



SUBJ: Rotorcraft Crash Resistant Fuel Systems

This is information only. Recommendations aren't mandatory.

Introduction

This revised Special Airworthiness Information Bulletin (SAIB) provides information to help rotorcraft owners, operators, aircrew, and passengers understand the importance and safety benefits of crash resistant fuel systems (CRFS) for rotorcraft. This SAIB also expands the list of safety enhancements available through the voluntary Rotorcraft Safety Promotion Concept (RSPC). RSPC is intended to encourage installation of safety features such as CRFS designs that reduce the risk of post-crash fires for rotorcraft certificated under either Title 14, Code of Federal Regulations (14 CFR) part 27 and part 29.

This SAIB encourages voluntary adoption of CRFS by informing owners, operators, pilots, manufacturers and the flying public about the benefits of CRFS. Related SAIB, SW-17-31, provides additional information about statutory requirements under 49 U.S.C. 44737.

We are revising this SAIB to publicize the 2024 amendment to 49 U.S.C. 44737 which substituted the word "rotorcraft" with "helicopter" throughout the statute to modify the applicability of the requirements. This change resulted in excluding gyroplanes from the applicability of this law.

Since this SAIB is part of the general RSPC, reference to all rotorcraft will be maintained, outside of those related to 49 U.S.C. § 44737, as the purpose of this SAIB is to educate and encourage the public on CRFS for all rotorcraft, not just helicopters.

The subject matter of this SAIB does not warrant airworthiness directive (AD) action under 14 CFR part 39. However, operating a rotorcraft with either a full CRFS or partial CRFS reduces the risk of post-crash fires and improves occupant survivability in an accident.

Background

On November 2, 1994, the FAA issued airworthiness standards to increase safety and occupant survivability in the event of a survivable crash by decreasing the likelihood or delaying the onset of post-crash fires. The FAA issued 14 CFR 27.952, amendment 27-30 and 14 CFR 29.952, amendment 29-35 along with other related standards to minimize crash-induced fuel leaks and potential fuel ignition sources during and after a crash. These safety enhancing regulations are only mandatory on newly type certificated rotorcraft, but these protections can be installed and certified on rotorcraft that fall outside the applicability of the regulation on a voluntary basis.

To further improve helicopter fuel system crash resistance, the U.S. Congress created 49 U.S.C. 44737 on October 5, 2018. This law was amended on May 16, 2024 to apply only to helicopters, effectively removing existing gyroplane designs. This law lists the helicopter fuel system safety requirements for operation of a "covered helicopter" in the United States airspace. The law was limited in applicability to newly manufactured helicopters of old type designs, but does not apply to

helicopters in primary category or restricted category. The requirements are consistent with recommendations that the Aviation Rulemaking Advisory Committee (ARAC) Rotorcraft Occupant Protection Working Group (ROPWG) provided to the FAA on March 23, 2018 to improve rotorcraft fuel system crash resistance.

The FAA previously issued a different SAIB, SW-17-31, to provide owners and operators a list of helicopters equipped with a fully compliant CRFS. That SAIB serves to maintain a list of certificated designs, as required by 49 U.S.C. 44737 and added a second list of helicopters that meet or exceed the 49 U.S.C. 44737 requirements.

As noted, the applicability of 49 U.S.C. 44737 was limited to newly manufactured helicopters. However, the ROPWG made other recommendations that applied to rotorcraft in the existing fleet that had not previously been equipped with CRFS designs. For these cases, the ROPWG recommended retrofit of simpler fuel system safety enhancements. These safety enhancements may be voluntarily incorporated to increase the post-crash fire protection.

The full report for the ROPWG is publicly available at:

https://www.faa.gov/regulations_policies/rulemaking/committees/documents/index.cfm/search/searchResults.

Recommendations

The FAA recommends, if you own, operate, or will occupy a seat in a rotorcraft as a pilot, aircrew, or passenger, you consider the following options in order to minimize the potential for a post-crash fire and maximize the protection to you in a survivable accident.

The FAA introduced a new resource when we published SAIB AIR-21-17, the Rotorcraft Safety Promotion Concept (RSPC). This concept is intended to better inform and educate stakeholders about the continuum of voluntary design and equipment safety enhancement options. The initial SAIB introduced bird strike designs and mitigations to the RSPC, while the current SAIB introduces design features of CRFS to the RSPC. The RSPC document related to CRFS is available at https://www.faa.gov/aircraft/air_cert/design_approvals/rotorcraft/RSPC#crfs.

The different areas on the continuum each offer unique safety benefits in terms of post-crash fire protection. Stakeholders are encouraged to use this resource to determine the design and equipment features that best fit their operational needs, available resources, and personal risk tolerances.

For stakeholders interested in rotorcraft designs meeting CRFS standards, the FAA maintains a list at the same RSPC website:

https://www.faa.gov/aircraft/air_cert/design_approvals/rotorcraft/RSPC#crfs.

The RSPC is intended to assist you in making an informed risk-based decision. If you are not familiar with some of the terms used to describe different areas on the RSPC continuum in this SAIB, the FAA recommends the following actions to help you to determine the crash resistant fuel system capability of a specific rotorcraft.

- **For those considering owning or leasing a rotorcraft:**

Refer to the RSPC document link above and ask the rotorcraft manufacturer about the fuel system installed on their product compared to the RSPC continuum. Rotorcraft manufacturers can

provide you information on available FAA-approved design modifications that will improve post-crash fire prevention.

- **For current owners and operators:**
Refer to the RSPC document link above and ask the rotorcraft manufacturer about available FAA-approved design modifications that will improve post-crash fire prevention.
- **For pilots and aircrew:**
Refer to the RSPC document link above and ask your operator about the fuel system installed on their rotorcraft compared to the RSPC continuum.
- **For passengers:**
Refer to the RSPC document link above and ask the operator about the fuel system installed on their rotorcraft compared to the RSPC continuum.
- **For rotorcraft manufacturers and modifiers:**
Refer to the RSPC document link above and contact the FAA Aircraft Certification Service if you want to pursue FAA approval of design modifications that will allow your product to meet a higher level of crash resistant fuel system post-crash fire prevention on the RSPC continuum.

For Further Information on Crash Resistant Fuel Systems and this SAIB contact:

Jorge Castillo, Manager, Product Policy Management - General Aviation, Airplanes, Rotorcraft & Emerging Aircraft Section, FAA, 10101 Hillwood Parkway, Fort Worth, Texas, 76177; phone: (817) 222-5110; email: Jorge.R.Castillo@faa.gov.