

Set the Outside-Outside sponson spacing to around 530 mm (20.87") with equal spacing on booth sides.



Extras - KEP's FE-45 V2 (P-Open class, 4 cell LiPo) Electric Outrigger Racing Hydro - Freebie PDF 2 of 2

Vers. 2.00 / 2017-11-21

Scale: 1:1 / Paper size: A1 = 841 x 594 mm

© Design by Niklas Edlund

Note, this KEP's FE-45 boat is designed for the US P-Open class but it's also suitable for the P-Limited class. The FE-45 is made for 36 or 40 mm diameter motors up to 74 mm in length. Note, there is also an KEP's FE-45L freebie available that is optimized for the Aquacraft 35-56-2020KV motor and it's slightly smaller then this one.

Sponsons:

You can make the sponson cores in several different ways. My personal favorite (and among the strongest) is this:

- Make a laminate of 20 mm thick Divinycell H60 foam material that is planked/laminated with 1.5 mm thick aircraft birch plywood on each side. Use PU glue to bond them together.
- You can also use a 20 mm thick sheet of balsa wood and do the same type of laminate as above.
- The total thickness of the sponson cores is not that critical really. If possible aim at a finished thickness around 23-25 mm.

Tub Sides:

You can make the tub side cores in several different ways. My personal favorite is this:

- Make a laminate of 2 mm thick balsa that is planked/laminated with 1 mm thick aircraft birch plywood on each side. Use PU glue to bond them together. Use as hard balsa that you can find for the cores.

Sponson Tubes:

- Choose a sponson tube that you easily can get hold of.
- I prefer 8 x 10 mm pultruded carbon tubes with a 10 x 12 mm aluminum tube that slips over that. The aluminum tubes are glued in sponsons & tub.
- Don't use too thin sponson tubes as they will flex and creating unwanted handling characteristics.

Turn-fin & Sponsons

- The sponsons should point straight ahead - as in - they should be parallel to the tub sides.
- There should be NO turn-fin toe-in!
- It's normal that the turn-fin needs to be slightly pointed downwards so to speak (that the bend-lines are at a slightly nose down angle vs horizontal view)

Set Up Help:

If the boat is running too hard on the front sponsons:

1. Push the battery more rearward.
2. Make the strut/prop shaft downward angle less. It's perfectly ok to run the strut parallel to the water. In fact, if you can run it like that it will be the fastest set-up.
3. Raise the complete strut up by 1 mm at a time until you're satisfied with the ride.

If the boat runs too light on the front sponsons (wants to fly):

1. Lower the complete strut by 1 mm at a time (it should always be above the water level though).
2. Increase the downward angle of the strut/prop shaft.
3. Push the battery forward
4. Make the ski higher by attaching one more laywer of double sided tape.
5. Make a new set of sponson ride pads that are thinner and/or a little bit shorter.
Or use a thinner double sided tape.

Safety Loop:

In most racing it's mandatory with a safety loop that also acts like a esc switch. Make it out if minimum 4 mm bullet connectors or preferably 6.5 or 8 mm bullets.

KEP's FE-45 - Suitable Motors (36 x 65-74 mm):

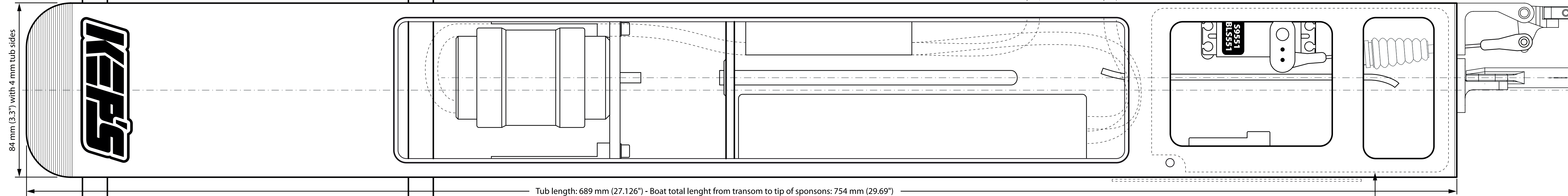
- TP Power TP3640 (36 x 69.5 mm) 2430KV/6D, 2540KV/3Y or 2930KV/5D
- Leopard LBP3665 (36 x 65 mm) 2680KV/3D
- Leopard LBP3674 (36 x 74 mm) 2650KV/2.5D

KEP's FE-45 - Suitable Motors (40 x 65-74 mm):

- Castle Creations 1512-2650KV (with added water cooling sleeve)
- TP Power TP4040 (40 x 70 mm) 2750KV/3Y or 2900KV/5D
- Leopard LBP4065-B (40 x 65 mm) 2450KV/4D or 2700KV/2Y

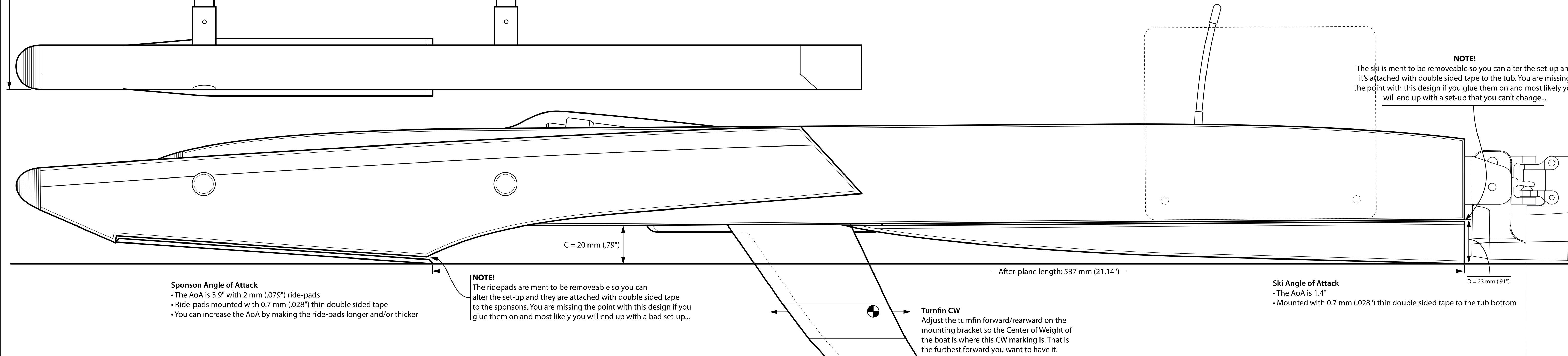
KEP's FE-45 ESC:

- In general you need a 160-200A ESC if you plan to go fast.
- ESC's with datalogging is really good if you want to learn!
- Use as thick wires you can fit, 8-10AWG is recomended.
- Use really good connectors - 6.5 or 8 mm bullets are recommended.
- Many of the fastest racers convert Castle Creations Phoenix Edge Lite 200A esc with added water cooling and some sort of water protection (Corrosion-X). Note, that it will woid any warranty of course.



Use a self adhesive plastic film to cover the radio room and bait box. The one we use are ment to cover books with.

Deck Cover - 0.8 mm (.03") plywood. Make it out of a slightly thinner plywood then what you have used as deck on the tub. Note, you might need to make a small canopy for the motor.



Sponson Angle of Attack

- The AoA is 3.9° with 2 mm (.079") ride-pads
- Ride-pads mounted with 0.7 mm (.028") thin double sided tape
- You can increase the AoA by making the ride-pads longer and/or thicker

NOTE!

The ridepads are ment to be removeable so you can alter the set-up and they are attached with double sided tape to the sponsons. You are missing the point with this design if you glue them on and most likely you will end up with a bad set-up...

Turnfin CW

Adjust the turnfin forward/rearward on the mounting bracket so the Center of Weight of the boat is where this CW marking is. That is the furthest forward you want to have it.

Ski Angle of Attack

- The AoA is 1.4°
- Mounted with 0.7 mm (.028") thin double sided tape to the tub bottom

NOTE!

The ski is ment to be removeable so you can alter the set-up and it's attached with double sided tape to the tub. You are missing the point with this design if you glue them on and most likely you will end up with a set-up that you can't change...