

AA2015-3

**AIRCRAFT ACCIDENT  
INVESTIGATION REPORT**

**SUWA CITY GLIDER ASSOCIATION  
J A 2 3 2 0**

**March 26, 2015**



The objective of the investigation conducted by the Japan Transport Safety Board in accordance with the Act for Establishment of the Japan Transport Safety Board and with Annex 13 to the Convention on International Civil Aviation is to determine the causes of an accident and damage incidental to such an accident, thereby preventing future accidents and reducing damage. It is not the purpose of the investigation to apportion blame or liability.

Norihiro Goto  
Chairman,  
Japan Transport Safety Board

Note:

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

# AIRCRAFT ACCIDENT INVESTIGATION REPORT

FUSELAGE DAMAGE CAUSED BY LANDING ON  
THE ROUGH GROUND  
SUWA CITY GLIDER ASSOCIATION  
ALEXANDER SCHLEICHER ASK18 (GLIDER, SINGLE-SEATER),  
JA2320  
KIRIGAMINE GLIDING FIELD,  
SUWA CITY, NAGANO PREFECTURE, JAPAN  
AROUND 12:40 JST, NOVEMBER 8, 2014

March 13, 2015

Adopted by the Japan Transport Safety Board

Chairman	Norihiro Goto
Member	Shinsuke Endoh
Member	Toshiyuki Ishikawa
Member	Sadao Tamura
Member	Yuki Shuto
Member	Keiji Tanaka

## 1. PROCESS AND PROGRESS OF THE INVESTIGATION

The Japan Transport Safety Board designated an investigator-in-charge and an investigator on November 8, 2014 to investigate the accident. An accredited representative of Federal Republic of Germany, as the State of Design and Manufacture of the aircraft involved the accident, participated in the investigation. Comments were invited from a party relevant to the cause of the accident and relevant State.

## 2. FACTUAL INFORMATION

2.1 History of the Flight	<p>According to the statements of the captain, a winch operator, a launch director who is instructor and a wing runner who hold wing tip at the time of launch, the history of the flight up to the time of the accident is summarized below:</p> <p>On November 8, 2014, an Alexander Schleicher ASK18, registered JA2320 (hereinafter referred to as “the Glider”), operated by Suwa City</p>
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Glider Association, launched from Kirigamine Gliding Field to south west direction for leisure flight at around 12:40 JST (Japan Standard Time: UTC+9 hrs) with winch towing. The only person on board the Glider was the captain. The glider flew up but didn't speed up; accordingly, he release the towline by the instruction of the launch director at an altitude of three to four meters above ground. The glider flew at level flight for a while, soon decreased altitude and speed, and then, if landed on grass and woods grown sloping rough ground located at the halfway of the gliding field. Subsequently the Glider touched down while shaking a nose to the right and damaged its fuselage.

It was the first time for the captain to fly on the Glider; therefore, he heard precaution of maneuvering from launch director. The captain checked mass and balance, conducted the preflight inspection and found no problem; consequently, attached a towline. The captain checked the wind condition before launch and found that there was slightly strong cross wind component from left side. The glider raised the nose soon after launch and faced left by weathercock effect, a nature facing relative wind direction. The captain tried to correct the heading direction with stepping the rudder pedals, but he could not do it as he wished. He saw the towline slack in the right side and noticed the winch winding speed was slow. The captain was distracted by correction of the heading direction, also had an expectation of the winch winding speed would come up soon and maintained level flight. The captain was in doubt whether to pull the release knob (a knob to operate the release mechanism) to release the towline and could not also instruct "Winch is slow". The towline slack had been reduced; accordingly, the captain prepared for acceleration of the Glider. Just after that, the captain released the towline at the same time hearing the instruction of "Winch red" from the launch director, meaning that glider side had to release the towline and winch side had to stop winding.

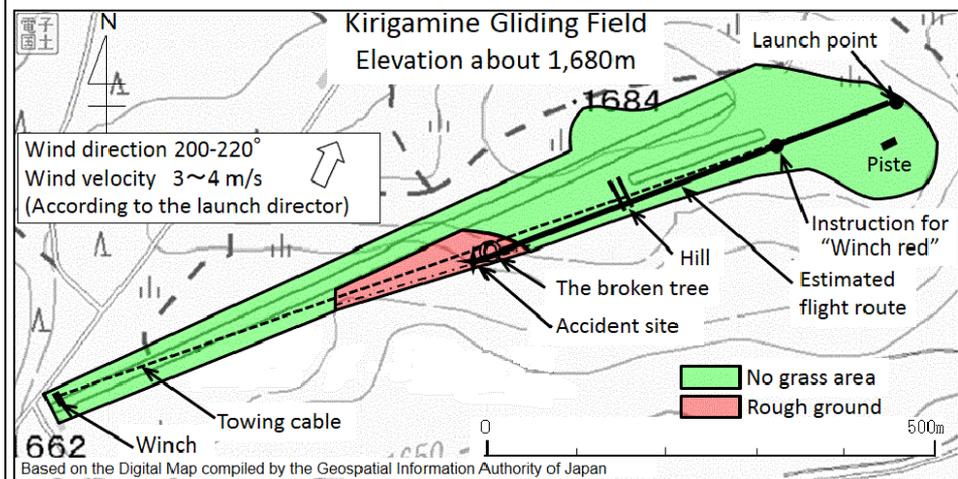
The altitude at the time of the release was low height of three or four meters. The captain had been taught to land short of the rough ground even using dive brakes in such case. According to the captain's experiences, gliders would descend naturally without using dive brakes, but the Glider flew at almost the same altitude, probably because of greater effects of the wind blowing up the southerly slope or the ground effect, a phenomenon increasing lift near the ground. The captain felt the Glider would be able to fly to the forward flatland over the rough ground. From that the captain had the experience that the tail wheel was damaged when making suddenly landing using dive brakes; therefore, he thought "I want to fly long time because it is the first flight for me on the Glider," and so on. He could not make decision to land short of the rough ground and continued to fly. Then, the Glider lost the altitude and speed, and with no choice but to land to the rough ground; consequently, the captain started flare. When the captain heard the sounds of hitting vegetation with the

fuselage of the Glider and felt touched down, he thought for a moment “I was able to make a soft landing. The Glider would be safe.” But soon after that, the nose was shook to right suddenly. While the captain felt pressure as pushed to the left, the Glider stopped further shaking the nose to the right. Although the captain doesn’t have a memory of looking the speed meter after the launch; however, he thought the speed was 70 through 80 km/h at the time of release.

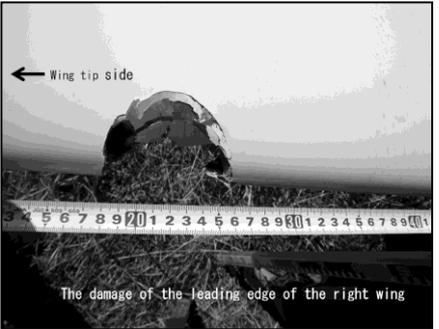
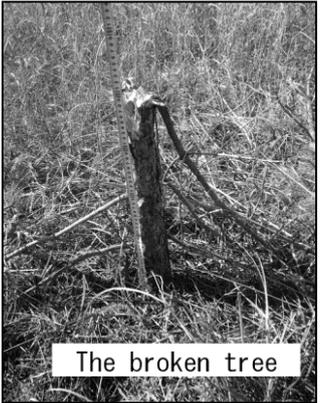
The Glider continued to fly keeping the attitude at flying up without initial climb; therefore, the launch director in the piste gave the instruction “Winch red” when the Glider could land short of the rough ground with enough margin.

The winch operator concerned over lighter weight of the Glider than two-seater glider: Alexander Schleicher ASK13 which he had towed before the accident; accordingly, started towing the Glider carefully. Before winch winding speed coming up, the winch operator heard the instruction of “Winch red” and stopped winding immediately. The winch operator has four years of experience of winch towing. They are almost for two-seater gliders, but some of them are for single-seater gliders.

The captain is a member of the Association and has almost flown at the gliding field except the period that it is closed for snow, December through March. His physical condition was normal on the day of the accident. The glider landed on the rough ground and damaged the fuselage at around 12:40. No anomalies of the Glider were found until then.



2.2 Injuries to Persons	None
2.3 Damage	Extent of damage: Substantially damaged - Fuselage Breakage - Right wing Partially Damaged - Tail wheel Damaged
2.4 Personnel Information	Captain Male, Age 56 Private pilot certificate (Glider) October 8, 2002 Rating for High Class Glider October 8, 2002 Class 2 Aviation Medical Certificate Validity: December 18, 2014

	<p>Total flight time 384 hr 48 min (761 launches)</p> <p>Total flight time on the type of aircraft 0 hr 00 min (0 launch)</p>
2.5 Glider Information	<p>Type: Alexander Schleicher ASK18</p> <p>Serial number 18003</p> <p>Date of manufacture June 6, 1975</p> <p>Certificate of airworthiness No. 2014-53-07</p> <p>Validity: October 18, 2015</p> <p>Category of airworthiness Utility U</p> <p>Total flight time 1,964 hr 34 min (4,174 launches)</p>
2.6 Meteorological Information	<p>According to the statement of the launch director, the weather on the day of the accident was clear; good visibility; wind direction 200 through 220 degrees, wind velocity 3 - 4 m/s.</p>
2.7 Other Information	<p>(1) Detailed Information on Damage</p> <p>The fuselage of the Glider was slightly bending just after the main wing with empennage turned right and slack was occurred in the surface. There was a semicircular shaped dent, about eight centimeters wide and about six centimeters depth, at about 146 centimeters from wing tip on leading edge of the right wing. The mounting arm of tail wheel had deformed to the right about 60 degrees from the root. There were no anomalies in the operation of the flight control systems.</p>   <p>(2) The winch condition</p> <p>There were no anomalies in the operation of the winch.</p> <p>(3) The Accident Site Description</p> <p>Kirigamine gliding field is located on a highland about 1,680 meters height above sea level and have about 1,000 meters length runway. The runway 07/25 are used for landing; the runway 25 is only used for launch. A winch operator cannot see the launch point due to the topographical characteristics that the halfway area is high. The halfway area is grass and woods grown rough ground sloping to left forward; therefore, in the case of a towline cut at a launch, gliders are supposed to land to no grass area short of the rough ground, right hand side or short of the winch and not to land on the rough ground.</p>  <p>The Glider faced about 038 degrees</p>

	<p>magnetic bearing on the rough ground. At about 20 meters toward the launch point side from the Glider, there was a tree of six centimeters in diameter broke at about 50 centimeters above ground. A debris found around the tree matched up the shape of damage on the leading edge of the Glider's right wing.</p> <p>(4) Primary performance described in the Flight Manual</p> <p><i>The best glide ratio: 34</i></p> <p><i>Approach speed: about 80 km/h – 90 km/h</i></p>
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### 3. ANALYSIS

3.1 Involvement of Weather	No
3.2 Involvement of Pilot	Yes
3.3 Involvement of Glider	No
3.4 Analysis of Findings	<p>(1) Damages to the Glider</p> <p>According to the conditions of the debris found around the tree, it is highly probable that the semicircular shaped dent on the leading edge of the Glider's right wing was made by collision with the tree. It is highly probable that the right wing collided with the tree; therefore, the nose was shook to right suddenly when the Glider landed on the rough ground. It is highly probable that the bending damage of the fuselage and the tail wheel damage were made by touchdown on the rough ground while turning right about 150 degrees which resulted in acting of the significant force to the fuselage and tail wheel.</p> <p>(2) Involvement of the Pilot</p> <p>It is probable that the captain thought the Glider could fly over the rough ground and tried to fly aiming for flatland, and then it descend as usual possibility by effects of the wind blowing up the slope and the ground effect; therefore, he did not land soon after the release of the towline. Thus, this probably contributed to the captain's decision that he reminded an experience of breaking a tail wheel when he made an immediately landing using dive brakes, and thought such as "I want to fly long time because it is the first flight for me on the Glider."</p> <p>Correspondence when tow speed is low is emergency procedure; therefore, it is highly probable that the captain should land on predetermined area using the dive brakes soon after release of the towline.</p> <p>(3) Falling into the situation to carry out the emergency procedure</p> <p>It is probable that the captain noticed the winch winding speed was low after the nose raised to climb, and then he was unable to release the tow line and instructed "Winch is slow" at once; therefore, the Glider fell</p>

into the situation to carry out the emergency procedure of slow tow speed at the launch. It is probable that this captain's no action was caused from the distraction in correcting the heading direction and expectation of the winch winding speed coming up soon.

It is probable that the slow winch winding speed was not anomalies in the operation of the winch but the winch operator concerned over lighter weight of the Glider than two-seater glider and started towing the Glider too carefully. In addition, the winch operator could not overlook the launch point and no instruction of "Winch is slow" from the captain; therefore, the winch operator didn't grasp the Glider condition. It is somewhat likely that this factor contributed to slow winch winding speed.

#### 4. PROBABLE CAUSES

In this accident, it is highly probable that although it was an emergency procedure of the slow tow speed at the launch, the Glider did not land soon after release of the towline, which led to touch down on the rough ground located around the halfway of the gliding field, and then sustained damage.

#### 5. ACTIONS TAKEN

Safety Actions Taken by the Association were as follows:

- (1) Making a figure clearly indicated the inadequate area to land.
- (2) Making a landing procedure in the case of stop towing (release of towline) at low altitude after launch.

The Association decided to carry out the education about above (1) and (2) to the association members before starting of activities of 2015 fiscal year.

Three Angle View of the Alexander Schleicher ASK18

