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ZIPP MANUFACTURING

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# ***Super Sport***

*46 inch Gas Mono Hull*



A Zippkits RC Boat

## **Building Instructions**

©2018 JMP Hobby Group LLC  
Indiana USA

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[www.zippkits.com](http://www.zippkits.com)

## Introduction

Thank you for purchasing this kit. We are sure that it will provide you with many hours of enjoyment.

*Please take the time to read this entire manual before building this boat. You will become familiar with the building order, and less likely to make mistakes.*

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.

Here are a few safety tips:

- **Never operate your boat alone. If you get hurt, you may not be able to drive for help.**
- **Never, ever operate your boat in an area where there are full size boats or swimmers. If something happens, a 14 pound object traveling at 50+ mph can do serious damage.**
- **Always use a failsafe if not racing. This shuts the engine off in the event of radio signal loss. Test the failsafe each day of running, by shutting off your transmitter.**
- **Always carry a fire extinguisher, as gasoline is extremely flammable.**

## SS

**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.**

## Purpose

This boat was designed as race boat from the start. It is legal for racing in any mono class, due to its vee bottom, if you choose to race.

The Super Sport was designed for stock Zenoah marine engines. It will handle rough water and still run in the 50's consistently.

You can build this boat without having the engine or radio, but it does make it easier to have them available when you build.

You can use any gasoline engine (check the rules), as long as it has mounts for 5 inch rails.

The Super Sport requires that you build it squarely and set it up perfectly. If you do so, you will have a fast, competitive hull.

Don't eyeball anything. Measure EVERYTHING to be sure you are 100% correct.

Use a straightedge and a square to build and setup a perfect boat. Nothing else will do.

That said, this is one of the easiest building gas boat kits you can buy. Really! You can do it!

## **Tools and supplies needed to build:**

- **Small wood plane (mini plane)**
- **Sanding blocks with 80 and 220 grit paper**
- **Drill with bits**
- **Square**
- **FLAT work bench (the thicker the better)**
- **Medium CA glue and accelerator**
- **Titebond III glue and/or Good quality 30 minute epoxy**
- **Epoxy finishing resin**
- **Screws or nails**
- **Waxed paper**
- **Lots of clamps! Spring clamps, paper clamps, c clamps, etc.**
- **Razor saw**
- **Wide tape**
- **Wood filler**
- **Primer**
- **Paint**

## **Additional items needed to complete:**

- Gasoline engine with 5 inch mounts (Zipp 3409 Zenoah mounts)
- .250 Collet for engine (Zenoah type engines) (Zipp 3440 )
- .250 24 inch cable w/welded stub shaft (Zenoah type engines) (Zipp 3444 )
- Tuned pipe w/dropped header or canister muffler (Zipp 2018/2011 or 2037)
- 2 channel surface radio with 1 standard and 1 heavy duty servo (150 in/oz minimum)
- Throttle pushrod (Zipp 3462)
- Rudder pushrod (at least "4-40" size) (Zipp 3463)
- 2 pushrod seals (Zipp # 3422/3404 )
- Medium Fuel Cell and tubing (gasoline compatible) (Zipp 3506)
- .250 stinger type drive (Zipp 3401)
- .250 drive dog (Zipp # 3446 )
- 7016/3 prop (Zipp 4001)
- Prop nuts (Zipp # 3450 )
- Cable grease (Zipp # 3532 )
- Large rudder (water pickup type- Zipp 3413)
- 6 feet large silicone tubing (water line, Zipp 3461)
- Trim tabs and turn fin (Zipp 3417 and 3546)
- 18 inch length of 5/16 brass tubing (Zipp 3568)
- Floatation (pool noodles, foam, etc.)

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**The Zipp 3604 Ultimate Hardware Set includes everything needed except engine and radio.**

## SS

Before we can start building, we need to do some prep work. Good prep work will pay off later with a straight, true running boat.

First, we need a flat work surface. Nothing else will do.

If you don't have a perfectly flat bench, you can make one with a piece of 12x48 plywood.

Simply screw a couple of 2x4's lengthwise to the bottom. Make sure the 2x4's are straight!

You can then put this on a bench, and shim the corners to make it steady.

Or, if you are really pressed for space, you can set it on a couple of saw horses.

## The Build

We are ready to start the build!

Remember- The boat is being built upside down. Any reference to the top or bottom refers to the boat's top or bottom. If you are going to attach something to the top, it would be closest to the bench. Right and left are always as you are sitting in the boat, or from the rear.

Got it? If not, stand on your head as you build.

Please note that in some of the pictures, the boat shown may look different from yours.

This is because we make a whole series of boats that are assembled in exactly the same way. Where it is important, we show the correct hull in the pictures.

Also, some of the pictures may be out of sequence with what we are doing. This is to clarify a point.

Take your time, **read ahead in the manual and understand what you are going to do before you do it.**

If you need assistance, we are here to help.



We like the Great Planes 11 inch bar sanders



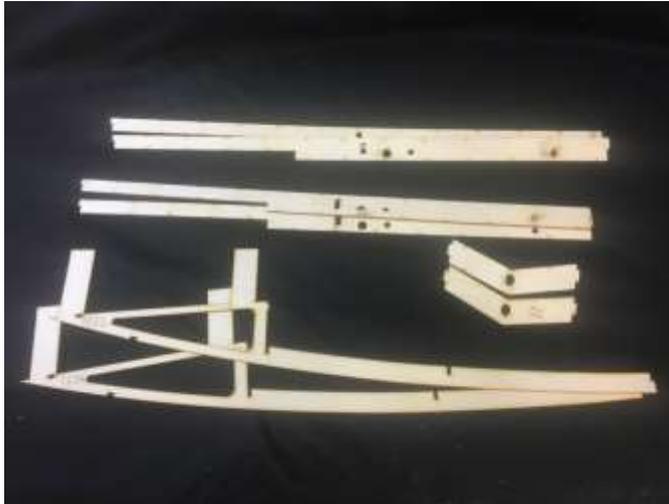
Your life will be much easier with one of these



Use good quality epoxy and finishing resin



Acid brush trimmed for fast epoxy application



## Let's get started.

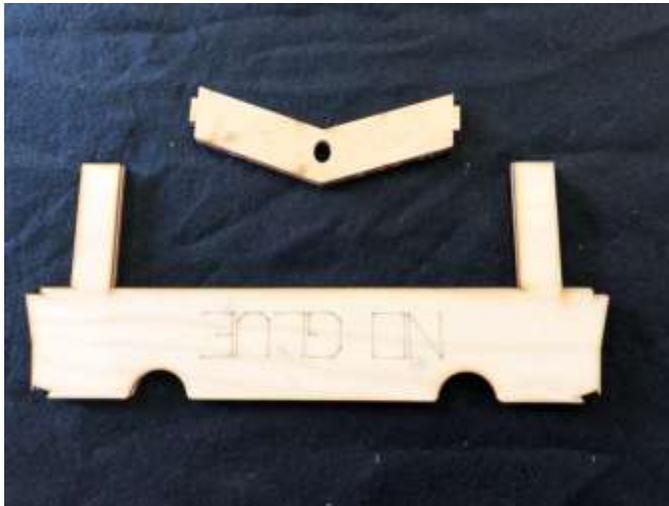
Before we can build this fine machine, we need to laminate some things together, so that they end up being  $\frac{1}{4}$  inch thick.

Using CA or **Titebond III**, glue both keels together. Be sure that the keels are aligned with each other. Clamp while drying.

Find the four 1/8 ply engine rails. Laminate into 2 rails. Clamp until cured.

Laminate the two shaft supports (SS) together. Clamp until cured.

Same for the two temporary bulkheads. These are marked "NO GLUE". Clamp until cured.



Attach the jig board to your FLAT bench (or 12x48 ply) with screws, nails, clamps or whatever you need, to make sure it's attached to the surface.

Remove bulkheads 1, 2, and 3 from the sheet.

Note that the bulkheads are marked. These should face the rear, when glued into the jig. All bulkhead marks should be on the same side.

Put bulkheads 1, 2 and 3 into the jig, engaging the tabs in the slots.

Starting from the front of the jig, glue the tabs of bulkhead 1 to the jig.

Use a square to ensure that it's 90 degrees to the jig. Also make sure that the tabs don't protrude under the jig.

Use CA and accelerator or Titebond III.

When dry and square, glue bulkheads 4 and 5 the same way. Use the square.

Glue in the temporary bulkhead (it can go in either way, it is symmetrical).

The keel should be dry by now.

Check the fit of the keel into bulkheads 1, 2 and 3. If okay, glue it into the slots in the jig board.



Glue to the bulkheads, making sure that it is fully seated. You may need to tap it into place. Make sure that both front tabs are fully seated in the jig.



The keel will be higher than the bulkheads.

The keel has a little tab that snaps into bulkhead 1. Be sure it is all the way in.

Now look at bulkhead 5. Is it twisted or warped? If so, clamp a piece of wood to the back of it for the next few steps.

Check the fit of the engine rails into bulkheads 3, 4 and 5.

You may have to tap the rails down into the bulkheads.

**Use a straightedge to be sure that the engine rails are 100% flat. The bottom has to be perfectly flat, and this is the first step.**



Check to be sure all bulkheads are square to the building jig (90 degrees).

Glue in the engine rails with **30 minute epoxy** or Titebond III.

**Bulkhead 5 must be 90 degrees to the building jig.** Use the engine rails to establish this.

Double check this, as it is the most common mistake made.



Glue the laminated shaft support into the slots. You will have to spread the rails apart slightly to do this. Lightly clamp this in place if needed.



Note that the engine rails fit fully in their slots. No part of the engine rails should be above the bulkheads.

This kind of looks like a boat, doesn't it? Take a break, and give the glue a little while to completely cure.



## Spines

The first step is to test fit and glue the spines in place. We used Titebond III. The tapered end goes forward.

Both spines should be flush with the bulkhead tops.



Use clamps or tape to hold them in place.

Allow to cure.

These help support the deck.

## Chines



Next, we will install the Chines. Make sure you follow along closely, as these are very important to the final shape.

When fitting the chines to the notches in the bulkheads, they should be flush with the top (and bottom) of the bulkhead.

This is important as the chines set the angle for the top and bottom sheeting.

Test fit the chines in place. Note that the chines have small tabs at the front. These key into the keel. The chines will end up with a small angle at the front, which is correct.



Using **Titebond III** or epoxy, glue one of the deck chines (UC) in place.

Glue the other deck chine in place. Do both deck chines before the bottom chines.

In other words, glue both top chines, then glue both bottom chines. We don't want to pull on one side and not the other.



Repeat for the bottom chines (LC).

You can make great clamps from some 3 inch SSC pipe.

We sliced it into 1 inch pieces with the band saw, and cut out a small section of the circle.

These clamps are cheap, and work very well.



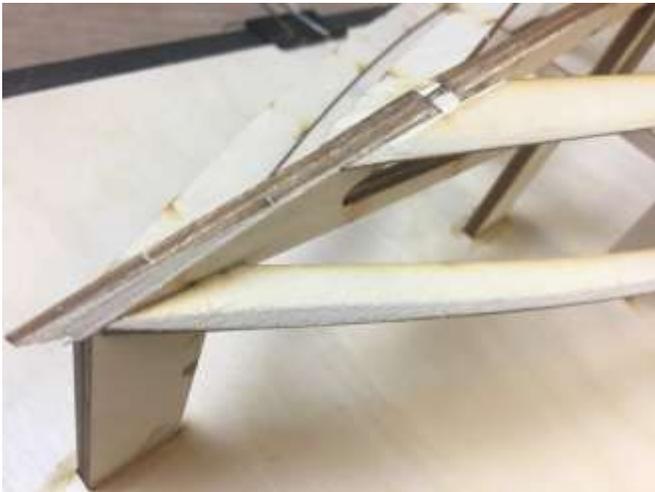
All chines should match the angle of each bulkhead. The rear will have very little twist. The front will have a substantial amount of twist to match the angle of the bulkhead.



Add a little extra glue at the nose. We need some strength here.

Double check that all chines are flush with their respective bulkheads. Allow to cure.

## Blending the chines



Before we can glue the side sheeting in place, we need to make sure the chines are flat. Do this with your sanding block and fresh 80 grit paper. Sand the chines, using your sanding block to blend them at the front.

Check to see if your sanding block sits flat on the chines at all points. If it does not, the side sheeting won't either. The front of the chines will need a little bit of blending. The rear will need very little.

Sand the front of the keel where the side sheeting will lay. Only sand enough to get the bevel. Don't change the shape of the keel. The lower chines (LC) will get sanded very little, and only on the edge.



## Side Sheeting

When the chines have been sanded and blended, it's time to start the sheeting.

We have included 12 clamp plates (C) to be used to hold the side sheeting in place.

Dry clamp the side sheeting in place. Clamp and adjust the sheeting so that it overhangs an equal amount on the top and bottom. Leave a little hanging off of bulkhead 5 as well.

Sand a bevel on the front edge so that it will meet the other side sheet.

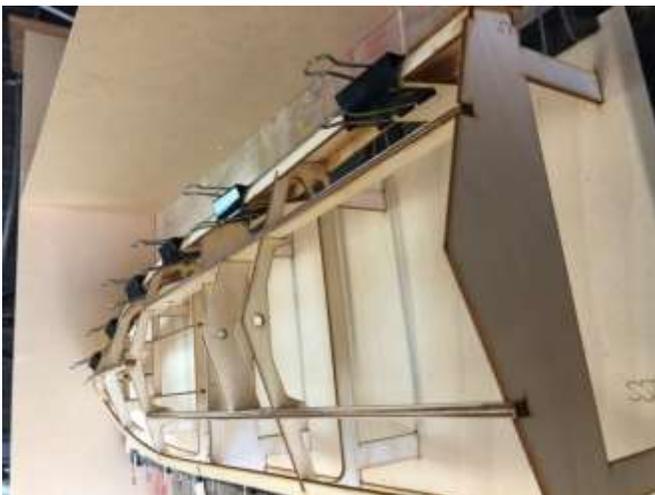
When it looks good, make a reference mark somewhere that is easy to see. I make it between 3 and 4.

Mark a line on the chine and the sheeting, so that you can align the marks quickly when gluing.

Remove the clamps.

Using **30 minute epoxy** or Titebond III, glue the side in place.

Using a small stick or acid brush, coat the chines and bulkhead edges. Work quickly.





Make sure that all surfaces that will touch the sheeting are coated. Try not to use so much that it runs all over.

Align the marks and start clamping as before, adjusting the sheeting for equal overlap on the top and bottom.

Line up the nose, so that the side covers half of the keel.



You will need a few clamps. Clamp lightly, but be careful not to distort the chines.

Check all over to be sure that the side is in contact with the frame. If not, add clamps until it is.

Check the bottom chine near the side sheeting. It should be flat from bulkhead 3 aft (3, 4 and 5). If it is not, adjust your clamps so that the chines are not distorted. This is critical.

Allow to cure at least 3 hours.



Repeat for the other side. Get the nose to fit as well as you can. If there is a gap, don't worry about it. That's what filler is for...



After the sides have cured, sand the rear of bulkhead 5. Sand the chines and sides flush with the bulkhead.



Note the correct orientation of the transom. If you don't, the holes will be in the wrong position.

Using 30 minute epoxy, glue the transom to the back of bulkhead 5. Try to match the bottom "vee", and leave an equal overhang on the sides. Clamp until dry.



## Bottom Sheeting

Use the angle on the bulkheads to determine the angle that you hold the sanding block.

Use fresh 80 grit on your sanding block.

This is one of the most critical parts of assembly, as it sets the shape of the bottom. DO NOT over sand the chines.

Take your time and sand until the side sheeting is just flush and no more.

You cannot do this with any kind of power tool.



Match the angle of the bulkheads. Also, **lightly** sand half of the keel at the same time, so that the bottom sheet lays flat on the structure. Do not change the shape of the keel, just match the angle. The keel will have a slight "V" shape when you are done.

**Be very careful not to sand the keel too much, or the bottom will not fit!**

Make a mark in the exact center of bulkheads 4 and 5. Make this mark on the edge, so that you know how far to glue the sheeting.

Note that the bottom sheets have the position of the strakes marked on one side. This side must face outside the hull.



Test fit the bottom sheeting in place. It should cover exactly half of the keel. Also, sand a gradually increasing bevel on the inside (center) edge, so that both bottom sheets will meet squarely. Make sure the front is accurately aligned with the center of the keel and that there is some overlap at the rear.

When satisfied with the fit, make an alignment mark on the bottom sheeting and the keel.

Mix up some 30 minute epoxy.

Brush epoxy onto the first 6 inches of the front of both bottom sheets. This should be done on the side **WITHOUT** the strake outline. Do the same to the upper and lower chines (both sides, and top and bottom of the chines). Brush epoxy from the nose to bulkhead 1. These areas are difficult to seal once the bottoms are on.

Once cured, you can glue the bottom sheets on as follows: Do one side at a time. Sand the area that you coated previously.

Using a small stick or acid brush, coat the chines and bulkheads with 30 minute epoxy where the bottom sheeting will contact. Work quickly. Also coat half of the keel.

Make sure that the strake outline is facing out when you glue the sheet in place.



Align your marks and put a couple of clamps along the keel, clamping the sheeting firmly to the keel. Check your center marks on bulkheads 4 and 5. Wipe all excess glue off of the keel, as it will interfere with the other side sheeting.



If everything looks good, start clamping the bottom sheeting. Bulkheads 3, 4 and 5 should have weight over them. Also put weight over the engine rail and shaft support, to help hold it against the sheeting.

Be sure to only place weights over a bulkhead or engine rail. If you don't, the weight may cause the bottom to sag.

**Check the bottom with a straightedge. It MUST be flat from bulkhead 3 aft.**

After the glue fully cures (at least 2 hours), remove the weight and clamps. Check for any glue that may have squeezed onto the keel. Use a sharp knife to scrape any away.

Take your time on the next step, it's important.

Test fit the other bottom sheet, and make any adjustments before you glue.

Make sure that both bottom sheets meet as perfectly as possible.

Take your time here. Start from the rear. Put the sheet in place, and note any areas that touch, keeping the sheeting from meeting perfectly. Use your block with 80 to sand these "high" spots. Move forward and sand, fit, sand, fit, until it fits perfectly. Be sure to sand a progressively sharper bevel, so that the bottom sheets fit tightly together.

The goal is to have a nice, tight joint that is straight. Try to keep the gap to less than 1/16 inch.

Glue the other side of the bottom sheeting on the same way as the first, only this time you can't use as many clamps.

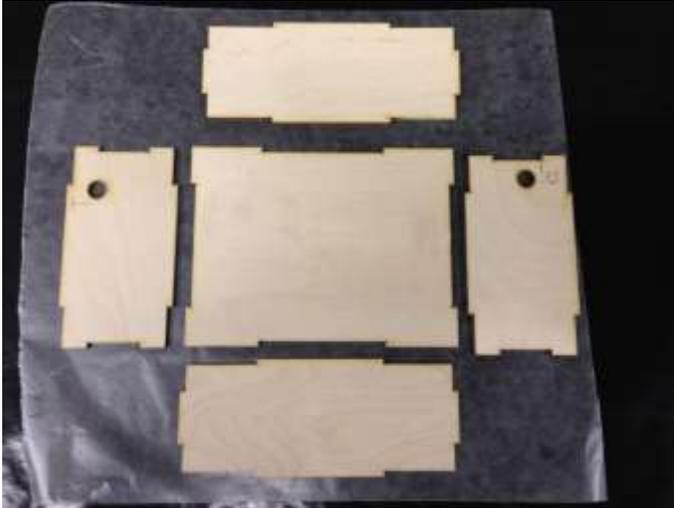
Put weights on it, and set aside. Make sure that the bottom sheet is in contact all the way around. Clamp the nose.

You can also tack glue the bottom sheets together at this time. Put a drop of medium CA about every two inches or so, check that the bottom sheets are properly aligned, and hit the drop with a shot of accelerator.

**Check the bottom with a straightedge. It MUST be flat from 3 aft.**



Let's build the radio box while the glue cures on the hull.



## Radio Box

Remove all of the radio box parts: Two long sides, two short sides, the top and bottom, as well as the 1/16 ply top.

Lay a piece of plastic wrap or waxed paper on your bench.



We use Titebond III and glue all of the 1/8 ply parts at once.

We tape it together to cure for a couple of hours.

Using CA or Titebond III, glue the two long sides and two short sides to the bottom.

The small sides have a "T" and "R" on them. These face inside.

The "R" on the short side should be on the same side as the "R" on the radio box bottom.

Glue the bottom in place.

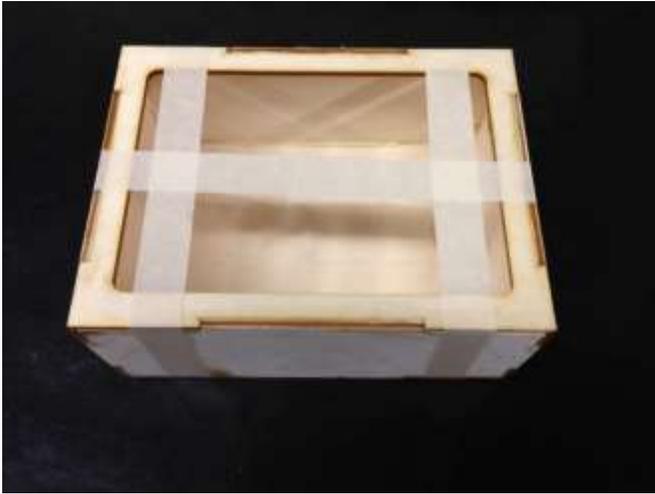
Glue the radio box top on.

This is the 1/8 inch Birch top.

Wrap tape tightly around the box so that all joints are tight.

Take a break for a while, so that the radio box glue joints can cure.

Lightly sand the top of the box.



Separate the lid from the 1/16 ply top.  
Sand the little tabs on the inside of the top and outside of the lid.

Glue the 1/16 ply top to the radio box.  
It has a slightly larger hole for the lid, so try to center it so that the "lip" is even all around.  
Make sure that you don't get any glue in the "lip", as it will interfere with the way the lid seats.

The lid will be sealed with tape when running the boat.



Sand the entire box with 220.

Stand back and admire your awesome radio box!

If you have the optional Lexan® radio box lid, you can toss the 1/16 ply version.  
If not, hold onto it.



Back to the boat:

Make sure that it has been at least 3 hours since you glued the bottom sheeting to the hull.

With your plane, remove the overhang of the bottom sheets at the sides.  
Sand all over with 80. Do this while the boat is still attached to the jig, as it is far easier than trying to do it in your lap!

Sand the bottom flush with the sides.

This is quick and easy at the rear. Towards the front, the angle gets pretty sharp, and you have to remove quite a bit of material.

Take your time and sand all corners flush.



Keep the bottom corners sharp at this point.  
**Do not round off the bottom to transom junction, we need it sharp.**

Use epoxy and micro balloons filler to fill any gaps in the sheeting.  
Allow to cure.



With your razor saw, cut all the tabs that are holding your hull to the building jig.

Carefully cut away and remove the temporary bulkhead.  
Some glue may have seeped in and glued it to the sides.

You can use pliers and carefully break it away.



Ditch the jig. We don't need it any more.  
Hey, this is really starting to look like something now!

After you finish admiring your cool new hull, let's move on.

Sand the top so that all spines and supports are flush with the bulkheads.

Trim the building tabs, and sand the tops of the bulkheads flat.

Reinforce the engine rails as follows:



Mix filler with 30 minute epoxy to make a paste for the engine rails.  
This paste should create a small fillet on each side of the rails.  
Make the paste thick so that it will not run or sag.

Do the inside and outside of the engine rails. Make sure that you pack it in on the inside.  
Use your finger to make a small fillet.

Wipe off any excess filler.  
Allow to cure.



## Fiberglassing seam

Use the supplied fiberglass cloth, and some epoxy finishing resin. Cut the cloth to fit along the bottom in 3 pieces.  
Save all leftover cloth.

Mix 4 ounces of finishing resin.  
Brush resin onto the center seam and lay the cloth down, centered on the seam.  
Brush in a heavy coat of resin, so that the cloth is completely wetted.  
Repeat for the other two sections. Work quickly.



## Reinforce transom

Use some of the excess cloth to reinforce the transom.  
Cut pieces about 2 inches wide, and use them to strengthen the sides to transom and bottom to transom area. Use finishing resin and make it smooth.

Use any excess resin to seal the inside of the hull.

Save two pieces of cloth to reinforce the deck to transom the same way.

## Sealing Interior

Now we need to seal the inside. It is vital that all exposed wood be sealed.



Mix up about 4 ounces of epoxy finishing resin.

Start from the front.  
Using a brush, coat all areas of wood inside the hull.  
Get inside the holes.

Try not to get too much resin on the top edges of the bulkheads and chines, as it will make it more difficult to sand later. Be sure to get the bottom edges of the spines.

Seal over the glassed area as well.

Also seal the ½ inch diameter dowel including both ends.

After you are 100% sure that all exposed wood inside the hull has been coated, let it sit overnight.



Recoat the interior with a second coat. This will use much less resin. Do the dowel as well.

You can use any excess resin to seal one side of the deck at any point.  
Decide which side of the deck looks better, and mark the other side as the bottom. Coat the bottom with finishing resin.  
Use a scrap of wood or a credit card to squeegee the resin on. Scrape off as much as you can.  
You should scrape or sand when cured and coat a second time. Allow to cure.

## Floatation

Now is the time to put floatation in the hull.  
**DO NOT OMIT THIS STEP! Without floatation YOU WILL LOSE YOUR BOAT!**  
Don't ask me how I know...

Find a pool noodle and cut it into sections that will fit in the compartments in front of bulkhead 3.

You can get pool noodles at the dollar store or Wally World.  
Be sure the floatation will not interfere with the top sheeting.

A boat stand is a good idea at this point.  
You can make a boat stand out of PVC pipe or wood.





## Carrying Dowel

The ½ inch dowel serves as a strain relief when picking up the boat.

This gets mounted between bulkheads 3 and 4, and has doublers to help strengthen it.

Slip the dowel into the holes on the bulkheads.

Note that the pictures show a different boat.

We forgot to take pictures of this on the SS (twice!), so we used pics from our EasyVee.

The process is exactly the same. Only the doublers look different. Sorry...

If it fits well, use 30 minute epoxy to glue it in place, and glue the doublers to the front of BH3 and the rear of BH4.

Allow to cure.



## Top Deck

This is usually the most difficult step in building a boat. Not so with the Super Sport! It's very easy to get the deck attached properly.

Sand the top of the framework to get rid of any sealer bumps, or other irregularities that would prevent the deck from lying flat.



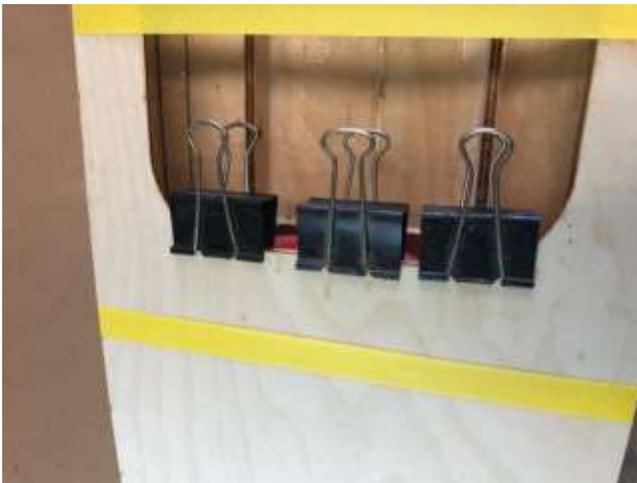
Check the fit of the deck.  
The bottom (inside) of the deck should have 2 coats of epoxy finishing resin on them by now. If not, get it done first and allow to cure.

Sand or scrape the underside of the deck.

Mix about 3/4 ounce of 30 minute epoxy. Using a stick or acid brush, coat the tops of the bulkheads, chines and spines with resin. Only coat the areas that the deck will cover.

Also coat all around the perimeter of the deck. Be sure you are working on the inside. Work quickly.

Align and clamp the deck at bulkhead 3.  
Then align and clamp the nose, then the sides.



Check all around to make sure that the deck is tight against the top of the chines and bulkheads.

Tape down any areas needed.  
Continue adding tape until the entire deck is in contact all the way around.  
Add weights if needed to get full contact all the way around.

Take one last look before you walk away.

Allow to cure.



After the deck sheeting is fully cured, give the whole boat a good sanding with a 150 grit block. Round off the nose.

You can round off all top corners, but we recommend just a little rounding of the keel and bottom chines.  
Keep the transom sides and bottom sharp.



## Strakes

The Super Sport features turning strakes on the bottom. These help the smooth bottom “grip” the water when the boat turns, minimizing slide.

These are necessary for the hull to turn, so don't skip this step.

The strakes come precut, but must be rounded on the front.

The strakes are marked. These marks will be face down when they are glued in place.

Sand and blend the front and rear of each, so that it blends into the hull.

Do not glue in place yet.



Mix up about 2 ounces of finishing resin.

Use the 2 inch square pieces of glass cloth and reinforce the deck to transom joint.

Stick your head in the boat to see what you are doing.

Use the rest of the resin to seal the radio box (inside and out), as well as the strakes (ST).

Do all sides of the strakes.

The radio box and strakes will need a second coat after they cure. You can use excess resin from sealing the outside of the boat.

Be sure to always scrape or sand between coats.



## Shaft tube

Set up for surface drive, this will exit the rear of the boat, through the transom.

The Super Sport uses an offset driveline. This counter acts prop walk, and allows you to run with the rudder straight (no left trim). This makes the boat faster and more efficient.

We wrestled with this, as it complicates an otherwise simple build.

In the end, we feel that the performance improvement is worth the extra effort, and we think that you will agree.

The shaft tube is a piece of 5/16 brass tube that gets 2 gentle bends, in 2 planes.

The shaft tube will have to be formed in place. We will anneal the bend areas, and they will be easy to form by hand.

Be sure to make the bends very gentle, otherwise you will be breaking flex cables...

Cut your 5/16 OD brass tube to 13-1/2 inches. Mark 1-1/4 inches from one end, and 4 inches from the other.

Use your torch to anneal the brass between your marks. Just heat the brass until it changes color. No more than a very light orange. Any hotter and it will melt.

Allow to cool.

Use steel wool to clean the tubing.

Drill the hole thru the transom with a 5/16 bit. Make sure that the holes in the shaft tube brace and bulkhead 4 are open.

Starting at your 1-1/4 mark, make a short bend (20-30 degrees in the tube. This should be a big radius. Use your thumbs and bend in several places to make a large radius bend.



Slip the tube into the shaft brace, thru bulkhead 4 and against the transom.

You will have to slip the tube forward into your pool noodle flotation to get it started.

With the tubing bend straight up, grab the shaft tube about 2 inches behind bulkhead 4 and bend it to the right. Use your thumbs to make this bend a large radius as well.

Move back 2 inches and bend it parallel with the center line of the boat. The bend should be offset about  $\frac{1}{4}$  inch, and should slip into the transom.



If you did a perfect job, you should be able to remove the tube without changing any of the bends. Turn the tube to get it out.

Make sure that your engine mount holes are clear in the wood rails. Use a  $\frac{1}{4}$  inch bit and our 104 degree angle adapter as shown.

Reinstall the tube if you removed it.

Mount your engine in place (with collet installed).

Adjust the first bend in the tube so that it lines up with the collet perfectly.



Grab your flex cable and slip it into the tube. Adjust the tub so that the cable easily slips in and out of the collet.



Look at the side and see if the tube angle is the same as the collet angle. Adjust until it is.

Once you are happy with the shaft tube, clean it with denatured alcohol or lacquer thinner.

Mix about 1/4 ounce of epoxy, and add filler (micro balloons) to thicken to the consistency of toothpaste. Use this mixture to secure the tube to the hull at the front and rear of bulkhead 4, at the shaft support, and inside the transom.

Work it under and around the tube.

Don't glue it to the floor, as you may need to remove it at some point.

Don't get any resin inside the stuffing tube. Make sure the cable still slides in the collet easily. Let sit at least 3 hours.

Next, we will mount everything we need, to make this boat go!



## Trim Tabs

Mount your trim tabs to the transom so that they are flush or just a hair up from the bottom.

Use the pre-drilled holes.

We like to use 6-32x1/2 bolts and blind nuts.

Use a grinder or disk sander to remove part of the blind nut, so that it won't interfere with the hull bottom. This is only needed for the trim tabs, due to their low mounting position.



## Stinger Drive

Mount the stinger in the holes provided. Zipp 3401 shown.

Use 6-32 screws and blind nuts.

Adjust the drive so that the cable slides in with absolutely zero drag. The alignment has to be perfect.





If the drive is not adjusted so that it is perfectly centered over the shaft tube, the cable will rub and quickly break.

Take your time and get this perfect. It will be much cheaper than losing shafts and props.

Not that the fitting provided on the 3401 stinger drive is for oil. If you grease your shaft (which we highly recommend), you won't use this fitting.

Leave it, remove it, it makes no difference.



## Rudder

Mount the rudder with blind nuts as you have done with the other hardware.

If using our 3413 rudder, be sure to check that the set screw for the pin is tight. Do this before you put the rudder blade on.

Make sure the rudder is not slanted right or left. Use a square on the top of the boat to sight the rudder for square.

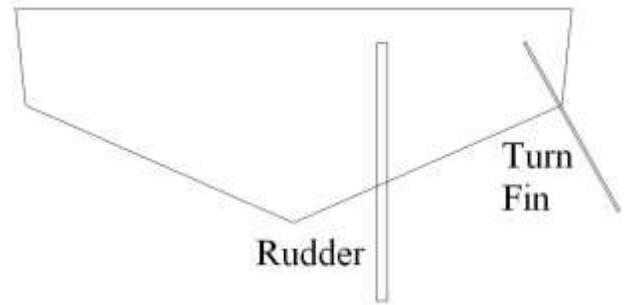
## Turn fin (s)

The turn fin should be mounted on the extreme right side of the transom, above the trim tabs. Use the pre-drilled holes.

We like to use 6-32x1/2 bolts and blind nuts.

Make sure the fin is 90 degrees to the bottom. It will be canted outward with the hull level.

Not that the sharpened or beveled edge should always face out, away from the boat.



Make sure the fin is exactly 90 degrees to the bottom.  
Use a square. Don't eyeball anything.

The Super Sport turns much tighter with a turn fin, although you can run without one.

If you are racing in the offshore category, or using the SS for sport use, we recommend a fin on each side, for right and left turns.

Normal heat racing requires only a RH fin.

Note that RC boats will always turn better to the right than left, due to prop rotation.



## Flex cable



Get the flex cable, drive dog, prop and prop nut.

Put the drive dog on the stub shaft, then the prop.



Engage the drive dog into the prop, and slide this assembly back until there are about 1/2 inch of threads on the stub shaft.

Tighten the drive dog set screw.

Mark the stub shaft at the front of the drive dog. Remove the dog and prop.

Measure 3/16 inch back from your line, and file a flat spot, about 1/8 inch wide and 1/16inch deep.

This is for the set screw.



File off any burrs, and put the drive dog back on, tightening the set screw into the flat.

Put the prop and prop nut on. Slide the flex cable into the stinger, until the cable gets to the engine.

Slip the cable into the collet. Be sure that the cable is fully seated into the collet!



Measure from the back of the stinger to the drive dog. Subtract  $\frac{3}{8}$  inch. This is the length to be cut from the cable.

In the picture, we would cut 6 inches off of the front end of the cable.



Measure carefully, as we can't add to a cable that is too short!

Carefully cut the cable with a Dremel and cut off wheel. Deburr the end.



When we are done, with the cable fully seated in the collet, the drive dog will have a  $\frac{3}{8}$  inch gap from the stinger.

We need this gap, as the cable "winds up" and shortens under load, the engine mount rubber will flex, and we don't want the drive dog to rub the end of the stinger.

## Radio



When the radio box has cured, set the rudder servo mount inside the box, at the back of the box. The rudder pushrod hole is marked "R".

Move the mount so that the servo arm is centered in the pushrod hole. Mark the holes in the mount on the box bottom.

Remove your rudder servo from the mount.

Glue the mount to the radio box bottom in the area marked. Make sure that it doesn't slide out of position while it cures.

You can also screw the mount in place. If so, be sure to seal the screws on the outside of the box with silicone .

Glue the throttle servo mounts to the radio box bottom the same way, only set the servo so that the servo arm is about ¼ inch off center. This is because we will be using an EZ connector on the throttle servo arm, and it is offset about that distance.

Use a 2-56 pushrod with a nylon clevis on the throttle end, and an EZ connector at the servo.

Be sure to use the metal retainer on the EZ connector.

You can use the plastic retainer to test throttle adjustment, then switch to the permanent retainer.

Note that we supply a set screw with our EZ connectors. Makes it easy to use the underside of the servo arm as shown.

Set the radio box between the ply rails, behind bulkhead 4.

Now we will make the rudder pushrod.

You have several options as to what to make it out of. Just make sure it's strong and stiff

We like to use a 4-40 pushrod, which is threaded on one end.

We attach the rudder end with the provided (with the rudder) pushrod connector, and the servo end with a threaded clevis.





## Exhaust

There are a few options for tuned exhaust for the SS.

Our Super Tuned pipe is one of the best pipes you can buy for this application. It has won many races and holds several records in this class (gas mono).

One thing to remember is that you don't ever want to put any sideways pressure on the pipe. If you do, something will eventually break.

When mounting the pipe, let it rest naturally (side to side), before marking any hole locations.

Also, since these pipes are hand made, they are not 100% concentric. You can rotate the pipe on the header and the center will change slightly.

Assemble the pipe and header to the engine (out of the boat). You want a tuned length of 14 inches. This is measured from the face of the exhaust port (exhaust gasket) to the maximum diameter, measured around the centerline of the header and pipe.



Slip the engine back into the mounts and put the pipe on the top of the transom.

Spin the pipe around and try to find the center. This gives you a little bit of sideways adjustment if you need it.

Mount the pipe to the transom with our 2016 pipe mount.

Mount it just high enough to clear the deck. Leave at least a 1/8 inch air space between the pipe and deck.



## Water Cooling

Assemble the engine with complete exhaust.  
Install the rudder.

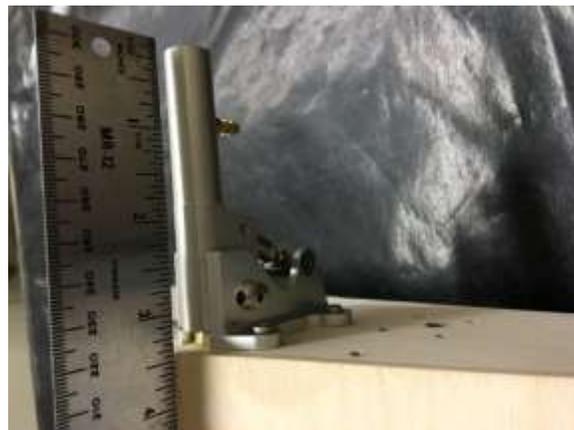
Run your silicone cooling hoses over the transom.  
Route them to the lowest fittings in the cylinder head  
and the exhaust flange.



Space is tight on the right side of the transom, so  
using water fittings thru the transom is not a good  
idea.

Use the hole in the engine rail for the exhaust flange  
exit hose. This keeps it away from the hot header.

Determine where the water outlets will be, and drill  
the holes.



Mount the water outlets and secure them finger  
tight.

Make the water exit hoses so that they don't touch  
the exhaust. They can be really close, but can't  
touch.

Remember, in low and out high.  
This pushes the air out of the cooling system.

## Surface Prep

Sand the entire hull with 150.

Fill any dings, dents, craters, valleys or chips with wood filler.

When dry, sand again with 150. Check to make sure that all imperfections are filled.

If not, fill and sand again.

Spend a little time getting this right, as it will make your boat look so much better when done.

After the filler is dry, sand it with 150 grit, using light pressure.

At this point, you can round the deck where it meets the sides.

Make sure that the bottom to sides and bottom to transom corners are not rounded.

Blow off the hull with compressed air, or use a vacuum to get the dust off.

## Sealing Hull

Mix about 1 ounce of finishing resin.

Use a credit card to spread out the resin on the top and sides.

Squeegee as much as you can. Get a thin even coat of resin on all areas.

Use a small acid brush to get the edges.

Scrape as much resin as possible. You just want to wet the wood with resin, any excess will just have to be sanded off later.

Use a brush to coat the corners, and anywhere else you can't squeegee.

This first coat is easy, as the wood will darken as it gets wetted with resin.

The second coat will be a little more challenging, but will use far less resin and be faster to cover.

When you are sure that all areas of the boat are covered, let it cure overnight.

Repeat the whole thing for the second coat, only this time, after the second coat has cured, sand with 220 wet. Sand with a bucket of water, a dribbling hose or in your bathtub.

Use one of those rubber sanding blocks.

Don't worry about the hull, it's waterproof now... Sand the inside of the hull if you want.

Sand until all areas are smooth, but don't sand through to the wood. If you do, you have to re-coat the area with resin, and re-sand.

When cured, sand or scrape. Just make it smooth. It's ok if you sand through the resin on this coat. When done, blow the dust off and do the bottom.

Use two coats of epoxy sealer.

## Add Strakes

The strake positions come pre-marked on the bottom sheets.

Sand the strakes with 150 till smooth all over.

Use medium CA after the hull is sealed.

We only get one chance at this, so take the time to make sure everything is correct before you glue.

Make 100 percent sure that there is no glue fillet between the strake and the hull bottom.

This would make the strakes useless, as we need the edge to "bite" as we turn.

## Finishing

Once the hull is dry, wipe it down with alcohol. Use a tack cloth lightly to remove any dust.

Spray a light coat of primer. Let this flash for a few minutes, and spray a heavy coat on.

Let sit overnight.

When the primer is dry, use spot putty to fill any nicks or surface imperfections.

When dry, wet sand with 400 on the rubber block.

If you are happy with the surface, spray on another medium coat of primer.

When dry, wet sand with 600 or 800.

Use compressed air or a vacuum to remove the dust on the inside and outside of the hull.  
Wipe down the entire boat with alcohol.  
Use a tack cloth to lightly wipe all surfaces.

Spray your color coats.

When cured, wet sand with 800+ and clear coat the entire hull. We like automotive clear in very light coats. Allow to flash and apply 2 medium wet coats.

Make sure the clear is completely cured before final assembly.

Apply your decals.

Wipe the area with alcohol, allow to dry.  
Remove the backing from the decal. If you have trouble removing the backing, press or squeegee it firmly, and try again.

Align the decal and press firmly to surface. Roll or squeegee in place.  
Remove transfer sheet from top of decal.

## Final assembly

Put the boat on your stand. This is where it will live, when it's not in the water.

Install everything. It may be necessary to clean out paint from some of the holes.

Wrap your battery pack in foam rubber.  
You can wrap the receiver in foam rubber or you can use double sided tape to attach it to the underside of the radio box lid.

We leave the receiver antenna inside the radio box for racing in protected water (2.4 ghz Futaba FHSS).

Mount the switch. We mount it thru the lid with a switch mount.

Turn the transmitter on first, then the receiver.  
Make sure the trims are centered.

Put the rudder servo arm on. It should be parallel with the servo, and 90 degrees to the pushrod. Use the sub trim

Install the aluminum pushrod seal mounts through function, if your radio has it.  
If not, get it as close as you can.

use the servo hole that lines up with the pushrod hole in the radio box.

Attach the rudder to the pushrod. Is the rudder straight? If not, adjust the clevis or ball link until it is. Be sure to put the screw in the servo arm...

Adjust the throttle so that the carb is wide open when you pull the trigger all the way back, and closed when you push the trigger fully forward. When the engine is running, you can use the throttle trim to set the idle speed.  
Take the time to get this right. It's no fun running your boat onto the shore because the engine won't shut off...

Make sure all your water lines are firmly attached. Use those teeny little tie wraps at each fitting.

the radio box and stretch on the rubber seals. Push the threaded end of the rudder and throttle pushrods through the big end of the pushrod seals. Attach both ends of the pushrods, making sure the seals are on the outside of the radio box.

Lightly sand the insides of the rails where the radio box goes.

Set the radio box in place, touching bulkhead 4.

Make sure the box is in correctly (rudder servo in rear).

If all is well, attach the radio box.  
We use silicone sealer on the sides only.

Put a little blob of glue on each corner. Only glue the sides, not the bottom.

If you ever need to remove the radio box, you can simply run knife blade through each glue blob.

## Running

If you are using a new engine, you should run it on the stand before going to the pond.

This will do several things; It will allow the engine to loosen up a little, making starting a simple matter, as well as get YOU familiar with its starting and running characteristics.

When new, the engines are very tight, and starting is difficult at best.  
If it won't start, 9 times out of 10 it is flooded.

Under no circumstances should you ever run a marine engine for an extended time without cooling water.

Use some kind of water cooling.  
We use a Zipp garden hose adapter.

We simply hook this to the garden hose; it has an inline valve to regulate the water flow so that it squirts out about 2 or 3 inches from the water outlets.  
It doesn't take much water pressure.

If you are going to run the boat on the stand, take the prop off, but leave the shaft connected to the engine. This will help to "break in" the strut bushings.

Really take some time to go over the entire boat. Check every nut and screw.  
Make sure that the throttle opens fully, without stalling or binding, and closes fully when you push the trigger forward.

Make sure the rudder is straight, or trimmed slightly left.

Take pride in a job well done!

## Setup

Adjust the stinger so that it is parallel and flat with the bottom of the boat. This will be a zero setting.  
Use a straightedge ruler.

Adjust your trim tabs so that they are parallel with the bottom of the boat. Not angled up or down.  
This is a zero setting.

Get them as close to the bottom as you can, without being below the bottom.

Use a square to adjust the turn fin. It must be perfectly square (90 degrees) to the bottom.

Do the same for the rudder. You can square the rudder to the top of the transom.

Grease the flex cable.  
Slide the cable through the stinger, into the engine collet.  
Leave a 3/8 inch gap between the drive dog and stinger.  
Tighten the collet very tight.

## At the pond

Make sure your transmitter and receiver batteries are fresh, or fully charged.

Do a range check with your transmitter in low power if available, and note the distance. You should do a range check every day that you run. Should a problem arise, you can fix it before you damage anything. Tape the lid on the radio box with radio box tape, Make sure that your prop is sharp and balanced.

Fill the fuel cell; turn on your transmitter, then receiver. Wiggle the rudder so you know it works, and then start the engine. Don't rev the engine much, as there is no load on the prop until it's in the water.

To launch, have a helper drop the boat in level. You can give it a little gas as it gets to the water, but not too much. Most people don't like getting sprayed with water...

Let the engine warm up for 30 seconds or so before giving it full throttle. Drive past yourself, and make sure you have a stream of cooling water. If you don't see any, bring it in pronto!

If all looks good, hit it! Notice how the boat rides in the straights. Does it lean or pull to one side?

Is the deck level or nose high?

How about the turns? Does the nose rise or fall in the turns? Does it slide or hook? Hop?

It's a good idea to have a helper write down your comments as you run the boat. After the run, you can use the included "Tuning Tools" sheet to help you sort out any problems.



**Don't forget to contact us if you have any issues. We are here to help!**

Have fun, be safe, and send us your pictures!

**Send pics and videos to [pics@zippkits.com](mailto:pics@zippkits.com)**

## Troubleshooting

Boat bounces in the straights-	Stinger angled up CG too far back Speed too slow
Boat blows over at high speed-	CG too far back Stinger angled up Inner tabs too high
Boat “plows”-	CG too far forward Stinger angled down Inner tabs too low
Boat is very “light” and unstable-	Inner tabs too high Stinger drive angled up
Boat needs left trim to go straight-	Prop walk Prop walk Prop walk Rudder not aligned correctly Prop walk
Boat slides too much in turns-	Strake missing Turn fin loose or missing
Boat hooks in turns-	CG too far forward Turn fin loose or missing Rudder angled back
Boat “chine walks”-	Center tabs too high A little chine walk is okay
Boat “heels” right with power-	Right inner tab too high
Boat leans too far and turns poorly-	Rudder angled left Turn fin sharpened wrong
Boat is slow and won’t turn-	<b>Get a Zippkits boat!</b>