Transportation Safety Board of Canada

Bureau de la sécurité des transports du Canada

Watchlist Fact Sheet — Air

Approach-and-landing accidents

Landing accidents continue to occur at Canadian airports.

Background

Every year, millions of successful landings occur on Canadian runways. However, there is a risk that accidents resulting in loss of life, injury, and aircraft damage can occur during the landing phase of flight. These accidents include runway overruns, runway excursions, landings short of the runway, and tail strikes.[1] Operators, regulators, and air navigation service providers need to take more action to prevent approach-and-landing accidents, and to minimize the risks of adverse consequences if a runway overrun occurs.

Stable approaches significantly increase the chances of a safe landing. Research[2] indicates that 3.5% to 4% of approaches are unstable. Of these, 97% are continued to a landing, with only 3% resulting in a go-around. Without improvements in stable-approach policy compliance, most unstable approaches will continue to a landing, increasing the risk of approach-and-landing accidents.

Additionally, pilots must calculate the landing distance required, so they need timely and accurate runway surface condition information to make correct calculations, as snow, rain, or ice can affect landing distance.

When a runway overrun occurs, it is important that an aircraft have an adequate safety area beyond the runway's end. At some airports, these have not yet been implemented, and the terrain beyond the end of the runway could contribute to aircraft damage and injuries to passengers and crew. This area, therefore, must be sufficiently clear of obstacles and properly graded. There is currently no requirement in Canada requiring runways to meet international standards and recommended practices for safety areas.

The Transportation Safety Board of Canada (TSB) has investigated a number of landing accidents that have highlighted the need for runway end safety areas, and improved runway surface condition reporting. In Canada, from 2009 to 2013, Canadian-registered aircraft were involved in an average of 150 approach-and-landing accidents every year, of which 6% were runway overrun accidents.

There has been some progress since this issue was included on the Watchlist in 2010. Some airports have improved runway surfaces and safety areas. NAV CANADA has taken measures to improve runway surface condition reporting for pilots, and now provides guidance for stabilized descents in its approach procedures. Transport Canada (TC) is conducting a risk-based analysis to revise its runway safety area standards. However, the number of landing accidents and runway overruns has not decreased, so until TC completes its risk analysis and revises its standards, the risk to the public remains.

Solution

Transport Canada and operators must do more to reduce the number of unstable approaches that are continued to a landing.

Transport Canada also must complete its risk-based analysis and move forward with regulatory changes.

Airports must develop tailored solutions to lengthen runway end safety areas or install other engineered systems and structures to safely stop planes that overrun runways.

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[1] Recent TSB aviation investigation reports include: A10H0004, A11A0035, A11H0002, A11H0003, A11O0098, A12A0082, A12W0004, A12O0005, A12P0034, A12Q0161, and A12W0004

[2] Flight Safety Foundation, "Failure to Mitigate," *AeroSafety World* (February 2013)