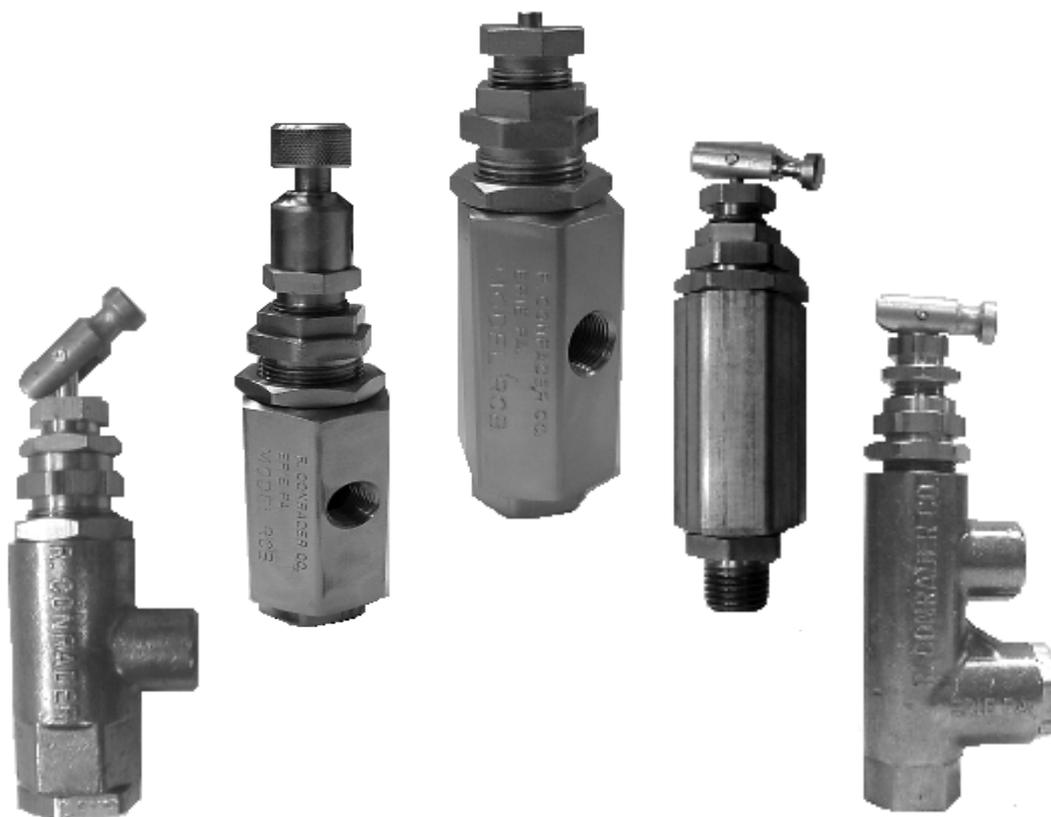


# CONRADER RC SERIES PILOT VALVE

## TROUBLESHOOTING AND ADJUSTMENT GUIDE



*CONRADER CONTROLS COMPRESSORS*

# SECTION 1: IDENTIFYING THE PROBLEM

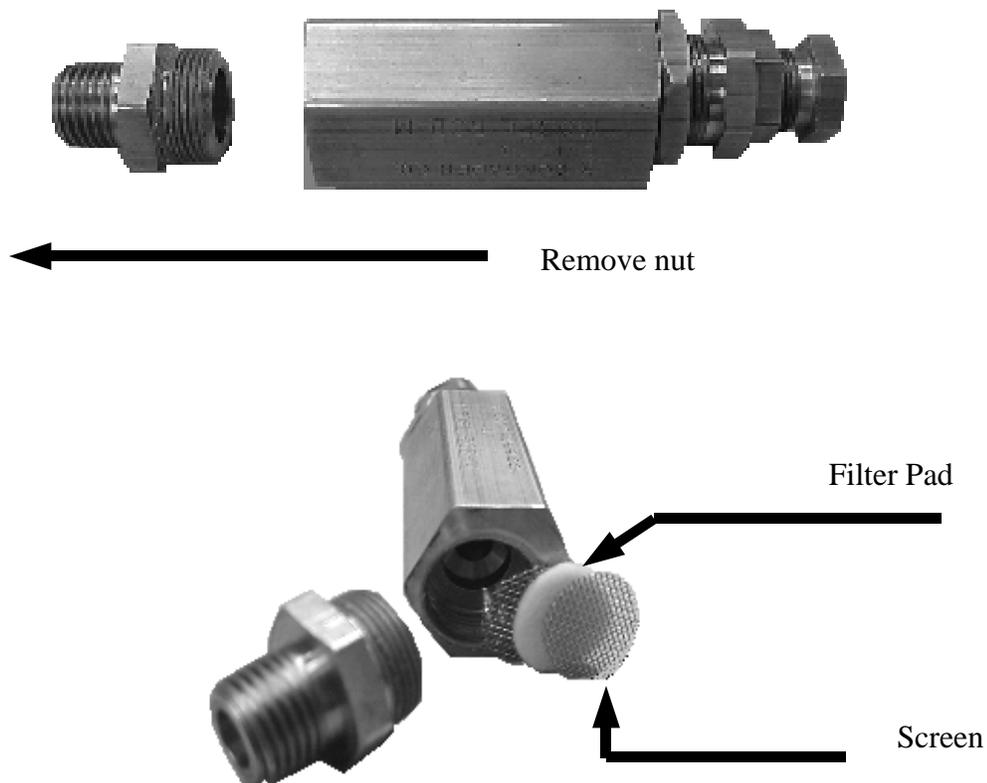
If your pilot valve is malfunctioning, read the following symptoms and solutions before attempting to adjust the valve. If you simply want to change the setting of your pilot valve, go directly to the adjustment procedure in section 2.

**Symptom 1) The pilot valve loads/unloads in a rapid fashion creating a chattering sound or it will not maintain an unload setting.** One of the following may be true:

**A) Excessive vibration can cause the valve to load/unload improperly.** To check, put on a glove or other hand protection and grip the pilot valve tightly while cycling the compressor. If the compressor loads and unloads correctly during operation, vibration is causing the problem. To correct this, raise the load pressure 1 PSI and the unload setting 3 PSI using the techniques shown in **steps 8 and 9 of the pilot adjustment section.**

**B) If the pilot valve is not tank mounted, the line running to it could be crimped or too small.** Check the line for any kinks that may be restricting the flow of air. Also, see if the ferrule is over crimped. Air-line sizes should be no smaller than **3/8"** for an RCL and **5/16"** for an RCB.

**C) The pilot valve's filter could be plugged or clogged.** To check the filter's condition, remove the pilot valve from the tank or line. Remove the nut from the bottom of the valve completely. Pull out the two screens and the filter pad. If the filter is blocked, you need to get a felt replacement. After cleaning the filter area, replace the screen, the filter pad and then the other screen. Complete by screwing the nut back on the body of the pilot valve. (See Diagram Below)



**Symptom 2) The pilot valve unloads the compressor correctly but loads it far below the proper setting.** Check the following:

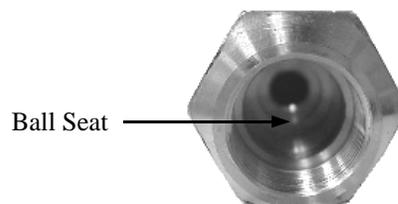
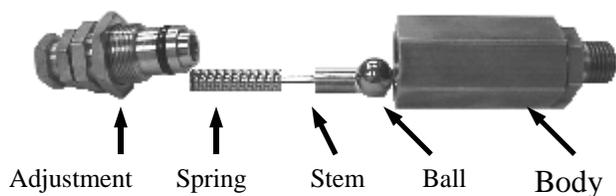
**A) You may have a leak in the intake unloader line.** To test for a leaky unloader line, spray soapy water on the line while the compressor is unloading and look for bubbles. If there are bubbles, the line needs to be patched or replaced. If there are no bubbles, move on to step B.



Unloader line to spray soapy water on.

**B) You may have a leak in the intake unloader or discharge unloader.** Perform proper maintenance testing of the unloader to make sure it does not have a leak.

**C) You may have a leaky pilot valve.** When the compressor is unloading, listen and feel for any excessive air being released at the top of the valve or the stem. If it is leaking, drain all air from the compressor. Unscrew both locknuts and remove the adjustment from the pilot's body. Then remove the stem and the steel ball. Finally, clean the pilot seat with a cotton swab and gasoline or other cleaning fluid. Look for chips or damage to the interior seat. If the seat is chipped, contact Conrader for further instructions. If everything appears correct, place the ball, stem, spring and adjustment into the body. Then, follow the pilot adjustment procedures in section 2.



**Symptom 3) The pilot valve is not unloading at all and the safety valve is constantly blowing.** Check the following:

**A) The inlet may be completely blocked restricting air from reaching the pilot valve.** As in the previous section, it is necessary to check the screen and filter of the valve. Follow the instructions for symptom 1 part C. If the unit is not tank mounted, the inlet line may be crimped enough to stop air flow completely. Check the line.

**B) The valve differential adjustment screw maybe locking the steel ball down on the body seat.** To adjust, refer to the pilot adjustment procedures section 2.

**C) The safety valve may be set below the unload setting of the pilot valve causing it to blow before the compressor has a chance to unload.** Cycle the compressor normally and make sure it is reaching the unload setting of the unit. If the safety valve is blowing before the unload setting of the compressor, the safety valve is faulty and must be replaced.

# SECTION 2: CONRADER PILOT VALVE ADJUSTMENT PROCEDURE

## TOOLS REQUIRED FOR ADJUSTMENT.

A) IF YOU HAVE AN RCB OF ANY TYPE YOU WILL NEED THE FOLLOWING OPEN END WRENCHES: 9/16", 5/8", 3/4" AND 7/8".



RCB



RCB-DC



RCB-HU

B) IF YOU HAVE AN RCL OF ANY TYPE YOU WILL NEED THE FOLLOWING OPEN END WRENCHES: 5/8", 13/16", 7/8" AND 1".

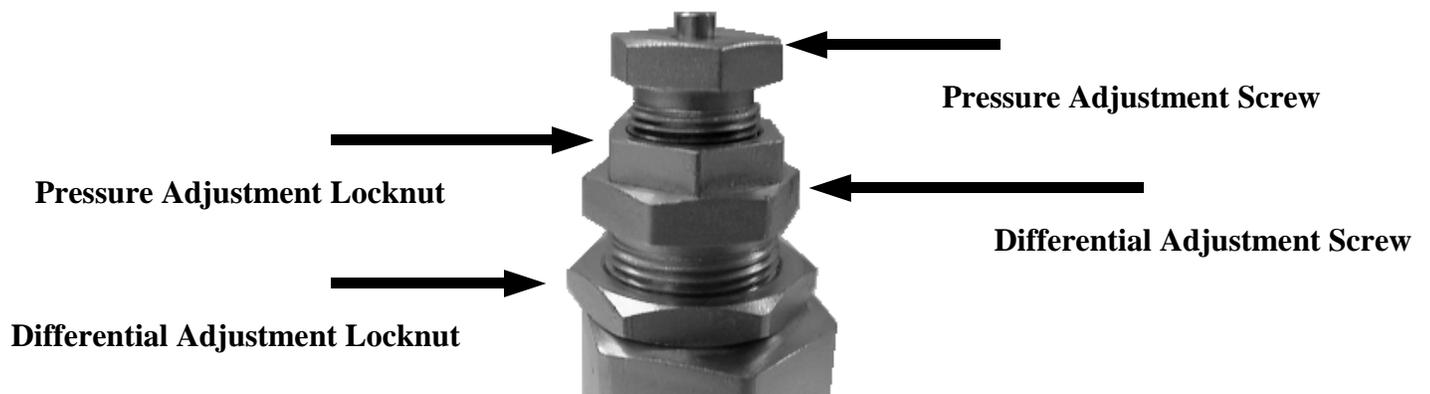


RCL-S

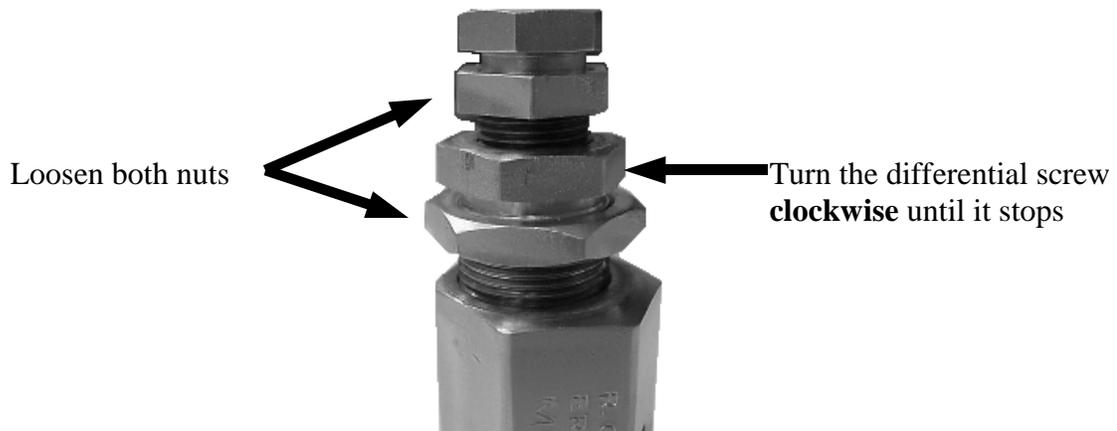


RCL

1) Identify the components of the pilot valve adjustment labeled below. The same terms will be used throughout the instructions. Two important terms must be defined. The **unload setting** is the maximum pressure the pilot valve allows the receiver to reach before unloading the unit. The **load setting** is the minimum pressure the pilot valve allows the receiver to reach before loading the unit.



2) Drain all the air from the system and make sure that the safety device is intact. **Note:** Maximum unload setting of the pilot valve should not exceed 90% of the safety device setting. Loosen both the differential and pressure adjustment locknuts completely. Then, gently turn the differential screw **clockwise** until it stops. **WARNING: DO NOT OVER TIGHTEN THE DIFFERENTIAL SCREW OR THE SEAT OF THE VALVE COULD BE DAMAGED.**

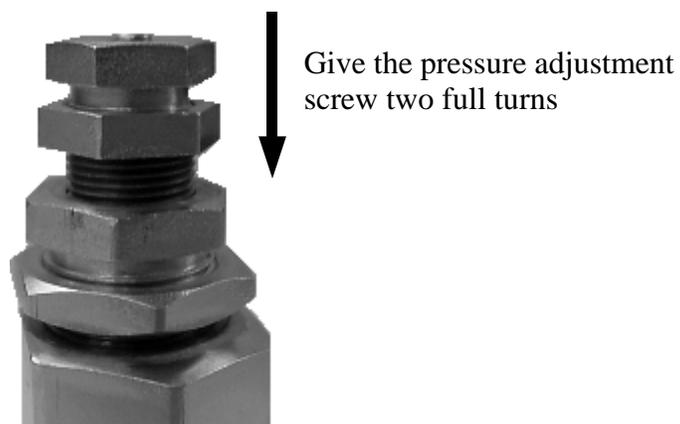


3) Remove the pressure adjustment screw from the body of the valve.

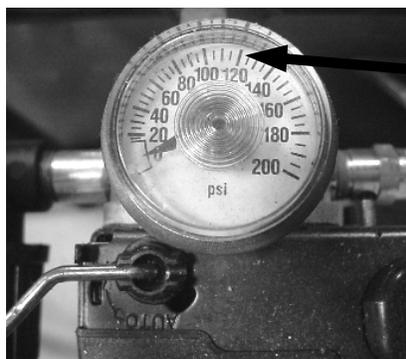
Remove pressure adjustment screw and locknut together



4) Reinstall the pressure adjustment screw by turning it two full turns.

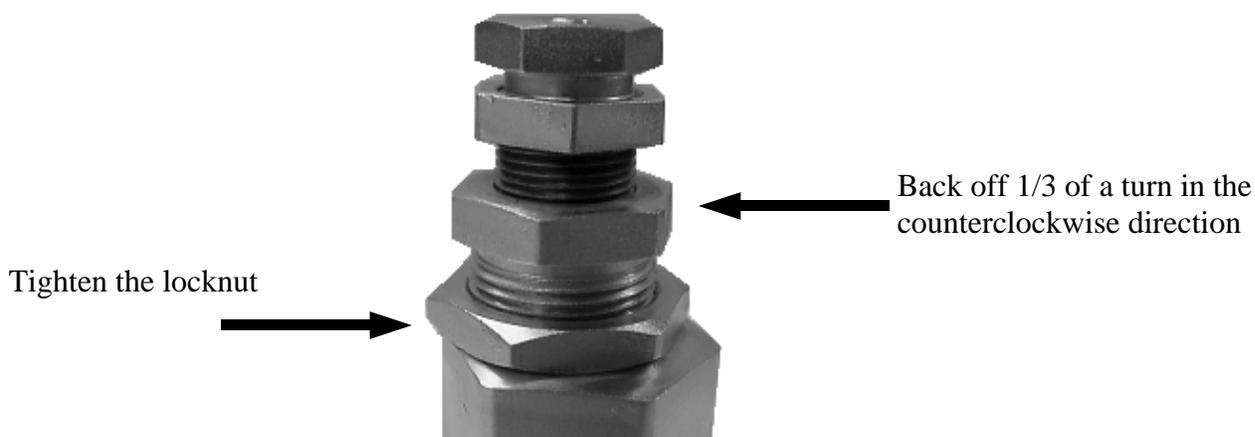


5) Restart the compressor. Increase the pressure until the desired load pressure has been reached. Turn off the compressor.



Raise tank to desired load pressure and shut off

6) Back off the differential screw 1/3 of a turn in the **counterclockwise** direction. Tighten the differential locknut. Backing off the differential screw allows the valve to actuate unloading devices as it would in normal operation.



7) While the unit is at the desired load pressure, slowly turn the pressure adjustment screw in the **clockwise** direction. As you are turning the valve, listen for the valve to load. It will exhaust air from the top of the valve body and make a hissing noise. Once this happens, tighten the pressure adjustment locknut.

