

LETTERS TO THE EDITOR

Spoiler Use

Sir:

I have received a most helpful letter from David Stevens of Surrey, England, taking me to task for a portion of the October SAFETY CORNER. He is quite right, and I wish to correct and elaborate on the statement in the next to last paragraph "then it should be slowed down with full spoiler or airbrake to prevent bounce etc."

Actually, spoilers and airbrakes are used during landing approaches to control the rate of sink at a given speed or in other words to steepen the glide path. Contrary to the impression given by the wording in my article, they actually somewhat increase the stalling speed of the aircraft when applied, and therefore cannot be used to "slow the glider" for a landing. In fact, with spoilers or airbrakes full on the glider must touch down at a slightly higher landing speed than usual in order to avoid a hard landing, or conversely, the spoilers or airbrakes must be partially or completely closed if a slower touchdown is desired.

What I had intended to convey was that immediately *after touchdown* full spoilers or airbrakes can be used to slow the aircraft, prevent bounce and shorten the ground run. It should perhaps be emphasized also that when I said "if necessary the stick could be put forward in order to drag the skid," that this is an emergency procedure and can lead to damage of the fuselage on rough terrain. During a normal landing the stick may be brought back steadily after touchdown in order to keep a high wing angle of attack and consequently increase wing drag in order to slow the glider to a stop.

MILES COVERDALE

Long Island, N.Y.

Strength of the Utu

Sir:

We thank you for your article in the October issue regarding the sailplane Utu, but would like to correct the ultimate load-factor number which, in the specifications, was given as 8. This is the allowed, or proof-load factor. The ultimate is 8 times the factor of safety (1.75), or 14. This high value is due to the small tensile modulus and high strength of FRP laminates. In order to achieve the necessary structural rigidity the dimensions of the main parts must be determined on the basis of tensile deformations and not the break loads.

VILLE VAISANEN
(Managing Director)

Oy Fibera Ab
Helsinki, Finland

Instant Ball Bank

Sir:

When a sailplane pilot is required to remove his turn-and-bank indicator during a meet, and would still like a ball bank on his panel, this is what I suggest. Purchase a small ball bank from Wag Aero. Bond to the back of the instrument, using contact cement, a piece of Velcro, a dry material with a thistle-like texture.

Bond a companion piece of Velcro on the panel. This way you can have instant ball bank—or leave it at home.

I also suggest that Allan MacNichol be recognized for nomination for some kind of award for his unselfish work during the Mt. Washington Wave Camp in New Hampshire. People said he would be wasting his time but he proved them wrong. He did all the towing and missed his own chance to get Diamond altitude.

TED PFEIFFER

Ridgewood, N. Y.

More on Spins

Sir:

The year 1966 has been a very unfortunate one for glider accidents, doubly so because many of the accidents are related to a lack of knowledge that will continue to cause accidents if it isn't corrected. There is particular cause for concern about the misconceptions of spinning aircraft, evidenced in recent Letters to the Editor columns in *Soaring*. Our concern has been multiplied many times in discussion with glider pilots in the East and middle West, and so we'd like to try to clarify a few important points.

It is vital to understand that a *spinning aircraft is stalled, and the key to breaking the spin is recovery from the stall*. Unless stalled, the aircraft will not spin, and recovery from stall means lowering the angle of attack (nose down; stick forward). In most cases reducing the back pressure on the stick is sufficient for spin recovery. In the dozen or so aircraft I have experimented with, including all four currently produced Schweizers and a number of European ships including my Austria, total release of the controls after several full turns spinning has always resulted in prompt recovery. Pushing the nose down speeds the recovery; opposite rudder or neutral rudder is of less importance, but opposite rudder is helpful in some ships. There is never any reason to delay pushing the nose down, though a great deal of misinformation on this point has been published in some otherwise excellent books.

There is no way, in a glider, to recover from a flat (nose high) spin; in airplanes it is done by application of power with stick forward and opposite rudder. Flat spins in normal-category gliders should not occur if the loading and rigging are within the design limits. However, rearward-C. G. limits are easy to exceed in the 2-32, the 1-23, and other currently flying gliders. Pilots flying these ships must be familiar with their proper loading.

Incidentally, the only accidental flat spin I know of in a properly loaded aircraft was Richard Johnson's in an "S" Austria last spring. He reported that he was able to reverse the direction of his spin, but he could not lower the nose. The former is inconsistent with stalled tail surfaces in a V-tail aircraft, and in any event stick backpressure would leave the wings stalled even if it should improve the aerodynamics of the ruddervators.

Most accidental spins are "out the bottom"—stick back to slow up, and inside

or bottom rudder to keep the aircraft turning. This type of spin from a skidding turn is particularly dangerous because the banked attitude, with a tendency to roll further at the time of the stall, results in a delayed recovery to straight and level. Accidental spins from slipping turns ("over the top") are rare, though often emphasized by instructors, and are relatively less hazardous because the aircraft rolls first wings levels, then to opposite wing down. This enables the pilot to recover more quickly to straight and level flight if he initiates his recovery promptly. Level wings also significantly reduce altitude loss in recovery.

For many years it has been taught that applying opposite aileron to aid spin recovery is dangerous because it increases the spin rate. With modern aileron design reduced downward travel renders this less important, but it remains true, and ailerons should not be used in spin recovery.

Avoiding accidental spins is even more important of course, and here again modern high-performance gliders require more sophisticated handling than their counterparts of ten and more years ago. Aerodynamic cleanliness and careful sealing results in very little change in the sounds of flight over a wide speed range, and so the pilot is no longer warned by his ears as the stall approaches. Great pitch stability and highly effective trim mechanisms mean increasing stick pressures are very slight, and easily overlooked. This leaves only one warning—the airspeed indicator. Particularly on landing approach, and in low-altitude thermalling, airspeed should be guarded by frequent glances at the indicator. Opinions are divided on proper approach speeds, but one and a half times stalling speed is a good rule of thumb and provides an adequate margin of safety. Gliders should be flown all the way on to the ground, and stall landings left to powerplanes. Gusty conditions require even faster approaches.

MICHAEL S. GREENWALD

Chicago, Ill.

Answer to Paul Hardy

(The following letter was written by John Ryan, the outgoing president of SSA, in response to the letter by Paul Hardy which appeared in the December 1966 issue of *Soaring*.)

Dear Mr. Hardy:

I'm writing mainly to thank you for the constructive criticism which you offered in your letter and also to perhaps explain why *Soaring* and SSA are not exactly to your liking.

First of all, the editor has been polling SSA members for a considerable time regarding their preferences as to magazine content. The balance in the magazine is, as would be expected, somewhat dependent upon the results he has received from this poll. (A further tabulation of the preferential items on recent Membership Renewal Forms — on which low numbers indicate high preference — has shown a shift of emphasis in the first four items. Flight Stories took a substantial lead with a total of 788 points. This was followed by Pilots' Reports (902) and Sailplane Descriptions (922 points). Technical Articles, which formerly occupied second (Ryan's letter concluded on page 27.)