

Propeller

Calculating Prop Size Question

Hello:

Attached is a quote for a new ZF15MIV 2.955:1 ratio (the 2.718 ratio is the same price).

The 4.108 engine is a 51 HP at 4000 RPM engine. Even though you are not going to run your engine wide open when you calculate prop size you use the WOT as the relationship between the engine, boat shape, weight and torque is consistent along the whole RPM curve.

So for your boat 36 foot (water line length 32), 14,000 pounds, 12.5 wide the calculations show

2.995:1 ratio shows an 18"x14" prop and a 8.5 knot max speed

2.718:1 ratio shows an 18"x12" prop and a 8.5 knot max speed.

In any case your 13.5" prop with a 14" prop is certainly not the correct prop for you boat I believe.

The hull speed of your boat (using the JD rule of thumb calculations) is about 8.48 knots give or take so you are unlikely to really push it up to 8.5. Usually I believe the most you can expect out of an engine is about 80% of the calculated numbers so I suspect you will find your max prop driven speed to be around 6.8 knots give or take.

So with 6.8 knots in mind (this is running the engine at about 80% RPM as well at 3,200 RPM) you should probably have a prop in the 16"x11" or maybe 17"x12" range.

Another one of my rule of thumbs is that with boats that are not going to get up on plane (like sailboats) you should get the largest diameter you can spin with the lowest pitch.

There is a fuller discussion of prop sizing on our web page under both the blog and "The Express" sections.

Hope this helps.

J.D.

Propeller

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