

How to Make An Incidence Pointer

by Gerald Sullivan, as published in the June 2002 issue of Scale Staffel, the newsletter of the Scale Staffel Model Airplane Club of San Diego, CA.

Having one plane that didn't fly well (er...not hardly at all), I figured that the problem was due to warps in the wing. A severe bank to the left upon launch ave me a little clue. I figured that some kind of amplification device attached to the wing would show if any twist were present. I looked at Great Planes AccuPoint laser device but figured that it was too heavy for a lightweight plane (Really, I'm too cheap to pay the big bucks for it.)

I thought about using dowels or balsa sticks somehow attached to the leading and trailing edge of the wing but all the sticks were warped and wouldn't show the small angles involved. Picking up a 36" aluminum tube from the K&S rack, it proved to be very straight. Now all I needed was a simple, lightweight, non-destructive way of holding the tube to the wing. Purchasing the next size larger telescoping aluminum tube, I rushed home to construct a quick clamp on the pointer device.

Materials required:

- 1 5/32" OD X 36" aluminum tube (can use 1/8" OD) (inner tube)
- 1 3/16" OD X 12" aluminum tube (can use 5/32" OD) (outer tube)
- Scrap 1/6" balsa sheet
- 2 light weight rubber bands
- Epoxy

Construction:

Cut the 36" tube into two 18" pieces, deburr the ends

Cut four 1" pieces from the outer tube

Cut the scrap balsa into four pieces 1/2" X 1"

Drill a hole in each balsa piece to fit your outer tube 3/8" from one end and centered from side to side

Epoxy an outer tube in each balsa piece forming about a 60° angle (See Figure 1)

Slip two clamp pieces (the balsa and the outer tube) onto the inner tube as shown. This assembly may then be attached to the bottom of the wing at the root or at the tip as shown in Figure 2. Stretch the rubber band from clamp to clamp to hold the pointer onto the wing. By sighting down the wind any washin or washout can be detected. This device can also be attached to the stabilizer and wing to show incidence and decalage. I find that the pointer fits well on flat bottom wings, under-cambered wings and Clark-Y type airfoils. All that is required is that each tube contact the wind in corresponding places (i.e. the trailing edges and leading edges or curved underside).

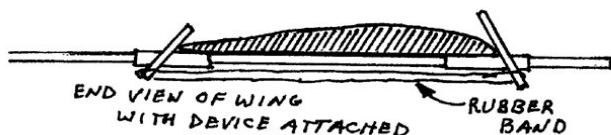


FIGURE 2

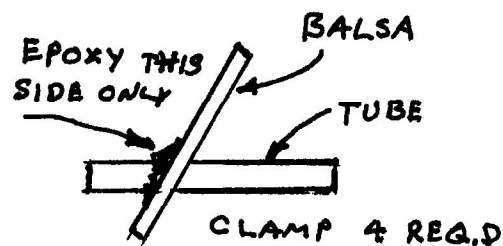


FIGURE 1.