



# Hangar Talk

## The “Lightning” Newsletter

### December 2009 - Volume 2, Issue 12



#### **Pete Disher’s – “Lightning of the Month”**

Please submit a photo of your Lightning for future “Lightning of the Month” consideration.

The newsletter goal is to **get the word out** on happenings at Arion Aircraft, and to **give a voice** to Lightning **builders and flyers**. To be successful we need your inputs. So it is not only a way for the factory to provide Lightning news, but it is your newsletter as well, and its success will depend on you getting involved to spread the word and to help other builders and flyers. So think of this newsletter as an “exchange of information publication”. Send your inputs directly to: **N1BZRICH@AOL.COM**.

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#### **And now, the rest of the news:**

## Two Lead Stories:

This month we are going to have two lead stories for your reading enjoyment. Call it a holiday season special. The first one will be **Clive James' coverage of three European fly-ins**, and will include some great photos of light sport aircraft in Europe. The second article is a combined effort by Nick and me on the latest news from the FAA and EAA on the **51% rule** and how it might affect kit building operations at Lightning dealers. I hope you enjoy both of these articles.

One other piece of new information is that in the **January 2010** issue we will run a contest for our readers to pick their favorite past "Lightning of the Month" which will then become the "**Lightning of the Year**". I will run photos of all the past monthly winners and will ask you to email your vote for which one should be chosen as the best for 2009. This was a suggestion made by Jim Langley (and seconded by Nick), so if it goes over well, we will plan on doing it for upcoming years as well. I guess it will be kind of like Playboy magazine's playmates of the month and playmate of the year winner. And before you ask, Mark (the only centerfold model we have had so far) has asked for his photo to not be included in this contest. He really is a modest model.

You will probably remember the "tease" photo (on the right) that was in the November issue of our newsletter showing two beautiful young ladies wearing Jabiru shirts. Well, to be correct I should have called them two beautiful young mademoiselles, since they are from France. You have probably figured out by now that I like posting any photos of pretty ladies (when they are associated with airplanes) and of course, pretty airplanes. I mean, pretty ladies and airplanes – what could be better than that?



**Clive and Shirley**

**And now, Here's Clive's report on the French ULM rally in Blois, the UK LAA rally and the Dutch Rally at Texel. Clive flew his Jabiru on these trips, but he also has built an Esqual which he has recently modified with Lightning cowlings and gear legs.**



I work offshore in the North Sea, so miss just under half of the year's flying events. That, coupled with the vagaries of the European weather, makes for sporadic attendance at flying events (not unlike other parts of the world I'm sure). My solution is to plan to visit everything and then I'm ready to go to the ones where the weather plays ball.

This year was much like recent summers, very changeable. So imagine our surprise when we attended three fly-ins on three consecutive weekends.

What's the big deal? Well I fly VFR only and the fly-ins were in three different countries, two out of three were across the channel!

We were still reeling from the previous month and the success of attending the Bleriot celebrations in Calais on the 100 year anniversary of the crossing of the „English Channel“, proudly called that by us Brits, but known as La Manche by the French (the ditch). This had been another well planned event where there was to be the mass crossing of some 400 ULM aircraft, French and British. This ended up vastly reduced because of blustery weather around the days of the anniversary and the 'mass crossing' was reduced to a 'slow dribble' by the French insisting we were individually flight planned out of Calais. The departure rate was on average about 20 an hour, delayed by the Patrouille de France departing and returning to Calais's airfield where we were based for the two days. Never the less, we had attended a very important event! By we, I mean me, my trusty Jabiru SP, and my long suffering wife Shirley. There is nothing she likes more than sitting on a field somewhere waiting to fly.

By the way, ULM stands for Ultra Leger Motorise, basically aircraft 450 kg (990 pounds) or less.

### **Weekend one.**

Having been offshore for the previous two weeks, also being an organized sort of guy, all the planning was in place when I climbed off the Puma helicopter and made my way to the Saab passenger aircraft in Aberdeen to fly home to Norfolk. As usual, I'd been watching the long range forecasts and the weather that continually streams across to us from the US. Things were looking changeable and marginal but pretty much the script for the past few years, European forecasting, always being on the pessimistic side until the few days before a particular date, I have learned to stick with a plan.

The first event is an annual one held in Blois in the middle of France. (<http://www.ulmblois.com>) I've attended before and it's a great few days where all the quality ULM aircraft that are available in Europe are displayed at the Rassemblement. Rassemblement translates as 'Gathering' but sounds rather grander though this year with some 140 exhibitors, hundreds of aircraft, many came from the UK and thousands arrived by road. The event is usually overwhelmed with folk, so food and 'facilities' were stretched. For that reason we set up base at Dugny and Holiday Park some 10 clicks away. The park opens up a 500 yard strip for the period, tense this year as the grass wasn't cut until the day before we left the UK. Channel crossings aren't a big deal distance wise (I've flown to the Czech Republic) but there's something about the 20 mile crossing that makes it the thing of legend to us Brits who revere the protection it gives us from the rest of the world. Any motor takes on a different tone when out of gliding distance of land when one spends the bulk of one's time over land looking at rolling fields. The channel has its own weather system and often with CAVOK on either side, there will be fog or cloud cover across it. (Editor's note: CAVOK means ceiling and visibility OK, like the abbreviation CAVU meaning ceiling and visibility unlimited) This crossing was OK but we, although at 5000' over Dover, we were at 450 feet after running down the coast at Pas De Calais, VFR remember - I always like to see the ground. There are numerous ways into France and we've tried many of them, our favorite for simplicity is Abbeville near the Somme (WW1 fame). We were in good company with some 35 UK microlights there by the time we had dumped our bags in the motel room and headed for the bar. Most were camping, pitched right outside the Motel, for a sharp and blustery night. The key thing we'd all picked up on was the weather crossing from England was going to be very lively on the Friday so Thursday night found a good contingent of Blois tourists in Abbeville and elsewhere in North East France before it got dark. Suitably fed and watered having made a few new friends and checked in with some old ones, we taxied out into very blustery conditions as forecast. My little Jab can take a good pounding so I was impressed with the Flex wings (Deltas or Pendulaire) as they wrestled with their wings in the swirling, by now 20 knot, winds.

We bounced our way out across the Somme, climbing hard to find smooth air and were rewarded with nice flying conditions if a little slow at FL55. Whilst flying abroad when not talking to ATC all Brits chat on the microlight freq 129.82 and I was able to tip the guys off that it was worth enduring the climb rollercoaster to get to smooth conditions above, even if the headwind would initially slow things down a little.

Flying down the west side of Paris with its many control zones is really easy with a mapped GPS and the French controllers ever helpful if a little gruff at times.

A couple of hours later and we were descending hard to get under the low cloud at Dugny where apparently it had been raining very hard 15 minutes before. The sun was coming out and the rough but useable strip already had 10 British aircraft parked on it. These were the guys who had either arrived the day before or had time off to be already in France that week. As we taxied in I saw an Ex Jabiru pilot waving at us from his Ford rental car and within 5 minutes of arrival we were off for a day's Chateau hunting on the ground. His plan was to see the nearest most spectacular ones during the day and fly them that night. We had a great day marveling at the splendor of the great houses and returned to Dugny at 5 to get our caravan keys, also to meet up with another couple who were going to 'rent a room' with Shirley and I for the weekend. They were patiently waiting at the bar and beginning to think they would need their tent after all. We met a load of new folk at the campsite entertainment over the weekend; guys we were to see the next weekend and even some two weekends later.

Saturday was bright and sunny and after a later start (the fault of French wine, cheap and Stella, expensive) we flew the short hop to Blois Breuil. The arrival arrangements are basic, fly to the water tower, fly down wind (today) and land on one of 5 parallel grass runways. Two guys with flags (red or green) indicate whether you can land, there is a freq but it's a bit of a free for all and naturally mostly in French.

Amazingly, having left 10 minutes after our Chateau friends, the plane we were dragging in behind was them, despite there being 20 aircraft in the large loose circuit.



**Blois, France**

Blois is very organized which it has to be with so many planes but they do something I've never come across elsewhere. They check all your paperwork, if you don't have it you can't get past security and out of the aircraft parking area. I impressed my wife by negotiating my way in and registering in French, something I listen to every day with my IPOD whilst in the gym at work.

**The French are very pro flying (like the U.S.) and ULMs are not very regulated at all, so if you can get a plane to weigh 450 kg (990 pounds) you can more or less do what you like. The Millennium was very impressive, especially as it's a ULM! That's the amazing thing about that Millennium aircraft, because it's Carbon fiber, comes in under 450, with a 912 it cruises faster than a Lightning by some margin. The cost is nearly 100,000 Euro. I think it's gorgeous but Shirley says she's not looking at the back of my head all day. :-)**



**Millennium**



**Millennium kit**

**Un ULM est un aéronef Ultra-Léger Motorisé, Which means an Ultralight motorized aircraft. The rules seem a little sketchy and are loosely applied. The main rule is max weight 450 kg which is common across all of Europe. Unlike the US the ULM can be a two seater; in the UK the category is 'Microlight' and again must be below 450 kg, max empty weight 267kgs. Generally the ULM category across Europe is a close ally to the US LSA category and most European manufacturers have one eye on the US because of the interest in the Light Sport type of aircraft. The Esqual was a Spanish ULM, again 450 kg, but that was never going to happen as you probably know as you have one!**



**Corvus Phantom**



**JMBVL3 fixed gear**

The Blois event was as impressive as previous years despite the recession and some fine examples of European manufactured aircraft were on show along with the trusty Jabiru stand and the pretty girls that Buz put in the newsletter last month. The most impressive pictures of LSA are below. A great abundance of autogyros meant some spirited displays as the airfield was shut to arrivals (sort of) for a spell. After walking up and down and stretching Shirley's patience to the limit we taxied out some 3 hours later to take off under the airshow, they let you out (green flag) if you patiently wait in the queue. We planned to bag a few more airfields that day and the fuel was shut for lunch (3 hours), so were departing to the South on our way to another British tradition the fly-in and barbie at St Secondin, where loads of Brit ULM pilots camp overnight, drink beer and finally travel into town on the back of a farmers cart to get last orders in. As we sat adjacent to the 'holds' out the corner of my eye I noted a motorglider coming in very slowly and we then witnessed a classic PIO which the guy almost caught. He dropped the ball finally and his beautiful glass fiber aircraft ripped it's U/C off after dropping a wing and doing a stylish pirouette. We were worried for a while as the 2 on board didn't get out but it was clear the organizers were comforting them and checking before they got out. We thought that would put paid to our departure for a while but amazingly a minute after the event the green flags were waving at us and we took off to continue our day.

We dropped into an almost deserted airfield at Chatellerault only to find a Brit tying his CT down for the night, also ex Blois, a chap from Southern UK on tour with his son. A club member got the benefit of my broken French and further hospitality saw us topped off with expensive Avgas and on our way to ST Secondin where the guys were setting up for the evening's festivities. There are quite a few British flying

schools that move out to France or Spain for the summer to run intensive flying courses. Graham Slater moves from Marlborough in Wiltshire close to Poitiers to his strip at St Secondin. (<http://www.microlighttraininginfrance.co.uk/>) Last time we saw Graham was at the 'White Horse Challenge' a 'rally' fly-in in the UK the year before where you have to photograph the 8 'white horse' carvings on the hills south of Swindon, a bottle of White Horse Scotch for the winner (thanks Charles).

After downing some pop we left the guys starting on their beers in the barrel and the charcoal was being lit. On the way North we chatted with yet more Brits heading for Graham's party as they flew under us to St Sec. We flew over a few of the Chateaus on the way back and had another couple of great nights at Dugny before the approaching weather system had us heading back for the UK on the Monday. A classic FL65 channel crossing after fuelling again at Abbeville, found us heading back to our breezy base in Norfolk; the rain started soon after we landed. We did have a plan to visit friends who have their own Chateau near St Etienne during that week but the weather put paid to that and meant an early return. It didn't look good for the next fly in either,



**LeJunka UL**



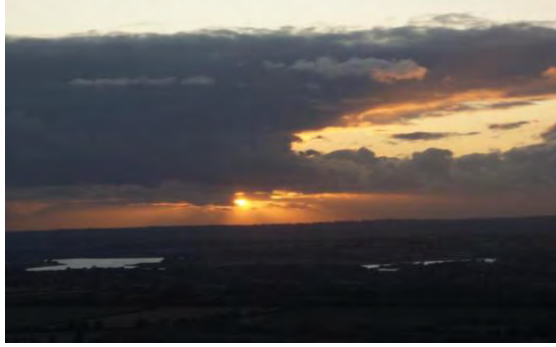
**Autogyro**

### **Weekend two.**

The weather through the next week continued to be poor, windy and raining. The next fly-in was 'Revival', that was for a few reasons. In the UK amateur aircraft building is via the PFA (Popular Flying Association), an organization formed after WW2 to support access to flying and home building. The PFA is delegated by the CAA to be responsible in this area, since there is no 'experimental' category in the UK. The permit aircraft the PFA look after are either, one of a kind designs, amateur built from kits or plans, or aircraft where there is no longer any factory support (Classics). There are other aircraft in the UK that are on a 'Permit to Fly' but these are one off's, ex military etc.

Not unlike the EAA (OSH) the PFA held a showcase rally every year, manufacturers and accessories companies touting their wares and a load of folk flying in, in every type you can imagine. This rally grew and grew and eventually a good year was 2000+ aircraft and loads of people. It did however outgrow its funding and after two washout rallies, the association called a halt to holding them as the financial losses weren't bearable by the membership. During its ascendancy it moved from Sywell to Cranfield and on to other larger locations, the last being held in 2006. Everyone missed the event and so it was devised to hold a rally back at Sywell with the organization and financial liability being taken on by the airfield. The PFA assisting where they could. In the 60's I attended a PFA rally as a child at Sywell, so was thrilled that it would return at last to its real home.

Sywell is a huge grass airfield with fantastic facilities housing all types of aircraft and training. It was established over 75 years ago and was a key "ab initio" training based in the 30's. The décor is all very art deco, the main parts dating from that time. (<http://www.sywellaerodrome.co.uk/history.php>)



**Sywell**



**Edgely Optica at Sywell.**

During 2009 they completed laying a 1200m hard runway and had enough space to hold a rally of several 1000 planes if they packed them in neatly. This year would not be on that scale, as on the Friday afternoon, we headed to a dark and stormy home airfield for the 90 mile flight to Sywell. Conditions were very poor but we gambled on that last hour of daylight when everything calms down and took off at 1815 into stormy conditions and a 35 knot headwind. The storm cells were amazingly helpful and left us a clear track to Sywell without much deviation from track. However the GPS told us if the wind didn't drop we would run out of daylight. I didn't share this information with Shirley to keep things simple. No one else was flying in Norfolk that Friday evening so we got good service from the local controllers. Imagine our surprise when fast jet traffic was called in our six and we waited to see whether he had seen us. He passed just below us and careered round to an airbase to the North of where we were, coming round again, he passed a little further away and we could only assume he was giving a flyby or something as our military don't work weekends and stop Friday lunchtimes as a rule. Watching him climb away to the West, I called Sywell traffic to see if anyone in the circuit could give me the weather, amazingly, at 60 miles, Jeff the airfield controller, called it flyable for us and told us there were other late inbounds. Keep going then! Looking toward our destination longingly we then spied a small smoking dot, something all fast jet watchers will know was a plane heading straight for us, what did he want now? We were in the gloom and had seen him as he was backlit by the setting sun; I now did my best to make our little Jabiru look as conspicuous as possible and hoped he remembered that 15 minutes before we were on the same track. He veered away at the last moment toward his base and I waved the wings in case he had seen us, we'll never know.

The wind a now mere 17 knots so we had 'speeded' up and soon groped our way to the airfield and I felt down for the surface. As is the case when on the ground it looked brighter but I was sure we would be the last to land at Sywell that night. We'd made it, tied down and checked into the onsite hotel and headed for the bar. From 70 arrivals that night the Rally would see nearly 500 aircraft visit over the weekend. An impressive number given the wind blew all weekend and was a full crosswind on the chosen longest runway. We met folk we knew from all over, visited the few trade stands and finally watched everyone depart on the Sunday having booked for 3 nights in the posh hotel (mistake, restaurant shut Sundays). The most 'meritus arrival' was from Holland, Max from Lelystad flying an ARV, as an ARV was my second plane and seeing there were only 15 flying in the world we were old friends and were due to meet up again the following week! So the revival was a success and we hope for bigger things next year (and better weather).

### **Weekend Three.**

So with two down we didn't hold out much hope for number three. I half heartedly followed the weather and exchanged email with European friends who might be going where we were. Target for fly-in number three was Texel (pronounced Tessel by the locals), on an island in the North of Holland. (<http://www.texelairport.nl/>)



**Texel**

In some ways this was going to be the most interesting trip, a channel crossing and three countries. To simplify things we would land in country # three missing out France and Belgium with just an overfly. It is of course possible to fly direct from our Ludham base to Texel, this would be 120 miles almost all over the North Sea. We would add almost 200 miles more by routing South for the short water route past Calais, re-fuelling at Midden Zeeland (middle of the sea?). The forward planning went as far as a hotel booking once again, essential to be able to stay local to an event. I was keen to make the trip as the NVAV, the Dutch amateur aircraft association, were holding their annual fly in at Texel. The NVAV are the reason my Esqual can fly, as a Dutch experimental I can fly it for short periods in the UK for 'evaluation' only on an exemption. The NVAV are a small but very enthusiastic team of Dutch aviators and have as great a mix of aircraft that you will find anywhere in the world.

To them I am eternally grateful as there was a time I thought my Esqual would never fly in the UK. We started again into changeable weather and a strong tailwind, not good, as the longest leg was back the other way, up the coast of France + Belgium + Holland, some 120 miles of headwind. The other complication was, to fly in Holland, you need a mode S transponder. Something my Dutch registered Esqual has but my British Jabiru doesn't. The solution, my Dutch friends told me, was not to talk to anyone and stay low below the control zones. The rule is 1200' max without mode S but we only went that low when we had to for the zones.

So after saying good bye to Zeeland, an island in southern Holland we wouldn't talk again till we got near Texel, an island in the North. Mode S is coming, eventually to us all, I'm sure, but Holland is the only place that has already mandated its use. Amazingly, despite being told as much, when the light aircraft of Holland turned on their new shiny mode S transponders early in 2009 the ATC of Amsterdam where so overloaded with data they couldn't see the airliners they wanted to. Now in large parts of Holland when you approach controlled airspace you have to turn your mode S transponder off. Imagine being forced to spend \$3000 on something you didn't need and then being told not to use it! Anyhow it worked and after enduring a 30 knot headwind for what seemed like an eternity we arrived in the circuit at the busiest parachuting centre in all of Holland. There were 70 or so planes there Friday with a weekend total of over treble that. We met with the NVAV, Max from Sywell and some friends from the UK (Europa fly-in was here as well). A great weekend though we spent time away from the airfield on hired bikes (the Dutch love their bikes). On the way back in damp conditions a stuttering Jab 2200 had us stop in Calais to prove it was carby water prior to the water crossing. Sure enough small globules had built up in the Bing reservoir and I made sure of loads of carby heat across the channel. The 17 gusting 25 knot cross wind at base had the local air traffic 10 miles away asking for a call after we landed to make sure we are OK, just what Shirley needs to hear after a long day.





**Back to the UK; the white cliffs of Dover.**

So three fly-ins, in three weekends, in early September in Europe, bad weather this year? I can't complain.

Regards,

**Clive R James**, e-mail: [clive.james@bp.com](mailto:clive.james@bp.com)



**Clive and Shirley, "entertaining the troops".**

**I hope we can get them to perform at the next Lightning Homecoming and Fly-In.**

## The “Revised” 51 Percent Rule: by Buz and Nick

The first part of this article was compiled from information that I gleaned from FAA and EAA publications. It is basically a summary of the changes or revisions to the 51% rule. After this part, Nick has provided a good explanation of how the rule will now affect their builder’s assist program.

The FAA recently released the final revision of the amateur-built aircraft certification policy (known as the 51 percent rule) as well as Advisory Circular 20-27G (a guide on how to certify every step of the building process). Below are the changes as I understand them and how it might affect your current or future homebuilt aircraft project:

**What has changed?** Actually, not too much if you compare it to the way the old rule was applied. Therefore, if you are in the process of building or interested in building an aircraft in the future, then you should have no problem. Having said that, just remember that the “major portion of the aircraft needs to be fabricated and assembled by you solely for your own education or recreation”. That part has not changed. You can have help building your project, but if it is hired help, you will need to be careful.

For those who would rather hire someone to totally build their plane for them, you will now have a problem. This situation is one of the reasons for the new rule. In the past, some people just paid a “hired gun” to build their airplane and they were never really involved in the process.

With the new rule, there is the potential that kit manufacturers might be impacted. For now, let’s just say, it depends. **I will get the Lightning guys to comment on that aspect of the new rule and how it may or may not affect their builder’s assist operation.** For more information, please refer to FAR 21.191 (g). Of course, as with many rule or policy changes, there is a grandfather clause to protect those who acted in good faith who may have bought a kit prior to September 30, 2009. Whether or not the kit was evaluated by the FAA, if it was built without the use of “commercial assistance”, your project will be evaluated under the previous rules.

There is a new checklist, called the “**Amateur-Built Aircraft Fabrication and Assembly Checklist, 2009, Fixed-wing**”, in **AC 20-27G Appendix 8**. With the old form, or checklist, the builder simply put a checkmark in the column under “Kit Manufacturer” or “Amateur” for each line item depending on who accomplished that particular item. The number of checks in each column was then totaled up, and if the “Amateur” column had more than the “Kit Manufacturer” column, all was good. Meaning, the builder had been involved in at least the required 51% of the processes required to build the airplane.

Now, percentages of each line item can be distributed between each of four columns, with the columns labeled as follows:

- A – Mfr Kit/Part/Component
- B – Commercial Assistance
- C – Am-Builder Assembly
- D – Am-Builder Fabrication

Although each line item only has a value of *one*, a portion of *one* can be given to each column, in 1/10th increments. On the old checklist, with its two column system, you either did or did not fabricate the part.

**How will the new rule affect the homebuilder and/or kit builder?** If you are a plans builder and will not be using much in the way of pre-manufactured parts (except maybe cowling, canopy, instrument panel and electrical, upholstery, paint and engine work, and some pre-welded bits and pieces) you won’t be affected. However, if you start seeking lots of “commercial assistance”, you might be walking a fine line. If you are a kit builder who bought your kit prior to September 30, 2009 and you plan to build it all yourself, you have no problem. Especially if your kit is one that was evaluated by the FAA and found to meet the 51% rule. If, however, it has not been evaluated, you still get to use the old checklist and old procedures for proving that the majority of the airplane was “amateur-built”. But the burden of proof is

completely on you. Be sure to keep a good builder's log with lots of photos. Therefore, if you bought a kit prior to September 30, 2009, evaluated or not, and used "commercial assistance," you will be subject to the new rule and you might have problems. More on this later.

**How will kit manufacturers get evaluated?** They will be evaluated by the FAA's new **National Kit Evaluation Team (NKET)** that is managed by the Aircraft Certification Service, Production and Airworthiness Division (AIR-200), at FAA headquarters. The NKET is made up of "members with experience in the evaluation and airworthiness certification of amateur-built aircraft". If kit manufacturers desire and request an evaluation of their kit (evaluations are not mandatory or required) by the NKET, the NKET will first perform a "preliminary evaluation" to determine the proper filing of paperwork and the kit's complexity, and then will conduct an on-site evaluation. The on-site evaluation is a comprehensive look at the *complete* aircraft kit components and construction procedures, conducted at the manufacturer's or distributor's location. The new checklist will be used to scrutinize the kit and percentage values will be assigned to line items where the part or component is partially completed by the kit manufacturer with the balance left for the builder. The completed checklist will be used to determine what percentage of the project is completed by the manufacturer. If NKET decided that the kit completes 49 percent of the project, the builder must complete all remaining tasks (51%) without professional assistance. Should the kit be any less complete, say only 35 percent complete, the builder is free to hire professionals to complete 14 percent of the remaining work, still leaving 51 percent for the builder. Once the evaluation is completed and after determination that the kit meets all appropriate requirements and AIR-200 approval, NKET will add the kit and the completed checklist to the List of Amateur-Built Aircraft Kits on the FAA website.

Obviously, a key to the above is the definition of the word **fabrication**. From the FAA's definition, fabrication means to perform work on any material, part, or component, such as layout, bending, countersinking, straightening, cutting, sewing, gluing/bonding, layup, forming, shaping, trimming, drilling, de-burring, machining, applying protective coatings, surface preparation and priming, riveting, welding, or heat treating, and transforming the material, part, or component toward or into its finished state.

### Summary

All in all, I suggest that every aircraft builder and potential builder read the new Advisory Circular 20-27G, the guide for amateur builders on how to properly certify every step of the building process.



The new "Blue" Lightning LS-1 demo.

## **Amateur Built Fabrication and Assembly Checklist (the 51% rule) and how it applies to the Lightning kit: by Nick Otterback**

**What's all the fuss about?** Well the FAA has finally finished the long awaited revision to the "51% rule". Above, Buz covered what the rule is about and what has changed. But, how does the rule affect the Lightning kit and its eligibility to specifically meet appendix 8 to AC-20-27G? It is this appendix that really spells out how much can be built by you as the builder and how much can be pre-fabricated by Arion Aircraft, LLC. The new checklist should, in fact, help a builder of a Lightning kit prove their case to the FAA and the amount of work they have done.

**How does the new rule help?** Before, as explained, the old rule only allowed a builder to put a check in one of 2 columns. The revised rule allows that check, (or now that 1 point), to be broken down into 4 categories and in varying percentages. So now, with a part that the builder may not have gotten any point for previously, but did accomplish work on, will now receive some credit. This comes from the word "fabrication" finally being defined.

For example, take a look at the wing panel from a standard Lightning kit. The assembly is structurally a wing, however much is still left to accomplish. With the original rule the manufacturer of the kit would have received the check mark. Now it is possible to give the builder some portion of the point for fabricating the trailing edge by trimming back to the correct length and beveling the underside, cutting out the inspection hole, and fabricating a cover, drilling the angle of incidence holes (AOI) and installing the AOI plates, work done to the root end rib for fuel components, and installing the fuel cap collar. So now a point that may have gone to Arion Aircraft, LLC can be shared by the builder.

Also, the original rule was not written with a composite kit in mind. When you built a fabric wing or a metal wing you must fabricate the leading edge skin and then the upper skin, and so forth. With the original rule, Arion Aircraft would have gotten all these checks. However, a composite wing skin will most always incorporate an upper skin, a leading edge, and a trailing edge all in one part. The revised rule allows tasks to be eliminated as needed depending on the design. It also will allow the addition of tasks that are not specified but specific and special to the design.

**Does the Lightning kit meet the intent of the rule?** Yes it certainly does, and always has. The original rule put the Lightning kit in the range of about 55% for the builder to accomplish. Many of the Lightnings already flying were evaluated on an individual basis by the DAR and were found to meet the intent of the rule and were, therefore, given an Airworthiness Certificate in the experimental category.

The revised rule is much better. After going thru appendix 8 several times myself, and having others go thru it too, we have come up with some very good numbers. The kit, as it is and using the current rule, leaves just over 60% for the builder to accomplish.

Anyone building a Lightning kit or thinking of building one is welcome to a copy of the checklist we have filled out. Actually the revised rule requires we provide one with a kit. We just had our 2010 experimental demo inspected a few weeks ago, and our DAR asked for it. I was required to fill out the remaining tasks that were not already accomplished by the manufacturer, to show what I had done, and explain it. Good thing for a builders log and pictures of your project. Long story short, he was satisfied and the plane has nearly 20 hours on it now.

**OK, so what is to be of the builder assist program?** We will continue with the builders program. However we will have to look closely at what we have the builder do and what we help with. Remember it is an assist, not a build it for you program. Our assist program takes all the "head scratching" out of the

build, keeps you efficient and on track, and provides all the required tools and expertise on how to accomplish the build and the help you need when it is needed.

When looking at what is left, essentially 9%, to remain at 51% the assist program has 9% of the total points to work with. This is where keeping tabs on what the builder is doing is important. If it is a task where the builder can receive all or the majority of the point, then that task will remain the builder's. If it is a task that the manufacturer has already been awarded 0.5 of a point for the task, then that is something we may help with. Therefore, with the new rule, the build assist impact to the grand scheme of things is minimal.

With about 153 total tasks that applying to the Lightning kit, this makes 1 total point worth about 0.6%. With a task where 0.5 of a point is already awarded to the manufacturer the other 0.5 of a point is then up for the builder and the assist facility. If we help out with the task we get half or less depending on what we do and the builder gets the other portion. The portion we get is worth about 0.2 to 0.3%, not a whole lot. So you can see with 9% of the total points to work with will still leave a lot of help that an assist program can provide.

**What about the 51% list?** We have covered this many times, and although not currently on the list, the Lightning kit does qualify. Being on the list is not a prerequisite for an Airworthiness Certificate in the experimental category. However, we have begun the process to get the kit evaluated by NKET, and will continue thru the process until the Lightning kit is added.

**Final thoughts.** Overall I think the revised rule will be better for the industry and is fairer to the companies that supply composite kits where the majority of the structure is formed but much is left to build. I think getting on the list will give builders some peace of mind and we are working to do so. On the other hand, if you can live with a comfortable 120 knot cruise speed, and don't really want to build 51% yourself, then just build an ELSA version and forget the rule all together. OK, shameless marketing plug, but had to add it!



**Nick in the brand new Lightning demo. Photo taken by Mark "Possum" Phillips**

## News from the Factory:

The Arion Lightning team attended the AOPA Convention in Tampa this past month. Mark Stauffer sent the following photos and reported that it was a good show. The display area was good sized and everything from very light S-LSAs to biz jets were on display. Mark reported that there was good attendance and they had a lot of interest in the Lightning. He sent a picture of the wheel chocks from the show that he thought we might enjoy seeing.



**N327AL:** Nick and Mark also reported that N327AL, Lightning serial number 86, made its first flight in November. It is the 48<sup>th</sup> Lightning to fly and will be Arion's new demo aircraft. Nick said it was an uneventful first flight and that the airplane has a real neat feature, "Wig Wag" Lighting. We have a light pocket in each wing, with AeroLed's MicroSuns, and with these lights you can wire them together and then run a switch to get the Wig Wag function. Looks real good on approach and is visible for a long distance.

Nick reported that initial performance numbers with no wheel fairings and at 4,500' MSL was:

- 2850 RPM, TAS was 123 knots.
- 2950 RPM, TAS was 127 knots.
- Fuel flow was in the 5.5 to 6 gallons per hour, but still a bit rich, so a jet change is in order.



Currently, Arion has delivered 82 kits (7 serial numbers were not used for various reasons). With that in mind, we currently have a 58.5% completion rate over the last 3.5 years. To put that into perspective, the industry average of original purchasers actually completing their kits is below 25%. As far as I know, all of the Lightning completions have been by the original purchasers.

**On 20 November, I received the following email from Nick:**

Buz,

After a few hundred hours, we have recently noticed some wear in the phenolic block in the nose fork. Our solution is an oilite bushing in the block, which the gear now pivots on instead of on the plastic. In the future we may change the design to an aluminum part instead of the plastic, and then the builder can press the oilite bushing in place.

Thought I would send along the word, and you could add it to the newsletter some month.

Nick



**The above photo shows the two “bronze looking” oilite bushings that will now go in the nose wheel fork assembly to prevent wear.**

**Nick says he can supply the bushings to anyone that wants them. To install the new bushings, Nick suggested building a jig from wood to hold it in place and then using the correct diameter hole saw with the depth set on the drill press.**

### **Lightning Sales Update:**

**Mark reports that Dennis Borchardt from Lightning Australia just bought three more kits. We'll have those ready for delivery by mid-December.**

**He also sent a reminder that their demonstrator, N325AL, is for sale. This is the certified S-LSA built by the Arion team in Shelbyville. Contact them for more information.**

## Current Lightning Dealers:



**Arion Lightning, LLC**, contact Nick Otterback, Shelbyville, TN, 931-680-1781, [www.flylightning.net](http://www.flylightning.net)



**Lightning Southwest**, Greg Hobbs, Marana, AZ, 520-405-6868,



**Green Landings Flight Center**, Ryan Gross, WV, 304-754-6010, [www.greenlandings.com](http://www.greenlandings.com)



**Lightning North Central**, Tom Hoffman, Neenah, WI, 920-836-2318



**Lightning Northeast - Jabiru Power Solutions, LLC**, Dave Jalanti, NY, [dave@jabirups.com](mailto:dave@jabirups.com)



**Lightning Australia**, Dennis Borchardt, Kingston SE, South Australia, 08-8767-2145



**Lightning Brazil – Cimaer Ltd**, Claudio Nunes, Brazil 24 900-000, 21-2637-3605, 21-9451-9700



**Russia and CIS – AVIA-NIANIA**, Moscow, Russia, + 7495518-62-75, [avianiania@mail.ru](mailto:avianiania@mail.ru)

## News from the Dealers:

**Dave Jalanti, the Lightning Northeast dealer, sent the following report and photos of his Lightning project:**

Flap installation, finishing the inside of the canopy and the interior are the main tasks remaining. The plane could be completed in about a week or two (considering all the interruptions). However, I don't have a DAR to go to here so I need to use the local FSDO office to get my airworthiness certificate. I contacted them and they are not sure how to go about certifying an E-LSA since mine will be the first from their office. Could get interesting!

Dave Jalanti  
Jabiru Power Solutions, LLC





## News from Builders and Flyers:

This month's first "builders and flyers" news comes from Pete Disher in Australia. If you have read the past newsletters you have seen many photos of the modifications and updates that Pete built into his Lightning. Now that Pete's airplane is flying he seems to be enjoying his Lightning immensely. He sent some great photos of his beautiful "jet".

G'Day Buz,

Another great newsletter Buz, and thanks so much. Attached are a few pictures of my bird. I just love flying it. It's taken me quite some time to get on speed with all the high tech equipment. It is certainly unbelievable stuff, in what it does, and you lose the challenge of getting lost, don't you. I must do some trips soon.  
Pete D.



Looks like its doing Mach 2 just sitting there.

Pete Disher's Lightning is this issue's Lightning of the month.



**The second “builders and flyers” news item was received on 2 November and is from Jim Johannes who is from Alabama. Jim is the latest Lightning builder to take advantage of the builder’s assist program in Shelbyville. Some initial photos of his build were in last month’s newsletter. Hopefully we will have more to show soon.**

Buzz:

Just a short note to express my congratulations on your very informative Newsletters. You artfully manage to reach a very diverse audience, from the dreamer and want to have a Lightning, to those that have one and enjoy flying it, to the builder. It was your newsletter that really encouraged me to purchase a Lightning kit and enroll in the builder assist program. I have them all filed in a notebook with “yellow stickies” on a large number of pages.

Keep up the great work!

Jim Johannes  
Huntsville, Alabama

P.S.

I soloed on last Wednesday, October 28th, in my Jabiru J-230SP. This was actually my second solo – first one was 50 years ago, but flying was put on hold by marriage, children, etc. Really look forward to completing and flying the Lightning.

**Here is my answer back to Jim:**

Jim, Thanks for the good words on the newsletter. I appreciate any feedback I can get, but yours is especially good, since it hits right at the goal I have established - being informative for both potential customers and those currently building or flying.

I know you are busy now with building (and flying your Jabiru) but when you do get the chance, I am sure that an article by someone like you would be great for a future issue of the newsletter. Something along the lines of how you chose the Lightning, your build experience, and how you think it flies. I know the readers would really appreciate your input. Thanks in advance, and congratulations on your 2<sup>nd</sup> solo.

Buz

**The third “builder’s and flyers” news items was received from Stephen Hacker on 2 November. Steve built his Lightning at Lightning North Central in Wisconsin.**

Nick & Buzz, Just wanted to drop a short line to say that I think my panel looks fantastic. Now, if I can just figure out what everything does, and how to operate it. But it sure looks good in the hanger! Actually, we have about 10 hours flown off so far despite the miserable weather here in Wisconsin, and everything is going great. I will report in more detail soon. Thanks

Stephen  
Hacker



**This month's last "builder's and flyers" input comes from Gerd Nowack of Germany. Gerd is building the very first Lightning to go to Europe and will hopefully result in many more sales in that part of the world. He posted the following on the Lightning list on 13 November:**

Another Lightning took to the skies on Wednesday, 11 November, taking off at Chicago O`Hare airport to fly nonstop all the way to Frankfurt Rhein Main A/P. Not on its own wings, though, but in a crate aboard a MD11 Freighter of Lufthansa Cargo. It arrived safely, sits now in front of my garage in Linden near Giessen and waits to be assembled in the spare time I can find in the months (or years) to come. My name is Gerd (pronounced Garret) Nowack, age 54, and I have been an active pilot, private and professional, since 1976. So here are my greetings from Germany as a new member of the Lightning list!  
Gerd

Hi Buz,

Thank you for the warm welcome and congrats! As far as I know my Lightning is even the first in Europe. So consequently I`m having a bit of a struggle with red tape here.... Things are a bit different in good old Europe! But when the initial problems are sorted out, it should be even sailing from then on. I added two "making airplane noises" photos. Just let me know what info you want for the newsletter, bio data or so. Maybe we will have a little sun tomorrow and I can make some nice photos with the crate in front of my home, and the room in my house that will be known from now on as "GERD NOWACK AEROSPACE"  
See you,  
Gerd



**An early Christmas in Germany – Airplane in a box.**



**Above photos show Gerd getting some stick time during his first Lightning mission in Germany. From the looks of that stick and the linkage, I am guessing he has some really light control forces.**



**Above photo on the left shows Gerd working on the airplane and it isn't even out of the box yet! I would say he is anxious to get his Lightning flying. Way to go, Gerd.**

**Photo on the right shows Gerd's number one daughter, Laura, and his wife, Ulrike.**

## **Reader Feedback:**

**I recently asked Earl Ferguson, who built one of the early Lightnings and has since set a world record between Savannah and San Diego, for some suggestions on future newsletter articles. Earl's suggestions are below:**

Buz,

The prop balancing issue is definitely worth covering. I had a bad problem with that until I got the chrome spinner. You could also do a series on the various GRT EFIS features. I haven't done the upgrade yet that adds AOA. You have done a great job.

See attached photo from my car restoration project. As a result, I'm not flying much.

Earl



Earl,

Triumph is looking good. When you "git-er-done", I will race you with my Corvette.

I have thought about a write up on prop balancing and have asked Bill Strahan for some info and an article on his prop balancing machine. I hope he comes through with something, but I agree that the fiberglass spinners are really hard to balance. I spent many hours working on mine before it was reasonable. And now with the polished aluminum spinner it is much smoother.

Not sure why you would want an AOA - I think it is basically a gimmick for general aviation airplanes since on final, you still need to have computed your approach speed in advance before you could use the AOA. In the F-4, I could show you an "on speed" indication going straight up on straight down. It is great for air combat maneuvering, but not worth the trouble for just something else to look at on final. Your mileage may vary.

Have a great Thanksgiving.

Buz

## **Engine Clinic:**

**Here is the latest engine article by Pete Krotje – Mr. Jabiru USA.**

### **The Jabiru Electrical Generating System**

Each Jabiru engine has an electrical generating system to provide current for auxiliary aircraft systems such as instruments, navigation and lighting. Early Jabiru 2200 engines featured a 10 amp continuous alternator. The 3300 engine has always featured a 20 amp continuous alternator. Recently Jabiru has included a 20 amp alternator on the 2200 engine as well.

The Jabiru alternator is a bit different than alternators found on Continental or Lycoming engines. The Jabiru alternator is a permanent magnet alternator. Permanent magnet alternators produce current in the

same basic way as most electricity is produced: a magnet is passed by a coil – exciting the coil and producing a charge. Other than some mechanical design differences in the alternator itself the Jabiru alternator's function is the same as the alternator in other aircraft or the alternator in your car. The big difference is in how the alternator's current is regulated. Conventional alternators create an electrical field from an outside electrical source to create the charge. The strength of the field determines the amount of output from the alternator. The regulator in the case of the conventional alternator controls the strength of the field and through the regulation of the field controls the voltage output.

The permanent magnet alternator has no field. The strength of the output is proportional to the speed of the magnet past the coils. In Jabiru's design the coils are fixed at the rear of the engine. There is a ring of rare earth magnets in a steel ring that surrounds the coils. This ring of magnets is fixed to the flywheel and rotates with the flywheel. The faster the flywheel rotates the faster the magnets go past the coils and the more current produced.

The current from the alternator is rectified to DC current by zener diodes in the rectifier/regulator. This instrument also regulates the DC output so that voltage does not exceed 14.4 to 14.6 volts. This regulator does not regulate the strength of a field like the conventional alternator but instead diverts current produced to ground when voltage reaches the specified level. In simple terms the regulator is a switching device that sends current to the battery or dumps it to ground depending on the electrical demand.

Finally, most conventional aircraft alternators have an alternator switch to prevent "runaway alternator" that produces high voltage. Runaway alternator occurs when the regulator allows the field to get too strong and too much voltage is produced. Since Jabiru alternators have no field there is no chance for a runaway alternator. The current output is limited by the rpm of the engine. That's why Jabiru does not recommend an alternator switch as it is not necessary.

Pete Krotje



For sales or service contact: [www.usjabiru.com](http://www.usjabiru.com), email: [info@usjabiru.com](mailto:info@usjabiru.com), phone: 931-680-2800

**NOTE: Once again, if you have not attended one of the Jabiru engine seminars in Shelbyville, I highly recommend that you do so. The information presented on engine installation, operation, maintenance and overhaul is well worth the cost of attending the class. Call Jabiru USA to get scheduled.**

## **Upcoming Events:**

**US Sport Aviation Expo, Sebring, Florida, 21 - 24 January, 2010**

**Sun-N-Fun, Lakeland, Florida, 13 - 18 April, 2010**

**AirVenture, Oshkosh, Wisconsin, 26 July to 1 August, 2010**

**4th Annual Lightning Homecoming and Fly-In, Shelbyville, ?? September 2010.**

## Safety Items:

In a past Lightning Newsletter I talked about crosswind landings and, specifically, some techniques to use for the Lightning or other lightly wing loaded aircraft. The feedback from that article was good, with even some folks saying that their instructors had never covered crosswind landings in detail with them. I got the feeling that maybe some instructors avoided teaching when there was much of a crosswind to deal with. So this month's safety article is going to expand somewhat on crosswinds.

To be more specific, what do you do if you fly to an uncontrolled airport that has a single runway and that runway has a direct 90 degree crosswind? Which direction should you land? With the wind directly across the runway you must make a direct 90 degree crosswind landing either way. So do you want a direct cross wind from the right or from the left? Which way is best? Here are my thoughts on the subject:

**Plan A:** As always, listen on the Common Traffic Advisory Frequency (CTAF). There may be other airplanes already in a traffic pattern. You will want to join the flow of traffic so that the question of "which runway to use" is answered for you by the other pilots already in the pattern.

**Plan B:** If there are no other pilots, use the "preferred" runway. Some airports always use the same runway when the wind is either calm or a direct crosswind. They use a preferred runway because of any number of reasons. It may have a larger clear area beyond the runway. This would give you better safety and more options in an emergency. A runway may also be preferred so that the airport can be a good neighbor. New home construction may be off one end of the runway, so we takeoff going the other way whenever we can. Call on the CTAF and ask if there is a preferred runway.

**Plan C (and this is the real answer to my initial questions):** If there is no preferred runway, choose the pattern that will provide a **headwind on base** leg. Here are the reasons why:

1. A tailwind on base means you will have a faster than expected groundspeed while on base. The time it takes to fly the base will be less and overshooting the runway centerline is likely. **Not good.**
2. If you do overshoot, there will be the temptation to steepen your base-to-final turn so that you can make it around. A steep turn increases the stall speed -- and you are already at a slow speed. **Again, not good.**
3. The other temptation might be to push the nose around with the rudder. This can set up the "cross controlled" stall. The airplane is uncoordinated and you are pushing your luck. If you stall now, a low altitude spin entry is likely and you might have a very bad day. **Really not good.**
4. One other thought, picking the runway with a headwind on base will give you a right crosswind for a normal left hand pattern. That is good if you have to go around as it will help with the right rudder requirement with full power on the go around.

**If you overshoot:** The best thing is to make a go-around and be smarter next time. If you must accept a tailwind on base due to other traffic, the lay of the land or a preferred runway, you must anticipate the overshoot and lead your turn sooner.

**But if you have a choice, choose the runway so that the pattern will have a headwind on the base leg and this will prevent the dangers that can arise from an overshoot.**

Now here is a question for you. Did your primary instructor provide the above information and suggestions about landing when there is a direct 90 degree crosswind? Let me know via an email.



## **Lightning Skunk Works:**

This month's Skunk Works is going to be a little different. Instead of covering some of the ultra top secret developments and test projects that are being carried out in Lightning hangars and workshops throughout the world, I am going to cover a recent event that one of our Lightning test pilots accomplished. It was unusual to say the least.

I know that overall this is a very adventurous group, and as such, at some time in the past you have probably done some things that the less adventurous might call "strange" or at least, different. I don't want to name names, but I do know that recently one of you did exactly that. The person I am speaking of had seen the internet video that shows two adventurous aviators flying a Cessna, who then added enough negative "Gs" to cause their dog in the back seat to float up to the headliner. To say the dog looked confused is an understatement. Yep, I thought it was funny also.

Not to be outdone by some "run of the mill" Cessna pilots, our intrepid Lightning "golden hands sierra hotel" test pilot decided to take his dog flying as well. After a few rather tame maneuvers, our pilot got a little more adventurous and ended up doing some completely vertical "whifferdills". Unfortunately, there was a scattered puffy cloud layer near his mission airspace and altitude and at one point he got a little disoriented and found himself on a vertical down line headed right for a cloud. What to do? Go into the cloud (illegal) or pull some heavier "Gs" and stay VMC. Well, heck, he's flying a Lightning, no problem, so he just pulled back on the stick until there was no problem going into the cloud. Unfortunately, his dog was not quite "aerobatic" or high "G" qualified and the following photo is the result.



## **Technical Tips:**

This month's first tech tip comes from Tex Mantell. Often the best tech tips are the simple and easy ones. See what you think of this one.



When removing or installing the lower cowl, you can stop from scratching the front wheel fairing by placing a small piece of pipe insulation over it. Tex



**The next tip is from Pete Krotje and has to do with setting the ignition coil gap. With winter coming up, which means cold weather starts on the Jabiru engine, Pete's tip is one key to successful cold weather starts.**

Easy way to set ignition coil gap: Line up flywheel magnets with the coil. Loosen coil attach bolts. Pull coil away from magnet. Insert business card between coil & magnet. Let magnets pull the coil tight up against the business card. Tighten bolts and work prop back & forth to remove card.

Pete Krotje  
Jabiru USA Sport Aircraft, LLC  
931-680-2800  
[www.usjabiru.com](http://www.usjabiru.com)

**Next, Nick Otterback provides a good builder's tip on the rudder cable attachment bracket.**

A few months back, maybe several now, there was some discussion about the geometry of the rudder cable to the rudder attach u bracket. I know that the group had come up with a good solution but here is another easy off the shelf solution. Dave up in New York suggested it and this should work very well. Replace your U bracket with a male rod-end. The hole has a 10-32 plate in the rudder, so a standard 10-32 male rod end will work great. Use a washer and jam nut under the rod-end. The rod end will end up putting the pivot slightly farther forward than the u bracket. It may be necessary to re-adjust your cables, and in extreme cases shorten the threaded portion of the cable slightly to fit properly into the turn-buckle. If you don't have an issue than don't worry about it, if you do, then this can be a very good solution.

Nick



## Other Items:

On a recent initial technical counselor visit, it became obvious that the new builder really did not understand the rules for registering experimental amateur built aircraft. To be more specific, he was a first time builder building a kit that could easily meet the light sport aircraft (LSA) requirements and he himself would be flying with a sport pilot license. He thought that he would be able to register his aircraft as an Experimental Light Sport Aircraft (ELSA). I explained to him that his airplane would have to be an Experimental Amateur Built (EAB) since the manufacturer of his kit had not built and certified a Special Light Sport Aircraft (SLSA). Below are how the current regulations on EAB, SLSA, and ELSA really work.

Under current regulations the only aircraft that are eligible for certification as ELSA are specific kits offered by manufacturers that have certificated at least one aircraft in the light-sport aircraft category (commonly referred to as "Special LSA" or "SLSA"). Manufacturers are allowed to market kits based on their SLSA prototypes for certification as ELSA. The only other way to certificate an ELSA today is to convert an aircraft that was originally certificated as SLSA.

The confusion on EAB versus ELSA was most probably caused by the fact that during the period when the FAA was allowing two-seat ultralight trainers and other "fat" or heavy ultralights to be converted to ELSA, the regulation actually was broad enough (or perhaps poorly worded enough) to allow any aircraft that had not been previously certificated to be brought into the ELSA category, so some builders of LSA compliant aircraft were allowed to certificate their aircraft as E-LSA rather than experimental amateur-built. They probably did this thinking that it would be a selling point down the road because future owners would be eligible for a repairman certificate for the aircraft under the LSA repairman regulations. Unfortunately this opportunity ended on January 31, 2008, when the "grandfather" period for ultralight trainers closed.

Remember that a sport pilot is allowed to fly any aircraft that meets the LSA definition, regardless of what type of airworthiness certificate it holds, so you'll still be able to fly your aircraft under sport pilot rules even though it's certificated as experimental amateur-built. The only difference is that a future owner of your aircraft will not be eligible for a repairman certificate authorizing him or her to perform the condition inspection each year. You, as the original primary builder of the aircraft, are the only person eligible for the repairman certificate for your amateur-built aircraft.

## Final Thoughts:

November 11<sup>th</sup> was Veteran's Day this year. And like most years, I got a number of phone calls and emails from friends wishing me a happy Veteran's Day and thanking me for my service to our country. I feel honored and blessed to have been able to serve this great nation of ours, especially since I was able to serve by doing something that I had dreamed about since I was a very young boy – flying fighters.

I truly believe that the **freedoms** we have today are because of the sacrifices of those veterans that have served our country in the past. Their willingness to defend our nation to insure "life, liberty, and **the pursuit of happiness**" and **the other freedoms we enjoy (like flying)** are never taken away from us. That is what allows us to enjoy our life as free Americans. There are many ways to define freedom but one that I like the most is:

**Doing what you like is freedom. Liking what you do is happiness.**

One of my favorite veterans is **Joe Mathias**. Joe fought in WW II as a combat glider pilot, actually flying his glider full of infantrymen behind the lines and then after landing, picking up his weapon and fighting his way out. His life's story in aviation is amazing, but rest assured he is one of the reasons we have the freedoms we enjoy today. Of course one of those freedoms is the freedom of flight. **Joe recently enjoyed this freedom by celebrating the 70<sup>th</sup> anniversary of his very first flight lesson** on 6 November. He flew his J3 Cub around the local area and did a few loops and spins just because it "made him happy". Yep, doing what he likes (freedom) and liking what he does (happiness). What could be better than that? Below are two photos of Joe in his 1946 Piper J3 Cub Trainer.



Joe in his J3 Cub celebrating the 70<sup>th</sup> anniversary of his first flight lesson.

Blue Skies,

*Buz Rich*

[N1BZRICH@AOL.COM](mailto:N1BZRICH@AOL.COM) (Contact me directly for newsletter inputs – I need your help to keep this

newsletter both interesting and informative.)