



Newsletter Vol. 1, No. 3. Fall 2008

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Aircraft Maintenance: Getting what you ask for

The thoughts for this article were actually in my subject list several months ago. Really! Then, in July of this year, I decided this would be a fall-issue subject, as a glaring example rolled through the shop. Then, the August issue of the ABS magazine hit my desk...

If you are a member of the ABS (you are...right?), and did not see that article of which I speak, pull it out and go to page 10913. That covers quite a bit of the material that was in my outline, so I'm not going to re-write it; my hat is off to Jim and Reese Leach for what they wrote. But (naturally) I have more to say on the subject. Not unlike the Leach's, I and many of you also own 50+ year old aircraft. Being pro-active in our approach to keeping that member of our family healthy is essential. Why?

Little things can be let go for a while, right? Yes. But, little things become big things as additional hours and cycles continue the wear pattern.

- A small oil leak can turn to a gusher, and if it is a pressure leak, can empty the oil sump rapidly. *I was on a test flight several years ago when an oil filter adapter started to leak. We caught a whiff of it, and pointed back to the airport. From indication to landing (about 15 minutes) we lost about 8 quarts, and were informed over the radio "Bonanza on downwind—you're trailing smoke" That wasn't a lot of fun.*
- A landing gear strut that doesn't feel right should be inspected before further flight. *A couple of summers ago, a transient to our airport noticed his right inboard gear door was hanging open about 6 inches on his brand C twin. I looked up there and saw several things bent. We put it on jacks, and found the strut was binding; wouldn't go up or down until I released the valve core. I pumped about a cup of extra fluid out of the strut, finding it had been over filled with fluid, and not nitrogen charged when it had been resealed by his mechanic at the annual, 2 months earlier. The aircraft had been to Alaska, California, etc. The cause of the gear door not closing was bent retract rods, due to the gear strut not extending in flight, so the wheel did not clear the gear well and retract all the way. The main retract rods were also bent. How close was this aircraft to a gear-up landing?*

Aircraft Maintenance: Getting what you ask for (cont.)

Those are just 2 of hundreds, possibly thousands of things that can scream to be repaired immediately. But, what about those that allow thoughts of “no problem, we’ll fix it later”? An Annual Inspection, or other scheduled maintenance event, is a time to work with eyes and ears open, hands on and feeling the parts, and smelling for abnormalities like fuel leaks, burned electrical, etc. (Thanks anyway, I generally don’t use my sense of taste in my profession, but all of our other senses should be used.) If a problem is identified, choose a course of action. Perhaps monitoring the situation is a good choice, like for cracks in certain areas, but this definitely needs to go in the log book so progression can be charted and monitored.

- About 8 years ago, I performed an Annual on a Cessna 140; the first time I had seen this particular bird. During the inspection, I counted several nasty cracks in the aft landing gear-box bulkhead. I pointed those out to the owner, who told me he had been watching those for about 10 years, when they were pointed out to him by a previous inspector. I asked him if it was documented for progression, and what his plan was to repair; he just looked at me and said it was time to change inspectors again. For the happy ending, we did replace that bulkhead.

NO, I am not an advocate of a restoration every year. But when an airplane is let go year after year, a line needs to be drawn.

- This past year, we had a low time, 20-year old Bonanza in the shop for Annual. As usual for this customer, he made his comments regarding ‘better not find anything...’ Now, this airplane definitely has the potential to be nice, but the owner refuses to fix anything unless it is his idea, and does not believe an under used airplane can age. We pointed out several places his aircraft IS ageing, and several other areas needing attention, *but not bad enough to warrant an un-airworthy sign-off*. Unfortunately, this bird will become a restoration project for the next owner, as the current owner considers only cost, not safety. I suppose I will not see him again, and I sincerely hope it will be because he sold the aircraft. Of course, he may very well look for an inspector that will over look the discrepancies and not bother him. However, that may lead to the third option, which I wouldn’t wish on anyone.

So, what have you asked for when you bring your airplane in for an Annual?

At the minimum, an inspection conducted in accordance with part 43, appendix D, of the Federal Aviation Regulations. Most (good) shops supplement that checklist with the type-specific checklist written by the aircraft manufacturer.

And, that’s it. You contracted for an Annual, that’s what the price discussed is predicated on, and that’s all. Unless, you ask for normal servicing, which would include lubrication, cleaning of screens, filters, spark plugs, etc. Typically, our customers indicate they want the “Annual Inspection and Servicing”.

Unless you specifically ask for repair of discrepancies, or a limit the amount (such as fix anything that doesn’t exceed \$X.XX), you should expect a call or email from your maintenance provider regarding a list of things found during the inspection. Don’t dread the phone call, that’s why you paid them! This is where you have the opportunity to find out a whole lot of stuff about your airplane. If you have been staying up on the maintenance events throughout the year, this will probably be a short conversation. If not, it will probably be longer. Please be pro-active, as a member of an airworthiness team on your airplane.

This reminds me of an article I had published in the *World Beechcraft Society Magazine* several years back...

OWNER ASSISTED MAINTENANCE FROM THE TECHNICIAN'S PERSPECTIVE

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Did you know that an aircraft owner is primarily responsible for maintaining his/her airplane in an airworthy condition? It's stated in FAR 91.403(a). The aircraft owner is required to be involved in the maintenance, inspection, and repair. This is not to say that the owner should be present with every turn of a bolt, but to be more aware of what makes an airplane fly and what needs to be done in the way of regular servicing.

What does "Airworthy" mean, anyway? Look in FAR 1, definitions, won't tell you. A passing reference is found on the Airworthiness Certificate on display in your aircraft. It says "...the aircraft to which issued has been inspected and found to conform to the type certificate therefore, to be in condition for safe operation, and has been shown to meet the requirements..." Kind of dry reading, but the important part goes on to say "Unless sooner surrendered, suspended, revoked... this airworthiness certificate is effective as long as the maintenance, preventative maintenance and alterations are performed in accordance with Parts 21, 43, and 91 of the Federal Aviation Regulations..." It basically means the owner has responsibility for maintaining the aircraft in an airworthy condition. But, does he have the knowledge, documentation, proper tools and equipment, and the requisite license with ratings, authorizations, etc. to do it himself?

Typically, a shop is retained to perform the Annual Inspection. Then, the technician presents a list of discrepancies to the aircraft owner. Not all discrepancies are airworthy in nature, but it is prudent to repair all problems. Airplanes are sophisticated machines, designed and built for a specific purpose. Very rarely do mechanical problems heal themselves. Wear accelerates; the end result could be greater out-of-pocket expenses, or worse. It is in the aircraft owner's best interest to keep the aircraft in good repair. Likewise with discrepancies you find while flying or during preflight inspections. FAR 91.405(a) discusses that. For the privilege of aircraft ownership, comes the requirement for you to take part in the maintenance.

Aircraft owners can fall into three basic categories. Some drop off the airplane for Annual, IFR certifications, oil changes, discovered discrepancies, and we take care of them. Others we don't see for a year and the list they come in with can be formidable. We also have several customers that keep their fingers on the pulse of their aircraft a bit more. These are the ones that are here for (most) every turn of the bolt and shine of the flashlight. They want to know what makes their bird fly. Personally, I welcome the third type; in fact, I desire more would take this active a role in their maintenance. These owners tend to have an idea of what is going on when they call from Tim-Buck-Too with a question.

The technician shares responsibility with the owner. The technician must be honest and thorough in his inspection procedures, and able to discuss the discrepancies with the owner. We must be professional in our work, and courteous to the customer. (I'm not a psychologist, but sometimes I wish I had taken a college course on the subject.) Technicians need to treat each aircraft owner as a unique individual; one-size just doesn't fit all.

The technician is responsible for determining airworthiness at the moment the pen hits the log book. A good technician also arms his customer with not only the aforementioned discrepancy list, but should try to impart some knowledge as to why these items are important. A look into the future should be included; what scheduled maintenance events will come before the next Annual? ELT battery? IFR certification? Oxygen bottle hydrostat test?

How about re-occurring Airworthiness Directives? How much does the aircraft fly a year? Should the owner be prepared to bring the bird by for some of these pick-up inspections? These generic questions should include type-specific: If you fly a C or later model 35, did you know that the aircraft is required to be inspected in accordance with Beech Kit 35-4017-1 every 100 hours? Never heard of that Beech Kit? Better ask your technician if he has a copy; AD 94-20-04R2 requires it. How about up-lock roller lube; that's a 100 hr AD also. The list goes on, depending on your aircraft, from mag switches to oil filter adapters, etc. AD's need to be complied with on a time-in-service basis, not when you get around to it.

To summarize; the technician needs the aircraft owner; without pilots, there wouldn't be any work. The technician needs to be respectful of the owner's needs and desires, and should prepare the owner for upcoming scheduled maintenance events. The aircraft owner needs a technician he can trust; who will do the necessary inspections and repairs in a workman like manner, and arm him with the information needed to safely operate his machine another year. Being an aircraft owner, aircraft technician, and owning an aircraft repair facility, I haven't had time to take that psychology course, but I do know how important respect is to the aircraft owner / technician relationship. It has to flow equally in both directions as they work as an airworthiness team.

Customer Spotlight

Last issue, we wished Raymond a good flight to Europe and back. Happy to report that his mission was very successful! Two months and 100 hours of flying later, he has returned home, still enjoying the trip of a lifetime.

Project update: 891JH

The month of June brought forth the ground runs and operational inspections of Bonanza 891JH, the 1955 F35 we have been laboring on for the last 5 years. The paperwork was completed the first part of July (9-page log entry, and that's typed...). Skilled Bonanza pilot and CFI Jim Smith climbed in her on July 13th, and took to the sky. Only minor adjustments have been required so far. The bad news? Schedule and weather have not been kind to finishing my checkout and biennial flight review. Upholstery and an engine analyzer are yet to be added, and should be completed this winter.



Initial engine run



First flight and landing after 25 years on the ground!



Tidbits

This past few weeks, I've been contacted by a couple of Bonanza owners with rigging questions. One has a wing drop immediately when releasing the yoke, another has the ball slightly left. I cannot stress the importance of a well-rigged aircraft enough. Both of these conditions are repairable and will net (at least) these results:

Ease of flying—passenger comfort—fuel economy or speed

Is your aircraft rigged well? Give us a call, we can help!

Our website, www.avstarair.com, has been seeing great traffic. We appreciate you looking at it, and realize you must appreciate the tools we give you!

Thank you for reading this issue of our newsletter. I hope you have found it interesting and informative. If you have any questions or comments, you can email them to me at avstarair@att.net. If this issue was sent to you by a friend, you may opt in to receive further issues by sending an email to me at avstarair@att.net. If you chose to opt-out of receiving further issues, please email me at avstarair@att.net with the word remove in the subject line.

Gear Green,

Mike

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