



**TRANE®**

# General Service Bulletin

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## RTAA/RTWA/RTUA

### CHHN Compressor Motor-to-Bearing Housing O-ring and Piston Replacement

Order Number: **RTAA-SVB12A-EN**

Date: February 2003

#### Introduction

The purpose of this bulletin is to explain the proper procedure for changing the male port unloader piston on CHHN 35-60 ton compressors. CHHN compressors are used on RTAA/RTWA/RTUA 70-125 ton units.

#### Discussion

CHHN compressors have a female step load solenoid valve and male load/unload solenoid valves that are utilized for capacity control. The female step load solenoid is so named because it acts on the female rotor side of the compressor, and its function is to "pilot" a larger valve inside the compressor that opens to bypass compressed vapor back to the suction of the compressor. This bypass action causes a "step" difference in the capacity of the compressor.

On the Male rotor side of the compressor is the male port unloader piston, which can move laterally along the male rotor. Small bypass ports in the rotor housing are covered and/or uncovered by the unloader piston as it moves. The position of the piston, is controlled by two direct acting solenoid valves called the male load and male unload solenoid valves. These valves add or vent pressure to the cylinder of the movable piston to position and "modulate" the amount of compressed vapor that can be bypassed back to suction. This piston can become stuck. If this occurs it can cause the compressor to start loaded or not load at all. This bulletin provides a procedure for changing the piston.

**NOTICE:** Warnings and Cautions appear at appropriate sections throughout this literature. Read these carefully.

**⚠ WARNING:** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

**⚠ CAUTION:** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

**CAUTION:** Indicates a situation that may result in equipment or property-damage only accidents.

## Repair Procedure

### ⚠ WARNING

#### Contains Refrigerant!

**System contains oil and refrigerant under high pressure. Recover refrigerant to relieve pressure before opening the system. See unit nameplate for refrigerant type. Do not use non-approved refrigerants, refrigerant substitutes, or refrigerant additives.**

**Failure to follow proper procedures or the use of non-approved refrigerants, refrigerant substitutes, or refrigerant additives could result in death or serious injury or equipment damage.**

### ⚠ WARNING

#### Hazardous Voltage!

**Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.**

See HUB DOC-77084

1. First isolate, evacuate and expose the compressor to atmospheric pressure.
2. Unbolt the discharge and suction service valves from the compressor.
3. Disconnect the solenoid valve coils, high pressure cutout switch flare, and oil line at the bearing housing.
4. Loosen all the bolts at the motor-bearing housing mating surface. The oil filter housing bolts do not need to be removed.
5. Use an extension and a minimum of a 250 ft-lb impact wrench to loosen the motor rotor bolt. If the rotors continue to spin, it may be necessary to increase the size of the impact wrench, or, after loosening the bearing housing bolts, slide the housings apart enough that a maintained pressure will prevent the rotors from turning while the bolt is loosened.
6. Loosen the rotor bolt and bearing housing bolts enough to get access to the piston.

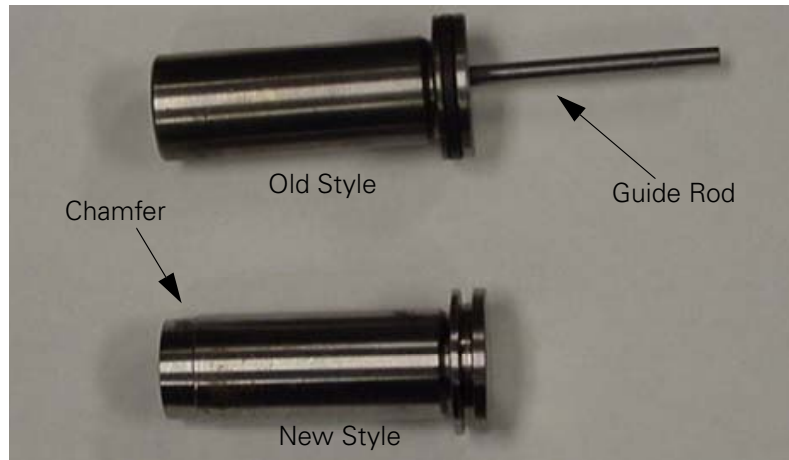
## Caution

### Equipment Damage!

**The housings can only be separated 3 1/2 in. If they are separated further severe compressor damage can result.**

7. Hold the piston and take pliers and unscrew the guide rod.  
Design sequence 'EO' and later will not have the guide rod.

**Figure 1: Male Unloader Piston**



8. Remove and discard the old piston and guide rod.
9. Wipe out cylinder and inspect for nicks.
10. Lubricate (with oil) and install the new piston. The new piston will not have a guide rod but it is chamfered.
11. Clean the o-ring groove and mating surfaces.
12. Cover all sharp edges with smooth plastic, and slightly stretch the new O ring over the bearing housing. It is important that the new O ring not rub against any rough or sharp edges.
13. Put a thin film of gasket eliminator such as Loctite 515 on the new O ring and install.
14. Reassemble the motor and bearing housings. Install the motor-rotor bolt with one or two drops of Loctite 271 and torque to 150 ft-lb. If the rotor begins to spin while the impact wrench is being used, allow the wrench to stop until the rotor stops turning, then reapply torque.
15. Torque the motor-bearing housing bolts to 170 ft-lb.
16. Install new gaskets and replace the suction and discharge service valves. Torque to 175 ft-lb.

## Parts Ordering Information

This bulletin is informational only and does not authorize any parts or labor. Use the following table to order the necessary parts

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**60 ton compressor:**

<b>Qty.</b>	<b>Part Number</b>	<b>Description</b>
1	KIT07618	male unloader piston kit
4	GKT01612	male solenoid gasket (both solenoids)
3	RNG01397	female solenoid o-rings

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**50 ton compressor:**

<b>Qty.</b>	<b>Part Number</b>	<b>Description</b>
1	KIT07619	male unloader piston kit
4	GKT01612	male solenoid gasket (both solenoids)
3	RNG01397	female solenoid o-rings

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**40 ton compressor:**

<b>Qty.</b>	<b>Part Number</b>	<b>Description</b>
1	KIT07620	male unloader piston kit
4	GKT01612	male solenoid gasket (both solenoids)
3	RNG01397	female solenoid o-rings

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**35 ton compressor:**

<b>Qty.</b>	<b>Part Number</b>	<b>Description</b>
1	KIT07621	male unloader piston kit
4	GKT01612	male solenoid gasket (both solenoids)
3	RNG01397	female solenoid o-rings

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## Questions

Contact the Product Technical Service department in Pueblo Colorado with questions regarding this Service Bulletin. They can be reached at [techservicepueblo@trane.com](mailto:techservicepueblo@trane.com).



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Trane has a policy of continuous product data and product improvement and reserves the right to change design and specifications without notice. Only qualified technicians should perform the installation and servicing of equipment referred to in this bulletin.