

# SERVICE INSTRUCTIONS

## INSTALLATION OF VERTICALLY MOUNTED AXIAL PISTON UNITS

---

### PURPOSE OF INFORMATION

When an axial piston unit is mounted vertically, air will tend to be **trapped** in the upper end of the unit as the unit's case is being filled prior to start-up and/or while unit is running. This is **not a desirable condition**.

**CAUTION!!!** Axial piston unit cases must be filled with fluid and case drain arranged so case remains full of fluid (non siphoning).

Therefore, The Oilgear Company makes the following recommendations for:-

---

### I. "PVL" PUMPS

If unit is equipped with an auxiliary pilot pump and flow is directed through the suction/supercharge module, the flow will flush air out of the case and no other pilot connection is necessary. If unit is not equipped with an auxiliary (pilot) pump, it will be necessary to connect, a 200 to 300 cpm 650 psi, flow to port "1X" and no other pilot connection is necessary.

### II. "PVW", "PVWH", "PVWW", "PFWH" Pumps and "MVQ", "MFQ" Motors

#### A. UNITS EXTERNAL FROM RESERVOIR WITH SHAFT POINTED UP

**Units mounted below lowest reservoir fluid level.** Install a .040" diameter orifice in a tube fitted to the SAE #8 hole provided for the optional minimum volume stop assembly\* or a SAE port in a special control "top plate" on PFWH or MFQ units. Run the tubing upwards into the reservoir at a point which will always be below the lowest reservoir fluid level.

**Units mounted above reservoir high fluid level.** Install a check valve (see Section "V") in the suction line. Install a .040" diameter orifice in a tube fitted to the SAE #8 hole provided for the optional minimum volume stop assembly\* or a SAE port in a special control "top plate" on PFWH or MFQ units. Run tubing into the reservoir at a point below lowest reservoir fluid level.

#### B. UNITS MOUNTED IN THE RESERVOIR WITH SHAFT POINTED UP

**Units mounted with case drain port below lowest fluid level.** Install a .040" diameter orifice in SAE #8 hole provided for the optional minimum volume stop assembly\*, or a SAE port in a special control "top plate" on PFWH or MFQ units.

**Units mounted with case drain port above lowest fluid level.** Install a check valve (see Section "V") in the suction line, in the event, shaft seal wear allows air to leak past seal. Install a .040" diameter orifice in SAE #8 hole provided for the optional minimum volume stop assembly\* or a SAE port in a special control "top plate" on PFWH or MFQ units. Run tubing down along side the unit to a point where it will always be under the fluid level.

#### C. UNITS MOUNTED EXTERNAL OR IN RESERVOIR WITH SHAFT POINTED DOWN.

These units do not require an orifice, they only require the case drain (or drain line) be arranged so the case remains full of fluid. See Bulletin 947015 for case filling and case drain piping.

\* If minimum volume stop assembly is required by your application (thus utilizing the SAE #8 hole), a special control housing with a special SAE port can be ordered from The Oilgear Company.

### III. "PVK" & "PVV" PUMPS

#### A. UNITS EXTERNAL TO RESERVOIR

If the unit is vertically **mounted below** the **lowest fluid level** expected in the reservoir; install a 0.040" diameter orifice in a tubing fitting in port "PRG" (#6 SAE, .38" BSP in metric) and run a piece of tubing upwards into the reservoir at a point which will always be below the lowest reservoir fluid level.

If the unit is vertically **mounted above** the **high fluid level** in the reservoir; install a check valve (see Section "V") in the suction line and install a 0.040" diameter orifice in port "PRG" (#6 SAE, .38" BSP in metric) and run a piece of tubing into the reservoir at a point below the lowest reservoir fluid level.

#### B. UNITS MOUNTED IN THE RESERVOIR

If the unit is vertically mounted and it's "PRG" Port is **below** the **lowest fluid level** expected in reservoir; install a 0.040" diameter orifice in port "PRG" (or, a special slotted cradle pin can be used on "PVV" units).

If the unit is vertically mounted and units "PRG" Port is **above** the **lowest fluid level** in the reservoir; install a 0.040" diameter orifice in port "PRG" and run a piece of tubing down alongside the unit and into the reservoir at a point where it will always be under the fluid level. It is also recommended that a check valve (see Section "V") be installed in the suction line in the event that shaft seal wear allows air to leak past the seal.

---

### THE OILGEAR COMPANY

2300 So. 51st. Street  
Milwaukee, WI 53219

#### IV. "PVG" PUMPS

Oilgear type "PVG" Pumps for vertical mounting can be ordered special with a "PRG" Port. Contact your Oilgear Representative and/or Milwaukee Component Engineering. If your unit is equipped with a "PRG" Port and you intend to mount it vertically – Section III applies to your unit as well.

#### V. CHECK VALVE

The check valve referred to should have a very low pressure drop (so unit will not exceed its' suction capability) and be one which will seal tight and not leak with only the weight of a column of fluid on it. Consult your Oilgear Representative and/or Oilgear Component Engineering for further recommendations.

#### CAUTION!!!

The **case drain line** must be separate and looped above the pump and back down to reservoir, below fluid level, and away from suction pipe. Do not run case drain from any place other than its' normal port – this will cause internal lubrication paths to be changed and might damage the unit.

#### NOTES:

---



**THE OILGEAR COMPANY**

2300 So. 51st. Street  
Milwaukee, WI 53219