



SUBJ: Engine Exhaust (ATA code 78) and Carbon Monoxide Detectors (ATA code 25) **SAIB:** CE-10-19
Date: March 10, 2010

This is information only. Recommendations aren't mandatory.

Introduction

This Special Airworthiness Information Bulletin (SAIB) advises the owners and operators of general aviation (GA) aircraft of an airworthiness concern, specifically the need to inspect properly and maintain the exhaust system to prevent carbon monoxide leakage into the cabin and to install a commercially available carbon monoxide detector in the cabin.

At this time, this airworthiness concern is not considered an unsafe condition that would warrant an airworthiness directive action under Title 14 of the Code of Federal Regulations (14 CFR), part 39.

Background

This SAIB is in response to a National Transportation Safety Board (NTSB) investigation of an accident on December 17, 2000, where a Beech Model BE-23 aircraft impacted terrain killing the commercial-rated pilot, the sole occupant of the airplane. The NTSB determined the probable cause of the accident was in part “the pilot’s incapacitation due to carbon monoxide (CO) and a fractured muffler.”

The Federal Aviation Administration tasked Wichita State University to conduct research that focuses on carbon monoxide safety issues as they apply to general aviation products. A technical report titled “Detection and prevention of carbon monoxide exposure in General Aviation Aircraft, Document No. DOT/FAA/AR-09/49, dated October 2009” was published, and is available from the National Technical Information Services using the contact information noted below. The report shows that 43 commercially available CO detectors, sampled from each of the five sensor technology types (biometric, electrochemical, spot, infrared, and semiconductor) were surveyed to determine the most appropriate sensor technology. The electrochemical sensor-based CO detectors were found to be most suitable for use in the GA environment. Limited field testing using portable electrochemical CO detectors was conducted in two GA aircraft models to determine the best location for a CO detector. Based on the analyses of collected CO data, the instrument panel appeared to be the best location for the placement of CO detectors. Performance parameters and specifications of various CO detectors (available on the market) were compiled into a database as shown in Tables B-2 through B-5 of the technical report.

Recommendation

The FAA recommends that you do the following:

1. To buy commercially available CO detectors listed in the report, costing from \$175 to \$200.
2. Install the CO detector on the instrument panel.
3. To reduce occurrence of false alarms, set the lower alarm threshold to 35 parts per million (PPM).

4. To detect leakage of gases into the cabin due to cracks in the exhaust system, conduct engine run up tests with cabin heat on and use of hand-held CO detectors during 100 hour and annual inspections.
5. Continue to inspect the complete engine exhaust system during 100 hour/annual inspections and at inspection intervals recommended by the aircraft and engine manufacturers in accordance with their applicable maintenance manual instructions.

For Further Information Contact

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For more related information on the technical report, Contact:

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