

Turbo Exhaust AD

The comment period is right now!

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Background

In a 14 month period starting in late 1995 and covering most of 1996, there were 8 accidents involving turbo-charged twin Cessna aircraft resulting in 20 plus fatalities as a result of exhaust system failures. Anytime you have this many accidents causing this many fatalities in this short period of time, it is going to get someone's attention.

In the November, 1996 issue we published an article on page 10 titled *Tony's Corner, Preservation of the Fleet*. Tony used most of one page explaining exhaust failures. The exhaust system on turbo-charged models runs under pressure and temperatures as high as 1600 degrees F. When you subject thin wall stainless steel or Inconel exhaust pipes to this high heat and pressure over an extended period of time, failures of the exhaust system are imminent. Because the exhaust system is routed in close proximity to the aluminum engine beams, cowling, .023 stainless steel firewall, and the ½ inch aluminum crossfeed fuel lines that are routed approximately ½ inch behind this firewall, there is a possibility of corrosion and eventual failure of any of these components.

In early 1996, an FAA Inspector filed a safety recommendation following the fatal crash of a T310R. The pilot, on a night flight over Altoona, PA., reported a fire in the right engine area. The engine was shut down and the aircraft descended into a mountain top. The investigation found that the turbo exhaust overboard stack, which had been weld repaired numerous times had failed. The hot exhaust from the failed stack then heated the crossfeed fuel lines aft of the fire wall to the point where they failed and allowed all of the remaining fuel in both tip tanks to feed the fire. The fire had apparently been extinguished during flight, but because the fuel continued to run out of the ruptured lines, the aircraft ran out of fuel and the two occupants failed to control the powerless descent.

In mid-summer, 1996, the exact same scenario

Another factor in the delay of the AD was the plain and simple fact that because the FAA made all of the owner's organizations aware of the problems and potential mandated corrections, owners were more aware of the turbo exhaust system problems,

happened to a Cessna 401 on a flight from Dodge City to McPhearson, KS. This aircraft was landed safely at an airport with the remaining fuel from both tip tanks streaming on the ground during the landing and taxi phase of the flight. Post incident findings again showed failed crossfeed fuel lines caused by extreme heat from a failed turbo exhaust system.

Because of the two incidents above and several others in a short period of time, in July, 1996, the NTSB sent a safety recommendation to the FAA. This safety recommendation required an inspection requiring complete removal of all turbo-charged exhaust components including the slip joints aft to the overboard stacks every 100 hours.

The FAA felt that each inspection would cost the owner approximately \$1,500.00, the removal and re-installation could cause possible exhaust component damage, and that this inspection may possibly be overlooked ("pencil whipped").

The FAA met with The Twin Cessna Flyer in Pittsburgh and we discussed possible alternative inspections and repairs that would enhance the safety of the fleet. Several items were considered including crossfeed fuel line shut off valves, additional inspection plates in the nacelle area that allowed better inspection of the exhaust while on the aircraft, and the possible changes to AD75-23-08R5.

We have been told by the FAA that Cessna was considering several service bulletins that would greatly enhance the safety of the fleet and that the FAA would use the information in those service bulletins when writing the new AD that would supercede the present AD75-23-08R5.

We Wait!

We have had several meetings and phone conversations with the FAA on the status of the much publicized forthcoming new AD. Because of the complicated nature of the new AD, and the cost factor, the FAA moved quite slowly in getting the new AD published.

they started taking a closer look at the exhaust systems during scheduled inspections, and they were better informed. The accident rate in turbo twin Cessna aircraft went down.

The FAA finally has a release date.

In mid June, we received a phone call from the FAA stating the there had been two more incidents related to turbo exhaust failures. One of these involved an off field forced landing of a T310 in Colorado and the other had involved a 400 series aircraft near Jefferson City, MO. While the first incident did not, the second incident involved fatalities. The long-awaited AD was going to be signed, published, and mailed to all effected owners on or about June 25, 1999. This new AD would be released using a direct to final rule procedure that did not allow for the Notice of Proposed Rulemaking and the normal comment period. This, in effect, would eliminate the effected owners, and their comments, from the process.

About Face!

Before the AD could be released under these conditions, the AOPA and CPA, working closely with the FAA, asked for and received a comment period on the proposed AD.

Phil Boyer's Letter

The following is part of the letter sent to Jane Garvey, FAA Administrator, on June 24, 1999:

It has come to our attention that the FAA is about to issue an Airworthiness Directive (AD) as a final rule, that is, without the usual prior public notice and opportunity for comment afforded under the informal rulemaking procedures of the Administrative Procedure Act. We ask that you prevent or withdraw the issuance of this final rule in favor of a Notice of Proposed Rulemaking. We ask this so that AOPA; our members, many who own and fly the affected aircraft; and others in the aviation community will have the benefit of these comments before making a final decision. In this matter many of those prepared to file comments have far more operational and maintenance experience with the Cessna exhaust situation than is available to the FAA presently.

This AD is expected to affect the exhaust systems on thousands of Cessna Model 300/400 series airplanes and is reported to require extraordinarily expensive and burdensome disassembly and inspection requirements. The safety concerns to be

Cost will be a problem. Telling an owner that he/she has to spend a large amount of money on his/her aircraft is less that fun. Let's look at the whole picture. If the AD mandates that you remove and inspect the exhaust system within 500 hours time

addressed in this AD are well known to your Administration and appreciated by the affected aircraft owners and operators. They were addressed in manufacturer's bulletins beginning as early as 1975. An airworthiness directive was issued by the FAA that same year (AD75-23-08) and subsequently amended. These very same concerns were the subject of recommendations to the FAA from the National Transportation Safety Board in 1986 and 1996. And, they were the subject of a 1996 FAA Special Airworthiness Information Bulletin sent to all affected aircraft owners. Please understand, this is not a new safety issue. The manufacturer, the government and affected owners and operators, has addressed it on a continuing basis and it continues to be addressed.

You can appreciate that the specific requirements, now unknown, that will be imposed on our members are a matter of serious consequence.

They want the opportunity to review and comment on these specifics and they want the opportunity to have you consider their comments, before you make a final decision. This opportunity is afforded to them in the informal rulemaking requirements of the Administrative Procedure Act. These important opportunities can be short-circuited only if the FAA has "good cause" for finding that the notice and comment procedures are impractical, unnecessary, or contrary to the public interest. It is hard for us to understand how the FAA could make such a finding when this has been a matter under consideration by the Administration and others for so long. While we are appreciative of the safety issues involved, we know of no immediate and compelling event warranting this precipitous action.

In the spirit of fostering your own initiative "government/industry cooperation" so necessary to aviation safety, we ask that you personally intervene to transform this threatened Cessna AD into a Notice of Proposed Rulemaking.

Where do we go now?

Your comments on this proposed AD are solicited, valued, and will be read prior to the final rule. There are several items that will probably have less affect on the final rule than others. Safety should be and will be the primary concern. in service or 24 calendar months, whichever occurs first, you will have to remove the exhaust and send it out for inspection. The original FAA cost estimate for this inspection will be approximately \$1,500.00 per airplane. If there are components that do not

pass the mandatory inspection, they will have to be replaced. The cost for the replacement parts could run as high as several thousand dollars. All of us as owners must keep in mind that any part that is not airworthy is a hindrance to safety and should be replaced anyway. How many of you would really opt to fly around the sky knowing that your aircraft has parts installed that could lead to a possible accident? Because of this fact, screaming about the added cost to you as an owner for replacing unairworthy parts will probably fall on deaf ears. A few years back, the only place you could buy new exhaust parts for your turbo-charged twin Cessna was from Cessna. The cost for a "Y" pipe for a 340 or 414 listed for well over \$4,000.00. Now that same pipe is available new from several after market manufacturers and lists for about \$1,400.00. This represents a savings to you as an owner of 66% without considering the cost of inflation. Competition in the aircraft parts market is good for us all. Another cost consideration is the fact that you will have only a visual inspection within the first 50 or 100 hours. You have up to 500 hours to prepare for removal and possible replacement of unairworthy parts. How long will it take you to accumulate 500 hours time in service on your aircraft? You, as a twin Cessna owner, should have ample time to save for the tear down inspection and replacement of parts.

Comments about a serious shortage of replacement parts will get more attention. However, in talking to several aftermarket manufacturers and distributors, they assure us that the AD will allow time for parts to be built. Sure, if every turbo-charged twin Cessna owner asked for a complete new exhaust system within the same week, there would be an extreme shortage of parts. If the process takes up to 500 hours on all aircraft, the parts supply will probably not be an issue. If there is a date given, such as "24 calendar months after the date of the AD", there will again be a problem with a parts shortage in exactly two years after the AD is issued. We all wait till the last minute when it comes to spending our hard earned dollars. Because of this we would probably ask that the portion of the AD that mentions any date rather than accumulated hours be removed.

Airframe Components

The inspection of the engine beams and canted bulkheads is going to bring to light problems with corrosion due to heat from failed exhaust pipes. We

know this due to experience. We are currently aware of several turbo-charged aircraft that have experienced failure of the engine support system to the point where the aircraft is grounded. We know of one incident where the engine fell completely off of the aircraft during takeoff. The aircraft then ran over its own engine and the damage to the aircraft was listed as substantial. We are aware of several aircraft that have corroded engine beams and canted bulkheads that are currently waiting for repairs.

Conclusion

There is going to be an Airworthiness Directive on all turbo-charged twin Cessna models except the 303 and 337. This AD is going to cost owners of these aircraft money and in some cases a large amount of money. The owner that has meticulously maintained his/her aircraft according to the current service bulletins and AD75-23-08R5 will spend the least. The owner that has failed to take the necessary action as described is going to get hit hard. The owner that has failed to take any action at all for a long period of time is going to get clobbered! The lack of action by some owners is going to make all owners take some action.

A large number of exhaust components and the surrounding engine support structure may not survive the inspection requirements of this proposed AD. This AD will affect nearly 5,000 twin Cessna aircraft. The cost to repair some of the older aircraft could reach possibly half the value of the aircraft. Because of this, some of the fleet will be eliminated. We as an owner's organization exclusively representing twin Cessna aircraft have only so many aircraft. The number of Cessna twins continues to drop every week. Every twin Cessna that goes away represents one less member for The Twin Cessna Flyer. Our goal is to inform our members in a timely manner of any and all information that effects the aircraft they fly and aid them in any way possible in keeping that aircraft safe.