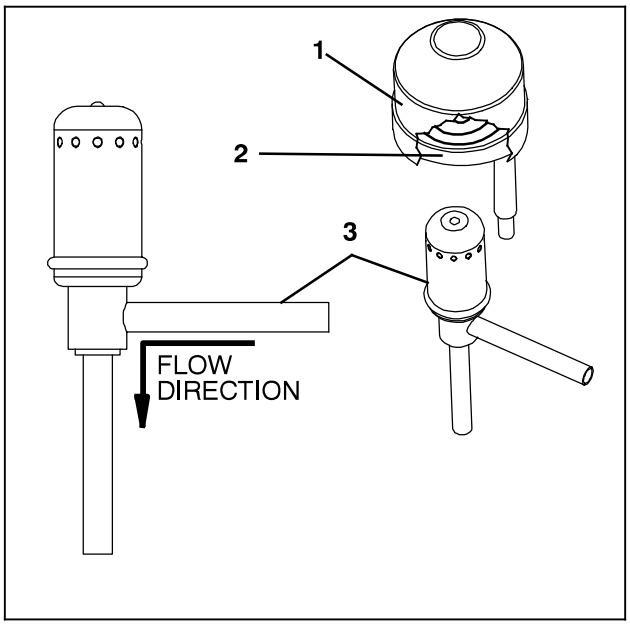
6.13 ELECTRONIC EXPANSION VALVE

The electronic expansion valve (EEV) is an automatic device which maintains required superheat of the refrigerant gas leaving the evaporator. The valve functions are: (a) automatic response of refrigerant flow to match the evaporator load and (b) prevention of liquid refrigerant entering the compressor. Unless the valve is defective, it seldom requires any maintenance. See Figure 6-14.



1. Coil Boot
2. Coil
3. Electronic Expansion Valve

Figure 6-14 Electronic Expansion Valve

6.13.1 Replacing Electronic Expansion Valve and Screen

a. Removing an EEV

1. Pump down the compressor (refer to paragraph 6.3.2) and frontseat both suction and discharge valves.
2. Turn unit power off and remove power from the unit.
3. Remove coil.
4. VALVE REMOVAL: The preferred method of removing the valve is to cut the connection between the brazed section and the valve, using a small tube cutter. Remove valve.

   Alternately, use a wet rag to keep valve cool. Heat inlet and outlet connections to valve body and remove valve.
5. Clean the valve stem with mild cleaner, if necessary.

b. Installing an EEV

1. Reverse steps 1 through 4 above to install a new valve. Install valve and screen with cone of screen pointing into liquid line at inlet to the valve.
2. During installation, make sure the EEV coil is snapped down fully, and the coil retention tab is properly seated in one of the valve body dimples. Also, ensure that coil boot is properly fitted over valve body. See Figure 6-14.
3. Replace filter drier.
4. Evacuate to 500 microns by placing vacuum pump on liquid line and suction service valve.
5. Open liquid line service valve and check refrigerant level.
6. Check superheat. (Refer to Section 2.2)
7. Check unit operation by running Pre-trip (Refer to Section 3.7).

6.14 ECONOMIZER EXPANSION VALVE

The economizer expansion valve can be found in Figure 2-4 (Item 15). The economizer expansion valve is an automatic device that maintains constant superheat of the refrigerant gas leaving at the point of bulb attachment, regardless of suction pressure.

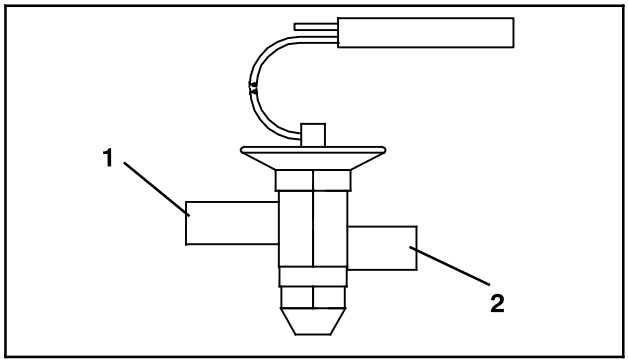
Unless the valve is defective, it seldom requires maintenance other than periodic inspection to ensure that the thermal bulb is tightly secured to the suction line and wrapped with insulating compound.

6.14.1 Valve Replacement

a. Removing an Expansion Valve

NOTE

The economizer expansion valve is a hermetic valve and does not have adjustable superheat (See Figure 6-15).



1. Inlet
2. Outlet

Figure 6-15 Economizer Expansion Valve

1. Pump down the compressor (refer to paragraph 6.3.2) and frontseat both suction and discharge valves. Evacuate if unit is not equipped with service valves. Refer to paragraph 6.4.4.
2. Turn unit power off and remove power from the unit.
3. Remove cushion clamps located on the inlet and outlet lines.
4. Remove insulation (Presstite) from expansion valve bulb.
5. Unstrap the bulb, located on the economizer line.
6. VALVE REMOVAL: The preferred method of removing the valve is to cut the connection between the brazed section and the valve, using a small tube cutter. Remove valve.

Alternately, use a wet rag to keep valve cool. Heat inlet and outlet connections to valve body and remove valve.

7. Clean the valve stem with mild cleaner, if necessary.

b. Installing an Expansion Valve

1. The economizer valve should be wrapped in a soaked cloth for brazing. Braze inlet connection to inlet line.
2. Braze inlet connection to inlet line.
3. Braze outlet connection to outlet line.
4. Braze outlet connection to outlet line.
5. Reinstall the cushion clamps on inlet and outlet lines.

c. Replace filter drier.

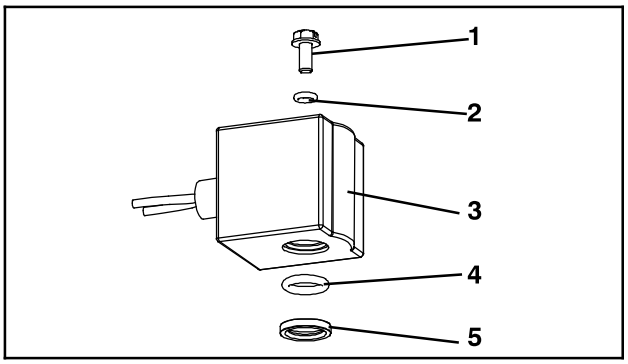
d. Evacuate to 500 microns by placing vacuum pump on liquid line and suction service valve.

6. Check superheat (see Section 2.2).

6.15 ECONOMIZER SOLENOID VALVE

a. Removing a Solenoid Valve

1. Pump down the compressor (refer to paragraph 6.3.2) and frontseat both suction and discharge valves.
2. Turn unit power off and remove power from the unit. Disconnect leads.
3. Remove top screw and o-ring. Remove coil and save mounting hardware, seals and spacer for reuse. (See Figure 6-16).



1. Slotted Screw
2. Top Coil (small) O-ring
3. Solenoid Coil, Enclosing Tube and Body
4. Bottom Coil (large) O-ring
5. Brass Spacer

Figure 6-16 Coil View of Economizer Solenoid Valve (ESV)

4. VALVE REMOVAL: The preferred method of removing the solenoid valve is to cut the connection between the brazed section and the valve, using a small tube cutter. Remove valve.

   Alternately, heat inlet and outlet connections to valve body and remove valve. Use a wet rag to keep valve cool whenever brazing.

5. Clean the valve stem with mild cleaner, if necessary.

b. Installing a Solenoid Valve

1. Install the brass spacer on the valve stem.
2. Lubricate both o-rings with silicone provided in the kit.
3. Install bottom coil o-ring on the valve stem.
4. Install the solenoid coil on the valve stem.
5. Place the top coil o-ring on the coil mounting screw and secure the coil to the valve using a torque-wrench. Torque the screw to 25 lb-in.
6. Connect coil wires using butt-splices and heat-shrink tubing.

6.16 DIGITAL UNLOADER VALVE

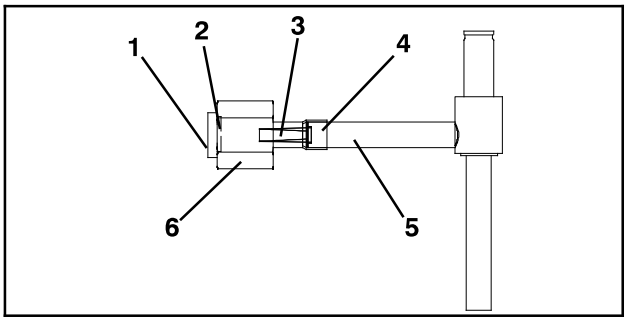
a. Removing the DUV

1. Pump down the compressor (refer to paragraph 6.3.2) and frontseat both suction and discharge valves. In the event the DUV is stuck open and compressor cannot pump down, remove charge.
2. Turn unit power off and remove power from the unit.
3. Loosen bolt on top of the DUV and remove coil assembly.

NOTE

There is a loose steel spacer tube between the top of the valve and the 12 VDC coil that needs to be reinstalled into the solenoid valve coil. When removing the coil, it may fall out when lifted from the valve body. Take care that the spacer is not lost; the valve will not function correctly without it.

4. Remove clamps holding the DUV to the discharge line.
5. Loosen the nuts attaching the DUV to the top of the compressor.



1. Sleeve
2. O-ring (hidden)
3. Screen Valve Strainer
4. Tube
5. Solenoid Valve Body
6. Hex Nut, 1/2 OD

Figure 6-17 View of Digital Unloader Valve (DUV) Assembly

6. VALVE REMOVAL: The preferred method of removing the solenoid valve is to cut the connection between the brazed section and the valve, using a small tube cutter. Remove valve. (See Figure 6-17).

   Alternately, use a wet rag to keep valve cool. Heat outlet connection to valve body and remove valve.