

Subject Follow-up recommendations *Insufficient thrust setting for takeoff*

Insufficient thrust setting for takeoff

Publication date: 13 March 2018

1. About the report

The report contains an analysis of two serious incidents involving the same operator. Both incidents involved insufficient thrust setting for takeoff. This was due to the fact that incorrect data had been used for calculating the thrust setting to be selected. Because the incorrect data were also used for calculating the takeoff speeds, the takeoff speeds were incorrect as well. In both incidents this meant that the safety margins imposed for takeoff performance for commercial air transport aeroplanes were not complied with. The insufficient thrust setting meant that the takeoff roll was longer than usual in both cases.

2. General conclusion about the follow-up

When assessing the follow-up to recommendations from aviation reports, the Board is bound by the assessment criteria from the European classification system, in accordance with EU regulation no. 996/2010. The European classifications and associated criteria are included in an appendix to this document. The Dutch Safety Board emphasizes the importance to assess the responses to the recommendations within a limited time after publication of the report. In this memorandum, the Board itself considers this period too long. The Board has, when possible, included developments since the report was published.

In its report, the Safety Board issued five recommendations: two to the European Union Aviation Safety Agency (EASA), two to the operator and one to Lisbon Airport. The recommendations to EASA related to the development and establishment of requirements for onboard weight and balance systems and *Takeoff Performance Monitoring Systems*. The recommendations to the operator related to the periodic implementation of risk assessments and training for exceptional situations. The recommendation to the airport related to renaming the takeoff positions. Lisbon Airport responded on 23 April 2018, and EASA and the operator both responded on 8 June 2018 to these recommendations. The full responses are available on the website of the Dutch Safety Board. For each of the recommendations this memorandum contains a summary of the response received and a conclusion by the Safety Board concerning the follow-up of the recommendation. Based on the responses received, the Board considers the follow-up of recommendation 1, 2 and 3 not adequate, recommendation 4 partially adequate and recommendation 5 adequate.

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Recommendation 1

To the European Union Aviation Safety Agency (EASA)

To prioritize the development of specifications and the establishment of requirements for Onboard weight and balance systems (RMT.0116)

Response from EASA

In its response, EASA classifies the recommendation as 'still open'. This is due to the fact that other projects are currently being undertaken that relate to the recommendation and in which the recommendation of the Board is also included, namely:

- Working group (WG-88) will be issuing a MOPS¹ at the end of 2018;
- Regulation process within EPAS² will be supplemented with outcomes from WG-88.

Conclusion on the follow-up

There are no indications that in response to this recommendation, greater priority or any other impulse has been given to the project already underway. As a consequence, the recommendation to prioritize has not been complied with. EASA takes aspects of the recommendation into account in ongoing processes, only after these have been completed will it be possible to determine to what extent the recommendation has been complied with, therefor (to use EASA-SRIS terms) the recommendation remains open for EASA.

This problem has often been and still is identified in investigations. We will continue to monitor international developments since the recommendation's follow-up until this moment is, in accordance with the European classification, classified as **not adequate**.

Recommendation 2

To EASA

In cooperation with other regulatory authorities, standardization bodies, the aviation industry and airlines, to start the development of specification and the establishment of requirements for Takeoff Performance Monitoring Systems, without delay.

Response from EASA

In its response, EASA indicates that it will not be complying with the recommendation. The reason for this is that it was investigated in 2015 whether the follow-up of the recommendation

¹ Minimum Operational Performance Standards.

² European Plan for Aviation Safety.

was possible and at the time it was determined that the introduction of a system of this kind was not viable. Recent technological developments have also insufficiently demonstrated the viability of Takeoff Performance Monitoring Systems to reconsider this position.

Conclusion on compliance

In the opinion of the Safety Board, the (recent) technological developments are sufficiently robust to start the development of specifications and the establishment of requirements for *Takeoff Performance Monitoring Systems*. The recommendation is therefore still realistic. Therefore, the follow-up to the recommendation is, in accordance with the European classification, classified as **not adequate**.

Recommendation 3

To the operator

To perform periodic risk assessments and to implement mitigating measures on the identified hazards of the complete flight preparation process. These periodic risk assessments should include but not be limited to:

- Manual weight and balance and performance procedures;
- Takeoff and landing data card (bugcard);
- EFB (hardware, software, procedures and alternatives);
- Risks of takeoff thrust reduction versus the achieved cost benefits.

Response from the operator

In its response, the operator indicates that performing risk assessments in the event of changes to procedures or the organization is currently standard procedure. In addition, risk assessments can be performed based on existing procedures, although this is not carried out as standard on a periodic basis.

With regard to the specifically mentioned (minimum) points, the operator responded as follows:

- Correct implementation of manual weight and balance procedure is tested during the annual proficiency check;
- The performance calculations are today carried out by an automated system, so that a bugcard is no longer an essential part of the flight preparation process;
- A new Electronic Flight Bag (EFB) is currently being prepared; risk assessment is planned following the definitive configuration; (for the time being) periodic assessment following implementation is not planned;
- Will be dealt with in the framework of the new EFB.

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Conclusion on the follow-up

The operator has very minimally complied with the recommendation: there is no broad assessment of the flight preparation process and no periodic assessments are planned. The specific sub recommendations are only addressed, either in the framework of processes already underway (renewal of the EFB) or to a very limited extent.

With regard to the specifically mentioned (minimum) points:

- 'Manual weight and balance and performance procedures' will be considered in the framework of whether the procedure is correctly implemented, but not whether the procedure itself may represent a risk.
- With regard to the bugcard, it is indicated that this no longer forms part of the flight preparation procedure. Further consultation in 2019 revealed that the bugcard is still available and on request can be used by the crew. It is therefore effectively a potential risk in the flight preparation process, and risk assessment of the bugcard is therefore still appropriate.
- Risk Assessment of hardware, software, procedures and alternatives (the EFB) has only been dealt with as part of a new EFB. Periodic assessments following implementation without alterations or renewal having taken place are still not planned for, even following further request.
- From the response 'The consideration of risks occurring as a result of takeoff thrust reduction versus the achieved cost benefits' appears to be considered as standard practice. The risks will be assessed within the renewal of the EFB. The board is interested in the outcome of the new assessment for the use of takeoff thrust reduction.

The follow-up to the recommendation is, in accordance with the European classification, classified as **not adequate**.

Recommendation 4

The operator

To provide simulator training to flight crews for non-standard situations that require additional thrust during the takeoff roll.

Response from the operator

In its response, the operator indicates that the recommendation was already implemented (in 2016).

Conclusion on compliance

Further questioning has revealed that 'use of erroneous parameters at take off' was included in the training programme in 2016, following the investigated occurrence. According to the

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operator, to date this one-time training refreshment has proven sufficient. If (on the basis of ATQP³), it emerges that recurrence of this item is necessary, it will be re-included. The follow-up to this recommendation is therefore classified as **partially adequate**.

Recommendation 5

To the Lisbon Airport management

To rename the takeoff positions in accordance with the guidelines of the Airports Council International.

Response from the airport

All runway intersection names have been changed.

Conclusion on the follow-up

At first the recommendation has been followed up on in a different way; instead of following the guidelines from the Airports Council International, the airport opted to change the names of the intersections.

Nonetheless, there still remained confusing names at intersections until the next serious incident in 2019 (investigated by the UK AAIB). In August 2020 the AAIB reported in follow-up on their recommendation that Lisbon Airport management renamed the taxiways and therefore completed this safety recommendation as well.

The follow-up of this recommendation is in accordance with the European classification classified as **adequate**.

³ Alternative Training Qualification Programme.

Appendix 1. Assessment criteria for aviation

In assessing responses to recommendations made to the aviation sector, the Safety Board uses the guideline issued by ENCASIA on the EU Regulation on the Investigation and Prevention of Accidents and Incidents in Civil Aviation (Regulation (EU) No 996/2010). ENCASIA is the European Network of Civil Aviation Safety Investigation Authorities. The classifications and associated assessment criteria are as follows:

Category	Guidance
Adequate	<p>The response clearly shows that the safety issue identified by the recommendation has been addressed.</p> <p>The response shows that there is a high probability the action will be taken in the future to address the safety issue or intent.</p> <p>The response may not meet the intent of the recommendation as written but does address the underlying safety issue or has been superseded by other evidence/action.</p>
Partially adequate	<p>The response goes some way to addressing the intent of the recommendation or safety issue in that some action is taking place, but there is:</p> <ul style="list-style-type: none"> • a likelihood the action may not take place, or • little or no likelihood of any further action by the addressee.
Not adequate	<p>The recommendation response did not address the intent or safety issue, or the recommendation was rejected by the addressee and is not likely to be acted upon by them.</p>
Awaiting response	<p>Awaiting the first response from the addressee.</p>
Superseded	<p>The safety recommendation has been superseded.</p>

The recommendations, associated reactions and classifications are included in the European Safety Recommendations Information System (SRIS) database, publicly available via <https://sris.aviationreporting.eu/safety-recommendations>.