

Commodore

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CDTV

Service Manual

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Amiga



Commodore

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SERVICE MANUAL

CDTV

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SECTION 1
SPECIFICATIONS

1.1 SPECIFICATIONS

CENTRAL PROCESSING UNIT

MC68000 (Motorola) 16/32 bit main CPU

CPU SPEED

7.15909 MHz (NTSC); 7.09379 MHz (PAL)

NOTE: CPU speeds can vary when using an external system clock such as with genlocking units.

CUSTOM CHIPS

3 Amiga-specific custom chips (Agnus, Paula and Denise) which enhance system performance by taking over tasks such as handling video, sound, direct memory access (DMA) and/or graphics.

OTHER CUSTOM CHIPS

CDTV will also have other custom chips for handling the CD-ROM interface and IR control.

MEMORY

1 MB (Megabyte) chip RAM; 2K non-volatile RAM reserved for system (clock, prefs, etc.); 512K ROM

INTERNAL SLOTS

Intelligent video slot (for optional genlock, RF board, etc.) 15 pin edge connector; DMA slot — for SCSI, LAN, etc.

VIDEO OUTPUTS

Analog RGB, Digital RGB (DB-23 connector); Composite video NTSC or PAL (RCA connector); Component video Y-C (S connector type for S-VHS and Hi8); RF Modulated (F connector); Optional genlock capabilities via plug-in module. Three-mode (CDTV, video source or mixed) under software control.

VIDEO DISPLAY (GENERAL)

400 lines/vertical frequency 60Hz (NTSC); 512 lines/vertical frequency 50Hz (PAL); Graphic co-processor with beam synced draw, fill and move modes (blitter); Maximum 1Mb video memory (chip memory); Palette of 4096 colors; Maximum 6 bitplanes; 8 sprites per scanline

OPERATING SYSTEM

Amiga kickstart 1.3 in ROM; ISO 9660 file system handler; High-speed decompression for graphics, audio and other data; CD+G, CD+midi, CDDA support

IR (INFRARED) REMOTE UNIT SPECS

Landscape format

Proprietary high-speed IR signal; Power supplied by 2 AA batteries; 10 numeric keys plus Escape and Enter; Joy/Mouse, CD/TV and Genlock keys; Button for Up, Down, Left, Right and diagonal movement; Two Select (or Fire) keys : A and B; CD audio — Reverse, Forward, Play/Pause, Headphone Volume Up-Down and Stop keys

OPTIONAL ACCESSORIES

External floppy disk drive; Trackball; Personal RAM or ROM card; Genlock; Keyboard; Modem

ADDED RAW KEYBOARD CODES

6C Play/Pause; 6D Stop; 6E Fast Forward; 6F Fast Reverse

MEMORY MAP (IN ADDITION TO 1M CHIP A500)

| | |
|---------------------|----------------------------------|
| Memory Card | \$E00000-\$E000FF |
| Non-volatile Memory | \$DC8000 |
| DMAC | Auto config., typically \$E90000 |
| Tri-port | Mapped to DMAC, \$B0 |

COMPUTER GENERATED AUDIO SPECS

4 independent sound channels (right and left); Complex waveforms; Sound buffer up to 128K, unlimited seamless sound; 8-bit D/A converter plus 6-bit volume control

AUDIO EXTRAS

Capable of sound mapping Amiga over CD-DA sound.

1.1 SPECIFICATIONS (Continued)

REAR PORTS

Centronics parallel interface; RS-232 serial interface; External floppy disk drive interface (Amiga floppy disk drive compatible); Hardwired alternative to IR for keyboard, mouse, joystick; 2 audio output ports (RCA type plug) (requires external audio amplifier); Midi in and out

FRONT PORT

Stereo headphone jack; Port for optional personal RAM/ROM card (256K)

POWER CONSUMPTION

50W (average AC100-240V, 50/60Hz)

ENVIRONMENTAL CONDITIONS

Operating temperature 5C to 40C (non-condensing); 41F to 104F
 Operating humidity 25% to 80% (non-condensing)

FRONT PANEL DISPLAY

Fluorescent (white characters on black); Time, track and volume level; Clock remains lit when unit is turned off; Display controllable by application

FRONT PANEL CONTROLS

Power On/Off; Headphone volume Up/Down; Play/Pause; Stop; Forward/Reverse — Scan/Skip; CD/TV; Reset

TEXT MODES

80 characters/25 lines; 60 characters/25 lines; Various font sizes and types selectable; Screen colors user definable

GRAPHICS MODES

(NTSC)

320 X 200 non-interlaced 32 colors
 640 X 200 non-interlaced 16 colors
 320 X 400 interlaced 32 colors
 640 X 400 interlaced 16 colors
 plus overscan and HAM modes

(PAL)

320 X 256 non-interlaced 32 colors
 640 X 256 non-interlaced 16 colors
 320 X 512 interlaced 32 colors
 640 X 512 interlaced 16 colors
 plus overscan, HAM, etc.

CD-ROM DRIVE SPECS

Sony/Philips type CD-ROM standard Mode 1, Mode 2

Data readout from disk 153 Kbytes/sec (Mode 1); 171 Kbytes/sec (Mode 2); 2 Megabytes/sec (burst)
 Average access time 0.5 sec
 Maximum access time 0.8 sec
 Soft read error Less than 10e-9
 Hard read error Less than 10e-12
 Seek error Less than 10e-6
 Commands CD-ROM, CD-Audio, CD + G
 MTBF 10,000 P.O.H.
 Standard supported ISO-9660
 Data Capacity 540 MegaBytes (approx.) (about 700 Amiga floppy disks)

CD AUDIO SPECS

8X oversampling
 Audio output External 1.4VRMS, 10K OHM
 Frequency response 4-20KHz
 Signal/Noise - 92DB
 Channel Separation - 85DB
 Harmonic Distortion 0.02% at 1 KHz
 Maximum audio capacity about 28 hours - AM quality
 Sample Rates variable from CD Audio rate (44KHz) to 6KHz
 Dual 16 bit D/A converter plus 64 levels of attenuation

SECTION 4

PARTS

Commodore International Spare Parts List SHIPPING ASSEMBLIES

Commodore part numbers are provided for reference only and do not indicate the availability of spare parts from Commodore. Industry standard parts (Resistors, Capacitors, Connectors) should be secured locally. Part number information may vary according to country, some parts may not be available in all countries. Part Numbers are subject to change, see Parts (Section 2) of current Techtopics for current numbers.

| CDTV SHIPPING ASSY | | CDTV SHIPPING ASSY (Continued) | |
|--------------------|------------------------|--------------------------------|----------------------------------|
| 513402-01 | US | 363713-02 | MODULATOR, CDTV PAL |
| 513402-02 | CN | 363713-01 | MODULATOR, CDTV NTSC |
| 513402-03 | U.K. | 903508-07 | CORD, POWER BSI BLACK |
| 513402-04 | GR | 903508-18 | CORD, POWER UL/CSA BLACK |
| 513402-05 | NOT USED, USE -04 | 903508-01 | CORD, POWER VDE BLACK |
| 513402-06 | IT | 903508-02 | CORD, POWER SEV BLACK |
| 513402-07 | NOT USED, USE -06 | 903508-03 | CORD, POWER SAA BLACK |
| 513402-08 | SG | 903508-10 | CORD, POWER JP BLACK |
| 513402-09 | NOT USED, USE -06 | 390875-01 | AUTO RF SWITCH BOX NTSC |
| 513402-10 | NOT USED, USE -06 | 251846-01 | CABLE, RF PAL |
| 513402-11 | NOT USED, USE -06 | 325228-01 | RF SWITCH SD |
| 513402-12 | SD | 252590-01 | CD CADDY |
| 513402-13 | NOT USED, USE -08 | 252594-01 | REMOTE CONTROLLER CDTV |
| 513402-14 | NOT USED, USE -06 | 252592-01 | BOX, INDIVIDUAL CDTV |
| 513402-15 | NOT USED, USE -06 | 252593-01 | CARTON, OUTER CDTV |
| 513402-16 | NOT USED, USE -06 | 252649-01 | BOX, ACCESSORY |
| 513402-17 | NOT USED, USE -06 | 252595-01 | FOAM, PACKING - FRONT |
| 513402-18 | AL | 252596-01 | FOAM, PACKING - REAR |
| 513402-19 | NOT USED, USE -06 | 311945-01 | CABLE AUDIO |
| 513402-20 | NOT USED, USE -06 | 400807-01 | SVC SUB ASSY |
| 513402-21 | JP | 318882-01 | CARD, WARRANTY, CN |
| 368082-02 | GUIDE, QUICK CONNECT | 368014-01 | CARD, WARRANTY, AL |
| 250802-01 | MAIN ASSY CDA-1, NTSC | 320408-04 | BAG, FLAT 650MM X 650MM FOR CDTV |
| 250802-02 | MAIN ASSY CDA-1, PAL-I | 324257-01 | BAG, DRYING AGENT |
| 250802-04 | MAIN ASSY CDA-1, PAL-G | 367669-01 | DISK ASSY — CD WELCOME DISK |

Commodore International Spare Parts List MAJOR ASSEMBLIES

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| | | | |
|------------------|---|------------------|--|
| 250802 | MAIN ASSY CDTV | 250805-01 | REAR PANEL ASSY CDTV |
| 250802-01 | NTSC | 252549-01 | PANEL REAR CDTV |
| 250802-02 | PAL-I | 325552-06 | CONN POWER FILTER |
| 250802-03 | SECAM | 252551-01 | FAN |
| 250802-04 | PAL-G | 252631-01 | GASKET FAN |
| 250802-05 | BLANK CARD | 252552-01 | METAL COVER SCSI SLOT W/O CARD |
| 250802-06 | SCART | 252640-01 | HARNESS ASSY FAN |
| 250803-01 | BOTTOM CHASSIS ASSY CDTV NTSC | 252553-01 | HARNESS ASSY AC INPUT |
| 250803-02 | BOTTOM CHASSIS ASSY CDTV PAL | 905476-04 | TUBING HEAT SHRINKABLE 4 DIA X 40 L |
| 255077-01 | LABEL, RATING CDTV | 1540010-04 | GROUND CABLE ASSY GREEN/YELLOW |
| 366567-01 | LABEL, SERIAL# | 906800-11 | SCREW PH M3 X 35 BLACK |
| 366565-01 | LABEL, LASER CAUTION | 906800-05 | SCREW PH M3 X 6 BLACK |
| 325090-02 | SEAL, WARRANTY | 905960-03 | NUT HEXAGON M3 |
| 366566-01 | LABEL, DISK CAUTION | 906805-01 | SCREW STP FLAT HEAD M3 X 6 BLACK |
| 252665-01 | INSULATION SHEET, FLASH MEMORY | 907272-01 | FLAT WASHER M3 |
| 252587-01 | COVER, TOP CDTV | 250807-01 | FRONT BEZEL ASSY CDTV |
| 252651-01 | VIDEO CARD, NTSC | 252566-01 | FRONT BEZEL CDTV |
| 390891-01 | VIDEO CARD, PAL FOR 250802-02 SET SW TO PAL-I | 252567-01 | DOOR CADDY CDROM DRIVE |
| 390932-01 | VIDEO CARD, SECAM FOR 250802-04 SET SW TO PAL-G ON VIDEO CARD 390891-01 | 252568-01 | SPRING DOOR CADDY |
| 363714-01 | VIDEO SCART CARD | 252569-01 | PLASTIC FILTER FL DISPLAY |
| 906883-03 | SCREW, SELF TAPPING PAN HEAD M3 X 6 (QTY = 2) | 250481-01 | PCB ASSY POWER SW & PHONE JACK |
| 252466-02 | SCREW, SELF TAPPING BIND HEAD M4 X 6 (QTY = 4) | 252571-01 | DOOR MEMORY CARD |
| 906800-05 | SCREW, PAN HEAD M3 X 6 (QTY = 2) | 252572-01 | LENS PLASTIC LED |
| 250803 | BOTTOM CHASSIS ASSY CDTV (-01 — NTSC; -02 — PAL) | 252573-01 | BUTTON POWER SWITCH |
| 250804-01 | CDROM MECHANISM ASSY CDTV | 252574-01 | PLASTIC SWITCH UNIT |
| 250482-01 | PCB ASSY MEMORY CARD | 250483-01 | PCB ASSY LED INDICATOR GREEN |
| 252583-01 | BOTTOM CHASSIS CDTV | 250669-01 | FLEXIBLE BUSHING |
| 250806-01 | POWER SUPPLY ASSY CDTV | 252666-01 | HOLDER FRONT BEZEL |
| 252564-01 | BRACKET METAL REG MKE TOP | 252668-01 | NYLON WASHER |
| 252584-01 | FOOT CDTV W/ HOT STAMP | 906115-01 | TOROID |
| 252585-01 | FOOT RUBBER CDTV | 252570-01 | PLATE LOGO COMMODORE |
| 252635-01 | RUBBER BUSHING | 250479-01 | PCB ASSY DISPLAY CDTV |
| 252641-01 | CABLE TIE | 252630-01 | PLASTIC PCB HOLDER SW AND PHONE JACK |
| 250484-01 | PCB ASSY MAIN LOGIC CDTV NTSC | 906885-01 | SCREW STP PH M2.6 X 8 |
| 250484-02 | PCB ASSY MAIN LOGIC CDTV PAL | 906883-01 | SCREW STP PH M3 X 8 |
| 250485-01 | PCB ASSY MIDI INTERFACE | 906883-04 | SCREW STP PH M3 X 10 |
| 250805-01 | REAR PANEL ASSY CDTV | 250485-01 | PCB ASSY MIDI INTERFACE |
| 250807-01 | FRONT BEZEL ASSY CDTV | 252625-01 | SCHEMATIC MIDI INTERFACE |
| 390918-01 | HOLDER BOTTOM CHASSIS | 252626-01 | PCB MIDI INTERFACE |
| 906883-03 | SCREW PAN HEAD M3 X 6 | 252166-03 | CONN 5 PIN DIN |
| 906883-04 | SCREW PAN HEAD M3 X 10 | 252664-01 | PCB HOLDER PLASTIC |
| 390903-01 | SCREW ST PH M3 X 6 BLACK | 252628-01 | HARNESS ASSY MIDI INTERFACE |
| 251449-02 | SCREW ST PH M4 X 8 | 250483 | PCB ASSY LED INDICATOR (-01 — GREEN; -02 — AMBER) |
| 251541-04 | SPRING WASHER M4 | 252598-01 | PCB LED INDICATOR |
| 905665-04 | LOCK WASHER EXT TOOTH M4 | 325521-07 | LED GREEN 5 DIA ROHM |
| 906883-01 | SCREW ST PH M3 X 8 | 325521-04 | LED GREEN 5 DIA SHARP |
| 906885-02 | SCREW ST M2.2 X 6 | 252621-02 | LED AMBER 5 DIA ROHM SLH 56YC |
| 906670-03 | SCREW M2.2 X 6 | 252621-01 | LED AMBER 5 DIA SHARP |
| 250806-01 | POWER SUPPLY ASSY CDTV | 252582-02 | HARNESS ASSY 2 CONDUCTOR |
| 252560-01 | REGULATOR SWITCHING MKE | 250481-01 | PCB ASSY POWER SWITCH AND PHONE JACK |
| 252562-01 | BRACKET METAL REG MKE BOTTOM | 252578-01 | PCB POWER SW AND PHONE JACK |
| 252632-01 | SHEET INSULATION POWER SUPPLY | 252579-01 | HEADPHONE JACK 6.43 DIA PC MOUNT TANAKA ELEC |
| 252636-01 | HARNESS ASSY POWER MKE | 252580-01 | SWITCH POWER PC MOUNT EXCELL ELEC |
| 252637-01 | HARNESS ASSY CDROM POWER | 252581-01 | HARNESS ASSY SHIELDED 2 CONDUCTORS |
| 252638-01 | HARNESS ASSY POWER SWITCH | 252582-01 | HARNESS ASSY 2 CONDUCTORS |
| 906885-02 | SCREW STP PH M2.6 X 6 | 252629-01 | PLATE GROUND SW AND PHONE JACK |
| 907272-07 | WASHER FLAT M2.6 | 250482-01 | PCB ASSY MEMORY CARD |
| 251541-07 | WASHER SPRING M2.6 | 252575-01 | PCB MEMORY CARD |
| 250804-01 | CDROM MECHANISM ASSY CDTV | 252576-01 | HARNESS ASSY FLAT CABLE 40 PIN |
| 252554-01 | CDROM MECHANISM CR511-B MKE | 252577-01 | CONN MEMORY CARD ITT CANNON |
| 252555-01 | METAL BRACKET HOLDER MAIN LOGIC | 252645-01 | COPPER TAPE 15MM WIDTH |
| 252557-01 | PLASTIC GUIDE OPTION CARD | 250479-01 | PCB ASSY DISPLAY CDTV |
| 252576-02 | HARNESS ASSY 40 PIN FLAT CABLE | 252537-01 | SCHEMATIC DISPLAY CDTV |
| 252639-01 | HARNESS ASSY AUDIO CONTROL | 252642-01 | PCB DISPLAY CDTV |
| 906883-01 | SCREW STP PH M3 X 8 | 252538-01 | PCB DISPLAY CDTV |
| 252634-01 | STAND OFF LOGIC PCB (TO BE PRESSED BY MFG.) | 252539-01 | IR RECEIVER MODULE SHARP |
| 252556-01 | BUTTON EJECT CR 511B MKE | 252546-01 | RUBBER DISPLAY T = 5 |
| 252667-01 | HOLDER INSULATION SHEET | 252540-01 | FL DISPLAY CPF2423A NORITAKE |
| 250486-01 | PCB ASSY, FLASH MEMORY | 250484 | PCB ASSY MAIN LOGIC CDTV (-01 — NTSC; -02 — PAL) |
| 252658-01 | SCHEMATIC FLASH MEMORY FROM AER | 252604-01 | PCB FAB MAIN LOGIC CDTV |
| 252659-01 | PCB FLASH MEMORY | | |

Commodore International Spare Parts List PCB Components PCB Assembly CDTV

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| IC COMPONENTS | | | CONNECTORS (Continued) | | |
|-------------------|-----------------------------|--------------------|--|--------------------------------|-------------------------|
| 390084-03 | 68000 CPU 8MHZ | U51 | 390851-02 | DIN MINI 4 PIN | CN8 |
| 318072-01 | GARY 5917 | U12 | 903345-20 | HEADER ASSY 40 PIN 2.54 PITCH | CN9,13 |
| 252126-02 | DENISE 8362R8 | U8 | 252616-03 | HEADER ASSY 3 PIN 2 PITCH | CN17,18,26 |
| 252127-02 | PAULA 8364R7 | U4 | 252616-02 | HEADER ASSY 2 PIN 2 PITCH | CN19,23,24 |
| 315093-02 | ROM KICKSTART V1.3 | U13 | 250669-04 | HEADER ASSY 4 PIN 2.5 PITCH | CN21,22 |
| 318029-03 | CIA 8520 A-1 2 MHZ | U9,10 | 250669-02 | HEADER ASSY 2 PIN 2.5 PITCH | CN20 |
| 390229-01 | VIDEO HYBRID | HY1 | 252616-04 | HEADER ASSY 4 PIN 2 PITCH | CN27 |
| 318099-01 | DRAM 256K X 4 100NS ZIP | U65-72 | 903332-02 | HEADER ASSY 2 PIN 2.54 PITCH | JP15 |
| 318099-05 | DRAM 256K X 4 80NS ZIP | SUB FOR 318099-01 | 380333-01 | JUMPER | |
| 318069-02 | F. AGNUS 8372 | U44 | OSCILLATORS, TRANSISTORS AND DIODES | | |
| 390563-02 | DMAC 4701 | U36 | 325566-14 | OSCILLATOR MODULE 28.63636 MHZ | X1 |
| 252606-01 | ROM CDROM DRIVER, ODD | U35 | 252344-01 | OSCILLATOR MODULE 28.37516 MHZ | X5 |
| 252607-01 | ROM CDROM DRIVER, EVEN | U34 | 325566-12 | OSCILLATOR MODULE 28.63636 MHZ | X1 |
| 252608-01 | CPU LC6554H | U62 | 902707-01 | TRANSISTOR PNP 2N3906 | Q4,6 |
| 252609-02 | CPU 6500/1 | U75 | 390192-01 | TRANSISTOR NPN 2N3904 | Q1,7,9,10,12,13 |
| 318073-01 | RTC MSM6242B | U61 | 252338-01 | TRANSISTOR POWER 2SD789 | Q8 |
| 252611-01 | AMP M51568FP | U16 | 390254-01 | TRANSISTOR JFET MPF102 | Q2,5 |
| 252612-01 | ATT TC9154AP | U19 | 902723-02 | TRANSISTOR 2SA1309A | Q1 |
| 901523-01 | TIMER NE555 | U76 | 902717-01 | TRANSISTOR 2SA733 | SUB FOR ABOVE |
| 390086-01 | AMP TL084/LF347 | U5,6 | 902707-01 | TRANSISTOR 2N3906 | SUB FOR ABOVE |
| 901523-10 | AMP TL082/LF353N | U18 | 900928-02 | DIODE ZENER 5.1V RD 5.1EB | D4 |
| 901879-03 | TRI-PORT 6525B | U32 | 900922-02 | DIODE ZENER 30V RD 30EB | D3 |
| 252614-01 | DAC LC7883M | U17 | 900850-09 | DIODE SIGNAL 1N4448C | D5 |
| 328156-02 | RESET PST518B | U56,82 | 900850-01 | DIODE SIGNAL 1N4148 | D1,6-9 |
| 252620-01 | SRAM 16K SK DIP 100NS | U78,79 | 252618-01 | OSCILLATOR CERAMIC 3MHZ | X3 |
| 252620-02 | SRAM 16K SK DIP 120NS | SUB FOR -01 | 252618-02 | OSCILLATOR CERAMIC 4MHZ | X4 |
| 252620-03 | SRAM 16K SK SIP 150NS | SUB FOR -01 | 900560-01 | OSCILLATOR CRYSTAL 32.768 KHZ | X2 |
| 901521-29 | 74LS373 | U46,48 | RESISTOR PACKS | | |
| 901521-16 | 74LS138 | U49,50 | 252657-01 | S COM 82K 9 ELEMENT | RP23,24 |
| 318050-01 | 74F244 | U54,55 | 902441-17 | S COM 470 OHM 5 ELEMENT | RP13 |
| 901521-11 | 74LS157 | U7 | 902410-08 | S COM 4.7K 9 ELEMENT | RP3,9,10,26 |
| 310003-01 | 74HC245 | U1,2 | U3 | S COM 120 OHM 5 ELEMENT | RP5 |
| 901882-01 | 1488 | U3 | 902410-13 | S COM 10K 9 ELEMENT | RP6 |
| 901883-01 | 1489 | U11 | 902410-09 | S COM 3.3K 9ELEMENT | RP11,25 |
| 901521-28 | 74LS164 | U31 | 252647-02 | S COM 47K 3 ELEMENT | RP8 |
| 901521-52 | 74LS293 | U42 | 902442-55 | S COM 4.7K 7 ELEMENT | RP12,14,21 |
| 901521-06 | 74LS74 | U24,28 | 902441-31 | S COM 4.7K 5 ELEMENT | RP19,20,22,27,28 |
| 390110-01 | 74F04 | U14 | 902422-04 | INDIVIDUAL 22 OHM 4 ELEMENT | RP7 |
| 901521-46 | 74LS245 | U52,53 | 902422-06 | INDIVIDUAL 68 OHM 4 ELEMENT | RP4 |
| 901521-38 | 74LS38 | U15 | 902422-05 | INDIVIDUAL 47 OHM 4 ELEMENT | RP1,2 |
| 901521-31 | 74LS32 | U22,25,39,73 | 390227-05 | INDIVIDUAL 68 OHM 5 ELEMENT | RP15-17,29,30 |
| 901521-03 | 74LS08 | U21,80 | 252648-01 | INDIVIDUAL 68 OHM 3 ELEMENT | RP31 |
| 901522-30 | 7407 | U27,37 | 902422-09 | INDIVIDUAL 1K 4 ELEMENT | RP33 |
| 901521-22 | 74LS27 | U41,43,64 | 252648-02 | INDIVIDUAL 1K 3 ELEMENT | RP32 |
| 901521-02 | 74LS04 | U26,40,63,58 | RESISTORS — 1/4W ±5% UNLESS OTHERWISE SPECIFIED | | |
| 901521-21 | 74LS02 | U23,30,74 | 390904-25 | 1M | RP96,115 |
| 901521-01 | 74LS00 | U29,81 | 390904-24 | 470K | R22,25 |
| 901521-13 | 74LS244 | U45,47,57,59,60,77 | 390904-23 | 100K | R51,67,68 |
| 318066-01 | 74F00 | U38 | 390904-22 | 47K | R92 |
| IC SOCKETS | | | 390904-20 | 15K | R53,60,20,30 |
| 390185-01 | 84 PIN PLCC | XU36,44 | 390904-19 | 12K | R52,54,59,61,18,28 |
| 390141-01 | 64 PIN SDIP | XU62 | 390904-18 | 10K | R4,5,12,14,16,17,23,26, |
| 904150-10 | 64 PIN DIP | XU51 | | | 27,64,89,90,135,136,143 |
| 251313-02 | 48 PIN DIP | XU4,8,12 | 390904-17 | 4.7K | R1,39,41,45,55-57,62, |
| 904150-06 | 40 PIN DIP | XU9,10,13,32,75 | | | 63,77,84,86,117-119, |
| 390768-02 | 32 PIN DIP MCH TOOL | XU34,35 | | | 123,125,126,134,140 |
| 252600-01 | HOLDER CONN CARTRIDGE | | 390904-16 | 3.3K | R19,29,79,105,106 |
| 200966-02 | TRANSFORMER DC-DC CONV | T1 | 390904-14 | 1.5K | R66,100 |
| CONNECTORS | | | 390904-13 | 1K | R7-9,48,76,84,95,97, |
| 390851-03 | DIN MINI 5PIN | CN7 | | | 128-133,137 |
| 390242-03 | D SUB 23 PIN MALE | CN4 | 390904-12 | 750 OHM | R15,24 |
| 390241-03 | D SUB 23 PIN FEMALE | CN1 | 390904-05 | 33 OHM | R88 |
| 390242-05 | D SUB 25 PIN MALE | CN2 | 390904-10 | 120 OHM | R46 |
| 390241-05 | D SUB 25 PIN FEMALE | CN3 | 390904-07 | 56 OHM | R78 |
| 252602-01 | CARD EDGE 30 PIN 2.54 PITCH | CN10,11 | 390904-09 | 100 OHM | R50,65 |
| 252617-11 | KEL 8811 SERIES 170L | CN12 | 390904-06 | 47 OHM | R36,37,98 |
| 252603-10 | HOUSING MOLEX 52007 | CN14,15,16 | 390904-04 | 27 OHM | R43,44 |
| 252122-02 | RCA JACK RED | CN6 | 390904-15 | 2.7K | R13 |
| 252122-01 | RCA JACK WHITE | CN5 | 390904-03 | 22 OHM | R47 |

Commodore International Spare Parts List

PCB Components (Continued)

PCB Assembly CDTV

| RESISTORS (Continued) | | CAPACITORS (Continued) | |
|------------------------------------|----------------------|---|--|
| 390904-02 | 10 OHM | R69,70 | 900463-28 MLC AXIAL .01UF |
| 390904-01 | 4.7 OHM | R2 | 900019-07 MLC AXIAL .047UF |
| 390904-11 | 470 OHM | R40,42,49,83,111,112 | 900463-26 MLC AXIAL 6800PF |
| 390904-21 | 22K | R58,121,124,127 | 900463-23 MLC AXIAL 3900PF |
| 901600-15 | 47 OHM, 1/2W ± 5% | R3,101,102 | 900463-37 MLC AXIAL .1UF |
| 901600-52 | 33 OHM, 1/2W ± 5% | R114 | |
| 901550-07 | 100K | R82 | 900010-42 CER DISCS 22PF |
| 901550-07 | 12K | R71 | 900010-64 CER DISCS 33PF |
| 901550-20 | 10K | R85,103,104 | 900010-35 CER DISCS 10PF |
| 901550-19 | 4.7K | R73-75,91,93,99,107, 108,116,141 | 900010-23 CER DISCS 680PF |
| | | R72 | 900100-33 ELECT 47UF 16V |
| 901550-02 | 3.3K | R138,142 | 900010-61 CER RAD 0.1UF 25V |
| 901550-01 | 1K | R80 | 900463-10 MLC AXIAL 330 PF |
| 901550-94 | 68 OHM | R38,109 | 900463-12 MLC AXIAL 470PF |
| 901550-56 | 47 OHM | R81,87 | 900463-16 MLC AXIAL .001UF |
| 901550-63 | 22 OHM | R6 | 900019-17 MLC RAD 47PF 50V |
| 901550-133 | 4.7 OHM | R94 | 900022-05 MLC RAD .33UF 50V |
| 901550-58 | 470 OHM | R21,31 | 900100-58 ELECT RAD 470UF 10V |
| 901550-52 | 220 OHM | R120,122 | 900100-59 ELECT RAD 4.7UF 25V |
| 901550-06 | 33K | | 251029-06 TRIMMER 6.8 - 45PF |
| RESISTORS — 1/4W 5%, CARBON | | | MISCELLANEOUS |
| 901550-02 | 3.3K | R1 | 312754-02 INSULATION TAPE |
| 901550-89 | 150 OHM | R2 | 905476-05 TUBING SHRINKABLE 3 X 20L |
| 901550-105 | 33 OHM | R3 | 251584-15 WRAPPING WIRE AWG 28 L = 20MM |
| 901550-58 | 470 OHM | R4 | 251842-02 EMI FILTER 100PF |
| 901550-56 | 47 OHM | R6 | |
| 901550-52 | 220 OHM | R1,2,3 | 390297-02 EMI FILTER 100PF W/FERRITE |
| 901550-76 | 270 OHM | R4 | 903025-01 FERRITE BEAD |
| CAPACITORS | | | 903025-01 FERRITE BEAD |
| 390101-04 | ELECT RAD 22UF 35V | C11,20,29,59,60,79,80, 177,178 | 251842-02 EMI FILTER 100PF |
| 900100-34 | ELECT RAD 10UF 50V | C14,85,155,162,163 | 252627-01 PHOTOCOUPLER PC900V |
| 900100-57 | ELECT RAD 3300UF 10V | C2,61,69 | 252541-01 TACT SWITCH (USE W/252642-01) HOSHIDEN |
| 900100-33 | ELECT RAD 47UF 16V | C82,23,164 | 252644-01 TACT SWITCH (USE W/252538-01) ALPS |
| 390101-02 | ELECT RAD 100UF 16V | C6,40-43,72,81,84,125, 165,173,175 | 252547-01 LED AMBER 1 X 5 SHARP |
| | | C152 | 252621-02 LED AMBER 5 DIA ROHM |
| 900100-48 | ELECT RAD 47UF 50V | C54,68,77 | 252621-01 LED AMBER 5 DIA SHARP |
| 390101-03 | ELECT RAD 470UF 16V | C171,172,176 | 252548-01 HOLDER LED (USE W/252547-01) |
| 900100-11 | ELECT RAD 4.7UF 25V | C3,4,8,12,13,17,21,22, 58,71,73,75,78,119,140- 147,184,5 | 252542-01 WIRE FLAT JUMPER 2 MM PITCH 10 CON- DUCTS L = 100 |
| 900022-01 | MLC RAD .22UF 50V | C157,153 | 252542-02 WIRE FLAT JUMPER 2 MM PITCH 10 CON- DUCTS L = 100 |
| | | C1,36,37,38,118 | 251188-03 COIL INDUCTOR 100UH |
| 900022-03 | MLC RAD .1UF 50V | C5,24-28,30,35,39,64, 66,67,70,83,87,90,93- 117,120-123,127,129, 130,133,137-139,148, 149,156,158,159,167, 180-183 | 252599-01 SHIELD PLATE LOGIC PCB |
| 900463-04 | MLC AXIAL 100PF | | 252601-01 INSULATION SHEET LOGIC PCB |
| 390082-05 | MLC AXIAL .22UF | | 390879-01 STAND OFF M2.5 X 0.45 X 13 (SUB USE W/250486-01) |
| | | | 906883-01 SCREW SELF TAPPING PAN HEAD M3 X 8 (QTY 4) |
| | | | 906883-07 SCREW SELF TAPPING PAN HEAD M3 X 16 (QTY 4) |
| | | | 318277-17 POLYFOAM BLOCK |
| | | | C15,74,154 |
| | | | C7,16,31-34,63 |
| | | | C10,19 |
| | | | C9,18,56,57 |
| | | | C65,91,124,134,150,161, 179 |
| | | | C135 |
| | | | C131,132 |
| | | | C126,128 |
| | | | C86 |
| | | | C1,2 |
| | | | C3 |
| | | | C50,55 |
| | | | C169,170 |
| | | | C46,47,49,51 |
| | | | C48,52 |
| | | | C92 |
| | | | C76 |
| | | | C174 |
| | | | C136 |
| | | | EMI9-53,55-60,64,70,75- 80,83-87,92-95,100 |
| | | | EMI1-8,71,72,81,82 |
| | | | EMI65,66,69,74,90,91 |
| | | | FB1,2,3 |
| | | | EMI1,2,3,4 |
| | | | PC1 |
| | | | LED 1 |
| | | | LED 2,3 |
| | | | SUB FOR ABOVE |
| | | | SUB FOR ABOVE |
| | | | L1 |

SECTION 5
SCHEMATICS

Schematic #252605, Rev. A
Sheet 1 of 12

| SIGNAL | DESCRIPTION |
|-------------|---|
| 28MHZ | 28.63636 MHz (NTSC) / 28.37516 MHz (PAL) Master Clock |
| 7MHZ | 7 MHz Processor Clock |
| A[23:1] | Processor Address (68000) |
| ACK | Data Acknowledge (Parallel) |
| AS | Address Strobe (68000) |
| AUDIN | Audio Input (RS232 jack) |
| AUDOUT | Audio Output (RS232 jack) |
| BEER | Bus Error (68000) |
| BG | Bus Grant (68000) |
| BGACK | Bus Grant Acknowledge (68000) |
| BLISS | Blitter Slowdown (chips) |
| BLIT | Chip Memory Access (chips) |
| BR | Bus Request (68000) |
| BUSY | Device Busy (parallel) |
| CASL/CASU | CAS lower/upper byte (DRAM) |
| CCK | Color Clock aka C1 (chips) |
| CCKQ | Color Clock Quadrature aka C3 (chips) |
| CDAC | 7 MHz Quadrature Clock |
| CHNG | Media Change (floppy) |
| CLKRD/CLKWR | Real-time Clock Read/Write |
| CSYNC | Composite Sync (video) |
| CTS | Clear to Send (rs232) |
| D[15:0] | Processor Data (68000) |
| DIR | Direction (floppy) |
| DKRD | Diskette Read Data (floppy) |
| DKWDB | Diskette Write Data (floppy) |
| DKWEB | Diskette Write Enable (floppy) |
| DMAL | Chip DMA Request (chips) |
| DRA[8:0] | DRAM Address (DRAM, chips) |
| DRD[15:0] | DRAM Data (DRAM, chips) |
| DSR | Data Set Ready (rs232) |
| DTACK | Data Transfer Acknowledge (68000) |
| DTR | Data Terminal Ready (rs232) |
| E | Peripheral E Clock (68000) |
| EXRAM | Expansion Memory Present |
| FC[0:0] | Function Control (68000) |
| FIRE0/FIRE1 | Fire Button (joysticks) |
| HLT | Processor Halt (68000) |
| HSYNC | Horizontal Sync (video) |
| INDEX | Diskette Index Hole (floppy) |
| INT[2,3,6] | Interrupt Requests (chips) |
| IORESET | I/O Reset |
| IPL[2:0] | Processor Interrupt Requests (68000) |
| KBCLOCK | Keyboard Clock (keyboard) |
| KBDATA | Keyboard Data (keyboard) |
| KBRESET | Keyboard Reset (keyboard) |
| LDS/UDS | Upper/Lower Data Strobe (68000) |
| LED | Power On LED |

| SIGNAL | DESCRIPTION |
|-----------------|---------------------------|
| LEFT/RIGHT | Audio Channel |
| MTR | Motor On (floppy) |
| MTR0 | Motor On Drive |
| MOV/MOH | Mouse Quadrature |
| MLV/MLH | Mouse Quadrature |
| OVL | Overlay ROM |
| OVR | Override System |
| PIXELSW | Pixel Switch |
| POTOX/POTOY | Pot Lines (joystick) |
| POTIX/POTIY | Pot Lines (joystick) |
| POUT | Paper Out (parallel) |
| PPD[7:0] | Parallel Port |
| RAMEN | RAM Enable (chips) |
| REGEN | Chip Register |
| RAS0/RAS1 | RAS Internal/External |
| RDY | Drive Ready (floppy) |
| RESET | General Reset |
| RGA[8:1] | Register Address |
| RI | Ring Indicator |
| ROMEN | ROM Enable |
| RTS | Request to Send |
| RST | Processor Reset |
| RXD | Receive Data |
| RW | Processor Ready |
| SEL | Select (parallel) |
| SEL[3:0] | Drive Select |
| SIDE | Side Select (floppy) |
| STEP | Head Step Command |
| TRK0 | Track 0 Sense |
| TXD | Transmit Data |
| VMA | Valid Memory Address |
| VPA | Valid Peripheral Address |
| VSYNC | Vertical Sync |
| WE | Write Enable |
| WPROT | Write Protect |
| XCLK | External 28 MHz Clock |
| XCLKEN | External Clock Enable |
| XRDY | External Data Ready |
| AUDL/AUDR | Amiga Audio Left/Right |
| AEMP | Audio Deemphasis |
| AUPLY | CD Audio Play |
| BAS | Buffered Address |
| BCLK | CD Audio Clock |
| BCSMCEN/BCSMCOD | Buffered Chip Select |
| BRW | Buffered Processor |
| BSEN | Logic Voltage |
| BTXD | Buffer Transmitted |
| BLDS/BUDS | Buffered Upper/Lower Data |

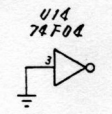
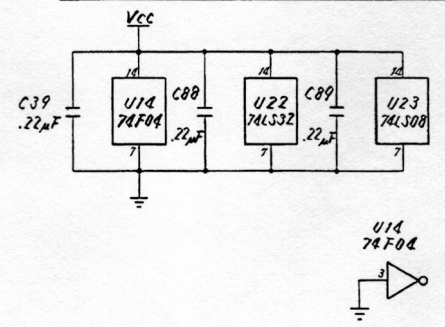
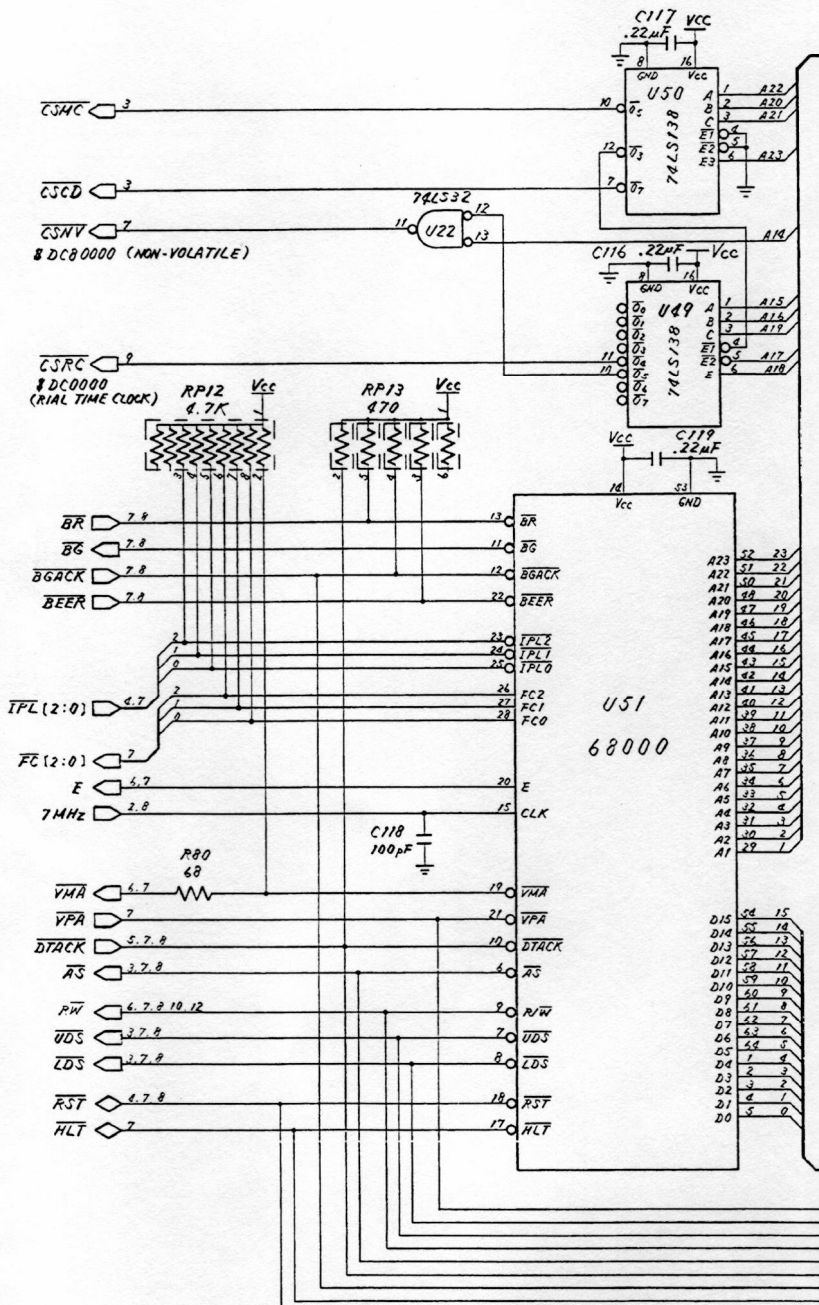
CDTV SERVICE MANUAL

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| oy) |
| (floppy) |
| re Signals (joysticks) |
| re Signals (joysticks) |
| er RAM |
| n Decoding |
| video) |
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| Data (parallel) |
| ips) |
| Enable (chips) |
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| DRAM) |
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| z Clock (genlock) |
| Enable (genlock) |
| Ready |
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| ft/Right |
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| ss Strobe |
| |
| Select Memory Card Even/Odd |
| ssor Read/Write |
| Sense |
| c Data (Midi) |
| Lower Data Strobe |

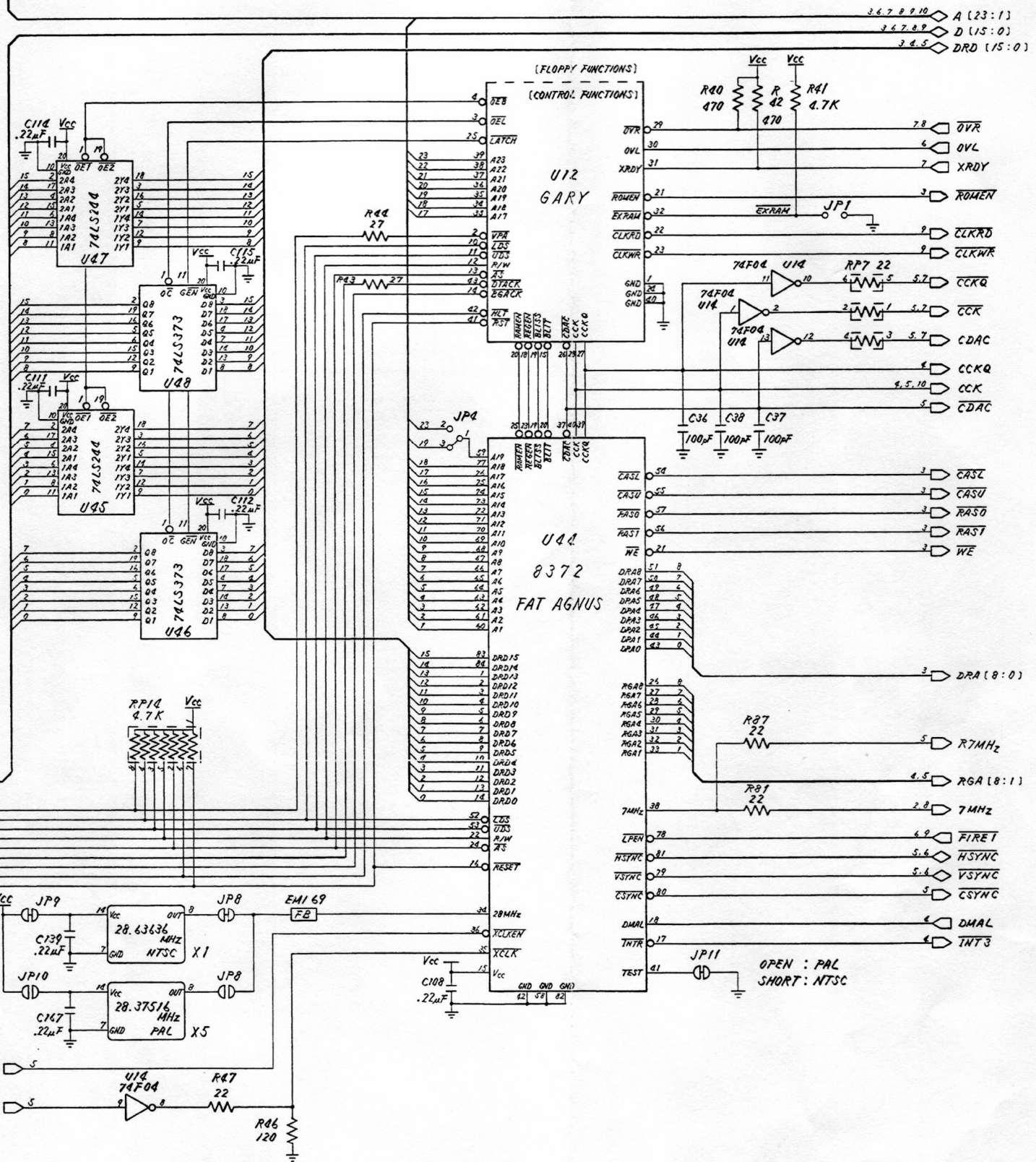
| SIGNAL | DESCRIPTION |
|------------------|---|
| C16M | 16MHz Dac Clock |
| CDAL/CDAR | CD Audio Left/Right |
| CD/TV | Select CD/TV (see INCD) |
| CONFIGIN | Config In |
| CONFIGOUT | Config Out |
| CSCD | Chip Select CDROM Driver |
| CSEN/CSOD | Chip Select CDROM Driver Even/Odd |
| CSMC | Chip Select Memory Card |
| CSMCEN/CSM COD | Chip Select Memory Card Even/Odd |
| CSNV | Non-Volatile Memory Select |
| CSRC | Real Time Chip Select |
| CSX0 | XT Device Chip Select No.0 |
| DACATT | Attinator Data (Dac) |
| DACLCH | Attinator Latch (Dac) |
| DACST | Attinator Strobe (Dac) |
| DATA | CD Audio Data |
| DMCD | Dmac Dma Data |
| EOP.CSX1 | End of Process/XT Device Chip Select No.1 |
| GMS{1:0} | Genlock Mode Select (Remote Control) |
| IFRST | Interface Reset |
| INAC | Indicator Power/Status |
| INCD | Indicator CD/TV Mode |
| INTD | CD Drive Reset |
| INTS | SCSI Interrupt |
| IOR/IOW | Dmac Read/Write |
| KBSE | Keyboard Sense |
| LMUTE | Line Mute |
| LRCLK | Audio Left/Right Clock |
| MPS | Power Sense (Logic) |
| MS{1:0} | Genlock Mode Select (Amiga) |
| MUTE | CD Mute |
| POWER | Main Logic Power On/Off |
| SD{7:0} | Dmac XT/SCSI Data |
| VCK | Attinator Data Clock (Head Phone) |
| VDATA | Attinator Data Clock (Head Phone) |
| VF{2:1} | Filament Voltage |
| VST | Attinator Data Clock (Head Phone) |
| VPP | -30V Voltage |
| XA,YA,XB,YB{2:1} | Mouse Input Signal |
| XDACK | XT Device Data Acknowledge |
| XDREQ | XT Device Data Requirement |
| EMC | ENABLE MEMORY CARD |
| ECD | ENABLE CDROM DRIVER (ROM) |
| WEPROM | WRITE ENABLE E ² PROM |
| | |
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| | |
| | |

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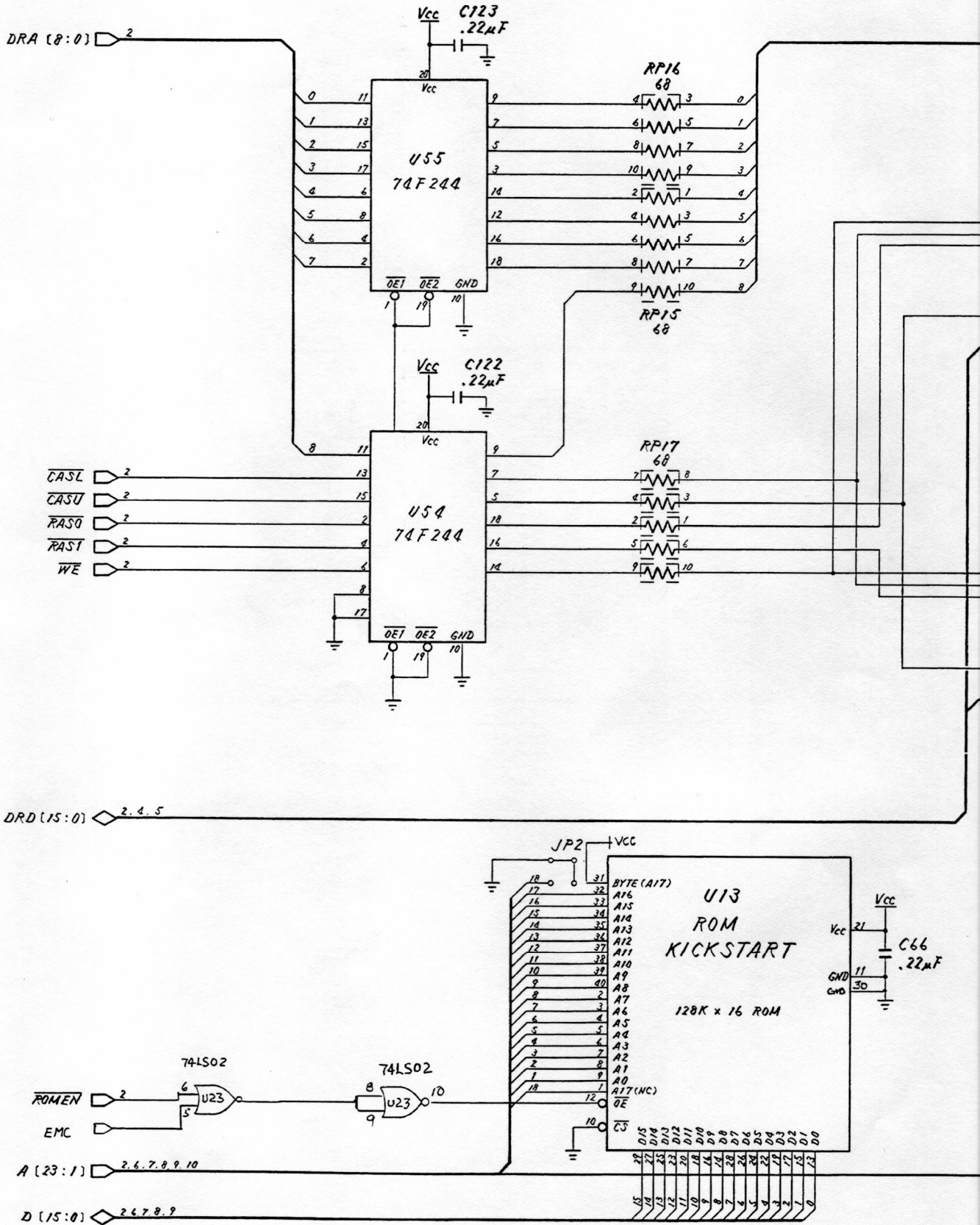


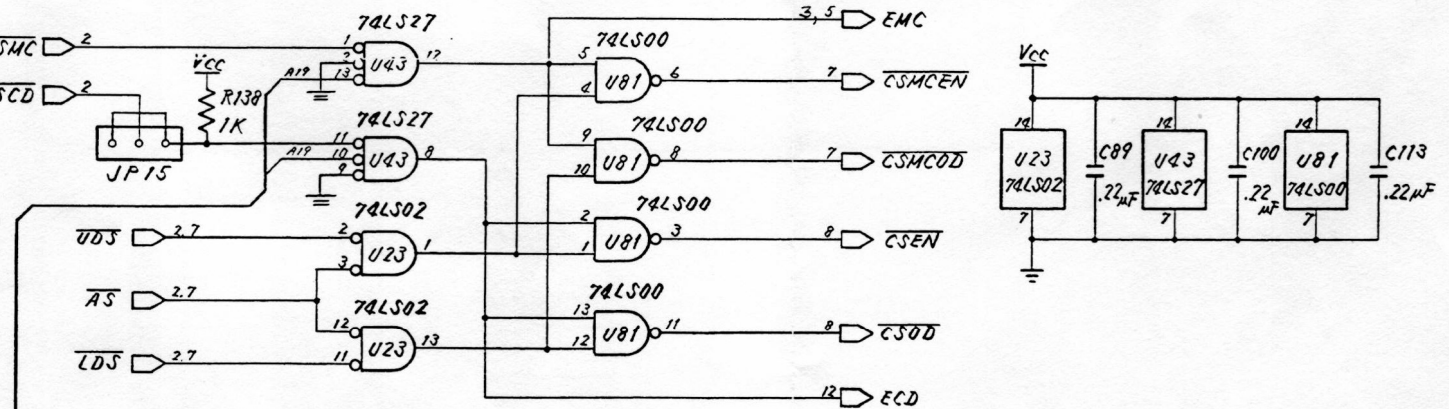
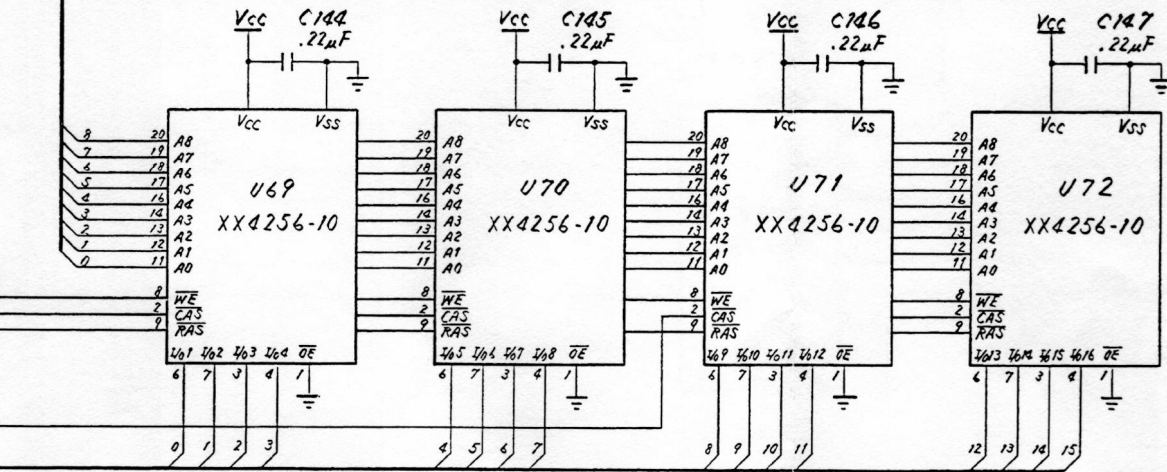
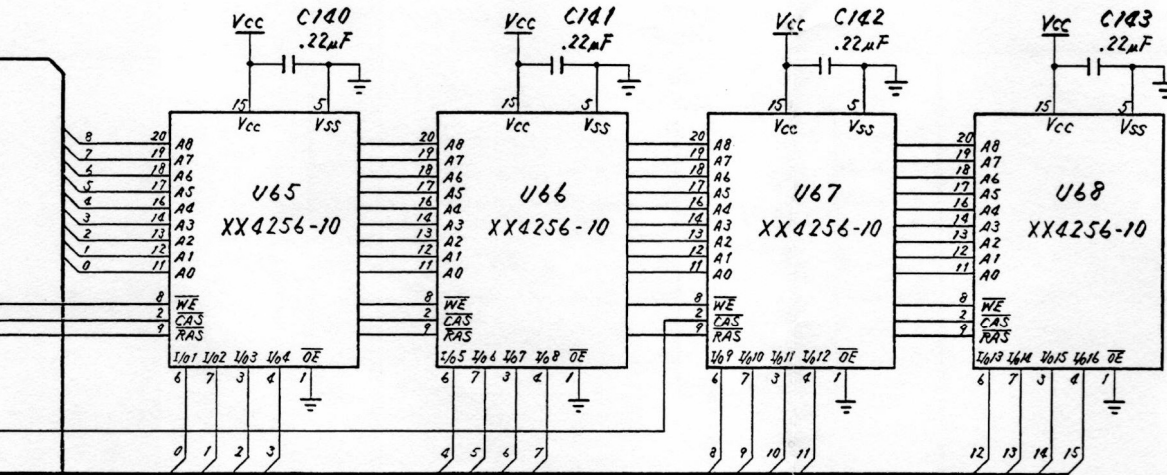
XCLK
XC



Schematic #252605, Rev. A

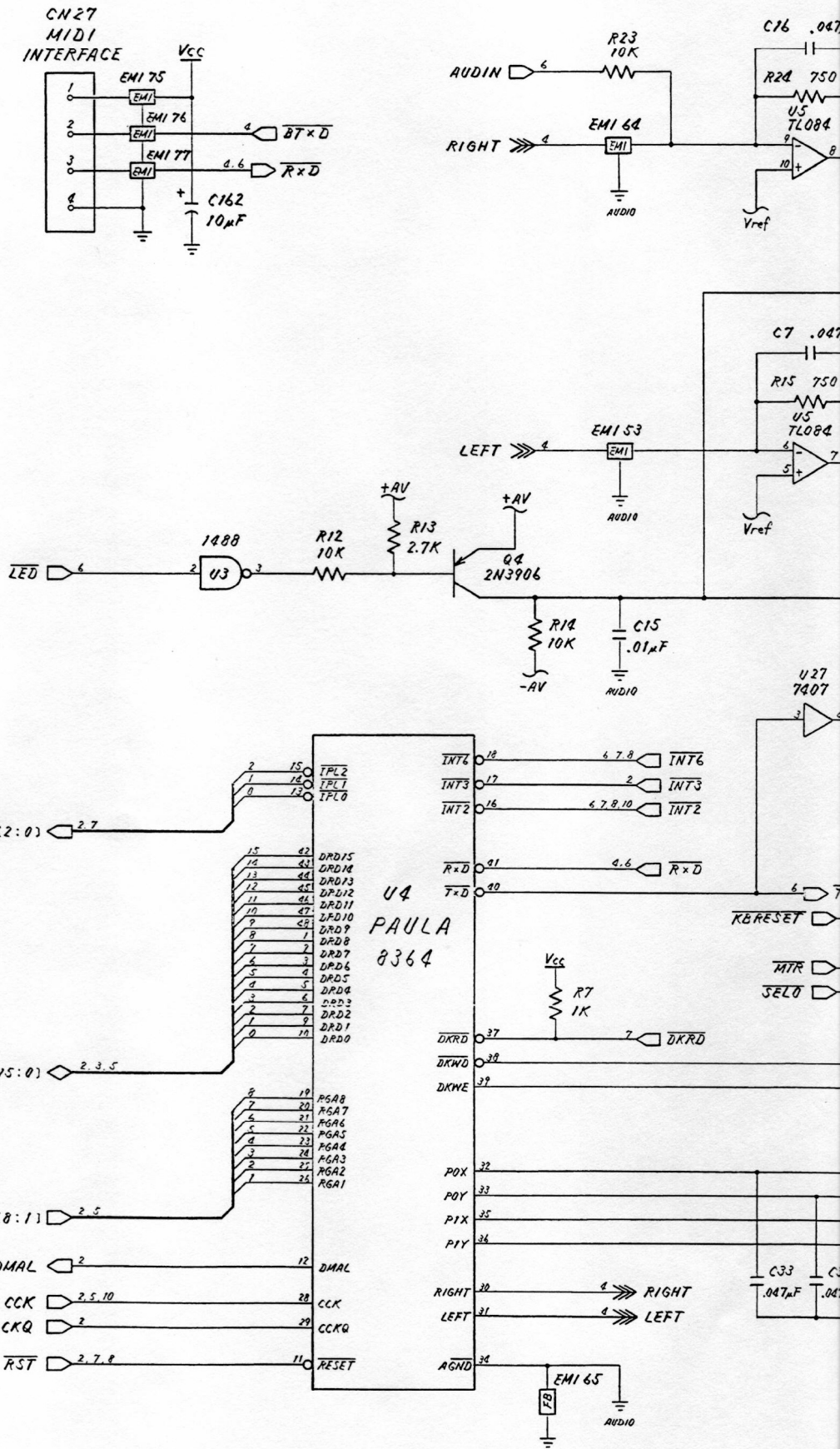
Sheet 3 of 12

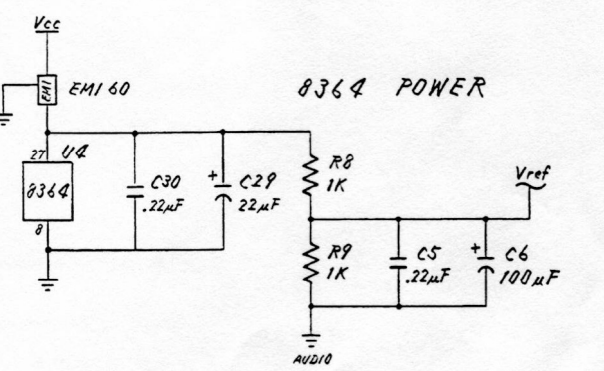
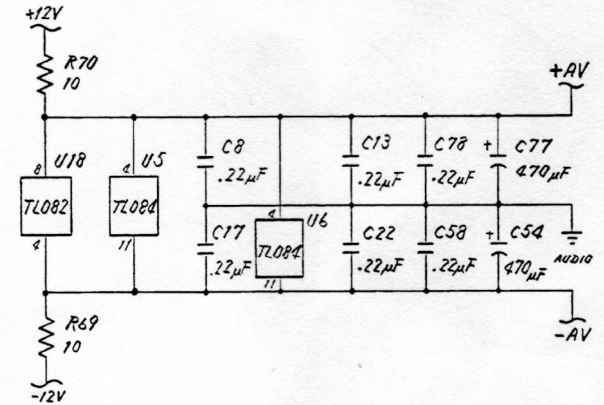
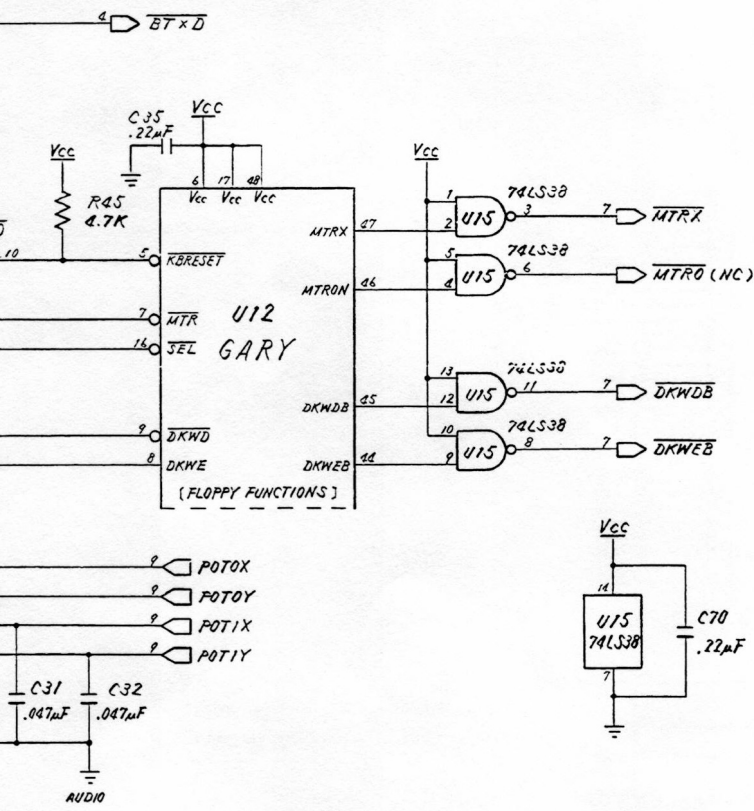
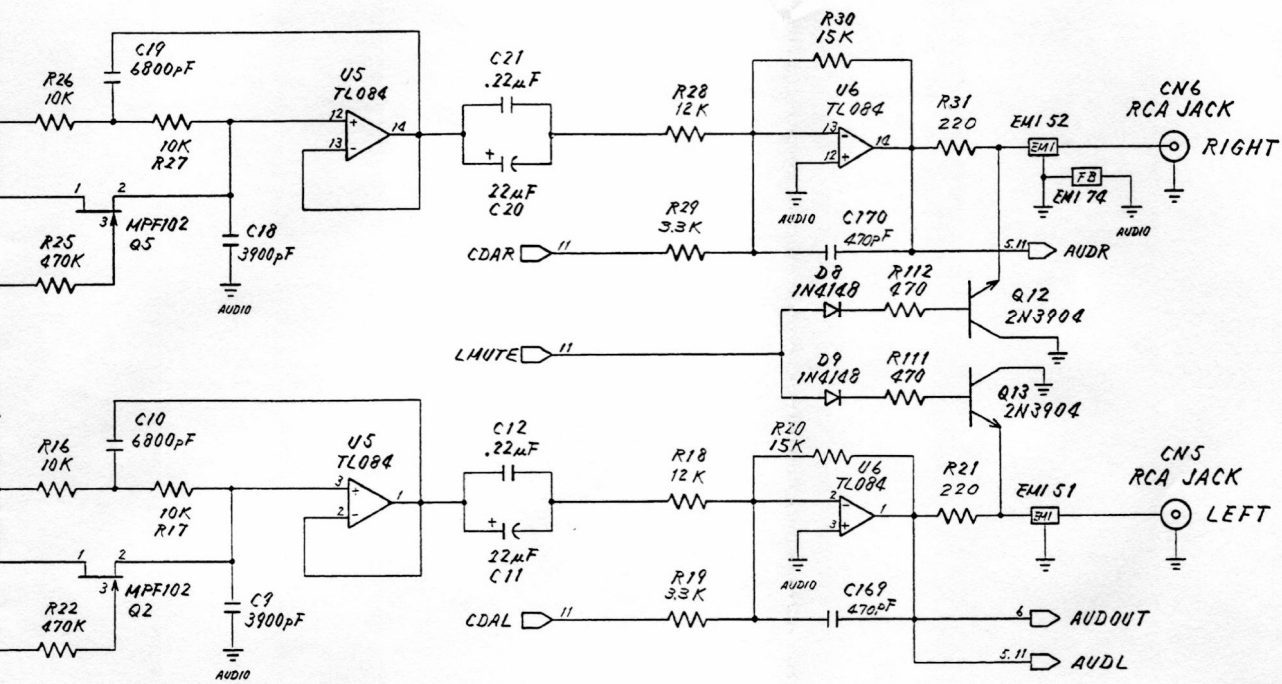




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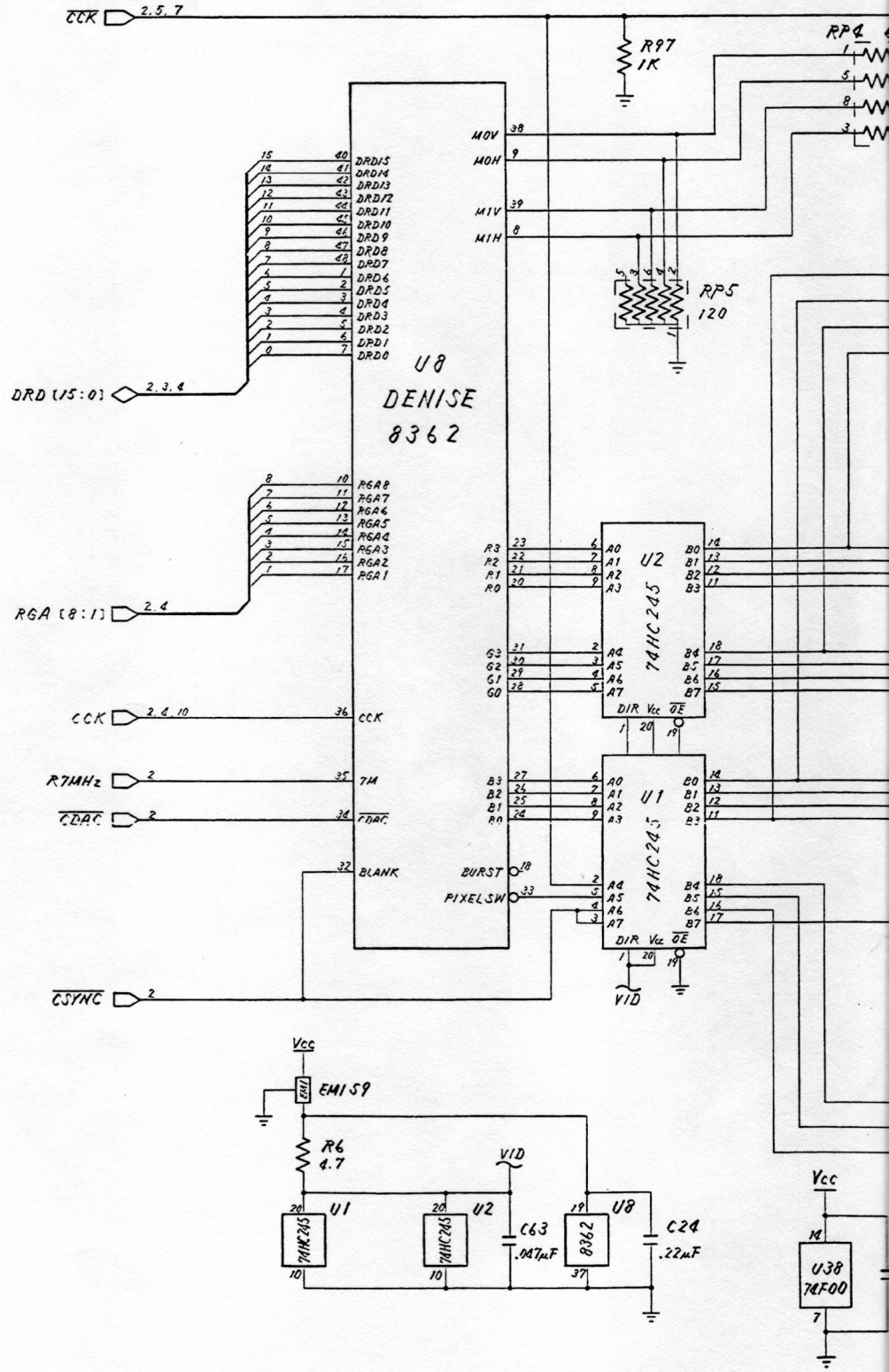
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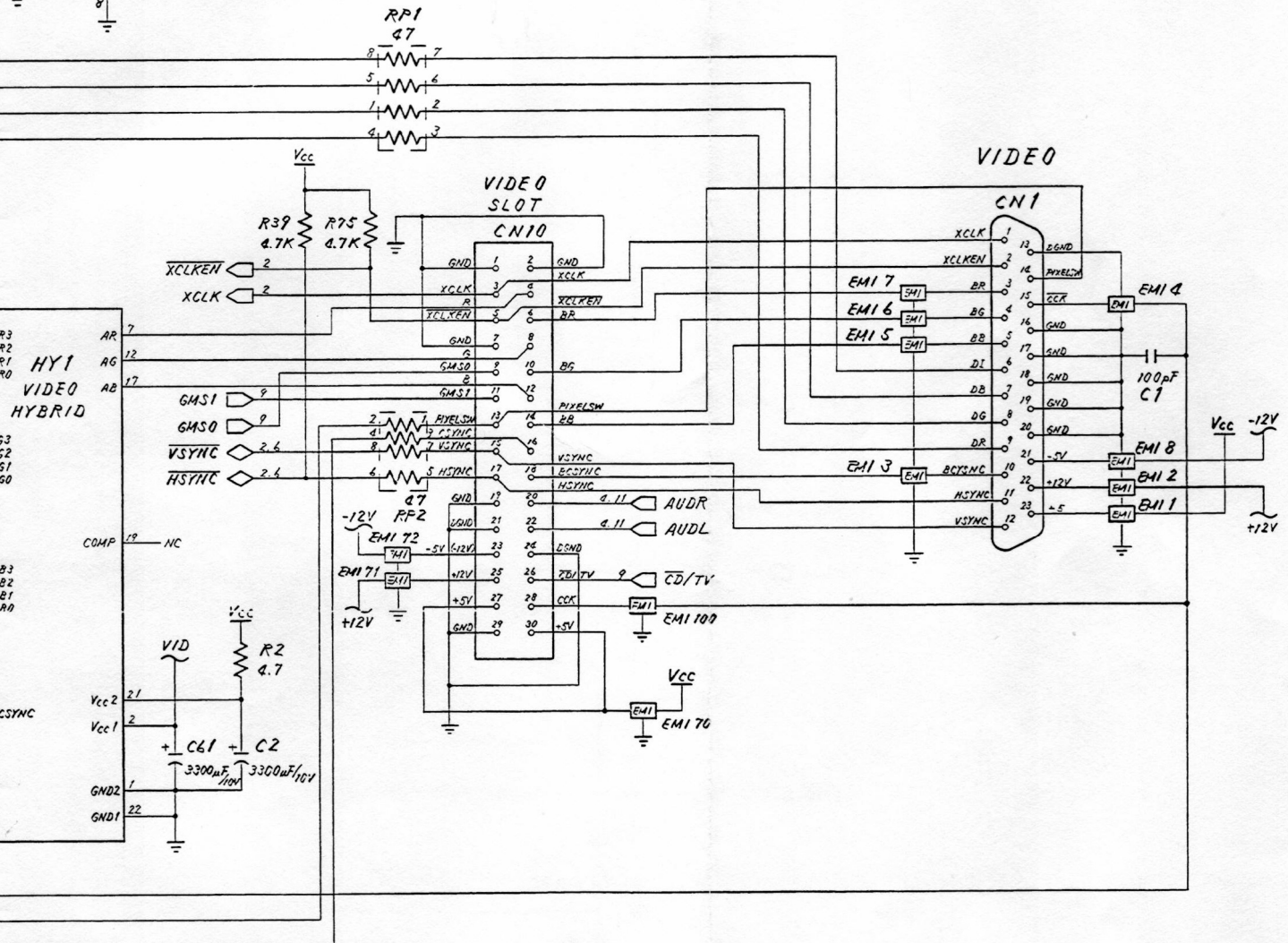
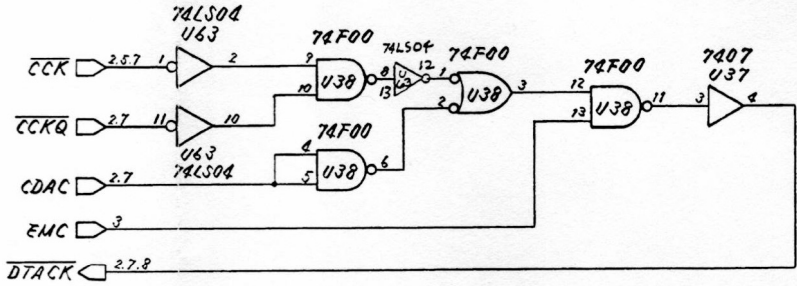
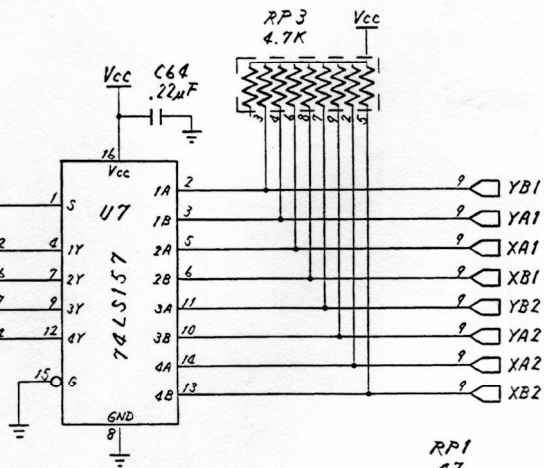




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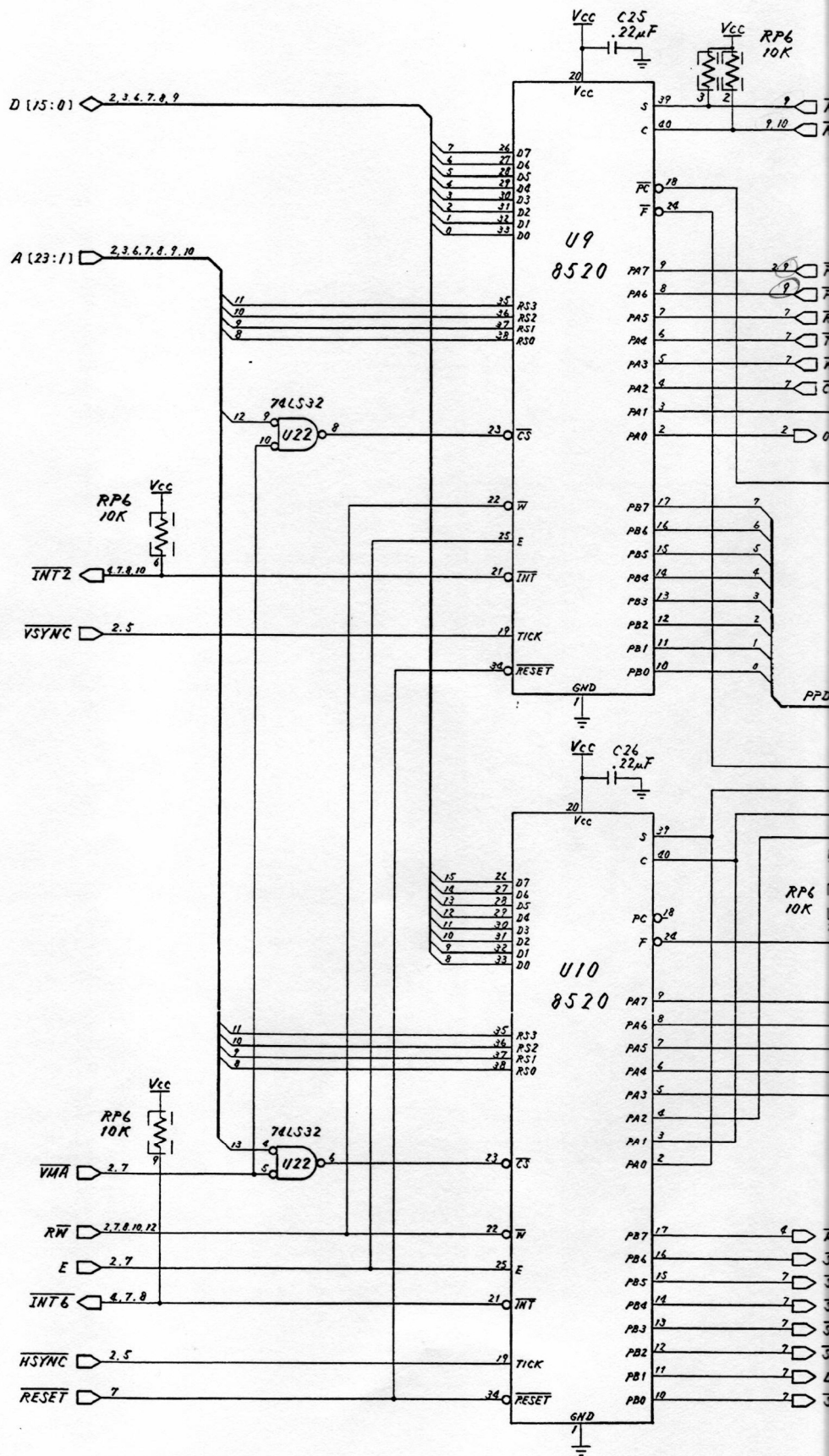




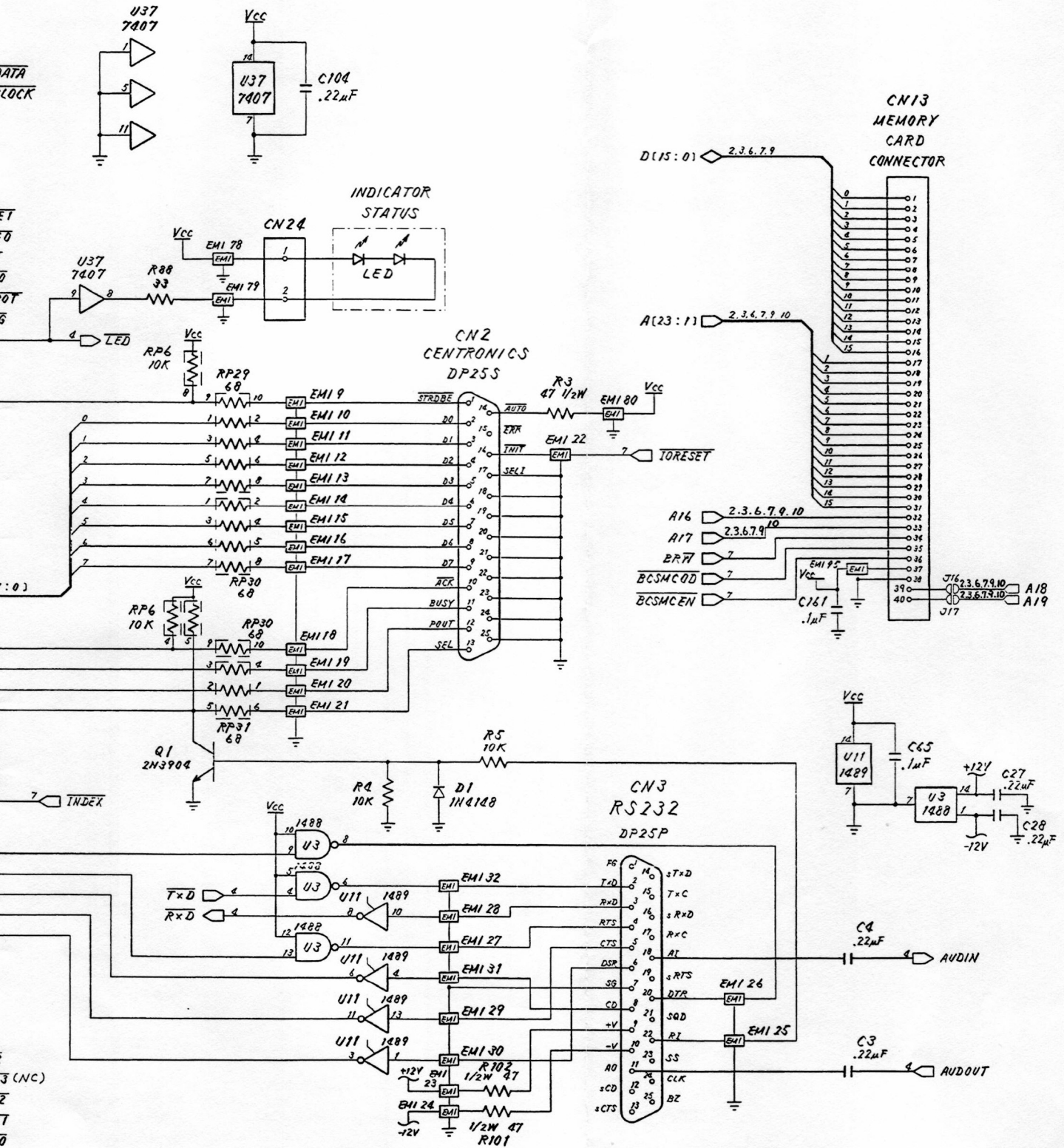
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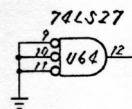
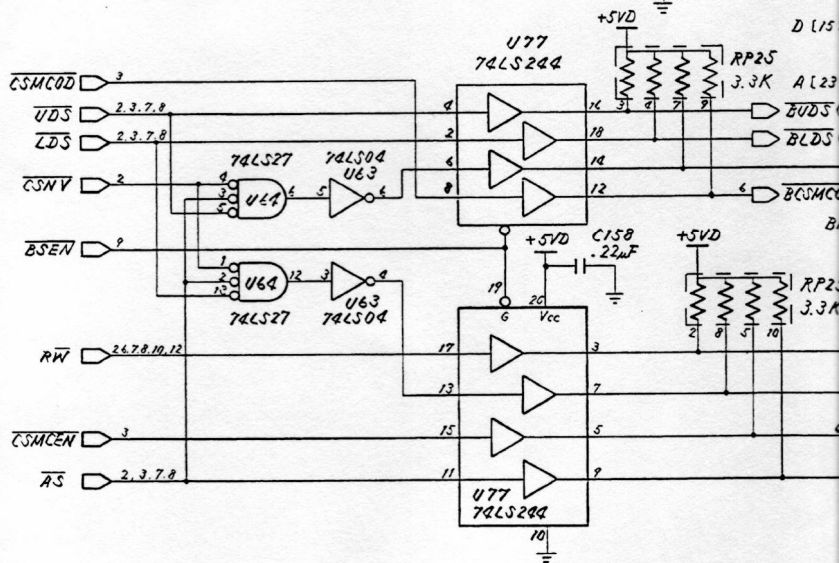
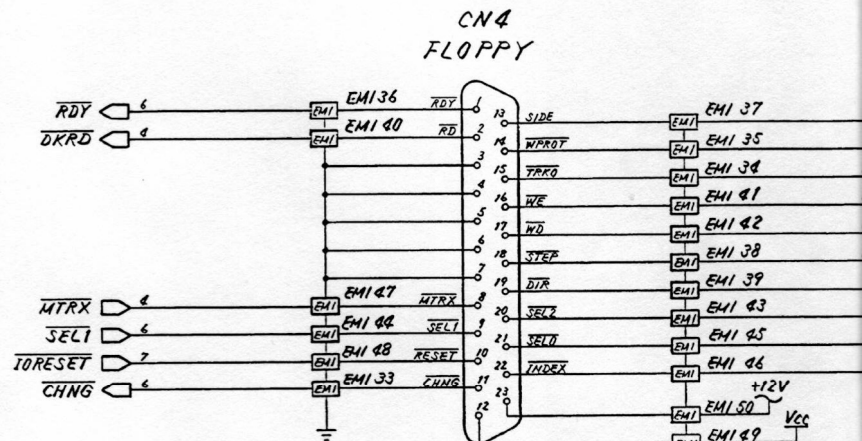
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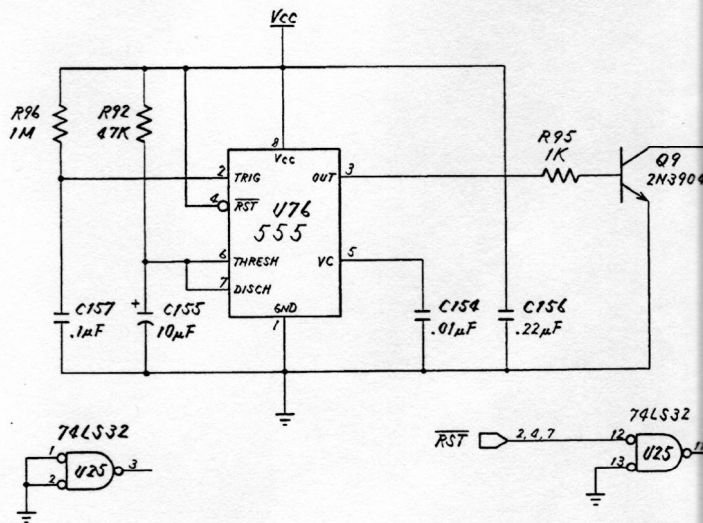
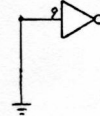
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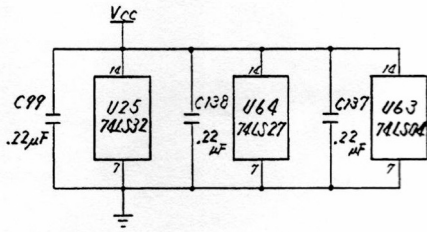


U63
74LS04

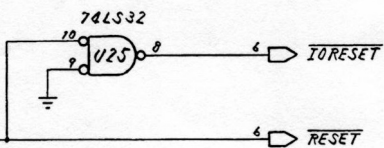
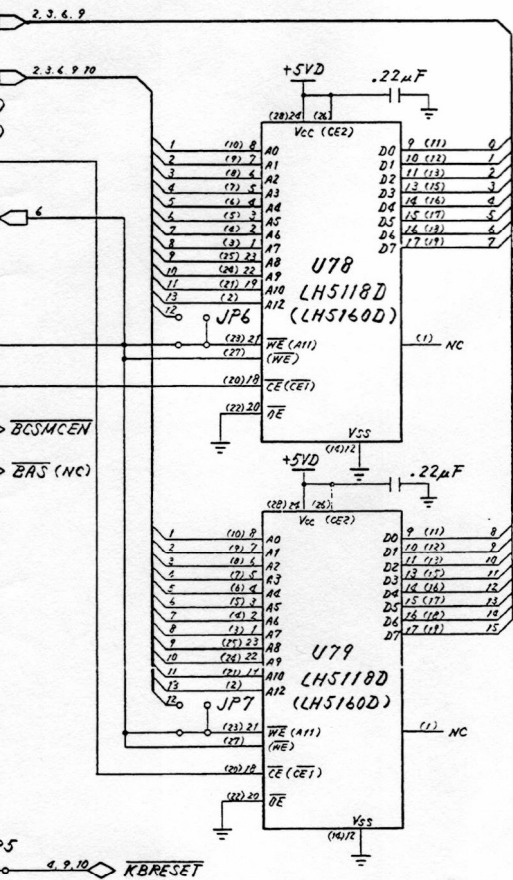
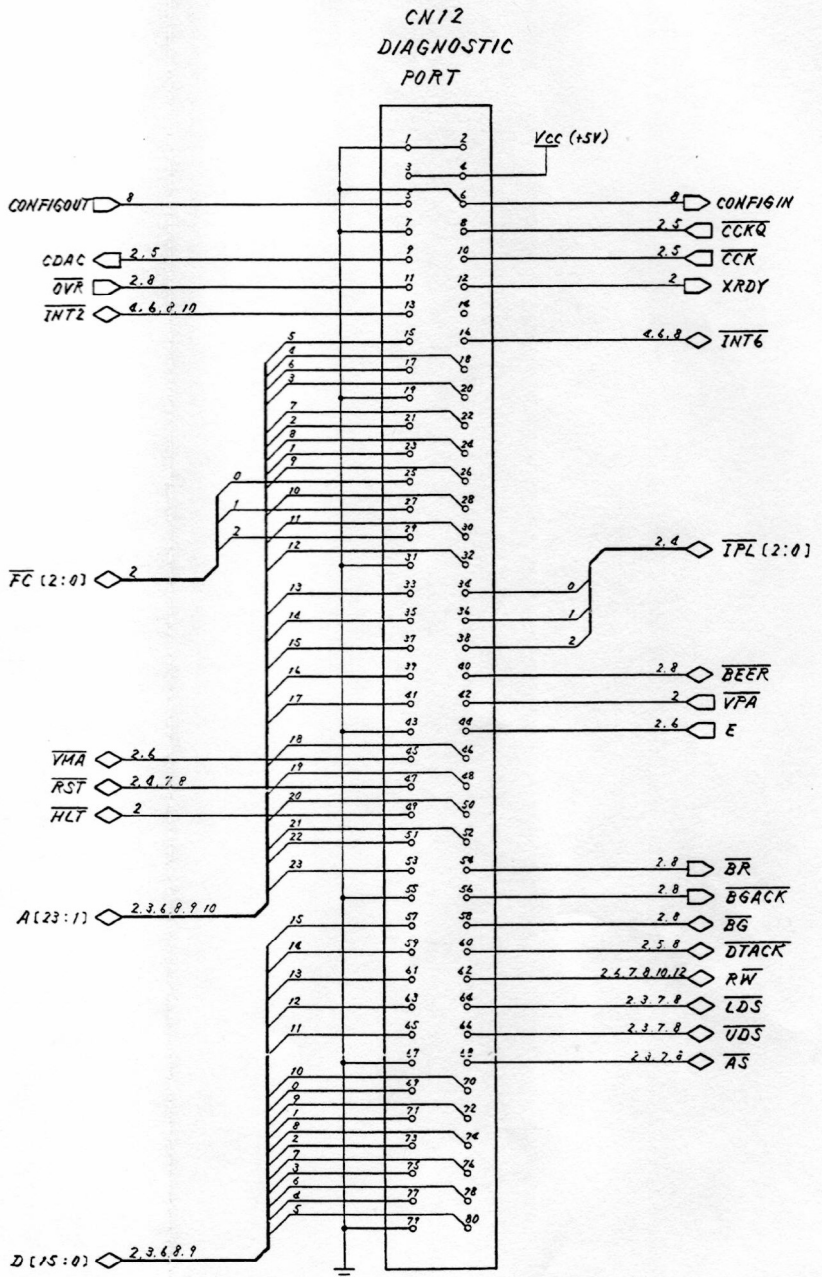


74LS32
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RST 2,4,7
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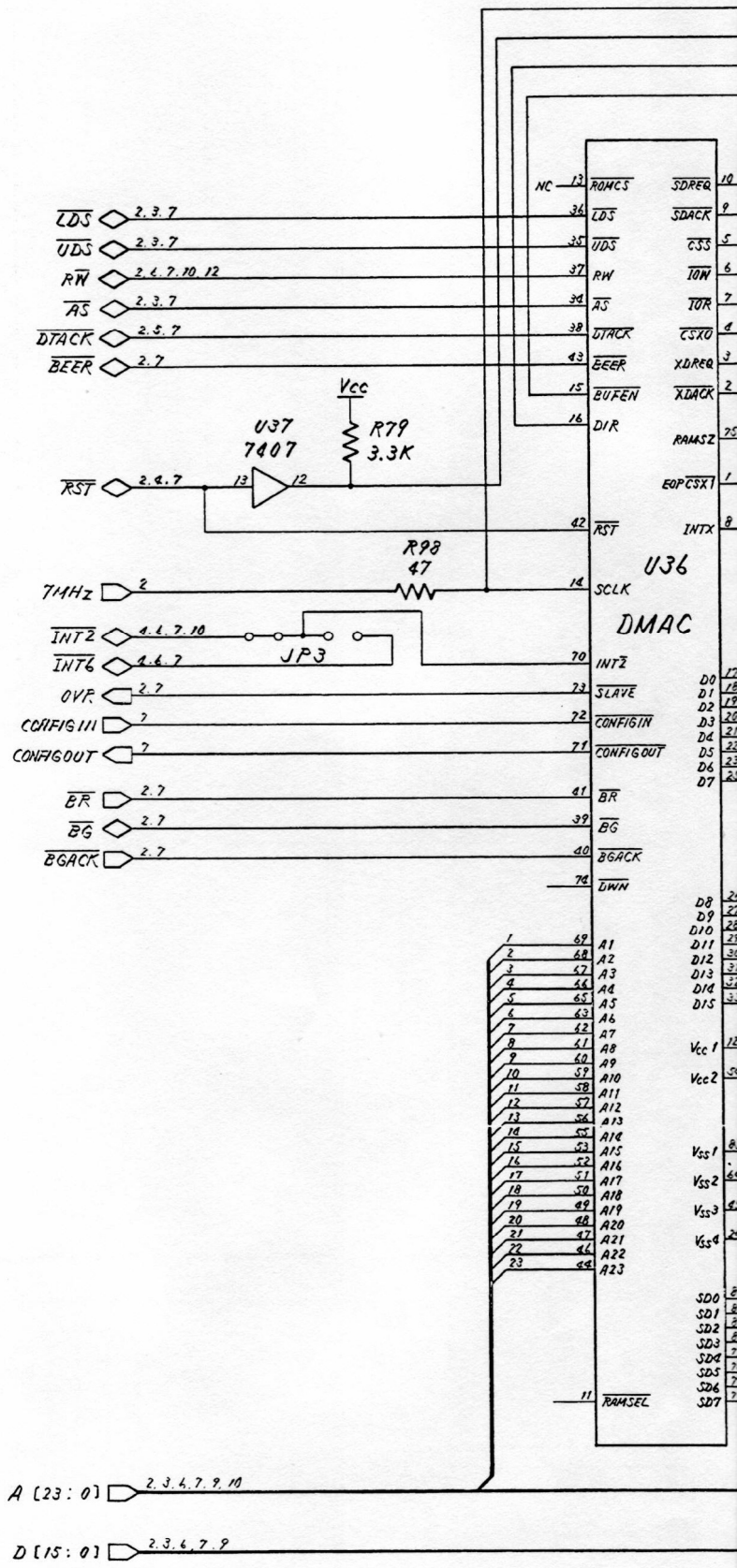


- > SIDE
- > WPROT
- > TRKO
- > DKNEB
- > DKWDB
- > STEP
- > DIR
- > SEL2
- > SEL0
- > INDEX



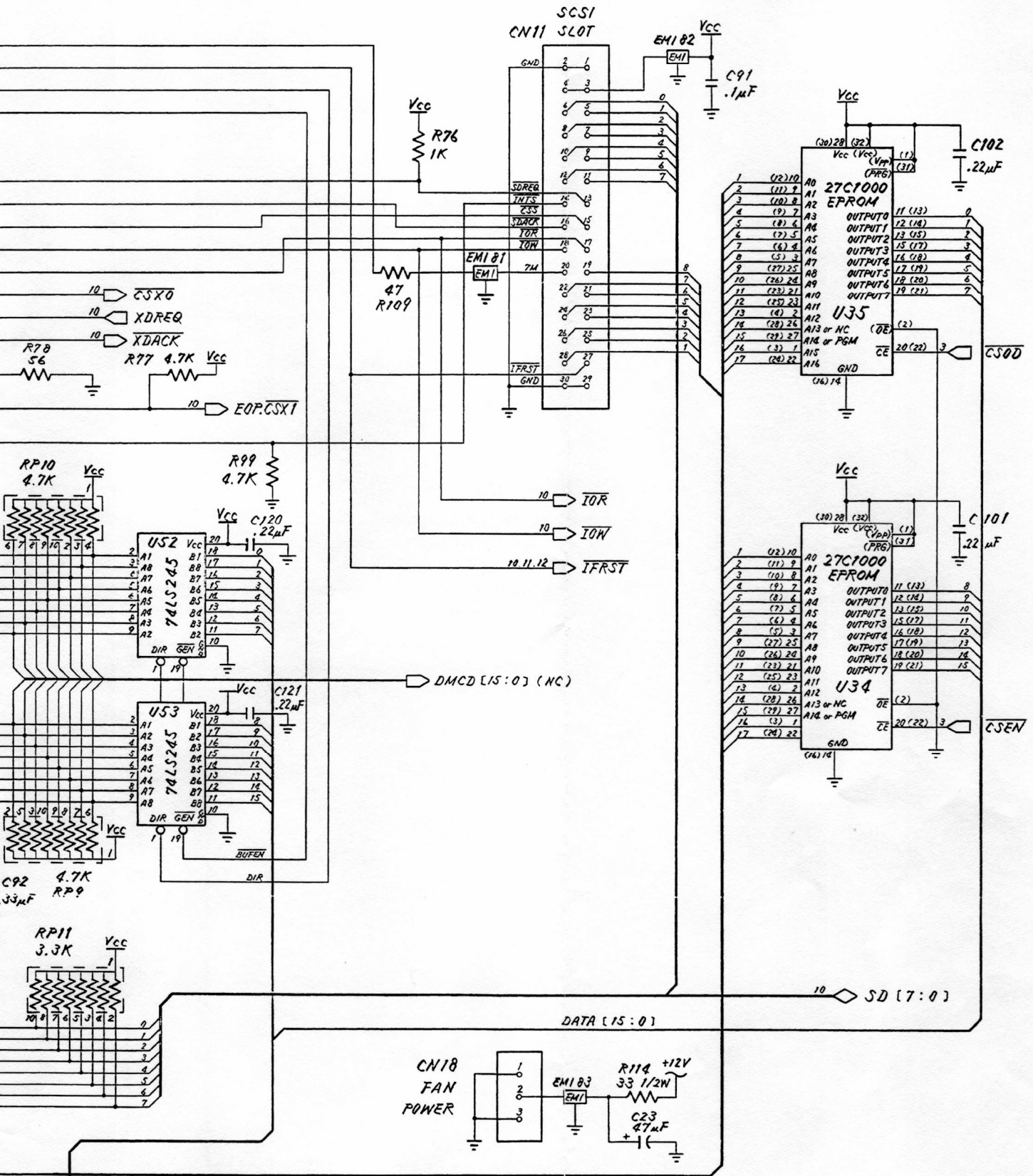
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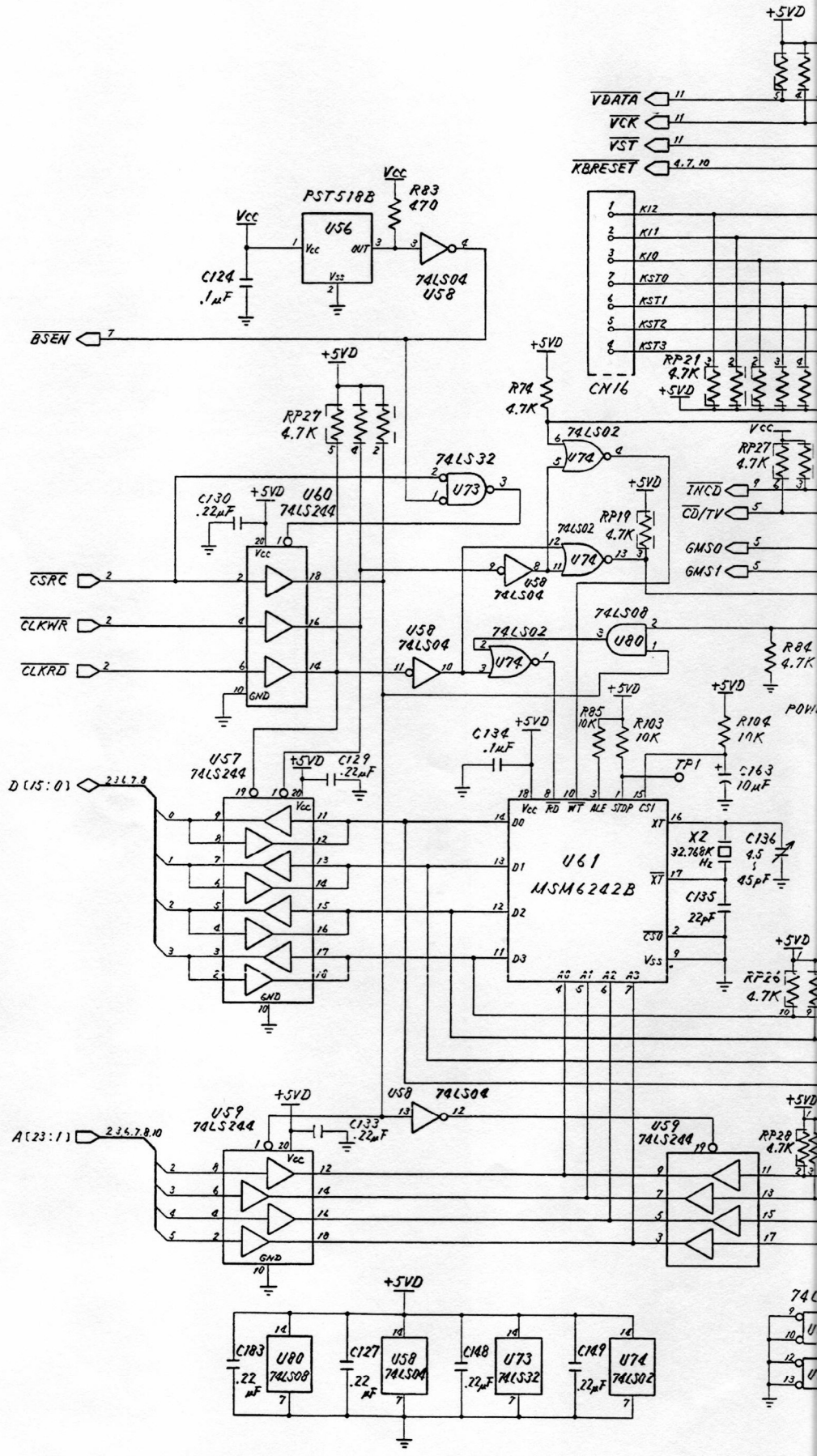
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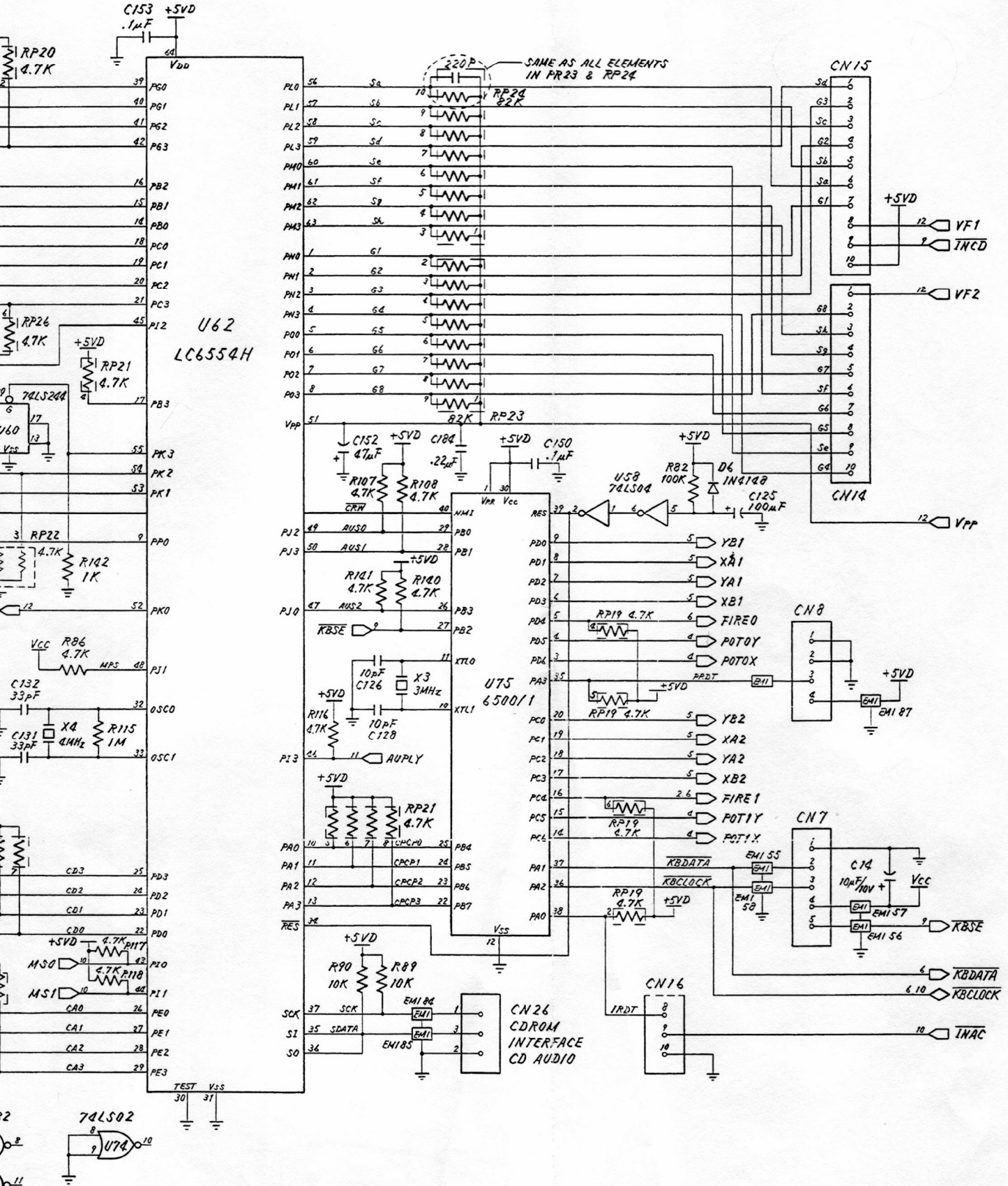
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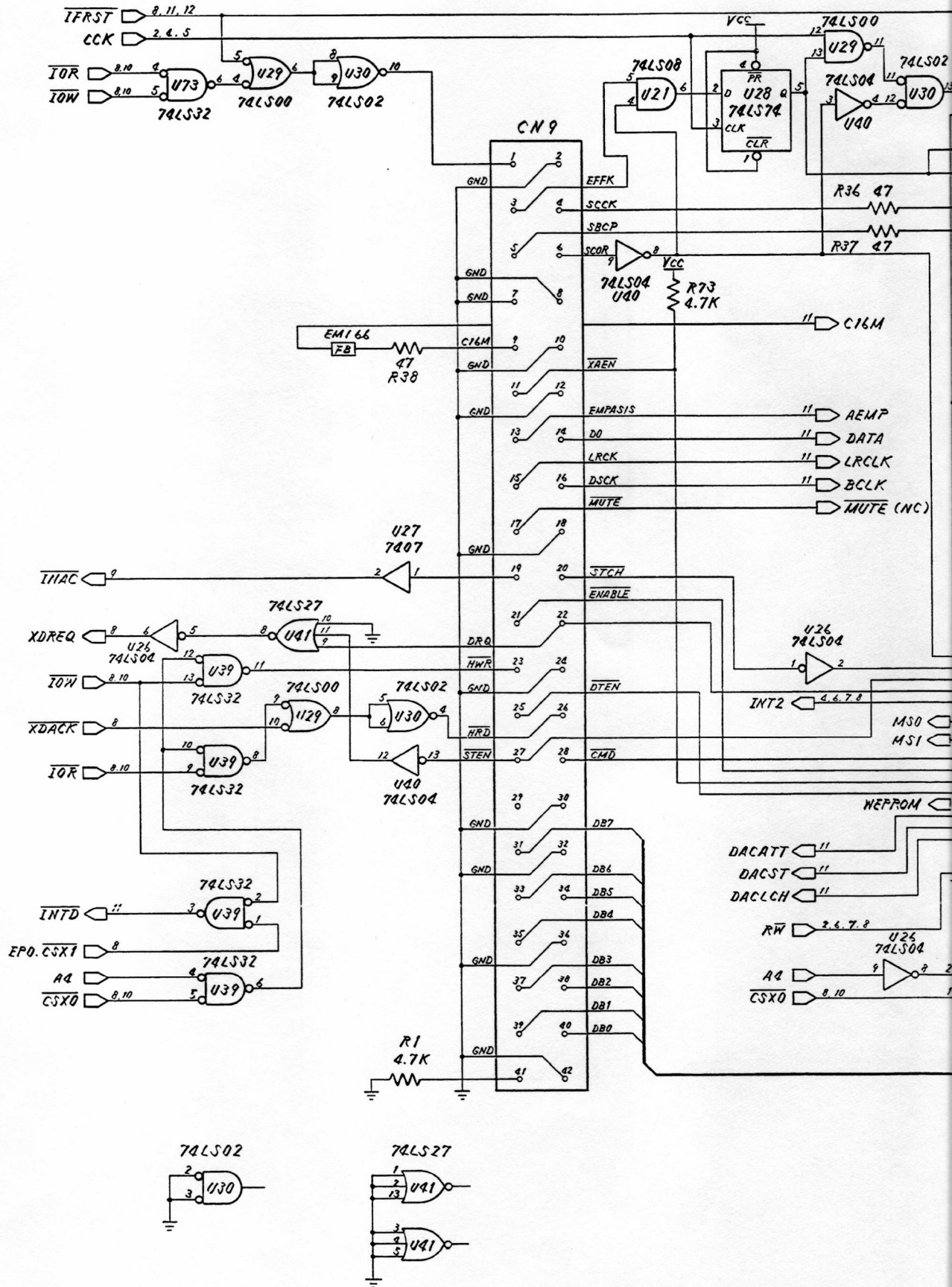
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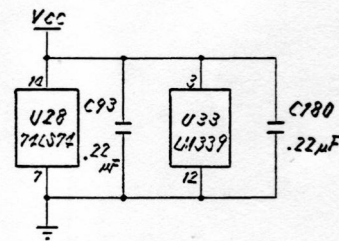
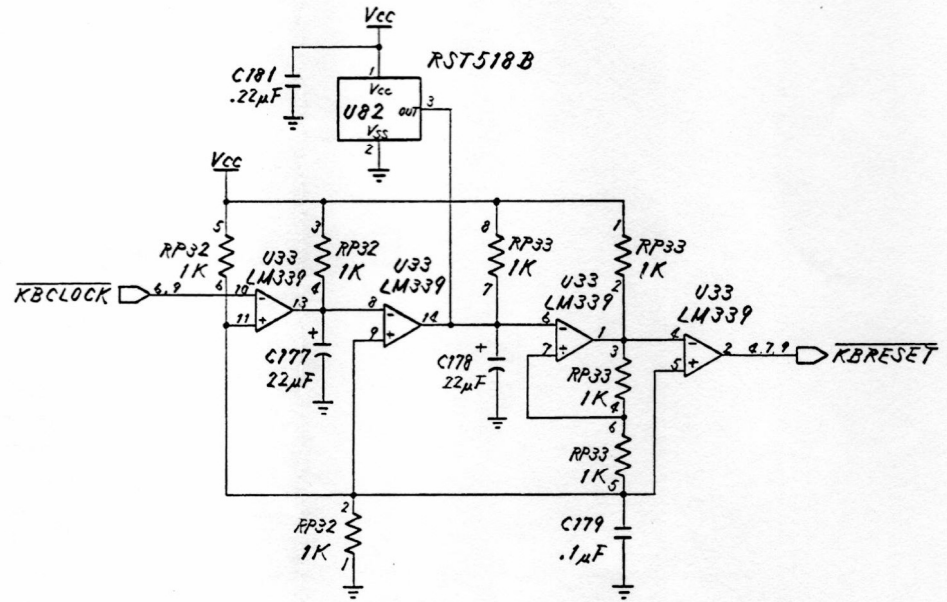
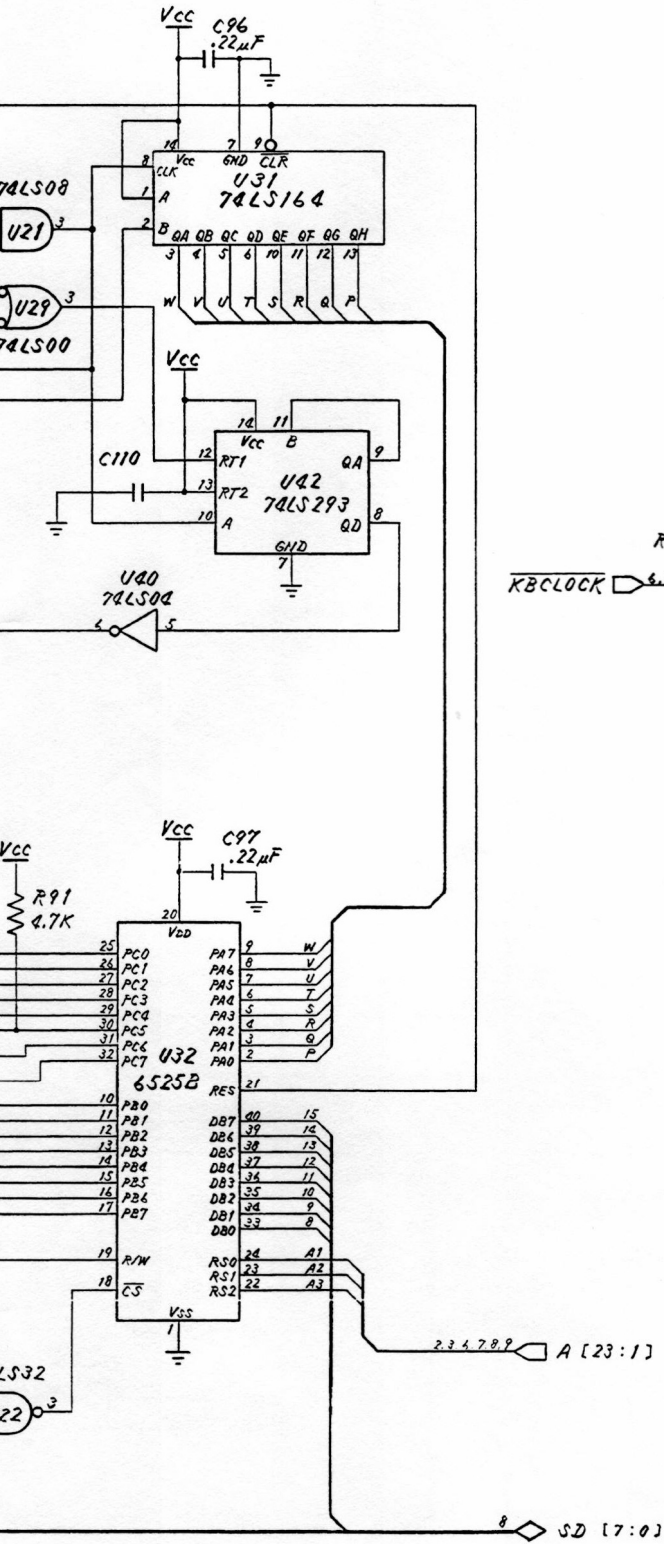




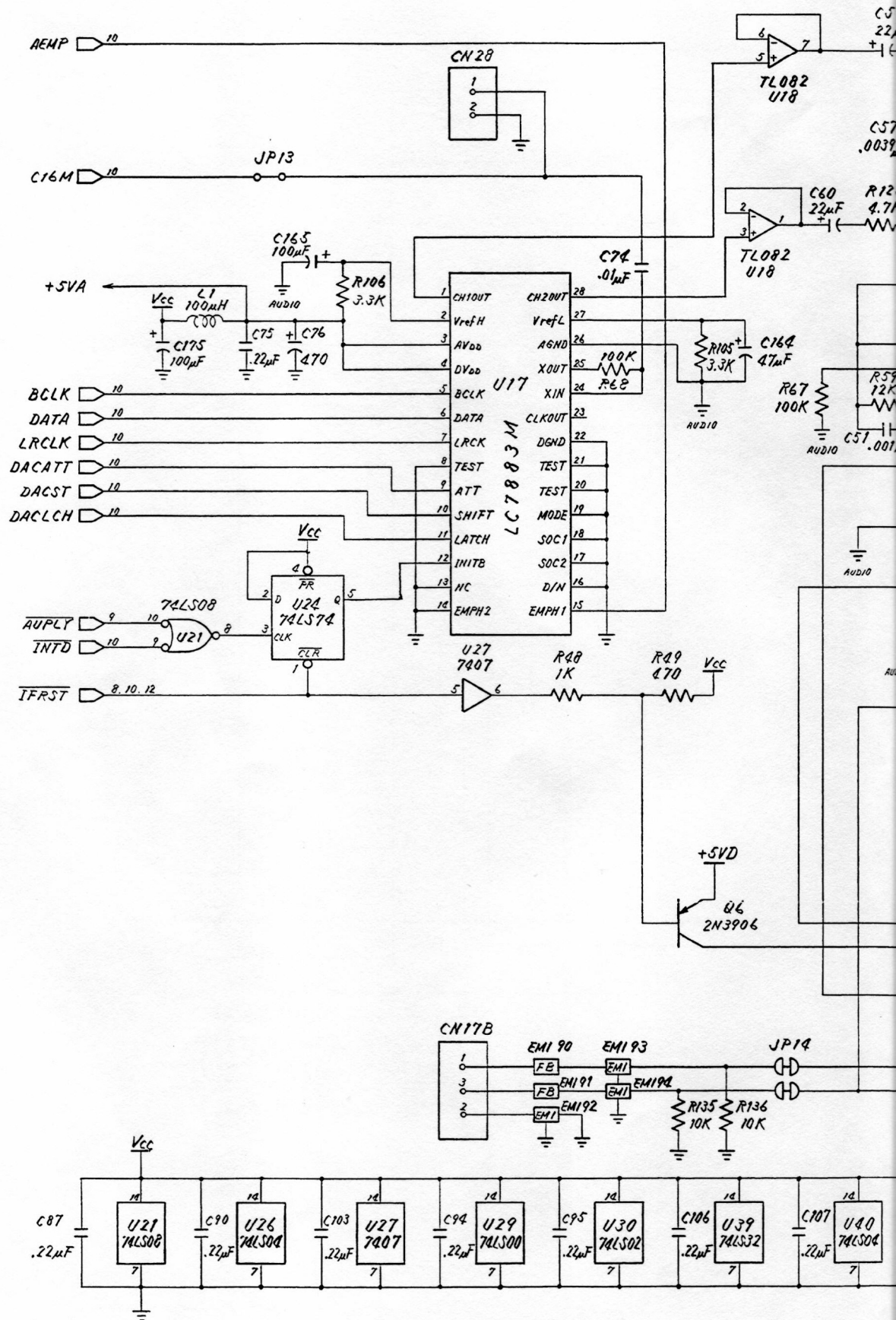
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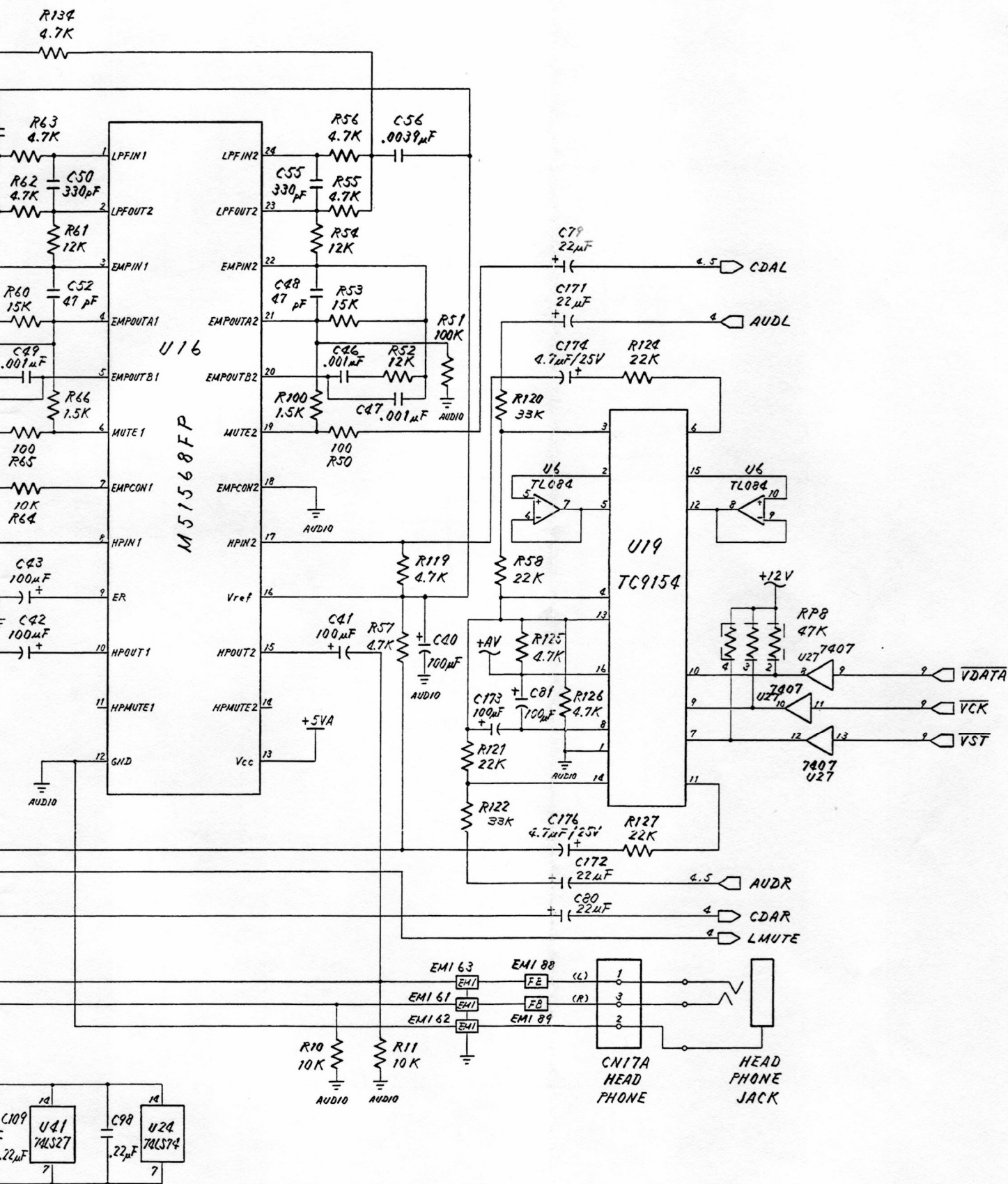
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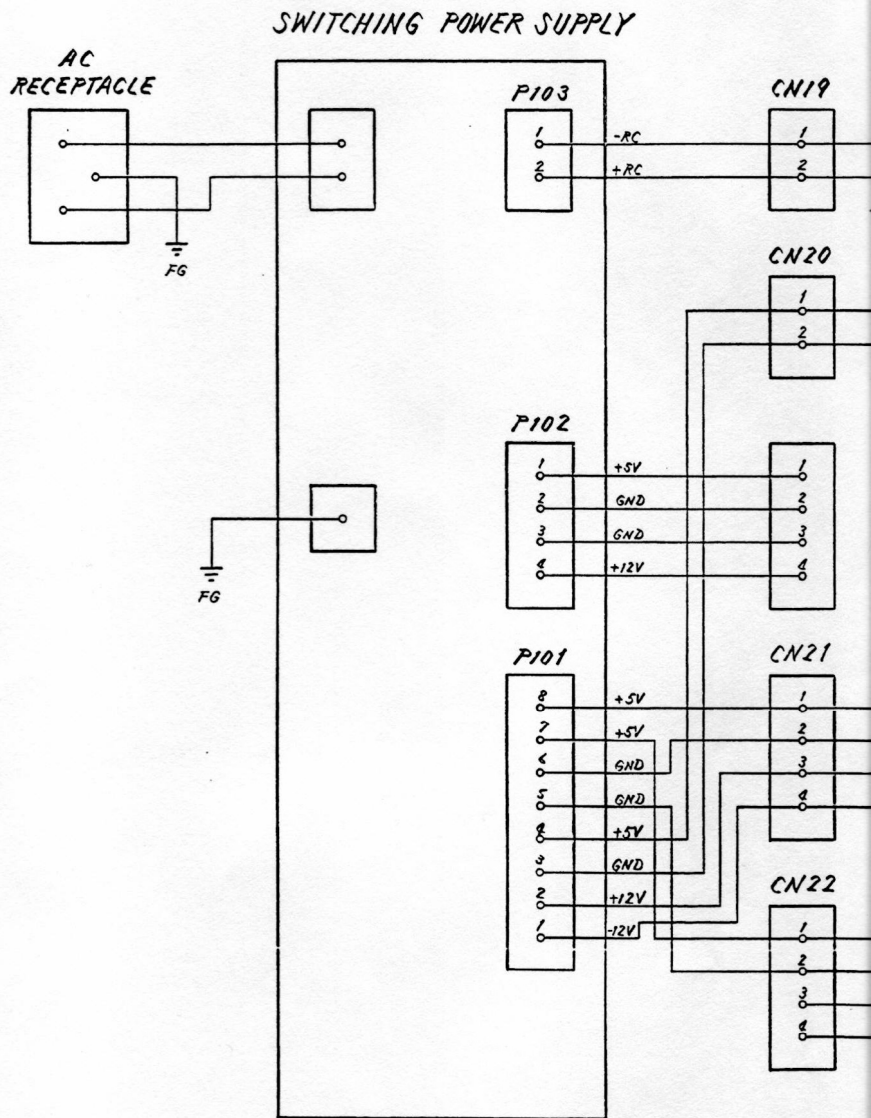
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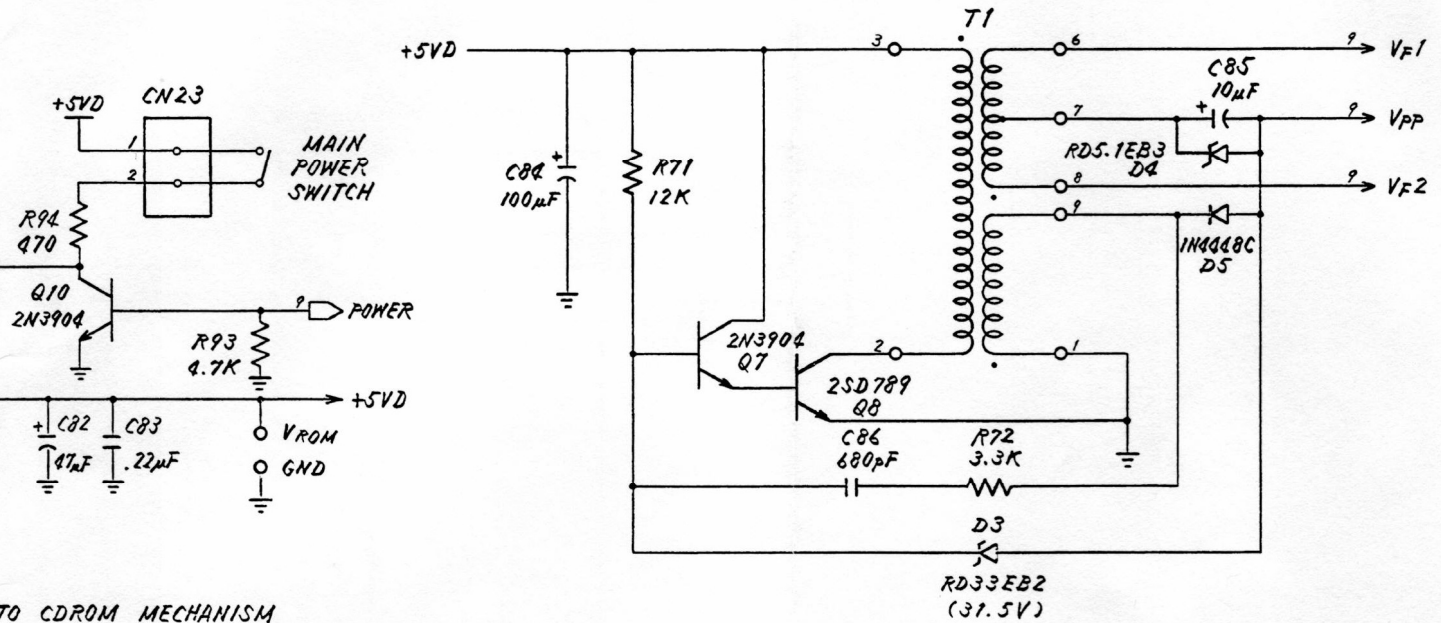




Schematic #252605, Rev. A

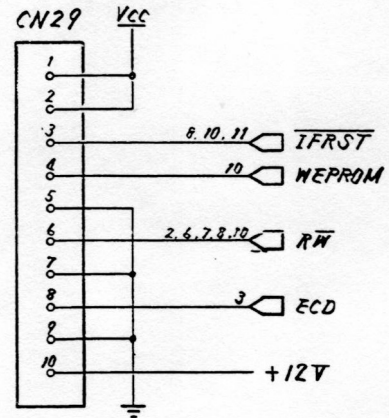
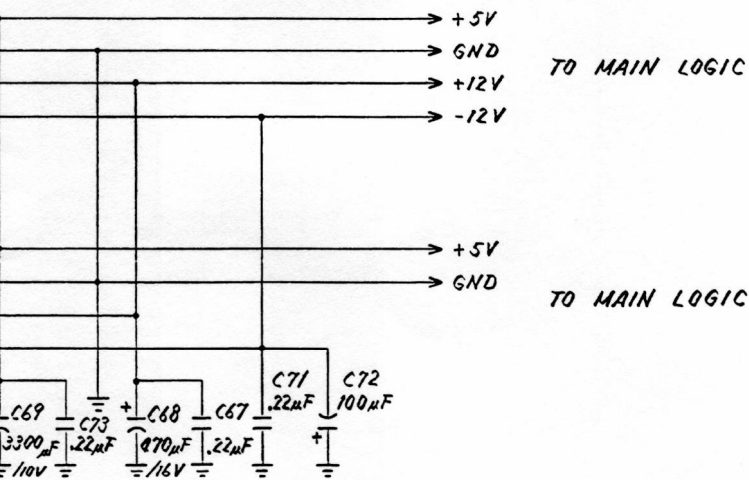
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POWER, DISPLAY

TO CDROM MECHANISM





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