



ASSESSMENT OF THE RESPONSE FROM TRANSPORT CANADA TO AVIATION SAFETY RECOMMENDATION A04-01

USE OF STANDARD WEIGHTS IN SMALL AIRCRAFT

Background

On 17 January 2004 at 1638 Eastern standard time, Georgian Express Flight 126 (GGN 126), a Cessna Caravan 208B, C-FAGA, departed Pelee Island, Ontario, en route to Windsor, Ontario. There were nine passengers and one crew member on board. Shortly after take-off, the aircraft struck the ice-covered surface of Lake Erie, fatally injuring all 10 occupants. Although the investigation (A04H0001) is ongoing, there is factual information to suggest that the aircraft's weight was a contributing factor in the accident. The maximum take-off weight in the Cessna aircraft manual is 8750 pounds (cargo pod installed) or 8550 pounds if flying into known icing conditions. The investigation determined that the actual weight of the occurrence aircraft on departure from Pelee Island was approximately 9820 pounds, 1270 pounds over gross weight.

For aircraft under 12 500 pounds, there can be significant deviations from the published standard passenger weights due to the small sample size (nine passengers or fewer). This deviation error is further amplified in small aircraft due to the higher percentage of total aircraft weight that the passengers represent (22% for a Cessna 208 and 9% for a Boeing 747). If a small aircraft is being loaded to maximum gross weight, this discrepancy in passenger weight could result in an overweight condition that adversely affects the safety of the flight.

Although air operators have three options to calculate passenger weight, the most common practice is to use standard weights, as indicated in the Pelee Island operation where standard weights were used for 155 of the 165 flights. The average weight of the passengers on Georgian Express Flight 126 using standard weights was 183.3 pounds (nine men at 188 pounds, one woman at 141 pounds). Using actual weights, the actual average passenger weight was 240 pounds.

There have been numerous accidents in Canada related to overweight aircraft. At least five of these accidents involved small aircraft where discrepancies between the standard and actual weight of passengers contributed to the overweight condition and the accident. Four of these accidents were fatal, involving 24 fatalities.



Board Recommendation A04-01

The existing defences against the risks associated with using standard weights are not adequate for aircraft carrying nine passengers or fewer. The use of actual passenger weights in small aircraft would provide a greater margin of safety. Therefore, the Board recommended that:

The Department of Transport require that actual passenger weights be used for aircraft involved in commercial or air taxi operations with a capacity of nine passengers or fewer.

A04-01

Response to A04-01

In its 22 December 2004 letter, Transport Canada (TC) provided the following comments:

- Current regulations make it clear that air operators are to ensure that their aircraft are flown within the limits of the weight and balance envelope and that the standards provide options that may be used but do not override the regulatory requirement to remain within the weight limits of the aircraft.
- Transport Canada continues to review the standards with a view to improving the direction provided. One option that is under consideration is the use of actual weights for all operations conducted under subpart 3 (Air Taxi Operations) of Part VII (Commercial Air Services) in the *Canadian Aviation Regulations*. Once our review, including a risk assessment, is complete, Notice of Proposed Amendments (if required) will be developed and submitted to the Canadian Aviation Regulation Advisory Council for consultation.

Board Assessment of Response to A04-01

TC's response states that current regulations clearly place the responsibility for weight and balance control on the air operator, and that current standards do provide for the use of actual passenger weights. TC's response does not address the specific thrust of the Board recommendation that the use of actual passenger weights be mandated for aircraft carrying nine passengers or fewer. Although TC's response indicates that TC is willing to review its standards, and that this review will consider the option of using actual weights for Air Taxi operators, TC's response did not promise a time frame within which this review will be conducted, nor did it contain specific action to improve its oversight of air taxi operators in this regard.

TC has proposed action which, if implemented in full, will substantially reduce or eliminate the safety deficiency. However, the present risks associated with using standard weights will remain until a new standard is put in place to ensure that actual weights are used for aircraft carrying nine passengers or fewer. The Transportation Safety Board of Canada (TSB) is also concerned that the length of time required to change/modify the standard could be excessive.

TC's response to this recommendation is assessed as **Satisfactory Intent**.

Next TSB Action: A04-01

TSB staff will closely monitor TC's actions related to this recommendation and will update this assessment when appropriate. This deficiency file is assigned an **Active** status.