

**1**

**INFO**

**SERVICE INFORMATION SECTION**

- 1-1.1 CURRENT WARRANTY LABOR RATE**
- 1-1.2 ATTACHMENT: 18/1-1.2 CURRENT WARRANTY RATES**
- 1-2.1 CHANGE OF ADDRESS**
- 1-3.1 NEW ADDRESS FOR NARDA FORMS**
- 1-4.1 VIC 20 PCB ASSY RETURN POLICY**
- 1-5.1 TECH HOT LINE USAGE**

**1-1.1 CURRENT WARRANTY LABOR RATES POLICY**

CURRENT WARRANTY LABOR RATE SHEET — E18/1-1.2 IS ATTACHED TO THIS SECTION. IT HAS BEEN UPDATED TO INCLUDE RATES FOR THE C128D.

ALL LABOR CLAIMS MUST BE ACCOMPANIED BY A STANTARD NARDA FORM (SEE 1-3.1) AND MUST BE LISTED ON THE BATCH CONTROL FORM.

**1-1.2 ATTACHMENT: 18/1-1.2 CURRENT WARRANTY RATES**

ATTACHED TO THIS SECTION

**1-2.1 CHANGE OF ADDRESS—**

PLEASE NOTIFY ALICE FEENEY IN WRITING CARE OF SERVICE DEPARTMENT IF YOU HAVE A CHANGE OF ADDRESS.

**1-3.1 NEW ADDRESS FOR NARDA FORMS—**

YOU MAY OBTAIN BLANK NARDA FORMS FROM THE FOLLOWING LOCATION:

NARDA  
10 EAST 22 STREET SUITE 310  
LOMBARD, IL 60148  
(312) 953-8950

**1-4.1 VIC 20 PCB ASSY RETURN POLICY**

NO CREDIT WILL BE ISSUED FOR RETURN OF VIC 20 PCB ASSEMBLIES. BOARDS SENT IN FOR CREDIT WILL BE RETURNED TO YOUR SERVICE CENTER.

CONSULT YOUR PARTS LIST FOR COST OF REPLACEMENT PCB ASSEMBLY. REFER TO DEALER BILLING COST.

**1-5.1 TECH HOT LINE USAGE—**

THE 800 TECH HOT LINE IS FOR AUTHORIZED TECHNICIANS ONLY. PLEASE DO NOT RELEASE THIS NUMBER TO END USERS.

**18/1-1.2 CURRENT WARRANTY LABOR RATE**

CPU	C64/C128	C128D	PC10	A500	A1000	A2000
PCB REPLACEMENT	\$15.00	\$20.00	\$30.00	\$20.00	\$40.00	\$40.00
COMPONENT REPAIR	\$17.00	\$23.00	\$37.50	\$23.00	\$47.50	\$47.50
KEYBOARD	\$15.00	\$ 6.50	\$ 6.50	\$10.00	\$ 6.50	\$ 6.50
P/S EXCHANGE	\$ 6.50	\$15.00	\$25.00	\$ 6.50	\$40.00	\$25.00
NO DEFECT/MINOR	\$ 5.00	\$10.00	\$12.50	\$10.00	\$12.50	\$12.50
FAN REPLACEMENT			\$22.50			
CARD REPLACEMENT			\$25.00			
RAM EXPANDER			\$20.00			
<b>DISK DRIVE — INTERNAL</b>						
DRIVE ASSY - REPLMT		\$15.00	\$27.50	\$20.00	\$37.50	\$25.00
DRIVE ALIGNMENT		\$20.00	\$37.50	\$28.00	\$47.50	\$35.00
<b>DISK DRIVE — EXTERNAL 1541/1571/1581</b>						
				<b>1010/1020</b>	<b>1010/1020</b>	<b>1010/1020</b>
PCB REPLACEMENT	\$19.00			\$20.00	\$20.00	\$20.00
COMPONENT REPAIR	\$22.50			\$22.50	\$22.50	\$22.50
DRIVE ASSY REPLMT	\$19.00			\$20.00	\$20.00	\$20.00
DRIVE ALIGNMENT	\$20.00			\$47.50	\$47.50	\$47.50
NO DEFECT/MINOR	\$ 5.00			\$ 5.00	\$ 5.00	\$ 5.00
<b>RAM EXPANDERS — EXTERNAL (ALL TYPES)</b>						
REPLACEMENT	\$ 6.50					
COMPONENT REPAIR	\$10.00					
<b>MONITORS (ALL TYPES)</b>						
ALL REPAIRS	\$23.50					
NO DEFECT/MINOR	\$10.50					
<b>PRINTERS (ALL TYPES)</b>						
ALL REPAIRS	\$23.50					
NO DEFECT/MINOR	\$10.50					

\*\*CLAIMS FOR REPAIRS ON PRODUCTS NOT LISTED WILL BE REJECTED UNLESS PRIOR APPROVAL BY THE SERVICE DEPARTMENT HAS BEEN GRANTED.

\*\*ALL RATES ARE FOR REPAIRS TO BE GUARANTEED BY THE REPAIR CENTER FOR 30 DAYS FROM THE DATE OF REPAIR.

\*\*IF MORE THAN ONE SERVICE IS PERFORMED ON THE SAME UNIT, ONLY THE HIGHER RATE WILL BE PAID.

## 2

## PARTS

## PARTS UPDATE SECTION

- 2-1.1 PARTS ERRATUS AND ADDITIONS REPRINT FROM ISSUE 17
- 2-2.1 A2000 PARTS ADDITIONS
- 2-3.1 A2088, A2052, A2090 PARTS ADDITIONS
- 2-4.1 1802 GOLDSTAR MONITOR PARTS ADDITIONS
- 2-4.2 ENCLOSURE: 18/2-4.2 1802 MONITOR SERVICE MANUAL PARTS LIST
- 2-5.1 1802C DAEWOO MONITOR PARTS ADDITIONS
- 2-5.2 ENCLOSURE: 18/2-5.2 1802C MONITOR SERVICE MANUAL PARTS LIST
- 2-6.1 PARTS UPDATE — ISSUE 18, NOV 87

**NOTE:** PLEASE MAKE ADDITIONS AND CORRECTIONS TO YOUR  
BLUE PARTS BOOK 6/1/87

**IMPORTANT CHANGE:** PART NUMBERS FOR 8520 COMPLEX INTER-  
FACE ADAPTERS

NEW NUMBER	DESCRIPTION	WHERE USED
318029-02	8520R4 1 MHZ	A1000/A500/2000
318029-03	8520A-1 2 MHZ	1571/1581

**NOTE:** —03 CAN BE USED TO REPLACE —02  
—02 CAN NOT BE SUBBED FOR —03.

318029-01 IS NO LONGER IN USE.

**CODES USED:** CRRU = CREDIT FOR RETURNED REPAIRABLE UNIT  
DB = DEALER BILLING  
SR = SUGGESTED RETAIL

## 2-1.1 PARTS ERRATUS AND ADDITIONS FROM ISSUE 17

PART NUMBER	DESCRIPTION	UNIT	CRRU	DB	SR
1540038-01	PCB ASSY 2031HP	2031HP	40.00	95.00	
250469-01	PCB ASSY C64C E	C64E	40.00	80.00	
251155-01	MODULATOR RF	VIC		10.50	17.55
251643-01	DRIVE ASSY NEWTRONICS	1541		40.00	80.00
251643-03	NEWT DRV ASSY WHT/HM	1541C		40.00	80.00
251975-01	SHIELD TOP C64E	C64E		2.20	3.50
252146-01	SUB: 318029-02				
312510-01	PCB ASSY A500 NTSC	A500	225.00	350.00	
312554-01	DRIVE ASSY	A500		95.00	158.30
312558-02	ROM IC 23256 32K X 8	1581		5.20	8.50
312594-01	SUB: 312554-01				
314065-01	KIT AMIGA SERVICE A1000	DIAG	100.00	375.00	CR-PCB
314976-01	USE: 380042-01				
318029-02	IC 8520R4 1MHZ CIA	A500/A2000		8.50	14.15
318029-03	IC 8520A-1 2MHZ CIA	1571/1581		12.50	20.80
318045-01	SUB: 312558-02				
321453-01	SUB: 251155-01				
325519-01	SUB: 251643-01				
325519-02	SUB: 251643-01				
325530-01	RIBBON	8023/1361	NLA		
326189-01	CABLE RF (3M)	MU-C		3.00	5.00
326189-02	SUB: 326189-01				
327137-01	PCB ASSY - MAIN W/OS RAM	A1000		100.00	200.00
380042-01	KIT PC10 HD MOUNTING	PC10		10.00	16.65
390205-01	POWER SUPPLY	1764EXP		42.50	70.80
390242-03	CONN 23P MALE D - SUB	A500		5.00	8.35
601161-74	IC EPROM 27256	MPS1000		10.00	16.65
601201-22	PCB ASSY - MAIN LOGIC	MPS803	NLA		
602060-22	MAGNETS - PC	1701		3.50	5.85
602060-39	RESISTOR - VAR	1701		1.00	1.70
602060-71	PCB ASSY - CRT	1701		25.50	41.65
602060-73	PCB ASSY - POWER	1701		31.50	52.50

## 2-2.1 A2000 PARTS ADDITIONS

PART NUMBER	DESCRIPTION	UNIT	CRRU	DB	SR
251118-01	PCB GUIDE	A2000		3.50	5.85
252344-01	OSC 28.37516 MHZ	A2000		5.00	8.35
312716-02	KEYBOARD ASSY - HITEK	A2000		75.00	125.00
312720-03	PCB ASSY - A2000 NTSC	A2000	225.00	400.00	
318075-02	IC BUSTER U800	A2000		7.50	12.50
324271-06	STANDOFF L = 7MM	A2000		1.00	1.65
325566-12	OSC 28.63636 MHZ X1	A2000		5.00	8.35
327124-03	MOUSE ASSY	A2000		45.00	75.00
380012-07	CABLE ASSY - 5.25 DRIVE	A2000		12.00	20.00
380111-07	DRIVE ASSY - 5.25 CHINON	A2000		135.00	225.00
380128-01	FOOT, CORK	A2000		1.00	1.65
380708-02	POWER SUPPLY ASSY	A2000		90.00	149.95
380709-01	LED HOLDING ASSY	A2000		2.50	4.15
380726-01	BEZEL, FRONT	A2000		30.00	50.00
380727-01	HOUSING, TOP	A2000		15.00	23.00
380728-01	HOUSING, BOTTOM	A2000		15.00	23.00
380736-01	COVER, 5.25 FLOPPY	A2000		7.50	12.50
380737-01	COVER, 3.5 FLOPPY	A2000		5.50	9.15
380739-01	PANEL, EXP SLOTS	A2000		5.00	8.35
380742-01	CABLE ASSY - 3.5 DRIVE	A2000		12.00	20.00
380752-01	DRIVE ASSY - 3.5 PANA	A2000		90.00	149.95
390089-01	IC 74F245	A2000		3.50	5.85
390257-01	FILTER, EMI	A2000		2.00	3.35
390265-01	POWER SWITCH	A2000		7.50	12.50
902671-01	TRANS 2SC945 NPN JAP	A2000		1.00	1.65

## 2-3.1 A2088, A2052, A2090 PARTS ADDITIONS

PART NUMBER	DESCRIPTION	UNIT	CRRU	DB	SR
380755-01	PCB ASSY - 2088 PCXT EMUL	A2088	125.00	325.00	
380658-01	IC ADDR BUS TRANSL	A2088		45.00	75.00
380659-01	IC DATA BUS TRANSL 5718	A2088		45.00	75.00
380783-01	IC PAL RAM DECODER	A2088		8.50	14.15
380784-01	IC PAL I/O DECODER	A2088		8.50	14.15
380785-01	IC PAL CONFIG	A2088		8.50	14.15
380786-01	IC FE 2010	A2088		45.00	75.00
380787-01	IC FDC 9268	A2088		12.50	20.85
380788-01	IC BIOS PC-EMUL	A2088		7.00	11.65
324219-01	TRANS - BC-327B	A2088		2.00	3.35
325566-10	OSC 16MHZ HYBRID	A2088		5.00	8.35
312365-01	PCB ASSY - 2052 2MB RAM EXP	A2052	110.00	225.00	
318055-01	IC PAL 16L8A U4	A2052		5.00	8.35
318056-01	IC PAL 16L8A U5	A2052		5.00	8.35
318057-01	IC PAL 16L8A U13	A2052		5.00	8.35
318054-01	IC PAL 16LA U10	A2052		5.00	8.35
311979-01	PCB ASSY - 2090 HD CNTRL	A2090	75.00	175.00	
390235-01	IC 20L10 PAL U8	A2090		8.50	14.15
390324-02	IC 20L10 PAL U48	A2090		8.50	14.15
390231-01	IC 20 X 8 PAL U1, 2, 3	A2090		8.50	14.15
390233-01	IC 16L8 PAL U17	A2090		5.00	8.35
390236-01	IC 16L8 PAL U7	A2090		5.00	8.35
390232-02	IC 16L8 PAL U38	A2090		5.00	8.35
390237-01	IC 16R6A PAL U16	A2090		5.00	8.35
315046-01	IC 8727 CBM DMA	A2090		10.00	16.65
318040-01	IC 26LS31 DIF TRANS	A2090		2.00	3.35
318043-01	IC 26LS32 DIF RECR	A2090		2.00	3.35
390207-01	IC DP8465N-4 DATA SEP	A2090		60.00	100.00
390230-02	IC EPROM 2764 300NS	A2090		7.00	11.65
390210-01	IC DJC KONON HDC	A2090		42.00	66.65
324667-02	IC DDU-6-60 DELAY LINE	A2090		9.00	15.00
390206-01	IC WD33C93 SCSI	A2090		40.00	64.00
900556-09	CRYSTAL 20MHZ PAR MODE	A2090		3.50	5.85

## 2-4.1 1802 GOLDSTAR MONITOR PARTS ADDITIONS

PART NUMBER	DESCRIPTION	UNIT	CRRU	DB	SR
602090-62	TRANS 2SD1453	1802		5.00	8.35
602090-64	DIODE GP10-IN4005	1802		1.00	1.65
602090-66	DIODE RD11EB2	1802		1.00	1.65
602090-67	DIODE S1B01-01S	1802		1.00	1.65
602090-68	DIODE RGP10G	1802		1.00	1.65
602090-69	DIODE EU-2V	1802		1.00	1.65
602090-72	DIODE RM2C	1802		1.00	1.65
602090-74	IC HA 1142	1802		5.50	9.15
602090-75	IC HA11431 VIDEO CHROMA	1802		7.50	12.50
602090-76	ICMC14053B	1802		3.50	5.85
602090-77	UC STR470A	1802		15.00	25.00
602090-78	IC AN5515 VERT OUT	1802		5.50	9.15
602090-79	IC AN 5265 SOUND	1802		5.50	9.15
602090-84	CRT 370FCB22-TC06 UL/CSA	1802		85.00	141.60
602090-92	COIL DEGUASSING (AL)	1802		4.50	7.50
602090-93	COIL LINEARITY	1802		3.00	5.00
602090-96	COIL CHOKE 1.04UH	1802		1.00	1.65
602090-97	COIL CHOKE 10.3UH	1802		1.00	1.65
602090-98	COIL WIDTH	1802		3.00	5.00
602091-01	TRANS HORZ DRIVE	1802		3.00	5.00
602091-02	TRANS SIDE PCC-2	1802		5.00	8.35
602091-03	TRANS PULSE FOR STR470	1802		10.00	16.65
602091-04	TRANS CONVERTOR	1802		28.50	47.50
602091-05	TRANS FLYBACK KP5872G	1802		45.00	75.00
602091-07	THERMISTOR	1802		3.00	5.00
602091-08	VARISTOR	1802		1.00	1.65

**2-4.1 1802 GOLDSTAR MONITOR PARTS ADDITIONS** *(continued)*

PART NUMBER	DESCRIPTION	UNIT	CRRU	DB	SR
602091-14	RESISTOR SEMIFIX 1KB	1802		1.00	1.65
602091-15	RESISTOR SEMIFIX 2.2KB	1802		1.00	1.65
602091-16	RESISTOR SEMIFIX 4.7KB	1802		1.00	1.65
602091-17	RESISTOR SEMIFIX 47KB	1802		1.00	1.65
602091-18	RESISTOR SEMIFIX 330B	1802		1.00	1.65
602091-19	RESISTOR COMP GS225K/UL	1802		1.00	1.65
602091-24	RESISTOR RWR STD 10W 3.3OHM	1802		1.00	1.65
602091-25	RESISTOR M.OXIDE 7W 3.6K	1802		3.00	5.00
602091-26	RESISTOR M.OXIDE 7W 10K	1802		3.00	5.00
602091-30	RESISTOR FUSING 0.5W 4.7J	1802		1.00	1.65
602091-34	CAP PE 100V 0.15MFM	1802		1.00	1.65
602091-37	CAP PP 200V 0.082MFJ	1802		1.00	1.65
602091-38	CAP PP 200V 0.02MFJ	1802		1.00	1.65
602091-40	CAP PP 200V 0.39MPK	1802		15.00	25.00
602091-41	CAP PP 630V 0.012MFJ	1802		20.00	33.35
602091-42	CAP PP 600V 0.0027MFK	1802		1.00	1.65
602091-43	CAP PP 1600V 1500PJ	1802		1.00	1.65
602091-44	CAP MPP 125VAC 0.1MFM	1802		3.00	5.00
602091-45	CAP DE7100FZ472M 125VAC	1802		1.00	1.65
602091-46	CAP CE HR160V 33MF	1802		2.00	3.35
602091-47	CAP CHEMI 200WV 4701F	1802		5.50	9.15
602091-49	CAP MPP 1.6KV 0.0082MFJ	1802		3.00	5.00
602091-50	CAP CE 160V 220UF	1802		5.00	8.35

**2-4.2 ENCLOSURE - 1802 GOLDSTAR MONITOR SERVICE MANUAL PARTS LIST**



## 2-5.1 1802C DAEWOO MONITOR PARTS ADDITIONS

PART NUMBER	DESCRIPTION	UNIT	CRRU	DB	SR
602151-05	TR 2SD1397	1802C		9.00	15.00
602151-79	IC UPC1378H	1802C		7.50	12.50
602151-80	IC KTA7208	1802C		7.50	12.50
602151-81	IC UPD4066BC	1802C		7.50	12.50
602151-82	IC STR5404	1802C		8.50	14.15
602152-25	RES VAR ROTARY	1802C		1.00	1.65
602152-48	RES VAR ROTARY	1802C		1.00	1.65
602152-78	RESISTOR FUSIBLE	1802C		1.00	1.65
602152-88	RES CARBON 1/2W 10 OHM	1802C		1.00	1.65
602152-89	RES FUSIBLE 1 OHM	1802C		1.00	1.65
602152-92	RES FUSIBLE 1 OHM	1802C		1.00	1.65
602152-93	RES CARBON 1/6W 10K OHM	1802C		1.00	1.65
602152-94	RES CARBON 1/6W 120K OHM	1802C		1.00	1.65
602152-95	RES CARBON 1/6W 15K OHM	1802C		1.00	1.65
602153-02	RES VARIABLE	1802C		1.00	1.65
602153-68	RES FUSIBLE 1 OHM	1802C		1.00	1.65
602153-73	SPEAKER 16 OHM .5W	1802C		8.50	14.15
602153-74	SWITCH, SLIDE KSA 2317	1802C		3.50	5.85
602153-75	TRANS PIN CUSHION	1802C		28.00	46.65
602153-76	TRANS HORZ DRIVE	1802C		7.50	12.45
602153-77	TRANS FBT	1802C		45.00	75.00
602153-79	TRANS SWITCHING	1802C		32.00	53.30
602154-21	SOCKET CRT	1802C		7.50	12.45
602154-34	DOOR VR	1802C		7.00	11.65
602154-40	COIL DEGUASSING	1802C		15.00	25.00
602154-44	KNOB POWER	1802C		2.50	4.15
602154-46	POWER INDICATOR	1802C		3.00	5.00
602154-50	SWITCH, PUSH	1802C		5.00	8.35
602155-23	CAP MYLAR 4700 PF 1.6KVJ	1802C		1.00	1.65
602155-34	COIL DELAY LINE 0.4MSEC	1802C		4.50	7.50
602155-38	DIODE ZENER ZPD-22	1802C		1.00	1.65
602155-39	DIODE RH-1	1802C		1.00	1.65
602155-40	FUSE UL/CSA MF514AR5V	1802C		.60	1.00
602155-41	IC TA7670	1802C		7.50	12.50
602155-43	POSISTOR	1802C		4.50	7.50
602155-49	RES VAR ROTARY	1802C		1.00	1.65
602155-53	CORD, POWER	1802C		4.50	7.50
602155-58	CRT 370DJB22-TC17 (Y)	1802C		135.00	224.90
602155-66	KNOB SLIDE	1802C		3.50	5.85
602155-73	COVER, BACK ASSY	1802C		35.00	58.30
602155-74	COVER, BACK	1802C		25.00	41.65

## 2-5.2 ENCLOSURE — 1802C DAEWOO MONITOR SERVICE MANUAL PARTS LIST

## 2-6.1 PARTS UPDATE — ISSUE 18

PART NUMBER	DESCRIPTION	UNIT	CRRU	DB	SR
252127-02	IC PAULA 8364 R7	A2000/A500		42.00	70.00
252126-02	IC DENISE 8362 R8	A2000/A500		39.25	65.40
314068-01	IC REPAIR KIT — AMIGA CONTAINS: 318070-01 FAT AGNUS 8370 R3 252127-02 PAUL 8364 R7 252126-02 DENISE 8362 R8 318072-01 GARY 5719 318029-02 8520 R4 1 MHZ 318075-02 BUSTER			125.00	
315089-01	IC 8726 RAM EXP CNTRL	1764/1750		35.00	58.35
315089-02	IC 8726 RAM EXP CNTRL QUAD	1764/1750		35.00	58.35
251913-01	ROM BASIC/KERNAL 128K	C64E		18.00	30.00
251715-01	IC MEMORY CNTRL	C64E		25.00	41.65
318014-01	IC 8562 VIC	C64E		18.00	30.00
314965-02	AMIGA ALIGNMENT KIT V 2.0 CONTAINS: 314966-01 A1000 ALIGN PROGRAM DISK V 1.0 314966-02 A500/A2000 ALIGN PROGRAM DISK V 1.1 314967-02 AMIGA A1000/A500/A2000 INSTRUCTIONS 314968-01 AMIGA ALIGN DIGILOG DISK			100.00	

# 3

## AMIGA

### AMIGA SECTION

- 3-1.1 A2000 SYSTEM SCHEMATICS
- 3-1.2 ENCLOSURE: 18/3-1.2 PN 314135-01 A2000 SYSTEM SCHEMATICS
- 3-2.1 A500/A2000 ALIGNMENT INSTRUCTIONS
- 3-2.2 ENCLOSURE: 18/3-2.2 AMIGA ALIGNMENT INSTRUCTION SHEETS
- 3-2.3 ENCLOSURE: 18/3-2.3 PN 314966-02 ALIGNMENT PROGRAM DISKETTE V1.1
- 3-3.1 1902 TO 1080 CONVERSION ERRATUS
- 3-4.1 FIX — A1000 KEYBOARD
- 3-5.1 REPAIR TIP: IC/SOCKET CONTACT PROBLEMS

#### 3-1.1 A2000 SYSTEM SCHEMATICS — PN# 314135-01

THIS SERVICE MANUAL CONTAINS THE FOLLOWING SECTIONS WITH A COMPLETE COMPONENT PARTS LIST IN EACH SECTION.

- 1) A2000 MAIN PCB ASSY# 312720-03, SCHEMATIC# 312721
- 2) A2088 MAIN PCB ASSY# 380755-01, SCHEMATIC# 380756
- 3) A2090 MAIN PCB ASSY# 311979-01, SCHEMATIC# 311980
- 4) A2052 MAIN PCB ASSY# 312365-01, SCHEMATIC# 312366

CONSULT SECTION 2 — PARTS, OF THIS TECHTOPICS (NOV 87) FOR COMPONENT IC REPLACEMENT PARTS AVAILABILITY.

#### 3-1.2 ENCLOSURE: 18/3-1.2 A2000 SYSTEM SCHEMATICS

ENCLOSED WITH TECHTOPICS FOR AMIGA SERVICE ONLY.

**3-2.1 A500/A2000 ALIGNMENT INSTRUCTIONS**

THE AMIGA ALIGNMENT KIT HAS BEEN UPDATED. A NEW INSTRUCTION MANUAL, PN 314967-02 AND PROGRAM DISKETTE PN 314966-02 ARE INCLUDED WITH THIS ISSUE.

**PLEASE NOTE:** THE NEW PART NUMBER FOR THIS KIT IS 314965-02 AMIGA ALIGNMENT KIT V 2.0, SEE 2-6.1 IN THIS TECHTOPICS.

INSTRUCTION MANUAL PN 314967-02 HAS BEEN UPDATED WITH INFORMATION ON THE CHINON F-354E 3.5 FLOPPY DISK DRIVE.

PROGRAM DISKETTE PN 314966-02 HAS BEEN MODIFIED TO OPERATE ON THE A500 and A2000 AMIGA SYSTEMS.

**3-2.2 ENCLOSURE: 18/3-2.2 PN 314967-02 AMIGA A1000/A500/A2000 INSTRUCTIONS. ENCLOSED WITH TECHTOPICS FOR AMIGA SERVICE ONLY****3-2.3 ENCLOSURE: 18/3-2.3 PN 314966-02 A500/A2000 ALIGN PROGRAM DISK V1.1 ENCLOSED WITH TECHTOPICS FOR AMIGA SERVICE ONLY.****3-3.1 1902 TO 1080 CONVERSION ERRATUS**

ISSUE 17 — SEPTEMBER 87 TECHTOPICS DETAILED PROCEDURES TO CONVERT THE 1902 MONITOR TO A 1080 MONITOR BY INSTALLING JUMPERS.

**PLEASE NOTE:** THIS FIX IS VALID ONLY ON SOME 1902 MONITORS. OEM SUPPLIERS HAVE ELIMINATED CIRCUITRY ON LATER MODELS WHICH MAKE THE CONVERSION IMPOSSIBLE WITHOUT RECONSTRUCTING THE CIRCUIT.

**3-4.1 FIX — A1000 KEYBOARD**

IC 6570-36, PART NUMBER 328191-02 IS NOW IN STOCK. THE 6570 IS A SPECIALLY PROGRAMMED 6500 SERIES CHIP WHICH IS USED TO TRANSMIT A BYTE OF KEYBOARD DATA INTO THE SERIAL SHIFT REGISTER OF THE 8520, ONE BIT AT A TIME. THIS VERSION, -36 IS USED ON THE A500.

THIS IC, 328191-02 CAN BE USED TO REPLACE THE 6570-33 USED ON THE OLD STYLE A1000 KEYBOARD WITH THE FOLLOWING MODIFICATION.

DISASSEMBLE KEYBOARD, REMOVE DEFECTIVE IC

**NOTE:** IF YOU INSERT A 40 PIN SOCKET YOU WILL NOT BE ABLE TO RE-INSTALL SHIELD CORRECTLY.

REFER TO PAGE 1-19 AMIGA KEYBOARD SCHEMATIC, IN YOUR A1000 COMPONENT LEVEL SERVICE MANUAL, PN #314038-02.

REVERSE KCLK AND KDAT SIGNAL LINES. KCLK CONNECTS PIN 3 OF KEYBOARD CABLE (WHITE LEAD) TO PIN 38 OF IC. KDAT CONNECTS PIN 4 OF KEYBOARD CABLE (GREEN LEAD) TO PIN 37 OF IC.

**NOTE:** KEYBOARD IS AN OEM PRODUCT, PLEASE USE YOUR VOM TO CONFIRM SIGNAL PATH BEFORE REVERSING GREEN AND WHITE LEADS.

**3-5.1 REPAIR TIP: IC/SOCKET CONTACT PROBLEMS**

IT IS POSSIBLE THAT POOR CONTACTS EXIST BETWEEN IC 8370 F. AGNUS, AND THE 84 PIN PLCC SOCKET ON A500 PCB ASSEMBLIES (PN 312510-03) WHICH HAVE "KEL" TYPE SOCKETS IN LOCATION U2.

**WARNING:** DO NOT ATTEMPT TO REMOVE IC 8370, F. AGNUS, UNLESS YOU ARE EQUIPPED WITH THE CORRECT EXTRACTION TOOL.

A BURNDY CHIP EXTRACTOR #QILEXT-1 SHOULD BE USED. THIS TOOL MAY BE PURCHASED THROUGH A BURNDY REP.

CBM SERVICE HAS OBTAINED THEM FROM:

KIERULFF ELECTRONICS

520 FELLOWSHIP RD. SUITE 106

MT LAUREL, N.J. 08054

(800) 367-7767

(QILEXT-1) APPROXIMATELY \$10.00

TO CHECK FOR POOR CONTACTS OR INTERMITTENT PROBLEMS, ENABLE THE CLOCK ICON ON THE SCREEN AND OBSERVE THE DISPLAY WHILE TAPPING THE OUTSIDE OF THE SOCKET.

IT IS IMPORTANT TO TAKE PRECAUTIONS AND USE A TECHNIQUE WHICH WILL AVOID DAMAGE TO THE SYSTEM. YOUR REPAIR LAB SHOULD BE EQUIPPED WITH A CONDUCTIVE GROUNDING PAD. USE A NONCONDUCTIVE SURFACE TO TAP WITH.

IF AN IMPROPER CONTACT IS EXPOSED BY THE STRESS, THE CLOCK DISPLAY CAN BEHAVE ERRONEOUSLY. YOU MAY CORRECT THE PROBLEM BY REMOVING THE F. AGNUS CHIP, USING THE CORRECT TOOL, AND RE-ALIGNING THE PINS.

PLACE THE IC ON A FLAT SURFACE, FACE DOWN, AND WITH A STRAIGHT EDGE OBJECT PUSH THE PINS EVENLY TOWARDS THE OUTER FACE OF THE CHIP. DO THIS TO ALL FOUR SIDES.

IT IS NOT RECOMMENDED THAT THE SOCKET BE REPLACED. HOWEVER, YOU SHOULD EXAMINE THE SOCKET TO DETERMINE IF ALL THE CONTACTS APPEAR TO BE ORIENTED CORRECTLY. YOU CAN USE A SMALL "HOOK" TO PULL THE LEAD OUT A LITTLE. THIS CAN ALSO INSURE A FIRM CONTACT.

**4****CBM****CBM SECTION**

- 
- 4-1.1 1581 FDD REPAIR TIP**
  - 4-2.1 ERRATUS: C128D BOARD LAYOUT**
  - 4-2.2 ENCLOSURE: 18/4-2.2 C128D BOARD LAYOUT FOR PCB ASSY# 250477**
  - 4-3.1 C64C ADDENDUM: B-3, E VERSIONS**
  - 4-3.2 ENCLOSURE: 18/4-3.2 C64C ADDENDUM PN# 314856-01**
  - 4-4.1 C128/C128D DIAGNOSTIC EPROM**
  - 4-4.2 ENCLOSURE: 18/4-4.2 C128/C128D DIAGNOSTIC EPROM**
- 

**4-1.1 REPAIR TIP: 1581 FLOPPY DISK DRIVE**

INTERMITTENT DATA CORRUPTION PROBLEMS ON THE 1581 CAN BE ELIMINATED BY REPLACING THE WD1770 FLOPPY DISK CONTROLLER PN #310651-01 IN U4 WITH A WESTERN DIGITAL 1772 PN# 310651-02. THE J1 JUMPER MUST BE INSTALLED.

**PLEASE NOTE:** REFER TO PAGE 17 OF 1581 SERVICE MANUAL PN #314982-01. NOTE ON BOTTOM LEFT HAND CORNER SHOULD BE CHANGED TO READ:  
1) J1 IS ALWAYS INSTALLED.

STANDARD WARRANTY RATES ARE IN EFFECT FOR THE NORMAL 90 DAY PERIOD BASED ON CUSTOMERS' PROOF OF PURCHASE.

**4-2.1 ERRATUS: C128D BOARD LAYOUT**

THE BOARD LAYOUT DIAGRAM INCLUDED IN THE C128D ADDENDUM IS INCORRECT. PLEASE REPLACE THAT PAGE WITH THE CORRECT DIAGRAM OF PCB ASSY# 250477, ENCLOSED IN THIS TECHTOPICS.

**4-2.2 ENCLOSURE: 18/4-2.2 C128D BOARD LAYOUT**

ENCLOSED WITH CBM SECTION OF THIS TECHTOPICS.

**4-3.1 C64C ADDENDUM PART NUMBER 314856-01**

ENCLOSED WITH THIS TECHTOPICS PLEASE FIND THE C64C ADDENDUM TO BE INSERTED INTO YOUR C64 SERVICE MANUAL. THIS ADDENDUM CONTAINS THE FOLLOWING SECTIONS FOR BOTH THE C64C PCB AND THE C64C E TYPE PCB.

- 1) MAJOR COMPONENT SERVICE DIAGRAMS
- 2) COMPONENT PARTS LIST
- 3) BOARD LAYOUT DIAGRAMS
- 4) SCHEMATIC DIAGRAMS

INCLUDED ALSO ARE REPRINTED PAGES 4 AND 17, A NEW TITLE PAGE AND SECOND TABLE OF CONTENTS PAGE TO UPDATE YOUR SERVICE MANUAL.

**4-3.2 ENCLOSURE: 18/4-3.2 C64C ADDENDUM PN# 314856-01**

ENCLOSED WITH CBM SECTION OF THIS TECHTOPICS.

**4-4.1 C128/C128D DIAGNOSTIC EPROM**

ENCLOSED WITH THIS TECHTOPICS PLEASE FIND THE NEW C128/C128D DIAGNOSTIC EPROM TO BE INSERTED INTO YOUR DIAGNOSTIC CARTRIDGE. THE EPROM IS IDENTIFIED BY THE VERSION NUMBER 785260.

NEW CHECK SUMS FOR THE C128D ROMS ARE AS FOLLOWS:

KERNAL ROM	F3
BASIC HI	F4
BASIC LO	10
CHAR ROM	FB

**PLEASE NOTE:** WITH THIS EPROM INSTALLED THE TEST WILL DISPLAY C128 IC LOCATIONS ON SCREEN UNLESS THE SERIAL CONNECTOR IS ATTACHED. IF THE SERIAL BUS BACK CONNECTOR IS INSTALLED THE TEST WILL DISPLAY C128D IC LOCATIONS ON THE SCREEN.

IT WILL BE NECESSARY TO MODIFY THE CASSETTE PORT CONNECTOR IN ORDER TO ATTACH IT TO THE C128D CHASSIS. THIS MAY BE ACCOMPLISHED BY REMOVING THE PLASTIC EDGES WHICH CONTAIN HOLES FOR THE MOUNTING HARDWARE ON BOTH SIDES OF THE CONNECTOR.

PLEASE RETURN YOUR OLD EPROM TO THE ATTENTION OF:  
BRUCE MORTENSON, CBM SERVICE DEPARTMENT

**4-4.2 ENCLOSURE: 18/4-4.2 C128/C128D DIAG EPROM VERSION #785260**

ENCLOSED WITH CBM SECTION OF THIS TECHTOPICS

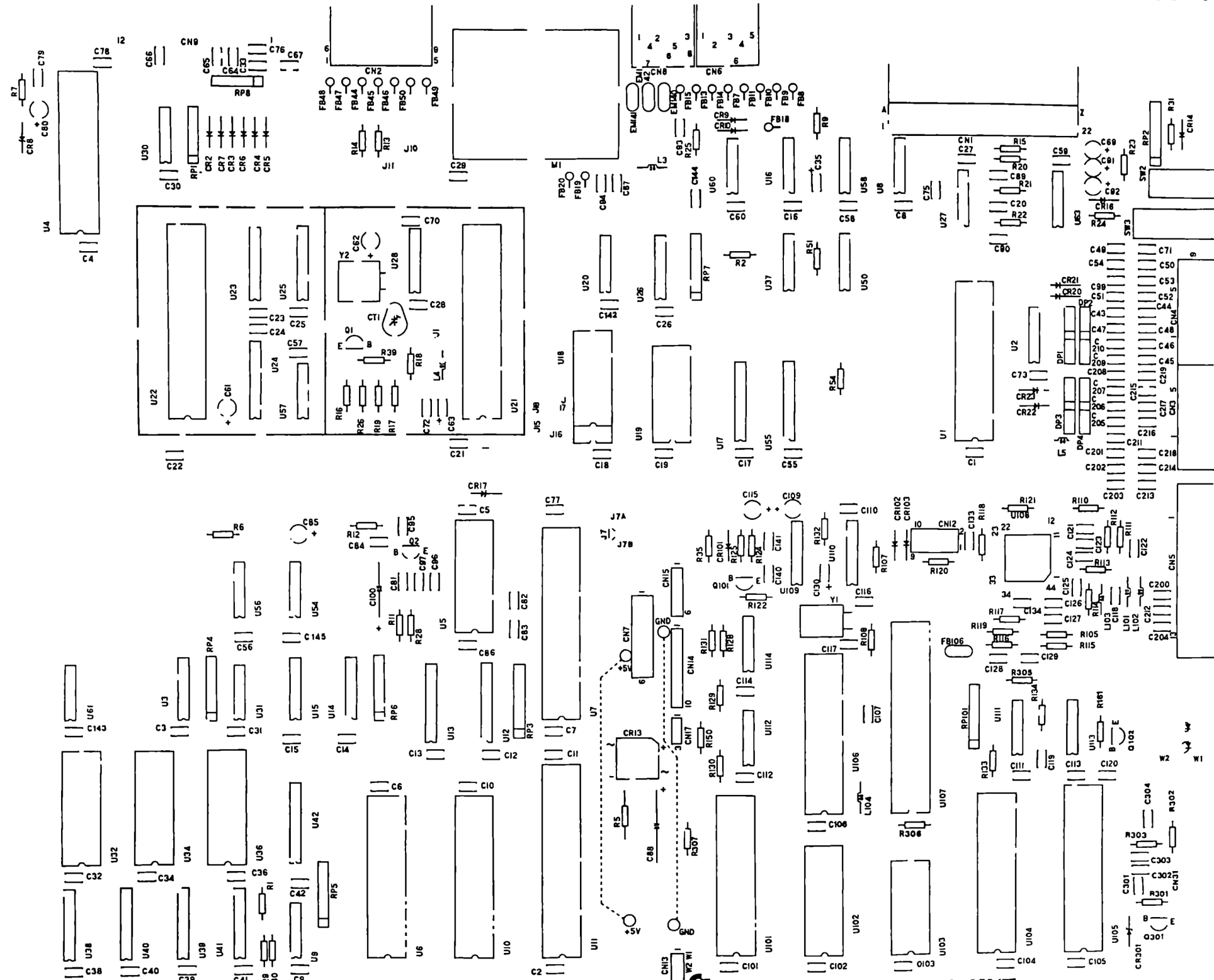
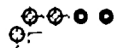
# COMPONENTS PARTS LIST

PCB ASSEMBLY #250477

U41	IC 64K X 4 DRAM	390083-02
U5	IC SID 8580	C318013-01
U21	IC VIC 8564 NTSC	C315009-01
U11	IC PAL 8721	C315012-01
U7	IC MMU 8722	C310389-01
U10	IC Z80 B 6MHZ	906150-02
U18	IC CHAR ROM	C315079-01
U27	IC NE556	901523-03
U19, 103	IC 2016 20LB 2K X 8	251637-05
U18	IC 8006 C128/C64 CHAR ROM	C390059-01
U2, 20	IC 4066	901502-01
U23, 25, 38-40	IC 64K X 4 DRAM 150NS	390083-02
U1, 4	IC 6526	C906108-01
U28	IC 8701	C251527-07
U6	IC 8502 MPU	C315020-01
U22	IC 8568 80 COL CRT CNTRL	C315092-01
U32	C128 ROM 2/3 (UK)	318023-02
U34	C128 ROM 1/4	C318022-02
U17	IC 74ALS373	390058-01
U55	74F245	252208-01
U9	74F32	390077-01
U107	FDC 5710	C252371-01
U104, 106	VIA 6522A 2MHZ	C901437-02
U104, 106 Sub.	IC 65SC22A 1MHZ	310653-01
U102	EP-ROM 27256 300NS	C252372-01
U108	FDD R/W AMP SONY CX20185	C252308-01
U108 Sub.	FDD R/W AMP MOTOROLA MC28719	252308-02
U108 Sub.	FDD R/W AMP SANYO LA8200	252308-03
U109	UPA2003C NEC	C251871-01
U109 Sub.	IC IR2C19 SHARP	251871-02
Q101	TRANS 2SA683	252400-01
Q301	TRANS 2SD880	902694-01
Q101 Sub.	TRANS MPSU51	310657-01
Q1, 2	TRANS 2SC1815	902693-01
DP1, 3	DIODE ARRAY 7 PIN	C252333-01
DP2, 4	DIODE ARRAY 7 PIN	C252333-02
CR301	DIODE ZENER RD 6.8 EB	900927-01
M1	RF MODULATOR NTSC	C252405-01
CT1	TRIMMER CAP 6.5 – 40P	C251029-02
SW1, 2	RESET BUTTON	C251260-01
CN5	CONNECTOR MALE 25 PIN	C359002-02

**C-Indicates CBM Stocked Part Number**





GX-211 VO 87330 94V-0

COMMODORE C128DCR PCB ASSY NO. 250477



# 5

## PC

### PC SECTION

- 
- 5-1.1 **INSTALLATION TIP: ATI VIDEO CARD**
  - 5-1.2 **REPRINT: PAGE 53 PC OPERATORS MANUAL**
  - 5-1.3 **REPRINT: PAGE 30 PC OPERATORS MANUAL**
  - 5-2.1 **REPAIR TIP: PARITY ERRORS**
  - 5-3.1 **COMPUTE EFFECTIVE ADDRESS**
  - 5-4.1 **PC10 (1-2-III) DISK DRIVE DIAGNOSTIC**
  - 5-5.1 **PC10-1, PC10-2 MEMORY MAP**
- 

#### 5-1.1 **INSTALLATION TIP: ATI VIDEO CARD**

TO CONFIGURE A PC10 COMPUTER FOR A RGB COLOR MONITOR YOU MUST SET THE DIP SWITCHES CORRECTLY ON BOTH THE ATI VIDEO CARD AND THE MOTHER BOARD.

SWITCH 5 ON THE MOTHER BOARD SHOULD BE ON. SEE REPRINT OF PAGE 53, ATTACHED.

SWITCHES 2, 5, 7, 8 ON ATI VIDEO CARD SHOULD ALL BE ON. SEE REPRINT OF PAGE 30.

#### 5-1.2 **REPRINT: 18/5-1.2 PC10 MAIN PCB SWITCH SETTINGS.**

ATTACHED TO PC SECTION OF THIS TECHTOPICS.

#### 5-1.3 **REPRINT: 18/5-1.3 ATI VIDEO CARD SWITCH SETTINGS.**

ATTACHED TO PC SECTION OF THIS TECHTOPICS.

**5-1.2 PC MAIN PCB SWITCH SETTINGS — REPRINT P. 53****System DIP Switches (Located on Main PCB)**

Switch No.	Function
1	OFF: Boot ON: System diagnostic
2	OFF: 8087 installed ON: 8087 not installed
3,4	System RAM configuration
5,6	Default video mode
7,8	Number of floppy drives installed

**System RAM Installed**

Switch No. 3,4	Ram Size
ON, ON	128 KB
OFF, ON	256 KB
ON, OFF	512 KB
OFF, OFF	640 KB

**Default Video Mode**

Switch No. 5,6	Function
ON, ON	Monochrome 40 x 25
OFF, ON	Color 40 x 25 (B&W mode)
ON, OFF	Color 80 x 25 (B&W mode)
OFF, OFF	Monochrome 80 x 25

**Number of Floppy Drives Installed**

Switch No. 7,8	Number of installed drives
ON, ON	1
OFF, ON	2
ON, OFF	3
OFF, OFF	4

### 5-1.3 ATI VIDEO CARD SWITCH SETTINGS — REPRINT P. 30

Note: Numerals on figure indicate switch numbers.

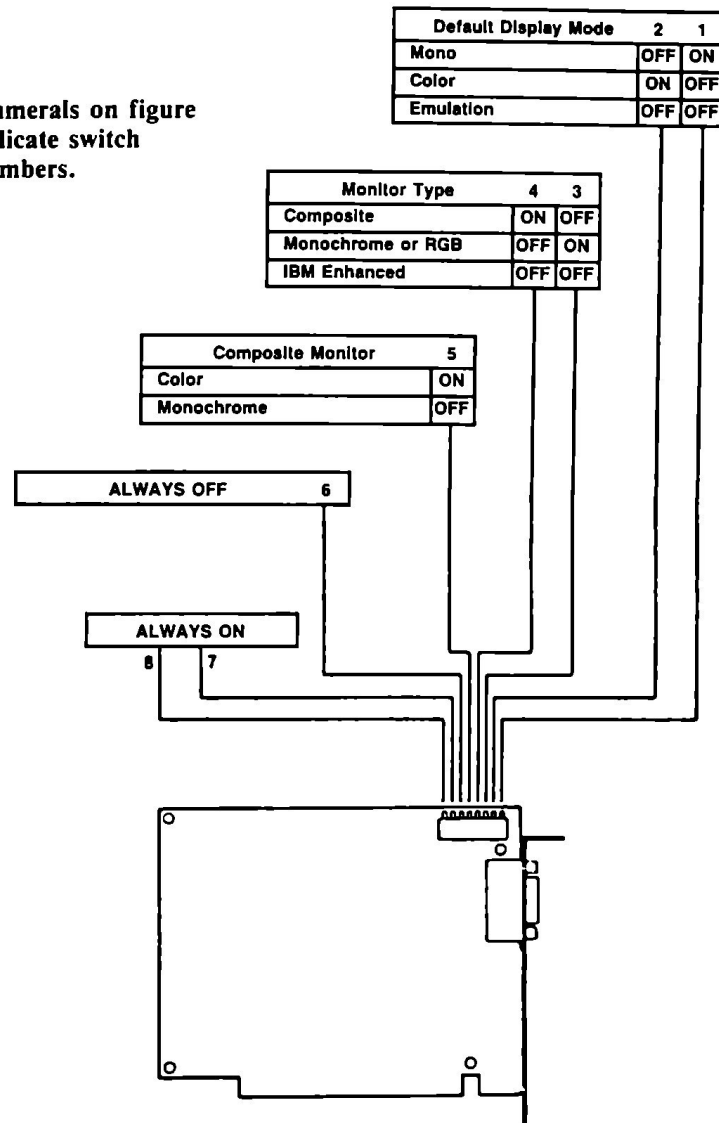


Figure D-2. ATI Graphics Solution Switch Settings

	DIP — Switch	
	SW5	SW6
Default Video Mode	SW5	SW6
Emulation Mode	ON	OFF
Color/Graphics	ON	OFF
Monochrome	OFF	OFF

Table D-1. Commodore PC Switch Settings on Motherboard.  
(See Appendix F for more details.)

**5-2.1 REPAIR TIP: PC PARITY ERRORS**

THE PC USES A NINTH BIT TO DETERMINE PARITY. IF A BYTE CONTAINS AN EVEN NUMBER OF "1" BITS, THEN A "1" WILL BE GENERATED IN THE PARITY BIT. IF THE BYTE CONTAINS AN ODD NUMBER OF "1" BITS, THEN A "0" WILL BE GENERATED IN THE PARITY BIT. THE SYSTEM MAINTAINS THIS "ODD PARITY" TO INSURE THAT DATA HAS NOT BEEN CORRUPTED DURING DATA TRANSFERS.

REFER TO YOUR PC SERVICE MANUAL PN #319914. PAGES 10 AND 11 TO LOCATE THE IC'S LISTED.

- A) CHECK U30 — THIS IS WHERE THE PARITY OR NINTH BIT IS STORED
- B) CHECK U9 — RAM EXPANSION BOARD, UP TO 512K. CHECK U10 & U11 FOR 512 TO 640K.
- C) CHECK U1 — PINS 5 & 6 FOR PCK AND  $\overline{\text{PCK}}$  ALSO CHECK PIN 1,  $\overline{\text{CLR}}$ .
- D) CHECK SIGNAL FROM U8 PIN 12 TO U2 PIN 11, OUT PIN 10, ENRAMPC
- E) CHECK U9 — PINS 5 AND 15 (BUFFER) MAY GIVE FALSE VALUE BACK ON DB3. IF THIS CHIP IS BAD A MESSAGE OF "UNEXPECTED SWITCH INTERRUPT" WILL OCCUR AND MAY ALTER SIGNALS SENT FROM U20 (SWITCH SETTINGS).

**5-3.1 COMPUTE EFFECTIVE ADDRESS**

UNDER CERTAIN ERROR CONDITIONS AN ADDRESS WILL BE DISPLAYED ON THE SCREEN INDICATING WHERE IN MEMORY A PROBLEM HAS OCCURRED. THE ADDRESS IS EXPRESSED IN THE FORM OF REGISTER CONTENTS.

EXAMPLE: CS:IP = 83AB:1010

CS, THE SEGMENT REGISTER CONTAINS HEX 83AB  
IP, THE INSTRUCTION POINTER CONTAINS HEX 1010

TO COMPUTE THE EFFECTIVE ADDRESS, SHIFT THE CONTENTS OF THE SEGMENT REGISTER 4 BITS LEFT. THEN ADD.

EXAMPLE:           SHIFT LEFT 4 BITS   CS = 83AB0  
  ADD                    IP =  1010

RESULT EFFECTIVE 20 BIT ADDRESS        84AC0

NOTE: BYTE HOLDS TWO HEX DIGITS.

**5-4.1 PC10 (1-2-III) DISK DRIVE DIAGNOSTIC**

DRIVE ALIGNMENT DIAGNOSTICS FOR THE PC10 (1-2-III) HAVE BEEN RECEIVED. SERVICE CENTERS WHO HAVE PURCHASED THE PC STARTUP KIT WILL BE SHIPPED THIS SECTION OF THE KIT SHORTLY.

## 5-5.1 PC10-1, PC10-2 MEMORY MAP

Usage	Address	Size
00000-003FF	1K	Interrupt vectors
00400-004FF	256	BIOS/DOS data area
00500-3FFFF	255K	DOS/User RAM
40000-7FFFF	256K	User RAM
80000-9FFFF	128K	User RAM
A0000-AFFFF	64K	Reserved
B0000-B0FFF	4K	Monochrome video RAM
B1000-B3FFF	12K	Additional monochrome video RAM
B4000-B7FFF	16K	Reserved
B8000-BFFFF	32K	Color video RAM
C0000-C7FFF	32K	Reserved (diagnostics or video ROM)
C8000-C9FFF	8K	Hard disk BIOS (on controller card)
CA000-FBFFF	200K	Reserved
FC000-FFFFF	16K	BIOS ROM (version 1D is only 8K)

00000	256 K standard memory
3FFFF	
40000	Memory expansion
9FFFF	
A0000	Reserved
AFFFF	
B0000	Monochrome video
B3FFF	
B4000	Reserved
B7FFF	
B8000	Color video
BFFFF	
C0000	Diagnostics or Video
C7FFF	
C8000	Hard disk BIOS
C9FFF	
CA000	Reserved
FBFFF	
FC000	BIOS
FFFFF	

**6-1.1 COMMODORE SERVICE INFORMATION NETWORK PREVIEW**

THE SERVICE DEPARTMENT HAS INSTALLED A MICRO-VAX COMPUTER WITH FOUR 1200 BAUD TOLL FREE DATA LINES.

AUTHORIZED SERVICE CENTERS WILL BE ABLE TO ACCESS THIS NETWORK STARTING IN JANUARY 87.

THE BULLETIN BOARD "CSIN", WILL BE ORGANIZED INTO THE SAME SECTIONS AS THE CURRENT TECHTOPICS. I.E.;

**1 — INFORMATION SECTION**

CONTAINS IMPORTANT ADMINISTRATIVE MESSAGES AND POLICY CHANGES.

**2 — PARTS UPDATE SECTION**

ADDITIONS AND CHANGES IN THE CURRENT PARTS LIST.

**3 — AMIGA SECTION**

IMPORTANT FIXES, NEW DOCUMENTATION, DIAGNOSTIC TESTS FOR AMIGA LINE.

**4 — CBM SECTION**

CONSUMER LINE PRODUCTS, FIXES, NEW DIAGNOSTICS AND DOCUMENTATION.

**5 — PC SECTION**

PC LINE, IBM COMPATIBLES, FIXES, NEW DIAGNOSTICS AND DOCUMENTATION.

**6 — CSIN SECTION**

SYSTEM OPERATIONS AND INSTRUCTIONS FOR AUTHORIZED SERVICE CENTERS.

FUTURE FEATURES WILL INCLUDE DIRECT MESSAGING TO TECHNICAL PERSONNEL AND DIRECT PARTS ORDER ENTRY.