

AI2023-7

**AIRCRAFT SERIOUS INCIDENT
INVESTIGATION REPORT**

**SGC Saga Aviation Co., Ltd.
J A 4 1 2 1**

November 30, 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

October 20, 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

Company	SGC Saga Aviation Co., Ltd.
Type, Registration Mark	Cessna 172P, JA4121
Incident Class	Attempted landing to an engaged runway Item (ii), Article 166-4 of the Ordinance for Enforcement of the Civil Aeronautics Act of Japan
Date and Time of the Occurrence	At about 11:31 Japan Standard Time (JST: UTC+9 hours), December 12, 2022
Site of the Incident	Saga Airport

1. PROCESS AND PROGRESS OF THE SERIOUS INCIDENT INVESTIGATION

Summary of the Incident	On Monday, December 12, 2022, while the aircraft was making a landing approach to Saga Airport for a flight training, a vehicle entered the runway, causing the aircraft to execute a go-around.
Outline of the Incident Investigation	An investigator-in-charge and an investigator were designated on December 12, 2022. 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	
Aircraft type: Cessna 172P	
Serial number: 17276178	Date of manufacture: January 16, 1984
Airworthiness certificate: No.Dai-2022-495	Validity: November 16, 2023
Personnel Information	
Captain (Trainee):	Age: 21
Private pilot certificate (Airplane) Rating for single-piston engine (Land)	May 30, 2022
Instructor:	Age: 57
Commercial pilot certificate (Airplane) Rating for single-piston engine (Land)	June 1, 1988
Bird Sweep*1 Staff:	Age: 74

*1 The "bird sweep" refers to removal work of harmful birds and beasts to prevent them from striking aircraft using firearms and fireworks.

Restricted area safety training course attendance date	March 30, 2021
Air Traffic Services Flight Information Officer:	Age: 36
Air traffic service flight information officer certificate (Air Mobile Communication)	April 1, 2010

Meteorological Information

When the serious incident occurred, weather was fine with a northeasterly wind at 10 kt, and good visibility at Saga Airport.

Event Occurred and Relevant Information

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

Cessna 172P, JA4121, operated by SGC Saga Aviation Co., Ltd., was approaching for landing, it received the information that runway was clear, from the Saga Airport Mobile Communication Station, "Saga Radio" operated by the Air Traffic Service Flight Information Officer. After this communication, the bird sweep staff asked the Air Traffic Service Flight Information Officer permission to enter the runway but was told to hold position because the aircraft was making its landing approach. However, the bird sweep staff made a wrong read-back, that permission was granted, and entered runway driving his vehicle. As the Air Traffic Service Flight Information Officer had noticed the wrong read-back and saw the vehicle entering the runway, he ordered the vehicle to immediately vacate the runway, but there was no response from the vehicle. The Air Traffic Service Flight Information Officer advised the approaching aircraft to go-around, and the aircraft made go-around. When the aircraft was advised go-around, the aircraft had just finished base turn. The closest distance between the vehicle on the runway and the aircraft was about 2,360 m.

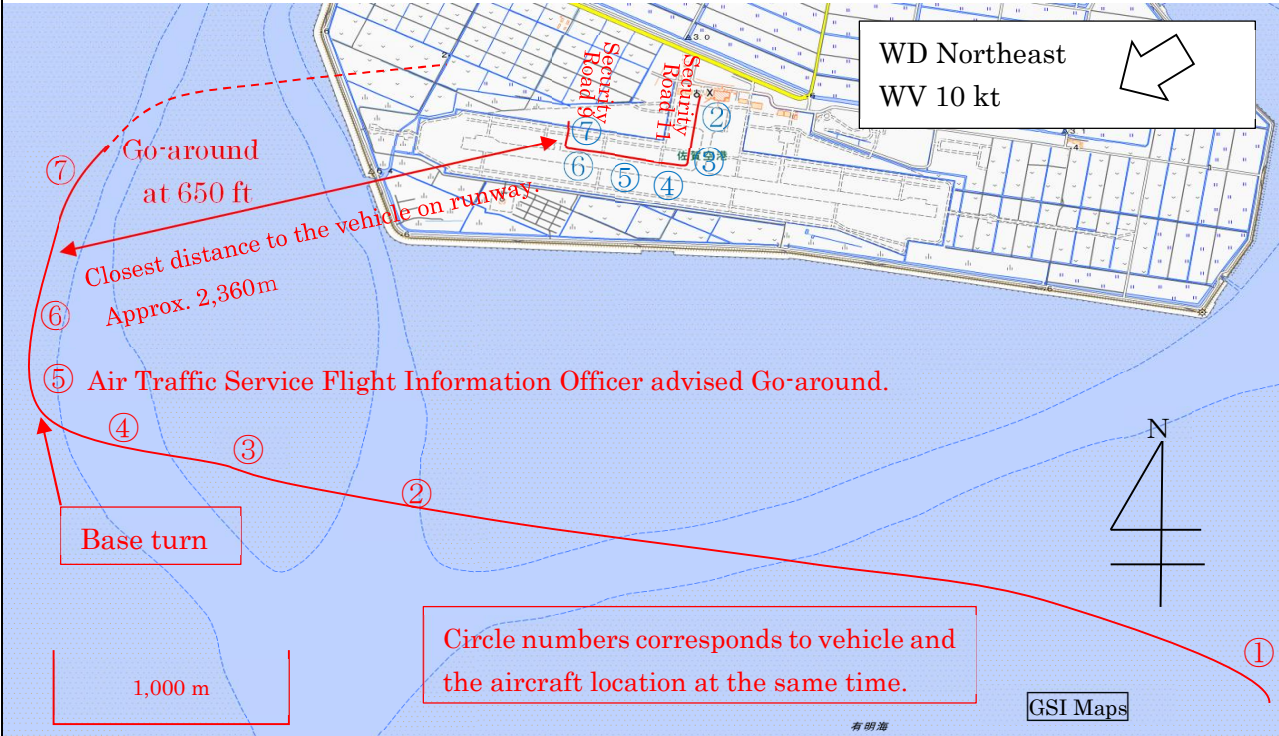


Figure 1: Location of the Aircraft and the Vehicle

(Aircraft Location: Radar Track, Vehicle Location: Airport Surveillance Camera)

Summary of communications among Air Traffic Service Flight Information Officer, the aircraft and the vehicle were as follows: (() from verbal statement due to no voice recordings.)

11:28:30 Air Traffic Service Flight Information Officer advised the aircraft runway was clear. (①)

(11:29:20 Saga Prefecture Saga Airport Office requested the vehicle to do a runway bird sweep.)
 11:30:00 Vehicle: “Wilco for Runway bird sweep.” (②)
 11:30:44 Vehicle: “Request to enter the runway for bird sweep from the Security Road No.11?” (③)
 11:30:55 Air Traffic Service Flight Information Officer: “A small airplane will use the runway.
 Please hold position.”
 11:31:01 Vehicle: “Cleared enter runway, Roger.” (④)
 11:31:07 Air Traffic Service Flight Information Officer: “The runway will be used. Do not enter.”
 (There was no response from the vehicle.)
 11:31:16 Air Traffic Service Flight Information Officer advised the aircraft to go-around. (⑤)
 11:31:26 Aircraft: “Roger, Go Around” (⑥)
 (11:31:40 Airport office instructed the vehicle to vacate the runway.)
 11:32:06 Vehicle: “Willco.”
 11:32:44 Vehicle: “Vacating runway to Security Road No.9 has been accomplished. (⑦)

(2) Statement of the Bird Sweep Staff

According to the statement of the bird sweep staff, he normally patrol the airport seven times a day. On the day, as there were many birds on his third run, he felt that there would be a bird sweep request. Just on timing he departed for the fourth run, there were bird sweep request from the airport office and hurried to the runway. Driving the vehicle, the bird sweep staff asked runway entry permission on radio, as there was a response to the request, he thought entry was permitted, entered the runway. Moment after, there were loud voice from the radio to vacate the runway, he drove and vacate from the runway. Usually, runway bird sweep request comes right after the aircraft arrival, when he asked for permission to enter the runway, he was rarely instructed to wait.

(3) Radio Communication Equipment Used during Bird Sweep (See Figure 2)

During bird sweep, a portable radio “SAGAKUKOKANRI 42” is used on frequency A to communicate with the Air Traffic Service Flight Information Officer in the Tower, and an on-vehicle radio “SAGAKUKOKANRI 9” is used on frequency B to communicate with the airport office.

Air radio "Saga Radio" and “UNYU SAGA” used by the Air Traffic Service Flight Information Officer were recorded. Frequency B was not recorded. The voice of the vehicle sent to the airport office was recorded in the frequency A record.

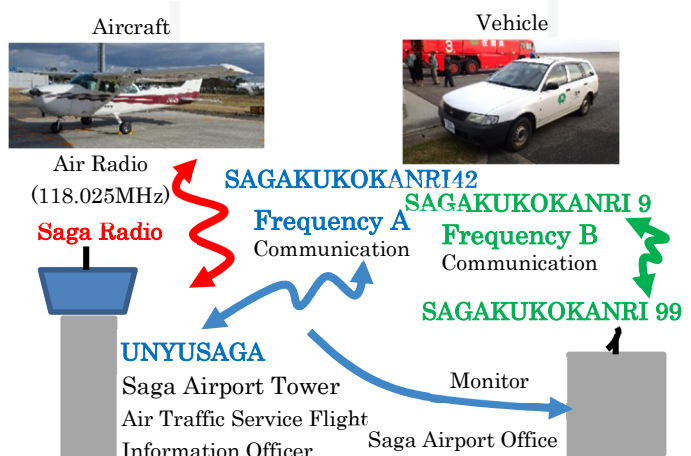


Figure 2: Radio Communication at Saga Airport

The volume for the radio equipment “SAGAKUKOKANRI 42” is normally set to 18, but immediately after the serious incident, it was confirmed that was set to 10.

(4) Movement of the Vehicle according to the Image of the Airport Surveillance Camera

The Tower and the airport office each have an airport surveillance camera that recorded the vehicle. According to these video images, the vehicle made temporarily stop at the Stop Line near the apron (Figure 1, ②) and just before the runway (Figure 1, ③), and then entered the runway.

(5) Airport Office Response

In Airport Office, radio equipment of both frequency A and B are installed and monitored. As

there were airline request for bird sweep, person in charge at Airport Office contacted bird sweep staff. Later on, person in charge at Airport Office noticed that Air Traffic Service Flight Information Officer was calling bird sweep staff not to enter the runway, he looked and found vehicle was entering the runway. So, he spoke to vehicle by radio on by radio on frequency B, “Immediately vacate the runway”, there was a response from vehicle by radio on frequency A, “Wilco”, and he confirmed that the vehicle had vacated the runway.

(6) Safety Training for Bird Sweep Staff

Bird sweep staff attended the initial restricted area safety training on March 30, 2021, passed the test and obtained permission for driving vehicle in the airport. Since then, the bird sweep staff was on duty normally driving on runway, but had never broke the rule for runway entry.

Airport office requires the drivers operating in the airport to attend biannual recurrent training, however, bird sweep staffs were mistakenly not included in recurrent training request list.

3. ANALYSIS

(1) Movement of Vehicle

From the Surveillance camera image, vehicle temporarily stopped at the stop line near the apron and before the runway, judging from the communication records, as the stop was short, so it is certain that Bird Sweep staff driving while talking on the radio.

Bird sweep staff asked for permission to enter runway, but Air Traffic Service Flight Information Officer did not grant permission, and told vehicle to hold position. However, the bird sweep staff made a wrong read-back saying “Cleared enter runway, Roger.” Moreover, judging from the surveillance camera image, the bird sweep staff made wrong read-back most likely after entering the runway.

(2) Recognition of the Runway Entry Permission

During the patrol just before the incident, the bird sweep staff recognized that there were many birds near the runway, and thought that bird sweep would be necessary before the departure of the next scheduled flight. As there were bird sweep request, and he was driving while talking on the radio, it is probable that Bird Sweep Staff wanted to complete bird sweep as soon as possible.

Therefore, when Bird Sweep Staff received radio from the Air Traffic Service Flight Information Officer, he more likely believed mistakenly that the runway entry permission was given without confirming its contents. It is likely a contributing factor that the bird sweep staff was not normally requested to wait when asking for runway entry.

Upon entering runway, it is important to ensure that entry permission has been obtained.

(3) Radio Equipment which was Used

It is certain that Bird Sweep Staff used frequency A instead of frequency B to communicate with the airport office. Airport office also monitored frequency A, so as the communication was established, Bird Sweep Staff possibly did not notice the mistake.

Bird sweep staff stated that he was instructed to vacate runway in a loud voice, as this was most likely transmitted via frequency B, frequency A volume likely be lower than frequency B. It is possible that this also contributed to Bird Sweep Staff misunderstanding or mishearing communication from Air Traffic Service Flight Information Officer.

(4) Safety Training

Drivers in the airport are required to attend biannual recurrent training after obtaining permission. Bird Sweep Staffs were mistakenly not included in recurrent training request list, Bird Sweep Staff had not attended recurrent training after initial training one and a half years ago. As

recurrent training is important to reconfirm rules and procedures and share the latest information, it is necessary for the airport administrators to manage that drivers can attend recurrent training.

4. PROBABLE CAUSES

The JTSTB concludes that the probable cause of this serious incident was that vehicle most likely entered the runway without obtaining runway entry permission while the aircraft was making landing approach.

It is highly probable that as the Bird Sweep Staff misunderstood instruction to hold position and thought that runway entry permission was obtained, because he wanted to complete bird sweep as soon as possible.

5. SAFETY ACTIONS

(1) Safety Actions Required

As described in ANALYSIS, when entering a runway, it is necessary to ensure that the runway entry permission has been obtained.

(2) Safety Actions Taken by the Airport Office after the Serious Incident

- ① Bird sweep shall be conducted by two people Bird Sweep Staff and Airport Office Staff.
- ② Bird Sweep Staffs shall again take safety training. Safety Information shall be provided to Airport Related Companies.
- ③ Airport Office to provide in addition to large airplanes, operation schedules of small airplanes to related persons daily basis.
- ④ Provide training to Bird Sweep Staffs regarding Air Band Radio terminology and actual Operation philosophy how aircrafts are controlled.
- ⑤ Create a Checklist for Radio equipment pre-operation inspection.

Severity Classifications of Runway Incursions

Severity classifications described in ICAO “Manual on the Prevention of Runway Incursions” (Doc 9870) are as described in the table below.

Table 6-1 Severity classification scheme

<i>Severity classification</i>	<i>Description**1</i>
<i>A</i>	<i>A serious incident in which a collision is narrowly avoided.</i>
<i>B</i>	<i>An incident in which separation decreases and there is significant potential for collision, which may result in a time-critical corrective/evasive response to avoid a collision.</i>
<i>C**2</i>	<i>An incident characterized by ample time and/or distance to avoid a collision.</i>
<i>D</i>	<i>An incident that meets the definition of runway incursion such as the incorrect presence of a single vehicle, person or aircraft on the protected area of a surface designated for the landing and take-off of aircraft but with no immediate safety consequences.</i>
<i>E</i>	<i>Insufficient information or inconclusive or conflicting evidence precludes a severity assessment.</i>

**1 See the definition of “incident” of Annex 13.

**2 Shaded to show the pertinent classification of the serious incident.