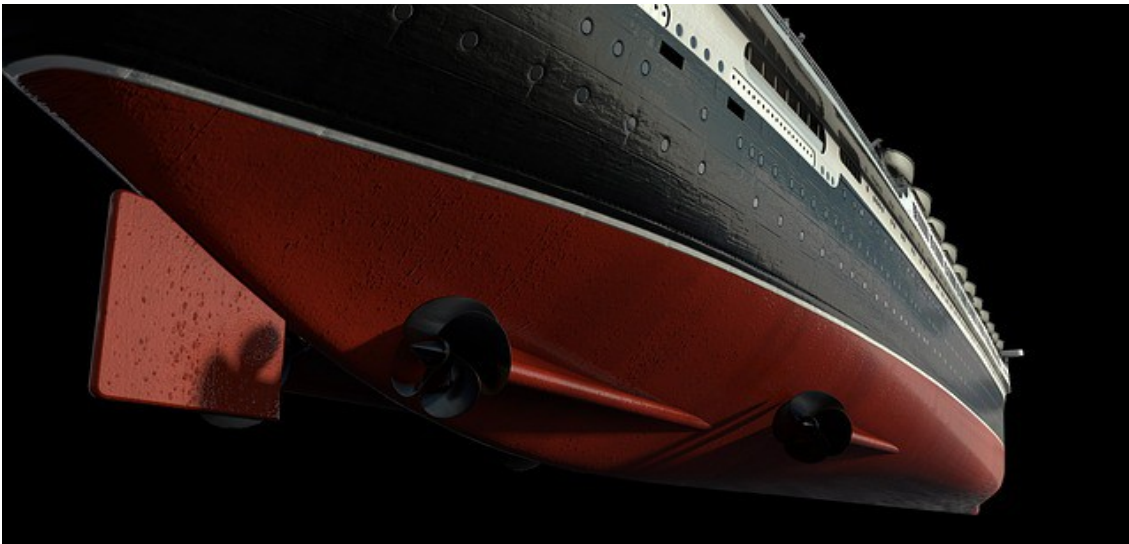


Fast, reliable and inexpensive repair of stern tube, bow thruster, stabilizer and rudder leaks.



How to quickly and cost-effectively solve the challenges posed by leaks in underwater systems.

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Leaks in underwater lubrication systems can be caused by many reasons: Normal wear, sand, fishing lines and nets, ropes, shaft twisting, etc.

The leak can be water in or oil out. Neither is good and the oil spill is also harmful to the environment. Studies show that oil-leaking propeller, rudder and stabilizer equipment is a major threat to water pollution. It is estimated that the amount of oil that enters water from these facilities would be as much as 240 million liters per year. Every commercial vessel should be prepared to prevent unexpected spills quickly.

The traditional solution is to suspend traffic and repair at the shipyard. This is usually costly and detrimental to operations.

What if you could carry out temporary remedial action quickly and cheaply, while the ship is in service and uninterrupted? This brings at least three significant benefits:

- **Cost savings**
- **Time saving**
- **Less environmental pollution**

In the following, we present a solution for a quick and inexpensive measure that can almost completely stop the leak with complete certainty, or at least significantly reduce it.

The method and the substances used in it are the result of several years of experimentation and product development. Today, our method and products have the highest success rate on the market.

This is exactly the same method by which we have already solved the oil / water leakage problems of hundreds of our customers in underwater propulsion systems so that the actual repair of the system can be postponed until the planned docking.



Description of the method and work instructions:

1. When a leak is detected:

Determine the quantity and quality of leakage paste required. Leakage pastes work with all systems and seals: lip seals, Simplex, face seals, Cedervall, Azimuth, etc ...

Lip seals:

Merina SLB if leakage is less than 20 liters per day and **Merina SLB +** if leakage is more than 20 liters per day.

Dosage: oil leak 10% of the volume of the oil system.

Water leakage: 100% of the volume of the aft sealing chamber.

Face seals, Cedervall type seals:

Merina SLB C. Dosage: 10% of the volume of the oil system.

2. Adding Merina SLB paste to the system.

Merina SLB C (face / metal seals):

- Remove the filter if it has a filterability of 20 microns or less.
- Drain the same amount of oil from the system as you add Merina SLB paste.
- Preferably, add the paste directly through the stern tube, stabilizer, bow thruster, etc. drain pipe. Make sure that the valves of both the drain pipe and the system and level tank are open.
- If it is not possible to add through the drain pipe, then the next option is to add paste from the pipe between the system and the level tank.
- If neither of the above options is possible, mix the paste 1/1 in proportion to the oil grade used and add to the level tank.



- Use the system immediately and the SLB paste will mix with the entire amount of oil and begin to migrate to the leak point.
- After 10 hours of use, replace the filter.

Merina SLB and Merina SLB+ (Lip seals):

Water leakage, option A:

- Drain any free water from the system while it is standing.
- Close the valve between the level tank and the system to ensure that no paste enters the tank.
- Pump Merina SLB paste from the pipe between the level tank and the system directly into the system. If only one pipe leads into the system, pump the paste slowly so that it does not remove the seals as it moves under the seal lips. Allow the propeller shaft to rotate during this procedure. Continue pumping the paste until the seal chamber is full. Once the chamber is filled, paste may begin to bubble from the water end.

Water leakage, option B:

- Drain any free water from the system while it is standing.
- Remove the filter if it has a filterability of 20 microns or less.
- Mix the SLB with the same oil grade used in the system, in a ratio of 1: 1.
- Drain the main tank with the same amount of oil as the paste and oil mixture is added.
- Add the mixture to the main tank alternately with the oil until the required amount is reached.
- Raise the pressure level by raising the main tank or increasing the air pressure in the system to a level with a positive pressure relative to the seawater level. This creates an outward flow and thus allows the SLB particles to build a seal.
- The sealing effect is more effective at a higher degree of mixing.
- After 10 hours of use, replace the filter.
- After 100 hours of use, adjust the pressure level to balance the water

level.

Oil leak, option A:

- Drain the system with the same amount of oil as the paste is added.
- Make sure the level tank valve is open.
- Pump the paste from the drain valve.
- Pumps the paste to about 10% of the total oil volume in the system.

Oil leak, option B:

- Remove the filter if it has a filterability of 20 microns or less.
- Mix the SLB with the same oil grade used in the system, in a ratio of 1: 1.
- Drain the main tank with the same amount of oil as the paste and oil mixture is added.
- Add the mixture to the main tank in turn with the oil until the required amount is reached.
- The compaction process begins as soon as the mixing reaches the leak point. The sealing effect is more effective at a higher degree of mixing.
- After 10 hours of use, replace the filter.

3. Observe

After adding Merina SLB paste, monitor the oil level a few times in 24 hours. If necessary, add Merina SLB paste.



REPAIR QUICKLY AND CHEAPLY

Merina SLB leakage pastes are the most advanced and best sealing products on the market. You save money, time and the environment!

In the event of a leak, contact us and inform us the quality of the leak and the seal model. We are best able to guide you when you send a diagram of the system.

BOOK A FREE CONSULTATION!

Our excellence is:

- Circulating flushing services and equipment for fuels and oils.
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- Additives for fuels and oils.
- Laboratory services for oils and fuels.
- Analytical supplies and sensors.
- Comprehensive oil and fuel maintenance and control services.
- Training and consulting.

Call: 045 3301200 or send an e-mail to: info@merina.fi

Best regards,

Tony Saarinen

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