



## INSTALLATION, OPERATION, AND MAINTENANCE INSTRUCTIONS

# HI-E DRY

# 140

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dehumidifier



- + Industry-Leading Efficiency
- + Patented M-CoRR Technology
- + 12-Inch Wheels for Easy Mobility
- + Collapsible Design for Space-Saving Storage
- + Dual Handle Positions for Flexible Movement

Patents: [thermastor.com/patents](http://thermastor.com/patents)

Model Number #4045100-30

Serial Number \_\_\_\_\_

Install Date \_\_\_\_\_

Sold By \_\_\_\_\_



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## SAFETY PRECAUTIONS

Read the installation, operation and maintenance instructions carefully before installing and operating this device. Proper adherence to these instructions is essential to obtain maximum benefit from your Quest dehumidifier.

## READ AND SAVE THESE INSTRUCTIONS

- » The device is designed to be installed INDOORS IN A SPACE THAT IS PROTECTED FROM RAIN AND FLOODING.
- » If used near a pool, spa or wet area; be certain there is NO chance the unit could fall into the water, be splashed and that it is plugged into an outlet that is a GROUND FAULT INTERRUPT protected circuit.
- » The Hi-E Dry 140 must always be used in the horizontal position.
- » Never operate a unit with a damaged power cord. If the power cord is damaged, it must be replaced by the manufacturer, its service agent, or a similarly qualified person in order to avoid a hazard.
- » DO NOT use the device as a bench or table.
- » DO NOT place the device directly on structural members. Provide vibration isolation in order to minimize operational vibration and/or noise.
- » Make all electrical connections in accordance with the current edition of the NEC ANSI/NFPA 70 and any national and local codes or ordinances that may apply.
- » Maintain a minimum 3 ft (1m) clearance to avoid obstructing the air return and supply.
- » 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.
- » Do not unplug the unit by pulling on the cord. Grasp the plug firmly and pull it out of the wall socket or power receptacle.
- » Not intended for use at altitudes over 6500 ft (2000M).

 **WARNING** Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.

The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance, or an operating electric heater).

Do not pierce or burn. Be aware that refrigerants may not contain an odor.



**REFRIGERANT  
SAFETY GROUP  
A2L**

## 1. INTENDED APPLICATION FOR HI-E DRY 140

The Quest Hi-E Dry 140 dehumidifier is designed to operate in temperatures between 56 F and 95 F.

In order to efficiently control humidity levels, the area in which the dehumidifier is to be operated must be free of water intrusion or excessive fresh (outside) air infiltration. Before installing the Quest Hi-E Dry 140 dehumidifier, water intrusion and air infiltration problems should be addressed or noted in calculations.

## 2. REGISTRATIONS

The Quest Hi-E Dry 140 dehumidifier conforms to unified standard UL 60335-2-40.

Patent: [thermastor.com/patents](http://thermastor.com/patents)

## 3. SPECIFICATIONS @ 80 F / 60% RH

| UNIT                                 | HI-E DRY 140<br>4045100-30     |          |
|--------------------------------------|--------------------------------|----------|
| CFM:                                 | 300 @ 0.0" WG                  |          |
| POWER:                               | 780 Watts                      |          |
| SUPPLY VOLTAGE:                      | 110-120 VAC<br>1 Phase - 60 Hz |          |
| CURRENT DRAW:                        | 6.8A                           |          |
| RATED CURRENT DRAW:<br>(104 F   36%) | 8.8 @ 105 F / 36%              |          |
| MCA *                                | 15A                            |          |
| MOP *                                | 15A                            |          |
| RECOMMENDED BREAKER SIZE:            | 15A                            |          |
| ENERGY FACTOR (L/KWH):               | 3.4                            |          |
| OPERATING TEMP:                      | 56 F Min - 95 F Max            |          |
| WATER REMOVAL (PINTS/DAY):           | 135                            |          |
| EFFICIENCY (PINTS/KWH):              | 7.2                            |          |
| AIR FILTER:<br>MERV-10               | 12" x 14" x 1"                 |          |
| POWER CORD:                          | 25 ft., 115 VAC, Ground        |          |
| DRAIN CONNECTION:                    | 3/8" Push to Connect           |          |
| REFRIGERANT TYPE:                    | R454B                          |          |
| REFRIGERANT AMOUNT:                  | 1 lb 3 oz                      |          |
| DIMENSIONS:                          | Unit                           | Shipping |
| WIDTH:                               | 20"                            | 23"      |
| HEIGHT:                              | 18"                            | 20"      |
| LENGTH:                              | 25.4"                          | 29"      |
| WEIGHT:                              | 85 lb                          | 90 lb    |

**\* MCA = Minimum Circuit Ampacity**

This number provides a qualified electrician with the information needed to determine the minimum wire size used in the circuit that feeds a single dehumidifier.

**\* MOP = Maximum Overcurrent Protection**

This number provides a qualified electrician with the value of the maximum size circuit breaker that may be used to protect the circuit that feeds a dehumidifier.

Specifications are subject to change without notice.

## 4. LOCATION

### 4.1 ELECTRICAL REQUIREMENTS

The Quest Hi-E Dry 140 plugs into a common grounded outlet on a 15-amp circuit. It draws 6.8 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.

The Quest Hi-E Dry 140 dehumidifier can be installed in a variety of locations to meet the owner's needs as listed below. In all cases keep the following cautions in mind:

- » The minimum floor area of the room shall be 28 m<sup>2</sup> (square meters).
- » Keep any required ventilation openings clear of obstruction.
- » Ducts connected to the dehumidifier shall not contain a POTENTIAL IGNITION SOURCE.
- » Supply and return air shall be directly ducted to the space. Open areas such as false ceilings shall not be used as a return air duct.

#### Unventilated Areas

- » Unventilated Areas where the Quest Hi-E Dry 140 dehumidifier is installed or stored need to be so constructed that should any refrigerant leak, it will not stagnate so as to create a fire or explosion hazard.
- » Quest Hi-E Dry 140 dehumidifier shall not be stored or ducted into one or multiple rooms with continuously operating open flames (for example an operating gas appliance) or other POTENTIAL IGNITION SOURCES (for example an operating electric heater, hot surfaces). A flame-producing device may be installed in the same space if the device is provided with an effective flame arrest.

## 5. TRANSPORTING

The Quest Hi-E Dry 140 features a high-impact structural foam housing which protects the unit. It is recommended the units are properly secured for transport. The Quest Hi-E Dry 140 dehumidifier must always be on its base when transported by vehicle. To extend handle to the 42" and 50" handle position, use the 'push' button centered beneath the handle.

## 6. OPERATION

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

### 6.1 CONTROL PANEL

When presented with Control Panel Selection Boxes in the control panel, the black box with the white lettering will be the active selection.

## CONTROL PANEL KEY

### 6.2 STARTUP & STANDBY MODE

When plugged in but without pushing the power button, the display will communicate to the user that the machine is in Standby mode and ready to be powered on. In Standby Mode, the display will also show the current job and life hours on the fourth line.



### 6.3 POWER BUTTON

Press the button to turn the dehumidifier on. The unit will begin the Powering Up sequence and you will see this screen:



The Powering Up screen allows the compressor time to acclimate before starting up.

Press and hold the Power button to turn the dehumidifier off. The dehumidifier will go through a powering-down cycle. The default shut-down time is three minutes plus 20 seconds for a final purge. The shutdown time can be changed by scrolling through the menu to this screen:



### ⚠ IMPORTANT

Unplugging the unit without running the shutdown sequence will allow water to remain in the unit after use.

Tilting the unit more than 70 degrees on the handle side or more than 20 degrees on the non-handle side may result in water spillage.

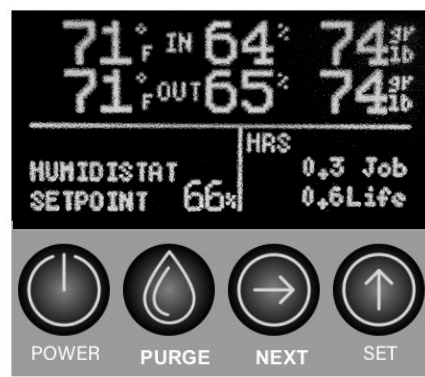
Tilting the unit without running the final purge may result in water spillage.

## 6.4 DASHBOARD SCREEN

Dashboard while in Humidistat Mode (default)

When the machine is dehumidifying the unit will display:

- » **Inlet** = Temperature, RH, Grains/lb
- » **Outlet** = Temperature, RH, Grains/lb
- » **Hours** = Job hours and Life hours of the dehumidifier
- » **Humidistat SetPoint** = Current RH selection



**NOTE:** The display will automatically go dark upon start up, or after 10 minutes. To see the display again, simply press any button.

## 6.5 NAVIGATION

Press the **NEXT** button to advance to the next menu.

Press the **SET** key to scroll through available values. When two boxes are presented, the **white box** indicates the selected choice.

Press the **Purge** key to return to the main dashboard.

## 6.6 PURGING

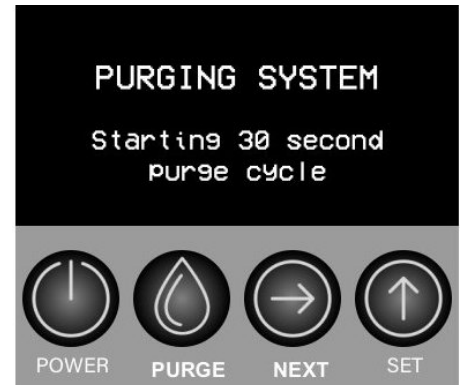
During normal operation the pump automatically cycles when the reservoir is full.

Press the PURGE button to remove condensate manually from the reservoir. The display will communicate to the user that the machine is purging on the fourth line of the dashboard and show a 20 second countdown timer. This will momentarily replace grain depression until the machine has finished purging.

## 6.7 CONDENSATE REMOVAL

The Quest Hi-E Dry 140 is equipped with an internal condensate pump to remove the water that is condensed during dehumidification. This allows the condensate to be pumped up to 20 feet 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. The condensate pump automatically purges when the reservoir is full. Use the PURGE button to manually remove condensate.

For help with the “Reservoir full: check float, pump, and hose” error see section [9.4 Troubleshooting](#)



## 6.8 DEFROST CYCLE

The display will communicate to the user that the machine is defrosting on the fourth line of the dashboard. This will momentarily replace grain depression until the machine has finished defrosting.

If the low side refrigerant temperature drops due to excessive frost formation on the evaporator coil and below the temperature set point, the compressor is cycled off and on by the thermistor temperature measurement. The air mover will continue to run, increase speed to normal, and cause 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.



## 6.9 SHUT DOWN SEQUENCE / POWERING OFF

Press the Set button to adjust the Power Down Time in one minute increments ranging from 3 - 20 minutes.

The Power Down Time allows the blower to run to remove water from the coil and to allow the evaporator to acclimate to the ambient conditions. At the end of the shutdown time the unit will automatically purge to remove any remaining water.

The proper shutdown is dependent on conditions. Increasing your shutdown time will help ensure there is no residual water in the unit.

### **IMPORTANT**

**UNPLUGGING THE UNIT WITHOUT RUNNING THE SHUTDOWN SEQUENCE WILL ALLOW WATER TO REMAIN IN THE UNIT AFTER USE.**

Tilting the unit more than 70 degrees on the handle side or more than 20 degrees on the non-handle side may result in water spillage.

Tilting the unit without running the final purge may result in water spillage.



## 6.10 MENUS

### DEVICE NAME

The following information is displayed on this screen:



## JOB HOURS

Press and hold the key for three seconds to reset the job hours from any screen. The life hours are fixed and cumulative from the first use.

## QUIET MODE

Press the Set button to enable Quiet Mode. In Quiet Mode the CFM will be reduced to 225 which is 75% of the maximum CFM. When power cycled the unit always defaults to Quiet Mode OFF.

**ATTENTION:** Quiet mode decreases fan speed, reducing air flow. This will decrease capacity (water condensed from the air) and could cause the unit to enter defrost.

## INLET DEW POINT

The screen displays the ambient dew point.

## RH CALIBRATION

The Intake RH Reset allows you to calibrate the Hi-E Dry 140 to match a differing hygrometer. Use the Set Key to increase the reading on the screen with your meter.

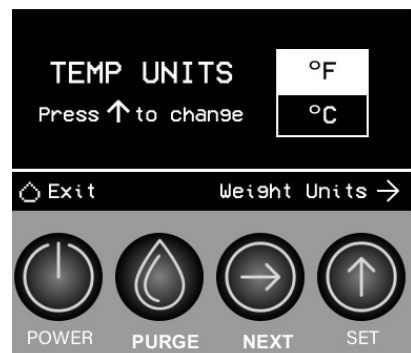
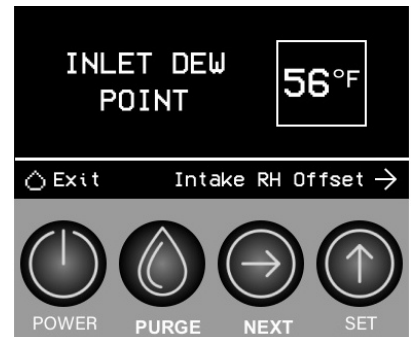
Push the **Set** and **Next** keys at the same time to lower the number on the Intake RH Reset. Recalibrating the HI-E Dry is not recommended in most scenarios.

## TEMPERATURE UNITS

Press the Set button to toggle the temperature units between F° and C°

Press the Next button to confirm selection and advance to the next screen.

**NOTE:** The white box indicates the selected setting.



## WATER UNITS

Press the Set button to toggle the humidity units between RH, grains, and g/Kg. This will affect the readout on the right of the home screen on lines one and two which show the inlet and outlet conditions.

**NOTE:** The white box indicates the selected setting.



## HUMIDISTAT MODE

The default mode is Humidistat "ON" and the default setpoint is 50% RH. The HI-E Dry 140 will operate until the setpoint is achieved and then it will go into standby mode.

Press the **Set** button to toggle the Humidistat Mode On/Off. With Humidistat mode turned off, the dehumidifier will run continually with no set point.



Press the **Next** button to advance to the next screen. If Humidistat mode is enabled, then proceed to Humidistat Set point. Otherwise, proceed to Humidity Units.

## HUMIDISTAT SET POINT

Press the **SET** button to increase the set point RH% in 1% increments ranging from 20% RH to 80% RH and then looping back to 20% RH. Press both the **NEXT** and **SET** buttons at the same time to decrease the setpoint.

Press the **Next** button to confirm selection and advance to the next screen.

## HUMIDISTAT FAN MODE

Press the Set button to toggle the Humidistat Fan mode from **Always On** to **Auto**.

Press the Next button to confirm selection and advance to the next screen.

## ABOUT

The about screen provides the following information:

**VIHW:** Part Number for the Display Board

**VIFW:** Firmware Version on the Display Board

**PWHW:** Part Number for the Power Board

**PFWW:** Firmware Version on the Power Board

**UUID:** A unique identifier.



## 8. MAINTENANCE

### 8.1 AIR FILTER

The QUEST Hi-E Dry 140 is equipped with a pleated media air filter that must be checked regularly for optimal performance. The standard filter is a MERV-10 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 (#4038558) or purchased locally if available.

**⚠ 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.**



1. Slide the filter holder out using the handle
2. It is not necessary to completely remove the filter holder to change the filter
3. Carefully replace the filter in the air flow direction
4. Slide the filter holder back into position

### 8.1 STORAGE AND FREEZE PROTECTION

There are two issues to consider when the Hi-E Dry 140 is stored between uses and both pertain to water trapped in the unit. The first is biological growth and the second is damage caused by freezing. The effects 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** button 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 hose while draining water out the other end.
3. To reduce biological growth flush the unit with a bio-fungicide that is approved for use with copper, aluminum and polyethylene. To flush:
  - a. Run the hose to a drain.
  - b. Plug in the unit but do not turn it on.
  - c. Remove the air filter. Slowly pour a quart of the antimicrobial through the heat exchanger
  - d. Hold in the pump purge switch to reduce the water level in the reservoir.
  - e. Flush with water.
4. If the unit will be exposed to freezing temperatures, after purging, take off the upper housing and pour 1 cup

CONTINUES ON NEXT PAGE

(8oz) of a propylene glycol based anti-freeze through the heat exchanger. It will flow down into the pump reservoir. Do NOT purge the solution out of the unit.

5. Dirty filters should be changed prior to long term storage to prevent biological growth on the filter.

## 9. SERVICE



**WARNING: SERVICING THE QUEST HI-E DRY 140 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: DO NOT OPERATE UNIT WITHOUT THE TOP COVER IN PLACE.**

### 9.1 SERVICE PERSONNEL

Only qualified HVAC or electrical contractors are allowed to conduct maintenance, service and/or repair operations on Quest Hi-E Dry 140 machines. Examples include but are not limited to breaking into the refrigerating circuit, opening of sealed components, and/or opening of ventilated enclosures.

Prior to beginning work on the Quest Hi-E Dry 140 machine, safety checks are necessary to ensure that the risk of ignition is minimized.

- » For repair to the REFRIGERATING SYSTEM, a qualified contractor should first establish a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed
- » All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.
- » The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.
- » If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO2 fire extinguisher adjacent to the charging area
- » No person carrying out work in relation to a REFRIGERATING SYSTEM which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.
- » Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

**The following checks shall be applied to installations using flammable refrigerants:**

- » Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times Therma-Stor's maintenance and service guidelines shall be followed. If in doubt, consult Therma-Stor's technical department for assistance.
- » The actual REFRIGERANT CHARGE is in accordance with the room size within which the refrigerant containing parts are installed;
- » The ventilation machinery and outlets are operating adequately and are not obstructed;
- » Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;
- » Dehumidifiers are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

**9.1A CHECKS TO ELECTRICAL DEVICES**

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.

**Initial safety checks shall include:**

- » that capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
- » that no live electrical components and wiring are exposed while charging, recovering or purging the system;
- » that there is continuity of earth bonding.

**9.1B REPAIRS TO SEALED COMPONENTS**

- » During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.
- » Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.
- » Ensure that the equipment is mounted securely.
- » Ensure that seals or sealing materials have not degraded to the point that they no longer serve the purpose of preventing the ingress of flammable atmospheres
- » Replacement parts shall be in accordance with Therma-Stor specifications.

### 9.1C REPAIRS TO INTRINSICALLY SAFE COMPONENTS

- Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.
- Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating.
- Replace components only with parts specified by Therma-Stor. Other parts may result in the ignition of refrigerant in the atmosphere from a leak.
- NOTE The use of silicon sealant can inhibit the effectiveness of some types of leak detection equipment. Intrinsically safe components do not have to be isolated prior to working on them.
- Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

### 9.1D DETECTION OF FLAMMABLE REFRIGERANTS

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

**The following leak detection methods are deemed acceptable for all refrigerant systems.**

- Electronic leak detectors may be used to detect refrigerant leaks but, in the case of FLAMMABLE REFRIGERANTS, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at 25% LFL of the refrigerant and shall be calibrated to 454B.
- Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe.
- NOTE: Examples of leak detection fluids are:
  - » bubble method
  - » fluorescent method agents.
  - » If a leak is suspected, all open flames shall be removed/extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Removal of refrigerant shall be according to Clause DD.9 of 60335-2-40.



### 9.1E REFRIGERANT REMOVAL AND EVACUATION

When breaking into the refrigerant circuit to make repairs - or for any other purpose - conventional procedures shall be used. However, for FLAMMABLE REFRIGERANTS it is important that best practice is followed since flammability is a consideration. The following procedure shall be adhered to:

- remove refrigerant;
- purge the circuit with inert gas (optional for A2L);
- evacuate (optional for A2L);
- purge with inert gas (optional for A2L);
- open the circuit by cutting or brazing.
- The REFRIGERANT CHARGE shall be recovered into the correct recovery cylinders. Compressed air or oxygen shall not be used for purging refrigerant systems.
- Ensure that the outlet for the vacuum pump is not close to any POTENTIAL IGNITION SOURCES and that ventilation is available.

### 9.1F CHARGING PROCEDURES

In addition to conventional charging procedures, the following requirements shall be followed:

- Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
- Cylinders shall be kept in an appropriate position according to the instructions.
- Ensure that the REFRIGERATING SYSTEM is grounded prior to charging the system with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care shall be taken not to overfill the REFRIGERATING SYSTEM.
- Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

## 9.2 RUNNING DIAGNOSTICS

### DIAGNOSTIC MODE

Contact Therma-Stor Tech Support for help with diagnostic mode: 877-420-1330.

Diagnostics mode is used by our technical support team to help diagnose problems.



### DIAGNOSTIC MODE - FLOAT SWITCH

This display will communicate to the user the current status of the Float Switch.

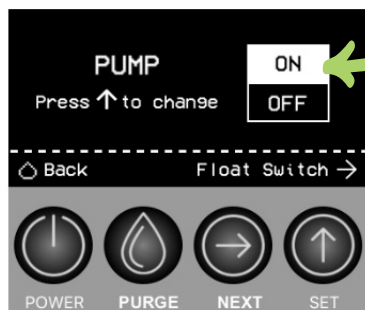
Press the **Next** button to advance to the next screen.

The float switch will be "Up" or "Down".

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### DIAGNOSTIC MODE - PUMP

Press the **Set** button to toggle the Pump On/Off.  
Press the **Next** button to advance to the next screen.

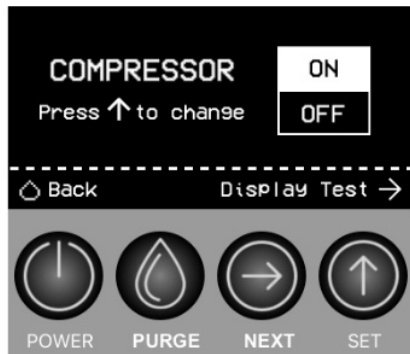


The white box indicates the selected option.

### DIAGNOSTIC MODE - FAN

Press the **Set** button to toggle the fan On/Off.  
Press the **Next** button to advance to the next screen.

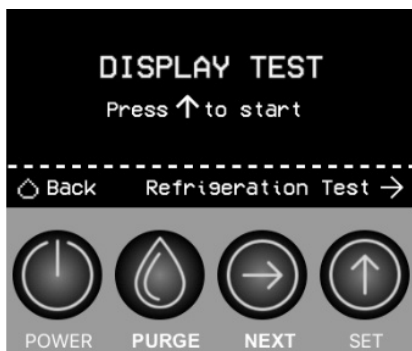
### DIAGNOSTIC MODE - COMPRESSOR



Press the **Set** button to toggle the compressor On/Off.  
Press the **Next** button to advance to the next screen.

### DIAGNOSTIC MODE - DISPLAY TEST

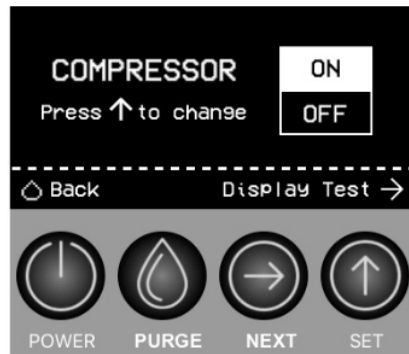
Press the **Set** button to start the display test.



### DIAGNOSTIC MODE - FAN

Press the **Set** button to toggle the fan On/Off.  
Press the **Next** button to advance to the next screen.

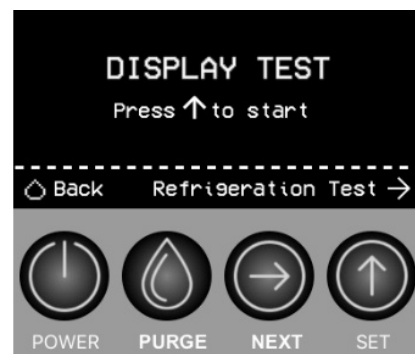
### DIAGNOSTIC MODE - COMPRESSOR



Press the **Set** button to toggle the compressor On/Off.  
Press the **Next** button to advance to the next screen.

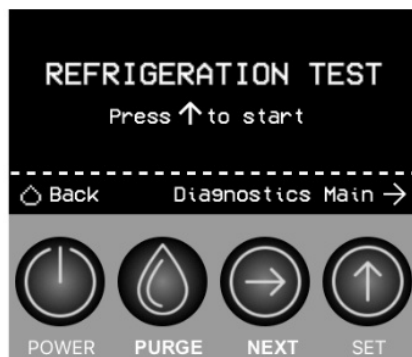
### DIAGNOSTIC MODE - DISPLAY TEST

Press the **Set** button to start the display test.



### DIAGNOSTIC MODE - REFRIGERATION TEST

The display will communicate to the user the following information during a Refrigeration Test:



Inlet = Temperature and RH/Grains

Outlet = Temperature and RH/ Grains

Hours = Life hours only.

Evaporator Coil = Temperature

Countdown timer = 20 minutes

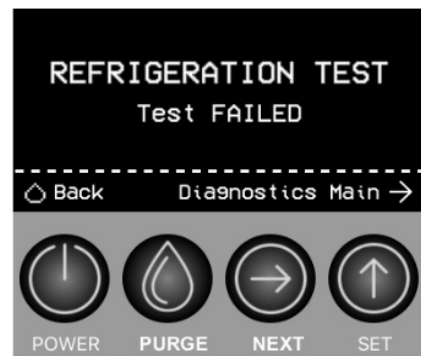
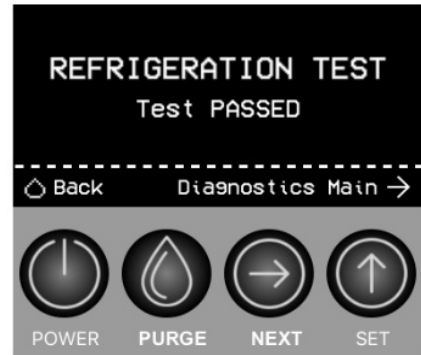
CONTINUES ON NEXT PAGE

## CONTINUED

Once the 20 minute countdown timer has expired, the display will automatically advance to show the refrigeration test results. The display will communicate to the user either "Refrig. test passed" or "Refrig. test failed"



Press the **Next** button to return to the first diagnostic test or press and hold the **Next** button for 3 seconds to return to the dashboard.



## 9.3 TECHNICAL DESCRIPTION

The Quest Hi-E Dry 140 uses a refrigeration system to remove 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. 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.

## 9.4 TROUBLESHOOTING

### **RESERVOIR FULL ERROR: CHECK FLOAT, PUMP, AND HOSE**

If the float is up for 60 seconds, the status bar will turn red and the screen will display "Reservoir Full: check float, pump, and hose". To clear this error, the float must go down.

Make sure the condensate hose is not kinked or blocked, and make sure the float can go up and down freely. If you cannot resolve this error, call tech support at: (877) 420-1330.

If left on, the unit will try to pump every eight minutes.



### **NO DEHUMIDIFICATION, CONTROL DOES NOT LIGHT UP AND UNIT WILL NOT TURN ON FROM POWER BUTTON.**

1. Unit unplugged or no power to outlet
2. Defective control board
3. 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 control board
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, so not as much water can be pulled
2. Humidity and/or temperature measurement is out of calibration
3. Defective defrost thermistor
4. Defective humidity sensor

**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. Float switch

**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.**

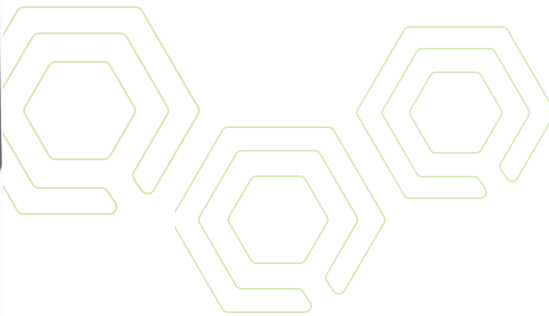
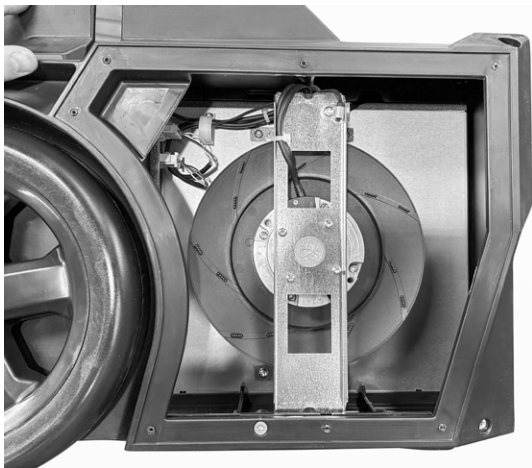
1. Defective control board

## 9.5 AIR MOVER



The air movement is created by an impeller. If defective, the complete assembly must be replaced.

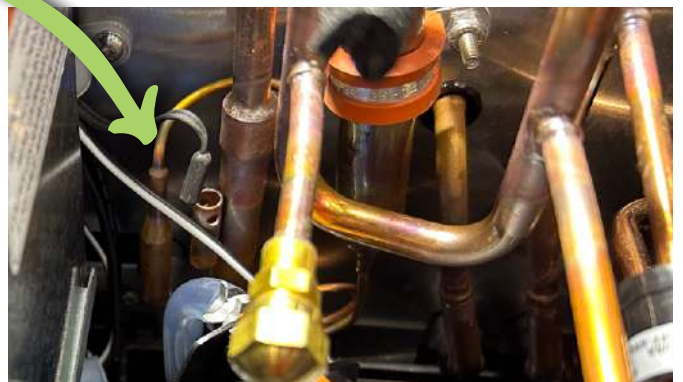
1. Unplug power cord
2. Remove the exhaust grill
3. Disconnect the two impeller leads
4. Remove the impeller bracket
5. Remove the four screws holding the impeller to the mounting plate
6. Reassemble the new impeller using the above procedure in reverse



## 9.6 THERMISTOR PROBE

A thermistor is used to sense the temperature of the evaporator coil. It is inserted into the evaporator suction tube sensor pot. To replace the thermistor probe:

1. Unplug the dehumidifier
2. Remove the access housing
3. Pull thermistor probe up and out of sensor pot
4. Remove electrical box cover (T20 Torx)
5. Unthread thermistor probe wire from harness
6. Unplug thermistor probe connector on control board
7. Reassemble thermistor probe and dehumidifier using the above procedure in reverse

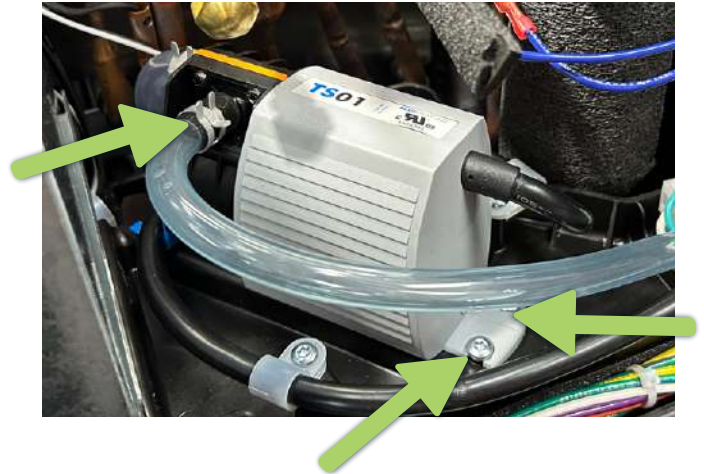




## 9.7 CONDENSATE PUMP

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

1. Unplug the unit
2. Remove the access housing
3. Unplug the pump hose and electrical connector
4. Remove the pump:
  - a. Using pliers, compress and remove spring hose clamps to detach hoses from pump.
  - b. Remove 4 T-20 torx screws holding pump and pump cord clamps
5. Remove pump by lifting up and out of the tabs on the front side of the pump.
6. Check the float switch bracket is mounted correctly
7. Reinstall in reverse order



## 9.8 FLOAT SWITCH

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

**\*\*\*IMPORTANT\*\*\*** - If the float switch is stuck in the up position for more than 60 seconds, a reservoir full error will occur.

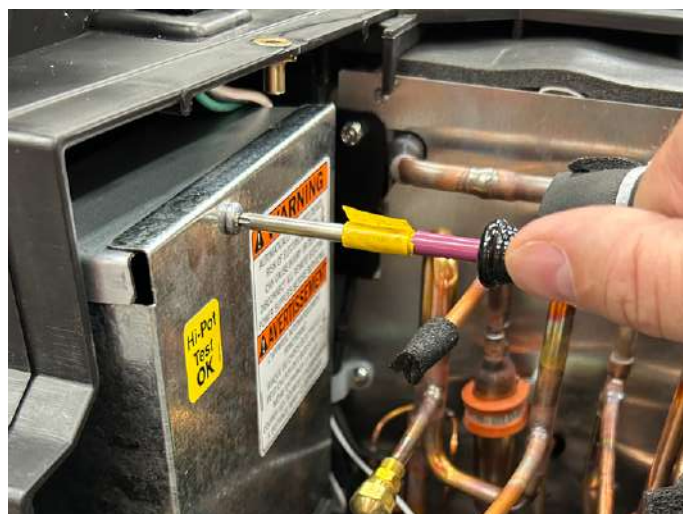
The possible causes of this error are as follows:

- Broken pump
- Blockage on hose
- Mechanical binding of the float switch

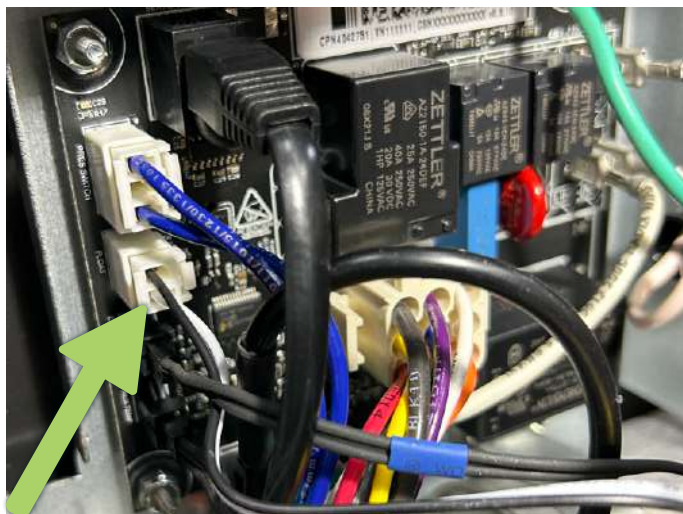
To replace the float switch:



1. Unplug the unit
2. Remove access housing
3. Remove Pump Cover
4. Check to see that the float moves freely. If the float needs to be replaced proceed to step 5
5. Open the electrical box cover (T20 Torx)



6. Unplug the Float switch wires from the control board



7. Unscrew the float switch from the bracket
8. Replace the float switch



## 10. DECOMMISSIONING

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its details. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available before the task commences.

1. Become familiar with the equipment and its operation.
2. Isolate system electrically.
3. Before attempting the procedure, ensure that:
  - » mechanical handling equipment is available, if required, for handling refrigerant cylinders;
  - » all personal protective equipment is available and being used correctly;
  - » the recovery process is supervised at all times by a competent person;
  - » recovery equipment and cylinders conform to the appropriate standards.
4. Pump down refrigerant system, if possible.
5. If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
6. Make sure that cylinder is situated on the scales before recovery takes place.
7. Start the recovery machine and operate in accordance with instructions.
8. Do not overfill cylinders (no more than 80 % volume liquid charge).
9. Do not exceed the maximum working pressure of the cylinder, even temporarily.
10. When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
11. Recovered refrigerant shall not be charged into another REFRIGERATING SYSTEM unless it has been cleaned and checked.

### 10.1 LABELLING DECOMMISSION MACHINES

Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing FLAMMABLE REFRIGERANTS, ensure that there are labels on the equipment stating the equipment contains FLAMMABLE REFRIGERANT.

### 10.2 REFRIGERANT RECOVERY

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.

When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labelled for that

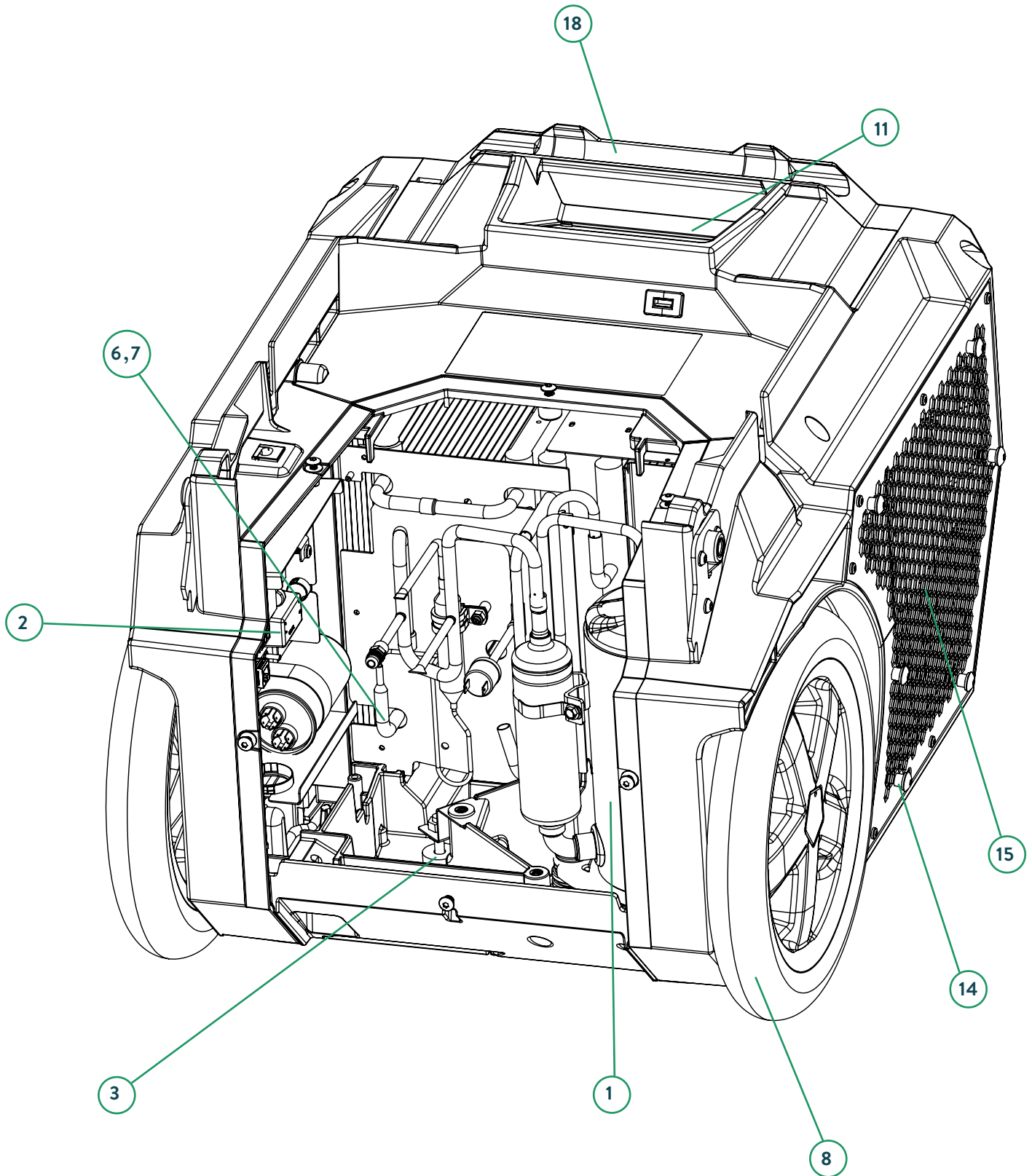
refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, FLAMMABLE REFRIGERANTS. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.

The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that FLAMMABLE REFRIGERANT does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

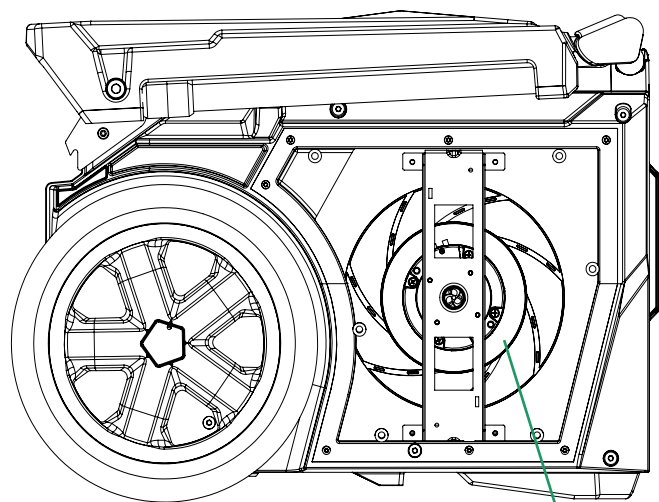
## 11. SERVICE PARTS



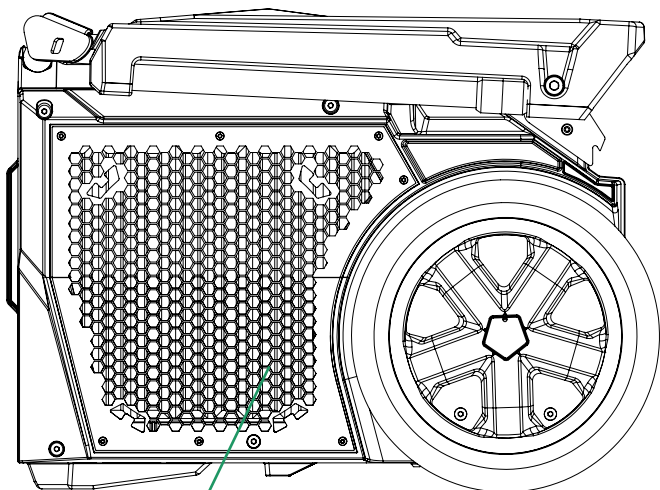


## SERVICE PARTS LIST

| Item | Part No.   | Description                             |
|------|------------|-----------------------------------------|
| 1    | 4043963    | Compressor                              |
| 2    | 4042751    | Power Board                             |
| 3    | 4037719    | Float switch                            |
| 4    | 4039769-01 | Condensate Pump                         |
| 5    | 4042066-02 | Impeller                                |
| 6    | 4043317-01 | Defrost Thermistor                      |
| 7    | 4043317-02 | Exhaust Thermistor                      |
| 8    | 4026851    | 12" Wheel                               |
| 9    | 4044415    | Inlet Grill                             |
| 10   | 4038558    | Air Filter                              |
| 11   | 4044418    | User Interface                          |
| 12   | 4042908    | Cord                                    |
| 13   | 4043254    | Condensate Hose                         |
| 14   | 4043469    | Duct Ring                               |
| 15   | 4043039    | Outlet Grill                            |
| 16   | 4043209    | Stem to Barb adapter                    |
| 17   | 4043208    | Push-to-Connect Elbow                   |
| 18   | 4043047    | Handle                                  |
| 19   | 4043234    | Stem Bulkhead Fitting<br>(not pictured) |



5



9

## 12. WIRING DIAGRAM



## IMPORTANT WARRANTY INFORMATION

**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 Hi-E Dry 140 dehumidifier, and may not be assigned or transferred.

**FIRST YEAR WARRANTY:** Therma-Stor LLC warrants that, for one (1) year the Hi-E Dry 140 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.

**SECOND THROUGH FIFTH YEAR WARRANTY:** Therma-Stor LLC further warrants that for a period of five (5) years, the condenser, evaporator, and compressor of the Hi-E Dry 140 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.

**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 LLC 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.

**LIMITATIONS AND EXCLUSIONS:** If any Hi-E Dry 140 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 Hi-E Dry 140 dehumidifier is out of service while awaiting covered warranty service).

**UPON THE EXPIRATION OF THE WRITTEN WARRANTY APPLICABLE TO THE HI-E DRY 140 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 Quest Dual 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.

REGISTER YOUR  
NEW DEHUMIDIFIER

