AIRCRAFT ACCIDENT INVESTIGATION REPORT


(Provided by the Civil Aviation Bureau)

August 30, 2024
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

Company	Privately owned
Type, Registration Mark	Piper PA-28-151, JA3712
Accident Class	Damage to the aircraft during landing
Date and Time of the Occurrence	At about 10:58 Japan Standard Time (JST: UTC+9 hours), June 5, 2024
Site of the Accident	Yoron Airport, Kagoshima prefecture (27°02'38"N, 128°24'09"E)

1. PROCESS AND PROGRESS OF THE SERIOUS INCIDENT INVESTIGATION

Summary of the Accident	On Wednesday, June 5, 2024, while the aircraft was landing at Yoron Airport, it deviated from the runway and collided with the airport's perimeter fence, resulting in damage the leading edges of both wings, and so on.
Outline of the Accident Investigation	An investigator-in-charge and two investigators were designated on June 5, 2024. Comments on the draft Final Report were invited from the parties relevant to the cause of the serious incident and Relevant State.

2. FACTUAL INFORMATION

Aircraft Information

Aircraft type :	Piper PA-28-151
Serial number: 28-7415113	Date of manufacture: December 21, 1973
Airworthiness certificate: No. Dai-2023-503	Validity: November 21, 2024

Personnel Information

Student Pilot (student)	Age: 51
Student Pilot Certificate	Validity: March 1, 2025
Total flight time	50 hours 10 minutes
Flight time on the type of the aircraft	50 hours 10 minutes
Flight time in the last 30 days	2 hour 35 minutes

Meteorological Information

The wind directions/velocities of Yoron Airport aviation routine report were as follows:

10:00 070° / 9 kt

11:00 090° / 8 kt wind direction fluctuation 040° to 130°

Instantaneous wind direction (Wd)/ velocity (Wv) at the time the aircraft touched down (10:57:36) : 130° / 9 kt

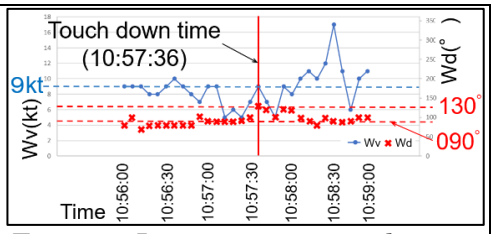

Figure 1: Instantaneous wind direction / wind velocity

Event Occurred and Relevant Information

(1) History of the Flight (See Figure 2)

The aircraft took off from Okinoerabu Airport at 10:39 a.m. with one student on board for a solo open air flight training, which is required to obtain a private pilot's license, and headed for Yoron Airport.

At about 10 nm north of Yoron Airport, the student received information from Yoron Radio that the wind direction at Yoron Airport was 090° (080° true bearing), with a wind velocity of 7 knots, and using runway was 14. Then the student received information at about 5 nm north of Yoron Airport that the wind direction was 090° (080° true bearing), with a wind velocity of 7 knots, and that the runway was clear. Recognizing that the wind was weak from the left, which did not change much from the aeronautical weather observation at Yoron Airport at 10:00, the student continued flying toward the left base leg of runway 14 at Yoron Airport.

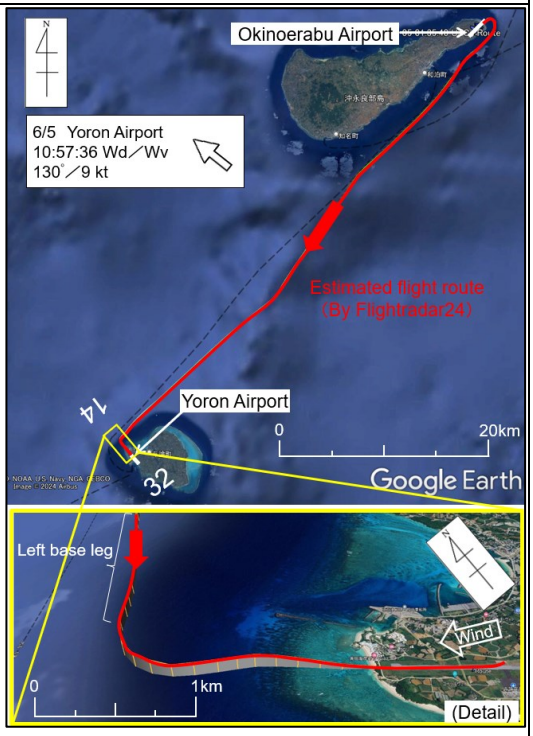

Figure 2: Estimated flight route

While flying on the left base leg, the student made a left turn toward the runway at an altitude of about 500 ft and a speed of about 70 knots and continued the final approach while

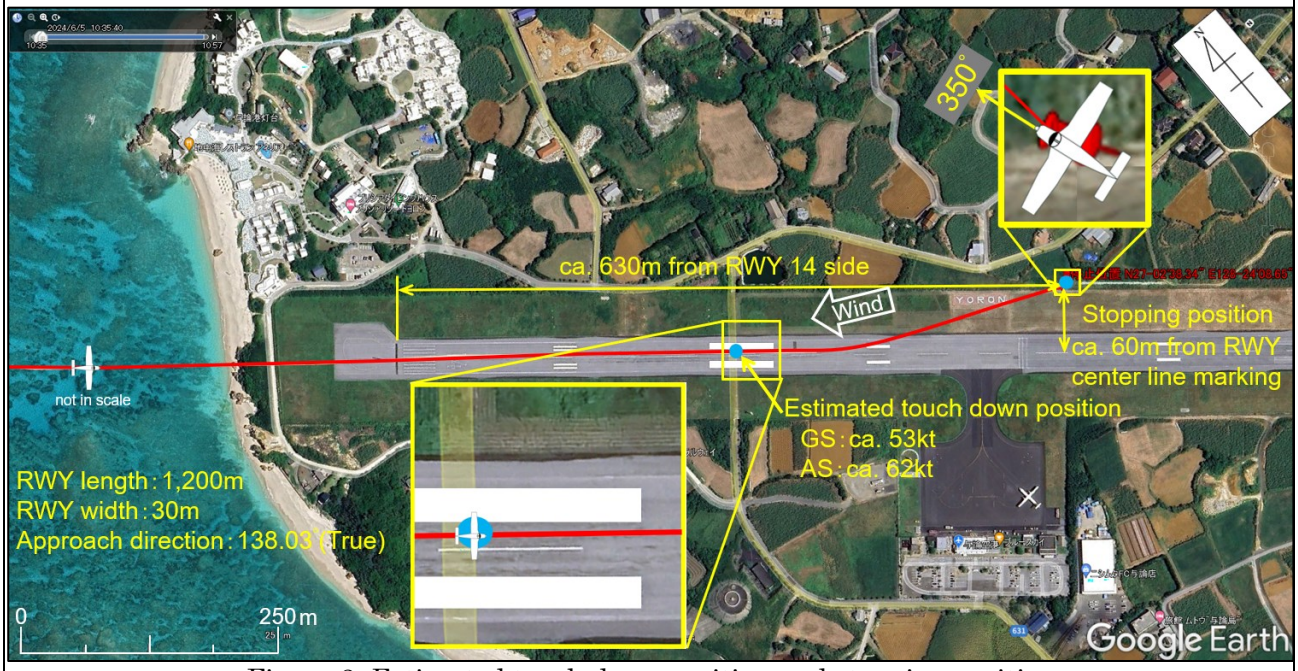

Figure 3: Estimated touch down position and stopping position

being careful not to drift to the right. Although the aircraft touched down near the aiming point marking, it did not drift to the right as much as the student had expected and touched down to the left of the runway centerline marking.

Therefore, the student applied the right rudder to bring the aircraft closer to the center of the runway, but as this resulted in a sudden right turn correction, he immediately applied the left rudder, which then resulted in a sudden left turn. The student applied both brakes strongly to try to stop the aircraft, but was unable to stop it on the runway and it veered off the runway and slid across the grass. The aircraft struck the leading edge of the left wing on a post in the airport's perimeter fence, turned left, and stopped when the propeller got entangled in the barbed wire of the fence, and the engine stopped at the same time. The student was not injured, and he reported the accident to his flight instructor by cell phone, reported the accident to Yoron Radio, turned off all power, and exited the aircraft on his own.

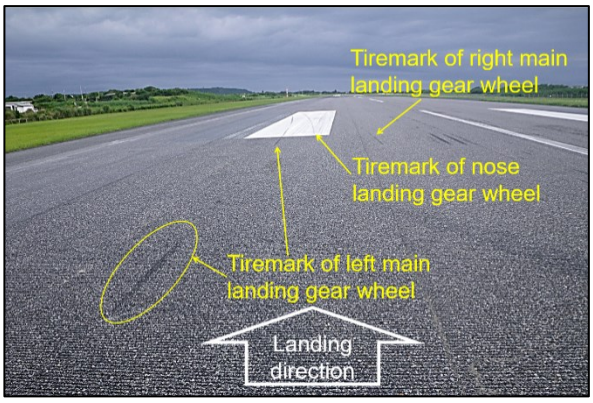

Figure 4: Tiremarks on the runway

(2) On-site Situation

The airport's perimeter fence had posts approximately 1.10m high, spaced approximately 2m apart, with wire mesh on the bottom and barbed wire on the top. Twelve of the posts had deformed, and the fence had collapsed outward over approximately 26m.

The Aircraft's three wheel tracks remained in the grass, followed by tiremarks on the runway. The tiremarks began with dark tiremarks that looked like the left main landing gear wheels had been braked, then stopped at one point, and tiremarks from both main landing gears and the nose landing gear curved left of the landing direction and continued across the grass.

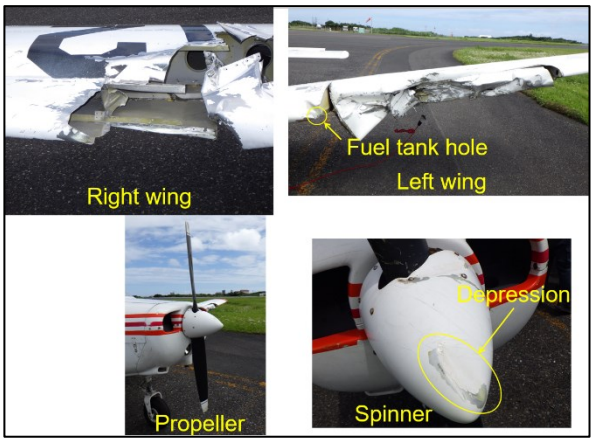

Figure 5: Main damage area

(3) Damage to the Aircraft

Substantially damaged

Damage with spars broken and abrasions to both wings

A breach in the left fuel tank

Depression and abrasions to spinner

Abrasions to the propeller and engine cowling

Uneven wear on part of the left main landing gear wheel tire

(4) Status of the Damage

Collapse of perimeter fence: Approximately 26m

The airport was closed from 10:58 a.m. to 7:30 p.m. and six scheduled flights were canceled.

Figure 6: Left main landing gear wheel

(5) Status of the Training

The student had been undergoing training for a private pilot license at TryAir Flight Club since February 2023. The student had completed

approximately 50 hours of training and was scheduled to take the practical test in July 2024. This flight was training for an open air flight with two times of full stop-and-go training, which is necessary for the practical test. This landing was the student's third landing at Yoron Airport.

On the day of the accident, the flight instructor was waiting at Naha Airport while checking the aircraft's movements using Flightradar24 and listening to radio communications.

According to the flight instructor's statement, the student had previously used the rudder to correct the runway direction immediately after landing and had instructed the student not to use the rudder while the aircraft was running at high speed. However, there had been no such operation recently, and there was no problem with the student's skills during the training with the flight instructor on the day of the accident. The student was better at landing than the other students.

3. ANALYSIS

The JTSB concludes that the aircraft most likely touched down to the left of the runway centerline marking when it landed at Yoron Airport during a solo open air flight training by a student. During the ground run, the student used the right rudder to bring the aircraft closer to the center of the runway, but the correction was more abrupt than expected, so it is most likely that the student immediately used the left rudder. Immediately after that, the aircraft certainly turned left, entered the grass field, and collided with the perimeter fence, damaging the aircraft. It is most likely that the nose turned left during the ground run because the left brake was applied before the speed had sufficiently decreased, based on the uneven wear of the left main landing gear wheel tire and the tire marks on the runway.

The JTSB concludes that the student used the right rudder, which resulted in a more abrupt correction than expected, is most likely to have been due to the amount of rudder operation exceeding the appropriate amount depending on the speed. From the initial training, it is desirable to instruct student pilots to correct heading during the ground run after landing by using the appropriate amount of rudder depending on the speed.

The JTSB concludes that when the student used the left rudder to correct the direction of travel to the left, the foot of the student also touched the left brake pedal, and it is most likely that the student applied the left brake at the same time as the student pressed the left rudder pedal. In initial training, it is desirable to instruct student pilots the proper foot position when using the rudder so that instruct student pilots does not accidentally press the brake pedal when the student intended to use the rudder.

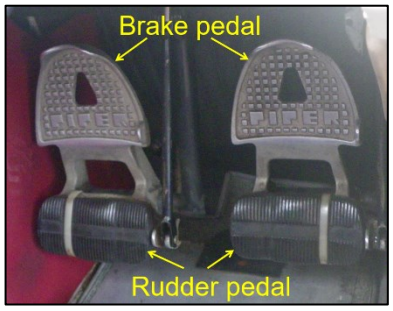

Figure 7: Brake pedal and rudder pedal

The JTSB concludes that why the aircraft touched down to the left of the runway centerline marking was probable that the wind direction, which the student had recognized as 090° (080° true bearing), had changed to 130° true bearing at the time of the aircraft's touch down, and the crosswind component had decreased, but the student was unable to respond to this.

4. PROBABLE CAUSES

The JTSB concludes that the probable cause of this accident was that when the aircraft was on its landing roll and the rudder was used to correct its direction before it had sufficiently slowed

down, and the left brake pedal was most likely pressed in the process, which activated the left brake, causing the aircraft to veer to the left, deviate from the runway, enter the grass field, and collide with the perimeter fence, damaging the aircraft.

5. SAFETY ACTIONS

Safety Action Required

As shown in the analysis, in the initial training, it is desirable to instruct student pilots to correct heading during the ground run after landing by using the appropriate amount of rudder depending on the speed and to master the appropriate foot position when using the rudder.