I. Before the service

I-1. General Notice

DANGER

The EIZO products contain high voltage circuit. Only experienced service personnel should perform repairs or service work on high voltage monitors.

When the cabinet of the product is removed and the product is operating, there is a risk of an electric shock hazard.

WARNING

1) **Unplug the power cord before servicing.**

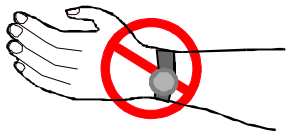
   Operation of the product with the cabinet removed involves a shock hazard or may result in a damage of the circuit. Ensure the power cord is disconnected before removing the cabinet and replacing any parts in the unit.

2) **Connect the earth lead of the power cord with the ground.**

   Securely connect the earth lead of the power cord of the products and the measuring equipment. There is a risk of the electric shock hazard or damage.

3) **Do not wear any metal or accessories.**

   There is a risk of an electric shock.



Perform the inspection of the measuring equipment before service work.

Before starting daily service work, perform the inspection of the measuring equipment and record its results.

I-2. Handling of Electric Parts

⚠WARNING

Replace only with the exact factory recommended spare parts.

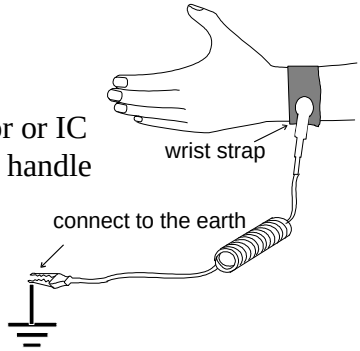
The use of unauthorized substitute parts may cause an electric shock, damage to the monitor, or may exceed the specified X-ray radiation. Please refer to the below notice* regarding the handling and keeping method of the electric parts.

• Safety related parts	Parts List:	"S"	Circuit Diagram : "⚠"
• X-ray related parts	Parts List :	"X"	Circuit Diagram : "★"
• Anti-static related parts	Parts List :	"A"	
• Moisture protection related parts	Parts List :	"M"	

* Notice at handling and keeping the electric parts

1. Anti-static related parts

In order not to damage or lower the performance of the transistor or IC by the electrostatic from the body, wear the wrist strap when you handle the anti-static semiconductor.



The usage of the wrist strap

(1) Wear the wrist strap tightly at the wrist. (right or left)

(2) Connect the earth and alligator clip.

2. Moisture protection related parts

1) Unopened

Handle with care in order not to damage or pick with the sharp edged tool. The SMD stocker (moisture-proof depository) is recommended for the keeping. The normal temperature (below 30 °C) and humidity (below 70 %) is also acceptable if it is packed with moisture-proof method. The keeping term is max one year. When using the moisture protection parts, confirm the silica-gel enclosed with the parts shows blue. If it is absorbed, it shows pink or clear.

2) Opened

Once it is opened, keeping in the SMD stocker is recommendable. The keeping term in the stocker is maximum 6 months. If the SMD stocker is not available, the parts must be used within 4 days under the normal temperature (below 30 °C) and humidity (below 70 %).

3. F.B.T and keeping term instructed parts from the maker

They must be kept as the following condition in order not to lower the performance of the parts due to the long-term stock. The parts which expire the keeping limit must be disposed.

Parts	Packing	Keeping terms (after the production)
F.B.T (or the PCB Unit which equips the F.B.T)	Normal	15 months
	(Moisture protection packing moisture-proof aluminum bag with enclosing silica-gel)	8 years
Keeping term instructed parts	Normal /Special	Due to maker's instruction* *Instructed by updating this manual.

I-3. Handling of the CRT

WARNING

1) **Replace with a CRT of the same type number for continued safety.**

The CRT used in the monitor employs integral implosion protection.
If the CRT is replaced with a different type, it will result in an improper circuit function, exceed the specified Safety Standards range, or affect the picture quality guaranteed in the specifications.

2) **Take care not to scratch the coating of the Degauss Coil.**

Degauss Coil circuit is on the primary voltage line. It can result in a hazardous fire or electric shock. Follow the instructions below.*

*1) The Degauss Coil has a current of 5~10A. When the coating of the Degauss Coil is damaged and the Coil directly touches the chassis or screws, the chassis voltage will become the same as the primary voltage line. This can result in hazardous danger as follows.
   (1) Electric Shock
   (2) Short (Current Leakage)
   (3) Degauss does not work
   (4) Circuit Damage
   (5) Damage of connected computers or peripherals

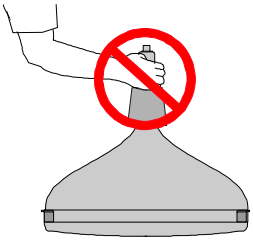
2) After the work is done, make certain that there are no damage on the coating of the Degauss Coil.
   (1) The Degauss Coil is set in the specified place.
   (2) The Degauss Coil does not touch the shields, screws, or other conductive sharp edges.
   (3) The Degauss Coil is not pushed or pressed.

3) To prevent these hazards, carry out the "Safety Test" on the beginning of this manual.
   (1) Earth Continuity Test
   (2) Withstanding Voltage Test

CAUTION

Do not lift the CRT by the neck.

The neck of the CRT is not firm enough to hold the entire CRT. Hold the CRT under your arms when lifting it. In case the CRT is dropped, it could result in injury.

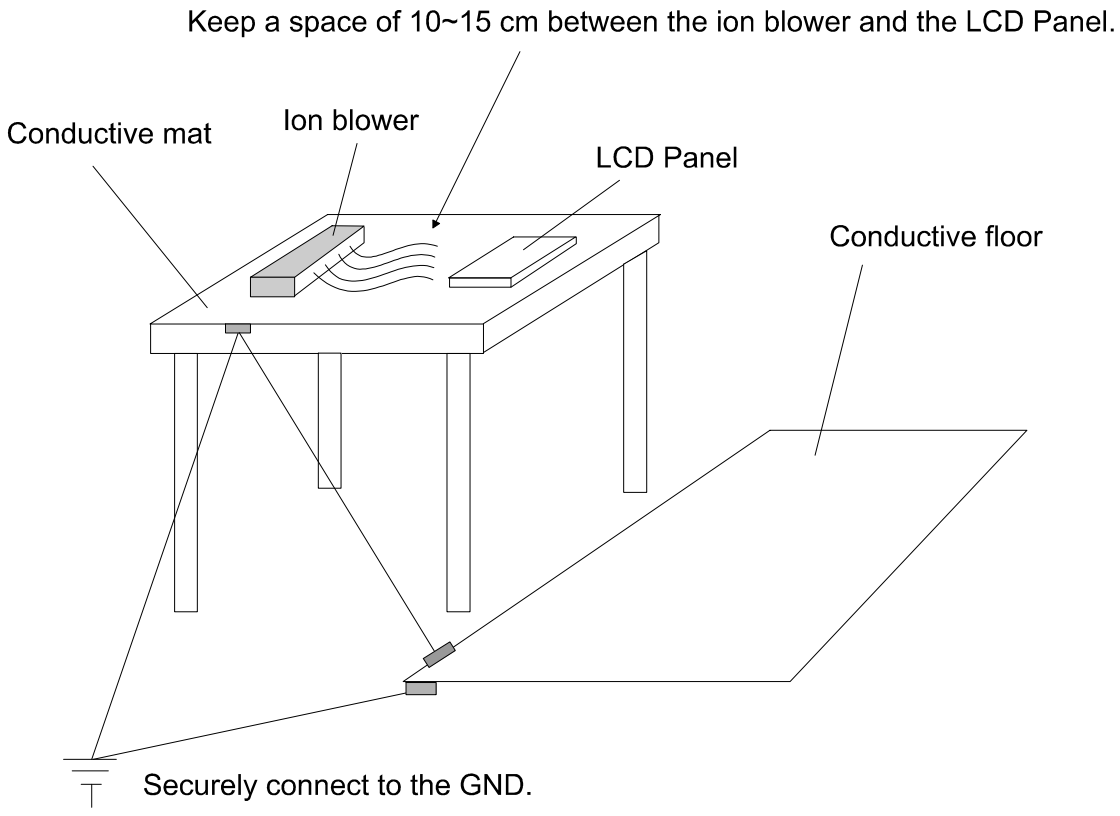


I-4. Handling of the LCD Panel

When servicing LCD, follow the instructions below for anti-static measures because LCD panel is weak for static electricity.

1. Places for Servicing

1) Conductive floor (Recommended resistance value: 1×10^{5}-$1\times10^{8}\Omega$)
   *We recommend you to clean and measure the floor twice a year and wax (conductive) once a year.
2) Conductive mat (Recommended resistance value: 1×10^{6}-$1\times10^{8}\Omega$)
3) Anti-static parts box (Recommended resistance value: 1×10^{5}-$1\times10^{8}\Omega$)
4) Ion blower
   * Recommended method: AC
   * Control the speed of the blower. This may cause an unbalance of ion.
   * The ion blower may deteriorate due to dirt or moisture if it is used for long periods. Please clean it once a week.



2. Wear for Servicing

1) Wrist strap (Recommended resistance value: 5×10^5-$1\times10^7\Omega$)

⚠WARNING

Use a wrist strap with 5´10^5-1´10^{7}W resistance for protection.

When using a wrist strap without resistance, there is a risk of an electric shock.

2) Conductive shoes (Recommended resistance value: 1×10^5 - $1\times10^8\Omega$)
*1×10^6 or less is desirable.

3) Anti-static wear

3. Servicing Environment

Keep the room temperature at 18-24°C and the humidity between 50-80% RH.

I-5. Handling of the PDP Panel

⚠WARNING

Replace with a CRT of the same type number for continued safety.

If the CRT is replaced with a different type, it will result in an improper circuit function, exceed the specified Safety Standards range, or affect the picture quality guaranteed in the specifications.

⚠CAUTION

1) Handle with care when touching the PDP panel for it is fragile.

Please be careful when touching the PDP panel because the panel is made by glass. An impact to the panel may break the glass and get injured.

2) Use the correct battery when replacing it.

Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

I-6. Handling of the Projector

⚠WARNING

1) **<u>Do not replace the lamp immediately after using the projector.</u>**
The lamp is very hot immediately after using the projector so that you may suffer burns.

2) **<u>Place the drawing wiring and clamping in the original location.</u>**
It is very dangerous to approach the internal wiring around the heat part or high voltage part. It may cause a fire.

3) **<u>Execute the safety check.</u>**
Confirm whether the screw and parts detached for the repair are returned to the original location.
Check whether there are no abnormalities around the repaired part.
Referring to the following method of leakage current check, execute it and confirm whether safety is secured.

I-7. Handling of Solder Works

⚠ CAUTION

Do not press the FS jumper with soldering iron for long hours.

This will cause melt of solder on the PCB parts side and connection with pattern may be incomplete. After soldering, check the solder part on the other side.

1. About solder and solder iron

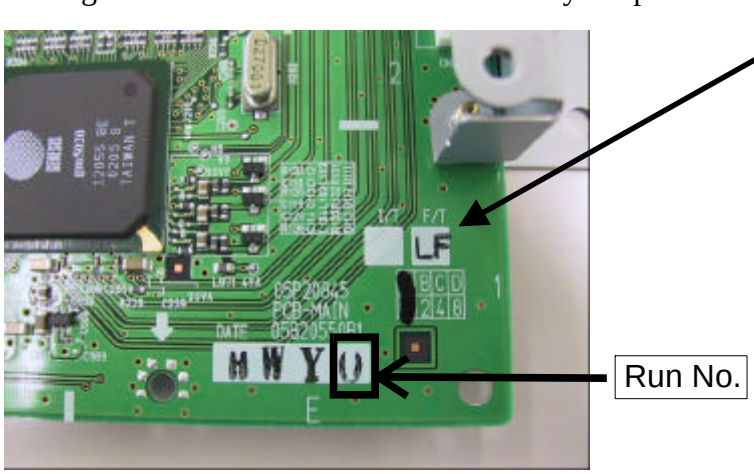
The soldering conditions are as follows: In order to keep the performance of the iron, perform the daily or periodical inspection of the iron. (check the point temperature of the iron is 340~375°C.)

Solder temperature	340°C~375°C (temperature of tip)	
Solder iron (Watt)	Chip/Discrete component	Less than 60w
	Radiator	50~100W
Soldering time	Chip/Discrete component	Less than 3 seconds
	Radiator	Less than 6 seconds
Solder kind	(1) Thread solder with lead of over A class between Sn55% and Sn63%.	
	(2) Thread solder with lead-free solder of Sn-3.0Ag-0.5Cu (Chip: ∅0.6 mm or less , Discrete: ∅1.2 mm or less) But, do not use, mixing the thread solder with lead-free solder and thread solder with lead.	
Spec of soldering iron	(1) The heater should be the ceramic heater.	
	(2) Soldering iron must be connected to a ground main outlet.	
	(3) When using the lead-free solder, tip should be lead-free solder use only.	
Recommended iron	HAKKO Corp. Mach 1 No.921	
	HOZAN HS-25	

2. About PCB of lead-free solder

2-1. How to distinguish

PCB of lead-free solder has mark of "LF" in the F/T column of the PCB. Therefore, please distinguish lead solder or lead-free solder by the presence of the “LF” mark of PCB.



2-2. How to repair

Please repair according to the following instruction.

PCB	How to repair
PCB of lead-free solder	Please repair with the lead-free solder. * Do not use the lead solder. If you use the lead solder by mistake, please execute soldering with the lead-free solder newly after removing the lead solder.
PCB of lead solder	Please repair with the lead-free solder. *Both lead solder and lead-free solder can be used. But, please change the lead solder to the lead-free solder by March, 2005. **Purpose** -The use of lead solder is prohibited after January 1, 2006. - Environmental protection **Please use lead-free solder after removing all the lead solder when you use lead-free solder.**

Code no. of lead-free solder

Code no.	Name	Description
00N0J074A1	Thread solder	RMA98-SUPER-P3-M705-0.5 Pb free
00N0J076A1	Thread solder	RMA98-SUPER-P3-M705-1.0 Pb free

2-3. How to solder and use the soldering iron

1) Sharing use of the soldering iron for both lead solder and lead-free solder is improper. Therefore, please use the soldering iron separately for lead solder use and lead -free solder use. (It is acceptable to use the soldering iron by changing the tip of the iron.)
2) It is acceptable that the tip temperature of the soldering iron for lead-free solder is 340~375°C same as the case of the lead solder, but absorbability of the solder is not enough because the melting point of the lead-free solder is high. Therefore, please be careful that the tip does not press against the parts portion. Especially, since the chip part has been easily influenced by the heart at soldering, please be careful that the tip does not touch against the main body of the chip. Please finish soldering within 3 seconds.
3) Please perform cleaning of the tip by using the wet sponge as usual.
4) Please use the desoldering tool as usual when removing the parts.
(It is not necessary to separate the desoldering tool for lead -free solder and for the lead solder.)
5) Lead-free solder makes the abrasion of tip severely.
Therefore, the deterioration of tip is hastened by the method of handling.
In order to prevent the tip from being oxidized, please keep solder iron (tip) according to the undermentioned procedure.
    1. Clean the tip after using.
    2. Add new solder to tip again and make the film with solder.

I-8. Handling of the Batteries

⚠ CAUTION

Handling the batteries with care.

1) Do not disassemble, heart, or throw the provided battery in water. Doing so may result in the battery's explosion.

2) Install/change battery in a correct way. Not doing so may result in the battery's explosion.

3) When changing the battery, please use new and the same kind of batteries.

4) Insert batteries so that the plus (+) and minus (-) sides are aligned according to the markings in the battery case.

5) Dispose of your battery in a designated disposal area.