



**KOMITE NASIONAL KESELAMATAN TRANSPORTASI
REPUBLIC OF INDONESIA**

PRELIMINARY

KNKT.20.09.19.04

Aircraft Serious Incident Investigation Report

PT. Lion Mentari Airlines

Airbus A330; PK-LEG

Kualanamu International Airport, Medan

Republic of Indonesia

15 September 2020

2020

This Preliminary Report was 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 initial investigation carried out by the KNKT in accordance with Annex 13 to the Convention on International Civil Aviation Organization, 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.

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Jakarta, 18 November 2020

**KOMITE NASIONAL
KESELAMATAN TRANSPORTASI
VICE CHAIRMAN**

HARYO SATMIKO, ATD., M.Pd

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ABBREVIATIONS AND DEFINITIONS

AM	: Aerodrome Manual
AOC	: Air Operator Certificate
ATCO	: Air Traffic Controller
BKN	: Amount of cloud is assessed by the area of sky cover, broken (BKN) is when cloud cover is reported in terms of 5/8-7/8.
BMKG	: <i>Badan Meteorologi Klimatologi Geofisika</i> / Meteorological Climatological and Geophysics Agency
CB	: Cumulonimbus Cloud
CVR	: Cockpit Voice Recorder
DA	: Decision Altitude
DAAO	: Directorate of Airworthiness and Aircraft Operation
DGCA	: Directorate General of Civil Aviation
ELT	: Emergency Locator Transmitter
FDR	: Flight Data Recorder
FEW	: Amount of cloud is assessed by the area of sky cover, broken (FEW) is when cloud cover is reported in terms of 1/8-2/8
FMC	: Flight Management Computer
FOO	: Flight Operation Officer
GPS	: Global Positioning System
ICAO	: International Civil Aviation Organization
ILS	: Instrument Landing System
km	: Kilometer
KNKT	: Komite Nasional Keselamatan Transportasi
LT	: Local Time
PF	: Pilot Flying
PIC	: Pilot in Command
PM	: Pilot Monitoring
QNH	: Aeronautical code indicating the atmospheric pressure adjusted to mean sea level. It is a pressure setting used by pilots, air traffic control (ATC), and low frequency weather beacons to refer to the barometric setting which, when set on an aircraft's altimeter, will cause the altimeter to read altitude above mean sea level within a certain defined region
RHS	: Right Hand Seat
SCT	: Amount of cloud is assessed by the area of sky cover, Scattered (SCT) is when cloud cover is reported in terms of 3/8-4/8
SIC	: Second in Command
AM	: Aerodrome Manual

AOC	: Air Operator Certificate
ATCO	: Air Traffic Controller
BKN	: Amount of cloud is assessed by the area of sky cover, broken (BKN) is when cloud cover is reported in terms of 5/8-7/8.
BMKG	: <i>Badan Meteorologi Klimatologi Geofisika</i> / Meteorological Climatological and Geophysics Agency
CB	: Cumulonimbus Cloud
CVR	: Cockpit Voice Recorder
DA	: Decision Altitude

SYNOPSIS

On 15 September 2020, an Airbus A330 aircraft, registration PK-LEG was being operated by PT. Lion Mentari Airlines (Lion Air) on a schedule passenger flight from Soekarno-Hatta International Airport (WIII), Jakarta to Kualanamu International Airport (WIMM), Medan.

At 0714 UTC (1414 LT) the aircraft departed Soekarno-Hatta International Airport, Jakarta and cruised at flight level (FL) 400 (altitude 40,000 feet). The Second in Command (SIC) was a qualified Pilot in Command (PIC) under line training for standardization training program and occupied the cockpit left seat. The PIC was a qualified instructor occupied the cockpit right seat. The SIC acted as Pilot Flying (PF) while the PIC acted as Pilot Monitoring (PM).

The pilot noticed of CB cloud on final runway 05, then requested to change runway to 23 and was rejected by the ATCO.

The SIC handed over the aircraft control to the PIC, considering the weather condition and lesser flying experience on the aircraft type. The PIC refused it and asked the SIC to keep controlling the aircraft.

The pilots noticed that an aircraft ahead made go around due to windshear and a pilot of another aircraft behind LNI 208 requested to change runway to 23 for landing. The pilot informed to the ATCO that on final 05 something that he mentioned as “the big thundercloud” was visible and requested to use runway 23 for landing. The ATCO provided radar vector for LNI208 to point HORAS to performed Instrument Landing System (ILS) approach runway 23.

During approach approximately 1,000 feet, the SIC handed over the aircraft control to the PIC and the PIC became the PF. At 0940 UTC, when the altitude approximately 500 feet, the autopilot disengaged. The SIC advised to the PIC that the wind velocity was 16 knots from 275 degree.

After Flight Management Computer (FMC) call out “RETARD”, the SIC noticed that the aircraft position was getting closer to the left runway edge and advised to the PIC to fly right. At 0941 UTC, the aircraft touched down and the PIC realigned the aircraft to the runway centerline by applying right rudder pedal.

The left main landing gear travelled out from the runway near the taxiway D and returned to runway centerline near taxiway E. The aircraft vacated runway via taxiway G and parked in parking stand number 14. The pilot reported to Kualanamu Tower controller that they were slightly veered to the left and might hit the runway light. The passengers disembarked normally and no one injured on this occurrence.

During inspection the engineer found grasses on the area left main wheel and found deep cut on the wheel number 5 and number 6. The runway inspection found two runway lights broken.

At the time of issuing this report, the KNKT had not been informed of any safety actions resulting from this occurrence taken by the involved parties. KNKT issued safety recommendation to the DGCA and PT. Angkasa Pura II to address the safety issues at this stage of the investigation. The investigation is continuing, 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 publish as required.

1 FACTUAL INFORMATION

1.1 History of the Flight

On 15 September 2020, an Airbus A330 aircraft, registration PK-LEG was being operated by PT. Lion Mentari Airlines (Lion Air) on a schedule passenger flight from Soekarno-Hatta International Airport (WIII), Jakarta to Kualanamu International Airport (WIMM), Medan, with flight number LNI208. On board of this flight were 2 pilots, 9 flight attendants, and 307 passengers. During preflight briefing, the Flight Operation Officer (FOO) informed that weather forecasted for Kualanamu indicated possibility of light thunderstorm and rain while the weather forecast for Batam as alternate airport was good. The Pilot in Command (PIC) decided to carry additional fuel 1,200 kg.

The Second in Command (SIC) was a qualified PIC under line training/standardization training program and occupied the cockpit left seat. The PIC was a qualified instructor occupied the cockpit right seat. The SIC acted as Pilot Flying (PF) while the Pilot in Command (PIC) acted as Pilot Monitoring (PM).

At 0714 UTC¹ (1414 LT) the aircraft departed Soekarno-Hatta International Airport, Jakarta and cruised at flight level 400 (40,000 feet). There was no issue of aircraft serviceability were reported or identified. The flight until commenced descend was uneventful.

During descent the pilot deviated to the right off track about 10 Nm to avoid cumulonimbus (CB) cloud formation. After clear of the cloud, the pilot was instructed by air traffic controller (ATCO) to proceed to point ZAIDA as preparation for approach to runway 05. The pilot noticed of CB cloud on final runway 05, then requested to change runway to 23 and was rejected by the ATCO.

The aircraft reached over point ZAIDA at altitude of 6,000 feet, the ATCO instructed to make holding over point ZAIDA.

During holding, the SIC handed over the aircraft control to the PIC, considering the weather condition and lesser flying experience on the aircraft type. The PIC refused it and asked the SIC to keep controlling the aircraft. The pilots noticed that an aircraft ahead (LNI 973) made go around due to windshear. Afterward, a pilot of another aircraft with flight number QZ125 that was behind LNI 208 requested to change runway to 23 for landing.

The pilot asked the visibility on final runway 05 to the ATCO and was informed that the visibility was 10 km. The pilot informed to the ATCO that on final 05 something that he mentioned as 'the big thundercloud' was visible and requested to use runway 23 for landing. The ATCO provided radar vector for LNI208 to point HORAS to performed Instrument Landing System (ILS) approach runway 23.

At 0935 UTC, the PIC reported to Kualanamu Tower controller position was over point HORAS at altitude of 3,000 feet and had established localizer of the ILS runway 23. The Kualanamu Tower controller issued landing clearance and informed

¹ The 24-hours clock in Local Time (LT) is used in this report to describe the time as specific events occurred. Local time is Universal Time Coordinated (UTC) +7 hours

that the wind was 20 knots from 240 degree, QNH² 1008 Mbs with precaution that the runway was wet.

At 0939 UTC, at altitude approximately 1,000 feet, the SIC handed over the aircraft control to the PIC and the PIC became the PF. The Kualanamu Tower controller informed to the pilot of another aircraft that was behind LNI208 that that the wind velocity was 11 knots from 290 degree.

At 0940 UTC, when the altitude approximately 500 feet, the autopilot disengaged. The SIC advised to the PIC that the wind velocity was 16 knots from 275 degree.

After Flight Management Computer (FMC) call out “RETARD”, the SIC noticed that the aircraft position was getting closer to the left runway edge and advised to the PIC to fly right. At 0941 UTC, the aircraft touched down and the PIC realigned the aircraft to the runway centerline by applying right rudder pedal.

The left main landing gear travelled out from the runway near the taxiway D and returned to runway centerline near taxiway E. When the aircraft speed about 70 knots, the PIC handed over the aircraft control to the SIC. The aircraft vacated runway via taxiway G then the pilot reported to Kualanamu Tower controller that they were slightly veered to the left and might hit the runway light. The aircraft parked in parking stand number 14. Passenger disembarked normally.

During inspection the engineer found grasses on the area left main wheel and found deep cut on the wheel number 5 and number 6. The runway inspection found two runway lights broken.

No one injured on this occurrence.

1.2 Personnel Information

1.2.1 Pilot in Command

Gender	: Male
Age	: 48 years
Nationality	: Indonesian
Marital status	: Married
Date of joining company	:
License	: ATPL
Date of issue	: 5 October 2006
Aircraft type rating	: Airbus A320, Airbus A330
Instrument rating validity	: Valid until 31 July 2021
Medical certificate	: First class

² QNH is an aeronautical code indicating the atmospheric pressure adjusted to mean sea level. It is a pressure setting used by pilots, air traffic control (ATC), and low frequency weather beacons to refer to the barometric setting which, when set on an aircraft's altimeter, will cause the altimeter to read altitude above mean sea level within a certain defined region

Last of medical	: 10 June 2020
Validity	: 18 December 2020
Medical limitation	: Holder shall wear corrective lenses for near and distant vision
Last line check	:
Last proficiency check	: 19 December 2019 and had been extended on 15 July 2020

Flying experience

Total hours	: 16,916 hours 24 minutes
Total on type	: 2,216 hours
Last 90 days	: 2 hours 56 minutes
Last 30 days	: 2 hours 56 minutes
Last 7 days	: 0 hours
Last 24 hours	: 0 hours
This flight	: 2 hours 36 minutes

The PIC was a flight instructor for Airbus A330 and qualified for flying from right hand seat. The PIC last flight was on 16 August 2020 and last flight from right hand seat was on 13 March 2020.

1.2.2 Second in Command

Gender	: Male
Age	: 46 years
Nationality	: Indonesian
Marital status	: Married
Date of joining company	: March 2020
License	: ATPL
Date of issue	: 18 November 2005
Aircraft type rating	: Airbus A330
Instrument rating validity	: Valid until 31 March 2021
Medical certificate	: First class
Last of medical	: 15 June 2020
Validity	: 15 December 2020
Medical limitation	: Holder shall possess glasses that correct for near vision
Last line check	: 24 November 2019 (performed by Thai Lion Air)
Last proficiency check	: 12 March 2020

Flying experience

Total hours	: 17.130 hours
Total on type	: 235 hours
Last 90 days	: 0 hours
Last 30 days	: 0 hours
Last 7 days	: 0 hours
Last 24 hours	: 0 hours
This flight	: 2 hours 36 minutes

The SIC was qualified as Captain for Airbus A330 on Thai Lion Air, since November 2019. The SIC last flight was conducted on 1 February 2020, when served as pilot on Thai Lion Air. Since March 2020, the SIC reassigned to fly in Lion Air Indonesia on the same aircraft type. The occurrence flight was the first of 5 flight sectors or 25 flight hours as the standardization training program for the SIC.

1.3 Aircraft Information

Registration Mark	: PK-LEG
Manufacturer	: Airbus
Country of Manufacturer	: France
Type/Model	: Airbus A330-343
Serial Number	: 1680
Year of Manufacture	: TBA
Certificate of Airworthiness	
Issued	: 18 November 2019
Validity	: Valid until 17 November 2020
Category	: Transport
Limitations	: None
Certificate of Registration	
Number	: 3755
Issued	: 18 November 2019
Validity	: 17 November 2022
Time Since New	: TBA
Cycles Since New	: TBA
Last Major Check	: TBA
Last Minor Check	: TBA

1.4 Meteorological Information

Meteorological service provided by BMKG at Kualanamu International Airport. The weather information provided to the pilot prior to the departure was as follow:

Meteorology forecast for Kualanamu International Airport, issued on 15 September at 0800 UTC, wind from 020° with the velocity 9 knots, visibility more than 10 km, cloud Scattered (SCT) with the cloud base of 1,700 feet, temperature 33°C, dew point 25°C, QNH 1007 and no significant weather.

Meteorology forecast for Kualanamu International Airport, issued on 15 September at 0830 UTC, wind from 020° with the velocity 9 knots, visibility more than 10 km, cloud Scattered (SCT) with the cloud base of 1,800 feet, temperature 33°C, dew point 25°C, QNH 1007, no significant weather and remark Cumulonimbus (CB) clouds moved to south west.

Meteorology forecast for Kualanamu International Airport, issued on 15 September at 0900 UTC, wind from 060° with the velocity 8 knots, visibility more than 10 km, cloud few (FEW) with the cloud base of 1,800 feet, temperature 32°C, dew point 25°C, QNH 1007, temporarily from 0930 UTC, wind direction variable at the velocity of 14 knots, thunderstorm and remark Cumulonimbus (CB) clouds moved to south west.

Special meteorology report for Kualanamu International Airport, issued on 15 September at 0912 UTC, wind from 060° with the velocity 6 knots, visibility more than 10 km, cloud few (FEW) with cumulonimbus cloud and the cloud base of 1,700 feet, temperature 30°C, dew point 24°C, QNH 1007, no significant weather and remark Cumulonimbus (CB) clouds moved to south west.

Special meteorology report for Kualanamu International Airport, issued on 15 September at 0922 UTC, wind direction variable with gust up to 22 knots, visibility more than 10 km, thunderstorm and rain, cloud few (FEW) with cumulonimbus cloud and the cloud base of 1,700 feet, temperature 26°C, dew point 22°C, QNH 1008. Temporarily until 1000 UTC, wind direction variable with gust between 10 and 20 knots, visibility 1,000 meters, thunderstorm and rain, and remark Cumulonimbus (CB) clouds moved to south west.

Meteorology forecast for Kualanamu International Airport, issued on 15 September at 0930 UTC, wind from 220° with the velocity 12 knots, visibility more than 10 km, thunderstorm and rain, cloud broken (BKN) with the cloud base of 1,700 feet, temperature 25°C, dew point 22°C, QNH 1008, no significant weather and remark Cumulonimbus (CB) clouds moved to south west.

Special meteorology report for Kualanamu International Airport, issued on 15 September at 0941 UTC, wind direction variable with velocity 11 knots, visibility 700 meters, thunderstorm and rain, cloud few (FEW) with CB cloud at the cloud base of 1,500 feet and broken at cloud base 1,600 feet, temperature 23°C, dew point 21°C, QNH 1008. Temporarily until 1010 UTC, wind direction variable with gust between 10 and 20 knots, visibility 800 meters, thunderstorm and rain.

Meteorology forecast for Kualanamu International Airport, issued on 15 September at 1000 UTC, wind from 350° with the velocity 8 knots, visibility 2 km, thunderstorm and rain, cloud few (FEW) with the cloud base of 1,700 feet,

temperature 22°C, dew point 21°C, QNH 1007. Becoming from 1020 UTC, wind direction variable with the velocity 10 knots, visibility 3 km thunderstorm and rain.

Special meteorology report for Kualanamu International Airport, issued on 15 September at 1020 UTC, wind direction 360° with velocity 5 knots, visibility 9 km, rain, cloud few (FEW) CB cloud at the cloud base of 1,600 feet and scattered at cloud base 1,700 feet, temperature 22°C, dew point 21°C, QNH 1007, recently thunderstorm and no significant weather condition.

Meteorology forecast for Kualanamu International Airport, issued on 15 September at 1030 UTC, wind from 360° with the velocity 7 knots, visibility more than 10 km, rain, cloud few (FEW) CB cloud with the cloud base of 1,600 feet and scattered with the cloud base 1,700 feet, temperature 22°C, dew point 21°C, QNH 1007 and no significant weather condition.

Meteorology forecast for Kualanamu International Airport, issued on 15 September at 1100 UTC, wind from 240° with the velocity 4 knots, visibility 7 km, rain, cloud few (FEW) CB cloud with the cloud base of 1,600 feet and scattered with the cloud base 1,700 feet, temperature 23°C, dew point 21°C, QNH 1008 and no significant weather condition.

At 09.20 UTC, based on the observation at 0915 UTC, the BMKG issued aerodrome warning valid from 0930 UTC to 1030 UTC which informed that possibility of thunderstorm and heavy rain, visibility less than 1,500 meters, gusty wind between 12 up to 20 knots. The warning had been disseminated into messaging group which included ATC on duty as a group member.

1.5 Aids to Navigation

The Runway 23 of Kualanamu International Airport was equipped with Instrument Landing System (ILS) category 1 with Decision Altitude (DA) was 230 feet. There was no record or report of system malfunction for the ILS during the occurrence.

1.6 Communications

All communications between ATS and the crew were recorded by ground based automatic voice recording equipment and CVR for the duration of the flight. The quality of the aircraft's recorded transmissions was good.

The relevant excerpt of the communication will be included in final report.

1.7 Aerodrome Information

Airport Name	: Kualanamu International Airport
Airport Identification	: WIMM
Airport Operator	: PT. Angkasa Pura II (Persero)
Airport Certificate	: 073/SBU-DBU/VI/2018
Validity	: valid up to 5 July 2023
Coordinate	: 03° 38' 32" N; 098° 53' 07" E
Elevation	: 23 feet

Runway Direction : 05/23 (045°/225°)
Runway Length : 3,750 meters
Runway Width : 60 meters
Surface : Asphalt

The runway was equipped with centerline and runway edge lights, it was serviceable during the occurrence.

The grass on area near the runway 23 found about 50 centimeters height above the runway surface. The Angkasa Pura II had a monthly routine lawn mowing program. The mowing area divided into several sectors. The mowing program for the sector near the touchdown zone runway 23 was scheduled to be conducted on 24 until 30 September 2020, while the last mowing was conducted at 25 until 30 August 2020.

The last skid resistance test on the runway was performed on 28 August 2020 with the result of side force coefficient was within limitation.

1.8 Flight Recorders

1.8.1 Flight Data Recorder

The aircraft was fitted with Flight Data Recorder (CVR) model FA2100 with part number 2100-4245-00 and serial number 001069469. The FDR contained 1,150 parameters with the duration of 109 hours consisted 21 flights including the occurrence flight.

The significant parameters of the FDR data will be included in the final report.

1.8.2 Cockpit Voice Recorder

The aircraft was fitted with Cockpit Voice Recorder (CVR) model FA2100 with part number 2100-1226-02 and serial number 001050267. The CVR contained 124 minutes and 14 seconds of good quality audio recording.

The expert of the CVR data will be included in the final report.

1.9 Wreckage and Impact Information

The tire marks consisted of 4 strips which consistent with the left main landing gear, found on runway from approximately 370 meters from the threshold runway 23 and continued along the aircraft path. The aircraft touchdown point could not be identified.

The marks deviated to the left from the initial marks and travelled out of runway. After passed the taxiway D, the marks continued travel outside the runway for approximately 30 meters then back to the runway centerline at taxiway Echo or approximately 1,500 meters from runway threshold.

The tyre marks have striation in perpendicular direction to the aircrfat movement. The striation also found in the left main landing gear tires which were perpendicular to the normal tire movement.

Post-occurrence inspections on the aircraft tires did not find evidence of reverted rubber hydroplaning.



Figure 1: The left main landing gear tire marks before the aircraft out of runway.



Figure 2: Striation mark in lateral direction on tire surface.



Figure 3: The striation mark on runway surface.

1.10 Organizational and Management Information

1.10.1 Aircraft Operator

Aircraft Owner	: Vermillion Aviation (two) Limited
Address	: 46 St. Stephen Green, Dublin 2, Ireland
Aircraft Operator	PT. Lion Mentari Airlines (Lion Air)
Address	: Jl. Gajah Mada No. 7, Kelurahan Petojo Utara Kecamatan Gambir, Jakarta Pusat

Lion Mentari Airline (Lion Air) had valid Air Operator Certificate (AOC) number 121-010 issued by Directorate General on Civil Aviation (DGCA) of Indonesia which authorized to conduct air transportation carrying passengers and cargo within Asia, Africa and Eastern Europe.

Lion Air operated 10 Airbus A330 and 131 Boeing 737 aircraft. The number of Airbus A330 aircraft operation was significantly reduced during the Covid-19 pandemic.

Lion Air has the pilot simulator training facility for Boeing 737 but did not have for Airbus A330. The A330 pilots trained at third party facility in Indonesia, Malaysia and Singapore. During the Covid-19 pandemic the operation department had difficulties to maintained pilot proficiency and recent experience since the aircraft operation reduced and travel limitation issue.

Based on the Lion Air Operation Manual chapter 5.2.3. Pilot Qualification: Recent Experience in accordance with CASR 121.439, within the preceding 90 days, a pilot must have made a minimum of three (3) takeoffs and landings in the type airplane in which he is to serve. These takeoffs and landings may be performed in an approved visual simulator. Special for right hand seat (RHS) qualified pilot within the preceding 90 days, a RHS pilot must have made a minimum of one (1) takeoff and landing in the type airplane in which he is to serve.

In case a pilot fails to make these three (3) required takeoffs and landings within any consecutive 90-day period, recency of experience must be re-established as provided in Operation Training Manual (OTM).

1.10.2 Civil Aviation Authority

The civil aviation in Indonesia was regulated by Directorate General of Civil Aviation (DGCA) under the Ministry of Transportation. The DGCA had several directorates including the Directorate of Airworthiness and Aircraft Operation (DAAO) that responsible in formulating policy and standard including oversight to the civil aircraft operator.

On 26 May 2020, the DGCA issued letter Number AU.402/2/22/DRJU.DKPPU-2020 related to exemption to pilot proficiency check and recent experience for Air Operator Certificate 121 and 135 holders. The exemption was issued considering the travel limitation all around the world during the Covid-19 Pandemic and reducing the aircraft operation. The DGCA provide exemption to allow the aircraft operator to:

- a. Assign a pilot who has not conducted proficiency check in last 6 months as PIC.
- b. Assign a pilot who has not conducted proficiency check in last 12 months as SIC.
- c. Assign a pilot who has not meet the requirement of recent experience of conducting 3 takeoff and landing within 90 days.

On 27 May 2020, the DGCA issued safety circular Number SE.36 of 2020, related to Extension Procedures of Pilot Proficiency Check during The Emergency Covid-19 Pandemic for Air Operator Certificate 121 and 135 holders. One of the considerations of this circular was the limited access to the full flight simulator all around the world. DGCA would issue extension of pilot proficiency check with maximum validity period of 6 months after evaluation of the following aspects:

- The operator required to conduct recurrent aircraft technical ground training and ground check.
- Pilots who received the exemption have experience of more than 3 years or 2,000 flight hours consecutively in the aircraft type.
- Proficient and qualified based on analysis from the last proficiency check and safety issue.
- Risk assessment and mitigation to the assigned pilot accordance with applicable provision.

1.10.3 Airport Operator

The airport operated by PT. Angkasa Pura II, which was a government state enterprise which had valid Airport Certificate number 073/SBU-DBU/VI/2018.

PT. Angkasa Pura II developed inspection procedures stated in the Aerodrome Manual (AM) chapter 4.5.4. The routine safety inspection in movement area conducted 3 times daily and could be added more when it is necessary or if requested by air traffic controller.

Serviceability inspection conducted during or after operational hours. The inspection consisted of runway, taxiway and apron including checking of drainage condition, markings, sign box and grasses.

The relevant issues related to airport operator will be included in the final report.

1.11 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 course of the investigation, KNKT will immediately bring the issues to the attention of the relevant parties and publish as required.

1.12 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

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.

According to factual information during the investigation, the KNKT identified initial findings as follows:

1. The pilots held valid license and medical certificate.
2. The PIC was a qualified flight instructor for Airbus A330 which occupied the cockpit right seat. The PIC last flight was on 16 August 2020 and last flight from right hand seat was on 13 March 2020.
3. The Second in Command (SIC) was a qualified Pilot in Command (PIC) under standardization training program and occupied the cockpit left seat. The SIC last flight was on 1 February 2020 when he served the Thai Lion Air. Since March 2020, the SIC was reassigned to fly in Lion Air Indonesia on the same aircraft type.
4. During flight preparation, pilot received weather forecast information for Kualanamu indicated possibility of light thunderstorm and rain while the weather forecast for Batam as alternate airport was good.
5. There was no issue of aircraft serviceability were reported or identified. The flight until commenced descend was uneventful.
6. The pilot noticed of CB cloud on final runway 05, then requested to change runway to 23 and was rejected by the ATCO.
7. During holding over point ZAIDA, the SIC handed over the aircraft control to the PIC, considering the weather condition and lesser flying experience on the aircraft type. The PIC refused it and asked the SIC to keep controlling the aircraft.
8. The pilots noticed that an aircraft ahead made go around due to windshear. A pilot of another aircraft that was behind LNI 208 requested to change runway to 23 for landing. The pilot informed to the ATCO that on final 05 something that he mentioned as “the big thundercloud” was visible and requested to use runway 23 for landing. The ATCO changed the runway in use and provided radar vector for LNI208 to point HORAS to performed Instrument Landing System (ILS) approach runway 23.
9. While issuing the landing clearance, the Kualanamu Tower controller advised the weather condition and that the runway was wet.
10. At altitude approximately 1,000 feet, the SIC handed over the aircraft control to the PIC and the PIC became the PF.
11. At altitude approximately 500 feet, the autopilot disengaged. The SIC advised to the PIC that the wind velocity was 16 knots from 275 degree.

12. After FMC call out “RETARD”, the SIC noticed that the aircraft position was getting closer to the left runway edge and advised to the PIC to fly right.
13. At 0941 UTC, the aircraft touched down and the PIC realigned the aircraft to the runway centerline by applying right rudder pedal.
14. The left main landing gear travelled out from the runway near the taxiway D and returned to runway centerline near taxiway E.
15. The aircraft vacated runway via taxiway G then the pilot reported to Kualanamu Tower controller that they were slightly veered to the left and might hit the runway light.
16. During inspection the engineer found grasses on the area left main wheel and found deep cut on the wheel number 5 and number 6. The runway inspection found two runway lights broken.
17. The Runway 23 was equipped with Instrument Landing System (ILS) category 1 with Decision Altitude (DA) was 230 feet. There was no record or report of system malfunction for the ILS during the occurrence.
18. The runway was equipped with centerline and runway edge lights, it was serviceable during the occurrence.
19. The grass on area near the runway 23 found about 50 centimeters height above the runway surface. The Angkasa Pura II had a monthly routine lawn mowing program. The mowing area divided into several sectors. The mowing program for the sector near the touchdown zone runway 23 was scheduled to be conducted on 24 until 30 September 2020, while the last mowing was conducted at 25 until 30 August 2020.
20. The last skid resistance test on the runway was performed on 28 August 2020 with the result of side force coefficient was within limitation.
21. Lion Mentari Airline (Lion Air) had valid Air Operator Certificate (AOC) number 121-010 issued by Directorate General on Civil Aviation (DGCA) of Indonesia.
22. Lion Air operated 10 Airbus A330 and 131 Boeing 737 aircraft. The number of Airbus A330 aircraft operation was significantly reduced during the Covid-19 pandemic.
23. During the Covid-19 pandemic the operation department had difficulties to maintained pilot proficiency and recent experience since the aircraft operation reduced and travel limitation issue.
24. On 26 May 2020, the DGCA issued letter Number AU.402/2/22/DRJU.DKPPU-2020 related to exemption to pilot proficiency check and recent experience for Air Operator Certificate 121 and 135 holders.
25. On 27 May 2020, the DGCA issued safety circular Number SE.36 of 2020, related to Extension Procedures of Pilot Proficiency Check during The Emergency Covid-19 Pandemic for Air Operator Certificate 121 and 135 holders.

3 SAFETY ACTION

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

4 SAFETY RECOMMENDATIONS

KNKT issued safety recommendations to address safety issues identified in this report.

4.1 Directorate General of Civil Aviation

The PIC last flight was on 16 August 2020 and last flight from right hand seat was on 13 March 2020 while the SIC last flight was conducted on 1 February 2020. This condition was not meet the requirement for pilot recent experience based on CASR 121.439 and Lion Air Operation Manual chapter 5.2.3.

Despite of the DGCA issued letter Number AU.402/2/22/DRJU.DKPPU-2020 related to exemption to pilot proficiency check and recent experience and Safety Circular number SE.36 of 2020, the aircraft operator did not have any guidance to manage this issue in their operational level. The absence of guidance may place two pilot were not recent in a set of flight crew that may become hazard for the flight safety.

KNKT recommend the DGCA to develop a guidance for implementing the alleviation or required the aircraft operator to adopt the existing guidance issued by ICAO.

4.2 PT. Angkasa Pura II

The Angkasa Pura II had a monthly routine lawn mowing program. The mowing area divided into several sectors. The mowing program for the sector near the touchdown zone runway 23 was scheduled to be conducted on 24 until 30 September 2020, while the last mowing was conducted at 25 until 30 August 2020. Meanwhile, the grass on area near the runway 23 found about 50 centimeters height above the runway. This condition might increase the possibility of water ponding and increase the hazard of runway slippery and hydroplaning.

KNKT recommend the Angkasa Pura II to ensure the grass on the runway strip area was maintained properly and observed/monitored in the daily routine inspection.

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