



Saber Propeller Installation and Operation Instructions



2008 Wood Court
Plant City, FL 33563 USA
(813)752-3711

www.sensenich.com

Table of Contents

Assembly Notes	3
Parts List	3
Required Tools	4
General Torques Specifications	4
Assembling the Propeller	5
Mounting the Propeller Assembly to the Engine	8
Setting the Propeller Blade Pitch	9
Initial Engine Run-Up	9
Propeller Limitations	10
Propeller Care and Maintenance	10
Warranty Information	11

ATTENTION

Failure to follow these instructions will void all warranties, expressed and implied. Mounting difficulties, vibration, and/or failure can result with improper assembly of the propeller blades and hub parts.

CAUTION

Rotating propellers are particularly dangerous. Extreme caution must be exercised to prevent severe bodily injury or death.

Assembly Notes

As there are many different Saber Propeller configurations, these instructions show the basic installation steps for a standard installation. Your propeller assembly may have slight variations. If you have any questions during the assembly and/or installation, please contact Sensenich Propeller

Parts List

Part	Quantity Notes
Propeller Blade	Blade quantity designated by installation
Crush Plate	1 (optional)
Cover Plate	1
Middle Plate	Used only in staggered installations
Mount Plate	1
Spacer Inserts	6 for standard, 12 for staggered
Pitch Block Set	1 set per blade
5/16" Clamp Bolts	4 per pitch block set
Mount Bolts	6
5/16" Washer	8 per pitch block set
Washer	6 Nordlock lock washers
5/16" Lock Nut	4 per pitch block set

Table 1: Parts List

Required Tools

Due to the many types of configurations, the flowing list is only a general representation of what tools are required for assembly.

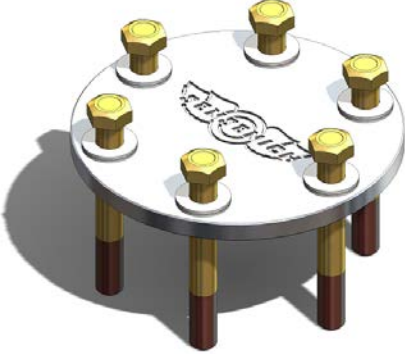
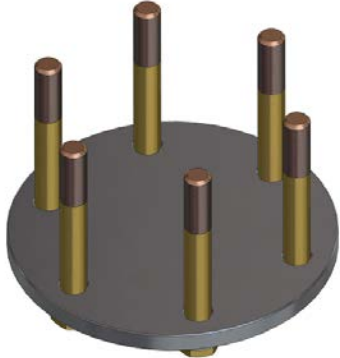
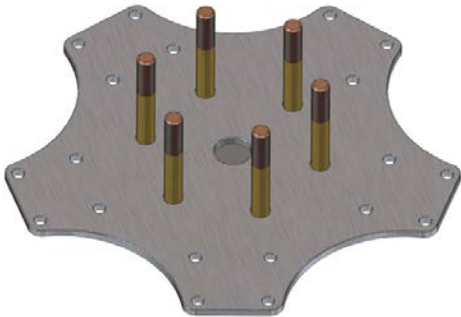
- ✓ Ratchet
- ✓ Torque Wrench
- ✓ Variable Socket Sizes
- ✓ Variable Open-End Wrench Sizes
- ✓ Anti-Seize (Included)
- ✓ Digital Protractor or Angle Finder


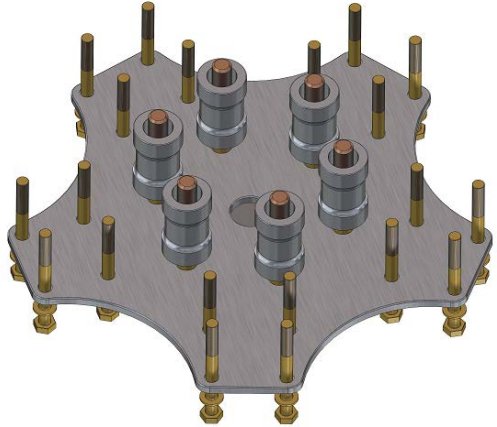
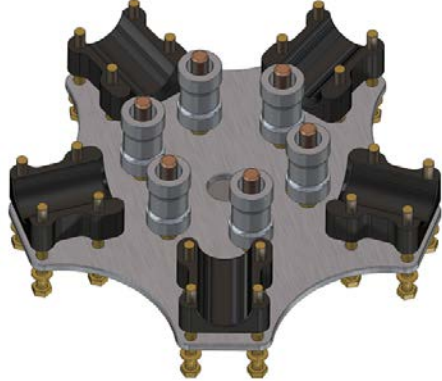
General Torque Specifications

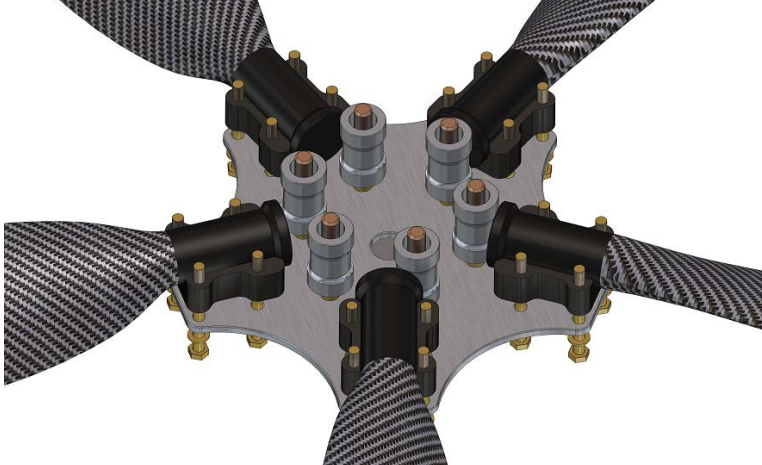
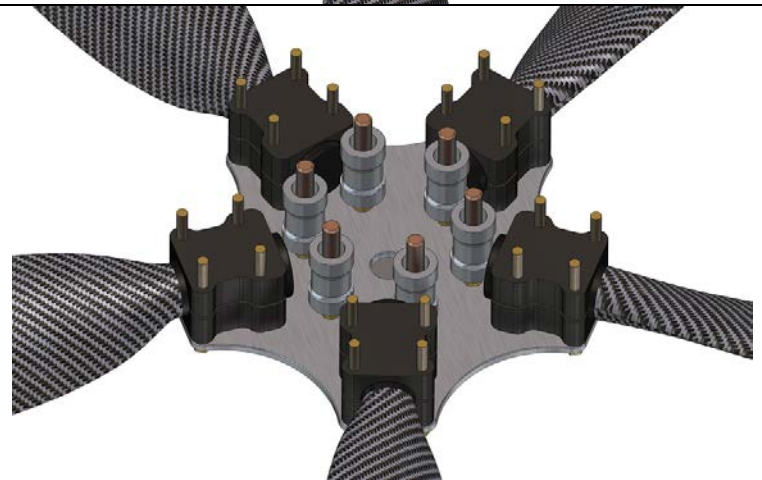

Bolt Size	Hardware Part Number	Recommended Torque
5/16"	Grade 8 HHCS 5/16"	18-20 lbs-ft
3/8"	Grade 8 HHCS 3/8"	34-36 lbs-ft
7/16"	Grade 8 HHCS 7/16"	44-46 lbs-ft
1/2"	Grade 8 HHCS 1/2"	59-61 lbs-ft

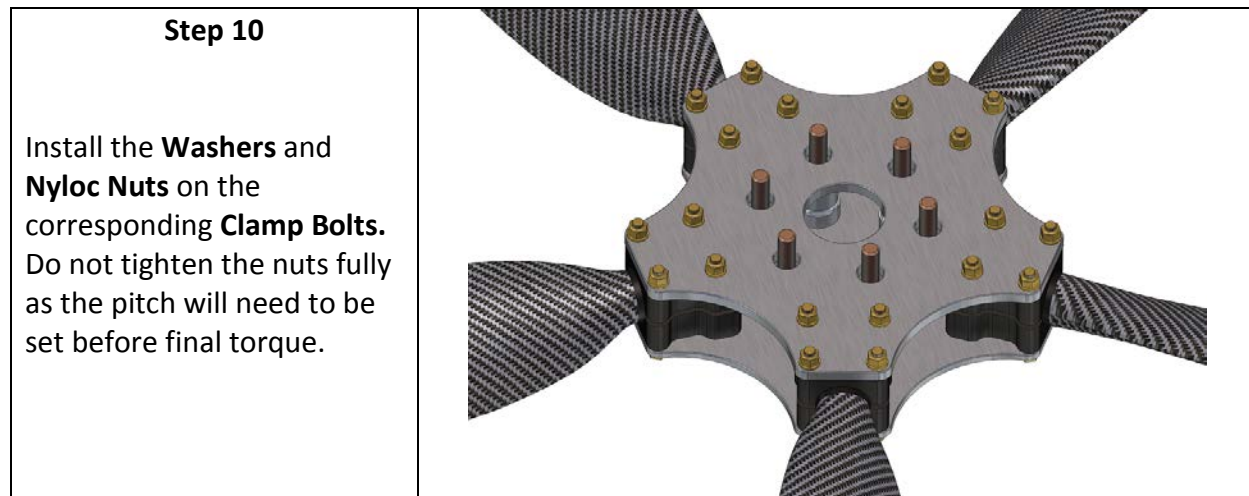
Table 2: Torque Specifications

Assembling the Propeller

<p>Step 1</p> <p>Slide the 6 Mount Bolts with Norlock Washers, through the Crush Plate (optional). If you did not order a Crush Plate with your kit, skip to step 3 and slide bolts through the cover plate.</p>	
<p>Step 2</p> <p>Place Crush Plate Assembly face down on table or workbench.</p>	
<p>Step 3</p> <p>Slide the 1/4" Cover Plate face down over the 6 Mount Bolts and Crush Plate. Apply a small amount of anti-seize to the bolt threads.</p>	

<p>Step 4</p> <p>Slide the 6 Spacer Inserts over the 6 Mount Bolts. Note, the counter-bored side of the Spacer Inserts should be facing up.</p>	
<p>Step 5</p> <p>Slide the Clamp Bolts with the Washers in each of the four holes.</p>	
<p>Step 6</p> <p>Slide a Pitch Block over the corresponding Clamp Bolts. Ensure the open side of the Pitch Block is facing up.</p>	

<p>Step 7</p> <p>Place a Propeller Blade in each of the corresponding Pitch Blocks. Be sure the rotate the blades according to your setup.</p>	
<p>Step 8</p> <p>Slide the remaining Pitch Blocks down on top of the Propeller Blade and Clamp Bolts.</p>	
<p>Step 9</p> <p>Slide the Mount Plate down on the existing Mount Bolts and Clamp Bolts.</p>	



Mounting the Propeller Assembly to the Engine

1. Ensure that the engine flange is clean and free of any debris or rust before installing the propeller.
2. Slide the propeller assembly onto the engine flange. Hand tighten the bolts so the assembly is affixed to the flange.
3. To set propeller pitch, see “**Setting the Propeller Blade Pitch**” section.
4. Ensure the ‘Sensenich’ decals are facing towards the engine.
5. Torque the Mount Bolts to the specified torque value in **Table 1**.
6. As a final check, ensure the hub is mounted flat and firmly against the engine flange.

Setting the Propeller Blade Pitch

When setting the propeller blade pitch, ensure that you check each blade at the exact same location in reference to the boat cage. This will ensure that all blades are pitched exactly the same.

1. Loosen each of the 4 Clamp Bolts so that the propeller blade can be easily rotated with little resistance.
2. Ensure the propeller blade shank is fully seated in the pitch block. Do this by pulling outward on the propeller blade.
3. Measure out 27" from where the blade shank meets the Pitch Block, this is where the flat edge of the digital level will be placed. Note, if your blade radius is less than 27", use the blade tip for measurement.
4. For initial engine run up, set the blade pitch to 8° from vertical.
5. Tighten each of the four Clamp Bolts to the specified torque in **Table 2**.

Initial Engine Run-Up

1. Ensure everything is tight and all tools and loose items are removed from the cage/engine area.
2. Check to see the propeller blades will rotate freely within without contacting any portion of the cage or hull.
3. Start the engine and perform the initial static run-up.
4. If the resultant RPM is within the desired range, shutdown the engine and re-torque all bolts.
5. If the propeller blade pitch needs to be adjusted, refer back to the "**Setting the Propeller Blade Pitch**" section.

Propeller Limitations

Sensenich composite propellers should be fairly maintenance free besides an occasional torque check and cleaning of the hub and blades. The following will help you to operate your propeller safely, keep it looking good and help it to last longer.

1. Do not turn your propeller above the maximum RPM, see **Table 3**.
2. Before riding, carefully examine the propeller blades and hub for looseness, any signs of damage, excessive wear or any other condition that would make the propeller unsafe to operate.
3. Never run up your propeller with someone standing in the plane of the propeller.
4. For maximum leading edge life, maintain a minimum of 2-3" clearance from the blade to the cage and hull. This is especially important for deck-over hulls and the transom area for fiberglass hulls.

Blade Diameter	Maximum RPM	Optimum RPM Range*
68" to 74"	3000	2500 to 2900
76" to 80"	2800	2000 to 2600
82" to 84"	2600	1800 to 2400

Table 3: RPM Specifications

* **Optimum Prop rpm's** are for the best all around performance at static and on the plane, and for reasonable sound levels at cruise. Operating up to maximum rpm is acceptable but you can expect less static thrust, higher cruising rpm's and higher sound levels at cruise.

For propellers on reduction drives, take the optimum prop rpm and multiply by the reduction ratio to get equivalent engine rpm.

Propeller Care & Maintenance

Taking proper care of your propeller will ensure it lasts a long time and some of the following tips will help guarantee a problem free experience.

1. Epoxy wear beside the metal leading edges is normal.
2. Check hub clamping bolts every 25 hours of operation or at least once a year, whichever comes first. Always check in a tightening direction.
3. Keep your propeller clean. Soapy water will remove most residue, but 409 or similar cleaner can be used to remove stubborn residue.
4. Apply a good quality automotive paste wax to the blades at least once a year. Avoid liquid waxes.

Limited Warranty

We hope you enjoy your new composite propeller. We have worked hard to ensure that your propeller will meet or exceed your expectations for years to come.

We offer a three year limited warranty on any defect in materials and workmanship.

In the event a unit does not conform to this express warranty, Sensenich Wood Propeller Company will repair or replace the defective material at its place of business at Plant City, FL USA. Sensenich Wood Propeller Company will decide which remedy, repair, or replacement it will provide. Any replacement of a unit or a part of a unit during the warranty period will not extend the warranty beyond the original duration. The remedy of repair or replacement is exclusive and does not include the cost of shipping, removal, or installation, all of which are the customer's responsibility.

Procedure For Obtaining Warranty Service

Units or parts that are defective must be shipped prepaid to Sensenich Wood Propeller Company at the address listed on page 1. The unit must be accompanied by a copy of the original (Distributor or Dealer) invoice, a Return Authorization Number (which can be obtained by phoning Sensenich Wood Propeller Company), and a brief description of the defect.

Conditions, Exclusions, and Disclaimers

This limited warranty applies only to units that have been installed, used, and maintained properly in strict accordance with our specifications, instructions, and recommendations. It does not cover units that show abuse, alterations, improper installation, improper maintenance or repair, or improper packaging for shipment; and it does not pertain to damage due to object strike, or excessive blade wear due to operation. The use of units on or with engines or equipment not approved by Sensenich automatically voids this warranty. For purposes of this limited warranty, "engines or equipment not

approved by Sensenich” shall mean engines or equipment that are not explicitly consistent with all specifications and instructions applicable to that engine or equipment, including, without limitation, those established by the Federal Aviation Administration, those established by the manufacturers of any component parts used in connection with the units, and/or those established by Sensenich. The purchaser has sole responsibility for ensuring that the use of the units is in compliance with all applicable specifications and instructions, and no conduct by Sensenich shall prevent this Warranty from being voided for failure to comply with the instructions or specifications provided by any third-party.

Racing use of any kind or use on or with engines or equipment not approved by Sensenich Composites automatically voids this warranty.

This limited warranty is the only warranty provided with respect to covered units, and **THERE ARE NO OTHER WARRANTIES, REPRESENTATIONS, CONDITIONS OR GUARANTEES, EXPRESS OR IMPLIED, WITH RESPECT TO THE COVERED UNITS OR THE MANUFACTURE THEREOF, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

Repair or replacement of a nonconforming unit or part is the exclusive remedy for breach of this limited warranty, and shall constitute fulfillment of all liabilities of Sensenich Wood Propeller Company to a customer or user, whether based on contract, negligence or otherwise. **IN NO EVENT SHALL SENSENICH WOOD PROPELLER COMPANY BE LIABLE FOR ANY OTHER EXPENSES, CLAIMS OR DAMAGES OF ANY KIND HOWSOEVER CAUSED, INCLUDING (WITHOUT LIMITATION) ANY OTHER PRODUCT REPLACEMENT OR INSTALLATION COSTS AND/OR ANY DIRECT, INDIRECT, CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES.**

The purchaser of the covered units has read, understood and, by purchasing the units, agrees to be bound by the above terms and conditions.

Some states do not allow the exclusion of incidental or consequential damages, so the above limitations may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

WARNING: Due to the variety of racing modifications and setups, there is ABSOLUTELY NO WARRANTY FOR RACING USE OF ANY KIND. The racer assumes all risks and accepts personal responsibility for any and all loss, liability, damages, or costs following such injury, permanent disability, or death.