

# The “Zig Zag”\* Newsletter

**The voice of Arion Aircraft and its Lightning Aircraft builders and flyers.**

**Official name \*of the Newsletter to be determined later.**

**(Just how fast would the speed of lightning be if it didn't zig zag?)**



**Feb 2008**

## **Volume 1, Issue 1**

Welcome to Volume 1, Issue 1 of the Lightning Newsletter. As it says above, this newsletter is designed as a medium to “get the word” out on happenings at Arion Aircraft and to give a “voice” to Lightning builders and flyers as well. So it is your newsletter, as well as the factory's, and its success will depend on you getting involved to spread the word and to help other builders and / or flyers with their project airplanes. So think of this newsletter as an “exchange of information publication” just as it will be a way for Arion Aircraft and its dealers to get the word out on new developments.

### **Name the Newsletter**



Apparently the idea for a Lightning newsletter has been well received based on the number of suggestions we have had for a newsletter name. So far I have eighteen suggestions, which I will list below, but keep the suggestions coming in and if you see one you like, send in your “vote” for it. As Earl pointed out, in Greek mythology Arion was a horse with special powers. The word Arion in Greek mythology apparently has to do with something that is better, stouter and braver. I think that fits nicely with the Arion Lightning. At some point in the near future Nick, Pete, and I will let you know what the name will be.

At this time, here are the suggestions: *Arion's Voice, Lightning Flash (2 suggestions), Greased Lightning, Extra Marital, Arion (something), Lightning Bolt, Lightning Strike (3 suggestions), Lightning Extra, Lightning Leader, Lightning Gazette, Electric Lightning, Thunder & Lightning, Thunderclap, Flashpoint, and Thunder Rolls.* I am relieved that no one thought *The Clap* would be a good choice, but apparently that word in the subject line did get your attention as that is what it was designed to do.

And now, the rest of the news:

# News from the Factory

## NEWS FLASH!



The original factory demonstrator, N323AL, has been sold to an overseas owner. At this time, the new owner wants to remain anonymous, so you will have to wait until later to get the full story, but as this is being written 323AL is being disassembled and crated up to be shipped. More to follow at a later date.

N323AL that many of you have flown in.

The result of 323AL being sold is that a brand new 2008 demonstrator is being built. Construction on N324AL (I wonder how they came up with that N number) actually started on Monday, 4 February, and of course the goal is to have the new demonstrator at Sun-N-Fun to do its primary duty, taking prospective buyers on demonstration flights.

Building a new demonstrator offers several great opportunities for the factory. First off, they will be able to showcase all of the latest changes that are now available to the new kits. Secondly, Mark will be building the kit with the current builder's manual and using the current hardware kit as supplied by Aircraft Spruce. So expect updates to the builder's manual as a result of Mark's work on the new demonstrator and if changes or additions are required to the hardware kit that will be accomplished as well.



Mark and Mike hard at work on 324AL.

So what can you expect to see on N324AL, the new 2008 demonstrator? I have already mentioned that it will use all the newest changes to the current kit. From memory, here is a list of how it will be equipped. It will have the large wing tanks, removable wing tips (so the wing tip extensions in development can be added later), the new canopy frame to include the new overhead canopy latch system, the new instrument panel, the new pitch system geometry, the new electric trim system which incorporated an actual trim tab on the elevator, the 1" longer engine mount, a larger battery, dual brakes, center throttle, and a "striking" new paint scheme. At this point the paint scheme and colors are "top secret", but let me just say, it will not be the standard "moonshine drink". The instrument panel will have two of the new high definition Grand Rapids EFI Systems and a Garmin radio and transponder. Of course it will be powered by a Jabiru 3300, but it will be the latest engine design that will have the new cam profile that should bring back the slight loss of RPM and horsepower that the original hydraulic lifter engines had. Depending on test flying results, the propeller will be a Sensenich 62FK58 or 60. I can't wait to strap this airplane on to see if it surpasses the prototype's impressive performance numbers. The first demonstrator, 323AL was fun to fly but the first time I flew it I could tell it was down a little on top speed performance due to the new hydraulic lifter engine. It just did not perform quite as well as the

prototype with the solid lifter engine. Now that the latest Jabiru 3300s have the new cam profile it should be just as strong as the original solid lifter engines. N324AL will have the latest engine and should have the same performance potential as the original Lightning prototype. Look for the new 2008 demonstrator at Sun-N-Fun.

Now some specific information on the kit updates as listed above. The long range tank option, which has a total of 30 gallons, is now readily available for any kit order. For the time being the 22 gallon tanks will also be available as some builders wanting a light sport compliant Lightning might want to keep the weight down by using them. Not only would the empty weight be slightly less, but the full fuel weight would obviously be less with only 22 gallons on board. The new wing tips, which have been talked about and described on the Lightning list, are a little behind schedule because of other developmental priorities, but the molds for them are being worked and if they are not available to see at Sun-N-Fun, they certainly should be at Oshkosh. Once the new extended tips are available, they will be test flown on the prototype before they become available for builders. Of course the idea is to add wing area and thus lower stall speed for the light sport compliant Lightnings. I like the more modern look of the new tips that have a slight upswept Hoerner winglet look.

The new canopy latch is a thing of beauty and will add a safety aspect to operating the Lightning. The new latch is a single overhead latch that will be on the top center aft portion of the canopy. It will be easy to reach from either seat and will be able to be locked and opened from outside the airplane. That feature will make the airplane safer as ground personnel will be able to open a closed canopy from the outside in the case of an incident where the pilot was unable to do so. The new pitch geometry has to do with stick forces. Some have thought that the Lightning was so light on stick forces that it was somewhat sensitive. I personally love the way it flies, but now builders will have a choice and the ability to vary the sensitivity by connecting the pitch system in a different hole on the elevator control horn. The new pitch trim system that I mentioned above gets rid of the bungee for trim and adds a real trim tab on the elevator. Believe it or not, the system actually weighs less than the old system and provides better trim control and feedback. The longer engine mount and larger battery are designed to move the CG slightly forward, once again for a better pitch feel throughout the flight envelope. So as you can see, your Lightning kit designers are once again constantly improving an already great aircraft.

As of 8 Feb 2008 the latest totals for Lightning kits sold and flying is 59 and 22. I am sure those numbers will continue to climb exponentially as more and more are seen flying around. You can bet that those that see a Lightning will want to know all about it. When you tell them how long it took to build they will be sold.

## News from the Dealers

The only news I have for this section at the moment is from Dennis Borchardt, the dealer in Australia. Dennis reports that Lightning sales are going well and they have just ordered their 16th kit with that possibly going to 17 in a few days.



Below is a list of the current Lightning dealers so that potential customers will know who to go to in their part of the world to see a Lightning and to find out firsthand what all the excitement is all about.

Dealers:

**Lightning Southwest**

Greg Hobbs  
Marana AZ  
520-405-6868

**Tom Hoffman**

Neenah, WI  
(920) 836-2318

**Sport Plane Dynamics**

Ed Ricks  
Glendale AZ  
623-695-9040

**Dennis Borchardt**

Kingston SE  
South Australia  
(08) 8767 2145

**Green Landings Flight Center**

Ryan Gross  
304-754-6010  
[www.greenlandings.com](http://www.greenlandings.com)

**Cimaer Ltda**

Claudio Nunes  
Brazil  
CEP 24 900-000  
(21)2637-3605  
(21)9451-9700

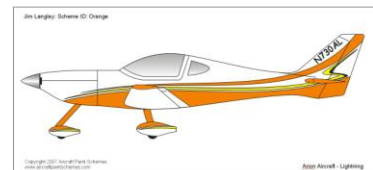
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## News from Builders and Flyers

Once again, since this is the first newsletter, no one has had a chance to send me inputs, so let me run down a few items that have been discussed recently on the Lightning e-mail list. The first thing to mention is Jim Langley's Frapper map. He has set up a site where you can go and enter your information and photo of your airplane that will show up on a map. I see it as a great idea as potential customers can see if there are any Lightning aircraft near where they live. There is a similar set up for Bonanza owners that has been found to be useful when you are on a cross country and have an aircraft problem. If you are not familiar with the area you are in, just look on the frapper list and find someone close that will probably offer help or at least know who the local mechanic is that is good with Bonanzas. So go to the Lightning Frapper Map site and upload your information. Here is the address:

[http://www.frapp.com/?a=constellation\\_map&mapid=137439272225](http://www.frapp.com/?a=constellation_map&mapid=137439272225)



Another subject is gear leg / main wheel shimmy. As a short background on this subject, many “round rod” gear leg airplanes seem to see this phenomenon. I have done quite a bit of research on this subject and there seem to be many variables as to why this happens. By the way, when you copy one person’s idea it is called plagiarism, but when you copy lots of people’s work it is called research, and that is what we have been doing. Anyway, the RV series of aircraft have been dealing with it for many years and their solution, as noted on their gear leg and wheel pant plans, is to stiffen the gear legs by fiberglassing a hard wood shaped dowel to the aft of the gear leg. That obviously is a lot of work so Joe and Linda Mathias and I wanted to try something simpler. We clamped a “V” shaped length of aluminum to the aft side of Linda’s gear legs and she has been flying with that for a while now with good results. However, there may be something even simpler that we should try first that is discussed below.



Linda and Joe’s N59JL.

Talking with John Davis and Jim Goad recently via e-mail, it seems that both of them have had some success by just going to better (or more expensive) tires. Certainly if that works it is a better solution than trying to change the dynamics of the gear leg itself. John and Jim have changed out the 500x5, 4 ply rating, Air Track or Air Hawk tires for more expensive Goodyear and Michelin tires of the same size but that have a 6 ply rating. Linda has a set of Goodyear 6 ply tires on order so hopefully she will have a report for us soon. In the mean time, if you have tried different tires, let us know what your experience has been.

## Upcoming events

**Sun-N-Fun is scheduled for 8 – 13 April** and the Lightning team will be set up at the same location they have had for the last several years. Be sure to stop by and say hello. In previous years we have had a small informal Lightning get together for current owners and potential customers to exchange information. I feel certain we will do the same this year and as soon as a date, time and place are known, I will get the word out. So plan on being at this year’s Sun-N-Fun and bring your Lightning.

One interesting bit of information is that Nick will be taking a writer from KITPLANES Magazine for a demo / test flight in the new Lightning demonstrator while at Sun-N-Fun. Chuck Berthe from KITPLANES is a retired Navy “heavy” driver, has a PHD in Aeronautical Engineering, used to teach at the Navy’s test pilot school, and is an RV-4 builder and flyer. I have flown with him in Linda’s Lightning (N59JL) as part of his information gathering for the upcoming article and even though he is past Navy, I consider him a friend – just like our very own ex-Navy guy Earl. Chuck also had a flight in the original demonstrator with Nick, but wants to fly the new demonstrator before he finalizes his article for KITPLANES. I personally think he just wants more Lightning time, but then who wouldn’t. Give him the hundred dollar flight, Nick.

Also mark your calendars for **Oshkosh that is scheduled for 28 July to 3 August**. By then I would hope that we could have between five and ten Lightnings attending. Last year, other than the factory aircraft, only one Lightning customer, Bill Hubbard was at Oshkosh in 2007. Certainly with 22 already flying we should have many more this year.



Bill Hubbard's airplane was the first customer build Lightning to make Oshkosh.



Buz's modified Esqual with lots of Lightning Stuff had the same parking slot in 2006 and 2007.

## Lightning Skunk Works



The word has somehow leaked out about the Lightning competition for the Airbus that Nick works on when he has nothing else to do. As you may recall it is to be a blended body futuristic design utilizing twelve ducted fan Jabiru 3300s. One unique feature that the prototype / proof of concept BB Lightning Bus is that it will have the internal capability to carry two Mini Cooper automobiles. As previously mentioned, the BB Lightning Bus is kept in their Arion 51 hangar so you may not see it for a while, but below is one of the Mini Coopers can be seen almost daily parked in front of their main office.



The photo above shows Dana, who must be Nick's "mechanic" because she sure is the one that keeps Nick's "motor running".

## Other Items

I hope to have more inputs from Lightning builders and flyers by the next issue of the newsletter. For this to become a successful exchange of information we will need everyone to contribute some "news" when you have something to share. It doesn't necessarily have to be "earth shattering" information, just a simple run down on what you have been doing or interesting flights you have taken or fun airports you have visited. And photos of your airplane are certainly welcome. Send any and all suggested inputs directly to my e-mail address – [N1BZRICH@AOL.COM](mailto:N1BZRICH@AOL.COM).

## Final Thoughts

Wheelbarrows were invented to teach those that build wood, tube & fabric, and metal airplanes how to walk on their hind legs.

Everyone has heard of and talks about the speed of light. What I want to know is how fast is the speed of dark?

Blue Skies,

*Buz Rich*

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