

EVOLUTION *owner's*

# newsletter

June 2012

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## Information for the Evolution Owner and Builder

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### Door Locks!

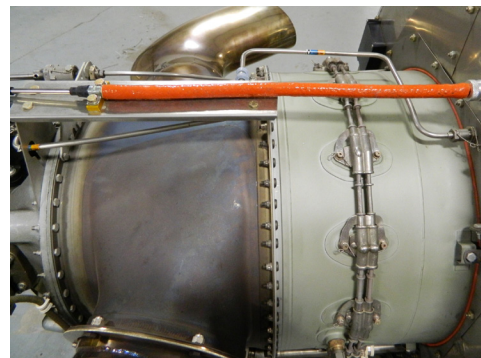
It's one of those little things that are needed to put the fine points on finishing your aircraft. Door lock kits will be soon available for your Evolution. There are two separate kits, one for the main door and one for the baggage door. These lock sets may be installed with the doors on the airplane, but the job is much easier with the door on the bench. You must remove the interior covering on the door, remove the handle assembly, and of course drill a hole in the door through the exterior bezel for the tumbler assy. You do not need to remove the exterior bezel. Detailed instructions will be included. The cost is \$120 per door and the part numbers are: 800-0048 Main Door, and 800-051 Baggage Door. Watch for an email from Kim when they are in stock.



### Extreme OAT Ops

Owners and users will, over time, always find the “corners of the envelope” how and where the aircraft are used and recently, during extended training sessions with OAT’s around 110F, some effects of extreme heat became apparent. During several touch and go landings the hydraulic pump overheated due to continuous use and suffered a loss in efficiency which required an emergency gear extension. During subsequent ground testing on jacks, it then failed. The pump had clearly been overheated. Keep in mind that the hydraulic bay is usually quite cool or even cold and operating the pump at normal intervals should never be a problem. Even a few T and G’s in higher temps would not pose a problem. This was an extreme case. We recommend you limit Touch and Go’s to 3 cycles and then leave the pattern for at least 15 minutes.

Also, we have seen two cases (including the above referenced flight) where the prop control cable that runs along the top of the engine above the exhaust housing has suffered a melted housing. We suggest covering this cable



with fire-sleeve as shown in the photograph and we are amending the build manual to include this. Another vulnerable component is the

## Extreme OAT Ops (continued)

inertial bypass door actuator. Some insulation or fire-sleeve would serve to protect this actuator from extreme operating temperatures. Remember, during extremely high ground temps when running the engine for long periods with the aircraft stationary or doing long, slow taxis (with lots of Beta) the temperatures under the cowling can get higher than normal so just be aware of the ambient conditions and modify your operations accordingly.

## Achieving Cooler Cabin Temps on the Ground

The latest heating/air conditioning configuration works quite well under 90% of conditions encountered.

All Evolution kits contain the evaporator, compressor, condenser along with the fans, evaporator box assy. and all associated hardware. The Bleed Air-Cooler kit, which is standard with the Lancair Firewall Forward kit after Jan. 2012 includes a manual "extra heat" control that takes care of extremely cold (like -40c at night) conditions. This is a mixer valve that adds additional hot bleed air to the cabin. If you have a Firewall Forward kit ordered before Jan 1, 2012, when the bleed air cooler was an option, and you find that you need extra heat, this mixer valve is available as part of the bleed air-cooler kit pn# LEV-BLEED AIR for \$1,2750. This kit includes the mixer valve, ducts, skeet tubing, cable, connectors and hardware. This kit was incorporated into the Evolution Firewall Forward kits after Jan. 1, 2012.

Conversely, when OAT's are very high you may not get a truly "cool cabin" until airborne. One way to minimize this is to start the engine as quickly as possible after closing the door (complete as many checklist items as possible before closing the door) and start the engine with the Bleed Air selected OFF. As soon as your engine is stabilized with the generator on, turn on the AC. (Make sure you have more than a 5 deg. F differential between

your cabin temp and temperature selected on the Moritz touch-screen.) By doing this you will be cooling the cabin air only by re-circulating the air through the evaporator, without adding the hot bleed air from the engine. You can set up your cabin pressurization normally (target landing field alt) and just before taking the runway, turn on the bleed air. If you forget, you'll get a small pressure bump when you turn it on, and if you REALLY forget you'll get a cabin pressure warning on the touch screen when passing 10,500 pressure altitude, and some possible ear discomfort as the cabin descends. You might want to add this procedure to your personal checklist.

As an example, I recently departed Lake Havasu City, Arizona with an OAT of 110F and I followed this procedure. Cabin temp at door closing was well over 110 (I use a digital cooking thermometer to keep track of this stuff) and while stationary approximately 5 minutes after start the cabin was "down" to 88 deg. On climb out I had 78 deg. air coming out of the vents as the system worked normally.

One other tip, if you sometimes find the system suddenly not responding for no apparent reason on what might be close to a "standard" day, check and make sure that the touch screen was not inadvertently set to Centigrade scale rather than Fahrenheit. Asking for a 72C cabin isn't going to get you anywhere.

## The CD in your Garmin Manual

The very complete Garmin G1000/900x operation manual that you received with your aircraft contains a plastic wrapped CD and this is a much more important CD than you might imagine. It is not just a run-of-the-mill Garmin training disk, but is an 11 hour Flight Safety International training course that normally sells at retail for over \$1000. (Replacement discs for each manual are \$185) Use it and learn, even if you have previous G-1000 experience.



## Garmin Autopilot Fine Tuning

**G**armin is continually working with Lancair to fine tune the GFC7x installation in the Evolution. We have tested several software loads since the initial release, each one making the response and integration better. As soon as we reach the "final" iteration, you will be notified and that version will be made available to you. The system response is by no means poor, but there have been a couple of data points that were not perfect on the initial release, and these are being refined to the level of performance we all expect from the industry's best flight control system manufacturer.

## Introducing your Evolution Concierge

**I**n an effort to make your build process easier and more enjoyable we have created a Concierge position to assist our customers as they work through the construction of their Evolution. Lisa Williams is our Marketing and Sales Assistant and she currently assists our staff with their travel needs. She is a Travel Agent and will now be available to our Evolution customers to assist in your travel to and from Redmond-Bend, lodging, rental cars, etc. Lisa also works closely with Customer Service Manager Kim Lorentzen and will help to keep you apprised of critical scheduling items and progress. You may call her at 541.923.2244 Ext 149 with that "Who do I talk to about....." question. She can assist you or find out who can.

## Total Fleet Hours

**W**ould you be so kind as to send an Email to: dougm@lancair.com with your Evolution's total time? Individual hours will not be published, but we would like to get a fix on fleet hours to date.

## Send us your Photos

**I**f 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 dougm@lancair.com . Doing so implies that we may reprint them publicly.

## Another Great Maintenance Product

**T**he best exhaust stain remover that we have found is Thor Aircraft Wash. Buy a gallon from KCI, mix 20:1 in a spray bottle that you can carry in your fly-away kit and you will be amazed how easy it is to keep your Evolution clean. By the way, the steeper you climb, the more soot you will accumulate on the right side. 140kt+ cruise climbs minimize soot staining.



## Evolution News Bits

- 26 Evolutions are flying
- We are working Kit number 46
- Evolutions have been to Mexico, Canada, Trinidad, Puerto Rico, Guyana, Brazil, Greenland, Iceland, Norway, Finland, Russia and Czech Republic!

## Back Issues of these newsletters

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