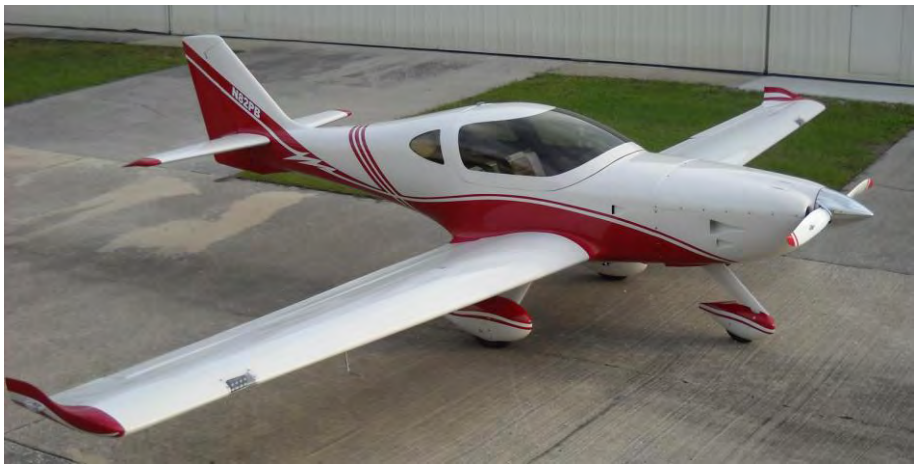
Hangar Talk

The "Lightning" Newsletter

October 2010 - Volume 3, Issue 10



Paul "Bear" Bryant'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 anything having to do with the Arion Lightning aircraft, and **to give a voice to Lightning builders, flyers, and anyone interested in this amazing airplane**. It is not only a way for the factory to provide Lightning news, but it is your newsletter as well. Its success will depend on you getting involved to spread the word and to help others that are considering a Lightning, plus building, flying, and maintenance tips. So think of this newsletter as an "exchange of information publication". Send your inputs directly to me at: **N1BZRICH@AOL.COM.**

Contents in this issue

And now, the rest of the news.

October 2010

Newsletter Plan - **Before I get into the meat of the October issue of Hangar Talk, I want to say a few things about the Lightning newsletter in general; kind of a "state of the newsletter" address. You probably noticed that the September issue was quite a bit shorter than previous editions. In fact, at eighteen pages, it was basically half the size of other recent issues. Linda Mathias, our esteemed editor's comment was to the effect that in its shorter version, it was more like a newsletter instead of a magazine.**

The reason it was shorter was not so much a lack of things to write about, but because of a combination of things. First, after writing the newsletter for almost three years, I am getting slightly burned out. Second, I think we need new leadership for the newsletter in order to re-energize its content and direction. I am a big believer that many organizations and things like this newsletter need new leadership every so often in order to stay energized, on focus, informative and useful. So think of this editorial as a request to pass the "stick" to someone else to take over the newsletter. I think it has meant a lot to the Lightning community, for both increased sales and for builder and flying support. But I think it is time for new leadership to provide new ideas and to keep the newsletter energized and on the right focus. For example, with recent increased sales of SLSA and ELSA Lightnings, perhaps the newsletter needs more emphasis on them. But I will leave that decision to the next newsletter "staff".

So for all of these reasons, the last newsletter that I have planned will be January 2011. That will make a total of three years of me writing the newsletter, so it is definitely time for someone else to step up to the plate and take a turn at bat. Below is what I have planned for the last several issues that I will be responsible for.

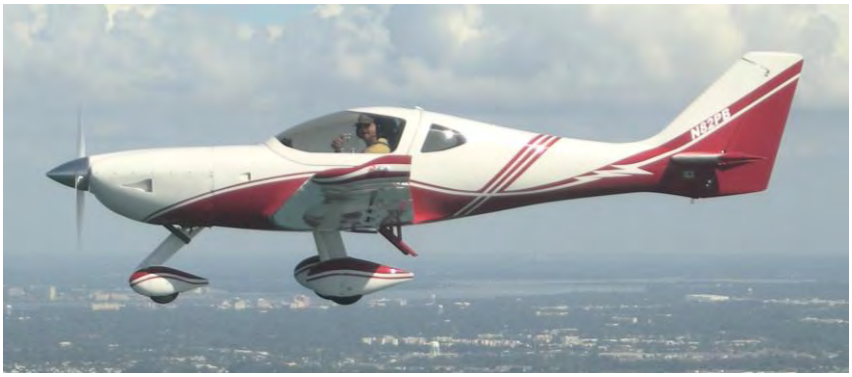
November - Report on the Lightning Fly-In.
December - Photos of the 2010 Lightnings of the month for the annual contest winner.
January 2011 - Lightning of the Year for 2010. My last planned issue. New leadership will insure the newsletter will continue to be useful and informative.

As most of you probably know, I have really enjoyed writing the Lightning newsletter and the opportunity it has given me to meet so many of our Lightning group. But it does take a few hours each month to complete, and it is kind of a thankless job in that it is often difficult to get meaningful feedback or to get readers to submit articles. For those of you that have written articles for the newsletter, I thank you. But I really feel that it is now time for the newsletter to be taken over by someone that actually has a Lightning. So to all of your Lightning owners, we are looking for a new newsletter "pilot in command". We need one of you to take control and re-energize the newsletter for the benefit of all.

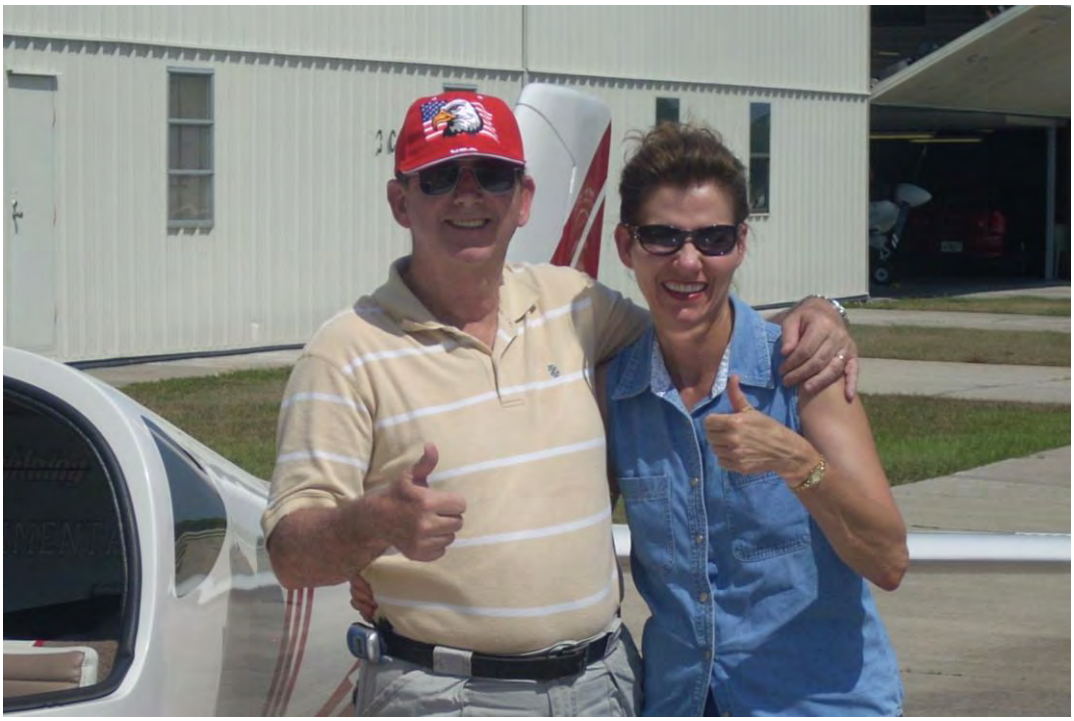
For the Lightning Newsletter

Lightning of the Month for October 2010

Our Lightning of the month is N82PB, a beautiful Lightning built by Paul "Bear" Bryant. Below is Bear's story about building and flying his Lightning.

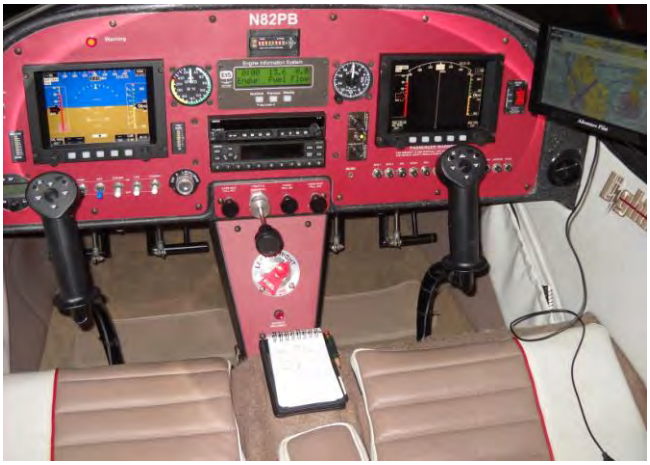


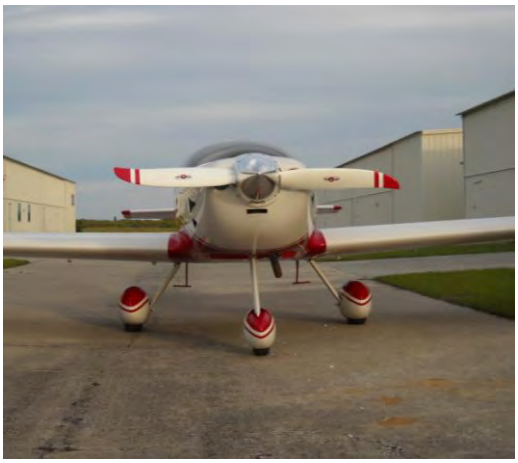
Most everyone has read my "build Log" when I began to build N82PB at the Lightning factory in Shelbyville. Since this was my very first build, I wanted to make sure I had all the proper tools and technical expertise a few feet away from me as I worked to build my dream. As a result, I opted for the factory assist with the folks in Shelbyville. This was a very good move for me as I was able to acquire an extremely vast amount of knowledge in a relatively short period of time on the proper use of tools, manufacturing techniques, assembly procedures, and fly-off profiles. I also wanted to be able to fly within a few months; not a few years, so heading up to the factory was the right call.



Paul and Kathy

The factory build experience was truly exceptional. I certainly learned a lot, had fun building it and within three months it went from a crate to a great airplane. N82PB loves to fly and it's fun to fly her. I equipped it with the dual GRT Sport EFIS with built-in GPS and XM Weather, GRT Engine Monitoring system, Garmin SL30 Com/Nav, Garmin GTX-327 xponder, Artex 406 ELT, Tru-Trak Digiflight II Autopilot VSG, Zaon Portable CAS MRX-A-A, Electronic Trim, and a couple of night map reading lights, along with a few other bells and whistles.

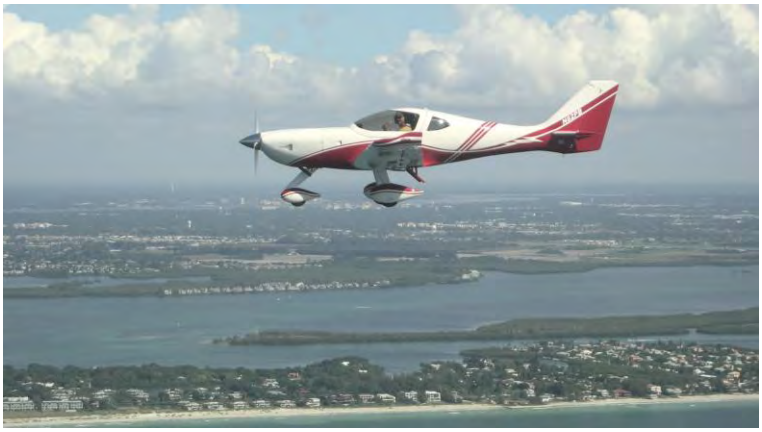


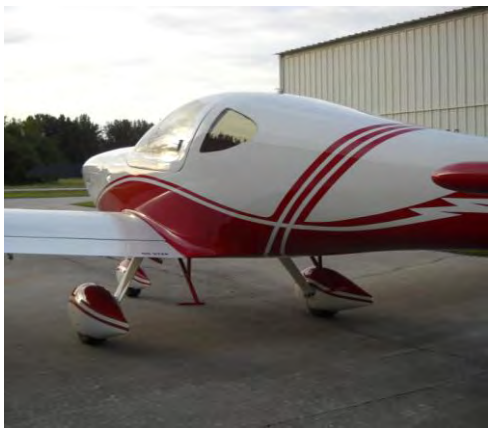


After a few hours at home, I changed out the landing and taxi lights for the Aeroleds 1600 in an effort to lower my amp usage. These light are bright and draw very little amps. I also added a trickle charger to the battery area so I could automatically charge the battery without having to remove any of the cowls. This has worked out to be good option for me.

I am extremely pleased with the performance of the airplane and solid sleek lines she has. I often sit on the ramp with a Velocity and a Quickie; the Lightning always seems to draw the crowd!

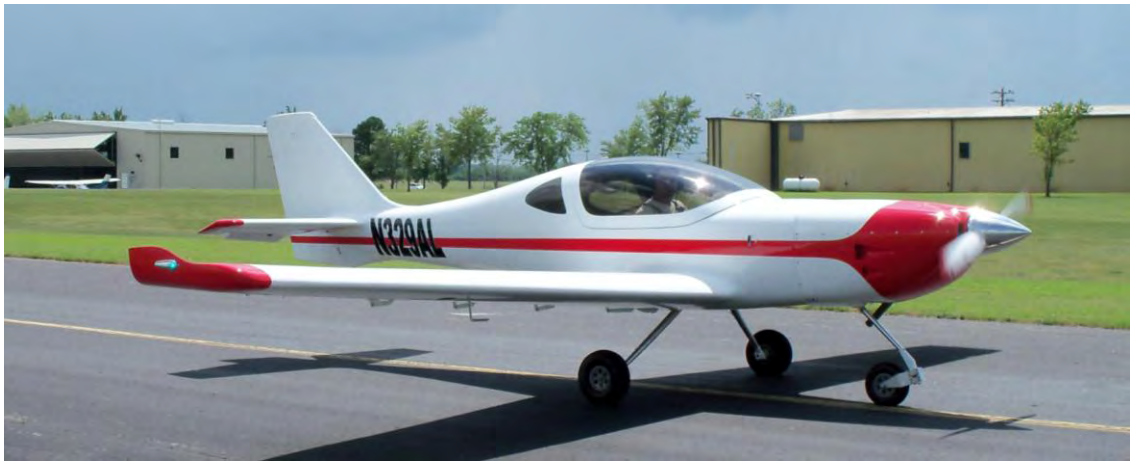
Bear
N82PB





News from the Factory

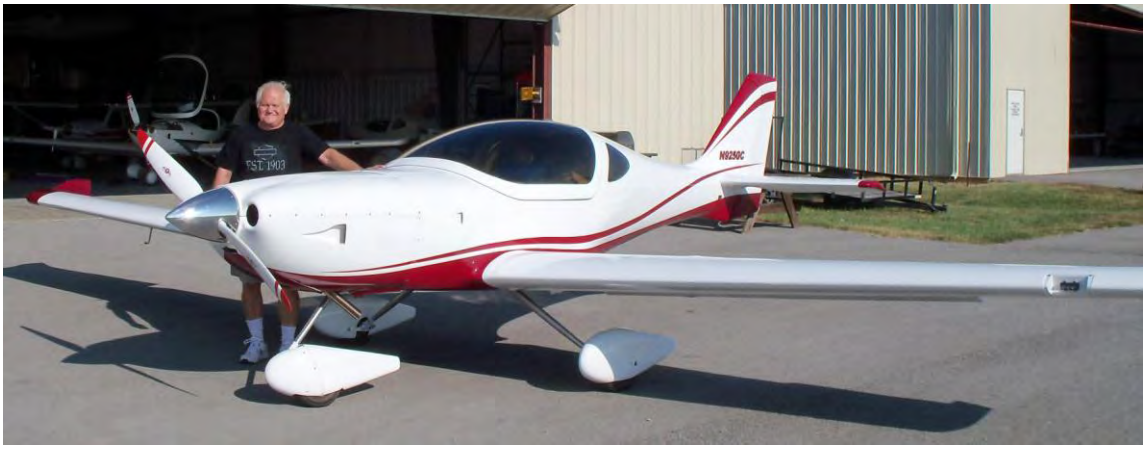
Nick reported that Lightning kit number 100, N329AL, had recently flown. It is owned by Sid Mann from Texas. See photo below.



Sid Mann's Lightning (kit #100)

Bill Beasly of Texas recently completed his Lightning, N226WB, an experimental amateur built version. It is white and silver with black pin stripes and is equipped with dual Dynon Skyviews. No photo was available as this issue was being published. Hopefully Bill will send me one for next month.

George Cannon of Oklahoma recently purchased N925GC, which is a white and red ELSA Lightning that is equipped with an 8.5" Grand Rapids EFIS with SX Vision and a Garmin 696. Photo below.

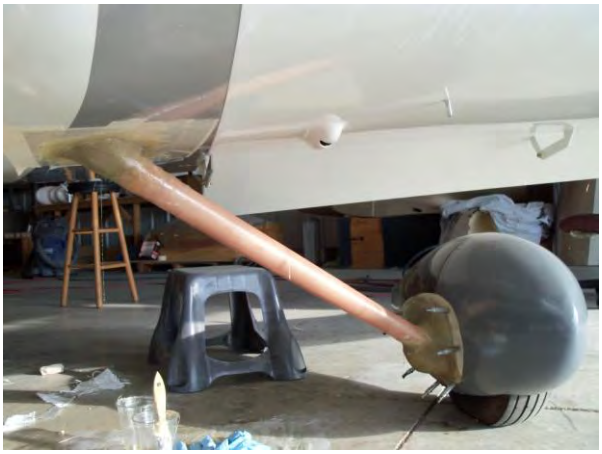


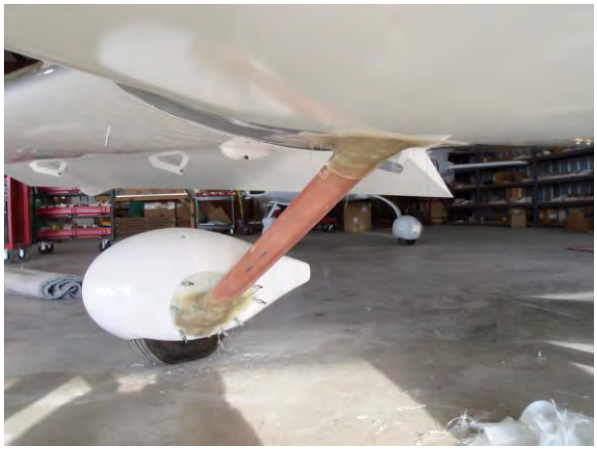
George Cannon's ELSA, N925GC

Nick also reported that John Meriwether has recently completed an EAB Lightning. John is one of Ryan's customers at Green Landings. Hopefully John or Ryan will send us a photo of this newly flying Lightning.

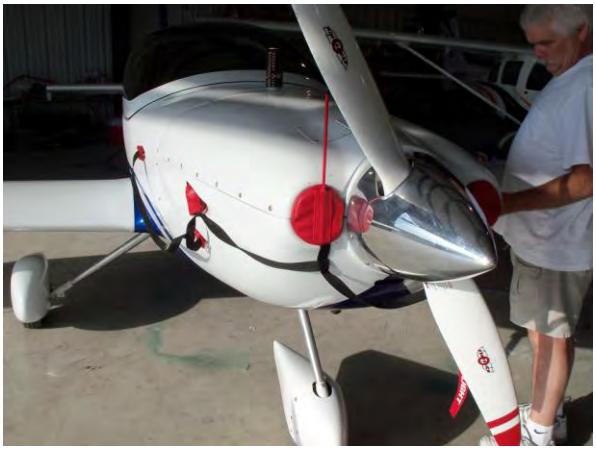
More info from Nick about the new gear leg intersection fairings and cowl plugs.

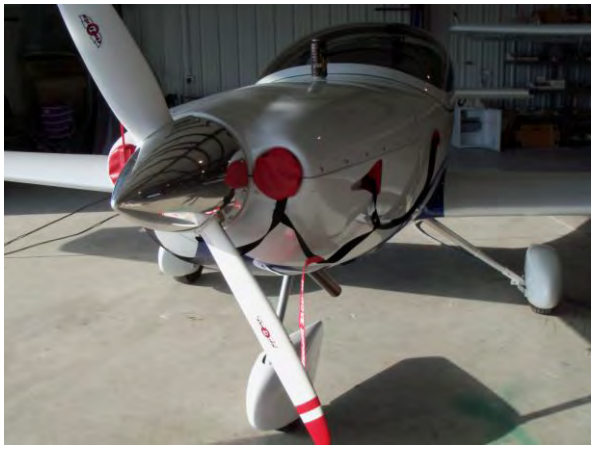
Buz,
With the new style gear it is impossible to fit the gear leg fairings without the leg to fuselage intersection looking unfinished. So with the help of Bill Beasley and his Lightning, which has the go fast gear leg fairings and wheel pants., we are working on intersection fairings. Using large block of pottery clay we made up some fairings that looked good (thanks to Bill Strahan for leaving the clay from your project). We did put packing tape underneath everything so that they will release once dry. Will keep you updated on the progress. Photos below.
Nick





Buz,
I will get you a price on the cowl plugs once B&B Interiors gets me one hopefully before the newsletter. But he is making them now and they are a great addition for keeping out the critters, or keeping in the heat after flying in the winter.
Nick





Nick has provided the current 100 hour or annual inspection form that was developed for all Lightnings – Experimental amateur built, SLSA, and ELSA. It will be an attachment at the end of this issue of the newsletter. Use it for your Lightning inspections.

Current Lightning Dealers

Arion Lightning, LLC, contact Nick Otterback, Shelbyville, TN, 931-680-1781, 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

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

Lightning Northeast - Jabiru Power Solutions, LLC, Dave Jalanti, NY, 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

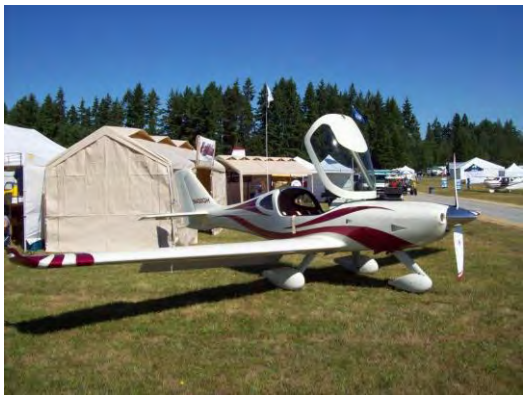
Lightning Florida, Max Voronin, DeLand Airport, FL, 386-873-9995, ww.moonshineaviation.com

News from the Dealers

From Lightning West

Crystal Hobbs sent in the following information and photos from the airshow at Arlington, Washington, on July 7-11, and the Rocky Mountain Regional fly-in, August 28-29. Enjoy.

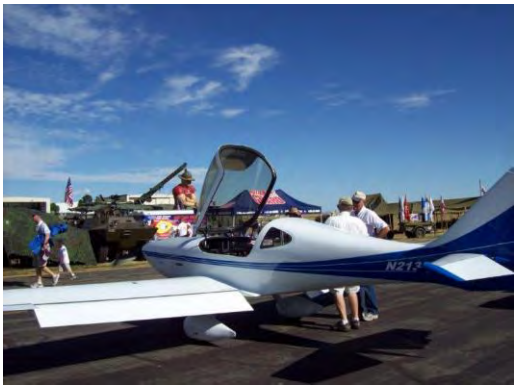
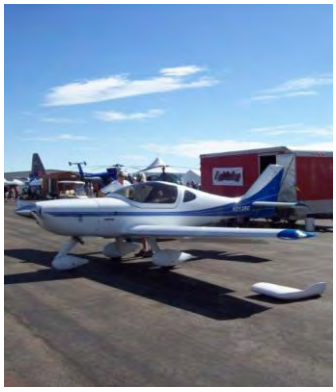
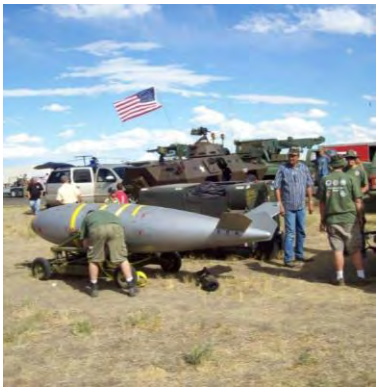
The Cascade Mountain Range still has snow this year in July. Arlington is the 4th largest airshow in the country. It is set in a beautiful tree lined wide valley with mountain peaks on the horizon. There was a rare look at the Boeing 787, their answer to composite building, which did a flyover on the way to a flutter test. This has always been a great airshow with lots of interest in the Lightning and our build center.



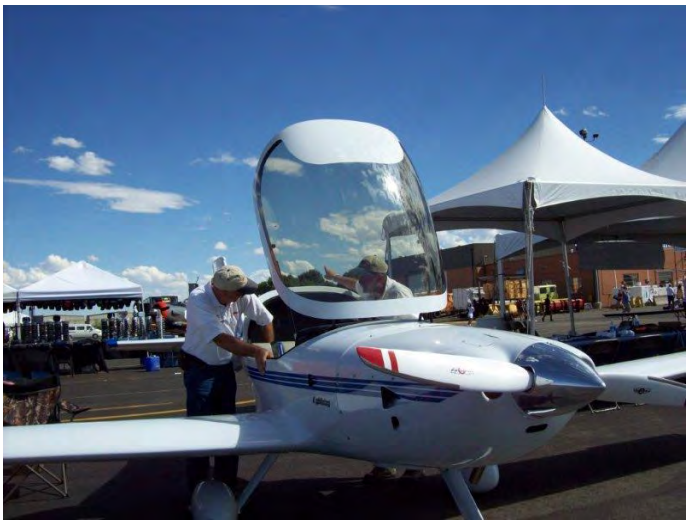
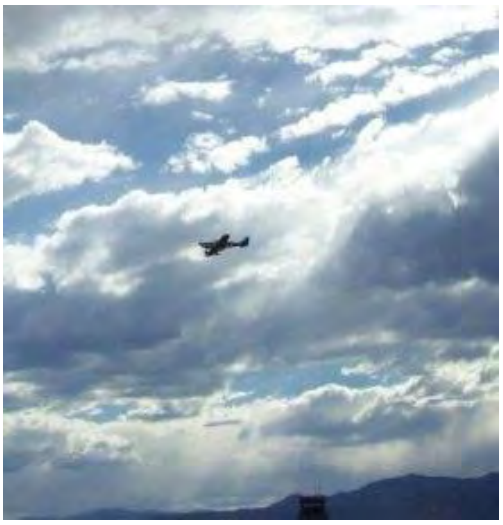
The Lightning booth at Arlington and a flyby of the new Boeing 787.

The Rocky Mountain Regional Fly-In was a blast! Thanks to Dick Cleavinger for the use of his plane, "Blue Moon", which is what I named Dick's Lightning. We were able to do so much more because we had his plane in our booth. We took up parts of the kit and fuselage and more literature. They have several air shows throughout the day so the crowd changed at least 3 times each day. The evening performance was spectacular, not that we got to see it. Greg and I have never before shown airplanes to so many people in the dark. We were still there until after 8:00pm answering questions about the Lightning. Dick came and helped us out on Sunday. He was the best salesman our crew has ever had! Oh, note the picture of what an Atomic bomb is stored and fired in. It just gives you a warm feeling to realize it is only a few feet from your display.

If you want to know why I named Dick's plane, we "bonded "after three days. I love that plane! Just look at the shot I got of her leaving the show. All other aircraft were just lifting off runway where I was standing. Not "Blue Moon" she was up, out, and ready to go. Everyone loves that plane. Thank you for everything Dick.

Dick Cleavinger "high altitude" jet in the Lightning booth at the Rocky Mountain Regional alongside an A-Bomb mock up.

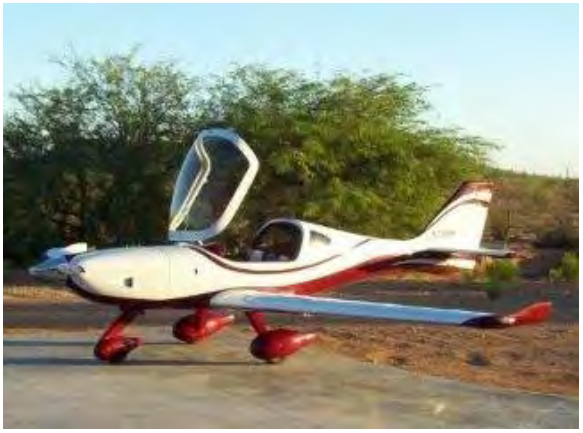



More photos of Dick's jet in the booth and blasting off after the show.

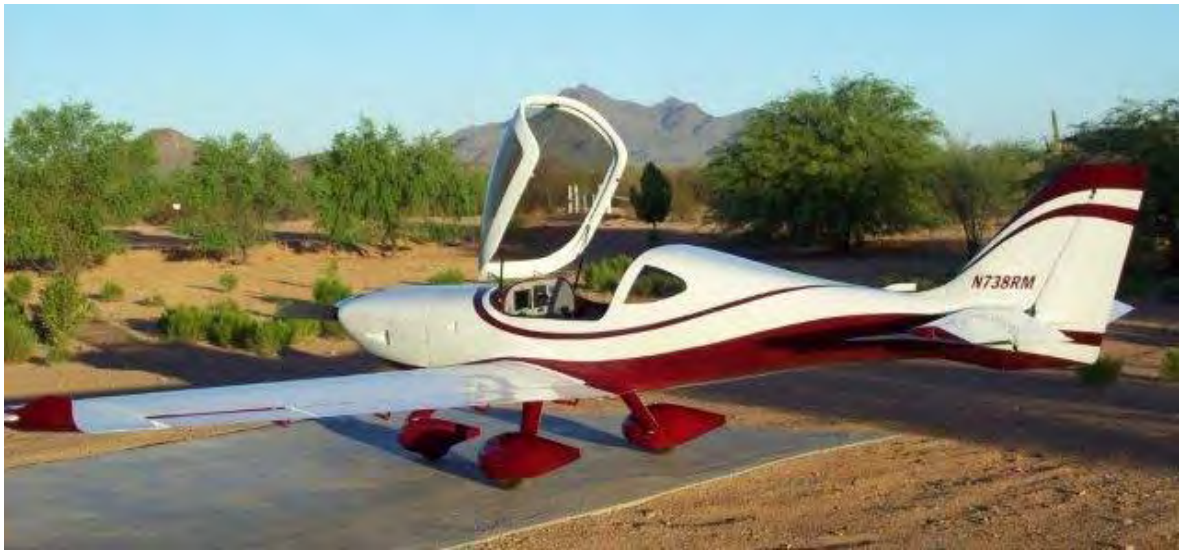
Ralph Marsh and his instructor left our build facility in his Lightning this month headed for the Seattle area. Her name is "Formula One". For a Light Sport, she really wants to fly and get off the ground quickly. When parked in our hangar she starts to slowly roll to the hangar doors. We started blocking her wheels. We have never had a plane do that here, ever.

It was a pleasure for me to watch Ralph achieve his lifelong dream of building and flying his own aircraft. Dreams are so powerful. What an honor it is to play such a small part in watching and helping that dream come true. Greg and I get to know our builders so well that we feel they are part of our family. And they are certainly part of our Lightning Family.
The bluest skies you've ever seen are in Seattle and now you will be able to look up and see a Lightning with dark burgundy paint under the wings. It will be Ralph's "Formula One "Lightning up in the sky over the Puget Sound.

Crystal Hobbs




Ralph Marsh's newly completed Lightning at the Hobbs build facility in Arizona.



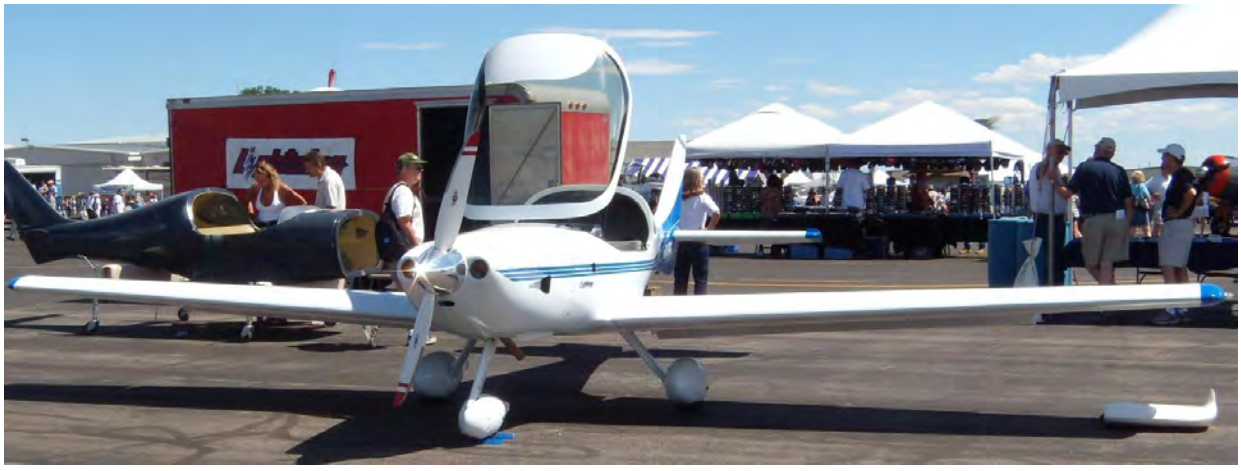
Beautiful jet, Ralph.

News from Builders and Flyers

Hi Buz

Here is a photo showing the Lightning presence at the 2010 Colorado Sport Aviation fly-in and air show held on Aug 28 and 29. Greg Hobbs brought his trailer with major kit pieces and he asked me to bring my airplane over. I think there was a lot of good interest in the Lightning there.

Cheers
Dick Cleavinger



The next two messages are from Philip of the Florida Flyers. If you are interested in a flight with the Florida Flyers to the Bahamas, get in touch with Philip at: Philip@waglespawn.com

Good morning all,

Last Sunday I completed the Matco SB at Moonshine Aviation, thanks Max, and on Monday I completed my Class D endorsement. The Class D was a piece of cake with my instructor having me do 2 full stop landings with him in the plane and 3 full stops solo. It went perfect so this Sunday I will be transitioning Bravo Airspace with landings probably at Peter O' Knight, Albert Whitted or Clearwater. This will complete the training for my Class B, C and D endorsement which is required for a Sport Pilot to fly into the Bahamas. HINT, HINT. I already have my passport in hand, filed for registration with Eapis and the Endorsement is the last step for flight to the Bahamas. HINT, HINT.

I hope everyone has a wonderful weekend and I look forward to another fun fly-out next Sunday.
Philip
N897PR

PS. Anyone interested in flying to the Bahamas in the future? You knew that was coming, right?

Good morning Florida Flyers,

Well it appears there is some interest in my Bahamas trip idea as I have received two e-mails indicating they would love to participate as well. Max (Moonshine Aviation N787FL) and the infamous Paul "Bear" Bryant (N82PB) have both expressed a desire for an over water excursion. I wanted to touch base with everyone interested and ensure we were aware of the requirements and necessities before departing the U.S. for such a trip. I have compiled a list below and if I have forgotten anything please respond so I can update the list to ensure compliance.

1) Sport Pilots need **Class B, C and D Endorsement** for Airspace. This is not needed for Private Pilots as it is part of the initial training and certification.

2) Sport Pilots flying the Lightning also need the endorsement for Aircraft with a **Vh speed > 87 Knots**. This is an endorsement that is necessary for flight in the US but most CFIs have failed to document this endorsement in the logbook. It has specific language and must be documented correctly. I have included a link for the CFI handbook that lists specific endorsements near the end to ensure you are receiving all the endorsements necessary for compliance. http://www.sportpilot.org/learn/cfi_guide.pdf

3) **Passport http://travel.state.gov/passport/passport_1738.html**

4) **e-APIS** registration and confirmation. Manifest and flight plans **MUST** be filed for flight to the Bahamas. https://eapis.cbp.dhs.gov/

5) **3rd Class Medical** for all Private Pilots and current **Drivers License** for all Sport Pilots.

6) **Customs Decal**, although this can be completed on your first trip at your arriving AOE.
http://www.cbp.gov/xp/cgov/travel/pleasure_boats/user_fee/user_fee_decal.xml

7) **Radio Station License** for the plane and **Radio Telephone Operator License** for the pilot.
http://wireless.fcc.gov/services/index.htm?job=service_home&id=aircraft_stations

8) All required **Aircraft documentation**

9) **Life vest** for each person on board.

I am also including a link to the Bahamas website so you can peruse more information.

http://www.bahamas.com/bahamas/private-flying

If you have any questions or I have forgotten anything please feel free to contact me.

Philip, N897PR

Next is an update from Clive on PH-GCJ his Esqual LS (Lightning Stuff).

It flies!

Brief flight last night all good except for smell of fuel, found tank breather wasn't sticking out the floor.

Disappointment, I have mounted the spats a little low, also despite much re-routing and screening the radio is still very affected by the engine.

Regards, Clive

This next "News from Builders and Flyers" message is from a new Lightning builder. Didier Siffer, from NY, recently bought a kit from Ryan at Green Landings and will soon start his build. He has a very interesting background story and some well thought out questions about his upcoming build. I think you will really enjoy his story and thought processes.

Dear Buzz and Pete:

Please allow me to introduce myself quickly, so you'll know a little bit about who is "pestering" you. My name is Didier Siffer and I currently live in the suburb of New York, on Long island, with a lovely wife and 2 daughters 10 years old and 5 years old).

I do work in banking and I am therefore known in other circles as a "desk jockey", but that said, I have been dreaming about aviation ever since I was about 5 or 6 years old. I grew up in Switzerland (I am Swiss from my mother's side and French from my father's side) and unfortunately at the time, my eyesight made it impossible to join either the Swiss Air Force (yes, we have a couple of old fighter jets), or sign up for commercial pilot training. I did manage to do my military service in the radio units of the air force, essentially ensuring communication between different field divisions and the air force. So, I buried the dream and went into finance and banking, which I also do enjoy. As it happens, the bug never quite left me.

Fast forward to middle age and working in New York (been here for 13 years already) and my wife asked me a year ago what I wanted to do for father's day, and my response is " I always wanted to fly in one of those WW2 warbirds". Sure enough, a couple of weeks later, she arranged for a flight in a T-6 Texan with one of those traveling groups that offer flights in vintage planes. So, here I am, strapped in the front seat of the T6 Texan and the pilot (at my request) does some aerobatics and also lets me have a go at the stick. When the flight was over, I had a grin on my face from ear to ear! I walked up to my wife and said: "Now you've done it, I have to take flying lessons and get my pilot's license." Here I am now with a private

pilot's license and inching towards 100 hours of flight time, and with the ambition to start IFR training in the next couple of months.

Of course, I had been following the GA market for a while, and in particular the experimental space, given that another dream of mine was to build a plane one day (with appropriate help) . I did research the market quite a bit, from RV's product range to more exotic birds like the Aerospool WT9 Dynamic and the Dyn'aero MCR.

After serious evaluation of my limited means, both financially and time wise, the anticipated mission profile and of course the pros and cons of each aircraft, the choice was relatively quickly narrowed to the Arion Lightning. If offers quite a bit of performance for 120 hp engine, isn't too complex to build, or too expensive to operate and looks and flies great. I dug into the lightning list archives, "stalked the lightning list postings" and read ever newsletter (Buz -- great job on that, the Hangar talk has been invaluable for me in making my decision), and came away impressed by the evolution of the kit quality in just a couple of years. I had to confirm my impressions of course, and I visited Sun-N-Fun in April. Believe me, I went to every manufacturer's booth there and then as my last stop walked up to the Arion booth. Ryan Gross and Nick Otterback (and other folks from Arion) and some other people manning the booth were answering questions from interested parties and I of course added my 100 questions to the mix. I came away very impressed with the quality of the demo planes and the knowledge of all involved. I took notes, and then went on my way to crush numbers. After weeks of tortured back and forth in my head, I did go ahead and put a deposit down with Ryan Gross at Green Landings for the experimental version of the kit and with the builder assist program. My kit is now scheduled to be delivered by mid-October and I am excited like a kid in a candy store, and of course, my wish list re: avionics and "goodies" is longer than my wallet….although Dynon Skyview is on top of my list right now, with dual screens, backup battery and dual ADAHARS for redundancy.

So, with this long introduction, I wanted to approach both of you and kindly request some guidance in the "make her as fast as possible" department. Buz, you've seen and experienced firsthand what works and what doesn't in finishing your Esqual with lots of Lightning stuff, and Pete, your ideas and mods to the kit seemed to be very well thought out. I was wondering what suggestions you might have regarding getting the aerodynamics as clean as possible, get the best out of the engine (I stayed away from the Rotec TBI after reading of the difficulties on builder experienced with it, but will add the Hackman leaning device to the regular carb). I'll try to just throw a couple of thoughts at you and see what comes back (feel free to express new ideas). Also, some of those questions may seem obvious, but I hope you'll show patience with the passionate "rookie", so here goes:

- flap gap covers that Pete put on. Do you think you got a couple of knots out of it?
- flap hinges covers - same question, does it make a difference?
- wing roots: I think the "newer" builds have addressed the issue by building up the area such that the gap is covered. Let me know if I am wrong.

- Entry steps: Should I do away with them, just use one? If it turns out that I want them later, how hard is it to add them after the fact? Any idea on how much they slow down the lightning?

- wing tips extensions: I intend to put them on to allow for lower wing loading, better climb performance, and I understand it doesn't slow the lightning down at altitudes over 6 to 8,000 feet.

- Carburetor: Should I go with a different one? If so, which one give the best performance/even EGTs? Of course, I am dreaming of an electronic injection, but that will be a project for down the road…..

- propeller: What has been the best propeller in our experience that provides the best cruise speed without completely compromising climbing speed/take-off roll?

Any other suggestions regarding the safe (and hopefully fast) operation of the lightning you would like to bring to my attention are of course welcome. I would have love to join at this year's homecoming (even if just a Lightning owner in waiting), and meet the gang in person, but I guess I need to focus on building with Green Landings first. Next year is fair game though. Pete - Given that you reside down-under, I guess it will take a little while longer to meet you in person.

I hope that I haven't intruded too much with this email and I look forward to hearing from you.

Many thanks in advance.

Didier

Below is my answer back to Didier.

Hi Didier,

My first thoughts on the most important things that will help you achieve the best overall performance (speed and rate of climb) is the building process itself. **Keep it as light as possible and build it straight.** Up to this point and other than Nick, I have probably had the pleasure of flying more different Lightnings than anyone else, so I base the "build it light and build it straight" comment on actually flying a lot of different Lightnings. Those that weigh less and those that don't need adjustments to make them fly straight are always the faster ones.

The **build it straight** really gets down to one main concern for the basic airframe due to the way the Lightning kit comes from the factory. That main concern is getting both wings installed at the same angle of incidence for both. Too many airplanes (including the Lightning) end up with one wing at a slightly different angle of incidence from the other and that will lead to the airplane wanting to roll in flight even with the ailerons neutral. To correct this roll, many people will either lower one flap or add a trim tab - both add drag. So use an angle of incidence tool when installing your wings permanently for the first time to insure both are set the same. A previous newsletter talked about this and showed the rig that I used when I built my Pitts and the rig that Nick devised for the Lightning. Additional build it straight concerns are when you install gear leg fairings and wheel pants. Obviously both of these drag lowering devices will do the best job if they are installed properly in a streamlined position. So use lots of measurements and alignment tools and sighting devices when installing these. Makes sense if you think about it.

Now to the **build it light**. Based on my previous experience in building an aerobatic aircraft and knowing that each pound saved meant an easily measurable increase in vertical performance when going straight up, I became a zealot in saving weight when building. It might sound like a waste of time and energy, but make sure any bolts you use are the right length - not too long. You don't want to have too many threads showing through the bolt - no more than three or get a shorter bolt. And don't use extra washers to keep a bolt from having too many threads showing. There really are a lot of bolts in a finished airplane, and if some of them are too long, you just added some extra weight. It all adds up. And be careful when doing fiberglass work. The wrong grade of cloth or too much epoxy, or too many layers of glass where you don't really need the strength will also add lots of weight. Anything you can do to keep the basic structure light is good.

How about other ways to keep your airplane light? You would probably be surprised at the big variance in final weights of all the Lightnings that have been built. And most of the variance is not due to the build itself (other than what we talked about above), but most is due to what the owners want to add to the cockpit or instrument panel. So when you are planning your interior (seat upholstery and padding, carpet, side panels, baggage area) give lots of thought to weight considerations.

As to the panel, you can really add quite a bit of weight (and money) based on what you decide you really want in and behind your instrument panel. So do you really need dual everythings? Probably not. Are you really going to fly all that much IFR. Some people never will, yet they have equipped their airplane with every possible gadget and backup equipment. It all adds up. Another thought, today's solid state avionics are much more reliable, so the dual everything, which might be good in a light twin which is always flown IFR to very low mins, is really not needed in a sport aircraft that is only occasionally flown IFR if at all. So really think through what you really need versus what you think might be nice to have. Remember, it all adds weight and weight directly affects performance.

All airplanes are a compromise. In this case you are building the airplane you want, so you must decide which is more important - ultimate performance with min equipment and minimum comfort, good performance with adequate equipment and good comfort, or lesser performance with the ultimate panel and easy chair comfort. It is your airplane, so it is your decision as to any compromise in speed for IFR performance and comfort.

As to modifications to the Lightning (that already has gear leg fairings and the good low drag wheel pants), the other mods that I have seen that add the most potential speed increase are the fairings that cover the wheel axle and the intersection of the gear leg fairing and the wheel pant. The other one would be the fairing that covers the intersection of the gear leg and the fuselage. Note, photos of the above mods will be in the October Newsletter in the "News from the factory" section. Although I did some Esqual testing with flap gap seals, I have not flown a Lightning with flap gap seals, but the Lightning flap gap is not as large as on the Esqual. On the Esqual I really didn't notice any speed difference - which actually surprised me. I did see some difference on aileron gap seals - but not in speed. The aileron gap seals seemed to slightly lighten the aileron roll stick pressure. However, now that Nick has the aileron push rod/control horn adjustment mod, I see no real need for aileron gap seals.

Yes, you are right that the newer builds have wing root seals, so no need for the tape that the older kits use.

Entry steps obviously will add drag and weight but I would guess the speed penalty would be no more than 2 to 3 mph. They really do make it a little easier to climb in, so it is one of those compromise decisions. When I take a lady flying I have a small folding plastic step stool that I use to help her step up onto the wing.

Wing tip extensions are another one of those compromise situations. I really like them, but some others think they make the airplane harder to land. My thought on that is "balderdash". They lower the stall speed (that is why Nick developed them) and the lower stall speed means the PILOT must take that into consideration when landing the airplane. Airspeed control on final and in the flare is always the answer to a good landing. But the really neat thing about the wind tip extensions it that not only do they not take away any cruise speed at the lower altitudes, but they actually add a few MPHs at the higher altitudes. Many test flights have proven that fact. I am convinced the reason for the above fact is that even though the longer wing extension obviously adds some drag, the tip design itself more than makes up for the added drag. The tip is kind of a combination of a modified Horner tip with the winglet. The Horner makes the wing think it is actually longer than it physically is and the winglet helps to lower the tip vortices which lowers the drag profile. Magic? No, it’s just a good design. One other thought while talking about the tip extensions and the possibility for max speed might be to just add the new tip and **not** the wing extension. There have been at least two Lightnings built like that, but I have not had the privilege of flying either of those. I would suspect this arrangement would have a less total drag profile than the complete extension with the new tip. So that set up is another consideration.

Stay with the Bing carb (and add the Hackman) until Jabiru comes out with fuel injection.

Propellers are one of those mixtures of science and magic situations. Nick and I have done a lot of testing, mostly with the Sensenich, but with a few other brands, and so far, for max speed at WOT, the Sensenich fixed pitch wins over the Sensenich carbon fiber ground adjustable prop. Even with the ground adjustable (with the same blade profile) set to the exact same pitch of a fixed pitch prop, at WOT

the wood fixed pitch has always been about 6 mph faster than the ground adjustable. Not sure why (weight?, blade flex?, magic?) but it has been the case on numerous tests on different Lightnings. Also, the carbon fiber ground adjustable weighs more. Nick (and Ryan) can make recommendations as to specific diameter, pitch and blade profile based on your particular Lightning's weight and configuration, but the absolute best prop for you will probably have to be based on your own testing in your own airplane. Also, there are so many other prop makers out there - and all of them will tell you they have the fastest props available. There are lots of variables - blade design (from wide blades to narrow blades, from fat blades to thin blades), diameter, pitch, and of course tip design. The combination of Jabiru engine and Lightning airframe (weight and drag) are the major factors in deciding on a prop. So talk to Nick and Ryan on what is the latest recommendation for your airplane. I haven't done any additional prop testing (on Lightnings or Esquals) in several years.

My final recommendation, even though your build with Ryan at Green Landings will start in a few weeks, is to make every effort to attend the Lightning fly-in in Tennessee next weekend. It will be well worth the effort in terms of information gathered and meeting people that have "been there and done that". But whenever, I look forward to meeting you and hearing more about your build and flying experience.

Blue Skies,
Buz

To close this section, I received some great news on 11 September from Australia.

The conversion of kit 66 into VH-ELZ is complete. She flew for the first time today, pretty much straight, maybe a turn or two on a flap linkage required, feels good and solid. One happy builder!
Cheers,
Selwyn, Kit 66

Congratulations, Selwyn. Send us some photos of your jet for the newsletter.
Buz

Reader Feedback or Q & A

G'day Buzz,

I'm writing from Australia, about 60 NM North of Sydney. I just wanted to say "Thanks" for the Lightning Newsletter. I read every issue with great interest and enjoyment. It is an excellent production in both form and content and a credit to all your hard work.

While I've always been interested in all things aviation, it was an article in a local magazine on the Esqual and the Sport Pilot Licence (Recreational Aviation "Pilot Certificate" in Australia) that finally lit the spark and converted the passive interest into a burning desire. And the Esqual has now been replaced (for me anyway) by the glorious Lightning.

So, at 63, I now I have my Pilot Certificate and I'm working through a feasibility study to determine a budget cost I can live with and understand if I'm prepared to commit to a lengthy build project which

would involve spending a number of weeks in Kingston SE in South Australia, some 900 miles from where I live.

The alternative of a factory built, “fly away” Jabiru J230 would in many ways be a more practical and less costly approach and require a lot less stress on my part, but . . . well, it’s just not a Lightning! A bit like a sports car versus a minivan.

Buzz, I’m sure you get swamped with emails so there is no need to reply to this one.

Thanks again for the great magazine,
Regards
Don Ramsay

My answer back to Don is next.

Hi Don,
It’s great to hear that you enjoy the Lightning newsletter. Congratulations on your new pilot's certificate and your future Lightning. I have enjoyed publishing the newsletter over the last several years and feedback like you just sent is why I continued to do so for almost three years. However, I think it is about time for a new pilot in command to step in with new ideas, new energy, and new leadership for the newsletter. So I am hoping that someone will "take the stick" and continue to publish the newsletter after January 2011. That is the last issue I have planned and that will make exactly three years for me. I plan to make this announcement in the October issue of the Lightning Newsletter.

Blue Skies,
Buz

Upcoming Events

4th Annual Lightning Homecoming and Fly-In, Shelbyville, 2 October 2010.

If you haven’t been to one of the previous Lightning homecomings, start planning now to attend this one. You will have an absolutely great time. All of last year’s creeper race winners will be back to defend their titles and we will once again plan to have several Lightning competitions that you will want to compete in.

Be there!

Technical Tips

I've noticed after every flight when I check my oil that there is oil on top of the dipstick cap. Imagine what it would look like if you flipped open the access door, and dropped 1 or maybe 2 drops of oil on top of the dipstick cap and waited for it to spread evenly to the edges. That is what it looks like. It is not just a thin

film. I don't see oil anywhere else around it. The rest of the engine is very clean, but there is always that drop of oil on top of the cap.
Anyone else experience this? Any ideas as to the cause?

"Bill Strahan" <bill@gdsx.com>

Hey Bill:

Pete covered this at the Jabiru get together in June. Several of the dip stick caps have a problem with oil wicking up the center to the top. You can fix this by thoroughly cleaning the top of the dip stick and putting a drop of epoxy adhesive on the center. This will stop the oil from getting out.

Lynn Nelsen

A small amount of JB Weld would probably work better that epoxy on top of the leaking oil dip stick. Just my 2 cents' worth.

Bernardo Melendez (Just begun the Lightning build odyssey)

Flight Safety Tips

A recent conversation with a relatively low time, but good, Lightning pilot had to do with the Lightning flaps and whether he should be using full flaps for short field landings. His EAB Lightning's flaps go just past 40 degrees, but he normally uses 30 degrees for normal landings as is specified in the Lightning POH.

As to your question about using full flaps on Lightning landings; first let me provide some background comments – two actually. First, the original Lightnings did have a flap motor that would allow even more than 40 degrees of flaps - some almost to 50 degrees. Now the flap motor on the LS-1, (both the SLSA and ELSA), has been changed to only allow about 25 to 28 degrees of flaps. The reason being that is the LS-1 may be used as a trainer in flight training programs and some of the hard landings in the past have been because of people not being use to the steeper approach that anything over 30 degrees of flaps will give you. And the steeper approach requires a different picture as to when to flare. Training programs should keep things looking the same while in the initial phase of training so that the student doesn't have an overload of things to learn initially. And I hate to add it, but some of today's instructors probably couldn't handle too much overload as well. It's too bad that sometimes airplanes are designed for the weakest link, but that is often the case.

Now for some more background info. Anything above 30 degrees of flaps on the Lightning is basically pure drag - no additional lift for the wing as you add flaps above 30 - just more drag. It is kind of like putting spoilers out on a glider to get a steeper approach - nothing but pure drag and requiring you to lower the nose to keep the speed that you want on final. So if you want a steeper approach you put the spoilers out - or on the Lightning, go more than 30 degrees of flaps. That all makes sense and is generally a good thing if you need a steeper approach and can handle the somewhat different picture for the flare that will be required.

When I first flew the prototype, years ago, one of the things I noticed and wrote about, was my concern that WHEN you do use full flaps for landing, and IF you have to go around (for whatever reason) as you add power to start the go around, the drag profile for the extra flaps causes quite a delay before you actually kill the sink rate and get the airplane to start climbing. This was a potential concern for a last minute go-around and might even result in people stalling the airplane when they see they are still sinking even with full power near the runway as they react by just adding more back stick. So based on that concern is why the normal recommended flap setting for the Lightning for a normal landing is 30 degrees.

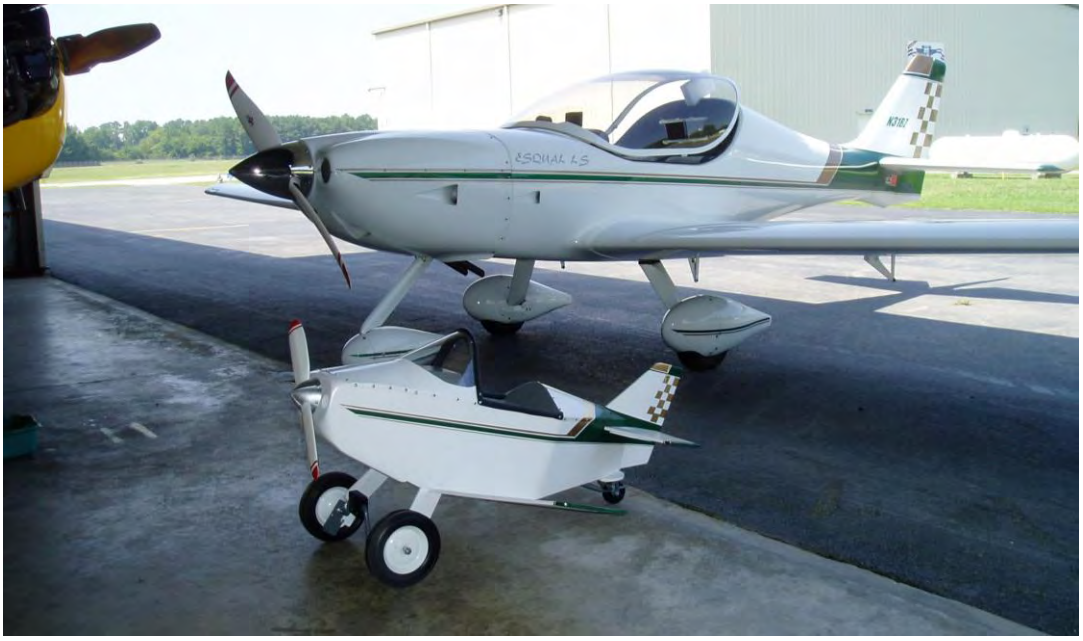
Now having said that, having the extra flaps to use if you need a steeper approach, for whatever reason, is a good technique to have in your overall pilot "bag of tricks". To be used when you need it - like the ability to slip an airplane on final if you find yourself too high on the glide path - or adding spoilers if you have them. You just must be ready to be flying a different and draggier airplane as you add the flaps above the normal 30 degrees for the normal landing.

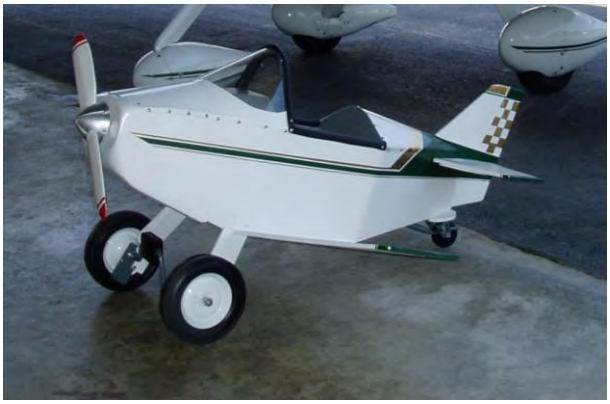
So yes, full flap landings in a Lightning are something that you should practice in case at some point you need the much steeper approach and the different drag profile that you will be flying. It is like practicing emergency procedures - you will do a better job if you have practiced before actually needing to be able to fly the required procedure or landing. The same comment about full flap landings should also be applied to NO flap landings. Have you done some of those as well? Practice in advance is the key to being ready for any emergency.

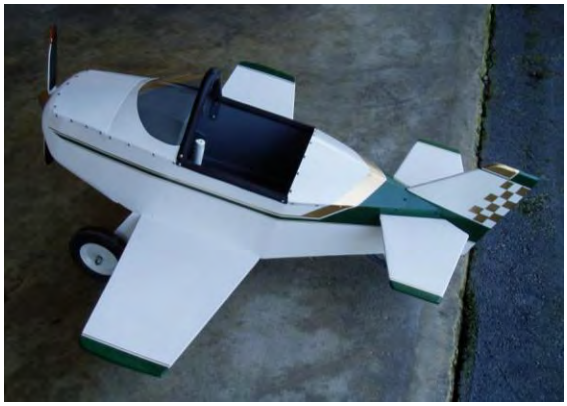
Blue Skies,
Buz

Lightning Skunk Works

At the top secret Virginia skunk works shop, I have been working on the very first tail dragger Lightning. The initial photos of the project are below. The Lightning TG is ready for testing; I just need to find the right young pilot that is qualified. Photos of the newly completed experimental amateur built aircraft are below.







Other Items

When this issue of the Lightning Newsletter is published many of you will soon be on the way to or already at the Lightning Fly-In and homecoming in Shelbyville, TN. I have said it many times before, but once again I strongly encourage all of you Lightning enthusiasts to make every effort to attend. It is a great event and you will be glad you attended. Where else could you meet the team that designed and fabricated the Lightning kit and now the ready to fly Lightning SL-1? Nick, Mark, and "Moostang" Mike are the fantastic Lightning team, but do you know some of the other interesting things they do?

For example, all of you probably know that when Nick is not working in the Lightning shop or office, he is often working on two other airplanes – a Skybolt and an S-1 Pitts. But did you know

that he and Dana also have another secret project in the works? I am not at liberty to say what that project is, but expect the "roll out" next year just before Sun-N-Fun.

And Mark not only is Lightning's Production Manager, but how many of you knew that he at one time was a topless model? Or that he played the tuba? Can you visualize a topless Mark, wearing a tiara and playing a big brass tuba? What a sight! Ask him for an autographed photo.

"Moostang" Mike's nickname comes from the fact that he is really into Ford Mustangs. He has restored one, and when he pushes real hard on the accelerator, you can hear a mooing noise. It's a real cow.

At the Lightning Fly-In you will get the chance to meet this dynamic trio. And don't forget, you will also get a chance to meet World Record Earl. Yep, he really did fly his Lightning to a world record. Ask him to tell you the story. But did you know he is also an ex Navy pilot? That's why he carries an anchor in his Lightning.

So make plans to head to Shelbyville for the 2 October Lightning Fly-In and homecoming. The beer is already in the cooler.

Final Thoughts

If you aren't living on the edge you're taking up too much space.

Blue Skies,

Buz Rich

N1BZRICH@AOL.COM **(Contact me directly for newsletter inputs – I need your help to keep this newsletter both interesting and informative.)**

Below is the latest version of the Lightning Inspection Guide for either a 100 hour or an annual inspection. Use it for inspections on your Lightning.

100-Hour or Annual Long Form Inspection Guide
For Lightning EXP or LS-1

Owner's Name _____

Address _____

City/State/Zip _____

Identification Number _____

Serial Number _____

Hours _____

Date Inspection Completed _____

Servicing Agency _____

Address _____

City/State/Zip _____

Note: The time periods for the inspections noted in this schedule are based on norms: Usage under average environmental conditions. Airplanes operated in humid tropics, or in cold, damp climates, etc., may need more frequent inspections for wear, corrosion, lubrication, and or lack of maintenance. Under these adverse conditions, perform periodic inspections in compliance with this guide at more frequent intervals until the owner or operator can set his own inspection periods based on the contingencies of experience. Airplanes operated commercially less than 100 hours a year must have a 100-Hour Inspection performed no later than 12 months following the date of the preceding 100-Hour Inspection. The 100-Hour interval between performances of the procedures specified herein should NEVER be exceeded by more than 10 hours which can be used only if the additional time is required to reach a place where the inspection can be satisfactorily accomplished. However, any extension of a 100-hour interval must be subtracted from the following 100-hour interval, with no time extension permitted. For example, if an inspection is done at 110 hours, the next inspection is due at 90 hours later with no extension allowed.

Note: Ascertain that all placards are in place and legible whenever the airplane has been repainted or touched up after repairs. Replace any placards that have been inadvertently defaced or removed.

Note: Arion Aircraft, LLCs recommended inspection program in accordance to FAR Parts 43 and 91, consists of, but is not limited to, inspection items listed in this Inspection Guide, any applicable Airworthiness Directives issued against the airframe or any equipment installed therein, conformity to Type Certificate Data Sheet and Maintenance Manual Airworthiness Limitations Chapter as applicable.

The owner or operator is primarily responsible for maintaining the airplane in an airworthy conditions, including compliance with all applicable Airworthiness Directives as specified in Part 39 of the Federal Aviation Regulations. It is further the responsibility of the owner or operator to ensure that the airplane is inspected in conformity with the requirements of Parts 43 and 91 of the Federal Aviation Regulations. Arion Aircraft, LLC, has prepared this inspection guide to assist the owner or operator in meeting the forgoing responsibilities. This inspection guide is not

intended to be all-inclusive, for no such guide can replace the good judgment of a certified airframe and power plant mechanic in the performance of his duties. As the one primarily responsible for the airworthiness of the airplane, the owner or operator should select only qualified personnel to maintain the airplane.

While this guide may be used as an outline, detailed information of the many systems and components in the airplane will be in the various section chapters of its shop maintenance manual and the pertinent vendor publications. It is also recommended that reference be made to the applicable Maintenance Handbooks, previously issued Service Instructions, Jabiru Service Bulletins, applicable FAA regulations and publications, Vendors Bulletins and specifications for torque values, clearances, settings, tolerances, and other requirements. It is the responsibility of the owner of operator to ensure that the airframe and power plant mechanic inspecting the airplane has access to the previously noted documents as well as to this inspection guide.

Arion Aircraft, LLC issues service information for the benefit of owners and operators. It is the responsibility of the owner/operator to review and act upon each service bulletin. It the responsibilities of the owner or operator to ensure that all service bulletins are complied with.

Note: In addition to the inspections prescribed by this schedule, the altimeter instrument and static system and all ATC transponders MUST be tested and inspected at 24-month intervals in compliance with the requirements specified in FAR Part 91.

1. Operational Inspection

1.1. Starter – Check for proper operation, unusual noises and dragging. Check starter energized light (if installed) and/or load meter to ensure starter disengagement when the starter switch is released.

P	F	Comments:

1.2. Fuel Pressure – check for proper fuel pressure limits and fluctuations.

P	F	Comments:

1.3. Cylinder Head Temperature – Check for proper operations, temperature and fluctuations.

P	F	Comments:

1.4. Alternator – check for proper output and unusual noises

P	F	Comments:

1.5. Propeller – Check for smoothness of operation.

P	F	Comments:

1.6. Oil Pressure and Temperature – Check for proper pressure, temperature limits and unusual fluctuations.

P	F	Comments:

1.7. Magnetos – Check the performance of the magneto as outlined under the heading NORMAL PROCEDURES in the appropriate Pilot's Patting Handbook.

P	F	Comments:

1.8. Power Check – Refer to NORMAL PROCEDURES in the appropriate Pilot's Operating Handbook.

P	F	Comments:

1.9. Voltmeter – Check for proper indication and unusual fluctuations.

P	F	Comments:

1.10. Heating and Ventilating System – Check for proper operation, heat and airflow output. Check controls for freedom of operation.

P	F	Comments:

1.11. Firewall Shutoff Valve – Check for proper operation and freedom of movement.

P	F	Comments:

1.12. Induction Airbox, Valve, Doors, and Controls – Remove air filter and inspect hinges, doors, seals, and attaching parts for wear and security. Check operation.

P	F	Comments:

1.13. Oil Cooler - Check for obstructions, leaks, and security of attachment. Forward line on engine adapter plate must go to lower port on cooler.

P	F	Comments:

1.14. Check latches, hinges, and seals for condition, operation, and security of attachment.

P	F	Comments:

1.15. Idle RPM and Mixture Settings – Check for both proper RPM and mixture settings. Check controls for freedom of operation.

P	F	Comments:

1.16. Ignition Switch – Rotate the ignition switch through the OFF position to the extreme limit of switch travel if the engine stops firing, the switch is normal. If the engine continues to run with the switch held in the past OFF position, it is an indication that the magneto is still "hot" or ungrounded. When the switch is released from the past OFF position, it should automatically return to normal OFF and the engine should stop running. However, any ignition switch exhibiting this abnormal condition should be replaced.

P	F	Comments:

1.17. All Engine Controls – With the engine running, check for proper operational limits, engine response and rigging. Check friction locks for proper operation.

P	F	Comments:

1.18. Fuel Quantity Gages – Check for proper operation and unusual fluctuations.

P	F	Comments:

1.19. Auxiliary Fuel Pump – Check pump for proper operation, unusual noise and fluctuations.

P	F	Comments:

1.20. Fuel Tank Selector Valves – Check for proper operation and feel for positive detent and proper placarding.

P	F	Comments:

1.21. All Lights – Check for condition, attachment, cracked or broken lenses. Check switches, knobs, and circuit breakers for looseness and operation.

P	F	Comments:

1.22. Check electric pitch control system for proper operation. Trim up should move tab down. Trim down should move tab up.

P	F	Comments:

1.23. Radio Operation – Check for proper operations, security of switches and knobs.

P	F	Comments:

1.24. Flaps – check for noisy operation, full travel and proper installation.

P	F	Comments:

1.25. Flight Instruments – Check for condition and proper operation.

P	F	Comments:

1.26. Brakes – Check for condition and wear, ease of operation. Check for unusual brake chatter.

P	F	Comments:

1.27. Emergency Locator Transmitter – Check for proper operation and assure that the ELT is armed when the airplane is returned to service.

P	F	Comments:

1.28. Switches, Circuit Breakers – Check for proper operation.

P	F	Comments:

1.29. Flight and Trim Controls – Check freedom of movement and proper operation through full travel with and without flaps extended.

P	F	Comments:

2. Power Plant

2.1. Cowling Skin – check for deformation and obvious damage or cracks. Check for loose or missing rivets.

P	F	Comments:

2.2. Cowling Structure – Check for cracks and deformation. Check for loose or missing rivets and concealed damage.

P	F	Comments:

2.3. Cowling – Check for condition, security and adjustment of latches. Open the upper cowling and clean. Inspect for cracks.

P	F	Comments:

2.4. Spark Plugs – Clean, inspect, regap to 0.022, test and replace as necessary. Tighten spark plugs to proper torque of 8ftlbs and check ignition harness condition and for proper attachment.

P	F	Comments:

2.5. Compression – Perform differential compression test. Must be better than 60/80.

P	F	Comments:

2.6. Battery – Inspect, clean and tighten connections. Check for security and proper attachment. Check for corrosion. Make certain the battery is clean. Water or dirt on battery surfaces can cause the battery to discharge.

P	F	Comments:

2.7. Plumbing – Inspect plumbing and associated accessories for condition (such as cracks) and attachment. Check plumbing clearance and secure against possible chafing.

P	F	Comments:

2.8. Brake Fluid Reservoir – Check reservoir for security, attachment, open vent, proper fluid levels and for leaks.

P	F	Comments:

2.9. Engine Sump – Check for cracks, leaks, proper fluid level, deformation and security.

P	F	Comments:

2.10. Crankcase – Check security of crankcase half bolts. Torque seal should be solid.

P	F	Comments:

2.11. Oil Sump Drains and Filter – Remove oil filter. Inspect oil sump drains and install new filter.

P	F	Comments:

2.12. Oil Cooler – Check oil cooler, lines and fittings for condition, security, chafing and leaks. Forward output on engine adapter plate must go to the lower cooler port.

P	F	Comments:

2.13. Propeller and Mounting Bolts – Check for condition and security. Inspect the blades for cracks, dents, nicks, scratches, erosion, corrosion, security and movement in the hub. Check the torque on all bolts, wood props to 17ftlbs, EZ-pitch carbon prop to 15ftlbs.

P	F	Comments:

2.14. Propeller Spinner – Check for deformation, security and cracks.

P	F	Comments:

2.15. Propeller Hub – Check for cracks, excessively leaking seals and condition.

P	F	Comments:

2.16. Alternator – Check for condition and attachment. Check wiring for proper attachment and possible chafing. Check for unusual noise.

P	F	Comments:

2.17. Starter – Check for condition, attachment and chafed or loose wires.

P	F	Comments:

2.18. Magnetos – Check ignition harness for proper connection, security and fraying.

P	F	Comments:

2.19. Cylinders and Baffles – Check cylinders and exhaust manifold for obvious leaks, security and cracks. Check baffles for cracks and security. Check cylinders for broken cooling fins and loose or missing base nuts.

P	F	Comments:

2.20. Exhaust System – check for deformation, security, cracks, leaks, loose or missing nuts and clamps. Check for thin wall condition which may occur due to normal internal erosion on stacks which have long service time.

P	F	Comments:

2.21. Firewall – Check for wrinkles, damage or cracks. Check all electrical and control access holes for proper sealing.

P	F	Comments:

2.22. Hose and Ducts – Check all fuel, oil and air hose or duct for leakage, cracks, deterioration and damage. Check fittings for security.

P	F	Comments:

2.23. Engine Accessories – check for condition, security and leaks. Check wiring including; starter solenoid, regulator rectifier, alternator wires, and engine grounding straps, hoses and tubes for chafing, security and leaks.

P	F	Comments:

2.24. Engine Mounts – Check for cracks, corrosion and security. Inspect rubber cushions, mount bolts and nuts for condition and security. Torque should be 8ftlbs on ¼" AN4 bolts thru the rubbers.

P	F	Comments:

2.25. Cabin Heater System – Check for cracks, distortion, corrosion, leaks and obstructions.

P	F	Comments:

2.26. Engine Controls – Check controls and associated equipment for condition, attachment, alignment, and rigging. Check control operation. Throttle control should include a secondary idle stop attached to the wire, this is a ferrule with set screw and should be set against cable adjuster nut when at a warm 850RPM idle.

P	F	Comments:

2.27. Ignition Harness – Inspect for fraying and attachment.

P	F	Comments:

2.28. Electrical Wiring and Equipment – Inspect electrical wiring and associated equipment and accessories for fraying and attachment.

P	F	Comments:

2.29. Check fly wheel attach bolts for proper torque of 24ftlbs.

P	F	Comments:

2.30. Induction Air Filter – Check for condition, cleanliness and security.

P	F	Comments:

2.31. Induction System – Check the hot and cold flexible air ducts for delaminating of the inner lining. Check security, cracks, operation, and wear.

P	F	Comments:

2.32. Carburetor Heat System – Check for blockage, security, operation and wear.

P	F	Comments:

2.33. Carburetor – Check for condition. Check for leaks. Float bowl balance tube must be attached and run to the clean side of the air-filter box.

P	F	Comments:

3. Cabin and Baggage Compartment

3.1. Skin – Inspect skins for deformation or cracks. If damage is found, check adjacent structure.

P	F	Comments:

3.2. Structure – Check for cracks and deformation. Check for concealed damage.

P	F	Comments:

3.3. Check Rudder cables for proper tension, 22lbs. If equipped with an autopilot system check cables for rubbing wear on servo.

P	F	Comments:

3.4. Check main pushrod for damage, cracks, or fatigue. Check Jam nuts are tight. If equipped with an Auto pilot system check servo for freedom of movement with the push rod.

P	F	Comments:

3.5. Flap Motor and Shafts – Check for condition, security and wear at all points. Check housing for security and check jam nuts for tightness.

P	F	Comments:

3.6. Brake Mater Cylinders and pedals – Check for condition, security and leaks. Check lines for signs of chafing or cracks.

P	F	Comments:

3.7. Rudder Pedals – Check for freedom of movement. Check cables and push/pull rods for proper routing, condition and security. Check rudder pedal fore and aft positions for wear. Check locks and pins to ensure positive lock.

P	F	Comments:

3.8. Control stick; check for cracks at welded joints, chafing of the PTT wiring, and any wear or slop in the pivot points.

P	F	Comments:

3.9. Engine Controls – Check for ease of operation through full travel. Check friction lock for proper operation.

P	F	Comments:

3.10. Plumbing – Check all plumbing under seat pan, behind panel, and connections for security, leakage and general condition.

P	F	Comments:

3.11. Canopy structure and Quarter windows.– Inspect Windows for scratches, crazing and general condition. Inspect Canopy for security of attachment. Check latching mechanism for proper engagement and ease of operation.

P	F	Comments:

3.12. Instruments and Instrument Panel – Inspect instrument panel, sub panels, placards, and instruments for condition and attachment. Check all knobs for security. Inspect shock mounts, ground straps for crack and security.

P	F	Comments:

3.13. Seats, Seat Belts and Shoulder Harnesses – Inspect cabin seats, seat belts, and shoulder harnesses for proper operations, condition, and security of attachment. Inspect floorboards for condition and seat attachment.

P	F	Comments:

3.14. Ventilating System – Check all fresh air and heat outlet vents for proper movement and operation.

P	F	Comments:

3.15. Fuel Selector Valve – Inspect for leakage, security, freedom of movement, proper detent feel and condition. Clean strainers and inspect for condition. Check for proper placarding.

P	F	Comments:

3.16. Microphones, Headsets, and Jacks - Inspect for cleanliness, security, and evidence of damage.

P	F	Comments:

3.17. Static System – Check and drain water from the static lines.

P	F	Comments:

4. Wings and Carry-Through Structure

4.1. Skin – Check for deformation and obvious damage. Check for cracks. If damage is found, check adjacent structure. Check for indications of excessive flight loading.

P	F	Comments:

4.2. Structure – Check for cracks, deformation and concealed damage.

P	F	Comments:

4.3. Access Doors and Panels – Inspect for cracks, proper fit and attachment.

P	F	Comments:

4.4. Push rods, check end cones for security, jam nut tight, and rod end bearings for freedom of movement. Rod ends must have large area washer to capture the rod end in the event of a bearing failure.

P	F	Comments:

4.5. Ailerons – Check for condition and security. Check for cracks, freedom of movement. Check hinge and brackets for condition, push-pull rods for security and rod ends for corrosion.

P	F	Comments:

4.6. Fuel Tanks, Caps and Vents – Inspect fuel tank, vent lines, and filler caps.

P	F	Comments:

4.7. Wing root end rib – Check for leakage around fuel sending unit, chafing of sending unit wires or rubber fuel lines, condition and security.

P	F	Comments:

4.8. Electrical Wiring and Equipment – Inspect for chafing, damage, security and attachment.

P	F	Comments:

4.9. Flaps and Actuators – Check for condition, security, binding or chafing of push rods. Check flap skin and structure for cracks.

P	F	Comments:

4.10. Flap Position sensor – Check for security and operation.

P	F	Comments:

4.11. Wing Bolts – Check wing bolts for proper torque at the first 100-Hour inspection and at the first 100-Hour inspection after each reinstallation of the wing attach bolts.

P	F	Comments:

4.12. Pitot/ static Tube – Check for condition and obstructions.

P	F	Comments:

4.13. Drain Ports – Check the drain ports in the wing to assure they are free of obstruction.

P	F	Comments:

5. Nose Gear

5.1. Wheel and Tire – Check wheel for cracks and tire for wear, damage, condition and proper inflation. Check wheel bearings for condition and wear.

P	F	Comments:

5.2. Landing Gear Strut – Inspect aluminum for corrosion and components for cracks and attachment.

P	F	Comments:

5.3. Motor mount – Check for wear at attach points. Check for cracks and security.

P	F	Comments:

5.4. Nose fork assembly – Inspect for tightness, condition and security, freedom of movement of the nose block pivot, check pivot stop bolt for bending or cracking.

P	F	Comments:

6. Nose Gear Operation

6.1. Check for freedom of movement of the nose pivot block, travel is limited to an equal 30 degrees each side of center.

P	F	Comments:

7. Main Gear and Brakes

7.1. Brakes, Lines, Lining and Discs – Check for condition, wear and security. Check lines for chafing and signs of leakage or cracks. Check discs for wear or warping. Check brake discs for cracks.

P	F	Comments:

7.2. Wheels and Tires – Check wheels for cracks and tires for wear, damage, condition and proper inflation. Check wheel bearings.

P	F	Comments:

7.3. Landing Gear Legs – Inspect the aluminum legs and components for cracks, attachment points, and corrosion, or deformation.

P	F	Comments:

8. Rear Fuselage and Empennage

8.1. Skin – Check for deformation, cracks and obvious damage. If damage is found, check adjacent structure.

P	F	Comments:

8.2. Internal Fuselage Structure – Check for cracks and deformation. Check bulkheads, stingers, and doublers for corrosion, cracks and buckles.

P	F	Comments:

8.3. Structure – Inspect the two most aft bulkheads for cracks, distortion, or other obvious damage.

P	F	Comments:

8.4. Cables and Turnbuckles – Check the elevator and rudder flight control components and cables. Replace control system components (push rod, end fittings) that have bulges, splits, bends, or cracks. Check control cables and associated equipment for condition, attachment, alignment, clearance and proper operation. Replace cables that have exhibit abnormal characteristics or evidence of corrosion. Check cables for proper attachment & security at the first inspection and every 100 hours thereafter.

P	F	Comments:

8.5. Control Surfaces – Check for deformation, cracks, security, freedom of movement and travel limits. Check for loose or missing rivets in the elevator. Check for security of hinges.

P	F	Comments:

8.6. Trim Tabs and Actuators – Check for security and wear. Check trim tabs for cracks.

P	F	Comments:

8.7. Tail tie down ring. Check for damaged and surrounding structures.

P	F	Comments:

8.8. Horizontal stab leading edge attach bolts. Inspect bolts and mounting point for cracks or any damage.

P	F	Comments:

8.9. Elevator interconnect bell crank. Check for damage to welded structure. Check bolts inside root ends of elevator for proper torque.

P	F	Comments:

8.10. Antenna behind baggage bulk-head– Check for condition and security.

P	F	Comments:

9. General

9.1. Airplane cleaned and serviced.

P	F	Comments:

9.2. Inspect all placards to assure that they are easily readable and securely attached.

P	F	Comments:

9.3. Assure that all Airworthiness Directives, Jabiru Service Bulletins, and previously issued Service Instructions are reviewed and complied with as required.

P	F	Comments:

9.4. For a complete annual inspection of the airplane, all items on the airplane that are noted in this guide should be inspected.

P	F	Comments:

Additional Comments: