Service Manual
Commercial Back Bar Refrigeration
Self-Contained and Remote units using hydrocarbon refrigerant R290

Product Series Covered in this Manual:

<table>
<thead>
<tr>
<th>Self-Contained</th>
<th>Remote</th>
</tr>
</thead>
<tbody>
<tr>
<td>BBS</td>
<td>BBR</td>
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<tr>
<td>BBSN</td>
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<td>DZS</td>
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<td>DDC</td>
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<td>DDS</td>
<td></td>
</tr>
</tbody>
</table>

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# Table of Contents

## 1.0 GENERAL INFORMATION .......................................................... 6
  1.1 Use of Service Manual ......................................................... 6
  1.2 Model Families ................................................................. 6

## 2.0 SAFETY INFORMATION ......................................................... 7
  2.1 Refrigerant HC-R290 ......................................................... 7
  2.2 Servicing with HC-R290 ................................................... 9
  2.3 Service Manual Safety Labels ............................................. 13

## 3.0 TROUBLESHOOTING GUIDE – REFRIGERATION SYSTEM .......... 14

## 4.0 TROUBLESHOOTING GUIDE – ELECTRICAL SYSTEM ............. 17

## 5.0 TROUBLESHOOTING GUIDE – DOORS, DRAWERS AND SHELVING .... 21

## 6.0 REFRIGERATION SYSTEM REPAIR INSTRUCTIONS ............... 22
  6.1 Air Infiltration ............................................................... 22
  6.2 Slide Out the Refrigeration Deck ...................................... 23
  6.3 Plumbing for Remote Drain ............................................. 23
  6.4 System Operating Pressures ............................................ 24
    6.4.1 First Time Pull Down ............................................. 24
    6.4.2 Normal Cycling ................................................... 24
    6.4.3 Stabilization ....................................................... 24
    6.4.4 Service Values .................................................... 24
  6.5 De-Ice Blocked Evaporator Coil – Self-Contained Models ....... 25
  6.6 Air Flow Obstructions .................................................... 25
  6.7 Clean Condenser Coil .................................................... 26
  6.8 Ambient Temperature .................................................... 26
  6.9 Compressors and Condensing Unit .................................. 27
  6.10 Replace Condenser Fan Motor ....................................... 28
  6.11 Replace Evaporator Fan Motor – Self-Contained Models ....... 28
  6.12 Replace Compressor .................................................... 29
  6.13 Leak Detection ........................................................... 29
  6.14 Recharge Procedure .................................................... 29
  6.15 Replace compressor starting device – Self-contained models ... 30

## 7.0 ELECTRICAL SYSTEM REPAIR INSTRUCTIONS ..................... 31
  7.1 Electrical Specifications .................................................. 31
  7.2 Wiring Diagrams ............................................................ 32
  7.3 Load Operation Modes .................................................... 46
  7.4 Electronic Controller ...................................................... 46
  7.5 Factory Set Point ............................................................ 47
    7.5.1 Dixell Controller: Reset Factory Parameter Settings ....... 47
    7.5.2 Eliwell Controller: Reset Factory Parameter Settings ....... 47
    7.5.3 Replacing Control Module ...................................... 48
    7.5.3.1 Removing Dixell Controller .................................. 48
    7.5.3.2 Installing Eliwell Controller .................................. 50
    7.5.4 Temperature Probe ............................................... 51
  7.6 LED Lighting ................................................................. 51
    7.6.1 Replace LED Light Strip ......................................... 51
  7.7 Replace DC Driver/Inverter ............................................. 52
### 8.0 SERVICE INSTRUCTIONS - DOORS, DRAWERS, AND SHELVING

- **8.1** Proper Door and Drawer Usage
- **8.2** Reverse Door Swing
- **8.3** Replace Door Hinge
- **8.4** Sliding Door Models
  - **8.4.1** Removing/Installing Sliding Doors
  - **8.4.2** Adjusting Door Spring Tension
  - **8.4.3** Torpedo Spring Adjustment
- **8.5** Drawer & Shelf Slides
  - **8.5.1** Shelving Adjustment
  - **8.5.2** Drawer Divider Adjustment
  - **8.5.3** Cleaning/Lubricating Drawer Extenders
- **8.6** Replace Door & Drawer Gasket
- **8.7** Replace Door Handle
- **8.8** Locks
- **8.9** Custom Overlay Panels

### 9.0 REPLACEMENT PARTS

- **9.1** Refrigeration Module (BBS, BBSN, PTS, SDBS, SDPS, DDS, DDC Model Series)
- **9.2** Refrigeration Module (BBSLP Model Series)
- **9.3** Refrigeration Module (DZS Model Series)
- **9.4** Refrigeration Module (DDS-IR Model Series)
- **9.5** Fan Motor Assembly Parts (Self-Contained Model Series)
- **9.6** Low Profile Evaporator Parts (BBSLP Model Series)
- **9.7** Remote Evaporator Parts (BBR, BBRN, PTR, SDBR & BBRLP Model Series)
# Table of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1-1</td>
<td>Information Plate for Self-Contained Units</td>
<td>6</td>
</tr>
<tr>
<td>Figure 1-2</td>
<td>Information Plate for Remote Units</td>
<td>6</td>
</tr>
<tr>
<td>Figure 6-1</td>
<td>Sealing Compound at Wiring Pass-through</td>
<td>22</td>
</tr>
<tr>
<td>Figure 6-2</td>
<td>Floor Drain</td>
<td>22</td>
</tr>
<tr>
<td>Figure 6-3</td>
<td>Evaporator Condensate Trap</td>
<td>22</td>
</tr>
<tr>
<td>Figure 6-4</td>
<td>Remove Condensing Unit Bracket</td>
<td>23</td>
</tr>
<tr>
<td>Figure 6-5</td>
<td>Removing Refrigeration Deck</td>
<td>23</td>
</tr>
<tr>
<td>Figure 6-6</td>
<td>Remote Drain Tube</td>
<td>23</td>
</tr>
<tr>
<td>Figure 6-7</td>
<td>Removing Evaporator Fan Panel</td>
<td>25</td>
</tr>
<tr>
<td>Figure 6-8</td>
<td>Check for Obstructions</td>
<td>25</td>
</tr>
<tr>
<td>Figure 6-9</td>
<td>Fan Mounting Hardware</td>
<td>28</td>
</tr>
<tr>
<td>Figure 7-1</td>
<td>BBR24, BBRN40 Wiring Diagram</td>
<td>32</td>
</tr>
<tr>
<td>Figure 7-2</td>
<td>BBR48, BBR72, BBR96, BBRN60, BBRN80 Wiring Diagram</td>
<td>33</td>
</tr>
<tr>
<td>Figure 7-3</td>
<td>BBRLP Wiring Diagram</td>
<td>34</td>
</tr>
<tr>
<td>Figure 7-4</td>
<td>BBS/BBSN Wiring Diagram</td>
<td>35</td>
</tr>
<tr>
<td>Figure 7-5</td>
<td>BBSLP Wiring Diagram</td>
<td>36</td>
</tr>
<tr>
<td>Figure 7-6</td>
<td>DDS/DDC Wiring Diagram</td>
<td>37</td>
</tr>
<tr>
<td>Figure 7-7</td>
<td>DZS36 Wiring Diagram</td>
<td>38</td>
</tr>
<tr>
<td>Figure 7-8</td>
<td>DZS60 Wiring Diagram</td>
<td>39</td>
</tr>
<tr>
<td>Figure 7-9</td>
<td>PTR Wiring Diagram</td>
<td>40</td>
</tr>
<tr>
<td>Figure 7-10</td>
<td>PTS Wiring Diagram</td>
<td>41</td>
</tr>
<tr>
<td>Figure 7-11</td>
<td>SDBR48/SDBR96 Wiring Diagram</td>
<td>42</td>
</tr>
<tr>
<td>Figure 7-12</td>
<td>SDS Wiring Diagram</td>
<td>43</td>
</tr>
<tr>
<td>Figure 7-13</td>
<td>SDPR Wiring Diagram</td>
<td>44</td>
</tr>
<tr>
<td>Figure 7-14</td>
<td>SDPS Wiring Diagram</td>
<td>45</td>
</tr>
<tr>
<td>Figure 7-15</td>
<td>Attach Probe to Bracket</td>
<td>50</td>
</tr>
<tr>
<td>Figure 7-16</td>
<td>Temperature Probe and Bracket</td>
<td>51</td>
</tr>
<tr>
<td>Figure 7-17</td>
<td>Interior LED Light</td>
<td>52</td>
</tr>
<tr>
<td>Figure 8-1</td>
<td>Door Removal</td>
<td>53</td>
</tr>
<tr>
<td>Figure 8-2</td>
<td>Hinge Removal</td>
<td>54</td>
</tr>
<tr>
<td>Figure 8-3</td>
<td>Hinge Installation</td>
<td>54</td>
</tr>
<tr>
<td>Figure 8-4</td>
<td>Door Brackets</td>
<td>54</td>
</tr>
<tr>
<td>Figure 8-5</td>
<td>Removing Front Panel</td>
<td>55</td>
</tr>
<tr>
<td>Figure 8-6</td>
<td>Bearing and V-Block</td>
<td>55</td>
</tr>
<tr>
<td>Figure 8-7</td>
<td>Door Hinges</td>
<td>55</td>
</tr>
<tr>
<td>Figure 8-8</td>
<td>Installing V-Block</td>
<td>56</td>
</tr>
<tr>
<td>Figure 8-9</td>
<td>Installing Door</td>
<td>56</td>
</tr>
<tr>
<td>Figure 8-10</td>
<td>Removing/Installing Sliding Door</td>
<td>56</td>
</tr>
<tr>
<td>Figure 8-11</td>
<td>Door Track</td>
<td>57</td>
</tr>
<tr>
<td>Figure 8-12</td>
<td>Shelf Locking Mechanism</td>
<td>57</td>
</tr>
<tr>
<td>Figure 8-13</td>
<td>Removing/Installing Drawer</td>
<td>58</td>
</tr>
<tr>
<td>Figure 8-14</td>
<td>Custom Panel</td>
<td>59</td>
</tr>
</tbody>
</table>
# Table of Tables

| Table 6-1. | System Operating Pressures ........................................................................... 24 |
| Table 6-2. | Compressor Data .......................................................................................... 27 |
| Table 7-1. | Electrical Specifications ............................................................................. 31 |
| Table 7-2. | Load Operation Modes .................................................................................. 46 |
| Table 7-3. | Controller Where-Used Table ...................................................................... 46 |
| Table 7-4. | Factory Temperature Settings ...................................................................... 47 |
| Table 7-5. | Temperature – Resistance Values ................................................................ 51 |
| Table 8-1. | Door Hinges .................................................................................................. 53 |
1.0 General Information

1.1 Use of Service Manual

This service manual is intended for use by a qualified service technician. It is provided as a guide to diagnose and repair service issues for the product models listed on the cover.

If you have any questions or require additional assistance, contact Perlick Customer Service during regular hours of operation.

1.2 Model Families

This manual contains specific instructions for servicing the Perlick Back Bar commercial refrigeration products, which include the following families:

**SELF-CONTAINED**
- BBS
- BBSN
- PTS
- DZS
- SDBS
- SDPS
- BBSLP
- DDC
- DDS

**REMOTE**
- BBR
- BBRN
- PTR
- SDBR
- SDPR
- BBRLP

The model and serial numbers can be found on the left or right hand wall of the refrigerated space. See Figure 1-1 and Figure 1-2.
2.0 Safety Information

2.1 Refrigerant HC-R290

All self-contained models covered in this service manual are manufactured using refrigerant HC-290 (Propane).

2.2 Servicing with R-290

R290 is a hydrocarbon. This refrigerant is flammable and is only allowed for use in appliances which fulfill the requirements of UL 471 (To cover potential risk originated from the use of flammable refrigerants). Consequently, R290 is only allowed to be used in refrigerating appliances which are designed for this refrigerant and fulfill the above-mentioned standard.

- R290 is heavier than air. The concentration will always be highest at floor level.
- The explosion limits are as follows:
  - **Lower Limit**: 1.7% by vol. (37 g/m3)
  - **Upper Limit**: 9.5% by vol. (177 g/m3)
  - **Ignition Temperature**: 470 °C

**General**

**WARNING**

Do not use near open fire. To carry out service and repair on R290 systems the service personnel must be properly trained to be able to handle a flammable refrigerant. This includes knowledge on tools, transportation of compressors and refrigerant, and the relevant regulations and safety precaution when carrying out service and repair.
DANGER - RISK OF FIRE OR EXPLOSION. FLAMMABLE REFRIGERANT USED. TO BE REPAIRED ONLY BY TRAINED SERVICE PERSONNEL. DO NOT PUNCTURE REFRIGERANT TUBING.

DANGER - RISQUE DE FEU OU D'EXPLOSION. LE FRIGORIGÈNE EST INFLAMMABLE. CONFIR LES RÉPARATIONS À UN TECHNICIEN SPÉCIALISÉ NE PAS PERFORER LA TUBULURE CONTENANT LE FRIGORIGÈNE.

CAUTION: RISK OF FIRE OR EXPLOSION. CONSULT REPAIR MANUAL/OWNER'S GUIDE BEFORE ATTEMPTING TO INSTALL OR SERVICE THIS PRODUCT. ALL SAFETY PRECAUTIONS MUST BE FOLLOWED. FOLLOW HANDLING INSTRUCTIONS CAREFULLY.

ATTENTION - RISQUE DE FEU OU D'EXPLOSION. LE FRIGORIGÈNE EST INFLAMMABLE. CONSULTER LE MANUEL DU PROPRIÉTAIRE/GUIDE DE RÉPARATION AVANT MESURES DE SÉCURITÉ DOIVENT ÊTRE RESPECTÉES.
Pre-service Safety Check
It is strongly recommended that all service technicians receive training on the specific equipment, procedures, and handling of flammable refrigerants before conducting product service.

- **Use a combustible gas leak detector to perform a background check and monitoring around the appliance.**

**CAUTION**

To avoid a risk of injury, do NOT use leak detectors with an arc or spark module to check for leaks in and around appliances that use A2L or A3 refrigerants. The leak detector must be certified for use with the specific refrigerant class being serviced. If flammable refrigerant is detected, immediately ventilate the room, evacuate the area, and notify the owner or customer. Recheck with a combustible gas leak detector before proceeding.

- **Review the Safety Data Sheet (SDS) for the refrigerant listed on the appliance’s ID Plate.** Because, some refrigerants and compressor oils may cause frostbite and others may cause chemical burns, use Personal Protective Equipment (PPE) such as, protective gloves, eyewear, etc.

- **Ensure a dry-powder fire extinguisher rated for Class B fires is accessible on site.** Technicians should be trained in the use of these fire extinguishers.

- **Utilize a tubing cutter, not a torch** or other heated surface tool due to flammable refrigerants.

- **Conduct all servicing in a well-ventilated area.** Whenever possible, open a window, door or other means to ventilate the area. Take extra care if the repair work is done in a confined space, including providing enhanced ventilation to prevent formation of flammable atmospheres.

**Before repair work is performed, take these steps to ensure that no ignition sources are present:**
- Check the area for obvious sources of sparking or open flames.

- **Ensure the area is free of open flame or burning materials, including cigarettes, candles, or similar materials.**

- **Do not operate appliances that utilize open flames, igniters, or have hot surfaces (for example: electric or gas ranges, electric or gas dryers, toasters, and other small appliances) while servicing the appliance.**

- **Inform the owner/consumer that no open ignition sources should be present in or near the area, including cigarette smoking materials.**

- **Check the area and the appliance for abnormal signs of ignition or melting of components that might have occurred prior to the service call.** If there are signs of these situations, stop and contact the manufacturer before conducting service.

- **Maintain a safe zone around the appliance during service work to prevent introduction of ignition sources or entry by the customers.**

- **If the appliance is being moved to a service center, take care to prevent damage to the appliance, especially the refrigerant lines.**

- **Utilize vacuum pumps, recovery equipment, and other tools that are rated for and certified for use with A2L or A3 flammable refrigerants.** Vacuum pumps must be certified for the refrigerant being used. Service companies/technicians should consider, where appropriate, the use of spark-proof tools as an additional measure of safety.

**Leak Detection and Coolant-line Repair**

- **Never use potential sources of ignition, open flame, charging with flammable refrigerants, or hot surface tools to detect the presence of a leak.** Use soap-bubble testing when charging with oxygen-free dry nitrogen (OFN/OFDN), and a certified and calibrated combustible gas leak detector to test for leaks if the system is charged with an A2L or A3 refrigerant.

- **After repair, check for any vented refrigerants with a combustible gas leak detector.** If a leak is detected or if the coolant lines must be repaired, replaced, or filled, strictly follow all instructions provided by the manufacturer.
• If the combustible gas leak detector signals a release of vented refrigerant, the technician should immediately ventilate the room, evacuate the area, notify the homeowner or customer and wait until the detection device reads a safe level before conducting the following steps.

• To reduce the risk of fire or explosion, never use compressed air or oxygen for flushing, pressure testing, if a repair is made to the coolant lines.

• **Purge refrigerant lines with oxygen-free dry nitrogen (OFDN), both before and after the repair.** Technicians should be trained in the use of OFDN purging.

• Direct purged gas discharged from the system away from ignition sources or air intakes.

• Use the combustible gas leak detector to determine the environment has no flammable refrigerant present.

• Do not use external heat from open flame or heating tools with glowing elements to accelerate the defrosting process. If necessary, a hand-held steam cleaner can be used to defrost the evaporator coils.

**Important Additional Safeguards**

If an electrical fault exists that could compromise the refrigerant, repair the electrical fault first.

Before performing service, discharge all capacitors in the machine compartment and disconnect electricity to the appliance, preferably at the circuit breaker. No live electrical components or wiring should be exposed during servicing of the refrigerant lines. If electricity is necessary to conduct the service work on systems other than the refrigeration system, thoroughly test the refrigerant lines with the combustible gas leak detector before electricity is connected.

If the appliance has more than one refrigerant loop, ensure all leaks are repaired and checked.

Do not expose refrigerant lines to materials that might cause corrosion to the line or the seals such as chlorine bleach or ammonia.

Repair or replace all electrical components with the exact specified model and type required by the appliance manufacturer. Many electrical components are specifically engineered for use in appliances with flammable refrigerants and **must** be replaced accordingly.

Perform all service work in a manner to prevent damage to electrical components and insulation. In addition, return all wiring in such a way that the operation of the appliance will not be damaged by mechanical action.

Repair or replace all seals and sealing material to ensure that the areas of the appliance are returned to original condition.

When replacing refrigerant:

**Ensure** the refrigeration system is properly grounded if the appliance is being operated during charging.

**Replace** with the exact refrigerant and quantity found on the nameplate/rating plate on the unit. The refrigerant should be refrigerant-grade gas and should not be contaminated with other gas materials.

**Recharge** with the correct amount specified by the manufacturer. **Recharge accuracy is critical for flammable refrigerants.** Consult the service instructions for the manufacturer and product in question. Incorrect charge sizes could result in poor performance.
Refrigerant Removal

- In all cases, the removal of the refrigerant should be performed in a well-ventilated area.
- To minimize the generation of static electricity, ensure that proper grounding/bonding of the appliance is maintained during the removal process.
- Flammable refrigerants, which may be vented containing hydrocarbons such as R-290 (classified as A3), may be vented into the external environment. Follow manufacturer recommendations for this type of venting.
- If the manufacturer recommends removing the refrigerant to a temporary vessel to then release outside, follow all recommendations, including: Carefully evacuate the gas to the outside, where it will be mixed with the external air, away from ignition sources or air intakes.
- If a hose or tube is used to transfer the refrigerant outside the dwelling, use one of sufficient length to prevent the gas from re-entering the dwelling.

The hose should be of material compatible with the refrigerant.

Maintain hose discharge end above the ground surface for adequate gas mixing.

Ensure that no source of ignition is nearby the discharge end.

After Servicing

- Return or replace all labels, especially safety labels, to their original condition to ensure the next consumer or next servicer is aware of the presence of a flammable refrigerant.
- Ensure that the red marking for flammable refrigerant identification on the refrigerant tube or cap is visible following servicing.
- Ensure all ventilation features are returned to their original construction. Ventilation openings are critical to the function of the appliance during and after repair.
- Compressors may still contain residual refrigerant in the oil after refrigerant is removed. Take these precautions:

  **DO NOT** use external heat sources to remove the compressor from the appliance or to seal off the tubes to/from the compressor.

  Compressors should be plugged, capped, or pinched to allow all refrigerant gases to remain inside until the compressor is recycled or repaired.

  **NEVER** heat compressors to extract the oil. The compressor oil should be safely disposed of in accordance with local requirements. See U.S. Code of Federal Regulations Chapter 40, Section 82.155 for instructions on the safe disposal of appliances, and section 4.16 of the Canadian Environmental Code of Practice for instructions on the disposal of refrigerants.

Disposal of Appliances containing Flammable Refrigerants

- The Service Organization should develop, maintain and monitor a written plan for disposition of scrap appliances containing alternative refrigerants.
- The Service Technician must comply with all federal, provincial, state and local requirements with regard to the recovery or venting of the refrigerants prior to disposal of the appliance. The refrigerant must be recovered or removed prior to scrapping of the appliance.
- Flammable hydrocarbon refrigerants, which may be vented to the external environment, such as R-290 (classified as A3), should be removed safely from the appliance in a well-ventilated area and may be vented to the outside environment, away from ignition sources or air intakes. In removing the refrigerant from the appliance, maintain proper grounding/bonding of the appliance.
- Appliances prepared for scrapping shall be marked with information required by local jurisdictions.
Storage of Flammable Refrigerant Cylinders

- Ensure that the storage facility has a fire suppression system approved for use with flammable refrigerants. At a minimum, a Dry-Powder Fire Extinguisher rated for Class B fires must be located near the storage area and the facility should have emergency action and fire prevention plans. Note that flammable gas fires should not be extinguished until the source of the burning gas has been shut off.
- Ensure the storage area is well-ventilated.
- Ensure the storage area is free of combustible or waste materials.
- Ensure all areas used for storage of flammable gas containers comply with all federal, provincial, state and local requirements.
- **NEVER** store refrigerant cylinders near sources of ignition.
- **NEVER** re-use or re-fill aftermarket service cylinders.
- Protect gas cylinders from impact, falling or being knocked over. Ensure that any accompanying protective caps/covers are in place.
- Keep refrigerant cylinders out of the sun and away from sources of heat. Cylinders should be stored in cool, dry areas where the temperature does not exceed 125 deg. F or 52 deg. C.
- Secure refrigerant cylinders to prevent theft or tampering.
- Never fill refrigerant recovery cylinders beyond the maximum capacity.
- Use appropriate markings and labeling on refrigerant recovery cylinders. This includes flammable material symbols and possible additional color markings.
- Storage facilities should consider installing combustible gas detection systems in accordance with federal, provincial, state and local requirements.

Transport of Flammable Refrigerant Cylinders

- Ensure that a Dry-Powder Fire Extinguisher rated for Class B fires is available on the vehicle.
- Transport of flammable refrigerant cylinders must be in accordance with federal, provincial, state and local requirements.
- **DO NOT** store flammable refrigerant cylinders near heat or a source of ignition.
- Store the cylinders for transport in accordance with US Department of Transportation and Transport Canada requirements. Mark flammable refrigerant cylinders with a red “FLAMMABLE GAS” graphic as prescribed by U.S. 49 CFR part 172.417.
- Prior to loading and transport, close the main cylinder valve and remove any regulator valve. Ensure that any accompanying protective caps/covers are also in place.
- Place cylinders with flammable refrigerant in a well-ventilated area. For enclosed vehicles, transport cylinders or canisters in accordance with US DOT and Transport Canada requirements. Service companies/technicians should consider, where appropriate, that storage cabinets be externally vented as an additional measure of safety.
- Secure flammable refrigerant cylinders to prevent theft, tampering, or movement during transport.
2.3 Service Manual Safety Labels

PLEASE READ all instructions completely before attempting to service the unit. Take particular note of the DANGER, WARNING and CAUTION information in this manual. The information is important for the safe and efficient service, operation and care of the Perlick unit.

⚠️ DANGER

HAZARD!!
Indicates hazardous situation that will result in death or serious injury if not avoided.

⚠️ WARNING

Indicates hazardous situation that may result in death or serious injury if not avoided.

⚠️ CAUTION

Caution indicates hazardous situation that could result in minor or moderate injury and property damage.

Caution without symbol indicates unsafe practice situation that could result in property damage only.

⚠️ WARNING

To avoid electrical shock, completely disconnect electrical power to referenced units before performing service work. Disconnect power to entire unit by unplugging the main power cord from the wall receptacle or disabling power to the circuit at the electrical circuit protection device, (i.e. circuit breaker).
# 3.0 Troubleshooting Guide – Refrigeration System

Use this diagnostic guide to identify issues and to locate applicable instructions within this service manual. This diagnostic guide can be used for any of Perlick’s Back Bar Refrigeration Products.

**DANGER**

**ELECTROCUTION HAZARD!!** Never attempt to repair or perform maintenance on the unit until the Main electrical power has been disconnected.

Unplugging the condensing unit plug from the molded receptacle shown in the photo IS NOT sufficient to avoid electrical shock hazard. Disconnect power to the main unit by unplugging the main power cord from the wall receptacle or disable power to entire electrical circuit.

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>CAUSE</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refrigerator does not run.</td>
<td>No power to the unit.</td>
<td>Check circuit protection devices. Fuses, breakers, GFI). Restore power to unit. Refer to information plate. See Section 1.0 and Table 7-1.</td>
</tr>
<tr>
<td></td>
<td>Incorrect control settings or faulty control.</td>
<td>Return to factory settings (see Sections 7.5.1 and 7.5.2) or replace control.</td>
</tr>
<tr>
<td>Refrigerator is too warm.</td>
<td>Power</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No power to unit.</td>
<td>Restore power to unit. Refer to information plate. See Section 1.0 and Table 7-1.</td>
</tr>
<tr>
<td></td>
<td>Incorrectly wired internal wiring connections.</td>
<td>Verify wiring per wiring diagram. See Section 7.2. Reconnect wires if needed.</td>
</tr>
<tr>
<td>Fans</td>
<td>Evaporator fan is not running.</td>
<td>Refer to Evaporator fan is not running</td>
</tr>
<tr>
<td>Coils</td>
<td>Evaporator coil has iced over.</td>
<td>Remove ice. See Section 6.5.</td>
</tr>
<tr>
<td></td>
<td>Condensing coil is not clean.</td>
<td>Clean with soft brush and vacuum.</td>
</tr>
<tr>
<td></td>
<td>Fins are bent or damaged.</td>
<td>Straighten fins.</td>
</tr>
<tr>
<td>Control</td>
<td>No power to control.</td>
<td>Refer to Control not functioning</td>
</tr>
<tr>
<td></td>
<td>Control is not calling for cooling.</td>
<td>Refer to Control not functioning</td>
</tr>
<tr>
<td></td>
<td>Probe failure.</td>
<td>Refer to Table 7-5 for resistance values. Replace probe if needed. See Section 7.5.4.</td>
</tr>
</tbody>
</table>

Return to Table of Contents
<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>CAUSE</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refrigerator is too warm.</td>
<td><strong>Air Infiltration</strong></td>
<td></td>
</tr>
<tr>
<td>(continued)</td>
<td>Probe is not connected to the control.</td>
<td>Reconnect probe. See Section 7.5.4.</td>
</tr>
<tr>
<td></td>
<td>Sealing compound does not form a complete seal.</td>
<td>Refer to Section 1.1.</td>
</tr>
<tr>
<td></td>
<td>Door gasket is damaged or out of place.</td>
<td>Refer to Sections 1.1 and 8.6.</td>
</tr>
<tr>
<td></td>
<td>Condensate drain line/air trap is not positioned properly.</td>
<td>Reposition in loop. See Figure 6-3.</td>
</tr>
<tr>
<td>Refrigerator is too cold.</td>
<td>Incorrect control settings.</td>
<td>Return to factory settings. See Sections 7.5.1 and 7.5.2.</td>
</tr>
<tr>
<td></td>
<td>Probe failure.</td>
<td>Refer to Table 7-5 for resistance values. Replace probe if needed. See Section 7.5.4.</td>
</tr>
<tr>
<td></td>
<td>Control failure.</td>
<td>Refer to Troubleshooting Guide – Electrical System</td>
</tr>
<tr>
<td>Refrigerator runs continuously.</td>
<td>Condensing coil is dirty.</td>
<td>Clean with soft brush and vacuum.</td>
</tr>
<tr>
<td></td>
<td>Incorrect control settings.</td>
<td>Return to factory settings. See Sections 7.5.1 and 7.5.2.</td>
</tr>
<tr>
<td></td>
<td>Probe failure.</td>
<td>Refer to Table 7-5 for resistance values. Replace probe if needed. See Section 7.5.4.</td>
</tr>
<tr>
<td></td>
<td>Evaporator coil has iced over.</td>
<td>Remove ice per Section 6.5.</td>
</tr>
<tr>
<td></td>
<td>Sealing compound does not form a complete seal.</td>
<td>Refer to Section 1.1.</td>
</tr>
<tr>
<td></td>
<td>Door gasket is damaged or out of place.</td>
<td>Refer to Section 1.1 and 8.6.</td>
</tr>
<tr>
<td></td>
<td>Condensate drain line/air trap is not positioned properly.</td>
<td>Reposition in loop. See Figure 6-3.</td>
</tr>
<tr>
<td></td>
<td>Extreme ambient conditions.</td>
<td>Refer to Section 6.8.</td>
</tr>
<tr>
<td></td>
<td>Refrigeration/Charge level is too low.</td>
<td>Check for leaks, repair, and recharge per Section 6.13.</td>
</tr>
<tr>
<td>Water on the floor outside</td>
<td>High ambient temperature and high ambient humidity conditions coupled with frequent door opening.</td>
<td>Ensure doors close completely.</td>
</tr>
<tr>
<td>of unit.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROBLEM</td>
<td>CAUSE</td>
<td>SOLUTION</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>--------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Condensate pan overflowing.</td>
<td>Remove excess water.</td>
<td>Check for the following:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Air infiltration. See Section 6.1.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Doors close completely and seals are intact. See Section 8.6.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Ice buildup. See Section 6.5.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Unit is running properly. Repair if needed.</td>
</tr>
<tr>
<td>Water on the floor outside of unit. (continued)</td>
<td>Unit is not level.</td>
<td>Unit must be level front-to-back and side-to-side for water to drain properly.</td>
</tr>
<tr>
<td></td>
<td>Sealing compound does not form a complete seal.</td>
<td>Refer to Section 1.1.</td>
</tr>
<tr>
<td></td>
<td>Door gasket is damaged.</td>
<td>Refer to Section 1.1 and 8.6.</td>
</tr>
<tr>
<td></td>
<td>Remote ONLY: Floor drain plumbed incorrectly.</td>
<td>Check to make sure drain path makes sense. Refer to installation manual.</td>
</tr>
<tr>
<td></td>
<td>Evaporator coil has iced over.</td>
<td>Remove ice. Refer to Section 6.5.</td>
</tr>
<tr>
<td>Water on the floor inside of unit.</td>
<td>Evaporator pan and/or drain line restricted.</td>
<td>Remove restriction.</td>
</tr>
<tr>
<td></td>
<td>Unit is not level.</td>
<td>Unit must be level front-to-back and side-to-side for water to drain properly.</td>
</tr>
<tr>
<td></td>
<td>Evaporator coil has iced over.</td>
<td>Remove ice. Refer to Section 6.5.</td>
</tr>
</tbody>
</table>
## 4.0 Troubleshooting Guide – Electrical System

**DANGER**

Unplugging the condensing unit plug from the molded receptacle shown in the photo IS NOT sufficient to avoid electrical shock hazard. Disconnect power to the main unit by unplugging the main power cord from the wall receptacle or disable power to entire electrical circuit.

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>CAUSE</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor is not running.</td>
<td>No power to condensing unit.</td>
<td>Check condensing unit is plugged in. Check power at internal receptacle.</td>
</tr>
<tr>
<td></td>
<td>No call for cooling from control.</td>
<td>Check control settings or for bad control.</td>
</tr>
<tr>
<td></td>
<td>Incorrectly wired connections in condensing unit.</td>
<td>Verify wiring per wiring diagram, Section 7.2. Reconnect wires if needed.</td>
</tr>
<tr>
<td></td>
<td>Incorrect control settings.</td>
<td>Return to factory settings. See Sections 7.5.1 and 7.5.2.</td>
</tr>
<tr>
<td></td>
<td>No power to compressor.</td>
<td>Restore power to unit. Refer to information plate. See Section 1.2 and Table 7-1.</td>
</tr>
<tr>
<td></td>
<td>Faulty control.</td>
<td>Refer to Control not functioning</td>
</tr>
</tbody>
</table>

**Models manufactured before March 2017:**
- Starting device is not operational (start relay/capacitor).  
**Models manufactured after March 2017:**
- Starting device is not operational.

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>CAUSE</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Models manufactured after March 2017: Check Compressor Diagnostic 6.9.</td>
<td></td>
</tr>
<tr>
<td>Condenser fan is not running</td>
<td>No power to fan.</td>
<td>Restore power to unit. Refer to information plate. See Section 1.0 and Table 7-1.</td>
</tr>
<tr>
<td></td>
<td>Incorrectly wired harness.</td>
<td>Verify wiring per wiring diagram, Section 7.2. Reconnect wires if needed.</td>
</tr>
<tr>
<td></td>
<td>Fan is obstructed.</td>
<td>Remove obstructions.</td>
</tr>
<tr>
<td></td>
<td>Fan still does not run.</td>
<td>Replace condenser fan per Section 6.10.</td>
</tr>
<tr>
<td>Evaporator fan is not running</td>
<td>No power to evaporator fan motor.</td>
<td>Restore power to unit. Refer to information plate. See Section 1.0 and Table 7-1.</td>
</tr>
<tr>
<td></td>
<td>Fan is obstructed.</td>
<td>Remove obstruction.</td>
</tr>
<tr>
<td></td>
<td>Incorrectly wired harness.</td>
<td>Verify wiring per wiring diagram, Section 7.2. Reconnect wires if needed.</td>
</tr>
<tr>
<td></td>
<td>If Evaporator fan is still not running...</td>
<td>Replace evaporator fan per Section 6.13.</td>
</tr>
<tr>
<td></td>
<td>BBSLP series ONLY: No power to/from DC inverter/driver (12V).</td>
<td>If no power: restore power, replace. Refer to Section 1.1.</td>
</tr>
<tr>
<td>PROBLEM</td>
<td>CAUSE</td>
<td>SOLUTION</td>
</tr>
<tr>
<td>-------------------------</td>
<td>------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Control not functioning</td>
<td>No power to unit.</td>
<td>Restore power to unit. Refer to information plate. See Section 1.0 and Table 7-1.</td>
</tr>
<tr>
<td></td>
<td>Incorrectly wired harness.</td>
<td>Verify wiring per wiring diagram, Section 7.2. Reconnect wires if needed.</td>
</tr>
<tr>
<td></td>
<td>No call for cooling.</td>
<td>Replace controller</td>
</tr>
<tr>
<td>Lights not functioning</td>
<td>Light switch in off position.</td>
<td>Turn on light switch.</td>
</tr>
<tr>
<td></td>
<td>No power to DC driver.</td>
<td>See unit info plate for voltage. Check output of DC driver (12V).</td>
</tr>
<tr>
<td></td>
<td>No power to light switch. (12V)</td>
<td>Check wiring back to DC driver, replace if needed.</td>
</tr>
<tr>
<td></td>
<td>Incorrectly wired lighting switch.</td>
<td>Verify wiring per wiring diagram, Section 7.2. Reconnect wires if needed.</td>
</tr>
<tr>
<td></td>
<td>No power to LED strips? (12V)</td>
<td>Check wiring backwards to light switch.</td>
</tr>
<tr>
<td></td>
<td>Faulty LED strip</td>
<td>Replace LED strip</td>
</tr>
<tr>
<td>Light stays on when door is closed</td>
<td>Manual switch is on.</td>
<td>Turn off manual switch.</td>
</tr>
<tr>
<td>Eliwell Control: LED Controller display is flashing “E1”</td>
<td>Probe 1 error. Reading out-of-range of operating values.</td>
<td>Check probe connections to control.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check probe resistance readings per Table 7-5.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check probe wiring.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Replace probe per Section 7.5.</td>
</tr>
<tr>
<td>Eliwell Control: LED Controller display is flashing “AH1”</td>
<td>Probe 1 HIGH temperature alarm.</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>Incorrect control settings.</td>
<td>Return to factory settings. See 7.5.1 and 7.5.2.</td>
</tr>
<tr>
<td>Power</td>
<td>Incorrectly wired harness.</td>
<td>Verify wiring per wiring diagram, Section 7.2. Reconnect wires if needed.</td>
</tr>
<tr>
<td>Fans</td>
<td>Evaporator fan is not running.</td>
<td>Refer to Evaporator fan is not running</td>
</tr>
<tr>
<td>Coils</td>
<td>Evaporator coil has iced over.</td>
<td>Remove ice. See Section 6.5.</td>
</tr>
<tr>
<td>PROBLEM</td>
<td>CAUSE</td>
<td>SOLUTION</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Eliwell Control: LED Controller display is flashing “AH1” (continued)</td>
<td><strong>Coils</strong> (continued)</td>
<td>Clean with soft brush and vacuum.</td>
</tr>
<tr>
<td></td>
<td>Condensing coil is not clean.</td>
<td>Clean with soft brush and vacuum.</td>
</tr>
<tr>
<td></td>
<td>Fins are bent or damaged.</td>
<td>Straighten fins.</td>
</tr>
<tr>
<td></td>
<td><strong>Probe</strong></td>
<td>Reconnect probe.</td>
</tr>
<tr>
<td></td>
<td>Probe is not connected to control.</td>
<td>See Section 7.5.3.</td>
</tr>
<tr>
<td><strong>Air Infiltration</strong></td>
<td><strong>Sealing compound does not form a complete seal.</strong></td>
<td>Refer to Section 1.1.</td>
</tr>
<tr>
<td></td>
<td>Door gasket is damaged or not seated properly.</td>
<td>Refer to Section 1.1 and 8.6.</td>
</tr>
<tr>
<td></td>
<td>Condensate drain line/air trap is not positioned properly.</td>
<td>Reposition in loop.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Refer to Control not functioning</td>
</tr>
<tr>
<td></td>
<td>Refrigeration/Charge level is too low.</td>
<td>Check for leaks, repair, and recharge. See Section 6.13.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>This is a critically charged system, recharging should only be done when all other options have been thoroughly checked.</strong></td>
</tr>
<tr>
<td>Eliwell Control: LED Controller display is flashing “AL1”</td>
<td>Probe 1 LOW temperature alarm.</td>
<td>Return to factory settings. See Sections 7.5.1 and 7.5.2.</td>
</tr>
<tr>
<td></td>
<td>Incorrect control settings.</td>
<td>Return to factory settings. See Sections 7.5.1 and 7.5.2.</td>
</tr>
<tr>
<td></td>
<td>Probe failure.</td>
<td>Refer to Table 7-5 for resistance values. Replace probe if needed. See Section 7.5.4.</td>
</tr>
<tr>
<td></td>
<td>Control failure.</td>
<td>Refer to Control not functioning</td>
</tr>
<tr>
<td>Dixell Control: LED Controller display is flashing “P1”.</td>
<td>Probe failure.</td>
<td>Contact dealer.</td>
</tr>
<tr>
<td></td>
<td>Probe disconnected from control.</td>
<td>Plug in probe connector.</td>
</tr>
<tr>
<td>Dixell Control: LED Controller display is flashing “HA”. Maximum</td>
<td>Internal compartment has exceeded the high temperature alarm preset value for over 30 minutes.</td>
<td></td>
</tr>
<tr>
<td>temperature alarm.</td>
<td><strong>Control</strong></td>
<td>Return to factory settings. See Sections 7.5.1 and 7.5.2.</td>
</tr>
<tr>
<td>PROBLEM</td>
<td>CAUSE</td>
<td>SOLUTION</td>
</tr>
<tr>
<td>---------</td>
<td>-------</td>
<td>---------</td>
</tr>
<tr>
<td>Dixell Control: LED Controller display is flashing “HA”. Maximum temperature alarm. (continued)</td>
<td>Power</td>
<td>Incorrectly wired harness and/or internal wiring connections. Verify wiring per wiring diagram, Section 7.2. Reconnect wires if needed.</td>
</tr>
<tr>
<td>Fans</td>
<td>Evaporator fan is not running.</td>
<td>Refer to Evaporator fan is not running</td>
</tr>
<tr>
<td>Coils</td>
<td>Evaporator coil has iced over.</td>
<td>Remove ice per Section 6.5.</td>
</tr>
<tr>
<td></td>
<td>Condensing coil is not clean.</td>
<td>Clean with soft brush and vacuum.</td>
</tr>
<tr>
<td></td>
<td>Fins are bent or damaged.</td>
<td>Straighten fins.</td>
</tr>
<tr>
<td>Probe</td>
<td>Probe is not connected to the control.</td>
<td>Reconnect probe per Section 7.5.4.</td>
</tr>
<tr>
<td>Air Infiltration</td>
<td>Sealing compound does not form a complete seal.</td>
<td>Refer to Section 1.1.</td>
</tr>
<tr>
<td></td>
<td>Door gasket is damaged or out of place.</td>
<td>Refer to Section 1.1 and 8.6.</td>
</tr>
<tr>
<td></td>
<td>Condensate drain line/air trap is not positioned properly.</td>
<td>Reposition in loop. See Figure 6-3.</td>
</tr>
<tr>
<td>Refrigeration/Charge level is too low.</td>
<td>Check for leaks, repair, and recharge per See Section 6.13. This is a critically charged system, recharging should only be done when all other options have been thoroughly checked.</td>
<td></td>
</tr>
</tbody>
</table>

Dixell Control: LED Controller display is flashing “LA”. Minimum temperature alarm. | Internal compartment has exceeded the low temperature alarm preset value for over 30 minutes. | Return to factory settings. See Sections 7.5.1 and 7.5.2. |
| Incorrect control settings. | | |
| Probe failure. | Refer to Table 7-5 for resistance values. Replace probe if needed. See Section 7.5.4. |
| Control failure. | Refer to Control not functioning |
## 5.0 Troubleshooting Guide – Doors, Drawers and Shelving

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>CAUSE</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key won’t come out after door is locked.</td>
<td>Key not in proper position.</td>
<td>Rotate key to the proper position and remove.</td>
</tr>
<tr>
<td>Sliding doors not closing.</td>
<td>Replace spring and/or torpedo assembly.</td>
<td>Refer to Section 8.4.3.</td>
</tr>
<tr>
<td>Hinge problems, door falling off.</td>
<td>Improper door mounting</td>
<td>Verify proper mounting. Refer to Section 8-4.</td>
</tr>
<tr>
<td></td>
<td>Excessive wear</td>
<td>Replace worn parts. Refer to Section 8-4.</td>
</tr>
<tr>
<td>Door handles falling off</td>
<td>Improper handle mounting</td>
<td>Verify proper mounting. Refer to diagram.</td>
</tr>
<tr>
<td></td>
<td>Excessive wear</td>
<td>Replace worn parts. Refer to diagram.</td>
</tr>
<tr>
<td>Condensation on glass doors.</td>
<td>High ambient temperature, high humidity and environmental conditions.</td>
<td>Refer to Section 6.7.</td>
</tr>
<tr>
<td></td>
<td>Frequent door/drawer opening.</td>
<td>Refer to Section 8.1.</td>
</tr>
<tr>
<td></td>
<td>Cabinet temperature too low.</td>
<td>Adjust temperature. Refer to Table 7-4. Factory Temperature Settings.</td>
</tr>
<tr>
<td>Sliding doors dragging or binding</td>
<td>Debris in track.</td>
<td>Remove doors Clean tracks and lube with NSF approved food grade lube.</td>
</tr>
</tbody>
</table>
6.0 Refrigeration System Repair Instructions

6.1 Air Infiltration

⚠️ DANGER

Unplugging the condensing unit plug from the molded receptacle shown in the photo IS NOT sufficient to avoid electrical shock hazard. Disconnect power to the main unit by unplugging the main power cord from the wall receptacle or disable power to entire electrical circuit.

STEP 1. Door Gaskets

Check door gaskets for rips, cracks, or other damage.

The door gasket should be pushed in firmly and lay flat.

Ensure gasket forms a complete seal around door.

STEP 2. Sealing Compound

Sealing compound is used to seal wiring and line set pass-through between the condenser and the evaporator compartments. See Figure 6-1.

Check for voids and ensure sealing compound completely fills the space.

STEP 3. Silicone Seal (RTV type)

Check for complete silicone seal of:

- Joint where rear wall meets ceiling
- Around evaporator coil compartment

STEP 4. Floor Drain

Check that interior floor drain plug is in place if not plumbed to external drain and completely tightened. Figure 6-2.

Check that the evaporator condensate trap is looped and full of water. Figure 6-3.
6.2 Slide Out the Refrigeration Deck

STEP 1.
Remove grille by removing 1 Phillips head screw at the top center grille and 2 at the bottom edge.

STEP 2.
Remove square bracket around the front of condensing unit by removing 6 Phillips screws and 2 hex head bolts. Figure 6-4
Pull the square bracket straight out.

STEP 3.
The condensing unit/refrigeration deck can now be pulled straight out. Figure 6-5
Pull slowly and carefully to avoid damaging the copper line set.
- The copper line set is coiled with enough additional line to allow condensing unit to be removed from the cabinet.
- Do not place undue stress on copper lines when removing condensing unit.
- Damage/kinking of lines may occur if they are forcibly handled.

6.3 Plumbing for Remote Drain

STEP 1.
Remove panel to gain access to the evaporator drip pan.

STEP 2.
Attach drain tube provided. See Figure 6-6.

Figure 6-5. Removing Refrigeration Deck

Figure 6-4. Remove Condensing Unit Bracket

Figure 6-6. Remote Drain Tube

CAUTION
Must be hooked up to an external floor drain, not floor inside unit or floor under unit.
6.4 System Operating Pressures

**Note:** To check operating pressures, you must gain access to the process tubes and install piercing valves. See Section 6.4.4.

6.4.1 First Time Pull-Down

These products use a standard reciprocating compressor, therefore first time pull-down is like a normal cycle ending with the thermostat, switching the compressor off.

6.4.2 Normal Cycling

Compressor and condenser fan motor are controlled by the thermostat and cycle according to the programming of the digital controller.

6.4.3 Stabilization

Values in Table 6-1 represent a range of normal pressures. The measured pressure can vary depending on ambient conditions and at the point at which unit is in the refrigeration cycle.

<table>
<thead>
<tr>
<th>Low Side</th>
<th>High Side</th>
</tr>
</thead>
<tbody>
<tr>
<td>33-38 PSIG</td>
<td>130-230 PSIG</td>
</tr>
</tbody>
</table>

**Table 6-1. System Operating Pressures**

6.4.4 Service Valves

**Recording Pressure**

When installing gauges:

1. Initially purge manifold set with refrigerant type used in unit. This avoids introduction of air into system.
2. Install piercing valves on high and low side process ports and connect manifold line set to piercing valves (minimize refrigerant loss by using as short of line set as possible).
3. Allow unit to run for 10 minutes and stabilize before recording pressures.

When disconnecting hoses:

4. Initially close high side piercing valve.
5. Open manifold on gauges to place high side liquid back into system and equalize gauges.
6. Then close low side piercing valve and remove gauges.
7. Using pinch off pliers or similar tool seal of process tubes and remove piercing valves. Leak check process tubes thoroughly prior to brazing closed process tubes. Leak check again after brazing.
### 6.5 De-Ice Blocked Evaporator Coil – Self-Contained Models

**STEP 1.**
Remove shelves and pilaster from refrigerator section nearest the evaporator coil.

**STEP 2.**
Remove Evaporator Fan panel by removing 7 Phillips head screws from perimeter of panel. See Figure 6-8.

**STEP 3.**
Pull the handle and panel straight out from inner wall. The panel and connected fan can be placed on floor of cabinet.

**STEP 4.**
Using a fan or heat gun to gently direct warm air over ice to remove.

**CAUTION**
DO NOT use any tools to chip at or physically remove ice!

**STEP 5. When ice has been removed:**
Check sealing compound. Re-forming, if necessary, to close any gaps around wire harness and piping.
Check for other potential sources of air infiltration. See Section 6.1.

**STEP 6.**
Reverse steps 1 through 3 to close the evaporator fan panel.

### 6.6 Air Flow Obstructions
The unit must have free air flow to front grille to operate properly.

Restricted air flow results in high head pressures and reduction in efficiency due to longer run times.

Proper air flow around condensing unit and evaporator is necessary for efficient operation:

- Never obstruct air flow in and out of condensing unit.
- The front grille must be free from obstructions, dust, and debris.
- Never obstruct air flow to Evaporator Fan.
- Make sure higher temperature ambient air from another unit is not directed to condenser coil (i.e. another condensing unit directly across from the unit).
- Never place items in the area behind Product Side Guard/Handle. See Figure 6-9.
6.7 Clean Condenser Coil

**DANGER**

**ELECTROCUTION HAZARD!!** Never attempt to repair or perform maintenance on the unit until the Main electrical power has been disconnected.

Perlick’s warranty does not cover cleaning of condenser.

The condenser is located directly behind the front grille. See Figure 6-4.

Condenser coils that are covered with dust and debris restrict air flow. This results in high head pressures and lower efficiency due to longer run times.

Use soft brush and vacuum to clean coil every 90 days, or more often if conditions require.

6.8 Ambient Temperature

High ambient temperature and high humidity conditions may result in performance issues and/or refrigeration system failure.

The unit must be protected from precipitation.

Do not subject to direct solar load.

Under extreme temperature and/or relative humidity conditions the front face, gasket and/or glass door may show signs of condensation. When temperature and/or relative humidity conditions return to normal condensation will disappear.
### 6.9 Compressors and Condensing Unit

**Table 6-2. Compressor Data**

<table>
<thead>
<tr>
<th>MODEL / FAMILY</th>
<th>HP</th>
<th>WIRING</th>
<th>START WINDING RESISTANCE Ω AT 77°F</th>
<th>RUN WINDING RESISTANCE Ω AT 77°F</th>
<th>RUN/START</th>
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<tr>
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<td>RSCR</td>
<td>7.80</td>
<td>7.10</td>
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<td>RSCR</td>
<td>6.72</td>
<td>5.08</td>
<td>11.80</td>
</tr>
<tr>
<td>BBS84</td>
<td>1/4</td>
<td>RSCR</td>
<td>6.40</td>
<td>2.74</td>
<td>9.14</td>
</tr>
<tr>
<td>BBS108</td>
<td>1/4</td>
<td>RSCR</td>
<td>6.40</td>
<td>2.74</td>
<td>9.14</td>
</tr>
<tr>
<td>BBSN32</td>
<td>1/10</td>
<td>RSCR</td>
<td>7.80</td>
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<td>14.90</td>
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<tr>
<td>BBSN52</td>
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<td>RSCR</td>
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<td>RSCR</td>
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<td>2.74</td>
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</tbody>
</table>
6.10 Replace Condenser Fan Motor

**STEP 1.**
Remove Refrigeration Deck. See Section 6.2.

**STEP 2.**
Unplug the fan power cord from beneath electrical box on compressor.

**STEP 3.**
Remove fan motor assembly by removing 4 Phillips head screws that hold the fan bracket.

**STEP 4.**
Install new fan motor assembly by attaching the bracket with 4 screws.

**STEP 5.**
Install refrigeration deck by reversing steps in section 6.2.

6.11 Replace Evaporator Fan Motor – Self-Contained Models

**STEP 1.**
Remove grille by removing 3 Phillips head screws, one at the top center and two at the bottom edge.
STEP 9.
Remove 8 fan mounting screws.

STEP 10.
Evaporator fan motor can now be replaced. Evaporator fan motor should only be replaced with Perlick OEM parts.

STEP 11.
Reverse steps 1-9 to close the unit.

6.12 Replace Compressor
To gain access to compressor, follow instructions in Section 6.2.
Compressor should only be replaced with Perlick OEM parts.
Always replace drier when replacing compressor.

6.13 Leak Detection
If during a check of operating system pressures, it is determined that refrigerant level is low, you must perform a leak test.

- Do not recharge a system without first determining where original refrigerant charge exited the sealed system!
- Placing a system that has lost refrigerant under a vacuum without first repairing the leak will draw contaminants into the system through the point of leak. Find source of the leak and correct it!

- The use of an electronic leak detector is highly encouraged.
- If the entire charge has leaked out of the unit, the sealed system should be pressurized with 200 lbs. of dry nitrogen and tracer refrigerant. Then use an ultrasonic leak detector or a soap and water solution to pinpoint the location of the leak.
- Be certain to check all brazed connections thoroughly for leaks. Look for spots where the sealed system components might have been worn through by structural or cabinet components.
- Check the service ports thoroughly for leaks as well.

6.14 Recharge Procedure

STEP 1.
Check that the system been properly installed, pressure tested, and evacuated.

STEP 2.
Condenser and evaporator must be clean. Evaporator fan and condenser fan blades must be able to move the correct amount of air.

STEP 3.
Before installing gauges, vent hoses and manifold with refrigerant type used in unit. This avoids introduction of air into system.
Continue to next page...
STEP 4.
Install piercing valves on high and low side process tube.

*NOTE: Never leave piercing valves installed on process tubes as they tend to leak over time. Pinch off process tubes, remove piercing valves, leak check*

STEP 5.
Charge level is listed on unit information plate.

**CAUTION**
Once charge level has been set, avoid installing gauges as part of regular service. System should be kept sealed.

Do not “top off” or add refrigerant to an unknown existing charge.

Completely reclaim existing refrigerant in accordance with EPA regulations and thoroughly evacuate the system.

After evacuating the system:
1. Break vacuum with refrigerant.
2. Purge system through the high side until a nominal amount of refrigerant is purged out of the low side.
3. Then “weigh in” the correct total charge into system.

6.15 Replace compressor starting device – Self-contained models

**STEP 1.**
Completely slide out refrigeration deck. See Section 6.2.

**STEP 2.**
Pry open gray cover. Starting device is now accessible.

Overload device and capacitor are also accessible.
## 7.0 Electrical System Repair Instructions

### Electrical Specifications

Verify adequate power is supplied.

To avoid electrical shock, completely disconnect electrical power to referenced units before performing service work. Disconnect power to entire unit by unplugging the main power cord from the wall receptacle or disabling power to the circuit at the electrical circuit protection device, (i.e. circuit breaker).

*Table 7-1. Electrical Specifications*

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<th>Electrical Connection</th>
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</table>
7.2 Wiring Diagrams

Figure 7-1. BBR24, BBRN40 Wiring Diagram

BBR24/BBRN40
57342A-99-120-RevA

NOTE:
FIELD WIRING FROM CABINET JUNCTION BOX TO CONDENSING UNIT MUST COMPLY WITH ALL LOCAL AND NATIONAL ELECTRICAL CODES.

RETURN TO TABLE OF CONTENTS
Figure 7-2. BBR48, BBR72, BBR96, BBRN60, BBRN80 Wiring Diagram

NOTE:
FIELD WIRING FROM CABINET JUNCTION BOX TO CONDENSING UNIT MUST COMPLY WITH ALL LOCAL AND NATIONAL ELECTRICAL CODES.

TYPICAL FIELD INSTALLATION

BBR48/BBRN60/BBR72/
BBRN80/BBR96
57342A-98-120-RevA

These wires capped in single cabinet installations.
Figure 7-3. BBRLP48, BBRLP72, BBRLP96 Wiring Diagram.
Figure 7-4. BBS36, BBS60, BBS84, BBS108, BBSN32, BBSN52, BBSN72, BBSN92 Wiring Diagram
Figure 7-5. BBSLP Wiring Diagram
Figure 7-6. DDS/DDC Wiring Diagram
Figure 7-7. DZS36 Wiring Diagram
Figure 7-10. PTS Wiring Diagram
Figure 7-13. SDPR Wiring Diagram

SDPR
57342A-104-120-RevA

NOTE:
FIELD WIRING FROM CABINET JUNCTION BOX CONFORMING TO LOCAL AND NATIONAL ELECTRICAL CODES

TYPICAL FIELD INSTALLATION

CONDENSING UNIT

PRESSURE SWITCH

JUNCTION BOX

POWER CONNECTION

JUNCTION BOX

CABINET JUNCTION BOX

EVAPORATOR FAN

LIGHT SWITCH

LED BOARD

LED BOARD

LED BOARD

CABINET BACK

CABINET FRONT

120VAC INPUT

120VAC POWER SUPPLY

RED

WHITE

BROWN

BLACK

BLACK

BLACK

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7.3 Load Operation Modes

Table 7-2. Load Operation Modes

<table>
<thead>
<tr>
<th>LOAD</th>
<th>COOLING MODE</th>
<th>OFF MODE</th>
<th>DEFROST MODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor</td>
<td>Energized</td>
<td>De-Energized</td>
<td>De-Energized</td>
</tr>
<tr>
<td>Condenser Fan</td>
<td>Energized</td>
<td>De-Energized</td>
<td>De-Energized</td>
</tr>
<tr>
<td>Evaporator Fan</td>
<td>Energized</td>
<td>Energized</td>
<td>Energized</td>
</tr>
<tr>
<td>Mullion Heaters</td>
<td>Energized</td>
<td>Energized</td>
<td>Energized</td>
</tr>
<tr>
<td>Eliwell Controller</td>
<td><img src="image" alt="Snowflake" /></td>
<td>No icon illuminated</td>
<td><img src="image" alt="Snowflake" /></td>
</tr>
<tr>
<td>Dixell Controller</td>
<td><img src="image" alt="Snowflake" /></td>
<td>No icon illuminated</td>
<td><img src="image" alt="Snowflake" /></td>
</tr>
<tr>
<td>Inverter (if applicable)</td>
<td>Energized</td>
<td>De-Energized</td>
<td>De-Energized</td>
</tr>
</tbody>
</table>

7.4 Electronic Controller

**Note:** The digital readout is monitoring true air temperature, not product temperature.

Table 7-3. Controller Where-Used Table

<table>
<thead>
<tr>
<th>Controller Type</th>
<th>Build Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eliwell</td>
<td>Beginning 9/19/2016</td>
</tr>
<tr>
<td>Dixell</td>
<td>4/1/2013 to 9/16/2016</td>
</tr>
</tbody>
</table>

Eliwell Controller

Press and release controller set key to display ‘Machine Status’ menu and ‘SET’ label.
Press and release the set key again to display the current set point.
Refer to Table 7-4 for factory set point.
To adjust controller set point, press up and down arrow keys within 15 seconds.
Press set key once for controller to memorize new set point.

Dixell Controller

To view set point, press and release SET key.
Refer to Table 7-4 for factory set point.
To change set point value, press and hold SET key for at least 2 seconds. The set point value will be displayed along with a blinking °C or °F LED.
Release the SET key and then use up or down arrows within 10 seconds to change the set point.
The new set point will be memorized by either pressing SET key again or by waiting 10 seconds.

Be sure to allow 24 hours between temperature controller adjustments.
7.5 Factory Set Point

Table 7-4. Factory Temperature Settings

<table>
<thead>
<tr>
<th>Model</th>
<th>Refrigerator °F (°C)</th>
<th>White Wine °F (°C)</th>
<th>Red Wine °F (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BBS, BBSN</td>
<td>36 (2.2)</td>
<td>45 (7.2)</td>
<td>60 (15.5)</td>
</tr>
<tr>
<td>PTS, DZS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SDBS, SDPS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BBSLP, DDC DDS</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7.5.1 Dixell Controller: Reset Factory Parameter Settings

- Contact Perlick.

7.5.2 Eliwell Controller: Reset Factory Parameter Settings

LOADING DEFAULT APPLICATIONS

The procedure used to load one of the default applications is:

- When the instrument switches on, press and hold the key: the label AP1 will appear;
- Scroll though the various applications (AP1-AP2-AP3) using the keys;
- Select the desired application using the key (AP3 in the example) or cancel the procedure by pressing the key or alternatively wait for the timeout;
- If the operation is successful, the display will show y, otherwise n will appear;
- After a few seconds the instrument will return to the main display.

LOADING APPLICATIONS WHEN EXITING STAND-BY MODE

The procedure for loading one of the preset applications when exiting stand-by mode is:

- Set the instrument in stand-by mode by pressing the button for time H02;
- Exit stand-by mode by pressing the button for time H02:
- Within 10 seconds of exiting stand-by mode, press the button for time H02: AP1 label will appear;
- Scroll through the various applications (AP1-AP2-AP3) using the keys;
- Select the desired application using the key (AP3 in the example) or cancel the procedure by pressing the key or alternatively wait for the timeout;
- If the operation is successful, the display will show y, otherwise n will appear;
- After a few seconds the instrument will return to the main display.

<table>
<thead>
<tr>
<th>Single Zone Models</th>
<th>Dual Zone Models: Zone 1 Control</th>
<th>Dual Zone Models: Zone 2 Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP1 = Refrigerator settings (36°F)</td>
<td>AP1 = Refrigerator settings (36°F)</td>
<td>AP1 = Not Used</td>
</tr>
<tr>
<td>AP2 = White Wine settings (45°F)</td>
<td>AP2 = White Wine settings (45°F)</td>
<td>AP2 = White Wine settings (45°F)</td>
</tr>
<tr>
<td>AP3 = Red Wine settings (60°F)</td>
<td>AP3 = Not Used</td>
<td>AP3 = Red Wine settings (60°F)</td>
</tr>
</tbody>
</table>
7.5.3 Replacing Control Module

7.5.3.1 Removing Dixell Controller

**Tools required**

<table>
<thead>
<tr>
<th>Screwdriver</th>
<th>Pliers</th>
</tr>
</thead>
</table>

**STEP 1.**
Remove the grille by removing 3 Phillips head screws, one at the top center and two at the bottom edge.

**STEP 2.**
Remove 2 screws holding control cradle to unit.

**STEP 3.**
Remove clips holding the controller to the cradle. Control cradle will slide freely from the controller.

**CAUTION**
Do not attempt to reuse the old wiring harness.

**STEP 4.**
Cut 2 zip ties holding wire harness to top of the refrigeration module.

**STEP 5.**
Disconnect evaporator fan wire leads from the main wiring harness.
STEP 6.
Disconnect mullion heater wire leads from the main wiring harness.

STEP 7.
Disconnect DC driver leads from the main wiring harness.

STEP 8.
Remove main wiring harness by disconnecting Molex connector from molded receptacle.

STEP 9.
Remove green probe connector from controller.

STEP 10.
Remove controller assembly from the unit.

STEP 11.
Remove shelving and pilaster from the unit wall.

STEP 12.
Remove evaporator fan panel. See Figure 6-8.

STEP 13.
Remove screw holding probe bracket to the unit.
STEP 14.
Remove screw holding probe “mass” to the probe bracket and remove the probe.

STEP 15.
Remove sealing compound from top of wire pass-through (inside evaporator box).

STEP 16.
Remove sealing compound from bottom of wire pass-through (inside condenser compartment).

STEP 17.
Pull probe out through the bottom of the evaporator box.

STEP 18.
Discard Dixell probe assembly.

7.5.3.2 Installing Eliwell Controller

**Tools required**

<table>
<thead>
<tr>
<th>Tool</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screwdriver</td>
<td>Sealing Compound</td>
</tr>
<tr>
<td>Pliers</td>
<td>Cable ties</td>
</tr>
</tbody>
</table>

STEP 1.
Feed Eliwell probe through the bottom of the evaporator box.

STEP 2.
Attach probe and mass onto probe bracket with screw.

STEP 3.
Use pliers if needed to secure probe notch to sheet metal probe bracket. See Figure 7-2.

Crimp gently to avoid damaging the probe. The notch in the probe body should fit into the bracket slot to encapsulate the probe into stainless steel sleeve.

![Figure 7-15. Attach Probe to Bracket](image)

STEP 4.
Attach the bracket/probe assembly to the bottom of the evaporator box with screw.

STEP 5.
Replace sealing compound at top of wire pass-through (inside evaporator box). Verify a complete seal around the wire harness and pass-through hole.

STEP 6.
Replace the evaporator fan panel.

STEP 7.
Replace the sealing compound at bottom of wire pass-through (inside condenser compartment). Verify a complete seal around the wire harness and pass-through hole.

STEP 8.
Reverse this instruction to connect the replacement wire harness/controller/bracket assembly.
7.5.4 Temperature Probe

Each refrigerated zone has one 10K ohm NTC probe, which senses compartment temperature. Sensing probe is located behind evaporator fan panel.

- See Table 7-5 for temperature to resistance values when troubleshooting probe or temperature issues.

Table 7-5. Temperature – Resistance Values

<table>
<thead>
<tr>
<th>TEMPERATURE (°C)</th>
<th>TEMPERATURE (°F)</th>
<th>RESISTANCE (OHMS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
<td>113</td>
<td>4911</td>
</tr>
<tr>
<td>50</td>
<td>122</td>
<td>4160</td>
</tr>
<tr>
<td>55</td>
<td>131</td>
<td>3536</td>
</tr>
</tbody>
</table>

To replace temperature probe, refer to section 7.5.3.

7.6 LED Lighting

7.6.1 Replace LED Light Strip

⚠️ DANGER ⚠️

ELECTROCUTION HAZARD!! Never attempt to repair or perform maintenance on unit until main electrical power to the unit has been disconnected!

Tools required

<table>
<thead>
<tr>
<th>Tool 1</th>
<th>Tool 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STEP 1.
Open door or remove upper drawer. See Figure 8-13.

STEP 2.
Using a flat blade screwdriver, carefully pry off the lens cover. See Figure 7-4.

STEP 3.
Remove two screws securing LED light to housing.

STEP 4.
Unplug the LED from the wiring harness.

STEP 5.
Plug new LED into harness and secure to housing using screws removed in step 2.

STEP 6.
Snap LED cover into place.
7.7 Replace DC Driver/Inverter

**STEP 1.**
Locate DC Driver/Inverter on ceiling of refrigeration compartment.

**STEP 2.**
Check voltage.

**STEP 3.**
Disconnect DC driver leads from the main wiring harness.

**STEP 4.**
Use reverse procedure to install replacement DC driver/Inverter.

If not within range printed on the part, replace the part.
8.0 Service Instructions - Doors, Drawers, and Shelving

8.1 Proper Door and Drawer Usage

**Note:** Improper use of doors and drawers can allow extra heat into unit causing extended compressor run times.

- Ensure door or drawers are closed completely and are not left open for a long duration of time. The door can bounce back open slightly and appear closed.
- Ensure the unit is level.
- Ensure doors and drawers are sealing properly when closed.
- No door adjustments should be necessary unless there is major structural damage to cabinet.

8.2 Reverse Door Swing

**Note:** Changing door swing direction is not advisable if door is not equipped with full length handle. Doing so may result in an undesirable handle position.

**Table 8-1. Door Hinges**

<table>
<thead>
<tr>
<th>HINGE KIT - PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>67439R</td>
<td>Right Hinging</td>
</tr>
<tr>
<td>67439L</td>
<td>Left Hinging</td>
</tr>
</tbody>
</table>

**Tools required**

- Perlick Hinge Kit

**STEP 1.**
Support the door in the open position as shown in Figure 8-1. Remove the hinge pin.

**STEP 2.**
Pull door to the side and then lower the door.
STEP 3.
Remove top and bottom hinge brackets. Retain screws for later use. See Figure 8-2.

Figure 8-2. Hinge Removal

STEP 4.
Remove hole plugs from top and bottom hinge bracket mounting holes. See Figure 8-2.
Place plugs in holes on opposite side made vacant by removing hinges in step 3.

Figure 8-3. Hinge Installation

STEP 5.
Using screws removed in step 3, install top and bottom hinge brackets from kit. See Figure 8-3.

Figure 8-4. Door Brackets

STEP 6.
Remove top and bottom hinge brackets from door (Figure 8-4). Retain screws for later use.
STEP 7.
Remove front panel from door assembly by removing inner mounting screws (4 per side) from perimeter of door assembly. See Figure 8-5.
Rotate front panel 180° top to bottom. Reattach using same screw and mounting holes.

STEP 9.
Insert V-block into door bottom hinge bracket and attach with e-clip. See Figure 8-6. Note the orientation of V-block.

STEP 10.
Attach top and bottom door hinges using screws removed in STEP 6. See Figure 8-7.
STEP 11.
Place lower V-block into lower cabinet hinge with notch parallel to cabinet. See Figure 8-8.

Figure 8-8. Installing V-Block

STEP 12.
Lift door assembly and insert top pin into bearing. Move door toward cabinet and align V-blocks. See Figure 8-8 and Figure 8-9.

Figure 8-9. Installing Door

STEP 13.
Insert and tighten lower hinge pin to complete assembly.

8.3 Replace Door Hinge
See Section 8.2 for hinge replacement instructions.

8.4 Sliding Door Models
8.4.1 Removing/Installing Sliding Doors

STEP 1.
To remove sliding door, simply grasp door on each side and lift up off bottom track, then tilt outwards and pull down to remove from upper track.

STEP 2.
To reinstall sliding door, place door in upper track. Be sure to engage bracket. See Figure 8-10.
Lift door up into track and place into bottom track.

Figure 8-10. Removing/Installing Sliding Door
8.4.2 Adjusting Door Spring Tension

Tools required

<table>
<thead>
<tr>
<th>Tool</th>
<th>Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screw</td>
<td>Screw</td>
</tr>
</tbody>
</table>

Tension spring is in upper track of each door.

![Figure 8-11. Door Track](image)

To increase or decrease spring tension:
- Remove Phillips screw
- Position bracket in one of three detents
- Reinstall screw

Detent farthest from left provides the least amount of tension.

Units are shipped from factory with springs set at the weakest setting.

8.4.3 Torpedo Spring Adjustment

Tools required

<table>
<thead>
<tr>
<th>Tool</th>
<th>Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screw</td>
<td>Screw</td>
</tr>
</tbody>
</table>

STEP 1.
Remove doors.

STEP 2.
Remove screw.

STEP 3.
Pull up spring and attached black tab.

STEP 4.
Feed into next notch to tighten/loosen.

STEP 5.
Tighten screw.

8.5 Drawer & Shelf Slides

8.5.1 Shelving Adjustment

**CAUTION**

Completely empty shelf or drawer before removing.

STEP 1.
Open door and slide shelf out.

STEP 2.
Press locking mechanism. Tilt shelf and remove from unit.

STEP 3.
Reposition each bracket separately. Grasp middle of bracket, pull front end up and out, then forward to remove.

STEP 4.
Place brackets at desired location and reinstall shelf(s).
8.5.2 Drawer Divider Adjustment

**CAUTION**
Completely empty shelf or drawer before removing.

**STEP 1.**
Lift divider straight up and move to desired position, engaging tabs in holes. Make sure divider tabs engage corresponding holes on both sides.

8.5.3 Cleaning/Lubricating Drawer Extenders

**CAUTION**
Completely empty shelf or drawer before removing.

**STEP 4.**
Place drawer on to the extenders, making sure wheels engage the slots on each side.

**STEP 5.**
Push drawer all the way in, then pull drawer out and push the latch down and back to engage. Make sure front of latches are fully down and back, engaging the extenders.

8.6 Replace Door & Drawer Gasket

**STEP 1.**
Remove gasket by lifting at one corner and pulling gasket away from door. Work around the door until gasket is free.

**STEP 2.**
To replace, start at one corner and press firmly to seat the gasket dart in the channel of the door frame. Listen/feel for a click to indicate the dart is completely seated.

**STEP 3.**
Finish by going around the gasket once more to feel for any gaps and to ensure the gasket is flat and fully seated.
8.7 Replace Door Handle

<table>
<thead>
<tr>
<th>Tools required</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8”</td>
</tr>
</tbody>
</table>

**STEP 1.**
Remove door gasket. See Section 8.6.

**STEP 2.**
Remove 16 screws underneath door gasket that hold door overlay panel to door frame.

**STEP 3.**
Remove 3 screws from each door hinge where it is attached to door frame.

**STEP 4.**
Separate door overlay panel from door frame.

**STEP 5.**
Door handle can now be removed, 4 X 3/8” hex head bolts.

**STEP 6.**
Reverse these steps to replace door hinges, overlay panel, and gasket.

8.8 Locks
Gain access to back side of the lock by following directions to remove door handle, Section 8.7.

Note position of door lock strike and reassemble in the same orientation.

8.9 Custom Overlay Panels

<table>
<thead>
<tr>
<th>Tools required</th>
</tr>
</thead>
</table>

Remove front panel from door assembly by removing inner mounting screws (4 per side) from perimeter of door assembly. See Figure 8-14.

Reattach custom overlay panel using same screw and mounting holes.

![Custom Panel](image)
9.0 Replacement Parts

For parts ordering call (844) 411-8050.

9.1 Refrigeration Module (BBS, BBSN, PTS, SDBS, SDPS, DDS, DDC Model Series)
## BBS, BBSN, PTS, SDBS, SDPS, DDS, DDC MODELS

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>DESCRIPTION</th>
<th>1-DOOR QTY.</th>
<th>2-DOOR QTY.</th>
<th>3&amp;4-DOOR QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Condensing Unit, 1/6 H.P. 115V</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
<td>Condensing Unit, 1/5 H.P., 115V</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>01</td>
<td>Condensing Unit, 1/4 H.P. 115V</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>02</td>
<td>Screw, Phillips Truss Head Machine</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>03</td>
<td>Screw, Thread Cutter, Hex Washer Head</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>04</td>
<td>Screw, Phillips Truss Head Sheet Metal</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>05</td>
<td>Screw, Phillips Pan Head Sheet Metal</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<tr>
<td>06</td>
<td>Screw, Phillips Head</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>07</td>
<td>Screw, Sheet Metal</td>
<td>18</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>08</td>
<td>Screw</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>09</td>
<td>Rivet, Pop</td>
<td>14</td>
<td>14</td>
<td>14</td>
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<tr>
<td>10</td>
<td>Rivnut, Insert</td>
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<td>1</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>Low Side Foamed Assembly</td>
<td>1</td>
<td>1</td>
<td>-</td>
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<tr>
<td>12</td>
<td>Probe, Temperature</td>
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<td>1</td>
<td>1</td>
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<tr>
<td>13</td>
<td>Sleeve, Sensor Insulating</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>Tube, Drain, Evaporator Pan to Condenser Pan</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>Bracket, Temperature Sensor</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>Bracket, Top Pull Down</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>17</td>
<td>Standoff, Grille</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>LED Driver</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>19</td>
<td>Controller</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>20</td>
<td>Panel, Outer Side, High Side</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>21</td>
<td>Panel, Inner Side, High Side</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>22</td>
<td>Base, High Side</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>23</td>
<td>Cover, Back, High Side</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>24</td>
<td>Pan, Condensate, High Side</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>25</td>
<td>Grille, Front</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>26</td>
<td>Pan, evaporator</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>27</td>
<td>Evaporator Fin Coil</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>28</td>
<td>Baffle, Compressor</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>29</td>
<td>Bracket, Compressor</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>30</td>
<td>L &amp; S Line, 1 Door</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>30</td>
<td>L &amp; S Line, 2 Door</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>30</td>
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## BBSLP MODELS

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<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Motor, Fan</td>
<td>1</td>
</tr>
<tr>
<td>02</td>
<td>Panel, Fan Mounting</td>
<td>1</td>
</tr>
<tr>
<td>03</td>
<td>Panel, Inner Grille</td>
<td>1</td>
</tr>
<tr>
<td>04</td>
<td>Screw, Motor Mounting</td>
<td>4</td>
</tr>
<tr>
<td>05</td>
<td>Screw, Grille Mounting</td>
<td>8</td>
</tr>
<tr>
<td>06</td>
<td>Guard, Product</td>
<td>1</td>
</tr>
<tr>
<td>07</td>
<td>Screw, Guard Mounting</td>
<td>2</td>
</tr>
</tbody>
</table>
9.6 Low Profile Evaporator Parts (BBSLP Model Series)

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Fan, Evaporator</td>
<td>3</td>
</tr>
<tr>
<td>02</td>
<td>Panel, Fan Mounting</td>
<td>1</td>
</tr>
<tr>
<td>03</td>
<td>Screw, Fan Mounting</td>
<td>12</td>
</tr>
<tr>
<td>04</td>
<td>Grille</td>
<td>1</td>
</tr>
<tr>
<td>05</td>
<td>Screw, Grille Mounting</td>
<td>2</td>
</tr>
<tr>
<td>06</td>
<td>Handle, Guard</td>
<td>6</td>
</tr>
<tr>
<td>07</td>
<td>Screw, Guard Handle Mounting</td>
<td>2</td>
</tr>
</tbody>
</table>
## 9.7 Remote Evaporator Parts (BBR, BBRN, PTR, SDBR & BBRLP Model Series)

### Remote Models

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Motor, Fan</td>
<td>1</td>
</tr>
<tr>
<td>02</td>
<td>Panel, Fan Mounting</td>
<td>1</td>
</tr>
<tr>
<td>03</td>
<td>Bracket, Fan</td>
<td>2</td>
</tr>
<tr>
<td>04</td>
<td>Control, Temperature</td>
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</tr>
<tr>
<td>05</td>
<td>Pan, Evaporator</td>
<td>1</td>
</tr>
<tr>
<td>06</td>
<td>Bushing, 1.75” I.D.</td>
<td>1</td>
</tr>
<tr>
<td>07</td>
<td>Guard, Plastic Fan</td>
<td>2</td>
</tr>
</tbody>
</table>

![Diagram of remote evaporator parts]
## REMOTE MODELS

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
</tr>
</thead>
<tbody>
<tr>
<td>06</td>
<td>Fan Panel, Evaporator (Right)</td>
<td>1</td>
</tr>
<tr>
<td>07</td>
<td>Fan Panel, Evaporator (Left)</td>
<td>1</td>
</tr>
<tr>
<td>08</td>
<td>Plug, Dome</td>
<td>1</td>
</tr>
<tr>
<td>09</td>
<td>Motor, Fan</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>Blade, Fan</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>Evaporator Assembly</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Coil, 21” Fin</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Tube, Evaporator Outlet</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Tube, Evaporator Inlet</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Clamp, Control Bulb</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>Silicone</td>
<td>-</td>
</tr>
</tbody>
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