

Ei 49816283-C

Ingersoll Rand Pilot Unloader Check Valve Instruction Manual

Model: 49816283-C

Brand: Ei

1. PRODUCT OVERVIEW

This document provides essential information for the installation, operation, and maintenance of the Ingersoll Rand Pilot Unloader Check Valve, part number 49816283-C. This component is designed for use with Ingersoll Rand T30 Gas Powered Air Compressors.

The valve is a solid brass, in-line piloted unloader check valve combination, manufactured by Conrader in the USA. It integrates a relief valve and a port for a throttle control valve.



Figure 1: Front view of the 49816283-C Pilot Unloader Check Valve. This image displays the primary brass body, clearly indicating the 'IN' and 'OUT' ports, the integrated relief valve on the right, and the pilot unloader mechanism on the top left.

Key Features:

- Solid brass construction for durability.
- Integrated in-line piloted unloader check valve.
- Equipped with a 325 PSI relief valve.
- Features a 1/8" female NPT port for throttle control valve installation.
- Factory set ON/OFF pressure range: 145-175 PSI.
- Designed as an OEM replacement part for Ingersoll Rand T30 Gas Powered Air Compressors.

2. SETUP AND INSTALLATION

Proper installation is crucial for the safe and efficient operation of the valve. Ensure the compressor system is depressurized and powered off before beginning installation.

Installation Steps:

1. **Depressurize System:** Ensure the air compressor is completely shut down and all pressure is relieved from the tank and lines.
2. **Disconnect Old Valve:** Carefully disconnect the existing unloader check valve from the compressor system. Note the orientation of the inlet and outlet connections.

3. **Connect Inlet:** The top port of the new valve is a 5/8" inverted flare inlet. Connect the main line from the compressor pump to this port. Ensure a secure, leak-free connection.
4. **Connect Tank:** The bottom port of the valve is a 1/2" female NPT. Connect this to your existing fitting on the air tank. This connection commonly includes a relief valve.
5. **Install Throttle Control Valve (Optional):** If your system utilizes a throttle control valve, install it into the 1/8" female NPT port on the side of the unloader valve.
6. **Inspect Connections:** Double-check all connections for tightness and proper sealing.



Figure 2: Side view of the valve, highlighting the 5/8" inverted flare inlet and the 1/2" female NPT tank connection. The pilot unloader mechanism and relief valve are also visible from this angle.

Important: Always refer to your air compressor's specific service manual for detailed instructions regarding component replacement and system depressurization procedures.

3. OPERATING PRINCIPLES

The 49816283-C valve functions as a critical component in managing air pressure within the compressor system, specifically for gas-powered models. It combines the roles of a check valve and an unloader valve.

Functionality:

- **Check Valve:** Prevents compressed air from flowing back into the compressor pump when the pump is off or in an unloaded state. This ensures that the tank maintains pressure and reduces starting load on the motor.
- **Piloted Unloader:** When the air tank reaches its maximum set pressure (factory set to 175 PSI), the pilot mechanism in the valve activates. This signals the compressor to enter an "unloaded" state, typically by opening a bypass or reducing engine RPM, preventing over-pressurization.
- **Relief Valve:** The integrated 325 PSI relief valve acts as a safety device. In the event of a primary pressure control failure, this valve will open to release excess pressure, preventing damage to the system or injury.
- **Throttle Control (with optional valve):** The 1/8" NPT port allows for the connection of a throttle control valve. This valve works in conjunction with the unloader to adjust the engine speed of gas-powered compressors, slowing it down when the tank is full and speeding it up when more air is needed, thereby saving fuel.

The factory set ON/OFF pressure range for the unloader function is 145-175 PSI. This means the compressor will typically start pumping air when pressure drops to 145 PSI and unload when it reaches 175 PSI.

4. MAINTENANCE

Regular inspection and maintenance are essential to ensure the longevity and proper functioning of the unloader check valve.

Maintenance Guidelines:

- **Visual Inspection:** Periodically inspect the valve for signs of wear, corrosion, or damage. Check for air leaks around connections, which may indicate loose fittings or worn seals.
- **Cleanliness:** Ensure the valve and surrounding area are free from dirt, debris, and oil buildup. A clean valve operates more efficiently.
- **Relief Valve Test:** Annually, or as recommended by your compressor manufacturer, test the relief valve by manually pulling the ring to ensure it opens and closes freely. This should be done with the system depressurized or at a low pressure to avoid sudden air release.

- **Check Valve Function:** Listen for proper unloading and loading cycles of the compressor. If the compressor struggles to start or continuously runs without building pressure, the check valve component may be faulty.
- **Throttle Control Valve (if applicable):** Ensure the throttle control valve (if installed) operates smoothly and correctly adjusts engine speed.

Any repairs or replacements should be performed by qualified personnel using genuine replacement parts.

5. TROUBLESHOOTING

This section addresses common issues that may arise with the unloader check valve and provides potential solutions.

Problem	Possible Cause	Solution
Air leaks from the valve or connections.	Loose fittings, damaged threads, worn seals/O-rings.	Tighten connections. Inspect and replace damaged seals or O-rings. Apply thread sealant if necessary.
Compressor struggles to start or motor hums.	Faulty check valve not holding tank pressure, causing back pressure on the pump.	Inspect the check valve component for debris or damage. Replacement of the valve may be necessary.
Compressor continuously runs and does not unload.	Faulty pilot unloader mechanism or throttle control valve (if installed).	Check the pilot line for blockages. Inspect the pilot unloader mechanism for proper movement. Verify the throttle control valve is functioning.
Relief valve frequently opens.	System over-pressurization, faulty pressure switch, or relief valve itself is faulty.	Check the compressor's pressure switch settings. If the pressure switch is operating correctly, the relief valve may need replacement. Do not attempt to adjust the relief valve.

If troubleshooting steps do not resolve the issue, contact a qualified service technician.

6. SPECIFICATIONS

Detailed technical specifications for the 49816283-C Pilot Unloader Check Valve.

Part Number	49816283-C (OEM)
Manufacturer	Conrader
Material	Solid Brass
Inlet Connection	5/8" Inverted Flare
Tank Connection	1/2" Female NPT
Throttle Control Valve Port	1/8" Female NPT
Factory Set ON/OFF Pressure	145-175 PSI

Integrated Relief Valve Pressure	325 PSI
Compatibility	Ingersoll Rand T30 Gas Powered Air Compressors
Item Weight	1.61 pounds
Package Dimensions	4.84 x 4.29 x 2.32 inches
UPC	724453990236



Figure 3: Top-down view of the valve, providing a clearer perspective of the inlet connection and the internal components of the check valve mechanism.

7. WARRANTY AND SUPPORT

For specific warranty information regarding the 49816283-C Pilot Unloader Check Valve, please refer to the documentation provided by the manufacturer, Conrader, or the vendor from whom the product was purchased. As an OEM part, warranty terms may also be covered under the Ingersoll Rand compressor warranty if installed as a replacement part.

For technical support or inquiries, it is recommended to contact the manufacturer or an authorized service center. When contacting support, please have the product model number (49816283-C) and any relevant purchase information readily available.

Manufacturer: Conrader

Brand: Ei

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