

SAVE MARINE - H240 HYDROGENERATOR

B

INSTALLATION GUIDE

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1 Parts list

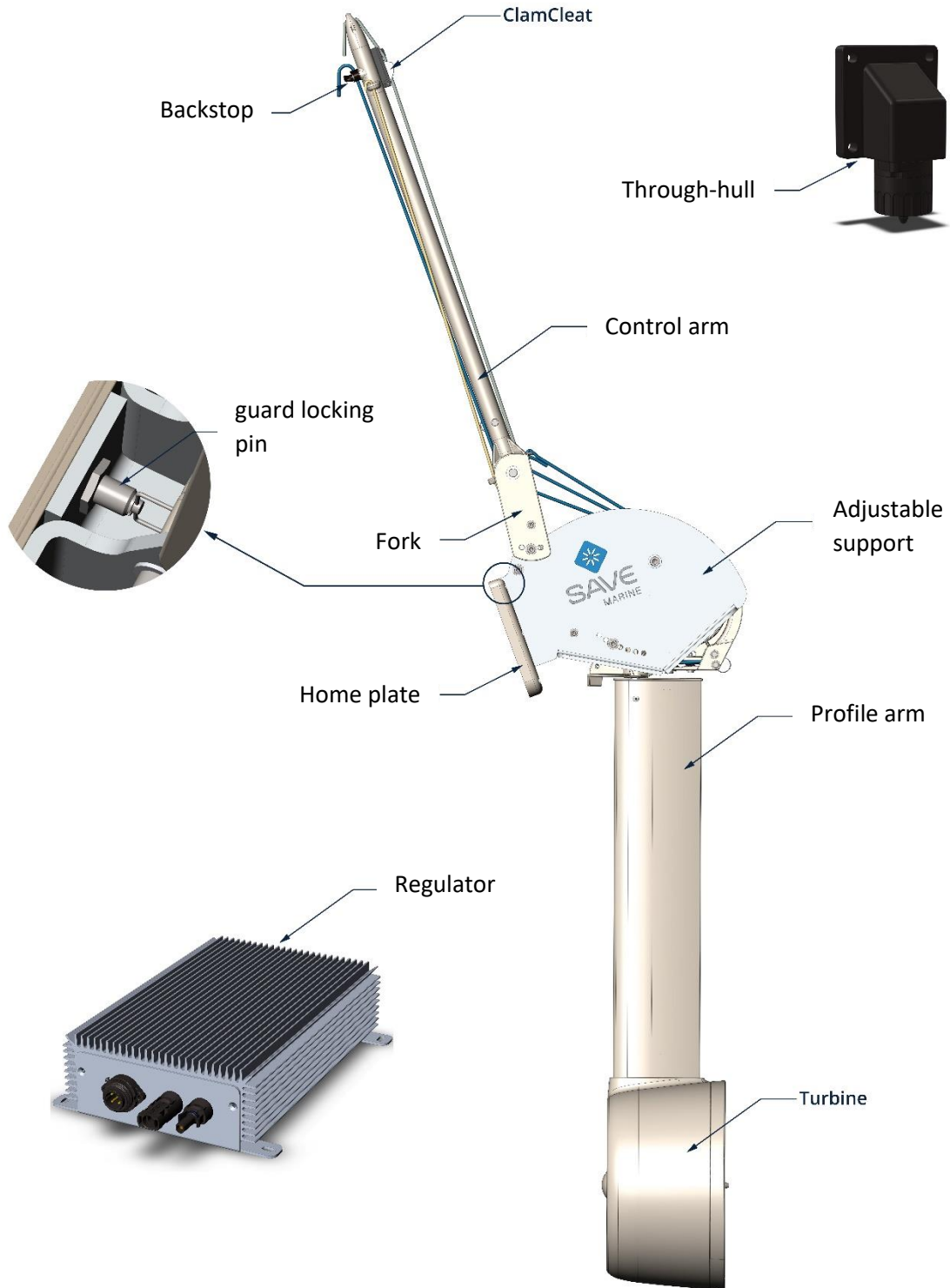
1.1 Supplied parts

- ✓ An hydrogenerator
- ✓ A home plate
- ✓ Bolts set to fix the home plate
- ✓ One cable equipped with through-hull and connectors
- ✓ Bolts set to fix the through-hull
- ✓ One regulator
- ✓ Bolts set to fix the regulator
- ✓ Two batterie cables (one black and one red with a 40A fuse) equipped with connectors
- ✓ One tool to disconnect the cables from the regulator
- ✓ Spare parts
 - Two M8 eyelet lugs for battery
 - One 40A fuse
- ✓ One manual
 - limits and conditions for using
 - Installation guide
 - user's manual

1.2 Material needed (not included)

- Drilling machine
- Drill Ø6
- Allen keys n° 4, 5, 6
- Open-end wrench n° 8, 10, 13
- Hole saw Ø30
- Sealing paste

2 Description of the different elements



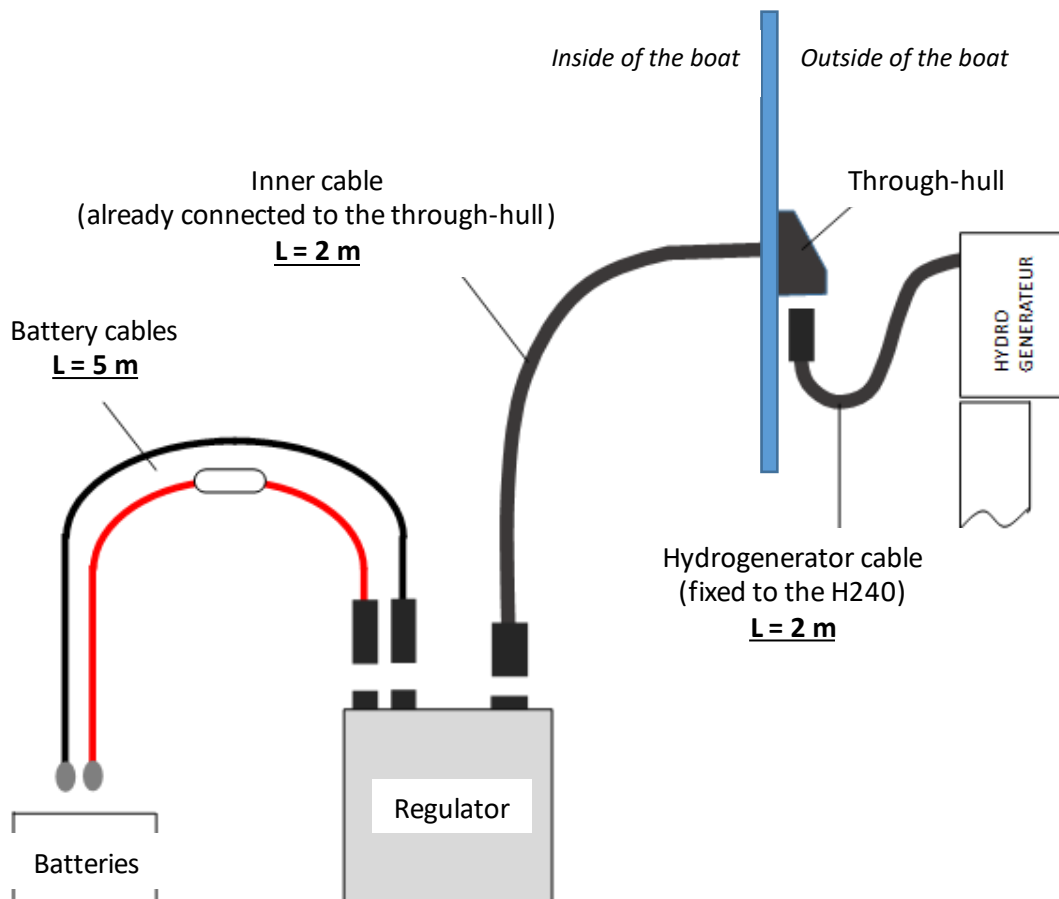
3 Pre-installation checklist

Prior to the installation, you must determine the different locations for the following elements: home plate, through-hull, regulator.

Drilling is indeed required for the installation of the home plate, through-hull and regulator.

The hydrogenerator, the through-hull, the regulator and the batteries are inter-connected with cables having a fixed length.

An electrical schematic is shown hereafter.

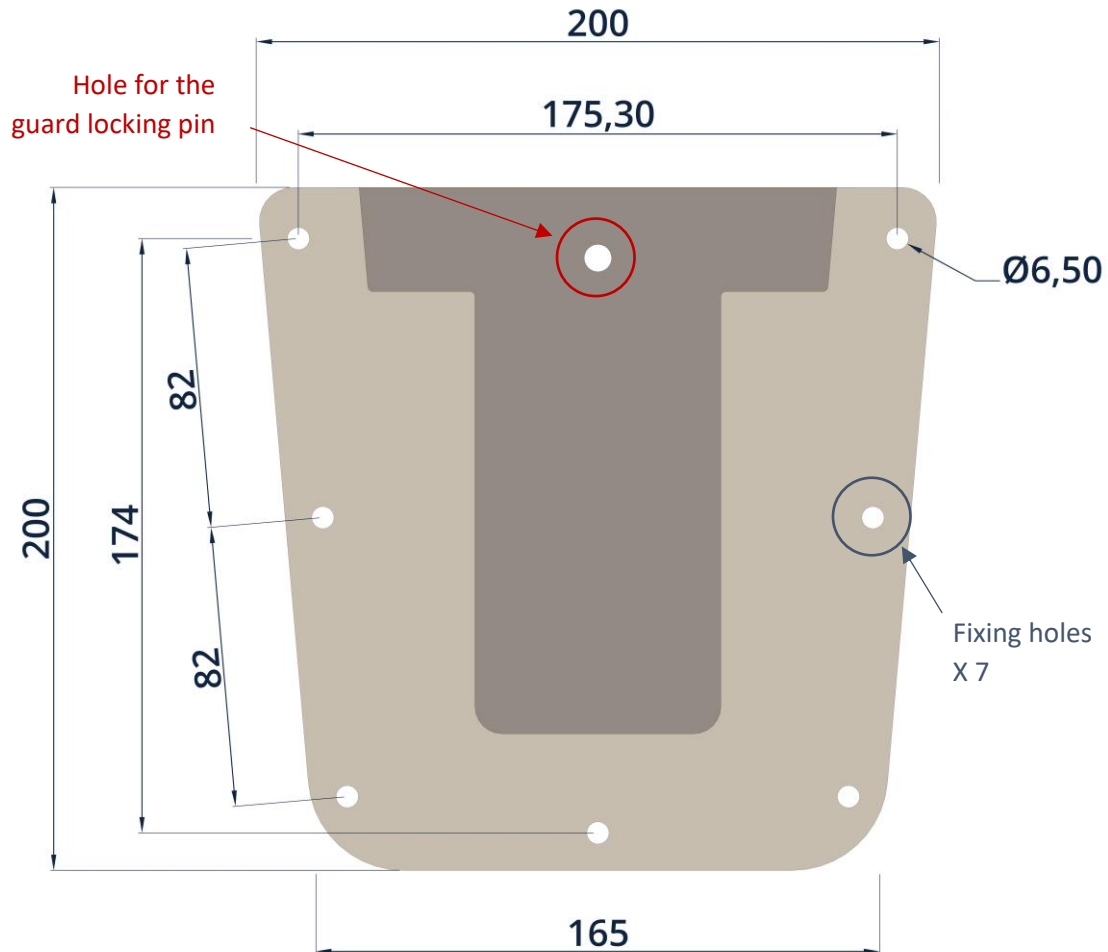


Electrical schematic

3.1 Select the location of the home plate

The home place is designed to receive the hydrogenerator.

The home plate is composed of 7 holes for its fixation to the transom and one hole for the hydrogenerator guard locking pin.

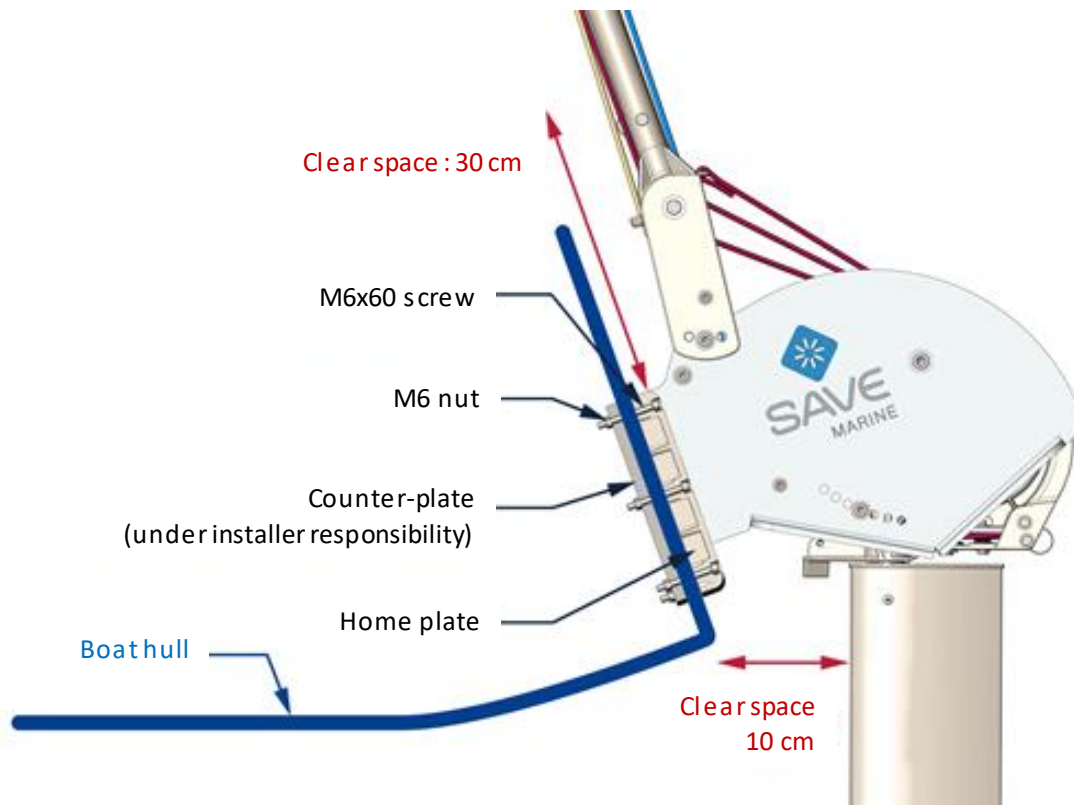


Dimension of the home plate

Recommendations for a good positioning:

- 1- Check the robustness and the flatness of the transom as mentioned in the "Conditions and limits of using" booklet (page 5).
- 2- The home plate must be placed as centrally as possible on the transom. This ensures that the turbine remains submerged when the boat is heeling.
- 3- The lower part of the home plate should be placed at the waterline transom while the boat is loaded under normal conditions of navigation. It should not be placed higher so that the turbine remains immersed when heeling and limit disruptions related to algae (which usually float on the surface).

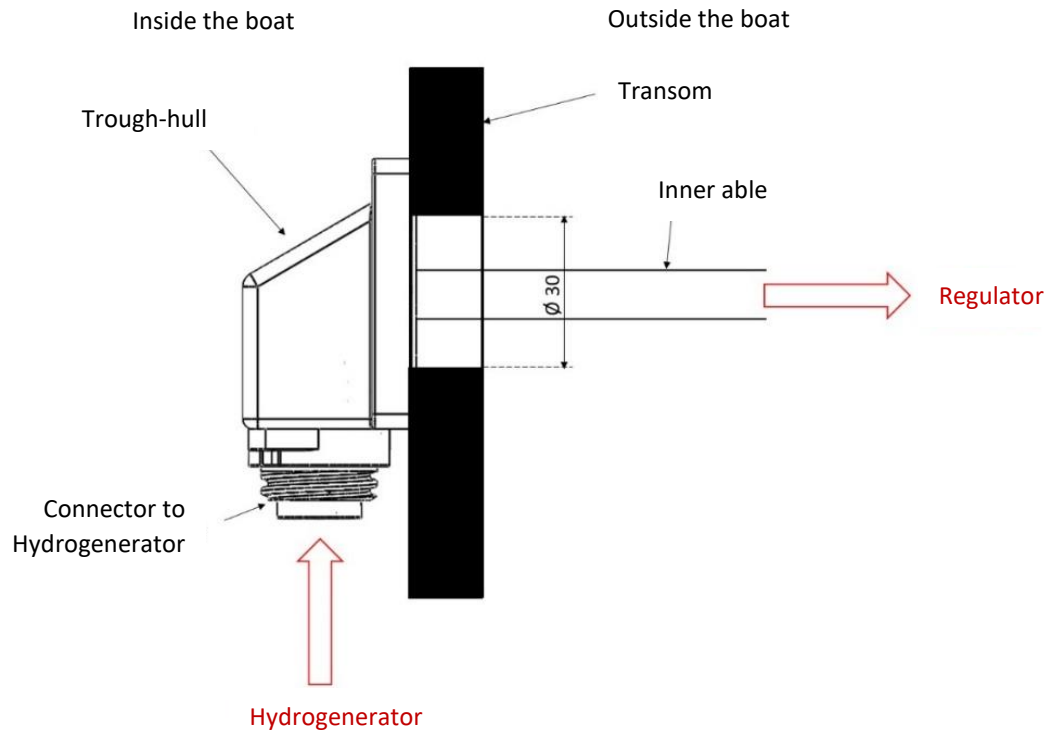
- 4- Strengthen the transom if necessary and set up the location for the counter-plate (responsibility of the installation company). Check that there is enough room available to access the fixing screws.
 - 5- A clearance of 30 cm above the home plate should be free to put in place and pull the hydrogenerator.
 - 6- A space of 10 cm is necessary between the hull and the profile arm of the hydro.
- Mark the location for the subsequent fixing.



Positioning schematic

3.2 Select the location of the through-hull

The through-hull is fixed through the transom.



Trough-hull positioning

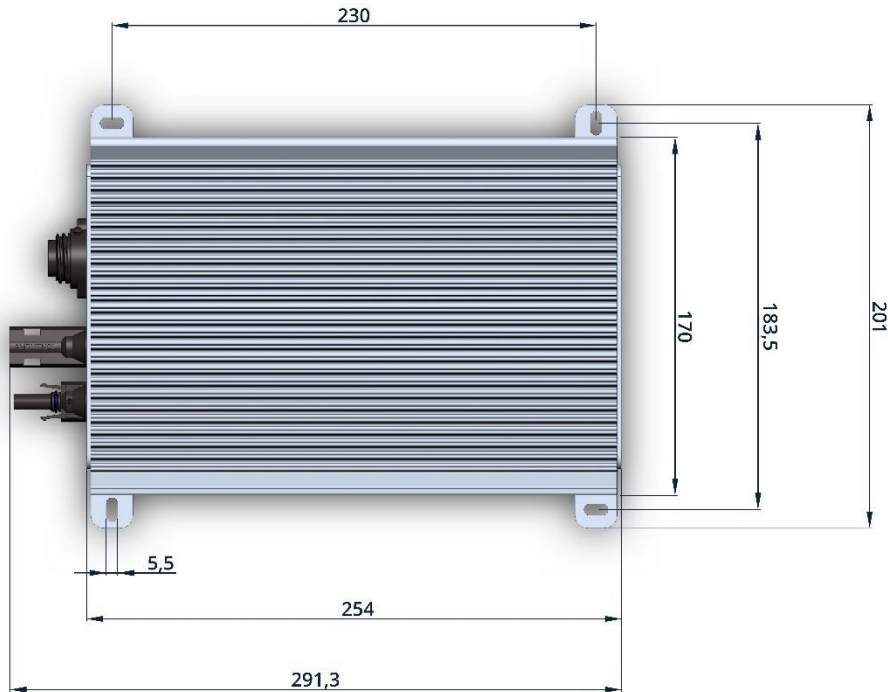
Recommendations for a good positioning:

- 1- Ensure that you have a clear surface of 6x6 cm².
- 2- Ensure that you get an easy access from inside the boat.
- 3- The cable length between through-hull and hydrogenerator is 2 meters.
- 4- The cable length between through-hull and regulator is 5 meters.
- 5- Place the through-hull as high as possible to ensure an easy connection and disconnection of the hydrogenerator.

Mark the location for the subsequent fixing.

3.3 Select the location of the regulator

This device regulates the output signal coming from the generator and optimizes the recharge of your batteries. It should be located inside the boat.



Dimensions of the regulator

Recommendations for a good positioning:





1. It should be easily accessible.
2. It must be in a ventilated space in order to minimize its heating and optimize the functioning of electronic components.
3. In the upper part of a chest: ensure that it cannot receive direct projection of sea water and hit by manipulations of stored objects.
4. In one cabin: ensure that it is not in a place of passage.
5. In any cases, it is recommended to set the electronic unit:
 - a. on a wall that can support its weight (3 kg).
 - b. on a vertical surface to improve thermal dissipation, with fins in vertical position
 - c. Leaving a distance of at least 40 cm between the top of the electronic box and the chest or cabin ceiling.

4 Installation of the various elements

4.1 Installation of the home plate





Only after completing the necessary verifications and pre-installation checklist.

The home plate must be fixed on a rigid and flat transom. If not flat, it should be compensated not to stress the home plate when one tightens the screws. Use for that washers or holds.

<p>Identify the location outside the boat</p>	
<p>Check inside the boat that the location allows to set the counter plate and check access to the screws.</p>	
<p>Drill a hole with a drill Ø6 and screw Mark the 6 other holes. Drill using the home plate as a drilling template. Do not drill the hole for the guard locking pin</p>	
<p>Put sealing paste: - on the back of the home plate and around screw holes - on the counter plate</p>	
<p>Clean and degrease the home plate locations</p>	
<p>Outside the boat, position the home plate on the transom, insert the 7 M6x25 screws</p>	
<p>Inside the boat, insert the counter plate through the M6x25 screw until it contacts the inner wall. Insert the 7 M6 washers on the screws M6x25. Screw the bolts on the 7 M6x25 NYLSTOP M6 screws.</p>	

4.2 Installation of the through-hull and inner cable

Only after completing the necessary verifications and pre-installation checklist.

<ol style="list-style-type: none"> 1- Drill the center hole with a hole saw Ø30. Such a diameter is needed for routing of the inner cable and its connector (already fixed to the through-hull). 2- Route the inner cable through the Ø30 hole. 	
<ol style="list-style-type: none"> 3- Drill 4 holes with a Ø6 drill. Use the through-hole as a template to mark the 4 holes for fixation. 	
<ol style="list-style-type: none"> 4- Put sealing paste around the screw holes on the through-hull. 	
<ol style="list-style-type: none"> 5- Flatten the through-hull against the transom and insert the 4 screws M5x25. 6- Inside the boat, the insert M5 washers on the M5x25 screws. Screw the NYLSTOP M5 nuts on the M5x25 screws 	
<ol style="list-style-type: none"> 7- Clean surplus of sealing paste. 	

4.3 Installation of the regulator

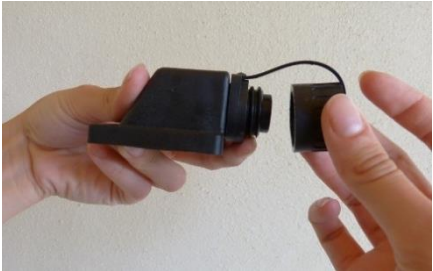

Only after completing the necessary verifications and pre-installation checklist.

<p>Fix the 4 eyelets of the regulator with M5x25 screws and washers.</p>	
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4.4 Connection of the electrical cables

The electrical schematic is provided on page 5 of this document.

- Hydrogenerator connection to the to the through-hull

<p>Unscrew the plugs of each connector and plug the hydro cable into the through-hull.</p>	
<p>An alignment key into the connectors prevents the user from mistaking when connecting.</p>	

➤ Through-hull connection to the regulator

The internal cable from the through-hull has a right female connector at its end. This connector is to plug into the male header connector of the regulator.



➤ Regulator connection to the batteries

Two cables (one red and one black) are connected to the hydrogenerator. These two cables are equipped with a specific connector on one side for the regulator and a fixing system for the batteries of the other side. The red cable is equipped with a 40A fuse (for an electrical protection of the regulator).

1- Connect the cables to the regulator

Connection:

Insert the connectors of the cables into the respective connectors of the regulator. You should hear a "clac" to ensure a good connection.



Disconnection:

For safety reasons, it is not possible to disconnect the connectors by hand.

A specific tool is supplied for that purpose. Insert the clamp as shown on the picture to disconnect.

We recommend fixing the clamp to the regulator not to lose it.



2- Connect the cables to the battery

Connect the red cable to the positive (+) terminal of the battery.

Connect the black cable to the negative (-) terminal of the battery.



4.5 Installation of the hydrogenerator

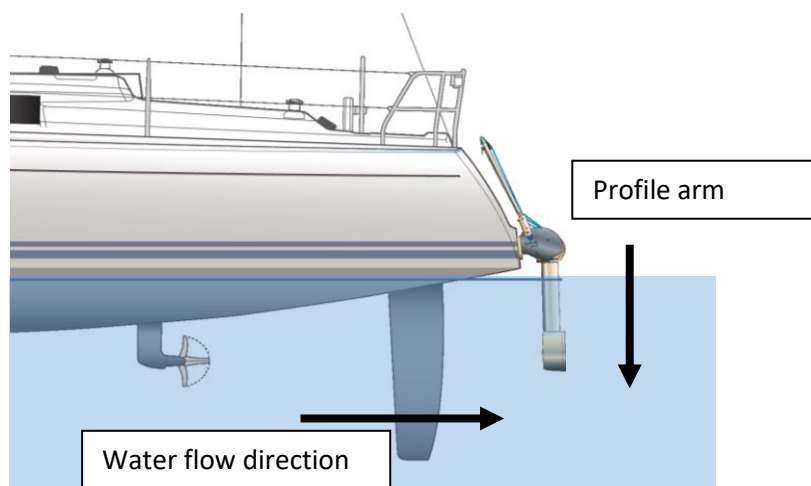
4.5.1 Insert the hydrogenerator into the home plate

Slide the hydrogenerator into the home plate and place the guard locking pin into the relevant location (hole into the home plate).



4.5.2 Adjustment of the hydrogenerator inclination

The hydrogenerator can be adapted to any transom with an angle from 0° to 45 ° without the need to develop a specific adapter part.



The adjustment of the orientation of the profile arms is essential: the performance of the turbine is optimal when facing the water flow.

There are 7 adjustment holes to fit with the angle of your transom for fixing the stop pin

1. Select the most suitable hole,
2. Install the hydrogenerator in functioning position,
3. Check that the profil arm is vertical (with horizontal ship)
4. Tighten the screw.




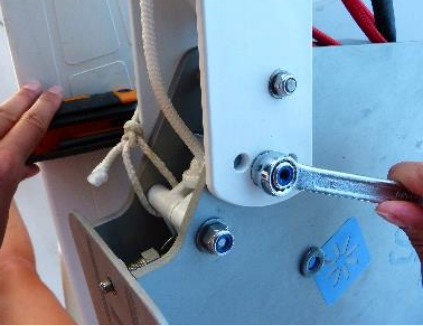
4.5.3 Adjustment of the control arm

The control arm is part of the hydrogenerator. It is equipped with an automatic clamcleat, a backstop and three (3) ropes.


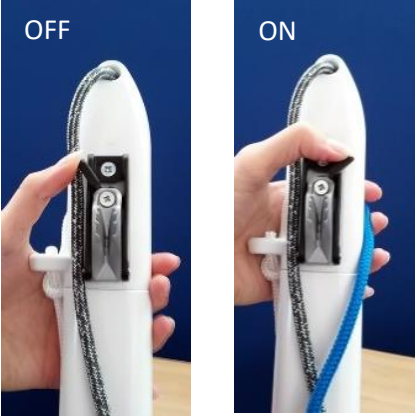
- A black and white rope to place and maintain the profile arm and turbine into functioning position. It is blocked into the automatic clamcleat.
- A blue rope to raise the profil arm and turbine. It is locked thanks to a backstop.
- A white rope to unlock the guard locking pin and remove the hydrogenerator from the home plate.



Adjust the inclination of the control arm:

<p>Tilt the control arm to enter slightly inside the rear deck without obstructing traffic.</p>	
<p>There are 3 holes in the fork and two holes on the plate, which provide 6 different angles for the control arm. Position the fork with the appropriate holes and screw the nut.</p>	


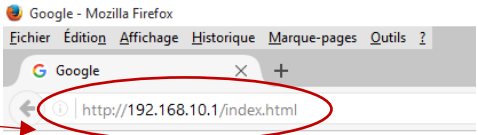
4.5.4 Automatic clamcleat

<p>This is a security element: the clamcleat is automatically activated and releases the rope if the submerged part of the hydrogenerator strikes a heavy object.</p> <p>It ensures that the rope maintains the profil arm and turbine in functioning position and releases it in case of shock. This ensures that the transom cannot be damaged.</p>	
<p>The clamcleat is equipped with a two-position pivoting finger:</p> <ul style="list-style-type: none"> - switch the finger on the left to release the clam - put back the movable part in its initial position and rotate the finger on the right to reset the Clamcleat. 	

5 Wi-Fi monitoring tool setup

When the hydrogenerator is in functioning mode and when all elements are correctly connected to each other, the hydrogenerator automatically generates power to recharge the batteries.

The WIFI module installed in the electronic box allows to view on your smartphone, tablet or computer the instantaneous production and supervise the electrical production of the hydrogenerator.

<p>The hydrogenerator is not producing. Disconnect the red cable (regulator-battery) and reconnect it. You have 5 minutes to configure the wifi. After this 5 minutes' delay, the wifi is disconnected.</p>	
<p>Connect the smartphone, tablet or computer on WIFI "save-marine" in the same way that it connects to a home WIFI. No required password.</p> <p>This is compatible with any operating system.</p> <p>The connection can take several seconds.</p>	
<p>Open a web page in the browser of your choice and type the following address:</p> <p>http://192.168.10.1/index.html</p> <p>open the corresponding web page.</p> <p>You can now start the setup procedure as described hereafter.</p> <p>NB: if you encounter some difficulties, please check with another electronic device.</p>	

6 Regulator configuration according the batteries specifications

You should configure your regulator to optimize the recharge of your batteries.

Open the « Service » Tab of the monitoring tool

Service

Modèle : HBN1
 Numéro de série : 161012

Type de batterie courant : 12V Plomb Ouvert
 Capacité : 40 Ah
 Tension de recharge : 14.7 V
 Tension de floating : 13.7 V

Summary of battery characteristics

Choisir le nouveau type de batterie :

Tension	Choix	Type
12V	<input type="radio"/>	Plomb Ouvert
	<input type="radio"/>	Plomb Fermé
	<input type="radio"/>	Plomb Calcium
	<input type="radio"/>	Plomb Gel ou AGM
24V	<input type="radio"/>	Plomb Ouvert
	<input type="radio"/>	Plomb Fermé
	<input type="radio"/>	Plomb Calcium
	<input type="radio"/>	Plomb Gel ou AGM

Select the battery characteristics
see procedures below

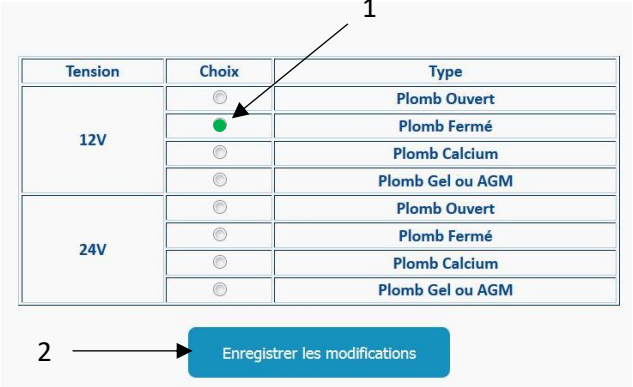
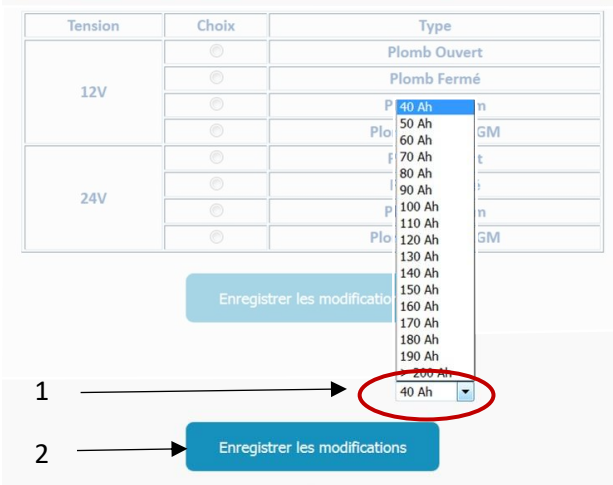

Choisir une valeur dans la liste proposée ci-dessous le plus proche possible de la capacité de vos batteries : 40 Ah

Automatically generates an email to support the remote analysis of the regulator information.
No use during the configuration step.

Cliquer sur la loupe afin de rédiger un mail contenant le diagnostic de votre boîtier électronique. Connecter-vous ensuite sur internet afin d'envoyer ce mail.

Diagram of the « Service » tab

Regulator setup process:

<p>Select the right type of battery and voltage:</p> <p>Choose on the table between 12V and 24V and between the different types of battery.</p> <p>1- Click the corresponding button.</p> <p>2- Save the modifications.</p> <p><i>If lithium-ion battery, see next paragraph.</i></p>	 <p style="text-align: center; color: green;">Example</p>
<p>1- Select your battery capacity or the closest one to ensure an optimal recharge.</p> <p>Add the capacities when the batteries are arranged in parallel.</p> <p>Example: if three 40Ah batteries in //: choose 120 Ah.</p> <p>2- Save the modifications</p> <p><i>40Ah is the default value.</i></p> <p>Warning: Check the capacity values on your batteries (Ah) or ask to your supplier. You can damage the battery when the selected capacity is too high.</p>	
<p>Check that the selected parameters are taken into account.</p>	

About **lithium-ion** batteries:

Read the charging voltage and the floating voltage of your lithium-ion battery and check the closest charging and floating voltages in the table below.

Voltage	Type	Voltage (V)	
		Charge/Load	Floating
12V	Open lead	14.7	13.7
	Closed lead	14.8	13.9
	Calcium lead	15.2	14.5
	Gel lead or AGM	14.8	13.9
24V	Open lead	29.4	27.4
	Closed lead	29.6	27.8
	Calcium lead	30.4	29
	Gel lead or AGM	29.6	27.8

Select then the corresponding battery in the "Service" tab.

