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Installation Guide

For Electric Retractable Thruster Models

SR80, SR100

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Contents

WARNING
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_0627

MC_0020

WARNING
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

Responsibility of the installer MC_0038

General:

- The installer must read this document to ensure necessary familiarity with the product before installation.
- Directions outlined in this document cannot be guaranteed to comply with all international and national regulations, including but not limited to health and safety procedures. It is the installers responsibility to adhere to all applicable international and national regulations when installing Sleipner products.
- This document contains general installation guidelines intended to support experienced installers. Contact professional installers familiar with the vessel, Sleipner products and applicable regulations if assistance is required.
- If local regulation requires any electrical work to be performed by a licensed professional, seek a licensed professional.
- When planning the installation of Sleipner products, ensure easy access to the products for future service and inspection requirements.

For retract thrusters: MC_0474

- The installation position of stern-mounted retract thrusters must not conflict with the propulsion propellers or their water trail. ***(NB: consult a naval architect for an exact position.)***
- Paint inside the retract housing with anti-fouling. ***(NB: Do not paint the drive shaft.)***

For Sleipner thruster systems: MC_0425

- Do not install the thruster system in any position that requires modification of hull stiffeners or stringers. This might jeopardize the hull integrity. Consult with the boat builder to see if this can be done safely if absolutely necessary.
- Never run the thruster out of water. The propeller will reach extremely high speed, damaging the thruster.
- The thruster motor must be handled with care. Do not rest the motor on its drive shaft, as its weight can damage it.

For on-board electric motor driven systems: MC_0031

- Ensure motors installed in small compartments are dry and well-ventilated to allow the electric motor to cool.
- The electric motor, components, and cables must be mounted to remain dry.
- The electric motor can reach over 100°C before activating the temperature switch. Any loose items near the thruster motor are a potential fire hazard and can cause short-circuiting.
- The thruster power supply circuit must include the recommended sized fuse and a battery isolation switch.
- Avoid running cables near any heat sources since this might damage the insulation. Broken insulation could potentially lead to hazards and damage products.

For DC electric motors: MC_0426

- The electric motor will generate some carbon dust. Storage compartments must be separated from the thruster to prevent nearby items becoming dirty. ***(NB: IP version motors generate dust but are enclosed.)***

For lithium batteries powering ON/OFF thruster systems: MC_0501

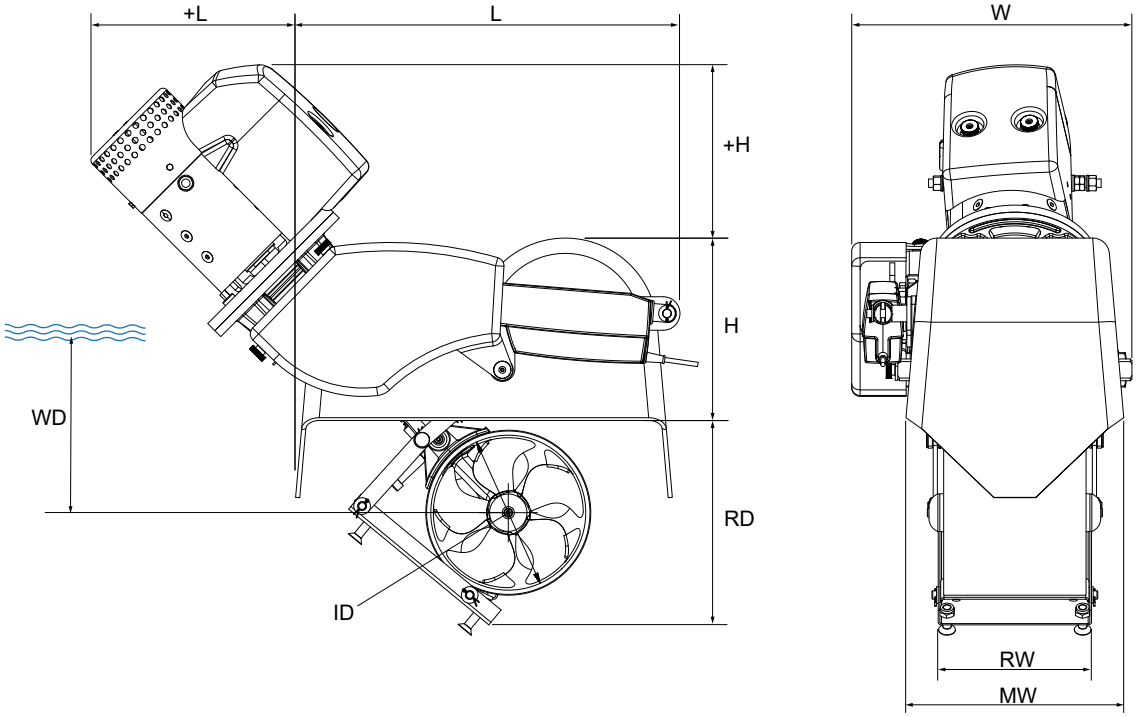
- High capacity lithium batteries are capable of supplying a higher operating voltage to the motor than the ON/OFF thrusters are rated for. Running thrusters at higher than rated voltage will reduce operating time, increase wear and damage the thruster. Operating the thruster outside specified ratings will void warranty.

For Sleipner S-Link™ systems: MC_0105

- When installing an S-Link™ system, connect ONLY original Sleipner S-Link™ products or other authorized control equipment directly to the S-Link™ bus. When connecting non-authorized third-party equipment, it must always be connected through a Sleipner-supplied interface product.
- Any attempt to directly control or connect to the S-Link™ control system without a designated and approved interface from Sleipner will void all warranties and responsibilities of the connected Sleipner products. If you interface the S-Link™ bus by agreement with Sleipner through a designated Sleipner-supplied interface, you are still required to install at least one original Sleipner control panel to enable efficient troubleshooting if necessary.

Measurement code	Measurement description	SR80 12v mm	SR80 12v inch	SR80 24v mm	SR80 24v inch	SR100 12v mm	SR100 12v inch	SR100 24v mm	SR100 24v inch
+ L	Additional Length	271	10.67	271	10.67	301	11.85	300	11.81
L	Length	449	17.68	449	17.68	449	17.68	449	17.68
+ H	Additional Height	195	7.68	195	7.68	233	9.17	233	9.17
H	Height	232	9.13	232	9.13	232	9.13	232	9.13
RD	Retract depth	227	8.94	227	8.94	227	8.94	227	8.94
ID	Internal Tunnel Diameter	185	7.3	185	7.3	185	7.3	185	7.3
RW	Retract width	183	7.2	183	7.2	183	7.2	183	7.2
MW	Mould width	269	10.59	269	10.59	269	10.59	269	10.59
WD	Water depth	185	7.3	185	7.3	185	7.3	185	7.3
W	Width	335	13.2	335	13.2	335	13.2	335	13.2

*Valid for SR & SRP



MG_0201

Product Specifications

MC_0607

Product	Nominal Operating Voltage*	Thrust at stated operating voltage*		Power Output	Weight	Maximum Operation Time
SR80 12V	10.5V	80 kg / 176 lbs (10.5V)	96 kg / 212 lbs (12V)	4.4 kW / 6 hp	31 kg / 61 lbs	S2 2-3 min. At 20°C ambient temperature
SR80 24V	21V	80 kg / 176 lbs (21V)	96 kg / 212 lbs (24V)	4.4 kW / 6 hp	31 kg / 61 lbs	
SR100 12V	10.5V	100 kg / 220 lbs (10.5V)	116 kg / 256 lbs (12V)	6.3 kW / 8.4 hp	44 kg / 97 lbs	
SR100 24V	21V	100 kg / 220 lbs (21V)	116 kg / 256 lbs (12V)	6.3 kW / 8.4 hp	44 kg / 97 lbs	

*Voltage measured at motor terminals when thruster is running

Hull specifications

MC_0609

Use sealants, adhesives or bonding material compatible with the materials of your vessels hull and Sleipner product.
For information regards the material in Sleipner products, see table.

Product		Resin
Housing	SR(P)80/100	Polyester
Flange	SRF-185-GRP	Polyester
Flange	SRF-250-GRP	Polyester
Flange	SRF-300-GRP	Polyester
Flange	SRF-386-GRP	Polyester

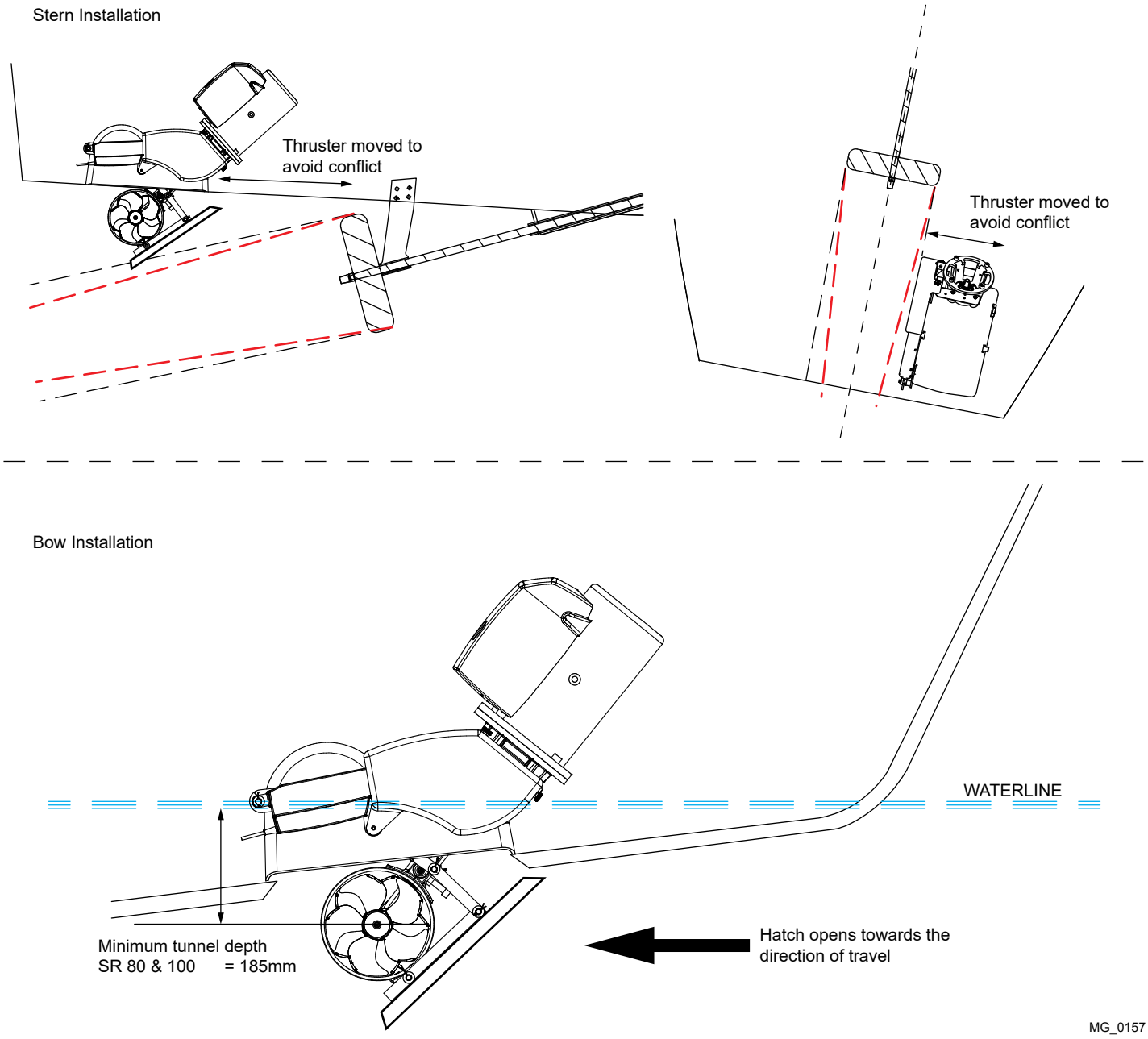
Positioning of the Retract thruster

Retract Thruster
Ensure enough space for the complete retract unit including room for installation of the flange and for future service. Allow 100 mm of clear space around the thruster for moulding of the flange. Ensure that when the thruster is deployed the depth of the propeller exceeds the minimum tunnel depth defined in below table. The thruster must always be installed so the hatch is opened towards the bow.

Installing the thruster below the waterline as outlined is important for two reasons:
1. Avoid drawing air from the surface which will reduce performance and increase noise levels.
2. To get as much water pressure as possible to achieve maximum thrust.

Bow installation
The thruster must be installed in the center line of the keel and as far forward as possible while following the minimum tunnel depth requirement.

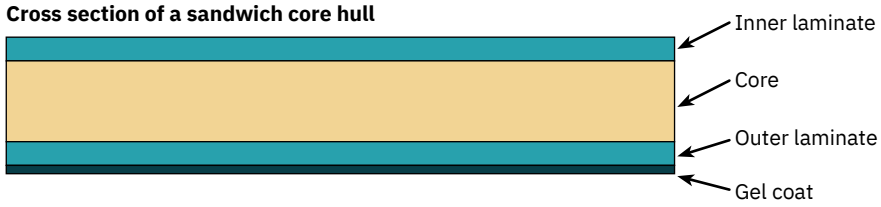
Stern installation
To avoid conflict between the thruster and propulsion propellers, trim tabs or rudders the stern installation can be offset from the keel center line.



Preparing a Sandwich Hull for Retract Systems

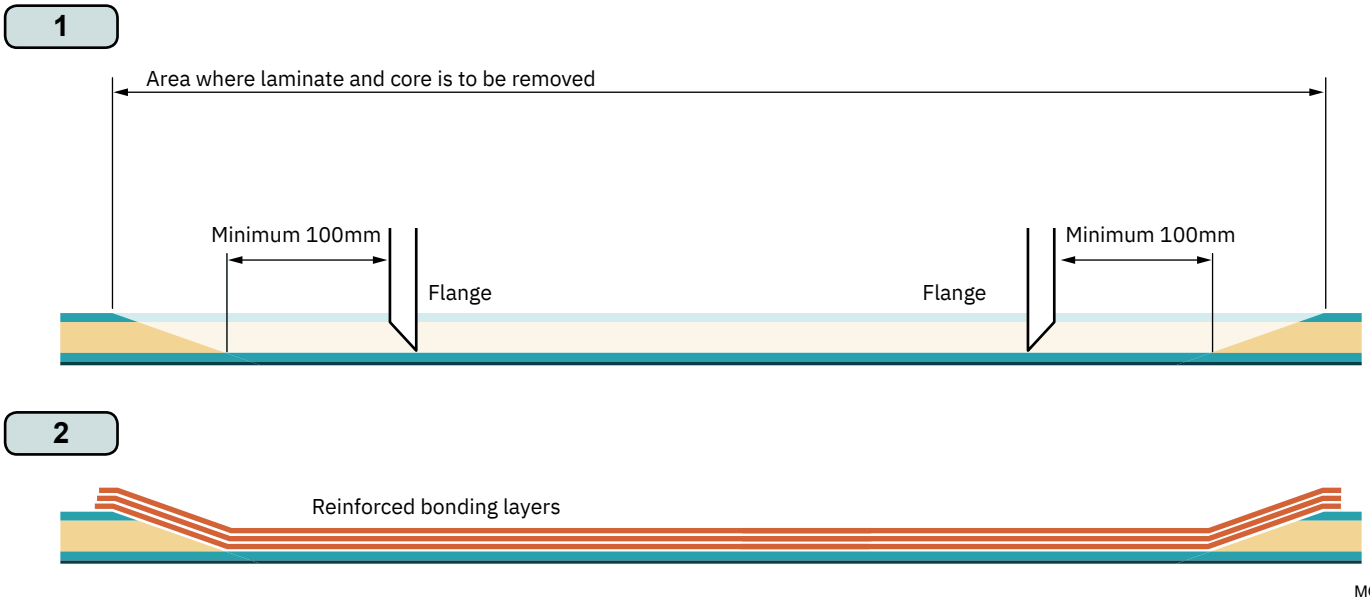
MC_1024

For vessels with sandwich hull construction, additional reinforcement of the area around the flange is required.



1. To achieve maximum strength and bonding in the area around the installation of the flange remove the inner laminate and core material to expose the outer laminate. Remove enough area for a 100mm (minimum) clearance surrounding the flange.

2. Reinforce the area by applying several bonding layers to strengthen the hull for the operation of the retract thruster.



MG_1032

Marking and Trimming of Retract Housing

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

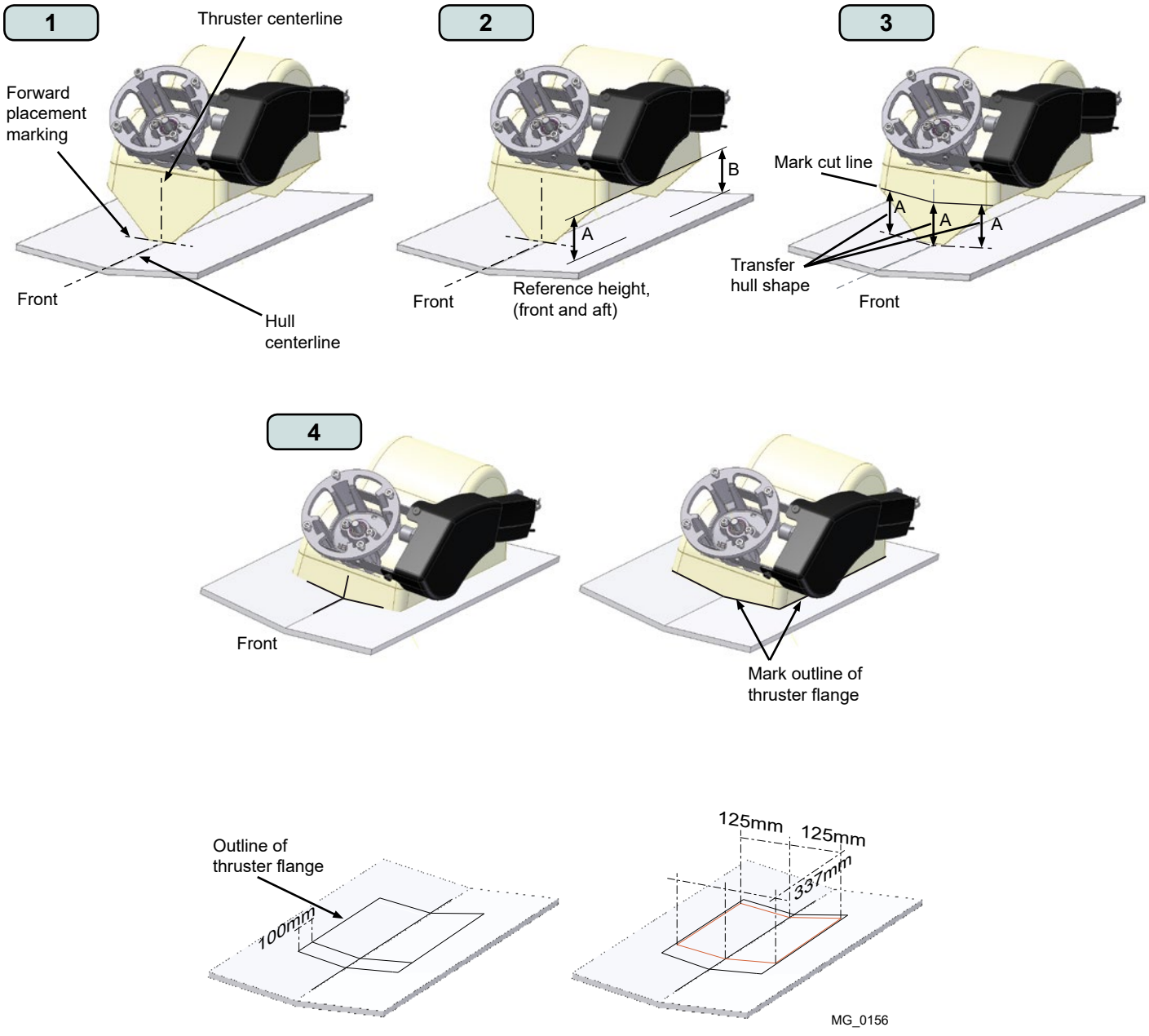
1. Identify the location of the thruster considering space required for installation, operation and future maintenance. Mark the keel centre line on the inside of the hull.

2. Measure the height from the hull to the bottom edge of the retract housing using a drawing compass. Mark the front and rear of the retract housing tabs using the compass set to the pre-measured height to transfer the hull profile. ***(NB: Ensure the mould is centred for Bow installations, Stern installations do not require to be centred.)***

3. Cut the retract housing tabs to match the hull profile. The retract housing must sit so the two side rails run flush with the length of the hull. To do so the retract housing tabs must be trimmed down to match the hull profile curvature. ***(NB: Consult a naval architect for methods to transfer the hull profile to the retract housing. DO NOT cut the retract housing length edge.)***

4. Mark the outside profile of the retract housing on the hull. Draw a line 100mm behind the front outline, this marks the front cut line for the hatch. ***(NB: hatch sides is 115mm from centerline, aft cut line is 325mm from front cut line. For hole placement see figure 5)***

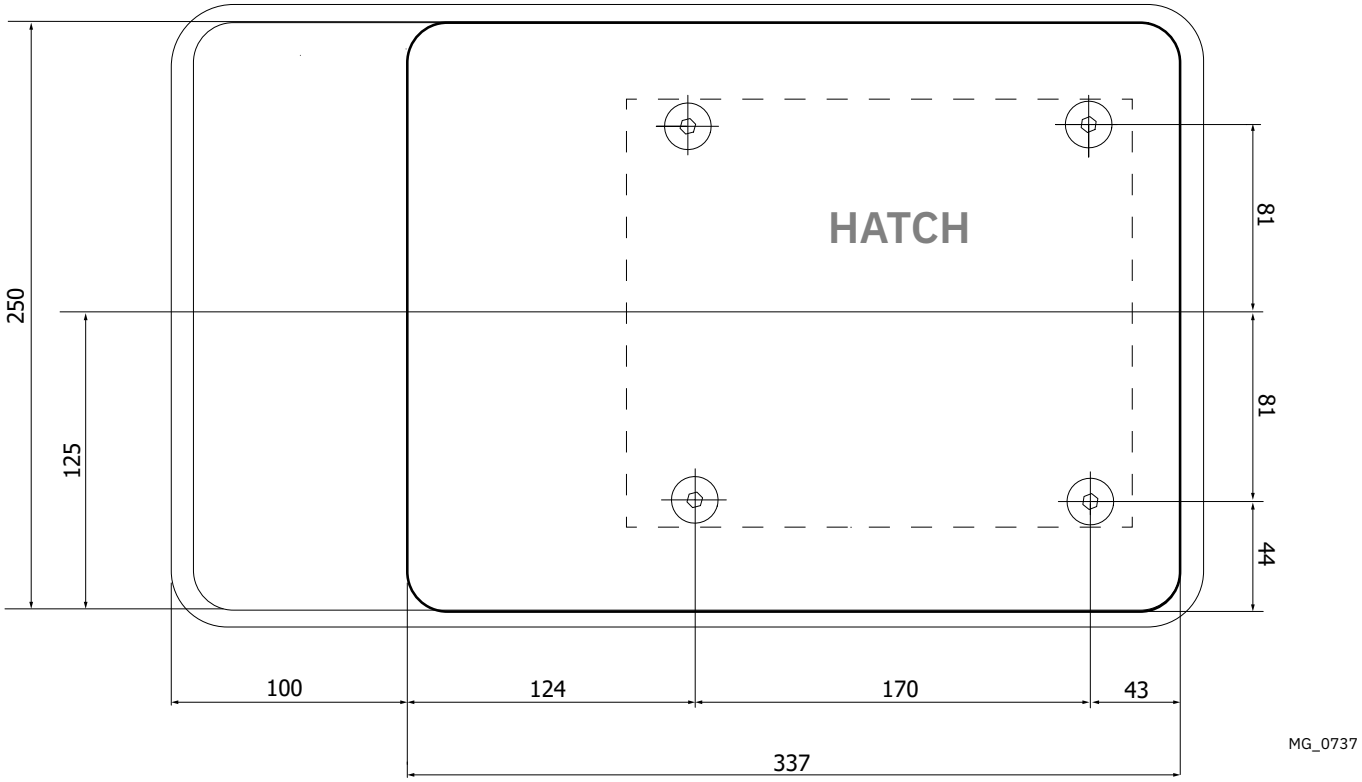
5. Cut the hatch door and drill the attachment holes. The hatch opening must be cut at an angle of 45º on three sides and 30º on the bow face. This allows any water forces hitting the hatch while closed to be absorbed by the hull, not the thruster. ***(NB: Use a suitable cutting tool able to be set to the desired angle. If cutting from outside the hull drill 4 holes from the internal marked corners to see the required profile from the outside.)***



Marking and Trimming of Retract Housing

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

5



Installation Pre-check

MC_0118

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

1. Temporarily set up the complete installation to ensure no conflicts during the final operation of the thruster.

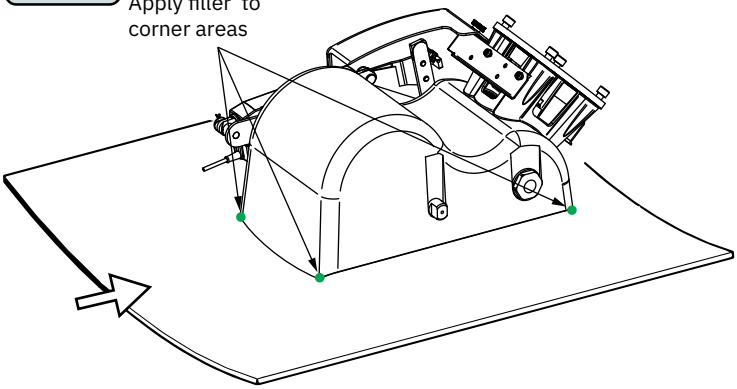
2. While supporting the retract hatch, disconnect the actuator from the front mounting point. Carefully swing the tunnel out of the hull. Ensure that the drive shaft is not overextended. Peopple outside the hull recomended to control the tunnel movement.

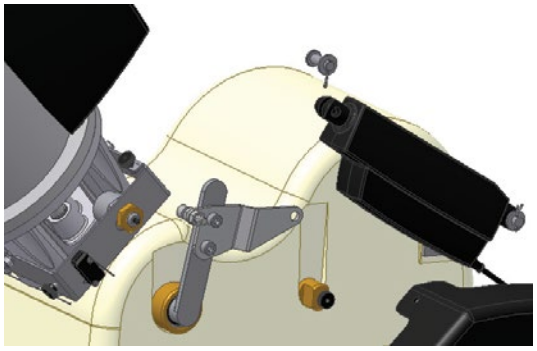
3. Temporarily attach the hatch and check the hatch opens fully without touching the hull. If the hatch is obstructed by the hull, lift the aft end of the SR housing maintaining the reference height in front - until the hatch clears the hull when opened.

4. Ensure when the hatch is closed extra pressure is on the contact surface between the hatch and the hull only. If the hatch is not closing with pressure on the contact surfaces the entire SR housing must be raised. ***(NB: After all, pre-checks are completed the SR system can be installed.)***

1

Apply filler to corner areas





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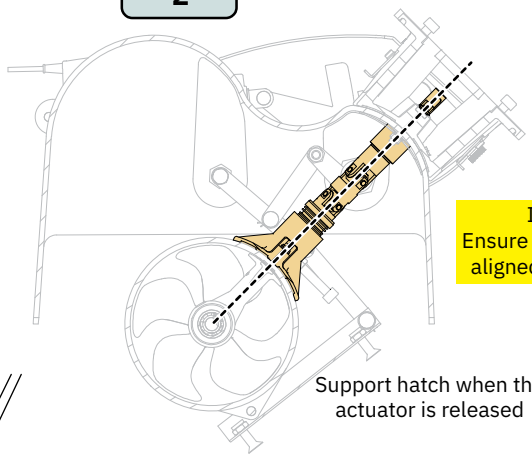
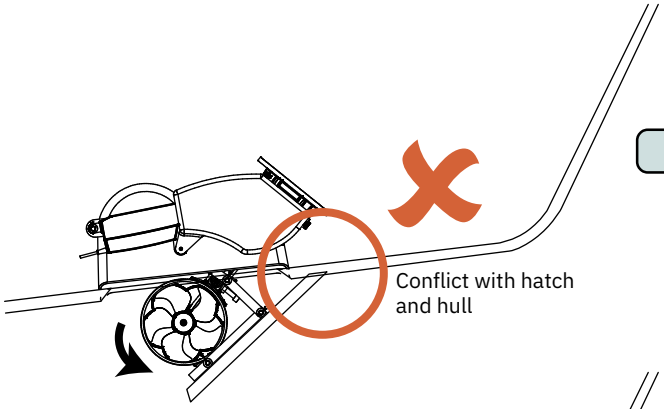


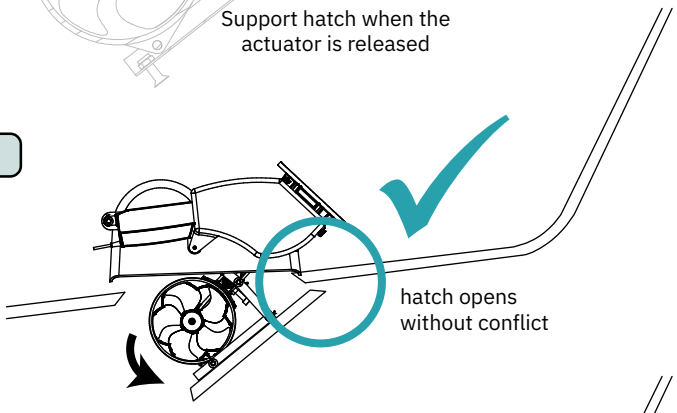
Important
Ensure drive shaft stays aligned when opening

Support hatch when the actuator is released

3

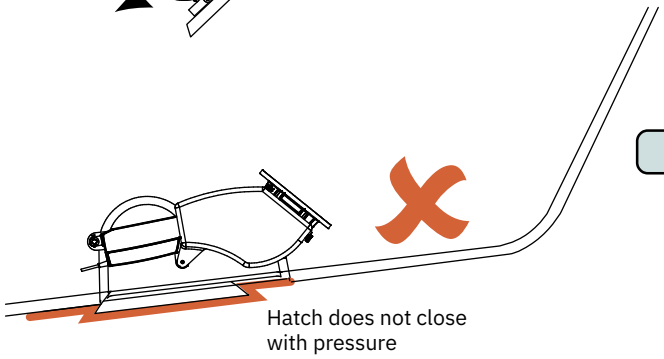


Conflict with hatch and hull

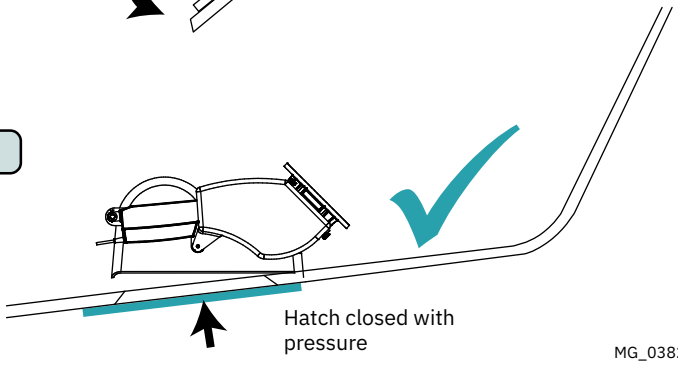


hatch opens without conflict

4



Hatch does not close with pressure



Hatch closed with pressure

MG_0382

Required Modifications After Pre-check

MC_0118

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

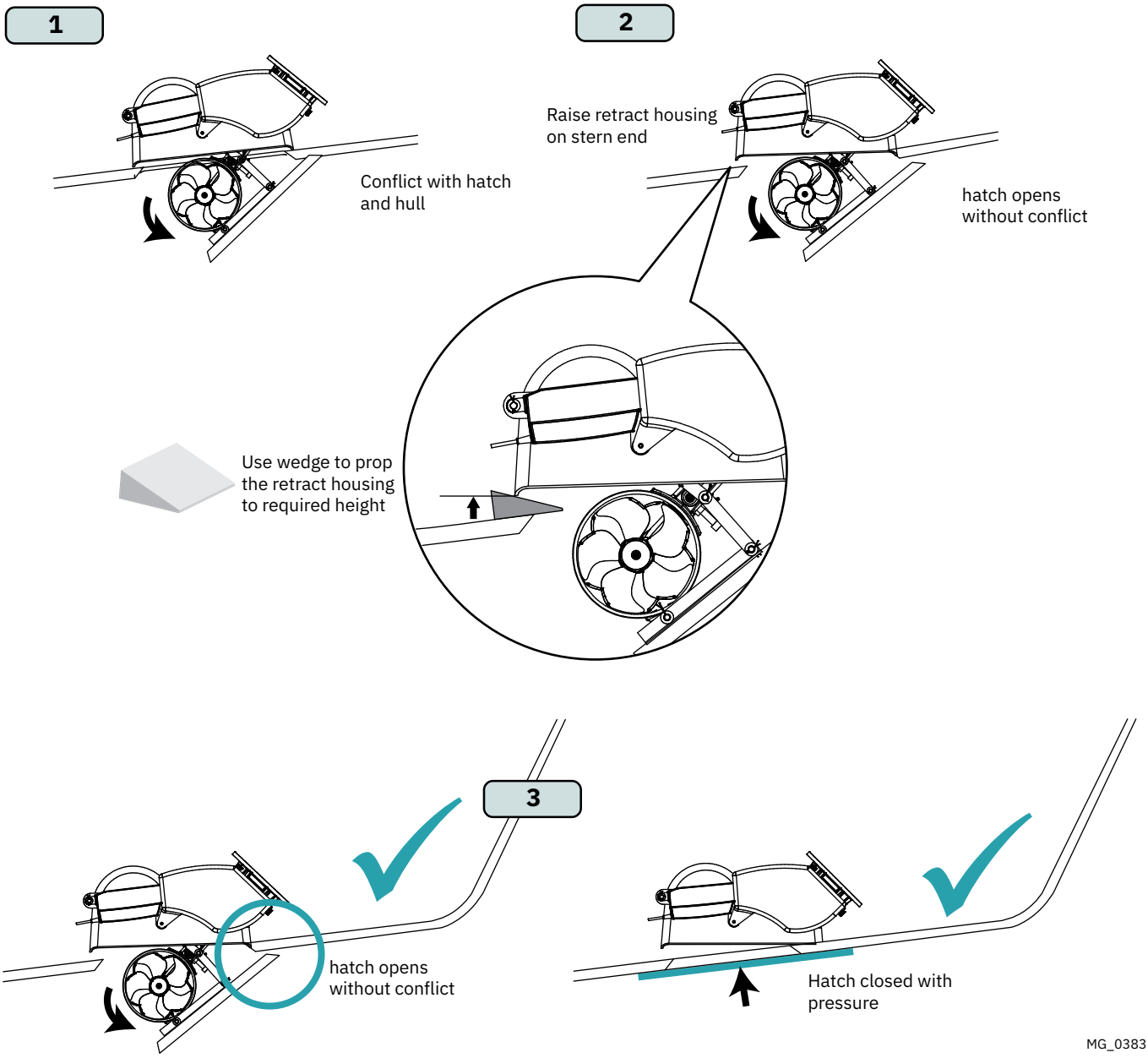
To increase the space between the hatch and the hull the entire SR housing and motor must be raised at the stern end.

1. With the hatch in the open position raise the stern end of the SR housing until the appropriate clearance is achieved.
   (NB: continue to raise the stern height until this is obtained.)

2. Use a wedge to keep the thruster SR housing stable.

3. Open and close the hatch multiple times to ensure:
   - Clearance from the hull and hatch while open
   - Hatch closes flush with the hull and extra force is still transferred to the hull and hatch surface contact edges.

4. Record the height and keep the wedges in place for future moulding of the SR housing.



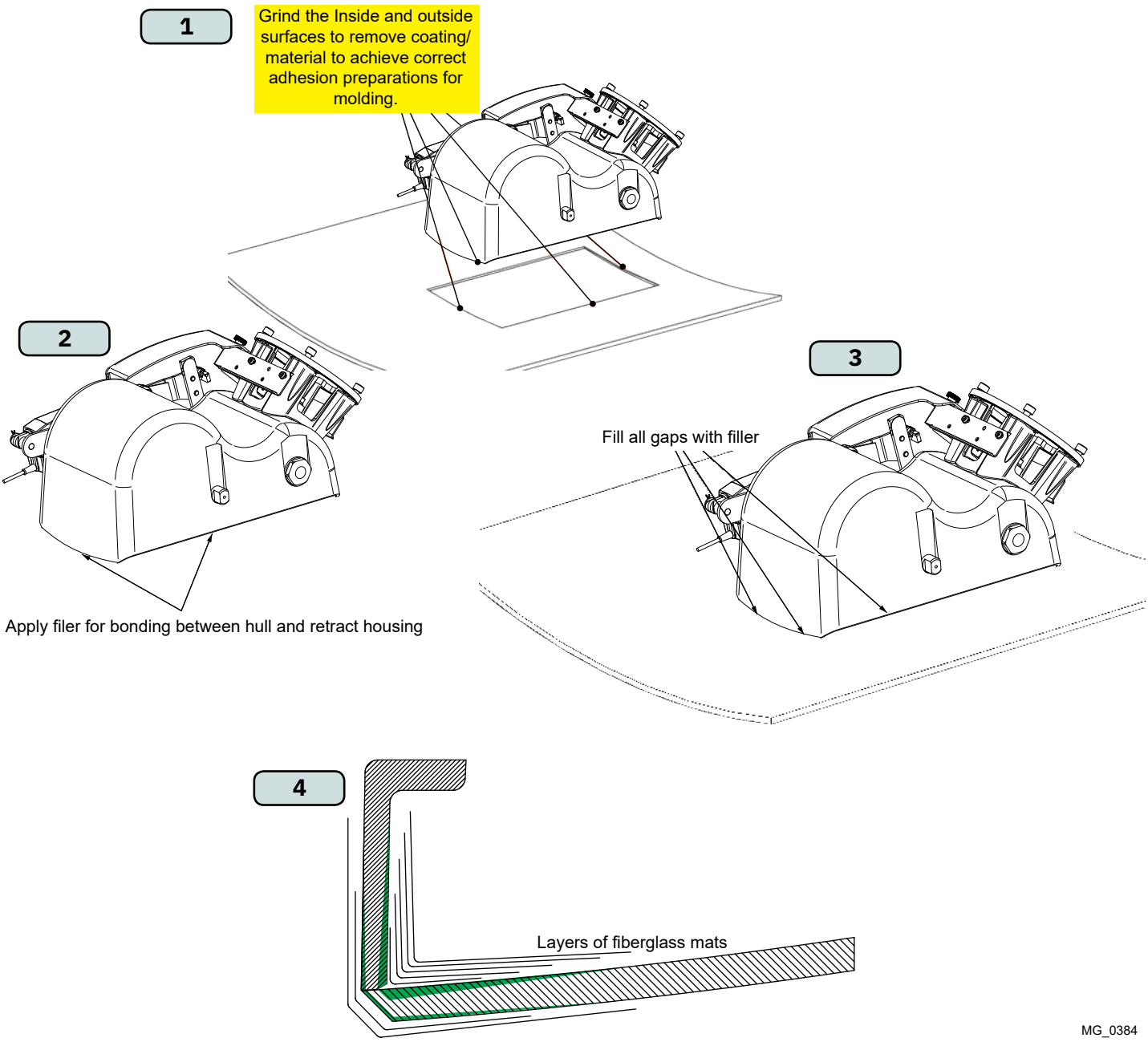
MG_0383

SR Housing Mould Installation

MC_0118

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

1. Grind down the surface area around the connection surface of the SR housing. ***(NB: To achieve the firm bonding ground down to remove any coating material.)***
2. Apply glue/filler on bottom edges of SR housing or on the hull for bonding between connection surfaces. Ensure the filler is compatible with hull materials.
3. Place the SR housing into position ensuring the correct orientation. Fill gaps between SR housing and hull with filler and smoothen the surfaces.
4. Apply layers of fibreglass mats, inside and outside. Ensure that resin is compatible with hull materials.
5. After curing time, smooth all moulded surfaces and apply coating. Apply putty before coating if necessary.

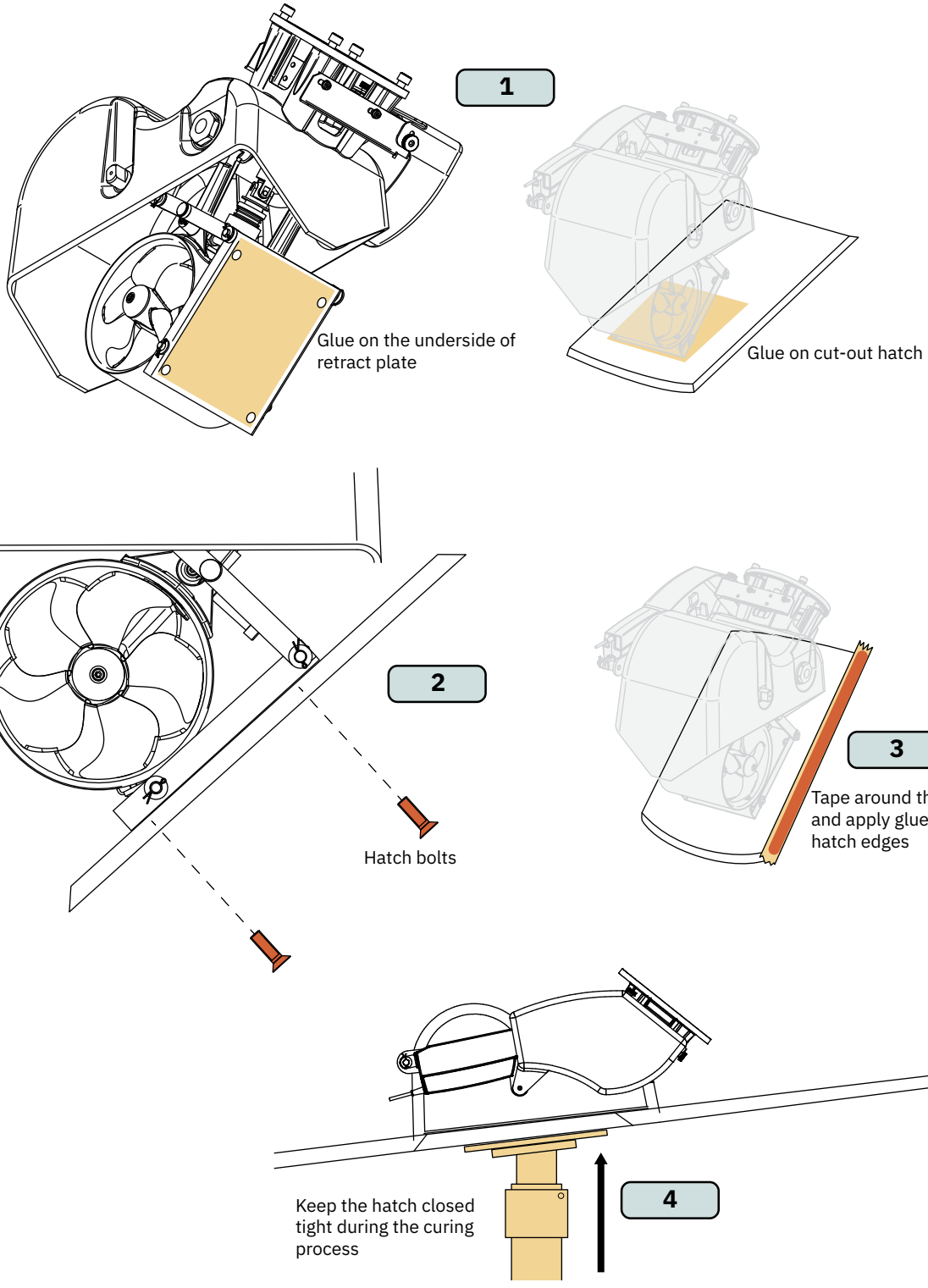


MG_0384

Hatch Installation

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

1. Apply glue to the cut out hatch door and the underside of the SR retract plate.
2. Attach hatch door using the supplied bolts.
3. Fill the gap between hatch and hull edges. Apply a layer of aluminium or duct tape on hatch opening edges on the hull. Apply glue/filler to hatch edges to create a perfect seal.
4. Manually close the hatch and secure it in poistion for the duration of the curing process. Smooth out the filler and add more if needed. After curing time, grind and smooth the surface.
5. Apply coating inside and outside of hatch opening on hull.



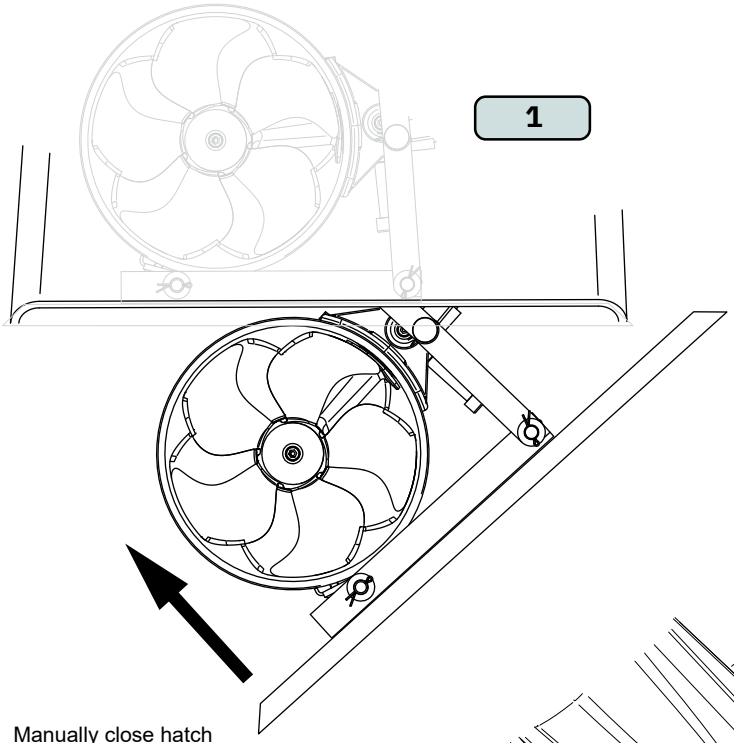
MG_0474

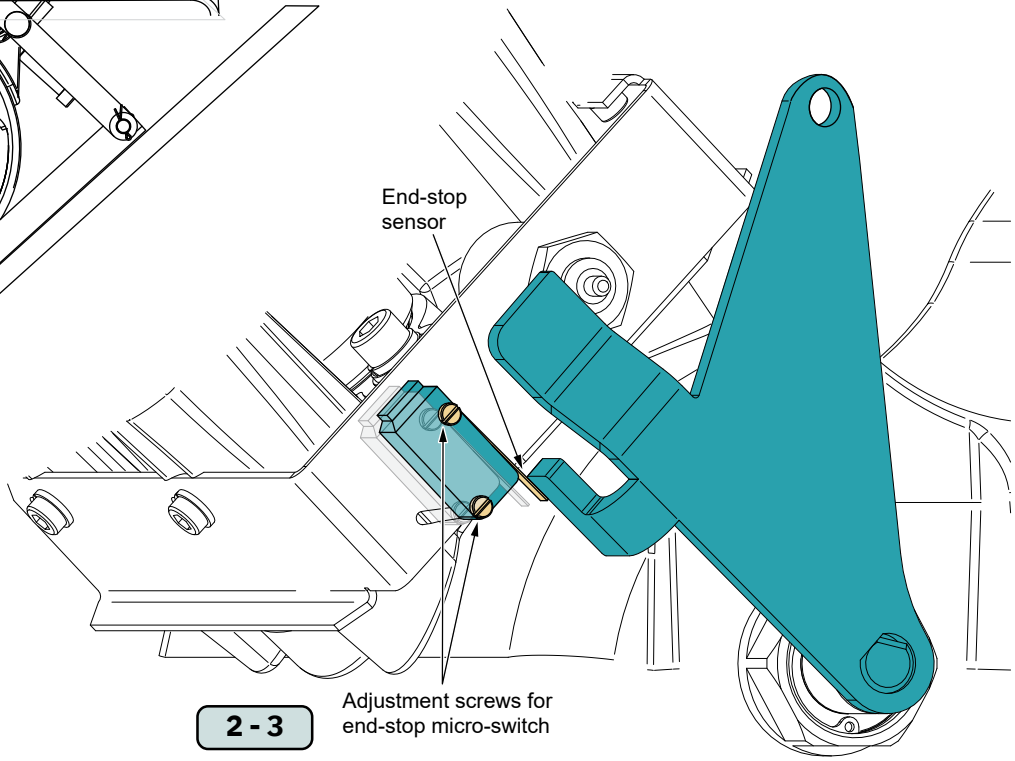
End Stop Adjustment

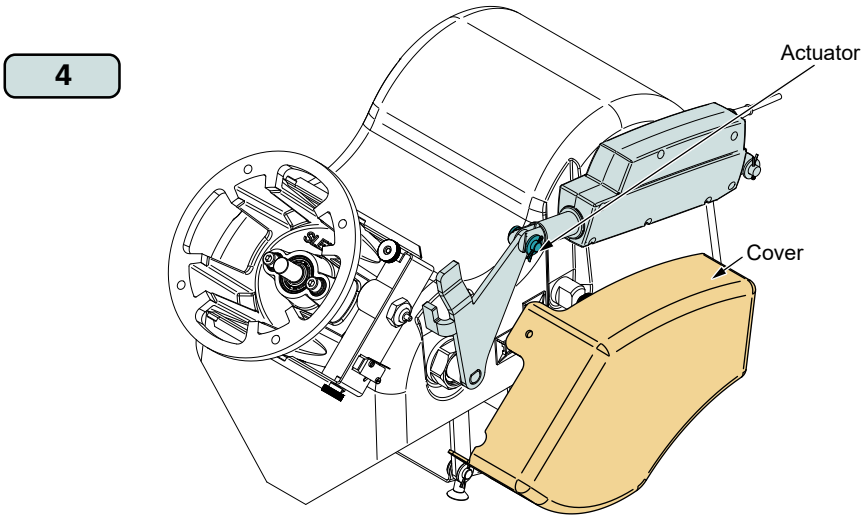
MC_0118

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

1. Close retract mechanism manually, and hold it in the closed position.
2. Loosen the screws on the end stop micro switch.
3. Adjust micro switch so that it engages and fasten screws, to ensure that the correct retract end position is defined.
4. Attach the actuator and actuator mechanism cover.







MG_0387

Motor to Bracket Installation

MC_0608

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

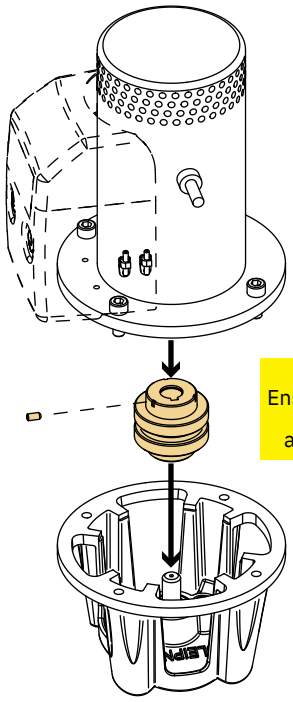
1. Install the motor onto the motor bracket ensuring the couplings and the drive shafts are aligned and locked together. The motor must be installed with the solenoid facing the longer length of the rectract housing. ***(NB: depending on your coupling you may need to wiggle the motor into place. Ensure the couplings are engaging correctly. Ensure the motor cable terminals are accessible for electrical installation later.)***

2. Fasten the bolts holding the motor to the motor bracket with the defined torque.

3. Check the drive shafts engage by rotating the propeller. It is required the propeller can rotate via hand power. ***(NB: Rotating the propellers can be hard because of the gear reduction and the motor.)***

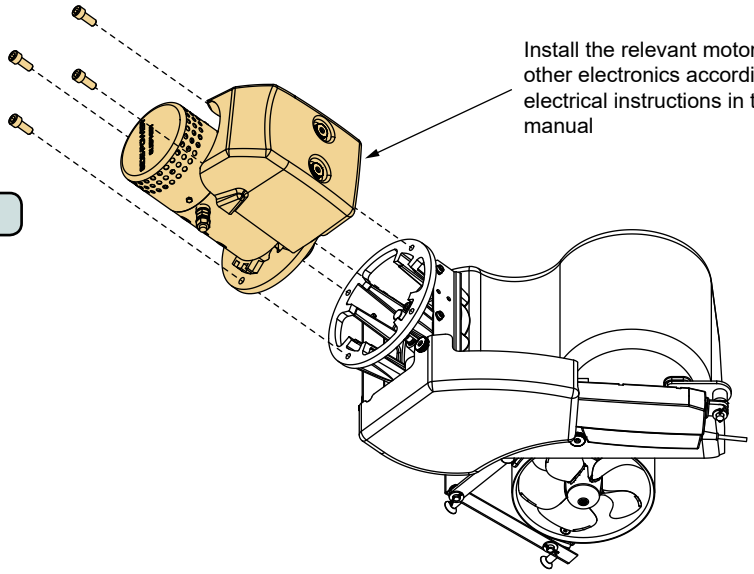
4. Apply the gear leg and propeller with anti-fouling designed for propellers. Do not apply to the propeller drive shaft, the anodes or the end of the gear leg facing the propellers.

(NB: The motor must be covered to avoid dust from fabrication/ maintenance operation entering the motor or the solenoids. After fabrication maintenance operations have ceased the cover must be removed before operating the thruster.)



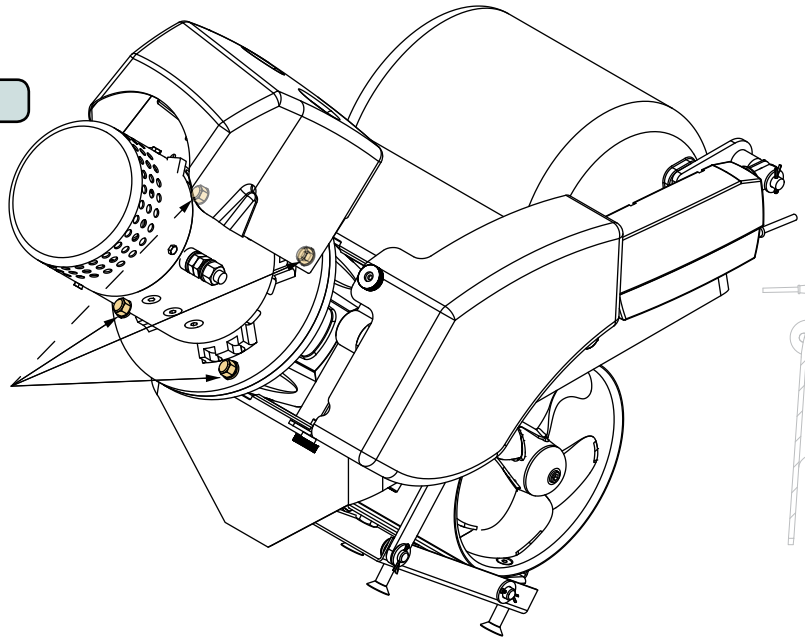
IMPORTANT
Ensure the holding key and coupling are aligned when fitted

1



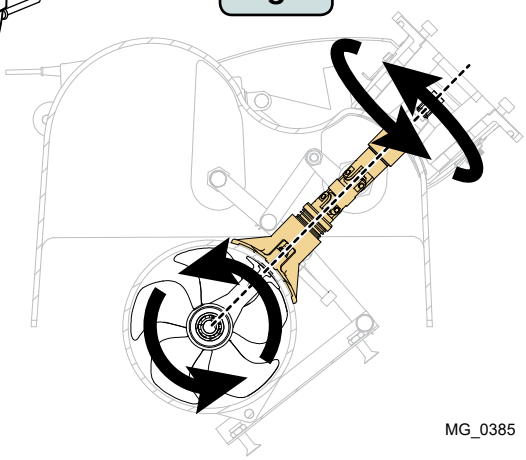
Install the relevant motor and other electronics according to electrical instructions in the manual

2



Bolt tightening force (4x)
33 Nm (24 lb/ft)

3



MG_0385

Electrical installation for retract systems

MC_0480

1. Plan the location of electrical components before starting with the electrical installation. Main electrical components will typically consist of battery, Automatic Main Switch (AMS) or manual main switch and fuse, see Wiring Diagram chapter for an overview.

2. Estimate the total length of the power cables to determine the recommended cross section. The total power cable length is defined as the distances from the positive battery terminal, via fuse, main switch and motor and all the way back to the negative battery terminal.

3. Find the recommended power cable cross section for the installation by using the estimated total power cable length and the table shown in chapter *Electrical Reference Guide*.

4. Find the recommended fuse size by using the table shown in chapter *Electrical Reference Guide*. Use slow blow rated fuses to hold stated nominal current for minimum 5 minutes.

5. Use appropriate dimensioned battery with Cold Cranking Amps (CCA) according to recommendations given in the Electrical Reference Guide chapter. Battery voltage must be compliant with the voltage rating of the thruster motor and control circuitry. Capacity and rated discharge current of battery should be according to rated nominal current drawn and typical duty cycle for thruster operation. Nominal current drawn is listed in the Electrical Reference Guide chapter. The actual voltage at the motor while running the thruster determines the motor RPM and thrust. Using smaller cross section than recommended or low-capacity battery could reduce performance.
   Installing a battery close to the thruster reduces the length of the power cables and potentially increase the performance, due to lower voltage drop in the power cables. Thus for installations on large vessels with bow and stern thrusters or catamarans a dedicated battery to each thruster should be considered.

6. Install the cable from the retract mechanism as described in chapter *Retract Thruster Controller Cable Installation*.

7. Install and connect the battery, fuse, main switch and wiring according to instructions in Wiring Diagram chapter. For safety reasons it is always recommended to install a fuse and a main switch on the power cables and as close as possible to the positive battery pole connection. The main switch must be installed such that it is easily accessible so that the thruster can be electrically disconnect to a safe state when not on-board or in the case of an emergency.
   For dual thruster systems using only one battery bank a dedicated AMS with fuse, or manual main switch and fuse should be installed for each thruster. These should be installed close to the battery bank.

   Follow the instructions in the *Motor Lug Connection* chapter when fastening the power cables to the motor.

   Sleipner offers both manual main switches and Automatic Main Switches (AMS). Sleipner AMS is controlled by the control panel in addition to the option of manual operation. Turning on the control panel also turn on the automatic main switch. When the control panel is turned off, the automatic main switch is turned off. This ensures that the control electronics and motor is only energized when the control panel is turned on.
   Sleipner offers AMS supporting either S-Link or ON/OFF control panels. Ensure to select a main switch with voltage rating according to the chosen motor- and battery-voltage. Note that the AMS requires separate power supply which should be protected by a dedicated fuse.

8. Install control panel according to instructions in the Installation Guide accompanying the control panel to be installed .

9. See S-Link System Description chapter for detailed information on installation of S-Link Power cable and additional S-Link components.

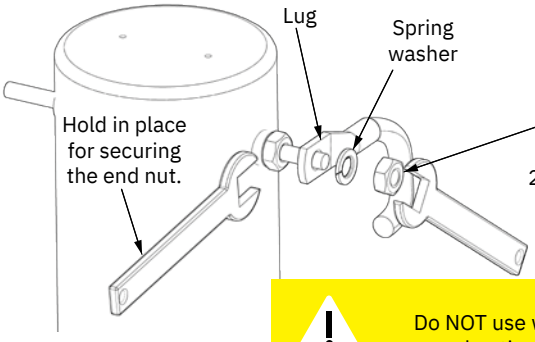
WARNING
After all electrical connections have been completed, turn off main switch and check the following with an ohmmeter:
1. There is no electrical connection between motor flange and the positive terminal on the motor.
2. There is no electrical connection between motor flange and the negative terminal on the motor.
If unsure contact skilled personnel.

Electrical reference guide

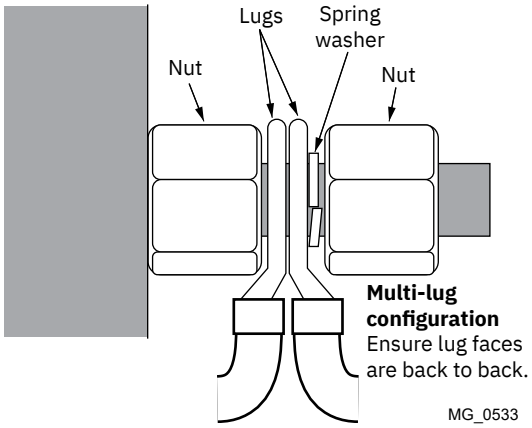
MC_0475

Model Size	System Voltage	Nominal current draw	Min. battery CCA	Rec. fuse	Cross Section Guide for Power Cables												
					Unit	<7m total + & -		7-14m total + & -		15-21m total + & -		22-28m total + & -		28-35m total + & -		36-45m total + & -	
						Min.	Rec.	Min.	Rec.	Min.	Rec.	Min.	Rec.	Min.	Rec.	Min.	Rec.
80/185T	12 V	530 A	DIN: 550 SAE: 1045 EN: 940	ANL 400	mm2	70	70	120	2 x 70	2 x 95	2 x 95	2 x 120	2x 120	2 x 120	NA	NA	NA
					AWG	2/0	2/0	4/0	2 x 2/0	2 x 3/0	2 x 3/0	2 x 4/0	*2 x 4/0*	2 x 4/0			
	24 V	280 A	DIN: 300 SAE:570 EN: 520	ANL 250	mm2	35	35	35	50	50	70	70	95	95	120	120	2 x 95
					AWG	2	2	2	1/0	1/0	2/0	2/0	3/0	3/0	4/0	4/0	2 x 3/0
100/185T	12 V	740 A	DIN: 750 SAE: 1425 EN: 1320	ANL 500	mm2	95	95	2 x 70	2 x 95	2 x 120	NA	NA	NA	NA	NA	NA	NA
					AWG	3/0	3/0	2 x 2/0	2 x 3/0	2 x 4/0							
	24 V	340 A	DIN: 400 SAE: 760 EN: 680	ANL 325	mm2	50	50	50	70	70	95	95	120	120	2 x 95	2 x 95	2 x 120
					AWG	1/0	1/0	1/0	2/0	2/0	3/0	3/0	4/0	4/0	2 x 3/0	2 x 3/0	2 x 4/0

Motor lug connection



CAUTION
Do NOT use washers between lugs, this causes overheating and fire. Spring washers must be placed in the outer position before tightening nut.



Multi-lug configuration
Ensure lug faces are back to back.

MG_0533

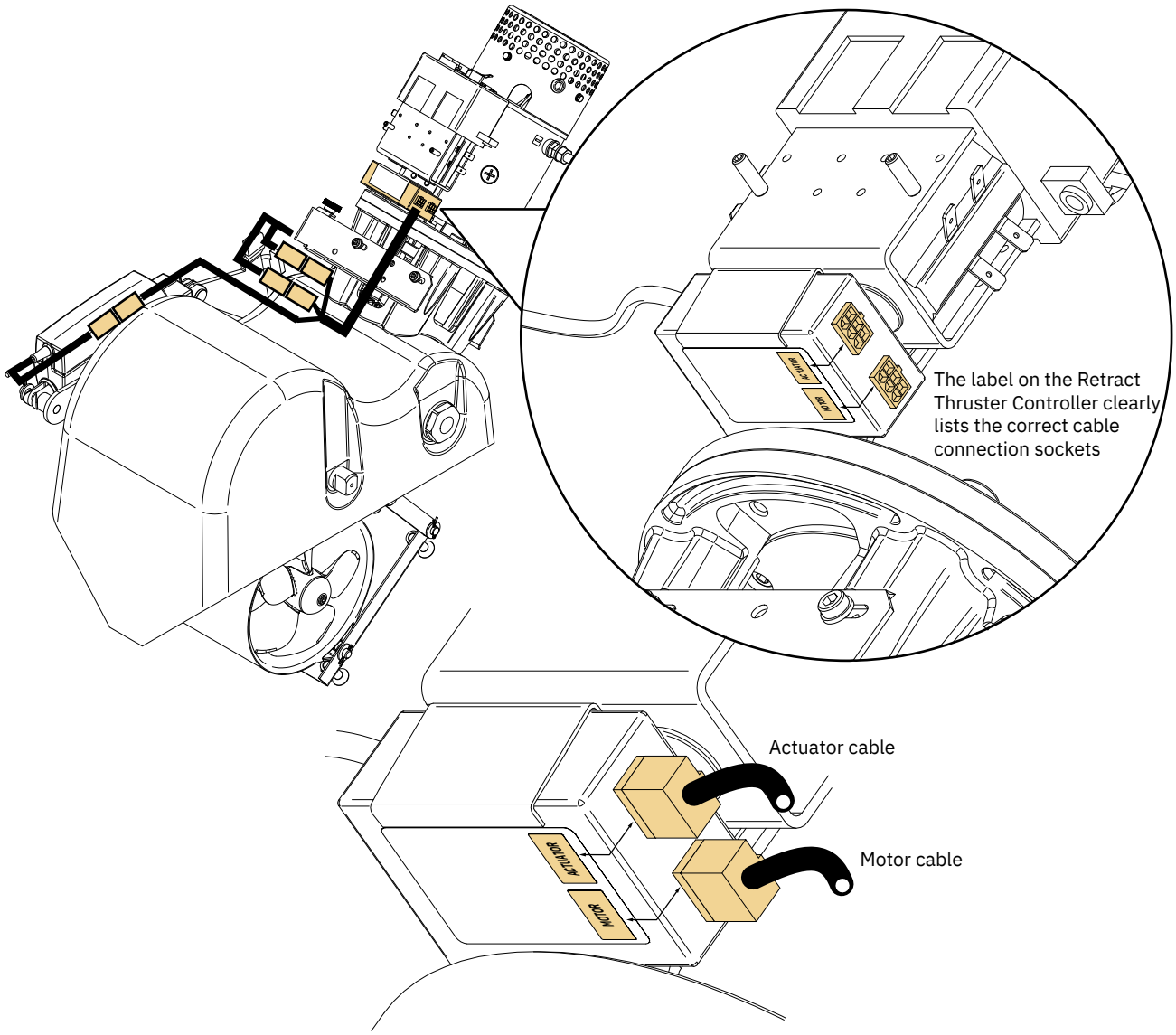
Retract Thruster Controller Cable Installation

MC_0478

Install the cable from the retract mechanism into the connector marked ACTUATOR on 6 1242 Retract Thruster Controller.

Install the cable from the motor into the connector marked MOTOR on 6 1242 Retract Thruster Controller.

WARNING
Ensure to follow the label on the retract thruster controller to identify the correct configuration for the MOTOR cable and ACTUATOR cable. Connecting the wrong cables will damage the Retract Thruster Controller.

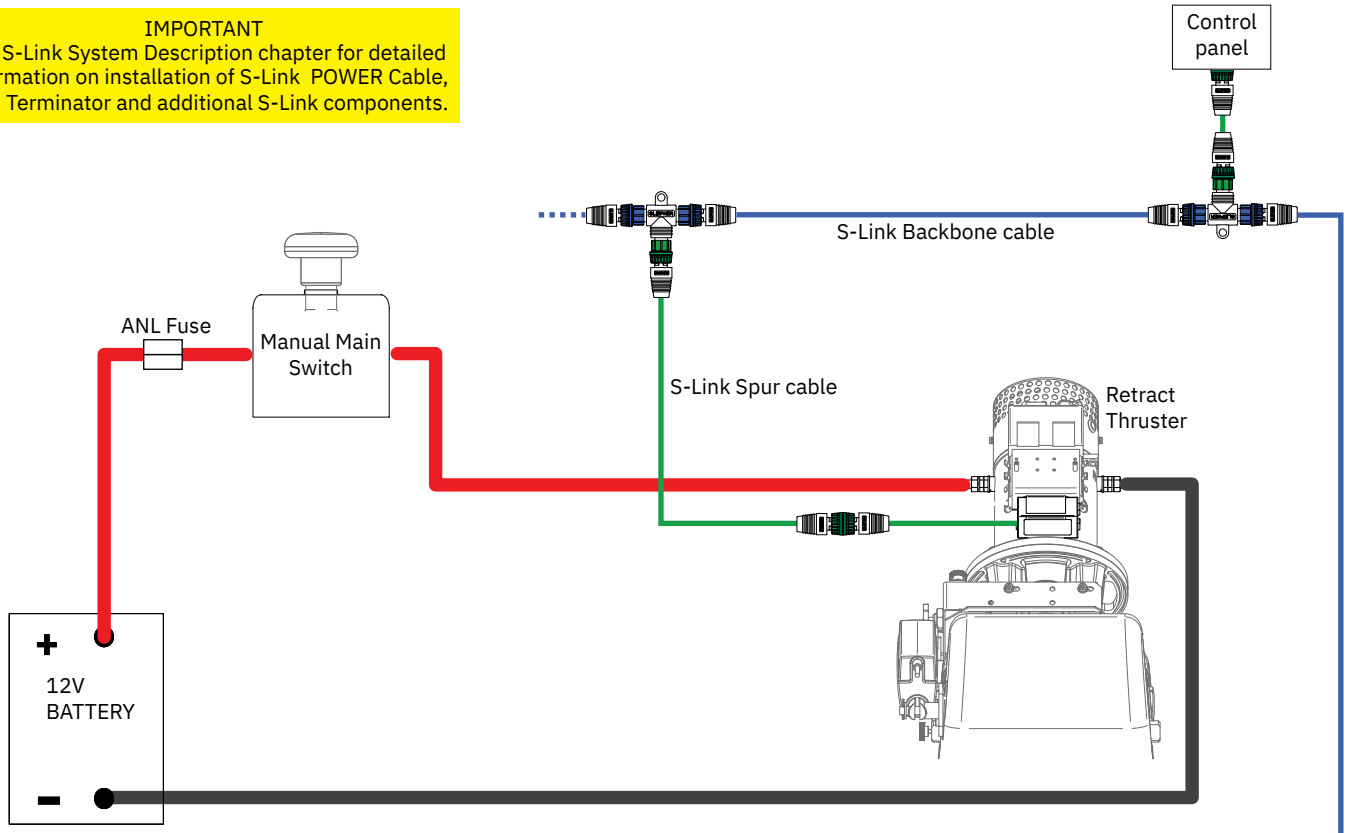


MG_0553

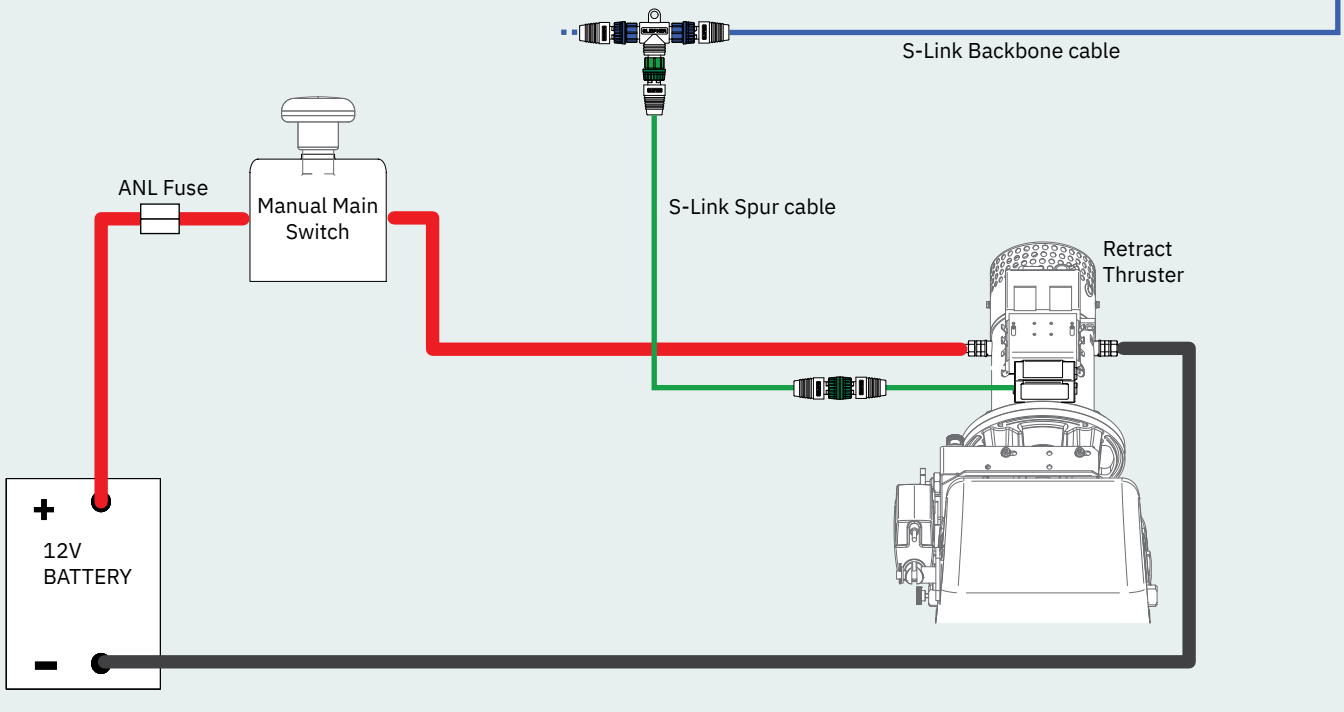
Manual Main Switch Wiring Diagram 12V Retract Thruster

The Top wiring diagram is for a single bow or stern thruster system

IMPORTANT
See S-Link System Description chapter for detailed information on installation of S-Link POWER Cable, END Terminator and additional S-Link components.



The top and bottom wiring diagram is for a dual thruster system, for example a bow and stern installation.

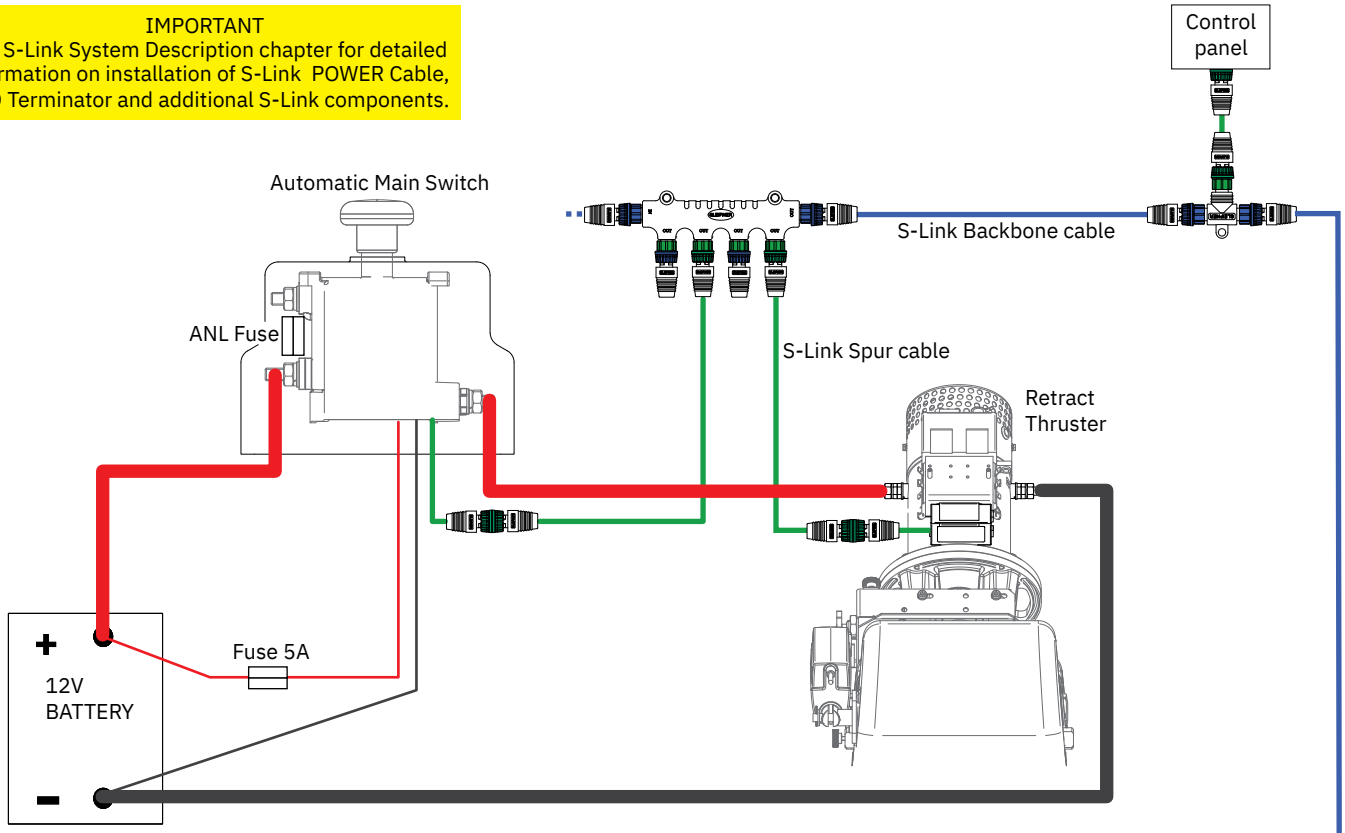


MG_0605

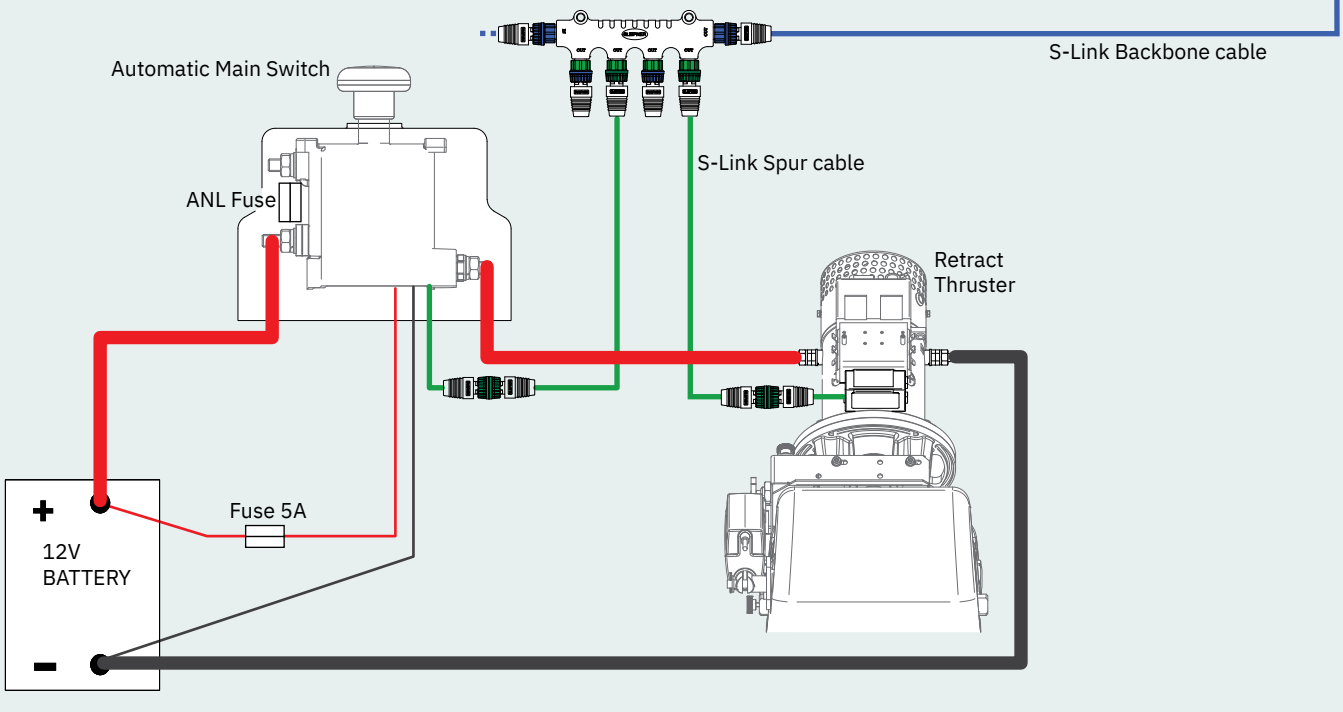
Automatic Main Switch Wiring Diagram 12V Retract Thruster

The Top wiring diagram is for a single bow or stern thruster system

IMPORTANT
See S-Link System Description chapter for detailed information on installation of S-Link POWER Cable, END Terminator and additional S-Link components.



The top and bottom wiring diagram is for a dual thruster system, for example a bow and stern installation.

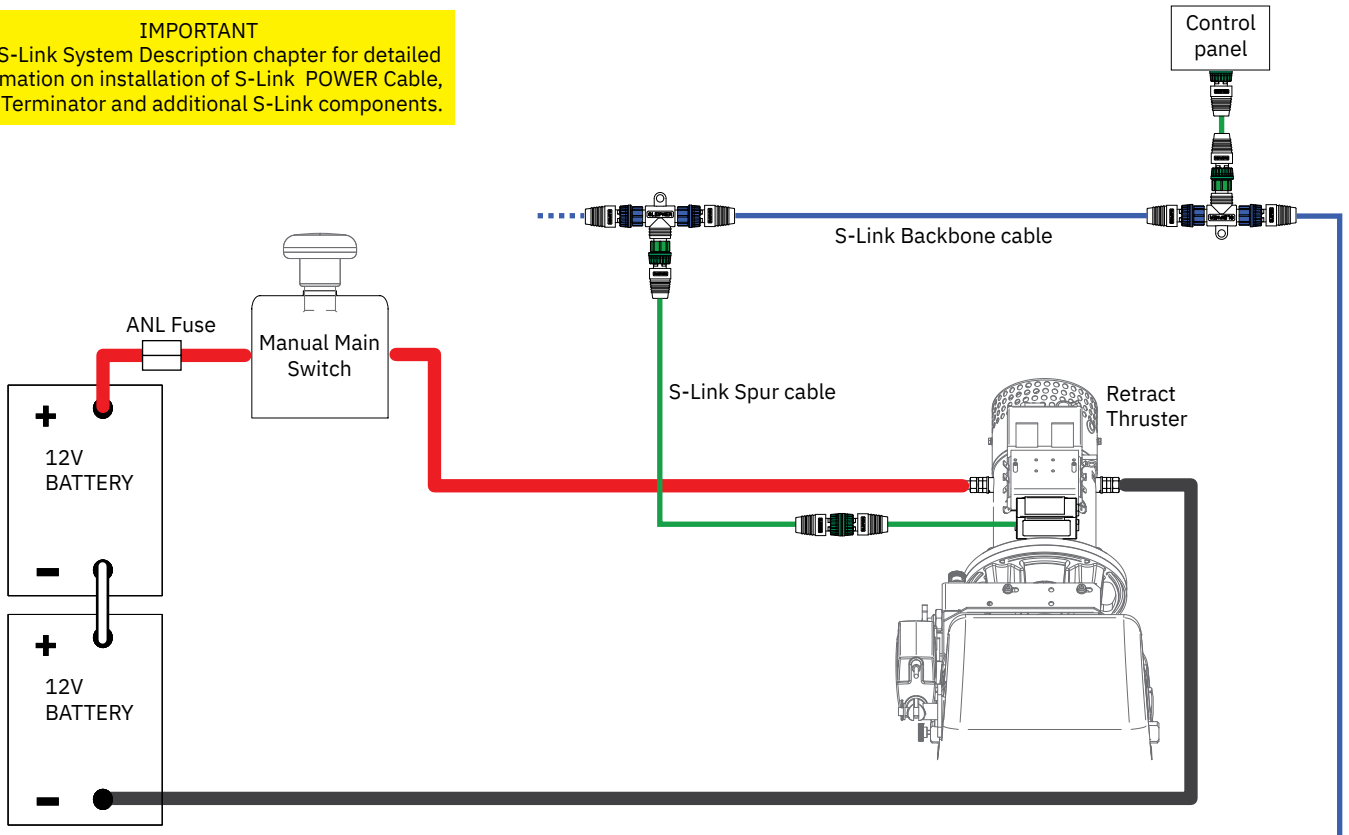


MG_0549

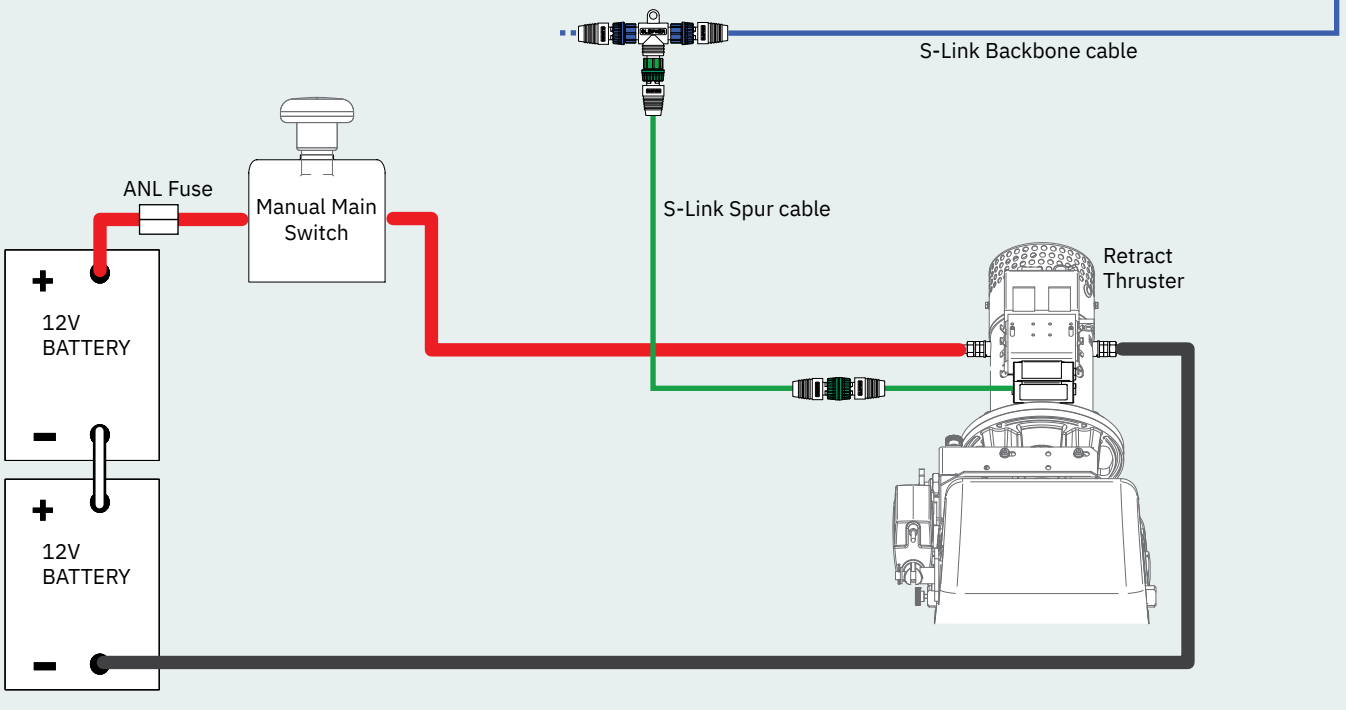
Manual Main Switch Wiring Diagram 24V Retract Thruster

The Top wiring diagram is for a single bow or stern thruster system

IMPORTANT
See S-Link System Description chapter for detailed information on installation of S-Link POWER Cable, END Terminator and additional S-Link components.



The top and bottom wiring diagram is for a dual thruster system, for example a bow and stern installation.

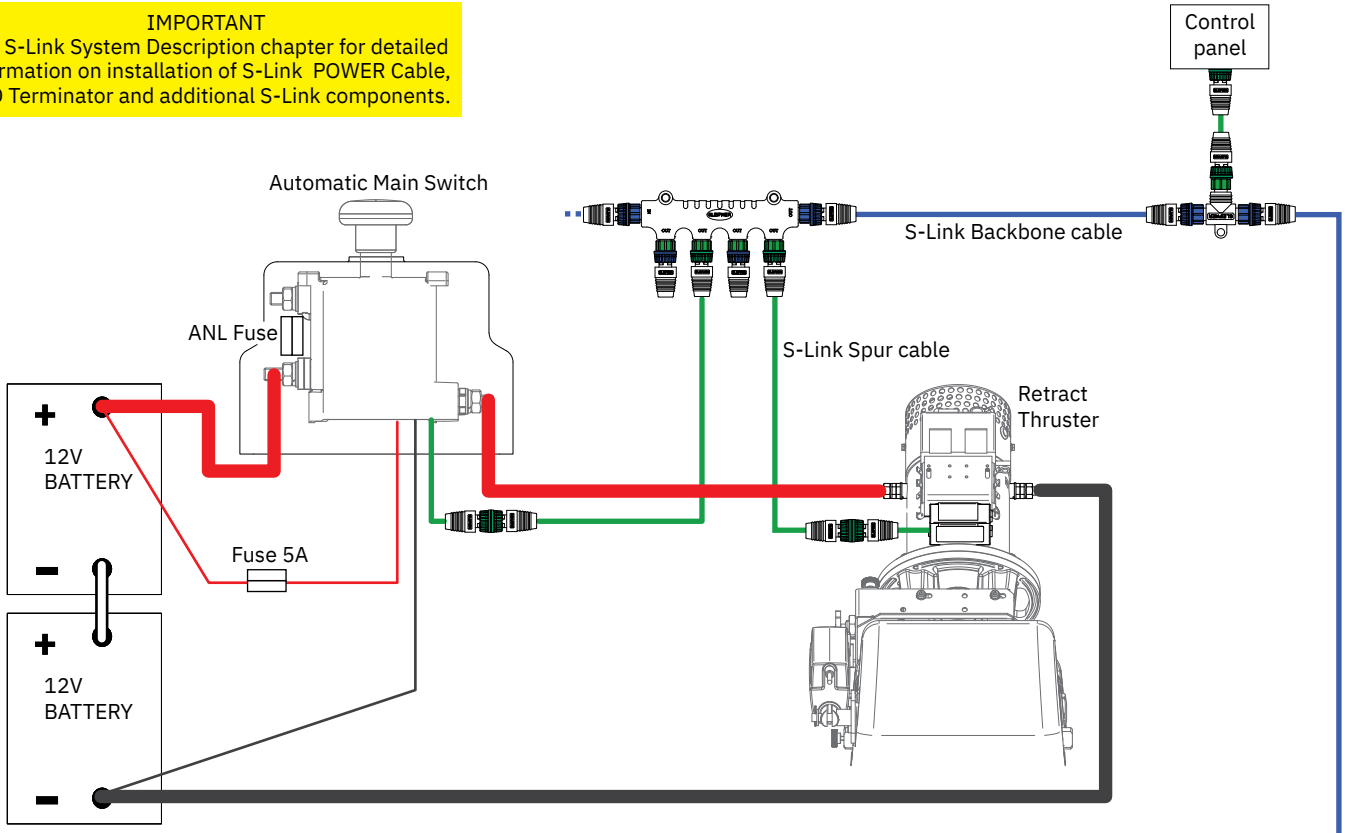


MG_0606

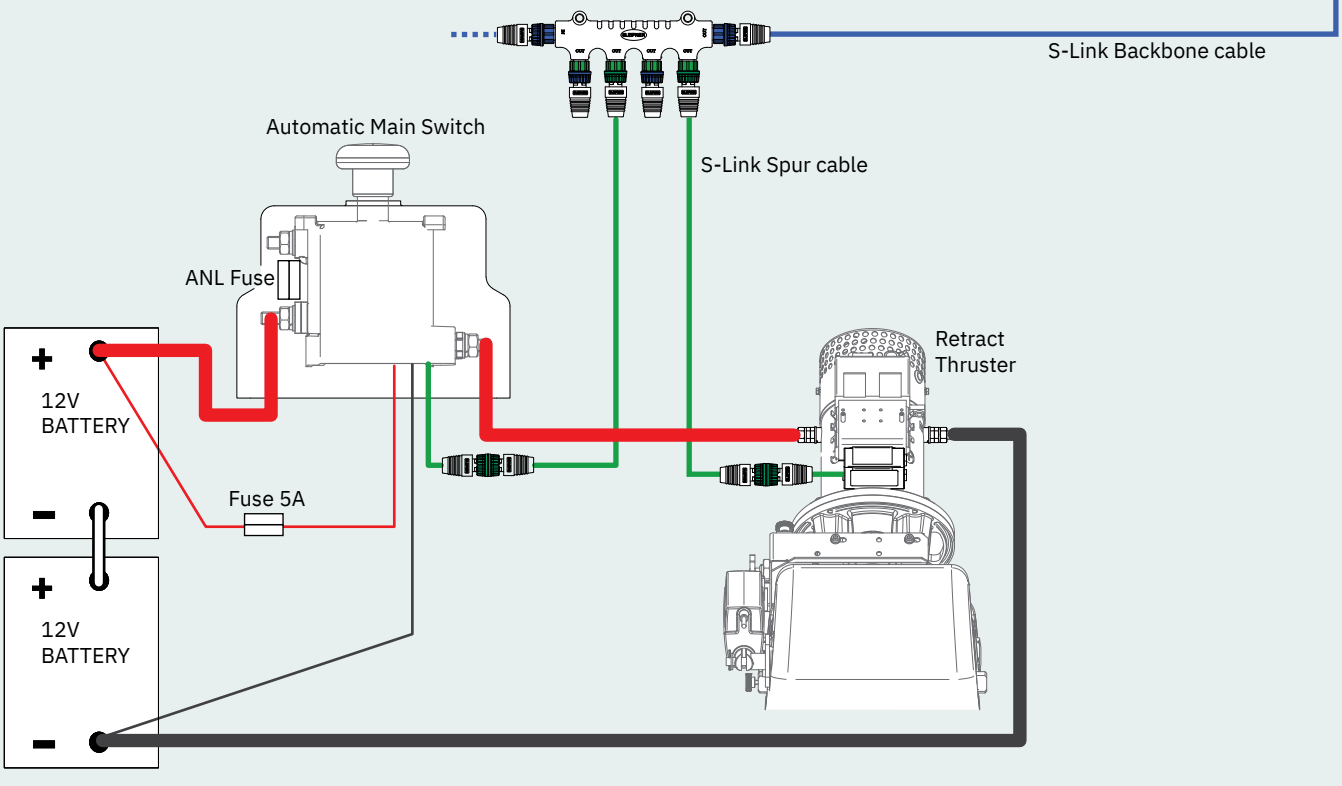
Automatic Main Switch Wiring Diagram 24V Retract Thruster

The Top wiring diagram is for a single bow or stern thruster system

IMPORTANT
See S-Link System Description chapter for detailed information on installation of S-Link POWER Cable, END Terminator and additional S-Link components.



The top and bottom wiring diagram is for a dual thruster system, for example a bow and stern installation.



MG_0604

S-Link system description

MC_0120

S-Link is a CAN-based control system used for communication between Sleipner products installed on a vessel. The system uses BACKBONE Cables as a common power and communication bus with separate SPUR Cables to each connected unit. Only one S-Link POWER cable shall be connected to the BACKBONE Cable. Units with low power consumption are powered directly from the S-Link bus.

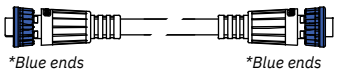
Main advantages of S-Link system:
- Compact and waterproof plugs.
- BACKBONE and SPUR Cables have different colour coding and keying to ensure correct and easy installation. BACKBONE Cables have blue connectors and SPUR Cables have green connectors.
- Different cable lengths and BACKBONE Extenders make the system scalable and flexible to install.

Installation of S-Link cables:
Select appropriate cables to keep the length of BACKBONE- and SPUR Cables to a minimum. In case of planned installation with total BACKBONE Cable length exceeding 100 meters please consult your local distributor. The S-Link cables should be properly fastened when installed to avoid sharp bend radius, cable chafing and undesired strain on connectors. Locking mechanism on connectors must be fully closed. To ensure long lifetime, cables, T-Connectors and Extenders should not be located so that they are permanently immersed in water or other fluids. It is recommended to install cables in such a way that water and condensation do not flow along the cables into the connectors. This can be done for example by introducing a u-shape bend before the cable enters the product connector.

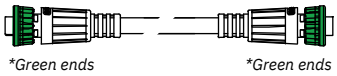
Ideally, the POWER Cable should be connected to the middle of the BACKBONE bus to ensure an equal voltage drop at both ends of the BACKBONE Cable. The yellow and black wire in the POWER Cable shall be connected to GND and the red wire connected to +12VDC or +24VDC.

To reduce the risk of interference, avoid routing the S-Link cables close to equipment such as radio transmitters, antennas or high voltage cables. The backbone must be terminated at each end with the END Terminator.

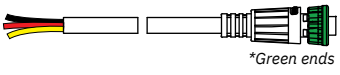
SPUR cables can be left unterminated to prepare for the installation of future additional equipment. In such cases, ensure to protect open connectors from water and moisture to avoid corrosion in the connectors.



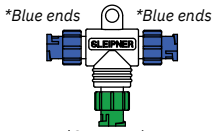
BACKBONE Cable
Forms the communication and power bus throughout a vessel. Available in different standard lengths.



SPUR Cable
Used to connect S-Link compliant products to the backbone cable. One SPUR Cable must be used for each connected component, with no exceptions. Recommended to be as short as practically possible. Available in different standard lengths.

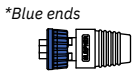


POWER Cable
Required in all installations for connection of BACKBONE Cable to a power supply and should be protected with a 2A fuse.

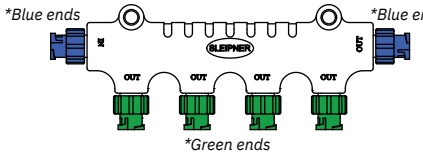


T-Connector
Used for connection of SPUR or POWER Cable to the BACKBONE Cable. One T-Connector for each connected cable.

BACKBONE Extender
Connects two BACKBONE Cables to extend the length.

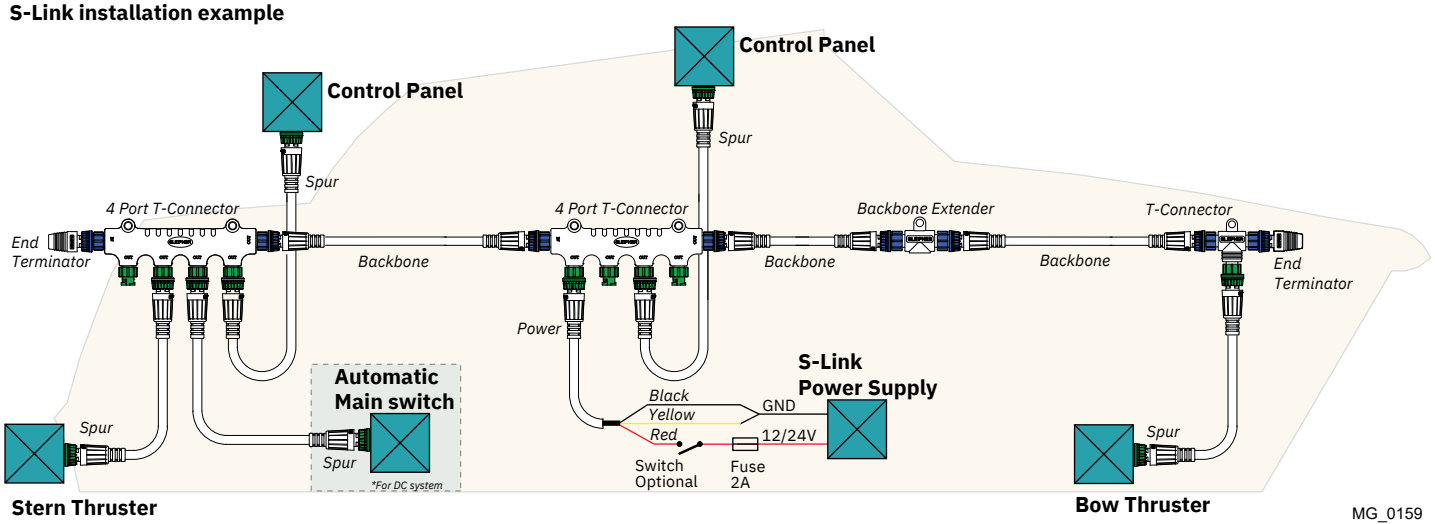


END Terminator
Must be one at each end of the BACKBONE bus.



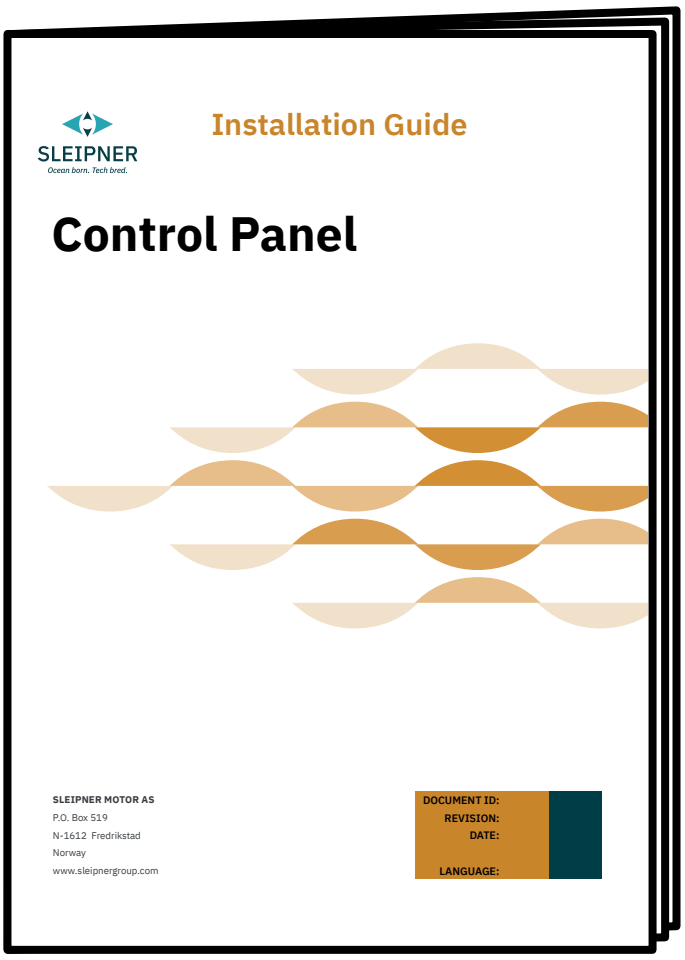
4-Port T-Connector
The 4-PORT T-connector allows multiple SPUR Cables to be connected. The 4-PORT T-connector comes with two sealing caps to protect unused ports.

S-Link installation example



MG_0159

For **Control Panel** installation please refer to the Installation Guide accompanying the control panel to be installed.



[]..... The bolts holding the gear leg and main bracket together are tightened correctly.

[]..... The bolts holding the motor to its bracket are tightened correctly.

[]..... All electrical connections are clean, dry and tight, and the correct cable, fuse and main switch size.

[]..... Check that there is no electrical connection between the electro motor body and positive terminal on the motor, and between the electro motor body and the negative terminal on the motor with an ohm meter.

[]..... Anti-fouling has been applied to the gear leg and propeller but NOT anodes, sealing/ rubber fittings or propeller shafts.

[]..... Propeller is fastened correctly to the shaft.

[]..... Propeller turns freely in tunnel.

[]..... The anode and/ or holding screw is tightened well with thread glue.

[]..... Check the boat for potential water leakage around installation areas.

[]..... Correct drive direction as per control panel.

[]..... User Manual is supplied to the owner.

The thruster has been installed as per the instructions in this manual and all points in checklist above have been controlled.

Signed: .....

Date: .....

Thruster type: .....

Serial number:.....

Date of delivery:.....

Correct drive direction as per control panel: .....

The compartment for the thruster has been isolated from general bilge water and has no obvious or suspected risks for flooding:

.....

.....

.....

Other comments by installer: .....

.....

.....

Sleipner Group Waste Disposal and Recycling Guide

MC_0848

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.

Service and support

MC_0024

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

Product spare parts and additional resources

MC_0024

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

Warranty statement

MC_0024

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.sleipnergroup.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

MC_0024

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.sleipnergroup.com/patents

Learn more about our products at www.sleipnergroup.com

SLEIPNER
Ocean born. Tech bred.

SLEIPNER MOTOR AS
P.O. Box 519
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Norway
www.sleipnergroup.com
Made in Norway

MC_0030