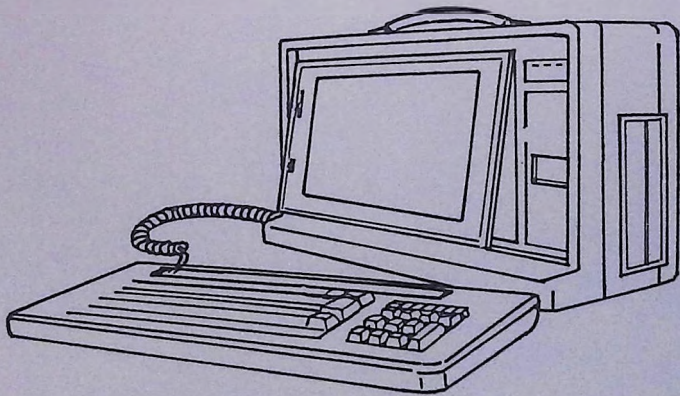
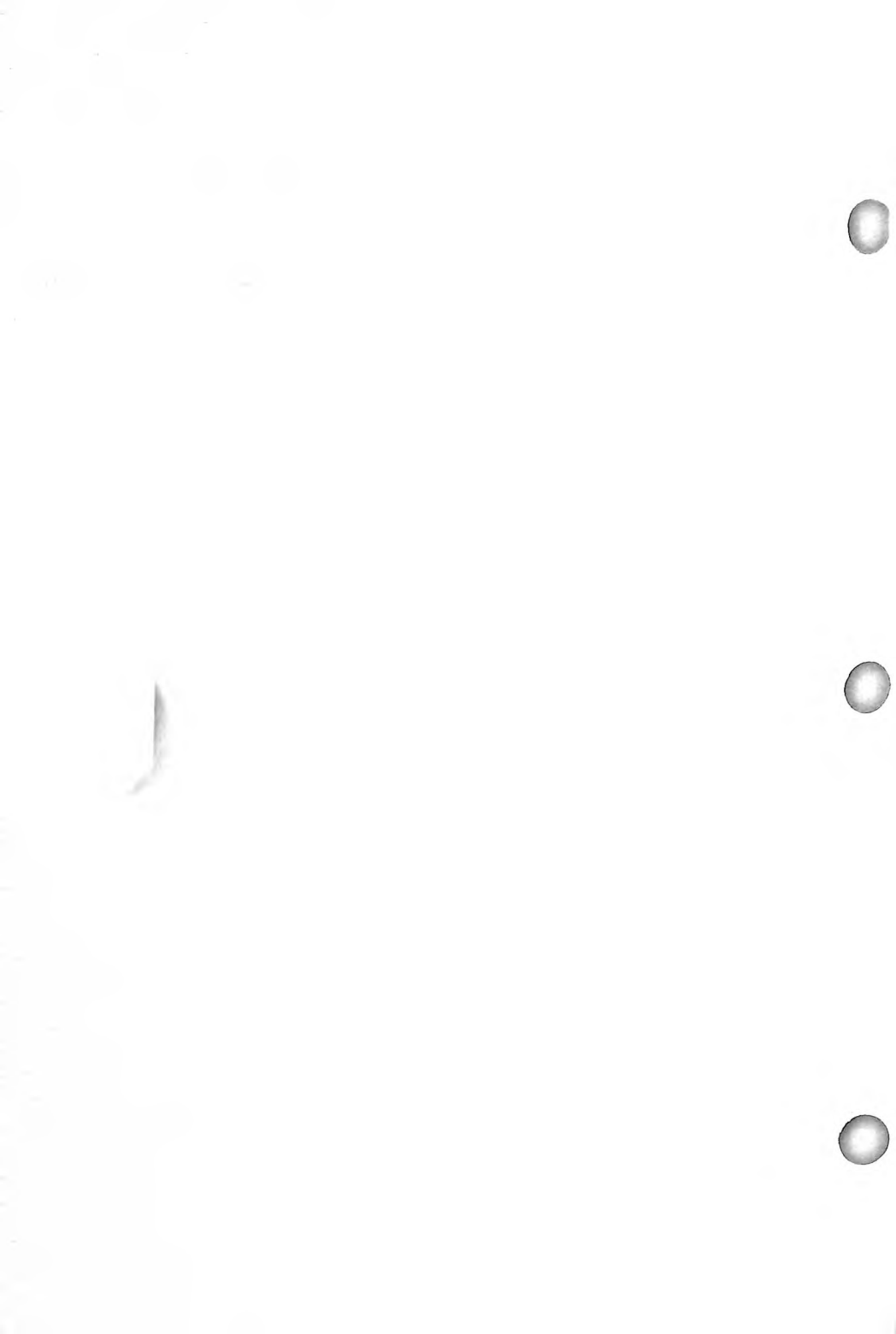


LCD PORTABLE COMPUTERS

ASSEMBLY MANUAL

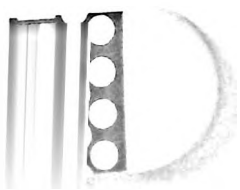




LCD PORTABLE PERSONAL COMPUTER ASSEMBLY MANUAL

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CHAPTER 1 INTRODUCTION

This manual describes how to assemble The LCD Portable PC starting from the fixed components i.e. cabinet, power, LCD and keyboard to the changeable components i.e. motherboard, interface cards and disk drives.

We offer the complete cabinet for you to assemble a whole set computer which could be used with an 8088, baby 80286 or baby 80386 Motherboard, you do not need to be concerned with replacing the power supply or keyboard because they're the same for those versions. The power is auto switchable from 110V to 240V AC power.

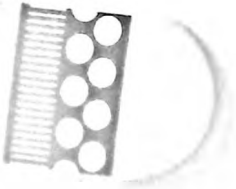
The complete cabinet contains following parts:

1. Housing, including plastic case and LCD screen
2. Keyboard
3. Power supply and AC power card
4. LCD display card
5. Screws
6. Packing box
7. Assembly manual (this manual)

To assemble the whole set computer you need to prepare the following items.

1. Motherboard 8088, 80286 or 80386 with manual
2. Interface card for I/O devices with cable and manual
3. Disk drives and cable
4. Philips head screwdriver

5. Socket screwdriver for motherboard assembly.
6. Operating system Diskette or Test program.



CHAPTER 2 IMPORTANT NOTES

1. It is possible that radio and television interference can occur when running the system therefore use the equipment away from radios and televisions.
2. Do not expose it to direct sunlight, extreme temperature or high humidity for long.
3. Do not touch connector or connect any cable when power supply is connected to AC source.
4. Latch foldaway keyboard firmly when the unit is face-down.

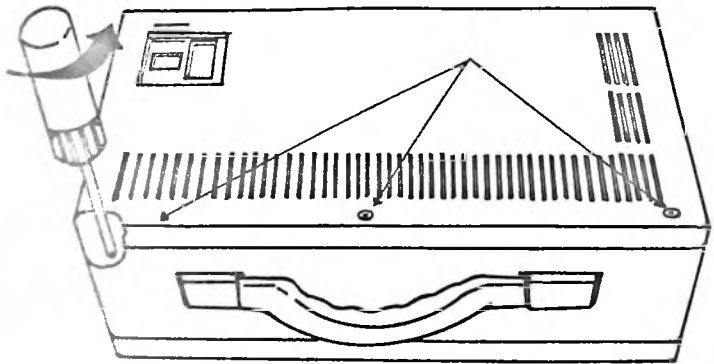


Figure 1

CHAPTER 3 HOW TO ASSEMBLE YOUR COMPUTER

- Section 1. Disassemble computer parts
- Section 2. Assemble Mother Board and LCD display
- Section 3. Assemble Handle and connect Indicator cables
- Section 4. Assemble power supply and disk drives
- Section 5. Final overcheck

SEC-1.

Put whole unit on a clean, flat surface with back cover facing up. Using a Philips-Head screwdriver unscrew the three screws on back cover. (fig. 1) Remove back cover from main unit. Unscrew and take out the LCD display card if it screw in the cabinet. Then unscrew all screws (5) holding drive bracket in place. Now remove the plastic hold that is at edge of drive slot and then slide drive mounting bracket out. (fig. 2)

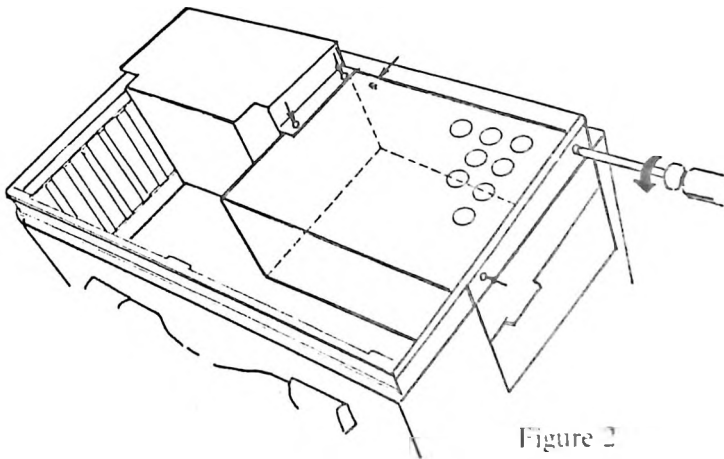


Figure 2

Now unscrew power supply and lift vertically out. (2 screws) (fig. 3) Next, unscrew 4 screws holding the handle and remove handle. (fig. 4) Look down vertically into the cabinet, unscrew 4 screws placed at the corners. This separates the metal housing from the plastic casing. Now put the unit vertically on its base and eject the LCD by pressing on the tilt button. Manually lift LCD to a 90 degree position. Look under LCD and unscrew the screw located at base of LCD. Now separate LCD, Plastic case and metal housing. (fig. 5)

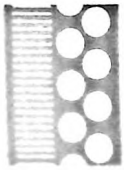


Figure 3

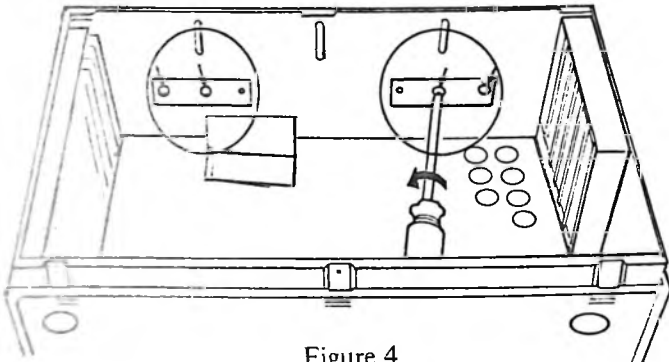
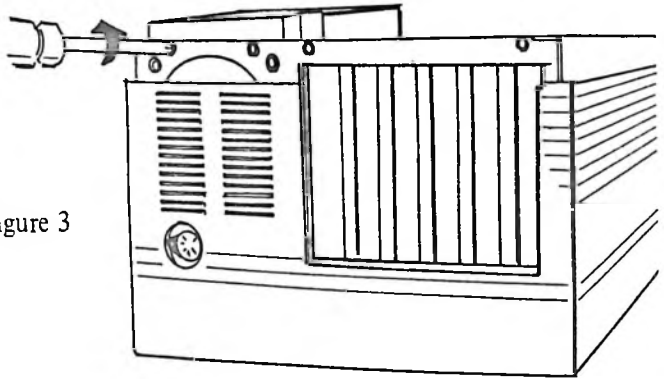


Figure 4

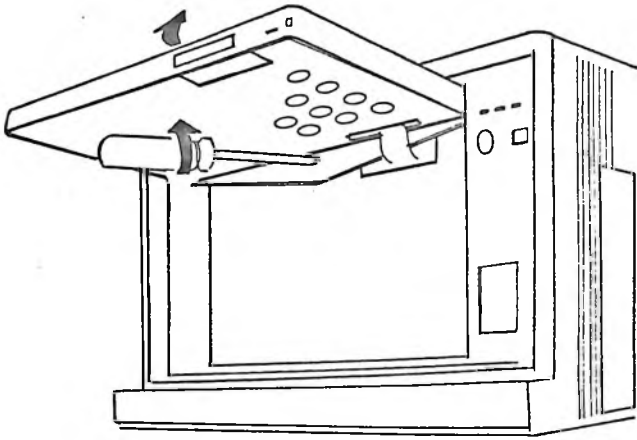


Figure 5.

SEC-2

Screw holes on the metal housing are adjustable to accommodate different boards. (fig. 6)

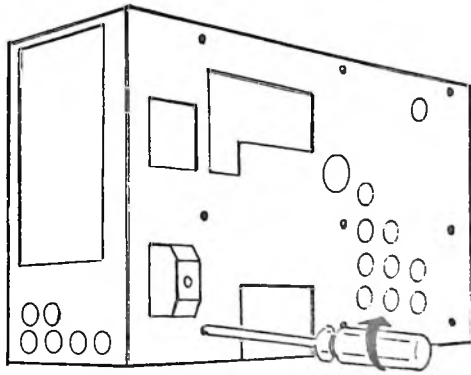


Figure 6

The unit should be on its base as in normal operating position. Look into the rear of the unit while facing the back. There are two cables leading from the LCD. The flat cable connects to the LCD display card while the smaller connects to the power supply. The metal housing comes with 9 stand-off screwed on. Put washers on each stand-off, aligne your motherboard on the washers. Before fixing the Motherboard make sure the cables go in from top of slot of metal casing along inner base and out at bottom. (fig. 7) Slide in keyboard extention jack between plastic cabinet and metal case before you put two case together. In the meantime pull out two LCD cable slowly. (fig. 8)

Figure 7

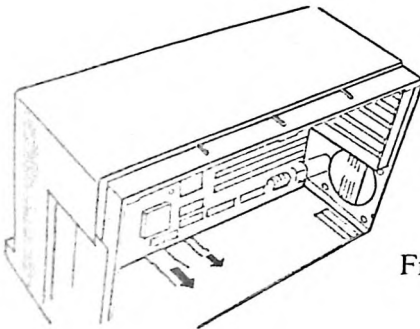
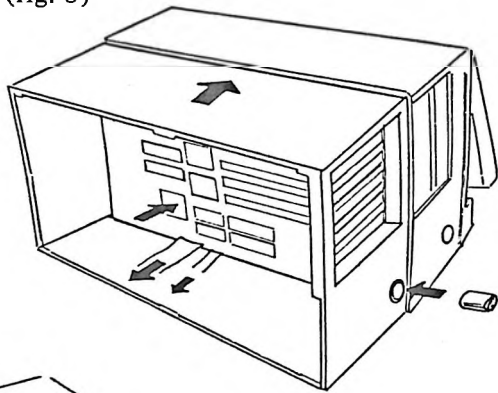


Figure 8

Now look at unit from front. Rescrew the LCD in its original position. Try LCD so that it can be tilted to 3 viewing angles without swinging back. If not, please adjust screw until optimum situation attained. Now push LCD back to vertical position until it clicks in lock and latch keyboard in place.

Now, lay down the cabinet also put 9 washers and then using a socket screw driver firmly screw the motherboard. The two cables are now under the motherboard. (fig. 9) Firmly 4 screws placed at the corners to combine metal and plastic case.

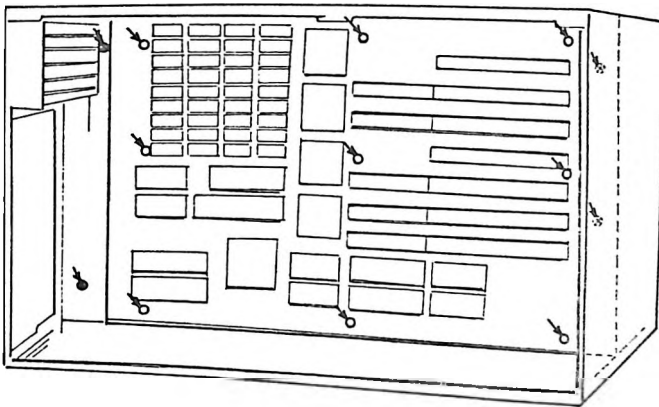


Figure 9

Also found at the top left corner are 3 small wires leading from LED indicators for POWER, HARDDISK and TURBO. These come into the metal housing through its top left slot.

SEC-3

Hook handle into metal end holders align the holds on the screw holes on cabinet. Firmly screw (4) screws in place from inside.

Looking down into the cabinet connect POWER-ON, TURBO and SPEAKER cables to the appropriate jumpers as per Motherboard manual. Make sure all connecting jumpers are in a horizontal flat position not vertical to avoid short circuiting with driver bracket. See (fig. 10).

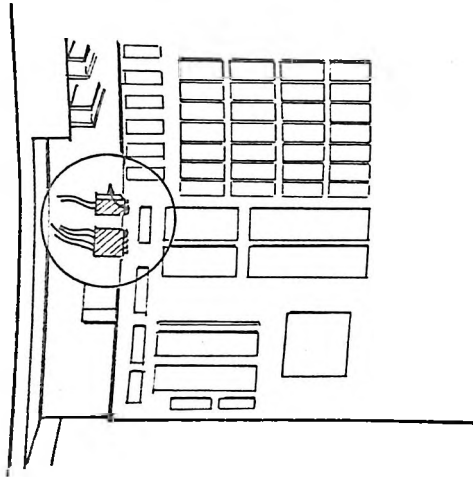


Figure 10

SEC-4

Power cords P9 and P8 go to the mainboard. Connect LCD power line to power supply. (fig. 11) (fig. 12) Slide power into place and screw firmly on sides. (2 screws)

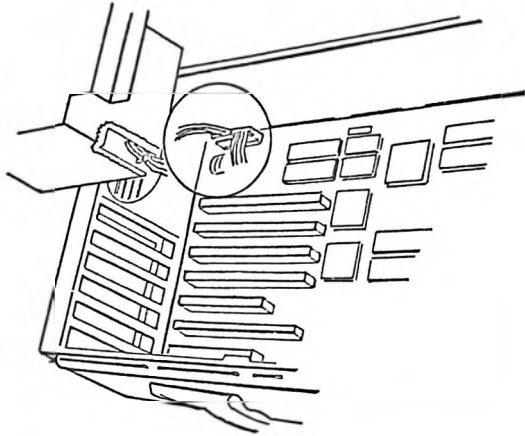


Figure 11

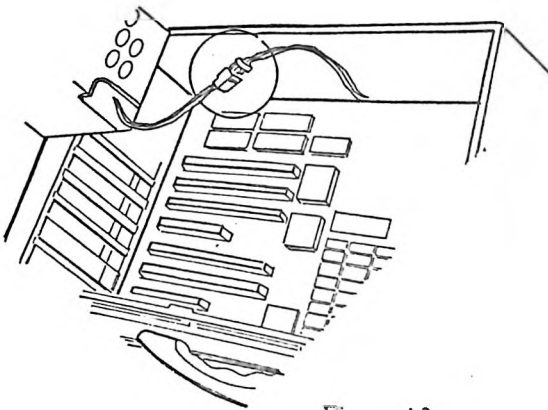


Figure 12

Now put drives in bracket so that drive near upper rear edge is drive A. Other is either B or C. Now slide in halfway. Connect power cables and controller cables. (fig. 13) Now slide in completely. Screw in halfway-back and side screws. Fit in plastic rim, when tightly fixed, screw tightly now. Connect Display card with red edge to pin 1 and slide into slot 4. (counting from handle). Into slot 3 firmly slide in Multi I/O or Hard Disk Controller as applicable. Please make sure cables are connected to cards before sliding into slot. Serial-Parallel card goes into slot 5. Firmly screw cards into metal frame. Finally fit back cover into rear by screwing into place. (3 screws). (fig. 14)

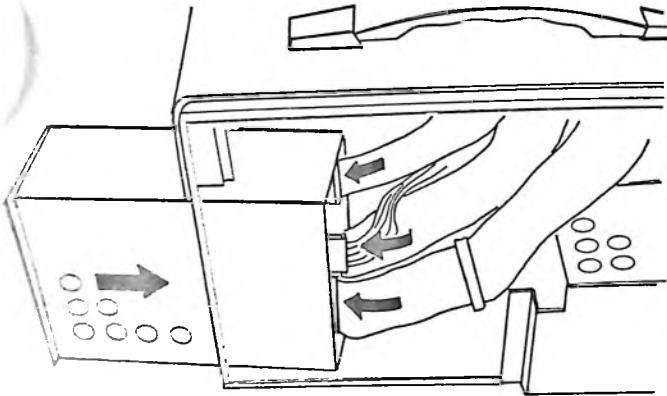


Figure 13

SEC-5

Shake unit to make sure no loose screws remain inside the cabinet. Carry unit by handle and swing. Unit should be compact and sturdy as before. You are ready to operate your system now. Open up LCD and connect as per operation manual. BINGO!!!-There goes your computer work. If it doesn't work, recheck the assembly procedure. If you still face problems check your Motherboard or other optional adapters. If fault lies with our product then contact authorized repair center.

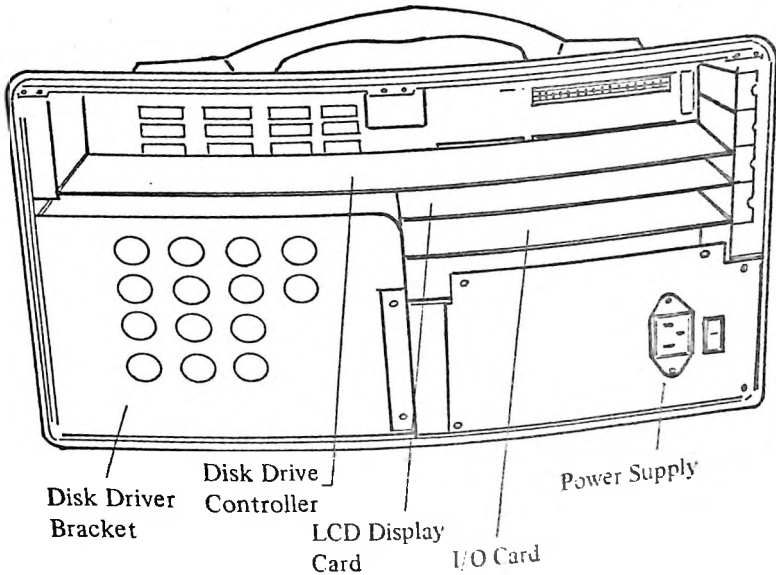
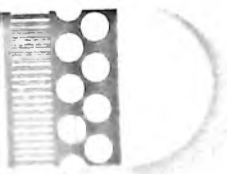


Figure 14



CHAPTER 4 SYSTEM SETTING UP

Setting up your Mother board:

1. For LCD display you have to default in color graphic mode
2. RAM size selection
3. System clock selection for Turbo mode
4. Default Wait state

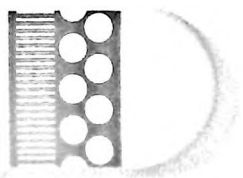
Setting up your LCD display card

1. System comes set up for LCD display adapter. Please recheck to make sure it's right. Pin 5 in ON position and the rest in OFF position.

For 2, 3, 4 please refer to your motherboard manual.

Setting up your keyboard

1. There is a jumper inside of keyboard at right up corner. Put the jumper on short position for 8088 compatible. Put the jumper on open position for 80286 or 80386 compatible.
2. If there is a switch inside of keyboard, put the switch on the left side for 8088 compatible. Put the switch on the right side for 80286 or 80386 compatible.



CHAPTER 5 APPENDICES

A. Power supply specification

Input requirement:

Input frequency	47 to 63 Hz
Input Voltage	Normal voltage 115 VAC/230 VAC
(Automatic Selected)	Voltage variation: 95 – 132/180-260
Inrush current	Full load, Cold start 115VAC/40 A. Peak Max 230 VAC/80 A. Peak Max
Regulator efficiency	65% min. at full load

Output Specification:

output	output range	ripple & noise	output current	
			min	max
+ 5V	+–5%	50 mVpp	3A	15A
+ 12V	+–5%	120 mVpp	0.2A	4.5A
– 12V	+–5%	120 mVpp	0A	0.5A
– 5V	+–5%	100 mVpp	0A	0.5A
– 17V	+–5%	150 mVpp	0A	20mA
+ 70VAC to 120 VAC rms				

Connector for mother board (P8 & P9)

pin	1	power protection	(green)
pin	2	+ 5V	(red)
pin	3	+ 12V	(blue)
pin	4	– 12V	(white)
pin	5	ground	(black)
pin	6	ground	(black)
pin	7	ground	(black)

pin	8	ground	(black)
pin	9	- 5V	(yellow)
pin	10	+ 5V	(red)
pin	11	+ 5V	(red)
pin	12	+ 5V	(red)

Connector for Disk Drives

pin	1	+ 12V	(yellow)
pin	2	ground	(black)
pin	3	ground	(black)
pin	4	+ 5V	(red)

Connector for LCD Display

pin	1	70VAC to 120VAC	(white)
pin	2	ground	(black)
pin	3	- 17V	(red)
pin	4	ground	(black)

B. LCD Interface signals

pin	Symbol	Function	Level
1	UD0	Display data for upper half of screen	H/L
2	UD1	..	
3	UD2	..	
4	UD3	..	
5	LD0	Display data for lower half of screen	H to L
6	LD1	..	
7	LD2	..	
8	LD3	..	
9	Vss	Ground	
10	CLP	Shift clock signal for display data	

11	LIP	Display data latch and common driver	H to L
12	FRMB	Liquid crystal AC drive control	H/L
13	FRP	Signal to indicate beginning of frame	H
14	CEO	Chip enable clock signal for segment	H to L
15	VDD	+5V power supply	
16	Vss	Ground	
17	VEE	Power supply for driving liquid crystal	
18	RVS	Reverse	
19	NC	no use	
20	NC	no use	

LCD Interface card (LD-200)

The LCD display card (LD-200) is designed to be used . 8088, 80286 and 80386 system. It provides the following main features:

1. To control many kind of LCD display and RGB Color monitor, or Monochrome monitor (TTL).
2. In Color mode:
 - TEXT : 40 x 25 characters or 80 x 25 characters
 - Graphics: Lower resolution 160 x 200 pixel by 16 colors
 - medium resolution 320 x 200 pixel by 4 colors
 - high resolution 640 x 200 pixel by black/white
3. In monochrome mode:
 - TEXT : 80 x 25 characters
 - Graphics: 720 x 348 pixels

Connection:

J1 : to connect a 20 pin flat cable to LCD display.

J2 : to connect color or monochrome monitor.

Setting the DIP Switch

(1) For LCD-286C series model (1/100 duty of LCD)

Pin 1	Pin 2	Pin 3	Pin 4	
ON	ON	ON	OFF	for LCD Display
OFF	ON	ON	OFF	for Color monitor display.

Pin 5. Normal/Single (to be used under color TEXT mode only)
OFF to select normal characters mode.
ON to select single characters mode.

Remark: single character means change all characters to more slim type.

For the monochrome monitor display please setting:

PIN 1	Pin 2	Pin 3	Pin 4	Pin 5
OFF	OFF	OFF	ON	ON

There is no single characters mode for monochrome display. Also please according to your motherboard manual to change display mode to monochrome display. Then reset-up the system again by Advanced Diagnostics program if it is 286 or 386 motherboard.

Pin 6. NC (no use)

Warning : The monochrome graphic (720 x 348) mode is only for monochrome monitor, may not be used in LCD display. Because resolution of LCD-286C series are different from monochrome monitor.

(2) For LCDA-286C series model (1/200 duty of LCD)

	Pin 1	Pin 2	Pin 3	Pin 4	
(a)	ON	ON	OFF	OFF	for LCD Display
(b)	OFF	ON	ON	OFF	for color monitor display

Remark : When you select line (b), it could be displayed on LCD and color monitor at the same time. If you want to display on LCD only, we would like to suggest you to select line (a) for a steady display condition.

Pin 5. Normal/Single (to be used under color TEXT mode only)

OFF to select normal characters mode.

ON to select single characters mode.

Remark : single character means change all characters to more slim type.

For the monochrome monitor display please setting:

Pin 1	Pin 2	Pin 3	Pin 4	Pin 5
OFF	OFF	OFF	ON	ON

There is no single characters mode for monochrome display. Also please according to your motherboard manual to change display mode to monochrome display. Then reset-up the system again by Advanced Diagnostics program if it is 286 or 386 motherboard.

Pin 6. NC (no use)

Warning : The monochrome graphic (720 x 348) mode is only for monochrome monitor, may not be used in LCD display. Because resolution of LCDA-286C series are different from monochrome monitor.

(3) For LCDB-286C series model (640 x 400)

Under the color graphics mode:

Pin 1	Pin 2	Pin 3	Pin 4
OFF	OFF	ON	OFF for LCD Display
OFF	ON	ON	OFF for Color monitor display

Pin 5. Normal/Single (to be used under color TEXT mode only)
OFF to select normal characters mode.
ON to select single characters mode.

Remark : single character means change all characters to more slim type.

Under the monochrome mode:

	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6
(a)	OFF	OFF	OFF	ON	ON	ON
(b)	OFF	OFF	OFF	ON	ON	OFF

line (a) for display on LCD.

line (b) for display on monochrome monitor.

There is no single characters mode for monochrome display. Also please according to your motherboard manual to change display mode to monochrome display. Then reset-up the system again by Advanced Diagnostics program if it is 286 or 386 motherboard.

Warning : It is not fully compatible when you select line (a) for display monochrome graphics (720 x 348) mode on the LCD. Because resolution of LCDB-286C series (640 x 400) are not big enough for monochrome graphics resolution. We would like to suggest you to use color graphics mode on this model.

