

ACE-99-06

November 17, 1998

Introduction:

The purpose of this Special Airworthiness Information Bulletin (SAIB) is to advise registered owners of Cessna turbocharged twin engine models of the need to inspect certain exhaust system components and to emphasize the importance of inspecting the exhaust tailpipe.

This SAIB is being sent to registered owners of: Cessna Models T310P, T310Q, T310R, 320, 320-1, 320A, 320B, 320C, 320D, 320E, 320F, 335, 340, 340A, 401, 401A, 401B, 402, 402A, 402B, 402C, 404, 411, 411A, 414, 414A, 421, 421A, 421B, 421C.

Background:

The Federal Aviation Administration (FAA) has received service difficulty reports concerning exhaust system failures on certain Cessna Model 300 and 400 series airplanes and issued Airworthiness Directive (AD) 75-23-08 as revised. which has been revised 5 Thetimes. The FAA has also issued SAIB No. ACE-96-05 related to this same problem.

In July 1996, the FAA received the following recommendations from the National Transportation Safety Board (NTSB):

Amend Airworthiness Directive (AD) 75-23-08 R5 to require the recurring visual inspection set forth in the AD of all-Inconel exhaust system components in Cessna twin-engine, turbocharged airplanes. In addition, the Inconel exhaust system parts should be permanently marked to demonstrate that they are made with Inconel material. Any worn, damaged, or otherwise defective exhaust system components or assemblies should be replaced before any further flight. (Class II, Priority Action) (A-96-35)

Amend Airworthiness Directive (AD) 75-23-08 R5 to require that all Cessna twin-engine, turbocharged engine exhaust system components that are made from stainless steel or that cannot be conclusively determined to be made with Inconel receive repetitive visual inspections of the disassembled exhaust system. Any worn, damaged, or otherwise defective exhaust system components or assemblies should be replaced before any further flight. (Class II, Priority Action) (A-96-36)

In addition, an FAA Safety Inspector has recommended the following:

1. Install fire detector systems on all turbocharged multiengine aircraft as required by 14 CFR 23.1203. Note: The certification basis of the 300 and 400 series turbocharged Cessna airplanes do not include 14 CFR 23.1203.
2. Incorporate a modification that would provide the pilot with the ability to stop the flow of fuel in the crossfeed lines immediately behind the firewall. Note: These lines have been found to be ruptured on airplanes having experienced exhaust failure and subsequent high heat on the firewall and damage to the firewall structure.
3. Inspect the fuel lines behind the firewall and install support brackets and blocks. Note: This procedure could be very time consuming due to limited access to the fuel lines.

Cessna is currently developing Service Bulletins that follow the intent of the NTSB safety recommendations. Cessna is also considering redesigned inspection panels for improved access to the exhaust systems. At this time, Cessna is not considering the development of a closed loop fire detection system or incorporating isolation features in the fuel crossfeed lines (shutoff valves).

While the FAA considers the NTSB and FAA safety recommendations an increase in the level of safety, these recommendations would impose a significant burden on the owner/operators. Therefore, the FAA issued SAIB No. ACE-96-05 applicable to voluntary inspection of the exhaust systems on certain turbocharged twin engine Cessna airplanes. This was considered to be interim action while the FAA prepared a Notice of Proposed Rule Making (NPRM) applicable to the incorporation of currently available procedures and parts designed to improve the service life of the exhaust systems. The FAA has not been able to publish the NPRM in a timely manner due to the anticipated complexity and cost associated with completion of this project. Since issuance of ACE-96-05 and articles published by industry such as the attached letter by the Cessna Pilots Association dated April 1997 the number of reported in flight fires and accidents related to this problem have diminished. However,

Since the issuance of SAIB No. ACE-96-05 and articles published by industry such as a letter by the Cessna Pilots Association dated April 1997, the number of reported inflight fires and accidents related to this problem have diminished.

However, within the past twelve months two additional inflight fires related to this problem have been reported to the FAA. Due to these occurrences, the FAA is adding a tailpipe preflight inspection to the previous recommendations.

Recommendation:

The FAA is recommending, but not requiring, that:

1. Owner/operators of Cessna Model 300/400 series airplanes equipped with Inconel exhaust system components conduct a visual inspection of the exhaust system every 100 flight hours, with special emphasis aft of the slip joints.
2. Owner/operators of Cessna Model 300/400 series airplanes equipped with Stainless Steel exhaust system components remove the Stainless Steel components aft of the bellows/slip joints for a complete visual inspection every 500 flight hours.
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3. Visually inspect the interior of the turbocharger overboard stacks (tailpipes) with a flashlight prior to each flight. Any cracks, holes, erosion or missing metal is cause for further evaluation of the tailpipe and exhaust system.

NOTE: The FAA is considering several options, including rulemaking action, to mandate these recommendations. The FAA is aware that the disassembly and inspection of the Stainless Steel components will increase the cost of operation approximately \$1,500 dollars every 100 operating hours. Because of this burden, the FAA is also considering possible alternative action when the following acceptable systems have been developed and approved:

- a) Continuous loop fire detector systems.
- b) Modifications that provide the pilot with the ability to stop the fuel flow in the crossfeed lines immediately behind the firewall, or replacement of these lines with stainless steel.
- c) Improved inspection access panels.

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For Further Information Contact:

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