



REASSESSMENT OF THE RESPONSE TO TSB RECOMMENDATION A09-03

Availability of eye-to-wheel height information

Background

On 11 November 2007, a Bombardier Global 5000 (registration C-GXPR, serial number 9211), operated by Jetport Inc., departed Hamilton, Ontario, for Fox Harbour, Nova Scotia, with 2 crew members and 8 passengers on board. At approximately 1434 Atlantic standard time, the aircraft touched down 7 feet short of Runway 33 at the Fox Harbour aerodrome. The main landing gear was damaged when it struck the edge of the runway, and directional control was lost when the right main landing gear collapsed. The aircraft departed the right side of the runway and came to a stop 1000 feet from the initial touchdown point. All occupants evacuated the aircraft. One crew member and one passenger suffered serious injuries; the other 8 occupants suffered minor injuries. The aircraft sustained major structural damage.

The Board concluded its investigation and released report A07A0134 on 10 November 2009.

TSB Recommendation A09-03 (November 2009)

Knowledge of aircraft eye-to-wheel height (EWH) is necessary to assess whether a visual glide slope indicator (VGSI) system is appropriate for the aircraft type being flown. In this occurrence, the EWH information for the Global 5000 was not available. Therefore, the crew members could not have assessed whether the VGSI was appropriate for their aircraft type.

The investigation also determined that many pilots are not aware of the EWH of the aircraft they operate. Furthermore, the topic of EWH is rarely addressed in any type of pilot training.

Without EWH information, crews will not be able to assess the appropriateness of the VGSI system they are using.

Therefore, the Board recommended that

the Department of Transport ensure that eye-to-wheel height information is readily available to pilots of aircraft exceeding 12 500 pounds.

TSB Recommendation A00-00

Transport Canada's response to Recommendation A09-03 (February 2010)

Transport Canada (TC) agrees with the intent of the recommendation, and in accordance with the Cabinet Directive on Streamlining Regulations, the rulemaking process will commence with a more detailed risk assessment to identify the appropriate regulatory response. TC is expecting to present the risk assessment and supporting recommendation to the Civil Aviation Regulatory Committee (CARC) in the fall of 2010. The resulting recommendation from the CARC will trigger the rulemaking process.

TSB assessment of Transport Canada's response to Recommendation A09-03 (May 2010)

TC's response to the recommendation indicates that it agrees with the intent of the recommendation and that it will conduct a detailed risk assessment to identify the appropriate regulatory response. The risk assessment is expected to be complete in the spring of 2010, with resulting recommendations to be presented to the CARC to trigger the rulemaking process. However, TC has not yet issued or recommended specific courses of action that, if implemented, would reduce or eliminate the deficiency identified in Board Recommendation A09-03.

Additionally, the Board is concerned that the length of time required to address the safety deficiency will be excessive. In view of the limited number of manufacturers involved in the production and sale in Canada of aircraft exceeding 12 500 pounds, the Board believes that TC has tools available to rectify this safety deficiency on an interim basis outside the rulemaking process.

The response is assessed as **Satisfactory Intent**.

Transport Canada's response to Recommendation A09-03 (January 2011)

Transport Canada indicated that a risk assessment was presented at the October 2010 CARC meeting and a risk control option was accepted. TC will publish an article in the Aviation Safety Letter. Completion is planned for the fall of 2011. TC will also provide additional information in the Aeronautical Information Manual (AIM) to advise air operators and pilots that if they do not have eye-to-wheel height information, to contact the manufacturer of their aircraft.

TSB reassessment of Transport Canada's response to Recommendation A09-03 (March 2011)

The Board is pleased that an article will be published and that additional information will be added to the AIM. However, while these two actions will raise awareness, they will not ensure that EWH information is readily available to pilots of aircraft exceeding 12 500 pounds. While TC's initial response to this recommendation indicated that it agreed with the intent of the recommendation to ensure that EWH

information be readily available to pilots of aircraft exceeding 12 500 pounds, in its latest response it appears that TC is passing on the responsibility of ensuring the information is available to the air operators and pilots.

In view of the limited number of manufacturers involved in the production and sale in Canada of aircraft exceeding 12 500 pounds, the Board expected that TC would take a more proactive approach in ensuring that this information be readily available to pilots and endeavored to raise awareness of this issue with the different manufacturers. This would have resulted in long-term results, as well as a global approach to mitigation of this deficiency. In addition, the success of the approach taken by TC will be difficult to assess in the future.

TC's action taken to date will not substantially reduce or eliminate the safety deficiency.

Therefore the Board assesses TC's response as **Satisfactory in Part**.

Transport Canada's response to Recommendation A09-03 (September 2011)

May 2011 input

Transport Canada will publish additional information in the AIM-AGA section 7.6.1 – Approach Slope Indicator Systems Eye-Wheel-Height article for the Fall 2011 publication.

TCCA is in the process of revising Appendix 6 of the Aerodrome Design Manual to link to guidance material which contains the listing of Eye-Wheel-Height in the approach configuration. The revision would be to have the manufacturer's post their information on their websites in the same fashion as Boeing.

Boeing's website:

<http://www.boeing.com/commercial/airports/faqs/icaoadmpart4.pdf>.

September 2011 update

Additional information in the AIM-AGA section 7.6.1 – Approach Slope Indicator Systems Eye-Wheel-Height article will be published in the fall 2011 publication of AIM.

TSB reassessment of Transport Canada's response to Recommendation A09-03 (March 2012)

The Board recommendation called for TC to ensure that eye-to-wheel height information is readily available to pilots of aircraft exceeding 12 500 pounds. The intent of the recommendation was for TC to compel manufacturers to publish EWH information in approved aircraft documents used by flight crews.

The Board is pleased that additional information was published in the AIM and that TC is in the process of revising Appendix 6 of the Aerodrome Design Manual. However, while this is commendable as it should raise awareness of the issue, it does not achieve the intent of Recommendation A09-03.

First, these documents do not target manufacturers.

Second, it seems to place the onus on pilots. Section 7.6.1.3 of the AIM now states that:

Pilots and/or air operators must ensure that the approach slope indicator system to be used is appropriate for the given aircraft type, based on the EWH for that aircraft. If this information is not already available in the Aircraft Flight Manual (AFM) or other authoritative aircraft manuals (e.g.: Flight Crew Operating Manual [FCOM]), the aircraft manufacturer should be contacted to determine the EWH information for the given aircraft type.

This strongly suggests that the responsibility of having EWH information readily available rests with pilots and/or operators, compelling them to seek the information rather than having such information made available to them.

While the AIM article underscores the importance of using the appropriate VGSI system for a particular aircraft, TC's action taken to date will not substantially reduce or eliminate the safety deficiency.

The response is considered **Satisfactory in Part**.

Transport Canada's response to Recommendation A09-03 (December 2012)

On 16 October 2012, TC provided an update to Recommendation A09-03. The cover letter, stated in part:

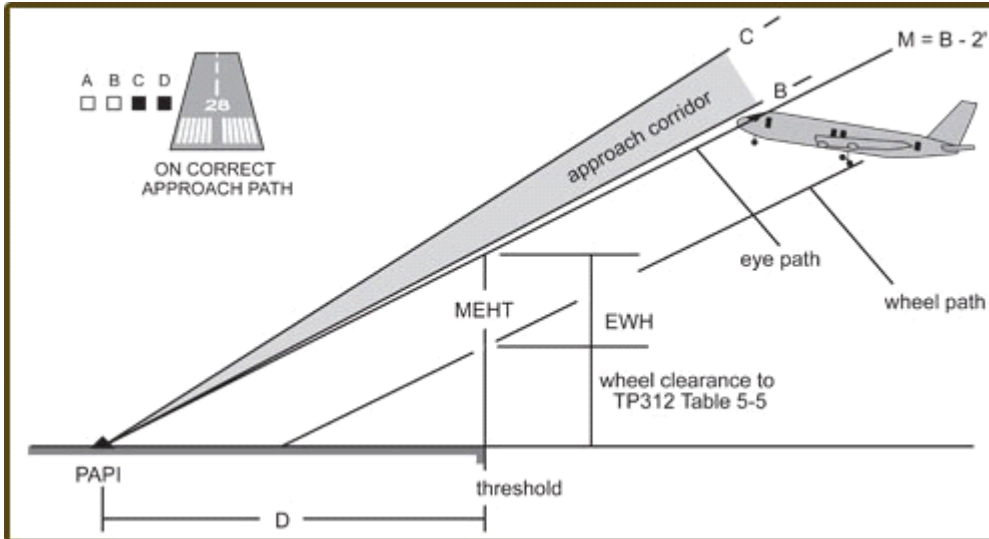
Transport Canada believes that the intent of the Recommendation A09-03 (Eye Wheel Height) has been met. No further action is contemplated at this time."

The attachment to this letter stated the following:

Transport Canada has published [Advisory Circular AC700-026](#) (Aircraft Eye Wheel Height Information) to inform operators and pilots on updated information with respect to approach slope indicator systems and aircraft Eye Wheel Height (EWH) in the landing configuration that was published in the October 2011 issue of the Transport Canada Aeronautical Information Manual (TC AIM).

Issue 1 / 2012 of the Aviation Safety Letter (ASL) included an article and illustration reminding readers there is an update available in the AIM regarding approach slope indicator systems. The article encouraged readers to take a few minutes to read the Section AGA 7.6.1.3 of the AIM.

Transport Canada has advised its domestic manufacturers and major foreign regulatory authorities during the summer of 2012, of the two publications above and that air operators will be directed to contact the manufacturer to obtain EWH information for their aircraft type if it is not readily available in the Aircraft Flight Manual or Flight Crew Operating Manual (FCOM).



On 04 December 2012, as part of its response to the TSB annual reassessment of active recommendations project, TC stated:

TC published Advisory Circular AC700-026 (Aircraft Eye Wheel Height Information), published Aviation Safety Letter (ASL) article, advised its domestic manufacturers and major foreign regulatory authorities, of the two publications above and that air operators will be directed to contact the manufacturer to obtain EWH information for their aircraft type if it is not readily available in the Aircraft Flight Manual or Flight Crew Operating Manual (FCOM). Transport Canada sent a letter to the TSB October 16, 2012 informing them of these publications and suggesting that this recommendation be closed.

TSB reassessment of Transport Canada's response to Recommendation A09-03 (March 2013)

The Board is pleased that since Recommendation A09-03 was issued in 2009, TC has taken the following actions:

- Published an article in Issue 1/2012 of the Aviation Safety Letter (ASL) reminding readers there is an update available in the AIM regarding approach slope indicator systems.
- Added information and a caution in section 7.6.1.3 of the AIM.
- Published *Advisory Circular* (AC) No. 700-026 to inform operators and pilots of updated information with respect to approach slope indicator systems and aircraft eye wheel height (EWH).

- Advised its domestic manufacturers and major foreign regulatory authorities during the summer of 2012, of the publications above and that air operators will be directed to contact the manufacturer to obtain EWH information for their aircraft type if it is not readily available in the aircraft flight manual or *Flight Crew Operating Manual* (FCOM).

While all of the above actions are commendable as they should raise awareness of the issue and facilitate accessibility to EWH information, they still do not achieve the intent of Recommendation A09-03, which was to have EWH information readily available to pilots of aircraft exceeding 12 500 pounds by compelling manufacturers to publish it in approved aircraft documents.

TC has indicated that no further action is contemplated at this time and that they suggest that this recommendation be closed.

The response is considered **Satisfactory in Part**.

The deficiency file is assigned a **Dormant** status.

Transport Canada's response to Recommendation A09-03 (March 2018)

TC agrees in principle with the recommendation.

TC published an article in Issue 1/2012 of the ASL reminding readers there is an update available in the Aeronautical Information Manual (AIM) regarding approach slope indicator systems and added information and a caution in section 7.6.1.3 of the AIM. In July 2012 TC published AC No. 700-026 which provided the following guidance to pilots and operators:

"...(1) Operators and pilots should ensure that the approach slope indicator system to be used is appropriate the given aircraft type, based on the EWH for that aircraft type.

(2) If the EWH is not readily available in the Aircraft Flight Manual or other authoritative aircraft manuals (e.g.: Flight Crew Operating Manual (FCOM)), the aircraft manufacturer should be contacted to determine the EWH in the landing information for the given aircraft type.

(3) Contact information for most manufacturers can be determined by searching the Transport Canada NAPA issued Certificates Online at: NAPA Issued Certificates Online (NICO) (Type Certificates).

(4) The EWH in the landing configuration should be related to the latest material in the AIM on VASI or PAPI/APAPI and EWH in the landing configuration.

Note: Failure to assess the EWH in the landing configuration and approach slope indicator system compatibility could result in decreased terrain clearance margins and in some cases, even premature contact with terrain."

TC advised its manufacturers and major foreign regulatory authorities during the summer 2012, of the publications above and that air operators will be directed to contact the manufacturer to obtain Eye-Wheel-Height (EWH) information for their aircraft type if it is not readily available in the aircraft flight manual or Flight Crew Operating Manual (FCOM).

TC's review of this safety issue concluded that the safety action taken is adequate for this situation. The department plans no further action.

TSB reassessment of Transport Canada's response to Recommendation A09-03 (March 2019)

In its response, Transport Canada (TC) reiterated the actions taken to date to address the safety deficiency identified in Recommendation A09-03, regarding the requirement for eye-to-wheel height information to be readily available to pilots of aircraft exceeding 12 500 pounds.

The above actions helped raise awareness of the issue and facilitated accessibility to eye-to-wheel height (EWH) information. To confirm if the intent of Recommendation A09-03 has been achieved, a search of manufacturers' information on the subject was conducted by the TSB. The search revealed that at least two manufacturers (Airbus and Boeing) have EWH information available on their website, while another (Bombardier) provides this information in its aircraft's flight crew operating manuals.

The Board considers that the actions taken by TC, and by manufacturers, have reduced the risks associated with the safety deficiency identified in Recommendation A09-03.

Therefore, the response to Recommendation A09-03 is assessed as **Fully Satisfactory**.

This deficiency file is **Closed**.