

Choosing the Correct Pitch Propeller & Propeller Basics

CHOOSING THE CORRECT PITCH PROPELLER

For safety and efficiency performance, it is critical that your engine operates within the RPM range recommended by the manufacturer. Matching the right prop for the load is the most significant factor when choosing a new propeller. Your old propeller will have the diameter and pitch stamped on the old propeller. The second number is the pitch. If you want to change your pitch you will have to determine your Wide Open Throttle (WOT) RPM.

First, Determine Manufacturer's Recommended RPM

Find the manufacturer's recommended RPM range in the owner's manual or ask your dealer.

Test for Maximum RPM

Using the existing propeller or a new propeller, make test runs to determine the maximum RPM and boat speed. Vary the trim angle for optimum performance.

RPM Higher Than Recommended

If the actual WOT RPM are above the recommended RPM range, install the next larger pitch propeller to decrease your WOT RPM. Re-test the WOT RPM.

RPM Lower Than Recommended

If the actual WOT RPM range is below the recommended range, install the next smaller pitch propeller to increase your WOT RPM. Re-test the WOT RPM.

When you combine all these factors, you have the information you need to select the correct propeller for maximum performance, safety, and fuel efficiency.

Effect of Prop Pitch on RPM

A pitch change can increase or decrease the RPM and bring RPM into recommended range. A 2" increase in pitch (for example, from 21" to 23") typically results in a decrease of approximately 300-400 RPM.

PROPELLER BASICS

Diameter

Diameter is two times the distance from the center of the hub to the tip of the blade. It can also be looked at as the distance across the circle that the propeller would make when rotating. It is the first number listed when describing a propeller.

Pitch

Pitch is defined as the theoretical forward movement of a propeller during one revolution - assuming there is no "slippage" between the propeller blade and the water. Pitch is the second number listed in the propeller description.

3 Blades ... or 4?

Michigan Wheel recommends 3-blade propellers for recreational boats with 3, 4, and 6 cylinder outboards and I/O engines. These propellers provide good "hole shot" and top-speed performance.

Michigan Wheel recommends 4-blade propellers for bass boats and boats with high performance hulls running high horsepower outboard engines. Compared to 3 blades, they provide better "hole shot" performance with less steering torque and less vibration at high speeds.

Aluminum vs. Stainless Steel?

Most pleasure boats are factory equipped with aluminum propellers. Aluminum propellers are relatively inexpensive, easy to repair, and under normal conditions can last for many years.

Stainless Steel is more expensive, but much stronger and durable than aluminum. If you are looking for better performance than can be provided by your aluminum propeller, such as ultimate top speed or better acceleration, a stainless steel propeller may be required.

The information provided here has been reproduced courtesy of Michigan Wheel Corporation. OC Boat Supplies reproduced this information 06/06/08