



## TSB Recommendation A02-02

### Low ceiling approaches

The Transportation Safety Board of Canada recommends that the Department of Transport take immediate action to implement regulations restricting pilots from conducting approaches where the ceiling does not provide an adequate safety margin for the approach or landing.

Air transportation safety investigation report	<a href="#">A99Q0151</a>
Date the recommendation was issued	19 mars 2002
Date of the latest response	August 2017
Date of the latest assessment	March 2023
<a href="#">Rating</a> of the latest response	Satisfactory Intent
<a href="#">File status</a>	Dormant

### Summary of the occurrence

The Régionnair Inc. Raytheon Beech 1900D, serial number UE-347, operating as Flight GIO347, was on a scheduled flight from Port-Menier to Sept-Îles, Quebec, with two pilots and two passengers on board. The aircraft departed Port-Menier for Sept-Îles Airport at 2334 eastern daylight time. The aircraft crashed at 2357 while on approach to the airport, one nautical mile short of the runway, in reported weather conditions of 200-foot ceiling and one-quarter statute mile visibility. A post-crash fire destroyed the wings, the engines, and the right midside of the fuselage. The captain was fatally injured. The first officer was seriously injured, and the two passengers received minor injuries.

The Board concluded its investigation and released report A99Q0151 on 19 March 2002.

### Rationale for the recommendation

Most pilots adhere to regulations, rules, and standard operating procedures because it is good airmanship to do so. Education directed at pilots and others in the air industry attempts to instill safety cultures that will result in safer flight. Transport Canada (TC) actively promotes good airmanship and attempts to educate persons about safe practices and the risks in disregarding safe practices. However, for whatever reason—operational pressures, pride,

commitment to the job—some pilots continue to conduct approaches in weather conditions where there is little chance of completing a safe landing. Unfortunately, many of these approaches result in accidents, injuries, and deaths directly attributable to the weather conditions and the pilots' decisions. Airmanship and education are evidently not effective in curtailing accidents of this type. Such accidents will continue to occur unless further action is taken. The Board believes that an enforceable, regulatory barrier is required.

The proposed approach ban addresses the visibility issue to a large extent but does not address the ceiling issue. Although regulations exist to prohibit pilots from descending below the applicable decision height (DH) or minimum decision altitude (MDA) descent altitude for their approach, these regulations are not enforceable. In recent years, the Board has investigated a number of accidents where the visibility was reasonable, but the ceiling was below the limits stated in Canada Air Pilot for the particular approach flown. Therefore, the Board recommended that

the Department of Transport take immediate action to implement regulations restricting pilots from conducting approaches where the ceiling does not provide an adequate safety margin for the approach or landing.

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## Previous responses and assessments

### May 2002: response from Transport Canada

TC concurs with this Board Recommendation and agrees that including a ceiling limit in the approach ban merits consideration. TC is also aware of the difficulty in creating a practical and enforceable regulation based on the known limitations of the available weather observation services and the associated implications of defining what ceiling and sky condition could be used to constitute an adequate safety margin.

TC will bring forward this recommendation to the Canadian Aviation Regulation Advisory Council (CARAC) Technical Committee. An issue paper will be prepared for submission to the Commercial Air Service Operations (CASO) Technical Committee for February 2003, which will include the recommendation from the report; the statistics supplied by the TSB; a proposed rule and recommendation and the need to form a CASO working group to study the issue.

### February 2003: TSB assessment of the response (Satisfactory Intent)

Given TC's acceptance of the deficiency and its intention to pursue this issue in the same vein as the visibility-related Notice of Proposed Amendment (NPA), the response is assessed as being **Satisfactory Intent**.

### December 2005: response from Transport Canada

In preparing to bring forward this issue to the CARAC Technical Committee Part VII for further consultation and discussion with stakeholders, TC studied the recommendation and developed Issue Paper 459307.

The result of this study concluded that the implementation of an approach ban using ceiling criteria is not presently feasible due to inaccuracies inherent in the current technology and that, until technological developments permit consistently accurate readings (of cloud height) at various points on the approach, in a cost-effective manner, implementing the TSB recommendation would have a negative impact on both airport operators and air operators and would not enhance safety and thus would not be in the public interest.

TC believes that the revised approach ban being promulgated with respect to visibility reinforces current regulations and enhances safety.

A Commercial and Business Aviation Advisory Circular (CBAAC) will be released when the proposed changes to the approach ban are published in Part II of the *Canada Gazette*. Because weather conditions have always affected aviation safety and will continue to compromise safety for those pilots who choose to ignore the regulations, the CBAAC addressing the revised approach ban criteria will include a section reminding pilots of the legal requirements to continue an approach beyond the MDA or DH.

#### **July 2006: TSB assessment of the response (Satisfactory Intent)**

TC's letter dated 14 December 2005 indicates that it studied the recommendation and developed an issue paper (TC 459307 refers) that concluded that the implementation of an approach ban using ceiling criteria is not presently feasible. TC believes that, until technological developments permit consistently accurate readings (of cloud height) at various points on the approach, in a cost-effective manner, implementing the TSB recommendation would have a negative impact on both airport and air operators, not enhance safety, and not be in the public interest. TC concludes that the revised approach ban NPA being promulgated with respect to visibility reinforces current regulations and enhances safety. A CBAAC is to be released when the approach ban NPA is published in Part II of the *Canada Gazette*. It will, in part, remind pilots of the legal requirements to continue an approach beyond the MDA or DH. Because TC's proposed action, if fully implemented, will substantially reduce the safety deficiency, the assessment is still assigned **Satisfactory Intent**.

#### **February 2007: response from Transport Canada**

TC's response reviews its study of Recommendation A02-02 which concludes that implementing an approach ban based on ceiling criteria would not enhance safety as it is presently not feasible due to technological limitations. Furthermore, TC believes that its CBAAC No. 0237, issued in advance of the revised Approach Ban regulations, reminds pilots of the legal requirements in order to continue an approach beyond the MDA or DH. Finally, TC indicates that it considers its work in response to Recommendation A02-02 complete.

#### **July 2007: TSB assessment of the response (Satisfactory in Part)**

TC's response is, for the most part, a repeat of information contained in previous responses. TC's release of CBAAC No. 0237 and the promulgation of the revised Approach Ban regulation constitute the completion of TC efforts to address the deficiency identified in Recommendation

A02-02. As the revised Approach Ban regulation does not contain an approach ban using ceiling criteria the TC action in response to Recommendation is limited to CBAAC No. 0237 which includes a reminder of the required visual reference necessary to continue the approach to land contained in Civilian Aviation Regulation section 602.128. This action has to some degree reduced the risks underlying Recommendation A02-02.

Therefore, as the action taken will reduce but not substantially reduce the deficiency the assessment is changed to **Satisfactory-in-Part**.

### **March 2008: response from Transport Canada**

In its 6 March 2008 response, TC states that it studied the recommendation and developed an issue paper titled, "Implementing an Approach Ban Using Ceiling Criteria for Commercial Operations". The result of this study concluded the implementation of an approach ban using ceiling criteria is not presently feasible due to inaccuracies inherent in the current technology and that until technological developments permit consistently accurate readings (of cloud height) at various points on the approach, in a cost effective manner, implementing the TSB recommendation would have a negative impact on both airport operators and air operators and would not enhance safety, thus would not be in the public interest.

TC believes that the revised approach ban being promulgated with respect to visibility reinforces current regulations and enhances safety.

TC considers this recommendation CLOSED because:

- TC has completed the task communicated to the Board in response to the recommendation.
- Implementation of the original recommendation is not feasible until technological developments permit.
- Being that the revised approach ban is being implemented the underlying risks should be substantially reduced.

TC has decided not to take further action.

### **August 2008: TSB assessment of the response (Satisfactory in Part)**

TC's promulgation of the Approach Ban Regulation has established approach limits based on visibility, and its issuing of Commercial and Business Aviation Advisory Circular (CBAAC) 0237 has the potential to increased pilots' knowledge of safety issues that relate to conducting approaches in bad weather.

Although this action taken by TC will reduce some risks associated with approaches in bad weather, it does not address the deficiency underlying this TSB Recommendation - specifically that "airmanship and education are evidently not effective in curtailing accidents in situations where the visibility was reasonable, but the ceiling was below the limits stated in Canada Air Pilot for the particular approach flown". Such accidents will continue to occur unless further

action is taken. The Board continues to believe that an enforceable, regulatory barrier is required.

Therefore, because the action taken will reduce but not substantially reduce the deficiency the assessment remains as **Satisfactory-in-Part**.

#### **September 2009: TSB review of deficiency file status (rating: Satisfactory in Part)**

A search of the TSB database indicates that since the implementation of the Approach Ban Regulation on 01 December 2006, a total of 33 accidents occurred in Canada during the approach phase. None of these accidents are related to approaches conducted where the ceiling was not providing an adequate safety margin for the approach or landing. This would indicate that the new Approach Ban Regulation, with respect to visibility, seems to have had a positive effect. Additionally, TC considers this recommendation closed and plans no further action.

Therefore, the assessment remains at **Satisfactory-in-Part**.

The Board also concludes that, as no further action is planned to be taken by TC, continued reassessment will not likely yield further results.

#### **May 2017: TSB review of deficiency file status (rating: Satisfactory in Part)**

The Board requested that A02-02 be reviewed to determine if the deficiency file status was appropriate. After an initial evaluation, it was determined that the safety deficiency addressed by Recommendation A02-02 needed to be reassessed.

A request for further information was sent to Transport Canada and a reassessment will be conducted upon receipt of Transport Canada's response.

Therefore, the assessment remains as **Satisfactory in Part**.

### **Latest response and assessment**

#### **August 2017: response from Transport Canada**

TC agrees in principle with the recommendation, but practical issues prevent full compliance.<sup>1</sup>

TC studied the recommendation and developed an issue paper titled "Implementing an Approach Ban Using Ceiling Criteria for Commercial Operations" (April 2004). The study concluded that the implementation of an approach ban using ceiling criteria is not feasible due to inaccuracies inherent in the measurement of ceilings and that, until developments permit consistently accurate readings of cloud height at various points on the approach in a cost-effective manner, implementing the TSB recommendation would have a negative impact on

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<sup>1</sup> All responses are those of the stakeholders to the TSB in written communications and are reproduced in full. The TSB corrects typographical errors in the material it reproduces without indication but uses brackets [ ] to show other changes or to show that part of the response was omitted because it was not pertinent.

both airport operators and air operators, would not enhance safety, and thus would not be in the public interest.

As well, instrument approaches are designed and approved in Canada with a specified Minimum Descent Altitude (MDA) or Decision Height (DH) that defines the visual transition point to landing or commencement of the Missed Approach Procedure (MAP). Provided that the pilot respects this minimum altitude, the ceiling does not affect the outcome of the approach procedure to the extent that the visibility does. CAR 602.128 refers.

TC believes the response to TSB recommendation A02-01 addresses the risks associated with A02-02, as the two are closely linked.

A02-01 The Department of Transport expedite the approach ban regulations prohibiting pilots from conducting approaches in visibility conditions that are not adequate for the approach to be conducted safely.

Approach visibility conditions can be measured with greater accuracy than ceiling height and therefore becomes a more definitive criterion for conducting approaches in low visibility and ceiling conditions. The current approach ban regulations implemented on December 1, 2006 were developed in line with this rationale and restricted pilots from conducting an approach to landing based on reported visibility values only.

TC has recently taken additional steps to increase the level of safety for aircraft conducting instrument approaches through regulatory change. This process includes the development of a Preliminary Issue & Consultation Assessment (PICA) which will kick off the regulatory change process. New approach ban regulations will harmonize the CARs with recommendations as set out in International Civil Aviation Organization (ICAO) Standards and Recommended Practices (SARPS) and other international civil aviation authorities for approach criteria based on reported visibility.

The approach ban regulations/standards established by ICAO Annex 6 – Operation of Aircraft prevent the commencement of an Instrument Approach Procedure (IAP) when the reported visibility is below the published visibility for the IAP. This reduces the possibility of a pilot(s) starting an IAP when the chance of a successful landing is highly unlikely hereby preventing pilots from having to make a decision to land or go-around when the aircraft is at low altitude and low energy configuration. This would also assure compatibility between the approach visibility minima and the aerodrome operating visibility minima.

TC has no further activities planned on this recommendation because:

- it has completed an analysis and communicated a justified response to the Board in reference to the specific recommendation;
- implementation of the original recommendation is not feasible until technological developments permit;
- proposed and current approach ban regulations will mitigate the identified safety risks as per TSB recommendation A02-02.

### March 2023: TSB assessment of the response (Satisfactory Intent)

Since Transport Canada's (TC's) last response in August 2017, on 21 May 2020, the Board issued two recommendations pertaining to landing minima in Canada: A20-01 recommends that TC review and simplify operating minima for approaches and landings at Canadian aerodromes, and A20-02 recommends that TC introduce a mechanism to stop approaches and landings that are actually banned.

TC agrees with both recommendations and has initiated the regulatory process to simplify the operational minima for approaches and landings at Canadian aerodromes and is working to introduce a mechanism to stop approaches and landings that fall under an approach ban.

In its latest response to A20-01 (January 2023), TC is proposing to change Canada's approach visibility minima from advisory to prescribed. This national approach will allow for a clearer, simpler set of rules for all operators in Canada. It will also align Canada's approach ban regulations with the International Civil Aviation Organization's (ICAO's) standards and the regulations established by our international partners.

In the last 12 months, TC has made progress with amending the *Canadian Aviation Regulations* (CARs) to update approach ban regulations as well as the supporting documentation and guidance. TC has prepared drafting instructions for the proposed regulations, which were submitted to the Department of Justice at the end of 2022. These proposed amendments would include a complete re-write of the section of the CARs related to approach bans.

As next steps, TC is planning to pre-publish the Regulations Amending the *Canadian Aviation Regulations* (Approach Ban) in the *Canada Gazette*, Part I in late 2023. In support of this commitment to amend the CARs, TC will continue to develop guidance materials:

- Review and revise as necessary all text in the *Canada Flight Supplement* respecting minimum aerodrome operating visibility (i.e. runway level of service).
- Review and update sections with guidance on approach bans in the *Transport Canada Aeronautical Information Manual* (including RAC – Rules of the Air and Air Traffic Services sections 9.19.1 – Takeoff Minima and 9.19.2 – Approach Ban).
- Update differences from ICAO Standards in the *Aeronautical Information Publication* GEN, Section 1.6.1 – National Regulations, and add guidance on approach ban.
- Develop guidance for flight operation personnel on Enhanced Flight Vision Systems Operations, CAT 1 1800 RVR, and SA (CAT I).
- Develop an *Aviation Safety Letter* on approach ban.

Additionally, as noted in TC's response to TSB Recommendation A20-02 in January 2023, the proposed Regulations Amending the *Canadian Aviation Regulations* (Approach Ban) would make it much easier for a pilot to understand if the conditions allow (or ban) an approach.

TC will continue to look at ways to encourage and enforce compliance with the proposed new sections of the CARs on approach bans, including a review and proposed increase of the administrative monetary penalties associated with non-compliance.

Lastly, TC has stated that work to resolve Recommendation A20-01 is preceding work related to Recommendation A20-02. In carrying out the work required to update the regulations, TC will continue to work closely with all stakeholders to look at ways to encourage and enforce compliance with the new proposed approach ban regulations.

The Board is pleased with the regulatory developments made by TC and is encouraged by the progress TC has made towards simplifying operating minima for approaches and landings at Canadian aerodromes and recognizes the numerous initiatives TC has taken to produce the guidance material and support documentation required. The Board is of the opinion that, when fully implemented, the actions in progress to address recommendations A20-01 and A20-02 have the potential to substantially reduce or eliminate the risks associated with the safety deficiency identified in Recommendation A02-02.

Therefore, the Board considers the response to Recommendation A02-02 to show **Satisfactory Intent**.

#### **File status**

The TSB will no longer monitor the progress of TC's actions regarding Recommendation A02-02. The TSB will continue to monitor the progress of TC's actions to mitigate the risks associated with the safety deficiencies identified in recommendations A20-01 and A20-02, and it will reassess the deficiencies on an annual basis or when otherwise warranted.

This deficiency file is **Dormant**.