

PROPELLER AND SPINNER INSTALLATION

Propellers are a long lead time and an expensive item. There are a number of reputable prop manufacturers that cater to homebuilders. My personal preference has been Ted's Custom Props of Snohomish, Washington and the diameter/pitch combinations listed here assume that they are Ted's propellers. For A-75 and A-80 engines use a 62 inch diameter 65 inch pitch prop. For A-65, C-75 and C-85 engines use a 62 inch diameter 68 inch pitch propeller. Be sure to specify the type of bolt pattern required; SAE-0 for tapered shaft engines or SAE-1 for flanged shaft engines.

The Adventure uses a 12 3/4 inch diameter spinner which is about 16 inches long. This spinner is manufactured by Ken Brock Manufacturing and comes equipped with all mounting hardware installed which insures proper alignment. A rear bulkhead and a forward stabilizing disc are used. You will need to cut the spinner dome to fit your propeller shank. This should be done carefully to allow only 1/8 inch clearance between the spinner and prop. Be sure to align the holes in the spinner back plate, propeller, and spinner dome before locating the cut outs in the dome.

Ted's propellers are usually 3 3/4 inches thick at the hub. Allowing for the thickness of the prop hub front plate (P/N 3991) and spinner bulkheads, AN6H-46A prop bolts should be the correct grip length. You should check the thickness of your individual components before ordering bolts.

A wooden prop uses its center hole (2.250 diameter) to locate the prop on the crankshaft. The propeller bolts only provide clamping pressure between the prop flange and the propeller. Proper torque on the attach bolts is vitally important. For a typical 3 3/4 birch prop hub the prop bolts should be tightened until barely snug then in 1/4 turn increments each bolt should be tightened 5/8 to 3/4 of a turn. Don't tighten bolts individually. Tighten all bolts 1/4 turn, then to 1/2 turn, and then to the final 5/8 to 3/4 turn so that none of the bolts is ever more than 1/4 turn looser or tighter than the other five. This procedure provides about 170 inch-lbs of torque on the prop bolts.

The prop and spinner assembly goes together in the following sequence as you move from the engine prop flange forward: engine flange, rear spinner, bulkhead, propeller hub, spinner front disc and last, the prop hub front plate.

Install the spinner or full spinner/prop assembly on the engine for the cowling buildup.

NOTE: The Adventure prototype was constructed and operated without any propeller shaft extension. This configuration is the lightest and cheapest but dictates that the cowling cheeks be somewhat bluff. Adding a four to six inch long prop extension would allow a more pleasing contour up forward and cause about \$150 increase in cost. There is no known reason not to use an extension if you want to do so. The weight penalty is about 5 pounds.

COWLING

Prefabricated cowlings are very expensive, normally \$250 to \$300, heavy and generally don't fit as well as a "home grown" cowl. Therefore, no prefab cowls are being offered for Adventure. The basic bill of materials provides for glass and epoxy to make a cowl as well as the Camloc fasteners for it.

The cowling sequence is simple enough, cover the engine with blocks and strips of foam, carve to shape, glass, then remove the foam plug and install fasteners. The contours of the cowling are noncritical except in the cooling air inlet and outlet. With the exception of these areas you can exercise your artistic urges without much risk. Adhere to the inlet and outlet configuration as closely as possible to insure proper cooling.

Start the cowl buildup process by protecting the engine from dust contamination. Cover the carburetor air manifold openings with a Baggie and tape it in place.