

Case 3 Due to miss judgment of altitude, etc. (Flight training at a low altitude)

Training was continued below the required altitude, causing the Glider to make a hard landing and become damaged. (Instructor (captain): Age 75, Total flight time: 1,279 hours; Trainee: Age 59, Total flight time: 305 hours)

Summary: A Scheibe SF34B, owned by Association A, was damaged during a landing practice on Runway 14 at Nirasaki Gliding Field in Tatsuoka-machi, Nirasaki City, Yamanashi.

Developments Leading to the Accident

The Glider was launched, being aerotowed, from Runway 14 at Nirasaki Gliding Field for flight training with the trainee on the front seat and the instructor (captain) on the rear seat.

Although the trainee tried to fly towards the piste of the Gliding Field at the altitude of about 500 m, the instructor pointed out the start point for approach to the vicinity of piste, and the Glider turned to the left there to adjust the start point and flew towards the piste.

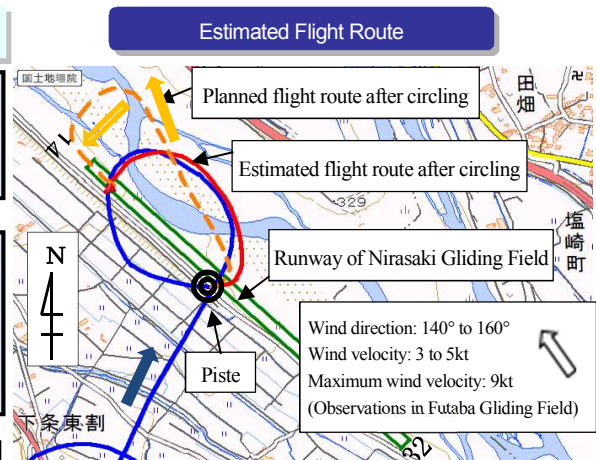
The person in charge of the piste said by radio communication, "Watch your low altitude."

The instructor replied to this, saying "Roger. We make a short approach to runway 14 by left turn from over the field."

Although the trainee felt the difficulty in judging the altitude, he did not voluntarily ask any advice to the instructor. Afterward, when he flew towards the left base of the Runway, he encountered downdraft and felt the loss of altitude.

During circling over the runway, the instructor felt the altitude was lower than usual but did not confirm it by altimeter.

The Glider continued to turn to the left, it could not directly face the Runway and the left main wing tip was brought in contact with the ground in front of the Runway. After bouncing once, the Glider slightly veered the nose to the right, crossed the Runway while skidding sideways, and stopped with the nose directed to the west.



- Extent of damage: Substantially damaged
- Fuselage: Severe distortion, Paint peeling and others
 - Left main wing: Wing Tip breakage, Cracks and others
 - Tail wheel: Recessed into the fuselage

Analysis of Causal Factors of the Accident

Condition of weather

On that day, it is somewhat likely that there was sufficient sunshine, updrafts occurred over the western land of Kamanashi-gawa river, the downdraft occurred over Kamanashi-gawa river.

Situation of the touchdown

After the left main wing tip was brought in contact with the ground in front of the Runway, the tail wheel and main wheel touched down on the ground towards the center line.

- It is probable that sink rate was large in the touchdown of the fuselage.
- It is probable that the front wheel touched down to the ground, veering the nose slightly to the right after the fuselage bounced in its reaction, the Glider crossed the Runway while skidding sideways with the front wheel and main wheel, and it was stopped in the western edge of the Runway with the nose directed to the west.

○ The pilots' judgment and control

Instructor


Although the instructor set the altitude of first passing the vicinity of piste at an altitude lower than usual, he did not confirm the altitude by his altimeter when passing the vicinity of piste.

During circling over the runway, he felt the altitude was lower than usual but did not confirm it by his altimeter. Afterward, it is highly probable that the instructor continued the flight without any his comments or advices to the trainee about the altitude until he felt that the altitude was clearly low during the flight to the start point of base turn to the Runway.

Trainee

Although the trainee confirmed that the altitude of first passing the vicinity of piste was about 450 m by his altimeter, he did not check the altimeter in the following flight.

Although the trainee felt the difficulty in judging the altitude in the training subject due to his first implementation of the training subject, he did not ask any advices to the instructor.

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- (i) It is highly probable that the instructor and the trainee were aware that the altitude was clearly low and made the left turn to the Runway direction earlier, however the altitude was too low to directly face the Runway, therefore the Glider brought the left main wing tip into contact with the ground in front of the Runway while it was banked to the left and then made the hard landing.
 - (ii) Regarding the fact that the Glider fell below the altitude necessary to continue the training during the training flight, it is somewhat likely that the downdraft which occurred around the Gliding Field was involved.

○ Implementation method of training

Instructor

- (i) The instructor needs to sufficiently explain to the trainee the purpose of the training, flight methods, and matters to be noted before the start of training, and have him understand them.
- (ii) Besides, in the flight, the instructor needs to give necessary advices to the trainee, pay attention to the trainee's control, changes in weather and others, and place assurance of flight safety at the top priority without persisting in the implementation of the training subject if there was some doubt whether the training flight should continue.

Trainee

If the trainee felt the difficulty in judging the altitude due to his first implementation of the training subject, he owned a private pilot certificate, therefore it is necessary for him to frankly express questions and concerns while judging by himself, maintain useful communication with the instructor, and share his understanding with regard to not only training effects but assurance of flight safety.

Glider

The altitude judgment of glider is often carried out by visual estimation, therefore it is desirable that the visual estimation be verified by simultaneously using the altimeter for the altitude judgments at the start of training subjects or at the specific points on flight route, then the following flight should be planned.

Probable causes: In this accident, it is highly probable that when the Glider performed landing training which simulated the off-field landing at the Runway, the Glider could not make a stable landing attitude because the training was continued despite the altitude that was below the altitude necessary for the training, therefore the Glider brought the left main wing tip into contact with the ground in front of the Runway, then made the hard landing, and damaged the fuselage.

Regarding the fact that the training was continued below the altitude necessary for the training, it is highly probable that it was because the instructor did not perform appropriate judgment, advices, and control with assurance of flight safety as top priority while the trainee felt the difficulty in judging the altitude. Regarding the fact that the Glider fell below the altitude necessary to continue training, it is somewhat likely that the downdraft which occurred around the Gliding Field was involved.

The investigation report of this case is published on the Board's website (issued on June 30, 2016).

http://www.mlit.go.jp/jtsb/eng-air_report/JA2446.pdf

Similar accident (Forceful flight under bad conditions, etc.)

Date of occurrence	Operator	Category	Pilot's age	Total flight time	Summary of the accident
					Probable causes
March 12, 2006	Group	Glider	65	2,466	<p>The Glider took off from Itakura Gliding Field for familiarization with emergency operations and skill confirmation. When approaching the runway of the Gliding Field, the fuselage touched a bush in front of the runway and the Glider landed and became stranded on the runway.</p> <p>It is highly probable that the path was too low upon the final approach to the runway, which caused the fuselage to touch a bush, resulting in damage to the Glider upon landing.</p> <p>Regarding the causes of the path becoming too low, it is somewhat likely that the pilot's failure to accurately ascertain the height of the path due to lack of experience of handling the same type of gliders and taking appropriate measures against tail wind and downdrafts, and a lack of timely advice and assistance from the instructor.</p>
September 1, 2007	Private	Small aircraft	63	1,320	<p>The Aircraft took off from Miyazaki Airport for a recreational flight. During a return flight after flying around to Nichinan, the Aircraft crashed into the sea about 1NM southeast of the Airport.</p> <p>It is highly probable that the Aircraft could not maintain visual flight while flying in a localized heavy rain, under fast-changing weather conditions, and the pilot, in an attempt to escape from the bad weather zone, made a right turn without increasing the engine power although the height was not sufficient, which caused the right main wing to touch the sea surface, triggering the crash.</p> <p>It is probable that the pilot's excessive self-confidence backed by his extensive flight experience in this region, affected his decision to make the flight under fast-changing weather conditions.</p>