

УЛААНБААТАР ХОТЫН “ЧИНГИС ХААН” ОУНБ-Д
AIRCHINA КОМПАНИЙ ССА902 АЯЛАЛЫН В-737
АГААРЫН ХӨЛӨГ ТАСАЛДСАН ХӨӨРӨЛТ
ҮЙЛДСЭН ТУХАЙ

2015 ОНЫ 01-Р САРЫН 08

ABORTED TAKE-OFF EVENT OF FLIGHT CCA902
“CHINGGIS KHAAN” INTERNATIONAL AIRPORT,
MONGOLIA

2015. JAN.08

НОЦТОЙ ЗӨРЧЛИЙН ЭЦСИЙН ТАЙЛАН

2015 ОНЫ 04-Р САРЫН 30

FINAL REPORT OF SERIOUS INCIDENT

2015. April.30



ЗАМ, ТЭЭВРИЙН ЯАМ

НИСЛЭГ-ТЕХНИКИЙН ОСОЛ, ЗӨРЧЛИЙГ ШИНЖЛЭН ШАЛГАХ АЛБА

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Өмнөх үг

Энэхүү аюулгүй байдлын шинжлэн шалгах ажиллагаа нь зөвхөн бодит үнэнийг тодорхойлох зорилготой бөгөөд Шинжлэн шалгах албаны эцсийн тайлан нь уг тохиолдлын нөхцөл байдал болон байж болох шалтгаануудыг тогтооход оршино.

Олон улсын иргэний нисэхийн Конвенцийн Хавсралт 13, Монгол Улсын Иргэний нисэхийн тухай хуулийн [9-р бүлэг] болон Иргэний Нисэхийн Багц Дүрэм 203-т заасны дагуу, шинжлэн шалгах ажиллагаа нь ямар ч тохиолдолд хэн нэгнийг буруутгах, хариуцлага тооцоход чиглэгдэхгүй. Шинжлэн шалгах ажиллагаа нь хэн нэгний гэм бурууг тогтоох, хариуцлага тооцох хууль хяналт, захиргааны арга хэмжээнээс ангид бие даасан, хараат бус байна. Шинжлэн шалгах ажиллагаа болон эцсийн тайлангийн гол зорилго нь осол, зөрчлийг давтагдахаас урьдчилан сэргийлэхэд оршино.

Иймд, дээрхи зорилгоор гарсан шинжлэн шалгах ажиллагааны тайланг хэн нэгний гэм буруутайг тогтоох эсвэл хариуцлага тооцоход ашиглаж болохгүй.

Тайлангийн ишлэлийг ашиглахдаа эх үүсвэр нь тодорхой, агуулгыг гуйвуулахгүйгээр хэвлэн нийтэлж болох бөгөөд гутаан доромжлох, төөрөлдүүлэх зорилгоор ашиглахыг хориглоно.

Foreword

This safety investigation is exclusively of a technical nature and the Final Report reflects the determination of the AAIB regarding the circumstances of this occurrence and its probable causes.

In accordance with the provisions of Annex 13 to the Convention on International Civil Aviation, Civil Aviation Law of Mongolia [Chapter 9] and MCAR's 203.12, safety investigations are in no case concerned with apportioning blame or liability. They are independent of, separate from and without prejudice to any judicial or administrative proceedings to apportion blame or liability. The sole objective of this safety investigation and Final Report is the prevention of accidents and incidents.

Accordingly, it is inappropriate that AAIB Reports should be used to assign fault or blame or determine liability, since neither the safety investigation nor the reporting process has been undertaken for that purpose. Extracts from this Report may be published providing that the source is acknowledged, the material is accurately reproduced and that it is not used in a derogatory or misleading context.

FINAL REPORT

Тайлангийн дугаар/Report No: SI.20150430.02

Тайлангийн төрөл/Report Format: Final report

Огноо/Published: 2015.04.30

In accordance with Annex 13 to the Convention on International Civil Aviation, Civil Aviation Law of Mongolia [Chapter 9] and MCAR's 203.12, the General Investigator of AAIB, on 2015.04.27, appointed M.Baatarjav as the Investigator in Charge to carry out an Investigation into this serious incident and prepare a Report.

Агаарын хөлгийн маяг/Aircraft Type: B737-800

Бүртгэлийн дугаар/Registration: B5500

Хөдөлгүүрийн тоо, маяг/No. and Type of Engines: 2xCFM56-7

Агаарын хөлгийн сериал/Aircraft Serial Number: 36752

Үйлдвэрлэсэн он/Year of Manufacture: 2010

Огноо, цаг/Date and Time: 2015.01.08, 07:28 (L)

Байршил/Location: Ulaanbaatar, Mongolia

Үйл ажиллагааны төрөл/Type of Operation: Transporting passenger – Scheduled flights

Хөлөгт байсан хүний тоо/Persons on Board:

Багийн гишүүн/Crew: Зорчигч/Passengers:

Бэртсэн хүний тоо/Injuries: 0

Багийн гишүүн/Crew: 0 Зорчигч/Passengers: 0

Хохирлын хэмжээ/Nature of Damage: Aircraft delayed 4 hours

Мэдэгдлийн эх сурвалж/Notification Source: Air traffic controller

Мэдээллийн эх сурвалж/Information Source: By mobile phone

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FINAL REPORT OF THE ABORTED TAKE-OFF EVENT OF FLIGHT CCA902
AT "CHINGGIS KHAAN" INTERNATIONAL AIRPORT

Executive summary

On 08 Jan 2015 at 07:28:22 AM (Z), B737 aircraft operated by "Air China" flight No.CCA902 on Beijing-Ulaanbaatar-Beijing route, aborted its take-off with related delay. According to the provision D of Annex 13 of the Chicago Convention, such incident is not considered as a serious incident.

However, due to following situation, AAIB Mongolia decided to open own investigation in addition to investigations which were carried out by MCAA:

- Official response letter No.06-04/40 of the MCAA dated on 19 Jan 2015 to Representative Office of "Air China" which states "...we have done associated inspections in accordance with the information related to sudden aborted take-off event and conclusions of inspectors have been delivered to the AAIB, please request final inspection report from the AAIB of Mongolia".
- The Conclusion No.80/15 of previous investigation report submitted by MCAA inspector concludes that "Air traffic controller gives an instruction during the traffic loads, but flight crew understood that instruction wrong".
- The conclusion No.17/15 of another investigation report of MCAA indicates that "Air Traffic Controller instruction given in the take-off stage while crew was concentrated on the take-off and it was reason of misunderstanding by the flight crew and sudden aborted take-off".

1. Factual information

1.1. History of the flight

On 08 January, year 2015, "Air China" B737 aircraft arrived in Ulaanbaatar and aircraft was prepared for flight to Beijing, flight number CCA902.

At 07:28:22 AM of the same day, the CCA902 aborted its take-off after 20 sec of take-off run on the RWY32.

1.2. Consequences of the incident

As result of aborted take-off, aircraft delayed its flight and total delay was around 3 hours.

1.3. Communications

1.3.1. At 07:17:09 AM (Z), Flight CCA902 contacted Tower controller and received ATC clearance for pushback, engine start, and departure permission and identification code.

20150108071709

ACFT: Ulaanbaatar Tower CCA902 ready for push and start

ATC: CCA902 Push-back and start up engine approved QNH1026

ACFT: Push-back and start up approved QNH 1026 CCA902, and to Beijing request ATC Clearance, request cruising level 9500

ATC: confirm cruising level 8900m

ACFT: ok, cruising level 8900m CCA902

ATC: CCA902 cleared to destination Beijing, after take-off follow ANIKU 1A departure via Air way A575, climb and maintain 8900m squawk 0304

ACFT: roger to Beijing airport follow ANIKU 1A departure airway A575 initial climb 8900m Squawking 0304 CCA902

ATC: 902 read back is correct

1.3.2. On 07:22:39 AM, CCA902 requested to taxi and Tower controller had cleared, then flight crew read back the clearance.

1.3.3. On 07:26:48 AM, when CCA902 was taxiing via TWY "F", Tower controller cleared to line up via RWY32 for take-off and informed to crew about wind variable 2 m/sec.

1.3.4. On 07:27:08 AM, Area Controller informed over the phone to the Tower controller about arrival of KE867 from ARGAT to Ulaanbaatar and requested to change CCA902's departure procedure from ANIKU1 departure to radial 160.

1.3.5. On 07:28:22 AM, Tower controller transmitted information to CCA902 about the change of departure procedure, when CCA902 was on its take-off run process. Flight crew aborted its take-off after 20 seconds of take-off run.

20150108072822

ATC: CCA902 clearance

ACFT: Go ahead

ATC: CCA902 after take-off 2000m left turn intercept radial 160 from UDA due to traffic

ACFT: Roger

ACFT: CCA902 aborted take-off at, we will vacate RWY

ATC: Roger

1.3.6. 20150108072903

ACFT: CCA902 we cannot taxi RWY and vacate via B or C

ATC: can you backtrack on the RWY

ACFT: backtrack on the RWY CCA902

ACFT: Ulaanbaatar CCA902 why aborted take-off

ATC: CCA902 misunderstood, I said re-cleared after take-off 2000m intercept radial 160

1.3.7. 20150108073132

ACFT: Ulaanbaatar CCA902 confirm at,... are you not aborted

ATC: affirm not aborted, I just said you after take-off 2000m left turn intercept radial 160

ACFT: Oo, I can vacate RWY, vacating via C

ATC: affirm vacate via C continue taxi F and E

ACFT: Oo, vacate RWY via C then F and E CCA902, you confirm give me the wrong mistake

ATC: affirm that was misunderstood I just said you re-clearance, after take-off 2000m left turn intercept radial 160

ACFT: You said after take-off, I heard it aborted take-off, so I aborted take-off

ATC: CCA902 sorry Sir that was misunderstood

1.4. Other information

There were no reported injuries and damage to aircraft and its passengers.

All other local factors such as weather, aerodrome, and airport conditions are not induced to the incident.

2. Analysis

2.1 Regulation

2.1.1 At 07:26:48 AM, Tower controller cleared for take-off, while the CCA902 taxiing on the TWY "F", near by the intersection with TWY "D".

2.1.2 Area controller contacted to tower controller requesting to change CCA902's initial permission ANIKU1 departure to radial 160. Area controller made this request to get lateral separation between, KE867 descending from Polho to Ulaanbaatar on airway B339 and CCA902 departing from Ulaanbaatar to Sainshand on airway A575 to comply with:

- 3.7.4 of Annex 11 "Coordination of clearances",
- 6.3.2.2 of Doc 4444 "Coordination",
- 6.1.1 of advisory circular AC172-01 "Besides Approach controller provides ATC clearances to the departing aircraft, they clarifies departing procedure and departure standard route in order to maintain safe distances between the aircrafts",
- 2.2.1.3.3 of General manual of Mongolian Air Traffic Service. "Coordination of cooperation".

2.1.3 At 07:28:22 AM, Tower controller transmitted departure procedure change information to the CCA902 when the aircraft was on its take-off run phase of the flight.

The tower controller's above action is inconsistent with the provisions of the following documents:

- 5.2.1.7.3.1.1 of Chapter 5 of Annex 10 Aeronautical Telecommunications. "Except for reasons of safety no transmission shall be directed to an aircraft during take-off, during the last part of the final approach or during the landing roll",
- 2.8.3.2 ICAO Doc 9432. "An air traffic control route clearance is not an instruction to take-off or active runway"
- 4.5.4 of ICAO Doc 9432. "Except in cases of emergency, controllers should not transmit to an aircraft in the process of take-off or during the early stage of climb",
- 5.1.1 of advisory circular 172-01. "In order to ensure safety, it is prohibited that controllers transmit to an aircraft in the process of take-off or during the landing roll)"
- 12.3.5.3 of Doc 4444. "Change of clearance"

2.1.4 At 07:29 AM, only KE867 was flying in the Approach Area of Ulaanbaatar aerospace at FL10400m via airway B339 and if KE867 descends with average vertical speed of 8m/s, after 9 minutes it could reach FL6000m at 90 km distance from ZMUB.

If CCA902 could take-off on 07:28 AM per plan, it could reach FL6000m at 60 km distance from ZMUB, longitudinal separation between the two aircrafts could be at least about 30 km and lateral separation around 10 km.

2.2 Information of Air Traffic Controller

2.2.1 ATC Supervisor

On duty ATC Supervisor of the tower is 35 years old, male. In 2005, he graduated Aerodrome Controller's 10 months (1665 hours) training with Certificate No.MO 05 889, have ATC license TC-0153, valid till 11 August 2015, category 3 medical certificate No.07726, valid till 21 May 2015, and have English proficiency level 4.

2.2.2 Tower controller

Tower controller is 33 years old, male. In 2005, he graduated Aerodrome Controller's 10 months (1665 hours) training with Certificate No.MO 05 872, have ATC license TC-0034, valid till 04 June 2015, category 3 medical certificate No.07737, valid till 13 June 2015, English proficiency level 4.

3. **Conclusions**

3.1 Findings

- Following common regulation “Except in cases of emergency, controllers should not transmit to an aircraft after an aircraft started rolling to take off and also until its (AIRBORNE) statement” is not followed when Tower controller transmitted departure change information to CCA902 on its take-off flight phase:
 - 2.8.3.2 of Doc 9432
 - 5.1.1 of Advisory Circular 172-01.
- Requirements of the following documents are not fully described and reflected in "Aerodrome and Approach Control Center Operating Instructions manual” of the tower control:
 - Advisory Circular 172-01,
 - Annex 10 and
 - Doc 9432.

3.2 Contributing factors

- Initial take-off clearance was delivered to CCA902 early, while aircraft was taxiing on TWY “F” to RWY32.
- Tower controller did not use phraseology “Change of Clearance”, when he transmitted departure procedure change to CCA902.

4. **Safety Recommendation**

4.1. Previously issued safety recommendation 201502/02 dated 26 Jan 2015. ATC

Conduct Aviation Phraseology additional training to tower controllers based on advisory circular AC-172-01, Annex 10, ICAO DOC 9432, 4444, General manual of Air Traffic Service and reduce readout control check interval of ATC communication records by QA.

4.2. Previously issued safety recommendation 201504/07 dated 09 Apr 2015

Before 01 June 2016, organize initial difference training by approved training organization for ATC certificate holders whose training program is not in compliance with initial training requirements specified in Annex 1 and ICAO docs.

4.3. New safety recommendation 201505/10

Revise and amend procedure to “Operation manual of approach and tower controller” about methodology for calculation of estimated time, approach speeds and trajectory of flight and coordination of air traffic situation according to following documents AC172-01, ICAO Annex 10, ICAO Doc 9432, Doc 4444.

PREPARED BY:

INVESTIGATOR (Ph.D.)

M.BAATARJAV

REVIEWED BY:

GENERAL INVESTIGATOR

AND DIRECTOR

YO.ENKHTUR

5. Appendix

5.1. ATC Communication transcription

/07.00 – 07.50 UTC/

D0004820150108071709

ACFT: Ulaanbaatar Tower CCA902 ready for push and start

ATC: CCA902 pushback and start up engine approved QNH1026

ACFT: Pushback and start up approved QNH1026 CCA902 and to Beijing request

ATC clearance, request cruising level 9500

ATC: confirm cruising level 8900m

ACFT: ok, cruising level 8900m CCA902

ATC: CCA902 cleared to destination Beijing, after take-off follow ANIKU1A departure via airway A575, climb and maintain 8900m squawk 0304

ACFT: roger to Beijing airport follow ANIKU1A departure airway A575 initial climb 8900m squawking 0304 CCA902

ATC: 902 read back is correct

D0004820150108072239

ACFT: Ulaanbaatar CCA902 ready for taxi ATC: CCA902 taxi to RWY32 via F and E

ACFT: taxi to RWY32 taxiway F and E CCA902

D0004820150108072648

ATC: CCA902 line up and cleared for take-off RWY32 wind variable 2 m/sec

ACFT: wind variable 2, line up and take-off RWY32 CCA902

D0004820150108072822

ATC: CCA902 clearance

ACFT: go ahead

ATC: CCA902 after take-off 2000m left turn intercept radial 160 from UDA due to traffic

ACFT: roger

ACFT: CCA902 aborted take-off at, we will vacate RWY

ATC: roger

D0004820150108072903

ACFT: CCA902 we cannot taxi RWY and vacate RWY via B or C

ATC: can you backtrack on the RWY

ACFT: say again

Dated 22 May 2015

ATC: can you backtrack on the RWY ACFT: backtrack on the RWY CCA902

ACFT: Ulaanbaatar CCA902 why aborted take-off?

ATC: CCA902 misunderstood, I said re-cleared after take-off 2000m intercept radial 160

D0004820150108073132

ACFT: Ulaanbaatar CCA902 confirm at,... are you confirm not aborted

ATC: affirm not aborted, I just said you after take-off 2000m left turn intercept radial 160

ACFT: Oo, I can vacate RWY, vacating

ATC: affirm vacate via C continue taxi F and E

ACFT: Oo, vacate RWY via C then F and E CCA902, you confirm give me the wrong mistake

ATC: affirm that was misunderstood I just said you re-clearance, re-cleared after take-off 2000m left turn intercept radial 160

ACFT: you said after take-off, I heard it aborted take-off, so I aborted take-off

ATC: CCA902 sorry Sir that was misunderstood

D0004820150108073458

ACFT: Ulaanbaatar CCA902 due to the high speed aborted, so we have to wait long time I will call you, we are delayed for take-off

ATC: CCA902 roger hold on taxiway E

ACFT: Oo, so E CCA902

D0004820150108074047

ACFT: Ulaanbaatar CCA902

ATC: CCA902 go ahead

ACFT: I taxi so we have to wait 50 minutes hold at there

ATC: CCA902 confirm 15 or 50 minutes

ACFT: 50 minutes

ATC: confirm five zero minutes

ACFT: five zero minutes

ATC: five zero minutes copied

ACFT: Oo, now or there's no impact over here

ATC: say again CCA902

ACFT: I say I hold at here no impact another aircraft

ATC: affirm you can hold on that position

ACFT: ok, ok I hold this position CCA902

FINAL REPORT

Олон улсын иргэний нисэхийн Конвенцийн Хавсралт 13, Монгол Улсын Иргэний нисэхийн тухай хуулийн [9-р бүлэг] болон Иргэний Нисэхийн Багц Дүрэм 203-т заасны дагуу, шинжлэн шалгах ажиллагааны гол зорилго нь осол, ноцтой зөрчил давтагдан гарахаас урьдчилан сэргийлэхэд оршино. Аливаа ослыг шинжлэн шалгасан үйл ажиллагаа болон түүнтэй холбоотой тайлан нь хэн нэгнийг буруутгах, хариуцлага тооцох зорилгогүй.

Аюулгүй ажиллагааны зөвлөмж нь тухайн хэрэг явдалд хэн нэгнийг буруутгах, хариуцлага тооцох дүгнэлт гаргах үндэслэл болохгүй.

In accordance with Annex 13 to the Convention on International Civil Aviation, Civil Aviation Law of Mongolia [Chapter 9] and Mongolian Civil Aviation Rule's, the sole purpose of this investigation is to prevent aviation accidents and serious incidents. It is not the purpose of any such investigation and the associated investigation report to apportion blame or liability.

A safety recommendation shall in no case create a presumption of blame or liability for an occurrence.

Produced by the Aircraft Accident Investigation Bureau of Mongolia

AAIB Reports are available on the website at www.aaib.gov.mn

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