

In the spring of 2008 I was made aware of an AD regarding my ECI cylinders.

THERE ARE TWO GROUPS of cylinders involved, and include the popular 360 and 540 style Lycoming engines. These cylinders are P/N AEL65102 manufactured between 2002 and 2005. There was a manufacturing flaw that existed between the cylinder and the head. This had caused the head to break from the cylinder in a few cases particularly with the later batch. The main problem cylinders, Group B, were the last of the run and the AD specifies a maximum service life of 350 hours. After which they are to be removed and replaced. Originally ECI was replacing these cylinders with new cylinders. The owner was left freight and mechanics costs for the replacement.

The other group of cylinders is the "A" group and the AD specified a visual inspection for cracks and a compression check. If all was well then the airplane was fit for service but this inspection had to be done every 100 hours and the cylinders had a maximum life of 2000 hours at which time they were to be scrapped.

Fortunately, I thought, my cylinders fell in the A group and passed the test with no problem. As I normally fly about 100 hours a year the AD was of no great concern to me.

Early this year an updated AD has appeared that has expanded the number of affected B group cylinders and increased the mandatory inspection time to every 50 hours for my A group cylinders. Now I am concerned as I felt that the value of my airplane has been decreased due to this AD.

I now have about 400 hours on this engine and right from the start it seemed to use more oil than I was used to. Also there was more blow-by from the crankcase vent than I had seen with my other planes. It ran fine but I somehow felt it just did not have the "snap" on application of full power that I was used to in other rockets.

With the new AD, and my unease regarding oil consumption I spoke with ECI and asked that my cylinders be reworked. They came out with a program for the "A" group cylinders in late January. I was issued an "AMOC", alternate means of compliance, for the AD. ECI will rework my cylinders, inspect and repair if necessary, provide new serial numbers that are not affected by the AD. They will cover all those costs and pay freight one way. I pay the other direction freight and my mechanics costs. Personally I felt this was a good deal; I end up with essentially a complete top overhaul and get a chance to take a look in the engine. The AD goes away and life will be good again.

When we removed the cylinders it was clear that my pistons had more wear on the skirts than you would normally see in an engine with this number of hours. John Goris, Purple Hill Aviation, my mechanic looked at the rings and noted evidence of burnt oil aft of the compression rings. This was no surprise to me as I had always felt it used more oil than normal.

My high compression pistons had come from Lycon, in California,

and I returned the pistons to them for inspection. Their conclusion was that the ECI rings had not seated properly. Apparently there is another totally unrelated SB service bulletin from ECI that relates to this issue. It speaks of increased oil consumption, blow by, discoloured oil, all things I had noted about this engine. The repair was to replace the rings and hone the cylinders. The ECI rings have an imbedded plasma coating that rarely flakes off the surface of the rings. Lycon felt that this could have contributed to the increased wear on my piston skirts. Our RAA president, Gary Wolf, had noted similar wear in motorcycle engines that had unusual blow by. His theory, and I concur, is that the blow by burns off the lubricating oil on the piston skirts, thus the abnormal wear. It should be noted that the cylinders were not affected by this increased piston wear.

ECI has been swamped with cylinder returns and with the increased volume and the need to set up a repair protocol my promised three week turn around time is now approaching 10 weeks. The cylinders have gone through the shop, passed the tests and are in the assembly phase. I expect to lose about one month of flying as my runway is not serviceable in the winter months and I am ok with that.

As always there is lots of chatter on the internet, regarding different treatments for different customers. This is a huge issue for ECI and I feel they are doing the best they can under the circumstances. If you are in either of those groups, call them and see what you should do. Try to plan around the event when your aircraft may be down for a few months. 