

INSTRUCTION MANUAL
OF
RUDDER SEAL

- [A] Installation
- [B] Parts replacement intervals

[A] Installation

1. Inspection before seal installation

Make sure there is no serious damage on the surface of rudder stock and on the surface in which the sealing is installed. As damage give a bad influence on the seal performance and fitting works, they should be corrected by CATALOY or equivalent.

Make sure the installation procedure according to the drawing before assembling.

2. Assembling (Refer to the drawing for each "PNo.")

- (1) Insert the "O" rings (PNo.5), the plate (PNo.3), the seal rings (PNo.1) and the cover (PNo.4) into the rudder stock in correct order.
- (2) Gradually insert the rudder stock into the rudder carrier.
- (3) Plate (PNo.3)
 - a. Apply grease on the "O" ring (PNo.5) and place it in the groove of the plate.
 - b. Temporarily fix the plate with hex. socket bolts (PNo.6).
 - c. After adjusting the plate position to provide a uniform clearance between the plate and the stock, securely install the plate. The clearance is 3mm in every size of sealing and the maximum fitting error is 0.5mm.
- (4) Seal ring (PNo.1)
 - a. After removing dirt from the plate and the surface of the stock, apply a thin coat of grease to the surface of the stock. Then wipe grease off lightly with a dry cloth.
 - b. After applying a thin coat of grease to the pocket of the seal rings (PNo.1), hook a garter spring (PNo.2) up in the pocket.
 - c. Apply grease to back side of seal ring.
 - d. Shift the seal ring slowly to contact with the plate.
 - e. Apply grease to the sliding surface of seal ring.
- (5) Cover (PNo.4)
 - a. Apply grease on the "O" ring (PNo.5) and place it in the groove of the cover.
 - b. Temporarily install the cover with hex. socket bolts (PNo.7).
 - c. After adjusting the cover position to provide a uniform clearance between the cover and the stock, securely install the cover. The clearance is 3mm in every size of sealing and the maximum fitting error is 0.5mm.

[B] Parts replacement intervals

1. Seal ring

The seal life might be considered approximately 6 years or more. In case the rudder stock is withdrawn, replace the seal ring and the garter spring at the same time.

2. Plate, Cover

The worn plate and cover can be reused after reconditioning.

[Reconditioning of the plate and the cover]

If the amount of wear down on the sliding surface of the plate is over 0.2mm in depth, it should be reconditioned by lathing, to keep cover $31^{+0.5}_0$ mm in depth.

In case lathing is not necessary, finish it as flat as possible by using sand-paper or something.

3. "O" ring

If there are no serious defects or tears at the bonding part on the "O" ring, it can be used for about 6 years or more. It can be easily replaced with new one by bonding with instant adhesive.