

Vickers®

Piston Pumps



Installation and Adjustment of IC Compensator for PVH Pumps

Introduction

The IC compensator allows a PVH pump to be controlled thru remote, multiple or electrically controlled circuitry. This depends upon the relief valving selected to mount on the IC interface. The IC compensator can be used with or without load sensing. The PVH IC pumps are shipped from the factory preset with a 20 bar **differential** pressure setting, unless otherwise noted by the pump model code. **IC compensator kits do not come preset and must be adjusted at start-up.** This leaflet is intended for that purpose.

See Vickers brochure GB-C-2010 or bulletin AMB-93-19 if more detail is required.

CAUTION

Do not attempt to operate pump without external relief valve connected to IC compensator.

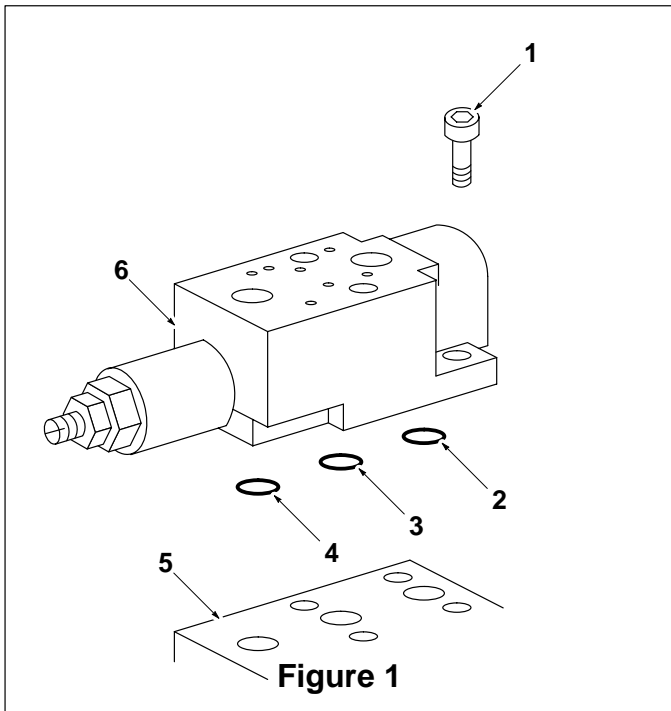
The following procedures explain how to install and adjust an IC compensator.

Installation (Kit only)

CAUTION

Do not attempt to install, remove, or disassemble IC compensator while machine is running. Make sure power is OFF and cylinders are lowered. Discharge accumulators and block any load whose movement could generate pressure.

1. If installed, remove existing compensator assembly from pump valve block (5) (see figure 1).



2. Ensure three O-rings (2,3,4) are correctly installed in body of IC compensator (6).
3. Secure IC compensator (6) to pump valve block (5) with four screws (1). Torque screws to 31 to 37 Nm (23 to 27 lb.ft.).

Configuration

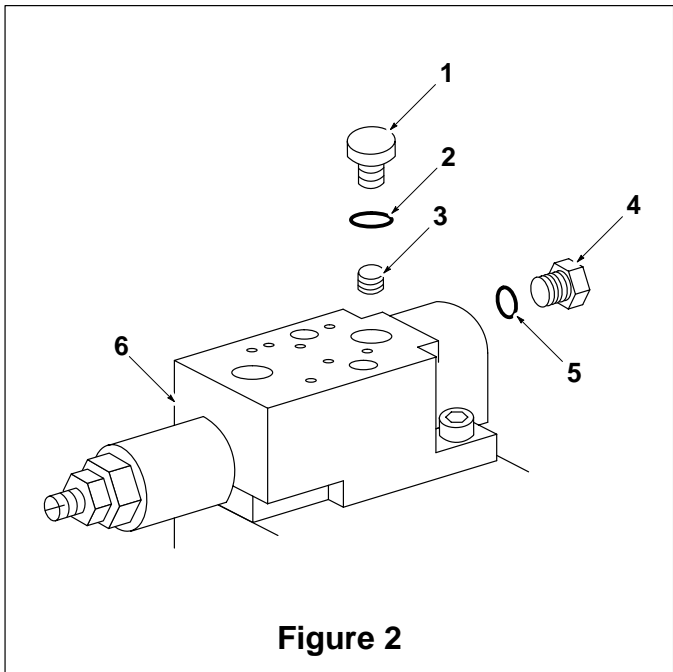
Go to either **Pressure Compensation Without Load Sensing** or **Pressure Compensation With Load Sensing** to properly configure IC compensator for intended use.

Pressure Compensation Without Load Sensing

1. Using $\frac{1}{8}$ " hex wrench, remove port plug (1) and O-ring (2) from IC compensator (6) (see figure 2).
2. Using $\frac{5}{32}$ " hex wrench, remove internal plug (3) from IC compensator (6).
3. Using $\frac{1}{8}$ " hex wrench, reinstall port plug (1) with new O-ring (2). Tighten port plug and torque to 12,1 to 12,4 Nm (8.9 to 9.1 lb.ft.).
4. Install external relief valve.
5. Go to **Adjustment** (see page 7).
6. Go to **Pump Start-Up** (see page 11).

Pressure Compensation With Load Sensing

1. Remove plug (4) and O-ring (5) from load sensing port in IC compensator (6).
2. Connect external load sensing pressure source to load sensing port in IC compensator (6).
3. Install external relief valve.
4. Go to **Adjustment** (see page 7).
5. Go to **Pump Start-Up** (see page 11).



Adjustment (Kit only)

CAUTION

Do not operate pump until initial adjustments to IC compensator have been made.

1. Loosen locknut (4) (see figure 3).
2. Turn adjusting screw (5) in (clockwise) until it bottoms out.
3. Turn adjusting screw (5) out (counterclockwise) $4\frac{1}{2}$ turns.

NOTE

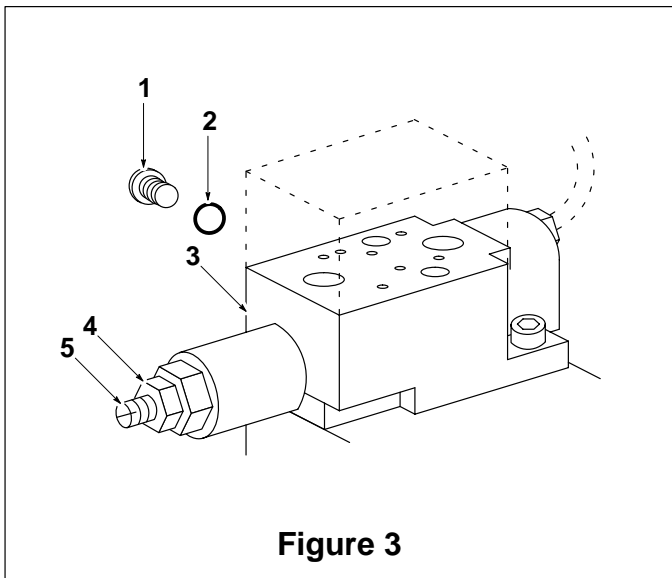
Pressure gage connected in steps 4 and 5 may instead be connected to tapping plate (if used).

4. Remove plug (1) and O-ring (2) from upper construction hole in IC compensator (3).

NOTE

Differential pressure gage may be used in place of gages installed in steps 5 and 6.

5. Connect 350 bar (5000 psi) pressure gage to upper construction hole in IC compensator (3) using 0.3125-24 UNF-B fitting for $\frac{1}{8}$ " O.D. tubing.
6. Connect 350 bar (5000 psi) pressure gage to pump outlet line.



7. Block pump outlet line downstream of pressure gage.

NOTE

External relief valve controls pump output pressure. Adjusting screw (5) controls differential pressure of IC compensator (3) — ***not*** pump output pressure.

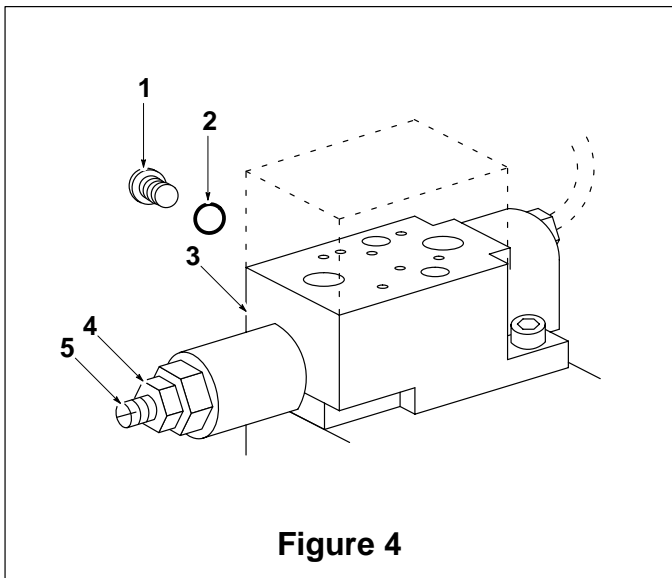
8. Start pump according to **Pump Startup** procedures on page 10.

9. Adjust external relief valve to obtain desired system pressure. For correct adjustment of IC compensator (3), pump outlet pressure must be at least 140 bar (2000 psi) (see figure 4).

CAUTION

Do not set differential pressure above 35 bar (507 psi).

10. Turn adjusting screw (5) to obtain desired differential pressure (difference between readings on two gages) of 17 to 35 bar (246 to 507 psi). Recommended differential pressure is 20 bar (290 psi).
11. Tighten locknut (4) and torque to 14 to 30 Nm (10 to 22 lb.ft.).
12. Re-adjust external relief valve to obtain desired system pressure.
13. Shut down pump.
14. Unblock pump outlet line.
15. Disconnect pressure gages.



NOTE

If pressure gage was connected to tapping plate, return installation to original condition.

16. Reinstall plug (1) with new O-ring (2). Tighten plug and torque to 12,1 to 12,4 Nm (8.9 to 9.1 lb.ft.).

Pump Startup

Make sure the reservoir and circuit are clean and free of dirt and debris prior to filling with hydraulic fluid.

Fill the reservoir with filtered oil to a level sufficient to prevent vortexing at suction connection to pump inlet. It is good practice to clean the system by flushing and filtering using an external slave pump.

Before starting the pump, fill with fluid through one of the ports. This is particularly important if the pump is above the fluid level of the reservoir.

When initially starting the pump, remove all trapped air from the system. This can be accomplished by loosening the pump outlet fittings or connections before starting the pump, or by using an air bleed valve. All inlet connections must be tight to prevent air leaks.

Once the pump is started, it should prime within a few seconds. If the pump does not prime, check to make sure that there are no air leaks in the inlet line and connections. Also check to make sure that trapped air can escape at the pump outlet.

After the pump is primed, tighten the loose outlet connections, then operate for five to ten minutes (unloaded) to remove all trapped air from the circuit. If reservoir has a sight gage, make sure the fluid is clear—not milky.

Add fluid to the reservoir up to the proper fill level.