

## Owner's Manual — Ultimate 340 Installation, Operation & Service Instructions

**Read and Save These Instructions**

The Ultimate 340 is one of the most effective and versatile drying devices available. The Ultimate 340 removes more water and has more grain depression than other refrigerant dehumidifiers, even though it only requires 9.6 amps of electricity.

The term LGR (Low Grain Refrigerant) was created to describe the unique drying capabilities of this dehumidifier. These units were known for delivering substantially drier air, as well as for drying areas to much lower humidity levels than conventional dehumidifiers.

### The Ultimate 340 LGR, High Capacity Dehumidifier

- **Improved water removal**  
145 pints per day AHAM (80°F, 60%)
- **Improved grain depression**  
The driest air from an LGR
- **MERV-11 filtration**
- **Multiple ducting options**  
12" intake, 10" lay-flat exhaust
- **Less than 9.6 amps**  
Removes the most pints of water per kilowatt
- **Stainless steel cabinet**
- **Internal pump with 30 feet of hose**
- **Five-year warranty on the sealed refrigeration system.**
- **12" recessed wheels**
- **Solid state controls**



Ultimate 340  
# OE-ULT340-EA

TS-494 Rev. C  
Revised 10/08

Specifications subject to change without notice.

## Table of Contents

Introduction .....	1
1. Specifications.....	2
2. Operation .....	2
2.1 Transporting the Ultimate 340.....	2
2.2 Location .....	2
2.3 Electrical Requirements .....	3
2.4 Condensate Removal.....	3
2.5 Ducting.....	3
2.6 Power Switch .....	3
2.7 Pump Purge Switch.....	3
2.8 Hour Meter .....	3
2.9 Defrost Control Adjustment .....	3
2.10 Hours Button .....	3
2.11 Defrost Light.....	3
2.12 Low Pressure Control.....	3
3. Maintenance .....	3
3.1 Air Filter.....	4
3.2 Storage .....	4
4. Service .....	4
4.1 Warranty .....	4
4.2 Technical Description.....	4
4.3 Troubleshooting.....	4
4.4 Air Mover Replacement.....	5
4.5 Thermistor Replacement.....	5
4.6 Condensate Pump Replacement.....	5
4.7 Refrigerant Charging.....	6
4.8 Compressor/Capacitor Replacement .....	6
4.9 Gravity Drain Option.....	6
4.10 Relay.....	6
5. Wiring Diagram .....	7
6. Service Parts List .....	8
7. Warranty.....	10

Serial No. \_\_\_\_\_

Purchase Date \_\_\_\_/\_\_\_\_/\_\_\_\_

Dealer's Name \_\_\_\_\_

*Read the operation and maintenance instructions carefully before using this unit. Proper adherence to these instructions is essential to obtain maximum benefit from your Ultimate 340 dehumidifier.*

## 1 Specifications

<b>Part No.</b>	OE-ULT340-EA
<b>Power</b>	110-120 Vac, 9.6 amps
<b>Water Removal</b>	145 pints/day @ AHAM (80°F, 60%)
<b>Refrigerant Charge</b>	2 lbs. R-22
<b>Blower</b>	340 CFM Internal Condensate Pump with 20' lift, 30' vinyl hose
<b>Operating Range</b>	33°F to 105°F
<b>Filters</b>	16" x 20" x 2" Pleated Media MERV-11
<b>Duct Options</b>	Intake – 12" Flex-Duct Exhaust – 10" Lay-Flat
<b>Warranty</b>	Five years; First year 100% of Parts and Labor Second-fifth year 100% of Parts of sealed refrigeration system.
<b>Dimensions</b>	Width 20", Height 40-1/4", Depth 21-1/4"
<b>Weight</b>	130 lbs.

## 2 Operation

### 2.1 Transporting the Ultimate 340

The Ultimate 340 must always be upright when transported by vehicle. It may be tipped on to its handle and back for loading and moving by hand.

### 2.2 Location

*Note the following precautions when locating the Ultimate 340:*

- It is designed to be used **INDOORS ONLY**.
- If used in a wet area, plug it into a **GROUND FAULT INTERRUPTER**.
- **DO NOT** use the Ultimate 340 as a bench or table.
- It must always be used in the upright position.
- The air inlet on top & the side outlet must be at least 1 foot from walls and other obstructions to air flow.

## 2.3 Electrical Requirements

The Ultimate 340 plugs into a common grounded outlet on a 15 Amp circuit. It draws 9.6 Amps at 80°F, 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 14 gauge conductors if 25 feet long or less and 12 gauge conductors if greater than 25 feet long.

## 2.4 Condensate Removal

The Ultimate 340 is equipped with an internal condensate pump to remove the water that is condensed during dehumidification. This allows the condensate to be pumped 30' with the attached hose. If the condensate must be pumped more than 20 feet above the unit, a second pump must be added to relay the condensate. If the pump fails and the unit must be used before it can be replaced, the condensate can be drained by gravity (see Sec. 4.9).

## 2.5 Ducting

A detachable rectangular exhaust collar is supplied that will allow 10" round lay-flat duct to be attached to the Ultimate 340 outlet. Lay-flat plastic ducting is available from Jon-Don.

To attach ducting to a 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 Ultimate 340 by snapping the collar over the four screws at the blower outlet.

## 2.6 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.

## 2.7 Pump Purge Button

During normal operation the pump automatically cycles every four minutes. 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.

## 2.8 Hour Meter

The digital hour meter displays the cumulative and job time the dehumidifier has been turned on to the tenth of an hour. The total and job hours measured are stored when the unit is unplugged. The previous total will be displayed the next time the unit is turned on. The job hours can be reset by pressing and holding the HOURS button for 5 seconds when the unit is operating.

## 2.9 Humidistat

Adjust the humidistat to the desired conditioned humidity. The humidistat has a range of 20% to 70% RH. "ON" will operate the unit continuously regardless of humidity.

## 2.10 HOURS Button

Press the HOURS button when the dehumidifier cannot be plugged in and the hour meter needs to be read. The digital hour meter will display the last saved cumulative time for ten seconds.

## 2.11 DEFROST Light

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

***DRYING TIP: Air's ability to absorb moisture from wet surroundings and the Ultimate 340's ability to remove moisture from that air is greatly improved at higher temperatures. We recommend that the area to be dried be heated to over 70°F if possible. Less drying time will be required and efficiency will improve.***

## 2.12 Low Pressure Control

If the low side refrigerant pressure drops to 15 PSIG, the low pressure control opens and shuts off the compressor and blower. It is an automatically reset control. Its primary function is to prevent damage to the compressor if a leak develops in the refrigeration system. It may also open if stored where it is below 40°F and then started. Under these conditions, the unit will restart within several minutes; it may cycle several times until the unit warms up.

# 3 Maintenance

## 3.1 Air Filter

The Ultimate 340 is equipped with a pleated fabric air filter that must be checked regularly. The standard filter is a MERV-11 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 on the defrost control.

The filter can generally be vacuumed clean several times before needing replacement. Replacement filters can be

ordered from Jon-Don; call 1-800-556-6366 or at jondon.com. DO NOT operate the unit without the filter or with a less effective filter as the heat exchange coils inside the unit could become clogged and require disassembly to clean.

### 3.2 Storage

There are two issues to consider when the Ultimate 340 is stored between uses and both pertain to the water trapped in the unit: damage caused by freezing or biological growth. The effect of the trapped water can be greatly reduced if precautions are taken to remove as much as possible before storage.

1. Use the pump purge switch (see Sec. 2.7 & Fig. 4) to reduce the water level in the reservoir.
2. Stretch the hose flat to drain it completely. Raise one end above your head and spool to drain water out of the other end.

If the unit will not be exposed to freezing temperatures, an alternative to reduce biological growth is to flush the unit with a bio-fungicide that is approved for use with copper, aluminum and polyethylene. To flush:

1. Run the hose to a drain.
2. Plug in the unit but do not turn it on.
3. Remove the air filter. Slowly pour a quart of the chemical through the heat exchanger
4. Hold in the pump purge switch to reduce the water level in the reservoir.
5. Flush with water.

## 4 Service

### ⚠ CAUTION

**CAUTION: Servicing the Ultimate 340 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.**

#### 4.1 Warranty

A warranty certificate has been enclosed with this unit; read it before any repair is initiated. If a warranty repair is required, call Jon-Don at 1-800-556-6366 for warranty claim authorization and technical assistance.

#### 4.2 Technical Description

The Ultimate 340 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 (see Fig. 2).

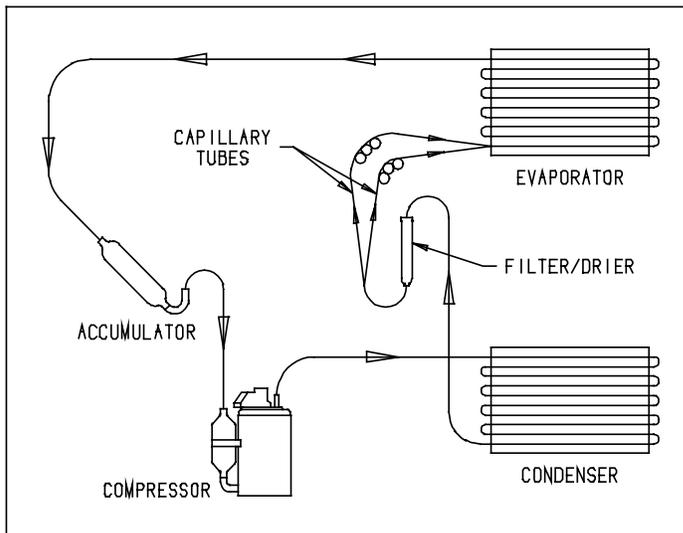


Figure 2: Refrigeration system

Hot, high pressure refrigerant gas is routed from the compressor to the condenser coil (see Figure 2). 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.

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

#### 4.3 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
8. Check dehumidistat for proper setting

**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. Air leak such as loose front cover
8. Defective compressor
9. Restrictive exhaust or inlet 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
6. Defective control board (pump phase)

**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. Upper housing is not sealed to lower housing

**Compressor runs with POWER button OFF.**

1. Defective relay
2. Defective control board
3. Upper housing not sealed to tower

**No hour meter display when the HOURS button is pressed.**

1. Battery charge is low. Replace battery
2. Defective control board

#### **4.4 Air Mover Replacement**

The blower 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 cover
3. Remove the four screws attaching the blower to the mounting support
4. Disconnect the blower leads
5. Reassemble the new blower using the above procedure in reverse

#### **4.5 Thermistor Replacement**

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 cover
3. Remove aluminum tape
4. Remove control panel
5. Unthread thermistor from condenser grommet
6. Detach thermistor from control board jumper, J1
7. Reassemble thermistor and dehumidifier using the above procedure in reverse

#### **4.6 Condensate Pump Replacement**

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

To replace the condensate pump:

1. Unplug the unit
2. Remove the front cover
3. Unplug the pump wires from the wire harness

4. Remove the condensate hose and the one screw attaching the pump bracket to the base
5. Replace the pump, hose, wiring, bolts, and cover in the reverse order

#### **4.7 Refrigerant Charging**

If the refrigerant charge is lost due to service or a leak, a new charge must be accurately weighed in. If any of the old charge is left in the system, it must be removed before weighing in the new charge. Refer to the unit nameplate for the correct charge weight and refrigerant type.

#### **4.8 Compressor/Capacitor Replacement**

This compressor is equipped with a two terminal external overload, run capacitor, but no start capacitor or relay (see Fig. 3).

#### **4.9 Gravity Drain Option**

If the condensate pump fails and cannot be replaced immediately, the Ultimate 340 can be used by draining by gravity.

1. Unplug the unit and remove the front cover.
2. Push the plastic plug on the right side (see Fig. 4) out from inside the unit.
3. Locate the heavy vinyl hose that connects the drain pan to the condensate pump. Pull the end out of the pump.
4. Push that end of the vinyl hose through the hole in the right side.
5. Connect a garden hose and run it to a drain. Keep the hose as flat to the floor as possible to avoid air pockets that would hinder draining. Placing the unit on something above the floor will also improve draining.

#### **4.10 Relay**

The contacts of the single pole, single throw relay complete the power circuit to the compressor. The contacts are closed when power is provided to the relay coil via the control circuit. The control circuit includes the power switch, low pressure control, defrost thermostat and timer.

# 5 Wiring Diagram

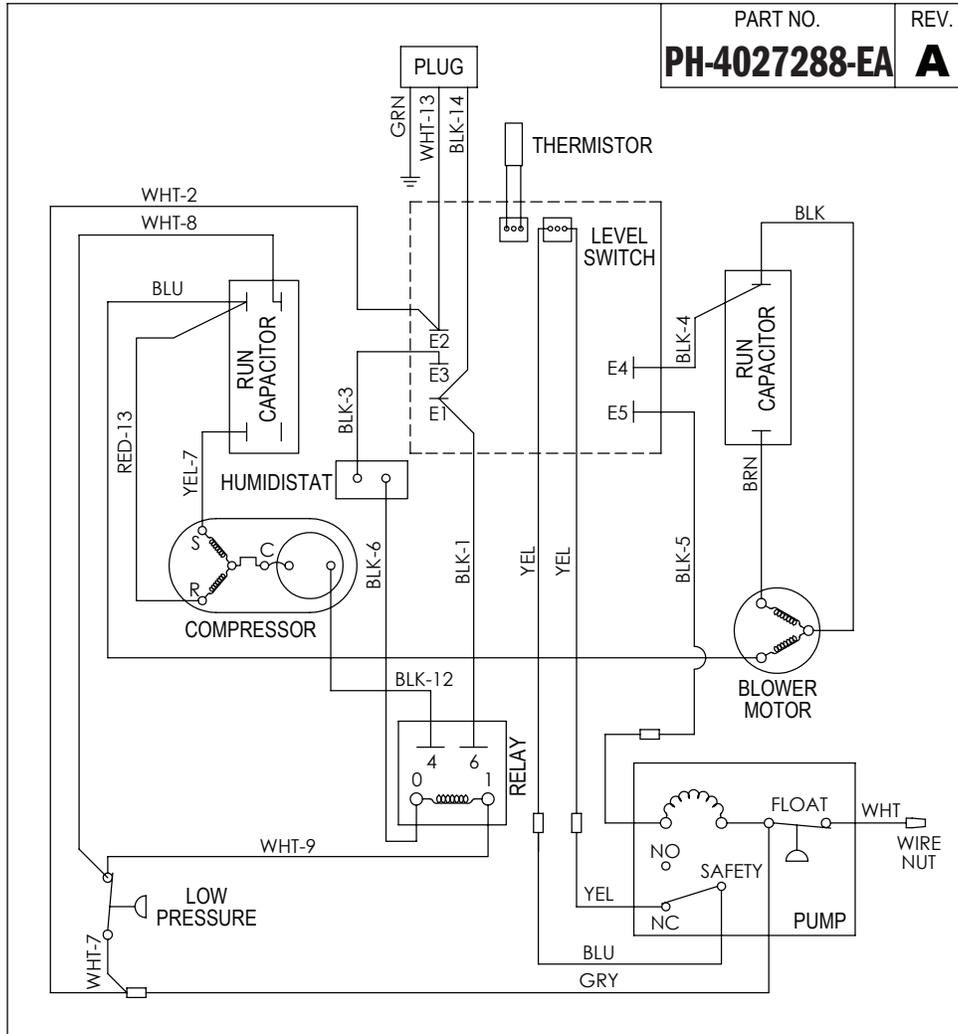


Figure 3: Electrical schematic of Ultimate 340

# 6 Service Parts

Item	Part No.	Qty.	Description
1	PH-4027275-EA	1	Extension Cord, 20ft
2	PH-4027257-EA	1	Heat Exchanger
3	PH-4027255-EA	1	Evaporator
4	PH-4026827-EA	1	Compressor, 2P16S3R126B-1A
5	PH-1970010-EA	1	Relay
6	PH-4027108-EA	1	Capacitor, 45uFd
7	PH-4024692-EA	1	Capacitor, 20uFd
8	PH-4027272-EA	2	Feet
9	PH-4024078-EA	1	Duct Collar
10	PH-4027264-EA	1	Blower
11	PH-4025087-EA	1	Filter/Drier
12	PH-4021589-EA	2	Capillary Tubes
13	PH-4023649-EA	1	Condensate Pump
14	PH-4022254-EA	1	Accumulator
15	PH-4027278-EA	1	Thermistor
16	PH-4021475-EA	1	Filter, 2"x16"x20"
17	PH-4027259-EA	1	Top
18	PH-4027253-EA	1	Front
19	PH-4026304-EA	2	12" Wheel

Item	Part No.	Qty.	Description
20	PH-4026311-EA	1	Axle
21	PH-1284404-EA	2	Cotter Pin
22	PH-4027273-EA	1	Skid Plate
23	PH-4023080-EA	1	Coupling Insert, .38 Tube
24	PH-4027258-EA	1	Plug Receptacle
25	PH-4021469-EA	1	Humidistat
26	PH-4021495-EA	1	Knob
27	PH-4026094-EA	1	Handle
28	PH-4027254-EA	1	Control
29	PH-1912500-EA	1	9V Battery

**Items listed below are not shown**

PH-4027256-EA	1	Condenser Coil
PH-4024910-EA	1	Coupling Body, .25 Tube
PH-4027277-EA	1	Coupling Insert, .25 tube
PH-4024916-EA	1	Drain Hose (.25 ID x 33' long)
PH-1096008-EA	6	Front Panel Screw, 1/4-20 x 3/4
PH-1205473-EA	6	Front Panel Retaining Nut, 1/4 -20
PH-4027277-EA	1	Coupling Insert, .25 tube

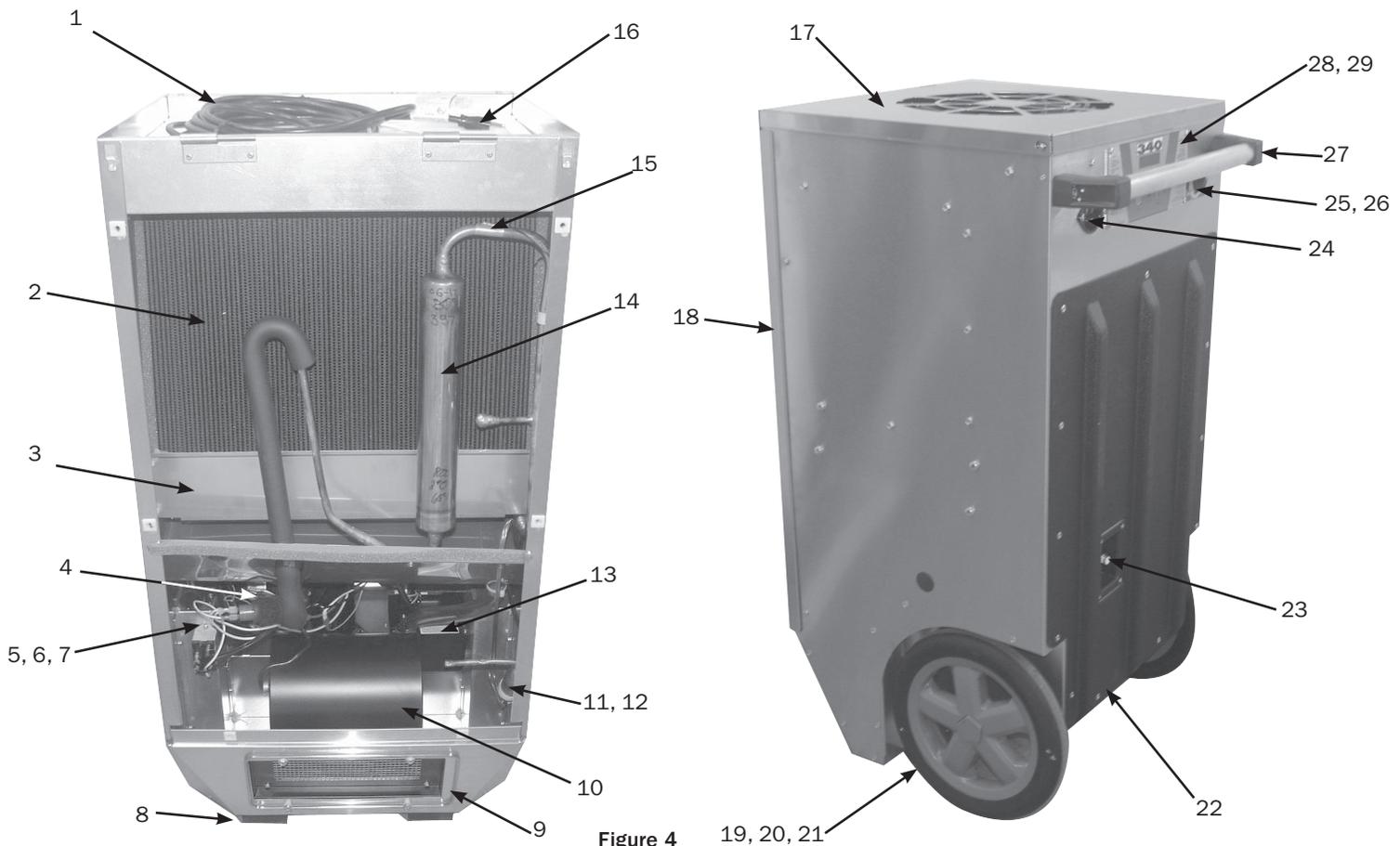


Figure 4

Specifications subject to change without notice.

This page intentionally left blank.

## Ultimate 340 Dehumidifier Limited Warranty

**Warrantor:**

Jon-Don  
1-800-556-6366

**Who Is Covered:** This warranty extends only to the original end-user of the Ultimate 340 dehumidifier, and may not be assigned or transferred.

**First Year Warranty:** Jon-Don warrants that, for one (1) year the Ultimate 340 dehumidifier will operate free from any defects in materials and workmanship, or Jon-Don will, at its option, repair or replace the defective part(s), free of any charge.

**Second Through Fifth Year Warranty:** Jon-Don further warrants that for a period of five (5) years, the condenser, evaporator, and compressor of the Ultimate 340 dehumidifier will operate free of any defects in material or workmanship, or Jon-Don, 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.

**End-User Responsibilities:** Warranty service must be performed by a Servicer authorized by Jon-Don. If the end-user is unable to locate or obtain warranty service from an authorized Servicer, he should call Jon-Don at the above number and ask for the Jon-Don 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 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 Jon-Don' reasonable control.

**Limitations and Exclusions:** If any Ultimate 340 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 Ultimate 340 Dehumidifier is out of service while awaiting covered warranty service).

UPON THE EXPIRATION OF THE WRITTEN WARRANTY APPLICABLE TO THE Ultimate 340 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 Jon-Don ARE SET FORTH HEREIN, AND NO CLAIM MAY BE MADE AGAINST Jon-Don BASED ON ANY ORAL WARRANTY. IN NO EVENT SHALL Jon-Don, IN CONNECTION WITH THE SALE, INSTALLATION, USE, REPAIR OR REPLACEMENT OF ANY Ultimate 340 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 limitation 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.