Hangar Talk

The "Lightning" Newsletter

Sharing Info between Builders, Flyers and Future Customers.

Second Quarter 2014, Volume 7, Issue 1

Published in May 2014

Lightning of the Quarter, Wayne Patterson's Jet, S/N 65

This is my first newsletter. I hope that I can provide a newsletter that is as interesting and as informative as the one that Buz Rich has done for so many years. His shoes are hard to fill, but then we all know that. I have known Buz since 2002 when I moved to Williamsburg, VA and joined EAA Chapter 156. I have flown with him in his 1940 Piper Cub Sport, his award winning 1961 V-35 Bonanza (since sold), and in his Esquale LS. All of those flights were wonderful experiences and good memories. Buz is the reason I own and built a Lightning. His enthusiasm and expertise about the aircraft is very hard to resist. I am proud to call Buz a very good friend and will always be grateful to him for his friendship and his aviation knowledge. Continuing with Buz's sign off.

Blue Skies,

Dennis W. Wilt
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Hangar Talk
Second Quarter 2014, Volume 7, Issue 1

Contents in This Issue

Dennis' First Lightning Newsletter

As I mentioned on the first page, this is my very first Lightning Newsletter. I once wrote an article about my build experience at Green Landings in Volume 4, Number 9, October – November 2011. In this newsletter, I am including an article about removing and replacing the Spar Box in my Lightning.

It is a daunting task to take over the newsletter from the hands of Buz Rich, but I, like Buz am a Lightning enthusiast and really do like my little "jet". I hope I am up to the task. Just so everyone can get to know me, I will provide a bit of my aviation background and a short biography. I have always wanted to fly. But, being from a modest background, I was never able to take lessons while I was very young. I worked my way through college and met my future wife, Donna in Physics class at The University of Florida. She received her Private Pilot's Certificate not too long after we met in 1975. After I graduated with my Bachelor of Science in Electrical Engineering in 1978, I began taking flying lessons. Donna also received a BSEE in 1979. Very shortly after that we got married in her home town of Miami Shores, FL and moved to Melbourne, FL where she worked at Collins Radio and I worked at Harris Corporation. I learned how to fly in a Grumman Cheetah (still love that plane) and we were part owners in the aircraft. We flew nearly every year to Sun-N-Fun and spent many years camping next to the plane. When our two kids got too big for the Cheetah, Donna bought a 1973 Cardinal RG in 1993 (another great airplane). She sold the Cardinal after I finished my Lightning in 2011. The kids are grown and gone, so we no longer have a need for back seats. Donna is an Associate Professor at The Florida Institute of Technology in Melbourne, FL. She teaches in the College of Aeronautics.

I have worked in the aviation industry since 1986 as a Program Manager at Harris Corporation and then Rockwell Collins. I moved to Virginia in 2002 to work on General Aviation (GA) research with NASA Langley Research Center. When the GA research went away in 2007, I began working for another company (The MITRE Corporation) providing Systems Engineering expertise for The United States Air Force, Air Combat Command at Langley Air Force Base. Eventually, I transferred to the company's FAA branch and was able to work from home. We moved back home to Florida in August of 2011. The sequester got my job in April 2013, so I am now doing Aviation Consulting in Communications, Navigation, Surveillance and Air Traffic

Management (CNS/ATM) and a bit of expert witness work for aviation civil suits. I just finished a Master of Science in Aviation – Aviation Safety at the beginning of May 2014.

Lightning of the Quarter, Wayne Patterson's Jet, S/N 65

My Lightning Story: Visit http://mykitlog.com/marvin4242 to see a complete build history of Wayne's Jet. He has several mentions in earlier newsletters with pictures and great information as well.

Article by Wayne Patterson June 2014

I have always had an interest in aviation, no doubt instilled by my father who, amongst many other qualifications, was an aircraft engineer. I grew up building Airfix and Revell kits of many aircraft types. I progressed to RC models and built a couple from scratch and flew them on and off for a few years before moving on.

I remained somewhat of an aircraft geek, always arriving at airports very early for flights so I could study everything on the apron and watch take-offs and landings. I attended any air shows that came to town, and caught every aviation related program that aired on our local TV.

My brother Mark had a less focused interest in aviation, but a good interest non-the-less, and in 1995 we decided to get our Private Pilot Licenses (PPLs) or Private Pilot Certificates (PPCs). We both qualified with full endorsements for CTA and cross-country flights etc. and flew for a few years by joining a local university flying club and hiring (renting) their C-172s.

But after a few years, the novelty of flying old and tired hire (rental) aircraft soon left and as neither of us had a particular need to fly, the time and cost to remain current caused us to lapse our flying.

However, I still maintained a good interest in all things aviation, and while out riding my bike one day (Honda ST 1,100) I saw a windsock and landing strip in a field about 35 minutes south of where we live in Perth, Australia. I headed in and there were three small light aircraft on the tarmac in front of a small club house. I wandered over and the very friendly folk were perfectly happy to show me the aircraft and explain what

they were doing. I learned that each pilot had built their own aircraft (!!) and they were heading off to fly to Sydney (2,050nm direct) and to tour around the place before flying back to Perth. I was impressed.

The landing strip belonged to the SABC (Sports Aircraft Building Club) so in short time I learned all about what is involved in building your own aircraft. Coincidentally, Mark had been reading about building your own aircraft on the internet so over coffee one day we decided to seriously research the possibility of building and flying our own plane. The idea of a fast, new and enjoyable aircraft to use on travel flights around Australia piqued our interest. So serious research was underway!

We both love travelling with our wives so it had to be a 2 seater. Australia is a big place with very large distances between towns across the country. In some places it is 1,000nm between populated towns (you can get fuel at most roadhouses on the highways) – so the plane would need to be relatively fast. And if we were to spend a few years building a plane, it may as well look good! The last criteria fell into place when Mark developed kidney stones and it became too hard to regain his medical.


The Box Arrives with S/N 65.

So we needed a good looking, fast and economical long distance touring plane for 2 that did not require an aviation medical for the pilot. After researching all the options (back in 2009) we settled on the Lighting. The decision was made easier as there were already 3 Lightings under construction at the SABC so we knew that build local build knowledge and support was available. With that settled, we ordering the kit (with the larger tanks, speed fairings and steps) and it duly arrived a few months later on our side of the planet.


Peter T Helping Out.

Mark is more a big picture person, and I am more a detail person, so it was decided that I would lead the build project. So for the next few years my double garage became an aircraft hangar and I had great fun progressing the build. The task was made immeasurably easier by having other Lightings in more advanced stages of their builds available for me to study. Peter T (at SABC) always made time on my Sunday afternoon visits to the airfield to answer the long lists of questions that I had recorded during the building week. I cannot understate the value of having the support of a building club. The specialist knowledge base is extensive, and the support and encouragement to persist when you getting a little down in the middle of the build is invaluable.

For me, the two main advantages of building at home are the ability to use small time “grabs” whenever they are available, and the easy involvement of family friends. Getting at least some work done each day kept the project moving, and working with family and friends meant the build did not interrupt more important social interaction.


The Garage Hangar.

Because I have a better suited skill set, and the plane was in my garage, I ended up doing the vast majority of the build. Mark assisted when he had time, and when an extra competent hand was needed. Having said that, my wife Sheryl spent endless hours as my TA, helping with all the tasks that went a little faster with an extra set of hands around – nothing like having someone to fetch and pass tools when you are imbedded inside the fuselage.

The build itself was enjoyable and an education – which is what the exercise is supposed to be. YouTube was referred to multiple times. You don’t know how to terminate a flexible oil line – YouTube will have a tutorial. Not sure how to bend acrylic - YouTube will have a tutorial.


Sheryl helping out.

So after 5 years (with an overseas work stint in the middle) the big crate of materials and parts has now become an aircraft. It looks new, smells new and is proving to be a pleasure to fly. As of today (end of May) I have 4 hours on the Hobbs and the issues we have discovered are being rectified and ticked off.

Mark & his wife, and Sheryl & I, are now looking forward to enjoying our Lighting and exploring Australia from the air. When we get some travel photos we’ll share them with the Lightning group so you can learn a little more about our wonderful country.


Wayne finishing the Engine Compartment.


The Interior.

News from the Factory

N320XS in Flight

Editor's Note: The following information is from the Arion Website.

The New Lighting XS production prototype is undergoing flight testing at this time. Initial unofficial numbers are 1500fpm climb and cruise speeds of 140knts at 55%power. N320XS is equipped with a Superior XP320 B1AC2 of 160hp.

The Lightning XS kit boasts redesigned firewall and forward fuse structure to allow up to 160hp engines. The XS kit has new landing gear for longer props, and larger fuel tanks for a total capacity of 40gallons.

Engines choices will include the ever popular Lycoming series O233 up to the O320, and UL power engines including the UL350 130hp and UL390is 160hp. XS kits are ready and shipping.

Editor's Note: The following and the pictures above were received from the factory just before I published the newsletter, Thanks Nick.

N320XS performance at 3,500 ft and in cruise, engine leaned, but not to peak:

- 2250rpm 130knts TAS at 6gph
- 2350rpm 140knts TAS at 7gph
- 2450rpm 147knts TAS at 8gph
- 2500rpm 150knts TAS at 8.5gph

All numbers increase with altitude, except fuel burn drops slightly.

Takeoff roll is right around 600' estimated

Climb rate: Initial Wide Open Throttle (WOT) pulling 2380rpm is 2000fpm, then settles in around 1500fpm at 105knts IAS.

Comments from Nick: "We do have the prop set on the climb side of things. I can go up a dowel and may do that to see what speed increase we get. We are currently matched exactly to Marks RV-9A in cruise numbers. However I can out climb him easily. So the thought is get some more pitch and still keep a good climb and go a little faster."

This aircraft is equipped with the short upswept wingtips so span is 27'. We have leg fairings and no intersection fairings, and flying the LSA style wheel pants right now. We plan to install the pressure recovery type pant next and see what the increase is in the speed, should be worth several knots.

N337AL is for sale. 2012 Demo 210hr TT NDH, MK2 tail, big tanks, 8.4" EFIS w/ AP & GPS, Garmin stack. $110K

N339AL is for sale. Stock aircraft end of 2013 production 15hr TT NDH, MK2 tail EFIS w/ AP & GPS, Garmin stack. $125K

Check out our Facebook Page. www.facebook.com/flylightning

Recent Safety Alerts and Service Bulletins:

There are no new Safety Alerts or Service Bulletins to report at this time.

Sun-N-Fun 2014

Article by Dennis W. Wilt

Sun-N-Fun this year was quite nice. I was there early helping to set up the Society of Aviation and Flight Educators (SAFE) tent and also talked to Nick and Buz while the crew were setting up the Arion Aircraft and Jabiru displays. The picture above was during the show. You can see the 0320 powered Lightning and the pedal planes (with the tail dragger Lightning) that Buz Rich built and lets the children play with during the show. I think he gets nearly as many kids playing with his pedal planes as the Lightning gets potential builders for the Arion display. I attended the show from Thursday through Sunday and spent some time at the Lightning display. It looked like there was a lot of interest in the higher powered Lightning. Here is a link to a video thanks to Paul "Bear" Bryant. Sun-N-Fun Video

Nick also held several forums on the Lightning and I stopped by his last one to take a couple of pictures. This picture is during the question and answer session towards the end of the forum.

The Saturday of Sun-N-Fun is a day where Florida Residents get a discount and the place was quite busy. Much more so than last year. Sun-N-Fun was also busier than last year because the military flight and demonstration teams are now doing airshows again. The Blue Angels and the F-22 demonstration were a big hit. Below are two pictures, one is a nice fly-by of the Blue Angels in the diamond formation and the other is a picture of the F-22 exposing itself.

Having said those good things about Sun-N-Fun, I was a bit disappointed in the amount of airplanes in the homebuilt parking area. I also heard from several vendors that they were once again not satisfied with their treatment from Sun-N-Fun staff. I have heard this comment several years in a row now. So, there are some things that could be improved upon. One is to try to cater to the builders so more homebuilders will show up and we can see their planes. Another is for there to be a more customer friendly staff running the vendor operations. Now for some more pictures.

Welcome to Sun-N-Fun and the 747 Jetmobile

The Electric Motor Glider Ultra-Light Aircraft

Randall Fishman is the builder of the Electric Motor Glider. He lives in Sebastian in the Winter and in New Jersey in the Summer. He spoke at the EAA Chapter 1288 meeting this past March and it was a very interesting talk. Randall decided to make the plane an ultra-light because the FAA was having so much of an issue with electric powered aircraft. He has a Light Sport design, but has placed it on hold until the powers that be work themselves up to the 21st century.

Current Lightning Dealers or Representatives


Arion Lightning, LLC, contact Nick Otterback, Shelbyville, TN, 931-680-1781, www.flylightning.net


Lightning Southwest, Greg Hobbs, 18750 West Avra Valley Rd, Marana, AZ 85635, 520-405-6868 www.lightningaircraftwest.net


Mid Atlantic Region, Green Landings Flight Center, Ryan Gross, 309 Takeoff Dr., Hedgesville WV 25427, 304-754-6010, www.greenlandings.com


Lightning North Central, Tom Hoffman, 3015 Shady Ln, Neenah, WI 54956-9509, (920)-585-9704


Lightning New York - Jabiru Power Solutions, LLC, Dave Jalanti, 136 Millbrook Rd, Hudson NY, 12534, Kline Kill Airport, Ghent NY - Identifier NY1, (518) 929-4307, dave@jabirups.com


Lightning Florida, Moonshine Aviation, LLC, Max Voronin, 917 Biscayne Bay Unit #5, Deland FL, 32724, 386-873-9995, www.moonshineaviation.com

Midwest, Heart of America Aviation LLC, Jack Gonzenbach, 12906 W 122nd St, Overland Park KS, 66213, (913) 890-3052, jgonzenbach@flyhoaa.com


Western Light Sport, Sullivan Equipment and Leasing, Jay Sullivan, Hanger#23, Redlands Municipal Airport (KREI), Redlands CA, Cell 909-362-7294, Office 909-307-5757, FlyLightningLS1@gmail.com


Lightning Representative Australia, Dennis Borchardt, Kingston SE, South Australia 5275, (08) 8767 2145, lightningaustralia@bigpond.com


Russia and CIS, AVIA-NIANIA Ltd, Moscow, Russia, Phone: + 7495518-62-75, Mobile Phone: + 7925518-62-75, avianiania@mail.ru *or* avianiania@aol.com


South Africa-Flylightning SA, Deon Lombard, Petit Airport, Pretoria, Phone 0834196613 or 0723122717, deonandpamela@yahoo.com

News from the Dealers

From Moonshine Aviation

Lightning S-LSA for Sale!

This is a 2012 factory built S-LSA, 60 hours total time, Dynon Skyview 10" EFIS with autopilot, Mode S transponder, Garmin SL40 radio, Garmin Aera 796 with XM weather, Retractable sunshade, MK2 tail, all the good stuff.

The owner, unfortunately, passed away and I'm selling this for the widow. Accepting offers - hate to see a good airplane sit on the ground.

Contact info - voroninmax@gmail.com and 386-873-9995 - Max Voronin

News from Builders and Flyers

So far I have received no e-mails from builders and flyers although there has been a little activity on the Lightning List from Matronics.

One builder is looking for information for using piano wire hinges for his top cowl. There has been no information in the newsletters regarding this modification. One reply said that a builder had tried the modification and went back to using Camlocs®.

Another builder is working on a second Lightning with a Camit Aero engine. I am hoping to get some information from this Aussie builder.

Replacing the Spar Box

Lightning Spar Box Replacement, by Dennis W. Wilt

If you had a flying Lightning or one that was nearly finished with the LSA gear you were likely a bit concerned when you received the Arion Lightning Service Bulletin (SB) AASB-1-12-2012 in January of 2013. I know I was concerned. I had done a condition inspection in October of 2012 and although I saw some paint cracks on the spar box structure (or so I thought) and had asked my local A&P about it, we believed them to be cracked paint and did not investigate further. After reading the SB, I knew that what I had seen was not just cracked paint, but a more serious problem. So, I went out to the airport and made a more thorough inspection. I picked some of the paint off and indeed found cracks in my spar box (see Figure 1).

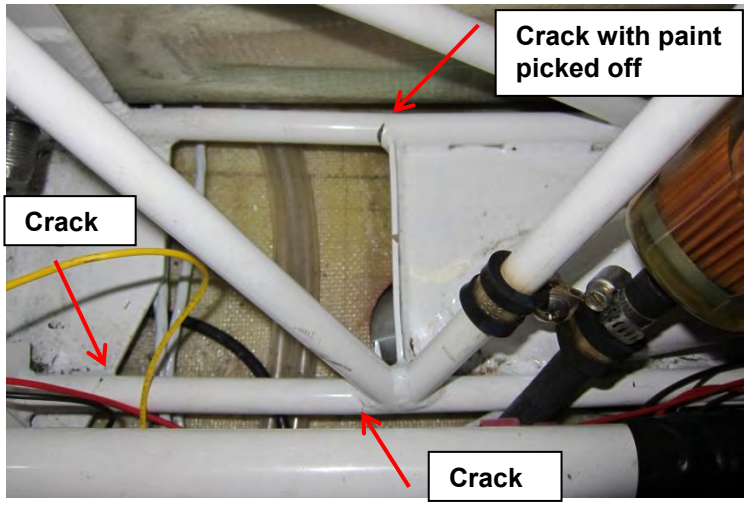


Figure 1: Cracks on Left (Pilot's) Side of Spar Box

I attribute my cracks to the first 40 hours of landings at a nice, but not the smoothest of strips in West Virginia. Taxiing what seems like nearly 5 miles on the grass at Oshkosh at nearly Gross weight didn't help much either. It is rough in those areas between the runway and taxiways at OSH. A couple of not very smooth landings could also be a factor.

So, I began the journey of repairing my Lightning. First was a call to Nick about the cracks and his recommendations regarding continued flight. I was considering flying the plane to Shelbyville for the repair, but after Nick looked at my pictures he recommended grounding the airplane. I decided to order a new Spar Box rather than repairing my old one. I would have had to find a welder that I trusted and then get that person to make the repairs after I removed the spar box. I decided that there would be no time saved and I would have a repaired spar box and not a new one. At this time, I decided to get some advice from an old friend that used to be the structures expert at NASA Langley Research Center before he retired. His name is Randall Davis and has a Ph.D. in Structures. So I sent several pictures of the broken spar box to him to look at. Lo and behold, he performed a structural analysis based on my pictures. He sent

back the analysis shown in Figure 2, Figure 3, and Figure 4. The structure is doing triple duty, it has to handle wing loading, gear loading, and flap loading. The gear loading is the real issue here where the gear loads causes the structure to twist, pushing the bottom of the structure back and forth, thereby causing a premature fatigue failure at the weldments as seen.

After I received the new spar box, I took pictures of it and sent it off to my friend (See Figure 4). He commented that “the shear plate fix does a nice job of addressing that”. Further, he commented that the "fix" to the spar box is a good one. The original design clearly had “up and down” loading in mind coming from the wheels and it is well designed for carrying that kind of load. It was the fore-and-aft loads from the wheel hitting a bump that appears to have been “overlooked”. The fix is more than adequate and should cure the problem completely.

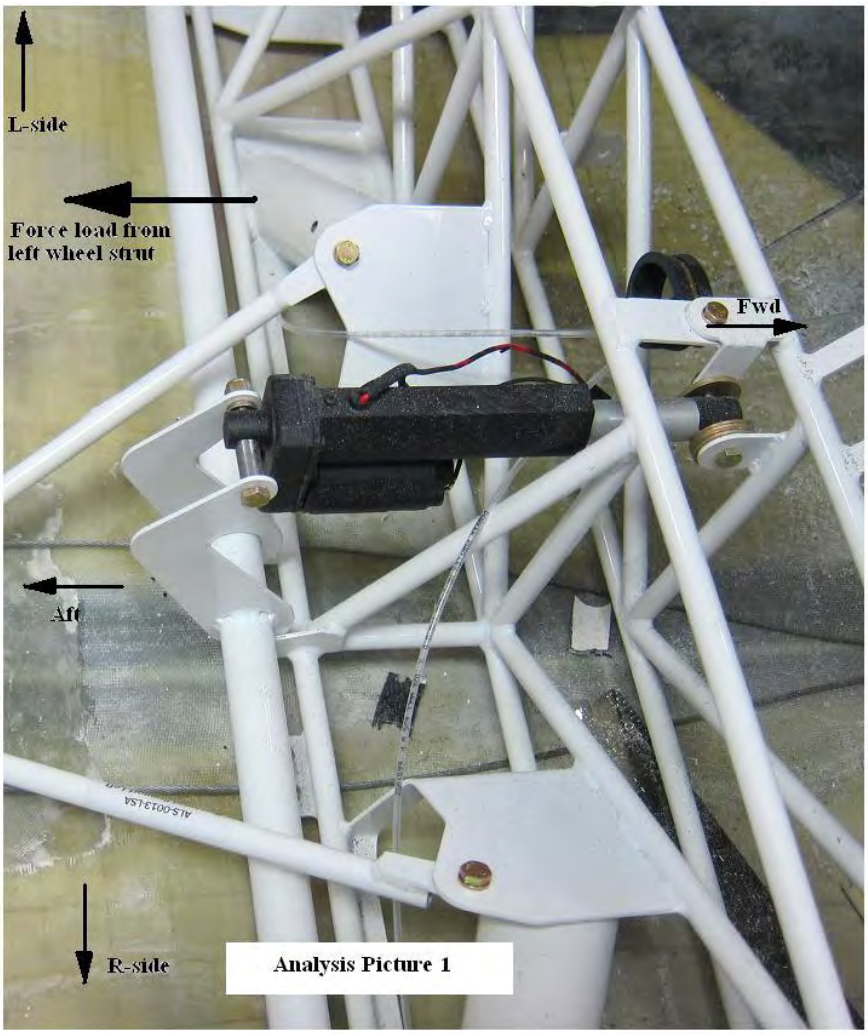


Figure 2: Analysis of Spar Box, Picture 1

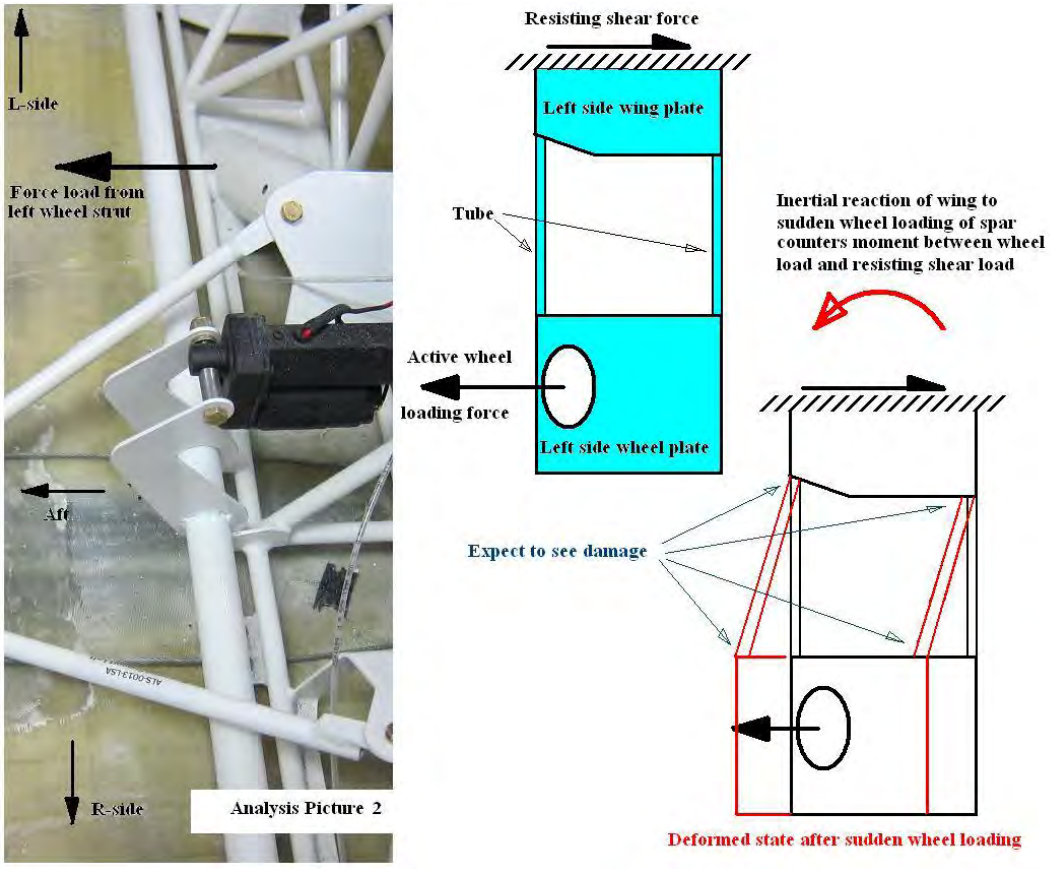


Figure 3: Analysis of Spar Box Structure, Picture 2

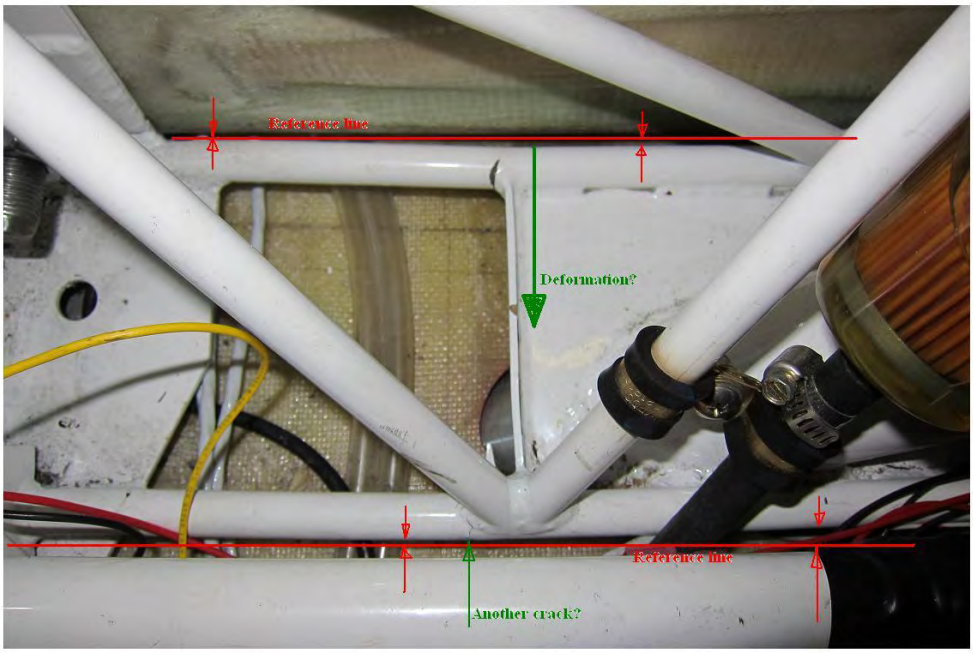


Figure 4: My Cracked Spar Box with Analysis

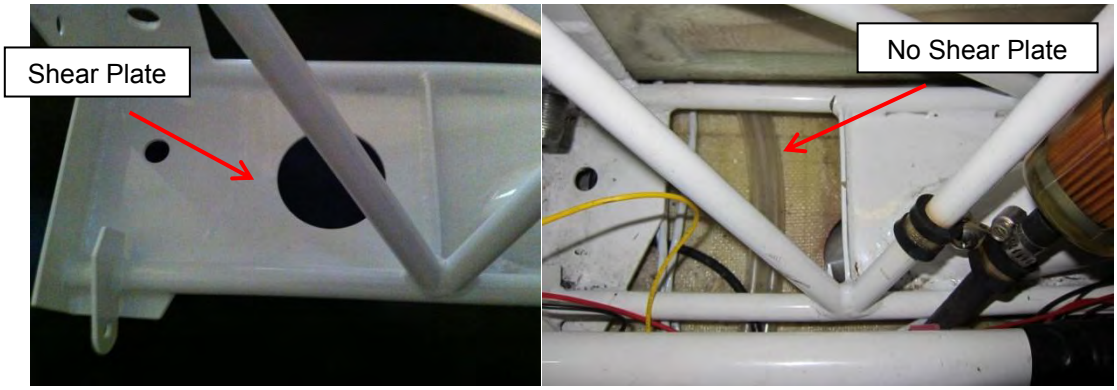


Figure 5, New Spar Box Left Side vs Old Spar Box

So, after resolving the issues and ordering my new Spar Box, I began the year long journey of repairing my airplane. Yes, you read the sentence correctly; it took a year to complete the repair. I was working and going to school to get my second Master's degree. Life tends to get in the way.

The repair is basically this: (Take lots and lots of pictures as you go. You still won't have enough.)

1. Disconnect and move the wiring to avionics, audio jacks, PTT jacks, and radios that reside under and through the spar box structure. Make sure all of this wiring is carefully marked if it is not already marked sufficiently.
2. Disconnect the aircraft wiring to the Nav and Strobe lights and any other wiring that is connected in any manner to the spar box structure, like the trim and flap relay. Like in Number 1, make sure all of this wiring is carefully marked.
3. Drain the wing tanks and then drain them again because I can guarantee you that you did not get enough fuel out of the tanks the first time.
4. Disconnect the fuel lines from the fuel selector valve. Insert ¼ inch bolts into the end of the fuel lines and then use tie wraps or hose clamps to seal them up.
5. Put saw horses or something else that will hold up the ends if the wings under the end of the wings and then remove the wing spar bolts. This will take longer than you think if you use hand tools.
6. Order new Spar bolts and nuts from Arion Aircraft.
7. Remove the sticks and the connections to the autopilot if you have one. Remove the push rod to the elevator.
8. Review the wing install build manual carefully and unbolt everything connected to the wing, flaps, and ailerons.
9. Get a couple of guys to help you pull the wings and place them on a wing sling. (If you don't have access, you can build one like mine. I pulled the design off the web and built it myself.) If the wings have not been completely drained, you will have leakage of fuel from the fuel lines and fuel fill caps. If this happens, make sure you have a means of catching fuel and have

someone hold up the wing tip while the fuel drains from the fuel lines into a fuel can.

10. Find two good platforms (or make them) that will hold the weight of the airplane. Place one under the plane just behind the firewall and one just behind the cockpit area. They need to be high enough that you can remove the wheels. I used a different method, but you get the idea.
11. Remove the wheels. Leave the brakes connected to the airplane unless you want to drain the brake system and re-bleed the brakes when you are done.
12. Unbolt the gear legs and remove them.
13. Remove the old spar box structure. Weigh the new and old spar structure and note the difference for your weight and balance. Mine was 1.88 lbs. more than the old one.
14. Align the gear (Set the Toe) on the new spar box structure (0 degrees) on a bench. See the procedure used at Arion. To do this you may need to remove the axles.
15. While the gear is aligned, drill new gear bolt holes, making sure you are at least an inch away from the old gear bolt holes on the landing gear.
16. Install the new spar box structure. See the install procedure in the build manual from Arion.
17. Install the gear, axles, wheels, and brakes. Lower the plane on the gear.
18. Install the wings. This is not easy and will take some time, make sure you have enough spacers for the spar as you bolt things down tight. I had to order more. The new spar structure will not be exactly like the old one. You may need to use a pry bar to get the wing to move where you need it to move in order to place the rear and forward bolts that hold the wing angle of incidence.
19. Reconnect all of the wiring, fuel lines, ailerons, flaps, elevator, etc.
20. Make a test flight plan and then follow it. It does not have to be complicated, but should eventually explore the flight envelope. I would not do stalls on the first flight. If it took a year like mine, go to Shelbyville or a dealer and get current in the Lightning.

My avionics are the Dynon Skyview and the engine monitoring computer is underneath the pilot's seat. You cannot do this if you have the latest (deeper) seat pans. My Air Data And Attitude Heading Reference System (ADAHRS) is behind the pilot's seat. There is a lot of unused wiring that is in the airplane that would be used if I installed a second ADAHRS.

Editor's Note: Replace all nyloc nuts (Lock Nuts) with new ones. They really are not designed to be re-used.

Pictures below with explanations:

Figure 6: Wing Sling from the Web (left), Wings on my Wing Sling (right).

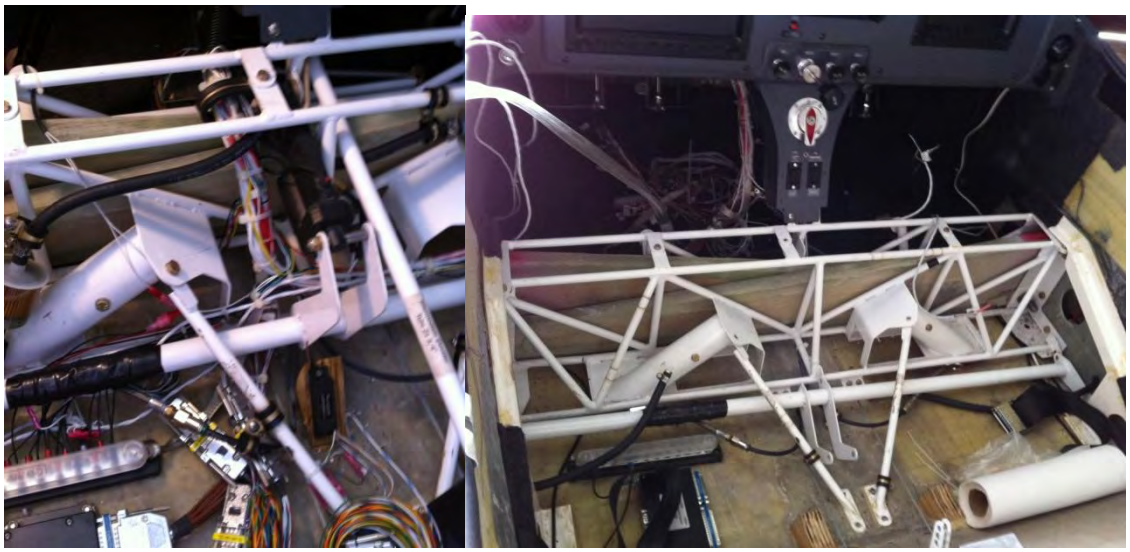


Figure 7: Before and after of wiring that runs through the spar box.

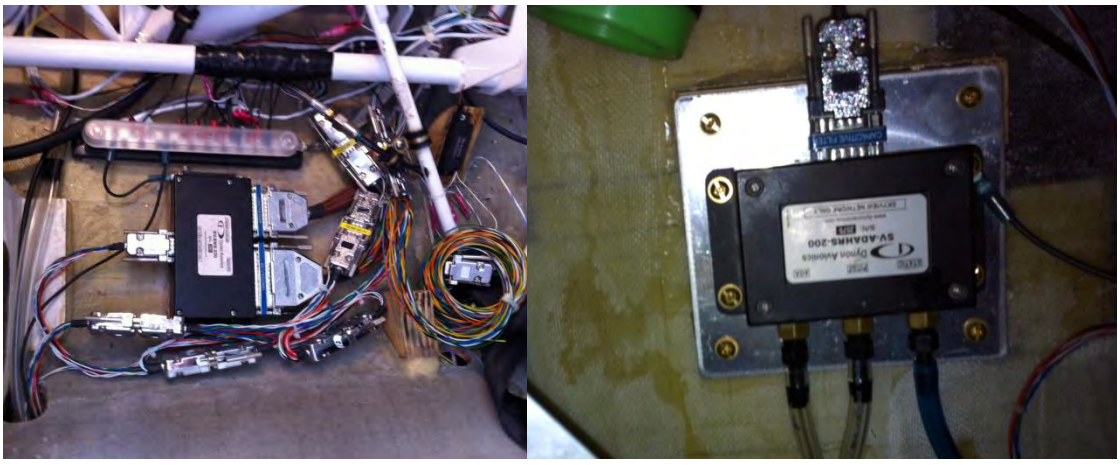


Figure 8: Engine Monitoring Computer (left) and ADAHRS (right).

Figure 9: Plane on stands (left), Spar Box removed (right).

Figure 10: Setting the Toe (Factory pictures)

Figure 11: Drilling the gear holes (I used a Drill Rite guide).

I did not take any pictures during the replacement of the spar box structure nor the re-wiring, but you can see that the process is not simple nor is it easy. If you have the funds and or opportunity, I would recommend that you have it done at a dealer or the factory. I am happy that I did this myself, but I would have been able to be flying a lot sooner if I could have gone to the factory or a dealer for the repair.

Upcoming Events

Virginia Festival of Flight May 31 – Jun 1, 2014

AirVenture 2014 – Oshkosh, WI July 27 – August 04, 2014

Safety

Transition Training

Article by Dennis W. Wilt

There has been one article in Hangar Talk about transition training. I wrote a piece of that through an e-mail to Buz back in Newsletter Volume 6, Issue 2 in the second quarter of 2013. Transition training for flight in a new aircraft is extremely important, especially for pilots that are used to flying Cessnas and Pipers that generally fly alike and are transitioning into a much more maneuverable aircraft like the Lightning.

The FAA thought this was so very important that they published an Advisory Circular about this issue back in March of 2011. AC 90.109, Airmen Transition to Experimental or Unfamiliar Airplanes is fairly well written and covers just about everything you ever wanted to know about transitioning into an aircraft like the Lightning. Here is a link to the FAA Advisory Circular page: FAA Advisory Circular Page

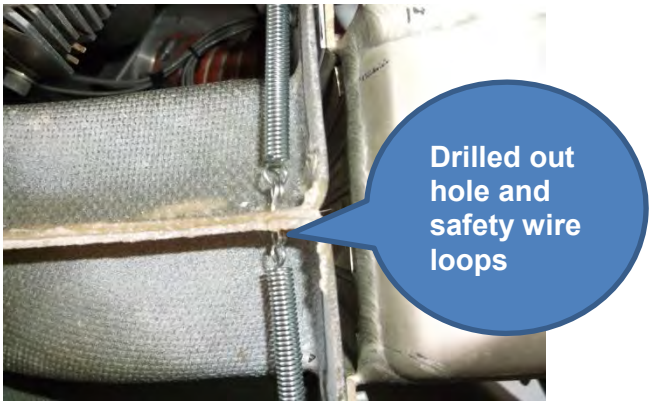
My advice is to read this AC and fly a demonstration model at the factory or a dealer. Have a Certified Flight Instructor (CFI) that is familiar with the Lightning or a similar aircraft write a transition training plan for you and your particular flight experience. My wife, Donna is a CFII and Aeronautics Professor at Florida Institute of Technology. She wrote my transition training plan. In order to be safe flying any new aircraft, you need to learn how to fly the aircraft and learn the systems, not just go shoot a bunch of landings. You need to get comfortable with the airplane during climbs, descents, climbing turns, descending turns, steep turns, and the entire stall sequence, etc. Then you can learn to land the airplane. You also need to get comfortable with the systems of the airplane. You will likely have a glass display that you are unfamiliar with and you need to know what to expect from that system. After getting the CFI to write your transition training plan, you need to go fly the plan with either a pilot with a lot of experience in the aircraft or a CFI with experience in that aircraft type. It took me 5 hours or so to complete the transition plan and it was well worth the effort and time. You can use this method for transitioning into any new aircraft.

Technical Tips

Thanks to Paul "Bear" Bryant for this Tech Tip

Tech Tip – Oil Cooler Piano Hinge Security
Article by Paul "Bear" Bryant

Recently, when I removed my cowling to do an oil change, I noticed the pins holding the oil cooler in-place had backed out of the hinge about 3 inches. I had not seen this before and called the Lightning folks to see if they had seen this. In some cases, they had seen it. Apparently even slight engine vibration could cause the pins to back out. A simple fix is to secure the pins so they can't back out. I took a Dremel® tool and cut a small slit on either side of the fiberglass inlet cooler shroud where the pins could be angled in.

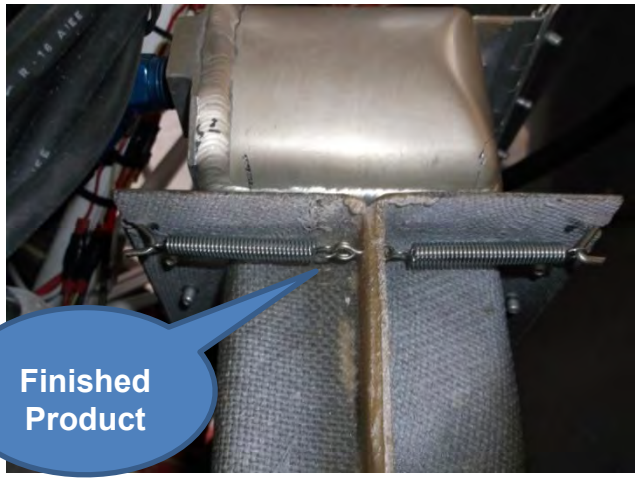


Next, I drilled a small hole in the top center seam of the fiberglass oil cooler inlet shroud and placed a piece of safety wire through the hole and terminated both ends of the safety wire in a double loop. I then took two small springs and hooked them onto the loops I just made. Finally, I bent each piano hinge pin back another 45 degrees (approximately) from the already bent 90 degree pin to be able to "catch" the other end of the spring.

Setting it up this way allows an easy "on and off" when you are performing maintenance or have to remove the lower cowling.

Hope this helps others with same issue.

Editor's Note: This will surely help me. My Oil Cooler is bolted to the cowl inlet and I intend to change it to this method.



Lightning Skunk Works

The Flying Wing Lightning

If Arion were to build a flying wing, it may look something like this. I have included this aircraft because I spent two years of my life working on the multi-function antenna for this aircraft. Unfortunately, or maybe fortunately, the program was cancelled by then Secretary of Defense, Dick Cheney.

The A-12 Avenger II, unique flying wing style was to be a long-range subsonic aircraft with a large internal weapons load as well air-to-surface and air-to-air weapons. Plans for the Navy's A-12 combat aircraft called for incorporating more advanced stealthy characteristics than were employed in the F-117A, also considerably greater payload capabilities. The Navy's A-12 Avenger II Advanced Technology Aircraft was slated to exchange current A-6s on aircraft carriers in the mid-1990's.

The US Navy Advanced Tactical Aircraft (ATA) program began in 1983 as a proposed long range, low observable, high payload medium-attack aircraft to exchange the Grumman A-6 in the carrier-based, medium-attack role. On January 13, 1988 the McDonnell Douglas and General Dynamics team was selected over a Northrop team to develop the ATA. The development contract was a fixed-price incentive contract with a target value of $4.38 billion and ceiling value of $4.84 billion. The contract included development and delivery of eight full-scale development aircraft and four test articles.

My team called it the flying Dorito.

Final Thoughts

After putting this newsletter together, I am even more impressed by the amount of time and effort that Buz put into the newsletter over the years he was publishing Hangar Talk. There is a lot of work and time spent on the newsletter and we can only hope that people get something from the effort. A large portion of the newsletter cannot be completed without input from Lightning owners, builders, and enthusiasts. There are also sections that need input from the factory and dealers. Without input from you all, I cannot provide the information that will help you, the readers, with your Lightning journey. Please provide me with the information as you think of things you believe would be interesting to the Lightning community. I will be looking forward to getting more information from builders, owners, enthusiasts, and dealers as the newsletter goes forward. The newsletter began in February of 2008, so we have 6 years of Lightning information. I regularly go back and search the newsletters for information. Please send me feedback about this first issue. I am interested in your input and the things you are interested in having included in the newsletter.

Blue Skies,

Dennis W. Wilt