



Owner's Guide

LRP, CRP, & PTP UNITS

Laboratory & Chromatography Refrigerators Plus Series

OWNER'S INSTRUCTIONS

How to operate and care for your appliance and how to get the best, as well as the lowest cost, performance.

READ THIS BOOK!

Note to Customer:

This merchandise was carefully packed and thoroughly inspected before leaving our plant. Responsibility for its safe delivery was assumed by the carrier upon acceptance of the shipment. As directed on the side of your packing carton, claims for loss or damage sustained in transit must be made on the carrier as follows:

- A.) **Exterior Damage:** Make thorough damage notation on your delivery receipt and have driver acknowledge by signature and date. Send a written request asking for an inspection report from carrier. Include the name of carrier representative and the date the inspection was requested. Retain inspection report and receipt for filing of a claim.
- B.) **Concealed Damage:** This must be reported to carrier within fifteen days. Obtain inspection report from the carrier. Retain the inspection report for filing of the claim. **DO NOT RETURN DAMAGED MERCHANDISE TO MANUFACTURER - - FILE THE CLAIM WITH THE CARRIER.**

Lab Research Products

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Summerville, SC 29483

Phone: 800-648-4041

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Warranty:

Three-Year Parts and Labor

5 Years Compressor Parts

*Revision Updated
03/12/04*

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RECEIVING

LRP ships by freight carriers that we have used for many years and have selected for their good service, but accidents in shipping occur regardless of how much care is taken. Therefore the following is very important:

1. Inspect unit at once for any shipping damage, including concealed damage.
2. You should check for any shipping damage **immediately**, preferably before the carrier leaves your receiving dock, as nearly all shipments are FOB ship point.
3. If there is any damage, note it on the carrier's receiving documents and notify the office of the carrier immediately.
4. The responsibility of the shipper and the delivering carrier ends five days after goods are received. It becomes the responsibility of YOU, the customer, to unpack the unit and check for concealed damage caused during shipping. Immediate attention should be given to this.
5. Retain all packing materials if damage is found.

Slide/Swing Door Bracket Assembly and Unpacking Instructions

SWING DOORS

A. Remove all other tape securing the doors to the cooler. Remove the blue foam blocks approximately 1"x3"x1" (2.5 x 7.6 x 2.5 cm) that are between the door and the cooler. One foam block is located on each side of the door frame, (left and right).

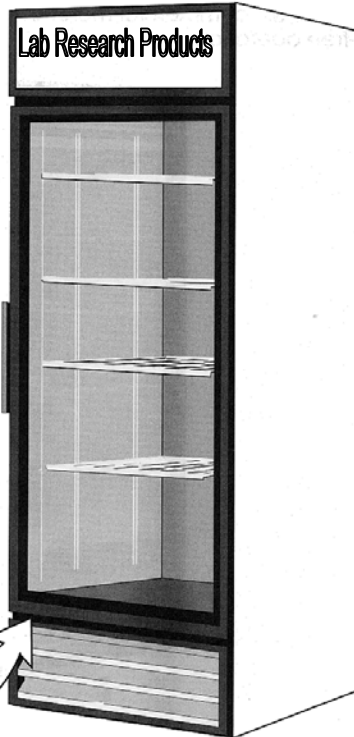
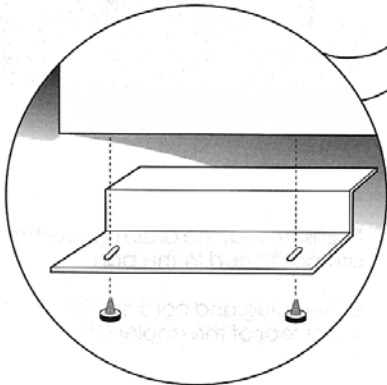
NOTE

Your LRP refrigerator has been secured for safe shipping. During installation it is necessary to remove the door support bracket.

B. Remove the two phillips screws that secure the bracket to the door (see figure 1).

C. Remove bracket and save for future shipping.

D. Replace screws securely into door.



SLIDE DOORS

A. Remove all transparent tape on the door area. Remove the foam blocks in top channel in front on the right door approximately 1"x1"x20" (2.5 x 2.5 x 50 cm).

B. Remove both plastic brackets secured by tape from under the left door.

C. Open the left door.

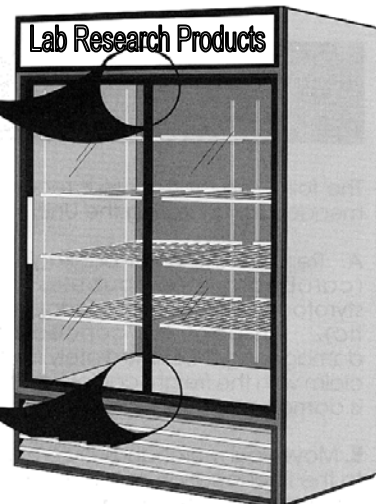
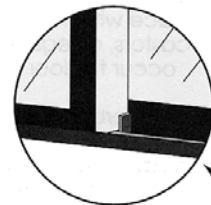
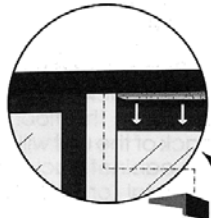
D. Remove the foam block from the top channel behind the left door.

E. Remove both plastic brackets from under the right door (see figure 2).

NOTE

Door packing materials should NOT be removed until the cooler is placed on location.

TRANSPORTATION OF THE COOLER WITHOUT THE DOOR PACKING MATERIALS IN PLACE CAN RESULT IN DAMAGE TO DOORS, DOOR ROLLERS AND V-TRACK



INSTALLATION

General Instructions for all Models

1. Do not unblock the doors until the refrigerator is in its **final** location.
Transportation of the unit without the door packing materials in place can result in damage to the doors and door assemblies.
2. Move the unit as close as possible to its final location before removing the shipping skid.
3. Remove the shipping skid by removing the shipping bolts. Access these bolts (two front and two rear) from the top or bottom (depending on model) using a $\frac{9}{16}$ " wrench. Once the bolts are loose, carefully slide the refrigerator off the skid.
4. Install leveling legs or casters, depending on your order. Leveling legs on some models are already installed, but casters are never shipped installed. One and two-door models have four legs; three-door models have six legs. The frame is predrilled for the casters. See page 6 for view of this assembly.

Swing Door Models

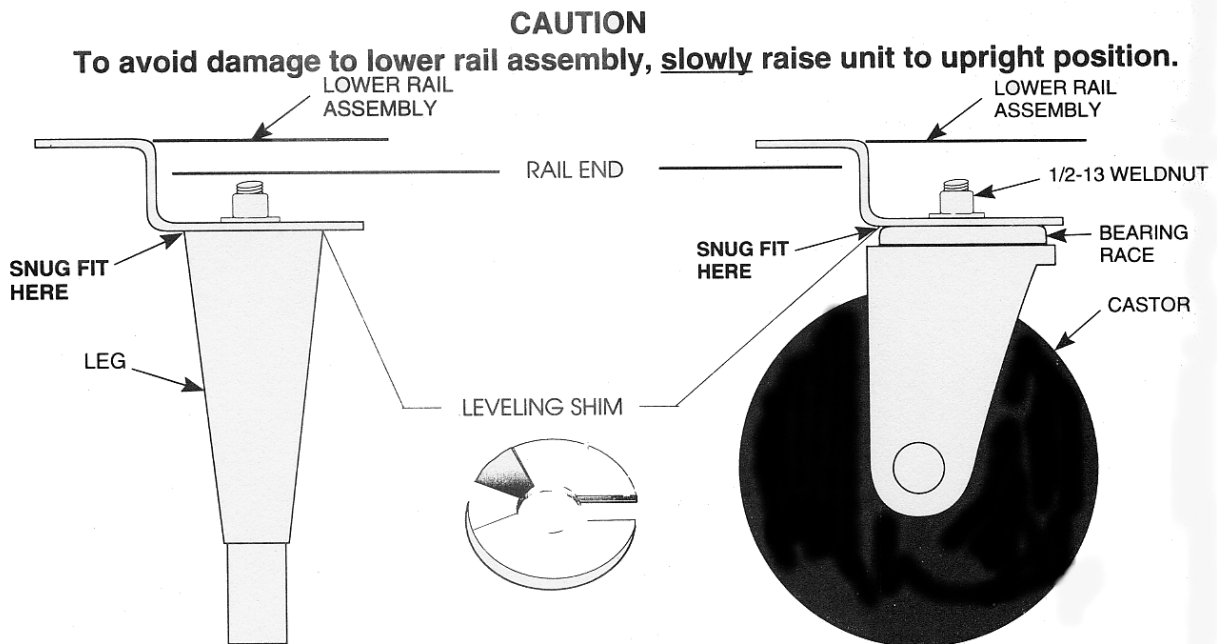
1. Remove tape securing the door(s).
2. Remove the foam blocks that are between the door(s) and the cabinet. Remove metal bracket(s) from the bottom of the door(s). Door(s) should be fully operational.

Slide Door Models

1. Remove the tape at top and bottom edges of all doors.
2. Remove the foam block at the top of the Right Door.
3. Remove the plastic shipping block from the upper right corner of the Left Door.
4. Remove the tape covering the plastic shipping block at the bottom right corner of the Left Door and remove block.
5. Slide open the Left Door and remove the plastic block in the bottom door channel.
6. Remove the tape and foam block in the upper channel of the Left Door.
7. With the Left Door open, remove the plastic shipping block at the upper left corner of the Right Door.
8. Remove the tape and plastic shipping block at the lower left corner of the Right Door.
9. Close the Left Door and slide open the Right Door. Remove the plastic shipping block at the bottom right corner of the Right Door.
10. Repeat the same steps for three-door refrigerators.
11. Make sure the door tracks on slide door models are clean of all shipping materials.

Installation of Casters and/or Leveling Legs

1. To obtain maximum strength and stability of the unit, it is important that you make sure each castor is secured with a $\frac{3}{4}$ " open-end wrench. Legs are hand-tightened securely against the lower rail assembly. The bearing race on the castor or the top edge of the leg must make firm contact with the rail.
2. Four leveling shims have been provided for leveling castored-units positioned on uneven floors. Shims must be positioned between rail end and bearing race.
 - a) Turn the bearing race counter-clockwise until the cabinet is level. Level front to back and side to side. (diagonally)
 - b) Install the desired number of shims, making sure the slot of the shim is in contact with the threaded stem of the castor.
 - c) If more than one shim is used, turn the slot at a 90° angle so they are not in line.
 - d) Turn the bearing race clockwise to tighten and secure the castor by tightening the anchoring bolt with a $\frac{3}{4}$ " open-end wrench.

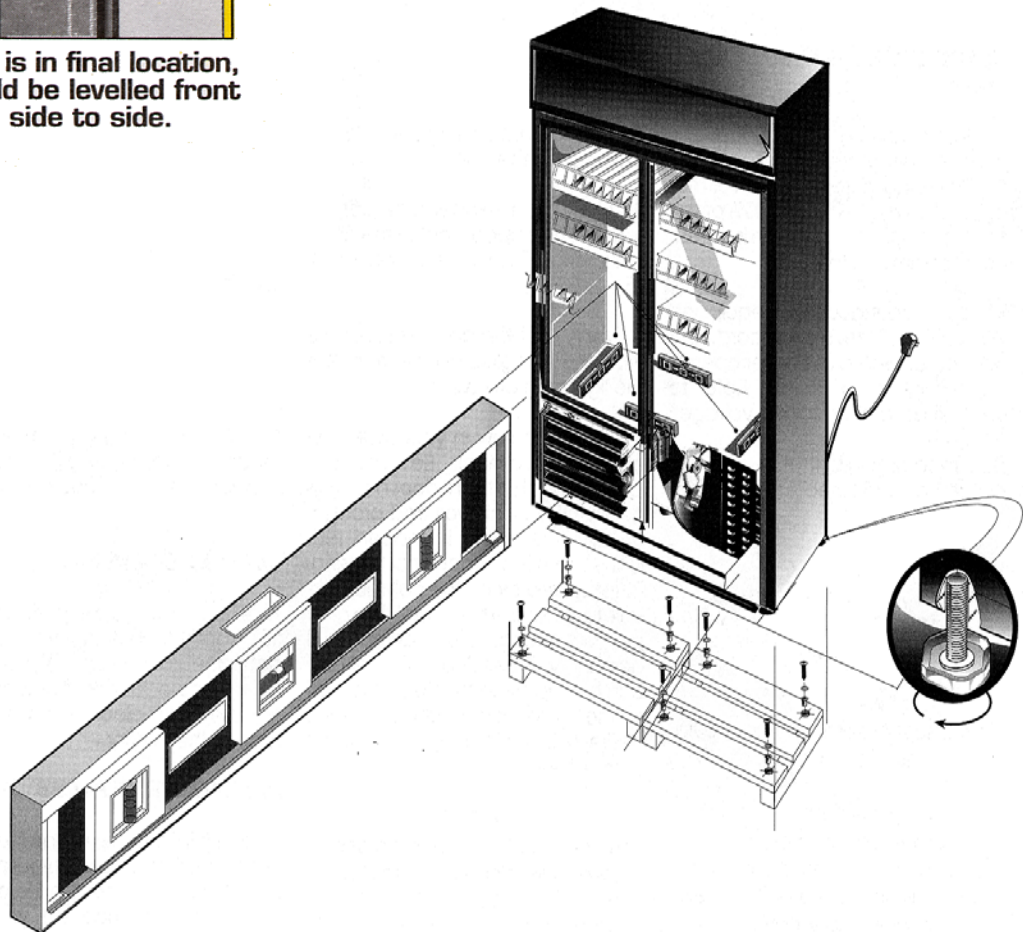


Leveling the Unit

1. Proper leveling of your unit is critical to operating success. Effective condensate removal and door operation will be affected by leveling. Adjust the levelers or shims if necessary.
2. The unit should be leveled front to back and side to side with a level (see diagram below). Place the level in the interior floor of the unit in the four positions illustrated.

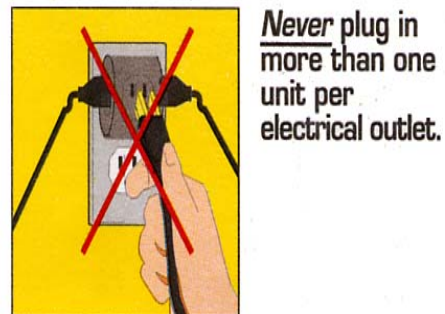
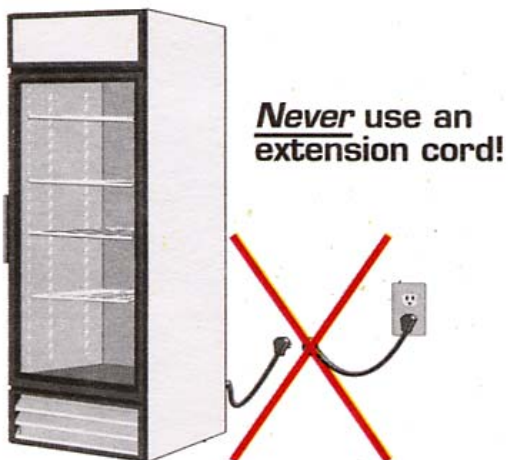


Once cooler is in final location, cooler should be levelled front to back and side to side.



OPERATION

1. Once the unit is in its final location, install the shelf clips and shelving, at the desired positions (see page 10).
2. Level the cabinet front-to-back and side-to-side using a 12" or 24" carpenter's level. The doors will not operate properly if this is not done. This is very important on slide door models.
3. The unit is ready to operate. Before plugging in read Paragraph 1 of the General Maintenance section regarding voltage requirements.
4. Plug in the unit. The compressor power cord is located at the right rear bottom corner. If the refrigerator is supplied with interior electrical outlet(s) each outlet has a power cord located halfway up the rear wall. Each power cord is labeled and clearly marked as to its function.
5. Once the compressor power cord is plugged in, the unit will start to run.



6. The thermostat has been factory set to operate at an average of +4°C. Allow the unit to run for 4 to 8 hours before loading. If you require temperature monitoring, place your sensing device at the midpoint location (front to back and side to side) within the cabinet.
7. Before the refrigerator is shipped from the factory it is tested for temperature performance using both digital and recording monitors. Profiles are kept on file.
8. The interior fan(s) run all the time. This keeps cool air flowing within the cabinet and reduces the amount of warm air entering the cabinet during door openings.
9. Interior fluorescent lights are controlled by an **On/Off** toggle switch at the top, right hand side, of the light fixture. If the light does not work, check to see if the lamp has been knocked loose from its socket. Sometimes during installation and setup the lamp will be jarred loose from its base when shelves are unpacked from the interior of the cabinet. The lamp is spring loaded in its socket and can easily be adjusted back into place.



***Do not stand
or place feet
on the door
channels.***

Operation Manual
for
LR5 TempGuard
Refrigeration Control



Safety:

This product operates at 120 VAC or 220 VAC power. Please unplug the power cord from the wall socket before performing any work on any of the electrical components of this system. Performing work while the unit is plugged in could result in a severe electrical shock.

Introduction:

The LR-5 TempGuard control system was designed to provide many years of reliable service. This control utilizes micro-controller technology to continuously monitor the temperature in the refrigerator/freezer and to maintain the temperature within the limits set by the user. The control settings are easily adjusted through the LR5 TempGuard front panel and the control “remembers” the coldest and the warmest temperatures achieved in operation.

Hardware Requirements:

- LR5: LR5 TempGuard temperature control
- LR3-S: The laser trimmed sensor for the LR5 TempGuard

Setting up the LR5 TempGuard Control:

Setting the high temperature and low temperature of the control range.

1. Press the **HIGH TEMP** button and the corresponding LED will start flashing
2. Use the ↑ and the ↓ buttons to change the temperature.
3. Press the **HIGH TEMP** button again to lock in the desired temperature. The LED will stop flashing.
4. Follow the same steps for the low temperature using the **LOW TEMP** button.

Set the high temperature alarm and the low temperature alarm.

1. Press the High Alarm button and the corresponding LED will start flashing
2. Use the ↑ and the ↓ buttons to change the alarm temperature.
3. Press the High Alarm button again to lock in the desired alarm. The LED will stop flashing.
4. Follow the same steps for the low temperature alarm using the Low Alarm button.

Pressing and holding the ↑ and the ↓ buttons cause a rapid increase or decrease in the value on the display. This can be used for large changes in the temperature settings. Also, after the High Temp, the Low Temp, the High Alarm, or the Low Alarm button is pressed, the user has 15 seconds to press the ↑ or the ↓ buttons. If no activity is detected, the control reverts to its main control activity while leaving the settings unchanged.

How the LR5 Control works:

The LR5 TempGuard control continuously monitors the temperature of the refrigerator/freezer through its sensor assembly. When the temperature warms to the point where it reaches the upper temperature limit, the LR5 sends a signal to turn on the compressor, which cools the unit. The compressor is kept running until the temperature reaches the cold setting. When this lower temperature set point is reached the LR5 turns off the compressor. The refrigerator/freezer warms over time and the process continues.

The LR5 TempGuard records the warmest and the coldest temperatures seen by the control. To access these temperatures, press the ↑ button for the warmest temperature or press the ↓ button for the coldest temperature. To clear out the warmest and coldest temperature, press both ↑ and ↓ buttons at the same time and hold them until the display blinks (approximately 5 seconds). The warmest and coldest temperatures are reset to equal the High Temp and the Low Temp settings.

The new LR-5 includes the following features:

- Red LED for visual indication of an error condition
- Beeper for audible indication of an error condition
- Battery for indication of error even when the control has lost power
- Door open indication and door open too long alarm
- Remote Alarm Dry Contacts

The LR5 TempGuard provides a flashing red LED and an audible tone for alarm situations. The alarms are run off a NiMH battery so that an alert occurs regardless of whether or not the control has power. The feature package can be enabled/disabled with a switch installed on the main circuit board. Moving the switch to the ON position activates these features and moving it to the OFF position deactivates these features.

The LR-5 TempGuard provides an indication if a door is opened by sounding a single beep. If the door stays open for 10 minutes then the LR5 indicates that an error condition has occurred by activating the red LED and the beeper.

Control Limits:

- The High Temp and Low Temp can be adjusted within the entire range as desired. The range varies depending on the model of refrigerator or freezer that was purchased. The High Temp cannot be lower than the Low Temp.
- If the High Temp is being lowered and it runs into the Low Temp it will push the Low Temp lower. The Low Temp will always be at least 4 degrees C less than the High Temp.
- If the Low Temp is being raised and it runs into the High Temp it will push the High Temp higher. The High Temp will always be at least 4 degrees C higher than the Low Temp.
- The High Alarm can be adjusted in the range from the (High Temp + 2) to the upper limit.
- The Low Alarm can be adjusted in the range from the (Low Temp – 2) to the lower limit.
- If the High Temp is being raised and it runs into the High Alarm, the High Alarm will automatically be adjusted upward. The High Alarm is always at least 2 degrees higher than the High Temp.
- If the Low Temp is being lowered and it runs into the Low Alarm, the Low Alarm will automatically be adjusted downward. The Low Alarm is always at least 2 degrees lower than the Low Temp.
- If the High Alarm is being lowered and it runs into the High Temp, it will go no lower than the (High Temp + 2).
- If the Low Alarm is being raised and it runs into the Low Temp, it will go no higher than the (Low Temp – 2).

Control Status and Error Conditions:

When the control is operating normally, the temperature detected by the sensor assembly is displayed on the control panel. If the temperature gets too warm and reaches the High Alarm setting, the display will flash alternatively between the actual temperature and the message Hi. If the temperature gets too cold and reaches the Low Alarm setting, the display will flash alternatively between the actual temperature and the message Lo. If the sensor assembly is disconnected or gets damaged the display will read Er.

Temperature Zones & Validation:

Each refrigerator or freezer will display its own characteristics in regard to the temperature gradient throughout the inner chamber. The uniformity of the temperature throughout the inner chamber can be influenced by many factors such as location of the sensor, air flow patterns, mass of the sensor, location of shelves, location of the product stored, quantity of the product stored, mass of the product stored, number of doors, insulation and frequency of door openings/closings. Some temperature variation in the refrigerator or freezer should be expected and is a normal occurrence. The LR5 TempGuard control monitors and controls the temperature at the location of its sensor assembly. At the location of the sensor the temperature will be accurate to within 1 degree C.

Validation can be performed on the LR5 TempGuard control by testing at a known temperature. Ice water has a known temperature of 0o C. To validate the control, dip the sensor assembly into a bath of ice water made from distilled water. After letting the temperature settle, the LR5 TempGuard will display a temperature of 0 degrees +/- 1 degree. This test validates the temperature accuracy of the sensor assembly.

Wiring the LR5 TempGuard:

The LR5 Tempguard is supplied with a green 7-contact plug to make wiring easy. A plug legend is attached to the back plate of the control. It is summarized below:

Pin 1	AC Line (polarity does not matter)
Pin 2	AC Line (polarity does not matter)
Pin 3	Door Alarm (polarity does not matter)
Pin 4	Door Alarm (polarity does not matter)
Pin 5	Remote alarm (normally open contact)
Pin 6	Remote alarm (common)
Pin 7	Remote alarm (normally closed contact)

AC Line - Power wired into AC line of the system.

Door alarm - The door alarm circuit on the LR5 detects an open or closed circuit. An open circuit indicates that a door has been opened while a closed circuit indicates that all doors are closed. The circuit should be wired in series through switches attached at each door.

Remote Alarm - A relay is provided on the LR5 to signal an error condition. Continuity exists between pins 6 & 7 in a normal condition. An error condition provides continuity between pins 5 & 6.

Roadmap to the Circuit Board:



- A – Contactor: Connects to the refrigeration compressor.
- B - Sensor Connector: The LR5 sensor assembly connects here.
- C – Battery: NiMH battery provides alarm capability when power is lost.
- D – 7-pin connector: Wiring for LR-5 Tempguard system into connector.
- E – Optional Feature Switch: Turns on/off the optional features of the control.

Specifications:

Power:

- 120 VAC or 240 VAC

Alarms:

- Relay output for remote alarm
 - 12A max load for 120 VAC
 - 10A max load for 240 VAC
- Visual – red LED (optional)
- Audible (optional)
- Battery backed (optional)
- Door Open too long (optional)

Temperature Detection:

- DS1821 Digital Thermometer

Dimensions:

- 6 $\frac{3}{4}$ " wide x 4 $\frac{3}{4}$ " high x 2" high

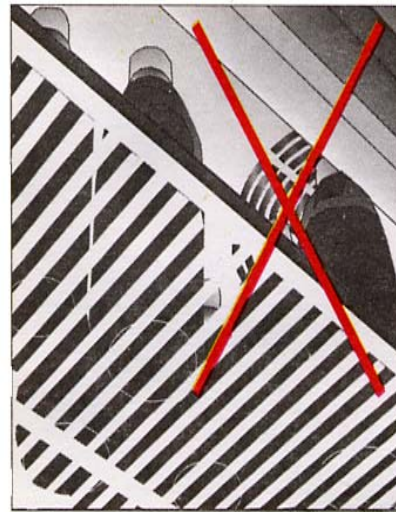
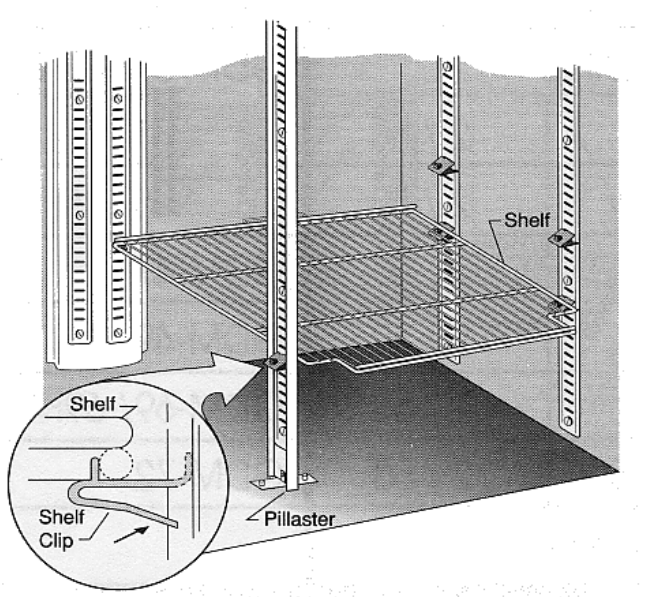
Shelf Installation

Step 1

- A. Hook shelf clips onto pilaster strips (see Illustration).
- B. Position all four shelf clips equal in distance from the floor for flat shelves.
Wire shelves are oriented so that cross support bars are facing down.

Step 2

- A. Place shelves or organizers on shelf clips making sure all corners are seated properly.



When loading top shelf of cooler, *do not* block evaporator fan. Allow at least 4" space between the fan and product.

GENERAL MAINTENANCE

Your **Lab Research Products** Refrigerator will give you years of superior performance if you comply with these simple suggestions.

Voltage

1. Before installing your **Lab Research Products** Refrigerator, you should have your electrician verify that 120 volts, 60 cycles, single phase is being supplied to your refrigerator at all times. This is essential for proper operation of the refrigeration unit.
2. Compressor warranties are void if the compressor burns out due to low voltage. Under no circumstances should you add additional loads between the source of power and the refrigerator. Do not plug any other electrical appliance or equipment into the same wall outlet as your refrigerator or into the same electrical circuit serving the refrigerator. Do not use an extension cord. One- and two-door units require a minimum of a 10 amp circuit; three-door units require a 15 amp minimum circuit.

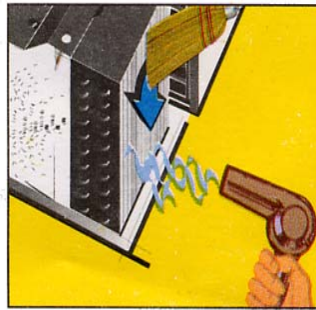
Cleaning

The exterior may be cleaned with soap and water. Use a good stainless steel cleaner on all stainless steel parts. Do **not** use harsh cleansers on any surface. We recommend the use of a nonabrasive cleanser.

Condenser

If you keep the condenser clean you will minimize service and lower your electrical costs. The condenser is accessible by removing the louvered grill on the front of the refrigerator. Although your **Lab Research Products** Refrigerators use a minimum amount of electricity, due to superior insulation in the cabinet, it is very important to keep the condenser clean.

1. The cleaner the condenser, the less the refrigerator will run.
2. Cleaning of condensers should be done when needed depending upon local conditions and your location in particular.
3. Use compressed air to blow the dust and grime from the condenser. A stiff brush will help. You must be able to see through your condenser.



Use air to blow the dust and grime from the condenser, a stiff brush will help.

Replacement Parts

Lab Research Products maintains indefinitely a record of the serial number of your refrigerator. If at any time during the life of your refrigerator you may obtain this part by furnishing the serial number to **Lab Research Products**.

If at any time you have questions regarding the installation, operation or maintenance of your Laboratory or Chromatography Refrigerator, please call **Lab Research Products** at **800-648-4041**.

Lab Research Products PRODUCT WARRANTY

Lab Research Products warrants to the original purchaser every new **Lab Research Products** refrigerated unit, the cabinet and all parts thereof, to be free from defects in material or workmanship, under normal use and service, for a period of Three (3) years.

The warranty period starts two weeks from the date of shipment from **Lab Research Products**. This two week period allows ample shipping time so that the warranty will go into effect at approximately the same time your equipment is delivered. Unless subject to prior written agreement with **Lab Research Products**, this warranty does not allow for any warranty start deferment greater than two weeks from date of shipment due to a delayed installation and/or start-up.

Under this warranty, **Lab Research Products**, through its authorized service organizations, will repair, or at its option, replace any part found to contain a manufacturing defect in material or workmanship without charge to the owner for parts, service labor or any shipping or cartage costs. Replacement or repaired parts will be warranted for only the unexpired portion of the original warranty.

ADDITIONAL TWO YEAR COMPRESSOR WARRANTY

In addition to the three (3) year warranty stated above, **Lab Research Products** warrants its hermetically and semi-hermetically sealed compressors to be free from defects in both material and workmanship under normal use and service for a period of two (2) additional years from the end of the initial three (3) year warranty period, but not to exceed five (5) years after shipment from **Lab Research Products**.

Compressors determined by **Lab Research Products** to have been defective within this extended time period will, at **Lab Research Products'** option, be either repaired or replaced with a compressor or compressor parts of similar design and capacity.

The two (2) year extended compressor warranty applies only to hermetically and semi-hermetically sealed parts of the compressor and does not apply to any other parts or components, including, but not limited to, cabinet, paint finish, temperature control, refrigerant, metering device, driers, motor starting equipment, fan assembly or any other electrical components.

Lab Research Products' sole obligation under this warranty is limited to either repair or replacement of parts, subject to the additional limitations below. This warranty neither assumes nor authorizes any person to assume obligations other than expressly covered by this warranty.

NO CONSEQUENTIAL DAMAGES. **Lab Research Products** is not responsible for economic loss; profit loss; or special, indirect or consequential damages, including without limitation, losses or damages arising from contents spoilage claims whether or not on account of refrigeration failure.

WARRANTY IS NOT TRANSFERABLE. This warranty is not assignable and applies only in favor of the original purchaser/user to whom delivered. Any such assignment or transfer shall void the warranties herein made and shall void all warranties, express or implied, including any warranty of merchantability or fitness for a particular purpose.

NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. There are no other warranties, express, implied, or statutory, except the three (3) year warranty and the additional two (2) year compressor warranty as described above. These warranties are exclusive and in lieu of all other warranties, including implied warranty and merchantability or fitness for a particular purpose. There are no warranties which extend beyond the description on the face hereof.

ALTERATION, NEGLIGENCE, ABUSE, MISUSE, ACCIDENT, DAMAGE DURING TRANSIT OR INSTALLATION, FIRE, FLOOD OR OTHER EXTERNAL CAUSES.

Lab Research Products is not responsible for the repair or replacement of any parts that **Lab Research Products** determines have been subjected after the date of manufacture to alteration, neglect, abuse, misuse, accident, damage during transit or installation, fire, flood or other external causes. It does not apply to defects resulting from failure to properly install, operate or maintain the product in accordance with the printed instructions provided, or damage caused by the storage of any corrosive material that comes in contact with the interior or exterior portions of the cabinet, or the use of spark producing equipment or containers (such as galvanized or carbonized steel containers) that come in contact with any interior portion of the cabinet.

TRANSPORTATION COSTS. **Lab Research Products** will accept parts covered under this warranty freight collect, provided that shipment has received prior approval.

OUTSIDE U.S./CANADA. This warranty does not apply to, and **Lab Research Products** is not responsible for, any warranty claims made on products sold or used outside the United States and Canada.

WARRANTY CLAIMS. To obtain prompt warranty service, simply contact **Lab Research Products** at 800-648-4041. **Lab Research Products'** shipping records showing date of shipment shall be conclusive in establishing the warranty period. All claims should include: model number of the refrigerator, the serial number of the cabinet, proof of purchase, date of installation, and all pertinent information supporting the existence of the alleged defect. Any action or breach of these warranty provisions must be commenced within one (1) year after that cause of action has accrued.