



## **Training: Bob Juncosa**

### **“SAFE Technology”**

*FULL DISCLAIMER: This article is more of an editorial than instructional. This is my personal opinion that may not be shared by all experienced RC enthusiasts, so don't take this as gospel but rather just one man's perspective.*

SAFE (Sensor Assisted Flight Envelope) Technology was developed by Horizon Hobby as far back as 2013. Although there are several flavors of SAFE (AS3X, SAFE Select, SAFE, SAFE Plus) this article will lump them all into the general category of computer aided flight technology.

The concept and intent of SAFE is quite ground breaking. It is a combination of sensors and software that resides in the airplane's receiver that assists the pilot in avoiding situations that are otherwise difficult to recover from, such as having a novice pilot have to deal with a plane that is suddenly inverted.

SAFE can be adjusted or selected to provide different levels of assistance ranging from keeping the plane within a reasonable flight envelope all the way to automatic recovery to level flight once the sticks are released. This is amazing technology to be sure but like all technology, there are places where it is indispensable and there are places where its use is counterproductive.

The most obvious place where it is very helpful is for the pilot that is trying to learn to fly without the benefit of any instruction. (This is highly discouraged and the subject for another article.) SAFE Technology has saved a lot of planes from going from the box to the trash bin on the same day. It is certainly capable of keeping planes intact long enough to get the new pilot comfortable with taking off, completing circuits around the field, and then landing the plane. In this scenario I suspect that most planes are damaged by the pilot trying to execute an otherwise reasonable landing in a place other than the runway.

So what is the role of SAFE when learning to fly with an instructor? Here are my recommendations...

#### Phase 1 – First flights

When the student pilot is having their very first lessons on the buddy box, it is fine to engage SAFE. Even though the instructor can keep the plane out of trouble, having SAFE technology will reduce the number of times when the instructor will need to take over. During these sessions, the whole point is to get the pilot comfortable with circuits around the pattern with the upwind segment being right down the centerline of the runway. SAFE Technology will keep the control in the hands of the student longer than without it.

#### Phase 2 – Early Take-Offs and Landings

Once the student is capable of reasonably well formed circuits around the field, they are ready to try their hand at take-offs and landings. SAFE technology allows this point in their training to occur sooner. The instructor needs to take over only when the plane is in the wrong place, not in the wrong attitude.

#### Phase 3 – First Solos and Uninstructed Flights

At this point the student should be reasonably proficient in taking off, landing, and circuits around the field. SAFE technology allows the student to attempt their first solo flights earlier. They can also try their hand at flying without the instructor being present at all.

#### Phase 4 – Beyond the Basics

In this phase, the student can get their plane up and back on their own but it is time for flying something other than boxes around the field and so instructed buddy box flying is still a good idea. Here is where I feel SAFE should be turned OFF. It is critical for new pilots to not just learn how to fly their plane when it is in the acceptable flight envelope but to be able to recognize when their plane has gone beyond those limits, what they did to get the plane in that condition, and how to recover from it. This is not possible when SAFE is engaged. When the student has reached this point in their proficiency, it is time to take the training wheels off and in my opinion, they should stay off.

So in closing, SAFE is an amazing advancement for our hobby. It has the ability to bolster the confidence of the new pilots early in their training. It can reduce the number of times when the instructor can take over. All good things. The downside however is that if over used or used too long, it can become crutch and limit the advancement of a pilot's abilities. Like all good tools, they have their place.

Happy Landings

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