

Case 3

The aircraft bounced during the landing at the airport, which led to the damage of propellers and fuselage structure.

Summary: On March 24, 2011, a Cessna 172S operated by Company A took off from Kumamoto Airport for a solo training flight. The aircraft was damaged when it bounced during the landing at the airport. A student pilot on board the aircraft suffered no injury.

Events Leading to the Accident

The student pilot took off from Kumamoto Airport for solo training flight for air maneuvers at 12:24, he entered the base leg (*) for runway 07 south traffic pattern.

* A flight path before an aircraft turns and enters the final approach course (final leg) for landing.

He set the flaps at FULL DOWN on the mid-final at about 75 kt. The runway threshold airspeed was about 71 kt.

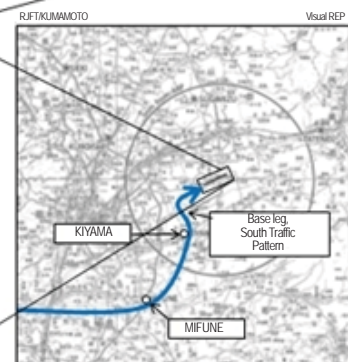
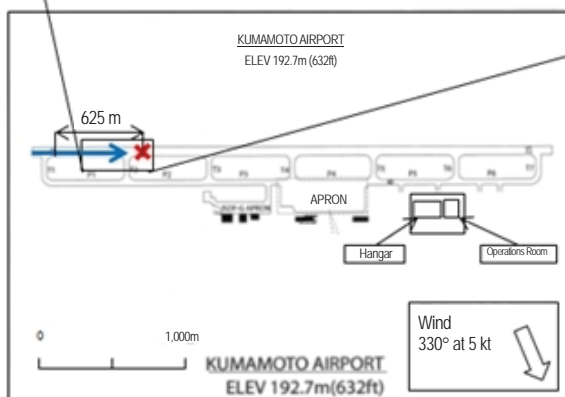
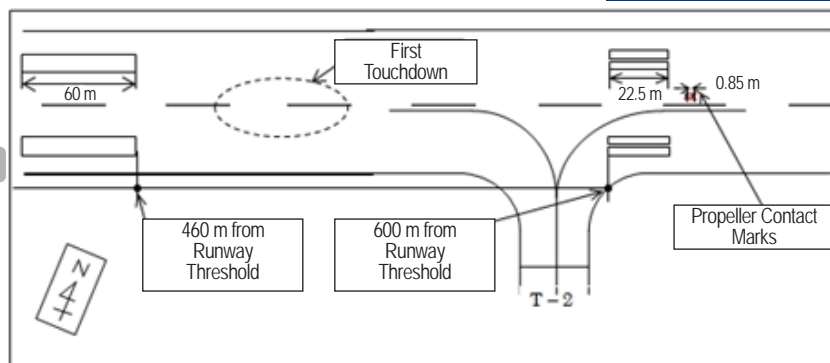
The aircraft



Analysis

It is possible that he established faster final speed - approx. 75kt against 70 kt, and threshold speed - approx. 71 kt against 65 kt, as the flight instructor in charge had pointed out premature airspeed reduction deriving from the student pilot's tendency to rotate more than necessary during roundout.

Estimated Flight Route



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1st touchdown

The student pilot retarded the throttle to IDLE for touchdown, but the aircraft sank suddenly immediately before the touchdown, landed harder and bounced high.

It is possible that the fact that he probably established faster final speed - approx. 75kt against 70 kt and then could not establish a landing attitude, a possibility of effects of winds, and a touchdown with a larger touchdown speed and sink rate, resulted in a bounce.

The height of bounce was as high as that of his past experience so that he judged that he could land as usual and continued landing procedures.

He had been giving instructions to execute a go-around upon the first bouncing when an aircraft bounced during landing. It is possible that if he had done as instructed, the accident could have been avoided.

2nd touchdown

It is very likely that the aircraft bounced upon landing, followed by a nose-low hard contact with the runway, resulting in damage of propeller blades and fuselage structure.

He had possibly pushed the control wheel or failed to apply back elevator pressure to hold the pitch down attitude, resulting in the nose-low contact with the runway. It is highly probable that hard strikes of propeller blades very likely lead to the damage of fuselage structure.

The aircraft bounced again, this time higher. He executed a go around to avoid follow-on nose low attitude.



Damage of the propeller blades

In order to Prevent Recurrence

- It is necessary to develop teaching techniques to have student pilots acquire proper flare height and touch-down attitude, and share them among instructors.
- As it is possible that student pilots in early phase may not have sufficient landing techniques, granting them solo flight needs to be done with further caution considering weather conditions and their preparedness.
- Appropriate training including in-flight training should be given to student pilots so that they could execute a go-around without hesitation in order to address the unexpected sink after passing over the runway threshold or bouncing after the touchdown.

The investigation report of this case is published on the Board's website (issued on September 28, 2012)

http://www.mlit.go.jp/jtsb/eng-air_report/JA33UK.pdf

(This report is a translation of the Japanese original investigation report. The text in Japanese shall prevail in the interpretation of the report.)