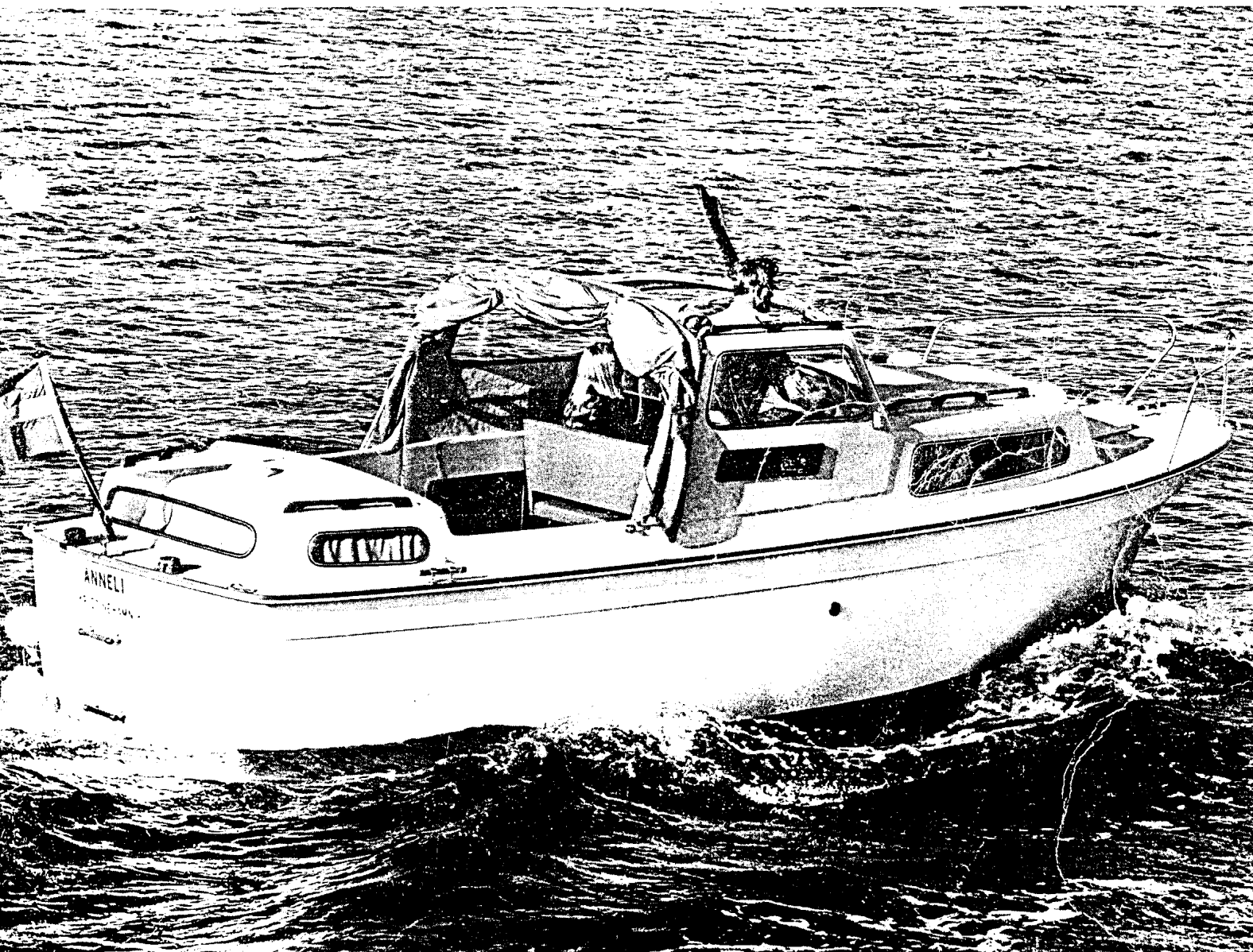


Per Brohall

Albin 25 **handbook**



ALBIN MARIN AB

S-681 01 Kristinehamn 1 . Sweden



Foreword: this handbook is for AD21 engine models (years 70/72)

The object of this handbook is to provide Albin 25 owners with a concise manual on how the boat should be used and maintained. Instructions regarding the Albin Engine Type AD-21 can be found in a separate instruction book. Instructions for running in and manouvering are repeated here. Where data in this book differs from the engine instruction book, the instructions in this book should be followed.

Even a boat so well equipped as the Albin 25 may, after delivery and launching, require some adjustments, e.g. trimming of rig; minor engine adjustments; tightening of screws, nuts and hose clips; and repairs to minor damage sustained during shipment. The manufacturer will naturally stand by his guarantee, but the low price of Albin 25 is calculated on the basis that a normally handy owner can himself take care of maintenance items such as mentioned above. This means that the manufacturer's resources can be used more effectively for guarantee repairs where skilled personnel are really required.

If there are any problems which are not discussed in this handbook don't hesitate to write to Albin Marin AB for advice.

We wish you a happy time with the Albin 25.

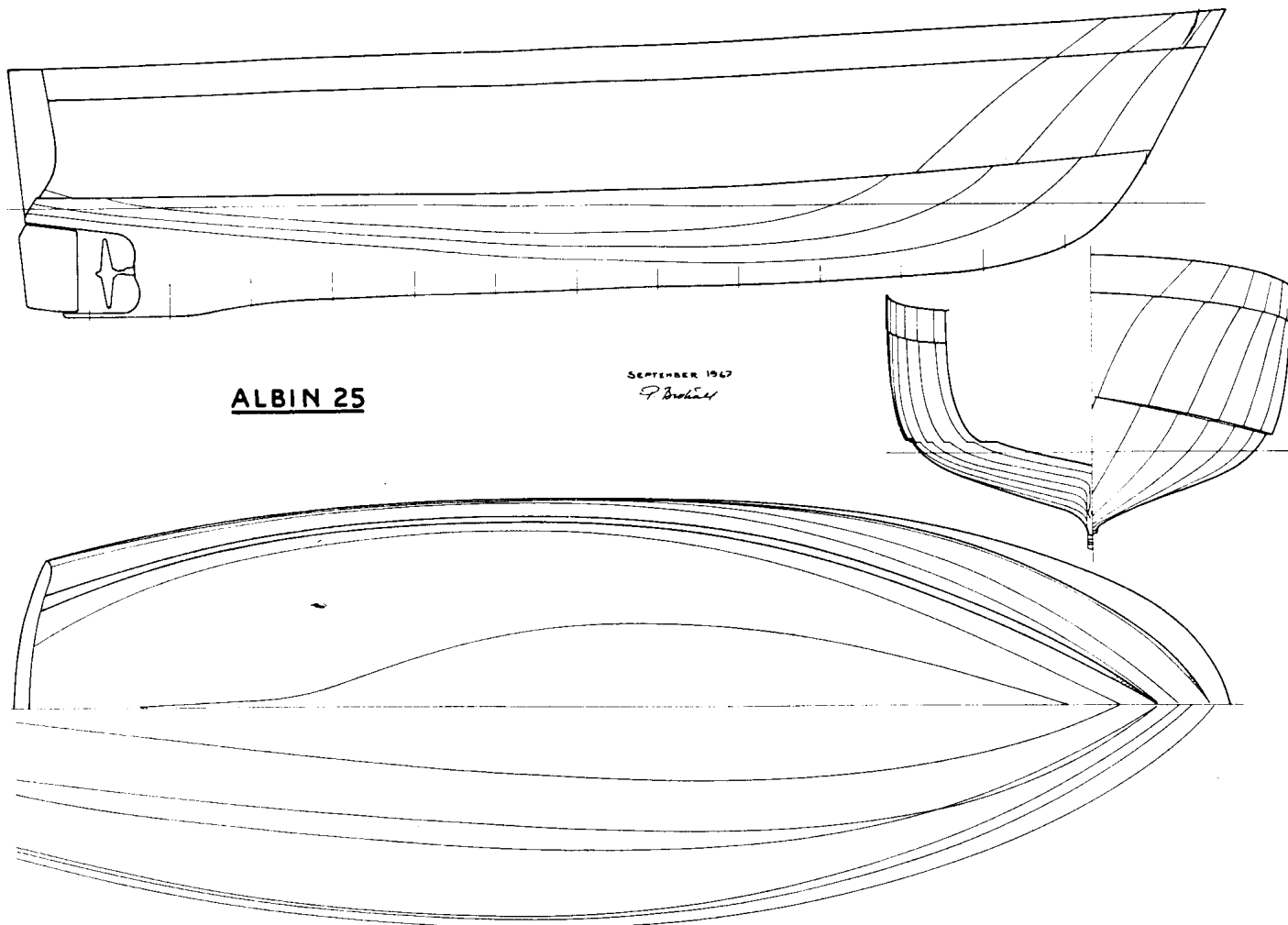


Fig. 1. The lines.

Per Brohall:

The ALBIN 25 handbook

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Technical data

The motorboat ALBIN 25

Designer Per Brohall

L.o.a.	7.6 m	25ft.0 in.
L.w.l.	6.75 m	22 ft. 2 in.
Beam	2.6 m	8 ft. 6 in.
Draft	0.7 m	2 ft. 4 in.
Height from mast support to deepest part of keel	2.75 m	9 ft.
Height from mast support to waterline	2.1 m	7 ft.
Displacement (empty boat with fuel)	1.600 kilos, 1.6 tons	
Maximum speed, about	8 knots	
Economical speed, about	7 knots	
Sound level at helm	74 db	

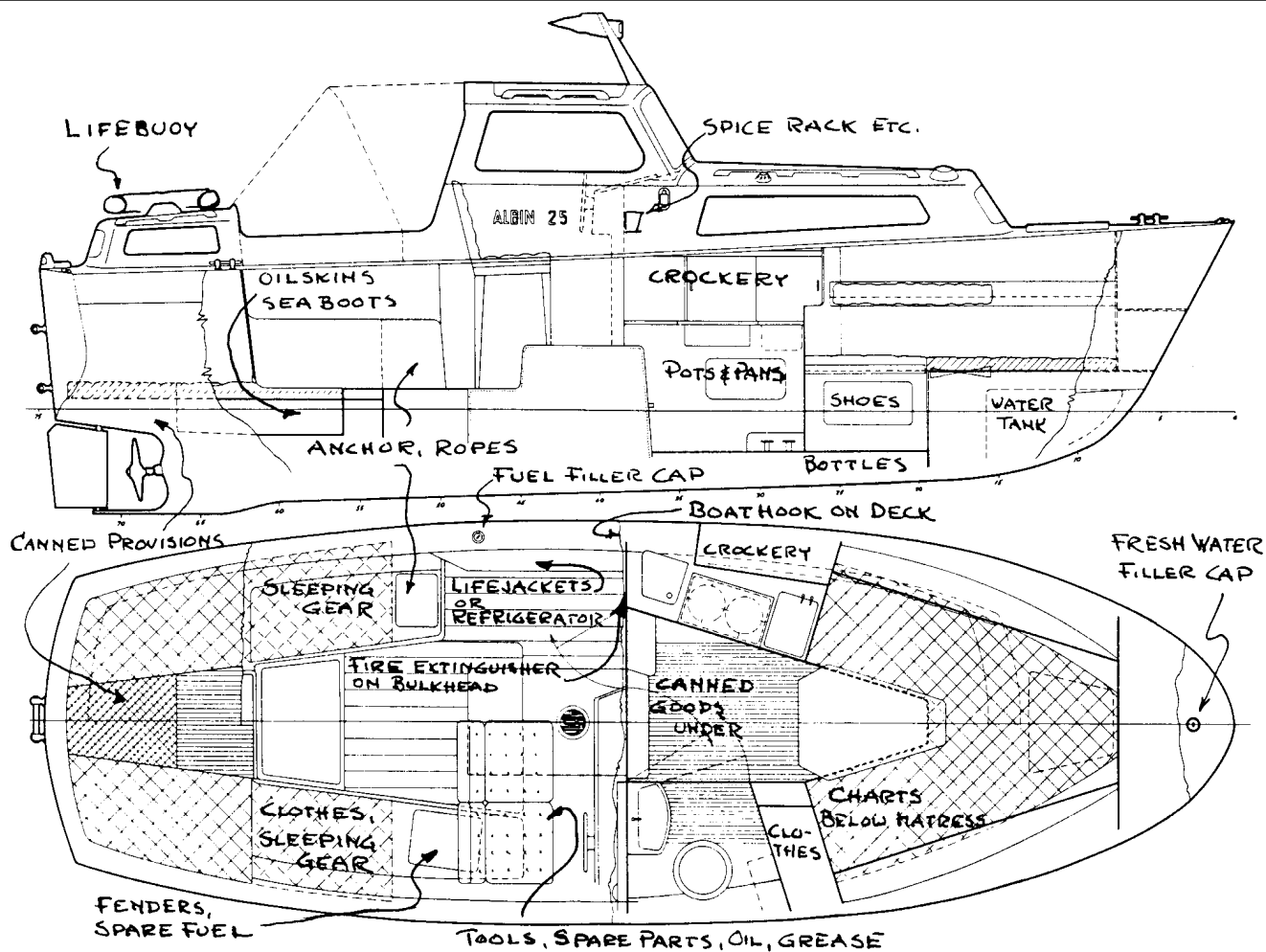


Fig. 2. Accomodation and stowage plan (example).

Engine installation

Engine, Albin 4-stroke diesel type AD-21 with single lever teleflex control of engine revs and gearbox.

Maximum revs	2300—2400 rpm
Engine power at maximum rpm	22 horsepower SAE 17 horsepower DIN
Economical rpm about	2000 rpm
Idling speed about	650 rpm
Maximum idling time with gears in neutral	30 min.
Fuel consumption at economical rpm	2.2 l/h 0.55 US. gal./h 0.45 Imp. gal./h

Oil quantity when changing to new oil	3-3.5 litres 0.68-0.75 Imp. gal. 0.8-0.9 US. gal.
Oil quality	Service DM or DH oil for diesel engines
Oil viscosity	SAE 30
Oil pressure (with warm engine)	2-3 kp/cm ² 2.8 - 4.3 lb/sq. in.
Cooling water temperature	70 - 85 °C
Direction of engine rotation (looking forward)	anti-clockwise
Reduction gear ratio	2.04:1
Propeller shaft of stainless acid proof steel with two inner sealing rings and a rubber mounted outer bearing of water lubricated fibre.	
Shaft diameter	25 mm
Rotating direction of the propeller seen looking forward	anti-clockwise
Propeller 3 bladed	16 1/2 X 12"
Battery voltage	12 volts
Alternator	490 watts
Starting battery capacity	57-60 Ah
Lighting battery capacity	57-60 Ah

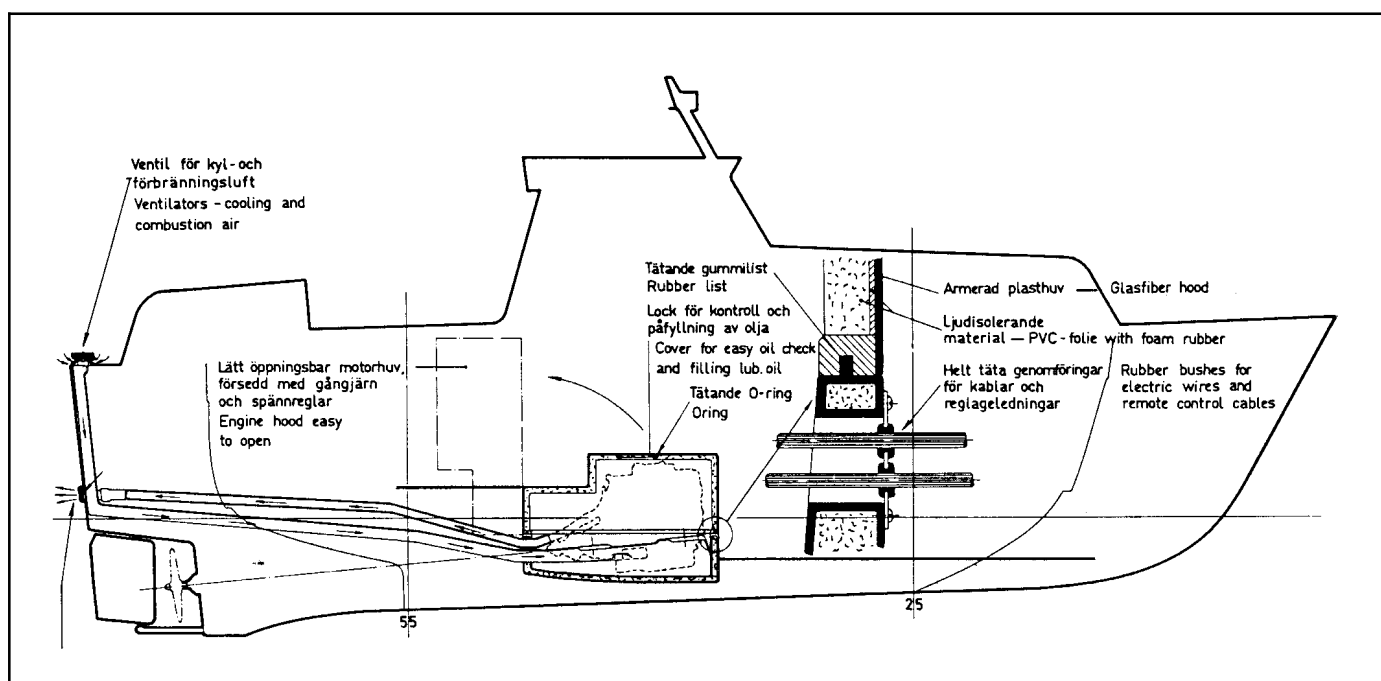


Fig. 3. Air ducts and sound-proofing for the engine .

Glassfibre lamination

The thickness of the **hull** is 6 mm in the topsides and 8 mm below the waterline. The hull is strengthened with glassfibre angles — stringers and frames — and by floors, engine bed and air ducts laminated into the hull.

Horizontal areas of **deck and cabin top** are sandwich construction with a core material of Divinycell (PVC cellular plastic). The top laminate is 3.5 mm (5/32") thick, the Divinycell 15 mm (5/8") and the inner laminate 2.5 mm (1/8"). Certain areas have a pressure proof filler of polyester and Vermiculite (a mineral product). Moulded into the deck are conduits for the electrical wiring and wooden blocks to take the various through bolts. The deck is bolted and laminated to the flange on the hull and the joint is covered with a toe rail of PVC plastic.

Engine cover of glassfibre is sound insulated with 30 mm sound deadening foam. The engine bed has sealed bushings for fuel, water and exhaust lines and rubber bushings for electrical wires and control cables. The engine room is completely sealed off from the hull. Leaking oil cannot spread and smell throughout the bilges.

Windscreen and **side windows** are made of hardened glass. Fore and aft cabin curved windows are of acrylic glass.

The **rudder** is made of glassfibre. The **rudder stock** is 25 mm acid proof stainless steel and is glanded with a water lubricated fibre bushing. The wheel **steering gear** and flexible cable are by Teleflex. The flexible cable works a rudder arm on the rudder

stock. The wheel turns two full revolutions from side to side giving a rudder angle of 35" each side. If the flexible cable is loosened from the rudder, arm a spare tiller can be mounted directly into the rudder arm.

Fuel tank is made of Argon welded stainless steel plate with a capacity of 75 litres (16.5 Imp. gal., 20 Us. gal.).

Water tank is made of Polithene with a capacity of 65 litres (14 Imp. gal., 17 US. gal.).

Performance and characteristics

Stability

If the power and length of a motorboat are increased the speed is increased, but if the weight (displacement) is increased, there is a loss of speed. The Albin 25 has been designed around its engine to produce the most efficient boat, obtaining the best speed with available power. This means that the boat must be light. Therefore the necessary stability is achieved by means of a suitable hull shape — giving form stability. Fig. 4 shows just how the force of gravity (P) works from the centre of gravity and how in a heeled position a similar force works vertically up from the centre of displacement. If we multiply displacement (P) (in this case 1680 kilograms) times the length of the moment arm (distance 0.25 metre between the two forces) we get the stability moment which is the "power" which will bring the boat back to an upright position. Heeling an Albin 25 up to 50 degrees (empty boat with mast and boom and one person on the cabin top) the accompanying stability curve was measured a (fig. 5). For heeling angles larger than 50 degrees the stability moment has been calculated as shown. As a comparison the sailboat Vega has about twice as large a stability moment up to heeling angles of 50 degrees. A normally loaded Albin 25 weighs more than the test boat and also has a lower center of gravity. Because of this the loaded boat gains even better stability than the curve shows. It shows that the Albin 25 is as good as uncapsizable and that you can use rig and sail without any risk of capsizing. It also shows that ballast is not necessary from a stability point of view. Ballast decreases speed through increased weight and if the ballast is put deep into the boat it can also give a less comfortable movement to the boat.

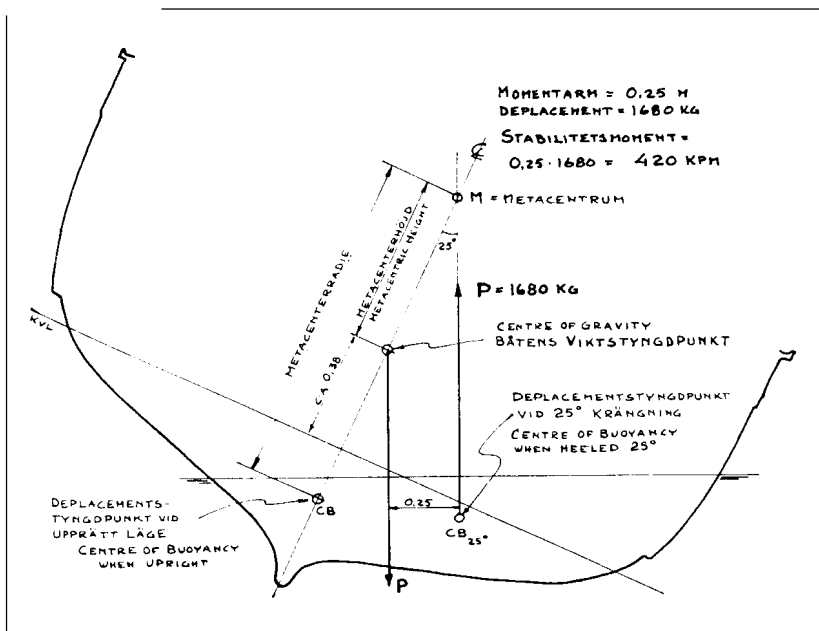


Fig. 4. Section showing stability moment.

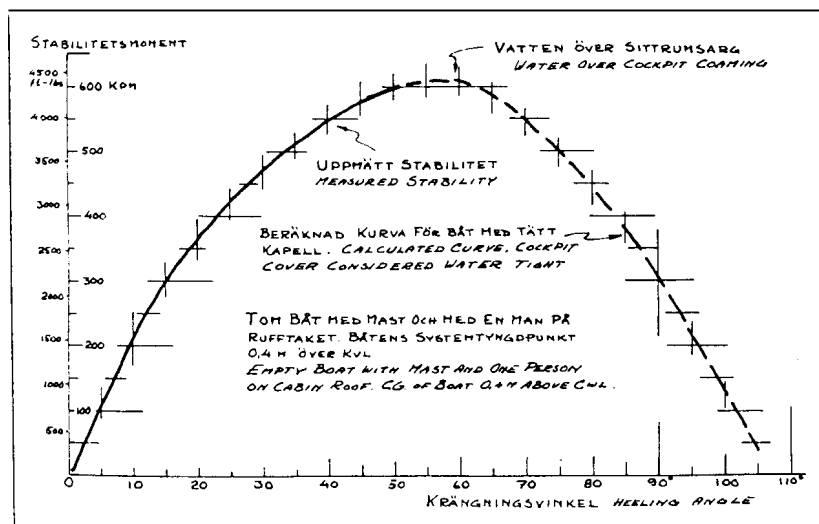


Fig. 5. Stability curve.

Period of roll

The results of such good stability give the Albin 25 a comparatively quick natural period of roll (time of swing from one side to the other and back). A longer period of roll gives a more comfortable athwartship movement in a seaway. The formula for calculating the period of roll (t) is:

$$t = \frac{1.108 \times \text{radius of inertia}}{\sqrt{\text{metacentric height}}}$$

Radius of inertia means the distance from the axis of rotation to a theoretical point where the mass of the boat is concentrated when rolling around this axis. The radius of inertia can be considered about the same as the length of a pendulum. The meaning of the meta-centric height is shown in fig. 4 which also shows that this height is a measure of stability. An increase or a decrease of the meta-centric height gives an increase or decrease of stability. Seemingly it is possible to lengthen the period of roll through decreasing the meta-centric height (the same as raising the center of gravity of the boat which is the

same as decreased stability) or through increasing the radius of inertia (putting weights farther from the axis of rotation). Here are examples how these factors can be used to effectively dampen a boat's movements in a seaway:

1. On sailing yachts you can hoist a heavy anchor up the rigging (decreasing meta-centric height and increasing radius of inertia without increasing weight).
2. On an Atlantic passenger ship the motion in a seaway was unsuitable for passengers. The cure was 200 tons of stone on top of the upper deck.

The same effect has been measured on the Albin 25. The period of roll was measured with an empty boat, with one man (85 kilograms) positioned in different places. The following times were measured:

low position	2.05 seconds
at the helmsmans place	2.15 seconds
on top of the cabin.....	2.40 seconds (an increase of 25%)

Ballast and movements in a seaway

The above technical discussion on the period of roll has been given to give a background to the following advice regarding ballast or no ballast. Several owners of the Albin 25 think that the boat will have a calmer motion if ballast is used and many more ask questions regarding ballast. One publication has advised that a ballast of 500 kilos be used down in the bilges. With conflicting advice it seems advisable to discuss this question more thoroughly. The reasons usually given as to why ballast should be used is the desire to obtain better stability and calmer motion in a seaway. Here we have two conditions contrary to each other and where it will be necessary to choose a suitable compromise.

Increased stability is not necessary. This is clearly shown in the stability curve fig. 5. When the weight of the boat is increased with equipment, provisions etc., the stability is increased and much more so if everything is stowed deep down in the boat.

Calmer movements in a seaway: The main part of the discomfort experienced in a motorboat in a seaway is caused by the athwartship movements — the rolling. There is the unhappy case where the period of the wave train is the same as the boats natural period of roll and the motion of the boat therefore is increased. An alteration of the course may change this. Each boat and each size of boat has a type of sea which is especially uncomfortable.

Albin 25 has been designed for comfortable motion in normal use, loaded with a full crew and all necessary equipment. The hull form gives a very comfortable movement in a headsea. In certain types of seaways and also in open anchorages the boat can develop relatively quick, uncomfortable athwartship movements because of its form stability. In open waters with a short and uncomfortable sea, calmer athwartship movements can be had through using:

1. **Sails.** A mast in itself is enough to increase the roll period and give a calmer motion. With sails and a good wind the movement is considerably dampened.
2. **Mechanical stabilization.** There are several different systems, as a rule they are too expensive.
3. **Lengthening the period of roll.** Through his own efforts the owner can increase the period of roll by stowing all equipment and cargo (provisions, drink, etc.) as high up and as far out to the sides as possible. A dinghy and anchor stored on the deck helps for instance to give a better motion. An increase in the total weight of the boat increases the radius of inertia if the increase of weight does not ride on the axis of rotation.

To use ballast is not advised if it is possible through other efforts to improve the movement of the boat to satisfy your personal taste. If ballast is used to dampen the movements it should be stowed high up and as far out to the sides as possible. Such ballast must be fastened thoroughly so as not to come adrift in a seaway. If ballast is placed deep down, the meta-centric height is increased (which shortens the period of roll). The radius of inertia is increased considerably if ballast is placed high up and far out to the sides. It is a completely faulty use of ballast to place it far down hoping for better motion, and the effect may be only 25% of what the right position will give. Don't forget that every increase in weight also decreases the speed, increasing fuel consumption. For instance 500 kilograms of ballast results in a reduction of maximum speed by about 3/4 of a knot (10%) and a reduction of cruising speed by about 1/3 of a knot (5%).

Fuel consumption and speed

Fig. 6 shows how much power must be delivered to the propeller to give the Albin 25 a certain speed. The power shown is about equal to the DIN power minus 5% to 10% (losses in alternator, gearbox, shafts, bearings, etc). The efficiency of the propeller at around 58% is good. It follows that the thrust is a little more than half of the available

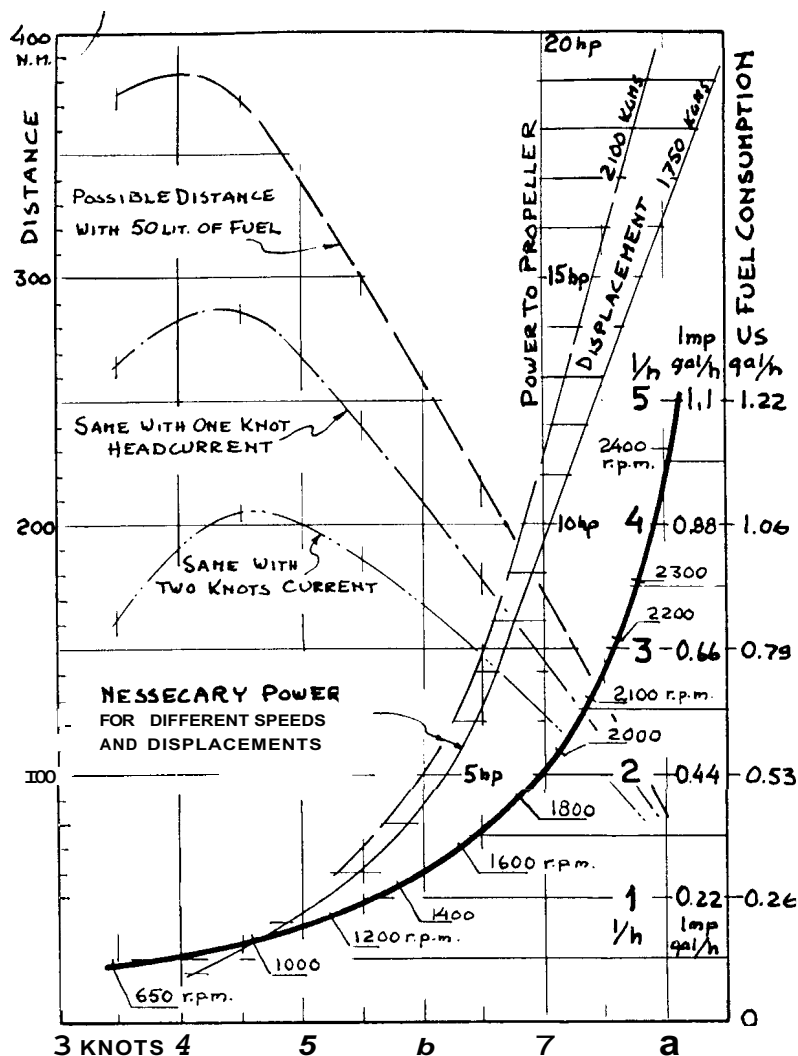


Fig. 6. Fuel consumption and resistance.

power. The curves for displacements of 1750 kilograms and 2100 kilograms give an idea of what an increase in weight means. That an increase of power is needed with increased speed is still more clearly shown — a speed of 8 knots requires 12 to 15 times as much power as for 4 knots! At low speed the resistance of the boat is mainly friction (about 95% of the total resistance) at 8 knots the frictional resistance is about 55% of the total resistance - the rest is form resistance - wave resistance plus a few percent air resistance. It is important to have a clean bottom with the least possible frictional resistance.

Fuel consumption at different revs and speeds also appear in fig. 6. These values are the results of many measurements and can be considered correct to within 5%. The rpm shown by the tachometer of the boat can at full revs show up to 150 rpm too little and sometimes up to 50 rpm too much. At cruising revs the fault is considerably smaller - about 60% of the error at full rpm. At idling rpm the fault is very small. The speeds shown are for calm weather without any sea. Also in the diagram there are 3 curves showing the largest possible distance covered with 50 litres of fuel. These show how economical it is to use a low rpm if it is desired to go as far as possible with a certain quantity of fuel. The curves shown for one or two knots head current can also be used if the speed is diminished by headwinds and headseas. They show how the most economical rpm increases as head current increases.

Do not trust a speed log which has not been tested and calibrated. It is not unusual that the log can show more than one knot error.

Influence of the propeller on manoeuvring

The direction the propeller rotates has a certain influence on a motorboat. Figs. 7 to 13 show this. It can be added that the rudder effect when going astern is not as good on boats with the propeller sheltered behind a deep keel as on boats where the propeller and rudder are completely unsheltered. It would be wise to practice all types of manoeuvring on open water with different wind directions. From such test manoeuvres it will be possible to judge and make successful manoeuvres in difficult situations later on. The effect of the wind on the boat is mostly felt at low speeds and can be rather large. A good knowledge of this effect, the best speed for manoeuvring, radius of turns in different situations, influence of the propeller, etc. is necessary if you are to manoeuvre without risk of damage to your own or other boats. With the propeller thrusting — propeller wash against the rudder — the turning radius is about a boat length. There is no great difference in turning radius between low and high speeds. From full speed ahead you can stop the Albin 25 in one boat length if the gearbox is used in the right way.

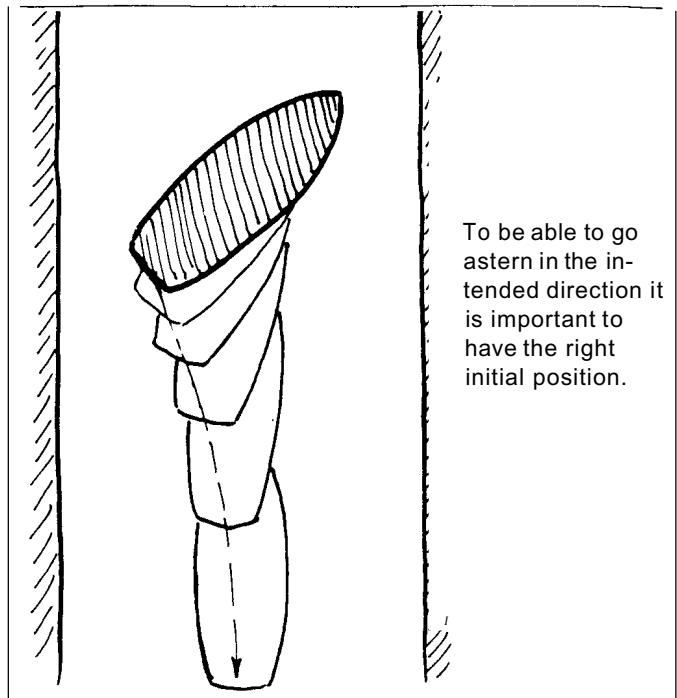
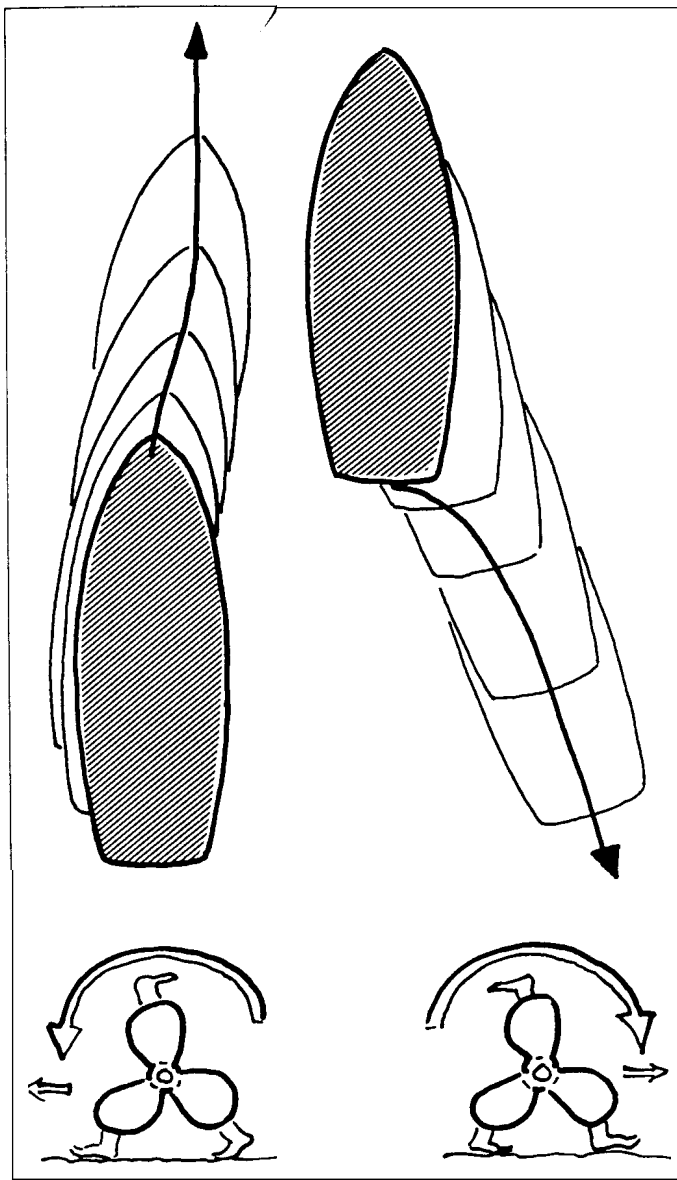


Fig. 8. Initial position when going astern.

Fig. 7. The propeller of the Albin 25 is anticlockwise (looking forward seeng going ahead) The rotating propeller stream pushes on the keel and bottom. In the lower positions the propeller blades work in less disturbed water. This adds up to a side force, which is noticeable when starting from laying still especially when going astern.

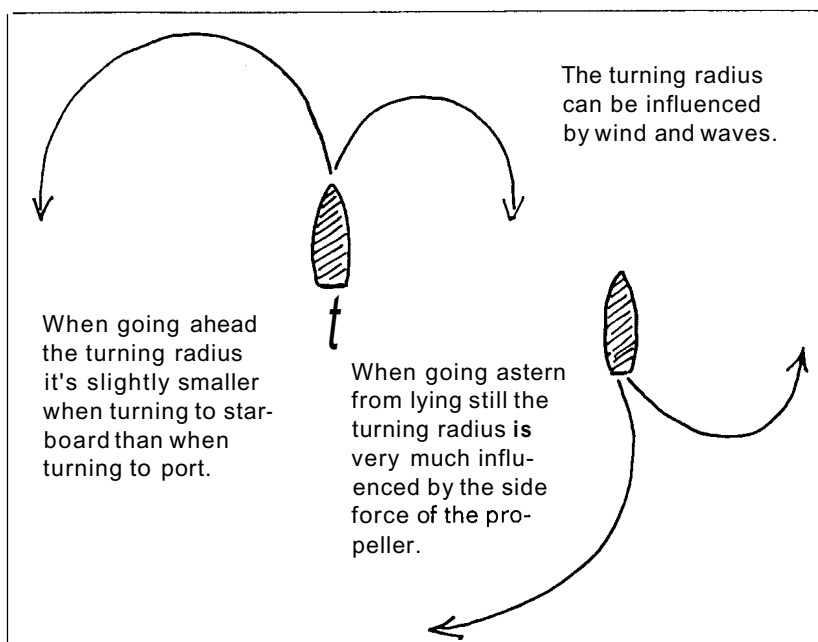


Fig. 9. Turning radius.

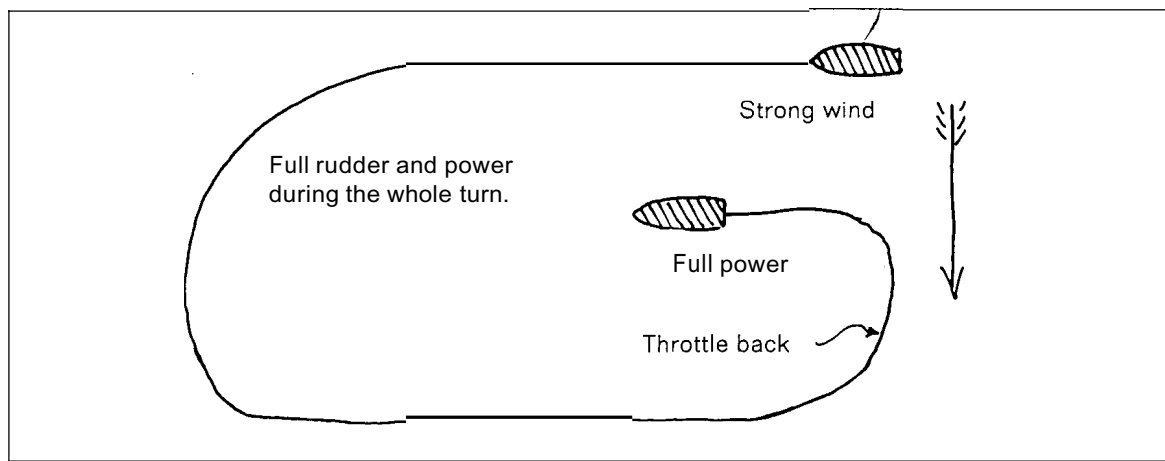


Fig. 10. When turning against the wind the turning radius can be smaller than when turning with the wind.

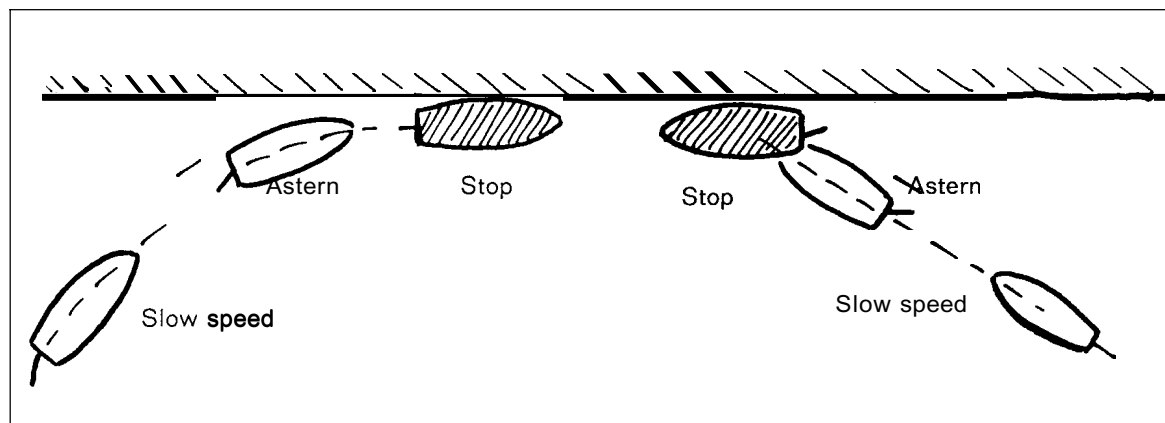


Fig. 11. Approaching a quayside. With the port side against the quay the manoeuvre is best done with a continuous turn. Approaching with the starboard side is done on a straight course. The propeller sideforce lays the boat smoothly alongside when going astern.

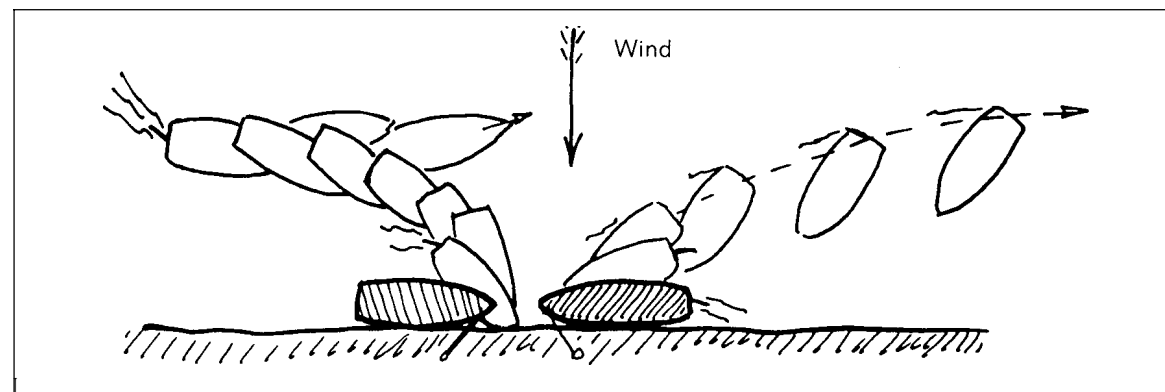


Fig. 12. To leave a quayside when the wind is blowing against it. If the port side is tied to the quay it is easier to go astern and get off.

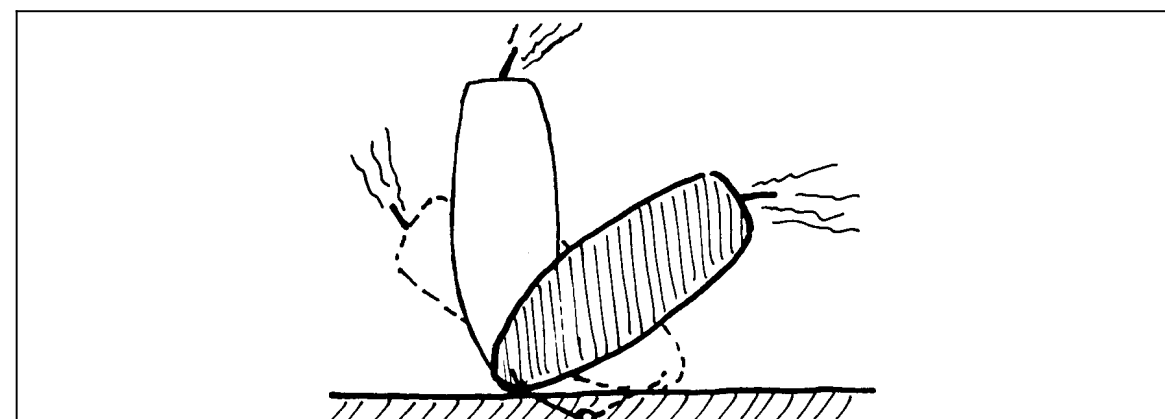


Fig. 13. The engine can be used to turn the boat with the stern against the quay.

First launching

Albin 25 is delivered in a shipping cradle which has been with the boat since she first took shape. The boat is fastened to the cradle with two iron rods which tie down the middle at each side. The rods have threaded ends and nuts at the deck and at the cradle below. A crane and lifting straps are needed to lift the boat out of the cradle. The recommended launching procedure is as follows:

1. Learn beforehand about the mooring place you will use after launching and check that necessary lines, fenders and anchors are handy.
2. Loosen the nuts on the rods at the deck so that the rods can glide down and the boat is free from the cradle.
3. Put the strops around the boat ahead and astern of the cradle. The strops are then hooked into the lifting hook of the crane. When the strops are tightened their position should be corrected so that they do not touch any sharp edges.
4. Check: that the bottom drain plug is closed,
that the seacock for the engines cooling water is open,
that the engine cooling water draincocks on the port side of the engine are closed.
5. Close the seacocks for the discharge of the toilet, washbasin and sink to avoid possible risk of leakage during launching. They can be opened one at a time for checking when the boat has been launched.
6. Check for water in the bilges, looking under all floorboards. If there is any water open the valve to the automatic bilge pump on the motor which will then pump out the water when the motor has been started. This valve should be closed when the bilge pump is not needed.
7. Lift the boat free from the cradle.
8. The unpainted portions of the boat which have been against the cradle are now painted with the paint delivered with the boat.
9. Lift and launch the boat.
10. Loosen the straps on one side of the boat and let the crane lift the straps up on the quayside. The engine was test run before delivery and there is fuel in the tanks for several hours running. Check the level in the battery and the oil level in the engine — in addition to the checks mentioned in paragraph 4 above. Top up with fuel as soon as possible. Follow the instructions in next chapter when starting the engine.

Engine installation and maintenance

The Albin AD-21 engine has only one lubricating point which is situated in the aft part on the top of the engine. The oil filler point and the dipstick are very easy to reach through the circular inspection hatch on the top of the engine cover, fig. 14. Reverse gear, reduction gear and fuel injection pump are lubricated from the common lubricating system.

When changing the oil 3-3.5 litres (0.65-0.75 Imp. gal., 0.8-0.9 US. gal.) of new oil will be needed. Oil has to be changed every 100 hours or once each season if the engine is used a shorter time during the season. The first oil change should be made after 25 hours running. Empty the used oil when the engine is warm with the help of the oil pump which is included with the tool kit. The lubricating oil filter cartridge should be changed every 300 hours or once a season at the same time as the oil change.

The engine is cooled with sea water. The cooling water pump and the automatic bilge pump are built together in the same unit. Both pumps are a rubber impeller type and the bearings are water lubricated. The working temperature of the engine is regulated by a thermostat. The right temperature is 70-85°C.

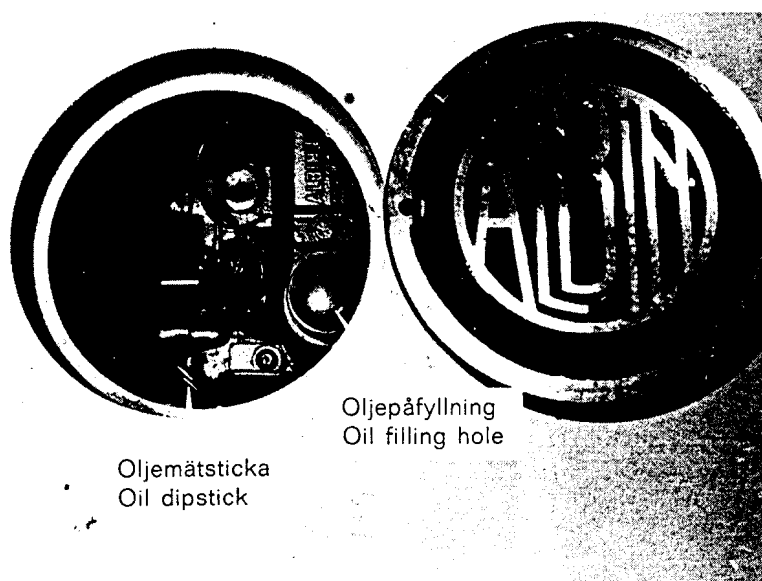


Fig. 14. Inspection hole on engine hood with oil filling hole and oil dipstick.

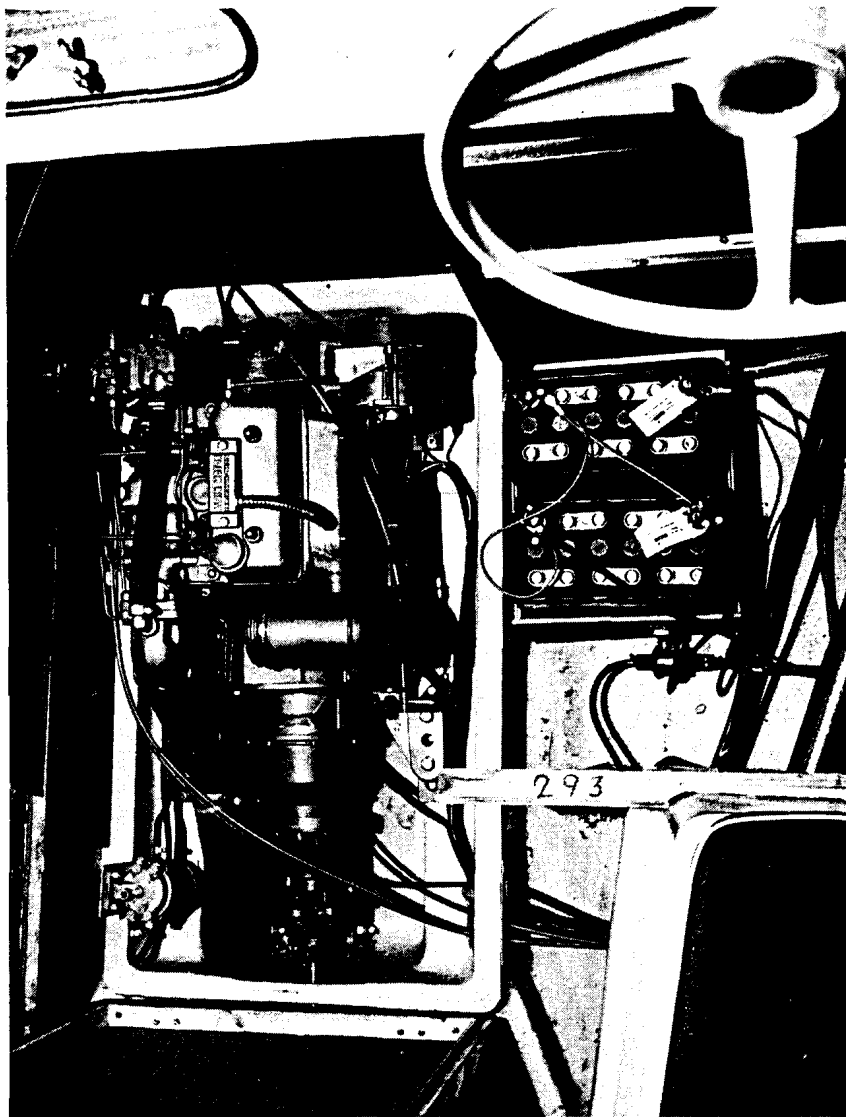


Fig. 15. Engine installation and batteries.

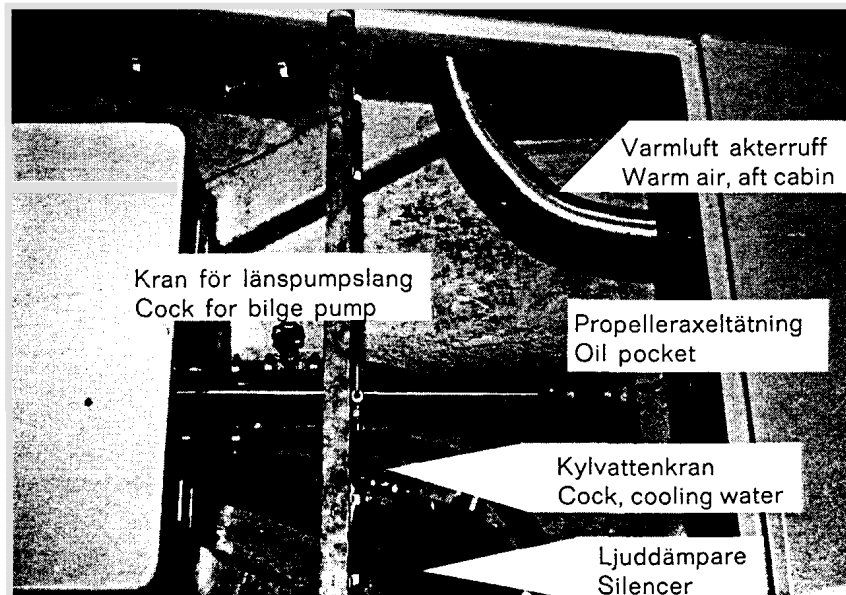


Fig. 16. Propeller shaft with oil pocket, cooling water seacock and cock for bilge pump.

The reverse gear is a spring loaded type which is self-adjusting. In neutral the reverse gear is completely free when the propeller shaft is standing still.

Procedure before the first start

Before the engine is started the first time after launching the following precautions should be taken.

1. Remove the helmsmans seat. Remove the floorboards and the floor over the battery box (under the helmsmans seat). Unfasten the clasps on the engine cover and fold it aft (fig. 15).
2. Check the acid level in the batteries. The level should be about 10 mm above the plates. Fill with distilled water if the level is too low.
3. Check that the battery cables are connected.
4. The motor has been filled with lubricating oil at delivery. Recheck the oil level. It should be between the two marks on the dipstick not lower than the lower mark and not higher than the upper mark.
5. Check that the cooling water seacock is open (fig. 16).
6. Open the bottom screw on the fuel line water separator and drain away any condensed water which may have gathered here.
7. When delivered, around 15 litres of fuel mixed with inhibiting oil is put in the fuel tank. Before starting the tank ought to be filled with ordinary diesel oil, such as car diesel oil.
8. When the engine is tested before delivery the fuel system is bled free of air. It would be wise to do this again before the first start. It is important to know how to bleed the fuel system in case you happen to get air in the system while away cruising. This can happen if the fuel level is too low and the boat is rolling heavily. Try not to allow the fuel level to fall below 10 to 15 litres. The bleeding is performed as follows (fig. 17): The fuel is pumped using the manual pumping lever. With long strokes at least 30 vertical movements will be necessary. Then slacken the nipple bolt for the return oil line to the fuel tank. This is fitted on top of the fuel filter. Continue pumping until fuel free from air bubbles flows out. Close the bolt. Open the front bleed screw on the fuel injection pump. Now pump again with the pumping lever until fuel free from air bubbles flows out. Close the bleed screw.

9. Unscrew the plug on the propeller shaft oil pocket (fig. 16 & 18) and check that it is almost filled with grease. Fill with more

grease if necessary. A soft outboard grease is most suitable. The grease is pressed directly from the tube until the oil pocket is almost full. Do not use high pressure. A grease gun must never be used as this may press out the forward sealing ring. Do not overfill the oil pocket as even screwing down the plug may exert enough pressure to push out the sealing ring.

10. Replace floorboards, engine cover and helmsmans seat. The engine is now ready for starting.

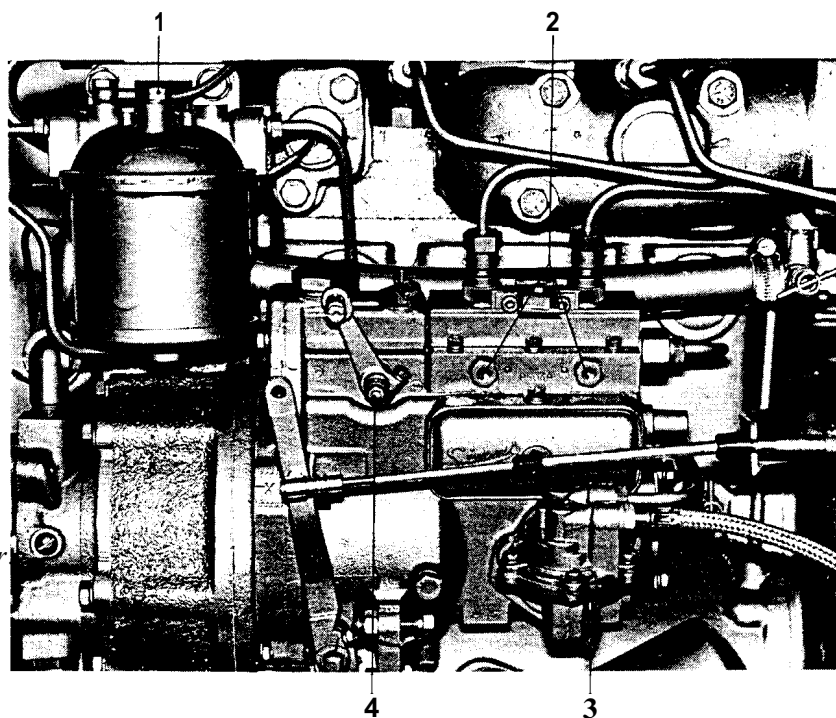


Fig. 17. fuel injection pump and fuel filter

1. Bleed screw for fuel filter
2. Bleed screws
3. Manual pump
4. Cold start button

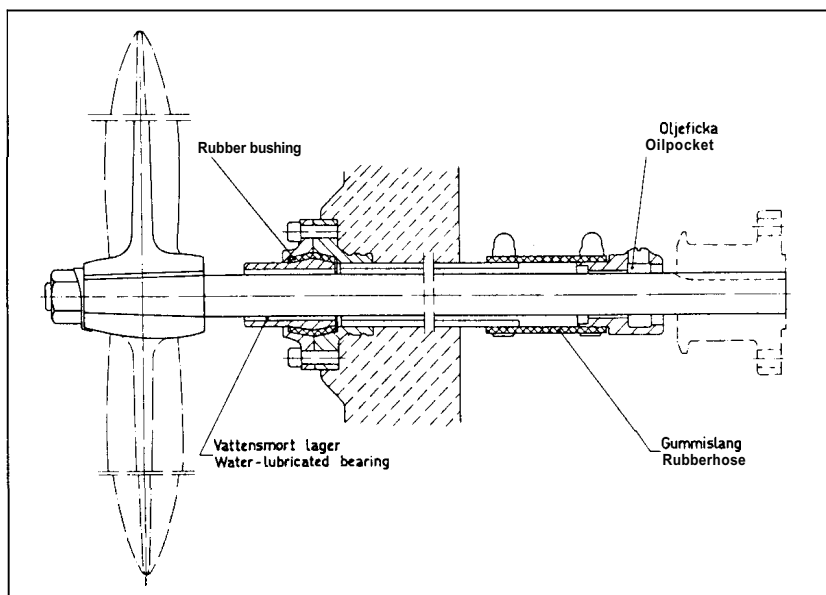


Fig. 18. Propeller shaft sealing and bearing.

Starting

1. Check that the cooling water seacock is open.
2. Check that the stop control is pushed in (fig. 19).
3. Disengage the control lever with the disengaging latch (fig. 19) and move the control lever ahead to the starting position (position 7 in fig. 21).
4. Insert the starting key and turn it to position 1 in fig. 22.
5. Check that the yellow warning light for oil pressure and the red warning light for charging are on.
6. Push the starter switch key and turn clockwise to position 2 in fig. 22. Hold the key there until the engine starts. The key when released will return to the switched on position (position 1 in fig. 22).

Frikopplingsspärr
Disengaging latch

Stoppreglage
Stop control

Fig. 19. Control position with instruments, control lever and wheel.

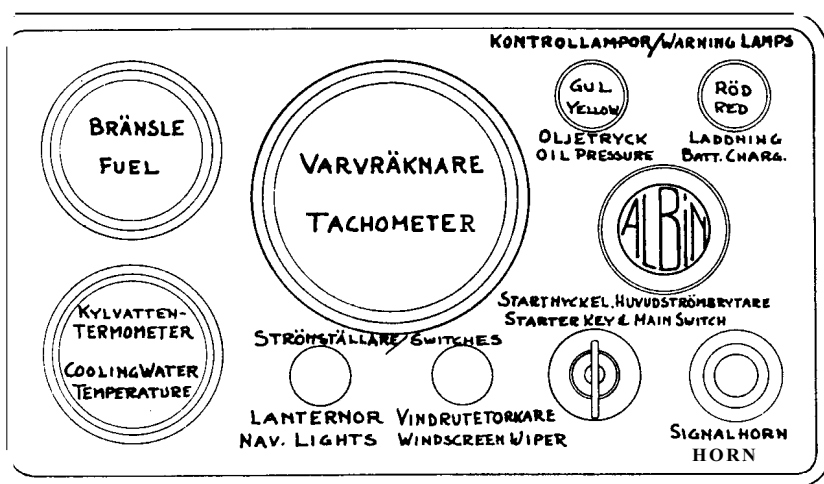


Fig. 20. Instrument panel.

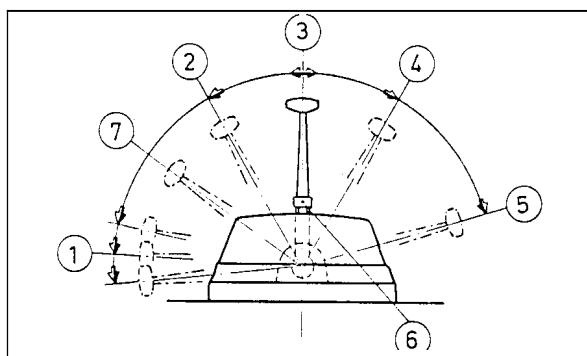


Fig. 21. Teleflex controls.

"Ahead" — max. speed
"Ahead" — idle
Neutral
4. "Astern" — idle
5. "Astern" — max. speed
6. Disengaging latch
7. Starting position

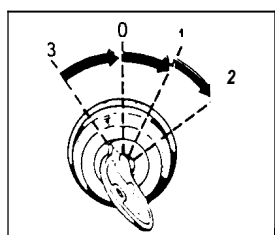


Fig. 22. Starter switch key.

0. Neutral position
1. Switched-on position
2. Starting position (starter motor switched on)
3. "Radio" position

7. Move the control lever back to neutral when the engine is running evenly (position 3 in fig. 21).
8. Check that the yellow oil pressure warning light and red charging warning light are out when the motor is running.
9. Check that cooling water is discharged through the exhaust opening.

NOTE: The starter switch is also the main switch for the electrical system of the engine. Because the engine is equipped with an alternator the starter switch key must not be turned to off (position 0 in fig. 22) when the motor is running as the alternator rectifier diodes could be damaged. For the same reason the battery cables should never be disconnected or reconnected to another battery while the engine is running.

NOTE: If the engine is difficult to start in cold weather the cold weather starting button on the fuel injection pump should be pushed in. This will supply a richer starting mixture. Set the control lever at the starting position (position 7, fig. 21) then push the cold weather starting button. It will remain in until it automatically releases when the engine starts. The position of the button is shown in fig. 17. With a little effort it is possible to reach the button through the inspection hole in the engine cover.

If a spray can with "starting gas" is used the cold weather starting button need not be used. Remove the inspection hatch on the engine cover. Use the left hand to spray down in the opening (against the air filter) and at the same time turn the starter switch key to the starting position. This will help to start the engine very quickly.

Manoeuvring

The spring loaded type reverse gear requires little operating effort. This makes it possible to use a single lever control. With this type of control, both the reverse gear and engine speed are operated by means of the single control lever.

All manoeuvring should be made with distinct movements from neutral to ahead or astern position. Positions between the marked positions 2, 3 and 4 in fig. 21 may damage the reverse gear. When the lever goes into the proper position a definite indentation can be felt. With the control lever in neutral (position 3, fig. 21) the propeller is not coupled to the engine and the engine is idling at about 650 rpm. Moving the lever forward to position 2 couples the propeller to the engine at idling speed. Moving the lever farther forward increases the engine speed. When the lever is moved backward to position 4 the propeller is coupled to the engine at idling speed. The propeller is now turning in a reverse direction. Moving the lever farther back increases engine speed.

The engine can be run at maximum rpm (2300 to 2400 rpm) for long periods but 2000 rpm will give much more economical cruising. Recharging of batteries during short periods of up to 30 minutes can be done with the engine idling and the control lever in neutral. Charging for periods of several hours should be done with the gearbox in forward. The engine must not be run with the propeller disengaged for any length of time at higher than idling rpm.

Running

At regular intervals when running check:

that the cooling water temperature is 70-85°C;

that the warning lights for oil pressure or battery charging are not lit;

that enough fuel is available;

that the lubricating oil level is right. This should be done after the engine has been stopped for 30 minutes giving the oil time to run down to the oil sump. Overfilling with oil can result in oil being pressed out through the aft crankshaft seal and being thrown around inside the flywheel casing;

that the automatic bilge pump intake is shut off when not needed (fig. 16). The back vent on the pump contains a ball vent which could, if held partly open by dirt particles, cause flooding of the boat. Shutting off the valve also prevents intake noise. Note: When closing this valve, be certain you are not closing the valve for the engine cooling water;

that the acid level in the batteries is about 3/8 inch above the top of the plates. If it is low add distilled water;

that no water has collected in the fuel line water separator. Any water should be drained off through the bottom screw.

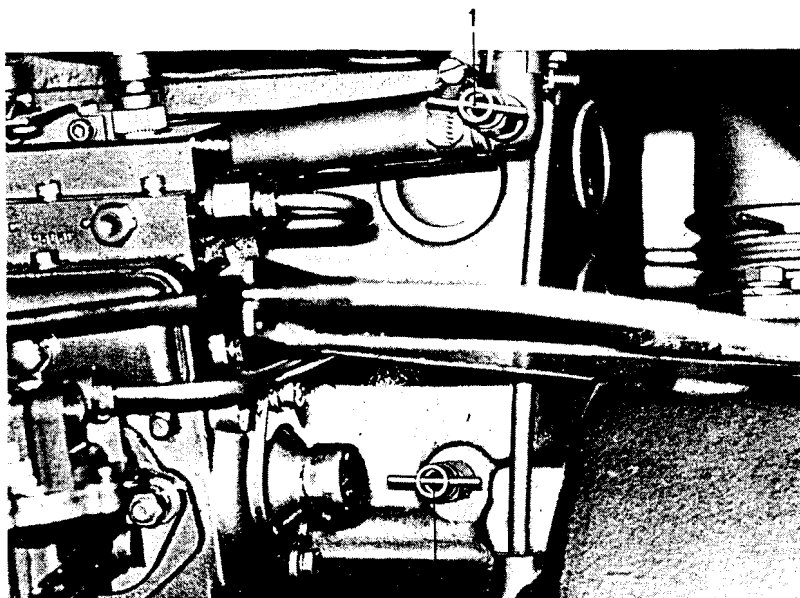


Fig. 23 Drain cocks for cooling water.

1. Cock for exhaust manifold
2. Cock for engine block

Stopping

1. Place the control lever in neutral
2. Pull out the stop control. **As** soon as the engine has stopped, push in the stop control again. Make it a habit, then you won't run the risk of using up unnecessary current next time you try to start with the knob out.
3. Turn the starter switch key back from position one to the neutral position (position 0) and remove the key.

Prevention of frost damage

In spring and autumn when there is a risk of freezing temperature the following steps should be taken.

1. After stopping the engine close the seacock on the cooling water intake, fig. 16.
2. Open the cooling water draincocks on the engine block and exhaust (fig. 23).
3. When the water has drained, start the engine and run for one minute but no longer as the impeller pumps can be damaged. During this minute the engine should be run for short bursts up to 1500 rpm. This will blow all water out of the exhaust system.

Rustproofing the engine for winter storage

The following steps should be taken.

1. Add inhibiting oil such as Esso Rust Ban 623 to the fuel tank giving a fuel mix of 5%. If there is about 10 litres of diesel fuel left in the tank put in about $\frac{1}{2}$ litre of inhibiting oil.
2. Run the engine at least one hour. While the engine is still warm the lubricating oil should be changed.
3. Clear the cooling system of water as described in the frost prevention paragraph.
4. The batteries should be removed and stored fully charged in a place protected against frost.

Procedure before the first start next season

1. Replace the batteries, fully charged and checked.
2. Change oil and fuel filters. Check that there is no water in the fuel line water separator. When changing the fuel oil filter it is a good idea to use a plastic bag around the filter from the underside so that the leaking diesel fuel is contained inside the bag.
3. Top up the fuel tank.
4. Bleed any air from the fuel system.
5. Check that the cooling water seacock is open.
6. Put grease in the propeller shaft oil pocket.

Interior and equipment

Varnish, glue and fastening

The interior joinery is mainly of resin glued marine plywood with surface veneers of sapele on gaboos cores. The finish should normally last for several years but its life may be prolonged by polishing with furniture polish. After a period the surface finish will have to be renewed. The varnished parts can be treated with either alkyd or polyurethane based varnish in accordance with the manufacturer's instructions.

Other parts can be painted with marine paint. Teak (handrails, etc) should be oiled several times each season. When necessary, the teak parts should be scraped and sanded. The best and cheapest "teak oil" is a mixture of two parts raw linseed oil and one part turpentine thinners. It can be put on with either a brush or a soft cloth. Excess oil should be wiped off with a cloth moistened with thinners. If you wish to fix hooks or other fittings to the boat they can either be screwed or glued on. Fittings can be screwed to all wood parts. Holes should be drilled for screws. Fittings that do not carry a great load can be screwed on to plastic surfaces with short stainless steel self tapping screws. It is very important that the right size holes are drilled first. A dab of epoxy glue on the threads will provide considerable holding power. Epoxy glue is so strong that it can be used to glue metal fittings on to the plastic surfaces. This cannot be done, however, on thermo plastic.

Fittings that have to take a load must be attached with through bolts. The sandwich deck will take the load of such bolts only where the deck is filled with wood or special filler. If bolts must be used in other places, the Divinycell filling should be removed round the hole and glassfibre and resin or a polyester putty put to form a strengthening "tube" round the bolt. A piece of wood should be fitted under the nuts to spread the load. Bolt holes will leak if the bolts are not packed with a rubber gasket or sealing compound. Glassfibre does not expand when moist, so leaks are not self sealing as is sometimes the case with a wood boat.

The curtains are cotton and can be washed in water. For the carpets a foam detergent can be used. The covers for the mattresses are synthetic and may be removed and dry-cleaned, but it is a lot of work to put the covers back again. With a foam detergent it is possible to wash the covers without removing them. Test the detergent on a spot on the back side to ascertain that the colour does not face.

Fresh water

The water tank holds 65 litres (14% gals). The deck filler is situated right forward on the fore deck. The level of the water in the plastic tank can be checked through the vertical opening in the bulkhead aft of the tank. A thin breather pipe which finishes just under the deck is fitted parallel to the filling pipe. If the tank is completely filled the water level will rise up the breather pipe and a small amount of water will find its way into the bilge; it can be removed easily with the bilge pump. If the tank is completely filled a small amount of water may also run out into the sink and wash basin. The tank and supply hoses can be flushed through continued filling of the tank filling pipe. Water can then run freely through the system, into the sink and overboard. A large lid is fitted to the tank to facilitate inspection and cleaning. The forward foot pump in the galley is for fresh water and the aft one for sea water.

→

Skin fittings and hose clips

All skin fittings below the waterline — inlet and outlet from the toilet, outlet from the sink, sea water intake for the galley, and cooling water for the engine have sea cocks to prevent the water from entering the hull if a hose or pipe should be damaged. Skin fittings for the exhaust have no sea cocks since they can be reached from deck and bunged up if need be.

All hose attachments should be checked regularly for leaks and the hose clips tightened if necessary.

Ventilation and heating

The ventilation system has been designed with scientific thoroughness by a former chief of Swedish defence research, Hugo Larsson. This is probably the only system that provides a well ventilated and dry boat without the use of electric fans. On hot summer days the temperature inside the boat will be cooler than that outside.

The system is based on the principle that all fresh air is let into the accommodation space from deep down in the cockpit. For proper efficiency the cabin doors should be closed. This air flows down along the inside of the cold hull below the waterline. The moisture in the air condenses on the cold surface where it runs down into the bilges. The dehydrated air is then led to the fore and aft cabins. Fig. 24. Stale air is evacuated through three electrolux ventilators which were first developed by Hugo Larsson for the Vega. These ventilators withdraw air from the cabins whenever there is any outside air motion over them regardless of direction. With a wind speed of 4 metres per second, approximately 8 knots, one ventilator can suck out 15 cubic metres of air per hour. The air stream passing up through the ventilators can be regulated or completely closed off by a knob (not the toilet ventilator). The starbord

forward ventilator sucks out air from the toilet compartment through a duct inside the deck. A closed up, stationary Albin 25 can have an inside temperature 5°C lower than outside on a hot summer day. Without this ventilation system the boat would be like an oven. The deck has good insulation through its sandwich construction and the inside of the hull is insulated with a lining of plastic covered textile and foam. This insulation and the ventilation system combine to keep the boat very moisture free during normal conditions.

If an Eberspacher boat heater is added to the ventilation system it is possible to keep the boat warm and dry even during very low temperature conditions. The Albin 25 is planned for such an installation. The principle function of the heating system is shown in fig. 24. In the completely enclosed combustion chamber of the heater, diesel oil is burned. It is pumped from the main fuel tank by an electric pump. The air for combustion is taken from outside directly through the hull and the exhaust gases are let out through the exhaust tube placed over the intake for combustion air. Fig. 25. This makes the condition for even burning more certain. A wind blowing against the exhaust opening gives the same pressure at intake and exhaust. A fan in the heater sucks fresh air from the space with the cold wall and the air is heated when it passes around the combustion chamber. The heated air is lead through a duct to a dividing valve on the bulkhead by the control position. This valve can control the passage of hot air to one or both cabins.

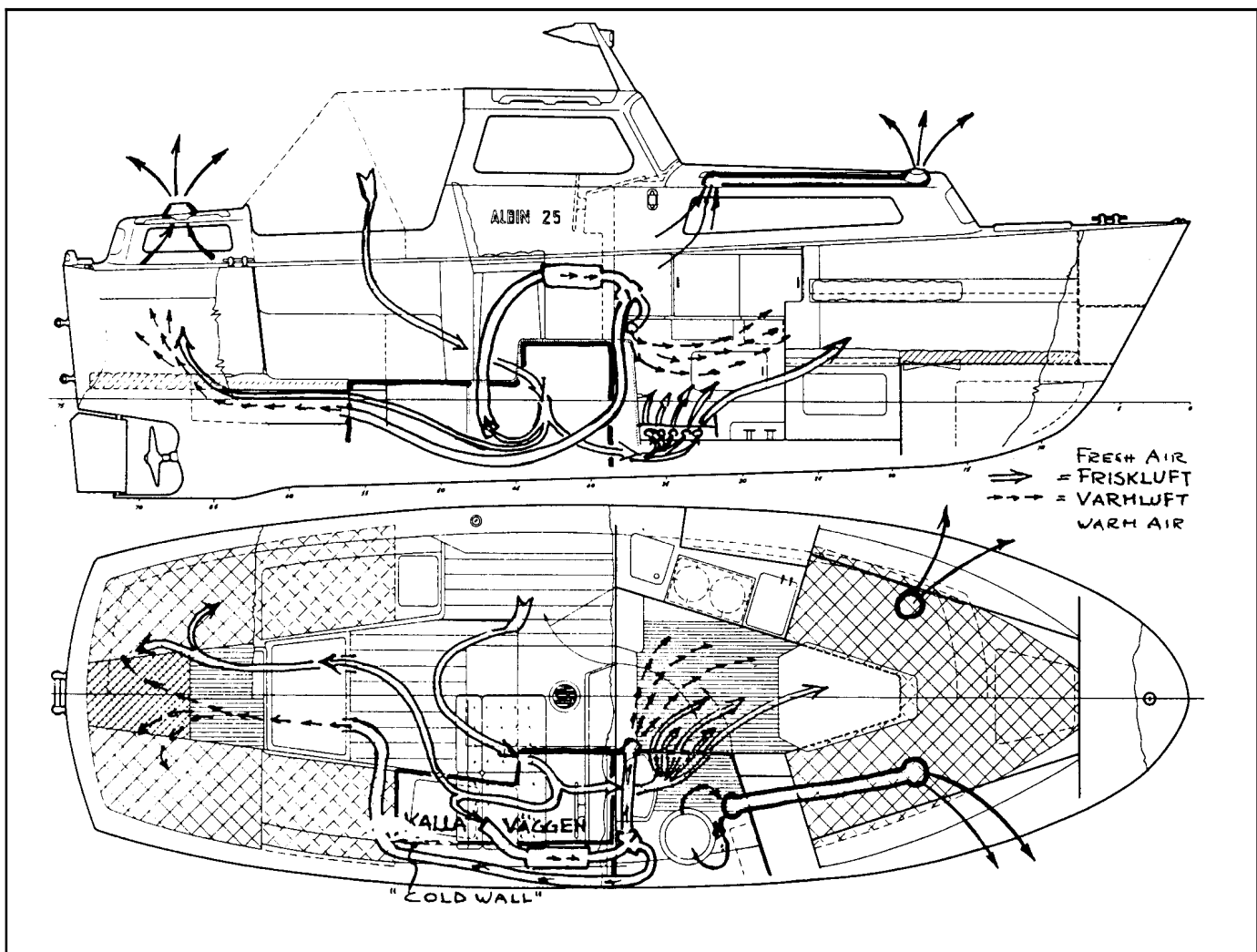


Fig. 24. The ventilating and heating systems.

The heater is started with a switch on the bulkhead at the far side of the toilet. Near this switch is a thermostat where the temperature for the forecabin can be regulated. The temperature in the aft cabin is dependent upon how the dividing valve is placed. To hold the inside temperature 10—15°C higher than the outside temperature the thermostat normally has the heater going about 25% of the time, that is 15 minutes out of each hour. With the heater running continuously fuel consumption is about 0.3 litres an hour and with the thermostat working about 0.1 litre per hour. At the start the heater requires 18 amperes starting current for 30 secs., after which the

current consumption is about 3.5 amps. When the heater is turned off the fan continues to run a few minutes to cool off the combustion chamber. With a fully charged battery of 57 amp. hours, the heater can be run a couple of nights before the battery needs recharging. Care must be taken that the heater exhaust fumes do not damage fenders or cause annoyance to nearby boats. Special instructions give further information for the running and maintenance of the heater and also technical data.

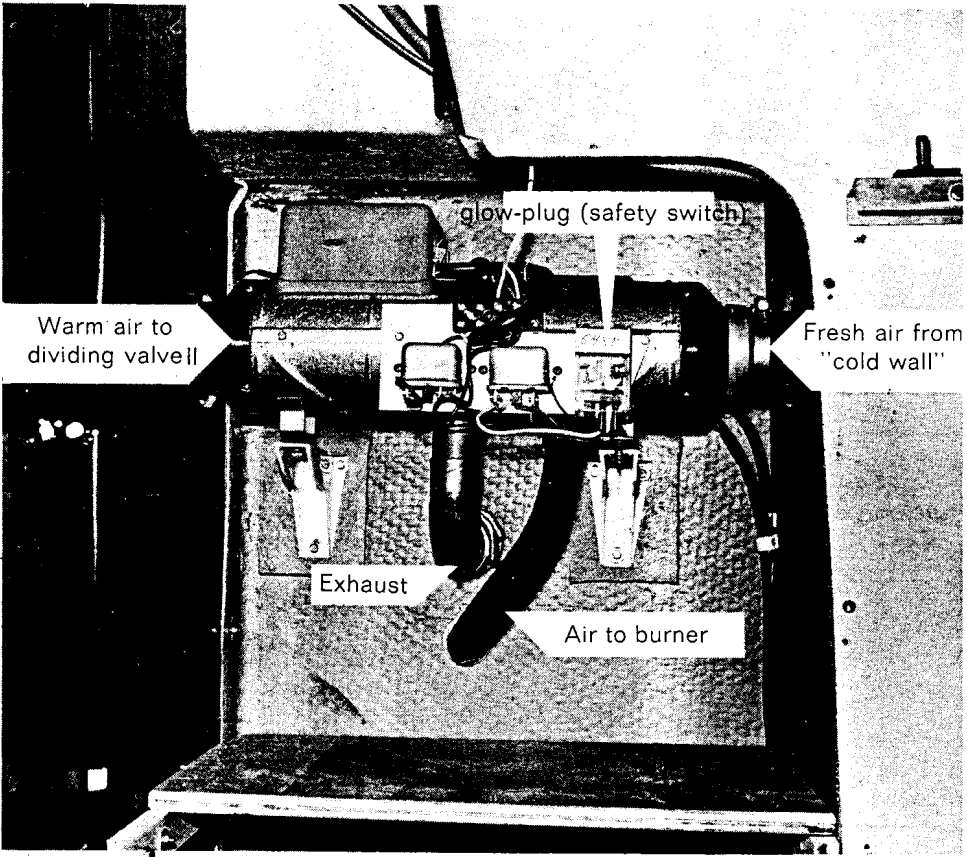


Fig. 21. Eberspächer heater installed in Albin 25.

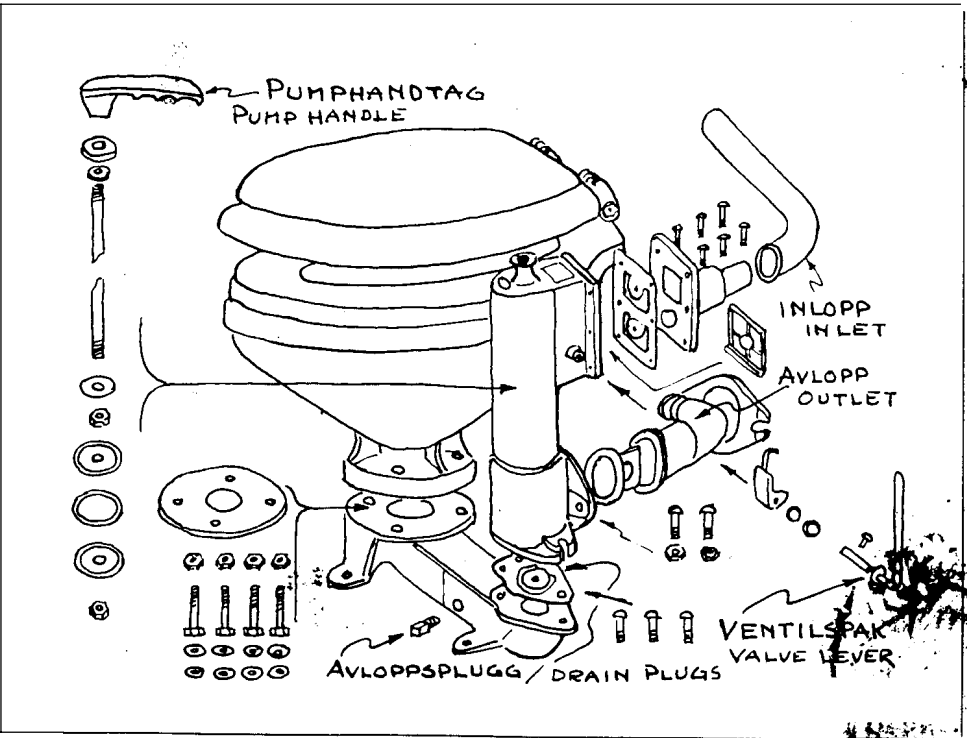


Fig. 26. Toilet.

Marine toilet

Use only toilet paper and not too much of it! Fig. 26 shows the toilet type "Brydon Boy". It is flushed in the following manner:

1. Open both sea cocks (inlet and outlet)
2. Move the small valve lever to "flush" and pump until only water is left in bowl and then pump still more.
3. Put the lever on "Dry Bowl" and pump until bowl is dry. The pumping is much harder now. If necessary, wipe off with paper — switch from "dry" to "flush".
4. The lever should be positioned on "Dry bowl" when the toilet is not in use
5. In heavy seas or when leaving the boat the sea cocks should be closed.

Maintenance: Do not use strong detergents — they can damage hoses, rubber gaskets and valves.

When laying up one of the red drain plugs in the lower part should be opened so that no water is left to freeze. Pump a few times.

After use in saltwater the W.C. should be flushed with freshwater to be ready for use the next season. The W.C. should of course be cleaned.

Normal maintenance during a season may be a few drops of oil for the pump lever. Leaks can occur at hose clips and gaskets. They may need tightening.

Electrical System

A 12 volt electrical system circuit diagram is shown in fig. 27 (1970 boats) and 28. (Boats from the 1971 series). In the later boats the charging of the boat batteries is regulated by a diode (when the lighting battery is fully charged the starting battery starts charging). The first Albin 25 boats (1969) were equipped with only one battery. The circuit diagram for these boats was delivered in a special instructions. Some of the electrical cables run in conduits in the deck. Beside the steering wheel there is an electrical connection which can be used for various appliances such as a hand lamp, vacuum cleaner, razor, etc. Use the proper plug in this connection as the wrong one can cause a short circuit. The horn, windscreen wiper, electrical outlet, navigation lights and other lights are protected with 8 amp. fuses (Bosch MSG 3/4Z., length 25 mm). There is an extra fuse fitted for the addition of extra equipment such as refrigerator or heater (25 Amps needed). The fuses are fitted in a box on the aft bulkhead of the toilet room.

There is a spare fuse in the box. The lighting system is 12volts and uses the following lamps: Navigation lights: 10 watt (Osram) 44 mm long — reading lights: 10 watt (Osram) 44 mm long — overhead cabin lights: 15 watt (Osram 7430 bayonet base BA 15 d) — tachometer light: 4 watt (Osram 893) — other instruments: 2 watt (Osram 3898) — warning lamps: 2 watt (Osram 3796). 10 watt lamps use about .85 amps., 15 watt lamps about 1.25 amps.

If a lamp or any other equipment does not work when the current is switched on, check the fuse first. If the fuse is alright either the lamp is burned out or there is a poor connection in the wiring. If the fuse is blown change to a new one. If this one should blow also, then there is a short circuit in the wiring or the fixture. If one fuse in particular blows often, it could mean that the circuit is loaded with too much additional equipment. The 8 amp. fuse can be replaced with a 15 amp. fuse. For a heater a 25 amp. fuse is needed. Never replace a fuse with a piece of wire as this will leave the circuit unprotected. When idling, the charging power is about 200 watts. Full charging power of 490 watts is available at 2000 rpm. The charging relay switches off charging current when the battery is fully charged. It is preferable to charge batteries slowly, with a low charging current available at 1000 rpm. Remember, the engine must not be run at idling without the propeller turning longer than thirty minutes. At 2000 rpm a battery can be fully charged in 2-4 hours.

Bosch 0 332 100011
Albin Motor 75974

Bosch 0 332 003011
Albin Motor 75975

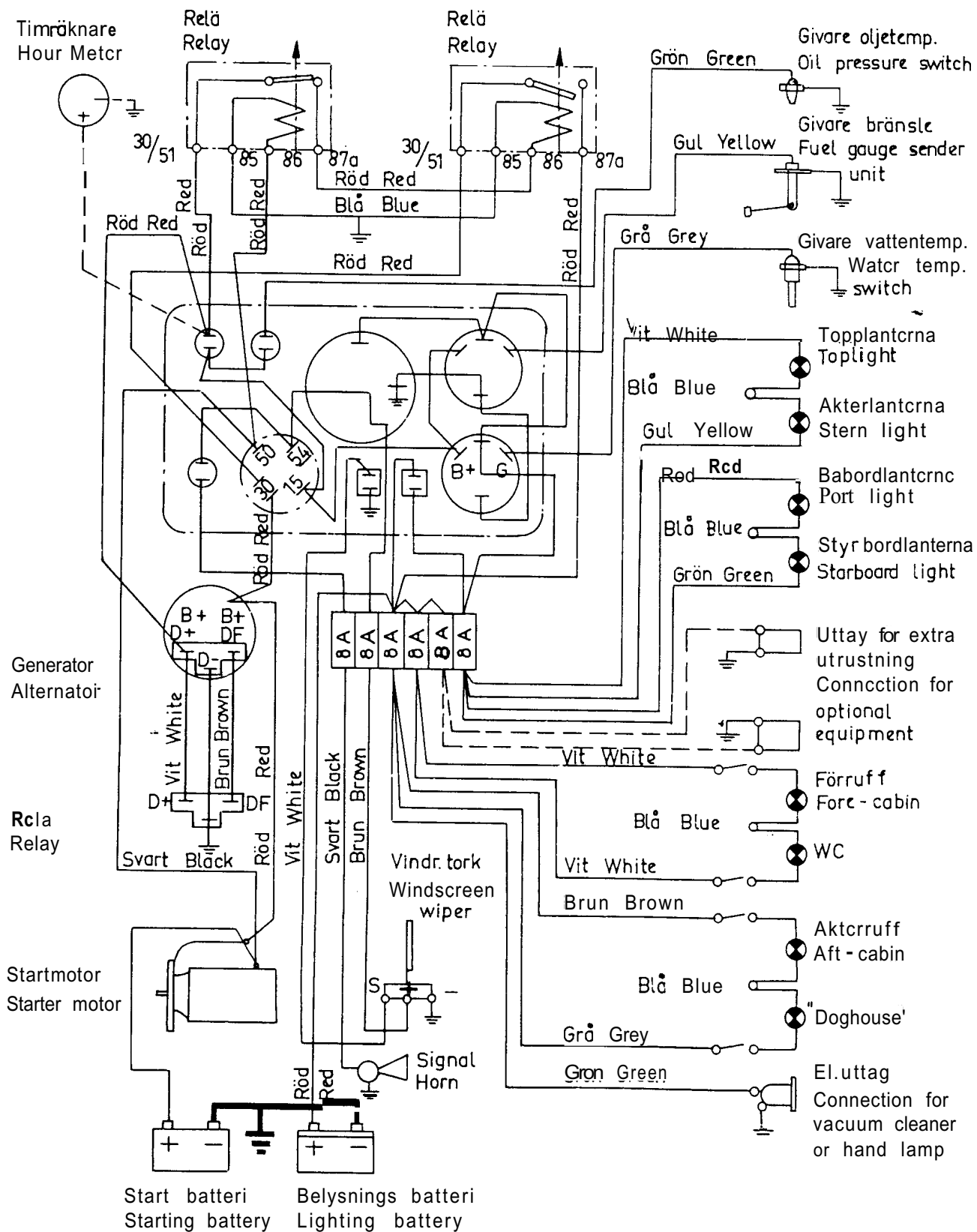


Fig. 27. Circuit diagram for Albin 25, 1970.

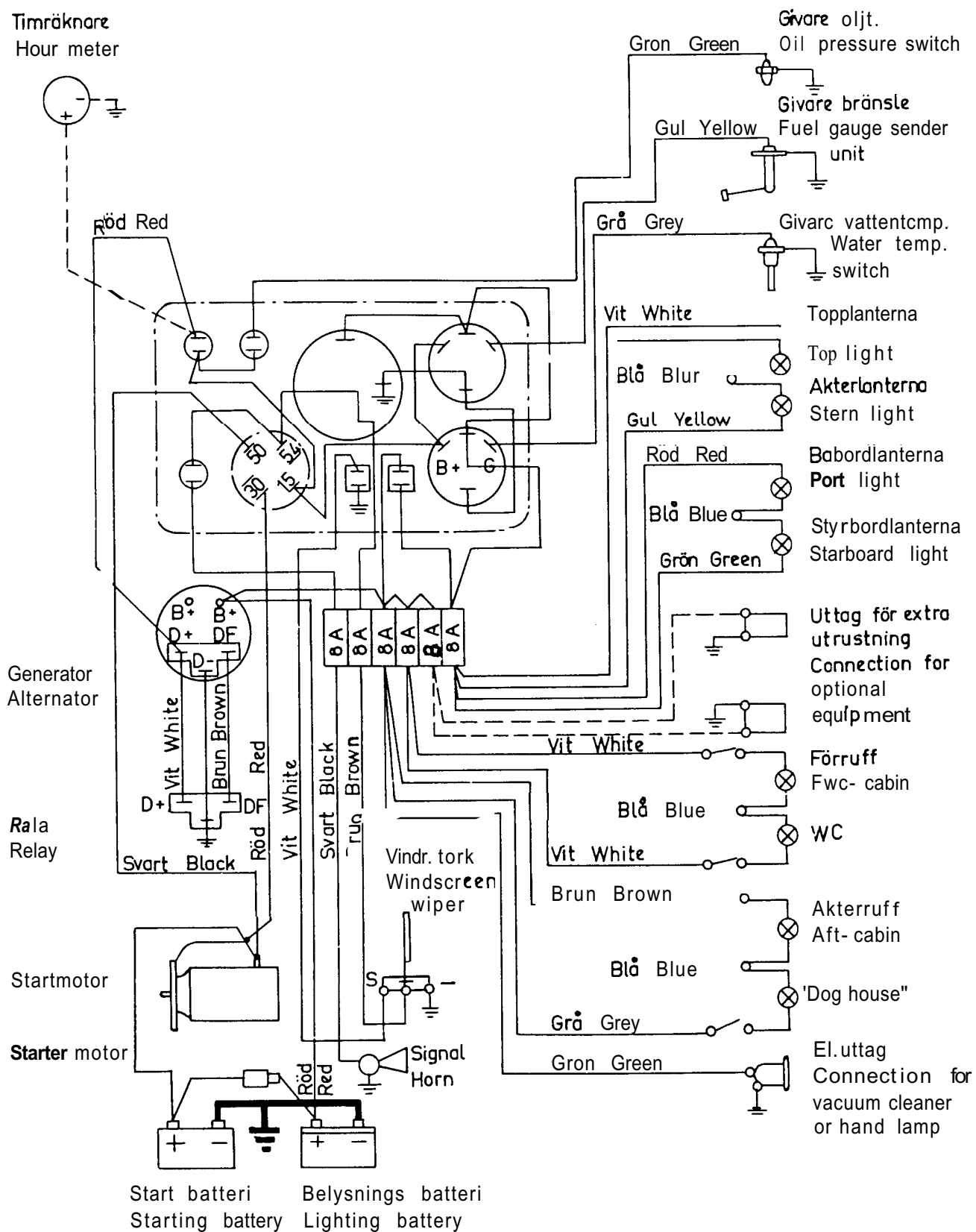


Fig. 28. Circuit diagram for Albin 25, 1971.

Refrigerator

A refrigerator with a capacity of 42 litres can be installed in the stowage compartment on the port side fig. 29. The electrical power needed is maximum 25 watts (4.5 amps.) but used normally the mean current is about 2 amps. This means that a fully charged battery has a capacity of running a day and a night with the refrigerator only — after that the battery has to be charged. If a refrigerator is installed it is advisable to add still another battery as a spare or coupled in parallel with the lighting battery. The refrigerator is switched on with a switch placed just aft of the refrigerator. A warning lamp near the switch shines when the current is on. In earlier installations the switch was at the helmsmans seat without a warning lamp.

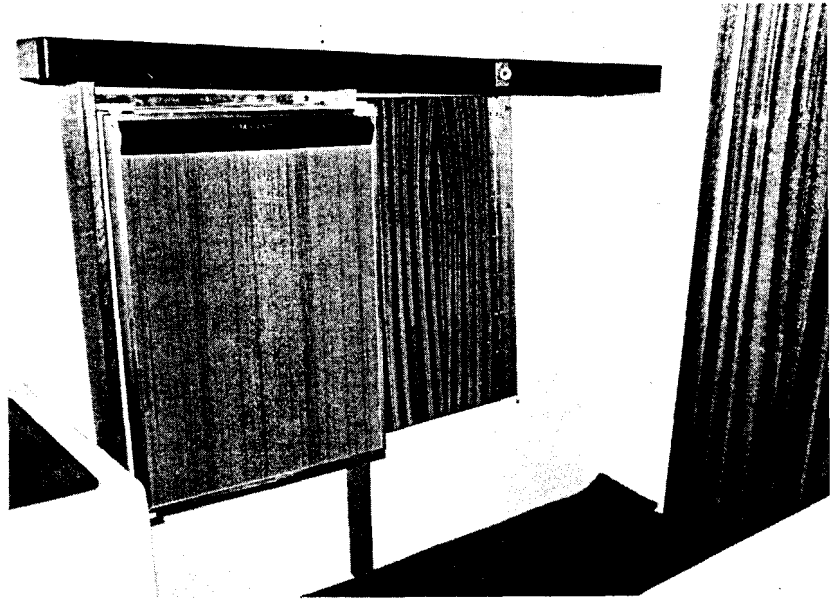


Fig. 29. Refrigerator installed.

Cockpit cover

The cover is made from a type of synthetic canvas. It is colourfast and treated to make it waterproof while allowing air to pass through. This has the advantage that the formation of condensation under the cover is kept to a minimum. Wet covers should be dried in a stretched position. When new they shrink a little and they can form a poor fit if they are not dried in their right form. Do not store the cover while it is damp as mildew can form and damage the material. The cover canvas should be brushed occasionally. Salt, dirt, etc., can be brushed off and washed away with clean water. Detergents and solutions wash away the waterproofing. If it is necessary to wash away oil stains, etc., a soap detergent must be used and not strong solvents. After washing the canvas must be impregnated with new waterproofing. Waterproofing for tent canvas can be bought in paint shops and is available in spray containers. Leaks in covers can be made water tight with a rubber solution or paraffin.

Equipment

The Albin 25 has fairly complete equipment but certain extra equipment is necessary for instance: anchor and anchor line, fenders, stove, compass, etc. In these cases personal preference for different types make it difficult to include this equipment as standard. Different use of the boat and personal taste can influence what is needed for the boat. A price list from Albin Marin A6 on extra equipment can give some ideas regarding the optional equipment that is available for the Albin 25. The following list may also help.

Extra equipment

Alcohol, butane gas or paraffin stove. Heating equipment. Refrigerator. Vacuum cleaner.

Refuse container with plastic bags for disposal is recommended.

Stem ladder — can be stowed under the helmsmans seat with clips.

Camping table for the cockpit — can be stowed at the side of the helmsmans seat. Rubber or plastic dinghy — can be stowed and fastened athwartship on top of the aft cabin.

Cushion to fill the angle between the fore bunks over the lowered table is available.

Stern pulpit is also available for extra safety.

Equipment for the boat

Anchor and line. A 6 to 8 kilogram Danforth Anchor or a 10 kilograms folding anchor with a minimum of 30 metres nylon line with a diameter of 10 mm can be considered a standard anchor for the Albin 25. A three metre chain between the anchor and line prevents the line from being cut or torn near the bottom and increases the holding power. For bad holding ground and in storms a heavier anchor is needed. A long line of elastic nylon helps the anchor hold better.

Three mooring lines (see chapter "Tie her up right") .fenders. Spare containers for extra fuel and water. Paddle. Plastic bucket and sponge. Electric hand lamp with batteries. Rubber lines and rubber strops for securing equipment.

Tools: besides the tool equipment delivered with the boat the following is needed: funnel for filling fuel tank, some screw drivers of various sizes, adjustable spanners, polygrip pliers, hammer, combination pliers, knife, etc.

Spares: Albin Marin AB can supply a service kit of spares containing oil and fuel filters, impellor, O-rings, fuses, bulbs, etc., for about 100 Swed. crs. A bigger kit is available at about double the price. Many other things will be convenient to have aboard such as teflon sealing tape, insulation tape, waterproof tape, one can of lubricating oil, a tube of outboard grease for propeller shaft bearing, also a selection of screws, nuts, hose clamps, locking wire, yarn, etc.

Safety and emergency equipment

One fire extinguisher or better two with a sufficiept capacity. Life jackets fur each person aboard. Life bouy — can be fitted on the aft cabin with strops, a self starting light is advisable. First aid kit. Safety harness with life lines should be used on deck in bad weather. Emergency signals (at least 6 red rockets). Horn — signals can be given with the electric horn. Communication radio (citizen band radio).

Navigation equipment

The compass should be a steady, easily read model with internal lighting which can be connected to the electrical system of the boat. Locating the compass at the instrument panel has the advantage of easy installation and good visibility and yet being out of the way. There is the disadvantage of the electrical cables causing deviation in the compass. With the compass properly adjusted the deviation will be small.

Parallel rulers and dividers should be carried along with the proper charts of the area where you intend to cruise.

A distance and speed log can be a great aid to navigation, but the log should be checked for accuracy and calibrated by runs on measured distances.

A transistor radio will give you the latest weather reports and there are many other items you will no doubt gather which will suit your particular way of navigating.

Glassfibre and maintenance

The advantages of glassfibre construction

Glassfibre reinforced plastic has very quickly become the leading material for hulls and decks for pleasure crafts. This depends mainly on the following:

1. The material is more economical for series production than any other material used today.
2. It has great strength in relation to weight; stronger than wood and steel.
3. It has good ageing properties — much better than wood or steel.
4. The maintenance costs are low — small yearly upkeep.
5. It is easy to repair — see below.

Care of the plastic surfaces

Glassfibre plastic surfaces are easy to maintain. Lack of maintenance will not cause the material to deteriorate but without care the surfaces will look bad and the value of the boat will decrease. Regular cleaning, waxing and polishing are needed.

Cleaning

Wash with water and ordinary synthetic detergents. The deck pattern can be scrubbed dry with a clean brush and some cleaning powder. Heavily soiled parts can be cleaned with one of the degreasing detergents recommended for cars or special boat cleaners. It is also possible to use soap. With care also acetone and carbon tetrachloride can be used. Avoid using scouring powders, strong alkalis (caustic soda), ammonia or any unknown detergents. Stains, small scratches and dull parts can be polished or burnished to regain the gloss.

Waxing and polishing

A well polished surface protects the gelcoat and is less easily soiled and makes the boat look better. Polishing puts off the time when it becomes necessary to paint the plastic because of looks. For polishing, use a boat, car or floor wax containing Carnauba Wax. It should be used in the same manner as when polishing a car. Do not use silikon polish, since this is very difficult to remove before repairing or painting. A boat should be waxed and polished at least once a year.

Repairing small damages

The Albin 25 small repair kit is used for repairing minor damages in the gelcoat and the outer part of the lamination. For more complicated repairs, contact a specialist.

Preparing for a repair

Remove dirt in the damage area. Roughen up the surface in the damaged area with an abrasive paper. Remove the dust thoroughly and check carefully that the damage is free from moisture.

Mixing and application of the gelcoat

Use a piece of board or a piece of wood and mix the gelcoat with the hardener thoroughly. The enclosed putty stick can be used for mixing and application. $\frac{1}{25}$ of hardener should be used. (This can be approximated).

The ready mixed gelcoat hardens in 15—20 minutes at 18°C (65°F). The surface of the repair should be slightly higher than the surrounding parts to allow for shrinkage and burnishing. This is easily achieved through using masking tape, as shown in fig. 30.

Finishing of a repair

Sand down the top of the hardened gelcoat with abrasive paper No. 220. While the gelcoat is hardening and still rubbery, a sharp knife can be used to cut away excess material. Continue with wet and dry paper No. 400 and 600 in mentioned order.

Be careful not to damage the surrounding gelcoat. Where possible, use a sanding block. Finally the repair should be burnished and waxed (see above).

General instructions

If the air temperature is below 15°C (60°F), use a heater to dry out and then heat the damage in order to speed up the hardening. Do not put the heater too close. Hands and tools can be cleaned in acetone. A slight difference in colour between the old and the new gelcoat will disappear after a few months of exposure to weather and sun.

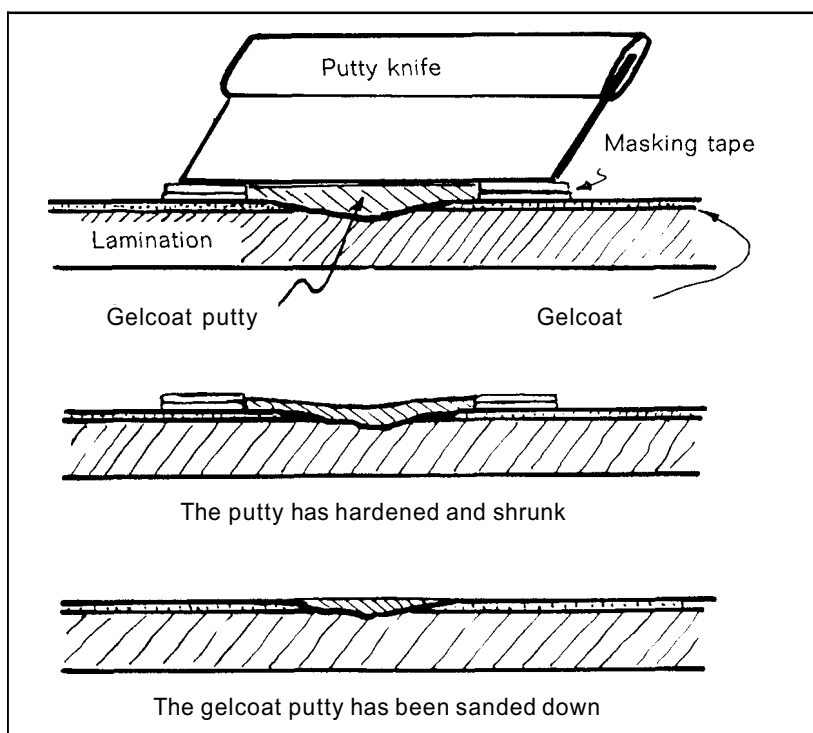


Fig. 30. Using masking tape it is easy to get the right thickness when applying the gelcoat putty and to avoid the danger of the damage.

The repaiikit consists of:

200 grams deck gelcoat	2 abrasive papers no 220
200 grams hull gelcoat	2 abrasive papers no 400
40 grams of hardener in a tube	2 abrasive papers no 600
One "putty stick"	

Painting on plastic surfaces

With care the plastic surfaces can be kept in good shape for several years without painting. Sooner or later they get so scratched and damaged that it becomes necessary to paint the boat. Maybe another colour is required. The quality will not be lowered if a boat is painted, provided that the right kind of paint is used in the right manner. Modern two-pot polyurethane paints are just as strong as a gelcoat and have an equally long life. A painted boat does not have to be repainted annually.

To get good results it is necessary to prepare the surfaces well. No wax or grease must be left. The surfaces should be cleaned with white spirit or a polyurethane thinner, (silicon wax cannot be removed). Then the surface should be sanded with a fine wet and dry paper to get a good grip for the paint. Wash with a lot of water. Follow the instructions from the paint manufacturer carefully. For the bottom a primer is needed. This may be necessary on all surfaces. If the original bottom paint (Geveco Racing Special) is to be used, it is not necessary to sand down or prime. A good washdown is sufficient. If another bottom paint is to be used, it is necessary to sand the bottom and then use a primer. To paint the bottom you need app. 1.5 liters (1 1/2 quart). Paint removers or a blow torch must not be used, since they may damage the glassfibre lamination.

Winter storage and Spring commissioning

When stored for the winter your Albin 25 should stand on her cradle or have blocks under the keel and shores fore and aft, see fig. 31. Other methods can be used, study boats stored locally.

A winter cover can be anything from a complete boathouse to a simple cover, the same as used when the boat was delivered. It needs a couple of supports to prevent it from sagging down at the doghouse or in the centre of the cockpit.

Before covering up, all loose equipment should be removed and the boat cleaned thoroughly. To avoid damages from freezing you must pay attention to a number of things:

1. Winterize the engine (see engine chapter).
2. Remove batteries,
3. Open the bottom plug to drain bilge water.
4. Pump out and drain the toilet.
5. Empty the watertank (pump or loosen hose at foot pump).
6. Clean bilges and be sure not to leave any water.

Note: Check gear and decide if anything has to be repaired or replaced. In spring all yards and boat firms have a lot to do. The earlier you can order work or replacements the more certain you can be of getting things done the way you want.

Spring commissioning includes:

1. Cleaning deck and hull.
2. Painting bottom.
3. Oiling teak parts.
4. Waxing and polishing plastic surfaces
5. Engine and gear should be checked and adjusted.

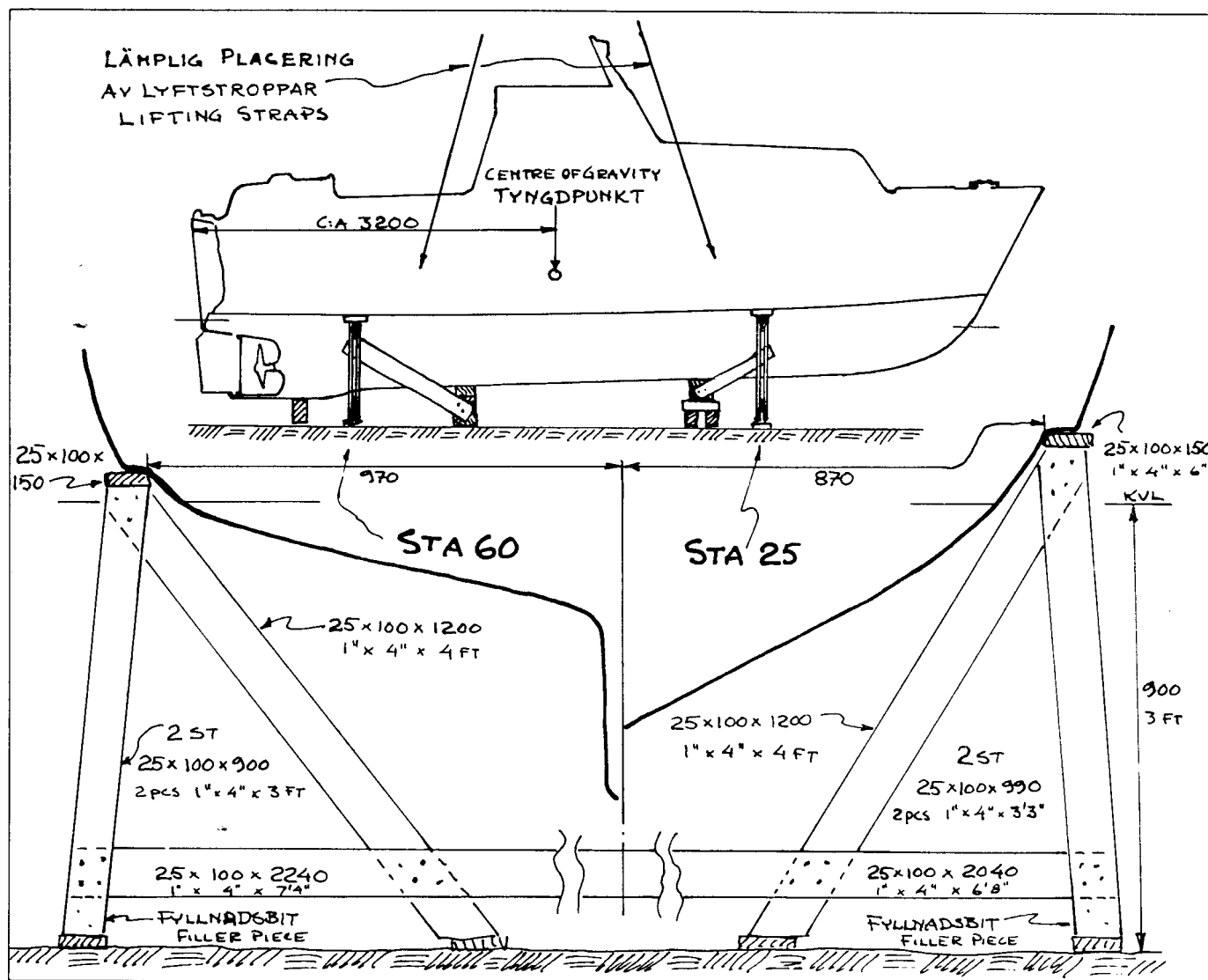


Fig. 31. Trestles for laying up.

Tie her up right

Fenders

The plastic models which can be blown up with air are very good. A size of at least 10 cmx40 cm (4"~16") will give adequate protection if 3 are used on each side. Make them fast with a bowline or a round turn and two half hitches. Fenders should be put out when arriving at the quay and taken in as the mooring is left. Never have the fenders out when underway.

Lines

Suitable material for mooring lines and anchor lines are polyester (Terylene, Dacron), polyamid (Nylon, Perlon) and polypropylene. For an anchor line long fibre Polyamid is best, Polypropylene is least expensive. Between the anchor line and the anchor you should use 2 to 3 metres of chain.

Polypropylene is suitable and economical for use as mooring lines but the diameter used should be larger than a polyester or polyamid. A lighter line of 8 mm diameter would be heavy enough for temporary mooring. A large eyesplice in one end of the

mooring line is convenient. Permanent mooring lines should be at least 18 to 20 mm in diameter of either polyester or polyamid. In difficult or dangerous places the diameter should be increased. Lines that are not used should be stowed in a cool dry place, out of direct sunlight. A piece of plastic tube slipped over the mooring lines where they pass through fairleads, etc., will prevent chafe at that point. Never tie up so that a line can chafe against sharp corners as they are easily worn through. Before synthetic rope is cut, bind or tape where the cut will be then singe the ends in a flame. This will melt the fibres together and prevent the rope from unraveling.

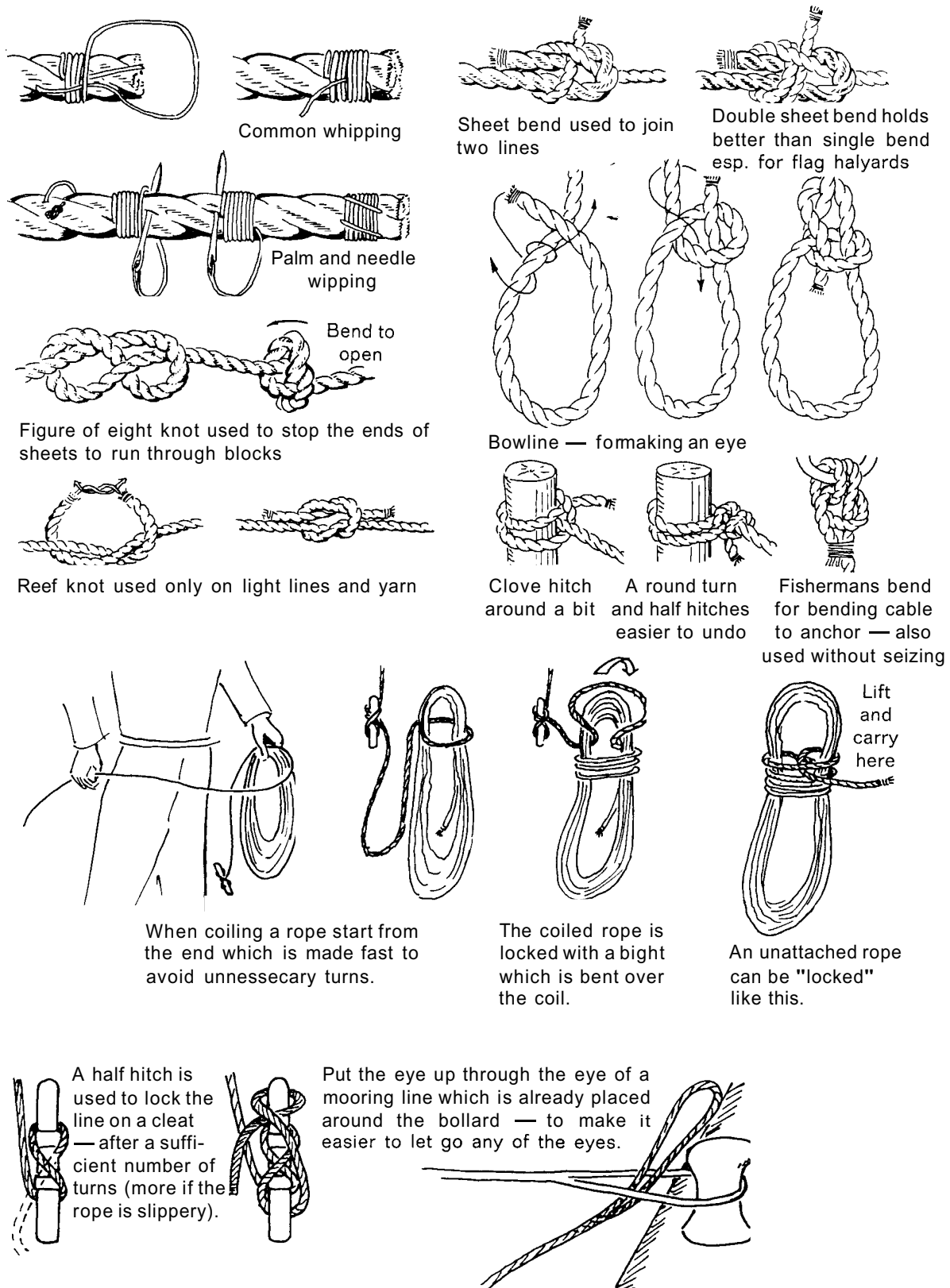


Fig. 32. Knots. coiling a rope, making fast to a cleat.

Mooring

Synthetic lines are very slippery so the mooring lines must be tied very carefully. The knots you use must not slip yet must be easily untied. The methods and the knots shown here fill these requirements. For tying up the following knots are best:

1. Bowline
2. Round turn and two half hitches.
3. Fishermans bend with a half hitch.

Always leave some slack in your mooring lines to allow for variations in water level or motion caused by wash from passing boats. Make fast the end of line on shore and make fast on the cleat on deck so that the part of the line that is not needed is on board.

Fig. 33—35 may give some ideas about the proper way to moor a boat.

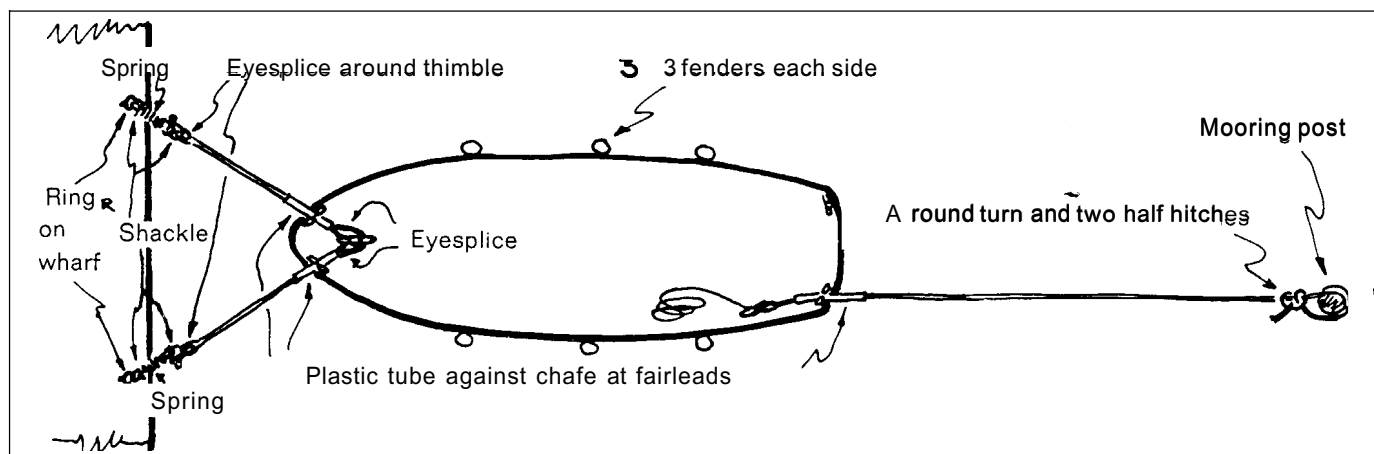


Fig. 33. Permanent mooring (example)

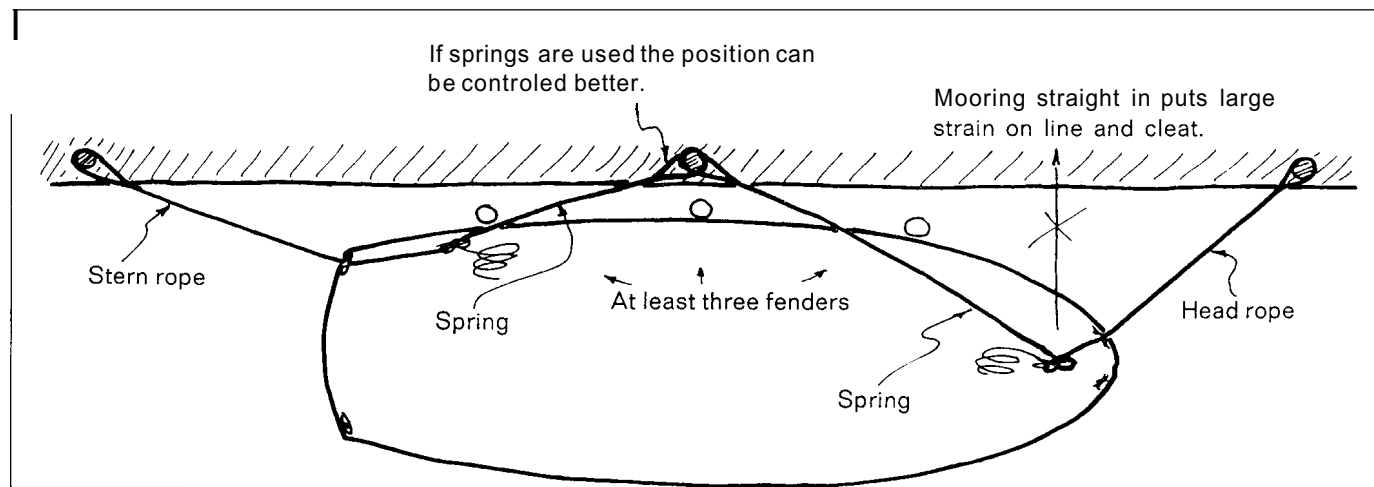


Fig. 34. Mooring alongside a quay.

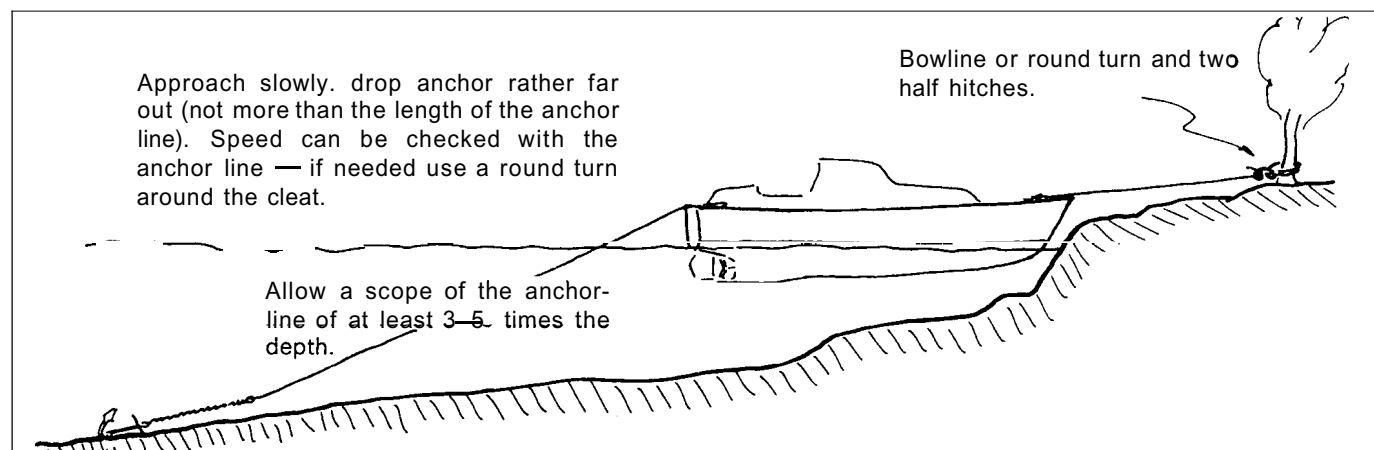


Fig. 3J. Temporary mooring with the stem against the shore or a wharf.

ALBIN 25 with sails

The commercial fishermen have been using a steadying sail in all weather for years. To this end a suitable rig for the Albin 25 has been requested by many owners. The reasons being to give the boat easier movements in a seaway, to be able to sail with the engine shut off when the wind is fair and to have a certain degree of safety if the engine should fail (plastic bags, lines, nets in propeller). The rig that has been designed and tested for the Albin 25 does not make the boat into a real motorsailer (that is a boat which is as good a sailboat as a motorboat). The boat remains a motorboat with sails. This is because the keel area is too small to stop drift when sailing or beating to windward. Because of this a fairly small sail area has been chosen, but much more than steadying sails and large enough to give fair sailing and increased safety. The stability of the boat would allow a lot more sail - see the stability curve. The rig has been dimensioned to take hard weather but the rudder area is too small to allow a lot of sail in fresh winds and give safe manoeuvring at the same time. The

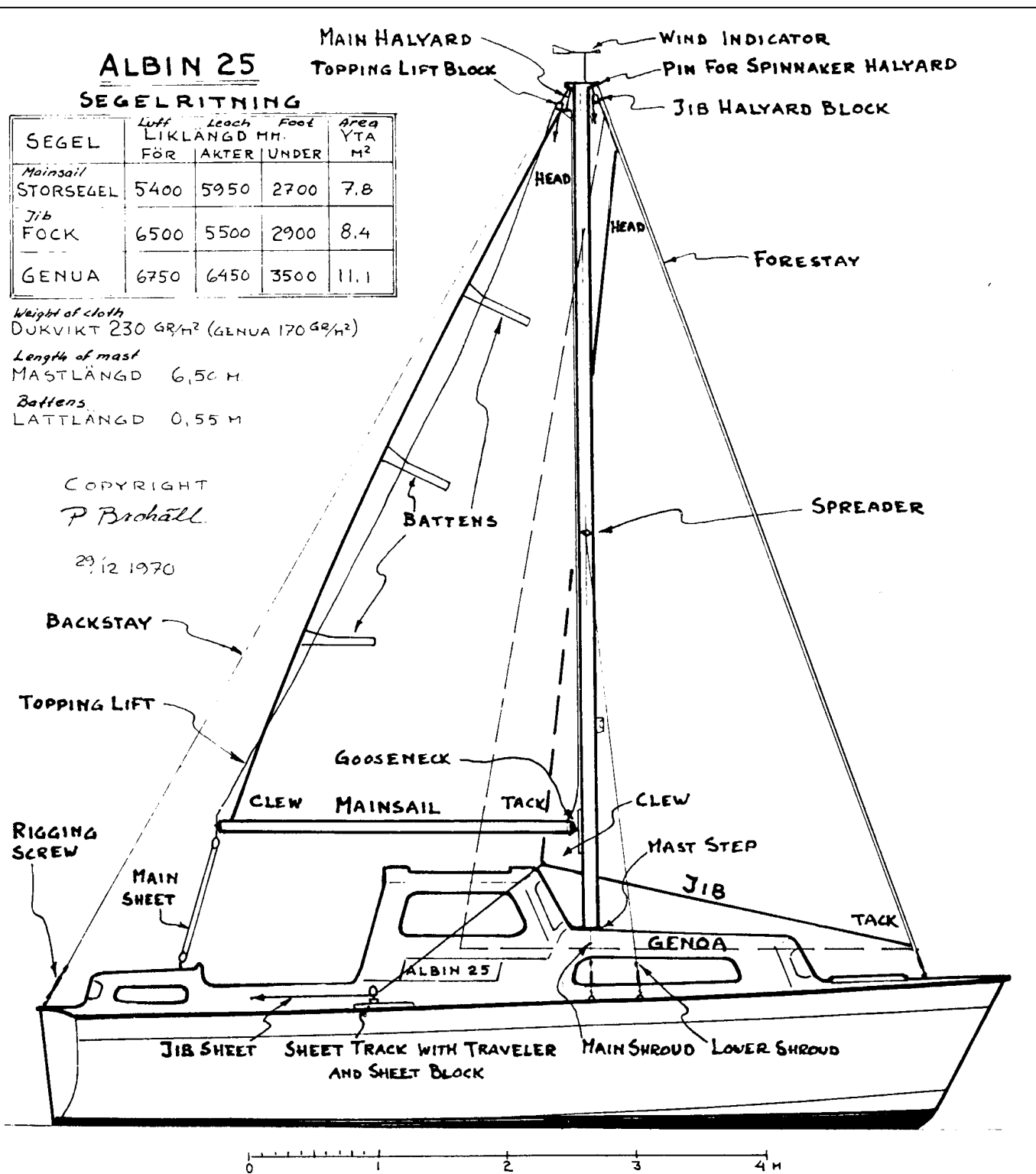
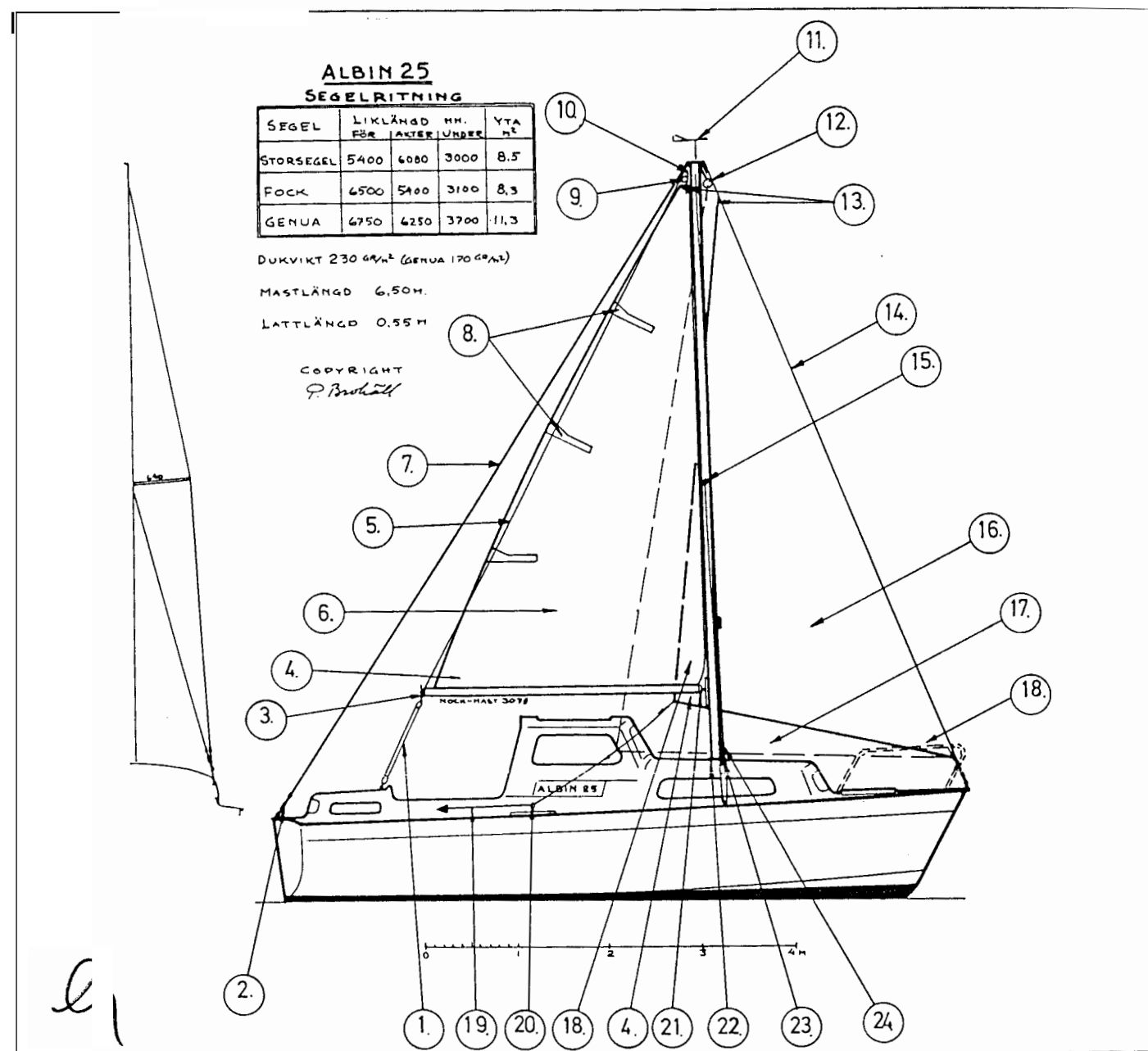


Fig. 36. Sail plan.

ALBIN 25 de Luxe med segel, riggning



1. Storskot
2. Vantskruv
3. Bomnockbeslag
4. Skothorn
5. Dirk
6. Storsegel
7. Akterstag
8. Lattor

9. Dirkblokk
10. Storfall
11. Vindvisare (Windex)
12. Fockfall med block
13. Fallhorn
14. Forstag
15. Vantspridare
16. Fock

17. Genua
18. Halshorn
19. Fockskot
20. Skotskena med travare och skotblock
21. Bombeslag
22. Mastfot
23. Undervant
24. Toppvant

Många har framställt önskemål om en lämplig segelutrustning för ALBIN 25 de Luxe och motiven har varit att få stöttning av segel vid sjögång, att kunna segla med avstängd motor när vinden är formänlig och att få en ökad säkerhet om motorn skulle krangla eller propellern bli intrasslad i nät eller plastpåsar.

Den rigg som har provats ut och som kan kopas extra till ALBIN 25 de Luxe gör inte båten till en riktig motorsegelare (en båt som är lika bra segelbåt som motorbåt) utan det förblir en motorbåt med segel. Detta beror på att kölpartiet är för Met för att hindra avdriften tillräckligt bra på kryss. Därför har en ganska blygsam segelyta valts — dock betyd-

sailing performance is good enough for you to beat against the wind in normal conditions. You can sail around 70 degrees from the wind. But to turn through the eye of the wind is almost impossible. Instead it is necessary to turn with the wind — a controlled gybe. With the wind from the side or from astern the boat performs fairly well. In a ten knot wind the speed is around 4 knots and in a fresher wind she sails still faster. On long cruises, especially in open water, the sails certainly add safety because they give the possibility if need be to maintain a course and avoid drifting down onto a lee shore.

Fitting the rigging details

Sheet tracks and fittings for shrouds, stays and main sheet need holes according to the drawing (fig. 37). Fittings through foredeck and aft cabin top must be made watertight with elastic putty. When nuts have been tightened (do not forget washers) lock them through deforming the threads with a chisel or something similar.

At the mast step the deck has to be strengthened to be able to stand up to the pressure. Bore 6 holes according to the drawing (diameter 3/4"-1") through the outer layer of the deck. Remove the Divinycell (core material) in and around the holes and fill with a two-part polyester putty to get a pressure-proof filling.

Between the top wooden chock and the deck an elastic filler should be used. The strengthening knee below the deck is fastened with two bolts through the glassfibre "bulkhead" with a mahogany "washer" on the outside. The stainless steel mast step is fastened with wood screws. A 10 mm diameter hole is bored through deck and wooden chocks to take the electric cable to the mast light. A plastic tube is fitted watertight in the hole with elastic putty, the upper end at least 1/2 inch above deck. Through this tube the cable is lead from the electrical connection (aft of toilet) up above deck and fitted with suitable connectors for the cable in the mast.

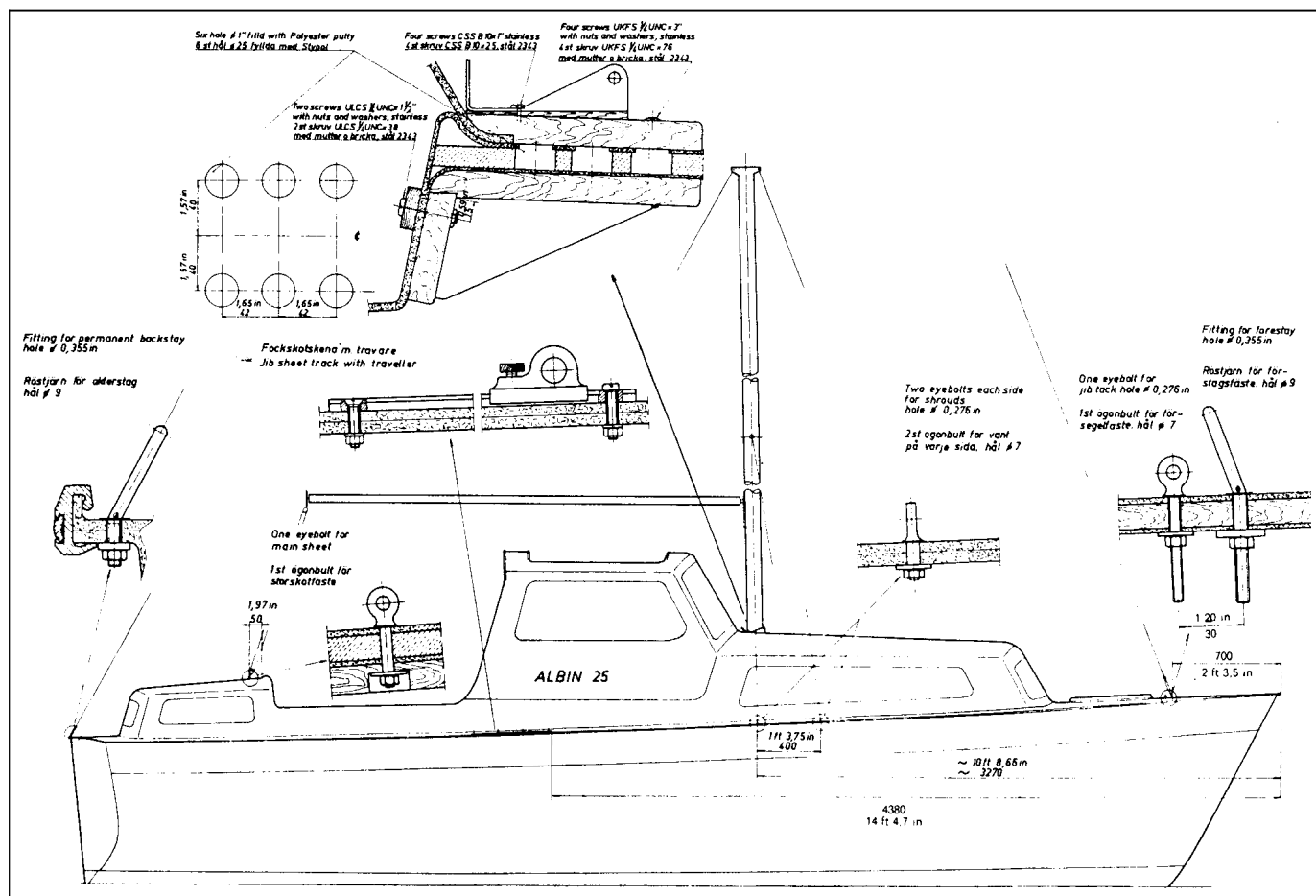


Fig. 37. Rigging installation drawing.

Rigging (See fig. 36)

The standing and running rigging are labelled. The rigging procedure is as follows:

1. Place the mast on two boxes or trestles.
2. The soft eye on the jib halyard, the end without the snapshackle, is put through the jib halyard block. The rope tail is then attached to the wire halyard so that the

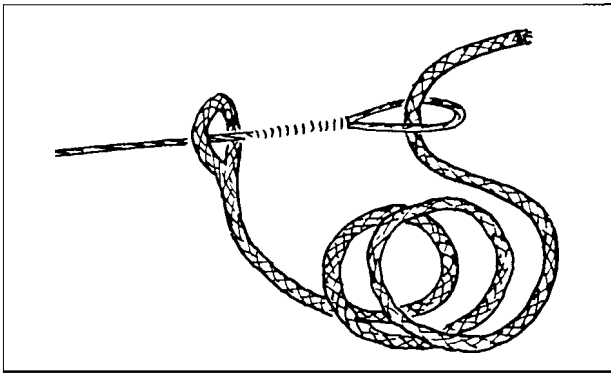


Fig. 38. How to connect the rope tail to the wire halyard.

two form a reef knot, fig. 38. The block is then shackled to the aft pin on the forward side of the mast head fitting.

3. The eye of the main halyard is fed over the sheaves of the mast head and the rope tail is attached as on the jib halyard. The rope tail should be on the forward side of the mast.
 4. The lower shrouds are fixed to their respective tangs.
 5. The main shrouds are attached.
 6. The forestay is attached to the middle hole on the forward side of the mast head fitting. The forward hole is for a spinnaker halyard block.
 7. The block for the topping lift is fixed to the inner hole on the aft side of the mast. The block should be turned so that the rope end leads down the mast.
 8. The back stay is fixed in the aft hole
 9. The locking pins on the rigging screws are removed and the bolts must be taken out. The rigging screws should be opened half way and then attached to their respective stays and shrouds, All rigging screws should be fitted so that they turn the same way when tightened.
- The straps on the spreader ends are loosened. One split pin and washer are removed from the spreader, the spreader tube is put through the hole in the mast and the washer and split pin are fitted again. The main shrouds are put into the grooves of the spreader and the straps are replaced. Tape or cover the ends to prevent the sails from chafing on sharp edges.
11. Attach wind indicator or burgee.
 12. Check that all bolts in the rigging are locked with split pins and all shackles are siezed with wire. Tape over the sharp ends of pins.
 13. Position the mast with the strap hook at the foot against the athwartship bolt of the mast step.
 14. Connect the mast cables from the steaming light to the connectors at the mast step.
 15. Attach the forestay and shrouds. The mast is raised by hand and the backstay is attached. Tighten the rigging and lock the rigging screws. The lower shrouds should be tightened lightly but the others should be tightened fairly hard. After sailing for some time the rigging should be tightened again. Tape the pins and the rigging screws.
 16. Boom and main sheet should then be fixed. The locking knob on the gooseneck traveler should be below the boom.

Setting sail for the first time

Pull the mainsail out on the boom and attach it to the gooseneck fitting. Pull the sail out tight. Fit the slides into the mast track, insert the battens in the batten pockets in the mainsail and attach the main halyard. Hoist the mainsail almost to the top of the mast. The luff can then be tensioned the desired amount by pushing the boom down and locking it there with the knob. Both the foot and luff should be stretched just enough to make the small wrinkles in the sail disappear but not so hard that diagonal wrinkles appear.

Hoist the jib and tension the halyard as much as possible. The blocks for the jib sheet leads should be adjusted on the tracks so that the line of the sheet is below a line perpendicular to the forestay. The sheeting points must of course be adjusted so that the leech is neither too slack nor too tight. If the jib is hoisted higher with a couple of shackles between the tack and tack fitting, the sheet point moves aft. As a rule, it is better to have the leech too slack if anything. The positions of the sheeting points should be marked on the track with paint or tape. It is advisable to tape the forward ends of the track so that the sheet block slides cannot come off by mistake and be lost.

Avoid heeling the Albin 25 too much and shorten sail in good time. Begin by reefing the mainsail. If the boom is pulled aft from the fitting the sail can be rolled round the boom (easier to do with sail lowered). Naturally the easiest way to shorten sail is to lower one of the sails.

Sails and maintenance

Modern sails of polyester fiber (terylene, dacron) do not have to be stretched and worked in. Provided they are not subjected to abnormal forces, they will keep the form given by the sailmaker. Consequently, one can just hoist a suit of new sails and sail away. Sails, however, do require some maintenance. What spoils the sails is chafing, too much flogging, over stretching, wrinkles, moisture, dirt, salt, mildew and direct exposure to the sun. Some parts of the sail are more vulnerable to chafe than others. The head and clew, batten pockets, the luff and foot where pulled into the mast and boom are particularly exposed. The parts of the sails which come into contact with the spreaders and shrouds are particularly liable to be damaged. Modern synthetic sail cloth is much stronger than cotton and not so soft which means that the stitching does not sink into the cloth as it does on cotton sails.

This means that the stitching is exposed and likely to be chafed. It is necessary to check the seams and to carry out repairs before the damage becomes too extensive. Temporary repairs can be made with tape. Flogging spoils the sails and should be avoided. Wet sails should be dried by spreading them out in the sun and only in a very light wind should they be hoisted to dry.

Wrinkles make the sails less effective. Sails should, therefore, not be stuffed into bags which are too small. It is best to fold sails parallel to the foot and then to roll them loosely around the luff. A sail must of course be dry before being bagged. It is easiest to detect the presence of moisture by feeling the tack. Dirt and mildew may not damage a sail but they look unsightly. Salt makes sails heavier and it also attracts moisture which will make them heavier still. Salt is best removed by hosing the sail with fresh water.

Polyester fibres are resistant to sun but age faster if exposed to too much sun. Protect the mainsail with a cover when it is left on the boom or remove it from the boom and take it below. Dirty sails can be washed in luke warm water and a mild detergent. If the sail is too big to be rinsed in a bath tub, spread it on a floor, hose it with fresh water and scrub it with a soft brush. Grease can be removed with trichlorethylene. In winter the sails should be clean and dry and folded loosely in their bags. They should be stored in a dry, well ventilated place.

More general advice

A line between the handrails of the aft cabin can make it easy for someone to climb on board up the footsteps on the transom.

A foot stool of the right height can make it more comfortable at the helm on a long run.

The interior accommodation can be improved with hooks, plastic bins etc., fitted according to your own needs.

Nets called donkey hammocks slung under the roof of the aft cabin can give extra stowage for clothes, etc.

Try to plan regular safety exercises such as man overboard drill, fire drill and what you would do in case of collision, fog, storm, engine trouble, etc.

At least one person besides yourself should be able to handle the boat in case something should happen to you.