QL Bow thrusters

QL Bugstrahlruder
Propulseur d'étrave QL
Elica di prua QL
Propulsor de proa QL
QL Bogpropellrar
QL Keulaohjauspotkuri

Marine Accessories
by Volvo Penta

Packing list

Please check that the contents of the package agree with the enclosed packing slip.

The Bow thruster must not be installed in areas where flammable or explosive gases may occur!

The manufacturer does not assume any liability for the installation of the unit.
Authorized installers should be employed.
For special installations, please contact your bow thruster supplier.

The installation responsibility rests only on the performing party.

ENGLISH

Installation of the propeller tunnel

⚠ Use only QL original tunnel!

NB! We ask you kindly to read the entire manual before starting the installation.

1. Decide the position of the bow thruster. For maximum performance the bow thruster should be installed as far forward and as deep in the hull as is practicable.

2. Use the drawing tool to mark where the tunnel hole should be made.

3. Draw the picture of the entire tunnel hole on the hull interior (fig.1) to see exactly where the tunnel is going to be positioned.This is important to find out the space that will be left under the tunnel and also that the bow thruster gets enough space vertically.

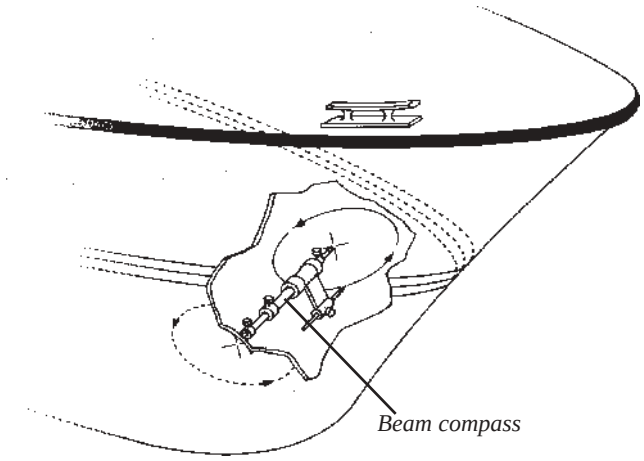

Fig.1

NB! Check that the tunnel is 90° abeam.

4. When the tunnel position has been measured the installation can start. Drill one hole Ø 25mm on each side of the hull where the drawing tool's compass tips show. See fig. 1 & 6. Guide the tool gauge, from the outside, through the hull and cut the tunnel hole using the installation cutter. See fig. 6.

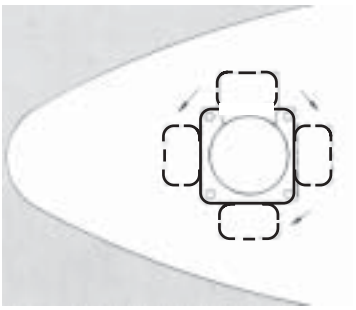

Fig.2

The motor can be installed with the jack panel towards the preferred direction.
See fig. 2.

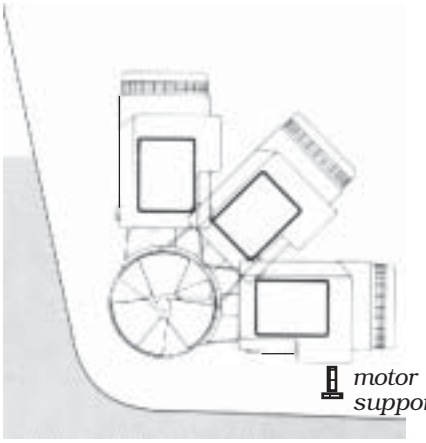

Fig.3

Where space is limited the bow thruster can be munted in any angle, from 0° to 90°. Installation from 45° to horizontal requires a support for the motor. See fig. 3.
This does not apply to BP800 and BP1200.

Model BP300 & 600 (single propeller)

Should be off centre in the tunnel!

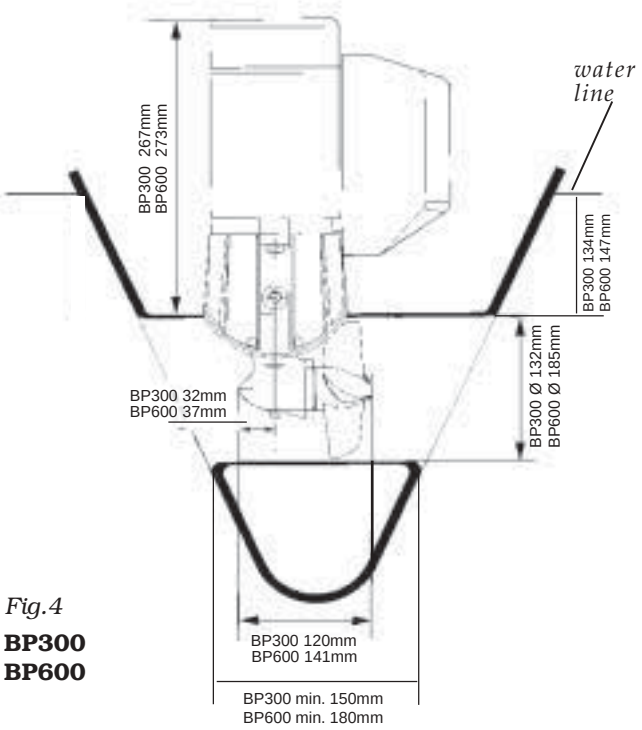

Fig.4
BP300
BP600

NB! Make sure no part of the propeller is jutting out of the tunnel.

Model BP450/900/1300

(twin propeller)

Should be centred in the tunnel!

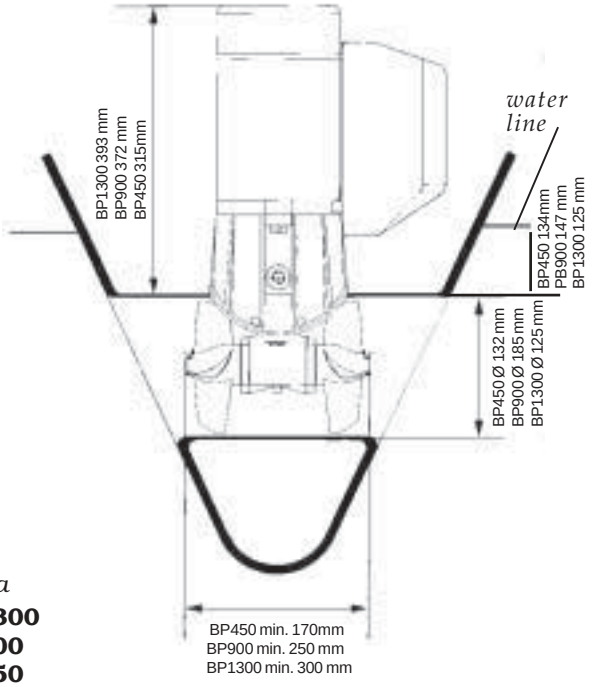

Fig.5a
BP1300
BP900
BP450

NB! Make sure no part of the propeller is jutting out of the tunnel.

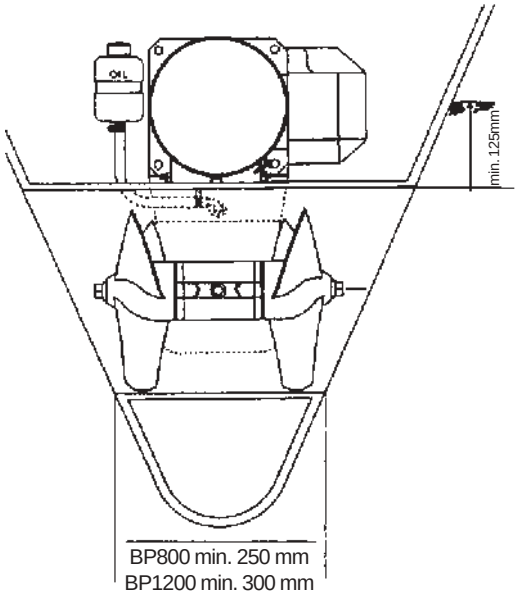

Fig.5b

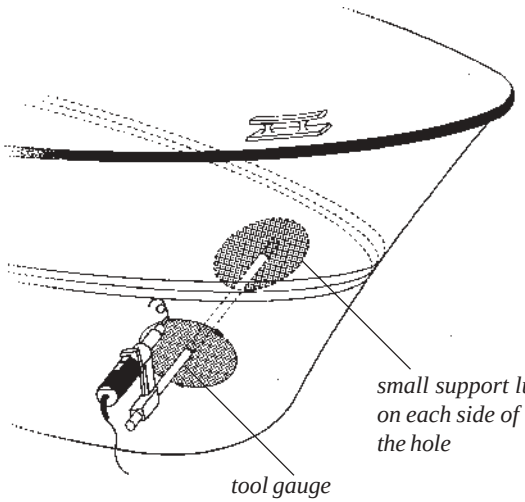

Fig.6

NB! When cutting the holes do not cut all the way around but leave small support lugs on each side of the hole to support the tool gauge during the operation. When the holes are cut the small remaining parts are cut away with a hack saw or similar.

5. The outer edges of the tunnel holes should be chamfered down 45° to the innermost edge of the hole. See fig. 7.

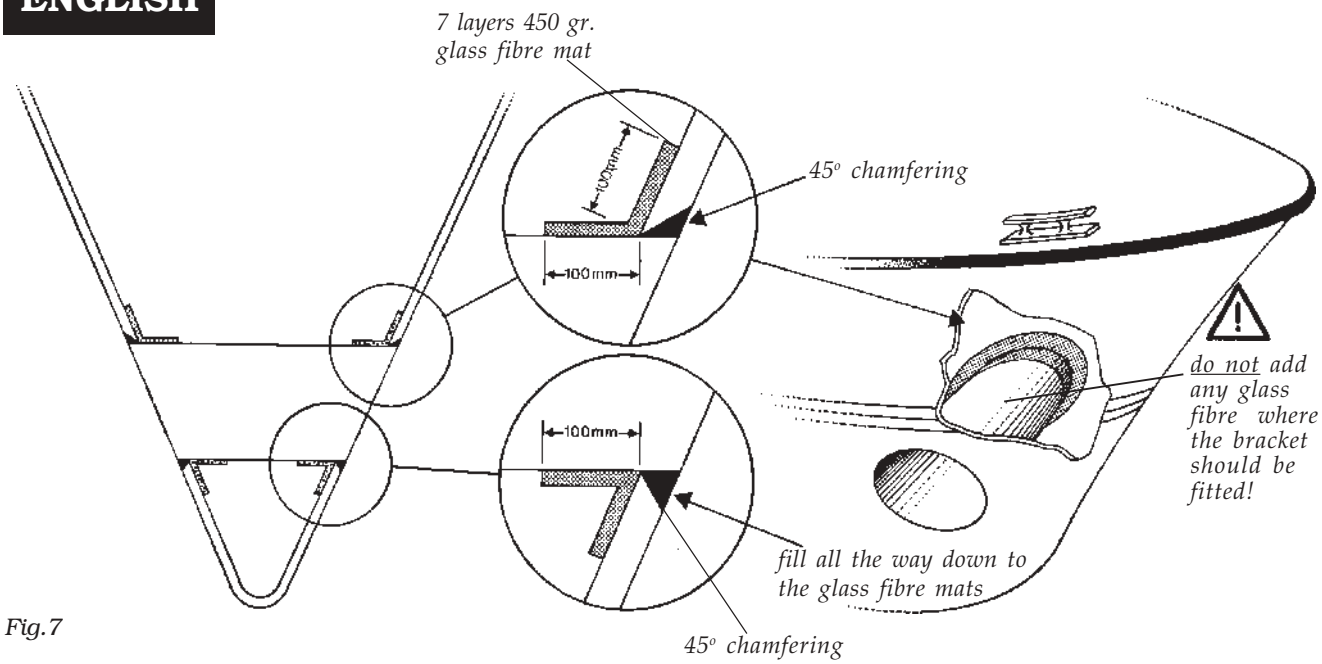

Fig.7

6. Put the tunnel in place and mark the shape of the hull, using a pen or a pencil, on the tunnel. At the same time the holes for the gear house and its fitting bolts should be marked on the tunnel.Model BP300/600 should be installed "off center" and BP450/800/900/ 1200/1300 should be installed centered. Please refer to illustration 4, 5a and 5b. Drill holes in the tunnel, for BP300 and 450 =1x Ø 26 mm and 2 x M6 bolt, for BP600/800/ 900 = 1 x Ø 33 mm and 2 x M8 bolt, for BP1200/1300 = 1 x Ø 45 mm and 2 x M10 bolt. (Please refer to illustration 8)

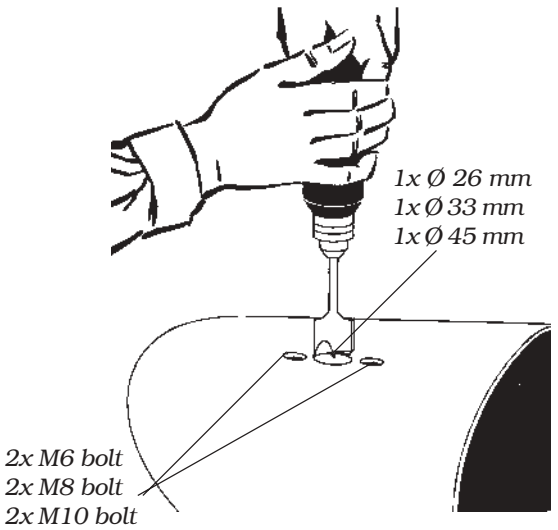

Fig.8

7. Cut the tunnel to required length.
NB! before doing so please read "Instructions for Special installations".

8. Buff the tunnel surface inside and outside. The tunnel must be absolutely clean from all wax. **Clean with acetone.**

9. On the inside of the hull, in an area of minimum 100 mm around the cut holes, all Topcoat should be ground off to get a clean surface on which the 7 layers of 450 gr. glass fibre mats should be applied. See fig. 7.
NB! No glass fibre where the bracket should be fitted!
Remove all dust with a vacuum cleaner and clean with acetone.

NB! If the boat is of "Sandwich" construction, the core around the tunnel must be ground off so that the glass fibre mats can be applied.

10. Should it be impossible to fit the tunnel with glass fibre all the way around, the entire space beneath the tunnel must be filled.See fig. 9. The filling must be uniform and might be made from talcum powder and polyester, or equivalent.

11. To prevent the filling from running aft, a waxed plate, made after the bilge and tunnel shapes, must be put in place whilst filling and curing. See fig. 9. Sometimes also the joint between hull and tunnel must be taped to prevent the filling from running out.

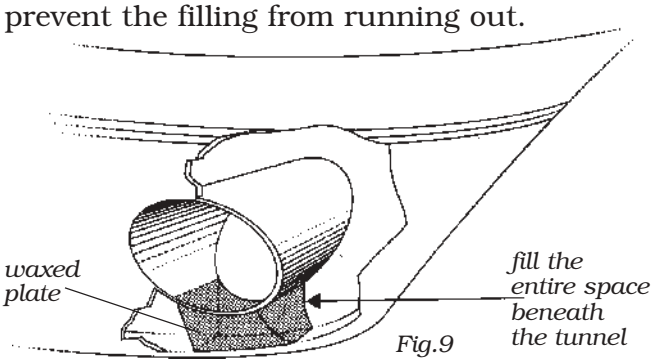

Fig.9

Applies to BP800/1200:

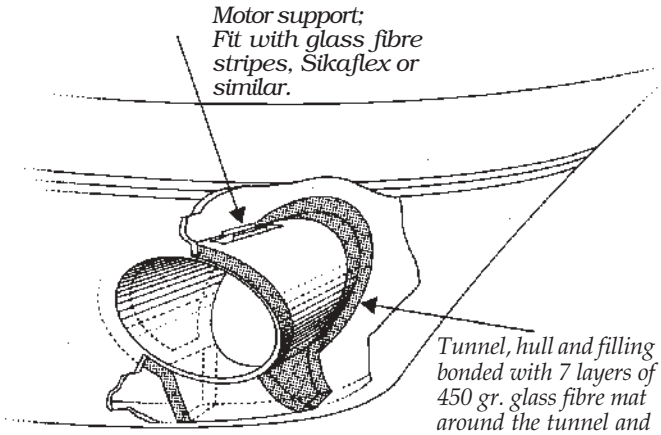

Fig.10

12. When the filling is cured remove the waxed plate. Grind smooth and clean with acetone.

13. Coat the glass fibre mats with plastic and fill the gap between tunnel and hull with glass fibre putty all the way down to the mats and alongside the hull. See fig. 7. Grind smooth and rub off the inner edge of the tunnel hole.

14. Paint the hull interior with Topcoat.

15. The hull exterior and the tunnel interior must be primed twice with two-pack coating and then painted with bottom coat.

Instructions for Special installations.

A. Planing boats might need a bulb, of the same type as a foil, on the fore edge of the tunnel. It prevents water from being pushed into the tunnel causing propeller rotation. In those cases the tunnel´s fore edge should be cut like in fig.**A.**

B. Buff the surface and clean with acetone. Put 2-3 layers of glass fibre mat, coat with plastic and putty with glass fibre putty. See fig. **B**.

Installing the Bow thruster

1. Put Sikaflex or equivalent around the gear house flange and a thin layer in the bolt holes to make sure the bolts are securely fastened.Make sure no sealing compound is obstructing the oil hole! See fig. 11.

Fig.11

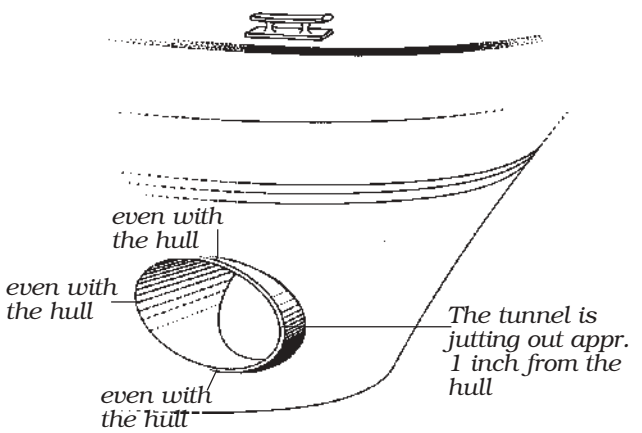

*Fig.**A***

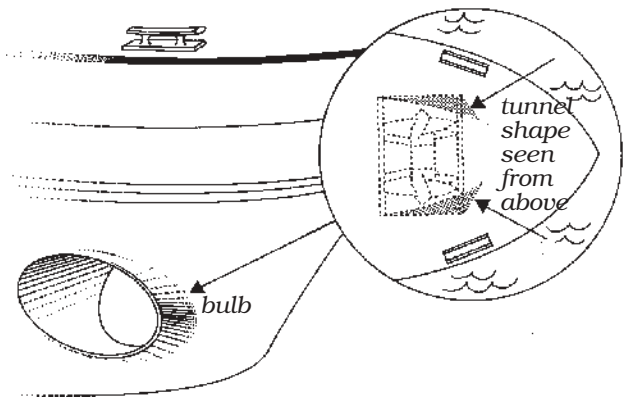

*Fig.**B***

Cont. installing the Bow thruster

2. Guide the gear house through the tunnel hole. Check that the propeller moves freely in the tunnel.

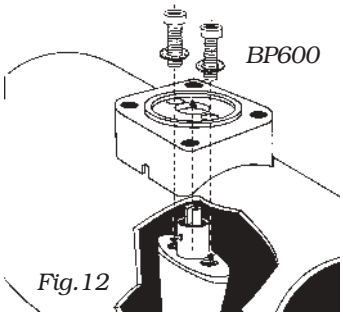

Fig.12

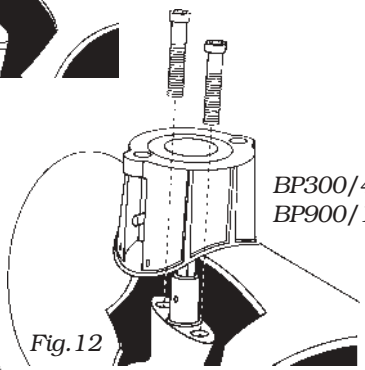

Fig.12

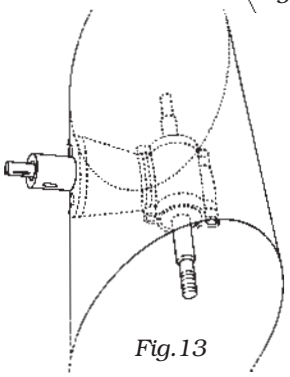

Fig.13

3. Check that the bracket O-rings are greased. Fit the bracket by pushing it down on to the gear house. Screw the two units together.

4. Attach the oil hose to its base on the bracket and mount the oil container (fig.14) close to the bow thruster but above the water line. The hose should be mounted in such a way that no air traps are formed thereby hampering the oil flow to the gear house. Fill the oil container and open the oil plug in the gear house and wait until oil leaks out. Put the oil plug back in place. This is to speed up the oil flow to the gear house and also to squeeze out any air that is left in the hose.

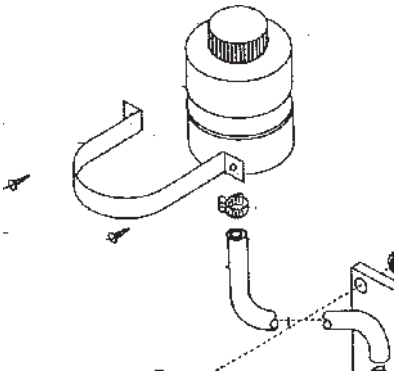

Fig.14

Items 5, 6, 7 and 8 apply to BP800/1200:

5. Fit the electric motor with its cover as in fig. 15.

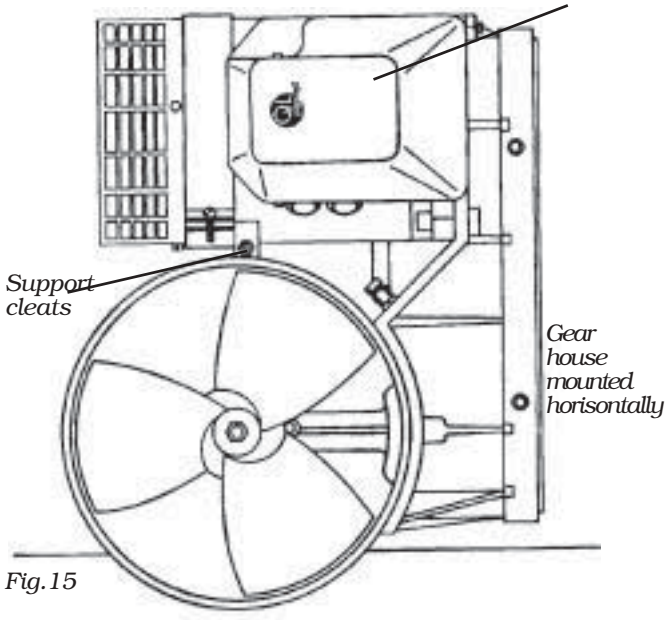

Fig.15

6. Attach the belt wheel and the belt to the gear house. Fasten the fixing bolts towards the belt lightly. Adjust the belt until such tension is obtained that, if pushed slightly the belt is cambered inwards by app. 10 mm. Use a riveting knob to hold the big wheel while tightening the small wheel bolt securely.

7. Fit the belt cover.

8. Fix support blocks under the motor, please refer to fig. 15.

Electrical installation

1. Fit the el. motor to the bracket and screw the units together.
Connect the Pos.(+) and Neg.(-) cables, from the battery, on resp. terminals marked with + and - symbols on the el.motor. See fig. 14.

⚠ Below recommendations reg. battery capacity, cable lengths and areas must be adhered to in order to avoid functional problems or stop in service. Deviations from these recommendations will make the warranty invalid.

Recommended battery capacity **BP300, 12V**; Minimum 50 Amp.

Recommended battery capacity **BP450, 12V** & **BP600, 12V**; Minimum 100 Ah.

Recommended battery capacity **BP450, 24V** & **BP600, 24V**; Minimum 2x70 Ah.

Recommended battery capacity for **BP800/900, 12V** is Min. 300 Amp.

Recommended battery capacity for **BP800/900, 24V** is Min. 2x150 Amp.

Recommended battery capacity for **BP1200/1300, 24V** is Min. 2x175 Amp.

Recommended area for battery cables; **BP300, 12V**; Pos.(+)1x50 mm^2 connected through main switch and fuse. Neg.(-)1x50 mm^2. Maximum length = 10 m one way.
We recommend Volvo Penta main switch. Part no.1140319 or equivalent.

Recommended area for battery cables; **BP450, 12V/24V** & **BP600, 12V/24V**; Pos.(+) 1x70 mm^2 connected through main switch and fuse. Neg.(-)1x70 mm^2. Maximum length = 10 m one way.
We recommend Volvo Penta main switch. Part no.1140319 or equivalent.

Recommended battery cable area for **BP800/12V:**.
Positive (+) 2x70 mm^2 connected via main switch and fuse. Negative (-)2x70 mm^2. Length of Positive (+) and Negative (-) = max. 10 m each way.

We recommend Volvo Penta main switch, Part no. 1140119 or similar.

Recommended battery cable area for **BP800/900/1200/1300, 24V:**.
Positive (+) 1x95 mm^2 connected via main switch and fuse. Negative (-) 1x95 mm^2. Length of Positive (+) and Negative (-) = max. 10 m each way.
We recommend Volvo Penta main switch, Part no. 1140119 or similar.

Recommended fuse on battery cable; **BP300, 12V**; = 200 Amp. Part no. 41100600.

Recommended fuse on battery cable; **BP450, 12V/24V** & **BP600, 12V/24V** = 300 Amp. Part.no. 41100052.

Recommended fuse for **BP800/900, 12V** = 425 Amp. Part no. 41100403.
Recommended fuse for **BP800/900, 24V** = 355 Amp. Part no. 41100604.
Recommended fuse for **BP/SP1200/1300, 24V** = 425 Amp. Part no. 41100403.

Wiring diagram for **BP300/450/600** and **SP600**, please refer to fig. 16.

Wiring diagram for **BP800/900/1200/1300** and **SP900/1300**, please refer to fig. 17.

Wiring diagram BP300/450/600

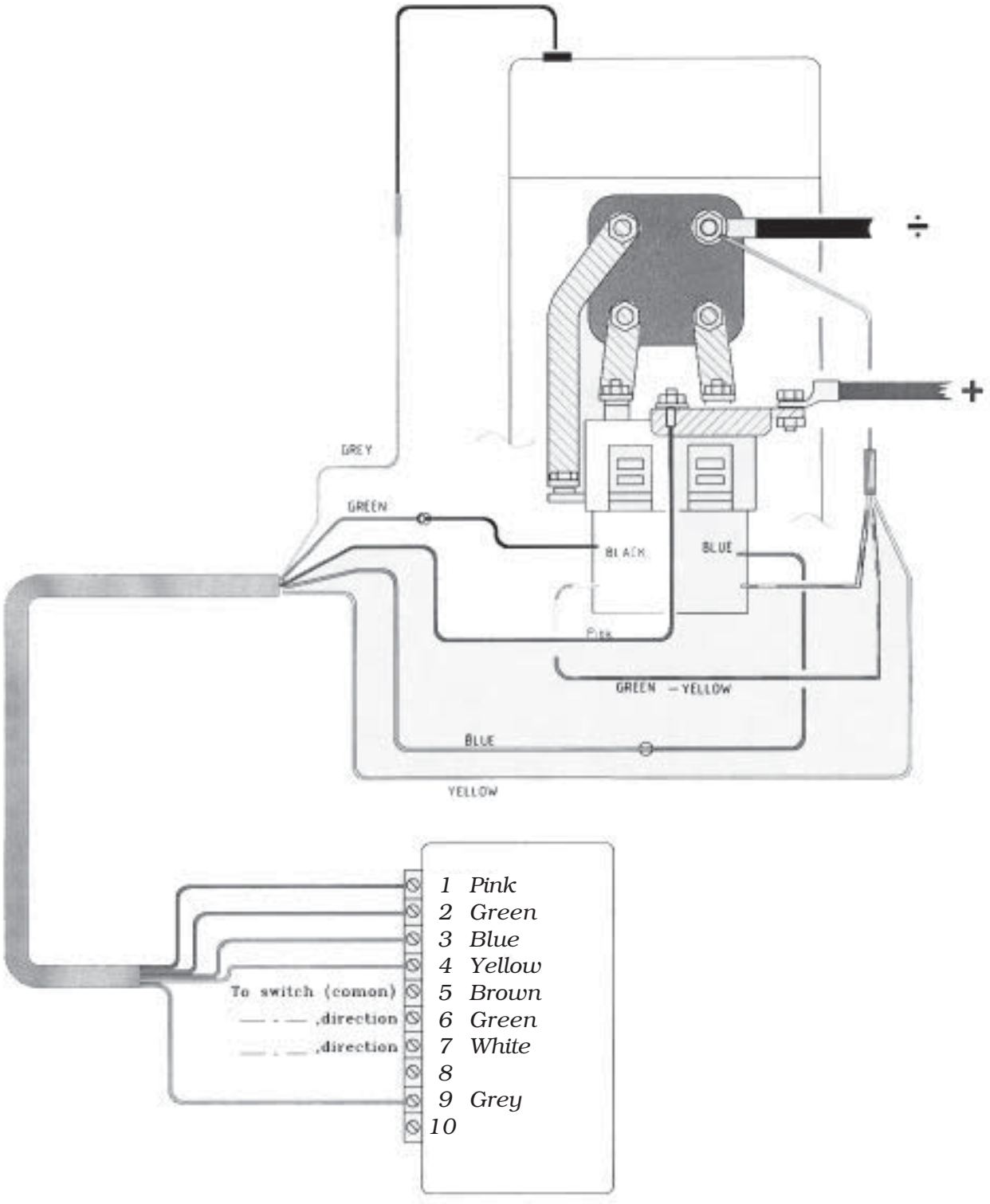

Fig.16

Wiring diagram BP800/900/1200/1300

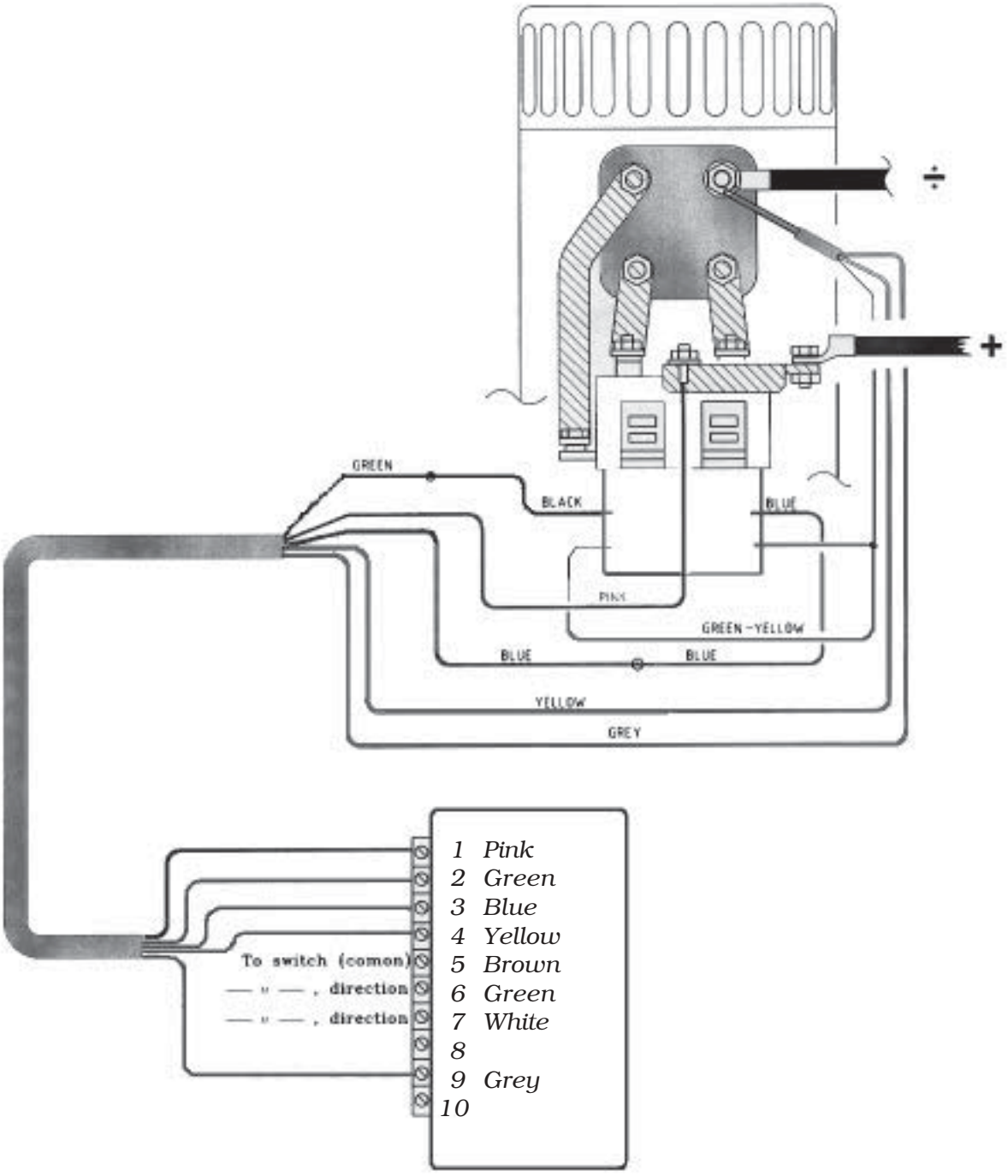

Fig.17

Installation check up

1. Prime the gear house the same way as the tunnel interior. **NB!** Do not prime the zinc anode or its contact area. Refer fig. 18. **BP300/450** does not have a zinc anode. The housing is made from acid-resistant stainless steel.

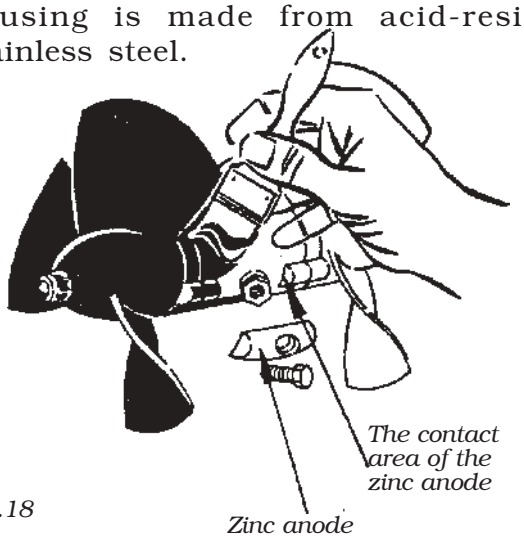

Fig.18

2. Paint the gear house with bottom coat. (**NB!** anti fouling paint.)
3. Before the propeller is fitted it should be ground and cleaned with acetone and then painted as in fig. 18
4. **NB!** Manually check the propeller´s clearance in the tunnel.
5. The propeller marked LH should be placed on Port side and the one marked RH on Starboard side.
6. **Applies to BP450/800/900/1200/1300:** A counterhold must be used when the lock nuts on the propeller shaft are tightened. Use a piece of wood inserted between the propeller blades.

Test running

1. Make sure no-one is within reach of the rotating propeller(s) when test running on the ground.

⚠ The propeller must have stopped before running the opposite way, otherwise the contactors might burn.

2. When the boat is launched, check that it moves in the correct direction when operating the control switch. If not, shift the cables connected to no. 6 and no. 7 on the bow thruster's circuit card.

3. Should there be more than one control panel connected, these should be joined in parallel.
NB! All power consuming equipment should always be run with great care! The boat engine(s) should be running, when the bow thruster is engaged, to keep the generator(s) charging.

NB! Maximum continuous running of the bow thruster is 3 minutes with an interval of minimum 3 minutes before it's engaged again.

Maintenance

• Keep the propeller(s) clean from being overgrown. (Paint with anti fouling paint).

• Paint the gear house and the propeller(s) once every year. (Anti fouling paint).

• Change the zinc anode (Does not apply to BP300/450) once every boating season or, if necessary, more frequently and always when app. 40% is used.

• Check the oil level in the container. It should always be half filled. Check, at least once per boating season, that there is oil in the gear house. Change the oil every season, or more often if necessary. Use only QL Bow thruster oil. Part no. 41100129.

• Check that the propellers are tightened.

• Check that all el. cables are well tightened and uncorroded.

• Check that the gear house bolts are well tightened.

• Check that the fitting bolts on the el. motor are well tightened.

⚠ When working with the bow thruster, always switch off the main switch.

The unique QL installation tool