



Transportation
Safety Board
of Canada

Bureau de la sécurité
des transports
du Canada

Air Transportation Safety Investigation Report A20W0035

LOSS OF CONTROL AND COLLISION WITH TERRAIN

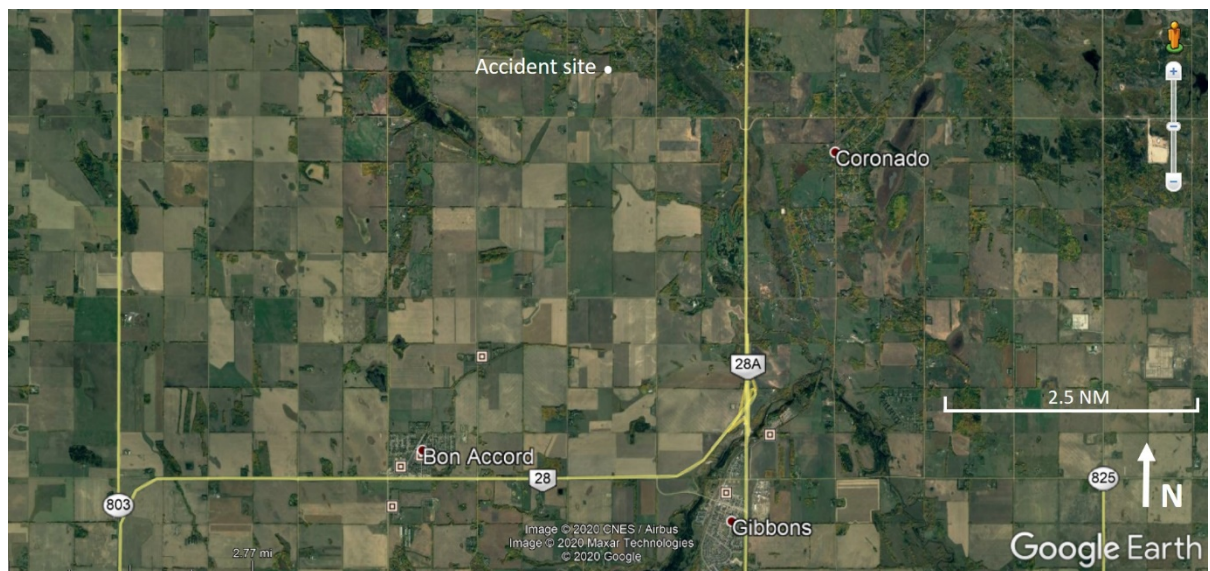
RS Ultra Kangook MF powered paraglider (basic ultralight), C-ILQJ
Gibbons, Alberta, 4.5 NM NW
13 May 2020

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History of the flight

On 13 May 2020, the RS Ultra Kangook MF powered paraglider (registration C-ILQJ, serial number 463) was conducting a local recreational flight from a private field 4.5 nautical miles (NM) northwest of Gibbons, Alberta (Figure 1).

Figure 1. Location of accident site (Source: Google Earth, with TSB annotations)



The occurrence flight was the pilot's 2nd flight of the season and of that week. The pilot completed the pre-flight inspection on the occurrence aircraft and, at approximately 1715,¹ departed the field in a southeasterly direction. The pilot flew locally within 1 NM of the field for approximately 25 minutes. The entire flight was captured on an action video camera attached to the pilot's helmet, and the recording was used extensively by the investigation.

One minute before the accident, the pilot performed an approach to the take-off area in a southeasterly direction. Just before touchdown, power was applied and a go-around to the south was commenced. When it was approximately 75 feet above ground level, the aircraft flew through a dust devil (Figure 2). Without input from the pilot, the aircraft's climb rate suddenly increased, the aircraft rolled sharply to the right, and the paraglider lines wrapped around the pilot, the trike, and the turning propeller, eventually collapsing the entire canopy. At approximately 1745, control was lost and the aircraft impacted the ground, fatally injuring the pilot.

Figure 2. Still image from action video recorded on 13 May 2020, approximately 3 minutes before the accident, showing the location of the dust devil and the accident site, looking southeast (Source: Pilot's action video camera, with TSB annotations)



¹ All times are Mountain Daylight Time (Universal Time Coordinated minus 6 hours).

Aircraft information

The RS Ultra Kangook MF is a powered paraglider (Figure 3). The occurrence aircraft was registered with Transport Canada as a basic ultralight and was equipped with an APCO Vista HP S canopy.²

A post-accident examination of the canopy, suspension and control lines, trike, and engine were completed. No anomalies were found that would have contributed to the loss of control.

Pilot information

The pilot held a pilot permit – ultra-light aeroplane that was restricted to powered parachutes only. He was issued the permit by Transport Canada on 02 December 2019, after completing his training during the summer of 2019. During his training, he had completed 20 hours of ground school, 10 hours of solo flying, and 49 takeoffs and landings, including normal and emergency manoeuvres. The pilot had carried out his training on the occurrence aircraft. The investigation could not determine the total number of paraglider flying hours the pilot had.

Figure 3. A representative RS Ultra Kangook MF with third party trike wheel assembly. Canopy not shown. (Source: Kangook Paramotors)



The training manual for paragliding³ used for the pilot's training discussed dust devils and other adverse weather conditions but the extent to which the pilot knew about dust devils could not be determined.

Weather information

The weather conditions immediately before and after the occurrence flight were consistent with visual meteorological conditions.

The closest aerodrome forecasts (TAFs) and aerodrome routine meteorological reports (METARs) that were available for planning purposes before the flight were from Edmonton/Namao Heliport (CYED), Alberta, located at CFB Edmonton, approximately 16.4 NM south-southwest of the accident site. The TAF for CYED, valid from 1200 on 13 May 2020 until 0000 on 14 May 2020, was as follows:

- wind variable at 3 knots,
- visibility greater than 6 statute miles,
- few clouds based at 8000 feet above ground level.

The hourly METAR for CYED, taken 15 minutes after the time of the accident, indicated the following:

- wind 160° true (T) at 2 knots,
- visibility 9 statute miles,
- clear skies,
- temperature 15 °C, dew point –5 °C.

² APCO Vista HP S No. 8 (serial number 16/11 186110) installed in the spring of 2014.

³ J. Goin, *The Powered Paragliding Bible*, 5th Edition (2018), Section 2, Chapter 7: Weather Basics, pp. 72–80.

A windsock located on the fence line at the south end of the field being used for operations was observed at various times in the video recording of the 25-minute flight. The wind direction was variable, ranging from 135°T to 285°T. Wind velocity was harder to establish as the wind sock was not a standard aviation type. When fully extended, the windsock represents a minimum wind speed of about 5 knots. During the occurrence flight, the windsock was fully extended most of the time when it came into view in the video.

Dust devils

Dust devils are common in Alberta and are more prevalent during warm sunny days with low ambient humidity, where localized heating occurs in dry bare soil. In such conditions, localized rotating updrafts may be created and are only visible if there is loose material on the ground to highlight it, such as dust, sand, straw, or snow. Environment and Climate Change Canada defines dust devils as follows:

Normally harmless, dust devils are rotating updrafts or eddies that typically form on hot sunny days when strong surface heating causes the air adjacent to the ground to heat up as well. This localized pocket of hot air rises quickly in a small spinning column, and cooler air rushes in below to replace it. The resulting vortex is made visible by the dust it picks up. Dust devils seldom extend higher than 100 metres, but those that do can flip objects like lawn furniture.⁴

Safety message

Encountering meteorological events such as dust devils can present a significant hazard to paraglider operations. Paraglider pilots need to be aware of the conditions that can be conducive to the formation of these phenomena, and avoid operating in these conditions where possible.

This report concludes the Transportation Safety Board of Canada's investigation into this occurrence. The Board authorized the release of this report on 21 October 2020. It was officially released on 28 October 2020.

Visit the Transportation Safety Board of Canada's website (www.tsb.gc.ca) for information about the TSB and its products and services. You will also find the Watchlist, which identifies the key safety issues that need to be addressed to make Canada's transportation system even safer. In each case, the TSB has found that actions taken to date are inadequate, and that industry and regulators need to take additional concrete measures to eliminate the risks.

⁴ Environment and Climate Change Canada, *Sky Watchers Guide to Weather* (April 2006), Chapter 4: Severe weather in Canada, at <https://www.canada.ca/en/environment-climate-change/services/sky-watchers/publications/guide/chapter-4.html#rotatingphenomena> (last accessed on 01 September 2020).

ABOUT THIS INVESTIGATION REPORT

This report is the result of an investigation into a class 4 occurrence. For more information, see the Policy on Occurrence Classification at www.tsb.gc.ca

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