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# Commodore Business Computer

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## Technical Manual

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Model 8032

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 **commodore**  
COMPUTER

| PART NO.   | DESCRIPTION                           |
|------------|---------------------------------------|
| 8032030-01 | 80 COLUMN CPU, DYNAMIC PET, 32K, 60HZ |
|            |                                       |
|            |                                       |
|            |                                       |
|            |                                       |
|            |                                       |

| REVISIONS |      |                      |         |                    |
|-----------|------|----------------------|---------|--------------------|
| LTR       | ZONE | DESCRIPTION          | DATE    | APPROVED           |
| L         |      | REV PER ECO 1919     | 12/1/80 | <i>[Signature]</i> |
| M         |      | REVISED PER ECO 1932 | 1/7/81  | <i>[Signature]</i> |
| N         |      | REV PER ECO 2002     | 1/27/81 | <i>[Signature]</i> |
| P         |      | REV PER ECO 2107     | 5/24/81 | N.P.               |
| R         |      | REV PER ECO 2130     | 7/9/81  | H. H.              |
| S         |      | REV PER ECO 2695     | 5/1/82  | <i>[Signature]</i> |
| T         |      | REV PER ECO 2645     | 5/5/82  | <i>[Signature]</i> |

10 CUT TRACE OF CLK 1 FROM UC3 PIN 13. USE SPARE NOR GATE. SOLDER JUMPER UD2 PIN 6 TO UD1 PIN 5. SOLDER JUMPER UD2 PIN 9 TO UD1 PIN 6. SOLDER JUMPER UD1 PIN 4 TO UC3 PIN 13.

9 FOR SUBSTITUTES SEE PART SUBSTITUTION INDEX P/N 321233.

8 FOR ITEMS 36 AND 37, ALL ASSEMBLIES MUST HAVE SAME VENDOR (DASH NO. MAY VARY.

7 SOLDER JUMPER, ITEM 109 FROM E1 TO SILVER CONTACT ON MT1, ITEM 80; TAKE CARE TO ALLOW NO MORE THAN ONE SECOND DURATION FOR APPLICATION OF HEAT DURING SOLDERING.

6 SOLDER AT 3 PLACES, EQUALLY SPACED AROUND THE BRASS BASE MT1 (ITEM 80)

5 RUBBER STAMP APPROPRIATE DASH NO. APPROX. WHERE INDICATED.

4 FOR ACCEPTABLE SUBSTITUTE, REFER TO PARTS LIST.

3 SOLDER TO XTAL AND PCB.

2 ITEMS 42 AND 43 ARE USED AS SPARES.

1. SHEET 5 OF 6 SIZE C, SHEET 6 OF 6 SIZE D ASSY DWG

NOTES- UNLESS OTHERWISE SPECIFIED:

|           |   |                                |                 |                            |        |           |                           |
|-----------|---|--------------------------------|-----------------|----------------------------|--------|-----------|---------------------------|
| commodore | TITLE<br>PCB ASSEMBLY -<br>80 COLUMN CPU, DYNAMIC PET | DRAWN BY<br><i>[Signature]</i> | DATE<br>3/25/80 | ENGR<br><i>[Signature]</i> | 3/6/80 | SIZE<br>B | DRAWING NUMBER<br>8032030 |
|           |   | CHKD<br><i>[Signature]</i>     | 3/3/80          | APPR<br><i>[Signature]</i> | 3/6/80 |           |                           |

| QUANTITY REQD PER PART / DASH NO. |  |  |          | QTY | UNIT | G | PART NUMBER | DESCRIPTION                           | REF DES  | BEND       | NOTES |
|-----------------------------------|--|--|----------|-----|------|---|-------------|---------------------------------------|--|------------|-------|
|                                   |  |  |          |     |      |   |             |                                       |  |            |       |
|                                   |  |  | 06050403 |     |      |   |             |                                       |  |            |       |
|                                   |  |  |          | 01  |      |   |             |                                       |  |            |       |
|                                   |  |  |          | 1   | D    |   | B032029-01  | LOGIC DIAGRAM-80 COL CPU, DYNAMIC PET |  |            |       |
|                                   |  |  |          | 2   |      |   |             |                                       |  |            |       |
|                                   |  |  |          | 1   | D    |   | B032031-01  | PCB FAB-80 COL CPU, DYNAMIC PET       |  |            |       |
|                                   |  |  |          | 4   |      |   |             |                                       |  |            |       |
|                                   |  |  |          | 1   | B    |   | 901435-01   | IC, 6502 MPU                          | UB14   |            |       |
|                                   |  |  |          | 2   | B    |   | 901436-01   | 6520 PIA                              | UB16, UB12                                     |            |       |
|                                   |  |  |          | 1   | B    |   | 901437-01   | 6522 VIA                              | UB15   |            |       |
|                                   |  |  |          | 1   | B    |   | 901479-01   | CRT CONTROLLER                        | UB13   |            |       |
|                                   |  |  |          | 9   |      |   |             |                                       |  |            |       |
|                                   |  |  |          | 3   | B    |   | 901521-01   | 74LS00 NAND GATE                      | UE11, UDS, UE5                                 |            |       |
|                                   |  |  |          | 1   | B    |   | 901521-32   | 74LS86 EX-OR GATE                     | UC2  | SEE NOTE 9 |       |
|                                   |  |  |          | 1   | B    |   | 901521-21   | 74LS02 NOR GATE                       | UDI  |            |       |
|                                   |  |  |          | 1   | B    |   | 901521-02   | 74LS04 HEX INV.                       | UE15   |            |       |
|                                   |  |  |          | 2   | B    |   | 901525-01   | 74504 HEX INV, SCHOTTKY               | UD2, UE4                                       |            |       |
|                                   |  |  |          | 11  | B    |   | 901521-13   | 74LS244 OCTAL BUFFERS                 | UB4-UB7, UB9, UB10, UDI3, UDI4, UE8, UE9, UE10 |            |       |
|                                   |  |  |          | 2   | B    |   | 901521-24   | 74LS10 NAND GATE                      | UD4, UE13                                      |            |       |
|                                   |  |  |          | 1   | B    |   | 901522-01   | 7417 HEX BUFFER                       | UD15   |            |       |
|                                   |  |  |          | 1   | B    |   | 901522-20   | 7425 NOR GATE                         | UE14   |            |       |
|                                   |  |  |          | 1   | B    |   | 901521-11   | 74LS157 DATA SELECTOR                 | UCB, UC10, UE2                                 | SEE NOTE 9 |       |
|                                   |  |  |          | 1   | B    |   | 901521-17   | 74LS42 BCD DECODER                    | UC3  |            |       |
|                                   |  |  |          | 2   | B    |   | 901521-06   | 74LS74 FLIP-FLOP                      | UB1, UB2                                       |            |       |
|                                   |  |  |          | 2   | B    |   | 901525-09   | 74574 FLIP-FLOP, SCHOTTKY             | UC1, UE1                                       |            |       |
|                                   |  |  |          | 23  |      |   |             |                                       |  |            |       |
|                                   |  |  |          | 2   | B    |   | 901521-29   | 74LS373 OCTAL D-TYPE LATCH            | UB3, UB8                                       |            |       |
|                                   |  |  |          | 1   | B    |   | 901521-09   | 74LS145 BCD TO DECIMAL DECODER        | UC11   |            |       |
|                                   |  |  |          | 1   | B    |   | 901522-13   | 74154 4-16 LINE DECODER               | UE12   |            |       |
|                                   |  |  |          | 27  |      |   |             |                                       |  |            |       |
|                                   |  |  |          | 1   | B    |   | 901521-28   | 74LS164 8-BIT PARALLEL OUTPUT         | UE3  | SEE NOTE 9 |       |
|                                   |  |  |          | 3   | B    |   | 901522-03   | 74177 4-BIT CTR                       | UD3, UE6, UE7                                  |            |       |
|                                   |  |  |          | 30  |      |   |             |                                       |  |            |       |
|                                   |  |  |          | 1   | B    |   | 901522-28   | IC 74166 8-BIT REGISTER               | UA2  |            |       |
|                                   |  |  |          | 32  | B    |   |             |                                       |  |            |       |
|                                   |  |  |          | 33  | B    |   |             |                                       |  |            |       |
|                                   |  |  |          | 34  | B    |   |             |                                       |  |            |       |
|                                   |  |  |          | 4   | B    |   | 901453-02   | IC, 2114 4K STATIC RAM                | UC4-UC7  |            |       |
|                                   |  |  |          | 16  | B    |   | 901470-01   | IC, 4116 RAM DYNAMIC                  | UA4-UA19                                       |            |       |
|                                   |  |  |          | 37  |      |   |             |                                       |  |            |       |

commodore

TITLE: PCB ASSEMBLY -  
80 COLUMN CPU, DYNAMIC PET

DRAWN BY:

*J. Palmerman*  
CHKD: *M.P.*

DATE

ENGR:

APPR: *10-14-80*

DATE

SIZE

B

8032030

REV

1

SHEET

2/6

| QUANTITY REQD PER PART / DASH NO. |  |  |          | QTY | REF | PART NUMBER | DESCRIPTION | REF DES                                | BEND                                       | NOTES      |
|-----------------------------------|--|--|----------|-----|-----|-------------|-------------|--|--|------------|
|                                   |  |  |          |     |     |             |             |  |  |            |
|                                   |  |  | 06050403 | 1   | 38  | B           | 901465-22   | IC, 2332 ROM (F000-FFFF)               |  |            |
|                                   |  |  |          | 1   | 39  | B           | 901465-21   | 2332 ROM (D000-DFFF)                   | UD6  |            |
|                                   |  |  |          | 1   | 40  | B           | 901465-20   | 2332 ROM (C000-CFFF)                   | UD8  |            |
|                                   |  |  |          | 1   | 41  | B           | 901465-23   | 2332 ROM (B000-BFFF)                   | UD9  |            |
|                                   |  |  |          |     | 42  |             |             | 2332 ROM (A000-AFFF)                   | UD10                                       |            |
|                                   |  |  |          |     | 43  |             |             | 2332 ROM (9000-9FFF)                   | UD11                                       | SPARE      |
|                                   |  |  |          | 1   | 44  | B           | 901474-03   | 2316 ROM (E000-EFFF) 60HZ              | UD12                                       | SPARE      |
|                                   |  |  |          | 1   | 45  | B           | 901447-10   | 2316 ROM                               | UD7  |            |
|                                   |  |  |          | -   | 46  | B           | 901474-04   | 2316 ROM (E000-EFFF) 50HZ              | UA3  |            |
|                                   |  |  |          | 1   | 47  | B           | 901523-01   | LM555 TIMER                            | UD7  |            |
|                                   |  |  |          | 3   | 48  | B           | 901524-01   | IC, MC3446 INTERFACE BUS               | UD16                                       |            |
|                                   |  |  |          | 1   | 49  | B           | 900462-21   | CAP, CERAMIC AXIAL 22 pF 50V           | UA20, UB17, UC12                           |            |
|                                   |  |  |          | 5   | 50  | B           | 900109-03   | CAP, LOW LEAK. ELECTROLYTIC, 10 uF 25V | C54  | SEE NOTE 9 |
|                                   |  |  |          | 1   | 51  | B           | 900100-44   | CAP, ELECTROLYTIC 470 uF 16V           | C1, 16, 17, 23, 24                         | SEE NOTE 9 |
|                                   |  |  |          | 1   | 52  | B           | 900100-45   | CAP, ELECTROLYTIC 4700 uF 25V          | C2   |            |
|                                   |  |  |          | 3   | 53  | B           | 900101-37   | CAP, ELECTROLYTIC 47 uF 16V            | C5   |            |
|                                   |  |  |          | 4   | 54  | B           | 900110-07   | CAP, LOW LEAK. ELECT. 1 uF 50V         | C7, 9, 11                                  |            |
|                                   |  |  |          |     | 55  |             |             |  | C6, 8, 10, 51                              | SEE NOTE 9 |
|                                   |  |  |          | 3   | 56  | B           | 900461-16   | CAP, CERAMIC AXIAL .01 uF 50V          |  |            |
|                                   |  |  |          | 2   | 57  | B           | 900461-20   | CAP, CERAMIC AXIAL .022 uF 50V         | C52, 60, 61                                |            |
|                                   |  |  |          | 41  | 58  | B           | 900461-28   | CAP, CERAMIC AXIAL .1 uF 50V           | C3, 4                                      |            |
|                                   |  |  |          |     | 59  |             |             |  | C12-15, 18-22, 25-50, 53, 55-59            |            |
|                                   |  |  |          | 19  | 60  | B           | 901550-01   | RESISTOR, CARBON 1/4 W ± 5% 1K Ω       |  |            |
|                                   |  |  |          | 1   | 61  | B           | 901550-02   | 3.3K Ω                                 | R1-6, 9, 12, 15, 22, 26, 28, 31, 39, 41-45 |            |
|                                   |  |  |          | 2   | 62  | B           | 901550-03   | 5.1K Ω                                 | R14  |            |
|                                   |  |  |          | 2   | 63  | B           | 901550-20   | 10 K Ω                                 | R19, 21                                    |            |
|                                   |  |  |          | 1   | 64  | B           | 901550-49   | 100 Ω                                  | R23, 27                                    |            |
|                                   |  |  |          | 5   | 65  | B           | 901550-58   | 470 Ω                                  | R40  |            |
|                                   |  |  |          | 1   | 66  | B           | 901550-64   | 10 Ω                                   | R13, 16, 17, 30, 29                        |            |
|                                   |  |  |          | 2   | 67  | B           | 901550-69   | 1.5 K Ω                                | R6   |            |
|                                   |  |  |          | 2   | 68  | B           | 901550-84   | 1 M Ω                                  | R47, 48                                    |            |
|                                   |  |  |          | 2   | 69  | B           | 901550-85   | 2.4 K Ω                                | R25, 24                                    |            |
|                                   |  |  |          | 2   | 70  | B           | 901550-90   | 27 Ω                                   | R18, 20                                    |            |
|                                   |  |  |          | 1   | 71  | B           | 901550-93   | 39 Ω                                   | R10, 11                                    |            |
|                                   |  |  |          | 9   | 72  | B           | 901550-94   | RESISTOR, CARBON 1/4 W ± 5% 68 Ω       | R7   |            |
|                                   |  |  |          |     | 73  |             |             |  | R32-38, 46, 49                             |            |
|                                   |  |  |          |     | 74  |             |             |  |  |            |

commodore

TITLE PCB ASSEMBLY -  
80 COLUMN CPU, DYNAMIC PET

DRAWN BY: J. Alorun  
CHKD: M.L.

DATE ENGR: APPR: *[Signature]*

SIZE B

8032030

REV 3  
SHT 6

| QUANTITY REQD PER PART / DASH NO. |  |  |  | ITEM | QTY | PART NUMBER | DESCRIPTION                            | REF DES             | BEND | NOTES                                      |
|-----------------------------------|--|--|--|------|-----|-------------|--|---------------------|------|--|
|                                   |  |  |  | 01   |     |             |  |                     |      |  |
|                                   |  |  |  | 1    | 75  | B 902419-66 | RES NETWORK, DIP 14 PIN 10 K $\Omega$  | UB11                |      |  |
|                                   |  |  |  |      | 76  |             |  |                     |      |  |
|                                   |  |  |  | 2    | 77  | B 902653-01 | TRANSISTOR, NPN TIP 29                 | Q1,2                |      |  |
|                                   |  |  |  |      | 78  |             |  |                     |      |  |
|                                   |  |  |  | 1    | 79  | B 902550-01 | TRANSISTOR PACK Q2T2222                | UE16                |      |  |
|                                   |  |  |  | 1    | 80  | B 907300-02 | TRANSDUCER-PIEZO ACOUSTIC              | MT 1                |      |  |
|                                   |  |  |  | 2    | 81  | B 900941-01 | DIODE, ZENER 7.5 V                     | VR5,6               |      |  |
|                                   |  |  |  | 4    | 82  | B 900750-01 | DIODE, IN4001                          | CR1,5-7             |      |  |
|                                   |  |  |  | 1    | 83  | B 900753-01 | DIODE, IN5402 3 A/200 V                | CR3                 |      |  |
|                                   |  |  |  | 2    | 84  | B 900757-01 | DIODE BRIDGE 4 A/50 V                  | CR2,4               |      | SEE NOTE [9]                               |
|                                   |  |  |  |      | 85  |             |  |                     |      |  |
|                                   |  |  |  | 1    | 86  | B 901527-03 | VOLTAGE REGULATOR, 7905, -5V/1A        | VR1                 |      | TO-220                                     |
|                                   |  |  |  | 2    | 87  | B 901528-03 | VOLTAGE REGULATOR, LM340-5, +5 V/1.5 A | VR3,4               |      | TO-3, SEE NOTE [9]                         |
|                                   |  |  |  | 1    | 88  | B 901528-04 | VOLTAGE REGULATOR, 7812, +12V/1A       | VR2                 |      | TO-3                                       |
|                                   |  |  |  |      | 89  |             |  |                     |      |  |
|                                   |  |  |  | 1    | 90  | B 90055-0   | CRYSTAL 16 MHz                         | Y1                  |      |  |
|                                   |  |  |  |      | 91  |             |  |                     |      |  |
|                                   |  |  |  | 2    | 92  | B 904777-06 | DIP SHUNT 6 PIN                        |                     |      |  |
|                                   |  |  |  |      | 93  |             |  |                     |      |  |
|                                   |  |  |  | 4    | 94  | B 904150-04 | SOCKET, IC LOW PROFILE 24 PIN          | UD7 UD11, UD12, UA3 |      |  |
|                                   |  |  |  | 1    | 95  | B 904150-06 | SOCKET, IC LOW PROFILE 40 PIN          | UB14                |      |  |
|                                   |  |  |  | 5    | 96  | B 900757-02 | DIODE, BRIDGE 4 A/50 V                 |                     |      | CR2,4                                      |
|                                   |  |  |  | 1    | 97  | B 903326-07 | HEADER ASSY .100 CENTER                | J10                 |      | 7 PIN, REMOVE PIN 3 AT ASSEMBLY            |
|                                   |  |  |  | 2    | 98  | B 903345-25 | HEADER ASSY, DUAL ROW, .100 CENTER     | J4,9                |      | 50 PIN                                     |
|                                   |  |  |  | 1    | 99  | B 903316-09 | HEADER ASSY .156 CENTER                | J8                  |      | 9 PIN, REMOVE PIN 7 AT ASSEMBLY            |
|                                   |  |  |  | 1    | 100 | B 903331-07 | HEADER ASSY, POLARIZED, .100 CENTER    | J11                 |      | 7 PIN, REMOVE PIN 3 AT ASSEMBLY            |
|                                   |  |  |  | 1    | 101 | B 903331-07 | HEADER ASSY, POLARIZED, .100 CENTER    | J7                  |      | 7 PIN, ORIENT OMITTED PIN TO PIN 6 POSIT   |
|                                   |  |  |  | 1    | 102 | B 903331-20 | HEADER ASSY, POLARIZED, .100 CENTER    | J5                  |      | 20 PIN, ORIENT OMITTED PIN TO PIN 19 POSIT |
|                                   |  |  |  |      | 103 |             |  |                     |      |  |
|                                   |  |  |  | 1    | 104 | B 320268-01 | HEAT SINK                              | VR2,3,4             |      | UNDER VR2,3 & 4                            |
|                                   |  |  |  | 1    | 105 | B 904907-01 | HEAT SINK, COMPOUND THERMAL            |                     |      |  |
|                                   |  |  |  | 6    | 106 | B 906403-19 | RIVET, DOME HEAD, OPEN END             |                     |      |  |
|                                   |  |  |  | 2    | 107 | B 906404-04 | RIVET, DOME HEAD, CLOSED END           |                     |      |  |
|                                   |  |  |  | 1    | 108 | B 903780-02 | #30 WIRE WRAP WIRE, RED                |                     |      |  |
|                                   |  |  |  | 2    | 109 | B 903780-01 | #30 WIRE WRAP WIRE, RED                |                     |      |  |
|                                   |  |  |  | 1    | 110 | B 320086-01 | BUS WIRE                               |                     |      | SEE NOTE [9]                               |
|                                   |  |  |  | 1    | 111 | B 903780-04 | #30 WIRE WRAP WIRE                     |                     |      |  |

**commodore**

TITLE: PCB ASSEMBLY -  
80 COLUMN CPU, DYNAMIC PET

DRAWN BY: *J. H. ...*  
CHKD: *M. K.*

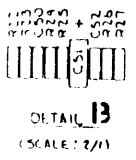
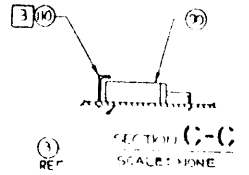
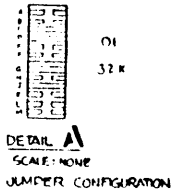
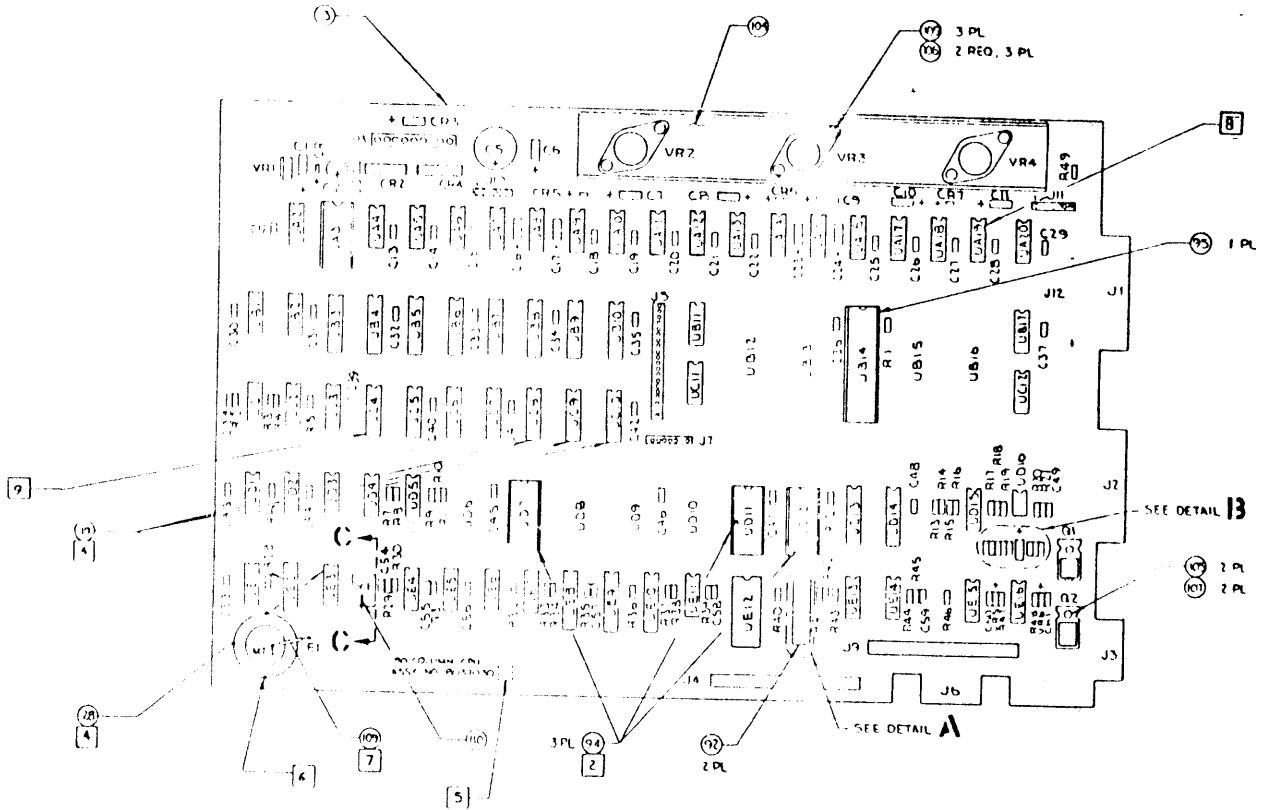
DATE: \_\_\_\_\_  
ENGR: \_\_\_\_\_  
APPR: \_\_\_\_\_

DATE: \_\_\_\_\_  
SIZE: B

8032030

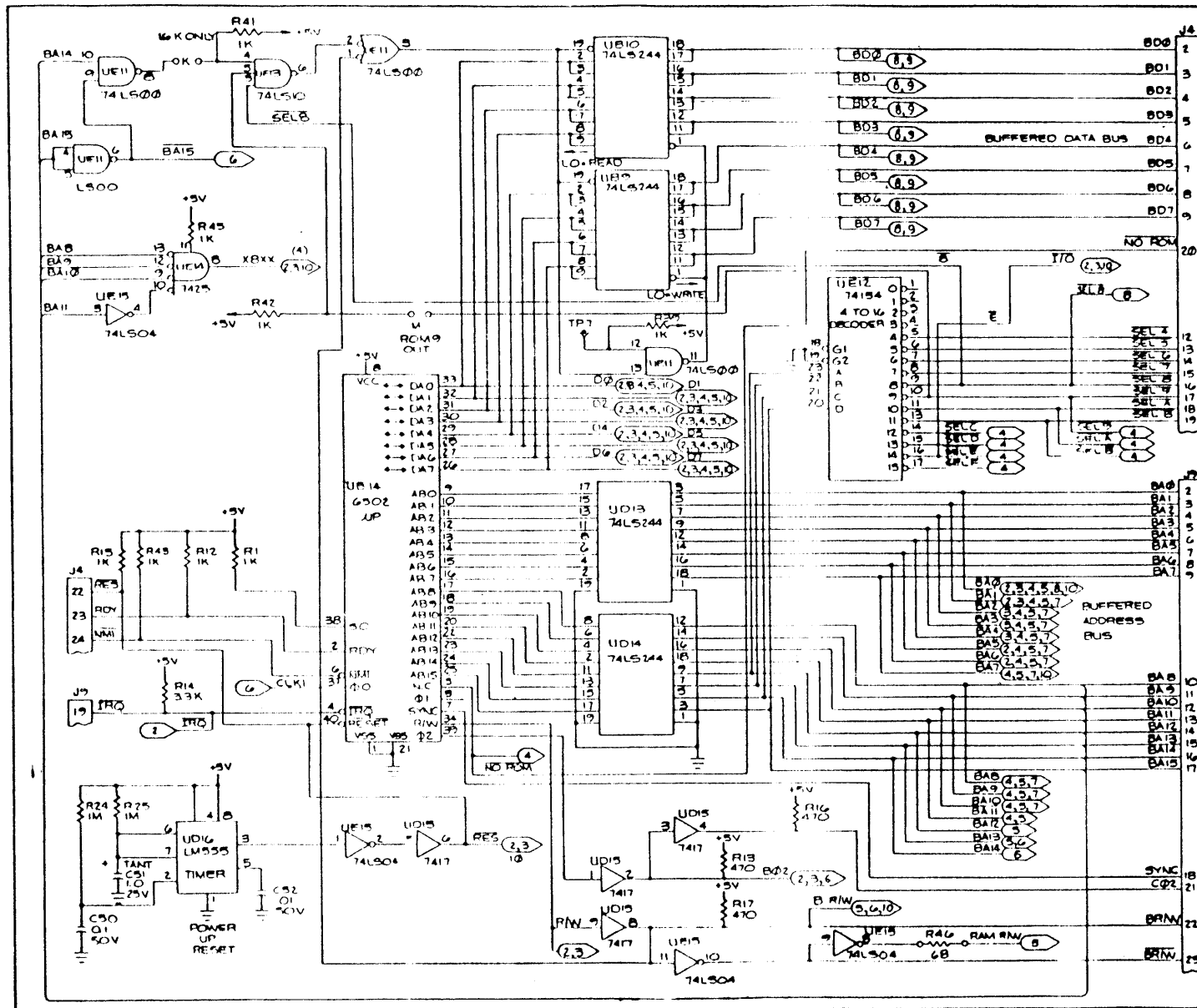
REV: *T*  
SHEET: *2*

| REVISIONS |             |      |          |
|-----------|-------------|------|----------|
| NO.       | DESCRIPTION | DATE | APPROVED |
| 1         | SEE SHEET 1 |      |          |



-01 & -02 SHOWN

|                 |     |         |      |       |
|-----------------|-----|---------|------|-------|
| DATE            | REV | BY      | CHKD | APP'D |
|                 |     |         |      |       |
| COMMODORE       |     |         |      |       |
| P.B. ASSEMBLY - |     |         |      |       |
| 90 COLUMN CPU   |     |         |      |       |
| DYNAMIC PET     |     |         |      |       |
| QTY             | REV | DATE    | BY   | CHKD  |
| 1               | 1   | 9002030 |      |       |
| SCALE: 2/1      |     |         |      |       |



| REVISIONS |      |                    |    |
|-----------|------|--------------------|----|
| REV       | DATE | DESCRIPTION        | BY |
| A         |      | PRODUCTION RELEASE |    |
| B         |      | REV PER ECO 1609   |    |
| C         |      | REV PER ECO 1681   |    |
| D         |      | REV PER ECO 1855   |    |
| E         |      | REV PER ECO 1976   |    |
| F         |      | REV PER ECO 2029   |    |

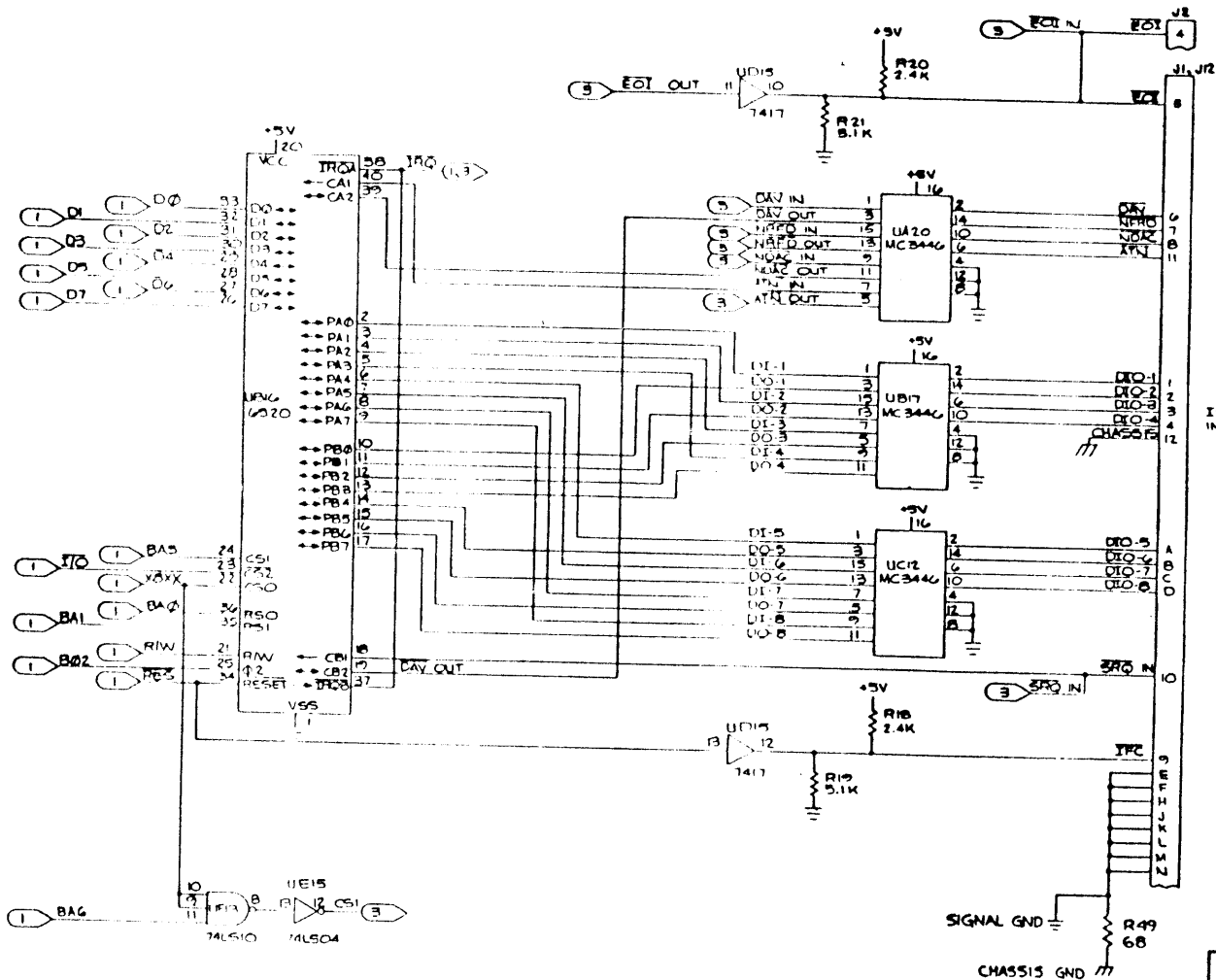


1. ALL CAPACITOR VALUES ARE MEASURED IN MICROFARADS.
2. ALL RESISTOR VALUES ARE IN OHMS 5% AND ARE 1/4 WATT.
3. REFER TO ASSEMBLY DRAWING NUMBER 8032030.
- NOTES-UNLESS OTHERWISE SPECIFIED

**CPU & MEMORY EXPANSION**

|  |   |
|--|---|
|  | <p>commodore</p> <p>LOGIC DIAGRAM</p> <p>80 COLUMN CPU</p> <p>DYNAMIC PET</p> <p>REV 1</p> <p>8032 8032030</p> <p>8032029 F</p> <p>SCALE 10:100 SHEET 1 OF 11</p> |
|--|---|

| REVISIONS   |      |             |      |          |
|-------------|------|-------------|------|----------|
| REV         | DATE | DESCRIPTION | DATE | APPROVED |
| SEE SHEET 1 |      |             |      |          |



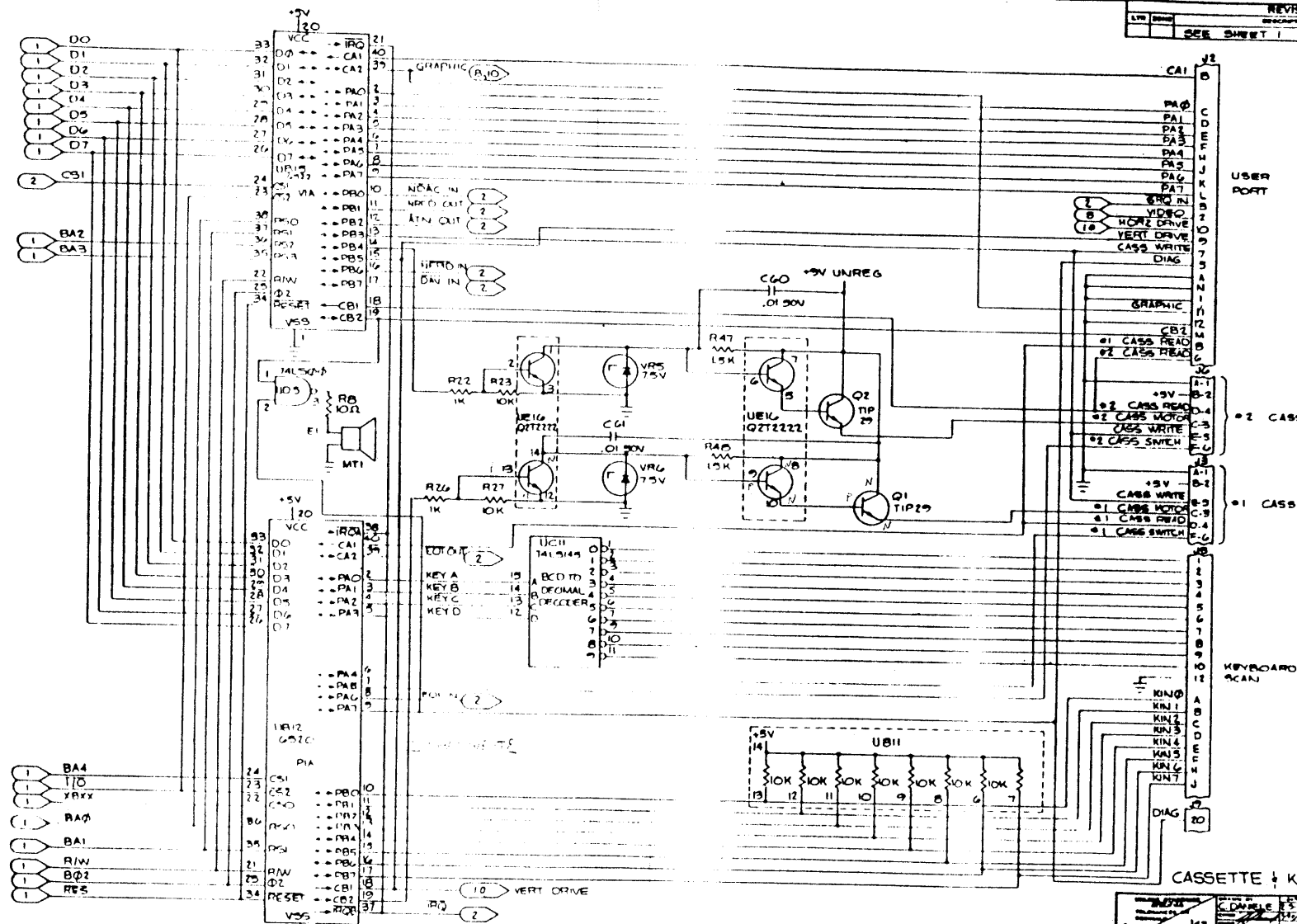
IEEE-488  
INTERFACE

IEEE-488 INTERFACE

|  |  |   |
|--|--|---|
|  | <p>DATE: 7/24/82<br/>TIME: 2:42 PM<br/>DRAWN BY: HLM<br/>CHECKED BY: B/STP</p> | <p>commodore</p> <p>LOGIC DIAGRAM<br/>80320 CPU<br/>DYNAMIC PET</p> <p>D 8032029 F</p> <p>SCALE: 100% (1:1)</p> |
|--|--|---|

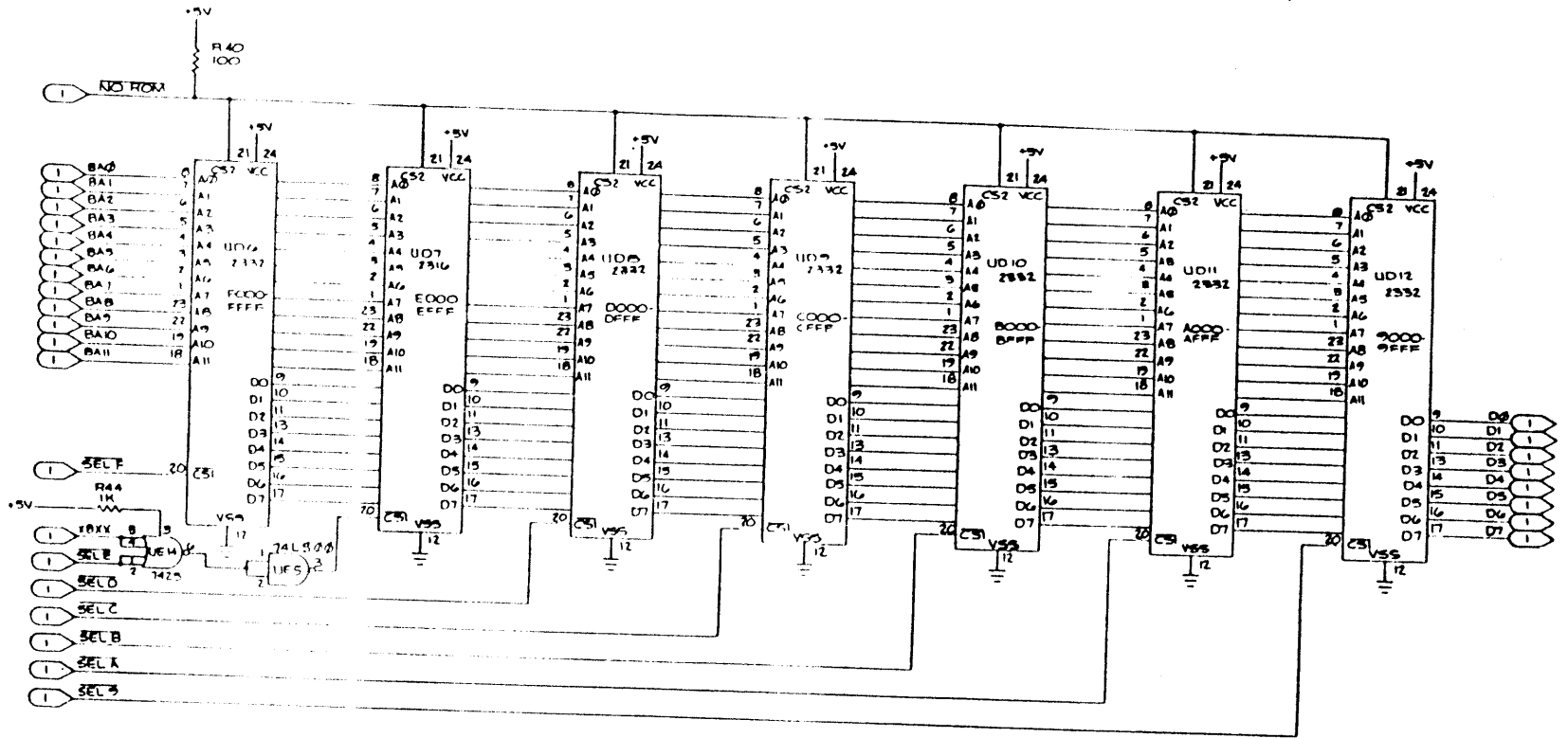


| REVISIONS |          |             |    |
|-----------|----------|-------------|----|
| NO        | DATE     | DESCRIPTION | BY |
| 1         | 05/11/80 | SEE SHEET 1 |    |



|            |  |                 |  |
|------------|--|-----------------|--|
| COMMODORE  |  | LOGIC DIAGRAM   |  |
| 6809       |  | 6809 COLUMN CPU |  |
| 8032029    |  | DYNAMIC DET     |  |
| SCALE NONE |  | PAGE 3 OF 11    |  |

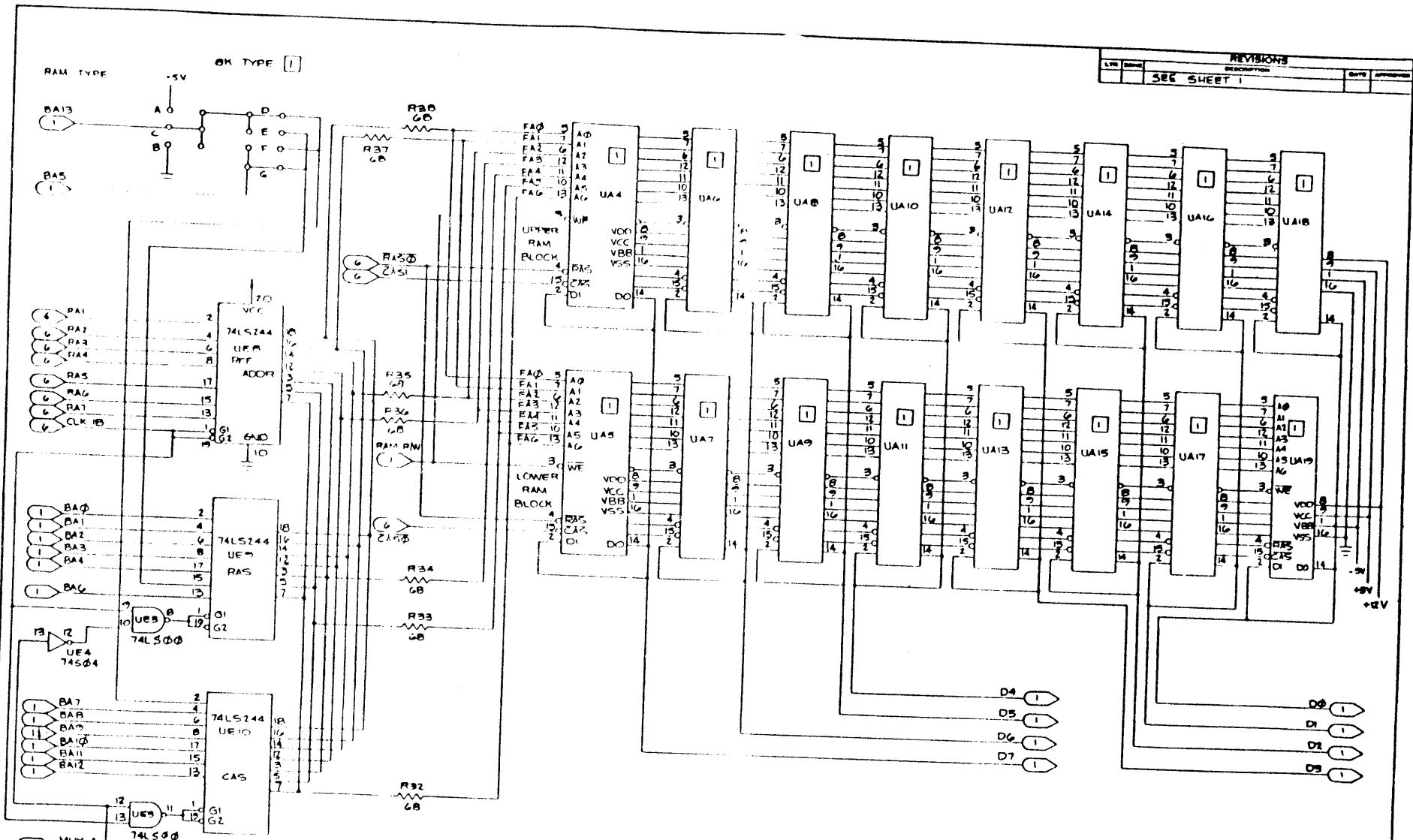
| REVISIONS   |      |    |          |
|-------------|------|----|----------|
| REV         | DATE | BY | APPROVED |
| 1           |      |    |          |
| SEE SHEET 1 |      |    |          |



ROMS

|   |   |
|---|---|
| <p>DATE: _____</p> <p>DESIGNED BY: _____</p> <p>CHECKED BY: _____</p> <p>APPROVED BY: _____</p> | <p>commodore</p> <p>LOGIC DIAGRAM</p> <p>80 COLUMN CPU</p> <p>DYNAMIC PET</p> <p>REV: D</p> <p>8032029</p> <p>DATE: NOV 81</p> <p>SHEET 4 OF 11</p> |
|---|---|

| REVISIONS |      |             |    |
|-----------|------|-------------|----|
| REV       | DATE | DESCRIPTION | BY |
| 1         |      | SEE SHEET 1 |    |

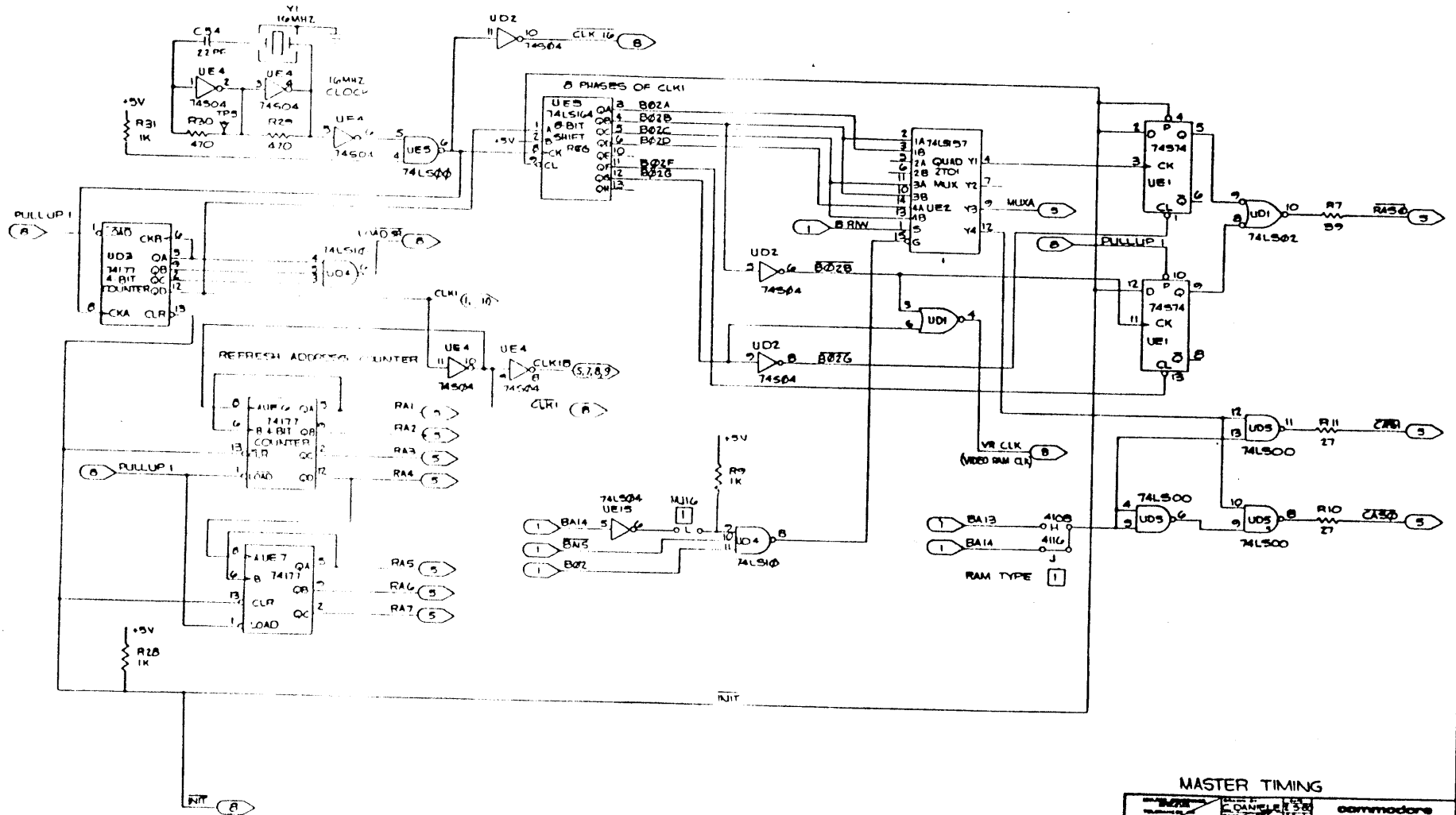


**MAIN RAM**

|   |  |  |
|---|--|--|
|   |  |  |
| <b>COMMADORE</b><br>LOGIC DIAGRAM<br>80 COLUMN CPU<br>DYNAMIC PET |  |  |
| D 8032029 F<br><small>REALLY NICE! SHEET 5 OF 11</small>          |  |  |

01

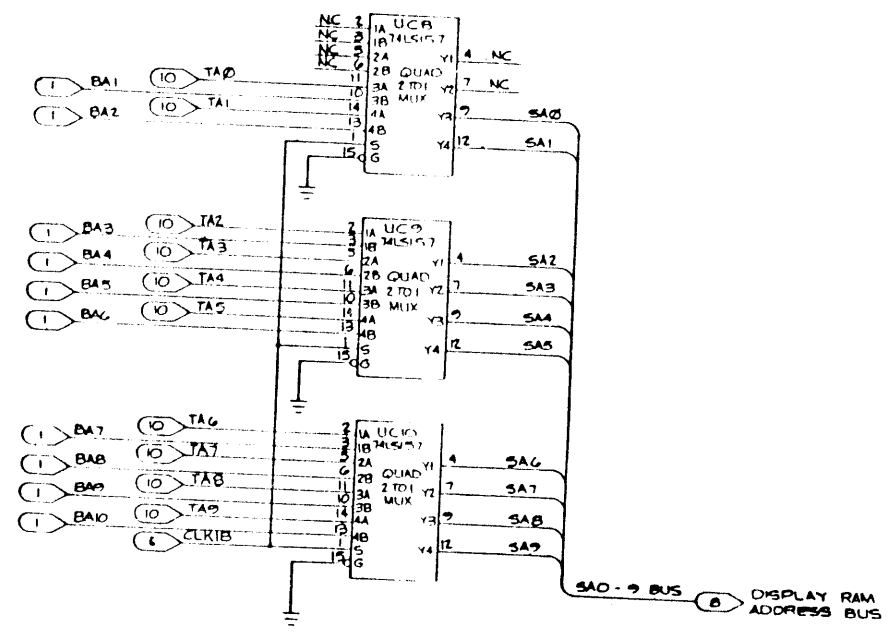
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|-----------|------|-------------|----|
| REV       | DATE | DESCRIPTION | BY |
| 1         |      | SEE SHEET 1 |    |



MASTER TIMING

|  |  |  |
|--|--|--|
|  |  | <b>commodore</b><br>LOGIC DIAGRAM<br>80 COLUMN CPU<br>DYNAMIC REF<br>8032029<br>SCALE: MONITOR 1:1 |
|--|--|--|

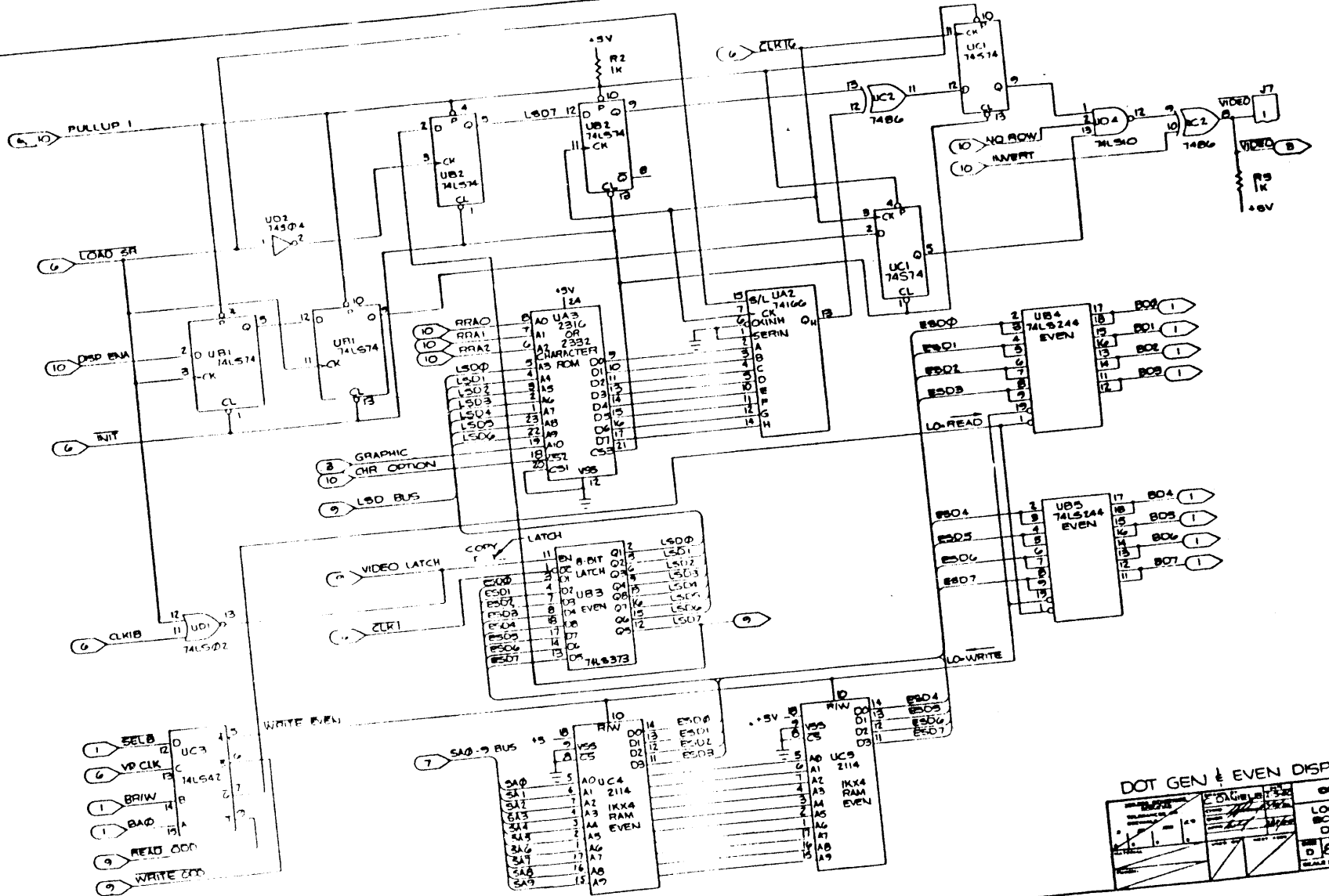
| REVISIONS |      |             |    |
|-----------|------|-------------|----|
| NO.       | DATE | DESCRIPTION | BY |
| 002       |      | SHEET 1     |    |



DISPLAY ADDRESS MUX

|                           |           |         |         |
|---------------------------|-----------|---------|---------|
| DESIGNED BY               | C. DANIEL | DATE    | 7/25/81 |
| CHECKED BY                |           | DATE    |         |
| APPROVED BY               |           | DATE    |         |
| COMMODORE                 |           |         |         |
| LOGIC DIAGRAM             |           |         |         |
| 80 COLUMN CPU             |           |         |         |
| DYNAMIC PET               |           |         |         |
| REV                       | 0         | 8032029 | F       |
| REAL MODE (SHEET 1 OF 11) |           |         |         |

| REVISIONS |             |      |
|-----------|-------------|------|
| Rev       | Description | Date |
| 1         | SEE SHEET 1 |      |

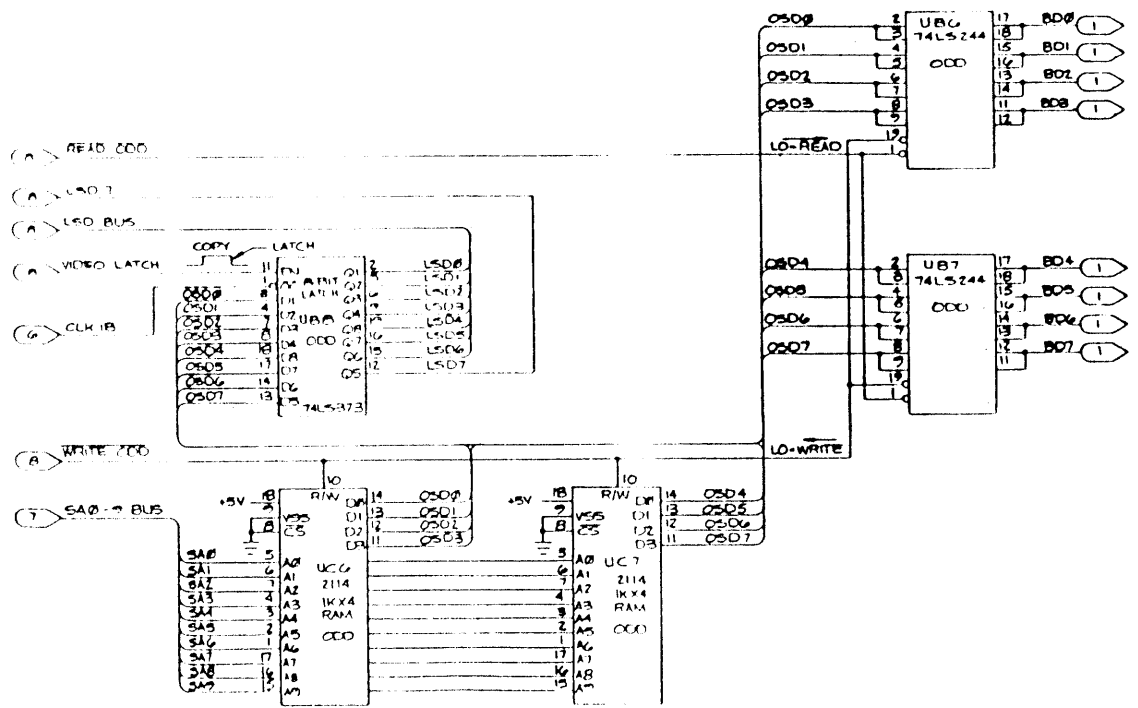


**DOT GEN & EVEN DISPLAY RAMS**

|     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|
| BD0 | BD1 | BD2 | BD3 | BD4 | BD5 | BD6 | BD7 |
| BD0 | BD1 | BD2 | BD3 | BD4 | BD5 | BD6 | BD7 |

Commodore  
 LOGIC DIAGRAM  
 60 COLUMN CPU  
 DYNAMIC PET  
 D 8032029 F  
 1982

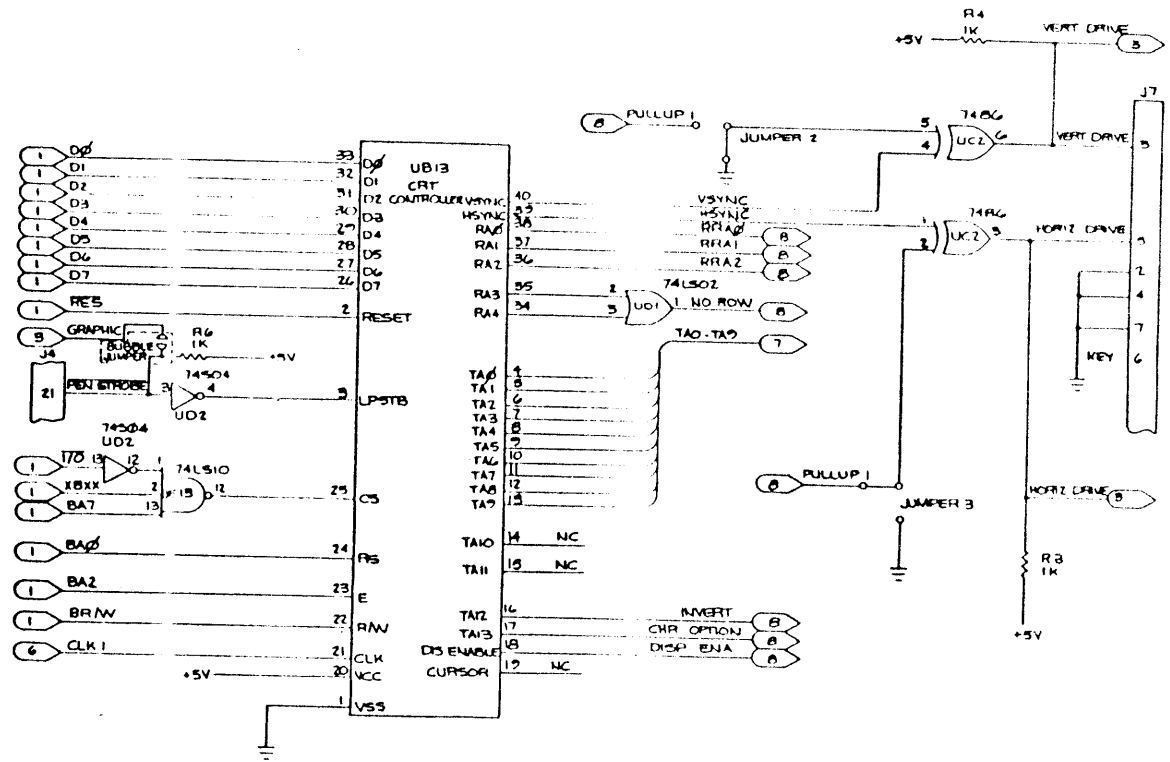
| REVISIONS |      |             |          |
|-----------|------|-------------|----------|
| LT#       | DATE | DESCRIPTION | APPROVED |
|           |      | SEE SHEET 1 |          |



ODD DISPLAY RAMS

|                        |                          |                   |  |
|------------------------|--------------------------|-------------------|--|
|                        | DESIGNED BY<br>D. DANIEL | DATE<br>11/13/80  | COMPANY<br>Commodore                                     |
|                        | CHECKED BY<br>J. J.      | DATE<br>11/13/80  | PROJECT<br>LOGIC DIAGRAM<br>80 COLUMN CPU<br>DYNAMIC PET |
| PART NUMBER<br>8032029 | REV<br>F                 | DRAWN BY<br>J. J. | DATE<br>11/13/80   |

| REVISIONS |      |             |    |
|-----------|------|-------------|----|
| REV       | DATE | DESCRIPTION | BY |
| 1         |      | SEE SHEET 1 |    |

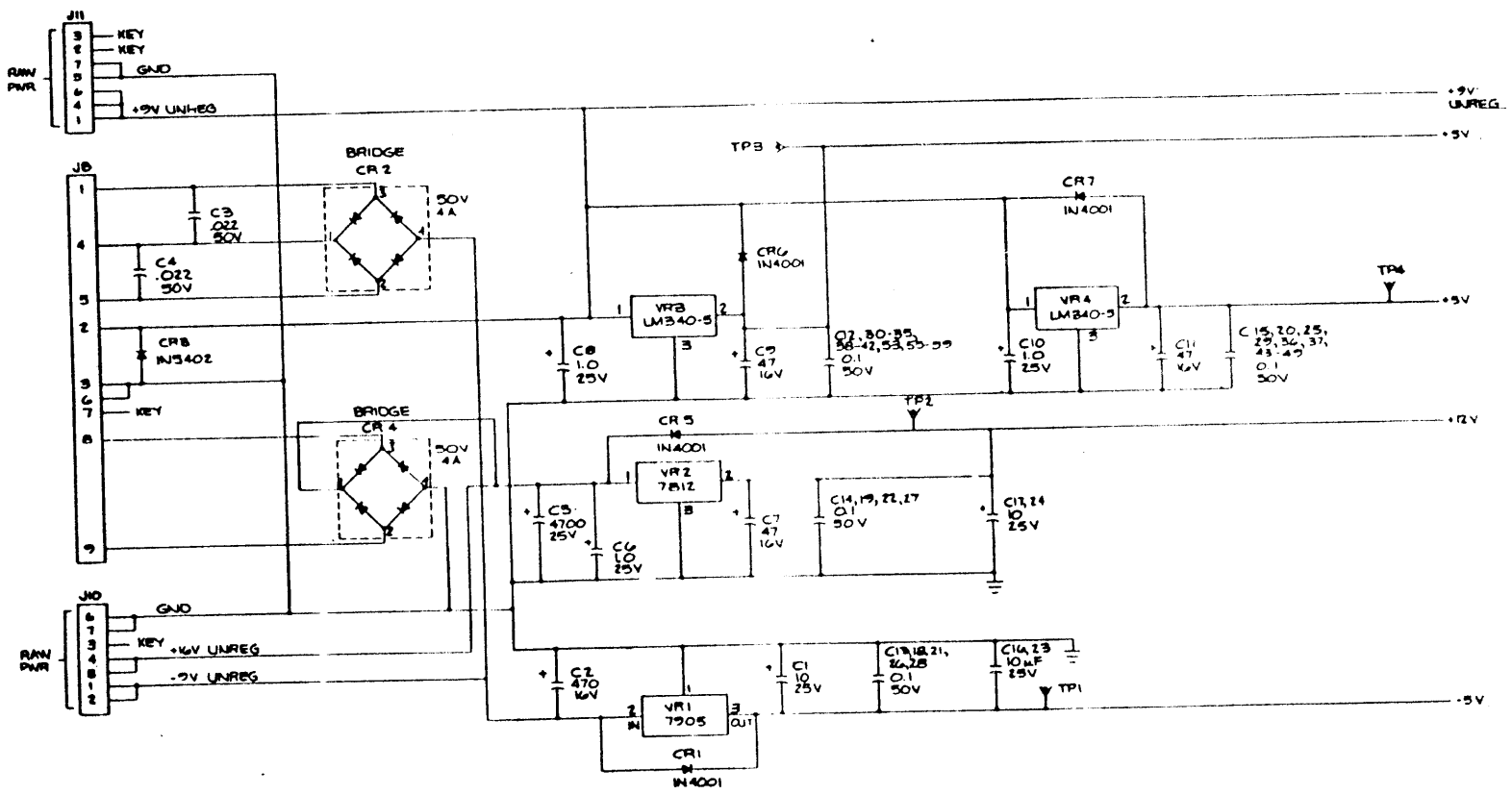


**CRTC AND SYNC BUFFERS**

|     | <table border="1"> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> </tr> <tr> <td>1</td> <td></td> <td></td> <td></td> </tr> </table> | REV         | DATE | DESCRIPTION | BY | 1 |  |  |  | <p style="text-align: center;"><b>commodore</b></p> <p style="text-align: center;">LOGIC DIAGRAM<br/>80 COLUMN CPU<br/>DYNAMIC PAT</p> <p style="text-align: center;">D 8032022</p> |
|-----|--|-------------|------|-------------|----|---|--|--|--|---|
| REV | DATE   | DESCRIPTION | BY   |             |    |   |  |  |  |   |
| 1   |  |             |      |             |    |   |  |  |  |   |



| REVISIONS |      |             |    |
|-----------|------|-------------|----|
| LR#       | DATE | DESCRIPTION | BY |
|           |      | SEE SHEET 1 |    |



VOLTAGE REGULATOR

|  |                    |   |
|--|--------------------|---|
|  | C. DANFELT<br>1972 | accommodare<br>LOGIC DIAGRAM<br>BO COLUMN CPU<br>DYNAMIC PBT<br>8032029 |
|--|--------------------|---|

| PART NO.   | DESCRIPTION                           |
|------------|---------------------------------------|
| 8032090-01 | UNIV. DYNAMIC PET 8032-60HZ           |
| -03        | 4032-60HZ (12")                       |
| -05        | 4016-60HZ                             |
| -07        | UNIV. SUPER PET 9000 - 60HZ           |
| -09        | UNIV. SUPERPET, COMBO-BRD 9000 - 60HZ |
| 8032090-11 | UNIV. DYNAMIC PET, 4032-9" - 60HZ     |

9 REWORK INSTRUCTIONS FOR FCC: JUMPER WIRE FROM UD3 PIN 1 TO UB14 PIN 35. USE 22 AWG (IT. 108). THIS CONFIGURATION IS FOR -09 & -10 ONLY.

8 UD11 & 12 NOT FOR -07, -08, -09 & -10

7 IDENTIFY WITH APPLICABLE DASH NO.

6 SOLDER TO XTAL AND PCB.

5 FOR ITEMS 118 & 119, ALL ASSEMBLIES MUST HAVE SAME VENDOR.

4 SOLDER JUMPER, ITEM 106 FROM E1 TO SILVER CONTACT ON MT1, ITEM 73; TAKE CARE TO ALLOW NO MORE THAN ONE SECOND DURATION FOR APPLICATION OF HEAT DURING SOLDERING.

|     |      | REVISIONS               |                         |
|-----|------|-------------------------|-------------------------|
| LTR | ZONE | DESCRIPTION             | DATE APPROVED           |
| A   |      | PRODUCTION RELEASE      | 6/23/81 <i>Al Green</i> |
| B   |      | REV PER ECO 2157        | 7/16/81 <i>Al Green</i> |
| C   |      | REV PER ECO 2172        | 8/6/81 <i>Al Green</i>  |
| D   |      | REV PER ECO 2237        | 7/21/81 <i>Al Green</i> |
| D   |      | REV PER ECO 2308        | 11/2/81 <i>Al Green</i> |
| E   |      | REV PER ECO 2368        | 11/4/81 <i>Al Green</i> |
| E   |      | PER ECO 2414            | 12/7/81 <i>Al Green</i> |
| F   |      | REV PER ECO 2565 & 2555 | 3/14/82 <i>Al Green</i> |
| G   |      | REVISED PER ECO 2887    |                         |
| H   |      | REVISED PER ECO 3027    |                         |

11 CUT PINS 9 & 10 AT UET. CONNECT PIN 9 TO GND.

10 CONNECT ITEM 43 FROM PIN 15 OF UA19 TO VCC (+5V).

4 REFER TO PART SUBSTITUTION INDEX, P/N 321233.

3 SOLDER AT 3 PLACES, EQUALLY SPACED AROUND THE BRASS BASE MT1 (ITEM 73)

2 IDENTIFY WITH APPLICABLE DASH NO.

1 SHEET 6 OF 7 SIZE C, SHEET 7 OF 7 SIZE D.

NOTES: UNLESS OTHERWISE SPECIFIED:

|           |                                       |                             |                 |                         |               |                           |
|-----------|---------------------------------------|-----------------------------|-----------------|-------------------------|---------------|---------------------------|
| commodore | TITLE<br>PCB ASSY - UNIV. DYNAMIC PET | DRAWN BY<br><i>Al Green</i> | DATE<br>7-11-81 | ENGR<br><i>Al Green</i> | SIZE<br>B     | DRAWING NUMBER<br>8032090 |
|           |                                       | CHECKED<br><i>Al Green</i>  | 6-17-81         | APPR<br><i>Al Green</i> | SHEET<br>OF 7 |                           |

| QUANTITY REQD PER PART / DASH NO. |    |    |    |    |    |    |    |    |    | ITEM | 8  | PART NUMBER | DESCRIPTION | REF DES                         | BEND           | NOTES      |  |
|-----------------------------------|----|----|----|----|----|----|----|----|----|------|----|-------------|-------------|---------------------------------|----------------|------------|--|
| 11                                | 10 | 09 | 08 | 07 | 06 | 05 | 04 | 03 | 02 | 01   |    |             |             |                                 |                |            |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 1  | D           | 8032088-01  | FABRICATION-UNIV. DYNAMIC PET   |                |            |  |
|                                   |    |    |    |    |    |    |    |    |    |      | 2  | D           | 8032087-01  | LOGIC DIAGRAM-UNIV. DYNAMIC PET |                |            |  |
|                                   |    |    |    |    |    |    |    |    |    |      | 3  | B           | 901640-01   | IC 2332                         |                |            |  |
| 3                                 | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3    | 4  | B           | 901521-01   | , 74LS00                        | UA3            |            |  |
| 3                                 | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3    | 5  | B           | 901521-24   | , 74LS10                        | UD5,UE5,UE11   |            |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 6  | B           | 901522-20   | , 7425                          | UD4,UE7,UEB    |            |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 7  | B           | 901521-02   | , 74LS04                        | UE14           |            |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 8  | B           | 901523-01   | , LM555                         | UE15           |            |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 9  | B           | 901522-01   | , 7417                          | UD16           |            |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 10 | B           | 901435-01   | , 6502                          | UD15           |            |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 11 | B           | 901479-01   | , CRT CONTROLLER                | UB14           |            |  |
| 2                                 | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2    | 12 | B           | 901522-13   | , 74154                         | UB13           |            |  |
| 3                                 | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3    | 13 | B           | 901436-01   | , 6520                          | UE12           |            |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 14 | B           | 901524-01   | , MC3446                        | UB12,UB16      |            |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 15 | B           | 901437-01   | , 6522                          | UA20,UB17,UC12 |            |  |
| 2                                 | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2    | 16 | B           | 901521-09   | , 74LS145                       | UB15           |            |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 17 | B           | 901521-45   | , 74LS393                       | UC11           |            |  |
| 2                                 | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2    | 18 | B           | 901521-21   | , 74LS02                        | UD3,UE6        |            |  |
| 2                                 | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2    | 19 | B           | 901525-09   | , 74S74                         | UD1            |            |  |
| 2                                 | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2    | 20 | B           | 901525-01   | , 74S04                         | UC1,UE1        |            |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 21 | B           | 901521-06   | , 74LS74                        | UD2,UE4        |            |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 22 | B           | 901522-28   | , 74166                         | UB2,UB1        |            |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 23 | B           | 901447-10   | , 2316                          | UA2            |            |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 24 | B           | 901521-32   | , 74LS86                        | UA3            |            |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 25 | B           | 901521-28   | , 74LS164                       | UC2            | SEE NOTE 4 |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 26 | B           | 901521-16   | , 74LS138                       | UE3            | SEE NOTE 4 |  |
| 4                                 | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4    | 27 | B           | 901521-11   | , 74LS157                       | UC3            |            |  |
|                                   |    |    |    |    |    |    |    |    |    |      | 28 |             |             |                                 | UC8-UC10,UE2   | SEE NOTE 4 |  |
|                                   |    |    |    |    |    |    |    |    |    |      | 29 |             |             |                                 |                |            |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 30 | B           | 901465-22   | , 2332                          |                |            |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 31 | B           | 901465-21   | , 2332                          | UD6            |            |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 32 | B           | 901465-20   | , 2332                          | UD8            |            |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 33 | B           | 901465-23   | , 2332                          | UD9            |            |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 34 |             |             | , 2332                          | UD10           |            |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 35 | B           | 901522-04   | IC, 7400                        |                |            |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 36 | B           | 900110-07   | CAP. LOW LEAK. ELECT. 14F 50V   | UE1            |            |  |
| 58                                | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58   | 37 | B           | 900461-28   | CAP. CERAMIC AXIAL .14F 50V     | UC10           |            |  |

commodore

TITLE: PCB ASSY-UNIV. DYNAMIC PET

DRAWN BY: *[Signature]* DATE: 3-11-87 ENGR: *[Signature]* DATE: *[Blank]* SIZE: B  
 CHKD: *[Signature]* 6/78 APPR: *[Signature]* REV: H SHIT: 2/7  
 8032090

| QUANTITY REQD PER PART / DASH NO. |    |    |    |    |    |    |    |    |    |    | ITEM | 8 | PART NUMBER | DESCRIPTION                     | REF DES                                 | BEND     | NOTES |  |
|-----------------------------------|----|----|----|----|----|----|----|----|----|----|------|---|-------------|---------------------------------|---|----------|-------|--|
| 11                                | 10 | 09 | 08 | 07 | 06 | 05 | 04 | 03 | 02 | 01 |      |   |             |                                 |   |          |       |  |
| 3                                 | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 338  | B | 90046-16    | CAP, CERAMIC AXIAL .01uF 50V    | C52, 60, 61                             |          |       |  |
| 2                                 | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 239  | B | 90046-20    | CERAMIC AXIAL .022uF 50V        | C3, 4                                   |          |       |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 140  | B | 900100-45   | ELECTROLYTIC 4700uF 25V         | C5                                      |          |       |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 141  | B | 900100-44   | ELECTROLYTIC 470uF 16V          | C2                                      |          |       |  |
| 5                                 | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 5  | 542  | B | 900109-03   | LOW LEAK. ELECT. 10uF 25V       | C1, 16, 17, 23, 24                      | SEE NOTE | 4     |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 143  | B | 900050-21   | DIPPED MICA, RADIAL, 82PF, 500V | C97                                     | SEE NOTE | 10    |  |
| 2                                 | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 244  | B | 900402-13   | TANTALUM 1uF 35V                | C6, 51                                  |          |       |  |
| 2                                 | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 245  | B | 900101-37   | ELECTROLYTIC 47uF 16V           | C7, 11                                  |          |       |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 146  | B | 900463-08   | CERAMIC AXIAL 220 PF            | C92                                     |          |       |  |
| 14                                | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 147  | B | 900462-29   | CAP, CERAMIC AXIAL 47PF         | C74-C86, C88                            |          |       |  |
| 2                                 | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 249  | B | 901550-84   | RES, CARBON 1/4W 5%             | 1M R24, 25                              |          |       |  |
| 3                                 | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 350  | B | 901550-58   |                                 | 470u R13, 16, 17                        |          |       |  |
| 4                                 | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 451  | B | 901550-94   |                                 | 68u R10, 11, 46, 49                     |          |       |  |
| 2                                 | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 252  | B | 901550-03   |                                 | 5.1K R19, 21                            |          |       |  |
| 2                                 | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 253  | B | 901550-85   |                                 | 2.4K R18, 20                            |          |       |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 154  | B | 901550-64   |                                 | 10u R8                                  |          |       |  |
| 2                                 | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 255  | B | 901550-20   |                                 | 10K R23, 27                             |          |       |  |
| 2                                 | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 256  | B | 901550-69   |                                 | 1.5K R47, 48                            |          |       |  |
| 8                                 | 8  | 8  | 8  | 8  | 8  | 8  | 8  | 8  | 8  | 8  | 857  | B | 901550-49   |                                 | 100u R32-38, 40                         |          |       |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 158  | B | 901550-19   |                                 | 4.7K R51...                             |          |       |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 159  | B | 901550-18   |                                 | 2.2K R53                                |          |       |  |
| 2                                 | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 260  | B | 901550-56   |                                 | 47u R50, 52                             |          |       |  |
|                                   |    |    |    |    |    |    |    |    |    |    | 61   | B |             |                                 |   |          |       |  |
|                                   |    |    |    |    |    |    |    |    |    |    | 62   | B |             |                                 |   |          |       |  |
|                                   |    |    |    |    |    |    |    |    |    |    | 63   | B |             |                                 |   |          |       |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 164  | B | 901550-93   |                                 |   |          |       |  |
| 16                                | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 165  | B | 901550-01   |                                 | 39u R7                                  |          |       |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 166  | B | 901550-02   | CARBON 1/4W 5%                  | 1K R1-6, 12, 15, 22, 26, 28, 39, 42-45. |          |       |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 167  | B | 902419-66   | RES, NETWORK, DIP 14PIN         | 3.3K R14                                |          |       |  |
|                                   |    |    |    |    |    |    |    |    |    |    | 68   | B |             |                                 | 10K UB11                                |          |       |  |
| 2                                 | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 2  | 269  | B | 902653-01   | TRANSISTOR, TIP 29              |   |          |       |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 170  | B | 902550-01   | TRANSISTOR, PACK Q2T222         | Q1, Q2                                  |          |       |  |
|                                   |    |    |    |    |    |    |    |    |    |    | 71   | B |             |                                 | UE16                                    |          |       |  |
|                                   |    |    |    |    |    |    |    |    |    |    | 72   | B |             |                                 |   |          |       |  |
| 1                                 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 173  | B | 907300-02   | TRANSDUCER-PIEZO ACOUSTIC       | MT1                                     |          |       |  |
|                                   |    |    |    |    |    |    |    |    |    |    | 74   | B |             |                                 |   |          |       |  |

commodore

TITLE: PCB ASSY-DYNIV. DYNAMIC PET

CHKD: [Signature]

DATE: 7-11-81

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B 8032090

REV: H

37

| QUANTITY REQD PER PART / DASH NO. |     |     |     |     |    | ITEM | 8 | PART NUMBER       | DESCRIPTION                        | REF DES              | BEND  | NOTES |
|-----------------------------------|-----|-----|-----|-----|----|------|---|-------------------|------------------------------------|----------------------|---|-------|
| 11                                | 10  | 09  | 08  | 07  | 06 |      |   |                   |                                    |                      |   |       |
|                                   |     |     |     |     |    |      |   | 75                |                                    |                      |   |       |
| 3                                 | 3   | 3   | 3   | 3   |    |      |   | 376 B 900750-05   | DIODE, IN4005                      | CR1,5,7              |   |       |
| 2                                 | 2   | 2   | 2   | 2   |    |      |   | 277 B 900757-01   | .BRIDGE 4A/50V                     | CR2,4                | SEE NOTE 4                                    |       |
| 1                                 | 1   | 1   | 1   | 1   |    |      |   | 178 B 900753-01   | .IN5402 3A/200V                    | CR3                  |   |       |
|                                   |     |     |     |     |    |      |   | 79                |                                    |                      |   |       |
|                                   |     |     |     |     |    |      |   | 80                |                                    |                      |   |       |
| 2                                 | 2   | 2   | 2   | 2   |    |      |   | 281 B 900941-01   | DIODE, ZENER 7.5V                  | VR5,6                |   |       |
|                                   |     |     |     |     |    |      |   | 82                |                                    |                      |   |       |
| 1                                 | 1   | 1   | 1   | 1   |    |      |   | 183 B 901527-03   | VOLTAGE REGULATOR, 7905, -5V/1.5A  | VR1                  | TO-220  |       |
|                                   |     |     |     |     |    |      |   | 84                |                                    |                      |   |       |
| 1                                 | 1   | 1   | 1   | 1   |    |      |   | 185 B 901528-04   | VOLTAGE REGULATOR, 7812, +12V/1A   | VR2                  | TO-3  |       |
| 1                                 | 1   | 1   | 1   | 1   |    |      |   | 186 B 901528-01   | VOLTAGE REGULATOR, LM323           | VR4                  |   |       |
|                                   |     |     |     |     |    |      |   | 87                |                                    |                      |   |       |
| 1                                 | 1   | 1   | 1   | 1   |    |      |   | 188 B 900556-02   | CRYSTAL 16MHZ                      | Y1                   |   |       |
|                                   |     |     |     |     |    |      |   | 89                |                                    |                      |   |       |
| 1                                 | 1   | 1   | 1   | 1   |    |      |   | 190 B 903326-07   | HEADER ASSY .100 CENTER            | J10                  | 7 PIN; REMOVE PIN 3 AT ASSEMBLY               |       |
| 2                                 | 2   | 2   | 2   | 2   |    |      |   | 291 B 903345-25   | HEADER ASSY, DUAL ROW .100 CENTER  | J4,9                 | 50 PIN  |       |
| 1                                 | 1   | 1   | 1   | 1   |    |      |   | 192 B 903316-09   | HEADER ASSY .156 CENTER            | J8                   | 9 PIN; REMOVE PIN 7 AT ASSEMBLY               |       |
| 1                                 | 1   | 1   | 1   | 1   |    |      |   | 193 B 903331-07   | HEADER ASSY, POLARIZED .100 CENTER | J11                  | 7 PIN; REMOVE PIN 3 AT ASSEMBLY               |       |
| 1                                 | 1   | 1   | 1   | 1   |    |      |   | 194 B 903331-07   | HEADER ASSY, POLARIZED .100 CENTER | J7                   | 7 PIN; ORIENT OMITTED PIN TO PIN 6 POSITION   |       |
| 1                                 | 1   | 1   | 1   | 1   |    |      |   | 195 B 903331-20   | HEADER ASSY, POLARIZED .100 CENTER | J5                   | 20 PIN; ORIENT OMITTED PIN TO PIN 19 POSITION |       |
|                                   |     |     |     |     |    |      |   | 96                |                                    |                      |   |       |
| 4                                 | 2   | 2   | 4   | 4   |    |      |   | 497 B 904150-04   | SOCKET, IC LOW PROFILE 24 PIN      | UA3, UD7, UD11, UD12 | SEE NOTE 8                                    |       |
| 1                                 | 1   | 1   | 1   | 1   |    |      |   | 198 B 904150-06   | SOCKET, IC LOW PROFILE 40 PIN      | UB14                 |   |       |
| 1                                 | 1   | 1   | 1   | 1   |    |      |   | 199 904150-01     | SOCKET IC LOW PROFILE 14 PIN       | UF1                  |   |       |
| 2                                 | 2   | 2   | 2   | 2   |    |      |   | 2100 B 901151-17  | COIL, INDUCTOR 2.2uh               | L1, L2               |   |       |
| 1                                 | 1   | 1   | 1   | 1   |    |      |   | 1101 B 320086-02  | BUS WIRE                           |                      |   |       |
|                                   |     |     |     |     |    |      |   | 102               |                                    |                      |   |       |
| 4                                 | 4   | 4   | 4   | 4   |    |      |   | 4103 B 906403-19  | RIVET, DOME HEAD, OPEN END         |                      |   |       |
| 2                                 | 2   | 2   | 2   | 2   |    |      |   | 2104 B 906404-04  | RIVET, DOME HEAD, CLOSED END       |                      |   |       |
|                                   |     |     |     |     |    |      |   | 105               |                                    |                      |   |       |
| 1                                 | 1   | 1   | 1   | 1   |    |      |   | 1106 B 903780-01  | #30 WIRE WRAP WIRE, RED            |                      |   |       |
| 20                                | 20  | 20  | 19  | 20  |    |      |   | 20107 B 903781-01 | 22 AWG BARE WIRE ON TAPE & REEL    |                      |   |       |
| -                                 | 1/2 | 1/2 | -   | -   |    |      |   | -108 B 903755-03  | WIRE, INSULATED, 22 AWG, 12.5 LG   |                      |   |       |
| 1                                 | 1   | 1   | 1   | 1   |    |      |   | 1109 B 320268-01  | HEATSINK                           |                      |   |       |
| 1/2                               | 1/2 | 1/2 | 1/2 | 1/2 |    |      |   | 1110 B 904907-01  | HEATSINK, COMPOUND THERMAL         |                      |   |       |
|                                   |     |     |     |     |    |      |   | 111               |                                    |                      |   |       |

commodore

TITLE: PCB ASSY-UNIV. DYNAMIC PET

Drawn by: *[Signature]*  
Checked by: *[Signature]*

DATE: 7-11-87  
6-11-87

ENGR: *[Signature]*  
APPR: *[Signature]*

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SIZE: B

8032090

REV: H

SHT: 4/7

| QUANTITY READ PER PART / DASH NO. |    |    |    |    |    |    |    |    |    |    | ITEM | Q   | PART NUMBER | DESCRIPTION | REF DES                        | BEND  | NOTES |
|-----------------------------------|----|----|----|----|----|----|----|----|----|----|------|-----|-------------|-------------|--------------------------------|---|-------|
| 11                                | 10 | 09 | 08 | 07 | 06 | 05 | 04 | 03 | 02 | 01 |      |     |             |             |                                |   |       |
| -                                 | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | 11   | 112 | B           | 901521-13   | IC, 74LS244                    |   |       |
| 9                                 | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -    | 113 | B           | 901521-13   | , 74LS244                      | UB4-UB7, UB9, UB10, UD13, UD14, UE8-UE10    |       |
| -                                 | 2  | -  | -  | -  | -  | -  | -  | -  | -  | -  | 2    | 114 | B           | 901521-29   | , 74LS373                      | UB4, UB5, UB9, UB10, UD13, UD14, UE8-UE10   |       |
| 1                                 | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -    | 115 | B           | 901521-29   | , 74LS373                      | UB3, UB8                                    |       |
| -                                 | 4  | -  | -  | -  | -  | -  | -  | -  | -  | -  | 4    | 116 | B           | 901453-02   | , 2114                         | UB3   |       |
| 2                                 | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -    | 117 | B           | 901453-02   | , 2114                         | UC4-UC7                                     |       |
| 16                                | 16 | -  | -  | -  | -  | -  | -  | -  | -  | -  | 16   | 118 | B           | 901470-01   | , 4116                         | UC4, UC5                                    |       |
| -                                 | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -    | 119 | B           | 901470-01   | , 4116                         | UA4-UA19                                    |       |
| -                                 | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | 1    | 120 | B           | 901474-03   | , 2316                         | UA5, UA7, UA9, UA11, UA13, UA15, UA17, UA19 |       |
| -                                 | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -    | 121 | B           | 901499-01   | , 2316                         | UD7   |       |
| -                                 | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -    | 122 | B           | 901499-01   | , 2316                         | UD7   |       |
| -                                 | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -    | 123 | B           | 970150-07   | IC, 2516 EPROM                 | UD7   |       |
| -                                 | -  | -  | -  | -  | -  | -  | -  | -  | -  | -  | -    | 124 | B           | 970150-07   | IC, 2516 EPROM                 | UD7   |       |
| 28                                | 28 | -  | -  | -  | -  | -  | -  | -  | -  | -  | 28   | 125 | B           | 903025-01   | FERRITE BEAD                   | UD7   |       |
| 1                                 | 1  | -  | -  | -  | -  | -  | -  | -  | -  | -  | 1    | 126 | B           | 4022048-01  | SHIELD BOX                     | FBI-26, 28, 29                              |       |
| 1                                 | 1  | -  | -  | -  | -  | -  | -  | -  | -  | -  | 1    | 127 | B           | 4022048-01  | SHIELD BOX                     |   |       |
| 1                                 | 1  | -  | -  | -  | -  | -  | -  | -  | -  | -  | 1    | 128 | B           | 4022047-01  | SHIELD CAP                     |   |       |
| 1                                 | 1  | -  | -  | -  | -  | -  | -  | -  | -  | -  | 1    | 129 | B           | 900461-22   | CAP CERAMIC AXIAL, .033uF, 50V |   |       |
| 1                                 | 1  | -  | -  | -  | -  | -  | -  | -  | -  | -  | 1    | 130 | B           | 900461-22   | CAP CERAMIC AXIAL, .033uF, 50V | C94   |       |
| 1                                 | 1  | -  | -  | -  | -  | -  | -  | -  | -  | -  | 1    | 131 | B           | 900461-24   | CAP CERAMIC AXIAL, .047uF, 50V | C93   |       |
| 1                                 | 1  | -  | -  | -  | -  | -  | -  | -  | -  | -  | 1    | 132 | B           | 900463-04   | CAP CERAMIC AXIAL, 100 PF, 50V | C91   |       |
|                                   |    |    |    |    |    |    |    |    |    |    |      | 133 |             |             |                                |   |       |
|                                   |    |    |    |    |    |    |    |    |    |    |      | 134 |             |             |                                |   |       |
|                                   |    |    |    |    |    |    |    |    |    |    |      | 135 |             |             |                                |   |       |
|                                   |    |    |    |    |    |    |    |    |    |    |      | 136 |             |             |                                |   |       |
|                                   |    |    |    |    |    |    |    |    |    |    |      | 137 |             |             |                                |   |       |
|                                   |    |    |    |    |    |    |    |    |    |    |      | 138 |             |             |                                |   |       |
|                                   |    |    |    |    |    |    |    |    |    |    |      | 139 |             |             |                                |   |       |
|                                   |    |    |    |    |    |    |    |    |    |    |      | 140 |             |             |                                |   |       |
|                                   |    |    |    |    |    |    |    |    |    |    |      | 141 |             |             |                                |   |       |
|                                   |    |    |    |    |    |    |    |    |    |    |      | 142 |             |             |                                |   |       |
|                                   |    |    |    |    |    |    |    |    |    |    |      | 143 |             |             |                                |   |       |
|                                   |    |    |    |    |    |    |    |    |    |    |      | 144 |             |             |                                |   |       |
|                                   |    |    |    |    |    |    |    |    |    |    |      | 145 |             |             |                                |   |       |
|                                   |    |    |    |    |    |    |    |    |    |    |      | 146 |             |             |                                |   |       |
|                                   |    |    |    |    |    |    |    |    |    |    |      | 147 |             |             |                                |   |       |
|                                   |    |    |    |    |    |    |    |    |    |    |      | 148 |             |             |                                |   |       |

commodore

TITLE: PCB ASSY-DYNAMIC PET

DESIGN BY: *M.A.*  
CHKD: *167*

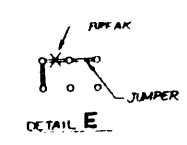
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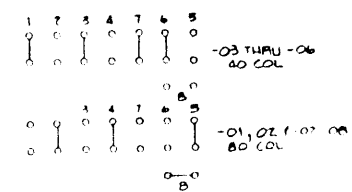
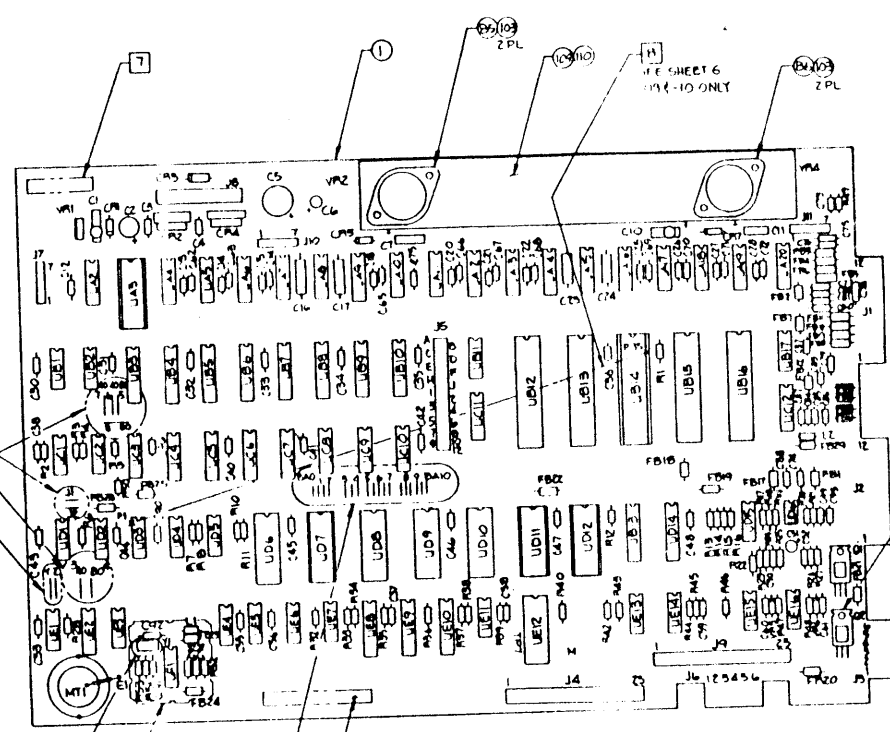
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SHT: 5/7

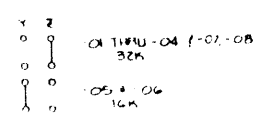
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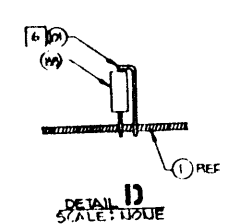
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SEE DETAIL A  
SEE DETAIL B



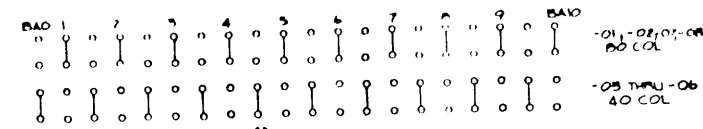
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JUMPER CONFIGURATIONS



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SCALE: NONE

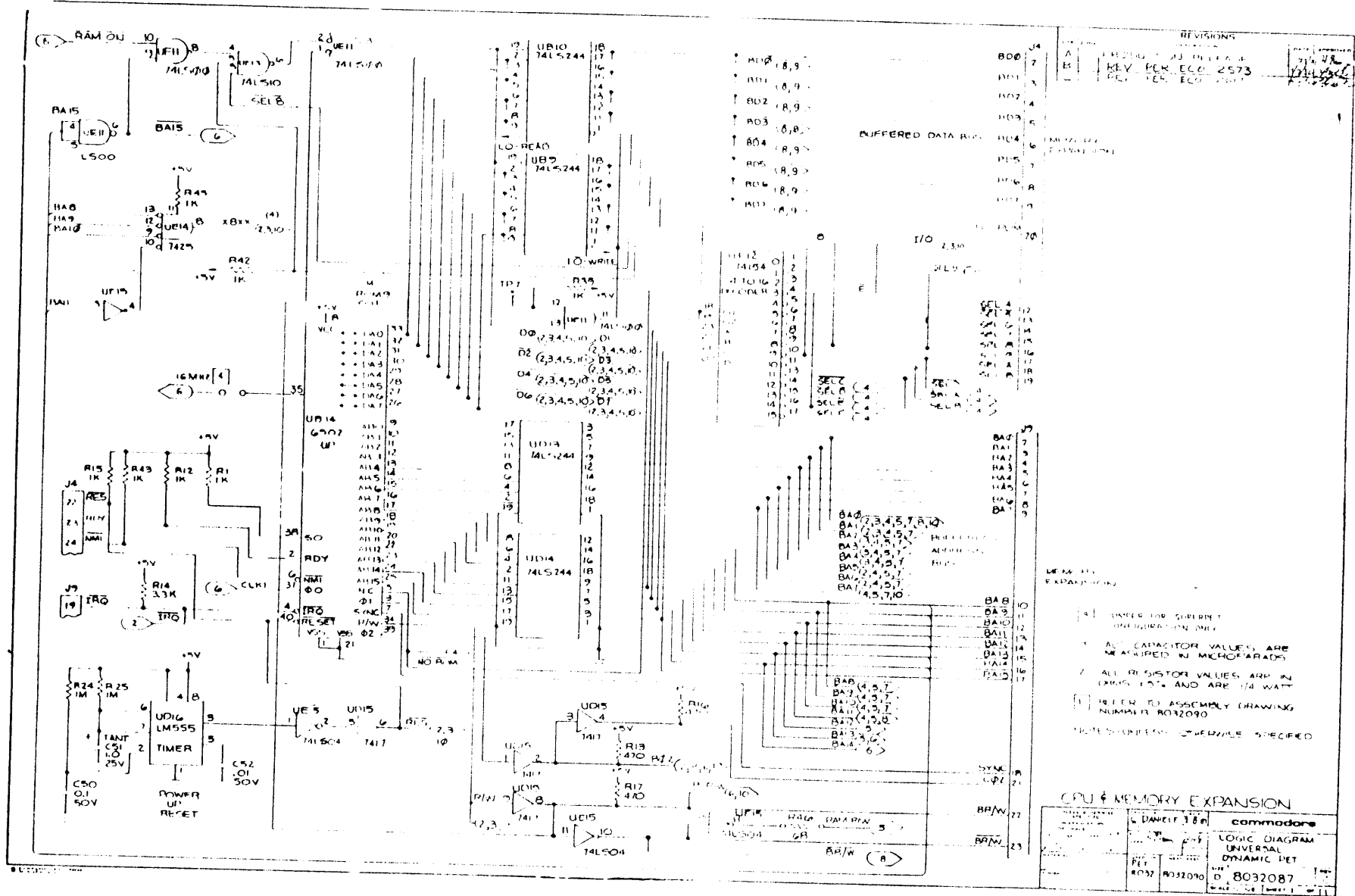


SEE DETAIL D  
SEE DETAIL C



DETAIL C  
SCALE: NONE  
JUMPER CONFIGURATIONS

| OF THRU 10 SHOWN |    |      |        |
|------------------|----|------|--------|
| DATE             | BY | CHKD | APP'D  |
|                  |    |      |        |
| COMMODORE        |    |      |        |
| PCB ASSY -       |    |      |        |
| UNIV. DYNAMIC    |    |      |        |
| PET              |    |      |        |
| PART NO. 8032090 |    |      | REV. 1 |
|                  |    |      | OF 7   |



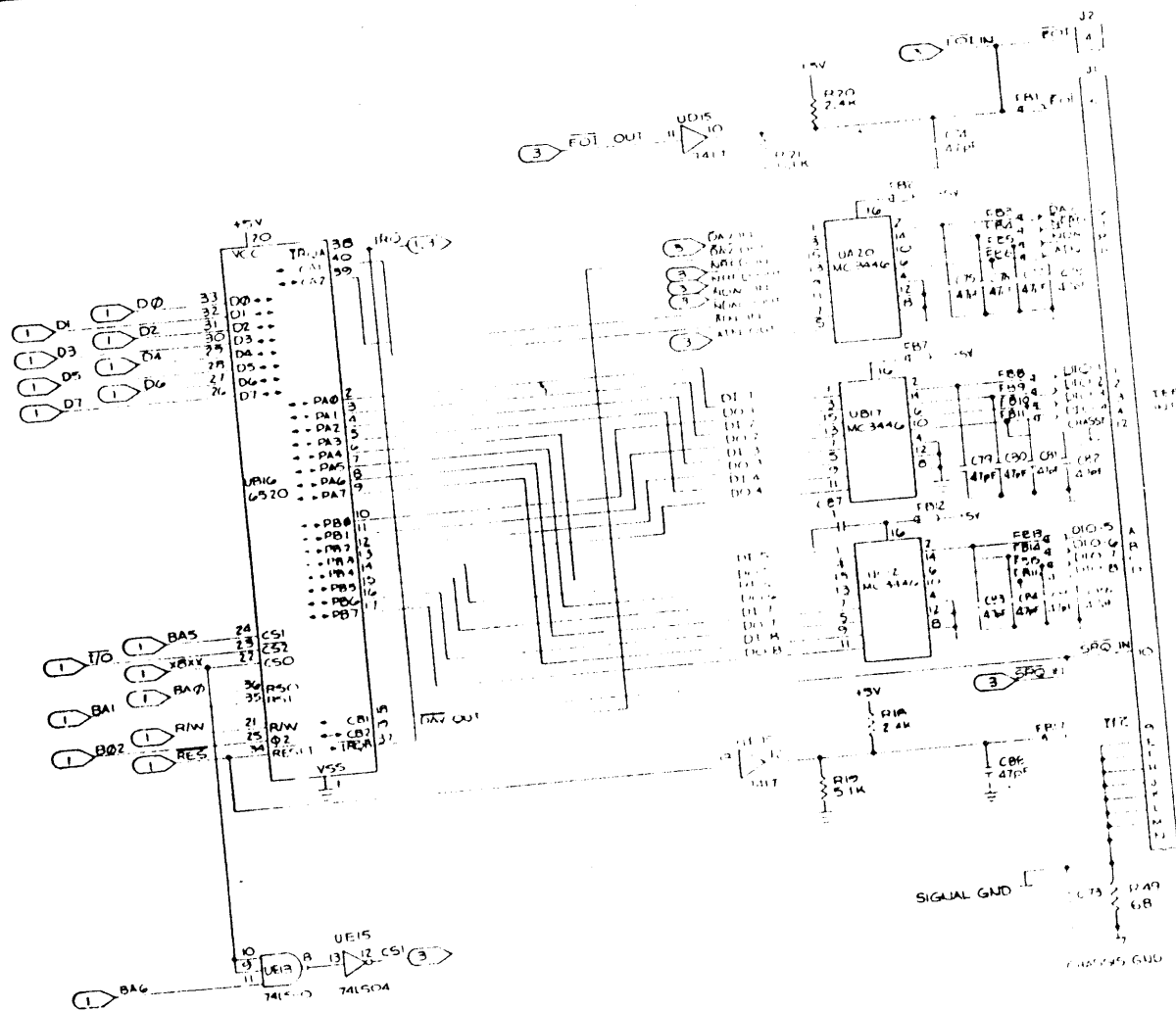
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| A         | REV. FOR ECO 2573 |
| B         | REV. FOR ECO 2573 |

- 1. CENTER TAB SHEET OPERATIONS ONLY
- 2. ALL CAPACITOR VALUES ARE MEASURED IN MICROFARADS
- 3. ALL RESISTOR VALUES ARE IN OHMS, 10% AND ARE 1/4 WATT
- 4. REFER TO ASSEMBLY DRAWING NUMBER 8032090
- 5. NOTE SYMBOLS, OTHERWISE SPECIFIED

| CPU & MEMORY EXPANSION |         |
|------------------------|---------|
| RAM 01                 | RAM 02  |
| RAM 03                 | RAM 04  |
| RAM 05                 | RAM 06  |
| RAM 07                 | RAM 08  |
| RAM 09                 | RAM 10  |
| RAM 11                 | RAM 12  |
| RAM 13                 | RAM 14  |
| RAM 15                 | RAM 16  |
| RAM 17                 | RAM 18  |
| RAM 19                 | RAM 20  |
| RAM 21                 | RAM 22  |
| RAM 23                 | RAM 24  |
| RAM 25                 | RAM 26  |
| RAM 27                 | RAM 28  |
| RAM 29                 | RAM 30  |
| RAM 31                 | RAM 32  |
| RAM 33                 | RAM 34  |
| RAM 35                 | RAM 36  |
| RAM 37                 | RAM 38  |
| RAM 39                 | RAM 40  |
| RAM 41                 | RAM 42  |
| RAM 43                 | RAM 44  |
| RAM 45                 | RAM 46  |
| RAM 47                 | RAM 48  |
| RAM 49                 | RAM 50  |
| RAM 51                 | RAM 52  |
| RAM 53                 | RAM 54  |
| RAM 55                 | RAM 56  |
| RAM 57                 | RAM 58  |
| RAM 59                 | RAM 60  |
| RAM 61                 | RAM 62  |
| RAM 63                 | RAM 64  |
| RAM 65                 | RAM 66  |
| RAM 67                 | RAM 68  |
| RAM 69                 | RAM 70  |
| RAM 71                 | RAM 72  |
| RAM 73                 | RAM 74  |
| RAM 75                 | RAM 76  |
| RAM 77                 | RAM 78  |
| RAM 79                 | RAM 80  |
| RAM 81                 | RAM 82  |
| RAM 83                 | RAM 84  |
| RAM 85                 | RAM 86  |
| RAM 87                 | RAM 88  |
| RAM 89                 | RAM 90  |
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| RAM 95                 | RAM 96  |
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| RAM 99                 | RAM 100 |



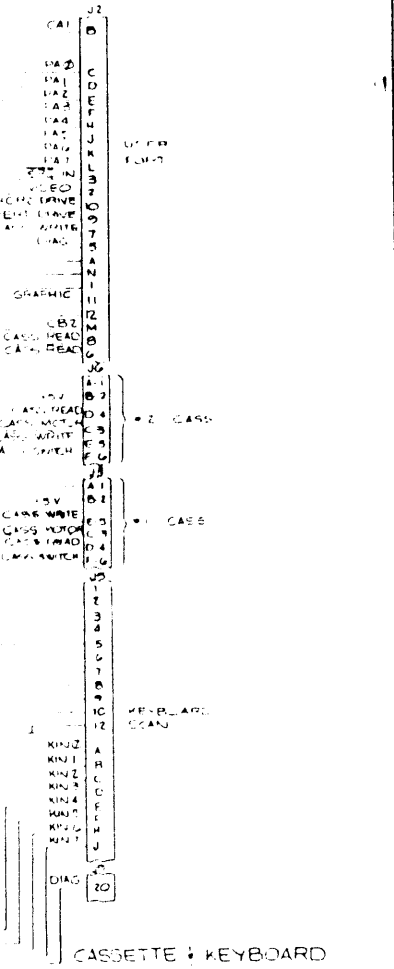
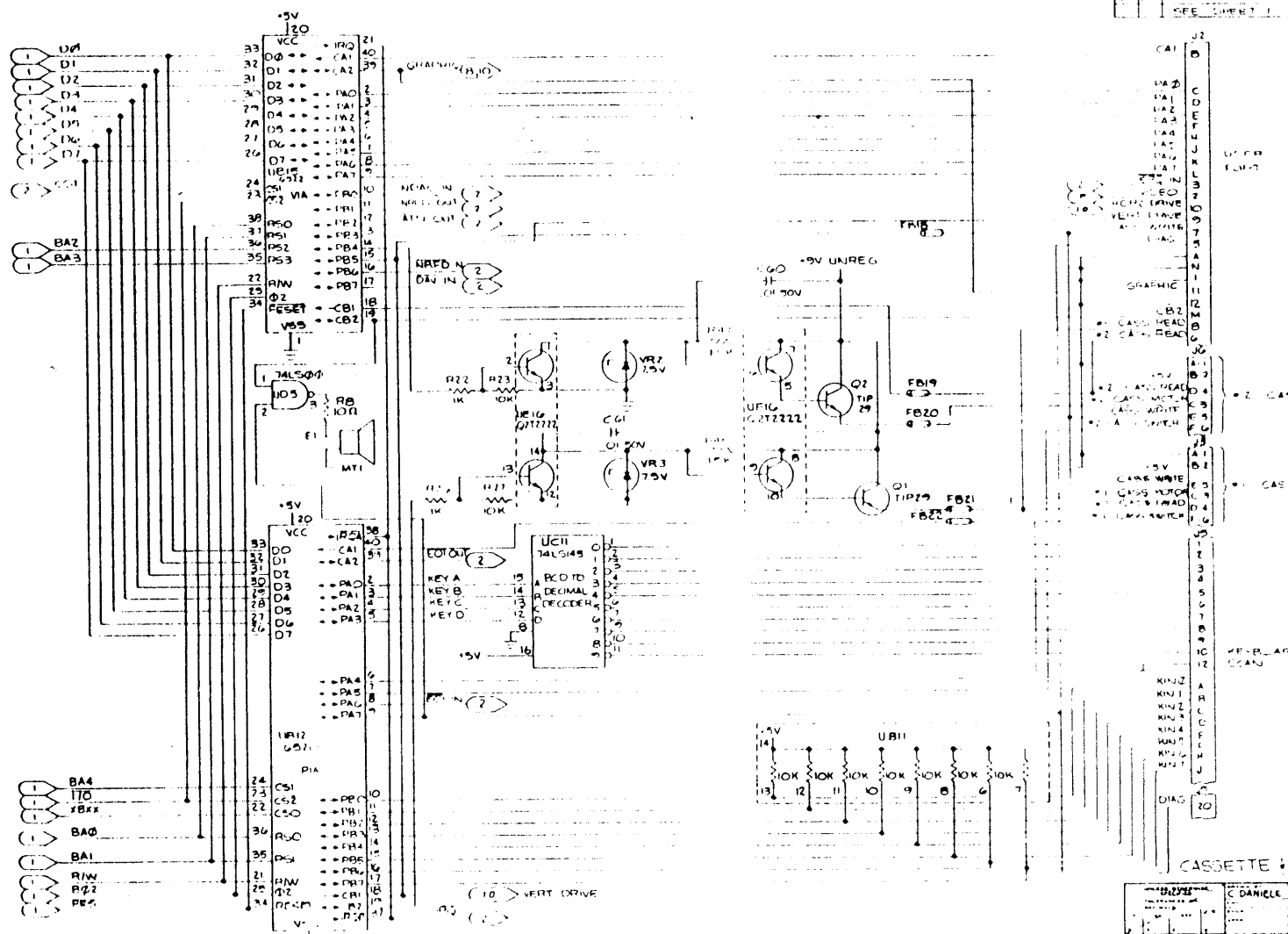
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IEEE 488 INTERFACE

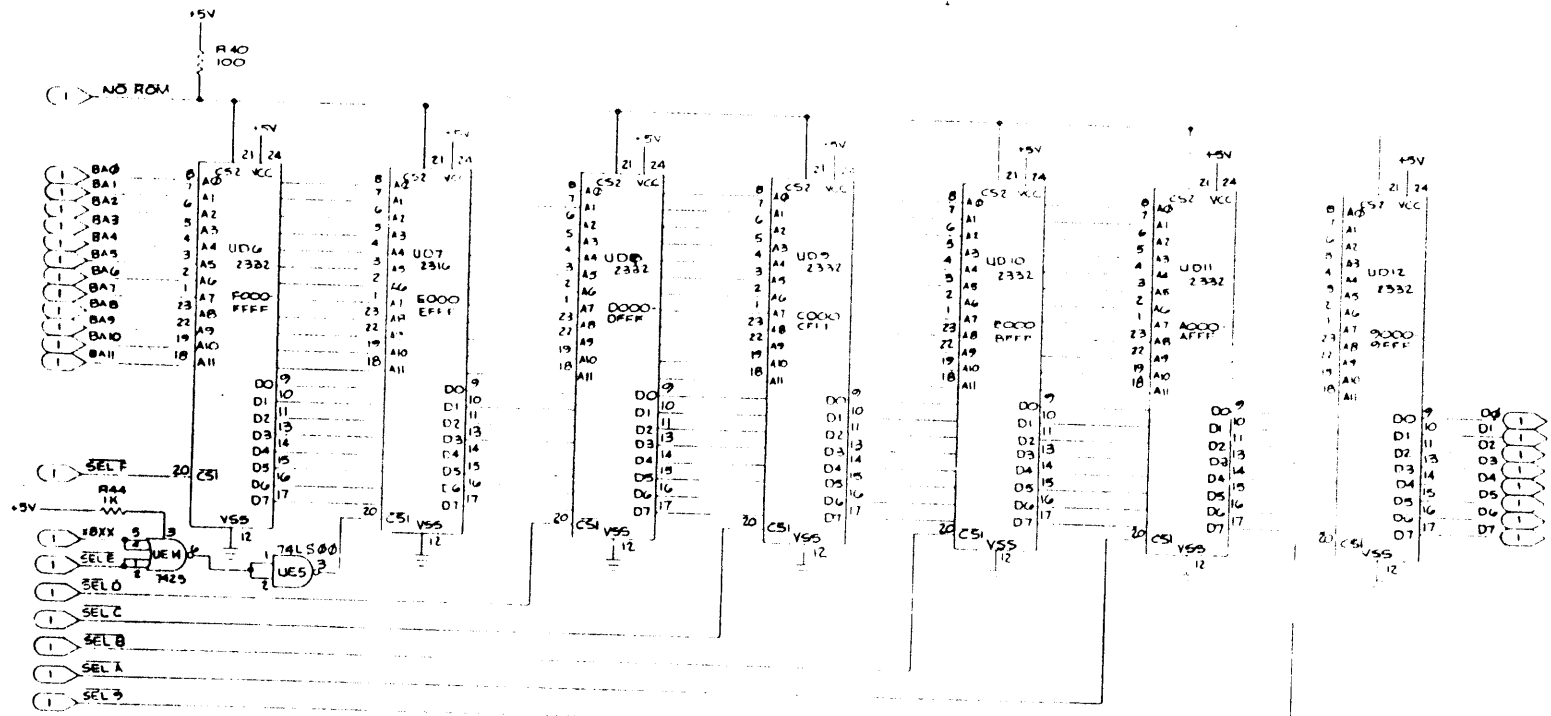
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| 0802087   |      |    |           |

| REVISIONS |             |      |
|-----------|-------------|------|
| REV       | DESCRIPTION | DATE |
| 1         | SEE SHEET 1 |      |



|              |  |           |  |
|--------------|--|-----------|--|
| C DANIELLE   |  | COMMODORE |  |
| LOWE CHATRAM |  |           |  |
| UNIVERSAL    |  |           |  |
| DYNAMIC 111  |  |           |  |
| D 8032087    |  |           |  |
| PAGE 5       |  |           |  |

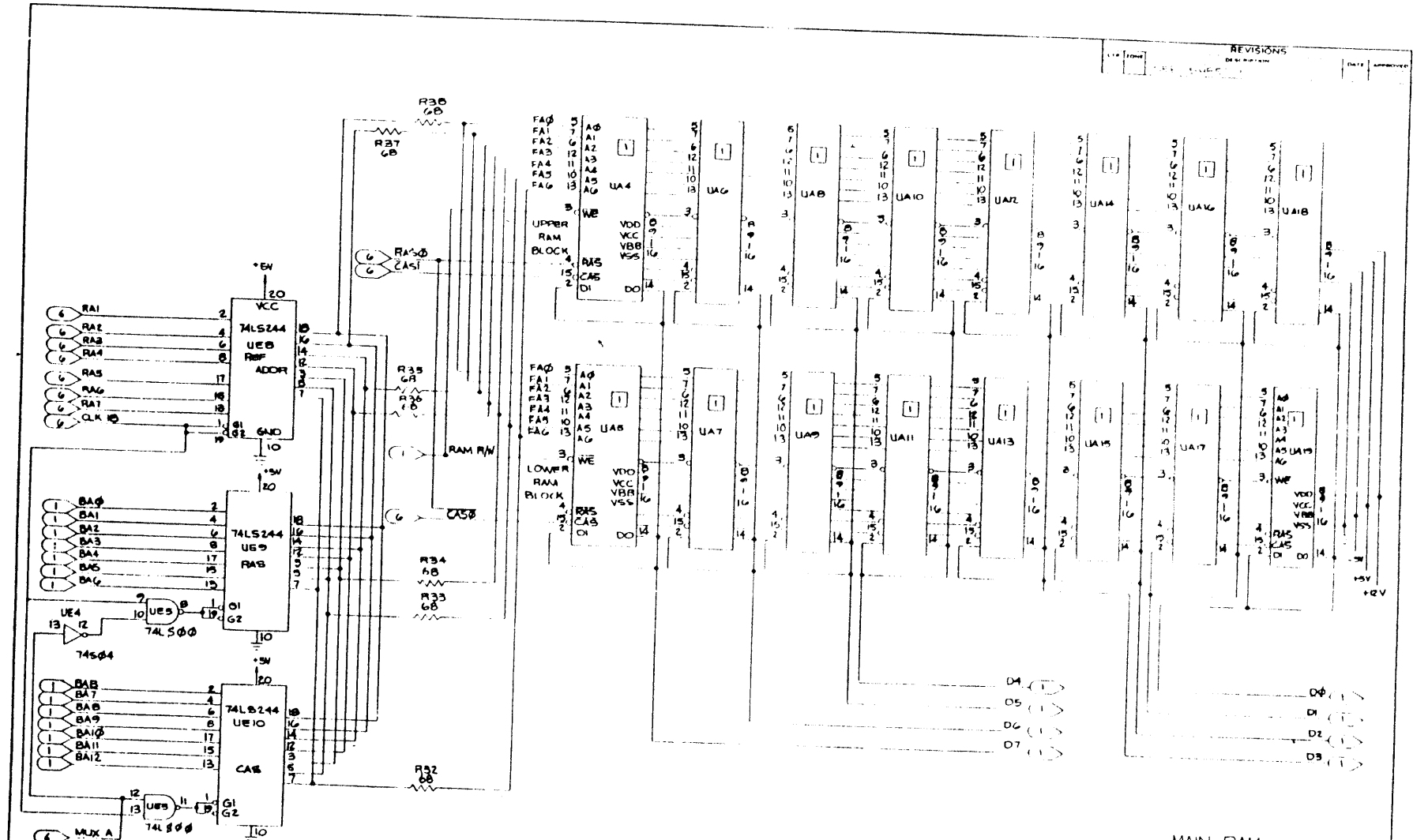
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ROMS

|               |           |           |
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| UNIVERSAL     | C DANIELE | commodore |
| LOGIC DIAGRAM |           |           |
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| DYNAMIC       |           |           |
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| SCALE 1/100   |           |           |

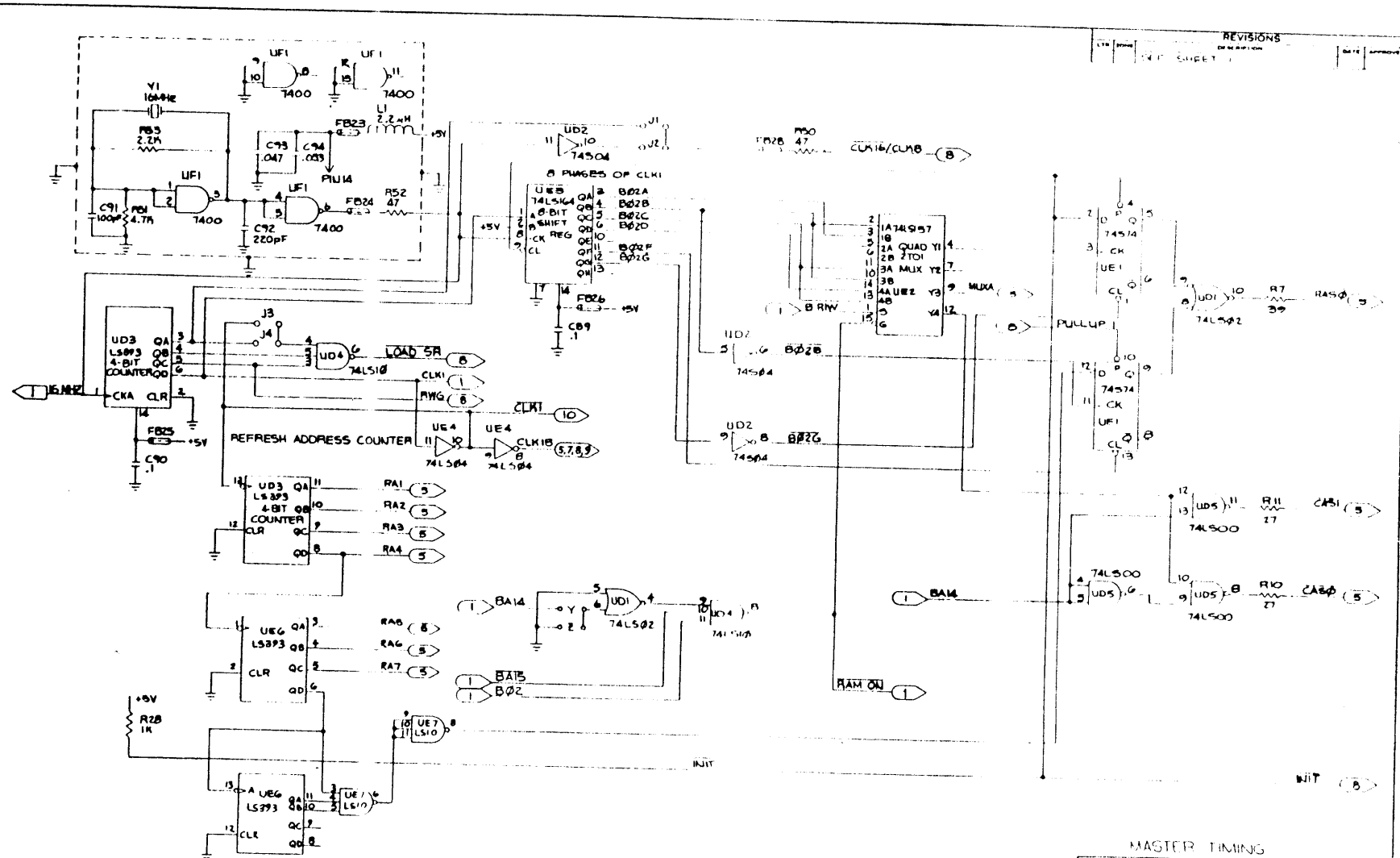
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MAIN RAM

|   |  |  |
|---|--|--|
|   |  |  |
| <b>commodore</b><br>LOGIC DIAGRAM<br>UNIVERSAL<br>DYNAMIC DET |  |  |
| D 8032087 C<br>MACHINE  |  |  |

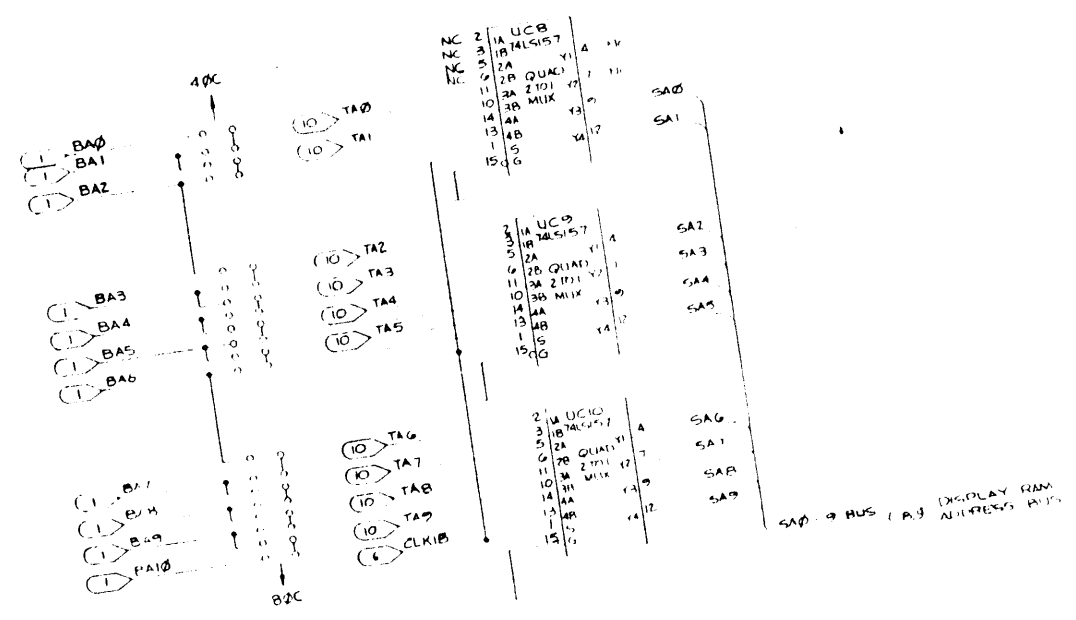
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MASTER TIMING

| TIME | DESCRIPTION | UNIT |
|------|-------------|------|
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|      |             |      |

COMMODORE  
LOGIC TRANSFORM  
UNIVERSAL  
TRANSLATOR  
PART NO. 8032087

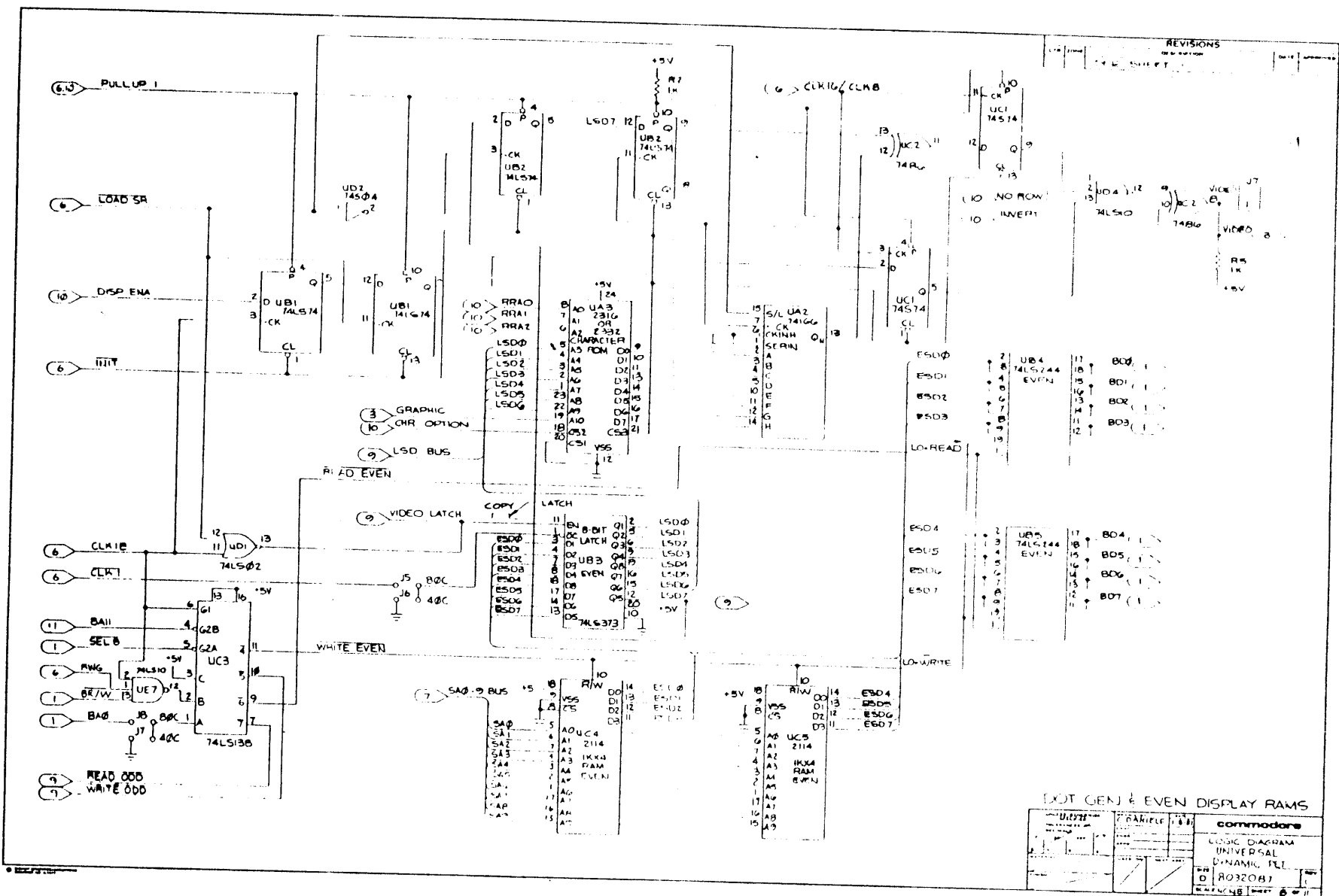


DISPLAY ADDRESS MUX

|             |           |
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| DESIGNED BY | E DANIELE |
| CHECKED BY  |           |
| DATE        |           |
| REV         |           |

COMMODORE  
 LOGIC DIAGRAM  
 UNIVERSAL  
 DYNAMIC DET

PH 0 R0320B7



REVISIONS

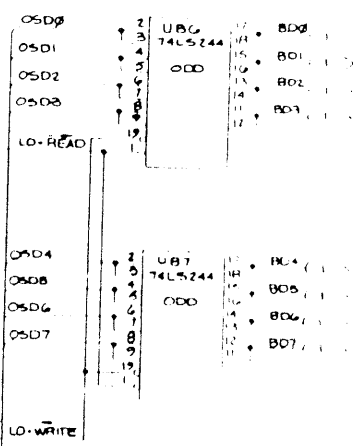
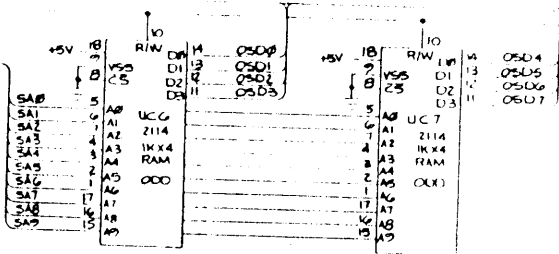
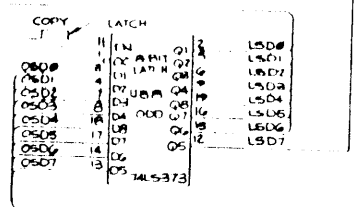
| NO. | DESCRIPTION | DATE |
|-----|-------------|------|
| 1   | REVISED     |      |

EXT GEN & EVEN DISPLAY RAMS

| Part | Value   | Part  | Value   |
|------|---------|-------|---------|
| UC1  | 74LS14  | UC2   | 74LS10  |
| UC3  | 74LS136 | UC4   | 74LS373 |
| UC5  | 74LS244 | UC6   | 74LS244 |
| UC7  | 74LS244 | UC8   | 74LS244 |
| UC9  | 74LS244 | UC10  | 74LS244 |
| UC11 | 74LS244 | UC12  | 74LS244 |
| UC13 | 74LS244 | UC14  | 74LS244 |
| UC15 | 74LS244 | UC16  | 74LS244 |
| UC17 | 74LS244 | UC18  | 74LS244 |
| UC19 | 74LS244 | UC20  | 74LS244 |
| UC21 | 74LS244 | UC22  | 74LS244 |
| UC23 | 74LS244 | UC24  | 74LS244 |
| UC25 | 74LS244 | UC26  | 74LS244 |
| UC27 | 74LS244 | UC28  | 74LS244 |
| UC29 | 74LS244 | UC30  | 74LS244 |
| UC31 | 74LS244 | UC32  | 74LS244 |
| UC33 | 74LS244 | UC34  | 74LS244 |
| UC35 | 74LS244 | UC36  | 74LS244 |
| UC37 | 74LS244 | UC38  | 74LS244 |
| UC39 | 74LS244 | UC40  | 74LS244 |
| UC41 | 74LS244 | UC42  | 74LS244 |
| UC43 | 74LS244 | UC44  | 74LS244 |
| UC45 | 74LS244 | UC46  | 74LS244 |
| UC47 | 74LS244 | UC48  | 74LS244 |
| UC49 | 74LS244 | UC50  | 74LS244 |
| UC51 | 74LS244 | UC52  | 74LS244 |
| UC53 | 74LS244 | UC54  | 74LS244 |
| UC55 | 74LS244 | UC56  | 74LS244 |
| UC57 | 74LS244 | UC58  | 74LS244 |
| UC59 | 74LS244 | UC60  | 74LS244 |
| UC61 | 74LS244 | UC62  | 74LS244 |
| UC63 | 74LS244 | UC64  | 74LS244 |
| UC65 | 74LS244 | UC66  | 74LS244 |
| UC67 | 74LS244 | UC68  | 74LS244 |
| UC69 | 74LS244 | UC70  | 74LS244 |
| UC71 | 74LS244 | UC72  | 74LS244 |
| UC73 | 74LS244 | UC74  | 74LS244 |
| UC75 | 74LS244 | UC76  | 74LS244 |
| UC77 | 74LS244 | UC78  | 74LS244 |
| UC79 | 74LS244 | UC80  | 74LS244 |
| UC81 | 74LS244 | UC82  | 74LS244 |
| UC83 | 74LS244 | UC84  | 74LS244 |
| UC85 | 74LS244 | UC86  | 74LS244 |
| UC87 | 74LS244 | UC88  | 74LS244 |
| UC89 | 74LS244 | UC90  | 74LS244 |
| UC91 | 74LS244 | UC92  | 74LS244 |
| UC93 | 74LS244 | UC94  | 74LS244 |
| UC95 | 74LS244 | UC96  | 74LS244 |
| UC97 | 74LS244 | UC98  | 74LS244 |
| UC99 | 74LS244 | UC100 | 74LS244 |

| REVISES |             | DATE | APPROVED |
|---------|-------------|------|----------|
| NO.     | DESCRIPTION |      |          |
| 1       | SEE SHEET 1 |      |          |

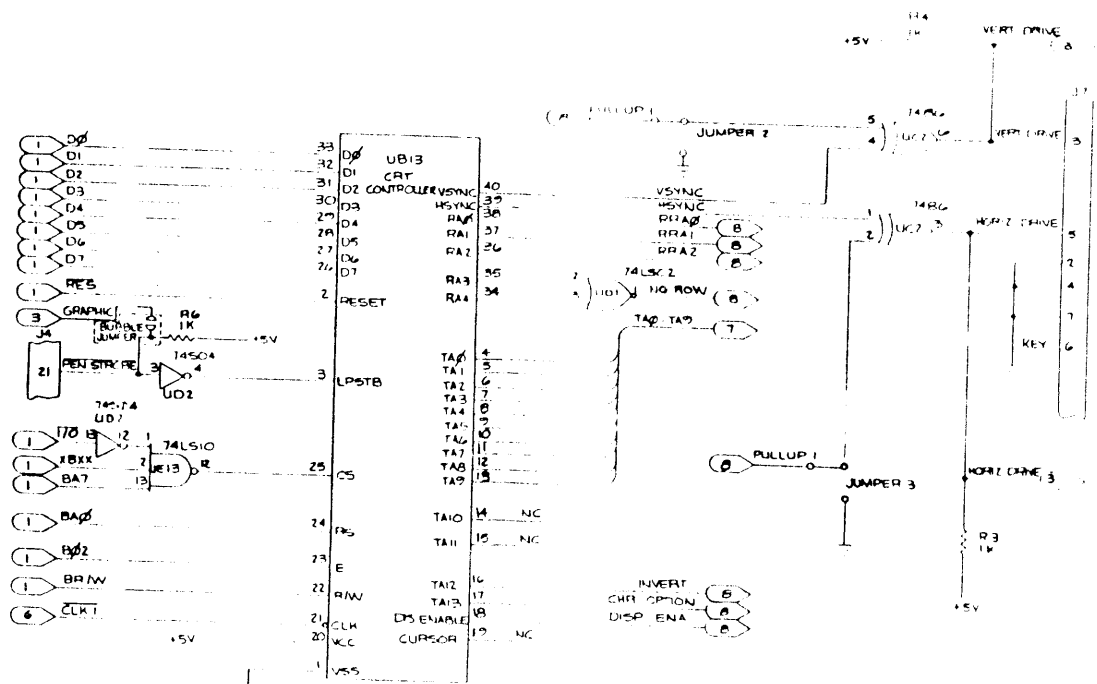
- (5) READ\_ODD
- (6) LSD\_I
- (7) LSD\_BUS
- (8) WORD LATCH
- (9) CLK\_IB
- (10) WRITE\_ODD
- (11) SA0 -> BUS



ODD DISPLAY RAMS

|   |                       |                       |
|---|-----------------------|-----------------------|
|   |                       |                       |
| C. DANIELE & S.                           |                       |                       |
| <b>commodore</b>                          |                       |                       |
| LOGIC DIAGRAM<br>UNIVERSAL<br>DYNAMIC DEL |                       |                       |
| REV. 01<br>01/03/2087                     | REV. 01<br>01/03/2087 | REV. 01<br>01/03/2087 |

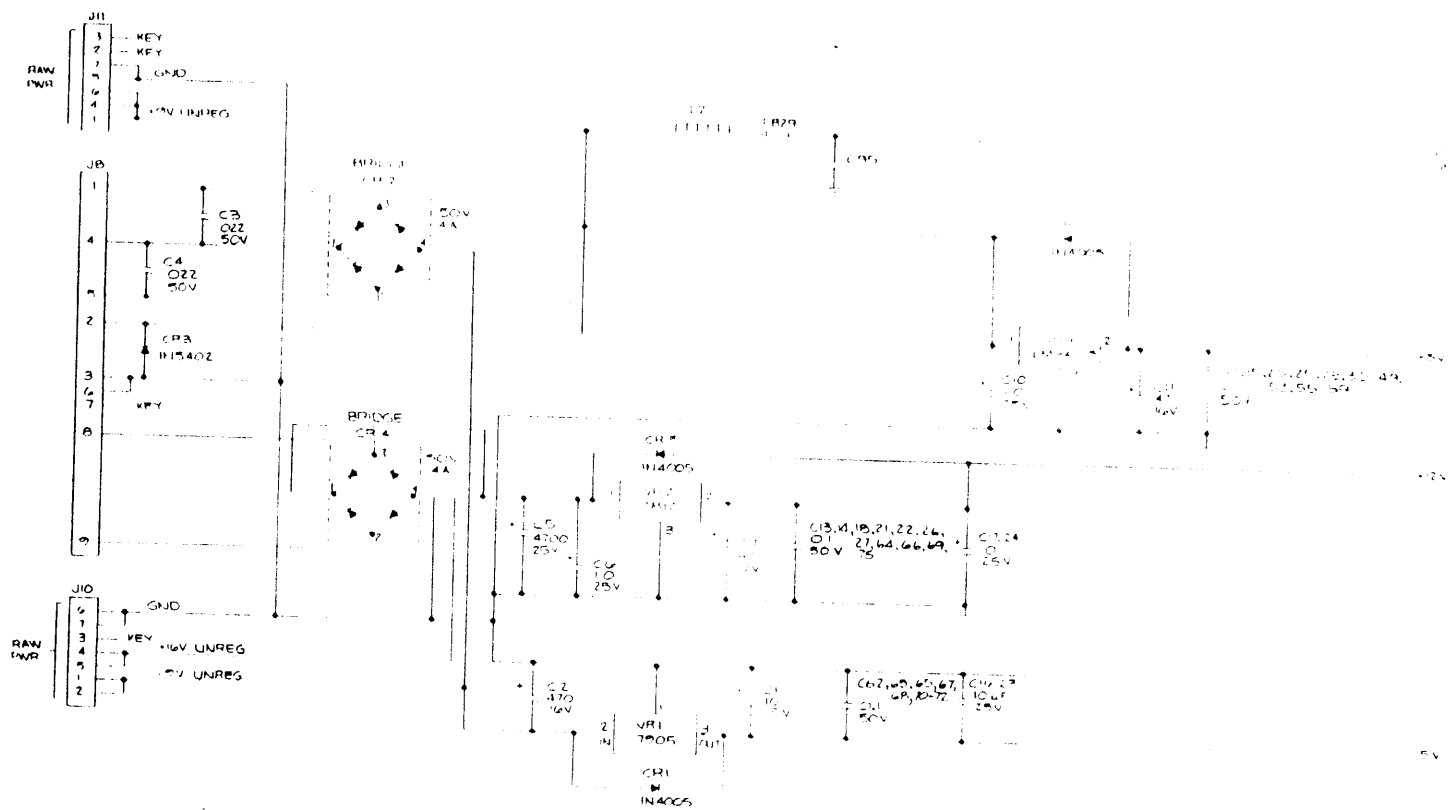




**CRT AND SYNC BUFFERS**

|               |           |         |          |
|---------------|-----------|---------|----------|
| DESIGNER      | C. DANIEL | DATE    | 11/18/87 |
| CHECKED       |           | DATE    |          |
| APPROVED      |           | DATE    |          |
| COMMODORE     |           |         |          |
| LOGIC DIAGRAM |           |         |          |
| UNIVERSAL     |           |         |          |
| DYNAMIC DEL.  |           |         |          |
| REV           | D         | 8032087 | 25       |
| SCALE         | 100%      | DATE    | 11/18/87 |

| REV | DATE | REVISIONS   | BY | APP'D |
|-----|------|-------------|----|-------|
| 1   |      | SEE SHEET 1 |    |       |



VOLTAGE REGULATOR

|  |                |           |
|--|----------------|-----------|
| DESIGNED BY  | DANIEL C. BARN | COMMODORE |
| CHECKED BY   |                |           |
| DATE   |                |           |
| REV  |                |           |
| COMMODORE<br>15000 CHRYSLER DRIVE<br>FORT MONROE, VA 22031<br>TEL: 803 208 7172<br>FAX: 803 208 7172 |                |           |

| PART NO.   | DESCRIPTION                 |
|------------|-----------------------------|
| 8032080-01 | UNIV. DYNAMIC PET 8032-60HZ |
|            |                             |
| -03        | 4032-60HZ                   |
|            |                             |
| -05        | 4016-60HZ                   |
|            |                             |
| ↓ -07      | ↓ 9000-60HZ                 |

| REVISIONS |      |                         |        |             |
|-----------|------|-------------------------|--------|-------------|
| LTR       | ZONE | DESCRIPTION             | DATE   | APPROVED    |
| A         |      | PRODUCTION RELEASE      | 3/5/91 | CLL         |
| B         |      | REVISED PER ECO 2062    | 3/5/91 | [Signature] |
| C         |      | REVISED PER ECO 2066    | 3/5/91 | [Signature] |
| D         |      | REVISED PER ECO 2068    | 3/5/91 | [Signature] |
| E         |      | REVISED PER ECO 2087    | 3/5/91 | [Signature] |
| F         |      | REV PER ECO 2564 & 2556 | 3/9/92 | [Signature] |
| G         |      | REV PER ECO 2596        | 3/9/92 | [Signature] |
| H         |      | REV PER ECO 2700        | 3/9/92 | [Signature] |
| J         |      | REVISED PER ECO 2720    | 4/8/92 | [Signature] |

- 10 IDENTIFY WITH APPLICABLE DASH NO.
- 9 COMPONENT SIDE: SOLDER JUMPER WIRE TO IC PIN 21 UB13 TO PIN 8 OF UE6. SOLDER JUMPER WIRE TO IC PIN 3 UB1 TO PIN 6 OF UC3.
- 8 COMPONENT SIDE: CUT PIN 21 OF UB13  
CUT PIN 3 OF UB1
- 7 SOLDER SIDE: BRIDGE SHORT PINS 10 & 11 OF UD2 PRIOR TO SOLDER WAVE.  
COMPONENT SIDE: CUT PINS 10 & 11 OF UD2
- 6 SOLDER TO XTAL AND PCB.
- 5 FOR ITEMS 116 AND 117 ALL ASSEMBLIES MUST HAVE SAME VENDOR.
- 4 SOLDER JUMPER, ITEM 107 FROM E1 TO SILVER CONTACT ON MT 1, ITEM 69;  
TAKE CARE TO ALLOW NO MORE THAN ONE SECOND DURATION FOR APPLICATION OF HEAT DURING SOLDERING.

- 14 CUT TRACE FROM UIC3/3 TO +5 ON COMP. SIDE: INSTALL JUMPER FROM UC3/3 TO UD3/2 ON SOLDER SIDE.
- 13 FOR SUBSTITUTE PART SEE PART SUBSTITUTION INDEX, PART NO. 321233.
- 12 REWORK INSTRUCTIONS FOR -07 & -08.  
JUMPER WIRE FROM UE5 PIN 6 TO UB14 PIN 35. USE 22 AWG.
- 11 ADD JUMPER FROM CATHODE OF VR5 TO NEAREST LEAD OF R47.
- 3 SOLDER AT 3 PLACES, EQUALLY SPACED AROUND THE BRASS BASE MT (ITEM 69).
- 2 IDENTIFY WITH COMMODORE PART NO.

1. SHEET 6 OF 7 SIZE C, SHEET 7 OF 7 SIZE D.

NOTES: UNLESS OTHERWISE SPECIFIED:

|           |                                |                      |                      |                     |        |               |                           |
|-----------|--------------------------------|----------------------|----------------------|---------------------|--------|---------------|---------------------------|
| commodore | PCB ASSY,<br>UNIV. DYNAMIC PET | DRAWN BY<br>M. AMES  | DATE<br>3-3-91       | ENGR<br>[Signature] | 3/5/91 | SIZE<br>B     | DRAWING NUMBER<br>8032080 |
|           |                                | CHKD.<br>[Signature] | APPR.<br>[Signature] |                     |        | SHEET<br>OF 7 |                           |

| QUANTITY REQD PER PART / DASH NO. |    |    |    | ITEM | 8  | PART NUMBER | DESCRIPTION                      | REF DES          | BEND | NOTES       |
|-----------------------------------|----|----|----|------|----|-------------|----------------------------------|------------------|------|-------------|
| 08                                | 07 | 06 | 05 | 01   | 1  | D 8032079   | PCB FAB, UNIV. DYNAMIC PET       |                  |      |             |
|                                   |    |    |    | 01   | 2  | D 8032081   | LOGIC DIAGRAM, UNIV. DYNAMIC PET |                  |      |             |
|                                   |    |    |    |      | 3  |             |                                  |                  |      |             |
| 1                                 | 1  | 1  | 1  | 1    | 4  | B 901435-01 | IC, 6502                         |                  |      |             |
| 2                                 | 2  | 2  | 2  | 2    | 5  | B 901436-01 | , 6520                           | UB14             |      |             |
| 1                                 | 1  | 1  | 1  | 1    | 6  | B 901437-01 | , 6522                           | UB16, UB12       |      |             |
| 1                                 | 1  | 1  | 1  | 1    | 7  | B 901479-01 | , CRT CONTROLLER                 | UB15             |      |             |
| 3                                 | 3  | 3  | 3  | 3    | 8  | B 901521-01 | , 74LS00                         | UB13             |      |             |
| 1                                 | 1  | 1  | 1  | 1    | 9  | B 901521-32 | , 74LS86                         | UD5, UE5, UE11   |      |             |
| 1                                 | 1  | 1  | 1  | 1    | 10 | B 901521-21 | , 74LS02                         | UC2              |      | SEE NOTE 13 |
| 1                                 | 1  | 1  | 1  | 1    | 11 | B 901521-02 | , 74LS04                         | UD1              |      |             |
| 2                                 | 2  | 2  | 2  | 2    | 12 | B 901525-01 | , 74S04                          | UE15             |      |             |
| 2                                 | 2  | 2  | 2  | 2    | 13 | B 901521-24 | , 74LS10                         | UD2, UE4         |      |             |
| 1                                 | 1  | 1  | 1  | 1    | 14 | B 901522-01 | , 7417                           | UD4, UE13        |      |             |
| 1                                 | 1  | 1  | 1  | 1    | 15 | B 901522-20 | , 7425                           | UD15             |      |             |
| 4                                 | 4  | 4  | 4  | 4    | 16 | B 901521-11 | , 74LS157                        | UE14             |      |             |
| 1                                 | 1  | 1  | 1  | 1    | 17 | B 901521-16 | , 74LS138                        | UC8, UC10, UE2   |      | SEE NOTE 13 |
| 2                                 | 2  | 2  | 2  | 2    | 18 | B 901521-06 | , 74LS74                         | UC3              |      |             |
| 2                                 | 2  | 2  | 2  | 2    | 19 | B 901525-09 | , 74S74                          | UB1, UB2         |      |             |
|                                   |    |    |    |      | 20 |             |                                  | UC1, UE1         |      |             |
| 1                                 | 1  | 1  | 1  | 1    | 21 | B 901521-09 | , 74LS145                        |                  |      |             |
| 1                                 | 1  | 1  | 1  | 1    | 22 | B 901522-13 | , 74154                          | UC11             |      |             |
|                                   |    |    |    |      | 23 |             |                                  | UE12             |      |             |
| 1                                 | 1  | 1  | 1  | 1    | 24 | B 901521-28 | , 74LS164                        |                  |      |             |
| 3                                 | 3  | 3  | 3  | 3    | 25 | B 901522-03 | , 74177                          | UE3              |      | SEE NOTE 13 |
|                                   |    |    |    |      | 26 |             |                                  | UD3, UE6, UE7    |      |             |
| 1                                 | 1  | 1  | 1  | 1    | 27 | B 901522-28 | , 74166                          |                  |      |             |
| 1                                 | 1  | 1  | 1  | 1    | 28 | B 901465-22 | , 2332                           | UA2              |      |             |
| 1                                 | 1  | 1  | 1  | 1    | 29 | B 901465-21 | , 2332                           | UD6              |      |             |
| 1                                 | 1  | 1  | 1  | 1    | 30 | B 901465-20 | , 2332                           | UD8              |      |             |
| 1                                 | 1  | 1  | 1  | 1    | 31 | B 901465-23 | , 2332                           | UD9              |      |             |
| 1                                 | 1  | 1  | 1  | 1    | 32 | B 901447-10 | , 2316                           | UD10             |      |             |
| 1                                 | 1  | 1  | 1  | 1    | 33 | B 901523-01 | , LM555                          | UA3              |      |             |
| 3                                 | 3  | 3  | 3  | 3    | 34 | B 901524-01 | IC, MC3446                       | UD16             |      |             |
|                                   |    |    |    |      | 35 |             |                                  | UA20, UB17, UC12 |      |             |
| 1                                 | 1  | 1  | 1  | 1    | 36 | B 900462-21 | CAP, CERAMIC AXIAL 22PF 50V      | C54              |      |             |
| 3                                 | 3  | 3  | 3  | 3    | 37 | B 900461-16 | CAP, CERAMIC AXIAL .014F 50V     | C52, 60, 61      |      | SEE NOTE 13 |

commodore

TITLE: PCB ASSY,  
UNIV. DYNAMIC PET

DRWN BY: M-AMES  
CHKD: [Signature]

DATE: 1-30-81

ENGR: [Signature]

DATE:

SIZE:

B 8032080

REV J

SHEET 27

| QUANTITY REQD PER PART / DASH NO. |  |  |  |  |  |  |  | ITEM | 8 | PART NUMBER | DESCRIPTION                           | REF DES                                 | BEND        | NOTES                   |
|-----------------------------------|--|--|--|--|--|--|--|------|---|-------------|---------------------------------------|---|-------------|-------------------------|
|                                   |  |  |  |  |  |  |  | 58   | B | 900461-20   | CAP, CERAMIC AXIAL .022 $\mu$ F 50V   | C3,4                                    |             |                         |
|                                   |  |  |  |  |  |  |  | 59   | B | 900461-28   | , CERAMIC AXIAL .1 $\mu$ F 50V        | C12-15, 18-22                           |             | 25-50, 53, 55-59, 62-72 |
|                                   |  |  |  |  |  |  |  | 40   | B | 900109-03   | , LOW LEAK. ELECT. 10 $\mu$ F 25V     | C1, 16, 17, 23, 24                      | SEE NOTE 13 |                         |
|                                   |  |  |  |  |  |  |  | 41   | B | 900110-07   | , LOW LEAK. ELECT. 1 $\mu$ F 50V      | C6, 8, 10, 51                           | SEE NOTE 13 |                         |
|                                   |  |  |  |  |  |  |  | 42   |   |             |                                       |   |             |                         |
|                                   |  |  |  |  |  |  |  | 43   |   |             |                                       |   |             |                         |
|                                   |  |  |  |  |  |  |  | 44   | B | 900100-44   | , ELECTROLYTIC 470 $\mu$ F 16V        | C2                                      |             |                         |
|                                   |  |  |  |  |  |  |  | 45   | B | 900100-45   | , ELECTROLYTIC 4700 $\mu$ F 25V       | C5                                      |             |                         |
|                                   |  |  |  |  |  |  |  | 46   | B | 900101-37   | CAP, ELECTROLYTIC 47 $\mu$ F 16V      | C7, 9, 11                               |             |                         |
|                                   |  |  |  |  |  |  |  | 47   |   |             |                                       |   |             |                         |
|                                   |  |  |  |  |  |  |  | 48   |   |             |                                       |   |             |                         |
|                                   |  |  |  |  |  |  |  | 49   |   |             |                                       |   |             |                         |
|                                   |  |  |  |  |  |  |  | 50   | B | 901550-01   | RES, CARBON 1/4W $\pm$ 5% 1K          | R1-6, 12, 15, 22, 26, 28, 31, 39, 42-45 |             |                         |
|                                   |  |  |  |  |  |  |  | 51   | B | 901550-02   | 3.3K                                  | R14                                     |             |                         |
|                                   |  |  |  |  |  |  |  | 52   | B | 901550-03   | 5.1K                                  | R19, 21                                 |             |                         |
|                                   |  |  |  |  |  |  |  | 53   | B | 901550-20   | 10K                                   | R23, 27                                 |             |                         |
|                                   |  |  |  |  |  |  |  | 54   | B | 901550-49   | 100 $\Omega$                          | R40                                     |             |                         |
|                                   |  |  |  |  |  |  |  | 55   | B | 901550-58   | 470 $\Omega$                          | R13, 16, 17, 29, 30                     |             |                         |
|                                   |  |  |  |  |  |  |  | 56   | B | 901550-64   | 10 $\Omega$                           | R8                                      |             |                         |
|                                   |  |  |  |  |  |  |  | 57   | B | 901550-69   | 1.5K                                  | R47, 48                                 |             |                         |
|                                   |  |  |  |  |  |  |  | 58   | B | 901550-84   | 1M                                    | R24, 25                                 |             |                         |
|                                   |  |  |  |  |  |  |  | 59   | B | 901550-85   | 2.4K                                  | R18, 20                                 |             |                         |
|                                   |  |  |  |  |  |  |  | 60   | B | 901550-90   | 27 $\Omega$                           | R10, 11                                 |             |                         |
|                                   |  |  |  |  |  |  |  | 61   | B | 901550-93   | 39 $\Omega$                           | R7                                      |             |                         |
|                                   |  |  |  |  |  |  |  | 62   | B | 901550-94   | RES, CARBON 1/4W $\pm$ 5% 68 $\Omega$ | R32-38, 46, 49                          |             |                         |
|                                   |  |  |  |  |  |  |  | 63   |   |             |                                       |   |             |                         |
|                                   |  |  |  |  |  |  |  | 64   | B | 902419-66   | RES NETWORK, DIP 14PIN 10K            | UB11                                    |             |                         |
|                                   |  |  |  |  |  |  |  | 65   |   |             |                                       |   |             |                         |
|                                   |  |  |  |  |  |  |  | 66   | B | 902653-01   | TRANSISTOR, NPN TIP 29                | Q1, 2                                   |             |                         |
|                                   |  |  |  |  |  |  |  | 67   | B | 902550-01   | TRANSISTOR PACK Q2T2222               | UE1b                                    |             |                         |
|                                   |  |  |  |  |  |  |  | 68   |   |             |                                       |   |             |                         |
|                                   |  |  |  |  |  |  |  | 69   | B | 907300-02   | TRANSDUCER-PIEZO ACOUSTIC             | MT 1                                    |             |                         |
|                                   |  |  |  |  |  |  |  | 70   |   |             |                                       |   |             |                         |
|                                   |  |  |  |  |  |  |  | 71   | B | 900941-01   | DIODE, ZENER 7.5V                     | VR5, 6                                  |             |                         |
|                                   |  |  |  |  |  |  |  | 72   | B | 900750-01   | DIODE, IN4001                         | CR1, 5-7                                |             |                         |
|                                   |  |  |  |  |  |  |  | 73   | B | 900753-01   | DIODE, IN5402 3A/200V                 | CR3                                     |             |                         |
|                                   |  |  |  |  |  |  |  | 74   | B | 900757-01   | DIODE, BRIDGE 4A/50V                  | CR2, 4                                  | SEE NOTE 13 |                         |

commodore

TITLE: PCB ASSY,  
UNIV. DYNAMIC PET

DESIGN BY:  
M. AMES  
CHKD: *[Signature]*

DATE  
1-30-81

ENGR:

APPR:

DATE

SIZE

B

8032080

REV  
J

SHEET  
37

| QUANTITY REQD PER PART / DASH NO. |  |  |  |  |  |  |  |  |  | ITEM | 8 | PART NUMBER | DESCRIPTION  | REF DES | BEND | NOTES |   |
|-----------------------------------|--|--|--|--|--|--|--|--|--|------|---|-------------|--|---------|------|-------|---|
|                                   |  |  |  |  |  |  |  |  |  | 75   |   |             |  |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 76   |   |             |  |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 77   |   |             |  |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 78   | B | 901527-03   | VOLTAGE REGULATOR, 7905, -5V/1.5A VR1              |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 79   | B | 901528-03   | VOLTAGE REGULATOR, LM340-5, +5V/1.5A VR3,4         |         |      |       | TO-220  |
|                                   |  |  |  |  |  |  |  |  |  | 80   | B | 901528-04   | VOLTAGE REGULATOR, 7812, +12V/1A VR2               |         |      |       | TO-3; SEE NOTE 13                             |
|                                   |  |  |  |  |  |  |  |  |  | 81   |   |             |  |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 82   |   |             |  |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 83   |   |             |  |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 84   | B | 900556-02   | CRYSTAL 16MHZ                                      |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 85   |   |             |  |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 86   |   |             |  |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 87   | B | 904150-04   | SOCKET, IC LOW PROFILE -24 PIN UA3, UD7            |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 88   | B | 904150-04   | SOCKET, IC LOW PROFILE 24 PIN UA3, UD7, UD11, UD12 |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 89   | B | 904150-06   | SOCKET, IC LOW PROFILE 40 PIN UB14                 |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 90   |   |             |  |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 91   | B | 903326-07   | HEADER ASSY .100 CENTER J10                        |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 92   | B | 903345-25   | HEADER ASSY, DUAL ROW .100 CENTER J4, 9            |         |      |       | 7 PIN; REMOVE PIN 3 AT ASSEMBLY               |
|                                   |  |  |  |  |  |  |  |  |  | 93   | B | 903316-09   | HEADER ASSY .156 CENTER J8                         |         |      |       | 50 PIN  |
|                                   |  |  |  |  |  |  |  |  |  | 94   | B | 903331-07   | HEADER ASSY, POLARIZED .100 CENTER J11             |         |      |       | 9 PIN; REMOVE PIN 7 AT ASSEMBLY               |
|                                   |  |  |  |  |  |  |  |  |  | 95   | B | 903331-07   | HEADER ASSY, POLARIZED .100 CENTER J7              |         |      |       | 7 PIN; REMOVE PIN 3 AT ASSEMBLY               |
|                                   |  |  |  |  |  |  |  |  |  | 96   | B | 903331-20   | HEADER ASSY, POLARIZED .100 CENTER J5              |         |      |       | 7 PIN; ORIENT OMITTED PIN TO PIN 6 POSITION   |
|                                   |  |  |  |  |  |  |  |  |  | 97   |   |             |  |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 98   | B | 320268-01   | HEAT SINK  |         |      |       | 20 PIN; ORIENT OMITTED PIN TO PIN 19 POSITION |
|                                   |  |  |  |  |  |  |  |  |  | 99   | B | 904907-01   | HEAT SINK, COMPOUND THERMAL                        |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 100  |   |             |  |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 101  | B | 906403-19   | RIVET, DOME HEAD, OPEN END                         |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 102  | B | 906404-04   | RIVET, DOME HEAD, CLOSED END                       |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 103  |   |             |  |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 104  | B | 903781-01   | 22 AWG BARE WIRE ON TAPE & REEL                    |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 105  |   |             |  |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 106  | B | 903755-03   | WIRE, INSULATED, #22 AWG                           |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 107  | B | 903780-01   | #30 WIRE WRAP WIRE, RED                            |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 108  | B | 320086-02   | BUS WIRE   |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 109  |   |             |  |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 110  | B | 901521-13   | IC, 74LS244  |         |      |       |   |
|                                   |  |  |  |  |  |  |  |  |  | 111  | B | 901521-13   | IC, 74LS244  |         |      |       |   |

commodore

TITLE PCB ASSY,  
UNIV. DYNAMIC PET

DRAWN BY  
M. AMES  
CHKD: [Signature]

DATE  
11-30-81

ENGR:  
APPR:

DATE

SIZE  
B

8032080

REV  
J

SHT  
4

7

| QUANTITY REQD PER PART / DASH NO. |    |    |    |    |    |    | ITEM | 8   | PART NUMBER | DESCRIPTION | REF DES                              | BEND | NOTES |
|-----------------------------------|----|----|----|----|----|----|------|-----|-------------|-------------|--------------------------------------|------|-------|
| 08                                | 07 | 06 | 05 | 04 | 03 | 02 |      |     |             |             |                                      |      |       |
| 2                                 | 2  | /  | /  | /  | /  | 2  | 2    | 112 | B 901521-29 | IC, 74LS373 |                                      |      |       |
|                                   |    | 1  | 1  | 1  | 1  |    |      | 113 | B 901521-29 | , 74LS373   | UB3,UB8                              |      |       |
| 4                                 | 4  | /  | /  | /  | /  | 4  | 4    | 114 | B 901453-02 | , 2114      | UB3                                  |      |       |
|                                   |    | 2  | 2  | 2  | 2  |    |      | 115 | B 901453-02 | , 2114      | UC4-UC7                              |      |       |
| 16                                | 16 | /  | /  | 16 | 16 | 16 | 16   | 116 | B 901470-01 | , 4116      | UC4,UC5                              |      |       |
|                                   |    | 8  | 8  | /  | /  |    |      | 117 | B 901470-01 | , 4116      | UA4-UA19                             |      |       |
|                                   |    | /  | /  | /  | /  | 1  | 1    | 118 | B 901474-03 | , 2316      | UA5,UA7,UA9,UA11,UA13,UA15,UA17,UA19 |      |       |
| 1                                 | 1  | /  | /  | /  | /  |    |      | 119 | B 901474-04 | , 2316      | UD7                                  |      |       |
|                                   |    | 1  | 1  | /  | /  |    |      | 120 | B 901499-01 | , 2316      | UD7                                  |      |       |
|                                   |    | 1  | 1  | /  | /  |    |      | 121 | B 901498-01 | IC, 2316    | UD7                                  |      |       |
|                                   |    |    |    |    |    |    |      | 122 |             |             | UD7                                  |      |       |
|                                   |    |    |    |    |    |    |      | 123 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 124 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 125 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 126 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 127 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 128 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 129 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 130 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 131 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 132 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 133 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 134 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 135 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 136 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 137 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 138 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 139 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 140 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 141 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 142 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 143 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 144 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 145 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 146 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 147 |             |             |                                      |      |       |
|                                   |    |    |    |    |    |    |      | 148 |             |             |                                      |      |       |

commodore

FILE: PCB ASSY,  
UNIV. DYNAMIC PET

DRAWN BY:  
M. AMES  
CHKD:

DATE  
1-30-81

ENGR:  
APPR:

DATE

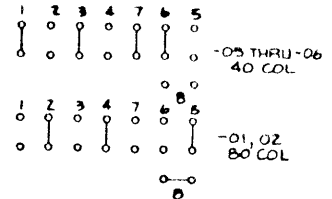
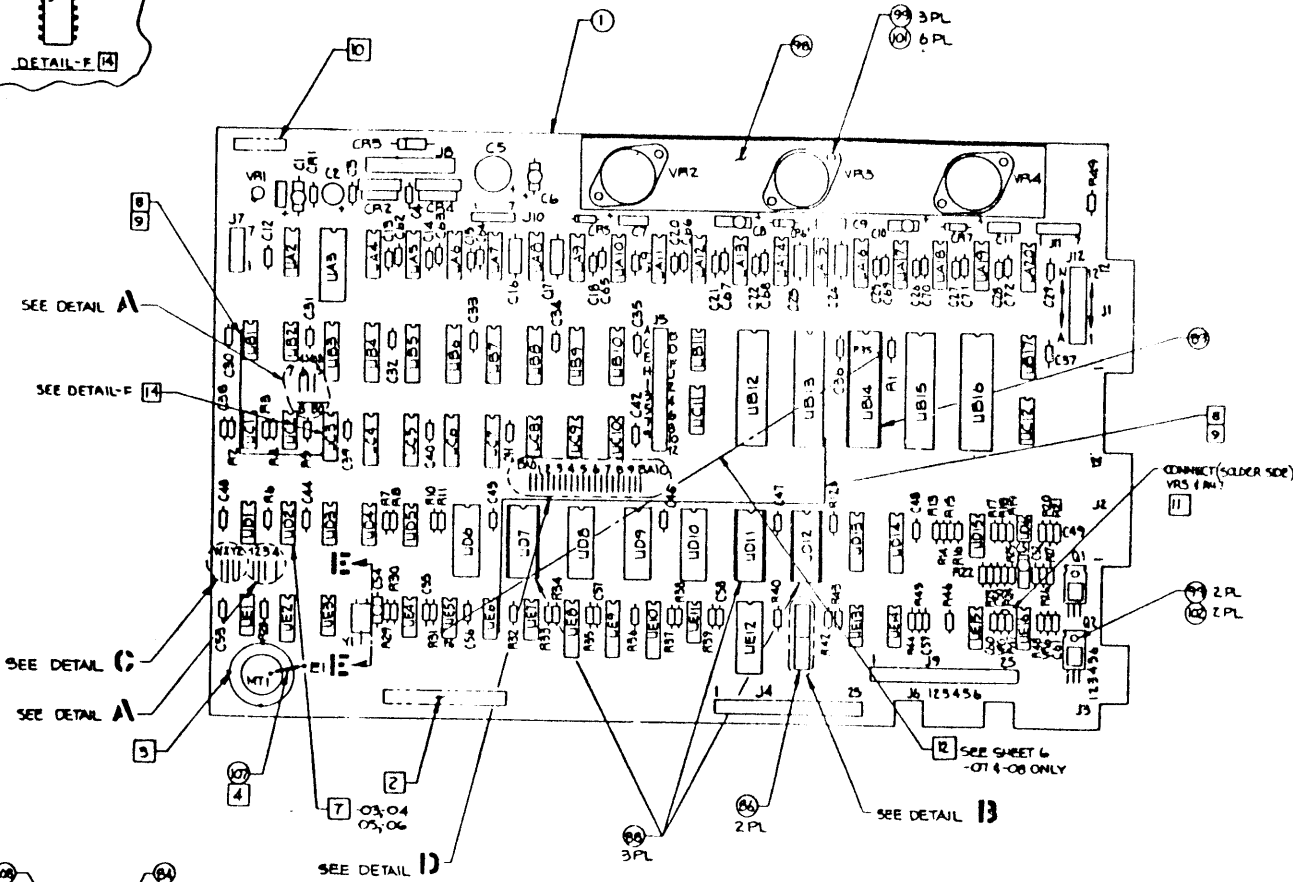
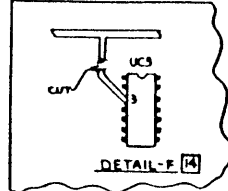
SIZE  
B

8032080

REV  
J

SHEET  
57

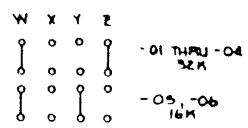
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|-----------|-------------|------|
| REV       | DESCRIPTION | DATE |
| 1         | SEE SHEET 1 |      |



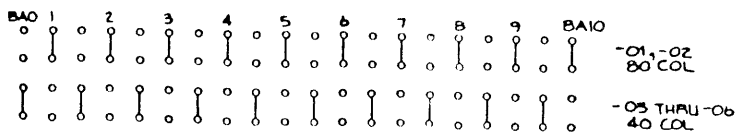
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 SCALE: NONE  
 JUMPER CONFIGURATIONS  
 (M)



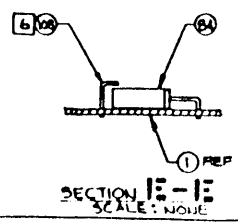
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 SCALE: NONE  
 JUMPER CONFIGURATIONS  
 (M)



DETAIL C  
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 JUMPER CONFIGURATIONS  
 (M)



DETAIL D  
 SCALE: NONE  
 JUMPER CONFIGURATIONS  
 (M)

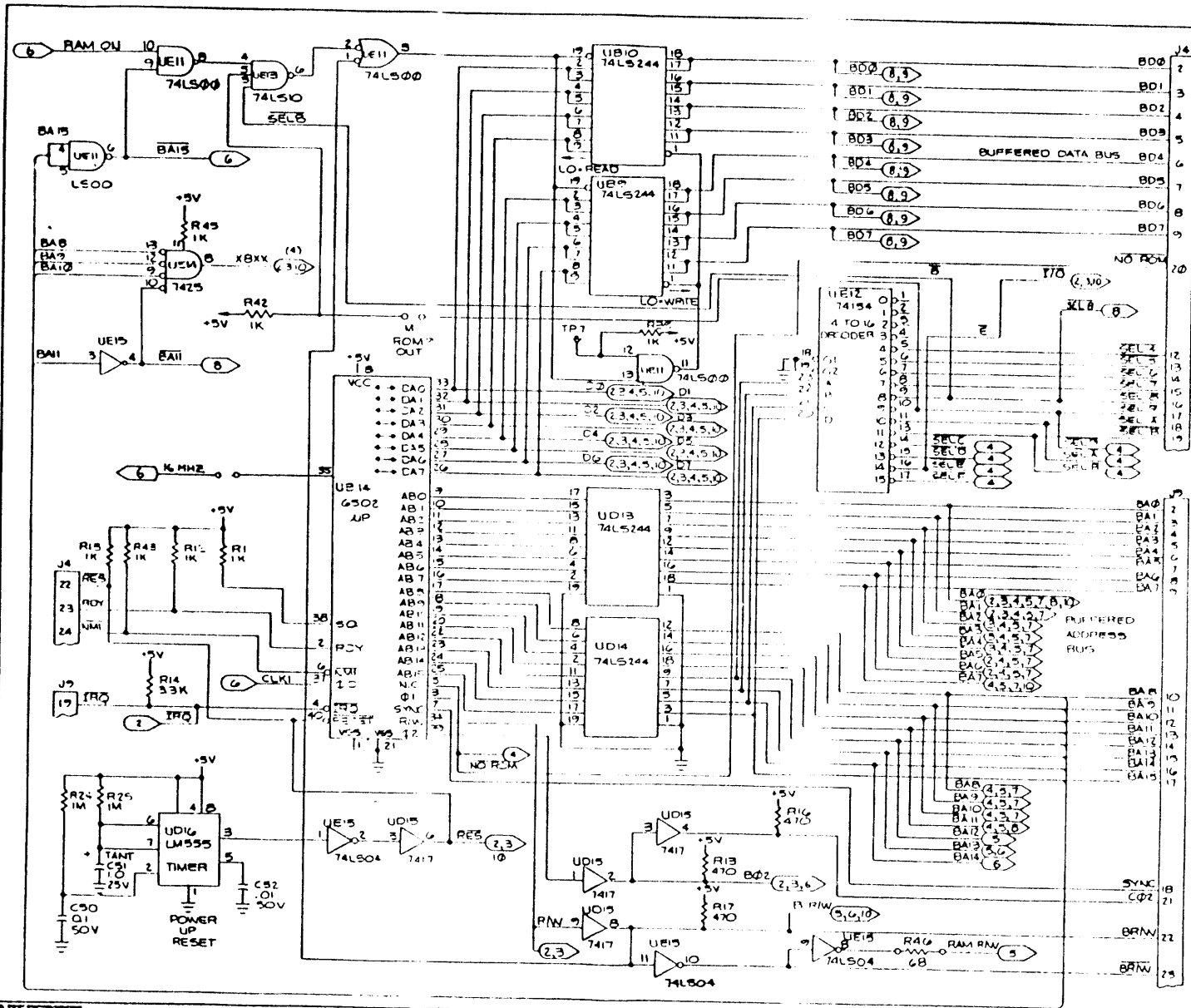


-01 THRU -08 SHOWN

|      |     |             |    |      |
|------|-----|-------------|----|------|
| DATE | REV | DESCRIPTION | BY | CHKD |
|      |     |             |    |      |

COMMODORE  
 PCB ASSY -  
 MUN. DYNAMIC PET  
 8032080  
 1/1





| REVISIONS |      |                      |    |
|-----------|------|----------------------|----|
| REV       | DATE | DESCRIPTION          | BY |
| A         |      | PRODUCTION RELEASE   |    |
| B         |      | REVISED PER ECO 2091 |    |
| C         |      | REV PER ECO 2574     |    |
| D         |      | REVISED PER ECO 2607 |    |
| E         |      | REV PER ECO 2596     |    |

MEMORY EXPANSION

MEMORY EXPANSION

3 ALL CAPACITOR VALUES ARE MEASURED IN MICROFARADS

2 ALL RESISTOR VALUES ARE IN OHMS 1% AND ARE 1/4 WATT.

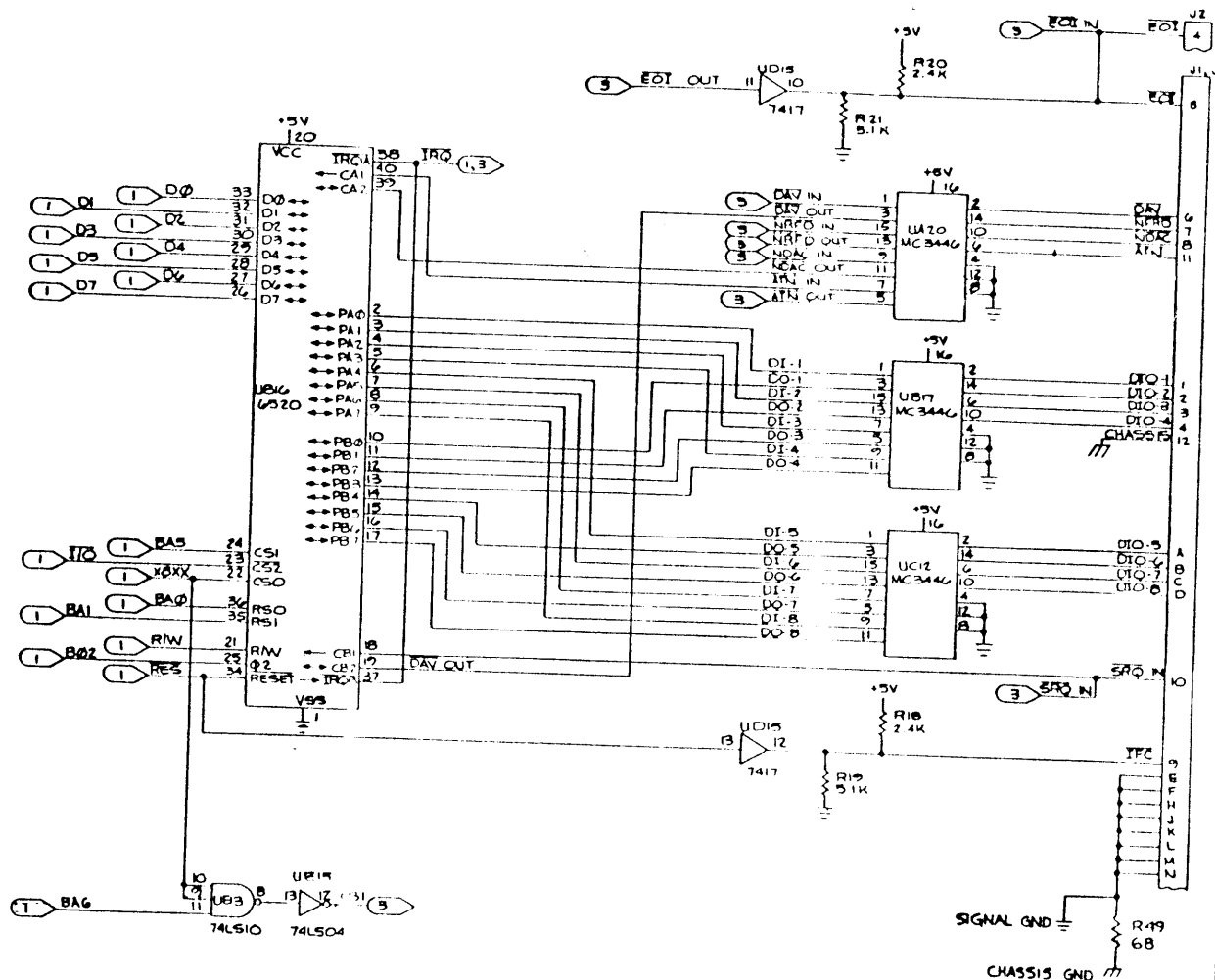
1 REFER TO ASSEMBLY DRAWING NUMBER #032020.

NOTES UNLESS OTHERWISE SPECIFIED

CPU & MEMORY EXPANSION

|      |             |               |
|------|-------------|---------------|
| DATE | DESIGNED BY | COMMODORE     |
| REV  | CHECKED BY  | LOGIC DIAGRAM |
| PRN  | DATE        | UNIVERSAL     |
| BO31 |             | DYNAMIC DET   |
| BO32 |             | D: 8032081    |

| REVISED      |      | DATE | APPROVED |
|--------------|------|------|----------|
| LTB          | SCHE |      |          |
| SCHE SHEET 1 |      |      |          |

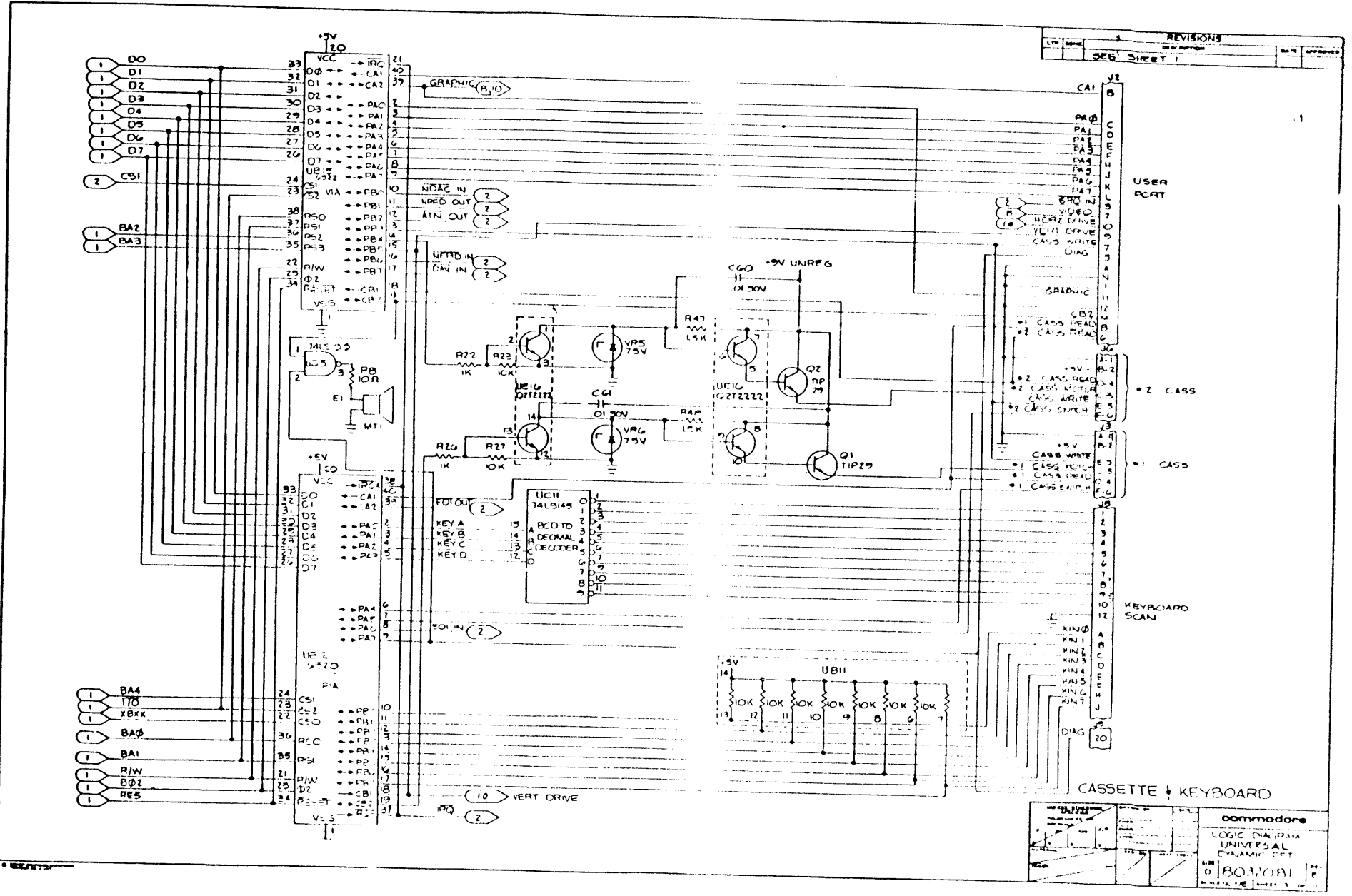


IEEE-488 INTERFACE

IEEE-488 INTERFACE

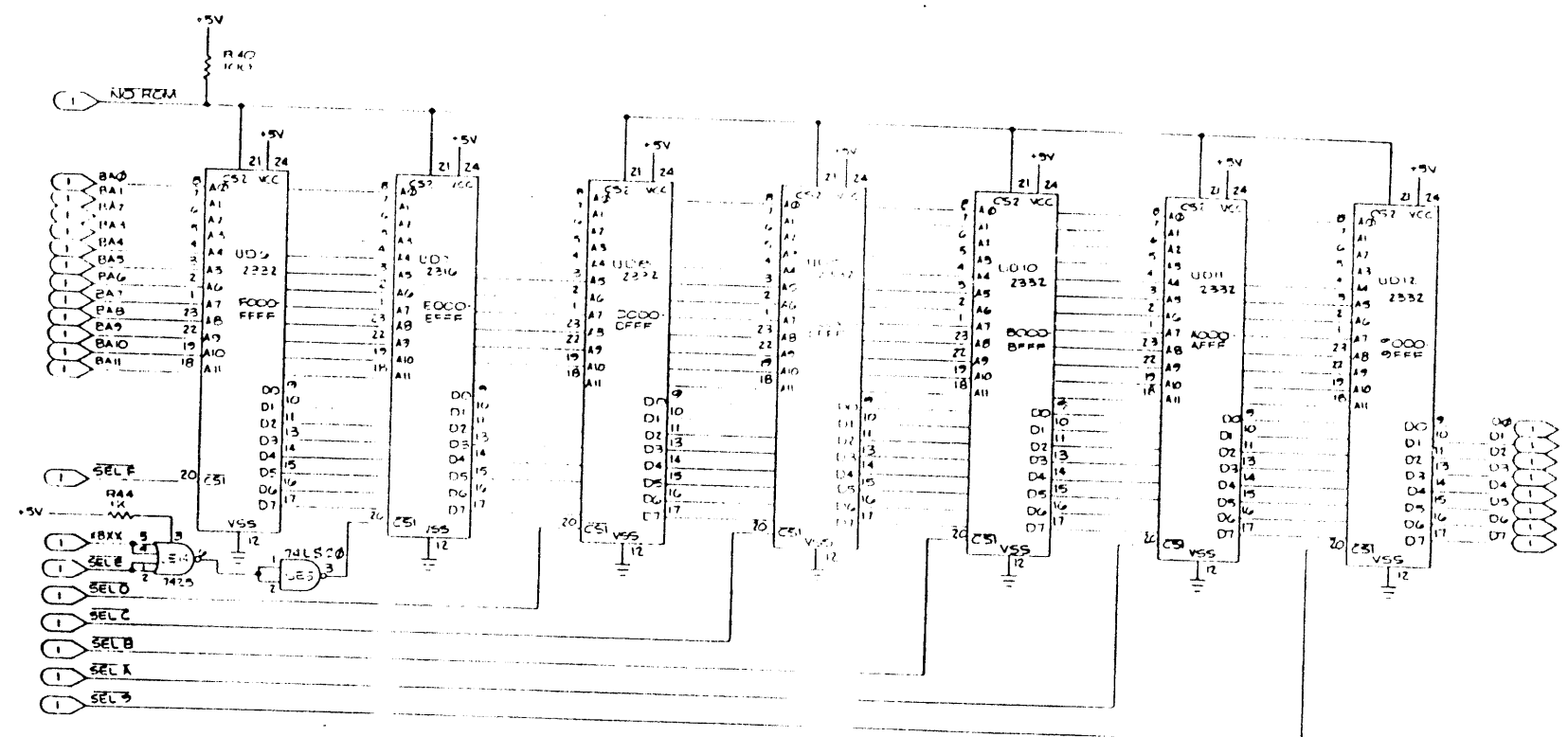
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|--|--|--|--|
|  |  |  |  |
| <b>Commodore</b><br>LOGIC DIAGRAM<br>UNIVERSAL<br>DYNAMIC PET<br>L# 8032081<br>SCALE: 1.0V, 10NS<br>SHEET 2 OF 2 |  |  |  |

| REVISED     |    | REVISIONS |             |
|-------------|----|-----------|-------------|
| DATE        | BY | NO.       | DESCRIPTION |
| SEE SHEET 1 |    |           |             |



commodore  
 LOGIC DIAGRAM  
 UNIVERSAL  
 DYNAMIC SET  
 BOBONI

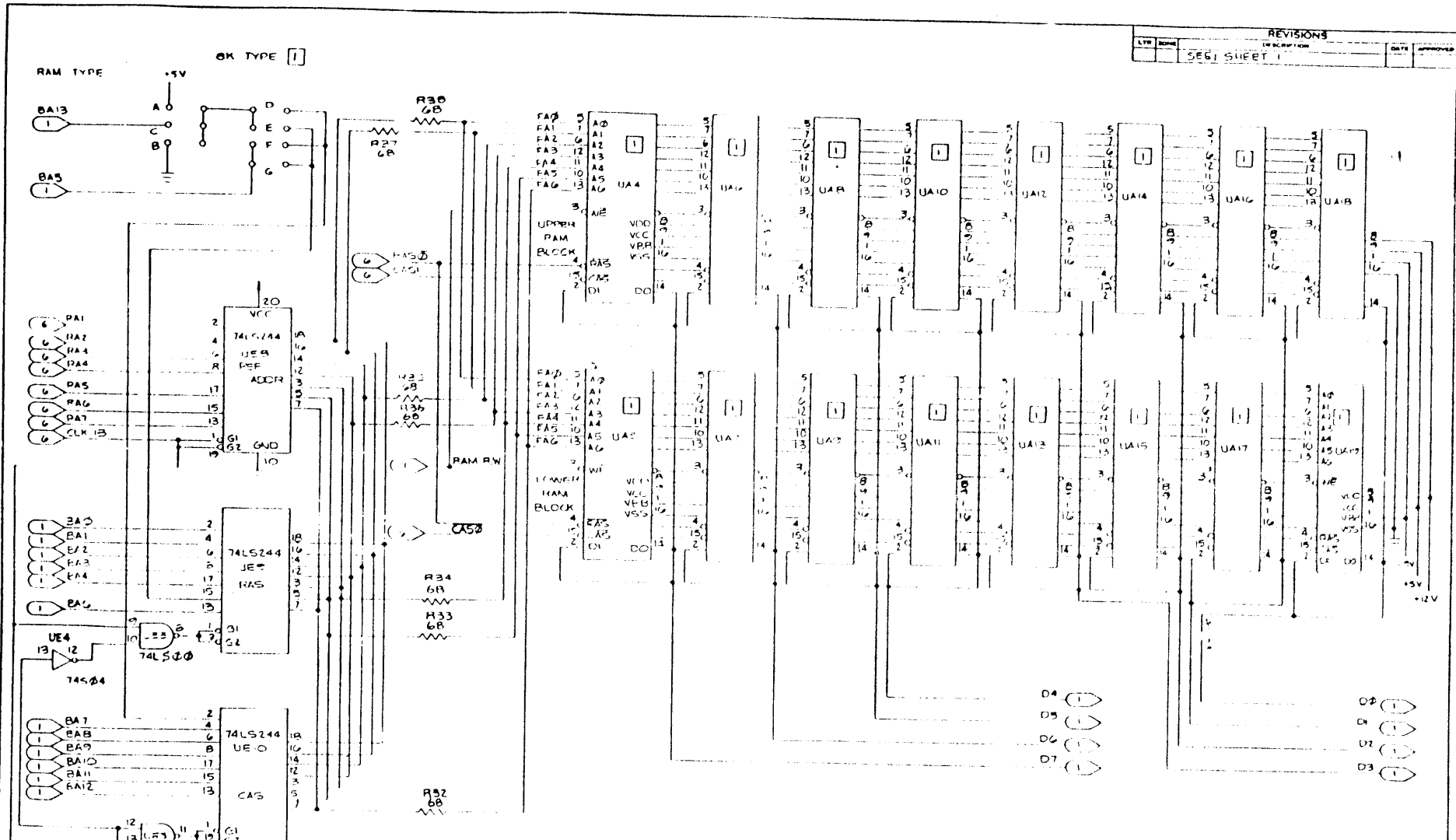
| REVISIONS |      |             |          |
|-----------|------|-------------|----------|
| REV       | DATE | DESCRIPTION | APPROVED |
| 1         |      | SEE SHEET 1 |          |



ROMS

|  |  |   |
|--|--|---|
|  |  | <b>commodore</b><br>LOGIC DIAGRAM<br>UNIVERSAL<br>DYNAMIC RAM<br>64032081 |
|--|--|---|

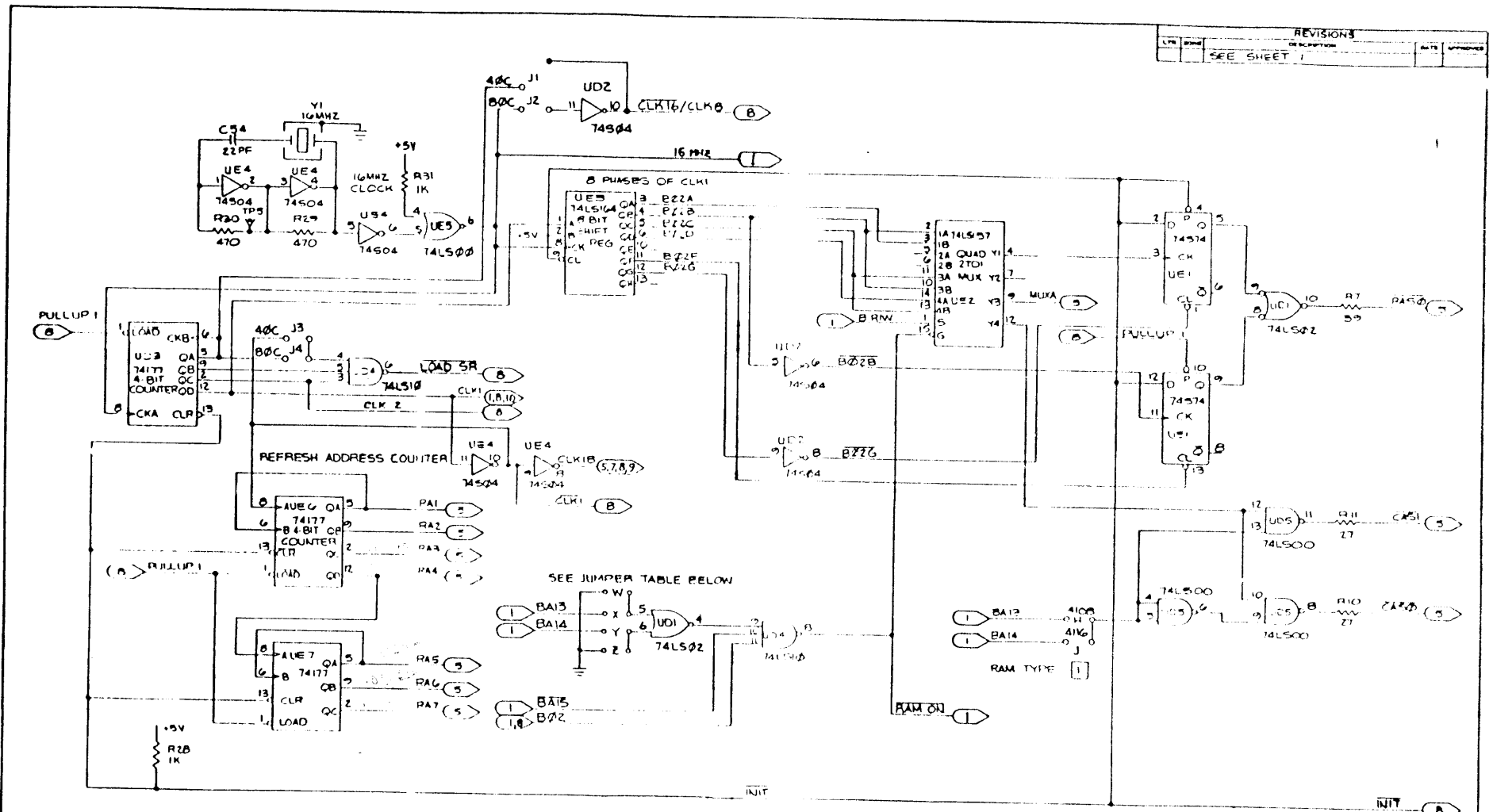
| REVISIONS |      |              |          |
|-----------|------|--------------|----------|
| REV       | DATE | DESCRIPTION  | APPROVED |
| 1         |      | SEG1 SHEET 1 |          |



MAIN RAM

|  |  |   |
|--|--|---|
|  |  | <b>commodore</b><br>COMM. PROGRAM<br>UNIVERSAL<br>2032081 |
|--|--|---|

| REVISIONS |             |      |          |
|-----------|-------------|------|----------|
| DATE      | DESCRIPTION | DATE | APPROVED |
|           | SEE SHEET 1 |      |          |



SEE JUMPER TABLE BELOW

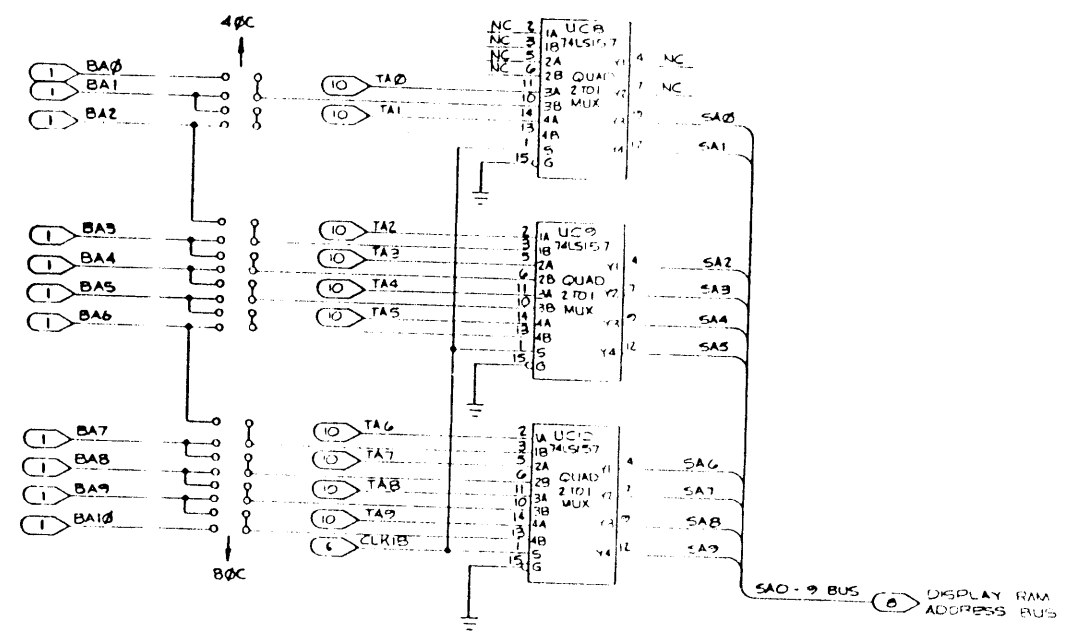
| MEMORY JUMPERS |     |     |     |
|----------------|-----|-----|-----|
|                | 32K | 16K | 0K  |
| W              | 0-0 | 0-0 | 0-0 |
| X              | 0-0 | 0-0 | 0-0 |
| Y              | 0-0 | 0-0 | 0-0 |
| Z              | 0-0 | 0-0 | 0-0 |

MASTER TIMING

commodore  
LOGIC DIAGRAM  
UNIVERSAL  
DYNAMIC RAM

8032081

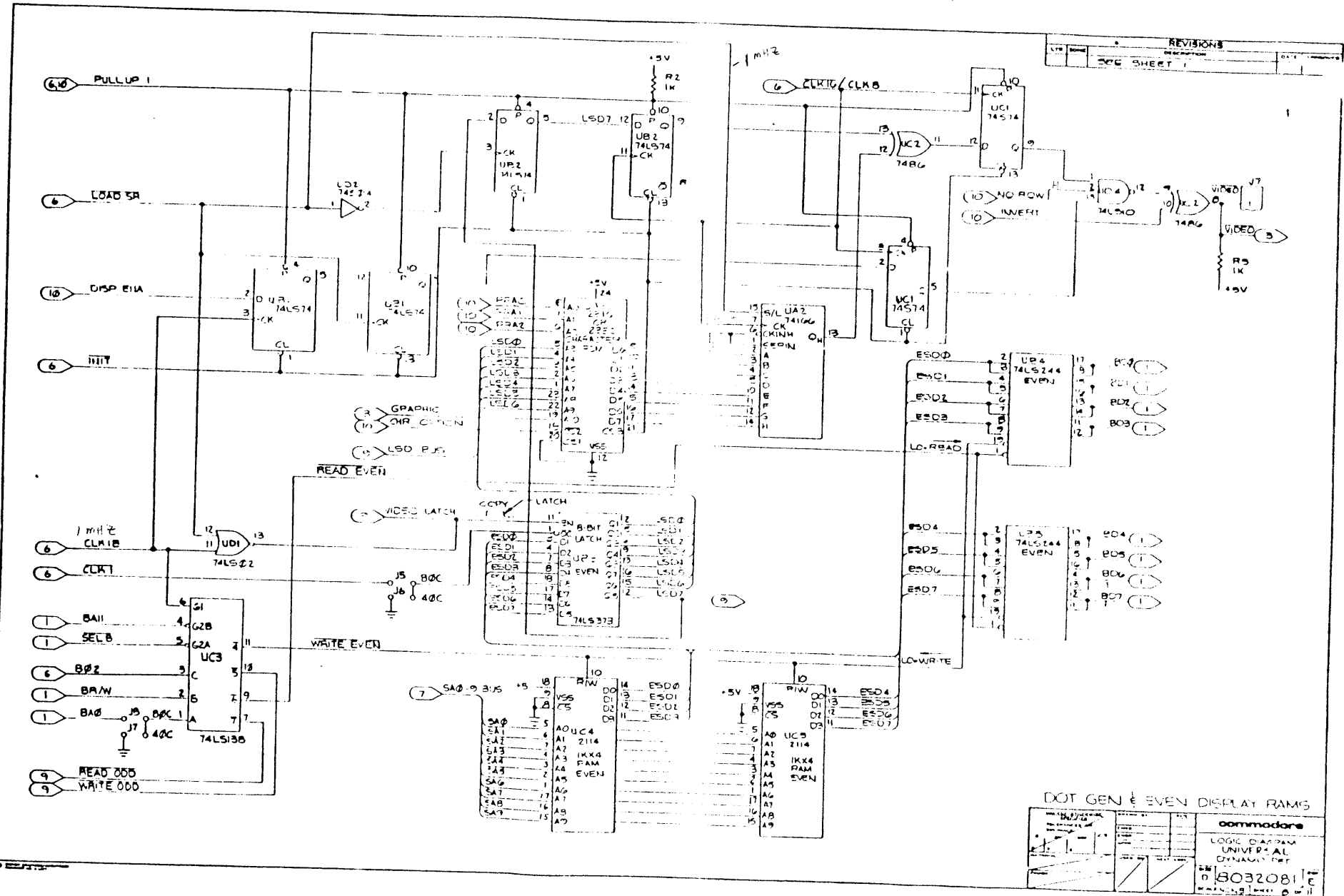
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|-----------|------|-------------|----------|
| REV       | DATE | DESCRIPTION | APPROVED |
| 1         |      | SEE SHEET 1 |          |



DISPLAY ADDRESS MUX

|  |  |
|--|--|
|  | <p>commodore</p> <p>LOGIC DIAGRAM<br/>UNIVERSAL<br/>DYNAMIC TEST</p> <p>AM D 8032031</p> |
|--|--|

| REVISIONS |             |
|-----------|-------------|
| LT#       | DESCRIPTION |
| 000       | SHEET 1     |

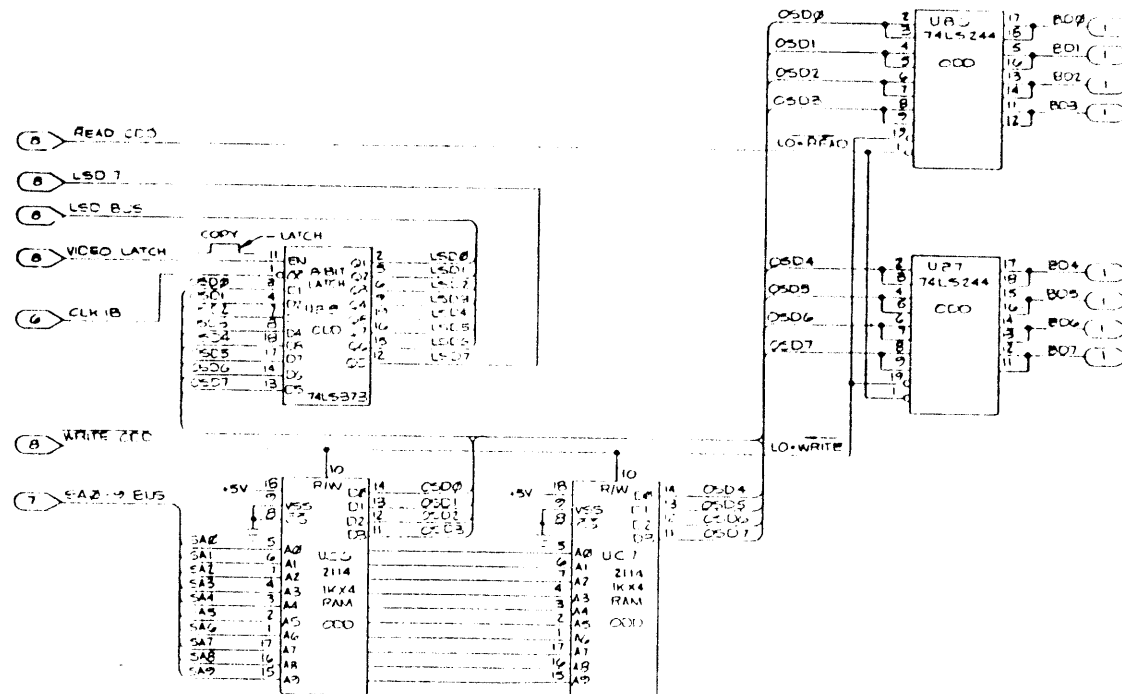


DOT GEN & EVEN DISPLAY RAM

|               |
|---------------|
| COMMODORE     |
| LOGIC DIAGRAM |
| UNIVERSAL     |
| DYNAMETER     |
| 8032081       |



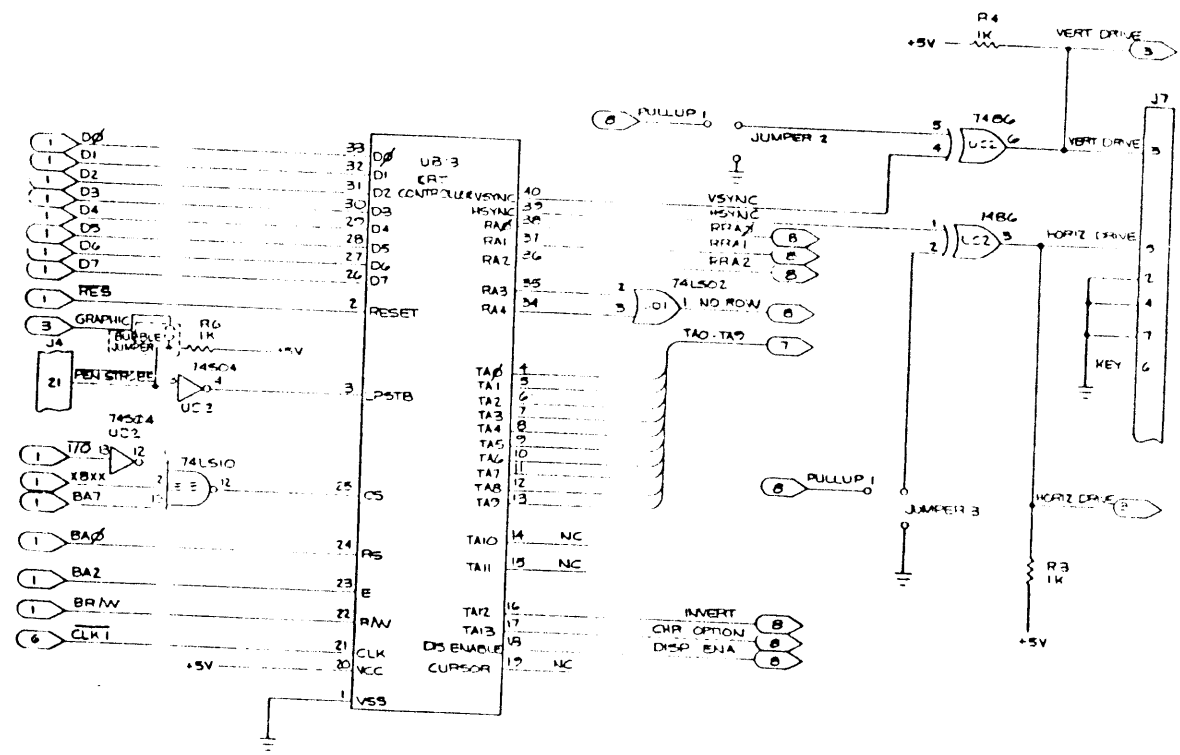
| REVISIONS |      |             |    |
|-----------|------|-------------|----|
| LT#       | DATE | DESCRIPTION | BY |
|           |      | SEE SHEET 1 |    |



ODD DISPLAY RAMS

|  |  |   |
|--|--|---|
|  |  | <b>COMMODORE</b><br>LOGIC ENGINEERING<br>UNIVERSAL<br>DYNAMIC TEST<br>6032081 |
|--|--|---|

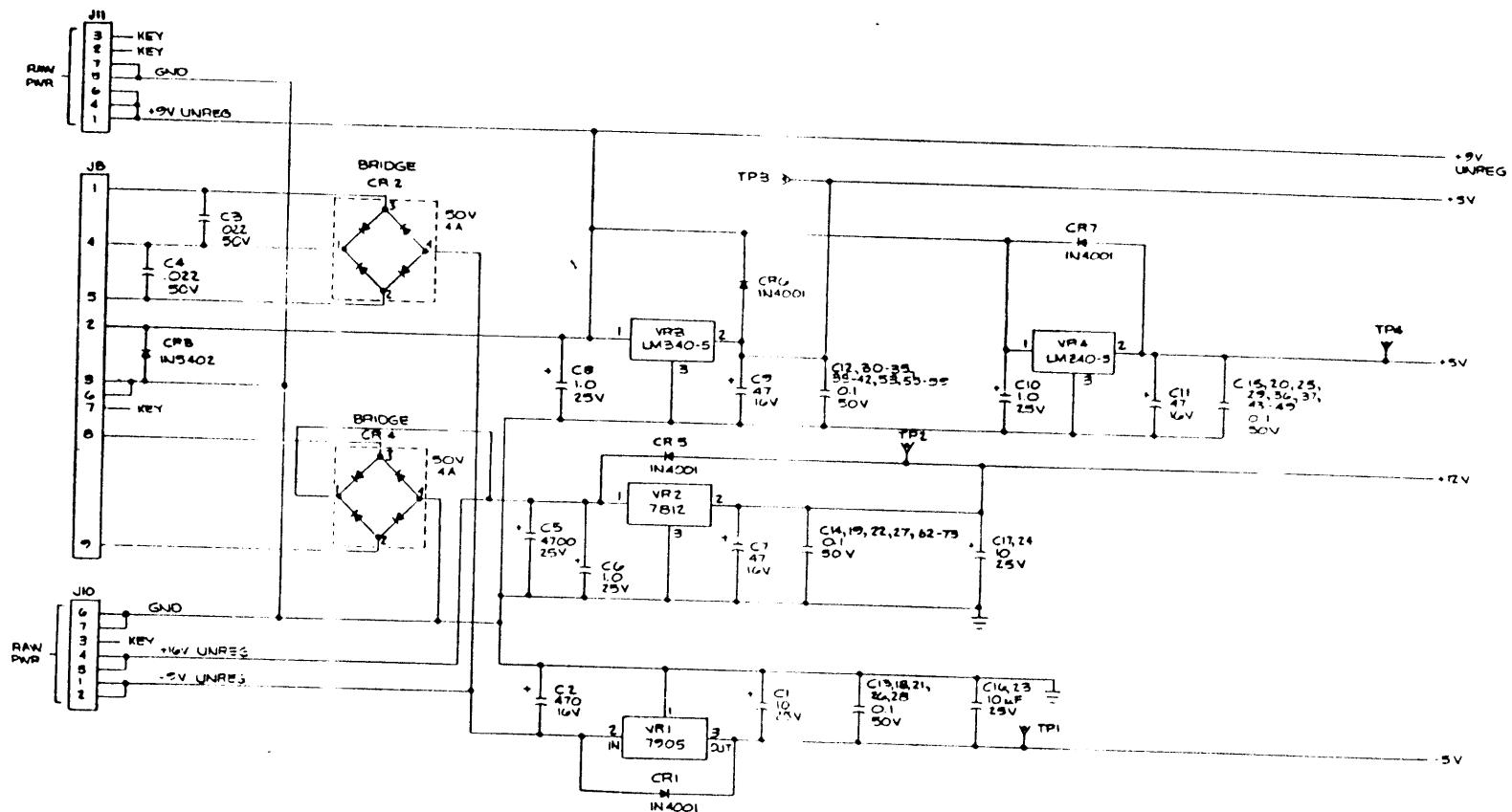
| REVISIONS |      |             |          |
|-----------|------|-------------|----------|
| REV       | DATE | DESCRIPTION | APPROVED |
| 1         |      | SEE SHEET 1 |          |



**CRTC AND SYNC BUFFERS**

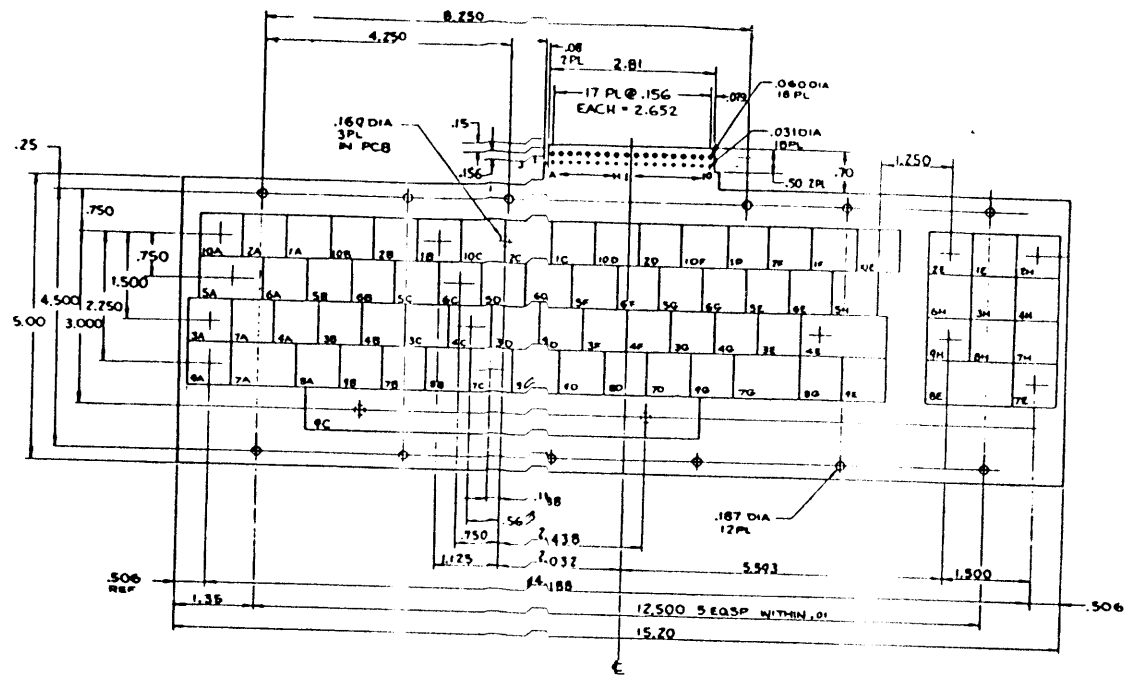
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|---|-----|---------|
| DATE                                      | REV | APP     |
|   |     |         |
| <b>commodore</b>                          |     |         |
| LOGIC DIAGRAM<br>UNIVERSAL<br>DRAWING SET |     |         |
| REV                                       | D   | 8032081 |
| DATE                                      |     |         |

| REVISIONS |      |             |          |
|-----------|------|-------------|----------|
| NO.       | DATE | DESCRIPTION | APPROVED |
| 1         |      | SEE SHEET 1 |          |

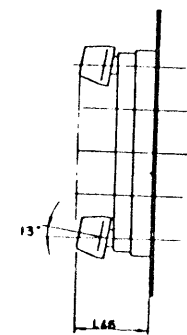


VOLTAGE REGULATOR

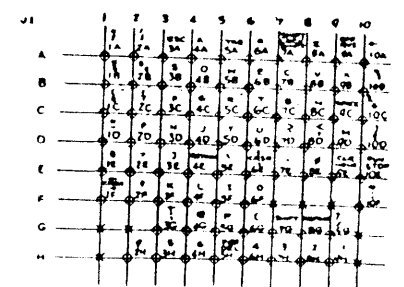
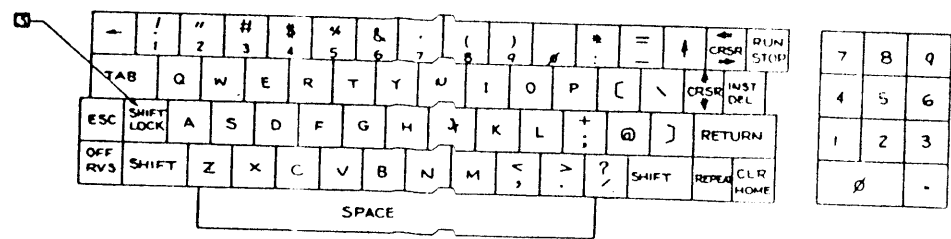
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|--|--|---|--|
|  |  | <b>acommodare</b><br>LOGIC DIAGRAM<br>UNIVERSAL<br>DYNAMIC CRT<br>8032081 E<br>SHEET 11 OF 11 |  |
|--|--|---|--|



| REV | DATE | DESCRIPTION      | BY | CHKD |
|-----|------|------------------|----|------|
| A   |      | INITIAL RELEASE  |    |      |
| B   |      | PER ESN 825      |    |      |
| C   |      | PER ECO 1041     |    |      |
| D   |      | REV PER ECO 1874 |    |      |



- 1 CONTACT RESISTANCE SHALL NOT EXCEED 1KΩ OVER LIFE OF CONTACT (10 MILLION OPERATIONS)
  - 2 CONTACT TO BE PROTECTED FROM CONTAMINATION OVER LIFE OF CONTACT
  - 3 KEYCAPS ARE TWO SHOT MOLDED
  - 4 KEYCAP COLOR : DARK GRAY WITH WHITE LETTERS
  - 5 ALL KEYS ARE MOMENTARY ACTION EXCEPT FOR SHIFT LOCK KEY WHICH IS ALTERNATE ACTION
  - 6 KEYTAB ARTWORK TO BE APPROVED BY COMMODORE
  - 7 PCB MATL : .062 ± .007 FRZ PAPER (FR4 GLASS EPOXY 1OZ COPPER CLAD ON 1 SIDE
- NOTES : UNLESS OTHERWISE SPECIFIED



O = CONNECT  
X = NO CONNECT

|           |                             |
|-----------|-----------------------------|
| COMMODORE | KEYBOARD, BUSINESS STATIONS |
| 3202B4    |                             |

| PART NO.   | DESCRIPTION                     |
|------------|---------------------------------|
| 8032051-01 | POWER SUPPLY ASSY, 8032 117V UL |
|            |                                 |
|            |                                 |
|            |                                 |

| REVISIONS |      |                    |          |             |
|-----------|------|--------------------|----------|-------------|
| LTR       | ZONE | DESCRIPTION        | DATE     | APPROVED    |
| A         |      | PRODUCTION RELEASE |          |             |
| B         |      | REV PER ECO 1935   | 8/21/80  | [Signature] |
| C         |      | REV PER ECO 2028   | 11/17/80 | [Signature] |
| D         |      | REV PER ECO 2284   | 10/16/80 | [Signature] |
| E         |      | REV. PER ECO 2177  | 11-18-80 | [Signature] |

- 6 REFER TO PART SUBSTITUTE INDEX P/N 321233.
- 5 SWITCH SHOWN IN 'OFF' POSITION.
- 4. ALL LEADS WILL HAVE A MINIMUM OF ONE WRAP AROUND TERMINALS PRIOR TO SOLDERING.
- 3 IDENTIFY WITH COMMODORE PART NO. 8032051 AND APPLICABLE DASH NO. LOCATE APPROX AS SHOWN.
- 2 DASH 04 CONFIGURATION SHALL BE USED FOR VDE, SEV 1 SEMKO.

1. SHEET 3 OF 3 SIZE D  
ASSY DWG

NOTES - UNLESS OTHERWISE SPECIFIED:

|                  |                                  |                              |                 |               |           |                           |
|------------------|----------------------------------|------------------------------|-----------------|---------------|-----------|---------------------------|
| <b>commodore</b> | TITLE<br>POWER SUPPLY ASSY, 8032 | DRAWN BY<br>R. CHRISTENSEN   | DATE<br>9-22-80 | ENGR<br>APPR. | SIZE<br>B | DRAWING NUMBER<br>8032051 |
|                  |                                  | UNID FORMAT<br>N.P. SKK ONLY | DATE<br>8-19-80 | SHEET<br>OF 3 | OF 3      | OF 3                      |

QUANTITY REQD PER  
PART / DASH NO.

| ITEM | QTY | PART NUMBER | DESCRIPTION                       | REF DES    | RENO | NOTES                     |
|------|-----|-------------|-----------------------------------|------------|------|---------------------------|
| 1    |     |             |                                   |            |      |                           |
| 2    | D   | 8032043-02  | CHASSIS, POWER, UNIVERSAL         |            |      |                           |
| 3    | C   | 320902-01   | TRANSFORMER                       | TI         |      | SEE NOTE 6 FOR SUBSTITUTE |
| 4    |     |             |                                   |            |      |                           |
| 6    |     |             |                                   |            |      |                           |
| 7    | B   | 900102-01   | CAPACITOR 23,000 MFD              | CI         |      |                           |
| 8    |     |             |                                   |            |      |                           |
| 9    | B   | 903467-03   | FILTER POWER CONNECTOR            |            |      |                           |
| 11   |     |             |                                   |            |      |                           |
| 12   |     |             |                                   |            |      |                           |
| 13   |     |             |                                   |            |      |                           |
| 14   | B   | 320289-01   | DYNAMIC PET POWER HARNESS         |            |      |                           |
| 15   |     |             |                                   |            |      |                           |
| 16   | B   | 903557-04   | FUSE, 125V SLO-BLO 1.6A           | F1         |      |                           |
| 18   |     |             |                                   |            |      |                           |
| 19   |     |             |                                   |            |      |                           |
| 20   | B   | 903611-03   | FUSE HOLDER                       |            |      |                           |
| 21   | B   | 904507-01   | SWITCH, ROCKER                    | XFI<br>SWI |      | FOR SUBSTITUTE SEE NOTE 6 |
| 22   |     |             |                                   |            |      |                           |
| 23   |     |             |                                   |            |      |                           |
| 24   |     |             |                                   |            |      |                           |
| 25   | B   | 320479-02   | TUBE, SHRINKABLE                  |            |      |                           |
| 26   | B   | 320478-01   | TUBE, SHRINKABLE                  |            |      |                           |
| 27   | B   | 320059-01   | LEAD WIRE (BLACK)                 |            |      |                           |
| 28   |     |             |                                   |            |      |                           |
| 30   | B   | 903612-02   | FUSE CARRIER                      |            |      | FOR SUBSTITUTE SEE NOTE 6 |
| 31   | B   | 906630-03   | SCREW, PAN HEAD, *10-32 X .250 LG |            |      |                           |
| 32   | B   | 905650-03   | WASHER, LOCK, INT TOOTH *10       |            |      |                           |
| 33   |     |             |                                   |            |      |                           |
| 34   | C   | 320925-05   | GROUND CABLE ASSY                 |            |      |                           |
| 35   | B   | 906600-06   | SCREW PAN HEAD *4-40 X .438 LG    |            |      |                           |
| 36   | B   | 905970-05   | NUT KEPS *4-40                    |            |      |                           |
| 37   |     |             |                                   |            |      |                           |

commodore

TITLE: POWER SUPPLY ASSY, 8032

DRAWN BY: K. CHRISTENSEN  
CHKD: N.P.  
DATE: 4-22-80  
8-19-A

ENGR: APR:

DATE

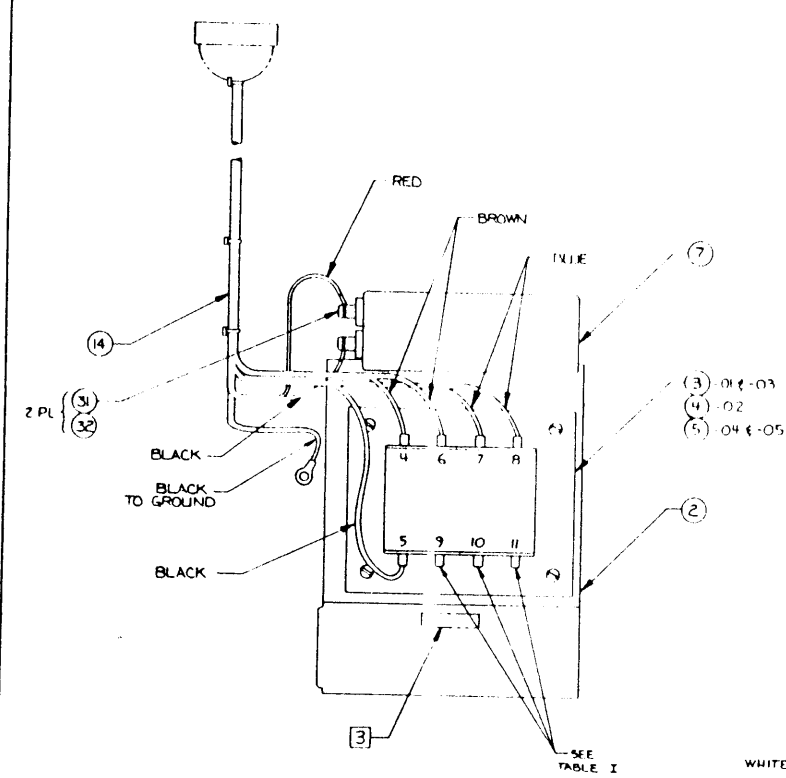
SIZE

B

8032051

REV E

SHT 2/3



- (3) 01 ← 03
- (4) 02
- (5) 04 ← 05

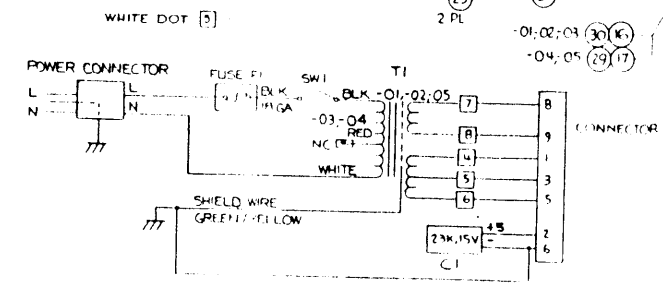
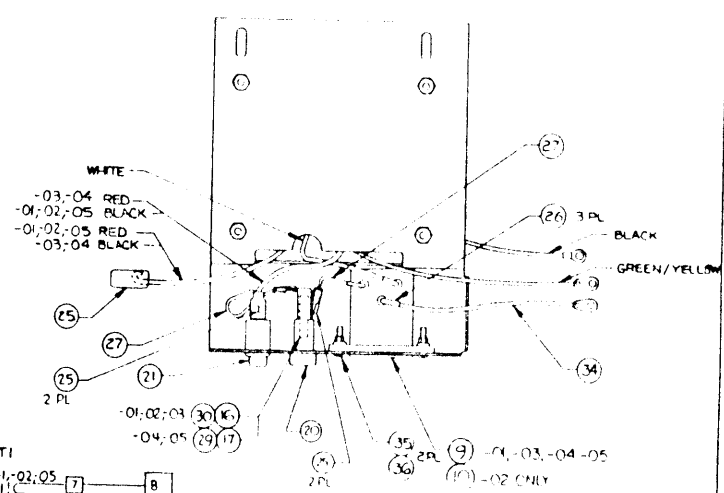
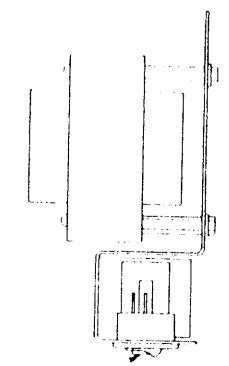


TABLE I

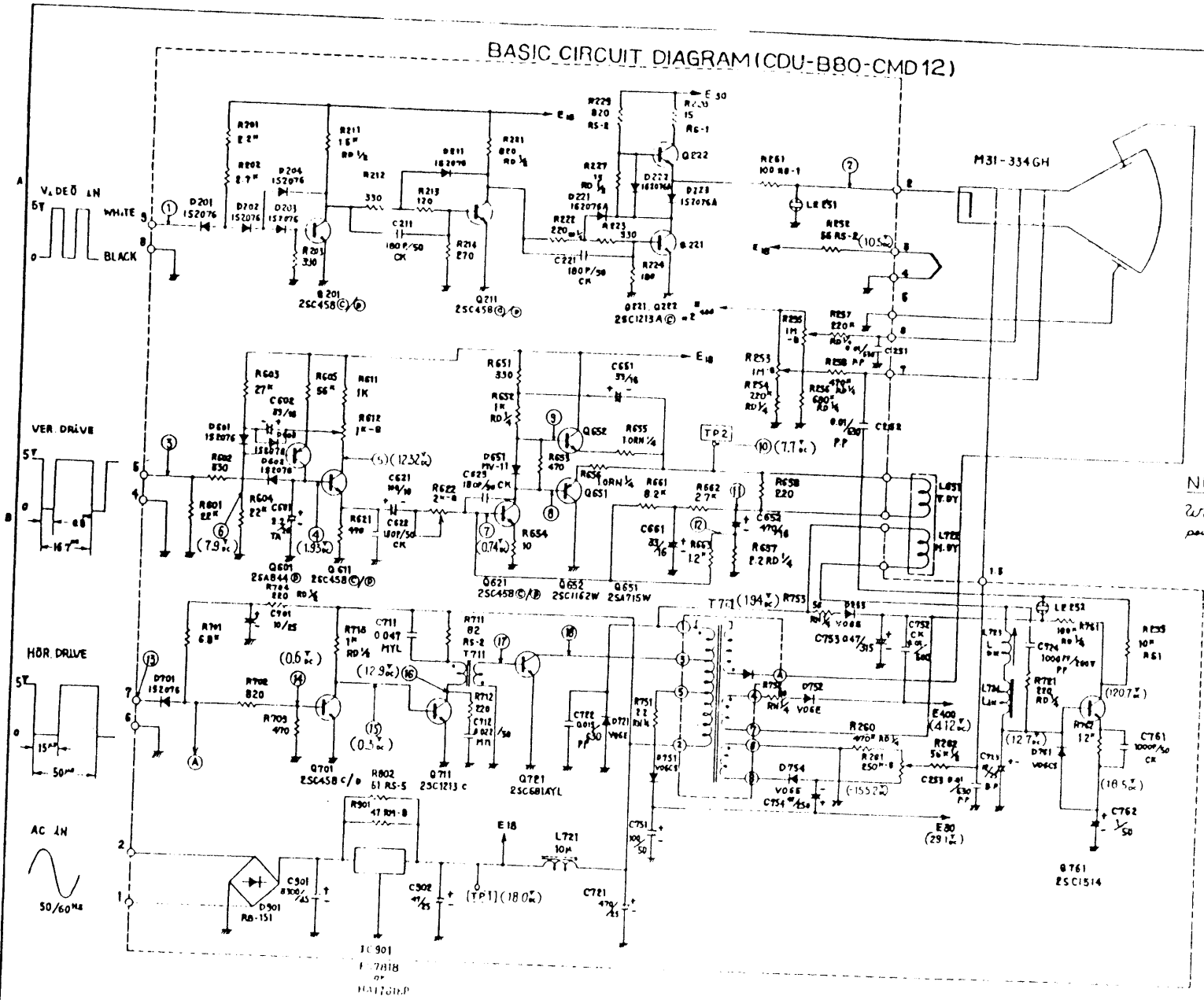
| TERMINAL | VOLTAGE | USAGE     |
|----------|---------|-----------|
| 9 & 10   | 15      | 9" VIDEO  |
| 9 & 11   | 21      | 12" VIDEO |

WIRING DIAGRAM

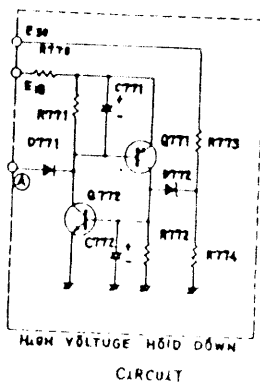
|                         |          |
|-------------------------|----------|
| COMMODORE               |          |
| POWER SUPPLY ASSY. R032 |          |
| REV 1                   | 08/02/81 |
| REV 2                   | 08/02/81 |

# BASIC CIRCUIT DIAGRAM (CDU-B80-CMD12)

|                  |        |
|------------------|--------|
| <b>commodore</b> |        |
| PCB SCHEMATIC    |        |
| 12" CRT DISPLAY  |        |
| REV              | 1      |
| SIZE             | B      |
| 321478           |        |
| SCALE            | 1:1    |
| SHEET            | 1 OF 1 |



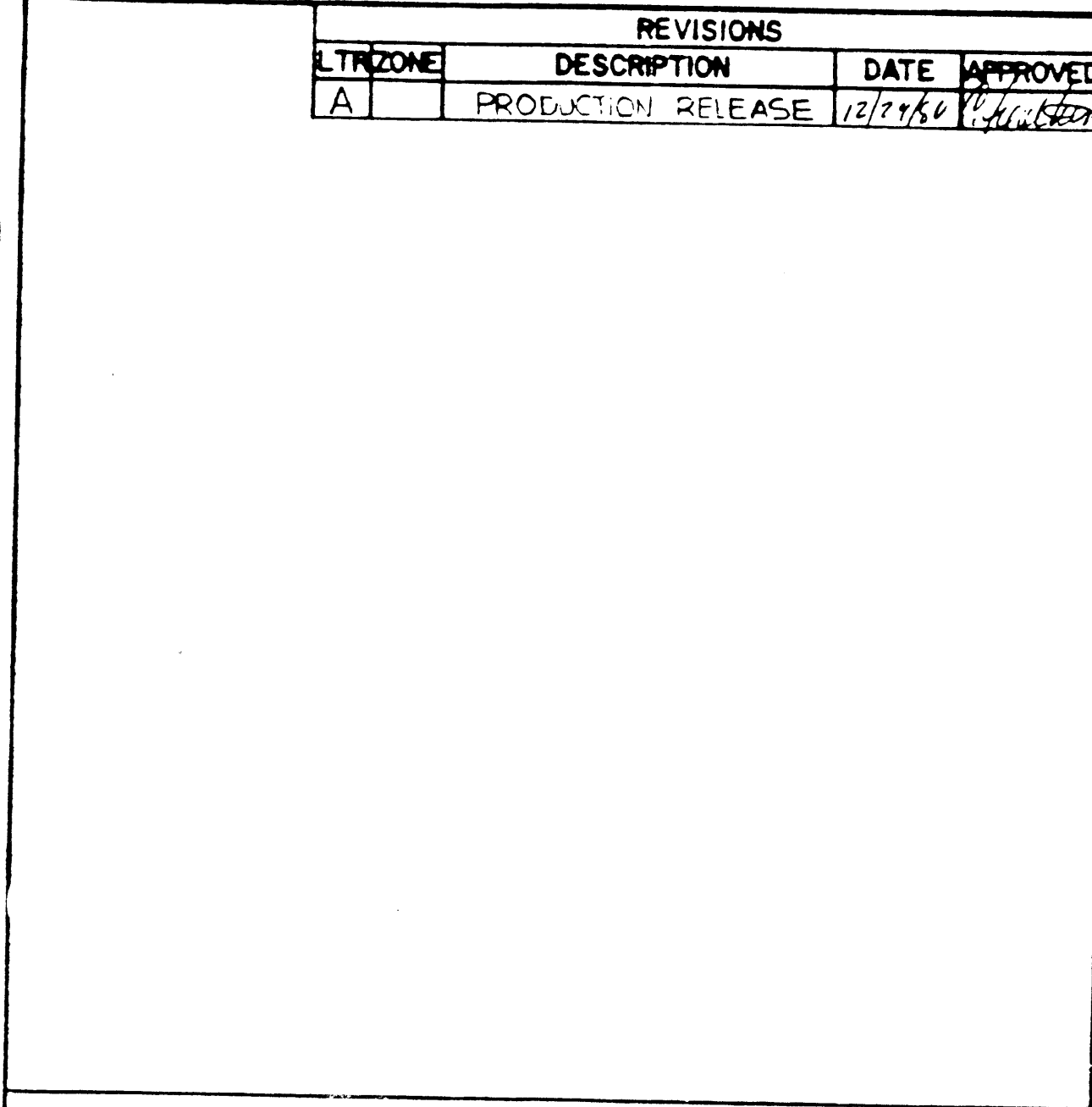
**NOTES**  
Waveforms are measured at the points indicated with (X)






321450

| REVISIONS |                    |          |                    |
|-----------|--------------------|----------|--------------------|
| LT/ZONE   | DESCRIPTION        | DATE     | APPROVED           |
| A         | PRODUCTION RELEASE | 12/29/80 | <i>[Signature]</i> |



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|                             |               |
|-----------------------------|---------------|
| DRAWN BY: <i>Martin</i>     | DATE: 12-5-80 |
| CHECKED: <i>[Signature]</i> | 12/9/80       |
| ENGR: <i>[Signature]</i>    | 12/29/80      |
| PROB:                       |               |
| APPD:                       |               |
| ISS:                        |               |

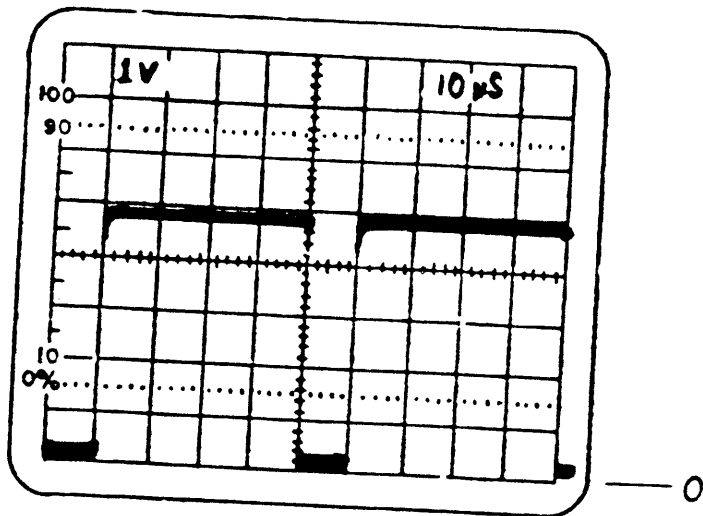
 **commodore**

TITLE: PCB WAVEFORMS  
12" CRT DISPLAY

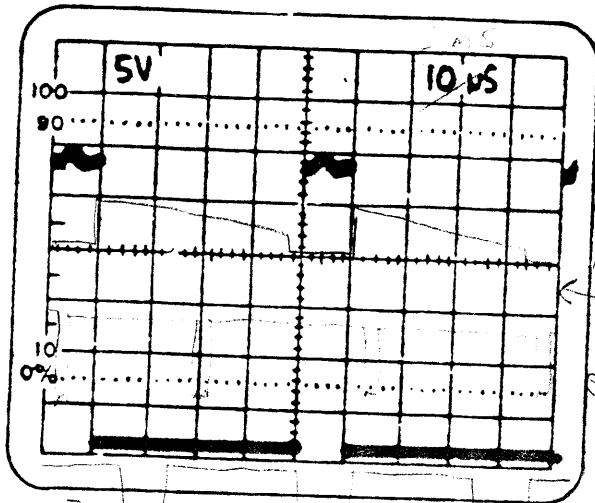
|               |                 |        |
|---------------|-----------------|--------|
| SIZE: A       | DWG NO.: 321450 | REV: A |
| RELEASE DATE: | SHEET 1 OF 10   |        |

# VIDEO (1/1)

1



2

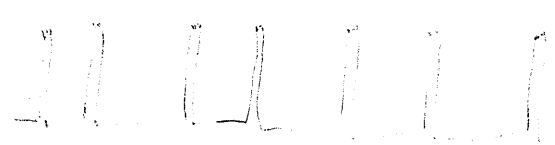


15µs  
10µs  
402 (5ms  
pin 9)  
0

APERTURE & BLANKING  
(ON .5ms OF HORIZONTAL  
VIDEO TAKES UP  
A 1/50 PART OF SCREEN)  
(WITH LAST 1/5 BLANKING)

5ms { P11  
13  
C11D4

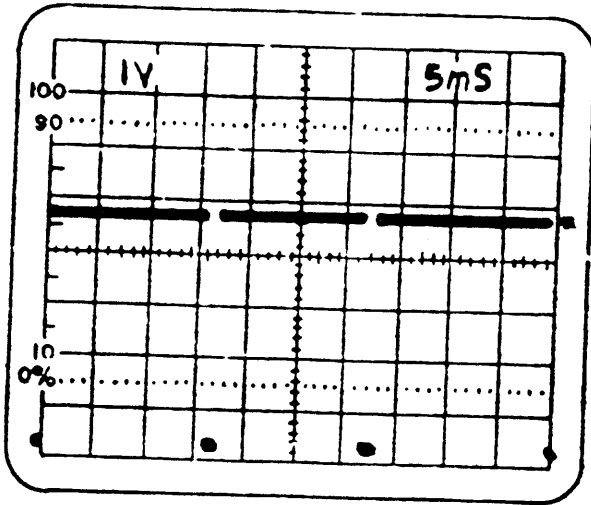
5ms { P11  
1  
C11D4



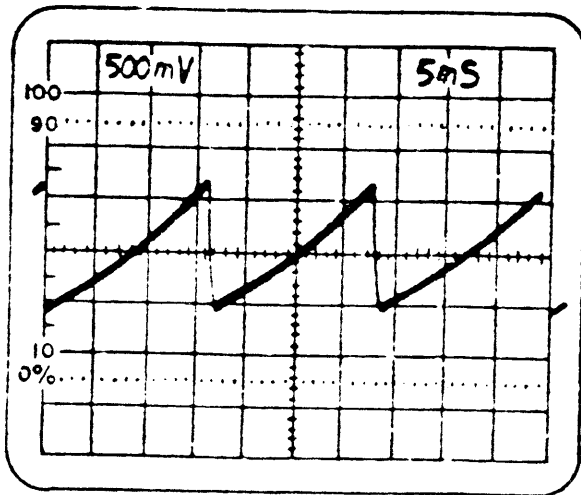
|                                  |               |                 |
|----------------------------------|---------------|-----------------|
| <b>commodore</b>                 |               |                 |
| PCB WAVEFORMS<br>12" CRT DISPLAY |               |                 |
| SIZE<br><b>A</b>                 | <b>321450</b> | REV<br><b>A</b> |
| SCALE NONE                       | SHEET 2       | OF 10           |

VERTICAL (1/3)

3



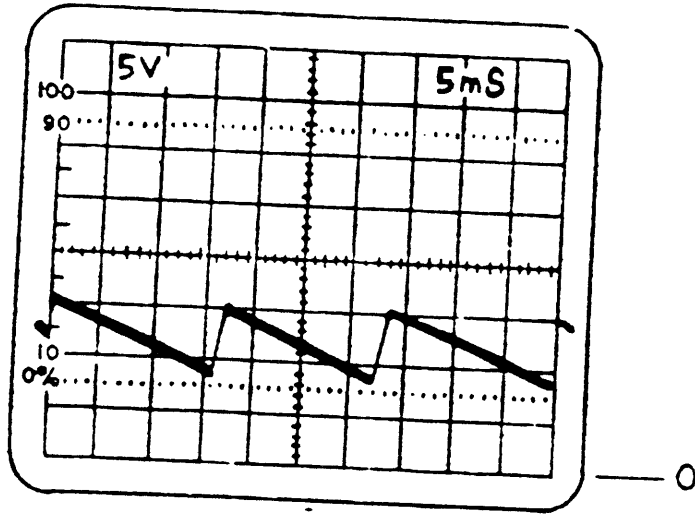
4



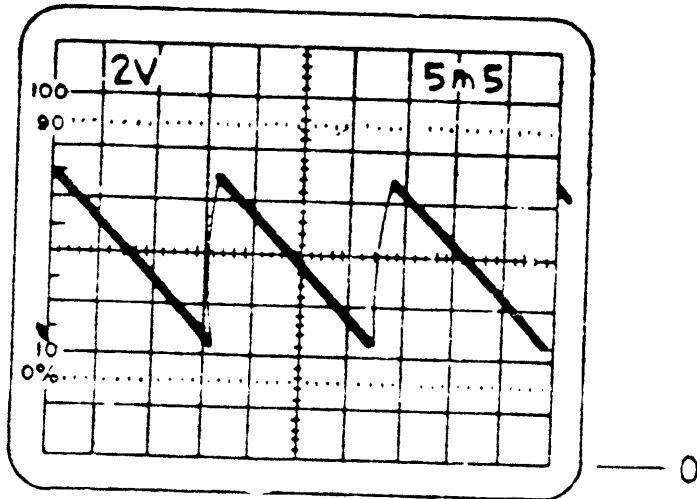
|                                  |        |               |
|----------------------------------|--------|---------------|
| <b>commodore</b>                 |        |               |
| PCB WAVEFORMS<br>12" CRT DISPLAY |        |               |
| SIZE                             | 321450 | REV           |
| A                                |        | A             |
| SCALE                            | NONE   | SHEET 3 OF 10 |

VERTICAL (1/3)

5



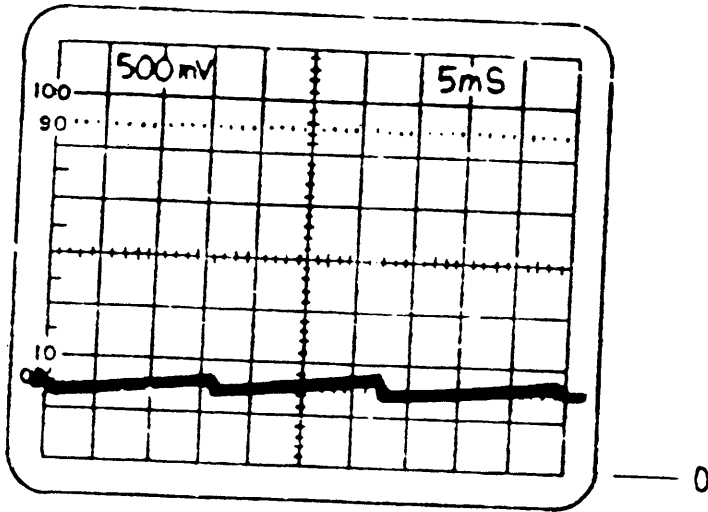
6



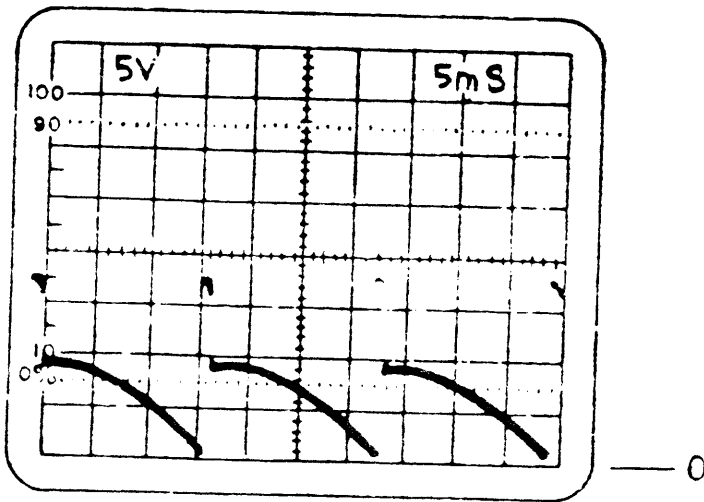
|                                  |        |               |
|----------------------------------|--------|---------------|
| <b>commodore</b>                 |        |               |
| PCB WAVEFORMS<br>12" CRT DISPLAY |        |               |
| SIZE                             | 321450 | REV           |
| A                                |        | A             |
| SCALE                            | NONE   | SHEET 4 OF 10 |

VERTICAL (2/3)

7



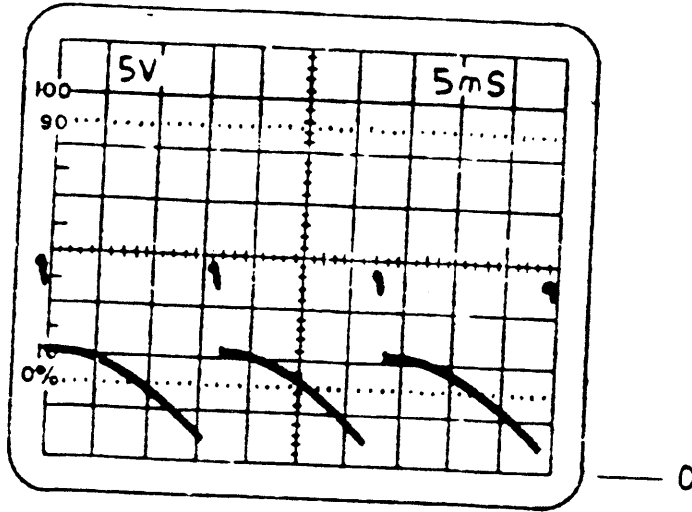
8



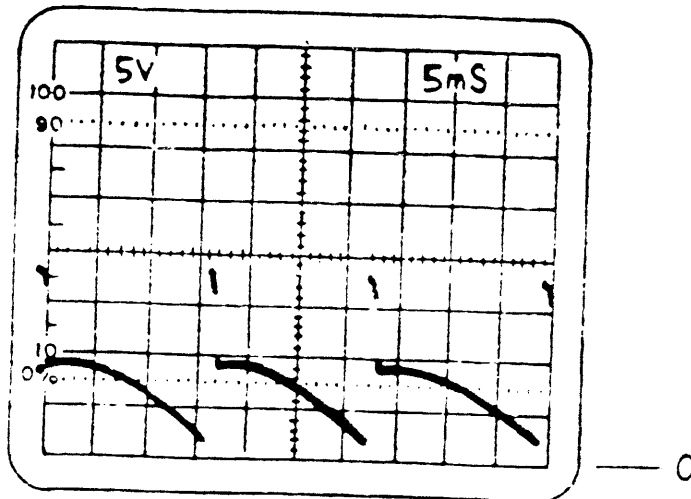
|                                  |         |       |
|----------------------------------|---------|-------|
| <b>commodore</b>                 |         |       |
| PCB WAVEFORMS<br>12" CRT DISPLAY |         |       |
| SIZE                             | 321450  | REV   |
| A                                |         | A     |
| SCALE NONE                       | SHEET 5 | OF 10 |

VERTICAL (2/3)

9



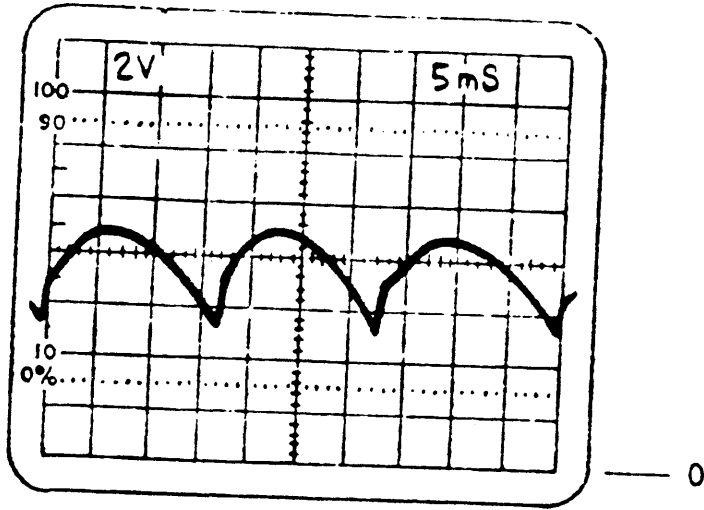
10



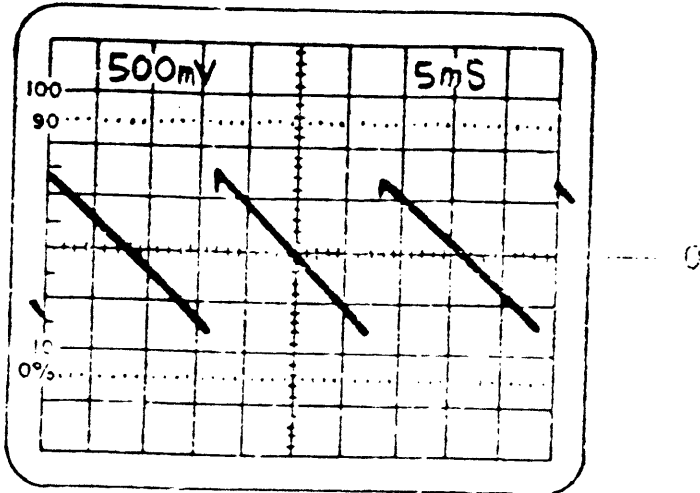
|                                  |         |       |
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| <b>commodore</b>                 |         |       |
| PCB WAVEFORMS<br>12" CRT DISPLAY |         |       |
| SIZE                             | 321450  | REV   |
| A                                |         | A     |
| SCALE NONE                       | SHEET 6 | OF 10 |

VERTICAL (3/3)

11



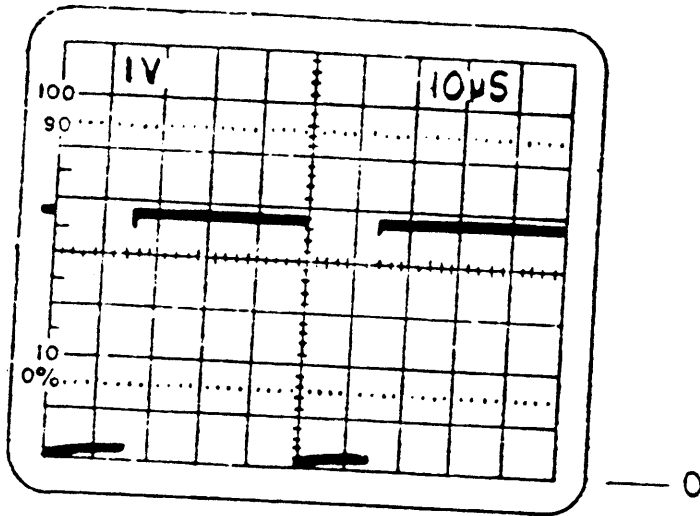
12



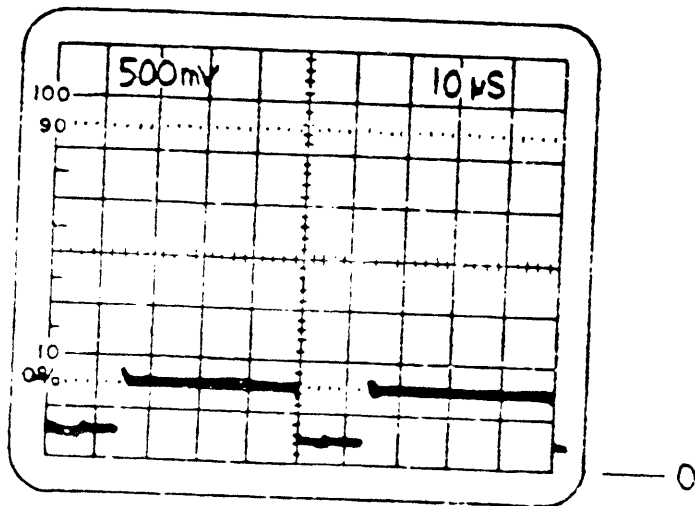
|                                  |         |       |
|----------------------------------|---------|-------|
| <b>commodore</b>                 |         |       |
| PCB WAVEFORMS<br>12" CRT DISPLAY |         |       |
| SIZE                             | 321450  | REV   |
|                                  |         | A     |
| SCALE NONE                       | SHEET 7 | OF 10 |

HORIZONTAL (1/2)

3



14

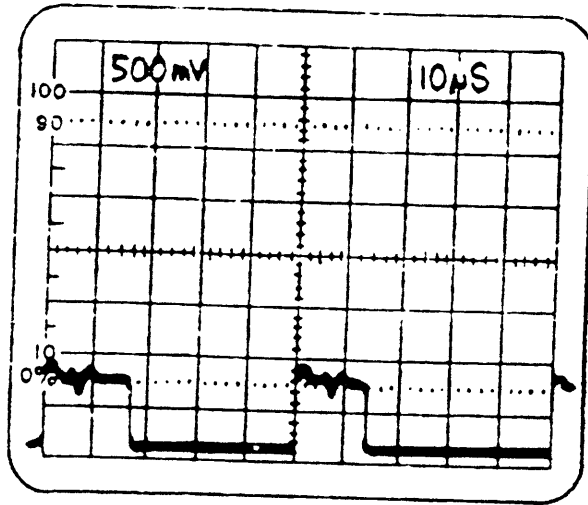


|                                  |        |               |
|----------------------------------|--------|---------------|
| <b>commodore</b>                 |        |               |
| PCB WAVEFORMS<br>12" CRT DISPLAY |        |               |
| SIZE                             | 321450 | REV           |
| A                                |        | A             |
| SCALE                            | NONE   | SHEET 8 OF 10 |

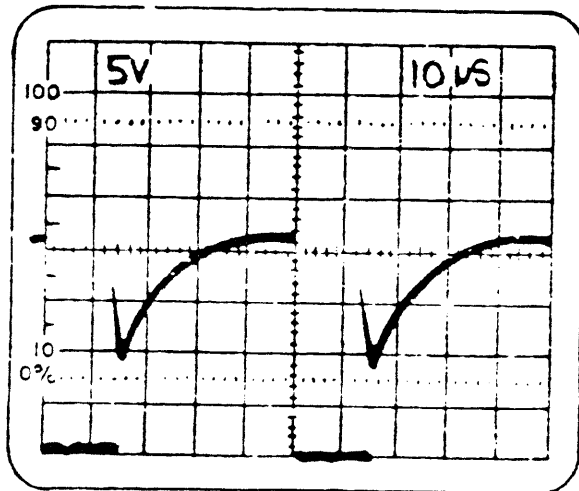


HORIZONTAL (1/2)

15



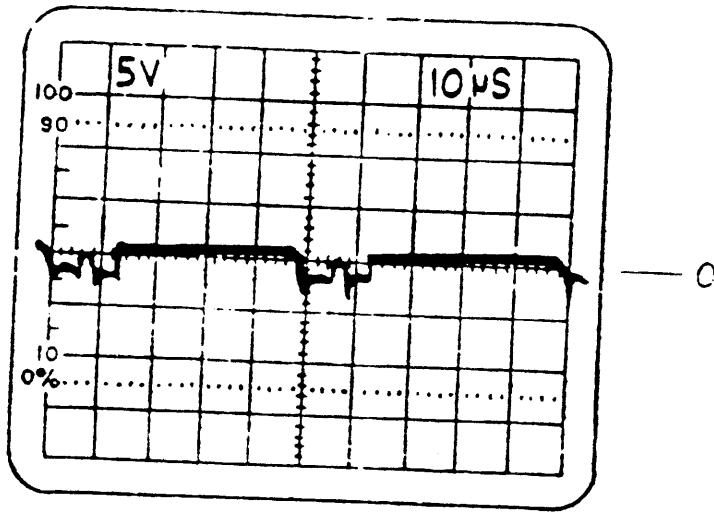
16



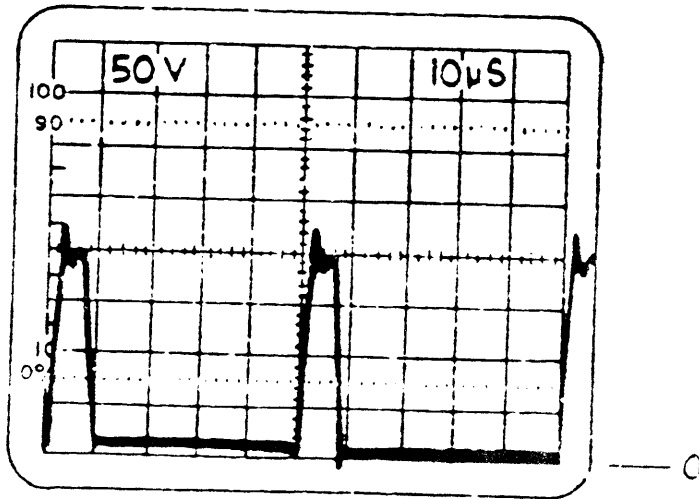
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|----------------------------------|---------|-------|
| <b>commodore</b>                 |         |       |
| PCB WAVEFORMS<br>12" CRT DISPLAY |         |       |
| SIZE                             | 321450  | REV   |
| A                                | A       | A     |
| SCALE NONE                       | SHEET 9 | OF 10 |

HORIZONTAL (2/2)

17



18



|                                  |        |                |
|----------------------------------|--------|----------------|
| <b>commodore</b>                 |        |                |
| PCB WAVEFORMS<br>12" CRT DISPLAY |        |                |
| SIZE<br>A                        | 321450 | REV<br>A       |
| SCALE NONE                       |        | SHEET 10 OF 10 |