



EAA 206 NEWS

MARCH, 2009

FROM THE PRESIDENT

Another month, another comment from the President (of the club that is, not Obama.) It sure is easy to get down with the economy the way it is. No need to mention what my teacher's retirement plan looks like now. However, this is the start of spring and spring is a time of optimism, hope, and growth! We can make this a spring to remember for the things we do. The WPA is very interested in doing flights to fun places and going on aviation related trips. The Ellensburg chapter of EAA is of a like mind and so are we in Yakima Chapter 206!. Our three clubs with all the cross-over membership can cooperate on a number of things. Let us know what you would like to do and see this spring and summer. We can do fun things and educational things. We can get students up in the air and get more people interested in aviation, a necessity for continuing our hobby/ business/ or whatever aviation is to you. We already plan to host a pancake feed in June around Father's Day. What we need are the ideas and a few people interested in helping to lead the way on an activity. We have an ongoing need for hosting for our coffee and treats on Saturday mornings at the Yakima Airpark and the club could use hosts for fly-outs or bus trips to

places we want to go. Let Lance, Marv, Tom McMahon, Ola, Mike, Scott, or me know of ideas and volunteers for activities and let's see what can happen.

Stu

COMING EVENTS

Our next regular meeting is scheduled for Thursday, March 19 @ 7:00 p.m. in hangar #1, Yakima Airpark.

We will be hearing from Thatcher CX4 master builder, Lee Bates. Lee will be showing and explaining his experience in building this aircraft. Don't miss his presentation! If you want a preview of his experience go to one of these sites: The Dave Thatcher Website, EAA Chapter 206 website and Contact Magazine, Stewarts Paint System and EAA 492 web sites.



**FROM OUR TECH ADVISOR,
PETE DOUGHERTY**

The subject for this month's Q&A is sizing fuel lines for small aircraft. This is something that is hard to give a good answer to that will apply to every project. Most of the time this should already be figured out for you by the designer of the aircraft. What I have seen in the field is that generally, if the engine is rated at, say 50 hp it would have 1/4" fuel lines. If it was 65-180 hp it would usually have 3/8" fuel lines. And so on. Again, these are general numbers and what you really need to know is that there is going to be enough volume of fuel delivered to the carburetor at the right pressure. The following are some FAR 23 guidelines for certificated aircraft that may be helpful for the homebuilder as a guideline.

The size of the fuel lines in a typical single engine light aircraft are determined by the fuel consumption rate of the engine. The lines in a gravity feed system need to be large enough to supply at least 150% of the fuel consumption of the engine at full power. In a pressurized fuel system (pumped) they need to be able to supply at least 125% of the fuel consumption at full power. (AC 90-89A pg 23)(FAR 23.955) The formula for fuel flow rate in a gravity feed system is $.55 \times \text{engine horse power} \times 1.50 =$ pounds of fuel per hour divided by 60 to get pounds per minute divided by 6 to get gallons per minute. In

a pressurized system simply substitute 1.25 for 1.50.

The line size will vary per installation depending on a number of factors including how high the fuel tank is above the carburetor inlet and what kind of restrictions are in the line (filters, screens, valves). Generally, if the flow is not high enough the line size needs to be larger, but if the pressure is not high enough either the height of the fuel tank above the carburetor needs to increase, or a fuel pump needs to be added to the system.

AC 90-89A is available here: [http://
rgl.faa.gov Regulatory and Guidance
Library/rgAdvisoryCircular.nsf/0/
d08fa9393154b636862569ba006f6d7
f/\\$FILE/ATTLMVEO/AC90-89A.pdf](http://rgl.faa.gov/Regulatory%20and%20Guidance%20Library/rgAdvisoryCircular.nsf/0/d08fa9393154b636862569ba006f6d7f/$FILE/ATTLMVEO/AC90-89A.pdf)

All new and old Advisory Circulars are available here:

[http://
rgl.faa.gov/Regulatory and Guidance Li
brary/rgAdvisoryCircular.nsf/
MainFrame?OpenFrameSet](http://rgl.faa.gov/Regulatory%20and%20Guidance%20Library/rgAdvisoryCircular.nsf/MainFrame?OpenFrameSet)

If anyone has anything to add or wants help with a specific installation please feel free to contact me. Next month we will take a look at fuel line materials and the advantages and disadvantages of the various options available.