

ZIPP MANUFACTURING



JAE210B

3.5cc Outboard Outrigger
A Zippkits R/C Boat



Building Instructions

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www.zippkits.com

Toll Free (866) 922-ZIPP

The JAE 21 was designed and developed as a result of a joint venture between Rod Geraghty, David Hall, Ron Zaker Jr. & Martin Truex Jr.

The JAE 21OB is a modified version of this hull.

The main difference between this hull and all the other outriggers is the use of sharp edges on the bottom of the sponsons and tub, as opposed to curved surfaces. This helps break any surface tension of the water and makes for a faster boat.

This design approach has been built, developed and tested a great deal.

The JAE 21 (nitro) holds many speed records, and is currently the fastest boat in the world on the ¼ mile oval course (16.0 seconds/ 2 laps).

These records were broken by an expert boat racer named Kently Porter. KP has set some 35 records in the past, and currently holds 19. He knows what he is doing!

We asked Kently to write a few suggestions for building and running our kits...

“The thing that I want to impress the most is to build the kit as the manual shows! It is a good design, handles excellent (even at 95 mph) and has no bad habits. Don’t try to second guess the designers! This hull is the absolute pinnacle of model hydro design. The reason that there are no adjustments on this hull is that it doesn’t need any. That has all been done for you.

If you take your time and build a straight, true hull, you will have most of what it takes to win.

The rest is up to you. Make sure you have a reliable engine, and burn lots of fuel!

Test different props.

Get comfortable driving this hull. It is so fast (especially in the turns), it will scare you the first few times on the course.

You will learn that you can drive this hull in any lane you want, and rough “race” water is welcome!

Finally, make sure that you pay attention to the details. Everyone always asks what it takes to make a boat really fast. It’s not one thing, it’s hundreds of tiny details, all worked out and optimized. Try anything, if it gets better, keep going. If not, try something else.”

Well said KP!

We are reminded of what someone once asked:

What can I buy to help me win more races?

A case of fuel...

The only way to get good is to practice, practice and practice more...

This boat is sized to accept the K&B, OS, Thunder Tiger or Lawless 3.5 (.21) outboard.

This kit is not hard to assemble, as all of the hard stuff has been done for you.

That is no excuse to do a poor job with assembly. The better you build this boat, the better it will run. Often the difference between an excellent building job and a poor one is a simple sanding block.

A note about overhangs:

This boat is designed to shear water and prevent any capillary action of water. To do this the tub, ski and sponsons have rear overhangs. These shear the water off and must be left in place and not rounded in any way.

Take the time to read this entire manual, so that you are familiar with all the buildings steps and their proper order. Take your time; make sure you understand everything before you do it and you will be rewarded with an impressive running hull...

This kit is not a toy. Although R/C boating is a fun and rewarding hobby, it can be dangerous if not done with common sense and safety in mind. Just about anyone should be able to build this kit, but it should not be operated by children without close adult supervision.

The manufacturer assumes no liability for damages or other loss in the use of this product, as we have no control over the construction or end use of this product.

Tools and supplies needed to build

- Sanding blocks with 80 and 150 grit paper
- Drill with bits
- Square
- Flat file
- FLAT Workbench
- 1 ounce Medium CA glue and accelerator
- Good quality 30 minute epoxy
- Epoxy finishing resin
- Spring clamps, paper clamps, c clamps, etc.
- Razor blade or X-Acto knife
- Masking tape
- Waxed paper
- Wood filler
- Primer
- Paint

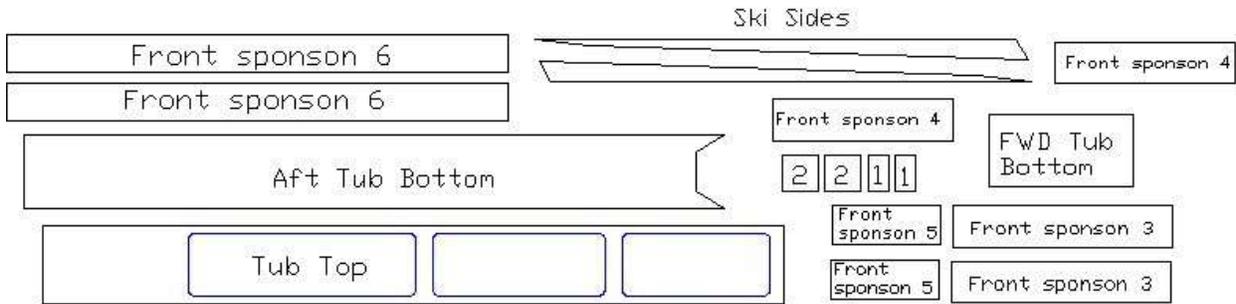
Additional items needed to complete

- 3.5cc (.21) size Nitro Outboard Engine
- Receiver battery
- 2 channel surface radio with 1 standard sized HT servo and 1 mini servo
- Steering pushrods (4-40 Size) (Zipp 3526)
- Flexible Throttle pushrod (Zipp 3474)
- 2 pushrod seals (Zipp 3516)
- 444 prop (Zipp 4010 for OS or 4007 for K&B)
- Pushrod connectors
- Cable grease
- 6 or 8 ounce fuel tank (Zipp 3523 or 3467)
- Medium silicone fuel and water tubing (Zipp 3469)
- (4) 5/16 boom tube collars (Zipp 3480)

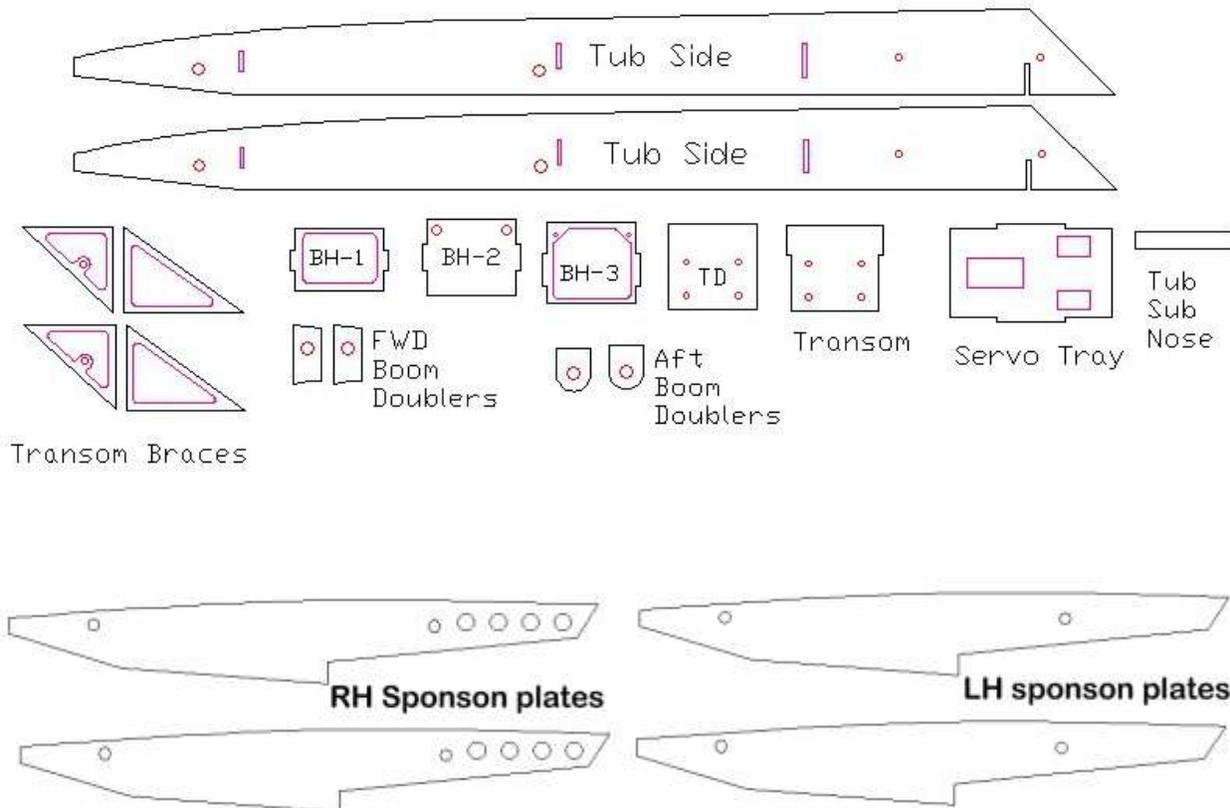
All needed items are available as a set in the Zipp 3609-U Ultimate Hardware Set

Let's identify the parts so that we can easily find them when needed. Mark the parts that are inside other parts.

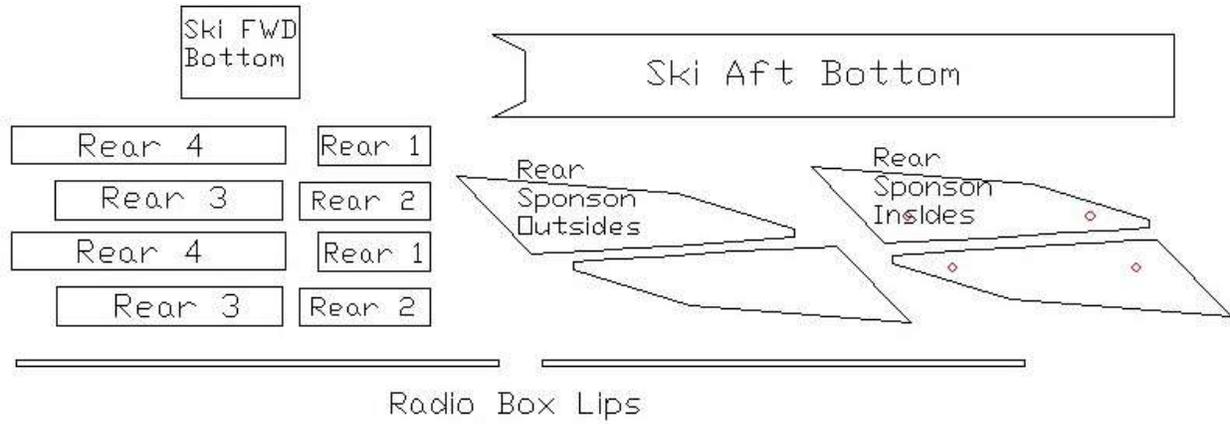
1/16 plywood parts:



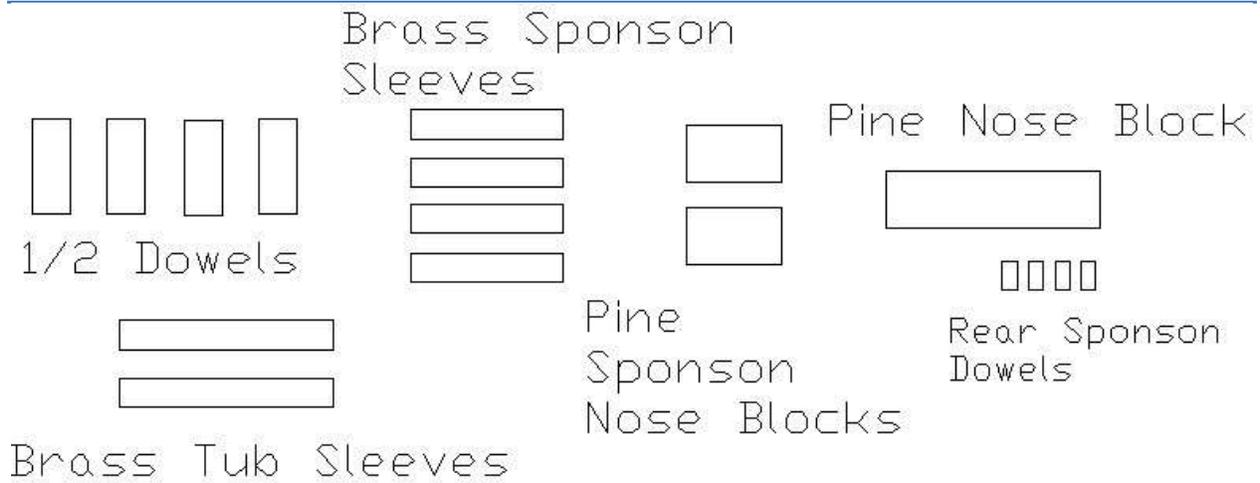
1/8 plywood parts



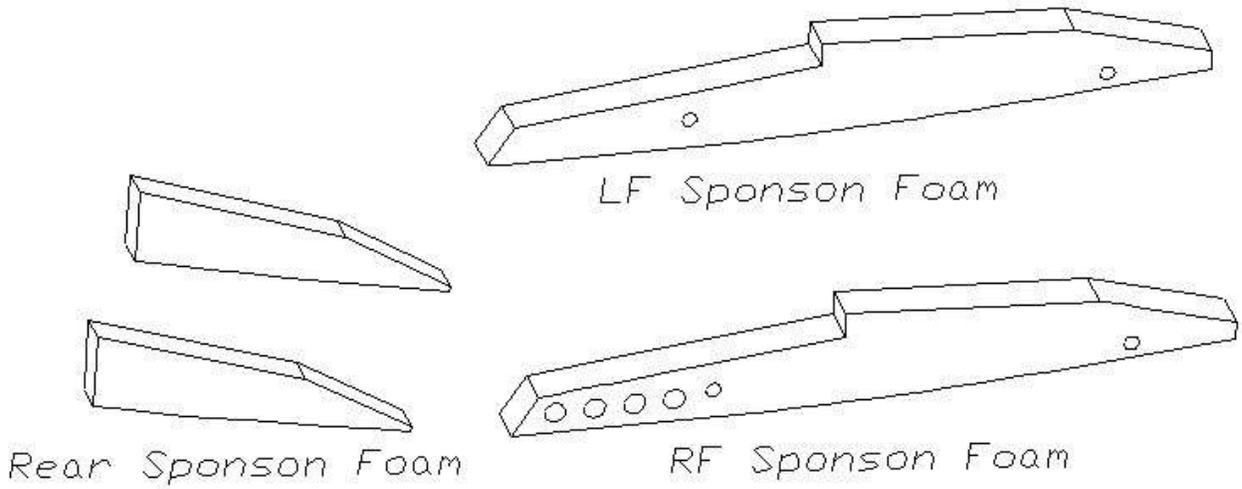
1/32 Ply Parts



Miscellaneous parts



Foam parts



Do an inventory of all the parts, to be sure that everything is there. If anything is missing or damaged, contact us as soon as possible, so that we can get replacements to you quickly.

Tub Jig

We recommend that you make a jig for the tub.

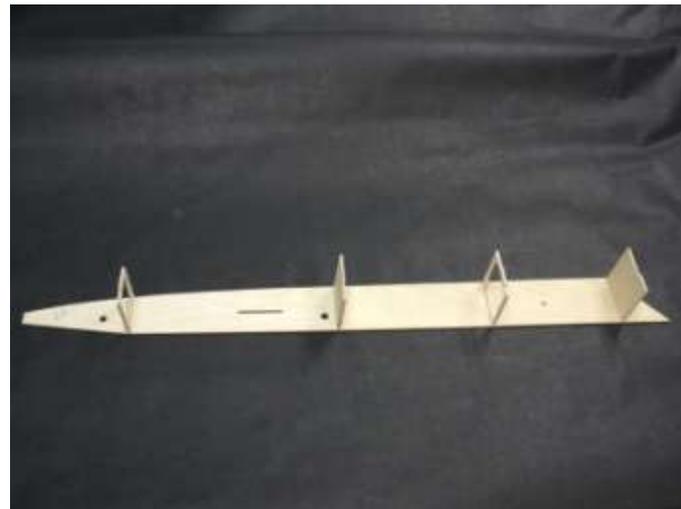
This can be as simple as two straight pieces of $\frac{1}{2}$ to $\frac{3}{4}$ inch thick wood.

It can be as elaborate as 1/8 by 2 inch aluminum angle with adjustment slots for different tub widths.

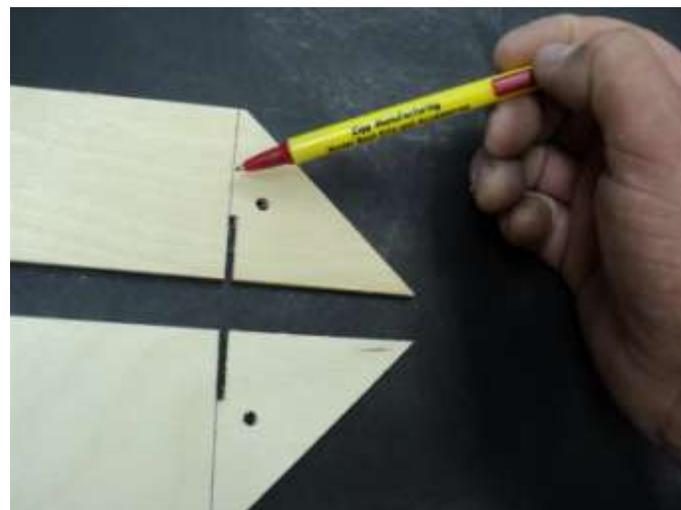
Either way, you need something to clamp the tub sides to.
Every critical component on this hull depends on a straight, square tub.
Do whatever it takes to get it done correctly.



Tub sides marked before assembly.



Bulkheads glued in place.



Tub side marked for transom alignment.

Tub

Let's build the tub.

First, mark the insides of the tub right and left. The sponson boom hole is toward the bottom of the tub side. Make these marks in the front portion of the sides, where it won't be seen later.

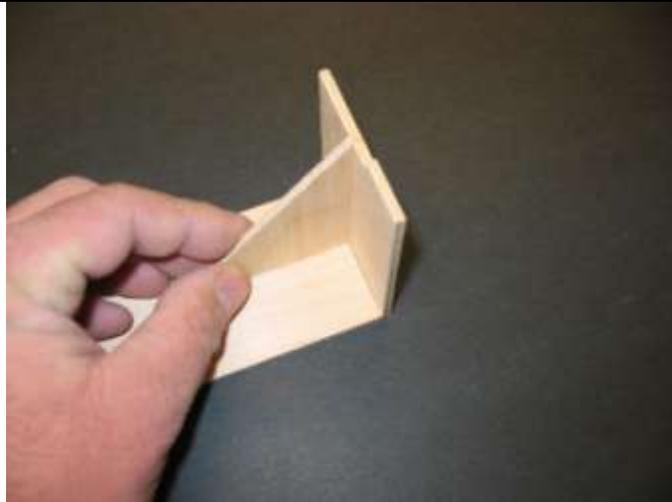
Check the fit of the bulkheads in the **right** tub side.

Use a file to touch up the inside corners on the bulkheads, to square off the tiny radius left by the cutting bit.

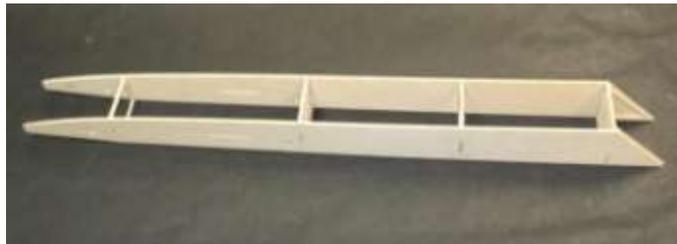
Once you are happy with the fit of the bulkheads in the tub side, glue them in with CA. Use the square provided in the kit to ensure each bulkhead is perfectly square.

Make a mark on both tub sides (inside) with a line that is an extension of the transom cutout.

Use this line to align the transom correctly on the tub side.



Using the square provided in the kit.



Tub sides glued to bulkheads.



Tub jig.

Assemble the tub sides on a flat surface. Check the fit of the bulkheads in the **left** tub side. If all is well, glue the bulkheads in place one at a time, using the square from the kit.

Flip the tub over and lightly sand the bottom.

Spread the tub sides apart slightly and pop the servo tray in place. If all is well remove it for now.

Test fit your rudder, throttle and mixture (if used) servos now, while the tray is out.

Make any needed changes to the servo openings so that you have 1/16 inch clearance all around the servo.

Now is the time to use your tub jig. If you don't have the ability to make an aluminum jig, see below.

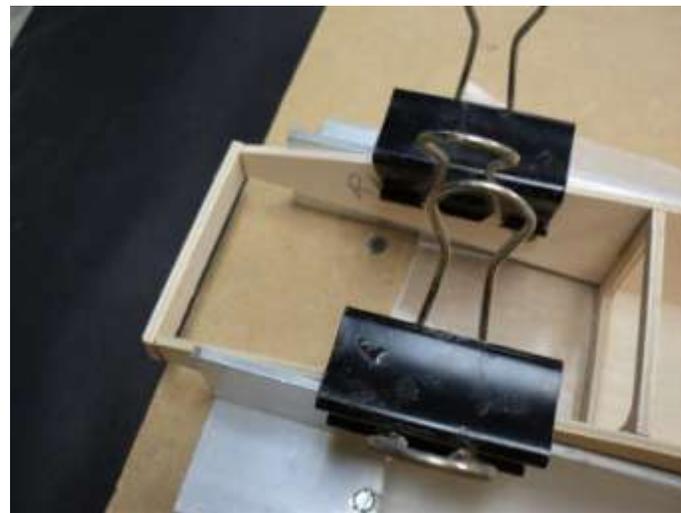
Use a pair of thick wooden sticks. Leave these clamped to the sides while gluing the aft bottom in place.

Put a layer of waxed paper over the jig.

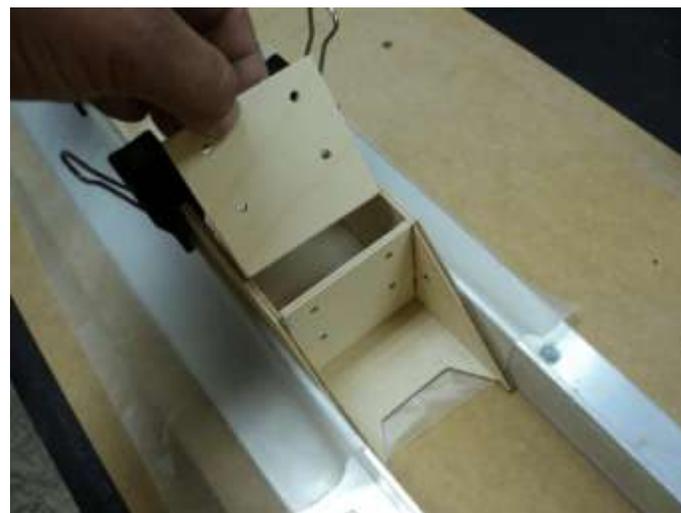
Put the tub aft bottom in the jig and set the tub onto it.



Tub clamped to jig. Note waxed paper.



Tub sub nose being glued in place. Tub extends just past jig.



TD being glued in place.

Glue the tub aft bottom in place. Make sure that the bottom extends to the front bulkhead. It should cover the full 1/8 inch bulkhead. Later on, we will sand this to match the angle of the tub sides.

The aft bottom sheet is pre cut to the correct length. Make the front of this flush with the front of the first bulkhead, and the rear will be correct.

Use a square to be sure that the transom is square to the jig.

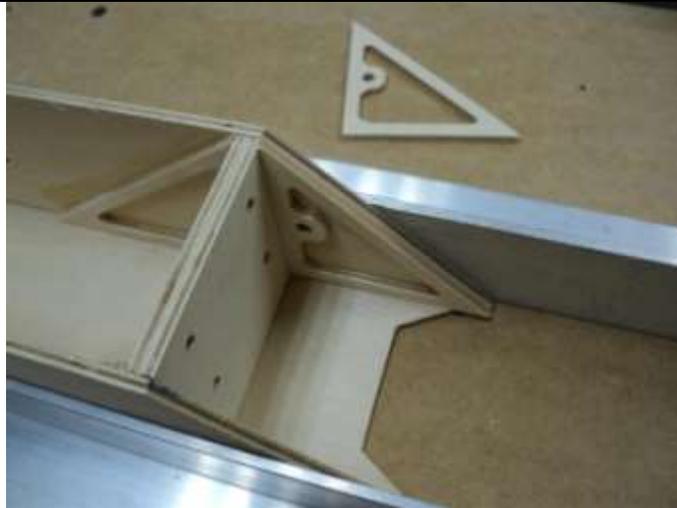
Fully clamp the jig sides to the jig.

Glue the tub sub nose to the very front of the tub. This supports the nose for sheeting, and provides a solid base for the tub nose block.

Glue in the transom doubler with epoxy. Make sure that it fits flat against the transom, and that it sits firmly on the tub bottom.

Clamp until cured.

Glue in the forward and aft transom braces. These go in front of and behind the transom, on each side.



Transom braces going in.



Tub sleeves sanded, ready to glue in.



Tub sleeves, doublers and booms in place

When the tub bottom has cured, lets move on to boom tube alignment. This is the most critical step in the assembly, so take all the time needed to get this right.

Remove the tub from the jig.

Grab the two brass boom tube sleeves, and use 80 grit paper to rough the last $\frac{1}{4}$ inch or so of each end.

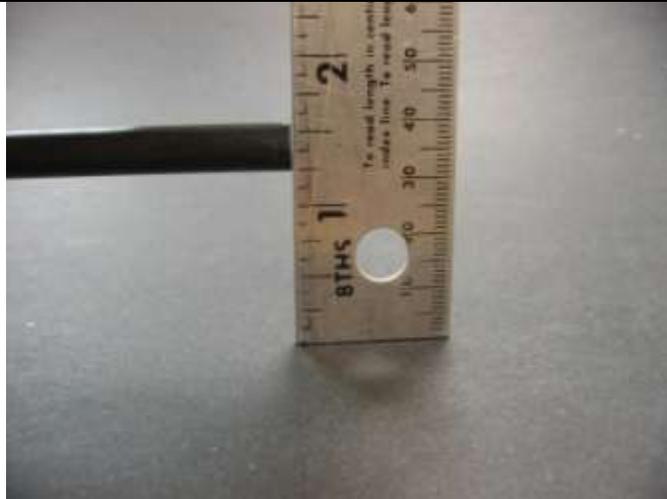
Put the rear tube doublers in place and slip a boom tube sleeve and carbon boom tube through the tub and doublers.

Measure the carbon tube on each side of the tub, and center it.

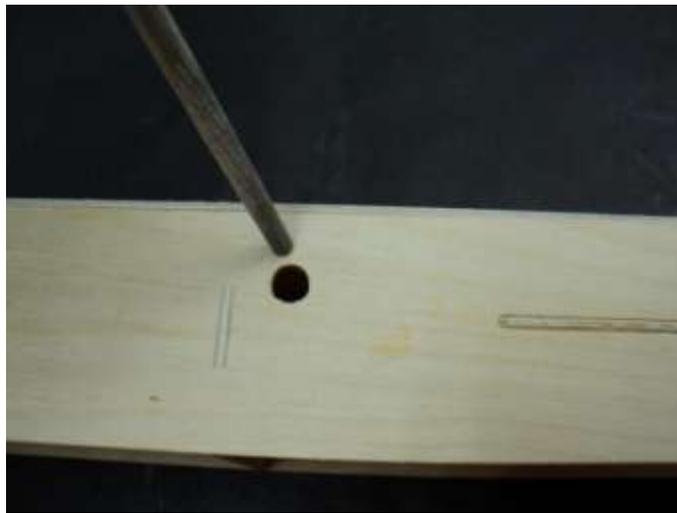
Do the same for the forward boom tube and doublers.

The forward boom tube doublers line up with the forward boom tube holes. They only align correctly one way, so be sure that the orientation is correct before you mix any glue.

Weight the tub so that it is flat on the bench.



Measuring boom tube distance above flat bench.



Hole in tub had to be elongated slightly for perfect alignment.



Servo tray in place temporarily.

Clamp the doublers in place **without glue** and measure the ends of the tubes. The actual measurement is not important.

Both ends of the front tube must be the same distance from the bench.

Both ends of the rear tube must be the same distance from the bench.

If not, loosen the clamps and adjust the doublers until they are.

If the holes now have to be sanded to fit, you must sand them and repeat the measuring process.

Do not enlarge the holes in the doublers, only the holes in the tub. We will use the doublers to “cap” the tub holes.

This is a critical step in the assembly, and if done incorrectly, your hull will never handle properly.

When you are happy with the height of the tubes above the bench, check to see that the tubes are square front to back with the boom square provided in the kit.

When you have checked and double checked that the boom tubes are straight and square to the world, remove the clamps, but leave everything in place.

Mix up some 30 minute epoxy, and coat the doublers where they will be in contact with the tub sides and bottom.

Also coat the ends of the brass sleeves. Do not get any epoxy inside the sleeves...

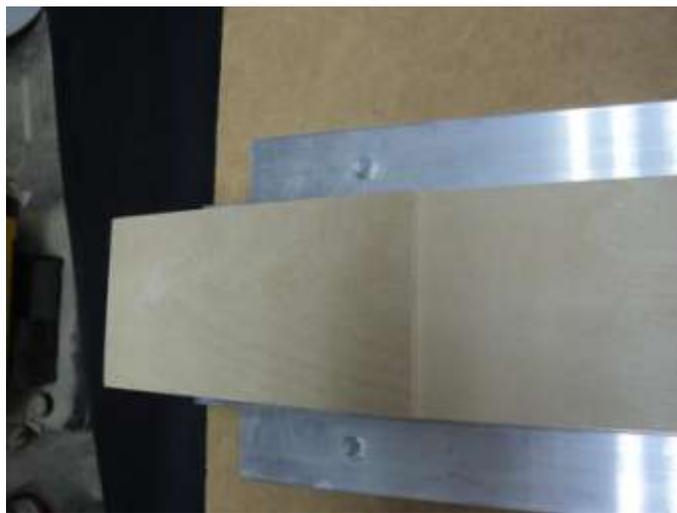
Align and clamp in place. Quickly check your measurements and square several times, and make any tiny adjustments before the epoxy starts to cure.



Tub sleeves sanded flush with tub side.



Bottom sanded and ready for FWD sheet.



FWD bottom sheet installed. Note sharp edge in rear.

Use any excess epoxy to build a small fillet around the sleeves and doublers.

Clamp in place.

Set aside for at least 3 hours.

Repeat for the front boom tubes. Be sure everything is perfect before you walk away...

Once everything has cured, sand the brass tub sleeves flush with the tub sides.

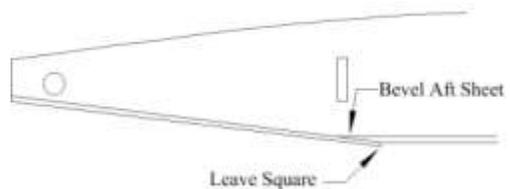
Glue the forward bottom in place

. Be sure to sand the angle into the aft sheet so that it matches the tub sides.

The forward bottom sheet should cover the bevel on the aft sheeting and be left square.

Do not sand the rear of the forward sheeting; it needs to have a sharp edge for the water to shear off.

See drawing.



This is what makes a JAE a JAE... Sponsons are similar.



Ski sides glued to foam core.



Align foam to high point of ski.

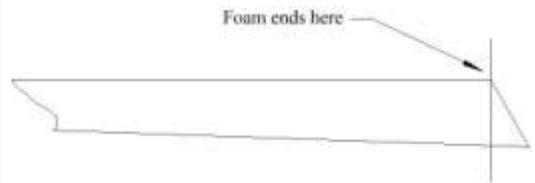


Foam shaped and sanded, ready for sheeting.

Ski

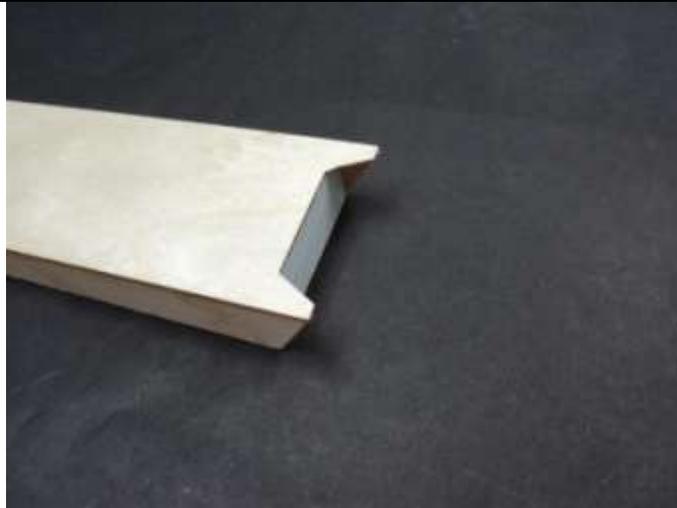
The ski is made up of 1/16 ply sides, a foam core and 1/32 ply sheeting. Take your time with the ski and do it correctly.

Glue the two ski sides to the foam block. The foam ends at the high point of the ski (see drawing).



Once the sides are cured, trim the foam so that it is even with the ski sides. You can use a sharp utility knife blade to get it close, then use your sanding block to finish.

Also sand the front portion of the ski to match the angle of the ski sides.



Rear view of ski sheeting.



Ski sheeting beveled for FWD bottom, just like tub.



FWD bottom in place. Leave rear sharp.

Glue the 1/32 aft ski sheet in place on the ski. This sheeting matches the end of the foam at the rear, and should be at the “break” where the front angle starts.

Sand the front of the aft sheeting so that it matches the angle of the ski forward portion.

Glue the forward ski bottom in place, and let the front overhang. This is done exactly like the tub bottom sheeting.

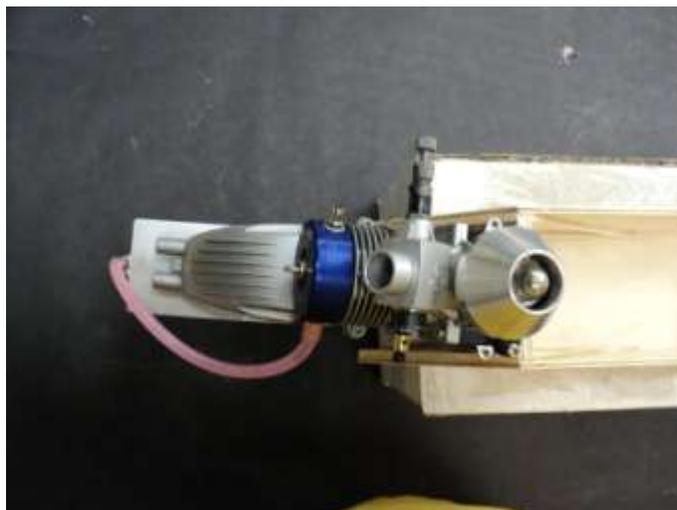
Sand a sharp bevel on the front of the ski bottom sheet, so that it blends into the tub bottom. Do not glue the ski to the tub yet.



8 ounce flex tank ready. Note fuel pickup in left rear corner.



Blind nuts installed for engine mounting.



Engine mounted (OS shown).

Fuel Tank

Setup your 8 ounce tank so that the fuel pickup is in the left rear corner. Do not use a clunk, just bend the brass tubing into the corner.

The tank goes in the center compartment.

Be sure to consider the tank when setting up the throttle and mixture pushrods.

You can use Velcro on the bottom of the tank to keep it in place.

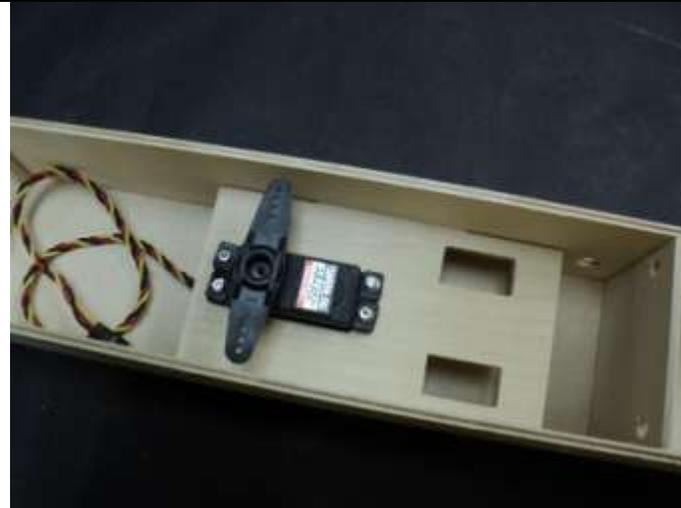
DO NOT VELCRO TANK UNTIL AFTER THE TUB IS SEALED.

Engine

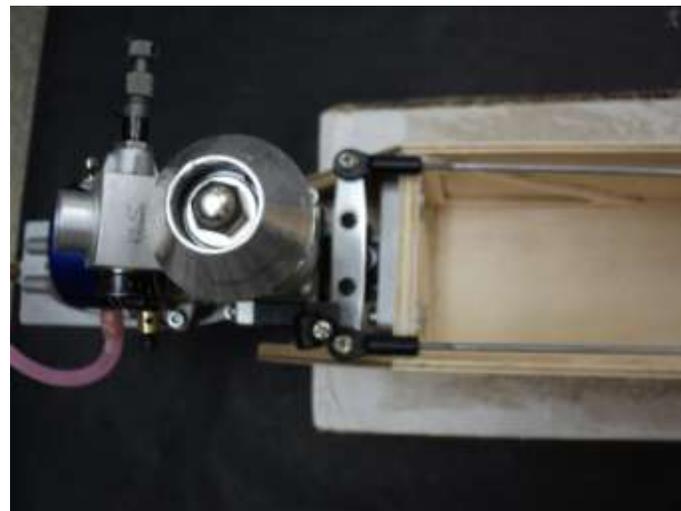
If using an OS engine, you can simply bolt it in place as is. If you are using the Lawless or K&B, make sure that you have our 3524 mount.

Using the 6-32 blind nuts from the kit, install these in the 4 holes in the transom. You can use a 6-32 screw and some washers to “pull” the blind nuts in place. Put a drop of glue on each one before it gets all the way in.

Bolt your engine in place with the supplied 6-32 screws and washers. The top of the mount should be even with the transom for now.



Steering servo with 2 inch control arm.



4-40 ball links attached to engine.



Marking pushrods for length. Be sure engine is centered.

Servos

Install your servos and put a double arm on your steering servo so that you have pushrod holes 2 inches apart. If you need a servo arm, we stock them for all popular servos.

The throttle servo should have at least about 5/8 inch to the pushrod hole.

Thread the HD 4-40 ball links onto the 4-40 pushrods about 15 turns each.

Put the un-threaded end of each pushrod through the guide holes in the bulkhead and through the holes in the radio box bulkhead.

Allow the pushrods to extend past the radio box.

Bolt the ball links to the steering arm.

Cut both pushrods so that they are 2 inches or so past the servo arm.

Center the servo and center the engine. Make marks on the pushrods over the holes in the servo arm.

Be sure that you use a Sharpie marker or other permanent marker.

Remove the pushrods and use your 4-40 solder clevis to determine where to cut the pushrod so that the clevis pin is exactly at your mark.

Cut the pushrods, sand the ends and use flux and solder to attach the 4-40 solder clevis to each pushrod.

Wipe clean when cooled.

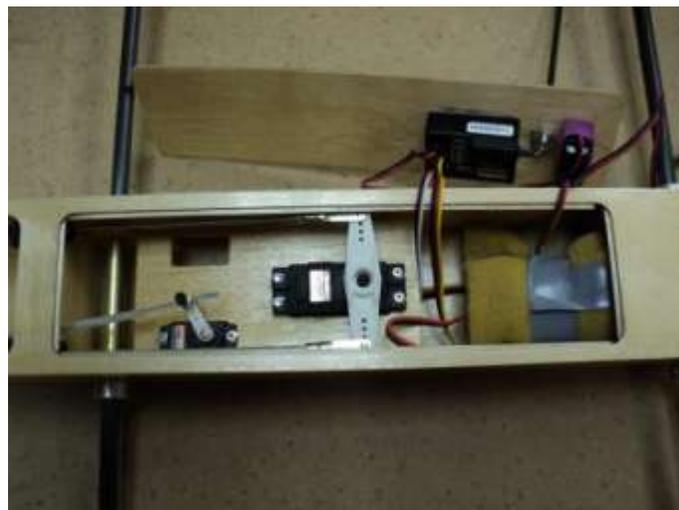
You will have to unscrew the ball links so that you can get the pushrods back



Solder clevis's installed on servo end.



Steering pushrod seals in place and hole drilled for throttle.



Note receiver double stick taped to lid. Also note antenna and switch in lid as well.

in through the radio box.

Be sure to also thread them through the guides in the aft bulkhead.

Put the ball links back on and attach the clevis's to the servo arm.

Make sure that everything lines up.

Figure out where you will route your throttle servo and drill a hole in the radio box bulkhead for it.

Put the fuel tank in place in the middle compartment so that your throttle pushrod can clear it.

Rough up the outer sleeve with sandpaper and glue it into place in the radio box bulkhead.

Setup your throttle cable so that the engine gets full open and full closed.

We like to use a EZ connector at both ends.

Remember that the engine must turn both ways without the throttle changing.

Be sure to leave enough slack in the outer sleeve so that the engine can turn without it binding.

Cut the cable to length but leave about ½ inch extra on each end,

If the throttle works without any issues, you are good.

It is sometimes necessary to "tin" the inner pushrod with solder at the ends so that it is stiff.

If you do this, only use enough solder to penetrate the cable. You do not want any excess at all. The best way to do this is to use a torch and apply flux and solder. While the solder is still molten,



All pushrods installed.



Rear sponsons in a mirror image. Insides shown.



Outsides.

wipe it with a cloth by pulling the cable through the cloth. Do this several times.

You only need to tin the last 2 inches or less. Otherwise the cable may be too stiff and bind.

If you are using a 3rd channel needle, install that now as well.

Once you are satisfied with the radio installation, remove everything in preparation for sealing and top deck installation.

Rear Sponsons

The rear sponsons on this hull serve only as floatation. They are completely free of the water once the boat is underway.

You can easily use 5 minute epoxy as long as you only do one step at a time to both sponsons.

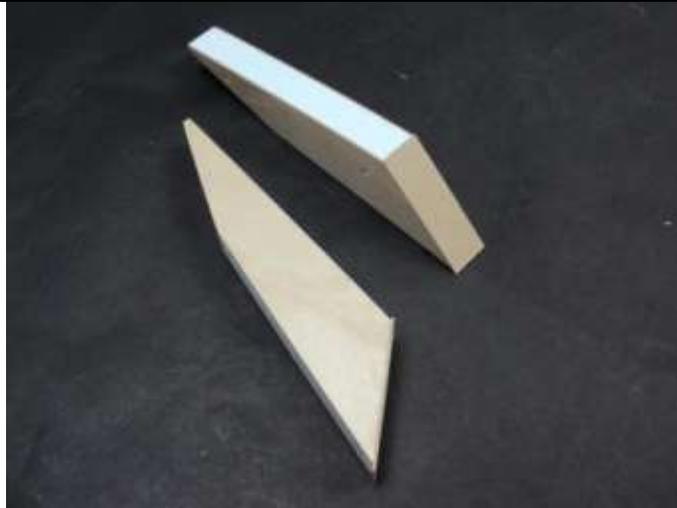
The rear sponsons are made from 1/32 ply sheeting and foam cores.

Be sure to make a right and left sponson so that the dowel holes are facing each other.

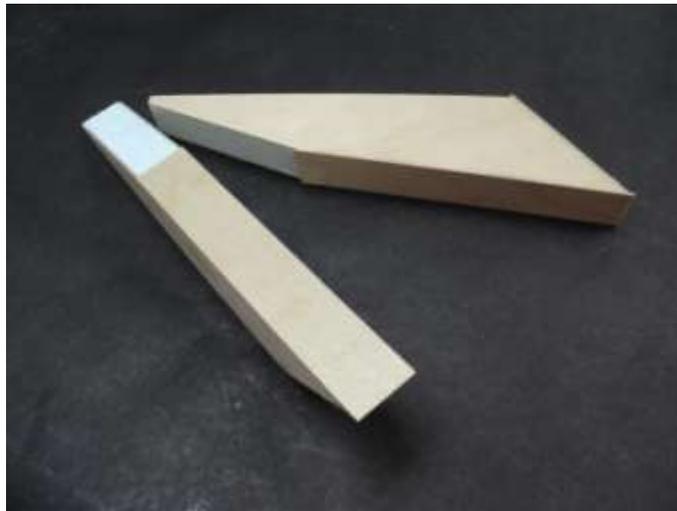
Start by gluing the sponson plates in place. Since the foam is a teeny bit larger than the wood, simply center the wood plates on the foam.

Do both sponsons as mirror images using the plates with the dowel holes.

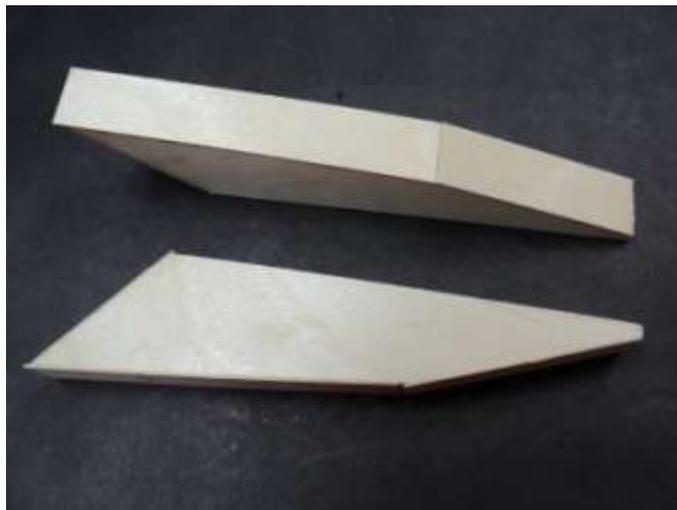
Once cured, do the other side without holes.



1/32 ply sheet 1 installed on rear of sponson.



Aft bottom sheeting.



FWD bottom sheet. Just like the tub and ski.

When that cures, sand the foam so that it is level with the sides, all the way around. Leave all edges sharp.

Glue the aft sheet one in place, leaving a little overhang at each end. Do the other sponson and allow to cure.

Sand the top and bottom of the aft sheet so that it is flush with the sides.

Glue the aft bottom in place, matching the "break" in the bottom and leaving overhang at the rear.

DO NOT REMOVE THIS REAR OVERHANG.

Allow to cure and repeat on other sponson.

Once cured, sand the front of the aft bottom to match the angle of the forward bottom.

This is exactly like the tub bottom.

Glue the forward bottom in place, leaving an overhang at the rear so that it covers your bevel.

Allow to cure and repeat on other sponson.

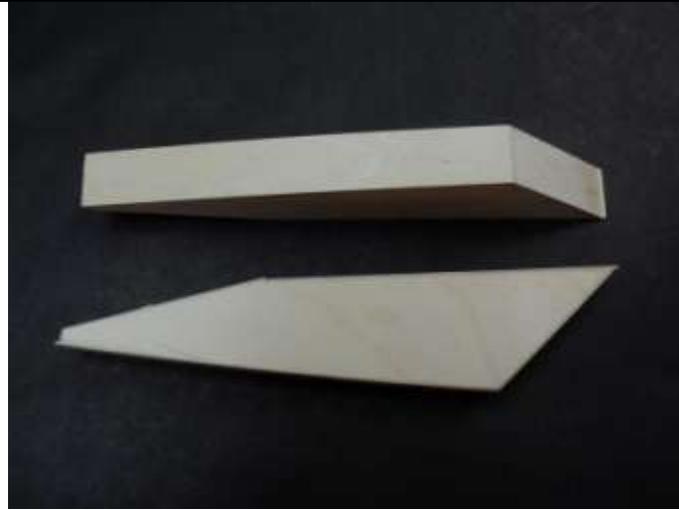
Glue the top sheet in place.

Allow to cure and repeat on other sponson.

Glue the 1/4x1/4 basswood nose block in place.

Allow to cure and repeat on other sponson.

Sand both sponsons with your sanding block. Be sure to leave the bottom rear overhang about 1/16 inch.



Top sheet in place.



Sealing inside of tub. Glue servo tray at the same time.



Alignment marks drawn on underside of deck.

Do not round any corners.

Round off the basswood nose blocks only.

Set aside in preparation for sealing.

Use epoxy finishing resin (or West Systems epoxy) to seal the inside of the tub. Be sure to seal around the boom tube sleeves, and all of the holes.

Seal the bottom side of the servo tray and use your sealer epoxy to glue it in while you continue to seal the inside of the tub.

Use any excess epoxy to seal one side of the radio box top. Set this on waxed paper while it cures.

Seal the rear sponsons.

Seal the ski assembly (not the top). Be careful as some sealers will eat foam...

Also seal the underside of the top deck.

Allow to cure overnight.

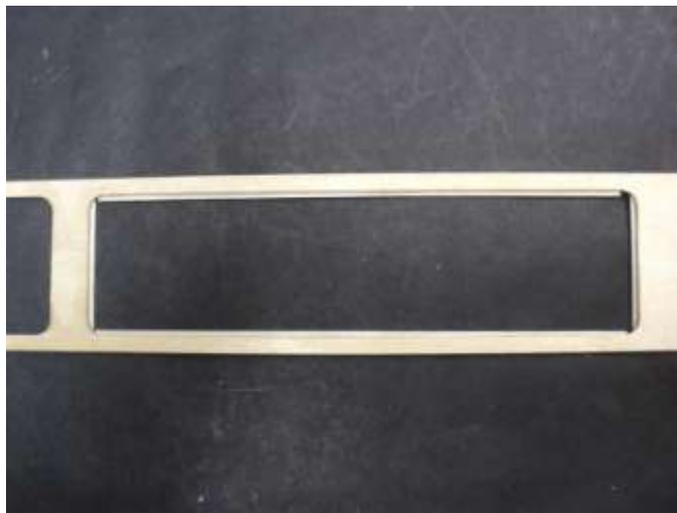
Next, we will glue the radio box "lips" in place on the underside of the deck. Be sure to scrape or sand before you glue.

Draw a line $\frac{3}{16}$ inch in from the outer edge of the deck.

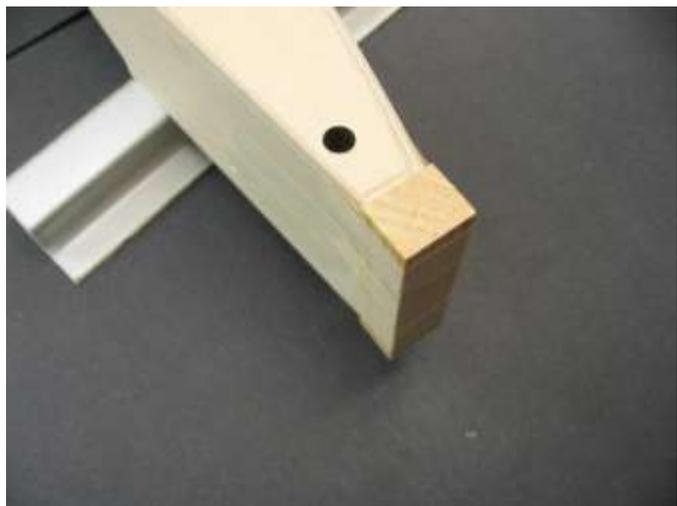
Align your lips to this.



Lips in place.



Lips, as seen from the top side.



Pine tub nose block in place.

There should be some of the lip showing inside the radio box opening.

Cut the lips from the two pieces of 1/32 ply. Cut one long and one short piece from each of the supplied pieces.

We use a tiny, tiny bead of medium CA to glue the lips in place.

Don't get any glue on the inside of the lip as it will interfere with the radio box top.

When you are happy with the radio box lips, scrape everything with a single edge razor or sand with 220 and apply a **second** coat of sealer.

Do this for everything you sealed before, including the inside of the tub and underside of the deck. You can also do the other side of the radio box lid.

Allow to cure

Sand the top of the tub, so that the deck has a flat surface for gluing.

Glue the tub top sheeting in place with 30 minute epoxy. Make sure that the sheeting is flush with the transom and is centered.

Make sure that sheeting is in full contact with the tub and all bulkheads.

Tape and weight the top sheeting.

Allow to cure



Sand to match tub.



Round off.



Nice and blunt.

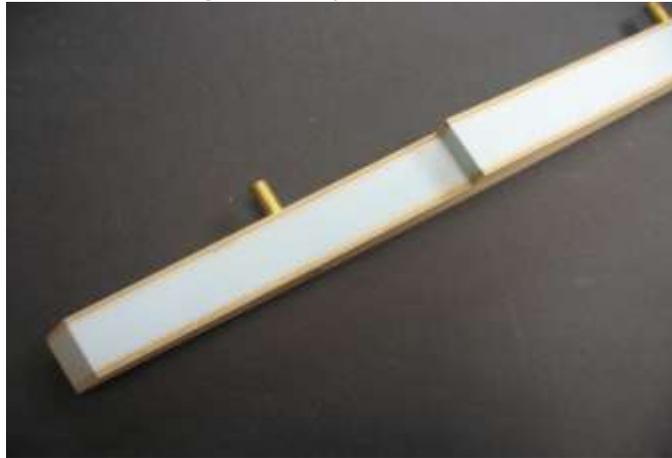
Once the top sheeting has cured, sand the front of the tub flat and square. Glue the pine tub nose block to the front of the tub.

Shape the block to match the tub.

Finish the nose block with a round, blunt nose.



Be sure to make a right and left sponson...



Sponson sleeves in place.



Look, a right *and* a left!

Front Sponsons

The sponsons are assembled in a specific order for a reason. It is not the fastest way, but it's the only way it can be done right.

Gather all of the parts for the right sponson.

The right sponson holds the turn fin, so it has dowels in it,

Grab the right foam sponson.

Test fit the $\frac{1}{2}$ inch wood dowels in the 4 rear holes. Also test fit the 2 brass tubes.

They should be a nice fit.

Prepare the sponson inside and outside plates by lightly sanding the edges.

Mix up some 30 minute epoxy, and coat the inside of the sponson plates.

Also put some epoxy on the brass boom tube sleeves. Shove the tubes in until they stick out the other side.

We don't want any epoxy to get into the boom tube sleeves.

Do the same for the 4 wood dowels.

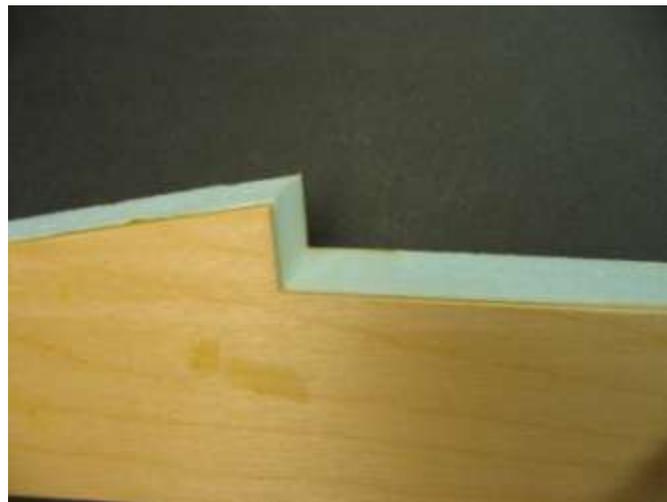
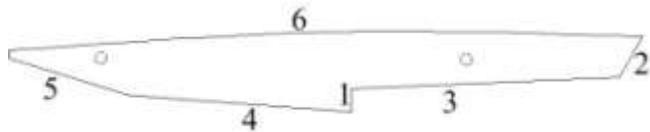
Put the inside plate in place, being sure that the tubes and dowels protrude on the other side. They should all stick up above the side plates.

Work quickly.

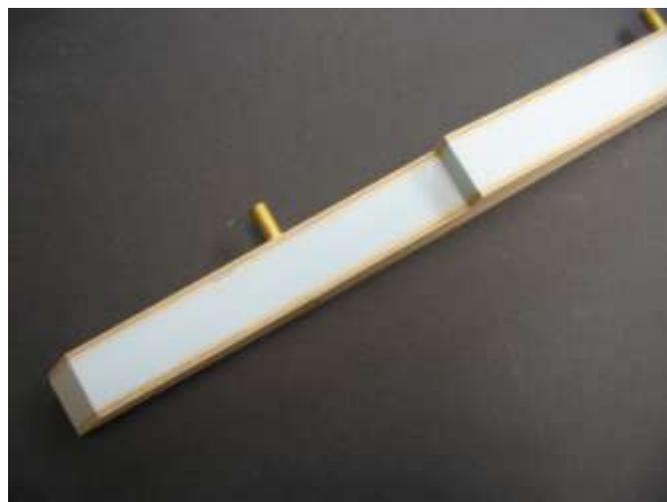
Put the other sponson plate in place, aligning the brass sleeves and dowels. Make sure that the sleeves and dowels go through both sponson plates.

The tubes and dowels should protrude through, and be flush with the outside plate

Use tape and small weights to hold the sponson and allow to cure on waxed paper.



Sharp inside corner.



Foam sanded flush with sponson plates.

While the right sponson is curing, you can glue the left sponson. Everything is the same, except the left sponson has only the two tubes.

Make sure that the left sponson is a mirror image of the right

With the right sponson on it's right (outside) side, and the left sponson on it's left (outside) side, **both sets of brass sleeves should be sticking out.**

Glue the tubes and plates as before, and weight or clamp until cured.

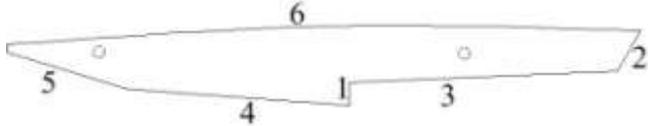
When the sponson sides are cured, let's do the sheeting. This is where the strange order comes in. The sheeting is done in this order because it has to overlap in a specific way.

Follow along and you won't have any trouble. If something doesn't seem to fit, stop and find out why. Epoxy is impossible to remove from foam...

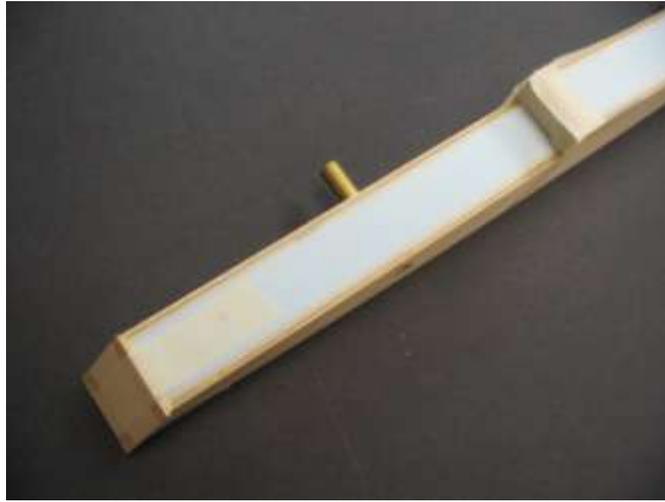
Grab all the sheeting pieces, including the ones you marked earlier.

Use a file to sharpen the inside corner of the sponson step as shown.

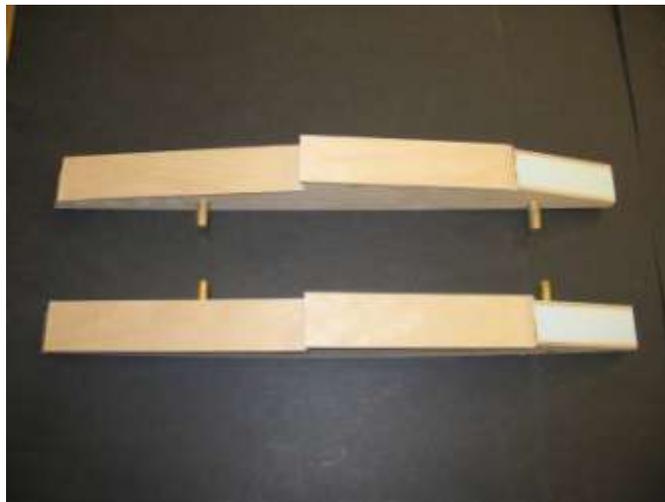
Use your sanding block with 80 grit paper to sand the foam flush with both sponson plates.



Sponson sheeting order. Needed for correct overhangs.



1 and 2 glued in place. Note masking tape.



3 and 4 in place.

Using epoxy, glue R-1 in place on the sponson step. Use masking tape to hold it in place while it cures. It's okay to repeat the steps on the other sponson.

Glue R-2 to the sponson rear. Once these have cured, sand the bottom and sides of R-2 and R-1 flush.

Glue R-3 and leave an overhang in the rear.

Glue R-4 and leave an overhang in the rear.



Note sharp bevel for 5. Just like tub and ski.



Sponson sheeted.



Pine sponson nose block in place.

Once R-4 is cured, sand the front of R-4 flush with the forward bottom. This is exactly like the forward tub bottom. Do not round any corners.

Glue R-5 in place. Match the rear to just cover the bevel you sanded in R-4. Leave the rear of this square, just like the tub bottom.

Sand the top of R-2, and glue the sponson top on (R-6).

When cured, sand the front until it is flat and square. Glue the pine sponson tip in place with epoxy.



Nose rounded.



Ski goes to the very back of the sheeting.



Ski taped in place.

When cured, sand the nose block to a nice blunt tip. Also sand the top sheeting, R-2 and the tips flush with the sides.

If you have not done so, repeat on the other sponson.

Ski

Test fit the ski to the tub. The rear of the ski should line up with the rear of bottom sheeting, and the front should blend into the tub bottom. Sand the front of the ski sheeting so that it blends to nothing.

Measure from both sides and make small alignment marks for the ski.

Using 30 minute epoxy, glue the ski in place. Be sure that the ski is centered.

Tape and weight the ski, check alignment, and allow to cure.

Turn Fin

Sharpen the outside of the turn fin.



Turn fin mounting.



Rear sponsons glued in place.



Foam sanded to clear lower unit. Be sure to seal with epoxy.

Mark the center of the turn fin dowels.
Drill 3/32 pilot holes on your marks.

Attach the turn fin with the supplied
sheet metal screws and washers.

Note that you can later fine tune the fin
with the oversized, slotted holes.

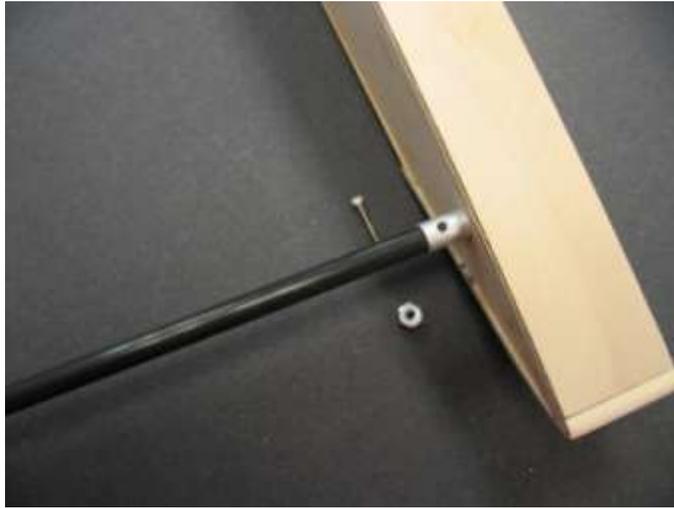
Remove the turn fin in preparation for
finishing.

Use 30 minute epoxy to attach the rear
sponsons. Be sure to use the 3/16
alignment dowels and test fit before you
glue.

Use 80 grit paper to relieve the ski foam
for lower unit clearance.
Use epoxy to seal the raw foam.

Finishing

Sand the tub and sponsons, but be sure
to leave the overhangs.
Fill any holes or imperfections with
wood filler.
Sand everything with 150.



Bolt the sponson to the boom tube. Don't over tighten.

Seal the tub and sponsons with epoxy finishing resin or West Systems epoxy. Be sure that all wood is sealed. Scrape off as much epoxy as you can. It will make sanding easier. Also seal the other side of the radio box top.

When cured, sand with 220 or scrape with a razor and recoat with epoxy. This coat will use far less resin than the first.

When this cures, wet sand the bottom of everything with 220 or scrape it smooth.

If you are painting, sand the entire boat with 220. Now is the time for primer. Wet sand the primer with 400, and use spot putty to fill any imperfections. Wet sand with 400 and lay on a heavy coat of primer. Wet sand with 600-800 and paint.

Use fuel proof paint or fuel proof clear.

Assemble the boom tubes with the tub and sponsons.

Make the boom tubes flush with the outside end on the brass sleeves in the sponsons.

When everything is looking good, drill a 1/8 hole through the brass boom tube sleeve and the boom tube. Put the supplied 4-40 screw and locknut in place. Do this for all 4 corners.

Center the sponsons in the tub.

Use boom tube clamps against the tub to keep the tubes in place.



Use a square to make 100% sure the prop is at zero angle.



Top view. Note tank position.



Engine mounted, hooked up and ready to go!

Setup

Wipe some light grease or petroleum jelly onto the inner throttle pushrod before installing it.

Use a square to set your engine mount to exactly 90 degrees. Take the time to get this right as the boat is sensitive to engine adjustments.

Bolt the engine in place.

Set the engine so that the bottom of the propshaft housing is on the bench when the boat is level on the bench.

You should make a setup board with a 1/8 inch wide slot for the engine skeg and a slot for the turn fin. Use this to get the engine depth exact.

Keep the engine level.
Turn on the radio.

Make sure that the steering trim is in the center. Place the steering servo arm so that it is 90 degrees to the pushrods. Put the servo arm screw in.

Pop the pushrod seals into the 1/4 inch holes like you would a grommet. No glue is needed with the Zipp 3516 seals.

Install the pushrods carefully through the pushrod seals and the guide holes in the aft bulkhead.

Screw on the HD ball links and pop the clevis into the servo arm. Adjust the ball links so that they can be



This is wrong! Bullet should be sitting on the board, not 1/16 above.

Zipp
Kits.com
Model Boat Kits
& Accessories

bolted onto the steering arm.

Check for correct rudder movement.

You should adjust you steering end points so that the engine does not hit the sides of the boat.

Mount your switch through the lid with a waterproof switch cover.

Make sure your prop is sharpened and balanced.

Use your setup board to check the engine depth. The bottom of the “bullet” should be on the board even with the ski.

Running

There really isn't much to it!
Always start out with a slightly rich needle setting, try different props and have fun!

The main thing is to get the boat running smoothly and turning well. After that, try different props. For a bunch of help tuning and running, go to some of the R/C boating web sites.

One of the most popular is International Waters Racing (www.intlwaters.com)

Good luck and happy boating!

Tuning and adjustments

- OS .21 engine- Use Zipp 444, Grim Racer 42x55, Octura X442 or X642 prop. Set engine as recommended, making sure the mount is 90 degrees to the cavitation plate.
- K&B 3.5 engine- Use Zipp 440, Octura X440 or Grim Racer 40x52 2 blade props. Set engine so that ski is 1/32 to 1/16 inch above setup table (bullet is 1/32 to 1/16 below ski).
- All engines- Use 80% left and 40% to 50% right steering throw.
- This hull needs very little steering when at speed and too much will cause you to over control and spin out.
- If the boat “hops”
- If the boat “darts”, raise the engine 1/16 inch.
- Use the turn fin angle to fine tune the ride:
 - If the boat runs “loose”, angle the fin bottom aft.
 - If the boat runs to “wet” angle the fin bottom forward.
- Have as much fun as possible!
- Remember; one boat is fun, two boats is a race!

Additional information

For lots of help, good advice and a look at what others are doing with their JAE boats,

Visit the International Waters Forum at www.intlwaters.com

You will have to register for this free site.

If you have any questions or issues, please contact us;

Email: support@zippkits.com

Phone: Toll Free (866) 922-9477