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**Gene Kranz**

Humble homebuilder

**Sirocco**

Story of an uncommon design

**A Rare C3B**

The other Stearman



**EXPERIMENTER**  
FEATURE

# SECONDHAND HOMEBUILT



FINDING YOUR DREAM PLANE IN AN ALREADY-BUILT E-AB



BY EARL DOWNS

IT'S SOMETHING THAT HAPPENS EVERY YEAR  
AROUND THE LAST WEEK OF JULY IN OSHKOSH, WISCONSIN;  
IT'S CALLED THE "I-GOTTA-GET-ME-ONE-OF-THEM SYNDROME."





o protect the guilty I have created a character I'll call Joe. Joe contracted this syndrome while attending EAA AirVenture Oshkosh; it's a time when this contagious condition is at its worst. Joe was perfectly happy with his Cessna Skyhawk until he stopped by the BelchFire Airplane Kit Manufacturing Company at AirVenture and fell in love with its BelchFire Mark-6 kit-built airplane.

Joe really wasn't interested in building an airplane, but when he found an already-built Mark-6 posted for sale, the Skyhawk was history, and after due diligence, Joe became the downline owner of an experimental amateur-built airplane (E-AB).

I first became acquainted with the issue of being a downline owner of an E-AB when I obtained my letter of deviation authority (LODA) that allows me to perform commercial flight instruction in my Zenith Zodiac for the purpose of transition training. My plan was to provide first test-flight preparation to builders, but as it turns out, I do as much training for pilots who have purchased an already-built Zodiac as I do for first-flight preparation. While the training program is similar for either a downline owner or a builder, I found that downline owners were often less aware of the rules and regulations that apply to the operation of their newly purchased E-AB airplane.

My purpose here is to run over a few of the things that I've come across that I have now included in my transition training program.

### ● WHO'S THE AIRPLANE MANUFACTURER?

In Joe's case, it's easy to jump to conclusions and say that the BelchFire Aircraft Kit Manufacturing Company is the manufacturer of his Mark-6 airplane, but that's not the case. BelchFire built the kit for the airplane, but it did not manufacture the airplane. The manufacturer is the person who built it.

The fact is, when Joe became a downline owner he did not become a customer of BelchFire, and this brings up the point of downline service provided by the kit manufacturers. One of the early things a downline owner should do is notify the kit manufacturer that he or she is now operating one of its completed airplanes. The completed kit-built airplane may have a kit serial number, and it benefits the new owner to let the manufacturer know who now owns the airplane. At the minimum, this could put the new owner on an important notification list that the kit manufacturer uses to advise owners of safety issues.

Some kit aircraft companies can offer assistance to downline owners up to the extent that it applies to the kit they produce. However, they may not be able to help much regarding the completed airplane — because they didn't build it. Some of these companies actually have programs to help downline owners, and some don't. Consider visiting the factory or attending factory fly-ins. Inject yourself into the camaraderie offered by the kit manufacturer and other owners.

I joined in at the recent 25th Anniversary Open House at the Zenith Aircraft Company factory headquarters in Mexico, Missouri, and attended a seminar held by the factory that addressed what it calls "second owners." It was clear from this seminar that many of the owners of these completed kit airplanes needed help in understanding their responsibilities and how the factory fits into it.

This seminar confirmed to me that it was important to include training in my transition course about downline ownership.





## ● CERTIFICATION

There is a tendency for people to refer to E-AB airplanes as being uncertified when compared to Joe's Cessna 172, which is certified. Watch out: Using the terms certified and uncertified can lead to misunderstandings. Each airplane is issued an airworthiness certificate by the FAA; it's just that they are different certificates. The Cessna holds a standard airworthiness certificate and is referred to as being "type certificated." An E-AB holds a special airworthiness certificate; it is not type certificated.

## ● OPERATING LIMITATIONS

The operating limitations for a type-certificated aircraft (like the Cessna Joe previously owned) are developed by the manufacturer and are part of the FAA standard certification process; the FAA does not write them. The big difference for the E-AB owner is that the FAA generates/writes the operating limitations for E-AB and issues the operating limitations with the special airworthiness certificate. This process is completed by the FAA or a designated airworthiness representative (DAR), and the operating limitations are specific to the operation of this one airplane only.

The operating limitations of an E-AB are part and parcel of the airworthiness certificate, and both must be on board the airplane for it to be legal to fly. They are so connected that I actually have them stapled together and placed in my transparent airplane document case (a 98-cent, three-ring binder pencil holder from the Dollar General store) to make sure I can rapidly respond to a ramp check without digging through loose papers.

## ● CONTINUED AIRWORTHINESS

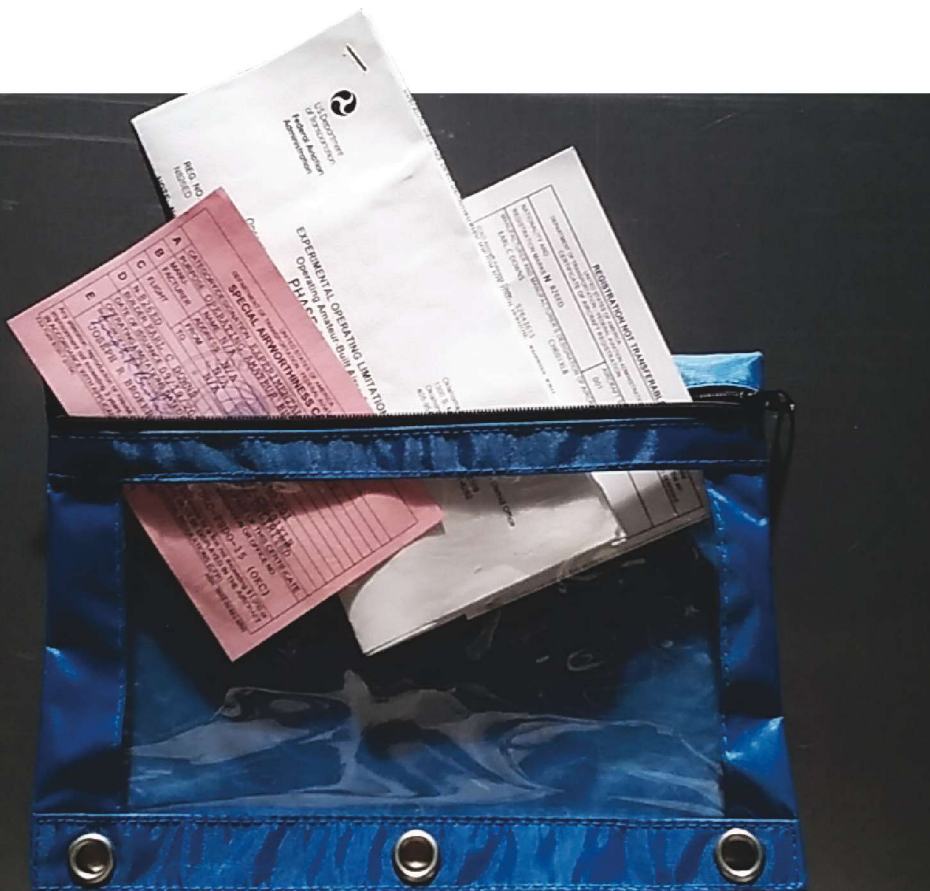
The term "continued airworthiness" is applied to steps that must be taken to assure the FAA that your airplane complies with its airworthiness requirements. This process gets a little wormy with an E-AB because it combines regulations with the E-AB operating limitations. Let's take this a step at a time to see if we can make some sense of this.

When Joe still had his Cessna 172, part of continued airworthiness was the annual aircraft "airworthiness" inspection, which must be performed by a mechanic, or repair station, that holds inspection authorization (IA). The A&P/IA must attest to the fact that a type-certificated aircraft is in "airworthy condition."

An E-AB must receive an annual "condition" inspection. Aircraft with special airworthiness are not required to meet the airworthiness standards of type-certificated aircraft. However, the FAA does apply the term "condition for safe operation" to aircraft with special airworthiness certificates.

We'll be referencing CFR 14 Part 43 (let's just call it FAR 43), which has the long title of *Maintenance, Preventive Maintenance, Rebuilding, and Alteration*. Among other things, this regulation provides aircraft mechanics and repair stations with the rules for performing the maintenance and inspection functions that fall under the regulation title. *A type-certificated airplane falls under the rules contained in FAR 43.*

FAR 43.1(D) says that this regulation does not apply to experimental airplanes (with some caveats), which means that *no part of FAR 43 applies to an E-AB, unless the aircraft operating limitations say otherwise.* It's this statement of exclusion that allows anyone to do any maintenance of any kind on an E-AB.



**Left:** My airworthiness certificate, operating limitations, and registration are placed in my transparent airplane document case (that's a 98-cent, three-ring binder pencil holder from the Dollar General store) to make sure I can rapidly respond to a ramp check without digging through loose papers. The document case is attached to the aft cockpit bulkhead, and my airworthiness certificate can be clearly viewed.



The annual condition inspection on an E-AB may be performed by the original builder with a repairman certificate or any A&P mechanic (*no inspection authorization is required*). The downline owner of an E-AB may not be approved to perform the annual condition inspection (unless of course, if the downline owner happens to be an A&P mechanic).

The E-AB operating limitations provide some guidance to maintenance. For example, the annual condition inspection must be performed in accordance with FAR 43 - Appendix D (that's a checklist) even though the airplane falls under an exemption to that FAR. The operating limitations also include the handling of major changes to the aircraft.

The operation of your E-AB could require some equipment on the airplane to meet the same standards as Joe's former Cessna. Examples of this include the transponder, equipment required for IFR flight, ELT inspection, and instrumentation for night operation.

Okay, let's just put it this way to keep the whole thing simple: If you own an experimental-amateur built airplane, you had better darned well know what's in your operating limitations!

Now, let's get something straight — it may be legal, but it certainly may not be safe to have “anyone” messing around with your E-AB, and I have found many downline owners who prefer not to do their own maintenance. The obvious answer to this dilemma is to turn it over to a certificated mechanic. That's a great idea, but it's important that the mechanic understands the differences in the E-AB requirement to be in condition for safe operation.

There are other issues that are different with the E-AB when it comes to continued airworthiness, and it takes me about an hour to cover the entire subject in my transition training course.

## ● TRAINING

The issue of training in an experimental amateur-built airplane also gets involved in safety for the downline owner. Any flight instructor may provide training in an E-AB and charge their normal fee. The only issue about charging for training in an E-AB is that a charge may not be made for the use of the airplane unless the airplane has been approved through the issuance of a LODA for such operation. (That's what I have.)

A recent example of a responsible downline owner occurred just a while back when I performed training for a flight instructor in my Zodiac so that the flight instructor could provide training to a downline owner of the aircraft. I had to work with the insurance broker to obtain a deal that would allow the instructor to be covered by insurance through taking the dual instruction with me.

And finally, EAA itself is a huge part of the picture when it comes to being an E-AB downline owner. Downline owners may not have built their own airplanes, but they are flying the same E-ABs that you and I built. They are us! We card-carrying EAA members need to grab these downline E-AB owners and make sure they get the best information possible through being an EAA member and, even better, belonging to an EAA chapter. Fortunately for our friend Joe, he saw the light while at AirVenture. In my business, I have run into people who simply don't have a clue about owning and operating their dream plane, which is an experimental amateur-built airplane. Needless to say, I urge them to take advantage of what EAA has to offer. *EAA*

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**Earl Downs** is a multi-thousand hour pilot who has been active in aviation training since 1961. He added aviation writing to his résumé in 1995 and has published numerous articles in EAA and other publications. He is also an A&P mechanic, a sport pilot designated pilot examiner, and he provides transition training in his Zenith Zodiac.

## BUILDER HINTS TO ADD VALUE WHEN IT'S TIME TO SELL

The minute you sell your E-AB, you have created a new downline owner. Make it easy for the new owner to feel comfortable with your airplane.

Builders should prepare to sell their kit-built E-AB airplane from the day they first start working on it. An important step in building an E-AB airplane is to show that the project complies with the amateur-built rules. Start some sort of a builder's log the first day you touch it. The log does not have to be complicated; a simple handwritten diary format will even work. Without a builder's log, the new owner may have a devil of a time getting the airplane certificated if it changed hands before being completed.

Create some sort of list of all the aircraft components that are provided by vendors other than the kit manufacturer. I just created a file and copied information down in a simple Word document. For example I have a list of who provided the wheels, brakes, fuel pump, ignition switch, filters, etc. This list includes all appropriate part numbers. Some of the items in my parts file are nothing more than scanned labels. Information like this helps make a downline owner much more comfortable.

Consider creating some sort of a pilot's operating handbook (POH). Think of how you would feel if you were a new owner of this airplane and needed the basic operating information such as weight and balance, airspeed numbers, performance numbers, limitations, and anything else that could be helpful to the pilot. Remember, these numbers are supposed to be determined during the Phase 1 flight testing. The operating limitations issued by the FAA at the time of certification do not include any of this sort of information; it's a rules document.

My POH is probably a little longer than it has to be because I was planning to use the airplane for commercial training. I simply took the format from a regular type-certificated airplane and adapted it to my plane. My POH has eight chapters, but some of those chapters are only a couple of pages long.

You might also consider copying this article and giving it to the new downline owner.

Earl Downs in his Zenith CH 601 XLB

