

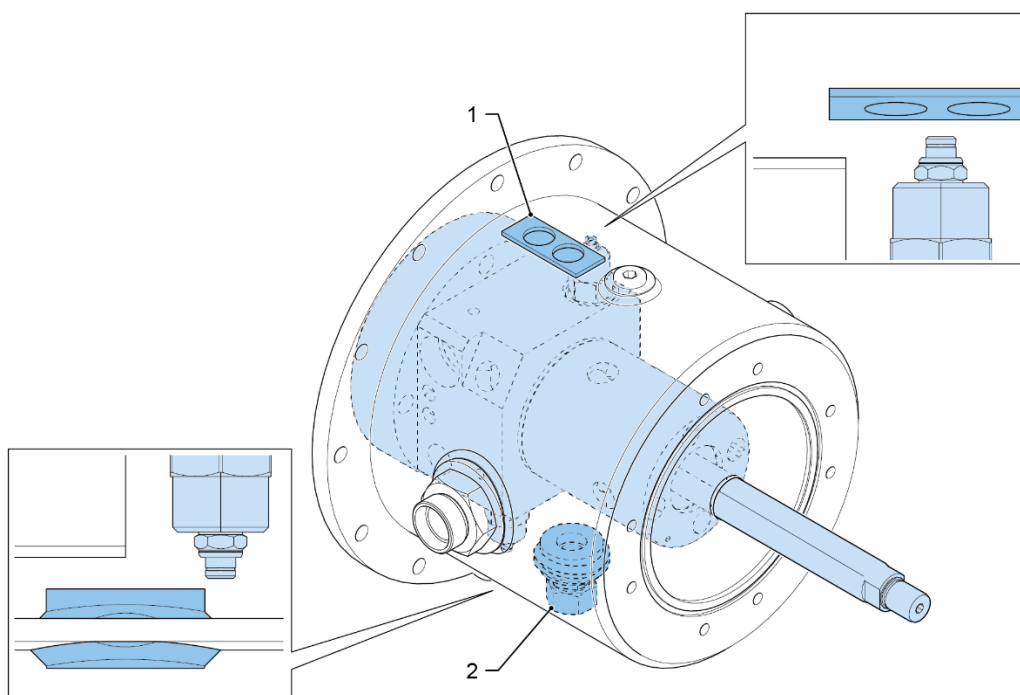
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## 1 Background

In some installations potential interference was detected and reported between locking valves and the oil distribution box (OD-box) housing.

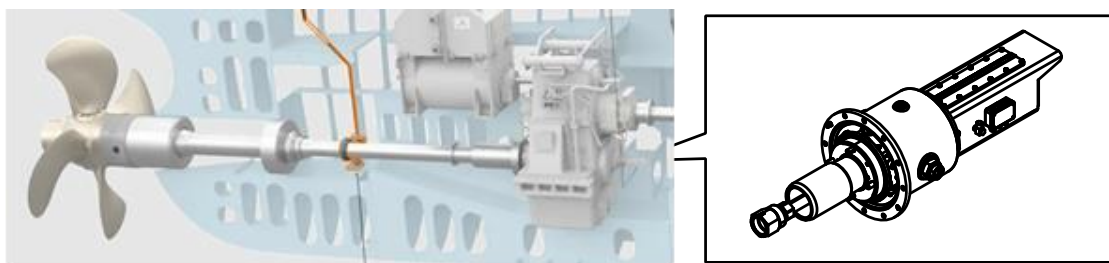
There are two possible contact points between the locking valves and the OD-box housing, refer to Figure 1:

1. At the welded insert for accessing the adjustment screws of the locking valves.
2. At the welded insert for the T-connection.



**Figure 1 – Possible contact points between the locking valves and the OD-box housing**

The OD-box is in front of the reduction gearbox, at the free end of output shaft, refer to Figure 2.



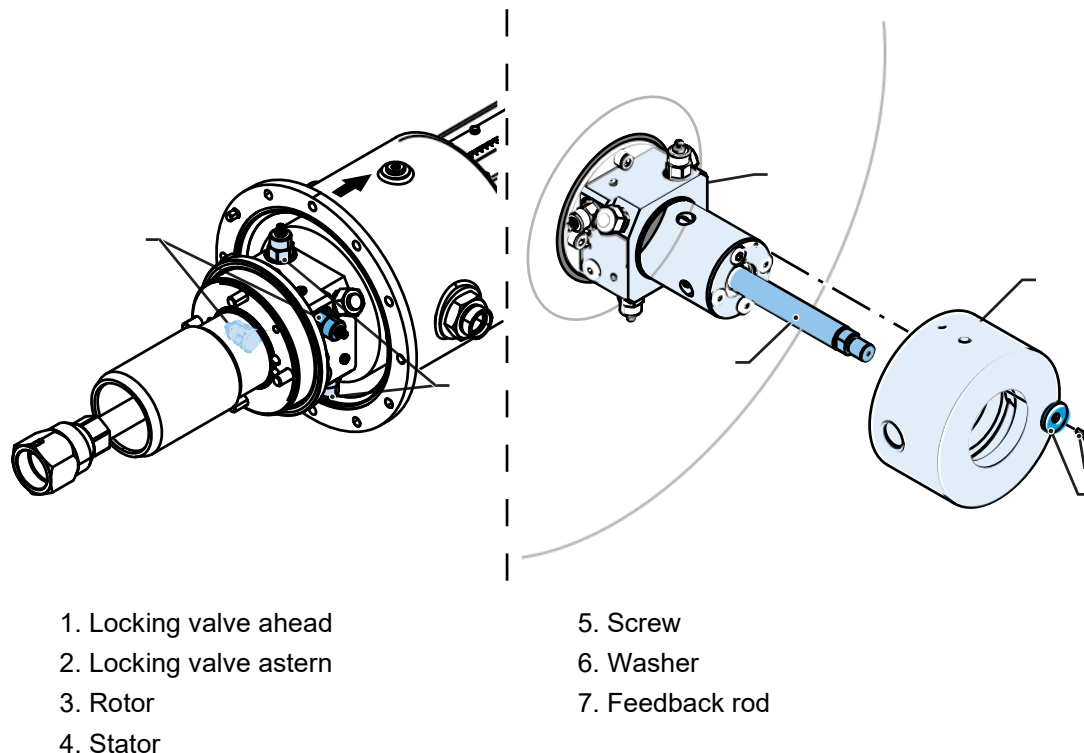
**Figure 2 – Location of the OD-box**

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## 1.1 Location of the locking valves

The locking valves are mounted in the guiding bush (rotor). The guiding bush has four locking valves in total, two in each direction, refer to Figure 3. The function of the locking valves is to keep the propeller pitch in the correct position.



**Figure 3 – Location of pitch locking valves in the guiding bush (rotor)**

## 1.2 Locking valve types

Two different pitch locking valves are used in the OD-box type with a double pipe system (refer to Table 1):

- Short locking valve, 3-ports. Standard type.
  - Long locking valve, 4-ports. Used in installations with a high ice-class to release the pitch quickly when ice blocks hit the blades when operating on ice-waters.
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## 1.3 Identification of the risk

The short locking valves, 3-ports: have no risk of interference.

The long locking valves, 4-ports: have a potential risk to interfere with the welded inserts in the OD-box housing.

- If there is enough clearance between the locking valves and the welded inserts, no action is required, and the system works properly.
- If there is not enough clearance between the locking valves and the welded inserts, there are two possible interference scenarios:

### 1.3.1 Light interference

The locking valves make minimal contact with the welded inserts in the housing. Only a small amount of metal particles is detected from the tip of the locking valve, refer to Figure 4.



Figure 4 – Locking valve with contact marks

### 1.3.2 Heavy interference (Failure)

The locking valves touch the welded inserts in the housing during rotation. This can cause:

- Damage of the locking valves, refer to Figure 5, as a result the propeller pitch is no longer controlled.
- The system is contaminated with metal particles, flushing and cleaning of the hydraulic circuit is required.
- Major operational disturbance, the vessel is non-operational until the OD- box is repaired.



Figure 5 – Damaged locking valve and welding insert with contact marks

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## 2 Action overview

To avoid interference between the long locking valves and the welded inserts of the housing it is recommended to do these instructions:

### 2.1 Identify the type of the locking valves

Check the following details to identify the locking valves:

- Spare Part Number (SPN).  
The same SPN is used for short and long locking valves.

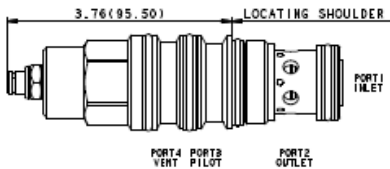
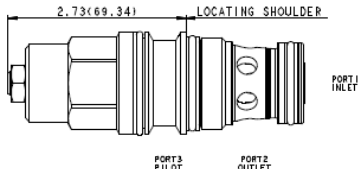


	Long locking valve 4-ports	Short locking valve 3-ports
Intended use	Use only when short locking valves 3-ports are not available. Before use, the valves must be checked and validate by Field Services.	Safe to use, no specific requirements. Used also for installations with a high ice-class.
SPN	000000	000000
Drawing		
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Table 1 – Types of locking valves