

28s

ETAP



Eigenaarshandboek
Eigner Handbuch

Manuel de propriétaire
Owner's Manual





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This manual meets the requirements of ISO 10240

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Because that's why everyone at ETAP (working) has built your yacht with utmost care.
Your ETAP yacht is a safe yacht, double-skinned and unbreakable.

The delivery of your yacht does not mean the end of our relationship... in fact it is just the beginning.
Your ETAP distributor remains at your full disposal and is your first point of contact - at any time
you have any questions about your ETAP yacht. This way the most efficient service is assured.

Approx. one year after the commissioning of your yacht, you will receive from us a questionnaire to
assess your satisfaction. Your responses to this questionnaire will enable us to further optimize our
products.

In case you are the second owner, we kindly request you to fill in the "ETAP second sale service"
form and return this to us so that we can keep our customer database up-to-date and send you our
newsletters.

We wish you safe sailing!

ETAP Yachting NV



1 **FOREWORD**

We sincerely congratulate you on the purchase of your new ETAP yacht and thank you for your confidence in our products !

In our opinion, a top quality yacht is the best guarantee of an enjoyable holiday and plenty of sailing pleasure. That's why everyone at ETAP Yachting has built your yacht with utmost care. Your ETAP yacht is a safe yacht: double-skinned and unsinkable.

The delivery of your yacht does not mean the end of our relationship...in fact it is just the beginning ! Your ETAP distributor remains at your full disposal and is your first point of contact if, at any time, you have any questions about your ETAP yacht. This way the most efficient service is assured.

About one year after the commissioning of your yacht, you will receive from us a questionnaire to assess your satisfaction. Your responses to this questionnaire will enable us to further optimise our products.

In case you are the second owner, we kindly request you to fill in the "ETAP second sale service" form and return this to us so that we can keep our customer database up-to-date and send you our newsletters.

We wish you safe sailing !

ETAP Yachting NV



2 GENERAL INFORMATION

2.1 Why an owner's manual?

This owner's manual has been produced to help you sail your ETAP yacht in all safety.

It contains information about the construction, fitting-out, characteristics and the use of options of your yacht, the facilities included and installed, the technical systems and all the equipment and instruments on board.

This will give you the knowledge and information you need to correctly operate your yacht and to derive optimum enjoyment from it. Please therefore carefully read everything through and familiarise yourself with the yacht before operating it.

However, this owner's manual is not a detailed guide for maintenance or problem solving. In case of doubt, please always contact your local ETAP distributor.

Please also carefully read through the instruction manual of the engine and the other equipment on board.

KEEP THIS OWNER'S MANUAL ABOARD YOUR YACHT IN A SAFE AND DRY PLACE.

IF YOU SELL YOUR ETAP YOU HAVE TO HAND OVER THE OWNER'S MANUAL TO THE NEW OWNER AND HAVE HIM SIGN A PROOF OF RECEIPT.

2.2 Seamanship

The owner's manual is not an instruction book on sailing, seamanship or navigation. To become skilled in those areas you will have to consult different literature and/or take the appropriate courses. If this is your first yacht, or if you are not yet familiar with sailing, please make sure that you accumulate sufficient experience before taking command of the ship.

In some countries a navigation licence is compulsory whilst in other countries this is not required. However, it is always useful to acquire the necessary knowledge and to obtain such a navigation licence. Detailed information is available from water sports organisations. Your ETAP distributor, your water sports association or the national authorities will certainly be glad to furnish you with addresses of sailing schools or competent sailing instructors.

The owner or skipper must ensure that the wind and sea conditions are suitable in view of the design category of the yacht and that the crew is capable of maintaining control of the yacht in such conditions.

Even though this yacht has been approved in category B/C, you should bear in mind that the worst wind and sea conditions that correspond to this category (see below) can be dangerous. In these conditions, only a fit and experienced crew with a well maintained yacht can sail in safety.

2.3 Important recommendations and comments

Check the tension of all bolts and screws on your new yacht (if necessary in consultation with your ETAP distributor), and do so again after about a fortnight of sailing.

Polyester, rubber and all other synthetic materials have a tendency to shrink under tension. Despite the fact that the yacht was checked before it left the yard, we recommend that you check the following again: the bolts on the keel, sail drive, engine, fuel tank, sea rail and deck fittings. The bolts on the batteries and main fuses also need to be tight to prevent excessive heating due to poor contact !

Always keep your yacht in good condition and bear in mind that wear and tear will occur after some time as a result of use.

Any yacht, however reliable, can be damaged if it is incorrectly used. Always use your yacht in safe conditions and adjust your speed and course to the sea conditions.

If your yacht is equipped with a life raft, carefully read the instruction manual. The necessary safety equipment (life jackets, harnesses, etc) should be present aboard the yacht, according to the type of yacht, weather conditions etc. This safety equipment is compulsory in certain countries. The crew must be familiar with the use of the safety equipment and emergency manoeuvres (man overboard, towing etc.). Sailing schools organise regular courses covering these subjects.

All crew members should wear a life jacket when they are on deck. In certain countries it is compulsory to wear a life jacket in conformity with national regulations.

Be careful not to interpret condensation as a leak. Thanks to its "ship-in-ship" construction, combined with foam insulation, the ETAP is an exceptionally dry yacht. This, however, does not prevent condensation from tubes (toilet, washbasin, galley, cockpit discharge, air conditioning ...), through-hull outlets and metal objects such as the battery, engine and other objects.

When under way, ensure that all loose equipment have been firmly secured or stowed away in lockers, boxes or other suitable locations. Check if all lockers have been securely closed. Before you set off, windows and hatches have to be securely closed and the through-hull outlets of toilets and washbasins closed.

2.4 Pictograms

Various pictograms are used in the manual or aboard your yacht. Their meanings are as follows:



DANGER !

Indicates that an extremely serious direct risk exists. If no suitable preventive measures are taken, there is a considerable likelihood of death or serious injury.



CAUTION !

Indicates that a direct risk exists. If no suitable preventive measures are taken, there is a considerable likelihood of injury.



ATTENTION !

Indicates a reminder of safety measures or draws attention to unsafe actions which may result in personal injury or damage to the yacht or parts of the yacht.



Read the instructions or the manual for the equipment concerned. These manuals are supplied with the yacht.



This means that a diagram for the item concerned is also included in an appendix to this manual.



The CE mark stands for "Conformité Européenne", which means, among other things, that any product that bears this symbol meets a number of essential requirements and that it can be freely marketed anywhere in the European Union.



A fire extinguisher can be found at this location.



The symbol for an emergency exit.

2.5 **Options**

This manual contains descriptions of items which may not be part of your yacht's standard equipment. These are indicated with "(optional)".

2.6 **Manufacturer**

Your ETAP 28s was manufactured by ETAP Yachting NV. The contact details of ETAP Yachting can be found on page 1.

2.7 **Dimensions**

The main dimensions of the ETAP 28s are listed in the table below.

	<i>Deep keel</i>	<i>ETAP tandem keel</i>
l.o.a.	8,980 m	
hull length	8,600 m	
waterline length	8,450 m	
b.o.a.	3,360 m	
hull width	3,326 m	
waterline width	2,867 m	
draught	1,760 m	1,100 m
clearance	13,05 m	
height incl. keel	14,860 m	14,170 m

2.8 **CIN code**

The CIN code, or **C**raft **I**dentification **N**umber (formerly HIN, or Hull Identification Number), is marked on the hull at the top right-hand side of the stern (rear of the yacht). The information which is incorporated into the CIN code includes:

- name of the yachtyard ;
- type of yacht ;
- serial number or build number ;
- date of production ;
- model year.

The CIN code of your yacht is stated in the DECLARATION OF CONFORMITY as the "hull number" (see chapter 8).



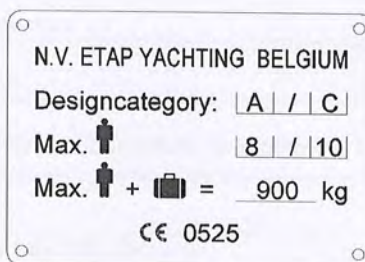
ATTENTION !

Do not deface the CIN code. Make sure that it is always legible.

2.9 **Builder's plate**

In the yacht, the builder's plate is located just below the cabin entrance. This plate contains important information and should not be removed. The following details are stated on the plate :

- name of the yacht manufacturer ;
- CE mark ;
- yacht design category ;
- maximum recommended number of persons on board when under way ;
- maximum load for the yacht (excluding contents of tanks).



Attention: the figures on this plate may be different for your yacht. For specific details, please refer to Section 2.10. For the maximum load, see also Section 2.11.

2.10 Design category

This yacht has been approved in **design category B** with a **maximum of 4 persons** (each weighing up to 75 kg) on board. For inshore sailing in **category C**, **6 persons** (each weighing up to 75 kg) are permitted.

Meaning of the design category in accordance with European Directive 94/25 EC:

A	Ocean - a yacht allocated design category A is considered to be designed for extended voyages where conditions may exceed wind-force 8 (Beaufort scale) and significant wave heights of 4m and above. Abnormal conditions such as hurricanes are excluded. Such conditions may be encountered on extended voyages, for example across oceans, or on inland seas when there is no shelter from wind and waves for several hundred nautical miles.
B	Offshore - designed for offshore voyages where conditions up to, and including, wind-force 8 (Beaufort scale) and significant wave heights up to, and including, 4m may be experienced.
C	Inshore - designed for voyages in coastal waters, large bays, estuaries, lakes and rivers where conditions up to, and including, wind-force 6 (Beaufort scale) and significant wave heights up to, and including, 2m may be experienced.
D	Sheltered waters - designed for voyages on small lakes, rivers and canals where conditions up to, and including, wind-force 4 (Beaufort scale) and significant wave heights up to, and including, 0.5m may be experienced.

The allocation of the "design category" is based primarily on static stability figures ("STIX" and "Angle of Vanishing Stability") in accordance with ISO 12217. In addition, a number of construction elements have been subjected to certain requirements, which can differ from one design category to another.

The fact that a yacht has been approved in a certain category does not therefore mean that it can be sailed **fully rigged** under these conditions or will behave as it would on a calm sea with little wind.

It is the skipper's responsibility to adjust the sails, speed and handling to the conditions and to issue the necessary safety instructions to the crew.

Failure to adjust to the wind and sea conditions can result in damage to the yacht and can put the safety of those on board at risk.



ATTENTION!

2.11 Weights - Maximum load - Capacity of tanks

	<i>Deep keel</i>	<i>ETAP tandem keel</i>
empty weight of a standard yacht (with keel)	± 3.700 kg	± 3.820 kg
keel weight	1.170 kg	1.290 kg

The empty weight can vary depending on the installed options.

capacity of fuel tank	65 l
capacity of waste water tank (optional)	65 l
capacity of fresh water tank	115 l
capacity of water heater (optional)	15 l

For the determination of the stability and buoyancy, the following load has been taken into account:

	<i>Deep keel</i>	<i>ETAP tandem keel</i>
maximum load recommended by the manufacturer (crew (max. 6 persons), luggage, supplies, ...)	720 kg	600 kg
fuel and fresh water	180 kg	180 kg
the total maximum load is therefore	900 kg	780 kg



CAUTION!

Owners and users must understand that the stability of a yacht can be considerably reduced by increasing its top weight (by adding extra equipment to the mast). Consequently, the category mentioned above only applies to the yacht as it has been certified.

2.12 **Stability**

	<i>Deep keel</i>	<i>ETAP tandem keel</i>
STIX (ISO 12217)	24,5	23,2
Angle of Vanishing Stability (ISO 12217)	118°	116°

2.13 **Construction**

The ETAP 28s is built of fibreglass-reinforced polyester. The outside layer is finished with a colourfast coat of gelcoat.

The ETAP 28s has been built in accordance with the "ship-in-ship" method developed by ETAP. As well as a deck and hull on the outside, a further "inner" hull and deck are built on the inside. These are laminated into a single unit in a strong sandwich construction. The spaces between the inner and outer walls are filled by injecting closed-cell polyurethane foam.

This unique ETAP construction offers many advantages :

- the foam provides sufficient buoyancy to keep the yacht afloat with sufficient freeboard, even if it is full of water. With its structure of closed cells, the foam absorbs hardly any water ;
- the double-wall design ensures that the yacht is well insulated, both thermally and acoustically. This means that it is practically condensation-free and the climate is much more pleasant inside on hot or cold days ;
- thanks to the use of an inner deck and inner hull, the ETAP 28s achieves a unique standard of finish: no decoration with hydrophobic materials or plastic skins but a polyester structure finished to the same standard as the outside of the yacht. This means that it is maintenance-friendly, has a long service life and is aesthetically pleasing ;
- the double hull shape produces a much more rigid construction which "distorts" less while under way and always retains its shape.

This construction has already been successfully used on many thousands of ETAP yachts. These yachts have been sailing all the world's seas for more than 30 years, sometimes in very rough conditions.

2.14 **Certification**

ETAP Yachting has built this yacht in accordance with the "Recreational Craft Directive 94/25/EC + 2003/44/EC".

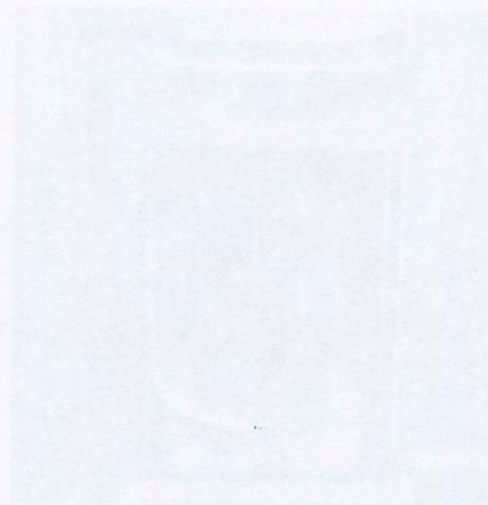
Conformity procedure = Module H ("Full Quality Assurance")

In conformity with the requirements of Module H, ETAP Yachting NV has prepared the CE certificates for this yacht under the supervision of:

Lloyd's Register Quality Assurance GmbH
 Mönckebergstr. 27
 DE - 20095 Hamburg
 Tel. +49 40 32 81 07-0
 Fax +49 40 33 57 10
 E-mail: yacht-services@lr.org



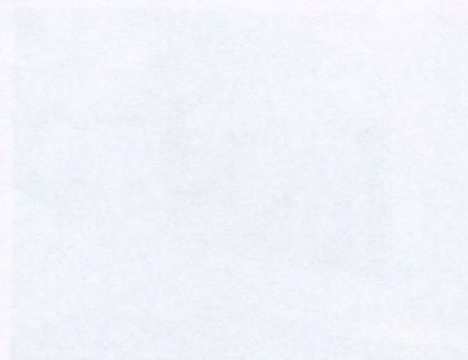
Access engine compartment (1)



Access engine compartment (2)



Technical area underneath the saloon couch (3)



Technical area aft cabin (4)

3.2 Deck layout and interior

Concerning the deck layout, please refer to drawing EC 014 001.

Concerning the interior layout, please refer to drawing EC 014 002.

3 **INSTALLATIONS: DESCRIPTION AND OPERATION**

3.1 **General**

This section contains descriptions of the installations. These descriptions include items which may not be part of your yacht's standard equipment. Where possible these are indicated with "optional".

The installations are mainly distributed over three technical areas:

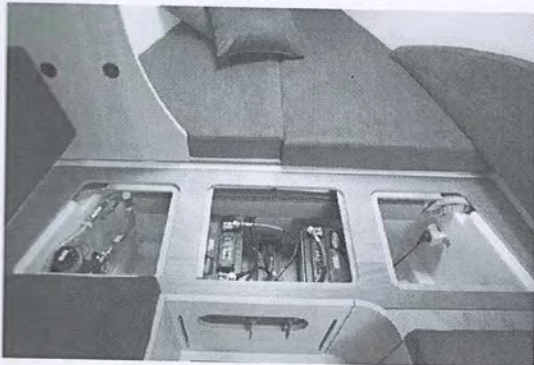
- the engine compartment, accessible via the aft cabin (1) and stairs (2) ;
- the technical area underneath the saloon couch (3) ;
- the aft technical area, accessible via the aft cabin (4).



Access engine compartment (1)



Access engine compartment (2)



Technical area underneath the saloon couch (3)



Technical area aft cabin (4)

3.2 **Deck layout and interior**

Concerning the deck layout, please refer to drawing BC 018 001.

Concerning the interior layout, please refer to drawing BC 018 005.

3.3 Engine installation

With regard to the engine installation (engine, exhaust and fuel supply line), please refer to drawing BC 008 001.



CAUTION!

Wear proper ear protection if you open the engine compartment while the engine is running. Watch out for rotating and/or hot parts of the engine!

3.3.1 Engine

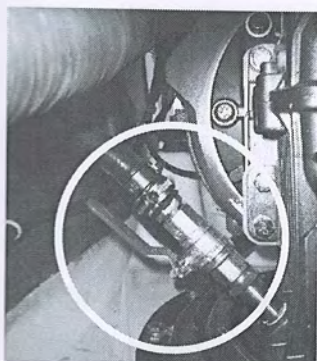
The ETAP 28s is equipped with a marine diesel engine.

manufacturer	VOLVO Penta
model	D1-20 with saildrive 130S
number of cylinders	3
cylinder capacity	760 cc
power	13,3 kW - 18,0 HP
max. rpm	3200 revs/min
propeller	2-bladed fixed: 16"x11" 3-bladed folding: 16"x10" (optional)

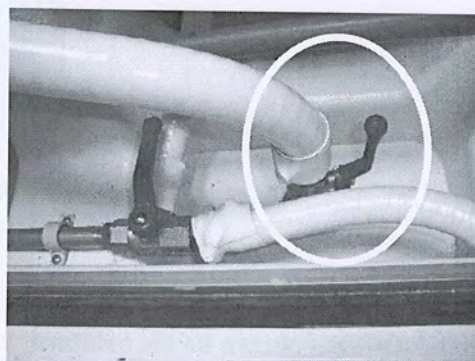
3.3.2 Cooling-water

The engine has a double fresh water cooling. The **external circuit** operates using sea water, drawn in via the saildrive. This external fresh water cooling is fitted with a seaweed filter and vacuum valve. The vacuum valve discharges water overboard via a transparent hose. The through-hull outlet of this discharge must be opened before the engine is started.

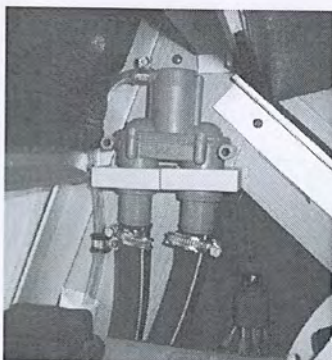
The closed **internal fresh water cooling** is fitted with an expansion tank, via which cooling-water (containing antifreeze) can also be added. The expansion tank allows the cooling-water level to be checked.



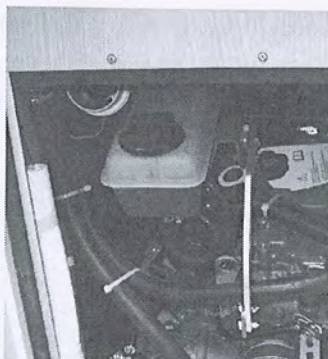
Cooling-water valve on saildrive



Safety valve discharge



Vacuum valve



Expansion tank



Seaweed filter



ATTENTION!

The vacuum valve must be regularly checked. If the valve is not properly functioning, the engine can be flooded with water.

The hose for the overflow of the vacuum valve cannot fall below the water line.

3.3.3 Engine exhaust system

The exhaust of the engine runs via a waterlock underneath the bed of the aft cabin to the transom (port).



Waterlock



CAUTION!

Parts of the exhaust system are hot. You risk burning yourself if you touch them.

3.3.4 Ventilation of the engine compartment

When the engine is running, the engine compartment is ventilated via an electric fan. This fan is situated in the engine compartment. Fresh air is entering via the hose connected to the ventilation opening on the transom.

The owner has to ensure that the ventilation for the engine compartment does not get blocked.

3.3.5 Starting and stopping the engine



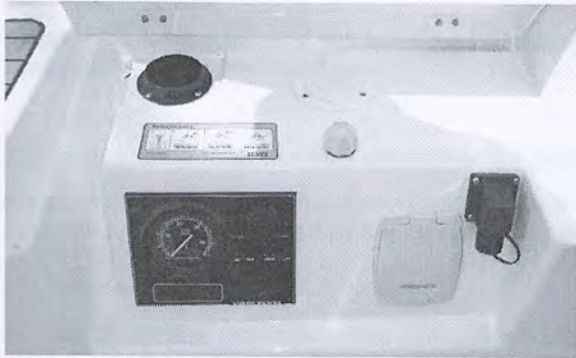
Carefully read the manual delivered with the engine before starting the engine for the first time.

Before you start the engine, always check the following :

- the oil level of the engine and sail drive ;
- the cooling-water level (cooling-water in expansion tank in engine compartment) ;

- whether the stopcock for drawing in the cooling-water is open.

The engine can be started via the engine panel, which can be found outside, next to the helmsman's position, on the starboard side.



Engine panel



Control lever

Before you start the engine, the main switch of the starter battery (see Section 3.9.3.2) should first be set to 'on'.

Starting:

- make sure that the control lever is in neutral ;
- push the 'POWER ON/OFF' button downwards to 'ON' ;
- push the 'GLOW/ALARM TEST' switch to 'GLOW' and let the engine pre-heat for about 10 seconds (this is not necessary when the engine is still warm) ;
- push the big round starter button to start the engine. Release the button as soon as the engine has started ;
- the engine is ready for use after it has warmed up for a few minutes.

Starting at low temperatures:

- turn the switch to 'GLOW'. Hold the switch in the 'GLOW' position to perform pre-heating (no longer than 20 seconds) ;
- press the button to 'START' to start the engine. Release the button as soon as the engine has started. The acoustic alarm and warning lights go off ;
- the engine is ready for use after it has warmed up for a few minutes.



ATTENTION!

When an engine does not start at the first attempt, make sure that you wait for about one minute before you try again. If the engine refuses to start after a number of attempts, call in a mechanic to have a look at it. If you make several unsuccessful attempts to start the engine one after the other, you risk pumping the engine full of coolant, which can cause serious damage.

Stopping:

- make sure that the control lever is in neutral ;
- rev the engine a number of times to remove any soot from the engine ;
- allow the engine to cool down by running it for five minutes at a low speed (around 1000 revs/min) ;
- push the 'POWER ON/OFF' button to 'STOP'.

Don't forget to switch off the main switch as well and to close the stopcocks on the through-hull outlets if you are disembarking.



ATTENTION!

Never switch off the starter battery's main switch if the engine is running. This can damage the electrical system.




ATTENTION!

Stopping the engine suddenly at high speed can increase the temperature of the engine, which reduces the quality of the lubricating oil.


3.3.6 **Maintenance, problems and preparing for winter**

Please bear in mind that the manufacturer's warranty stipulates that maintenance must be carried out by a company, approved by the manufacturer or a dealer for the brand.


Maintenance:

- the de-aerator (vacuum valve) in the fresh water cooling needs to be regularly maintained to prevent the valve from sticking, which will prevent the de-aerator from functioning properly. If the de-aerator is not working as it should, water can enter the engine, which can cause serious damage to the engine ;
- the seaweed filter (sea-water filter) should be regularly checked and cleaned if necessary ;
- other: see  for the engine and saildrive.


Problems:

- see  for the engine and saildrive ;
- engine doesn't start: see also Section 5.1.3.


Preparing for winter:

- check whether the cooling water in the internal fresh water cooling contains antifreeze ;
- close the stopcocks on the through-hull outlets for the cooling water ;
- fully drain the external circuit or add antifreeze. If necessary, antifreeze can be poured into the external fresh water cooling via the seaweed filter (sea-water filter) ;
- follow the additional instructions in the  for the engine and saildrive.

Preparing for summer:

- prepare the engine for summer as described in the  for the engine ;
- collect any used cooling water that contains antifreeze ! This is small chemical waste !

Other:

- follow the instructions in the  for the engine and saildrive.

3.4 **Fuel system**

3.4.1 **General**

Concerning the general layout of the fuel system, please refer to drawing BC 008 001.

The ETAP 28s is equipped with a polyethylene fuel tank, which is installed in the aft technical area on the port side. The capacity of the fuel tank is specified in Section 2.11.

The filler for the tank and the tank vent are located on the stern of the yacht on the port side.



ATTENTION!

Diesel must be treated as chemical waste.
Prevent diesel from being discharged into surface water !



ATTENTION!

Never sail with the tank almost empty as the rolling of the yacht could draw air in. It is advisable to refuel as soon as the tank is less than 20% full.

3.4.2 **Refuelling**

Tip: always keep oilcloths within reach when refuelling with diesel.

The tank is filled through the filler cap marked 'FUEL - DIESEL', which is located on the stern of the yacht on the port side.



Diesel filler cap

Filling the fuel tank:

- moor your yacht securely to the jetty ;
- before you start to refuel, check the content of the tank by reading the tank level meter on the display at the chart table ;
- switch off the consumers on board ;
- open the filler cap and start refuelling ;
- reduce the filling rate when the tank is nearly full ;
- when the tank is almost full, wait for a moment to allow any froth that may have formed to disperse ;
- do not fill the tank to capacity as otherwise there is a possibility that the tank will overflow in the event of temperature fluctuations ;
- securely close the filler cap again to ensure that no water can get into the tank ;
- if necessary, make a note in the logbook.



ATTENTION!

Make sure that you only refuel with good-quality diesel and preferably from a pump of a well-known brand.



ATTENTION!

Always fill the tank at a moderate filling rate (max. \pm 25 litres per minute) to prevent diesel spills. Reduce the rate when the tank is nearly full. Pause from time to time during refuelling to prevent excessive amounts of froth from forming.

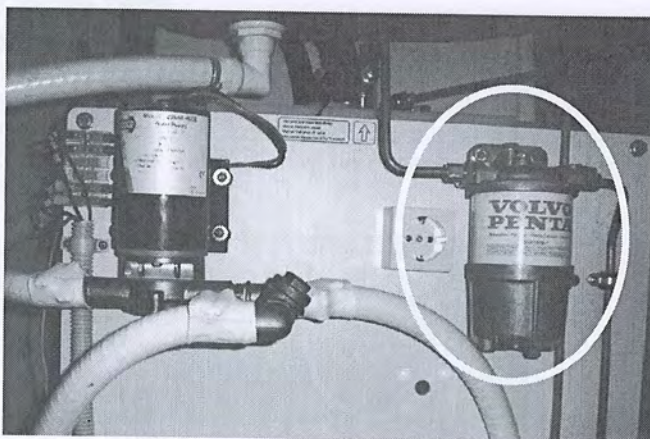


ATTENTION!

In some countries it is prohibited for private individuals to refuel with red diesel for propulsion engines.

3.4.3 **Water separator/filter**

The fuel system contains a fine filter/water separator for the engine. The filter is fitted against the fuel tank. In this unit any water in the diesel oil is separated and other contaminants are filtered out. The unit has an exchangeable filter element and the water collected can be drawn off at the bottom of the filter housing.



Water separator/filter for engine

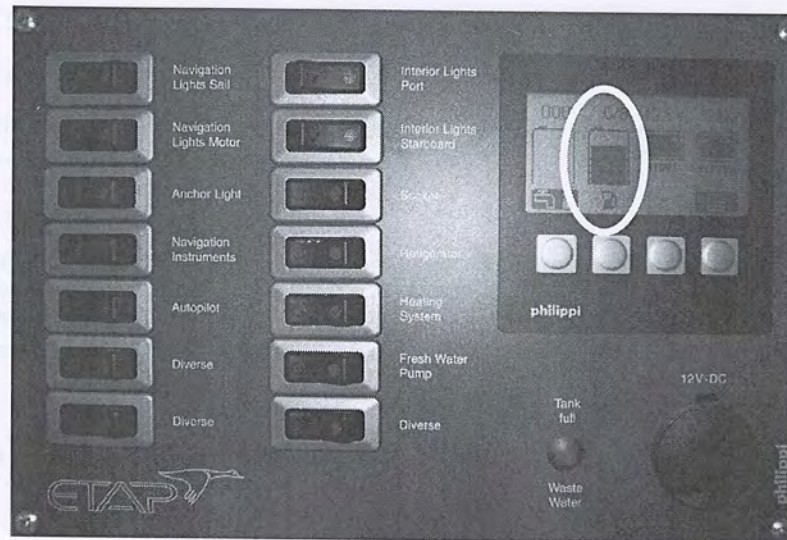
3.4.4 **Tank level measurement**

The tank contents can be read from the switch panel at the chart table. An electronic level meter has been fitted in the diesel tank. When reading off the level, do bear in mind that the reading may be affected by the rolling or heel of the yacht.

The tank contents can be read by means of a level meter with float. The level meter does not give a continuous indication of the tank's contents but has measuring points at 1/8, 2/8, 4/8, 6/8 en 8/8.

No manipulation of the display is needed to read the tank's contents.

It is recommended to make notes in your logbook on refuelling and the number of hours the engine has been in use, as this will give you an idea of your consumption and the amount of fuel remaining if the tank indicator on the display fails.



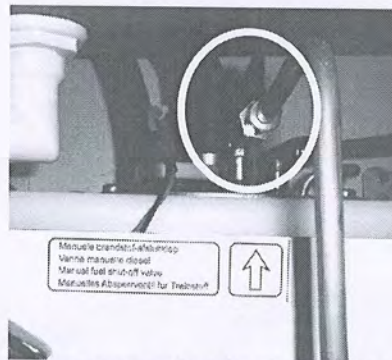
Level meter diesel tank

3.4.5 **Emergency diesel cut-off valve**

The diesel supply to the engine can be interrupted by means of a cut-off valve, which is located in the technical area on top of the diesel tank. Only use this cut-off valve in emergencies and not to stop the engine in normal conditions.

After using the emergency cut-off valve, you have to reset it before you can restart the engine.


After using the emergency cut-off valve, it may be necessary to vent the fuel system before the engine can be restarted.



Emergency diesel cut-off valve

3.4.6 **Maintenance, problems and preparing for winter**

Maintenance:

- see the  for the engine, heating system (optional) and filters ;
- replace the filters in the system at the specified intervals ;
- regularly drain the system (at the filter housings) to remove water from the system ;
- regularly check all connections in the system on leaks ;
- always ensure that there are sufficient spare filters.
- regularly actuate all stopcocks and pumps in the system to prevent them from sticking.

Problems:

- water, dirt or micro-organisms in the fuel can cause clogged filters ;
- water in the fuel: check all connections, as well as the seals in the filler cap ;

- air in the system: check if filter, tank and engine connections are properly sealed.


Preparing for winter:

- completely fill the fuel tank to prevent condensation forming in the tank ;
- close the stopcocks in the system.

Preparing for summer:

- actuate all the stopcocks in the system a number of times and open the correct stopcocks to put the yacht into operation ;
- check the condition of the filters ;
- check the whole system on leaks.

Other:

- follow the instructions in the  for the engine.

Filter with filter extension (optional)

EVS[®] steering system

Autopilot steering system (optional)

An autopilot system can be installed on the ETAP 28s. This system will then steer the yacht according to the course entered on the autopilot.
Please refer to the I/L for the autopilot for information on how to operate it.



When the autopilot is used, it needs to be controlled. Since Calcutta has to be done in open water, the autopilot should not be used at the yacht.

Emergency filter

In case of an EVS[®] installation, the ETAP 28s is supplied with an emergency filter. The emergency filter can be placed directly onto the rudder head, after having removed the protective cap.



Emergency filter

Raw Water

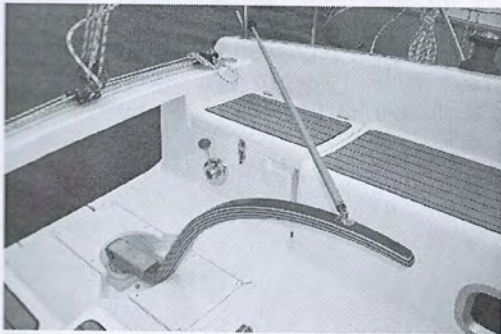
A raw water pump is not provided on the ETAP 28s.

3.5 **Steering system**

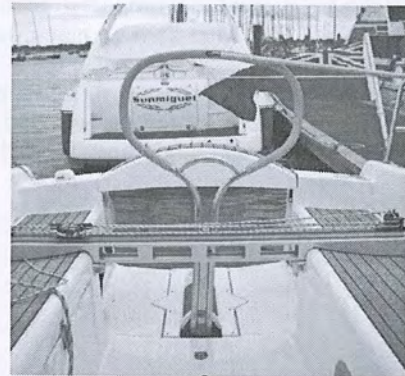
3.5.1 **General**

A general diagram of the steering system can be found in drawing BC 010 00X.

The ETAP 28s is equipped with a tiller. Optionally it can be equipped with a EVS® (ETAP Vertical Steering System) steering system




Tiller with tiller extension (optional)



EVS® steering system

3.5.2 **Autopilot steering system (optional)**

An autopilot system can be installed on the ETAP 28s. This system will then steer the yacht according to the course entered on the autopilot.

Please refer to the  for the autopilot for information on how to operate it.

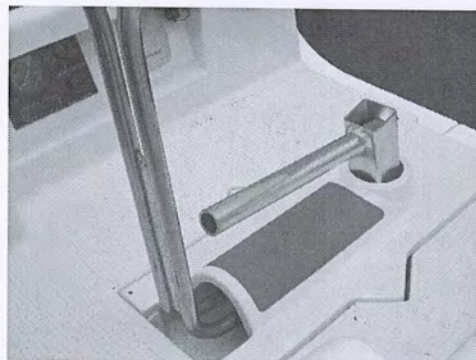


ATTENTION!

Before the autopilot is used, it needs to be calibrated. Since calibration has to be done in open water, this can NOT be carried out at the yard.

3.5.3 **Emergency tiller**

In case of an EVS® installation, the ETAP 28s is supplied with an emergency tiller. The emergency tiller can be placed directly onto the rudder head, after having removed the protective cap.




Emergency tiller

3.5.4 **Bow thruster**


A bow thruster is not provided on the ETAP 28s.

3.5.5 Maintenance, problems and preparing for winter

Maintenance:

- regularly check that all bolts of the rudder head, tiller or EVS® are secured ;
- EVS®: regularly check if the ball-and-socket joint of the rudder lever has not been worn out. Replace if necessary ;
- In case of disassembling the head of the rudder-stock (on which the tiller or EVS® tiller has been mounted), please secure the rudder upfront so that it cannot slide out of the bearings. If the bolt on top of the rudderhead is loosened, the rudder will drop ! After a possible disassembling of the rudderhead, the bolt has to be secured again by means of the little metal securing plate !
- the lower rudder bearing is made of aluminium with synthetic rolls. **It is not allowed to grease this bearing with grease !** Rinse this bearing with sweet water when the yacht is lifted out of the water. The upper rudder bearing is a synthetic gliding bearing and should be greased with vaseline ;
- other: see relevant .


Problems:

- see relevant .

Fresh water tank

All the pipes in the system are made of compression-resistant plastic and the colour of the pipes immediately indicates which pipes are for hot and which are for cold water: red = hot water, blue = cold water.

The fresh water pump is powered by the 12 VDC on-board power system. The Fresh Water Pump switch on the switch panel has to be switched on before you can use the fresh water system.

 During winter and before every voyage, take the time as required to prevent freezing. When the water temperature and flow is a minimum of 10°C, you should drain the pipes to the deck shower as soon as possible.

 If the yacht is used infrequently, change the water in the fresh water tank on a regular basis. It may be necessary to drain and/or deslud the fresh water tank from time to time.

Hot water

Hot water is supplied by the water heater (optional), which is installed in the technical area in the aft cabin. The water in the water heater can be heated in two ways:

- by means of the cooling-water from the engine. When the engine is running and at the right temperature, some of the cooling water is conducted through the water heater, where it heats the contents of the heater to about 50°C.
- via an electrical element. This element has a power rating of 500 W and is operated via the shore power supply.

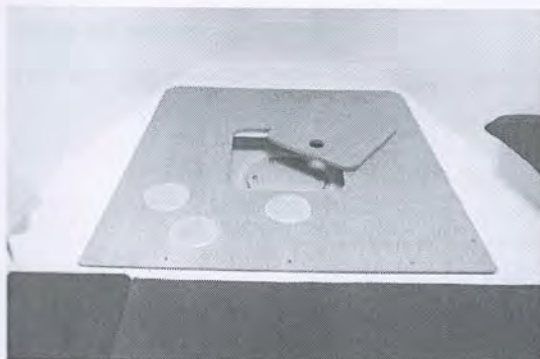
The water heater is connected to a thermostatic valve, which controls the temperature of the water flowing out by mixing in cold water. Adjust this thermostat to make the water hotter or less hot at the point of the hot water draw-off points on board.

3.6 **Fresh water system**

3.6.1 **Layout of the system**

Concerning the general layout of the system, please refer to drawing BC 002 001.

The system consists of a fresh water tank in polyethylene underneath the bed in the forepeak, an electric fresh water pump (with filter) underneath the saloon couch and a water heater in the technical area in the aft cabin.



Fresh water tank



Fresh water pump

All the pipes in the system are made of compression-resistant plastic and the colour of the pipes immediately indicates which pipes are for hot and which are for cold water: red = hot water, blue = cold water.

The fresh water pump is powered by the 12 VDC on-board power system. The 'Fresh Water Pump' switch on the switch panel has to be switched on before you can use the fresh water system.



ATTENTION!

During winter and before winter begins, take the measures required to prevent freezing. When the weather becomes colder and there is a likelihood of frost, you should drain the pipes to the deck shower as soon as possible.



ATTENTION!

If the yacht is used infrequently, change the water in the fresh water tank on a regular basis. It may be necessary to clean and/or disinfect the fresh water tank from time to time.

3.6.2 **Hot water**

Hot water is supplied by the water heater (optional), which is installed in the technical area in the aft cabin. The water in the water heater can be heated in two ways :

- by means of the cooling-water from the engine. When the engine is running and at the right temperature, some of the cooling water is conducted through the water heater where it heats the contents of the heater to about 90°C ;
- via an electrical element. This element has a power rating of 800 W and is operated via the shore power supply.

The water heater is connected to a thermostatic valve, which controls the temperature of the water flowing out by mixing in cold water. Adjust this thermostat to make the water hotter or less hot at the outlet of the hot water draw-off points on board.



DANGER!

If the thermostatic valve is set to maximum, the water which is coming out of the taps can be very hot and there is a risk of the user being burnt.



ATTENTION!

Never use electricity to heat the water heater if the heater is not filled with water (e.g. if the fresh water tank is empty). Doing so can damage the heating element in the water heater.

3.6.3 **Draw-off points**

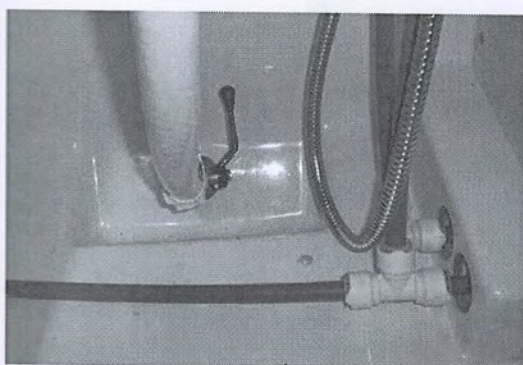
The following draw-off points have been provided:

<i>Location</i>	<i>Cold</i>	<i>Hot (optional)</i>
washbasin toilet unit	X	X
galley	X	X
deck shower (optional)	X	



ATTENTION!

To prevent the washbasin or sink in the galley from overflowing, you should open the corresponding through-hull outlets if you are running water for a long period (e.g. to empty the fresh water tank).



Through-hull washbasin



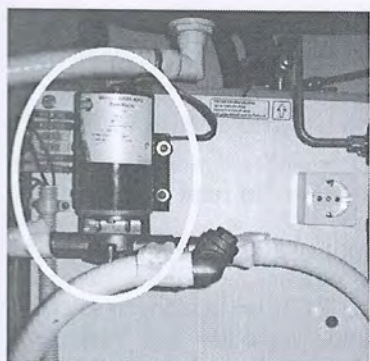
Through-hull galley

3.6.4 **Showers**

There is a shower head in the toilet compartment.

When you are showering inside, you need to switch on the shower drain pump (the switch can be found above the washbasin) to drain off the shower water. However, bear in mind that the waste water from the shower is directly discharged overboard, so please ensure not to inconvenience other people around.

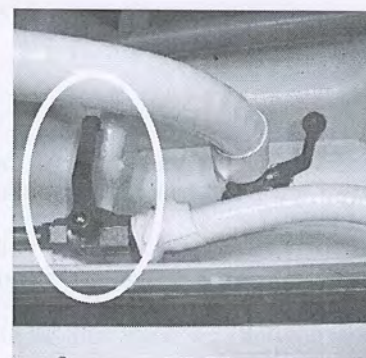
Also make sure that the three-way valve (in the pipe running to the drain pump) is in the correct position. In the other position the drain pump functions as a bilge pump. The three-way valve is located in the engine compartment.



Shower drain pump



Shower pump switch



Three-way valve



ATTENTION!

Don't let the shower pump run dry. This can damage the pump.

The deck shower (optional) and the corresponding tap can be found underneath a cover, at the back of the cockpit at starboard.



Deck shower with tap (optional)

3.6.5 Filling the fresh water tank

Make sure that you fill the tank with fresh water which you can expect to be of good quality. Do not draw water from a tap or filling place if you have any doubts as to the quality of the fresh water.

A number of additives can be bought in trade outlets to help you keep the water in the tanks fresh. Contact your local water sports supplier for details.

Filling the fresh water tank:

- let the water run for a while through the hose you are going to use to fill the tank to flush out any water that has been in the hose for some time ;
- clean the area immediately around the filler cap (on the port side of the forward part of the yacht) ;
- open the filler cap ;
- insert the hose into the opening, ensuring that no dirt gets in ;
- make sure that the tank ventilation system has not been shut off, allowing air to escape from the tank. If this is not possible, there is a risk that the tank will be exposed to the full pressure from the water pipe. The tank is not designed to withstand this ;
- monitor the filling of the tank by listening to the sound of the water flowing in ;
- stop filling when the tank is sufficiently full ;
- pull the hose out of the opening and close the filler cap ;

- reset the level meter on the switch panel (see Section 3.6.6) ;
- if necessary, make a note in the logbook.

3.6.6 **Measuring tank level**

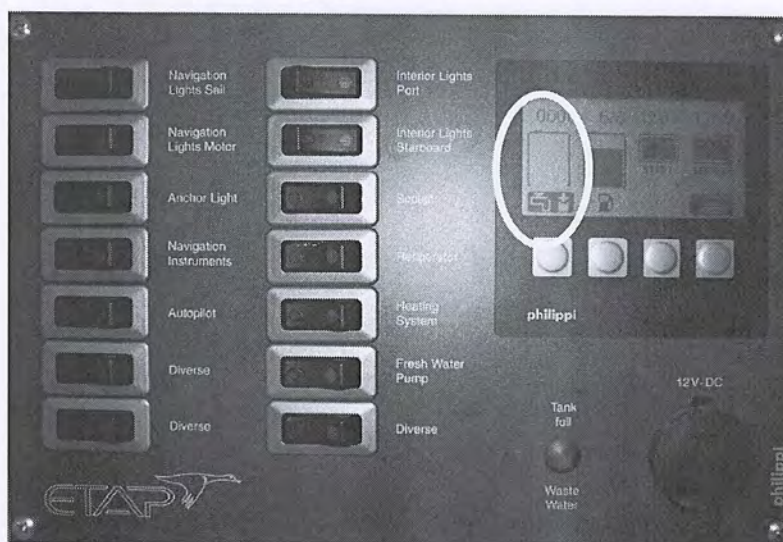
In order to determine how much fresh water is being consumed, a digital supply meter, whose results can be read off on the switch panel at the chart table, has been installed (near the fresh water pump).

This meter must be reset to 100% or 115 l each time the tank is filled.

To do so, hold down the key below the fresh water indicator on the display for 5 seconds. The indicator will now show 100% or 115 l = "tank full".

The meter itself will count down when water is taken from the tank, thus ensuring that you can always read off the tank contents.


Attention: the meter cannot be set to any desired intermediate value. You should therefore only set the meter to 100% or 115 l when the fresh water tank has actually been filled !



Fresh water indicator

3.6.7 **Maintenance, problems and preparing for winter**

Maintenance:

- ensure that water is never left too long in the tank to prevent deterioration ;
- regularly clean filters on the fresh water pump ;
- regularly drain water from all draw-off points to restrict standing water to a minimum ;
- please also refer to the  for the fresh water pump.

Problems:

- no pressure in the system: tank is empty; air is being drawn in by pump.


Preparing for winter:

- empty the water tank by opening one or more taps on board and letting them run, but do not let the fresh water pump run dry for too long ;
- empty the entire system by blowing through it or draining it ;
- blow through the pipes at each valve and connection ;
- disconnect the hoses from the fresh water pump and let it run to get the water out of the pump.

3.7 Preparing for summer:

- reconnect all the components, fill with clean water, let the system come up to pressure and then check all the connections for leaks.

Other:

- follow the instructions in the relevant .

The system consists of a holding tank in polyethylene which is located in the technical area in the aft cabin. The toilet is connected to this tank. A connection for emptying the tank via a deck cap is foreseen on the tank (underneath the cover in the cockpit at starboard).

The tank has a permanent ventilation system which vents outside the yacht. Use a deodorant for waste water tanks to discourage bacterial growth and formation of gas.

Always leave a few litres of water to remain in a holding tank to prevent the contents of the tank from solidifying into a sludge.

Regularly empty the holding tank. Prevent the tank from becoming too full, as there is then a risk that the system will no longer be able to operate properly or that the tank will overflow through the vent. You should have the tank pumped out by a shore station.

Prepare the toilet and the waste water system for winter well in time. Empty the holding tank in case of possible frost.

3.7.2 Toilet

The ETAP 28S is provided with a toilet with a hand-pump system rinsing with sea water. There is a through-hull fitting with a two-way valve for the supply of seawater (2) and a through-hull fitting with a sealable two-way valve for the pumping off of the toilet contents (3) overboard.



Toilet with hand-pump



Three-way valve at toilet (optional)

In case a holding tank (optional) has been installed, a sealable three-way valve (4) is mounted at the toilet. By using this valve, the toilet contents can be pumped off directly overboard (only when this is allowed) or can be pumped off to the holding tank.

3.7 **Waste water system**

3.7.1 **Layout of the system**

Concerning the general layout of the system, please refer to drawing BC 002 003.

Optionally, the ETAP 28s can be equipped with a waste water system for "black" water (= toilets).

The system consists of a holding tank in polyethylene which is located in the technical area in the aft cabin. The toilet is connected to this tank. A connection for emptying the tank via a deck cap is foreseen on the tank (underneath the cover in the cockpit at starboard).

The tank has a permanent ventilation system which vents outside the yacht. Use a deodorant for waste water tanks to discourage bacterial growth and formation of gas.



Always allow a few litres of water to remain in an empty tank to prevent the contents of the tank from solidifying into a sludge.



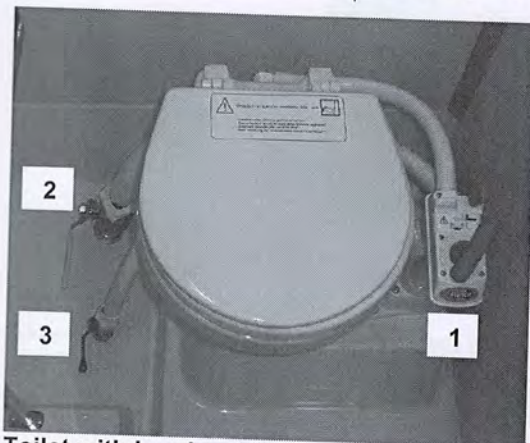
Regularly empty the holding tank. Prevent the tank from becoming too full, as there is then a risk that the system will no longer be able to operate properly or that the tank will overflow through the vent. You should have the tank pumped out by a shore station.



Prepare the toilet and the waste water system for winter well in time. Empty the holding tank in case of possible frost.

3.7.2 **Toilet**

The ETAP 28s is provided with a toilet with a hand-pump system rinsing with sea water. There is a through-hull fitting with a two-way valve for the supply of seawater (2) and a through-hull fitting with a sealable two-way valve for the pumping off of the toilet contents (3) overboard.



Toilet with hand-pump



Three-way valve at toilet (optional)

In case a holding tank (optional) has been installed, a sealable three-way valve (4) is mounted at the toilet. By using this valve, the toilet contents can be pumped off directly overboard (only where this is allowed!) or can be pumped off to the holding tank.



Close both valves after each use of the toilet !

ATTENTION!

3.7.3 **Cleaning the toilet/sanitary fittings**

With regard to cleaning the toilet (🚽), you should bear in mind that any cleaning products also end up in the holding tank and may be discharged into surface water. Therefore, do not use aggressive products or products that needlessly pollute the environment, such as chlorine or cleaning products containing chlorine. Other than that, you can use all generally available cleaning products.



The use of cleaning products that contain chlorine can damage stainless steel parts of the waste water system.

ATTENTION!

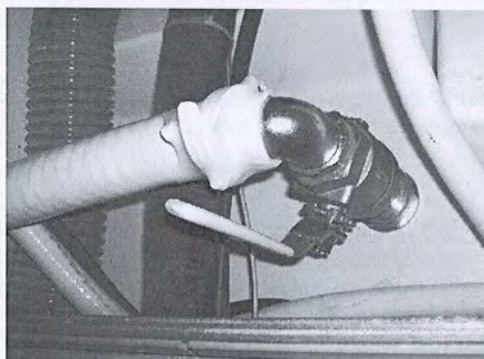
3.7.4 **Measurement of the contents of the holding tank (optional)**

As far as the determination of the contents of the holding tank is concerned, there is a measurement of the contents provided on the switch panel at the chart table.

As soon as the red light "Waste Water" (on the 12V switch panel) burns, the holding tank should be emptied. If you persist in pumping waste water into the holding tank after the light indicates "Tank Full", it is possible that pressure builds up and one risks that the waste water from the holding tank flows back into the toilet.

3.7.5 **Emptying holding tank via the through-hull fitting**

In the technical area in the aft cabin, a through-hull fitting with a sealable two-way valve has been installed. By opening this valve, the holding tank can be emptied. Rinse at the same time the holding tank (e.g. by pumping up seawater via the toilet).



Emptying valve holding tank



Only empty the holding tank when this is allowed and where it does not interfere with other people.

ATTENTION!



Close the valve again after emptying the holding tank.

ATTENTION!

3.7.6 **Emptying waste water tank via shore station**

The connection for emptying the tank is located at starboard, underneath a cover in the cockpit. The cap is marked "WASTE". The shore pumping station will have the necessary adapter pieces for connecting the hose to the waste water cap.

Procedure:


- unscrew the waste water cap and connect the drain hose ;
- check that the tank vent is not blocked. If the vent is blocked, damage can be caused to the tank when it is emptied ;
- leave the tank to drain ;
- stop the draining operation as soon as the tank is empty or when it is noticeable that nothing more is being drained ;
- disconnect the drain hose and close the cap ;
- flush the deck around the cap abundantly with clean water and wash your hands ;
- if necessary, make a note in the logbook.

3.7.7 **Blocking discharge overboard**

In some regions it is not allowed to discharge sewage directly overboard. In this case, it is necessary to block discharge overboard. Do this by sealing the stopcock on the through-hull outlet or by temporarily removing the handle.

3.7.8 **Maintenance, problems and preparing for winter**

Maintenance:

- refer to the  for the toilet ;
- flush the holding tank: fill the tank via the toilet and then empty it again. Repeat this a number of times depending on the amount of dirt in the tank or the desired result ;
- regularly operate all the stopcocks in the system to keep them movable.

Problems:

- toilet not flushing: check whether stopcocks on through-hull outlets are open. Check whether the holding tank is full. Do not use aggressive unblocking products to dissolve blockages.


Preparing for winter:

- attention: prepare the waste water system for winter at the last moment. This is because you still use the system when you drain the toilets into the waste water tank ;
- thoroughly flush the toilet, washbasins and shower ;
- empty the waste water tank and flush it out ;
- if necessary, open the inspection cover on the tank, clean and inspect the tank, and close the covers (check condition of seals, clean them and lubricate with a little acid-free vaseline) ;
- flush a quantity of antifreeze down the toilet, sufficient to prepare the tubing for winter ;
- prepare all through-hull outlets and stopcocks for winter (see Section 3.13.3).

Preparing for summer:

- reconnect all pipes and hoses, operate system with "pure" water and check for leaks ;
- make sure that no antifreeze is discharged overboard as it is treated as small chemical waste.

Other:

- Follow the instructions in the relevant .

3.8 **Bilge system**

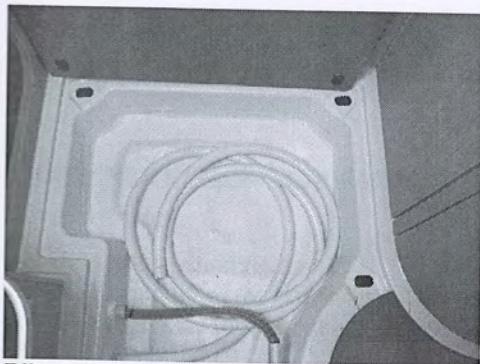
3.8.1 **Layout of the system**

Concerning the general layout of the system, please refer to drawing BC 002 003.

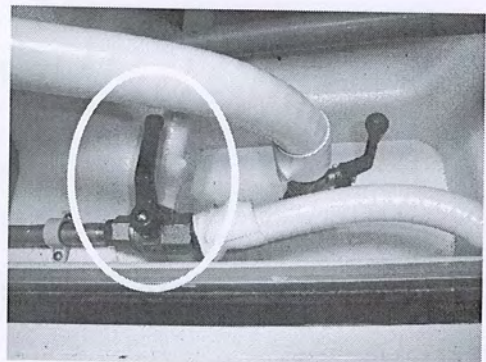
The ETAP 28s has a bilge system consisting of one electric pump and one manual pump.

The electric pump is the same pump which is used as a drain pump for the shower. A three-way valve allows you to choose whether the pump is used as a bilge pump or as a drain pump (see also Section 3.6.3).

The pump has a capacity of around 1920 litres/hour with a lift of 3 m.



Bilge pump hose



Three-way valve

The manual pump is located underneath the cover in the cockpit at starboard side. This pump has a capacity of 10 to 20 litres/hour.



Manual bilge pump

Procedure for electric pumps:

- set the three-way valve to the correct position ;
- switch on the bilge pump (via the switch in the toilet compartment) ;
- check the progress of the bilge emptying operation and don't let the pump run dry unnecessarily.

Procedure for manual pump:

- put the handle (located underneath the cover in the cockpit) into the pump ;
- move the handle back and forth to start pumping ;

- check the progress of the bilge emptying operation and don't let the pump run dry unnecessarily.



ATTENTION!

Before you use the bilge pump, check that no oil or fuel is being pumped. If oil or fuel is being pumped, do not pump overboard.

It is the owner's/user's responsibility to ensure that at least one bucket or another piece of equipment for carrying off water can be found on board.

Regularly check that the bilge pumps are working. Remove any dirt at the inlet of the pumps to ensure that they cannot become blocked.




ATTENTION!


The bilge system is not intended as a means of limiting or preventing damage.

3.8.2 **Maintenance, problems and preparing for winter**

Maintenance:

- clean the suction hoses ;
- let the pumps pump a quantity of water from time to time to prevent the seals from drying out ;
- refer to the  for the bilge pumps.

Problems:

- no water is pumped: check that the pump starts when the switch is activated (electric pump) and check the position of the three-way valve ;
- refer to the  for the bilge pumps.


Preparing for winter:

- disassemble the pumps and dry off pipes and connections ;
- if you use antifreeze to prepare the bilge system for winter, bear in mind that the antifreeze can get back into the yacht via the suction hoses.

Preparing for summer:


- assemble the pumps, check connections and let the pumps pump a quantity of water.

Other:

- follow the instructions in the relevant .

3.9 **Electrical system**

3.9.1 **Layout of the system**

Please also refer to the supplied  and diagrams BC 013 XXX.



Please carefully read the enclosed instructions for the electrical equipment.



DANGER!

Never work on the electrical system while it is live.
 Never make changes to the system, unless this work is carried out by qualified experts.
 Do not install or use electrical appliances that require more power than allowed on the circuit to which they are connected.
 Never replace old fuses with new ones having a greater amperage than the originals.



DANGER!

230 V can kill !
 Always switch off the main switches before working on the system.
 Bear in mind that your yacht may have different 230 V sources, e.g. shore power or inverter.



DANGER!

If battery clamps, main fuse bolts or the main distributing rail are poorly maintained, corroded or not properly tightened, this can cause a dangerous build-up of heat. Check these points regularly.

3.9.2 **Batteries**

There are 2 separate battery circuits on board:

Service battery	for supplying the 12 V consumers: lights, pumps, navigation instruments, ...
Starter battery	for starting the engine

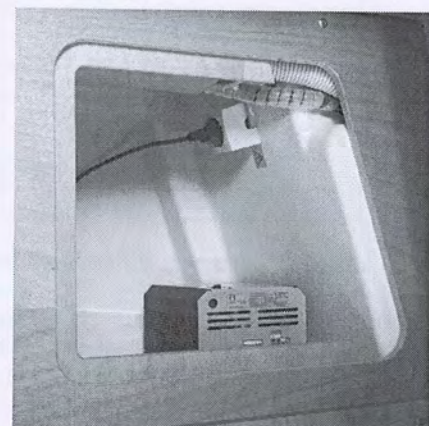
The batteries have the following specifications:

Service battery	1 x 70 Ah	Maintenance-free
Starter battery	1 x 55 Ah	Maintenance-free

When replacing the batteries, please only use maintenance-free batteries and never rechargeable batteries.



Batteries



Charger

The various batteries can be charged in the following ways:

- via the optional battery charger ;
- via the alternator of the main engine.



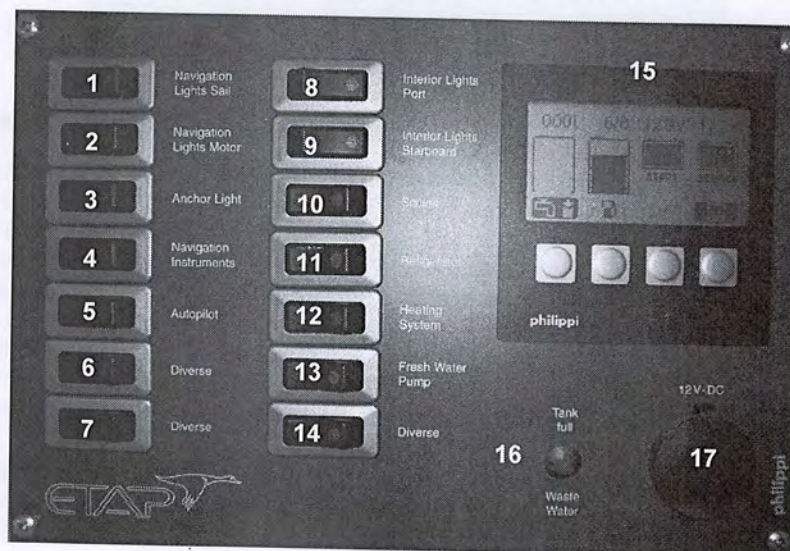
ATTENTION

Handle batteries with care as they contain acid !

3.9.3 12 VDC system

3.9.3.1 Switch panel

The switch panel at the chart table contains the automatic switches used to operate most of the 12 VDC consumers (interior lighting, pumps, radio, refrigerator, etc.). The switches on the switch panel are also the fuses for the concerned consumers.



Switch panel

1	navigation lights sail	8	interior lighting port
2	navigation lights engine	9	interior lighting starboard
3	anchor light	10	12 V socket
4	navigation instruments	11	refrigerator
5	autopilot	12	heating system
6	various (radio-CD)	13	fresh water pump
7	various (VHF)	14	various
15	display	17	12 V socket (max 6 A)
16	holding tank indicator		

On the display one can find (from right to left): contents of the fresh water tank, contents of the diesel tank, voltage starter battery and voltage service battery.

This display is being operated by means of 4 push buttons. By pushing the first button for 5 seconds, the contents of the fresh water tank is being reset to 100 %. The second and third button have no function. The fourth button is being used to switch on/off the display lighting.

3.9.3.2 Main switches for the 12 V system

The system has three main switches :

- service battery (= service battery +). This switch also functions as an automatic circuit-breaker for the 12 V on-board power system ;
- starter battery (= starter battery +) ;
- earth (= batteries -).



Main switch panel

3.9.3.3 General tips and advice for DC systems on board

- make sure that only an expert carries out any work on the electrical system ;
- do not change the system or the diagrams, unless this is done by a qualified electrician. When the system is changed, clearly mention this on the diagrams ;
- never change the values (current strength) of the fuses ;
- when replacing equipment and/or parts, take care to ensure that the nominal current strength is the same as the replaced item ;
- never work on the system when it is live ;
- switch off the power when leaving the yacht ;
- disconnecting batteries: main switch off, first disconnect the negative pole, then the positive pole ;
- connecting batteries: first secure the positive pole, then the negative pole, main switch on ;
- never leave the yacht before you have switched off the system ;
- battery vapours are explosive: prevent naked flames/smoking close to the batteries.



ATTENTION!

To prevent corrosion, battery switches should be switched off when you leave the yacht.
Always set off with full service batteries, to ensure that you always have navigation lighting.
Old batteries are to be considered as chemical waste and must be disposed off accordingly.

3.9.4 230 VAC system

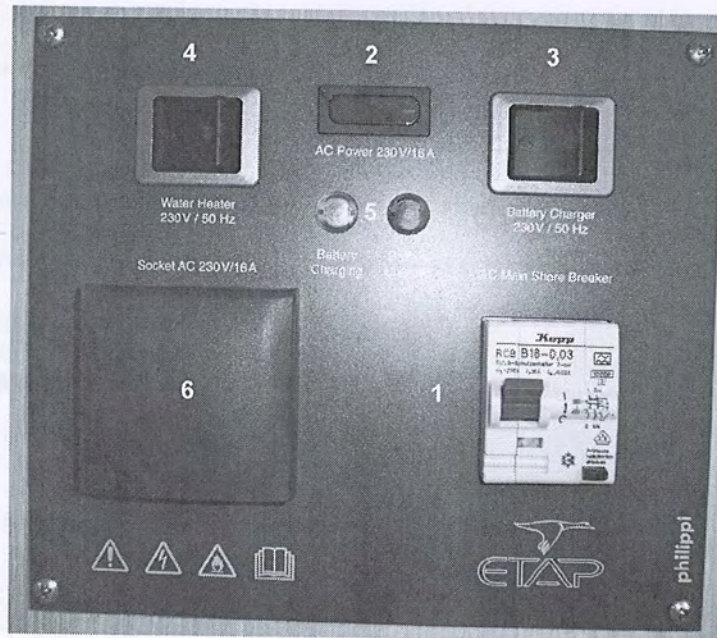
3.9.4.1 General

The ETAP 28s is (optionally) provided with a 230 V / 50 Hz one phase alternating current system (with: phase (L), neutral (N) and earth).

The 230V switch panel contains :

1. main switch / differential switch (16 A) ;
2. check light power supply. As soon as the yacht is being connected to the shore supply, this light burns ;
3. switch for the battery charger ;
4. switch for the warm water heater (optional) ;
5. check lights for the battery charger (yellow= battery charging; green= battery charged) ;
6. 230V socket.

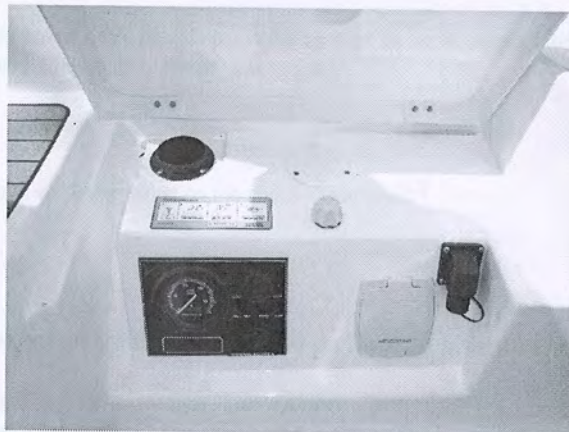
The maximal current is limited to 16 A. Of course it is possible that the shore supply available in the harbour is less than 16A.



switch panel 230 V

3.9.42 **Connecting and disconnecting the shore supply**

The shore connection is fitted with a splash-proof socket. This is located on the stern of the yacht.



Shore power connection

Main points for consideration:

- only a reliable shore power cable should be used to connect to the shore power supply. The cable must be fitted with reliable plugs at both ends and the cable and connection on shore must be earthed ;
- the shore connection must be fuse-protected ;
- ensure that the cable has no kinks in it and cannot chafe ;
- you should also bear in mind that the voltage that eventually arrives on board can be lower than 230 V because of the distance between the connection to the electricity company's mains

network and the connection on the yacht. This may have an adverse effect on sensitive equipment.

Connecting the shore power cable:



CAUTION !

Connecting: first to the yacht, then to the shore !

- switch off all 230 V consumers on board ;
- unroll the shore power cable, ensuring that it is not under tension and does not run along sharp corner ;
- always unwind the cable completely from any reel as this prevents heat from building up in the cable ;
- insert the plug into the socket on the yacht ;
- insert the plug into the shore socket ;
- check on board whether there is power in the system.

Disconnecting the shore power cable:



CAUTION !

Disconnecting: first from the shore, then from the yacht !

- switch off all 230 V consumers on board ;
- remove the plug from the shore socket ;
- close the cover on the shore power connection securely ;
- remove the plug from the socket on the yacht ;
- roll up the shore power cable and stow it dry.



DANGER !

Don't let the end of the shore power cable hang in the water as this can cause an electrical voltage in the water which could result in the injury or even the death of nearby swimmers !



CAUTION !

Never change the connections inside the plugs on the shore power cable !

3.9.5 **Navigation lighting**

The switches for the navigation lighting are located on the 12V switch panel.

- under sail: 3-coloured top light (switch "Navigation Lights Sail").
- under engine: 2-coloured light on the mast and anchor light (switch "Navigation Lights Motor").
- at anchor: all-round white anchor light at top of mast (switch "Anchor Light").

Bulbs for navigation lighting:

anchor light	12V 10W Aqua Signal 90400005
2-coloured steam light	12V 25W Aqua Signal 90400002
3-coloured top light	12V 25W Aqua Signal 90400002



ATTENTION!

Regularly check the navigation lighting to ensure that it is properly and clearly functioning. Always take along a spare set of bulbs.

3.9.6 **Maintenance, problems and preparing for winter**

Maintenance:

- where possible, always ensure that the batteries remain well charged ;
- once a year take out the terminals, clean them and grease them with acid-free vaseline. Attention: battery terminals that are not properly tightened can cause a dangerous build-up of heat! Therefore, please ensure that you always sufficiently tighten the terminals.

Problems:

- please refer to the  for the installed equipment.

Preparing for winter:

- remove batteries from the yacht if they are exposed to extreme frost ;
- charge the batteries before they are stored away.

Preparing for summer:

- no maintenance required.

Other:

- ensure that you never create a short-circuit between the battery terminals.

3.10 **Heating and ventilation**

3.10.1 **Heating (optional)**

As an option, the ETAP 28s can be equipped with a diesel-fed heating system. Concerning the general layout, please refer to drawing BC 002 005.

The heating unit is located in the aft technical area, on the starboard side against the waste water tank (or inner hull).

Please carefully read the manual (📖) supplied for the heating unit before operating the system.



CAUTION !

Never block the burner outlet (e.g. by hanging a fender in front of it !) and never cover heating outlets so that they cannot give off heat. The air coming out of the heating outlets can be very hot !



ATTENTION !

Before switching off the main switches, please let the heating continue to turn a few minutes on the ventilation position. As such one avoids that too much heat accumulates in the heating device, possibly causing damage to the heating device !



CAUTION !

Don't let the heating system operate unattended. Always keep an eye on it.

3.10.2 **Ventilation**

Please also refer to drawing BC 018 080.



ATTENTION!

Do not forget to close the windows and hatches before setting sail. The escape hatches in the saloon and main cabin also serve as emergency exits. Make sure that these are not locked while you are sailing.

3.10.3 **Maintenance, problems and preparing for winter**

Maintenance:

- outside the season when you need to use the heating, switch on the heating at least once a month for a minimum of 10 minutes; this will prevent soot being deposited in the heating unit ;
- regularly check the connections and pipes of the heating system ;
- see relevant 📖.

Problems:

- refer to the relevant 📖 for the equipment.

Preparing for winter:

- refer to the relevant 📖 for the equipment.

Preparing for summer:

- refer to the relevant 📖 for the equipment.

Other:

- refer to the relevant 📖 for the equipment.

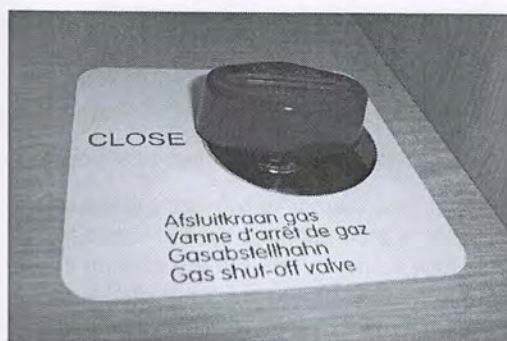
3.11 Gas system

Concerning the general layout, please refer to drawing BC 002 009.

The gas system operates at 30 mbar.

3.11.1 Instructions for use of the gas system

- after you have checked that the taps on the cooker are in the closed position, start by opening the main valve (in the aft cabin) and only afterwards the gas-bottle valve ;
- when not in use, turn both the gas-bottle valve and the shut-off valve to the closed position ;
- in case of emergency, immediately shut the valves off ;
- shut the valves off before changing the gas bottle ;
- never leave the yacht when the gas system is still being used.






Gas shut-off valve in aft cabin




Gas bottle with 30 mbar pressure relief valve

3.11.2 Storage of gas bottles

- store the gas bottle and spare or empty gas bottle in the bottle locker ;
 - place no other materials in the gas bottle locker.
-  CAUTION !
- regularly check the gas system regularly for leaks. Use a leakage detector or soapy water. Warning: never use liquids that contain ammonia ! Both shut-off valves must be open and the taps on the gas cooker itself must be in the closed position. If a leak is detected, immediately shut the bottle off and have the system repaired by a qualified expert before cooking again ;
 - check all flexible gas hoses at least once a year and replace as soon as there is any deterioration ;
 - works on the gas system should always be carried out by a qualified expert.
-  ATTENTION!
- a gas-powered cooker, when on, consumes oxygen from the cabin and emits combustion gases into the yacht. You should therefore ensure that the yacht is sufficiently ventilated when the cooker is on. Do not use the cooker to heat the cabin. Never shut off air vents ;
 - ensure that the valves are accessible at all times.
-  DANGER !
- do not smoke when changing a gas bottle or when working on the system.
 - never use a flame to trace leaks!
 - in case of a gas leak, immediately shut all valves !

3.12 Fire extinguisher system

3.12.1 Fire extinguishers

While obviously we hope that you will never need to use the extinguishers on board, we advise you to familiarise yourself with their operation and use. Please refer to the  for the extinguishers before you set off.

It is mandatory to have one or more fire extinguishers on board. Attention: fire extinguishers have a limited storage life. It is the yacht owner's responsibility to ensure that the extinguishers on board are always in good working order.

This yacht must be equipped with 1 portable fire extinguisher with the following extinguishing capacity: 2 kg ABC powder.

Due to possible differences in national requirements relating to fire extinguishers, these are not always fitted as standard.

3.12.2 Responsibilities of the yacht owner

It is the yacht owner's responsibility:

- to ensure that fire extinguishers are ready to use when the yacht is in use ;
- to check the fire extinguishers at the intervals indicated on the equipment ;
- to replace the fire extinguishers with similar extinguishers if they have expired or been used ;
- to inform the crew of the location of the fire extinguishers, the fire extinguishing opening in the engine compartment and the escape routes (emergency exits).

3.12.3 Precautions

- regularly check for gas or fuel leaks ;
- do not hang loose curtains or other materials near to or over a naked flame ;
- do not store materials in the engine compartment ;
- never block the exit and/or emergency exits ;
- never block access to gas valves, fuel valves or electric fuses ;
- ensure that the portable fire extinguishers are always accessible ;
- never leave the yacht unattended if the cooker and/or heating are in use ;
- never modify systems on the yacht (in particular electrical, gas or fuel systems) and never allow unqualified personnel to work on these systems ;
- never refuel or replace gas bottles whilst the engine is running or the cooker and/or heating are in use ;
- never smoke while refuelling or replacing gas bottles.

3.12.4 Maintenance, problems and preparing for winter

Maintenance:

- regularly check fire extinguishers on external damage/corrosion ;
- have extinguishers checked regularly, at the intervals specified by the manufacturer ;
- however, bear in mind that when extinguishers are removed for maintenance and inspection you will have no extinguishers on board during this period. If necessary, arrange for replacement extinguishers to be supplied ;
- read the instructions on the fire extinguishers.

Problems:

- fire extinguisher damaged or corroded: immediately replace.

Preparing for winter:

- the fire extinguishers installed do not require any specific attention.

Preparing for summer:

- the fire extinguishers installed do not require any specific attention.

Other:

- when you have used any fire extinguishers, arrange for a refill or replacement without delay.
- only replace the fire extinguishers with extinguishers having the same specifications.

2.2.3.3. Electricals, electronics and instruments for winter

Introduction:

- please also refer to the LM for the log and down gauge.
- the log transducer must be regularly tested, so that the paddle wheel can be inspected and in order to grease the O-rings with a life oil-free grease.
- many systems on board contain stopcocks. It is strongly advisable to open and close all the stopcocks in all the systems on board a few times now and again in order to keep the stopcocks movable.

Wintertime:

- please refer to the manuals for the measuring instruments for details of faults that can arise with the electronics (EM).

Preparing for winter:

- through-hull outlets only have to be prepared for winter when the yacht is spending winter in the water. If the yacht is being kept on shore over the winter, it is best to leave the stopcocks open.
- prepare ball valves for winter by ensuring that there is antifreeze in the ball itself.
- do this by bolting antifreeze in the hose to the stopcock and by quickly opening and closing the stopcock, thus ensuring that antifreeze gets into the stopcock but no (or as little as possible) antifreeze ends up in the surface water.

Preparing for summer:

- connect all the hoses and check that the stopcocks are functioning and not leaking.

Other:

- follow the instructions in the manuals for equipment connected to the stopcocks and through-hull outlets.

3.13 Through-hull outlets

3.13.1 Location of through-hull outlets


For the position of the through-hull outlets, please refer to drawing BC 018 085.

3.13.2 Use of through-hull outlets


Some of the through-hull outlets are fitted with stopcocks, primarily those below the waterline. Most of the stopcocks in the installations on board are of the ball-valve type. In this type of stopcock, the position of the control lever indicates whether the stopcock is open or closed. Along the line of the pipe: open; crosswise to the pipe: closed.

3.13.3 Maintenance, problems and preparing for winter

Maintenance:

- please also refer to the  for the log and depth gauge ;
- the log transducer must be regularly raised, so that the paddle wheel can be inspected and in order to grease the O-rings with a little acid-free vaseline ;
- many systems on board contain stopcocks. It is strongly advisable to open and close all the stopcocks in all the systems on board a few times now and again in order to keep the stopcocks movable.

Problems:

- please refer to the manuals for the measuring instruments for details of faults that may arise with the electronics ().

Preparing for winter:

- through-hull outlets only have to be prepared for winter when the yacht is spending winter in the water. If the yacht is being kept on shore over the winter, it is best to leave the stopcocks open ;
- prepare ball valves for winter by ensuring that there is antifreeze in the ball itself ;
- do this by putting antifreeze in the hose to the stopcock and by quickly opening and closing the stopcock, thus ensuring that antifreeze gets into the stopcock but no (or as little as possible) antifreeze ends up in the surface water.

Preparing for summer:

- connect all the hoses and check that the stopcocks are functioning and not leaking.

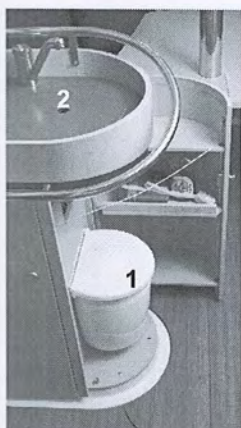
Other:

- follow the instructions in the manuals for equipment connected to the stopcocks and through-hull outlets.

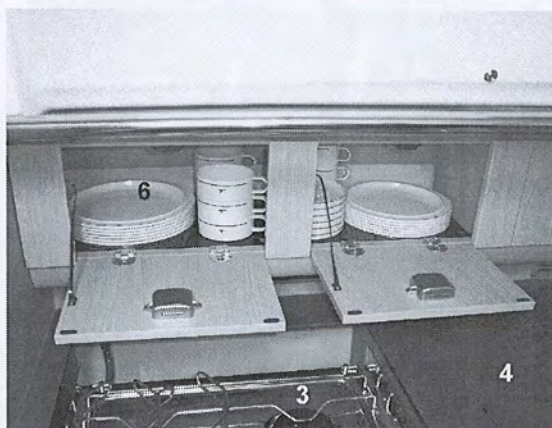
3.14 Galley

The ETAP 28s has the following galley equipment:

1. waste bin
2. sink
3. semi-gimballed 2-burner gas hob with oven
4. cool box, optionally fitted with refrigerator
5. 230 V socket
6. cups, dishes, etc (optional)
7. storage space for glasses and bottles underneath the chart table



waste bin



storage for cups and dishes



storage for glasses & bottles

Read the manuals for the appliances before using them.



DANGER !

The 2-burner hob with oven runs on gas. Be careful when cooking with gas, as there is a risk that you may burn yourself.

When leaving the yacht, always check that the cooker has been completely turned off.



DANGER !

The vent openings must never be closed off when the cooker is in use, as this may create an atmosphere that presents a risk to life.




ATTENTION!

Never place hot pots on the work top.

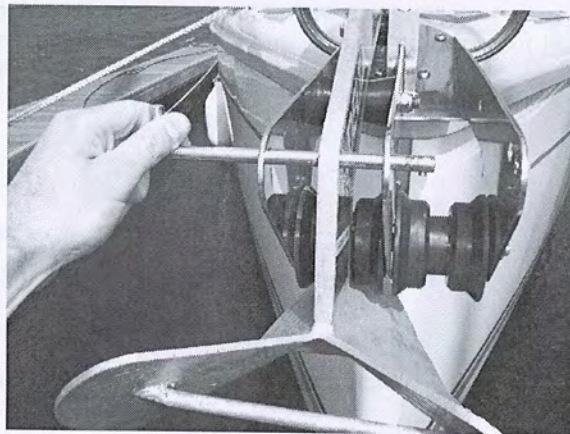
Bear in mind that a lot of battery capacity is required to run the refrigerator. Switch the refrigerator off promptly if it is not in use or make sure that the batteries are recharged from the shore connection.

3.15 **Deck equipment**

3.15.1 **Anchor winch**

Optionally a mechanical or electric anchor winch can be installed on the foredeck. Please refer to the relevant  for information on operating the winch.

The electric anchor winch is operated using the remote control next to the anchor winch. The connection for the remote control is located in the anchor compartment. Manual operation is also possible by means of a winch handle.



securing pin anchor

The 10 kg Delta anchor is fitted with 27 m of rope + 18 m of chain (diam. 8 mm) or 45 m of chain (diam. 6 mm) when an electric anchor winch is installed. This configuration allows you to anchor to a water depth of about 8 metres. This figure is only provided as a guide, as the actual depth will depend on the swell, the conditions on the bottom and the current.



DANGER

- never use the anchor winch for lifting or towing other objects. Only use the anchor winch for anchoring ;
- keep your hands and feet away from the chain when an anchor winch is in operation ;
- do not let the forces of the anchor chain act on the winch.

3.15.2 **Winches**

The ETAP 28s is equipped with:

- two halyard winches
- two genoa winches (optional)

For information on operation, please also refer to Section 4.7.

3.15.3 **Mooring cleats**


The mooring cleats are designed to withstand the normal forces that arise during mooring and towing.

During towing, you should ensure that the speed of the towing yacht is not too high. At speeds in the region of the hull speed, the stress on the tow line and mooring cleats is very high, which can result in damage.


The mooring cleats have been designed primarily to absorb horizontal stresses. Under no circumstances can they be exposed to substantial vertical stresses, such as the hoisting of the yacht.

3.15.4 **Maintenance, problems and preparing for winter**

Maintenance:

- see relevant .
- regularly flush all deck equipment with fresh water to prevent salt or other substances being deposited and building up on it ;
- clean painted surfaces such as the superstructure and hull ;
- regularly play out the anchor chain to its full extent and flush out the hawse pipe and chain locker thoroughly with fresh water (inspect chain locker).

Problems:

- see relevant .


Preparing for winter:

- protect from harmful effects of the weather, where possible.

Preparing for summer:

- thoroughly check the deck equipment and its operation.

Other:

- see relevant .

3.16 **Navigation instruments**

Various navigation instruments can be installed on the ETAP 28s.


The depth and log gauges are located underneath the floorboard close to the forepeak.



depth and log gauges




navigation instruments

Please refer to the relevant  for information on using the navigation instruments.



CAUTION

Before you sail your yacht for the first time, please read the relevant  carefully and perform the necessary calibration of the instruments and autopilot (optional). This calibration is NOT carried out at the yard.



CAUTION

RAISING YOUR YACHT

When you dismantle the log gauge, outside water may flow in with considerable force!

Please refer to:

- * Drawing DC 016002: sail plan
- * Drawing DC 004002: running rigging

4.1.4 Mast assembly

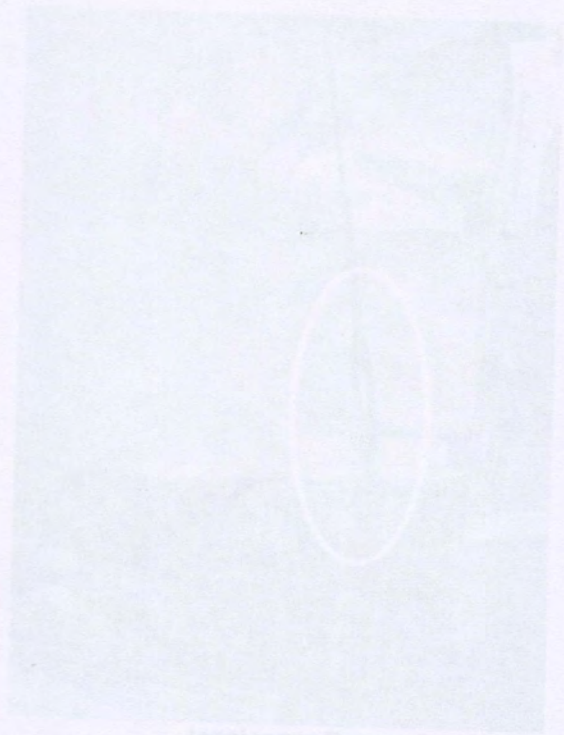
The mast is assembled as follows:

1. Attach top and lower shrouds to chainplates with bottle screws.
2. Attach the forestay to the chainplate. In case the optional Furlex system is installed, the small block mounted on the Furlex is positioned on the forestay chainplate.
3. Both Bergström shrouds are being fixed to the mast by means of the turnbuckles.

Please also refer to the CD supplied.



Diagrammers upper and lower shrouds



Diagrammer Bergström shroud

Before raising the mast, check that the cables for lighting, radar, VHF, etc. are coming out of the mast step in the correct position (front openings).

4.1.5 Mast step for fractional rigged mast

Please refer to the supplied CD from the mast manufacturer for details relating to the mast step and backstay.

4.1.6 Availability of the optional forestay (optional)

A second forestay is not provided on the ETAP 28S.

4 **SAILING YOUR YACHT**

4.1 **Preparing to sail/stepping the mast**


Please also refer to :

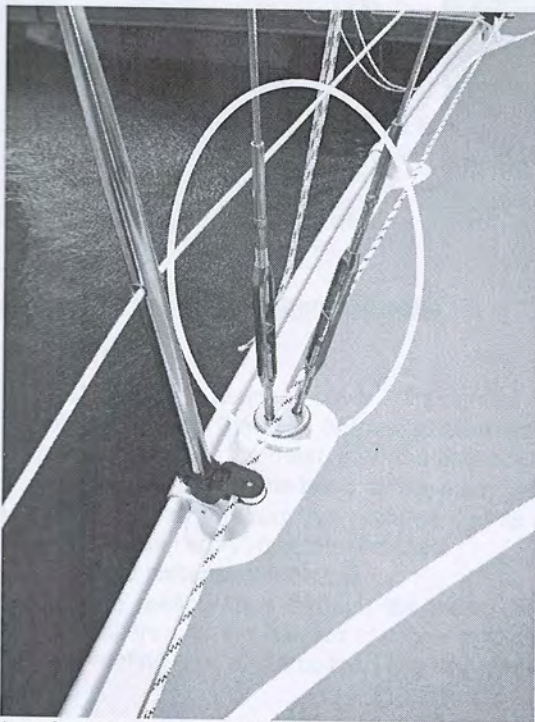
- drawing BC 018002: sail plan
- drawing BC 004002: running rigging

4.1.1 **Mast assembly**

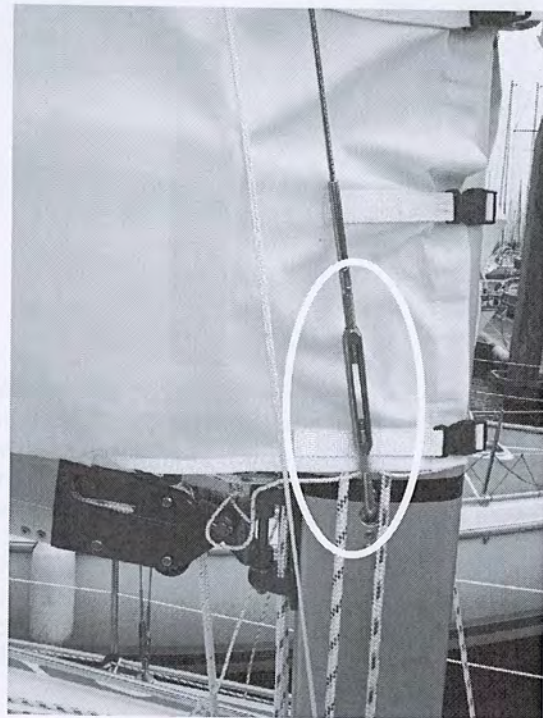
The mast is assembled as follows :

- fasten top and lower shrouds to chainplates with bottle screws ;
- connect the forestay to the chainplate. In case the optional Furlex system is installed, the small toggle mounted on the Furlex is positioned on the forestay chainplate ;
- both Bergström shrouds are being fixed to the mast by means of the tensionner.

Please also refer to the  supplied.




tensionners upper and lower shrouds



tensionner Bergström shroud

Before setting the mast, check that the cables for lighting, radar, VHF etc. are coming out of the mast step in the correct position (front openings).

4.1.2 **Basic trim for fractional rigged mast**

Please refer to the supplied  from the mast manufacturer for details relating to the mast trim without backstay.

4.1.3 **Assembly of the second forestay (optional)**

A second forestay is not provided on the ETAP 28s.

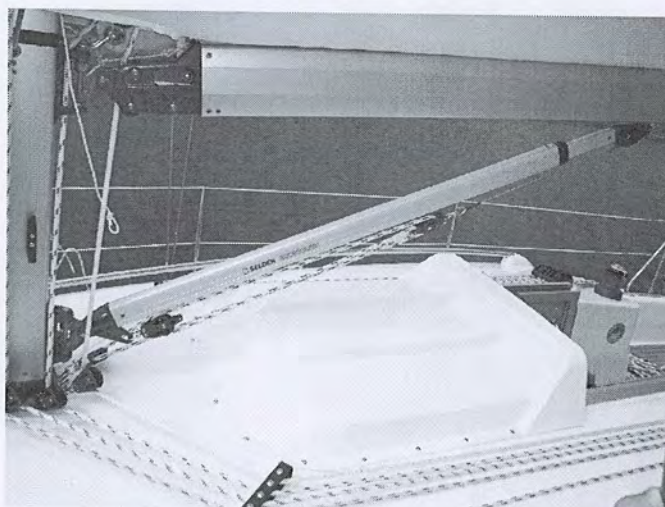
4.1.4 **Boom + kicking strap**

- fasten the boom to the goose neck ;
- fit rodkicker to the foot of the mast and to the eye on the boom ;
- fasten the kicking strap to the boom ;
- Fasten the main sheet to the boom using a D-shackle.

In case the yacht has a tiller system, the mainsheet attachment point is mounted at the very back part of the boom. In case the yacht has a EVS[®] steering system, the mainsheet attachment point is mounted at 25 cm from the back part of the boom.



attachment point mainsheet

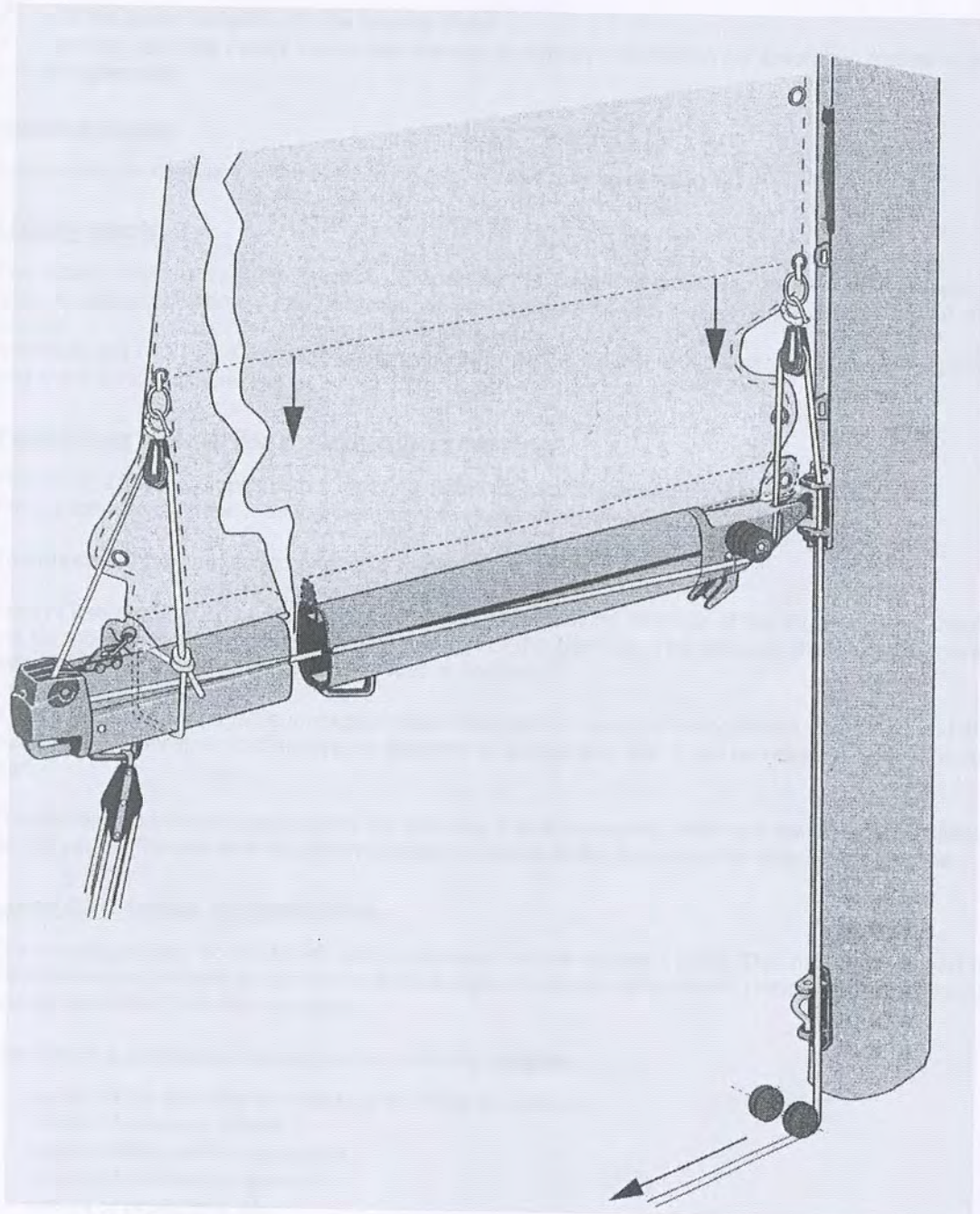


rodkicker

4.1.5 **Preparing to sail / hoisting the sails**

Mainsail:

- first install the mainsail cover. This cover slides into the boom profile. The lazy jacks should be put through the eyes of the cap shrouds and then slightly tightened and fixed to the kickers at the bottom of the mast, after the mainsail has been positioned ;
- attach the sail with the head on the main halyard ;
- hoist the sail (first turn the yacht so that its bow is facing into the wind). Slowly slide the hanks via the "sail entry"-box into the mast ;
- slide the battens into the sail ;
- put the reefing lines through the blocks in the sail and guide the reefing lines via the deck organizers and the halyard clutches to the cockpit (see drawing). The blue reefing line is the first reefing line; at starboard. The red reefing line is the second reefing line, at port.



Genoa / selftacking jib (standard):

- attach the genoa or jib to the shackle positioned on the forestay chain plate ;
- attach the genoa halyard to the head of the sail ;
- hook the hanks around the forestay and hoist the sail ;

Genoa / selftacking jib (Furlex):

- feed the genoa or jib into the slot of the Furlex and fix at the bottom to the snapshackle ;
- fix genoa of fok to the genoa halyard and pull the halyard until the sail is completely hoisted (use the halyard winch for this) ;

- lock the genoa halyard with the halyard clutch ;
- carefully read the Furler instruction manual for further information on assembly, maintenance and operation.

4.1.6 Running rigging

Concerning an overview of the running rigging, please refer to drawing BC 004 002.

4.2 Utility deck

The "utility deck" is the deck surface provided by the builder to allow you to walk on the yacht in normal sailing conditions. This includes all the surfaces of the gangway, the foredeck and the cockpit.

Attention: the roof and swimming platform do NOT belong to the utility deck. They may be slippery and there is no (suitable) rail.

4.3 Fastening points for mooring and towing

The ETAP 28s is equipped with 4 mooring cleats for mooring or being towed. For the location of these mooring cleats, please refer to drawing BC 018 001.

The maximum horizontal load per bollard amounts to 28 kN.

Always use mooring lines to moor up the yacht. The breaking strength of the mooring lines should not be more than 80% of the breaking strength of the bollards. This ensures that the lines break rather than the bollards if an excessive load is applied.

A low speed must always be employed when the yacht is towing or being towed. Never exceed the hull speed. A tow line must always be attached in such a way that it can be released under the full load.

The owner is personally responsible for ensuring that the mooring lines and tow lines are suitable for the yacht. The owner or skipper must also be aware of the procedure for attaching a tow line.

4.4 Load and loose accessories

The maximum load for the ETAP 28s is indicated on the builder's plate. This maximum is part of the statutory regulations as laid down in the Belgian Recreational Craft Act (*Wet Pleziervaartuigen*), with which your ETAP 28s complies.

The load is a summation (mainly) of the following weights:

- weight of the persons on board (up to 75 kg per person) ;
- weight of personal effects ;
- weight of the yacht's equipment ;
- weight of optional equipment ;
- weight of provisions, etc.

The builder's plate indicates the maximum load EXCLUDING the weight of the tank contents.

While you are sailing your ETAP 28s you should always consider your own safety and that of your sailing companions. While under way, have everyone sit or stand in the seats or standing places provided, but not on (slippery) superstructure decks, on the swimming platform or in other "hazardous" places.

Adjust your handling of the yacht to what your passengers are used to. Don't make any unexpected manoeuvres which could cause someone to lose their balance.



ATTENTION!

When under way, ensure that all loose equipment has been firmly secured or stowed away in lockers, boxes or other suitable locations.

4.5 Speed, turning circle, stopping distance

The **speed** under sail depends on the conditions and the experience of the crew.

The speed and fuel consumption under engine depend to a great extent on the way you handle the yacht, the weather conditions and the condition of your yacht (fouling below the waterline and condition of the engine). You will soon be sufficiently familiar with your yacht to determine the most comfortable or economic speed for you and your yacht. The following guideline figures apply when sailing under engine:

<i>Revolutions (revs/min)</i>	<i>Speed (kn)</i>
1.000	2,9
2.000	5,3
3.000	6,8
3.200	7,0

The **turning circle** (with no wind and still water):

- over port: 1.5 ship's lengths ;
- over starboard: 1.5 ship's lengths

The **stopping distance** is 1 to 2 ship's lengths.

4.6 Setting sail and manoeuvring

Always make sure that you are familiar with the handling characteristics of your ETAP 28S. Try it out on an area of water where you have ample space and will not cause confusion. Do not do this in a busy harbour.

Starting and stopping the engine: see Section 3.3.5 Starting and stopping the engine

It is of the greatest importance that the engine is idling when you change gear as this prevents damage to the engine and reverse clutch.

4.7 Operating the sails

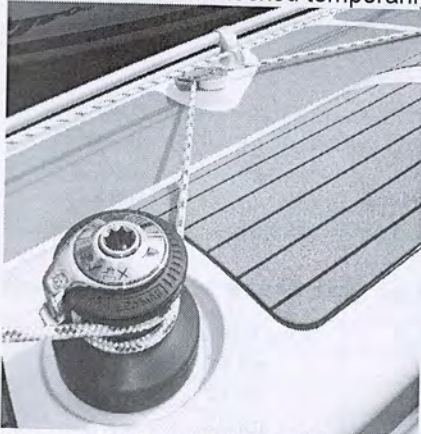
4.7.1 Position of running rigging

See also drawing BC 004 002.

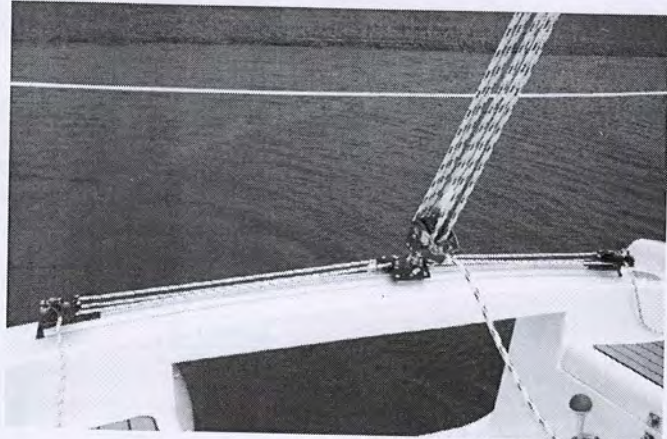
Sheets:

- the main sheet determines the position of the boom and the mainsail by drawing or easing. The main sheet is attached to the mainsheet chainplate. The mainsheet chainplate is put on the transom bridge when the yacht has a standard tiller and put on the cockpitfloor when the yacht has a EVS® steering system. Optionally a fixed mainsail track for the mainsheet can be delivered for yachts with a tiller and a removable mainsail track for the mainsheet can be delivered for yachts with an EVS® steering system ;
- standard a selftacking jib is supplied. This jib has one sheet for drawing or easing the sail. The cars on the jib rail can be blocked if necessary ;
- the genoa (optional) has two sheets. Operate the genoa by drawing on one of the sheets or easing it, and fastening it in the jammer of the winch. The genoa sheets are led from the genoa

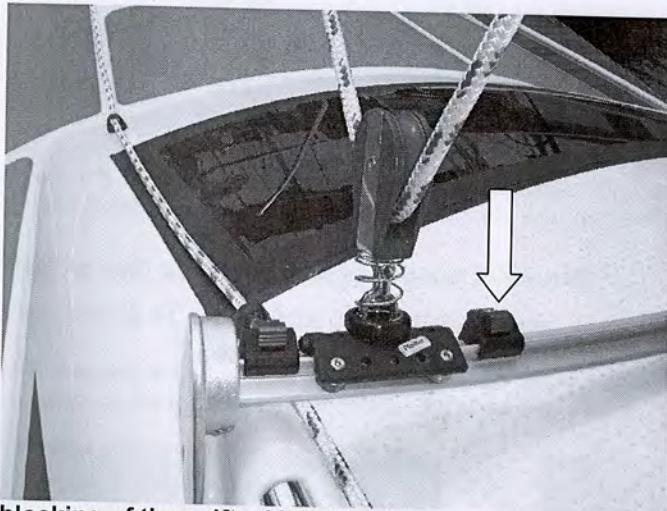
car to a turning block and then to the winch. A clutch is located on the turning blocks to allow the sheet to be locked temporarily.



genoa winch and turning block



mainsail track mainsheet



blocking of the selftacking jib rail



genoa rail manoeuvrable from the cockpit

Winches:

Operate the winch by wrapping line around it in a clockwise direction and pulling on the line. Clamp the sheet between the two discs on top of the winch to lock it.

4.7.2 Reefing (reducing sail)

If wind speeds are high, it is advisable to reef the sails for safety reasons.

Furling genoa (option):

- loosen genoa and at the same time partially roll it up ;
- while rolling it up, always keep the genoa sheet slightly under tension by allowing it to slip over the winch ;
- do NOT operate the roller reefing line with the winches ;
- after reefing, move the genoa car to achieve a better sail trim.

Mainsail:

- Grootschoot vieren.
- Grootzeilval vieren.

- Reeflijn aantrekken (d.m.v. lier) tot de reefblokken ongeveer ter hoogte van de giek komen. Vervolgens reeflijn blokkeren met valstopper.
- Grootzeilval aantrekken (d.m.v. lier) en blokkeren met valstopper.
- you must ensure that the two halyard-clutches of the endless reefing line and the halyard-clutch of the outhaul are completely open ;
- you can reef the sail using the endless reefing line (always roll up in the same direction; roll into right-hand side of mast). Use the winch if necessary ;
- when you are rolling in the mainsail, you must keep the outhaul slightly under tension.

Reducing sails according to the wind:

<i>Apparent wind</i>	<i>% Mainsail</i>	<i>% Genoa</i>	<i>% Jib</i>
19 kn	100 %	100 %	100 %
21 kn	75 %	100 %	100 %
23 kn	75 %	80 %	100 %
25 kn	50 %	80 %	100 %
28 kn	50 %	60 %	75 %
32 kn	50 %	40 %	50 %
37 kn	0 %	40 %	50 %
44 kn	0 %	0 %	0 %
53 kn	0 %	0 %	0 %

The table above is only intended as a guide. Depending on the crew and luggage on board or the sailing comfort desired, it may be advisable to reef at other wind-forces.

4.7.3 **Sailing with asymmetrical spinnaker (optional)**

See drawing BC 004 002 for details of the sheets.

We recommend that you only sail with an asymmetrical spinnaker if your crew is sufficiently experienced and the weather conditions allow this.



spinnaker sheet



regulating line asymmetrical spinnaker

4.7.4 **Storm sail or working jib on 2nd forestay (optional)**

A second forestay is not provided on the ETAP 28s.

4.8 **Statutory regulations and rules of the water**

It is outside the scope of this manual to discuss all the rules that apply when you are on the water.

It is good practice when you are on the water (just as on the road) not to *take* priority but to *give* priority to others, as appropriate.

Familiarise yourself with the regulations before going on to the water. Also bear in mind that the rules may vary from place to place and from country to country!

This section contains a brief summary of faults that your yacht could encounter, or things that you might not think of in the first instance.

Despite the fact that the yachtyard has designed and built your yacht with the greatest of care, a fault may still occur somewhere along the line, even if it's just a lamp failing.

This list makes no claim to be exhaustive. Please also ensure that you refer to the list for the equipment concerned.

5.1.1 Electrical equipment not working

- check whether there is sufficient power in the system;
- check the protection (fuse/circuit-breaker) for the circuit concerned;
- if fuse "blown": check equipment and circuit for visible damage, switch off switches in the system and activate the protection again (replace the fuse or switch the circuit-breaker to the "on" position and retry);
- if the fuse blows again, call in an electrician to look at the system;
- if fuse not "blown": have the circuit and equipment checked.

5.1.2 Bilge system/electrical pump not working

- check that the pump is running (audible near the pump);
- if pump is not running: check the fuse in the electrical system; see diagrams (10) for electrical system;
- if pump is running: check any non-return valve in the pipe for blockage... Check for blockage in the pipe inlet.

5.1.3 Engine not starting

- is there enough fuel in the tanks?
- is the emergency fuel stopcock open (in the technical area, aft)?
- is there water in the fuel filter?
- is there air in the fuel line?
- has the starter battery been charged sufficiently?
- if the engine still refuses to start, call in professional assistance.

5.1.4 Fuel tank completely fills tiller case

It must always be possible for air to escape when the tanks are being filled. To this end, all the tanks have an air vent, but if they are filled quickly or the air vent is blocked, the tank could "blow out". Tanks should never be subjected to a pressure in excess of 0.2 bar.

5.1.5 Fresh water system is running but no water is coming out

- The tank is empty or there is a leak in the system in the inlet side of the pump.
- Check whether the stopcock on the fresh water tank is open.
- Check that the filter on the fresh water tank is not blocked.

5.1.6 Problems with a stopcock in a system

Many systems on board contain stopcocks. It is always a possibility that a stopcock may fail to work at all or may fail to function properly (e.g. the internal mechanism of the stopcock becomes jammed but you can still move the lever).


For this reason, you are also strongly advised to open and close all the stopcocks in all the systems on board a few times now and again in order to keep the stopcocks movable.

5 MAINTENANCE

5.1 Faults

This section contains a brief summary of faults that your yacht could encounter or things that you might not think of in the first instance.


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5.1.1 Electrical equipment not working

- check whether there is sufficient power in the system ;
- check the protection (fuse/circuit-breaker) for the circuit concerned ;
- if fuse "blown": check equipment and circuit for visible damage, switch off switches in the system and activate the protection again (replace the fuse or switch the circuit-breaker to the "on" position and retry).
If the fuse blows again, call in an electrician to look at the system ;
- if fuse not "blown": have the circuit and equipment checked.

5.1.2 Bilge system/shower pump not working

- check that the pump is running (audible near the pump) ;
- if pump is not running: check the fuse in the electrical system; see diagrams () for electrical system ;
- if pump is running: check any non-return valve in the pipe for blockages. Check for blockage in the pipe inlet.

5.1.3 Engine not starting

- is there enough fuel in the tanks ?
- is the emergency fuel stopcock open (in the technical area aft) ?
- is there water in the fuel filter ?
- is there air in the fuel line ?
- has the starter battery been charged sufficiently ?
- if the engine still refuses to start, call in professional assistance.

5.1.4 Filler hose completely fills filler cap

It must always be possible for air to escape when the tanks are being filled. To this end, all the tanks have an air vent, but if they are filled quickly or the air vent is blocked, the tank could "blow out". Tanks should never be subjected to a pressure in excess of 0.2 bar.

5.1.5 Fresh water pump is running but no water is coming out

- The tank is empty or there is a leak in the system in the inlet side of the pump.
- Check whether the stopcock on the fresh water tank is open.
- Check that the filter on the fresh water tank is not blocked.

5.1.6 Problem with a stopcock in a system

Many systems on board contain stopcocks. It is always a possibility that a stopcock may fail to work at all or may fail to function properly (e.g. the internal mechanism of the stopcock becomes jammed but you can still move the lever).

For this reason, you are also strongly advised to open and close all the stopcocks in all the systems on board a few times now and again in order to keep the stopcocks movable.

5.2 The exterior

5.2.1 Gelcoat

The hull of the ETAP 28s is finished with a hard-wearing, colour-fast coat of gelcoat which retains its shine for a long time.

A regular yacht cleaner (with no silicones) or a mild all-purpose cleaner (non-abrasive) is all that is needed for periodic cleaning. However, do take care to ensure that no substances are released into the surface water which should not be there. Specialist watersports shops stock cleaning products for use with polyester yachts.

5.2.2 Minor repairs/gelcoating

You may be able to carry out minor repairs on the hull or deck yourself. Where the damage has penetrated the gelcoat as far as the laminate, try to make the damage watertight as quickly as possible by taping over the damaged area temporarily. Never use a silicone repair kit for this!

You may also be able to repair more serious damage yourself if you are skilled at DIY. If in doubt, always contact a specialist yachtyard or your dealer.

Repairing small blisters and scratches in the polyester skin:

- only work in temperatures between 15° and 20°C, in dry conditions ;
- roughen damaged surface with sandpaper ;
- clean with acetone or a similar product ;
- prepare topcoat using the original topcoat from the yard: mix 2% MEK peroxide with the (accelerated) topcoat. Only make up topcoat in small quantities: 15 - 20 minutes setting time !
- apply topcoat with brush and leave to cure ;
- next wet-sand topcoat with water-resistant sandpaper: start with 500 grain and increase in fineness to eventually 1200 grain ;
- polish with polishing paste and if necessary use cleaner or polish.



ATTENTION

- Always use the correct materials and components.
- Remember that unprofessional repairs make the guarantee null and void.



ATTENTION!

Acetone, topcoat and MEK-peroxide are dangerous products. Read the safety instructions on the respective containers.

5.2.3 Cork deck

Most NON-chemical household cleaners can be used to clean the cork deck. How often cleaning is required will depend on various factors, such as: the amount of visible dirt that accumulates and the stress that the deck is subjected to during use. Rinsing with clean water is sufficient to remove the dried-out salt deposits that build up while at sea. Use a hard or semi-hard broom to clean the deck.

To remove the natural discoloration, the entire cork deck can be sanded either manually or by machine using sandpaper with 120 grain or Scotch Brite.



ATTENTION!

NEVER use a belt sander!
Never use a high-pressure cleaner to clean the cork deck covering.

5.2.4 Canopies (optional)

The sprayhood should not be stored wet, as there is a risk that mould will form on them.

Cleaning:

Clean the canopies from time to time with tap water. You can try to remove any stains with green soap and a soft brush.

The fabric can simply be cleaned using green soap and a soft brush or sponge several times a year.

To clean it more thoroughly you will have to call in a specialist as the cleaning method depends to a large extent on the type of fabric used. There are special products on the market to enable you to do this cleaning yourself but you can also have your canopy cleaned by a specialist.

Tip: cleaning is easier when the canopy is quite damp, e.g. after a rain shower. Do not clean the canopy while it is in the full blaze of the sun.

Impregnating:

To prevent woven fabric from leaking after a time (this happens first at the seams), it is advisable to impregnate the fabric once a year. Consult a specialist for the most suitable products to use.

Canopies made of PVC fabric do not have to be impregnated but this material must be waxed once a year. Use clear, liquid wax products for this to prevent the wax from becoming visible in the cracks in the fabric.

Window plastic:

The material used in window plastic contains plasticizers. These plasticizers can "migrate" from one fabric to another if they are in prolonged contact. When storing the fabric for a prolonged period, you should therefore fold an old sheet between the layers to prevent contact between the different types of fabric.

A blue haze in window plastic is probably the result of moisture. These marks disappear of their own accord when the plastic is dry.

If the window plastic has become cloudy, this is unfortunately the result of normal ageing and nothing can be done about it.

Zip fasteners:

Treat zip fasteners with a little dry Teflon spray once or twice a year.

If you sail on salt water, wash down the canopy and the zip fasteners thoroughly with fresh water.

Fasteners:

All these stainless steel parts require is regular washing with fresh water.

Frame:

Check the hinge and fixing points and the shape once a year. Treat the tubes once a year with a thin coat of Teflon spray.

5.2.5 Aluminium and stainless steel

Stainless steel also requires maintenance. Accumulated dirt and deposits can make the metal dull and even cause it to rust.

Regular washing with clean fresh water and a mild soap is all that is required to clean stainless steel.

Rinse anodised aluminium regularly with clean fresh water. To restore its original sheen, clean with trichloroethylene or perchloroethylene (caution: these are dangerous products). Apply a protective coating by rubbing on acid-free Vaseline, paraffin or wax with a soft cloth.

5.2.6 Plexiglas and acrylic plastic

Never use solvents, thinners or other aggressive substances to clean the surface!

Plexiglas and acrylic plastic should only be washed with clean fresh water and wiped with a soft cloth. You should also avoid using soap or detergents.

5.3 **Interior**

5.3.1 **Woodwork**

The furniture is mostly made of laminate. The solid-wood elements have been varnished. To clean wood use the same products that you are accustomed to using at home. Do not use abrasive or corrosive substances.

5.4 **Preparing for winter/summer**

- prepare all systems for winter in good time to prevent damage due to freezing ;
- it is best to keep your yacht in a covered area over the winter. If this is not possible, make sure that the yacht is properly covered but still has sufficient ventilation ;
- preferably, don't leave your yacht in the water for the winter ;
- don't leave any loose items on board which you can store at home ;
- regularly check your yacht ;
- if you are leaving your yacht in the water for the winter, take good care to prevent damage due to the possible freezing of through-hull outlets, stopcocks and any return pipes for (cockpit) drains ;
- bear in mind that you are liable for any damage if you carry out the work to prepare your yacht for winter and summer yourself.



ATTENTION!

When your yacht is being launched again, make sure that you are present to inspect the yacht for any leaks. Alternatively, make clear arrangements with other people to do so, preferably in writing.



ATTENTION!

Antifreeze, engine oil and other oils all have to be treated as small chemical waste !

A description is given for each system on how to prepare it for winter. The descriptions are based on a standard system for your type of yacht. In compiling this manual no account has been taken of any changes in these systems which have been made during construction and deviate significantly from the standard, or of changes made after construction.

A description is also provided of how to make your yacht operational again after the winter period.

All the individual descriptions of each system are set out in reasonably general terms and it is always advisable to refer to the manual relating to the equipment you are working on. The manuals describe the maintenance required in greater detail than the text of this manual. The text and instructions in the manuals supplied for the various systems and items of equipment always have priority over this manual.

5.5 **Lifting**

The yacht can be lifted using two wide lifting belts. Do not position the lifting belts under the rudder or sail drive! Place the lifting belts in the positions indicated on the yacht's hull. Also check the place where any log or depth gauge is mounted in the hull to ensure that the lifting belts cannot damage them.

5.6 **Placing on shore**

The ETAP 28s can be jacked up. Support the yacht, preferably on a sturdy trestle, with sufficiently large "bearing surfaces". Don't use old oil drums or loose stacks of wood to support the yacht on the quay!

The bearing surfaces should be placed in the zones where the lifting belts are positioned to support the yacht.



ATTENTION!

- No supports under the openings in the hull.
- No supports under the sail drive or rudder.
- Don't use supports that are too small; avoid exerting excessive local forces on the hull.
- Support the keel and make sure that the keel does not bear the full weight of the yacht.

5.7 **Maintenance**

The list below is only provided as a guide. Please refer to the relevant manuals (📖) for detailed information on maintenance.

Engine:

- carry out the periodic inspections described in the 📖 ;
- the principal maintenance required involves changing the oil, replacing filters and checking the belt tension. The impellor of the coolant pump also needs to be replaced from time to time ;
- we recommend that you keep spare equipment (filters, impellor etc.) and oil on board.

Sail drive:

- carry out the periodic inspections described in the 📖 ;
- the principal maintenance required involves changing the oil ;
- we recommend that you keep spare oil on board.

Anodes:

The sail drive is equipped with an anode. Check these regularly (at least once a year) and replace them in good time to prevent serious damage to the engine.

In the event of abnormal wearing of the anodes, check that this is not being caused by leakage. The environment (other yachts or harbour installations) can also sometimes cause excessive wearing of the anodes.

Sea-water filters:

The cooling circuit of the engine contains a sea-water filter. Clean this regularly.

6 SAFETY

6.1 General safety rules

- make time to practise emergency procedures before you need to use them ;
- plan in advance and ensure that everyone on board is aware of what will or should happen ;
- wear a lifejacket.

6.2 Fire

See also Section 3.12 for the type and position of fire extinguishers.

The owner must ensure that the necessary fire extinguishers are in good condition and easily accessible on board :

- a portable fire extinguisher must be easily accessible from the main helmsman's position or cockpit ;
- a fire extinguisher must be available within 2 m of any permanently installed equipment with a naked flame or the engine compartment ;
- a fire extinguisher must be available within 5 m of any sleeping facility.

General:

- always ensure that all those on board know where the fire extinguishers are located on the yacht and how to operate them ;
- ensure that while you are on board the extinguishers are always readily accessible. Have extinguishers checked regularly ;
- if you have used a fire extinguisher, have it refilled or repressurised without delay ;
- take care when handling petrol, other flammable substances and/or naked flames.

Fire on board:

- stay calm ;
- lead the passengers to safety first ;
- take the required safety measures and distribute life-saving equipment to all those on board ;
- try to put out the fire with the fire extinguishers on board ;
- aim the jet from the fire extinguisher at the base of the flames ;
- do not try to extinguish fires involving oil or petrol or electrical fires using water ;
- notify the authorities ;
- shut off any air supply to the site of the fire ;
- in the event of a fire in the engine compartment, close the emergency cut-off valve for the diesel tank ;
- have a dinghy and/or life raft ready.

6.3 Escape routes

A number of escape routes are provided on board in addition to the normal exit.

An escape hatch is located in the forepeak. This hatch is indicated with the following symbol:



It is good practice not to lock any lockable deck hatches while you are under way to ensure that the hatch can be opened immediately in an emergency. You should ensure that the hatches are unlocked as soon as you come on board.

Instruct everyone on board about the escape routes and fire-fighting equipment on board.

Instruct everyone on board about where life-saving equipment is located and how to use it.



DANGER!

Never block passageways and escape hatches!

6.4 **Life-saving equipment**

Ensure that sufficient life-saving equipment is available for all those on board at all times. This is the ultimate responsibility of the owner or skipper of the yacht. Bear in mind the maximum number of persons for which the ETAP 28s has been designed (see the builder's plate).

Any lifebuoys must be stored within easy reach, e.g. in unlocked bench lockers. These are also designated storage places for life jackets. Do not lock these storage places while under way, to ensure that life-saving equipment is immediately available at all times.

If you equip your ETAP 28s with a life raft, always have it inspected in good time and ensure that it is ready for use.

The ETAP 28s is equipped with a rail around the entire yacht to act as protection against persons falling overboard. In bad weather, however, it is also advisable to wear a lifeline.

6.5 **Man overboard**

In spite of all the safety measures, it is still possible that someone may fall overboard.

- raise the alarm immediately and continue to point to the person in the water ;
- activate the MOB button on your GPS if available ;
- throw a lifebuoy overboard, even if the person in the water is wearing a lifejacket; it serves as a beacon ;
- stop the yacht or change course and make a turn towards the person in the water ;
- make sure that the helmsman is kept continuously informed of the person's position ;
- sail against the wind towards the person in the water and bring them back on board from alongside ;
- do not use a bow thruster when there are swimmers or rescue victims in the water.



DANGER!

The swimming ladder must be usable at all times. It must be possible to lower the swimming ladder into the water!

6.6 **Swimming**

Always make sure that you can come back on board unaided. Lower the swimming ladder before you go swimming.

- inform the skipper and/or the person responsible for the yacht of the fact that you will be swimming ;
- do not go overboard if you are not familiar with the conditions ;
- there must be someone constantly on board to keep an eye on the swimmers ;



DANGER!

Stop the engine before entering the water; a rotating propeller is a danger to swimmers.

6.7 Medical emergency

You may be far from help when an emergency situation arises. Think about this in advance and make sure you have enough first-aid equipment and emergency medication on board. Preferably, you should attend a first-aid course and familiarise yourself with the contents of the "first-aid box".

6.8 Yacht leaking

When a leak is found:

- activate a bilge pump ;
- nominate someone to keep an eye on the inflow of water ;
- establish the extent of the water ingress ;
- stop or minimise the inflow of water by sealing the hole; reduce speed or stop the yacht if this helps to restrict the inflow of water, but maintain speed if this has no effect ;
- when the water ingress has to be pumped out, note the intervals between pumping so that you can tell whether or not it is becoming worse ;
- stay with the yacht! The ETAP 28s will continue to float even if it has sustained damage below the water line. In a rescue operation a yacht is easier to locate than a person in the water ;
- use distress signals.

6.9 Leaks inside the yacht

6.9.1 Oil leak

- do not discharge the oil overboard !
- clean the place where the leak can be seen and check regularly until the cause of the leak has been established.

6.9.2 Diesel leak

- do not discharge the diesel oil overboard !
- do not return the diesel oil to the tanks !
- in the event of major leaks, try to stop the engine as quickly as possible and close all the stopcocks on the diesel tank ;
- trace the leak and contact a good mechanic to rectify the problem.

6.9.3 Water leak

Of course, in this case the seriousness of the leak will determine the measures to be taken.

- where a major leak has occurred, switch the bilge pumps on and seek professional help as soon as possible ;
- look for the cause of the leak ;
- if there is a hole in the hull, you can seal it temporarily by stuffing an old rag into it or taking a similar measure.

6.10 Collision

- check to see if everyone is still on board ;
- check to see if anyone is injured ;
- inspect the damage ;

- inform everyone to put on a life jacket and have life-saving equipment and distress signals to hand ;
- try to plug minor leaks ;
- stay with the yacht !

6.11 Running aground

The action to be taken depends on how hard the yacht has hit the ground and whether the yacht has come free again after it was found to have run aground.

- where there has been light contact with the ground, it may be sufficient to inspect below the waterline, where circumstances permit ;
- if the yacht is still stuck fast, evaluate the situation before taking action. Sometimes more damage can be caused by reversing ;
- in any event, inspect the hull from the inside. Have someone continuously monitor the inside of the hull for as long as the yacht is aground so that it is possible to establish in good time whether the yacht has a leak and, if so, where.

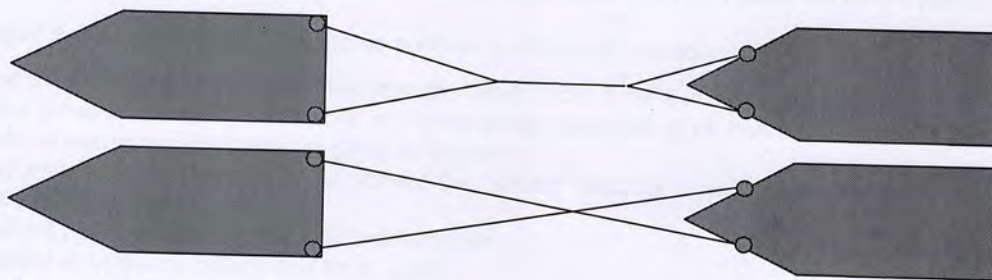
Basic rules:

- inspect any damage to the hull, keel, propeller and rudders ;
- check for leaks. If water is coming in, plug the leak before freeing the yacht.
- ascertain the depth of water around the yacht and the conditions on the bottom: whether sand, rocks or gravel, as this is important for planning further action ;
- decide whether the wind, the tide or the current will push you further aground or will help you to get afloat.

6.12 Towing

The ETAP 28s can be towed from the bollards on the foredeck, but only at low speed and provided that the tow line is not subjected to excessive jolting.

If you intend to tow another yacht, wind the tow line round the bollards on the aft deck and distribute the force between the bollards by laying the tow line in a "two-bridle" arrangement (see illustration).



If you have to be towed, keep a suitable distance from other shipping, inform the local authorities if necessary and instruct everyone on board. Ask for assistance when manoeuvring and when approaching harbours or a mooring.



CAUTION !

Tow lines and the bollards to which they are attached are exposed to considerable forces. Stay well clear of lines and bollards as they can cause serious accidents if they break!

Towing is a last resort because of the real risk of damage to one or both yachts. The coastguard or a professional towing or salvage company is often better equipped and more experienced. A yacht can often be helpful by simply remaining nearby or ensuring that the bow of the disabled yacht is held in the wind. Do not start towing if you are not familiar with the situation.

Towing yacht:

- take care to ensure that you don't run aground yourself ;
- make sure no line becomes entangled in the propeller ;
- transfer the tow line yourself as you are better able to manoeuvre ;
- use a line of sufficient strength, preferably with not too much elasticity as a breaking line snaps back very hard ;
- use a bridle to secure the line to retain as much manoeuvrability as possible ;
- manoeuvre slowly, gradually tensioning the line ;
- stand by to cast off the line again at any time.

Towed yacht:

- attach the tow line to the forward part of the yacht ;
- keep someone on the helm.

Both yachts:

- only attach a line to parts of the yacht which are strong enough, such as the bollards on the fore or aft deck ;
- keep lines clear of propellers and bow thrusters ;
- never use your hands or feet to hold your yacht off ;
- stay clear of a taut line; do not stand behind a taut line ;
- use lines of sufficient breaking strength, up to a maximum of 80% of the theoretical breaking strength of the mooring points on deck, such as bollards, which are used as towing points ;
- secure lines with knots that can be untied after being subjected to a load ;
- keep a knife to hand in case the line has to be disconnected unexpectedly.

6.13 Abandoning ship in an emergency

It is not possible, within the scope of this manual, to set out a simple procedure for abandoning ship in an emergency situation. However, it is extremely advisable to draw up such an emergency procedure, go over it and practise it regularly with all those on board. In this way, everyone will know what they are expected to do should this situation ever arise and panic will be prevented.

Consider the following when drawing up such an emergency procedure :

- the ETAP 28S is unsinkable. Only abandon your yacht if there is no alternative ;
- take a head count and make sure you know where everyone is on board ;
- inform everyone about what is going to happen ;
- "Women and children first", but spread the "strong" and the "weak" over several rafts, where possible ;
- collect personal papers and ship's documents ;
- collect emergency rations and fresh water ;
- make sure you have sufficient (dry) clothing or survival suits ;
- take (emergency) navigation equipment with you and know your position and the position of the nearest land ;
- transmit distress signals ;
- activate EPIRB and take it with you on to the life raft ;
- the dinghy can (also) be used as a life raft or you can take it with you.



DANGER !

Make sure that everyone is present and keeps together.
Remove yourself from the yacht as quickly as possible, preferably against the wind.
Use distress signals !

6.14 **Bad weather**

Despite taking every precaution, you could still be caught in bad weather. You should therefore take the following main precautionary measures :

- check that all portholes and windows have been closed securely ;
- secure all loose objects on board ;
- lock all cupboards and storerooms ;
- close all hatches ;
- chart your position regularly ;
- if necessary, inform the authorities and let them know your position and proposed itinerary ;
- have everyone on board wear a life jacket and give them instructions about the other safety equipment ;
- seek shelter as quickly as possible in a harbour or in the lee of an island.

7 THE ENVIRONMENT

As a watersports enthusiast you will certainly be conscious of the environment. It goes without saying that you should take good care of it.

A few points to consider:

- government regulations prohibit the discharging of pollutants into the environment in general and into surface water in particular ;
- be careful when filling the fuel tank ;
- read the warnings printed on the containers of any paints and maintenance products you use ;
- anti-fouling paint is classified as "chemical waste" ;
- fill separate fuel tanks (e.g. of outboard motor) in a place where any leaks can be collected ;
- don't run the engine unnecessarily: exhaust gases are a nuisance.

7.1 Waste

Keep household waste with you and deposit it in the containers provided on shore.

7.2 Noise

Don't make any unnecessary noise. Other watersports enthusiasts use the water for rest and relaxation too.



ATTENTION!

The EC Recreational Craft Directive has set maximum sound levels for engines. To make sure that the boat continues to meet these requirements, the owner needs to see that all engine maintenance is carried out as foreseen by the manufacturer of the engine(s). Do not change the exhaust system or the method of installation of the engine(s) in order to avoid that the boat does not comply with the sound level requirements anymore. Check regularly the exhaust system for possible leakage or blockage.

12 **APPENDICES**

12.1 **Diagrams**

The appendices include the following diagrams:

BC 002 001	overview of fresh water system
BC 002 003	overview of waste water system
BC 002 005	overview of heating
BC 002 009	overview of gas system
BC 004 002	running rigging
BC 008 001	overview of drive system
BC 010 00X	steering system
BC 013 XXX	electrical system
BC 016 001	striping
BC 018 001	deck layout
BC 018 002	sail plan
BC 018 005	overview of interior
BC 018 007	side view
BC 018 080	ventilation
BC 018 085	through-hull outlets

12.2 **List of standards used**

For the list of standards that may be applied in the construction of a recreational craft under the Recreational Craft Directive, please see appendix.

12.3 **Instruction manuals for mounted devices and instruments**

Other instruction manuals of mounted devices and instruments have been supplied together with this manual. Please carefully read through each of the manuals before operating your yacht.