AIRCRAFT SERIOUS INCIDENT INVESTIGATION REPORT

March 13,2026
Adopted by the Japan Transport Safety Board
Chairperson RINOIE Kenichi
Member TAKANO Shigeru
Member DOZONO Masato
Member SODA Hisako
Member TSUDA Hiroka
Member MATSUI Yuko

Company	SKYNET ACADEMY Co., Ltd.
Type, Registration Mark	Cessna 172S, JA01DC
Incident Class	Deviation from a runway (limited to when an aircraft is disabled to perform taxiing) item (iv), Article 166-4 of the Regulation for Enforcement of the Civil Aeronautics Act
Date and Time of the Occurrence	At about 15:33 Japan Standard Time (JST: UTC+9 hours), August 5, 2024
Site of the Incident	Ryugasaki Airfield, Ibaraki Prefecture (35° 54' 24" N, 140° 14' 35" E)

1. PROCESS AND PROGRESS OF THE SERIOUS INCIDENT INVESTIGATION

Summary of the Serious Incident	On Monday, August 5, 2024, while performing a touch-and-go for flight training, the aircraft deviated from the runway during its take-off roll after landing and came to a halt in a grassy area. The only person on board the aircraft was the student pilot, who did not sustain any injuries.
Outline of the Serious Incident Investigation	On August 5, 2024, the Japan Transport Safety Board (JTSB) designated an investigator-in-charge and an investigator. Comments on the draft Final Report were invited from the parties relevant to the cause of the serious incident and the Relevant State.

2. FACTUAL INFORMATION

Aircraft Information

(1) Aircraft

Aircraft type:	Cessna 172S
Serial number: 172S11022	Date of manufacture: January 19, 2010
Airworthiness certificate: No. Tou-2024-129	Validity: July 6, 2025
Total flight time	3,772 hours 26 minutes

(2) Weight and Balance

When the serious incident occurred, the weight of the aircraft was estimated to have been 2,158 lb and the position of the center of gravity (CG) was estimated to have been 43.58 in aft of datum line, both of which were within the allowable range.

Personnel Information

Flight instructor: Age 64

Commercial pilot certificate (Airplane)	July 1, 2008
Pilot competence assessment	
Expiration date of piloting capable period: August 18, 2025	
Ratings and limitations: Rating for single-engine (land)	May 14, 1991
Flight instructor rating (Airplane)	January 23, 2009
Total flight time	5,439 hours 04 minutes
Flight time in the last 30 days	38 hours 09 minutes
Flight time on the type of the aircraft	2,267 hours 17 minutes
Flight time in the last 30 days	38 hours 09 minutes

Student pilot: Age 49

Flight training certificate	Validity: August 8, 2024
Total flight time	58 hours 26 minutes
Flight time in the last 30 days	9 hours 21 minutes
Flight time on the type of the aircraft	58 hours 26 minutes
Flight time in the last 30 days	9 hours 21 minutes

Meteorological Information

According to the anemometer and wind direction indicator installed at the airfield, weather observations around the time of the serious incident were as follows:

About 15:30: Anemometer (Average for the preceding 10 minutes) Wind direction: 080°, Wind velocity: 5 kt

Wind direction indicator (Windsock) Wind direction: 090°

Event Occurred and Relevant Information

(1) The History of the Flight Up to the Occurrence of the Serious Incident (Figure 1)

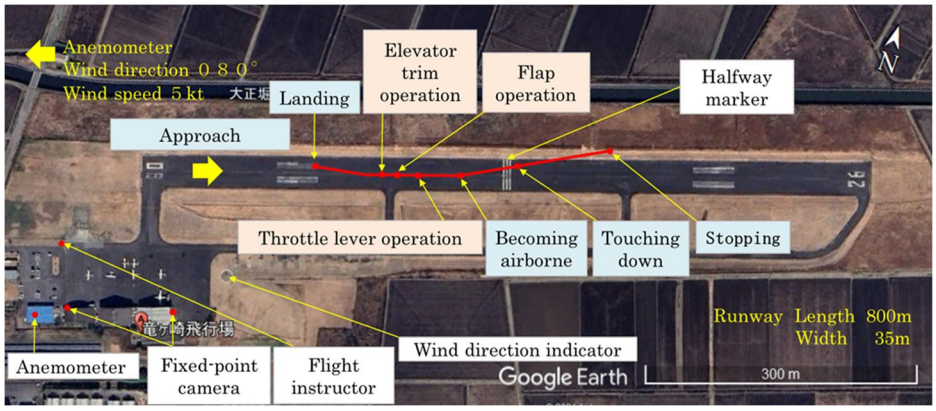

Figure 1: Estimated Flight Route

According to the flight instructor and the student pilot, the history of the flight up to the time of the serious incident is summarized as follows:

The aircraft took off from Chofu Airfield and flew to Ryugasaki Airfield (hereinafter referred to as "the airfield"), piloted by the student pilot, for the flight training required to obtain a private pilot certificate, with two people on board the aircraft: the flight instructor, who was acting as captain and the student pilot. After landing at the airfield, with only the student pilot on board, the aircraft began touch-and-go trainings in solo flights, using Runway 08 at the airfield.

After the landing of the third touch-and-go, the student pilot took off by operating the flap lever and elevator trim control in that order, in accordance with the procedures. When raising the nose for take-off, the student pilot felt as if the aircraft had become airborne earlier than usual, then confirmed the position of the elevator trim control after take-off and noticed that it was set to a nose-up position rather than the “TAKE OFF” position. Wanting to confirm whether the timing of the aircraft becoming airborne would change if the elevator trim control position was set correctly to the "TAKE OFF" position during the landing of the next touch-and-go, the student pilot decided to set the elevator trim control to firmly the "TAKE OFF" position and then raise the flaps. Therefore, after the landing of the fourth touch-and-go, the student pilot first visually confirmed that the elevator trim control had been set to the TAKE OFF” position and then operated the flap lever. Regarding this operation, the student pilot stated that the student pilot had moved the flap lever from the full down position to the full up position. After that, the student pilot started to press the right rudder pedal, and next operated the throttle lever to the full power position. However, the student pilot did not confirm the flap position after operating the flap lever.

While the aircraft was accelerating, the student pilot paid attention to the values shown on the airspeed indicator until the airspeed reached 55 kt — the indicated airspeed (KIAS) at which the nose should be raised — while continuing to press the right rudder pedal in order to ensure the aircraft could taxi along the center of the runway. Regarding the operation at this time, the student pilot stated that the student pilot kept the hand on the control wheel, but did not operate it.

The aircraft became airborne unintentionally at 50 to 51 KIAS, and its nose veered to the left. The student pilot pressed the right rudder pedal but was unable to correct the deflection of the aircraft. Even at this time, the student pilot kept the hand on the control wheel but did not operate it. When the aircraft passed the halfway marker while still being airborne, the student pilot sensed danger. Therefore, to abort the take-off, the student pilot pulled the throttle lever to the IDLE position, reduced the engine power, and made the aircraft touch down with its nose pointing to the left in relation to the runway centerline. After the aircraft touched down, the student pilot attempted to reduce the speed by applying the left and right brake pedals instead of correcting the direction with the rudder pedals. However, the aircraft did not stop and deviated from the runway, eventually coming to a halt in a grassy area on the left side of the runway. The student pilot communicated with the administrator of Ryugasaki Airfield, then shut down the electrical power and got off the aircraft. The student pilot had no memory of operating the flap lever after the aircraft had stopped.

The flight instructor was monitoring the aircraft's flight progress on the ground. After the aircraft had landed, the instructor visually confirmed that the sound of the engine power increasing could be heard, and that after which the aircraft became airborne slightly, and moved to the left with its nose deflecting to the left, after that, the aircraft bounced and tilted forward.

(2) Video Footage from the Fixed-point Camera at the Airfield and the Incident Site (Figure 2, Figure 3)

According to the video footage from the fixed-point camera installed at the airfield, the aircraft's movements from when it was taxiing on the runway after landing until it came to a halt in a grassy area on the left side of the runway are as shown in Figure 2. During the take-off roll, the aircraft became airborne from the nose, touching down with its nose veering to the left. It took about eight seconds for the aircraft to land and for its nose to rise. Besides, the wind direction indicator (windsock) was pointing at around 090°, indicating a consistent wind direction. The aircraft deviated from the runway, entered the grassy area on the left side of the runway, tilting

forwards significantly as if it had gotten stuck on the ground. It then came to a stop in an almost horizontal position. At the serious incident site, the aircraft's tire marks were still visible. Three tire marks were left in the grassy area, extending from the direction in which the aircraft had been travelling. Furthermore, the aircraft's nose wheel and both main wheels were buried in the grass, preventing the aircraft from taxiing.

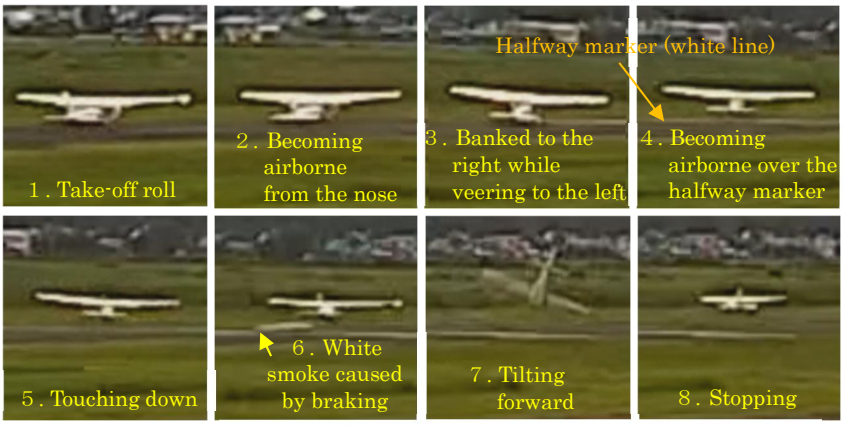

Figure 2: Video from Fixed-point Camera

Figure 3: Tire Marks

(3) Status of Flaps, Elevator trim, Rudder pedals, and Brakes (Figure4)

Although the flap lever in the cockpit was in the full up position, the flap position, and the value on the flap control indicator in the cockpit were both set to 10°. When the electrical power was turned on in this condition, the flaps began to operate, moving to the same position as the flap lever (full up), and then stopped. Subsequent checks revealed that the flaps operated following the flap lever with no difference arising between the lever's position and that of the flaps. The flaps stopped operating six seconds after the lever was moved from the full down position to the 10° position. As shown in Figure 4, the elevator trim installed on the right elevator was set to the nose-up position (trim down position). In addition, no anomalies were observed in the operation of the rudder pedals and brakes.

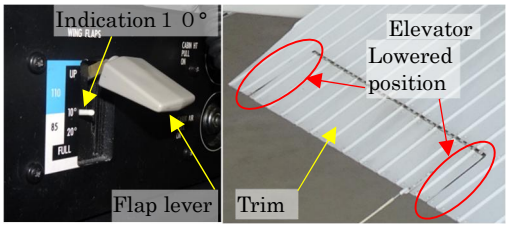

Figure 4: Flap Lever and Elevator Trim

(4) Damage to the Aircraft (Figure 5)

Propeller blades: Scratch marks were found on the tips of both blades. One of the blades had bent backwards.

Main wings: Scratch marks were found on the leading edge of the left main wing. The shield plate at the tip of the right main wing was found to be bent inwards.

Right side of the fuselage: The outer skin of the lower engine cowl attachment was broken.

Left side of the fuselage: The shock mount for the lower engine cowl attachment was broken.

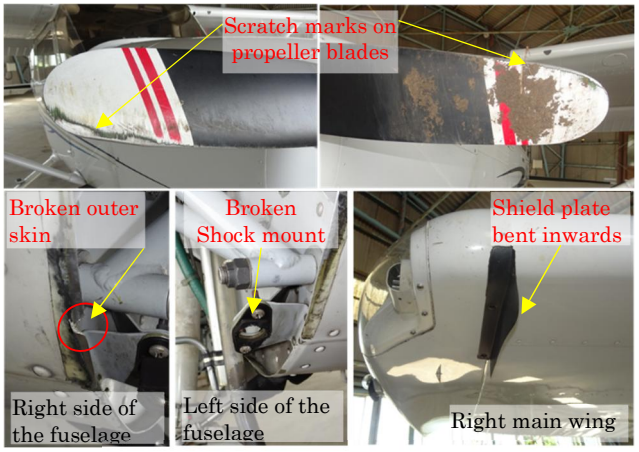

Figure 5: Main Damage Areas

(5) Descriptions in the Flight Manual

The take-off procedures described in the aircraft's Flight Manual state as follows: after setting the flaps to the take-off position (between the full up and 10°), the throttle lever should be set to full forward and the control wheel should be pulled back at 55 KIAS for the nose up. The operation procedures after landing described in the Flight Manual state as follows: after setting the flaps to the full up position, the engine shutdown and electrical power turn-off procedures should be performed.

In addition, under the following conditions, the stall speed is between 40 and 43 KIAS when the center of gravity (CG) is at the full forward (41.0 in aft of the datum line, and between 40 and 42 KIAS when the center of gravity (CG) is at the full aft (47.3 in aft of the datum line).

Flaps: 10° to full down, Weight: 2,550 lb, Engine power: Idle, Angle of bank: 0°

(6) Situation of Training

The student pilot initially underwent training to obtain a private pilot certificate with another organization. However, in May 2024, the student pilot was transferred to the company's course and received training there. After transferring, the student pilot had completed about 17 hours of training, and this was the student pilot's second solo flight.

During the company's training, the flaps should be set to the full up position at Ryugasaki Airfield, and to 10° at Chofu Airfield during take-off.

During the training to obtain a private pilot certificate, when conducting touch-and-go training, the flight instructor instructed students to operate the flap lever, elevator trim control and throttle lever in that order and to maintain the take-off roll direction. However, the flight instructor had never instructed on how to hold the control wheel during the take-off roll.

3. ANALYSIS

(1) Runway Excursion

The JTSB concludes that it is most likely that when the aircraft became airborne unintentionally during the take-off roll, and the student pilot attempted to abort the take-off and make the aircraft touch down, the aircraft touched down with its nose veering to the left, which resulted in the runway excursion.

(2) The Aircraft's Airborne Situation

The JTSB concludes that it is highly probable that given that the aircraft had become airborne from its nose, the angle of attack of the main wings and lift force increased as the aircraft was in a nose-up attitude, resulting in the aircraft's becoming airborne.

It is possible that the aircraft became nose-up a pulling force was unintentionally applied to the control wheel which the student pilot was holding, although the student pilot stated that the student pilot kept the hand on the control wheel but did not operate it. In addition, as the elevator trim was set to the nose-up position for take-off, it is likely that the elevator could easily have moved in that direction when a pulling force was unintentionally applied to the control wheel.

(3) Flap Position at the Time the Aircraft Became Airborne

The JTSB concludes that since the student pilot had raised the flap lever after the aircraft landed and before it became airborne from the nose, it is most likely that when the aircraft became airborne, the flaps were in a higher position than the full down position used for landing. In addition, the airframe examination after this serious incident that revealed that the position of the flaps was at 10°, therefore, when the aircraft became airborne, it is highly probable that the flaps were not in the full up position intended by the student pilot, but rather in a position upper than the full down position but lower than the 10° position. When the aircraft became airborne,

the flaps were most likely in a position upper than the full down position but lower than the 10° position, and the aircraft was taxiing at the indicated airspeed exceeding the stall speed, therefore, it is highly probable that the aircraft was in a state where it could be able to become airborne.

It took about eight seconds for the aircraft to land and for its nose to rise and the flap operation time was six seconds after the lever was moved from the full down position to the 10° position. Therefore, it is possible that if the student pilot had moved the flap lever upwards within two seconds after landing, the flaps would have reached the 10° position by the time the aircraft became airborne. On the other hand, it is possible that if the student pilot had moved the flap lever upwards beyond two seconds after landing, the flap position would have been lower than the 10° position by the time the aircraft became airborne.

As the student pilot operated the elevator trim control first and the flap lever second after the landing of the fourth touch-and-go, which was different from the flight instructor's procedures, it is likely that operating the flap lever took place later than it would have done had the flight instructor's procedures been followed. And it is also possible that when the aircraft became airborne, the flaps were set to a position that would allow the aircraft to become easily airborne.

The flap lever operation should be performed at the time specified in the flight instructor's procedures.

There was a discrepancy between the flap lever position and the flap position, possibly because, according to the flap position for take-off during the company's training (specified to set to full up or 10°, depending on the airfield) and the operation procedures after landing, the student pilot set the flap lever to the 10° position when operating the flap lever during the take-off roll, however, the aircraft came to a halt, and then the aircraft's power supply was shut down after the flap lever was set to the full up position.

(4) The Veering of the Aircraft's Nose

The JTSB concludes that it is most likely that, after becoming airborne, the aircraft's nose veered to the left because the airflow, which was generated by the propellers rotating clockwise towards the nose, hit the left side of the vertical stabilizer, which generated an influence of the propeller slipstream, and because the thrust produced by the propeller blades on the right side was greater than that produced by the propeller blades the on the left side when viewed by looking toward the nose, due to the nose-up position of the aircraft, resulting in an asymmetrical force between the left and right propellers.

The effect of this nose veering is more significant at lower speeds. Therefore, if it becomes airborne at a lower speed than usual, more right rudder input is required than normal.

After the aircraft became airborne, the student pilot was unable to correct the nose direction despite of pushing the right rudder pedal. This is likely because the amount of the right rudder input required to control the direction was insufficient.

(5) The Importance of Training for Attitude Retention

During the take-off roll, it is necessary to pay attention to the aircraft's behavior to prevent it from becoming airborne unintentionally, and to operate the control wheel and rudder pedals to retain the aircraft's attitude. Therefore, the flight instructor should provide instruction to enable the student pilot to acquire this skill during flight training.

4.PROBABLE CAUSES

The JTSB concludes that the probable cause of this serious incident was that it is most likely that when the aircraft became airborne unintentionally during the take-off roll, the student pilot

attempted to abort the take-off and make the aircraft touch down, however, the aircraft touched down with its nose veering to the left, which resulted in a runway excursion, and then the aircraft came to a halt in a grassy area, preventing the aircraft from being able to taxi.

It is possible that the aircraft became airborne unintentionally due to the following factors: the flaps were in a position that allowed the aircraft to become airborne: in addition, pulling force was unintentionally applied to the control wheel in circumstances where the aircraft's elevator would easily move in a nose-up direction, which resulted in its nose-up attitude, causing the aircraft to become airborne.

The aircraft touched down with its nose veering to the left. This was possibly because, after the aircraft was airborne, the student pilot pressed the right rudder pedal, and the amount of input was insufficient.

The following documents are available on the JTSB website on the prevention of accidents of small aircraft and others.

JTSB Digests, Vol. 42 (issued in August 2023), Digests of Aircraft Accident Analyses, "For Prevention of Accidents of Small Aircraft – Do you know flight data monitoring system (FDM)?".
（https://jtsb.mlit.go.jp/bunseki-kankoubutu/jtsbdigests_e/jtsbdigests_No42/No42_pdf/jtsbdi-42_all.pdf）