

Installation Guide

For DC External POD Electric Thruster Models
SX35POD, SX50POD



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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 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 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 externally mounted thruster systems:

MC_0427

- Ensure enough space inside and outside the transom when planning the thruster's position. The thruster must not interfere with existing equipment inside the boat, such as motor bedding, steering links, etc.
- Avoid interference from the thruster's propulsion water flow from elements such as stern drives or trim tabs. Interfere will considerably reduce the thrust effectiveness.
- Avoid running cables near any heat sources since this might damage the insulation. Broken insulation could potentially lead to hazards and damage products.

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 Ignition Protected systems:

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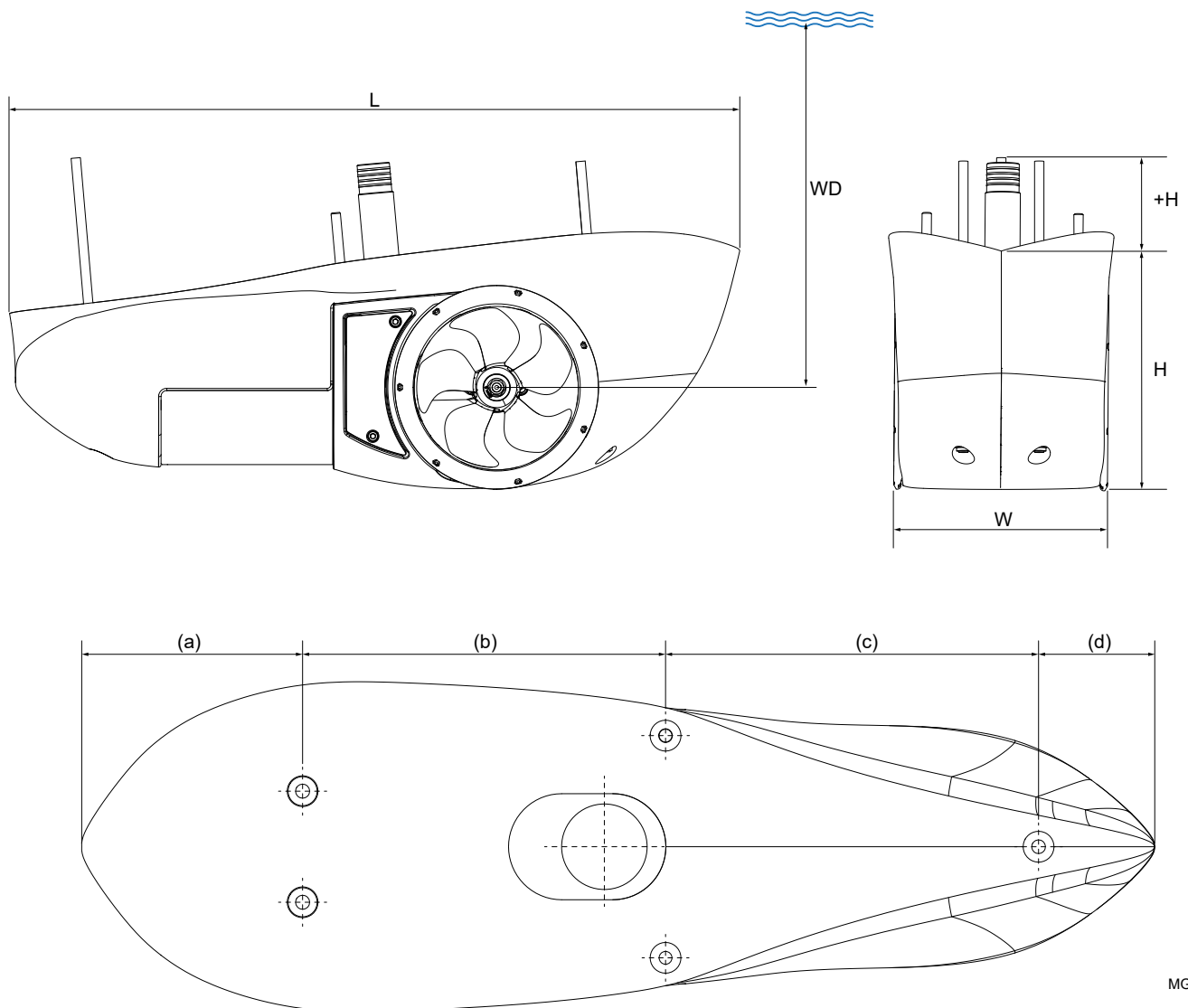


CAUTION

NEVER Disassemble any part of the Ignition Protected assembly. Tampering with the Ignition Protected assembly will cause it to lose this safety feature. If there is a problem with your Ignition Protected motor, please contact your dealer.

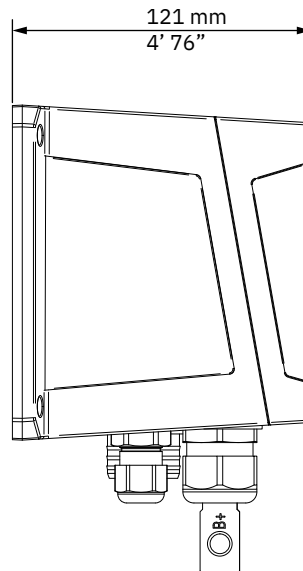
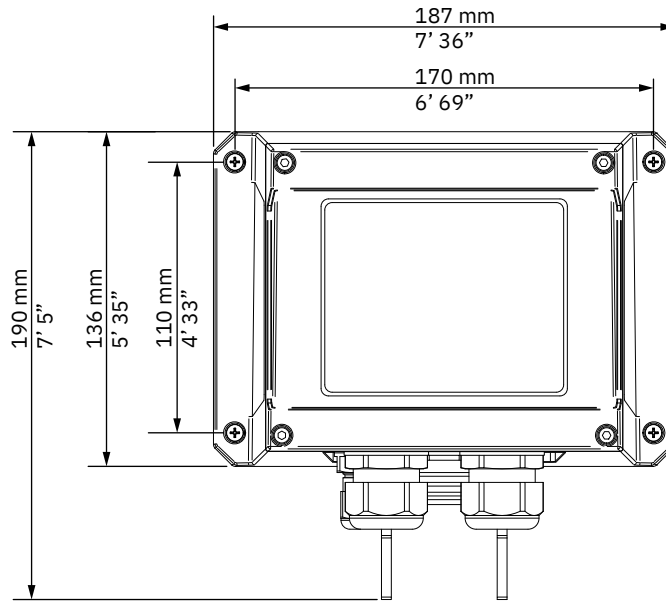
Measurement code	Measurement description	*35 12v		*50 12v	
		mm	inch	mm	inch
H	Mould Height	180	7.1	180	7.1
+H	Tube Height	183	7.2	183	7.2
W	Width	183	7.2	183	7.2
L	Length	630	24.8	630	24.8
WD	Minimum Water Depth	140	5.5	140	5.5
(a)	Measurement	129	5.1	129	5.1
(b)	Measurement	213	8.4	213	8.4
(c)	Measurement	218	8.6	218	8.6
(d)	Measurement	68	2.7	68	2.7

*Valid for SX & SXP



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Product Measurements



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SX/P Thruster

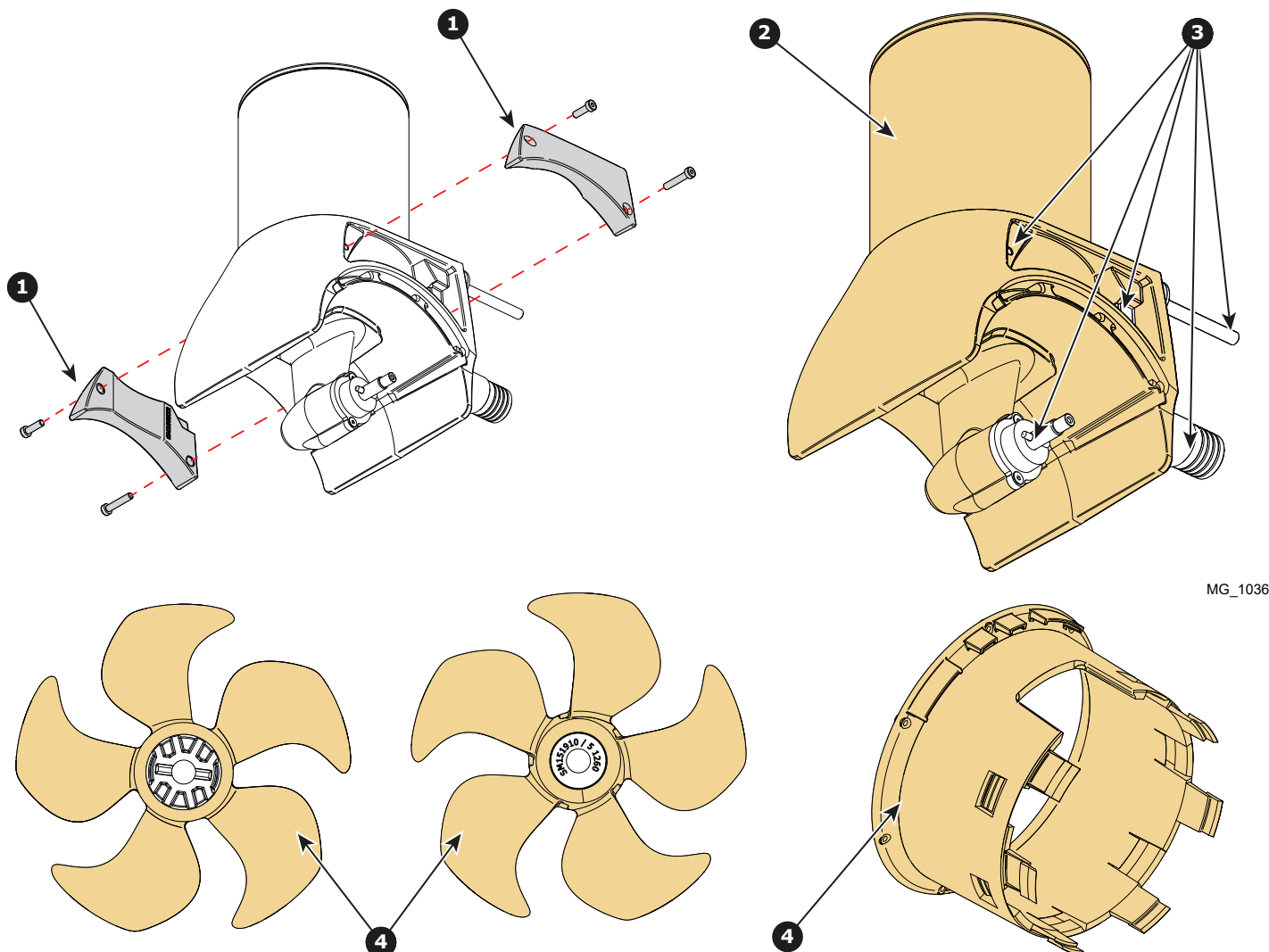
Description	SX35 SXP35	SX50 SXP50
Nominal Voltage	12V	12V
Thrust 12V	43 kg / 94 lbs	62 kg / 136 lbs
Thrust 10.5V	35 kg / 77 lbs	50 kg / 110 lbs
Maximum Operation Time	S2 motor at 2 - 3 min. duty cycle at 20°C (ambient temperature)	S2 motor at 2 - 3 min. duty cycle at 20°C (ambient temperature)
Power	1.8kw / 2hp	2.8kw / 3.75hp
Weight	15.3 kg / 33.73 lbs	15.3 kg / 33.73 lbs

SX/P Control Box

Product	SX35 SXP35	SX50 SXP50
Nominal voltage	12V	12V
Max current	250A	380A
Motor duty cycle	Short time duty (S2)	Short time duty (S2)
Max ambient temp	50°C	50°C
Min ambient temp	-25°C	-25°C

1. Remove the two anodes from the thruster motor.
2. Apply a thin film of antifouling on the complete thruster, include also the area where the anodes was removed.
3. Do NOT apply antifouling on the propeller shaft, the feed-through bolts, and neither the threads for the bolts holding the anode.
4. Apply antifouling also on both sides of the propeller and inside and outside of the tunnel - both halves.

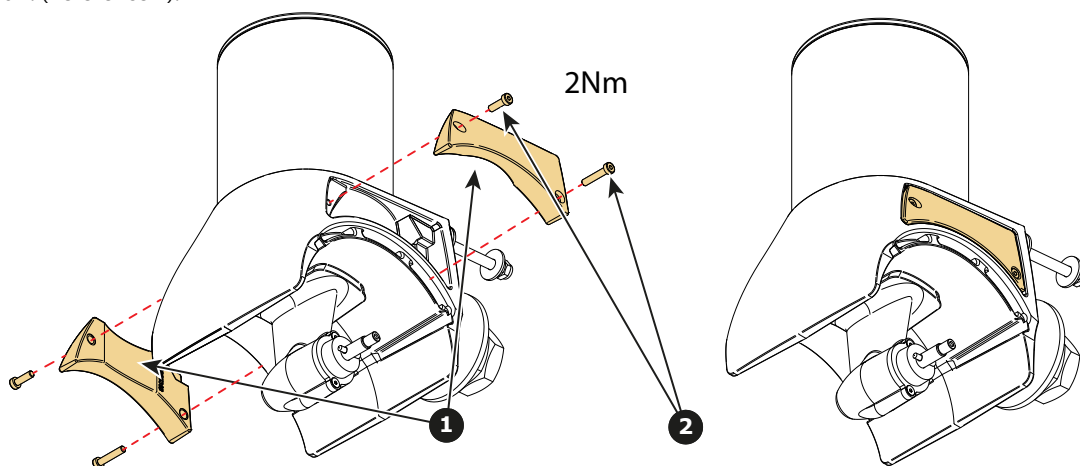
Let the antifouling dry properly before continuing.



Installing anodes

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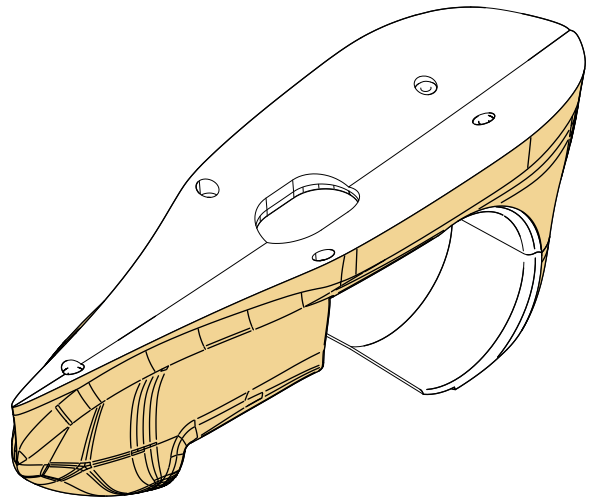
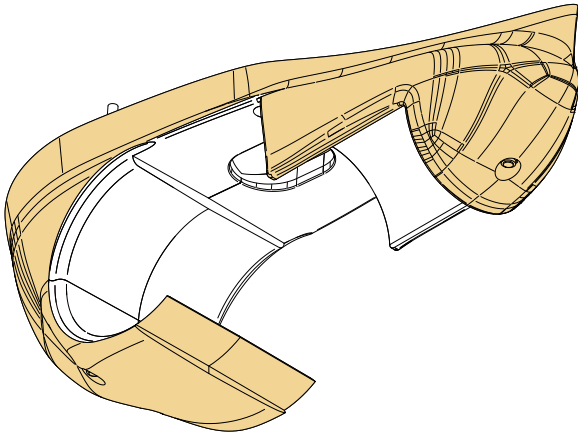
1. Re-install the anode on both sides of the gear housing. Note that the screws holding one anode has different lengths, ensure using the correct screw. (**Reference 2**).



NOTE: This process may be performed after the installation is complete if this makes the installation process easier.

Apply a thin film of antifouling on the outside of the pod.

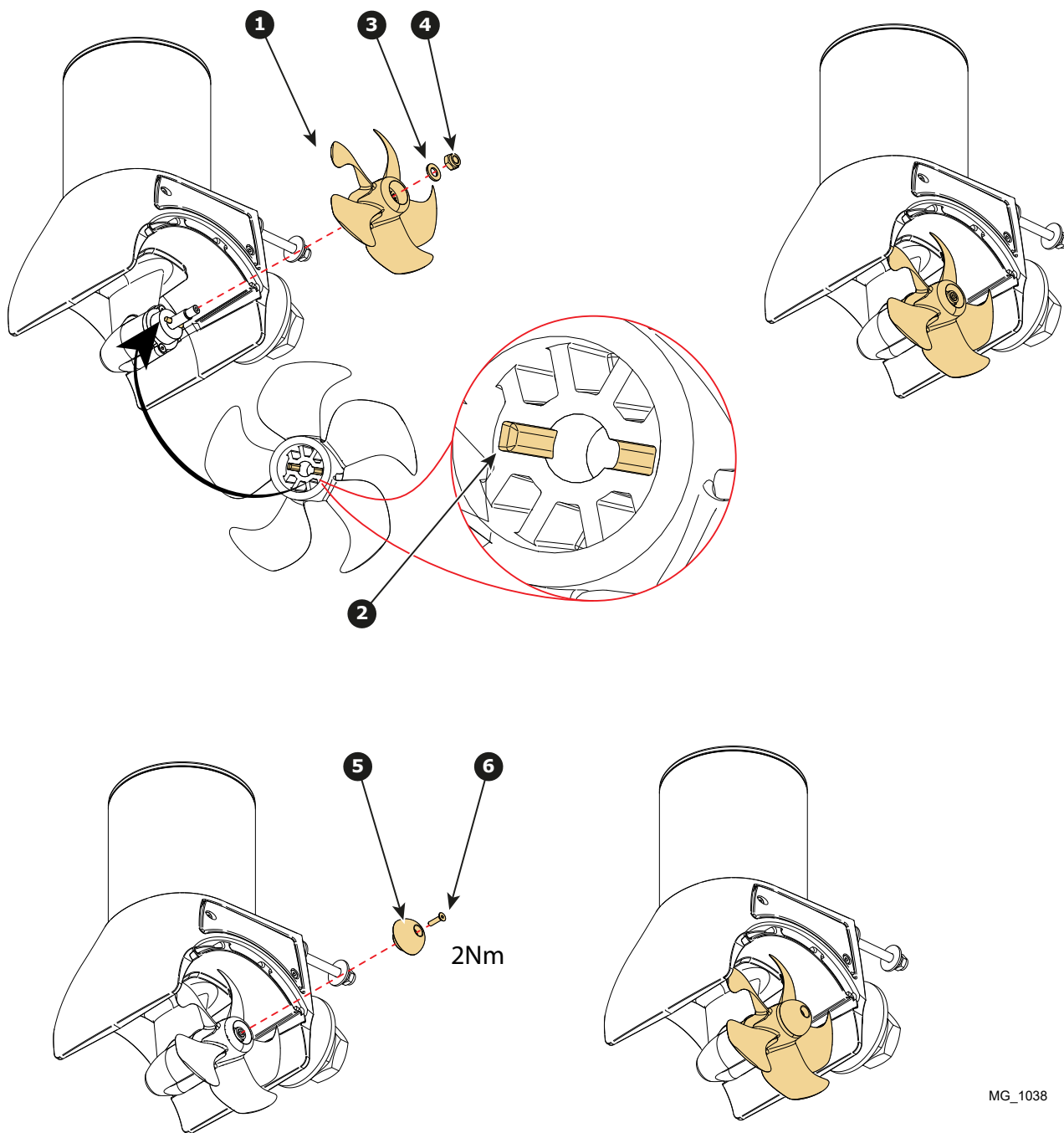
Let the antifouling dry properly before further handling of the hydropod.



MG_1057

1. Centre the drive pin and insert the propeller onto the shaft.
2. Rotate the propeller until the drive pin aligns with the internal slot in the propeller.
3. Insert the washer to the end of the shaft spline.
4. Enter the propeller center nut and tighten.
5. Position the anode in the propeller hub.
6. Enter and tighten the anode screw.

(NB: Do not use abrasive tools damaging the existing Epoxy coating when preparing for antifouling paint.)

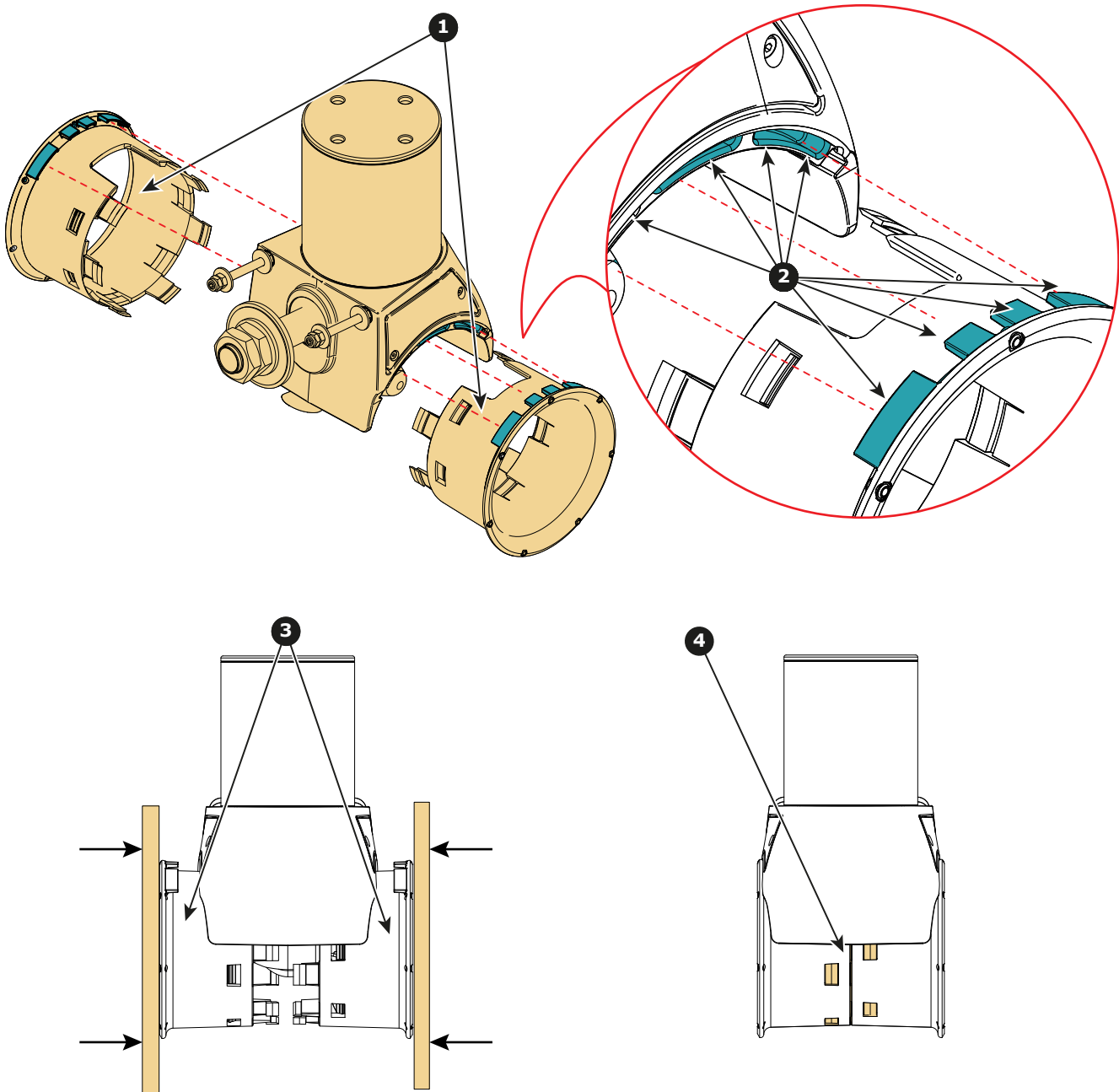


MG_1038

NOTE:

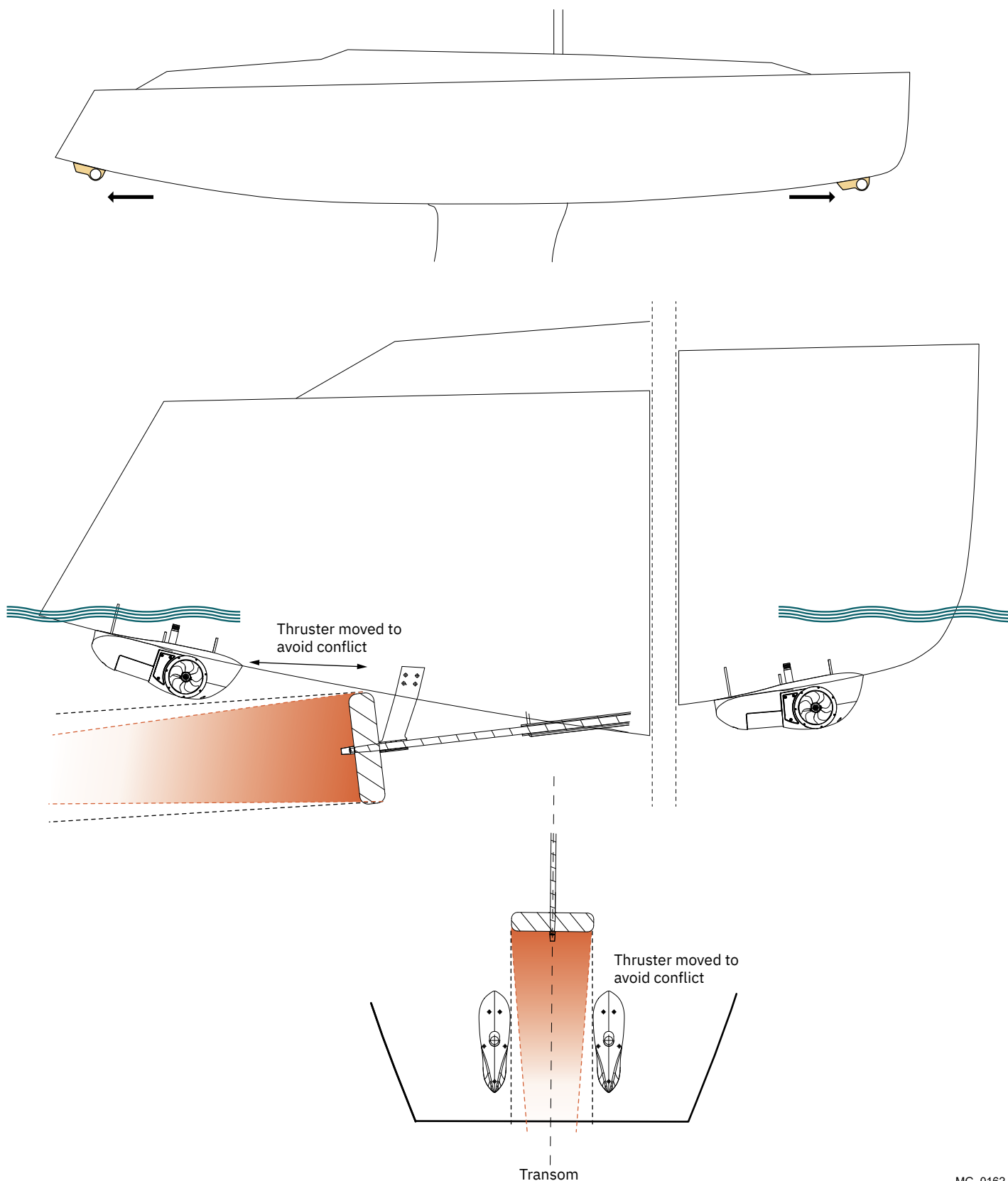
The tunnel assembly is performed by pressing the two halves together. They have a hard fit, so to ensure that they are pressed evenly together, use a clamp or a similar tool.

1. Position both halves to the thruster motor.
2. Ensure that the tabs on the tunnel halves correspond with the grooves in the motor unit, and also that the locking tabs on each halves correspond in the groove on the opposite halve.
It is of great importance that the tabs enters the grooves during the tunnel assembly.
3. Press the two halves evenly together.
Continue pressing until the snap lock tabs are in position and locked properly.
4. The tunnel is in proper position when the locking tabs are completely interlocked, and the inside of the tunnel has a smooth surface.
Ensure that the propeller is free rotating when the tunnel is assembled.



Aim to install the thruster as far forward/ Aft as possible

Due to the leverage effect around the boats' pivot point. The relative distance difference from the boat pivots' point to the thruster will determine the amount of real thrust for the boats, rotation.



- Find the most optimal location on the hull for the thruster pod.

Ensure that there are no obstructions inside the hull that will make it difficult to install the thruster.

- Use the template shown below for marking the correct position of the holes in relation to each other for the SX thruster, and drill the holes with the dimensions as shown.
- Place the SX thruster into the Hydro pod mould.
- With the SX thruster in the hydro-pod place the unit onto the hull. Use the pre-drilled holes to guide the assembly to the desired location.
- Fasten temporarily to the hull. **(NB: The SX thruster in the Hydro pod will ensure no flexing of the mould will occur.)**
- Modify the Hydro pod mould to match the hull profile of the boat. Aim to obtain both the front and back tips of the mould sit flush to the hull.

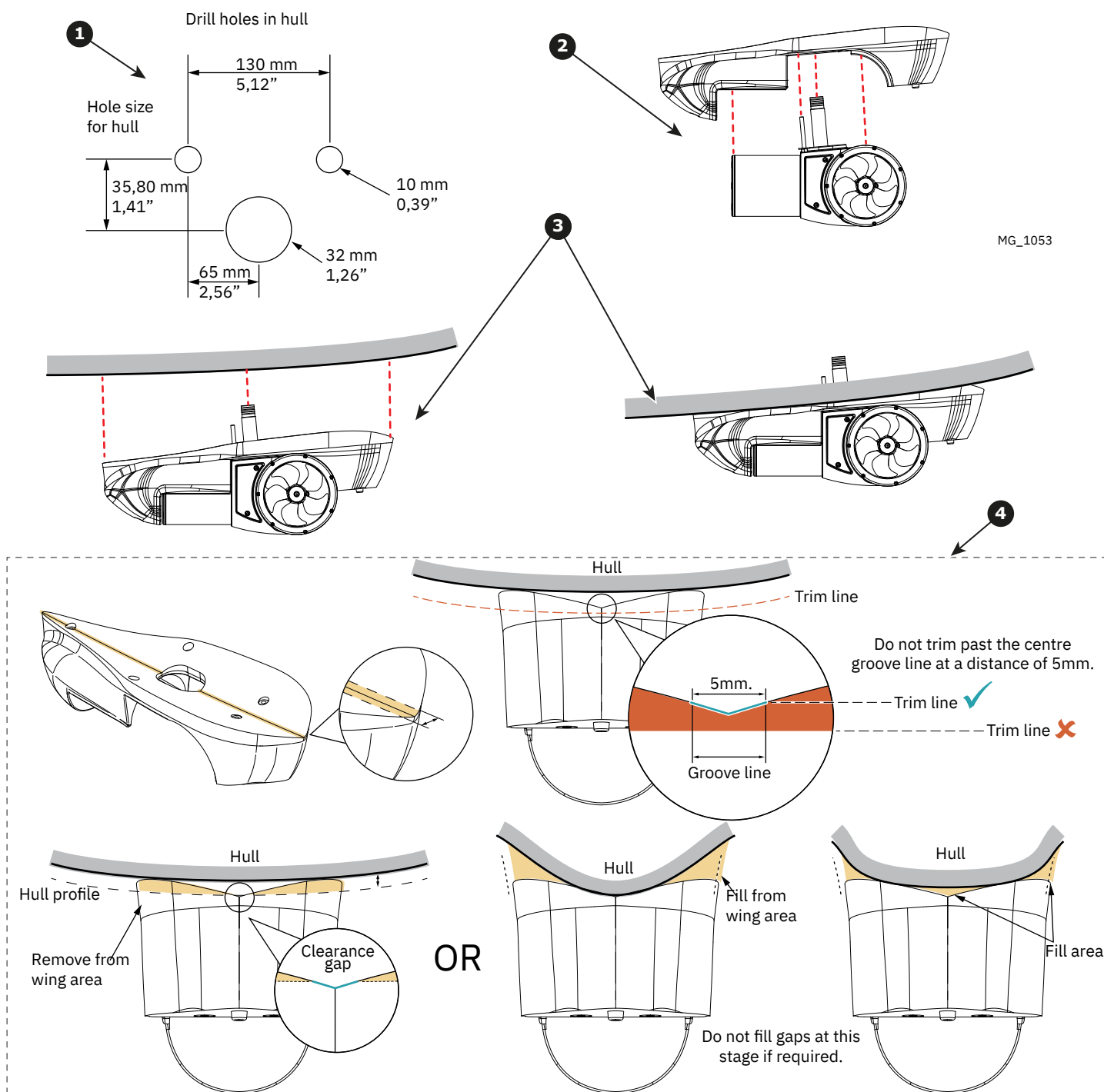
Follow the below instructions depending on the modification required:

A): Trim the wings of the hydro pod to match the hull profile.

(NB: Excessive heat caused by the cutting method can cause the mould to melt in the worked area.)

OR

B): Determine to use appropriate filler to fill the gap between the hydro pod and the hull. **(NB: Do not fill gaps at this stage if required.)**

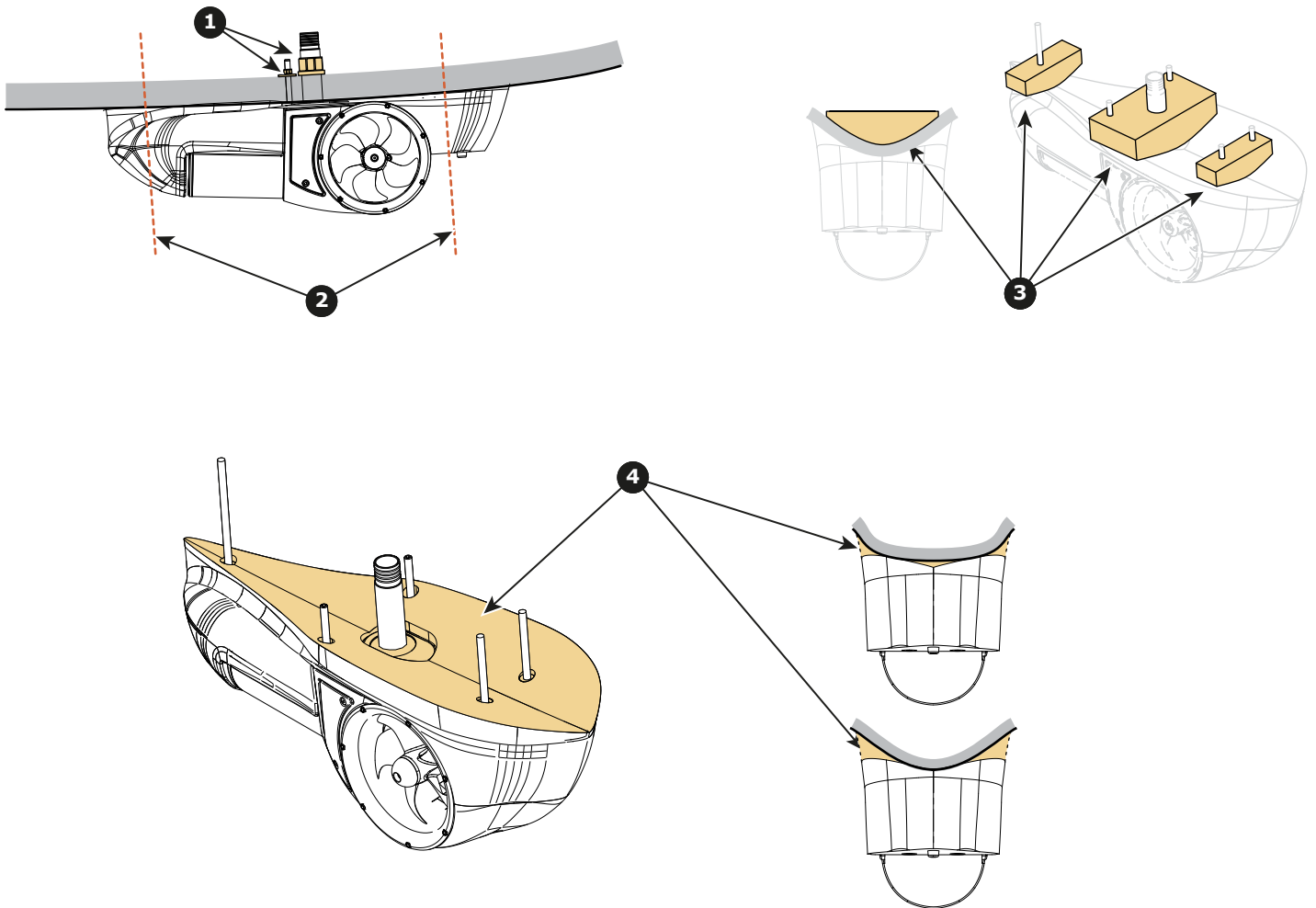


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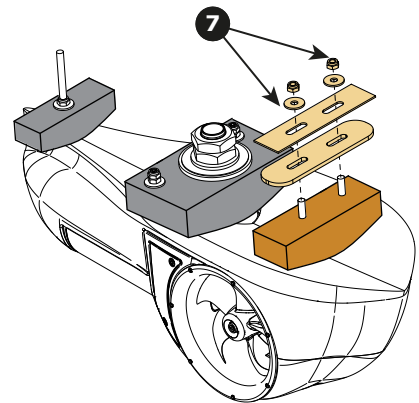
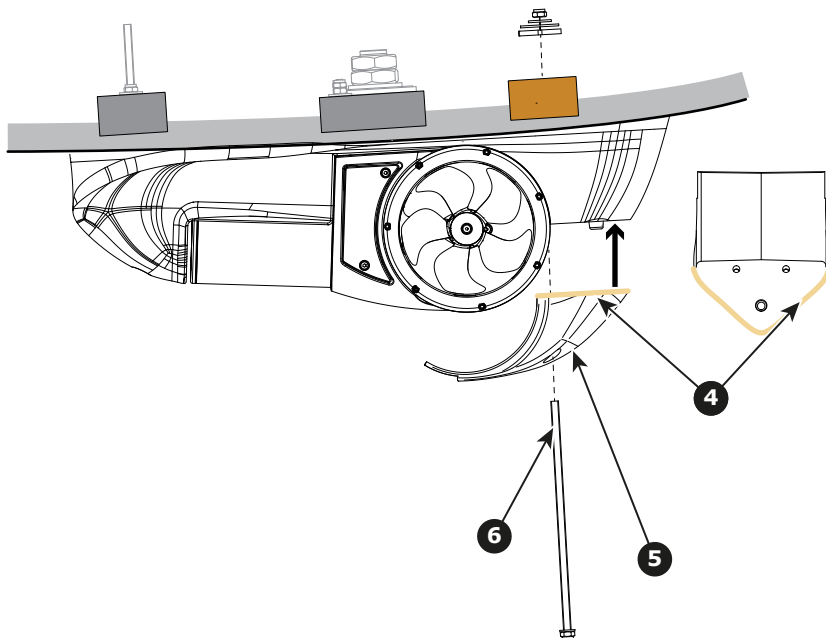
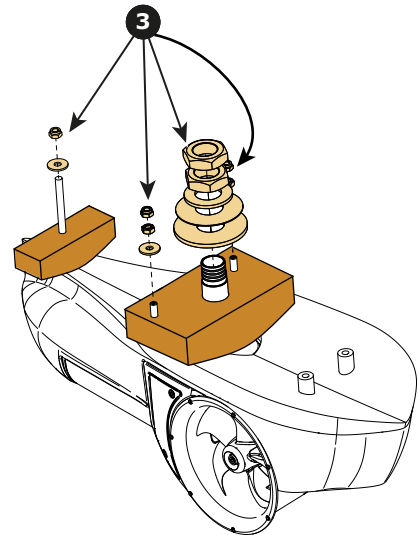
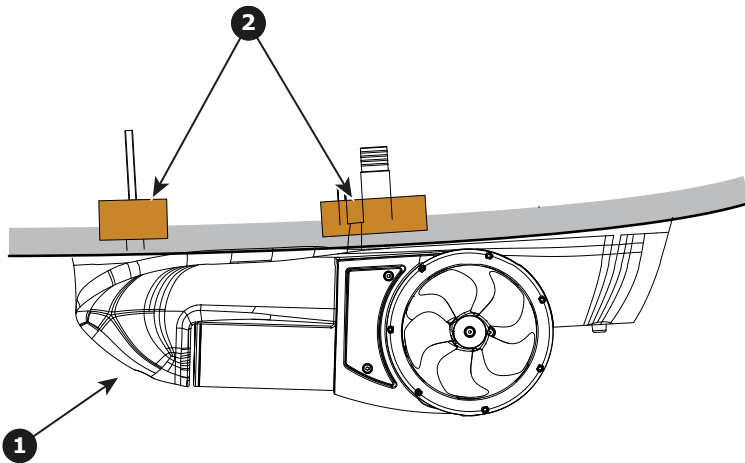
1. Temporarily fasten the Hydro pod to the hull using the SX thruster bolts.
2. Mark the remaining Hydro pod holes (1 in rear, 2 in front) and drill Ø10mm holes. Clean the area from dust before installation of the thruster.
(NB: Tightening the Hydro pod can reduce the gap between the mould and the hull from compression. Note this when if required to add MSPolymer to fill gaps.)
3. Make support segments based on the hull profile for the bolt and tube fasteners.
4. Apply a sealant (MS Polymer) to:
 - The inside of the cut out holes in the hull.
 - To the surface of the washer and thread end.
 - In the recess of the main tube to the thread.
 - 1cm deep inside all bolts.

IF: required to fill gaps between the Hydro pod and the hull use an appropriate amount on the Hydro pod mould to achieve this.

(NB: Ensure ample sealant (MS Polymer) around the bolts and centre tube for a watertight fitting.)

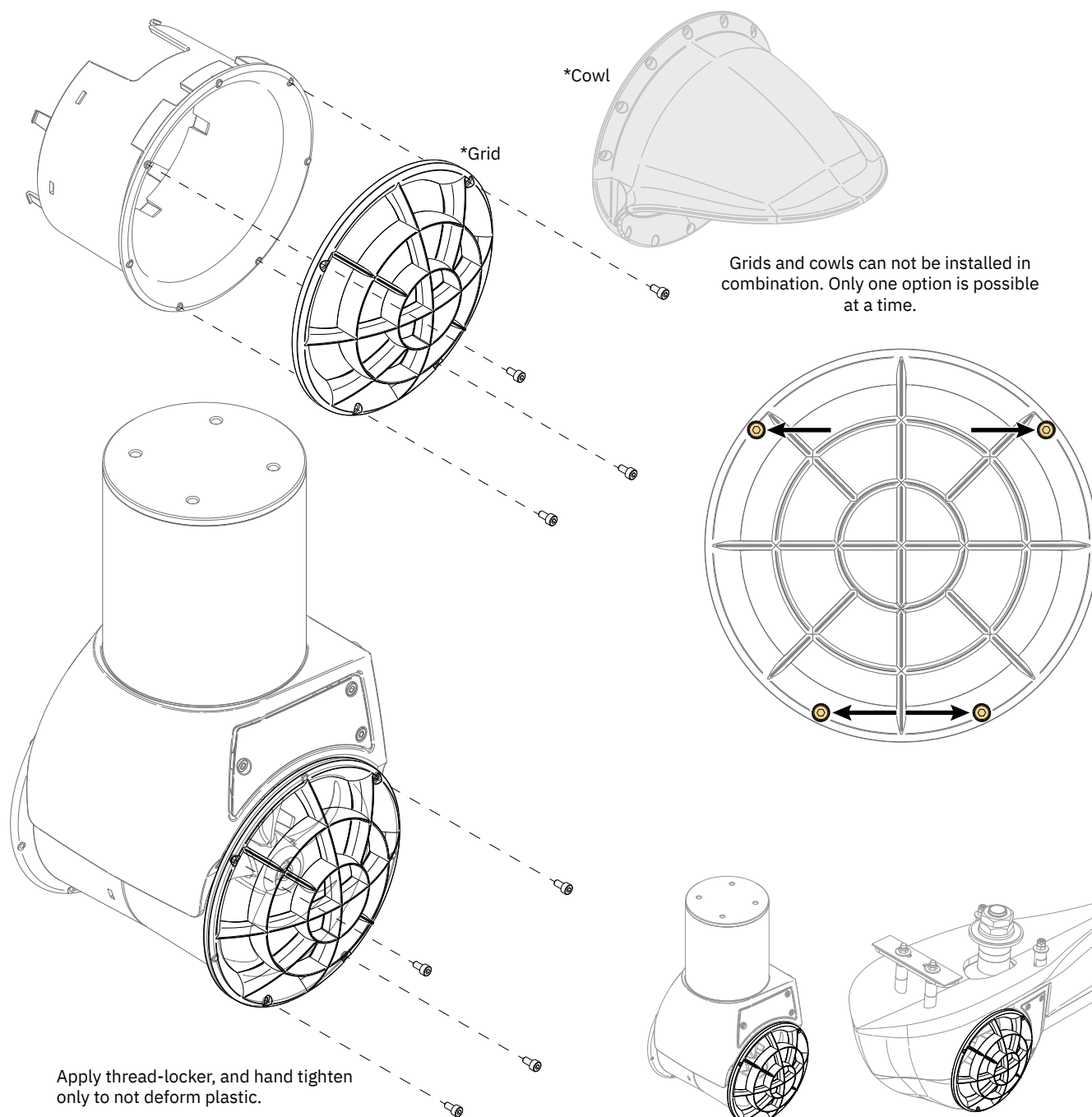


1. Place the Hydro pod to the hull without the nose cap.
2. Put the center and rear support segments in their position.
3. Fasten the Hydro pod via the SX thruster bolts and the rear hydro pod securing bolt.
(NB: Wipe away MS Polymer that has been pushed out from the compression of the Hydro pod to the hull.)
4. Add MS polymer on the nose cap surface facing the hydro pod.
5. Position the Hydro pod nose cap.
6. Enter the two bolts through the nose cap.
7. Enter the shims and nuts on the nose cap bolts, and tighten.

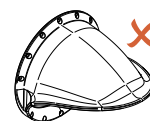


MG_1055

1. Attach the cowls or grids with included bolts. **(NB: If installation of the cowls ensure the appropriate twist of the cowl to direct water away from obstacles. Cowls are not used in combination with the hydropod.)**



Cowls are not used in combination with the hydropod



MG_0145

1. Plan the location of all electrical components before starting with the electrical installation. Main electrical components will typically consist of battery, fuse, main switch, Proportional Power Controller (PPC) and Control Box, see Wiring Diagram chapter for an overview.

For safety reasons it is always recommended to install a fuse and a main switch on the power cable and as close as possible to the positive battery pole. Distance between battery and fuse should be less than 1 meter. The main switch must be installed such that is easily accessible to disconnect the thruster when not on-board or in the case of an emergency. 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 does also turn on the automatic main switch. When the control panel is turned off the automatic main switch is also 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 and current ratings according to the specifications of the chosen thruster motor. Note that the AMS requires separate power supply which should be protected by a dedicated fuse.

For installations which requires ignition protected equipment ensure to use ignition protected fuse and main switch. Ensure to follow your national regulations.

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 pole, via fuse, main switch and PPC to the Control Box and all the way back to the negative battery pole. Compromising the cable sections named B+, M- and B- on the drawing in the Wiring Diagram chapter.
3. Find the recommended power cable cross section for you installation by using the estimated total power cable length and the table shown in Electrical Reference Guide chapter. Note that maximum cross section that fits through the grommet of the Control Box is 70mm². Maximum cross section that fits with the power cable terminal inside the Control Box is 50mm². If a 70mm² cable is used some of the wire strands must be cut off to fit the cable inside the terminal. If recommended cross section exceeds 70mm² it is recommended to use as short as possible cables between PPC and Control Box with maximum 70mm² cross section. The recommended cross section or larger should then be used for the rest of the power cables.
4. Find the recommended fuse rating by using the table shown in Electrical Reference Guide chapter. Use slow blow rated fuses to hold stated nominal current for minimum 5 minutes.
5. Select appropriate dimensioned battery with Cold Cranking Amps (CCA) according to recommendations in 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 Electrical Reference Guide chapter. The actual voltage at the motor while running the thruster determines the motor RPM and thrust. Cable losses can reduce the voltage level and result in reduced thrust. Use larger cable cross section and high-capacity battery for improved performance.
6. Install the Control Box according to instructions in Control Box Installation chapter.
7. Install the control panel according to instructions in the installation manual of the selected Control Panel.
8. Install the battery, fuse, main switch and wiring according to instructions in Wiring Diagram chapter and installation manual of selected fuse and main switch.



CAUTION

Check the following with the main switch is set to off. After all electrical connections have been completed check with an ohm meter that there is no electrical connection between

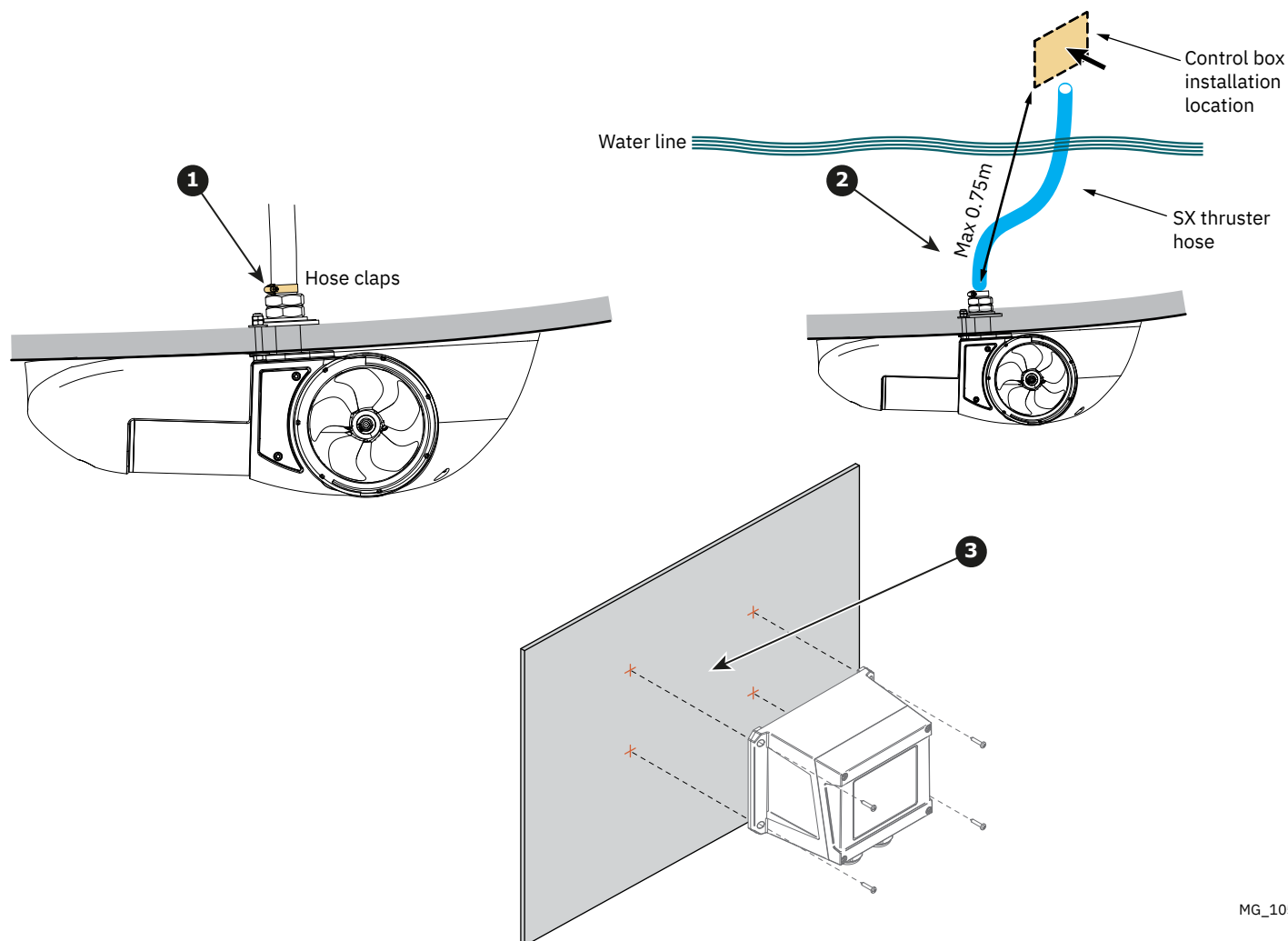
1. Electric motor flange and the positive terminal on the motor
 2. Electric motor flange and the battery negative terminal on the motor
- (If unsure contact skilled personnel.)

Electrical Reference Guide

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.
35/140	12V	245 A	DIN: 200 SAE: 380 EN: 330	ANL 150	mm ²	35	50	50	70	70	95	95	120	120	2 x 70	2 x 70	2 x 95
					AWG	2	1/0	1/0	2/0	2/0	3/0	3/0	4/0	4/0	2 x 2/0	2 x 2/0	2 x 3/0
50/140S	12V	370 A	DIN: 350 SAE: 665 EN: 600	ANL 325	mm ²	50	50	70	95	120	2 x 70	2 x 70	2 x 95	2 x 95	2 x 120	2 x 120	2 x 120
					AWG	1/0	1/0	2/0	3/0	4/0	2 x 2/0	2 x 2/0	2 x 3/0	2 x 3/0	2 x 4/0	2 x 4/0	2 x 4/0

Follow the below steps to install the Control Box. Additional installation details can be found in the corresponding graphics.

1. Pull the blue SX Thruster Hose around the cable harness coming out of the SX Thruster. Fasten the hose clamp.
2. Define the location to install the Control Box. It can be mounted in any orientation, preferably with cables facing down. The control box must be positioned within 0.75 meters from the thruster attachment bolts. Ensure that the SX Thruster Hose will not obstruct any objects and not placed near any object that radiate high temperatures.
3. Mark the locations of the four drill holes and drill the holes. Ensure that the back wall where the Control Box is to be mounted have sufficient thickness and strength.

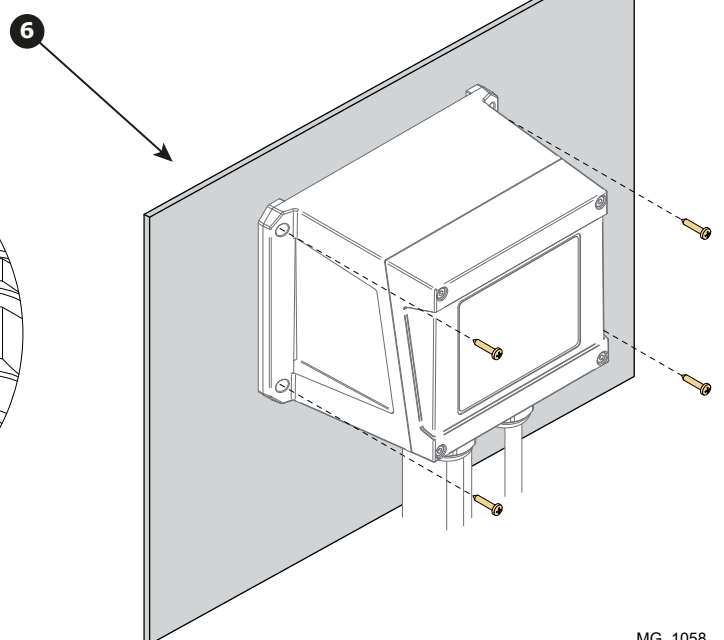
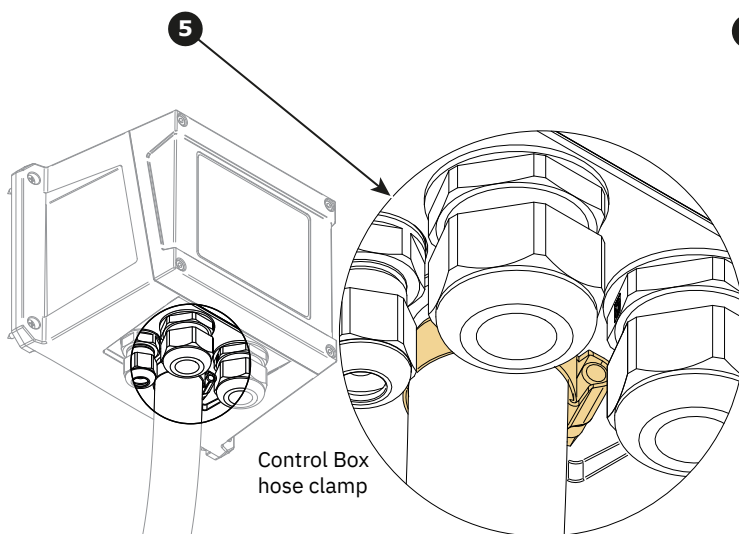
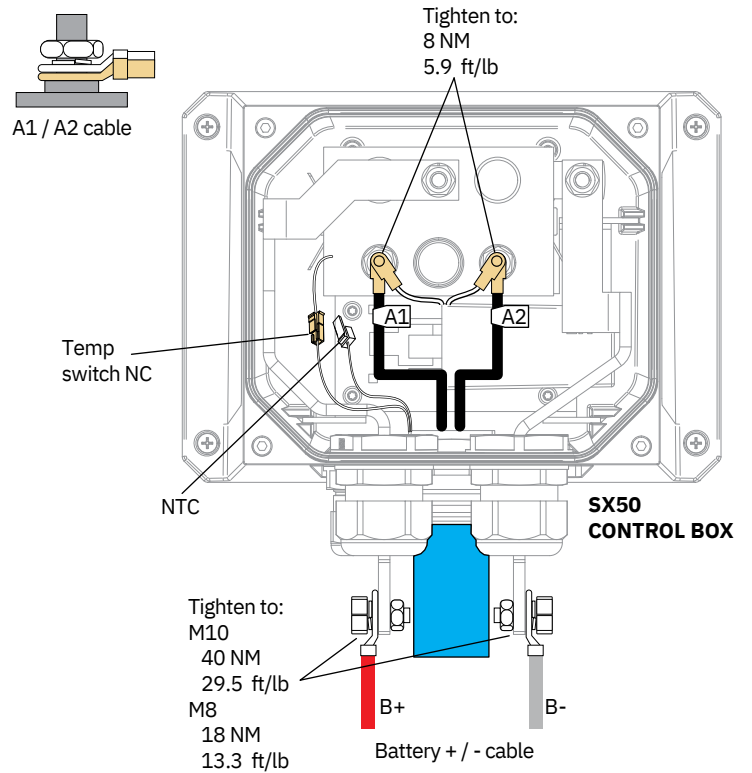
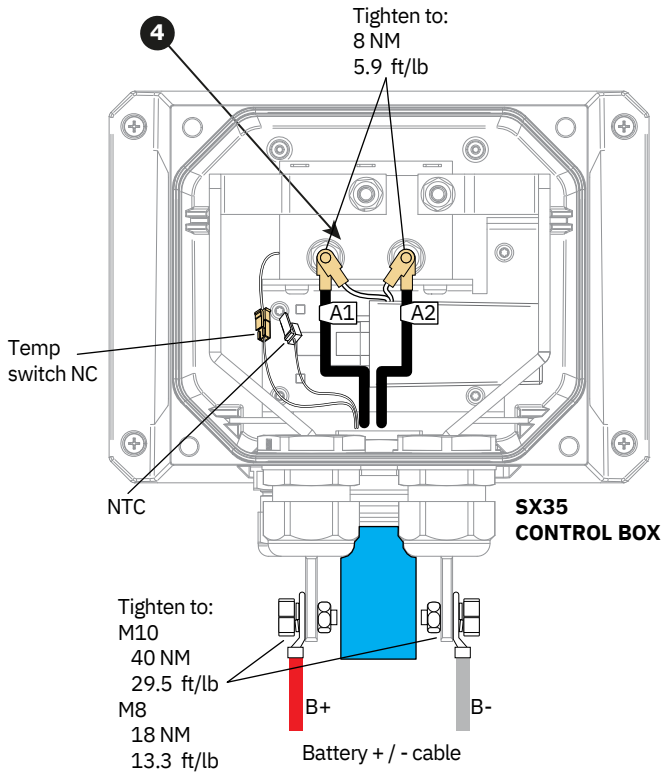


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4. Follow the cable marking and fasten motor power cables coming from the SX Thruster in the control box. The motor power cables are marked A1 and A2 and should be fastened to the terminal with corresponding marking. Place the ring cable lug connected to the white wire between the lug of the motor power cable and the nut. Fasten the nut with recommended torque. Ensure that the ring cable lug is kept at same terminal as originally placed.
 - Insert the B+ and M- power cables to the external connectors as shown in figure below. Fasten the power cables to the terminals with recommended torque.
 - Connect the Temp Switch (**NB: Additionally connect the NTC connector for proportional thrusters.**)
5. Tighten hose clamp on Control Box.
6. Fasten the control box to the hull.

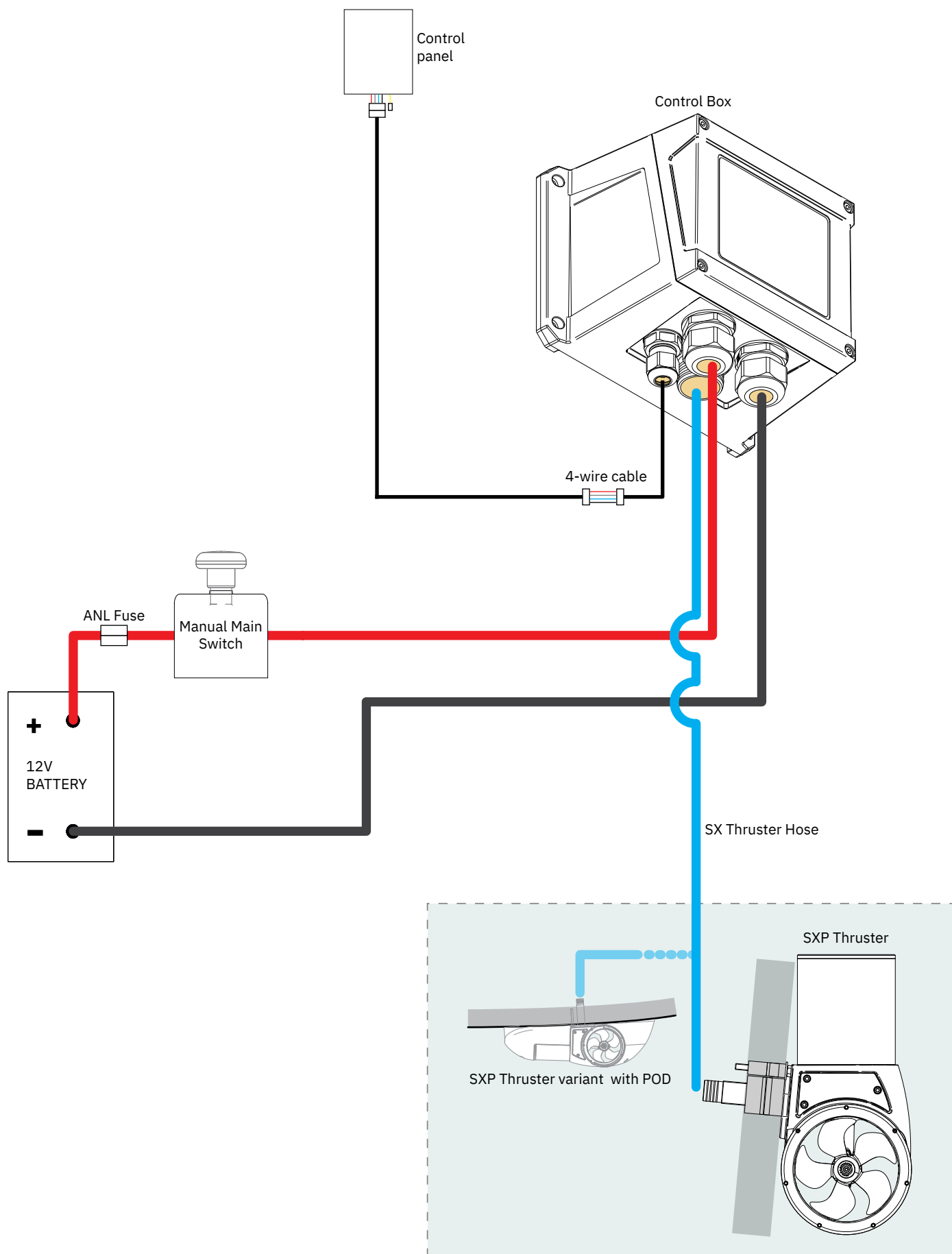
CAUTION

It is the installers full responsibility to follow instructions and ensure total Ignition Protection.

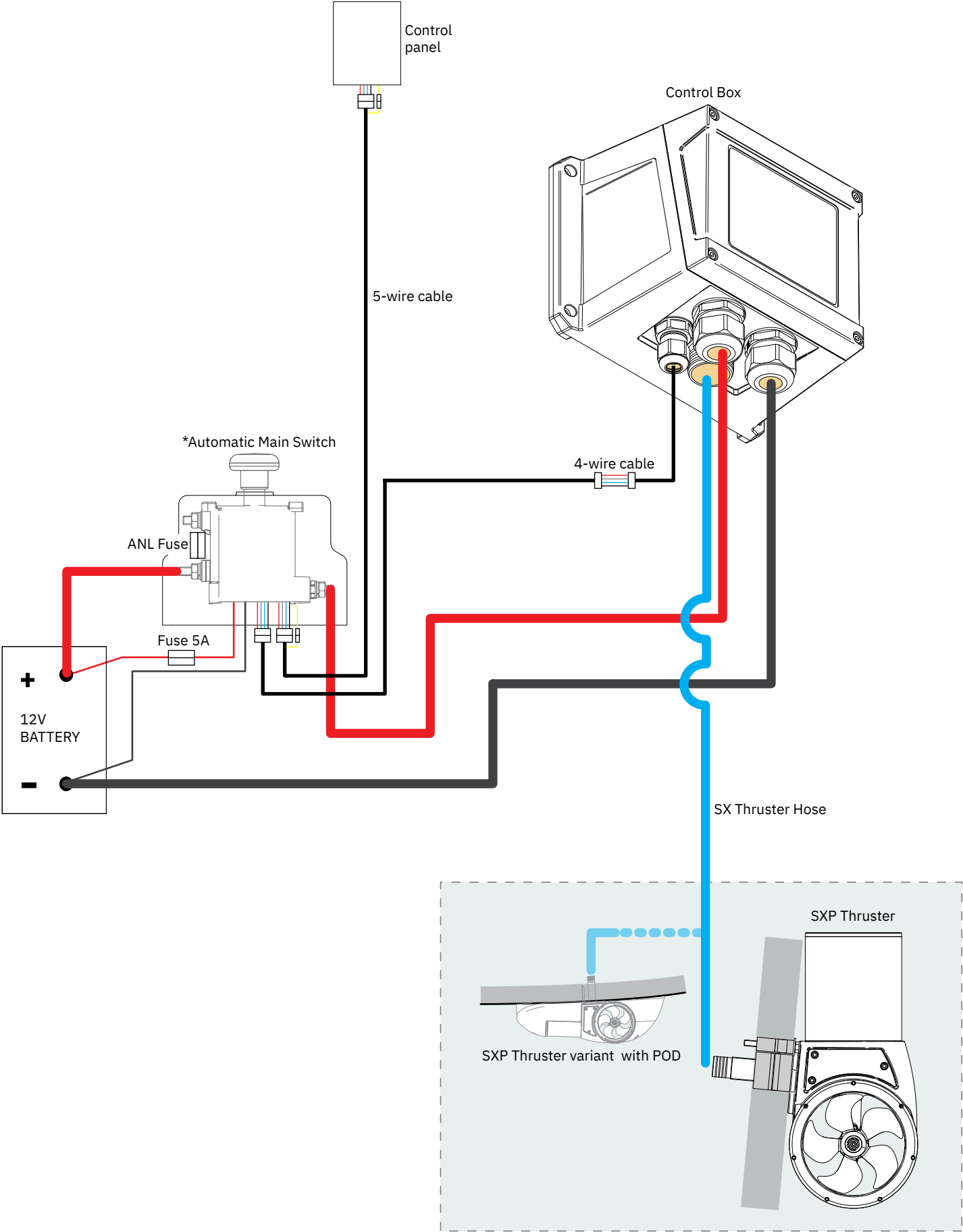


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Manual Main Switch Wiring Diagram 12V SX Thruster



Automatic Main Switch Wiring Diagram 12V SX Thruster



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



- ☐..... Propeller is fastened correctly to the shaft.
- ☐..... Propeller turns freely in tunnel.
- ☐..... Primer and anti-fouling have been applied to the gear house and propeller but NOT on the anode or the gear house lid where the propeller is fastened. **(NB: Do not use abrasive tools damaging the existing Epoxy coating when preparing for antifouling paint.)**
- ☐..... Correct drive direction as per control panel.
- ☐..... The bolts holding the thruster to the hull are tightened correctly.
- ☐..... All electrical connections are clean, dry and tight, and the correct cable, fuse and main switch size.
- ☐..... No water leakage around hull penetrated studs

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

Signed:

Date:

Extra pre-delivery tests by installer / yard who does not use other quality control systems !

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:

.....

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.sleipnergroup.com/support

Product spare parts and additional resources

For additional supporting documentation, we advise you to visit our website www.sleipnergroup.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.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

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

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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