

More On Turbulators

From the Summer 2004 Issue of the Capital Area Antique Modelers Association Newsletter, Jim Coffin, Editor

If turbulators are good is there a benefit using "wrinkled" tissue? I would say probably, at least for the upper surface. Lower surfaces on the other hand should always be glassy smooth. Generally speaking, for most high performance FF airfoils in the range of Re (editor: Reynolds numbers) 25,000-80,000, a .020 square or round turbulator placed about 5-8% back from the LE on the upper surface can offer some performance improvement. Of course there is a drag penalty so models with a very broad speed ranges (notably HLG, CLG, and Gas events) are usually not good candidates for turbulators. The empirical test I've always heard about is to trim a model for floating glide going dead straight with no turbulators. Now add a turbulator to one wing but not the other and observe the glide. If the model yaws toward the turbulated side the turbulator is adding more drag than lift; if the turbulated wing picks up higher than the other and turns the model toward the unturbulated side, you have just achieved an increase in lift. Further experimenting with multiple turbulators at various locations along the upper surface can give you brain damage but also possibly gain you significant improvements in decreasing sink rate. There has been lots of empirical research done on turbulators in the Re of FF models by various designers, authors and flyers. I suggest the NFFS Symposium CD archive from www.indoorduration.com for more information. Regards, Don D. (Don Deloach)