

RESPONSES RECEIVED ON DRAFT REPORT 'ERRONEOUS TAKEOFF PERFORMANCE CALCULATION, BOEING 777'

Number	Organisation	Chapter/section	Text to be corrected	Responses	Adopted	Dutch Safety Board response
1	Ministry of Infrastructure and Water Management	Summary	The tailstrike was caused by an overrotation during takeoff, which was the result of a lower than required rotation speed. The reason for this was that the actual takeoff weight was higher than the takeoff weight that had been used for the takeoff performance calculation.	<p>The takeoff weight is part of the Weight and Balance (W&B) of an aircraft. W&B includes the Centre of Gravity. It is unclear whether the center of gravity was still within limits in this case.</p> <p>The risk of a tailstrike increases when the Center of Gravity moves to the rear of the aircraft.</p> <p>A check of the center of gravity is addressed at p.19 and even then only procedural and not in relation to this specific flight.</p> <p>Not clearly specified in the report is whether or not the B777 in this incident is equipped with pressure sensors for</p>	Yes	Paragraph 1.6.2 'Weight and balance' has been added.
2	Ministry of Infrastructure and Water Management	Chapter 1 / section 1.1	These efforts, however, have not resulted in the necessary reduction of the number of incidents.	Not clear whether the necessary reduction of the number of incidents is for The Netherlands or more in general worldwide.	Yes	The word 'worldwide' has been added.
3	Ministry of Infrastructure and Water Management	Chapter 1 / section 1.1, footnote 5.	It may also contain details of the distribution of this load.	This suggests that factual information on the center of gravity is not mandatory. At least the proof of a check whether or not the CoG is within limits should be made visible.	Yes	The text has been adjusted.
4	Ministry of Infrastructure and Water Management	Chapter 1 / section 1.5	No personal factors were found	<p>Wordt hier persoonlijke of personele factoren bedoeld? Het staat in de paragraaf 1.5 Personnel information en als er nu persoonlijke factoren bedoeld worden, dan verdient dat iets meer uitleg.</p> <p>The conclusion is hard to understand, given the fact that a miscalculation occurred when reducing the weight with the intentional 100 kg (which could be classified as a personal factor in the sense of a human error).</p>	Yes	The relevant sentence has been removed, since the time pressure experienced by the load controller is described in section 2.2.1 'Loading procedures'
5	Ministry of Infrastructure and Water Management	Chapter 1 / section 1.8	Defintions TODA and ASDA.	Describe 'clearway' and 'stopway', e.g. in footnotes.	Yes	Footnotes have been added to explain both terms.
6	Ministry of Infrastructure and Water Management	Chapter 2 / section 2.2	As a consequence, the take off took place with insufficient engine thrust, which was not corrected by manually advancing the thrust levers.	Pilots have to recognize they are taking off with insufficient engine thrust before they manually advance the thrust levers.	Yes	The text has been adjusted.

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7	Ministry of Infrastructure and Water Management	Chapter 2 / section 2.2	... the minimum climb gradient of 3.3% for the standard instrument departure at Schiphol would not have been met.	Could it be expected that in case of an engine failure the thrust settings for the remaining engine would be MAX?	No	Since the reduced thrust takeoff must still comply with all regulatory takeoff performance requirements, it is not necessary to increase thrust beyond the reduced level on the operating engine in the event of an engine failure.
8	Ministry of Infrastructure and Water Management	Chapter 2 / section 2.3.1	In this context, a Best Intervention Strategy is currently been carried out to	Deze zin is vreemd; een BIS wordt opgesteld om een bepaalde oplossing voor te stellen.	No	This has been stated by EASA.
9	Ministry of Infrastructure and Water Management	Chapter 2 / section 2.3.1	... aircraft configuration and aerodrome conditions	Weight and balance are very important and should be included.	Yes	The text has been adjusted.
10	Ministry of Infrastructure and Water Management	Conclusions	... which was not corrected by manually advancing the thrust levers.	Pilots have to recognize they are taking off with insufficient engine thrust before they manually advance the thrust levers.	Yes	The text has been adjusted.
11	Ministry of Infrastructure and Water Management	Conclusions	... aircraft configuration and aerodrome conditions.	Weight and balance are very important and should be included.	Yes	The text has been adjusted.
12	The Boeing Company	Chapter 2 / section 2.2.4	Reverse thrust is thrust projected in the opposite direction to normal and is used to decelerate an aircraft after landing or in the event of a rejected take off or, in some limited cases, in flight.	Please remove the reference to use of reverse thrust in flight as this is not a capability of the 777. The statement describing limited cases of inflight use is potentially misleading.	Yes	The text has been adjusted.
13	NTSB			<p>During this investigation Boeing provided a copy of the attached flight ops tech bulletin titled "Reducing Takeoff Performance Errors" to the DSB and NTSB.</p> <p>The current DSB draft report does not mention the existence of the noted FOTB. We suggest that the DSB include a reference in their report to the noted FOTB as the importance of the crosscheck technique mentioned may be informative to readers of the final report to acknowledge that Boeing is striving to make operators more aware of techniques to avoid these types of errors.</p>	Yes	A reference to the noted FOTB is included in 2.2.2 'Cross check procedures'.