

**AD01-D  
analog-to-digital  
conversion  
subsystem  
engineering drawings**

1st Printing June 1971

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| FLIP CHIP | FOCAL        |
| DIGITAL   | COMPUTER LAB |
| UNIBUS    |              |

AD01-D Subsystem

| Drawing Number           | Title                                      |
|--------------------------|--------------------------------------------|
| A-ML-AD01-DA             | 10 Bit ADC with Switch Gain (AD01-DA)      |
| D-UA-AD01-0              | 10 Bit ADC with Switched Gain              |
| A-PL-AD01-D-0            | 10 Bit ADC with Switched Gain (Parts List) |
| D-DI-AD01-D-1            | Drawing Index List (AD01-D)                |
| D-AD-7006919-0-0         | Wired Assembly (AD01-D)                    |
| A-PL-7006919-0-0         | Wired Assembly (Parts List) (AD01-D)       |
| D-MU-AD01-D-02           | Module Utilization (AD01-D)                |
| A-PL-AD01-D-02           | Module Utilization (Parts List) (AD01-D)   |
| D-BS-AD01-D-03           | Multiplexer                                |
| D-BS-AD01-D-04           | Interface and CSR                          |
| D-BS-AD01-D-05           | A/D Converter                              |
| D-IC-AD01-D-06           | Analog Input Connectors                    |
| D-IC-AD01-D-09           | Bus Connector                              |
| K-WL-AD01-D-0 (Complete) | Wire List (AD01-D)                         |
| A-AL-AD01-D-8            | Accessory List                             |
| A-SP-AD01-D-10           | Engineering Specifications                 |
| A-SP-AD01-D-12           | Acceptance Procedure                       |
| A-ML-AH04-0              | Sample and Hold Option AH04                |
| A-PL-AH04-0-0            | Sample and Hold (Parts List)               |
| C-CS-A405-0-1            | Sample and Hold                            |
| A-ML-AH05-0              | One Bit Extender for AD01                  |
| A-PL-AH05-0-0            | One Bit Extender for AD01 (Parts List)     |
| D-CS-A862-0-1            | 11 Bit A/D Converter with Sign             |
| D-CS-A812-0-1            | A/D Converter                              |
| C-UA-H727-A-0            | H727-A Power Supply, 115V                  |
| C-UA-H727-B-0            | H727-B Power Supply, 230V                  |
| D-UA-H716-B-0            | H716-B Power Supply, 115V                  |
| D-UA-H716-D-0            | H716-D Power Supply, 230V                  |



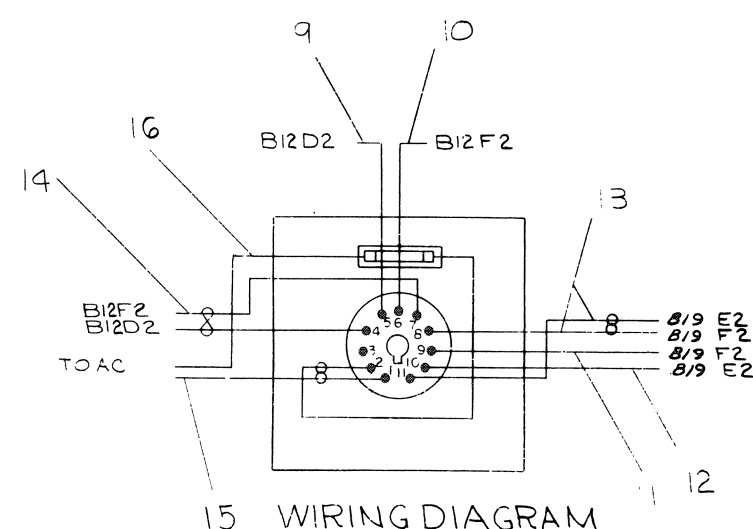
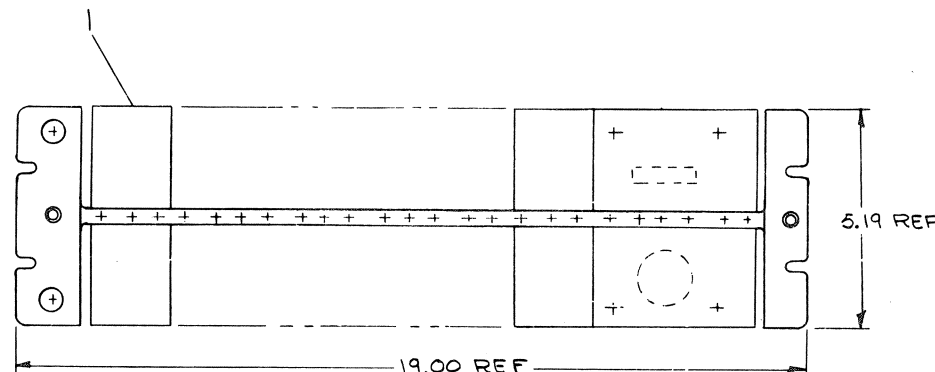
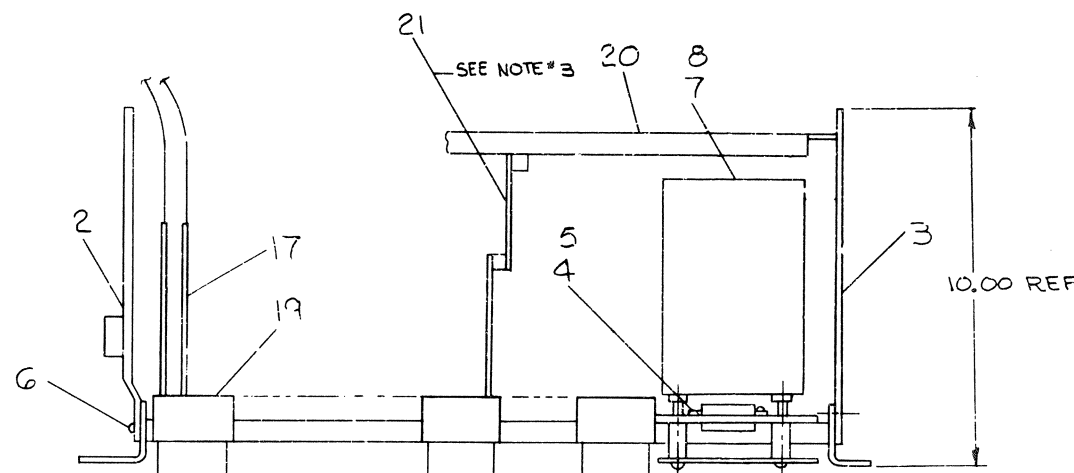
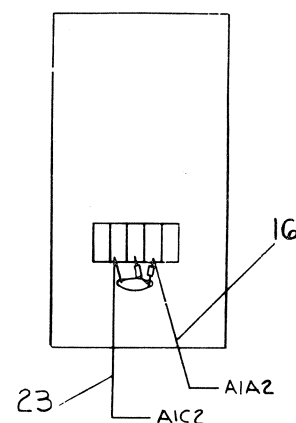


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| LEGEND  |            |
|---------|------------|
| NUMBER  | VARIATION  |
| AD01-DA | 110V INPUT |
| AD01-DB | 220V INPUT |

# NOTES

- FOR DWG INDEX LIST REFER TO DWG #D-01-AD01-D-1.
- ITEM #18 & #22 NOT SHOWN (#18 USED WITH AD01-DB) (#22 USED WITH AD01-DA)
- IF OPTIONAL MODULES ARE USED ITEM #21 WILL BE REQ'D REFER TO D-MU-AD01-D-02.



15 WIRING DIAGRAM

| REV. | CHANGE NO.   | DATE     |
|------|--------------|----------|
| 1    | AD01-D-00001 | 10/21/70 |
| 2    | AD01-D-00002 | 10/21/70 |
| 3    | AD01-D-00003 | 10/21/70 |
| 4    | AD01-D-00004 | 10/21/70 |
| 5    | AD01-D-00005 | 10/21/70 |
| 6    | AD01-D-00006 | 10/21/70 |
| 7    | AD01-D-00007 | 10/21/70 |
| 8    | AD01-D-00008 | 10/21/70 |

FIRST USED ON OPTION/MODEL  
PDP-11

DO NOT SCALE DRAWING  
UNLESS OTHERWISE SPECIFIED  
DIMENSION IN INCHES  
TOLERANCES  
FRACTIONS DECIMALS ANGLES  
± 0.005 ± 0.005 ± 0.005  
FRACTIONS DECIMALS ANGLES  
± 0.005 ± 0.005 ± 0.005  
FRACTIONS DECIMALS ANGLES  
± 0.005 ± 0.005 ± 0.005

| QTY. | DESCRIPTION                   | PART NO. | ITEM NO. |
|------|-------------------------------|----------|----------|
| 1    | 10 BIT ADC WITH SWITCHED GAIN | AD01-D-0 | 1        |
| 1    | 10 BIT ADC WITH SWITCHED GAIN | AD01-D-0 | 1        |
| 1    | 10 BIT ADC WITH SWITCHED GAIN | AD01-D-0 | 1        |
| 1    | 10 BIT ADC WITH SWITCHED GAIN | AD01-D-0 | 1        |
| 1    | 10 BIT ADC WITH SWITCHED GAIN | AD01-D-0 | 1        |
| 1    | 10 BIT ADC WITH SWITCHED GAIN | AD01-D-0 | 1        |
| 1    | 10 BIT ADC WITH SWITCHED GAIN | AD01-D-0 | 1        |
| 1    | 10 BIT ADC WITH SWITCHED GAIN | AD01-D-0 | 1        |
| 1    | 10 BIT ADC WITH SWITCHED GAIN | AD01-D-0 | 1        |
| 1    | 10 BIT ADC WITH SWITCHED GAIN | AD01-D-0 | 1        |

DIGITAL EQUIPMENT CORPORATION  
MAYNARD, MASSACHUSETTS

10 BIT ADC WITH SWITCHED GAIN

AD01-D-0

# PARTS LIST

DATE 6/9/70

## SECTION

DATE 6/9/70

DATE 6/23/70

7

|      |      |
|------|------|
| PROD | DATE |
|------|------|

PROD (14/11/11)

IN SECT

20

DATE 8-3-30

7

1

DATE 1-25-70

---

DWG NO. / PART NO.

## DESCRIPTION

|                                        |                           |  |           |            |                    |  |           |                |
|----------------------------------------|---------------------------|--|-----------|------------|--------------------|--|-----------|----------------|
| TITLE<br>10 BIT ADC WITH SWITCHED GAIN | ASSY NO.<br>D-UA-AD01-D-0 |  | SIZE<br>A | CODE<br>PL | NUMBER<br>AD01-D-0 |  | REV.<br>A | ECO NO<br>AD01 |
|                                        | SHEET 1 OF 2              |  | DIST. C   |            |                    |  |           | 0000 1         |

UBA 11C

## PARTS LIST

DATE 8/12/70

CHECKED D. HEALY

DATE

## SECTION

1

|      |        |
|------|--------|
| DATE | 7-1-11 |
| PROD |        |

**EXTRACT**

2

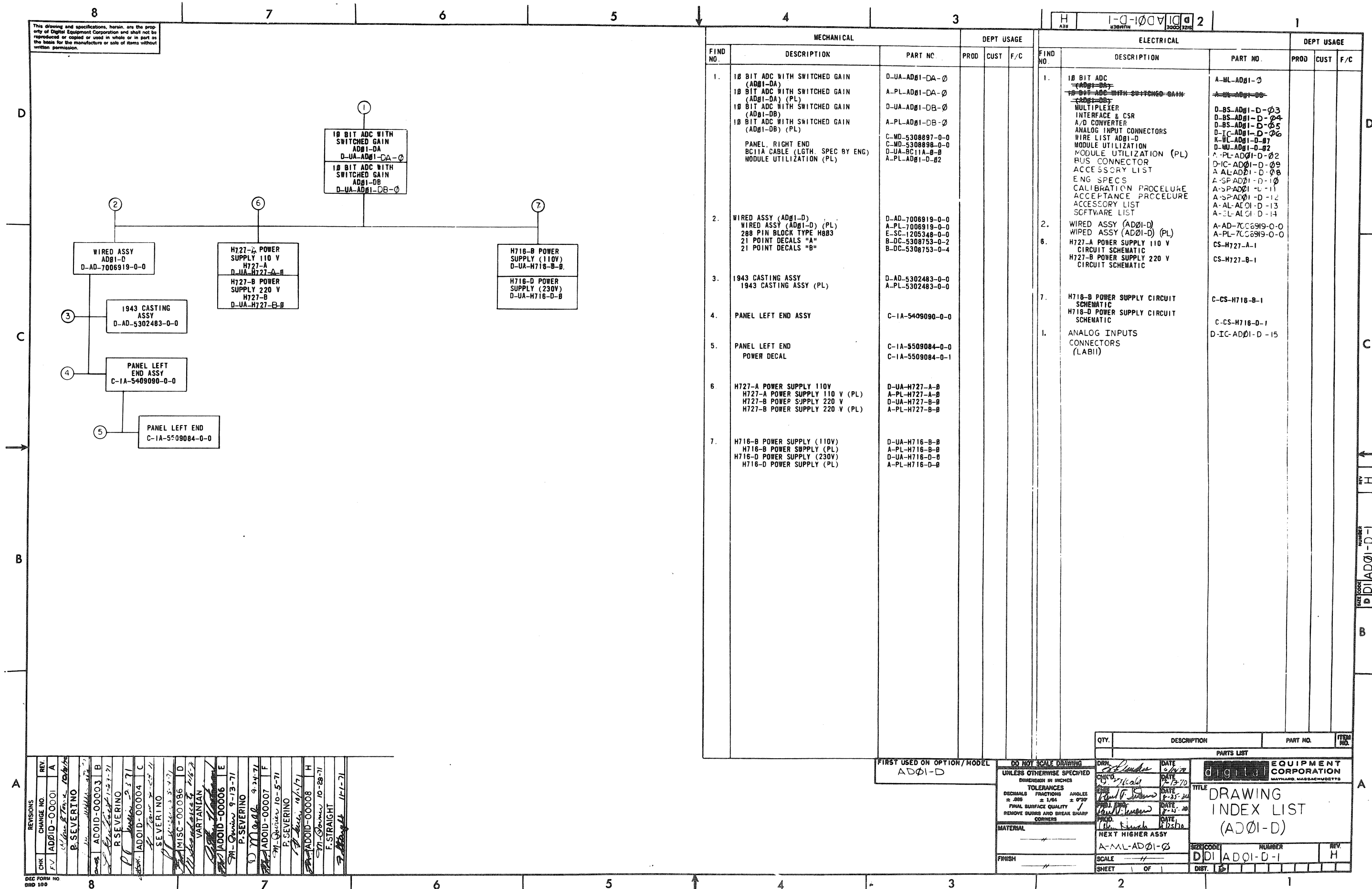
100

100

DWG NO. / PART NO.

DESCRIPTION

| TITLE                         | ASSY NO.      | SIZE  | CODE | NUMBER   | REV. | ECONO. |
|-------------------------------|---------------|-------|------|----------|------|--------|
| 1Ø BIT ADC WITH SWITCHED GAIN | D-UA-ADØ1-D-Ø | A     | PL   | ADØ1-D-Ø | A    |        |
| SHEET 2, OF 2                 |               | DIST. |      |          |      |        |

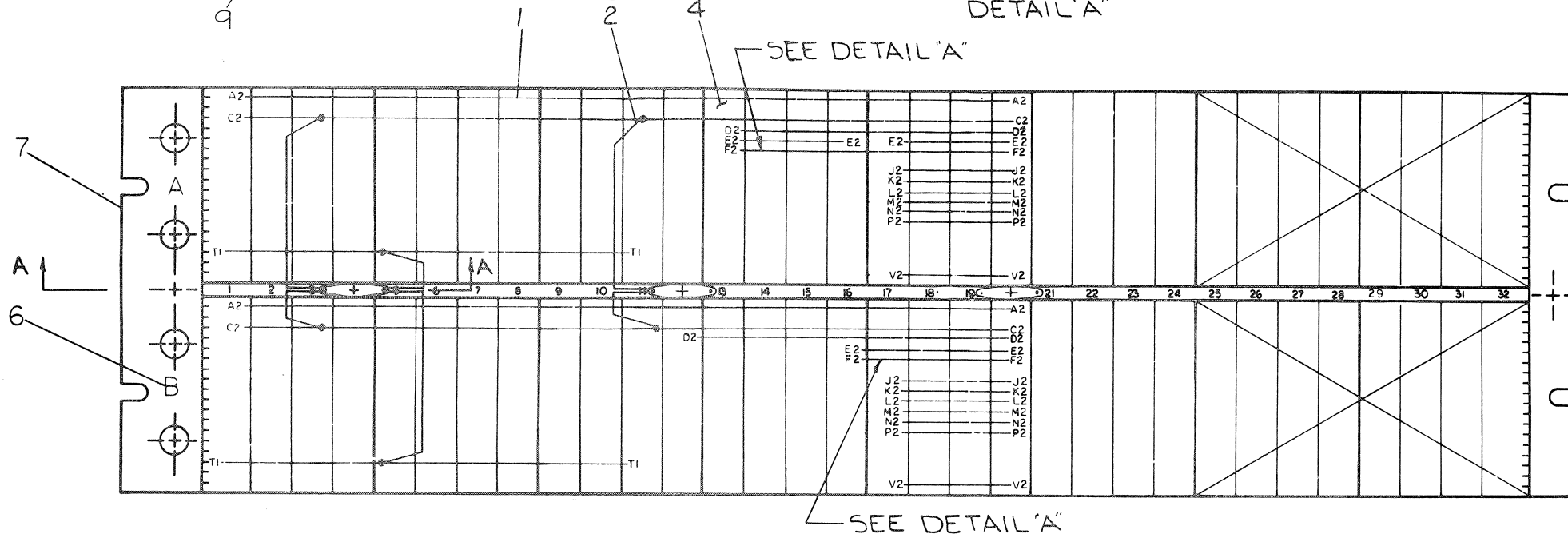
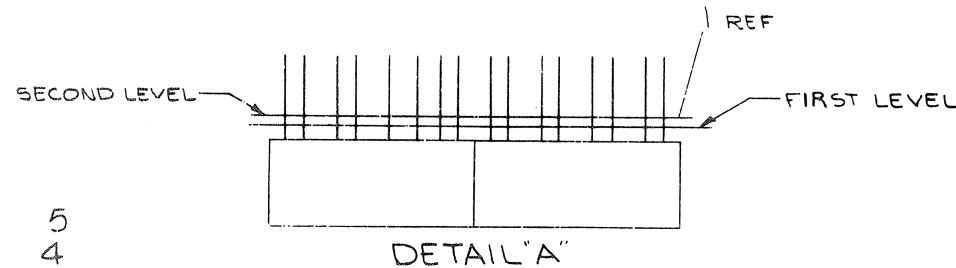
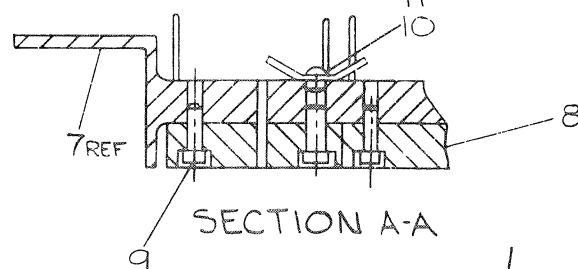


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0-0-669002-01 0

# NOTES:

1. CONNECTIONS ON ITEM NUMBER 1 & 2 TO BE LOCATED ~~AND SHOWN~~ 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.
2. USE YELLOW WIRE (ITEM #4) FOR MACHINE WRAPPED AND BLUE WIRE (ITEM #5) FOR HAND WRAPPED WIRING.

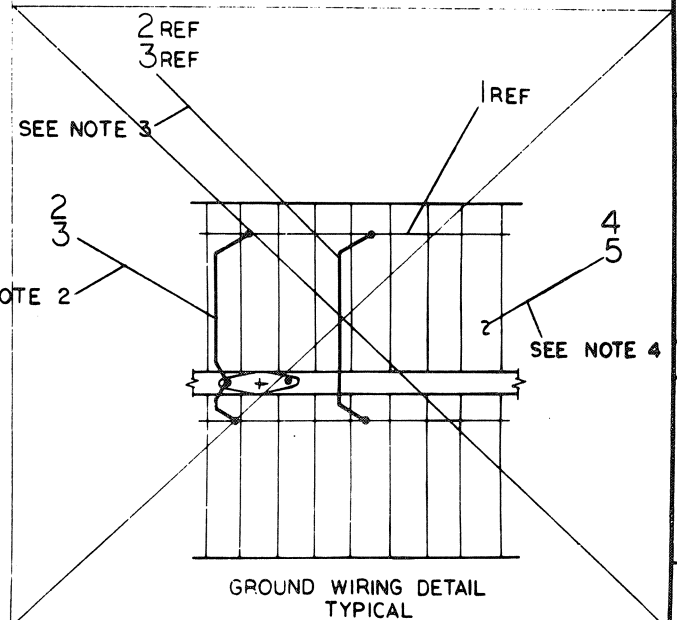


## WIRE LIST

| ITEM NO | DESCRIPTION | SIGNAL | FROM PIN CONNECTION | TO PIN CONNECTION | REMARKS   |
|---------|-------------|--------|---------------------|-------------------|-----------|
| 13      | 24 RED      | +5V    | A06A2               | B06A2             | WIRE WRAP |
| 13      | 24 RED      | +5V    | A08A2               | A08A2             |           |
| 14      | 24 BLK      | GND    | A06C2               | A06C2             |           |
| 14      | 24 BLK      | GND    | A06C2               | B06C2             |           |
| 16      | 24 YEL      | +15    | B12D2               | A13D2             |           |
| 16      | 24 YEL      |        | B12D2               | A24V2             |           |
| 17      | 24 GRN      | -20V   | B19E2               | A19E2             |           |
| 17      | 24 GRN      |        | B20E2               | A20E2             |           |
| 15      | 24 ORN      | -15V   | A24S2               | A16E2             |           |
| 15      | 24 ORN      |        | A24S2               | B12E2             | WIRE WRAP |
| 18      | 22 BRN      | GND    | B12F2               | A24T2             | SOLDER    |
| 18      | 22 BRN      | GND    | B12F2               | B12C2             |           |
| 18      | 22 BRN      | GND    | B12F2               | B16F2             |           |
| 18      | 22 BRN      | GND    | A13F2               | B16F2             | SOLDER    |

## OPTION WIRE LIST

| ITEM NO | DESCRIPTION | SIGNAL | FROM PIN CONNECTION | TO PIN CONNECTION | REMARKS |
|---------|-------------|--------|---------------------|-------------------|---------|
| 5       | 30 BLU      |        | B08P2               | B08A2             |         |
|         |             |        | A15S2               | A15V2             |         |
|         |             |        | A05D1               | A05C2             |         |
|         |             |        | A09A1               | A08D1             |         |
|         |             |        | A09C1               | A08E1             |         |
|         |             |        | A09D1               | A08F1             |         |
|         |             |        | A09F1               | A08H1             |         |
|         |             |        | A09E2               | A08J1             |         |
|         |             |        | A09J1               | A08K1             |         |
|         |             |        | A09H2               | A08L1             |         |
|         |             |        | A09L1               | A08M1             |         |
|         |             |        | A09K2               | A08N1             |         |
| 5       | 30 BLU      |        | A09N1               | A08P1             |         |
| 5       | 30 BLU      |        | A22A2               | A22C2             |         |



| REV | DATE    | BY                | CHK               |
|-----|---------|-------------------|-------------------|
| 1   | 6/10/70 | W. J. [signature] | W. J. [signature] |
| 2   | 7/2/70  | W. J. [signature] | W. J. [signature] |
| 3   | 7/2/70  | W. J. [signature] | W. J. [signature] |
| 4   | 7/2/70  | W. J. [signature] | W. J. [signature] |
| 5   | 7/2/70  | W. J. [signature] | W. J. [signature] |
| 6   | 7/2/70  | W. J. [signature] | W. J. [signature] |
| 7   | 7/2/70  | W. J. [signature] | W. J. [signature] |
| 8   | 7/2/70  | W. J. [signature] | W. J. [signature] |

|                                                                                                                                                                                        |  |                                  |                |                            |                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------|----------------|----------------------------|----------------|
| FIRST USED ON OPTION/MODEL<br>AD01-D                                                                                                                                                   |  | QTY.                             | DESCRIPTION    | PART NO.                   | ITEM NO.       |
| DO NOT SCALE DRAWING                                                                                                                                                                   |  | PARTS LIST                       |                |                            |                |
| 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 |  | DATE<br>6/10/70                  | DATE<br>7/2/70 | DATE<br>7/2/70             | DATE<br>7/2/70 |
| MATERIAL<br>NEXT HIGHER ASSY<br>D-1A-AD01-D-0                                                                                                                                          |  | TITLE<br>WIRED ASS'Y<br>(AD01-D) |                |                            |                |
| FINISH                                                                                                                                                                                 |  | SCALE NONE                       |                | NUMBER<br>D AD 7006919-0-0 |                |
| SHEET                                                                                                                                                                                  |  | OF                               |                | REV. A                     |                |

|                                                         |                    |                                 |                       |  |                      |      |             |  |  |  |      |             |  |  |  |  |  |  |  |
|---------------------------------------------------------|--------------------|---------------------------------|-----------------------|--|----------------------|------|-------------|--|--|--|------|-------------|--|--|--|--|--|--|--|
| DIGITAL EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS |                    |                                 |                       |  | QUANTITY / VARIATION |      |             |  |  |  |      |             |  |  |  |  |  |  |  |
| <b>PARTS LIST</b>                                       |                    |                                 |                       |  |                      |      |             |  |  |  |      |             |  |  |  |  |  |  |  |
| MADE BY G. FLANDERS                                     |                    |                                 | CHECKED D. HEALY      |  | SECTION              |      |             |  |  |  |      |             |  |  |  |  |  |  |  |
| DATE 6/9/70                                             |                    |                                 | DATE 6/16/70          |  | 1                    |      |             |  |  |  |      |             |  |  |  |  |  |  |  |
| ENG <i>Paul V. Sever</i>                                |                    |                                 | PROD <i>A. Hirsch</i> |  | ISSUED SECT.         |      |             |  |  |  |      |             |  |  |  |  |  |  |  |
| DATE <i>5/25/70</i>                                     |                    |                                 | DATE 8-25-70          |  | 1                    |      |             |  |  |  |      |             |  |  |  |  |  |  |  |
| ITEM NO.                                                | DWG NO. / PART NO. | DESCRIPTION                     |                       |  |                      |      |             |  |  |  |      |             |  |  |  |  |  |  |  |
| 1                                                       | 1205541            | BUS STRIP                       |                       |  |                      | A/R  |             |  |  |  |      |             |  |  |  |  |  |  |  |
| 2                                                       | 9107560-01         | #22 AWG BUS WIRE                |                       |  |                      | A/R  |             |  |  |  |      |             |  |  |  |  |  |  |  |
| 3                                                       | 9107265-09         | #22 TUBING TEFLON (WHT)         |                       |  |                      | A/R  |             |  |  |  |      |             |  |  |  |  |  |  |  |
| 4                                                       | 91057 40-44        | #30 AWG SOLID KYNAR WIRE (YEL)  |                       |  |                      | A/R  |             |  |  |  |      |             |  |  |  |  |  |  |  |
| 5                                                       | 9105740-66         | #30 AWG SOLID KYNAR WIRE (BLU)  |                       |  |                      | A/R  |             |  |  |  |      |             |  |  |  |  |  |  |  |
| 6                                                       | B-DC-5308753-0-2   | 21 POINT DECALS, A              |                       |  |                      | A/R  |             |  |  |  |      |             |  |  |  |  |  |  |  |
| 6                                                       | B-DC-5308753-0-4   | 21 POINT DECALS, B              |                       |  |                      | A/R  |             |  |  |  |      |             |  |  |  |  |  |  |  |
| 7                                                       | D-AD-5302483-0-0   | 1943 CASTING ASSY               |                       |  |                      | 1    |             |  |  |  |      |             |  |  |  |  |  |  |  |
| 8                                                       | E-SC-1205348-0-0   | 288 PIN BLOCK TYPE H8Ø3         |                       |  |                      | 6    |             |  |  |  |      |             |  |  |  |  |  |  |  |
| 9                                                       | 9006210            | SCR PH HD, FIL #8-32 x 5/8      |                       |  |                      | 12   |             |  |  |  |      |             |  |  |  |  |  |  |  |
| 10                                                      | 9006035-1          | SCR PHL HD PAN #8-32 x 1/4 LG   |                       |  |                      | 3    |             |  |  |  |      |             |  |  |  |  |  |  |  |
| 11                                                      | 9006634            | WASHER INT TOOTH LOCK #8        |                       |  |                      | 3    |             |  |  |  |      |             |  |  |  |  |  |  |  |
| 12                                                      | 9007597            | TERM #2116-08-00 SHAKEPROOF     |                       |  |                      | 3    |             |  |  |  |      |             |  |  |  |  |  |  |  |
| 13                                                      | 9107450-22         | #24 AWG STRD TEF INS WIRE (RED) |                       |  |                      | A/R  |             |  |  |  |      |             |  |  |  |  |  |  |  |
| 14                                                      | 9107450-00         | #24 AWG STRD TEF INS WIRE (BLK) |                       |  |                      | A/R  |             |  |  |  |      |             |  |  |  |  |  |  |  |
| 15                                                      | 9107450-33         | #24 AWG STRD TEF INS WIRE (ORN) |                       |  |                      | A/R  |             |  |  |  |      |             |  |  |  |  |  |  |  |
| 16                                                      | 9107450-44         | #24 AWG STRD TEF INS WIRE (YEL) |                       |  |                      | A/R  |             |  |  |  |      |             |  |  |  |  |  |  |  |
| 17                                                      | 9107450-55         | #24 AWG STRD TEF INS WIRE (GRN) |                       |  |                      | A/R  |             |  |  |  |      |             |  |  |  |  |  |  |  |
| 18                                                      | 9107420-11         | #22 AWG STRD TEF INS WIRE (BRN) |                       |  |                      | A/R  |             |  |  |  |      |             |  |  |  |  |  |  |  |
|                                                         |                    |                                 |                       |  |                      |      |             |  |  |  |      |             |  |  |  |  |  |  |  |
|                                                         |                    |                                 |                       |  |                      |      |             |  |  |  |      |             |  |  |  |  |  |  |  |
|                                                         |                    |                                 |                       |  |                      |      |             |  |  |  |      |             |  |  |  |  |  |  |  |
| TITLE                                                   |                    |                                 | ASSY NO.              |  | SIZE                 | CODE | NUMBER      |  |  |  | REV. | ECO NO.     |  |  |  |  |  |  |  |
| WIRED ASSY ADØ1-D                                       |                    |                                 | D-AD-7006919-0-0      |  | A                    | PL   | 7006919-0-0 |  |  |  | A    | ADØ10-00003 |  |  |  |  |  |  |  |
|                                                         |                    |                                 | SHEET 1 OF 1          |  | DIST.                |      |             |  |  |  |      |             |  |  |  |  |  |  |  |

[illegible]

|                                                         |                    |                                 |                      |            |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
|---------------------------------------------------------|--------------------|---------------------------------|----------------------|------------|---------|------------|--|--|--|------|-------------|--|--|--|--|--|--|--|--|
| DIGITAL EQUIPMENT CORPORATION<br>MAYNARD, MASSACHUSETTS |                    |                                 | QUANTITY / VARIATION |            |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
| PARTS LIST                                              |                    |                                 | AD01-D               | * OPTIONAL |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
| MADE BY G. FLANDERS                                     |                    | CHECKED D. HEALY                |                      |            | SECTION |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
| DATE 6/3/70                                             |                    | DATE 6/22/70                    |                      |            | 1       |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
| ENG / <i>Severino</i>                                   |                    | PROD <i>R. D. Smith</i>         | ISSUED SECT.         |            |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
| DATE 7/25/70                                            |                    | DATE 8-25-70                    | 1                    |            |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
| ITEM NO.                                                | DWG NO. / PART NO. | DESCRIPTION                     |                      |            |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
|                                                         | M105               | ADDRESS SELECTOR M105           |                      | 1          |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
|                                                         | M784               | UNIBUS RECEIVERS M784           |                      | 1          |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
|                                                         | M783               | UNIBUS DRIVERS M783             |                      | 2          |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
|                                                         | M206               | SIX FLIP FLOPS M206             |                      | 2          |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
|                                                         | M113               | 10-2 INPUT NAND GATES M113      |                      | 1          |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
|                                                         | M111               | INVERTER M111                   |                      | 1          |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
|                                                         | G736               | REQUEST JUMPER                  |                      | 1          |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
|                                                         | A812               | 10 BIT ADC A812                 |                      | 1          |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
|                                                         | M302               | DUAL DELAY MULTIVIBRATOR M302   |                      | 3          |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
|                                                         | A220               | SELECTABLE GAIN BUFF. AMP. A220 |                      | 1          |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
|                                                         | A124               | FOUR INPUT MULTIPLEX. SW. A124  |                      | 1          | 8       |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
|                                                         | M908               | CONNECTOR MODULE M908           |                      | 2          |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
|                                                         | M782               | INTERUPT CONTROL M782           |                      | 1          |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
|                                                         | M785               | UNIBUS TRANSCIEVERS M785        |                      | 1          |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
|                                                         | A708               | DUAL VOLT. REGULATOR A708       |                      | 1          |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
|                                                         | M112               | NOR GAT M112                    |                      | 1          |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
|                                                         | M617               | 6-4 INPUT MOR BUFFERS M617      |                      | 1          |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
|                                                         | M161               | TO OCTAL/DECIMAL DECODER M161   |                      | 1          |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
|                                                         | M501               | SCMITT TRIGGER                  |                      | 1          |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
| *                                                       | A405               | SAMPLE & HOLD                   |                      | 0          | 1       |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
|                                                         | 5408778-0-0        | PRIORITY JUMPER USED ON G736    |                      | 1          |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
| *                                                       | A862               | 10 BIT & SIGN ADC               |                      | 0          | 1       |            |  |  |  |      |             |  |  |  |  |  |  |  |  |
| TITLE                                                   |                    | ASSY NO.                        |                      | SIZE       | CODE    | NUMBER     |  |  |  | REV. | ECO NO.     |  |  |  |  |  |  |  |  |
| MODULE ULILIZATION LIST                                 |                    | D-MU-AD01-D-02                  |                      | A          | PL      | -AD01-D-02 |  |  |  | B    | AD01D-00004 |  |  |  |  |  |  |  |  |
|                                                         |                    | SHEET 1 OF 1                    |                      | DIST.      |         |            |  |  |  |      |             |  |  |  |  |  |  |  |  |