



UNDERCOUNTER REFRIGERATOR/FREEZER

INSTRUCTION MANUAL

RTL-106MC _ _ * **
RTL-108MC _ _ * **
RTL-146MC _ _ * **
RTL-148MC _ _ * **
RTL-186MC _ _ * **
RTL-188MC _ _ * **
FTL-106MC _ _ * **
FTL-108MC _ _ * **
FTL-146MC _ _ * **
FTL-148MC _ _ * **
FTL-186MC _ _ * **
FTL-188MC _ _ * **

* : S, SG, SSG,
S-ML, P, PG, PSG,
P-ML

** : 1D,2D,3D,4D,
5D,6D,7D,8D,9D,
ST,GN,PR,PRS,P,
R,E

- This booklet is an integral and essential part of the product and should be kept and preserved by the user.
- Please read carefully the guidelines and warnings contained herein as they are intended to provide the installer/user with essential information for the proper installation and the continued safe use and maintenance of the product.
- Please preserve this booklet for any further consultation that may be necessary.

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L1T471101 (042426)

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IMPORTANT SAFETY INFORMATION

Throughout this manual, notices appear to bring your attention to situations which could result in death, serious injury, or damage to the unit.

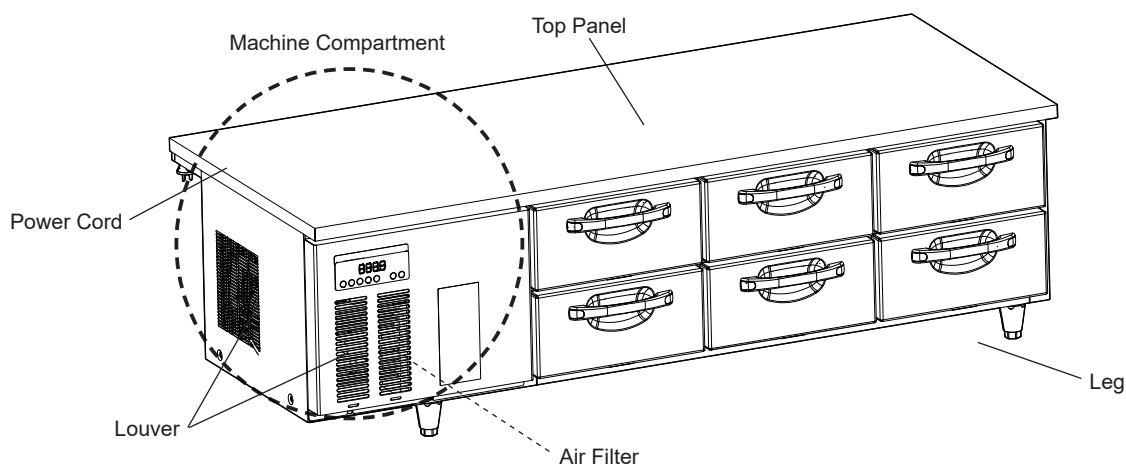
⚠ WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE	Indicates a hazardous situation which, if not avoided, could result in damage to the unit.
⚠ HYGIENE	Indicates important precautions for hygiene and food safety.
IMPORTANT	Indicates important information about the use and care of the unit.

IMPORTANT	
1.	This is a commercial refrigerator/freezer intended to be used in household and similar applications such as: - staff kitchen areas in shops, offices and other working environments; - farm houses and by clients in hotels, motels and other residential type environments; - bed and breakfast type environments; - catering and similar non-retail applications. Any other use should be considered improper and therefore dangerous. The manufacturer will not be held liable or responsible for any damage caused by improper, incorrect and unreasonable use.
2.	This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Young children should be supervised to ensure that they do not play with the appliance.
3.	This product should be installed by professionals before use.

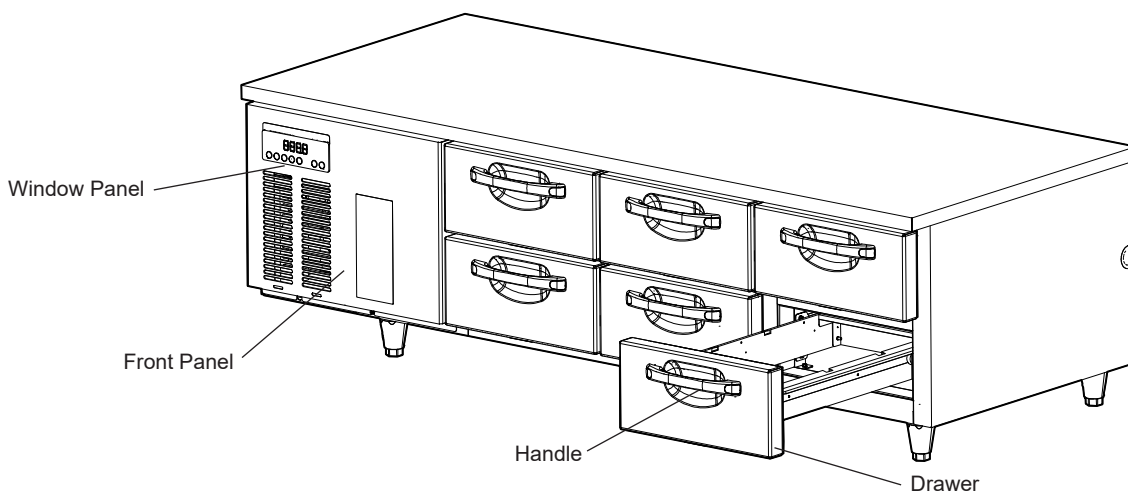
ENGLISH

I. INSTALLATION INSTRUCTIONS

1. CONSTRUCTION

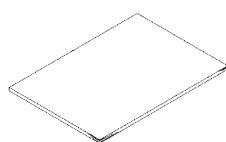


* The figure shows RTL/FTL-188MC

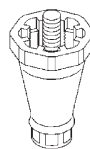


2. ACCESSORIES

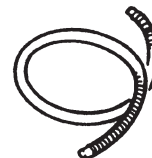
Model Number	106/108	146/148/186/188
Instruction Manual	1	1
Leg	5	4
Flexible Hose	1	1
Elbow	1	1
Cable Strap	3	3
Hose Clamp	2	2



Instruction Manual



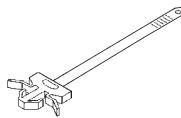
Leg



Flexible Hose



Elbow



Cable Strap



Hose Clamp

3. UNPACKING

⚠ WARNING

Children should not be allowed in reach of the packaging elements (plastic bags and expanded polystyrene) as they are potential sources of danger.

⚠ CAUTION

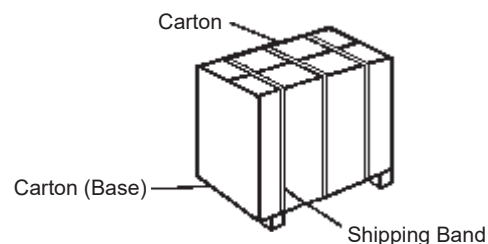
Do not lift or manoeuvre the carton by using the shipping bands.

When moving the unit by hand, hold the unit bottom.

Always wear protective gloves when carrying the unit.

When handling the carton or the unpacked unit, work in pair to prevent injury.

- 1) Cut the shipping band and remove the carton.
- 2) Make sure that the refrigerator/freezer is in good condition. If in doubt, please do not use the refrigerator/freezer but apply to professionally qualified personnel.
- 3) Remove the shipping tape holding the drawers and front panel.
- 4) Remove the protective plastic film from the exterior. If the refrigerator/freezer is exposed to the sun or to heat, remove the film after the refrigerator/freezer cools.
- 5) Remove the package of accessories. Check the contents according to "2. ACCESSORIES".



4. LOCATION

⚠ WARNING

This refrigerator/freezer is not intended for outdoor use.

This appliance is not suitable for installation in an area where a water jet could be used.

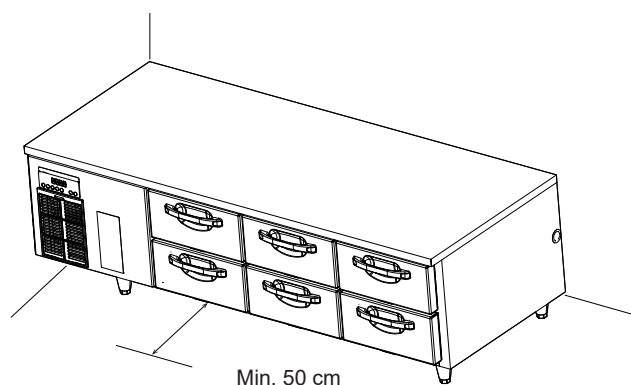
⚠ CAUTION

The location should provide a firm and level foundation for the refrigerator/freezer.

IMPORTANT

Normal operating ambient temperature should be within 5°C to 38°C. Operation of the refrigerator/freezer, for extended periods, outside of this normal temperature range may affect cooling performance.

Allow at least 50 cm clearance between the front panel air inlet/outlet and the wall or other equipment for proper air circulation. The front of the unit should have enough space for smooth adjustment of the cabinet temperature. If the ambient temperature can exceed 38°C, allow at least 10 cm clearance from the wall at the side of the machine compartment to prevent overloading and damaging the refrigeration circuit.



In some high humidity environments, condensation may form inside the machine and drip onto the floor. Do not install where the floor can be affected by water. Especially, a side-by-side or back-to-back installation (possibly with other manufacturer's unit) may cause condensation between the two units, resulting in dripping onto the floor.

Do not expose the unit to direct sunlight or higher temperatures.

5. INSTALLATION

⚠ CAUTION

Incorrect installation can cause harm to people, animals or other items, for which the manufacturer cannot be held responsible.

NOTICE

To prevent damage to the drain pipe at the bottom, do not place the unit directly on the floor before mounting the accessory legs.

Do not tilt the unit more than 45° when mounting the legs.

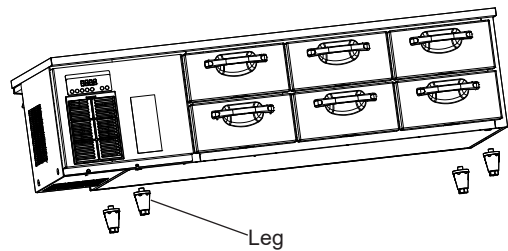
When any high heat producing equipment such as cooking range, microwave oven, and fryer is placed on the unit, lay a 5 - 10 mm thick plasterboard on the top panel. Otherwise heat from the equipment may eventually deteriorate the insulation material at the bottom of the top panel and reduce cooling performance.

ENGLISH

1) Tilt the unit backward to mount the front legs (work in pair).

2) Mount the rear legs in the same way.

Note: For RTL/FTL-108MC, attach the five legs provided to the mounting holes located at the bottom of the unit.



⚠ CAUTION

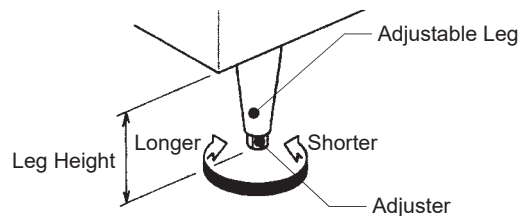
Do not tilt the unit too much forward. The drawers may slide out.

3) Before operating the unit, remove all shipping carton, packing, tape(s) and protective plastic film on the exterior, interior and top panel. Be careful not to damage the exterior panels.

4) Position the unit in a selected site.

5) Clean the interior with a soft cloth soaked in cold or warm water containing the proper amount of neutral cleaner and wrung dry.

6) Level the refrigerator/freezer in both the left-to-right and the front-to-rear directions. To adjust the height of the unit, turn the adjusters of the adjustable legs.



⚠ CAUTION

The height of the adjustable legs must be within 9 - 12 cm. If extended too much, the legs may become weak or the adjusters can come off, causing unexpected injuries.

NOTICE

Any heavy item such as cooking range, microwave oven, and fryer to be placed on the top panel must not exceed the maximum weight of 100 kg (RTL/FTL-108MC), 180 kg (RTL/FTL-148MC) or 250 kg (RTL/FTL-188MC).

6. ELECTRICAL CONNECTIONS

NOTICE

This refrigerator/freezer is provided with no power switch or earth leakage circuit breaker, but with overcurrent protection (fuse) only. Install an earth leakage circuit breaker with overload protection rated at least 10A on the main power supply.

* This refrigerator/freezer must be plugged into the separated power receptacle which is readily accessible and has enough capacity. The maximum allowable voltage variation should not exceed ± 6 percent of the nameplate rating. See the nameplate.

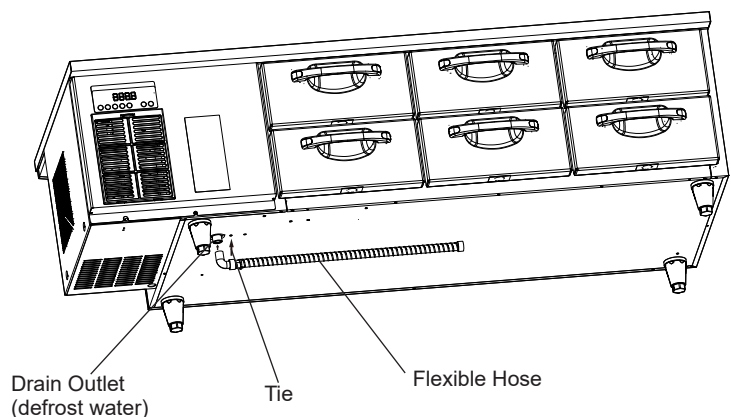
* Usually an electrical permit and services of a licensed electrician are required.

* If the supply cord and the plug should need to be replaced, it should only be done by a qualified service engineer.

7. DRAIN CONNECTION

1) Connect the accessory flexible hose and elbow to the drain outlet located at the bottom of the unit.

2) Bend the flexible hose into a trap as shown. Use the accessory cable straps to fix the flexible hose tightly on the bottom of the unit (mounting holes provided).

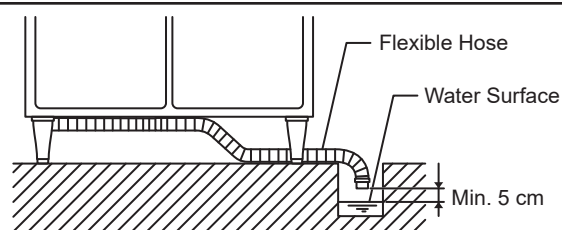


IMPORTANT

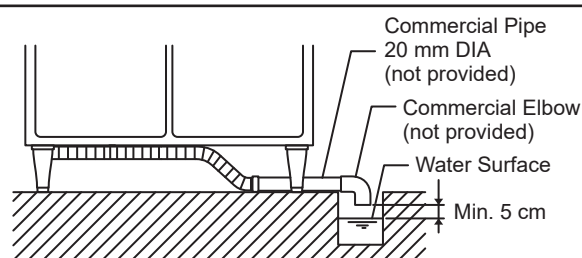
To prevent disconnection, be sure to use the cable straps to secure the flexible hose in place.

The drain line should be as short and straight as possible, sloped downward, and located below the drain outlet.

To prevent backflow, do not connect the flexible hose directly to the sewer system. An air gap of at least 5 cm should be between the end of the flexible hose and the floor drain.



If the flexible hose is too short to reach the floor drain, connect a commercial pipe to the flexible hose. Be sure to allow an air gap of at least 5 cm between the end of the drain pipe and the floor drain.



The drain connections are required to prevent ambient air from causing excessive frost build up on the evaporator, resulting in reduction of the refrigeration capacity.

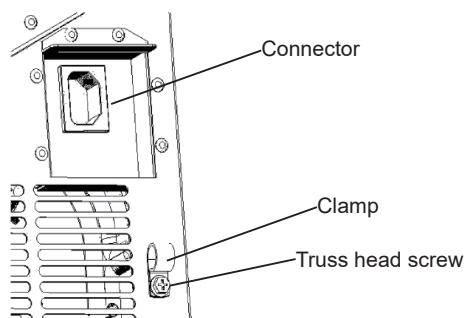
Do not let water drain directly onto the floor before running into the drain. Foreign matter on the floor may mix into the water and clog the drain, or the water could run in a wrong direction.

8. POWER CORD INSTALLATION

IMPORTANT

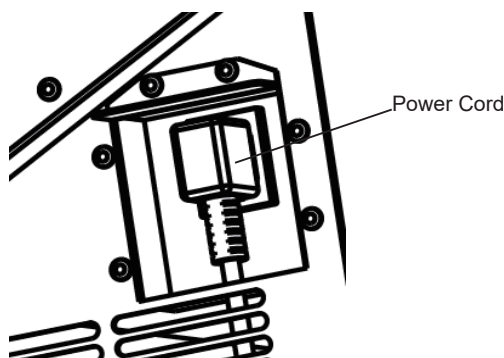
If the power cord is not installed as described in the manual, it may be disconnected. Only qualified service technicians should install and service the appliance.

1) Plug in the unit.



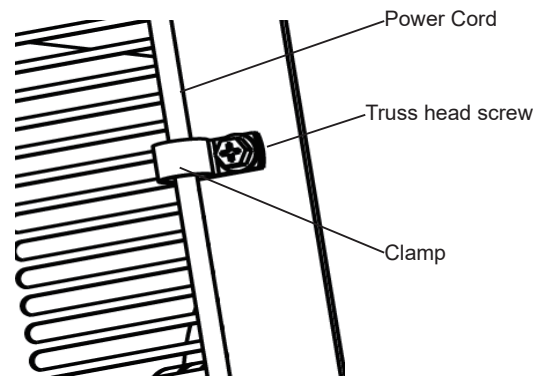
2). Install power cord.

(1). Insert the power cord into the connector.



ENGLISH

- (2). Loosen the clamp and put in the power. Loosen the clamp and put in the power.



II. OPERATING INSTRUCTIONS

⚠ WARNING

Be careful not to wet the machine compartment. This might cause failure or electric shock hazard.

To prevent electric shock, do not touch the attachment plug with wet hands.

Do not store any volatile or flammable substances such as benzene, ether, adhesives and LPG, or any explosive substances such as aerosol cans with a flammable propellant in the unit.

⚠ CAUTION

This refrigerator/freezer is designed only for temporary storage of foods. Use for any other purposes (e.g. storage of chemicals or medical supplies such as vaccine and serum) could cause deterioration of stored items.

Do not throw anything into the drawers or load more than 12 kg on each of them. They may fall off and cause injury.

Do not hang on or step on the drawers. They may fall off or the unit can tip over.

To prevent injury, install the drawers properly and securely.

Do not store bottles or cans near the air outlet. They may freeze up and break, causing a risk of injury.

Do not use combustible spray or place volatile and flammable substances near the unit. They could catch fire from a spark of a switch or the like.

Do not put anything into the machine compartment or the air inlet/outlet. The fan rotating rapidly inside may cause injury or heat.

IMPORTANT

Energise the refrigerator/freezer for 1 hour and check for proper temperature before putting foods in the cabinet.

Do not block the air inlet/outlet with foods.

Do not pack the cabinet with foods. Allow some space between them to ensure good air flow.

Use gastronorm pans or other special containers to store foods in the drawers.

To ensure proper air flow and smooth drawer movement, containers and foods inside the drawers must not exceed 100 mm in height.

Do not put in warm or hot foods. Let them cool first, or they will raise the cabinet temperature and could deteriorate other foods in the cabinet or overload the refrigerator/freezer.

Make sure all items are snug in each drawer.

Moist or fresh foods and those with a strong smell like seafood should be wrapped up in a plastic film or packed in a container. Otherwise the foods may dry up or give their smells to other foods.

Foods containing acetic acid or yeast should be wrapped up in a plastic film. Otherwise they may accelerate corrosion of the evaporator and copper tubes, resulting in failure.

Do not use the freezer to freeze foods. It is designed only to store frozen foods. High quality ice cream may melt during defrost cycle and should not be stored in the freezer.

The drawers may become difficult to open just after closed because of the negative pressure created inside the cabinet. Wait for about 30 seconds.

The drain pan is very hot. Handle it with care.(DRAIN PAN SAMPLE)

WARNING: Keep clear of obstruction all ventilation openings in the appliance enclosure or in the structure for building-in.

Do not damage the refrigerating circuit.

Do not use electrical appliances inside the food/ice storage compartments unless they are of the type recommended by the manufacturer.

1. START UP

- 1) Plug in the unit.
- 2) The compressor and condenser fan motor will start in 3 minutes.

2. CABINET TEMPERATURE SETTING

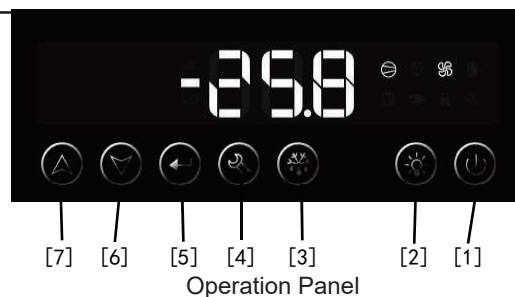
IMPORTANT

Pressing the down key will not speed up refrigeration, but will only lower the temperature setting.

The temperature range given below is only the adjustable range. The actual cabinet temperature depends on the ambient temperature and other conditions.

The cabinet temperature is factory-adjusted to 1°C for the refrigerator and -20°C for the freezer. If necessary, readjust the temperature as follows.

- 1) Under normal operating conditions, press the setkey to enter the user menu. The indicator light is on, entering the user menu and displaying the set temperature. At this time, the temperature setting can be modified by operating the up button or down button. Set the value, press the return button after modification, and exit the setting interface. Return to the menu selection state (see IMPORATANT 2).
- 2) In the setting state, no operation is performed for 30seconds. The system will save the parameters and exit from the parameter setting mode.



- [1] Power Key
- [2] LED Key
- [3] LED Key
- [4] Set Key

- [5] Back key
- [6] Down Key
- [7] Up Key

Code	Function	Set Range	Default	Unit
	Temperature setting(refrigerator)	-6 to +12	1	°C
	Temperature setting(freezer)	-7 to -25	-20	°C

NOTICE

The temperature setting must be between -6 and 12°C for the refrigerator and -25 and -7°C for the freezer to prevent possible failure.

To avoid the risk of failure, do not make changes to other menus than "SEt".

IMPORTANT

The displayed cabinet temperature is adjusted to be almost equal to the temperature at the center of the cabinet without foods. But it can be different from the actual temperature depending on arrangement of stored foods, frequency of door opening or measuring points.

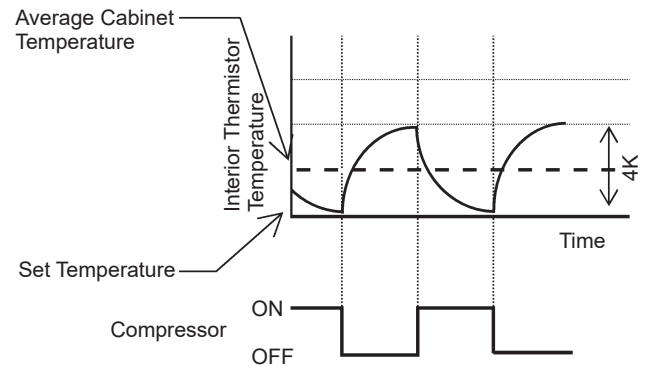
The compressor stops when the cabinet temperature reaches down to the set temperature, and starts when the cabinet temperature rises to the set temperature + 4°C. Accordingly, the average cabinet temperature will be around the set temperature + 2°C.

ENGLISH

Set temperature (compressor off temperature)

RTL series: -6 to +12°C

FTL series: -25 to -7°C



3. DEFROST

Automatic defrost cycle

The refrigerator/freezer automatically defrosts the evaporator 6 hours after the refrigeration starts. The defrost indicator light on the operation panel comes on when the defrost cycle starts.

Manual defrost cycle

To start the manual defrost cycle, press the defrost key (freezer) for 3 seconds. The defrost indicator light on the operation panel comes on when the defrost cycle starts.

4. INDICATOR LIGHTS

Indicator Light	Symbol	Status	Meaning
Setting		On	Parameter setting
		Off	Measuring and controlling status
Refrigeration		On	Refrigerating
		Off	Refrigeration stopped
		Flash	Refrigeration delayed
Defrost		On	Defrosting
		Off	Defrost stopped
Fan		On	Fan running
		Off	Fan stopped
Defrost dripping		On	Start defrost dripping
		Off	Stop defrost dripping
Anti-condensation		On	Start anti - condensation
		Off	Stop anti-condensation
Door switch		On	Door switch opened
		Off	Door switch closed

5. SHUT DOWN

- 1) Before shutting down the unit, move the stored foods into another refrigerator/freezer.
- 2) Unplug the unit or disconnect the main power supply.
- 3) When preparing the unit for long storage, clean the cabinet interior and door gaskets, dry them thoroughly and store the unit in a dry place.

6. REMOVING DRAWERS

- 1) Open the drawer, and take out all items and containers inside.
- 2) Slide the drawer forward, lift it up, and pull it out.

⚠ CAUTION

When removing and installing the drawer, hold it securely with both hands.

III. MAINTENANCE

1. CLEANING

⚠ WARNING
Before carrying out any cleaning or maintenance operations, unplug the unit.
Do not use a water jet to clean the machine compartment.
⚠ CAUTION
When using a neutral cleaner, thoroughly read and understand the instructions provided to prevent potential health problems.
NOTICE
Do not touch or wet the machine compartment parts. This could result in failure or breakdown.
To prevent possible damage, do not clean the plastic parts with water above 40°C or in a dishwasher.
Chemical agents other than neutral cleaner might cause damage to the interior and exterior surfaces.
To prevent damage to the painted surface, do not use a commercial stainless cleaner on the drawer.

[a] Interior, Exterior, Drawer and Drawer Handle

- * Clean the interior and exterior at least once a week for sanitary use.
- * Clean off the interior and exterior with a soft cloth soaked in cold or warm water containing the proper amount of neutral cleaner and wrung dry.
- * The exterior surface of the drawer and drawer handle is easily contaminated. Clean these parts thoroughly every day.
- * Any remaining detergent will damage metal or plastic surfaces. Use a soft cloth dampened with warm water to wipe it off.
- * Do not use the following items. They could damage painted or plastic surfaces:

Polishing powder, alcohol, thinner, benzine, acidic or alkaline detergent, hot water, petroleum, soap powder, metal scourer or brush, etc.
Especially detergent to clean grease on ventilator or microwave.

Note: Some solutions other than the above may also damage painted or plastic surfaces. Immediately stop using such solutions if they cause any problems.

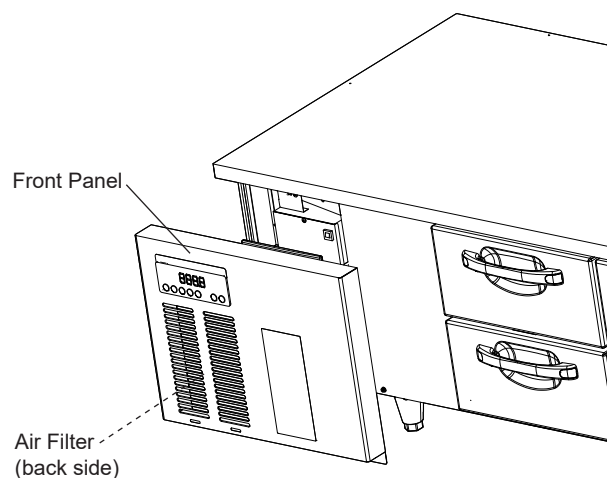


- * The door gasket and its contact surface get soiled easily. Clean every surface of these parts thoroughly. Remnants of food will accelerate aging.
- * Remove and clean the drawer once per week.
- * Use a cloth to wipe off any water staying inside the cabinet.

[b] Air Filter

Plastic mesh air filters remove dirt or dust from the air, and keep the condenser from getting clogged. If the filters get clogged, the refrigerator/freezer's performance will be reduced. Check the filter at least twice a month. When clogged, use warm water and a neutral cleaner to wash the filter. Do not operate the unit with the air filter removed, or the condenser will get clogged, resulting in failure.

- 1) Loosen the thumbscrew at the bottom of the front panel, and remove the front panel.
- 2) Remove the air filter from the back of the front panel.



ENGLISH

- 3) Wash the air filter carefully with cold or warm water containing the proper amount of neutral cleaner.
- 4) Rinse and dry the air filter thoroughly.
- 5) Attach the air filter to the back of the front panel.
- 6) Hook the top of the front panel on the cabinet, and tighten the thumbscrew at the bottom of the front panel.

NOTICE

After cleaning, be sure to place the air filter back in position.

2. BEFORE CALLING FOR SERVICE

NOTICE

Do not attempt to repair the unit yourself.

IMPORTANT

If the screen on the operation panel indicates an error code or something seems wrong with the unit, check for possible causes according to the following instructions. If the problem still exists, immediately contact an authorized Hoshizaki service company.

When contacting a service company, let them know the model name, serial number, date of installation (see warranty card) and state of the trouble.

[a] Error Code Indication

If one of the following error codes is indicated on the display, before calling for service, check the following.

Code	Possible Cause	Remedy
E1	Cabinet sensor error	Immediately contact an authorized Hoshizaki service company.
E2	Evaporator sensor error	
E3	Condenser sensor error	
CH	Condenser high temperature alarm	Clean the air filter. If the problem cannot be resolved, immediately contact an authorized Hoshizaki service company.

* The code "dEF" is not an error code but indicates the unit is in defrost cycle.

[b] No Error Code Indication

If the refrigerator/freezer does not work properly or does not work at all and no error code is indicated on the display, before calling for service, check the following:

Problem	Possible Cause
Unit fails to operate	Unplugged.
	Power failure.
	Main power supply disconnected.
Poor cooling performance	Ambient temperature too high.
	Drawer(s) opened too often.
	Cabinet temperature setting too high.
	Too packed with foods or air inlet/outlet blocked.
	Air filter not clean.
	Drawer(s) left open.
	Warm or hot foods inside.
	Unit in defrost process. The cabinet temperature may rise temporarily during defrost cycle but will not affect the foods inside.

Condensation around drawer(s)	Ambient humidity too high.
	Drawer(s) not closed tightly.
Noise	Normal operating sounds from compressor, condenser fan motor or Interior fan motor.
	Installed on an unsteady floor. Contact an authorized Hoshizaki service company.
	Not leveled in the left-to-right or front-to-rear directions. Contact an authorized Hoshizaki service company.
Frosting inside compartment	Ambient humidity too high.
	Drawer(s) opened too often.

For further assistance or advice, contact your local Hoshizaki service agent.

3. DISPOSAL

When disposing of the refrigerator/freezer, contact an authorized Hoshizaki service company or a specialized waste disposal company.

⚠ WARNING	
	The insulation foaming agent used for the unit body contains flammable gas cyclopentane. With this in mind, dispose of the refrigerator/freezer properly.

4. WARRANTY

Hoshizaki warrants to the original owner/user that all Hoshizaki branded products shall be free of defects in material and/or workmanship for the duration of the "warranty period". The warranty shall be effective for one year from the date of installation. Hoshizaki's liability under the terms of the warranty are limited and shall exclude routine servicing, cleaning, essential maintenance and/or repairs occasioned by misuse and installations not in accordance with Hoshizaki guidelines.

Warranty repairs should be completed by an approved Hoshizaki dealer or service agency using genuine Hoshizaki components.

To obtain full details of your warranty and approved service agency, please contact your dealer/supplier, or the nearest Hoshizaki Service office.

5. DESCRIPTION OF CLIMATE TYPE

Tropical type (code T or 5): the suitable ambient temperature is 18°C~43°C;
 Subtropical type (code ST or 4): the suitable ambient temperature is 18°C~38°C;
 Temperate type (code N or 3): the suitable ambient temperature is 16°C-32°C;
 Subtemperate type (code SN or 2): the suitable ambient temperature is 10°C-32°C.

IMPORTANT
The climatic class 4 indicates the dry bulbtemperature of 30°C and relative humidity of 55 percent.

ENGLISH

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