Owners manual

Dayboat version

SECTION 1 - STEPPING THE MAST AND FITTING THE RIGGING

STANDING RIGGING

1. Fit the spreaders to the pre-drilled holes in the mast, if not already fitted.
2. The upper shrouds should also already be fitted to the mast but if not, remove the rubber retainer blocks in the housings in the mast, insert the T shroud-ends and replace the rubber blocks.
3. Fit the upper shrouds into the spreader ends by removing the small screw which retains the terminal hook in each spreader end, releasing them. Slip the shrouds in and replace the hooks, making sure to tighten the screws; put tape over them and fit the plastic protectors provided.
4. Fit the wind direction indicator to the top of the mast as instruction in its box.
5. Place the mast on the boat so that the heel is in its step with the pivot bolt in the forward bolt hole. The spreaders will lie over the aft deck and the mast must be supported (by a block of foam or a cardboard box or something similar) to avoid bending the spreaders.
6. Open all bottle screws until only about 5mm (1/4") of thread is showing. (These will be tightened later).
7. Attach the lower shrouds to the forward (cranked) shroud U bolts.
8. Attach the upper shrouds to the aft (uncranked) shroud U bolts.
9. Attach the backstay via its bridle and adjuster to the appropriate U bolts in the aft deck lip, for the moment leaving the adjuster slack to its limit.

STEPPING THE MAST

10. Using two or more people (without special equipment)

One man stands in the boat, lifts the mast from horizontal, then pushes it upright on its step and holds it vertical whilst his assistant connects the forestay to the stem head. The assistant may alsohelp to raise the mast by pulling the forestay.

If there is a strong wind, position the boat so the wind is aft because this will assist rather than hinder. Do NOT position the boat so the wind is on either side because it will try to blow it sideways and perhaps damage the equipment.

RUNNING RIGGING

11. Fit the 4 Harken blocks (2 each side) to the mast step flanges, using the shackles provided.
12. Fit the main halyard from its exit from the starboard side of the mast, through the mast base block (which you have just fitted as in No.11 above), to the “Spinlock” clutch.
13. Lead the jib halyard from its exit from the starboard side of the mast, through the mast base block (which you have just fitted as in No. 11 above), to the “Spinlock" clutch.
14. Lead the spinnaker halyard from its exit from the port side of the mast, through the mast base block (which you have just fitted as in No. 11 above), to the “Spinlock” clutch.

Note: Take care not to lose the halyards up inside the mast and be sure not to pull the topping lift up otherwise you may have to lower the mast to retrieve it!

15. Fit the jib furling gear.
16. Fit the top swivel to the wire jib halyard
17. Fit the specially made stainless steel “finger” to the top of the top swivel and around the forestay to distance it from the forestay. This is to prevent it tangling with it.
18. Fit the bottom swivel to the stem head.
19. Lead the 4mm dia furling line through the bulldog guides to the clam cleat on the deck, above the bulkhead.
20. Hoist the jib.
21. Fit the rope bridle and two small bullet blocks to the jib clew. Fit the two larger swivel blocks with beckets to the jib track slides. Tie one end of the jib sheet to the becket on the jib track blocks. Reeve the other end through the block on the jib clew, through the jib track block, through the cheek ratchet block on the side deck and through the cleat tying a knot in the loose end.
22. Furl the jib by pulling the 4mm line which exits the furling drum, then cleat it.
23. Fit the mainsail boom to the gooseneck.

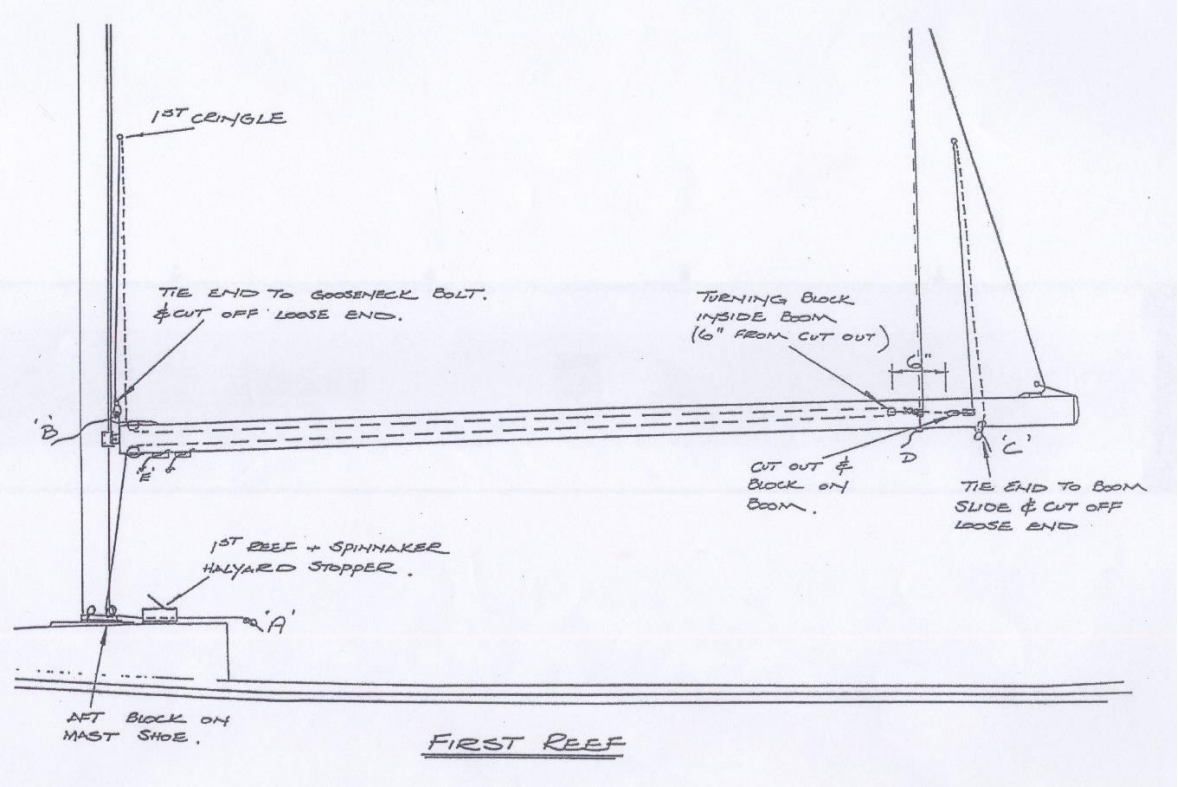
24. Fit the Kicker to the mast base and boom and adjust so that the boom is horizontal. Attach the topping lift to the D ring on the top of the aft end of the boom using a bowline knot.
25. Fit the mainsheet blocks to the forward two sliders under the boom. The swivel base centre jammer with ratchet block and fiddle block with becket are already fitted to the teak top of the aft end of the centreplate casing.
26. Attach the mainsheet to the fiddle block becket using a bowline knot and reeve it through the forward block on the boom back down to the fiddle block and then up to the single aft block under the boom, and finally down through the ratchet block on the swivel base centre-jammer and into the jamming cleat. Tie a knot in the end so that it cannot run free.
27. Slide the mainsail into the grove on the top of the boom, attach the main halyard to the head of the sail, fit the mainsail battens then hoist the sail and as it is pulled up, fit each slider into the track on the back of the mast. Close the track latch to retain the sliders.
28. Let the mainsail down and tie it neatly along the boom with sail ties.

RIGGING THE SPINNAKER.

Do this when there is little or no wind.

29. Attach the head of the spinnaker to its rope halyard.
30. Pass the tail of the halyard through the cheek block which is mounted on the port side of the top of the centreplate casing, then forward, up the chute (or tunnel) out through the bellmouth in the foredeck, through the spinnaker P-bracket (on the stemhead) then through the guide ring which is stitched onto the front of the spinnaker (about 1.5m from the bottom of the sail) and tie it with a bowline knot to the fixing point which is about 1 metre from the top front of the sail.
31. Fix the spinnaker sheet (which, by the way, we supply in one continuous length) to both clews. Some people prefer two separate sheets but we find the continuous sheet is easier. lt is purely a matter of personal preference.
32. TO LAUNCH - simply pull the halyard through the open clutch until the spinnaker is fully hoisted, then push the clutch lever fully down.
33. The spinnaker pole is mounted alongside the boom and the uphaul and downhaul are already rigged as a continuous length on the mast.
34. Make sure the uphaul end, which exits the mast just below the spreader, is tied to the D-ring on the forward end of the top of the spinnaker pole leaving enough spare rope to act as the downhaul which then runs through the block fixed to the foredeck just aft of the hatch, then through the bullseye guide to the cam-cleat on the deck on the port side of the mast just above the bulkhead. Tie a stopper knot so it cannot run free.
35. The reason for a continuous one piece uphaul/downhaul is so that there is less chance of it being let go to the top of the mast and disappearing inside.
36. To pack the spinnaker in its tunnel, simply release the halyard from its clutch and pull the other end (in the tunnel) from aft of the cheek block mounted on the centreplate casing. This will pull the spinnaker down (and in effect collapse it to about a quarter of its height) and through the guide ring into the tunnel where it can remain until needed.

REEF FITTING



The first reef is put in by pulling line ‘A’ that exits the bottom of the forward end of the boom and passed through the mast base block and through the clutch.

Pass ends ‘B’ and ‘C’ through the cringles in the sail and tie to their attachment points.

‘B’ to the bolt that holds the foot of the sail to the gooseneck.

‘C’ to one of the slides under the boom, position the slide for ‘C’ in line with the exit block for that rope.

Release tension in main Halyard. Pull line ‘A’ tight so that both the forward and aft cringles that take ‘B’ and ‘C’ are tight onto the boom. Cleat off line ‘A’ in the clutch and take up the slack in the main halyard.

If, when pulling line ‘A’, it becomes tight and will not go any further, it means that the reefing blocks in the boom have reached the end of their travel and that rope ends ‘B’ and ‘C’ will need readjusting. Untie ‘B’ and ‘C’ and retie so that you have about 12" of spare rope.

Try reefing again until the cringles come tight onto the boom. if they don‘t adjust the ends until they do.

Then make sure you can pull the sail fully up and that lines ‘B’ and ‘C’ are not too short.

When you have tried reefing and de-reefing several times and your completely satisfied that it all works, cut off the loose ends ‘B’ and ‘C’ and heat seal the ends of the cord.

The second reef works in a similar way.

Thread line ‘D’ through the sail and tie onto another slide.

Release the tension in the main halyard. Hook the forward cringle onto the gooseneck hook and pull line ‘E’ tight and cleat. Re-tension main halyard.

As you are very unlikely to need the second reef we have found it better not to leave line ‘D’ threaded through the sail when not in use. When the mainsail is towered line ‘D’ hangs loose and catches everything and tends to strangle people. Just coil it up and tie it off onto the slide.

SECTION 2 - SETTING UP THE RIG

There are so many ways to set up a rig. in most one-design fleets you will find some people at the front who swear by slack rigging with quite a lot of sag in the jib luff. One of the leading Squibs sails like that, many “X” Boats and some Sonatas. Others will tell you their boat will not go fast unless the rigging is tight.

I will describe a simple way to set up Hawk’s rig, which works well, is uncomplicated in use and which is, above all, safe and will not impose undue stress on the mast or rigging. Once you are used to the boat you can experiment with variations on this basic set-up.

MAST RAKE

To rake the mast aft, slacken the forestay and tighten up on the main shrouds and aft lower shrouds. The backstay should be slack for the time being. it the mast is vertical to the eye some people may argue whether it really is, or forward a bit or back a bit. It there is no wind you can hang a weight or plumb-bob on the main halyard and start off with about one foot of rake - measured at gooseneck height.

Now tighten the jib halyard as tight as you reasonably can using the winch with the handle supplied. Check the rake. lf it is less than a foot, let the jib halyard oh‘, then gradualiy ease off the forestay and tighten the cap shrouds. Keep adjusting until you have about one foot of rake when the jib luff is as tight as you will have it for sailing (as tight as you can reasonably get it using the winch). This is the initial rake. We shall see later how to alter it to achieve optimum performance and helm balance.

ATHWARTSHIPS

Viewed from in front or behind, the mast should be vertical in the athwartships plane. The easiest way to achieve this is with the main halyard. Using the halyard stopper let the halyard out until you can just touch the chain plate with it on the starboard side using a pull of say 5 to 10 pounds. Now take the halyard to the port side. It should just reach the chainplate - with the same tension if the mast is vertical. if it is not vertical, ease off one cap shroud (count the turns) and tighten the other one the same amount until the halyard test shows the mast is vertical.

LOWER SHROUDS

Hold the rigging wire by hand and tighten up the bottle screws alternately keeping roughly equal tension on each until you have both as tight as you can reasonably manage by hand. Check that the backstay tension is slack. Tighten the jib luff fully on the winch. Now look up the mainsail luff groove on the back of the mast. If the mast is bending sideways in the middle, slacken the appropriate lower shroud and tighten the other until the mast is straight in the athwartships plane. Now move to the side of the mast. It should be straight in the fore and aft place. If it bends forward in the middle, the aft lowers are too slack (fig.1). Tighten them equally using a spanner it necessary and a mole wrench or pliers to prevent the rigging wire rotating. Hold the roll swage at the end of the wire and not the wire itself.

Alternatively, if the mast bends aft in the middle (fig.2) you should ease off both lower shrouds until it is straight.

FIG.1

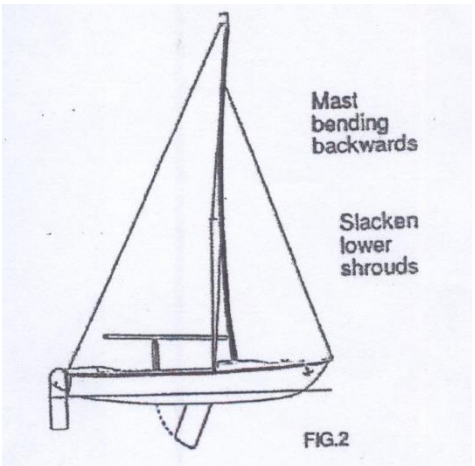


FIG.2

That is the initial set up. All that is needed now is to set the forestay tension and get accustomed to using the backstay tensioner to bend the mast and reduce power when needed.

FORESTAY

The forestay is only there as a safety measure to hold the mast up in the unlikely event of the jib luff failing and to support the mast when the jib is removed or its halyard is slackened.

To get the correct tension on the forestay the jib halyard should first be fully tightened on the winch. Now feel the forestay tension. If it feels as tight or tighter than the jib luff, slacken it but not so slack that it waves in the breeze or it may foul the jib when you furl it, but noticeably slack. That is all there is to the forestay: IT MUST BE SLACK OR YOU WILL NOT GET ENOUGH TENSION ON THE JIB LUFF.

It is now ready to sail, but first …

BACKSTAY NORMAL - put a few pounds of tension on the backstay using the block and tackle provided-—just enough to provide a very small amount of aft bend in the mast. THAT IS ALL THAT IS NEEDED FOR NORMAL SAILING AND ALL YOU EVER NEED TO DO UNDER ANY CIRCUMSTANCES IF YOU ARE FEELING LAZY.

But, if you want to get the best from your Hawk 20, it is worth learning to use the backstay tensioner. It is like the accelerator on your car. You can vary the amount of power you get from the rig very markedly by tensioning the backstay so l will explain more about this later. For now, all we need is a small amount of tension to induce the small amount of aft bend allowed for by the sailmaker.

IN HARBOUR - It is good practice to always slacken the jib luff and the backstay in harbour. This way you take most of the rigging loads off the boat when you are not using it, which is one of the very real advantages of this kind of rig.

CHECKING THE MAST UNDER SAIL - Whatever else you do, you should do everything in this section. Firstly, sail to windward, close-hauled, in a moderate breeze-say Force 3 to Force 4. One person should helm, keeping a steady course with the sails filled. The other should look up the back edge of the mast-—sight along the luff groove. Place your eye as close to the mast as possible. The mast should be straight athwartships; or better still some would say, it should bend very slightly to leeward at the top (fig.3).

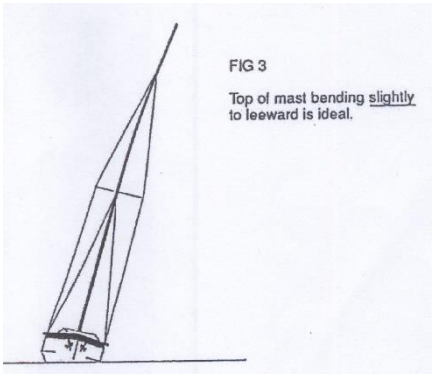


FIG 3

Top of mast bending slightly to leeward is ideal.

If the mast is bending over at the top—more than a few inches—-then the lower shrouds are too tight.

You can slack off the leeward lower shroud (a couple of turns at first) while sailing. Then tack and check the athwartships bend. If the mast is bending away too much at the top, let off one or two more turns next time you tack till you have the top falling away very slightly when heeled 10° to 20°.

Now set up the other side in the same way. The sequence is: sail to windward, check athwartships bend, tack, slack the lower shroud, tack back, check again, and so on.

However, you may find on your first sail the reverse problem. The middle of the mast may be sagging to leeward with the top bending to windward (fig.4). In this case the lowers are too slack. So tighten the leeward one a turn or two, tack and check again. Keep on until the mast is straight athwartships or bending very slightly away at the top - as in figure 3.

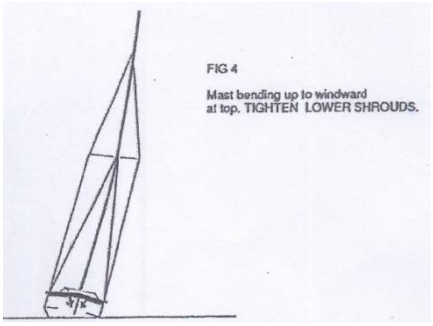


FIG 4

Mast bending up to windward at top. TIGHTEN LOWER SHROUDS.

The second thing you need to do is to check the fore and aft bend of the mast. Look up the side of the mast (looking at 90° across the boat). If you have enough backstay tension the mast will be bending back at the top a bit, say 6” (15cm) or so. That is fine as an all-purpose, no-need-to-fiddle position. if the mast is bending forward at the top—or is dead straight—increase the backstay tension.

DO NOT FORGET TO EASE THE BACKSTAY IN HARBOUR - AND SLACKEN THE JIB LUFF.

SETTING THE JIB - Apart from hauling the halyard up tight, there is little adjustment needed with the jib. Set the Genoa blocks on the adjustable track 2 or 3 holes behind the main bulkhead. Sail to windward. Luff very slowly. The top of the sail's luff should begin to lift (and flap) at the same time as the lower part. if the top lifts first, move the Genoa block forward. if the bottom lifts, first move the Genoa block aft. It is as simple as that.

SUMMARY SO FAR

We now have the mast up, with about a foot of rake and, when sailing to windward, it sets pretty straight both fore and aft and sideways when there is very little backstay tension on.

If we have got it just right, the mast bends away sideways slightly at the top in stronger winds and in gusts. This is important. It will help to spill the power of the gust just as a tree bends away from the wind to reduce the wind's power to push the tree over. We are gaining the same benefit but, unlike a tree, we only want a slight bending away at the top - perhaps a few inches.

In addition, the Genoa block has been placed so that the top and lower part of the jib luff both lift at the same time when squeezing up to windward.

TUNING TO BALANCE THE HELM - It is not necessary to know any theory at all in order to set up your Hawk so that you can steer it with one finger on the tiller.

FIRST ENSURE THAT THE RUDDER IS FULLY DOWN - AND THE CENTREBOARD. When the rudder is partly up there will be a significant increase in the load on the helm e.g. in shallow water. This cannot be helped. it happens on all rudders that swing up to allow sailing in shallow water. Remember, you can only judge balance with the rudder and the centreboard fully down in normal sailing trim.

Some boats need a very strong arm on the tiller to steer them straight. They carry too much weather helm (tiller pulled up to windward). This can be very tiring on a long sail and the rudder acts as a brake.

By contrast, some boats carry pronounced lee helm (tiller pushed down to leeward). This can be dangerous as the boat will bear away sharply when letting go of the helm. Most helmsmen prefer a small amount of weather helm. it gives 'feel' on the tiller because some load is needed to go straight and it is safer – if you let go of the tiller the boat rounds up to the wind. It is also faster. IF you are going to tow a rudder through the water, you might as well use it to generate lift to windward and so reduce leeway. So well balanced is Hawk 20 that, by small alterations in the rake of the mast, you can have lee helm, neutral helm, or just the right amount of weather helm to suit your taste.

THE BASIC RULE IS SIMPLE. THE MORE YOU RAKE THE MAST AFT, THE MORE WEATHER HELM YOU WILL GET. THE LESS AFT RAKE YOU HAVE, THE LESS WEATHER HELM YOU WILL GET.

It is important to bear in mind:-

1. The centreboard and rudder should be fully down when judging balance.
2. Balance is best judged going to windward close hauled.
3. The lighter the wind, the less weather helm you will get from the sails.
4. Stronger winds generate more weather helm (the centre of effort of the sails moves aft).
5. The more a boat heels, the more weather helm you usually get from the hull (the centre of lateral resistance moves forward).
6. Because the forces vary, you cannot have perfect balance in every wind speed and at all angles of heel. It is necessary to choose at what angle of heel you wish the helm to feel 'just so'.

My own preference is as follows. I never heel more than 20° unless caught by a gust. It does not pay and it is not comfortable. So I tune my Hawk so that the helm feels best when there is enough wind to heel the boat to an angie of between 10° and 20° (the 'normal' angles of heel).

I choose a day when the wind is just enough to heel the boat about 10°. I increase mast rake until there is just a light amount of weather helm at 10° of heel. Let go of the helm and she gently rounds up heat to wind. At this angle of heel I can comfortably steer her with one finger

When the wind rises to heel her to 20° the helm will be heavier but not excessive.

Above 20° and, as you get near to dipping the side deck, the hull is designed to gain weather helm rapidly and to round up to the wind so as to spill it. this is a safety feature to minimise the chance of capsize.

If there is not enough wind to heel even 10° the helm goes very light (unless you use more rake than l do). So l move crew weight forward and to leeward to heel more and reduce wetted area. She goes faster like that.

Tuning the boat the way l do, l get a small amount of lee helm in very light airs if we are feeling too lazy to sit to leeward and heel the boat. But that's no problem when drifting along in light airs and it's a price worth paying for having the helm nicely balanced throughout the normal sailing range of 10° to 20° of heel and for not having excessive load on the helm when sailing in a good stiff breeze.

HOW TO ADJUST MAST RAKE

l never adjust the rake whilst sailing. l just note, while sailing, whether the amount of weather helm at normal angles of heel is too much, too little or just right. l adjust the rake when l return to the mooring. Too much weather helm - you need less rake. Too little weather helm – you need more rake. Slack off the jib halyard and back stay and then follow the procedure given earlier for raking the mast.

BACK STAY TENSIONER—MORE ADVANCED

Downwind the back stay tensioner should be eased until the mast sets straight with virtually no fore and aft bend. That is all.

Upwind the tensioner flattens the mainsail and de-powers the rig. As the wind increases and the angle of heel becomes excessive, more back stay tension can be used to bend the mast and pull the fullness out of the sail. BUT DO NOT OVER DO IT. Too much bend can damage the rig and excessive bend could lead to mast failure. TAKE IT EASY.

In light airs many helmsmen find flat sails go faster. Try using the back stay tensioner in very light airs. Flattening the main is best done using the tensioner in conjunction with the clew outhaul and main halyard. When cruising, just choose all-purpose, average settings and enjoy the view

TUNING SUMMARY

MAST RAKE

- RAKED AFT 12” (30.5cm) OR MORE
- MORE RAKE GIVES MORE WEATHER HELM
- LESS RAKE GIVES LESS WEATHER HELM

MAST BEND - FORE AND AFT

- FORE AND AFT BEND IS CONTROLLED BY BACK STAY TENSIONER
- ALWAYS HAVE SOME BEND
- ABOUT 6” (150m) OF BEND IS AN ALL-PURPOSE SETTING - OK UPWIND AND DOWN
- MORE BEND FLATTENS MAINSAIL - REDUCES HEELING
- ALWAYS EASE BACK STAY TO ALL-PURPOSE SETTING DOWNWIND
- ALWAYS EASE BACK STAY {AND JIB HALYARD) WHEN MOORING

WARNING - DO NOT OVER-BEND MAST OR SERIOUS DAMAGE MAY RESULT

MAST BEND-ATHWARTSHIPS

- PLACE EYE CLOSE TO MAST. SIGHT UP LUFF GROOVE (TO AVOID OPTICAL ILLUSION FROM BENDY MAST).
- ADJUST SIDEWAYS BEND WITH LOWER SHROUDS
- TOP OF MAST SHOULD BEND AWAY VERY SLIGHTLY TO LEEWARD WHEN HEELED MORE THAN 15° TO WINDWARD.
- THE MAST SHOULD BE SET CLOSE TO STRAIGHT (ATHWARTSHIPS) WHEN HEELED 10° OR LESS.

JIB

- USE WINCH TO KEEP HALYARD TIGHT WHEN SAILING.
- EASE HALYARD TENSION IN HARBOUR (AND BACK STAYS)
- SET LEAD BLOCKS SO TOP AND BOTTOM OF JIB LIFT SIMULTANEOUSLY
- IN HEAVY WINDS MOVE BLOCKS AFT TO SPILL TOP OF JIB.

FORESTAY

- MUST BE SLACKER THAN JIB LUFF OR JIB LUFF SAG WILL BE EXCESSIVE.
- NOT SO SLACK THAT IT FOULS WHEN THE JIB IS FURLED.

JIB FURLING

- ENSURE THERE IS PLENTY OF SLACK IN THE JIB SHEETS THROUGHOUT THE FURLING OPERATION.
- MAKE SURE SPINNAKER HALYARD IS TENSIONED SO AS NOT TO FOUL THE FURLING JIB. IF IT DOES FOUL; UNFURL THE JIB, TENSION SPINNAKER HALYARD AND THEN FURL THE JIB.
- IN HEAVY AIRS, AIM DOWNWIND BEFORE FURLING THE JIB (A HEAVILY FLOGGING JIB WILL NOT FURL PROPERLY).

SPINNAKER

- WHEN THE SPINNAKER IS FLYING, ALWAYS KEEP A LIGHT TENSION ON THE SPINNAKER RETRIEVING LINE—-OTHERWISE IT MAY WRAP AROUND THE SPINNAKER GUIDE RING ON THE BOW. USE THE CAM CLEAT ON THE CENTREBOARD BOX.

CENTREBOARD

- FULLY DOWN IS A USEFUL ALL-PURPOSE POSITION FOR CRUISING.
- FULLY DOWN IS THE NORMAL POSITION WHEN GOING TO WINDWARD.
- FULLY DOWN GIVES MAXIMUM STABILITY.
- RAISING THE CENTREBOARD PROGRESSIVELY SWINGS THE KEEL AFT AND REDUCES WEATHER HELM (USEFUL WHEN REACHING IN FRESHER WINDS).
- IN VERY LIGHT AIRS ONLY, THE CENTREBOARD CAN BE FULLY RETRACTED FOR SAILING ON A RUN—REMEMBER TO LOWER IT AGAIN FOR OTHER POINTS OF SAILING.

SECTION 3 - HOW TO GET THE BEST FROM HAWK 20

SAILING TO WINDWARD

If I could say only one thing to all Hawk owners, it would be - EASE THE MAINSHEET.

Most rigs cause terrible back winding of the mainsail. So most helmsmen strap the main in hard. They use a lot of kicking strap tension as well. Hawk's rig and sailplan give very little back winding. Going to windward, try letting the boom out till it aims over the rear quarter. You will heel less and go faster.

To begin with keep saying to yourself—the main is too tight. Ease the sheet. You may be surprised just how far you can go before the sail lifts too much at the luff.

Sail to windward on the jib—watching the lufi or the wool tell-tales. Use the main to adjust the angle of heel (shown on the compass). You can ease the main till the front third is lifting and still go very fast in strong winds without heeling too much and without needing to reef.

You should watch the jib when going to windward. Keep it full. Spill the main all you like to get the desired angle of heel.

SAILING WITH MAINSAIL

Hawk 20 will sail happily on mainsail only, even to windward, and will tack happily with no tendency to stick in irons.

The trick is not to sheet the main in hard. Ease the main till the boom aims out over the corner of the stern deck. Cleat the mainsheet. Now bear away till the main just fills. She will rapidly gather speed. And without making any adjustment to the mainsheet, she will tack through a respectable angle and gather pace on the other tack quickly. You can tack up through a line of moorings or even into a marina under main only-—but practice in open spaces first.

If you sheet the main in hard, you may point higher but will go more slowly, make more leeway and not gather pace so rapidly after a tack. So get the boom over the quarter and pretend you are sailing a Laser.

OFF-WIND SAILING

Off the wind, heeling is usually less, more power can be handled and is gained by making the main fuller. This is achieved by easing the backstay, the main halyard, and the clew outhaul.

Downwind the backstay can be eased until the mast has little or no aftwards bend. This gives maximum fullness to the sail and maximum mast height.

It is worth trying some of these adjustments. They really do make a difference.

SPINNAKER

Set the height of the outboard end of the pole so that the two clews are equal in height above the deck. Tie a knot in the halyard so that when the spinnaker is pulled fully up there is a length of about 9" or 12" of the halyard in front of the mast.

On a dead run, pull the pole back fully so that it is at 90° to the wind.

On a beam reach, let the pole forward till it nearly presses on the forestay - again at 90° to the wind.

ln between a run and a beam reach, ease the pole forward until it is 90° to the wind. SIMPLE.

Having set the pole, use the sheet to trim the sail. Pretend it's a jib. Ease the sheet till the sail begins to lift along the luff. Pull the sheet in till the sail stops trying to collapse.

The art is to keep easing the sheet to keep the spinnaker near the point where the luff curls in. Good crews keep easing and tightening the sheet every few seconds when racing.

When cruising, you can set the spinnaker and then adjust the helm to keep the sail full, but that‘s the lazy way.

WARNING ALWAYS KEEP THE SLACK OUT OF THE SPINNAKER RETRIEVING LINE (THE ROPE THAT PULLS IT DOWN INTO THE CHUTE) SO THAT IT CANNOT WRAP AROUND THE BIG GUIDE RING ON THE BOW. CLEAT THE END OF THE RETRIEVING LINE ON THE TOP OF THE CENTREBOARD BOX.

CENTREBOARD

Let the board fully down. Cleat the uphaul rope. Whip some twine round the rope behind the camcleat to mark the fully down position. Next pull the board fully up and cleat it.

Mark the rope just behind the camcleat. From this mark to the whipping twine is the amount of rope needed to pull the plate up fully. l measure it and divide it up to show quarter, half and three quarters plate (l use one band of whipping twine about 1/4" wide to show one quarter down, two bands to show two quarters wide and three bands for three quarters wide.

Fully down the centreboard gives maximum righting moment and minimum leeway. To windward the centreboard should therefore be fully down.

Raising the centreboard swings it aft. This reduces weather helm. So on a reach in a stiff breeze when weather helm always increases, you may like to adjust it to three quarters oreven half down.

On a run in very light airs some like to raise the centreboard fully or nearly so in order to reduce wetted surface area. But when the wind rises, with no keel down, steering may be tricky, so expect to need half-board for good control.

In heavy winds the extra stability of having the board down may suggest three quarters board down as a sensible minimum in a blow.

When cruising or pottering it is worth remembering that, because the centreboard has generous lateral area and the hull is well balanced, the centreboard can be left fully down on all points of sailing - just like a fin keel.

The following tables of draught may be useful:

	HULL ONLY	MOTOR	FULL RUDDER	¼ BOARD	½ BOARD	¾ BOARD	FULL BOARD
DRAUGHT	9”	12”	27”	20”	30”	41”	51”
	23cm	30.5cm	68.5cm	51cm	76cm	104cm	129.5cm

In shallow water, l find sailing with between half and three quarters board useful. As soon as it touches, l uncleat the rudder to make sure it can swing up if it grounds. The centreboard is a useful echo sounder! It is best not to fully cleat the rudder downhaul when in shallow water. Just take a couple of turns round the cleat but do not lock the robe or damage may result to the rudder when grounding.

SECTION 4 - SETTING AND RETRIEVING THE SPINNAKER

We have provided a set of controls, a foredeck chute, pole launcher and a guide ring to make using the spinnaker as easy as possible, but we know of no system or equipment which will make this a guaranteed snag-free procedure. Snags always seem to occur when sailing, at the most inconvenient time and we don't pretend to know all the answers.

The fact that it is possible to use the spinnaker single handed does not mean we recommend this. If experienced, well practised helmsmen wish to, they will do so, but we consider it undesirable to go on the foredeck to clear snarl-ups and dangerous to do so if single-handed.

Our method of setting and retrieving the spinnaker is as follows:-

1. Fix spinnaker guy to the end of the pole and the launch pole.
2. Cleat spinnaker sheets, un-cleat spinnaker halyard from the top of the plate box and hoist spinnaker with halyard (on port side of mast) with one turn the round winch (to avoid rope burn).
3. Once the spinnaker is fully hoisted the pole should be pushed round to the fore-stay until it touches the corner of the spinnaker.
4. If reaching, the guy should be placed under the reaching pin (by shroud base).
5. Cleat spinnaker recovery rope to prevent trailing in water.
6. The spinnaker can now be set by adjusting the sheet and guy to suit wind

direction.

Remember to always keep the retrieving line reasonably tight using the jam - cleat on the centreplate box. If allowed to be slack it may wrap round the guide ring.

TO LOWER

1. Uncleat the sheet and guy.
2. Uncleat the spinnaker halyard (leaving one turn round winch) and lower gently. At the same time retrieve the spinnaker with the downhaul rope (on top of the plate box). When the spinnaker is pulled through the P bracket and into the chute fully, cleat the spinnaker halyard (to stop wrapping around jib when furled).
3. Recover the pole, remove the guy and store the pole alongside the boom in the clip.
4. Tighten and cleat the sheet and guy to prevent trailing in the water.

A crew of two plus helmsman is a luxury but the spinnaker can easily be managed by one crew member. Unless you are very experienced it is best not to attempt it while single handed.

SECTION 5 - HEAVY WEATHER SAILING

As the wind rises and the angle of heel becomes excessive, you have a number of options. When pottering or sailing alone, you can furl the jib and sail under mainsail only (see sections earlier). In very strong winds you can sail under reefed mainsail alone - even to windward (REMEMBER THIS: IT CAN BE VALUABLE IF YOU ACCIDENTALLY GET CAUGHT OUT IN EXTREME CONDITIONS).

Normally, when sailing with main and jib, you can reduce heeling by flattening the mainsail progressively as the wind rises. This can be achieved by:-

a) tightening the clew outhaul,
b) tightening the main halyard,
c) pulling the back stay tensioner,
d) doing all three together.

Use the back stay tensioner with care. The 4:1 purchase is for “tweaking” the rig easily-not for bending it till it breaks! A MODEST amount of bend in the mast pulls a lot of fullness out of the mainsail, greatly reducing it's power.

In stronger winds, and always in gusts, you should ease the main and keep the jib drawing (as described earlier). In addition the power from the jib can be reduced by moving the lead blocks aft so the top of the sail spills wind and only the bottom half draws fully.

Reefing comes next, first one reef and then the second. Finally you can furl the jib and sail under reefed main only - especially if you free off a little when beating.

In fresh and strong winds, it is also possible to sail Hawk 20 with jib alone - both upwind and down. With no mainsail, you should not expect perfect balance on the helm but some owners find that using the jib only is a pleasant way to sail, especially when fishing.

DAY BOAT LIMITS

Because day boats have no guardrails, changing headsails under way must be avoided. It is an interesting challenge to design a boat that will sail well from Force 1 to Force 6 with only one headsail. Cruising boats--even big ones-would use two or three headsails to cover that wind range. Or they would need an expensive and relatively inefficient headsail reefing system.

It is only common sense to avoid severe weather in all small boats. Hawk 20 is far stiffer than most boats of her size. Dave Greenwell, Technical Editor of Practical Boat Owner, and I sailed her with full un-reefed rig in a Force 7 (see test report Practical Boat Owner, March 1993). BUT most owners will find Force 1 to Force 6 the sensible operating range. Nobody should imagine that it is safe to go to sea in a Force 6 just because the hull and rig will take the loads involved. Whether it is safe or not depends on the experience of those aboard, the sea-state, wind and tide direction, swift and easy access to a safe harbour, well maintained sails, gear and equipment and many other factors. Combined safety harness and life jackets which inflate automatically in water, as made by CREW-SAVER are recommended at all times on any boat especially in rough weather.

In a well maintained boat, in the right hands, in the right location, heavy weather sailing can be fun. If you intend on sailing regularly in Force 6, 7 or 8, I suggest you get a storm jib in heavy duty fabric from Peter Sanders, our sailmaker, and always put it up before leaving harbour. Although we have sailed a Hawk in Force 6, 7 and 8 without reefing the main, it makes sense to reef from Force 5 onwards as she will probably go quicker reaching and beating if heeled to the minimum.

Journalists who tested the Hawk failed to lay it down and although, during development, we were unable to cause a capsize, we refuse to believe that there is any boat in the world which cannot be knocked down in certain circumstances even if it can self-right, so we did a test with the boat moored fore and aft. We repeatedly pulled the boat over, with a sail halyard to the top of the mast to simulate a 90° knock down, from which it immediately recovered unaided, with sail set.

It should not, however, be assumed that any boat is totally fool proof so proper care should be taken to sail the boat correctly, not to overload it, to reef in time and, as noted above, no boat should be taken out in unsuitable conditions, nor should it be sailed by people who have not undergone and understood suitable instruction. The helmsman should hold the main sheet, unless the crew are very experienced sailors, so as to be able to release it quickly when necessary.

In a heavy seaway or in freak conditions any boat can fall off a wave and into a trough with such violence that the mast can be buried to such an extent that righting can be prevented by the sheer weight of water on the sails when knocked down or held down beyond 90°; in this case a boat can turn completely upside down with the mast and sails acting as a keel.

Do not even try to provoke a capsize even if you feel confident it will not happen; do not show off, do not overload with gear or people and, as mentioned above, always wear a life jacket. If you succeed in achieving a knock down, the crew must allow the boat to right and not sit in the sails, hang onto the mast or any other part of the boat which would act as a lever to prevent righting.

Since our testing, we did finally succeed in laying the boat flat (mast parallel to the water) when we were coming in over Christchurch bar in a very heavy breaking swell with four aboard. The stern was lifted up as if the boat would pitch pole, but instead it rolled until the mast spreaders were in the water and, without corrective action, she immediately righted, drained the water which had come aboard, and sailed on. This was during a demonstration and resulted in an immediate order, although we had not intended the trial to be so dramatic.

On another occasion, whilst we were racing in a strong wind, a heavy gust hit the unreefed sails when sheeted in tight. The helmsman did not release the mainsheet jammer quickly enough and the boat dipped her mast and sails in the water. The helmsman stayed aboard but the crew went into the water. The boat righted itself, the crew climbed aboard and the race continued.

All good sailors respect and fear the sea. Battling the elements is great fun but it is common sense and not cowardice to occasionally say that it's too rough and too dangerous to play games with.

SECTION 6 - SAILING HAWK UNDER JIB ONLY

Hawk has a large reef-tacking mainsail. She sails well and easily under that sail on its own. The only snag-at least for a single-hander - is that handling and stowing the main, even roughly, is not done in a moment, and so needs sea-room.

The jib, on the other hand, can be fully furled in a few seconds. This can be important for a Hawk berthed - as mine is - in busy narrow waters like Lymington.

But how does Hawk handle under jib only? In short, quite well. Of course, with the jib not much more than half the size of the main, power is much less (and too far for'ard for ideal results on the wind). But it will give over 3 knots on a good 'full and by' in Force 4. Useful enough.

l have found it better not to try to get too close to the wind. A good 'full and by', say 50° off the wind, keeps her tramping along, and she then stands up well to a bit of a lop. Once she is going well, then try closing the wind a shade more. But do keep her moving. She will carry some lee helm (even with rudder and plate fully down) but surprisingly little, nothing uncomfortable or heavy. Let the tiller go and she pays off like lightning, off course - so single-handers will need some kind of tiller-lock.

So far, so good. if you can lay your objective without tacking, no problems whatever. But once you need to start tacking, things get more tricky. You need (i) to be sure you do tack; (ii) you have to set yourself up as soon as you can on the new tack.

As to (i), it helps to have good way or when you put the helm over. At a good 'full and by', you will probably be further off the wind than may be your custom. So you have further to turn to get the wind across your bow. You will have no mainsail to give you a helpful push into the turn, and all the jib will now do for you is to add to the resistance to getting the wind on the nose. A bit of lop at the wrong moment and you can easily get stopped in your tracks, miss stays and find your boat dead in the water and still on the same tack.

TO AVOID THIS-
a) make sure you have good way on when you start your tacking;
b) keep the jib sheeted and drawing up to a normal close-hauled heading and then let the sheet fly and back-haul it quickly through the ratchet block on the gunwale;
c) do not try to skip round by slamming the helm hard over (see next para!).

As to (ii) (setting yourself up on your new tack) it is really difficult to stop a 'jib only' Hawk from paying off quickly and heavily on the new tack, to at least wind abeam and even further. Drastic use of counter-helm only makes matters worse, unless you have more than a Force 4 and a flat sea. The best course seems to be:
a) accept that the boat is going to go further round than you would like;
b) concentrate on getting good way on her again as quickly as possible (not by sheeting too hard too soon);
c) accept that this will take you well away from your desired heading for several boat lengths;
d) once you have regained full way, edge her up steadily to a good 'full and by' again.

If you are on long tacks and have plenty of sea-room, none of this is any pain. The shorter your tacks and the more you are near things you do not want to hit, the more the task of beating upwind will give you achievement but not much fun. I managed to clamber up the Lymington River from Jack-in-the-Basket to the Yacht Haven in a Force 3 from dead North, enjoyed most of it and only the ferries made the game a bit masochistic. But l do not think l could wisely have tried to tack under jib alone up any of the Haven's alleyways (which under mainsail alone l would tackle with total confidence).

Off the wind, no problems. Reduced power of 'jib only' may make it more desirable to lift the plate to reduce drag. The spinnaker pole is easy to use to hold out any tendency for the sail to flop.

To sum up, 'jib only' will get you nearly anywhere you want to go but, perhaps not wise to tackle a dodgy bit without some open water trial (and error) first.

SECTION 7- MAINTENANCE GUIDES

THE RUDDER

There was a pleasant story in one of the yachting journals recently:

An earnest young man about to buy his first boat was bewildered by the range of sophisticated gadgetry available. He determined to seek advice and found the opportunity to interview an old salt who had been sailing, man and boy, for 65 years. "Tell me sir," he said respectfully, "what do you regard as the most useful piece of equipment you have ever had on any boat?" The grand old man puffed on his pipe reflectively and replied "I always found the rudder exceedingly useful".

During development and trials, various proprietary rudders were used and all suffered from number of faults. As we were not able to obtain what we wanted, we had to design and make our own and, as it differs in construction from most conventional rudders, it is described here.

STOCK CHEEKS. The stock cheeks and cap are made from marine grade aluminium, welded together, spaced 31.5mm apart, anodised black to provide a strong, precision housing for the rudder blade to prevent lateral play.

BEARINGS. The rudder bearings are specially made white Delrin gudgeons bolted between the stock cheeks. They are a precise fit on the stainless steel pintle pins on the transom thus allowing no lateral slop. if the rudder blade hits the bottom, the gudgeons can lift off, which some owners may prefer, but for those who prefer the rudder stock fixed, a stainless steel 'Beta' pin can be provided to go through a 2mm hole in the top pintle pin, This would be on a short lanyard and can be left out or put in according to preference. The pintle bearings will probably last the life of the boat, but should they wear or get damaged, they can be taken off and replaced in minutes.

RUDDER BLADE. The lifting rudder blade is made of laminated red Mahogany and white Ash and, instead of being just flat butt jointed, the laminations are double tongued and grooved and epoxy glued for strength. The pivot bearing is a bush made from black Delrin, press fitted into the wood. The pivot which passes through this bearing is also of Delrin, clamped tight between the stock cheeks, with an 8mm high tensile alloy bolt, so that the cheeks are exactly 31.5mm apart, thus allowing such easy lifting and lowering of the blade that you might think it had a roller bearing. There is only 0.25mm clearance between the inside of the stock cheeks and the faces of the top of the rudder blade, to eliminate lateral play.

The rudder is designed to operate with the blade in the fully down position (with the downhaul fully cleated so that the blade does not float up) and should not be used with the blade partly raised because this will put enormous strain on the rudder stock, the gudgeons and pintles. If the water is too shallow to use the blade fully down, we recommend pulling it fully up, clear of the water, then using the outboard motor to steer.

UPHAUL and DOWNHAUL. The red 6mm multiplait cord is used to pull the rudder up and is double geared by means of a sheave mounted in a stainless steel cage sunk into the aft edge of the rudder blade. lt is arranged so the blade comes clear of the water so as not to collect weed on a mooring. We prefer to lift the rudder right off and stow it aboard when not in use.

The bottom of the downhaul is 4mm blue 'Spectra' cord whose Kevlar cord has a breaking strain of 1000kg. The top part is purple 8 plait 6mm 'Mastron' cord treble geared by means of a floating double bock at the aft end of the tiller tube (where the bottom 'Spectra' is attached) and a fixed single block about midway, with a securing cleat just in front of it. the purple cord is very stretchy and, having 3 runs as well, can accommodate a fair amount of accidental upward rudder blade movement. When sailing in deep water the rudder blade should be fully down and cleated off, but if sailing in shoal waters we recommend that the downhaul is loosely cleated so it can slip a little if it hits anything, but if the rudder is likely to ground a lot, it is advisable not to use the 'Beta' retaining pin at the top pintle so that the rudder can jump off in extremis.

If steering with the main rudder but using the outboard motor, always keep it in a central position so that if the rudder kicks up, the outboard motor doesn't steer you anywhere but straight ahead

ln water too shallow for the rudder it is best to steer with the outboard motor.

TILLER. The tiller is made from thick wall marine grade aluminium tube, anodised. It is clamped tightly between the rudder stock cheeks and bolted. We decided against a lifting tiller because it does not intrude very far into the cockpit which is, in any case, big enough to make a space saving tiller unnecessary. Also we wanted the steering mechanism to be devoid of play so as to have that taut feeling of a well set up racing car.

There is a small bullseye on the underside of the aft end of the tube through which it is possible to pass a length of 4mm cord which is tied to the backstay U bolts. A single knot, strategically placed, in the cord on each side of the bullseye will provide a tiller travel limiter. This is left to the owner to fix according to preference.

A tiller extension is not really needed because the Hawk's own ballast prevents undue heeling, but is provided because sometimes it is pleasant to sit on the side decks or helm standing up.

SHEAVES. The sheaves for the rudder blade uphaul and downhaul are fitted in such a way that they are close to the stock cap so that they cannot jump off their respective sheaves.

MAINTENANCE. Apart from washing with fresh water from time to time, the rudder needs very little attention but you may eventually need to rub down and re-varnish the blade. It started with 6 coats of international Compass which is the hardest varnish we know. Be careful not to build up too many coats on the flat part of the blade where it fits into the stock because there is only an engineering clearance of 0.25mm on each side when 6 coats were originally built up. The pivot is arranged so that when the blade is fully down it is 21mm aft of vertical at the bottom to avoid the sensation of lee helm. It is important this is not interfered with.

Occasionally check and, if necessary, tighten by half a turn or so the bolts with which the stock is assembled but do not over-tighten.

SUGGESTION. When using the outboard motor in deep water it is best to leave this in the straight ahead position and steer with the boat’s own rudder. This does not mean the outboard cannot be used to steer but the rudder being bigger, will be more effective. In shallow water the blade should be fully raised and the outboard motor used to steer. Although the outboard can be used to steer when tilted onto shallow drive, this is NOT recommended as a regular procedure in case the propeller inadvertently hits the side of the welt. You need enough depth ofwater to go boating!

SUMMARY. You may think this is a lot of fuss to make about a rudder but, when you consider that it is the one part of the equipment which is in use the whole time the boat is being used, it is worth taking it seriously.

CENTREPLATE

This is made of marine grade LM6 cast aluminium alloy to BS1490. it weighs 125lbs (57kg)and is carefully aerofoiled for maximum efficiency. it is anodised then primed with international Self-Etching primer and coated with International lnterprotect epoxy and antifouled with 2 coats of international Trilux.

It is operated by a 6:1 tackle totally enclosed for safety. There is an inspection hatch each side of the anti-splash box for’ard of the main bulkhead and just aft of the mast step support.

The pivot consists of a 20mm dia aluminium bolt, which passes through and clamps a Delrin bush between a pair of aluminium straps suspended in the centreplate box. A second Delrin bush which is forced fit in the centreplate pivot hole is a clearance fit over the first bush providing a Delrin to Delrin water lubricating bearing.

This may seem elaborate when many boats have just a hole in the centreplate through which there is a bolt as a pivot, but these can both corrode and wear and although it may be easy to replace the bolt, it is much more difficult to deal with a worn pivot in the centreplate.

All centreplates deteriorate. Steel ones go rusty even if galvanised, particularly at the pivot and on the bottom and it is not practical to aerofoil steel. We were therefore left with a choice of a GRP blade with encapsulated lead ballast or cast aluminium. After many trials we decided not to use a GRP plate because the leading edge of the fibreglass continually got damaged. However hard you try not to hit the bottom, rocks or floating objects this will happen and the leading edge and the bottom of the centreplate will get chipped, cracked and generally damaged and will need

continual repair. We therefore chose cast aluminium alloy because we are able to give it a good aerofoil shape. It is also very tough and will withstand tremendous punishment with very little damage and dents can easily be filed out.

Do not lift the centre plate out of the boat with the boats mast. This could break the mast or halyards.

TO REMOVE THE CENTREPLATE

After approximately 3-4 years the centreplate will become stiff to operate, it won't go down under its own weight and is difficult to pull up. This means that the pivot bush needs replacing, which means that the centreplate has to be removed from the boat.

There are three ways of removing the plate. The first way is when the boat is still in the

water.

1) Get the boat alongside a walk ashore pontoon.
2) Drop the plate into the down position.
3) Remove the GRP cowl off the centreplate box.
4) Undo the mainsheet from the blocks on the plate top and push the boom out over the side of the boat and tie off onto the shroud.
5) Remove the teak capping by undoing all the bolts and U bolt. The plate is now visible in the box.
6) Undo the uphaul mechanism by unbolting the triple block from the plate handle. Do not unreave the green uphaul rope; you will never remember how to put it back.
7) Undo the screws holding the black aluminium straps in place. The plate is now ready to lift out…
8) Tie an 8mm diameter piece of rope onto the plate handle and lift the plate out of the box. To lift the plate will require at least 3 strong people.
9) Once the plate is clear of the plate box carry the plate ashore to be worked on at a later date.

The boat can now be put onto its trailer for derigging.

The second option is to have the boat crained out onto a cradle so the boat is 4ft in the air and follow the same procedure as above but use the crane to lift the plate out.

The third option is the lazy one. Bring the boat to us and we will do it in our workshop.

MAINTENANCE OF THE PLATE WHEN OUT OF THE BOAT

First job is to remove the black aluminium straps. The bolt will probably be seized so won't undo with an allen key.

Put the plate on its side, on a secure work bed so that it can't fall on you, with the strap with the allen key facing down. Hold this strap in one hand and with the other hand undo the other strap, anticlockwise as though you were undoing a bolt and nut. This strap will come off leaving the allen key strap and bolt stuck in the plate. Knock the allen key bolt out, being careful not to damage the thread. The strap and bolt will then come free from the plate and can be cleaned up. The inner bush can now be removed.

Take a 13mm socket connected to an extension bar, put it over the inner bush and hit it. The bush will drop out. This now needs to be replaced with a smaller diameter bush that will spin in the outer bush. A smaller diameter bush is available from Reid Marine. The plate will now need to be repainted. Remove any old flaking, antifouling and corrosion with a wire brush or have the plate shotblasted. Give the plate 2-3 coats of International Interprotect epoxy. Then 2 coats of International Trilux antifouling.

The straps can now be reassembled onto the plate, and the whole assembly dropped back into the boat. The uphaul rope can be rebolted and the teak capping and cowl put back on. When the teak is put back, the rubber gasket under the teak capping will also need to be replaced. A roll of gasket tape is available from Reid Marine

ANTIFOULING

Under average conditions painting the bottom with antifouling should be done at least once a year. This time period can vary depending on the amount of boat use and local weather conditions. HEAVY SANDING OR SAND BLASTING OF THE BOTTOM OF THE BOAT IS NOT RECOMMENDED. DAMAGE TO THE GELCOAT COULD RESULT.

All exterior fibreglass on a Hawk 20 is gel coated. Good cleaning and waxing at regular intervals will keep the fibreglass looking new for a long time. Rinsing off all salt following each use is recommended whenever possible. After long exposure to sun or salt to remove a stain, VERY LIGHT buffing may be necessary to restore the gloss of the gelcoat surface. Always wax the area after buffing.

Fittings and Rigging can be preserved from the elements by protective polishes. Always rinse with fresh water after each cruise if possible.

CARE OF GELCOAT SURFACE

Your Hawk 20 is finished with a glossy gelcoat. Gelcoat is purely cosmetic and adds nothing to the structural integrity or strength of the laminate. For gelcoat to maintain it's gloss, it requires frequent washing, plus the application of a good coat of wax at least once or twice a year. The boat's high-quality gelcoat finish is chosen not only to appeal to the owner's personal colour preference, but also to provide a maximum protection to the polyester substrates underneath. In tropical climates twice annual washing is essential. Regular care and maintenance make a big contribution to your boat's resale value. A large number of environmental influences can affect the boat's gelcoat. They govern the amount of care the gelcoat needs and how often it should be attended to.

ln tropical climates, ultraviolet radiation from the sun is very strong. The air is often very humid and temperatures can exceed 40°C (140°F). Prolonged exposure could cause the gelcoat finish to develop yellowing, particularly on horizontal surfaces. Bird droppings should also be removed without delay, or they will damage the gelcoat. lt is quite easy to decide when the boat's gelcoat requires polishing or preservative treatment: water no longer forms large round droplets on the boat, this may arise as early as 3 to 4 months. Do not fail to carry out the necessary protective treatment as soon as it becomes necessary.

REPAIRING NICKS AND SCRATCHES ON GELCOAT SURFACE

Gelcoat is relatively thin and is susceptible to crazing and scratching. The following procedure is recommended for areas which have gelcoat damage.

1. Rough up the surface of the damaged area with coarse sandpaper to form a key. Feather the edge surrounding the blemish with fine grade sandpaper. Do not undercut the edge.

2. Be sure that the area to be patched is clean, dry and free of wax, oil or other contaminants by cleaning with solvents such as ethyl acetate or methyl ethyl ketene.

3. Mask around area to be repaired with low-tack masking tape before spreading on gelcoat.

4. Mix gelcoat as per instructions, then work the catalysed gelcoat into the damaged area with a knife or spatula. Slightly overfill the blemished area to allow for shrinkage.

5. Cover the repaired area with sellotape or waxed paper as gelcoat will not completely cure if exposed to air.

6. Let the patch cure thoroughly for approximately 2-3 hours before doing anything further to it. If the patch has not cured sufficiently if the thumbnail will leave an impression.

7. Sand the patched area with 200 grade wet & dry sandpaper, then change to 400 grade, then to 600 and 1000 wet & dry paper. Complete finishing process by buffing with rubbing compound to perfectly smooth surface. Then wax and buff surface to high gloss.

STAINLESS STEEL

Stainless steel is a common chromium/nickel alloy steel used in thousands of products from ocean-going craft to tableware. A protective chromium oxide film forms on it's surface which gives stainless steel it’s superior corrosion-resistant property. When properly maintained, stainless steel provides excellent lustre, strength and durability, and in most applications, stainless will not rust or stain even after many years of service.

However, stainless steel is NOT stain or rust proof. When used in contact with chloride salts, sulphates or other rusting metals, stainless will discolour, rust or even corrode.

Proper care and maintenance of stainless steel in marine environments, polluted surroundings, salted highways or other situations where stainless may be exposed to corrosive elements, will help keep your stainless products smart and functional for years to come.

ALWAYS clean stainless steel frequently with soap and water. Any cleaner safe for glass is usually safe for stainless steel.

ALWAYS remove rust spots as soon as possible with a brass, silver or chrome cleaner.

Irreversible pitting may develop under rust that remains on stainless steel for any period of time.

ALWAYS use cleaner, like a good car wax, for extra protection.

NEVER use coarse abrasives like sandpaper or steel wool on stainless steel. These may actually cause rusting.

NEVER clean with mineral acids or bleaches.

NEVER leave stainless steel in contact with iron, steel or other metals which cause contamination leading to rust or corrosion.

FRAPPING HALYARDS

In a modest breeze, external halyards will trap against a mast at the rate of between 40 to 150 times per minute, depending on tightness and diameter. Taking the average to be 95 per minute this is:-

5,700 times per hour

136,800 times per 24 hours

957,600 times per week

4,161,456 times per month

This is what it can do:

1. If your mast is aluminium, the halyards will wear through the anodising and allow corrosion to spread through the alloy until an unseen weakness occurs.

2. if your mast is wood, the varnish will be worn away allowing water to penetrate the wood, turn it black and eventually rot it.

3. The strands of your rope halyards will fatigue especially where spliced to wire rope.

4. Apart from keeping awake anyone trying to sleep in the immediate vicinity of your boat, the continuous clang clang can give you a bad headache without your even noticing the cause.

Remember, if two halyards trap continuously for 6 months in one season at an average of 95 per minute each, this is 24,847,600 times each or nearly FIFTY MILLION lashes in a season.

Tying halyards back to the shrouds with bungee is better than nothing but is not the real answer. They can still frap against the mast near the top.

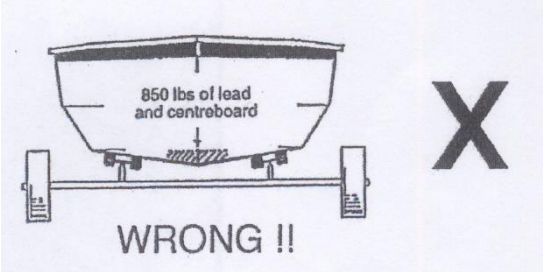
Why not tie the jib and spinnaker halyards to the stemhead fitting and the main halyard to the shroud mounting chainplate U-bolt at deck level.

Please don’t disregard this. lt might save you money and two kinds of headache.

TRAILER - IMPORTANT WARNING

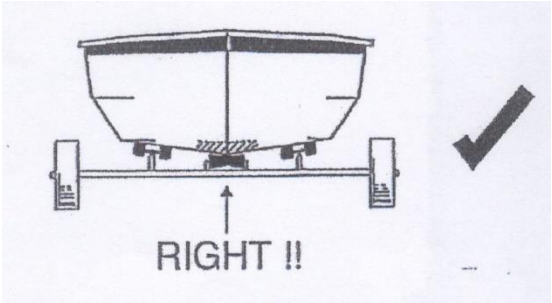
WE STRONGLY RECOMMED AND CAN SUPPLY A PURPOSE MADE TILT-BACK TRAILER

NEVER, EVER SUPPORT YOUR HAWK ASHORE OR ON BLOCKS OR ON ROLLERS WHICH SUPPORT MAIN PANELS OF THE 'V' BOTTOM.



ON A TRAILER ONLY THE

ALWAYS, ALWAYS SUPPORT THE MAIN WEIGHT OF ALONG THE CENTRELINE - THE SPINE OF THE BOAT. ORROLLERS SHOULD BE LIGHTLY LOADED SOLELY BOAT LEVEL.



HAWK 20 SIDE BLOCKS TO KEEP THE

EXPLANATION

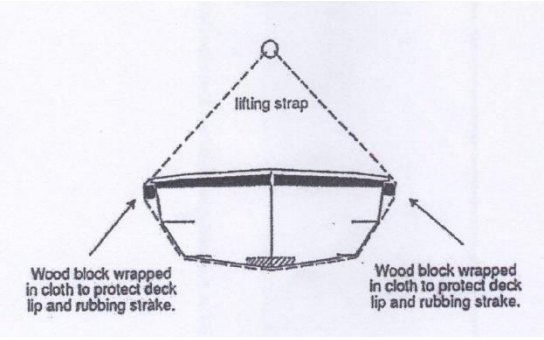
Nobody would support a fin-keeled boat with blocks point-loading the hull while the keel hung free in the air. It would be stood on its keel and then rollers used to merely stop the boat falling sideways.

Treat Hawk 20 the same way. It has at least as much ballast weight as a fin-keeler. Take the main weight on the centreline.

CRANING HAWK

Place wood blocks wrapped in cloth on the hull below between the lifting strop and the boat to protect the rubbing strake from undue pressure.

For two strops you will need two wood blocks each 3" thick and about 3" or 4" wide by about 12" long. to wrap them in a piece of blanket or towel



the deck lip lip and

side—about Don't forget

SECTION 8 - HAWK SAFETY FEATURES

Hawk comes with a range of major safety features incorporated from the design stage. These include:

1. One piece deck/cockpit/bulkhead moulding to avoid joints and leaks.
2. Sealed lockers
3. Self draining cockpit floor with Elvstrom-type bailers to promote rapid exit of water.
4. Self-righting even from a full 90° and even with the centreboard fully retracted.
5. Inboard/outboard system: no dangling over the transom; rapid access to engine power in an emergency.
6. Full buoyancy. ln normal circumstances Hawk has enormous buoyancy from the numerous air tanks created by the deck moulding. She has no open cuddy through which the whole boat would become flooded in a knock-down.

As a further safeguard, Hawk has closed-cell foam buoyancy blocks - enough to float

the boat and crew even if the hull is holed. The foam blocks are in front of the collision

bulkhead, below the cockpit seats and floor and under the stern and side decks.

COCKPIT LOCKERS - SAFETY

One or two inch deep drain channels round a locker lid do not drain when the boat is heeled - they tip the water into the locker. Hawk has very deep channels to drain at all normal sailing angles. So in normal circumstances the cockpit lockers will remain essentially dry.

However, if you heel excessively and keep dipping the side deck in rough weather you may get enough water on the leeward seats to overload the drain channels. Equally, a large lump of solid water in rough weather may have the same effect. There is no need to worry because:

- There is an expanded neoprene seal round the locker lid to prevent or at least minimise the amount of water going into the locker and;
- There are glassed-in plywood bulkheads both fore and afitof the lockers to stop any water that does get in from flooding the bilges.

In short, the cockpit lockers will not take in water in normal use-—the drain channels will happily cope with heavy rain, spray and the odd bit of green water at normal sailing angles of heel.

The neoprene seal round the cockpit lid can never be truly watertight, but in extreme conditions and even in a knockdown it limits the speed at which water can enter the locker. The glassed-in bulkheads act as a barrier to prevent any water from flooding the bilges.

AFTER HEAVY WEATHER SAILING ALWAYS CHECK THE LOCKERS AND SPONGE OUT ANY WATER THEY MAY CONTAIN. DO NOT DRILL LIMBER HOLES IN THE COCKPIT LOCKER BULKHEADS, OR YOU WILL DESTROY AN IMPORTANT SAFETY FEATURE.

COCKPIT UNDER-SEAT STOWAGE LOCKERS

Because of the large surface area and the length of the lids they can get temporarily distorted by weight and are difficult to seal completely, so it would be wise to assume that a little water may sometimes get in these lockers. They are best used for items that will not be harmed by water.

The cockpit under-seat lockers are ideal for stowing items of gear that will be used fairly often and which need to be got at easily. We suggest stowage as follows: to port; warps, fenders, spare fuel (in plastic containers approved for petrol and available in garages——no rust) two stroke oil and a sponge. There is plenty of room for more. To starboard, a spare sponge, mainsail cover, anchor and warp. Some people like to add about 3 to 6m of chain to the anchor before connecting the warp to help hold the anchor on the seabed especially in a tide. On holidays, the under-seat lockers have plenty of room for sailing bags full of swimming kit and buckets, spades and beach-balls.

The port and starboard bulkhead lockers have hatches which are the nearest to watertight you will get and to stow your dry kit such as oilskins, clothes, sandwiches, camera etc.

When the sailing is done and the equipment comes out of the lockers to go back to base, there is room in either under-seat locker to accommodate any of the recommended outboards. The over centre catches will take padlocks to deter all but the the most determined.

Under the foredeck, accessible only through the deck hatch, is a large stowage hold for such things as a boom tent, covers, an inflatable dinghy. Even a sea toilet can be accommodated.

OUTBOARD SECURITY

Being lazy, we suggest fitting the outboard motor in the well and leaving it there. We can supply a special locking device which fits over the clamps. Do not lose the keys! It is a good idea to keep spares secreted about the boat.

BUOYANCY SYSTEM - 7 (seven) sealed compartments

There are two sealed compartments at the stern, each comprising the volume under the quarterdecks each side, plus the volume under the seats and under the side decks aft of the underseat lockers each side.

There are also two sealed compartments, one each side, forward of the under seat lockers comprising the volume under the seats and under the side decks.

There are two more sealed compartments underthe cockpit sole (floor) each side of the centreplate casing.

There is a large buoyancy compartment in the bows. All the above compartments contain closed cell foam whose total volume is 1.13 cubic metres.

The side decks are stiffened by a foam sandwich whose volume amounts to 0.66 cubic metres.

The volume of the under seat lockers and the volume of the space under the foredeck would act as buoyancy but these spaces are not counted because they are not foam filled and they are in contact with the outer skin of the hull.

The lockers in the main bulkhead have sealed closures and are not in contact with the outer skin. Their volume amounts to 0.04 cubic metres and this may be counted as additional buoyancy.

The total volume of buoyancy is therefore 1.236 cubic metres.

The weight of the boat is 816kgs including equipment and ballast. Taking the weight of an average adult as 75kgs and a crew to be 5 persons——a total of 375kgs—the total weight of boat and crew will be 1191 kgs.

One cubic metre of foam will support 1000kgs, so 1.236 cubic metres will support 1236kgs.

The volume of the sealed buoyancy chambers is greater than the volume of the foam they contain by about 15% but, although this extra buoyancy has not been taken into our calculation, it may be considered because the likelihood of ALL chambers being punctured at one time is so remote, that it cannot be considered to be a serious possibility.

Furthermore, the three large locker spaces (two under the seats and one under the foredeck), the hatches of which have rubber seals, would increase the available buoyancy if they were not punctured.

In our opinion the available buoyancy would, in normal circumstances, be adequate for a crew of 8 if the buoyancy spaces were undamaged. The cockpit, however, is self-draining and cannot contain water for long.

We have tested the boat with 8 adults on board, but do not recommend thisbecause the sailing performance is impaired.

Under EC Regulations, the Hawk is Design Category C with a stated capacity of 7 (seven), although we recommend 6 (six) people as the maximum and 5 (five) as ideal.

SELF RIGHTING

Because of its 48% ballast ratio, the Hawk 20 is self-righting from 90°, even when the centre plate is in the raised position.

CARE OF THE BATTERY IF FITTED

The basic battery is a 12-volt 1.9 gel cell battery. This type of battery should never be allowed to become fully discharged as, should this happen, voltage reversal can take place causing terminal damage to the battery.

The charger supplied with the system has two output levels, one being bulk charge and the second being float charge. The bulk charge cuts in when the battery needs charging and cuts back to float charge when the battery is fully charged.

This type of battery is best left on float charge when not in use. The battery pack contains a connector at one end and a 1/2-amp circuit breaker or fuse at the other.

The battery cannot be charged with the fuse missing or defective or the circuit breaker turned off.