FAA
Aviation Safety

SPECIAL AIRWORTHINESS INFORMATION BULLETIN

SUBJ: Automatic Dependent Surveillance-Broadcast (ADS-B) In Conflict Alerting

SAIB: 2022-16
Date: August 17, 2022

This is information only. Recommendations aren't mandatory.

Introduction

This Special Airworthiness Information Bulletin advises manufacturers and operators of an airworthiness concern about lack of traffic conflict alerting or collision detection functionality for their Automatic Dependent Surveillance - Broadcast (ADS-B) In Systems.

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

Background

On May 13, 2019 in Ketchikan, AK, a float-equipped de Havilland DHC-2 (Beaver) airplane, N952DB, and a float-equipped de Havilland DHC-3 (Otter) airplane, N959PA, collided midair. The DHC-2 pilot and four passengers sustained fatal injuries. The DHC-3 pilot sustained minor injuries, nine passengers sustained serious injuries, and one passenger sustained fatal injuries. The DHC-2 was destroyed and the DHC-3 sustained substantial damage. Both aircraft were equipped with ADS-B Out and In. The FAA Safety Issue Action Team reviewed the investigation findings documented in National Transportation Safety Board (NTSB) Accident No. CEN19MA141 as well as information from other recent midair collisions.

NTSB Accident No. CEN19MA141 findings revealed that one aircraft had a Technical Standard Order (TSO)-C195a ADS-B In system installed, but that aircraft's ADS-B In unit did not have collision alerting or collision detection functionality because TSO-C195a had no requirements or standards for such functionality. As a result of the lack of conflict alerting functionality, the ADS-B In system had no means of providing an aural alert to the pilot to warn of the impending conflict.

The Minimum Operational Performance Standards (MOPS) in the current ADS-B In TSO-C195b, RTCA document DO-317B, and the subsequent MOPS revision, RTCA DO-317C, now provide standards for an ADS-B In conflict alerting application called ADS-B Traffic Advisory System (ATAS) in TSO-C195b. In addition to visual conflict alerting, ATAS provides voice aural alerts of impending conflicts consisting of the word "Traffic" along with information on relative bearing (expressed as a "clock position") and usually relative altitude ("high", "low" etc.), range, and vertical tendency (e.g. "descending"). ATAS may also be implemented without a traffic display. However, ATAS is an optional application for a TSO-C195b system, and is also currently an optional application in DO-317C.

A report related to NTSB Accident No. CEN19MA141 analyzed the performance of the ADS-B In systems on the two aircraft and concluded, "… the circumstances of this accident indicate that pilots might not always use Cockpit Display of Traffic Information consistently to supplement their visual scan for traffic, and that aural alerts that draw the pilot's attention to imminent traffic threats can significantly improve the effectiveness of these systems." NTSB studies of several recent midair collisions, including Accident No. CEN19MA141, have further concluded that had the accident

aircraft been equipped with ADS-B Out and a TSO-C195b system with ATAS, the ADS-B In system would have provided significant advance warning of the collision. In most cases, this warning would be between 20 and 39 seconds in advance.

Recommendations

- The FAA recommends that manufacturers of ADS-B In systems ensure their systems meet the performance requirements of TSO-C195b or later revision, and include the ATAS application or equivalent traffic conflict alerting capability.

- The FAA recommends that operators performing an initial installation of an ADS-B In system in their aircraft install a system that meets the performance requirements of TSO-C195b or later revision, that incorporates ATAS or equivalent traffic conflict alerting capability.

- The FAA recommends that operators with existing ADS-B In equipment installations prior to TSO-C195b, or with an existing TSO-C195b installation without ATAS, upgrade to a system meeting the performance requirements of TSO-C195b or later revision, that incorporates ATAS or equivalent traffic conflict alerting capability.

For Further Information Contact

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