

# Depth sensor

Product reference : 90-60-456

REV 1



## USER GUIDE and INSTALLATION GUIDE

**nke** – Sailing competition

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# 1 USING

## 1.1 Presentation

The **depth-finder** sensor is fitted via a through-hull. It can be removed via the through-hull.

It is connected to the **depth-finder log interface** of your **TOPLINE** installation. This sensor provides the information on depth.

### Architecture of the installation

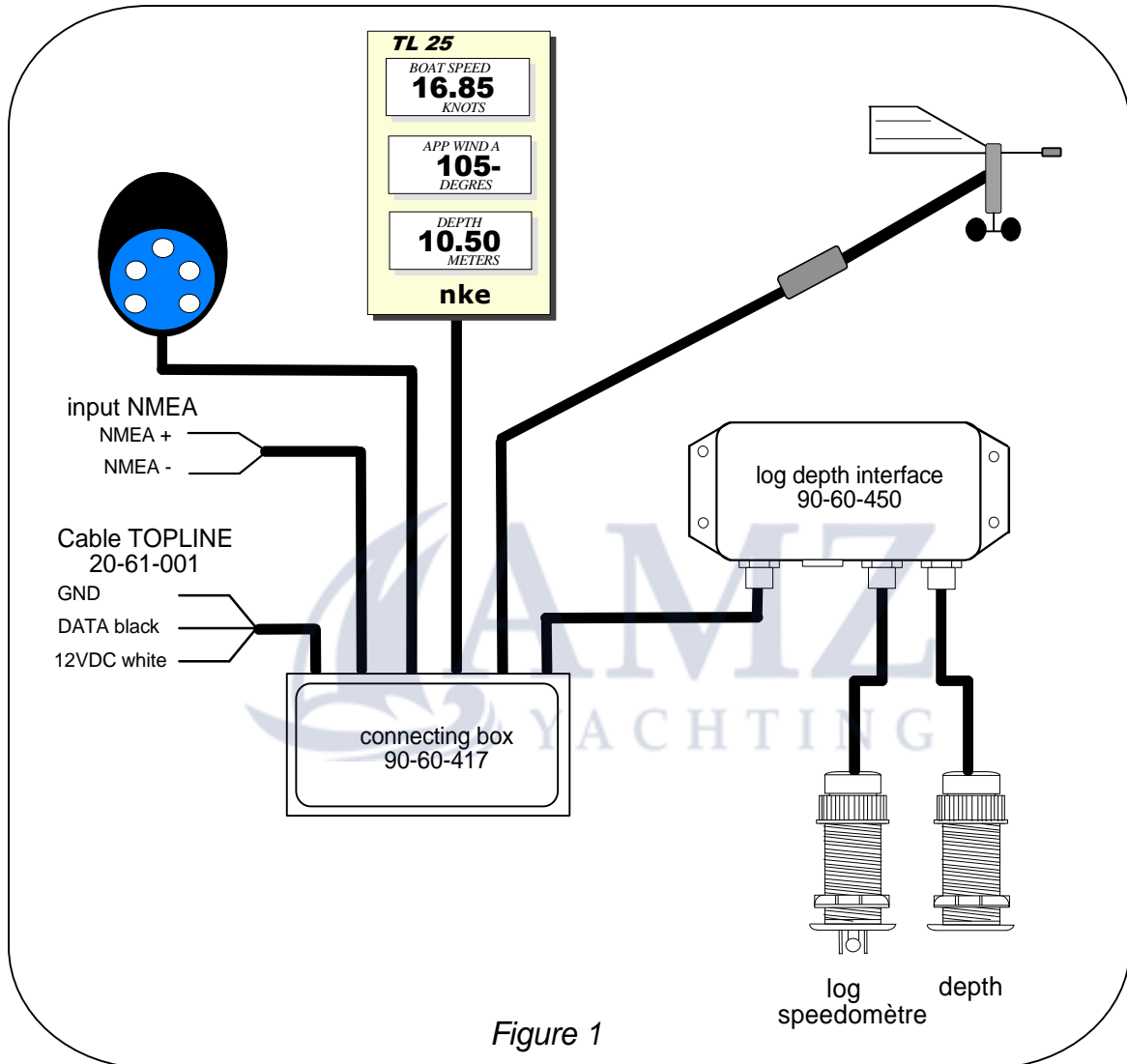


Figure 1

### IMPORTANT

- Some products, for cleaning, painting or other, contain powerful solvents, which can severely damage the plastics and O-rings of the sensors.
- Plastic through-hulls are recommended for assembly on hulls made of fibre, aluminium or metal. For assembly on a wood hull, use a bronze through-hull.
- The sensor is equipped with a 6 meter cable, with a moulded waterproof connector at its end : do not cut this cable, as this would reduce the characteristics and reliability of the sensor.
- For channels settings, please refer to the guide of your TOPLINE display.

## 1.2 List of channels displayed

The **depth-finder sensor**, connected to the **TOPLINE bus** of your installation, automatically creates the channels below. They are accessible using the displays of the **TOPLINE** range.

Channel	Display	Unit
Depth	Depth 10.0M	meter or foot

## 1.3 Alarms setting

The setting of an alarm enables you to monitor the value of a channel. When the preset threshold is exceeded, a warning message is displayed and an audible alarm is activated. For example, you can set an upper threshold and a lower threshold on the **depth** channel.

**The upper alarm** is activated when the display is higher than the programmed threshold.

**The lower alarm** is activated when the display is lower than the programmed threshold.

To cancel the alarm of a channel, enter the value **0** in the upper alarm and the lower alarm.

Thus, the setting of an alarm on the **depth** channel will allow you to monitor the water depth effectively.

To activate alarms, please refer to the user guide of your display.

## 1.4 Filtering of the channels

The level of **filtering** of a channel determines the frequency of update of the data displayed.

**Filtering** is adjustable between **1** and **32**, and the default value is **8**. The lower this value, the higher the frequency of update.

Please refer to the user guide of your display to carry out the filter setting.

## 1.5 Choice of the unit

You have the option to choose the following display units :

- Depth : in meters or in feet.

Please refer to the user guide of your display to carry out this change of units.

## 1.6 Technical specifications

- Tightness of the sensor : IP67
- 6 meter cable fitted with a moulded connector.
- Weight : 700 g
- Operating temperature : -10°C to +50°C
- Storage temperature : -20°C to +60°C
- Depth range : controlled up to 50 meters

## 2 SENSOR CALIBRATION

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Every *nke* sensor is adjusted at the factory. However, a calibration is required to adapt to the specificities of your ship and to obtain an optimum measurement accuracy. Follow the calibration procedure below, by visualising the settings on a display. To perform these settings, please refer to the user guide of your display.

### 2.1 Principle of calibration :

By default, the depth-finder indicates the height of water between the sensor and the seabed. You can also adjust the offset of your depth-finder to display the depth :

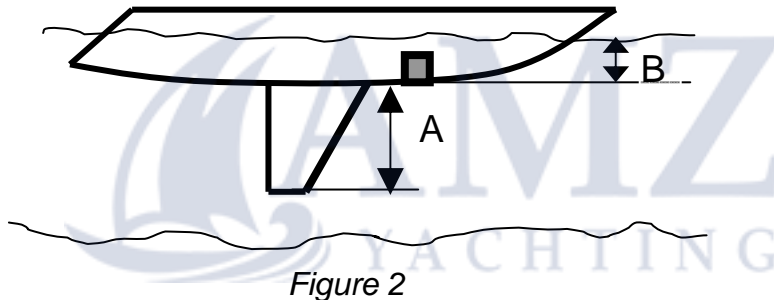


Figure 2

- Either between the water surface and the seabed.
- Or between the bottom of the keel and the seabed.

### 2.2 Offset setting procedure (by default the offset value is 0.00) :

1. Select the sub-channel **offset calib** of the channel **surface speed**,
2. enter a negative offset **A**, to display the depth beneath the keel,
3. or enter a positive offset **B**, to display the depth in relation to the water surface.
4. validate by pressing the **enter** key. The new setting will be saved to the memory.

## 3 INSTALLATION

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### 3.1 Packing list

The installation kit includes :

- the sensor, equipped with a 6 meter cable and a waterproof connector,
- the through-hull fitting and its nut,
- one seal,
- one stopper,
- one tube of silicon grease and one safety wire.

### 3.2 List of accessories

- Depth-finder sensor only : 90-60-462
- Depth-finder through-hull fitting kit, stopper and tube of silicon grease : 31-35-002

### 3.3 Specific tools required for the installation

The drilling of the hole for the through-hull fitting is performed using a Ø 51mm crown saw drill bit fitted with a guide pin.

### 3.4 Choice of the location

The choice for the location of the depth-finder sensor is crucial to achieve optimal performances. Turbulences caused by the water flow under the ship can significantly disrupt the operation of the depth-finder.

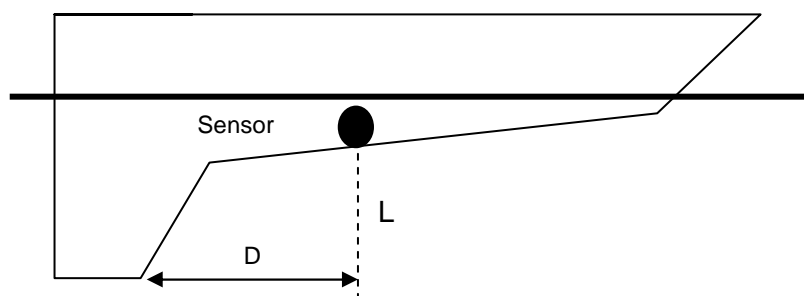
The sensor must be :

- as vertical as possible, not more than 10° off the vertical,
- as close as possible to the axis of the ship,
- sufficiently far from the keel,
- always immersed, no matter what the heel,
- away from any source of electrical disturbance,
- accessible so it can be cleaned from the inside of the ship.

It is imperative that the water streams get to the sensor unperturbed.

**On a sailing boat** : the ideal position of the sensor is in front of the keel, along the axis of the ship.

The depth sensor results can be disturbed by the keel of the boat. Install the sensor at a distance higher than half the height of the keel.



Location of the sensor

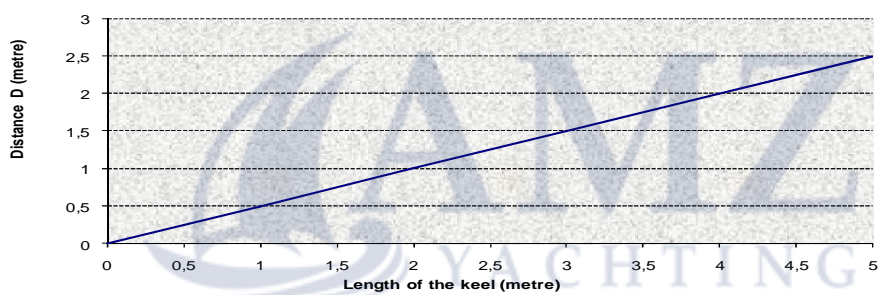
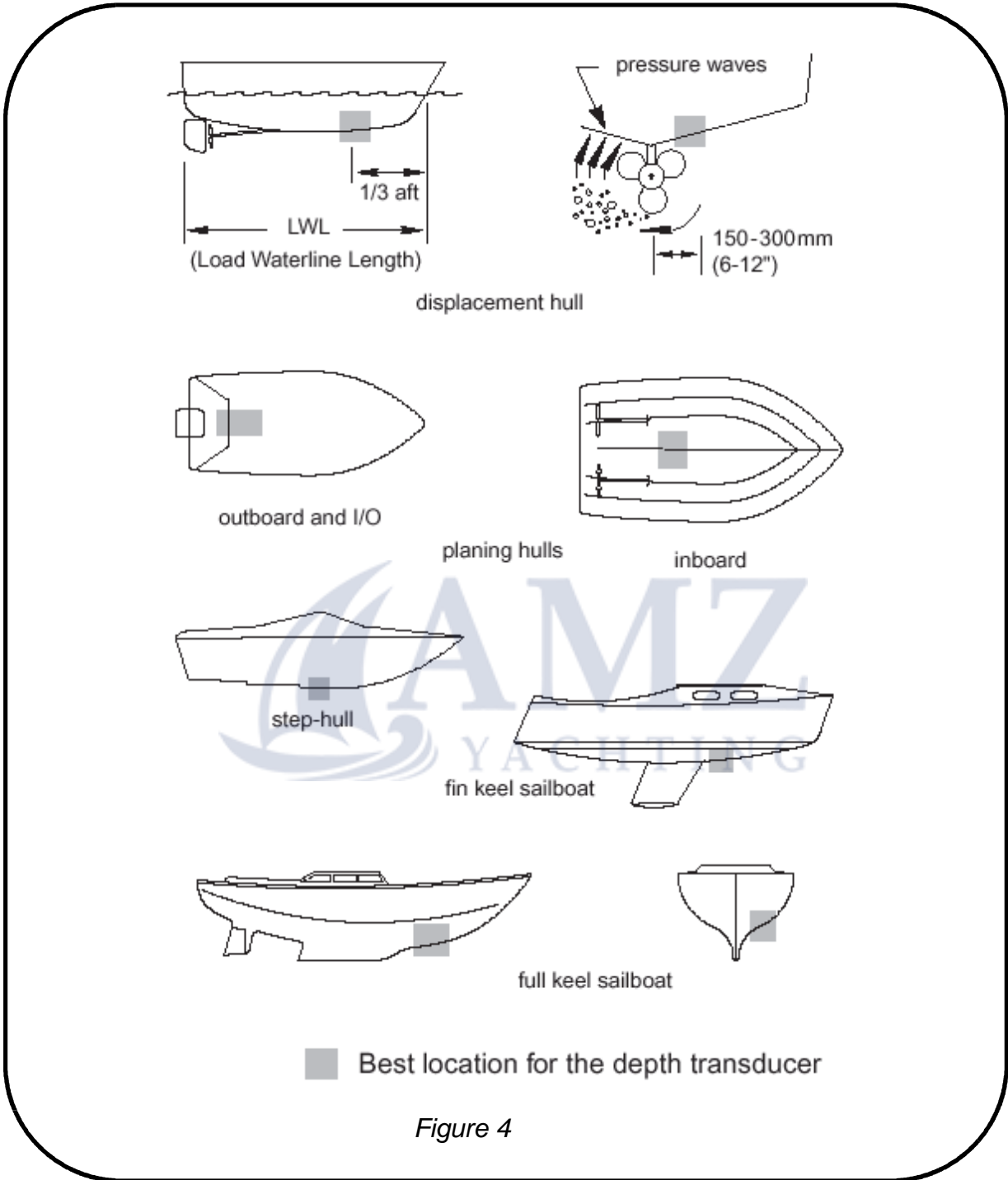


Figure 3 : recommended location

**On a motorboat :** the sensor must be approximately 50 cm back from the squat limit. It may be necessary to prepare a 10 to 15 mm streamlined plate so that the sensor is located beyond the turbulent water layers.

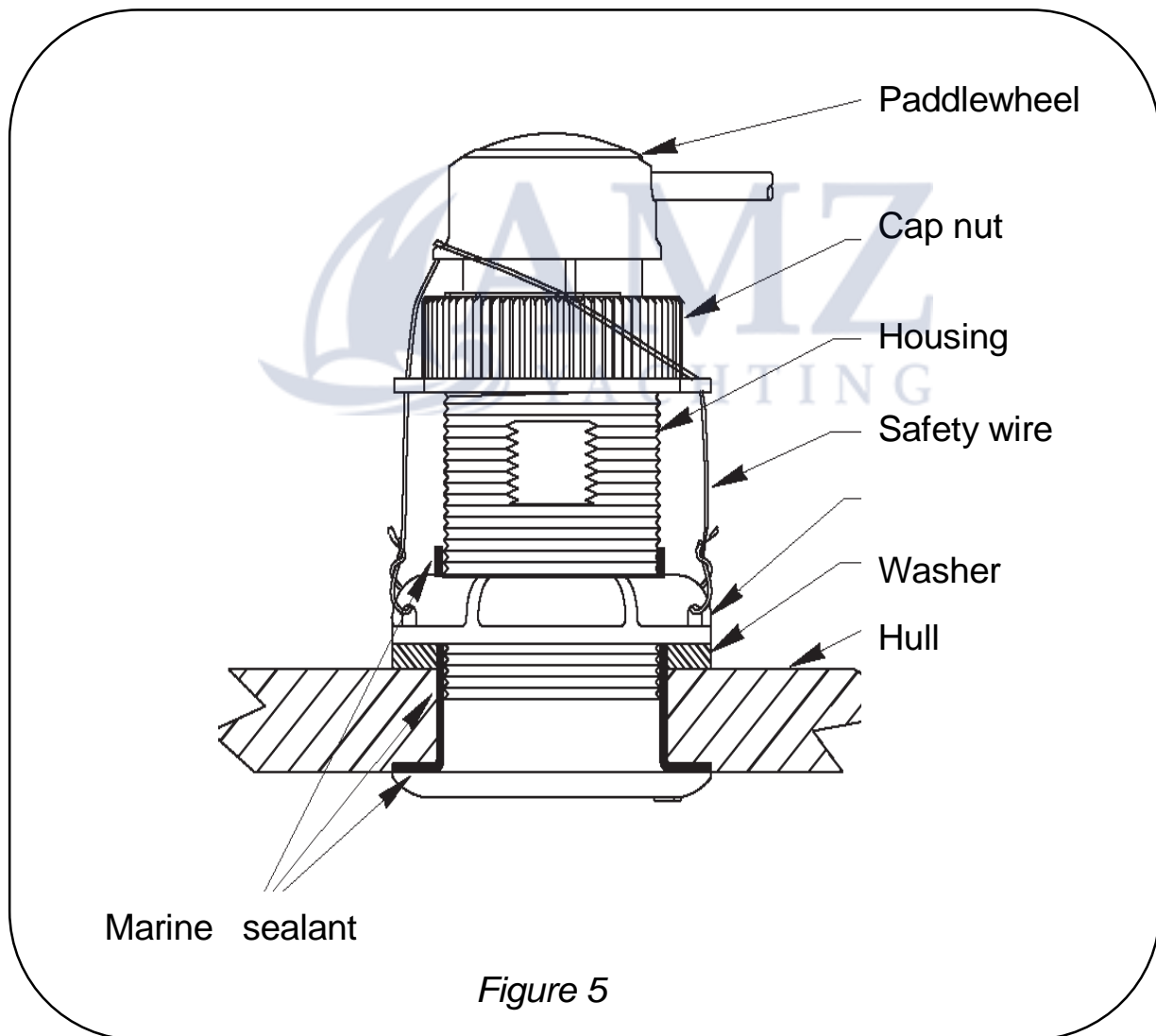




### 3.5 Installation of the through-hull

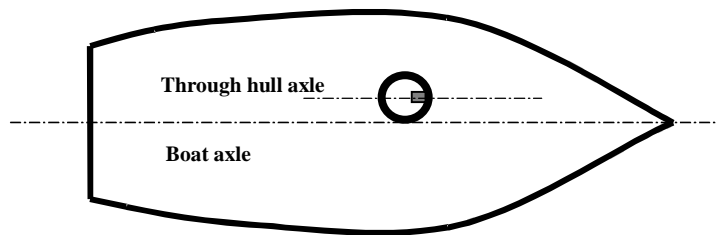
Once the location of the sensor is determined, follow the procedure below :

- From the inside of the ship, drill the pre-drilling hole, then from the outside, drill a 51 mm diameter hole using the crown saw.
- Degrease the hull.
- Coat the flange of the through-hull fitting with sealing paste. Place the through-hull in position.
- Inside the ship, lay some sealing paste around the through-hull.
- Position the through-hull fitting by orienting the fool proofing notch towards the bow of the ship (see figure 4). Similarly, on the outside of the through-hull fitting, an arrow indicates the orientation : position this arrow towards the bow of the ship.
- Screw the nut and tighten **moderately**.
- Grease the stopper and screw it onto the through-hull fitting.
- Leave to dry for over 12 hours.



Note : a flat joint is delivered with the through-hull fitting, to ensure the watertightness between the hull and the through-hull fitting. However, mounting this joint is not compulsory. For a more reliable watertightness with time, we recommend you use sealing paste only.

**Caution :** in case a triducer sensor (log and depth finder in one single sensor) is used at a later stage, the axis of the through-hull must imperatively be parallel to the lubber line of the ship.



*Figure 6*

### 3.6 Installation of the depth-finder sensor

- Grease the two O-rings of the sensor with the silicon lubricant.
- Introduce the sensor in the through-hull.
- Tighten the sensor nut slightly.
- Then rotate the body of the sensor to position the fool proofing notch in its slot.
- Manually tighten the nut, to the thread root.

Antifouling : the immersed surfaces of the depth-finder sensor will rapidly become covered with algae and seashells. Protect these surfaces using a thin coat of antifouling to guarantee the performance of your instruments.

**Caution :**

- Do not introduce the sensor in the through-hull without lubrication, as it may damage the seals.

### 3.7 Installation of the safety wire

The safety wire allows to block the nut of the sensor in rotation. Install the safety wire according to the indications on figure 5.

### 3.8 Electrical connection

The sensor is equipped with a 6 meter cable and a moulded waterproof connector. You will connect the depth-finder sensor onto the **depth sensor** connector socket of the **depth-finder log interface** housing.

**Caution :**

- To guarantee the watertightness of the connectors, make sure they are properly screwed onto their connector socket.
- The connection of the sensors must be performed with the installation power switched off.

## 4 MAINTENANCE

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### 4.1 Recommendations

- The sensor is coated with silicon grease. It is however **recommended to lubricate it regularly** (silicone grease only) in order to avoid locking in the through-hull.
- The immersed surfaces of the depth-finder sensor will rapidly become covered with algae and seashells. Periodically clean the immersed surface of the sensor. If you do not use your instruments for a long period of time, remove the sensor from the through-hull and place a stopper.

### 4.2 At port, how to remove the sensor from the through-hull ?

To perform maintenance and cleaning operations, it is necessary to remove the sensor from the through-hull, when the ship is afloat. The sensor must be retrieved, then the hole of the through-hull must be blocked with the stopper. This operation may seem difficult, because water comes into the ship. However, with a bit of method and organisation, it can be performed easily. Only a few decilitres of water will come inside the ship.

**Procedure :**

1. Clear the area around the sensor.
2. Lubricate the stopper and keep it within your reach.
3. Unscrew the sensor nut entirely.
4. Progressively retrieve the sensor, and be ready to block the through-hull with the stopper.
5. As soon as the sensor is removed, block the hole of the through-hull with the stopper, and screw.
6. Only a few decilitres of water will come inside the ship.



