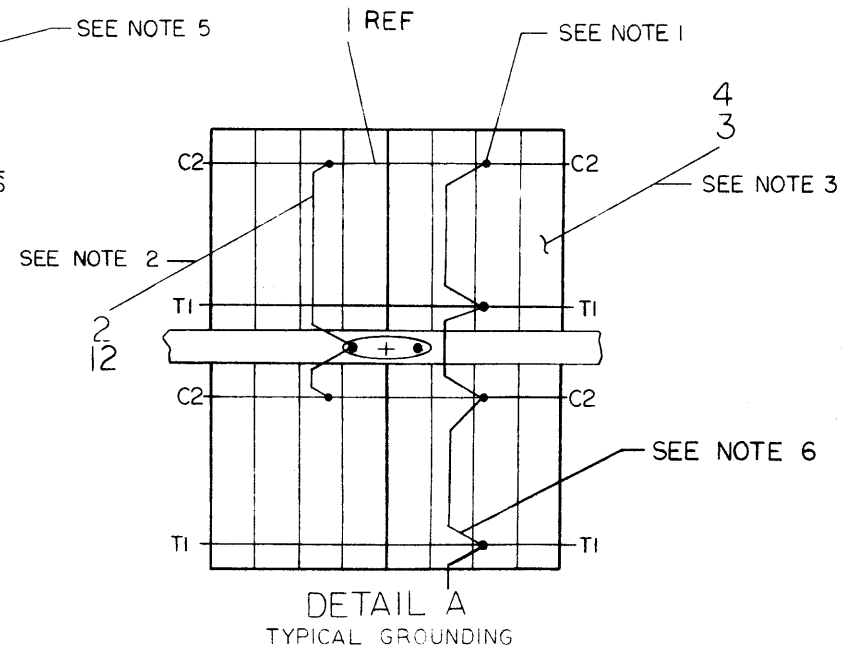
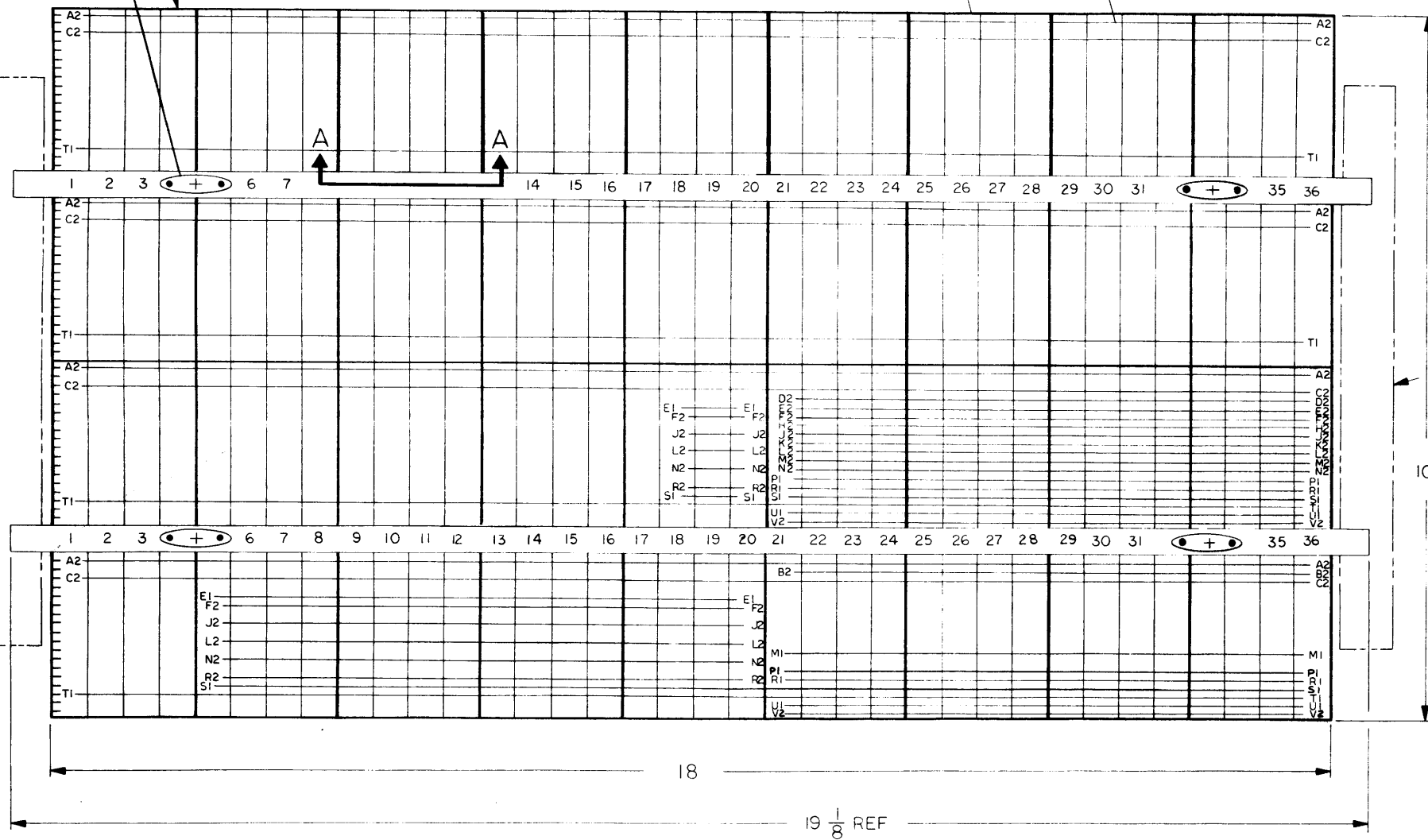
0 0-0-007000 2

| ITEM NO. | DESCRIPTION | CONNECTOR | WIRE  | REMARKS   |
|----------|-------------|-----------|-------|-----------|
| 1        | ORN         | D28P1     | D28U1 | SOLDER    |
| 2        | ORN         | D28P1     | D28U1 | SOLDER    |
| 3        | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 4        | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 5        | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 6        | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 7        | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 8        | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 9        | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 10       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 11       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 12       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 13       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 14       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 15       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 16       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 17       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 18       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 19       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 20       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 21       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 22       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 23       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 24       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 25       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 26       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 27       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 28       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 29       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 30       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 31       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 32       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 33       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 34       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 35       | ORN         | D28P1     | D28U1 | WIRE WRAP |
| 36       | ORN         | D28P1     | D28U1 | WIRE WRAP |

- NOTES:
- CONNECTIONS ON ITEMS 1 & 2 TO BE SOLDERED AND LOCATED AT MINIMUM PRACTICAL HEIGHT ABOVE FLOOR
  - ALL CONN BLOCKS TO BE GROUNDED TO GND LUGS AS SHOWN, 4 PLACES.
  - USE YELLOW WIRE (ITEM NO. 3) FOR MACHINE WRAPPED AND BLUE WIRE (ITEM NO. 4) FOR HAND WRAPPED WIRING
  - INSTALL ITEMS 10 & 11 AFTER WIRING OPERATIONS ARE COMPLETE. THEY ARE LOCATED AT THE THIRD AND SEVENTH BLOCK FROM LEFT (4 PLACES)
  - USE WIRING BLOCK C-MD-7605449-0-0 (SHOWN IN PHANTOM) BOTH ENDS REMOVE BLOCS WHEN LOGIC IS INSTALLED AT ASSY
  - WIRE GROUNDS AS SHOWN (9 PLACES)



SEE DETAIL A



| REV | CHANGE NO. | DATE | BY     | CHK'D |
|-----|------------|------|--------|-------|
| A   | PA63-0007  |      | JODICE |       |
| B   | PA63-0001  |      | JODICE |       |
| C   | PA63-0012  |      | JODICE |       |

FIRST USED ON OPTION/MODEL  
PDP-8

DO NOT SCALE DRAWING  
UNLESS OTHERWISE SPECIFIED  
DIMENSION IN INCHES  
TOLERANCES  
DECIMALS FRACTIONS ANGLES  
± .005 ± 1/64 ± 0'30"  
FINAL SURFACE QUALITY  
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL  
FINISH

| QTY. | DESCRIPTION                                             | PART NO.                      | ITEM NO.           |
|------|---------------------------------------------------------|-------------------------------|--------------------|
|      | PARTS LIST                                              |                               |                    |
|      | digital EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS |                               |                    |
|      | TITLE<br>WIRED ASS'Y (PA63)                             |                               |                    |
|      | NEXT HIGHER ASSY<br>D-UA-PA63-0-0                       |                               |                    |
|      | SCALE NOTE                                              | SIZE CODE<br>D AD 7006490-0-0 | NUMBER<br>REV<br>C |
|      | SHEET                                                   | OF                            | DIST.              |



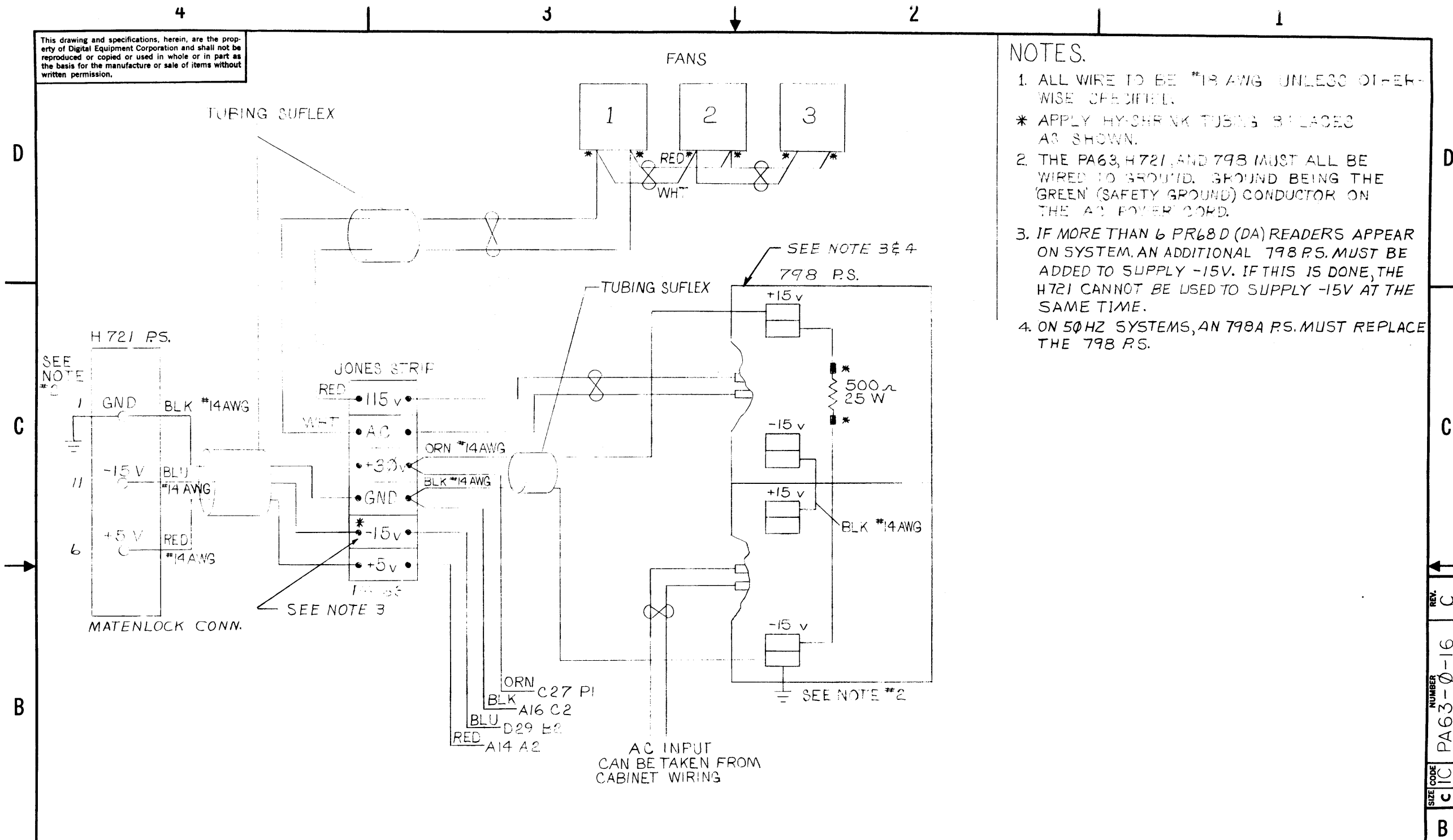
**DIGITAL EQUIPMENT CORPORATION**  
MAYNARD, MASSACHUSETTS  
**PARTS LIST**

|                        |                      |              |
|------------------------|----------------------|--------------|
| MADE BY A. RAIMONDI    | CHECKED AL PFYFFER   | SECTION      |
| DATE 9/3/69            | DATE 12/2/69         | 1            |
| ENG <i>P. J. Dwyer</i> | PROD <i>A. W. W.</i> | ISSUED SECT. |
| DATE 3/10/70           | DATE 3-10-70         | 1            |

| ITEM NO.      | DWG NO./PART NO. |                       |      | DESCRIPTION                             | QTY/VAR       |  |  |  | UNIT COST | UNIT QUANTITY | QUANTITY ISSUED |
|---------------|------------------|-----------------------|------|-----------------------------------------|---------------|--|--|--|-----------|---------------|-----------------|
|               | CL               | BASIC                 | VAR. |                                         | PA63          |  |  |  |           |               |                 |
| 1             |                  | 1205541               |      | VOLTAGE CHAIN                           | A/R           |  |  |  |           |               |                 |
| 2             |                  | 9107560-1             |      | #22 WIRE, BUSSING                       | A/R           |  |  |  |           |               |                 |
| 3             |                  | 9105740-44            |      | #30 AWG SOLID KYNAR YEL                 | A/R           |  |  |  |           |               |                 |
| 4             |                  | 9105740-66            |      | #30 AWG SOLID KYNAR BLU                 | A/R           |  |  |  |           |               |                 |
| 5             |                  | E-SC-1205348-0-0      |      | 288 PIN CONN BLOCK                      | 18            |  |  |  |           |               |                 |
| 6             |                  | D-IA-7406739-0-0      |      | MTG BAR                                 | 2             |  |  |  |           |               |                 |
| 7             |                  | 9006423               |      | SCR PHL HD FIL POSI DRIVE #8-32X3/4 CPS | 36            |  |  |  |           |               |                 |
| 8             |                  | 9006121               |      | SCR PHL HD FIL POSI DRIVE #8-32X3/8 CPS | 4             |  |  |  |           |               |                 |
| 9             |                  | 9006775               |      | TERMINAL 2116-08-00 SHAKEPROOF          | 4             |  |  |  |           |               |                 |
| 10            |                  | 9007868               |      | SPACER 1/4 X 3/4 LG #8 HOLE             | 4             |  |  |  |           |               |                 |
| 11            |                  | 9006043-1             |      | SCR FIL HD PAN #8-32 X 1" LG            | 4             |  |  |  |           |               |                 |
| 12            |                  | 9107205-09            |      | #22 TUBING, WHITE                       | A/R           |  |  |  |           |               |                 |
| <del>13</del> |                  | <del>9107360-66</del> |      | <del>#18 AWG STRD TEF BLU</del>         | <del>AR</del> |  |  |  |           |               |                 |
| <del>14</del> |                  | <del>9107360-33</del> |      | <del>#18 AWG STRD TEF ORN</del>         | <del>AR</del> |  |  |  |           |               |                 |
| REF           |                  | K-WL-PA63-Ø-15        |      | WIRE LIST                               |               |  |  |  |           |               |                 |
| 15            |                  | 9107470               |      | #24 AWG SOLID TEFLON ORANGE             | A/R           |  |  |  |           |               |                 |
|               |                  |                       |      |                                         |               |  |  |  |           |               |                 |
|               |                  |                       |      |                                         |               |  |  |  |           |               |                 |
|               |                  |                       |      |                                         |               |  |  |  |           |               |                 |
|               |                  |                       |      |                                         |               |  |  |  |           |               |                 |
|               |                  |                       |      |                                         |               |  |  |  |           |               |                 |
|               |                  |                       |      |                                         |               |  |  |  |           |               |                 |
|               |                  |                       |      |                                         |               |  |  |  |           |               |                 |

|                            |  |  |                              |  |  |                   |  |                       |  |  |           |  |                       |  |
|----------------------------|--|--|------------------------------|--|--|-------------------|--|-----------------------|--|--|-----------|--|-----------------------|--|
| TITLE<br>WIRED ASSY (PA63) |  |  | ASSY NO.<br>D-AD-7006490-0-0 |  |  | SIZE CODE<br>A PL |  | NUMBER<br>7006490-0-0 |  |  | REV.<br>C |  | ECO NO.<br>PA63-00012 |  |
| SHEET 1 OF 1               |  |  |                              |  |  | DIST              |  |                       |  |  |           |  |                       |  |

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NOTES.

1. ALL WIRE TO BE #18 AWG UNLESS OTHERWISE SPECIFIED.
- \* APPLY HY-SHRINK TUBING IN PLACES AS SHOWN.
2. THE PA63, H721, AND 798 MUST ALL BE WIRED TO GROUND. GROUND BEING THE 'GREEN' (SAFETY GROUND) CONDUCTOR ON THE AC POWER CORD.
3. IF MORE THAN 6 PR68 D (DA) READERS APPEAR ON SYSTEM, AN ADDITIONAL 798 P.S. MUST BE ADDED TO SUPPLY -15V. IF THIS IS DONE, THE H721 CANNOT BE USED TO SUPPLY -15V AT THE SAME TIME.
4. ON 50HZ SYSTEMS, AN 798A P.S. MUST REPLACE THE 798 P.S.

| REV. | CHANGE NO. | BY               | DATE     |
|------|------------|------------------|----------|
| B    | PA63-00011 | REVISOR: RELAVAN | 4-8-71   |
| C    |            | JONICE           | 11/10/72 |

DEC FORM NO. DFC 100

| FIRST USED ON OPTION/MODEL                                                                                                                                                                            | QTY. | DESCRIPTION                                                                                                                                                                          | PART NO.                                                       | ITEM NO.  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-----------|
| PA63                                                                                                                                                                                                  |      |                                                                                                                                                                                      |                                                                |           |
| PARTS LIST                                                                                                                                                                                            |      |                                                                                                                                                                                      |                                                                |           |
| <small>UNLESS OTHERWISE SPECIFIED</small><br>DIMENSION IN INCHES<br>TOLERANCES<br>DECIMALS ± .005    FRACTIONS ± 1/64    ANGLES ± 0°30'<br>FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS |      | DRN. G. FLANDERS    DATE 12-22-66<br>CHK'D. K. RUSSELL    DATE 1-23-70<br>ENG. P. GARDNER    DATE 3-1-70<br>PROJ. ENG. B. D'ARCELT    DATE 3-10-70<br>PROD. A. F. H.    DATE 3-10-70 | <b>digital</b> EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS |           |
| MATERIAL                                                                                                                                                                                              |      | TITLE<br>POWER WIRING (PA63)                                                                                                                                                         |                                                                |           |
| FINISH                                                                                                                                                                                                |      | NEXT HIGHER ASSY.<br>D-UA-PA63-7-7                                                                                                                                                   |                                                                |           |
| SCALE                                                                                                                                                                                                 |      | SIZE CODE<br>C IC                                                                                                                                                                    | NUMBER<br>PA63-0-16                                            | REV.<br>C |
| SHEET 1 OF 1                                                                                                                                                                                          |      | DIST.                                                                                                                                                                                |                                                                |           |

SIZE CODE C IC NUMBER PA63-0-16 REV. C

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| DIGITAL EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS |             |        |          |        |                    |         |
|---------------------------------------------------------|-------------|--------|----------|--------|--------------------|---------|
| ENGINEERING SPECIFICATION                               |             |        |          |        | DATE 9-22-70       |         |
| TITLE PA63                                              |             |        |          |        |                    |         |
| REVISIONS                                               |             |        |          |        |                    |         |
| REV                                                     | DESCRIPTION | CHG NO | ORIG     | DATE   | APPD BY            | DATE    |
| A                                                       |             | 00009  |          |        | <i>[Signature]</i> | 1-5-71  |
| B                                                       |             | 00011  | H.JODICE | 3-8-71 | <i>[Signature]</i> | 3/3/71  |
| C                                                       |             | 00012  | H JODICE | 6-2-71 | <i>[Signature]</i> | 6/1/71  |
| D                                                       |             | 00013  | H JODICE | 1-4-72 | <i>[Signature]</i> | 1/10/72 |

|     |           |      |      |      |           |     |
|-----|-----------|------|------|------|-----------|-----|
| ENG | G. Miller | APPD | CODE | SIZE | NUMBER    | REV |
|     |           |      | SP   | A    | PA63-0-17 | D   |

| ENGINEERING SPECIFICATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |     |      |                                            | CONTINUATION SHEET |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------|--------------------------------------------|--------------------|
| TITLE PA63                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |     |      |                                            |                    |
| <p>I. <u>Description</u></p> <p>The PA63 is a controller for; up to 16 PR68D paper tape readers and up to 16 PP67C or PP67D paper tape punches. It can interface to any one of the positive bus family of PDP-8 computers. One reader and one punch can be selected at a time. The punch section controls the turning on and turning off of the selected punch motor; it also controls the solenoids which determine the bits to be punched. The reader section controls the selected stepping motor; it also buffers the data bits after it commands the selected reader to fetch a character.</p> |     |      |                                            |                    |
| <p>II. <u>General Specifications</u></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |      |                                            |                    |
| <p>A. <u>Mechanical Packaging</u></p> <p>The PA63 consists of a standard H925 module drawer with 36 H803 mounting blocks. The drawer is mounted using chassis tracks.</p>                                                                                                                                                                                                                                                                                                                                                                                                                           |     |      |                                            |                    |
| <p>B. <u>Environmental Specifications</u></p> <p>The PA63 will operate at a temperature range of 20° C to 50 C.</p> <p>The power required is supplied by an H721 power supply for +5v and -15v and a DEC 793 power supply for +30v.</p>                                                                                                                                                                                                                                                                                                                                                             |     |      |                                            |                    |
| <p>C. <u>Programming Specifications</u></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |      |                                            |                    |
| <u>Instructions</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |     |      |                                            |                    |
| Punch                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | PSF | 6021 | Skip if punch flag = 1                     |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | PCF | 6022 | Clear flag and punch buffer                |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | PPC | 6024 | Load buffer and punch                      |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | PLS | 6026 | Clear flag and buffer; load and punch.     |                    |
| Reader                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | RSF | 6011 | Skip if reader flag = 1                    |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | RRF | 6012 | Read reader buffer, and clear flag         |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | RFC | 6014 | Clear flag and buffer and fetch character. |                    |

|      |      |           |     |
|------|------|-----------|-----|
| SIZE | CODE | NUMBER    | REV |
| A    | SP   | PA63-0-17 | D   |

**ENGINEERING SPECIFICATION**

digital

CONTINUATION SHEET

TITLE PA63

Instructions (Continued)

|         |      |                         |
|---------|------|-------------------------|
| General | 6311 | Skip if punch not ready |
|         | 6312 | Select reader           |
|         | 6314 | Select punch            |

Programming Examples

|                             |      |                                        |
|-----------------------------|------|----------------------------------------|
| <u>Reader</u>               | 7604 | LAS (Octal Code SR <sub>8-11</sub> for |
|                             | 6312 | SEL Rdr reader to be sel)              |
|                             | 7300 | CLA CLL                                |
| SR=7000                     | 6014 | RFC                                    |
| Load Address                | 6011 | RSF                                    |
| SR <sub>8-11</sub> = Reader | 5204 | Jmp .-1                                |
| Number                      | 6012 | RRB                                    |
| START                       | 5202 | Jmp .-5                                |

This program will command the selected reader to read the paper tape which is placed in its tape path guide.

|                           |      |                                             |
|---------------------------|------|---------------------------------------------|
| <u>Punch</u>              | 7604 | LAS (Oct. Code SR <sub>8-11</sub> for punch |
|                           | 6314 | Sel to be selected)                         |
|                           | 6311 | Punch Skip if punch not avail-<br>able      |
|                           | 7410 | SKP                                         |
|                           | 7402 | HLT                                         |
|                           | 7300 | CLA CLL                                     |
| SR=7000                   | 7040 | CMA                                         |
| Load Address              | 6026 | PLS                                         |
| SR <sub>8-11</sub> =Punch | 6021 | PSF                                         |
| Number                    | 5210 | JMP.-1                                      |
| START                     | 5206 | JMP.-4                                      |

The program will command the selected punch to punch a continuous pattern of one's and zero's.

|      |      |           |     |
|------|------|-----------|-----|
| SIZE | CODE | NUMBER    | REV |
| A    | SP   | PA63-0-17 | D   |

**ENGINEERING SPECIFICATION**

digital

CONTINUATION SHEET

TITLE PA63

III. System Components

- A. Modules - See print UML PA63
- B. Cables - 1) Standard applicable I/O cables  
2) One BCØ1H-0-0 cable per reader  
One BCØ1F-0-0 cable per punch
- C. Power Supplies: DEC 778  
H720 (C)

IV. Interface Specifications

- A. The I/O signals are detailed in the PDP-8 Small Computer Handbook.
- B. Reader Signals

| Pin      | Signal      | Description                                                             |
|----------|-------------|-------------------------------------------------------------------------|
| P1,B2    | -15v        | Supplies current to reader amplifiers and bulbs                         |
| R1,A2    | +5v         | Supplies current to all logic components                                |
| S1,U1,U2 | +30v        | Supplies current to drive stepping motor                                |
| V1       | Sel.Rdr     | When signal is asserted, reader is selected.                            |
| C2,T1    | GND         |                                                                         |
| D2       | Hole ØØ (H) | Signal is asserted when a hole is detected.                             |
| E2       | Hole Ø1 (H) | Signal is asserted when a hole is detected.                             |
| F2       | Hole Ø2 (H) | Signal is asserted when a hole is detected.                             |
| H2       | FH(H)       | Signal is asserted when a hole is detected. Used to detect out of tape. |
| J2       | Hole Ø3 (H) | Signal is asserted when a hole is detected.                             |
| K2       | Hole Ø4 (H) | Signal is asserted when a hole is detected.                             |
| L2       | Hole Ø5 (H) | Signal is asserted when a hole is detected.                             |
| M2       | Hole Ø6 (H) | Signal is asserted when a hole is detected.                             |
| N2       | Hole Ø7 (H) | Signal is asserted when a hole is detected.                             |
| T2       | BØØL        | +30v to GND. Used to increment motor.                                   |

|      |      |           |     |
|------|------|-----------|-----|
| SIZE | CODE | NUMBER    | REV |
| A    | SP   | PA63-0-17 | D   |

**ENGINEERING SPECIFICATION**

digital

CONTINUATION SHEET

TITLE PA63

B. Reader Signals (Continued)

| Pin | Signal | Description                                                                       |
|-----|--------|-----------------------------------------------------------------------------------|
| S2  | BØ1L   | +30v to GND. Used to increment motor.                                             |
| R2  | AØØL   | +30v to GND. Used to increment motor.                                             |
| P2  | AØ1L   | +30v to GND. Used to increment motor.                                             |
| V2  | NTTA   | When signal is at GND, it places the readers in the non-torn tape allotment mode. |

C. Punch Signals

|                          |                 |                                                                                                                                 |
|--------------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------|
| N1, P1, R1, S1<br>U1, V1 | +30v            | Supplies current to solenoids                                                                                                   |
| T1, C2<br>A2, V2         | GND<br>+5v      | Supplies voltage to control circuitry                                                                                           |
| D2                       | P Hole ØØ (L)   | When signal is at GND, the appropriate solenoid will be in a "Hole" state.                                                      |
| E2                       | P Hole Ø1 (L)   | When signal is at GND, the appropriate solenoid will be in a "Hole" state.                                                      |
| F2                       | P Hole Ø2 (L)   | When signal is at GND, the appropriate solenoid will be in a "Hole" state.                                                      |
| H2                       | P Feed Hole (L) | When signal is at GND, the appropriate solenoid will be in a "Hole" state. This signal should be set to a 4.5ms positive width. |
| J2                       | P Hole Ø3 (L)   | When signal is at GND, the appropriate solenoid will be in a "Hole" state.                                                      |
| K2                       | P Hole Ø4 (L)   | When signal is at GND, the appropriate solenoid will be in a "Hole" state.                                                      |
| L2                       | P Hole Ø5 (L)   | When signal is at GND, the appropriate solenoid will be in a "Hole" state.                                                      |

|                  |            |                     |          |
|------------------|------------|---------------------|----------|
| SIZE<br><b>A</b> | CODE<br>SP | NUMBER<br>PA63-0-17 | REV<br>D |
|------------------|------------|---------------------|----------|

**ENGINEERING SPECIFICATION**

digital

CONTINUATION SHEET

TITLE PA63

C. Punch Signals (Continued)

|    |               |                                                                            |
|----|---------------|----------------------------------------------------------------------------|
| M2 | P Hole Ø6 (L) | When signal is at GND, the appropriate solenoid will be in a "Hole" state. |
| N2 | P Hole Ø7 (L) | When signal is at GND, the appropriate solenoid will be in a "Hole" state. |
| P2 | MS (L)        | When signal is at GND, the selected punch motor will start.                |
| R2 | AVAIL (L)     | When signal is at GND, the selected punch is available.                    |
| T2 | ½ Sync (H)    | A signal supplied from the punch to sync the strobing (feed hole) pulse.   |

V. Checkout Specifications

See A-SP-PA63-Ø-21 and A-SP-PA63-Ø-22

VI. Acceptance Procedures

See A-SP-PA63-Ø-19

VII. Engineering Drawings

See A-ML-PA63-Ø

VIII. System Configuration

See D-UA-PTS8-L-Ø

|                  |            |                     |          |
|------------------|------------|---------------------|----------|
| SIZE<br><b>A</b> | CODE<br>SP | NUMBER<br>PA63-0-17 | REV<br>D |
|------------------|------------|---------------------|----------|

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**DIGITAL EQUIPMENT CORPORATION  
MAYNARD, MASSACHUSETTS**

**ENGINEERING SPECIFICATION**

DATE *6/11/71*

TITLE PA63 ACCEPTANCE CRITERIA - FIELD ONLY

**REVISIONS**

| REV | DESCRIPTION | CHG NO | ORIG | DATE | APPD BY | DATE |
|-----|-------------|--------|------|------|---------|------|
|     |             |        |      |      |         |      |

|     |                                 |               |         |                  |     |
|-----|---------------------------------|---------------|---------|------------------|-----|
| ENG | APPD <i>Fred Miller 6/11/71</i> | SIZE <b>A</b> | CODE SP | NUMBER PA63-0-23 | REV |
|-----|---------------------------------|---------------|---------|------------------|-----|

**ENGINEERING SPECIFICATION**



CONTINUATION SHEET

TITLE PA63 ACCEPTANCE CRITERIA - FIELD ONLY

SCOPE - To define the criteria necessary to accept the positive bus PA63 16 channel reader/punch multiplexer. This criteria assumes that:

- a. The PA63, if an add-on, has been connected into the system, and
- b. All preceding diagnostics for the computer and any other peripherals; DF32, DECTape, etc., have been run successfully.
- c. The user is familiar with the operation of the Typeset-8 Systems Exerciser (TCSE). Reference document Maindec-08-07A0-D which should be available at all local Field Service Offices.

PRELIMINARY

Before checking out the PA63, make sure that all readers and punches are aligned correctly (refer to alignment procedures for PR68B/D/DA readers and PP67C/D punches).

NOTE: Use the customers tape for these tests if it falls within specs. Refer to the Typeset-8 System Users Guide (DEC-08-HGZA-D) SECTION 3.5 for paper tape specifications.

Check that the reader clock M401 location A15 pin D2 is set at 2.3 ms exactly. Check that the punch done level M710 location AB30 pin BH2 has a positive delay of 4.5 ms exactly.

PROCEDURE

I System without NTA Option

- a. Make sure the NTA switch in the PA63 is in the OFF position.
- b. Load a full roll of paper tape (as used by the customer for his keyboards) in each punch.
- c. Load the customized version of the system exerciser (supplied with each system), overlay 3.

TITLE PA63 ACCEPTANCE CRITERIA - FIELD ONLY

PROCEDURE (continued)

- I d. Commence punching out the test pattern on all punches using Segment 1 of Overlay 3. After two or three passes, as each punch is punching its test (special binary count) pattern, turn the punch to the STOP WHEN DONE position. The punch should continue to the end of the test pattern. Make sure that the message "EDV3S1 PUNCH XX NOT AVAILABLE" is typed out for each punch as each punch is again checked and found to be unavailable. Discontinue running of segment 1.
- e. Make a loop of each tape generated in step d and load in each reader, placing all reader switches in the ON position. Commence reading using Segment 0 of overlay 3. After two or three passes, as each reader finishes reading the test pattern, place the reader switch in the OFF position. Make sure that the message "EOV3S0 RDR XX NO RESPONSE" is typed out for each reader as each reader is again checked and found to be unavailable. Discontinue running of segment 0, and remove the tape loops. Recommence running of segment 0 with all reader switches in the ON position but no tape in the readers. The same error messages should again be typed out.
- f. Run all segments of Overlay 3 until the tape in each punch has been expended. There should be no errors in reading or punching for a full roll of tape, excluding those due to tape skewing or dirt picked up off the floor, etc.

Since the punch segment runs faster than the reader segment, large amounts of tape tend to pile up in the buffer area between the reader and the punch. This buffer area is usually the floor and gives trouble in tape skewing and dirt pick-up. An acceptable alternative to feeding the tape direct from the punch to the reader is to run the reader segment using the tape loops generated in step e). However, when punching is finished, the tapes punched out by segment 1 must be verified by the readers; running all segments but segment 1 of overlay 3.

| SIZE | CODE | NUMBER    | REV |
|------|------|-----------|-----|
| A    | SP   | PA63-0-23 |     |

SHEET 3 OF 4

TITLE PA63 ACCEPTANCE CRITERIA - FIELD ONLY

PROCEDURE (continued)II System with NTA option

In addition to steps a) through f) in the preceding section, perform the following:

- a. Throw the NTA switch in the PA63 to the ON position.
- b. Place a tape loop in each reader and press the reader switches. Observe that the "available" light in each reader is extinguished. Run segment 0, noting that after a test pattern has been tested in a reader, the "available" lamp will be lit again. Press the switch again on each reader after this occurs. After running for three or four passes do not press the reader switches anymore, noting that as each reader is checked again and found to be unavailable, the message "EOV3S0 RDR XX NO RESPONSE" is typed out. Discontinue running segment 0.

NOTE 1

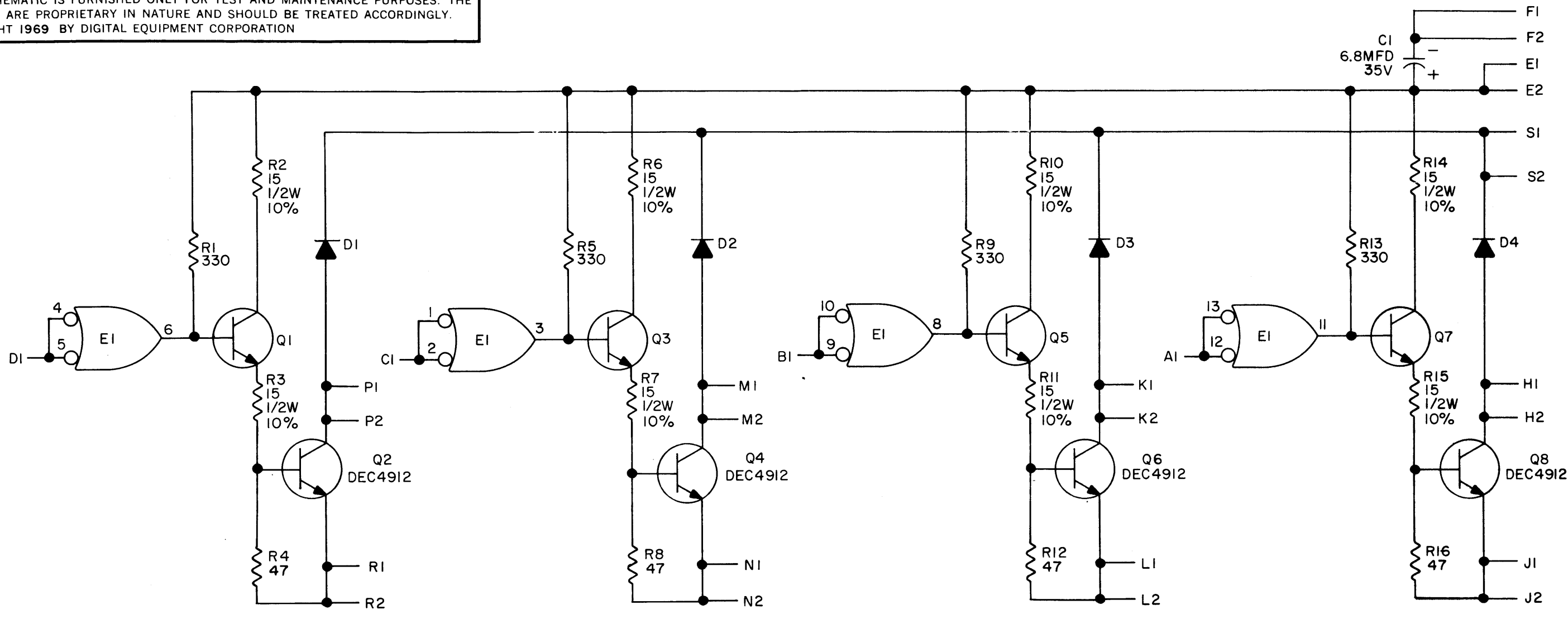
If mixed input levels are to be used by the customer, when the PA63 has been checked out, the switch in the PA63 must be left in the 8 level position.

| SIZE | CODE | NUMBER    | REV |
|------|------|-----------|-----|
| A    | SP   | PA63-0-23 |     |

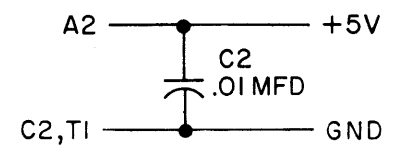
SHEET 4 OF 4



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UNLESS OTHERWISE INDICATED:  
 RESISTORS ARE 1/4W, 5%  
 DIODES ARE MR2066  
 TRANSISTORS ARE DEC2219  
 PIN 7 ON EACH IC = GND  
 PIN 14 ON EACH IC = +5V  
 E1 IS DEC7400N

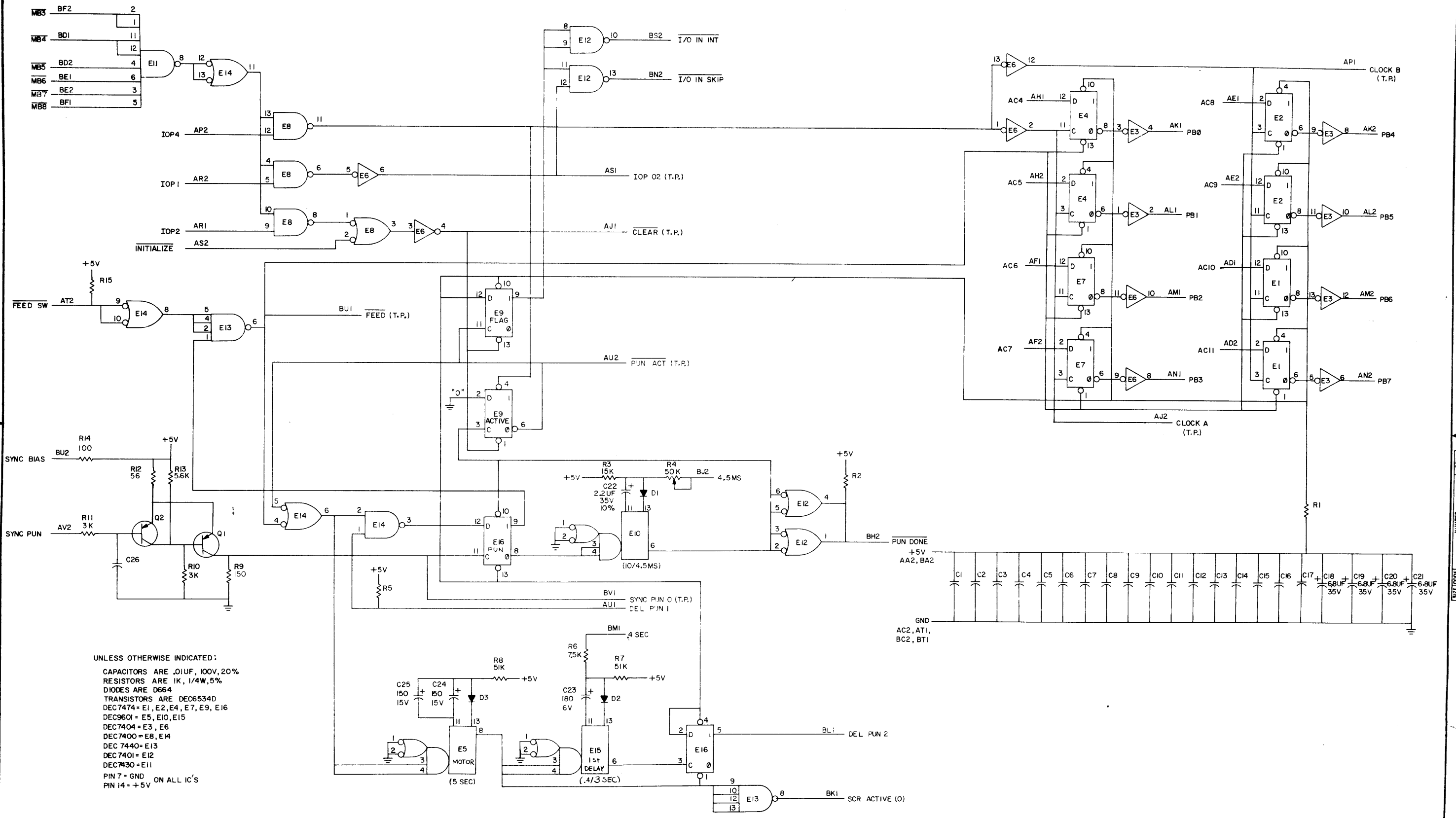


|                               |       |                    |      |          |                                                                                                                                 |   |      |    |                                                                   |          |                      |  |  |  |
|-------------------------------|-------|--------------------|------|----------|---------------------------------------------------------------------------------------------------------------------------------|---|------|----|-------------------------------------------------------------------|----------|----------------------|--|--|--|
| REVISIONS<br>CHK CHG NO. REV. | DRN.  | BUTLER             | DATE | 9/12/69  | TRANSISTOR & DIODE CONVERSION CHART<br>DEC      EIA      DEC      EIA<br>MR2206    IN4003<br>DEC2219    SAME<br>DEC4912    NONE |   |      |    | <b>digital</b><br>EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS |          | TITLE                |  |  |  |
|                               | CHK'D | <i>[Signature]</i> | DATE | 9/15/69  |                                                                                                                                 |   |      |    |                                                                   |          | SOLENOID DRIVER M060 |  |  |  |
|                               | ENG.  | <i>[Signature]</i> | DATE | 11/10/69 | SIZE                                                                                                                            | B | CODE | CS | NUMBER                                                            | M060-0-1 | RFV.                 |  |  |  |
|                               | PROD. |                    | DATE |          | PRINTED CIRCUIT REV.                                                                                                            |   | A    |    |                                                                   |          |                      |  |  |  |



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1-0-01/W  
SC D  
3002 325



UNLESS OTHERWISE INDICATED:  
 CAPACITORS ARE .01UF, 100V, 20%  
 RESISTORS ARE 1K, 1/4W, 5%  
 DIODES ARE D664  
 TRANSISTORS ARE DEC6534D  
 DEC7474 = E1, E2, E4, E7, E9, E16  
 DEC9601 = E5, E10, E15  
 DEC7404 = E3, E6  
 DEC7400 = E8, E14  
 DEC7440 = E13  
 DEC7401 = E12  
 DEC7430 = E11  
 PIN 7 = GND ON ALL IC'S  
 PIN 14 = +5V

REVISIONS

| NO. | DATE     | BY  | REASON |
|-----|----------|-----|--------|
| 1   | 11/17/71 | ... | ...    |

TRANSISTOR & DIODE CONVERSION CHART

| DEC      | EIA    | DEC | EIA |
|----------|--------|-----|-----|
| D664     | IN3606 |     |     |
| DEC6534D | NONE   |     |     |

**digital** EQUIPMENT CORPORATION  
 MAYNARD, MASSACHUSETTS  
 TITLE: PUNCH C CONTROL M710  
 SIZE: D CS  
 NUMBER: 97:0-0-1  
 REV: K  
 PRINTED CIRCUIT RE: H

REV K  
 NUMBER M710-0-1  
 SIZE CODE D CS

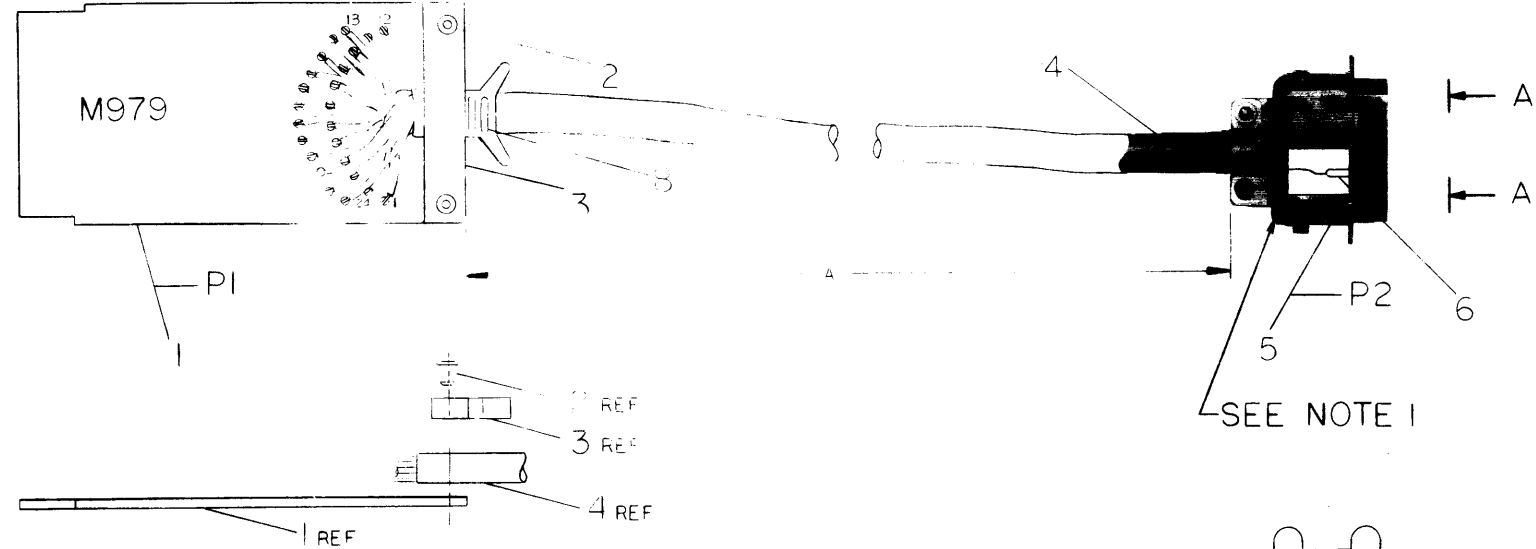
DST. 324,434,435  
 4-PRK

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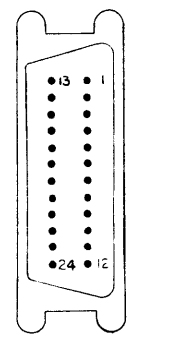
| LEGEND      |           |  | WIRE TABLE |             |       |         |         |             |       |         |         |             |       |         |  |
|-------------|-----------|--|------------|-------------|-------|---------|---------|-------------|-------|---------|---------|-------------|-------|---------|--|
| PART NUMBER | VARIATION |  | ITEM NO    | DESCRIPTION | FROM  | TO      | ITEM NO | DESCRIPTION | FROM  | TO      | ITEM NO | DESCRIPTION | FROM  | TO      |  |
| BC0IF-25    | 25'       |  | 4          | 22 RED/BLK  | PI-1  | * P2-23 | 4       | 22 GRY/BLK  | PI-13 | * P2-20 | 4       | 22 TAN      | PI-14 | * P2-18 |  |
| BC0IF-50    | 50'       |  |            | GRY         | 2     | -7      |         |             |       |         |         |             |       |         |  |
| BC0IF-75    | 75'       |  |            | RED         | 3     | -5      |         |             |       |         |         |             |       |         |  |
| BC0IF-A0    | 100'      |  |            | BLK         | 4     | -2      |         |             |       |         |         |             |       |         |  |
| BC0IF-A2    | 120'      |  |            | WHT         | 5     | -8      |         |             |       |         |         |             |       |         |  |
| BC0IF-A5    | 150'      |  |            | YEL/BLK     | 6     | -12     |         |             |       |         |         |             |       |         |  |
| BC0IF-A7    | 170'      |  |            | VIO/BLK     | 7     | -13     |         |             |       |         |         |             |       |         |  |
| BC0IF-B0    | 200'      |  |            | BLK/WHT     | 8     | -17     |         |             |       |         |         |             |       |         |  |
| BC0IF-B2    | 220'      |  |            | BRN/WHT     | 9     | -21     |         |             |       |         |         |             |       |         |  |
| BC0IF-B5    | 250'      |  |            | LT BLU      | 10    | -14     |         |             |       |         |         |             |       |         |  |
|             |           |  |            | ORN/BLK     | -11   | -16     |         |             |       |         |         |             |       |         |  |
|             |           |  | 4          | 22 WHT/BLK  | PI-12 | * P2-19 | 4       | 22 VIO      | PI-24 | * P2-11 | 4       | 22          |       | * & *6  |  |

\* DENOTES WIRES TO BE SOLDERED

NOTES:  
1. SPRAY BACK HALF OF CONNECTOR SHELL AND 2" OF CABLE WITH ITEM \*9. DO NOT SPRAY PINS.



SEE NOTE 1



VIEW A-A

| QTY. | DESCRIPTION                   | PART NO. | ITEM NO. |
|------|-------------------------------|----------|----------|
| 1    | KRYLON #2401 ORN SPRAY PAINT  |          | 9        |
| 2    | TIE - WRAP, 3 3/4 x 3/32      | 9007031  | 8        |
| A/R  | TAPE #4032 1/2 THK X 1/2 WIDE | 9007834  | 7        |
| A/R  | HIGH SHK TUB WHT 1/8 INCH     | 9107255  | 6        |
| 1    | AMPHENOL PLUG 57-30240        | 1203466  | 5        |
| A/R  | 24 CONDUCTOR CABLE            | 9107684  | 4        |
| 1    | CABLE CLAMP                   | 1202790  | 3        |
| 2    | EYELETS A94 STIMPSON          | 9006741  | 2        |
| 1    | M979 CONNECTOR CARD           | M979     | 1        |

|                                    |          |                                      |        |                            |        |                            |        |                            |         |
|------------------------------------|----------|--------------------------------------|--------|----------------------------|--------|----------------------------|--------|----------------------------|---------|
| FIRST USED ON OPTION/MODEL<br>PA63 |          | UNLESS OTHERWISE SPECIFIED           |        | UNLESS OTHERWISE SPECIFIED |        | UNLESS OTHERWISE SPECIFIED |        | UNLESS OTHERWISE SPECIFIED |         |
| DRN                                | DATE     | CHK'D                                | DATE   | ENG.                       | DATE   | PROJ. ENG.                 | DATE   | PROOF                      | DATE    |
| <i>R. Raymond</i>                  | 10-23-69 | <i>[Signature]</i>                   | 2/1/70 | <i>[Signature]</i>         | 2/1/70 | <i>[Signature]</i>         | 1/1/70 | <i>[Signature]</i>         | 3/12/70 |
| DIMENSION IN INCHES                |          | TOLERANCES                           |        | DECIMALS                   |        | FRACTIONS                  |        | ANGLES                     |         |
| ± .005                             |          | ± 1/64                               |        | ± 0.30                     |        | ± 0.30                     |        | ± 0.30                     |         |
| FINAL SURFACE QUALITY              |          | REMOVE BURRS AND BREAK SHARP CORNERS |        | MATERIAL                   |        | FINISH                     |        | NEXT HIGHER ASSY           |         |
| D-UA-PA63-00                       |          | SCALE NONE                           |        | SHEET OF                   |        | DIST.                      |        | PARTS LIST                 |         |
| TITLE                              |          | digital EQUIPMENT CORPORATION        |        | MAYNARD MASSACHUSETTS      |        | SIZE CODE                  |        | NUMBER                     |         |
| CONNECTOR CABLE (PP67-C TO PA63)   |          | DUA                                  |        | BC0IF-0-0                  |        | REV. D                     |        | REV. D                     |         |

| REV. | CHANGE NO. | CHK.               |
|------|------------|--------------------|
| A    | 00001      | DOUCETTE           |
| B    | 00002      | <i>[Signature]</i> |
| C    | 00003      | JODICE             |
| D    | 00004      | <i>[Signature]</i> |
|      |            | ED. REED           |

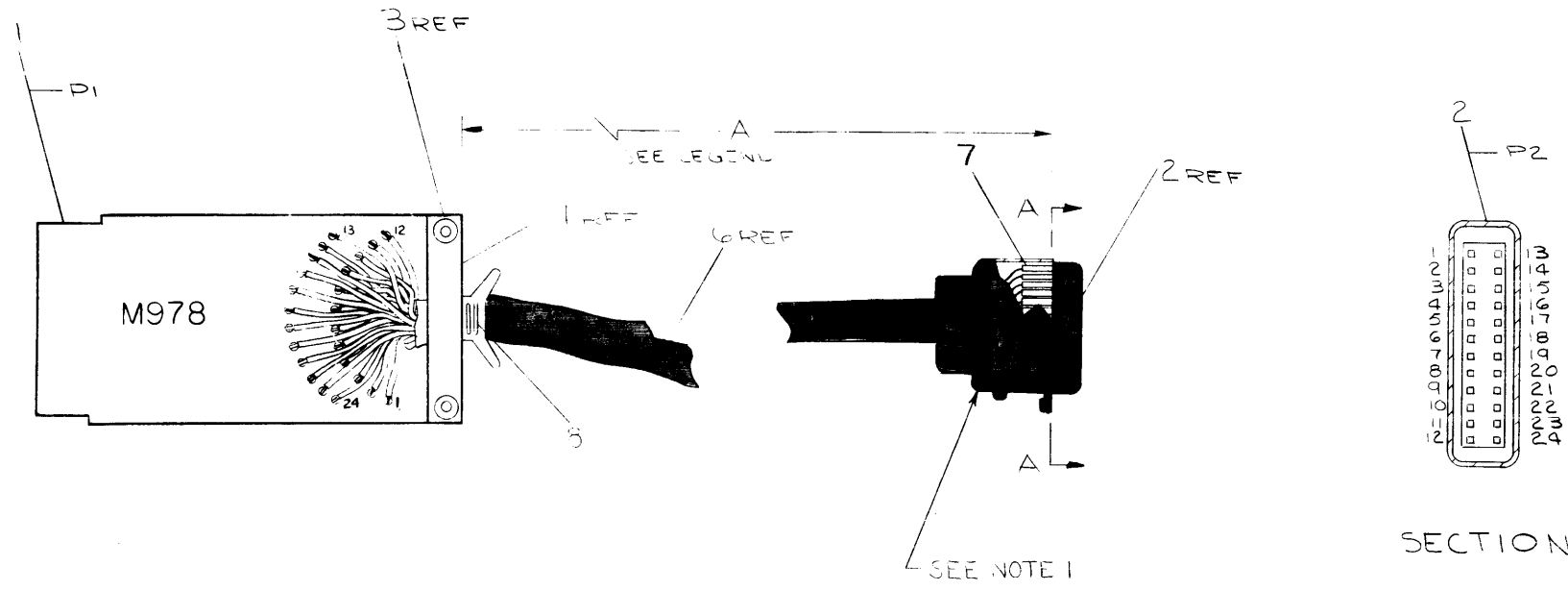
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| LEGEND   |           |
|----------|-----------|
| PART NO. | VARIATION |
| BCØIH-25 | 25'       |
| BCØIH-50 | 50'       |
| BCØIH-75 | 75'       |
| BCØIH-AØ | 100'      |
| BCØIH-A2 | 120'      |
| BCØIH-A5 | 150'      |
| BCØIH-A7 | 170'      |
| BCØIH-BØ | 200'      |
| BCØIH-B2 | 220'      |
| BCØIH-B5 | 250'      |

| WIRE TABLE       |     |         |            |      |            |        |     |     |         |            |      |                  |        |  |  |
|------------------|-----|---------|------------|------|------------|--------|-----|-----|---------|------------|------|------------------|--------|--|--|
| ITEM DESCRIPTION |     |         |            | FROM |            |        |     | TO  |         |            |      | ITEM DESCRIPTION |        |  |  |
| NO.              | AWG | COLOR   | CONNECTION | WITH | CONNECTION | WITH   | NO. | AWG | COLOR   | CONNECTION | WITH | CONNECTION       | WITH   |  |  |
| 6                | 22  | BLK/WHT | P1-1       | *    | P2-1       | * & #7 | 6   | 22  | BRN     | P1-13      | *    | P2-17            | * & #7 |  |  |
|                  |     | WHT/BLK | -2         |      | -2         |        |     |     | BLU/BLK | -14        |      | -21              |        |  |  |
|                  |     | YEL/BLK | -3         |      | -4         |        |     |     | D.GRN   | -15        |      | -14              |        |  |  |
|                  |     | BRN/WHT | -4         |      | -6         |        |     |     | BLK     | -16        |      | -24              |        |  |  |
|                  |     | LT. BLU | -5         |      | -8         |        |     |     | RED     | -17        |      | -18              |        |  |  |
|                  |     | LT. GRN | -6         |      | -10        |        |     |     | ORN/BLK | -18        |      | -11              |        |  |  |
|                  |     | GRN/BLK | -7         |      | -          |        |     |     | RED/BLK | -19        |      | -9               |        |  |  |
|                  |     | ORN     | -8         |      | -7         |        |     |     | VIO     | -20        |      | -7               |        |  |  |
|                  |     | YEL     | -9         |      | -13        |        |     |     | VIO/BLK | -21        |      | -5               |        |  |  |
|                  |     | TAN     | -10        |      | -15        |        |     |     | PINK    | -22        |      | -22              |        |  |  |
|                  |     | DEI     | -11        |      | -15        |        |     |     | WHT     | -23        |      | -19              |        |  |  |
| 6                | 22  | GRY     | P1-14      | *    | P2-3       | * & #7 | 6   | 22  | GRY/BLK | P1-14      | *    | P2-3             | * & #7 |  |  |

\* DENOTES WIRES TO BE SOLDERED

NOTES:  
1. SPRAY BACK HALF OF CONNECTOR SHELL AND 2" OF CABLE WITH ITEM #9. DO NOT SPRAY PINS.



| QTY. | DESCRIPTION                  | PART NO.      | ITEM NO. |
|------|------------------------------|---------------|----------|
| A/R  | KRYLON #2101 RED SPRAY PAINT |               | 9        |
| 2    | TIE-WRAP 3/4 x 3/32          | 9007031       | 8        |
| A/R  | #14 AWG TEF THIN WALL TUBING | 9107295-09    | 7        |
| A/R  | 24 CONDUCTOR CABLE           | 9107684       | 6        |
| A/R  | TAPE #4032-50X1.00           | 9007834       | 5        |
| 1    | CABLE CLAMP                  | 1202790       | 4        |
| 2    | EYELET A94 STIMPSON          | 9006741       | 3        |
| 1    | PLUG AMPHENOL #57-30240      | 203466        | 2        |
| 1    | CONNECTOR MODULE M978        | A-PL-M978-Ø-Ø | 1        |

FIRST USED ON OPTION/MODEL: PA63

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED

TOLERANCES

.XXX = ± .005

.XX = ± .02

.X = ± .05

FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN: *[Signature]* DATE: 12/11/71

CHK'D: *[Signature]* DATE: 1/12/72

PROJ. ENG: *[Signature]* DATE: 3/9/70

PROD: *[Signature]* DATE: 5/21/70

SCALE: OF

SHEET OF

digital EQUIPMENT CORPORATION

TITLE: CABLE, CONN.

PR68-D PA63

SIZE CODE: DUA BCØIH-C

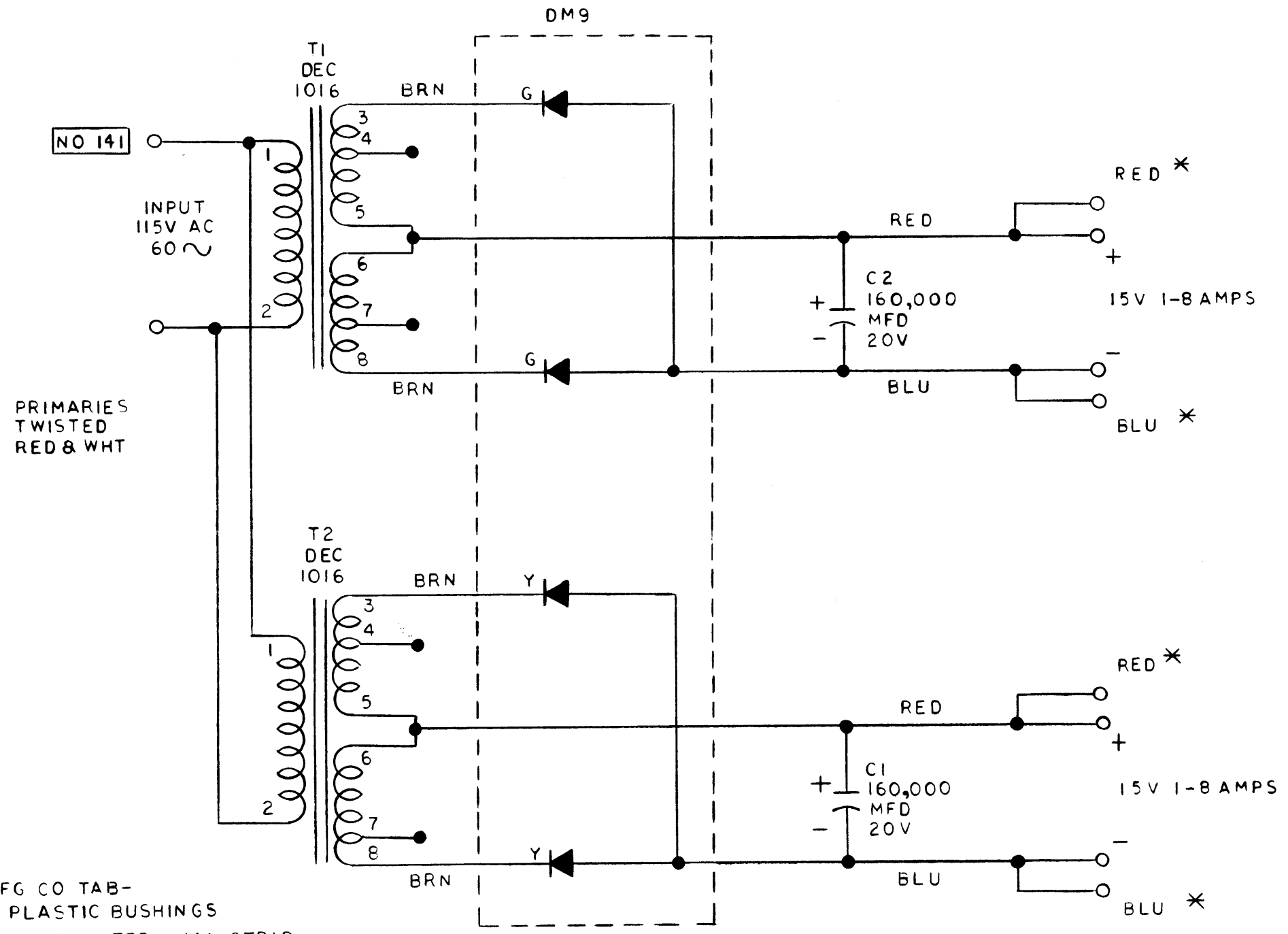
REV. C

| REV. | CHANGE NO. | DATE     |
|------|------------|----------|
| A    | ECØIH-ØØØ1 | 9-1-71   |
| B    | BCØIH-ØØØ2 | 12-13-71 |
| C    | BCØIH-ØØØ3 | 1-12-72  |

ED. REED

REV. C  
NUMBER  
DUA BCØIH-Ø-Ø

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NOTE:  
LETTERS INSIDE THE DASHES  
CORRESPONDS TO THE COLOR  
DOTS ON THE DM9

\* HEYMAN MFG CO TAB-  
TERMINAL IN PLASTIC BUSHINGS  
CINCH JONES TERMINAL STRIP

| REVISIONS             | CHK | CHG NO.   | REV. |
|-----------------------|-----|-----------|------|
|                       |     | 798-00001 | A    |
| Plo B (date) 12-16-68 |     |           |      |
| G. GEREELS            |     |           |      |

|             |          |
|-------------|----------|
| DRN.        | DATE     |
| P. Lot      | 10-1-68  |
| CHK'D       | DATE     |
| E. M. Miles | 10-16-68 |
| ENG.        | DATE     |
|             | 10-22-68 |
| PROD.       | DATE     |
|             | 10-28-68 |

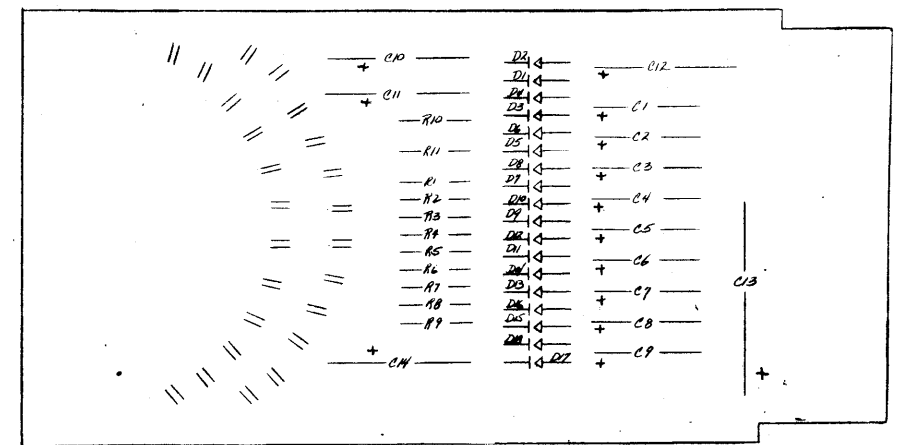
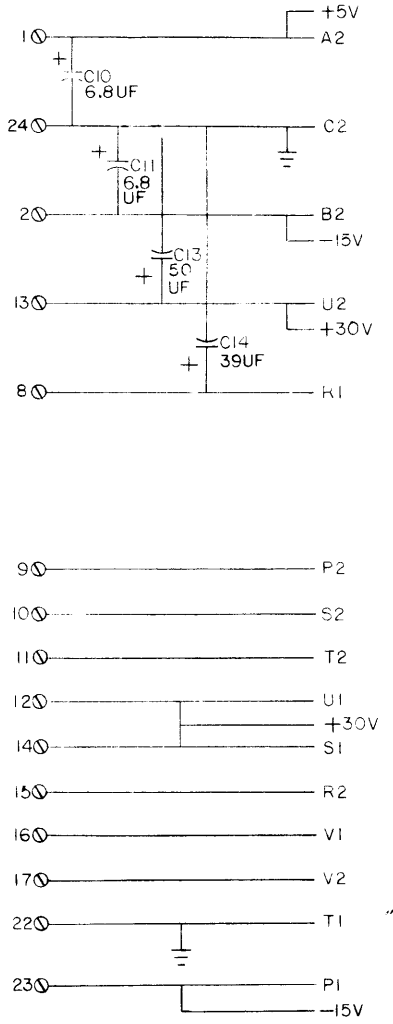
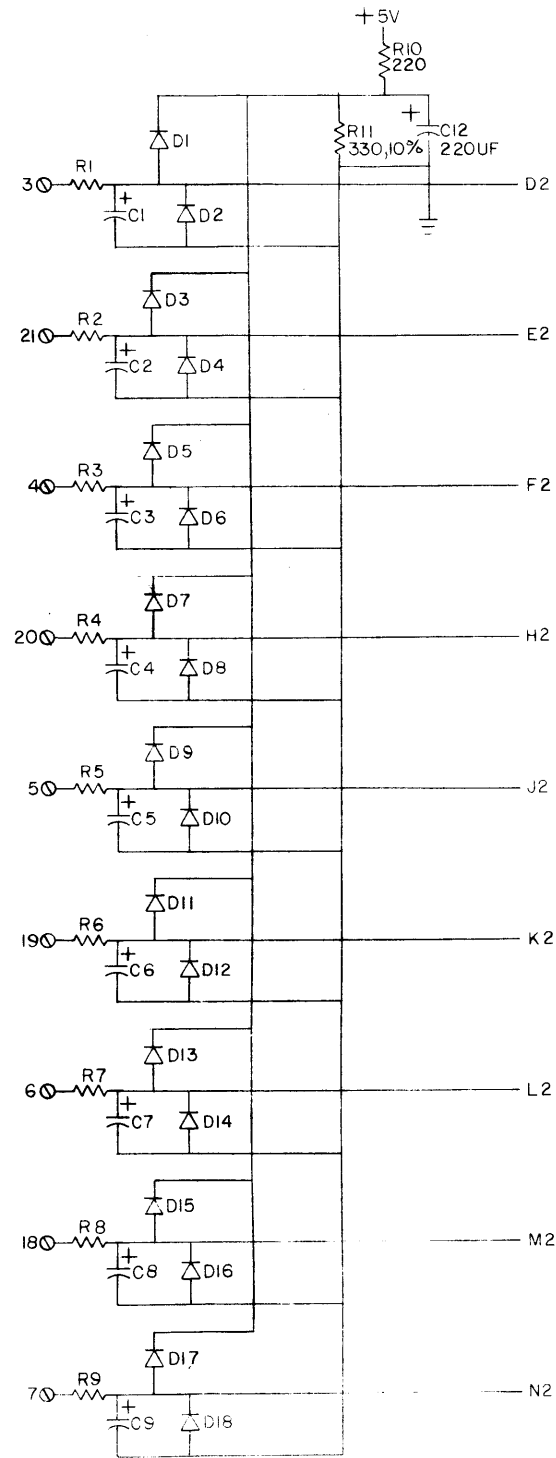
| TRANSISTOR & DIODE CONVERSION CHART |     |     |     |
|-------------------------------------|-----|-----|-----|
| DEC                                 | EIA | DEC | EIA |
|                                     |     |     |     |
|                                     |     |     |     |
|                                     |     |     |     |
|                                     |     |     |     |

**digital**  
EQUIPMENT CORPORATION  
MAYNARD, MASSACHUSETTS

|                      |      |         |  |                               |  |  |  |
|----------------------|------|---------|--|-------------------------------|--|--|--|
| TITLE                |      |         |  | DUAL 15 VOLT POWER SUPPLY 798 |  |  |  |
| SIZE                 | CODE | NUMBER  |  | REV.                          |  |  |  |
| B                    | CS   | 798-0-1 |  | A                             |  |  |  |
| PRINTED CIRCUIT REV. |      |         |  |                               |  |  |  |



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| QTY | REF DESIGNATION | DESCRIPTION                      | PART NO.      | ITEM NO. |
|-----|-----------------|----------------------------------|---------------|----------|
| 24  |                 | SPLIT LUGS                       | 9006735       | 14       |
| 1   | R11             | RESISTOR 330 $\frac{1}{4}$ W 10% | 1300293       | 13       |
| 1   | R10             | RESISTOR 220 $\frac{1}{4}$ W 5%  | 1300271       | 12       |
| 9   | R1 thru R9      | RESISTOR $\frac{1}{4}$ W 5%      | 1300202       | 11       |
| 18  | D1 thru D18     | DIODE D664                       | 1100114       | 10       |
| 1   | C12             | CAP. 220UF 8V 10% TANT           | 1005626       | 9        |
| 9   | C1 thru C9      | CAP. .15UF 35V 20% TANT          | 1002180       | 8        |
| 1   | C13             | CAP. 50UF 50V -10+75% S.TANT     | 1000080       | 7        |
| 1   | C14             | CAP. 39UF 10V 10% S.TANT         | 1000076       | 6        |
| 2   | C10, C11        | CAP. 6.8UF 35V 20% S.TANT        | 1000067       | 5        |
| 1   |                 | ETCHED CIRCUIT BOARD             | 5009847       | 4        |
|     |                 | MODULE ECO HISTORY               | B-ME-M978-0-6 | 3        |
|     |                 | ASSY/DRILLING HOLE LAYOUT        | D-AH-M978-0-5 | 2        |
|     |                 | X-3 COORDINATE HOLE LOCATION     | K-CO-M978-0-4 | 1        |

| PARTS LIST |                 |                |          |          |
|------------|-----------------|----------------|----------|----------|
| QTY        | REF DESIGNATION | DESCRIPTION    | PART NO. | ITEM NO. |
|            |                 | ETCH BOARD REV | B        |          |

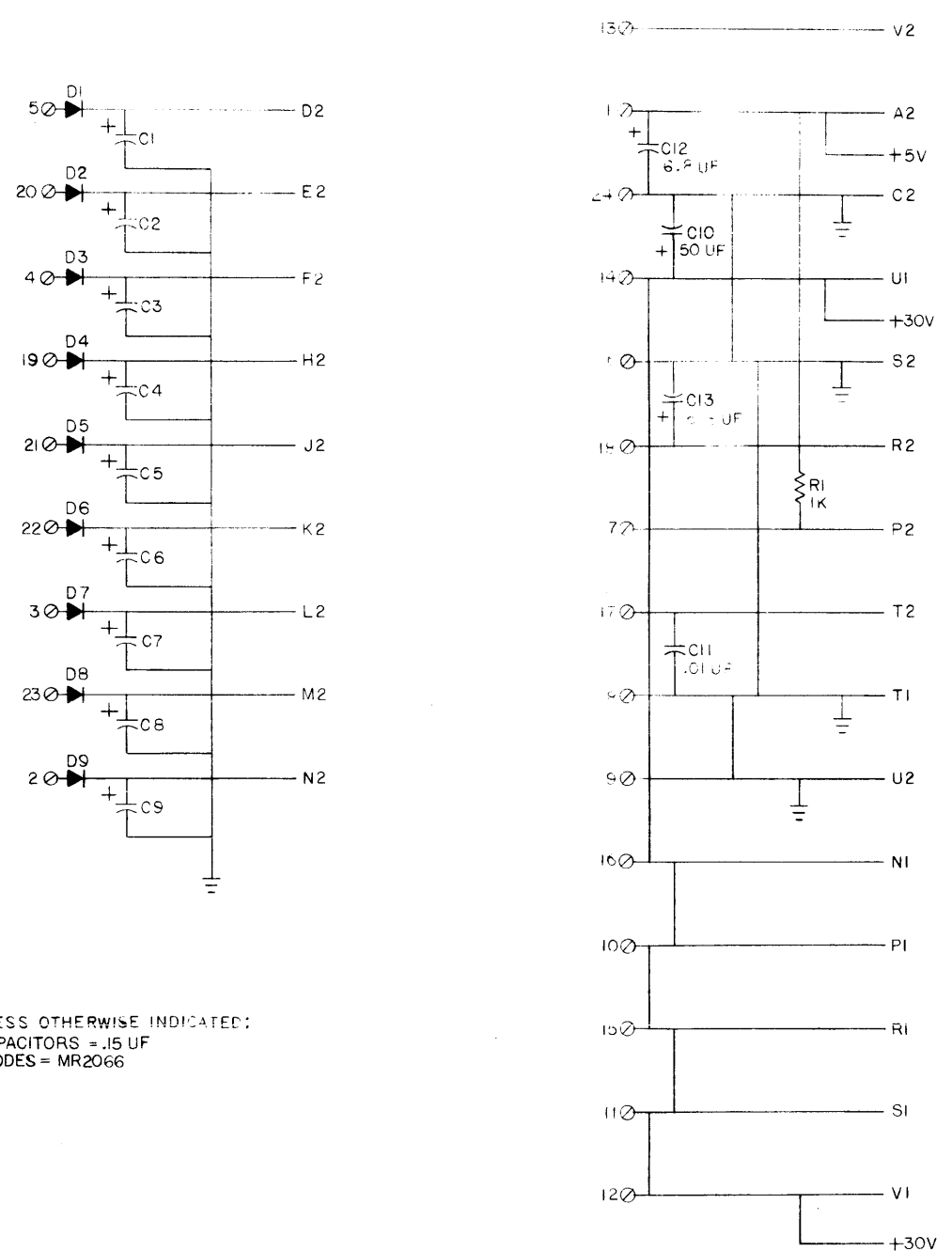
| CHK | CHANGE NO. | REV | REVISIONS | DRN.    | DATE     | CHK'D.            | DATE     | ENG. | DATE | PROJ. ENG. | DATE | PROD. | DATE | TITLE            | SCALE | SHEET | OF | DIST. | SIZE CODE | NUMBER | REV. |
|-----|------------|-----|-----------|---------|----------|-------------------|----------|------|------|------------|------|-------|------|------------------|-------|-------|----|-------|-----------|--------|------|
|     |            |     | D664      | IN 350C | 11-11-71 | ROBERT J. DUCETTE | 11-29-71 |      |      |            |      |       |      | CONNECTOR MODULE | DCS   |       |    |       | M978-0-1  | A      |      |
|     |            |     |           |         |          |                   |          |      |      |            |      |       |      |                  |       |       |    |       |           |        |      |

| SEMICONDUCTOR CONVERSION CHART |         |         |         |  |
|--------------------------------|---------|---------|---------|--|
| DEC NO.                        | EIA NO. | DEC NO. | EIA NO. |  |
|                                |         |         |         |  |

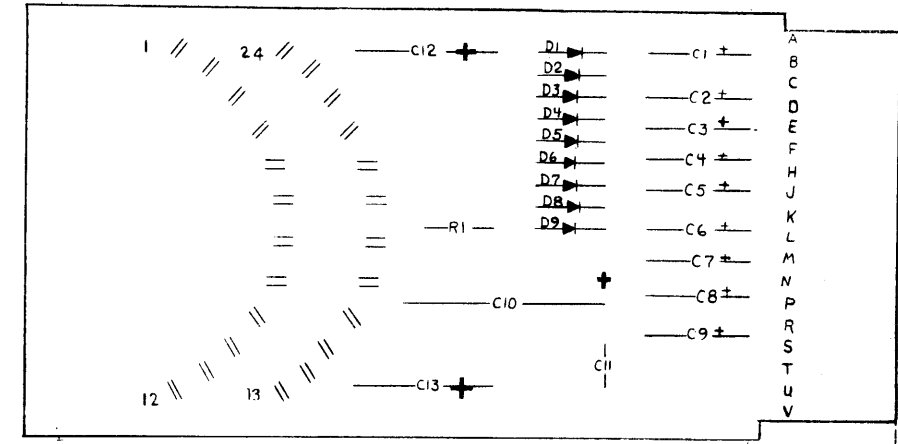
REV A  
NUMBER M978-0-1  
SIZE CODE DCS

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1-0-676W 50 d 2



UNLESS OTHERWISE INDICATED:  
CAPACITORS = .15 UF  
DIODES = MR2066



| QTY | REF DESIGNATION | DESCRIPTION                  | PART NO.      | ITEM NO. |
|-----|-----------------|------------------------------|---------------|----------|
| 24  |                 | SPLIT LUG                    | 9006735       | 11       |
| 1   | R1              | RES. 1K 1/4W 5%              | 1300365       | 10       |
| 9   | D1 - D9         | DIODE MR2066                 | 1103188       | 9        |
| 9   | C1 - C9         | CAP. .15UF 35V 10% TANT      | 1002180       | 8        |
| 1   | C11             | CAP. .01UF 100V 20% DISC     | 1001610       | 7        |
| 1   | C10             | CAP. 50UF 50V -10+75% TANT   | 1000080       | 6        |
| 2   | C12, C13        | CAP. 6.8UF 35V 20% TANT      | 1000067       | 5        |
| 1   |                 | ETCHED CIRCUIT BOARD         | 5009848       | 4        |
|     |                 | MODULE ECO HISTORY           | B-MH-M979-0-6 | 3        |
|     |                 | ASSY/DRILLING HOLE LAYOUT    | D-AH-M979-0-5 | 2        |
|     |                 | X-Y COORDINATE HOLE LOCATION | K-CO-M979-0-4 | 1        |

| PARTS LIST     |   |  |  |  |
|----------------|---|--|--|--|
| ETCH BOARD REV | C |  |  |  |

|                                |            |     |        |        |                         |                  |                                                                                                        |                                                                          |
|--------------------------------|------------|-----|--------|--------|-------------------------|------------------|--------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| CHK                            | CHANGE NO. | REV | MR2066 | IN4003 | DRN. ROGER J. SOUTHWICK | DATE 11-18-71    | <br><b>digital</b> EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS<br>TITLE<br><b>CONNECTOR MODULE</b> | SIZE/CODE<br><b>DCS</b><br>NUMBER<br><b>M979-0-1</b><br>REV.<br><b>C</b> |
|                                |            |     |        |        | CHK'D. APAC 1/10/71     | DATE 12-3-71     |                                                                                                        |                                                                          |
|                                |            |     |        |        | ENG. [Signature]        | DATE [Signature] |                                                                                                        |                                                                          |
|                                |            |     |        |        | PROJ. ENG. [Signature]  | DATE [Signature] |                                                                                                        |                                                                          |
|                                |            |     |        |        | PROD. [Signature]       | DATE [Signature] |                                                                                                        |                                                                          |
| NEXT HIGHER ASSY               |            |     |        |        |                         |                  |                                                                                                        |                                                                          |
| SCALE                          |            |     |        |        |                         |                  |                                                                                                        |                                                                          |
| SHEET                          |            |     |        |        |                         |                  |                                                                                                        |                                                                          |
| SEMICONDUCTOR CONVERSION CHART |            |     |        |        |                         |                  |                                                                                                        |                                                                          |

REV C  
NUMBER M979-0-1  
SIZE CODE DCS

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# MASTER DRAWING LIST

| DWG. NO.            | REV. LET. | NO. OF SHEETS | TITLE                                  |
|---------------------|-----------|---------------|----------------------------------------|
| D-UA-PA68-F-0       | J         | 1             | READER & PUNCH CONTROL                 |
| A-PL-PA68-F-0       | J         | 1             | READER & PUNCH CONTROL (PL)            |
| D-DI-PA68-F-6       | C         | 1             | DRAWING INDEX LIST                     |
| A-AL-PA68-F-10      | B         | 1             | READER & PUNCH CONTROL, ACCESSORY LIST |
| D-BS-PA68-F-1       | M         | 1             | READER CONTROL                         |
| D-BS-PA68-F-2       | L         | 1             | PUNCH CONTROL                          |
| D-IC-PA68-F-3       | B         | 1             | I/O CONNECTORS POSITIVE BUS            |
| K-WL-PA68-F-4       | S         | 1             | WIRE LIST                              |
| D-MU-PA68-F-5       | P         | 1             | MODULE UTILIZATION                     |
| A-PL-PA68-F-5       | P         | 1             | MODULE UTILIZATION (PL)                |
| D-AD-7006226-0-0    | F         | 1             | WIRED ASSY                             |
| A-PL-7006226-0-0    | F         | 1             | WIRED ASSY (PL)                        |
| C-IC-PA68-F-7       | E         | 1             | POWER WIRING (PA68-F)                  |
| A-SP-PA68-F-9       | C         | 6             | PA68F ENGINEERING SPECS                |
| A-SP-PA68 F-11      |           | 3             | ACCEPTANCE CRITERIA - FIELD            |
| IN HOUSE USE ONLY - |           |               |                                        |
| A-SP-PA68-F-8       | B         | 6             | PA68F ACCEPTANCE CRITERIA              |
|                     |           |               |                                        |
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|           |         |          |        |                                                                                                                                     |         |                                                                               |         |                                     |      |
|-----------|---------|----------|--------|-------------------------------------------------------------------------------------------------------------------------------------|---------|-------------------------------------------------------------------------------|---------|-------------------------------------|------|
| REVISIONS |         |          |        | DRN. M.Venezia 3/7/69<br>CHK'D. R.Carvell 4/10/69<br>ENG. G.Doucette 9/69<br>PROJ. ENG.<br>PROD. H.Godfrey 4/17/69<br>FIRST USED ON |         | <b>digital</b> EQUIPMENT CORPORATION<br><small>MAYNARD, MASSACHUSETTS</small> |         | TITLE<br><br>READER & PUNCH CONTROL |      |
| REV.      | DATE    | CHG. NO. | APP'D. | DATE                                                                                                                                | DATE    | DATE                                                                          | DATE    | DATE                                | DATE |
| A         | 5/17/69 | 00001    | B.D.   | 3/7/69                                                                                                                              | 4/10/69 | 9/69                                                                          | 4/17/69 |                                     |      |
| B         | 7/7/69  | 00002    | B.D.   |                                                                                                                                     |         |                                                                               |         |                                     |      |
| C         | 7/15/69 | 00003    | H.G.   |                                                                                                                                     |         |                                                                               |         |                                     |      |
| D         | 8/25/69 | 00004    | B.D.   |                                                                                                                                     |         |                                                                               |         |                                     |      |
| E         | 9/69    | 00005    | B.D.   |                                                                                                                                     |         |                                                                               |         |                                     |      |
| F         | 10/69   | 00006    | B.D.   |                                                                                                                                     |         |                                                                               |         |                                     |      |
| H         | 10/69   | 00007    | B.D.   |                                                                                                                                     |         |                                                                               |         |                                     |      |
| J         | 1/70    | 00008    | B.D.   |                                                                                                                                     |         |                                                                               |         |                                     |      |
| K         | 2/70    | 00009    | B.D.   |                                                                                                                                     |         |                                                                               |         |                                     |      |
| L         | 4/70    | Misc. 64 | M.A.   |                                                                                                                                     |         |                                                                               |         |                                     |      |
| M         | 4/70    | PA68F-10 | B.D.   |                                                                                                                                     |         |                                                                               |         |                                     |      |
| N         | 8/70    | PA68F-11 | H.J.   |                                                                                                                                     |         |                                                                               |         |                                     |      |
| P         | 12/70   | PA68F-12 | H.J.   |                                                                                                                                     |         |                                                                               |         |                                     |      |
| R         | 4/71    | PA68F-13 | H.J.   |                                                                                                                                     |         |                                                                               |         |                                     |      |
| S         | 5/71    | PA68F-14 | H.J.   |                                                                                                                                     |         |                                                                               |         |                                     |      |

## ADDITIONAL CUSTOMER PRINTS

| Drawing Number  | Rev. Let. | Title              |
|-----------------|-----------|--------------------|
| D-CS-M710-0-1   | #         | PUNCH CONTROL M710 |
| B-CS-M060-0-1   | #         | SOLENOID DRIVER    |
| D-UA-BC01 H-0-0 | #         | READER CABLE       |
| D-UA-BC01 F-0-0 | #         | PUNCH CABLE        |

|      |       |               |                                                                                                                                          |
|------|-------|---------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Rev. | Date  | Change Number |                                                                                                                                          |
| T    | 11/71 | PA68F-15      | H. JODICE 3/22/71<br><hr/> Requested by Date<br><br><i>H. Jodice</i> 3/22/71<br><hr/> Authorized by Date<br><br>Sheet 2 of 2 A-ML-PA68-F |
| U    | 3/72  | PA68F-16      |                                                                                                                                          |
| V    | 8/72  | PA68F-17      |                                                                                                                                          |
| W    | 5/73  | PA68F-18      |                                                                                                                                          |
| Y    | 8/73  | PA68F-19      |                                                                                                                                          |
| Z    | 11/73 | PA68F-20      |                                                                                                                                          |
| AA   | 2/74  | PA68F-21      | E.R.                                                                                                                                     |

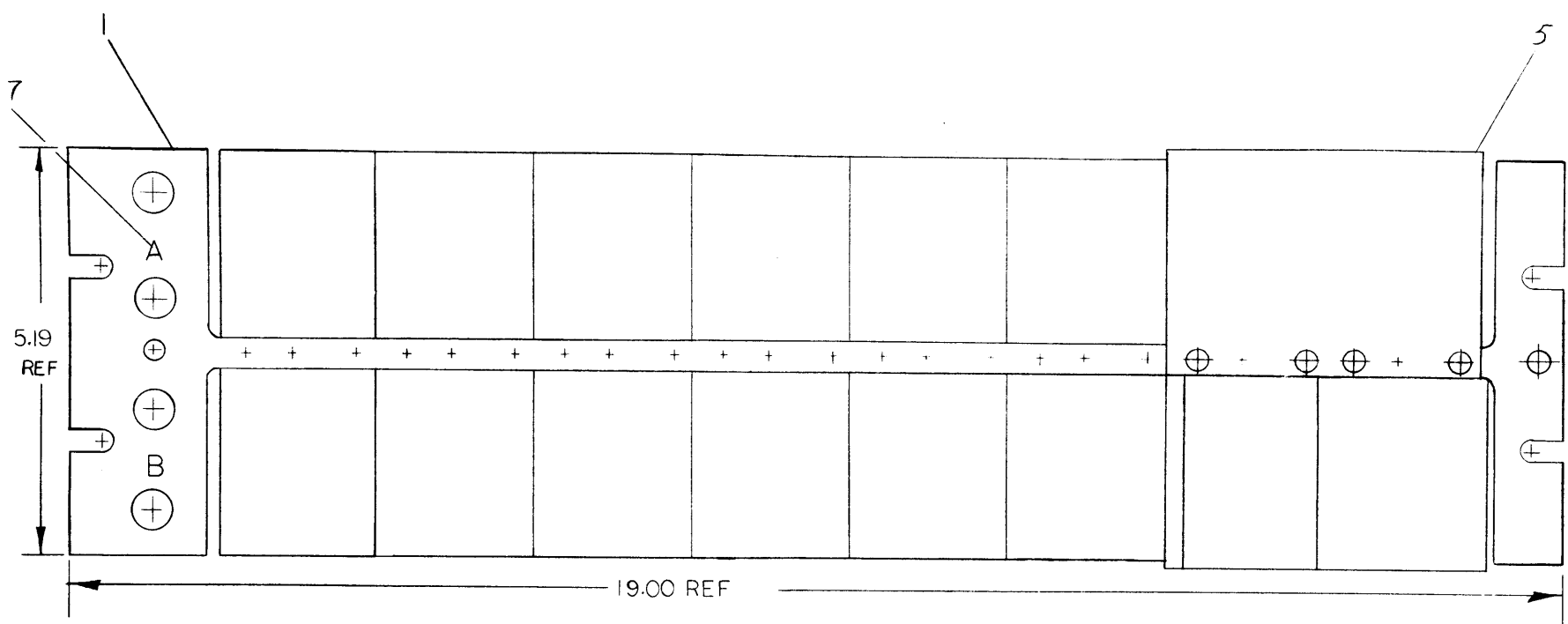


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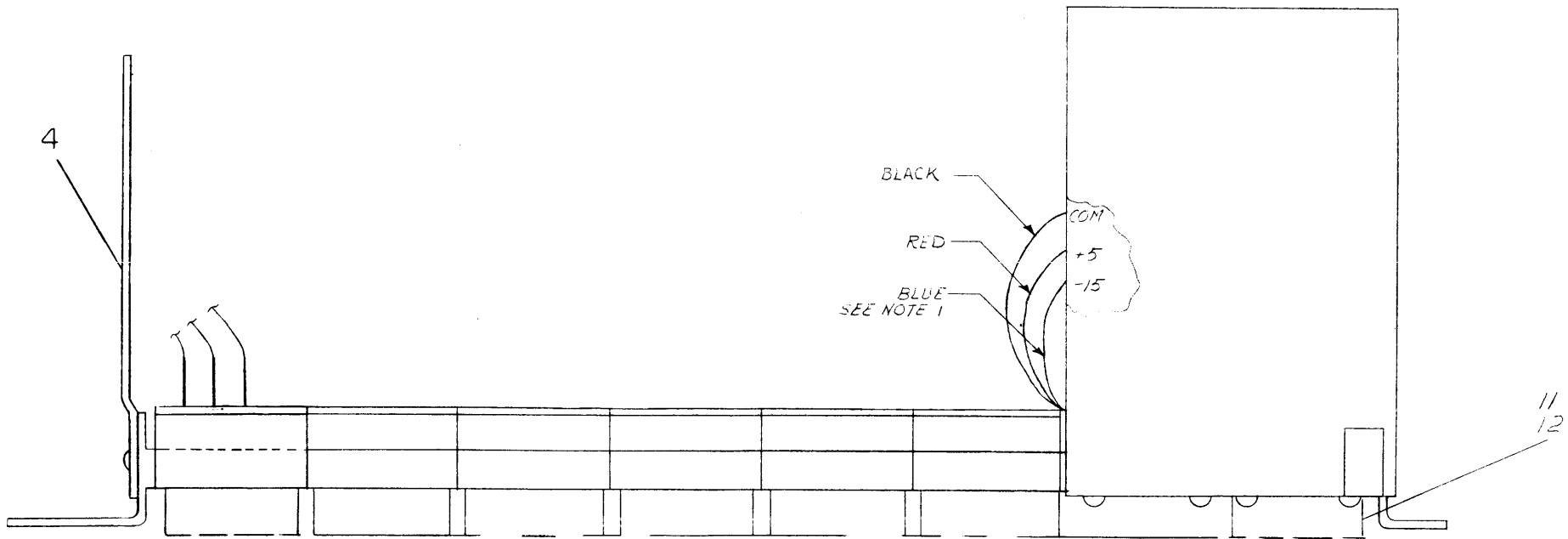
REV J 2  
DUA PA68-F-0

NOTES

- SEE PRINT PA68-F-7 FOR POWER WIRING
- ITEM 18 (MFD; 100V CAP) MUST BE COMPLETELY INSULATED WITH TUBING ON ITS LEADS & TERMINAL POINT CONNECTORS.



| EXTERNAL COMPONENTS TABLE |      |     |       |     |     |            |
|---------------------------|------|-----|-------|-----|-----|------------|
| ITEM NO                   | COMP | POL | FROM  | TO  | POL | REMARKS    |
| 10                        | CAP. | +   | A16U1 | GND | -   |            |
| 16                        | RES  | X   | A16P2 | +5V | X   |            |
| 18                        | CAP  |     | B11S2 | GND |     | SEE NOTE 2 |



| CHK | CHANGE NO.  | REV. | DESCRIPTION |
|-----|-------------|------|-------------|
| 271 | PA68F-00003 | A    | DOUCETTE    |
|     | PA68F-00009 | B    | DOUCETTE    |
|     | PA68F-00010 | C    | DOUCETTE    |
|     | PA68F-00013 | D    | DOUCETTE    |
|     | PA68F-00014 | E    | DOUCETTE    |
|     | PA68F-00019 | F    | DOUCETTE    |
|     | PA68F-00020 | H    | DOUCETTE    |
|     | PA68F-00021 | J    | DOUCETTE    |

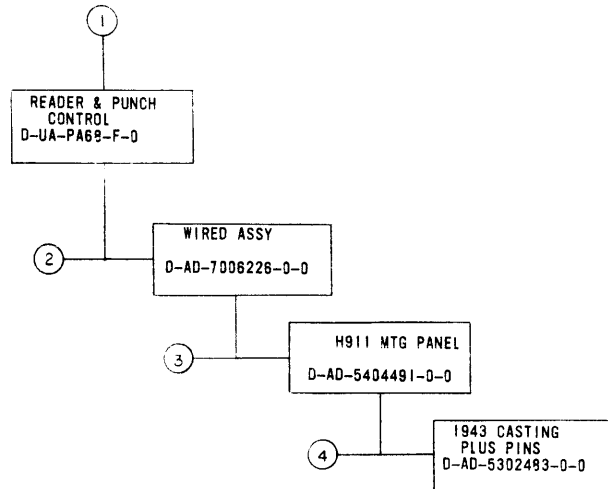
| TOLERANCES |        |
|------------|--------|
| DECIMALS   |        |
| .XXX       | = .005 |
| .XX        | = .02  |
| .X         | = .1   |

| FIRST USED ON                                                | QTY.             | DESCRIPTION | PART NO.                                                | ITEM NO.        |
|--------------------------------------------------------------|------------------|-------------|---------------------------------------------------------|-----------------|
| PA68-F                                                       |                  |             |                                                         |                 |
| UNLESS OTHERWISE SPECIFIED                                   |                  |             |                                                         |                 |
| DIMENSION IN INCHES                                          |                  |             |                                                         |                 |
| TOLERANCES                                                   |                  |             |                                                         |                 |
| ANGLES = 0°30'                                               |                  |             |                                                         |                 |
| FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS |                  |             |                                                         |                 |
| MATERIAL                                                     | DRN. M. VENEZIA  | DATE 3/5/69 | PARTS LIST                                              |                 |
| FINISH                                                       | CHK'D. G. Camell | DATE 4/1/69 | digital EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS |                 |
|                                                              | ENG. DATE        | DATE        | TITLE                                                   |                 |
|                                                              | PROJ. ENG. DATE  | DATE        | READER & PUNCH CONTROL PA68-F                           |                 |
|                                                              | PROD. DATE       | DATE        | NEW PART ASSEMBLY                                       |                 |
|                                                              | A-ML-PA68-F      |             | SIZE CODE DUA                                           | NUMBER PA68-F-0 |
|                                                              | SCALE 1/1        |             | DIST. G                                                 | REV J           |
|                                                              | SHEET OF         |             |                                                         |                 |

| DIGITAL EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS<br><b>PARTS LIST</b> |                             |                                         | QUANTITY / VARIATION |      |                |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
|------------------------------------------------------------------------------|-----------------------------|-----------------------------------------|----------------------|------|----------------|----------|--|--|------|--------------|--|--|--|--|--|--|--|--|--|--|
| MADE BY M. VENEZIA                                                           |                             | CHECKED <i>R Carvelli</i>               | SECTION              |      |                |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| DATE 3/5/69                                                                  |                             | DATE 4/11/69                            | 1                    |      |                |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| ENG <i>Ray...</i>                                                            |                             | PROD <i>...</i>                         | ISSUED SECT.         |      |                |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| DATE 4/1/69                                                                  |                             | DATE 4/11/69                            | 1                    |      |                |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| ITEM NO.                                                                     | DWG NO. / PART NO.          | DESCRIPTION                             |                      |      |                |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| 1                                                                            | D-AD-7006226-0-0            | WIRED ASSY                              |                      |      | 1              |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| <del>2</del>                                                                 | <del>C-MD-5302486-0-0</del> | <del>RIGHT END PANEL</del>              |                      |      | <del>1</del>   |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| 3                                                                            | 9006507                     | POP RIVET #AD 44 BS                     |                      |      | 8              |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| 4                                                                            | C-MD-5302485-0-0            | LEFT END PANEL                          |                      |      | 1              |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| 5                                                                            | H716                        | H716 POWER SUPPLY                       |                      |      | 1              |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| <del>6</del>                                                                 | <del>779PS</del>            | <del>POWER SUPPLY</del>                 |                      |      | <del>1</del>   |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| 7                                                                            | A-DC-7406371-0-0            | LOGIC FRAME DECALS                      |                      |      | A/R            |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| <del>8</del>                                                                 | <del>BC08A-11</del>         | <del>STD I/O CABLE M903-M903</del>      |                      |      | <del>5</del>   |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| <del>9</del>                                                                 | <del>1001886</del>          | <del>CAPACITOR 270MFD 15V</del>         |                      |      | <del>1</del>   |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| 10                                                                           | 1000080                     | CAPACITOR 50MFD 50V                     |                      |      | 1              |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| 11                                                                           | 9006035-1                   | SCR PHL PAN HD #8-32 x 1/2 LG SST       |                      |      | 4              |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| 12                                                                           | 9007903                     | WASH EXT. TOOTH #8 HOLE                 |                      |      | 4              |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| <del>13</del>                                                                | <del>1300508</del>          | <del>RESISTOR 27K 1/4W 10%</del>        |                      |      | <del>1</del>   |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| <del>14</del>                                                                | <del>1300503</del>          | <del>RESISTOR 22K 1/4W 10%</del>        |                      |      | <del>1</del>   |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| <del>15</del>                                                                | <del>1000084</del>          | <del>CAPACITOR 150MFD 15V</del>         |                      |      | <del>1</del>   |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| 16                                                                           | 1300365                     | RESISTOR 1K 1/4W 5% C.C.                |                      |      | 1              |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| <del>17</del>                                                                | <del>7404657</del>          | <del>CAPACITOR .01MFD 200V, 20%</del>   |                      |      | <del>1</del>   |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| 18                                                                           | 10-C0030                    | CAPACITOR .1MFD, 100V, 20%              |                      |      | 1              |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| <del>19</del>                                                                | <del>9107470-33</del>       | <del>#24 AWG SOLID TEFLON GRN</del>     |                      |      | <del>A/R</del> |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| <del>20</del>                                                                | <del>1300271</del>          | <del>RESISTOR, 220 OHM, 1/4 W, 5%</del> |                      |      | <del>1</del>   |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| <del>21</del>                                                                | <del>1300295</del>          | <del>RESISTOR, 330 OHM, 1/4 W, 5%</del> |                      |      | <del>1</del>   |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |
| TITLE                                                                        |                             | ASSY NO.                                |                      | SIZE | CODE           | NUMBER   |  |  | REV. | ECO NO.      |  |  |  |  |  |  |  |  |  |  |
| READER & PUNCH CONTROL                                                       |                             | D-UA-PA68-F-0                           |                      | A    | PL             | PA68-F-0 |  |  | J    | PA68 F-00021 |  |  |  |  |  |  |  |  |  |  |
| SHEET 1 OF 1                                                                 |                             | DIST.                                   |                      |      |                |          |  |  |      |              |  |  |  |  |  |  |  |  |  |  |

DEC FORM NO.  
DRA 110

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| MECHANICAL |                                                                                            |                                                                        |      | DEPT USAGE |   |   | ELECTRICAL |                                                                                                                                                                                                            |                                                                                                                                                                      |      | DEPT USAGE |   |   |
|------------|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------|------|------------|---|---|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------|---|---|
| FIND NO    | DESCRIPTION                                                                                | PART NO                                                                | PROD | CUST       | F | C | FIND NO    | DESCRIPTION                                                                                                                                                                                                | PART NO                                                                                                                                                              | PROD | CUST       | F | C |
| 1          | READER & PUNCH CONTROL<br>READER & PUNCH CONTROL (PL)<br>RIGHT END PANEL<br>LEFT END PANEL | D-UA-PA68-F-0<br>A-PL-PA68-F-0<br>C-MD-5302496-0-0<br>E-MD-5302495-0-0 |      |            |   |   | 1          | READER & PUNCH CONTROL<br>READER CONTROL<br>PUNCH CONTROL<br>I/O CONNECTORS POSITIVE BUS<br>WIRE LIST<br>MODULE UTILIZATION<br>MODULE UTILIZATION (PL)<br>ACCEPTANCE CRITERIA<br>ENG. SPEC<br>POWER WIRING | A-ML-PA68-F<br>D-BS-PA68-F-1<br>D-BS-PA68-F-2<br>D-IC-PA68-F-3<br>K-WL-PA68-F-4<br>D-MU-PA68-F-5<br>A-PL-PA68-F-5<br>A-SP-PA68-F-8<br>A-SP-PA68-F-9<br>C-IC-PA68-F-7 |      |            |   |   |
| 2          | WIRED ASSEMBLY<br>WIRED ASSEMBLY (PL)<br>LOGIC FRAME DECALS                                | D-AD-7006226-0-0<br>A-PL-7006226-0-0<br>A-DC-7408371-0-0               |      |            |   |   |            | ACCESSORY LIST<br>ACCEPTANCE CRITERIA-FIELD                                                                                                                                                                | A-AL-PA68-F-10<br>A-SP-PA68-F-11                                                                                                                                     |      |            |   |   |
| 3          | H911 MTG PANEL<br>H911 MTG PANEL (PL)<br>298 PIN CONN BLOCK TYPE #H903                     | D-AD-5404491-0-0<br>A-PL-5404491-0-0<br>E-SC-1205349-0-0               |      |            |   |   | 2          | WIRED ASSY PA68-F                                                                                                                                                                                          | D-AD-7006226-0-0                                                                                                                                                     |      |            |   |   |
| 4          | 1943 CASTING PLUS PINS<br>1943 CASTING PLUS PINS (PL)<br>1943 FRAME CASTING                | D-AD-5302493-0-0<br>A-PL-5302493-0-0<br>E-MD-1202995-0-0               |      |            |   |   |            |                                                                                                                                                                                                            |                                                                                                                                                                      |      |            |   |   |

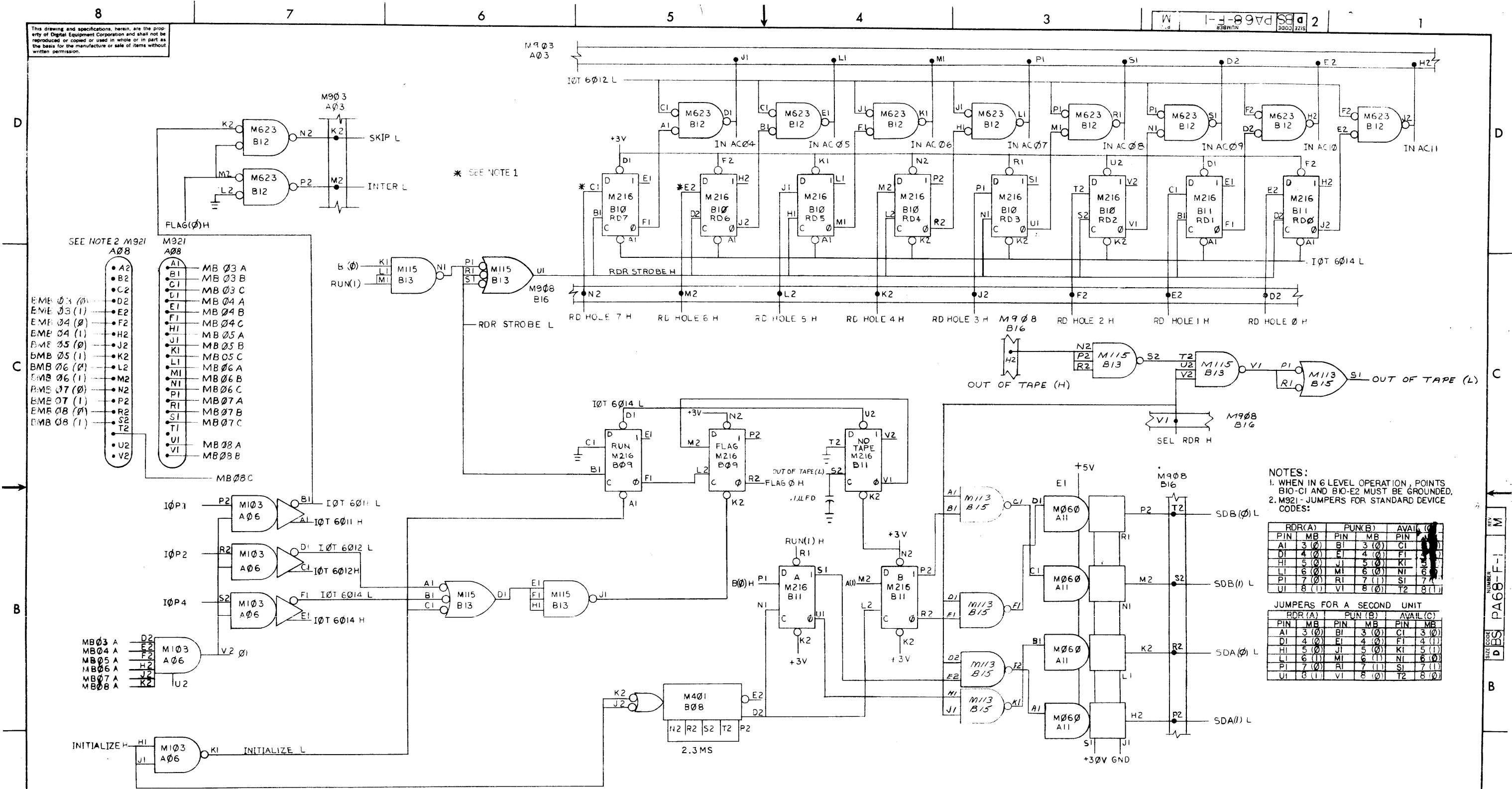
| REV | CHG | NO   | DATE | BY | APP | DESCRIPTION |
|-----|-----|------|------|----|-----|-------------|
| A   |     | 0006 |      |    |     | PA68F-0006  |
| B   |     | 0064 |      |    |     | MISC-00064  |
| C   |     | 0015 |      |    |     | PA68F-00015 |

|                                                            |  |                      |      |                                                                |
|------------------------------------------------------------|--|----------------------|------|----------------------------------------------------------------|
| UNLESS OTHERWISE SPECIFIED                                 |  | DRN                  | DATE | <b>digital</b> EQUIPMENT CORPORATION<br>MATIARD, MASSACHUSETTS |
| UNLESS OTHERWISE SPECIFIED                                 |  | CHK'D                | DATE |                                                                |
| DIMENSION IN INCHES                                        |  | ENG                  | DATE |                                                                |
| TOLERANCES                                                 |  | PROJ. ENG.           | DATE |                                                                |
| ANGLES ± 0°30'                                             |  | PROD.                | DATE | TITLE<br><b>DRAWING INDEX LIST</b>                             |
| FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS |  | NEXT HIGHER ASSEMBLY |      |                                                                |
| MATERIAL                                                   |  | A-ML-PA68-F          |      | SIZE CODE<br><b>D DI</b>                                       |
| FINISH                                                     |  | SCALE NCNE           |      | NUMBER<br><b>PA68-F-6</b>                                      |
| SHEET 1 OF 1                                               |  | DIST.                |      | REV<br><b>C</b>                                                |



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SIZE CODE DBS PA68-F-1



\* SEE NOTE 1

SEE NOTE 2 M921 A08

- EMB 03 (0) ... D2
- EMB 03 (1) ... E2
- EMB 04 (0) ... F2
- EMB 04 (1) ... H2
- BMB 05 (0) ... J2
- BMB 05 (1) ... K2
- BMB 06 (0) ... L2
- BMB 06 (1) ... M2
- BMB 07 (0) ... N2
- BMB 07 (1) ... P2
- BMB 08 (0) ... R2
- BMB 08 (1) ... S2
- ... T2
- ... U2
- ... V2

- M321 A08
- MB 03 A
- MB 03 B
- MB 03 C
- MB 04 A
- MB 04 B
- MB 04 C
- MB 05 A
- MB 05 B
- MB 05 C
- MB 06 A
- MB 06 B
- MB 06 C
- MB 07 A
- MB 07 B
- MB 07 C
- MB 08 A
- MB 08 B

NOTES:  
 1. WHEN IN 6 LEVEL OPERATION, POINTS B10-C1 AND B10-E2 MUST BE GROUNDED.  
 2. M921- JUMPERS FOR STANDARD DEVICE CODES:

| RDR(A) |       | PUN(B) |       | AVAIL(C) |       |
|--------|-------|--------|-------|----------|-------|
| PIN    | MB    | PIN    | MB    | PIN      | MB    |
| A1     | 3 (0) | B1     | 3 (0) | C1       | 3 (0) |
| D1     | 4 (0) | E1     | 4 (0) | F1       | 4 (1) |
| H1     | 5 (0) | J1     | 5 (0) | K1       | 5 (1) |
| L1     | 6 (1) | M1     | 6 (0) | N1       | 6 (0) |
| P1     | 7 (0) | R1     | 7 (1) | S1       | 7 (1) |
| U1     | 8 (1) | V1     | 8 (0) | T2       | 8 (1) |

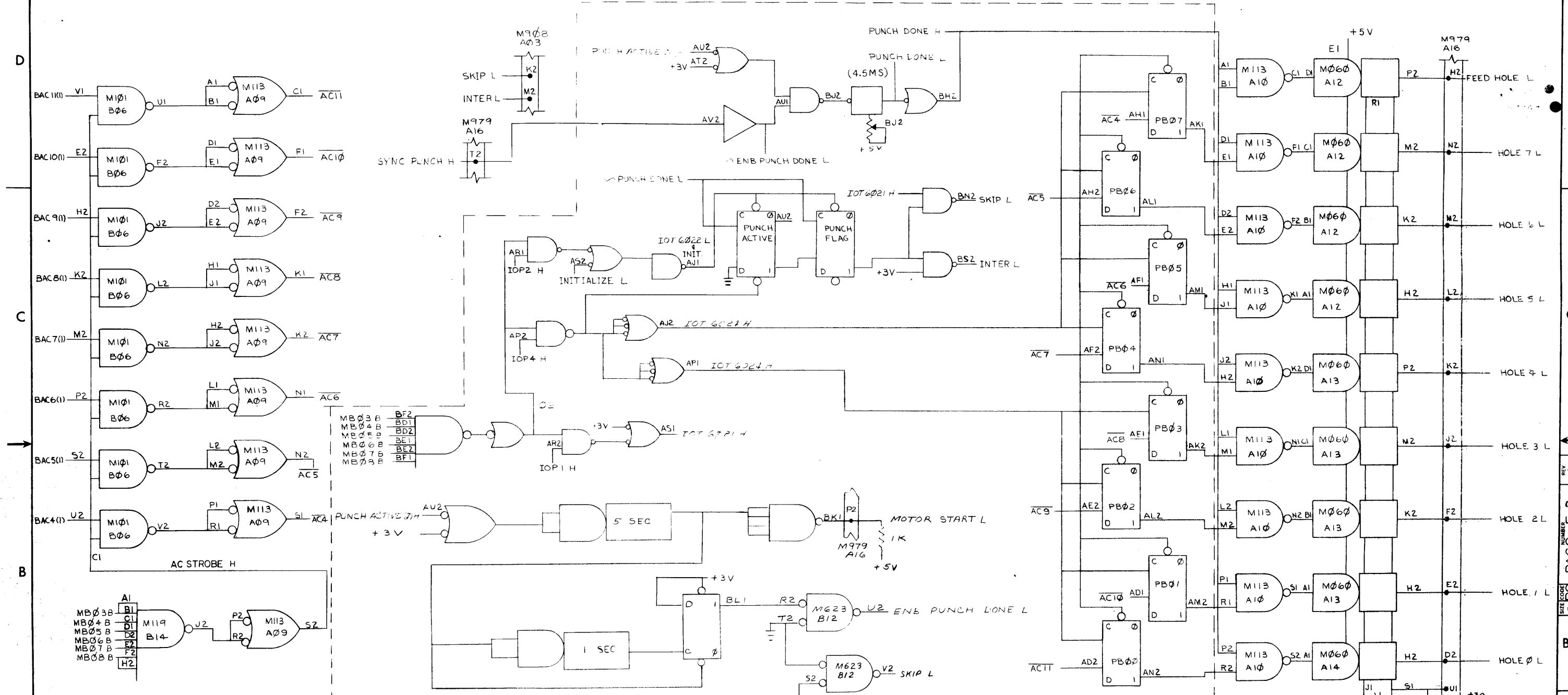
JUMPERS FOR A SECOND UNIT

| RDR(A) |       | PUN(B) |       | AVAIL(C) |       |
|--------|-------|--------|-------|----------|-------|
| PIN    | MB    | PIN    | MB    | PIN      | MB    |
| A1     | 3 (0) | B1     | 3 (0) | C1       | 3 (0) |
| D1     | 4 (0) | E1     | 4 (0) | F1       | 4 (1) |
| H1     | 5 (0) | J1     | 5 (0) | K1       | 5 (1) |
| L1     | 6 (1) | M1     | 6 (1) | N1       | 6 (0) |
| P1     | 7 (0) | R1     | 7 (1) | S1       | 7 (1) |
| U1     | 8 (1) | V1     | 8 (0) | T2       | 8 (0) |

| REV. | CHG.        | NO. | REV. | NO.         |
|------|-------------|-----|------|-------------|
| 1    | PA68F-00001 | A   | 1    | PA68F-00001 |
| 2    | PA68F-00004 | B   | 2    | PA68F-00004 |
| 3    | PA68F-00006 | C   | 3    | PA68F-00006 |
| 4    | PA68F-00013 | F   | 4    | PA68F-00013 |
| 5    | PA68F-00014 | H   | 5    | PA68F-00014 |
| 6    | PA68F-00015 | J   | 6    | PA68F-00015 |
| 7    | PA68F-00016 | K   | 7    | PA68F-00016 |
| 8    | PA68F-00017 | L   | 8    | PA68F-00017 |
| 9    | PA68F-00018 | M   | 9    | PA68F-00018 |
| 10   | PA68F-00019 | N   | 10   | PA68F-00019 |
| 11   | PA68F-00020 | P   | 11   | PA68F-00020 |
| 12   | PA68F-00021 | Q   | 12   | PA68F-00021 |
| 13   | PA68F-00022 | R   | 13   | PA68F-00022 |
| 14   | PA68F-00023 | S   | 14   | PA68F-00023 |
| 15   | PA68F-00024 | T   | 15   | PA68F-00024 |
| 16   | PA68F-00025 | U   | 16   | PA68F-00025 |
| 17   | PA68F-00026 | V   | 17   | PA68F-00026 |
| 18   | PA68F-00027 | W   | 18   | PA68F-00027 |
| 19   | PA68F-00028 | X   | 19   | PA68F-00028 |
| 20   | PA68F-00029 | Y   | 20   | PA68F-00029 |
| 21   | PA68F-00030 | Z   | 21   | PA68F-00030 |

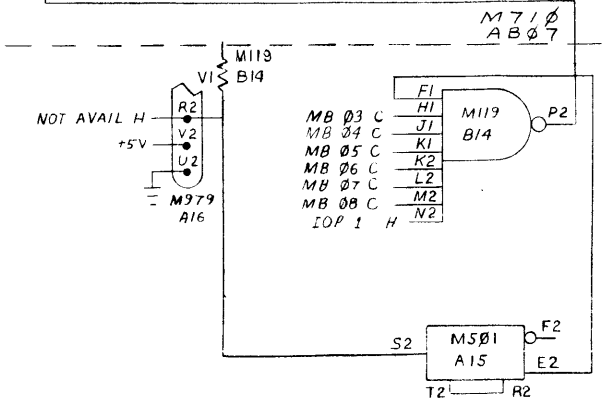
|                                                                                                                                                                                        |                                                                        |                                                                    |          |          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------|----------|----------|
| FIRST USED ON OPTION/MODEL<br>PA68-F                                                                                                                                                   | QTY.                                                                   | DESCRIPTION                                                        | PART NO. | ITEM NO. |
| UNLESS OTHERWISE SPECIFIED<br>DIMENSION IN INCHES<br>TOLERANCES<br>DECIMALS FRACTIONS ANGLES<br>= .005 = 1/64 = 0°30'<br>FINAL SURFACE QUALITY<br>REMOVE BURRS AND BREAK SHARP CORNERS | DRN. DATE<br>CHK'D. DATE<br>ENG. DATE<br>PROJ. ENG. DATE<br>PROD. DATE | PARTS LIST<br><b>digital</b> CORPORATION<br>MAYNARD, MASSACHUSETTS |          |          |
| MATERIAL<br>FINISH                                                                                                                                                                     | NEXT HIGHER PART<br>A-ML-PA68-F                                        | TITLE<br>READER CONTROL (PA68-F)                                   |          |          |
| SCALE<br>SHEET 1 OF 1                                                                                                                                                                  | SIZE CODE<br>DBS                                                       | NUMBER<br>PA68-F-1                                                 | REV<br>M |          |

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NOTE:  
THERE MUST NEVER BE POWER APPLIED WHEN THE M710 MODULE IS ABSENT FROM PA68F.

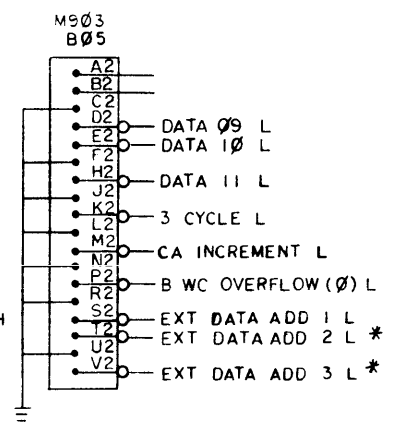
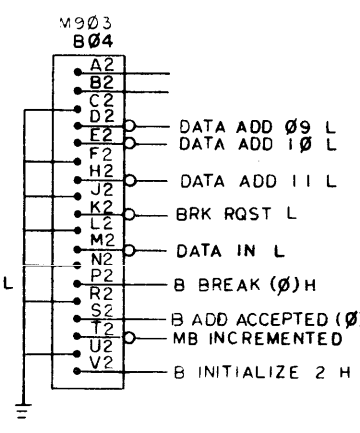
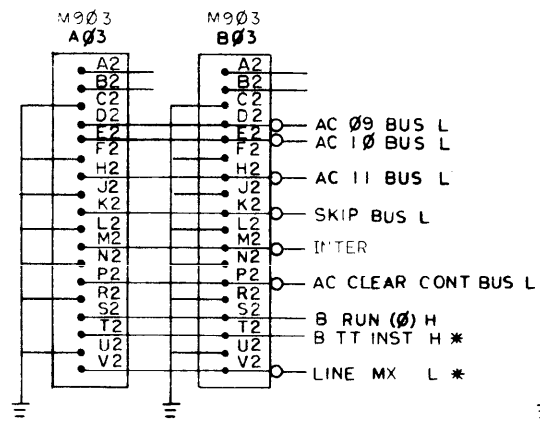
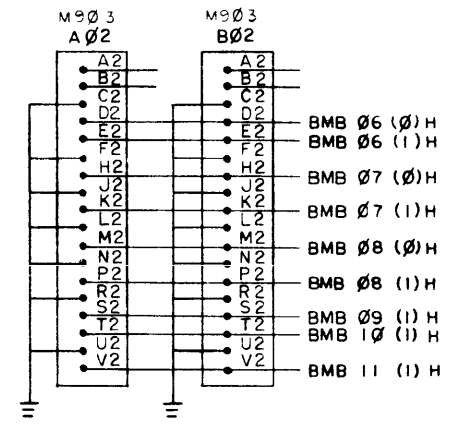
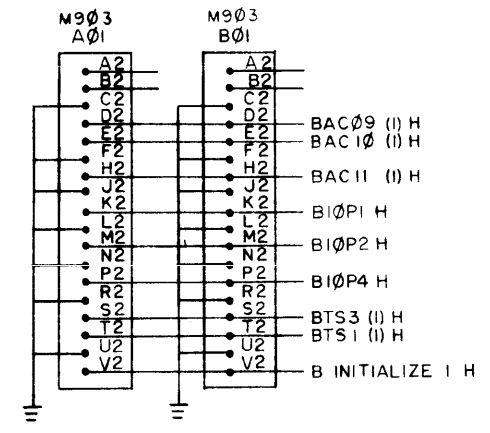
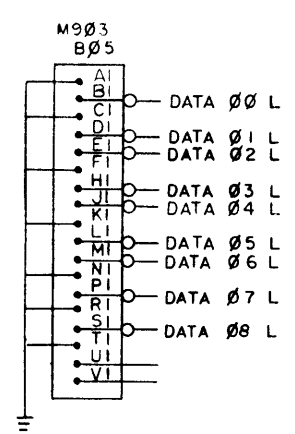
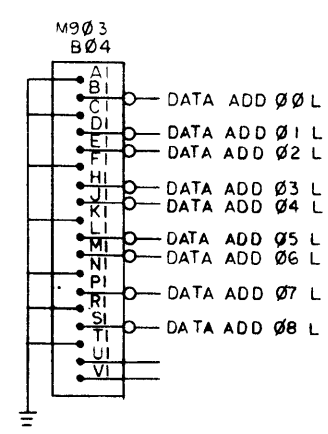
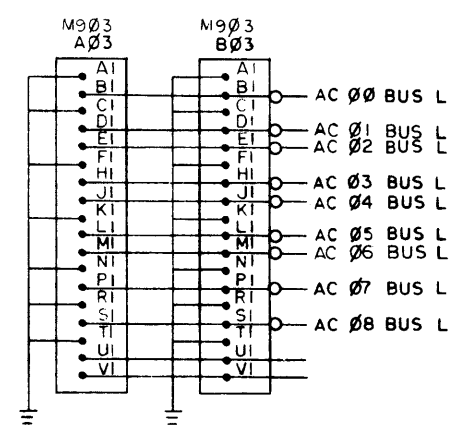
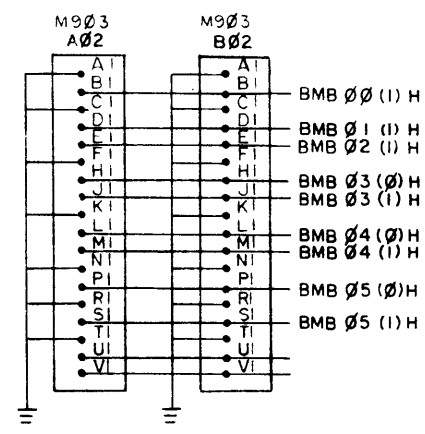
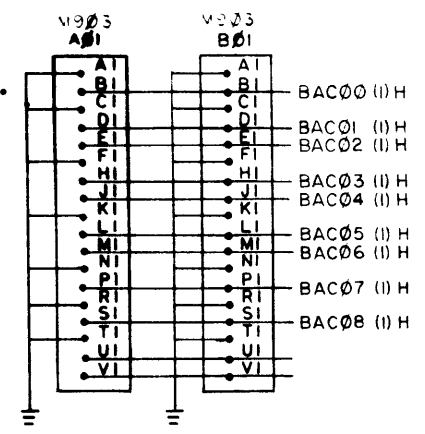
| REV | CHANGE NO | REV | DATE     | BY          | CHKD | DATE | BY |
|-----|-----------|-----|----------|-------------|------|------|----|
| A   | 0001      | A   | 7-2-69   | T. Doucette |      |      |    |
| B   | 0002      | B   | 7-29-69  | T. Doucette |      |      |    |
| C   | 0004      | C   | 8-22-69  | T. Doucette |      |      |    |
| D   | 0010      | D   | 8-27-69  | T. Doucette |      |      |    |
| E   | 0013      | E   | 8-29-69  | G. Williams |      |      |    |
| F   | 0014      | F   | 8-17-71  | J. J. J.    |      |      |    |
| G   | 0017      | G   | 8-27-73  | J. J. J.    |      |      |    |
| H   | 0020      | H   | 11-3-74  | J. J. J.    |      |      |    |
| I   | 0021      | I   | 11-20-74 | J. J. J.    |      |      |    |
| J   | 0022      | J   | 4-13-74  | J. J. J.    |      |      |    |
| K   | 0023      | K   | 8-19-74  | J. J. J.    |      |      |    |



| FIRST USED ON OPTION/MODEL                                                                                            | QTY | DESCRIPTION | PART NO. | ITEM NO. |
|-----------------------------------------------------------------------------------------------------------------------|-----|-------------|----------|----------|
| PA68-F                                                                                                                |     |             |          |          |
| UNLESS OTHERWISE SPECIFIED DRN: DATE: 2/25/69                                                                         |     |             |          |          |
| UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES CHKD: DATE: 4/8/69                                                     |     |             |          |          |
| TOLERANCES DECIMALS FRACTIONS ANGLES = .005 = 1/64 = 0°30' FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS |     |             |          |          |
| MATERIAL                                                                                                              |     |             |          |          |
| NEXT HIGHER ASSY                                                                                                      |     |             |          |          |
| FINISH                                                                                                                |     |             |          |          |
| SCALE                                                                                                                 |     |             |          |          |
| SHEET OF 1                                                                                                            |     |             |          |          |
| TITLE                                                                                                                 |     |             | REV. L   |          |
| PUNCH CONTROL                                                                                                         |     |             | L        |          |
| SIZE CODE: DBS PA68-F-2                                                                                               |     |             | NUMBER   |          |
| DIST.                                                                                                                 |     |             | REV. L   |          |

REV L PA68-F-2

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NOTES:


- SIGNALS MARKED WITH AN ASTERISK ARE NOT USED IN PDP 8/L BUT RESERVED FOR SPECIFIC USE IN PDP 8/I
- ALL DATA BREAK DEVICES MUST USE 'B INITIALIZE 2 H'

| REV | CHG         | NO | DATE   | BY       |
|-----|-------------|----|--------|----------|
| 1   | PA68F-00001 | A  | 7/2/69 | DOUCETTE |
| 2   | PA68F-00004 | A  | 7/2/69 | DOUCETTE |

| FIRST USED ON OPTION/MODEL                              | QTY. | DESCRIPTION | PART NO. | ITEM NO. |
|---------------------------------------------------------|------|-------------|----------|----------|
| PA68-F                                                  |      |             |          |          |
| PARTS LIST                                              |      |             |          |          |
| digital EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS |      |             |          |          |
| TITLE<br>I/O CONNECTORS<br>POSITIVE BUS                 |      |             |          |          |
| SIZE CODE NUMBER REV.<br>D I C PA68-F-3 B               |      |             |          |          |
| SHEET 1 OF 1                                            |      |             |          |          |

|               |         |
|---------------|---------|
| DRWG NO       | REV LTR |
| K-WL-PA68-F-4 | S       |

| REVISIONS |             |          |           |
|-----------|-------------|----------|-----------|
| REV LTR   | ECO NO      | DATE     | ENG       |
| A         | PA68F-00001 | 7-1-69   | <i>BJ</i> |
| B         | PA68F-00002 | 7/29/69  | <i>BJ</i> |
| C         | PA68F-00004 | 8-22-69  | <i>BJ</i> |
| D         | PA68F-00005 | 9-18-69  | <i>BJ</i> |
| E         | PA68F-00006 | 10-16-69 | <i>BJ</i> |
| F         | PA68F-00010 | 5-1-70   | <i>BJ</i> |
| H         | PA68F-00011 | 9-1-70   | <i>BJ</i> |
| J         | PA68F-00012 | 12/1/70  | <i>BJ</i> |
| K         | PA68F-00013 | 4/29/71  | <i>BJ</i> |
| L         | PA68F-00014 | 6-1-71   | <i>BJ</i> |
| M         | PA68F-00015 | 11-15-71 | <i>BJ</i> |
| N         | PA68F-00016 | 3-6-72   | <i>BJ</i> |
| P         | PA68F-00019 | 8-27-73  | <i>BJ</i> |
| R         | PA68F-00020 | 11-9-73  | <i>BJ</i> |
| S         | PA68F-00021 | 2-12-74  | <i>BJ</i> |

|                               |                 |                                                                                       |                              |                 |                      |
|-------------------------------|-----------------|---------------------------------------------------------------------------------------|------------------------------|-----------------|----------------------|
| DRAWN<br><i>J. Marini</i>     | DATE<br>4/2/69  |  | TITLE<br>WIRE LIST<br>PA68-F |                 |                      |
| CHECKED<br><i>R. Carvelli</i> | DATE<br>4/4/69  |                                                                                       | FOR TAPE # FILE *            |                 |                      |
| ENG                           | DATE<br>4/1/69  |                                                                                       | SIZE<br>K                    | CODE<br>WL      | DWG. NO.<br>PA68-F-4 |
| PROJ. ENG<br><i>Ky</i>        | DATE            |                                                                                       | REV LTR<br>S                 |                 |                      |
| PROD<br><i>H. Kelly</i>       | DATE<br>11/1/69 | ASSY NO<br>A-ML-PA68-F                                                                | SCALE<br>NONE                | SHEET<br>1 OF 1 |                      |
|                               |                 | DIST.                                                                                 |                              |                 |                      |



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Main utilization table with columns 1-22 and rows A, B, C, D. Columns include module identifiers like M903, M103, M112, M113, M360, M360, M581, M379, and various functional descriptions such as DATA ADD, PUNCH HOLE, and MOTOR START.

Blank utilization table with columns 23-44 and rows A, B, C, D.

REVISIONS table with columns: REV, CHANGE NO., CHK, and detailed revision notes including names like DOUCETTE and dates.

NOTE: \* DENOTES MODULES USED WITH PA68H, OR PA68J. \*\* DENOTES MODULES USED WITH PA68M. BLANKS ARE USED WITH BOTH.

FIRST USED ON OPTION/MODEL PA68-F

DO NOT SCALE DRAWING section containing technical drawing standards (TOLERANCES, DECIMALS, ANGLES), drawing control information (CHK'D, ENG., PROJ. ENG., PROD.), and title block (digital EQUIPMENT CORPORATION, MODULE UTILIZATION, D MU PA68-F-5).

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

|                       |                            |                   |
|-----------------------|----------------------------|-------------------|
| MADE BY M. J. VENZAIA | CHECKED <i>S. Carvello</i> | SECTION<br>1      |
| DATE 3/4/69           | DATE 4-10-69               |                   |
| ENG                   | PROD <i>S. Carvello</i>    | ISSUED SECT.<br>1 |
| DATE                  | DATE                       |                   |

QUANTITY VARIATION

| ITEM NO.     | DWG NO. / PART NO. | DESCRIPTION                            |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------|--------------------|----------------------------------------|--------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 1            | M050               | SOLENOID DRIVER                        | 4            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2            | M101               | BUS DATA INTERFACE                     | 1            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3            | M103               | DEVICE SELECTOR                        | 1            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4            | M113               | TEN 2-INPUT NAND GATES                 | 3            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5            | M115               | EIGHT 3-INPUT NAND GATES               | 1            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6            | M119               | THREE 8-INPUT NAND GATES               | 1            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7            | M216               | SIX FRIP-FLOPS                         | 3            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <del>8</del> | <del>K303</del>    | <del>TIMER</del>                       | <del>1</del> |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9            | M401               | VARIABLE CLOCK                         | 1            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10           | M623               | BUS DRIVER                             | 1            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11           | M710               | FUNCTION CONTROL ETCH REV F (OR LATER) | 1            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12           | G773               | CABLE CONNECTOR                        | 1            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13           | M501               | SCHMITT TRIGGER                        | 1            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14           | M921               | DEVICE CODE SELECT JUMPER BOARD        | 1            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|              |                    |                                        |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|              |                    |                                        |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|              |                    |                                        |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|              |                    |                                        |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|              |                    |                                        |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|              |                    |                                        |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|              |                    |                                        |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

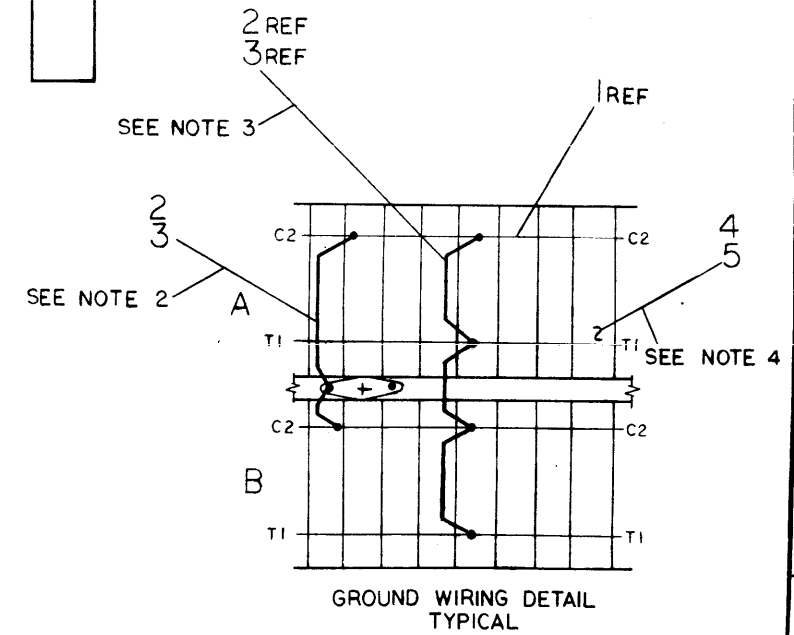
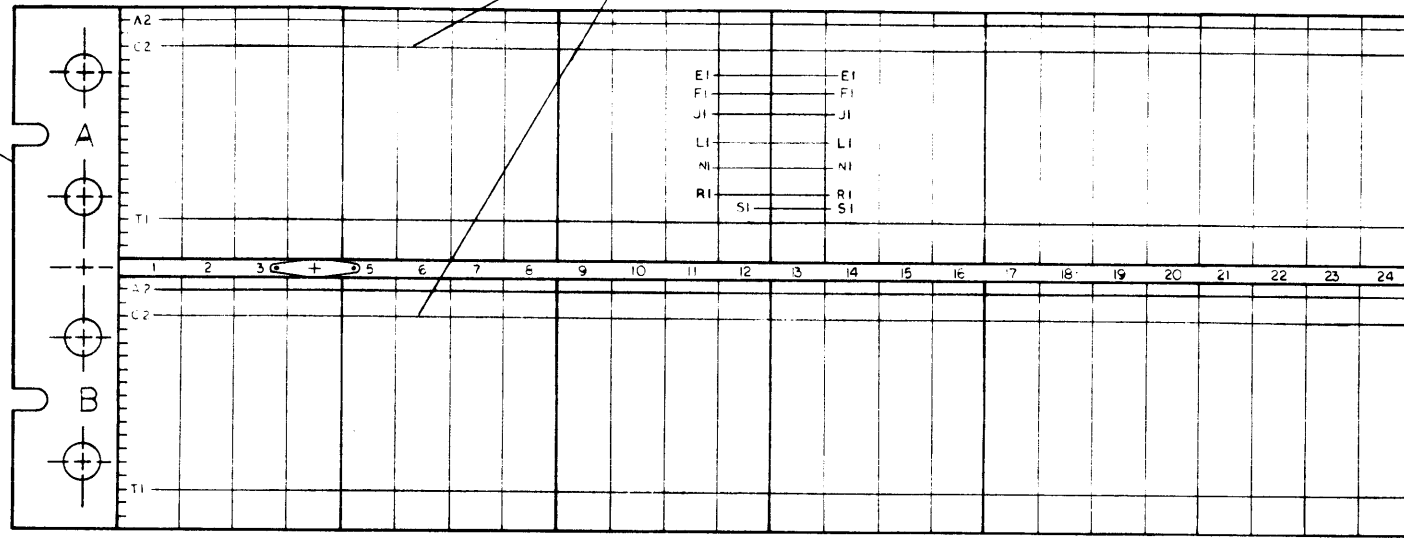
|                           |               |           |          |     |             |
|---------------------------|---------------|-----------|----------|-----|-------------|
| TITLE                     | ASSY NO.      | SIZE CODE | NUMBER   | REV | ECO NO      |
| MODULE UTILIZATION 1A68-F | F-MU-PA68-F-5 | A PL      | PA68-F-5 | P   | PA68F-00021 |
|                           | SHEET 1 OF 1  | DIST      |          |     |             |

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| WIRE TABLE |             |     |       |                 |               |           |
|------------|-------------|-----|-------|-----------------|---------------|-----------|
| ITEM NO.   | DESCRIPTION | AWG | COLOR | FROM CONNECTION | TO CONNECTION | REMARKS   |
| 14         | 24          | GRN |       | A14S1           | A16U1         | HAND WIRE |
| 14         | 24          | GRN |       | A2C2            | A16V1         | "         |
| 14         | 24          | GRN |       | A16U1           | A1-VI         | "         |
| 14         | 24          | GRN |       | A2C2            | B16U2         | "         |

NOTES:

1. CONNECTIONS ON ITEM NUMBER 1 & 2 TO BE LOCATED AND SOLDERED AT MINIMUM PRACTICAL HEIGHT ABOVE BLOCKS.
2. ALL CONNECTOR BLOCKS TO BE GROUNDED TO GROUND LUGS AS SHOWN, 2 PLACES.
3. JUMPER GROUND BUSSING AS SHOWN, 8 PLACES.
4. USE YELLOW WIRE (ITEM #4) FOR MACHINE WRAPPED AND BLUE WIRE (ITEM #5) FOR HAND WRAPPED WIRING.



| REV. | CHANGE NO. | DESCRIPTION |
|------|------------|-------------|
| A    | 1          | PAG6F-0001  |
| B    | 2          | PAG6F-0002  |
| C    | 3          | PAG6F-0003  |
| D    | 4          | PAG6F-0004  |
| E    | 5          | PAG6F-0005  |
| F    | 6          | PAG6F-0006  |
| G    | 7          | PAG6F-0007  |
| H    | 8          | PAG6F-0008  |

| TOLERANCES |        |
|------------|--------|
| DECIMALS   |        |
| .XXX       | = .005 |
| .XX        | = .02  |
| .X         | = .1   |

|                                                                  |                                   |             |                                                         |          |
|------------------------------------------------------------------|-----------------------------------|-------------|---------------------------------------------------------|----------|
| FIRST USED ON OPTION/MODEL<br>PA68-F                             | QTY.                              | DESCRIPTION | PART NO.                                                | ITEM NO. |
| PARTS LIST                                                       |                                   |             |                                                         |          |
| DO NOT SCALE DRAWING                                             | DRN                               | DATE        | digital EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS |          |
| UNLESS OTHERWISE SPECIFIED<br>DIMENSION IN INCHES                | CHK'D                             | DATE        | TITLE<br>WIRED ASS'Y<br>PA68-F                          |          |
| TOLERANCES                                                       | ENG                               | DATE        | SIZE CODE NUMBER<br>D AD 7006226-0-0                    |          |
| ANGLES ± 0°30'                                                   | PROJ. ENG.                        | DATE        | REV<br>F                                                |          |
| FINAL SURFACE QUALITY<br>REMOVE BURRS AND BREAK SHARP<br>CORNERS | PROD                              | DATE        | SHEET OF 1                                              |          |
| MATERIAL                                                         | NEXT HIGHER ASSY<br>D UA-PA68-F-0 |             | DIST.                                                   |          |
| FINISH                                                           | SCALE NONE                        | SHEET OF 1  |                                                         |          |



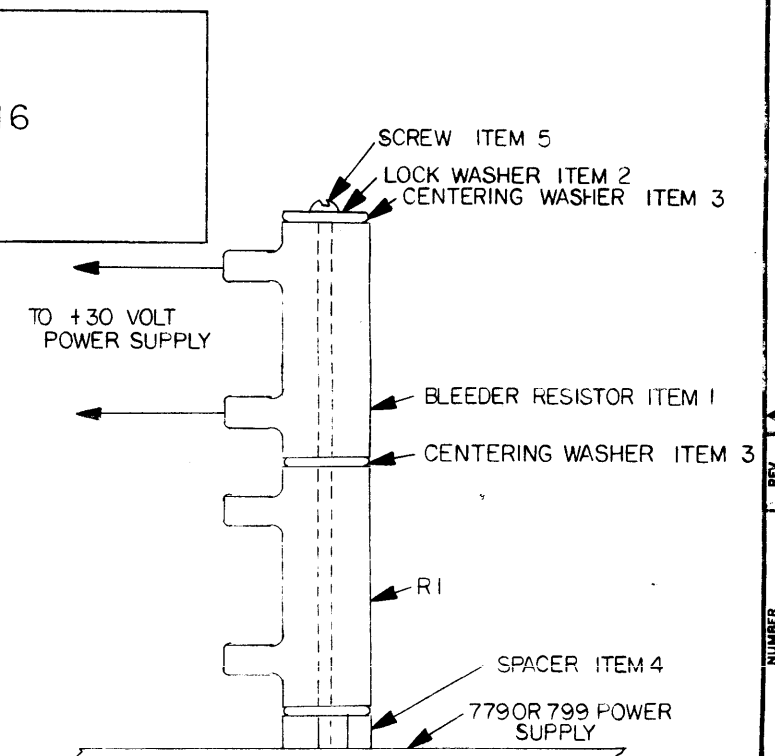
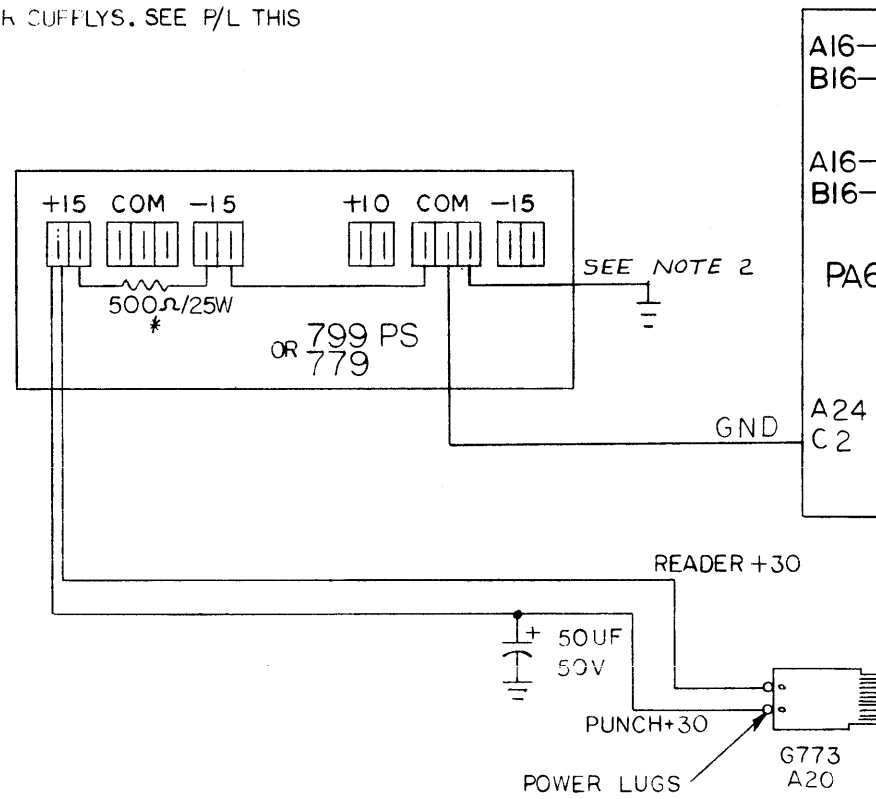
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**NOTE:**

- G773 CONNECTOR CARD GOES IN SLOT A20 IN PA68F LOGIC. JUMPER PINS L2 & R2 ON CONNECTOR CARD TO POWER LOGIC. BEFORE POWER IS APPLIED TO LOGIC CHECK THAT THE FOLLOWING WIRES ARE CONNECTED ON THE LOGIC:  
A20L2 TO AIGU1  
A20R2 TO BIGU2
- THE PA68F GROUND, H716 GROUND AND 779 GROUND SHOULD BE WIRED TO THE SAME GROUND; WHERE GROUND IS THE 'GREEN' CONDUCTOR (SAFETY GND) ON THE AC POWER LINE.

**\* 779 & 799 P.S. MODIFICATION**

500 OHM BLEEDER RESISTOR TO BE SECURED ABOVE R1 IN THE 779 OR 799 POWER SUPPLY. SEE P/L THIS LWG.



| QTY. | DESCRIPTION                             | PART NO.   | ITEM NO. |
|------|-----------------------------------------|------------|----------|
| 1    | 6-32 X 4 7/16 PHIL. PAN. H.D. HEX. SCR. | 90-08004-5 | 5        |
| 1    | 1/2 RF X 1/4 X 1/16 SICLE SPACER.       | 90-06827   | 4        |
| 2    | CENTERING WASHER                        | 90-06679   | 3        |
| 1    | #6 INTERNAL LOCK WASHER                 | 90-06633   | 2        |
| 1    | 500Ω, 25W RESISTOR                      | 13-00333   | 1        |

| PARTS LIST    |             |      |         |
|---------------|-------------|------|---------|
| DRN.          | T. Quillin  | DATE | 7/30/69 |
| CHK'D.        | B. J. Quinn | DATE | 7/30/69 |
| ENG.          | B. J. Quinn | DATE | 7/30/69 |
| PROJ. ENG.    | B. J. Quinn | DATE | 7/30/69 |
| PROD.         | B. J. Quinn | DATE | 7/30/69 |
| FIRST USED ON |             |      |         |
| SCALE         | 1 OF 1      |      |         |
| SHEET         | 1 OF 1      |      |         |

|                                      |           |                            |  |
|--------------------------------------|-----------|----------------------------|--|
| UNLESS OTHERWISE SPECIFIED           |           | UNLESS OTHERWISE SPECIFIED |  |
| DIMENSION IN INCHES                  |           |                            |  |
| TOLERANCES                           |           |                            |  |
| DECIMALS                             | FRACTIONS | ANGLES                     |  |
| ± .005                               | ± 1/64    | ± 0°30'                    |  |
| FINAL SURFACE QUALITY                |           |                            |  |
| REMOVE BURRS AND BREAK SHARP CORNERS |           |                            |  |
| MATERIAL                             |           | FINISH                     |  |
| + - - - -                            |           | + - - - -                  |  |

|                        |          |                        |  |
|------------------------|----------|------------------------|--|
| digital CORPORATION    |          | EQUIPMENT CORPORATION  |  |
| MAYNARD, MASSACHUSETTS |          | MAYNARD, MASSACHUSETTS |  |
| TITLE                  |          |                        |  |
| POWER WIRING PA68-F    |          |                        |  |
| SIZE CODE              | NUMBER   | REV.                   |  |
| CIC                    | PA68-F-7 | E                      |  |
| DIST.                  | OF       |                        |  |

| REVISIONS   | CHANGE NO.  | REV. |
|-------------|-------------|------|
| CHK         | PA68F-00002 | 1    |
| ORIGINATED  | PA68F-00007 | A    |
| T. Quillin  | 4-1-69      |      |
| DOUCETTE    |             |      |
| FV          | PA68F-00010 | B    |
| B. J. Quinn | 5-1-70      |      |
| B. DOUCETTE |             |      |
| H. JODICE   | 1-170       |      |
| PA68F-00013 |             |      |
| H. JODICE   | 1-171       |      |
| PA68F-00014 |             |      |
| M. Quinn    | 6-1-71      |      |
| JODICE      |             |      |
| PA68F-00018 |             |      |
| J. MILTON   | 1-172       |      |
|             | 1-173       |      |

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MAYNARD, MASSACHUSETTS

**ENGINEERING SPECIFICATION**

DATE 5-7-71

TITLE PA68F

REVISIONS

| REV | DESCRIPTION | CHG NO      | ORIG   | DATE    | APPD BY            | DATE    |
|-----|-------------|-------------|--------|---------|--------------------|---------|
| A   | ECO CHANGE  | PA68F-00013 | JODICE | 4-1-71  | <i>E. Kerchner</i> | 5/12/71 |
| B   | ECC CHANGE  | PA68F-00017 | HARTZ  | 8-11-72 | <i>[Signature]</i> | 7/86    |
| C   | ECO CHANGE  | PA68F-00019 | REED   | 8-73    | <i>E. Kerchner</i> | 8/31/73 |
|     |             |             |        |         |                    |         |

|                     |                     |            |           |                    |          |
|---------------------|---------------------|------------|-----------|--------------------|----------|
| ENG<br>BUZ DOUCETTE | APPD<br>W. KERCHNER | CODE<br>SP | SIZE<br>A | NUMBER<br>PA68-F-9 | REV<br>C |
|---------------------|---------------------|------------|-----------|--------------------|----------|

**ENGINEERING SPECIFICATION**

CONTINUATION SHEET

TITLE PA68F

I. Description

The PA68F is a controller for a PR68DA paper tape reader and PP67C or PP67D paper tape punch. It can interface to any one of the positive bus family of PDP-8 computers. The punch section controls the turning on and turning off of the punch motor; it also controls the solenoids which determine the bits to be punched. The reader section controls the stepping motor; it also buffers the data bits after it commands the reader to fetch a character.

II. General Specifications

A. Mechanical Packaging

The PA68F consists of an H911 mounting panel with six instead of eight H803 mounting blocks. An H716 power supply is mounted on the H911 in the slot where the two mounting blocks were removed.

B. Environmental Specifications

The PA68F will operate at a temperature range of 20°C to 50°C. The power required is supplied by an H716 power supply (+5v and -15v) and a DEC 799 power supply (+30v).

III. Programming Specs

Punch Programming Instructions

|     |      |                                       |
|-----|------|---------------------------------------|
| PSF | 6021 | Skip if punch flag = 1                |
| PCF | 6022 | Clear flag and punch buffer           |
| PPC | 6024 | Load buffer and punch                 |
| PLS | 6026 | Clear flag and buffer, load and punch |
|     | 6311 | SKIP IF PUNCH NOT AVAILABLE           |

Reader Programming Instructions

|     |      |                                            |
|-----|------|--------------------------------------------|
| RSF | 6011 | Skip if reader flag = 1                    |
| RRB | 6012 | Read reader buffer and clear flag          |
| RFC | 6014 | Clear flag and buffer and fetch character. |

|           |            |                    |          |
|-----------|------------|--------------------|----------|
| SIZE<br>A | CODE<br>SP | NUMBER<br>PA68-F-9 | REV<br>C |
|-----------|------------|--------------------|----------|

# ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE PA68F

### III. Programming Specs (Continued)

#### Programming Examples

|         |           |         |
|---------|-----------|---------|
| Reader  | 7000/7300 | CLA CLL |
|         | 6014      | RFC     |
| SR=7000 | 6011      | RSF     |
| L.A.    | 5202      | JMP .-1 |
| START   | 6012      | RRB     |
|         | 5200      | JMP .-5 |

This program will command the reader to read the paper tape which is placed in its tape path guide.

|       |           |                |
|-------|-----------|----------------|
| PUNCH | 7000/7300 | CLA CLL        |
|       | 6311      | CHK AVAIL 7040 |
|       | 7410      | SKP 6026       |
|       | 7402      | HLT 6021       |
|       |           | 5206 JMP.-1    |
|       |           | 5201 JMP.-7    |

This program will command the punch to punch a continuous pattern of one's and zero's.

### IV. Systems Components

- A. Modules - See Print UML-PA68F
- B. Cables - 1) Standard applicable I/O cables  
2) One BC01H-Ø-Ø (reader) cable  
One BC01F-Ø-Ø (punch) cable
- C. Power Supplies - DEC 799  
H716

### V. Interface Specifications

- A. The I/O signals are detailed in the PDP-8 Small Computer Handbook.
- B. Reader Signals

| Pin   | Signal | Description                                      |
|-------|--------|--------------------------------------------------|
| P1,B2 | -15v   | Supplies current to reader amplifiers and bulbs. |
| R1,A2 | +5v    | Supplies current to all logic components         |

|      |      |          |     |
|------|------|----------|-----|
| SIZE | CODE | NUMBER   | REV |
| A    | SP   | PA68-F-9 | C   |

# ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE PA68F

### Reader Signals (Continued)

| Pin      | Signal        | Description                                                             |
|----------|---------------|-------------------------------------------------------------------------|
| S1,U1,U2 | +30v          | Supplies current to drive stepping motor                                |
| V1       | Sel.Rdr H     | When signal is asserted, WHEN reader is ENABLED BY ROCKER SWITCH.       |
| C2,T1    | GND           |                                                                         |
| D2       | RD Hole Ø H   | Signal is asserted when a hole is detected.                             |
| E2       | RD Hole 1 H   | Signal is asserted when a hole is detected.                             |
| F2       | RD Hole 2 H   | Signal is asserted when a hole is detected.                             |
| H2       | OUT OF TAPE H | Signal is asserted when a hole is detected. Used to detect out of tape. |
| J2       | RD Hole 3 H   | Signal is asserted when a hole is detected.                             |
| K2       | RD Hole 4 H   | Signal is asserted when a hole is detected.                             |
| L2       | RD Hole 5 H   | Signal is asserted when a hole is detected.                             |
| M2       | RD Hole 6 H   | Signal is asserted when a hole is detected.                             |
| N2       | RD Hole 7 H   | Signal is asserted when a hole is detected.                             |
| T2       | SCB (Ø) L     | +30v to GND. Used to increment motor.                                   |
| S2       | SCB (1) L     | +30v to GND. Used to increment motor.                                   |
| R2       | SCA (Ø) L     | +30v to GND. Used to increment motor.                                   |
| P2       | SCA (1) L     | +30v to GND. Used to increment motor.                                   |
| V2       | NTTA          | Not Applicable                                                          |

|      |      |          |     |
|------|------|----------|-----|
| SIZE | CODE | NUMBER   | REV |
| A    | SP   | PA68-F-9 | C   |

**ENGINEERING SPECIFICATION**

digital

CONTINUATION SHEET

TITLE PA68F

Punch Signals

| <u>Pin</u>             | <u>Signal</u>  | <u>Description</u>                                                                                                              |
|------------------------|----------------|---------------------------------------------------------------------------------------------------------------------------------|
| N1, P1, R1, S1, U1, V1 | +30v           | Supplies current to solenoids                                                                                                   |
| T1, C2                 | GND            |                                                                                                                                 |
| A2, V2                 | +5v            | Supplies voltage to control circuitry                                                                                           |
| D2                     | Hole Ø0 L      | When signal is at GND, the appropriate solenoid will be in a "Hole" state.                                                      |
| E2                     | Hole Ø1 L      | When signal is at GND, the appropriate solenoid will be in a "Hole" state.                                                      |
| F2                     | Hole Ø2 L      | When signal is at GND, the appropriate solenoid will be in a "Hole" state.                                                      |
| H2                     | Feed Hole L    | When signal is at GND, the appropriate solenoid will be in a "Hole" state. This signal should be set to a 4.5ms positive width. |
| J2                     | Hole Ø3 L      | When signal is at GND, the appropriate solenoid will be in a "Hole" state.                                                      |
| K2                     | Hole Ø4 L      | When signal is at GND, the appropriate solenoid will be in a "Hole" state.                                                      |
| L2                     | Hole Ø5 L      | When signal is at GND, the appropriate solenoid will be in a "Hole" state.                                                      |
| M2                     | Hole Ø6 L      | When signal is at GND, the appropriate solenoid will be in a "Hole" state.                                                      |
| N2                     | Hole Ø7 L      | When signal is at GND, the appropriate solenoid will be in a "Hole" state.                                                      |
| P2                     | MOTOR START L  | When signal is at GND, the selected punch motor will start.                                                                     |
| R2                     | NOT AVAILABLE  | WHEN HIGH PUNCH IS OUT OF LINE                                                                                                  |
| T2                     | SYNC H PUNCH H | A signal supplied from the punch to sync the strobing (feed hold) pulse.                                                        |

|                  |            |                    |          |
|------------------|------------|--------------------|----------|
| SIZE<br><b>A</b> | CODE<br>SP | NUMBER<br>PA68-F-9 | REV<br>C |
|------------------|------------|--------------------|----------|

**ENGINEERING SPECIFICATION**

digital

CONTINUATION SHEET

TITLE PA68F

VI. Acceptance Procedures

See A-SP-PA68F-8

VII. Engineering Drawings

See A-ML-PA68F

|                  |            |                    |          |
|------------------|------------|--------------------|----------|
| SIZE<br><b>A</b> | CODE<br>SP | NUMBER<br>PA68-F-9 | REV<br>C |
|------------------|------------|--------------------|----------|



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|---------------------------------------------------------|-------------|--------|------|------|---------------------|------|
| ENGINEERING SPECIFICATION                               |             |        |      |      | DATE <i>11/5/71</i> |      |
| TITLE PA68F ACCEPTANCE CRITERIA - FIELD                 |             |        |      |      |                     |      |
| REVISIONS                                               |             |        |      |      |                     |      |
| REV                                                     | DESCRIPTION | CHG NO | ORIG | DATE | APPD BY             | DATE |
|                                                         |             |        |      |      |                     |      |
|                                                         |             |        |      |      |                     |      |
|                                                         |             |        |      |      |                     |      |
|                                                         |             |        |      |      |                     |      |

|                     |                       |                  |            |                         |     |
|---------------------|-----------------------|------------------|------------|-------------------------|-----|
| ENG <i>H. Jones</i> | APPD <i>O. Miller</i> | SIZE<br><b>A</b> | CODE<br>SP | NUMBER<br>PA68 - F - 11 | REV |
|---------------------|-----------------------|------------------|------------|-------------------------|-----|

| ENGINEERING SPECIFICATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  | DIGITAL                 | CONTINUATION SHEET |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------|--------------------|
| TITLE PA68F ACCEPTANCE CRITERIA - FIELD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | 1                       |                    |
| <p>I SCOPE</p> <p>A. To define the criteria necessary to field accept the positive bus PA68F, single channel reader/punch control.</p> <p>II FIELD ACCEPTANCE</p> <p>A. Shipping Software</p> <ol style="list-style-type: none"> <li>1. Prints - all on A-ML-PA68F</li> <li>2. Diagnostics               <ol style="list-style-type: none"> <li>a. MAINDEC-08-D2HC (Family of 8 tests for type-setting)</li> <li>b. System Exerciser (two copies of customized version)</li> </ol> </li> </ol> <p>B. Shipping Hardware</p> <ol style="list-style-type: none"> <li>1. PA68F logic with all necessary modules and I/O cables</li> <li>2. Reader/punch cables as per construction requisition (or key sheet)</li> </ol> <p>C. Test Software</p> <ol style="list-style-type: none"> <li>1. Shipping Software               <ol style="list-style-type: none"> <li>A. Prints - all on A-ML-PA68F</li> <li>B. Diagnostics                   <ol style="list-style-type: none"> <li>a. MAINDEC-08-D2HC (Family of 8 tests for typesetting)</li> <li>b. System Exerciser (two copies of customized version)</li> </ol> </li> </ol> </li> </ol> <p>D. Test Hardware</p> <ol style="list-style-type: none"> <li>1. Complete system as per construction requisition (or key sheet)</li> </ol> <p>E. Procedure</p> <ol style="list-style-type: none"> <li>1. Insure system assembly is complete as per construction requisition (or key sheet); i.e., all necessary I/O cables, logics, power supplies, etc.</li> <li>2. With an oscilloscope check that the reader clock</li> </ol> |  |                         |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | SIZE<br><b>A</b>        | CODE<br>SP         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | NUMBER<br>PA68 - F - 11 | REV                |

TITLE PA68F ACCEPTANCE CRITERIA - FIELD

II E. 2. continued  
is set to exactly 2.3 msec (M401 PA68F slot B08 Pin D2). No program is needed for this check, just turn power on.

3. With an oscilloscope check that the PUNCH DONE level is at +3 volts DC for exactly 4.5 msec (M710 in PA68F slot AB07 Pin BH2) by using the following program:

```

7000 / 7040
      1  6026
      2  6021
      3  5202
      4  5200

```

Starting Address = 7000

Make sure the reader and punch are aligned correctly. Refer to the alignment procedure for the PR68B/D/DA reader and PPO7 C/D punches.

NOTE: Use the customer tape for the above tests if it fails within our specs.

4. Put a full roll of paper punch tape (use same type tape as customer uses in his perforators) in the punch.
5. Load the System Exerciser, Overlay 3, into memory. With all segments of overlay three running, put the ON/OFF switch on the reader to the OFF position (push to right). The program should immediately output the following error message:

```
EOV3SO READER 0000 NO RESPONSE
```

Put the switch back in the ON position and the program should run normally again. Continue running all segments until the entire roll of punch tape has been expended.

6. Acceptance condition: No errors except those caused by chad, excessive dirt or damaged tape.

| SIZE | CODE | NUMBER   | REV |
|------|------|----------|-----|
| A    | SP   | PA68F-11 |     |



-

-

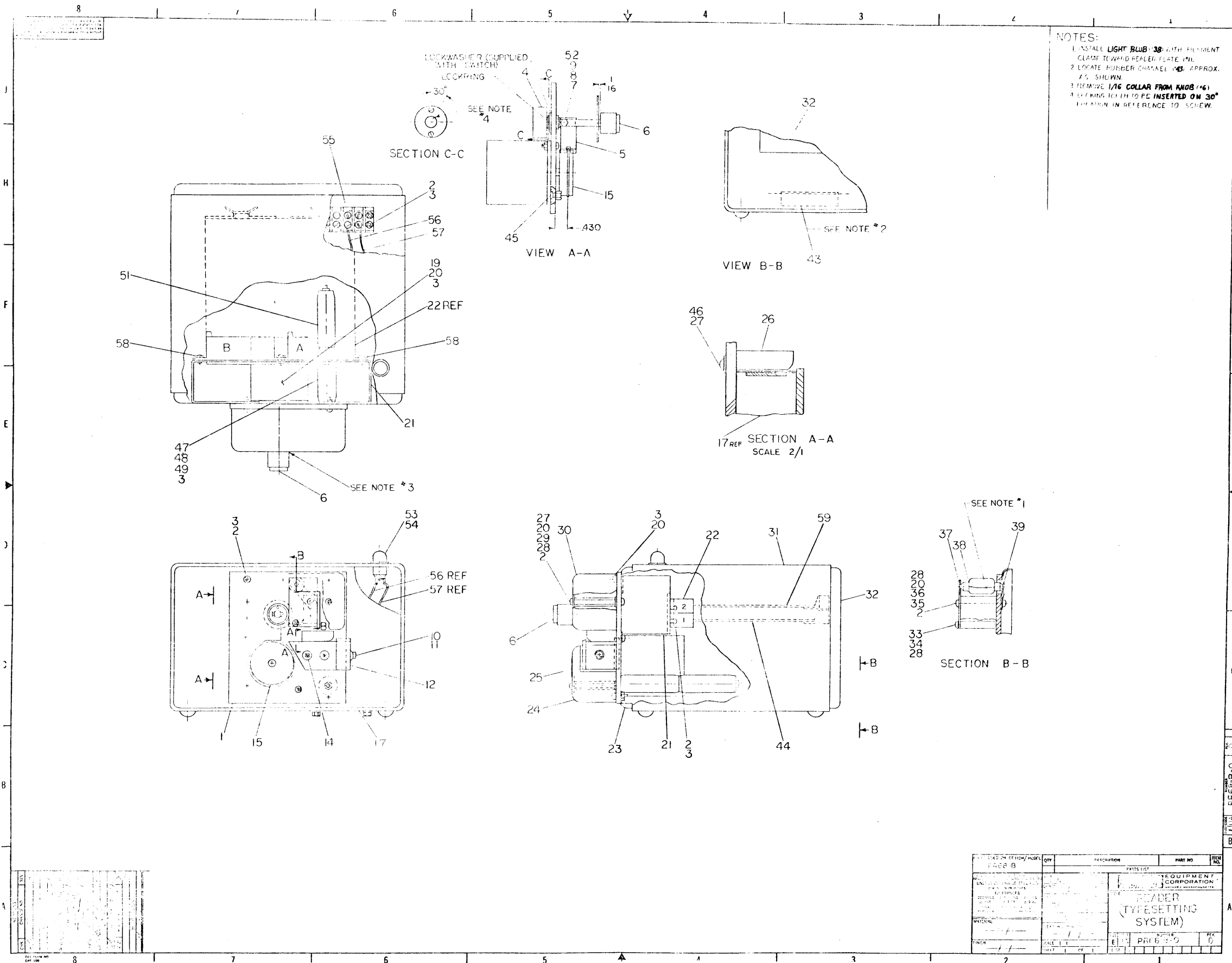


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**DIGITAL EQUIPMENT CORPORATION**  
MAYNARD, MASSACHUSETTS  
**PARTS LIST**

MADE BY C. DRUM  
 DATE 4/5/69  
 ENG R. J. [Signature]  
 DATE 7/25/69

CHECKED [Signature]  
 DATE 7/25/69  
 PROD [Signature]  
 DATE 7/25/69

SECTION ISSUED SECT.

| ITEM NO. | DWG NO. / PART NO.             | DESCRIPTION                                                              | QUANTITY / VARIATION |
|----------|--------------------------------|--------------------------------------------------------------------------|----------------------|
| 1        | 7404983                        | READER PLATE (BOTTOM)                                                    | 1                    |
| 2        | 9006022-01                     | PHL PAN HD MACH. SCREW #6-32x3/8 LG SST                                  | 13                   |
| 3        | 90-06560                       | KEPS HEX NUTS #6-32 SST                                                  | 13                   |
| 4        | 7404992                        | SWITCH (REWORK)                                                          | 1                    |
| 5        | 7404984                        | TAPE SPRING                                                              | 1                    |
| 6        | 1204747                        | INSTRUMENT KNOB #PS-70D-2 BUCKEYE                                        | 1                    |
| 7        | 9006003-01                     | PHL PAN HD MACH SCREW #2-56-3/8 LG SST                                   | 2                    |
| 8        | 9006555                        | HEX NUTS #2-56 SST                                                       | 2                    |
| 9        |                                | EXTERNAL TOOTH LOCK WASHER #2 HOLE                                       | 2                    |
| 10       | 9006027-01                     | PHL PAN HD MACH SCREW #6-32x7/8 LG SST                                   | 1                    |
| 11       |                                | BELVELL WASHER TYPE DIP SPRINT #6 HOLE SST<br>(ALL METAL SCREW PRODUCTS) | 1                    |
| 12       | 7404976                        | TAPE ADJUSTER                                                            | 1                    |
| 13       | <del>MD-E-PR68A-0-1-0-18</del> | <del>BUSHING 7404991</del>                                               | <del>2</del>         |
| 14       | 9006046-02                     | PHL FLAT HD MACH SCREW #8-32 x 1 1/2 LG SST                              | 2                    |
| 15       | 7404975                        | SPROCKET LOW INERTIA, TAPE                                               | 1                    |
| 16       | <del>MD-E-PR68A-0-1-0-18</del> | <del>TAPE GUIDE 7404982</del>                                            | <del>1</del>         |
| 17       | 7000320-1                      | TAPE GUIDE ASSY                                                          | 1                    |
| 18       | <del>MD-E-PR68A-0-1-0-18</del> | <del>PHL READER HEAD 7404978</del>                                       | <del>1</del>         |
| 19       | 1203530                        | DRIVING MOTOR #SS25-1001 11.8V SLO-SYN                                   | 1                    |
| 20       | 9006021-01                     | PHL PAN HD MACH SCREW #6-32x 1/2 LG SST                                  | 8                    |
| 21       | 7404985                        | BRACKET, CONNECTOR MOUNTING                                              | 1                    |

TITLE READER (TYPESETTING SYSTEM)  
 ASSY NO. E-UA-PR68-B-0  
 SIZE CODE A PL  
 NUMBER PR68-B-0  
 REV. ECO NO. PR68-B-00007  
 SHEET 1 OF 3

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

MADE BY C. DRUM  
 DATE [Signature]  
 ENG [Signature]  
 DATE 7/25/69

CHECKED [Signature]  
 DATE 7/25/69  
 PROD [Signature]  
 DATE 7/25/69

| ITEM NO. | DWG NO. / PART NO.  | DESCRIPTION                                                  | QUANTITY / VARIATION |
|----------|---------------------|--------------------------------------------------------------|----------------------|
| 22       | 1205123             | CONNECTOR CARD 36 PIN                                        | 4                    |
| 23       | MD-C-PR68A-0-1-0-12 | COVER PANEL (REWORK)                                         | 1                    |
| 24       | 7404981             | COVER BOX (BOTTOM)                                           | 1                    |
| 25       | 7404974             | CONTROL BOX LOGO                                             | 1                    |
| 26       | 7404990             | PRESSURE PAD                                                 | 1                    |
| 27       | 9006656             | PLAIN WASHER (MEDIUM) 5/16 O.D. x 5/32 I.D. x 1/16 THK. SST. | 5                    |
| 28       | 9007649             | EXTERNAL TOOTH LOCK WASHER, #5 HOLE SST.                     | 10                   |
| 29       | 9006865             | FILLETTED STANDOFFS #6-32 x 1 3/8 LG                         | 4                    |
| 30       | 7404977             | COVER BOX (TOP)                                              | 1                    |
| 31       | 7404986             | UTILITY CABINET (REWORK)                                     | 1                    |
| 32       | 6-AD-7006337-0-0    | REAR PANEL ASSY                                              | 1                    |
| 33       | 9006020-01          | PHL PAN HD MACH SCREW #6-32 x 1/4 LG SST                     | 1                    |
| 34       | 7404989             | INS                                                          | 1                    |
| 35       | 9006761             | TERMINAL #2106-06-00 SHAKEPROOF                              | 2                    |
| 36       | 7404987             | STANDOFF                                                     | 1                    |
| 37       | 7404979             | FRONT LIGHT                                                  | 1                    |
| 38       | 1204734             | PIGMENT BULB 12V-16W, #6475 GS RAM                           | 1                    |
| 39       | 7404980             | REAR LIGHT                                                   | 1                    |
| 40       |                     | WORK-GLASS #1 THK x 24 x 40W4                                | 1                    |
| 41       |                     | WORK-SETTING CELL #1PC-0-01 #127MAN                          | 1                    |
| 42       |                     |                                                              | 1                    |

TITLE READER (TYPESETTING SYSTEM)  
 ASSY NO. E-UA-PR68-B-0  
 SIZE CODE A PL  
 NUMBER PR68-B-0  
 REV. ECO NO. D  
 SHEET 2 OF 3

| DIGITAL EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS |                                |                                         |  | QUANTITY / VARIATION      |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
|---------------------------------------------------------|--------------------------------|-----------------------------------------|--|---------------------------|--|--|--|--------------------------|--|--------------------|--|--|--|-----------|--|---------|--|--|--|--|--|--|
| PARTS LIST                                              |                                |                                         |  |                           |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
| MADE BY C. DRUM                                         |                                | CHECKED <i>R. Cook</i>                  |  | SECTION                   |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
| DATE 4/5/69                                             |                                | DATE <i>4/17/69</i>                     |  | ISSUED SECT.              |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
| ENG <i>B. J. ...</i>                                    |                                | PROD <i>B. J. ...</i>                   |  |                           |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
| DATE <i>4/17/69</i>                                     |                                | DATE <i>4/17/69</i>                     |  |                           |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
| ITEM NO.                                                | DWG NO. / PART NO.             | DESCRIPTION                             |  |                           |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
| 43                                                      |                                | RUBBER EXTR. CHANNEL #X-172x2" LG       |  | A/R                       |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
|                                                         |                                | ATLANTIC INDIA RUBBER WORKS             |  |                           |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
| 44                                                      | M908                           | RIBBON CONNECTOR                        |  | 1                         |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
| 45                                                      | 9006022-02                     | PHL FLAT HD MACH SCREW #6-32x3/8 LG SST |  | 1                         |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
| 46                                                      | 9006026-01                     | PHL PAN HD MACH SCREW #6-32x3/4 LG SST  |  | 1                         |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
| 47                                                      | 1300181                        | FIXED RESISTOR #0200R 25 WATT           |  | 1                         |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
|                                                         |                                | 1.290 AMP, 15 OHMS OHMITE               |  |                           |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
| 48                                                      | 9008077                        | FIBER SHOULDER WASHER #2150 HH SMITH    |  | 4                         |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
| 49                                                      | 9007195                        | THREADED ROD 6-32 x 4 7/8               |  | 1                         |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
| 50                                                      | <del>MD-A-PR68A-0-1-0-20</del> | <del>SCHEM CORRUGATED 7405595</del>     |  | <del>±</del>              |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
| 51                                                      | 1305315                        | 7.5 OHM 25W RESISTOR #062B              |  | 1                         |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
| 52                                                      | B-MD-7406675-0-0               | SUPPORT SHIM                            |  | 1                         |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
| 53                                                      | 1202986                        | LIGHT BULB 330                          |  | 1                         |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
| 54                                                      | 1204628                        | DIALCO IOIR LIGHT                       |  | 1                         |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
| 55                                                      | 90-06901                       | JONES TERMINAL STRIP #4-140             |  | 1                         |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
| 56                                                      | 91-07350-4                     | WIRE #22 STRD TEF (ORN)                 |  | A/R                       |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
| 57                                                      | 91-07400-5                     | WIRE #22 STRD TRACER (YEL & WHT)        |  | A/R                       |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
| 58                                                      | B-MD-7407338-0-0               | ANGLE, REINFORCEMENT                    |  | 2                         |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
| 59                                                      | G908                           | PHOTO AMP                               |  | 1                         |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
| 60                                                      | <del>D-1A-7005893-0-0</del>    | <del>READER CABLE</del>                 |  | <del>±</del>              |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |
| TITLE<br>READER (TYPESETTING SYSTEM)                    |                                |                                         |  | ASSY NO.<br>E-UA-PR68-B-0 |  |  |  | SIZE CODE<br><b>A PL</b> |  | NUMBER<br>PR68-B-0 |  |  |  | REV.<br>D |  | ECO NO. |  |  |  |  |  |  |
| SHEET 3 OF 3                                            |                                |                                         |  | DIST. <i>G</i>            |  |  |  |                          |  |                    |  |  |  |           |  |         |  |  |  |  |  |  |

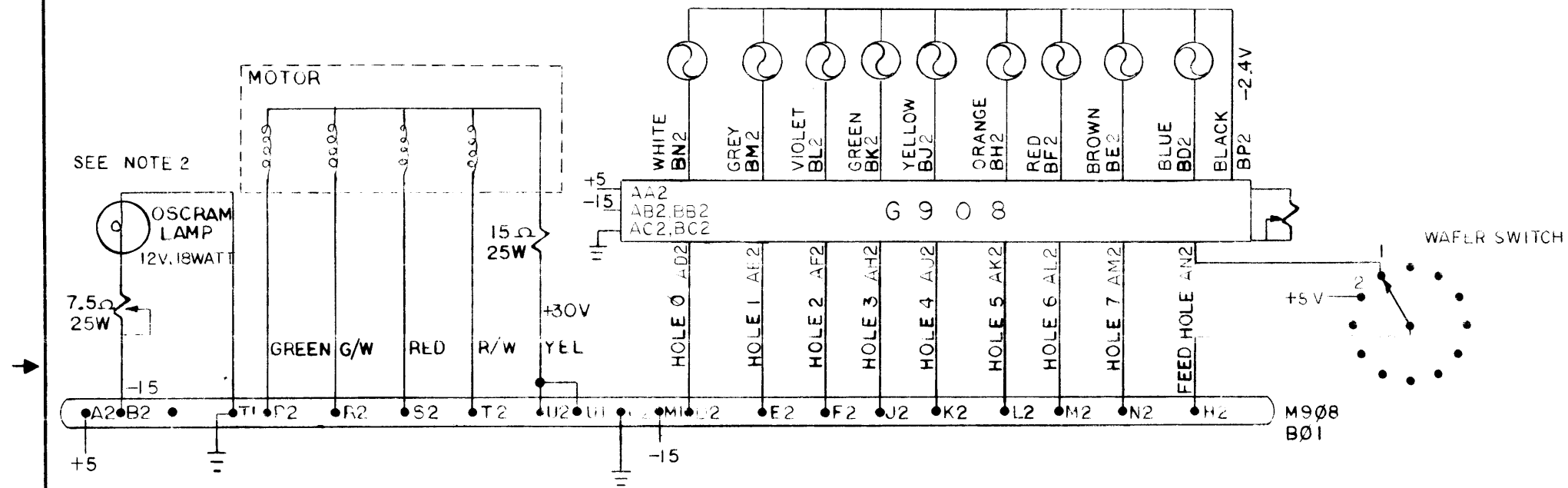
DEC FORM NO.  
DRA 110

X

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NOTES:

1. PINS B0IC2 & T1 TO BE WIRED TOGETHER AND RUN TO CHASSIS GND, USING GND LUG ON WAFER SWITCH
2. LAMP VOLTAGE SHOULD BE 12V ± 5%



| REV | CHG NO | REV |
|-----|--------|-----|
| A   | 00002  |     |
| B   | 00003  |     |
| C   | 00004  |     |
| D   | 00005  |     |
| E   | 00007  |     |

| CHK | DATE    |
|-----|---------|
| DES | 5-27-68 |
| ENG | 4-17-68 |
| PRD | 4/16/68 |

| TRANSISTOR & DIODE CONVERSION CHART |     |     |     |
|-------------------------------------|-----|-----|-----|
| DEC                                 | EIA | DEC | EIA |
|                                     |     |     |     |
|                                     |     |     |     |
|                                     |     |     |     |

**digital**  
EQUIPMENT CORPORATION  
MAYNARD, MASSACHUSETTS

TITLE: BLOCK WIRING DIAGRAM  
SIZE: 5 DD  
NUMBER: PR68-B-1  
PRINTED CIRCUIT REV.

SIZE CODE: 5 DD  
NUMBER: PR68-B-1



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0-0-2689002 VI D 2

| WIRE TABLE (BOTH ENDS) |         |     |       |      |         |     |       |
|------------------------|---------|-----|-------|------|---------|-----|-------|
| ITEM                   | COLOR   | PIN | POINT | ITEM | COLOR   | PIN | POINT |
| 2                      | BLU/BLK | P1  | 24    | 2    | YEL     | H2  | 12    |
|                        | PINK    | K1  | 23    |      | DR GRN  | J2  | 11    |
|                        | DRN/BLK | G1  | 22    |      | BRN     | K2  | 10    |
|                        | BLK/WHI | F1  | 21    |      | RED     | L2  | 9     |
|                        | TAN     | U1  | 20    |      | DR BLU  | M2  | 8     |
|                        | WHT/BLK | V1  | 19    |      | GRY     | N2  | 7     |
|                        | RED/BLK | E2  | 18    |      | VIO/BLK | P2  | 6     |
|                        | LT GRN  | B2  | 17    |      | GRN/BLK | K2  | 5     |
|                        | VIO     | C2  | 16    |      | YEL/BLK | S2  | 4     |
|                        | WHT     | D2  | 15    |      | LT BLU  | T2  | 3     |
|                        | ORN     | E2  | 14    |      | BRN/WHI | U2  | 2     |
| 2                      | BLK     | F2  | 13    | 2    | GRY/BLK | V2  | 1     |

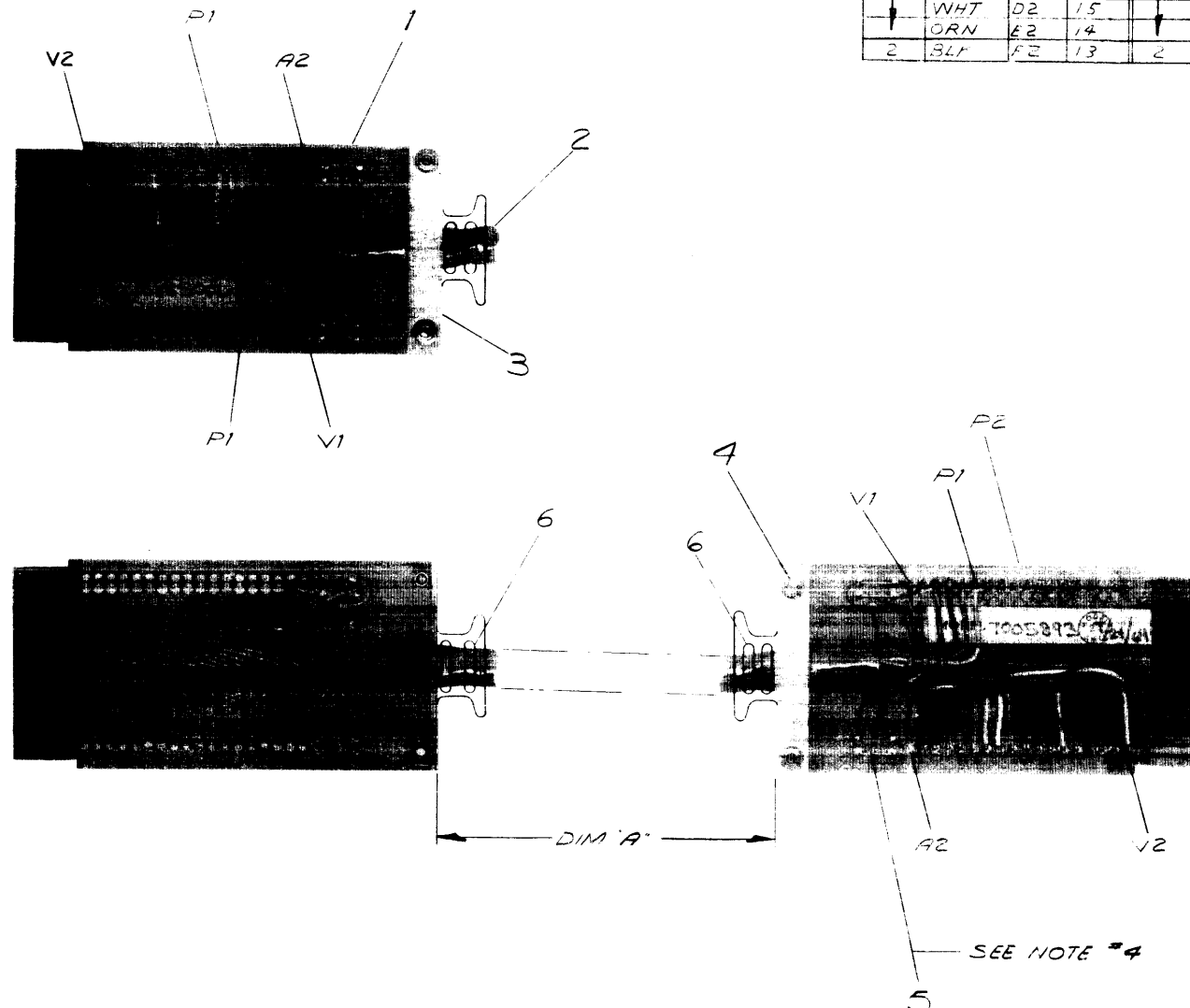
| LEGEND     |           |
|------------|-----------|
| NUMBER     | VARIATION |
| 7005893-25 | 25'3"     |

**NOTES:**

1. MODULES P1 AND P2 TO BE WIRED POINT TO POINT, ACCORDING TO WIRE TABLE
2. ASSEMBLE CLAMPS (ITEM #3) WITH EYELETS (ITEM #4) TO BOARD AFTER SOLDERING CABLE IN PLACE.
3. 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 BCØ2X-3D = 3'4"  
LENGTHS WILL BE IN FOOT INCREMENTS FROM TEN (10) FEET ON AND WILL BE SPECIFIED BY THE CORRESPONDING NUMERICAL DESIGNATION  
EXAMPLE  
BCØ2X-11 = 11 FEET  
THE TOLERANCE ON DIMENSION "A" WILL BE ± 2% OF THE FOOT INCREMENT.
4. REMOVE EXISTING RESISTORS & REPLACE WITH ITEM #5 BUS WIRE.



| REV. | CHANGE NO.  | REV.    |
|------|-------------|---------|
| 1    | PR68D-00023 | A       |
| 2    | 1-14-69     | 1-4     |
| 3    | ED REED     | 8-13-74 |

DEC FORM NO. 010

FIRST USED ON OPTION/MODEL  
PR68-F

| UNLESS OTHERWISE SPECIFIED                                 |  |
|------------------------------------------------------------|--|
| UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES             |  |
| TOLERANCES                                                 |  |
| DECIMALS FRACTIONS ANGLES                                  |  |
| ± .005 ± 1/64 ± 0.30                                       |  |
| FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS |  |
| MATERIAL                                                   |  |
| FINISH                                                     |  |

| QTY | DESCRIPTION                | PART NO.   | ITEM NO. |
|-----|----------------------------|------------|----------|
| 4   | TIE WRAP                   | 9007031    | 6        |
| 1/2 | BUS WIRE #20 AWG           | 9107560-02 | 5        |
| 4   | EYELETS #A-2231 (STIMPSON) | 9007639    | 4        |
| 2   | CABLE CLAMP                | 1202790-00 | 3        |
| 1/2 | 24 CON BELDON CABLE        | 9107684    | 2        |
| 2   | CABLE CONNECTOR            | M908       | 1        |

| PARTS LIST    |         | TITLE                         |             |
|---------------|---------|-------------------------------|-------------|
| DRN           | 8-8-67  | digital EQUIPMENT CORPORATION |             |
| CHK           | 8/1/68  | MAYNARD MASSACHUSETTS         |             |
| ENG           | 8/1/68  | READER CABLE                  |             |
| FACT ENG      | 8/1/68  |                               |             |
| PROC          | 8-15-67 |                               |             |
| FIRST USED ON |         | SIZE CODE                     | NUMBER      |
|               |         | DIA                           | 7005893-0-0 |
| SCALE         | NONE    | DIST.                         |             |
| SHEET         | 1 OF 1  |                               |             |

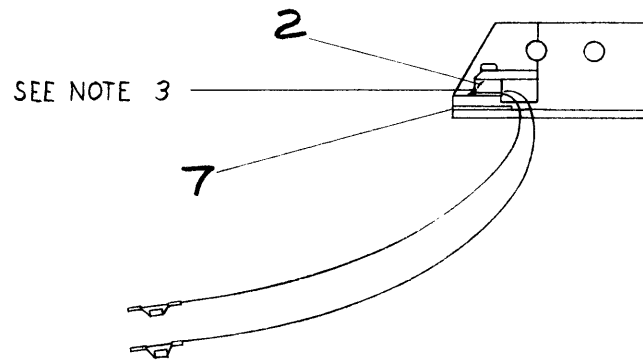
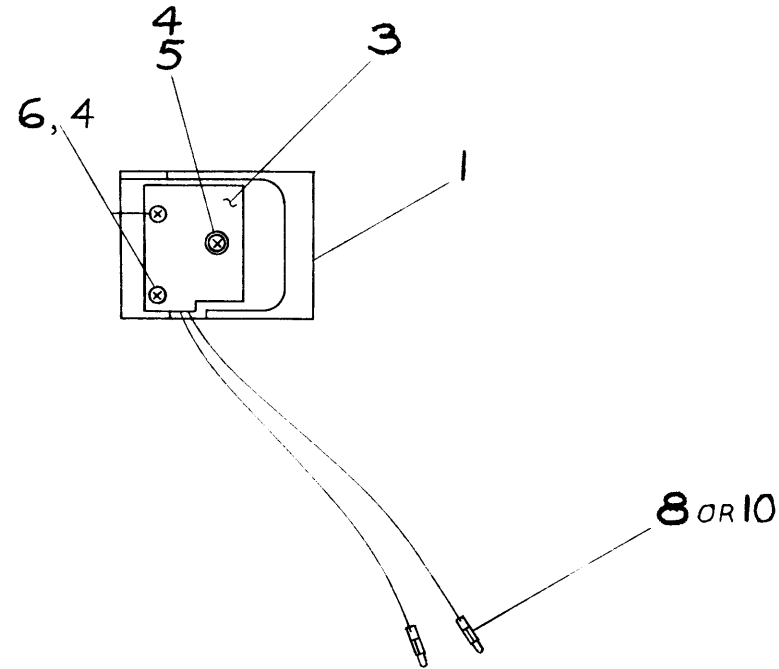
REV. A  
NUMBER DIA 7005893-0-0

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| LEGEND |           |
|--------|-----------|
| OPTION | VARIATION |
| PR68A  | 7009382-0 |
| PR68B  | 7009382-1 |

NOTES:

1. WIRES ON ITEM #2 (SOLAR CELL) SHALL BE CUT TO NEARLY 5 IN.
2. ATTACH ITEM #7 (GLASS) TO ITEM #1 (GUIDE) WITH A THIN FILM OF ELMERS GLUE, TO AN AREA 1/16 IN. AROUND THE OUTSIDE PERIMETER OF THE GLASS. ALLOW WEIGHT OF THE GLASS TO FORCE OUT MOST OF THE AIRPOCKETS. VERY CAREFULLY APPLY PRESSURE TO THE SURFACE OF THE GLASS TO SQUEEZE OUT REMAINING AIR BUBBLES, BEING CAREFUL NOT TO SQUEEZE GLUE OVER THE CELL HOLES.
3. APPLY THIN FILM OF ELMERS GLUE TO JUNCTION POINT OF SOLAR CELL AND TAPE PATH GUIDE.
4. APPLY GLUE TO ALL PLACES WITH A 23GI 2-1/2 CC DISPOSABLE PLASTIC SYRINGE.



| QTY. | DESCRIPTION                | PART NO.  | ITEM NO. |
|------|----------------------------|-----------|----------|
| 10   | 30 GAUGE TERMI POINT CONN  | 9007655   | 10       |
| A/R  | ELMERS GLUE                |           | 9        |
| 10   | 24 GAUGE TERMI POINT CONN  | 9107230   | 8        |
| 1    | COVER, GLASS               | 1211388   | 7        |
| 2    | SCR PHL HD PAN 2-56 X 3/16 | 9006000-1 | 6        |
| 1    | SCR PHL HD PAN 2-56 X 3/8  | 9006003-1 | 5        |
| 3    | WASHER, LOCK INT #2        | 9006631   | 4        |
| 1    | SOLAR CELL MTG             | 7405945   | 3        |
| 1    | SOLAR CELL                 | 1204732   | 2        |
| 1    | TAPE PATH GUIDE            | 7407244   | 1        |

|                                                        |        |                    |             |                                                         |             |
|--------------------------------------------------------|--------|--------------------|-------------|---------------------------------------------------------|-------------|
| FIRST USED ON OPTION/MODEL                             |        | QTY.               | DESCRIPTION | PART NO.                                                | ITEM NO.    |
| PR68                                                   |        |                    |             |                                                         |             |
| UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES         |        | DRN                | DATE        | PARTS LIST                                              |             |
| TOLERANCES                                             |        | <i>D. Sullivan</i> | 3-15-73     | digital EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS |             |
| DECIMALS                                               | ANGLES | CHK'D              | DATE        | TITLE                                                   |             |
| .005                                                   | ± 30'  | <i>[Signature]</i> |             | PR68<br>TAPE GUIDE ASSY                                 |             |
| .02                                                    |        | ENG                | DATE        | MATERIAL                                                |             |
| .1                                                     |        | PROJ. ENG          | DATE        | SEE LEGEND                                              |             |
| REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY Y |        | PROD.              | DATE        | NEXT HIGHER ASSY.                                       |             |
|                                                        |        |                    |             |                                                         |             |
| FINISH                                                 |        | SCALE              | 1/1         | SIZE/CODE                                               | NUMBER      |
|                                                        |        | SHEET              | 1 OF 1      | C/JUA                                                   | 7009382-0-0 |
|                                                        |        |                    |             | REV.                                                    | D           |

| REV. | CHANGE NO.     | REV. |
|------|----------------|------|
| A    | 7009382-00001A |      |
| B    | 7009382-00007  |      |
| C    | 7009382-00002  |      |
| D    | 7009382-00003  |      |

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DIGITAL EQUIPMENT CORPORATION  
MAYNARD, MASSACHUSETTS

ENGINEERING SPECIFICATION

DATE 8-16-73

TITLE PR68B INSTALLATION / ADJUSTMENT PROCEDURE PHOTOCCELL ASSEMBLY.

REVISIONS

| REV | DESCRIPTION | CHG NO | ORIG | DATE | APPD BY | DATE |
|-----|-------------|--------|------|------|---------|------|
|     |             |        |      |      |         |      |

|                     |                       |               |         |                 |     |
|---------------------|-----------------------|---------------|---------|-----------------|-----|
| ENG <i>Bob Peck</i> | APPD <i>J. M. ...</i> | SIZE <b>A</b> | CODE SP | NUMBER PR68-B-2 | REV |
|---------------------|-----------------------|---------------|---------|-----------------|-----|

ENGINEERING SPECIFICATION



CONTINUATION SHEET

TITLE PR68-B INSTALLATION/ADJUSTMENT PROCEDURE PHOTOCCELL ASSEMBLY.

PURPOSE:

The purpose of this specification is to document and standardize the installation / adjustment procedure for the new PR68-B photocell assembly. (70-09382-1)

A. INSTALLATION

I. Equipment Required

- A. Field Service tool kit
- B. Tektronix type 453 oscilloscope with two probes.
- C. Paper glue
- D. Ones and zeros test tape.
- E. Field Service installation kit # 29-20672-1.

II. INSTALLATION PROCEDURE

A. Removal of Previous Assembly

Remove the front faceplate which houses the amplifier logic and stepping motor from the enclosure. This is accomplished by removing the four screws around the outside perimeter of the faceplate. As the unit slides out of the enclosure, disconnect the reader cable. Next, disassemble the tape spring knob as well as the upper and lower cover boxes. Separate the amplifier logic block from the faceplate and remove the 10 solar cell wires from the pins.

Remove the old phenolic block solar assembly by removing the two #8-32 x 1 1/2 screws securing the unit. These two machine screws are to be saved for installing the new assembly. The tape guide shims, however, need not be saved. Disassemble the 6, 8 level tape guide from the phenolic block and save both the guide and its attaching screw for future use. Check the light bulb to make sure it is rated at 12 volts, 1.8 watts. The bulb is to be replaced if the filament shows any sign of sagging.

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| SIZE <b>A</b> | CODE SP | NUMBER PR68-B-2 | REV |
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# ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

TITLE PR68-B INSTALLATION / ADJUSTMENT PROCEDURE FOR MICROBEE

B. Insert each of the ten wires of the new assembly through the slot of the faceplate. The new unit attaches with the same machine screws used to mount the old assembly. Before securing the new unit in place, insure that the shrink tubing is fully forward in the slot, to prevent pinching. Connect each of the ten signal wires to the logic pins according to the table that follows. Avoid excessive flexing or tension on the wires, as they are extremely fragile and difficult at best to resolder should they break at the solar cell.

PR68B SIGNAL / WIRE TABLE

| Wire Color | Reader Hole | AC Bit | Pin |
|------------|-------------|--------|-----|
| * White    | 0           | 11     | BN2 |
| Grey       | 1           | 10     | BM2 |
| Violet     | 2           | 09     | BL2 |
| Blue       | Feed        | N/A    | BD2 |
| Green      | 3           | 08     | BK2 |
| Yellow     | 4           | 07     | BJ2 |
| Orange     | 5           | 06     | BH2 |
| Red        | 6           | 05     | BF2 |
| * Brown    | 7           | 04     | BE2 |
| Black      | Ground      | N/A    | BC2 |

\* Reader hole zero corresponds to the inside cell, and reader hole 7 to the outside.

Place 3 thicknesses of tape on the tape bed and secure the tape hold down screw that connects to the backplate.

Mount the 6/8 level onto the rear of the new tape guide. Resecure the amplifier logic to the faceplate and insert the reader cable.

Apply power to the unit and attach a scope probe to the hot side of the reader light bulb. Adjust the lamp voltage to a value of 10.5 volts. In no case should a lamp voltage of less than 10.0 volts be used, as amplifier margins drop off sharply below this value. With the lamp intensity set, and with no tape in the reader, adjust the condenser lens such that the light beam falls directly on the cell. If cables are in excess of 150 feet, the -15V and ground lines must have dual wires to avoid excessive voltage drop.

Form an endless ones and zeros tape and place it into the reader. Check that the tape holes align directly over each of the solar cells.

SIZE CODE NUMBER REV  
A SP PR68-B-2

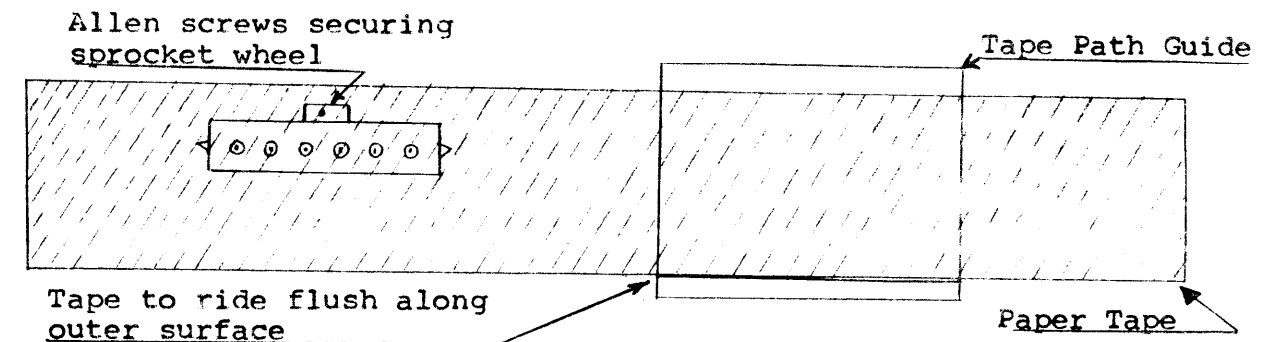
# ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

TITLE PR68B INSTALLATION / ADJUSTMENT PROCEDURE FOR MICROBEE

TOP VIEW



Adjust sprocket wheel such that the tape rides smoothly along the outer surface without binding. This is accomplished by loosening the two allen screws towards the inside of the sprocket wheel. There should be no visible space between the tape and the outer ridge of the tape guide assembly.

Check to insure that there is no lateral play of the tape as it travels into the tape guide. If it is possible for the tape to be moved from the inside to the outside surface of the tape guide platform, the 6/8 level guide needs repositioning.

It is desirable that the inside fork of the 6/8 level guide keep the tape against the outside ridge of the tape guide platform. This will guarantee smooth tracking of the tape over the solar cell holes.

Adjust the light beam such that it is projected directly over the solar cell holes. This is accomplished by first rotating the light bulb so that the glass seams do not interfere with the projected light beam.

Secondly, by rotation of the condenser lens itself care must be taken in the adjustment of the lens so as to avoid an uneven beam of light over the cells. (i.e. the beam may be narrower or wider on one end or the other.) The threaded end of the condenser lens may be filed so as to allow aligning of the lens parallel with the filament of the bulb. Once the light beam has been evenly placed over the cell holes no further adjustments of the bulb position or condenser lens is necessary.

Check for the proper reader strobe by placing an endless loop tape

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A SP PR68-B-2

# ENGINEERING SPECIFICATION

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CONTINUATION SHEET

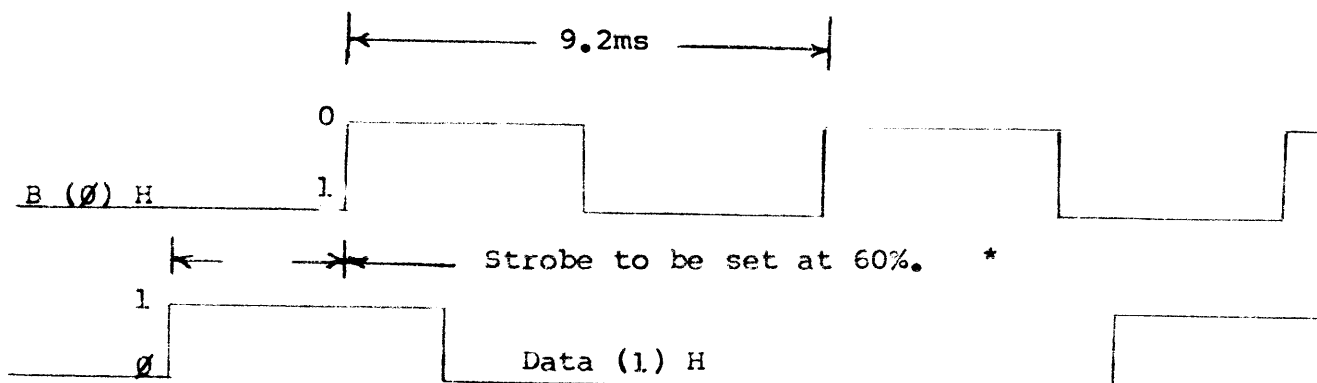
TITLE PR68B INSTALLATION / ADJUSTMENT PROCEDURE FOR PA63 & PA68F

comprised of ones and zeros into the reader, and load the following program.

- \* 0/ 7604 Load AC from switches
- \* 1/ 6312 Select reader unit
- 2/ 6014 Read
- 3/ 6011 Skip on flag
- 4/ 5003 Jmp .-1
- 5/ 5002 Jmp .-2

\* Select reader unit only applies to the PA63 controller. IOT 631.2 is ignored by the PA68F.

Since step motor strobe is used in both the PA63 & PA68F, place channel 1 probe on the "B" flip flop. (B(0)H). Observe each of the data lines on channel 2 & note the one of shortest duration. (A "1" on the data lines corresponds to a +3v or high condition.) This shortest and therefore weakest of the data lines shall be used for the checking and / or setting of reader strobe. The "B" flop going to a  $\emptyset$  high condition, strobes the data on the lines into the reader buffer. Reading a ones and zeros tape at full speed shall yield the following scope display.



\* NOTE: It is mandatory that an 8 level tape be used in the setting of reader strobe, as 6 level tapes utilize advance feed hole and 8 level tapes use center feed hole strobe.

\*\* A detailed adjustment procedure may be found in the Typeset-B Systems Positive Logic Maintenance Manual, DEC-08-HMMPA-A-D with the exceptions noted per this specification.

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| SIZE | CODE | NUMBER   | REV |
| A    | SP   | PR68-B-2 |     |

# ENGINEERING SPECIFICATION

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CONTINUATION SHEET

TITLE PR68B INSTALLATION / ADJUSTMENT PROCEDURE FOR PA63 & PA68F

## III PAPER TAPE REQUIREMENTS

The characteristics of the tape used in the PR68B affect the data reliability of the unit. Avoid changes in tape color and extreme changes in translucency. Both properties affect the sensitivity adjustments of the G908 amplifier. A recommended table of paper tape specifications follows.

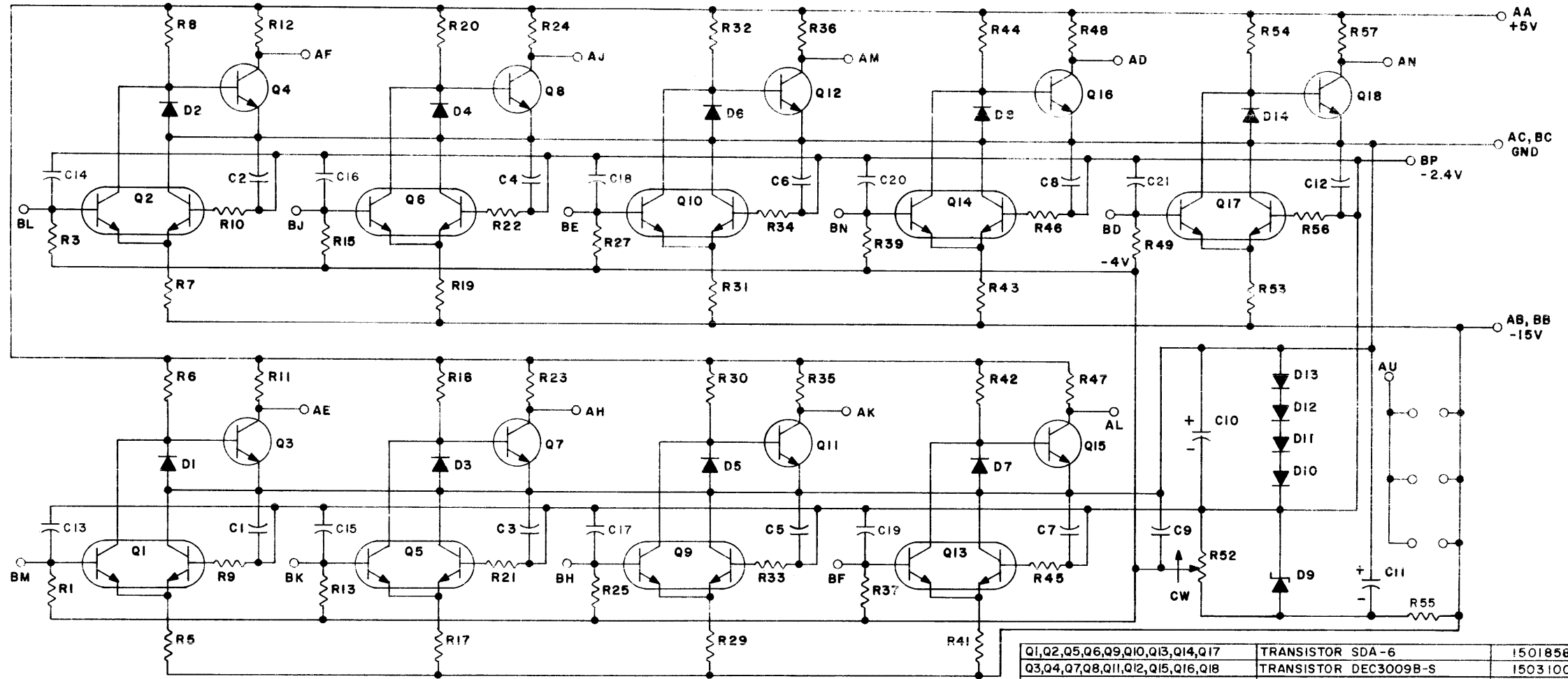
### PAPER TAPE SPECIFICATIONS

| PROPERTY        | SPECIFICATION                                      | CHARACTERISTIC                                                                                             |
|-----------------|----------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| Oil Content     | 6% minimum<br>12% maximum                          | Uniformly impregnated with a lightly refined parafin base, light grade lubricating oil, light in color.    |
| Translucence    | 32% to 38% maximum                                 | Maximum transmission of incident light through the paper, limited by combined oil content & paper opacity. |
| General Quality | Standard grade containing less than 1% ash & grit. |                                                                                                            |

|      |      |          |     |
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| SIZE | CODE | NUMBER   | REV |
| A    | SP   | PR68-B-2 |     |

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|---------------------------------------------------------|----------------------|---------------------------------------|-----------------------------|-----------|------------|---------------------|-------|--|------|------------------------------|--|--------------|------------------------|--|-------|--|--|--|--|----------------------|--|----------------------|------------------|--|--|--|--|--|--|--|--|----|-------------------|--|--|--|--|--|--|--|--|----|-------------------------|--|--|--|--|--|--|--|--|-----------|----|------|--------------------|----|------|
| ACCESSORY LIST                                          |                      |                                       | D                           | DOCUMENT  |            |                     |       |  |      |                              |  | DN           | DOCUMENT CHANGE NOTICE |  |       |  |  |  |  |                      |  | PA                   | PAPER TAPE ASCII |  |  |  |  |  |  |  |  | PB | PAPER TAPE BINARY |  |  |  |  |  |  |  |  | PM | PAPER TAPE READ-IN-MODE |  |  |  |  |  |  |  |  | KIT CHECK | BY | DATE | INSTALLATION CHECK | BY | DATE |
| MADE BY <i>S. Mankeewicz</i>                            |                      | CHECKED <i>L. Bell</i>                | SECTION                     |           |            |                     |       |  |      |                              |  |              |                        |  |       |  |  |  |  | DATE <i>11-27-73</i> |  | DATE <i>11-30-73</i> |                  |  |  |  |  |  |  |  |  |    |                   |  |  |  |  |  |  |  |  |    |                         |  |  |  |  |  |  |  |  |           |    |      |                    |    |      |
| ENGB. POOLER                                            |                      | PROD                                  | ISSUED SECT.                |           |            |                     |       |  |      |                              |  |              |                        |  |       |  |  |  |  | DATE <i>11-30-73</i> |  | DATE                 |                  |  |  |  |  |  |  |  |  |    |                   |  |  |  |  |  |  |  |  |    |                         |  |  |  |  |  |  |  |  |           |    |      |                    |    |      |
| ITEM NO.                                                | DWG NO. / PART NO.   | DESCRIPTION                           |                             |           |            | PR68A               | PR68B |  |      |                              |  |              |                        |  |       |  |  |  |  |                      |  |                      |                  |  |  |  |  |  |  |  |  |    |                   |  |  |  |  |  |  |  |  |    |                         |  |  |  |  |  |  |  |  |           |    |      |                    |    |      |
| 1                                                       | 7005063              | READER CABLE                          |                             |           |            | 1                   | -     |  |      |                              |  |              |                        |  |       |  |  |  |  |                      |  |                      |                  |  |  |  |  |  |  |  |  |    |                   |  |  |  |  |  |  |  |  |    |                         |  |  |  |  |  |  |  |  |           |    |      |                    |    |      |
| 2                                                       | MAINDEC-08-DZHC-PB-D | TAPE & WRITE UP                       |                             |           |            | 1                   | 1     |  |      |                              |  |              |                        |  |       |  |  |  |  |                      |  |                      |                  |  |  |  |  |  |  |  |  |    |                   |  |  |  |  |  |  |  |  |    |                         |  |  |  |  |  |  |  |  |           |    |      |                    |    |      |
| 3                                                       | MDL-A-PR68A-0        | CUSTOMER PRINT SET                    |                             |           |            | 1                   | -     |  |      |                              |  |              |                        |  |       |  |  |  |  |                      |  |                      |                  |  |  |  |  |  |  |  |  |    |                   |  |  |  |  |  |  |  |  |    |                         |  |  |  |  |  |  |  |  |           |    |      |                    |    |      |
| 4                                                       | DEC-08-17TA-D        | TYPESET 8 - NEG. LOGIC MAINT MANUAL   |                             |           |            | 1                   | -     |  |      |                              |  |              |                        |  |       |  |  |  |  |                      |  |                      |                  |  |  |  |  |  |  |  |  |    |                   |  |  |  |  |  |  |  |  |    |                         |  |  |  |  |  |  |  |  |           |    |      |                    |    |      |
| 5                                                       | DEC-PR68A/B-IPB      | PR68A/B PAPER TAPE READER MANUAL      |                             |           |            | 1                   | 1     |  |      |                              |  |              |                        |  |       |  |  |  |  |                      |  |                      |                  |  |  |  |  |  |  |  |  |    |                   |  |  |  |  |  |  |  |  |    |                         |  |  |  |  |  |  |  |  |           |    |      |                    |    |      |
| 6                                                       | 7005893              | READER CABLE                          |                             |           |            | -                   | 1     |  |      |                              |  |              |                        |  |       |  |  |  |  |                      |  |                      |                  |  |  |  |  |  |  |  |  |    |                   |  |  |  |  |  |  |  |  |    |                         |  |  |  |  |  |  |  |  |           |    |      |                    |    |      |
| 7                                                       | MDL-A-PR68B-0        | CUSTOMER PRINT SET                    |                             |           |            | -                   | 1     |  |      |                              |  |              |                        |  |       |  |  |  |  |                      |  |                      |                  |  |  |  |  |  |  |  |  |    |                   |  |  |  |  |  |  |  |  |    |                         |  |  |  |  |  |  |  |  |           |    |      |                    |    |      |
| 8                                                       | DEC-08-HMMPA-A-D     | TYPESET 8 POSITIVE LOGIC MAINT MANUAL |                             |           |            | -                   | 1     |  |      |                              |  |              |                        |  |       |  |  |  |  |                      |  |                      |                  |  |  |  |  |  |  |  |  |    |                   |  |  |  |  |  |  |  |  |    |                         |  |  |  |  |  |  |  |  |           |    |      |                    |    |      |
|                                                         |                      |                                       |                             |           |            |                     |       |  |      |                              |  |              |                        |  |       |  |  |  |  |                      |  |                      |                  |  |  |  |  |  |  |  |  |    |                   |  |  |  |  |  |  |  |  |    |                         |  |  |  |  |  |  |  |  |           |    |      |                    |    |      |
|                                                         |                      |                                       |                             |           |            |                     |       |  |      |                              |  |              |                        |  |       |  |  |  |  |                      |  |                      |                  |  |  |  |  |  |  |  |  |    |                   |  |  |  |  |  |  |  |  |    |                         |  |  |  |  |  |  |  |  |           |    |      |                    |    |      |
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|                                                         |                      |                                       |                             |           |            |                     |       |  |      |                              |  |              |                        |  |       |  |  |  |  |                      |  |                      |                  |  |  |  |  |  |  |  |  |    |                   |  |  |  |  |  |  |  |  |    |                         |  |  |  |  |  |  |  |  |           |    |      |                    |    |      |
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|                                                         |                      |                                       |                             |           |            |                     |       |  |      |                              |  |              |                        |  |       |  |  |  |  |                      |  |                      |                  |  |  |  |  |  |  |  |  |    |                   |  |  |  |  |  |  |  |  |    |                         |  |  |  |  |  |  |  |  |           |    |      |                    |    |      |
|                                                         |                      |                                       |                             |           |            |                     |       |  |      |                              |  |              |                        |  |       |  |  |  |  |                      |  |                      |                  |  |  |  |  |  |  |  |  |    |                   |  |  |  |  |  |  |  |  |    |                         |  |  |  |  |  |  |  |  |           |    |      |                    |    |      |
|                                                         |                      |                                       |                             |           |            |                     |       |  |      |                              |  |              |                        |  |       |  |  |  |  |                      |  |                      |                  |  |  |  |  |  |  |  |  |    |                   |  |  |  |  |  |  |  |  |    |                         |  |  |  |  |  |  |  |  |           |    |      |                    |    |      |
|                                                         |                      |                                       |                             |           |            |                     |       |  |      |                              |  |              |                        |  |       |  |  |  |  |                      |  |                      |                  |  |  |  |  |  |  |  |  |    |                   |  |  |  |  |  |  |  |  |    |                         |  |  |  |  |  |  |  |  |           |    |      |                    |    |      |
|                                                         |                      |                                       |                             |           |            |                     |       |  |      |                              |  |              |                        |  |       |  |  |  |  |                      |  |                      |                  |  |  |  |  |  |  |  |  |    |                   |  |  |  |  |  |  |  |  |    |                         |  |  |  |  |  |  |  |  |           |    |      |                    |    |      |
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| TITLE<br>PR68A/B ACCESSORY LIST                         |                      |                                       | ASSY. NO.<br>E-MA-PR68A-0-1 | SIZE<br>A | CODE<br>AL | NUMBER<br>PR68A-0-5 |       |  | REV. | ECO. NO.<br>ORIG.<br>PR68A-0 |  | SHEET 1 OF 1 |                        |  | DIST. |  |  |  |  |                      |  |                      |                  |  |  |  |  |  |  |  |  |    |                   |  |  |  |  |  |  |  |  |    |                         |  |  |  |  |  |  |  |  |           |    |      |                    |    |      |

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|                                                                                 |                           |               |
|---------------------------------------------------------------------------------|---------------------------|---------------|
| Q1, Q2, Q5, Q6, Q9, Q10, Q13, Q14, Q17                                          | TRANSISTOR SDA-6          | 1501858       |
| Q3, Q4, Q7, Q8, Q11, Q12, Q15, Q16, Q18                                         | TRANSISTOR DEC3009B-S     | 1503100       |
| R49, R53                                                                        | RES. 20K 1/4W 5% CC       | 1302391       |
| R5, R7, R17, R19, R29, R31, R41, R43, R6, R8, R18, R20, R30, R32, R42, R44, R54 | RES. 12K 1/4W 5% CC       | 1300488       |
| R9, R10, R21, R22, R33, R34, R45, R46, R56                                      | RES. 100 1/4W 10% CC      | 1300231       |
| R48, R57                                                                        | RES. 3K 1/4W 5% CC        | 1300432       |
| R11, R12, R23, R24, R35, R36, R47, R55                                          | RES. 680 1/4W 5% CC       | 1301424       |
| R1, R3, R13, R15, R25, R27, R37, R39                                            | RES. 68K 1/4W 5% CC       | 1301327       |
| R52                                                                             | RES. 1K #275P POT         | 1305450       |
| C13 - C21                                                                       | CAP. 100MMF 100V 5% DM    | 1000016       |
| D9                                                                              | DIODE 1N753               | 1102451       |
| D10 - D13                                                                       | DIODE D662                | 1100113       |
| D1 - D8, D14                                                                    | DIODE D664                | 1100114       |
| C10 - C11                                                                       | CAP. 39MFD 10V 10% S.TANT | 1000076       |
| C1 - C9, C12                                                                    | CAP. .01MFD 100V 20% DISC | 1001610       |
|                                                                                 | PARTS LIST                | A-PL-G908-0-0 |
| REFERENCE DESIGNATION                                                           | DESCRIPTION               | PART NO.      |
| PARTS LIST                                                                      |                           |               |

|           |     |        |     |
|-----------|-----|--------|-----|
| REVISIONS | CHK | FIG NO | REV |
|           |     | 5939   | B   |
|           |     | 00001  | C   |

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|-----------|---------|
| DRN       | DATE    |
| M. Keller | 10-9-67 |
| CHK D.    | DATE    |
|           |         |
| ENG       | DATE    |
|           |         |
| PROD      | DATE    |
|           |         |

| TRANSISTOR & DIODE CONVERSION CHART |        |     |     |
|-------------------------------------|--------|-----|-----|
| DEC                                 | EIA    | DEC | EIA |
| DEC3009B                            | 2N3009 |     |     |
| SDA-6                               | 2N2060 |     |     |
| D662                                | 1N645  |     |     |
| D664                                | 1N3606 |     |     |
| IN753                               | SAME   |     |     |

**digital** CORPORATION  
MAYNARD, MASSACHUSETTS

TITLE: PHOTO AMP. G908

SIZE: CS NUMBER: G908-0-1 REV: C

PRINTED CIRCUIT REV: B

REV. C  
NUMBER  
G908-0-1  
SIZE CODE CS

Pink Dist. 10/10/67

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# MASTER DRAWING LIST

| DWG. NO.         | REV. LET. | NO. OF SHEETS | TITLE                             |
|------------------|-----------|---------------|-----------------------------------|
| E-UA-PR68-D-0    | K         | 1             | READER ASSY                       |
| A-PL-PR68-D-0    | K         | 2             | READER ASSY (PL)                  |
| D-DI-PR68-D-1    | D         | 2             | DRAWING INDEX                     |
| D-BS-PR68-D-2    | E         | 1             | POWER & CONTROL SCHEMATIC DIAGRAM |
| B-MU-PR68-D-3    | D         | 1             | MODULE UTILIZATION                |
| A-FL-PR68-D-3    | D         | 1             | MODULE COUNT                      |
| K-WL-PR68-D-4    | C         |               | WIRE LIST                         |
| A-SP-PR68-D-6    | C         | 6             | ENGINEERING SPECS.                |
| E-AD-7006591-0-0 | B         | 1             | WIRED ASSY                        |
| A-PL-7006591-0-C | B         | 1             | WIRED ASSY (PL)                   |
| A-SP-PR68-D-8    | C         | 5             | CHECKOUT PROCEDURE                |
| A-SP-PR68-D-5    | B         | 2             | ACCEPTANCE CRITERIA               |
| A-AL-PR68-D-7    | B         | 1             | ACCESSORY LIST                    |

| REVISIONS    |       |          |        | DRN. G.       | DATE  | digital                                                                                                                                                                                 | EQUIPMENT CORPORATION |                        |
|--------------|-------|----------|--------|---------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------------------------|
| REV.         | DATE  | CHG. NO. | APP'D. | FLANDERS      | DATE  |                                                                                                                                                                                         |                       | MAYNARD, MASSACHUSETTS |
| A            | 2/70  | PR68D-1  | B.D.   | K. RUSS       | 10/69 | <div style="font-size: 1.5em; font-weight: bold;">digital</div> <div style="font-weight: bold;">EQUIPMENT CORPORATION</div> <div style="font-size: 0.8em;">MAYNARD, MASSACHUSETTS</div> |                       |                        |
| B            | 3/70  | PR68D-2  | B.D.   | ENG.          | DATE  |                                                                                                                                                                                         |                       |                        |
| C            | 6/70  | PR68D-7  | BD     | PROJ. ENG.    | DATE  |                                                                                                                                                                                         |                       |                        |
| D            | 11/70 | PR68D-11 | G.M.   | PROD.         | DATE  |                                                                                                                                                                                         |                       |                        |
| E            | 12/70 | PR68D-12 | H.J.   | FIRST USED ON |       |                                                                                                                                                                                         |                       |                        |
| F            | 1/71  | PR68D-13 | H.J.   | PR68-D        |       |                                                                                                                                                                                         |                       |                        |
| H            | 4/71  | PR68D-15 | H.J.   | SIZE          | CODE  |                                                                                                                                                                                         |                       |                        |
| J            | 3/72  | PR68D-17 | H.J.   | A             | ML    |                                                                                                                                                                                         |                       |                        |
| K            | 8-72  | PR68D-18 | H.J.   | NUMBER        | REV.  |                                                                                                                                                                                         |                       |                        |
| L            | 4-73  | PR68D-19 | H.J.   | PR68-D        | R     |                                                                                                                                                                                         |                       |                        |
| M            | 7-73  | PR68D-20 | E.R.   | SCALE         | #     |                                                                                                                                                                                         |                       |                        |
| N            | 1-74  | PR68D-21 | E.R.   | A             | ML    |                                                                                                                                                                                         |                       |                        |
| P            | 2-74  | PR68D-22 | E.R.   | PR68-D        | R     |                                                                                                                                                                                         |                       |                        |
| SHEET 1 OF 2 |       |          |        | DIST.         |       |                                                                                                                                                                                         |                       |                        |

## ADDITIONAL CUSTOMER PRINTS

| Drawing Number | Rev. Let. | Title           |
|----------------|-----------|-----------------|
| C-CS-G918-0-1  | #         | Photo amplifier |
| C-CS-G930-0-1  | #         | NTTA            |
| D-UA-BC014-0-0 | #         | CABLE CONNECTOR |
| D-CS-M978-0-1  | #         | CONNECT. CARD   |

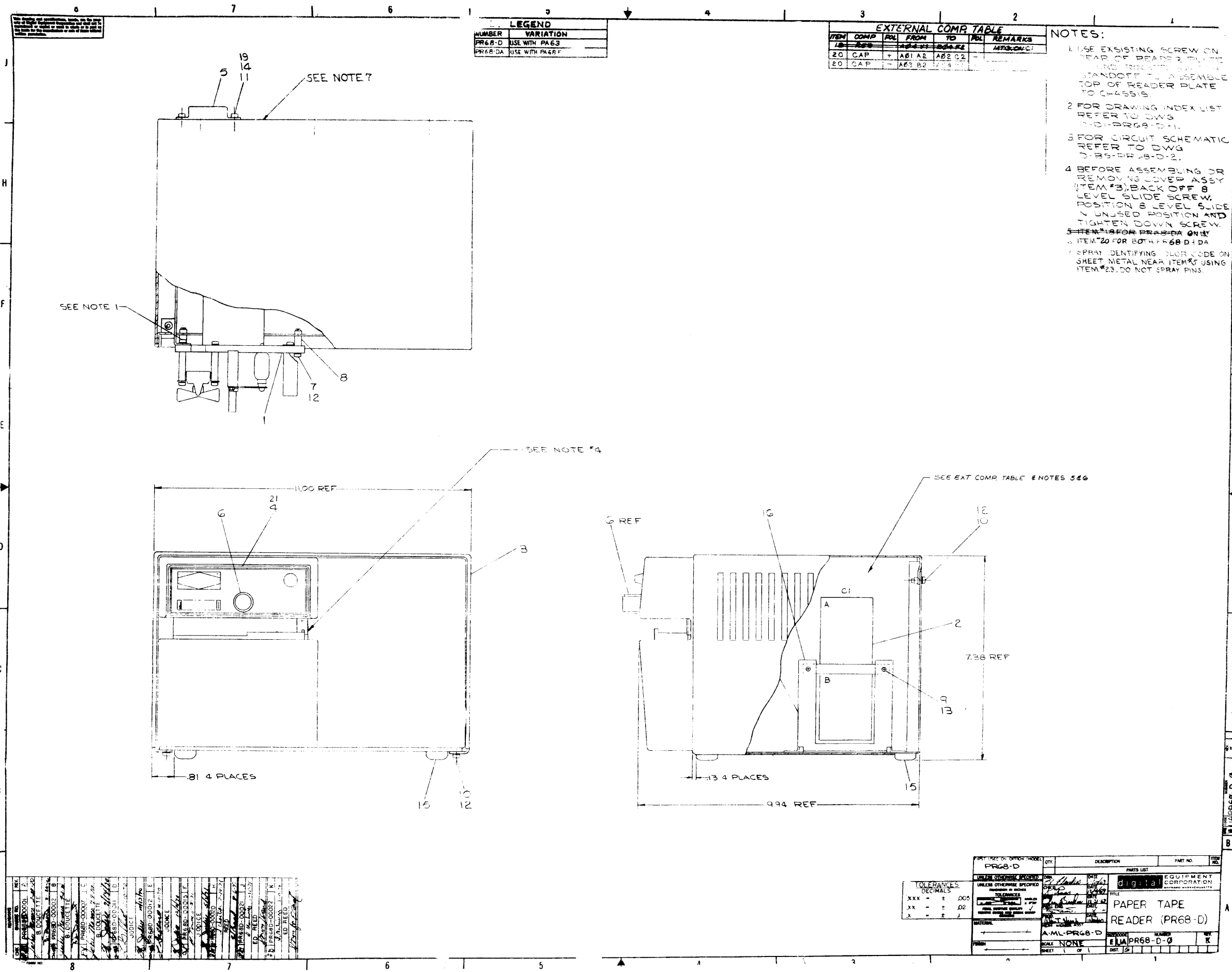
| Rev. | Date    | Change   | APP'D.      |
|------|---------|----------|-------------|
| R    | 7-30-74 | PR68D-23 | <i>E.P.</i> |

Requested by H. Jodice Date 3/22/71

Authorized by *[Signature]* Date 3/22/71

REV. R





| LEGEND  |                 |
|---------|-----------------|
| NUMBER  | VARIATION       |
| PR68-D  | USE WITH PA63   |
| PR68-DA | USE WITH PA65 F |

| EXTERNAL COMP TABLE |      |     |        |        |            |
|---------------------|------|-----|--------|--------|------------|
| ITEM                | COMP | REL | FROM   | TO     | REMARKS    |
| 20                  | CAP  | +   | A01 A2 | A02 02 | APPROX. C1 |
| 20                  | CAP  | -   | A03 B2 | A04 01 |            |

- NOTES:
1. USE EXISTING SCREW ON REAR OF READER PLATE. REMOVE SCREW FROM STANDOFF TO ASSEMBLE TOP OF READER PLATE TO CHASSIS.
  2. FOR DRAWING INDEX LIST REFER TO DWG 0-01-PR68-D-1.
  3. FOR CIRCUIT SCHEMATIC REFER TO DWG 0-85-PR68-D-2.
  4. BEFORE ASSEMBLING OR REMOVING COVER ASSY (ITEM #3), BACK OFF B LEVEL SLIDE SCREW TO UNUSED POSITION AND TIGHTEN DOWN SCREW.
  5. ITEM #16 FOR PR68-DA ONLY
  6. ITEM #20 FOR BOTH PR68-D & DA
  7. SPRAY IDENTIFYING COLOR CODE ON SHEET METAL NEAR ITEM #5 USING ITEM #23. DO NOT SPRAY PINS.

| REV | DATE | BY | CHKD | DESCRIPTION |
|-----|------|----|------|-------------|
| 1   |      |    |      | ASSEMBLY    |
| 2   |      |    |      | REVISION    |
| 3   |      |    |      | REVISION    |
| 4   |      |    |      | REVISION    |
| 5   |      |    |      | REVISION    |
| 6   |      |    |      | REVISION    |
| 7   |      |    |      | REVISION    |
| 8   |      |    |      | REVISION    |

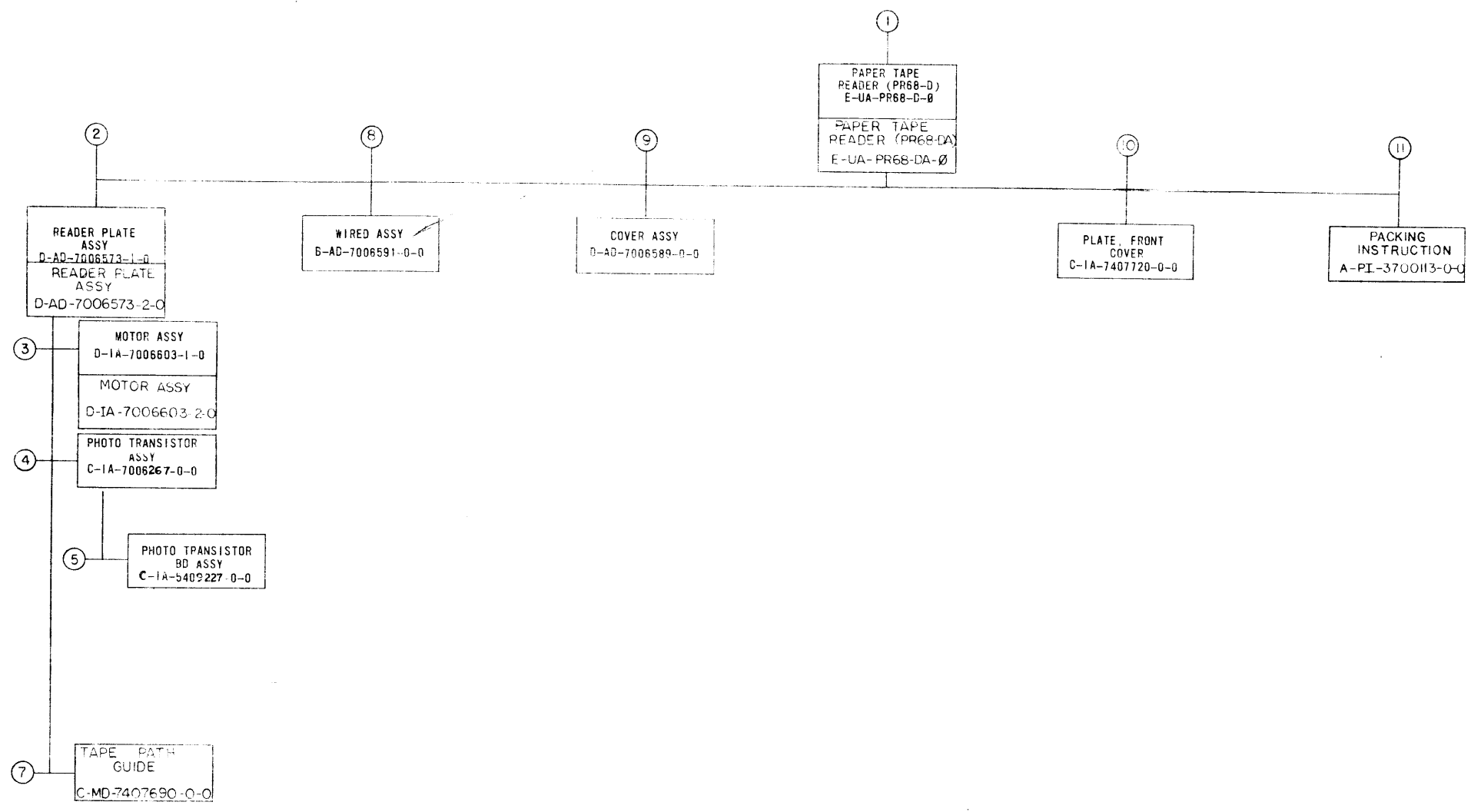
| PR68-D                     |        | QTY | DESCRIPTION | PART NO. | REV |
|----------------------------|--------|-----|-------------|----------|-----|
| UNLESS OTHERWISE SPECIFIED |        |     |             |          |     |
| TOLERANCES DECIMALS        |        |     |             |          |     |
| XXX                        | ± .005 |     |             |          |     |
| XX                         | ± .02  |     |             |          |     |
| X                          | ± .1   |     |             |          |     |
| MATERIAL                   |        |     |             |          |     |
| FINISH                     |        |     |             |          |     |
| SCALE NONE                 |        |     |             |          |     |
| SHEET 1 OF 1               |        |     |             |          |     |

| EQUIPMENT CORPORATION |                            |
|-----------------------|----------------------------|
| DATE                  | 01/19/68                   |
| BY                    | [Signature]                |
| CHKD                  | [Signature]                |
| APP'D                 | [Signature]                |
| TITLE                 | PAPER TAPE READER (PR68-D) |
| REV                   | 1                          |
| NO.                   | 1                          |
| DATE                  | 01/19/68                   |
| BY                    | [Signature]                |
| CHKD                  | [Signature]                |
| APP'D                 | [Signature]                |
| TITLE                 | PAPER TAPE READER (PR68-D) |
| REV                   | 1                          |
| NO.                   | 1                          |
| DATE                  | 01/19/68                   |
| BY                    | [Signature]                |
| CHKD                  | [Signature]                |
| APP'D                 | [Signature]                |



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REV. E  
NUMBER 1-0-888  
SIZE CODE DDI  
3215 2



| REV | CHANGE NO   | DESCRIPTION |
|-----|-------------|-------------|
| 1   | PR68D-00002 | A           |
| 2   | B-DOUGETTE  |             |
| 3   | PR68D-00001 | B           |
| 4   | PR68D-00013 | C           |
| 5   | PR68D-00015 | D           |
| 6   | PR68D-00021 | E           |

FIRST USED ON OPTION/ MODEL  
PR68-D


|                                                            |           |         |
|------------------------------------------------------------|-----------|---------|
| DO NOT SCALE DRAWING                                       |           |         |
| UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES             |           |         |
| DECIMALS                                                   | FRACTIONS | ANGLES  |
| ± .005                                                     | ± 1/64    | ± 0°30' |
| FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS |           |         |
| MATERIAL                                                   |           |         |
| FINISH                                                     |           |         |

| QTY.                                                    | DESCRIPTION | PART NO.  | ITEM NO. |
|---------------------------------------------------------|-------------|-----------|----------|
| PARTS LIST                                              |             |           |          |
| digital EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS |             |           |          |
| TITLE<br>DRAWING INDEX LIST (PR68-D)                    |             |           |          |
| SCALE                                                   |             | SIZE CODE | NUMBER   |
| SHEET OF 2                                              |             | DDI       | PR68-D-1 |
| DIST.                                                   |             | REV.      | E        |

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| MECHANICAL |                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                  |            |      |     | MECHANICAL |             |          |            |      |     | ELECTRICAL |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                          |            |      |     |  |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------|-----|------------|-------------|----------|------------|------|-----|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------|-----|--|
| FIND NO    | DESCRIPTION                                                                                                                                                                                                                       | PART NO.                                                                                                                                                                                                                                                         | DEPT USAGE |      |     | FIND NO    | DESCRIPTION | PART NO. | DEPT USAGE |      |     | FIND NO    | DESCRIPTION                                                                                                                                                                                                                                                                       | PART NO.                                                                                                                                                                                                 | DEPT USAGE |      |     |  |
|            |                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                  | PROD       | CUST | F/C |            |             |          | PROD       | CUST | F/C |            |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                          | PROD       | CUST | F/C |  |
| 1.         | PAPER TAPE READER (PR68-D)<br>PAPER TAPE READER (PR68-D) (PL)<br>PAPER TAPE READER (PR68-DA)<br>PAPER TAPE RDR (PR68-DA) (PL)<br>CHASSIS<br>CABLE INTERNAL (PR68-D)                                                               | E-UA-PR68-D-0<br>A-PL-PR68-D-0<br>E-UA-PR68-DA-0<br>A-PL-PR68-DA-0<br>E-IA-7407715-0-0<br>D-IA-7006557-0-0                                                                                                                                                       |            |      |     |            |             |          |            |      |     | 1.         | PAPER TAPE READER (PR68-D)<br>PAPER TAPE READER (PR68-DA)<br>PWR # CONT SCHEMATIC DIAGRAM<br>PWR # CONT SCHEMATIC DIAGRAM<br>MODULE UTILIZATION<br>MODULE COUNT<br>MODULE UTILIZATION<br>MODULE COUNT<br>ACCEPTANCE CRITERIA<br>ENG SPECS<br>ACCESSORY LIST<br>CHECKOUT PROCEDURE | A-ML-PR68-D<br>A-ML-PR68-DA<br>D-BS-PR68-D-2<br>D-BS-PR68-DA-2<br>B-MU-PR68-D-3<br>A-PL-PR68-D-3<br>B-MU-PR68-DA-3<br>A-PL-PR68-DA-3<br>A-SP-PR68-D-5<br>A-SP-PR68-D-6<br>A-AL-PR68-D-7<br>A-SP-PR68-D-8 |            |      |     |  |
| 2.         | READER ASSY<br>READER ASSY (PL)<br>READER ASSY (PL)<br>READER ASSY (PL)<br>READER PLATE<br>BLOCK READER<br>SHAFT READER PLATE<br>ARM SPRING<br>BRACKET TAPE HOLD DOWN<br>DEPRESSOR, TAPE<br>SLIDE, 8 LEVEL<br>BULB SPRING<br>LENS | D-AD-7006573-1-0<br>A-PL-7006573-1-0<br>D-AD-7006573-2-0<br>A-PL-7006573-2-0<br>D-MD-7407711-0-0<br>B-MD-7407719-0-0<br>B-MD-7407720-0-0<br>A-MD-7407718-0-0<br>C-MD-7407714-0-0<br>C-MD-7407719-0-0<br>C-MD-7407826-0-0<br>A-MD-7407718-0-0<br>B-MD-7404989-0-0 |            |      |     |            |             |          |            |      |     | 6.         | PRINTED CIRCUIT                                                                                                                                                                                                                                                                   | PC-5008655-0-0                                                                                                                                                                                           |            |      |     |  |
| 3.         | MOTOR ASSY<br>MOTOR ASSY<br>BUTTON, ROCKER SWITCH                                                                                                                                                                                 | D-IA-7006603-1-0<br>D-IA-7006603-2-0<br>D-SC-1205317-9-0                                                                                                                                                                                                         |            |      |     |            |             |          |            |      |     | 8.         | WIRED ASSY<br>WIRED ASSY (PL)<br>WIRE LIST (PR68-D)                                                                                                                                                                                                                               | B-AD-7006591-0-0<br>A-PL-7006591-0-0<br>K-WL-PR68-D-4                                                                                                                                                    |            |      |     |  |
| 4.         | PHOTO-TRANSISTOR ASSY                                                                                                                                                                                                             | C-IA-7006267-0-0                                                                                                                                                                                                                                                 |            |      |     |            |             |          |            |      |     |            |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                          |            |      |     |  |
| 5.         | PHOTO-TRANSISTOR BD ASSY                                                                                                                                                                                                          | D-IA-5409227-0-0                                                                                                                                                                                                                                                 |            |      |     |            |             |          |            |      |     |            |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                          |            |      |     |  |
| 7.         | TAPE PATH GUIDE                                                                                                                                                                                                                   | C-MD-7407690-0-0                                                                                                                                                                                                                                                 |            |      |     |            |             |          |            |      |     |            |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                          |            |      |     |  |
| 8.         | WIRED ASSY<br>WIRED ASSY (PL)<br>MTG BAR<br>H003 CONN.                                                                                                                                                                            | B-AD-7006591-0-0<br>A-PL-7006591-0-0<br>C-IA-7407718-0-0<br>E-SC-1205348-0-0                                                                                                                                                                                     |            |      |     |            |             |          |            |      |     |            |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                          |            |      |     |  |
| 9.         | COVER ASSY<br>COVER ASSY (PL)<br>COVER TOP<br>FRONT COVER                                                                                                                                                                         | D-AD-7006589-0-0<br>A-PL-7006589-0-0<br>E-IA-7407738-0-0<br>D-SC-1209706-0-0                                                                                                                                                                                     |            |      |     |            |             |          |            |      |     |            |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                          |            |      |     |  |
| 10.        | PLATE, FRONT COVER<br>SILK SCREEN (FRONT) WHT<br>SILK SCREEN (FRONT) ORN<br>SILK SCREEN (FRONT) BLK                                                                                                                               | C-IA-7407720-0-0<br>C-SS-7407720-0-1<br>C-SS-7407720-0-2<br>C-SS-7407720-0-3                                                                                                                                                                                     |            |      |     |            |             |          |            |      |     |            |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                          |            |      |     |  |
| 11.        | PACKING INSTRUCTIONS<br>REGULAR SLOTTED CARTON<br>SCORED SHEET<br>LAMINATED PAD                                                                                                                                                   | A-PI-3700113-0-0<br>A-PS-9905387<br>A-PS-9905388<br>A-PS-9905389                                                                                                                                                                                                 |            |      |     |            |             |          |            |      |     |            |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                          |            |      |     |  |

|                                |      |   |
|--------------------------------|------|---|
| REVISIONS<br>CHANGE NO.<br>CHK | REV. |   |
|                                | 1.   |   |
|                                | 2.   |   |
|                                | 3.   |   |
| DEC FORM NO.<br>DRD 100        | 8    | 7 |

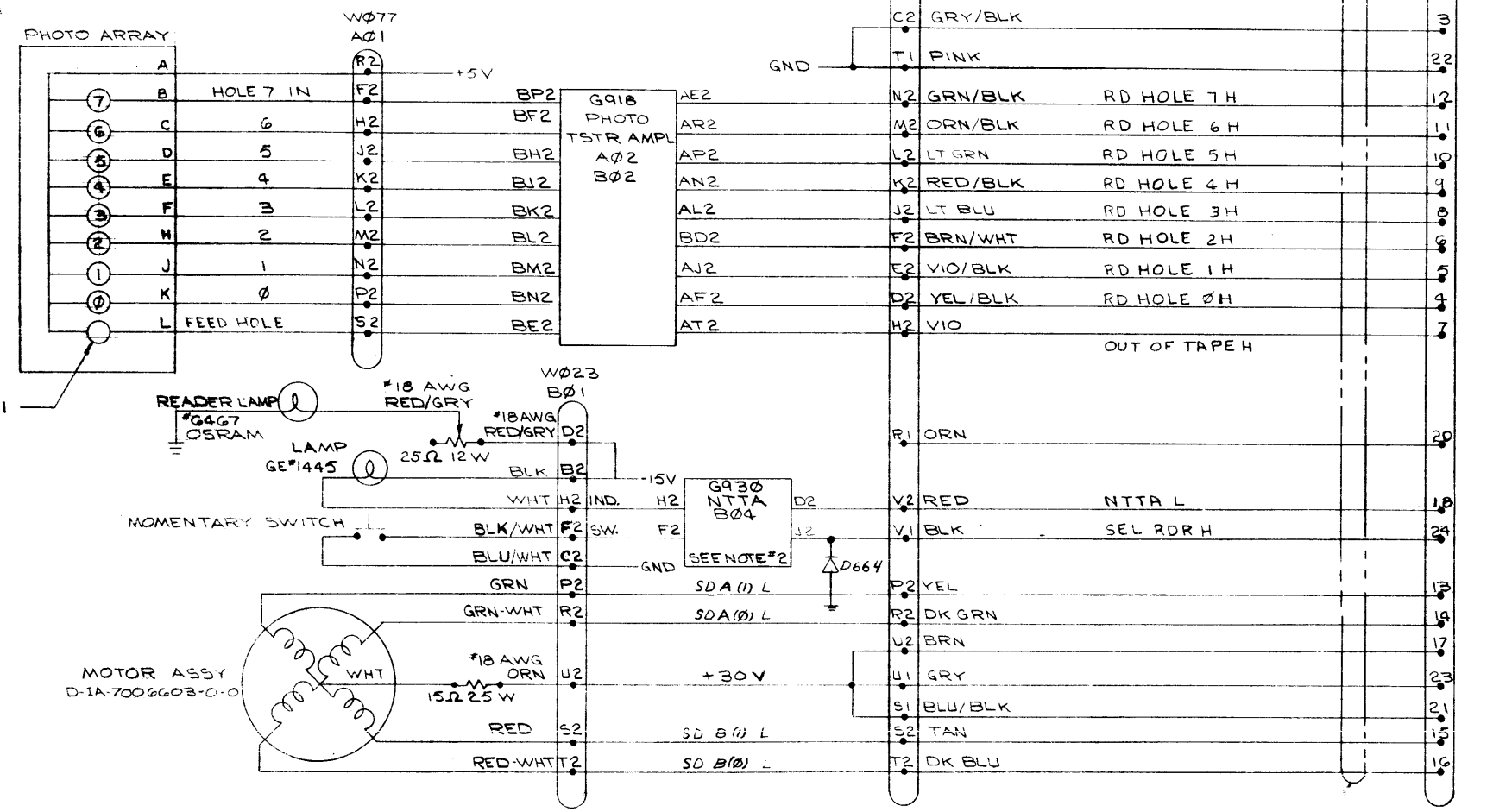
|                              |                                                            |                               |               |                                                                                       |
|------------------------------|------------------------------------------------------------|-------------------------------|---------------|---------------------------------------------------------------------------------------|
| FIRST USED ON OPTION / MODEL | DO NOT SCALE DRAWING                                       | DRN <i>W. H. Anderson</i>     | DATE 11/10/69 |  |
|                              | UNLESS OTHERWISE SPECIFIED<br>DIMENSION IN INCHES          | CHK'D <i>R. P. Buss</i>       | DATE 12-2-69  |                                                                                       |
|                              | TOLERANCES                                                 | ENG. <i>Jan. Beckman</i>      | DATE 12-31-69 | TITLE<br><b>DRAWING INDEX LIST (PR68-D)</b>                                           |
|                              | DECIMALS FRACTIONS ANGLES                                  | PROJ. ENG. <i>[Signature]</i> | DATE          |                                                                                       |
|                              | ± .005 ± 1/64 ± 0°30'                                      | PROD. <i>[Signature]</i>      | DATE 1/8/70   |                                                                                       |
|                              | FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS | DATE                          |               |                                                                                       |
| MATERIAL                     |                                                            | NEXT HIGHER ASSY              |               | SHEET CODE: <b>DII PR68-D-1</b><br>NUMBER: <b>1</b><br>DIST. <b>1</b>                 |
| FINISH                       |                                                            | SCALE                         |               |                                                                                       |

REV. E  
NUMBER DII PR68-D-1  
B

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- NOTES:**
1. THIS PHOTO TRANSISTOR USED TO DETECT OUT OF TAPE.
  2. G930, NTTA, IS AN OPTION.
  3. UNLESS SPECIFIED ALL WIRE TO BE #22 AWG STRD TEF INS.

PHOTO TRANSISTOR ASSY  
C-1A-7006267 -0-0



BELDEN CABLE  
24 CONDUCTOR  
INTERNAL CABLE  
D-1A-7006557-0-0

| REV | CHANGE NO    | DATE     | BY        | CHK |
|-----|--------------|----------|-----------|-----|
| A   | PR68D-0001   | 11-11-67 | JODICE    |     |
| B   | PR68D-0001.5 | 11-13-67 | JODICE    |     |
| C   | PR68D-0007   | 11-20-72 | H. JODICE |     |
| D   | PR68D-0001.8 | 11-21-72 | H. JODICE |     |
| E   | PR68D-0001.9 | 12-11-73 | H. JODICE |     |

| FIRST USED ON OPTION / MODEL         | QTY | DESCRIPTION                 | PART NO       | ITEM NO           |
|--------------------------------------|-----|-----------------------------|---------------|-------------------|
| PR68-D                               |     |                             |               |                   |
| PARTS LIST                           |     |                             |               |                   |
| UNLESS OTHERWISE SPECIFIED           |     | DRN. <i>H. Jodice</i>       | DATE 11/1/67  |                   |
| DIMENSION IN INCHES                  |     | CHK'D <i>H. Jodice</i>      | DATE 11/15/67 |                   |
| TOLERANCES                           |     | ENG. <i>H. Jodice</i>       | DATE 12-31-67 |                   |
| DECIMALS FRACTIONS ANGLES            |     | PROJ. ENG. <i>H. Jodice</i> | DATE 12-31-67 |                   |
| = .005 = 1/64 = 0°30'                |     | PROD. <i>H. Jodice</i>      | DATE 12-31-67 | TITLE             |
| FINAL SURFACE QUALITY                |     | NEXT HIGHER ASSY            |               | POWER & CONTROL   |
| REMOVE BURRS AND BREAK SHARP CORNERS |     | A-ML-PR68-D                 |               | SCHEMATIC DIAGRAM |
| MATERIAL                             |     | SCALE                       |               | SIZE/CODE         |
|                                      |     | SHEET 1 OF 1                |               | DBS PR68-D-2      |
| FINISH                               |     |                             |               | NUMBER            |
|                                      |     |                             |               | REV               |
|                                      |     |                             |               | E                 |
|                                      |     |                             |               |                   |
|                                      |     |                             |               |                   |

REV E  
 NUMBER  
 PR68-D-2  
 SIZE CODE  
 DBS

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NOTES:

- BØ1-MODULE FROM MOTOR ASSEMBLY
- AØ2,BØ2- PHOTO TRANSISTOR AMPLIFIER
- AØ4-CABLE ASSEMBLY MODULE
- AØ1- PART OF PHOTO TRANSISTOR ASSY
- BØ4-NTTA OPTION

|   | A             | B       |
|---|---------------|---------|
| 4 | M9Ø8          | * G93Ø  |
| 3 |               |         |
| 2 | (OUTPUT) G918 | (INPUT) |
| 1 | WØ77          | WØ23    |

\* INDICATES NTTA OPTION

| QTY.       | DESCRIPTION | PART NO. | ITEM NO. |
|------------|-------------|----------|----------|
| PARTS LIST |             |          |          |

| REVISIONS | CHK  | CHANGE NO.  | REV. |
|-----------|------|-------------|------|
|           | P.R. | PR68D-00001 | A    |
|           |      | PR68D-00002 | B    |
|           |      | PR68D-00011 | C    |
|           |      | PR68D-00015 | D    |

|                                      |           |         |
|--------------------------------------|-----------|---------|
| UNLESS OTHERWISE SPECIFIED           |           |         |
| UNLESS OTHERWISE SPECIFIED           |           |         |
| DIMENSION IN INCHES                  |           |         |
| TOLERANCES                           |           |         |
| DECIMALS                             | FRACTIONS | ANGLES  |
| ± .005                               | ± 1/64    | ± 0°30' |
| FINAL SURFACE QUALITY                |           |         |
| REMOVE BURRS AND BREAK SHARP CORNERS |           |         |
| MATERIAL                             | //        |         |
| FINISH                               | //        |         |

|             |                     |      |          |
|-------------|---------------------|------|----------|
| DRN.        | PAUL GARDNER        | DATE | 8/5/69   |
| CHK'D.      | <i>Ken Rupp</i>     | DATE | 11/12/69 |
| ENG.        | <i>Ken Rupp</i>     | DATE | 12-31-69 |
| PROJ. ENG.  |                     | DATE |          |
| PROD.       | <i>Mont. Church</i> | DATE | 10/21/69 |
| A-ML-PR68-D |                     |      |          |
| SCALE       | NONE                |      |          |
| SHEET       | 1                   | OF   | 1        |

**digital** EQUIPMENT CORPORATION  
MAYNARD MASSACHUSETTS

TITLE  
MODULE UTILIZATION LIST  
PR68-D


|      |      |          |      |
|------|------|----------|------|
| SIZE | CODE | NUMBER   | REV. |
|      |      | PR68 D-3 | D    |

| DIGITAL EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS<br><b>PARTS LIST</b> |                                   |                                           |  | QTY/VAR                                            |        |           |           |               |                 |      |  |             |  |
|------------------------------------------------------------------------------|-----------------------------------|-------------------------------------------|--|----------------------------------------------------|--------|-----------|-----------|---------------|-----------------|------|--|-------------|--|
| MADE BY G. FLANDERS                                                          |                                   | CHECKED K. RUSS                           |  | SECTION                                            |        |           |           |               |                 |      |  |             |  |
| DATE 11/10/69                                                                |                                   | DATE 11/11/69                             |  | 1                                                  |        |           |           |               |                 |      |  |             |  |
| ENG <i>Geo. Beckner</i> 12-31-67                                             |                                   | PROD <i>Alan T. Groch</i>                 |  | ISSUED SECT.                                       |        |           |           |               |                 |      |  |             |  |
| DATE                                                                         |                                   | DATE 12-31-69                             |  | 1                                                  |        |           |           |               |                 |      |  |             |  |
| ITEM NO.                                                                     | DWG NO./PART NO.<br>CL BASIC VAR. | DESCRIPTION                               |  |                                                    | PR68-D | PR68-DA   | UNIT COST | UNIT QUANTITY | QUANTITY ISSUED |      |  |             |  |
| 1                                                                            | G918                              | PHOTO TRANSISTOR AMPLIFIER (ETCH REV (D)) |  |                                                    | 1      | 1         |           |               |                 |      |  |             |  |
|                                                                              | *G930                             | NTTA OPTION                               |  |                                                    | 1      | -         |           |               |                 |      |  |             |  |
|                                                                              | **M060                            |                                           |  |                                                    | 1      | -         |           |               |                 |      |  |             |  |
|                                                                              |                                   |                                           |  | ASTERISK (**) REFER TO PA63 MU FOR MODULE Location |        |           |           |               |                 |      |  |             |  |
|                                                                              |                                   |                                           |  | ASTERISK (*) DESIGNATES OPTION                     |        |           |           |               |                 |      |  |             |  |
| TITLE                                                                        |                                   |                                           |  | ASSY NO.                                           |        | SIZE CODE |           | NUMBER        |                 | REV. |  | ECO NO.     |  |
| MODULE COUNT (PR68-D)                                                        |                                   |                                           |  | B-MU-PR68-D-3                                      |        | A PL      |           | PR68-D-3      |                 | D    |  | PR68D-00015 |  |
| SHEET 1 OF 1                                                                 |                                   |                                           |  | DIST.                                              |        |           |           |               |                 |      |  |             |  |

X

|               |         |
|---------------|---------|
| DRWG NO       | REV LTR |
| K-WL-PR68-D-4 | C       |

| REVISIONS |             |          |     |
|-----------|-------------|----------|-----|
| REV LTR   | ECO NO      | DATE     | ENG |
| A         | PR68D-00011 | 11-11-79 |     |
| B         | PR68D-00015 | 5-3-71   |     |
| C         | PR68D-00017 | 3-20-72  |     |

|                                  |                  |                                                                                       |                                |              |                      |
|----------------------------------|------------------|---------------------------------------------------------------------------------------|--------------------------------|--------------|----------------------|
| DRAWN<br><i>H. [Signature]</i>   | DATE<br>11/14/69 |  | TITLE<br>WIRE LIST<br>(PR68-D) |              |                      |
| CHECKED<br><i>K. [Signature]</i> | DATE<br>11/17/69 |                                                                                       | FOR TAPE # FILE #              |              |                      |
| ENG<br><i>[Signature]</i>        | DATE<br>12-31-69 |                                                                                       | SIZE<br>K                      | CODE<br>WL   | DWG. NO.<br>PR68-D-4 |
| PROJ ENG                         | DATE             |                                                                                       | ASSY NO<br>A-ML-PR68-D         | REV LTR<br>C |                      |
| PROD<br><i>[Signature]</i>       | DATE<br>12/31/69 | SCALE NONE                                                                            | SHEET 1 OF 1                   | DIST.        |                      |



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**DIGITAL EQUIPMENT CORPORATION**  
MAYNARD, MASSACHUSETTS

**ENGINEERING SPECIFICATION**

DATE 3/2/72

TITLE PR68D and PR68DA Engineering Specifications

REVISIONS

| REV | DESCRIPTION       | CHG NO      | ORIG       | DATE | APPD BY      | DATE   |
|-----|-------------------|-------------|------------|------|--------------|--------|
| B   | REDRAWN & REVISED | PR68D-00017 | H. JODICE  | 3/72 | <i>H. J.</i> | 3/2/72 |
| C   | REVISED PER ECO   | PR68D-00018 | J. GLEESON | 3/72 | <i>H. J.</i> | 3/2/72 |

|     |           |      |                  |      |   |      |    |        |          |     |   |
|-----|-----------|------|------------------|------|---|------|----|--------|----------|-----|---|
| ENG | H. Jodice | APPD | <i>H. Jodice</i> | SIZE | A | CODE | SP | NUMBER | PR68-D-6 | REV | C |
|-----|-----------|------|------------------|------|---|------|----|--------|----------|-----|---|

**ENGINEERING SPECIFICATION**

**digital**

CONTINUATION SHEET

TITLE PR68D & PR68DA Engineering Specifications

SCOPE

The PR68D & DA are paper tape readers. They must be used with either a PA68F or PA63 controller. They interface to these controllers with a BCØ1H cable. They will read at a rate of 110 cps. They are designed to read both 6 & 8 level paper tape.

I. General Specifications

- A. Mechanical: Dimensions: 7¼" X 11" X 8½"  
Weight: 4½ lb. (approx.)
- B. Environmental: Maximum ambient temperature 50°C.
- C. Electrical: +5v @ 200ma (approx.)  
-15v @ 700-800ma  
+30v @ amp running, 1 amp selected and idle.
- D. Paper tape specifications  
(Translucence 32-38%, Oil content 5-8%, Ash 100% max, Grit .04max, and color consistant).

II. Reader Signals

| Pin        | Signal        | Description                                                             |
|------------|---------------|-------------------------------------------------------------------------|
| P1, B2     | -15v          | Supplies current to reader amplifiers and bulbs.                        |
| R1         |               | Must not be used.                                                       |
| A2         | +5v           | Supplies current to all logic components.                               |
| S1, U1, U2 | +30v          | Supplies current to drive stepping motor.                               |
| V1         | Sel Rdr H     | When signal is asserted, reader is enabled by rocker switch.            |
| C2         | GND           |                                                                         |
| T1         | Return        | Return path for current generated from -15v source.                     |
| D2         | RD Hole Ø H   | Signal is asserted when a hole is detected.                             |
| E2         | RD Hole 1 H   | Signal is asserted when a hole is detected.                             |
| F2         | RD Hole 2 H   | Signal is asserted when a hole is detected.                             |
| H2         | Out of tape H | Signal is asserted when a hole is detected. Used to detect out of tape. |

|      |   |      |    |        |          |     |   |
|------|---|------|----|--------|----------|-----|---|
| SIZE | A | CODE | SP | NUMBER | PR68-D-6 | REV | C |
|------|---|------|----|--------|----------|-----|---|

# ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

TITLE PR68D & PR68DA Engineering Specifications

## II. Reader Signals Continued

|    |           |   |                                                                                   |
|----|-----------|---|-----------------------------------------------------------------------------------|
| J2 | RD Hole 3 | H | Signal is asserted when a hole is detected.                                       |
| K2 | RD Hole 4 | H | Signal is asserted when a hole is detected.                                       |
| L2 | RD Hole 5 | H | Signal is asserted when a hole is detected.                                       |
| M2 | RD Hole 6 | H | Signal is asserted when a hole is detected.                                       |
| N2 | RD Hole 7 | H | Signal is asserted when a hole is detected.                                       |
| T2 | SDB(Ø)L   |   | +30v to GND. Used to increment motor.                                             |
| S2 | SDB(1)L   |   | +30v to GND. Used to increment motor.                                             |
| R2 | SDA(Ø)L   |   | +30v to GND. Used to increment motor.                                             |
| P2 | SDA(1)L   |   | +30v to GND. Used to increment motor.                                             |
| V2 | NTTA      |   | When signal is at GND, it places the readers in the non-torn tape allotment mode. |

## III. Alignment Procedure and Control Settings:

- A. Tape Guide: The tape guide opening should be centered over the photo cells, making sure it does not block the light path. There should be a gap\* between the tape guide and the paper tape.  
\*The gap should be approximately 3 thicknesses of the paper tape.
- B. Light Bulb: Select bulbs with reasonably straight and uniform filaments. Position the bulb with the engraved end toward the Reader. There are two seams on the bulb which must be kept out of the light path.
- C. Lamp Voltage: Set the adjustable power resistor in the lamp circuit for -5.8v. The bulbs' intensity and the output of the photocells may vary from one unit to the next, so that this resistor may have to be varied to compensate.
- D. 6-8 Level Slide: This slide should be raised when reading 6 level paper tape and lowered for 8 level tape.

|                  |            |                    |          |
|------------------|------------|--------------------|----------|
| SIZE<br><b>A</b> | CODE<br>SP | NUMBER<br>PR68-D-6 | REV<br>C |
|------------------|------------|--------------------|----------|

# ENGINEERING SPECIFICATION

digital

CONTINUATION SHEET

TITLE PR68D & PR68DA Engineering Specifications

## III. Continued

- E. Sprocket Wheel: Lateral and rotational adjustment of the sprocket wheel provides clearance for paper tape and centers the data holes over the proper photo cell apertures. Adjust the wheel in the following manner:

With the power on and the reader selected, place an 8 level, 1's & 0's tape in the reader. Loosen the two set screws and lower the tape holding arm. Position the center of the data holes just to LEFT of that portion of the photo cell indicated by a glass dot.

Next, insert a 6 level 1's & 0's tape in the reader. The center of the data holes should fall just to the RIGHT of the photo cell centers. (See Figure 1.).

Due to some misalignment in the photo cells themselves, the above alignment of the data holes to photo cells may have to be varied slightly. Retighten the set screws.

- F. Lens and Light Arrangement:

With power on and the reader selected, place an 8 level tape into the reader with the data holes properly centered over the photo cells. Project the forward edge of the light band along the leading edge of the data holes by rotation of the bulb (or tilting of the lens if necessary). The lens should project a narrow light beam, but one that is wide enough to completely encompass the data holes. (See Figure 1). The bulb contains two seams which should be kept out of the light path.

|                  |            |                    |          |
|------------------|------------|--------------------|----------|
| SIZE<br><b>A</b> | CODE<br>SP | NUMBER<br>PR68-D-6 | REV<br>C |
|------------------|------------|--------------------|----------|

TITLE PR68D & PR68DA Engineering Specifications

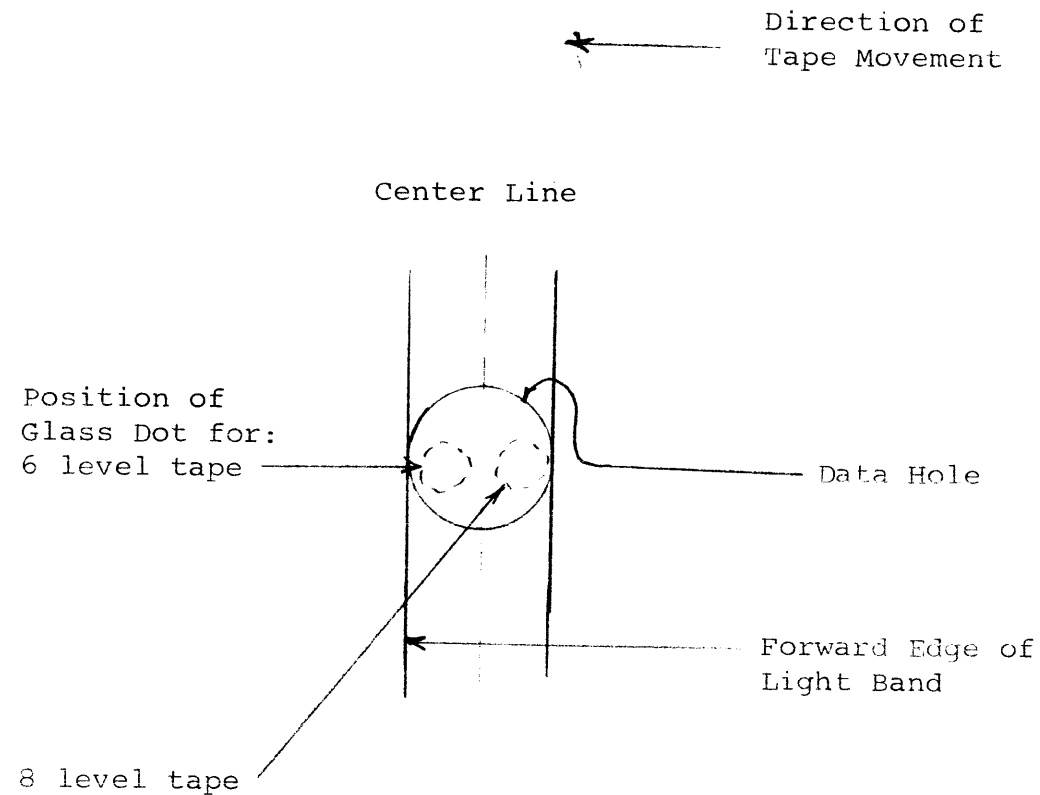


FIG 1

|                  |            |                    |          |
|------------------|------------|--------------------|----------|
| SIZE<br><b>A</b> | CODE<br>SP | NUMBER<br>PR68-D-6 | REV<br>C |
|------------------|------------|--------------------|----------|

TITLE PR68D & PR68DA Engineering Specifications

G. G918 Amplifier Adjust: Load N11DEC-08-D2HC-PB into MEM (via TTY not reader), select program 10 using 1's & 0's loop. The object of this test is to select the margins between which the reader reads without error and then reset the pot to a point midway between the upper and lower margins. To do this, start the program and if the reader is running errorless, turn the pot until an error occurs: reverse direction of the pot until the next error occurs (keeping track of amount of turns between errors) and then reset the pot midway between these errors. (If at the start of the program the reader does not read, adjust the pot in one direction until an error occurs and use this point as one of the margins.) In either case a minimum of 10 turns is required. This is only a preliminary setting.

Repeat the above test for prog. 02 and then 07, using a binary count loop. In these tests keep SR's 03 and 06 = 1 while adjusting pot. Not less than 10 turns is accepted. After setting the adjustment pot to its direct center, turn it 1 1/2 turns in the clockwise direction. (This is to allow for heating of the photo cell circuitry).

H. NTTA RDR Select Switch (PA63 only)

Put the following Rdr select and read program into loc. 7020.

|      |      |       |                        |
|------|------|-------|------------------------|
| 7020 | 7604 | START | SR Settings            |
|      | 6312 |       | NONE = Rdr 00          |
|      | 7300 |       | SR11 = Rdr 01          |
|      | 6016 |       | SR10 = Rdr 02          |
|      | 6011 |       | SR10, 11 etc. = Rdr 03 |
|      | 5224 |       |                        |
|      | 5220 |       |                        |

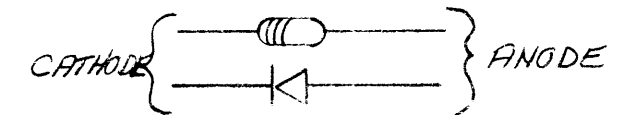
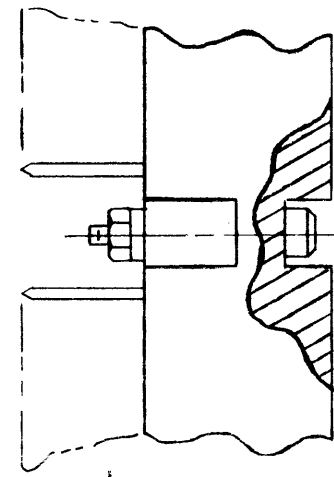
With a tape loop in reader, put SR0 to 11 = 0 and start program. The NTTA lamp in reader 00 should be lit and the reader should not be selected. Depress NTTA switch. The NTTA lamp should turn off and the reader should select. By putting any other SR to A 1, the lamp should turn on in reader 00 and it should de-select.

|                  |            |                    |          |
|------------------|------------|--------------------|----------|
| SIZE<br><b>A</b> | CODE<br>SP | NUMBER<br>PR68-D-6 | REV<br>C |
|------------------|------------|--------------------|----------|

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NOTES:

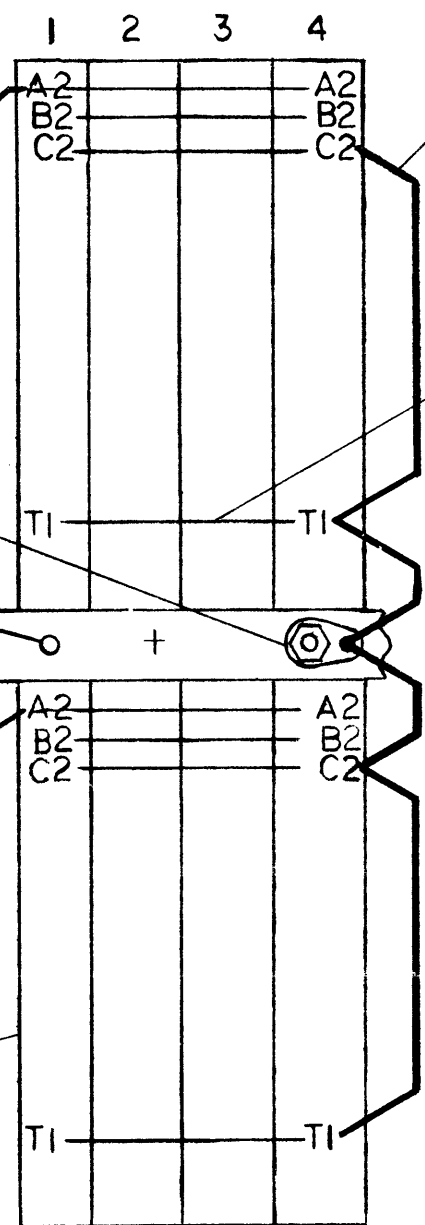
1. CONNECTIONS ON ITEMS 2 & 3 TO BE SOLDERED & LOCATED AT MINIMUM PRACTICAL HEIGHT ABOVE BLOCKS.
2. CONNECTOR BLOCK TO BE GROUNDED TO GROUND LUG AS SHOWN.
3. USE YELLOW WIRE (ITEM #5) FOR MACHINE WRAPPED & FLUE WIRE (ITEM #6) FOR ALL HAND WRAPPED WIRE EXCEPT WIRE FROM A0IA2 TO B0IA2. THIS SHOULD BE HAND WRAPPED WITH RED WIRE (ITEM 12)
4. D664 DIODE FROM B04J2 TO B04T1. CATHODE AT B04J2.



SEE NOTE 3

SEE NOTE #1 & 2

SEE NOTE #1



| REVISIONS | CHANGE NO.  | REV. |
|-----------|-------------|------|
| CC        | PR68D-00015 | A    |
| PM        | PR68D-00019 | B    |

JODICE  
 H. JODICE  
 42473

| FIRST USED ON OPTION / MODEL | QTY.                     | DESCRIPTION   | PART NO.                                                                 | ITEM NO. |
|------------------------------|--------------------------|---------------|--------------------------------------------------------------------------|----------|
| PR68-D                       |                          |               |                                                                          |          |
| PARTS LIST                   |                          |               |                                                                          |          |
| UNLESS OTHERWISE SPECIFIED   | DRN. PAUL GARDNER        | DATE 8/6/69   | <b>digital</b> EQUIPMENT CORPORATION<br>WIRELESS COMMUNICATIONS DIVISION |          |
| UNLESS OTHERWISE SPECIFIED   | CHK'D. <i>A. Russ</i>    | DATE 11/8/69  |                                                                          |          |
| UNLESS OTHERWISE SPECIFIED   | ENG. <i>J. Becker</i>    | DATE 12-31-69 |                                                                          |          |
| UNLESS OTHERWISE SPECIFIED   | PROJ. ENG.               | DATE          |                                                                          |          |
| UNLESS OTHERWISE SPECIFIED   | PROD. <i>John T. ...</i> | DATE 12/1/69  | TITLE<br>WIRED ASSY<br>(P 68-D)                                          |          |
| MATERIAL                     | E-UA-PR68 D-0            |               |                                                                          |          |
| FINISH                       | SCALE NONE               |               |                                                                          |          |
|                              | CHEET 1                  |               |                                                                          |          |

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

|                                  |                     |              |
|----------------------------------|---------------------|--------------|
| MADE BY G. FLANDERS              | CHECKED K. RUSC     | SECTION      |
| DATE 10/31/69                    | DATE 11/1/69        | 1            |
| ENG <i>Geo. Backman</i> 12-31-69 | PROD <i>John...</i> | ISSUED SECT. |
| DATE                             | DATE 12-31-69       | 1            |

QUANTITY / VARIATION

| ITEM NO. | DWG NO. / PART NO. | DESCRIPTION                   |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|----------|--------------------|-------------------------------|-----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 1        | C-IA-7407716-0-0   | MTG BAR                       | -1  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2        | 1205541            | BUS STRIP                     | A/R |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3        | 9107560-01         | #22 AWG BUS WIRE              | A/R |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4        | 9107265-09         | #22 AWG TUBING TEFLOX WHITE   | A/R |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5        | 9105740-44         | #30 AWG KYNAR (YEL)           | A/R |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6        | 9105740-66         | #30 AWG KYNAR (BLU)           | A/R |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7        | E-SC-1205348-0-0   | CONN #N203                    | 1   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8        | 9007988            | SCR SOC PD CAP #8-32 X 1 LG   | 1   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9        | 9006768            | TERM #2104-08-00              | 1   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10       | 9006583            | NUT KEPS #8-32                | 1   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11       | 9006339            | SCR SOC PD CAP #8-32 X 5/8 LG | 1   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12       | 9107586-22         | 24 AWG SOLID WIRE TEF INS RED | A/R |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13       | 1100114            | D664 DIODE                    | 1   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|          |                    |                               |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|          |                    |                               |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|          |                    |                               |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|          |                    |                               |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|          |                    |                               |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|          |                    |                               |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|          |                    |                               |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|          |                    |                               |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|          |                    |                               |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|          |                    |                               |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|          |                    |                               |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|                     |                 |           |            |     |              |
|---------------------|-----------------|-----------|------------|-----|--------------|
| TITLE               | ASSY NO         | SIZE CODE | NUMBER     | REV | ECO NO.      |
| WIRED ASSY (PR6E-D) | D-AD-000591-0-0 | A PL      | 000591-0-0 | B   | PR6E-D-00019 |
| SHEET 1 OF 1        | DIST. <i>G</i>  |           |            |     |              |

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**DIGITAL EQUIPMENT CORPORATION**  
MAYNARD, MASSACHUSETTS

**ENGINEERING SPECIFICATION**

DATE 3-4-72

TITLE PR68D & PR68DA MANUFACTURING TEST PROCEDURE

REVISIONS

| REV | DESCRIPTION       | CHG NO      | ORIG       | DATE | APPD BY | DATE    |
|-----|-------------------|-------------|------------|------|---------|---------|
| B   | REDRAWN & REVISED | PR68D-00017 | H. JODICE  | 3/72 | H.J.    | 3/23/72 |
| C   | ECO CHANGE        | PR68D-00018 | J. GLEESON | 8/72 | AJ      | 8/13/72 |

|     |           |                    |      |      |          |     |
|-----|-----------|--------------------|------|------|----------|-----|
| ENG | H. Jodice | APPD               | SIZE | CODE | NUMBER   | REV |
|     |           | <i>[Signature]</i> | A    | SP   | PR68-D-8 | C   |

**ENGINEERING SPECIFICATION**

DIGITAL

CONTINUATION SHEET

TITLE PR68D & PR68DA MANUFACTURING TEST PROCEDURE

1.0 EQUIPMENT

- 1.1 PDP8L, PDP8E, PDP8I (positive bus)
- 1.2 Teletype
- 1.3 453 scope and voltage probes
- 1.4 PA63 or PA68F reader, punch control
- 1.5 PP67-D BRPE punch
- 1.6 Reader cable BC01H-Ø-Ø
- 1.7 Punch cable BC01F-Ø-Ø
- 1.8 External power supplies (798) (H721)

2.0 TEST STATION SET UP

- 2.1 Set up PA63 or PA68F to computer as shown in their respective test station set up procedure.
- 2.2 Connect reader to reader-punch control. For PA63 plug cable into slot D36. For PA68F plug reader cable into slot B16.
- 2.3 Turn power on.

3.0 ALIGNMENT PROCEDURE AND CONTROL SETTINGS

- 3.1 Tape hold down bracket: the tape hold down bracket opening should be centered over the photocells, making sure it does not block the light path. There should be a minimum gap between the tape hold down bracket and the paper tape, approximately 3 thicknesses of paper tape.
- 3.2 Light bulb: select bulbs with reasonably straight and uniform filaments. Position the bulb with the engraved end toward the reader. There are two seams on the bulb which must be kept out of the light path.
- 3.3 Lamp Voltage: set the adjustable power resistor in the lamp circuit for -5.8v. The bulbs intensity and the output of the photocells may vary from one bulb to the next, so that this resistor may have to be varied to compensate.
- 3.4 6-8 level slide: this slide should be raised when reading 6 level paper tape and lowered for 8 level tape.

|                    |      |      |          |     |
|--------------------|------|------|----------|-----|
| APPD               | SIZE | CODE | NUMBER   | REV |
| <i>[Signature]</i> | A    | SP   | PR68-D-8 | C   |

TITLE PR68-D &amp; PR68DA MANUFACTURING TEST PROCEDURE

3.5 Sprocket Wheel: this adjustment can be made with or without the use of a scope.

3.5.1 Without scope: Lateral and rotational adjustment of the sprocket wheel provides clearance for the paper tape and centers the data holes over the proper photocell apertures. Adjust the wheel in the

following manner:

With power on and the reader selected, place 8 level 1's and 0's tape in the reader.

Loosen the two set screws in the sprocket wheel and lower the tape holding arm. Position the center of the data holes just to the left of that portion of the photocell indicated by a glass dot. This can be set by moving the sprocket either backwards or forwards on the motor shaft. Next, insert a 6 level 1's and 0's tape in the reader. The center of the data holes should fall just to the right of the photocell centers. (See figure number 1).

Due to some misalignment in the photocells themselves, the above alignment of the data holes to photocells may have to be varied slightly.

Retighten the set screws on the sprocket wheel and recheck alignment conditions.

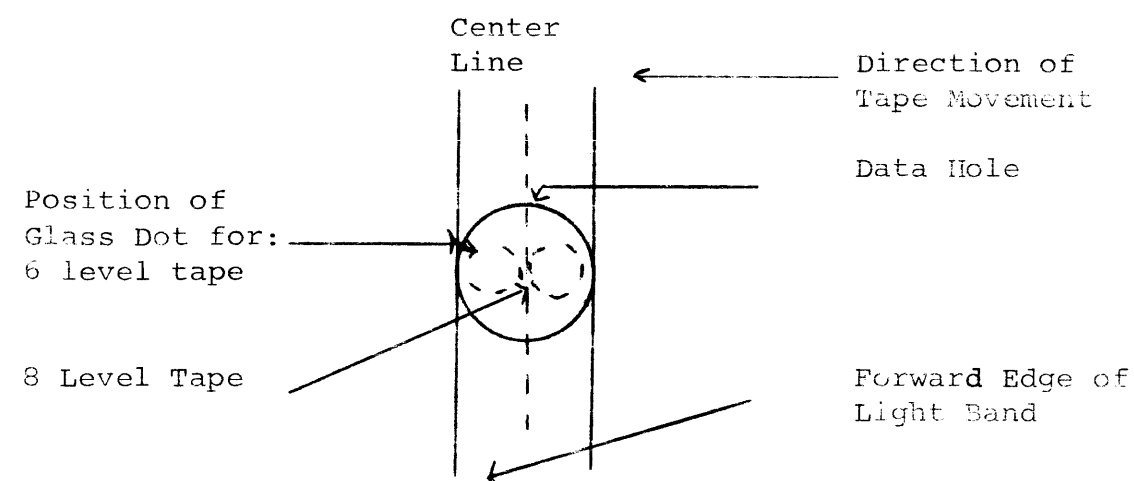


FIG. 1

| SIZE | CODE | NUMBER   | REV |
|------|------|----------|-----|
| A    | SP   | PR68-D-8 | C   |

TITLE PR68D &amp; PR68DA MANUFACTURING TEST PROCEDURE

3. .2

3.5.2 With scope: with the use of a model 453 scope and voltage probes, set the scope as follows:

- set channel 1 to 1.0 volts per CM
- set channel 2 to .2 volts per CM
- set time to .2 ms per CM
- put channel 1 probe on A04T2 (+30 strobe) of the reader logic.
- put channel 2 probe on A04D2 (reader hole 0) of the reader logic.

Put 1's and 0's paper tape loop in reader and put the following reader read program into location 7000 of the computer.

```
7000/7300
      /6016
      /6011
      /5202
      /5200
```

Load and start 7000. If there is no data signal when the program is started, turn pot on G918 until a data pulse should coincide with strobe such that the positive portion of the data pulse should be centered on the negative portion of the strobe. (See figure 2). If waveform is not correct, sprocket wheel is not aligned. Stop machine, loosen sprocket wheel and move until proper position is found. Reference 3.5.1. Align sprocket wheel until this condition is obtained.

3.6 G918 Amplifier Adjust: Load MAINDEC\* into memory (via TTY---not reader). Select program\*\*, using 1's and 0's loop. The object of this test is to select the margins between which the reader reads without error and then reset the pot to a point midway between the upper and lower margins. To do this, start the program and if the reader is running errorless, turn the pot until an error occurs. Reverse direction of the pot until the next error occurs (keeping track of amount of turns between errors) and then reset the pot midway between these errors. If at the start of the program the reader does not read, adjust the pot in one direction until an error occurs and use this point as one of the margins. In either case a minimum 10 turns is required. This is only a preliminary setting.

\* MAINDEC-08-D2HC-PB \*\* PGM 10

| SIZE | CODE | NUMBER   | REV |
|------|------|----------|-----|
| A    | SP   | PR68-D-8 | C   |

TITLE PR68-D & PR68DA MANUFACTURING TEST PROCEDURE

Repeat the above test for program 02 and then 07, using a binary count loop. In these tests keep SR's 02 and 06 = 1 while adjusting pot. Not less than 10 turns is acceptable. After setting the adjustment pot to its direct center, turn it 1½ turns in the clockwise direction. This is to allow for heating of the photocell circuitry.

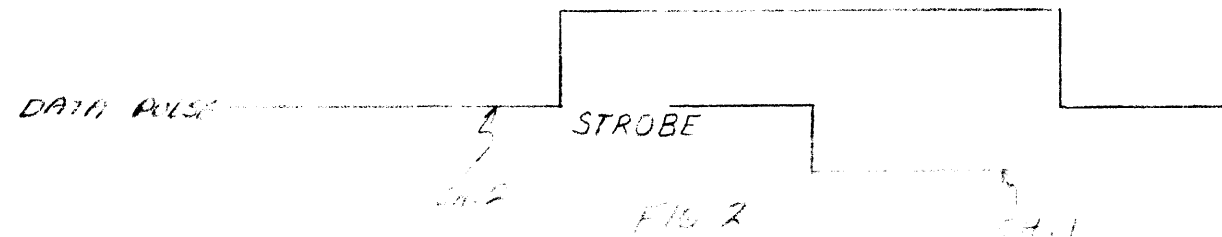
3.7 On line heat test: 50°C/120°F for 30 minutes. Run MAINDEC-08-D2HC-PB tests 2, 7 and 10.

4.0 NTTA READER SELECT SWITCH (PA63 only)

4.1 Put the following reader select and read program into location 7020.

| 7020/7604 | START   | SR Settings   |
|-----------|---------|---------------|
| 6312      | NONE    | = Rdr 00      |
| 7300      | SR11    | = Rdr 01      |
| 6016      | SR10    | = Rdr 02      |
| 6011      | SR10,11 | = Rdr 03 etc. |
| 5224      |         |               |
| 5220      |         |               |

With a tape loop in reader, put SR0 to SR11 = 0 load add and start at 7020. The NTTA lamp in reader 00 should be lit and the reader should not be selected, depress NTTA switch. The NTTA lamp should turn off and the reader should select. By putting any other SR to A 1, the lamp should turn on in reader 00 and it should de-select.



|      |      |          |     |
|------|------|----------|-----|
| SITE | CONF | NUMBER   | REV |
| A    | SP   | PR68-D-8 | C   |



**DIGITAL EQUIPMENT CORPORATION**  
MAYNARD, MASSACHUSETTS

**ENGINEERING SPECIFICATION**

DATE 10/20/70

TITLE PR68-D ACCEPTANCE CRITERIA

REVISIONS

| REV | DESCRIPTION     | CHG NO | ORIG       | DATE   | APPD BY           | DATE   |
|-----|-----------------|--------|------------|--------|-------------------|--------|
| A   | ECO PR68D-00015 | 00015  | JODICE     | 5-3-71 | <i>J. Jodice</i>  | 5/7/71 |
| B   | ECO PR68D-00018 | 00018  | J. GLEESON | 8-72   | <i>J. Gleeson</i> | 8/72   |

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**ENGINEERING SPECIFICATION**



CONTINUATION SHEET

TITLE PR68-D ACCEPTANCE CRITERIA

SCOPE

To define the criteria necessary to accept for shipment the positive bus PR68D typesetting 6 or 8 level paper tape reader.

TEST SOFTWARE

Program - MAINDEC-08-D2HC-PB  
Prints - See master list PR68D  
Paper tape - Yellow oiled

Part # 36-10730-1 (6 level)  
36-10730-2 (8 level)

TEST HARDWARE

Computer - Positive bus PDP-8/L or PDP-8/I  
Controller - PA63  
Punch - PP67D

PROCEDURE

- Complete standard option check list.
- Run MAINDEC-08-D2HC-PB. Using 6 level tape, as follows-  
Test 5 - full speed (SR6=1) 5 minutes  
Test 6 - full speed (SR6=1) 10 minutes  
Test 7 - full speed (SR6=1) 20 minutes
- Repeat using 8 level tape

NOTE - No errors allowed except those caused by dirt, chad, or knotted tape.

SHIPPING SOFTWARE

MAINDEC-08-D2HC-PB  
Prints - All prints listed on PR68D master list.  
Also see accessory list.

SHIPPING HARDWARE

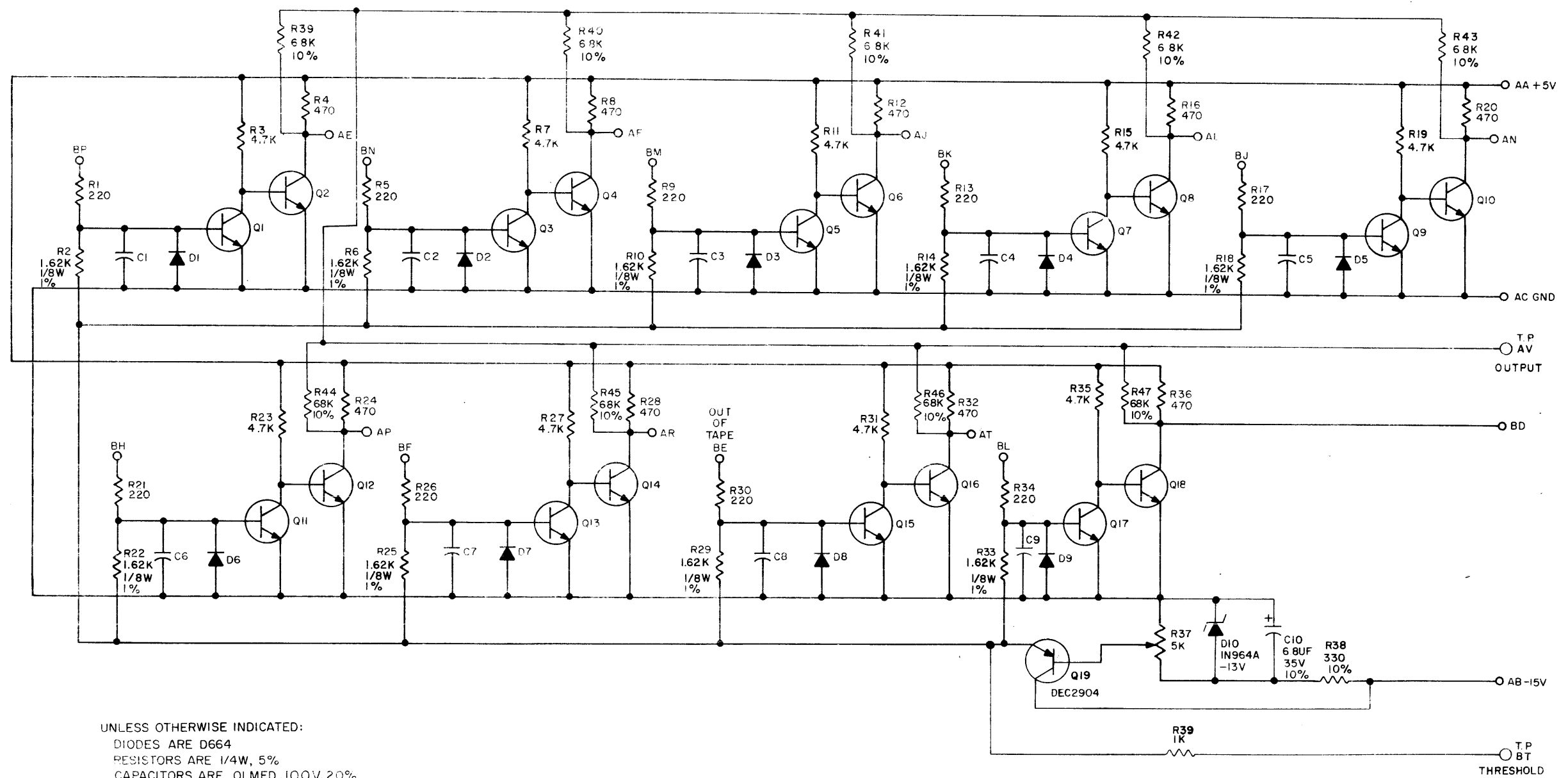
- BC01H-0-0 cable per reader.

|     |               |      |                      |          |      |          |          |
|-----|---------------|------|----------------------|----------|------|----------|----------|
| ENG | George Miller | APPD | <i>George Miller</i> | SIZE     | CODE | NUMBER   | REV      |
|     |               |      |                      | <b>A</b> | SP   | PR68-D-5 | <b>B</b> |

|  |          |      |          |          |
|--|----------|------|----------|----------|
|  | SIZE     | CODE | NUMBER   | REV      |
|  | <b>A</b> | SP   | PR68-D-5 | <b>B</b> |



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UNLESS OTHERWISE INDICATED:  
 DIODES ARE D664  
 RESISTORS ARE 1/4W, 5%  
 CAPACITORS ARE .01 MFD, 100V, 20%  
 TRANSISTORS ARE 2N3646  
 ○ INDICATES TEST POINT

| REV | CHG  | NO | REV |
|-----|------|----|-----|
| A   | 0001 |    |     |
| B   | 0002 |    |     |
|     | 0003 |    |     |

|                   |                  |
|-------------------|------------------|
| DRN<br>R BUTLER   | DATE<br>9/1/69   |
| CHK'D<br>G. W. J. | DATE<br>4/24/69  |
| ENG<br>R. J. J.   | DATE<br>10/14/69 |
| PROJ.             | DATE             |

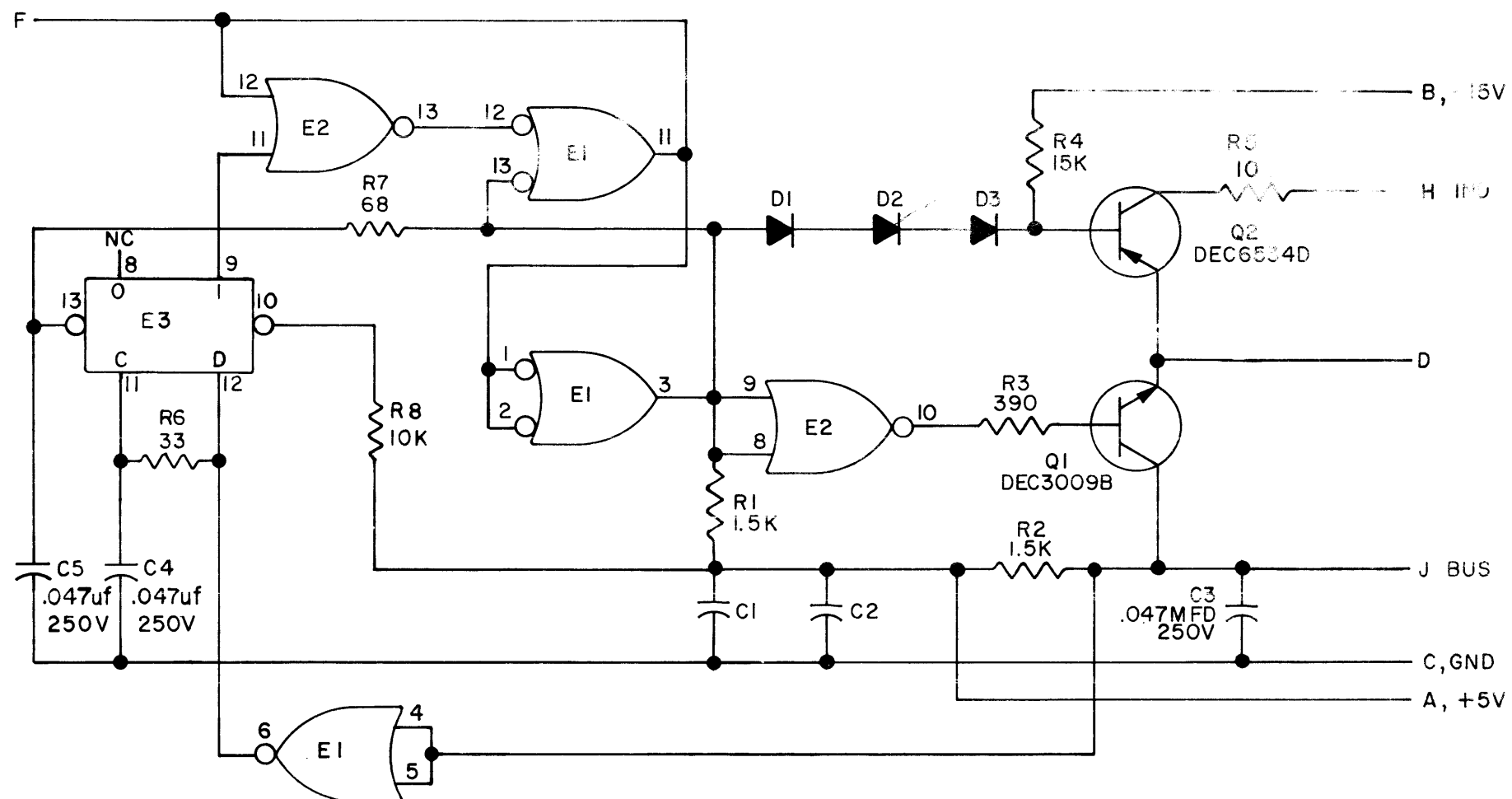
| TRANSISTOR & DIODE CONVERSION CHART |        |             |        |
|-------------------------------------|--------|-------------|--------|
| DEC                                 | EIA    | DEC         | EIA    |
| 2N3646                              | 2N3009 | IN964A -13V | SAME   |
| D664                                | IN3606 | DEC2904     | 2N1132 |

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 EQUIPMENT CORPORATION  
 MAYNARD, MASSACHUSETTS

|                                          |  |           |            |                    |           |
|------------------------------------------|--|-----------|------------|--------------------|-----------|
| TITLE<br>PHOTO TRANSISTOR AMPLIFIER G918 |  | SIZE<br>C | CODE<br>CS | NUMBER<br>G918-0-1 | REV.<br>B |
| PRINTED CIRCUIT REV<br>D                 |  |           |            |                    |           |

REV. B  
 NUMBER G918-0-1  
 SIZE CODE C CS

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UNLESS OTHERWISE INDICATED:  
 CAPACITORS ARE .01MFD, 100V, 20%  
 RESISTORS ARE 1/4W, 5%  
 DIODES ARE D664

E1 IS DEC7400  
 E2 IS DEC7402  
 E3 IS DEC7474  
 PIN 14 ON EACH IC = +5V  
 PIN 7 ON EACH IC = GND

|           |       |         |      |                       |                        |                                     |         |        |  |                    |   |
|-----------|-------|---------|------|-----------------------|------------------------|-------------------------------------|---------|--------|--|--------------------|---|
| REVISIONS | CHK   | CHG NO. | REV. | DRN.<br><i>BUTLER</i> | DATE<br><i>11/4/69</i> | TRANSISTOR & DIODE CONVERSION CHART |         |        |  | TITLE NON-TORN TAP |   |
|           | 00001 | A       |      |                       |                        | D664                                | IN3606  | 5950   |  |                    |   |
|           | 00002 | B       |      |                       |                        | DEC3009B                            | 2N3009B | SIZE   |  | CODE               |   |
|           |       |         |      |                       |                        | DEC6534D                            | MPS6534 | NUMBER |  | REV                |   |
|           |       |         |      |                       |                        | PRINTED CIRCUIT REV.                |         |        |  |                    | B |



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# MASTER DRAWING LIST

| DWG. NO.                      | REV. LFT. | NO. OF SHEETS | TITLE                             |
|-------------------------------|-----------|---------------|-----------------------------------|
| E-UA-PR68-D-0                 | K         | 1             | READER ASSY                       |
| A-PL-PR68-D-0                 | K         | 2             | READER ASSY (PL)                  |
| D-DI-PR68-D-1                 | D         | 2             | DRAWING INDEX                     |
| D-BS-PR68-DA-1                | C         | 1             | POWER & CONTROL SCHEMATIC DIAGRAM |
| B-MU-PR68-D-3                 | D         | 1             | MODULE UTILIZATION                |
| A-PL-PR68-D-3                 | D         | 1             | MODULE COUNT                      |
| K-WL-PR68-D-4                 | C         |               | WIRE LIST                         |
| A-SP-PR68-D-6                 | C         | 6             | ENGINEERING SPECS                 |
| B-AD-7006591-0-0              | B         | 1             | WIRED ASSY                        |
| A-PL-7006591-0-0              | B         | 1             | WIRED ASSY (PL)                   |
| A-SP-PR68-D-8                 | C         | 5             | CHECKOUT PROCEDURE                |
| NOTE: FOR IN HOUSE USE ONLY - |           |               |                                   |
| A-SP-PR68-DA-2                | A         | 2             | ACCEPTANCE CRITERIA               |
| A-AL-PR68-D-7                 | B         | 1             | ACCESSORY LIST                    |

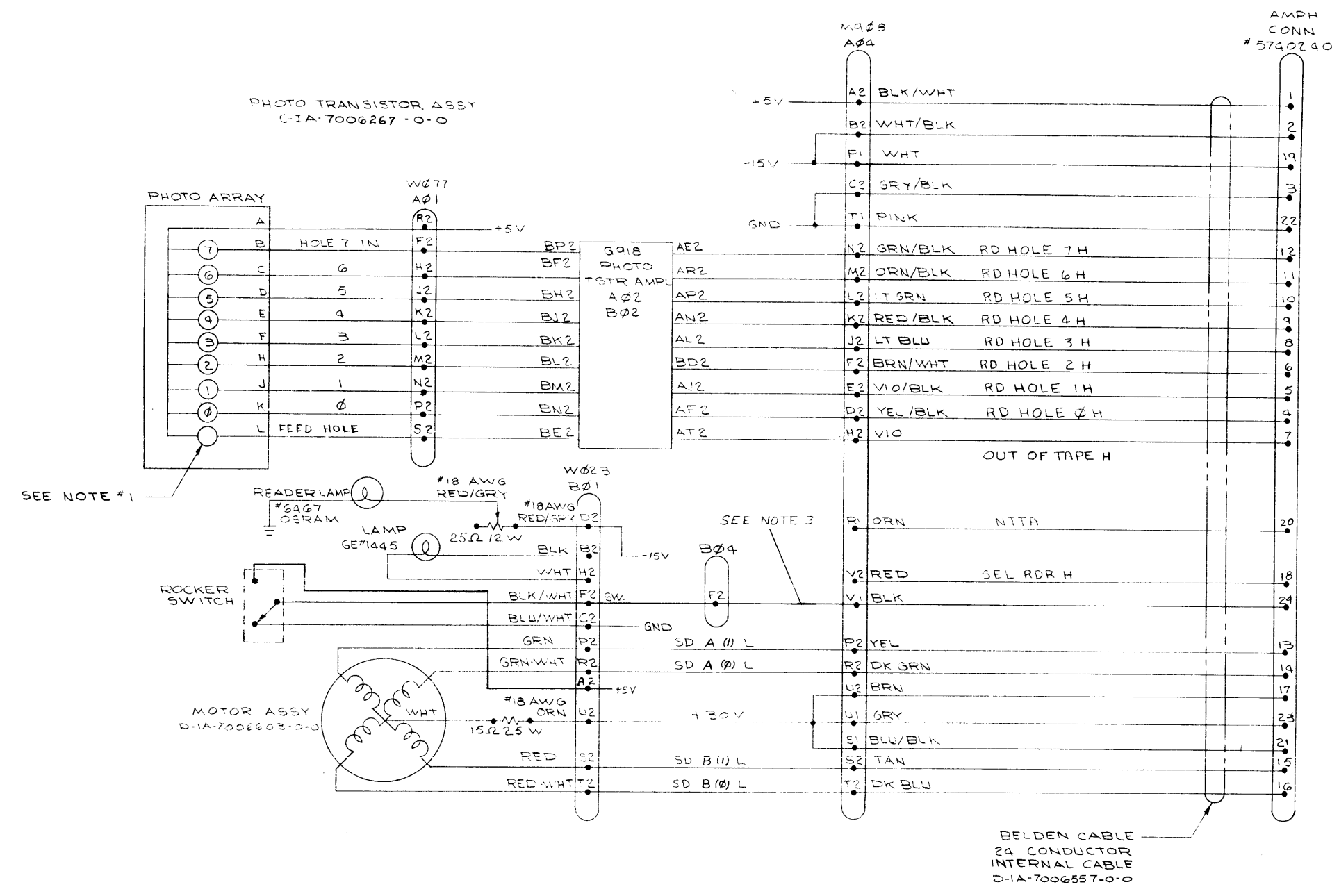
| ADDITIONAL CUSTOMER PRINTS |           |                 |
|----------------------------|-----------|-----------------|
| Drawing Number             | Rev. Let. | Title           |
| C-CS-6918-0-1              | #         | Photo amplifier |
| D-UA-BC01H-0-0             | #         | CABLE CONNECTOR |
| D-CS-M978-0-1              | #         | CONNECTOR CORD  |

| Rev. | Date | Change Number |                                               |
|------|------|---------------|-----------------------------------------------|
|      |      |               | <i>N. Joice</i> 3/22/71<br>Requested by Date  |
|      |      |               | <i>[Signature]</i> 3/22/71<br>Authorized Date |
|      |      |               | REV. 2 of 2 A-ML-PR68-DA                      |

|                  |       |          |        |                    |               |                                                                               |
|------------------|-------|----------|--------|--------------------|---------------|-------------------------------------------------------------------------------|
| <b>REVISIONS</b> |       |          |        | DRN. G. FLANDERS   | DATE 11/10/68 | <b>digital</b> EQUIPMENT CORPORATION<br><small>MAYNARD, MASSACHUSETTS</small> |
| REV.             | DATE  | CHG. NO. | APP'D. | CHK'D.             | DATE          |                                                                               |
| A                | 3/70  | PR68D-2  | B.D.   | <i>[Signature]</i> | 2/26/70       | TITLE<br>PAPER TAPE READER<br>(PR68-DA)                                       |
| B                | 6/70  | PR68D-7  | B.D.   |                    |               |                                                                               |
| C                | 11/70 | PR68D-11 | G.M.   |                    |               |                                                                               |
| D                | 12/70 | PR68D-12 | H.J.   |                    |               |                                                                               |
| E                | 1/71  | PR68D-13 | H.J.   |                    |               |                                                                               |
| F                | 4/71  | PR68D-15 | H.J.   |                    |               |                                                                               |
| H                | 3/72  | PR68D-17 |        |                    |               |                                                                               |
| J                | 5/72  | PR68D-18 |        |                    |               |                                                                               |
| K                | 4/74  | PR68D-19 |        |                    |               |                                                                               |
| L                | 7/73  | PR68D-20 | E.R.   |                    |               |                                                                               |
| M                | 1/74  | PR68D-21 |        |                    |               |                                                                               |
| N                | 2/74  | PR68D-22 |        |                    |               |                                                                               |
| P                | 8/74  | PR68D-23 |        |                    |               |                                                                               |
| FIRST USED ON    |       |          |        | PR68-DA            |               | SIZE CODE NUMBER                                                              |
| SCALE            |       |          |        | A ML               |               | PR68-DA                                                                       |
| SHEET 1 OF 2     |       |          |        | DIST.              |               |                                                                               |

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- NOTES:
1. THIS PHOTO TRANSISTOR USED TO DETECT OUT OF TAPE.
  2. UNLESS SPECIFIED ALL WIRE TO BE #22 AWG STRD TEF INS.
  3. ADD #30 AWG WIRE FROM B04 F2 TO A04 V1 FOR PR68DA ONLY



| REV | CHG | NO          | DATE     | BY          | APP |
|-----|-----|-------------|----------|-------------|-----|
| 1   | EV  | PR68D-00007 | 7-9-70   | B. DOUCETTE |     |
| 2   |     | PR68D-00011 | 11-11-70 | J. JODICE   |     |
| 3   |     | PR68D-00015 | 5-9-71   | J. JODICE   |     |
| 4   |     | PR68D-00017 | 3-20-72  | H. JODICE   |     |
| 5   |     | PR68D-00018 | 8-11-72  | H. JODICE   |     |

FIRST USED ON OPTION/MODEL  
PR68-DA

DO NOT SCALE DRAWING  
UNLESS OTHERWISE SPECIFIED  
DIMENSION IN INCHES  
TOLERANCES  
DECIMALS FRACTIONS ANGLES  
±.005 ±1/64 ±0°30'  
FINAL SURFACE QUALITY  
REMOVE BURRS AND BREAK SHARP CORNERS

| QTY.     | DESCRIPTION | PART NO.                                                | ITEM NO. |
|----------|-------------|---------------------------------------------------------|----------|
|          | PARTS LIST  |                                                         |          |
| DRN      | DATE        | digital EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS |          |
| CHK'D    | DATE        | TITLE                                                   |          |
| ENG      | DATE        | POWER & CONTROL<br>SCHEMATIC DIAGRAM                    |          |
| PROLENG  | DATE        | NEXT HIGHER ASSY                                        |          |
| PRD      | DATE        | A-ML-PR68-D                                             |          |
| SCALE    |             | SIZE/CODE                                               | REV.     |
| SHEET OF |             | DBS PR68-DA-1                                           | E        |

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# MASTER DRAWING LIST

| DWG. NO.         | REV. LET. | NO. OF SHEETS | TITLE                         |
|------------------|-----------|---------------|-------------------------------|
| D-DI-PP67-C-2    | C         | 1             | DRAWING INDEX LIST PP67-C     |
| D-UA-PP67-C-0    | E         | 2             | PAPER TAPE PUNCH PP67-C       |
| A-PL-PP67-C-0    | E         | 1             | PAPER TAPE PUNCH PP67-C (PL)  |
| D-CS-PP67-C-1    | C         | 1             | PUNCH CONTROL                 |
| D-AD-7006385-0-0 | D         | 2             | PUNCH CONTROL PP67-C          |
| A-PL-7006385-0-0 | D         | 3             | PUNCH CONTROL PP67-C (PL)     |
| A-SP-PP67-C-4    |           |               | ADJUSTMENT PROCEDURE PP67-C/D |
| A-SP-PP67-C-6    |           | 5             | ADJ. PROC FOR USE ON PAG11-P  |
| A-AL-PP67-C-3    | A         | 1             | ACCESSORY LIST                |
| A-SP-PP67-C-5    | B         | 4             | ACCEPTANCE CRITERIA PP67-C/D  |

|           |       |          |        |                             |              |                                                                                                                                                      |
|-----------|-------|----------|--------|-----------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| REVISIONS |       |          |        | DRN. G. MARINI              | DATE 6/11/69 | <div style="font-size: 2em; font-weight: bold; letter-spacing: 0.5em;">digital</div> EQUIPMENT CORPORATION<br><small>MAINTARD, MASSACHUSETTS</small> |
| REV.      | DATE  | CHG. NO. | APP'D. | CHK'D. J. MADDEN            | DATE 16/69   |                                                                                                                                                      |
| A         | 7/69  | 00003    | B.D.   | ENG.                        | DATE         |                                                                                                                                                      |
| B         | 11/70 | 00005    | H.J.   | PROJ. ENG.                  | DATE         |                                                                                                                                                      |
| C         | 4/71  | 00007    | H.J.   | PROD.                       | DATE         |                                                                                                                                                      |
| D         | 2/72  | 00008    | H.J.   | FIRST USED ON               |              |                                                                                                                                                      |
| E         | 8/72  | 00009    | H.J.   | SIZE CODE NUMBER REV        |              |                                                                                                                                                      |
| F         | 2/74  | 00012    | H.J.   | SCALE <i>1/4" = 1"</i> A ML |              |                                                                                                                                                      |
| H         |       |          |        | SHEET 1 OF 2 DIST.          |              |                                                                                                                                                      |

## ADDITIONAL CUSTOMER PRINTS

| Drawing Number | Rev. Let. | Title              |
|----------------|-----------|--------------------|
| B-CS-G915-0-1  | #         | PUNCH Control G915 |
| D-UA-BCOIF-0-0 | #         | CABLE              |
| B-CS-M979-0-0  | #         | CABLE CONNECTOR    |

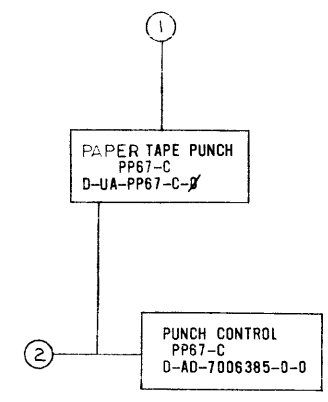
| Rev. | Date | Change Number |                                                            |
|------|------|---------------|------------------------------------------------------------|
|      |      |               | <i>H. Justice</i> <i>3/22/71</i><br>Requested by     Date  |
|      |      |               | <i>H. Justice</i> <i>3/22/71</i><br>Authorized by     Date |



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2 - 0-298 ID 2

| FIND NO | MECHANICAL                                                                                                                         |                                                                                                  |  | DEPT USAGE |      |     | FIND NO | ELECTRICAL                                                                                                                                   |                                                                                                  |      | DEPT USAGE |     |  |
|---------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|--|------------|------|-----|---------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|------|------------|-----|--|
|         | DESCRIPTION                                                                                                                        | PART NO                                                                                          |  | PROD       | CUST | F/C |         | DESCRIPTION                                                                                                                                  | PART NO                                                                                          | PROD | CUST       | F/C |  |
| 1       | PAPER TAPE PUNCH PP67-C<br>PAPER TAPE PUNCH PP67-C (PL)<br>COVER REWORK<br>SWITCH LABEL<br>CABLE PUNCH PP67-C                      | D-UA-PP67-C-Ø<br>A-PL-PP67-C-Ø<br>C-MD-7405200-0-0<br>A-SS-7405272-0-0<br>D-IA-7006345-0-0       |  |            |      |     | 1       | PAPER TAPE PUNCH PP67-C<br>PUNCH CONTROL<br>ACCESSORY LIST<br>ADJUSTMENT PROCEDURE<br>ACCEPTANCE PROCEDURE<br>ADJ PROC FOR USE<br>ON FA611-F | A-ML-PP67-C<br>D-CS-PP67-C-1<br>A-AL-PP67-C-3<br>A-SR-PP67-C-4<br>A-SP-PP67-C-5<br>A-SP-PP67-C-6 |      |            |     |  |
| 2       | PUNCH CONTROL PP67-C<br>PUNCH CONTROL PP67-C (PL)<br>BRACKET MTG PUNCH CONTROL<br>BRACKET MTG 18 PIN BLOCK<br>SHIELD PUNCH CONTROL | D-AD-7006385-0-0<br>A-PL-7006385-0-0<br>D-MD-7407346-0-0<br>B-MD-7407364-0-0<br>C-MD-7407366-0-0 |  |            |      |     | 2       | PUNCH CONTROL PP67-C<br>PUNCH CONTROL PP67-C                                                                                                 | D-AD-7006385-0-0<br>A-PL-7006385-0-0                                                             |      |            |     |  |



ASSY. DWG. NO. D-UA-PP67-C-Ø

| REV | CHANGE NO | DATE   | BY       | APP'D |
|-----|-----------|--------|----------|-------|
| A   | 1         | 7/1/69 | J. J. J. |       |
| B   | 2         | 8/1/69 | J. J. J. |       |
| C   | 3         | 8/1/69 | J. J. J. |       |
| D   | 4         | 8/1/69 | J. J. J. |       |
| E   | 5         | 8/1/69 | J. J. J. |       |

FIRST USED ON OPTION / MODEL  
PP67-C

DO NOT SCALE DRAWING  
UNLESS OTHERWISE SPECIFIED  
DIMENSION IN INCHES  
TOLERANCES  
DECIMALS FRACTIONS ANGLES  
± .005 ± 1/64 ± 0°30'  
FINAL SURFACE QUALITY  
REMOVE BURRS AND BREAK SHARP CORNERS  
MATERIAL  
FINISH

|                            |                    |                                                                |          |
|----------------------------|--------------------|----------------------------------------------------------------|----------|
| QTY.                       | DESCRIPTION        | PART NO.                                                       | ITEM NO. |
| PARTS LIST                 |                    |                                                                |          |
| DRN. <i>J. J. J.</i>       | DATE <i>8/1/69</i> | <b>digital</b> EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS |          |
| CHK'D. <i>J. J. J.</i>     | DATE <i>8/1/69</i> |                                                                |          |
| ENG. <i>J. J. J.</i>       | DATE <i>8/1/69</i> | TITLE                                                          |          |
| PROJ. ENG. <i>J. J. J.</i> | DATE <i>8/1/69</i> | DRAWING INDEX                                                  |          |
| PROD. <i>J. J. J.</i>      | DATE <i>8/1/69</i> | LIS PP67-C                                                     |          |
| NEXT HIGHER ASSY           |                    | SIZE CODE                                                      | N ER     |
| SCALE <i>++</i>            |                    | DDI PP67-C-2                                                   | REV. C   |
| SHEET 1 OF 1               |                    | DIST. G                                                        |          |

REV C  
PP67-C-2

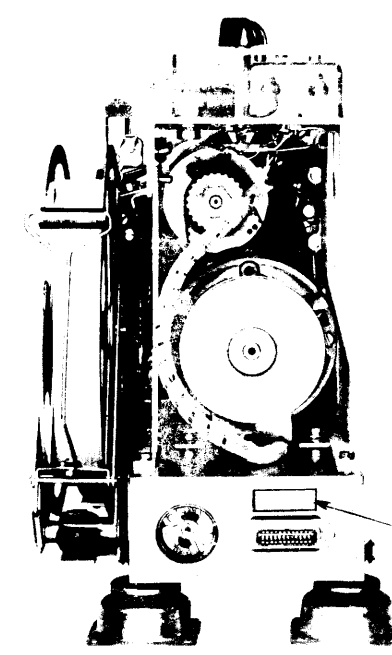
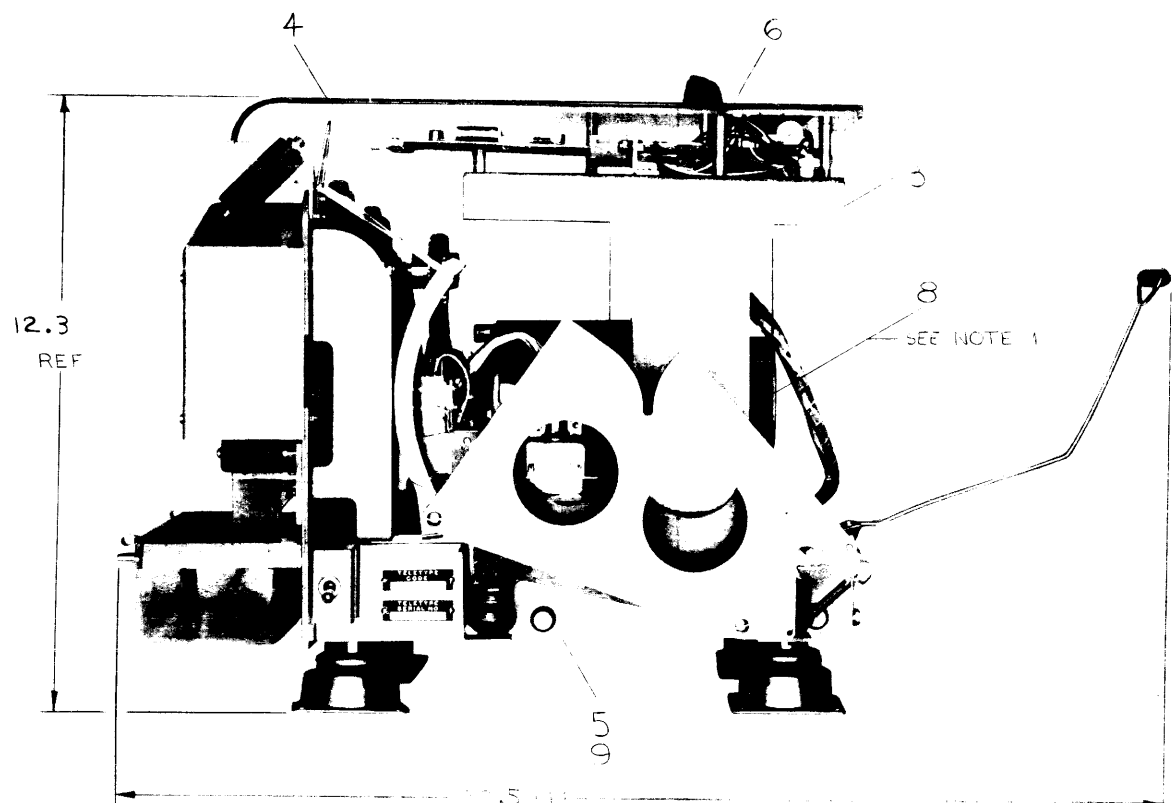
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LEGEND

| NUMBER  | VARIATION                 |
|---------|---------------------------|
| PP67 C  | 60HZ - 8LEVEL - POS PUNCH |
| PP67 CA | 50HZ 8LEVEL POS PUNCH     |
| PP67 D  | 60HZ - 8LEVEL - POS PUNCH |
| PP67 DA | 50HZ - 8LEVEL - POS PUNCH |

NOTES:

- 1 MOTOR ON BRPE PUNCH SHOULD BE CHANGED TO CORRESPOND TO VARIATIONS ON PARTS LIST FOR ANY 50HZ OPERATION. PART 49 ONLY FOR 50HZ OPERATION.
- 2 SPRAY MOUNT TYPING COLOR CODE ON SHEET METAL NEAR END OF EACH PUNCH PIN. DO NOT SPRAY PINS.



| REV. | CHANGE NO.  | DESCRIPTION |
|------|-------------|-------------|
| A    | PP67C-00003 | DOUCETTE    |
| B    | PP67C-00004 | DOUCETTE    |
| C    | PP67C-00005 | DOUCETTE    |
| D    | PP67C-00006 | DOUCETTE    |
| E    | PP67C-00012 | DOUCETTE    |

TOLERANCES

|           |        |
|-----------|--------|
| DECIMALS  | ± .005 |
| FRACTIONS | ± .002 |
| ANGLES    | ± .1   |

|              |         |           |      |
|--------------|---------|-----------|------|
| DESIGNED BY  | CHKD BY | DATE      | REV  |
| ENGINEER     | DATE    | DATE      | DATE |
| MATERIAL     |         | FINISH    |      |
| SHEET 1 OF 2 |         | DUAL PP67 |      |

REV. E  
DUAL PP67-C-Ø

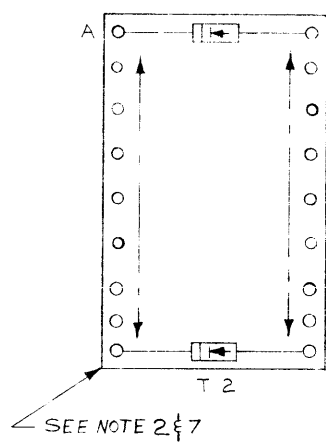
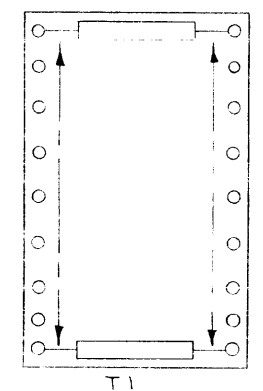
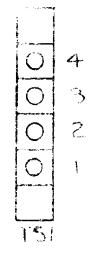
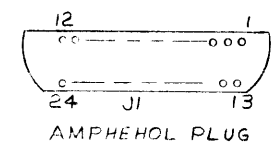
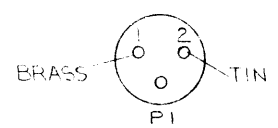
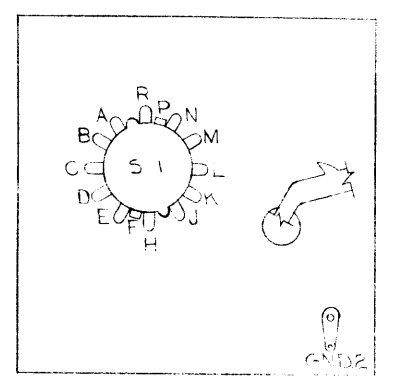
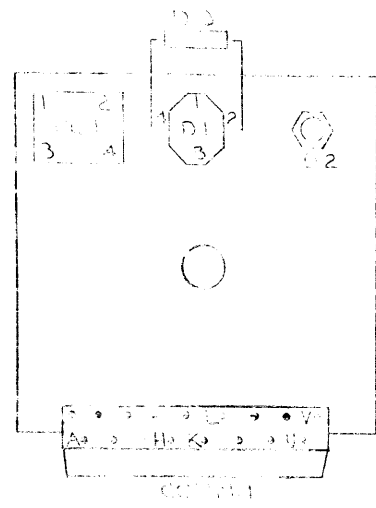
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PP67-C-2

WIRE TABLE

| ITEM NO | DESCRIPTION | CONNECTIONS |                 | EQUIP FROM |           | EQUIP TO | LENGTH |
|---------|-------------|-------------|-----------------|------------|-----------|----------|--------|
|         |             | FROM        | TO              | WITH ITEM  | WITH ITEM |          |        |
| ** 18   | RED         | FL-4        | TSI-2           |            |           | 2        |        |
| ** 18   | RED         | DI-4        | TSI-3           |            |           | 2        |        |
| ** 18   | WHT         | FLI-1       | PI-1(BRASS)     |            |           | 2        |        |
| ** 18   | BLK         | FLI-2       | PI-2(TIN)       |            |           | 2        |        |
| ** 22   | RED         | SI-A-B      | J1-13           |            | *A,1      |          |        |
| ** 22   | ORN         | SI-L        | J1-23           |            | *A,1      |          |        |
| ** 22   | BLU         | CONNI-UW    | J1-18           |            | *A,1      |          |        |
| ** 22   | YEL         | SI-P        | J1-21           |            | *A,1      |          |        |
| ** 22   | BLK         | GND 2       | J1-11           |            | *A,1      |          |        |
| ** 18   | BRN         | CONNI-KL    | T2-A            |            | *A        |          |        |
| ** 22   | WHT         | SI-J        | LOW-TAPE SWITCH |            | *A        |          |        |

- \* LETTER DESIGNATION "A" INDICATES WIRE IS TO BE SOLDERED.
- \*\* ALL ITEMS IN THE "FROM" COLUMN HAVE BEEN PRE ASSEMBLED (SOLDERED) ON ASSY # D-AD-7006385-0-0 SH # 2. THE ONLY CONNECTIONS THAT HAVE TO BE MADE ARE LISTED IN "TO" COLUMN AND "EQUIP TO WITH ITEM" COLUMN.
- 1. NOTE: REMOVE WHT WIRE FROM T2-A TO J1-18 ON PURCHASED PUNCH BRPE-18.
- 2. NOTE: POLARITY OF DIODE ON T2.
- 3. NOTE: CONNECTOR J1, PINS 10, 14, 15, 16, 18 & 19 ARE BUSSED TOGETHER USING AWG # 22 WIRE.
- 4. NOTE: REMOVE YELLOW WIRE FROM J1-21 TO CENTER ARM OF OUT-OF-TAPE SWITCH OF PURCHASED PUNCH, AND RERUN THIS WIRE FROM CENTER ARM OF OUT-OF-TAPE SWITCH TO SI-J.
- 5. NOTE: J1, P1, T1, T2, TSI COMPONENTS ARE LOCATED ON PUNCH ASSY (BRPE).
- 6. NOTE: ALL WIRES GOING TO J1 AMPHENOL PLUG SHOULD HAVE - INSULATORS WHEREVER POSSIBLE.
- 7. NOTE: REPLACE NINE (9) DIODES ON BOTTOM OF ALL BRPE PUNCHES USED FOR POSITIVE LOGIC (PP67C & D) WITH IN91 DIODES. PART # 1101515. THE IN91'S ARE MOUNTED IN THE REVERSE - POLARITY OF ORIGINAL PURCHASED ARRANGMENT.



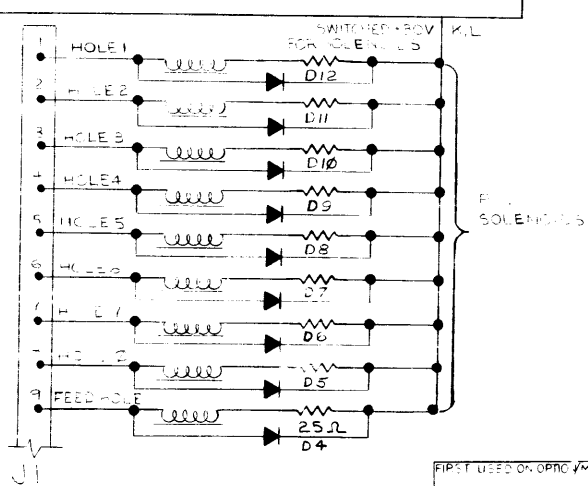
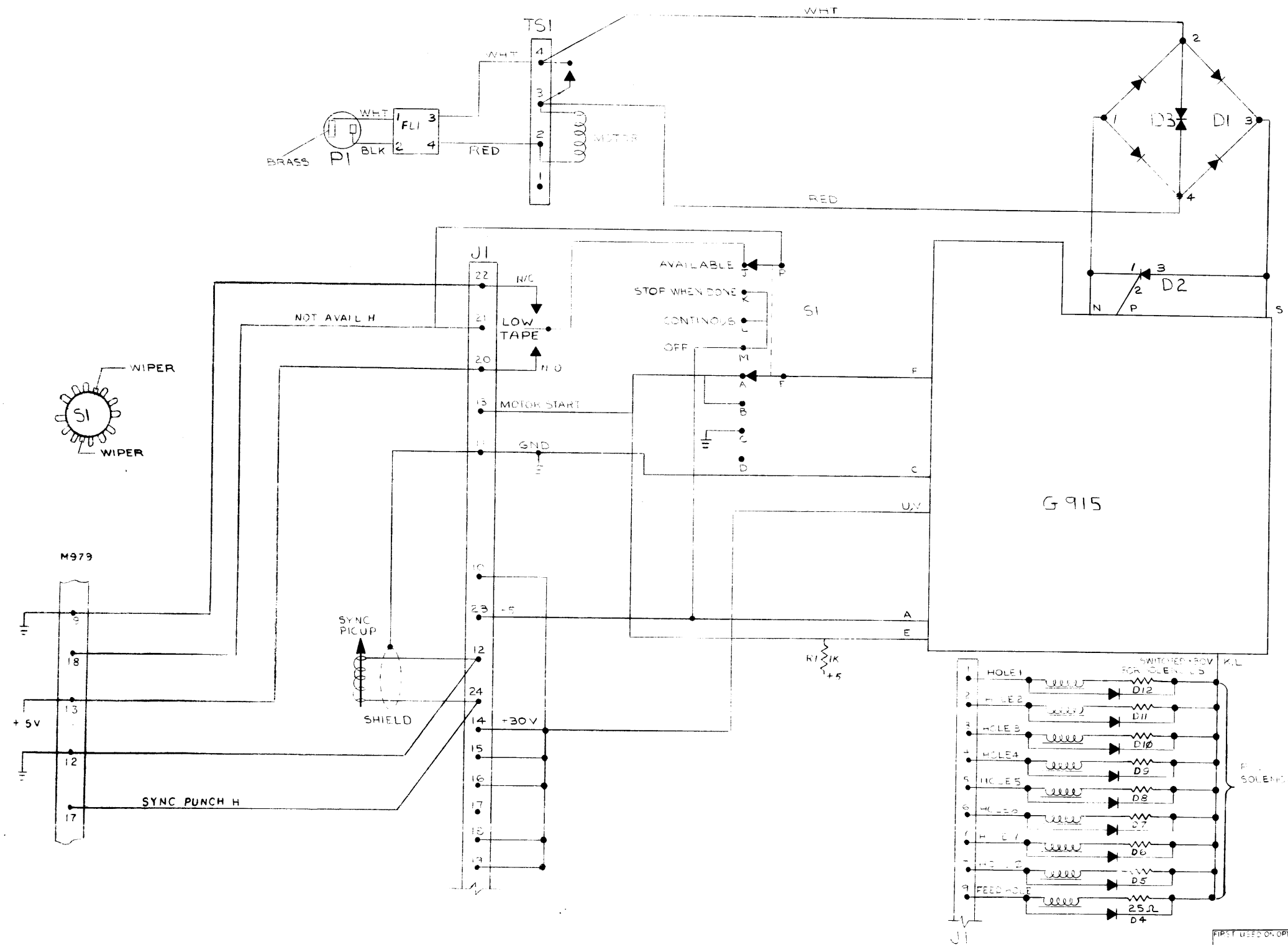
|            |     |
|------------|-----|
| REVISIONS  | REV |
| CHANGE NO. |     |
| CHK        |     |

|                                                              |            |             |                                                         |          |
|--------------------------------------------------------------|------------|-------------|---------------------------------------------------------|----------|
| FIRST USED ON OPTION/MODEL<br>PP67-C                         | QTY.       | DESCRIPTION | PART NO.                                                | ITEM NO. |
| PARTS LIST                                                   |            |             |                                                         |          |
| UNLESS OTHERWISE SPECIFIED                                   | DRN        | DATE        | digital EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS |          |
| DIMENSION IN INCHES                                          | CHKD       | DATE        | TITLE                                                   |          |
| TOLERANCES                                                   | ENG        | DATE        | PAPER TAPE                                              |          |
| DECIMALS FRACTIONS ANGLES                                    | PROJ. ENG. | DATE        | PUNCH                                                   |          |
| = .005 ± 1/64 = 0°30'                                        | PROD.      | DATE        | PP67-                                                   |          |
| FINAL SURFACE QUALITY / REMOVE BURRS AND BREAK SHARP CORNERS | MATERIAL   | DATE        | D-UA-PP67-C                                             |          |
|                                                              | FINISH     | DATE        | SCALE                                                   |          |
|                                                              |            |             | SHEET 2 OF 2                                            |          |
|                                                              |            |             | DIA PP67-C 0 E                                          |          |
|                                                              |            |             | DIST. G                                                 |          |



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REV. 1 1-2-69 CS D



|            |                              |                 |
|------------|------------------------------|-----------------|
| R1         | RESISTOR 1K, 1/4W, 5%        | 13 00 365       |
| D4THRU D12 | RECTIFIER 1N91               | 1101515         |
| PARTS LIST |                              | A-PL7-00385-U-0 |
| FL1        | LINE FILTER *NF 1080-1-CD    | 1201212         |
| PI         | TERM STRIP (4 TERM)          | (ON PUNCH)      |
| PI         | AC PLUG                      | (ON PUNCH)      |
| J1         | 24PIN AMPH I BLU RIBBON      | (ON PUNCH)      |
| S1         | SWITCH T206 CTS CORP         | 1203374         |
| D3         | THYRECTOR 6R5-205 PA-B4      | 1100106         |
| D2         | RECTIFIER *C20-B-SCR         | 1101820         |
| D1         | DIODE PACK MDA952-5 MOTOROLA | 1105280         |
|            | DESCRIPTION                  | PART NO         |

REVISIONS  
CHK CHG NO INT  
DATE  
BY

DRN: M... DATE: 4/2/69  
CHK: M... DATE: 5-6-69  
ENG: J... DATE: 8/1/69  
PRD: J... DATE: 8/1/69

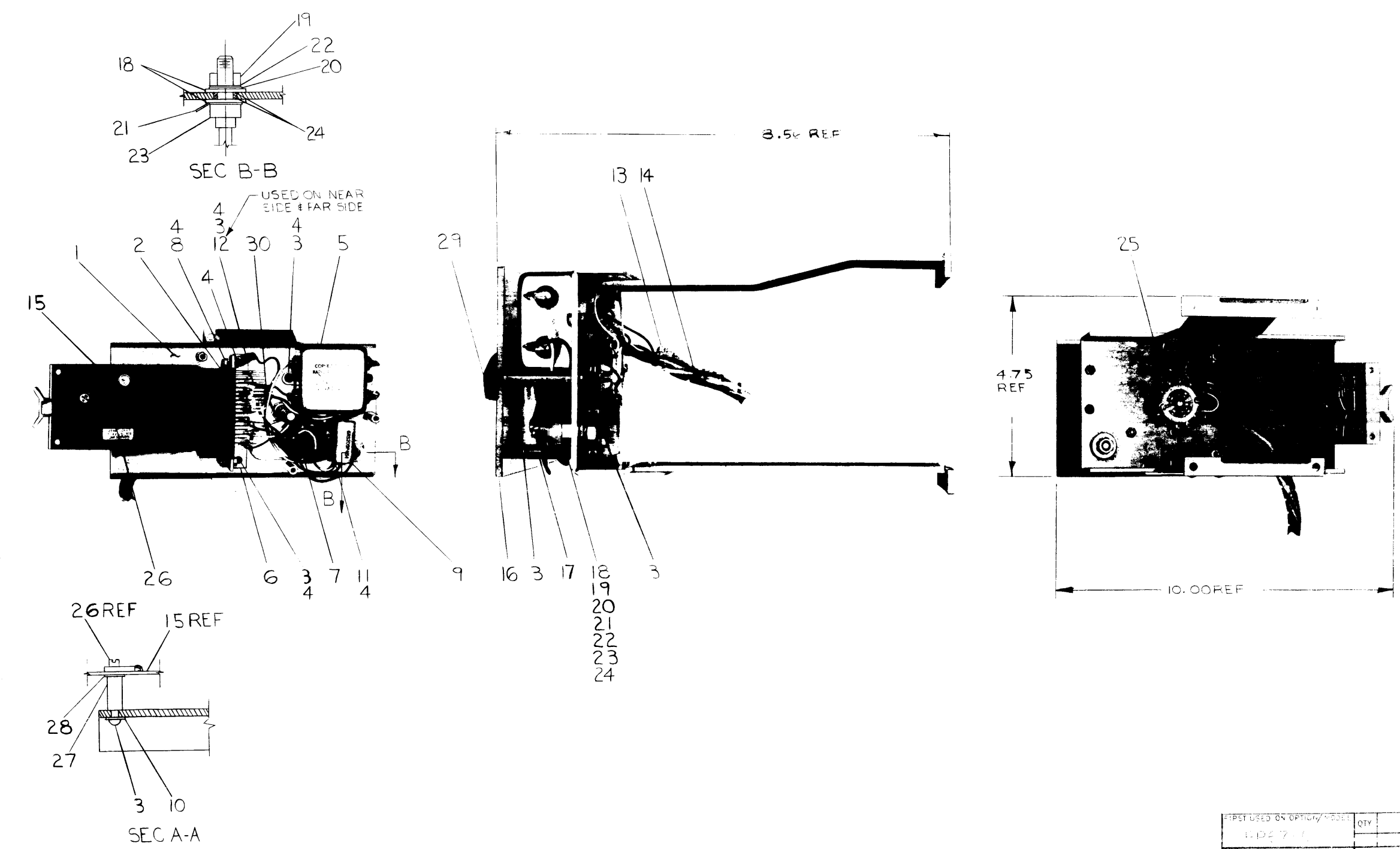
TRANSISTOR & DIODE CONVERSION CHART  
DEC EIA DEC EIA  
digital PUNCH CONTROL  
EQUIPMENT CORPORATION  
MAYNARD, MASSACHUSETTS  
SIZE D CODE CS NUMBER PP67-C1  
PRINTED CIRCUIT REV.

REV. 1  
NUMBER  
PP67-C1

Pink

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NOTE  
1. SCR, D2, SHOULD BE MOUNTED SUCH THAT THE ANODE, PIN 3, IS POSITIONED TOWARD THE INSIDE OF THE ASSEMBLY.



| REV. | CHANGE NO.  | DESCRIPTION |
|------|-------------|-------------|
| A    | PP67C-00001 | B. DOUCETTE |
| B    | PP67C-00005 | B. DOUCETTE |
| C    | PP67C-00008 | H. JODICE   |
| D    | PP67C-00009 | H. JODICE   |

UNLESS OTHERWISE SPECIFIED  
DIMENSION IN INCHES  
TOLERANCES  
XXX .0005  
XX .002  
X .01

| ITEM NO. | PARTS LIST | DESCRIPTION | QTY | DATE   | BY     |
|----------|------------|-------------|-----|--------|--------|
| 1        | PP67-C     | CONTROL     | 1   | 5/1/70 | JODICE |

digital EQUIPMENT CORPORATION  
TITLE: CONTROL (PP67-C)  
SCALE: 1:1  
SHEET: 1 OF 2

SIZE CODE  
D U A 7006385-0-0

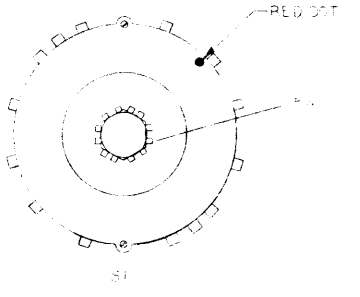
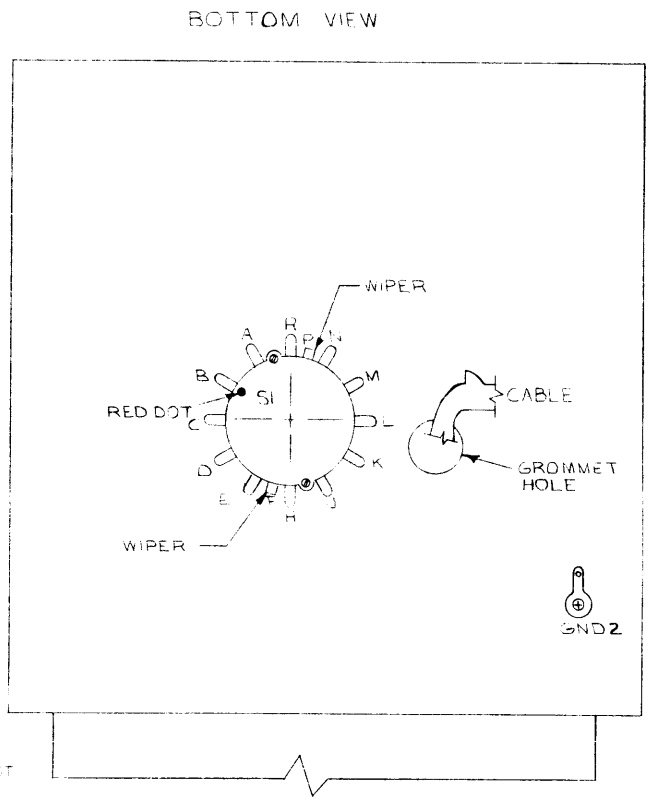
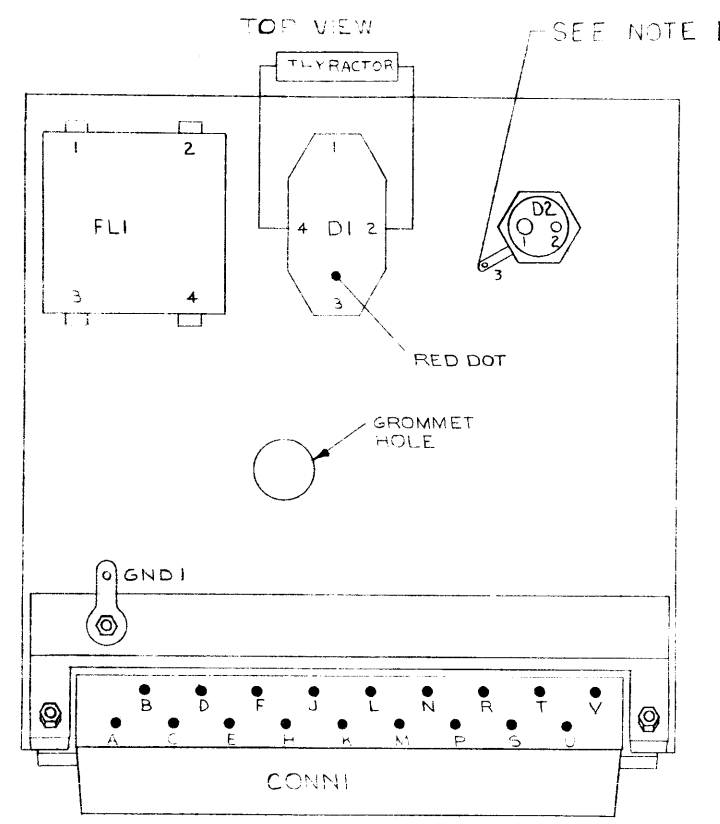
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D 0-0-0-669900-0 2

WIRE TABLE

| ITEM NO. | WIRE AWG | COLOR     | CONNECTIONS |         | EQUIP FROM | EQUIP TO | LENGTH   |
|----------|----------|-----------|-------------|---------|------------|----------|----------|
|          |          |           | FROM        | TO      |            |          |          |
| 38       | 18       | WHT       | FLI-1       | ---     | A          | ---      | 31"      |
| 38       | 18       | BLK       | FLI-2       | ---     | A          | ---      | 31"      |
| 42       | 18       | WHT       | FLI-3       | DI-2    | A          | A        | 5"       |
| 43       | 18       | WHT       | DI-2        | TSI-4   | A          | ---      | 31"      |
| 43       | 18       | RED       | FLI-4       | ---     | A          | ---      | 31"      |
| 40       | 18       | GRN       | DI-1        | D2-1    | A          | A        | 2"       |
| 40       | 18       | GRN       | DI-1        | CONNI-N | A          | TERMI    | 4"       |
| * 33     | 18       | BLK       | GND2        | ---     | A          | ---      | 38"      |
| 41       | 18       | YEL       | DI-3        | CONNI-S | A          | TERMI    | 3"       |
| 39       | 18       | RED       | DI-4        | ---     | A          | ---      | 31"      |
| * 34     | 22       | YEL       | SI-F        | ---     | A          | ---      | 31"      |
| 40       | 18       | GRN       | D2-2        | CONNI-P | A          | TERMI    | 5"       |
| 41       | 18       | YEL       | DI-3        | D2-3    | A          | A        | 4"       |
| 35       | 22       | GRN       | SI-M        | CONNI-A | A          | TERMI    | 4"       |
| 9        |          | THYRACTOR | DI-4        | DI-2    | A          | A        | ---      |
| 9        |          |           | DI-2        | D2-2    | A          | A        | ---      |
| * 33     | 22       | BLK       | CONNI-C     | GND-1   | TERMI      | A        | 2 1/2"   |
| * 35     | 22       | ORN       | SI-L        | ---     | A          | ---      | 31"      |
| 37       | 22       | WHT       | CONNI-F     | SI-F    | B          | A        | 2"       |
| 37       | 22       | WHT       | SI-J        | ---     | A          | ---      | 31"      |
| 32       | 18       | BRN       | CONNI-K     | CONNI-L | A          | A        | 2 JUMPER |
| 36       | 22       | BLU       | CONNI-U     | CONNI-V | B          | B        | 2"       |
| 31       | 22       | BUSS      | SI-A        | SI-B    | A          | A        | 1"       |
| 33       | 22       | BLK       | SI-C        | GND-2   | A          | A        | 3 1/2"   |
| * 32     | 18       | BRN       | CONNI-K     | ---     | ---        | A        | 31"      |
| * 37     | 22       | WHT       | CONNI-E     | SI-B    | TERMI      | A        | 5"       |
| * 36     | 22       | BLUE      | CONNI-U     | ---     | ---        | ---      | 31"      |
| 33       | 22       | BUSS      | SI-K        | SI-L    | ---        | ---      | 1"       |
| 33       | 22       | BUSS      | SI-L        | SI-M    | ---        | ---      | 1"       |
| * 31     | 22       | RED       | SI-A        | ---     | A          | ---      | 31"      |

LETTER DESIGNATION 'A' INDICATES WIRE IS TO BE SOLDERED PER ABOVE TABLE  
 \* CUT WIRE 3/16" LONG FROM SOLDERED CONNECTION  
 \*\* CUT WIRE 1/4" LONG FROM SOLDERED CONNECTION  
 LETTER 'B' INDICATES WIRE TO BE WIRE-WRAPPED



NOTE:  
 1. START WIRING INSTRUCTIONS:  
 HOLE SWITCH SHANK UP WITH RED DOT TO THE RIGHT. TURN SHANK FULLY COUNTERCLOCKWISE. INSERT STOP RING INTO SLOT #4.

REVISIONS  
 CHANGE NO. REV

|                                                             |        |                                   |                     |                                                                                                                  |
|-------------------------------------------------------------|--------|-----------------------------------|---------------------|------------------------------------------------------------------------------------------------------------------|
| FIRST USED ON OPTIC/VALVE<br>PF67-C                         | QTY.   | DESCRIPTION                       | PART NO.            | ITEM NO.                                                                                                         |
| UNLESS OTHERWISE SPECIFIED                                  |        |                                   |                     |                                                                                                                  |
| UNLESS OTHERWISE SPECIFIED                                  |        | DRN: <i>[Signature]</i>           | DATE: <i>4/1/69</i> | PARTS LIST<br><b>digital</b> EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS<br>TITLE<br>PUNCH CONTROL<br>PF67-C |
| DIMENSION IN INCHES                                         |        | CHK'D: <i>[Signature]</i>         | DATE: <i>5-6-69</i> |                                                                                                                  |
| TOLERANCES                                                  |        | ENG: <i>[Signature]</i>           | DATE: <i>4/1/69</i> |                                                                                                                  |
| DECIMALS FRACTIONS ANGLES                                   |        | PROJ. ENG: <i>[Signature]</i>     | DATE: <i>2/2/69</i> |                                                                                                                  |
| ± .005 ± 1/64 ± 0°30'                                       |        | PROD: <i>[Signature]</i>          | DATE: <i>4/1/69</i> |                                                                                                                  |
| FINAL SURFACE QUALITY: REMOVE BURRS AND BREAK SHARP CORNERS |        | NEXT HIGHER ASSY<br>D-UA-PF67-C-0 |                     | SIZE CODE<br>D1AD                                                                                                |
| MATERIAL                                                    | FINISH |                                   | SCALE: <i>10:1</i>  | NUMBER<br>7006385-0-0                                                                                            |
| SHEET 2 OF 2                                                |        | DIST: <i>G</i>                    |                     | REV<br>D                                                                                                         |

REV D  
 NUMBER 7006385-0-0  
 SIZE CODE D1AD

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

MADE BY G. MARINI  
 DATE 4/28/69  
 ENG *W. Marini*  
 DATE *5/15/69*  
 CHECKED D. HEALY  
 DATE 4/29/69  
 PROD *R.D. for H. B. ...*  
 DATE *4/17/69*  
 SECTION 1  
 ISSUED SECT. 1

| ITEM NO. | DWG NO. / PART NO. | DESCRIPTION                                | QUANTITY / VARIATION |
|----------|--------------------|--------------------------------------------|----------------------|
| 1        | D-MD-7407346       | BRACKET MTG PUNCH CONTROL                  | 1                    |
| 2        | 1202625            | 18 PIN CONN BLOCK #1712-18PCC SYLVANIA     | 1                    |
| 3        | 9006022-1          | SCR PHL HD PAN 6-32 x 3/8 SST              | 9                    |
| 4        | 9006560            | KEPS HEX NUT 6-32                          | 10                   |
| 5        | 10C1212            | LINE FILTER, #NF10280-1 CORNELL DUB        | 1                    |
| 6        | B-MD-7407364-0-0   | BRKT, MTG 18 PIN BLOCK                     | 1                    |
| 7        | 11C5280            | DIODE PACK #MDA952-5 MOTOROLA              | 1                    |
| 8        | 9006024-1          | SCR PH HD PAN 6-32 x 1/2 SST               | 2                    |
| 9        | 1100106            | THYRECTOR #6RS20SP4B4, G.E.                | 1                    |
| 10       | 9007669            | WASH INT TOOTH LOCK #6                     | 1                    |
| 11       | 9006029-1          | SCR, PH HD PAN 6-32 x 1" SST               | 2                    |
| 12       | 9006761            | TERMINAL #2104-06-00 SHAKEPROOF            | 2                    |
| 13       | 9007031            | TIEWRAP #SST-1B PANDUIT                    | A/R                  |
| 14       | 9107240            | SPIRAL WRAP 1/4 ID                         | A/R                  |
| 15       | 6-15               | PUNCH CONTROL G915                         | 1                    |
| 16       | C-MD-7407364-0-0   | FIELD, PUNCH CONTROL                       | 1                    |
| 17       | 9006364            | SPACER, #6THD 1/4 HEX x 1 1/4 LG           | 3                    |
| 18       | 9101820            | MICA WASHER (SUPPLIED WITH ITEM 23)        | 2                    |
| 19       | 1101820            | NUT, HEX 1/4-28 (SUPPLIED WITH ITEM 23)    | 1                    |
| 20       | 9006776            | WASHER 13/16 O.D. x 1/4 I.D. x 1/32 THK    | 1                    |
| 21       |                    | SOLDER TERM HWE 03166-1                    | 1                    |
| 22       | 1101820            | INT TOOTH WASH 1/4 (SUPPLIED WITH ITEM 23) | 1                    |

TITLE PUNCH CONTROL, PP67-C  
 ASSY NO. D-AD-7006385-0-0  
 SIZE CODE A PL  
 NUMBER 7006385-0-0  
 SHEET 1 OF 3  
 DIST. G  
 REV. ECO NO. D  
 PP67C  
 -00009

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

MADE BY G. MARINI  
 DATE 4/28/69  
 ENG *W. Marini*  
 DATE *5/15/69*  
 CHECKED D. HEALY  
 DATE 4/29/69  
 PROD *R.D. for H. B. ...*  
 DATE *4/17/69*  
 SECTION 1  
 ISSUED SECT. 1

| ITEM NO. | DWG NO. / PART NO. | DESCRIPTION                                 | QUANTITY / VARIATION |
|----------|--------------------|---------------------------------------------|----------------------|
| 23       | 1101820            | RECTIFIER C20-BSCR GE                       | 1                    |
| 24       | 9006712            | WASHER, NYLON 3/8 O.D. x 1/4 I.F. x 1/16THK | 1                    |
| 25       | 1203374            | SWITCH ROTARY T206 CTS CORP                 | 1                    |
| 26       | 9006421            | SLOTTED FIL HD SCR 6-32 x 1/2 NYLON         | 1                    |
| 27       | 9005857            | SPACER THD 1/4 HEX x 5/8 #6THD NYLON        | 1                    |
| 28       | 9006707            | WASHER NYLON 5/16 O.D. x 5/32 I.D. x 1/32   | 1                    |
| 29       | 1203374            | KNOB (SUPPLIED WITH ITEM 25)                | 1                    |
| 30       | 9007015            | GROMMET #1043 GEN CEMENT                    | 1                    |
| 31       | 9107350-3          | #22 AWG WIRE TEF INS (RED)                  | A/R                  |
| 32       | 9107360-2          | 18 AWG WIRE TEF INS (FRN)                   | A/R                  |
| 33       | 9107360-1          | 22 AWG WIRE TEF INS (BLK)                   | A/R                  |
| 34       | 9107350-5          | 22 AWG WIRE TEF INS (YEL)                   | A/R                  |
| 35       | 9107350-4          | 22 AWG WIRE TEF INS (OFN)                   | A/R                  |
| 36       | 9107350-7          | 22 AWG WIRE TEF INS (BLU)                   | A/R                  |
| 37       | 9107350-16         | 22 AWG WIRE TEF INS (WHT)                   | A/R                  |
| 38       | 9107400-1          | #18 AWG WIRE TW. PR. BLK/WHT                | A/R                  |
| 39       | 9107360-3          | #18 AWG WIRE TEF INS (RED)                  | A/R                  |
| 40       | 9107360-6          | #18 AWG WIRE TEF INS (GRN)                  | A/R                  |
| 41       | 9107360-5          | #18 AWG WIRE TEF INS (YEL)                  | A/R                  |
| 42       | 9107360-10         | #18 AWG WIRE TEF INS (WHT)                  | A/R                  |
| 43       | 9107400-2          | 18 AWG TW PR RED/WHT                        | A/R                  |
| 44       | 900313             | RESISTOR 1K, 1/4W, 5%                       | 1                    |

TITLE PUNCH CONTROL PP67-C  
 ASSY NO. D-AD-7006385-0-0  
 SIZE CODE A PL  
 NUMBER 7006385-0-0  
 SHEET 2 OF 3  
 DIST. G  
 REV. ECO NO. D







## ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE PP67 C/D ADJUSTMENT PROCEDURE

The "glitch" should be positioned at the trailing edge of the sawtooth waveform (see above). This can be achieved by slackening the two screws which clamp the punch solenoid, and adjusting the solenoid until the "glitch" is in the correct position. Make sure that when making this adjustment, the solenoid is moved squarely in the vertical direction. If tilted, the armature may slip out of the blocking pawl.

3. To check the feed hole solenoid, the program will have to contain a stall so that the solenoid is de-energized between punching of characters. The following program would be suitable for running while checking all solenoids:

|           |                                           |
|-----------|-------------------------------------------|
| 2000/7604 | SR = 0200                                 |
| 6314      | LOAD ADD                                  |
| 7200      | SR <sub>8-11</sub> = Punch N <sup>o</sup> |
| 6026      | START                                     |
| 6021      |                                           |
| 5204      |                                           |
| 2220      |                                           |
| 5206      |                                           |
| 7040      |                                           |
| 5203      |                                           |

Use the same method as described in Part 2 for adjusting this solenoid.

4. Punching alternate 1's and 0's, slacken the screw holding the range finder and move the slide in one direction until punching begins to deteriorate: Note the position on the scale, then move the slide in the opposite direction until punching begins to deteriorate again and note the position on the slide. Set the range-finder at the midway point between the two positions and tighten the screw. If no punching errors occur using the above method then set the range finder at 30°.

| SIZE | CODE | NUMBER   | REV |
|------|------|----------|-----|
| A    | SP   | PP67-C-4 |     |

SHEET 3 OF 5

## ENGINEERING SPECIFICATION

CONTINUATION SHEET

TITLE PP67 C/D ADJUSTMENT PROCEDURE

## II. Low Tape Adjustment

To adjust the Low Tape Indicator Arm, load the following program to select the particular punch you are adjusting.

|             |                                           |
|-------------|-------------------------------------------|
| 7000 / 7604 | SR = 7000                                 |
| 6314        | LOAD ADD                                  |
| 7402        | SR <sub>8-11</sub> = Punch N <sup>o</sup> |
|             | START                                     |

Place the tape spool, with the amount of tape\* considered to be a low tape condition, in the punch. Loosen the two screws which fasten the low tape switch; move the switch until the Low Tape light on the PA63 indicator panel just turns on. At this point the left and center contacts on the switch should just be breaking contact. Tighten the screws and check that the light remains on. Now lift the arm until the light goes out. There should be no more than 1/16" between the tape and the arm; if there is, readjust the switch until these conditions are met.

With the arm in the low tape condition, run the program from the following section. It should halt in location 7004. With the arm not in the low tape condition, restart the program. The punch should start up and punch.

\* There should be about 3/8" of paper tape left on the core.

| SIZE | CODE | NUMBER   | REV |
|------|------|----------|-----|
| A    | SP   | PP67-C-4 |     |

SHEET 4 OF 5

TITLE PP67 C/D ADJUSTMENT PROCEDURE

III. Availability Switch Checkout

To checkout the switch, which is on the top of the punch, load the following program into core:

|        |      |                               |
|--------|------|-------------------------------|
| 7000 / | 7604 | SR = 7000                     |
|        | 6314 | LOAD ADD                      |
|        | 6311 | SR8-11 = Punch N <sup>o</sup> |
|        | 5205 | START                         |
|        | 7402 |                               |
|        | 6026 |                               |
|        | 6021 |                               |
|        | 5206 |                               |
|        | 5205 |                               |

Available Mode: Place the switch in this position and make sure that there is not a low tape condition. Run the above program; the punch should start up and punch.

Stop When Done Mode: Run the above program with the punch in the Available Mode. When the punch starts punching, turn the switch to the Stop When Done mode; the punch should continue punching as if nothing has changed.

Stop the program with the switch in the Stop When Done mode and restart the program. The program should halt in location 7004.

Continuous Mode: Place the switch in this position. The punch motor should start immediately. Start the above program; it should halt in location 7004.

Off Mode: With the switch in this position, start the above program. The program should halt at location 7004.

| SIZE | CODE | NUMBER   | REV |
|------|------|----------|-----|
| A    | SR   | PP67-0-4 |     |



TITLE PP67C/D ADJUSTMENT PROCEDURE FOR USE ON PA611-P CONTROLLER

The "Glitch" should be positioned at the trailing edge of the sawtooth waveform (see above). This can be achieved by slackening the two screws which clamp the punch solenoid, and adjusting the solenoid until the "glitch" is in the correct position. Make sure that when making this adjustment, the solenoid is moved squarely in the vertical direction. If tilted, the armature may slip out of the blocking pawl.

3. To check the feed hole solenoid, the program will have to contain a stall so that the solenoid is de-energized between punching of characters. The following program would be suitable for running while checking all solenoids:

```

2000)          CLR % Ø          SR = 2000
              CLR/  CLR % 1      LOAD ADD
              CMP/  CMP % Ø      START
              MOV % Ø, @ # PPB
              TST/  TST B @ # PPS
              BPL TST
              INC/  INC % 1
              TST % 1
              BPL INC
              JMP @ # CLR
  
```

Use the same method as described in Part 2 for adjusting this solenoid.

4. Punching alternate 1's and Ø's, slacken the screw holding the range finder and move the slide in one direction until punching begins to deteriorate: Note the position on the scale, then move the slide in the opposite direction until punching begins to deteriorate again and note the position on the slide. Set the range finder at the midway point between the two positions and tighten the screw. If no punching errors occur using the above method then set the range finder at 30°.

| SIZE | CODE | NUMBER   | REV |
|------|------|----------|-----|
| A    | SP   | PP67-C-6 |     |

TITLE PP67C/D ADJUSTMENT PROCEDURE FOR USE ON PA611-P CONTROLLER

## II. LOW TAPE ADJUSTMENT

To adjust the Low Tape Indicator Arm, load the following program:

```

7000)  START/  TST @ # PPS          SR = 7000
              BPL  START          LOAD ADD
              MOV # 000, @ # TPB   START
              TST/  TST B @ # TPS
              BPL TST
              JMP @ # START
  
```

Place the tape spool, with the amount of tape\* considered to be a low tape condition, in the punch. Loosen the two screws which fasten the low tape switch; move the switch until the teletype responds. At this point the left and center contacts on the switch should just be breaking contact. Tighten the screws and check that the teletype is still responding. Now lift the arm until the teletype stops. There should be no more than 1/16" between the tape and the arm; if there is, re-adjust the switch until these conditions are met.

\* There should be about 3/8" of paper tape left on the core.

| SIZE | CODE | NUMBER   | REV |
|------|------|----------|-----|
| A    | SP   | PP67-C-6 |     |

TITLE PP67C/D ADJUSTMENT PROCEDURE FOR USE ON PAC11-P CONTROLLER

III. AVAILABILITY SWITCH CHECKOUT

To checkout the switch, which is on the top of the punch, use the program from the previous section. Load and start at 7000.

Available Mode: Place the switch in this position and make sure that there is not a low tape condition. Run the above program, the teletype should do nothing.

Stop When Done Mode: While the program is running, move the switch from the Available Mode; the teletype should respond.

Continuous Mode: Place the switch in this position. The punch motor should start immediately. Start the above program; the teletype should respond.

Off Mode: With the switch in this position, and the program running, the teletype should respond.

| SIZE | CODE | NUMBER   | REV |
|------|------|----------|-----|
| A    | SP   | PP67-C-6 |     |

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ACCESSORY LIST

LEGEND

- D DOCUMENT
- DN DOCUMENT CHANGE NOTICE
- PA PAPER TAPE ASCII
- PB PAPER TAPE BINARY
- PM PAPER TAPE READ-IN-MODE

QUANTITY / VARIATION

|                       |                           |              |
|-----------------------|---------------------------|--------------|
| MADE BY GEORGE MILLER | CHECKED <i>G. Miller</i>  | SECTION      |
| DATE 10-30-70         | DATE <i>11-13-70</i>      |              |
| ENG GEORGE MILLER     | PROD <i>George Miller</i> | ISSUED SECT. |
| DATE 10-30-70         | DATE <i>11-13-70</i>      |              |

| ITEM NO.     | DWG NO. / PART NO.        | DESCRIPTION                                                                                                                                       | QTY          | UNIT             | KIT CHECK | BY | DATE | INSTALLATION CHECK | BY | DATE |
|--------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------------|-----------|----|------|--------------------|----|------|
| 1            | BC01F                     | PUNCH CABLE                                                                                                                                       | 1            |                  |           |    |      |                    |    |      |
| <del>2</del> | <del>D-0A-BC01F-0-0</del> | <del>PRINTS - SEE A - ML - PP67-C</del>                                                                                                           | <del>1</del> |                  |           |    |      |                    |    |      |
| <del>3</del> | <del>B-05-0915-0-1</del>  | <del>PUNCH CONTROL MODULE SCHEMATIC</del>                                                                                                         | <del>1</del> |                  |           |    |      |                    |    |      |
| <del>4</del> |                           | <del>PAPER TAPE--6 OR 8 LEVEL</del>                                                                                                               | <del>4</del> | <del>BOXES</del> |           |    |      |                    |    |      |
| <del>5</del> |                           | <del>PRINTS--SEE PP67-C M.L.</del>                                                                                                                | <del>1</del> |                  |           |    |      |                    |    |      |
| 3*           | 3610730-1 or -2           | ONE ROLL OF YELLOW OILED TAPE (6)<br>ONE ROLL OF YELLOW OILED TAPE (8)                                                                            |              |                  |           |    |      |                    |    |      |
|              |                           | * LEVEL WILL DEPEND ON PUNCH. IF PUNCH IS TO BE SHIPPED WITH A PA611, PA63 or PA68-F, SEE THE RESPECTIVE ACCESSORY LISTS FOR PAPER TAPE SHIPMENT. |              |                  |           |    |      |                    |    |      |

|                                  |           |                          |                    |          |                       |
|----------------------------------|-----------|--------------------------|--------------------|----------|-----------------------|
| TITLE<br>PAPER TAPE PUNCH--PP67C | ASSY. NO. | SIZE CODE<br><b>A AL</b> | NUMBER<br>PP67-C-3 | REV<br>A | ECO NO.<br>PP67C-0001 |
| SHEET 1 OF 1                     |           | DIST.                    |                    |          |                       |



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MAYNARD, MASSACHUSETTS

**ENGINEERING SPECIFICATION**

DATE 2/8/72

TITLE PP67C/D ACCEPTANCE CRITERIA

REVISIONS

| REV | DESCRIPTION | CHG NO      | ORIG    | DATE   | APPD BY   | DATE   |
|-----|-------------|-------------|---------|--------|-----------|--------|
| A   | ECO CHANGE  | PP67C-00009 | JODICE  | 2-9-72 | H. Jodice | 2/1/72 |
| B   | ECO CHANGE  | PP67C-00011 | GLEESON | 8/72   |           |        |

|                  |                          |           |            |                    |          |
|------------------|--------------------------|-----------|------------|--------------------|----------|
| ENG<br>H. Jodice | APPD<br><i>H. Jodice</i> | SIZE<br>A | CODE<br>SP | NUMBER<br>PP67-C-5 | REV<br>B |
|------------------|--------------------------|-----------|------------|--------------------|----------|

**ENGINEERING SPECIFICATION**



CONTINUATION SHEET

TITLE PP67C/D ACCEPTANCE CRITERIA

SCOPE

To define the criteria necessary to accept, for shipment, the PP67C (6 level) and PP67D (8 level) Typesetting Paper Tape Punch.

NOTE: Paper Tape Part numbers are as follows:

Yellow Oiled Tape (6 level) - 36-10730-1  
Yellow Oiled Tape (8 level) - 36-10730-2

TEST HARDWARE

Option 1: PDP-11 Family Computer with PA611C Controller and PR68E paper tape reader or

Option 2: PDP-8 Family Positive Bus Computer with PA63 Controller PD68D; 6 or 8 level Typesetting Paper Tape Reader.

TEST SOFTWARE

Option 1: MAINDEC-11-DZPAAA-PB

Option 2: MAINDEC-08-D2HC-PB

Prints: All prints on ML-PP67C

One roll of 6 or 8 level yellow, oiled tape; level will depend on punch.

PROCEDURE

1. Complete standard option check list.
2. Inspect punch for good workmanship, namely the punch amphenol connectors and the damping diodes mounted underneath the punch.
3. Option 1
  - a. Load the punch with a tape roll containing about 1/2" thickness of tape left on the core.
  - b. Load the following program:

```

000200 / 005737    202/172700    TST # PPS
      204 / 100775    BMI .-4
      206 / 000000    HALT
  
```

|           |            |                    |          |
|-----------|------------|--------------------|----------|
| SIZE<br>A | CODE<br>SP | NUMBER<br>PP67-C-5 | REV<br>B |
|-----------|------------|--------------------|----------|

**ENGINEERING SPECIFICATION**

digital

CONTINUATION SHEET

TITLE PP67C/D ACCEPTANCE CRITERIA

PROCEDURE (continued)

- 3. c. Connect the punch to punch Ø slot of the PA611-P (FØ1).
- d. Turn the 4 position switch on the punch to "OFF".
- e. Start the program at ØØØ2ØØ. The program should run continuously. If it halts, there is an error.
- f. Turn the 4 position switch to "CONTINUOUS", then "STOP WHEN DONE". The program should continue to run. Then turn the switch to "AVAILABLE"; the program should halt. If it does not, there is an error.
- g. Load the punch with a tape roll containing about 3/8" thickness of tape left on the core. Start the program again; it should not halt. If it does, adjust the "OUT OF TAPE" micro switch on the punch until the program runs continuously.
- h. Load the punch with a full roll of yellow tape. Load in MAINDEC-11-DZPAA-PB and run program 1 for one full roll of tape. Check the registration periodically to ensure there are exactly ten holes/inch. Verify the tape punched, using program 2.

4. Option 2

- a. Load the following program:

```

7ØØØ/ 7ØØ1
  1/   6311
  2/   5204
  3/   5200
  4/   6026
  5/   6021
  6/   5205
  7/   5200
    
```

- b. Connect the punch to channel Ø (C36) of the PA63.
- c. Turn the 4 position switch on the punch to "OFF".
- d. Start the program at 7000. The program should show the AC being indexed, meaning the punch is not available. If tape is punched, there is an error. Turn the function selector to "CONTINUOUS" and "STOP WHEN DONE". The indications should be the same.

|           |            |                    |          |
|-----------|------------|--------------------|----------|
| SIZE<br>A | CODE<br>SP | NUMBER<br>PP67-C-5 | REV<br>B |
|-----------|------------|--------------------|----------|

**ENGINEERING SPECIFICATION**

digital

CONTINUATION SHEET

TITLE PP67C/D ACCEPTANCE CRITERIA

PROCEDURE (continued)

- 4. e. Load the punch with a tape roll containing about 1/2" thickness of tape left on the core. Turn the switch to "AVAILABLE" and a binary count pattern should be produced.
- f. Remove the 1/2" tape roll and replace it with a roll containing about 3/8" of tape left on the core. This should bring about the not available condition (out of tape).
- g. Load the punch with a full roll of yellow tape.
- h. Load MAINDEC-08-D2HC-PB and start program #5. Let run as follows:
  - 1) SR6 = 0      5 minutes
  - 2) SR6 = 1      10 minutes
  - 3) SR6 = 0 and 1 alternately - 10 minutes

Verify tape punches with Test Ø6 after each mode (after 1) then 2), then 3) to alleviate the impracticability of having 25 minutes tape piled up. Also periodically check the registration to ensure there are exactly ten holes/inch.

SHIPPING HARDWARE

- 1. Power Cord for punch (6 feet) DEC-7ØØ524Ø.

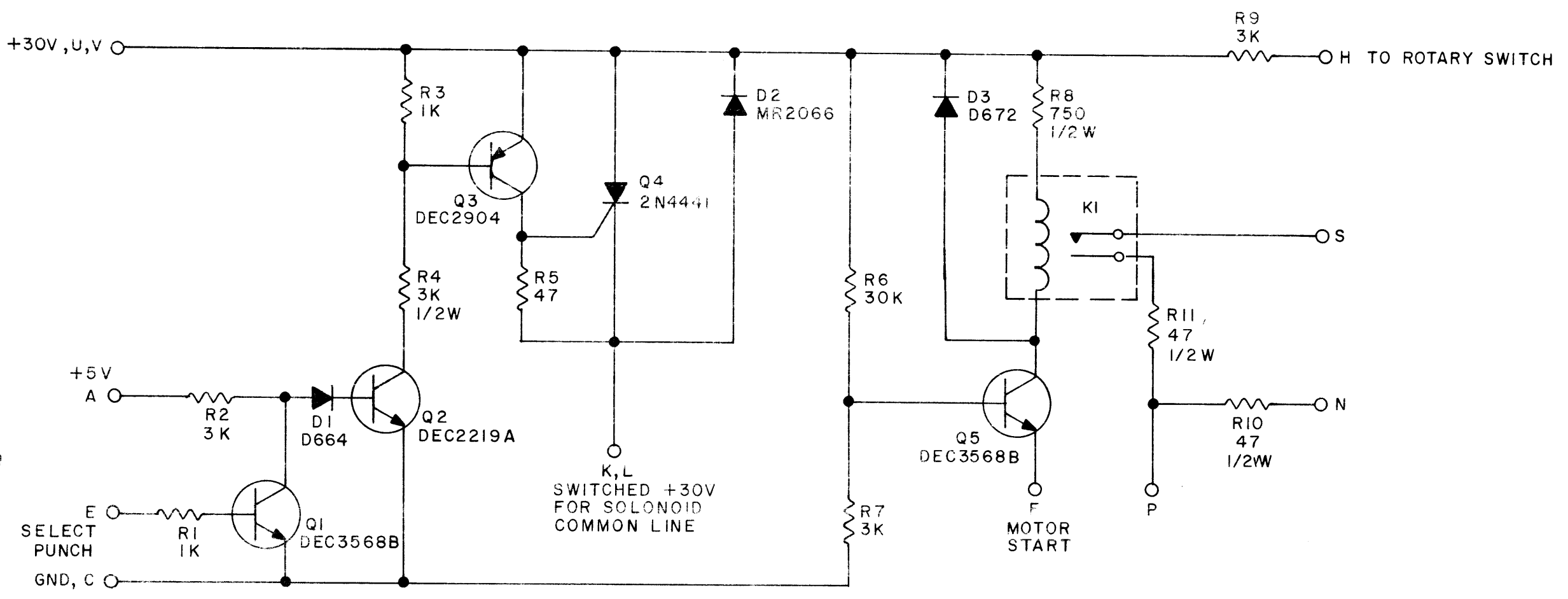
SHIPPING SOFTWARE

As in Test Software, but see Note below:

NOTE: Punch acceptance on a customers system is to be performed in conjunction with PA611, PA63, or PA68F acceptance. It is covered in the respective acceptance procedures. If punch to be shipped is part of a system, paper tape to be shipped will be covered in the respective Acceptance Procedure.

|           |            |                    |          |
|-----------|------------|--------------------|----------|
| SIZE<br>A | CODE<br>SP | NUMBER<br>PP67-C-5 | REV<br>B |
|-----------|------------|--------------------|----------|

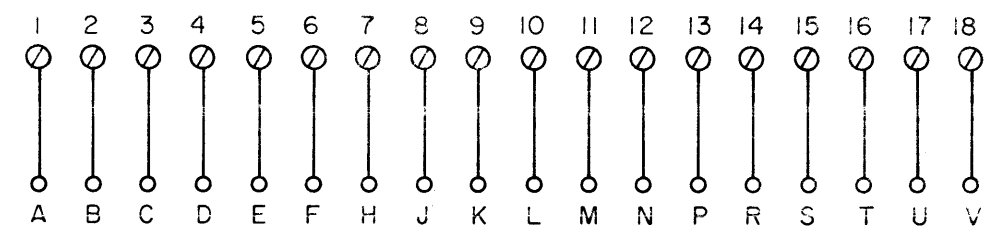
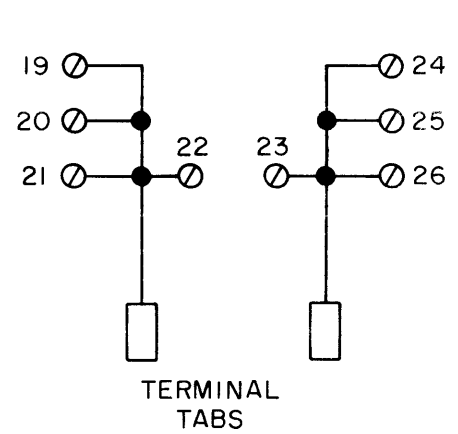
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UNLESS OTHERWISE INDICATED:  
RESISTORS ARE 1/4 W, 5%  
KI IS 268-2A-X2-12VDC

|           |     |         |      |                     |                 |                                     |        |         |        |                          |                    |          |      |
|-----------|-----|---------|------|---------------------|-----------------|-------------------------------------|--------|---------|--------|--------------------------|--------------------|----------|------|
| REVISIONS | CHK | CHG NO. | REV. | DRN.                | DATE            | TRANSISTOR & DIODE CONVERSION CHART |        |         |        |                          | TITLE              |          |      |
|           |     |         |      | <i>M. Haller</i>    | <i>10-24-69</i> | DEC                                 | EIA    | DEC     | EIA    |                          | PUNCH CONTROL G915 |          |      |
|           |     |         |      | CHK'D               | DATE            | D664                                | 1N3606 | DEC2904 | 2N2904 | SIZE                     | CODE               | NUMBER   | REV. |
|           |     |         |      | <i>V.A. Hallett</i> | <i>11/5/69</i>  | MR2066                              | 1N4003 |         |        | B                        | CS                 | G915-0-1 |      |
|           |     |         |      | ENG.                | DATE            | D672                                | 1N3653 |         |        | PRINTED CIRCUIT REV. A   |                    |          |      |
|           |     |         |      | <i>J. P. ...</i>    | <i>7-15-70</i>  | DEC3568B                            | 2N3568 |         |        | DIST. 324,434,435 3 PINK |                    |          |      |
|           |     |         |      | PROD                | DATE            | DEC2219A                            | 2N2219 |         |        |                          |                    |          |      |

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 ⓪ ARE SPLIT LUGS  
 TABS ARE AMP. #60145-1

|                                 |                    |                     |                                     |     |     |     |                                                                       |                                      |          |  |
|---------------------------------|--------------------|---------------------|-------------------------------------|-----|-----|-----|-----------------------------------------------------------------------|--------------------------------------|----------|--|
| REVISIONS<br>CHK   CHG NO   REV | DRN. <i>BUTLER</i> | DATE <i>12/5/69</i> | TRANSISTOR & DIODE CONVERSION CHART |     |     |     | <br><b>digital</b><br>EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS | TITLE<br><i>CABLE CONNECTION C73</i> |          |  |
|                                 | CHK'D              | DATE                | DEC                                 | EIA | DEC | EIA |                                                                       | SIZE   CODE   NUMBER                 | REV.     |  |
|                                 | ENG. <i>DA...</i>  | DATE                |                                     |     |     |     |                                                                       | PRINTED CIRCUIT REV.                 | <i>A</i> |  |
|                                 | PROD.              | DATE                |                                     |     |     |     |                                                                       |                                      |          |  |

