MEMORANDUM OF RECORD

Shawn Etcher
Air Safety Investigator
Eastern Region Aviation **July 11, 2014**

Subject: Interview with Thomas Schwetz (owner Aero Engines in Winchester, Virginia)
Persons at Interview: Mr. Schwetz (owner) and Shawn Etcher (self)
Time of Interview: Began at 1040 EDT: Interview ended at 1248 EDT

During the interview Mr. Schwetz continued to manage his employees who came and went about various issues; however, Mr. Schwetz did not allow those distractions to distract him from the interview. Mr. Schwetz began by talking this investigator through his overhaul facility which was on the Northeast side of the Winchester Regional Airport (OKV). The owner expressed concerns on several occasions about details of an investigation that took place in North Carolina. Mr. Schwetz was informed that the purpose of this interview was first to discuss the broken crankshafts he had been seeing and to look at them and then also understand his repair facility's procedure for rebuilding the engines. He stated that he will gladly tell me all I need to know.

Mr. Schwetz was then asked if we could look at the crankshaft. He immediately took me to the crankshaft and it was viewed on a cart with the parts of the engine. According to MR. Schwetz the engine came already disassembled in parts but the crankshaft was in three (pieces). Examination and photo documentation of the crankshaft was conduct and Mr. Schwetz informed the investigator that he would gladly turn the crankshaft over to the NTSB for analysis. He also stated that he already turned over all of the records for the North Carolina accident he had retained, even though he could have disposed of the records after two (2) years.

Mr. Schwetz was informed that the photos would give us a good start and the I would be in touch with our lab to determine if that was necessary. Mr. Schwetz was then asked to walk this investigator through their procedures on what they do when they get an engine. He stated that they had just received an engine the other day, which was shown to the investigator in an already disassembled condition. Mr. Schwetz reported that once received they give it an overall assessment then begin the disassembly of the engine. After the engine is disassembled they conduct a detailed inspection of the engine, noting anything that may not have been done correctly and/or anything that is showing excess of wear, such as in this case some fretting on the inside of the case, which although in limits on that one, their procedure is to replace the case and send it out and replace it with an already repaired case which they maintain in their stock room. He reiterated that although the fretting is within limits, their policy is to replace it as it will need replaced at some point in the future due to that. He further stated that if the owner of the airplane does not want that done, he offers to box it up and send it to where the owner wants. If it is sent out, instead of having the owner's airplane down for a while they will rebuild the engine with approved parts in their storage room. The storage room was lined with industrial shelves around the wall and a row of shelving down the middle, as well as case halves in the workshop area. The

parts included yellow tags. During the rebuild, the facility utilized Locktite 515 or Continental approved gasket purple (also known as "grape jelly"). However, he stated that for Lycoming engines the utilize either Locktite 515 or RTV 102 sealant which either of those are approved for Lycoming engines; however, RTV 102 is not approved for Continental. He expressed concern about those products to be used between the case halves due to what he has observed as excessive amounts that have been applied in a previous reassembly or during other times. He further reported that a lot of engines come in with double silk threads instead of the required single silk thread, as well as gasket sealer applied to the through bolt holes on engine. Mr. Schwetz stated that when they apply gasket sealer it applied with a translucent quantity. He further demonstrated the application and in doing so stated that once it is dried it would or should be almost unnoticeable. Mr. Schwetz stated that if the engine is to be converted similar to the one in the accident airplane they will send the engine case out to be bored to fit the appropriate cylinders. He further stated that he is concerned with the use of the gasket sealer due to its ability to dry quickly and could cause a measureable difference between the case halves. Once the engine is reassembled it is then shipped or remounted on the airplane. Mr. Schwetz stated that if they remount it he will normally take the airplane up for a test flight to verify that everything is acceptable.

Mr. Schwetz was then asked why he takes the airplane on a test flight. He stated that since his shop did the work he wants to make sure that the airplane engine has no issues. He knows the area well and has a plan in his mind of what he would do should something go wrong. He further reported that once in a while one of his mechanics may put something on finger tight and not properly torque it which when noticed (sometimes with an engine shutdown or other issue) he will talk to his employees about that and inform them that nothing goes on finger tight it either stays undone until the manual instructs it to be tighten and only then do you put it on and tighten it to the proper torque before going to the next task.

Mr. Schwetz was asked to show the different sealant compounds he utilizes. He showed three (3) tubes of different substance (Locktite 515, RTV 102, and the "grape jelly") as well as 2 containers of sealant. He stated that for Continental he does not use the RTV 102 currently as it is not approved in the manual; however, in the past the shop utilized Yamabond 4 on their engine. However, since that was not approved by any manufacturer he ceased utilizing that. He explained that he liked to utilize Yamabond since it was more pliable, did not dry out and was easier to work with as it would allow the case halves to be drawn tight without the worry of drying out before it was completed to the proper torque.

Mr. Schwetz was asked when he stop using Yammabond. He stated about 4 years ago, around the time he reassembled the North Carolina accident engine. He further volunteered that it is possible that the sealant is Yammabond; however, he does not understand how that would cause any issue with an catastrophic engine failure. He stated that assuming a main bearing spun then he would like to understand the measurements and clearance on the other bearings. As that would explain a lot of details. He stated that he used Yammabond for many years and explained to the manufacturers how that was beneficial and that he has never been informed of a catastrophic engine failure associated with this type of sealant. However, he further volunteered that after lots of discussions with the manufacturers he determined that in order to properly and completely follow the manual he would cease utilizing Yammabond immediately.

Mr. Schwetz was asked how many engines did he use Yammabond on. He stated that he used it for several years prior to ceasing and may have been 8 years of use. However, he restated how that product was easier to use and he felt created a better seal due to the sealant, when clamped would almost be "non-existent" in quantity and is how the manufacturer would want it.

Mr. Schwetz was asked if he had any questions. He stated he would like to know what caused the engine problem for the North Carolina crashed, and if it was something they did wrong they would like to know to modify and change their procedure. He further volunteered that they have done a lot of engines in past and although they cannot turn back time to fix anything that may have caused it they could change going forward. He further volunteered that since they have done a numerous amount of engine that he would and have been given no concern by the FAA [Federal Aviation Administration] or the NTSB he would assume that his repair station's procedures must be acceptable but they are always willing to improve if there is an area of deficiency., **Mr. Schwetz was retold that this investigator has no information about the events surrounding nor found during the accident; however, I would pass along his concern.** He restated that he understood; however, if we have any questions at all or need to see anything else to come by anytime and he will answer any questions we have as he only wants to learn what happened. Not that he is worried about the lawsuit, that is why he carries insurance but because he wants to learn if it was something that he needs to change or something someone else did that he can learn from.
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