

AI2023-2

**AIRCRAFT SERIOUS INCIDENT  
INVESTIGATION REPORT**

**The General Incorporated Association  
Tokai/Kansai Student Aviation League  
J A 0 1 K T**

**February 16, 2023**



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 prevent future accidents and incidents. It is not the purpose of the investigation to apportion blame or liability.

TAKEDA Nobuo  
Chairperson  
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.

《Reference》

The terms used to describe the results of the analysis in "3. ANALYSIS" of this report are as follows.

- i) In case of being able to determine, the term "certain" or "certainly" is used.
- ii) In case of being unable to determine but being almost certain, the term "highly probable" or "most likely" is used.
- iii) In case of higher possibility, the term "probable" or "more likely" is used.
- iv) In a case that there is a possibility, the term "likely" or "possible" is used.

# AIRCRAFT SERIOUS INCIDENT INVESTIGATION REPORT

January 13, 2023

Adopted by the Japan Transport Safety Board



Chairperson TAKEDA Nobuo  
 Member SHIMAMURA Atsushi  
 Member MARUI Yuichi  
 Member SODA Hisako  
 Member NAKANISHI Miwa  
 Member TSUDA Hiroka

<b>Company</b>	The General Incorporated Association Tokai/Kansai Student Aviation League
<b>Type, Registration Mark</b>	Scheibe SF25C (Motor Glider, Two-Seater), JA01KT
<b>Incident Class</b>	Dragging during landing of any other part of the landing gears of the Aircraft. Article 166-4, item (iii) of the Ordinance for Enforcement of the Civil Aeronautics Act
<b>Date and Time of the Occurrence</b>	At about 13:05 Japan Standard Time (JST: UTC+9 hours), April 23, 2022
<b>Site of the Serious Incident</b>	Fukui Airport (36°08'42 N, 136°13'25 E)

## 1. PROCESS AND PROGRESS OF THE SERIOUS INCIDENT INVESTIGATION

<b>Summary of the Serious Incident</b>	<p>On April 23 (Saturday), 2022, the Aircraft touched down hard when landing on Runway 18 at Fukui Airport, and the tip part of the propeller blades and the right main wheel cover contacted with the runway surface.</p> <p>On board the Aircraft were two persons in total with a captain as a flight instructor and a student pilot, but no one was injured.</p>
<b>Outline of the Serious Incident Investigation</b>	<p>An investigator-in-charge and two other investigators were designated on April 23, 2022.</p> <p>Comments were invited from the parties relevant to the cause of the serious incident and the Relevant State.</p>

## 2. FACTUAL INFORMATION

<b>Aircraft Information</b>	
Aircraft type: Scheibe SF25C	
Serial number: 44706	Date of manufacture: March 21, 2005
Airworthiness certificate: No.2021-35-06	Validity: September 15, 2022
<b>Personnel Information</b>	
Pilot:	Age: 66
Private pilot certificate (Motor Glider)	July 12, 2004

Pilot competency assessment

Expiration date of piloting capable period: February 6, 2024

Flight instructor certificate (Glider)

November 17, 1983

Class 2 aviation medical certificate

Validity: October 15, 2022

Total flight time (Glider, Motor Glider)

1,777 hours 13 minutes

Flight time in the last 30 days

6 hours 37 minutes

Flight time on the type of the aircraft

35 hours 12 minutes

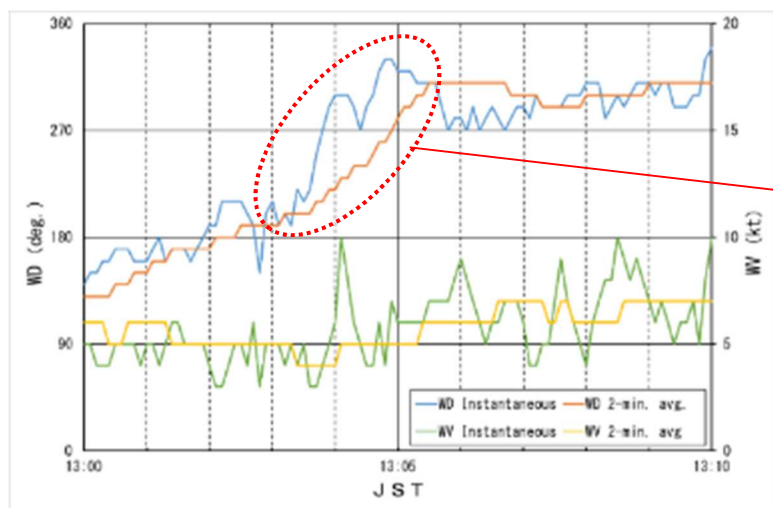
Flight time in the last 30 days

5 hours 25 minutes

**Meteorological Information**

The wind observed by the anemometer located near the apron at the Airport (Figure 1) changed direction from south to northwest from about 13:03 to 13:05 while keeping a wind velocity of about 5 kt.

According to the witness who saw the Aircraft landing from the piste (training command post), around when the Aircraft turned to the final approach course, the windsock at the Airport changed from south to north, and the wind velocity was more than 5 kt by the eye.



The wind direction changed over a short time. And the wind direction was not stable as there was a large difference between the instantaneous wind direction and the 2-minute average wind.

Figure 1: Winds at Fukui Airport

**Event Occurred and Relevant Information**

(1) History of the flight

At about 12:55, the Aircraft took off from the Airport for flight training with the captain in the left pilot seat and the student pilot in the right pilot seat, and at about 13:03 approached into the traffic pattern for touch-and-go training on Runway 18 while controlled by the student pilot. At this time, the winds of which Fukui Radio (the Fukui Airport mobile communication station) informed the Aircraft was from 190° at 4 kt, and the student pilot retarded the throttle to idle and commenced the approach by gliding. When the Aircraft turned to the final approach course, the piste informed the Aircraft that the winds at the Airport was from 350° at about 8 kt. As the wind direction was a tailwind, the captain took over flight control from the student pilot in order to execute a go-around. Immediately after the captain took over flight control, they received information from Fukui Radio that the wind was from 270° at 5 kt, and the captain continued to approach by gliding, judging that landing would be possible if it was a crosswind.

When the captain commenced the flare while applying the wing-low method\*<sup>1</sup> with the bank to the right slightly at an altitude of about 5 m above ground level, the descent angle of the Aircraft became shallow, which caused the Aircraft to be in the state of floating at a low altitude over the runway, and the Aircraft to sink rapidly at an altitude of about 1 m above ground level, and touched down hard on the runway firstly from the right main wheel at about 13:05. The tip part of the propeller blades and the right main wheel cover contacted with the runway surface at the touchdown, and then the Aircraft bounced and floated, and stopped on the runway after the second touchdown.

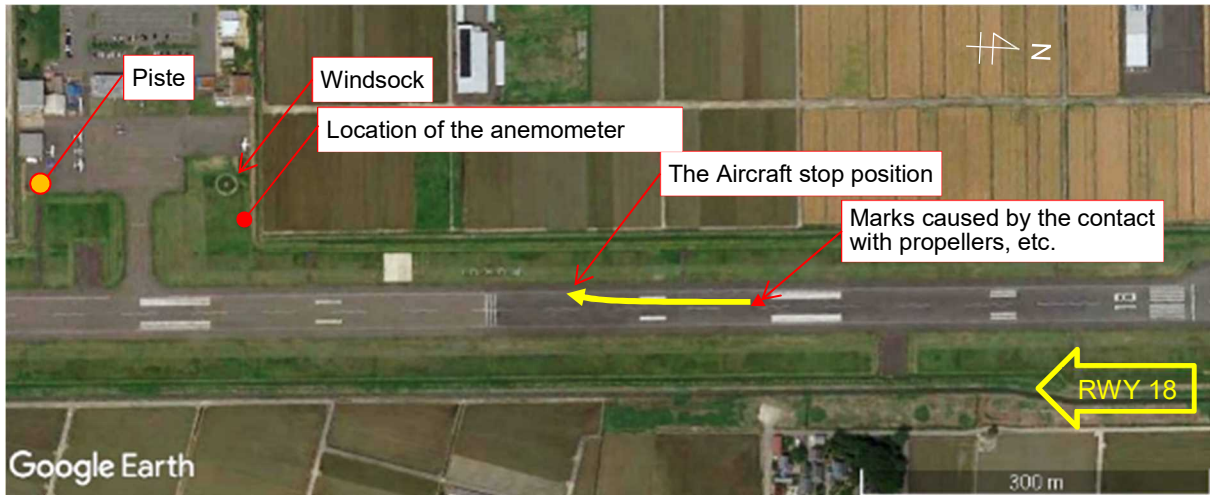


Figure 2: Estimated route on the runway

(2) Damage to the Aircraft

Slightly damaged: Tip of propeller blades lost,  
and scratch marks of the right main wheel cover

(3) Wind information from air traffic control facilities

The wind information at the Airport which air traffic control facilities report to an aircraft is the average values of the wind direction and velocity of the past two minutes. In addition, when the average wind velocity is at or greater than 10 kt and the variation width of the wind direction is at or greater than 60°, they will report the wind velocity, and subsequently the variation width of the wind direction.

The wind that Fukui Radio reported to the Aircraft on the final approach was from 270° at 5 kt, whose wind velocity was less than the reporting criteria, thus the variation width of the wind direction was not reported.

### 3. ANALYSIS

The JTSA concludes that as the wind direction at the Airport changed from south to northwest for about two minutes from about 13:03 to the time when this serious incident occurred at about 13:05, it is highly probable that the wind direction changed during the approach of the Aircraft, therefore, the captain performed the flare with a tailwind.

Regarding the fact that the captain made a landing with a tailwind, it is highly probable that the captain was unable to recognize the actual wind direction because while in the condition where

\*<sup>1</sup>The wing-low method means a process for approach while sideslipping by operating the ailerons to lower the windward wing to prevent it from being swept away by the crosswind, and thereby operating the rudder in the opposite direction (leeward side) so that it does not turn to the windward side.

the wind direction changed to northwest, the wind direction reported from Fukui Radio was west, but the variation width was not reported since the wind velocity was less than the reporting criteria. In addition, the reason why there was a difference between the actual wind direction and the wind direction reported from Fukui Radio is most likely because the average values of the wind direction and velocity of the past two minutes would be used to report to the Aircraft, which caused the difference with the instantaneous change in wind direction. (See Figure 1)

It is probable that the landing of the Aircraft was made by flare operations at a high ground speed caused by a tailwind, which resulted in the descent angle being shallower than usual, and the longer flight distance up until the touchdown.

Regarding the fact that the sink of the Aircraft suddenly increased significantly, and the Aircraft touched down hard, it is most likely that the lift decreased, and the descent rate increased because the wind direction and velocity changed, and the tailwind component increased immediately before the touchdown. It is highly probable that as the Aircraft touched down hard, the landing gear strut was greatly bent, and the tip part of propeller blades and the right main wheel cover contacted with the runway surface.

As aircraft with lower landing speed are greatly affected by the wind at the time of landing, it is desirable for pilots to carefully judge whether to make an approach or not by positively inquiring air traffic control facilities about the variation width even when the variation width of the wind direction and velocity are not reported from them.

#### **4. PROBABLE CAUSES**

The JTSB concludes that the probable cause of this serious incident was that because the wind direction and velocity changed and the tailwind component increased immediately before the touchdown, the lift decreased, the Aircraft touched down hard, and the tip part of the propeller blades and the right main wheel cover contacted with the runway surface.