

Can we just compromise and get along?

By Chris Hope, Master CFI

No, this is not a paid political announcement. Just a bit of musing regarding aircraft designs.

All aircraft designs are a compromise. Sometimes the compromise works, sometimes not. But all designers, when they first sketch their thoughts out, have some purpose in mind for their new design. Perhaps, the designer feels that there is a better design for an airplane that just goes fast. Or perhaps for a plane that has a great short-field capability. Or perhaps one that carries a bunch. Or perhaps one that just sips a tiny amount of fuel on that beautiful afternoon flight. Or perhaps one that is extremely simple to maintain. Oh, and did I mention that whatever the price tag, it is too expensive?

These thoughts occurred to me this past month when I had an opportunity to fly three totally different airplanes. Each of these planes was designed and built for a different purpose, and each does a pretty good job at fulfilling that purpose.



Early in the month I had my first flight in the Cessna 162 Skycatcher. Big surprise for me. No matter how you measure it, my rear end has a lot of sitting time in Cessna 150s and 152s. And when Cessna plumped a new Skycatcher down at

my local airport a year or so ago I was not too impressed. Over the past few years, I have flown a number of Light Sport aircraft. I have enjoyed them all (I really love the Sky Arrow) but I looked at Cessna's entry as just another 152 with a new paint job and an expensive panel. But I was finally coerced into flying one.

So, here is what I am guessing the Cessna designers were thinking when they started this design. First, it had to meet the requirements of the FAA Light Sport category. This immediately limited the weight, number of seats, maximum airspeed, and suggested the parameters for electronic communication / navigation. But, they also figured that this was an airplane that was going to be used for training, as the 150 and 152 were, so it needed to be easy to maintain and it needed some great landing gear. And, they figured that it might be nice to address the complaint that 50 years of CFIs have lodged against their earlier trainers, **TOO CRAMPED!**

So, here is the compromise. This plane will not have much carrying capacity. It won't have a great cruise speed. And it will not have the most elaborate avionics display. So how did the compromise work out? I loved it. The plane that I flew is nicknamed "Zoe" after the woman who was unleashed to design the eye-catching graphics that run from nose to tail. To keep the weight down, there is very little padding. But that lack of padding leads to more elbow room for two people than most two-seat aircraft. Weight is pulled out of the instrument by using a Garmin G300 avionics package with a single comm radio. (No VOR. Why bother when the G300 includes a VFR GPS.) Cessna chose not to scrimp when it came to landing gear, figuring that there might be one or two hard landings in this plane's lifetime. So, it is not a great cross-country plane, and it certainly is not a plane to fly IFR in. But it is a great plane to fly for fun in the local area, and it is a great plane for teaching the basics of stick and rudder skills for budding pilots.

At the other end of the single engine scale, I was invited along on an Angel Flight mission in a Cirrus SR-22. The mission on this particular day was to fly from Johnson County Executive Airport in Olathe KS (OJC) to Keokuk Iowa (EOK) to pick up a cancer patient on his way home from Chicago after receiving treatment. The requirements for this flight: at least three seats, IFR certification, and as much speed and comfort for our passenger as possible.



So, what do we end up with? A true airspeed in the 170 knot range, nice, plush seats, air conditioning, and a Garmin G1000 instrument suite. What do we give up? Well, this is certainly not an airplane for beginners. While there is no landing gear to accidentally forget, the speed of this plane requires a lot more forethought than the Skycatcher. Add in the higher altitude capability and now there is an oxygen system to consider. And with the speed and altitude capability, the designer has added speed brakes for the pilot's use. In order to surround us with plush body-hugging seats and great sound-proofing, the designer has added a good deal of poundage over the bare-bones design of other aircraft. And all of that additional weight begs for a larger engine, and with that comes a higher fuel flow, and with that comes larger fuel tanks and even more weight for the engine to pull along.



But, the mission of this plane is not one of bottom-of-the-barrel economy. The mission of this plane is to fly four people from point A to point B quickly and comfortably, rain or shine. And in this mission it shines.

Compare these two aircraft with one more that I discovered this month. Actually, I discovered it when it first flew in the GA heyday of the 1970's. The Grumman American Tiger was a fun plane to fly then, and I was delighted to rediscover it now.



The Tiger's forefathers were designed and built by American Aviation, but that company was purchased by Grumman. So by the time the Tiger rolled off of the line, it had the Grumman name, not just the American Aviation (AA) name. But the AA design folks were trying to do straddle the line here. They wanted a plane

that could perform as a trainer as well as a good cross-country machine.

The American Aviation people came out with the AA-5 Traveler in the 70's. Shortly thereafter, with a "bigger-faster" attitude, it became the Cheetah. And finally, with the same "bigger-faster" mind set, it developed into the Tiger. But although the plane acquired a larger engine and some aerodynamic clean-up, the overall design parameters remained unchanged. The design team was looking for an airplane that was easy to fly, easy to learn in, and not too expensive to maintain. But they also wanted an airplane that could carry four people with some speed.

Did they succeed? Well, there is a nice compromise here. The airplane has not been manufactured in twenty years, but it is still pretty easy to fly. The gas consumption is higher than that of the Skycatcher, but the interior is much nicer. (More amenities, more gas consumption.) At the other end, the plane certainly does not match the speed and comfort level of the Cirrus. In fact, it is about forty knots slower. But what it lacks in speed, it makes up in fuel and maintenance economy.

Is the Tiger fun to fly? A resounding "Yes!" But then so is the Skycatcher and the Cirrus. And with a little prodding, I have to admit that I cannot think of a single airplane that I did not have fun with.

So, the word of the aviation day is "Compromise". It's what allows us to fly a wide range of different airplanes.

Don't just practice until you get right. Practice until you don't get it wrong

Chris Hope has taught fledgling and experienced pilots for more nearly 40 years, mostly in the Kansas City area. Chris holds flight instructor certificates for single engine land and sea airplanes and multi-engine land planes, as well as for instrument training. He holds ground instructor certificates for advanced and instrument training. Chris is an FAA Gold Seal Instructor and a Master Certified Flight Instructor. Chris serves as a member of the FAAS Team in the Kansas City area. His website is www.ChrisHopeFAAFlightInstructor.com