

Vane Motor Rebuild Instructions

These motors are made to precise tolerances and it is vital for efficient operation to achieve minimum clearances throughout. Every clearance represents an air leakage path from inlet to exhaust, which will detract from the starting and running characteristics.

The spacing of the rotor is of prime importance in two ways:

- 1 - rotor to end covers (side clearance) (Cs)
nominally 0.050 mm (0.002")
- 2 - rotor to body casing (top clearance) (Ct)
nominally 0.050 mm (0.002")

To achieve the side clearance each repair kit has a series of plastic shims, colour coded to different thicknesses.

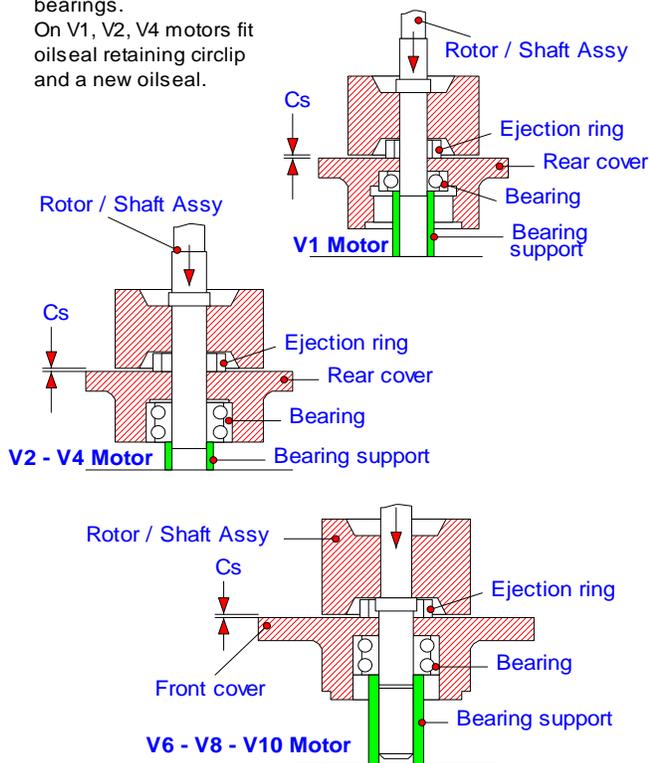
- Purple = 0.025 mm (0.001")
- Blue = 0.050 mm (0.002")
- Green = 0.076 mm (0.003")
- Orange or Brown = 0.102 mm (0.004")

This range of vane motors has three styles of rotor locations.
V1 rotor location by single row bearing at each end.
V2 - V4 rotor location by one double row bearing in rear cover.
V6 - V8 - V10 rotor location by one double row bearing in front cover.

Assembly details

All parts must be clean and it is recommended that new oilseals and blades are fitted as a matter of course. Press all bearings fully home into their respective covers, pressing only on the outer track to prevent damaging the bearings.

On V1, V2, V4 motors fit oilseal retaining circlip and a new oilseal.



Take the location cover for your particular motor i.e. V2 - V4 rear cover, V6 - V8 - V10 front cover and rear screwed cover for V1 unit.

Provide a good support on the inner bearing track, as the shaft fit is very tight, to provide rotor location.

Place blade ejector ring central on cover and press rotor / shaft assembly down until there is a clearance, Cs of 0.050 mm (0.002") between rotor and cover, check this clearance is even all around the rotor.

Fit a blue plastic body gasket to the cover, lowering the body into position over the rotor assembly, locating on the existing dowels.

NOTE: Ensure the body is the correct way round i.e. port arrows towards the output shaft.

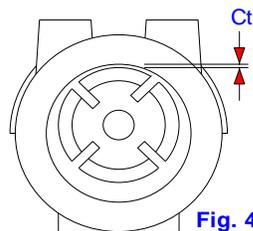


Fig. 4

Tighten body bolts and check top clearance, Ct, see Fig No. 4 This should be 0.050 mm (0.002") if there is a problem with this then reposition and drill for new dowels. Insert second ejection ring, fit new blades, it may be necessary to work the lower ejection ring across in order to fit the opposite blade.

Refer to Fig No. 5 (axial end clearance, Cs). Measure this by putting a straight edge across the body, then use feeler gauges in the gap between rotor and body face. This should be made up to 0.050 mm (0.002") or as close as possible using the gasket set provided.

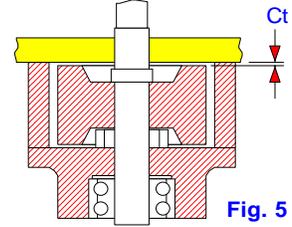


Fig. 5

Oil inside the motor, ensuring it is free to rotate. On V2 to V10 motors the second cover should slide down into position easily as the second bearing fit is non locating.

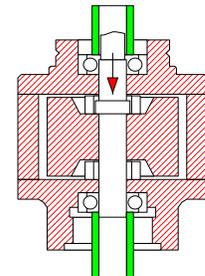


Fig. 6

On V1 motors (see Fig No. 6) this bearing fit takes up location and the inner track of both the lower and upper bearings must be supported.

Locate cover on dowels and tighten bolts. (V1 fit rear plug). Check for rotation. The motor may be tight at first due to hydraulic lock on the oil just used.

On V1 motors only fit front oilseal and circlip if the motor is free to rotate.

V6, V8, V10 motors - the front oilseal is carried in a separate housing, this should be fitted next, followed by the rear bearing cover and its gasket.

V2, V4 motors - the rear bearing cover and its 'O' ring can now be fitted.

For trouble free running and long life it is vital that the rotor spacing is correct.

Use only genuine replacement blades as these have a special profile to give correct ejection and contact with the rotor body.

Always ensure adequate lubrication.

Never run motors completely off load at high speed.