

AI2022-8

**AIRCRAFT SERIOUS INCIDENT
INVESTIGATION REPORT**

CHUO UNIVERSITY

J A 2 3 7 9

SUISAN AVIATION CO., LTD.

J A 3 9 0 4

December 1, 2022



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

A SITUATION WHERE A PILOT IN COMMAND OF AN AIRCRAFT
DURING FLIGHT RECOGNIZED A RISK OF COLLISION OR
CONTACT WITH ANY OTHER AIRCRAFT

1. CHUO UNIVERSITY

ALEXANDER SCHLEICHER ASK21, JA2379

2. SUISAN AVIATION CO., LTD.

CESSNA U206G, JA3904

OVER THE WEST TRAFFIC PATTERN OF MENUUMA GLIDING
FIELD, KUMAGAYA CITY, SAITAMA PREFECTURE

ABOUT 12:19, SEPTEMBER 8, 2021

October 21, 2022

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 |

1. PROCESS AND PROGRESS OF THE AIRCRAFT SERIOUS INCIDENT INVESTIGATION

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| 1.1 Summary of the serious incident | On Wednesday, September 8, 2021, an Alexander Schleicher ASK21, registered JA2379, operated by Chuo University was performing a flight training after being launched from Menuuma Gliding Field, when a Cessna U206G, registered JA3904, operated by Suisan Aviation Co., Ltd., was flying to take aerial photos after taking off from Chofu Airfield of the Tokyo Metropolitan Government. Then, both aircraft closely approached each other over the west traffic pattern of Menuuma Gliding Field, and the pilot in |
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| | <p>command (PIC) of JA2379 took evasive action as he was unable to predict the movement of other aircraft and felt uneasy.</p> <p>On September 9, 2021, the PIC of JA2379 submitted a Near Collision Report to the Ministry of Land, Infrastructure, Transport and Tourism (A report pursuant to the provision of Article 76-2 of Civil Aeronautics Act and Article 166-5 of Ordinance of the Enforcement of the Civil Aeronautics Act), and consequently it was classified as a serious incident.</p> |
| 1.2 Outline of the serious incident investigation | <p>The Japan Transport Safety Board (JTSB) designated an investigator-in-charge and an investigator to investigate this serious incident on September 10, 2021.</p> <p>Although this serious incident was notified to the Federal Republic of Germany and the United States of America as the State of Design and Manufacture of the aircrafts involved in this serious incident, the States did not designate their accredited representatives and others.</p> <p>Comments on the draft Final Report were invited from the parties relevant to the cause of the serious incident and the Relevant States.</p> |

2. FACTUAL INFORMATION

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| 2.1 History of the Flight | <p>(1) Following is an outline of the Near Collision Report submitted by the PIC of Alexander Schleicher ASK21, registered JA2379 (hereinafter referred to as “Aircraft A”), and operated by Chuo University.</p> <p>Date and Time of incident: At 12:19 Japan Standard Time (JST, UTC+9hours), September 8, 2021</p> <p>Position at the time of incident: Near the turn point to the downwind leg for Runway 14 (Saitama Prefecture side) of Menuma Second Gliding Field</p> <p>Phase of flight: Altitude 330 m, Magnetic heading 320°, Speed 50 kt</p> <p>Meteorological conditions VMC*1, Flight visibility 10 km or more</p> <p>Other aircraft: Type: Cessna Aircraft color: White with black stripes Visual detection of navigation lights: Port lights, Starboard lights, and Tail lights</p> <p>Position of other aircraft and distances to the aircraft at first Rightward (Direction of 2 o'clock),</p> |
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*1 VMC, which stands for Visual Meteorological Conditions, are the meteorological conditions in which for flying the aircraft, pilots have sufficient visibility appropriate to the flight altitude and the type of airspace, and there is no cloud within a certain distance from the aircraft. And in the case of the altitude at which Aircraft A and Aircraft B were flying, the flight visibility shall be over than 1,500 m and aircraft shall fly by maintaining a distance of 150 m vertically above and 300 m below and 600 m horizontally from clouds.

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| sighting: | Horizontal distance: around 100 m Upward, Altitude difference between 50 and 60 m |
| Position of other aircraft and distances between aircraft at closest proximity: | Rightward, Horizontal distance: around 100 m Upward, Altitude difference: between 50 and 60 m |
| Evasive action: | Aircraft making report: Yes (left turn) Other aircraft: None |

The PIC of Cessna U206G, registered JA3904 (hereinafter referred to as “Aircraft B”), operated by Suisan Aviation Co., Ltd., did not submit a Near Collision report.



Aircraft A



Aircraft B

Figure 1: Serious Incident Aircraft

(2) Based on the statements of the PIC of Aircraft A, the trainee on board Aircraft A, the PIC of Aircraft B and the cameraperson on board Aircraft B, and the records of radio communication and radar track at the Aeronautical En-route Information Service*2, the history of the flights by both aircraft is summarized below.

At 12:01 on September 8, 2021, Aircraft B took off from Chufu Airfield, and was flying under VFR*3 to take aerial photos of Tateno site in Gyoda city in Saitama prefecture with the PIC in the left pilot seat and a cameraperson in aft left seat.

At 12:13, Aircraft B communicated with Tokyo Information (Aeronautical En-route Information Service) and reported that it was flying at an altitude of 1,500 ft (about 460 m) and going to take aerial photos at an altitude of about 1,000 and 2,000 ft (about 300 to 610 m) in the vicinity of Gyoda city while confirming the traffic conditions around

*2 The Aeronautical En-route Information Service established in Flight Service Centers, is a station that assists aircraft in flight other than those arriving and departing from airports, and provide them with aeronautical enroute information services such as providing meteorological information, relaying reports from aircraft (PIREP) to a pertinent ATS facility, as well as presiding position reporting of VFR aircraft, and offering other information necessary for aircraft in flight. The designation of “INFORMATION” is allocated to a communication station locally established, which provide these services.

*3 “VFR”, which stands for Visual Flight Rules are defined as any flight not predicated on the instrument flight rules. While operating in VFR, a pilot is responsible for the clearance from the terrain and obstacles in addition to the separation from other aircraft and clouds at all time.

the site.

At 12:17, the PIC of Aircraft B reported to Tokyo Information that they arrived at the vicinity of the photographing location, would start taking photos for about 30 minutes and contact it again after their photography was over. Immediately after that, as the PIC came up with the idea that it would be necessary to confirm the operating conditions of gliders since the photographing location was close to Menuuma Gliding Field, he called Menuuma Flight Service (Flight Advisory Service Station, see 2.5 (4)) by VHF radio and reported that they were going to take photos around the Gliding Field, but there was no response from it.

At about 12:18, with the PIC of Aircraft A in the aft seat and the trainee in the front seat, Aircraft A was flown by the trainee and launched by winch from the Second Gliding Field Runway 14 at Menuuma Gliding Field. Aircraft A climbed to about 370 m and released the cable. An active runway change was planned due to a shift in the wind direction at Menuuma Gliding Field after the launch of Aircraft A, therefore, Aircraft A was supposed to land on Runway 32 of the Second Gliding Field after conducting a 180-degree turn over the downwind leg on the west traffic pattern.

On the other hand, Aircraft B continued to fly toward the photographing location at an altitude of about 1,400 ft (about 430 m) and at a speed of about 80 kt (about 150 km/h) while waiting for a response from Menuuma Flight Service. When the PIC of Aircraft B was making coordination with the cameraperson in the aft seat on the interphone as Aircraft B was approaching the photographing location and flying, he found something flying around the location ahead. As further continuing to fly, he found it was a glider (Aircraft A). As Aircraft A looked stationary, the PIC of Aircraft B thought the two aircrafts could be really close to each other if he continued to fly like this, however, he continued to fly toward the photographing location as he had judged that Aircraft A would not be climbing to because Aircraft A appeared to be flying at an altitude lower than that of Aircraft B and slightly descending. Besides, the PIC of Aircraft B thought he had better call Menuuma Flight Service again in order to inform that they were going to take photos since the photographing location point was supposed to be below the flight route where Aircraft A was flying. However, Aircraft B passed over the right side of Aircraft A after reaching an altitude of about 1,400 ft (about 430 m) along the west traffic pattern of Menuuma Gliding Field while the PIC of Aircraft B was unable to call Menuuma Flight Service again, because he had to coordinate with the cameraperson for photographing at the same time while keeping his eye on Aircraft A.

On the other hand, Aircraft A turned at an altitude of 330 m and at a speed of about 90 km/h from the crosswind leg (southwest) to the downwind leg (northwest), and just before finishing this turn, the PIC of Aircraft A found Aircraft B flying upward in the direction of 2 o'clock, just

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| | <p>in the same direction as its own. Immediately, the PIC of Aircraft A informed the trainee of the existence of Aircraft B, and the trainee also visually recognized Aircraft B. The PIC of Aircraft A was surprised by the sudden appearance of Aircraft B and felt so uneasy about its unpredictable movement that he took over the control from the trainee and took evasive action to the left slowly and carefully so as to avoid abrupt control input. Afterwards, the PIC of Aircraft A and the trainee lost sight of Aircraft B and informed Menuma Piste*4 of the existence of Aircraft B by Glider-Dedicated HF radio and reported that the existence of Aircraft B could pose a danger to the glider operations because it was flying close to the Gliding Field.</p> <p>According to the PIC of Aircraft A, compared with the fact that the width of runway of Menuma Gliding Field was about 100 m and the width of Aircraft A was about 17 m, it seemed that the distance between them was about 100 m and the altitude difference was about 50 to 60 m when he spotted Aircraft B. Besides, according to the trainee, he felt that Aircraft B was close enough for him to be able to read the registration mark written on the lower surfaces of the wings, and the distance between them was about 100 m and the altitude difference was about 50 to 60 m, just the same as the PIC did.</p> <p>On the other hand, as the PIC of Aircraft B continued to visually confirm Aircraft A, and Aircraft A seemed to be flying at an altitude lower than that of Aircraft B and slightly descending, he thought there was no risk of collision, thus he turned left and passed over Aircraft A while seeing it left below, and started taking photos. According to the PIC of Aircraft B, Aircraft A did not look so different from aircraft passing each other closely in normal flights, and he felt that the altitude difference was about 300 to 400 ft (about 90 to 120 m) when Aircraft B passed over Aircraft A. After that, the PIC of Aircraft B called Menuma Flight Service by VHF radio and got a response, thus he informed that they were going to take photos for about 10 minutes while flying at an altitude of about 2,000 to 2,500 ft (about 610 to 760 m) and obtained the traffic information on gliders flying around the Gliding Field from Menuma Flight Service.</p> <p>This serious incident occurred at about 12:19 on September 8, 2021, over the vicinity of Kitagawara in Gyoda City in Saitama Prefecture (36°18' N, 139°43' E).</p> |
| 2.2 Injuries to Persons | None |

*4 "Piste" refers to a facility that communicates with gliders and other aircraft in flight to exchange information concerning the gliding field, and air traffic in the surrounding area, in order to ensure safe and smooth operation of the gliding field. In Menuma Gliding Field, "Menuma Piste" is established to the bank side, "Riverside Piste" to the riverside in the First Gliding Field, and the "Second Piste" in the Second Gliding Field, respectively, in order for dispatchers to control glider launches and landings.

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| 2.3 Damage to the Aircraft | None |
| 2.4 Meteorological information | <p>Weather observations by Kumagaya Local Weather Observatory, located about 8 km southwest of the site of the serious incident, at around the time of the serious incident were as follows:</p> <p>12:20 Precipitation: 0 mm, Temperature: 21.4 °C, Wind direction / Wind velocity (average): Northeast 2.0 m/s, (Maximum instantaneous) East 3.5 m/s, Sunshine duration: 0 min.</p> <p>Besides, the weather visually observed by the PIC of Aircraft A before the launch was as follows:</p> <p>Ground visibility 10 km or more Height of cloud: 2,000 to 2,500 ft (about 610 to 760 m) The sky was covered by the cloud, with no sunshine. Wind direction / Wind velocity: North (Direction of 360° to 010°), 1.5 m/s (3 kt)</p> |
| 2.5 Additional information | <p>(1) Communications</p> <p>In Menuma Gliding Field, Glider-Dedicated HF radio is used for communications between each Piste and gliders. Besides, VHF radio for ATC communications is used for communications between Menuma Flight Service built in Menuma Piste and general aircraft flying around the Gliding Field.</p> <p>At the time of the occurrence of the serious incident, the active runway change was being conducted due to a shift in the wind direction at Menuma Gliding Field. As a Piste is set up in a different location depending on the launching or landing direction of gliders, it is moved when the actual runway is changed. While the Piste was being moved, the power of VHF radio device of Menuma Flight Service built in Menuma Piste was ON.</p> <p>(2) Information on Flight Recorder</p> <p>Both aircraft were not equipped with a flight recorder, a cockpit voice recorder and other devices to record the flight state.</p> <p>(3) Estimated flight Routes and Proximity of Both Aircraft</p> <p>Aircraft B was equipped with an ATC transponder*⁵, and the ATC radar recorded the information on the position and altitude of Aircraft B during the flight at and around the time of this serious incident. From this information, the flight track of Aircraft B was created, and the relative positions between both aircraft over time were estimated together with Figure of the traffic pattern in Menuma Second Gliding Field, on which Aircraft A is estimated to have flown. (Figure 2)</p> |

*⁵ ATC transponder means the Air Traffic Control Automatic Transponder and refers to an airborne receiver / transmitter, which will automatically generate a reply signal including its identification and flying altitude upon proper interrogation from the radar of aircraft in flight.

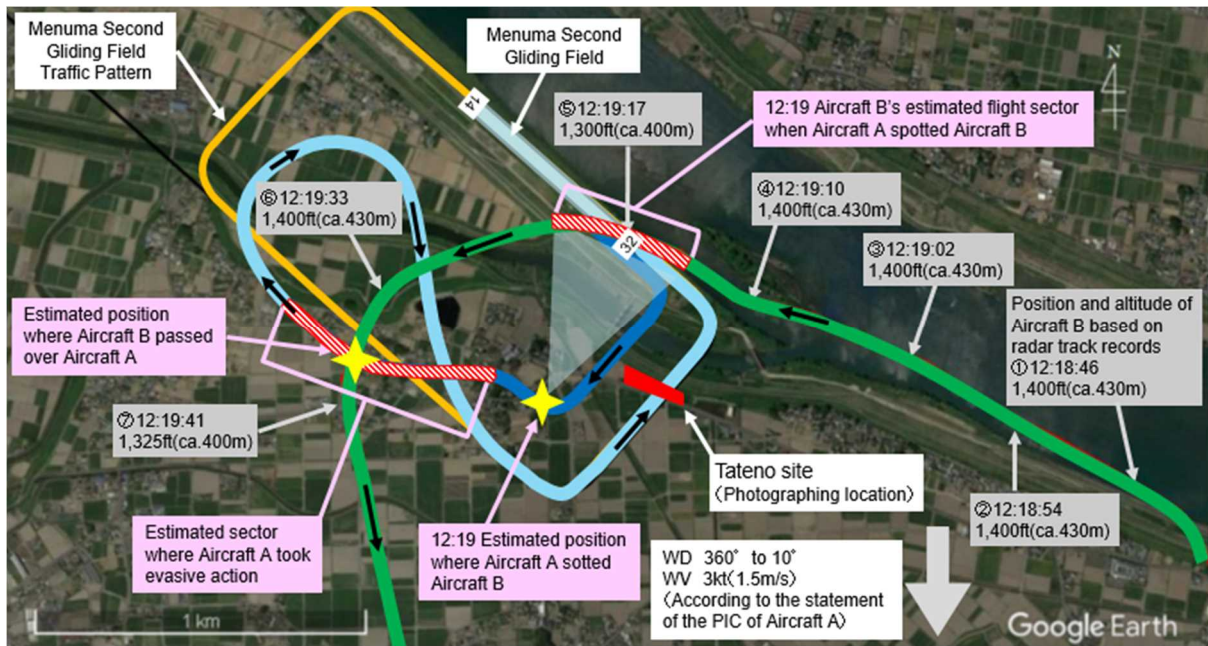


Figure 2: Estimated flight routes and relative positions of both aircraft

- Aircraft A's estimated flight route (from its launching to the estimated position of finishing evasive action)
- Aircraft A's estimated flight route (from the estimated position of finishing evasive action to its landing)
- Aircraft B's estimated flight route

(4) Information on Menuma Gliding Field

Menuma Gliding Field is an Airfield dedicated for gliders, which is located on a flood plain of the Tone River in Kumagaya city in Saitama prefecture. Located on the upstream of the Tone River is Menuma First Gliding Field (First Gliding Field) operating with three runways, and on the downstream is Menuma Second Gliding Field (Second Gliding Field) operating with two runways. It is a glider base in the Kanto area for the Japan Students Aviation League, in which glider trainings are conducted and competitions are held through the year by students. The number of operating days exceeds 200 days per year, and sometimes the number of launches reaches 200 times per day.

First Gliding Field Active Runway 14/32, 1,500 m in length,
100 m in width

Second Gliding Field Active Runway 14/32 1,200 m in length
40 m in length

(5) Information on Menuma Flight Service Center

Menuma Flight Service located in Menuma Gliding Field is a flight advisory service station where the Japan Students Aviation League conducts glider operations according to the operating time of Menuma Gliding Field. Menuma Flight Service, which is built within Menuma Piste in the First Gliding Field, provides general aircraft flying around Menuma Gliding Field with information on the active runway, the wind direction

and velocity, the traffic of gliders and precautions in the Gliding Field through VHF radio in response to requests from these aircrafts.

In addition, regarding measures for the safety of flight in the vicinity of the flight advisory service station, the following AIC*⁶ was issued.

AIC018/22

Measures for the safety of VFR flight in the vicinity of aerodrome

1. *To avoid mid-air collision in VFR flight in the vicinity of aerodromes, landing sites with special permission or glider sites (hereinafter in this AIC referred to as "an aerodrome and the like") it is important for a pilot to maintain a watch outside and to report his information such as position and course, and also to endeavor to obtain information of other traffic by radiotelephony with units such as air traffic control services.*

2. (Omitted)

3. *At an aerodrome and the like where flight advisory service station is operated*

When VFR flight is made in the vicinity of an aerodromes and the like for landing or other purposes, the pilot is recommended to report his present position, altitude, his intentions and other necessary items to the flight advisory service station. Flight advisory service station is operated for its convenience. If there is no answer from flight advisory service station, the pilot is recommended to transmit his information.

(6) Information on the Photography

As the PIC of Aircraft B knew that glider flights were frequently conducted at Menuma Gliding Field to which Tateno site, the photographing location, was close, he thought that the aerial photography might be influenced by being requested from the Gliding Field to wait and hold when glider flights were conducted. The flight altitude to take aerial photos was 2,000 to 2,500 ft (about 610 to 760 m) in the planning stage. However, in the pre-flight discussion with the cameraperson, it was confirmed that they would take photos with reference to the altitude of 1,500 ft (about 460 m) on that day by taking into consideration the size of photographing location and the flight altitude of the traffic pattern of Menuma Gliding Field, which was 1,000 ft (about 300 m), and the flight altitude should be changed to 1,000 to 1,500 ft (about 300 to 460 m) after looking at the possibility of the altitude change due to the photographing range and angle. Besides, according to the statement of the cameraperson, the aerial photography on that day was planned in advance to be conducted by different operators respectively for the photography vertically taken from high altitude and the photography diagonally taken from low altitude

*⁶ AIC (Aeronautical Information Circular) refers to a supplemental publication to the AIP regarding flight safety, aviation navigation, and other technical, administrative or legal matters, which is publicly notified as aircraft information when the content of information is not suitable for the AIP and NOTAM, or when it is difficult to meet the deadline.

in different time slots from 12:00 to 13:00. Aircraft B in charge of the photography taken from low altitude was scheduled to start taking photos from 12:20 after the vertical photography was over and finish it before 13:00.

The PIC of Aircraft B had a number of experiences in flying around Menuma Gliding Field. And from these experiences, he thought their safety would be fully secured if he established communication with Menuma Flight Service when getting close to the Gliding Field to obtain the traffic information on gliders, endeavored to visually confirm gliders when they were being flown, and took photos with careful attention, and thus, he did not think pre-coordination would be necessary. Therefore, the PIC of Aircraft B did not report the information about their aerial photography to Menuma Glider Flieid in advance.

(7) Applicable Laws and Regulations

The collision avoidance and others are stipulated in the Civil Aeronautics Act as follows:

Collision Avoidance etc.

Article 83 All aircraft must navigate in accordance with the course, route, speed and other navigation methods as may be specified by Order of the Ministry of Land, Infrastructure, Transport and Tourism, for the purpose of preventing collision with other aircraft or ships and securing the safety of takeoffs and landings of aircraft at an aerodrome; (the rest omitted)

In addition, the Ordinance for Enforcement of the Civil Aeronautics Act (Ministry of Transport Ordinance No. 56, 1952) stipulates the navigation methods on flight paths as follows:

(Right of Way)

Article 180 When the flight paths of two aircraft intersect or come close to each other, the right of way is given to the aircraft in accordance with the following priorities:

- (i) gliders*
- (ii) aircraft towing an object*
- (iii) airships*
- (iv) airplanes, rotorcraft and motorized gliders*

3. ANALYSIS

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|-----------------------------|-------------------------------|
| 3.1 Involvement of Weather | None |
| 3.2 Involvement of Pilot | Yes |
| 3.3 Involvement of Aircraft | None |
| 3.4 Analysis of Findings | (1) Meteorological Conditions |

The JSTB concludes that without sunshine at the time of the occurrence of this serious incident, no factors seemed to be present to interfere the sight of the other aircraft.

(2) Aircraft A's Flight

The PIC of Aircraft A and the trainee stated that they spotted Aircraft B immediately before finishing to turn from the crosswind to the downwind (the second turn) (see Figure 2). The JSTB concludes that the reason why they were unable to visually confirm Aircraft B until then was because, it was more likely invisible in the horizontal direction due to the large climb angle when Aircraft A was climbing immediately after the launch, and the interval between the time Aircraft A leveled off and the time it made the first turn was too short to find Aircraft B.

The PIC of Aircraft A found Aircraft B flying upward in the direction of 2 o'clock and took evasive action to the left. Afterward, as Aircraft B flew over near Aircraft A from the right upward to the left backward direction and entered a dead angle of Aircraft A, the PIC of Aircraft A and the trainee more likely lost sight of Aircraft B.

(3) Aircraft B's Flight

The JSTB concludes that the time when the PIC of Aircraft B called Menuuma Flight Service for the first time was most likely about 12:18 because it was immediately after he finished the communication with Tokyo Information. After that, the PIC of Aircraft B continued to fly toward the photographing location without establishing communication with Menuuma Flight Service, and passed over the right side of Aircraft A which had just entered the downwind from the crosswind. The reason why the PIC of Aircraft B continued to fly toward the photographing location without establishing communication with Menuuma Flight Service was probably because there was no response from Menuuma Flight Service to his first call, in addition, Aircraft A spotted in front appeared to be flying at an altitude lower than that of Aircraft B and slightly descending, besides the PIC of Aircraft B thought there was no risk of collision as Aircraft A would not climb, and furthermore, the PIC of Aircraft B was coordinating the photographing with the cameraperson and confirming its location for about one minute until it passed over the right side of Aircraft A after he initially called to Menuuma Flight Service since the photographing time was limited.

It is considered that the PIC of Aircraft B should have established communication with Menuuma Flight Service before approaching the traffic pattern of Menuuma Gliding Field in order to not only secure the safety for its own and other gliders flying around Menuuma Gliding Field but also smoothly carry out its purpose to take aerial photos.

(4) Proximity of Both Aircraft

The JSTB concludes that based on the estimated positions of both aircraft (see Figure 2) when Aircraft A had finished turning from the crosswind to the downwind, the horizontal distance between the two aircraft at this moment was most likely about 600 m. After that, it is more likely

that as Aircraft B flew toward Aircraft A, the distance between both aircraft was lessened, thus the PIC of Aircraft A felt the distance to Aircraft B became closer.

Besides, the flight altitude of Aircraft A was highly probable about 330 m until Aircraft A took evasive action after it had spotted Aircraft B. On the other hand, the altitude of Aircraft B was most likely about 400 m when the PIC of Aircraft A found Aircraft B, then once after Aircraft B climbed to about 430 m, its flight altitude was most likely about 400 m when it passed over Aircraft A, and during this time, the altitude difference between both aircraft was about 70 m.

After spotting Aircraft A, the PIC of Aircraft B continued to fly toward the photographing location while seeing Aircraft A left below because Aircraft A appeared to be descending and did not seem to climb, he thought. On the other hand, the PIC of Aircraft A took evasive action after finding Aircraft B, however, probably this is not because he intended to avoid imminent danger but it was a preventive evasive action as he felt uneasy about the unpredictable movement of Aircraft B without any traffic information about it.

It is difficult for motorless gliders to take evasive action even when they have close proximity with other aircraft and became aware of the risk of collision. Therefore, it is considered that Aircraft B should have flown in accordance with the right of way given to the aircraft, which is stipulated in Article 180, Ordinance for Enforcement of the Civil Aeronautics Act (see 2.5 (7)), while taking into consideration its view from Aircraft A so that the PIC of Aircraft A would not feel uneasy

(5) Securing of Safety around Menuma Gliding Field and Ensuring Smooth Air Traffic

The JTSB concludes that the reason why the PIC of Aircraft B was unable to obtain a response from Menuma Flight Service to his first call was because Menuma Piste built with Menuma Flight Service was being moved due to the active runway change.

In Menuma Gliding Field, the number of glider operation days exceeds 200 days per year, and sometimes the number of glider launches reaches 200 times or more per day. Therefore, it is probably important that general aircraft flying around Menuma Gliding Field should grasp the operation of the Gliding Field and the surrounding traffic conditions by establishing communication with Menuma Flight Service, in addition, that Menuma Flight Service should obtain the information about the flights by general aircraft flying around it and provide its operation conditions to those aircraft by establishing communication with them, and that Menuma Piste built with Menuma Flight Service should provide the traffic information to gliders in flight and other Pistes in order to ensure safe and smooth air traffic in the vicinity of Menuma Gliding Field.

A glider using HF radio and a general aircraft using VHF radio cannot directly listen to radio communication each other, therefore a Piste provides

the traffic information to gliders and a Flight Service provides it to general aircraft. In this serious incident, if Aircraft A was able to receive VHF radio, it is probable that the PIC of Aircraft A could have noticed the existence of Aircraft B when Aircraft B initially called Menuma Flight Service, thus it is desirable that the installation of VHF receivers should be considered so that gliders will be able to listen to VHF radio communications.

Besides, when it is expected to approach a gliding field and the like with high traffic volumes in the stage of flight plan, general aircraft should make pre-coordination with the said gliding field in the preflight planning stage, which is considered effective in order to reduce risk of aircraft proximity and ensure smooth air traffic.

(6) Records of the Flight

In this serious incident, Aircraft A and Aircraft B did not record the data of their flights. Image and voice recordings and the flight track records of portable GPS receiver and others are made available for the investigations of aircraft accidents and incidents to confirm detailed conditions accurately and identify the causes. The JTSA concludes that it is desirable that aircraft should record these data as much as possible because aircraft operators can also make use of these records of image, voice and flight track to improve the safety of flight.

(7) Classification of the Degree of Risk

The JTSA concludes that the evasive action taken by the PIC of Aircraft A was a preventive one. On the other hand, the PIC of Aircraft B did not take evasive action.

Besides when PIC of Aircraft A found Aircraft B, it is most likely that the horizontal distance between both aircraft was about 600 m, the vertical distance between them was about 70 m, and when Aircraft B passed over Aircraft A, the altitude difference between them was about 70 m.

Judging from the above, this serious incident is classified as “No risk of collision” under the International Civil Aviation Organization (ICAO) Document, Risk Classification of Aircraft Proximity. (See Attachment.)

4. PROBABLE CAUSES

The JTSA concludes that the probable cause of this serious incident was that Aircraft B, which was flying to take aerial photos, most likely entered over the Gliding Field and approached close to Aircraft A, which was launched from Menuma Gliding Field.

In addition, it is probable that there was no risk of collision or contact for both aircraft.

5. SAFETY ACTIONS

(1) In the wake of this serious incident, Suisan Aviation Co., Ltd. decided to hold a safety promotion conference in order to share the situation of this serious incident within the company and take safety actions as follows:

1. They should have a grasp of the current conditions of radio communication between the gliding field and gliders in the vicinity of the gliding field (such as the voice from gliders

cannot be received on the frequency of VHF radio in the flight service and others, depending on the gliding fields).

2. In case of flying around the gliding field, the contents of the flight should be informed in advance and a pre-coordination with the gliding field should be made as much as possible.
3. In case of flying around the gliding field, it must be thoroughly observed to transmit the messages by using the frequency of the gliding field (VHF radio frequency of flight service and others) whether there is a response or not.

(2) The Japan Students Aviation League to which Chuo University belongs shared the contents of this serious incident with the league member aviation club managers, instructors and training center chiefs across the country and took safety actions in Menuuma Gliding Field as follows:

1. They created a document to ask for a pre-coordination at the time of flying around the gliding field and informed government agencies and aircraft operators with small airplanes of the document.
2. They mounted VHF receivers on gliders so that the gliders would be able to listen to the VHF radio communications between general aircraft flying around the gliding field and Menuuma Flight Service.
3. Other than in the First Gliding Field Bankside Piste that operates Menuuma Flight Service, VHF receivers were installed in the First Gliding Field Riverside Piste and the Second Piste in the Second Gliding Field so that each Piste would be able to have a grasp of the flight status of aircraft flying around the gliding field in real-time and provide the gliders with necessary traffic information by listening to the VHF radio communications.
4. They conducted an online training session of the glider radio and its communication method for the leaders and students in each school who use Menuuma Gliding Field to deepen their knowledge of radio communication.

Attachment: Risk Classification of Aircraft Proximity

| I C A O Air Traffic Management (PANS-ATM) CHAPTER1. DEFINITIONS Aircraft proximity | |
|---|--|
| Risk Classification Explanation | Risk Classification Explanation |
| Risk of collision | The risk classification of an aircraft proximity in which serious risk of collision has existed. |
| Safety not assured | The risk classification of an aircraft proximity in which the safety of the aircraft may have been compromised. |
| No risk of collision | The risk classification of an aircraft proximity in which no risk of collision has existed. |
| Risk not determined | The risk classification of an aircraft proximity in which insufficient information was available to determine the risk involved, or inconclusive or conflicting evidence precluded such determination. |

Note: There is a statement of “The degree of risk involved in an aircraft proximity should be determined in the incident investigation and classified as “risk of collision”, “safety not assured”, “no risk of collision” or “risk not determined.” at 16.3.2 in PANS-ATM.

As a result of the danger assessment, the gray shaded category as above is applicable to this serious incident.