

QSR_{series}

REV 000B

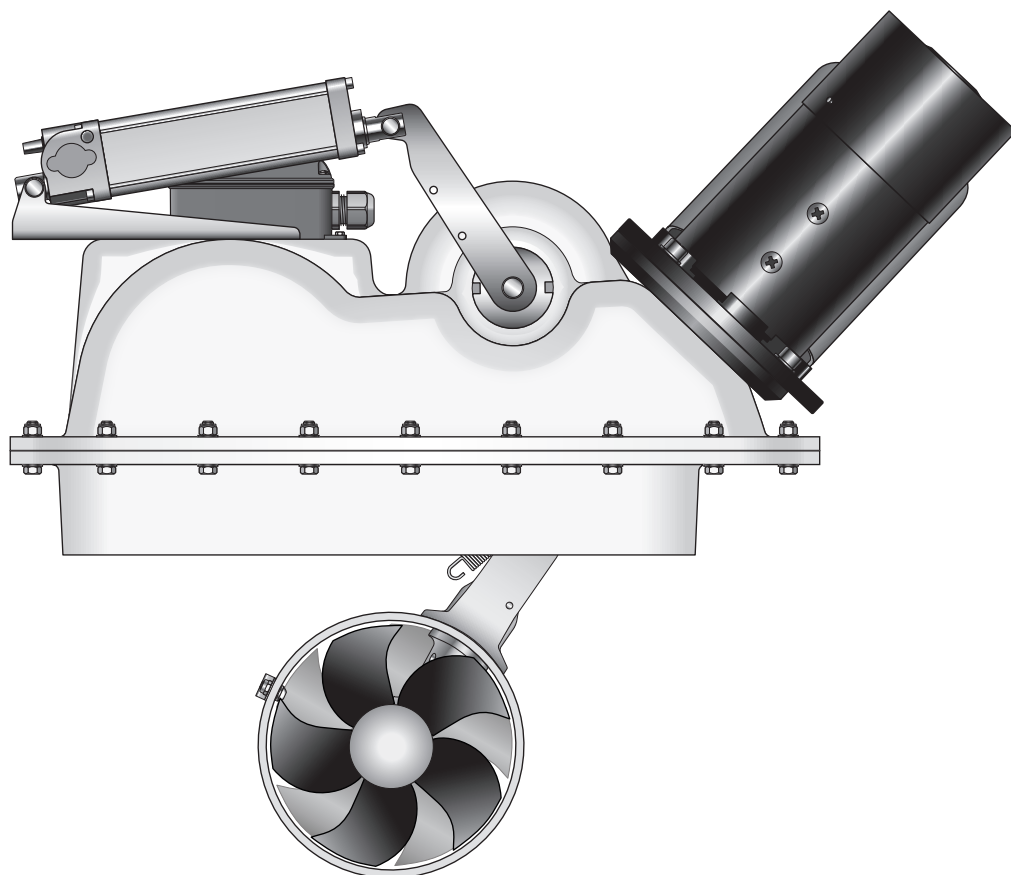


QSR 80-185

QSR 100-185

QSR 160-250

QSR 230-250



RETRACTABLE THRUSTER

USER MANUAL

EN

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QS[®]
SEAMASTER

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**BEFORE USING THE RETRACTABLE THRUSTER, CAREFULLY READ THIS USER MANUAL.
IF IN DOUBT, CONTACT YOUR NEAREST QS SEAMASTER® DEALER.**

 QS SEAMASTER® RESERVES THE RIGHT TO INTRODUCE CHANGES TO THE EQUIPMENT AND THE CONTENTS OF THIS MANUAL WITHOUT PRIOR NOTICE. IN CASE OF DISCORDANCE OR ERRORS IN TRANSLATION BETWEEN THE TRANSLATED VERSION AND THE ORIGINAL TEXT IN THE ITALIAN LANGUAGE, REFERENCE WILL BE MADE TO THE ITALIAN TEXT.

1.0 - Technical data

MODELLI		QSR8018512	QSR8018524	QSR10018512	QSR10018524	QSR16025024	QSR23025024
Nr. Propellers		2 counter rotating					
Tunnel Ø		185 mm (7" 18/64)				250 mm (9" 27/32)	
Motor Power		4,3 kW		6,3 kW		8,0 kW	10 kW
Voltage		12 V	24 V	12 V	24 V	24 V	
Fuse		400 A CNL DIN	275 A CNL DIN	400 A CNL DIN	275 A CNL DIN	400 A	2 x 300 A
Thrust		80 kgf (176,4 lb)		100 kgf (220,5 lb)		140 kgf (308 lb)	240 kgf (529 lb)
Weight		47,5 kg (104,5 lb)	50,5 kg (111,1 lb)	57,0 kg (125,4 lb)	54,5 kg (120,0 lb)	85,2 kg (188 lb)	90,2 kg (199 lb)
Recommended cable section (*) (**)	L<5m	2 x 50 mm ² (2 x AWG 1)	70 mm ² (AWG 2/0)	2 x 70 mm ² (2 x AWG 2/0)	70 mm ² (AWG 2/0)	70 mm ² (AWG 2/0)	2 x 50 mm ² (2 x AWG 1)
	5,1< L < 10m	2 x 70 mm ² (2 x AWG 2/0)	2 x 50 mm ² (2 x AWG 1)	2 x 95 mm ² (2 x AWG 3/0)	2 x 50 mm ² (2 x AWG 1)	2 x 50 mm ² (2 x AWG 1)	2 x 70 mm ² (2 x AWG 2/0)
	10,1< L < 20m	2 x 95 mm ² (2 x AWG 3/0)	2 x 70 mm ² (2 x AWG 2/0)	2 x 120 mm ² (2 x AWG 4/0)	2 x 70 mm ² (2 x AWG 2/0)	2 x 70 mm ² (2 x AWG 2/0)	2 x 95 mm ² (2 x AWG 3/0)

(*) L = positive cable + negative cable

(**) Different solutions are allowed, provided they are supported by the connection terminals. Comply with the minimum area clearance recommended)



2.0 - Package contents

- Retractable thruster
- QSRGTW interface
- O-ring
- Hinge
- Lid bracket
- Steel cable
- Installation and use manual
- Conditions of warranty

2.2 - Needed tools for installation

QSRØ185 • Phillips screwdriver • Wire cutter
• Drill and drill bits Ø 8,5 mm • Hexagonal wrenches 2,5 mm • 8 mm e 13 mm wrench

QSRØ250 • Phillips screwdriver • Wire cutter
• Drill and drill bits Ø 8,5 mm • Hexagonal wrenches da 2,5 mm e 10 mm
• 8 mm, 13 mm and 17 mm wrench

2.2 - QS Seamaster® accessories for activation of the retractable thruster

- QAJ0T Remote control
- QAJ1T Remote control
- QAJ2T Remote control

3.0 Important notes

This manual contains Warning and/or Caution symbols that are important for safety. Comply with the recommendations provided herein.



Warning symbol concerning hazardous situations.



Caution symbol to avoid direct or indirect damage to the product.

This document contains the instructions that are necessary for boat manufacturers and marine equipment installers to assemble and commission **the Thruster**.

3.1 Precautions for the installer



PROCEEDING WITH THE INSTALLATION IN GOOD LIGHT CONDITIONS.

We recommend using an appropriate personal protective equipment.

QS SEAMASTER® thrusters are not suitable for installation in potentially explosive environments and/or atmospheres.

Assembly and subsequent checks or repairs must only be carried out by qualified personnel..



THE PRODUCT MUST BE DISCONNECTED FROM THE ELECTRICAL SYSTEM BEFORE INSTALLING OR PROVIDING MAINTENANCE.

QS SEAMASTER takes no responsibility regarding the inadequate connection of the users to the electrical system and to the safety of the same.

3.2 - Installation requirements

It is strongly recommended to entrust a professional with the preparation and positioning of the counter flange on the hull. These instructions are generic and do not show by any means the details of the operations of preparing the counter flange, which falls under the competence of the shipyard. In case of problems caused by a defective installation of the counter flange, the installer will be held responsible.

Despite all components and moving mechanical parts are of high quality, the correct installation of the propulsion unit is fundamental for a safe and efficient use of the boat, as well as of the propulsion unit itself.

Please note that the installation of such unit is an operation requiring experience and technical competence. It is recommended to entrust the installation to competent staff and to consult the manufacturer or naval architects to fully evaluate the entity of the work.

The QSR retractable thruster® has two distinct movements.

The main movement, relating to the propulsion part, is of tilting type. The hinges on which the movement happens are conceived to confer high resistance to the set and are located on the flat flange surface that joins the pre-assembled structure to the hull solid support.

The secondary movement relates to the closing of the through-hull fitting from where the tunnel comes out. This tilting movement takes place around the hinge, which has been designed and manufactured in order to open the lid without interferences (if properly installed, as per instructions provided).

Electric motor, gear, levers and all other components are supplied by QS Seamaster®, already assembled on the supporting structure in BMC and do not require adjustments, adaptations or sealings, unless indicated in this manual.

The QSR retractable thruster is sold separately from the counter flange, that can be supplied in different materials to comply with the different types of hulls. QS Seamaster® is able to supply stainless steel, aluminium alloy or BMC supports, fundamental for a solid and precise installation.

For the fibreglass hulls the support must be laminate in the hull respecting the current regulations relating to joints. The propulsion unit distributes mechanical stresses to the hull through the counter flange. The strenght of the joint will be determined by overlapped, up to standard, rolling processes.

For aluminium alloy or for stainless steel hulls, the support must be welded to the hull.

If this installation is correctly realised, a box-type structure like the support's one, can give greater sturdiness to the hull. Consult the manufacturer, naval architects and/or specialised companies to evaluate additional work such as beams and ribs near the retractable propulsion unit.

4.0 - Warnings

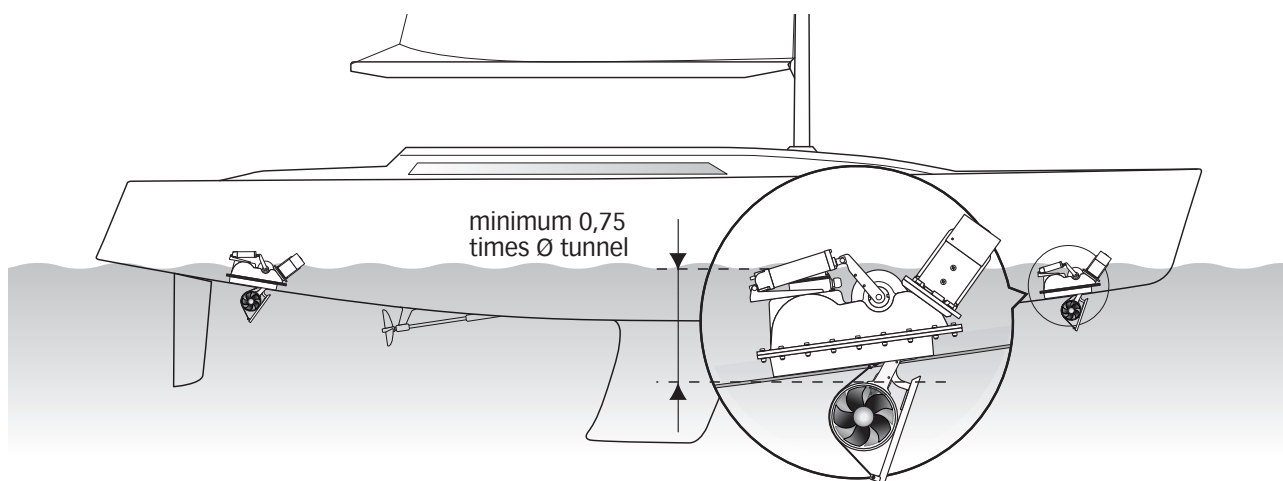


- QS Seamaster® thrusters have been designed and manufactured for nautical use.
- Do not use these appliances for other uses.
- QS Seamaster® shall accept no responsibility for direct or indirect damages caused by improper use of the appliance or an improper installation.
- The thruster is not designed for maintaining loads generated in particular atmospheric conditions (storms).
- It is strongly recommended to entrust a professional with the preparation and positioning of the counter flange on the hull. These instructions are generic and do not show by any means the details of the operations of presetting the counter flange, which falls under the competence of the shipyard. In case of problems caused by a defective installation of the tunnel, the installer will be held responsible.
- Do not install the electric motor near easily inflammable objects.

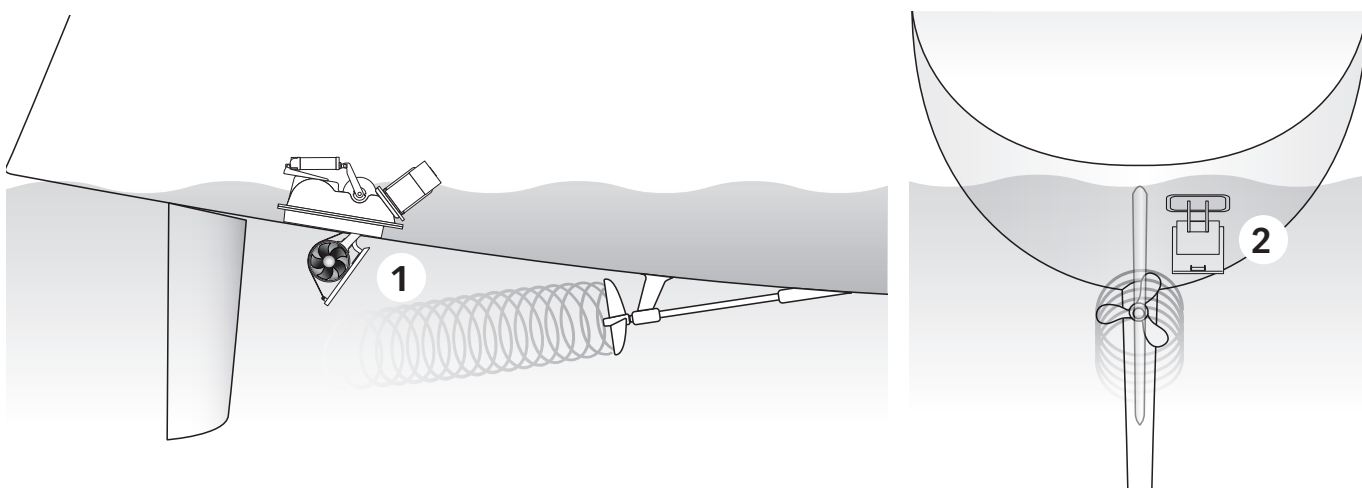
QS 5 - Installation

QSR Series

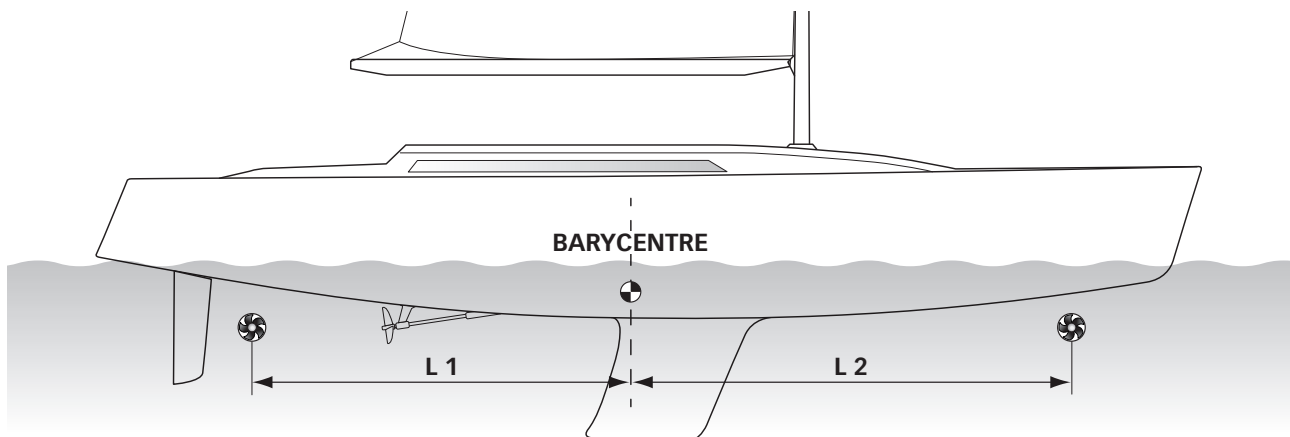
5.0 - Installation requirements



- To avoid cavitation in the propeller, the tunnel must be positioned as low as possible.



- In order to prevent any damage, position the retractable thruster in such a way that the closing lid is not affected by the propulsion cone of the boat propeller (example 1 and 2), in both directions.

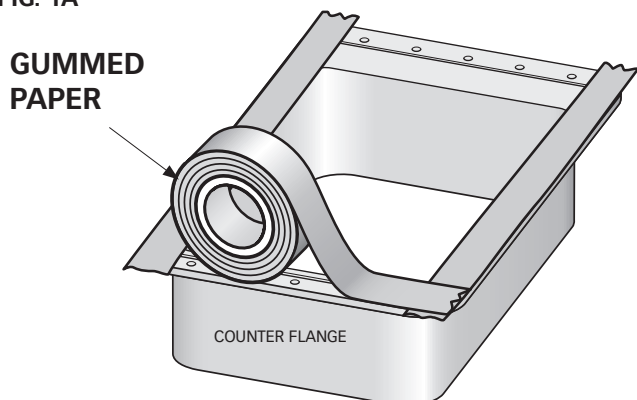


- The longer L1 and L2 will be, the greater the thrust generated around the center of gravity.

5.1 - Counter flange's installation

Directly access inside the hull, where the thruster will be installed. The thruster position must enable easy maintenance operations.

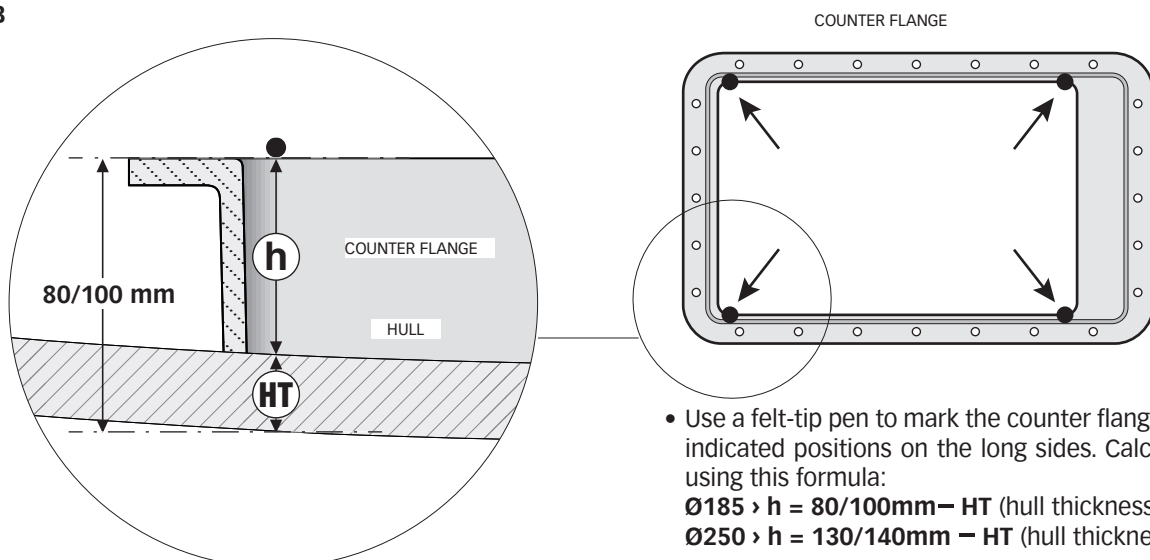
FIG. 1A

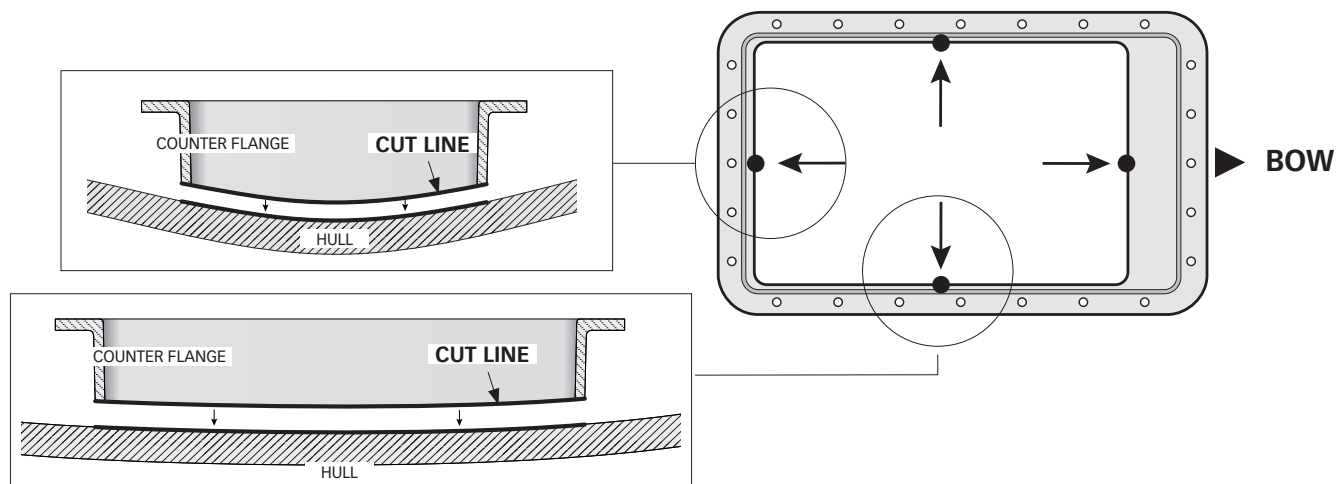


Conversion from decimal to fractional inches			
5 mm =	3/16" in	80 mm =	3" 5/32 in
8 mm =	5/16" in	95 mm =	3" 3/4 in
10 mm =	25/64" in	100 mm =	3" 15/16 in
15 mm =	19/32" in	130 mm =	5" 1/8 in
20 mm =	25/32" in	140 mm =	5" 33/64 in
26 mm =	1" 1/32 in	150 mm =	5" 29/32 in
35 mm =	1" 3/8 in	250 mm =	9" 27/32 in
45 mm =	1" 49/64 in		

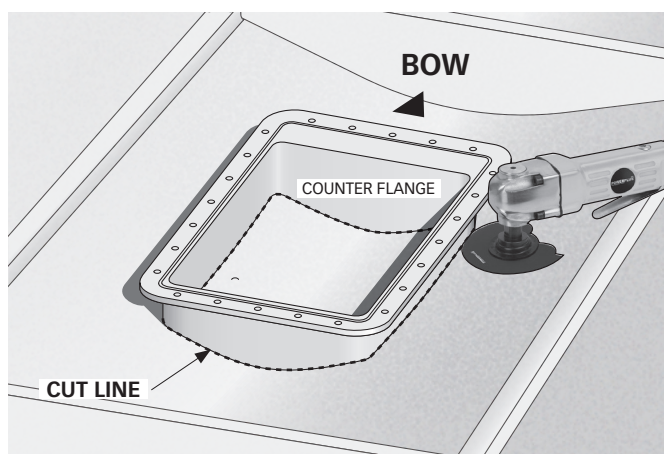
- Protect the gasket with gummed paper tape to prevent it from getting dirty (Fig. 1A), until the end of the installation of the propeller.

FIG. 1B





- Shape the central section of the 4 **INDICATED** sides of counter flange in order to adjust them to the hull curve (Fig. 1C).

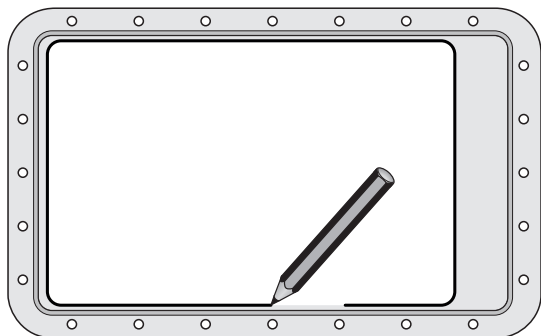


- Lay the properly-cut counter flange and check that the four sides fit the hull, or adjust them until they do fit in the position where the counter flange is meant to be fixed.



WARNING: keep into account the minimum dimensions for the final positioning of the hinge (See fig. 13 page11).

Fig. 2



- On the hull, Mark with a felt-tip pen the internal perimeter of the counter flange (fig. 2).
- Remove the counter flange and mark the cutting area:
Ø185 350x280 mm (13" 25/32 x 11" 1/32) (fig. 3A)
Ø250 480x310 mm (16" 59/64 x 12" 13/64) (fig. 3B)

Fig. 3A

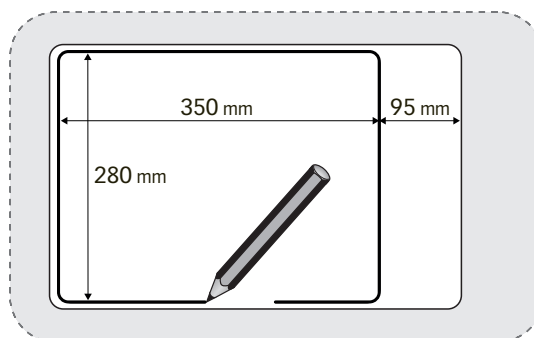


Fig. 3B

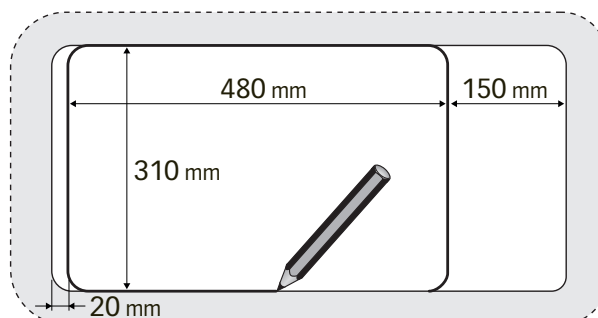
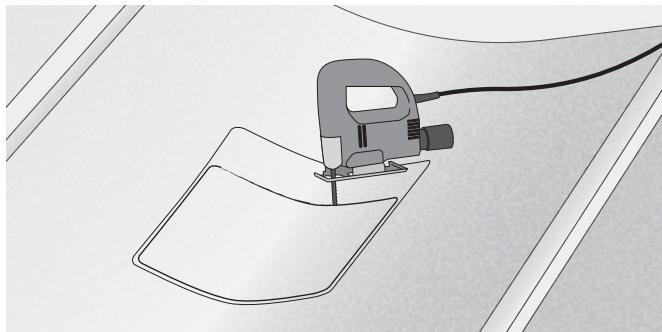


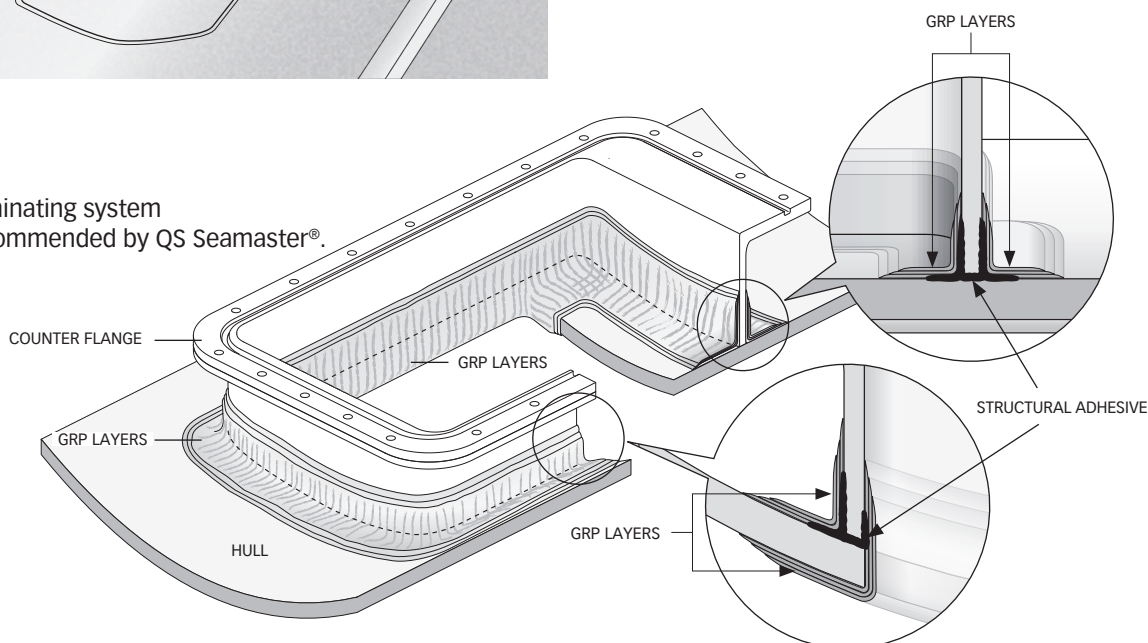
Fig. 4



- Cut the hull along the cutting area previously marked (fig. 4).

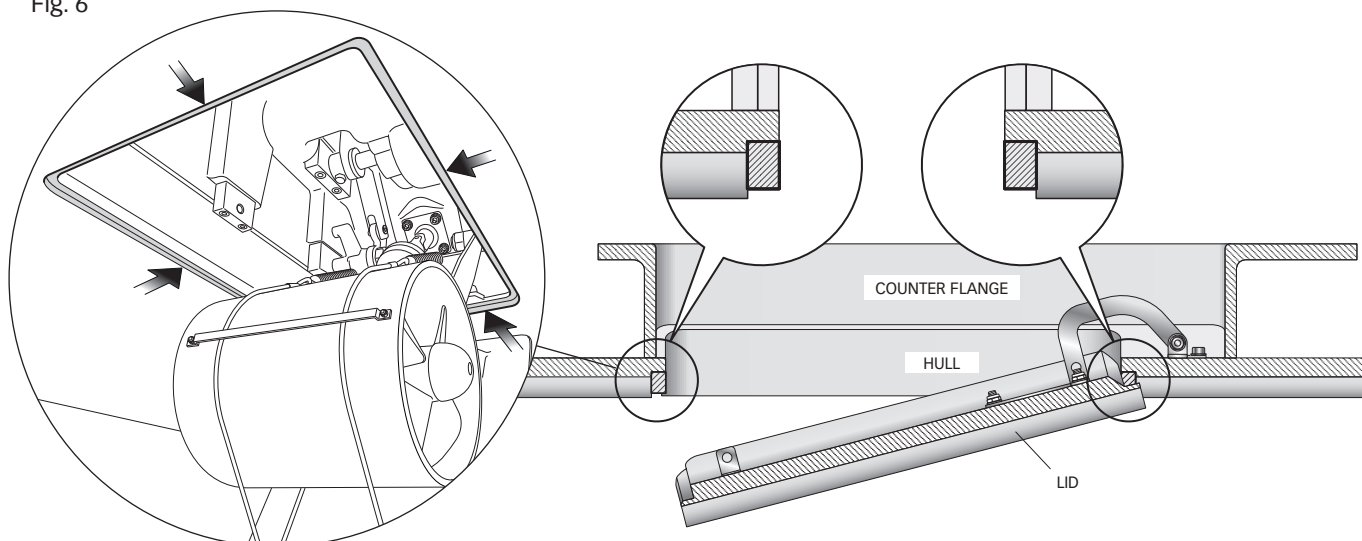
Fig. 5

Laminating system recommended by QS Seamaster®.



- Align the counter flange to the hull's opening and check that the four heights are correct (fig.1B). Resinate the counter flange, or solder it in case of aluminium or steel, according to the techniques the most suitable to the hull's material (fig. 5).

Fig. 6



- Make a solid coaming for the closing lid on the whole perimeter of the hull's opening (fig. 6).

5.2 - Closing lid's preparation and installation

WARNING: pay particular attention to avoid interferences between the lid and the hull opening. Too precise contacts will cause damages to the entire moving system (fig.7).

Fig. 7

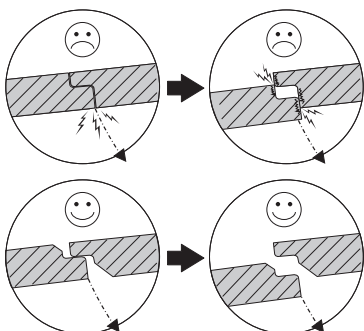


Fig. 8

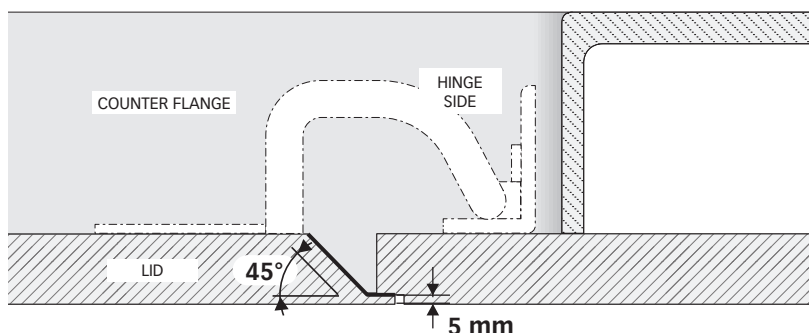
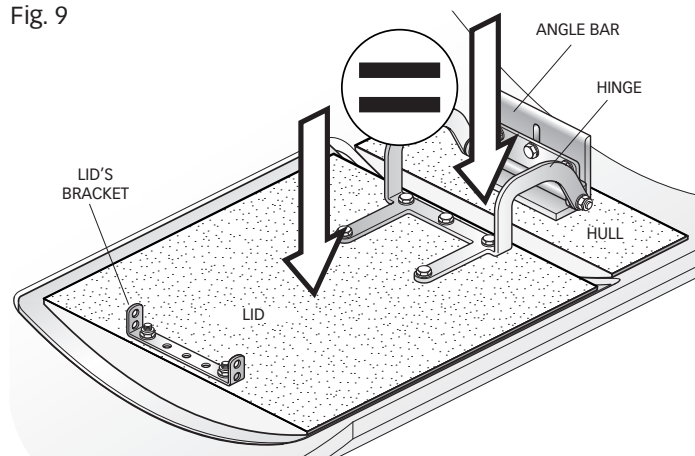


Fig. 9



- Realised the closing lid by keeping on all sides a space varying from 3 to 5 mm, paying special attention to the hinge's side, ensuring that the internal walls are inclined by 45° so that they don't hinder the hull's opening (fig. 7 and 8).
- To obtain the correct opening of the hinge, the surfaces of hull and lid must be on the same level (fig. 9).
- The maximum hull thickness must be 35 mm (QSRØ185) 50mm (QSRØ250) (fig. 8).
- Position the angle bracket correctly on the hull (fig. 10A and 10B - part. A). Fasten the angle bracket with structural adhesive (fig. 10B - part. B1 - B2). Decide whether to fasten the lid bracket to the hull with 3 M8 screws or with resin (fig. 10B - part. C1 - C2).

Fig. 10A

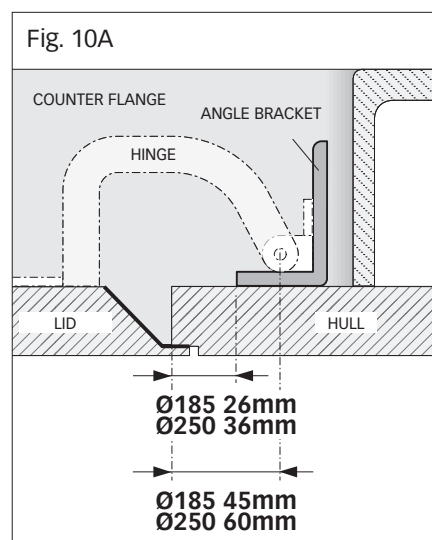


Fig. 10B

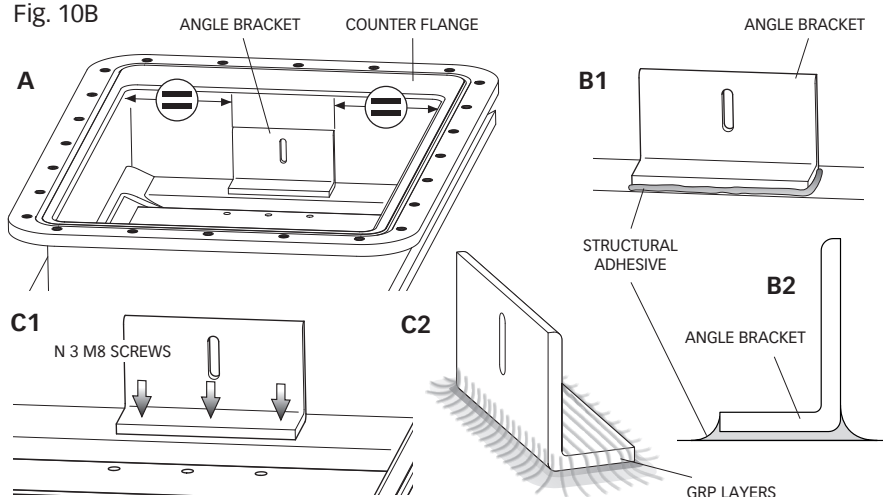
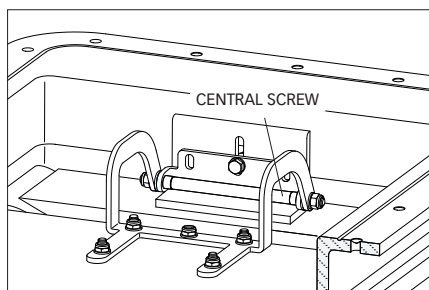


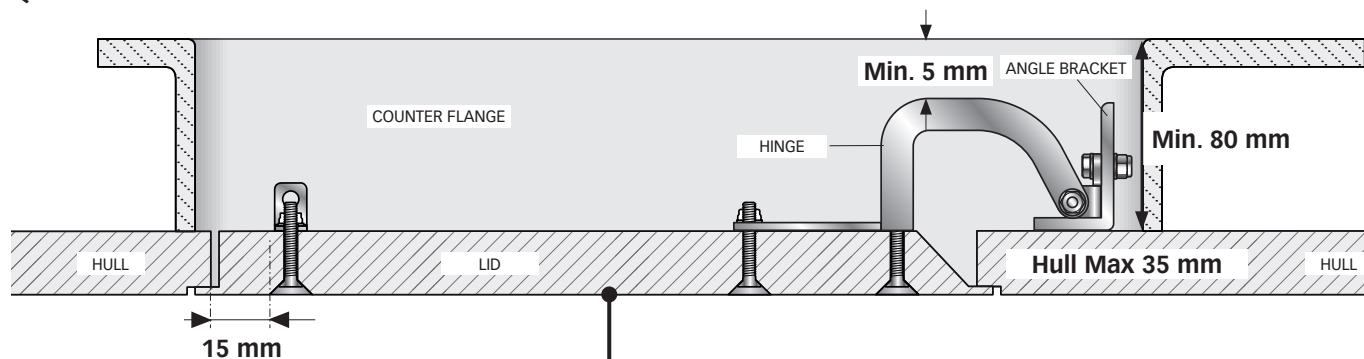
Fig. 11



- Temporarily fasten the hinge bracket in its position.
- Screw the hinge onto the angle bracket with the central screw only (fig. 11).
- Position the hinge and hinge bracket in the correct positions.
Mark all the fastening points (fig. 12), remove the hinge and hinge bracket and drill using the Ø 8,5 mm bit.
- Fasten the hinge and hinge bracket in the positions marked with stainless steel hardware suitable for the application.
- Adjust the central screw of the hinge (fig. 11) and position it correctly so that the hatch can open without any hindrance.

Fig. 12

QSR Ø185



WARNING: in order to allow a stable fixing of hinge and bracket, the lid must present neither empty areas nor non-structural fillings inside (fig. 12).

QSR Ø250

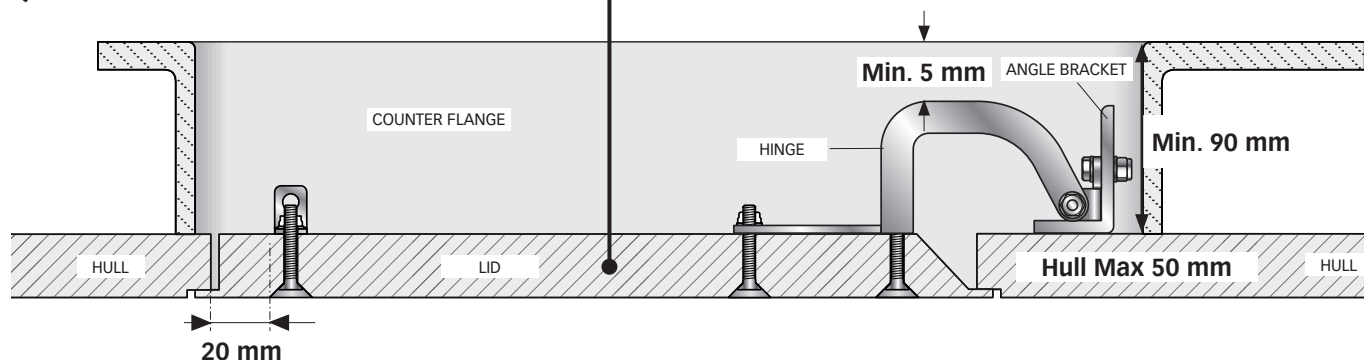
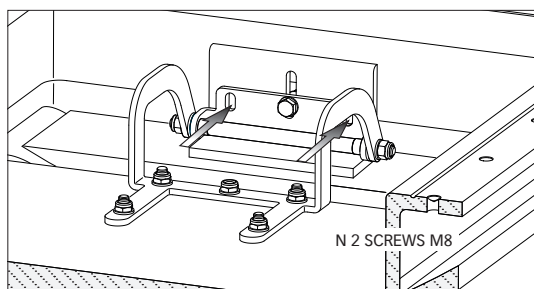


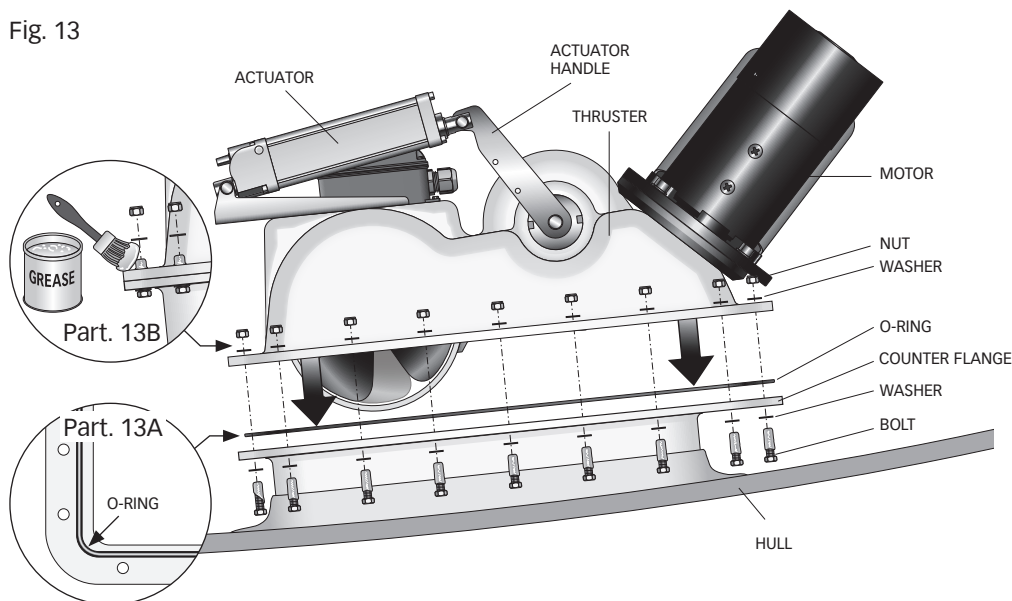
Fig. 13



- Drill the angle bracket and fasten securely also the other two M8 screws (fig. 13).

5.3 - Thruster's installation

Fig. 13



- Remove the adhesive protections, previously applied, from the counter flange.
- Make sure the area where the gasket will be positioned is clean and has not suffered any damage during installation.
- Position correctly the o-ring on the counter flange (part. 13A), assemble the thruster (fig.13), grease the thread of the bolts with marine grease (part. 13B) and firmly fix with the supplied screws and bolts.

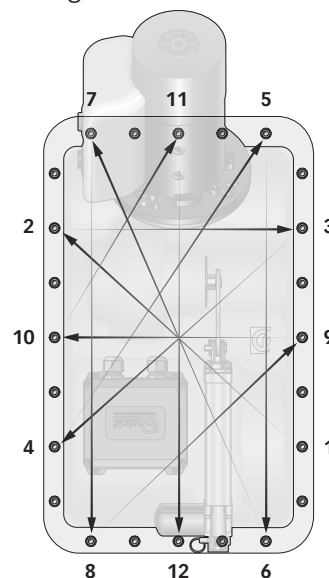


The bolts and screws of the counter flange must be tightened to 15Nm(Ø185) 25Nm(Ø250), tightening little by little in a crossed sequence, following a scheme such as in the example in figure 14.



WARNING: about one week after installation, check that all screws are properly tightened in order to compensate for any potential o-ring adjustment.

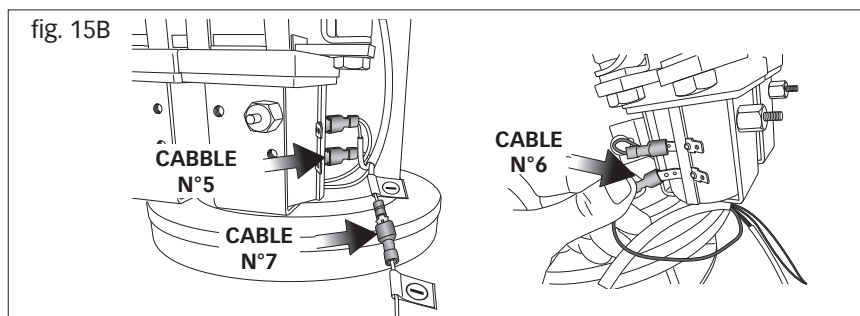
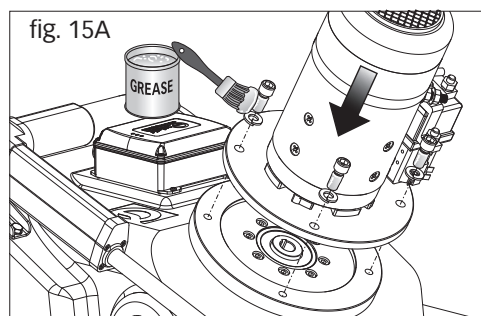
Fig. 14



5.4 - QSR Ø250 Motor installation

Fig. 15

- Grease the motor shaft and ensure that the key is well positioned.
- Insert the motor and fix it by means of the provided screws and growers (4 units each), properly greased (fig. 15A).
- Connect the faston connectors by respecting the polarity (fig. 15B).



5.5 - Mechanical check and adjustment of the system

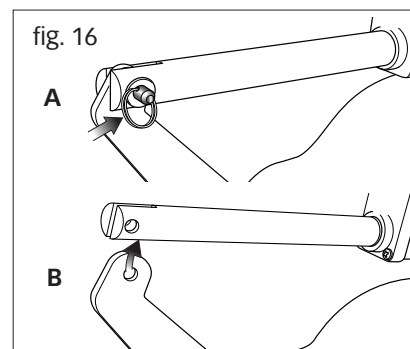
Follow the sequence described below to verify the opening of the hatch:

Fig. 16

- The QSR propeller should be disconnected from power.
- Take the ring off and remove the pin (part. A).
- unhook the actuator from the lever (part B), ensuring that the system is free to open and close without any mechanical hindrance.



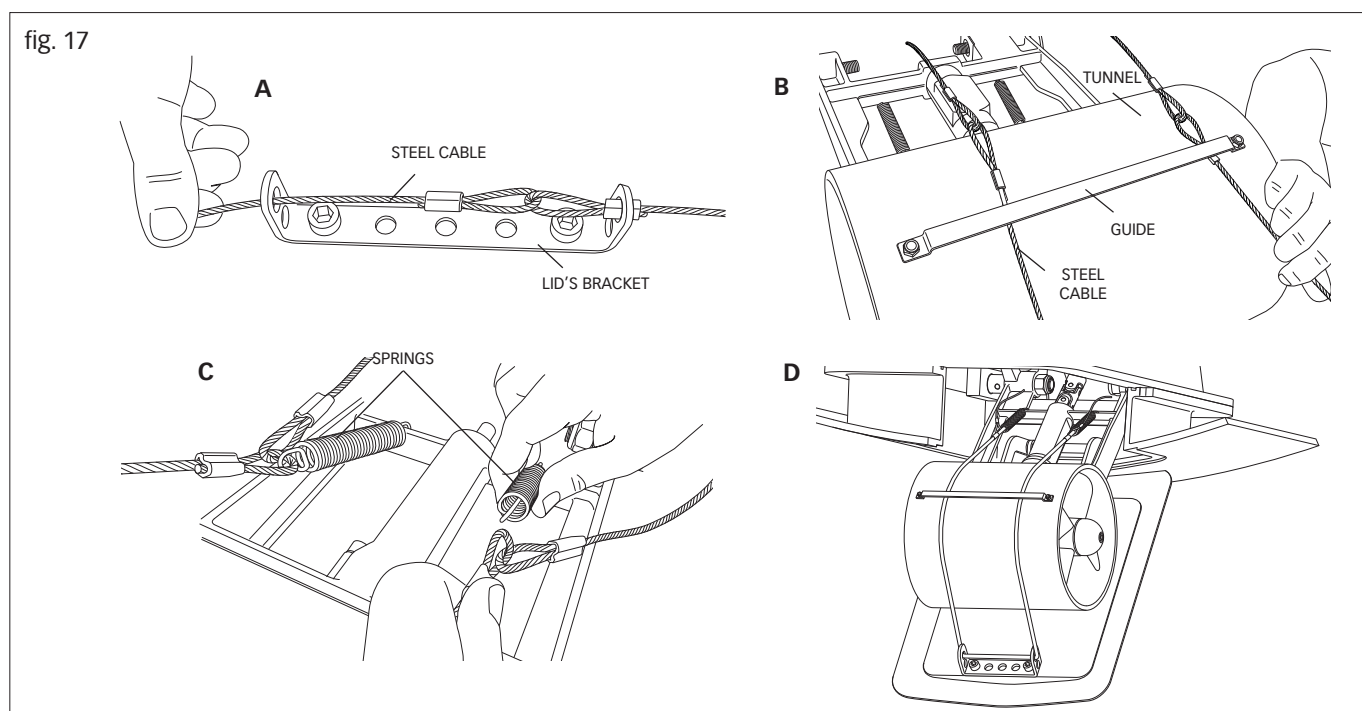
WARNING: when the actuator is manually unhooked, the thruster completely comes out due to its weight, therefore ensure that nobody is in the nearby.



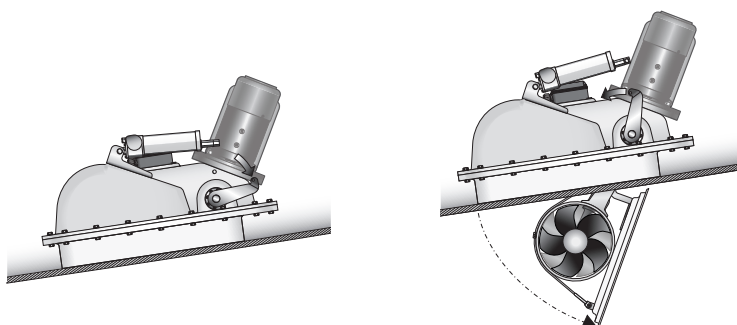
5.6 - Installation of the cable in the lid

Fig. 17

- Thread one end of the cable through the lid's bracket (part. A).
- Pass the cable beneath the fixed guide of the tunnel (part. B).
- Hook the ends of the cable to the two springs (that are already mounted onto the moving body) (part. C).
- Final installation of the cable in the lid (part. D).



Ensure that the system is free to open and close without any mechanical hindrance.



5.7 - Adjustment procedure



WARNING: the following procedure must be carried out by qualified personnel.



WARNING: moving mechanical parts. Pay extreme attention when operating on the QSR propeller if connected to power.

- Ensure that all electrical connections have been properly realised.
- Remove the cover from the board box (fig.18).

End stroke adjustments must be made in "manual mode".

- Holding down both buttons on the board (fig. 19), power RTC R1 electronic control board until the (green) POWER LED begins flashing rapidly (fig. 19 / part. A). Then release both buttons.
 - It is now possible to electrically control the actuator by means of UP and DOWN buttons.
 - Press DOWN button till the actuator can be hooked again to the lever (section 5.5 - fig. 16 part A).
 - Pressing DOWN button, the thruster opens until end stroke activation and STATUS LED gets green (fig. 19 part. B).
- If the end stroke is not placed correctly (fig. 20A) it is possible to adjust it (section 5.8).

fig. 18

RTC R1



fig. 19

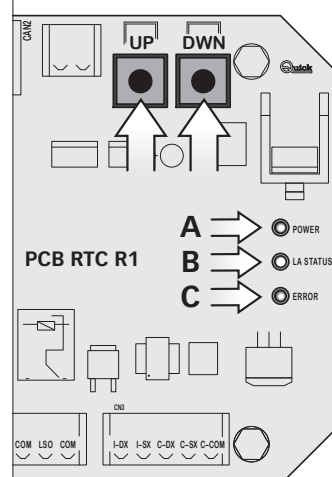
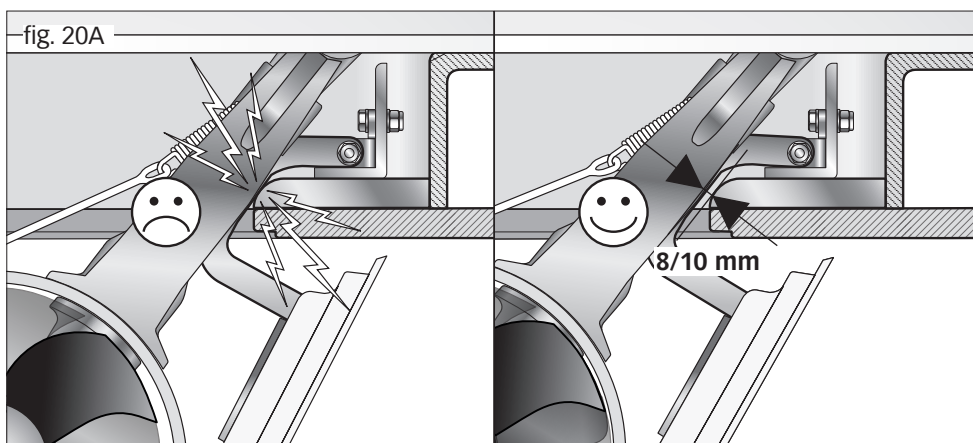


fig. 20A



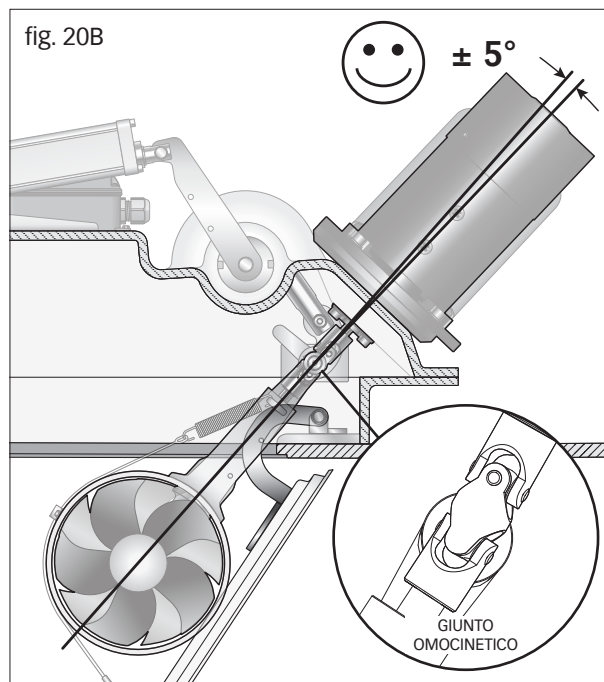
WARNING: make sure that the universal joint is in up-right position, at an angle between -5° and $+5^\circ$ (Fig. 20B).

- By pressing UP button, it is now possible to check the closing of the lid; once the end stroke is reached the STATUS LED becomes red: if this closing is not enough, adjust the end stroke (see section 5.8).



The thruster is already adjusted at the factory, so it shouldn't need any closing adjustment.

fig. 20B

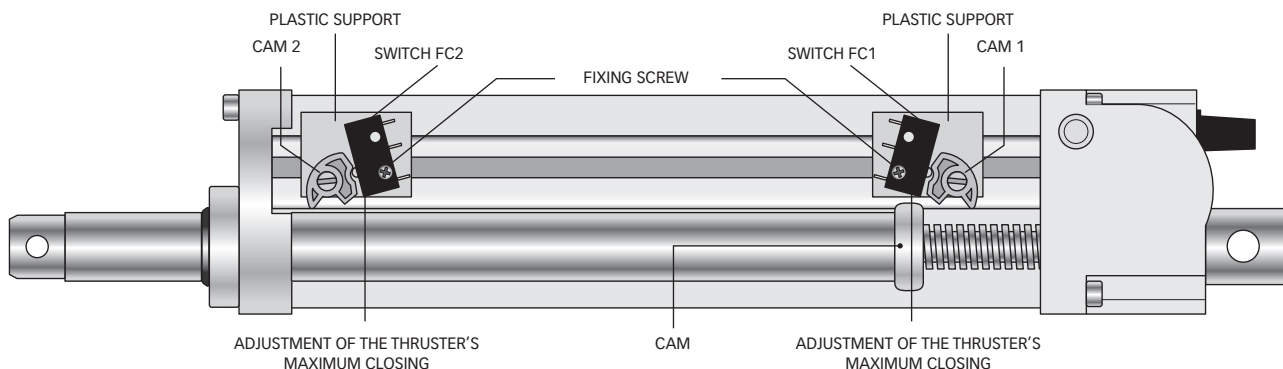


5.8 - Actuator's adjustment

Opening of the actuator's side lid

fig. 21

Actuator's interior



- To adjust FC1 and FC2 end strokes, partially unscrew the fixing screw and move them to the right or to the left based on need, then screw the fixing screw back on (fig. 21).



WARNING: while adjusting FC1 and FC2 end strokes, verify that the cam which activates them is always positioned between them and never in overstroke.

- Disconnect the QSR propeller from power for at least five seconds (fig. 22).
- Connect power to the QSR propeller (fig. 22).
- Enable a QAJ control connected to the QSR thruster to open the lid and activate the thruster (fig. 23).
- Disable the QAJ control before hand enabled in order to close the propeller (fig. 23).
- Ensure that the high-absorption protection did not intervene (the "ERROR" LED must be switched off - see section 5.7 fig. 19 / Part. C).

fig. 22



fig. 23



5.9 - Installation of the springs' end stroke wires

- Open the thruster completely by switching it on by the remote control (fig. 23).

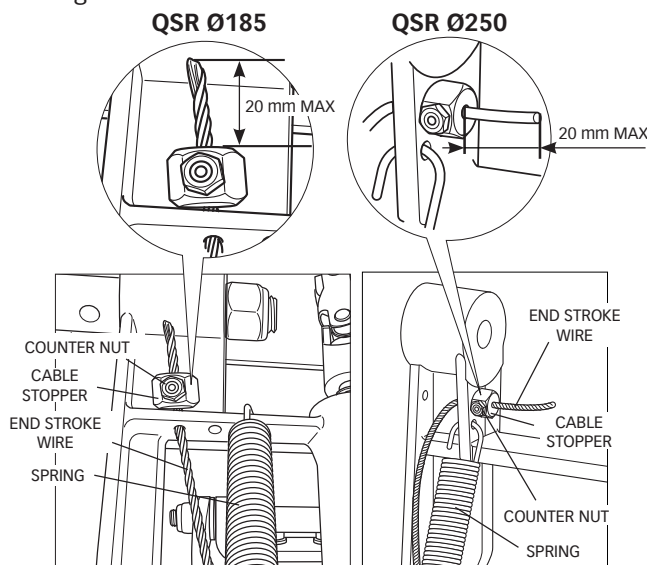


WARNING: once the thruster is open, disconnect the power supply (fig. 22) in order to lock it into this position.

Fig. 24

- Insert the two end stroke wires in the proper slots.
- Position the two cable-stoppers, tension the two wires, checking that both springs are equally pulled, tighten the cable-stoppers by means of a 2,5 mm hexagon wrench key.
- Lock the cable-stopper by tightening the counter nut by means of a 8 mm open end wrench, cut with a wire cutter the excess cable leaving about 20 mm besides the cable-stopper.
- Power up the thruster (fig. 22) which will automatically close.
- In order to ensure that the thruster is properly working, open the thruster several times using the control (fig. 23).

Fig. 24

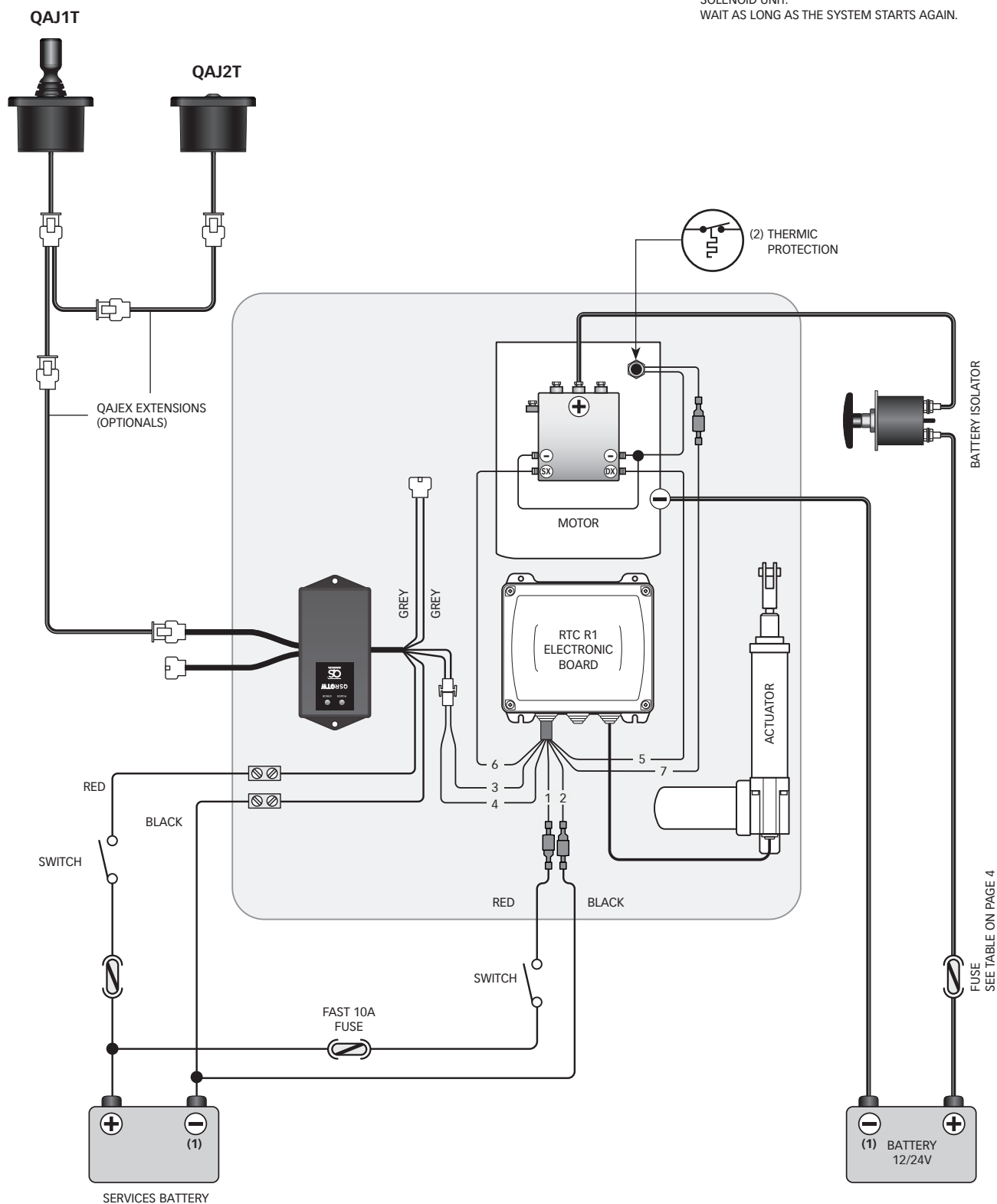


6.0 - QSR basic system

Example of connection with battery isolator

(1) COMMON NEGATIVE FOR THE BATTERY GROUPS.

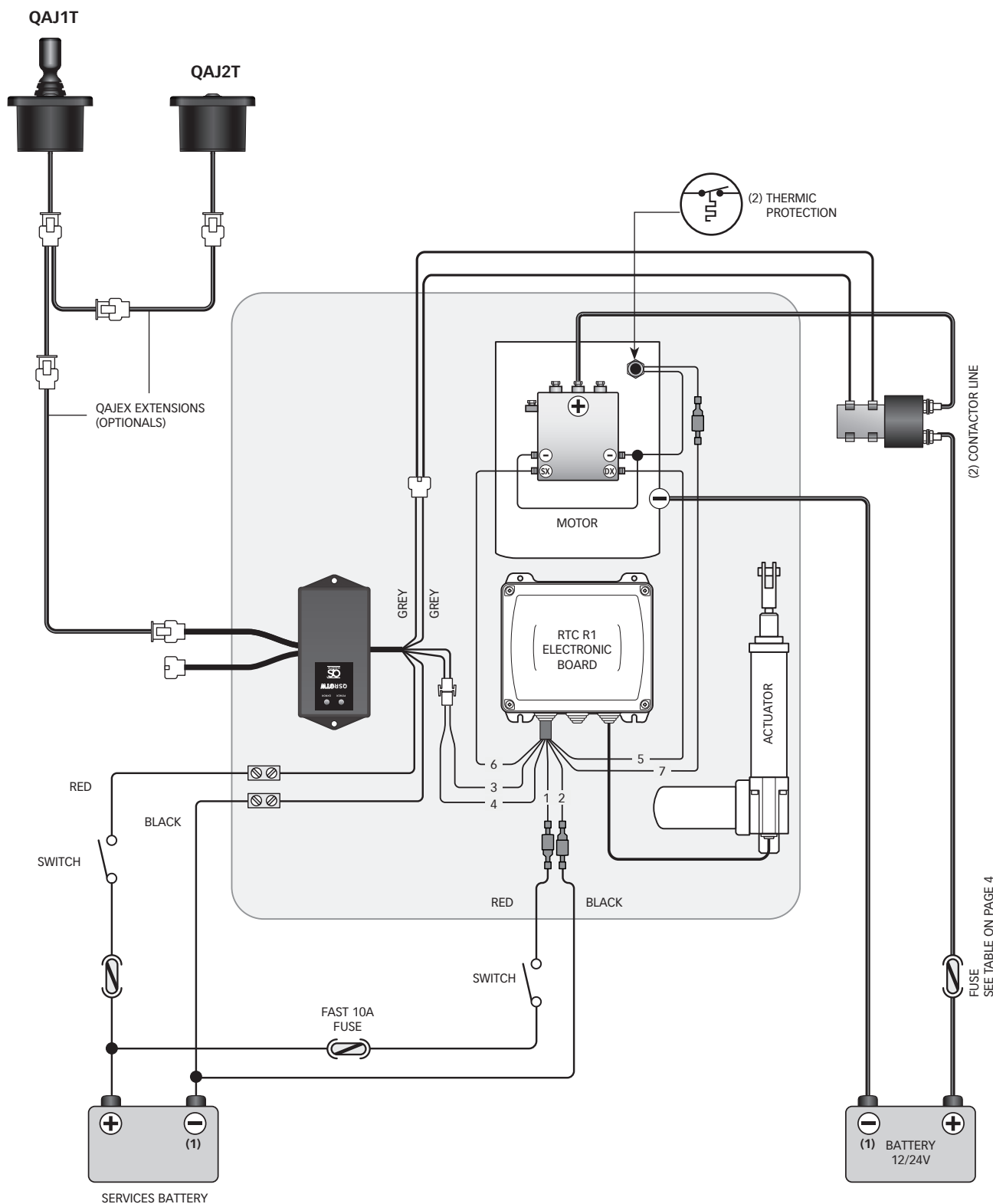
(2) WARNING: IN CASE OF OVERTEMPERATURE, THE THERMAL PROTECTION ON THE MOTOR WILL OPEN AND INTERRUPT THE NEGATIVE CONTACT ON THE SOLENOID UNIT. WAIT AS LONG AS THE SYSTEM STARTS AGAIN.



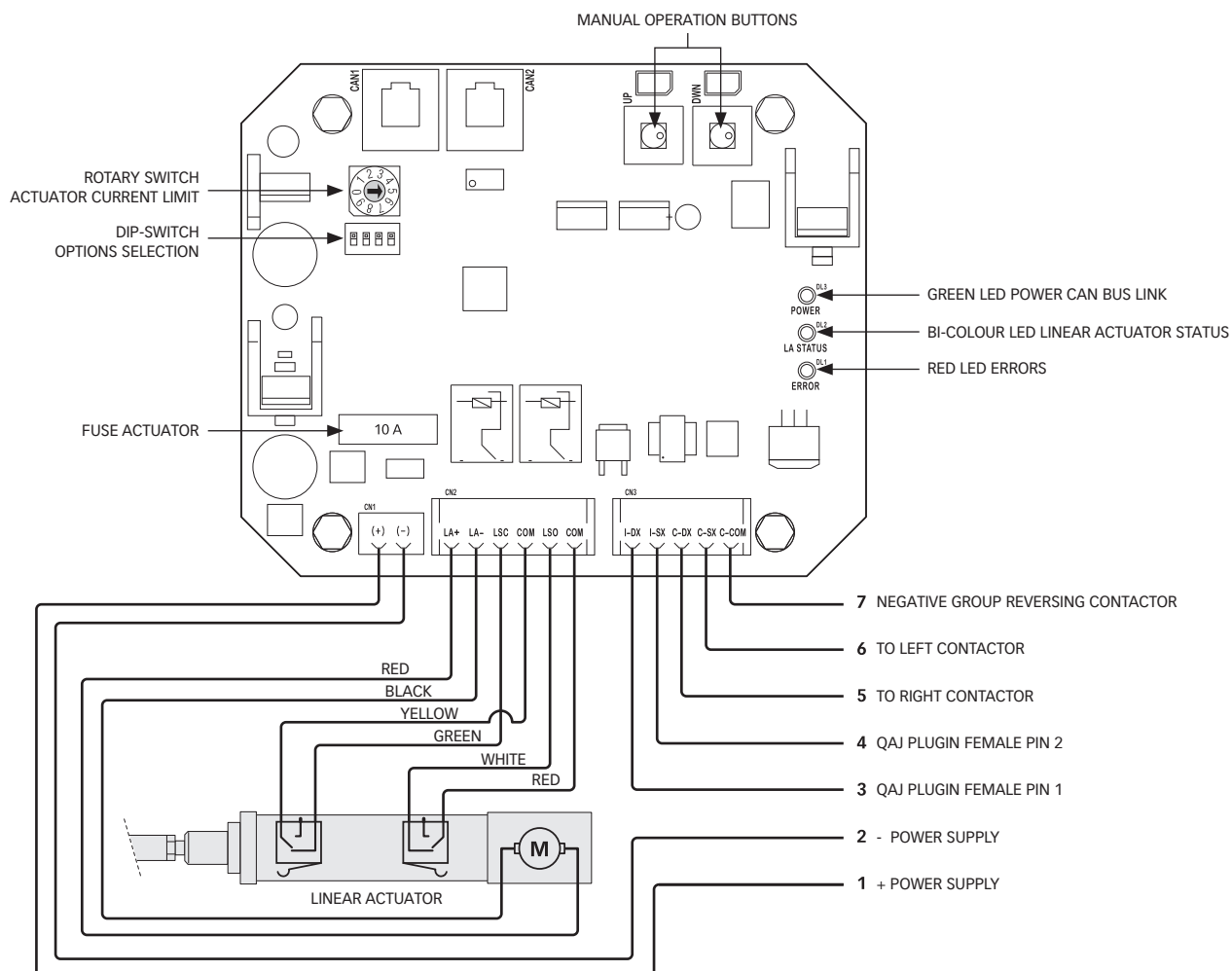
Example of connection with contactor line

(1) COMMON NEGATIVE FOR THE BATTERY GROUPS.

(2) WARNING: IN CASE OF OVERTEMPERATURE, THE THERMAL PROTECTION ON THE MOTOR WILL OPEN AND INTERRUPT THE NEGATIVE CONTACT ON THE SOLENOID UNIT.
WAIT AS LONG AS THE SYSTEM STARTS AGAIN.



6.1 - RTC R1 BOARD



QS 7 - Operation

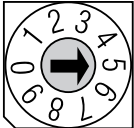
QSR Series

7.0 - Option selection Dip-Switch

SELECTION	FUNCTION	DIP-SWITCH
1	Reserved (always keep off)	
2	It informs the CAN control station that the thruster is in the bow (OFF)	
	It informs the CAN control station that the thruster is in the stern (ON)	
3	Reserved (always keep off)	
4	Reserved (always keep off)	
FACTORY SETTING: 1 = OFF , 2 = OFF , 3 = OFF , 4 = OFF		

7 - Operation

7.1 - Actuator current rotary switch



The ten selectable steps (from 0 to 9) allow you to set a percentage (see table) regarding the maximum current/load allowed for the actuator in use.

ROTARY SWITCH POSITION	0	1	2	3	4	5	6	7	8	9
MAXIMUM CURRENT LOAD %	28%	36%	44%	52%	60%	68%	76%	84%	92%	100%

Should a setting different to the factory one be requested, carry out the following operations:

- 1) Turn the arrow of the rotary switch to the desired position with the board not powered.
- 2) When the board is powered, the percentage corresponding to the selected position will automatically be set.

If the maximum current/load is too low compared to the real operating requirements, protections against high absorption of the actuator may intervene in closing and opening the retractable, with flashing 1 and 7 errors.

QS 8 - Notification

QSR Series

8.0 - QSRGTW Adapter signalling

Here below the meaning of the flash signaling supplied by the QSRGTW adapter:

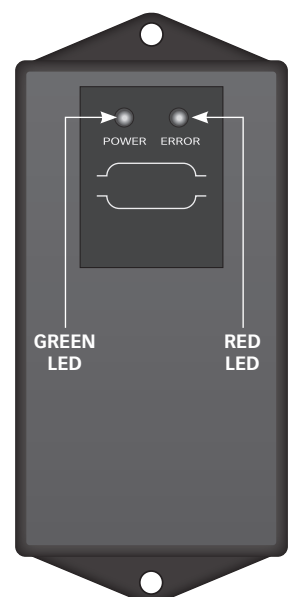
LED POWER (GREEN)

LED STATUS	DESCRIPTION
OFF	QSRGTW adapter not powered or an error has occurred
SHORT FLASHING	QSRGTW adapter powered and QAJ control not enabled
RHYTHMICAL FLASHING	Retractable propeller (if fitted) is moving
FAST FLASHING	Protection against prolonged motor activity
ON WITH SHORT SWITCHING OFF	Low supply voltage
ON	QAJ control enabled

LED ERROR (RED)

FLASHING NUMBERS	PROBLEM	DESCRIPTION
1	High absorption on motor reversing contactor unit control's output.	The problem is signaled in case the QSRGTW adapter detects a short-circuit or an overcharge on the electric line between the QSRGTW and the RTC R1. Check the wiring of the electric lines of QSRGTW adapter to RTC R1.
2	Interrupted connection on the motor reversing contactor unit control's output.	The problem is signaled in case the QSRGTW adapter detects an interruption on the electric line between QSRGTW and RTC R1. Check the wiring of the electric lines of QSRGTW adapter to RTC R1.
3	Problem present on the QSR* propeller.	The control system of the QSR propeller has detected a problem. Refer to the QSR use and maintenance manual.

QSRGTW ADAPTER



8.1 - Flashing signals

Legend of error notifications concerning the RTC R1 board (see the board on page 38)

LED POWER (GREEN)

LED STATUS	DESCRIPTION
OFF	Board not powered
SHORT FLASHING	Powered board but disabled control
FAST FLASHING	Powered board and actuator's manual movement mode on
ON WITH SHORT SWITCHING OFF	Powered board but disabled control and active link with the CAN control station
ON	Powered board and enabled control (QAJ or CAN station).

LED STATUS (BI-COLOUR)

LED COLOUR	LED STATUS	DESCRIPTION
-	OFF	With powered board, actuator's manual movement mode on and end stroke anomaly
RED	ON	Closed retractable thruster (LSC end stroke enabled)
GREEN	ON	Open retractable thruster (LSO end stroke enabled)
ORANGE	ON	Retractable thruster neither open nor closed (LSC and LSO limit switches disabled)
ORANGE	FLASHING	Retractable thruster neither open nor closed (LSC and LSO limit switches disabled) and moving linear actuator.

LED ERROR (RED)

NUMBER OF FLASHING	DESCRIPTION
NOTHING	No anomaly.
1	High absorption of the actuator during ascent (retractable thruster closing) Signalling occurs after the system has attempted three ascents in the presence of mechanical friction exceeding the set threshold. The problem can be caused by a foreign body that entered the mechanism, by the vessel navigating at sustained speed, or by mechanical problems of the retractable and relative hatch.
2	Open fuse. A current absorption exceeding 10A has occurred. The problem can arise from a short circuit or an overload on the actuator power line. Verify the wiring of the power lines from the board to the actuator or the absorption of the actuator itself.
3	Anomalous end strokes condition. The problem is signalled when the board detects an anomaly on the end strokes (both activated). Verify the wiring of the power lines from the board to the limit switches and their functionality.
4	Actuator command line interruption. The problem is signalled when the board detects an interruption in the command power lines of the actuator. Verify the wiring of the power lines from the board to the actuator.
5	Timeout of actuator's movement intervention. The problem is signalled when the movement command given to the actuator is not executed within 15 seconds.
6	Mistaken dip-switch setting. The problem is signalled when the dip-switch positions have not been set correctly.
7	High absorption of the actuator during descent (retractable thruster opening). Signalling occurs after the system has attempted three descents in the presence of mechanical friction exceeding the set threshold. The problem can be caused by a foreign body that entered the mechanism, by the vessel navigating at sustained speed, or by mechanical problems of the retractable thruster and relative hatch.
8	High absorption on motor reversing contactor unit control's output. The problem is signalled when the board detects a short circuit or an overload on the electric control line of the propeller. Verify the wiring on the power lines from the board to the propeller and the absorption of the motor reversing contactor unit installed on the propeller.
9	Activation of the thermal protection on the motor The problem is notified in case the thermal protection on the motor is tripped. Wait for the thruster to cool off. Interrupted connection on the motor reversing contactor unit control's output3 The problem is signalled when the board detects an interruption on the electric control line of the propeller. Verify the wiring of the power lines from the board to the motor reversing contactor unit installed on the propeller.

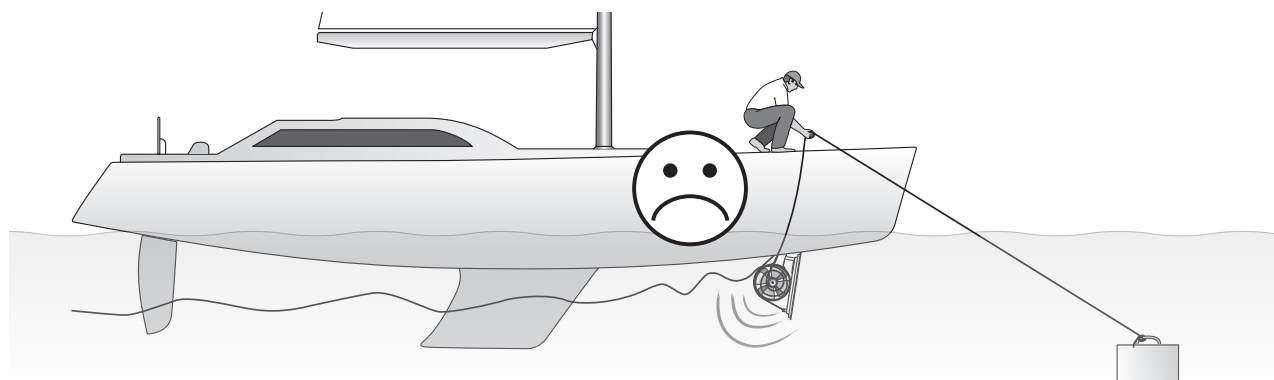
At the end of the cyclical flashing sequence, the "ERROR" LED remains off for a short period.

9.0 - Warnings



- This bow thruster is not designed for continuous use. It is equipped with protections which limit its operation at a maximum time span, as reported on the controls' manual. It is strongly forbidden to bypass or modify such protections in order to increase the operating time span, lest voiding the warranty and thus lifting any responsibility from QS Seamaster® SPA.
- Before starting the retractable thruster ensure there are no bathers and floating objects near-by.
- To prevent any damage to the system, it is recommended not to sail with the open retractable thruster; to perform the thruster's opening and closing at a maximum speed of 4 knots, according to the currents, and at a maximum speed of 2 knots, still according to the currents, if reversing.
- To avoid damaging the system, it is recommended not to enable the retractable thruster at speeds over four nodes.
- There must not be flammable materials in the peak or in the area where the Bow Thruster motor is.
- During docking, it is recommended not to leave in the water any free rope, which may be sucked in by the propellers, thus leading them to break (fig. 25).

Fig. 25



QS 10 - Usage

QSR Series

10.0 - Use of the retractable thruster

To correctly use the retractable thruster, refer to the QAJ control manual

Start-up

When switching on, the RTC R1 board verify the position of the retractable thruster (raised, lowered or in an intermediate position). If it is raised, the system does not execute any actions. If it is lowered or in the intermediate position, it will command the ascent of the retractable thruster.

Enabling control from QAJ (Retractable thruster descent)

When the RTC R1 board is enabled by a QAJ control, the retractable thruster begins its descent. The left/right commands from the QAJ are inhibited until this operation is complete. During the descent phase, the RTC R1 board measures the current absorbed by the linear actuator. If mechanical friction causes elevated absorption in the linear actuator, the descent will be briefly reversed and then restart. After 3 attempts, the RTC R1 board will signal the problem.

Disabling control from QAJ (Retractable thruster ascent)

When the RTC R1 board is disabled by a QAJ control, the retractable thruster begins its ascent. The right/left commands from the QAJ are inhibited during the ascent. During the ascent phase, the RTC R1 boards measures the current absorbed by the linear actuator. If mechanical friction causes an elevated absorption in the linear actuator, the ascent will be reversed briefly and then restart. After 3 attempts, the RTC R1 board will signal the problem.

Automatic ascent in case of time out QAJ

With the propeller lowered, after 6 minutes from last QAJ right or left control, the retractable thruster performs the ascent procedure.

Errors detection from QAJ

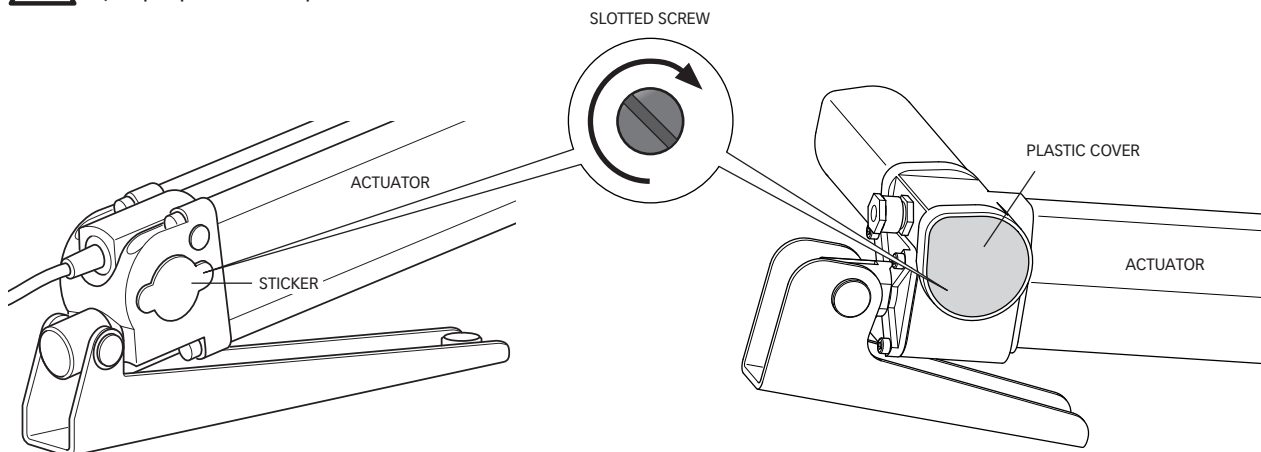
In case QAJ sends an error signal in network (prolonged control, line interruption, short circuit in right or left output), the retractable thruster performs the ascent procedure.

10.1 In emergency, the propeller can be locked in the closed position

On the actuator, under the sticker (Ø185) under the plastic cover (Ø250), there is a slotted screw; turn it clockwise with a screwdriver to close the system.



WARNING: disconnect the QSR propeller from power.



QS 11 - Maintenance

QSR Series

QS Seamaster® Thrusters are made in materials that are resistant to the sea environment: In any case, it is indispensable to periodically remove salt deposits that form on the outer surfaces to avoid corruptions and consequent system inefficiency.



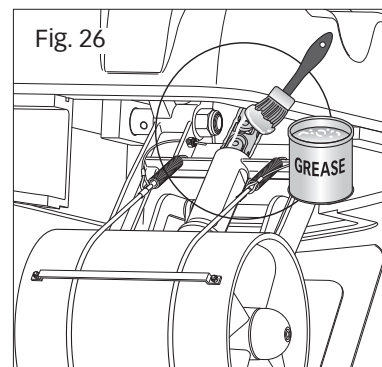
WARNING: make sure that the power supply to the electric motor is not switched on when maintenance operations are carried out.



ACCORDING TO THE USE WE RECOMMEND CHECKING PERIODICALLY THE OIL SEALS AND IF NECESSARY REPLACING THEM.

Dismantle once a year, following the points below:

- Clean propellers, tunnel and gearleg.
- Replace the propellers if damaged or worn out.
- Replace the anodes (carry out this operation more often if needed) and, if possible, grease the double joint with marine grease (fig. 26).
- Check the tightness of all screws.
- Ensure that there is no water seepage inside.
- Check that all electrical connections are well tightened and oxide-less.
- Check that the batteries are in good conditions.
- Remove the graphite residues resulting from the normal motor brushes use.



WARNING: do not paint the anodes, the sealings and the gearlegs' shafts where the propellers are lodged.



12 - Disposal of the product

QSR series **EN**

During the installation, also at the end of product lifetime, the disassembly and scrapping operations must be performed by qualified personnel.

This product is made up of different types of material, some of which can be recycled while others must be disposed of. Seek information on the recycling and disposal systems envisaged by the local regulations in your area for this product category.

Some parts of the product may contain polluting or hazardous substances which, if disposed of into the environment, constitute serious environmental and health risks.



As indicated by the symbol, it is forbidden to throw this product in the household wastes. Recycling according to the methods envisaged by current legislation in your area, or return the product to the retailer when purchasing an equivalent product.

Local legislation may include the application of serious fines in the event of improper disposal of this product.



13 - Spare parts

QSR Series

QSR Ø185

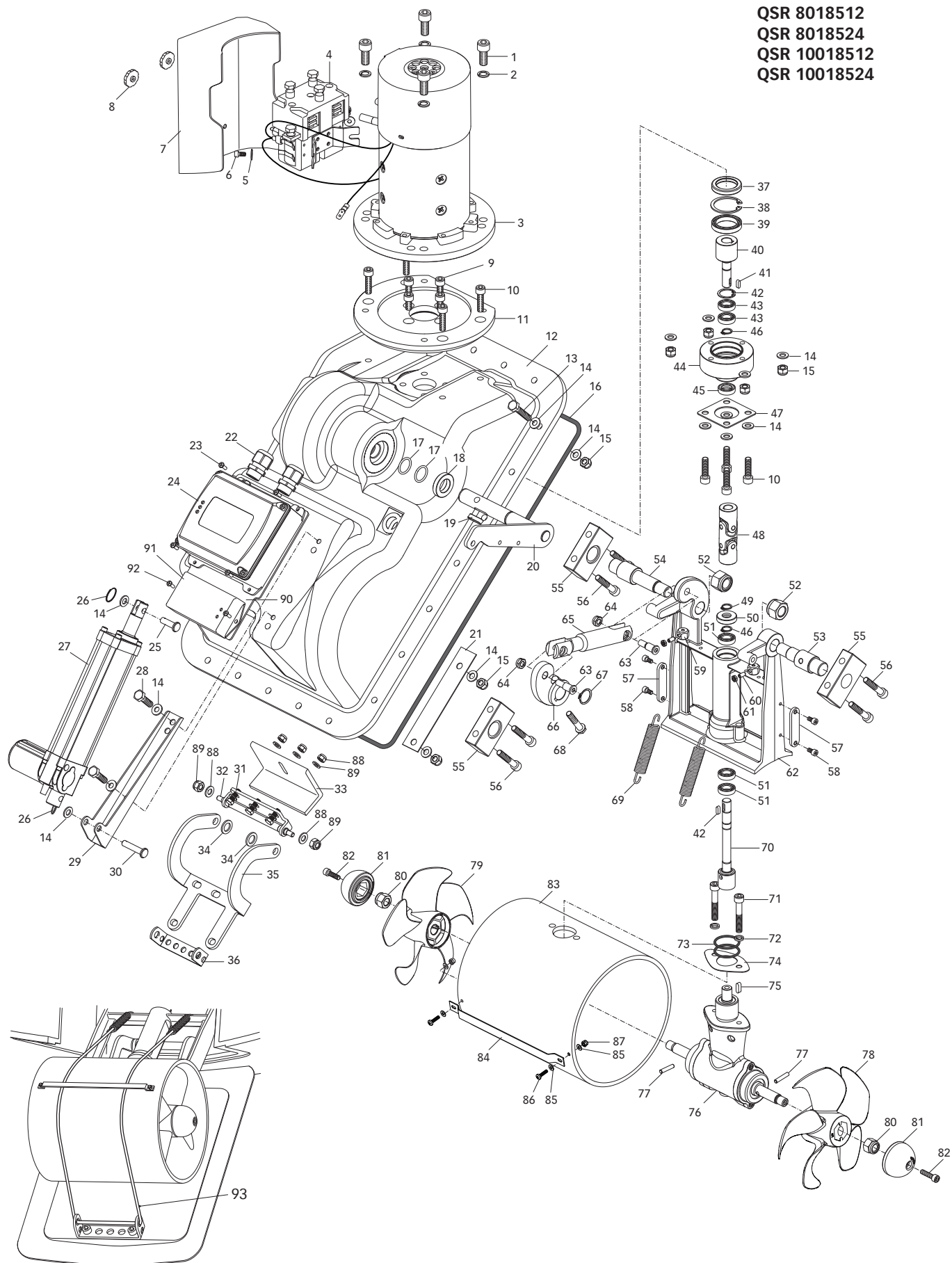
Drawing number page 24

NR.	DESCRIPTION	17	O-RING	37	OIL SEAL	57	ANODE	77	PLUG
1	SCREW	18	OIL SEAL	38	INTERNAL CIRCLIP	58	SCREW	78	PROPELLER 185 R
2	GROWER	19	KEY	39	BEARING	59	CABLE-STOPPER	79	PROPELLER 185 L
3	MOTOR	20	ACTUATOR'S LEVER	40	SHAFT	60	SCREW	80	NUT
4	REVERSING CONTACTOR UNIT	21	ACTUATOR'S PLATE	41	KEY	61	NUT	81	ANODE
5	WASHER	22	CABLE OUTLET	42	EXTERNAL CIRCLIP	62	TILTING BODY	82	SCREW
6	SCREW	23	SCREW	43	BEARING	63	PIN	83	TUNNEL
7	CARTER REVERSING CONTACTOR	24	RRC RX BOX	44	SHAFT SUPPORT	64	NUT	84	CABLE GUIDE
8	FASTENERS CARTER REVERSING CONTACTOR	25	PIN	45	OIL SEAL	65	LEVER	85	WASHER
9	SCREW	26	SPRING RING	46	EXTERNAL CIRCLIP	66	LEVER	86	SCREW
10	SCREW	27	ACTUATOR	47	PLATE	67	EXTERNAL CIRCLIP	87	SELF-LOCKING NUT
11	FLANGE	28	SCREW	48	DOUBLE JOINT	68	SCREW	88	WASHER
12	CHASSIS	29	FULCRUM	49	EXTERNAL CIRCLIP	69	SPRING	89	SELF-LOCKING NUT
13	SCREW	30	PIN	50	OIL SEAL	70	SHAFT	90	QSRGTW PLATE
14	WASHER	31	HINGE'S BRACKET	51	BEARING	71	SCREW	91	QSRGTW ADAPTER
15	NUT	32	HINGE'S SHAFT	52	NUT	72	GROWER	92	SCREW
16	GASKET O-RING	33	ANGLE BAR	53	PIN	73	O-RING	93	CABLE
		34	WASHER	54	PIN	74	GASKET		
		35	HINGE'S ARM	55	FULCRUM	75	KEY		
		36	LID'S BRACKET	56	SCREW	76	GEARLEG		

QSR Ø250

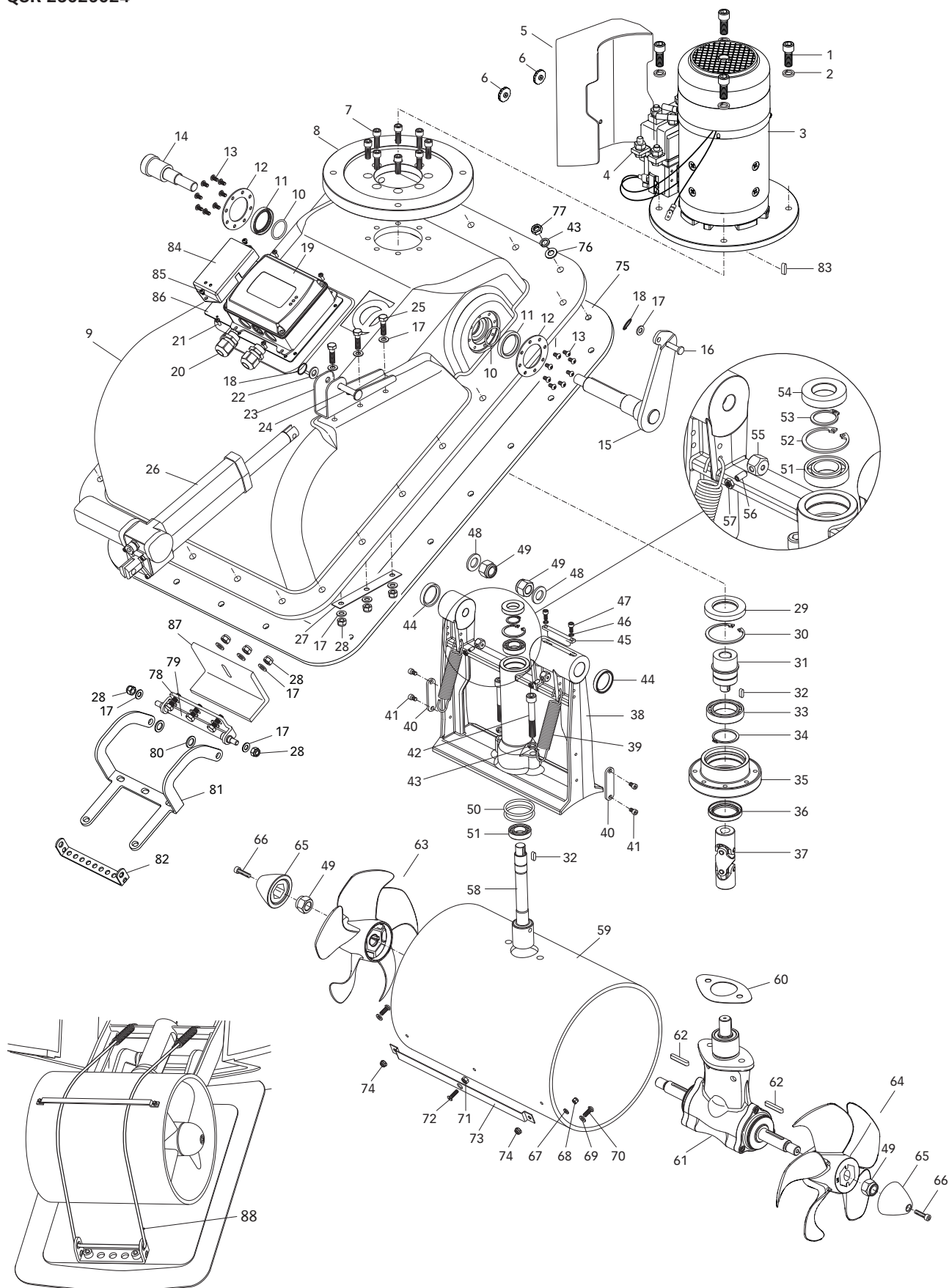
Drawing number page 25

N	DESCRIPTION	18	SPRING RING	38	TILTING BODY	58	SHAFT	78	HINGE'S SHAFT
1	SCREW	19	RRC RX BOX	39	SPRING	59	TUNNEL	79	HINGE'S BRACKET
2	WASHER	20	CABLE OUTLET	40	ANODE	60	GASKET	80	WASHER
3	MOTOR	21	SCREW	41	SCREW	61	GEARLEG	81	HINGE'S ARM
4	REVERSING CONTACTOR UNIT	22	WASHER	42	SCREW	62	KEY	82	LID'S BRACKET
5	CARTER REVERSING CONTACTOR	23	FULCRUM	43	GROWER	63	PROPELLER 250 L	83	KEY
6	FASTENERS CARTER REVERSING CONTACTOR	24	PIN	44	OIL SEAL	64	PROPELLER 250 R	84	TTA ADAPTER
7	SCREW	25	SCREW	45	KEY INSERT	65	ANODE	85	SCREW
8	FLANGE	26	ACTUATOR	46	GROWER	66	SCREW	86	TTA PLATE
9	CHASSIS	27	ACTUATOR'S PLATE	47	SCREW	67	WASHER	87	SACRIFICIAL ANODE
10	O-RING	28	NUT	48	WASHER	68	NUT	88	CABLE
11	OIL SEAL	29	OIL SEAL	49	NUT	69	WASHER		
12	FIXATION RING	30	EXTERNAL CIRCLIP	50	O-RING	70	SCREW		
13	SCREW	31	SHAFT	51	BEARING	71	NUT		
14	PIN	32	KEY	52	EXTERNAL CIRCLIP	72	SCREW		
15	ACTUATOR'S LEVER	33	BEARING	53	INTERNAL CIRCLIP	73	CABLE GUIDE		
16	PIN	34	EXTERNAL CIRCLIP	54	OIL SEAL	74	NUT		
17	WASHER	35	SHAFT SUPPORT	55	CABLE-STOPPER	75	GASKET		
		36	OIL SEAL	56	SCREW	76	WASHER		
		37	DOUBLE JOINT	57	NUT	77	NUT		

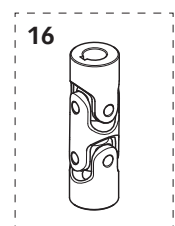
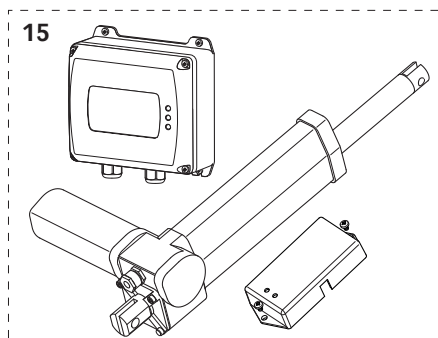
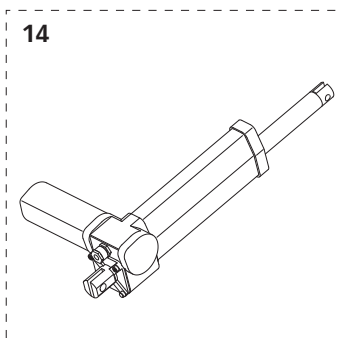
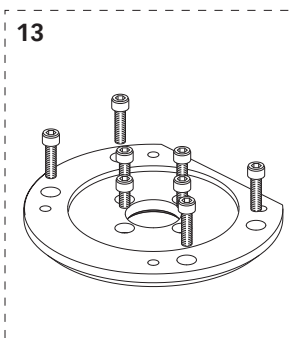
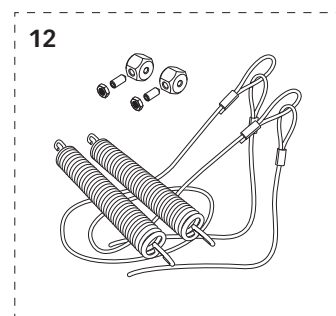
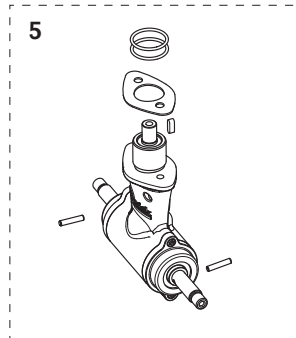
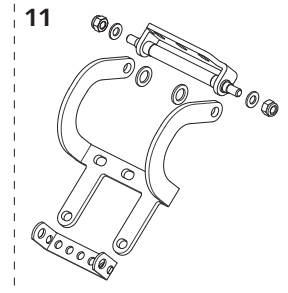
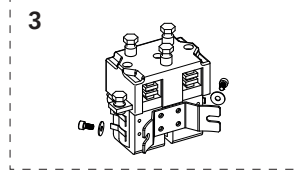
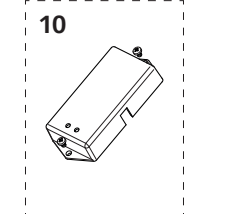
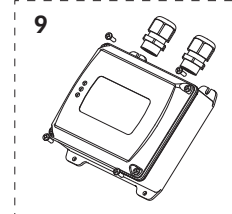
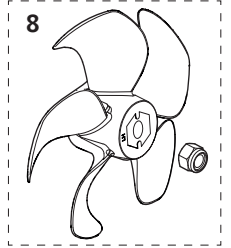
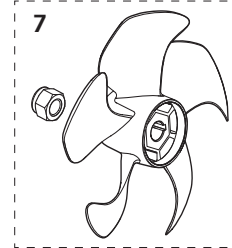
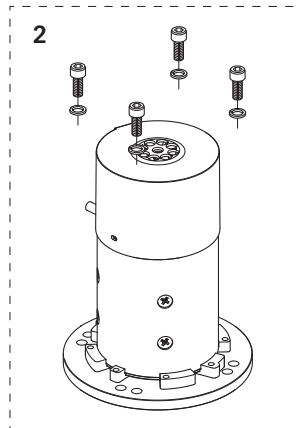
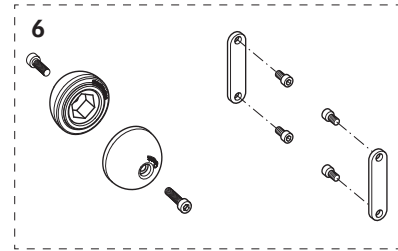
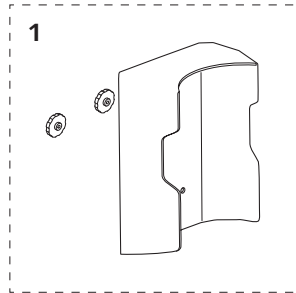


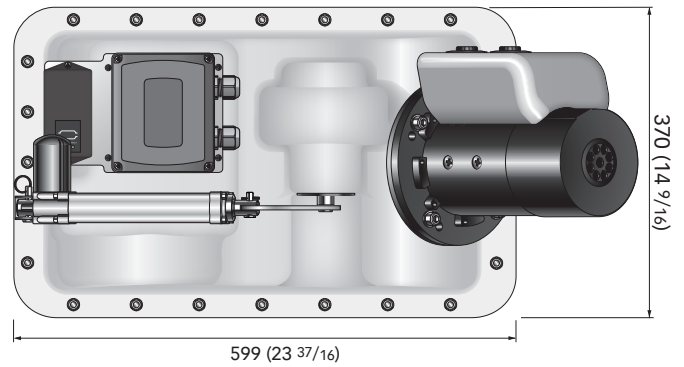
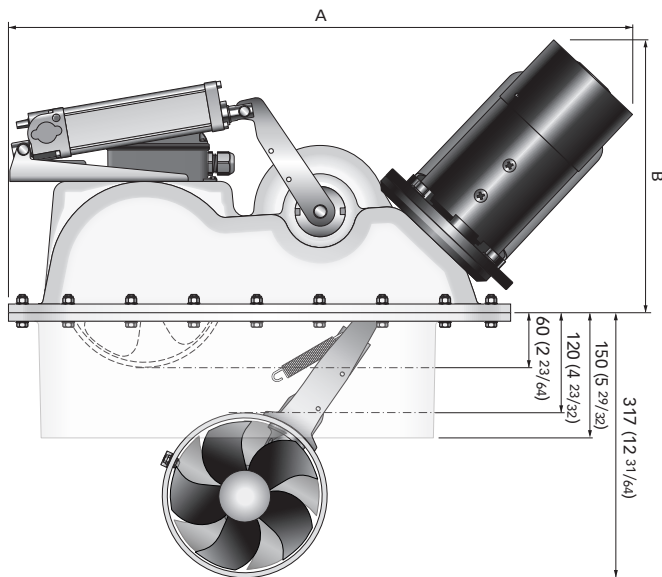
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QSR 8018524
QSR 10018512
QSR 10018524

QSR 16025024
QSR 23025024

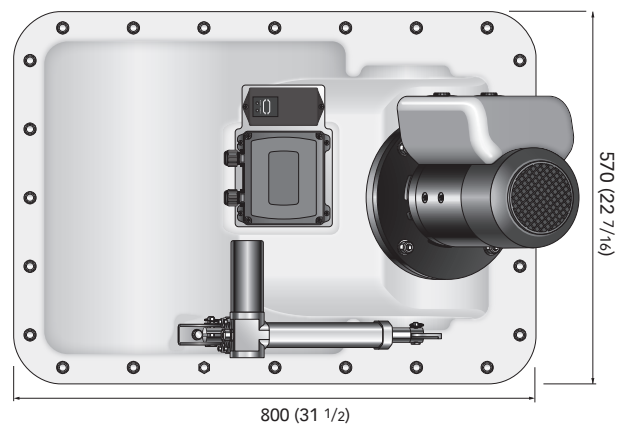
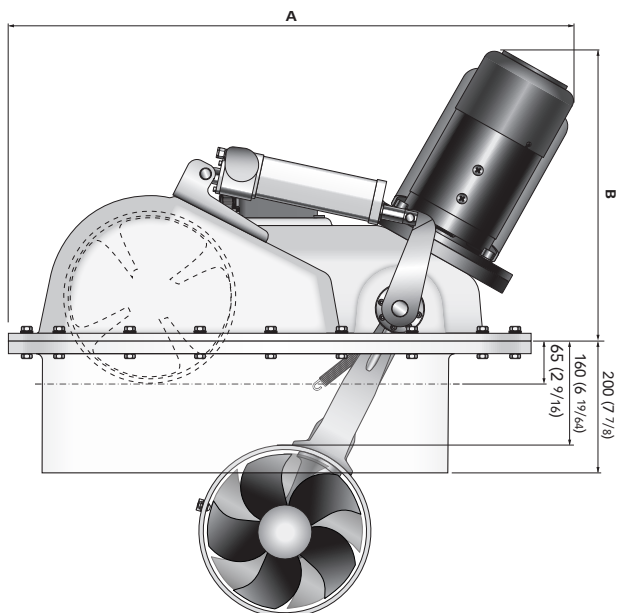


N°	DESCRIPTION	CODE
1A	OSP KIT CARTER 'A' QS	FVSGCARTA0QSS00
1B	OSP KIT CARTER 'B' QS	FVSGCARTB0QSS00
2A	OSP MOTOR QSR 4300W 12V QSR0185+T	FVEMFER43121S00
2B	OSP MOTOR QSR 4300W 24V QSR0185+T	FVEMFER43241S00
2C	OSP MOTOR QSR 6300W 12V QSR0185+T	FVEMFER63121S00
2D	OSP MOTOR QSR 6300W 24V QSR0185+T	FVEMFER63241S00
2E	OSP MOTOR QSR 8000W 24V QSR0250+T	FVEMFER80242S00
2F	OSP MOTOR QSR 10KW 24V QSR0250+T	FVEMFER1K242S00
3A	OSP KIT REVERSING CONTACTOR 150A 12V	FVSGRCT15012S00
3B	OSP KIT REVERSING CONTACTOR 150A 24V	FVSGRCT15024S00
3C	OSP KIT REVERSING CONTACTOR 350A 12V	FVSGRCT35012S00
3D	OSP REVERSING CONTACTOR 350A 24V	FVSGRCT35024S00
4	OSP KIT THERMIC PROTECTION QSR	FVKPS120QSR0S00
5A	OSP KIT GEARLEG Ø185	FVSGGBT185DS00
5B	OSP KIT GEARLEG Ø250	FVSGGBT25ES00
6A	OSP KIT ANODS FOR PROPELLER QSR Ø185	FVSGANQSR18AS00
6B	OSP KIT ANODS FOR PROPELLER QSR Ø250	FVSGANQSR25ES00
7A	OSP KIT PROPELLER RH QS Ø185	FVSGEL185R00S00
7B	OSP KIT PROPELLER RH QSR Ø250	FVSGEL250RE0S00
8A	OSP KIT PROPELLER LH QS Ø185	FVSGEL185L00S00
8B	OSP KIT PROPELLER LH QSR Ø250	FVSGEL250LE0S00
9A	OSP RTC 12V QSR Ø185	FVERTC185120S00
9B	OSP RTC R1 24V QSR Ø185	FVERTC185240S00
9C	OSP RTC R1 24V QSR Ø250	FVERTC250240S00
10A	OSP QSR GTW 12V	FVQSRGTW0120S00
10B	OSP QSR GTW 24V	FVQSRGTW0240S00
11A	OSP KIT HINGE+LID'S BRACKET QSR Ø185	FVSGCNQSR185S00
11B	OSP KIT HINGE+LID'S BRACKET QSR Ø250	FVSGCNQSR250S00
12A	OSP KIT STEEL CABLE QSR Ø185	FVSFQSR18500S00
12B	OSP KIT STEEL CABLE QSR Ø250	FVSFQSR25000S00
13A	OSP KIT FLANGE Ø185 QSR	FVEFGQSR1850S00
13B	OSP KIT FLANGE Ø250 QSR	FVEFGQSR2500S00
14A	OSP ACTUATOR 12V Ø185	FVEAQR18512S00
14B	OSP ACTUATOR 24V Ø185	FVEAQR18524S00
14C	OSP ACTUATOR 24V Ø250	FVEAQR25024S00
15A	OSP KIT ACT/RTC/GTW 12V Ø185	FVEARTG18512S00
15B	OSP KIT ACT/RTC/GTW 24V Ø185	FVEARTG18524S00
15C	OSP KIT ACT/RTC/GTW 24V Ø250	FVEARTG18524S00
16A	OSP DOUBLE JOINT Ø185	FVSGG185QSR0S00
16B	OSP DOUBLE JOINT Ø250	FVSGG250QSR0S00





MOD.	QSR8018512	QSR8018524	QSR10018512	QSR10018524
A - mm (inch)	743 (29" 1/4)		801 (31" 17/32)	
B - mm (inch)	323 (12" 23/32)		384 (15" 1/8)	



MOD.	QSR16025024	QSR23025024
A - mm (inch)	866 (34" 3/32)	917 (36" 7/64)
B - mm (inch)	443 (17" 7/16)	515 (20" 9/32)

QSR

RETRACTABLE THRUSTER

REV 000B



INSTALLATION AND USE MANUAL

AMP

A SAIM Group Company

Atlantis Marine Power Limited
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