

ADVENTURE NEWSLETTER #10  
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The Tailwheel Adventure The Adventure prototype has been converted to a very successful conventional landing gear arrangement. Removal of the nose gear and addition of the tailwheel resulted in a net weight reduction of nine pounds.

The top speed at sea level increased by 5 mph as a result of the landing gear change alone. Conversion of the prototype was much easier than anticipated and if the changes had been made in the original construction, a significant savings in time would have been made.

In addition to the tailwheel conversion an O-200 (100 horsepower) Continental engine was installed this spring. A handful of minor aerodynamic refinements were made to the airplane and these combined with a 20 horsepower increase and the gear change raised the prototype's top speed from 188 mph to 217 mph. 75% power cruising speed increased from 182 mph to 212 mph (8000 ft).

The Adventure tailwheel is a non steerable locking type. At any speed over 5 mph the wheel is locked on center and can only be moved +2 degrees from straight ahead. At very slow taxi speeds the tailwheel is unlocked and allowed to free swivel while brakes are used to maneuver. This system eliminates the drag producing steering springs found in most systems and avoids tying into the primary control system.

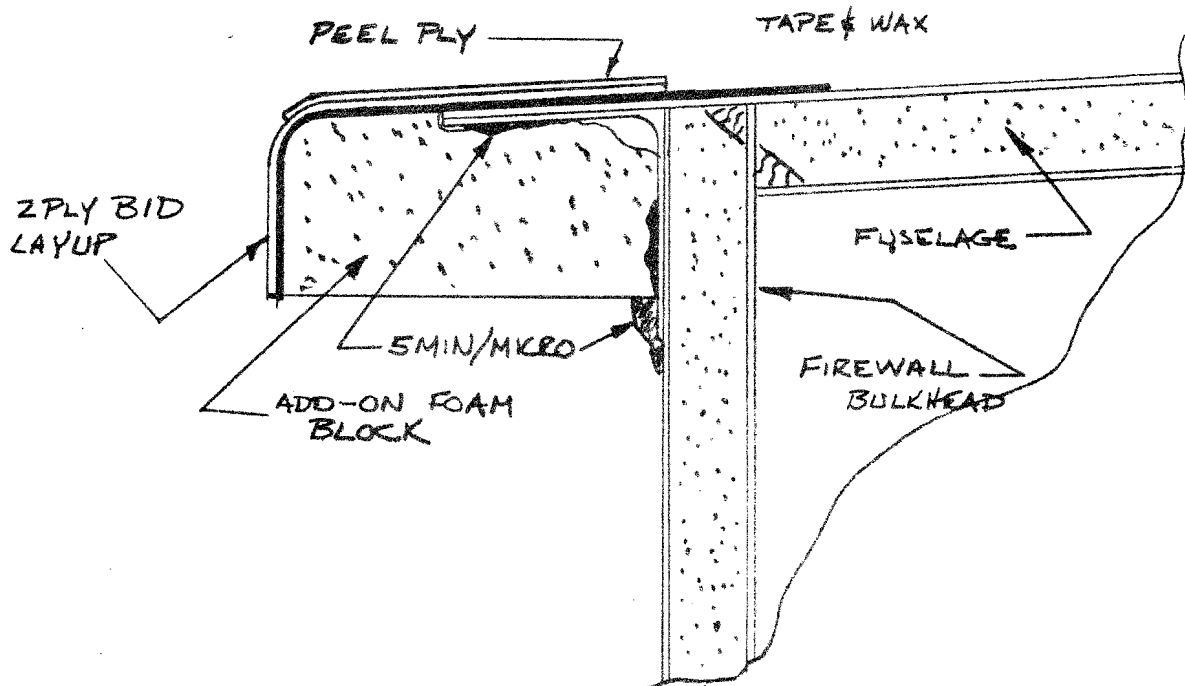
The best landing technique for the tailwheel Adventure seems to be the wheel landing. The level attitude affords good visibility and control during the higher speed portion of the ground roll. Anyone building a taildragger should bone up on wheelies before the maiden flight.

A package of modification drawings is being prepared as a suppliment to the standard Plans and Assembly Instructions. The Mod package will cost \$25 and be available in October 1981.

Engine Thrustline Offset The tailwheel Adventure was initially flown without any thrustline offset and showed an unacceptable tendency to charge off to the left at low speed and high power during the takeoff roll. The engine was shimmed to provide sidethrust and a tiny bit of downthrust by placing AN 970-6 washers between the engine mount and the engine mounting rubbers. Four washers were added at the upper left mount point and five were added at the lower left. Add these shim washers before making your cowlings.

Engine Cowling Buildup The sequence for building the Adventure's cowling is shown on pages 159 thru 170 of the plans. The method shown is fine and can still be used. What follows here are some acceptable modifications which may improve your cowling in appearance and performance.

Item One: Before you start the foam plug buildup shown on pages 160 and 161, make a rear stiffening flange as shown in the sketch on the flip side of this page. Protect the outside of the cowl mounting lip and adjoining fuselage with masking tape and paste wax. Temporarily bond a foam block to the firewall and flange as shown in the sketch and layup a two ply bidirectional glass/epoxy flange. Peelply the outside surface and cure. Next proceed with the foam plug buildup per the plans. When the cowl layup is made, remove the peel ply and overlap the cowling plies onto the flange. This stiffener makes the cowling much more resistant to air leakage at the rear edge.

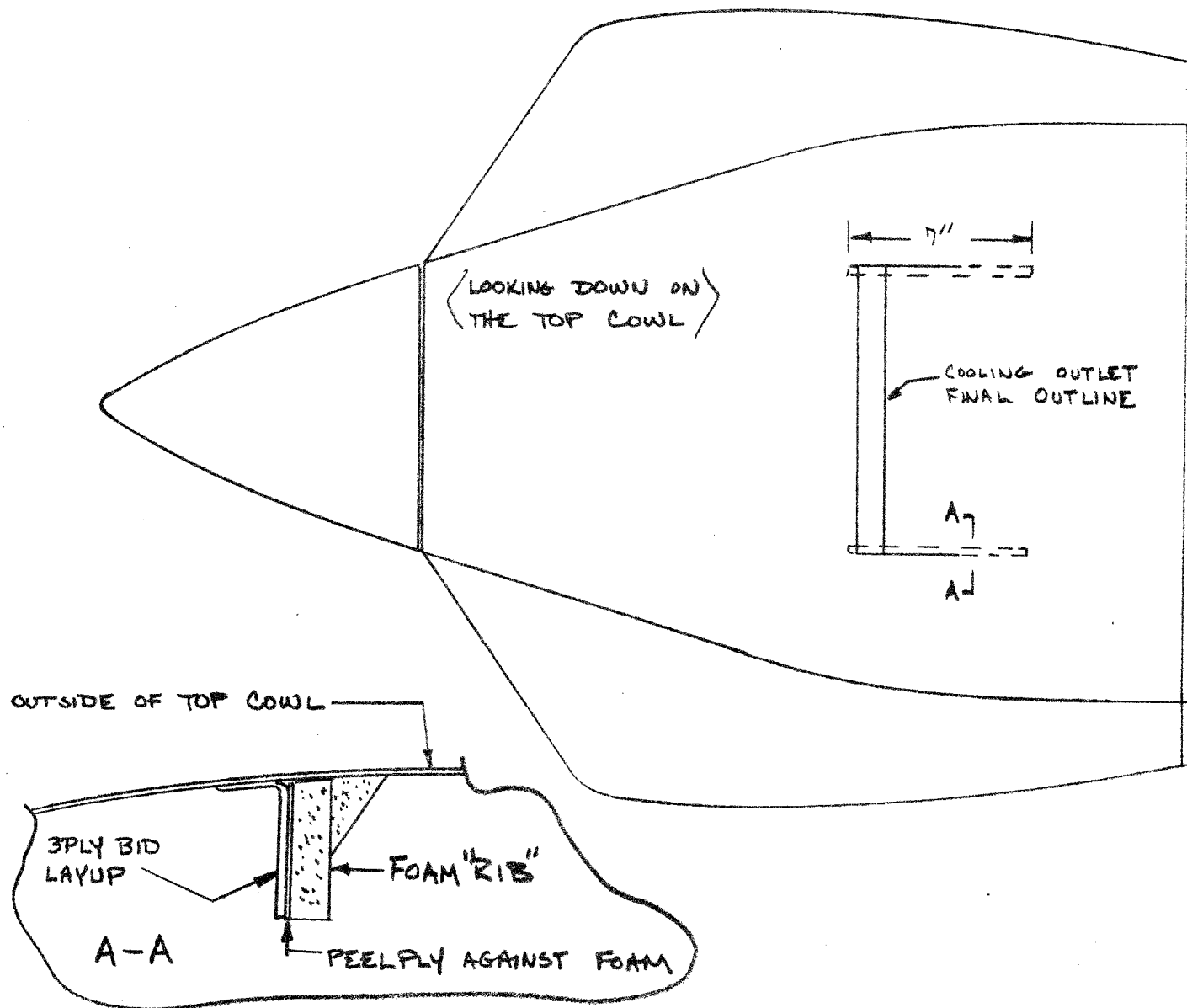


Item Two: Glass the top cowl half before making the cooling air outlet shown on page 167. After the cowl layups are complete and the glass shell is removed from the foam plug, bond a pair of foam "ribs" across the outboard ends of the outlet as shown in the following sketch. Layup a three ply end rib against the foam and cure. Remove the foam and you have formed the outboard wall of your outlet.

Next, cut three sides of the cooling outlet (front, left, & right) outline through the cured top cowl. The side cuts should be made flush with the vertical face of the glass end ribs. Make a few masonite forms shaped like the rear outlet ramp. Using 5MIN/Flox and patience, form the free rectangle of top cowling glass around the masonite pieces. When this effort is complete, bond the side edges to the end ribs with flox and then layup two fiberglass ribs against the inside surface of the outlet ramp by using the masonite forms as a tool.

Item Three: When you layup the bottom cowl half start with full width pieces of BID fabric 64 inches long. Orient the plies so the fibers run fore-aft and left-right. Place one selvaged edge roughly parallel to the firewall and wrap the material up around the cowl cheeks from the center bottom. Pin the excess cloth to the top cowl foam plug to keep the cloth from falling off. Start by smoothing the cloth over the micro-slurried boam surface of the bottom moving from rear edge forward, after the bottom is in place smooth the cloth up the sides, always start at the rear edge and work forward. The cooling inlet area will still have to be pieced together but this method reduces the number of overlaps required quite a bit.

Item Four: Don't install your spinner dome to use as a foam plug carving reference. Use the spinner's rear bulkhead instead. The bulkhead is below the outside contour of the spinner and therefore allows for the thickness of the cowling layup. In the end the cowl and spinner exterior surfaces end up flush.



Spinners Aircraft Spruce and Specialty Company is offering a really nice 12 inch diameter spinner that is suitable for the Adventure. Spruce's BN-3 spinner kit costs \$79.50 complete with two bulkheads and a bag of screws, nutplates, and nutplate rivets. You must specify the type of prop hub bolt pattern, bolt diameter, drive lugs if any and the thickness of your propeller hub. All of this info is necessary to get all of the holes in the bulkheads and the size of the front bulkhead properly sorted out.

First Homebuilt Adventure Paul Charles and Johny Murphy of Cape Canaveral Florida look like they will be the first to fly a plans built Adventure. Scheduling looks good for a first flight in October or November. Johnny has promised to supply a batch of detailed parts weights info that will be published for everybody's reference.