

May 2018
Chapter
732



May Meeting

May 20th
Huntsville Airport H34
1:00 Food
2:00 Meeting
Bring a dish to go with burgers

Send newsletter items to: ea732newsletter@gmail.com



A Note From Randy

Never thought we would get to spring and I believe I was correct. I think summer has arrived! Hopefully, everyone is finding time to fly, build or whatever else we all seem to have on our schedules.

This month's meeting will be at Huntsville on Sunday, May 20th at the Coger's hanger. Food at 1:00 meeting at 2:00. The Coger's are grilling burgers and dogs. Please bring a dish to share and the chapter will provide the drinks. Also, we will be having a presentation by the Air Evac helicopter team.

See everyone on Sunday at Huntsville!

Thanks,
Randy



MEMBERS DON'T FORGET TO WEAR YOUR NAMETAG!!!



732

Fly-Abouts



Thursday evening gathering at Summit in Bentonville, April 26th.



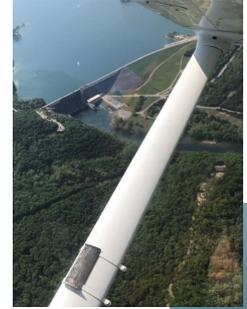
Rick was a lifesaver helping Martha pick-up "Ruby" after her annual!



Bill & Camelia flying to Bahamas April 2018.



Meandering with Jodie!



Nothing like an afternoon flight over the hills in the Natural State



Another Book Worth Your Time!

Engines

by Mike Busch

#1 New Release in [Aviation Repair & Maintenance](#)

Mike Busch on Engines: What every aircraft owner needs to know about the design, operation, condition monitoring, maintenance and troubleshooting of piston aircraft engines.

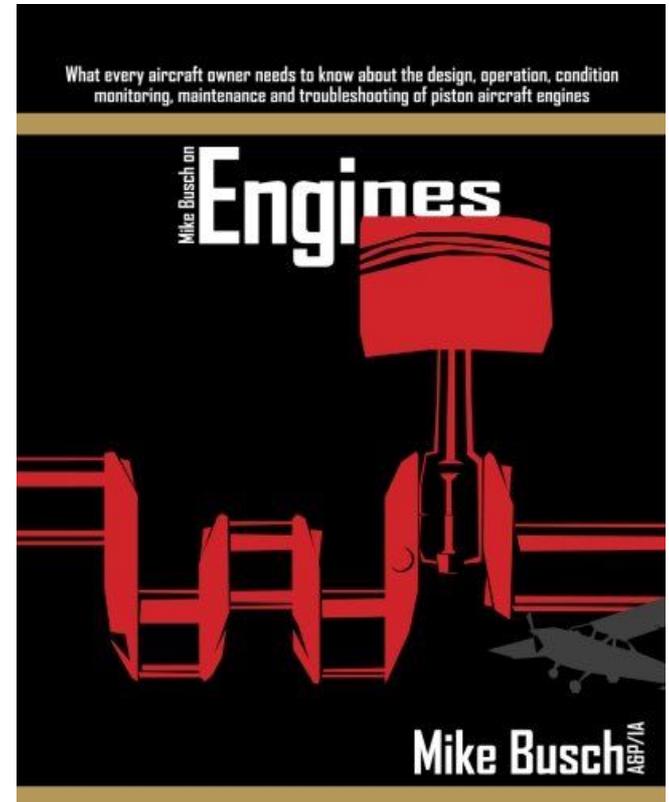
Mike Busch on Engines expands the iconoclastic philosophy of his groundbreaking first book *Manifesto* to the design, operation, condition monitoring, maintenance and troubleshooting of piston aircraft engines.

Busch begins with the history and theory of four-stroke spark-ignition engines. He describes the construction of both the “top end” (cylinders) and “bottom end” (inside the case), and functioning of key systems (lubrication, ignition, carburetion, fuel injection, turbocharging). He reviews modern engine leaning technique (which your POH probably has all wrong), and provides a detailed blueprint for maximizing the life of your engine.

The second half presents a 21st-century approach to health assessment, maintenance, overhaul and troubleshooting. Busch explains how modern condition monitoring tools—like borescopy, oil analysis and digital engine monitor data analysis—allow you to extend engine life and overhaul strictly on-condition rather than at an arbitrary TBO. The section devoted to troubleshooting problems like rough running, high oil consumption, temperamental ignition and turbocharging issues is worth its weight in gold.

If you want your engine to live long and prosper, you need this book.

“The risk of engine failure is greatest when your engine is young, NOT when it’s old. You should worry more about pediatrics than geriatrics.” —Mike Busch A&P/IA



Shirts are Ready for Pick-Up!



The new EAA Chapter 732 shirts and hats have arrived and they look great!

Randy will have the shirts and hats available at the next chapter meeting for those who placed orders.

You can pay for your order when you pick them up. Cash or check is accepted.

Thank you Randy Doughty!



N750SB Cruiser Update

Submitted by Steve Bray



The attached photo, shows the 1st power-up of my (mostly complete) panel. For this test and until I get everything finalized, I am powering the panel from a car battery to avoid draining ships power and generating any Lithium-Ion induced sparks and smoke should something not be just right.

Everything that keeps the prop turning is on a separate bus from the panel, so this test just covered the non-essentials which are routed through the Composite Design Radio Stack Switch/Breaker unit. They include Flaps/Trim, Nav/Strobe Lights, the Viking View EMS Display (but not the ECU, which is essential), the Talos wireless ADAHRS (tablet display is on tablet power for now, I still need to add a USB power jack for ship power), Trig transponder, and Trig COM radio. I'm inside a metal building on the side of a mountain so didn't hear anyone talking. A fellow student of mine is cutting a new panel for me based on some final changes. The new one will be thicker and painted black, so I will be scrapping the preliminary one you see here.

Also new is N750SB is now registered with the FAA. I was surprised it only took a couple of weeks from when I sent in the paperwork. I already had the N number reserved, so maybe that sped things up.

Steve

For full details check out Steve's build log at: <http://www.mykitlog.com/sbray72732>

How to scratch build your landing gear (Or at least how one guy did it)

By Gerald Resh

As many of you know, I am scratch building a Pietenpol. It's a long term project with the challenge of bringing a 1929 design into the 21st century. One of the components of the build that I wanted done right was, of course, the landing gear. Several different options are available for the Piet, including wooden gear legs, using original Curtiss Jenny or modified motorcycle wheels, a steel landing gear using air wheels with bungees or die springs, and any other combination you can imagine. For my airplane, (and my landings) I decided to go with a steel gear, with die springs and some other modifications, including what I call the landing gear center "V", similar to a J-3 cub gear. The Pietenpol plans call out the dimensions for the gear, including wheel camber, and axle placement, but few hints are given as to how to make the pile of tubing in your hangar look like the pictures.

The design of landing gear I was going to make would require welding. Everything I had read in EAA books and had seen online was that gas welding (oxygen/acetylene) would produce the strongest welds as it heats up a larger area and can normalize the welds rather than concentrating all of the heat in a small area in a small amount of time (MIG/TIG) and shocking the metal, introducing stress concentrations. I soon found that gas welding is mostly a dead and dying art, so I attended the workshops at the Oshkosh flyin several times and experimented on my own until I felt comfortable enough to be dangerous.

(This is where it get technical, this is where you can skip to the next article with pictures of flying airplanes)

How to scratch build your landing gear (Or at least how one guy did it)

First step to getting the fuselage on the gear was to make the landing gear/lift strut attach brackets. There are 4 nearly identical brackets, and an entire article could be written on how I spent several months just making these brackets.



Lift strut/Landing gear fittings



Fittings attached to fuselage

Once the brackets were bolted to the fuselage, the next step was to work from the fuselage down towards the axles. I drew out the gear leg profile on the welding table and used magnets to hold the parts in place. One change I made here was to move the axles forward (to the front of the airplane) 2" since I would be using brakes, a luxury not provided for in the plans. I started at the

How to scratch build your landing gear (Or at least how one guy did it)

top of the gear legs by welding a lug to the top of the tubes, making sure the lug was welded at the correct angle to the tube. Once I had both the front and rear gear leg pieces made, I checked the fit to the fuselage. I then angle cut both pieces and welded them together to get a nice “V” shape. Once this is done, you can start over because you will need an identical right and left gear leg. Again, I checked fit to the fuselage, and adjusted the spacing between mounting lugs for a good fit.



Welding the lug to the upper end of the gear leg tube.



Welding the front and back gear legs together.

Note: WARM!



Test fitting the gear legs to fuselage before welding the axles on.

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Once both gear legs were bolted to the airplane, it was time to weld the axles in place. Here, the plans called for the axle to be butt welded at an angle to the gear legs. I decided to cope the gear legs and extend the axle underneath the gear legs, and add gussets, for extra strength. Aircraft Spruce sells nice weldable axle tubes, ground and polished to an exact diameter, and threaded on one end for an axle nut. The plans call for zero toe-in or toe-out, and just a slight (2 degree) camber "in" for each wheel. The 2 degree camber can be set with the die spring suspension tubes. So there are 2 independent axles in space, both mounting to separate gear legs, both needing to be straight to each other and the airplane, and the airplane needs to sit level once they're done. After thinking about that for a while... I decided the easiest way was to flip the fuselage upside down and build a weld jig that would hold a long, sturdy tube that could fit snugly inside the axles. This would keep the axles in line with each other, the long tube could be leveled and squared to the fuselage, and everything would stay in place for tack welding. I found a suitable tube for making a jig, but the diameter was too large to fit inside the axles. A friend and fellow chapter member, Jay Hale, helped me turn down the ends of my too big pipe so it would fit precisely as it should.



The weld jig and long pipe used to align the axles to the gear legs for tack welding

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How the axle fit to the gear leg just prior to tack welding.

Once I had the gear legs coped to fit around the axles and the axles tacked in place, I removed the long tube and weld jig from the airplane. Off to finish weld the gear legs and add the necessary gussets. I also added a step for making getting into the front cockpit a little easier.

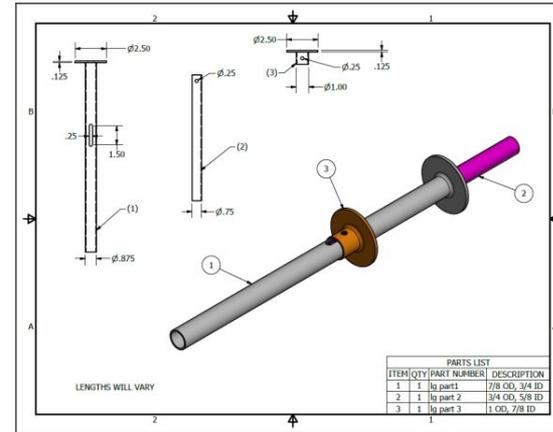
The brakes mounted fairly simply, as I am using standard aircraft (Cleveland) wheels and brakes that I found for a reasonable price on Ebay. The suspension, as I mentioned earlier, uses die springs and a center “V” that ties both left and right sides together very strong. The springs are designed for use in compression, and since the gear acts in tension, a method using 2 tubes bolted together with slots and large washer plates to compress the springs were used. I made a mock-up drawing first to get a mental picture of what needed to happen.

How to scratch build your landing gear (Or at least how one guy did it)



Completed gear showing die springs and wheels mounted.

This is just how I did the gear on my airplane, and I'm sure there is a better way. None of the methods I described here have been flight tested, and any changes I made from the plans were either to add rigidity to the gear or make the strength of a particular weld less critical. Hopefully this will help you when making or repairing your landing gear, or maybe just appreciate all the work someone has put into designing and making the set you're flying on.



Design drawing of the die spring suspension.



How Much Do You Remember About Clouds?



MidWest Sonex Fly-in



Save the Date!

Frank Klimex and Rick Wantz will be Hosting this years MidWest Sonex Fly-in at Fayetteville
Drake Field, June 2nd.



Join us as we help promote the Sonex line of home built aircraft.

WEBINARS Available on EAA.org



These live multimedia presentations are informative and interactive, allowing the presenter to use slides and audio, while audience members can ask questions and be polled for their opinion.

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UPCOMING EAA WEBINARS

5/30/18 7 p.m. [Developing the Next Generation of Online Aviation Weather Forecasts](#) Bryan Hirsch & Jamie Enderlen

Qualifies for FAA WINGS credit.

The National Weather Service (NWS) has created "gridded fields" of weather for several years but is expanding aviation elements over the continental United States (CONUS) in the next two years. This presentation will discuss information found in terminal area forecasts (TAFs), weather forecast products, and the emerging continuous gridded fields. The presenters will focus on current web pages that display portions of this data and serve as a listening session for what displays of aviation weather are most helpful to the aviation community.

5/23/18 7 p.m. [TFR and ADIZ: How to Avoid a Fighter Escort](#) Douglas Dal Soglio

Qualifies for FAA WINGS credit.

Discover the No. 1 reason general aviation aircraft are intercepted and how to avoid it. In this action-packed briefing, you'll learn practical steps to avoid temporary flight restrictions (TFRs) and what to do if you are intercepted. Join Douglas Dal Soglio from NORAD in an informative and lively session that will keep you out of trouble, and off the evening news.

April Meeting



The April meeting was held at the Arkansas Air and Military Museum in Fayetteville, on Sunday, April 15th following a Fly-In cookout. President Randy Resh made the introductions of visitors and a very special “First Flight Award” presentation to Phyllis McDaniel. The group discussed the order of shirts for our chapter and the monthly video was enjoyed by all.



**Beautiful blue sky
Bumping along as you fly.
Unstable air.**

**Haze on the horizon
Smooth sailing as the plane flies on.
Stable air.**

**Whether hazy or blue
The summer skies are calling you
Get your feet off the ground!**