JAE 21GT

Competition Outrigger Hydroplane for .21 engines

This latest version of our world record holding outrigger has been optimized for heat racing by Martin Truex, Jr.

Manufactured exclusively by Zippkits in the United States

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The 21GT is the latest design of our globally dominant 21G Nitro Outrigger.

The JAE outrigger series was conceived by IMPBA Hall of Fame members Rod Geraghty and David Hall.
It was developed by Hall of fame member Ron Zaker, Jr. and Martin Truex, Jr.

This latest design was optimized for competition by Rod Geraghty and Martin Truex, Jr. (hence the “GT” designation).

The only things that have been changed from the 21G2 are the tub, sponsons, and ski…
It looks very similar, but this is an entirely new boat.

We have made great strides in functional design and manufacturing. We made this kit as easy to build as we can, and added features to help insure a straight and square boat.

The recommended build and setup was determined after building and testing several models.

Team member Mike Walker was one of the first to test the new 21GT, and I think it scared him a little…

Build it the way we show, and set it up like we say, and you will have a great running boat “right off the board” as they say.

The JAE 21GT has no bad habits, and as long as you don’t ask it to do something it was not designed to do (sharp left turns, etc.), it absolutely will not do anything stupid. Ever.

This is a boat that you can trust and enjoy.

Thanks you very much for buying this kit, and remember that this is a HOBBY.

Have fun. If we can help you to that end, please contact us.

Tools and Materials needed to build

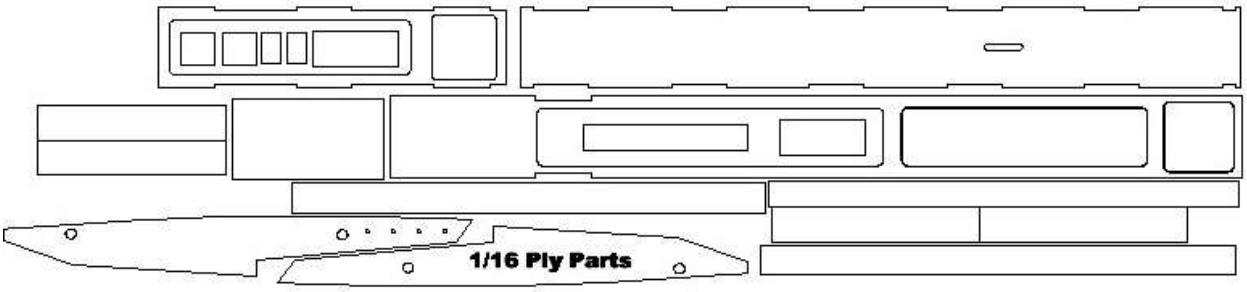
- ✓ Sanding blocks with 80 and 150 grit paper
- ✓ 220 and 400 grit wet or dry sandpaper
- ✓ Drill with bits
- ✓ Square
- ✓ Flat file
- ✓ FLAT Workbench
- ✓ Titebond III wood glue
- ✓ Good quality 5 and 30 minute epoxy
- ✓ Epoxy finishing resin or automotive clear coat
- ✓ Spring clamps, paper clamps, c clamps, etc.
- ✓ Razor blade or X-Acto knife
- ✓ Masking tape
- ✓ Waxed paper
- ✓ Wood filler
- ✓ Primer
- ✓ Paint

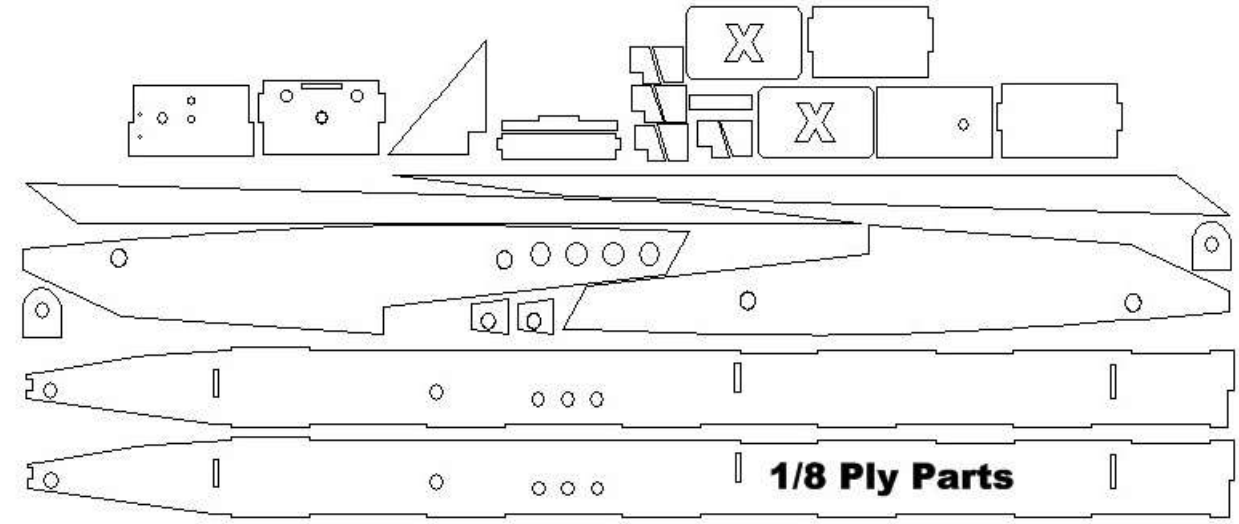
REQUIRED TO COMPLETE

- 3.3 to 4.0 cc air or water cooled Nitro engine
- .187 Collet and flywheel for engine
- Starting belt (Zipp 3549 17 inch)
- .187 24 inch cable w/welded 3/16 stub shaft (Zipp 3502)
- Header to fit engine
- Tuned pipe (Zipp 2102)
- 2 channel surface radio with 2-3 servos
- Throttle and rudder pushrods (.032 and .055) with "Z" bends
- 4 pushrod seals (Zipp 3702)
- 8 ounce Fuel Tank (Sullivan SS-8) (Zipp 3473)
- .187 strut (Zipp 3495)
- .187 drive dog (Zipp 3485)
- 1450 Mod prop (Zipp 4008)
- Prop nuts (Zipp 3489)
- Engine Mounts (Zipp 3555)
- Cable grease (Zipp 3532)
- Rudder (Zipp 3483)
- 18 inch length of 1/4 brass tubing (pre-bent shaft tube available)

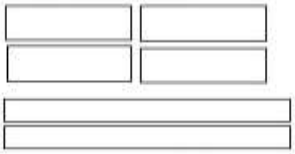
Note that we have an Ultimate Hardware set available for the 21GT.
It includes everything you need to complete your boat, less engine and radio.

Kit Contents



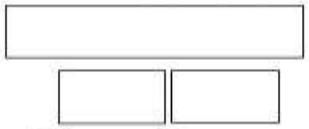


1/2 Wood Dowel

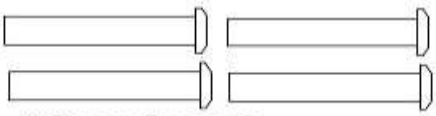


Brass Tub Sleeves

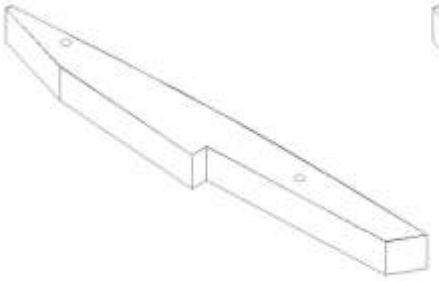
Pine Tub Nose



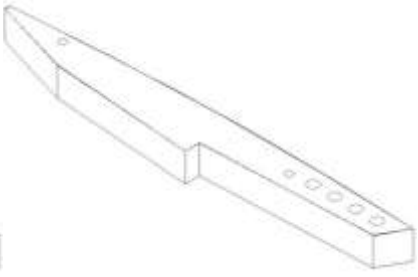
Pine Sponson Nose



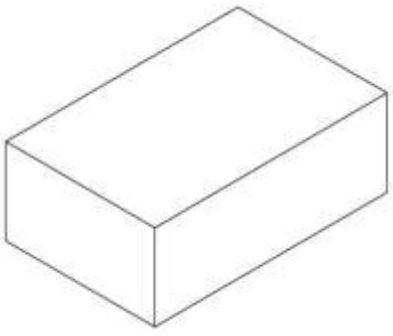
Aluminum Sponson Sleeves



Left sponson foam



Right sponson foam



Nose foam

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.

Take the time to read this entire manual, so that you are familiar with all the building 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.

A few words about glue:

When we build factory boats, we use the following:
We use and recommend Titebond III for general wood to wood construction. You can buy it almost anywhere.
Titebond will only work on raw wood. It will not work on wood that has been sealed.
We use 5 and 30 minute epoxy for all other applications, especially non-wood joints (wood to foam, etc.).

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.

Let’s get started.

Tub

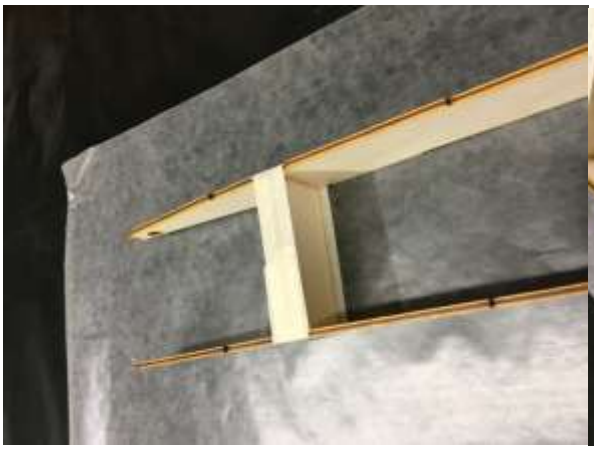
We will need the following parts:

Tub sides
Bulkhead 1 (BH1)
Bulkhead 2 (BH2)
Bulkhead 3 (BH3)
Transom (T)
Transom Doubler (TD)
Rudder Doubler (RD)
Nose Doubler (NOSE)
Lid brace (L)
Tub Bottom
FWD bottom (FWD)

Glue the lid brace to the slot in Bulkhead 2. Clamp in place.

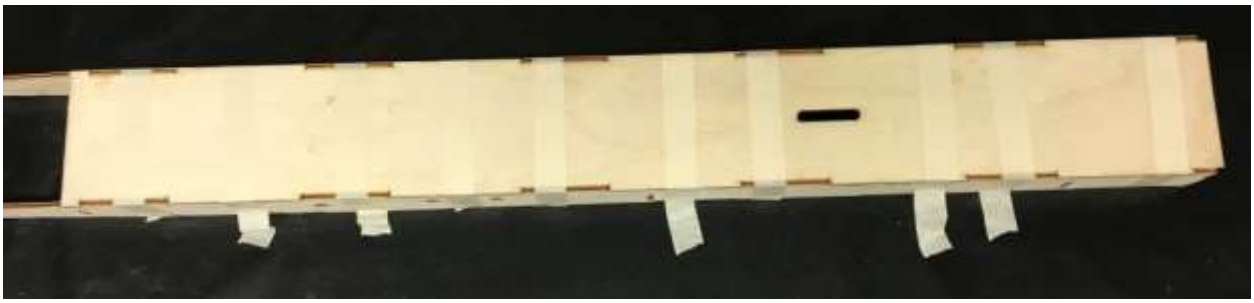
Glue bulkheads 1 thru 3 in place on one tub side. The lid brace should face the rear.
Glue the other tub side to the bulkheads.
Make sure that the tub sides are glued correctly, and that no bulkheads overhang the sides.






Tightly tape around the tub at each bulkhead.
Add the nose doubler and tape in place.
Allow to cure for no more than 30 minutes!

After 20-30 minutes, carefully remove the tape and glue in the tub bottom.



Test fit the tub bottom. It should fit in all slots, and not have any gaps. There is an overhang on the rear. Do not sand this off! This is the finished length of the bottom.

If all is well, glue the tub to the bottom. We like to use a jig to help keep everything straight, but if you just use a square, and make sure that the sides don't bow in or out, you will be fine.

Glue the transom to the tub and bottom. Wipe away any excess glue at the rear overhang. Glue in the Transom Doubler. Clamp these in place. Glue in the rudder doubler (RD) on the right side.

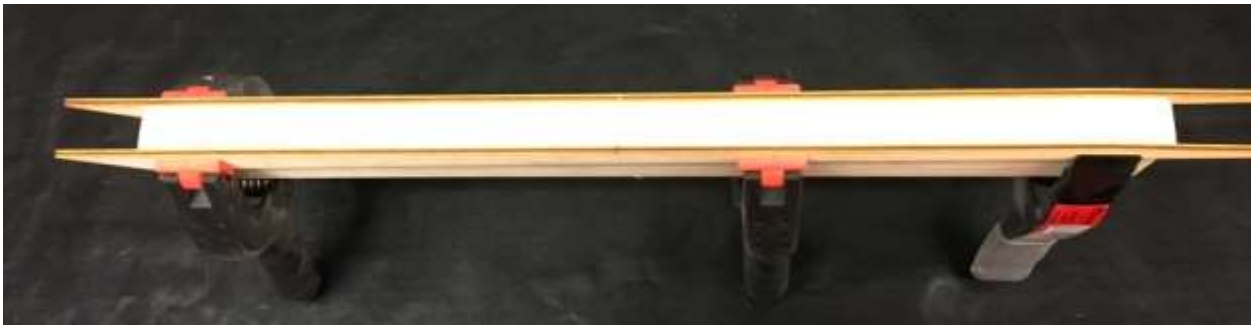
We provide two temporary sub-bulkheads (X) to use as spacers when gluing the top and bottom to the tub. Use these, even if you use a jig, as they help prevent bowing of the sides.

Weight the tub so that the bottom stays in contact while the glue cures.

Ski

Clamp the ski sides to a straight piece of 1x lumber (3/4 inch thick). Cover the board with waxed paper.

Make sure that the sides are aligned length and height wise. Double check this before gluing the ski bottom on.



Begin by gluing the aft (long) ski bottom in place. This sheeting stops at the front, where the angle changes. All excess overhang should be at the rear.

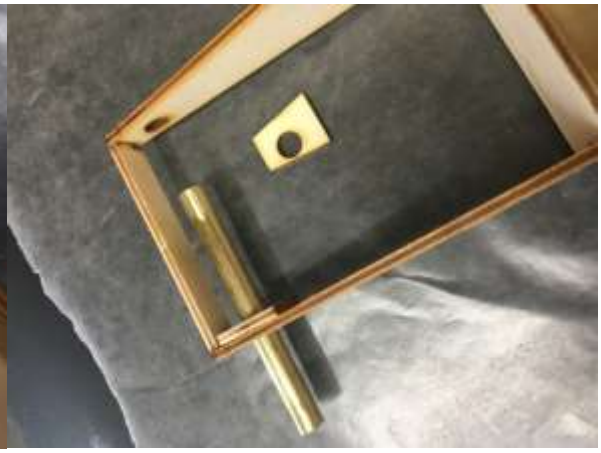
When cured, sand the bottom sheeting to a bevel, matching the angle of the front. This will create a rear “step” that is one of the hallmarks of a record setting JAE design. This feature will be used in several places on this boat, but the process and objective are all the same.

Glue on the forward (short) ski bottom. Cover the bevel that you sanded, and let any overhang extend to the front. DO NOT sand any of the “step” leave it square and sharp.

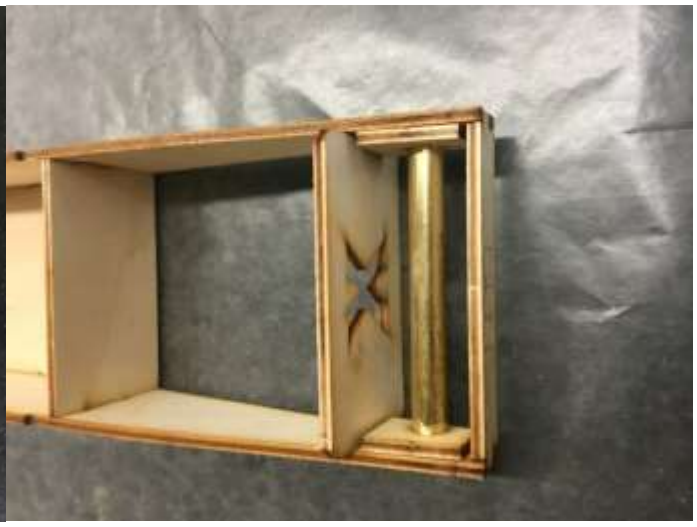
When cured, sand the rear to match the rear angle. Sand the front overhang so that the ski will sit flat, and the front of the sheeting should be sanded paper thin, to avoid a bump where the ski begins.

Back to the tub

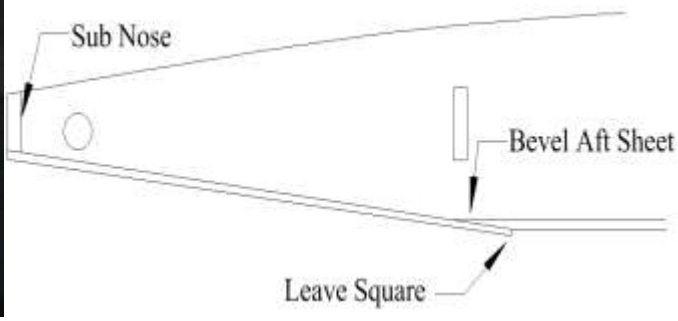
When cured, flip the tub upright again and glue in the boom tube doublers, along with the brass sleeves. Forward doublers (FD) and aft doublers (AD)
Use 30 minute epoxy for this. The rounded doublers are for the rear tubes.



Sand the ends of the brass sleeves with 80 grit, and test fit everything before gluing. Use the temporary bulkheads (X).
Make sure the tub is on a flat surface, and put some weight on the tub until cured.

When cured, trim the white foam nose block to fit in the nose. Only the boom doubler area needs to be trimmed for the foam to fit.
When happy, glue in place with epoxy. Leave equal foam protruding from the top and bottom.
When cured, sand the foam flush on both top and bottom.

Sand a bevel at the front of the bottom sheet.
This bevel matches the angle of the front sides. Exactly like you did the ski.

Glue the forward bottom (FWD) sheet in place, covering your bevel and extending any overhang to the front.
Tightly tape in place.

Servo Mounts

Laminate the servo mounts (T) and (M) for the throttle and mixture servos.
Out of the 8 pieces, make 4 mounts.

Sealing

Once the bottom has cured, seal the inside of the tub. Also seal the bottom side of the lid frame and deck. You can use epoxy finishing resin, 30 minute epoxy or any epoxy compatible sealer.

We like to use automotive clear coat, brushed on. Be sure to mix the hardener correctly.
We don't thin the clear for brushing.

Try not to get any sealer on the top of the tub, or in the slots for the deck. You will just have to sand it all off later. Use a rag to wipe any sealer off the top of the tub.

If you have any sealer left over, use it to seal the servo mounts and the inside of the ski.

Once the sealer is completely cured (overnight), use a razor blade or utility knife blade to scrape the sealer so that it is smooth, and there are no runs or bumps.

Repeat the process so that everything except the deck and lid frame has two coats of sealer. This is important, as one coat is not enough to be 100% water proof. The lid frame and deck will get their second coat of sealer during installation.

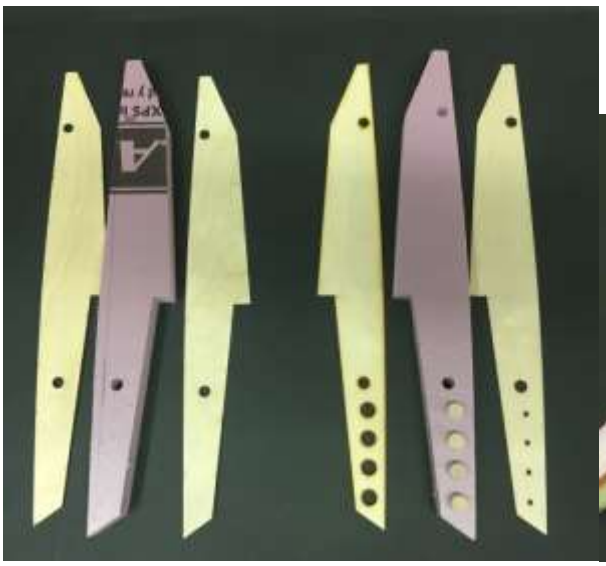
Sponsons

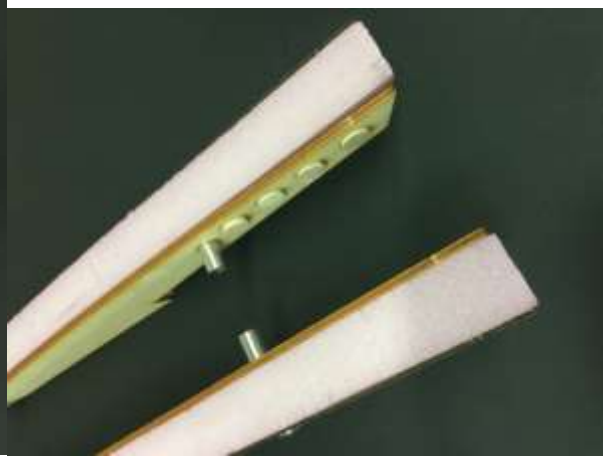
Let’s move on to the sponsons while the sealer is curing.

Lay out all of the sponson parts, and make sure that you understand the assembly order before you start. Epoxy is impossible to remove from foam…

The foam sponsons are sandwiched between ply plates, and sheeted with thin ply.
IMPORTANT The sponson plates are different thickness.
The 1/8 ply plates go INSIDE and the 1/16 ply plates go OUTSIDE.

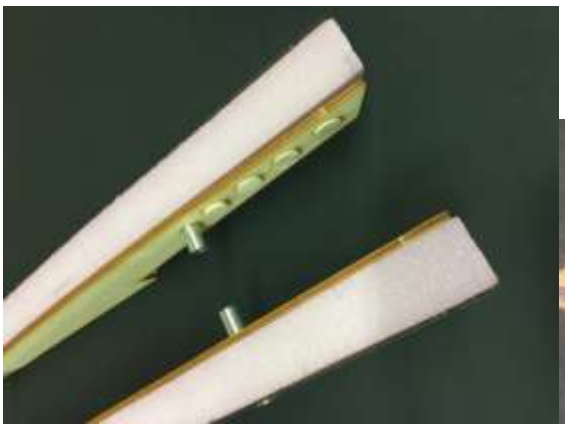
Be sure to make a right and left sponson as shown.

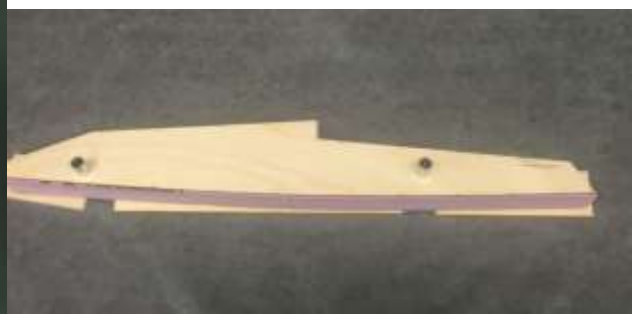




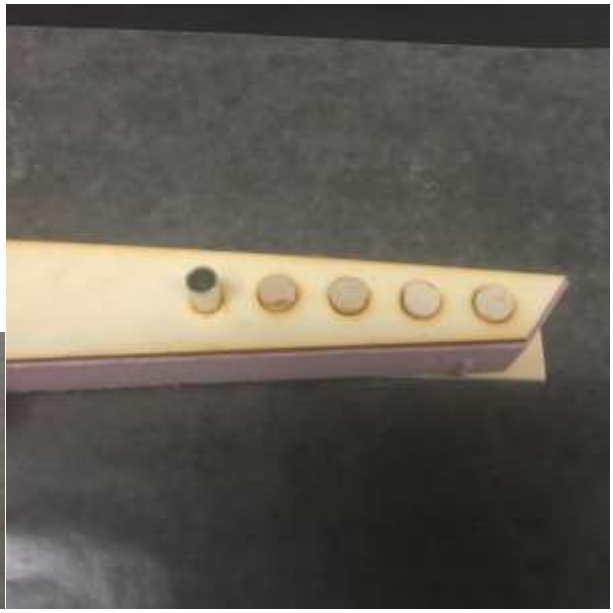
Stuff pieces of paper towel into all 4 aluminum sponson sleeves. This keeps glue out.

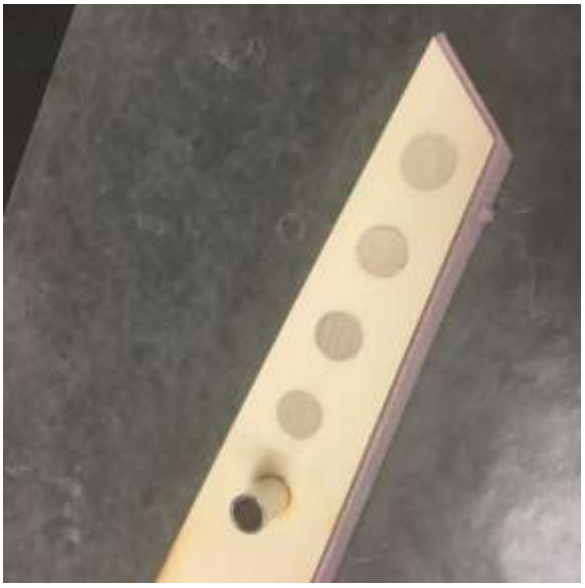
Using 30 minute epoxy, laminate the left sponson plates to the foam. Lay the 1/16 ply plate on the bench, glue the LH foam sponson core to it, then glue the 1/8 ply plate to the core. Work quickly.
Glue in both aluminum sponson sleeves as well.





Wipe away any excess epoxy, and orient the sleeves so that the “Z” is correct.
Pick out the paper towels from the sleeves before the epoxy cures.



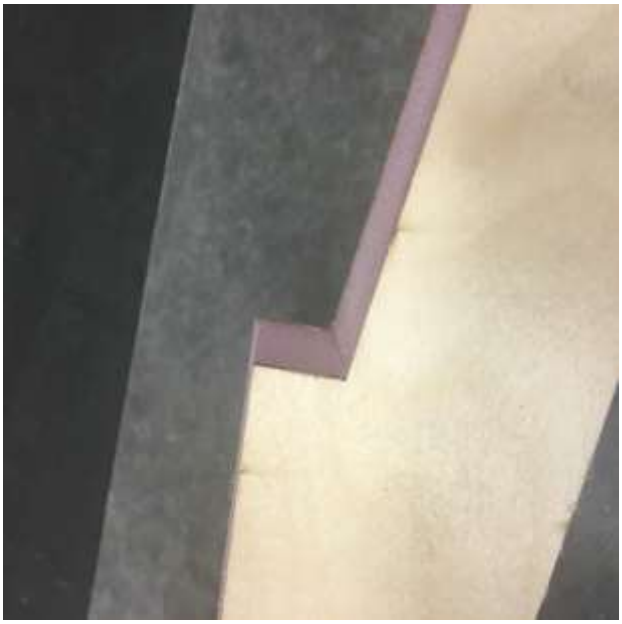


Space the sponson off the bench with some scrap 1/8 ply, and add weight until cured.
Repeat for the RH sponson, and add the 4 wood dowels as well.

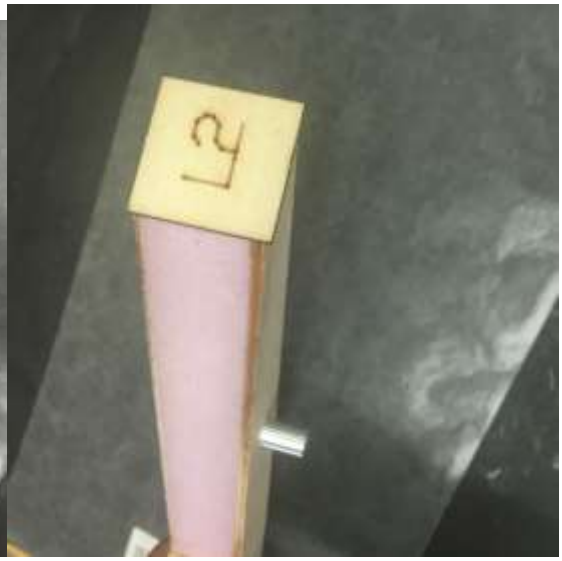
Allow to cure.

Sand the foam flush with the ply plates. Be sure that you sand a sharp inside corner at the back of the ride surface. This is needed so that the 1/16 sheeting fits at a 90 degree angle.

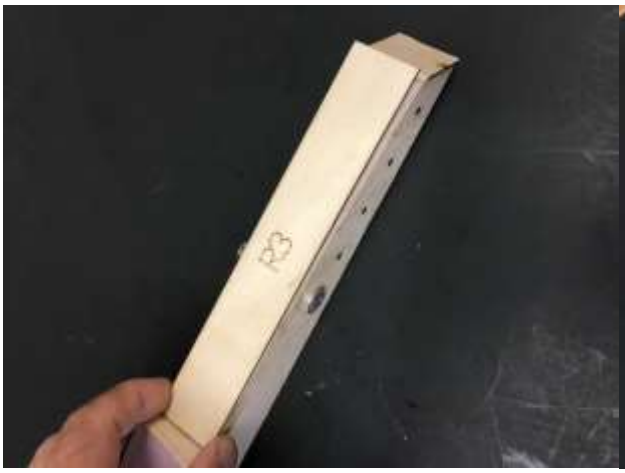
See picture.



Begin sheeting with epoxy in the following order:
1 and 2. Tape in place and allow to cure. You can use 5 minute epoxy here.
Do both right and left.

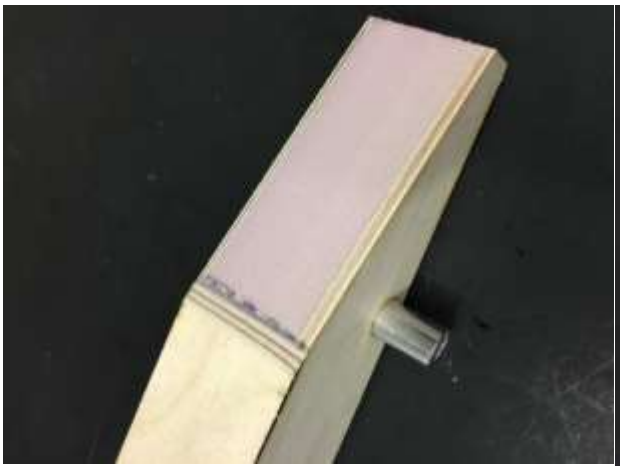
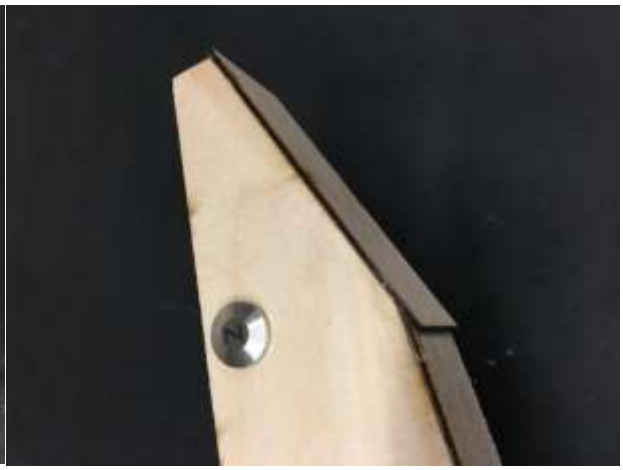


When cured, sand 1 and 2 flush. Be careful not to tear them from the foam.



Glue 3, 4 and 6 in place.
Do both right and left.

When cured, sand the front of 4 flush, and glue 5 in place. Leave an overhang just like you did before.

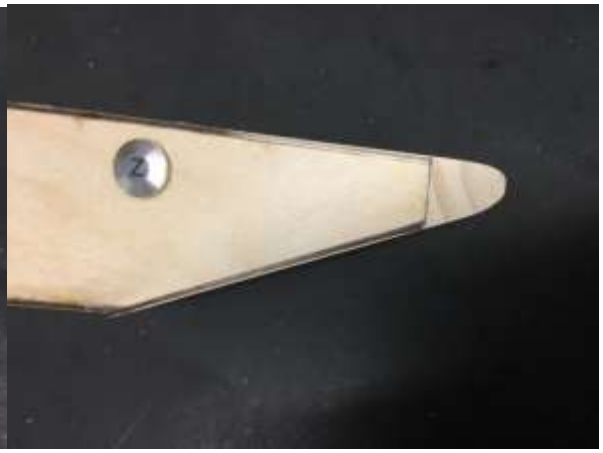
Sand the front of the sponson until all sheeting is flush. Using epoxy, glue on the pine nose block and tape until cured.

If you have not done so, do the other sponson.

When cured, sand both sponsons so that the sheeting is flush on both sides, but maintain the rear overhangs. R4 and L4 should overhang about 1/16 inch.

The sponsons have two rear overhangs: At the back of 5 and 4.

Sand everything else sharp and flush.Sand the pine noses to a pleasing shape.



Deck

The sealed deck needs to be smooth so that when glued to the tub, it forms a seal that is strong and watertight.

Scrape the tops of the bulkheads and slots in the tub.

Test fit the lid frame (sealed side down). If all is okay, get some tape, weights and a piece of waxed paper ready.

Mix up some 30 minute epoxy and coat the bottom of the lid frame (this will be its second coat of sealer), as well as the slots in the tub and all around the inside edge of the tub.

Put the lid frame in place and tape tightly over the transom and bulkheads only.
Flip the tub upside down onto the waxed paper and place weights on the tub.

Look all around and be sure that the lid frame is in complete contact, and fully seated in all slots.
Allow to cure for at least 3 hours.

When the lid frame is cured, we can move on to the deck. This will be done in much the same way.

Be sure to test fit the deck before actually gluing.

Use the provided sub-bulkheads (X) to brace the tub if needed. These prevent the tub from bowing inward during deck installation.

Mix up some 30 minute epoxy as before, and apply a (second) coat to the deck, bulkheads and top of the tub sides.

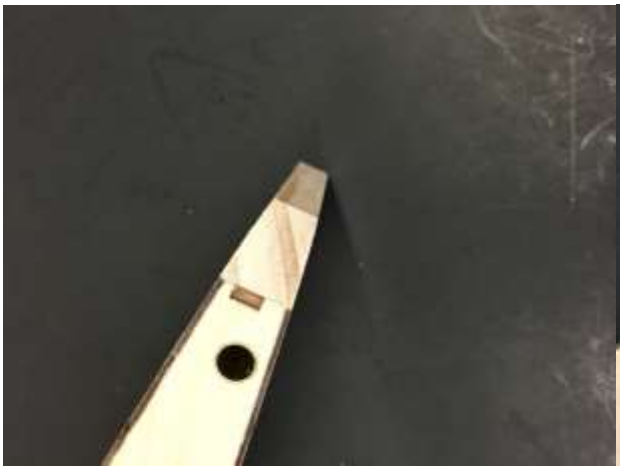
Put the deck in place, and lay waxed paper over it. Use heavy weight (tool box, cinder block, etc.) to hold the deck in place.
Tape the front end down tightly.

Wipe away any excess epoxy and look all around to make sure that the deck is in complete contact all the way around.

When cured, flip the tub over and look at the deck to tub joint. It should be perfectly flush and sealed all the way around.

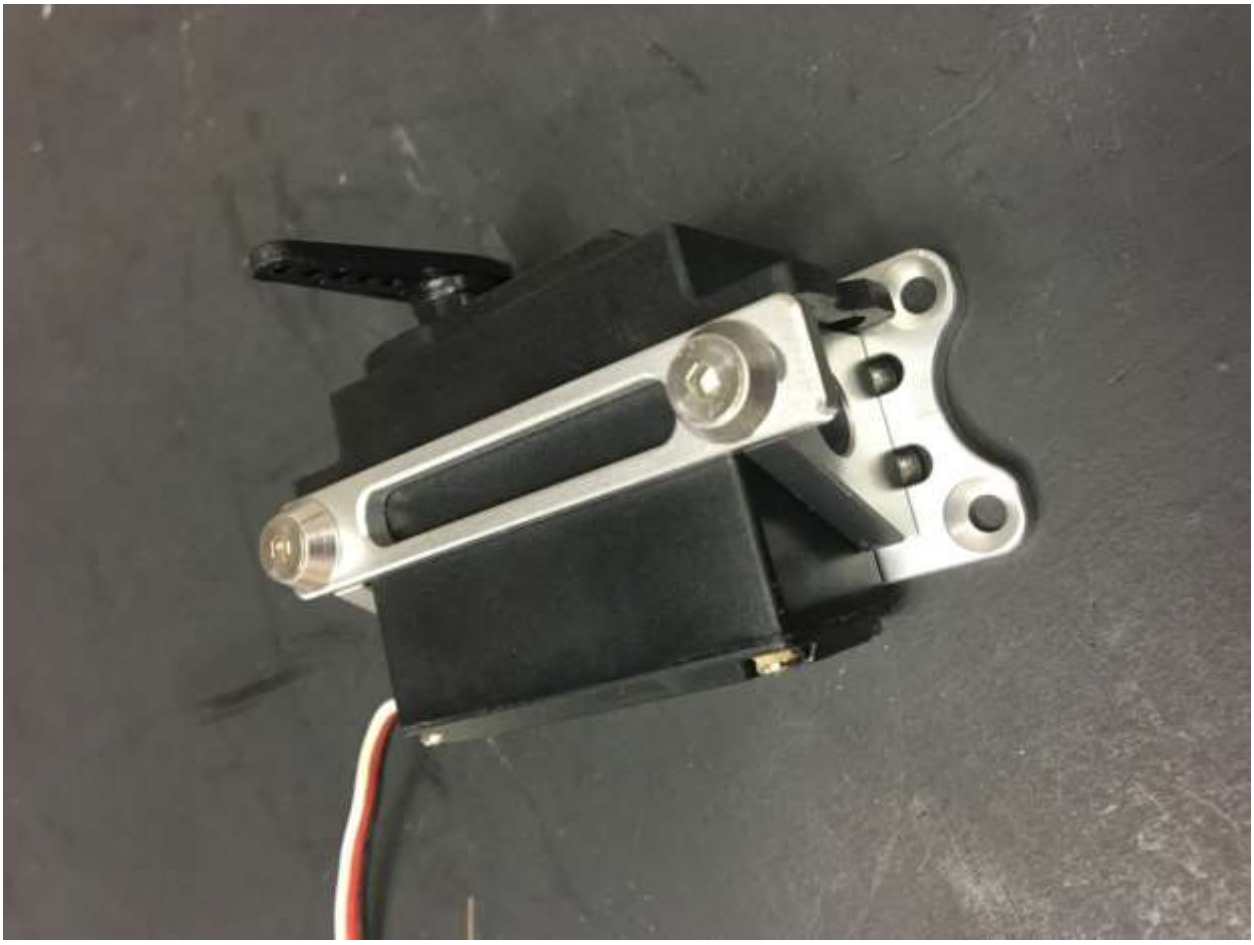
Sand the front of the tub flush, and glue the pine nose block in place. Use tape to secure.


When cured, sand the block flush with the top and bottom, then round off.



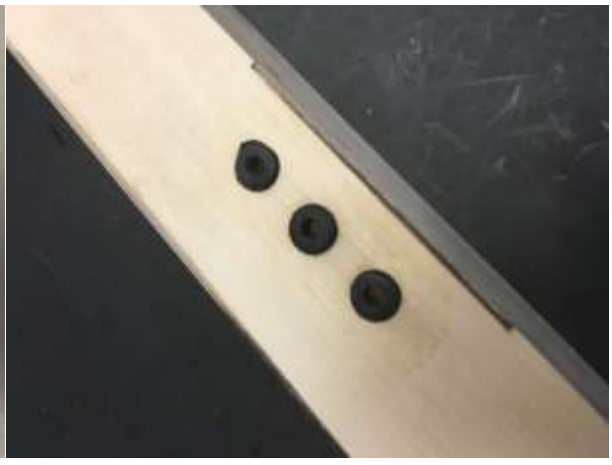

Rudder Servo

Assemble the aluminum servo mount and adjust for your servo. When happy, use thread locker on each of the 4 bottom screws. Do this one at a time.
Sand the bottom of the aluminum servo mount with coarse (80) grit sand paper so that the epoxy will grip.



Engine

Bolt the 6 aluminum spacers to the Delrin motor mounts as shown.

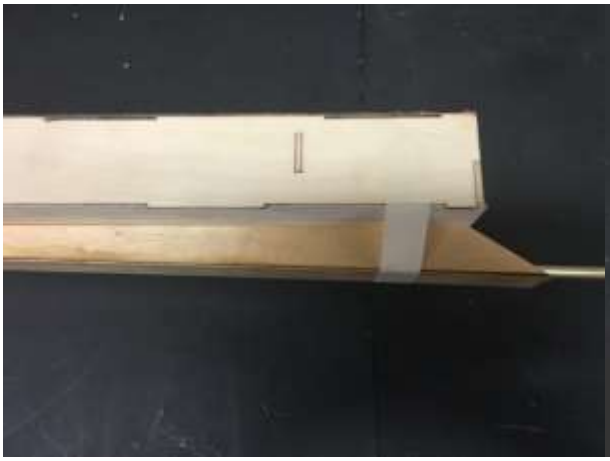


Install the 6 rubber grommets into the holes in the tub. Use a round file to clean up these holes if needed.


Slip the mounts into the holes, and bolt your engine in place.

Shaft tube

Bend the shaft tube in an “S” shape as shown, or purchase a pre-bent tube (included in the Ultimate Hardware set).




Put the shaft tube in, and tape the ski in place. The ski should be centered side to side, and the rear should be even with the transom.

The shaft tube should protrude into the engine compartment, and have a lot of excess at the rear. Do not cut the rear of the tube, as it must slip into, and be flush with the back of the strut.

The shaft tube should end about ¼ inch from the engine collet.

The ski should fit without hitting the shaft tube, if not; adjust the tube until it does not.
Once you are happy with the shaft tube mark the locations of the bulkhead and tub bottom on the tube.

Remove the ski and tube.
Sand the tube in the areas you marked. Use 80 grit.

Re-install the shaft tube and tape around the bottom hole with clear packing tape. Tape the ski back in place.

Glue the shaft tube in place with 30 minute epoxy. Glue the tube at the bulkhead, as well as the bottom.

Allow to cure.

Assembly

Finish drilling the holes for the strut and rudder in the transom.
The rudder screw holes should be drilled with a 1/16 bit, and the strut bolt holes should use a 3/16 bit.

Bolt the rudder in place, using the supplied #4 sheet metal screws.

Make sure that the rudder is 90 degrees to the bottom of the tub.

Bolt the strut bracket to the transom.

Slip the strut onto the brass shaft tube and make the strut about level with the bottom of the boat, and sitting on the ski. Mark the end of the strut on the tube.

Remove the strut and cut the brass tube about 1/16-1/8 inch shorter than your mark.

Do not glue the pushrod seal aluminum rings in place yet, but you can test fit it.

Put the “Z” bend onto the servo arm. Use the hole closest to the center of the servo. You may need to open up the hole in the servo arm. Be careful not to create any slop.

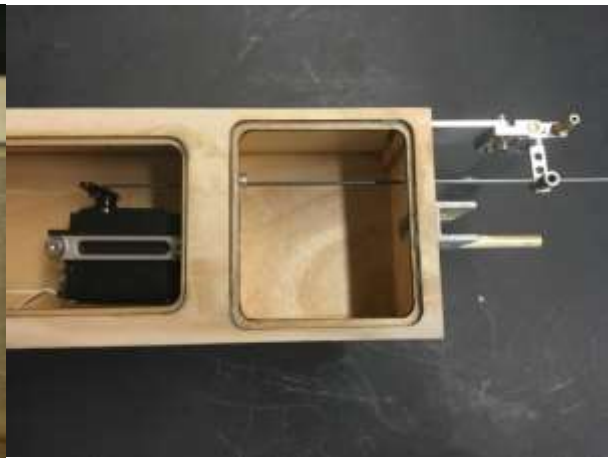
Place the servo into the servo mount (without the top strap) and put it in the tub, guiding the pushrod through the hole in the transom. Cut the pushrod so that it is about an inch longer than it needs to be.

Slip the pushrod into the swivel connector (on the rudder). The servo should end up as far back as you can get it, but still be able to get to the strap screws on top. Try to center the pushrod in the transom hole.

Mark the location of the servo mount. Remove the servo mount and scrape or sand the tub floor. Remove the servo from the mount.

Use 30 minute epoxy to glue the servo mount in place. Align the mount to your marks.

Allow to cure, but keep checking to be sure that nothing has moved.



Throttle Servo

The throttle and mixture servos are mounted the same way. They are mirror images of each other, and get mounted on each side of the shaft tube, in the front area of the radio compartment.

Set the throttle servo onto the “T” mounts as shown. The servo should not touch the bench.

Pre-drill servo screw holes with a 1/16 bit, or the mounts will split.
Mount the throttle servo and tighten the screws. Run a sanding block on the bottom of the mounts to be sure that they are flat.

Determine which side your throttle is on, and knock out the plug for the pushrod seal ring.

Clean the hole with a round file if needed. Push in the aluminum seal ring, but do not glue in place yet.

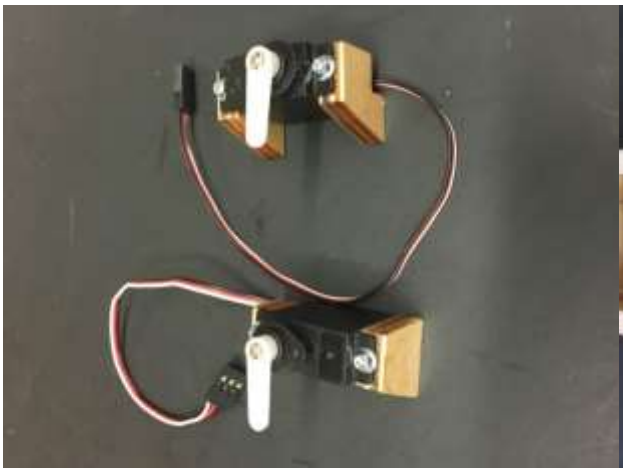
We recommend 1/32 music wire for throttle and mixture servos (9 inches long).

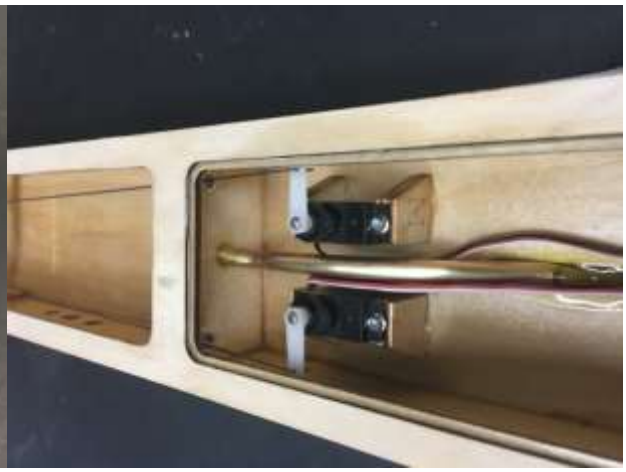
Use a “Z” bend at the throttle servo and an “EZ” connector on the throttle arm.

Scrape or sand the tub floor for gluing.

Align the servo so that the pushrod is in the center of the hole, and glue the mount in place with 30 minute epoxy. Be sure to mount the servo forward and to the side, but leave room to access the servo screws.

Repeat for the onboard mixture control servo if used.





Sealing

Remove everything and sand the entire boat, including the tub, ski and sponsons.

Finish sanding with 220 grit and use wood filler to fix any gaps or imperfections.
Use the lightest color filler you can find.

The outside needs at least two coats of epoxy finishing resin or catalyzed clear coat.

Allow each coat to fully cure before adding the next.

Scrape or sand between coats

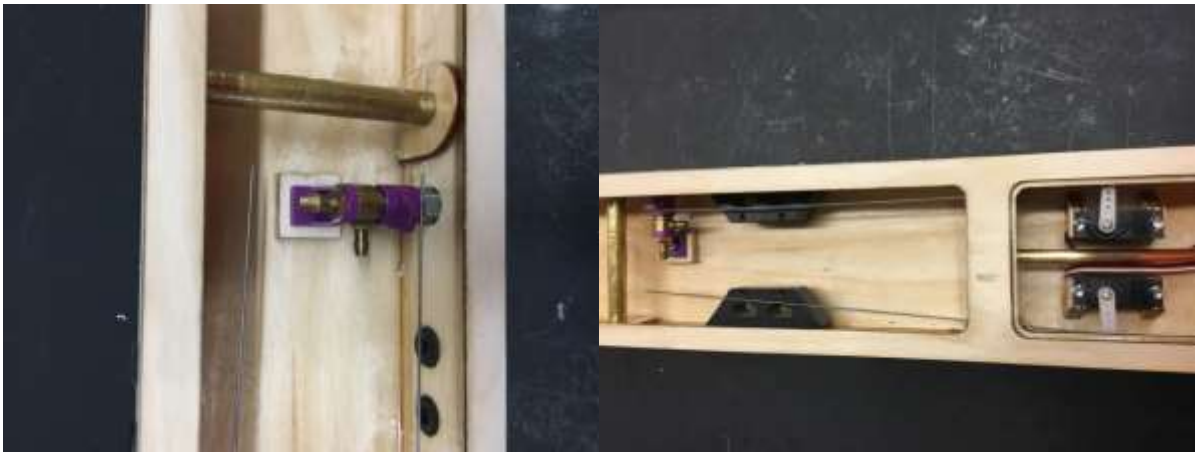
At this point, the boat can be run without any more finish.

Sand the bottom of all running surfaces with 320 wet sandpaper **WITH A BLOCK.**
This will add a few mph. Only sand until the surface is smooth. It doesn't take much.

If you desire to paint any part of your boat, now is the time to start primer and paint.
You must seal the tub with a catalyzed clear if painted, as nitro fuel will attack almost any other finish.

On Board Mixture

If using a 3rd channel for onboard mixture control, mount the onboard needle just in front of the engine.
The style of your needle will determine how to mount it.



Turn Fin

Sharpen the turn fin on the outside (RH side) only. The bevel should be as wide as you can get it. You should not be able to feel any transition from sharpened.
A perfect turn fin would have zero thickness at the leading edge, tapered to full thickness at the trailing edge. This is not really possible, so make the transition as gentle as possible. We like the leading edge to be about .020 inch or so. Any thinner and the 7075 aluminum starts to get too thin.

Mark the center of the dowels on the inside of the RH sponson. Try to keep them close to the center of the dowels.

Use a drill press if possible with a 5/32 bit, and drill halfway from one side, flip the sponson over, and finish drilling from the other side.

Bolt the fin in place with the (4) 6/32x1-3/4 socket head screws, washers and nuts. The nuts should be inside.

The fin should be fully adjustable for angle. Set it parallel with the sponson top and tighten the screws.

Radio

Glue in all of the aluminum pushrod seal rings.

Install engine mount grommets and engine

Install servos.

Push the rubber pushrod seals onto the aluminum rings and install all pushrods.

Center your transmitter steering trim and install rudder servo arm. Do the same with mixture servo if installed.

Hold full throttle and put the throttle servo arm in place. Tighten the EZ connector. Release the throttle and adjust it so that you get full opening, full closing when pushed forward, and about ¼ open at idle.

Be sure to install all servo arm screws.

Final assembly

Measure and mark the tub bottom so that the ski can be mounted in the center. The rear of the ski should be even with the transom. It will be 1/16 inch forward of the rear bottom.
Using epoxy, glue the rear ski in place. Tape until cured.

Tuned Pipe

Install header and pipe. Adjust your pipe as follows:
High performance engine with high exhaust timing- 8-1/2 inches
Regular engine with low timing- 9-1/2 inches.

Measure from the glow plug, around the centerline of the header and pipe, to the maximum pipe diameter. If your pipe has a flat band (straight section), ignore it and measure to the rear of it.

These are starting points, and will need adjustment.

You may need to cut your header and pipe to get these measurements. Don’t allow the pipe and header to touch. Keep a small gap.

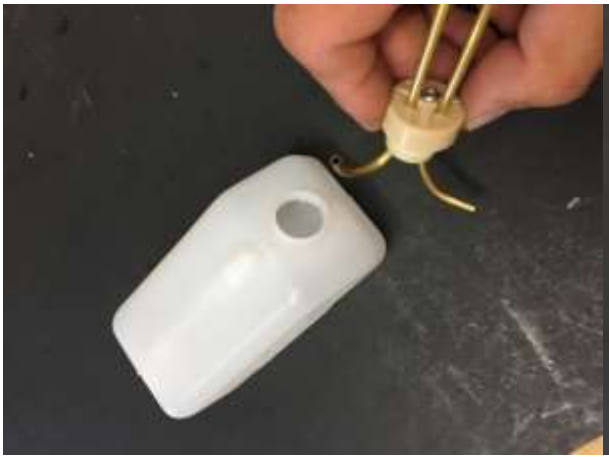
Mount the pipe to the tub with our 3542 Pipe Mount.
Hold the pipe mount against the tub, and mark the position of the mounting screw.


Drill a 5/32 hole and mount the 4-40 blind nut. Keep this hole in the engine compartment if possible, not in the radio box.

Attach the pipe clamp to the pipe, and bolt it to the mount.
Finally, attach the mount to the tub with the 4-40 screw, lock washer and flat washer.

Fuel Tank

Plumb your tank so that the feed is in the lower left corner, and the vent is in the little vent bubble at the top of the tank.




Water Cooling

Attach the silicone water line from the rudder to the head. We usually restrict the water flow coming out of the head with a .050 inch restriction.

When in use, simply use a piece of radio box tape to hold the water line to the side of the boat.

Sponsons

Check both carbon boom tubes. You want one to be about 1/8 inch shorter than the other. The short boom tube will be the front.

Slide the carbon boom tubes into the brass tubes in the tub. Slip an aluminum boom tube collar onto each one, and place against the tub.

Slide both sponsons onto the boom tubes.

Drill a 1/8 hole through each aluminum sponson sleeve, through the carbon, and out the bottom. Use a fast RPM and light pressure.

Secure with a 4-40 screw and nut. Repeat for other sponson sleeves.
Be sure that the tubes are bottomed in the sponson sleeves.

Center the sponsons on the tub, and toe in the RH sponson.
The LH sponson should be the same distance, front and rear, from the tub.
The RH sponson should be 1/8 to ¼ inch closer at the front, for toe in.

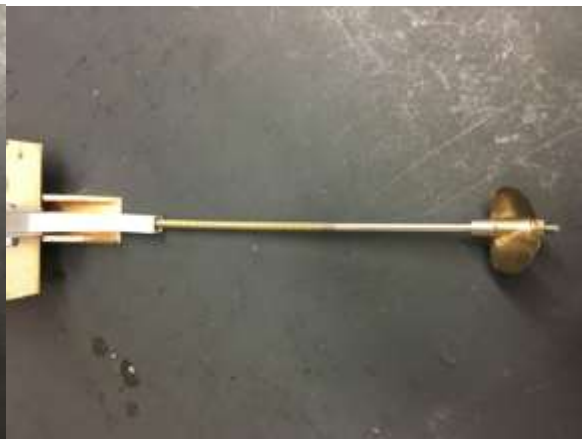
Tighten the boom tube collars against the tub.

Flex Shaft

Cut the 3/16 flex shaft as follows:

Slide the drive dog onto the shaft, then the prop. Leave about ½ inch of thread past the prop. Tighten the set screw so that it makes an impression in the stub shaft.

Remove everything and grind a flat spot on the mark made by the set screw. This slit should be at least 1/16 inch deep.



Reinstall the drive dog and use blue thread lock on it. Be sure that it is seated in the flat spot.

Dress the cut end of the cable if needed, so that you can slide it into the shaft tube and into the collet.

Be sure that it is fully seated in the collet.

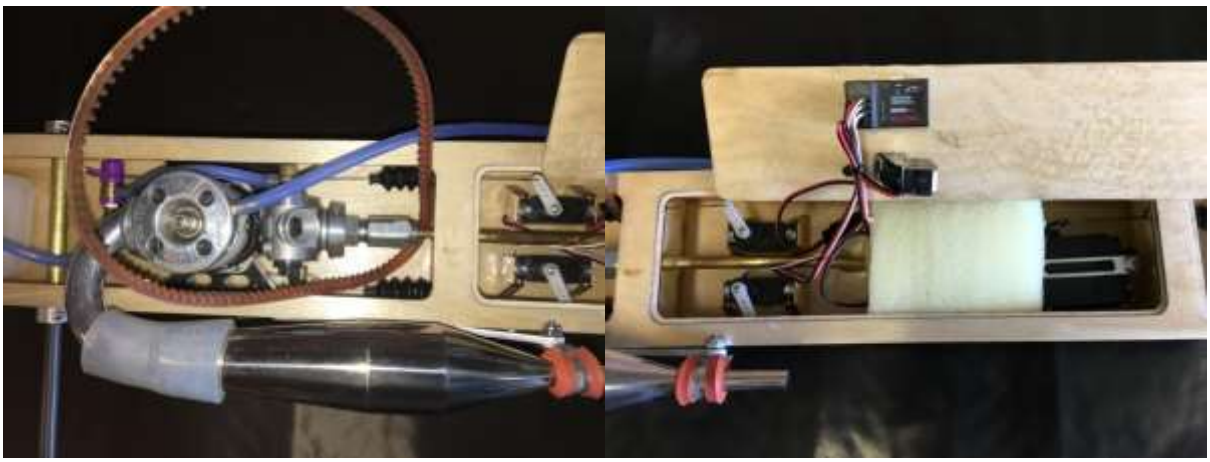
Measure the distance between the back of the strut and the drive dog. Subtract ¼ inch from your measurement. This is how much to cut off the end of the flex cable.
You want to end up with a ¼ inch gap between the strut and drive dog when the shaft is fully seated in the engine collet.

We wrap a little masking tape around the shaft, then mark the exact amount to be cut. Measure twice, double check then cut. Use a cut off wheel. Dress the end of the cable when done. Install the 10-32 locking prop nut.

Check the fit of the brass shaft bushing in the strut (with shaft tube inside). The bushing slips inside of the ¼ inch OD brass shaft tube.
This should be a nice fit, and you should be able to spin it.

Slip a 15 or 17 inch starting belt in place.

Grease the flex shaft fully, including the stub shaft and bushing.
Slip this back into the shaft tube, fully seat into the engine collet and securely tighten the collet.



Setup

Depending on what engine you choose, your pipe length will differ. Always start long, and work your way in.
For most modern high performance 21 engines, start at about 8-1/2 inches. This is measured from the glow plug, around the bend of the header, to the rear most point of the maximum diameter of the pipe.

Use our Mod 1450 prop. Make sure the prop is very sharp and well balanced.

Important- This boat must not have excessive rudder throw. Use no more than 3/8 inch of movement each way. You will likely reduce the throw substantially more, but run it first.
All of the JAE hydros are hyper sensitive to rudder movement. It is no fun driving a boat that is too sensitive.

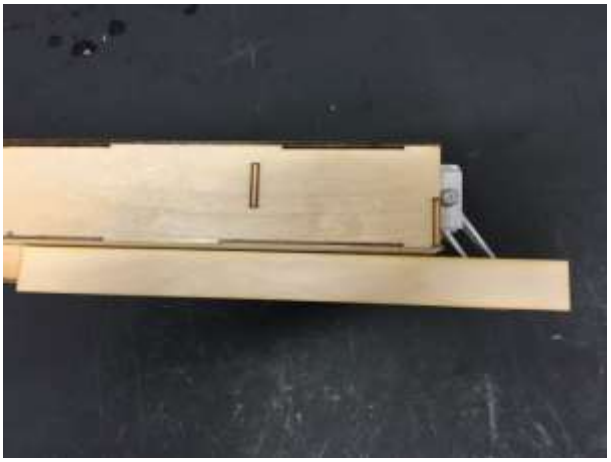
Too much rudder throw will flip this boat. You don't want to flip anything at 70+mph…

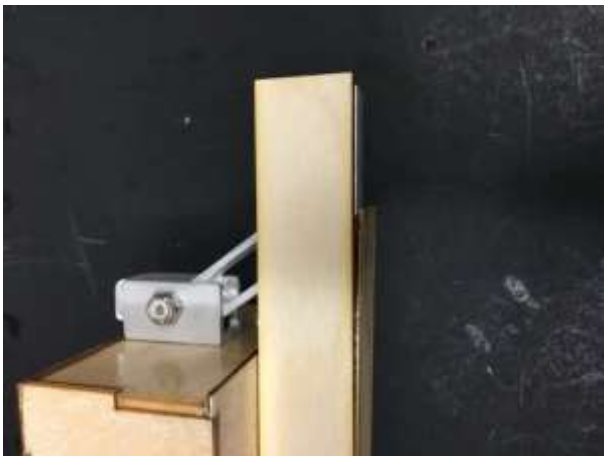
Make sure that none of the servos are in a stalled condition, especially at the extremes of their throw. Best to turn down your end points, and turn them up just enough to get the desired throw.

Stalled digital servos will kill a battery in a few minutes, and may damage themselves and the receiver. Things are different than in the old days with analog servos. Stall currents can exceed 10 amps easily today.

Make sure that the strut is sitting on the ski, and is perfectly parallel with the bottom of the boat.

Use the included strut gauge (STRUT). The bottom of the strut should be parallel with the tub bottom.





Check the right sponson for 1/8-1/4 inch toe in. Toe out on the LH sponson is not a bad thing.

Running

Launch the boat at ½ throttle or above. Always launch at a slightly rich setting and lean slightly.

The strut should never need adjustment.

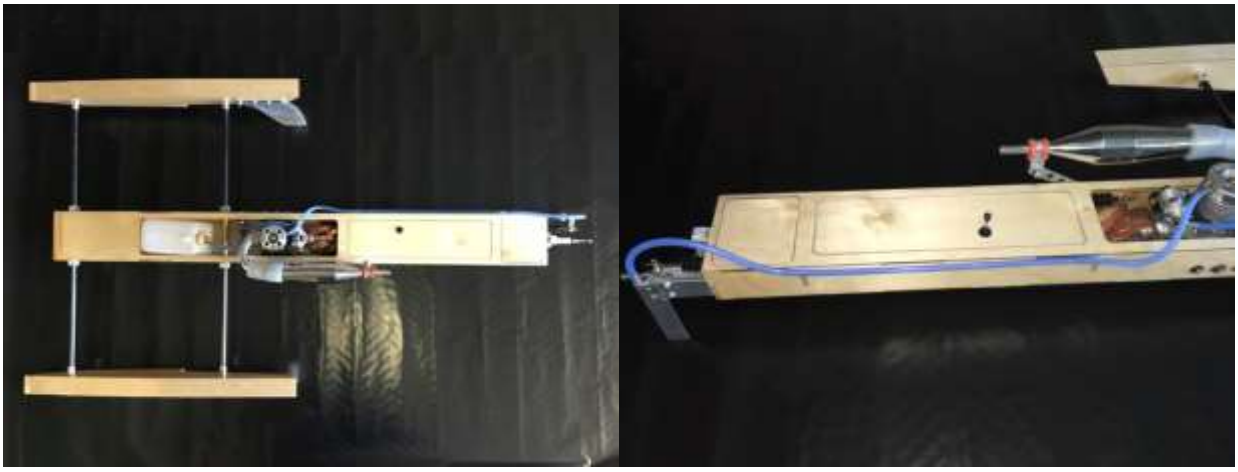
Tune with prop and pipe.

Tips:

Fin adjustment:
Move the bottom of the fin forward to loosen the ride of the boat.
Move the bottom of the fin back to tighten the boats ride.
You will know when the fin is too far forward when one of the sponsons lifts in a turn. Move the fin back until this stops. This is the preferred fin position.

Fuel:
The boat will generally only run about 8 laps with an 8 ounce tank. If you like to go out early on the clock, you are gonna need more fuel. There is some room in front of the engine for a hopper tank, but you will have to engineer something yourself.
Make sure that the vent from the main tank is the feed in the hopper tank.
This way, the main tank is emptied first.
The alternative is one of the excellent custom tanks by Walt Barney at Tanks 2 U.

One point of advice:
There is a lot of information out there. If you need help, contact us. We know whatever you need to know.
If you take advice from someone that does not own a great running JAE boat, consider the value of that advice.



Please send us pictures of your completed 21GT. We really like pics of the boat sitting in the water. Links to videos are welcome as well.

Thanks again, and if we can help you enjoy RC boating in any way, please contact us!