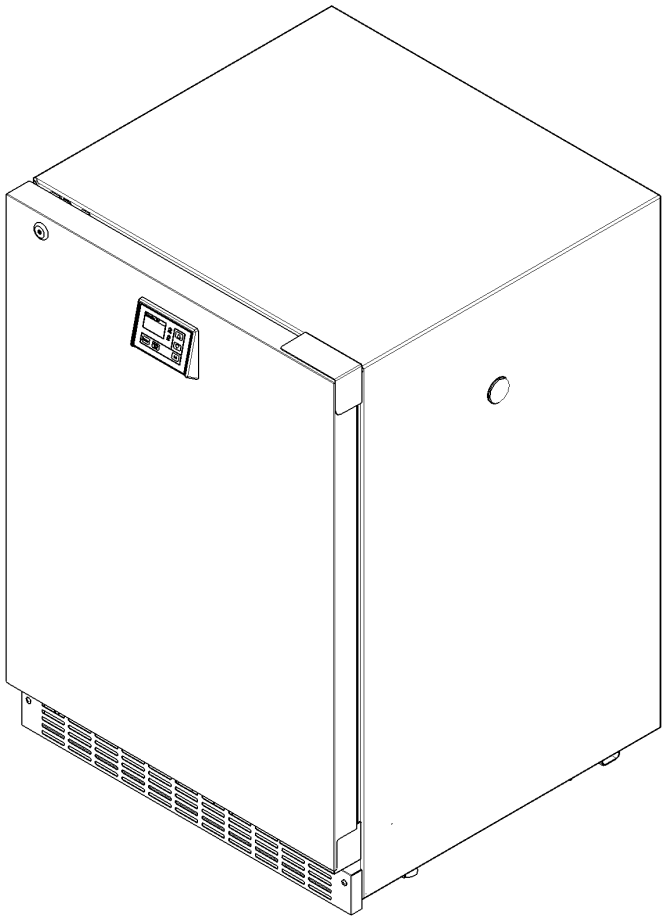
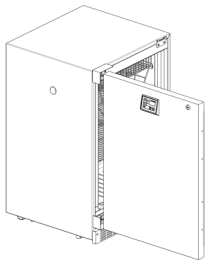
Operating Instructions

Laboratory Freezer

PF-L5181W-PA



PF-L5181W-PA



Left Door
(Factory order made)

Please read these instructions carefully before using this product, and save this manual for future use.

See page 22 for Model No.

English

Note:

1. **No part of this manual may be reproduced in any form without the express written permission of our company.**

2. **The contents of this manual are subject to change without notice.**

3. **Please contact our company if any point in this manual is unclear or if there are any inaccuracies.**

CONTENTS

PRECAUTIONS FOR SAFE OPERATIONS

It is imperative that the user complies with this manual as it contains important safety advice.

Items and procedures are described so that you can use this unit correctly and safely. If the precautions advised are followed, this will prevent possible injury to the user and any other person.

Precautions are illustrated in the following way:

⚠WARNING

Failure to observe WARNING signs could result in a hazard to personnel possibly resulting in serious injury or death.

⚠CAUTION

Failure to observe CAUTION signs could result in injury to personnel and damage to the unit and associated property.

Symbol shows;

 this symbol means caution.

 this symbol means an action is prohibited.

 this symbol means an instruction must be followed.

Be sure to keep this manual in a place accessible to users of this unit.

PRECAUTIONS FOR SAFE OPERATION

⚠WARNING

Do not use the unit outdoors. Current leakage or electric shock may result if the unit is exposed to rain water.

Only qualified engineers or service personnel should install the unit. Installation by unqualified personnel may cause electric shock or fire.

Be sure to install the unit on a sturdy floor. If the floor is not strong enough or the installation site is not adequate, injury may result from the unit falling or tipping over.

Never install the unit in a humid place or a place where it is likely to be splashed by water. Deterioration of the insulation may result which could cause current leakage or electric shock.

Never install the unit in a flammable or volatile location. This may cause explosion or fire.

Never install the unit where acid or corrosive gases are present as current leakage or electric shock may result due to corrosion.

Make sure a dedicated power source is used as indicated on the rating label attached to the unit.

Make sure to remove dust from the power supply plug before inserting in a power source. A dusty plug or improper insertion may pose a hazard.

Use a power supply outlet with ground (earth) to prevent electric shock. If the power supply outlet is not grounded, it will be necessary to have qualified engineers install a ground.

Never ground the unit through a gas pipe, water main, telephone line or lightning rod. Such grounding may cause electric shock in the case of an incomplete circuit.

Do not insert metal objects such as a pin or a wire into any vent, gap or any outlet for inner air circulation. This may cause electric shock or injury by accidental contact with moving parts.

Never store volatile or flammable substances in this unit. This may cause explosion or fire.

Never store corrosive substances in this unit. This may lead to damage to the inner components or electric parts.

If this unit is to be used for storing poisons, radioactive material or other harmful products, ensure that it is in a safe area. Failure to do so may lead to an adverse effect on the health of personnel in the area and the local environment. In this case, a request for repair or maintenance will necessitate a safety check sheet for maintenance personnel.

PRECAUTIONS FOR SAFE OPERATION

⚠WARNING

Always disconnect the power supply to the unit prior to any repair or maintenance of the unit in order to prevent electric shock or injury.

Ensure you do not inhale or consume medication or aerosols from around the unit at the time of maintenance. These may be harmful to your health.

Never splash water directly onto the unit as this may cause electric shock or short circuit.

Never disassemble, repair, or modify the unit yourself. Any such work carried out by an unauthorized person may result in fire or injury due to a malfunction. Component parts shall be replaced with like components to minimize the risk of possible ignition due to incorrect parts or improper service.

Disconnect the power supply plug if there is something wrong with the unit. Continued abnormal operation may cause electric shock or fire.

If the unit is to be stored unused in an unsupervised area for an extended period, **ensure that children do not have access and that doors cannot be closed completely.**

The disposal of the unit should be accomplished by appropriate personnel. Risk of child entrapment. Before you throw away your old freezer take off the doors to prevent accidents such as suffocation.

Make sure to prepare a safety check sheet when you request any repair or maintenance for the safety of service personnel.

Select a level and sturdy floor for installation. This precaution will prevent the unit from tipping. Improper installation may result in water spillage or injury from the unit tipping over.

Connect the unit to a power source as indicated on the rating label attached to the unit. Use of any other voltage or frequency other than that on the rating label may cause fire or electric shock.

Fix the shelves securely. Incomplete installation may cause injury or damage

When removing the plug from the power supply outlet, grip the power supply plug, not the cord. Pulling the cord may result in electric shock or fire by short circuit.

Do not use mechanical devices or other means to accelerate the defrosting process, other than those recommended by the manufacturer.

Do not damage the refrigerant circuit.

PRECAUTIONS FOR SAFE OPERATION

⚠CAUTION

Never damage or break the power supply plug or cord. Do not use the supply plug if its cord is loose. This may cause fire or electric shock. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified person in order to avoid a hazard.

Do not touch any electrical parts such as the power supply plug or any switches with a wet hand. This may cause electric shock.

Do not climb onto the unit. This may cause injury by tipping or damage to the unit.

Do not store bottle or cans in the freezer. This may cause injury by broken of containers due to the frozen.

Do not touch any stock (especially metal objects) in the freezer with a wet hand. This may cause frostbite.

Always hold the handle when closing the door. This will reduce the likelihood of a trapped finger.

Do not lean on the door. This may cause injury if the unit tips over.

Always disconnect the power supply plug before moving the unit. Take care not to damage the power cord. A damaged cord may cause electric shock or fire.

Dispose of water in the evaporation tray completely prior to the movement. Spilled water or splashed water may cause current leakage or electric shock.

Be careful not to tip over the unit during movement to prevent damage or injury.

Always disconnect the power plug when the unit is not used for long periods.

Make sure to check the setting value when starting up the operation after the power failure or power off. A change of setting value may cause damage to contents.

Do not put the packing plastic bag within reach of children as suffocation may result.

Every time you disconnect the unit from the power source, make sure you wait at least 5 minutes to plug it back on. This protects the unit compressor and avoid possible damages.

Do not use electrical appliances inside the compartments of the appliance, unless they are the type recommended by the manufacturer

CAUTIONS FOR USAGE

1. If the unit is unplugged or the power to the unit is interrupted, do not restart the unit for at least 5 minutes. This protects the compressor.

2. This inner cabinet is refrigerated by the forced circulation of cooled air inside the chamber. Ensure that the intake and exhaust vents are not blocked. Adequate space should be provided between the items inside the unit to allow air circulation.

3. Never store corrosive materials such as acid or alkali unless the container is completely sealed up. Corrosion may lead to failure of the unit in time.

4. Once the chamber temperature has stabilized, put the items into the chamber in small batches to minimize the temperature increase.

5. Place items on the shelves and leave a space between the wall of the cabinet and the contents to allow air circulation. Do not place items on the floor of the chamber.

6. Always close the door firmly. The door check lamp is lit when the door is open. The alarm buzzer sounds after two minutes the door opening. The buzzer can be canceled automatically when the door is closed.

7. Always open and close the door gently. Rough operation may lead to stored items falling down, incomplete closing, or damage of door gasket.

8. In the freezer compartment, put stored items on the shelves and do not let them contact the wall.

9. If an instrument requiring a power source is to be placed inside the cabinet, the cable can be led through the access port on the right side of the cabinet. After using the port, the rubber cap and insulation should be replaced to seal the access port. Failure to do this can affect the temperature uniformity inside the cabinet and lead to condensation on the outside of the access port.

10. Do not clean the unit with scrubbing brushes, acid, thinner, solvents powdered soap, cleanser or hot water. These agents can scratch the paint or cause it to peel. Plastic and rubber parts can be easily damaged by these materials. Especially never use any volatile solvent to clean the plastic or rubber parts. When a neutral dishwashing detergent is used to clean the unit, wipe it up thoroughly with a cloth soaked in clean water.

11. If condensation forms on the door or frame surface, wipe it off with a dry soft cloth.

12. The heat discharge pipe is attached inside both the side and rear frame. The frame sometimes gets hot at the start-up of the operation, but this does not mean that a malfunction has occurred.

13. Handling, moving and use of the freezer must be done with caution to avoid either damaging the refrigerant tubing or increasing the risk of a leak

ENVIRONMENTAL CONDITIONS

This equipment is designed to be safe at least under the following conditions:

1. Indoor use: For intended use on laboratories;

2. Altitude up to 2000 m;

3. Ambient temperature 20°C to 24°C;

4. Maximum relative humidity 75% for temperature up to 24°C decreasing linearly to 50%;

5. Main supply voltage fluctuations not to exceed ±10% of the nominal voltage;

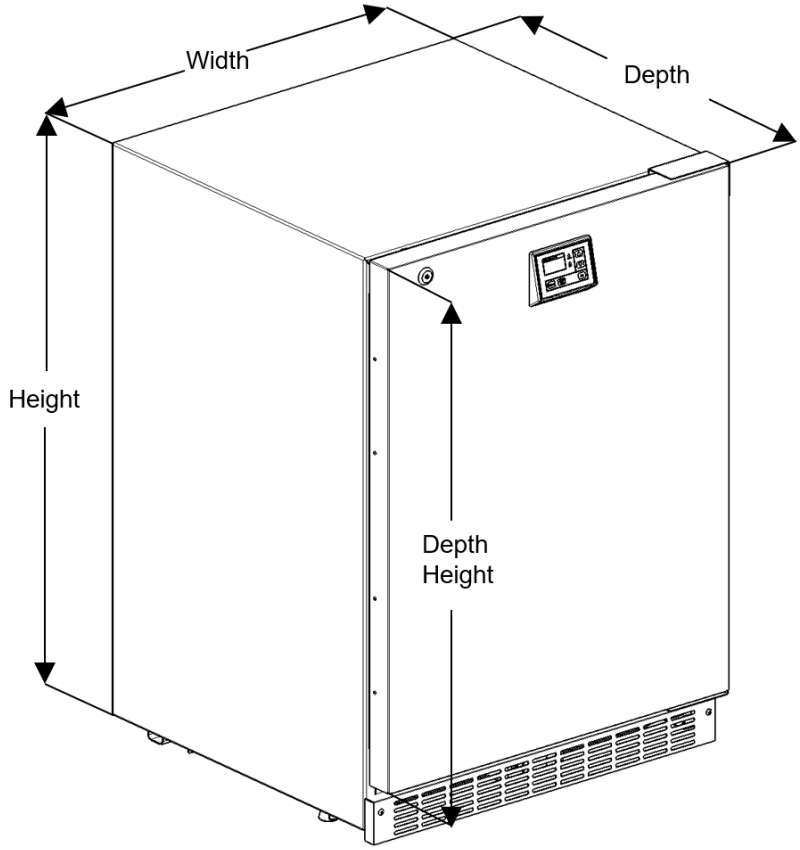
6. Other supply voltage fluctuations as stated by the manufacturer;

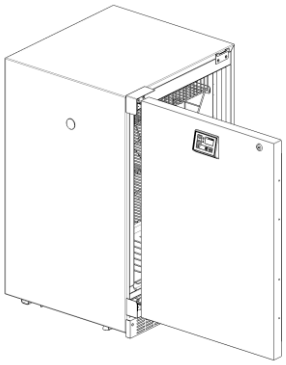
PRODUCT DIMENSIONS

OVERALL PRODUCT PF-L5181W-PA (Solid Door)

Width (up to hinge cover)	23 27/32” (606mm)
Height (up to hinge cover)	34 5/32” (867mm)
Depth (up to Solid Door)	23 21/32″ (600mm)
Door Height	30 5/8″ (777mm)

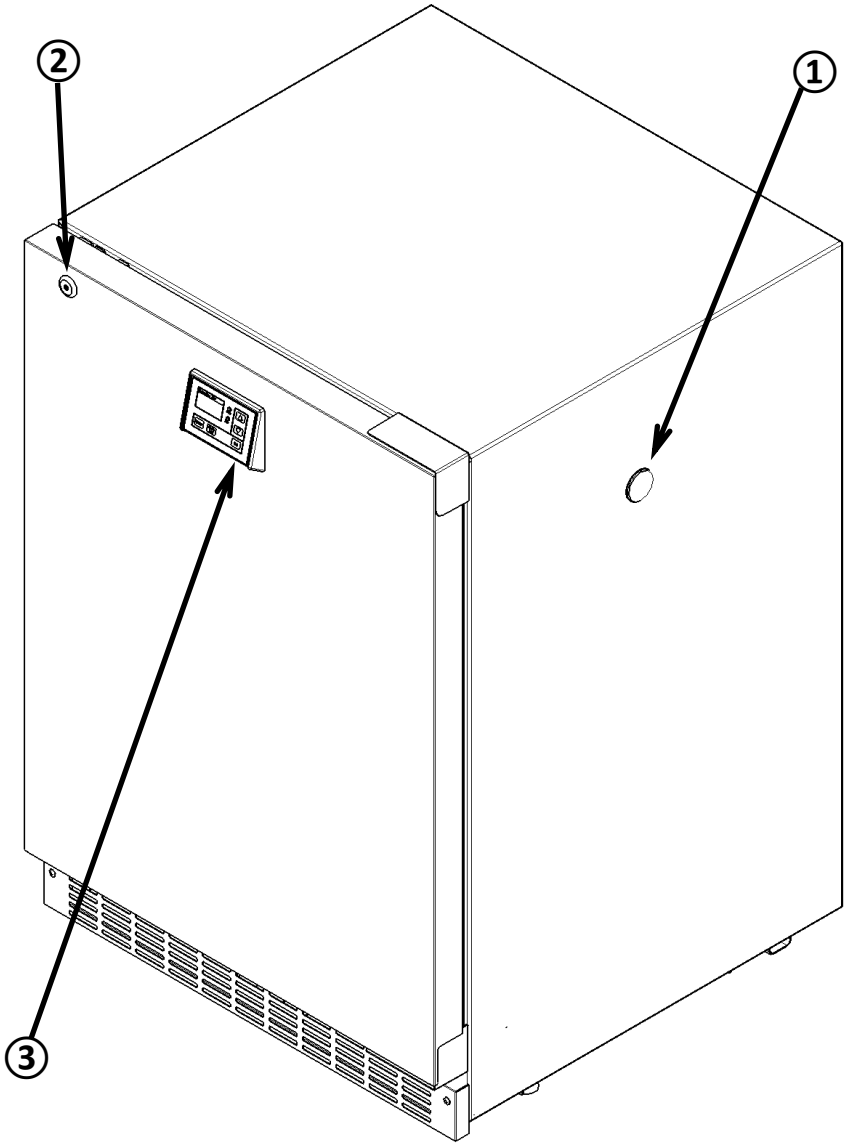
Note: Power Cord 60” (152.4cm) long.





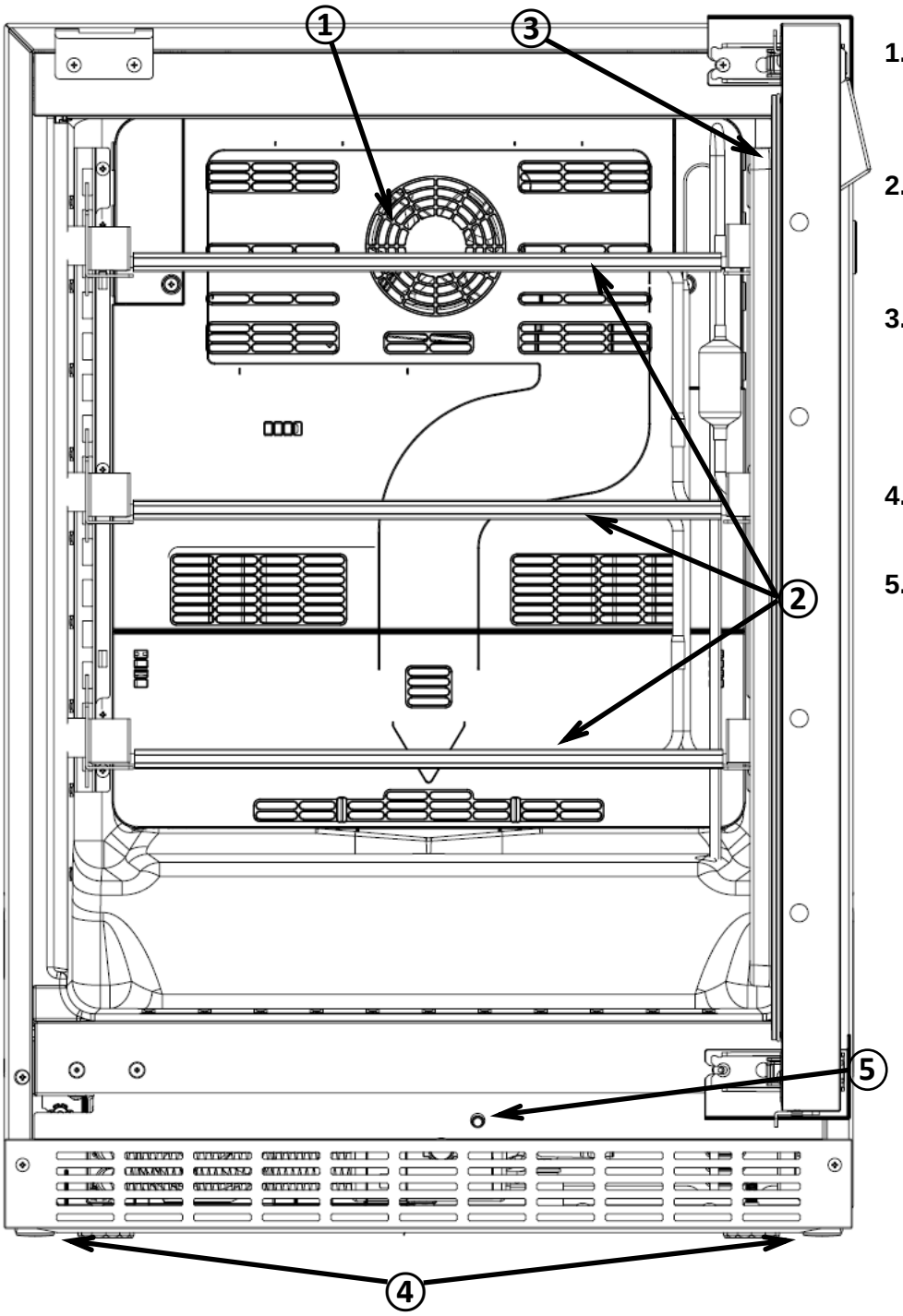
Left Door
(Factory order made)

FREEZER COMPONENTS



1. **Access Port:** Allow installation of temperature sensor inside the cabinet for the purpose of external monitoring.
2. **Door Lock:** Turn the key clockwise through 180 degrees to lock the door.
3. **Control Panel:** The operation status is displayed on this panel; temperature setting is also available. Refer to page 11 for details.

FREEZER COMPONENTS

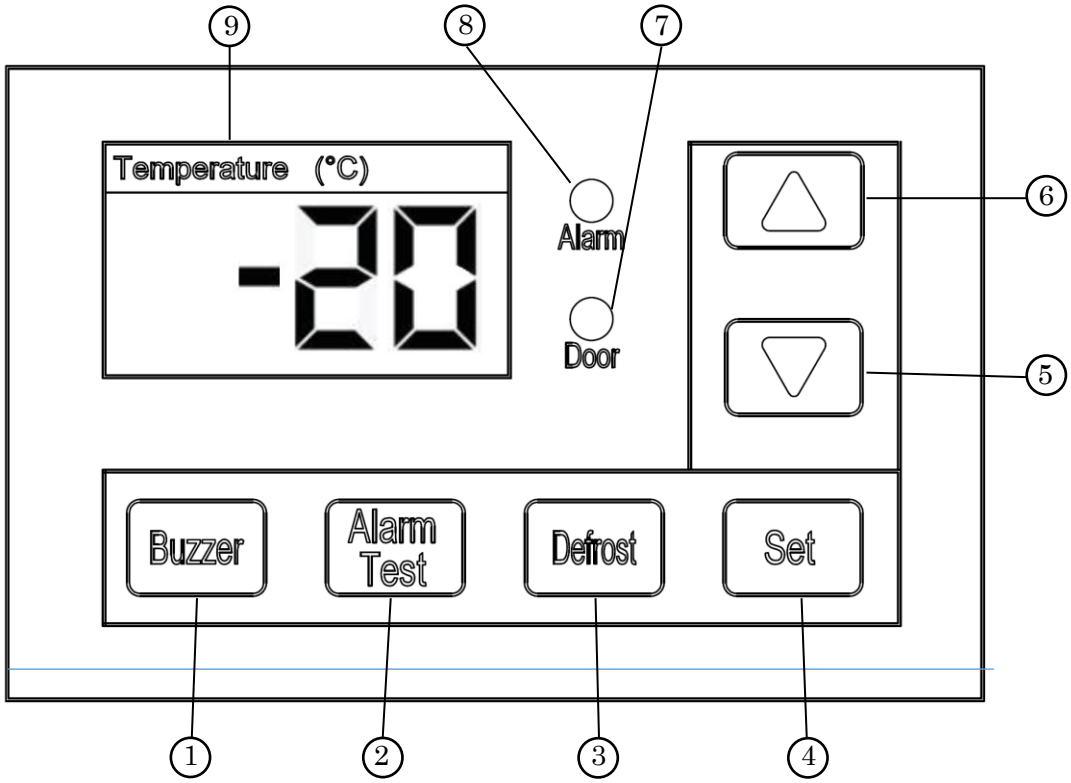


1. **Circulation Fan:** Helps to keep a consistent temperature throughout entire chamber.
2. **Powder coated wire shelves:** Evaporator position is fixed and include wires to support the product.
3. **Magnetic door gasket:** Magnetic force ensures the door is sealed to provide optimum performance and temperature uniformity.
4. **Adjustable legs:** Use these to level the freezer.
5. **Door Open Sensor:** Signals alarm if door is left open.

PLEASE NOTE: The shelves position is fixed and is not adjustable.

FREEZER COMPONENTS

Control Panel



1. **Alarm buzzer stop key (BUZZER):** Press this key to silence the buzzer in the event that the alarm operates and the buzzer sounds. See page 17 for detail.

2. **Alarm test key (ALARM TEST):** Buzzer will sound. See page 17 for detail.

3. **Defrost key:** Defrost will started by pressing this key for more than 5 seconds.

4. **Set key (SET):** Pressing this key activates temperature set mode. By pressing the key again after setting, the set value is accepted.

5. **Down Arrow (▽):** Pressing this down arrow key in the setting mode causes the numerical value to go down in 1°C increments. A long press of this key will enter offset mode. Offset mode is used to calibrate the temperature display.

6. **Up Arrow (△):** Pressing this up arrow key in the setting mode causes the numerical value to go up in 1°C increments. A long press of this key will enter or exit the key lock mode.

7. **Door check lamp (DOOR):** This lamp is lit when the door is open. See page 17 for detail.

8. **Alarm lamp (ALARM):** This lamp is lit during alarm condition. See page 17 for detail.

9. **Temperature display:** This indicator shows the chamber temperature, set temperature, or error code.

CONTROL PANEL FUNCTIONALITY CHECK

The first time the unit is powered on, you must insure the control panel functionality by following the operation described in table 1:

Table 1 Manual check of Control panel

	Operation	Key operated	Control panel description
1	Connect to the power source.	-----	Five seconds after turning on the unit, the temperature inside the unit should appear on temperature display (LED Screen).
2	Press “Alarm Test” key.	ALARM TEST	Two seconds after pressing the button, the buzzer should sound every 1 second. Let the buzzer sound at least 3 times.
3	Press “Alarm Test” key.	ALARM TEST	Within 2 second of pressing the button, the buzzer should stop. (The buzzer should stop sounding after two second of pressing the button).
4	Press “SET” key.	SET	Within 2 seconds of pressing the button, you will hear a beep once. The display will show “-20” on LED Screen and it will start blinking.
5	Press “△” key.	△	Within 2 seconds of pressing the button, you will hear a beep once. The display will show “-19” on LED Screen and it will start blinking.
6	Press “△” key two times.	△	Within 2 seconds of pressing the button, you will hear a beep once. The display will show “-17” on LED Screen and it will start blinking.
7	Press “▽” key three times.	▽	Within 2 seconds of pressing the button, you will hear a beep once. The display will show “-20” on LED Screen and it will start blinking.
9	Open the door	-----	Two seconds after opening the door, the door check lamp will turn red.
10	Close the door	-----	Two seconds after closing the door, the door check lamp will turn off.
11	Open the door	-----	Two seconds after opening the door, the door check lamp will turn red.
12	Keep the door open	-----	After 120 seconds, the alarm lamp will turn red and will start beeping every second. Let the unit beep at least 3 times.
13	Close the door	-----	Two seconds after closing the door, the door check lamp will turn off.

“

INSTALLATION

Installation site

To operate this unit properly and to obtain maximum performance, install the unit in a location with the following conditions:

1. **A location not subjected to direct sunlight**
   Installation in a location subjected to direct sunlight might lead to inadequate cooling.
2. **A location with adequate ventilation**
   Always keep in front of air intake and exhaust area open for free air circulation. Poor ventilation will result in inadequate cooling.
3. **A location away from heat generating sources**
   Avoid installing the unit near heat-emitting appliances such as gas ranges or stoves. Heat can reduce refrigeration efficiency.
4. **A location with a sturdy and level floor**
   Install the unit on a sturdy floor to avoid vibration and noise. Placing the unit on an unsteady floor may cause vibration and noise.

⚠ WARNING

Be sure to install the unit on a sturdy floor. If the floor is not strong enough or the installation site is not adequate, this may result in injury from the unit falling or tipping over.

⚠ CAUTION

Select a level and sturdy floor for installation. This precaution will prevent the unit from tipping. Improper installation may result in water spillage or injury from the unit tipping over.

5. **A location not prone to high humidity**

⚠ WARNING

Do not use the unit outdoors. Current leakage or electric shock may result if the unit is exposed to rain water.
Never install the unit in a humid place or a place where it is likely to be splashed by water. Deterioration of the insulation may result which could cause current leakage or electric shock.
Do not install the unit under water pipes or steam pipes. Deterioration of the insulation may result which could cause current leakage or electric shock.

6. **A location without a flammable or corrosive gas**
   Avoid placing the unit where chemicals are stored or gases are produced. Also avoid areas where there is a great deal of dust.

⚠ WARNING

Never install the unit in a flammable or volatile location. This may cause explosion or fire.
Never install the unit where acid or corrosive gases are present as current leakage or electric shock may result due to corrosion.

INSTALLATION

7. **A location with enough space to ensure proper ventilation**
   Allow for a 1/4" (6.35 mm) space on left side and at the top. Leave 2 ½" (6.35 cm) minimum clearance on the right side (hinge side) to allow for the door to swing open.

Installation

1. Remove the packaging materials and tapes. Remove all transportation packaging materials and tapes. Open the doors and ventilate the unit. If the outside panels are dirty, clean them with a diluted neutral dishwashing detergent (Undiluted detergent can damage the plastic components. For the dilution, refer to the instruction of the detergent). After cleaning with the diluted detergent, always wipe it off with a wet cloth, then wipe the panels with a dry cloth.

2. Door handle installation. Remove the two plugs from the door where you will attach the door handle. Apply door handle, plastic washer and screw and fasten the screw. For floor-level installation the handle should be mounted at the higher location. For stacking above another compatible unit, the handle should be mounted at the lower location.

3. Ground (earth)

⚠WARNING

Use a power supply outlet with ground (earth) to prevent electric shock. If the power supply outlet is not grounded, qualified personnel must install a ground.
Never ground the unit through a gas pipe, water main, telephone line or lightning rod. Such grounding may cause electric shock in the case of an incomplete circuit.

4. Access Port: If a temperature sensor is to be placed inside the cabinet, the cable can be led through the access port on the right side of the cabinet. After using the port, a rubber cap and insulation should be reinstalled to seal the access port. Make a cut on the rubber cap and pass the sensor wire through it. (Fig. 1) Failure to do this can affect the temperature uniformity inside the cabinet and lead to condensation on the outside of the access port.

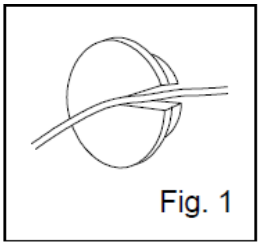


Fig. 1

START-UP OF UNIT

The following procedures should be adhered to for initial start-up and continuous operation.

1. Connect the unit to dedicated power supply. Do not put any product in the unit at this time.
2. Set the desired temperature. The unit is preset to operate at -20°C. This is the optimal storage temperature to maintain vaccine and biologic products within -15°C to -25°C throughout the usable storage area.
3. Confirm that the chamber temperature is at the desired temperature.
4. When you are satisfied that the unit is working correctly, begin slowly placing product into the chamber to minimize the temperature rise. Avoid long or excessive door openings to insure stored product integrity.

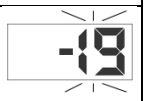
OPERATING INSTRUCTIONS

Temperature Setting

Table 2 shows the basic operation method. Perform key operation in the sequence indicated in the table. The example in the table is based on the assumption that the freezer temperature is -18ºC.

Note: The unit is set at the factory at -20ºC.

Table 2 Basic operation procedure (Example of setting: Freezer @ -19ºC)

	Operation	Key operated	Display after the key operation
1	Connect to the power source.	-----	The current freezer temperature is displayed after 5 seconds of connecting the unit to the power source. When freezer temperature is higher than -15°C, HI is displayed and LO is displayed when lower than –25 °C. 
2	Press SET key.	SET	The digits of the temperature display flash.
3	Set to -19 by using the down arrow key.		Pressing and releasing the down arrow key shifts down the set point by 1°C increments. 
4	Press and release SET key.	SET	The value (-19) is stored in memory and the current freezer temperature is displayed. 

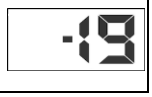
Note:
If no key has been pressed for 90 seconds in the temperature set mode, the display mode returns automatically to the temperature display mode. In this case, the chamber temperature setting is not changed. The freezer temperature can be set in the range between -15°C and -25°C. The guaranteed temperature with no load at an ambient temperature of 22°C is -15 to -25°C.

OPERATING INSTRUCTIONS

Calibration Procedure

The difference between chamber and indicated temperature can be arranged by key operation.
As an example, Table 3 shows the procedure in case actual freezer temperature is -19°C as indicated on a NIST traceable thermometer placed in the center of the chamber and displayed temperature is -20°C; change the displayed temperature to -19°C.

Table 3 Offset setup procedure

	Operation	Key operated	Display after the key operated
			The current freezer temperature is displayed. 
1	Press and hold the down arrow key more than 5 seconds.	▽	The digits of the temperature display flash. 
2	Set to -19 by using Up arrow key.	△	Pressing the key shifts up the figure by 1°C. Repeat until flashing digit turns to 1. 
3	Press the set key.	SET	The current adjusted temperature (offset by +1 degree) is displayed. 

Key Lock Operation

This unit incorporates a key lock feature that can inhibit tampering using the keys on the control panel.
The key lock is set to OFF at the factory.

Display	Mode	Function
LOC	Key lock ON	Temperature change disabled

Table 4 Key lock setup procedure (Example: Key lock OFF ⇒ Key lock ON)

	Operation	Key operated	Display after the key operated
			The current freezer temperature is displayed.
1	Press and hold the up arrow key for about 5 seconds.	△	Display alternates Between LOC and actual temperature. 

Note: Key lock can be set any time when the current freezer temperature is displayed.

ALARMS AND SAFETY FUNCTIONS

This unit has the alarm and safety functions shown in Table 5, and also a self-diagnostic function.

Table 5 Alarms and safety functions

Kind of alarm or safety	Situation	Indication	Buzzer	Safety operation
High temperature alarm	If the chamber temperature exceeds the set temperature more than -15ºC.	Alarm lamp is lit.	Intermittent tone after a delay of 15 minutes.	-----
Low temperature alarm	If the chamber temperature is lower -25ºC than the set temperature .	Alarm lamp is lit.	Intermittent tone after a delay of 15 minutes.	-----
Power failure alarm	In the event of a power failure or disconnection of power supply plug from the outlet	Display shuts off.	-----	-----
Door alarm	When door remains open for more than 2 minutes.	Door lamp is lit.	Intermittent tone after a delay of 2 minutes.	-----
Auto return	If a key operation is not performed for about 90 seconds in each setting mode.	Chamber temperature is displayed.	-----	Setting mode is canceled.
Key lock	When the key lock is ON.	Alternate LOC and actual temperature.	-----	Key input is disabled.
Thermal sensor abnormality	If the thermal sensor goes open (E10) or short circuit (E1S).	Either E10 or E1S is displayed.	-----	****
Defrost sensor abnormality	If the defrost sensor has a short circuit (E2S). Note: Defrost sensor is present in the unit, but the defrost sensor is not operational.	E2S is displayed.	-----	Only manual defrost is available in the equipment. The unit will alarm if the defrost sensor is not present in the unit

Note:

The alarm can be canceled by pressing the alarm buzzer stop key (BUZZER).

After a power failure, the unit will resume operation with the last saved setting temperature point on display memory.

DEFROST

The defrosting is activated when DEF key is pressed more than 5 seconds.

Remove and store the content to other freezer before starting the defrosting. Place cotton bath towels at the bottom of the freezer chamber before the start of defrosting as the defrost water will fall. Keep the door open in order to quicken defrosting. If bath towels are soaked, remove from the chamber, dry them and replace to prevent water to drip out of chamber. Do not try to physically remove ice as that may cause the damage to the evaporator. After defrosting, remove wet towels, dry inside chamber with dry soft clothes before re-start of the unit.

Pressing the DEF key for more than 5 seconds will restart the operation of the freezer.

MAINTENANCE

⚠WARNING

Always disconnect the power supply to the unit prior to any repair or maintenance of the unit in order to prevent electric shock or injury.

Ensure you do not inhale or consume medication or aerosols from around the unit at the time of maintenance. These may be harmful to your health.

Cleaning

• Clean the unit once a month. Regular cleaning keeps the unit looking new.

• Use a dry cloth to wipe off small amounts of dirt on the outside and inside of the unit and all accessories. If the outside panels are dirty, clean them with a diluted neutral dishwashing detergent. (Undiluted detergent can damage the plastic components. For the dilution, refer to the instruction of the detergent.) After the cleaning with the diluted detergent, always wipe it off with a wet cloth. Then wipe off the cabinet or accessories with a dry cloth.

• Never pour water onto or into the unit. Doing so can damage the electrical insulation and may cause electric shock or short circuit.

• The compressor and other mechanical part are completely sealed. This unit requires absolutely no lubrication.

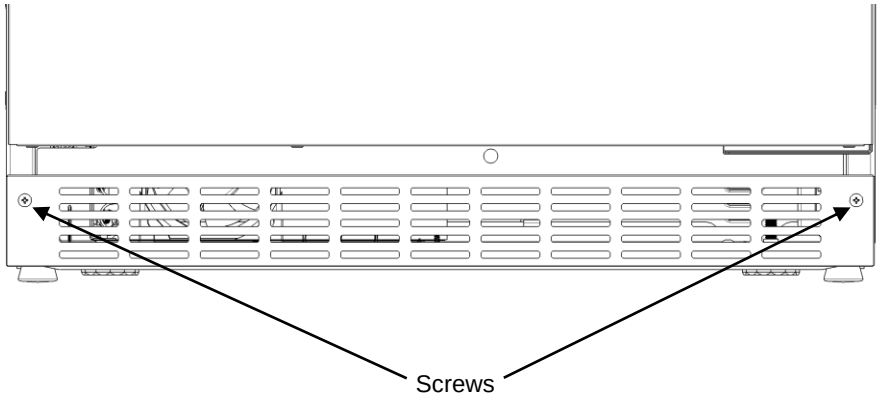
• Clean the condenser coils regularly. They are located behind the base grille (kickplate). Coils may need to be cleaned as often as every other month. This may help save energy. Please refer to next section “Removing Base Grille” to access condenser for cleaning.

Removing Base Grille

You must remove the base grille to access the condenser coils for cleaning

Procedure to remove base grille:

1. Open the freezer door
2. Using a Philips screwdriver, remove the two screws.



3. Remove the base grille
4. Installation is reversal of removal.

STACKING TWO UNITS

⚠WARNING

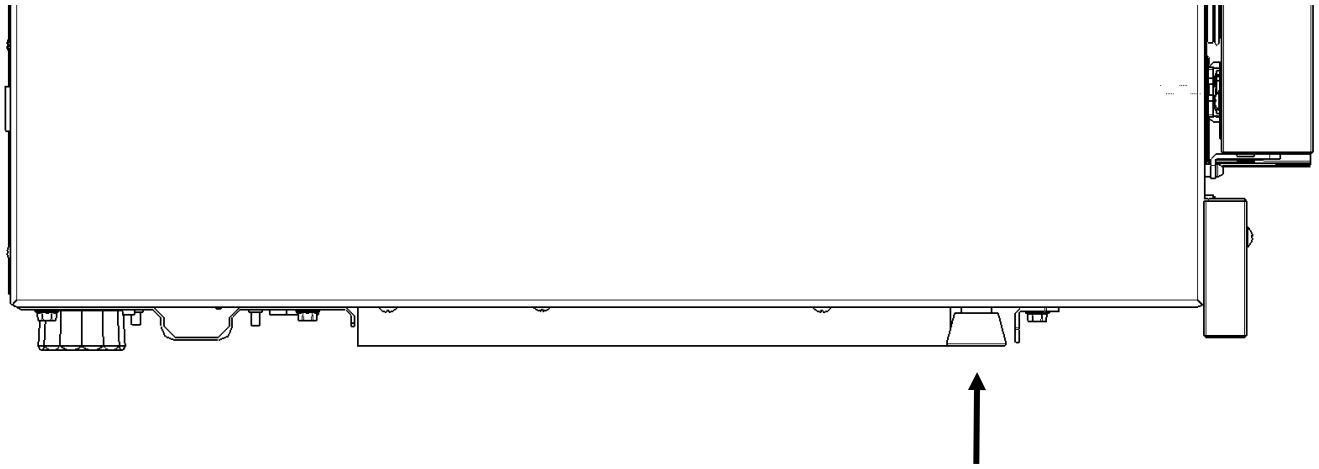
Always disconnect the power supply to the unit prior to stacking two units in order to prevent electric shock or injury.

Any stacked combination of our refrigerator and/or freezer must be secured using all hardware provided with the stacking accessory kit.

When stacking the freezer and the refrigerator, always keep the freezer at the bottom

• You can stack two freezers, or you can stack this freezer and PR-L5181* (laboratory refrigerator) or SR-L6111W-PA (laboratory refrigerator) or SF-L6111W-PA (laboratory freezer) to double the floor space efficiency. To stack two units, you must order the stacking accessory kit part number 833-0-3131-102-00. The stacking instructions in the accessory kit must be obeyed strictly for safety, as stacking will bring the center of gravity significantly higher than when one unit is placed on the floor.

Note: If you place SR-L6111W-PA or SF-L6111W-PA on the bottom, please assure the front leg positions (front arrow) of the model PF-L5181W-PA are as following:



This configuration will avoid any damage to the top hinge cover from SR-L6111W-PA or SF-L6111W-PA model.

TROUBLESHOOTING

If the unit malfunctions, check the following potential causes before calling for service. In the case of inadequate refrigeration or freezing, transfer the stored items to another freezer before checking.

FREEZER IS TOO WARM

1. Adjust temperature control. See page 15.
2. Make sure door is closed properly.
3. Check if ambient temperature is too high.
4. Check if door gasket is not damaged or has foreign substances preventing from closing the door adequately.

FREEZER ALARM IS ON

On start-up of the unit

1. The temperature in the unit does not match the set value on control panel.

On use

1. Check if door has not been left opened for a long period of time.

MOISTURE COLLECTS ON THE OUTSIDE

1. Frequent door openings in highly humid conditions can cause this. Reduce door openings and reduce time door is open.
2. Make sure door seal is tight.

FREEZER IS NOISY

1. Make sure cabinet is level, not touching a wall or other surface, and rests squarely on the floor on all four corners.
2. Normal noises include refrigerant gurgling as it passes through tubes and the compressor clicking on and off.

THERE IS AN ODOR IN THE FREEZER

1. Check to ensure the items stored are not causing the odor. Clean interior. See Maintenance section.

DISPOSAL OF UNIT

⚠WARNING

If the unit is to be stored unused in an unsupervised area for an extended period **ensure that children do not have access and that doors cannot be closed completely.**

The disposal of the unit should be performed by appropriate personnel. Always remove doors to prevent accidents such as suffocation.

SPECIFICATIONS

Product name	Laboratory Freezer
Model number	PF-L5181W-PA (Solid Door)
External dimensions	34 5/32” H x 23 27/32” W x 23 21/32” D (867 H mm x 606 W mm x 600 D mm)
Internal dimensions	25 19/32” H x 19 15/16” W x 17 3/32” D (650 H mm x 507 W mm x 434 D mm)
Effective capacity	5.01 Cubic Feet (142 liters)
Exterior	White PCM Galvanized steel, polyester resin baked finish
Interior	HFO Vacuum formed plastic
Door	Electro Galvanized Steel
Insulation	HFO foamed-in place
Shelve	Coated steel wire (3 pieces) Size: 19 6/32” W x 14 3/4 ” D (487 W mm x 375 D mm) Weight: 2.2 lbs. (1 kg) Maximum load capacity (for each shelf) : 33 lbs. (15 kg)
Access port	Inner diameter 1 3/16” (30 mm), 1 port on the right side
Cooling method	Forced air circulation
Compressor	Reciprocal type, output; 40 W
Evaporator	Flat Fin type
Condenser	Wire Type
Refrigerant	R600a; 52g (0.114lbs).
Defrosting	Manual defrosting
Temperature controller	Microprocessor control system
Temperature display	Digital display
Alarm & Safety	High temperature alarm, Low temperature alarm, Door alarm Key lock, Thermal sensor abnormality
Memory backup	Nonvolatile memory
Weight	W/Solid door: 121 lbs. (55 kg)
Accessories	1 set of key
Option	Stackable kit, part number 833-0-3131-102-00
Climatic Class	7
UL Rating	SA5086 Vol. 1

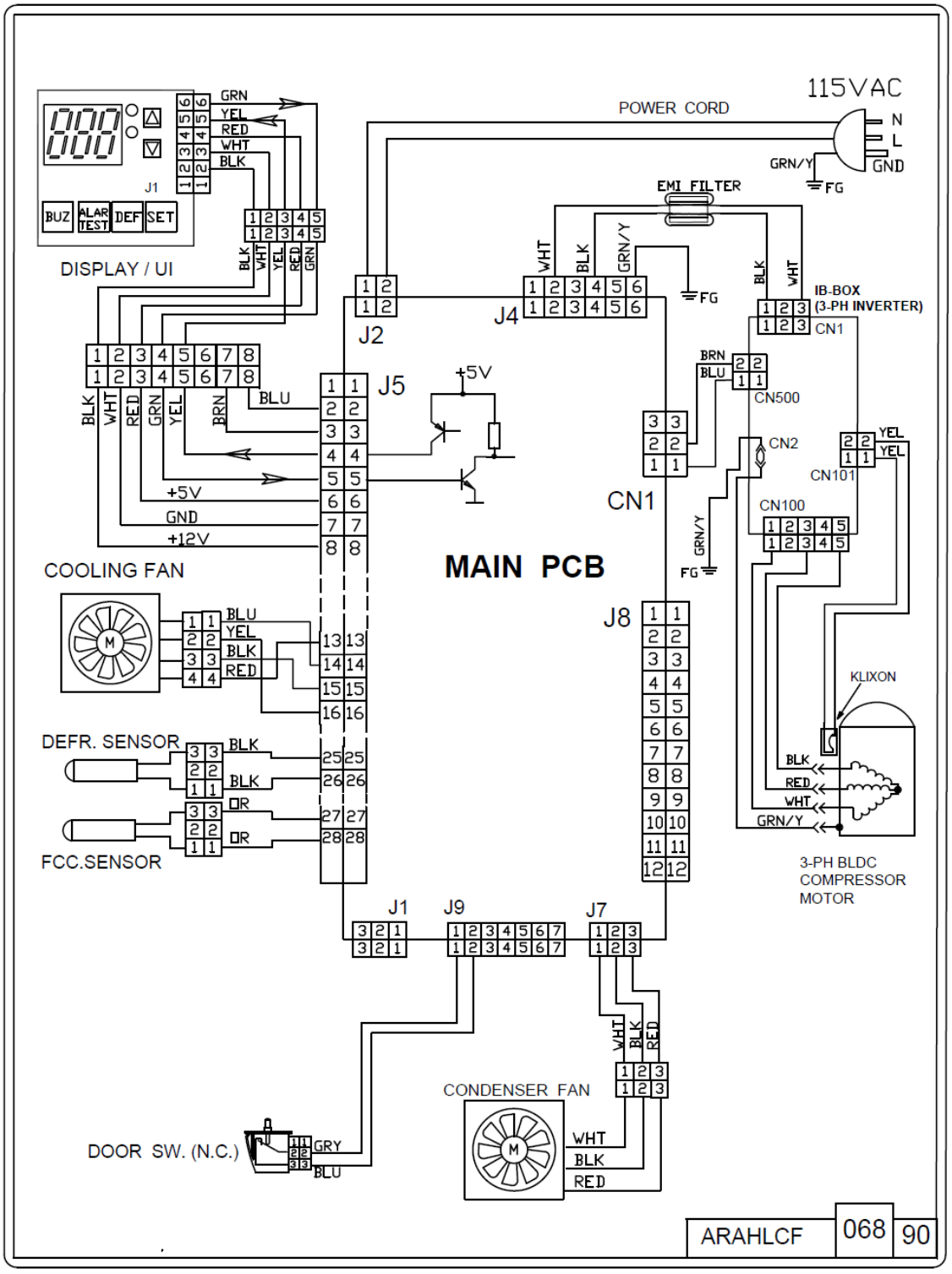
Note: Design or specifications will be subject to change without notice.

PERFORMANCE

Product name	Laboratory Freezer
Model number	PF-L5181W-PA
Temperature control range	-20°C ± 5°C
Rated voltage	115 V AC
Rated frequency	60 Hz
Power consumption	106 kWh per year

*These specifications were determined by following testing standard :"NSF International Standard NSF/ANSI 456 Vaccine Storage" and testing a unit at 22ºC ambient room temperature with 25-75% relative humidity.

Wiring Diagram



⚠ CAUTION

Please fill in this form before servicing.

Provide this form to the service engineer to keep for safety.

Safety check sheet

1. Freezer contents :

Risk of infection: □Yes □No
Risk of toxicity: □Yes □No
Risk from radioactive sources: □Yes □No
(List all potentially hazardous materials that have been stored in this unit.)
Notes :

2. Contamination of the unit:

Unit interior
No contamination □Yes □No
Decontaminated □Yes □No
Contaminated □Yes □No
Others:

3. ***Instructions for safe repair/maintenance of the unit:***

a) The unit is safe to work on □Yes □No
b) There is some danger (see below) □Yes □No

Procedure to be adhered to in order to reduce safety risk indicated in b) above:

Date :
Signature :
Address, Division :
Telephone :

Product name: Laboratory Freezer	Model: PF-L5181W-PA	Serial number:	Date of installation:

Please decontaminate the unit yourself before calling the service engineer.

MEMO

PHC Corporation of North America

1300 Michael Drive Suite A Wood Dale Illinois 60191 USA

PHC Corporation of North America

Printed in Mexico
ARAKUA100351

English