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Per Brohäll

General handbook for ALBIN boats

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Foreword

The object of this handbook is to provide ALBIN boat owners with general advice on how to use and maintain their boats.

Detailed instructions concerning boat and engine are to be found in separate handbooks. We presume that the actual handbooks have been studied.

Even a boat as well equipped as an ALBIN boat may, after delivery and launching, require some adjustments, e.g. trimming of rig; minor engine adjustments; tightening odd screws, nuts and hoseclips; and repairs to minor damage sustained during shipment. The manufacturer will naturally stand by his guarantee, but the low price of an ALBIN boat 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.

Should any problem arise which cannot be solved with the help of this or the special handbook, do not hesitate to write or call ALBIN MARIN AB or the agent for advice.

We wish you happy sailing in your ALBIN boat.

General Advice

A plate with name and address of the owner ought to be fitted inside the boat.

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.

Influence of the propeller on manoeuvring

The direction of rotation of the propeller has a certain influence on a motordriven boat. Figs. 1 to 7 show this. In these figures the propeller is turning anti-clockwise (as in Albin 25, Vega, Ballad). If the propeller is turning clockwise it's influence, of course, is the opposite. 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 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.

When going ahead the turning radius is about a boat length. There is no great difference in the turning radius between low and high speeds.

From full speed ahead you can stop an Albin boat in 1—2 boat lengths if the motor is used in the right way.

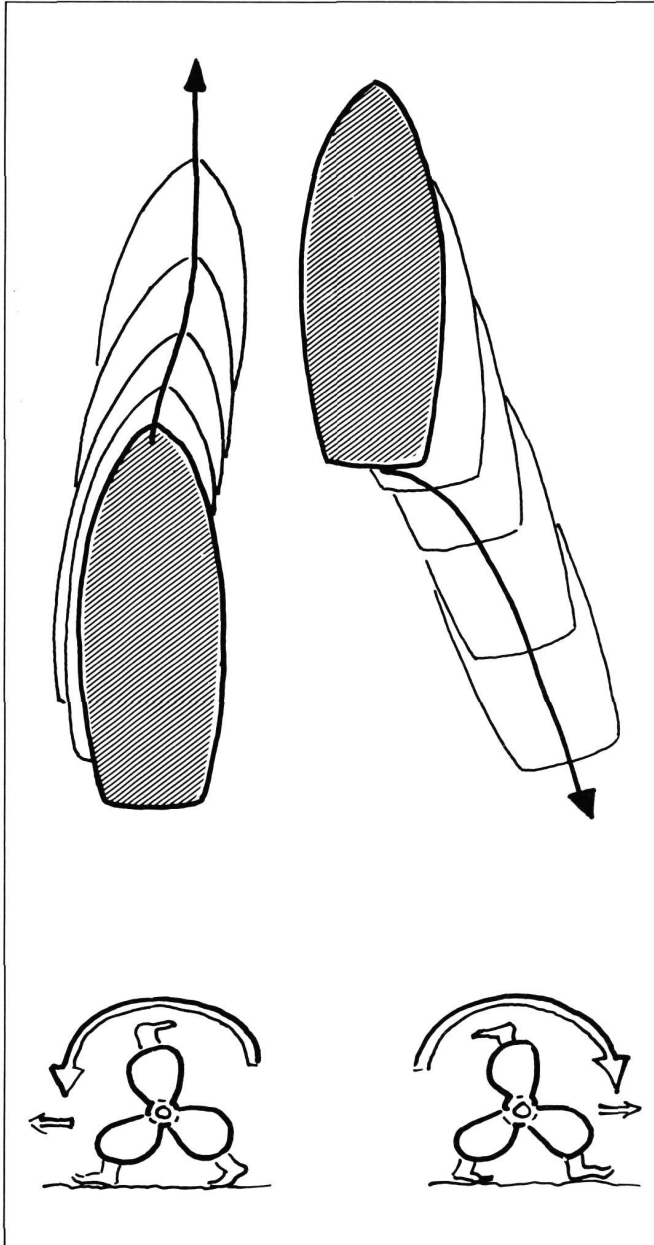
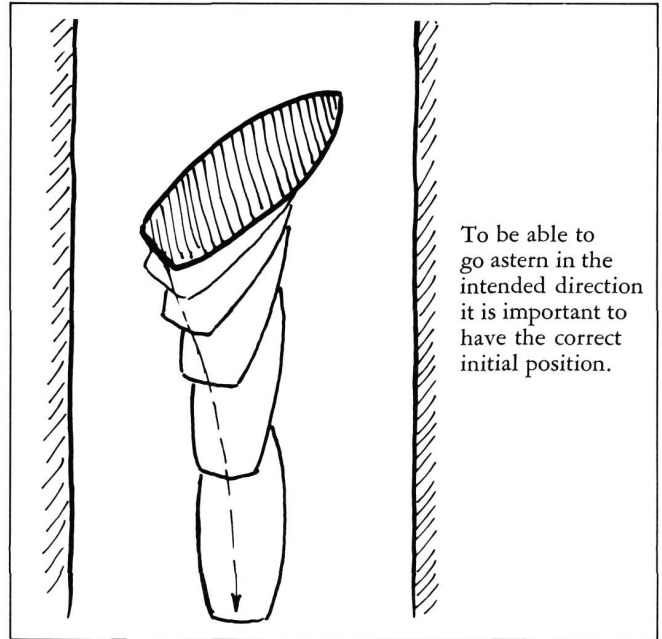


Fig. 1. The propeller turns anti-clockwise (looking forward when going ahead). The rotating propeller stream pushes on the keel and bottom. In the lower positions the propeller blades work in less disturbed water. This adds up to a side force, which is noticeable when starting from laying still — especially when going astern.



To be able to go astern in the intended direction it is important to have the correct initial position.

Fig. 2. Initial position when going astern.

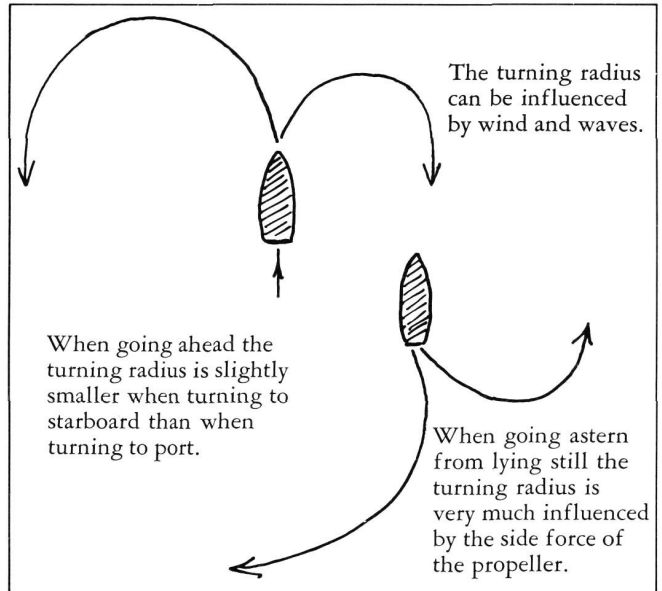


Fig. 3. Turning radius.

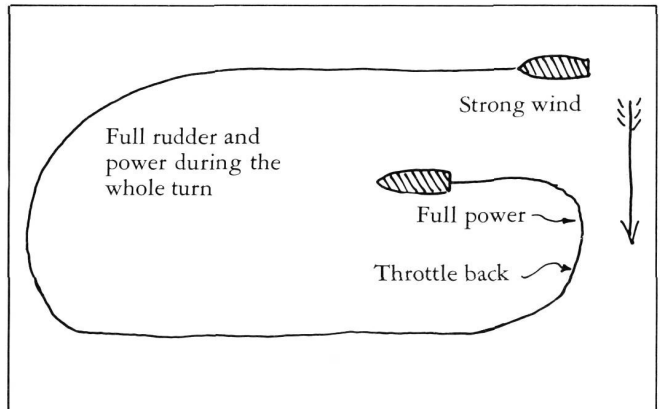


Fig. 4. When turning against the wind the turning radius can be smaller than when turning with the wind.

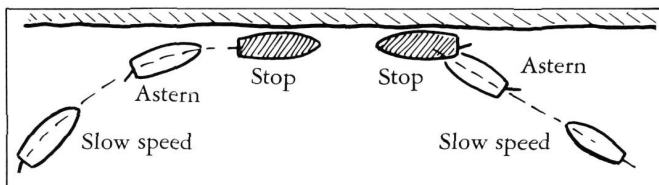


Fig. 5. Approaching a quayside. With the portside against the quay the manoeuvre is best done with a continuous turn. Approaching with the starboard side is done on a straight course. The propeller sideforce lays the boat smoothly alongside when going astern.

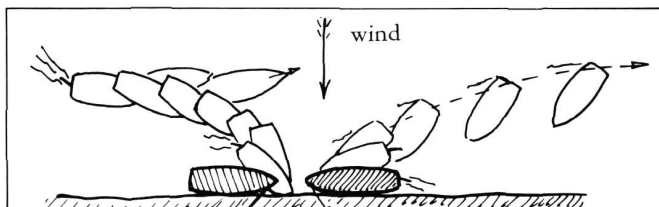


Fig. 6. To leave a quayside when the wind is blowing against it. If the portside is tied to the quay it is easier to go astern and get off.

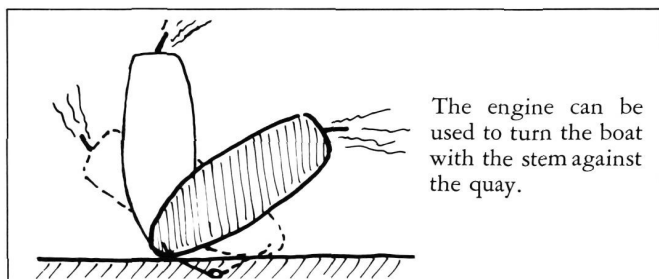


Fig. 7.

The engine can be used to turn the boat with the stem against the quay.

Advice on sailing and sail handling

Setting sails for the first sail

Pull the mainsail out on the boom and attach it to the roller fitting. Pull the sail out tight but not past the black band. Fit the luff rope or the slides into the mast track, insert the battens in the batten pockets in the mainsail and attach the main halyard. Hoist the mainsail to the black band at the top of the mast. Check from a distance with binoculars that the sail is up to the band and mark the halyard so that the sail can be rehoisted in the same position. The luff can then be tensioned the desired amount by pulling the boom down with the downhaul. 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.

The stops on the mainsheet track may be placed about 15 cm (6") from the ends. A general rule for sheeting the mainsail is that the traveller should be close to the centre in light winds and further out the harder it blows. Hoist the jib and tension the halyard winch. The block for the jib sheet leads should be adjusted on the tracks so that the line of the sheet is just below a line bisecting the sails angle at the tack. When using a genoa, the line of the sheet should lead just over this line. The sheeting points must of course be adjusted so that the leech is neither too slack or too tight. As a rule it is better to have the leech too slack if anything. The positions of the sheeting points for different sails should be marked on the track with paint or tape.

The sheeting point is about correct when the sail starts to shake simultaneously from top to deck when you luff up to the wind. A general rule is that halyards and sheets should be tightened harder in strong winds than in light winds.

Tuning

Hull, rig and sails must be tuned correctly if you want your boat to sail at it's best.

It is well worth remembering that the sails are the "engine" and that the hull offers resistance. Consequently the "engine" should be in best possible trim and resistance as low as possible.

The bottom has to be clean and for racing it is important to put elbow grease into painting and polishing the bottom — it is a pleasure to polish such a smooth plastic surface.

When sailing the propeller should be positioned with the blades vertical. A paint mark on the fly wheel or on the propeller shaft can help you find the right position. Adjustable propellers should be feathered.

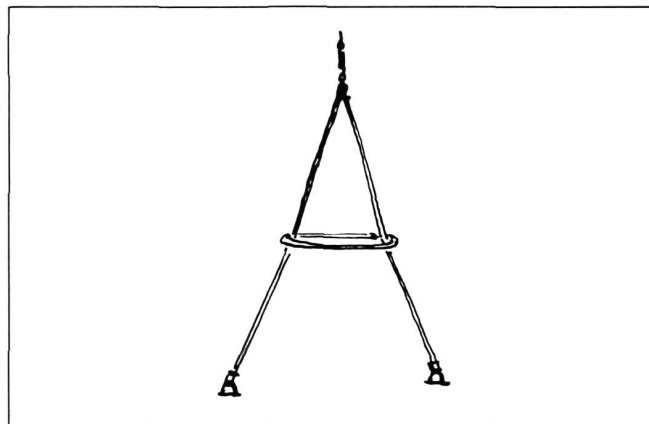


Fig. 8. The tension in the backstay can be altered with a lanyard around the bridle.

Tuning the boat means, amongst other things, that the shrouds and stays have to be tightened correctly. The forestay, permanent backstay, main shrouds and forward lower shrouds should be tightened hard. The aft lower shrouds require only light tightening — thus making the mast bend forward a little in the middle to make the mainsail flatter in strong winds. There are several ways of increasing or decreasing the draught in the sails by bending the mast or adjusting the tension on the stays.

If the mainsail is too full it can be flattened by bending the mast, tightening the fore lowers and slackening the aft lower shrouds.

If the genoa jib is too flat the forestay can be slackened — giving a fuller sail. This is desirable when running — when racing the backstay can be slackened. The tension can be altered with an arrangement as in Fig. 8. A special backstay adjuster is available as optional extra from ALBIN MARIN AB.

Tuning includes ascertaining the correct position on the track for the sheet leads for different sails in different wind strengths. Also different lengths of tack pennant may be needed. Shackles, snap shackles, sheet track and winches have to be adjusted and oiled to function smoothly and fast. Tuning, in a wider sense, means marrying sails to spars and rigging and getting everything, including the crew to function fast and with precision.

Sail balance

An Albin boat is well balanced and has just the right feel on the helm when sailed with the correct sails. A slight tendency to luff, and thus a pressure on the helm, is desirable in order to get the boat to go well windward.

When the breeze freshens, the pressure on the rudder increases. To keep the pressure low, the first large reduction in sail area is best made by reefing the mainsail. Another reason is that the headsails are more efficient than the mainsail size for size. Just like other boats, if the pressure on the rudder is very hard when beating it is a result of either faulty sheeting and sail trim or too large sail area. Very full sails and excessive heeling gives a strong tendency for luff. The remedy is: sail area right, sheeting right — flat sails, main-sheet traveller to leeward.

All boats can become very hard on the helm under certain conditions. When broad reaching with the spinnaker pole against the forestay in a 16 to 20 knot wind, considerable effort may be needed to keep the boat on course — but then she travels very fast, well above her theoretical maximum speed. If the wind increases, the spinnaker has to be changed for a genoa jib and the boat will again be very easy to handle. When running the spinnaker can possibly be used in up to 30 knots of wind — giving a sensationally fast run.

Most sailing boats can be sailed under either mainsail or jib alone. Under jib they are more easily manoeuvred than under mainsail only.

When racing it is important to keep the boat light. The amount of food and stores (water and fuel) has to be considered and maybe part of the cruising equipment can be left ashore.

Sail handling

It is best to practice setting, changing and taking down sails in light conditions. Once the procedure is known and after some practice, sail changes can easily be effected in strong winds, large seas, rain and darkness. There are many ways in which sails can be worked and handled and it is best to determine which way is best suited to oneself and the crew. The following are brief suggestions on different methods:

Changing of headsails

The foredeck hand does everything except sheeting the sail home, which should be done by the crew man in the cockpit or by the helmsman.

1. The tack of the new sail is attached to the stem head — at least two hooks should be fixed on the stem head fitting.
2. The lower sail hanks of the old sail should be taken off the forestay.
3. The new sail is hanked on and pulled out along the lee rail.
4. A new sheet is attached — this means having two sets of sheets and sheet leads.
5. The old sail is taken down and unhooked.
6. The halyard is transferred to the new sail — and also the sheets, if two sets are not available.
7. The new sail is hoisted and sheeted in.
8. The tack of the old sail is unhooked and the sail taken below.

Reefing the mainsail

The sail is best reefed when hoisted, also when the boat is at anchor or moored to a buoy.

To reef when sailing, the helmsman should steer a course somewhat higher than close hauled and ease the sail a little. All action is carried out by the fore deck hand.

1. Tighten the topping lift.
2. Take out or fold the reefing handle.
3. Release any slide stop on the mast track.
4. Ease the main halyard gradually.

5. Roll the sail up, ensuring that the luff rope lies well back along the boom.
6. Ease the topping lift; sheet the sail.

When rolling it may be necessary to pull the sail out along the boom to ensure that it stows neatly. When taking in a large reef, it may be necessary to remove the bottom batten if it does not lie parallel to the boom. The reef can be improved, the boom prevented from drooping and the sail prevented from wrinkling if some form of padding is wrapped in the sail from the middle to the end of the boom. A sail bag, a pillow or some spare battens are suitable.

Sailing with the spinnaker

The standard boat must be equipped with the following extras to take a spinnaker: Spinnaker, spinnaker boom, boom topping lift with an extra block on the mast, foreguy (downhaul) with a block on the fore deck or by the mast, halyard with a block at the top of the mast above the forestay, two sheets, two sheet blocks. Your boat already has mast track with a traveller for the spinnaker boom and fittings for blocks at the stern. (See Figure 9).

How to set a spinnaker

Only in light winds can the spinnaker be set and taken down with only two men on deck. Normally there should be three. The foreguy, sheet and after guy can be handled from the cockpit. Everything else must be handled by the fore deck hand.

1. Bag the spinnaker but let the clews and the head stick out of the bag.
2. Place the bag on the leeward side of the foredeck and secure it with a length of line.
3. Pull the guy (windward sheet) outside the windward shrouds and round the forestay and hook it to the lifeline for the time being. Pull the leeward sheet outside the shrouds and fix it beside the guy.
4. Pull the downhaul (fore guy) through the block on the foredeck and take it to a cleat in the cockpit.
5. Attach the spinnaker boom to the traveller on the mast track and place the forward end on deck to windward of the forestay.
6. Hook the topping lift and the foreguy on to the pole.
7. Raise the pole until it is horizontal and take up the slack on the foreguy.
8. Attach the guy and the sheet to the clews of the spinnaker and take up the slack in them. Put the guy through the end of the pole.
9. Attach the halyard with the snap shackle or with a bowline.
10. Hoist the spinnaker under and behind the genoa as fast as possible. Do not sheet the sail until the halyard is secured.
11. Take up on the guy until the tack of the sail reaches the pole end and continue hauling until the pole is at right angles to the direction of the apparent wind. (Watch your wind indicator or burgee). The foreguy may have to be eased.
12. Take up on the sheet until the sail fills and no more.
13. Adjust the position of the pole on the mast so that the pole is perpendicular to the mast. The downhaul may need easing and the topping lift tightening.
14. Drop the genoa and secure it on deck.

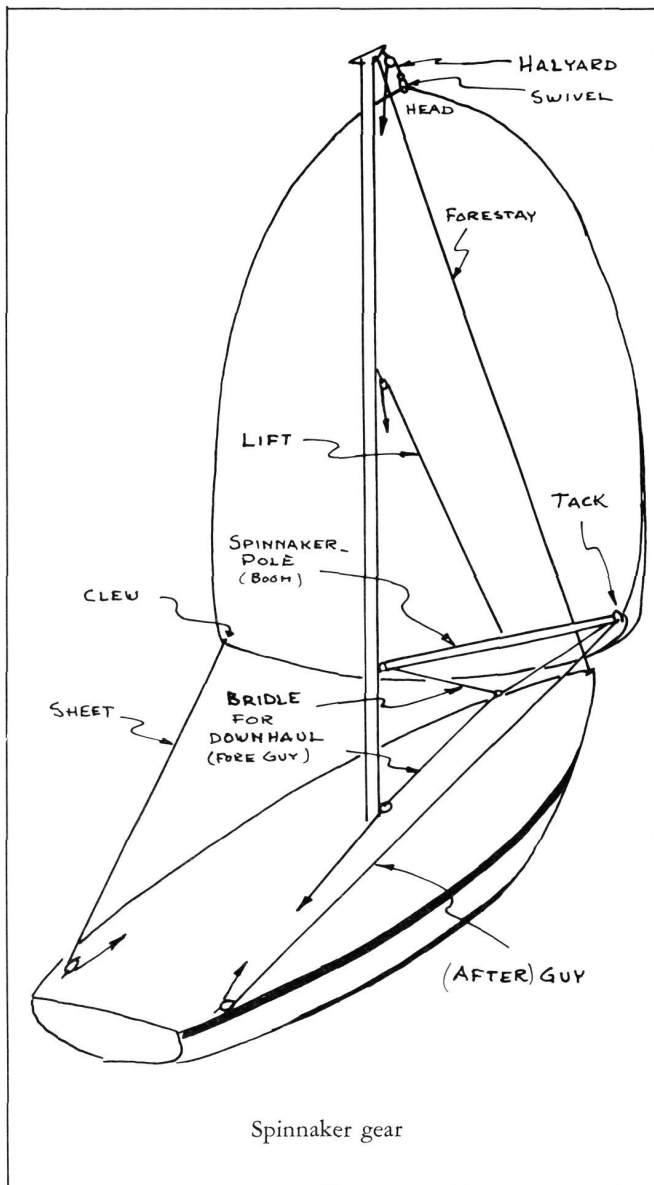


Fig. 9.

Rules to memorise

1. Keep the pole at right angles to the apparent wind.
2. Keep the pole perpendicular to the mast.
3. The end of the pole should be the same height above the water as the clew of the spinnaker.
4. The sail should be sheeted no more than necessary to keep it full.
5. Jerk the sheet if the luff starts falling in.

Gybing the spinnaker

(Figure 10 shows a slightly different method)

1. Release the pole from the mast and hook the end into the "old" sheet.
2. Pull the boom across the boat, release the "old guy" and put this end into the traveller on the mast.
3. Gybe the mainsail.
4. Trim the sails on the new course.

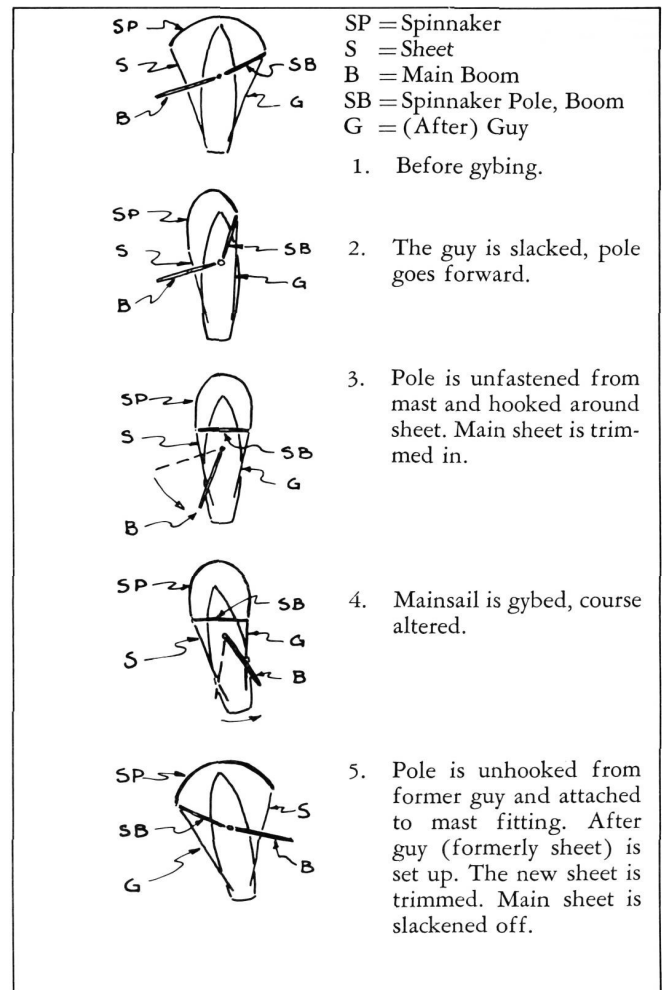


Fig. 10. One method to gybe the spinnaker.

Dropping the spinnaker

The spinnaker should always be dropped in the lee of either the mainsail or a headsail. The simplest way is to drop it on a run. The sail is then fully under control. The spinnaker can be dropped straight onto the foredeck but the easiest and safest method is to haul it into the cockpit.

1. Slacken off the guy so that the pole goes forward to the forestay.
2. Grab the sheet from the cockpit.
3. On a beam reach when the spinnaker does not fall into the lee of the main, the guy has to be eased further until the sail collapses.
4. Pull the sheet in, ease the halyard slowly and hand the sail in, beginning with the foot.
5. Release the guy and let it run through the end of the pole to get the whole spinnaker into the cockpit.
6. Take the spinnaker below and bag it. Put the boom back on deck and prepare the spinnaker for resetting.

Some other advice on sailing

The Windex is an unsurpassed, cheap wind indicator for the mast head. To show the airflow round the sails, pieces of wool or strips of spinnaker cloth are often attached just aft of the genoa luff (sometimes even on the mainsail also). They are called tufts or tell-tales.

The kicking strap from the fitting on the boom to the anchorage point at the foot of the mast should be used for holding the boom down on the reach and run. Its use promotes speed by preventing the boom lifting. When running in heavy seas an unintentional gybe can be dangerous. A length of 10 mm (1/2 inch) diameter nylon line can be used as a preventer guy. This should be rigged by tying one end to the fitting at the outboard end of the boom and leading the other end forward outside the shrouds and to a cleat on the foredeck. The guy should then be tightened. Further tension can be applied by hauling in on the mainsheet. When the preventer guy is not in use it can be left attached to the outboard end of the boom with the other end led forward along the boom and secured at the forward end by the mast. The guy will not be in the way when reefing. The preventer guy and mainsheet do the job of the kicking strap when running and can also be used when the mainsail is reefed when the kicking strap is not available.

When sailing with the spinnaker pole against the forestay, the after guy is chafing on the main shroud with a too small angle to haul the spinnaker pole to windward. With a 'jockey pole' the guy is held out and the angle is enlarged.

It is not necessary to have shackles or snap hooks on the ends of the spinnaker halyard and sheets. A bowline is better and with practice it can be tied just as quickly as attaching a snap hook. A bow line will never come undone (whereas snap hooks can), it is easy to release, adds no additional weight and costs nothing.

A tiller extension makes steering easier when the boat is heeling and makes it possible for the helmsman to sit in the best position.

Sails and maintenance

For cruising and family sailing

The sail that is most useful in addition to the mainsail and Jib No. 1 is the genoa. It gives the boat a much better performance in light airs. A small jib should be the second choice as it gives security on the few occasions that one is sailing in really hard weather. If a small jib is not carried on board either a working jib alone or a reefed mainsail can be used. A spinnaker can, therefore, be given the same priority as a small jib. Many cruising sailors are a little frightened of this sail — some even say that it is dangerous. It is not, but it calls for more extensive seamanship, judgement and forethought. The spinnaker can make a run just as interesting a point of sailing as a beat. Those who have got used to having a spinnaker on board never want to be without it. If you think that it is unnecessary expense, bear in mind that it will make sailing much more interesting. If you want to play with figures, you will find that the spinnaker increases the pleasure much more than the cost!

For racing

All the forementioned sails and some others are needed for racing. The really hot racing sailor usually has very definite ideas on how the sails should look and usually has his favourite sail maker who tailor-makes his sails. The following advice, therefore, is for the beginner and for those who race once in a while and need some initial help.

The most important sail is the light weather genoa and after that an extra lightweight spinnaker, both made to maximum size. The maximum size being that referred to by the IOR rule. These measurements also comply with the class rules for the Albin one design boats.

The maximum measurement for the clew perpendicular to the luff of the genoa (LP) is shown in the boats' sail plan. Other

measurements are regulated by the length of the forestay. Suitable measurements of a light genoa are shown on the sail plan.

The maximum measurement of the spinnaker is also shown on the sail plan. For light airs you need the lightest spinnaker possible with a weight of about 40 gram/m² (1.2 oz/sq yd) or less. This spinnaker should be full and have a deep skirt. For stronger winds a heavier, flatter spinnaker that can be carried close to the wind is needed. A standard spinnaker from Albin Marin AB is a compromise — an all round spinnaker.

A spinnaker staysail is useful. This is a short and very wide sail that is set flying beneath the spinnaker and is not attached to the forestay. It can be triangular with each side equal and made of heavy spinnaker material. The clew of this sail may not be sheeted aft of the LP distance from the forestay.

Therefore, if one wishes to attach the tack aft of the forestay, the foot must be shortened by the same amount. The spinnaker staysail is set under the spinnaker to catch the wind which would otherwise pass under it. It should be set low enough down so as not to disturb the set of the spinnaker. In light winds it is desirable to have a full mainsail but in strong winds a flat mainsail is required. Racing mainsails, therefore, are often equipped with a slab reef along the foot so that it is possible to take in the fullness with, for instance, a zip.

Some other sails

For racing a number of new types of sails used. Since some of them are shown on sail plans and in one design rules, a short description may be useful.

Reacher (Reaching Genoa) — Similar to high cut light genoa, is especially made for reaching.

Drifter — Extremely light light-genoa. It is used when there is a near calm. Is hoisted flying (wind 1 m/sec.).

Ghoster — Nearly the same but may be used up to 3 m/sec.

Starcut Spinnaker (Genniker) — An especially flat spinnaker which almost can be used for beating.

Tall Boy — A high and narrow spinnaker stay sail, it's made especially for reaching.

Big Boy — A spinnaker staysail, large as a light genoa. It's carried to leeward of the spinnaker when running off the wind — often sheeted to the boom end.

Cunningham-hole — A cringle a short distance above the tack of a sail. With a rope through the hole you can stretch down the luff to get the sail more flat in stronger wind. Is used very often on racing sails.

Trysail — Is a loosefooted triangular storm mainsail, which is sheeted with special sheets over the furled mainsail.

Sail material

Nowadays, sail cloth for all sails except spinnakers is made of polyester fibre. Terylene (England), Dacron (USA), Tergal (France), Tetoron (Japan) — they are all basically the same but the qualities can vary quite considerably in weave and finishing treatment. For spinnakers a more elastic material is required and nylon is used. The weight of the cloth is given in grams/m² or oz/yard² or, in the USA oz/yard 28 inches wide.

Maintenance

Provided they are not subjected to abnormal forces, modern sails will keep the form given by the sailmaker, but it is advisable to give the sails a short breaking-in period. Set the sails properly and sail off the wind for about an hour.

Sails 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 part of the mainsail that lies against the spreaders when running and the parts of the headsails 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 periodically and to carry out repairs before the damage becomes too extensive. Temporary repairs can be made with tape and there is a tape made specially for the purpose. It is important to ascertain the cause of any damage so that precautions can be taken to avoid a recurrence. These can take the form of altering the position of a sheet lead, covering the spreaders or reinforcing the sails at exposed places. 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 fibre and nylon are resistant to sun but age faster if exposed to too much sun. It is important to protect the mainsail with a cover when it is left on the boom. Best of all, 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.

Tie her up right

Fenders

The plastic models which can be blown up with air are very good. A size of at least 10 cm x 40 cm (4" x 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 should be larger than when polyester or polyamid is used. A lighter line of 8 mm ($\frac{3}{8}$ " diam. 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 ($\frac{3}{4}$ "— $\frac{7}{8}$ " 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.

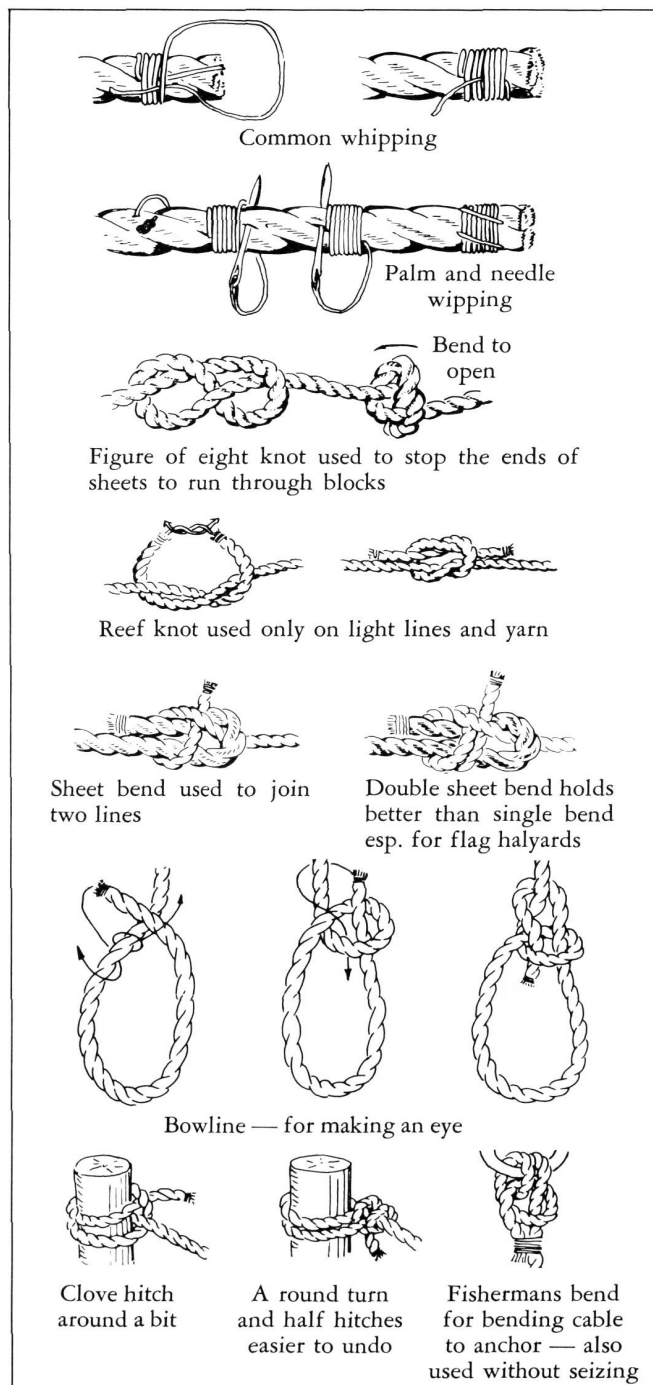


Fig. 11.

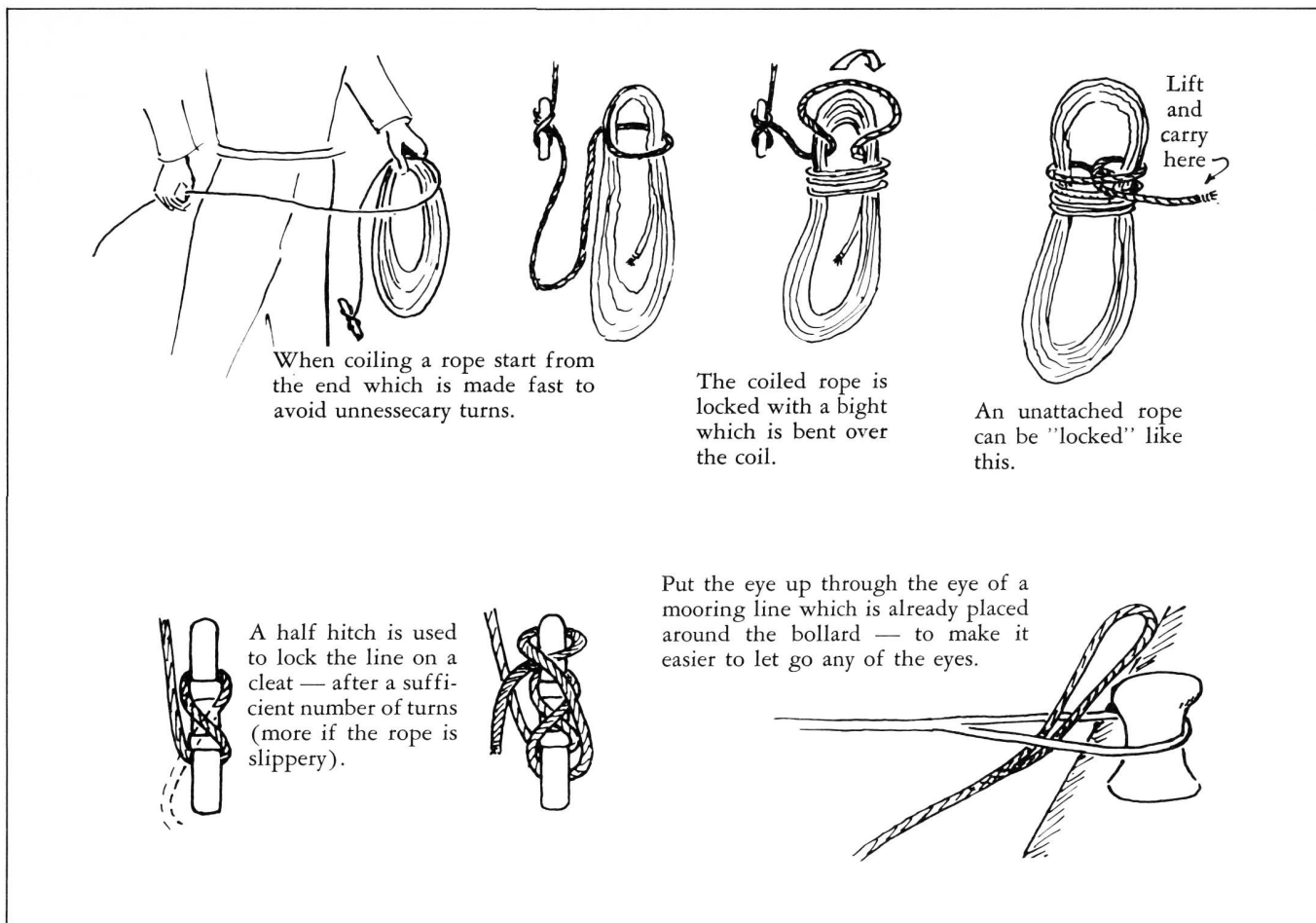


Fig. 12. Knots, coiling a rope, making fast to a cleat.

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.

Fig. 13—15 may give some ideas about the proper way to moor a boat.

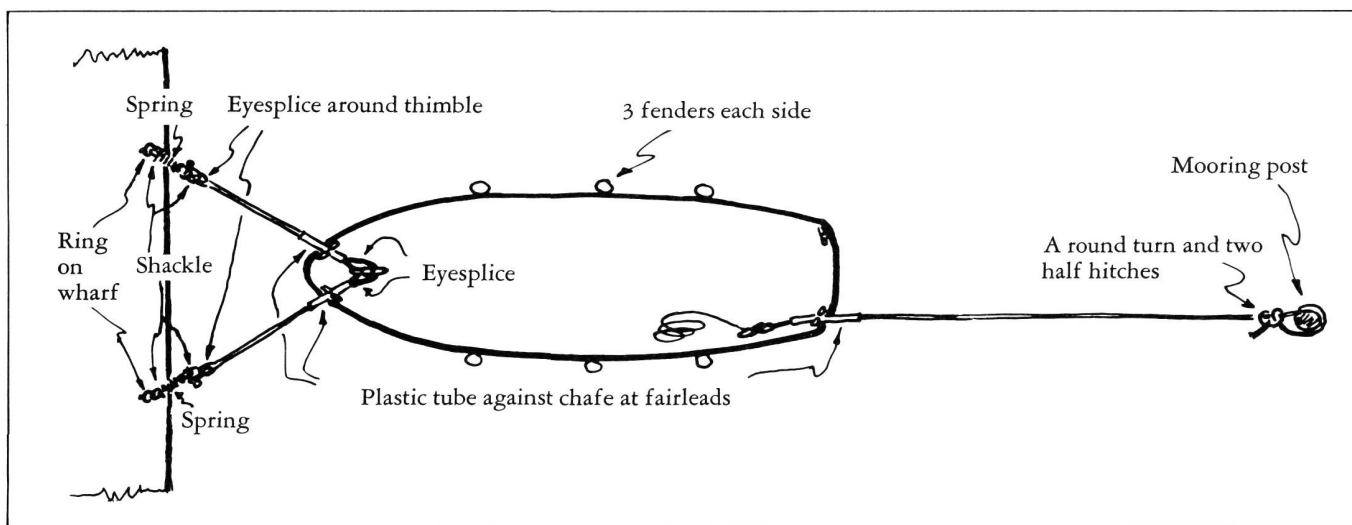


Fig. 13. Permanent mooring (example). Always leave some slack in your mooring lines to allow for variations in water level or motion caused by wash from passing boats.

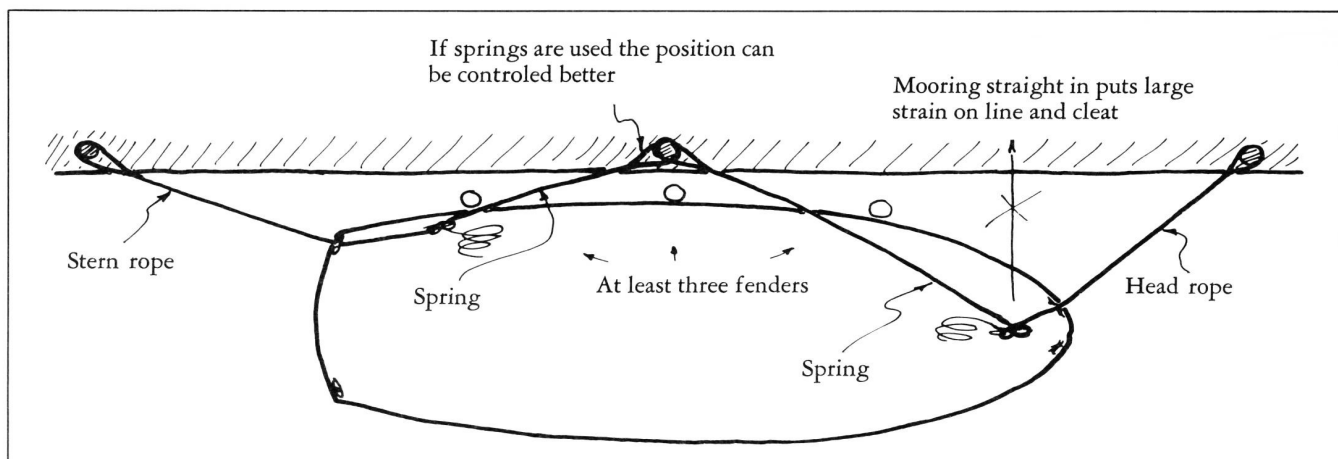


Fig. 14. Mooring alongside a quay. Make fast the end of line on shore and make fast on the cleat on deck so that the part of the line that is not needed is on board (handy for adjustments).

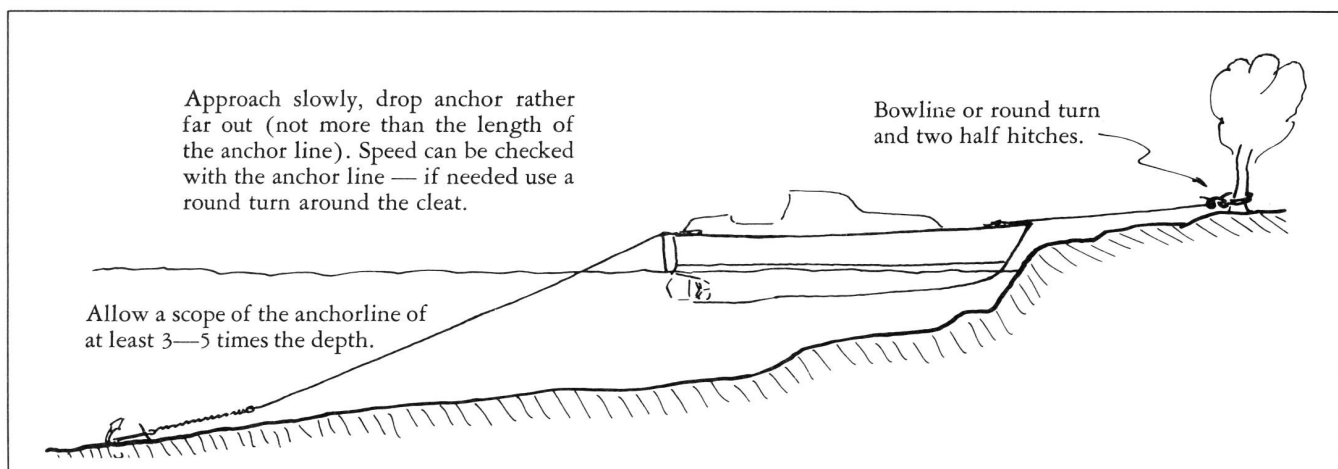


Fig. 15. Temporary mooring with the stem against the shore or a wharf.

Equipment

The Albin hoats have 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 makes 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 AB on extra equipment can give some ideas regarding the optional equipment that is available for the different boats. The following list may also help:

Extra equipment

Alcohol, butane gas or paraffin stove. Heating equipment. Refrigerator. Vacuum cleaner. Bow ladder. Bathing and life-saving ladder. Rubber or plastic dinghy.

Equipment for the boat

Anchor and Line — An 8 to 12 kilogram Danforth Anchor or a 10—15 kilogram folding stock anchor with a minimum of 30 metres nylon line and a diameter of 10 mm can be considered a standard anchor. 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'). 6 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, impeller, O-Rings, fuses, bulbs, etc. A bigger kit is also available. Many other things would be convenient to have aboard such as teflon sealing tape, insulation tape, waterproof tape, one can of lubricating oil, a tube of 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 still, two with a sufficient capacity. Life jackets for each person aboard. Life buoy with 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. Communication radio (citizen band radio).

For offshore racing there are special regulations concerning safety equipment. In these rules the main part of above mentioned equipment is included and several more items.

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. 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 Carnuba 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 small repair kit is used for repairing minor damages in the gelcoat and the outer part of the lamination.

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. 16.

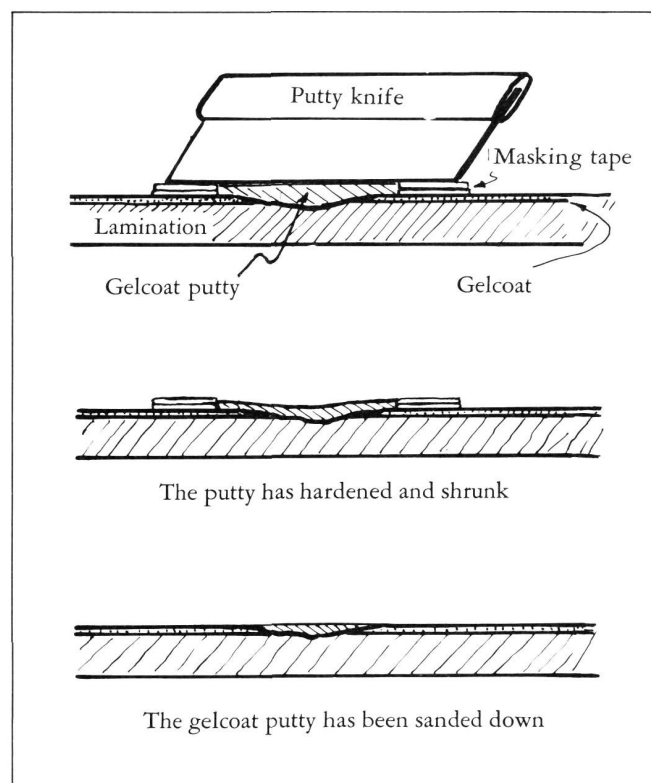


Fig. 16. Using masking tape it is easy to get the right thickness when repairing a gelcoat damage and to avoid to smear around the damage.

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. For the best result you can finish with paper No. 800 or even better No. 1200 (if available).

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 gelcoat will disappear after a few months of exposure to weather and sun.

The small repair kit 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" | |

Repairing of bigger damages

Some examples of damage, which the handy boat owner can repair himself are:

Keel damages, damaged laminate without hole(s) right through that aren't too large.

Other jobs that are common and easy to do are:

Lamination of wood parts to the hull.

Larger collision and grounding damage should be left to a specialist.

A largely damaged area must be examined very carefully so that no defects are overlooked. An example can explain this:

A boat was damaged when she was grounded in an autumn storm, which resulted in a hole in her bow. The damage was repaired but in open sea and heavy weather the boat began to leak.

It was found that the laminate had been damaged beside the visible fault. When such damage has occurred the laminate must be clear from the interior in order that a light can be shone through the hull. If the laminate has a defect this will then be seen as the damaged area will be less translucent, i.e. the polyester has been pulverized inside the laminate.

Gelcoat cracks can also be a sign of too great a strain, but this generally appears long before the strain on the laminate itself reaches a critical value.

Repairing material

Polyester, thixotropic — Ought to be pre-accelerated, if not 1—3% accelerator is needed. Catalyst (hardener) should be added when the work starts. 1—3% is the normal catalyst volume. Catalyst and accelerator must not be mixed directly together as the reaction can be very violent!

Other things needed are:

Glassfibre mat 300—450 grams/m², metal roller, cheap paint brushes, acetone to clean hands and tools, maybe gelcoat, adhesive tape, abrasive paper, files, pair of scissors, steel brush and paper cups, cans and jars for mixing polyester and catalyst.

For smaller repairs and filling hollows a two component epoxy or polyester putty is needed. When putty only isn't enough and a full lamination is unnecessary we recommend reinforced polyester putty (available from ALBIN MARIN AB).

Example of repairing

Fig. 17 to 20 show examples of different types of work. Work should be done in dry weather and a temperature of higher than 18° Centigrade.

Keel damages are usual. A small damage which has not holed right through the laminate can be filled with putty and then painted with anti-fouling paint.

If the damage is deeper, the putty ought to be mixed with glassfibre or reinforced polyester putty can be used.

When the damage is larger the repair can be made as shown in Fig. 17.

Big cavities in filling material must be filled with putty and one can also fill with glassfibre and polyester.

Before work commences the surface around the damage must be trimmed, ground or sanded thus providing fresh clean and sound material as a base for the repair. If required clean with acetone.

The lamination is done with cut-to-size pieces of glassfibre which have been soaked through with polyester. Before the glassfibre mat is put in place, the surface has to be spread with polyester and before the next layer is positioned the polyester has to be spread again.

Use a metal roller or a stiff paint brush to work the air out.

Finally laminate one or more layers of glassfibre mat, covering the firm material around the hole. Before the resin has set too hard you can cut away surplus material with a sharp knife.

When cured hard you can grind and sand the repaired surface and paint with a polyurethane primer and finish with an anti-fouling paint.

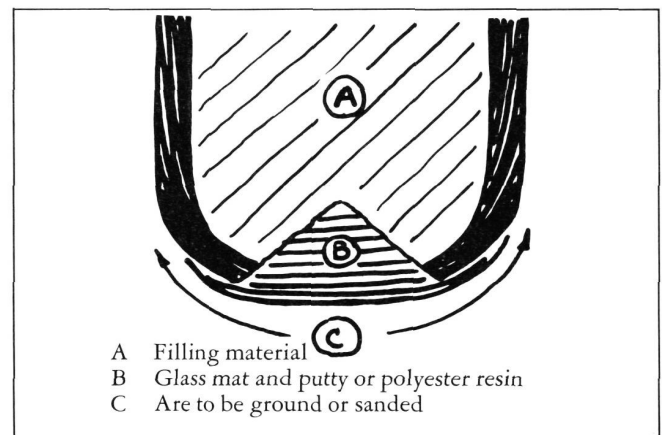


Fig. 17.

Damage which can be caused by going aground is a fin or rudder being cracked or split in it's joint. Minor damage can be repaired through glueing the crack with epoxy glue and screwing the two halves together.

If the damage is more extensive an outside lamination according to Fig. 18 can be made. The repair should be sanded and finished as previously described.

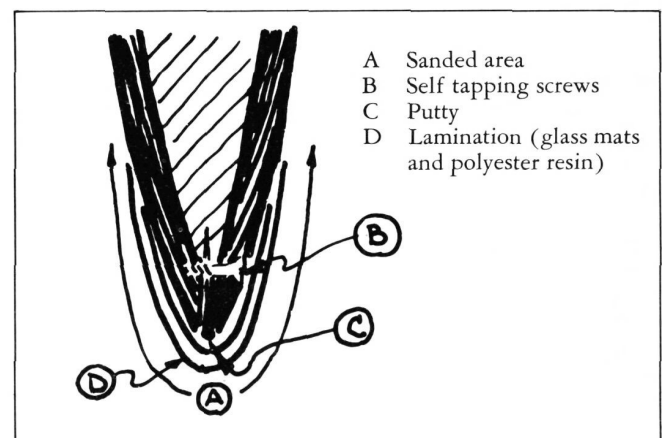


Fig. 18. Repairing a split fin or rudder.

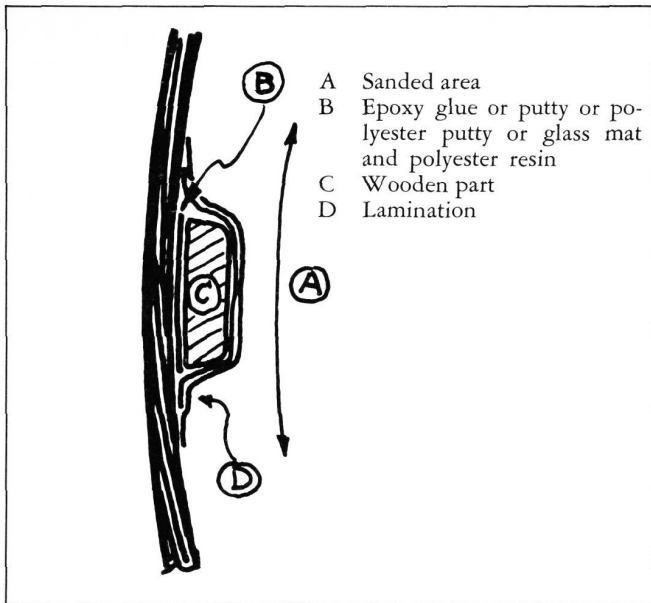


Fig. 19. Shows how a wooden part can be fastened to the hull.

If you have a hole right through the hull you can repair according to Fig. 20.

All damaged material has to be cut away with a file or hack saw blade or be ground away with a power grinder.

The hole is covered on the outside with a backing piece, board or plate, which the polyester cannot stick to — metal, acrylic glass, polythene film, etc. A small backing piece can

be taped around the hole but a larger one is better screwed to the hull.

When this is done, you can if needed, paint with gelcoat. When the gelcoat has hardened the lamination can start.

The gelcoat side of the completed repair can be finished as described earlier.

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. Paint removers or a blow torch must not be used since they may damage the glassfibre lamination. The smaller Albin boats require 1—1½ litres (quarts) of bottom paint, the larger ones 2—3 litres (quarts).

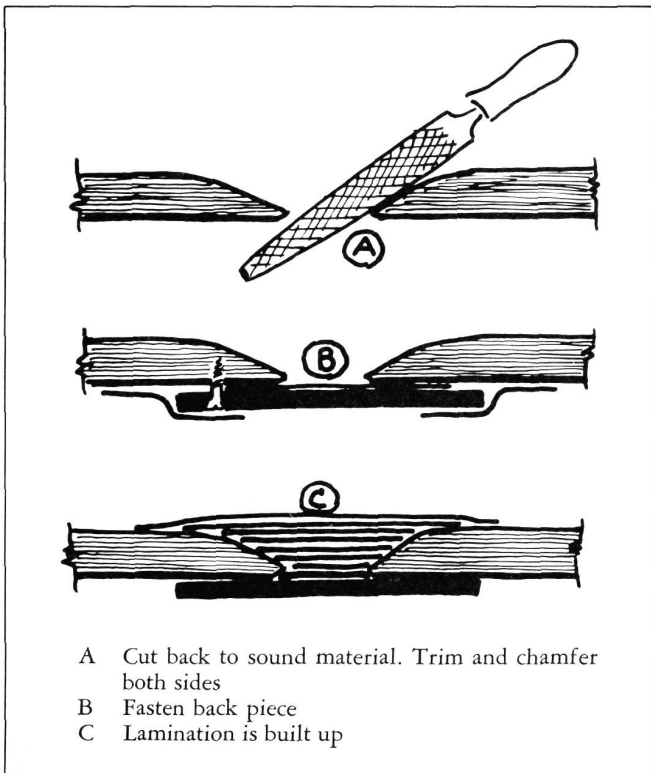


Fig. 20. How to repair a through hole.

Interior and equipment

Varnish, glue and fastening

The interior joinery is mainly of resin glued marine plywood with surface veneers of sapele on gaboon 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.

Fabrics

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 fade.

Cockpit cover, sprayhood

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 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.

Sprayhoods and small covers are made of P.V.C. coated canvas. They are best cleaned with fresh water and a mild soap detergent — solutions which contain acetone or ammonium hydrate **will destroy the plastic coating.**

Fresh water

The water tank filler is on deck. The water level in the plastic tank can be checked through the vertical opening in the bulk head aft of the tank. Parallel to the filler pipe a thin breather tube is fitted and it ends just under the deck. 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. A large lid is fitted to the tank to facilitate inspection and cleaning.

Skin fittings, sea cocks 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 and any cockpit drains have no sea cocks since they can be reached from deck and sealed up if need be.

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

All cocks on the skin fittings should be tested from time to time — at least once a season — to prevent them "freezing" through corrosion. A few drops of oil will help.

Marine toilet

Use only toilet paper and not too much of it! Fig. 21 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 the bowl and then pump still more (pump generously).
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.

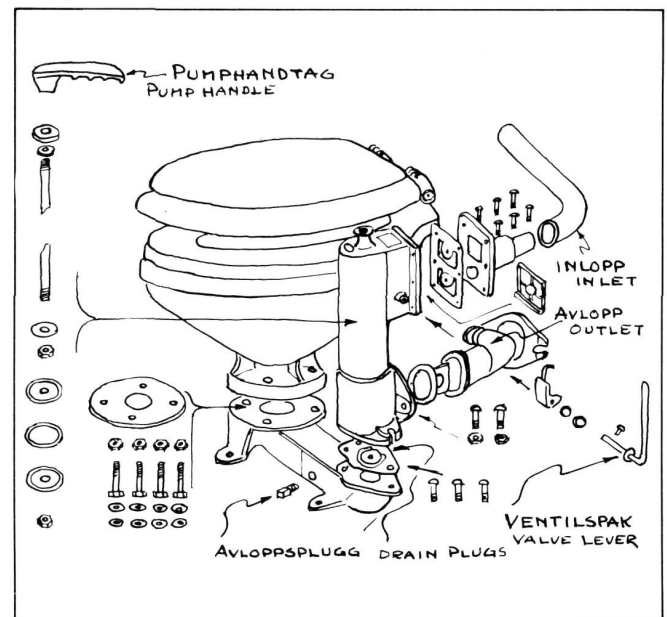


Fig. 21. Toilet type "Brydon Boy".

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 fresh-water 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 and a gasket may have to be replaced. Soap and detergent may cause the pump to bind. A spoonful of cooking oil is a good cure.

The toilet can be supplemented by a **holding tank** (Fig. 22). Excrements can be retained in this tank when in a harbour or bathing creek. The tank can be emptied in the open sea.

The emptying will be done by its own pressure and needs no pumping. The toilet always can be used as an open system, even with the holding tank filled. The tank capacity is enough for four individuals use over 2 to 3 days.

For use in marinas with emptying facilities the holding tank can be supplemented with emptying pipe to a deck fitting.

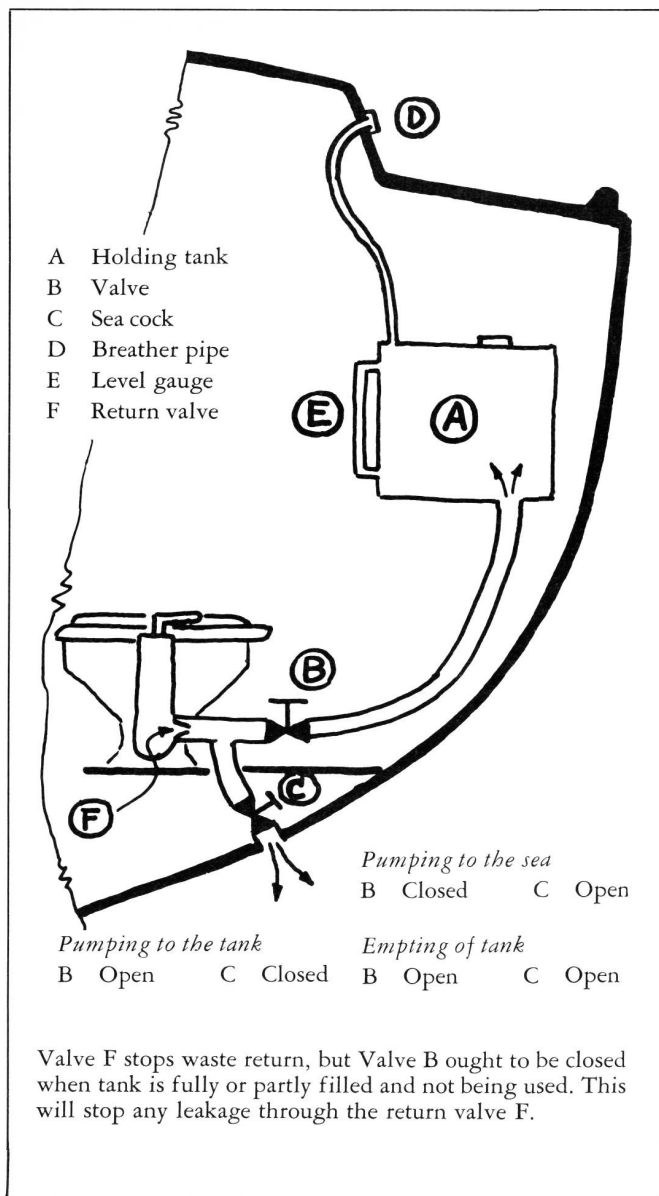


Fig. 22. Toilet with holding tank.

Refrigerator

A refrigerator with a capacity of 42 litres can be installed in some Albin boats. The electrical power needed is maximum 25 watts (4.5 amps) but used normally the mean current is about 2 amps. This means that 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 extra battery capacity.

To save on electric power you can turn the thermostat to maximum coldness when the engine runs and the batteries are charged.

When the engine is stopped the thermostat is turned to minimum.

In other ALBIN boats a 22 litre refrigerator box can be installed. It has the same compressor as the above mentioned refrigerator, but the mean power consumption is about 25% lower. The thermostat is located behind a louvred cover which must be unscrewed in order to adjust the thermostat.

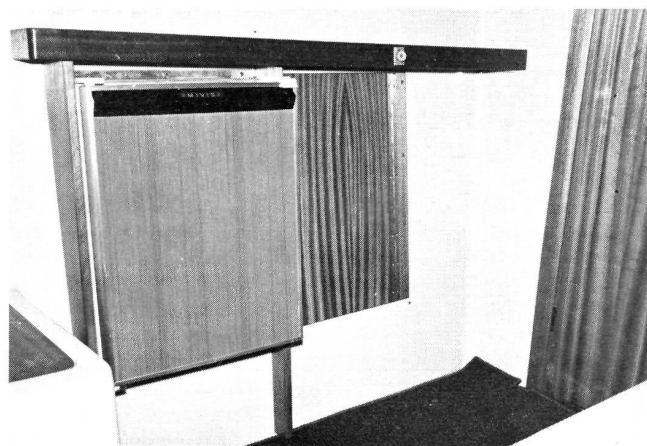


Fig. 23.

Rigging maintenance

When the rig is off the boat for the season a careful inspection of all details is necessary — also stays, shrouds and halyards. — Any abnormal damage or chafe, has to be repaired.

Wash and rinse mast and boom with fresh water or any detergent to remove all salt crystals. Internal rinsing is also recommended. This is most important at the mast base, where corrosion is most likely to occur.

If the mast will be packed in plastic or any other air-tight material it must be washed according to above first, and then carefully dried.

During the winter the mast must be stored in such a way that it will not be bent. Before stepping the mast it is a good thing to treat all anodised surfaces sparingly with lanolin or paraffin oil to keep the high finish of the surface.

All parts, where corrosion is likely to occur ought to be greased, especially the electrical connections. Deck plugs have to be opened and greased — preferably with vaseline.

Rigging screws, winches, blocks, shackles and many others ought to be oiled or greased. Ordinary grease can be used but lanolin is preferable.

Sail tracks and other sliding surfaces should be treated with paraffin wax.

Fastening small fittings

Only fittings of plastic, stainless steel or aluminium alloys must be used. Brass and other copper based alloys will give corrosion problems. To avoid corrosion you have to insulate between spars and fittings.

Rubber compound, zinc chromate primer, vaseline or similar can be used. The fittings can be fastened with bolts or screws of 18/8/MO stainless steel or monel pop rivets. Epoxy glue can contribute to the strength and will also insulate well. Used on the threads it will lock and insulate bolts and screws.

Self tapping screws ought to be avoided because they are more likely to cause corrosion and may also damage internal halyards.

Winter storage and spring commissioning

When stored for the winter your Albin Boat should stand on her cradle or have blocks under the keel and shores fore and aft. See Fig. 24—25. Boats with fin keel and separate rudder are supported also under the rudder fin. 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.

Especially on dark pigmented bulls (e.g. blue) you ought to be sure to use a tight P.V.C. plastic cover. Condensed moisture under the cover can penetrate the gelcoat and leave light patches. These patches and areas take a long time to disappear.

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

1. Winterize the engine.
2. Remove batteries and possible gas bottle.
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. Pump out the footpumps.
7. Clean bilges and be sure not to leave any water.
8. Drain the fuel system of heating equipment — see separate instructions.
9. Make it a rule to give all mobile parts a drop of oil (spray oil). Electrical components ought to be sprayed with a special anticorrosion oil.

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. Rigging, engine, gas system and gear should be checked and adjusted.

Only bottom painting and washing of the hull sides (and filling grease in possible reversing propeller) must be made before launching.

All other work can be made with the boat in the water.

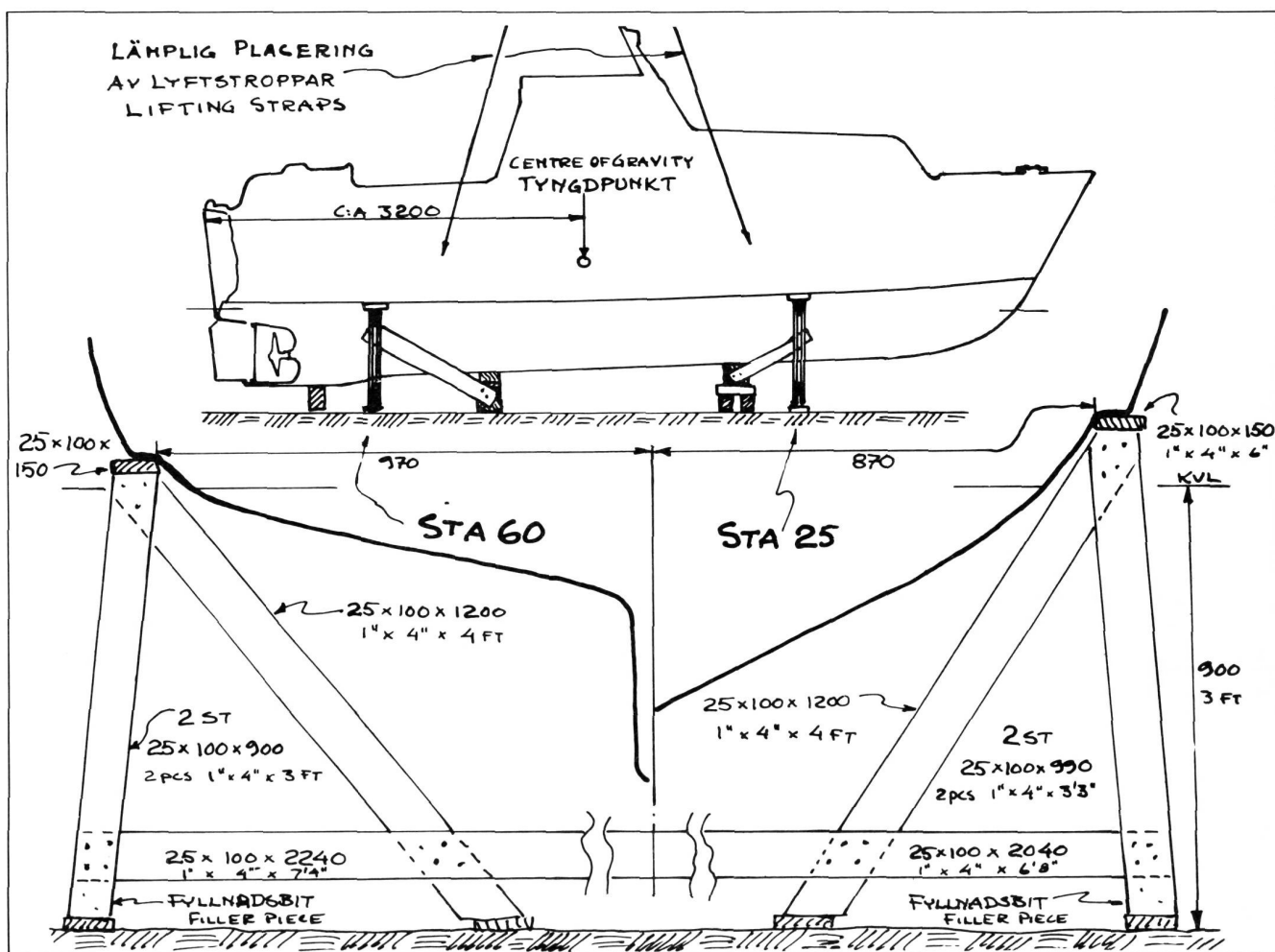


Fig. 24. Example of trestles for laying up (ALBIN 25).

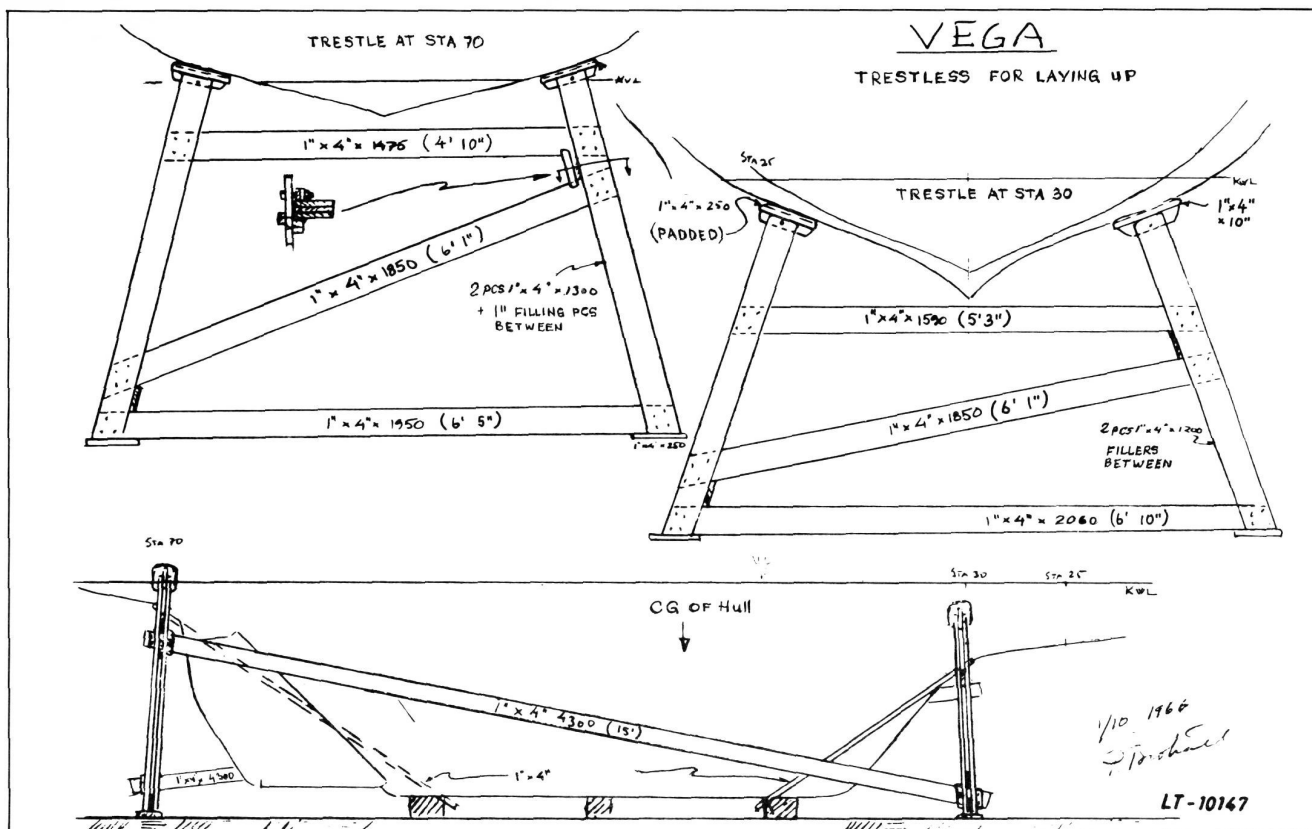


Fig. 25. Example of trestles for laying up (VEGA).

About claims, service and ordering of spare parts

In case of a claim or need of service write or call the service department at your nearest Albin office or ALBIN representative.

The following information is valuable to make handling of a claim or service request as quick as possible.

Name

Address

City

Country

Telephone area No.

Work

Home

Type of Boat

Boat number

Motor type

Motor number

Delivery date

If service is needed — state where the boat is located.

Treatment of a service case is still easier if clearly written (typed) formulated clearly and with correct names of different parts.

A simple sketch of the location of a fault or damage may help considerably. If several faults, give them a number and please write as briefly as possible. The service people usually understand what it is about.

When ordering optional extras use the Albin — catalogues detail number. In case of spare parts the problem is greater, depending upon small changes in the design of the boats. Because of that it is important to mention the type and number of the boat but in some cases more information is needed.

The following advice is not complete, but is an example of the information usually needed when ordering.

Textiles, cushions, carpets: information on colour, preferably a sample.

Stays and shrouds: Give length between the centres of the holes at the ends.

Halyards: Give length and if the halyard consists of one or two pieces (different models).

Fittings on masts: Information on manufacturer, colour and if reefing handle is through the mast.

Gelcoat: Give colour.

Bottom paints: Give colour.

Keys to the cabin: Give the key number or send a sample key.

Please do all your ordering of service, optional extras and spare parts as early as possible — if possible in the autumn — to avoid delays during the fitting out season. (It starts early in the Spring at ALBIN MARIN AB).

