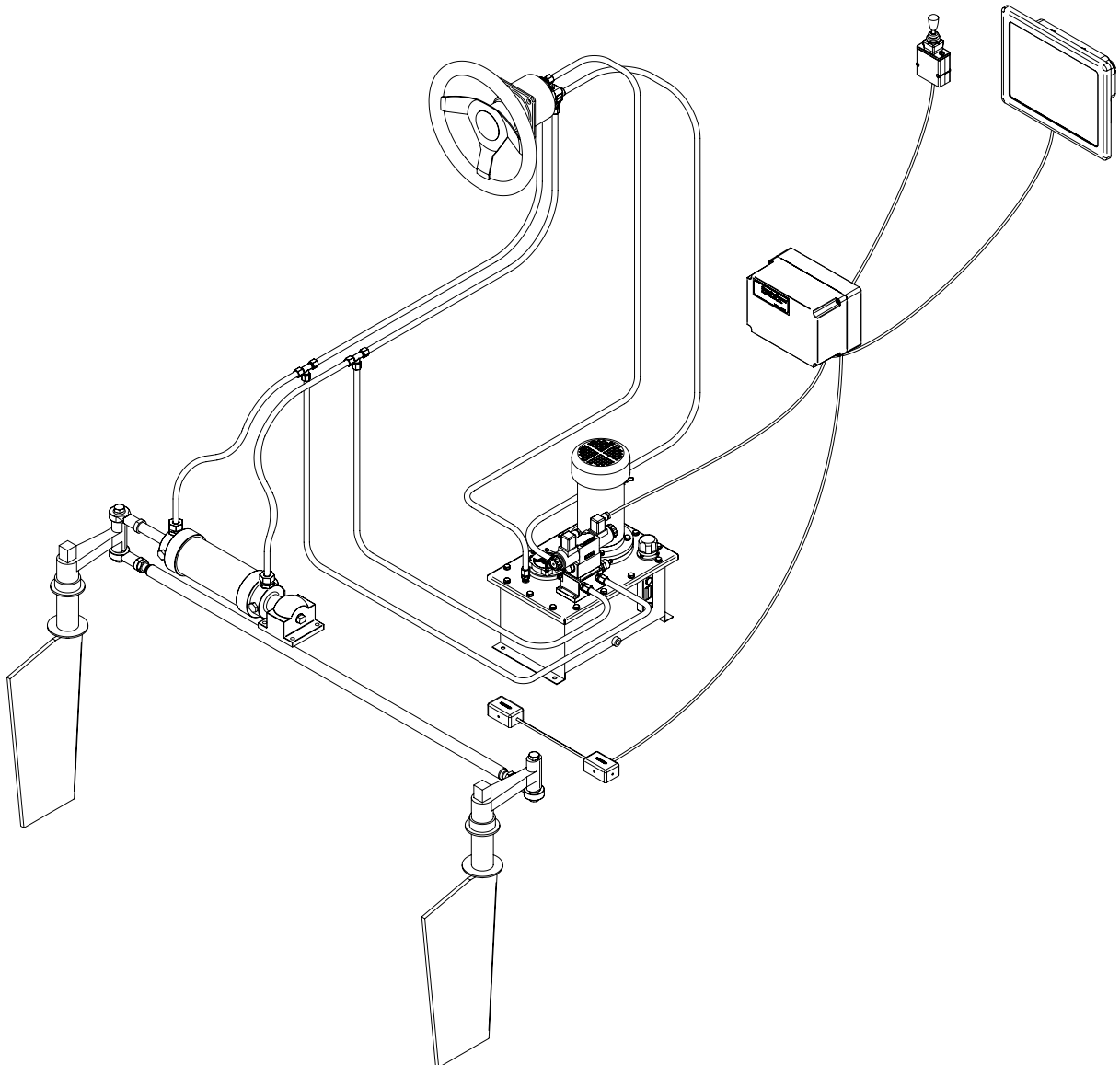


Keep this
manual onboard!



User Manual

For HYDRAULIC STEERING SYSTEMS
PS600



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LANGUAGE: EN



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Warnings and Safety

MC_0800

It is essential to follow all instructions within this document to avoid potential personal injury, death, or damage to existing products in the vessel, the vessel's hull integrity, and including this product during installation or operation. Failure to follow instructions within this document will render all warranties given by Sleipner Motor as VOID.

Warnings and situations requiring extra caution are outlined in the documentation. Take extra consideration when warnings are outlined.



WARNING
Indicate a potentially hazardous situation that, if not avoided, could result in death or severe injury.



CAUTION
Indicates a potentially hazardous situation that could result in minor or moderate injury or critical damage to vessel integrity if not avoided.

MC_0020

General:

- The operator must read this document to ensure necessary familiarity with the product before use.
- It is the owner/ captain/ operators full responsibility to assess the risk of any unexpected incidents or situation on the vessel or at sea. Familiarise yourself with your vessels safety operation in conjunction with Sleipner products.
- DO NOT allow children to operate Sleipner products.



WARNING

Sleipner Motor AS is not responsible for damage or injury caused by the misuse of our products.

For the Sleipner steering systems:

MC_0697

- Take time to adequate yourself with the power system components, operation and safety features.
- The power steering system can have two types of helm pumps installed - 'with' or 'without hydraulic backup'.
- In the event of system shut down, the helm pump with 'hydraulic backup' function will become the only operational helm. (Electric only helms unit will not function.)
(NB: The steering system will function as normal but with an increased number of required wheel rotations accompanied by a heavier wheel response. Do not continue to drive the boat at high speeds using the back up system.)

(NB: See fault type 1 and/or 2 in the "Troubleshooting Guide" chapter in this manual.)

- The system will shut down immediately in the event of an unexpected major component failure related to the safe operation of the system. Oil or electric motor overheat conditions will activate the helm pump warning lights and/ or alarm sounder.

Cylinder bypass:

To centralize the rudders, release valve locknut, open valve NV3 & NV4 (turn counter clockwise until stop).The cylinder is now free and the rudders can be centralized. Return NV3 and NV4 to original closed position (Clockwise until stop) and tighten valve locknut.



**CAUTION
IN THE EVENT OF SHUTDOWN**

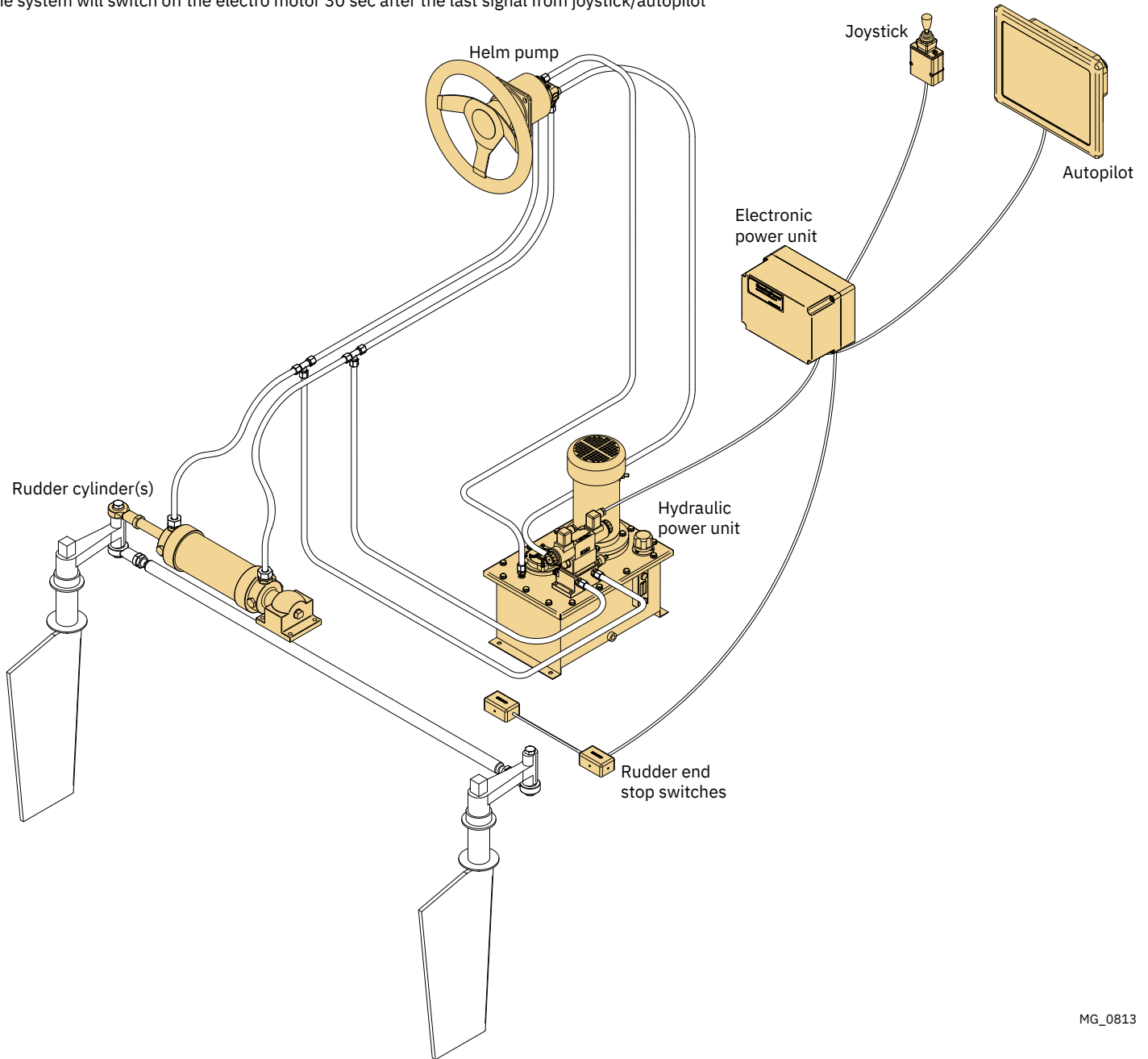
Immediately reduce engine power to idle and go to the helm position with hydraulic backup.

Release the system pressure when carrying out any servicing work on the Power Steering System or removal of the systems Oil Tank Filler Cap. (Invert the air pressure valve dust cover and press it against the top of the pressure valve)

The power steering system includes the following main components:

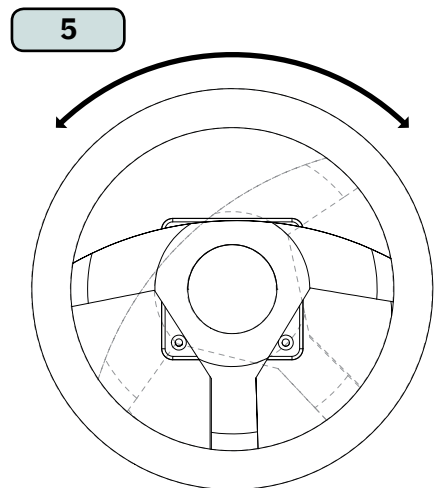
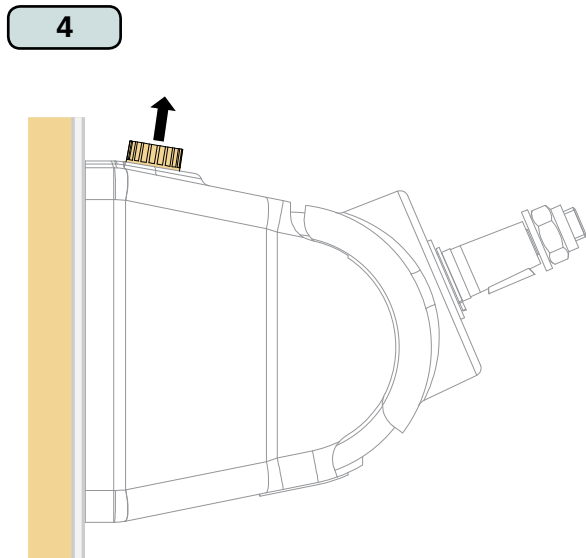
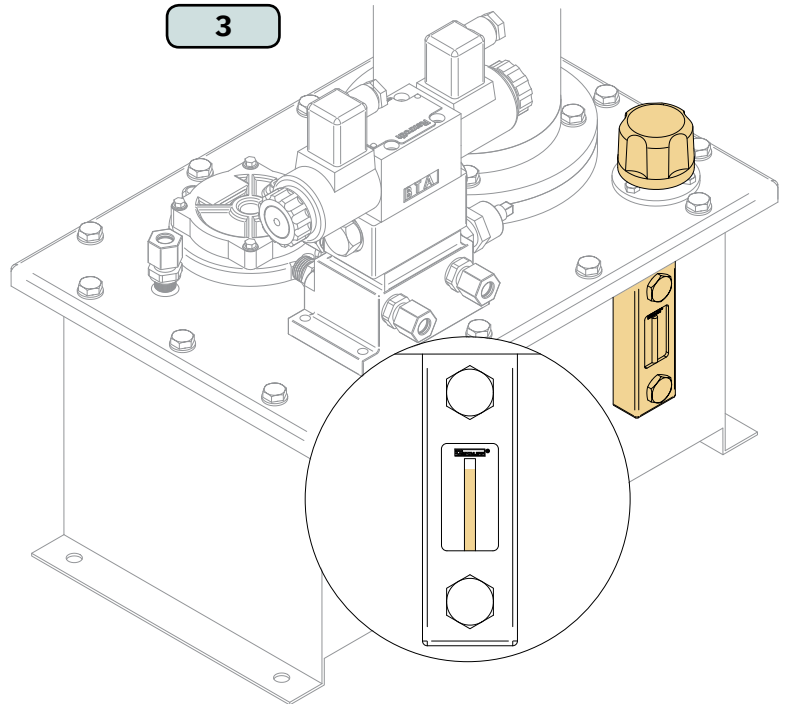
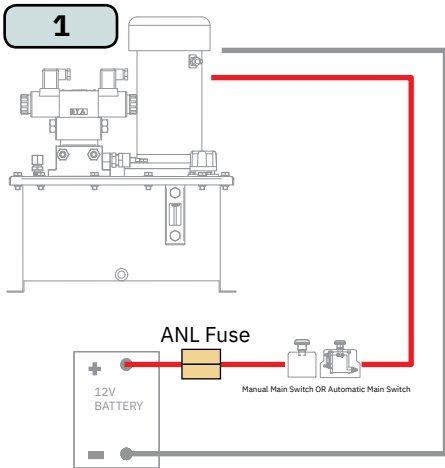
1. Hydraulic power unit consists of electric motor, hydraulic pump, oil filter, valve system and oil reservoir.
2. Electronic control unit handling signals from joystick, autopilot and rudder stop switches. Output signals from the control box controls starboard and port directional valves and the motor starter relay.
3. Rudder end stop switches.
4. Helm pump.
4. Rudder cylinder(s).
5. Joystick, one or two.
6. Autopilot.

The system will switch off the electro motor 30 sec after the last signal from joystick/autopilot



NB: Use filler plug without breathing on helm pump(s)!

1. Remove the steering system main fuse.
2. Check all the pipe and hose connections are correctly fastened.
3. Fill the tank to the upper part of the level indicator with hydraulic oil ISO VG 15.
4. Remove the filler cap from the helm pump and fill it with oil.
5. Turn the helm pump steering wheel in both directions a few times (approximately 1 1/2 turns in each direction) until the system is filled with oil. Check the oil level.



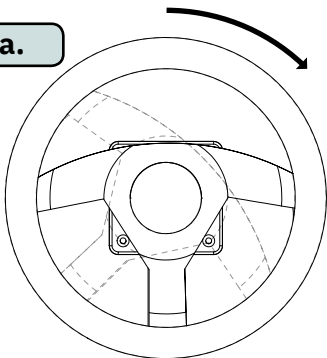
6.
 - a. Turn the steering wheel to the starboard end stop and open the starboard air bleeder at the steering cylinder.
 - b. Attach a small hose to the nipple to collect bled oil in a tray/ can/ bottle.
 - c. Turn the steering wheel clockwise until the oil is pushed out through the air bleeder nipple and is free of air.
(NB: Remember to tighten the air bleeder.)
7. Repeat point 6 on the port side of the cylinder. Check the oil level.
8. Repeat the bleed procedure if necessary.
9. Check the oil level and place a sealed filler cap in the helm pump filler port.
10. Insert the main fuse for the steering system and run the cylinder back and forth 10-15 times with the lever.
(NB: Check oil level and replenish when necessary. When the system runs, a small amount of oil will circulate through the helm pump back to the tank. This will ensure that the helm pump is filled with oil, and contribute to the system bleeding (given that the system is connected to the helm pump with 4 hoses as shown in illustration).)
11. Check for oil leaks. Check that all mechanical connections are tight and secured

If a manual closing valve is used between the cylinder ports, open the valve on the system's initial use from a helm pump or joystick if no helm pump is used. On installations with two helm pumps, the bleeding must be done first from the help pump situated lowest in the system.

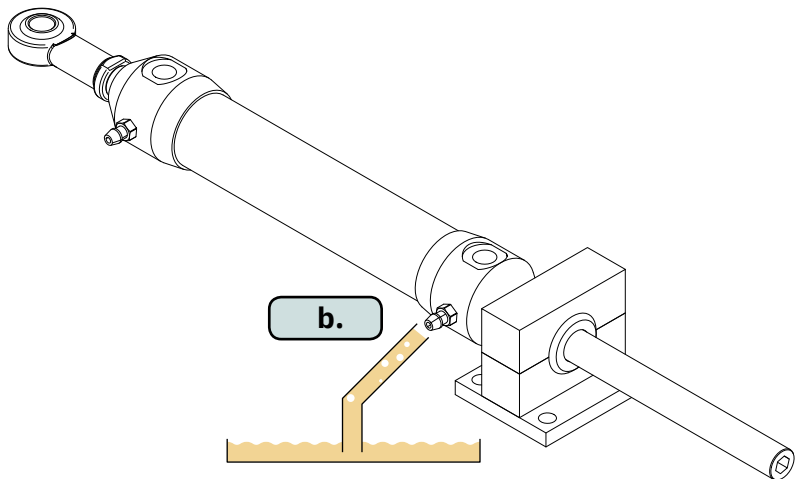
(NB: It is not possible to bleed all air from the system. When the remaining air in the system evacuates through the tank, the oil level will drop. Check the oil level after the first 5 hours of run time and replenish if necessary.)

6

a.



b.



MG_0850

Every 6th month:

- Check hoses / connections for leakages.
- Check hoses for damage (caused by sharp edges, hot surfaces etc).
- Check that all bolts are tightened and secure.
- Ensure that bearings and joints are greased and free to rotate / move properly.
- SP60, SP90 and JR1.100 cylinders have a nipple to grease the mounting bracket. Fill up with new marine grease.

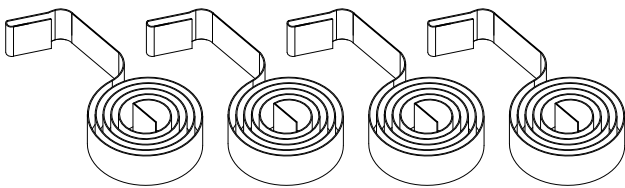
Every 500 hours:

- Check DC motor brushes for wear.
Replace brushes when shorter than 8mm measured from the groove in the brush.

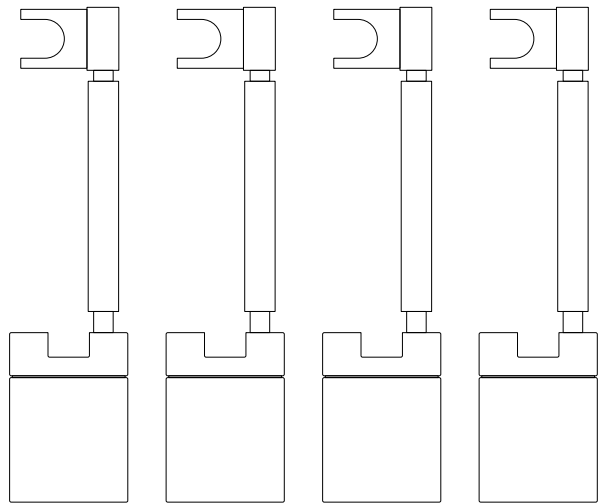
After 1st year / Every 2000 hours or 3rd year:

- The hydraulic oil and filter should be replaced after the first year, and then every third year.

For service parts and further support, please contact your Sleipner steering system dealer



Brush spring kit, (part number. 74368)



Brush kit, (part number. 74369)

MG_0820

Introduction:

At Sleipner Group, we prioritize sustainability and encourage the repair and re-manufacturing of products to extend their life cycles. If disposal is necessary, please follow these guidelines to recycle and manage waste responsibly, ensuring our efforts align with environmental protection efforts.

Electric Motors and Electronics:

- Disconnect from any power sources and dismantle them carefully.
- Recycle components through certified e-waste recycling centers that can adequately handle and recover electronic materials.
- Dispose of any non-recyclable electronic parts according to local environmental regulations.

Metals:

- Collect and sort metal parts for recycling as scrap metal.
- To increase recycling efficiency, ensure that metals are clean and free from non-metal attachments.

Plastics:

- Identify recyclable plastics based on local recycling guidelines.
- Remove any non-plastic components and clean them before recycling to improve the quality of the recycled material.

Hazardous Materials:

- Correctly identify any hazardous substances within components, such as batteries or capacitors etc.
- Follow local regulations for the safe disposal of hazardous materials to prevent pollution and protect environmental health.

General Disposal Instructions:

- Consult local recycling programs to determine the acceptability of various materials.
- Use authorized disposal services to ensure compliance with environmental standards.

Safe Disposal Practices:

- Adhere to local laws and regulations for waste management to minimize environmental impact and ensure community safety.

This guide is designed to help reduce our products' environmental footprint through responsible end-of-life management. Please contact your local waste management supplier or our support team for more specific disposal information or further assistance.

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

Product spare parts and additional resources

For additional supporting documentation, we advise you to visit our website www.sleipnergrou.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.sleipnergrou.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.sleipnergrou.com/patents

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Dotted lines for writing notes.

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Learn more about our products at
www.sleipnergroun.com



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