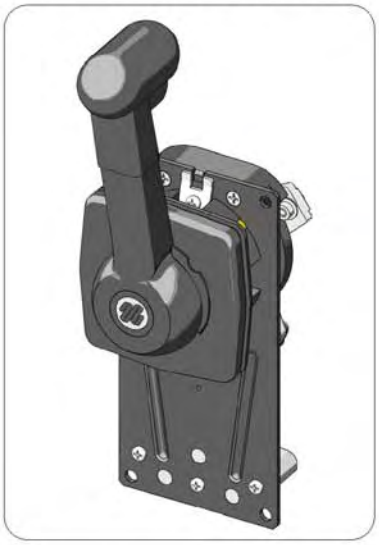
Installation and maintenance manual

SINGLE LEVER CONTROL



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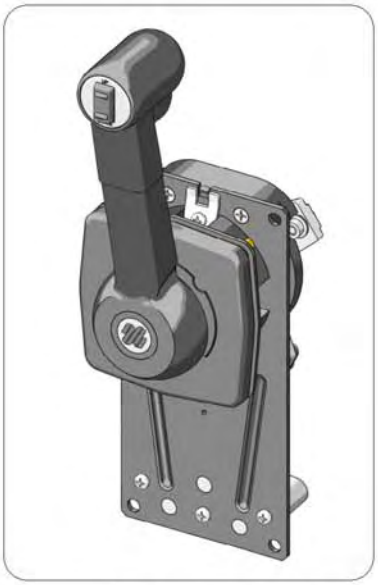

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ENGLISH

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ULTRAFLEX

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F page. 41

NMMA UCINA PARTNER MEMBER ABYC Setting Standards for Safer Boating®

Member of CISQ Federation RINA ISO 9001:2000 Certified Quality System

Member of CISQ Federation RINA ISO 14001 Certified Environmental System

(Dr./Dis./Des. n° 8212/a 16/09/2009)

ENGLISH

Dear Customer,

We would like to thank you for choosing an **ULTRAFLEX** product.

ULTRAFLEX has been a leader in steering systems for pleasure and professional boats for many years. **ULTRAFLEX** production is since ever synonimous of reliability and safety.

All **ULTRAFLEX** products are designed and manufactured to ensure the best performance.
To ensure your safety and to maintain a high quality level, **ULTRAFLEX** products are guaranteed only if they are used with original spare parts (see attached document "Application Spare Parts").

ULTRAFLEX and **UFLEX** Quality Management Systems are certified CISQ-IQNet by the Italian Shipping Registry (RINA), in conformity with the UNI EN ISO 9001:2000 rule. **ULTRAFLEX** certification No. 6669/02/S (former 420/96). **UFLEX** certification No. 8875/03/S.

The quality management system involves all the company resources and processes starting from the design, in order to:
- ensure product quality to the customer;
- maintain and improve the quality standards constantly;
- pursue a continuous process improvement to meet the market needs and to increase the customer satisfaction;
- constantly test the products to verify their conformity with the 94/25/CE, ISO 10592 and ABYC (American Boat and Yacht Council) requirements.

"**ULTRAFLEX** has over 70 years of experience in the marine industry and is a world leader in the production of mechanical, hydraulic and electronic steering systems, control boxes and steering wheels for any kind of pleasure, fishing or commercial boats.
The key factors which explain the increasing success of our products all over the world are the reliability of our products and the before and after sale service, the quality of the company organization and of the human resources and the continuous spending in research and development".

ULTRAFLEX S.p.A.
16015 Casella (Genova) Italia - Via Crose, 2

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ENGLISH

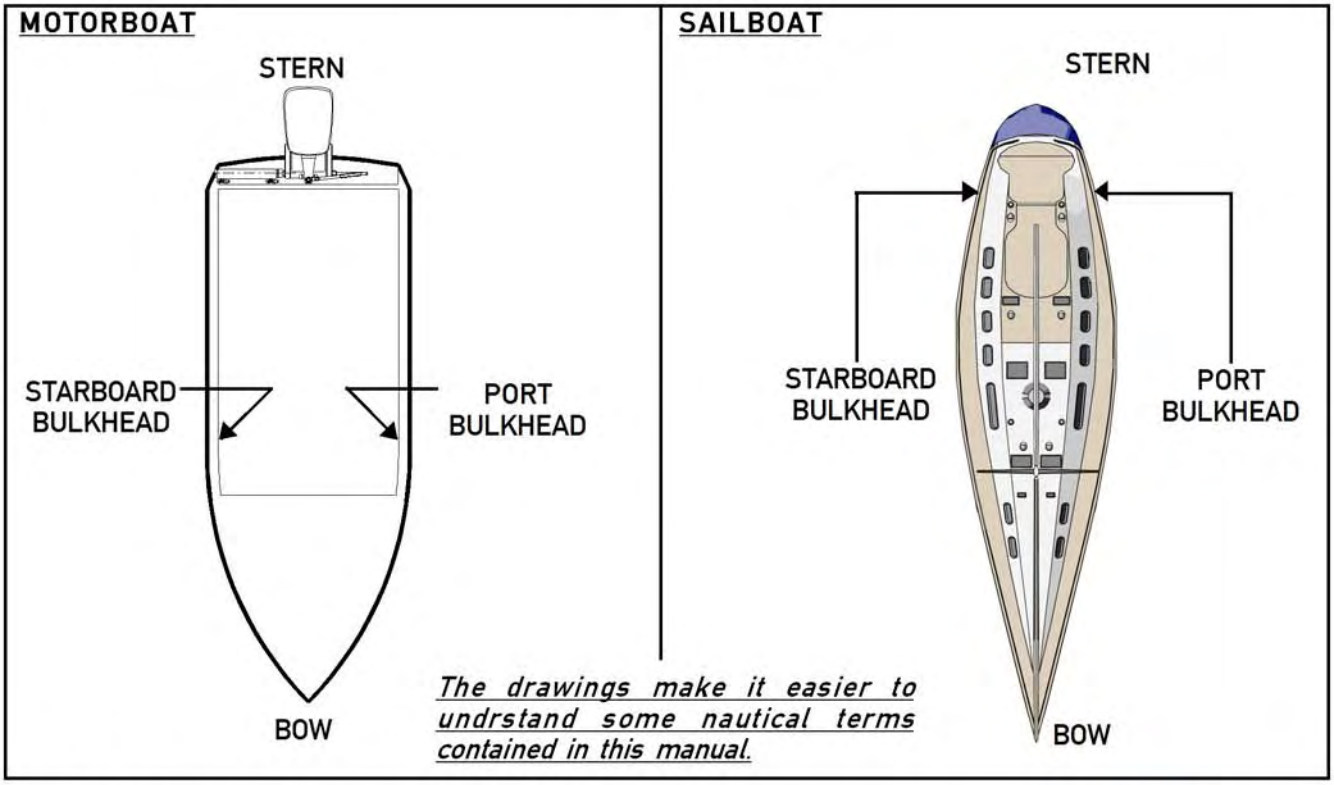
ENGLISH

USE OF THE MANUAL AND SYMBOLS USED

THE INSTALLATION AND MAINTENANCE MANUAL is the document accompanying the product from its sale to its replacement and discharge. The manual is an important part of the product itself.
It is necessary to read carefully the manual, before ANY ACTIVITY involving the product, handling and unloading included.

In this manual the following symbols are used to ensure the user safety and to guarantee the correct operation of the product:

⚠ DANGER	Immediate hazards which CAUSE severe personal injury or death.
⚠ WARNING	Hazards or unsafe practices which COULD CAUSE severe personal injury or death.
⚠ CAUTION	Hazards or unsafe practices which COULD CAUSE minor injury or product or property damage.
NOTICE	Important information for the correct installation and for maintenance, that does not cause any damage.
	The symbol aside indicates all the operations which must be carried out by qualified or skilled staff, in order to avoid hazards. We recommend training the staff in charge of the product installation and checking their knowledge.



The drawings make it easier to undrstand some nautical terms contained in this manual.

INFORMATION LETTER

This installation and maintenance manual represents an important part of the product and must be available to the people in charge of its use and maintenance.
The user must know the content of this manual.
ULTRAFLEX declines all responsibility for possible mistakes in this manual due to printing errors.
Apart from the essential features of the described product, **ULTRAFLEX** reserves the right to make those modifications, such as descriptions, details and illustrations, that are considered to be suitable for its improvement, or for design or sales requirements, at any moment and without being obliged to update this publication.
ALL RIGHTS ARE RESERVED. Publishing rights, trademarks, part numbers and photographs of **ULTRAFLEX** products contained in this manual are **ULTRAFLEX** property.
Great care has been taken in collecting and checking the documentation contained in this manual to make it as complete and comprehensible as possible. Nothing contained in this manual can be interpreted as warranty either expressed or implied - including, not in a restricted way, the suitability warranty for any special purpose. Nothing contained in this manual can be interpreted as a modification or confirmation of the terms of any purchase contract.

⚠ WARNING

To ensure the correct product and component operation, the product must be installed by qualified staff.
In case of part damage or malfunction, please contact the qualified staff or our Technical Assistance Service.

TECHNICAL ASSISTANCE SERVICE

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WARRRANTY

ULTRAFLEX guarantees that its products are well designed and free from manufacturing and material defects, for a period of two years from the date of manufacturing.
For the products which are installed and used on working or commercial boats the warranty is limited to one year from the date of manufacturing.
If during this period the product proves to be defective due to improper materials and/or manufacture, the manufacturer will repair or replace the defective parts free of charge.
Direct or indirect damage is not covered by this warranty. In particular the company is not responsible and this warranty will not cover the damage resulting from incorrect installation or use of the product (except for replacement or repair of defective parts according to the conditions and terms above).
This warranty does not cover the products installed on race boats or boats used in competitions.
The descriptions and illustrations contained in this manual should be used as general reference only.
For any further information please contact our Technical Assistance Service.
ULTRAFLEX steering system components are marked CE according to the Directive 94/25/CE and to the ABYC (U.S.A.) requirements.
We remind you that only CE marked steering systems must be used on the boats marked CE. (Art. 3 and Art. 5 of the Directive 94/25/CE). We inform you that the **ULTRAFLEX** warranty is null if some **ULTRAFLEX** components are installed on a steering system together with products of other brands.

ENGLISH

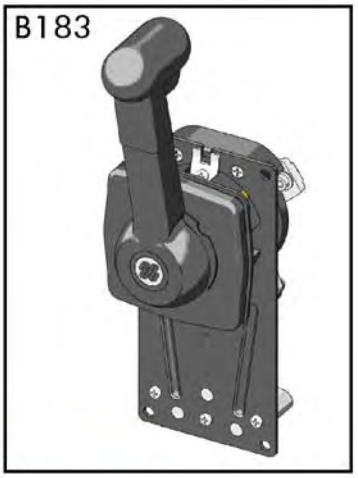
1 PRODUCT DESCRIPTION

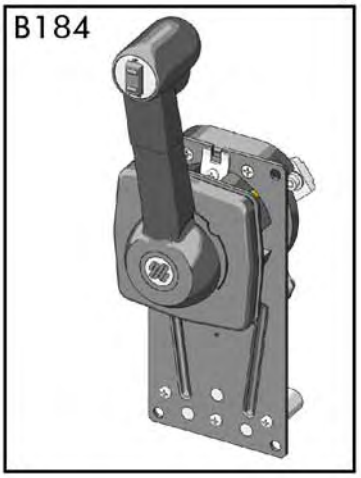
1.1 Product description and recommended use

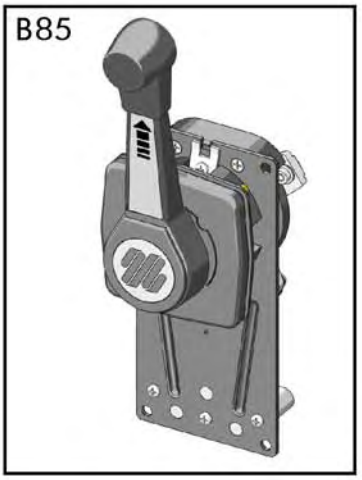
The single lever control must be assembled on the starboard bulkhead closer to the boat driving position. The lever is provided with adjustable friction, warming-up device with shift gear in neutral and in-neutral lock to prevent accidental operations.
The B184 single control lever is also equipped with trim.

The **B183 - B184 - B85** control units can use the following **ULTRAFLEX** cables:

- **C2 - C7 - C8 - MACHZero - C14 - MACH14** (no connection kit required);
- **C5 - MACH5 - C16** (**K35** connection kit required)

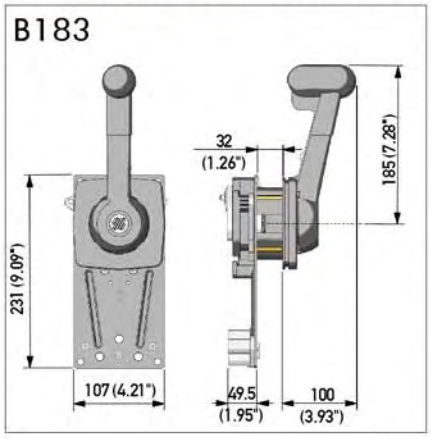


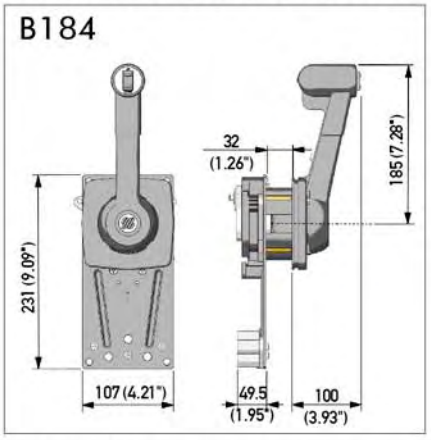


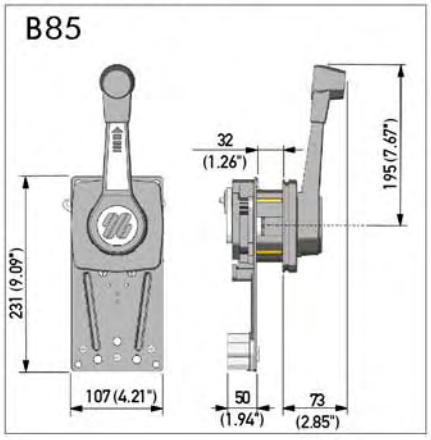


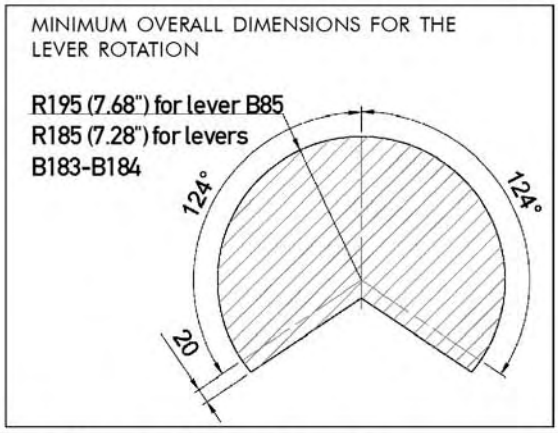
1.2 Dimensions

The drawings below show the dimensions of the B183, B184 and B85 single lever controls.









2 TRANSPORT

2.1 General warnings

The product weight with its packaging is 2.5kg (5.5 pounds) and so it can be handled manually.

⚠ WARNING

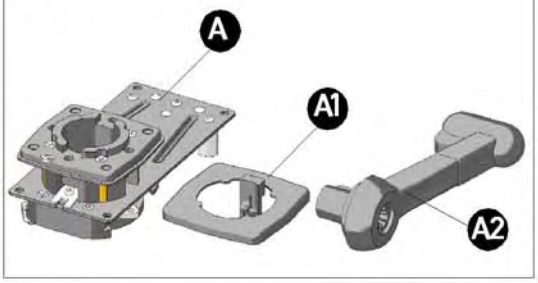
The staff in charge of handling must operate with protective gloves and safety shoes.

2.2 Packaging contents

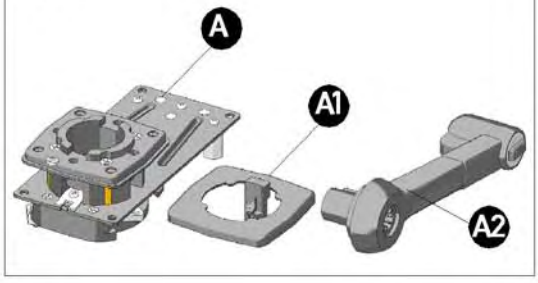
Before using the equipment check that the product has not been damaged during transport. Also make sure that all the standard components are in the packaging (see list). In case of damage, notify the claim to the forwarder and inform the supplier.

Contents of the control box packaging:

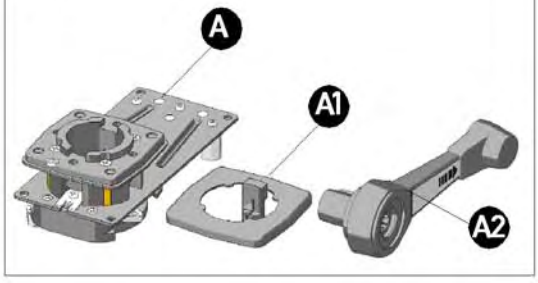
B183



B184



B85



REF	COMPONENT
A	mechanism with hub
A1	bezel
A2	lever unit
B	4 screws M5x35
C	4 nuts M5
D	4 washers
E	3 snap rings
F	1 red connector for accelerator cable
G	1 black connector for shift gear
H	2 terminals
I	2 split pins
L	2 M5x14 cheese-headed screws
M	1 M5x14 countersunk screws
N	1 plastic cap (B85)
O	1 casing fastener
P	1 plastic screw cover

SCREW BAG

⚠ CAUTION

The packaging must be disposed of according to the laws in force.

ENGLISH

3 INSTALLATION

3.1 Necessary tools

Phillips screwdriver

Pliers

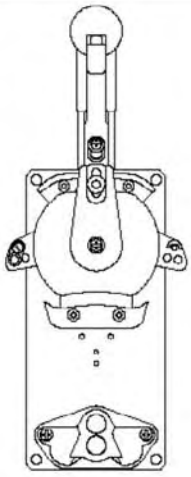
Open end wrench 10mm[0.395"]

Punch Ø 6 - 6.5 mm [0.23"-0.25"] or screwdriver

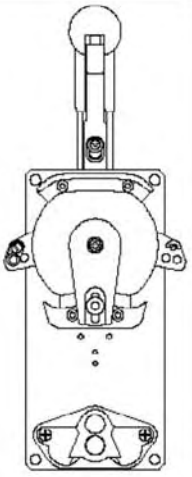
Drill

3.2 Throttle reversing

THE B183-B184-B85 CONTROLS ARE SUPPLIED WITH THE MECHANISM ALLOWING ENABLING THE ENGINE THROTTLE LEVER BY PUSHING IT WHEN THE BOAT SPEED INCREASES (SEE THE DRAWING)



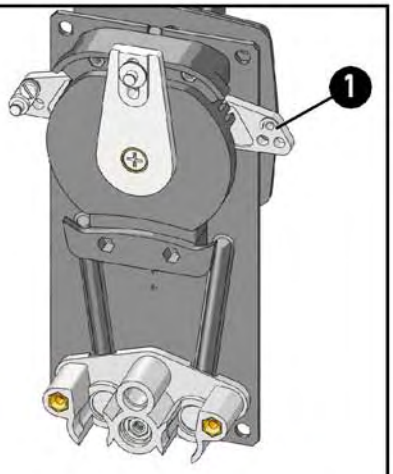
IF THE THROTTLE LEVER OF THE BOAT MOTOR MUST BE ENABLED BY PULLING IT. WHEN THE SPEED INCREASES. THE CONTROL THROTTLE SYSTEM MUST BE MODIFIED TO OBTAIN THE CONFIGURATION SHOWN IN THE DRAWING



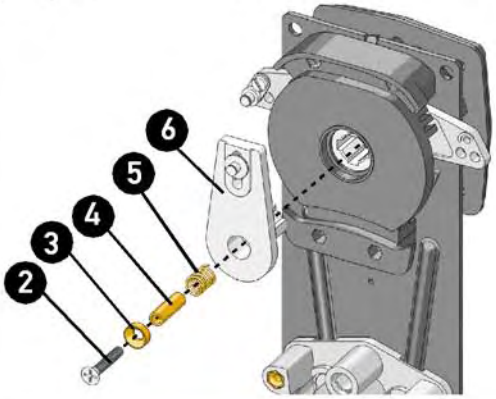
NOTICE

This procedure is only necessary for throttle mechanisms that require a pull instead of push to open.

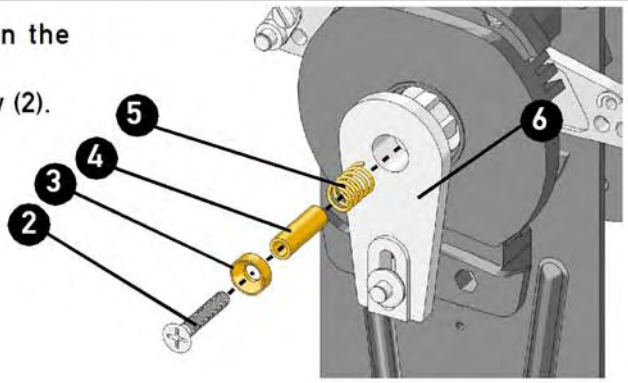
1 Make sure the control is in the neutral position (rocker arm 1 as shown in the drawing).



2 Remove screw (2). washer (3). tube (4). spring (5) and lever (6).



3 Turn the lever (6) 180 degrees as shown in the drawing.
Reinstall spring (5), tube (4), washer (3) and screw (2).



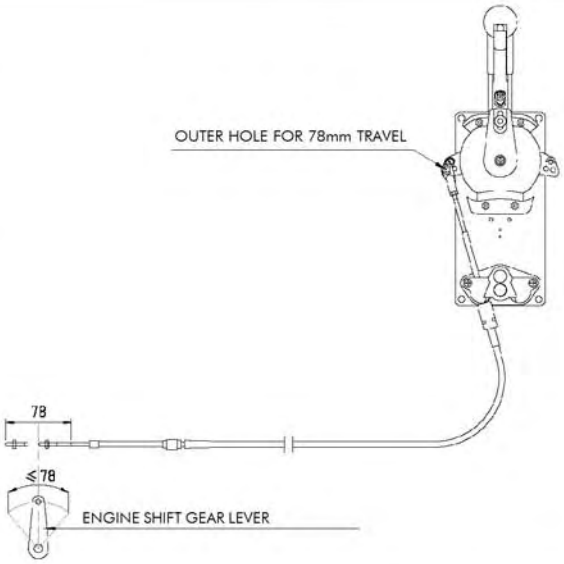
⚠ WARNING

- Correct control operation depends on precise adjustment of the shift gear travel.

⚠ WARNING

In no case the travel provided by the control unit (67mm (2.64") at inner hole and 78 mm (3.07") at outer hole of rocker arm) should be longer than the travel allowed by the engine mounted lever. Failure of the above will result in cable and control unit damage.

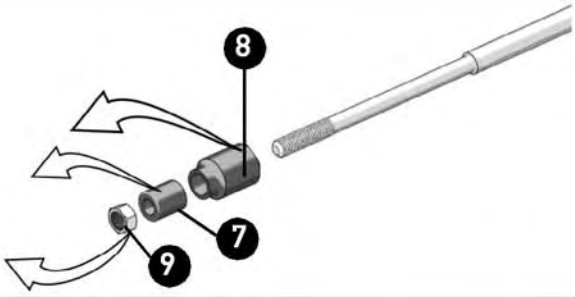
- The sheaths of the cables below the control unit can be wrapped together or fastened at a minimum distance of 500 mm (19.7") from the control unit itself.



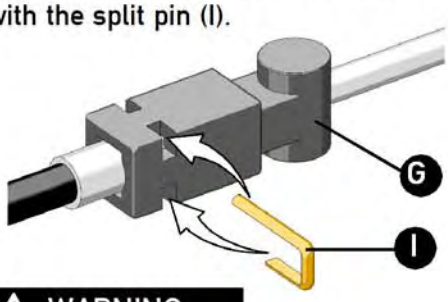
3.3 C2 - C7 - C8 - MACHZero cable installation

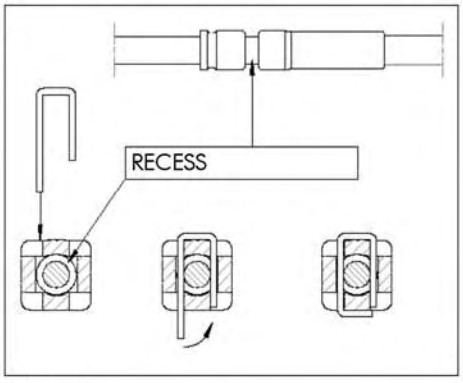
3.3.1 Shift cable connection

1 Remove rubber seals (7), (8) and nut (9) (on the box side).



2 Insert the cable into the (black) connector (G) and fasten it with the split pin (I).



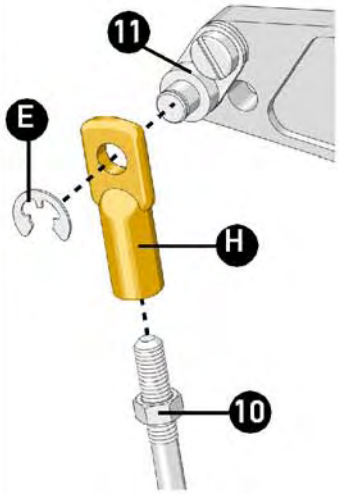


⚠ WARNING

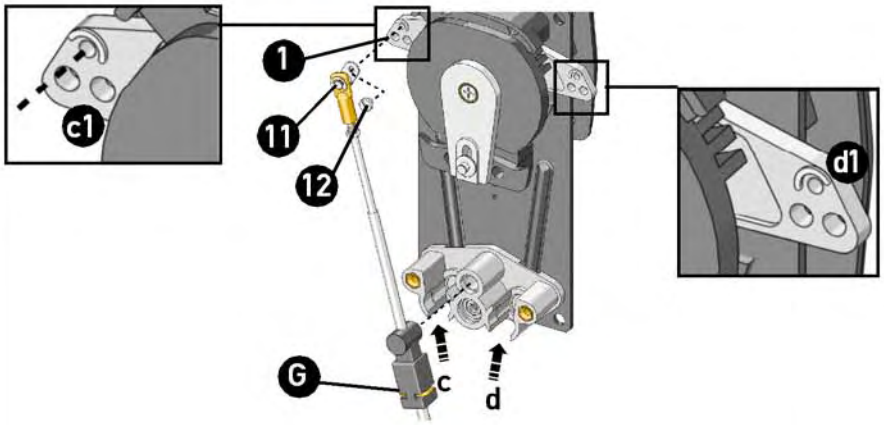
Insert and fold the long side of the split pin on the connector to lock it.

ENGLISH

3 Insert nut (10) on the cable end and screw the terminal (H). Tighten nut (10). Connect the terminal to the pivot pin (11) using snap ring (E).

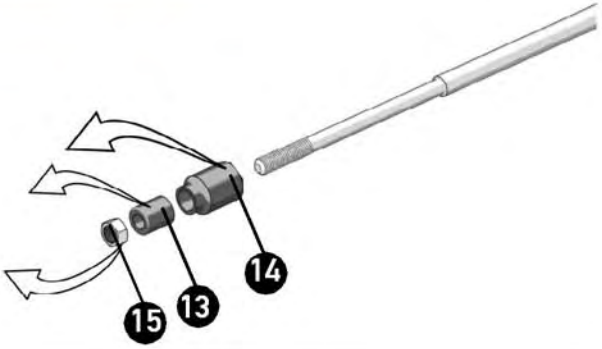


4 Insert the pivot pin (11) into one of the two holes of the rocker arm (1) (inner hole for a 67 mm (2.64") and outer hole for a 78 mm (3.07") travel) then attach with the screw (12).
The (black) connector (G), preassembled on the cable, must be installed in the seat (c) if the terminal of the cable is fastened to (c1) or in the seat (d) if it is fastened on the other side of the rocker arm (d1).

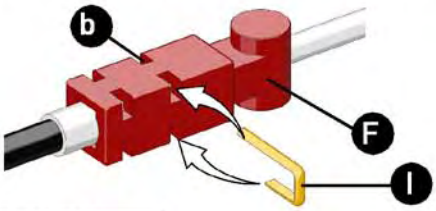


3.3.2 Throttle cable connection with push mechanism

1 Remove rubber seals (13), (14) and nut (15) (on the box side).

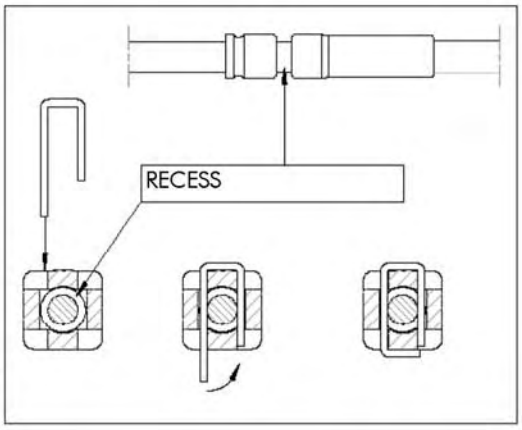


2 Insert the cable into the (red) connector (F) and attach with the split pin (I), using seat (b).

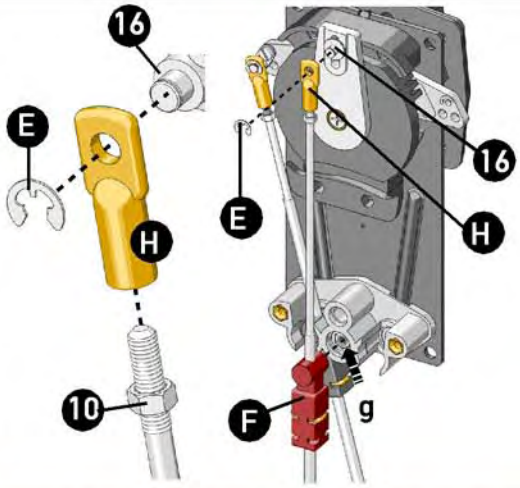


⚠ WARNING

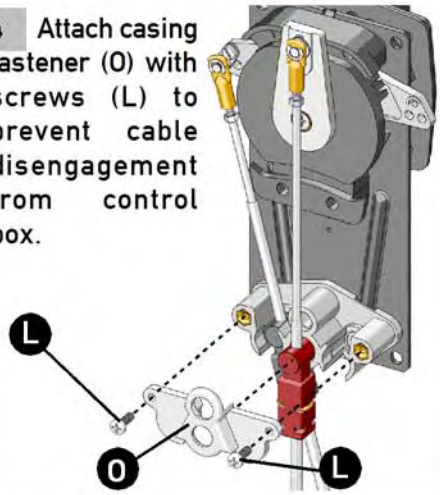
Insert and fold the long side of the split pin on the connector to lock it.



3 Insert nut (10) on the cable end and screw the terminal (H). Tighten nut (10). Connect the terminal to the throttle lever (16) using snap ring (E). The (red) connector (F), preassembled on the cable, must be installed in seat (g).

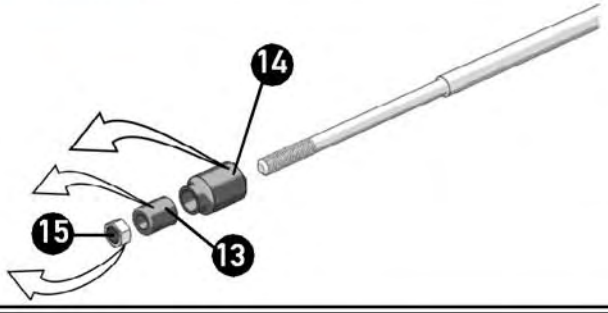


4 Attach casing fastener (O) with screws (L) to prevent cable disengagement from control box.

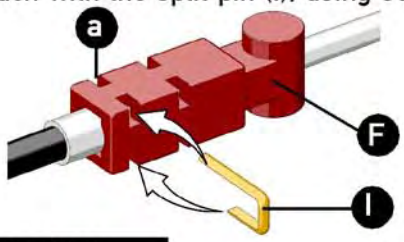


3.3.3 Throttle cable connection with pull mechanism

1 Remove rubber seals (13), (14) and nut (15) (on the box side).

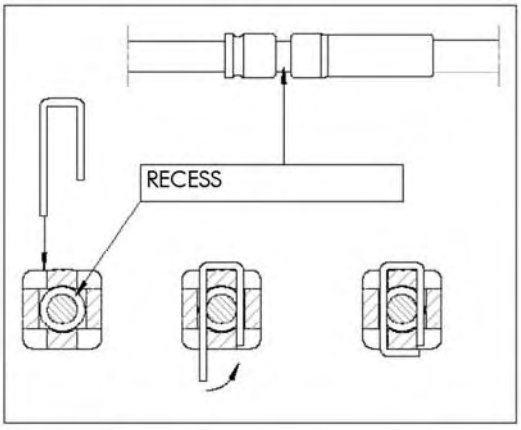


2 Insert the cable into the (red) connector (F) and attach with the split pin (I), using seat (a).

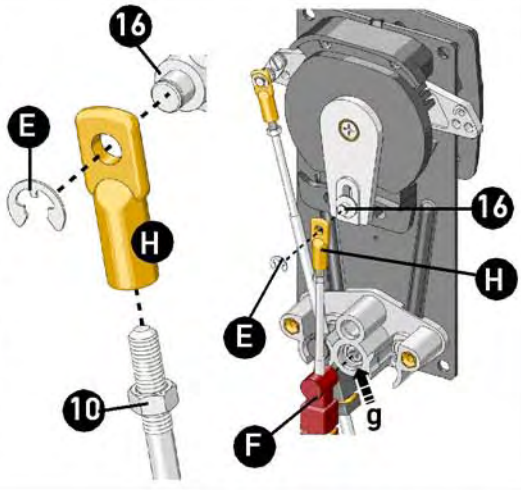


⚠ WARNING

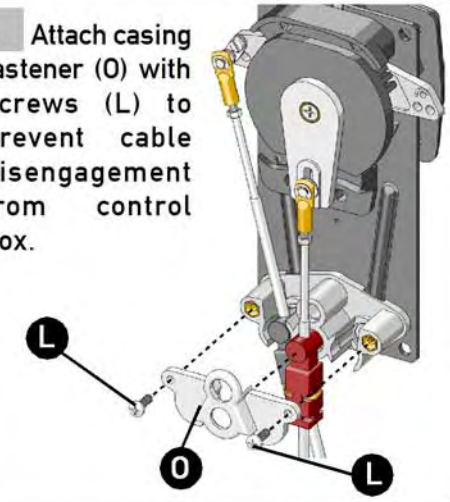
Insert and fold the long side of the split pin on the connector to lock it.



3 Insert nut (10) on the cable end and screw the terminal (H). Tighten nut (10). Connect the terminal to the throttle lever (16) using snap ring (E). The (red) connector (F), preassembled on the cable, must be installed in seat (g).



4 Attach casing fastener (O) with screws (L) to prevent cable disengagement from control box.

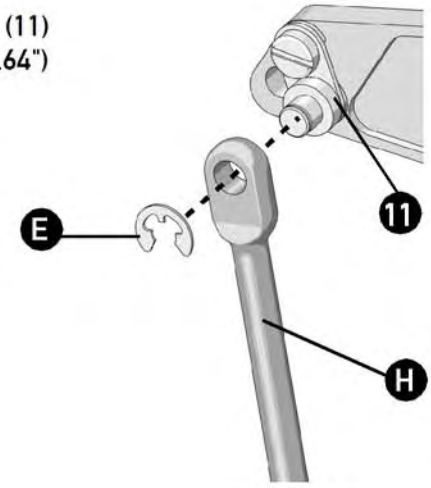


ENGLISH

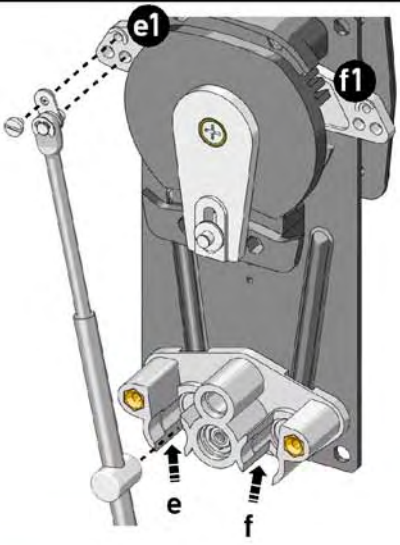
3.4 C14 and MACH14 cable installation

3.4.1 Shift cable connection

1 Connect the terminal of the cable (H) to pivot pin (11) located on the inner hole of the rocker arm (67 mm (2.64") travel), then attach with snap ring (E).



2 Insert the cross cylinder of cable sheath end into seat (e) if the terminal of the cable is fastened in (e1) or into seat (f) if it is fastened on the other side of the rocker arm (f1).

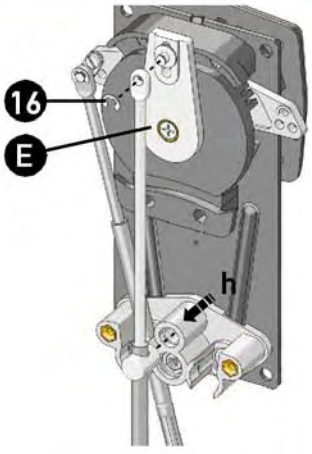


NOTICE

(Black) connector (G) and split pin (I) are not used.

3.4.2 Throttle cable connection with push mechanism

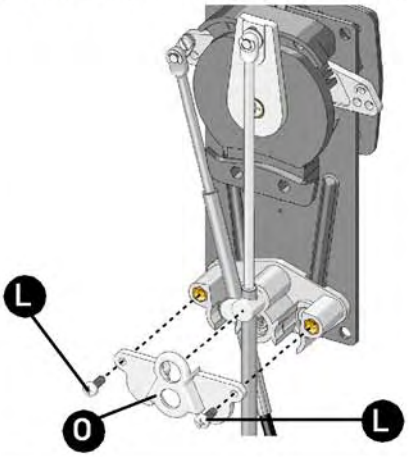
1 Connect the terminal of the cable to the throttle lever (16), then attach with spring ring (E). Insert the cross cylinder of cable sheath end into seat (h).



NOTICE

(Red) connector (F) and split pin (I) are not used.

2 Attach casing fastener (O) with screws (L) to prevent cable disengagement from control box.

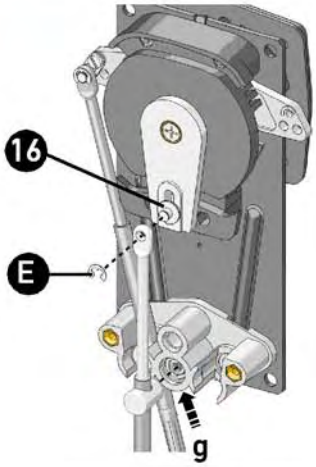


3.4.3 Throttle cable connection with pull mechanism

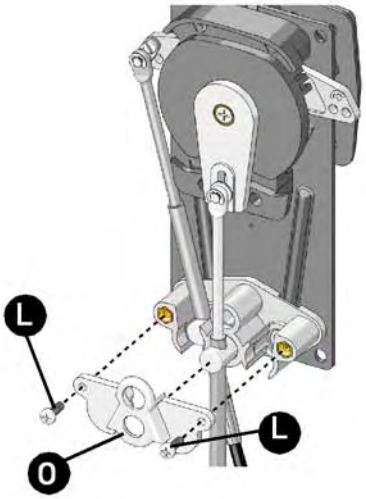
1 Connect the terminal of the cable to the throttle lever (16), then attach with snap ring (E). Insert the cross cylinder of cable sheath end into seat (g).

NOTICE

(Red) connector (F) and split pin (I) are not used.



2 Attach casing fastener (O) with screws (L) to prevent cable disengagement from control box.



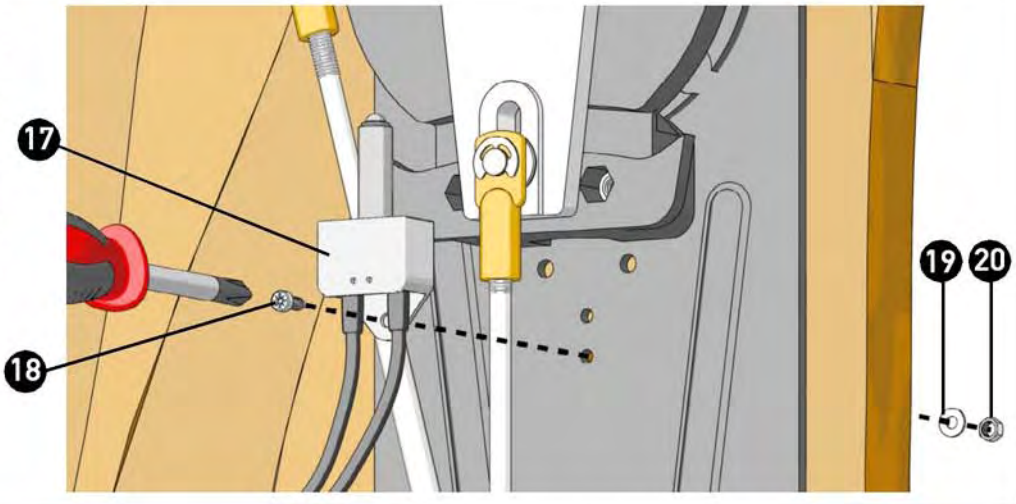
3.5 X12 neutral safety switch installation

This optional device allows starting the engine only with the shift gear in "neutral" position, by avoiding all undesired movements of the boat.
To assemble it, follow the instructions below:

1 Secure the X12 neutral safety switch (17) with screw (18), washer (19) and nut (20).

NOTICE

Keep the screw head on the switch surface.



3.6 Control box positioning

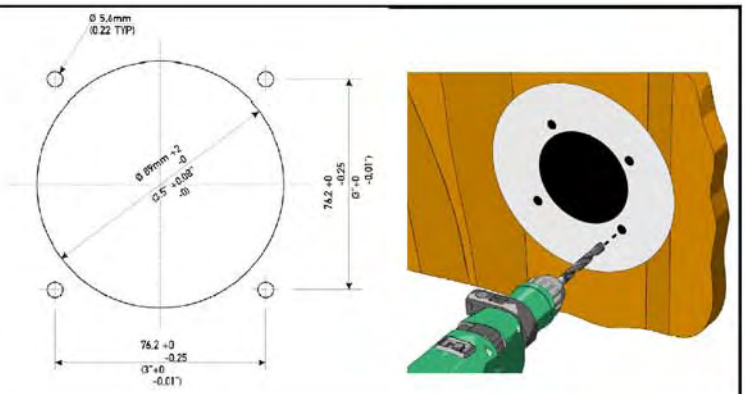
1 To make sure the box can be installed in the desired position see the overall dimensions indicated in section 1.2. The mechanism with the cables connected must be installed inside the boat bulkhead.

ENGLISH

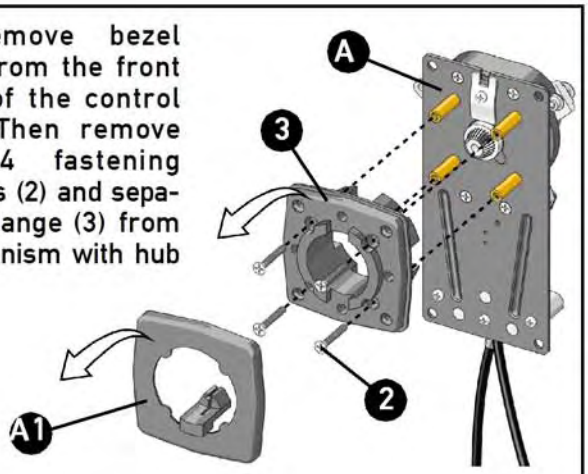
⚠ WARNING

Avoid bending the cables too tight (Minimum radius: 200 mm (8").
We recommend using **ULTRAFLEX** cables.

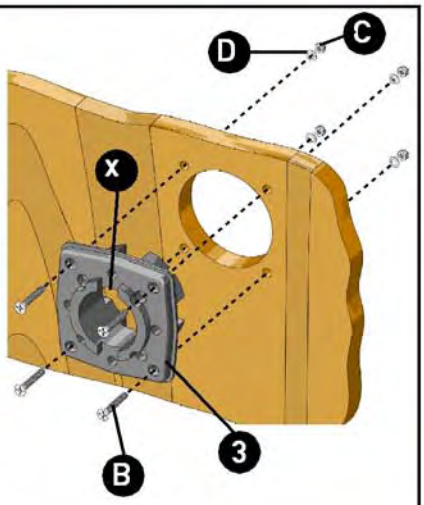
2 After choosing the right position, drill to insert the control box using the suitable template.



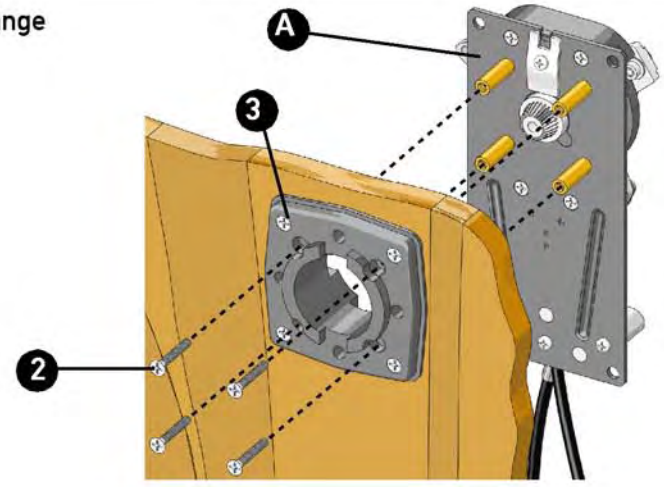
3 Remove bezel (A1) from the front part of the control box. Then remove the 4 fastening screws (2) and separate flange (3) from mechanism with hub (A).



4 Fix flange (3) using screws (B), washers (D), nuts (C). The flange should be positioned in such a way that the slit (x) is aligned with the sliding element in the control lever that provides the locking in neutral.



5 Fix mechanism with hub (A) to flange (3) using screws (2).

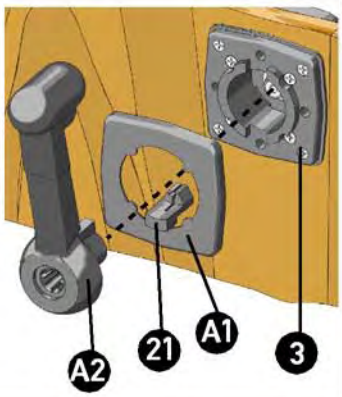


3.7 Assembling B183-B85 lever-mechanism

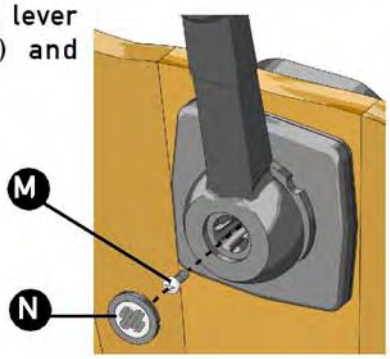
1 Insert lever unit (A2) into bezel (A1).

NOTICE

Item (21) shall be opposite to lever in neutral position.
Insert and press bezel (A1) on flange (3).

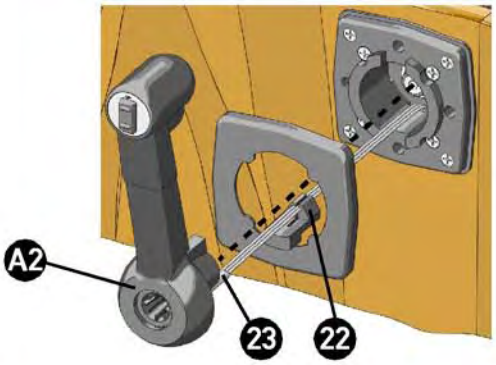


2 Attach control lever using screw (M) and press on cap (N).

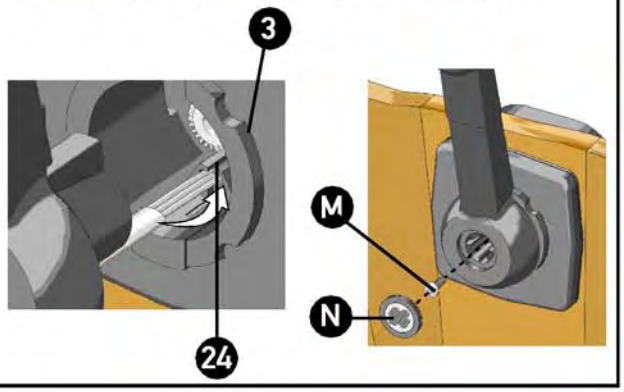


3.8 Assembling B184 lever-mechanism

1 Insert the cable of lever trim (A2) through screw cover slot (22) until the thermoshrinking tube (23) comes into contact with the slot itself.

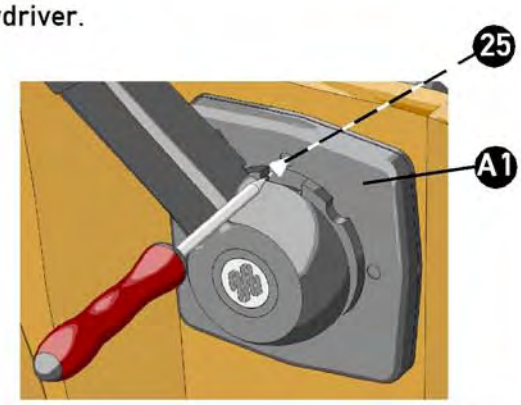


2 Position lever unit. Cable guide (24) shall be opposite to lever in neutral position. Make the cable pass through the flange opening (3) that is as close as possible to item (24). Attach control lever using screw (M) and press on cap (N).

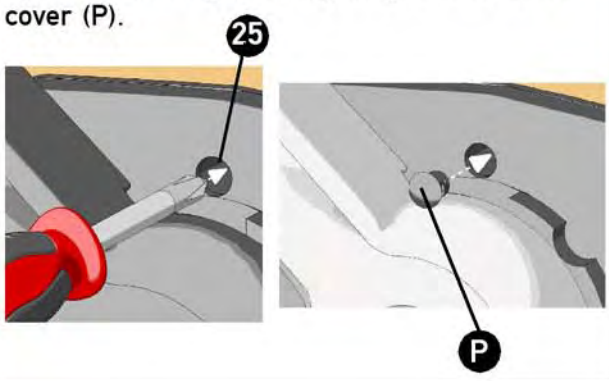


3.9 Adjusting lever friction

1 Gain access to adjusting screw (25) by drilling a hole in the circular impression of bezel (A1) near the mechanism friction. Use a 6 (0.23") to 6.5mm (0.25") diameter punch or a screwdriver.



2 Adjust throttle lever friction turning on screw (25) with a Phillips head screwdriver (clockwise to increase and counterclockwise to decrease the friction). When adjustment is ended, close the drilled hole by inserting the provided screw cover (P).



3.10 Trim electrical connections (B184 lever)

Carry out the electrical connections of the cables coming from the lever by following the diagrams below according to the motor used.

ENGLISH

NOTE

These controls work only on the motors shown below. Controls marked with (*) need an additional TILT switch. Refer to the circuit diagram of the motor used.

MOTORS	CONTROLS
Mercury O/B	Only Trim (*)
Mercruiser I/O	Only Trim (*)
Mariner O/B	Only Trim (*)
Johnson/Evinrude O/B	Trim & Tilt
Yamaha O/B	Trim & Tilt
Suzuki O/B	Trim & Tilt
BMW I/O	Trim & Tilt
Volvo I/O	Only Trim (*)
OMC	Only Trim (*)
Chrysler I/O	Only Trim (*)

⚠ WARNING

The circuit diagram for MERCURY, MERCRUISER and MARINER needs Mercury solenoid kit and harness unit.

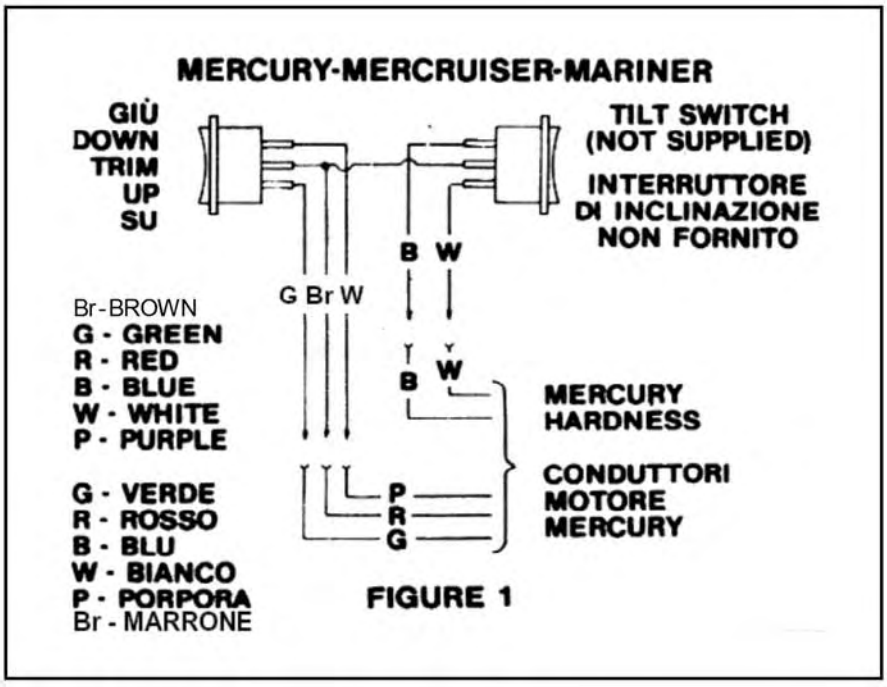


FIGURE 1

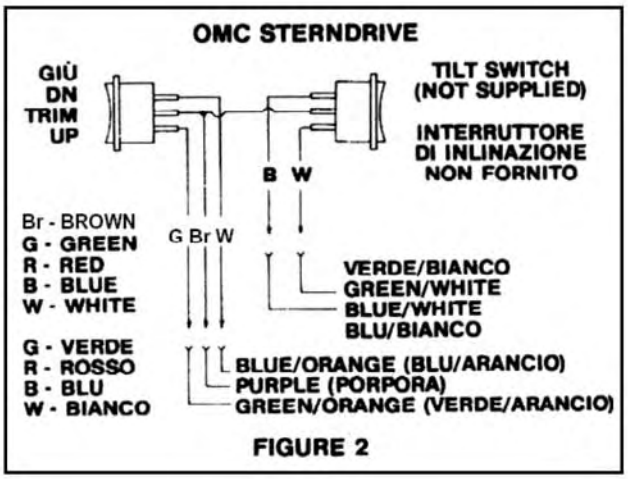


FIGURE 2

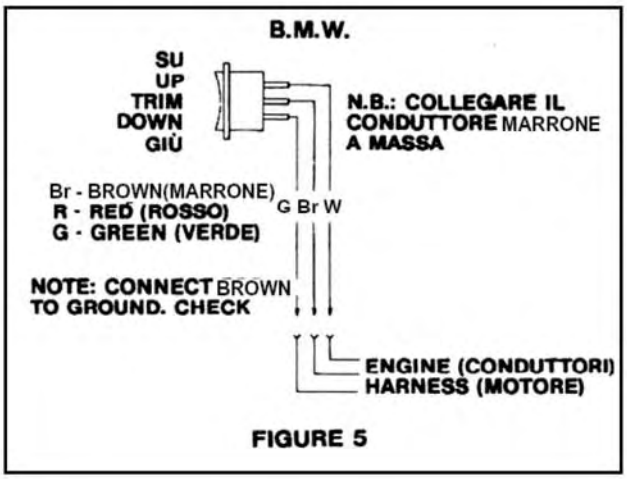


FIGURE 5

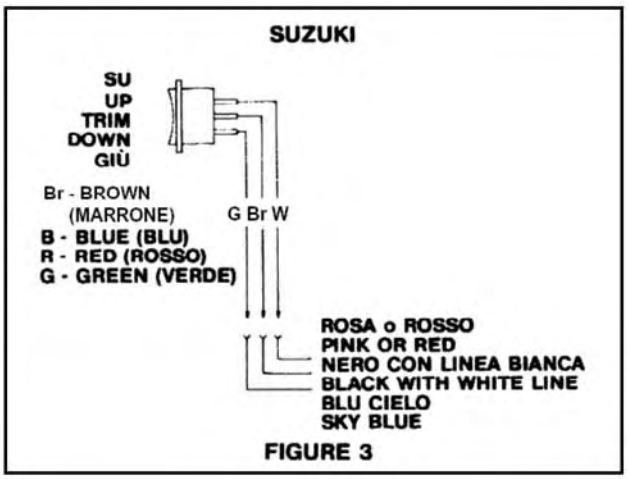


FIGURE 3

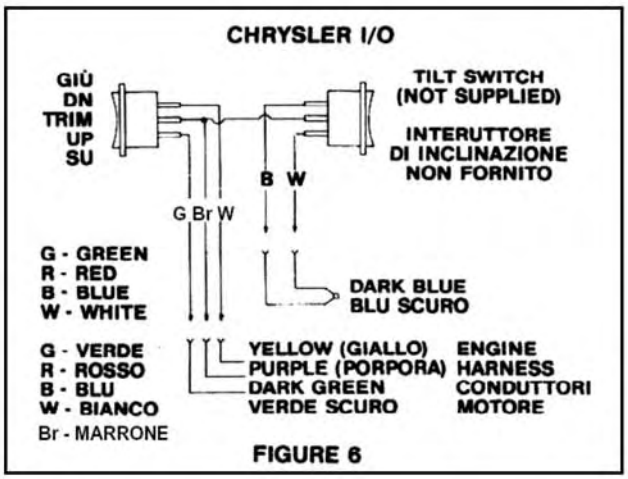


FIGURE 6

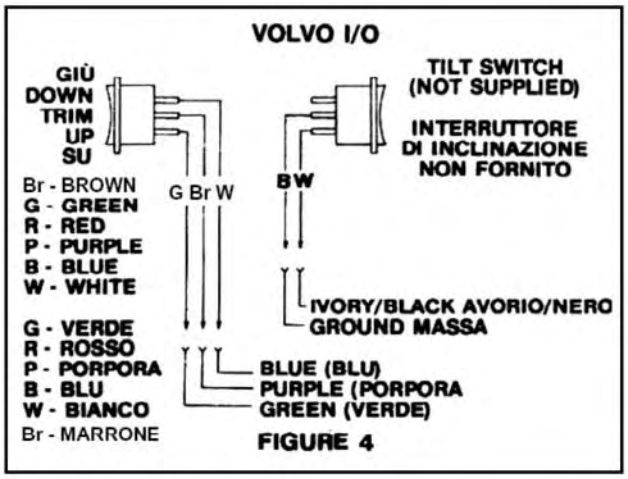


FIGURE 4

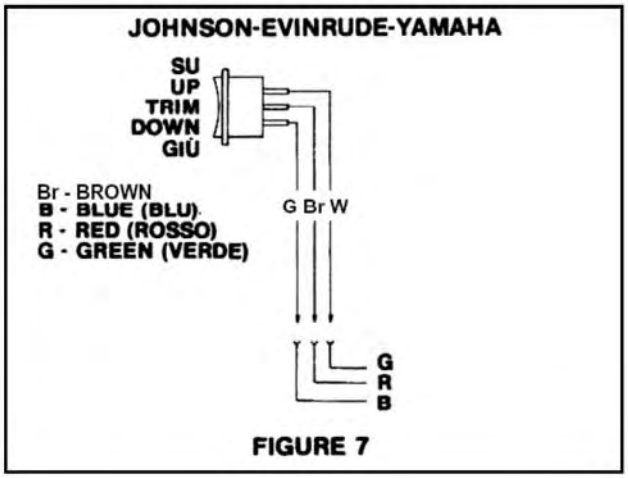


FIGURE 7

SWITCH TECHNICAL DATA:
Resistive load: 6 Ohm 12V
Inductive load: 2A 12V

NOTE

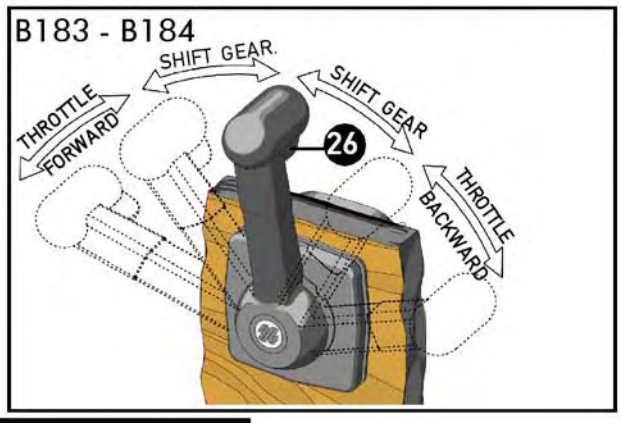
In case of high inductive load, it is advisable to use a supporting relay to protect the switch.

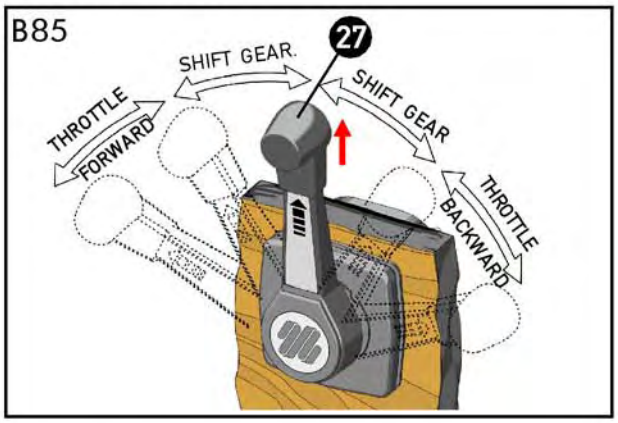
4 LEVER USE

4.1 Lever use

ENGLISH

The lever travel includes two movements: in the first phase the shift gear is enabled; in the second one the throttle is enabled. If the lever is in forward position, the boat moves forward; if the lever is in backward position, the boat goes in reverse. To unlock the B183-B184 control lever from the neutral position, press the lever unit trigger (26) on the lower part of the handle and simultaneously move the lever forward or backward. To unlock the B85 control lever from the neutral position, lift handle (27) of the lever (see the arrow) and move the lever itself forward or backward.



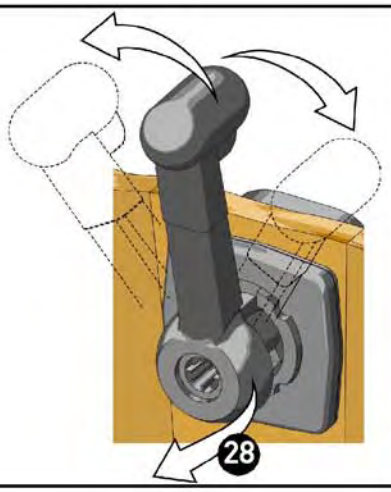


⚠ DANGER

If the control has no safety switch, before starting the engine make sure that it is in neutral position.

4.2 Neutral warm-up

1 Pull lever hub in the direction shown by the arrow (28) and rotate clockwise or counterclockwise until desired warm-up.
With lever in neutral, return spring will bring to initial position.



4.3 Trim operation

The trim allows changing the boat attitude.
By pressing the "UP" push button, the boat bow lifts; by pressing the "DOWN" push button, it lowers.

5 SAFETY WARNINGS

This section shows the safety rules which must be followed for the correct equipment operation.
We recommend reading carefully this section and also the other manuals supplied with the other components of the single lever control.

5.1 Safety rules during installation and use

RESPECT STRICTLY the following safety rules:
ULTRAFLEX declines all responsibility in case the user does not follow these rules and it is not responsible for negligence during the use of the system.

⚠ DANGE R

- DO NOT PUT HANDS BETWEEN THE MOVING PARTS.
- Do not disable the safety devices.
- Do not modify or add devices to the system, without **ULTRAFLEX** written authorisation or technical intervention which will prove the modification.
- Do not use the equipment for a purpose different from the one it has been designed for, which is specified in the installation and maintenance manual.
- Do not let non-specialized staff perform the installation.

⚠ WARNING

- During the system installation, clean carefully to prevent foreign matters from entering the system. Even a little object may cause lasting damage that is not detected immediately.
- Avoid too narrow bend radius of cables <200 mm (8").
- Avoid the cable contact with edges or sharp corners.
- Avoid the cable contact with heat sources.

5.2 Clothes

⚠ WARNING

During installation, inspection or maintenance, IT IS STRICTLY FORBIDDEN to wear necklaces, bracelets or clothes which could get caught in the moving parts.

6 MAINTENANCE

6.1 Ordinary maintenance

⚠ WARNING

Poor installation and maintenance may result in loss of steering and cause property damage and/or personal injury. Maintenance requirements change according to climate, frequency and the use. Inspections are necessary at least every two years and must be carried out by specialized marine mechanics.
Carry out the following maintenance operations:
- Periodically wash the components with soft water by removing any salt deposit.
- Every month check and if necessary tighten all the nuts fastening the system.

ENGLISH

⚠ DANGER

If the check nuts are removed or disassembled, this could cause the single lever control malfunction as well as damage to people or things.

- Periodically check the absence of corrosion on the metal parts of the cable terminals and of abrasions on the sheath.
- Replace the damaged parts that can compromise the single lever control integrity.

6.2 Extraordinary maintenance

Technical assistance

For any information or for assistance with unusual applications please contact our technical support personnel (See paragraph "Information letter").

7 DISMANTLING

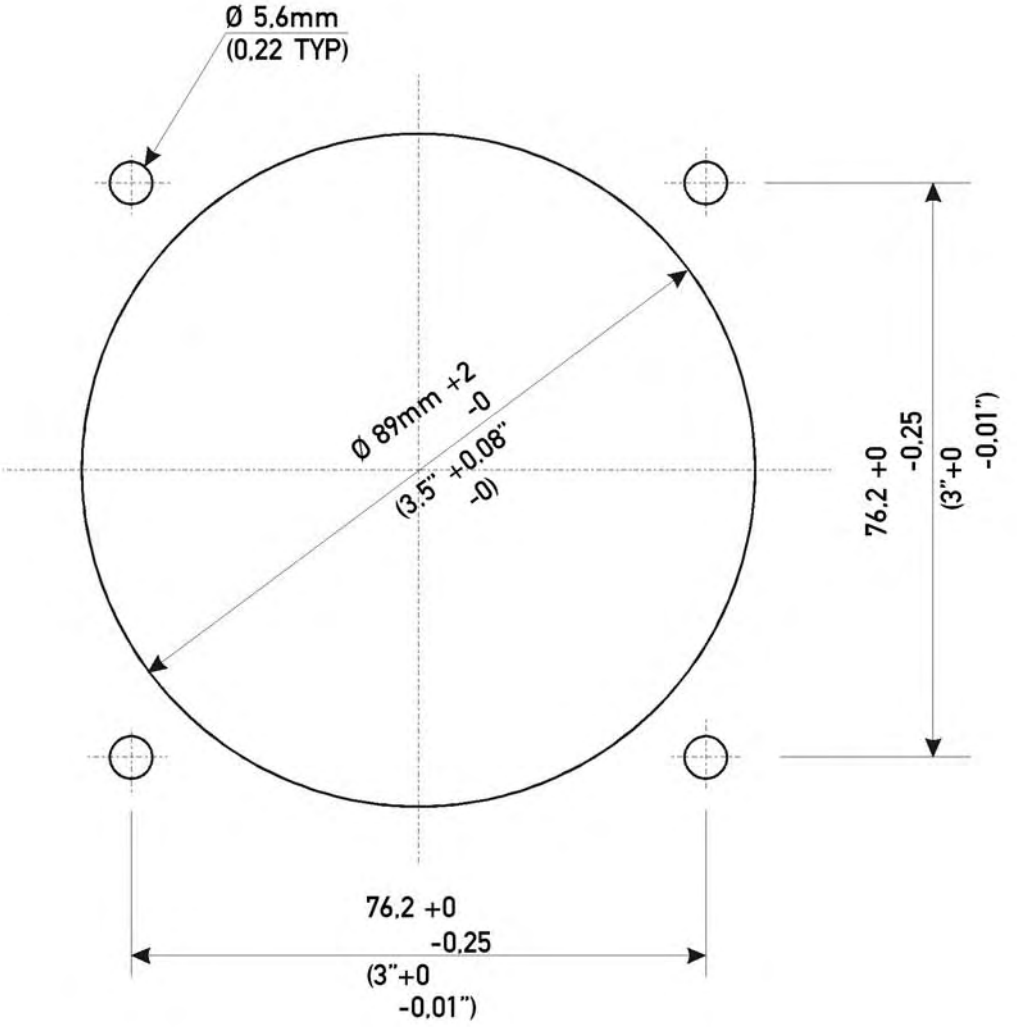
7.1 Dismantling

When for any reason, the system is put out of service, it is necessary to follow some rules in order to respect the environment.
Sheaths, pipelines, plastic or non-metallic components must be disassembled and disposed of separately.

UK **Drilling template for B183 - B184 - B85 single lever control**

I **Dima di foratura per comando monoleva B183 - B184 - B85**

F **Gabarit de perçage pour commande mono-levier B183 - B184 - B85**



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