

QL Boat Trim System



ENG

QL Boat Trim System
Installation Instructions

GER

QL Bootstrimm-System
Einbauanleitung

FRE

**Système de correction
d'assiette QL**
Instructions d'installation

SPA

**Sistema de Trimado de
Embarcaciones Automático QL**
Instrucciones de instalación

ITA

**Sistema correttore
di assetto QL**
Istruzioni di montaggio

SWE

QL Båtrimssystem
Monteringsanvisning

DUT

QL Boottrimsysteem
Montagevoorschriften

DAN

QL Båd Trim System
Installationsinstruktioner

FIN

QL-trimmijärjestelmä
Asennusohjeet

POR

Sistema de Basculação QL
Instruções de instalação

GRE

**Χειροκίνητο & αυτόματο
σύστημα τριμαρίσματος
σκάφους QL**
Οδηγίες χρήσης

TUR

**QL Manual ve Otomatik
Tekne Denge Sistemi**
Kullanıcı talimatları

RUS

**Система ручного и
автоматического трима QL**
Инструкции по эксплуатации



Marine Accessories
By Volvo Penta

IMPORTANT!

This batch with its accompanying instructions is produced for Volvo Penta's service workshops, boat-builders, machine manufacturers and other authorized workshops which have personnel with qualified professional training.

The installation instructions are only produced for professional use and are not intended for non-professional use. Volvo Penta will not assume any liability whatsoever for damage incurred, either damage to materials or personal injury, which may result if the installation instructions are not followed or if the work is carried out by non-professional personnel.

WICHTIG!

Dieser Satz mit vorliegender Einbauanleitung ist für Volvo Penta Kundendienst-werkstätten, Werften, Maschinenbauer und für andere ermächtigte Werkstätten mit beruflich geschultem Personal vorgesehen.

Die Einbauanleitung ist nur für den berufsmäßigen Gebrauch vorgesehen und nicht für unprofessionelle Anwendung gedacht. Volvo Penta übernimmt nicht die geringste Haftung für irgendwelchen Schäden an Personen oder Sachen, die als Folge einer Nichtbefolgung der Einbauanleitung oder wegen Ausführung der darin beschriebenen Arbeiten durch nicht beruflich geschulte Personen entstehen.

IMPORTANT!

Ce kit, avec instructions de montage, est destiné aux ateliers de service Volvo Penta, aux constructeurs de bateaux et autres ateliers de construction agréés avec un personnel qualifié.

Les instructions de montage sont exclusivement conçues pour une utilisation professionnelle. Volvo Penta se dégage de toute responsabilité pour d'éventuels endommagements, corporels ou matériels, résultant du non respect des instructions ou d'un travail effectué par un personnel non compétent.

IMPORTANTE!

El presente juego con las instrucciones de montaje se destina a los talleres de servicio Volvo Penta, constructores de embarcaciones y máquinas y a otros talleres autorizados que cuentan con personal capacitado.

Las instrucciones de montaje están destinadas únicamente para uso profesional, por lo que Volvo Penta no aceptará responsabilidad alguna por cualquier daño, tanto personal como material, resultado de no haber seguido las instrucciones de montaje o de haber sido efectuado el trabajo por personal que no está debidamente capacitado.

IMPORTANTE!

Questo kit e le relative istruzioni di montaggio sono stati realizzati per le officine di servizio Volvo Penta, i cantieri, i fabbricanti di macchine e tutte le altre officine autorizzate il cui personale ha ricevuto un addestramento qualificato e specializzato.

Le istruzioni di montaggio sono state redatte esclusivamente per uso professionale e non sono adatte all'uso non professionale. La Volvo Penta non si assume alcuna responsabilità per eventuali danni alle cose o alle persone, derivanti da trascuratezza nel seguire le istruzioni di montaggio oppure dall'esecuzione dei lavori da parte di personale non qualificato.

VIKTIGT!

Denna produkt med föreliggande monteringsanvisning är framtagen för Volvo Pentas serviceverkstäder, båtbyggare, maskintillverkare och övriga auktoriserade verkstäder som har personal med kvalificerad fackutbildning.

Monteringsanvisningen är enbart framtagen för yrkesbruk och är inte avsedd för icke yrkesmässig användning. Volvo Penta påtager sig inget som helst ansvar för eventuella skador, såväl materiella som personskador, som kan bli följden om monteringsanvisningen ej följs, eller om arbetet utförs av icke yrkeskunnig personal.

BELANGRIJK!

Deze set met de bijgevoegde montage-aanwijzing is ontwikkeld voor de werkplaatsen van Volvo Penta, botenbouwers, machinefabrikanten en overige bevoegde werkplaatsen, die personeel hebben met een gekwalificeerde vakopleiding.

De montage-aanwijzing is alleen ontwikkeld voor professioneel gebruik en is niet bedoeld voor niet-professioneel gebruik. Volvo Penta neemt geen enkele verantwoordelijkheid op zich voor eventuele schade, zowel materiële schade als persoonlijk letsel, die het gevolg kan zijn als de montage-aanwijzing niet wordt gevolgd, of als het werk wordt uitgevoerd door niet-vakkundig personeel.

TÄRKEÄÄ!

Tämä sarja ja asennusohje on tarkoitettu Volvo Pentan huoltokorjaamoille, veneenrakentajille, konevalmistajille ja muille valtuutetuille korjaamoille, joiden henkilökunta on saanut pätevän ammattikoulutuksen.

Asennusohje on tarkoitettu ainoastaan ammattikäyttöön. Volvo Penta ei vastaa mahdollisista materiaali- tai henkilövahingoista, joita asennusohjeen laiminlyöminen tai ammattitaidottoman henkilökunnan suorittama asennustyö voi aiheuttaa.

IMPORTANTE!

Este jogo, juntamente com as respectivas instruções de montagem, foi concebido para as oficinas de serviço da Volvo Penta, construtores navais, construtores de máquinas e outras oficinas autorizadas, com pessoal devidamente formado.

As instruções de montagem foram concebidas unicamente para utilização profissional e não se destinam a utilização não profissional. A Volvo Penta não se responsabiliza por quaisquer danos eventuais, tanto materiais como pessoais, que possam resultar no caso de as instruções de montagem não serem seguidas, ou se os trabalhos forem executados por pessoal não profissional.

VIGTIGT!

Dette sæt med tilhørende monteringsvejledning er blevet udviklet for Volvo Pentas serviceværksteder, bådbyggere, maskinproducenter og andre autoriserede værksteder, som har medarbejdere med kvalificeret, faglig uddannelse.

Monteringsvejledningen er udelukkende beregnet til professionel anvendelse og ikke til hobby- eller fritidsbrug. Volvo Penta påtager sig intet som helst ansvar for eventuelle skader på såvel materiel som personer, som kan være en følge af at monterings-vejledningens anvisninger ikke blev overholdt, eller hvis arbejdet blev udført af ikke-professionelt personale.

Σημαντικό!

Η παρτίδα αυτή μαζί με τις οδηγίες που τη συνοδεύουν, παράγεται για τα συνεργεία της Volvo Penta, για κατασκευαστές σκαφών, κατασκευαστές μηχανημάτων και άλλα εξουσιοδοτημένα συνεργεία τα οποία απασχολούν εξειδικευμένο, κατάλληλα εκπαιδευμένο προσωπικό.

Οι οδηγίες εγκατάστασης παράγονται μόνο για επαγγελματική χρήση και δεν προορίζονται για χρήση από ερασιτέχνες. Η Volvo Penta δεν αναλαμβάνει καμία ευθύνη για ζημιές, είτε σε υλικά είτε σε άτομα, η οποία μπορεί να συμβεί εάν δεν τηρηθούν οι οδηγίες εγκατάστασης, ή εάν οι εργασίες δεν γίνουν από επαγγελματίες.

ВАЖНО!

Этот пакет вместе с сопроводительными инструкциями разработан для сервисных станций, судостроительных и машиностроительных предприятий, а также авторизованных мастерских Volvo Penta, персонал которых прошел необходимое профессиональное обучение.

Инструкции по установке предназначены исключительно для специалистов. Volvo Penta отказывается от всех видов ответственности за любые повреждения материалов или травмы, возникшие по причине выполнения работ неквалифицированными лицами.

ÖNEMLİ!

Bu seri, yanında gelen talimatlarla birlikte, kalifiye profesyonel eğitim almış personeli bulunan Volvo Penta yetkili servisleri, tekne üreticileri, makine üreticileri ve diğer yetkili servisler için üretilmiştir.

Kurulum talimatları sadece profesyonel kullanım hazırlanmıştır ve profesyonel olmayan kullanım için değildir. Volvo Penta, kurulum talimatlarına uyulmaması veya çalışmanın profesyonel olmayan personel tarafından gerçekleştirilmesi durumunda, malzemelerin hasar görmesi olsun yaralanmalar olsun, meydana gelebilecek zararlardan hiçbir şekilde sorumlu tutulamaz.

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Presentation, QL Boat Trim System

The system includes:

- A. Control unit
- B. Control panel
- C. Interceptor units
- D. Cable between the control unit and the interceptor unit
- E. Cable between the control unit and the control panel
- F. Attitude control unit ACU
- G. GPS receiver
- H. Y-cable
- I. Extension cable

The system is designed for planing boats with a maximum speed of 50 knots. The system may also be used for semi-planing boats; refer to dimensions above.

Interceptor units are available in two lengths, 300 mm and 450 mm. They may be installed individually, or side-by-side, i.e. two units on each side of the transom (300 + 300, 300 + 450, or 450 + 450).

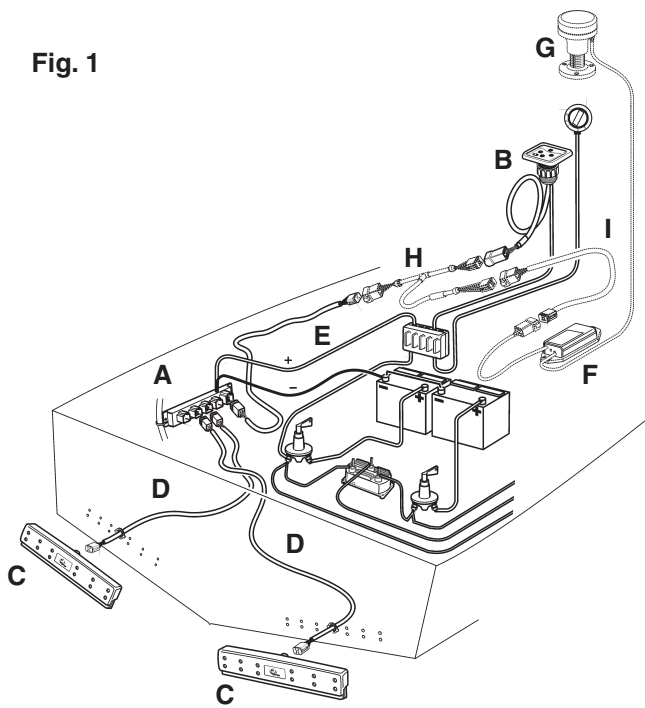


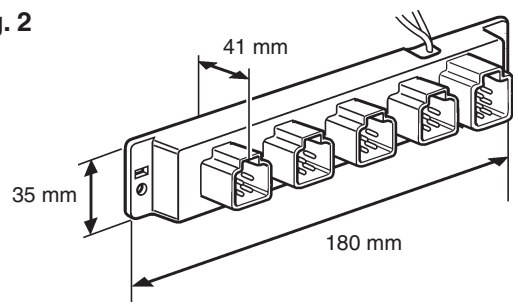
Fig. 1

Control unit (A)

The control unit is the system's brain. It is available in two versions: one version for one pair of trim planes, and the other for two pairs. Ambient operating temperatures: Min -40 °C, Max +85 °C.

Length (mm)	Width (mm)	Height (mm)
180	35	41

Fig. 2



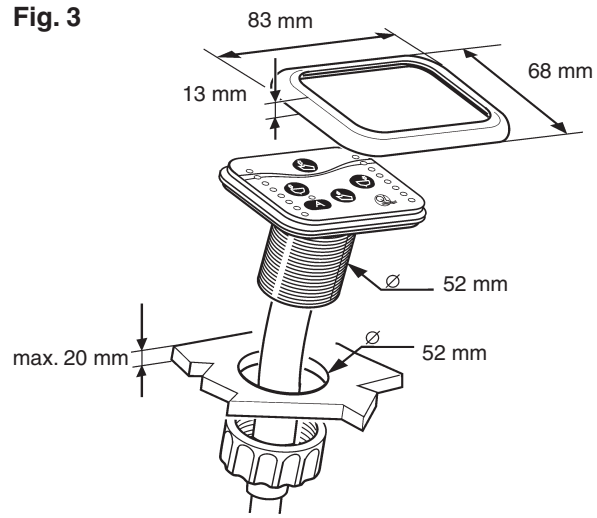
Control panel (B)

The control panel is fitted with 5 push buttons to facilitate use of the trim system. For push button functions refer to **Operating the system**. The panel is also equipped with two rows of LEDs for precise trim indication.

Length (mm)	Width (mm)	Height (mm)	Hole diameter (mm)
83	68	13	52*

* Surface mounted, see Fig. 26 (A).

Fig. 3



Interceptor unit (C)

Available in two different sizes.

Length (mm)	Width (mm)	Height (mm)
300	100	42**
450	100	42**

** From the transom's bottom edge

Each interceptor unit is supplied with the stainless steel screws necessary for installation on GRP hulls.

NOTE! The interceptor blade's maximum protrusion is 35 mm.

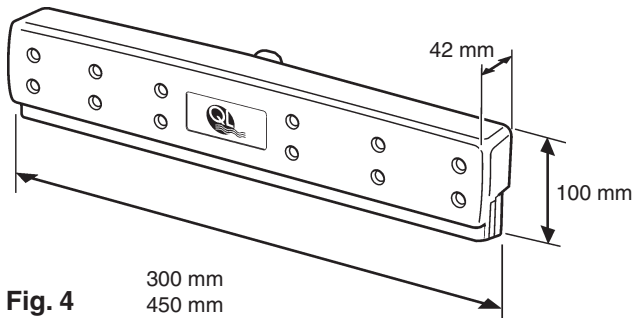


Fig. 4

Cable (E) between the control unit (A) and the control panel (B)

Each cable end is fitted with a 6-pin connector.

There are five cable lengths available, namely:

- * 5 m
- * 7 m
- * 9 m
- * 11 m
- * 13 m

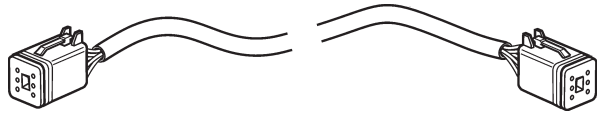


Fig. 5

There is also a 6-pole Y cable and a 6-pole extension cable, for use when a boat has more than one helm station.

Cable (D) between the control unit (A) and the interceptor unit (C)

Each cable end has a 4-pin connector, and one of the ends also has a rubber installation grommet.

There are two cable lengths available, namely:

- * 2.5 m
- * 4 m



Fig. 6

Attitude Control Unit ACU (F)

Part of the QL Automatic Boat Trim System. Not described in this manual.

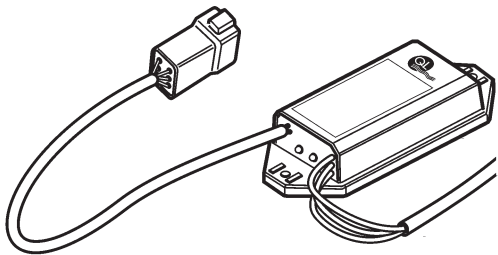


Fig. 7

GPS receiver (G)

Part of the QL Automatic Boat Trim System. Not described in this manual.

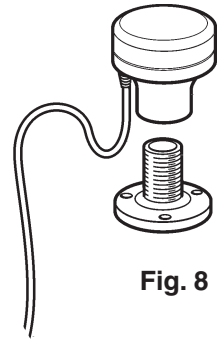


Fig. 8

Y-cable (H) between cable (E), the control panel (B) and the ACU (F)

Part of the QL Automatic Boat Trim System. Not described in this manual.

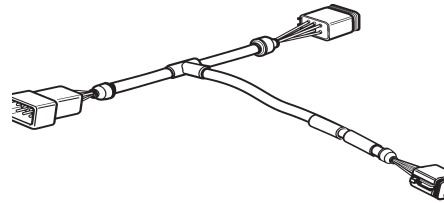


Fig. 9

I. Extension cable

Part of the QL Automatic Boat Trim System. Not described in this manual.



Fig. 10

Read how to install the components in the **Installing the QL Boat Trim System**

Sizing guide

Many factors affect the selection of properly-sized trim unit configurations, and it is always the boat user / boat builder who bears the ultimate responsibility for the choice. The following recommendations are based on a boat's average performance. The choice may vary based on power, engine configuration, weight distribution, the type of boat and its intended use.

Remember that the largest possible trim plane surface suited to the transom is also the most effective solution. The QL Boat Trim System is designed to replace conventional trim systems completely.

Boat length Installation	Single engine installation	Twin engine
15'-24'	QL300	
22'-30'	QL450	QL300
28'-34'	QL450	QL450
32'-44'	QL450 + QL300	QL450
42'-50'	QL450 x 2	QL450 x 2

It may be necessary to increase the length of the trim configuration for semi-planing hulls.

Installation, QL Boat Trim System

NOTE! Read through the following pages carefully before beginning the installation of the QL Boat Trim System. Pay special attention to passages marked “**NOTE!**”, “**IMPORTANT!**” and the “**WARNING!**” notices.

NOTE! When installing the QL Boat Trim System, remember to make it is easy to complement and update it to the QL Automatic Boat Trim System at a later date.

See figures 1, 29 and 30.

The interceptor units (C) **figs. 1 and 4** are attached to the transom close to the hull bottom. The precise position is determined by the template included in the delivery (see below for detailed instructions). The further outboard the interceptor units are mounted, the greater the side-to-side maneuverability. Position the interceptor at least 50 mm from the chine towards the boat's centerline. Boats with outboard motors, Aquamatics or waterjets must have at least 200 mm between the drive unit centerline and the closest edges of the interceptor units. See Fig. 11.

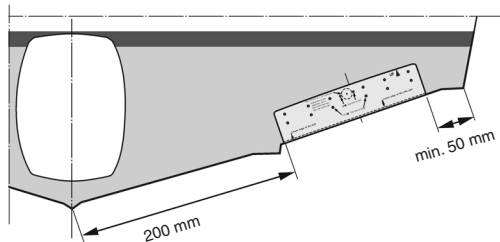


Fig. 11

Boats with inboard engines may utilize all of the transom's lower edge, except the 50 mm from the chine. If the boat has strakes that reach the transom, the interceptor units should preferably be installed next to them. See Fig. 12.

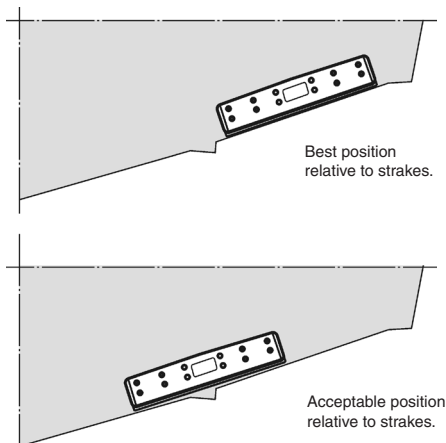


Fig. 12

NOTE! With the aid of a ruler, make sure that the transom surfaces where the interceptor units are to be installed are flat in both the vertical and horizontal planes. If the installation surface is not flat to within 2 mm, it must be ground. It may be necessary to fill irregularities with a suitable filler before the surface is ground. Alternatively, a suitable sandwich material may be fixed to the transom to afford a straight, flat and even installation surface. Before installation is begun, check the prepared surface with a ruler again to ensure it is flat to within 2 mm.

See figs. 13 a-b.

The template, see Fig. 14 has pilot holes for marking the transom. Place the template on the transom and follow the instructions above. If two pairs of interceptors are

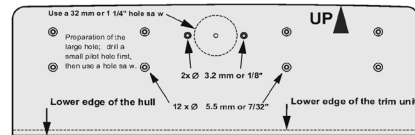
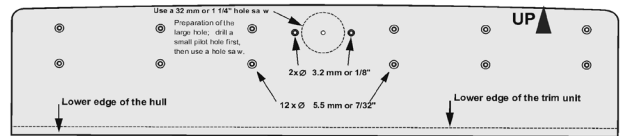


Fig. 14

installed, i.e. two units on each side of the transom leave approx. 3 mm between the two templates. See Fig. 15.

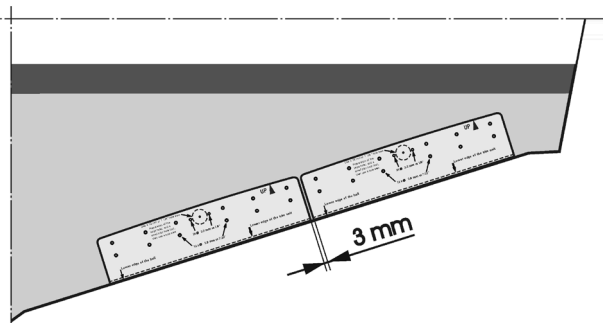


Fig. 15

Before proceeding with the installation, always check that there are no obstacles on the inboard side of the transom (bulkheads, tanks, fuel lines etc.) that may interfere with, or be damaged by, the interceptor installation. See Fig. 16.

WARNING! Make certain the bilge is thoroughly ventilated and free from fuel fumes. Drilling into a hull containing fuel fumes may cause a violent explosion

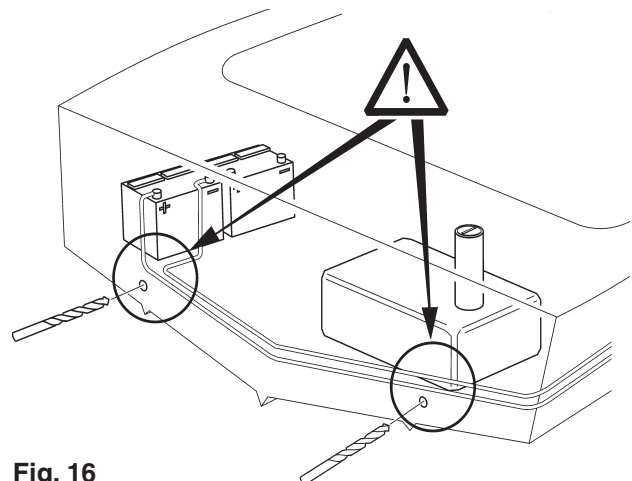


Fig. 16

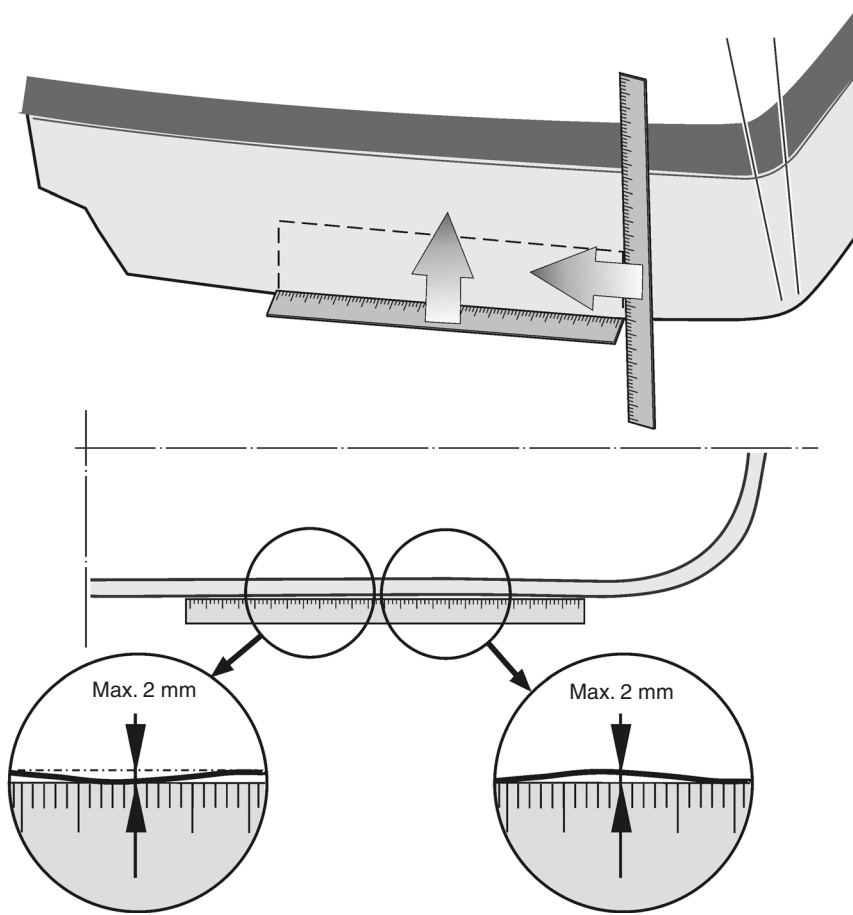


Fig. 13a

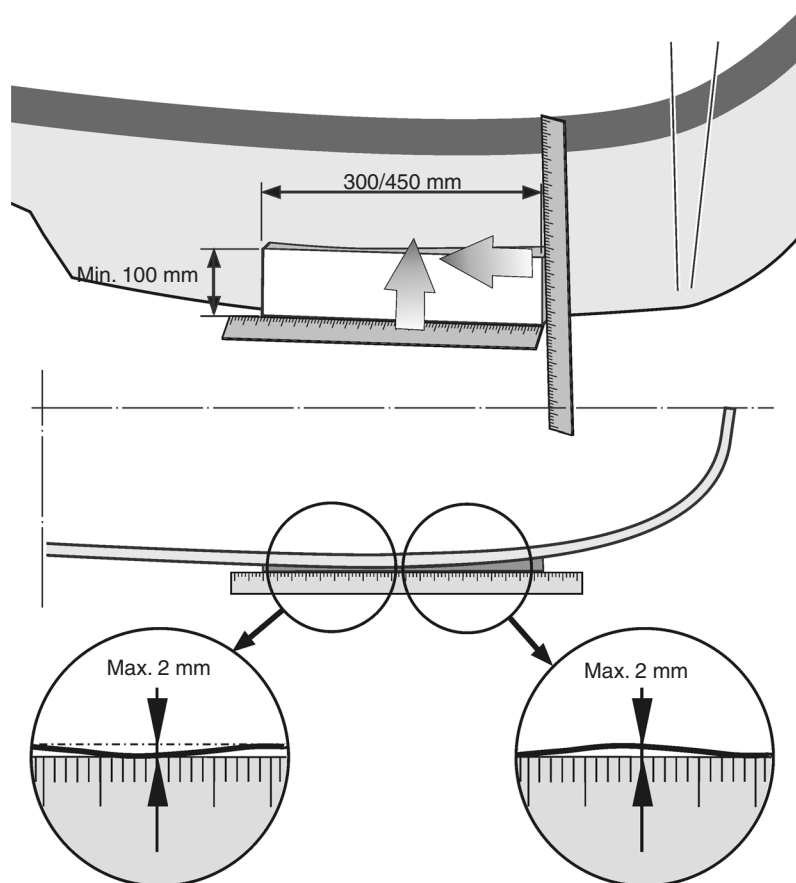


Fig. 13b

Position the template's lower edge in line with the hull bottom. No part of the template may protrude beyond the transom edge. **See Fig. 17.**

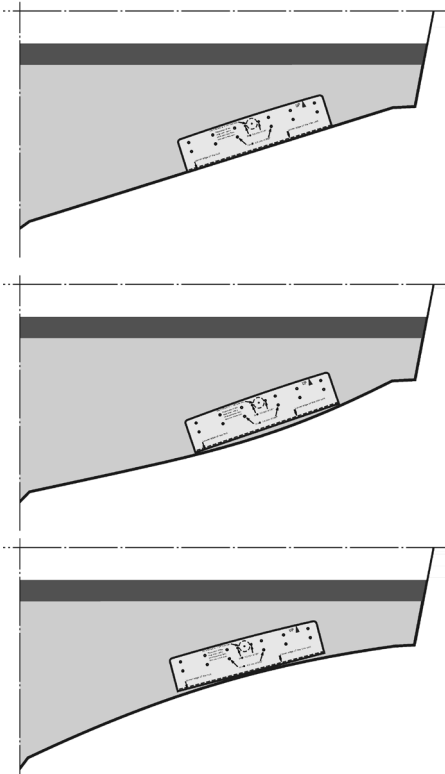


Fig. 17

When the template is in the desired position, hold it in place and mark the pilot hole positions on the transom with a marking pen. Remove the template and check that all the markings are clearly visible. Before continuing with the installation, check again that no obstacles on the inboard side of the transom can disrupt the installation or be damaged by drilling. **See Fig. 16.**

Begin by drilling the hole (center hole) for the interceptor unit's rubber grommet. Use a bit with a smaller diameter than the center bit in the hole saw to be used for the final 32 mm diameter hole.

Make a 32 mm hole through the transom with a **high quality** hole saw. **NOTE!** Only use a 32 mm diameter hole saw. No other diameters may be used. **NOTE!** Drill the hole at right angles to the transom (both vertically and laterally) in accordance with **Figs. 18 and 19.** **NOTE!** Check that the tool to be used provides the correct hole diameter by making a test hole in a piece of wood and measuring the hole.

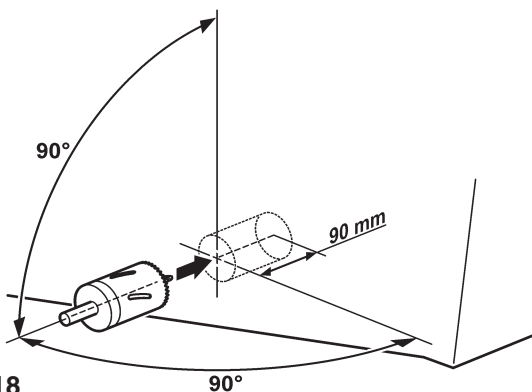


Fig. 18

If the transom is too thick for the hole saw to cut all the way through, it will be necessary to drill a pilot hole from the inboard side. **NOTE!** Make sure that the edge of the 32 mm center hole is not damaged when making the connecting hole. If the center hole is damaged the rubber grommet will not fit properly, which will result in inadequate sealing. The hole diameter must allow the 4-pin connector to pass through. This requires a hole of approx. 25 mm, **see Fig. 19.**

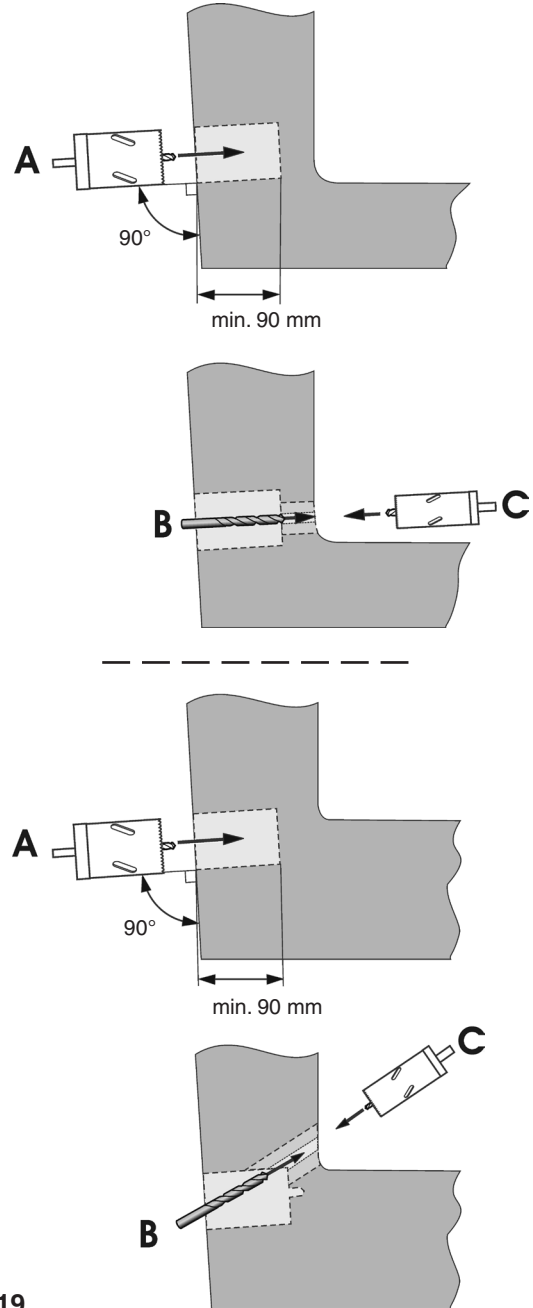


Fig. 19

NOTE! Different boats may have different transom constructions. If the transom is made of a material sensitive to water or moisture intrusion, treat the surface where the hole is located with a water resistant coating before continuing the installation. Moisture may occur on the transom's inboard surface as a result of high bilge water level or air temperature differences. Do not apply so thick a coating that the hole diameter becomes too small for the rubber grommet.

Drill the remaining holes according to the markings on the transom. **NOTE!** The hole sizes indicated on the template (except the hole for the rubber grommet) apply only to GRP hulls. Eight holes with a diameter of 5.5 mm and two holes diameter 3.2 mm for the 300 mm interceptor unit and twelve 5.5 mm holes plus two 3.2 mm holes for the 450 mm interceptor unit. Drill depth 20 mm. The holes are sized to suit the acid-resistant stainless steel screws included in the delivery. **NOTE!** No other screws or hole sizes may be used.

If the transom is made of aluminum or steel, other fasteners may be required e.g. nuts, bolts and washers. Such fasteners are not however included in the delivery. **NOTE!** Regarding the grommet screws, their heads may not exceed 2.5 mm in height, nor their diameter exceed 5.5 mm.

NOTE! All holes that penetrate the hull must be properly sealed.

Insert the 4-pole cable (the contact end with no rubber grommet) from the outboard side of the transom and switch between pushing and pulling the entire length through the transom until the rubber grommet is approx. 50 mm away from it. **NOTE!** Check that the rubber grommet slides freely along the cable covering. If it does not, drop a little soapy water between the grommet and the cable and check again. **See Fig. 20.**

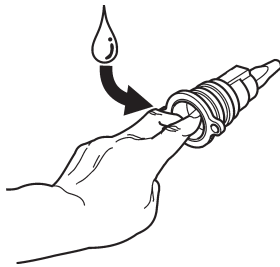


Fig. 20

Press the grommet into the hole through the transom and check that the grommet flange sits flush with the transom surface. There may not be any gap between the flange and the transom surface. Then remove the grommet. If a gap was present, the edge of the hole must be modified a little, **see Fig. 21** by means of a fine round file or grinding paper. Be careful not to damage the pre-drilled holes for the grommet screws. Check again that the grommet flange sits flush with the transom surface. If a gap is still present, continue filing the edge until the gap disappears. Turn the grommet so the the "UP" mark points upwards and twist the cable so that the 4-pin connector fits into the grommet. **See Fig. 22.**

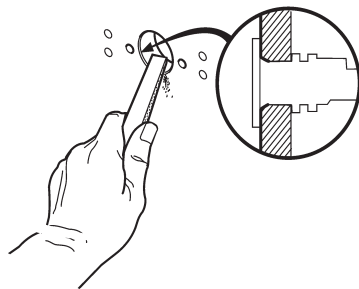


Fig. 21

Now apply marine sealant (refer to the sealant's specifications) to the transom side of the grommet flange, **see Fig. 22**, and push/pull the grommet into the hole. Press it against the transom and align it so that its two flange holes correspond to the holes drilled in the transom. Screw the grommet in place (use the two small screws included) and tighten. Use a Phillips screw driver, tighten by hand and make sure the grommet seats tightly against the transom. **NOTE!** Do not use pneumatic or electrically-driven tools as these may cause the screws to be over-tightened. Remove any surplus sealant before it dries. Push the cable through from the inboard side until the connector is about 50 mm from the rubber grommet. **See Fig. 24.**

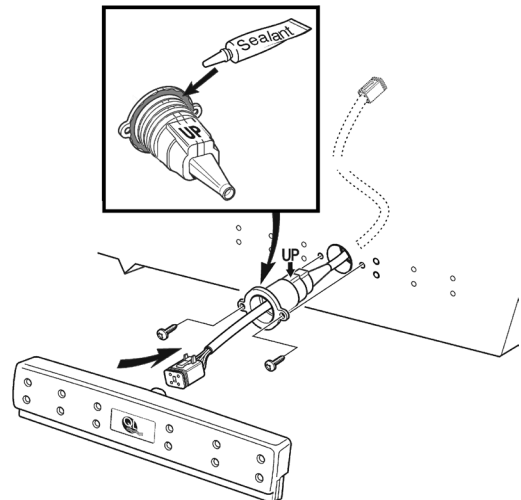


Fig. 22

The interceptor unit is fitted with a gasket integrated as a part of the front cover. The gasket seals onto the transom thus preventing water from entering between the interceptor unit and the transom. When the rubber grommet has been installed according to instructions, check that the interceptor unit fits properly. Push the 4-pin connector into the corresponding socket on the interceptor unit's rear side. Make sure the connector is pushed all the way in to the bottom of the socket. A click will be heard when the connector locks securely.

Use a finger to apply a thin layer of soapy water on the inside of the grommet. **See Fig. 20.** Offer the unit carefully onto the transom so that the connector body fits into the grommet. It may be necessary to simultaneously pull the cable from the inboard side of the transom. Make sure the cable is easily drawn through the rubber grommet and that it does not kink inside it. Then check that the interceptor unit does indeed sit flush against the transom around its entire circumference. If it does not, investigate the cause and remedy the problem. Carry out a further check. If the seat is good remove the interceptor unit from the transom, but allow the cable connector to remain in the unit's socket.

Then apply marine sealant (see Approved sealants) around the interceptor unit socket edge and around each screw hole, see Fig. 23.

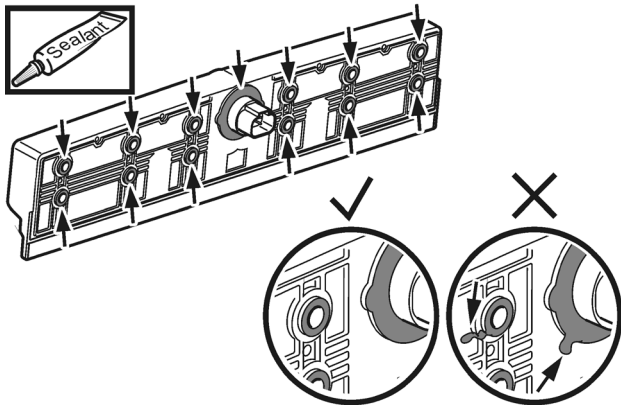


Fig. 23

IMPORTANT! Never apply any sealant to the surface beneath the lower part of the gasket

Approved sealants:

- * Bostik Simson MSR CA
- * Sikaflex-291
- * Boatlife Life Caulk
- * Boatlife Life Seal
- * 3M 4200 Marine Adhesive Sealant

IMPORTANT! Do not use any other type of sealant than those listed above. **Never** use hard sealants. When handling, applying and removing sealants and preparing surfaces, always follow the sealant manufacturer's instructions and recommendations.

Use a finger to apply a thin layer of soapy water on the inside of the grommet. See Fig. 20. Offer the unit carefully onto the transom so that the connector body fits into the grommet. It may be necessary to simultaneously pull the cable from the inboard side of the transom. Make sure the cable is easily drawn through the rubber grommet and that it does not kink inside it. When the interceptor unit has been located correctly, insert the screws (included in delivery) and screw them into the pre-drilled holes in the transom. Tighten them alternately. Use a Phillips screw driver, tighten by hand and make sure the interceptor unit seals tightly against the transom. **NOTE!** Do not use pneumatic or electrically-driven tools as these may cause the screws to be over-tightened, damaging the interceptor unit. **NOTE!** Tightening torque must be 4-5 Nm. See Fig. 24. Remove any surplus sealant before it dries.

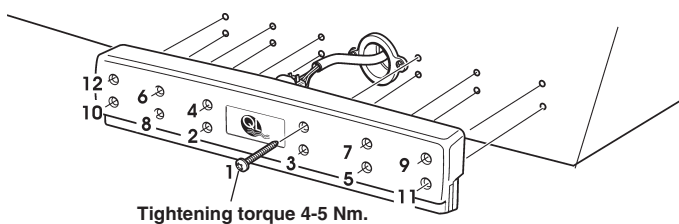


Fig. 24

The control unit must be fastened securely in a dry, easily accessible place, e.g. the inboard side of the transom. Screws are not included. Check that the distances between the control unit and each interceptor unit are not too great. The connection cables are 2.5 m or 4.m long, depending on the type selected.

Connect the 4-pole cable to the control unit. See Figs. 1, 2 and 25. There are two control unit versions, one version for one pair of interceptor units, and the other for two pairs. Each control unit is equipped with four 4-pin connectors marked P2 (port 2), P1 (port 1), SB 1 (starboard 1), and SB2 (starboard 2), one 6-pin connector marked AUX, and one red and one black cable for the power supply. One pair of interceptor units: use P1 for the port interceptor unit and SB1 for the starboard interceptor unit. Two pairs of interceptor units: use P1 and P2 for the two port interceptor units and SB1 and SB2 for the starboard interceptor units. See Fig. 25.

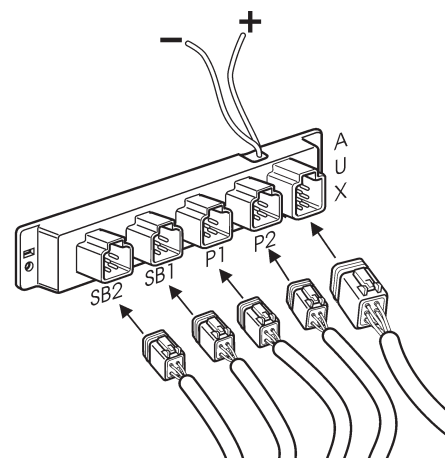


Fig. 25

Install the control panel (B), see figs. 1, 3 and 26 within easy reach at the helm station. Hole diameter 52 mm. See Fig. 3. Use the gasket included in the kit. (See Fig. 26A). If the panel is to be installed flush with its surrounding surface, press out the center part of the gasket and use the remainder for installation. see Fig. 26 B. See also the control panel hole template at the end of these instructions.

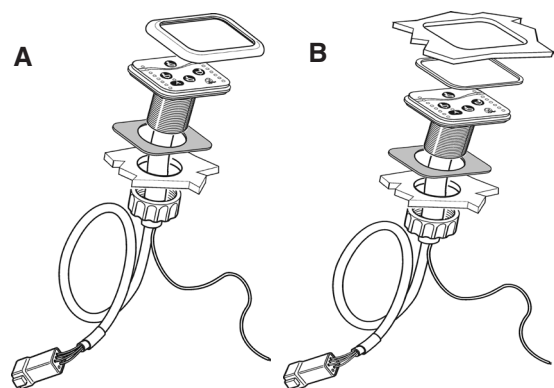


Fig. 26

Install the control panel (B), see **figs. 1, 3 and 26** within easy reach at the helm station. Hole diameter 52 mm. See **Fig. 3**. Use the gasket included in the kit. (See **Fig. 26A**). If the panel is to be installed flush with its surrounding surface, press out the center part of the gasket and use the remainder for installation. See **Fig. 26 B**. See also the control panel hole template at the end of these instructions.

Install the six-pole connection cable (E) **Fig. 1** between the control unit (the connector marked AUX) and the control panel.

Connect the control unit power supply cable to 12 or 24 V DC (red cable to positive and black cable to negative). Protect the installation with a 6-8 A fuse on the positive cable. See the wiring diagrams **Figs. 29 and 30**.

Connect the red positive cable from the control panel to the start lock operating position.

NOTE! On Volvo Penta EVC EC engines, the red cable must not be connected to the start lock, but to the external accessories relay. **NOTE:** Always check with your engine supplier whether there are other recommendations or standards for cable runs to the start lock. Protect the installation with a 3-8 A fuse on the positive cable.

If there is more than one helm station, only the main helm station's control panel (red cable) is connected to the start lock or relay as described in the instructions above. For mechanically controlled engines and Volvo Penta EVC MC engines, refer to the wiring diagram in **Fig. 29**. For Volvo Penta EVC EC engines, refer to the wiring diagram in **Fig. 30**.

If the boat does not have a suitable fuse box, a Volvo Penta resettable 8 A breaker (part No. 966689) may be used to protect the installation. The breaker 966689 is not explosion proof, and may not be used in engine compartments for gasoline engines. See **Fig. 27**.

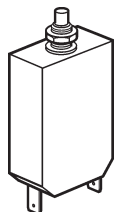


Fig. 27

NOTE! Perform a “system start” and test the trim system before the boat is launched. Read through the instructions carefully before the system start.

Starting the system

When the QL Boat Trim System has been installed and all the cables connected, it is time to calibrate the system before use. This is done to determine the blade's position when it is fully retracted and fully extended.

Carry out the calibration according to the following:

1. Turn the main switch on.
2. Depress the upper and lower control panel buttons simultaneously and hold them down.

3. Turn the start key to the start position (without starting the engine).

4. Wait at least ten seconds until the interceptor blades begin to extend, and release the panel buttons. The blades may begin to extend before ten seconds have passed; the upper and lower buttons must nevertheless be depressed for at least ten seconds.

5. The blades will extend fully, stop, and then retract. When this procedure has been completed correctly, the two upper and two lower LEDs on the control panel will flash twice. This confirms that the calibration has been carried out correctly. See **Fig. 28**.

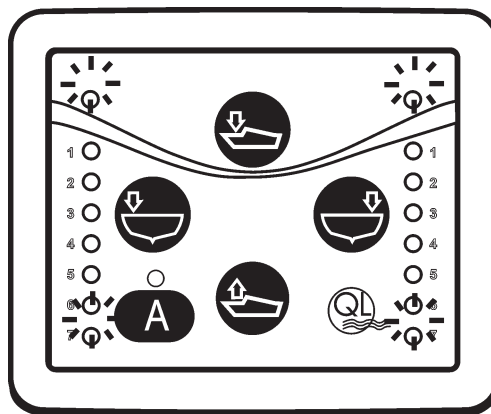


Fig. 28

If calibration was unsuccessful, the control panel LEDs will flash out a code for the fault indicated. (Refer to the fault code section of the QL Manual & Automatic Boat Trim Systems user instructions).

If this occurs, switch off the power to the system and investigate the reason why the blades do not move (mechanical obstacle, paint clogging or barnacles). Remove the obstacle and re-calibrate.

NOTE! If a control unit for two pairs of interceptor units is being used, but only one pair of interceptors is installed, only calibrate the unit for one pair of interceptors. If a further pair of interceptors is added later, the system must be re-calibrated.

IMPORTANT! To avoid limited functionality and damage to the interceptor units, the system must be re-calibrated if for any reason the control unit or any of the interceptor units is replaced.

The system must always be re-calibrated whenever the boat is launched.

Check that the interceptor installation does not allow water leakage through the transom. If leaks are present the installation has not been correctly performed and must be carried out again.

6. The system is now ready for use.

Volvo Penta EVC MC and other mechanically controlled engines

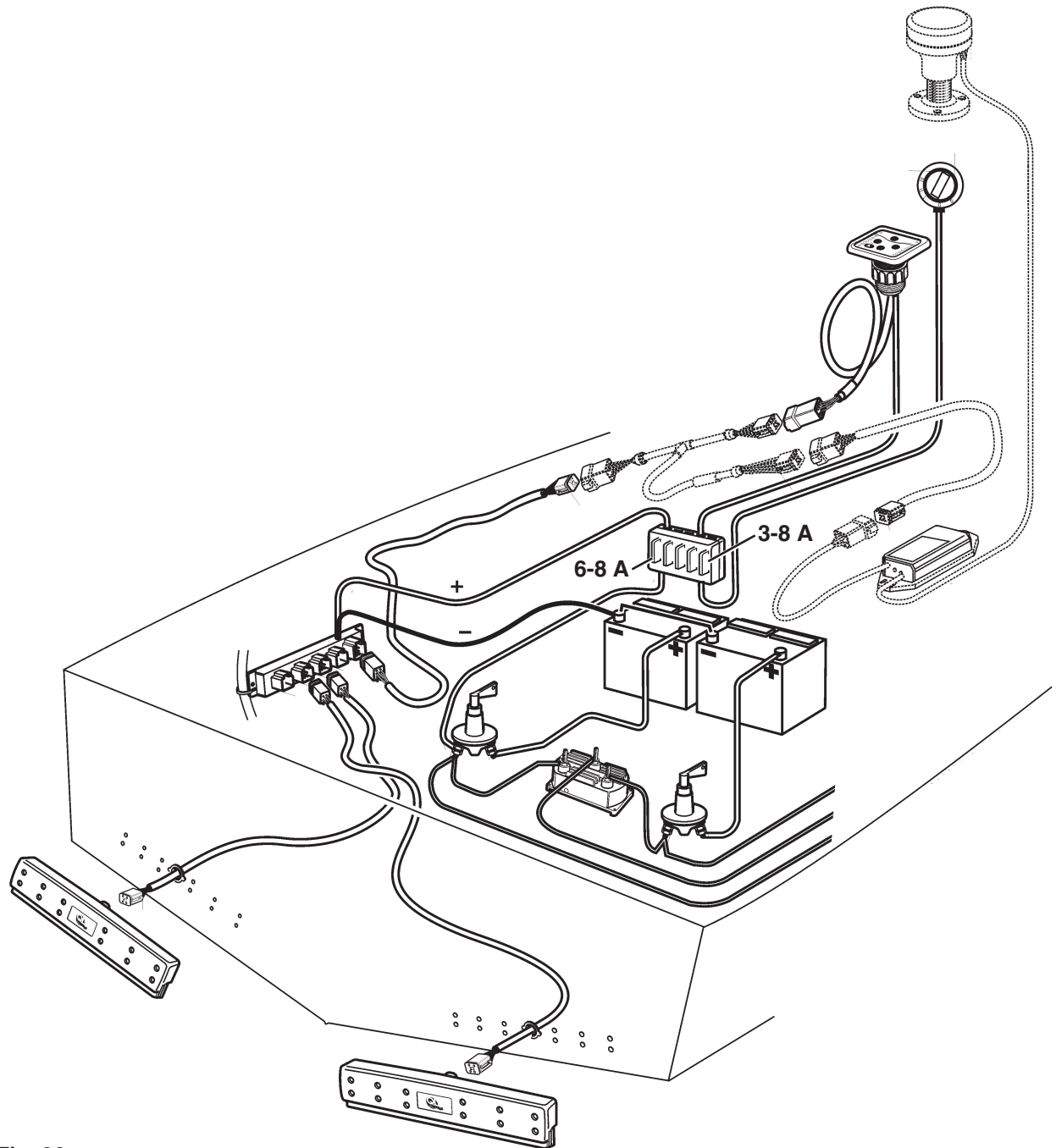


Fig. 29

Volvo Penta EVC EC (electronically controlled engines)

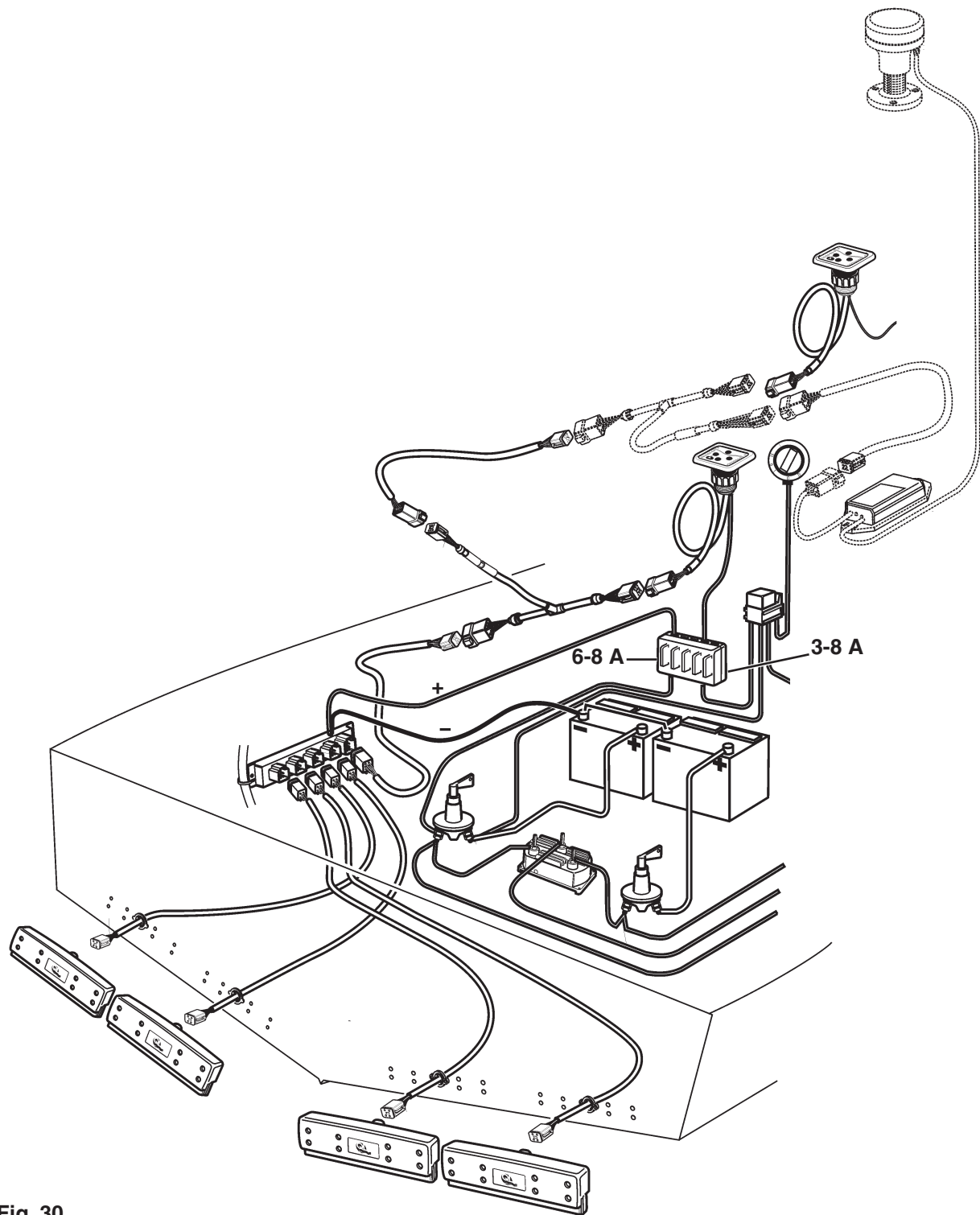


Fig. 30