



**KOMITE NASIONAL KESELAMATAN TRANSPORTASI
REPUBLIC OF INDONESIA**

PRELIMINARY

KNKT.23.05.07.04

Aircraft Accident Investigation Report

Angkasa Super Services

Hawker 900 XP; PK-LRU

Morowali Airport, Central Sulawesi

Republic of Indonesia

11 Mei 2023

2023

This Preliminary Report is published by the Komite Nasional Keselamatan Transportasi (KNKT), Transportation Building, 3rd Floor, Jalan Medan Merdeka Timur No. 5 Jakarta 10110, Indonesia.

The report is based upon the investigation carried out by the KNKT in accordance with Annex 13 to the Convention on International Civil Aviation, the Indonesian Aviation Act (UU No. 1/2009) and Government Regulation (PP No. 62/2013).

The preliminary report consists of factual information collected until the preliminary report published. This report will not include analysis and conclusion.

Readers are advised that the KNKT investigates for the sole purpose of enhancing aviation safety. Consequently, the KNKT reports are confined to matters of safety significance and may be misleading if used for any other purpose.

As the KNKT believes that safety information is of greatest value if it is passed on for the use of others, readers are encouraged to copy or reprint for further distribution, acknowledging the KNKT as the source.

When the KNKT makes recommendations as a result of its investigations or research, safety is its primary consideration.

However, the KNKT fully recognizes that the implementation of recommendations arising from its investigations will in some cases incur a cost to the industry.

Readers should note that the information in KNKT reports, and recommendations is provided to promote aviation safety. In no case is it intended to imply blame or liability.

Jakarta, 4 July 2023

**KOMITE NASIONAL
KESELAMATAN TRANSPORTASI
CHAIRMAN**



SOERJANTO TIAHJONO

TABLE OF CONTENTS

TABLE OF CONTENTS	I
TABLE OF FIGURES	III
ABBREVIATIONS AND DEFINITIONS	IV
SYNOPSIS	V
1 FACTUAL INFORMATION	1
1.1 History of the Flight	1
1.2 Injuries to Persons	2
1.3 Damage to Aircraft.....	2
1.4 Other Damage.....	3
1.5 Personnel Information	3
1.5.1 Pilot in Command	3
1.5.2 Second in Command	4
1.5.3 In-Flight Service Personnel.....	5
1.6 Aircraft Information	5
1.6.1 General	5
1.6.2 Engines.....	6
1.6.3 Aircraft Maintenance Record.....	6
1.6.4 Aircraft weight and balance	6
1.7 Meteorological Information	7
1.8 Aids to Navigation.....	7
1.9 Communications.....	10
1.10 Aerodrome Information.....	10
1.11 Flight Recorders	11
1.12 Wreckage and Impact Information.....	11
1.13 Medical and Pathological Information	12
1.14 Fire.....	12
1.15 Survival Aspects.....	12
1.16 Tests and Research	13
1.17 Organizational and Management Information	13
1.17.1 Aircraft Operator	13
1.17.1.1 Lion Bizjet Operation Manual	13
1.17.1.2 Hawker 900 XP Pilot Operating Manual (POM).....	13

1.17.2 Air Navigation Operator	14
1.18 Additional Information.....	14
1.19 Useful or Effective Investigation Techniques	14
2 FINDINGS.....	15
3 SAFETY ACTION.....	17
4 SAFETY RECOMMENDATIONS.....	18

TABLE OF FIGURES

Figure 1: The aircraft condition after stop.....	2
Figure 2: The damage of nose section and the wrinkle on the fuselage.....	3
Figure 3: The Wings Air airport visual guidance for Morowali Airport (aerodrome information).....	8
Figure 4: The Wings Air airport visual guidance for Morowali Airport (Visual approach chart).....	9
Figure 5: The check point coordinates of the visual guidance of Morowali Airport	10
Figure 6: Tire marks found on the runway	11
Figure 7: The engine thrust reversers dan air brake position	12

ABBREVIATIONS AND DEFINITIONS

AFML	:	Aircraft Flight and Maintenance Log
AMM	:	Aircraft Maintenance Manual
AOC	:	Air Operator Certificate
ARFF	:	Airport Rescue and Fire Fighting
ATPL	:	Air Transport Pilot License
ATS	:	Air Traffic Services
BMKG	:	<i>Badan Meteorologi, Klimatologi dan Geofisika</i>
C of A	:	Certificate of Airworthiness
C of R	:	Certificate of Registration
CASR	:	Civil Aviation Safety Regulation
CVR	:	Cockpit Voice Recorder
DEEC	:	Digital Electronic Engine Control
DGCA	:	Directorate General of Civil Aviation
FAC	:	Flight Attendant Certificate
FDR	:	Flight Data Recorder
FMS	:	Flight Management System
HP	:	High Pressure
IAS	:	Indicated Airspeed
IFSP	:	In-flight Service Personnel
KNKT	:	<i>Komite Nasional Keselamatan Transportasi</i>
LP	:	Low Pressure
LT	:	Local Time
OM	:	Operation Manual
PF	:	Pilot Flying
PIC	:	Pilot In Command
PM	:	Pilot Monitoring
POM	:	Pilot Operating Manual
SBU	:	<i>Sertifikat Bandar Udara</i>
SIC	:	Second In Command
UPBU	:	<i>Unit Penyelenggara Bandar Udara</i>
UTC	:	Coordinated Universal Time
VHF	:	Very High Frequency

SYNOPSIS

On 11 Mei 2023, a Hawker 900 XP registered PK-LRU was being operated by Angkasa Super Services (Lion Bizjet) on unscheduled passenger flight from Halim Perdanakusuma Airport (WIHH), Jakarta to Morowali Airport (WAFO), Central Sulawesi. The flight was the only flight scheduled of the day and was planned for the crew and the aircraft, to stay overnight at Morowali.

Prior to departure, medical examination consisted of heart rate, blood pressure, and alcohol test were conducted for both pilots with the result of no health problem. The engineer and pilot performed preflight inspection there no aircraft technical system abnormalities were found.

On board of the aircraft were two pilots, one engineer, one in-flight service personnel (IFSP) and four passengers. Both pilots were qualified captain. The Pilot in Command (PIC) acted as Pilot Monitoring (PM) occupied right pilot seat and the Second in Command (SIC) acted as Pilot Flying (PF) occupied left pilot seat.

Before the descent, both pilots discussed the approach plan and agreed to conduct visual approach for Runway 23. The pilot utilized the Flight Management System (FMS) by referring the airport visual guidance which has input on the FMS. At 0629 UTC, the aircraft started to descent.

At 0639 UTC, PM contacted Morowali Aeronautical Communication Officer (Morowali Info officer) and was informed that the wind was from 060° degrees and velocity of 5 knots. The PF asked PM to update the wind condition on FMS. Based on the updated wind condition, the FMS calculated the required landing distance was 4,519 feet for the predicted landing weight and flaps 45 configuration. The FMS also calculated the Vref was 125 knots.

About 0659 UTC, the aircraft landed. During the landing roll, both pilots, the engineer and the IFSP felt that the aircraft tilted to the right. Both pilots recalled that this might be caused by the right main landing gear strut depleted. The PF used steering wheel to control the aircraft direction as advised by the PM.

The PF applied brake pedals and pulled the thrust reverser levers but the thrust reverser levers unable to be deployed. The PM advised to the PF to pull the thrust reverser levers and the PF stated that the thrust reverser levers unable to be deployed. Both pilots attempted to decelerate the aircraft by applying the brake pedals and applied the thrust reverser, however the thrust reverser unable to be deployed.

Both pilots, the engineer and the IFSP felt that the aircraft was not decelerating. The aircraft out off the runway and stopped about 210 meters from the end of Runway 23 after impacted to the embankment.

The investigation is continuing, should any further relevant safety issues emerge during the investigation, KNKT will immediately bring the issues to the attention of the relevant parties and publish as required.

1 FACTUAL INFORMATION

1.1 History of the Flight

On 11 Mei 2023, a Hawker 900 XP registered PK-LRU was being operated by Angkasa Super Services (Lion Bizjet) on unscheduled passenger flight from Halim Perdanakusuma Airport (WIHH), Jakarta¹ to Morowali Airport (WAFO), Central Sulawesi². The flight was the only flight scheduled of the day and was planned for the crew and the aircraft, to stay overnight at Morowali.

Prior to departure, medical examination consisted of heart rate, blood pressure, and alcohol test were conducted for both pilots with the result of no health problem. The engineer and pilot performed preflight inspection there no aircraft technical system abnormalities were found.

On board of the aircraft were two pilots, one engineer, one in-flight service personnel (IFSP) and four passengers. Both pilots were qualified captain. The Pilot in Command (PIC) acted as Pilot Monitoring (PM) occupied right pilot seat and the Second in Command (SIC) acted as Pilot Flying (PF) occupied left pilot seat.

At 0415 UTC³ (1115 LT), in daylight conditions, the aircraft departed from Halim and cruised at an altitude of 39,000 feet.

Before the descent, both pilots discussed the approach plan and agreed to conduct visual approach for Runway 23. The pilot utilized the Flight Management System (FMS) by referring the airport visual guidance which has input on the FMS. At 0629 UTC, the aircraft started to descent.

At 0639 UTC, the PM contacted Morowali Aeronautical Communication Officer (Morowali Info officer) and was informed that the wind was from 060° and velocity of 5 knots. The PF asked PM to update the wind data on the FMS. Based on the updated wind condition, the FMS calculated the required landing distance was 4,519 feet for the predicted landing weight and flaps 45 configuration. The FMS also calculated the VREF⁴ was 125 knots.

At 0642 UTC, the pilot informed to the Morowali Info officer that they were flying in visual meteorological condition. At 0650 UTC, the approach commenced via left downwind and continued to long final Runway 23.

At 0655 UTC, the aircraft passed MOH53⁵, when the altitude was about 2,400 feet and the indicated airspeed (IAS) about 140 knots. The aircraft had been configured with the flaps 45 for landing.

About 0659 UTC, the aircraft landed. During the landing roll, both pilots, the engineer and the IFSP felt that the aircraft tilted to the right.

¹ Halim Perdanakusuma Airport (WIHH), Jakarta will be named as Halim for the purpose of this report.

² Morowali Airport (WAFO), Central Sulawesi will be named as Morowali for the purpose of this report.

³ UTC (Universal Time Coordinated). The 24-hours clock in Universal Time Coordinated (UTC) is used in this report to describe the local time as specific events occurred. Local time of Jakarta is UTC+7 hours and local time of Morowali is UTC+8.

⁴ VREF is the landing reference speed. This is the speed required as the landing runway threshold is crossed at a height of 50 feet in landing configuration.

⁵ MOH53 is the final reference point, located at 7 Nm from the threshold Runway 23 and according to the approach procedure, the required altitude at this point was 2,300 feet.

Both pilots recalled that this might be same as several occurrences before that were caused by the right main landing gear strut depleted.

The PF used steering wheel to control the aircraft direction as advised by the PM. While controlling the aircraft direction, the PF applied brake pedals and pulled the thrust reverser levers but the thrust reverser levers unable to be pulled. The PM advised to the PF to reverse and the PF stated that the thrust reverser levers unable to be pulled. Both pilots attempted to decelerate the aircraft by applying the brake pedals and applied the thrust reverser, however the thrust reverser unable to be deployed.

Both pilots felt that the aircraft was not decelerating. The aircraft out off the runway and stopped about 210 meters from the end of Runway 23 after impacted to the embankment.



Figure 1: The aircraft condition after stop

After the aircraft stopped, both pilots performed emergency procedure. The PF shut down both engines by operating the High Pressure (HP) cock levers but the right HP cock lever was stuck and the PF pull the right Low Pressure (LP) cock lever. The PF then commanded to evacuate.

1.2 Injuries to Persons

The engineer and the PF suffered minor injuries while the other occupants did not injure.

1.3 Damage to Aircraft

The aircraft was substantially damaged as a result of this accident.

The nose landing gear was collapse. The nose radome was damage and the fuselage skin on the aft of cockpit section wrinkle.



Figure 2: The damage of nose section and the wrinkle on the fuselage

1.4 Other Damage

There airport fence was damaged after being impacted by the aircraft.

1.5 Personnel Information

1.5.1 Pilot in Command

Gender	: Male
Age	: 50
Nationality	: Indonesia
Date of joining company	: 6 June 2012
License	: Airline Transport Pilot License (ATPL)
Date of issue	: 1 December 2004
Aircraft type rating	: Boeing 737-NG, Hawker 900 XP
Instrument rating validity	: Valid
Medical certificate	: First Class
Last of medical	: 5 April 2023
Validity	: 5 October 2023
Medical limitation	: Holder shall wear corrective lenses for near and distant vision
Last proficiency check Hawker 900 XP	: 13 March 2023
Last proficiency check Boeing 737	: 23 November 2022

ICAO language proficiency : Level 4 (four)
Date of issue : 14 December 2021
Validity : 14 December 2024

Flying experience

Total hours : 9,375 hours
Total on type : 700 hours
Last 90 days : 36 hours 35 minutes
Last 30 days : 20 hours 15 minutes
Last 7 days : 16 hours 15 minutes
This flight : 2 hours 53 minutes

1.5.2 Second in Command

Gender : Male
Age : 38
Nationality : Indonesia
Date of joining company : 6 June 2012
License : ATPL
Date of issue : 26 January 2015
Aircraft type rating : Boeing 737 NG, Hawker 900 XP
Instrument rating validity : Valid
Medical certificate : First Class
Last of medical : 21 November 2022
Validity : 7 June 2023
Medical limitation : Holder shall wear corrective lenses
Last proficiency check : 21 March 2023
Hawker 900 XP
Last proficiency check : 2 March 2023
Boeing 737
ICAO language proficiency : Level 4 (four)
Date of issue : 8 November 2022
Validity : 8 November 2025

Flying experience

Total hours : 7,706 hours 30 minutes
Total on type : 1,002 hours

Last 90 days : 43 hours 45 minutes
Last 30 days : 40 hours 45 minutes
Last 7 days : 16 hours 15 minutes
This flight : 2 hours 53 minutes

1.5.3 In-Flight Service Personnel

Gender : Female
Age : 27
Nationality : Indonesia
Date of joining company : 31 July 2015
License : Flight Attendant Certificate (FAC)
Date of issue : 25 July 2016
Aircraft type rating : Boeing 737

1.6 Aircraft Information

1.6.1 General

Registration Mark : PK-LRU
Manufacturer : Beechcraft
Country of Manufacturer : United States of America
Type/Model : Hawker 900 XP
Serial Number : HA-0212
Year of Manufacture : 2012

Certificate of Airworthiness

Date of issue : 12 October 2022
Validity : 11 October 2023
Category : Transport
Limitation : None

Certificate of Registration

Number : 3180
Date of issue : 12 October 2022
Validity : 11 October 2025
Time Since New : 1586 FH
Cycles Since New : 1106 FC
Last Major Check : 1106 FC

Last Minor Check : G-Inspection on 26 September 2020

1.6.2 Engines

Manufacturer : Honeywell
Type/Model : TFE731-50R
Serial Number-1 engine : P122479
Time Since New : 1586 FH
Cycle Since New : 1106 FC
Serial Number-2 engine : P122480
Time Since New : 1586 FH
Cycle Since New : 1106 FC

1.6.3 Aircraft Maintenance Record

The Aircraft Flight and Maintenance Log (AFML) recorded several pilot reports with the issue of the right main landing gear depleted, as follows:

1. On 22 October 2022, a pilot report of the right main landing gear strut depleted. The engineer performed servicing on right main landing gear strut refer to Aircraft Maintenance Manual (AMM) chapter 12-32-00-301.
2. On 30 October 2022, a pilot report of the right main landing gear strut depleted when landing at Morowali Airport. On 31 October 2022 the engineer performed replacing charging valve and servicing on right main landing gear strut refer to AMM chapter 12-32-00-301.
3. On 6 November 2022, a pilot report of the right main landing gear strut depleted. The engineer performed servicing on right main landing gear strut refer to AMM chapter 12-32-00.

On 10 Mei 2023, the engineer performed servicing on the right main landing gear strut but did not record it in the AFML. The servicing includes replacing hydraulic fluid and nitrogen.

1.6.4 Aircraft weight and balance

Maximum Take-off weight : 28,000 lbs (12,701 kg)
Actual take-off weight : 26,490 lbs (12,015.6 kg)
Maximum landing weight : 23,350 lbs (10,591 kg)
Estimated landing weight : 22,517 lbs (10,213.5 kg)
MAC TOW : 26.55 %
MAC LDG : 19.38 %

1.7 Meteorological Information

The weather report for Morowali, issued by *Badan Meteorologi, Klimatologi dan Geofisika* (BMKG - Bureau of Meteorology, Climatology, and Geophysics of Indonesia) on 11 May 2023, indicated that, at the time of the occurrence, the wind was from 100° and the velocity was 5 knots and no significant weather reported.

The weather reports are as follows:

Time (UTC)	0600	0630	0700
Wind (°/knots)	060 / 07	100 / 05	080 / 05
Weather	no significant weather	no significant weather	no significant weather
QNH (hpa)	1008	1008	1008

1.8 Aids to Navigation

No ground-based navigation aid available at Morowali.

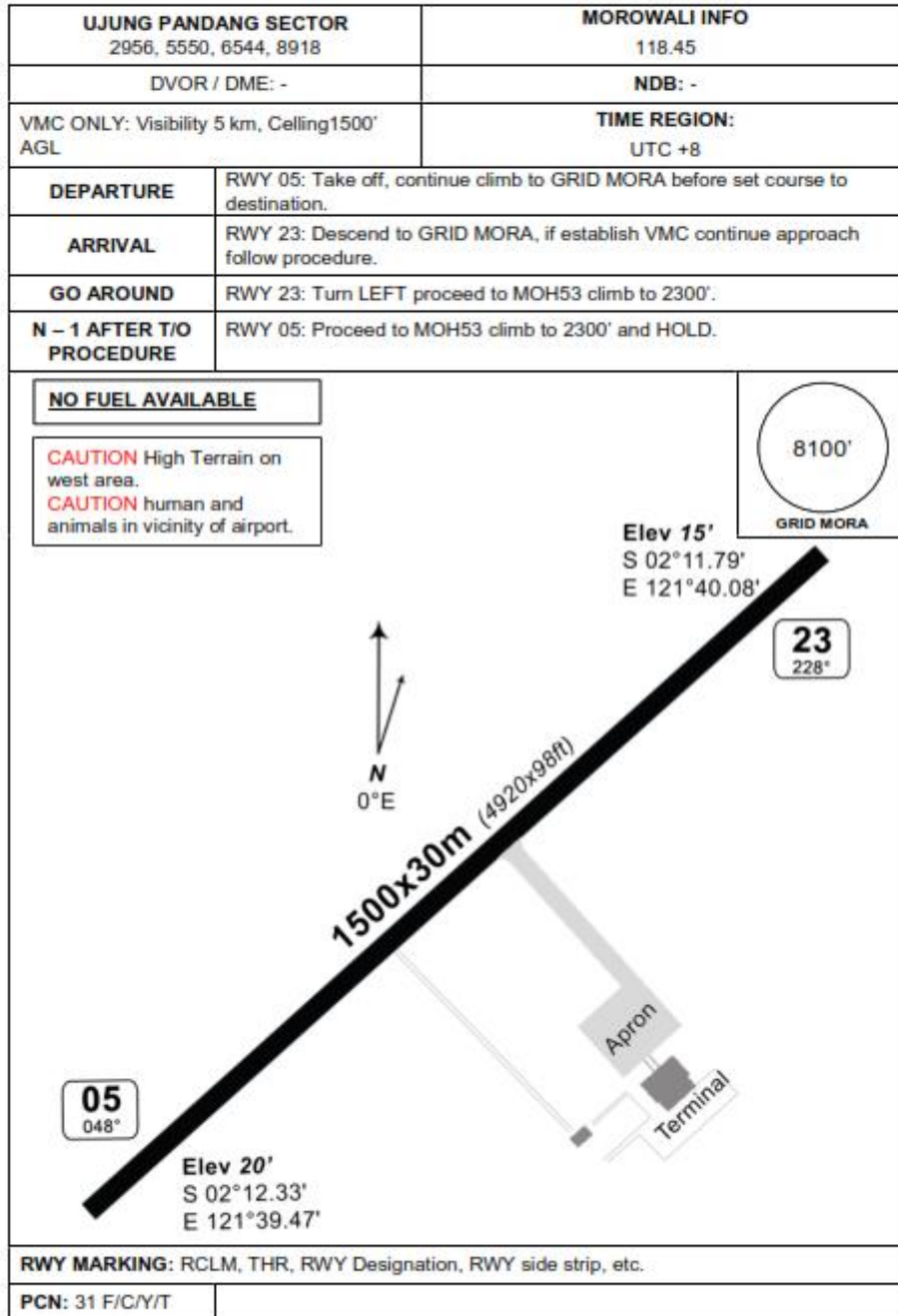
Lion Bizjet provided the pilot with approach guidance named as Airport Visual Guidance. The Airport Visual Guidance was a copy of Wings Abadi Airline (Wings Air), a sister company within the Lion Group, which operates regular flights to Morowali.

WAFO / MOH

Apt Elev 20'
S02°12.13' E121°39.70'

MOROWALI, INDONESIA

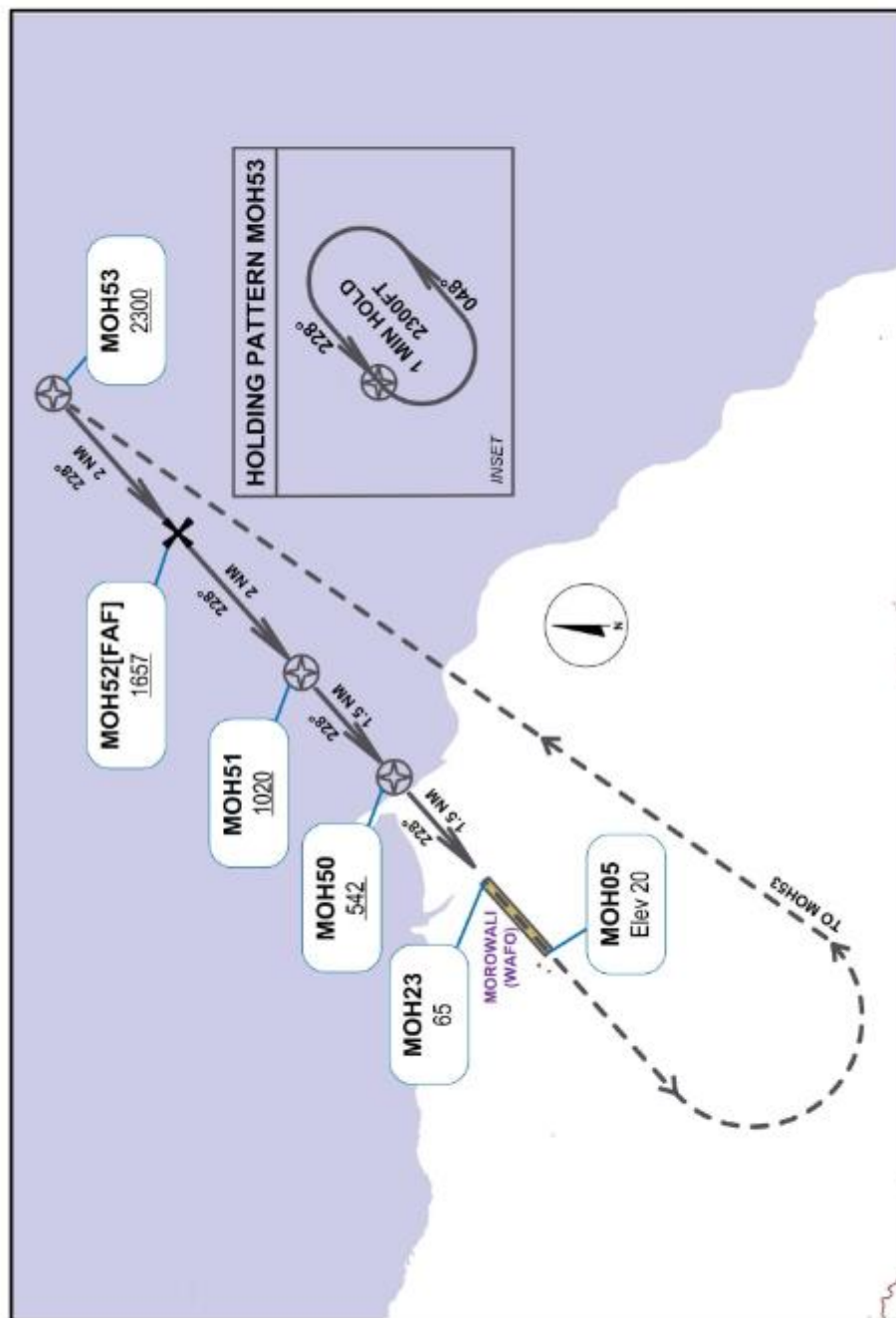
AIRPORT CAT B
MOROWALI



Changes: Elevation THD05 & THD23 by AIRAC AIP AMDT 111.

Page: 1 of 4

Figure 3: The Wings Air airport visual guidance for Morowali Airport (aerodrome information)



Changes: Elevation THD05 & THD23 by AIRAC AIP AMDT 111.

Page: 2 of 4

Figure 4: The Wings Air airport visual guidance for Morowali Airport (Visual approach chart)

Coordinate CheckPoint :

<u>MOH53</u>	S02 07.12 E121 45.31
<u>MOH52</u>	S02 08.46 E121 43.82
<u>MOH51</u>	S02 09.79 E121 42.32
<u>MOH50</u>	S02 10.79 E121 41.20
<u>MOH23</u>	S02 11.79 E121 40.08

Figure 5: The check point coordinates of the visual guidance of Morowali Airport

1.9 Communications

The aircraft was equipped with Very High Frequency (VHF) radio communication systems. The crew used VHF radios for routine communications with air traffic services (ATS) personnel. All VHF radios were serviceable.

Morowali Info did not have ground communication recording facility. The communication between the pilot and Morowali Info officer was recorded on the Cockpit Voice Recorder (CVR). The quality of the recorded transmission was good.

1.10 Aerodrome Information

The Morowali Airport is operated by *Unit Pelaksana Bandar Udara* (Airport Operation Unit) under the Directorate General of Civil Aviation (DGCA). The airport certificate was issued on 7 April 2022 and will be evaluated after 5 years.

Airport Name	: Morowali Airport
Airport Identification	: WAFO
Airport Operator	: Unit Penyelenggara Bandar Udara (UPBU) under DGCA
Airport Certificate	: 0127/SBU/VIII/2022
Coordinate	: 02 ⁰ 12' 08" S; 121 ⁰ 39' 42" E
Elevation	: 20 ft
Runway Direction	: 23/05 (228.4 ⁰ /048.4 ⁰)
Runway Length	: 1,500 m
Runway Width	: 30 m
Surface	: Asphalt

1.11 Flight Recorders

The aircraft was equipped with a Flight Data Recorder (FDR), a Cockpit Voice Recorder (CVR) and Digital Electronic Engine Control (DEEC) for both engines.

The FDR was manufactured by Honeywell, part number 980-4710-003 and serial number ARFDR-02500. The CVR was manufactured by Honeywell, part number 1606-01-00 and serial number 507.

All recorders were transported to KNKT recorder facility and the data from FDR and CVR were successfully downloaded. The detail of the flight recorders data will be included in the final report.

1.12 Wreckage and Impact Information

The aircraft tire marks found on the runway and able to be clearly identified about 500 meters to the end of Runway 23. The marks of the aircraft exited the runway were found on the end of Runway 23, around the runway centerline and continued to the aircraft stop position.



Figure 6: Tire marks found on the runway

The engine thrust reverser doors were found closed and the air brake in flush position. The flaps were found on 45 position.



Figure 7: The engine thrust reversers dan air brake position

1.13 Medical and Pathological Information

The injured occupants were taken to local hospital for health treatment. The drug test was not conducted to the pilot after the accident, because it was not available at the local hospital.

1.14 Fire

There was no evidence of in-flight or post-impact fire.

1.15 Survival Aspects

After the aircraft stopped, the PF commanded for evacuation. The engineer opened the passenger door and found door was not fully opened. The engineer went out and found that the passenger door was blocked by a tree. The engineer then asked the IFSP to take the crash axe. The engineer then cut off the tree and the passenger door opened wider but still could not fully open because it was blocked by the elevated ground. The IFSP and passenger evacuated safely from the aircraft and were followed by the pilots.

After noticed the aircraft overrun, the Morowali Info officer pressed the crash bell and informed the Airport Rescue and Fire Fighting (ARFF) via handy talky that an aircraft had overrun. The ARFF deployed one fire truck and one ambulance to the site.

1.16 Tests and Research

Test and research information were not available at the time of the issuance of this report. Should any test and research information be obtained during this investigation that is relevant to this investigation, it will be included in the final report.

1.17 Organizational and Management Information

1.17.1 Aircraft Operator

The aircraft was operated by Angkasa Super Services (Lion Bizjet) which had a valid Air Operator Certificate (AOC) number 135-050. The Lion Bizjet is authorized under Civil Aviation Safety Regulation (CASR) Part 135 to conduct non-scheduled aircraft operations, on-demand aircraft, and helicopter on carrying passengers within and outside Indonesia.

The Lion Bizjet developed Operation Manuals (OM)s which contains policy and procedure approved by the DGCA.

1.17.1.1 Lion Bizjet Operation Manual

The OM-A part 1.5.3 In-Flight Service Personnel stated:

IFSP is subordinate to the Operation Manager.

The IFSP is charged with the Service for the passengers.

A. Duties:

- a. Maintains grooming/appearance standards and harmonize to uniform regulations as set forth by the company*
- b. Provides maximum attention at all time while passengers are on board the aircraft.*
- c. Performs all In Flight service to during flight.*
- d. Maintains a neat and orderly cabin environment.*
- e. Communicates with all passengers and ground handling personnel in a pleasant, considerate and attentive manner.*
- f. Report any discrepancies during the flight to the PIC.*

B. Responsibility:

- a. IFSP acting as crew onboard a flight is responsible to the PIC for serving the customer.*
- b. Responsibilities to the PIC are during the period of time when the aircraft and operation is under the PIC.*

IFSP must inform the PIC immediately whenever smokes, fire, unusual sounds or other.

1.17.1.2 Hawker 900 XP Pilot Operating Manual (POM)

Pilot Operating Manual (POM) section V subsection 1 regarding approach and landing stated that:

The flaps may be lowered to 45°, reducing airspeed to the recommended approach speed of VREF +10 KIAS with flaps of 45°. Lowering the flaps to 45° causes a nose-down change of attitude and, because of the extra drag, the rate of descent will be increased unless thrust is added. When nearing the runway, thrust should be reduced so that the airplane crosses the threshold at VREF. The yaw damper should be disengaged at or above 50 ft.

The nose wheel should be lowered to the surface immediately after touchdown, wheel brakes applied as necessary, lift dump selected and thrust reversers deployed as required.

1.17.2 Air Navigation Operator

The air navigation service at Morowali Airport is provided by *Perum Lembaga Penyelenggara Pelayanan Navigasi Penerbangan Unit Morowali*. The air traffic service provider certificate was valid from 23 December 2019 and will be reviewed at a period of not greater than five years.

1.18 Additional Information

The investigation is continuing and KNKT plans to complete the investigation within 12 months since the day of the occurrence. Should any further relevant safety issues emerge during the investigation, KNKT will immediately bring the issues to the attention of the relevant parties and publish as required

1.19 Useful or Effective Investigation Techniques

The investigation was conducted in accordance with the KNKT approved policies and procedures, and in accordance with the standards and recommended practices of Annex 13 to the Chicago Convention.

2 FINDINGS

The findings are statements of all significant conditions, events or circumstances in the accident sequence. The findings are significant steps in the accident sequence, but they are not always causal, or indicate deficiencies. Some findings point out the conditions that pre-existed the accident sequence, but they are usually essential to the understanding of the occurrence, usually in chronological order.

In this occurrence, the KNKT identified several findings as follows:

1. The aircraft had valid Certificate of Airworthiness (C of A) and a valid Certificate of Registration (C of R).
2. Both pilots held valid licenses and first-class medical certificates. Both pilots were qualified Captain for Boeing 737 NG and Hawker 900 XP aircraft.
3. Prior to departure, both pilots were conducted medical examination consisted of heart rate, blood pressure, and alcohol test with the result of no health problems.
4. The preflight inspection by the engineer and the pilot found no aircraft technical system abnormalities.
5. On board of the aircraft were two pilots, one engineer, one In-Flight Service Personnel (IFSP) and four passengers.
6. The PIC acted as Pilot Monitoring occupied right pilot seat and the SIC acted as Pilot Flying occupied left pilot seat.
7. Before the descent, both pilots discussed the approach plan and agreed to conduct visual approach for Runway 23.
8. The FMS calculated the required landing distance was 4,519 feet for the predicted landing weight and flaps 45 configuration and the VREF was 125 knots.
9. During the landing roll, both pilots, the engineer, and the IFSP felt that the aircraft tilted to the right. The pilots recalled that this might be caused by the right main landing gear strut depleted. The PF used steering wheel to control the aircraft direction as advised by the PM.
10. The pilots attempted to decelerate the aircraft by applying the brake pedals and applied the thrust reverser, however the thrust reverser levers unable to be pulled.
11. The aircraft tire marks found on the runway and able to be clearly identified about 500 meters to the end of Runway 23. The marks of the aircraft exited the runway were found on the end of Runway 23, around the runway centerline and continued to the aircraft stop position.
12. The aircraft out off the runway and stopped about 210 meters from the end of Runway 23 after impacting the embankment.
13. At the accident site, the engine thrust reverser doors were found closed and the air brake in flush position. The flaps were found on 45 position.
14. After the aircraft stopped, both pilots performed emergency procedure including

shutting down both engines. The High Pressure (HP) cock levers but the right HP cock lever was stuck and the PF pull the right Low Pressure (LP) cock lever. The PF commanded to evacuate.

15. All occupants evacuated safely from the aircraft. The engineer and the PF suffered minor injuries while the other occupants did not injure.
16. The AFML recorded three pilot reports related to the right main landing gear strut depleted since 22 October 2022. Some other similar occurrences of the right main landing not recorded in the AFML. The engineer performed rectification to the right main landing gear strut refer to Aircraft Maintenance Manual (AMM).

3 SAFETY ACTION

At the time of issuing this draft Final Report, the KNKT had not been informed of any safety actions resulting from this occurrence.

4 SAFETY RECOMMENDATIONS

At the time of publishing this Preliminary Report, KNKT not issuing any safety recommendation. Should any further relevant safety issues emerge during the course of the investigation, KNKT will immediately bring the issues to the attention of the relevant parties and will publish it as required.