FAA
Aviation Safety

SPECIAL AIRWORTHINESS INFORMATION BULLETIN

SAIB: CE-13-45
Date: September 5, 2013

SUBJ: Engine Exhaust; Tailpipe V-band Couplings

This is information only. Recommendations aren't mandatory.

Introduction

This Special Airworthiness Information Bulletin (SAIB) informs owners, operators, and maintenance personnel of **turbocharged, reciprocating engine-powered airplanes** about the potential for in-flight fire as a result of failure of the exhaust system V-band coupling securing the tailpipe to the turbocharger, the wastegate overboard, or any other exhaust system V-band coupling.

The FAA has issued airworthiness directives (AD) in the past concerning V-band couplings for specific airplane models. These ADs remain in effect where applicable. For those airplanes not affected by a V-band coupling AD, this airworthiness concern is not considered an unsafe condition at this time that would warrant AD action under Title 14 of the Code of Federal Regulations, part 39.

Background

This SAIB is the result of a review of the accident/incident data associated with V-band couplings. In our review, we find data that indicates a need for continued diligence in the inspection and replacement of exhaust system V-band couplings, as well as adherence to the recommended inspection intervals and procedures contained in the applicable maintenance documentation (e.g.; maintenance/service manual, illustrated parts catalog, service bulletins/letters, etc.). V-band couplings can be included as part of the engine type design, the airplane type design, or a combination of both, depending on the particular manufacturers. It may be necessary to consult both the engine and airplane design approval holders maintenance documentation to ensure you are working with the correct part numbers and, working to the correct procedures, etc. on your airplane. On any given airplane, all of the V-band couplings may be part of the engine design approval or the airplane design approval or a mix of those throughout the exhaust system.

Additionally, supplemental type certificates (STC) or field approvals may have dictated a change in the exhaust system type design and thus the Instructions for Continued Airworthiness for those design approvals should be reviewed. At any time, if you are unsure that your maintenance instructions are accurate and complete, please contact the design approval holder(s) directly for assistance.

Recommendations

The FAA recommends that you do the following:

1. For V-band coupling replacement, use only new FAA-approved original equipment manufacturer (OEM) or part manufacture approval (PMA) replacement parts for all V-band coupling applications. Ensure that the parts you wish to use contain the same part number specified by the design approval holder (type certificate (TC)/STC/PMA). Many of the features of a V-band coupling are defined in the part numbering and a slight change in the part number can designate a V-band coupling different enough to adversely impact the fit,

installation and/or performance of the V-band coupling. Do not use any commercially available V-band couplings that do not have or are not supplied with the proper FAA approval for the intended airplane model installations, even though they may look or seem to be able to perform the same functions.

2. Adhere to the applicable design approval holder's maintenance documentation for all inspection intervals, and replacement procedures for exhaust system V-band couplings. We recommend you adhere to a 50- hour interval for repetitive visual inspections of exhaust system V-band coupling condition, unless the manufacturer recommends or FAA regulations (e.g.; AD) require a different inspection interval. Additionally, a thorough exhaust system inspection, as described in SAIB CE-04-22, should be included as part of any annual or 100-hour inspection on any airplane.

3. Obtain and adhere to the specific installation procedures and torque requirements as specified in the applicable maintenance documents for the specific part number V-band coupling you are installing, and where applicable, safetying the V-band couplings as specified in those maintenance documents.

4. Establish a periodic replacement time for exhaust system V-band couplings based on your airplane installations and how/where the airplane is operated. The FAA recommends that you consider a replacement interval of 400 hours time in service (TIS), unless the manufacturer recommends or FAA regulations require a different replacement interval. Record the V-band coupling part number, date, and airplane hours TIS in the airplane log book for future assistance in maintenance activities.

5. As part of all normal first flight of the day pre-flight inspections of the airplane, include an item specific to the engine exhaust system of the airplane, to check the exhaust/tail pipe for security in its mounting. A loose or easily displaced exhaust or tail pipe should be brought to the attention of maintenance personnel prior to further operations.

6. Airplanes that operate in or near salt water are susceptible to corrosion of materials at a much higher rate, including stainless steel components such as V-band couplings. For airplanes in this environment, regularly fresh water rinse and soap wash and rinse. Pay particular attention to those systems and components contained inside the cowling/nacelle that may not be directly impinged upon by the salt water during operations or the fresh water rinse and soap washes, for example V-band couplings, turbocharger housing, exhaust piping, engine accessories, etc.

7. For additional related information and recommendations please refer to the following SAIB's:

   - CE-10-33 R1:Engine Exhaust; exhaust system mufflers and heat exchangers
   - CE-09-11: Turbocharged Engines; turbocharger malfunctions and failures
   - CE-04-22: Exhaust System Components; inspections and maintenance
   - CE-13-07R1: Engine Exhaust; Tailpipe V-band Couplings

For Further Information Contact

Jeff Janusz, Aerospace Engineer, 1801 Airport Road, Rm. 100, Wichita, KS; phone: (316) 946-4148; fax: (316) 946-4107; e-mail: jeff.janusz@faa.gov.