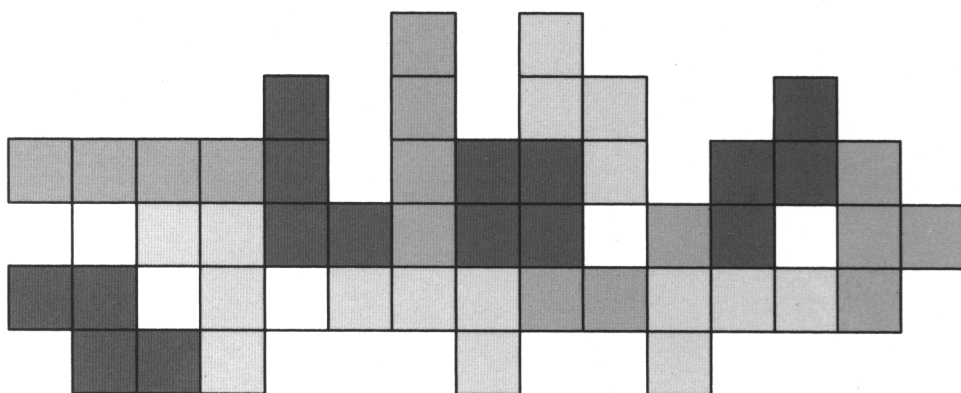


# USER'S MANUAL

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**AMB-541 Series**  
*14" Industrial Panel PCs*



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## About This Manual

The manual is made to help you understand how to set up and use the AMB-541 series industrial panel PCs with 14" flat panel display. It is divided into three chapters and three appendixes.

Chapter 1	gives you an overview of the panel PCs.
Chapter 2	tells you how they are basically constructed and what procedures you should take for system setup or upgrading.
Chapter 3	tells you how to maintain them.
Appendix A	shows a figure of dimensions of passive backplane.
Appendix B	gives detailed specifications of power supply used in them.
Appendix C	gives a picture of exploded diagram on them.

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**IMPORTANT** Before you start any of the actions, be sure that you have the correct version of the unit. So far the series has three versions named as AMB-541C, AMB-5411C, AMB-5411T, respectively. Please refer to the specification in section 1.3 for more details.

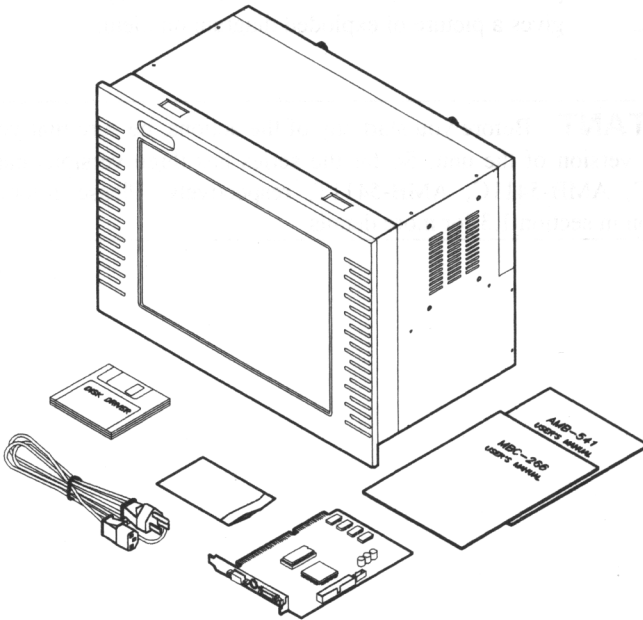
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## Packing List

About This Manual

Then you should also check if the package contains the following items. You should contact your dealer immediately if any of them is missing or damaged:

- One AMB-541 industrial panel PC with flat panel display
- One AMB-541 user's manual
- One power cord
- A pack of accessory for mounting
- Disk driver #1~3 for MBC-266
- One MBC-266 user's manual





# Chapter 1 Overview

## 1.1 General

The AMB-541 series industrial panel PCs specially designed for all the requirements for an industrial man-machine interface. They are equipped with a flat panel display which is 13.8" color TFT LCD(XGA) or 13.8" color D\_STN LCD(XGA) or 14.2" color D\_STN LCD(SVGA), 5-slot ISA/PCI passive backplane, MBC-266 PCI bus flat-panel/CRT control card, a universal 250W switching power supply (refer to Appendix B for options), disk drive housing for a 3.5" FDD, a 3.5" HDD, and a 5.25" FDD or CD-ROM, etc. All of them are enclosed with a zinc steel chassis and aluminum alloy front panel which meets the NEMA 4/12 industrial and environmental protection standards.

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**NOTE** Touchscreen or DC power supply is as optional to your order and ask for additional price table.

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It's very convenient for you to add or exchange cards by the rear cover turning the thumbscrews by hand to open/close it. Two VRs, a brightness VR and a contrast VR under the rear cover, can directly adjust the screen.

## 1.2 Features

- Zinc steel chassis and NEMA 4/12 painted aluminum front panel
- Compact size 13.8" color TFT(XGA) or 13.8" color D\_STN(XGA) or 14.2" color D\_STN(SVGA) LCD display
- Universal 250W switching power supply (or other options)
- 5-slot ISA/PCI passive backplane
- MBC-266 PCI bus flat-panel/CRT control card
- Panel mount
- A 30CFM cooling fan
- Three disk drive bays, one is for a 3.5" FDD, a 3.5" HDD and the other is for a 5.25" FDD or CD-ROM
- Hold-down clamp insulates cards against vibration
- Analog resistive or capacitive touchscreen (option)

## 1.3 Specification

- **General**

Construction: zinc steel chassis & NEMA 4/12 aluminum front panel

Disk drive housing: a 3.5" FDD, a 3.5" HDD, and a 5.25" FDD or CD-ROM

Cooling system: one 30 CFM fan

Dimension: 420(W) x 300(H) x 194.8(D) mm

Weight: 13 Kgs

- **Display Selection Table**

model	AMB-541C	AMB-5411C	AMB-5411T
Item	Color D_STN	Color D_STN	Color TFT
Diagonal	14.2"(SVGA)	13.8"(XGA)	13.8"(XGA)
Display area	291(H)x219(V)	281.5(H)x211.6(V)	279.6(H)x209.7(V)
Resolution	800x600	1024x768	1024x768
Colors	256	16	256

- **Passive backplane:**

5-slot ISA/PCI bus

4-layer PCB with power plane for reduction in noise and power impedance

LED power indications for +12V, VCC, -12V, -5V, +3.3V

- **Power supply**

(Refer to the selection table in Appendix B)

- **Environmental**

Operating temperature: 0°C to 45°C

Storage temperature: -20°C to 60°C

Relative humidity: 5 to 95%, non-condensing

Altitude: 10,000ft (3000 meters)

Vibration:

5 to 17Hz, 0.1" double-amplitude displacement

17 to 500Hz, 1.5G peak to peak

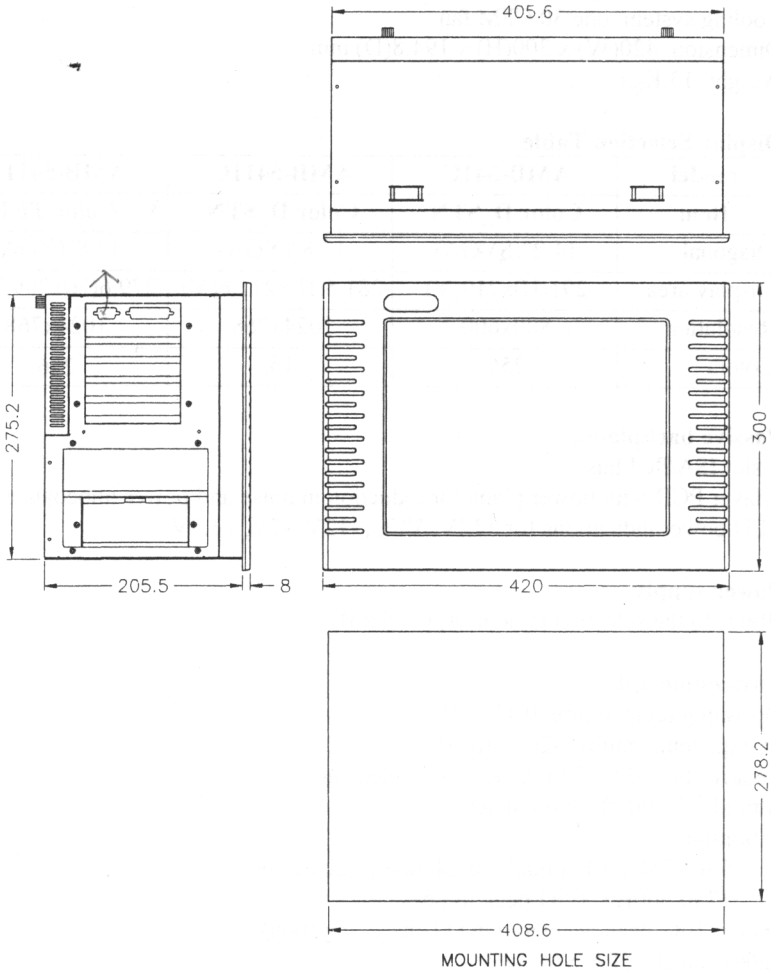
Shock: 10G-peak acceleration (11-msec. duration)

Safety: meets UL/CSA/TUV

EMI: meets FCC/VDE Class A

# 1.4 Dimensions

Unit: mm



## Chapter 2 System Setup

### 2.1 General

This chapter prepares you for your first steps to know the AMB-541 series basically constructions. You will learn how to setup this system and your applications step by step. Follow the steps presented in each section to install CPU card, display card, control card and other I/O cards you need, disk drives, and to mount it onto a panel. As regards quality, you can make assurance doubly sure because we have set them up and tested them at our factory before they were shipped.

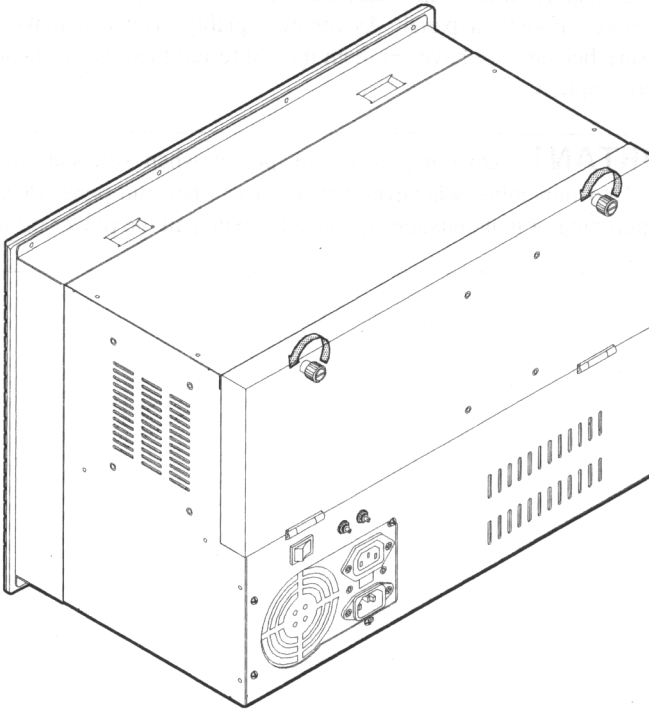
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**IMPORTANT** Do not plug in any power when you start to setup the system. Also remember whenever you want to open the panel PCs again for either upgrading or maintenance you have to switch all the power off and unplug them.

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## 2.2 Open the back cover

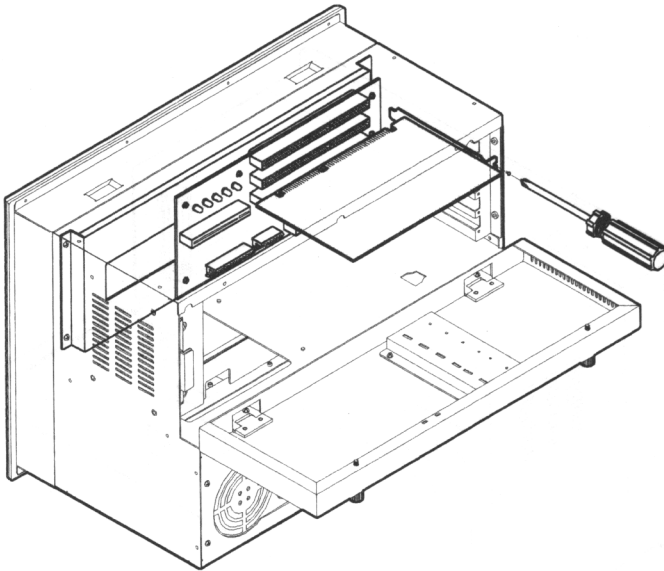
The back cover is fastened to the chassis with two thumbscrews at the upper side and two hinges at the lower. To open it you need only to unfasten the two thumbscrews and draw the cover out. Then you will see the hold-down clamp across the inner side of the back cover, MBC-266 flat-panel/CRT control card, passive backplane, power supply, and cooling fan only.



## 2.3 Install add-on cards

There are 5 slots on the passive backplane, but for the sake of saving them you should basically install an all-in-one SBC and the flat-panel/CRT display control card which comes with the chassis before taking up any of other I/O cards. Steps for installing are:

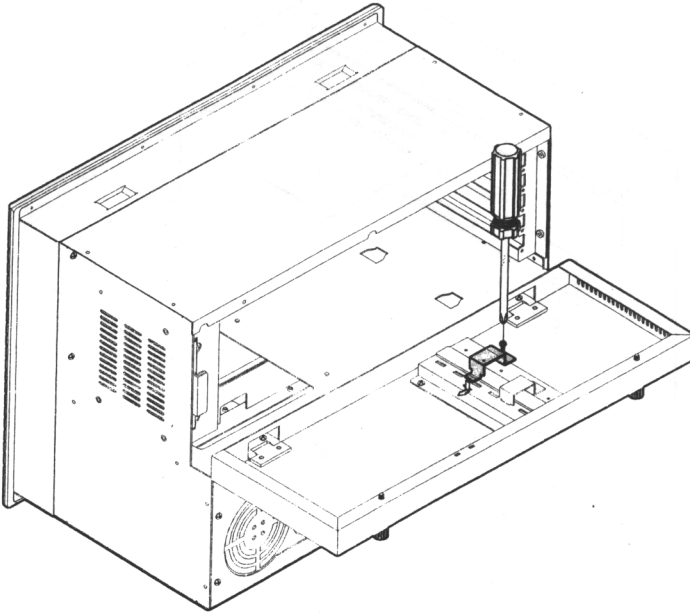
1. Take up a card and slide it slowly into a slot until its gold finger goes well down a groove on the securing panel.
2. Match the screw hole on the bracket to the one on the groove and drive a screw to tighten through.



## 2.4 The hold-down clamp

Looking to the inner side of the back cover you can see a clamp with a long rubber band going down it. This is to hold any AT cards you might have installed on the passive backplane. Looking into the accessory box you will also see five small clamps with a rubber pad fixed on them. They are for you to install them on the big clamp to hold any XT cards you might have installed on the passive backplane.

To install the small clamps, slide one end of them into a slit along the long rubber band, then match the screw hole on the other end with the screw hole on the big clamp, and drive a screw through.

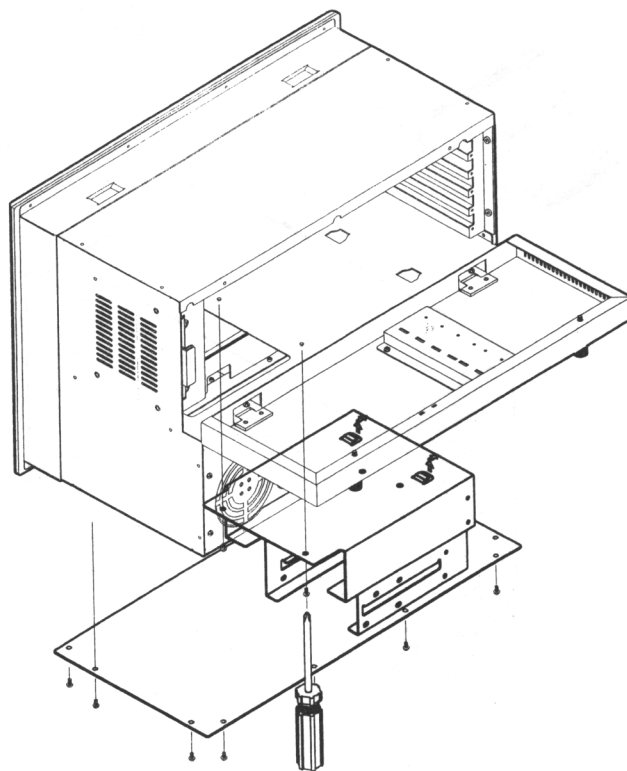




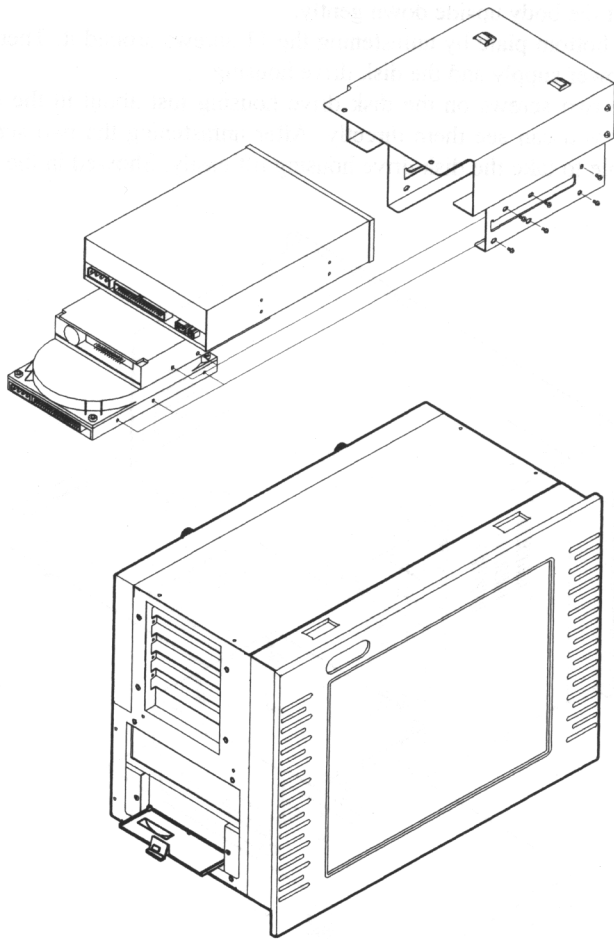
## 2.5 Install disk drives

There is a disk drive housing with three bays that can accommodate a 3.5" FDD, a 3.5" HDD and a 5.25" FDD or CD-ROM. To install disk drives, you should follow the steps:

1. Please put the body upside down gently.
2. Open the bottom plate by unfastening the 11 screws around it. Then you will see the power supply and the disk drive housing.
3. There are two screws on the disk drive housing just about in the middle of body that you can see them directly. After unfastening the two screws, you will be able to take the disk drive housing off easily. Showed in the following figure.



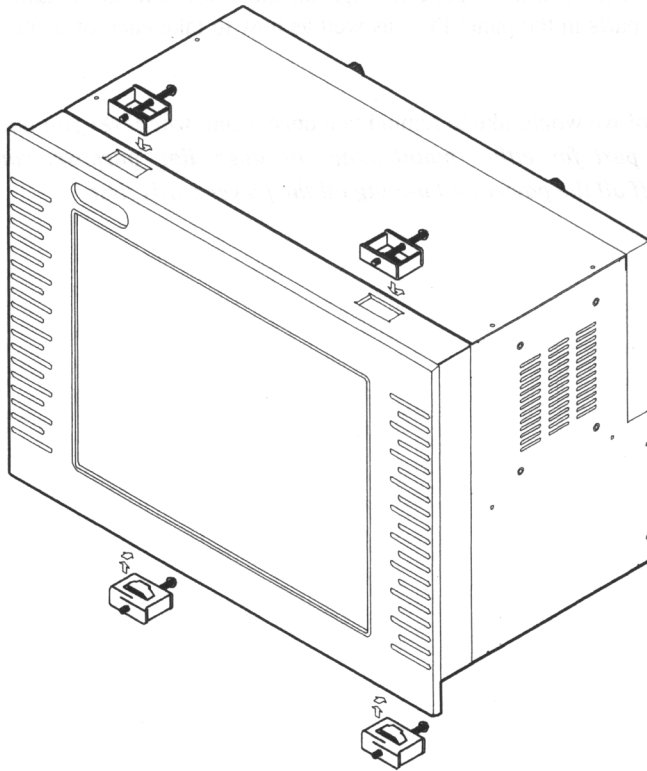
4. As the following figure, the top is for a 5.25" FDD or CD-ROM, in the middle is for a 3.5" FDD and the bottom is for a 3.5" HDD and finally installed all disk drives by fastening the screws around its bay.
5. Take the back actions described above to assemble it. The floppy disk drive is in the latch door where on the left side. Pull the latch door when you want to use it.



## 2.6 Panel mounting

The panel PCs can be mounted onto a control panel within an aperture (see the dimensions in section 1.4). The mounting steps are:

1. Set the chassis within the aperture.
2. Slide the mounting kits into the slots on the top and bottom of the chassis.
3. Drive the screws on the kits tight against the control panel until a hooklike click on the kits firmly stuck.



## Chapter 3 Maintenance

### 3.1 General

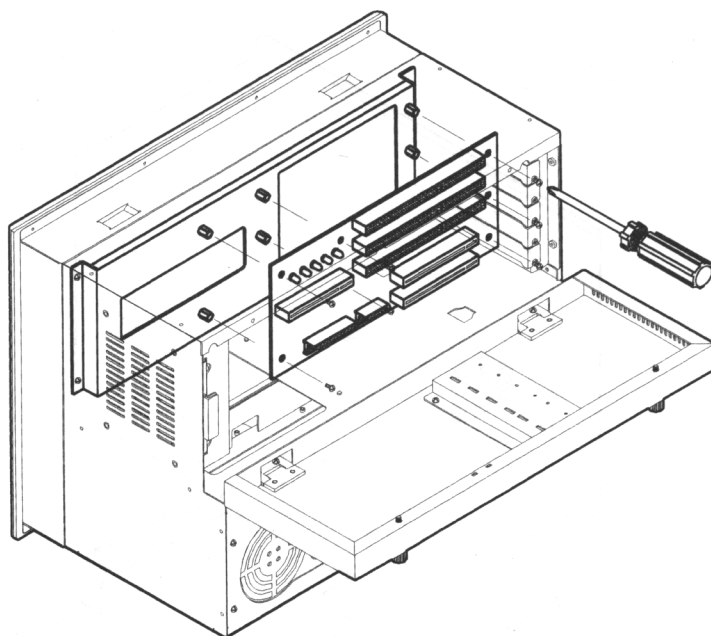
Now you have known how to set up the panel PCs for operation, hereafter we shall tell you how to maintain them during the operation. There are other essential parts which we haven't mentioned of so far but you will need to know them sooner or later during the operation for the purpose of either maintenance or upgrading. In the following sections they will be introduced to you one by one, and after you have gone through all them you will know almost all the essential parts in the panel PCs, as well as how to take each of them down and put back.

But hereof we would like to remind you once again: ***whenever you need to take down a part for either maintenance or upgrading purpose, you should switch off all the power and unplug all the power cords first***

### 3.2 Passive backplane

As we said in section 1.1 the panel PCs each come with an ISA/PCI-bus 5-slot passive backplane. For the purpose of either maintenance or upgrading please follow the steps described herebelow to take the backplane off.

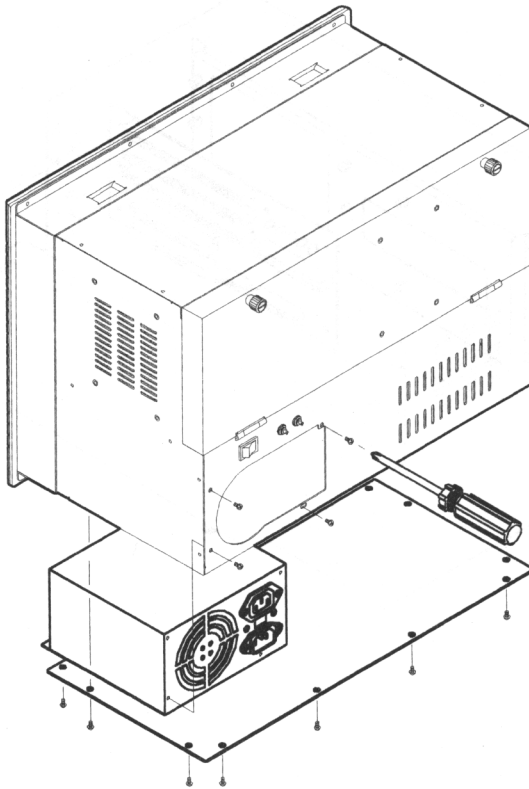
1. Remove all the add-on cards and connecting cords on it.
2. Unfasten the 7 screws which was fastened behind the bracket.



### 3.3 Power supply

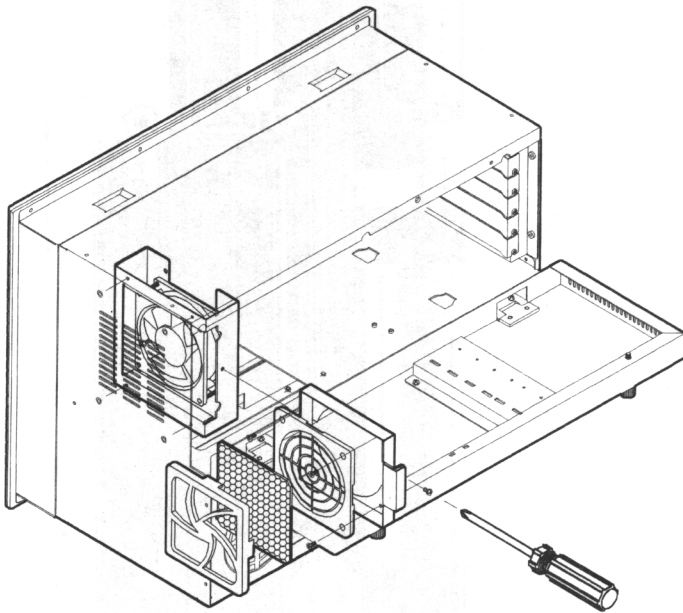
A universal 250W switching power supply is provided in the panel PCs (for other options please refer to Appendix B).

1. Please put the body upside down gently.
2. Open the bottom plate by unfastening the 11 screws around it. Then you will see the power supply and the disk drive housing.
3. Disconnect all the related cables on it.
4. Unfasten the four screws you can see around the power supply's cooling fan and you can start either maintenance or upgrading work.

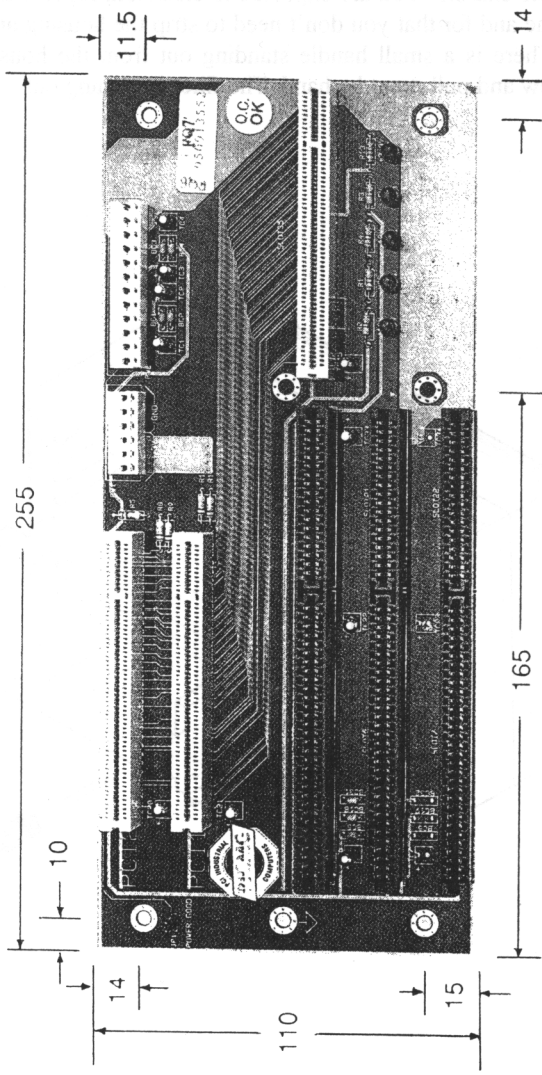


### 3.4 Cooling fan

A 30 CFM fan is installed within a housing to keep the working temperature inside of the chassis. You are expected to clean and replace the filter in it from time to time and for that you don't need to strip the housing and take the whole unit off. There is a small handle standing out from the housing, unfasten the single screw and pull it out by hand. The filter is coming out.



# Appendix A Backplane's dimensions





## Appendix B Power supply specification

Power supply constitutes an essential part of the panel PCs, so we make this section to let you know more about the power supply used in them. It is a universal 250W AC switching power supply (default).

### Industrial Features:

- 85-265VAC input voltage
- 47-63Hz and 440Hz input frequency
- 100% equipped “NIPPON CHEMI-CON” super high reliability aluminum electrolytic capacitors
- 60KHz switching frequency control IC inside
- 0-55°C operating temperature
- High reliability “Ball Bearing” cooling fan
- High precision and stable DC outputs for long term operation

### General Specifications:

*Ripple and Noise:* The peak to peak ripple and noise for +12V is less than 140mV. The other outputs are less than 1% of each output voltage at rated load. Measurement is done by 15MHz band width limited oscilloscope and terminated at each output with a 47 uF capacitor.

*Line Regulation:* The output line regulation for +12V is less than +/-2%, for other outputs are less than +/-1% while measuring at rated load and +/-10% of input voltage changing.

*Load regulation:* The output voltage load regulation is less than the values in the following table by changing each output load +/-40% from 60% rated load, and keep all other outputs at 60% rated load.

Output # +5V: +/-3%	+12V: +/-5%
-5V: +/-1%	-12V: +/-1%

*Hold-up Time:* Hold-up Time is 16ms typical by measuring from the last AC line changing pulse to the point that +5V drop down to +4.75V

**Output Protection:** The built-in over voltage protection circuit will shut down the outputs to prevent damaging external circuits. The trip point of crowbar circuit is around 5.9V to 7.0V. The power supply will go into hiccup mode against short circuit or over load conditions, and will auto-recovery while faulty conditions are removed.

**Efficiency:** The efficiency is higher than 73% by measuring at normal line and rated load.

**Safety:** Designed to meet the following standards

- UL 478, 1012, 1950 D3
- TUV EN60 950
- CSA 22.2 No. 234

**EMI:** Designed to meet the following standards

- UL 1950 D3
- TUV EN60 950
- CSA 22.2 No.234

**Operating Temperature:** 0°C to 55°C

**Storage Temperature:** -40°C to 75°C

**Selection Table**

Input/Output spec. at 40°C

Model	Input voltage	Max. Output Current			
		+5V	+12V	-5V	-12V
Universal 250W	85-265VAC	24A	10A	0.5A	0.7A
-48VDC 250W	-40 to -65VDC	25A	8A	1A	2A
24VDC 250W	18-30VDC	25A	6A	1A	2A
12VDC 160W	8.5-16VDC	20A	4A	0.5A	0.5A

## Appendix C Exploded diagram

