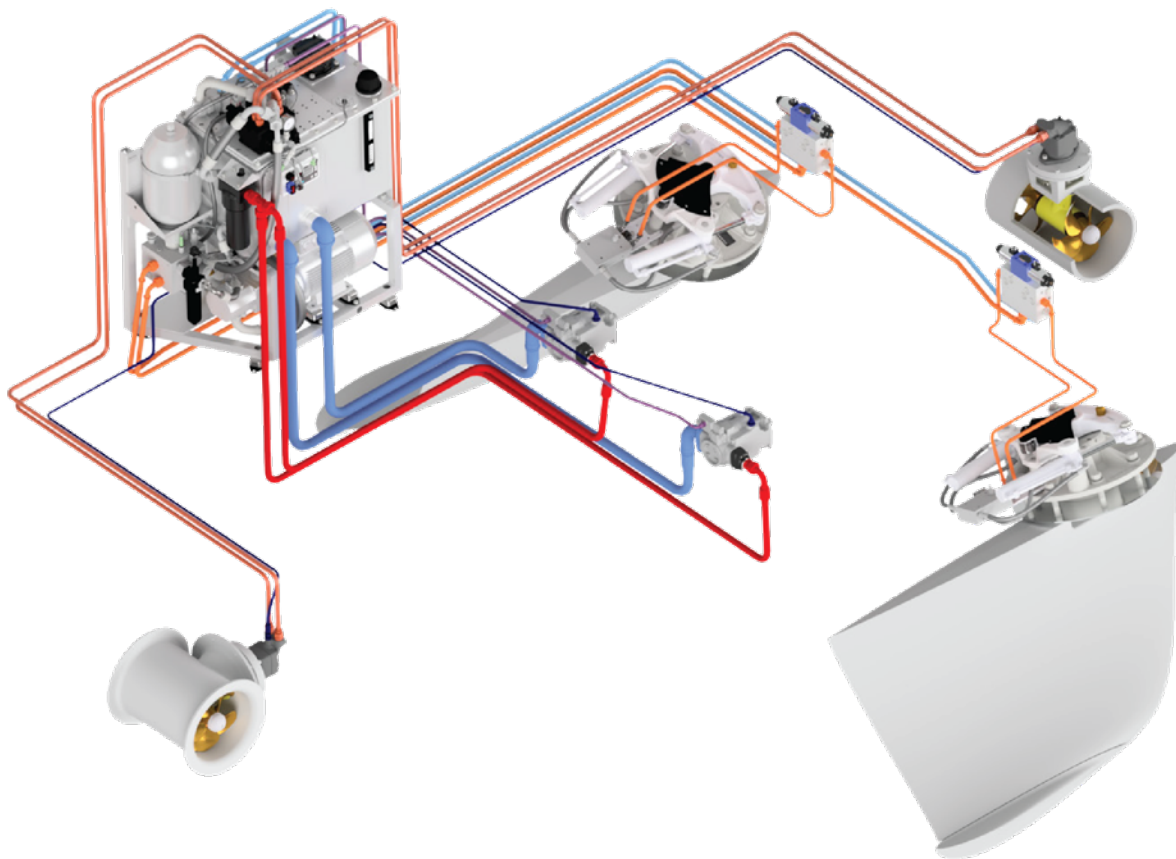


Keep this
manual onboard!



User Manual

For Hydraulic Systems
Thrusters and Stabilisers



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General Operation Consideration and Precaution Guidelines

MC_0444

For the operation of hydraulic systems

MC_0428

- Observe safety precautions (wear protective goggles, gloves and other appropriate safety equipment when installing the hydraulic system and working with hydraulic oil).
- The thrusters/stabilizer mechanical installation should now be completed (See the mechanical thruster/stabilizer installation manual).
- Hydraulic components can be damaged by dust and dirt, keep these away from the boat until you have finished the mechanical part of the installation (grinding, drilling etc.) and cleaned up.
- All hydraulic components must be assembled in a very clean environment.
- Find a suitable location for the hydraulic tank installation, in terms for maintenance accessibilities. Ensuring good gravity feed, height of oil level in hydraulic tank in relation to hydraulic pumps (for details, refer to "Installing tank assembly")
- Ensure that the drive direction is in accordance to the pump rotation (See "Hydraulic pump installation")
- The hydraulic system is delivered with internal hoses only, make sure to contact professionals that can assist with the planning of the remaining installation, supplying correct hoses and verifying correct installation of the parts.
- There is enough space around the oil tank to change filters, fill oil and inspect the gauges and indicators.
- The oil tank is placed high enough to pressurize the pump feed port. (oil level above the pump)

System fill-up

MC_0293

Prior to filling the tank, prime the pump(s) through their upper drain port. Use only oil quality as specified.

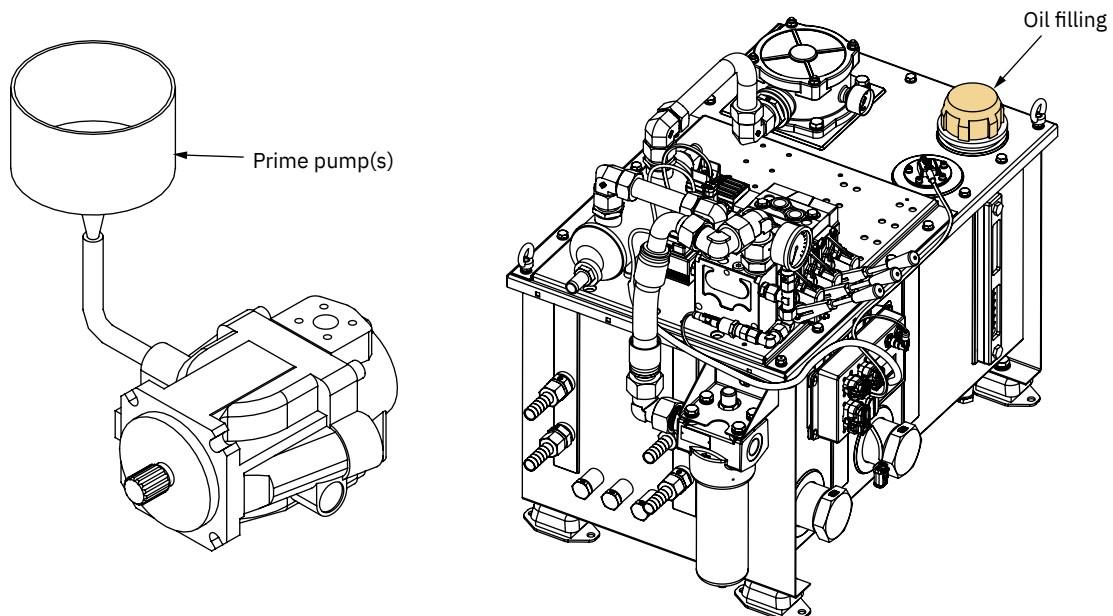
Fill the tank with correct hydraulic oil through the filler/breather unit. It is recommended to use a filler trolley with filter (10 micron). Use only new mineral based hydraulic oil, ISO VG46. Use ISO VG32 oil on systems without stabilizers when the vessel will operate in Arctic conditions.

(NB: Oil to be according to ISO 11158 Class HV/DIN 51524 Part 3 Class HVLP.)

The oil level in the tank should be approximately 3/4 full, or at the middle of the upper indicator of the sight glass. Because vessels heel and the fact that we have an air breathing filter in the oil filler cap, avoid higher oil level than what the sight glass can indicate.

Always check oil level and refill during start-up and air purging.

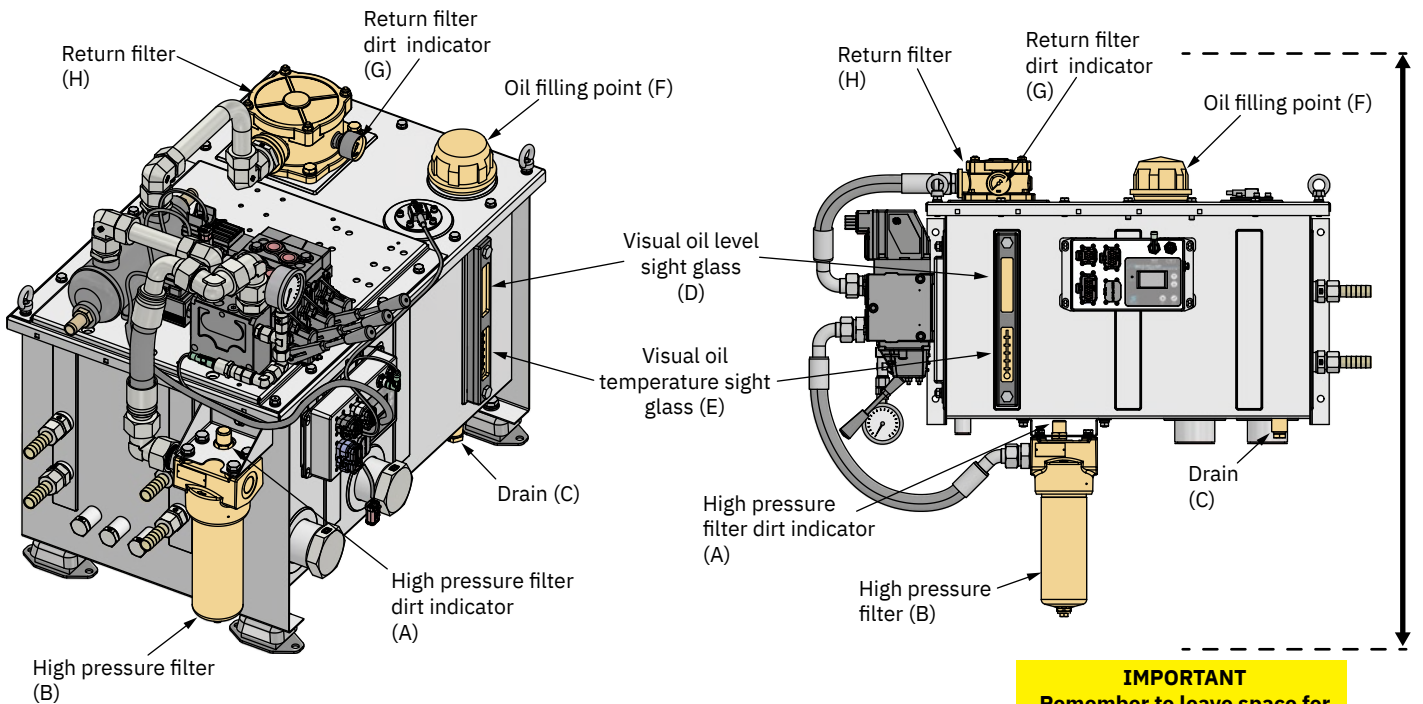
Pump damages caused by running pumps without oil is not covered by warranty.



- Check filter indicators (A and G) periodically. A large hydraulic consumer must run at full speed for the dirt indication gauges to work.
- Check oil level (E) periodically.
- We recommend to replace hydraulic oil and filters (B and H) after the initial start up and test period. This is to eliminate all debris and dirt from installation and start up, to ensure a trouble free and long service life. After this first service, oil and filters should be replaced every 2000 engine hours / every 3 year.
- Between service intervals, make sure to replace the oil and filters (B and H) if miss colouring or a distinctive smell is present.
- Check that all electrical connections are clean and fastened firmly.
- We advice to drain a little bit of oil out of the drain plug (C) of the tank once a year to let any possible sedimentation and water out.
- Minimum once a year, the hoses and hose fittings must be checked for wear and leakages. Make sure that all fittings are tight and secure. This must be done more often on a commercial vessel with lots of usage of the hydraulic system.
- For high pressure filter element replacement, please unscrew filter element bowl (B) to get access to the element. Make sure to use clean tools and avoid getting dirt in the system. Use a bucket, or similar, to collect the oil spill when disassembling and assembling the filter. Proceed to replace the old element with the new one. After replacement, make sure to tighten the filter element bowl (B) properly.
- For return filter element replacement, please open the top cover (H) on the return filter to get access to the filter element. Make sure to use clean tools and avoid getting dirt in the system. Use a CLEAN towel, or similar, to collect the oil spill when disassembling and assembling the filter. Proceed to replace the old element with the new one. After replacement, make sure to secure the top cover (H) and tighten the three bolts properly.

***Please provide filter product code/serial nr when ordering filter element replacement.**

Tank	Model year	Filter	Art#
40/60/90/120 L	<2012	Return (H)	10 2521
40 L	2012>	Return (H)	10 2572
60/90/120 L	2012>	Return (H)	10 2574
40/60 L	<2012	High pressure (B)	10 2523
90/120 L	<2012	High pressure (B)	10 2519
40/60 L	2012>	High pressure (B)	10 2582
90/120/250 L	2012>	High pressure (B)	10 2584



IMPORTANT
Remember to leave space for replacement of filter elements.

MG_0340

Special precautions must be taken when the vessel is operated in areas with stagnant/aggressive water and when the vessel is out of operation for longer periods. Stagnant water should not be allowed to accumulate in the oil cooler.

On water maintenance:

Every 2nd week

Systems with 24V DC cooling water pump

- Relevant DC power circuits must be ON
- Ensure that cooling water inlet valves are open.
- Change cooling pump setting in the thruster control panel to “Always on”
- Check that the cooling pump is running, and that the water is flowing.
- Let the pump run for 5 minutes.
- Shut down and re-set the system.

Systems with hydraulic cooling water pump. (Hydraulic pressure required)

- Relevant DC power circuits must be ON
- Ensure that cooling water inlet valves are open.
- Start the main engine(s)
- Change cooling pump setting in the thruster control panel to “Always on”
- Check that the cooling pump is running, and that the water is flowing.
- Let the pump run for 5 minutes.
- Shut down and re-set the system

On land maintenance:

If the vessel will stay on land for more than two weeks, the cooling system for the hydraulics must be drained for seawater. In areas exposed to frost, the cooling system must be drained as a part of the winter maintenance.

- Ensure that all valves in the seawater line are open.
- Apply compressed air to the seawater outlet until “dry” air is coming from the seawater inlet.
(NB: If the outlet is not accessible, apply compressed air to a point between the cooler and the outlet.)
- Remove the cooler drain plug and drain the residual water.
- Remove the cooling pump drain plug and drain the residual water.

Cooling Pump Operation

Before SEATRIAL, STARTUP and/or when vessel is put on shore after being on land it is very important to ensure that the cooling pump is primed with water before running the system. These pumps are not self-priming and will need to be installed below waterline for gravity feed in any hull angle. To avoid airlocks in the pump/ hoses. Hoses have to be routed with continuous rise from through hull fitting to the pump and from pump to discharge.

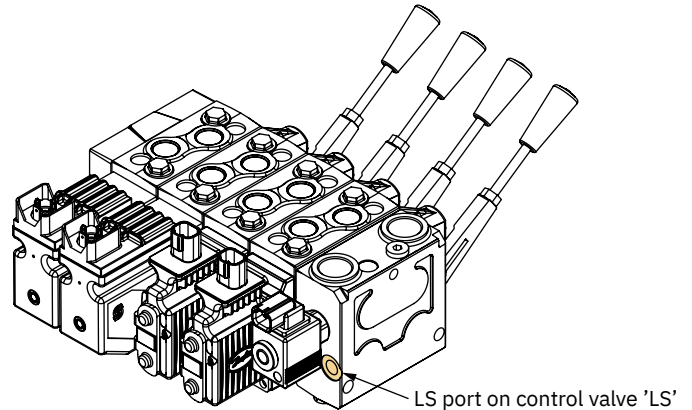
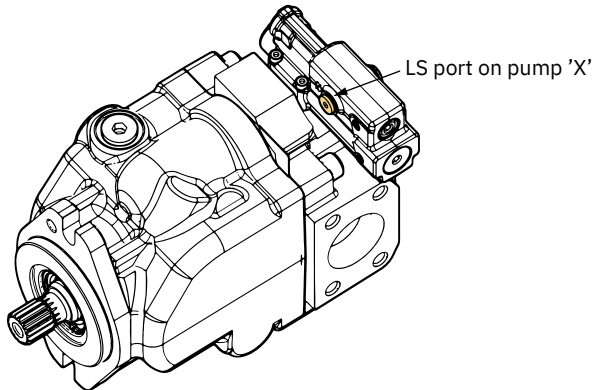
- Ensure that ball valve to water intake is opened.
- Unscrew/loosen bolt on cooling pump as illustrated to let water rise into the pump.
- When water flows out of bolt location, tighten the bolt as indicated without damaging the washer. The pump is now primed and ready to be run.
- Bolt torque: 5Nm on Hydraulic/ECI DC pumps with fibre washer.
- Bolt torque: 12Nm on DC pumps with copper washer.

No standby pressure on the system when the pump(s) are running

- The pumps drive direction is incorrect. Stop the pump(s) immediately to minimize potential pump damage. Contact Sleipner for further assistance/new pumps.

Max pressure on the system is 20-30 bar when running a consumer

- The LS hose is not installed/connected to the wrong port. See illustration below:



- The red emergency stop button on the hydraulic info panel is activated.
 - Repress the red STOP button to deactivate the emergency stop function.
- The pump is not connected to the power source (PTO)
 - Check if clutch cable PTO is engaged
 - Check if that pump drive shaft is the correct size and engaging the spline sleeve inside the PTO.

Standby pressure too high (above 40 bar)

- The LS hose connector is jamming the spring inside the pump pressure regulator.
 - Use shorter connector (JIC threads can NOT be used)

Oil level is too low

- Check for leakages. After the initial start-up and test period, the oil level should not change.
 - Fix the leakage and refill.

Oil temperature is too high

- Oil coolers are not working properly
 - Avoid using the system until the problem is fixed or the oil temperature is back below 60°C.
 - Check that you have 15-17 l/min cooling water at max 30°C.
- If not ok, check that strainers are clean and valves are in a full open position.
- If strainers and valves are ok, reroute your cooling water supply.
- The system is generating more heat than normal
 - Check that no consumers are running unintentionally
 - Check that no safety relief valves are open. Open relief valves will make a howling/whining sound.
- If open, the system pressure settings must be adjusted. Contact Side-Power for more detailed instructions.
- If both of the two checkpoints above is ok, please contact Side-Power for additional cooling.

The thruster is running in the wrong direction.

- If on/off electrical control, swap the blue and grey wires from the control panel, or swap the hydraulic hoses between the valve and the thruster.
- If proportional control, turn the joystick 180 degrees or swap the hydraulic hoses between the valve and the thruster.

Reduced thruster performance.

- Grids in the tunnel opening, sharp tunnel openings deep tunnel installation or barnacles on propeller / gear leg / inside tunnel will reduce the thrust and increase the pressure.
- Check that no filters are blocked (dirt indicator shows green area when clean, red area when blocked).
- Do not adjust performance settings without first contacting Side-Power for more detailed instructions.

Find your local professional dealer from our certified worldwide network for expert service and support. visit our website www.sleipnergrouper.com/support

Product Spare Parts and Additional Resources

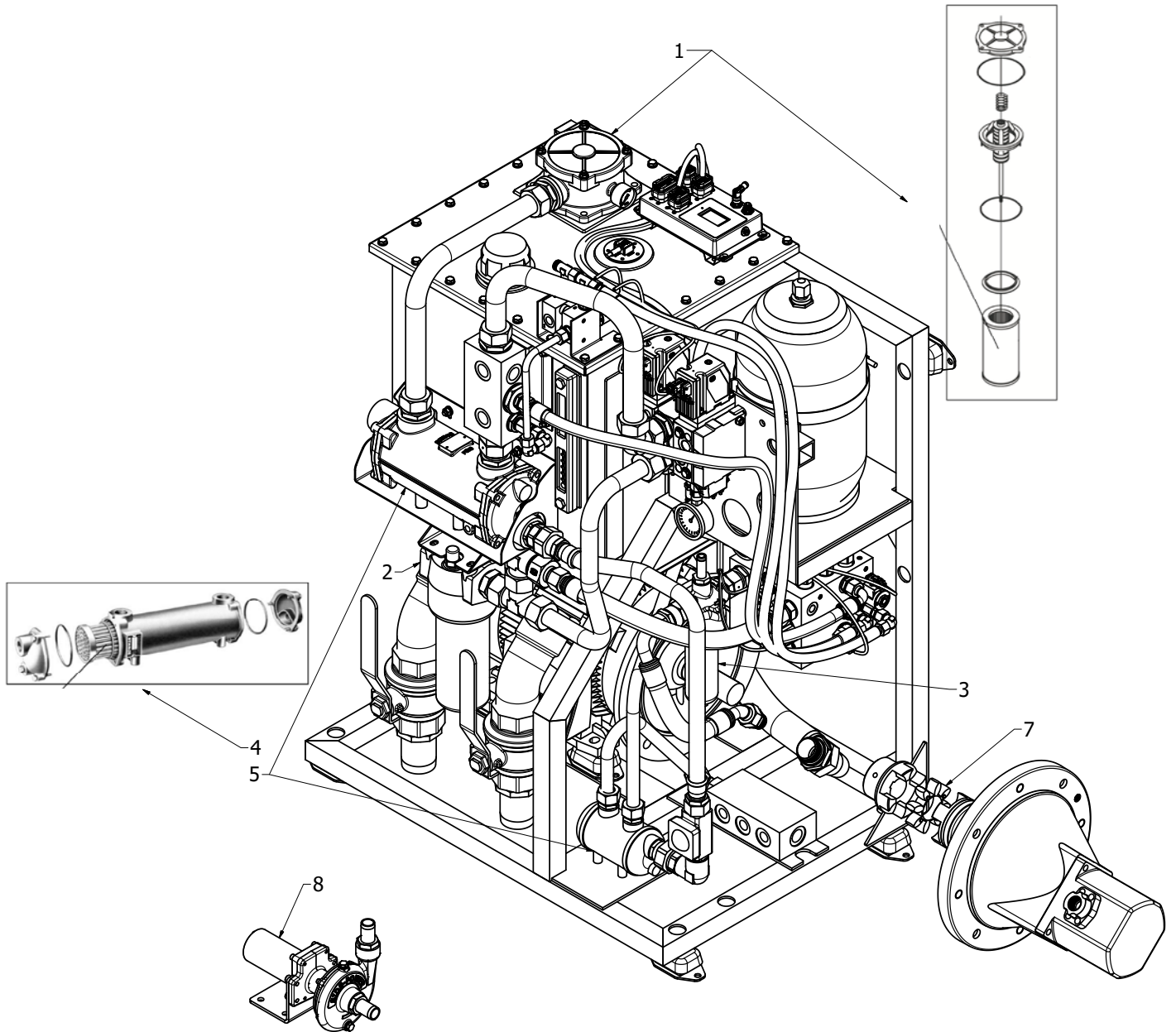
For additional supporting documentation, we advise you to visit our website www.sleipnergrouper.com and find your Sleipner product.

Warranty statement

1. Sleipner Motor AS (The “Warrantor”) warrants that the equipment (parts, materials, and embedded software of products) manufactured by the Warrantor is free from defects in workmanship and materials for purpose for which the equipment is intended and under normal use and maintenance service (the “Warranty”).
2. This Warranty is in effect for two years (Leisure Use) or one year (Commercial and other Non-leisure Use) from the date of delivery/purchase by the end user, with the following exceptions;
 - (a) For demonstration vessels, or vessels kept on the water, the dealer is considered as the end user from 6 months after their launch of the vessel;
 - (b) The warranty period starts no later than 18 months after the first launch of the vessel.
 Please note that the boat manufacturer and dealer must pay particular attention to correct maintenance and service both by the products manuals as well as general good practice for the location the boat is kept in the period the boat is in their care. In cases where the 6 and 18 months grace periods for boat builders and dealers are passed, it is possible to obtain a full warranty upon inspection and approval of the warrantor or such representative.
3. Certain parts, classified as wearable or service parts, are not covered by the warranty. A failure to follow the required maintenance and service work as described in the product manual render all warranty on parts or components directly or indirectly affected by this void. Please also note that for some parts, time is also a factor separately from actual operational hours.
4. This Warranty is transferable and covers the equipment for the specified warranty period.
5. The warranty does not apply to defects or damages caused by faulty installation or hook-up, abuse or misuse of the equipment including exposure to excessive heat, salt or fresh water spray, or water immersion except for equipment specifically designed as waterproof.
6. In case the equipment seems to be defective, the warranty holder (the “Claimant”) must do the following to make a claim:
 - (a) Contact the dealer or service centre where the equipment was purchased and make the claim. Alternatively, the Claimant can make the claim to a dealer or service centre found at www.sleipnergrouper.com. The Claimant must present a detailed written statement of the nature and circumstances of the defect, to the best of the Claimant’s knowledge, including product identification and serial nbr., the date and place of purchase and the name and address of the installer. Proof of purchase date should be included with the claim, to verify that the warranty period has not expired;
 - (b) Make the equipment available for troubleshooting and repair, with direct and workable access, including dismantling of furnishings or similar, if any, either at the premises of the Warrantor or an authorised service representative approved by the Warrantor. Equipment can only be returned to the Warrantor or an authorised service representative for repair following a pre-approval by the Warrantor’s Help Desk and if so, with the Return Authorisation Number visible postage/shipping prepaid and at the expense of the Claimant.
7. Examination and handling of the warranty claim:
 - (a) If upon the Warrantor’s or authorised service Representative’s examination, the defect is determined to result from defective material or workmanship in the warranty period, the equipment will be repaired or replaced at the Warrantor’s option without charge, and returned to the Purchaser at the Warrantor’s expense. If, on the other hand, the claim is determined to result from circumstances such as described in section 4 above or a result of wear and tear exceeding that for which the equipment is intended (e.g. commercial use of equipment intended for leisure use), the costs for the troubleshooting and repair shall be borne by the Claimant;
 - (b) No refund of the purchase price will be granted to the Claimant, unless the Warrantor is unable to remedy the defect after having a reasonable number of opportunities to do so. In the event that attempts to remedy the defect have failed, the Claimant may claim a refund of the purchase price, provided that the Claimant submits a statement in writing from a professional boating equipment supplier that the installation instructions of the Installation and Operation Manual have been complied with and that the defect remains.
8. Warranty service shall be performed only by the Warrantor, or an authorised service representative, and any attempt to remedy the defect by anyone else shall render this warranty void.
9. No other warranty is given beyond those described above, implied or otherwise, including any implied warranty of merchantability, fitness for a particular purpose other than the purpose for which the equipment is intended, and any other obligations on the part of the Warrantor or its employees and representatives.
10. There shall be no responsibility or liability whatsoever on the part of the Warrantor or its employees and representatives based on this Warranty for injury to any person or persons, or damage to property, loss of income or profit, or any other incidental, consequential or resulting damage or cost claimed to have been incurred through the use or sale of the equipment, including any possible failure or malfunction of the equipment or damages arising from collision with other vessels or objects.
11. This warranty gives you specific legal rights, and you may also have other rights which vary from country to country.

Patents

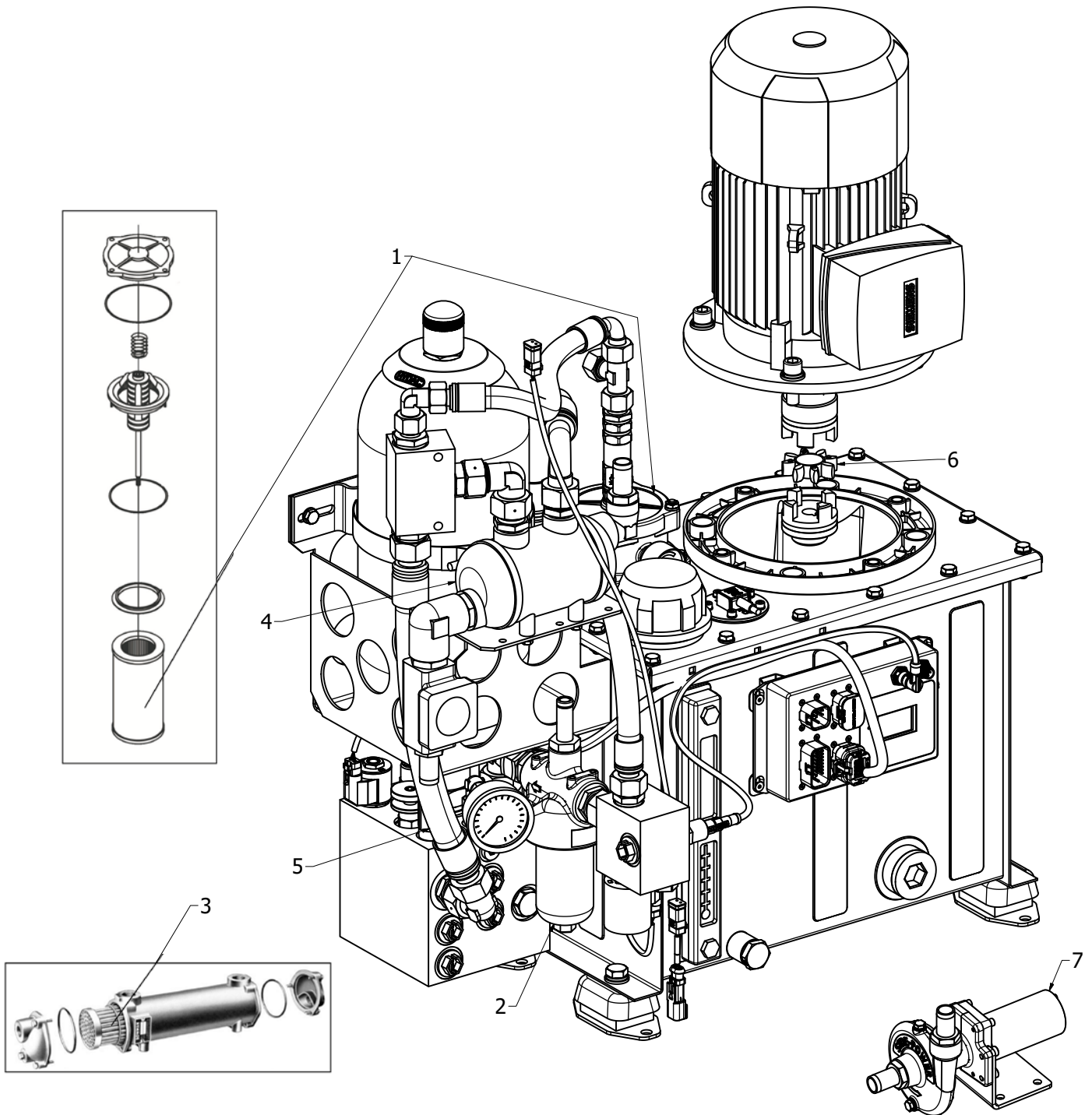
At Sleipner we continually reinvest to develop and offer the latest technology in marine advancements. To see the many unique designs we have patented visit our website www.sleipnergrouper.com/patents



Combined Stabiliser/thruster HYD Rack		Spare parts
Pos. #	Description	
		Art. #
8	Cooling pump	
	ECI DC cooling pump 24V - 1"	10 2376-1
	ECI DC cooling pump 24V - 3/4"	10 2376-34
	DC cooling pump 12V	10 2377-12V
	DC cooling pump 24V	10 2377-24V
	Hydraulic cooling pump	10 2357
7	Drive coupling element	
	Motor - 5,5Kw Compact (Frame size 112, Ø28mm Shaft)	10 50R24-S
	Motor - 5,5Kw (Frame size 132, Ø38mm Shaft)	10 50R28-S
	Motor - 7,5Kw Compact (Frame size 132, Ø28mm Shaft)	10 50R24-S
	Motor - 11Kw Compact (Frame size 132, Ø38mm Shaft)	10 50R28-S
	Motor - 11Kw (Frame size 160, Ø42mm Shaft)	10 50R38-S
	Motor - 15Kw (Frame size 160, Ø42mm Shaft)	10 50R38-S
6	Hydraulic hoses	N/A**
5	Oil cooler	N/A*
4	Oil cooler element	N/A*
3	Pressure filter element (AC)	
	Filter code 245LEN063 - 40L tank	10 2604
	Filter code 245LEN063 - 55/60L tank	10 2604
	Filter code 245LEN063 - 90/95/120L tank	10 2604
2	Pressure filter element (PTO)	
	Filter code EPF22 - 40L tank	10 2582
	Filter code EPF22 - 55/60L tank	10 2582
	Filter code EPF32 - 90/95/120L	10 2584
1	Return filter element	
	Filter code TTF3 - 40L tank	10 2572
	Filter code TTF6 - 55/60L tank	10 2574
	Filter code TTF6 - 90/95/120L tank	10 2574

* Please provide parts serial number when placing an order.

** Part number is taped to the actual hose, please provide this number when ordering hoses.



Stabiliser Standalone Powerpack system		Spare parts
Pos. #	Description	
		Art. #
7	Cooling pump	
	ECI DC cooling pump 24V - 1"	10 2376-1
	ECI DC cooling pump 24V - 3/4"	10 2376-34
	DC cooling pump 12V	10 2377-12V
	DC cooling pump 24V	10 2377-24V
	Hydraulic cooling pump	10 2357
6	Drive coupling element	10 5028-R
5	Hydraulic hoses	N/A**
4	Oil cooler	N/A*
3	Oil cooler element	N/A*
2	Pressure filter element	
	Filter code 245LEN040 - (25L Tank (10 44035x, 10 44050x, 10 44055x))	10 2609
	Filter code 245LEN063 - (75L Tank (10 44110x, 10 44150x))	10 2604
1	Return filter element	
	Filter code TTF3 - (25L Tank (10 44035x, 10 44050x, 10 44055x))	10 2572
	Filter code TTF6 - (75L Tank (10 44110x, 10 44150x))	10 2574
<i>* Please provide parts serial number when placing an order.</i>		
<i>** Part number is taped to the actual hose, please provide this number when ordering hoses.</i>		

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