

## Sealed System

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### R600A REFRIGERANT SERVICE INFORMATION

The sealed system contains R600a refrigerant. This section provides general rules for working with R600a and explains procedures for servicing the sealed system.

- Use equipment dedicated to R600a sealed system service only.
- Always evacuate R600a refrigerant to the outdoors.
- Only use nitrogen for back-flushing.
- Only use R600a refrigerant for sweep charging.
- Always replace the filter drier when servicing the sealed system.
- The filter drier must be cut from the sealed system. Never un-braze the drier, as the heat can cause combustion of residual refrigerant and drive moisture back into the sealed system.
- When the rubber plugs are pulled from the service compressor, there is an audible release of pressure. If the release of pressure is not heard, do not use the compressor.
- Do not leave the sealed system or replacement compressor open to the atmosphere for more than 10 minutes.
- Never use a brazing torch or hot work equipment.
- Only use flameless sealed system repair equipment.
- Allow the sealed system to reach room temperature before performing sealed system repairs.
- Briefly turn the compressor over to help release residual refrigerant from the oil in the compressor.
- Use of a gas metering device is recommended.
  - M40 set to 25% LEL.
  - Place meter within 210 mm (24") from appliance.
- Only use virgin R600a refrigerant when recharging the sealed system.

#### ⚠ CAUTION

**R600a refrigerant requires mineral oil in the compressor and does not tolerate contamination from other refrigerants, moisture, petroleum-based lubricants, silicone lubricants, cleaning compounds, rust inhibitors, leak detection dyes, or any other type of additive.**

#### ⚠ WARNING

**THE APPLIANCES THIS SERVICE MANUAL COVERS CONTAIN R600a REFRIGERANT IN THEIR SEALED SYSTEMS. R600a REFRIGERANT IS EXTREMELY FLAMMABLE. DO NOT USE A BRAZING TORCH OR ANY HOT WORK EQUIPMENT WHEN SERVICING THE SEALED SYSTEM TO AVOID SERIOUS INJURY OR DEATH.**

#### ⚠ WARNING

**DISCONNECT ELECTRICAL POWER TO ANY APPLIANCE COVERED IN THIS MANUAL BEFORE SERVICING. IF ELECTRICAL POWER IS NEEDED FOR COMPONENT TESTING OR DIAGNOSTICS, DISCONNECT ELECTRICAL POWER IMMEDIATELY AFTER TESTING OR DIAGNOSTICS ARE COMPLETE. FAILURE TO DO SO COULD CAUSE SERIOUS INJURY OR DEATH.**

#### ⚠ WARNING

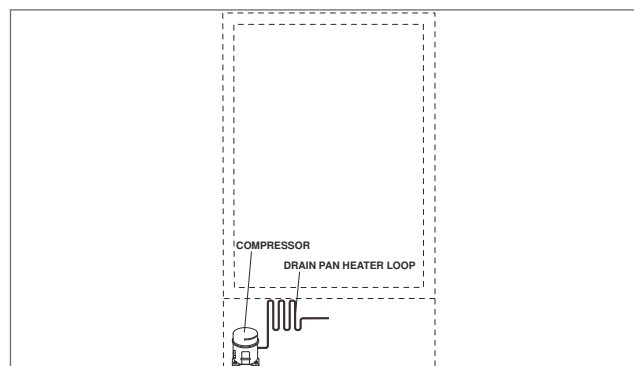
**IF ELECTRICAL POWER IS SUPPLIED TO THIS APPLIANCE AND THE APPLIANCE IS TURNED OFF, LINE VOLTAGE IS STILL PRESENT AT THE MAIN CONTROL BOARD.**

### SEALED SYSTEM OPERATION

The following diagrams illustrate a basic sealed system, not a specific sealed system in this product series. The components are listed in order of refrigerant flow with an explanation of their fundamental role as part of a sealed system.

### COMPRESSOR OPERATION

The compressor creates a high side and low side pressure difference in the sealed system by compressing the refrigerant gas, which raises the pressure and temperature. The compressor pushes this high-pressure, high-temperature gas through the drain pan heater loop, then routes it to the condenser.



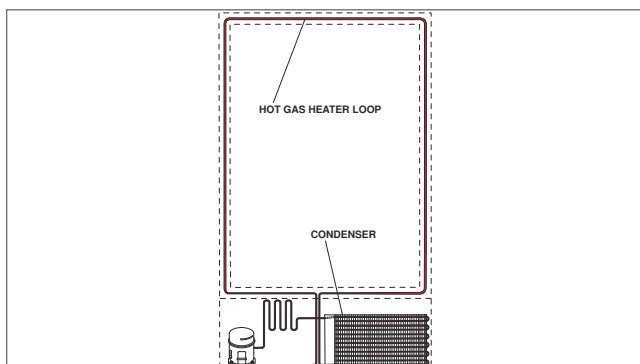
### CONDENSER OPERATION

The high-pressure, high-temperature gas then travels through the condenser where the heat dissipates from the cool air drawn over the condenser tubing by the condenser fan. This changes the gas into a high-pressure, warm liquid that, on some units, then runs through the door gasket heater loop to prevent sweating and into the high-side filter drier.

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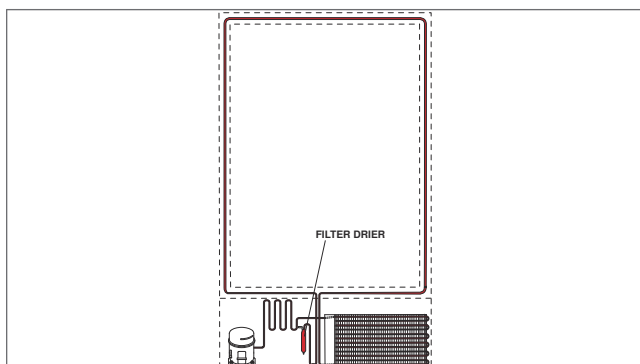
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### CONDENSER OPERATION (continued)



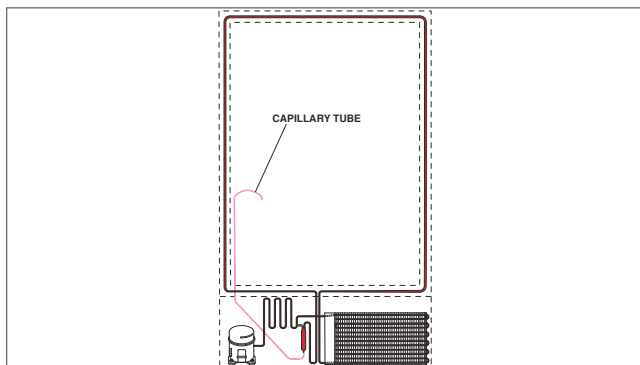
### FILTER DRIER OPERATION

The high-pressure, warm liquid travels through the high-side filter drier. The drier removes moisture from the refrigerant before it enters the capillary tube.



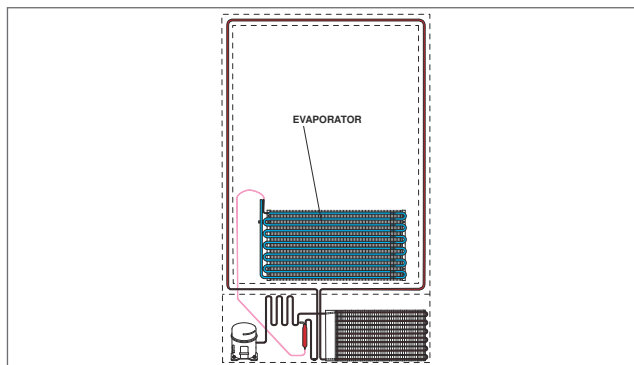
### SEALED SYSTEM CAPILLARY TUBE

The warm liquid refrigerant travels through the capillary tube soldered to the suction line. The two tubes soldered together create the heat exchanger. As the warm liquid refrigerant travels through the capillary tube, it gives up heat to the cool refrigerant gas in the suction line, which drops the pressure and changes the refrigerant into a low-pressure, cool liquid before it enters the evaporator.



### EVAPORATOR OPERATION

As the low-pressure, cool liquid refrigerant enters the evaporator, it vaporizes. This vaporization is caused by the dramatic pressure change from the refrigerant entering the larger diameter evaporator tubing from the smaller diameter capillary tubing. The vapor travels through the evaporator, absorbing heat from the compartment and gradually converting into a cool gas. This cool gas then enters the suction line.



### SUCTION LINE

Cool gas travels through the suction line soldered to the capillary tube. The two tubes soldered together create the heat exchanger. As the cool refrigerant gas travels through the suction line, it absorbs heat from the warm liquid refrigerant traveling through the capillary tube, turning it into a lukewarm gas. This reduces the chance of liquid refrigerant entering the compressor. The lukewarm refrigerant gas then returns to the compressor, where the process starts over.

