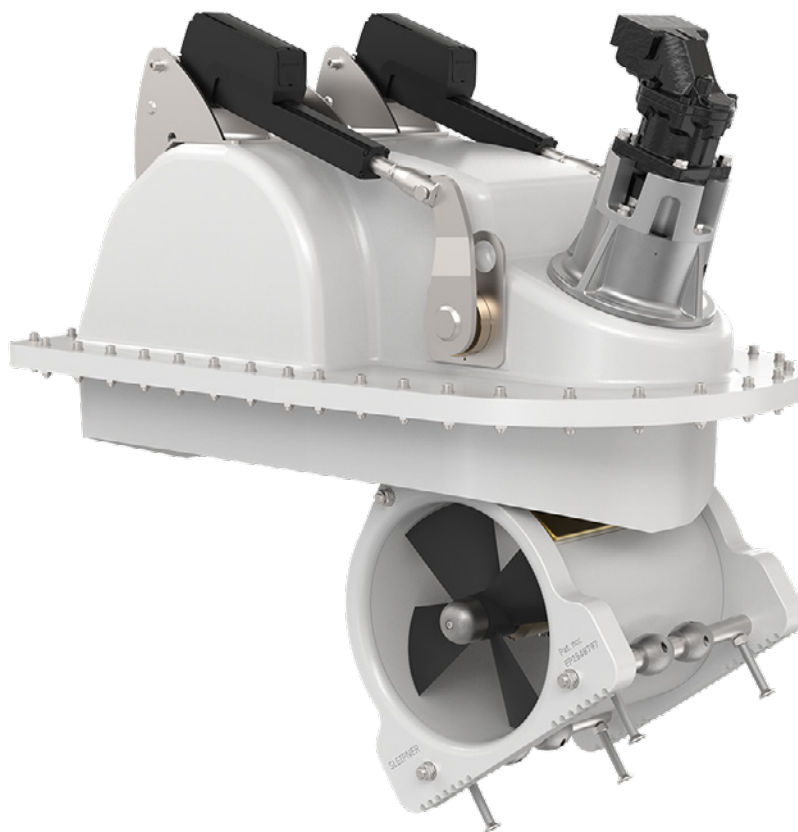


Keep this
manual onboard!



User Manual

For Hydraulic Retract Thruster Models
SRHP 650 Series



SLEIPNER GROUP

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MC_0020

Failure to follow any considerations and precautions can lead to serious personal injury, death and/or damage your product.
Failure to follow any considerations and precautions will render all warranties given by Sleipner Motor as VOID.

MC_0411

General Operation Consideration and Precaution Guidelines

MC_0444

For the operation of thrusters

MC_0418

Never use thrusters when close to objects, persons or animals in the water. The thruster will draw objects into the tunnel and the rotating propellers. This will cause serious injuries and damage the thruster.

Always turn the main power switch off before touching any part of the thruster. An incidental start while touching moving parts can cause serious injuries.

It is the owner, captains or other responsible parties full responsibility to assess the risk of any unexpected incidents on the vessel. If the thruster stops giving thrust for some reason while manoeuvring you must have considered a plan on how to avoid damage to persons or other objects.

- Always turn the control device off when the thruster is not in use or when leaving the boat.
- When leaving the boat always turn off the main power switch for the thruster.
- Never use thrusters out of water
- If the thruster stops giving thrust while running, stop running the thruster and turn it off. Running the thruster for more than a few seconds without resistance from the propeller can cause serious damage to the thruster.
- If two control panels are operated in opposite directions at the same time, the thruster will not run. If both are operated in the same direction, the thruster will run in this direction.
- If you notice any faults with the thruster switch it off to avoid further damage.
- The purpose of the thruster is to manoeuvre or dock the vessel. Forward or reverse speed must not exceed 4 knots when operated.

For the operation of hydraulic motor thrusters

MC_0421

- If the performance of the thruster is reduced check the hydraulic system or check the tunnel for marine growth.



Accidental activation of the retract mechanism can cause serious injury due to the high-pressure force used for closing the hatch. IF operating the hatch during any work/ maintenance around or inside the retract hatch, USE CAUTION.

MC_0411

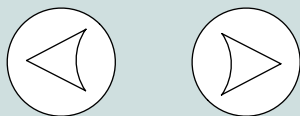
! Please refer to the graphic for special considerations relating to your model !

The following is an operation guide to ALL Sleipner control products. Ensure to familiarise yourself with the functionality and operation of your specific control device.

Take time to practice operation in open water to become familiar with the thruster and to avoid damages to your boat or people.

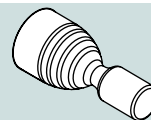
General operation

1. Turn on the main power switch for the bow thruster. *(NB: Always turn off the main power switch when not on-board.)*
2. Turn on the control panel by pushing the/ both "ON" button(s) on the original Sleipner panel simultaneously.
Turn off the control panel by pushing the "OFF" button
3. To turn the bow/ stern in the desired direction:



Button control panels

For button control, push the button in the corresponding direction you wish the bow/ stern to move.



Joystick control panels

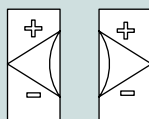
For joystick control, move the joystick in the direction you wish the bow/ stern to move.

(NB: If equipped for proportional control move the joystick equivalent to the amount of thrust you intend to receive.)

For other controls like foot switches or toggle-switches please refer to that products user manual for detailed operational use.

Hold functionality

If equipped with 'hold' functionality push the button in the corresponding direction you wish the thrusters to engage a holding pattern:



Hold Button

+ or -

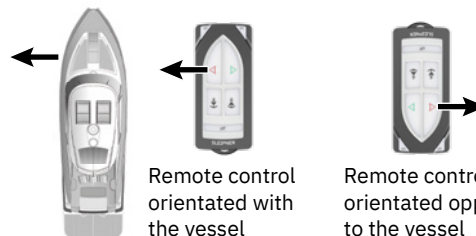
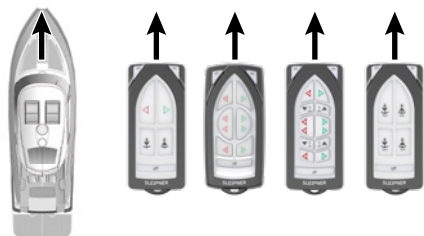
Will increase or decrease the holding force output of the thrusters

Operating a combined bow and stern thruster

The combination of a bow and stern thruster offers total manoeuvrability to move the bow and the stern separately from each other or in unison. This enables the boat to move sideways in both directions or turn the boat around a 360° axis while staying stationary.

Remote controls

The remote control design reflects the vessel for orientation guidance. Be aware of the remote control orientation during operation.



Remote control orientated with the vessel

Remote control orientated opposite to the vessel

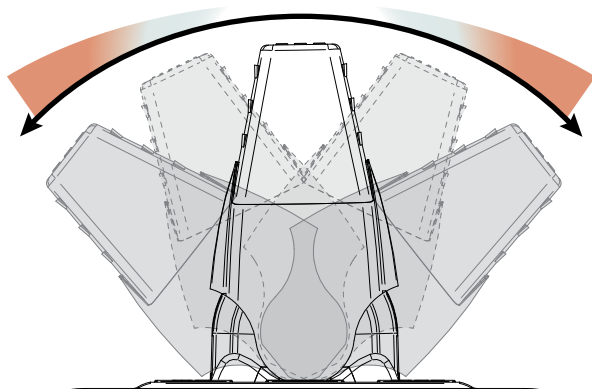
Drift

Depending on the sideways speed of the bow/ stern, you must disengage the control device shortly before the vessel is in the desired position.

(NB: Be aware the boat will continue to move after disengaging the thruster control.)

At any significant cruising speed (+1-2 kn) the side thruster will have little effect to steer the vessel.

Proportional Control



Variable thrust power for proportional thrusters is dependent on the extent of the joystick/ throttle.

For minimal thrust slightly move the joystick/ throttle in one direction.

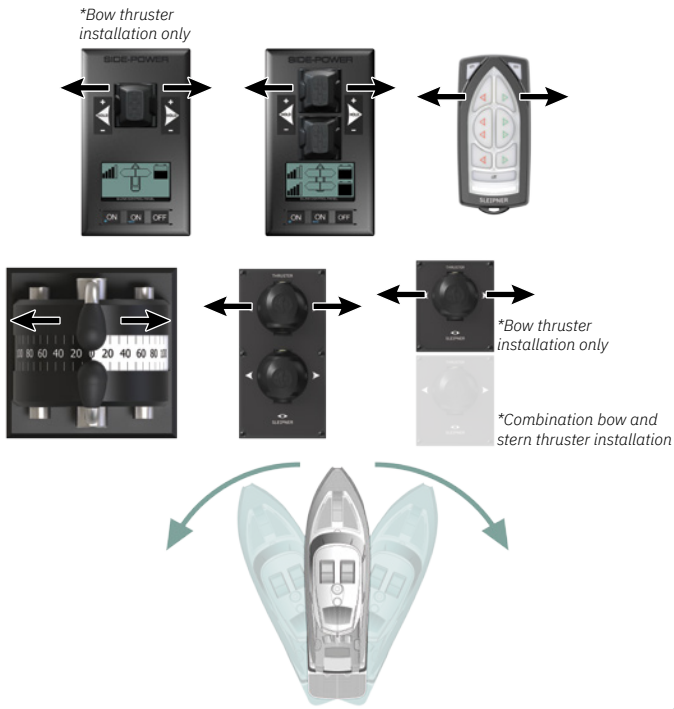
For maximum thrust move the joystick/ throttle to its end point.

Proportional Control Panel

Activating the bow thruster

Using your control device/ panel press the button or move the joystick in the direction you intend to turn the boat. Ensure to use the control device/ panel designated for the bow thruster.

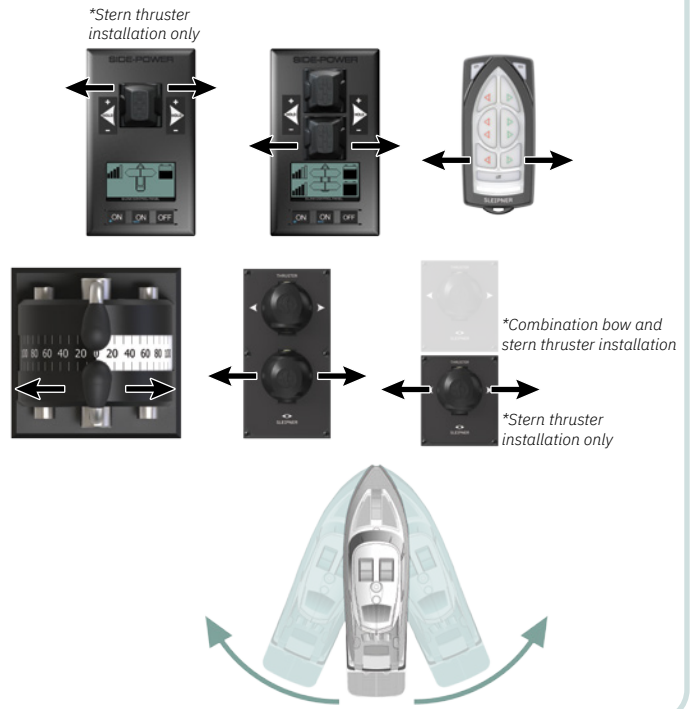
*Control panel example



Activating the stern thruster

Using your control device/ panel press the button or move the joystick in the direction you intend to turn the boat. Ensure to use the control device/ panel designated for the stern thruster.

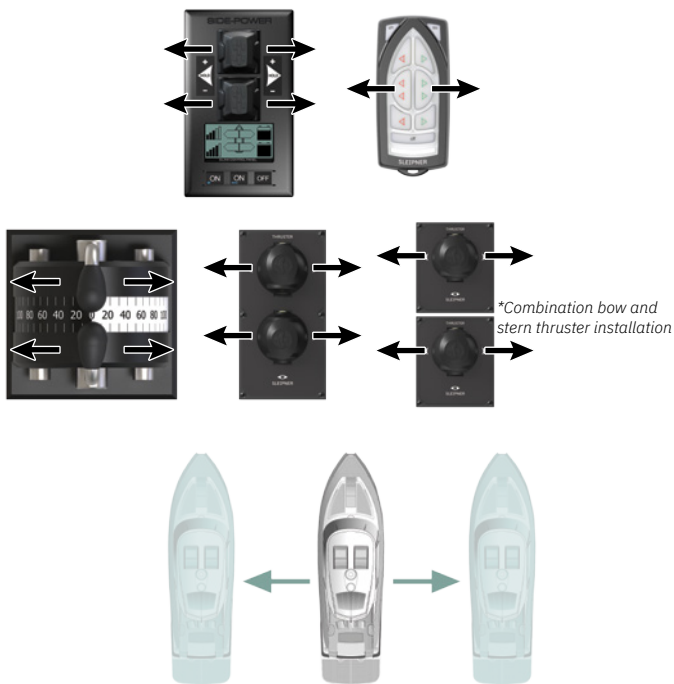
*Control panel example



Activating full sidwards maneuverer

Using your control device/ panel press both buttons or move the joysticks in the same direction you intend to move the boat. Requires both a bow and stern thruster to perform.

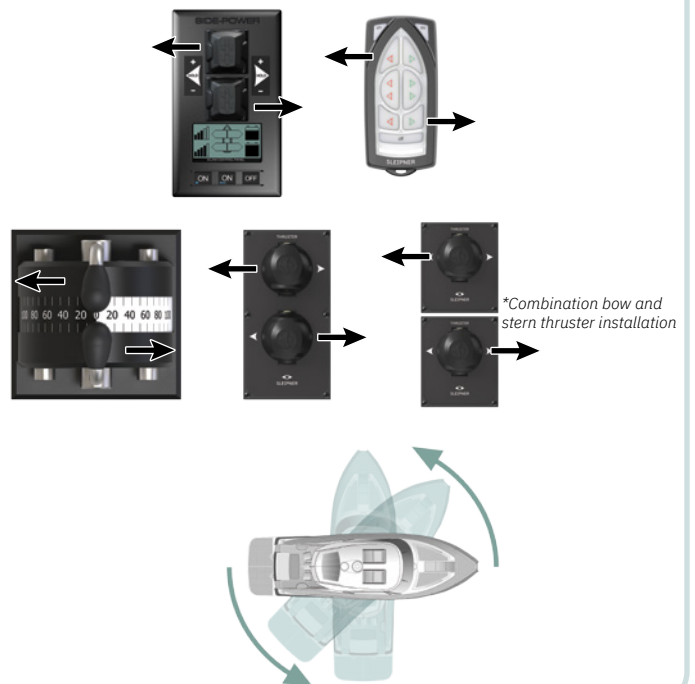
*Control panel example



Activating stationary spin to rotate the boat on its axis

Using your control device/ panel press both buttons or move the joysticks in opposing directions. Requires both a bow and stern thruster to perform.

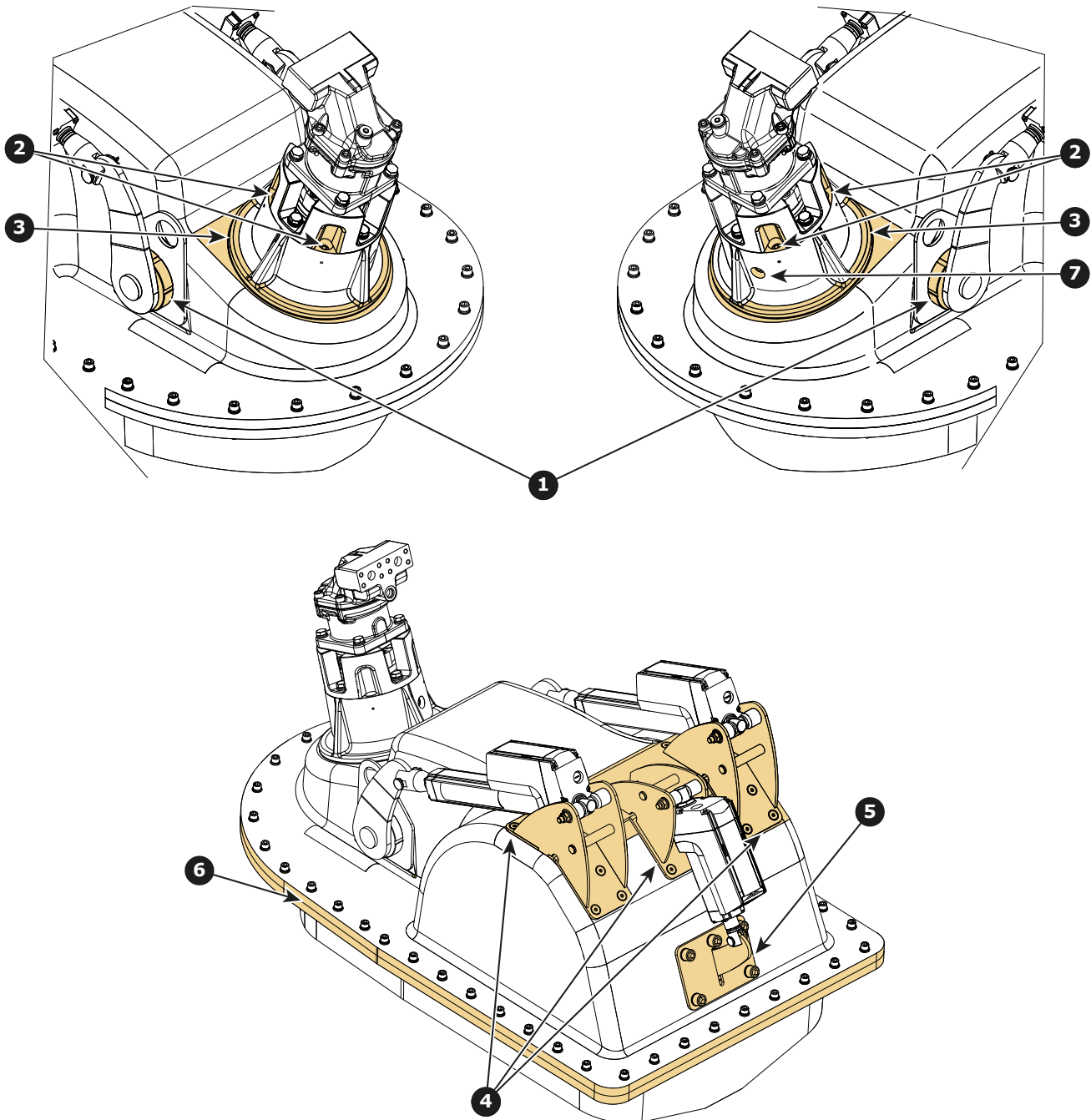
*Control panel example



For additional information on your control panel or device refer to your control devices user manual

As a part of the seasonal service of your Thruster before every season, always check that:

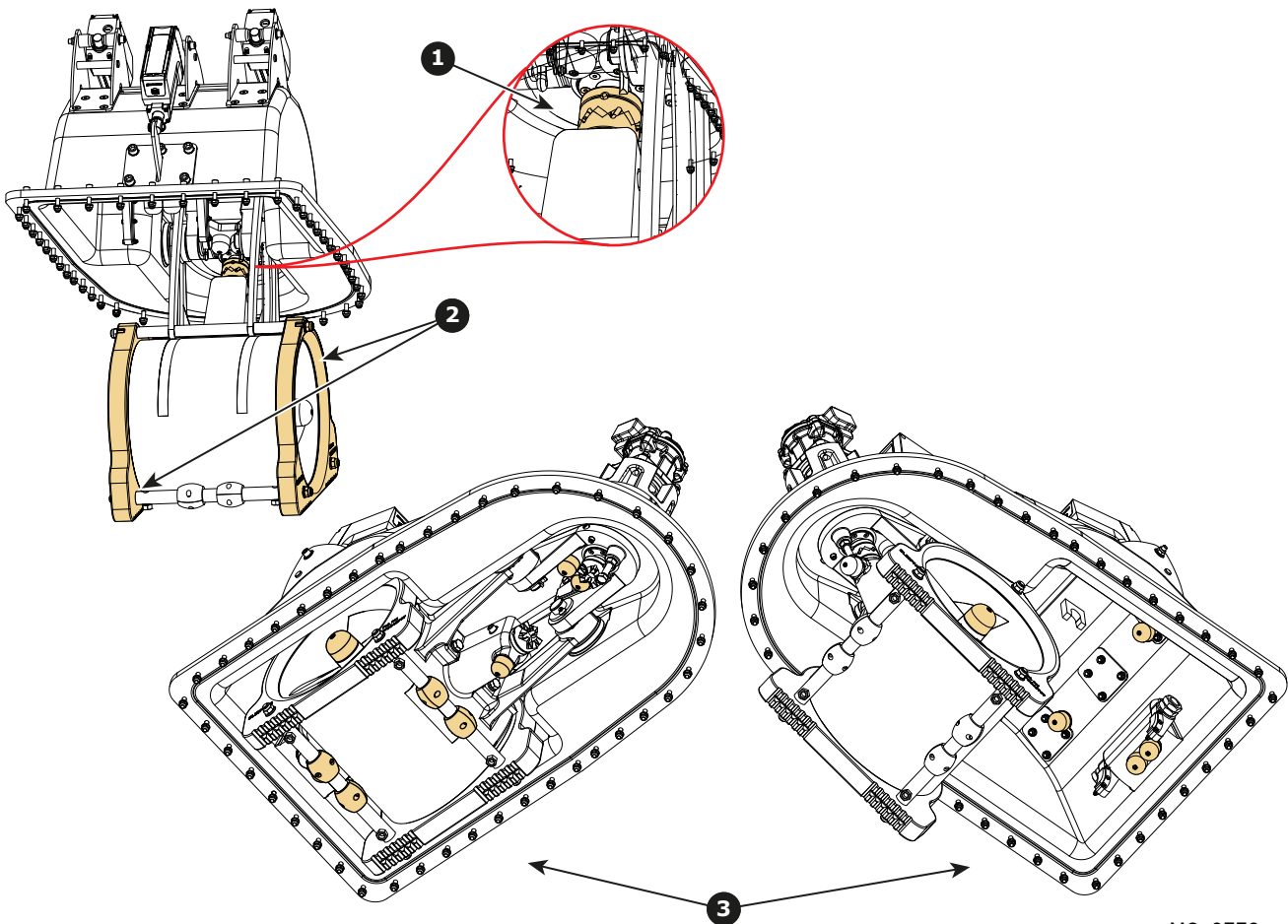
- All electrical connections are clean and fastened firmly.
- Your batteries are in good condition.
- There is no leakage from the hydraulic hoses or fittings to the motor.
- The area around the thruster inside the boat is clean and dry.
- There are no signs of water/oil leaks from the following positions:
 - 1: Horizontal shafts, both sides
 - 2: Around the four bolts holding the motor bracket to the thruster housing.
 - 3: The joint between the motor bracket and the thruster housing.
 - 4: The joint between the actuator bracket and thruster housing.
 - 5: The joint between the lock arm bracket and the thruster housing.
 - 6: The joint between the thruster support flange and the thruster housing, and their retaining bolts.
 - 7: The oil filler plug on the motor bracket.



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As a part of the seasonal service of your Thruster before every season, always check:

- The propeller and tunnel for damage.
- The propeller is fastened securely to the propeller shaft.
- The thruster tunnel and gear leg is clean and free from marine growth.
- The drive shaft for excessive movement.
- The dog clutch for excessive wear. **(Item 1)**.
- The twist rings **(Item 2)** for cracks or other damage.
- Change all the anodes **(Item 3)** before every season, or when half the anode has eroded (13 pcs of anodes). Always use thread lock on the screws to prevent it from coming loose.
- The hatch is properly secured to the thruster.
- There is no movement between the hatch and the hull in closed position.
- Apply anti fouling on the the propellers gear leg and inside the truster housing casing before every season to keep it clean from sea growth. **NB: Never apply anti fouling on the anode, propellers shaft or to rubber materials (sealing rings/boots). Ensure that the anti fouling does not enter the space between the propellers and the gear leg.)**



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Always check the error code on the control panel before seeking assistance from the website help desk or from your Sleipner dealer/distributor. The error code is basic information for further action.

If you are unable to understand what to check, you must consult a Sleipner distributor.

Troubleshooting matrix	
Situation	Action
Thruster is not operating or malfunction	Note the error code on the thruster control panel. Refer to the alarm and error code topics in this manual for identifying the problem, and possible solutions. Contact a Sleipner distributor or service department for further support and assistance.
	In the thruster compartment, check if the hydraulic motor is running when operating the thruster. (Operate the control panel from the bridge while a person observes the thruster from the thruster compartment).

Fault Code	Fault Name	Fault Description	Action
106.202.0	Emergency Stop Bow -	Bow emergency stop is button activated	-Release bow emergency stop
106.203.0	Emergency Stop Bow Starboard -	Bow Starboard emergency stop is button activated	-Release bow starboard emergency stop
106.204.0	Emergency Stop Bow Port -	Bow Port emergency stop is button activated	-Release bow port emergency stop
106.205.0	Emergency Stop Stern -	Stern emergency stop is button activated	-Release stern emergency stop
106.206.0	Emergency Stop Stern Starboard -	Stern Starboard emergency stop is button activated	-Release stern starboard emergency stop
106.207.0	Emergency Stop Stern Port -	Stern Port emergency stop is button activated	-Release stern port emergency stop
10500.0.10	PHC Oil Level - Level Low	Hydraulic oil level is low	"-Limit use of thruster -Inspect hydraulic oil level -Check system for leaks and refill hydraulic oil"
10500.0.13	PHC Oil Level - Open Circuit	Analog oil level sensor open circuit	"-Sensor not connected or wire break. -Verify sensor type in parameter 0201 -Disconnect sensor and measure that sensor resistance value is in range 0-180ohm."
10501.0.11	PHC Oil Temp - Level High	Oil temperature higher than 75°C (167°F)	"-Limit use of thruster to prevent temperature to rise. -Check if cooling pump is running and there is cooling water flow. -Inspect seawater filter -Verify that cooling pump is enabled in parameter 0301"
10501.0.13	PHC Oil Temp - Open Circuit	Analog oil temp sensor open circuit	"-Sensor not connected or wire break. - Disconnect sensor and measure that sensor resistance value is in range 104ohm-147Kohm -Wrong sensor is defined in parameter 0201"
10501.0.16	PHC Oil Temp - Short Circuit	Analog oil temp input short circuit	"-Input shorted to GND, check wiring/sensor -Disconnect sensor and measure that sensor resistance value is in range 104ohm-147Kohm"
10501.0.55	PHC Oil Temp - Overtemp	Hydraulic oil temperature has been higher than 120°C (248°F).	"-Wait for oil temperature to cool down. -Check oil level and refill if level is low. -Check if cooling pump is running. -Check if cooling system gets water"
10502.0.13	PHC Stabilizer Pressure - Open Circuit	Stabilizer pressure sensor open circuit	"-Sensor not connected or wire break. -System incorrectly configured with stabilizer, parameter 1001 -Replace sensor"
10502.0.16	PHC Stabilizer Pressure - Short Circuit	Stabilizer pressure sensor short circuit	"-Wires shorted or sensor defective, check wiring/sensor -Replace sensor"
10502.0.19	PHC Stabilizer Pressure - Under Limit	Stabilizer pressure has dropped below 20bar.	"-Check accumulator charge pressure -Check PTO pressure (if PTO powered) -Check system for oil leaks -Check generator power supply to the VFD (is VFD motor speed maximum when pressure alarming low)"
10502.0.20	PHC Stabilizer Pressure - Over Limit	"Stabilizer pressure is higher than: parameter 1013 PTO OVER-PRESSURE FAULT LEVEL running from PTO (FW V1.029 an older, set point + 30bar running from PTO) or set point + 15bar running from AC motor"	"-Check Parameter 1013 PTO OVER-PRESSURE FAULT LEVEL -Check PTO pressure setting -Check accumulator charge pressure -Check unload valve operation"
10502.0.26	PHC Stabilizer Pressure - VALUE MAX	Stabilizer pressure reached sensor max value.	"-Check that correct sensor is fitted -Check that sensor range parameter 1010 match the sensor -Check PTO pressure setting"
10502.0.200	PHC Stabilizer Pressure - Timeout	Stabilizer pressure has not reached 60% of set point parameter 1003 after 30sec.	"-Check pump feed shutoff valve. -Check PTO pressure (if PTO powered) -Check system for oil leaks"
10503.0.13	PHC System Pressure - Open Circuit	System pressure sensor open circuit	"-Sensor not connected or wire break. -Verify system pressure, parameter 0104"
10503.0.16	PHC System Pressure - Short Circuit	System pressure sensor short circuit	"-Wires shorted or sensor defective, check wiring/sensor -Replace sensor"
10504.0.13	PHC AI 1 - Open Circuit	Analog Input 1 (4-20mA) sensor open circuit	-Sensor not connected or wire break.
10504.0.16	PHC AI 1 - Short Circuit	Analog Input 1 (4-20mA) sensor short circuit	"-Wires shorted or sensor defective, check wiring/sensor -Replace sensor"
10505.0.13	PHC AI 2 - Open Circuit	Analog Input 2 (4-20mA) sensor open circuit	-Sensor not connected or wire break.

Fault Code	Fault Name	Fault Description	Action
10505.0.16	PHC AI 2 - Short Circuit	Analog Input 2 (4-20mA) sensor short circuit	"-Wires shorted or sensor defective, check wiring/sensor -Replace sensor"
10508.0.13	PHC DOUT AC PUMP UNLOAD - Open Circuit	AC Pump Unload valve open circuit	"-Check for open circuit, power consumption < 5.0 Watt -System incorrectly configured with stabilizer, parameter 1001"
10508.0.51	PHC DOUT AC PUMP UNLOAD - Current High	AC Pump Unload valve current higher than 4.0A	-Check wires and connections for short circuit
10509.0.13	PHC DOUT ACCUMULATOR DUMP - Open Circuit	Accumulator Dump valve open circuit	"-Check for open circuit, power < 5.0 Watt -System incorrectly configured with stabilizer, parameter 1001"
10509.0.51	PHC DOUT ACCUMULATOR DUMP - Current High	Accumulator Dump valve current higher than 4.0A	-Check wires and connections for short circuit
10510.0.13	PHC DOUT STABILIZER - Open Circuit	Stabilizer valve open circuit	"-Check for open circuit, power consumption < 5.0 Watt -System incorrectly configured with stabilizer, parameter 1001"
10510.0.51	PHC DOUT STABILIZER - Current High	Stabilizer valve current higher than 4.0A	-Check wires and connections for short circuit
10511.0.13	PHC DOUT COOLING PUMP HYDRAULIC - Open Circuit	Hydraulic Cooling Pump valve open circuit	"-Check for open circuit, power consumption < 5.0 Watt -Wrong cooling pump configured, parameter 0301"
10511.0.51	PHC DOUT COOLING PUMP HYDRAULIC - Current High	Hydraulic Cooling Pump valve current higher than 4.0A	-Check wires and connections for short circuit
10512.0.13	PHC DOUT LS DUMP - Open Circuit	LS-Dump valve open circuit	"-Check for open circuit, power consumption < 5.0 Watt -System wrong configured with thrusters, parameter 2001 or 2101"
10512.0.51	PHC DOUT LS DUMP - Current High	LS-Dump valve current higher than 4.0A	-Check wires and connections for short circuit
10513.0.51	PHC DOUT PUMP #2 - Current High	Pump #2 valve current higher than 4.0A	-Check wires and connections for short circuit
10514.0.13	PHC DOUT 5 - Open Circuit	Digital Output 5 is configured as crossover and output is open circuit	"-Check for open circuit, power consumption < 5.0 Watt -Output configured wrong, parameter 0505"
10514.0.51	PHC DOUT 5 - Current High	Digital Output 5 current higher than 4.0A	-Check wires and connections for short circuit
10515.0.13	PHC DOUT 6 - Open Circuit	Digital Output 6 is configured as crossover and output is open circuit	"-Check for open circuit, power consumption < 5.0 Watt -Output configured wrong, parameter 0506"
10515.0.51	PHC DOUT 6 - Current High	Digital Output 6 current higher than 4.0A	-Check wires and connections for short circuit
10516.0.13	PHC DOUT 3 - Open Circuit	Digital Output 3 is configured as crossover and output is open circuit	"-Check for open circuit, power consumption < 5.0 Watt -Output configured wrong, parameter 0503"
10516.0.51	PHC DOUT 3 - Current High	Digital Output 3 current higher than 4.0A	-Check wires and connections for short circuit
10517.0.13	PHC DOUT 2 - Open Circuit	Digital Output 2 is configured as crossover and output is open circuit	"-Check for open circuit, power consumption < 5.0 Watt -Output configured wrong, parameter 0502"
10517.0.51	PHC DOUT 2 - Current High	Digital Output 2 current higher than 4.0A	-Check wires and connections for short circuit
10518.0.13	PHC DOUT 1 - Open Circuit	Digital Output 1 is configured as crossover and output is open circuit	"-Check for open circuit, power consumption < 5.0 Watt -Output configured wrong, parameter 0501"
10518.0.51	PHC DOUT 1 - Current High	Digital Output 1 current higher than 4.0A	-Check wires and connections for short circuit
10519.0.13	PHC DOUT 4 - Open Circuit	Digital Output 4 is configured as crossover and output is open circuit	"-Check for open circuit, power consumption < 5.0 Watt -Output configured wrong, parameter 0504"
10519.0.51	PHC DOUT 4 - Current High	Digital Output 4 current higher than 4.0A	-Check wires and connections for short circuit
10520.0.51	PHC ECI PUMP POWER FEED - Current High	ECI cooling pump power current higher than 8.0A	"-Check pump cable for damage and short circuits -Make sure the connector on the cooling pump is correct inserted. -Replace cooling pump"
10521.0.51	PHC Bow Thruster Power - Current High	Bow thruster PVG feed current higher than 3.0A	-Check PVG wires and connections for short circuit
10522.0.51	PHC Stern Thruster Power - Current High	Stern thruster PVG feed current higher than 3.0A	-Check PVG wires and connections for short circuit
10523.0.51	PHC Thruster Power - Current High	Bow or Stern PVG feed current higher than 3.3A	Check all bow and stern PVG signal wires for short circuits
10524.0.51	PHC ECI Cooling Pump - Current High	ECI cooling pump current higher than 13.0A	"-Check ECI cooling pump cable for damage and short circuits -Replace ECI cooling pump"
10524.0.53	PHC ECI Cooling Pump - Overvoltage	ECI cooling pump overvoltage, voltage higher than 33.0V	"-Check PHC-3 input voltage is below 33.0V -Replace ECI cooling pump"
10524.0.54	PHC ECI Cooling Pump - Undervoltage	ECI cooling pump under voltage, voltage is lower than 18.0V	"-Check PHC-3 input voltage is higher than 18.0V -Replace ECI cooling pump"
10524.0.55	PHC ECI Cooling Pump - Overtemp	ECI cooling pump temperature higher than 100°C (212°F).	"-Check ECI cooling pump for damages -Replace ECI cooling pump"
10524.0.100	PHC ECI Cooling Pump - No Communication	No communication with ECI cooling pump	"-Check if ECI pump is connected -Check wires to ECI pump for open circuits -Check power supply cooling pump -Wrong cooling pump configured, parameter 0301"
10524.0.205	PHC ECI Cooling Pump - HW FAULT	ECI cooling pump hardware fault	-Replace ECI cooling pump
10526.0.0	PHC ECI Cooling Pump Blocked - -	ECI cooling pump is blocked	"-Reset fault and if fault reappears, cooling pump need service or replacement. -Check pump inlet for obstacles"

Fault Code	Fault Name	Fault Description	Action
10527.1.0	PHC VFD Not Ready Instance 1 -	VFD not ready	-VFD external run enable/power available signal is lost.
10528.1.10	PHC VFD ABB Parameter Instance 1 Level Low	ABB ACS550 parameter values 2001 or 2002 cannot be a negative value.	-Check ABB ACS550 parameter 2001 and 2002.
10529.0.19	PHC ECI Cooling Pump Speed - Under Limit	ECI pump motor speed under limit. Motor speed is below 100 rpm, or not getting minimum 750 rpm within 3 seconds.	"-Check hose for dirt -Check pump inlet for obstacles"
10530.0.201	PHC PTO ENGINE INSTANCE - INIT FAIL	Parameter 1011-PTO ENGINE INSTANCE is not defined	-Set parameter 1011-PTO ENGINE INSTANCE
10531.0.100	CC MODULE - No Communication	No communication with CC Module	"-Check if CC Module is connected -Check wires to CC Module for open circuits -Check power supply CC Module"
10532.0.24	CC MODULE AC PUMP - Fault	The CC Module AC pump circuit is open and pump is not running	"-Check if AC generator is running -Check if the AC pump contactor is tripped -Check wires to the pump for open circuit"
10533.0.24	CC MODULE DC PUMP - Fault	The CC Module DC pump circuit is open and pump is not running	"-Check if DC pump contactor has 24VDC -Check if the DC pump contactor is tripped -Check wires to the DC pump for open circuit"
10600.202.208	Retract Controller Bow INTERLOCK	Retract Interlock Bow	"-Check if retract is deployed. -No communication with Retract Controller, check if Retract Controller has power and S-link communication. -Check PHC-3 and Retract Controller for correct setup."
10600.203.208	Retract Controller Bow Starboard INTERLOCK	Retract Interlock Bow Starboard	"-Check if retract is deployed. -No communication with Retract Controller, check if Retract Controller has power and S-link communication. -Check PHC-3 and Retract Controller for correct setup."
10600.204.208	Retract Controller Bow Port INTERLOCK	Retract Interlock Bow Port	"-Check if retract is deployed. -No communication with Retract Controller, check if Retract Controller has power and S-link communication. -Check PHC-3 and Retract Controller for correct setup."
10600.205.208	Retract Controller Stern INTERLOCK	Retract Interlock Stern	"-Check if retract is deployed. -No communication with Retract Controller, check if Retract Controller has power and S-link communication. -Check PHC-3 and Retract Controller for correct setup."
10600.206.208	Retract Controller Stern Starboard INTERLOCK	Retract Interlock Stern Starboard	"-Check if retract is deployed. -No communication with Retract Controller, check if Retract Controller has power and S-link communication. -Check PHC-3 and Retract Controller for correct setup."
10600.207.208	Retract Controller Stern Port INTERLOCK	Retract Interlock Stern Port	"-Check if retract is deployed. -No communication with Retract Controller, check if Retract Controller has power and S-link communication. -Check PHC-3 and Retract Controller for correct setup."
36000.1.24	ABB ACS550 Instance 1 Fault	ABB ACS550 fault	Se ABB ACS550 drive for more details
36002.1.24	VACON Instance 1 Fault	VACON VFD Fault	Se VACON drive for more details
36003.1.24	ABB ACS580 Instance 1 Fault	ABB ACS580 fault	Se ABB ACS580 drive for more details
36004.1.24	EHP Instance 1 Fault	EHP Fault	-See fault from EHP for more details
36100.1.100	VFD Instance 1 No Communication	Lost communication with VFD	"-VFD not powered up -VFD communication cable not connected or incorrectly wired -On the VFD make sure the RS485 BUS TERMINATION is in ON position"
36103.1.0	VFD IN LOCAL Instance 1 -	VFD in local mode	-Switch VFD to remote mode

Fault Code	Fault Name	Fault Description	Action
100.0.0	System Error - -	System Error	Contact Slepner Dealer
153.0.151	Supply Voltage - Self-Test Fault	Failed to determine voltage level of the system / Out of range.	Verify that the correct battery was chosen for this system and that it is properly charged.
10600.0.101	Retract Controller - Bus Off	Actuator CAN experienced Bus Off/Bus error.	Verify CAN cables to the actuators are correctly connected.
10600.0.210	Retract Controller - Service Mode	In Service Mode.	Exit service mode by using button controls.
10602.0.22	Retract Motion OUT Fault - Out of position	Lift or Lock Actuators went past their expected end-position when hatch deploying.	Inspect actuators and lifting arms for visual damage. Check fault specific data for more info. Contact Slepner Dealer if problem is not resolved.
10602.0.51	Retract Motion OUT Fault - Current High	Blocked while deploying hatch.	Find and remove cause of mechanical blockage.
10603.0.22	Retract Motion IN Fault - Out of position	Lift or Lock Actuators went past their expected end-position when hatch retracting.	Inspect actuators and lifting arms for visual damage. Verify that the hatch fits the hull according to specification. Check fault specific data for more info. Contact Slepner Dealer if problem is not resolved.
10603.0.51	Retract Motion IN Fault - Current High	Blocked while retracting hatch.	Find and remove cause of mechanical blockage.
10605.1.24	Lift Actuator Instance 1 Fault	Lift Actuator 1 Reported a Fatal Error	Contact Slepner Dealer.
10605.1.53	Lift Actuator Instance 1 Overvoltage	Lift Actuator 1 Measured Overvoltage	Verify that the correct battery was chosen for this system.
10605.1.54	Lift Actuator Instance 1 Undervoltage	Lift Actuator 1 Measured Undervoltage	Verify that battery is charged.
10605.1.55	Lift Actuator Instance 1 Overtemp	Lift Actuator 1 Temperature Exceeding >85C	Find and eliminate cause of high temperature.
10605.1.100	Lift Actuator Instance 1 No Communication	Lift Actuator 1 Not Communicating	Verify that CAN and supply cables are correctly connected, and that no fuses have gone out.
10605.1.209	Lift Actuator Instance 1 MOTION FAULT	Lift Actuator 1 experienced linear motion while it was supposed to be in a fixed position. Load might have caused backdrive.	Look for mechanical obstruction/causes for the backdrive and remove them.
10605.2.24	Lift Actuator Instance 2 Fault	Lift Actuator 2 Reported a Fatal Error	Contact Slepner Dealer.
10605.2.53	Lift Actuator Instance 2 Overvoltage	Lift Actuator 2 Measured Overvoltage	Verify that the correct battery was chosen for this system.
10605.2.54	Lift Actuator Instance 2 Undervoltage	Lift Actuator 2 Measured Undervoltage	Verify that battery is charged.
10605.2.55	Lift Actuator Instance 2 Overtemp	Lift Actuator 2 Temperature Exceeding >85C	Find and eliminate cause of high temperature.
10605.2.100	Lift Actuator Instance 2 No Communication	Lift Actuator 2 Not Communicating	Verify that CAN and supply cables are correctly connected, and that no fuses have gone out.
10605.2.209	Lift Actuator Instance 2 MOTION FAULT	Lift Actuator 2 experienced linear motion while it was supposed to be in a fixed position. Load might have caused backdrive.	Look for mechanical obstruction/causes for the backdrive and remove them.
10606.1.24	Lock Actuator Instance 1 Fault	Lock Actuator 1 Reported a Fatal Error, could be broken.	Contact Slepner Dealer.
10606.1.53	Lock Actuator Instance 1 Overvoltage	Lock Actuator 1 Measured Overvoltage	Verify that the correct battery was chosen for this system.
10606.1.54	Lock Actuator Instance 1 Undervoltage	Lock Actuator 1 Measured Undervoltage	Verify that battery is charged.
10606.1.55	Lock Actuator Instance 1 Overtemp	Lock Actuator 1 Temperature Exceeding >85C	Find and eliminate cause of high temperature.
10606.1.100	Lock Actuator Instance 1 No Communication	Lock Actuator 1 Not Communicating	Verify that CAN and supply cables are correctly connected, and that no fuses have gone out.
10606.1.209	Lock Actuator Instance 1 MOTION FAULT	Lock Actuator 1 experienced linear motion while it was supposed to be in a fixed position. Load might have caused backdrive.	Look for mechanical obstruction/causes for the backdrive and remove them.
10607.0.209	Actuator Alignment Fault - MOTION FAULT	There was a position discrepancy between the lift actuators, but alignment failed.	Look for mechanical obstruction/causes for alignment failure.
40008.0.206	Sensor Fault 6 - WRITE FAIL	EEPROM failed to write.	Contact Slepner Dealer.

In the event that the thruster has a malfunction, and is locked in the outer position, there is a possibility to retract the thruster manually.

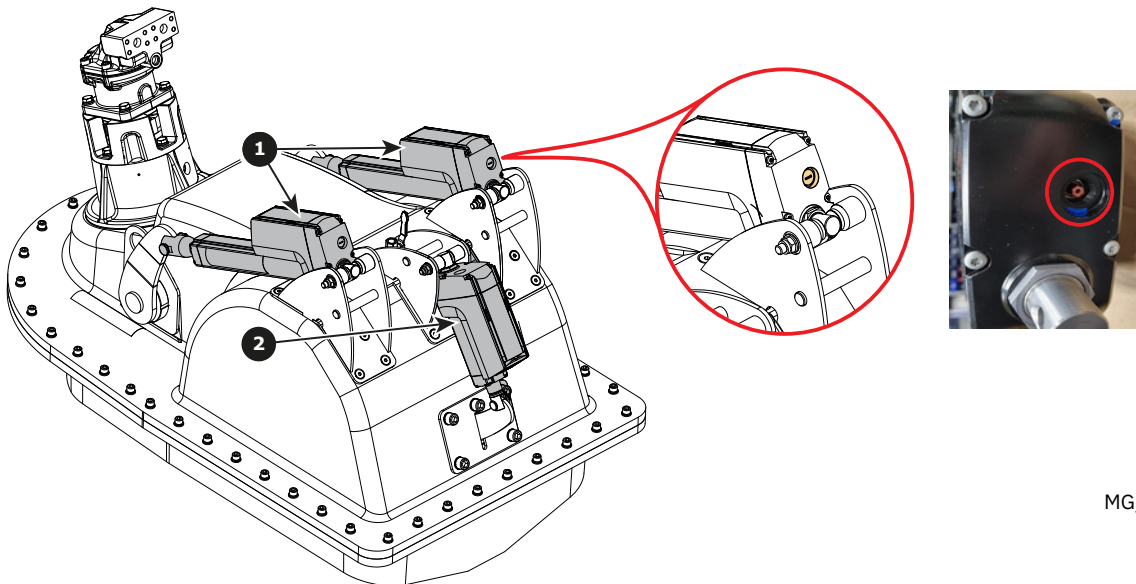
Follow the procedure described below to solve this situation.

Note: If possible, try to find the root cause of the situation, before starting the manual retract process.

- 1: Remove the plastic covers from the hatch actuators (**Item 1**), using a suitable screwdriver. When removed, a 6mm hexagon pin is visible.
- 2: Turn the hexagon pin manually counterclockwise to close the hatch, using a 6mm socket wrench tool. (Use either a hand tool or a drill).

Each retract actuator (Item 1) must be turned alternatively until the actuators are completely in their outer positions, and the hatch is closed.

- 3: The hatch is closed when the actuators are in the outer position, or when an increased torque is required to turn the hexagon pin.
- 4: Remove the plastic cap from the thruster lock actuator (**Item 2**).
- 5: Lock the hatch in the closed position by turning the 6mm hexagon pin counterclockwise until the actuator has moved 40-45mm from open position. (Or until an increased torque is observed when turning the hexagon pin).



MG_0787

Maintenance items	Date of execution											
Vessel in water checkpoints												
Vessel out of water checkpoints												
Vessel in water checkpoints												
Vessel out of water checkpoints												
Vessel in water checkpoints												
Vessel out of water checkpoints												
Vessel in water checkpoints												
Vessel out of water checkpoints												

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

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