

INSTRUCTIONS

for building the 24' trimaran NUGGET

NOTE: Read all instructions before starting construction.

All mating surfaces on Nugget are glued with water resistant glue and nailed or screwed, FRAMES

First step consists of getting out frames and bulkheads.

Frames of the central hull are two-part frames, in that the lower section is of 3/8" plywood, to the line shown on the frame plan, with upper frames of 3/4 X 2 wood (a drawing of a typical frame is shown on plans).

Bulkheads are found at either end of the cockpit. These are stations 5 and 9. Bulkheads are solid 3/8 ply, with wood all around--3/4 X 2 on the sides, and 3/4 X 1 glue strips on the lower edges and across the bottom.

Shape of the deck beam on #5 depends on the amount of crown chosen for the after part of the deckhouse (standard amount of crown is 4").

Stations 6-7-8 are 3/8 ply to height shown for dagger board case. Each has a glue strip across the top of the plywood part to which to fasten the dagger board case decking.

Frame 7 is split to allow the case to fit through the center--the split is 2 1/2" wide--to accommodate two thicknesses of 3/4" ply for the dagger board case, plus 1" for the width of the dagger board slot.

The transom itself is not notched to receive chines and stringers. It looks neater to merely butt these members to the transom (which is notched only for the keel). The glue strips along the inboard edges of the transom are notched to receive them.

If desired, the transom can be notched, and a false transom added later for appearance sake. This false transom can be definitely curved, which looks better than a flat transom.

The faces of the frames and bulkheads have a smooth and a rough face; the smooth face is the plywood one without the additional wood strips fastened to it.

In the case of the bulkheads, the smooth faces should be away from the cockpit, which makes it easier to attach the cross arms against the bulkheads.

In the case of the dagger board trunk, the smooth faces of 6 and 8 should face each other, making it easier to fasten the dagger board case to them.

In the case of the remaining frames, it does not matter which way they face.

Frames are shown 1/2 size on the frame plan. Measure the distances and the angles and double the distances to get the full size frames.

It will be noted that the lower angle of all of the forward frames is the same (45 degrees) which simplifies matters.

Stem is shown full size on the stem pattern.

STRONGBACK

After the frames and bulkheads are assembled, and notched for chine and deck stringers, they are placed UPSIDE DOWN on the strongback, which is a rigid structure which holds the frames in line until the bottom planking and the various stringers are in place.

The strongback can be made of 2 X 4s, on edge, about 2' apart.

The top surface of the strongback must be at least 6" off the floor, to allow room for the upper frames which will support the cockpit coaming and deck house.

Frame plan show temporary deck beams at stations 4 through 9 which are used on the strongback. Deck line of Nugget is a straight line, which corresponds to the top surface of the strongback. Bulkheads must be notched where they rest on the Strongback.

Distances separating frames, etc., are shown on the plans.

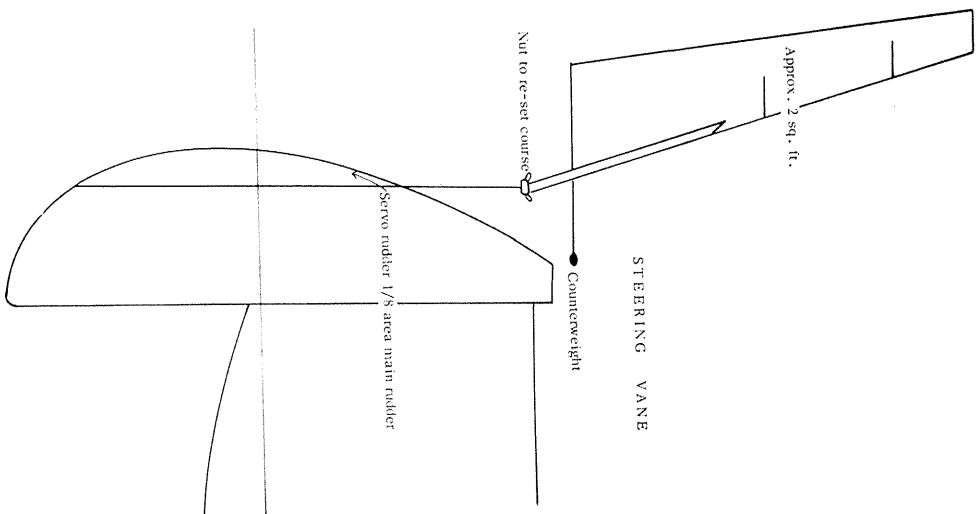
Frames are erected on pencil marks corresponding to above distances; one edge of the plywood side of the frames touching the mark.

A string stretched the length of the strongback at the center will form a center line for marking the frame spaces.

Frames are placed at right angles to the strongback (vertical as well as horizontal) for simplicity.

Thus the frames can be squared both ways with a carpenter's square.

There is one exception to placing the frames at right angles to the strongback. This is the transom, which is to be placed at right angles to the chine (water line). To obtain this line, use as a reference the chine forward of frame 10, as the chine line sweeps upward at frame 11



Diamond stays should be taut. In order to achieve tautness, when fitting the stays we use a dummy spreader--4" shorter than the usual ones. The wire is stretched over the dummy spreader, and then the eye is made (we use a compression sleeve fitting.) When the wires are later stretched over the standard spreaders, they are so tight they fairly sing. If there is an unequal pull on any diamond stay, bending the mast, and if turnbuckles are not used, the lengths of the spreaders may be varied somewhat.

Fiberglass washers, 4" in diameter, are glassed onto the mast at the points where the through-bolts go through the mast. The washers are at least 1/16" thick.

Spreaders are 16" long, 61ST aluminum tubing, 3/4" OD, 16 gauge. Mast thru-bolts are 3/8" stainless steel. Spreaders should fit thru-bolts closely. We usually sleeve the inside ends with aluminum tube, 16 ga. tube, 1/2" OD, just fits the 3/8" thru-bolts. Use 3/8" X 24 (fine) thread on the bolts and the inside of the 1/2" tube. Short pieces of 5/8" tube is reamed out with a 5/8" drill, in this the 1/2" tube is driven. The final 3/4" tube is reamed

out with a 5/8" drill, and the 5/8" tube is driven into that.

RIGGING

The 3/4" dagger board should be heavily glassed, especially where it emerges at the keel

able.

This very light cloth is not much heavier than paint, and a permanent finish is thus available.

If you want to glass the entire boat, we recommend using one layer of medium weight cloth to above the chines, with 2 oz. deck cloth elsewhere.

In addition to the generous glassing with fiberglass mat at the dagger board case, we recommend, at the minimum, glassing with glass tape (1 1/2" wide) along the joints of the keel, chines, and float corners. The stem and the transom corners should also be glassed.

Almost any degree of fiberglassing may be used on Nugget.

FIBERGLASSING

may be placed athwartships under the deck.

If the side decking is too springy for your taste when walked upon, several cross members

inside edges of deck and streamlining are butted against the side of the deckhouse.

The bolt plates are most easily placed on the under side of the 1/8" streamlining.

separate at the hinge line.

then forward and up until it meets the leading edge of the upper deck. It must, of course, be

from the cross arms forward.

4 NUGGET

2 NUGGET

and the transom. This is to raise the stern so it won't drag in the water if the boat should be over-loaded.

It will be noted on the plans that the keel is notched into the transom.

It will be noted that the rest of the frames (except #1) are square across the bottoms (4" wide). The keel is fastened to these surfaces--they are NOT notched.

NOTE: Limber holes are cut in the lower frame surface before the keel is attached.

After the frames and bulkheads are assembled on the strongback, they are held by temporary wood strips, and a long fairing batten will show how much they should be beveled to fairly receive the chines, stringers, and planking.

After the frames are beveled, and the chine and deck stringers are fastened in place, the side and bottom stringers(3/4 X 1) should be let in, half way between the chine and deck in the case of the side stringers, and half way between the chine and keel, in the case of the bottom stringers.

KEEL

The 1 1/2 X 4 keel is beveled on the two bottom edges, as shown on the plans. The angle is 45 degrees on each side, which fits all the frames through station 6. The angle then flattens out aft, as shown on the frame plan.

The 7/8 X 2 chine stringers have a single bevel, which is cut at a 30 degree angle.

The keel is fastened to each frame with glue and a nail through each side of the keel after being bent down over the frames. Be sure the keel is held down securely until after the bottom planking is on.

The bottom of the keel is later rounded off, after the bottom planking is on.

The stem is NOT rabbeted to receive the planking, but after the 1/4" planking is on, a triangular wooden fairing piece is applied to the leading edge of the stem.

BOTTOM PLANKING

NOTE: Before planking the bottom, make sure you have cut limber holes between the frames and the keel.

The bottom planking (1/4") is then put on, starting from the stern.

This makes the planking ends come between the frames. Butt blocks can be made from 1/4" ply, extending several inches on each side of the joint. We find it easier to fit butt blocks after the planking is on and the glue set up, as then the butt blocks can be fitted closely to the keel, chine, etc. Wipe excess glue from the joint area before it sets up, leaving a clean space for the butt blocks.

When nailing (use a nail about every 2") the planking at the chines and keel, keep the nails well back from the edges of the plywood, as these edges will be rounded off later.

After the bottom planking is on, the hull can be removed from the strongback.

DAGGER BOARD CASE

The dagger board case is next installed. Do NOT cut the dagger board slot before the bottom is planked, or the keel will lose its fair curve.

The dagger board case is made of 2 pieces of 3/4" plywood, separated at the ends by 1 X 1" pieces. The inside surfaces of the case should be fiberglassed before assembly.

The case fits between frames 6 and 8. An easy way to assemble the case is to fasten the 1" wide end pieces of the case to the center of frames 6 and 8, and then fasten each side of the case to these end pieces.

Triangular wood strips are fastened to the case sides at the keel, as shown on the plans.

Before fastening the triangular pieces against the case and the keel, place some scrap 1" pieces of wood inside the bottom of the case to prevent its being bowed inward.

The joints in the case, where they join the keel and frames at either end, are thoroughly fiberglassed, using at least the equivalent of 2 layers of 1 oz. fiberglass mat.

The 1" wide slot in the keel can be cut before you finally install the case, or afterwards. If you chose the latter, drill two small pilot holes near the ends of the case through the keel. You can later enlarge these holes with a 1" bit from the outside, connect them with pencil lines, and saw out the keel slot.

The top of the dagger board case is later planked for stiffness, although hatches can be installed for stowage.

HULL PLANKING

Before planking the hull sides, be sure you have bolted a metal strap (1" X 1/8") through the lower part of the stem. This strap transfers the pull of the jib stay from the deck to the stem and keel.

Sides of the hull are planked with 1/4" ply, after the chine edges of the bottom planking has been planed flush with the upper faces of the chine stringers.

Streamlining is placed under the forward edge of the deck--otherwise severe turbulence results from water hitting under the cross arms in a chop. In forming the streamlining, the upper 3/8" deck is projected forward to the desired line. A triangular piece of wood forms the leading edge, with several intermediate stiffening frames. Streamlining is placed under the forward edge of the deck--otherwise severe turbulence results from water hitting under the cross arms in a chop. In forming the streamlining, the upper 3/8" deck is projected forward to the desired line. A triangular piece of wood forms the leading edge, with several intermediate stiffening frames. Streamlining is placed under the forward edge of the deck--otherwise severe turbulence results from water hitting under the cross arms in a chop. In forming the streamlining, the upper 3/8" deck is projected forward to the desired line. A triangular piece of wood forms the leading edge, with several intermediate stiffening frames.

At the point (27") aft of the rear face of the forward cross beam) where the chain plates are indicated, a thin wedge of wood is fitted between the shroud beam and the shroud beam web, on each side of the chain plate.

This will allow the passage of the U-shaped chain plate (1 1/4 X 1 1/6 SS) upward through the deck, where the upper ends are joined to the shroud (side stay) turnbuckles.

If the chain plates were attached to the shroud beam and web, they would prevent folding of the decks, and would have to be unbolted at each folding.

From a point outboard of the bolt plates, the cross arms are beveled on the under side to a thickness of 2 3/4" at the outside ends.

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