Therma-Stor ®LLC
Driven by performance. Powered by design.™   4201 Lien Rd. • Madison, WI 53704

PHOENIX™
RESTORATION EQUIPMENT

Owner's Manual — Phoenix R150 50Hz LGR Dehumidifier
Installation, Operation & Service Instructions

Read and Save These Instructions

The Phoenix R150 50Hz LGR (low grain refrigerant) packs Large dehumidifier performance into the smallest, lightest, and most portable chassis in the restoration market.

The R150 50Hz combines Phoenix innovation, technical expertise, and proven durability into a unit that will remove more water, produce higher grain depression, and dry structures faster than competitive dehumidifiers.

Patented innovations include GTR (graduated thermal reduction) LGR design and ByPass technology. In addition to the performance benefits and tough compact size, are the ducting options, pleated media filter and energy efficient operation. The R150 50Hz is the latest member of the Phoenix line of LGR dehumidifiers; the most effective and versatile drying devices made.

The Phoenix R150 50Hz LGR Dehumidifier

LGR Capacity - Removes moisture even in dry conditions for deep drying.

Energy Efficiency - Removes 38 L/day at AHAM (26.7°C/60%RH) while drawing only 3.3 amps.

Patented Bypass Technology - Extends operating range to 40°C

260 m³/hr - Optimized process air speeds drying and provides static pressures for ducting.

More Grain Depression - Drier air from an LGR gets your jobs done quicker.

Focused Airflow - Patented Focused outlet directs air downward across the wet surface.

Outlet Ducting - 25cm exhaust.

Plastic Housing - Rugged roto-molded housing resists dents and scratches.

Solid State Controls - Easy to read and operate.

Protected Condensate Hose - Recessed hose cannot catch or be damaged on obstructions.

Rotating Handle - A heavy-duty rotating handle for ease of transport and storage.

Recessed 30cm Wheels - Allows greater maneuverability on the job site and efficient storage. Rolls over obstacles with ease.

Pleated Media Air Filter - Standard MERV-8 filtration
                                               Optional MERV-11

Storage - Front pocket for cord and hose storage

Patented
BYPASS™
TECHNOLOGY

Phoenix R150 50Hz
Part No. 4031520
U.S Patents: 7,246,503
                    8,938,981
Australian Patent: 2013200338

TS-901
Specifications subject to change without notice.   03/17

www.youtube.com/user/usephoenix

Table of Contents

Read the operation and maintenance instructions carefully before using this unit. Proper adherence to these instructions is essential to obtain maximum benefit from your Phoenix R150 50Hz dehumidifier.

⚠ WARNING

1 Safety Information

- Always operate the unit INDOORS ONLY.
- Always operate the unit with a GROUNDED PLUG and a GROUNDED ELECTRICAL OUTLET. A grounded plug is a safety feature that reduces the risk of shock or fire.
- Use of a GROUND FAULT INTERRUPTER outlet reduces the risk of shock or fire.

- Never operate a unit with a damaged power cord. If the power cord is damaged it must be replaced with a cord of the same type, amperage rating, and have the appropriate country specific grounded plug.
- Extension cords must be grounded and able to deliver the appropriate voltage.
- Always operate the unit on a stable and level surface. Do not use the unit as a bench or table.
- Never operate the unit in standing water, as this may create a risk of injury from electrical shock. Do not store outdoors.
- Do not obstruct the air intake and exhaust. Maintain a .3 m (1 ft) clearance around the air intake and exhaust.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
  Children should be supervised to ensure that they do not play with the appliance, appropriate details shall be given.

2 Specifications

Part No.	4031520
Power	3.3 amps, 220-240 VAC 50Hz, Grounded
Water Removal	38 liters/day @ AHAM (26.7°C, 60%RH)
Process Air	260 m³/hr without external ducting
Refrigerant Charge	.625 kg. R410a
Operating Range	1°C to 40°C
Filter	30cm x 30cm x 2.5cm Pleated Media MERV-8
Duct Options	Outlet – 25cm Lay-Flat
Warranty	Five years; 1st year 100% of Parts and Labor 2nd-5th year 100% of Parts of sealed refrigeration system.
Size	76cm high x 51cm wide x 43cm deep
Weight	37 kg
U.S Patents	7,246,503 8,938,981
Australian Patent	2013200338

3 Handle Installation

IMPORTANT: Handle installation REQUIRED prior to first use.

1. Remove handle from shipping position
2. Locate 4 1/4-20 x 1/2" hex bolts inside manual or packed parts bag
3. Assemble handle to top two threaded inserts on each side of the rear housing
4. Tighten the bolts using 3/8" hex driver or wrench

4 Operation

Place dehumidifier inside structure, place condensate hose into a drain, or a very large container, and turn on. To accelerate drying times, make sure all windows and doors are closed to the outside and seal off the wet area from any unaffected areas.

4.1 Transporting

The Phoenix R150 50Hz features a high-impact roto-molded housing which protects the unit airways, and while loading into vehicles. It is recommended the units are properly secured for transport. The Phoenix R150 50Hz must always be upright when transported by vehicle. It may be tipped onto its handle and back for loading and moving by hand.

4.2 Electrical Requirements

The Phoenix R150 50Hz plugs into a common grounded outlet. It draws 3.3 amps at 26.7°C, 60% RH. If used in a wet area, a ground fault interrupter (GFI) is required. If an extension cord is required, it must have a minimum of 1.0mm conductor if 6m long or less and 1.5mm conductor if greater than 6m long.

4.3 Condensate Removal

The Phoenix R150 50Hz is equipped with an internal condensate pump to remove the water that is condensed during dehumidification. This allows the condensate to be pumped vertically to 4m with the attached hose. If the condensate must be pumped more than 4m above the unit, a second pump must be added to relay the condensate. The condensate pump automatically purges when the reservoir is full. Use the PURGE button to manually remove condensation.

4.4 Ducting

A wire duct collar is supplied to allow 25cm lay-flat duct to be attached to the Phoenix R150 50Hz outlet. Lay-flat plastic ducting is available; see accessories table page 6. To attach ducting to the wire duct collar, put the plastic duct end through the collar center and roll the duct end outward so that it overlaps the outside of the collar. The duct and collar

may then be quickly attached to the Phoenix R150 50Hz by snapping the collar over the four exhaust tabs.

4.5 Defrost Cycle

If the low side refrigerant temperature drops due to excessive frost formation on the evaporator coil and below the temperature set point, the thermistor activates the solid-state control and defrost light. The compressor is cycled off and on by the thermistor temperature measurement. The air mover will continue to run, causing air to flow through the evaporator coil and melt the ice when the compressor is off. When the air temperature and/or humidity increases, the evaporator temperature will rise and the thermistor will end the defrost cycle at the temperature set point.
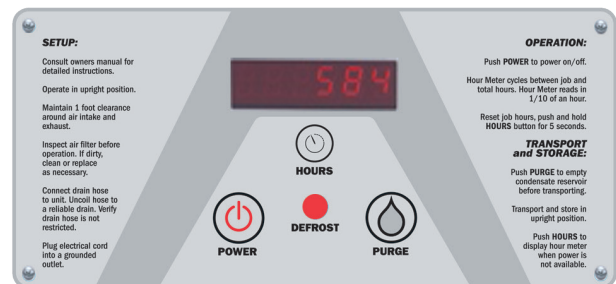
Phoenix R150 50Hz control board.

4.6 POWER Button

Press the POWER button to turn the dehumidifier on or off. When starting the dehumidifier the display will show the accumulated hours. Press the POWER button again to turn the dehumidifier off. The display will also power off.

4.7 PURGE Button

During normal operation the pump automatically cycles when the reservoir is full. Press the PURGE button to remove condensate manually from the reservoir. There are several ways to manually remove water from the reservoir:

1. Press the PURGE button once and the pump will run for 20 seconds
2. Press and hold the PURGE button and the pump will run for up to 30 seconds
3. Press the PURGE button while the dehumidifier is powered off and the pump will run for 30 seconds.

Always manually purge the water reservoir before transport or storage. Turn off the power and allow the plugged in dehumidifier to rest 15 minutes before the final purge.

4.8 Hour Meter

The digital hour meter displays the amount of time the dehumidifier has been turned on to the tenth of an hour. The hour meter continuously cycles between total machine hours and job hours every 3 seconds. Hours are stored in memory even when the unit is unplugged. The previous totals will be displayed next time the unit is powered on.

4.9 HOURS Button

Pressing the HOURS button displays the hour meter when the unit is turned off but plugged into power. To reset job hours, press and hold the HOURS button for 5 seconds when the unit is operating.

4.10 DEFROST Light

The DEFROST light turns on when the unit is in defrost cycle and indicates when the compressor is off.

5 Maintenance

5.1 Air Filter

The Phoenix R150 50Hz is equipped with a pleated media air filter that must be checked regularly. The standard filter is a MERV-8 high efficiency filter. Operating the unit with a dirty filter will reduce the dehumidifier's capacity and efficiency and may cause the compressor to cycle off and on unnecessarily. The filter can generally be vacuumed clean several times before needing replacement. Replacement filters can be ordered from the manufacturer or purchased locally if available

❗IMPORTANT

IMPORTANT: DO NOT operate the unit without the filter or with a less effective filter as the coils inside the unit could become clogged and require disassembly to clean.

5.2 Storage

There are three issues to consider when the Phoenix R150 is stored between uses. The first two issues occur when water trapped in the unit and condensate pump, and the third occurs when the unit is stored with a dirty filter. If standing water is left in the unit, the condensate pump can be damaged when temperatures fall below freezing and/or biological growth can occur. Biological growth can also be caused from storing the R150 with a dirty filter.

The effect of the trapped water can be greatly reduced if precautions are taken to remove as much water as possible before storage. In addition, biological growth can be prevented if the filter is replaced before storage.

To reduce the chance of damaging the condensate pump from water freezing:

1. Use the pump PURGE button to reduce the water level in the reservoir.
2. Walk out the condensate to drain it completely.

To reduce biological growth, always store the unit with a new filter and add a biofungicide that is approved for use with copper, aluminum, polyethylene, and ABS plastic to the condensate pump. Please note that you must remove the front housing from the R150 first before adding the biofungicide to the pump.

To Flush:

1. Run the condensate hose to a sanitary sewer drain.
2. Plug the unit in but do not turn it on.
3. Use the PURGE button to remove the chemical in the pump. Run the pump until it runs dry
4. Walk out the hose to drain it completely
5. Replace the filter

6 Service

⚠WARNING

WARNING: Servicing the Phoenix R150 50Hz with its high pressure refrigerant system and high voltage circuitry presents a health hazard which could result in death, serious bodily injury, and/or property damage. Only qualified service people should service this unit.

⚠CAUTION

CAUTION: Do not operate unit without the front housing in place.

6.1 Technical Description

The Phoenix R150 50Hz uses a refrigeration system similar to an air conditioner's to remove heat and moisture from incoming air and to add heat to the air that is discharged.

Hot, high pressure refrigerant gas is routed from the compressor to the condenser coil. The refrigerant is cooled and condensed by giving up its heat to the air that is about to be discharged from the unit. The refrigerant liquid then passes through a filter/drier and capillary tubing which cause the refrigerant pressure and temperature to drop. It next enters the evaporator coil where it absorbs heat from the incoming air and evaporates.

The evaporator operates in a flooded condition, which means that all the evaporator tubes contain liquid refrigerant during normal operation. A flooded evaporator should maintain constant pressure and temperature across the entire coil, from inlet to outlet.
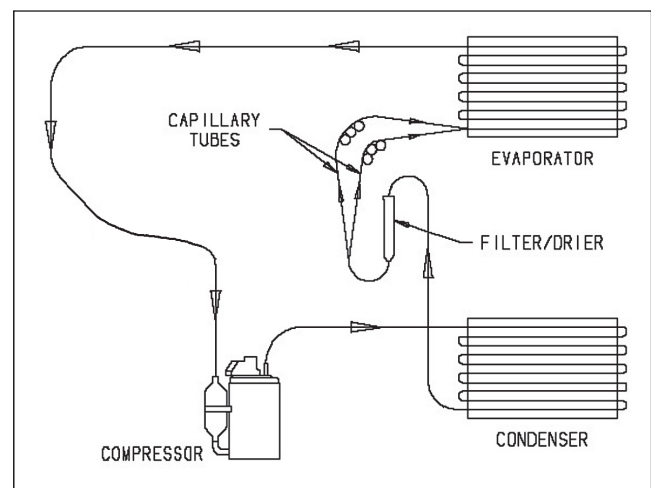
Refrigeration system

The mixture of gas and liquid refrigerant enter the compressor after leaving the evaporator coil. The compressor evacuates the cool refrigerant gas from the accumulator and compresses it to a high pressure and temperature to repeat the process.

6.2 Troubleshooting

No dehumidification, neither hour meter display nor compressor run and POWER button does not turn ON.

1. Unit unplugged or no power to outlet
2. Defective control board
3. Loose connection in internal wiring

No dehumidification, neither hour meter display nor compressor run with POWER button ON.

1. Defective control board
2. Loose connection in internal wiring

Some dehumidification, air mover runs continuously but compressor only runs sporadically.

1. Unit is in defrost cycle, DEFROST light on
2. Defrost thermistor defective or loose
3. Loose connection in compressor circuit
4. Defective compressor overload
5. Defective compressor
6. Defective relay
7. Upper housing is not sealed to lower housing

No dehumidification, air mover runs but compressor does not.

1. Bad connection in compressor circuit
2. Safety float switch closed, check pump reservoir
3. Defective compressor capacitor
4. Defective compressor overload
5. Defective compressor
6. Defective control board

Air mover does not run. Compressor runs briefly but cycles on and off.

1. Loose connection in blower circuit
2. Obstruction prevents impeller rotation
3. Defective air mover

Unit removes some water but not as much as expected.

1. Air temperature and/or humidity have dropped
2. Humidity meter and/or thermometer used are out of calibration
3. Unit has entered defrost cycle
4. Air filter dirty

5. Defective defrost thermistor
6. Low refrigerant charge
7. Defective compressor
8. Restrictive exhaust ducting

Unit runs but does not pump water.

1. Hose kinked or plugged
2. Pump motor defective
3. Pump check valve plugged
4. Bad connection in pump circuit
5. Hose disconnected internally

Unit pumps water automatically but not when PURGE button is pushed.

1. Bad connection in PURGE button circuit
2. Defective control board

Evaporator coil frosted continuously, low dehumidifying capacity.

1. Defrost thermistor loose or defective
2. Low refrigerant charge
3. Dirty air filter or restricted air flow
4. Front housing is not sealed to rear housing

Compressor runs with POWER button OFF.

1. Defective relay
2. Defective control board

6.3 Air Mover

The motorized impeller has a PSC motor and internal thermal overload protection. If defective, the complete assembly must be replaced.

1. Unplug power cord
2. Remove the front housing
3. Disconnect the impeller leads
4. Remove the four screws holding the impeller to the mounting plate
5. Reassemble the new impeller using the above procedure in reverse

6.4 Thermistor

The defrost thermistor is attached to the refrigerant suction line between the accumulator and the evaporator.

To replace thermistor:

1. Unplug the dehumidifier
2. Remove the front housing
3. Cut cable ties and remove insulation and aluminum tape.
4. Remove control panel
5. Unthread thermistor from control housing grommet
6. Detach thermistor from control board jumper
7. Reassemble thermistor and dehumidifier using the above procedure in reverse

Thermistor attached to the refrigerant line.
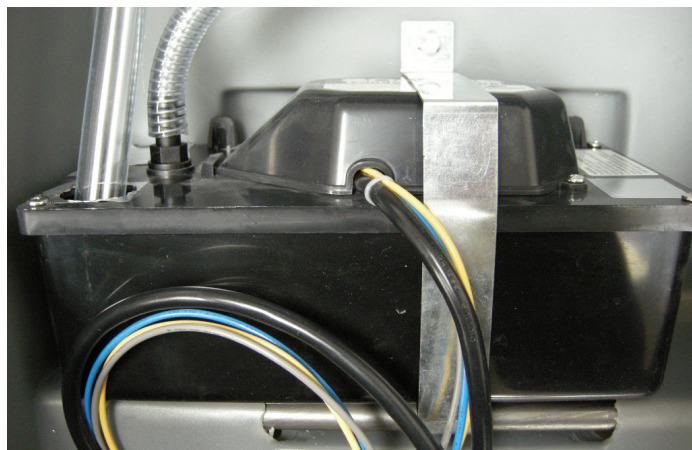
Picture of pump and reservoir.

6.5 Condensate Pump

The internal condensate pump removes water that collects in the reservoir.

To replace the condensate pump:

1. Unplug the unit
2. Remove the front housing
3. Unplug the pump wires from the wire harness
4. Remove the condensate hose and the one screw attaching the pump bracket to the rear housing
5. Replace the pump, hose, wiring, bolts, and housing in the reverse order

6.6 Float Safety Switch

The float safety switch activates when the water rises too high in the condensate reservoir. The float safety switch turns off the compressor until the water level lowers and disengages the switch.

The internal condensate pump removes water that collects in the reservoir.
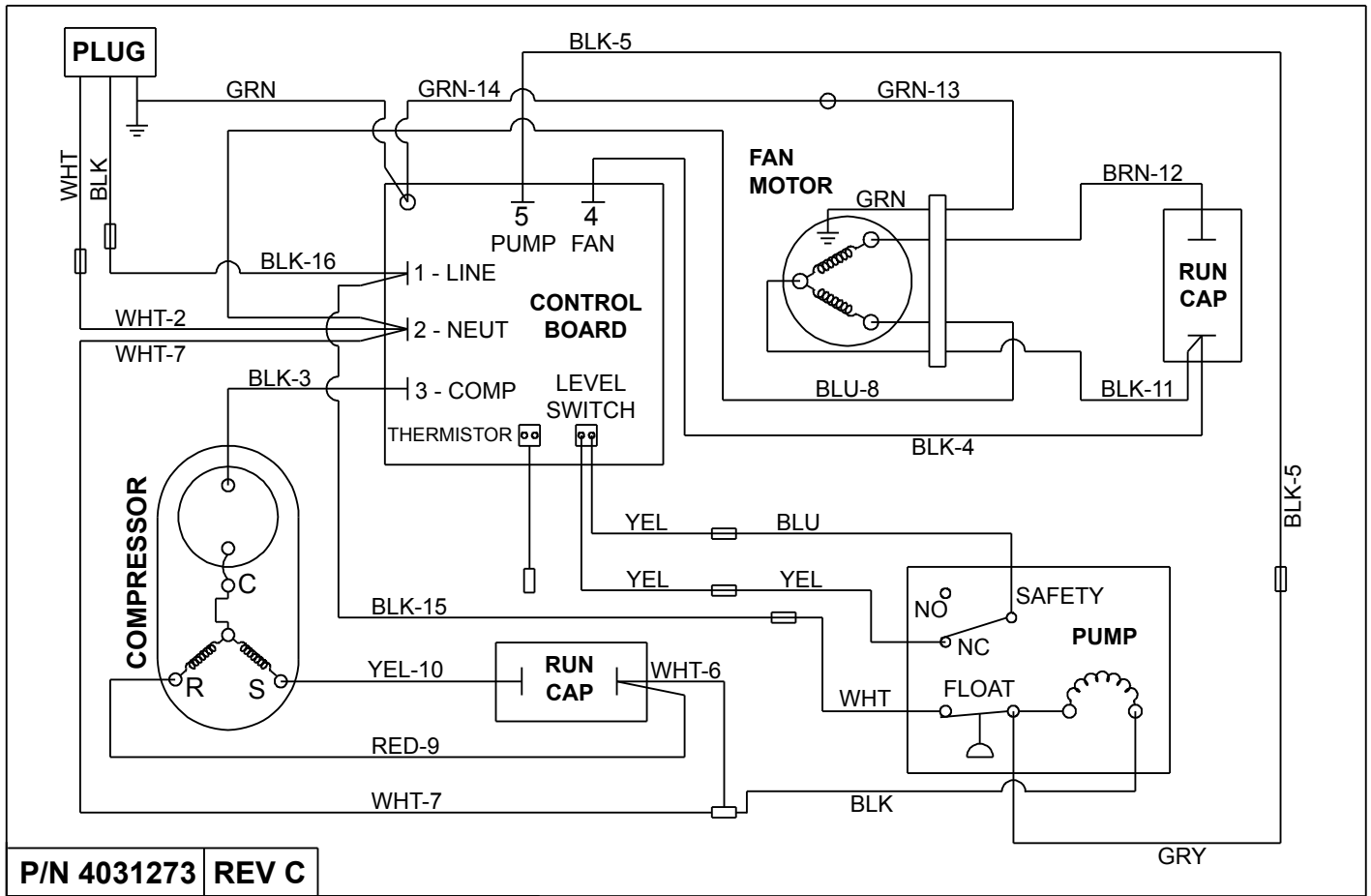
To replace the condensate pump:

1. Unplug the unit
2. Remove the front housing
3. Unplug the pump wires from the wire harness
4. Remove the condensate hose and the one screw attaching the pump bracket to the rear housing
5. Replace the pump, hose, wiring, bolts, and housing in the reverse order

7 Options & Accessories

4026315	Air Filter, Pleated MERV-8
4025568	Air Filter, Pleated MERV-11
4024935	Lay-Flat Duct 25cm Round x 76m Roll

To order, contact Therma-Stor LLC at 1-800-533-7533.

8 Wiring Diagram

PLUG

GRN

BLK-5

GRN-14

GRN-13

WHT

BLK

FAN MOTOR

GRN

BRN-12

5 PUMP

4 FAN

CONTROL BOARD

RUN CAP

BLK-16

1 - LINE

WHT-2

2 - NEUT

WHT-7

BLU-8

BLK-11

BLK-3

3 - COMP

LEVEL SWITCH

BLK-4

THERMISTOR

BLK-5

COMPRESSOR

C

YEL

BLU

YEL

YEL

BLK-15

NO

SAFETY

NC

PUMP

R S

YEL-10

RUN CAP

WHT-6

WHT

FLOAT

RED-9

WHT-7

BLK

GRY

P/N 4031273	REV C

Wiring diagram

9 Service Parts

Item	Description	Qty	Part No.
1	Top Cover	1	4031258
2	Filter, MERV 8	1	4026315
3	Impeller, Air Mover	1	4034522
4	Evaporator Coil	1	4031253
5	Condenser Coil	1	4031254
6	Condensate Pump	1	4034605-02
7	Capacitor, Compressor	1	4035949-02
8	Compressor	1	4029753
9	Thermistor Probe	1	4034716-02
10	Capacitor, Impeller	1	4035235-09
11	Hex Bolts, 1/4"–20 x 1.25"	6	1154012
12	Handle Bar	1	4031526
13	Handle Grip	1	4031268
14	Wheel, 30cm, Black	2	4026851
15	Cotter Pin	2	1284404
16	Hub Cap, Wheel, Black	2	4027138
17	Control Board	1	4035902
18	Power Cord	1	4028256

Items listed are not shown

Description	Qty	Part No.
Hose (1/4" ID x 10m long)	1	4024916
Coupling Body, 1/4" Tube	1	4024910
Coupling Insert, 1/4" Tube	1	4027277
Exhaust Grill	1	4026308
Wire Duct Collar	1	4026309
Bolt	13	1154006
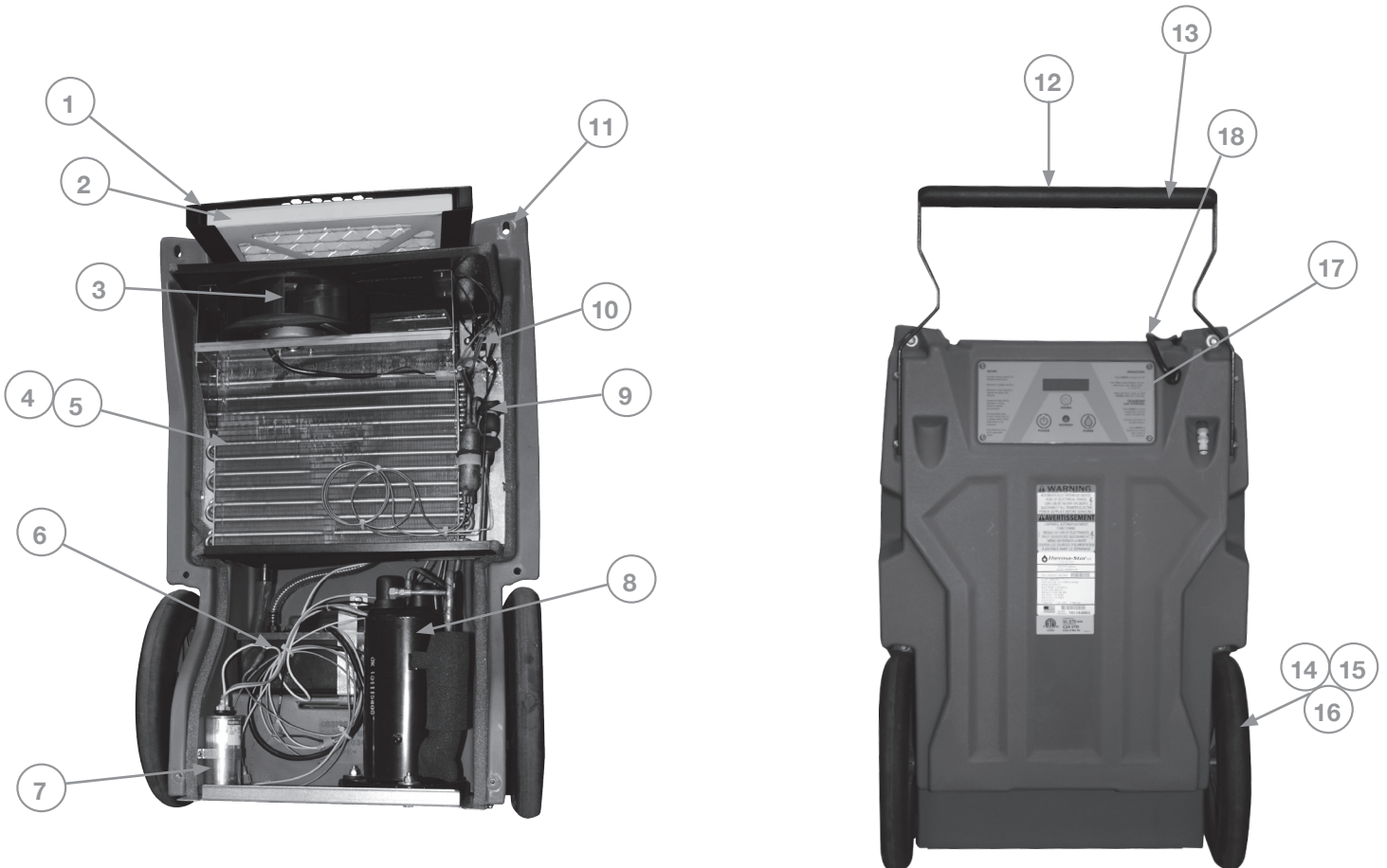
Specifications subject to change without notice.

Phoenix R150 50Hz Dehumidifier Limited Warranty

Warrantor:

Therma-Stor LLC

4201 Lien Rd.

Madison, WI 53704

Telephone: 1-800-533-7533

Who Is Covered: This warranty extends only to the original end-user of the Phoenix R150 50Hz dehumidifier and may not be assigned or transferred.

Year One: Therma-Stor LLC warrants that, for one (1) year the Phoenix R150 50Hz dehumidifier will operate free from any defects in materials and workmanship, or Therma-Stor LLC will, at its option, repair or replace the defective part(s), free of any charge.

Year(s) Two Through Five: Therma-Stor LLC further warrants that for a period of five (5) years, the condenser, evaporator, and compressor of the Phoenix R150 50Hz dehumidifier will operate free of any defects in material or workmanship, or Therma-Stor LLC, at its option, will repair or replace the defective part(s), provided that all labor and transportation charges for the part(s) shall be borne by the end-user.

Year(s) One Through Seven: Materials and workmanship of the housing are covered.

End-User Responsibilities: Warranty service must be performed by a Servicer authorized by Therma-Stor LLC. If the end-user is unable to locate or obtain warranty service from an authorized Servicer, he should call Therma-Stor LLC at the above number and ask for the Therma-Stor Service Department, which will then arrange for covered warranty service. Warranty service will be performed during normal working hours.

The end-user must present proof of purchase (lease) upon request, by use of the warranty card or other reasonable and reliable means. The end-user is responsible for normal care. This warranty does not cover any defect, malfunction, etc. resulting from misuse, abuse, lack of normal care, corrosion, freezing, tampering, modification, unauthorized or improper repair or installation, accident, acts of nature or any other cause beyond Therma-Stor LLC's reasonable control.

Limitation and Exclusions: If any Phoenix R150 50Hz Dehumidifier part is repaired or replaced, the new part shall be warranted for only the remainder of the original warranty period applicable thereto (but all warranty periods will be extended by the period of time, if any, that the Phoenix R150 50Hz Dehumidifier is out of service while awaiting covered warranty service).

UPON THE EXPIRATION OF THE WRITTEN WARRANTY APPLICABLE TO THE PHOENIX R150 50Hz DEHUMIDIFIER OR ANY PART THEREOF, ALL OTHER WARRANTIES IMPLIED BY LAW, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL ALSO EXPIRE. ALL WARRANTIES MADE BY THERMA-STOR LLC ARE SET FORTH HEREIN, AND NO CLAIM MAY BE MADE AGAINST THERMA-STOR LLC BASED ON ANY ORAL WARRANTY. IN NO EVENT SHALL THERMA-STOR LLC, IN CONNECTION WITH THE SALE, INSTALLATION, USE, REPAIR OR REPLACEMENT OF ANY PHOENIX R150 50Hz DEHUMIDIFIER OR PART THEREOF BE LIABLE UNDER ANY LEGAL THEORY FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES INCLUDING WITHOUT LIMITATION WATER DAMAGE (THE END-USER SHOULD TAKE PRECAUTIONS AGAINST SAME), LOST PROFITS, DELAY, OR LOSS OF USE OR DAMAGE TO ANY REAL OR PERSONAL PROPERTY.

Some states do not allow limitations on how long an implied warranty lasts, and some do not allow the exclusion or limitation of incidental or consequential damages, so one or both of these limitations may not apply to you.

Legal Rights: This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.