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SERVICE MANUAL

CDTV

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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 IM 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

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	398875-01 AUTO RF SWITCH BDX 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 GD 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	252553-01 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	408887-01 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	367689-01 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	252531-01	GASKET FAN
250802-05	BLANK CARD	252552-02	METAL COVER SCSI SLOT W/O CARD
250802-06	SCART	252540-01	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
252677-01	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 .5 BLACK
325090-02	SEAL, WARRANTY	905960-03	NUT HEXAGON M3
366566-01	LABEL, DISK CAUTION	906805-05	SCREW STP FLAT HEAD M3 X 6 BLACK
252665-01	INSULATION SHEET, FLASH MEMORY	907272-01	FLAT WASHER M3
252387-01	COVER, TOP CDTV		
252651-01	VIDEO CARD, NTSC	250807-01	FRONT BEZEL ASSY CDTV
390891-01	VIDEO CARD, PAL FOR 250802-02 SET SW TO PAL-I	252566-01	FRONT BEZEL CDTV
390932-01	VIDEO CARD, SECAM FOR 250802-04 SET SW TO PAL-G ON VIDEO CARD 390931-01	252567-01	DOOR CADDY COROM DRIVE
363714-01	VIDEO SCART CARD	252568-01	SPRING DOOR CADDY
906883-03	SCREW, SELF TAPPING PAN HEAD M3 X 6 (QTY = 2)	252569-01	PLASTIC FILTER FL DISPLAY
252466-02	SCREW, SELF TAPPING BIND HEAD M4 X 6 (QTY = 4)	250481-01	PCB ASSY POWER SW & PHONE JACK
906800-05	SCREW, PAN HEAD M3 X 6 (QTY = 2)	252571-01	DOOR MEMORY CARD
		252572-01	LENS PLASTIC LED
250803	BOTTOM CHASSIS ASSY CDTV (-01 - NTSC; -02 - PAL)	252573-01	BUTTON POWER SWITCH
250804-01	COROM 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
252594-01	FOOT CDTV HOT STAMP	906115-01	TORXID
252585-01	FOOT RUBBER CDTV	252570-01	PCB LOGO COMMODORE
252835-01	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 M2.5 X 8
250484-02	PCB ASSY MAIN LOGIC CDTV PAL	906883-01	SCREW STP PH M3 X 8
250485-01	PCB ASSY MID INTERFACE	906883-04	SCREW STP PH M3 X 10
250805-01	REAR PANEL ASSY CDTV		
250807-01	FRONT BEZEL ASSY CDTV	250485-01	PCB ASSY MIDI INTERFACE
390918-01	HOLDER BOTTOM CHASSIS	252625-01	SCHEMATIC MIDI INTERFACE
906883-03	SCREW PAN HEAD M3 X 6	252626-01	PCB MIDI INTERFACE
390903-01	SCREW PAN HEAD M3 X 10	252664-03	CONN 5 PIN DIN
251449-02	SCREW ST PH M4 X 8	252628-01	PCB HOLDER PLASTIC
251541-04	SPRING WASHER M4		
905665-04	LOCK WASHER EXT TOOTH M4	250483	PCB ASSY LED INDICATOR (-01 - GREEN; -02 - AMBER)
906883-01	SCREW ST PH M3 X 8	252598-01	PCB LED INDICATOR
906885-02	SCREW ST M2.2 X 6	325521-07	LED GREEN 5 DIA ROHM
906670-03	SCREW M2.2 X 6	325521-04	LED GREEN 5 DIA SHARP
250806-01	POWER SUPPLY ASSY CDTV	252621-02	LED AMBER 5 DIA ROHM SLH 56YC
252560-01	REGULATOR SWITCHING MKE	252621-01	LED AMBER 5 DIA SHARP
252562-01	BRACKET METAL, REG MKE BOTTOM	252682-02	HARNESS ASSY 2 CONDUCTOR
252632-01	SHEET INSULATION POWER SUPPLY	250481-01	PCB ASSY POWER SWITCH AND PHONE JACK
252636-01	HARNESS ASSY POWER MKE	252578-01	PCB POWER SW AND PHONE JACK
252637-01	HARNESS ASSY COROM POWER	252579-01	HEADPHONE JACK 6.3 DIA PC MOUNT TANAKA ELEC
252638-01	HARNESS ASSY POWER SWITCH	252580-01	SWITCH POWER PC MOUNT EXCELL ELEC
906885-02	SCREW STP PH M2.6 X 6	252581-01	HARNESS ASSY SHIELDED 2 CONDUCTORS
907272-01	WASHER FLAT M2.6	252582-01	HARNESS ASSY 2 CONDUCTORS
251541-07	WASHER SPRING M2.6	252629-01	PLATE GROUND SW AND PHONE JACK
250804-01	COROM MECHANISM ASSY CDTV	250482-01	PCB ASSY MEMORY CARD
252564-01	COROM MECHANISM CSR11-R MKE	252575-01	PCB MEMORY CARD
252555-01	METAL BRACKET HOLDER MAIN LOGIC	252576-01	HARNESS ASSY FLAT CABLE 40 PIN
252557-01	PLASTIC GUIDE OPTION CARD	252577-01	CONN MEMORY CARD ITT CANNON
252576-02	HARNESS ASSY 40 PIN FLAT CABLE	252645-01	COPPER TAPE 15MM WIDTH
252639-01	HARNESS ASSY AUDIO CONTROL		
906883-01	SCREW STP PH M3 X 6	250479-01	PCB ASSY DISPLAY CDTV
252634-01	STAND OFF LOGIC PCB (TO BE PRESSED BY MFG)	252537-01	SCHEMATIC DISPLAY CDTV
252556-01	BUTTON EJECT CAR 5118 MKE	252642-01	PCB DISPLAY CDTV
252667-01	HOLDER INSULATION SHEET	252538-01	PCB DISPLAY CDTV
		252539-01	IR RECEIVER MODULE SHARP
250486-01	PCB ASSY, FLASH MEMORY	252646-01	RUBBER DISPLAY T = 5
252658-01	SCHEMATIC FLASH MEMORY FROM AER	252540-01	FL DISPLAY EPF24K10 NORITAKE
252659-01	PCB FLASH MEMORY	250484	PCB ASSY MAIN LOGIC CDTV (-01 - NTSC; -02 - PAL)
		252664-01	PCB FAB MAIN LOGIC CDTV

Commodore International Spare Parts List

PCB Components

PCB Assembly CDTV

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IC COMPONENTS				CONNECTORS (Continued)		
380084-02	8000 CPU BMHZ	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, 25
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	CN1, 21, 22
318029-03	CA 9520 A-1 2 MHZ	U9, 10		250669-02	HEADER ASSY 2 PIN 2.5 PITCH	CN20
390229-01	VIDEO MYBRID	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	JF15
318099-05	DRAM 256K X 4 80NS ZIP	SUB FOR 318099-01		903333-01	JUMPER	
318069-02	F. AGNUS 8372	U44		OSCILLATORS, TRANSISTORS AND DIODES		
390563-02	DMAC 4701	U06		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	O4.6
252609-02	CPU 8500/1	U75		390192-01	TRANSISTOR NPN 2N3904	017, 9, 10, 12, 13
318073-01	RTC MSM6242B	U61		252338-01	TRANSISTOR POWER 2SD789	O8
252611-01	AMP M51568FP	U16		390254-01	TRANSISTOR JFET MPF102	O2.5
252612-01	ATT TC9154AP	U19		902723-02	TRANSISTOR 2SA1309A	O1
901523-01	TIMER NE555	U76		902717-01	TRANSISTOR 2SA733	SUB FOR ABOVE
390608-01	AMP TL084/LF347	U5, 6		902707-01	TRANSISTOR 2N3906	SUB FOR ABOVE
901523-10	AMP TL084/LF353N	U18		900528-02	DIODE ZENER 5.1V 10 5.1B	D4
901879-03	TRI-PORT 6525B	U37, 39		900922-02	DIODE ZENER 30V RD 30EB	O3
252614-01	DAC LC7885M	U56, 82		900850-09	DIODE SIGNAL 1N4468C	O5
328156-02	RESET P51518B	U78, 79		900850-01	DIODE SIGNAL 1N4148	D1, 6-9
252620-01	SRAM 16K 5K DIP 100NS	SUB FOR -01		252618-01	OSCILLATOR CERAMIC 3MHZ	X3
252620-02	SRAM 16K 5K DIP 120NS	SUB FOR -01		252618-02	OSCILLATOR CERAMIC 4MHZ	X4
252620-03	SRAM 16K 5K SIP 150NS	U48, 49		900560-01	OSCILLATOR CRYSTAL 32.768 KHZ	X2
901521-29	74LS373	U49, 50		RESISTOR PACKS		
901521-18	74LS138	U54, 55		252657-01	S COM 82K 9 ELEMENT	RP23, 24
318050-01	74F244	U7		902441-17	S COM 470 OHM 5 ELEMENT	RP3
901521-11	74LS157	U3		902410-08	S COM 4.7K 9 ELEMENT	RP3, 9, 10, 26
310003-01	74HC245	U2		902411-10	S COM 120 OHM 5 ELEMENT	RP5
901882-01	1488	U11		902410-13	S COM 10K 9 ELEMENT	RP6
901883-01	1489	U31		902410-09	S COM 3.3K 9 ELEMENT	RP11, 25
901521-28	74LS164	U42		252647-02	S COM 47K 3 ELEMENT	RP8
901521-52	74LS239	U24, 28		902442-55	S COM 4.7K 7 ELEMENT	RP12, 14, 21
901521-06	74LS274	U14		902441-31	S COM 4.7K 5 ELEMENT	RP19, 20, 22, 27, 28
390110-01	74F04	U52, 53		902422-04	INDIVIDUAL 22 OHM 4 ELEMENT	RP9
901521-46	74LS245	U15		902422-06	INDIVIDUAL 68 OHM 4 ELEMENT	RP4
901521-38	74LS36	U22, 25, 39, 73		902422-05	INDIVIDUAL 47 OHM 4 ELEMENT	RP1, 2
901521-31	74LS32	U21, 80		390227-05	INDIVIDUAL 68 OHM 5 ELEMENT	RP15-17, 29, 30
901521-03	74LS38	U27, 37		252648-01	INDIVIDUAL 68 OHM 3 ELEMENT	RP21
901522-30	7407	U41, 43, 64		902422-06	INDIVIDUAL 1K 4 ELEMENT	RP3
901521-22	74LS27	U26, 40, 63, 58		252648-02	INDIVIDUAL 1K 3 ELEMENT	RP32
901521-02	74LS04	U23, 30, 74		RESISTORS — 1% ± 5% UNLESS OTHERWISE SPECIFIED		
901521-21	74LS02	U29, 81		390904-25	1M	RP96, 115
901521-01	74LS00	U45, 47, 57, 59, 60, 77		390904-24	470K	R22, 25
901521-13	74LS244	U38		390904-23	100K	R51, 67, 68
901521-07	74F00			390904-22	47K	R92
IC SOCKETS				390904-20	15K	R53, 60, 20, 30
390185-01	84 PIN PLCC	XU36, 44		390904-19	12K	R4, 5, 12, 14, 16, 17, 23, 26, 27, 54, 89, 90, 105, 136, 143
390141-01	64 PIN SDIP	XU51		390904-18	10K	R1, 39, 41, 45, 55, 57, 62, 63, 77, 84, 86, 117, 119, 127, 125, 126, 134, 140
904150-10	64 PIN DIP	XU4, 8, 12		390904-17	4.7K	R19, 29, 79, 105, 106
251313-02	48 PIN DIP	XUB, 10, 13, 32, 75				R66, 100
904150-06	40 PIN DIP	XU34, 35		390904-16	3.3K	R7, 9, 48, 76, 84, 95, 97, 128, 133, 137
903768-02	32 PIN DIP MCH TOOL			390904-14	1.5K	R15, 24
252600-01	HOLDER CONN CARTRIDGE	C1		390904-13	1K	R88
200966-02	TRANSFORMER DC-DC CONV	T7		390904-12	750 OHM	R46
CONNECTORS				390904-10	120 OHM	R78
390851-03	DIN MINI 5PIN	CN1		390904-07	56 OHM	R50, 65
390242-03	D SUB 23 PIN MALE	CN4		390904-06	47 OHM	R36, 37, 38
390241-03	D SUB 23 PIN FEMALE	CN1		390904-04	27 OHM	R43, 44
390242-05	D SUB 25 PIN MALE	CN2		390904-15	2.7K	R13
390241-05	D SUB 25 PIN FEMALE	CN3		390904-03	22 OHM	R47
252622-01	CARD EDGE 30 PIN 2.54 PITCH	CN10, 11				
252617-11	KEL 9811 SERIES 170L	CN12				
252603-10	HOUSING MOLEX 52007	CN14, 15, 16				
252122-02	RCA JACK RED	CN6				
252122-01	RCA JACK WHITE	CN5				

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	C15,74,154
390904-01	4.7 OHM	R2	900019-07	MLC AXIAL .047UF	C7,16,31-34,63
390904-11	.470 OHM	R40,42,49,63,111,112	900463-26	MLC AXIAL .6800PF	C10,19
390904-21	Z2K	R58,121,124,127	900463-23	MLC AXIAL .3900PF	C9,18,56,57
901600-15	147 OHM, 1/4W ± 5%	R3,101,102	900463-37	MLC AXIAL .1UF	C65,91,124,134,150,161,179
901600-52	33 OHM, 1/4W ± 5%	R82	900010-42	CER DISCS 22PF	C135
901550-07	100K	R71	900010-64	CER DISCS 33PF	C131,132
901550-07	12K	R85,103,104	900010-35	CER DISCS 109F	C126,128
901550-20	10K	R73-75,91,93,99,107,	900010-23	CER DISCS 680PF	C86
901550-19	4.7K	R106,116,141	900100-33	ELECT 47UF 16V	C1,2
901550-02	3.3K	R72	900010-61	CER RAD 0.1UF 25V	C3
901550-01	1K	R138,142	900463-10	MLC AXIAL .330 PF	C50,55
901550-94	88 OHM	R80	900463-12	MLC AXIAL .470PF	C189,170
901550-56	47 OHM	R38,109	900463-16	MLC AXIAL .001UF	C46,47,49,51
901550-83	22 OHM	R61,87	900019-17	MLC RAD 47PF 50V	C48,52
901550-133	4.7 OHM	R6	900022-05	MLC RAD .33UF 50V	C92
901550-58	470 OHM	R94	900100-58	ELECT RAD 470UF 10V	C76
901550-52	220 OHM	R21,31	900100-59	ELECT RAD 4.7UF 25V	C174
901550-06	33K	R120,122	251029-06	TRIMMER 6.8 - 45PF	C136
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	EM19,53,55,60,64,70,75,80,83,87,92,95,100
901550-56	47 OHM	R5			EM11,8,71,72,81,82
901550-52	220 OHM	R1,2,3	390297-02	EMI FILTER 100PF W/FERRITE	EM65,56,59,74,90,91
901550-76	270 OHM	R4	903025-01	FERRITE BEAD	FB1,2,3
CAPACITORS			903025-01	FERRITE BEAD	EM11,2,3,4
390101-04	ELECT RAD 22UF 35V	C11,20,29,59,60,79,80,177,178	251842-02	EMI FILTER 100PF	PC1
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/252638-01) ALPS	LED 1
390101-02	ELECT RAD 100UF 16V	C6,40-42,72,81,84,125,165,173,175	252547-01	LED AMBER 1 X 5 SHARP	LED 2,3
900100-48	ELECT RAD 47UF 50V	C152	252621-02	LED AMBER 5 DIA ROHM	SUB FOR ABOVE
390101-03	ELECT RAD 470UF 16V	C54,68,77	252548-01	LED AMBER 5 DIA SHARP	
900100-11	ELECT RAD 4.7UF 25V	C171,172,176	252548-01	HOLDER LED (USE W/252547-01)	
900022-01	MLC RAD .22UF 50V	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 CONDUCTS L = 100	
900022-03	MLC RAD .1UF 50V	C157,153	252542-02	WIRE FLAT JUMPER 2 MM PITCH 10 CONDUCTS L = 100	SUB FOR ABOVE
900463-04	MLC AXIAL 100PF	C1,35,37,38,118	251188-03	COIL INDUCTOR 100UH	L1
390082-05	MLC AXIAL .22UF	C5,24-26,30,35,39,64,96,67,70,83,87,90,93,117,120-123,127,129,130,133,137-139,146,149,156,158,159,167,180-183	252599-01	SHIELD PLATE LOGIC PCB	
			252601-01	INSULATION SHEET LOGIC PCB	
			390879-01	STAND OFF M2.5 X 0.45 X 13 (SUB USE W/256486-01)	
			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	POLYGRAM BLOCK	

SIGNAL	DESCRIPTION
ZENHS	28.5MHz 100MHz/28.5MHz (ZM) Master Clock
ZENL	1 MHz Processor Clock
A123[1]	Processor Address (0000)
ACK	Data Acknowledge (Parallel)
AS	Address Strobe (0000)
AUDIN	Audio Input (00112 jack)
AUDOUT	Audio Output (00112 jack)
BUS	Bus Latch (0000)
BU	Bus Grant (0000)
CGACK	Bus Grant Acknowledge (0000)
BLISS	Blitter Slowdown (chips)
BLIT	Chip Memory Access (chips)
BR	Bus Request (0000)
BSY	Device Busy (parallel)
CASL/CASU	CAS Latch/Upper Byte (DRAM)
CLK	Color Clock aka M (chips)
CKO	Color Clock Quadrature aka C3 (chips)
CSK	1 MHz Quadrature Clock
CMS	Media Change (Floppy)
CLKRD/CLKWR	Real-time Clock Read/Write
CSYNC	Composite Sync (Video)
CS	Clear to Send (rs232)
D15[0]	Processor Data (0000)
DIR	Direction (Floppy)
DRD	Diskette Read Data (Floppy)
DRND	Diskette Write Data (Floppy)
DRNE	Diskette Write Enable (Floppy)
DRAL	Chip DRN Request (chips)
DRAS[0]	DRAM Address (DRAM, chips)
DRS1[0]	DRAM Data (DRAM, chips)
DRS	Data Set Ready (rs232)
DRACK	Data Transfer Acknowledge (0000)
DTR	Data Terminal Ready (rs232)
E	Peripheral E Clock (0000)
EXMAN	Expansion Memory Present
FN[0:8]	Function Key(s) (0000)
FK00/FK01	Fire Button (rs232)
HLY	Horizontal Halt (0000)
HSTNC	Horizontal Sync (video)
INDEX	Diskette Index Hole (Floppy)
INT[1:0]	Interrupt Requests (chips)
IOREQ	I/O Request
IPL[2:0]	Processor Interrupt Requests (0000)
KBCLK	Keyboard Clock (Keyboard)
KBDATA	Keyboard Data (Keyboard)
KBRESET	Keyboard Reset (Keyboard)
KB[0:0]	Upper/Lower Data Strobe (0000)
LED	Power On LED

SIGNAL	DESCRIPTION
LEFT/RIGHT	Audio Channels
MEM	Memory On (Floppy)
MDR	Motor On Drive (Floppy)
MQV/MQR	Motor Quadrature Signals (Floppy)
MIV/MIR	Motor Quadrature Signals (Floppy)
OV	Overlay ROM over RAM
OVS	Override System Decoding
PIXELSH	Pixel Shift (Video)
POTX/POTY	POT Lines (Parallel)
POTX/POTLY	POT Lines (Parallel)
POP	Popper Out (Parallel)
PPE[1:0]	Parallel Port Data (parallel)
RAMEN	RAM Enable (chips)
REGEN	Chip Register Enable (chips)
RAS/RAS	RAS Internal/Expansion Lines (DRAM)
RDY	Driver Ready (Floppy)
RESET	General Reset
SGA[0:1]	Register Address Bus (chips)
SI	Ring Indicate (rs232)
SRN	ROM Enable
ST	Request to Send (rs232)
STP	Processor Reset (0000)
RXD	Receiver Data (rs232)
SN	Processor Read/Write (0000)
SEL	Select (parallel)
SEL[1:0]	Drive Select (Floppy)
SI0	Side Select (Floppy)
STEP	Head Step Command (Floppy)
TRXD	Track & Sense (Floppy)
TRD	Track Data (rs232)
VMA	Valid Memory Address (0000)
VPA	Valid Peripheral Address (0000)
VSHC	Vertical Sync (video)
WE	Write Enable (RAM)
WP00Y	Write Protect Sense (Floppy)
XCLK	External 28 MHz Clock (genlock)
XCLRK	External Clock Enable (genlock)
XRDY	External Data Ready
AMP/ANOR	Amplifier Audio Left/Right
AMP	Audio Comparison
AUPLY	CD Audio Play
AS	00112 Audio Strobe
CLK	CD Audio Clock
CDSEN/CDSCD	Buffered Chip Select Memory Card Even/Odd
EDN	Logic Voltage Sense
EN0	Buffer Validity Data (HDI)
EN0/EN0S	Buffered Upper/Lower Data Strobe

SIGNAL	DESCRIPTION
CSM	100MHz Bus Clock
CDL/CDAR	CD Audio Left/Right
CD/TV	Select CD/TV (see I000)
CONFIRM	Config In
CONFIGNET	Config Out
CSO	Chip Select CSORH Driver
CSOH/CSOD	Chip Select CSORH Driver Even/Odd
CSMC	Chip Select Memory Card
CSMCH/CSMCO	Chip Select Memory Card Even/Odd
CSV	Real Time Chip Select
CSK	Non-Volatile Memory Select
CSX	AT Device Chip Select no.0
DACAT	Activator Data (Dac)
DACLCH	Activator Latch (Dac)
DACSX	Activator Strobe (Dac)
DATA	CD Audio Data
DACD	Amc Data
EXP_CSX1	End of Process/AT Device Chip Select No.1
GAS[1:0]	Genlock Mode Select (Remote Control)
IFRST	Interface Reset
IRAC	Indicator Power/Status
IRCD	Indicator CD/TV Mode
INT0	CD Drive Event
INTS	SCSI Interrupt
IOK/IOW	Amc Read/Write
IRAS	Keyboard Sense
IRCLK	Line Rate
IRCLK	Audio Left/Right Clock
IRFS	Power Sense Logic
RS[1:0]	Genlock Mode Select (Amiga)
RUTE	CD Mode
POWER	Main Logic Power On/Off
SD[1:0]	Amc X/SCSI Data
VCS	Activator Data Clock (Head Phases)
VDATA	Activator Data Clock (Head Phases)
VFT[1:1]	Filament Voltage
VST	Activator Data Clock (Head Phases)
VPP	-33V Voltage
VA, VB, VC, VD[1:1]	Mouse Input Signal
XACK	AT Device Data Acknowledge
XREQ	AT Device Data Requirement
ENC	ENABLE MEMORY CARD
ECR	ENABLE CSORH DRIVER (DRAM)
WPPROM	WRITE ENABLE E-PROM





















