

## The Soaring Mythbusters?

By: Tom Johnson SSF Trustee

One of the great pleasures of being involved with the Soaring Safety Foundation is the opportunity to meet and hear from many of you in our wonderful community. I base my efforts largely upon the experience and knowledge you impart to me. I learn from you and try to coalesce it all into a cohesive safety strategy.

However, I also encounter soaring “conventional wisdom”. When I am not watching Erin and Ben on Hometown, I remember the great television show, “Mythbusters”, which dealt with urban myths and conventional wisdom in an entertaining and scientific way. While I do not pretend to have the ingenuity and likeability of Adam and Jamie, here is my take on our soaring “conventional wisdom”.

### The Tow Pilot Briefing

Many organizations claim that a group tow pilot brief in the morning and a standing tow pilot brief for the day suffices. FAR 91.309(a)(5) says that the *“pilots of the towing aircraft and the glider or unpowered ultralight vehicle have agreed upon a general course of action, including takeoff and release signals, airspeeds, and emergency procedures for each pilot”*. While it does not specifically say before each flight, every flight is unique and prudent Pilot-in-Command (PIC) action would dictate a brief prior to each launch.

Circumstance change throughout the day and I would not want to try and justify my actions based upon an hours old brief. It only takes a few seconds for you and the towpilot to agree via signals or radio on the desired Altitude, Area, Airspeed, Standard Signals, and Emergency Plan (AAASE) for this tow.

### Aircraft Pre-flight

Watching many operations around the country, one of the common practices you see is a training flight roll to a stop. The CFGI and Learner briefly discuss a few things as the tow rope is hooked up and the next launch is commenced. However, you are required to by FAR 91.7 to determine the airworthiness of the aircraft prior to each flight.

Does this mean you are required to pre-flight the aircraft prior to each flight?

I believe it is hard to interpret this as anything other than a pre-flight inspection by the PIC prior to each flight, but your mileage may vary. We have all heard of situations where a component of the aircraft was compromised by rocks or debris. A quick check of the aircraft can prevent unwanted occurrences.

### Release the Rope

I ask groups “what is the first thing you do in the event of a Launch Failure?” The answer I hear consistently from experienced glider pilots is “pull the release twice to ensure the rope is away from the glider”. The absolute first thing you **MUST** do on any Launch Failure scenario is pitch the nose down to transition from the nose high towing/winchng attitude to a nose low gliding attitude. Failure to do this step immediately upon recognizing a Launch Failure will lead to a low-altitude stall-spin scenario. This scenario is often unrecoverable and fatal to the pilots involved. I can tell you from personal experience

that landing with 200+ feet of rope attached to the glider is a non-event. First and foremost, in the event of a Launch Failure, **FLY THE GLIDER!**

### **The Six Signs of a Stall**

One of my favorite questions to ask sailplane pilots is “why does a wing stall?” One of the more popular responses is “The Six Signs of a Stall”. I go through each of the six signs and ask if they have had the glider stall with one or more of the six signs not present. The answer is always yes. Well, how many of the six signs need to be present for the wing to stall? The answer is none. I can relate from personal experience that it is possible to stall a TA-4J at 300 KIAS with the nose 10 degrees below the horizon, very firm controls, lots of wind noise, and no buffet. The wing stalls for one reason, and one reason only. The critical angle of attack (AoA) has been exceeded. This concept is essential to understanding the stall hazards associated with Launch Failure, Low-Altitude Thermalling, and the Over-shooting Turn to Final. Loss-of-Control Inflight (LOC-I) is the leading cause of accidents in the Soaring and the General Aviation communities. Realizing why and how the wing stalls goes a long way to understanding how your actions as a pilot can stall the wing.

### **The Yellow Triangle**

All modern European gliders have a yellow triangle on the installed airspeed indicator. The European Union Aviation Safety Agency (EASA) regulation SC 22.1545(e) (Airspeed Indicator) calls for “*a yellow marking (triangle) for the lowest approach speed (at maximum weight without water ballast) recommended by the manufacturer*”. Note that this is the “lowest approach speed” recommended. Many pilots believe this is the recommended approach speed for all cases.

Our Practical Testing Standards (PTS) requires that the pilot understand, and instructors teach, the effect of wind and wind shear on approach and touchdown speeds. So, it is apparent that the yellow triangle speed is a MINIMUM and not to be used without consideration of the wind speed, direction, and shear effects. The Glider Flying Handbook (GFH) recommends 1.5V<sub>so</sub> plus an appropriate adjustment for winds and gusts. The Soaring Flight Manual, Joy of Soaring, and the American Soaring Handbook all note that this speed must be increased to account for wind gradients/shears.

While the GFH does “recommended that half of the gust factor be added to the normal approach speed to compensate for wind gusts and sink”, it is normal in the big airplane world to adjust your approach speed by “½ the steady state wind plus all of the gusts”.

Also note, this is the approach speed, not the touchdown speed. It is expected that the pilot will slow down in the flare to the appropriate touchdown speed once the threat of a gust/shear induced stall is eliminated.

While this list is nowhere nearly as entertaining as “can a lead balloon fly?” (it can), “can I make a candle out of earwax?” (you cannot), “can you fold a piece of paper more than seven times?” (you can), understanding these soaring myths will help you fly safer and more happily.

Now back to Erin and Ben.