

# **DRIFTER 16**

A small trimaran for paddling or sailing

Designed by

Mark W. Gumprecht

[mwgumprecht@comcast.net](mailto:mwgumprecht@comcast.net)

# **DRIFTER 16**

## **TABLE OF CONTENTS**

<b>CONSTRUCTION</b>	<b>Page</b>
Introduction	2
Basic material list	2
Ama construction	3
Main hull construction	16
Fiberglassing	32
Glassing the main hull	34
Beam construction	35
Assembly	37
Rudder and leeboard	39
Final assembly	45
 <b>DRAWINGS</b>	
Side view	50
Top view	51
Main hull frames	52
Main hull detail	53
Ama frames	54
Ama details	55
Ama panel	56
Beams	57
Rudder and leeboard	58
Rudder pedals	59
Sail	60
Scarf jig	61

## **Drifter 16**

### **Introduction**

The Drifter 16 is a larger version of the Drifter 14, and is designed for one or two people. It can be paddled or sailed with a simple rig using a windsurfing mast. It can be car topped, or carried on small trailer. It is easy to sail, tacks well, and is very stable. Because you steer the boat with your feet, your hands are always free. It's a great boat for exploring protected rivers and bays, or for camp cruising for one person, with plenty of storage for gear. It is easy to build out of plywood, and weighs about 130 lbs.

### **Basic Materials list**

12 sheets 1/8" mahogany plywood

8 1/2" x 1/2" x 13' stringers ( spruce or fir )

4 5/8" x 1 1/2" x 16' stringers

2 5/8" x 1" x 16' stringers

3/4" spruce or fir for rudder and leeboard (can be glued together out of strips)

3 2" x 5" x 11' 6" medium density spruce or fir for beams

3 1/2 gallons of epoxy

20 yds 50" 4 oz. fiberglass

1 16' or 17' windsurfing mast

## Building the Drifter 16

### Drifter 16 Ama construction

1) Draw the frames on 1/8" plywood and cut them out. Use 1/4" for the transoms. Add 3/4 square cleats to the top of the frames for attaching them to the workbench. The cleats should overhang the edge of the frames, so you can get the screws out later on. The cleat on the transom should be beveled to 21 degrees.



2) Draw a centerline on your workbench and measure the distance from the bow of the location of the frames. Draw a perpendicular line. Install the frames at each station with two screws. You can cut a small scrap of plywood to the 21-degree angle to hold the transom in place.



3) Scarf together the 1/8" plywood hull sides, so you have panels that are 14" wide by minimum of 12' 9" long. You will need 4 panels. Plans for a scarfing jig are included with the drawings.

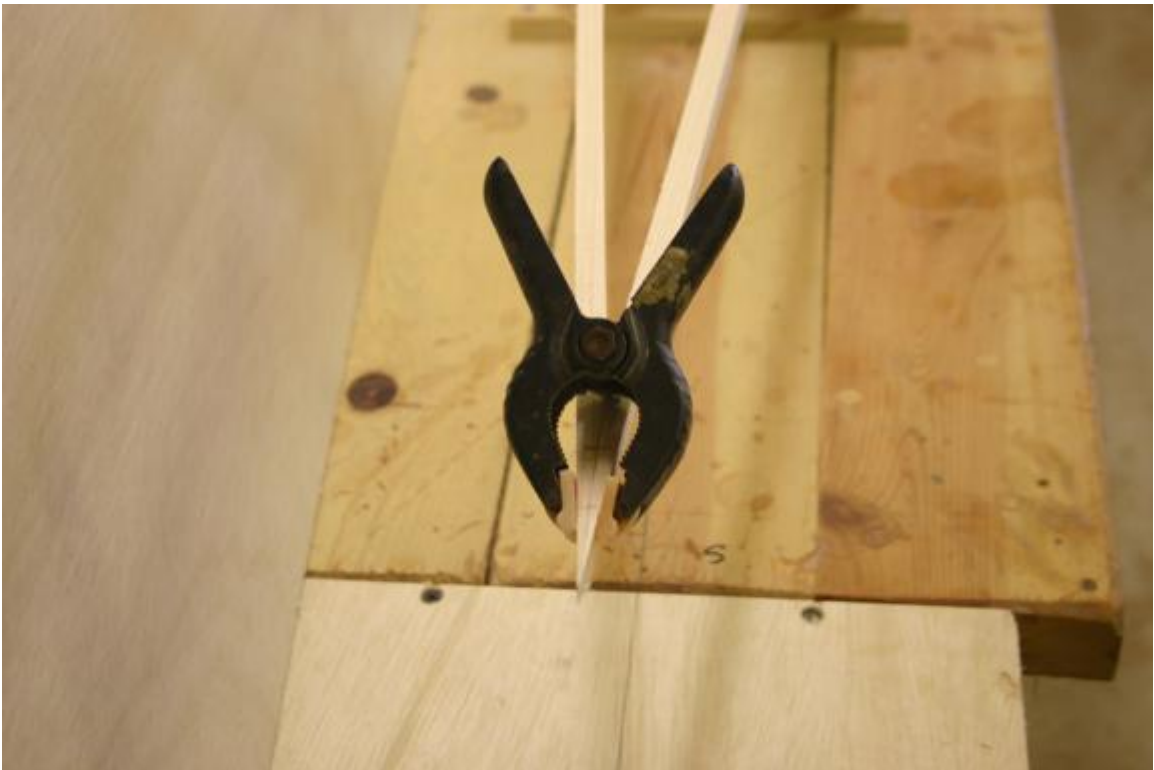


4) Lay out one of the hull panels using the measurements given on the plans. Connect the marks using a long straight batten. The bow should have some curve in it, about a 1/4". Cut out the panel, fair out the curves, and clamp it temporarily onto the frames, and see how it fits. The panel should be resting on the bench at the bow. If it looks okay, use it as a pattern to cut out the other three panels. Make sure you have two right sides, and two lefts.

5) You can put two coats of epoxy on the inside of hull panels at this point if you want better protection for the plywood. Clamp some strips of wood to the frames at deck level to hold the panels at the right height.

6) Cut eight 1/2" square full-length stringers. These pieces can be scarfed together if you don't have long enough pieces. Fit a stringer on each side of the hull, beveling one end so it fits the transom. Place one of the hull panels over the stringer, and mark the stringer so it is about 1/8" shorter than the hull panel at the bow. Remove the panel, and bevel the stringers back so they meet. They should line up on the centerline. I rough cut them with a jig saw, then fit the bevel using a small grinder.







When the stringers fit, glue them in place. Use medium super glue, or epoxy.



7) Test fit the hull panels, using a block with a small, v-shaped notch to line up the panels at the bow. The panels will be glued to the frames, transom, and stringers with thickened epoxy. I use masking tape to hold the panels together at the bottom of frames, and to the transom. Put thickened epoxy between the panels at the bow, and use masking tape to hold them together. I use 1/4" x 1 1/2" plywood strips, cut with a long, narrow v shape, to hold the stringers and the hull panels together while the glue dries. You can also use staples, driven through small strips of 1/8" plywood, to hold the plywood to the stringers. Pull the staples out when the glue dries.



8) Scarf together 1/8" plywood for the bottom of the amas, 9" wide by 12' 8" long. This will give you a piece for both amas. Fair out the bottom of the ama, and use some small scraps of wood, tack glued with 5 minute epoxy to make sure the bottom edges of the hull panels are fair. Rip the bottom panel in half, then tape it on the bottom of the hull, and scribe the panel. Cut the panel out. Put thickened epoxy on the bottom of the hull, and set the bottom panel carefully in place. Use masking tape to hold it down until the glue dries.



9) Unscrew the hull from the work bench, and turn it over. Using a fine-tooth saw, cut off the frames at deck level. Cut strips of 4 oz. fiberglass to fit in the bottom of the hull between the frames, wide enough to go up the sides at least  $\frac{3}{4}$ ". Put a radius of thickened epoxy in the corner where the sides meet the bottom. Put the strips of fiberglass in, and wet out with epoxy and a small brush.





10) Test fit the notches for the sheer stringer with a scrap of 1/2" square wood, so the stringer will fit flush with top of the hull panel. Fit the stringers to the transom first, and then at bow. Apply thickened epoxy to the inside of the hull panels, and glue the stringers in place, using spring clamps to hold the stringer.





11) Fair out the sheer stringer and frames. Check the deck for flatness with a straight scrap of wood. Fit the two layers of 1/2" plywood for the beam attachment. The bottom layer fits under the sheer stringer, the top flush with the deck. Epoxy in place. Glue the 1 1/2" x 2 1/2" x 2 1/2" block under the beam attachment. Fit the 1/4" plywood frames that reinforce the beam attachment. Screw in place with epoxy, and bond to the hull with an epoxy radius and glass tape.





12) Cut the notches for the 1/2" square deck stringer in the frames. Cut small notches in the beam attachments to receive the deck stringer. Fit the deck stringer, and glue in place.

13) Scarf together two pieces of 1/8" plywood 12" wide by 12' 8" long for the decks. Make sure the deck structure of the amas is fair. Lay the plywood on the deck, scribe the panels, and cut out. Roll a coat of epoxy on the bottom of the deck plywood, and put thickened epoxy on the deck structure. Carefully lay the panel in place, and secure with masking tape.



## Main Hull Construction

1) Lay out and cut out the frames. Frames 1 and 3 should be 3/8" plywood. Frame 2 can be cut from a scrap piece, as it is a temporary frame. The transom is 1/4" plywood. Put 3/4" square cleats on the top of each frame, extending an inch past the end of the frame. The cleat on the transom is beveled at 21 degrees. I make the 1/4", and 3/8" plywood for these frames by gluing together layers of 1/8" plywood with epoxy. You can vacuum bag them, or use thickened epoxy, applied with a v-notched spreader, to glue the pieces together.

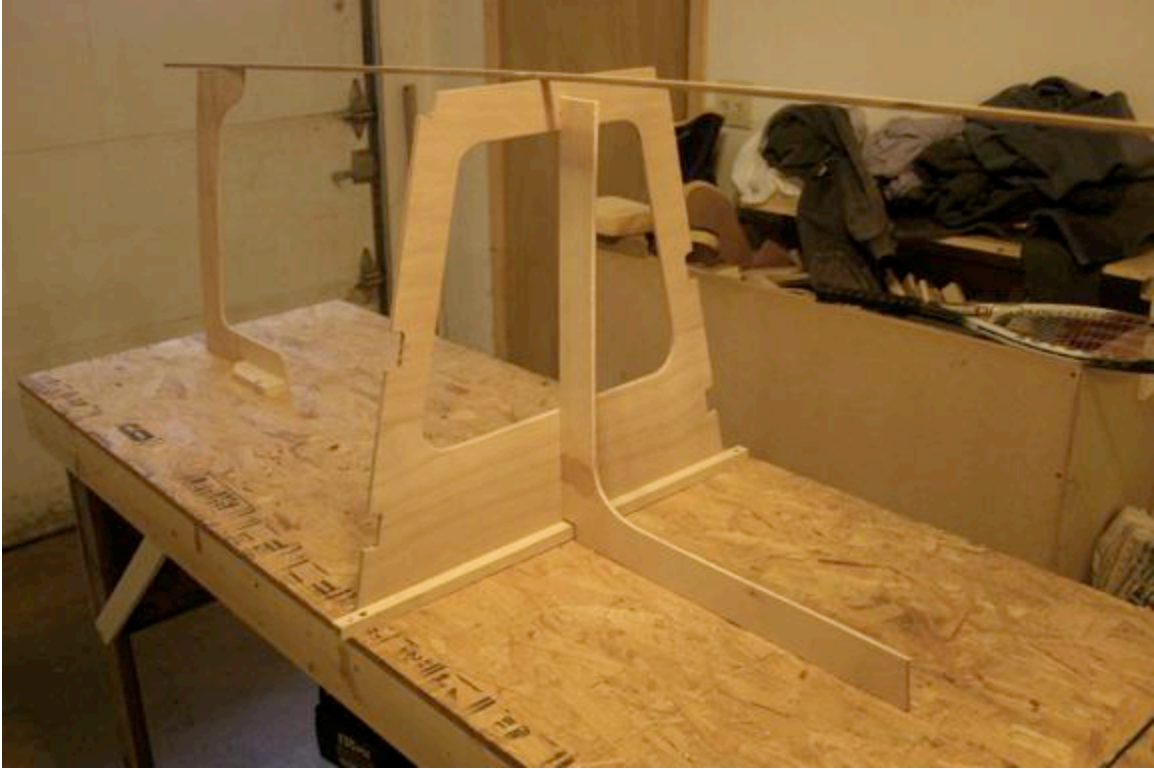


2) You will need a flat workbench 2' wide, by 16' long, which can be made from 2 x 4s and 1/2" plywood. Make sure it is straight, and not twisted. Any twist will be built into

the hull, but won't be noticeable until you attach the beams. In a boat this wide, any twist is magnified. Draw a centerline, and measure the distance from the bow of the frames, and draw a perpendicular line. Screw the frames to the bench on the forward side of the line. Put the screws in a location where you will be able to get them out once the hull is finished. Use some scraps of plywood to hold the frames square to the bench. You can use small dabs of hot glue to hold them in place. Cut a piece with a 21-degree angle to hold the transom. Cut out the stem, and put a cleat on each side. Screw the stem in place from under the bench, so you can get the screws out later.







3) Cut out the stringers for the hull. You can get them out of a 16' piece of lumber. They can be scarfed together out of shorter pieces. You will need 4 pieces measuring  $5/8"$  x  $1\frac{1}{2}"$ , and 2 pieces measuring  $5/8"$  x  $1"$ . Fit the stringers first to the transom, then to the stem. I rough cut them with a jigsaw, then I use a small grinder to get the correct bevel. Use small screws through the transom to hold them in place, and a screw from each side to hold them at the stem. I use a pair of wide-jawed vice grips, with sandpaper on the pivoting pads, to pull the stringers in at the stem. Once they fit on both sides, put a screw in each piece to hold it in place. After all the pieces have been dry fit, you can take them off, and then glue them in place using thickened epoxy. Use some waxed paper under the stem to keep from gluing it to the bench. **Do not glue the stringers to frame 2!** I use some hot glue to temporarily hold the stringers in place. Fit the mast step between the bottom stringers, and glue in place, using 3 screws through the stringer on each side.









4) Scarf together two pieces of 1/8" plywood 21" wide by 15' 10" long, for the hull side panels. Fair out the main hull structure, using a straight edge to make sure the side panels will lay flat on the stringers and stem. Clamp the side panels on one at a time, scribe, then cut out the panels. For extra protection, you can put two coats of epoxy on the inside of the panels. Sand the panels in the cockpit area before you install them. You can just varnish or paint the inside of the hull. Glue the hull panels on one at a time using thickened epoxy. I use a small notched spreader to put the glue on the stringers. Use spring clamps to hold the panel at the top and bottom. Use wide crown staples through a strip of 1/8" ply to hold the panel to the middle stringer. Remove the staples when the glue dries, then install the second panel.







5) Fair out the bottom of the hull, checking for flatness with a straight edge. Lay a 19" x 96" piece of 1/8" plywood over the cockpit area, frames 1 to 3, and tape in place. Reach up inside the hull, and scribe the piece. This is the interior layer of ply for the floor of the cockpit. Cut this panel out, and glass with one layer of 4 oz. fiberglass. Put one more coat of epoxy on this piece, and allow to cure. Sand this piece before you install it. Scarf together the bottom panel out of 1/8" plywood, 19" x 15' 6". Lay it on the bottom of the hull, and scribe it. Cut the panel out, then apply thickened epoxy to the bottom structure. Lay it in place carefully, and hold down with masking tape. The interior panel is installed once the hull is turned over.



6) Plane the bottom flush with the sides. Take the screws out holding the frames and stem to the bench, and turn the hull over. Cut the frames off at deck level, and remove frame 2. Fair out the deck, and the top of the frames. Check for flatness with a straightedge. Put a radius of thickened epoxy and fiberglass tape on the forward side of frame 1, the aft side of frame 3, and the inside of the transom, where they meet the sides and the bottom of the hull. Finish the inside of hull in the bow and the stern where it will be decked over. The bottom and bottom stringer should get at least two coats of epoxy. The hull sides can be epoxy coated, varnished, or painted.

7) Fit the plywood beam attachment pieces in front of frame 1, and behind frame 3. The bottom layer is 3/4" plywood with lightening holes in the middle. The top layer in the bow has lightening holes next to the mast step. Put piece of 3/4" plywood 5" wide under the mast area, butting up to the aft piece, and overhanging the top piece by 1/2" in the front. I dry fit all these pieces first, then glue them in place. When the glue dries, you can put a couple of #8 x 1 1/2" flat head screws through the shear stringer from the outside, into the plywood, near the frame. Put a small cleat along the top of the transom, and the deck frames in the bow and stern. Glue a 3/4" x 1" cleat in center of the transom, on the inside, to screw the rudder hinges into. Now you can fit the deck stringers in the bow and aft part of the deck.









8) Test fit the inside layer of 1/8" plywood for the cockpit. Trim it to fit so it lays down flat. Glue it in place with thickened epoxy spread with a notched spreader. Weigh it down until the glue dries. Put a nice radius of thickened epoxy where the bottom meets the bottom stringer, and front and back frames, making sure to fill any gaps. Use wood flour to make the filler match if you are leaving the interior natural. Fit the cockpit frames and leeboard frame with the 1/2" plywood doubler in between. I use a hot glue gun, and strips of 1/8" ply to make patterns of the frames. They should be 3/4" thick over the sheer stringer, and fit flush with the bottom stringer. Measure the angle between the hull and the deck in the middle of the boat. Cut about 30 small blocks out of 3/4" square material with this angle at both ends, to fit on the inside of the sheer stringer. Glue them in place with a nail gun, 6" apart. Cut two 3/8" x 1 1/2" pieces for the inside rail, beveling one side to match the sheer stringer. Fit the pieces then glue and nail to the blocks and cockpit frames so they are flush with the sheer stringer. Fit the 3/4" x 1 1/2" floor frames in between the cockpit frames, and glue in place. Put a 3/8" x 1" strip on the edge of the cockpit frames next to the leeboard doubler. Fit the rounded pieces at the front and back of the cockpit, and glue and screw them in place.







9) Fair out the deck structure so everything is flat. Scribe the fore and aft deck panels so they extend past the rounded pieces at the front and back of the cockpit. Glue in place and hold down the edges with masking tape. You can use some weights to hold them down in the middle until the glue dries. Fit pieces of 1/8" ply to cover the rest of the rail in the cockpit, and glue in place.



## **Fiberglassing**

1) The hulls now get their final shaping before fiberglassing. All the corners must be rounded off to an appropriate radius. I use a 3/16" radius router bit to round off where the hull meets the deck. It will trim off the deck plywood and round the corner off all at the same time. It may leave a little bit of a step on the side off the hull, which can easily be smoothed out with a sanding block. On the bottom corner I use a 45-degree bit to cut a bevel on the corner, which I round off with a block plane and a sanding block. All corners must be rounded before you begin glassing.

2) You have a couple of options for glassing the hull. For the best protection, glass the whole hull with 4 oz. loose weave cloth and epoxy resin. If you built the hulls out of marine plywood, you can just glass the bottom of the hull, and up the side 1". Put three coats of epoxy on the rest of the hull, after you feather out the glass on the side of the hull. When you sand the epoxy before painting, be very careful not to sand through the epoxy, especially on the corners. If the epoxy coating is too thin it won't really be waterproof. If you use luan door skins, it would be better to glass the whole hull.

3) Glassing the amas: Glass the deck, and down the sides of the hull and the transom 3/4" to 1". Feather out the edge where you go onto the transom, then glass the transom, wrapping around the corners onto the sides of the hull. Put a 2" wide strip of glass on the stem. A random orbital sander with 120-grit sandpaper works great for feathering out the edges of the glass. Feather out the edge of the glass on the sides of the hull. I hot glue some 2 x 4 scraps to the deck, and put a couple of screws from under a sawhorse into these blocks, to hold the hull upside down. You can pour a little acetone around these blocks when you are done, and the glue will let go. You can glass both sides and the bottom at once. Cut a piece of glass and drape it over the hull. Smooth it out so the glass

lays flat. Wet out the bottom of the hull first, and then the sides. Wet out the corner where the hull meets the deck, but don't glass around the corner onto the deck. I use a rubber squeegee to smooth out the glass, and remove excess resin. I use foam rollers to wet out the glass, and to put on additional coats of epoxy. The next day you can trim the glass with a razor blade. Let the epoxy dry for a couple of days, and smooth out the seam where the hull meets the deck. Sand the hulls lightly. Put on two more coats of epoxy. Use a foam brush to knock the air bubbles out of the epoxy.





## Glassing the main hull

Glass the bottom of the hull first, overlapping onto the sides 1". When the epoxy is dry, trim the glass with a razor blade, then turn the hull right side up. Glass the deck, overlapping the sides and transom 1". Glass the interior of cockpit coaming when you are glassing the deck. Glass the transom next, lapping onto the sides of the hull. Put a 2" wide strip of glass on the stem. Allow the epoxy to dry well, then turn the hull on its side, and feather out the edges of the glass. Glass the side of the hull, wetting out the glass on the corners, but not around the corners. Wrap the glass around the bow. When dry, trim the glass, then roll the hull over, and do the other side. Install the keel on the bottom, putting a radius of epoxy in the corner where it meets the bottom. The keel should taper to about 3/4" wide in the bow, and about 1" in the stern. Smooth out all the seams, give the hull a light sanding, and roll on two more coats of epoxy.



## **Beam Construction**

1) You will need three layers of wood  $5/8"$  x  $4\ 1/2"$  x  $11' 6"$  long for each beam. Use spruce, fir, or any medium density, straight grain wood, preferably with no knots. It's important that it's good quality material. Make sure the layers are smooth and flat. Set up the blocks for the jig along the edge of your bench, as shown on the plans. Roll a coat of epoxy on both surfaces of the laminations, then clamp onto the jig. Put a couple of clamps between each block to ensure the lamination is clamped tightly together. When the first beam is dry, remove it from the form, and glue up the second beam.

Shape the beams according to the plans. Install  $5/16"$  ID fiberglass tube in the ends of the beams and in the middle where they bolt to main hull. Make sure the holes are drilled square, using a guide, and are in the center of the beam. The fiberglass tube should fit the  $5/16"$  threaded rod loosely so there will be slop when putting the boat together. Put  $3/8"$  radius on the top of the beams and  $1/4"$  radius on the bottom. The beams can be varnished or painted.





## Assembly

1) Mark a centerline on the main hull and on the beams. Clamp the beams in place, the back of the forward beam being 4' from the bow, and the front of the aft beam at 12' from the bow. It is important that the beams are parallel and square to the hull. You can measure diagonally from the ends of the beam to check for squareness. Make sure the distance between the beams is exactly the same at the ends where they will bolt onto the amas. Cut a strip of wood to fit between the ends of the beams to use as a guide when installing the beams on the amas. When everything lines up, drill 5/16" holes through the deck of the main hull, using the beams as your guide. Remove the beams and drill out the holes to 5/8" diameter for half of their depth. Pieces of 5/16" ss threaded rod are epoxy bonded into the holes, with a nut and a fender washer installed under the deck blocking. Make sure the 5/8" hole is filled with thickened epoxy level with the deck. The rod



should stick out of the deck the thickness of the beam, plus a nut and fender washer. You can make the rod long, then cut it to size when you assemble the boat.

2) Draw a centerline on the amas in the area where the beams attach. Measure 3' from the bow to the back of the forward beam. Use the stick you cut to locate the front of the aft beam. With the hull on the edge of your bench, support the beam so you can temporarily clamp the beams onto the amas, lining up the mounting holes on the centerline of the ama. Drill a 5/16" hole 2" deep into the deck of the ama. After all the holes are drilled, enlarge the holes to 5/8" for half their depth. Epoxy bond 5/16" ss threaded rod so it is long enough to stick out of the deck the thickness of the beam, plus a nut and a washer.



3) Assemble the boat using nylon insert nuts and 1 1/2" fender washers. Put the beams onto the main hull first, then install the amas. Leave all the nuts loose until you assemble the whole boat so you can move things around to get everything to line up. Mark and cut the studs flush with the top of the nuts.

## **Rudder and Leeboard**

1) Shape the rudder and leeboard according to the plans, from 3/4" softwood, like spruce, pine, or fir. Make sure to leave them flat in the areas where they mount to the boat. Use a power planer and a grinder to rough shape them. Plane and sand them to final shape, making sure the trailing edge is sharp, about 1/16". Glue in a piece of fiberglass tube for the rudder pivot. Glass one side at a time using 6 oz. cloth. Wrap the cloth around the leading edge, and hold in place with a strip of masking tape. When glue dries pull off the tape and feather out the glass along the leading edge with a sander. Trim the glass on the trailing edge so it overhangs about 1/8". Fill next to the trailing edge with thickened epoxy, and glass the remaining side. Smooth out the seams, and coat the bare wood along the top with a coat of epoxy. Sand lightly and put on two more coats of epoxy.

2) Glass both sides of a piece of 1/8" ply for the rudder cheeks, using 4 oz. cloth. Cut out the cheeks according to the plans and make a 3/4" x 1" piece of hardwood for the rudder post. The thickness is important so that the rudder fits properly between the cheeks. Clamp the parts together, and check the fit, then glue the rudder post and cheeks together. Locate and drill the hole for the rudder pivot, and epoxy a piece of 1/4" ID glass tubing onto the holes. When dry, trim the tubing flush. Round off all the corners, and drill a hole for the 1/2" diameter fiberglass tube for the tiller. Use a drill press to make sure the hole is square. Epoxy the tiller in place, and finish epoxy coating the rudder assembly. Epoxy two stainless steel or brass eyebolts into the ends of the tiller to attach the steering lines to. I use four stainless steel eyebolts to make the rudder hinges. They have a 5/16" diameter holes. I use a piece of 1/4" ss threaded rod to make the hinge pin, with some short pieces of 1/4" ID brass tubing through the eyebolts to make a tight fit. Use nylon locking nuts on the ends of the pin. The rudder is removable, but you can leave it on most of the time. Drill hole for the 1/8" rudder downhaul line in the front of the rudder, a little

lower than the pivot point. Epoxy in a piece of line that will reach to the middle of the cockpit. Lead it through a 1/4" hole in the rudder post, just above deck level. Round off the corners of the hole so the line can slide freely. Make the control lines out of 1/16" ss wire, or low stretch line. Tighten the rudder pivot bolt so there is enough friction to hold the rudder down when sailing.







3) Make the large, 1/16" ss washer for the leeboard. Drill a 5/16" hole for the pivot bolt, and epoxy a 4" long ss carriage bolt and the washer in place. Use a notched-out block of wood and nut to pull the bolt tight while the glue dries. Glass both sides of a piece of 1/4" plywood with a layer of 6 oz. cloth. Cut this piece to size, rounding off the top to match the curve of the top of the leeboard. Make the hardwood spacer for the leeboard mount and glue it to the plywood piece. Locate the leeboard mount on the side of the hull and bevel the spacer so the mount will be parallel to the centerline of the boat. I line up the boat on the centerline on the bench, and hold a scrap of wood on the mount to see if it is parallel to the side of the bench. Glue the mount in place using 3 long flat head ss screws through the spacer into the hull stringer, and 3 short screws at the top. Locate the pivot point on the mount, and drill a hole for a piece of 5/16" ID fiberglass tubing through the mount and the side of the hull. Use a drilling guide to make sure it is square. Epoxy a piece of tubing in place, putting a radius of thickened epoxy on the inside where the tube goes through the mount and where the spacer meets the hull. Finish epoxy coating the mount. Make a wedge-shaped washer out of hardwood on the inside of the hull, for the knob that holds the leeboard in place. Bolt the leeboard in place and cut the bolt to the right length for the knob and an ss fender washer.





## Final Assembly

1) Drill a 2 1/2" hole for the stainless steel tube for the mast step through the deck. Sand the surface well and install with thickened epoxy, leaving a 1/4" above the deck. Make a radius of epoxy where it meets the deck. Make the lower mast step with a piece of 2 1/2" tube, 2" long. You can weld it to a 4" x 4" piece of 1/16" stainless or you can fit a 3/8" or 1/2" piece of plastic inside the tube, and secure it with 1/2" # 6 screws into the edge of the plastic. Countersink 5 holes through the plastic for 3/4" # 8 flat head screws so 1/2" sticks out the bottom. Cut a square scrap of wood that fits inside the tubing, about 3' long. Use it to install the lower mast step. Make a scrap of plywood with the angle between the deck and the mast. Use a square to check the sides. Just put one screw in the middle to hold it until you set up the boat for the first time. The rake of the mast can be changed by moving the mast step fore and aft. You can adjust where the mainsheet lands on the deck by changing the rake of the mast. When you assemble the boat with the sail for the first time and locate the eyes for mainsheet, and everything looks good, don't forget to put the remaining screws in the mast step. You will need to make a couple of spacer rings so your mast will fit the mast step. I use 3/4" pieces of 2" PVC pipe. Use a sanding drum to get the pipe to fit snugly where the mast goes through the deck, and into the mast step. Windsurfing masts are tapered, so the spacers need to be different sizes. When they fit on the mast, sand the outside of the rings so they fit freely into the mast step. Hold the rings in place with three 1/2" # 6 flat head screws. Check the mast in the boat to make sure it rotates freely. When looking for a mast for the boat, try and find the stiffest mast possible. When you get your sail, set up the rig and locate the eyes for the mainsheet. You can put one in the middle, using a single block with a becket, or one on each rail, with a single block to lead the sheet forward. Lash a small single block to the clew of the sail, so you have a 2 to 1 purchase. Lead the mainsheet forward through a bullseye mounted on one side of the aft beam, to a single block mounted on the forward bulkhead in the cockpit, and back to a camcleat mounted on one of the cockpit frames.



2) You can put the seat on the middle stringer or you can sit in the bottom of the boat. I like having a backrest to lean against, but it isn't necessary.





I test launch the boat to determine where to sit so the transom is just out of the water. The rudder pedals are located once you determine where to put the seat. When using the boat with two people, put the rudder pedals as far forward as possible. You can use a couple of extension pieces on the rudder cables when the pedals are in the forward position. I use 1/4" hard plastic tubing to bring the rudder cables through the deck and through bulkhead 3 next to the middle stringer. Use some plastic guides along the stringer to hold the cable in place. I use pieces of 1/8" bungee cord to keep the rudder pedals tight, and center the rudder. You can attach them to some eyebolts screwed into the stringers, in the forward compartment. Stainless steel fishing snaps work great for connecting the cables to the pedals, and adding extensions.



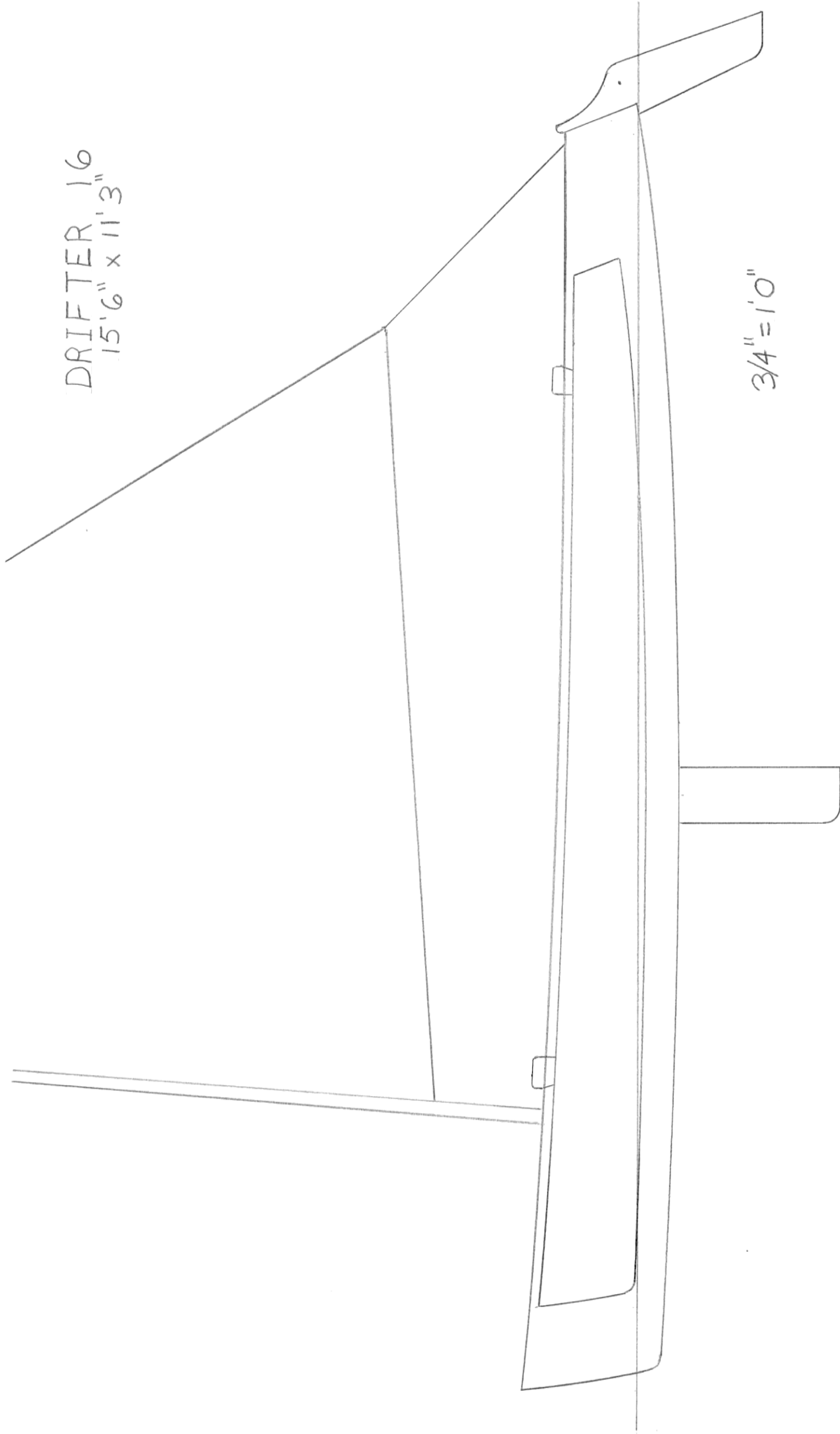
You can test sail the boat before doing the final sanding and painting. You need to make some sort of dolly that fits the stern of the boat to roll the boat around for launching.



Canoe paddles work great, and stow inside the cockpit. I usually launch and land with the sail rolled up. When sailing in stronger winds, roll up the sail to reef it.



DRIFTER 16  
15'6" x 11'3"



3/4" = 1'0"

DRIFTER 16

$3/4" = 1'0$

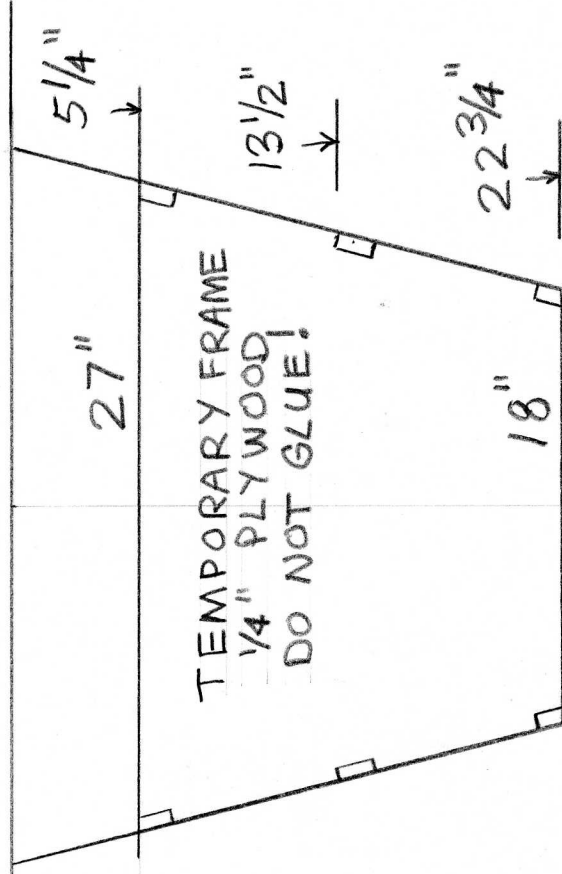
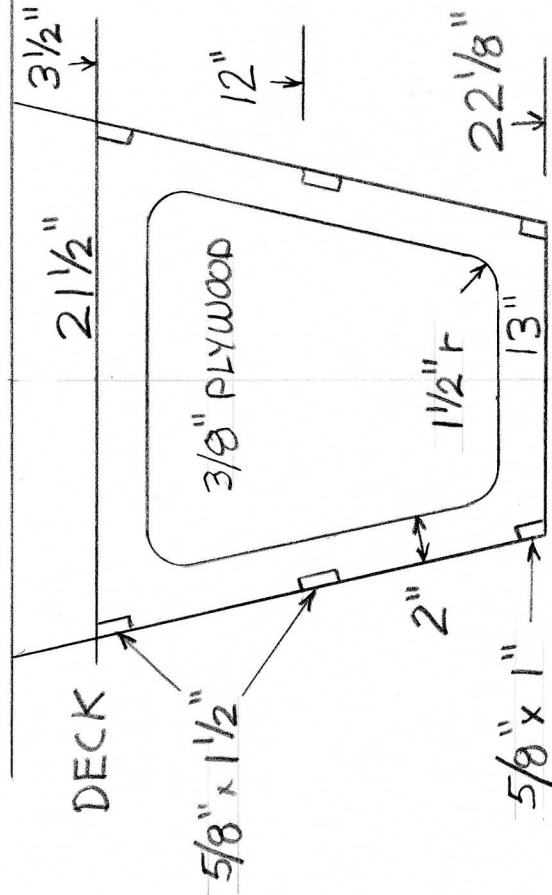
MARK GUMPRECHT

$5'1"$

# DRIFTER 16 MAIN HULL FRAMES

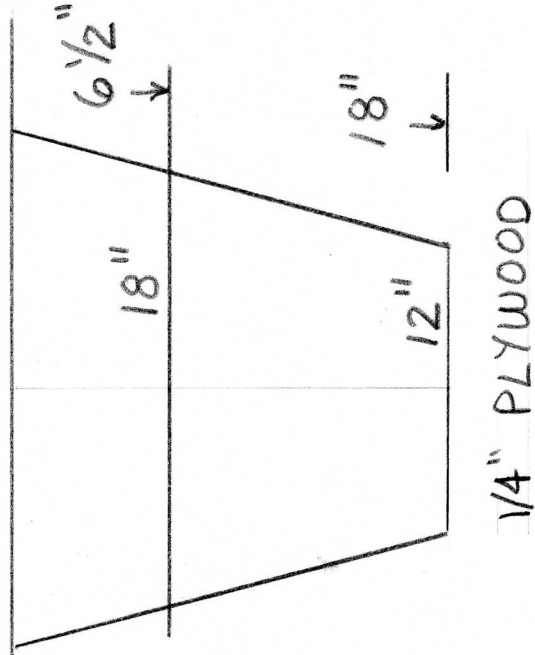
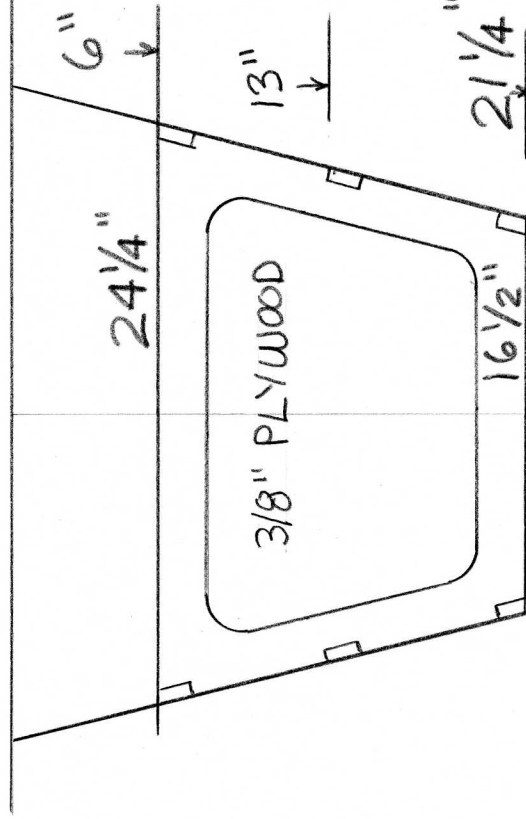
1 4' FROM BOW

2 8'



3 12'

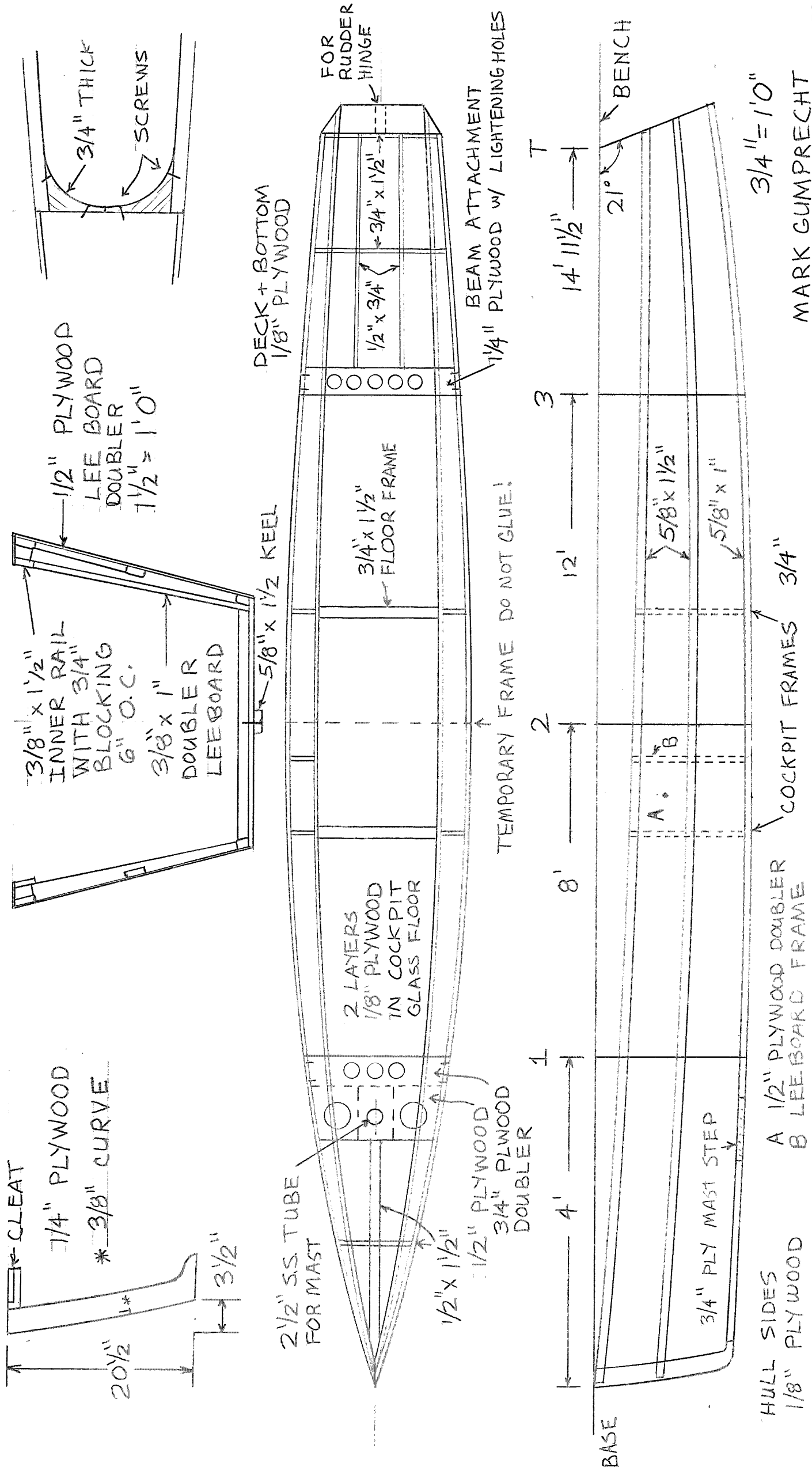
T 14' 11 1/2"



1 1/2" = 1' 0"

MARK GUMPRECHT

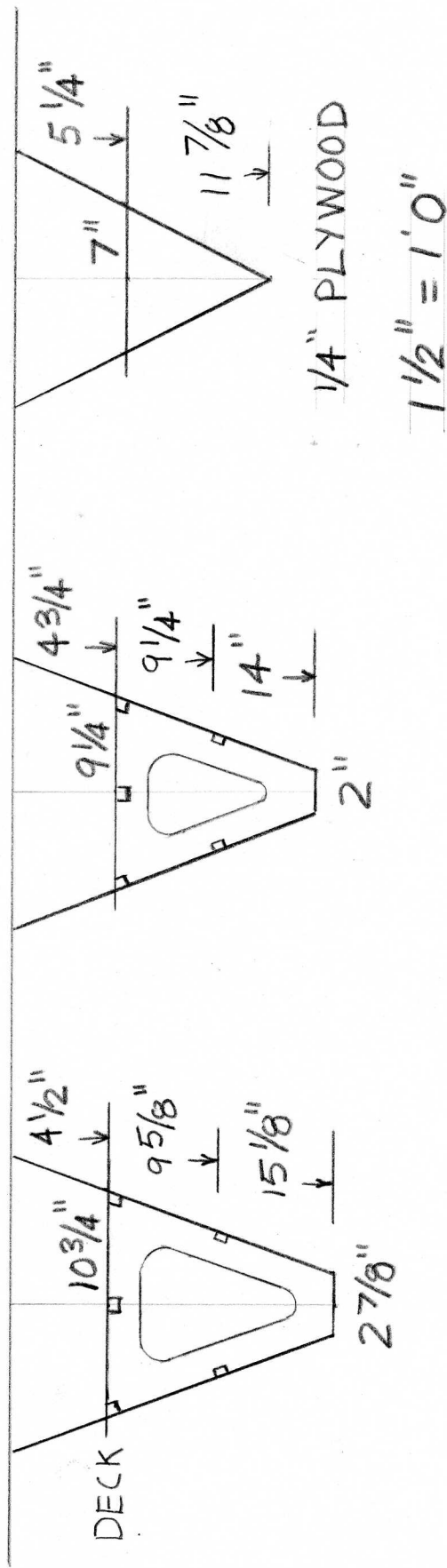
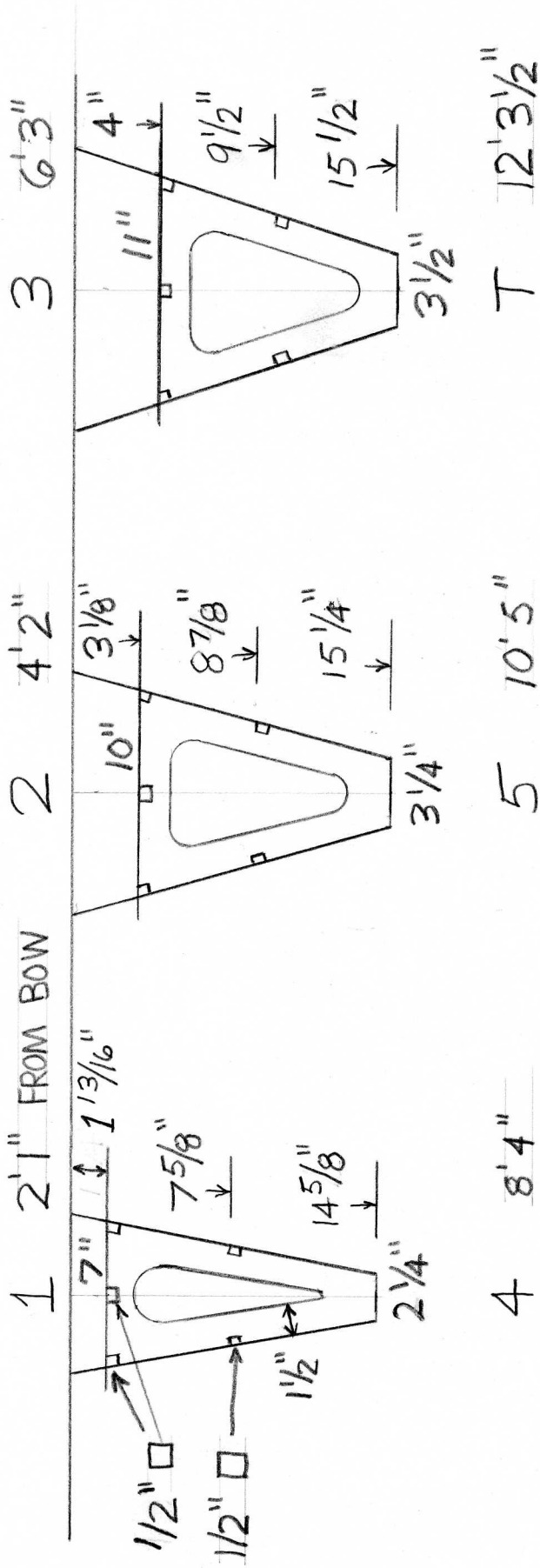
# STEM 1"=1'0" DRIFTER 16 MAIN HULL DETAILS FRONT + BACK COCKPIT





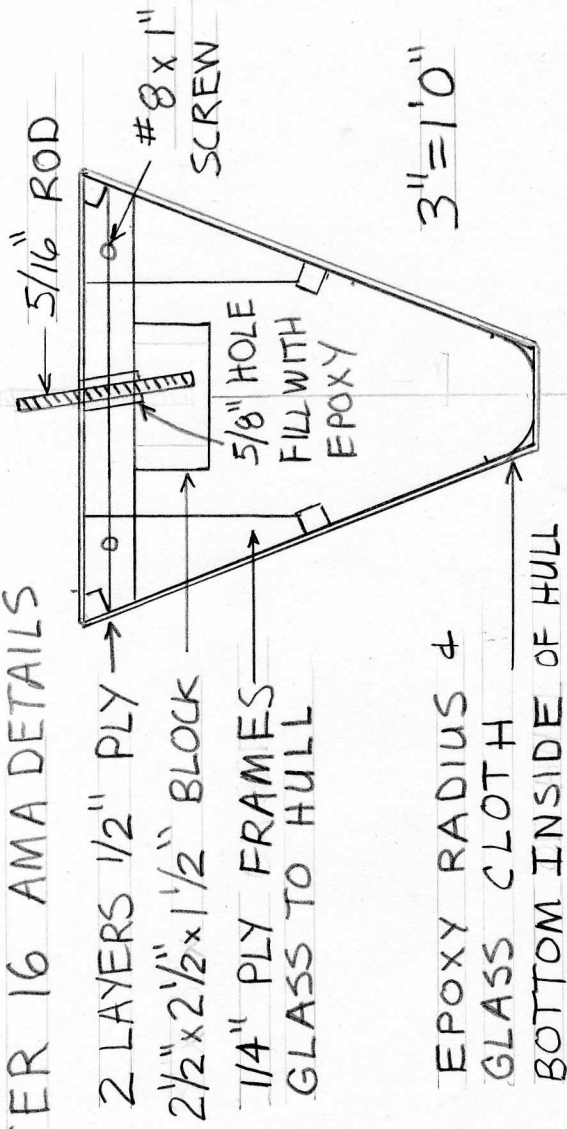
# DRIFTER 16 AMA FRAMES

1/8" PLYWOOD



MARK GUMPRECHT

DRIFTER 16 AMA DETAILS



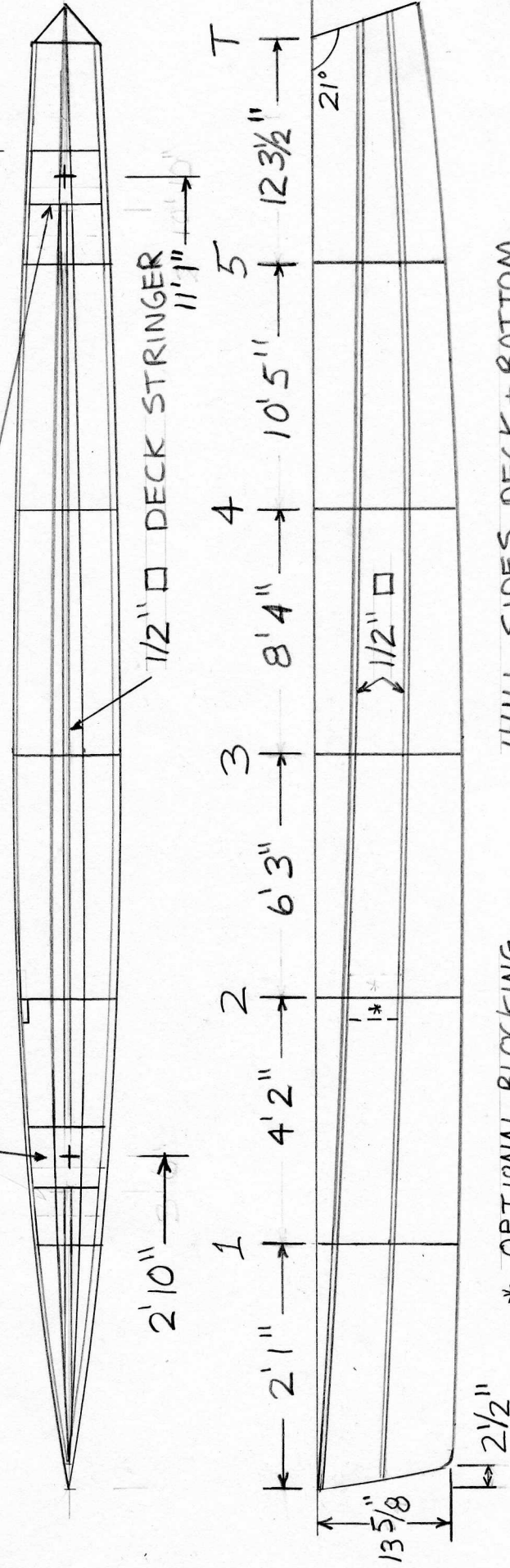
HULL GLASSSED WITH  
4 OZ CLOTH + EPOXY

EPOXY RADIUS 4  
GLASS CLOTH  
BOTTOM INSIDE OF

$$3'' = 10''$$

BLOCKING FOR BEAMS  
2 LAYERS 1/2" PLY

BEAM RE-ENFORCEMENT



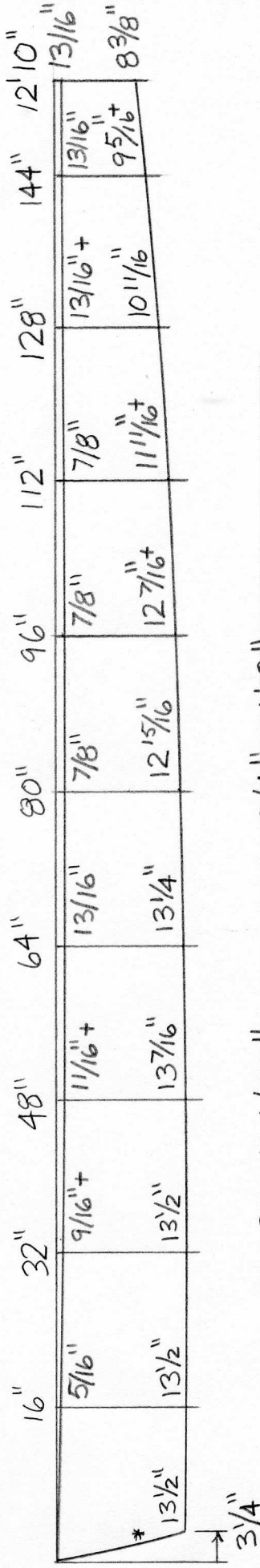
\* OPTIONAL BLOCKING  
FOR STAYS 1" THICK  
INBOARD SIDE ONLY

HULL SIDES, DECK + BOTTOM  
1/8" PLYWOOD

$$\frac{3}{4} = 1'0''$$



# DRIFTER 16 AMA PANEL 1/8" PLYWOOD



+ PLUS 1/32"

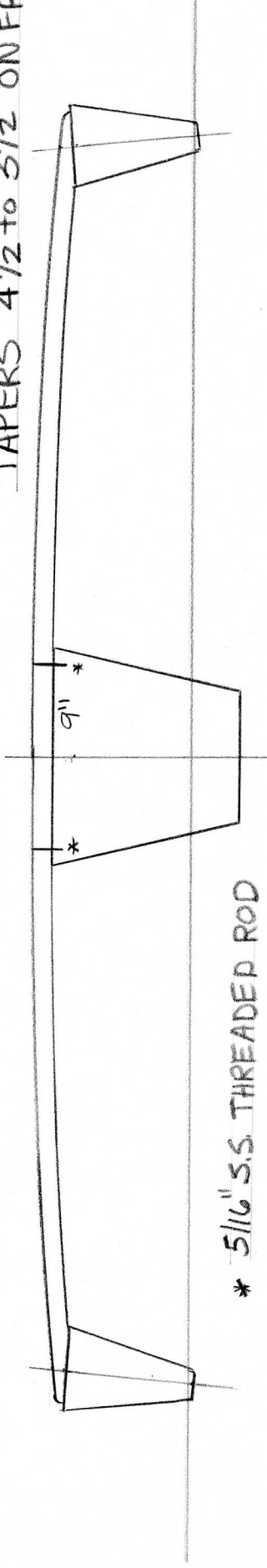
3/4" = 1'0"

\* 5/16" OF CURVE

# DRIFTER 16 BEAMS

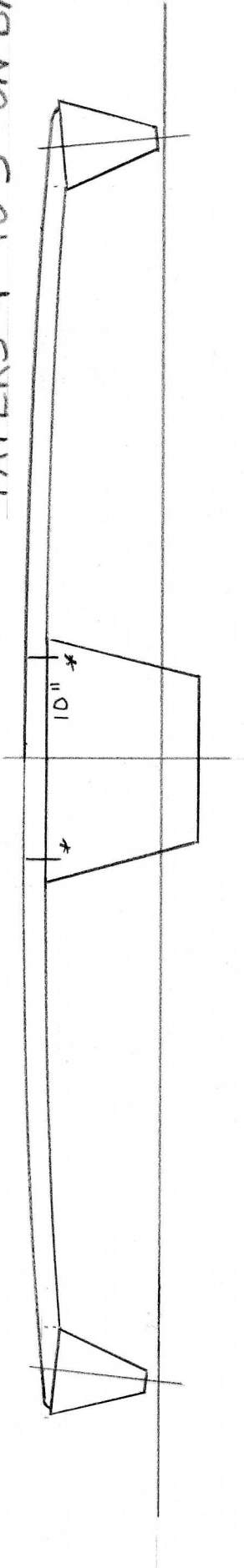
## FORWARD BEAM

TAPERS 4 1/2" to 3 1/2" ON FRONT



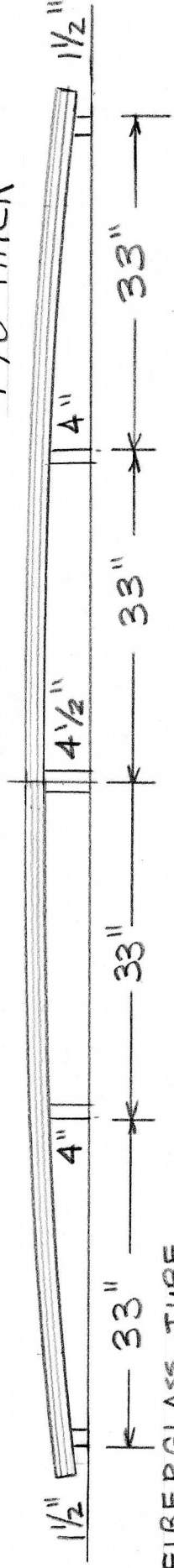
## AFT BEAM

TAPERS 4" to 3" ON BACK



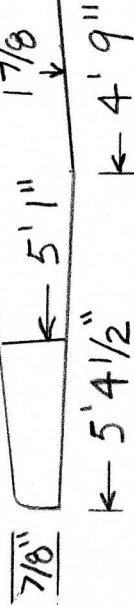
## BEAM FORM

1 7/8" THICK



FIBERGLASS TUBE  
5/16" ID

3 LAYERS 5/8" x 4 1/2" WOOD  
SPRUCE, FIR, or MAHAGANY  
MEDIUM DENSITY, STRAIGHT  
GRAIN, NO or SMALL KNOTS  
GLUE WITH EPOXY



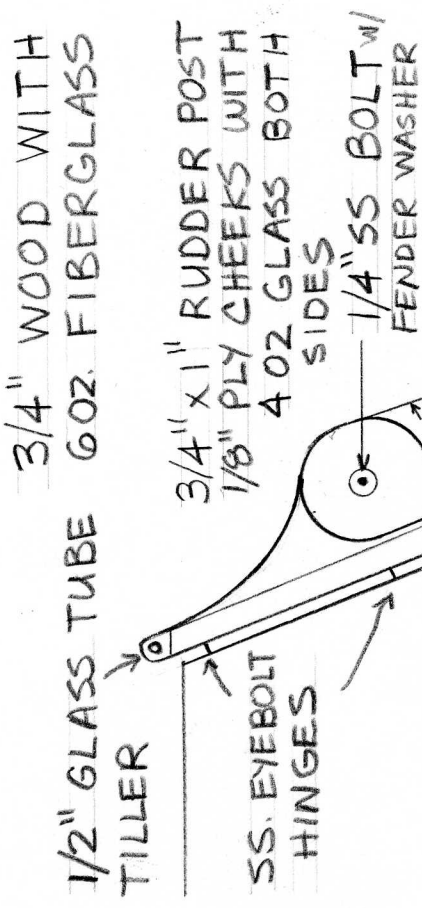
BEAM ENDS

3/4" = 1'0"

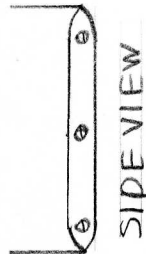
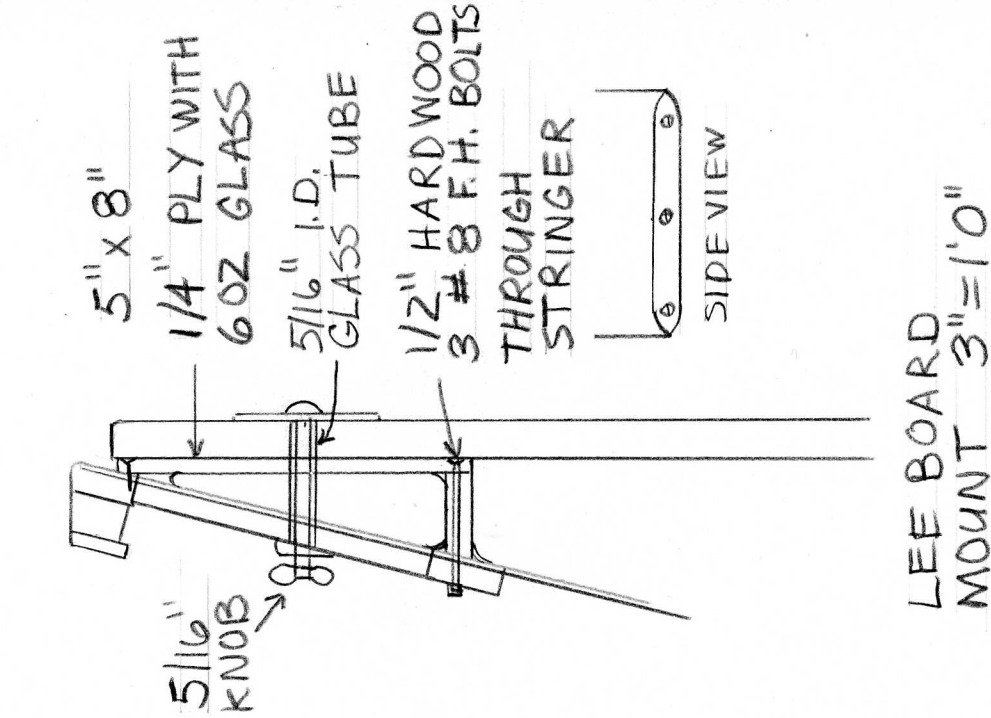
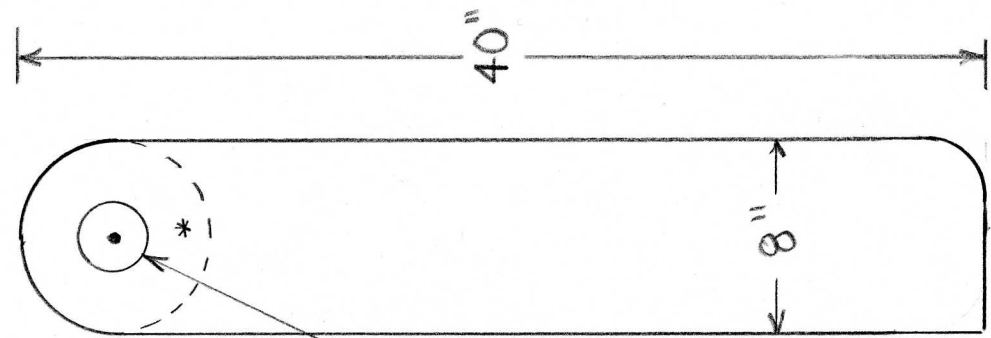
MARK GUMPRECHT



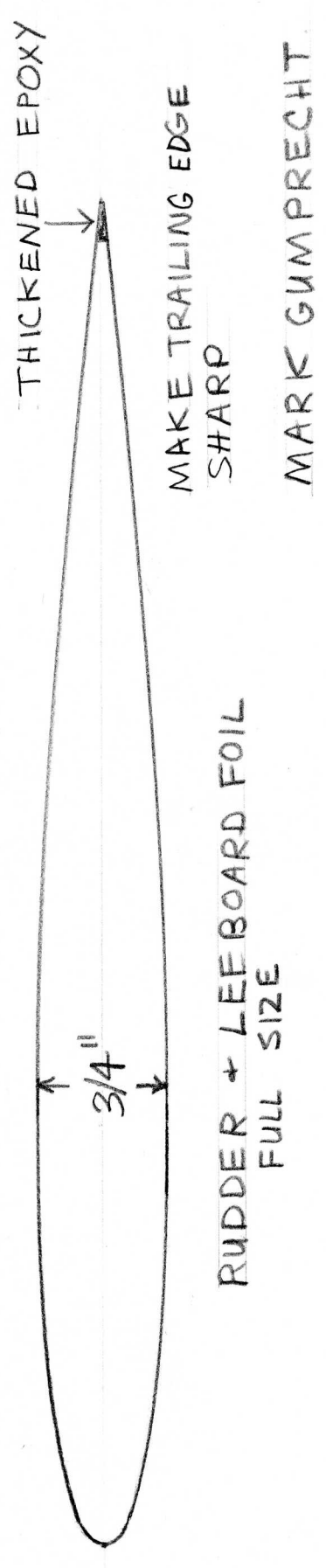
# DRIFTER 16 RUDDER + LEEBOARD



5/16" SS. BOLT  
W/ 3" DIA. 1/16"  
SS. PLATE  
\* KEEP FLAT  
ON BACK OF  
LEEBOARD



1 1/2" = 1'0"

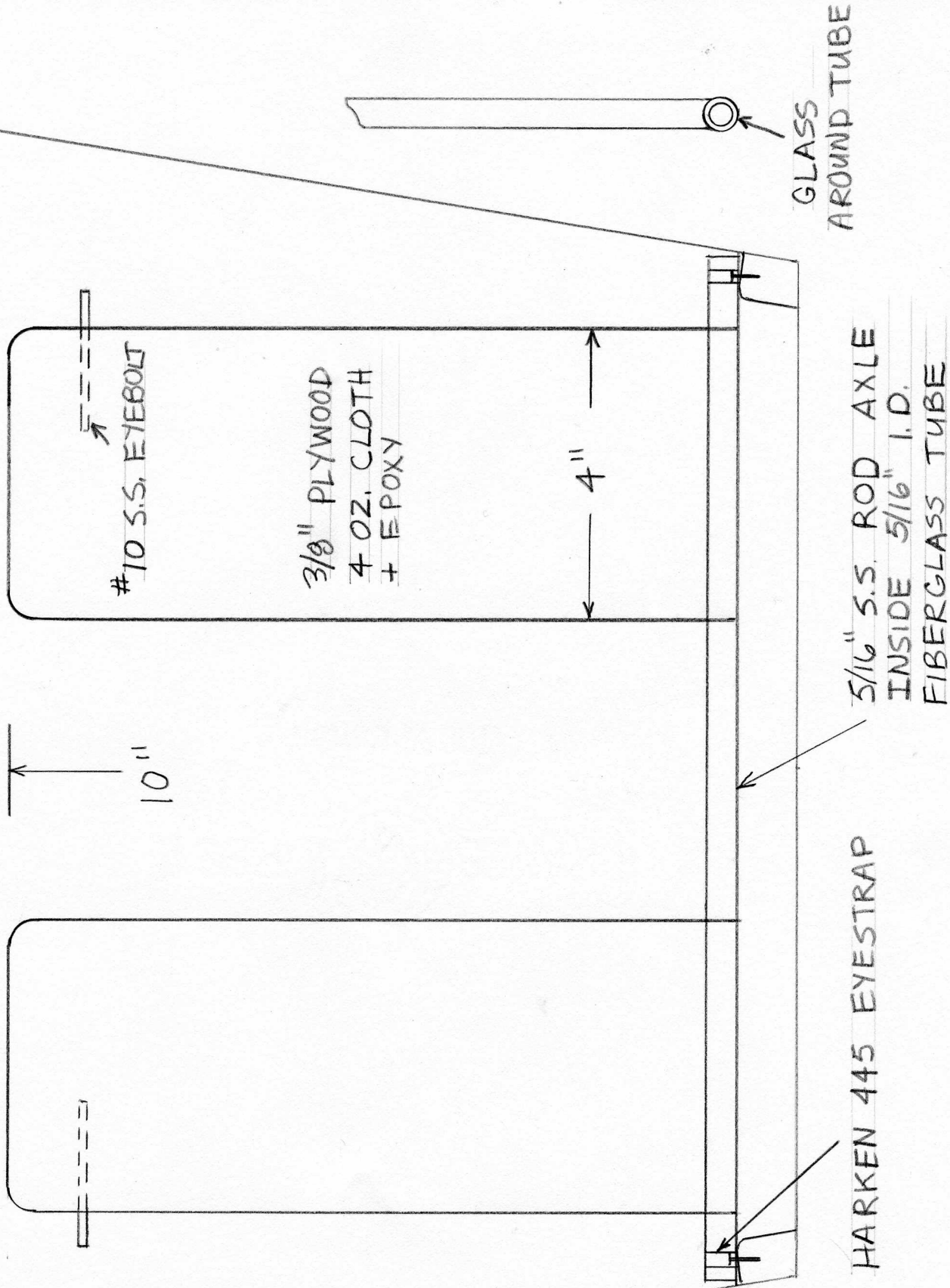


RUDDER + LEEBOARD FOIL  
FULL SIZE

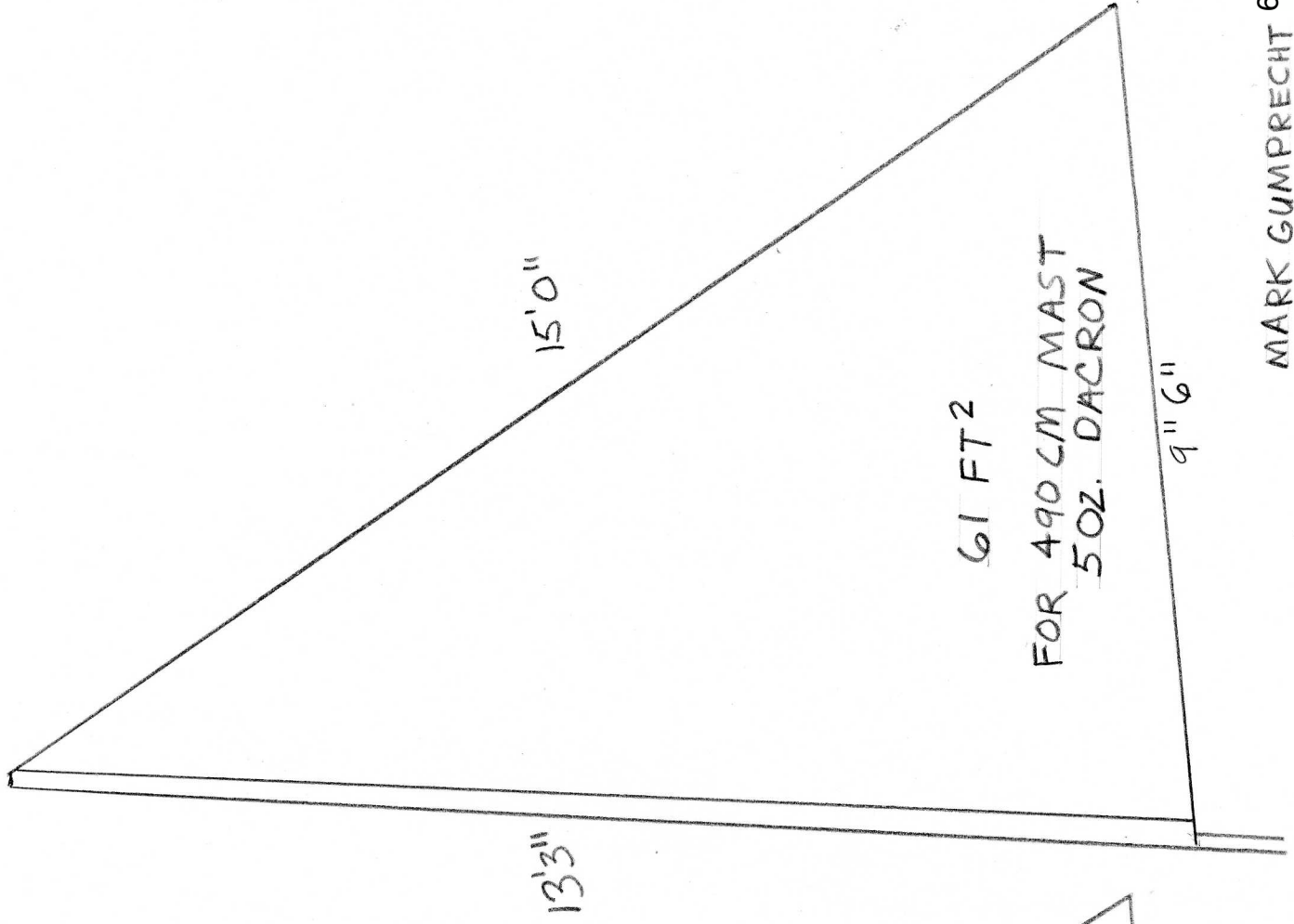
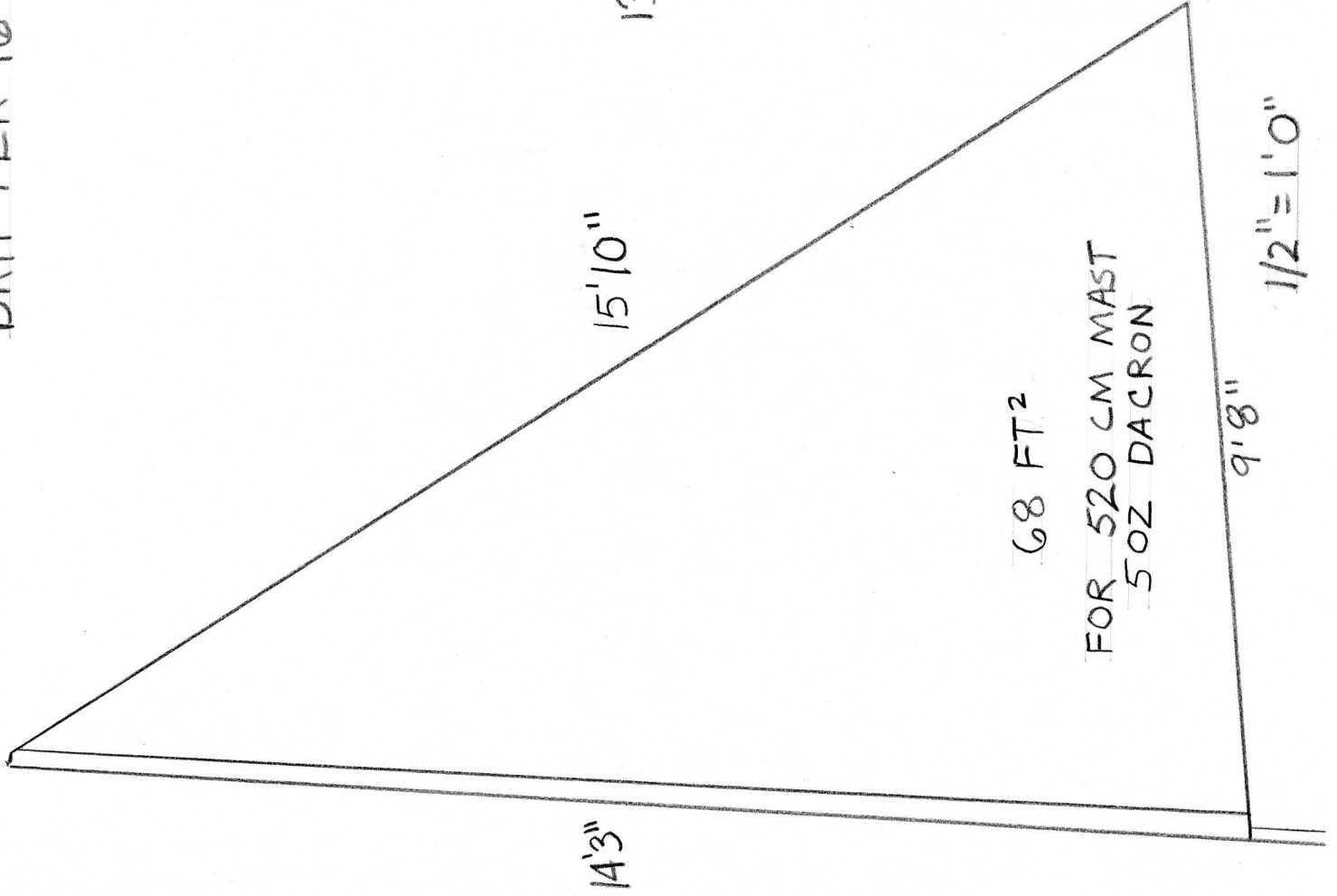
MAKE TRAILING EDGE  
SHARP

MARK GUMPRECHT

# DRIFTER RUDDER PEDALS



# DRIFTER 16 SAILPLAN





# SCARF JIG 1/8" PLYWOOD

