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**Federal Aviation
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InFO

Information for Operators

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http://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/info

InFO contains valuable information for operators that should help them meet certain administrative, regulatory, or operational requirements with relatively low urgency or impact on safety.

Subject: Prompt recognition of TCAS functionality issues

Purpose: To describe various conditions of Traffic Alert and Collision Avoidance Systems (TCAS) lack of functionality, and to recommend aircraft-specific operating procedures and training to promote pilots' prompt recognition of TCAS problems.

Background: On September 29, 2006, a Boeing 737-800 and an Embraer Legacy 600 business jet collided over the Amazon jungle approximately 100 nautical miles southeast of Cachimbo Air Base, Brazil. The investigation is in progress. For more complete factual information about the accident go to the following public website maintained by the National Transportation Safety Board (NTSB): <http://www.nts.gov/nts.gov/query.asp>

On May 2, 2007, the NTSB issued the following recommendation to the FAA:

A-07-37. Inform all pilots who use transponders or transponder/traffic alert and collision avoidance system (TCAS) units about the circumstances of this accident and the lack of a conspicuous warning to indicate the loss of collision protection resulting from a compromise in functionality of either the transponder or TCAS unit and ask all pilots who use transponders or transponder/TCAS units to become familiar with the annunciations currently used to indicate failure or lack of active functionality of these components.

Discussion: The Turbine Aircraft Operations Subgroup (TAOS), part of the General Aviation Joint Steering Committee, is a collaboration of government and industry representatives committed to improve safety in operations of turbine aircraft. The TAOS has identified the following conditions that may be involved in a lack of functionality of a TCAS unit:

- An aircraft's transponder must be turned "ON" and its TCAS selected to "TA only" or "TA/RA" for a flight crew to get accurate collision avoidance information; a transponder set to "STANDBY" will not transmit data to the TCAS unit, in effect causing TCAS lack of functionality.
- A TCAS unit itself can fail, preventing an aircraft with failed TCAS from detecting nearby aircraft. (However, an aircraft with a failed TCAS unit would still be visible to other aircraft as long as its transponder continues to operate in Mode C).

- A condition in which both the TCAS and the transponder units in an aircraft fail, lack functionality, or are unreliable is particularly dangerous, as the aircraft would not detect nearby aircraft and would not be detected by them.

Recommended Action: The TAOS recommends that directors of safety, directors of operations, fractional ownership program managers, trainers, and pilots be familiar with the circumstances of the midair collision addressed by this InFO, and with the InFO's referenced content. They should establish and implement aircraft-specific procedures and training to maintain pilots' familiarity with the transponder and TCAS equipment installed in the aircraft they operate. Those procedures and the training to support them should be particularly clear about mode annunciations, failure annunciations, and the indications when a unit is selected to "OFF," and should be consistent with pertinent information in the respective airplane (or rotorcraft) flight manual supplement.

Additional references:

National Transportation Safety Board, www.nts.gov

Click on Safety Recommendation Letters found under the Data & Information Products heading; click on 2007; click on A_07_35_37.pdf

For additional information regarding the content of this InFO contact
Flight Standards Service, General Aviation and Commercial Division, AFS-800
(202)-267-8212