VWR Chromatography Refrigerator Manual

Maintain your VWR refrigerator to receive the most efficient and successful operation!

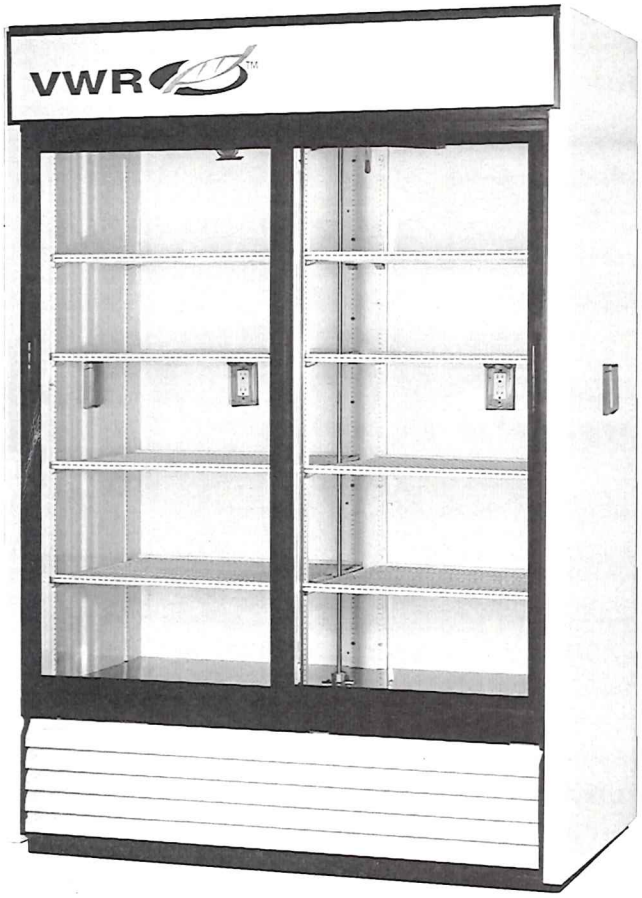


TABLE OF CONTENTS

VWR®

WARNING!

HOW TO CONNECT TO ELECTRICITY

Do not, under any circumstances, cut or remove the third (ground) prong from the power cord. For personal safety, this appliance must be properly grounded.

The power cord of this appliance is equipped with a 3-prong (grounding) plug which mates with a standard 3-prong (grounding) wall outlet to minimize the possibility of electric shock hazard from this appliance.

Have the wall outlet and circuit checked by a qualified electrician to make sure the outlet is properly grounded.

If the outlet is a standard 2-prong outlet, it is your personal responsibility and obligation to have it replaced with the properly grounded 3-prong wall outlet. The refrigerator should always be plugged into its own individual electrical circuit, which has a voltage rating that matches the rating plate of the cooler.

This provides the best performance and also prevents overloading building wiring circuits which could cause a fire hazard from overheated wires.

Never unplug your refrigerator by pulling on the power cord. Always grip plug firmly and pull straight out from the outlet.

Repair or replace immediately all power cords that have become frayed or otherwise damaged. Do not use a cord that shows cracks or abrasion damage along its length or at either end.

When moving the refrigerator away from the wall, be careful not to roll over or damage the power cord.

USE OF ADAPTER PLUGS *(Adapter plugs are not permitted in Canada)*

Because of potential safety hazards under certain conditions, we strongly recommend against the use of an adapter plug.

North America Use Only!

NEMA plugs

If you do not have the right outlet have a certified electrician install the correct power source.

DANGER! RISK OF CHILD ENTRAPMENT

PROPER DISPOSAL OF THE REFRIGERATOR

Child entrapment and suffocation are not problems of the past. Junked or abandoned refrigerators are still dangerous... even if they will sit for "just a few days." If you are getting rid of your old refrigerator, please follow the instructions below to help prevent accidents.

Before You Throw Away Your Old Refrigerator:

Take off the doors.

Leave the shelves in place so that children may not easily climb inside.

CFC Disposal

Your old refrigerator may have a cooling system that used CFC's (chlorofluorocarbons). CFCs are believed to harm stratospheric ozone.

If you are throwing away your old refrigerator, make sure the CFC refrigerant is removed for proper disposal by a qualified service technician. If you intentionally release this CFC refrigerant you can be subject to fines and imprisonment under provisions environmental legislation.

USE OF EXTENSION CORDS

Warranty is void for any refrigerator that has been connected to an extension cord.

OWNERSHIP

To insure that your unit works properly from the first day, it must be installed properly. We highly recommend a trained refrigeration mechanic and electrician install your equipment. The cost of a professional installation is money well spent.

Before you start to install your unit, carefully inspect it for freight damage. If damage is discovered, immediately file a claim with the delivery freight carrier.

REQUIRED TOOLS

- Adjustable Wrench
- Phillips Head Screwdriver
- Level

UNCRATING

Step 1

The following procedure is recommended for uncrating the unit:

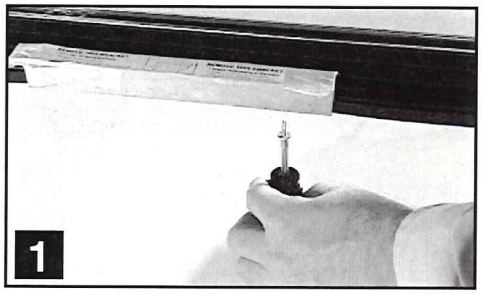
A. Remove the outer packaging, (cardboard and bubbles or styrofoam corners and clear plastic). Inspect for concealed damage. Immediately file a claim with the freight carrier if there is damage.

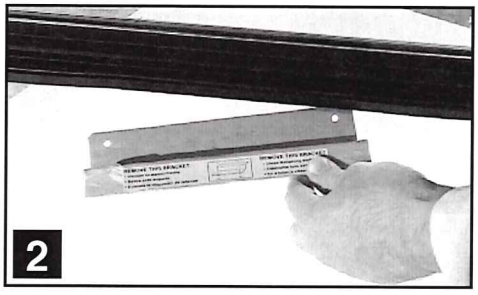
B. Move your unit as close to the final location as possible before removing the wooden skid.

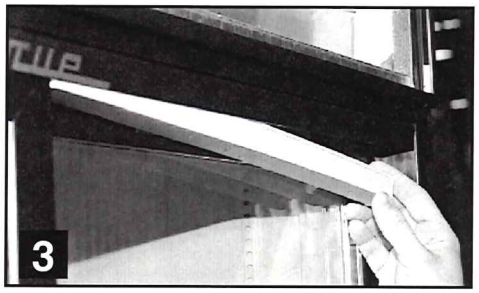
C. Remove door bracket on swinging glass door models (see image 1-2). Sliding glass door models contain shipping blocks (three for each door). Remove the two styrofoam blocks taped to the top of the door tracks (see image 3). The shipping blocks are orange in color and by opening the door a little the blocks can be removed (see images 4-6). Do not throw the bracket or blocks away. For future cabinet movement the brackets and blocks will need to be installed so the glass door does not receive any damage (see image for bracket and shipping block removal).

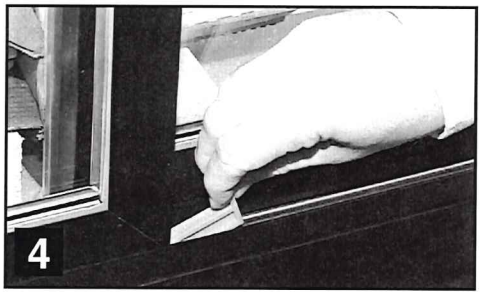
Note:

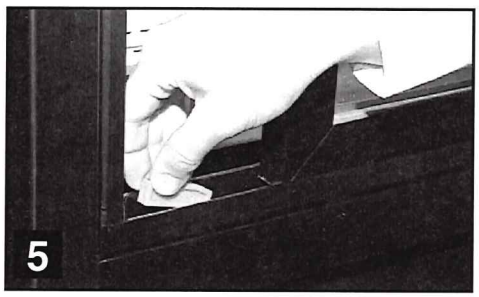
Keys for coolers with door locks are located in warranty packets.

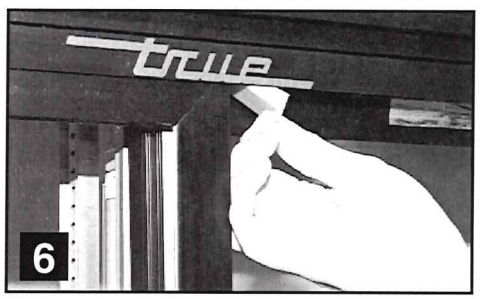












INSTALLATION OF OPTIONAL LEGS / CASTORS

Important Safeguard for installation of leg/castor (images 1-5 demonstrate procedure)

Step 4

Securing Castors and Legs

To obtain maximum strength and stability of the unit, it is important that you make sure each castor is secure. Legs are hand-tightened securely against the lower rail assembly, see image 4-5. The bearing race on the castor and the top edge of the leg must make firm contact with the rail.

Unit Leveling

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 (see image 2).

C. If more than one shim is used, turn the slot at a 90° angle so they are not in line.

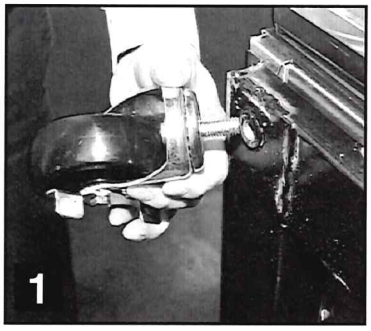
D. Turn the bearing race clockwise to tighten and secure the castor by tightening the anchoring bolt with a 3/4 inch open-end wrench or the tool provided (see image 3).

CAUTION

To avoid damage to lower rail assembly, slowly raise unit to upright position.

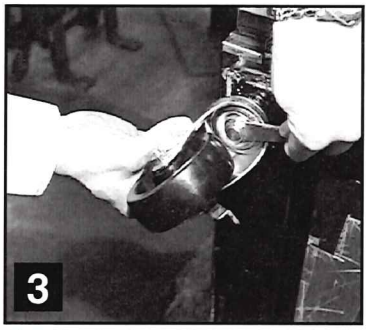
Note:

Open holes located on the cross members of the frame rail should be plugged before unit is in use.

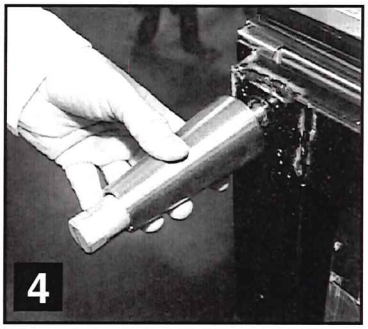


Thread castor into the underside of cabinet frame rail.

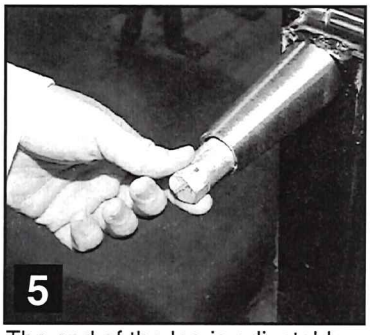
For leveling, insert the shim between the castor and frame rail.



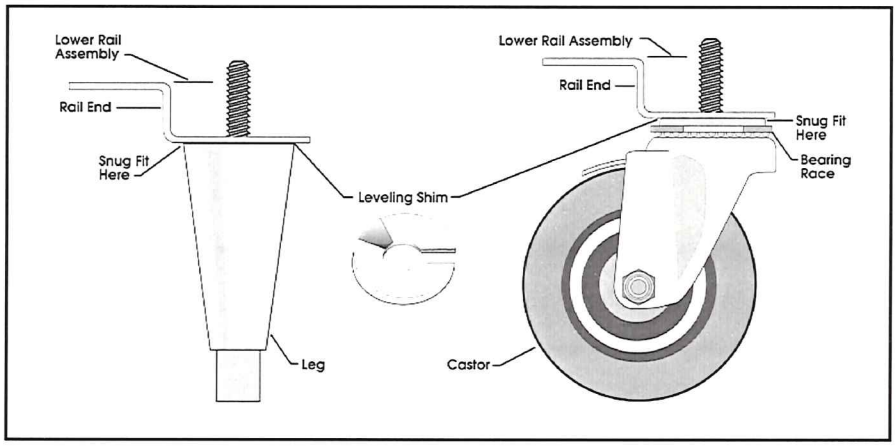
Use the tool provided to tighten the castor into place.



Thread leg into cabinet bottom frame rail.



The end of the leg is adjustable to easy leveling.



ELECTRICAL INSTRUCTIONS

Step 5

A. Before your new unit is connected to a power supply, check the incoming voltage with a voltmeter. If anything less than 100% of the rated voltage for operation is noted, correct immediately.

B. All units are equipped with a 7 ft. (2.1m) service cord, and must be powered at proper operating voltage at all times. Refer to cabinet data plate for this voltage.

Warranty requires a sole use, dedicated circuit for the unit.

WARNING

Compressor warranties are void if compressor burns out due to low voltage.

WARNING

Power supply cord ground should not be removed!

Note:

To reference wiring diagram - Remove front louvered grill, wiring diagram is positioned on the inside cabinet wall.

START UP

Step 6

A. The compressor is ready to operate. Plug in the cooler.

B. Temperature control set at No. 4 position gives refrigerators an approximate temperature of 35°F (2°C). Allow unit to function several hours, completely cooling cabinet before changing the control setting.

C. Excessive tampering with the control could lead to service difficulties. Should it ever become necessary to replace temperature control, be sure it is ordered from your dealer or recommended service agent.

D. Good airflow in your unit is critical. Be careful to load product so that it neither presses against the back wall, nor comes within four inches of the evaporator housing. Refrigerated air off the coil must circulate down the back wall.

NOTE:

If the cooler is disconnected or shut off, wait five minutes before starting again.

RECOMMENDATION

Before loading product we recommend you run your unit empty for two to three days. This allows you to be sure electrical wiring and installation are correct and no shipping damage has occurred. Remember, warranty does not cover product loss!

REPLACEMENT PARTS

A record of the cabinet serial number of your cooler is maintained indefinitely. If, at anytime during the life of your cooler, be it two years or twenty years, a part is needed, you may obtain this part by furnishing the serial number to the company from whom you purchased the cooler.

TEMPERATURE CONTROL ADJUSTMENT FOR HIGH ALTITUDE ONLY!

Terms:

Cut-out - Temperature sensed by the controller that shuts the compressor off.

Cut-in - Temperature sensed by the controller that turns the compressor on.

Required Tools:

- Phillips Head Screwdriver
- 5/64" or 2 mm Allen Wrench
- T-7 Torx Wrench

A. Unplug the cooler.

B. Remove the screws that secure the temperature control to the inset box at the lower left side of the cabinet (when facing the front of the cabinet).

C. To make these adjustments it may be necessary to remove the temperature control from the housing.

NOTE:

You may have to remove the wires attached to the control. Take note as to which wire is on which spade terminal.

D. Pull out gently from cabinet.

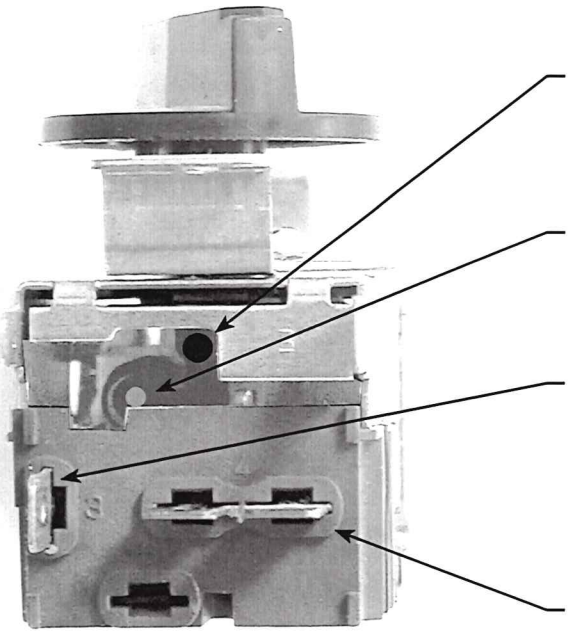
NOTE:

Mechanical temperature controllers are affected when functioning at high altitude. The cut-in and cut-out temperatures will be colder than when the controller functions closer to sea level.

E. For high elevation installations, it may be necessary to "warm-up" the set points. To make the adjustment, insert the appropriate tool in each adjustment screw and turn 1/4 of a revolution clockwise (to the right). This procedure will adjust both the cut-in and cut-out about 2°F warmer.

F. Make sure to reconnect the wires to the proper spade terminal when reinstalling.

DANFOSS TEMPERATURE CONTROL (HIGH ALTITUDE ONLY!)



MAINTENANCE, CARE & CLEANING
CLEANING THE CONDENSER COIL

When using electrical appliances, basic safety precautions should be followed, including the following:

Required Tools:

- Phillips Head Screwdriver
- Stiff Bristle Brush
- Adjustable Wrench
- Air Tank or CO_2 Tank
- Vacuum Cleaner

A. Disconnect power to unit.

B. SLIDE DOOR MODELS (see image 1):

Take off lower grill assembly by removing two (2) screws in lower corners (older models may have snap lock tabs instead of screws).

Loosen (do not remove) screws holding the top pivot pins. Swing grill up and remove frame hooks from pivot pins at top of louver.

SWING DOOR MODELS (see image 2):

Take off lower grill assembly by removing four (4) screws. See images 3 & 4 for removing swing door grill.

C. Remove bolts anchoring compressor assembly to frame rails and carefully slide out (tube connections are flexible).

D. Clean off accumulated dirt from the condenser coil and the fan with a stiff bristle brush.

E. Lift cardboard cover above fan at plastic plugs and carefully clean condenser coil and fan blades.

F. INDOOR LOCATION:

After brushing condenser coil, vacuum dirt from coil, and interior floor.

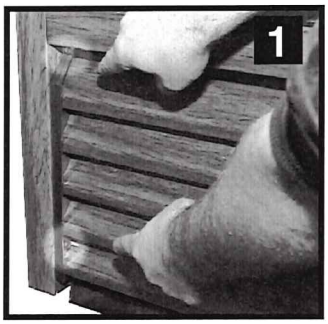
OUTDOOR LOCATION:

(GDM-33, GDM-47 and GDM-49 only) after brushing condenser coil blow CO_2 through condenser from fin side to fan (see images 5 & 6).

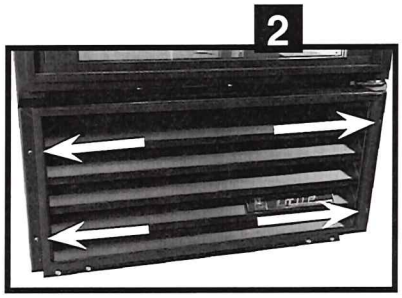
G. Replace cardboard cover. Carefully slide compressor assembly back into position and replace bolts.

H. Reinstall louver assembly onto unit with appropriate fasterner and clips. Tighten all screws.

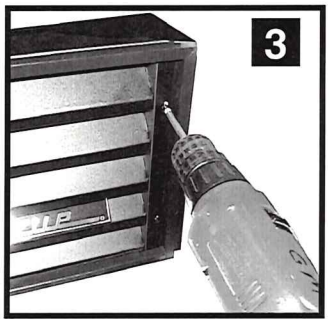
I. Connect unit to power and check to see if compressor is running.



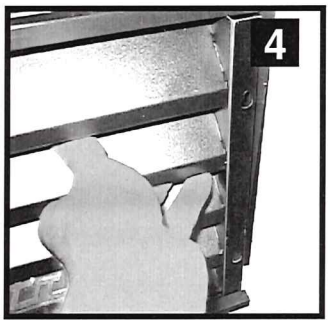
Slide Door Models



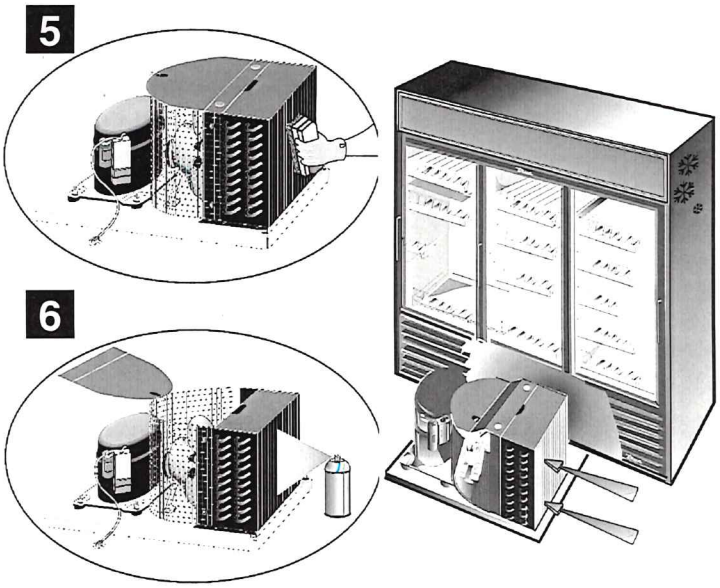
Swing Door Models



Swing door grill removal. Loosen but do not remove 4 Phillips screws inside the grill frame.



Lift the grill up until it clears the screw key hole slots.



IF THE COMPRESSOR WILL NOT RUN

1. If there is no voltage at the compressor terminals, follow the wiring diagram and check back from compressor to the power supply to find where the circuit is interrupted.

2. If power is available at the compressor terminals, and the compressor does not run, check the voltage at the compressor terminals while attempting to start the compressor.

If voltage at the compressor terminals is below 90% of the nameplate voltage, it is possible the motor may not develop sufficient torque to start. Check to determine if wire sizes are adequate, electrical connections are loose, the circuit is overloaded, or if the power supply is inadequate.

3. On single phase compressors, a defective capacitor or relay may prevent the compressor starting. If the compressor attempts to start but is unable to do so, or if there is a humming sound, check the relay to see if the relay contacts are damaged or fused. The relay points should be closed during the initial starting cycle, but should open as the compressor comes up to speed.

Remove the wires from the starting relay and capacitors. Use a high voltage ohmmeter to check for continuity throughout the relay coil. Replace the relay if there is not continuity. Use an ohmmeter to check across the relay contacts. Potential relay contacts are normally closed when the relay is not energized, current relay contacts are normally open. If either gives an incorrect reading, replace the relay.

Any capacitor found to be bulging, leaking, or damaged should be replaced.

Make sure capacitors are discharged before checking. Check for continuity between each capacitor terminal and the case. Continuity indicates a short, and the capacitor should be replaced.

Substitute a "known to be good" start capacitor if available. If compressor then starts and runs properly, replace the original start capacitor.

If a capacitor tester is not available, an ohmmeter may be used to check run and start capacitors for shorts or open circuits. Use an ohmmeter set to its highest resistance scale, and connect prods to capacitor terminals.

a) With a good capacitor, the indicator should first move zero, and then gradually increase to infinity.

b) If there is no movement of the ohmmeter indicator, an open circuit is indicated.

c) If the ohmmeter indicator moves to zero, and remains there or on a low resistance reading, a short circuit is indicated. Defective capacitors should be replaced.

4. If the correct voltage is available at the compressor terminals, and no current is drawn, remove all wires from the terminals and check for continuity through the motor windings. On single phase motor compressors, check for continuity from terminals C to R, and C to S. On compressors with line break inherent protectors, an open overload protector can cause a lack of continuity. If the compressor is warm, wait one hour for the compressor to cool and recheck. If continuity cannot be established through all motor windings, the compressor should be replaced.

Check the motor for ground by means of a continuity check between the common terminal and the compressor shell. If there is a ground, replace the compressor.

5. If the compressor has an external protector, check for continuity through the protector or protectors. All external inherent protectors on compressors can be replaced in the field.

IF THE MOTOR COMPRESSOR STARTS BUT TRIPS REPEATEDLY ON THE OVERLOAD PROTECTOR

1. Check the compressor suction and discharge pressures while the compressor is operating. Be sure the pressures are within the limitations of the compressor. If pressures are excessive it may be necessary to clean the condenser, purge air from the system, replace crankcase pressure regulating valve.

An excessively low suction pressure may indicate a loss of charge.

Check condenser to be sure it is clean and fan is running. Excessive temperatures on suction and discharge line may also indicate abnormal operating conditions.

2. Check the line voltage at the motor terminals while the compressor is operating. The voltage should be within 10% of the nameplate voltage rating. If outside those limits, the voltage supply must be brought within the proper range, or a motor compressor with different electrical characteristics must be used.

3. Check the amperage drawn while the compressor is operating. Under normal operating conditions, the amperage drawn will seldom exceed 110% of the nameplate amperage. High amperage can be caused by low damage, defective running capacitors, or a defective starting relay.

4. If all operating conditions are normal, the voltage supply at the compressor terminals balanced and within limits, the compressor crankcase temperature within normal limits, and the amperage drawn within the specified range, the motor protector may be defective, and should be replaced.

If the operating conditions are normal and the compressor is running excessively hot for no observable reason, or if the amperage drawn is above the normal range and sufficient to repeatedly trip the protector, the compressor has internal damage and should be replaced.

IF THE COMPRESSOR RUNS BUT WILL NOT REFRIGERATE

1. Check the refrigerant charge. Check the evaporator surface to determine if it is evenly cold throughout, or if partially starved. A lack of charge may be indicated by light, fluffy frost at the evaporator inlet. Add refrigerant if necessary.

2. Check the compressor suction pressure. An abnormally low pressure may indicate a loss of refrigerant charge, a malfunctioning capillary tube, a lack of evaporator capacity possibly due to icing or low air flow, or a restriction in the system.

Often a restriction in a drier or strainer can be identified by frost or a decrease in temperature across the restriction due to the pressure drop in the line. This will be true only if liquid refrigerant is in the line at the restricted point, since any temperature change due to restriction would be caused by the flashing of liquid into vapor as the pressure changes.

Any abnormal restriction in the system must be corrected.

3. Check the compressor discharge pressure. An abnormally high discharge pressure can cause a loss of capacity, and can be caused by a dirty condenser, a malfunctioning condenser fan, or air in the system.

4. If the suction pressure is high, and the evaporator and condenser are functioning normally, check the compressor amperage draw. An amperage draw near or above the nameplate rating indicates normal compressor or unit may have damaged valves.

An amperage draw considerably below the nameplate rating may indicate a broken suction reed or broken connecting rod in the compressor.

Warranty
U.S.A, Canada & Puerto Rico Only.

TWO YEAR PARTS & LABOR WARRANTY

VWR warrants to the original purchaser of every new VWR refrigerated unit, the cabinet and all parts thereof, to be free from defects in material or workmanship, under normal and proper use and maintenance service as specified by VWR and upon proper installation and start-up in accordance with the instruction packet supplied with each VWR unit. VWR's obligation under this warranty is limited to a period of one (1) year from the date of original installation or 15 months after shipment date from VWR, whichever occurs first.

Any part covered under this warranty that are determined by VWR to have been defective within two (2) year of original installation or fifteen (15) months after shipment date from manufacturer, whichever occurs first, is limited to the repair or replacement, including labor charges, of defective parts or assemblies. The labor warranty shall include standard straight time labor charges only and reasonable travel time, as determined by VWR.

ADDITIONAL FOUR YEAR COMPRESSOR WARRANTY

In addition to the two (2) year warranty stated above, VWR warrants its hermetically and semi-hermetically sealed compressor to be free from defects in both material and workmanship under normal and proper use and maintenance service for a period of three (3) additional years from the date of original installation but not to exceed five (5) years and three (3) months after shipment from the manufacturer.

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

The four (4) 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 component, etcetera.

404A/134A COMPRESSOR WARRANTY

The four year compressor warranty detailed above will be voided if the following procedure is not carefully adhered to:

1. This system contains R404A or R134A refrigerant and polyol ester lubricant. The polyol ester lubricant has rapid moisture absorbing qualities. If long exposure to the ambient conditions occur, the lubricant must be removed and replaced with new. For oil amounts and specifications please call VWR. Failure to comply with recommended lubricant specification will void the compressor warranty.
2. Drier replacement is very important and must be changed when a system is opened for servicing. A drier using XH-7 desiccant or an exact replacement solid core drier must be used. The new drier must also be the same capacity as the drier being replaced.
3. Micron level vacuums must be achieved to insure low moisture levels in the system. 500 microns or lower must be obtained.

WARRANTY CLAIMS

All claims for labor or parts must be made directly through VWR. All claims should include: model number of the unit, the serial number of the cabinet, proof of purchase, date of installation, and all pertinent information supporting the existence of the alleged defect.

In case of warranty compressor, the compressor model tag must be returned to VWR along with above listed information.

Any action or breach of these warranty provisions must be commenced within one (1) year after that cause of action has occurred.

WHAT IS NOT COVERED BY THIS WARRANTY

VWR's 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 those expressly covered by this warranty.

NO CONSEQUENTIAL DAMAGES. VWR IS NOT RESPONSIBLE FOR ECONOMIC LOSS; PROFIT LOSS; OR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOSSES OR DAMAGES ARISING FROM FOOD OR PRODUCT 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.

IMPROPER USAGE. VWR ASSUMES NO LIABILITY FOR PARTS OR LABOR COVERAGE FOR COMPONENT FAILURE OR OTHER DAMAGES RESULTING FROM IMPROPER USAGE OR INSTALLATION OR FAILURE TO CLEAN AND/OR MAINTAIN PRODUCT AS SET FORTH IN THE WARRANTY PACKET PROVIDED WITH THE UNIT.

ALTERATION, NEGLECT, ABUSE, MISUSE, ACCIDENT, DAMAGE DURING TRANSIT OR INSTALLATION, FIRE, FLOOD, ACTS OF GOD. VWR is not responsible for the repair or replacement of any parts that VWR determines have been subjected after the date of manufacture to alteration, neglect, abuse, misuse, accident, damage during transit or installation, fire, flood, or act of God.

IMPROPER ELECTRICAL CONNECTIONS. VWR IS NOT RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF FAILED OR DAMAGED COMPONENTS RESULTING FROM ELECTRICAL POWER FAILURE, THE USE OF EXTENSION CORDS, LOW VOLTAGE, OR VOLTAGE DROPS TO THE UNIT.

NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE: THERE ARE NO OTHER WARRANTIES, EXPRESSED, IMPLIED OR STATUTORY, EXCEPT THE ONE (1) YEAR PARTS & LABOR WARRANTY AND THE ADDITIONAL FOUR (4) 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.

OUTSIDE U.S.: This warranty does not apply to, and VWR is not responsible for, any warranty claims made on products sold or used outside the United States.

REMOTE CONDENSERS: VWR warrants the original purchaser of the remote cabinet one year parts and labor coverage for all cabinet parts thereof to be free from defects in material or workmanship, under normal and proper use and maintenance service, as specified by VWR. This warranty is limited to the cabinet only. VWR assumes no liability for remote condensing units.