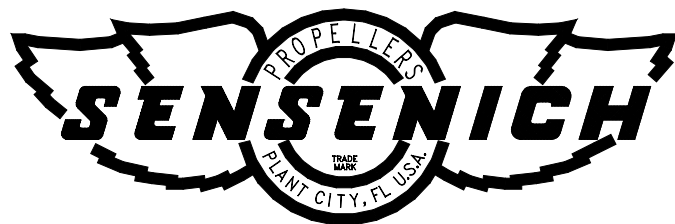


AIRBOAT WOOD PROPELLERS:



INSTALLATION, OPERATION, & MAINTENANCE

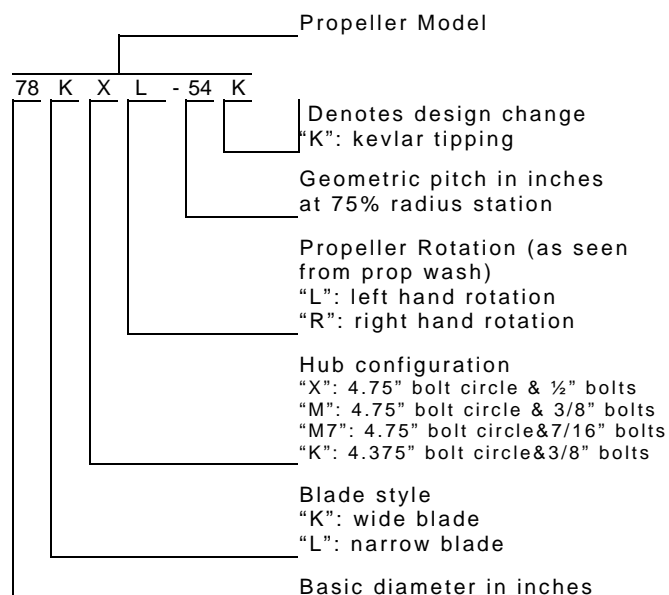
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Your Sensenich wood propeller was manufactured from aircraft quality selected lumber. The laminations were bonded with high-strength waterproof resorcinol glue, and were assembled under closely controlled factory conditions. Propeller balance was strictly maintained during manufacture and verified before shipment from the factory.

Installation of the propeller must be carefully completed, as it has been shown that an engine must deliver its driving torque to a wood propeller through static friction. That is, the force that resists movement of the propeller hub on the engine flange is due to compression of the wood surface against the flange. Therefore it is important to compress the wood to its maximum during propeller installation, but also important to avoid crushing the wood. Although the drive bushings incorporated in most flanges provide a back-up system, a load will be imposed on them only if there is movement of the propeller on the flange. The bushings and attaching bolts can carry engine driving-torque loads for only a short period of time, at this point the bolt holes and counter bores will begin to elongate and may lead to cracking of the hub and/or failure of the attaching bolts.

Model Designation:



Installation of the propeller will require a crush plate of adequate stiffness (approximately the same diameter and thickness as the engine flange), a set of attaching bolts of the proper length, and in some cases a prop adapter.

NOTE: Cadillac engines must use a 7" or 8" diameter prop adapter for mounting wooden propellers.

Recommended wrench torques are given in **Table 1**. These torque recommendations do not consider variations of thread condition, and assumes that the threads of the bolts, nuts, or drive bushings are clean.

PRE-INSTALLATION PREPARATION:

1. Be certain that the magneto switch is "off" and that both magnetos are grounded. Disconnect battery leads.
2. Clean both propeller hub faces and mounting flange. Use a clean cloth and de-natured alcohol to insure both faces are clean of grease and oil.

INSTALLATION PROCEDURE:

Installation of the propeller requires: crush plate, attaching bolts, and washers. Some installations may also require some or all of the following: prop adapter, lock nuts, lock washers, etc.

1. Install the prop adapter, if required. Wrench torque recommendations for adapter mounting bolts are listed in **Table 2**.
2. Place the propeller on the flange and crush plate on the opposite hub face and insert bolts through the assembly. **NOTE:** The propeller must slide fully onto the mounting flange. No gap is allowed between the propeller and mounting flange. Forcing the propeller can result in possible cracking of the bolt holes and counterbores.
5. Using a standard ratchet, tighten all the bolts using a star pattern until the propeller is snug. Ensure that the propeller attaching bolts have adequate overall length and remaining threads for final torquing.
6. Using a calibrated torque wrench, tighten the attaching bolts in small increments, moving

diagonally across the bolt circle. It is good practice to check blade track frequently while tightening the bolts. Take care to tighten bolts on opposite sides of the blade centerline evenly so that blade-to-blade conformity of angles is maintained. Torque all bolts to the values as specified in **Table 1**.

**TABLE 1
WOOD PROPELLER INSTALLATION
RECOMMENDED WRENCH TORQUES**

Size of Steel Grade 8 Bolts dia. (in)	Recommended Wrench Torque Range		
	(in-lbs)	(ft-lbs)	N-m
3/8	290 - 325	24 to 27	33 to 37
7/16	335 - 385	28 to 32	38 to 43
1/2	400 - 445	33 to 37	45 to 50

CAUTION: Over-tightening propeller attaching bolts will cause the wood of the hub to crush, breaking its moisture seal and possibly causing severe damage.

7. Check track of the blade tips by rotating the tips past some fixed object on the boat. The tips must track within 1/8" of each other when the installation is completed.
8. Check bolt torque after first run up and after the initial 10 operating hours.

**TABLE NO. 2
PROP ADAPTER INSTALLATION (not for wood props)
RECOMMENDED WRENCH TORQUE**

Size of Steel Grade 8 Bolts dia. (inches)	Recommended Wrench Torque (in-lbs)
3/8	290 to 325
7/16	480 to 540
1/2	720 to 780

NOTE: These torque values are only for mounting prop adapters on engine flanges. **DO NOT** use these torques for mounting wooden propellers.

CONTINUED AIRWORTHINESS REQUIREMENTS:

The following practices will add to the service life of your wood propeller.

- ❑ **Do not spin your propeller above 3000 prop RPM.**
- ❑ Before each airboating excursion, carefully examine the propeller blades and hub area for looseness, any signs of damage, excessive wear or any other condition that would make the propeller unsafe to operate.
- ❑ **Check mounting bolt torque every 25 hours of operation.** Always check in a tightening direction.
- ❑ Never run up your propeller with someone standing in the plane of the propeller.

- ❑ 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.
- ❑ When the propeller is not in use, place the propeller in a horizontal position and if it is exposed to the weather, cover it with a waterproof cover.
- ❑ Apply a good quality automotive paste wax to the blades. Avoid liquid waxes.
- ❑ Inspect frequently for bruises, scars, or other damage to wood and blade leading edge protection.
- ❑ Assume that your propeller is un-airworthy after any kind of impact until it has been inspected by qualified personnel.
- ❑ Be mindful of airboat noise around people and homes. Operate at the lowest RPM's possible.

If your propeller begins to show any of the following damage, it should be retired from service:

- (a) Cracks in hub bore, bolt holes or counter bores,
- (b) A deep cut across the wood grain,
- (c) A long, wide, or deep crack parallel to the grain,
- (d) A separated lamination,
- (e) Oversize or elongated hub bore or bolt holes,
- (f) An appreciable warp (discovered by inspection or through rough operation),
- (g) More than 1" of the tips broken or an appreciable portion of wood missing,
- or (h) Obvious damage or wear beyond economical repair.

NOTE: There is no specified overhaul time. The propeller is removed from service when it does not meet the Continued Airworthiness Requirements.

PROPELLER PERFORMANCE

In selecting a propeller, keep in mind that both airboats and engines of the same model may vary in performance, and that operators may want different performance characteristics. For instance, one person may require good dry ground performance while another seeks maximum cruising efficiency.

STANDARD PITCH / NORMAL RUNNING

For normal running, a standard pitch will give best all-around performance.

HIGH PITCH

A high pitch is good for cruising speed on water, but the throttle response and dry running power will suffer.

LOW PITCH / DRY GROUND OPERATION

A low pitch is recommended for dry running and/or sticky conditions. There is some speed loss when cruising in deep water.