

**Airbus A320-214,
OE-LOA**

**London Stansted
Airport**

01 March 2019

Serious Incident

Investigation Synopsis

The aircraft was on a scheduled flight from London Stansted Airport to Vienna International Airport, Austria. Shortly after the takeoff roll was commenced it was rejected, due to a contained failure of the left engine, and the aircraft was brought to a stop on the runway. Just as the flight crew were about to taxi the aircraft off the runway, an evacuation was commanded by the Senior Flight Attendant. The investigation identified several factors that contributed to this decision. Ten passengers were treated for minor injuries that occurred during the evacuation and there was a risk of serious injury due to one of the engines running during the evacuation. The operator has taken several safety actions, principally based around the training of its flight attendants. Two Safety Recommendations regarding passenger evacuation have been made in this report.

The left engine experienced a contained failure following the rupture and release of several blades from the first stage of the high-pressure compressor. The investigation found that the blades fractured as a result of high-cycle fatigue loading which initiated in the dovetail (part of the blade root), due to a once-per-revolution aerodynamic excitation. An inlet guide vane lever arm had been improperly assembled which led to aerodynamic excitation of the passing blades and the resulting forces exceeded the design loads of the blades.

Safety Recommendation 2020-018

Justification

The evidence from this accident, in combination with the collated evidence from previous cases shows that, even despite recent improvements, it remains the case that passenger briefing, safety cards and Flight Attendant instructions are insufficient to stop passengers retrieving cabin baggage during an evacuation. This hazard will still exist in future emergencies unless additional measures are taken to either reduce the impact of that behaviour on the safety and speed of an evacuation or to prevent passengers evacuating with baggage.

Therefore, the following safety recommendation was made:

Safety Recommendation 2020-018

It is recommended that the European Union Aviation Safety Agency commission research to determine how to prevent passengers from obstructing aircraft evacuations by retrieving carry-on baggage.

Date Safety Recommendation made: 20 August 2020

LATEST RESPONSE

Response received: 12 November 2020

The safety issue "Emergency Evacuation" is included in the Safety Risk Portfolio (SRP) for large aeroplanes, as part of the European Union Aviation Safety Agency (EASA) Safety Risk Management (SRM) process (see the Annual Safety Review 2020, published on the EASA web site at:

<https://www.easa.europa.eu/newsroom-and-events/news/easapublishes-annual-safety-review-asr-2020>).

The SRP is used to trigger the assessment of safety issues, to target analysis activities over key risk areas and to prioritise safety actions. This includes consideration of the exposure to the hazard and its predicted evolution in the coming years, the expected safety benefit of the mitigation recently implemented or committed, or recommended, and reprioritisation of actions where appropriate.

Passengers taking hand luggage preventing or slowing down the evacuation is one of the identified subset of associated risks.

The Emergency Evacuation safety issue is currently under development of recommendations for actions in accordance with the Best Intervention Strategy (BIS) process, with potential inclusion of the mitigating actions in the European Plan for Aviation Safety (EPAS). The recommendation, for EASA to commission research to determine how to prevent passengers from obstructing aircraft evacuations by retrieving carry-on baggage, will be considered within this process.

Safety Recommendation Status **Open**

AAIB Assessment **Partially Adequate**

Action Status **Planned Action Ongoing Update Due 21 June 2021**

Feedback rationale

The European Union Aviation Safety Agency has confirmed that the recommendation to commission research into preventing passengers from obstructing aircraft evacuations by retrieving carry-on baggage will be considered for inclusion under the European Union Aviation Safety Agency Safety Risk Management process. The AAIB requests an update by 21 June 2021.

RESPONSE HISTORY

N/A

Safety Recommendation 2020-019

Justification

During an emergency evacuation, a proportion of passengers will attempt to leave the aircraft with their carry-on baggage slowing the evacuation process. The emergency evacuation demonstrations conducted to show compliance with CS-25 do not include a realistic simulation of this aspect of passenger behaviour which will slow down the evacuation and increase the risk of injury. Therefore, the following Safety Recommendation is made:

Therefore, the following safety recommendation was made:

Safety Recommendation 2020-019

It is recommended that the European Union Aviation Safety Agency consider including a more realistic simulation of passenger behaviour in regard to carry-on baggage in the test criteria and procedures for the emergency demonstration in CS-25.

Date Safety Recommendation made: 20 August 2020

LATEST RESPONSE

Response received: 12 November 2020

The aeroplane evacuation demonstration requirement in Certification Specification (CS) CS 25.803(c) and the test criteria and procedures in Appendix J to CS-25 are not intended to investigate all possible emergency evacuation scenarios that may occur in service. In particular, the emergency demonstration does not intend to take into account the impact from unruly passengers. The emergency demonstration provides a standard method for assessing the evacuation capability of the aeroplane and to demonstrate the effectiveness of crew emergency procedures and training.

The related test conditions and pass/fail criteria (e.g. the 90 seconds limit to the evacuation time) demonstrate that the aircraft design provides an acceptable level of performance in a standard evacuation scenario.

The simulation of passenger behaviour with regards to carry-on baggage would not provide appreciable added value in the evaluation of the aircraft design, and would result in an increased risk of injury for certification test participants.

The European Union Aviation Safety Agency (EASA) therefore does not deem it is appropriate to amend CS 25.803(c) and Appendix J to CS-25 as suggested by this safety recommendation.

Closed - Disagreement

Safety Recommendation Status Closed

AAIB Assessment Partially Adequate

Action Status Planned Action Completed

Feedback rationale

The European Union Aviation Safety Agency have considered the Safety Recommendation and stated that the test criteria and procedure in Appendix J of CS-25 are not intended to investigate all possible emergency evacuation scenarios and provide a standard method for assessing the evacuation capability of the aeroplane and to demonstrate the effectiveness of crew emergency procedures and training.

The European Union Aviation Safety Agency does not consider that the simulation of passenger evacuation with carry-on baggage would not improve the certification process and would result in an increased risk of injury for certification test participants. (EU Regulation 996/2010 article 18 refers).

RESPONSE HISTORY

N/A