10. DECKING

(i) Turning the Boat Over

The great moment has arrived when the jig can be finally retired; and you get to see, for the first time, the whole inside of your Wayfarer. The hump-backed monster suddenly becomes an elegant boat. A good occasion for a party, celebrating the fact that from here on it's mostly down hill - besides, you'll need the extra muscle-power!

Before doing it, however, this is a good time to make simple support-cradles which will help during the fitting-out - and you can also keep the finished boat on later. Good locations are just forward of the Forward and Aft Bulkheads. Use old 2 x 4's, or scraps of sturdy plywood; but it is a good idea to cover them with some thick carpet scraps. (A trailer with its wheels removed can be used as a cradle.).

In preparation to turning the boat over; prop her at four points, using boxes, saw-horses or concrete blocks; and remove all the jig bolts. You will need the help of one person who can rapidly remove all the props from the scene while the boat is held aloft.

Having lowered one side to the floor and rolled her over as gently as you can; place her on the cradles and remove the moulds. Refer to Figure 26.

(ii) Fitting the Fore-deck Beams

Refer to Figure 27.

As a preparation to this operation, plane off the surplus ply projecting above the Gunwhales. Do not, at this stage, plane the tops of the Gunwhales themselves. Attach tow ring through stem now, if you plan to use one.

Stretch a taut line from the Stem to the mid-point of the Transom.

Accurately establish the location of Deck Beam No. 4 (W 25-4). Refer to the General Arrangement drawing; its forward face is 8 3/4" (222 mm) aft of the aft face of the Forward Bulkhead. Mark out two parallel saw-cuts on the Gunwhale 3/4" (19 mm) apart. Refer to Figure 28. The saw-cuts should taper from a little over 1/8" (say 4 mm) at the top, to zero at the bottom. Chisel away the wood between the saw-cuts and fit the Deck Beam. It will be necessary to shorten it and adjust the angle of the ends to fit the sockets. Note that the top edges should intersect with the outer edge of the planking. Drill and temporarily screw into the Gunwhales. (Screws: two (2) # 8 x 1 1/2").

Fit the King Posts (W 27) either side of the horn of the Centre-board Case. In order for the notches to fit Deck Beam No. 4 correctly, it will be necessary to remove some material from the bottom of each King Post. Note, on the General Arrangement drawing, the critical dimension of the centre of the Pivot-tube hole above the upper face of the Hog of 1' 10 1/4" (565 mm). (The Class Rules permit a tolerance of ± 1/2" (±13 mm). Drill and temporarily screw to the Centre-board Case Top and Bottom Ledgers, and through Deck Beam No. 4 (Screws: ten (10) # 8 x 1 1/2").

Bevel and fit Floor No. 5 (W 7-5) to the planking forward of the Centre-board Case. It can be accurately gauged to the correct compound bevel by clamping it in position and marking each face with a pencil spaced off the planking with a block of wood. The top face of the Floor must align with the top edge of the Centre-board Case Ledgers. Mark outline of the Floor on the planking; remove and drill two holes through the planking each side so that it may be screw-fastened from the outside later when the Hull is inverted once again for painting. Floor No. 5 is also drilled and screwed into the forward face of the King Posts (Screws: four (4) # 8 x 1 1/2", two (2) # 8 x 1").

Lay Fore-deck Carlins (W 29) in position to obtain the correct bevel to the sockets in the King Posts. Refer to the General Arrangement drawing, and note that at the Gunwhales the dimension between the Carlins and the forward face of the Deck and Seat Knees (W 8/7) is 1 3/4" (44 mm). Mark

and cut out bevels on King Posts and sockets in Gunwhales similar to those for Deck Beam No. 4. Drill and temporarily screw Carlins into Gunwhales and the sockets in the King Posts. (Screws: six (6) # 8 x 1 1/2").

Adjust the profile and bevel of the Bow Chock (W 17) to fit tight behind the Stem and at the correct height. This height is established by raising the centre line by 3/4" (19 mm) at the Deck Beam No. 4; which is the height of the upper face of the King Plank. Temporarily screw-fix Bow Chock through Gunwhale. (Screws: four (4) # 8 x 2").

Locate Deck Beams No.s 2 and 3 (W 25-2, W 25-3) at equal spacings between Deck Beam No. 4 and the Bow Chock; their vertical alignment checked by the taut line. Temporarily screw in place. (Screws: four (4) # 8 x 1 1/2").

Refer to Figure 19; Saw-cut and chisel out a 1 1/2" long x 3" wide (38 x 76 mm) tapering socket in the Bow Chock to house the end of the King Plank. Bevel the end of King Plank (W 26) to fit. The notches in the Deck Beams for the King Plank will also require slight bevelling. Fit the King Plank and temporarily screw in place; countersink screw-heads well. (Screws: ten (10) # 8 x 1 1/2").

At this stage, and before fitting the Fore-deck Stiffeners (W 28), the upper faces of the Gunwhales, the Deck Beams, King Plank and Bow Chock should be planed to form a flat landing for the two halves of the Fore-deck. Work aft from the Bow Chock, and note that the pitch of the deck is slightly steeper at the bow than it is further aft at the Carlins. Check visually and with the metal straight-edge to ensure accurate alignment. Refer to Figures 29 and 30.

Follow this by saw-cutting and chiseling out the sockets in the Deck Beams for the Fore-deck stiffeners (W 28). To establish correct location, lay stiffeners over Deck Beams centred between the Gunwhales and King Plank at Deck Beams No.s 2 and 4. The sockets in the Fore-deck Carlins are half-sockets. Having marked the outlines for these, it is best to remove the Carlins, and chisel out the sockets on the bench. Temporarily screw

Stiffeners in place. (Screws: ten (10) # 8 x 1 1/4").

(iii) **Fitting the Stern Deck Beams**

Refer to Figures 31 and 32.

Temporarily screw the Transom Beam Doubler (W 3d); and the Aft Bulkhead Beam (W 6d) and Biscuits (W 6f) in place. (Screws: sixteen (16) # 8 x 1 1/4", ten (10) # 8 x 3/4").

Place the 4 long Stern Deck Frames (W 35) in their correct locations as indicated by the marked notches on W 3d and W 6d. The shorter pair fit either side of and frame the Aft Hatch opening. The longer pair are angled and fit either side at the edges of the Stern Deck. Mark the correct angles of notches and ends of Frames. Cut out notches, trim the Frames and temporarily screw them in place. (Screws: eight (8) # 8 x 1 1/4").

Lay Stern Deck Beam (W 34) over the Frames in its correct location; that is, 1' 2" (356 mm) forward of the face of the Transom Beam. Refer to the General Arrangement drawing. Mark the outline of the beam on the 4 longitudinal frames.

Now the Stern Deck Beam (W 34) must be fitted in its correct vertical location, which involves cutting a compound bevel at each end. A good way of achieving this bevel, is by clamping a piece of wood; one of the stern Deck Beams will do; in the location of the Beam over the frames, so that it touches the inside of the planking. The Bevel angles can then be gauged onto it using a pencil and small block of wood.

Using the metal straight-edge; accurately mark the locations of the ends of the Beam on the inside of the planking. Measure the width of the boat at this point; transfer the dimension and bevel angles to the Deck Beam, and cut the ends to the required bevel.

Remove the 4 deck frames, having first numbered them, and tack the Deck Beam in place. The ends may require some fine adjustments before it will fit inside the planking at exactly the correct height.

Test-fit the Stern Deck Beam Sockets (W 33), which may also require some slight bevelling. Lay the 4 deck frames in position; mark and cut out the sockets in the Deck Beam to house them. Likewise, mark and cut out the sockets for the Stern Deck Frame Short (W 36). Temporarily place all framing in place; lay the two Stern Deck panels (W 48) in place so that the Side Deck Carlins (W 37) may be correctly located vertically. (Screws: fourteen (14) 8 x 1 1/4").

(iv) **Fitting the Side Deck Supports**

Obtain the correct bevel angle of the Carlin landing of the Aft Bulkhead Knee, Deck Knees 11, 9, and 7; and also the socket in the Transom Beam; by clamping a flexible batten in place. This will also give you the Bevel at the junction with the Foredeck Carlin and the correct over-all length of the Carlin.

Cut the Carlins slightly over-long; bend and clamp in place. A simple way to do this is to clamp blocks to Knees 9 and 11, and clamp the Carlin in turn to them. Trim over-all length until the Carlins are a tight fit against the Fore-deck Carlins, and into the sockets in the Transom.

Adjust the vertical location of the Carlins at each knee to give a fair curve. These are lines that you will be looking at often when sailing your Wayfarer; so it is worth taking some trouble to get them right at this stage. In practice this may mean making slight compromises at each station; where either the upper surface of the Knee, or the Carlin itself, may need to be planed to give a fair curve and landing for the Side Decks.

When a satisfactory fit has been achieved for both Carlins; mark on outlines and centre-lines of Knees. Remove and drill screw-holes. As these will ultimately be plugged; drill holes 7/16" (11 mm) diameter to

approximately half the thickness, then drill screw-holes to the usual diameter. Temporarily screw Carlins in place. (Screws: twelve (12) #8 x 1 1/2").

Plane the edge of the planking, Gunwhales, Knees and Carlins simultaneously to produce a fair landing for the Side Decks. Check continually with the straight-edge and the edge of the plane; also by sighting from the Transom and Stem.

The point of intersection between the Side Decks and the Fore-deck is important visually. At the Gunwhale the two decks will meet in one line; however, the Fore-decks are angled while the Side Decks are flat. A shallow cut is made in the Gunwhale at the Fore-deck Carlin; and the Gunwhale planed flat aft of this point. Refer to Figure 33. At the Transom a small piece of planking is left on level with the top edge of the Transom. Refer to Figure 34.

Set out the position of the joint in the Side Decks 5' 11 1/2" (1816 mm) forward of the inside of the Transom. Mark a line across the Carlins and Gunwhales. This line locates the centre-line of the Oarlock Chocks (W 38). The Jam Cleat Chock (W 38) fits immediately forward of the Knee No. 9 and the Carlin Chock (W 30) in the angle between Deck and Seat Knee No. 7 and the Fore-deck Carlin.

Fit the Chocks by planing correct bevels and curves for the Gunwhales and Carlins, and temporarily screw in place. (Screws: sixteen (16) # 8 x 1 1/2").

(v) Fitting Decks and Washboards

The critical centre-joint of the Fore and Stern Decks, and the edge against the Transom, are plywood sheet edges; thus should require no further cutting. However, a slight bevel must be planed on the centre edges of the Fore-decks to allow for the slope of the decks.

Temporarily tack the Stern Decks in place; mark the outline of the Hatch opening and edge of the Aft Bulkhead. Remove each half Deck in turn; trim to size, then replace.

Follow a similar procedure with the Fore-decks; temporarily nailing each half in place to ensure that the reference centre-line does not shift.

In the case of the Side Decks; it is essential to achieve a tight joint at the Transom, centre-joint and at the Fore-deck Carlin. This is best achieved by laying each forward section in place; gauging the angled forward end and accurately cutting it to fit - ie. at the point ofintersection. Lay the forward section in place once again, tight against the Carlin. Temporarily nail in at least two places, and mark out the centre-joint. Remove; trim this joint so that it is perfectly straight,and nail in place once again.

Lay the aft section in place (over-lapping the forward section), and repeat the process; first gauging and trimming the Transom end. Note that the curve of the inner deck edge continues into the recess in the Transom Beam. Mark out the forward edge at the centre-joint. Remove; trim and refit. It should be possible to tighten the joint by sliding the forward section outwards slightly against the Fore-deck Carlin.

Fit the Washboards (W 50) to the Fore-decks. Be sure to slant washboards FORWARD They should first be bevelled along the bottom edge where they join the deck before test fitting. Since these are screwed from below, it is not possible to fit them after the Decks have been fastened. Mark a point on the centre-line of the Fore-deck 10 1/2" (267 mm) forward of the aft face of the Deck Beam No. 4. With a straight-edge connect this point to the Gunwhale at the point of intersection. Lay one Washboard forward of this line so that it overlaps the centre-line sufficiently to be cut vertically. Mark the outline on the deck and drill holes for 8 x 1"screws at approximately 5" (125 mm) crs. Invert the Deck panel, clamp the Washboard in place and drill screw holes into it, taking care that they are correctly inclined, and screw through into it. Replace Deck panel in position; mark out and

cut the central vertical joint.

Repeat the process for the second half-deck; taking care to achieve the closest possible fit at the intersection of the Washboards. Remove the Washboards and plane the top edges to a constant half-round section. (Screws: sixteen (16) # 8 x 1").

Before removing all deck panels for pre-finishing; mark outlines on the underside of the Kingplank, Beams, Knees, Carlins, etc., to which they will be fastened. The Foredecks will be fastened only to the Gunwhales, Kingplank and Bow Chock, Forward Bulkhead and Carlins. They are not fastened to the Deck Beams and Stiffeners for reasons which are explained later. The Side Decks are fastened to all supporting members.

The King Posts must be assembled with the plywood Biscuits (W 27a) and Packing Pieces (W 27m) where a metal mast is to be fitted or, for a spruce mast, with the metal pivot plates. Also at this stage, prior to final installation, the 5/8" (16 mm) dia. holes for the pivot-tubes should be accurately drilled. Refer to General Arrangement drawing and Figure 35 for location. (Screws sixteen (16) # 8 x 3/4").

With the inside of the hull once more clear of obstructions; this is the time to finish the Floorboards and their supports; also the Thwart (W 32), which cannot be installed after the Side Decks are in place. This is also a good opportunity to varnish the inside of the hull inside the Fore and Aft Hatches. Also at this stage, plug all jig bolt holes, with the exception of those at the bottom of the Deck and Seat Knee (W 8-7), which are used to retain the oars. Refer to Section 13.

Also at this stage fit the Shroud Plates. These are bolted to the forward side of the Deck and Seat Knees (W 8-7), and the correct location is angled slightly inwards, the bottom end just touching the inside of the planking. Locate vertically so that the top hole will project the minimum distance through the deck to allow for the Shroud Adjusters to be fitted. Remember to allow for the thickness of the stainless steel cover plates.

(vi) **Fitting the Centreboard Case Capping and Thwart**

As the Thwart is supported at the centre be the Centreboard Case and Capping (W 16a); the Capping must first be fitted and planed to provide a flat near-horizontal landing for the Thwart.

Drill and temporarily screw-fix the Capping in place. (Screws: five (5) # 8 x 1 1/4"). As the screw-holes will be plugged, drill 7/16" (11 mm) dia. holes to half the thickness. Refer to the General Arrangement drawing for location of the Thwart; it should be notched approximately 1/2" (13 mm) at Knees W 8-9. The ends of the Thwart are trimmed and bevelled to fit inside the planking at the correct height. Use a similar technique for determining the compound bevel to that used with the Stern Deck Beam. Refer to Section 10 (iii). Support both ends on clamps at the Knees W 8-9; level-up and mark location on the planking.

To verify that the Thwart is fitted at the correct angle; the Side Benches (W 39 and 40) must now be test-fitted. Clamp the Side Bench Sockets (W 41) to the Aft Bulkhead in locations approximately 1/4" (6 mm) set in from the step-down at the Carlin, and 1 1/2" (38 mm) below the underside of the Stern Deck. Mark outlines and drill 3 screw-holes for each socket through the Bulkhead. Countersink on the aft side; clamp again and screw-fix the Sockets. Refer to Figure 38. (Screws: six (6) # 8 x 1 1/4").

Now the Side Benches may be laid in place, and it will be possible to adjust the angle of the Thwart and plane the landing on the Centre-board Case and Capping.

Locate, bevel and fix through the planking, the Thwart Chocks (W 31). (Screws: four (4) # 8 x 1").
Plane half-round nosings on Thwart; glue and screw in place. (Screws: nine (9) # 8 x 1 1/2").

(vii) **Fastening Decks and Washboards**

When all the Fore and Stern Deck support members have been epoxy-coated and sanded in places where you intend to later varnish them (this is unnecessary inside the Hatches), they should be glued and screwed in place.

Deck panels are fastened, beginning with the Stern Deck, using the following method:

Apply glue evenly to all surfaces to be joined; then tack the panels down with 1" finish-nails at 2" (50 mm) crs.; which are then removed and replaced with the brass pins. This procedure is necessary because the brass pins are not hard enough to penetrate the plywood. As the brass heads will be very noticeable in the finished decks, care should be taken in setting them out in straight lines and equally-spaced.

After the Stern Deck has cured, the domed brass heads are filed flat, and the deck surface sanded in preparation for final varnishing. Follow this by fastening the Side Deck Carlins to the Knees, Fore-deck Carlins and Transom. Glue and clamp the Carlins to the Stern Decks. Glue and screw the Chocks, 3 each side, in place.

The Fore-deck panels are fastened next; but first the Washboards must be glued and screwed to them. The Fore-deck panels are glued and pinned to the Gunwhales, Bow Chock, King Plank, Forward Bulkhead and Carlins. They are <u>not</u> glued to the transverse Deck Beams; this to prevent the unsightly 'ridge and furrow' effect which can occur when large thin flat panels are rigidly fastened to several supports at close centres.

After the Fore-deck has cured, the edge must be planed flush with the Carlins to allow the Side Decks to be fastened.

Fasten the Side Decks in a similar way.

Note: In order that the Hatches may be effective buoyancy chambers as specified by Class Rules; the glue joints between the Fore-decks and the Forward Bulkhead; between the Stern Deck and the Aft Bulkhead and the Carlins are critical. Make sure that plenty of glue is applied in these locations; and that it is evenly squeezed out during fastening-down.

(viii) **Fastening the Sheerbeads (W 49) and Finishing the Decking**

The Sheerbeads protect the boat against bumping and, like the Keel and Bilge Keels are 'wearing surfaces'. However, a laminated Sheerbead also has a strong aesthetic value and, if neatly done, will convey the impression of a well-built boat quite out of proportion to its functional importance.

Refer to Figure 36 and carefully plane the edge of the decking panels flush with the planking. Continue the sheer angle correctly to achieve close-fitting of the Sheerbeads. As the light wood strip will accentuate the curvature of the hull; care must be taken in planing the landing for it so that there are no 'bumps' or flat-spots.

Plane the 1/4" (6 mm) thick light wood inner strip to a constant thickness throughout its length; then glue, drill and temporarily screw using 6 x 3/4" steel screws at 4" (100 mm) crs. Leave a slight projection above the deck surface for final planing. Lash the projecting ends tightly beyond the Stem and Transom to ensure a tight joint at each end.

The screw-holes in the mahogany outer bead will be plugged; so 7/16" (11 mm) diameter holes should be drilled on the centre-line at 6" (15 mm) crs. to approximately half the thickness.

Remove all the temporary screws from the light wood strip and fasten the mahogany outer bead. It will be necessary only to leave half the screws in place; therefore alternate steel temporary screws with stainless steel permanent screws; doubling up on s.s. screws at each end where the bending stress is greatest. Aft of the Transom, the Sheerbeads should be lashed

together using the 'tourniquet' method to obtain a tight fit. Forward of the Stem, leave on as much extra length as possible and clamp together securely. Screwing on wedge-shaped mahogany off-cuts will provide a good bearing for the clamp. (Screws: forty-two (42) # 8 x 1 1/2", thirty (30) # 8 x 1 1/2" steel).

While the Sheerbead is curing; trim the inside edge of the Side Decks. This is best done by using the plane or Surform at an angle across the edge.

At the intersection of the Washboard a cut-out approximately 2" deep x 1" wide (50 x 25 mm) is made for the anchor-warp or tow-rope. The cut-out should be well rounded off.

11. FINAL COMPLETION AND FINISHING

(i) The Sheerbead

Before turning the boat turtle again for finishing work to the outside of the Hull, the mahogany/spruce laminated Sheerbead must be planed and sanded to the correct finish profile. The ends must also be bevelled and rounded off. Refer to General Arrangement drawing and Figure 36.

(ii) The Hull

Remember to have some kind of cushion ready to support the bow, as the Washboards need protection. We use a bale of fibreglass insulation batts, and find that it supports the bow at about the right height for working on the bottom.

Most boat builders and owners hold strong opinions of their own about the best way to finish a boat. It is probably for this reason that the market is well supplied with a mystifying variety of completing finishes.

The convention for a boat with the Wayfarer type of marine-ply planked hull is that she will be painted on the outside. Looking at the plywood, you will probably feel that this is sacrilege; and the hull ought to be varnished to retain the full wood "feel". However, to do this correctly, the planking should be fastened with copper boat-nails. Alternatively, you may feel that the red epoxy filler in the screw-holes is acceptable visually. If you do opt for a natural finish; this will probably be reflected in the extra care taken in the planking operation.

On the other hand, there is also something highly satisfying about a skillfully applied high-gloss paint finish in a good colour, chosen to complement the mahogany. For most of the time also, it is the decks and insides, the benches and floorboards which are noticed; and between them, they present plenty of rich wood-grain to the eye.

The epoxy surface is not a satisfactory base for paint or varnish; and needs to be well prepared to enable the subsequent finish to bond to it and dry in a reasonable length of time.

Thoroughly sand the epoxy; using a medium aluminum oxide paper 100 grit, for example - removing all unevenness. In practice this means returning virtually to the bare wood. However, the moisture-sealing properties of the epoxy saturation are not destroyed. Expect to go through a large quantity of aluminum oxide paper; its usefulness can be prolonged by cleaning it frequently with a file-card.

When the epoxy has been satisfactorily sanded, clean the remaining waxiness from the surface with lacquer-thinner and papertowels. Follow this by washing the surface with a dilute solution of household ammonia in warm water to neutralize any acidity.

Prepare for painting by masking with tape the Sheerbead and Transom, where a clean paint-edge is particularly important.

(iii) **The Keelband**

It is preferable to fasten the Stem Head Fitting over the Keelband; Refer to Section 10 (ix). Therefore, the first screw-fixing for the Keelband should be drilled at a point just below the end of the fitting. The Keelband itself terminates level with the Foredeck.

Fasten the Keelband at this point, then bend it round tight against the curvature of the Stem and Keel. Drill and countersink the screw-holes at 6" (150 mm) crs.; these should not be pre-drilled, as this would result in 'kinks' in the Keelband.

Cut the central Keelband at the Centreboard slot; fit parallel bands either side of the slot so that they overlap the end 1" (25 mm) fore and aft. Continue the central band to terminate flush with the Transom.

Having successfully test-fitted; remove every alternate screw, run some epoxy into the hole, wax the screws to permit future removal and screw down. Repeat for remaining screws.

Check that all screws are well countersunk; and file their heads flush with the Keelband. (Screws: forty-six (46) # 8 x 1 1/4").

(iv) **Inside of Hull, Decks and Benches**

Now is the time to re-acquaint yourself with the Topsides of your Wayfarer. Turning her over for the last time; you not only have the weight to consider, but an immaculate new enamel finish. Cover the floor with carpet scraps; invite your friends and neighbours once again - promise them a summer's sailing...

Use a good quality Spar Varnish. Check with the manufacturer that the formula includes UV filters; because prolonged exposure to ultra-violet light - particularly strong sunlight - will degrade the epoxy and give it a chalky look. For this reason a minimum of 4 coats of varnish is recommended on all exposed surfaces; Decks, Hatch Covers and Benches; while 3 coats is adequate for the inside of the hull.

In general, the procedure is very similar to that followed when painting. Rub down the epoxy to provide a smooth base; clean with lacquer-thinner and wash with the dilute ammonia solution before applying the first coat. Rub down well; de-dust and apply second coat. Repeat until up to 4 coats have been built up.

(v) **Floorboards**

Glue and screw the Floor Doublers (W 18) to Floors 7-9. (Screws: six (6) # 8 x 1 1/4"). Refer to General Arrangement drawing and Figure 32. Fit the Floor Kingplank (W 20) into the sockets in Floors 7-11 and 7-13. Trim to correct length and check that it is aligned correctly. Floorboards go only as far as the kingpost. Not butted up against the forward bulkhead.

Check the fit of the Floorboards, and if necessary trim to correct profiles so that they seat evenly on the Floors, Centreboard Case Ledgers, and just clear the planking aft. Mark out and make cut-outs for the 8 Turn-button Blocks; these cut-outs can then be used as a guide for glueing the Blocks in place. Cut out access holes to the drain-pugs in the Aft Bulkhead.

Fasten Floorboard Stiffeners to the underside of the Floorboards in locations indicated on the General Arrangement drawing. The screw-holes need to be only slightly countersunk; as they should not be filled. (Screws: forty-six (46) # 6 x 3/4").

The Floor Kingplank assembly must be completed before it can be finally installed. Locate the bevelled Kingplank Chock (W 19) where it will best support the Kingplank off the Hog; and glue and screw in this location to the Kingplank. The Toe-rail (W 24) must also be fastened centrally on the Kingplank; it is glued and screwed from below; as is the Floorboard Cleat (W 22), which is located just forward of the Toe-rail, and provides an anchorage for the Toe-straps. Refer to General Arrangement drawing. (Screws: two # 8 x 1 1/4", fourteen (14) # 8 x 1 1/2").

A non-slip finish is desirable on the Floorboards. They may be painted, with a non-slip additive in the paint. However, this obscures the fine appearance of the plywood. Varnish is not a practical solution because it will soon become scuffed by sandy shoes.

A finish we have used with success is DEKS OLJE; a traditional Norwegian penetrating deck oil. It preserves the wood; and scuffing does not seriously affect its appearance. The finish can be restored by lightly sanding and recoating.

(vi) **Side Benches (W 39, 40)**

Plane all curved Bench parts to a continuous curve and finish profile. Refer to Figure 38. Both ends of the Forward Benches and forward ends

only of the Aft Benches are also rounded.

The short Forward Benches are permanently fastened to the Deck and Seat Knees (W 8-7) and to the Thwart. Refer to the General Arrangement drawing for location. Drill 7/16" (11 mm) dia. holes to half the depth for filler plugs and screw -fix. (Screws: eight (8) 8 x 1 1/2").

Locate the Aft Side Bench sections so that they are approximately parallel to the Carlins, and continue the curve of the Forward Side Benches. Clamp the central Cleat (W 42) underneath the Side Benches at a location directly in line with Knee and Floor No. 11. Remove the clamped assembly, and screw-fix the Cleat from below.

Since the Aft Side Benches are designed to be stowed athwartships when camping, they should now each be placed across the boat forward of the Thwart. This gives the angled location of the fore and aft Cleats. Mark their locations; drill and screw-fix from below. (Screws: twenty-four (24) 8 x 1 1/4").

The 2 side Bench Support Legs (W 43) should be planed to a half-round on each side. Chisel out rabbets to house the brass hinges in the Supports and also in the central Cleats. Hinge-mount the Supports. Refer to General Arrangement drawing for locations. (Screws: twelve (12) 6 x 3/4").

Replace the Side Benches and adjust the length of the Supports until they just touch the Floorboards.

Locate the 2 Side Bench Support Sockets (W 44) and mark their outlines on the Floorboards. Glue in place. The thickness of the ply will impart just the right degree of upward deflection to the Bench when it is secured.

Refer to the General Arrangement drawing; chisel out sockets in the undersides of the Side Benches to accommodate the pre-drilled brass fixing

plates, and screw-fix them. (Screws: four (4) 6 x 3/4"). Locate the Side Benches and drill 1/4" (6 mm) dia. bolt-holes through the Thwart for the brass bolts.

Remove and dismantle all Side Bench components. Epoxy coat and sand in preparation for varnishing.

Glue and screw-fasten Forward Side Benches to Deck and Seat Knees, and to the Thwart. Re-assemble, glue and screw-fasten the Aft Side Benches.

Plug all remaining unfilled screw-holes in the Thwart, Side Benches, Centreboard Case Capping and Carlins.

(vii) **Tiller and Rudder**

The Rudder Stock (W 62, 62a) has been temporarily pre-assembled. It should be dismantled, each part sanded and epoxy-coated, and then glued and screwed together. (Screws: ten (10) 8 x 1").

Fit the stainless-steel Tiller Hood. The down-haul sheave fits inside the slot, and should rotate freely.

The Tiller (W 65) must now be planed and sanded until it is a tight fit in the Tiller Hood. It should be well rounded at the forward end to make a comfortable hand-hold. With the Tiller installed in the Tiller Hood, drill a hole through the Hood for the stainless steel retaining pin.

To assemble, tie a figure-of-eight knot in the end of the down-haul to retain it in the hole drilled through the Rudder Blade , pass the down-haul up through the slot in the Rudder Stock and over the sheave. The down-haul is completed by the addition of a length of shock-cord and looped over a cleat screwed to the underside of the Tiller.

Refer to figure 39, and note that this detail differs from that shown on the General Arrangement Drawing; also that the Rudder Blade profile has

been modified, in accordance with Class Rules, to hang vertically.

Prior to epoxy-coating and varnishing, the Rudder Blade and Centreboard must be planed and sanded to the correct chamfered profile. Refer to Figures 39 and 40.

(viii) **Hatch Covers and Gaskets**

Refer to Figure 37. Sand and epoxy-coat the covers and corresponding frame members. Glue up the covers and frames without using screws. They should be clamped while curing to a rigid flat surface, so that the finished covers will also be flat and form a good air-seal.

When the covers have cured, screw on the striker-plates in the locations shown.

Fit the Hatch Covers and mark correct locations of the 3/4" x 2 3/4" (19 mm x 70 mm) x 5/8" (16 mm) Catch Lifters on the Stern Deck and Forward Bulkhead. Glue and lightly clamp in place; do not screw. When the glue has cured, mark locations of the hatch catches, and drill for screw-holes.

After the Hatch Covers have been varnished, the gasket seals must be fitted. The gasket material is closed-cell neoprene, and the section consists of a flat web portion and a projecting nib. The nib compresses against the Stern Deck and Forward Bulkhead sufficiently to absorb any unevenness and maintain an air-tight seal.

Cut the neoprene gasket material to length; approximately 7' 6" (2250 mm) for the Aft Hatch, and 6' 0" (1800 mm) for the Fore Hatch. Tape in position temporarily, close to the frame, so that the projecting nib is outermost.

With a sharp X-Acto knife, or similar, cut a 1:2 scarf joint at the mid-point of one long side. Cut 45^{o} mitre joints at each corner; the web portion only is cut; so that the projecting nib continues in a radius

around the corner. Refer to Figure 37.

Thoroughly clean the silicon coating from the gasket using lacquer thinner; otherwise the contact cement would not bond to it. Using a small glue-brush, paint two coats of well-stirred contact cement onto the gasket, and one on the Hatch Cover where the gasket is to be bonded.

When the adhesive is dry; place strips of waxed paper over it, with the exception of the first side to be glued down; which is that opposite the scarf joint. Press the gasket down firmly on this side; then press the scarf joint together, followed by one adjacent side. The third side to be glued down is the one containing the scarf joint. Complete by pulling the gasket out straight and glueing down the fourth edge.

Screw the hatch catches onto the lifter blocks; making sure they are located over the striker plates when in the closed position.

Constant contact of the gaskets throughout their length with the Stern Deck and Forward Bulkhead can be checked by dusting them with french chalk so that they make an impression on the varnished surface. Adjust the holding strength of the catches by tightening or loosening the screws. Ideally, the gaskets should not be overly compressed, as this would weaken the glue joint.

(ix) **Fittings and Rigging**

As a general rule; when all the fittings have been positioned to your satisfaction and temporarily screwed down; remove the screws or bolts, wax them lightly to permit future removal, run some epoxy into the holes, and re-fix. The purpose of this is to seal the wood in what would otherwise become vulnerable areas, and improve the holding strength of the fastenings.

Drain Sockets: It may be necessary to cut away part of the plastic retaining lugs in order that the plugs may be opened satisfactorily.

Rudder Hangings: The Upper Transom Fitting is positioned first. It may be fixed either with 3 or 4 stainless-steel bolts, which pass through the Transom, and should be centred and located vertically so that the bolts pass through the Transom between the Transom Beam (W 3a) and the Stern Knee (W 4).

Fit the Upper Pintle to the Rudder Stock; and hang the Rudder, with Tiller installed, and adjust the location of the Upper Pintle until the Tiller passes through the opening in the Transom at a height where it will comfortably clear the Sheet Track and the Side Decks. Screw-fix Upper Pintle to Rudder Stock.

Screw-fix Lower Gudgeon to Rudder Stock (Refer to Figure 39 for location), and position Lower Pintle on Transom so that both Transom fittings take equal weight. Screw-fix with 4 or 5 stainless-steel screws, depending on type, through the Transom into the Lower Fashion Pieces (W 3c).

Main-sheet Track: The Track is screwed down to the Transom Beam between the curved cut-aways either side. Do not countersink the screw-holes; the countersinking in the Track spaces it off the Transom so that the spring-loaded plungers on the Traveller Stops will engage with the holes in the Track.

Stem Head Fitting: Apply some plastic insulation tape to the brass Keelband to separate it from the stainless-steel Stem Head Fitting, thus preventing electrolytic action between the two metals. Drill through the Keelband and screw-fix. The screws fixed through the Fore-deck should be slightly angled so that, if possible, they are not all driven into the end-grain of the Stem. Running epoxy into the screw-holes will help to hold them.

Centreboard: Refer to Figure 40 and fit the Centreboard Brake. By tightening the screws, the rubber section is squeezed outwards against the sides of the Centreboard Slot, thus retaining the Centreboard by friction. The Brake can only be adjusted satisfactorily when the boat is afloat.

Raise the stern of the boat up until the Centreboard can be lowered into position. Brush some epoxy into the bolt-holes, and install the 3/8" (9 mm) dia. stainless steel bolt (wax it lightly first). Place a rubber washer under the stainless steel washer at each end.

Stepping the Mast: Fit the Shroud-Adjusters to the Shroud Plates. Rest the mast on padding at the Stern Deck, and fit the Pivot Tube. In the case of a metal Mast, the rubber washers fit between the Mast and the inside faces of the King Posts. Refer to Figure 35.

Having first tied a plumb-line to the head of the Mast, raise the Mast; one person pushing up from behind, and one pulling forward on the Fore Stay. Open out the bottle-screw, and engage with the Stem Head Fitting. Screw down part-way, and engage the clevis pins retaining the Shrouds in the lowest hole possible on the Shroud Adjusters. Tighten down the bottle-screw at the bow; but not so hard that the rigging is bar-tight.

Now check three things: 1) That the end of the plumb-line is approximately 9" (225 mm) aft of the heel of the mast at the top of the Centreboard Case. 2) That the mast is not supported by the Pivot Tube, but on the Mast Step Packing (W 51); while the slotted Mast Stop (W 52) prevents it from turning. The W 51/W 52 assembly should therefore be pushed forward until tight against the tenon on the heel of the Mast. Mark its location on the Centreboard Case so that it can be glued and screwed in place when the Mast has been lowered. 3) The correct Spreader angle and length. The Spreaders are correctly set up when they deflect the Shrouds outwards by approximately 2 1/2" (63 mm); and are in the 'natural' fore and aft position; ie. so that when viewed from the Shroud Plate they appear straight.

Most books suggest that the best way to do this is to maneuver the boat close enough to a building that someone can lean out of a second floor window and adjust the Spreaders until they are angled correctly. However, as we never seem to have a conveniently located two-story building, or a helper with long enough arms; we use a simple cardboard template. The

angle is found by laying battens or stretching string from a point behind the mast directly below the root of the Spreaders, to the Shroud Plates. Make a template to this angle with a cut-out to fit around the Mast. With the Mast once again lowered, drill screw-holes in the Spreaders and lock them in position.

Glue and screw the W 51/52 assembly in the marked location (Screws: four (4) # 8 x 2").

Fairleads: The Genoa Fairleads are of the fore and aft adjustable type; and traditionally these are fitted as for out as possible, centred on the Chock under the Side Deck. Refer to General Arrangement drawing. Take care when drilling the screw-holes that they are inclined parallel with the sheer.

It is nowadays generally agreed that a much closer Genoa sheeting angle increases windward performance by improving the slot-effect between the leech of the Genoa and the Mainsail; and for this reason many helmsmen now prefer to mount these adjustable Fairleads inboard on the Forward Side Benches.

However, this location effects the versatility of the Wayfarer as a comfortable cruising boat. Perhaps the solution is a special racing Fairlead which can be bolted onto the Benches as the occasion demands.

The Fairleads for the Small Jib are fixed; and best located above the Fore-deck Carlin at about the mid-point of the Side Decks. Two Jam Cleats are provided; and these are best located above the Carlins approximately opposite the centre of the Genoa Fairleads.

Running Rigging and the Boom: The Running Rigging comprises the halyards, which hoist the sails, and the sheets which control their position when sailing. There are two or three halyards which run up inside the mast, and down outside it. They may be of wire with rope 'tails', or pre-stretched man-made fibres, which emerge through blocks at the bottom of

the mast. The main halyard passes out through a block at the top of the mast; while the jib halyard (and spinnaker halyard if rigged) passes out through a block close to the tangs on the mast.

The main sheet, which has one plain end and one end looped round a thimble; runs between two blocks; one of which is attached to the swiveling tang or drop-link on the clew end of the boom. The other end is attached to the slide running on the main-sheet track. One block has two sheaves in tandem and a swivel at one end. This swivel is shackled to the slide. The other block has a single sheave and two bars, called 'beckets' at its end. Shackle one of these beckets to the drop-link on the boom and shackle the thimbled end of the main sheet to the other becket.

Lead the sheet down, round the small sheave in the Lower block; up, over the sheave in the upper block; down round the large sheave in the lower block and forward. Tie a figure-of-eight knot in the free end of the sheet.

For moderate conditions, the stops on the main-sheet track should be set approximately 6" (150 mm) each side of the centre-line. This can be increased for stronger winds to the full extent of the track.

The **Cunningham Hole Down-haul** is a means of adjusting tension in the luff of the main sail, and thus the fullness of the sail. The simplest set-up is to shackle one thimbled end of the line to a deck eye mounted on top of the centreboard case just aft of the mast. The line is then lead up; through the grommet in the sail (Cunningham Hole); down, through a mini-block shackled to the same deck eye, and back to a jamming cleat mounted on the side of the centreboard case in a convenient location for the helmsmen.

The **Boom-Vang** controls tension in the leech of the sail and also mast-bend. It is vital for controlling boom-lift while on a broad reach or running. Purchase is obtained through the Proctor lever which is kept

tensioned between two wire strops; one shackled to the eye at the foot of the mast, the other to the lockable slide running in the groove on the underside of the boom. The forward end of the lever is kept errect by a length of shock cord attached to the mast at the goose-neck. The down-haul is a line running down, through a mini-block mounted alongside that of the Cunningham down-haul, and back to a jamming cleat mounted on the opposite side of the centreboard case.

Oars and Oarlocks: If Oars are to be carried; a small mahogany ply retaining strap is screwed across the Bilge and Lower Chines. Refer to General Arrangement drawing. The Oars are retained at the forward end by a short length of shock-cord which is knotted on one side of the jig bolt-hole on the Deck and Seat Knee; and looped over a hook screwed to the other side.

The Oarlock sockets are fitted into holes drilled through the deck into the Gunwhale, centred on the joint in the Side Decks.

12. CONCLUSION

Your Wayfarer is now ready for launching. After the weeks of hard work, this moment may seem like an anti-climax. Really, though, you are just shifting gears, and the process continues. If this has been your first experience at building a boat; you can feel justifiably proud. You will probably feel inspired to look for fresh challenges, and these will come with sailing and maintaining the boat.

If you intend to race; the challenge is in tuning the boat and rigging to get the best performance out of her you possibly can. You will also want to study the art of sailing and discover what combinations of trim and helmsmen's knowledge will be most effective in given conditions.

If you plan to cruise; you will want to continue fitting the boat out so that she is not only equipped to safely meet any deep-water emergency you may encounter; but will also be a comfortable home for the weeks away from home-base. You will want to plan and make cruises, and perhaps contribute to the growing collection of Cruise Logs kept by the Cruising Secretaries of the national Wayfarer Associations.

The national Wayfarer Associations also publish a Wayfarer Owners' Manual, which contains a fund of useful information on Rigging, Racing, Cruising, Buoyancy Tests, Maintenance, Trailering, Outboard Motors, etc...

We are in the business of making available a very fine boat to the widest possible ownership. If, having assembled one of our kits, you have any suggestions or comments to make which may result in improving the product; we should very much like to hear from you.

Good Sailing!