FAA
Aviation Safety

SPECIAL AIRWORTHINESS INFORMATION BULLETIN

SUBJ: Wings - PA-28, PA-32, PA-34, and PA-44 Rear Spar Corrosion at Fuselage Attach Fitting

SAIB: CE-11-12
Date: January 5, 2011

This is information only. Recommendations aren't mandatory.

Introduction

This Special Airworthiness Information Bulletin (SAIB) alerts you, owners and operators of **all Piper Aircraft, Inc. PA-28, PA-32, PA-34, and PA-44 models**, of potential corrosion on the wing rear spar at the fuselage attach fitting. We are recommending you incorporate Piper Service Bulletins (SB) 789A, 977, and 1006 as mitigating action.

At this time, this airworthiness concern has not been determined to be an unsafe condition that would warrant AD action under Title 14 of the Code of Federal Regulations (14 CFR) part 39.

Background

Aircraft may develop corrosion during their lifetime. Some of the variables involved in the probability of corrosion development are:

- potential increases with calendar time / age
- potential increases with incompatible materials (e.g., aluminum and steel)
- potential increases in certain environments (e.g., high moisture or salt water)
- potential decreases with adequate protective coatings (e.g., zinc chromate primer)
- potential decreases with adequate inspection

This information is presented in response to service data showing extensive corrosion on the wing rear spar at the fuselage attach fitting of Piper PA-28 and PA-32 aircraft. See Figure 1 below as an example. The example damage was found during routine maintenance affecting the part number 66762-00 plate, 62448-02/03 fitting, and 35174-04/05 aft spar. Note: The steel plate 66762-00 is common to all PA-28, PA-32, PA-34, and PA-44 aircraft, though the aluminum aft spar part number may vary.

There are several existing service documents related to the issue. Previous reports of similar damage were reported in maintenance tips (AC 43-16) issued through 1991. Piper SB 789A was issued in 1995 for the forward side of spar on certain PA-28 and PA-32 aircraft. Piper SB 977 was issued in 1994 to add a wing access inspection panel and a drain hole on certain PA-28, PA-32, PA-34, and PA-44 aircraft. Piper SB 1006 was issued in 1997 to address multiple areas of the wing, including the spars, on certain PA-28 and PA-32 aircraft. Production aircraft after the SB 1006 had zinc chromate primer added for corrosion protection. No data was available whether the applicable SBs had been completed on the reported aircraft.

Figure 1

There are other factors affecting the issue. First, we have received reports of improper paint stripping that leaves potentially corrosive chemical residue on these wing spars. All reported occurrences have included damage to only one wing on the affected aircraft. Finally, aircraft with retractable gear (e.g., PA-28R) are more difficult to inspect from the forward side of the spar due to the main landing gear wheel well.

Recommendations

The FAA recommends that owners and operators incorporate the actions in Piper SBs 789A, 977, and 1006 based on the effectivity of the individual SB. Due to similarity of design (steel plate 66762-00 adjacent to aluminum spar) and since improper maintenance or painting procedures have been a contributing factor in past service reports, all PA-28, PA-32, PA-34, and PA-44 aircraft are susceptible to this corrosion development. Therefore, the inspections in the SBs should be implemented for all PA-28, PA-32, PA-34, and PA-44 models. We recommend that all the actions be taken within 100 hours. We further recommend inspection and incorporation as soon as feasible, but no more than 100 hours, for those aircraft at higher risk due to age, environment, lack of protective coatings, etc., as discussed above.

If damage is found, a Malfunction / Defect Report or Service Difficulty Report (SDR) should be filed. The SDR system is available at http://av-info.faa.gov/sdrx/. There are currently no established allowable limits on the subject parts so repair or replacement will be necessary if damage is found.

For Further Information Contact

Gregory K. (“Keith”) Noles, Aerospace Engineer, Atlanta ACO, 1701 Columbia Ave., College Park, GA 30337; phone: (404) 474-5551; fax: (404) 474-5606; email: gregory.noles@faa.gov

For Related Service Information Contact

Piper Aircraft Inc., 2926 Piper Drive, Vero Beach, Florida, 32960; website: http://www.piper.com/