AI2023-4

AIRCRAFT SERIOUS INCIDENT INVESTIGATION REPORT

New Japan Aviation Co., Ltd.
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Japan Air Commuter Co., Ltd.
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April 27, 2023

JTSB Japan Transport Safety Board

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

AN ATTEMPT OF LANDING ON A RUNWAY BEING USED BY OTHER AIRCRAFT

KAGOSHIMA AIRPORT

AROUND 14:53 JST, JANUARY 8, 2022

1. NEW JAPAN AVIATION CO., LTD.

CESSNA 172P, JA4061

2. JAPAN AIR COMMUTER CO., LTD.

ATR 42-500, JA04JC

April 7, 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

1. PROCESS AND PROGRESS OF THE AIRCRAFT SERIOUS INCIDENT INVESTIGATION

1.1 Summary of the serious incident	On January 8 (Saturday), 2022, at Kagoshima Airport, when an ATR 42-500, JA04JC, operated by Japan Air Commuter Co., Ltd., was on final approach to Runway 34 with the landing clearance, a Cessna 172P, JA4061, operated by New Japan Aviation Co., Ltd., entered the runway without the clearance from an air traffic controller.
1.2 Outline of the serious incident investigation	The occurrence covered by this report falls under the category of "An attempt of landing on a runway being used by other aircraft" as stipulated in Article 166-4, Item (ii) of the Ordinance for Enforcement of Civil Aeronautics Act (Ordinance of Ministry of Transport No. 56 of 1952), and is classified as a serious incident. On January 8, 2022, the Japan Transport Safety Board (JTSB) designated an investigator-in-charge and an investigator to investigate this serious incident. On January 13, 2022, JTSB designated one additional investigator for this serious incident. JTSB notified the occurrence of this serious incident to the United States and the French Republic, where the aircraft involved in the incident were

	designed and manufactured. Neither of the two countries designated any accredited representative. Comments on the draft Final Report from parties relevant to the cause of the serious incident and the relevant States were invited.

2. FACTUAL INFORMATION

2.1 History of the Serious Incident

According to the statements of the pilot of Cessna 172P (hereinafter referred to as "Trainee A"), JA4061 (hereinafter referred to as "Aircraft A"), operated by New Japan Aviation Co., Ltd., (hereinafter referred to as "the Company"), the captain who was the flight instructor of Trainee A (hereinafter referred to as "Captain A"), the previous flight instructor of Trainee A (hereinafter referred to as "Previous Instructor A"), the captain of ATR 42-500 (hereinafter referred to as "Captain B"), JA04JC (hereinafter referred to as "Aircraft B"), and its first officer (FO) (hereinafter referred to as "the FO B"), the air traffic controller who was in charge of the tower control position of the Kagoshima Airport Traffic Control Tower when the serious incident occurred (hereinafter referred to as "Tower C"), and the air traffic controller who was in charge of the tower control position of the Airport Traffic Control Tower before being relieved by Tower C (hereinafter referred to as "Tower D"), as well as voice recordings on IC recorder in Aircraft A, records on Aircraft B's flight data recorder, ATC communication records, radar track records, and video recording of surveillance camera installed in the hanger of the Company, the history of the serious incident is summarized as follows.

Figure 1: Aircraft A

Figure 2: Aircraft B

On the day when the serious incident occurred, Aircraft A was planned to perform a solo flight to the outside of the Airport's air traffic control zone for flight training upon the change of rating on the private pilot certificate for Trainee A. Captain A considered having Trainee A experience as many solo flights as possible if the weather conditions were met.

Because it was the first time since Trainee A had taken flight training in about a month, Captain A provided classroom training for radio communication, which Trainee was not good at, before the flight training. In order to make familiarization flight to certify Trainee A's skills before granting the solo flight, Aircraft A took off from the Airport around 14:10 (JST: UTC+9 hours; unless otherwise noted, all times are indicated in JST in this report on a 24-hour clock), with Trainee A seated in the left pilot seat and Captain A seated in the right pilot seat, landed after they conducted several touch-and-

goes and a go-around, and once returned to the Company's apron around 14:42. Captain A certified that there were no problems in Trainee A's aeronautical skills, and judged that it would be possible for Trainee A to fly solo as the weather conditions were also met for a solo flight. After Captain A disembarked, Aircraft A established communication with the ground control position at the Airport Traffic Control Tower at 14:46, and again departed from the apron and headed toward Taxiway T1. Aircraft A called Tower D at 14:48:36, and reported that it was not ready for take-off. Responding to this call, Tower D instructed Aircraft A to hold short of Runway 34 and report it when ready for take-off, and Aircraft A read it back as it was. Aircraft A reported to Tower D that it was ready for take-off at 14:49:20, and once stopped short of the runway holding point*1 marking on Taxiway T1 with sufficient distance (Position ① in Figure 3-left). Responding to this, Tower D instructed Aircraft A to "CONTINUE HOLD SHORT OF RUNWAY34." because several arriving aircraft were lining up. Aircraft A read back "CONTINUE RUNWAY34 HOLD SHORT.", but because there was a word "CONTINUE" in the instruction, Aircraft A continued responding, "LINE UP AND WAIT.", and started moving towards Runway 34 around 14:49:36. Therefore, Tower D instructed Aircraft A, "NEGATIVE, NEGATIVE. HOLD POSITION, HOLD POSITION. HOLD SHORT OF RUNWAY34." To this instruction, Aircraft A read back "HOLD SHORT OF RUNWAY34." and again stopped short of the runway holding point marking around 14:49:49 (Position ② in Figure 3-left).

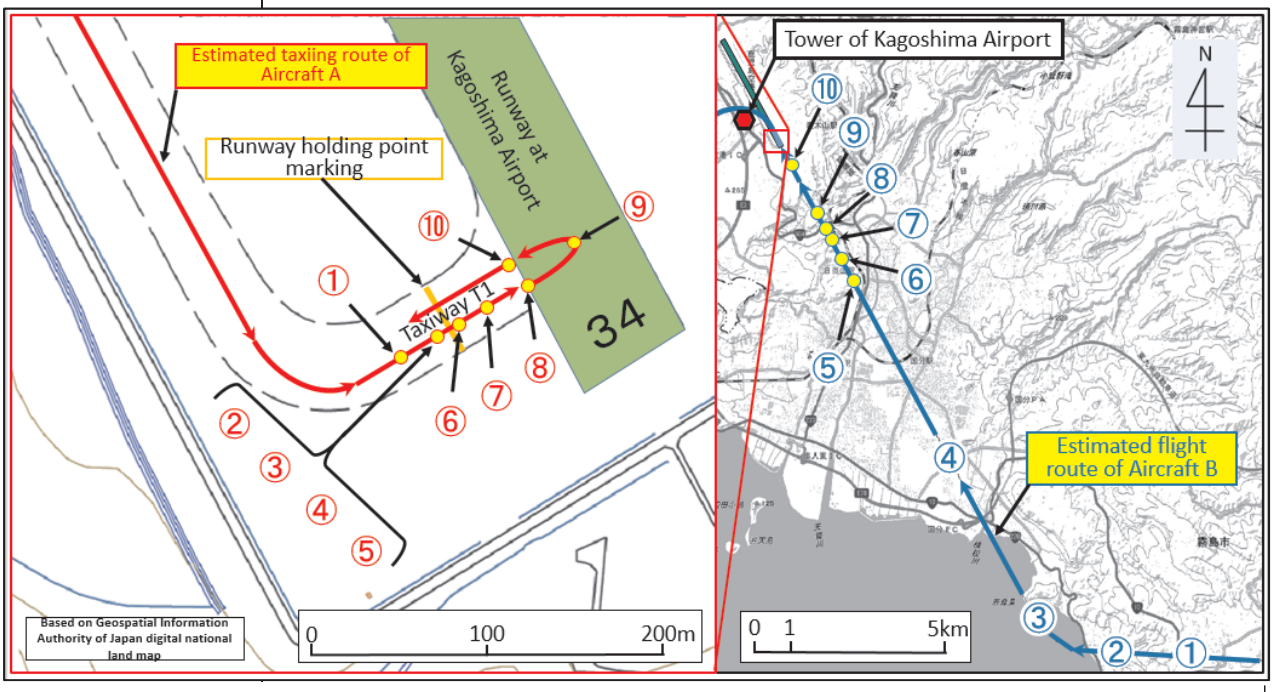

Figure 3: Situation at the time of the occurrence of the serious incident

*1 "Runway holding point" is a place where aircraft or vehicle stops or waits and is a position on a taxiway connected to the runway concerned.

making the approach to Runway 34 (Position ③ in Figure 3-right). Because the preceding arriving aircraft was on the final approach, Tower D instructed Aircraft B to continue the approach.

Around 14:51, Tower D handed over the tower control position duties to Tower C, warning about the handling of Aircraft A. Tower C had been listening to the communications between Tower D and Aircraft A since before taking over the duty, and thought that it should be careful to handle Aircraft A by keeping in mind that Aircraft A was flying solo. At 14:51:18, Tower C cleared Aircraft B to land on Runway 34 with adding a traffic information*2 on the preceding arriving aircraft (Position ④ in Figure 3-right). As Trainee A was not listening to this radio communication, Trainee A was unable to recognize that Aircraft B was approaching from behind the preceding arriving aircraft. Around 14:51:37, the preceding arriving aircraft passed in front of Aircraft A holding short of the runway.

As there was no instruction for its own aircraft to enter the runway even though the arriving aircraft had landed, Trainee A thought Tower C might not be recognizing that Aircraft A had been ready for take-off, so informed Tower C once again that it was ready for take-off at 14:52:23. Because Aircraft A reported again that it was ready for take-off although Aircraft B had just been cleared to land, Tower C thought that Aircraft A did not understand the traffic situation on the runway. As Aircraft A had already been holding short of the runway, in order not to put a burden on Aircraft A flying solo, Tower C did not issue the hold short instruction, which would obligate Aircraft A to read it back, thus at 14:52:28 provided Aircraft A with only the traffic information on Aircraft B. As there was no response from Aircraft A to this, feeling uneasy about the understanding of the traffic situation by Aircraft A, at 14:52:39, Tower C instructed Aircraft A, "I SAY AGAIN. HOLD SHORT OF RUNWAY34. STAND BY DEPARTURE.". Aircraft A read back only saying "STAND BY DEPARTURE.", and did not read back the hold short instruction, which should be read back. Therefore, Tower C instructed Aircraft A to "READ BACK HOLD SHORT INSTRUCTIONS." according to the provisions (see 2.7(4) for further details) at 14:52:50. Aircraft A read back "HOLD SHORT OF INSTRUCTION." at 14:52:56, and started to slowly move towards Runway 34 at the almost same time (Position ⑤ in Figure 3-left). Trainee A had never had an opportunity to be instructed by an air traffic controller (hereinafter referred to as "the Controller") to read back the instruction to hold short of runway.

When listening to a series of radio communications with Tower C, Trainee A thought "The Controller's voice became more fluently. The Controller might be in a hurry for some reason. I am flying solo, so I wish the Controller could speak a little slower." and became more nervous. Being

*2 "Traffic information" is information on other aircraft thought to influence the flight of an aircraft gained from radar, observation or another method. Normally air traffic controllers provide the information within the possible scope of operation in consideration of air traffic capacity, operation capacity and communication capacity.

	unable to understand the meaning of the instructions to read back, Trainee A was wondering if he should ask Tower C to instruct it again, but did not, instead Trainee A wondered if it was a different way of saying "LINE UP AND WAIT." by inferring from the word of "DEPARTURE" in the instruction before the read-back instruction and that of "INSTRUCTION" used in the read-back instruction. In addition, Trainee A checked the final approach side, but was unable to recognize any aircraft there. At this time, as Trainee A was not applying parking brake but applying foot brakes, the brake effectiveness had slacked when Trainee A's upper body was leaned forward, and Aircraft A started to move slowly. As Tower C did not point out anything about this Aircraft A's movement, Trainee A thought that his understanding was not wrong. Although the read-back from Aircraft A was not in accordance with the specified rules, Tower C judged that giving further instructions to Aircraft A, which was flying solo, would work the other way to. As Aircraft A appeared to have held short of the runway holding point marking, Tower C did not give further instructions, and shift the attention to the north side of runway in order to check the condition through the whole runway. Aircraft A continued to move forward, and around 14:53:05, it passed the runway holding point marking (Position ⑥ in Figure 3-left). Before long, the several Controllers at the control tower, including Tower D, made assertions that Aircraft A was moving, and Tower C also visually recognized that Aircraft A passed the runway holding point marking of Taxiway T1. Aircraft A had not entered the runway yet, however, judging that letting Aircraft B go around would be safer and surer way than issuing a new instruction to Aircraft A, at 14:53:12, Tower C instructed Aircraft B to go around (Position ⑦ in Figure 3-right). Around 14:53:17, Aircraft A entered Runway 34 (Position ⑧ in Figure 3-left, the distance between both aircraft was about 2,510 m (about 1.36 nm)). Captain B and the FO B were listening to a series of radio communications between Tower C and Aircraft A, thus paid their attention to Aircraft A's movement as assuming that Aircraft could mistakenly enter the runway, and visually recognized that Aircraft started to move forward to the runway. For this reason, Aircraft B was thinking by itself of executing a go-around, but then, received the go-around instruction from Tower C, and thus at 14:53:23, executed a go-around (Position ⑨ in Figure 3-right, the distance between both aircraft was about 2,160 m (about 1.17 nm)). At 14:53:20, Tower C instructed Aircraft A to turn on the runway and go back to Taxiway T1. Aircraft A immediately turned on the runway, around 14:53:48, vacated the runway (Position ⑩ in Figure 3-left). After the go-around, Aircraft B turned to the west side of the Airport, its radio communication was transferred to Kagoshima Radar Approach Control Facility, then cleared for visual approach to Runway 34 by the control facility, and landed at 15:01.

	This serious incident occurred around 14:53:17 on January 8, 2022 (Position ⑧ in Figure 3-left), on Runway 34 at Kagoshima Airport (latitude 31° 48' 12" north, and longitude 130° 43' 10" east).
2.2 Injuries to Persons	None
2.3 Damage to the Aircraft	None
2.4 Personnel Information	(1) Trainee A — Age: 72 Private pilot certificate (Glider) — December 1, 2010 Type rating for High-class glider — December 1, 2010 Class 2 Aviation Medical Certificate — Validity: April 5, 2022 Aeronautical Service Special Radio Operator — October 1, 2007 Total flight time — 433 hours 08 minutes Flight time in the last 30 days — 3 hours 53 minutes Total flight time on the type of aircraft — 82 hours 15 minutes Flight time in the last 30 days — 0 hour 14 minutes (2) Captain A — Age: 65 Commercial Pilot Certificate — December 1, 1977 Rating for multi-engine land — December 1, 1977 Rating for single-engine land — October 11, 2011 Flight instructor certification — January 31, 1990 Class 1 aviation medical certificate — Validity: November 23, 2022 Aeronautical radio operator — December 26, 1986 Total flight time — 10,495 hours 13 minutes Flight time in the last 30 days — 51 hours 03 minutes Total flight time on the type of aircraft — 1,353 hours 04 minutes Flight time in the last 30 days — 51 hours 03 minutes
2.5 Aircraft Information	(1) Aircraft A Aircraft type: Cessna 172P Serial number: 17276207 Date of manufacture: April 3, 1984 Airworthiness certificate: Dai-2021-207 (2) Aircraft B Aircraft type: ATR 42-500 Serial number: 1402 Date of manufacture: March 9, 2018 Airworthiness certificate: Dai-2018-757
2.6 Meteorological Information	The observation data in the aerodrome routine meteorological report at the Airport at around the time of the serious incident was as follows: 14:00 Wind direction: VRB*3, Wind velocity: 2 kt Prevailing visibility: 10 km or more

*3 "VRB", which is an abbreviation for "variable", is used to indicate the following variable wind conditions: when the mean wind speed is less than 3 kt and the total variation is 60° or more, when the mean wind speed is 3 kt or more and the total variation is 180° or more, or when one wind direction cannot be specified.

	Clouds: Amount 1/8, Type Cumulus, Cloud base 3,000 ft Clouds: Amount 6/8, Type Altocumulus, Cloud base 7,000 ft Temperature: 10 ℃, Dew point: 4℃ Altimeter setting (QNH): 30.14 inHg
2.7 Additional Information	(1) Trainee A By the time this serious incident occurred, Trainee A had experienced solo flight three times. By the time of the serious incident, Trainee A had not had any problems in radio communications during taxiing, for the line-up and holding short of runway, but missed hearing instructions from the ATC facility during flight, and sometimes stayed silent without confirming with the Controller when Trainee A failed to understand the contents of the instructions. Both of Captain A and Previous Instructor A rated the radio communication with the Controllers as the weakness of Trainee A, and thoroughly instructed Trainee A never to enter the runway in an uncertain situation, and to make sure to confirm with the Controller about the instructions which Trainee A did not understand, even in Japanese. (2) The Company's trainings and certification for solo flight regarding radio communication The Company selected a series of examples of radio communications with the Controllers when conducting flight trainings at the Airport such as instructions to hold short of runway and etc., along with general phraseologies for radio communication and posted them in the "ATC Communications Examples at Kagoshima Airport", which was used as a training text. Captain A and Previous Instructor A used the text in the training for Trainee A and provide him with classroom training in which they played the role of the Controllers, simulating radio communication, every time before solo flight. The text did not include the examples of radio communications in the case read-back was not enough when instructed to hold short of runway, and the Company did not provide student pilots with any special instructions about this ATC phraseology (READ BACK HOLD SHORT INSTRUCTIONS). The notification titled "Safety Criteria for Solo Flight (Airplane)" (Ku Jo No. 2103, dated December 18, 1997), issued by the Civil Aviation Bureau, stipulates that the "Competence in communicating with ATC facilities and others" shall be one of aeronautical skills required for solo flight. Besides, the notification stipulates that "A student pilot shall have checkrides with more than two instructors before the first solo flight was granted." and "In case of no flight training within a week, a student pilot shall have a checkride with an instructor before the solo flight." In the Company, whether to grant a solo flight to a student pilot was decided during flight training with a flight instructor on board by checking whether or not the student pilot has the necessary skills in communicating with ATC facilities through their radio communication with the Controllers. Trainee A had checkrides with Captain A and Previous Instructor A before the first solo flight, and had been certified

	as having the overall aeronautical skills required for solo flight, even taking into consideration the weakness related to radio communications. (3) Regulations of the Civil Aviation Bureau (regarding ATC phraseology) The III Standards for Air Traffic Control Procedures, Air Traffic Control Services Procedure Handbook set forth by the Civil Aviation Bureau of Japan (hereinafter referred to as "the ATC Standard") stipulates as follows: *Japanese or English shall be used as ATC phraseology. However, English shall in principle be used in radio telephone.* (4) Regulations of the Civil Aviation Bureau (regarding holding short instructions) The ATC Standard stipulates as follows: (excerpts) a *In the case where aircraft may not be permitted to enter a runway according to traffic situations, it shall be instructed to hold short of the runway.* (ATC phraseology) *HOLD SHORT OF RUNWAY [number].* b *If there is no specific read-back or read-back contents are vague in the case of "a" above, it shall be instructed to read back the holding instruction.* (ATC phraseology) *READ BACK HOLD SHORT INSTRUCTIONS.* *Note: "Specific read-back" is the phraseology such as "Holding short" or "Holding" that means holding, and "ROGER" or "WILCO" is not enough.*

3. ANALYSIS

(1) Response of Trainee A

The JTSB concludes that Aircraft A certainly entered the runway despite of being instructed by Tower C and Tower D to hold short of the runway.

Trainee A was certified as having aeronautical skills required for solo flight in checkrides with flight instructors in the Company, but Trainee A was sometimes pointed out the failure of confirmation such as missing to hear ATC instructions or unable to understand the contents of ATC instructions. In addition to this, when the serious incident occurred, Trainee A misunderstood the ATC instructions during taxiing, and failed to confirm the contents of ATC instructions with the Controller despite of being unable to understand them, therefore it is highly probable that Trainee A did not fully master the skills for radio communication with the Controllers at a high-traffic airport like the Airport. As Trainee A himself admitted not to be good at radio communication with the Controllers, Trainee A more likely felt pressure not to miss to hear the instructions and clearances from Tower C. Therefore, skipping the step "To make sure to confirm with the Controller about the instructions when not understanding them", without understanding the Tower C's instruction to hold short of the runway, Trainee A most likely figured that Trainee A had received an instruction equivalent to "LINE UP AND WAIT" which Trainee A was expecting.

Furthermore, Trainee A was unable to monitor radio communications between Aircraft B and the Controllers, and as seeing Aircraft B's preceding arriving aircraft land, Trainee A most likely thought that there would be no subsequent arriving aircraft after that. For that reason, it is highly

probable that although Aircraft A was instructed to hold short of the runway, Trainee A inferred the ATC instructions failing to correctly understand its situation (sequence of the runway use) where the Aircraft was placed, and entered the runway. In addition, Trainee A likely expected there would be points-out from the Controller if his aircraft's movement had not been in accordance with the ATC instruction. Without confidence in the understanding of the ATC instructions, Trainee A should not have entered the runway by inferring them.

(2) Trainings for radio communications before the solo flight

By the time this serious incident occurred, Trainee A had made three solo flights and there were no particular problems in the radio communications. In the flight training with an instructor on board, there was also no problem in radio communications related to runway line-up and holding short of runway. In addition, in the familiarization flight made before the solo flight on the day of the serious incident, there were also no problems in radio communications. Therefore, Captain A certified that there were no problems for Trainee A to make solo flight. However, the JTSB concludes that as seen in this serious incident, Trainee A was inclined to stay silent without confirming them with the Controller when Trainee A was unable to understand the contents of the ATC instruction, therefore, especially in order to improve this point, before the solo flight, probably Captain A should have provided Trainee A with simulation exercises and trainings assuming such a case where there is a discrepancy in radio communications between Trainee A and the Controller.

The Company more likely thought that it would be more effective to select and teach only minimum phraseologies required for flight trainings at the Airport, rather than all of the ATC phraseologies specified in the ATC Standard. However, it is absolutely essential for student pilots to be able to correctly understand and use the instruction of holding short of runway and all relevant ATC phraseologies. The Company had checked whether or not the student pilots had radio communication skills necessary for solo flight not by confirming them separately but through their radio communication with the Controllers during flight training with a flight instructor on board. However, as the traffic volume at the Airport is large, in some cases, the ATC instructions and clearances expected by the aircraft may not be issued immediately. Therefore, when granting a solo flight to the student pilot, it is important for the Company to ensure to confirm and certify the students' aeronautical skills required for the solo flight, especially those for all the radio communication with the Controller that could be assumed at the time of the runway use.

(3) Response of Tower C

JTSB concludes that as Tower C recognized Aircraft A was flying solo, and had been listening to the radio communication between Tower D and Aircraft A since before taking over the duty, Tower C more likely gave consideration to the radio communications in order not to put a burden on Aircraft A.

On the other hand, it is desirable for the Civil Aviation Bureau to continue to deliberate how to deliver easy-to-understand ATC communications, using this serious incident as a case study, and considering not only the aircraft operators inexperienced in ATC communications but also the circumstances where a diversity of aircraft operators exist.

(4) Classification of Severity

The JTSB concludes that the distance between Aircraft A and Aircraft B was most likely approximately 2,160 m (about 1.17 nm), when Aircraft B was instructed by Tower C to go around and started to climb.

The serious incident certainly falls under the severity classification of Category C (An

incident characterized by ample time and/or distance to avoid a collision) of "the Manual on the Prevention of Runway Incursions" of ICAO with classification tools provided by ICAO. (See Attachment “Severity Classifications of Runway Incursions”).

4. PROBABLE CAUSES

The JTSB concludes that the probable cause of this serious incident was certainly that Aircraft A, which had been instructed to hold short of the runway, entered the runway, when Aircraft B was cleared to land on the runway.

The reason why Aircraft A, which had been instructed to hold short of the runway, entered the runway is because Trainee A most likely inferred from the ATC instructions that Trainee A had received a clearance of entering the runway, which Trainee A had expected while unable to understand the holding instruction.

5. SAFETY ACTIONS

5.1 Safety Actions Required	As described in “3 ANALYSIS”, regarding radio communications with the Controllers especially related to the runway use, it is more likely necessary for the parties concerned to consider and implement the safety actions to ensure to certify whether or not the student pilot masters the aeronautical skills required for solo flight.
5.2 Safety Actions Taken	(1) Safety actions taken by the Company ① Stipulated in the standard of flight trainings that in their classroom trainings, the student pilots should be made fully aware that they should not act on their speculation when they cannot understand the instructions (intentions) of the Controllers, and they should be taught with an emphasis on using Japanese to communicate with the Controller if not understanding the instructions. ② Stipulated in the solo flight training manual as follows: ・To conduct response trainings assuming such cases as there is a discrepancy in radio communications between student pilots and the Controllers before solo flight. ・To confirm and judge whether the student pilot has radio communication skills required for solo flight in checkrides with flight instructors for granting the first solo flight. ③ Described the following in “ATC Communications Examples at Kagoshima Airport”. ・To surely ask again without hesitating to use Japanese if there is any uncertainty or incomprehension in radio communications with the Controllers. ・To say again the same ATC instruction onboard the aircraft after reading it back to the Controller in order to ensure to recognize the contents of the ATC instruction even in solo flight training, and to reconfirm with the Controller if the ATC instruction cannot be repeated accurately. ・Radio communication examples related to the read-back instruction

	for an instruction of holding short of runway. ④ Relocated the existing surveillance camera to a higher position where the aircraft at the runway threshold can be seen, and established the system for the operation manager to surely supervise aircraft flying solo. In addition, established the dual surveillance system that allow the operation manager or the supervising instructor to directly instruct the aircraft via company radio if judged to be critical, by carrying a radio capable of both transmitting and receiving and a radio receiver when the supervising instructor monitor the aircraft flying solo on the apron. (2) Safety Actions taken by Air Traffic Control Division, Air Navigation Services Department of the Civil Aviation Bureau ・Summarized the information related to efforts and innovations for aircraft unfamiliar with air traffic control in all airport traffic control towers. ・Held a meeting to exchange opinions on air traffic control methods for small aircraft between the Regional Civil Aviation Bureau and its competent ATC offices.

Attachment

Severity Classifications of Runway Incursions

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

Table 6-1 Severity classification scheme

Severity classification	*Description*＊＊1
A	*A serious incident in which a collision is narrowly avoided.*
B	*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.*
C ＊＊2	*An incident characterized by ample time and/or distance to avoid a collision.*
D	*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 take-off and landing of aircraft but with no immediate safety consequences.*
E	*Insufficient information or inconclusive or conflicting evidence precludes a severity assessment.*

＊＊1 See the definition of "incident" of Annex 13.

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