#### Safety Recommendation 2014-041

It is recommended that the Federal Aviation Administration requires the Cessna Aircraft Company, as the Type Certificate holder for the Citation CJ2+ aircraft, to conduct a survey of recorded flight data from Safe Flight Instrument Corporation model C-12717-1 angle-of-attack vane units, to determine the frequency of 'sticking' (static) angle-of-attack data.

## Date Safety Recommendation made:

8 January 2015

## LATEST RESPONSE

#### Response received:

8 May 2015

The FAA, in coordination with Cessna, conducted a review of the service history and compliance documentation for the angle-of-attack (AOA) vane and system installed in the Cessna Model CJ2+ airplanes and found the performance and reliability of the system to be acceptable. The FAA also conducted a risk assessment and Corrective Action Review Board in accordance with our Monitor Safety/Analyze Data process and concluded that an unsafe condition does not exist. The FAA plans no further action at this time.

Cessna has delivered 87 aircraft with recording capability similar to that installed on the incident aircraft. These systems are capable of recording 30 hours before the data is overwritten. Cessna's research indicates they have previously downloaded data from 46 of the 87 airplanes with no prior reports or history of performance issues with the AOA system.

The FAA requested Cessna to examine and review all maintenance records for the CJ2+ and other Cessna models. This included Cessna Models 550, 560, 560XL and 525B. Cessna has delivered a total of 2,537 airplanes with over 7,000,000 flight hours with approximately 20 years of service that use the same or a similar AOA vane from Safe Flight Instrument Corporation. Their review found 9 reports of AOA vane-related issues over the last 16 years. In each case, the condition was detected and squawked by the pilot and subsequently corrected prior to the next flight.

The FAA conducted a review of FAA Service Difficulty Reporting system records for the above listed Cessna models and models that utilize the same or a similar AOA vane from Safe Flight Instrument Corporation. These additional models included the Learjet Model 40/45 and Hawker Beechcraft Model 4000. Of the 716 airplanes in service today, we found 4 reports of AOA vane-related issues over 17 years. The information contained in these reports is limited, but seems to indicate that the AOA vane issues were detected by the pilot as well.

Based on our review or the Cessna, Hawker Beechcraft, and Learjet service data, there is not a high frequency of 'sticking' AOA vanes.

Although the FAA analysis does not indicate a systemic issue with a 'stuck vane' condition, the FAA reviewed the compliance and safety assessment documentation for the Cessna CJ2+ aircraft. Though the CJ2+ certification is based on an earlier amendment to Title 14, Code of Federal Regulations § 23.1309, Equipment. System, and Installations, the conclusions from the analysis relative to hazard classification are consistent with later Cessna 525 models that comply with the most current FAA guidance and regulatory requirements. Based on this review, we do not see a need for Cessna to amend the system safety assessment for the CJ2+ s tall warning system.

## AAIB Assessment – Adequate - Closed

## **RESPONSE HISTORY**

N/A

(SRIS Reference: GB.SIA-2014-041)

#### Safety Recommendation 2014-042

It is recommended that the Federal Aviation Administration requires the Cessna Aircraft Company, as the Type Certificate holder for the Citation CJ2+ aircraft, to use the results of their survey (Safety Recommendation 2014-041) of recorded flight data from Safe Flight Instrument Corporation model C-12717-1 angle-of-attack vane units to amend the safety assessment of the aircraft's stall warning system.

### Date Safety Recommendation made:

## 8 January 2015

# LATEST RESPONSE

### Response received:

8 May 2015

The FAA, in coordination with Cessna, conducted a review of the service history and compliance documentation for the angle-of-attack (AOA) vane and system installed in the Cessna Model CJ2+ airplanes and found the performance and reliability of the system to be acceptable. The FAA also conducted a risk assessment and Corrective Action Review Board in accordance with our Monitor Safety/Analyze Data process and concluded that an unsafe condition does not exist. The FAA plans no further action at this time.

Cessna has delivered 87 aircraft with recording capability similar to that installed on the incident aircraft. These systems are capable of recording 30 hours before the data is overwritten. Cessna's research indicates they have previously downloaded data from 46 of the 87 airplanes with no prior reports or history of performance issues with the AOA system.

The FAA requested Cessna to examine and review all maintenance records for the CJ2+ and other Cessna models. This included Cessna Models 550, 560, 560XL and 525B. Cessna has delivered a total of 2,537 airplanes with over 7,000,000 flight hours with approximately 20 years of service that use the same or a similar AOA vane from Safe Flight Instrument Corporation. Their review found 9 reports of AOA vane-related issues over the last 16 years. In each case, the condition was detected and squawked by the pilot and subsequently corrected prior to the next flight.

The FAA conducted a review of FAA Service Difficulty Reporting system records for the above listed Cessna models and models that utilize the same or a similar AOA vane from Safe Flight Instrument Corporation. These additional models included the Learjet Model 40/45 and Hawker Beechcraft Model 4000. Of the 716 airplanes in service today, we found 4 reports of AOA vane-related issues over 17 years. The information contained in these reports is limited, but seems to indicate that the AOA vane issues were detected by the pilot as well.

Based on our review or the Cessna, Hawker Beechcraft, and Learjet service data, there is not a high frequency of 'sticking' AOA vanes.

Although the FAA analysis does not indicate a systemic issue with a 'stuck vane' condition, the FAA reviewed the compliance and safety assessment documentation for the Cessna CJ2+ aircraft. Though the CJ2+ certification is based on an earlier amendment to Title 14, Code of Federal Regulations § 23.1309, Equipment. System, and Installations, the conclusions from the analysis relative to hazard classification are consistent with later Cessna 525 models that comply with the most current FAA guidance and regulatory requirements. Based on this review, we do not see a need for Cessna to amend the system safety assessment for the CJ2+ s tall warning system.

AAIB Assessment – Adequate - Closed

#### **RESPONSE HISTORY**

N/A