

AIRCRAFT ACCIDENT INVESTIGATION REPORT



September 5, 2025

Adopted by the Japan Transport Safety Board

Chairperson RINOIE Kenichi
 Member TAKANO Shigeru
 Member MARUI Yuichi
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 Member TSUDA Hiroka
 Member MATSUI Yuko

Company	Privately owned
Type, Registration Mark	Cessna 172P, JA4098
Accident Class	Aircraft damage due to overrunning during landing
Date and Time of the Occurrence	At about 11:05 Japan Standard Time (JST: UTC+9 hours), October 27, 2024
Site of the Accident	Semine Operation Site, Kurihara City, Miyagi Prefecture (38° 40' 43" N, 141° 01' 25" E)

1. PROCESS AND PROGRESS OF THE ACCIDENT INVESTIGATION

Summary of the Accident	On Sunday, October 27, 2024, upon landing at Semine Operation Site in Kurihara City, Miyagi Prefecture, the aircraft overran the runway, sliding down a steep slope covered in grass and shrubs and sustaining damage to its main wings, airframe, vertical fin and others.
Outline of the Accident Investigation	On October 27, 2024, an investigator-in-charge and an investigator were designated. Comments on the draft Final Report were invited from the parties relevant to the cause of the accident and the Relevant State.

2. FACTUAL INFORMATION

Aircraft Information	
Aircraft type :	Cessna 172P
Serial number: 17276610	Date of manufacture: April 17, 1986
Airworthiness certificate: No. Tou-2023-425	Validity: February 15, 2025
Personnel Information	
Pilot: Age 43	
Private pilot certificate (Airplane)	May 25, 2021
Rating for single-engine (land)	May 25, 2021
Pilot competency assessment	
Expiration date of piloting capable period:	May 9, 2025
Class 2 aviation medical certificate	Validity: September 30, 2025
Total flight time	124 hours 31 minutes

Flight time on the type of aircraft	52 hours 43 minutes
Flight time in the last 30 days	0 hour 00 minute
Meteorological Information The AMeDAS data at Tsukidate, which is located about 6.3 km north-northwest of the operation site, were as follows: 11:00 Average wind velocity: East-Southeast / 0.9 m/s Maximum instantaneous wind velocity: East-Southeast / 2.3 m/s Temperature: 19.8 °C, Last 10 minutes of sunshine: 10minutes	
Event Occurred and Relevant Information (1) History of the Flight (see Figure 1) At about 09:10, the aircraft took off from Honda Airport in Okegawa City in Saitama Prefecture under the pilot's control, with the pilot in the left pilot seat and the passenger who hold a private pilot certificate (Airplane) in the right pilot seat, in order to participate in an event at the operation site. During the pre-take-off inspection, brake checks were also conducted while taxiing. Neither check revealed any abnormalities, nor were there any issues with the pilot's physical condition. The pilot obtained information about the active runway was Runway15 and the calm wind through radio communication with the operation site. As it was the first landing at the operation site for the pilot, the pilot attempted to make a low approach (passing over the runway with low altitude) over Runway 33 as a familiar and demonstration flight, however aborted the low approach when a person crossed the runway. After that, the aircraft flew straight for about 2 nm, made a 180° turn at an altitude of between 1,500 and 2,000 ft to head towards Runway 15, and made an approach. It then flew the right downwind leg of Runway 15 at an altitude of 1,000 ft and a speed of 90 to 100 kt. The flaps were set at 15° and the downwind leg was extended to maintain a safety margin. The aircraft made a base turn while reducing its speed, resulting in a shallower approach angle when entering the final leg. The pilot made corrections using the throttle and attitude control so that the approach angle would be at 3°, set the flaps to 30°, made an approach by aiming to touch down at the designation marking of Runway 15, and moved the throttle to the idle position at the runway threshold. Usually stall warnings are often activated before touchdown, but did not activate even once at the time of the accident. The aircraft touched down almost on the centerline of the aiming point (1st time). As feeling the aircraft speed up and momentarily float, the passenger said, "Should we go around?" The pilot hesitated for a moment about whether to do so, but soon the aircraft made a touchdown again (2nd time). This position was about 210 m from the runway threshold. The pilot decided not to make a go-around and started by applying the brakes intermittently, as usual, before applying them continuously and firmly. The pilot thought that the pilot was firmly applying the brakes, but the pilot did not feel the usual deceleration and saw the runway threshold gradually	

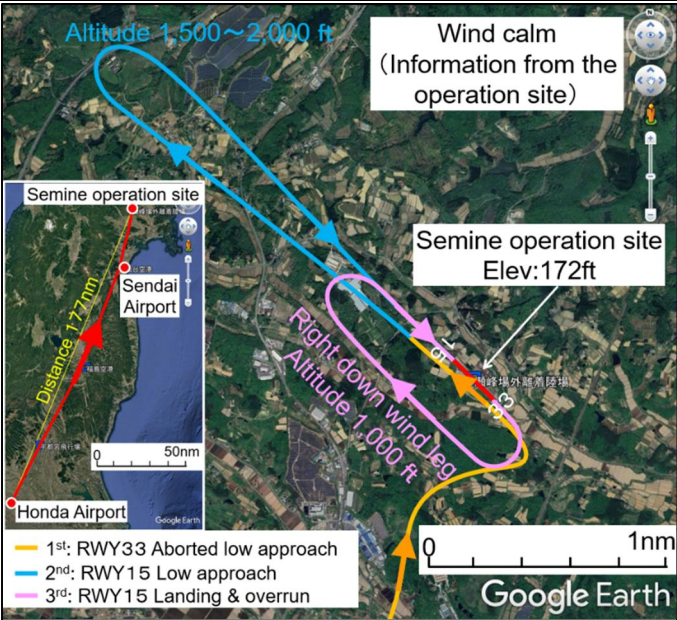


Figure 1: Estimated Flight Route

come into view. Seeing the passenger lean back in the pilot's seat and say, "It won't stop, it won't stop", the pilot realized that the passenger was applying the brakes at the same time.

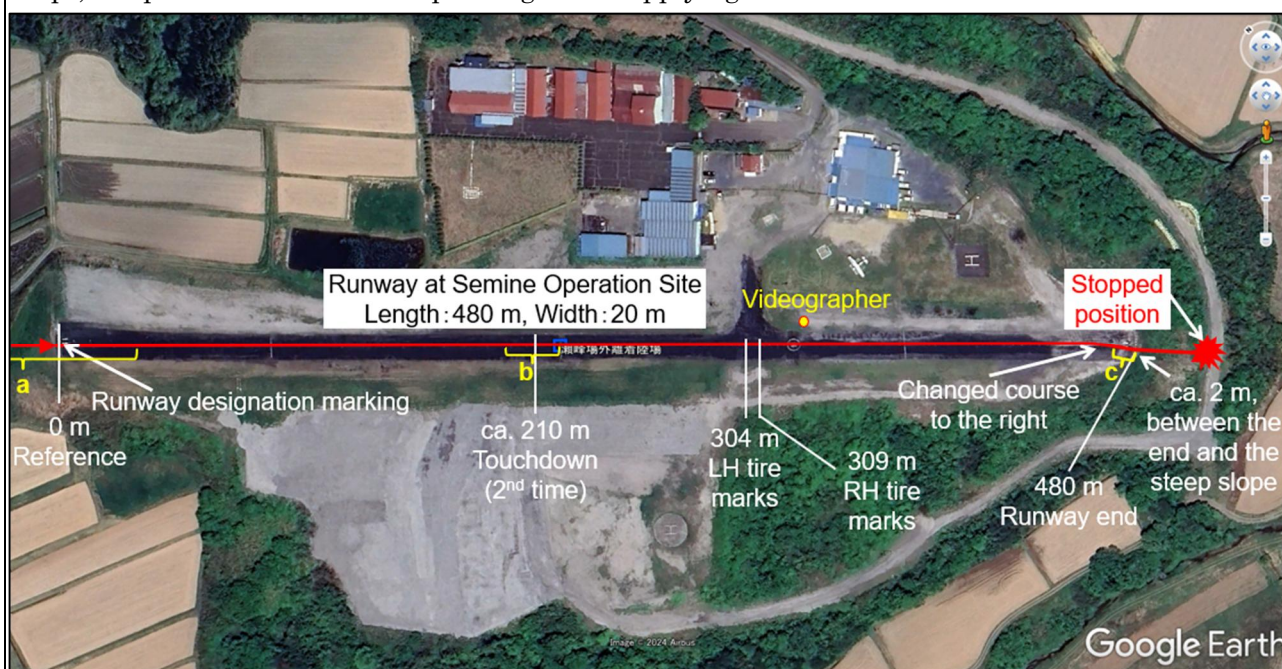


Figure 2: Estimated Touchdown Position and Stop Position

Although the aircraft slowed down, it was unable to stop at the runway end and slid down the steep slope just ahead of it from its nose. As the aircraft entered the grass and shrubs, the pilot was completely unable to make out the aircraft's attitude at all. The aircraft finally hit a tree at last, rolled forwards and came to a stop upside down facing the opposite direction. The engine also shut down. The passenger said, "Let's get out at once", and the pilot unfastened the harness, opened the left door and escaped from the aircraft. The passenger turned off the master switch, the ignition switch and the fuel shutoff valve, then attempted to exit. However, the right door would not open. The passenger therefore escaped through the left door. Neither of them sustained injuries. Although no fire broke out, they found fuel leaking. The police and fire brigade then rushed to the scene and laid down fuel-absorbent mats.

(2) Information on the Accident Site

The operation site has a runway which is 480 m long, 20 m wide and asphalt-paved. The field elevation is 172 ft. Runway 15 slopes downwards by 1% and forms a steep slope with a depression angle of around 40°, extending approximately 2 m from the end of the runway.

Tire marks, likely from both main landing gears, were found in an area extending from 304 m from the threshold of Runway 15 at the operation site to the end of the runway. The tire marks gradually changed course to the right, short of the end of the runway,

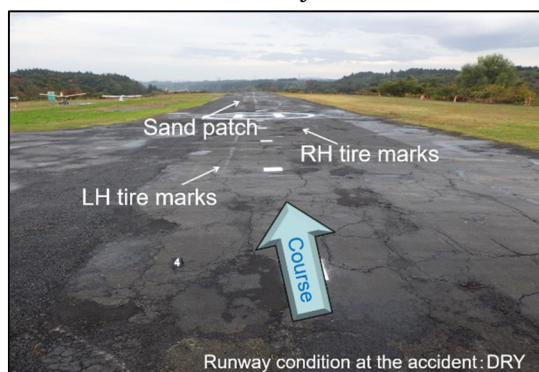


Figure 3: Tire Marks on the Runway

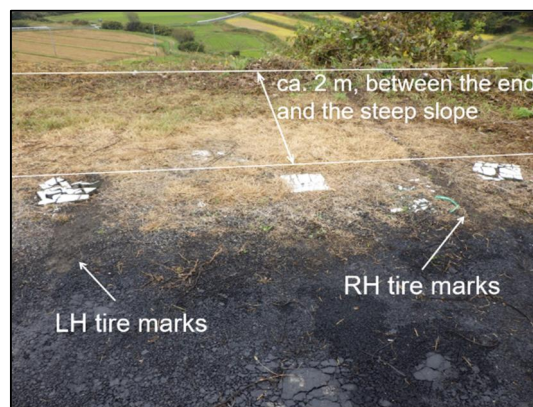


Figure 4: Tire Marks at the End of Runway 15

and continued onto the steep slope (see Figures 3 and 4). The left tire mark passed sand patch on the runway. Between the runway surface and the aircraft's stop position was a steep slope with a difference in altitude of about 17 m. This slope was covered in grass and shrubs, some of which were mowed down as the aircraft slid down it. A tree at the bottom of the slope had fallen from its root (see Figure 5).

(3) Aircraft Damage

Left main wing: Deformed near the wing tip

Right main wing: Deformed at the wing tip and near the root

Fuselage: Deformed

Vertical fin: Deformed

Nose landing gear mount: Broken

Spinner: Deformed

Propeller: One propeller was deformed.

Tires of both main landing gears: Unevenly worn

(4) Aircraft Performance

The section of the aircraft's flight manual titled "*5-12 Landing Distance (Short Field Landing)*" provides the information on the pressure altitude corresponding to the runway elevation; the landing distance (from 50 ft AGL to full stop) as well as the ground roll distance corresponding to temperature, at a speed of 61 kt at 50 ft AGL, with a maximum landing weight of 2,400 lbs., and under the following conditions : Flaps 30°, power off, maximum braking, paved, level, dry runway, and zero wind. When these conditions were applied — zero wind, a temperature of 20°C, and an elevation of 172 ft (all approximate values for the situation at the time) — the landing distance was 1,295 ft (395 m) and the ground roll distance was 550 ft (168 m). The aircraft's weight at landing was 1,978 lbs.

The section of the aircraft's flight manual titled "*4-3-8 Stalls*" states that "*aural warning system is equipped by a stall warning horn which sounds between 5 and 10 knots above the stall in all configurations*". According to the pilot, the stall warning system of the aircraft would be activated at 48 kt in the vicinity of the touchdown.

(5) Information from the Video Footage



Figure 5: Slope viewed from below

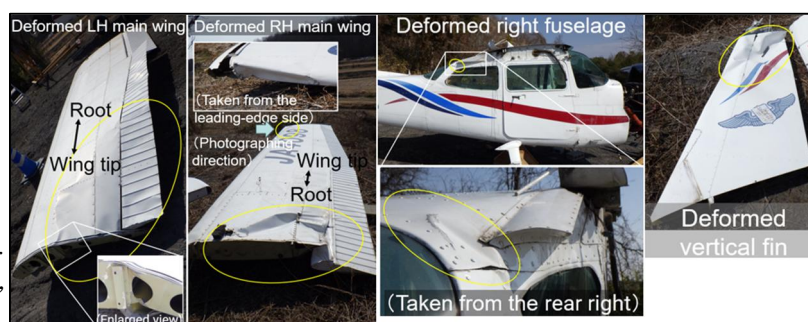


Figure 6: Damage to the Aircraft 1

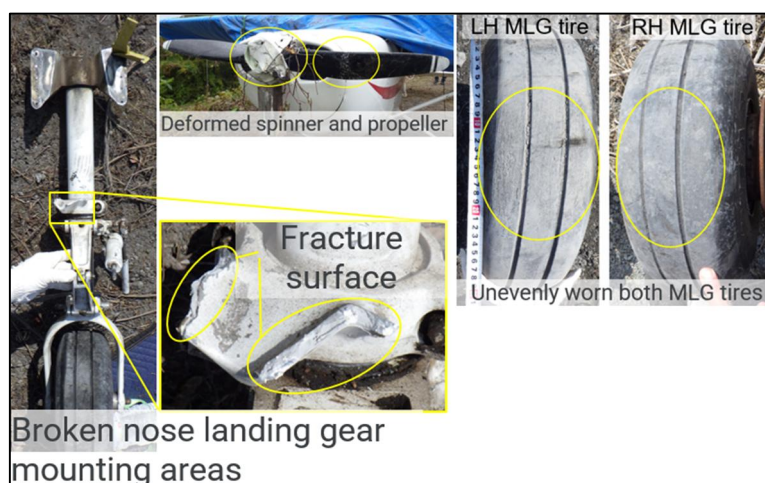


Figure 7: Damage to the Aircraft 2

A video recording of the aircraft's landing showed that it initially floated slightly after touching down on its both main landing gears only, before touching down on all landing gears immediately afterwards.

In addition, the following still images were extracted from the video:

- a. near the runway threshold;
- b. near the center of the runway;
- c. near the end of the runway.

And the aircraft speed was calculated based on changes in the length of the aircraft's wing tip over a certain period, as well as the distance between the videographer and the aircraft. The results are shown below (see Figure 2 for the videographer's position and the range from which the still images were extracted). This calculation was performed in cooperation with the Japan Aerospace Exploration Agency (JAXA).

- a. 80 to 95 kt,
- b. 40 to 60 kt,
- c. 20 to 30 kt

3.ANALYSIS

The JTSCB concluded that it is highly probable that, after touchdown, the aircraft floated once when it passed at a speed exceeding the short field landing speed near the threshold of Runway 15 at the operation site and touched down again around 210 m from the threshold (runway remaining distance: 270 m), and that after that, the brakes were applied during ground roll around 304 m from the threshold (runway remaining distance: 176 m), resulting in the aircraft overrunning. It is highly probable that the aircraft overran the runway, and slid down mowing down the grass and shrubs on the steep slope about 2 m ahead before hitting a tree at the bottom of the slope and rolling forward. It is certain that the aircraft was damaged by the impact of hitting the grass and shrubs, and by rolling forward.

Judging by the condition of the tire marks and the marks left by the worn main landing gear on the runway, it is certain that the aircraft's brakes continued to function normally from the moment they were applied until the aircraft overran the runway and onto the slope.

The landing distance of the aircraft under the conditions at the time was 395 m, and given the aircraft's performance, it is certain that the aircraft would be able to land at the 480 m long operation site. Besides, although the ground roll distance was 168 m, the aircraft made a ground roll approximately 270 m, but it was unable to stop within the runway despite the brakes being applied during the 176-meter ground roll. This is probably because the aircraft speed at the time of the touchdown was excessive. Furthermore, Runway 15 had a downward inclination of 1 % and there were sand patches in some areas, which would have possibly contributed to the aircraft overrunning. However, the extent of the influence was unknown.

The pilot set the Runway 15's designation marking located near the threshold as an aiming point and made an approach. Once the aircraft had touched down close to the aiming point, but it floated and touched down again around 210 m from the threshold — the point significantly ahead in the direction of travel. The increased distance to the second touchdown suggests that, even with a flare maneuver (where the nose of the aircraft is pulled up immediately before touchdown), lift was maintained for a long time with high speed, and this was probably caused by the speed near the runway threshold exceeding the short field landing speed of 61 kt. Since the stall warning system supposed to activate at 48 kt did not activate even when the aircraft touched down in the

vicinity of the center of the runway, it is more likely that the aircraft touched down without reducing its speed sufficiently.

Although the aircraft's landing performance would enable it to land at the operation site, there would be only a slight margin. Therefore, it is important for the pilot to make an approach with due consideration for the aircraft's approach speed and to determine whether the conditions will permit the aircraft to demonstrate its specified landing performance. And if the pilot judges that this may not be possible, the pilot must execute a go-around without hesitation.

4. PROBABLE CAUSES

The JTSCB concludes that the probable cause of the accident was that it is certain that, after landing, the aircraft was unable to stop within the runway and overran, and it slid down a steep slope, hit shrubs and a tree, and rolled forward, resulting in damage to the aircraft due to the impact.

Regarding the aircraft was unable to stop within the runway and overran, it is probable that the approach speed was too high, causing it to lift off after initially touching down in almost the intended position, and then touching down again in the vicinity of short of the center of the runway, and the speed at touchdown was also high.

5. SAFETY ACTIONS

Safety Actions Considered Necessary

As shown in the analysis, when landing without a margin for landing performance, it is important for the pilot to make an approach with due consideration for the aircraft's approach speed, and to judge whether the conditions will allow the aircraft to demonstrate its specified landing performance. And if the pilot determines that this may not be possible, the pilot must execute a go-around without hesitation.