Taking A Look at "Powered Gliders" and the ASA

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The Soaring Safety Foundation (SSF) has long been the officially sanctioned Safety and Training arm of the SSA, actively working to assist in the reduction of soaring incidents and accidents through a variety of educational programs. Among the most well known programs are conducting FAA-approved Flight Instructor Refresher Course (FIRC), providing insightful articles for Soaring magazine, creating Condor based training media online, and the hosting of meaningful "Safety Stand Downs" at the last two SSA Conventions. In this article, I would like to direct our focus to another organization, one that provides a similar service for our Self-Launch pilots, the SSA Division known as the Auxiliary Powered Sailplane Association (ASA).

The ASA was founded by Pete Williams in 1988 to assist current and potential new owners in learning about what was then a new segment of our sport, those gliders fitted with an engine that would allow them to either sustain flight or Self-Launch. Its original goal was "To encourage the design, development and safe use of self-launching and sustainer engine sailplanes to advance the art of soaring." After many years, that goal remains the same today.

Pete was met early on with the need to assist the FAA in its regulatory oversight of these new types of gliders, and enlisted the aid of the SSF to help draft the language of Advisory Circular AC 61-94, which is the bedrock for guidance in training someone seeking the required Self-Launch Endorsement. In a landmark cooperative effort, the FAA then used the language to create the regulation, FAR 61.31 (j) (1) (iii), that mandates it.

The advantages of Self-Launching include not just avoiding the wait in line for the towplane, but the independence to explore new sites, and perhaps of most interest to those you enlist to crew, the ability to Self-Retrieve-no crew required! The price to be paid for the above is essentially two-fold: the relatively high cost of powered gliders, and the increased complexity of their operation. With regard to the first aspect, the cost of a powered glider is partly offset by not spending money on tows, but it is the second aspect, complexity of operation, that I would like to focus on for the remainder of this article.

While cockpit tasking is certainly greater for a Self-Launcher compared to a “pure” glider, thorough training is the key to safe operation. A quick review of AC 61-94 reveals two suggested Syllabi for Self-Launch training: one for those with powered aircraft experience, and one for those with only a Glider Rating. The latter seems to be where most trainees that I work with fall, and includes familiarizing the student with those aspects of flight not normally performed while Aero Towing, such as taxiing, analyzing the conditions for and calculating takeoff performance, and the sum total of the steps required to extend or stow the engine, which I often refer to as the “monkey motion.”

Getting familiar with the steps for extending, starting, stopping, and stowing the engine is important, the goal of which is being able to maintain aircraft control at the same time, while hopefully catching that first thermal! Even more important is

understanding the concept of when it is, and when it is not a good idea to make use of the engine, and at what altitude inflight decisions for its use need to be made. Essentially, this boils down to two basic truths: always plan take-offs with engine failure in mind, and never extend the engine inflight unless you are over a suitable landing spot in case things don't go as they should. It is always better to be pleasantly surprised when the engine performs well, than dreadfully shocked when you were counting on it and it fails.

I have been conducting Self-Launch training for about 12 years now, and have found that most trainees need 3-5 hours of flight time to master the monkey motion, and gain proficiency in dealing with the non-normal contingencies of simulated engine failure and system malfunctions. Perhaps the most significant circumstance to train for is engine failure after takeoff, much like the Premature Termination of Tow on an Aero Tow. Losing the engine after takeoff puts the Self-Launch pilot behind the eight ball fast if timely steps are not taken to preserve airspeed. Unlike its Aero Tow counterpart that tows at speeds well above normal approach airspeed, Self-Launch climb speeds are typically very close to L/D max, and should the engine quit with propeller wind milling, the drag that results is equivalent to a flat plate disc the diameter of the prop-pretty much like a drogue chute! After exposure to this scenario in a controlled environment, Self-Launch trainees learn that aggressively pitching down to preserve airspeed is a must, and are ready to deal with it as needed. Practicing approaches and landings with the engine extended but not running drives home the impact on L/D-typically cut in half or worse! Meeting the needs of increased cockpit tasking, thorough training is the best safety device a Self-Launcher can have.

Getting back to the ASA, it is comprised of several hundred members who fly Self-Launch sailplanes. Membership includes a bi-monthly newsletter, access to a website filled with technical assistance, and a state-by-state list of CFIG's (including yours truly) that provide Self-Launch Endorsement training. I hope you that if you are considering getting into this increasingly popular segment of our sport, you will take advantage of the vast array of assistance you will find by joining the Auxiliary Powered Sailplane Association, a Division of the SSA.

Stephen Dee with his Two-Place Taurus at the Pipistrel Factory in Slovenia