

EVOLUTION *owner's* newsletter

Editor, Doug Meyer

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Layout and Graphics, Ron Hart

LANCAIR

Information for the Evolution Owner and Builder

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The Grapevine?

There seems to be a lot of talk about what we might be working on here at Redmond and we would like to give you an idea of what some of those things might be. Like any company that deals in a unique, complex consumer product, we strive to have that product evolve and improve over time. Sometimes these changes happen in a public way and sometimes not. Sometimes, there is a mix and the information that gets around may be less than fully accurate. We sometimes hear references to "The Grapevine" regarding this or that, but a grapevine often leads a twisted and confusing path so it's always better to go directly to "The horses mouth". There are a couple ongoing projects that we can talk about and how they might affect you, the Evolution owner/builder. We are always happy to truthfully answer your questions, so please do not hesitate to call and ask for clarifications.



GFC7x Autopilot Software Rev Roll

Not a change, but an ongoing project that is moving forward. We have been working with Garmin Engineering on a "production" edition of the GFC7x software. We are happy to let you know that the issuance of this software revision is very close. It is being tested on a variety of Evolutions to ensure that small deviations from the book build construction process do not affect A/P performance. The actual performance of the GFC is as good as, or even better than, any GFC700 you may have flown in



different certified aircraft. You will be even more pleased with the autopilot performance in your Evolution after this update. There is one particular airframe item that is very important to the proper functionality of the system and that is control friction and the resultant stick forces. The checking of the stick forces will be part of the installation process to verify that they are within the Lancair specification. Another part of the final set up will require the replacement of two resistors in the elevator trim harness to regulate the pitch trim speed. This is a simple operation and can be done at the rear inspection panel. As soon as Garmin releases the official software version, you will be notified by a Lancair Service Letter as to the procedure for acquisition of the software, installation and checkout.

Ailerons

Some pilots have indicated that they feel that the roll forces on the Evolution could be characterized as feeling “heavy”. The facts are that the roll forces on the Evolution were exactly as designed and were exhibiting a proportional stick force increase as the indicated airspeed increases. There is widely held opinion that heavy controls are a safety factor on high altitude, high speed aircraft. In a regime where there may be fewer outside cues giving the pilot feedback, higher stick forces tell the pilot that his speed is increasing and that should happen in a proportional manner. The increasing forces help the pilot to avoid overstressing the aircraft at speeds above V_a . Unfortunately, upon first exposure to the airplane (as during a demo flight) many pilots, maybe you among them, felt that the roll forces were too high at the higher indicated airspeeds, never mind that once in routine use, the autopilot does more flying than you do and “it” doesn’t really care. When you are on climb out or in the terminal area, most pilots agree that hand flying is very comfortable. Nevertheless, we were finding that this criticism had some validity and therefore began a program to reduce the roll forces by slightly changing the aileron design on the Evolution.

We have developed a new shape for the aileron and are happy to report that the roll forces increase in a proportional manner from pattern speeds all the way up through V_a , but also provide a lighter feel overall than



the original design. The airplane continues to provide effective feedback, yet at cruise speeds can easily be banked from left to right quite quickly without excessive effort or over-controlling. In the pattern, roll forces are lighter than current but not too light for a stabilized approach and at altitude the airplane is not too sensitive. Everyone that has flown them breaks out in a big smile. Another change included with these new ailerons is an integral trim tab on the left side. This tab is larger, more effective and much more attractive than the original. These new ailerons will be standard on aircraft from number EVO-0050 forward. For completed aircraft, or those where the wing/aileron fitment is complete, they will be available as a “parts only” kit wherein the aileron is closed but hinge pocket closeouts and hinges are not. The trim tab and servo are also included. Depending on how the builder originally finished the wing trailing edge at the aileron pocket, this area may need to be trimmed or extended to achieve the proper gap, as this is a functional dimension for the new system. The aileron kit will be available for \$9950.

Checking your oil

With your new Pratt & Whitney engine* you have a CD copy of the PT6A-135A Maintenance manual. In section 72-00-00, on Page 302 there is a description of the oil checking procedure. Here are a couple pertinent quotes from that (3 page) section.

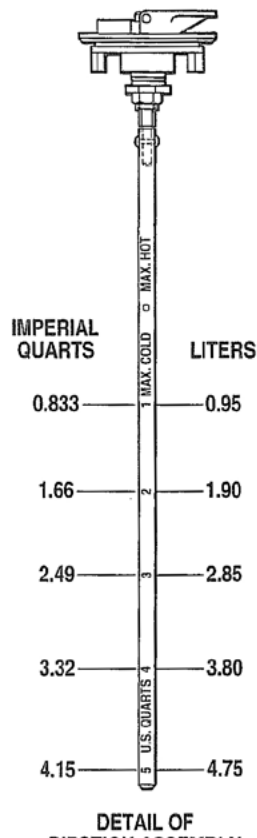
“5. B. To avoid overfilling the tank and high oil consumption, an oil level check is recommended within 30 minutes *after* (italics mine) engine shutdown. An ideal interval is 15 to 20 minutes. If more than 30 minutes have passed, and the dipstick indicates that oil is needed, start the engine and run at ground idle for five minutes and recheck.”

Checking your oil(cont'd)

“(5) NOTE: 1. Graduations on the dipstick indicate oil level in U.S. quarts *below the maximum capacity of the oil tank* (italics mine). Normal cold oil level is the MAX COLD level on the dipstick. Normal hot oil level is the MAX HOT level on the dipstick. A dipstick reading of 3 will indicate the system requires 2 U.S. quarts to replenish to normal level if the oil is cold and three U.S. quarts if the oil is hot.”

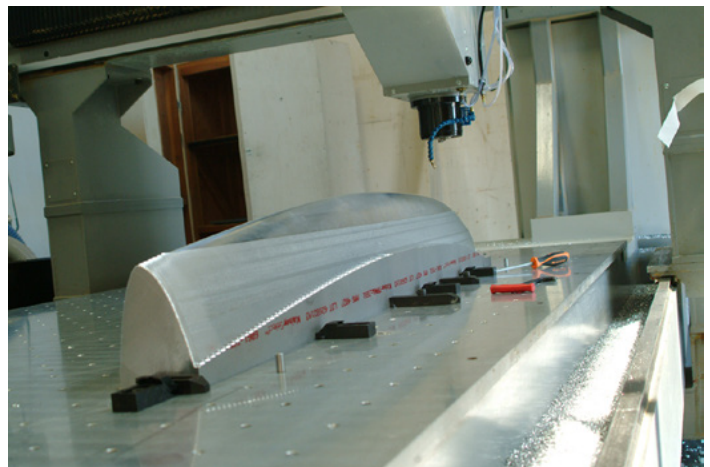
This process can be a bit counter-intuitive so you should read this entire section and understand it. Also in the 135A Maintenance manual 72-00-00, starting on page 605 is a very complete periodic inspection schedule.

*Purchasers of new engines are contacted by P&W soon after Lancair notifies them of issuance of the Certificate of Airworthiness for their airplane. At that time an owner will be notified of all the programs and benefits that are due to him as a new P&W engine owner. If that has not occurred, please notify Kim Lorentzen at Lancair.



De-ice boots

We are cutting tooling for the forming of the elliptical portion of a planned de-ice boot option. This specialized tooling will enable BE Aerospace to mold the boots in two sections, a straight conventional section and a specially molded elliptical portion on the outer third of the wing. When applied to an existing wing there will be a speed penalty incurred, but the exact amount will not be learned until a pre-production set is flight tested. An availability date is not yet set, but we are working to a schedule with the vendor.



How to: Sump Drain Bottle

Just because you are driving a Turbine now doesn't mean you can ignore draining your fuel tank and fuel filter. But, using the small cup or tube left over from the Bonanza or Columbia doesn't cut it. I got tired of having jet fuel on my hands so I made a man sized bottle for draining, inspecting and pouring back. It is simple, very clean and effective, and enhances safety. Try it.



Send us your photos



If you have any particularly good photos of your Evolution (especially in flight) we would like to add them to our web Gallery. Please email them to doug@lancair.com. Doing so implies that we may reprint them publicly.

Fleet hours

We requested this in the last newsletter and had limited response, so I will ask again. It would help us a lot in our continuing analysis of any issues that may arise if we could get a fix on total fleet hours. Please send a simple email of your serial or N number and total hours to date.

Are you attending Oshkosh?

Want to have a hundred thousand people adore your beautiful Evolution? Pratt and Whitney is having a special display day on Wednesday, July 31st for their 50th anniversary celebration. They are going to present special display in "Phillips 66 Square" (formerly known as Aeroshell Square) with aircraft from each of their OEM customers. They would very much like to have an Evolution among this illustrious group. If you will be attending that day with your PT6A-135A powered Evo and would like to have it parked on the ramp in the display, please contact Doug Meyer at Lancair.

It's Summer in Central Oregon

It is summer time in Central Oregon and the perfect time to visit. Fly in for a while or just stop in to say "Hi!". No other Northwest destination offers such a wide array of activities, sights, and dining. Golf, rafting, mountain biking are all easily arranged. If you would like any help in deciding where to stay or what to do, please call our customer concierge, Lisa Williams, at 541-923-2244 or 541-419-0127.

Back Issues of these newsletters

If this is your first Evolution Newsletter or if you would just like to review the past issues, you can download them at: [*Click here*](#)

Comments and responses please email:
doug@lancair.com