

# Leading Edge Vacuum Forming

*Jack Schenck*

MOST OF YOU WILL HAVE READ the profile of Eric Bartlett and his Bear Hawk project in the April Slipstream outlining his many innovative procedures for tackling problems. We thought it deserved a follow-up describing how he is bending that stubborn 2024 T3 aluminum skin for the leading edges of the wings. Many of you pansies who are building or have built from kits won't have this to sweat over, but for the die-hard scratch or plans-builders, Eric's method is great. He is building from plans and has only the designer and the Bear Hawk support group to lean on.

Eric gives credit to builders in that group for this idea of using atmospheric pressure to form the leading edge of the wing.

Starting with **step one** (right), cut a piece of common 1½ inch PVC pipe the same length as the width of your aluminum sheet (from .025 to .032 thickness). Drill a few 3/16 or 1/4 inch holes along the length of the pipe. Then place the pipe on the sheet with the holes toward the





Step 2



Step 3

trailing edge and tape in place. The aluminum is then bent in a large radius and taped in place (on itself) with packing tape or duct tape for the complete width (usually 4 ft). It needs to be airtight. Eric stresses the need for an absolute square contact with the bottom of the sheet before taping. Then, using any heavy plastic (6 mil?) pieces, tape up the ends leaving only one open end of the pipe. **Step two** (above) shows the vacuuming process using any Shop Vac or household vacuum (sealing the entrance, of course). If your sealing all around is good, the atmospheric pressure will do the job in very little time. In effect, you are over-bending the leading edge, but with the pipe acting to prevent any kinks (shown in **step 3**, top right). Of course the material springs back as shown in **step four** (right, centre). From here, the bent sheet can be ratchet-strapped on the wing structure. Then comes the drilling of two holes for orientation, cleco-fastening for lining up to drill all the thousands of rivet holes. **Step five** (right, bottom) shows most of these holes done and clecoed in place. Eric will be pleased to answer any question readers might have concerning the process. He can be reached at (519) 649-0403 or email at [bartletteric@ymail.com](mailto:bartletteric@ymail.com)



Step 4



Step 5

We will all be watching the progress of Eric's Bear Hawk and maybe even hope for a flight some day.

RAA

RAAC has sets of electronic scales that are available to all members for doing the weight and balance calculations on their aircraft. Only \$30 for weighing. Contact the RAA office at 1-800-387-1028 to reserve a set.