ACCESSORY KIT INSTALLATION INSTRUCTION

HOT GAS BYPASS ACCESSORY
MODEL 2HG04700524

For Commercial Split Systems 7.5-15 tons R-410A Cooling Only Indoor Units
Models NC090, NH-07, J07NC, NC120, NH-10, J10NC, ND120, NJ-10, J10ND, NC180, NH-15, J15NC, ND180, NJ-15 and J15ND

When Matched with 7.5, 10, 12.5, 15 ton 2 and 4 pipe R-410A Cooling and/or Heat Pump Condensing Units

GENERAL

A discharge bypass valve (DBV) is a fully modulating control valve that provides metered compressor discharge gas to a system’s evaporator coil during low load operation. A DBV responds to changes in suction pressure by opening as the pressure drops below the valve’s setting. As the valve opens, discharge gas is released to the evaporator coil. The heat applied to the coil prevents icing as well as undesirable compressor cycling. Once the suction pressure rises above the valve’s setting the valve closes.

The HGBE-5 discharge bypass valve is suitable for R-410A refrigeration systems. It has an adjustment range of 95-115 PSI and a factory setting of 105 PSI and can be set to automatically maintain a desired minimum suction pressure regardless of the decrease in evaporator load. Accessory Kit Components are listed in Table 1.

TABLE 1: ACCESSORY KIT COMPONENTS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>543163</td>
<td>Discharge ByPass Valve HGBE-5 Valve</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>6335</td>
<td>1/4” Flare Nut</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>566332</td>
<td>5/8”x1/2” Reducer Coupling</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>638648</td>
<td>7/8”x5/8” Reducer Coupling</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>915666</td>
<td>Accessory Installation Instruction</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>5798</td>
<td>5/8” pipe clamps</td>
</tr>
</tbody>
</table>

NOTE: If this Hot Gas Bypass Accessory is used with a split heat pump product, a hot gas solenoid valve (field supplied) should be added to the hot gas line before the hot gas bypass valve. The hot gas solenoid should be normally closed in the heating mode and open in cooling mode only. The valve should be wired in parallel with the Y1 & Common call for 1St. stage cooling.

FIGURE 1: SIMPLIFIED PIPING DIAGRAM

NOTE: For Heat Pump Applications a Field Supplied, Line Sized (Full Port Orifice) Hot Gas Solenoid Valve must be Used.

NOTE: Only one refrigeration system may be served by a single DBV. If another system requires hot gas a second, accessory HGB kit is required.

The HGBE-5 DBV may be installed in either a horizontal or vertical orientation. The valve should be located so that it does not act as an oil trap. Length of bypass line should be limited to 100 feet or less. Use industry accepted practices for piping.

INSTALLATION

WARNING

Improper installation, adjustment, service or maintenance can cause injury or property damage. Therefore, only a qualified installer or qualified service personnel should perform this conversion.

915666-UIM-C-0313
1. Disconnect electrical power to the unit. The unit may have more than one power source.

2. Recover the system refrigerant charge.

3. Locate the discharge line tees provided for hot gas bypass. Each tee will have a copper stub, approximately 2” in length. Remove copper disc on the end of stub.

4. Install the HGBE-5 DBV. The inlet side of the valve is marked “IN”. See Figure 2.

5. Install 7/8” X 5/8” reducer to outlet of HGBE-5 DBV.

6. Run 5/8” hot gas bypass line to indoor unit.

   **NOTE:** The bypass line must be insulated.

7. Install 5/8” X 1/2” reducer line to TXV distributor side connection. (7.5 - 10 tons only)

   **NOTE:** The bypass line must be insulated.

8. For single circuit units (YC/YH/J**YC Models) remove the core from the valve stem located on the suction line near the compressor. Attach the external equalizer line (1/4” copper field supplied) from the DBV to the valve stem. Use the flare nut provided.

9. For dual circuit units (YD/YJ/J**YD Models) remove the core from the valve stem located on the suction line for compressor #1 only. Attach the external equalizer line (1/4” copper field supplied) from the DBV to the valve stem. Use the flare nut provided.

10. For dual circuit units (YD/YJ/J**YD Models), The Lead-Lag program of the Simplicity Control must be turned off, so that compressor #2 does not start first on a Y1 Call (Lead-Lag factory default is OFF). See Simplicity control instructions for Lead-Lag operation.

11. Leak check, evacuate and recharge the unit.

**OPERATION**

Adjust the valve by turning the pilot valve screw. Clockwise rotation increases the valve’s setting while counterclockwise rotation decreases the setting.

**NOTE:** The evaporator load must be varied for proper valve adjustment. First reduce the load to decrease suction pressure. Adjust the valve to maintain the desired pressure. Next increase the load to increase suction pressure thus closing the valve. Once complete, check the setting by slowly decreasing the load until the valve begins to open.

Contact UPG Technical Services/Application Engineering for questions regarding installation, 1-877-874-7378.
FIGURE 3: TYPICAL DISCHARGE BYPASS VALVE PIPING DIAGRAM