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Setting Blade Pitch Using The Warp Drive Professional Protractor



You should be pleased to know that you are using the Warp Drive Professional Protractor which is designed after the high dollar propeller protractors. When used properly this protractor used on Warp Drive propellers, aircraft propellers or airboat propellers, can help you set your propeller blades pitch angle within 1/4 of a degree. It can also be used to check wing surfaces on your aircraft.

When using the protractor it is important to always read the same side of the protractor when moving from the hub to the tip of the blade. The outer scale on the protractor is what shows the degrees of pitch. The only number on the inner white wheel is the zero at the top. When you have the protractor set and ready to mount onto the tip of the blades, tighten the red knurled knob where it reads "Lock". This will lock the wheel in place so you can't bump it and change the angle accidentally. Please follow these instructions carefully. If you have any questions please do not hesitate to contact the factory and we can talk you through the procedures.

1. Determine your starting point. There is no need to adjust the position of your craft to set the pitch in your prop. Place the protractor against the hub of the propeller to find the angle the craft is sitting. On a tractor application you would place the protractor against the hub with the white bar in your hand and the opposite side on the hub. On a pusher application you would hold the white bar side of the protractor against the hub. It may be necessary to remove the top bolt with the wing nut and let the bar swing down, then hold the protractor directly against the hub.

2. Setting degrees of pitch. ATTENTION! Always set the degrees of pitch at the tip of the blade! Determine the amount of pitch you want and rotate the protractor wheel the same number of marks from your starting point. Example: If your aircraft is sitting level, your starting point would be zero. If you want 10 degrees of pitch, move your protractor wheel ten marks in the outer scale.

Mount the protractor at the tip of the Warpdrive blade with the protractor wheel towards the rear of

the craft and the clamping bar towards the front of the craft. This is true whether you are in a tractor or pusher configuration. With the protractor mounted at the tip of the blade, rotate the blade until the bubble shows level. Hint: While rotating the blade with one hand close to the hub, gently rock the blade back and forth at the tip with the other hand. This method will result in smooth, fine pitch adjustment. You will also want to pull out on the blades when setting the pitch to ensure that the blade collar is seated in the hub.

When setting the pitch of your propeller, always set the proper angle of pitch so your engine will achieve its maximum static RPM on the ground. If you want better cruise and top speed performance, set higher pitch for a lower static RPM. For better take-off and climb performance, set a lower pitch for a higher static RPM.

Propeller Bolt Torque Values--All Standard, HP and HPL hubs that use 1/4" bolts to clamp the blades in the hub should be tightened to **120 inch pounds**. All Rotax bolt patterns that use 8 mm bolts to mount the prop to the gear box flange should be tightened to **175 inch pounds**. All Standard, HP and HPL hubs that use 3/8" bolts to mount the prop should be tightened to **35 foot pounds**. Warp Drive propeller installations on direct-drive aircraft engines and other engines used on airboats must tighten the 5/16" clamping bolts to **200 inch pounds** and tighten the 1/2" flange mounting bolts to **60 foot pounds**. Adherence to these torque values is imperative for reasons of safety.

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