



**KOMITE NASIONAL KESELAMATAN TRANSPORTASI
REPUBLIC OF INDONESIA**

PRELIMINARY

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Aircraft Serious Incident Investigation Report

PT Pelita Air Service

ATR 72-212A; PK-PAH

**Sultan Aji Muhammad Sulaiman Sepinggan International
Airport (WALL) Balikpapan**

Republic of Indonesia

26 September 2022

2022

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.

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Jakarta, 8 November 2022

**KOMITE NASIONAL
KESELAMATAN TRANSPORTASI
CHAIRMAN**



SOERJANTO TJAHOJONO

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ABBREVIATIONS AND DEFINITIONS

AC	: Advisory Circular
AFML	: Aircraft Flight Maintenance Log
AFS	: Airport Facilities Section
AIP	: Aeronautical Information Publication
AM	: Aerodrome Manual
AMEL	: Aircraft Maintenance Engineer License
AOC	: Air Operator Certificate
AOCC	: Airport Operation Command Center
ARFF	: Airport Rescue and Fire Fighting
ARP	: Aerodrome Reference Point
ATPL	: Airline Transport Pilot License
ATC	: Air Traffic Controller
ATS	: Air Traffic Services
ATIS	: Automatic Terminal Information Service
ATR	: Avions de Transport Regional
AWOS	: Automated Weather Observation System
BEA	: Bureau d'Enquêtes et d'Analyses
BMKG	: Badan Meteorologi Klimatologi dan Geofisika
CASR	: Civil Aviation Safety Regulation
CMM	: Company Maintenance Manual
C of A	: Certificate of Airworthiness
C of R	: Certificate of Registration
CPL	: Commercial Pilot License
CVR	: Cockpit Voice Recorder
DAN	: Directorate of Air Navigation
DAAO	: Directorate of Airworthiness and Aircraft Operation
DGCA	: Directorate General of Civil Aviation
FDR	: Flight Data Recorder
FML	: Flight Maintenance Log
FOO	: Flight Operation Officer
ICAO	: International Civil Aviation Organization
IF	: Intermediate Fix
IFR	: Instrument Flight Rules
ILS	: Instrument Landing System
LT	: Local Time

kg	:	Kilogram
km	:	Kilometer
KNKT	:	Komite Nasional Keselamatan Transportasi
NTSC	:	National Transportation Safety Committee
OHS	:	Occupational Health and Safety
OMA	:	Operations Manual Part A
PALS	:	Precision Approach Lighting System
PAS	:	Pelita Air Service
PF	:	Pilot Flying
PIC	:	Pilot in Command
PM	:	Pilot Monitoring
SIC	:	Second in Command
SMSM	:	Safety Management System Manual
SOP	:	Standard Operating Procedure
SSQ	:	Safety Security and Quality
UTC	:	Universal Time Coordinate
VFR	:	Visual Flight Rules
VIP	:	Very Important Person

SYNOPSIS

On 26 September 2022, an ATR 72-212A aircraft was being operated by PT Pelita Air Service (PAS) on unscheduled passenger flight from LNG Badak Airport (WALC), Bontang to Sultan Aji Muhammad Sulaiman Sepinggan International Airport (WALL), Balikpapan.

At 2359 UTC (0759 LT), on daylight condition, the aircraft departed from Bontang with flight number PAS140. There were 42 persons on board the aircraft, consisted of two pilots, two flight attendants and 38 passengers. The Pilot in Command (PIC) acted as Pilot Monitoring (PM) and the Second in Command (SIC) acted as Pilot Flying (PF).

During the flight, the pilots received meteorological report published at 0000 UTC (0800 LT) from the Automatic Terminal Information System (ATIS). The report indicated that the wind direction was 240° with velocity of 3 knots, and visibility was more than 10 km without any significant weather.

At 0827 LTC, the PM reported to the approach controller that the aircraft established the localizer and was instructed to contact the tower controller. The PM made initial contact to the tower controller and was instructed to continue the landing approach. The visibility decreased to 300 meters, and the tower controller asked the PAS140 whether the runway was in sight. The PM responded that the runway was not in sight.

At 0830 LT, the tower controller advised PAS140 if the runway was in sight, the PAS140 was cleared to land to Runway 25, in addition the tower controller also advised that the wind direction was 240° with velocity of 12 knots, and the runway was wet.

The aircraft touched down and veered to the right, and the right main wheel travelled outside runway pavement. While returning to the runway, the left mainwheel impacted one runway edge light. The aircraft continued the taxi to the parking stand, and after the aircraft stopped, passenger was disembarked.

At the time of issuing this investigation report, the KNKT had been informed of safety actions resulting from this occurrence taken by the aircraft operator, Air Traffic Services (ATS) provider and the airport operator. However there still safety issues remain to be considered, therefore, the KNKT issued safety recommendations to the ATS provider.

The investigation involved the participation from *Bureau d'Enquêtes et d'Analyses* (BEA) as the State of Aircraft Design and Manufacture. The agency has appointed accredited representatives to assist the investigation in accordance with the provisions in International Civil Aviation Organization (ICAO) Annex 13.

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

1 FACTUAL INFORMATION

1.1 History of the Flight

On 26 September 2022, an ATR 72-212A aircraft was being operated by PT Pelita Air Service (PAS) on unscheduled passenger flight from LNG Badak Airport (WALC), Bontang¹ to Sultan Aji Muhammad Sulaiman Sepinggan International Airport (WALL), Balikpapan.

According to the filed flight plan, the flight would be conducted under the Visual Flight Rules (VFR) and changed to Instrument Flight Rules (IFR).

Prior to the departure, the pilots conducted pre-flight preparation and there was no record or report of aircraft system malfunction. During the passenger boarding process, the pilots were informed by the PAS Flight Operation Officer at Bontang (Bontang FOO) that Balikpapan was raining heavily. Considering that the flight from Balikpapan to Bontang would be only about 30 minutes, the pilots then decided to delay the departure.

After received the information that the rain at Balikpapan had stopped, the pilots decided to depart. At 2359 UTC (0759 LT²), on daylight condition, the aircraft departed from Bontang with flight number PAS140 and climbed to altitude of 10,000 feet. The departure was about 30 minutes delay from the planned schedule.

There were 42 persons on board the aircraft, consisted of two pilots, two flight attendants and 38 passengers. The Pilot in Command (PIC) acted as Pilot Monitoring (PM) and the Second in Command (SIC) acted as Pilot Flying (PF).

After the departure, when the aircraft was climbing and passed altitude of 5,000 feet, the PM made initial contact with approach controller³ and was advised to continue climbing to 10,000 feet. The approach controller also instructed the PAS140 to fly direct BPN VOR/DME and advised that the runway in use was Runway 25.

During the flight, the pilots received meteorological report published at 0000 UTC (0800 LT) from the Automatic Terminal Information System (ATIS). The report indicated that the wind direction was 240° with velocity of 3 knots, and visibility was more than 10 km without any significant weather.

At 0810 UTC, the PM advised the approach controller that the aircraft was ready for descent. The approach controller then instructed the PAS140 to descend to altitude of 4,000 feet.

¹ LNG Badak Airport (WALC), Bontang will be named as Bontang for the purpose of this report.

² Local Time (LT) is Universal Time Coordinated (UTC) +8 hours.

³ Approach controller is the air traffic controller from Balikpapan approach control unit.

At 0819 LT, the approach controller instructed the PAS140 to make orbit over Waypoint LELEB⁴ for traffic sequencing. About two minutes later, the PM requested making orbit present position to the approach controller, and it was approved. After the orbit completed, the approach controller instructed the PAS140 to make another orbit for traffic separation as they were two other arriving flights which were conducting landing approach to Runway 25. A Boeing 737-900 ER was on final, and a Cessna 208 was joining final runway.

At 0823 LT, the approach controller instructed the PAS140 to descend to altitude of 2,000 feet. One minute later, the tower controller advised to the approach controller that the visibility was decreasing to 1 km. The approach controller then relayed the visibility information to the Cessna 208 aircraft pilot and asked the pilot intention. The Cessna 208 aircraft pilot advised the approach controller to continue the landing approach. The pilot was then advised to contact tower controller.

At 0825 LT, the approach controller instructed the PAS140 to fly directly to Waypoint LELEB, issued approach clearance to Runway 25 using Instrument Landing System (ILS) and advised to report when establish the localizer⁵. On that time, Balikpapan was in heavy rain. The pilots were aware that the visibility decreased to 1 km from the approach controller communication. Considering that the minimum visibility to conduct the ILS approach to Runway 25 was 800 meters, the PF decided to continue the approach.

At 0827 LTC, the PM reported to the approach controller that the aircraft established the localizer and was instructed to contact the tower controller.

At 0828 LT, the PM made initial contact to the tower controller and was instructed to continue the landing approach. The visibility decreased to 300 meters, and the tower controller asked the PAS140 whether the runway was in sight. The PM responded that the runway was not in sight. At this time the aircraft altitude was about 1,400 feet and the aircraft entering layer of clouds.

At 0830 LT, the tower controller advised PAS140 if the runway was in sight, the PAS140 was cleared to land to Runway 25, in addition the tower controller also advised that the wind direction was 240° with velocity of 12 knots, and the runway was wet.

At 0832 LT, when the aircraft altitude was about 300 feet, the autopilot was disengaged. The pilots then set the wipers to slow position⁶.

The aircraft touched down and veered to the right, and the right main wheel travelled outside runway pavement. While returning to the runway, the left mainwheel impacted one runway edge light. The tower controller was aware of the occurrence then contacted the Airport Rescue and Fire Fighting (ARFF) personnel informed the occurrence and asking to check the runway condition.

⁴ Waypoint LELEB is located about 12 Nm from threshold Runway 25 on bearing 068°. Waypoint LELEB is an Intermediate Fix (IF) for the instrument approach using ILS to Runway 25.

⁵ Localizer is lateral component of the instrument landing system (ILS) which provides azimuth guidance for the runway centerline.

⁶ Slow means the wiper operates at 80 cycles per minute.

The Airport Operation Command Center (AOCC) personnel who monitored the communication between tower controller and ARFF personnel also asked the Airport Facilities Section (AFS) personnel to check the runway condition with the ARFF personnel.

At 0833 LT, tower controller advised the landing time to the PAS140 and the taxi clearance to the parking stand. The aircraft continued the taxi to the parking stand, and after the aircraft stopped, passenger was disembarked.

The engineer who conducted transit check⁷ found some grasses in the landing gear bay and aircraft fuselage. The PIC advised the engineer that the aircraft was on grass and the wiper on the PIC side was stuck. The engineer then continued to perform the transit check. Neither the pilot nor the engineer wrote any discrepancies in the aircraft Flight and Maintenance Log (FML).

The transit check has been completed then the engineer advised the PIC that there was no aircraft system malfunction nor airframe failure. The Balikpapan FOO also advised the PIC that the subsequent flight schedule has delayed for 40 minutes, and the passengers was ready for boarding. The PIC then decided to continue the flight schedule to Bontang.

1.2 Injuries to Persons

There were no injuries to persons as a result of this occurrence.

1.3 Damage to Aircraft

The aircraft was slight damaged.

1.4 Other Damage

One of runway edge light was damaged.

1.5 Personnel Information

1.5.1 Pilot in Command

The PIC was 58 years Indonesian who held valid Airline Transport Pilot License (ATPL) and qualified as ATR 42/72 pilot. The PIC also held valid First-class medical certificate with limitation to possess glasses that correct for near vision.

The PIC had total flying hour of 12,176.34 hours, included 2,805.71 hours on ATR 72-212 aircraft.

The last proficiency check for the PIC was conducted on 13 April 2022 and the result was satisfactory without any remarks.

Prior to conduct the flight from Bontang to Balikpapan (the occurrence flight), the PIC was aware that there would be Very Important Person (VIP) on board the aircraft on the subsequent flight schedule from Balikpapan returned to Bontang.

⁷ Transit check is part of daily maintenance inspection which is carried out between two consecutive flights in the same day.

1.5.2 Second in Command

The SIC was 29 years Indonesian who held valid Commercial Pilot License (CPL) and qualified as ATR 42/72 pilot. The SIC also held valid First-class medical certificate with limitation to possess glasses that correct for near vision.

The SIC had total flying hour of 1,929 hours, included 1,762 hours on ATR 72-212 aircraft. The last proficiency check for the SIC was conducted on 3 December 2021 and the result was satisfactory without any remarks.

Prior to conduct the flight from Bontang to Balikpapan (the occurrence flight), the SIC was aware that there would be VIP on board the aircraft on the subsequent flight schedule from Balikpapan returned to Bontang,

1.5.3 Aircraft Engineer

The aircraft engineer at Balikpapan was 31 years Indonesian who held valid Aircraft Maintenance Engineer License (AMEL) and qualified as an ATR 72-212A aircraft engineer.

1.5.4 Air Traffic Controller

The approach and tower controller were Indonesian who held valid Air Traffic Control Licenses. The controllers also held Third-class of medical certificates without any limitations.

The approach controller qualified as an approach control procedural and surveillance at Balikpapan, while the tower controller qualified as an aerodrome tower at Balikpapan. The tower controller has experience as aerodrome tower controller for 6 years, and all the experience was at Balikpapan. The tower controller was also acted as supervisor on duty at the day of the occurrence.

1.6 Aircraft Information

1.6.1 General

The ATR 72-212A with serial number of 777, was manufactured by Avions de Transport Regional (ATR), a France aircraft company in 2008. The aircraft registered PK-PAH and had valid Certificate of Airworthiness (C of A) and Certificate of Registration (C of R).

The aircraft had total hour since new of 21,183.66 hours, and the total cycles since new of 18,495 cycles. The engines installed on the aircraft was manufactured by Pratt & Whitney Canada with PW127F type.

1.6.2 Weight and Balance

According to the weight and balance manifest sheet of the occurrence flight, the calculation of the weight and balance was as follows:

Takeoff weight ⁸	: 18,590 kg (maximum 22,800 kg)
Landing weight ⁹	: 18,125 kg (maximum 22,350 kg)

⁸ Takeoff weight is weight during the start of the takeoff roll. Calculating from ramp weight minus the fuel burned for taxi and start-up engine.

⁹ Landing weight is weight during touchdown. Calculating from takeoff weight minus the fuel burned for enroute.

1.7 Meteorological Information

Balikpapan meteorology station issued meteorological report at 30 minutes intervals or any significant changes. The report was also published through the Automatic Terminal Information Service (ATIS) on frequency 127.6 MHz.

The meteorological report issued on 26 September 2022 was as follows:

Time (LT)	0800	0830	0900
Wind (°/knots)	260/6	260/6	260/9
Visibility	8,000 meters	500 meters	More than 1 km
Weather	Slight Rain	Heavy Rain	NIL
Cloud ¹⁰	FEW Cumulonimbus 1,500 feet, BKN 1,500 feet	FEW Cumulonimbus 1,000 feet, BKN 1,000 feet	FEW Cumulonimbus 1,000 feet, BKN 1,300 feet
TT/TD (°C)	26/26	27/26	27/26
QNH (mb/in Hg)	1,009	1,010	1,010
Remarks	Cumulonimbus to East	Cumulonimbus to East	Cumulonimbus to East

In between the published meteorological, the meteorology station issued several special reports as follows:

Time (LT)	0805	0825	0848
Wind (°/knots)	280/9	270/6	260/9
Visibility	More than 1 km	500 meters	More than 1 km
Weather	Recent Rain	Heavy Rain	NIL
Cloud	FEW Cumulonimbus 1,500 feet, BKN 1,500 feet	FEW Cumulonimbus 1,000 feet, BKN 1,000 feet	FEW Cumulonimbus 1,000 feet, BKN 1,300 feet
TT/TD (°C)	26/26	27/26	27/27
QNH (mb/in Hg)	1,009	1,010	1,009
Remarks	Cumulonimbus to East	Cumulonimbus to East	Cumulonimbus to East

Balikpapan meteorological station utilized Automated Weather Observation System (AWOS) with three separated displays from three different sensor locations. One of the sensors was located near the touchdown area of Runway 25. The following data was taken from the sensor located near the touchdown area of Runway 25.

¹⁰ Cloud amount is assessed in total which is the estimated total apparent area of the sky covered with cloud. The international unit for reporting cloud amount for Few (FEW) is when the clouds cover 1/8 up to 2/8 area of the sky and Broken (BKN) is when the clouds cover 5/8 up to 7/8 area of the sky.

Time (UTC)	Wind Direction Magnetic heading (°)	Wind Direction True heading (°) 2 min	Variable Wind (°) 2 min	Wind speed (knots)	Precipitation 1 hour	Runway Visual Range (meter) 1 min	Visibility (meter) 1 min
0025	206	218.1	200V260	5	0	6,582	7,043
0026	206	218.81	NIL	10	1.11	977	1,353
0027	236	215.05	NIL	11	2.71	502	695
0028	233	217.39	NIL	8	4.74	259	276
0029	223	225.03	NIL	14	6.55	211	225
0030	240	232.24	NIL	12	7.94	200	215
0031	262	243.08	NIL	17	9.19	214	220
0032	262	257.01	NIL	15	9.94	267	281
0033	270	263.45	NIL	17	10.18	480.	484
0034	284	272.93	NIL	19	10.43	966	992
0035	303	284.16	NIL	17	10.67	1,083	1,117
0036	323	299.34	NIL	8	11.20	770	795
0037	356	326.35	280V360	2	11.91	700	741
0038	88	354.04	300V090	1	12.34	762	811
0039	224	244.21	190V090	10	12.67	1,424	1,482
0040	208	212.99	190V090	7	12.72	2,262	2,319
0041	243	222.4	NIL	8	12.74	3,525	3,593
0042	266	247.81	190V290	10	12.74	3,912	3,943
0043	250	263.46	220V290	7	12.79	4,800	4,979
0044	266	262.26	NIL	12	12.79	5,720	6,478
0045	262	267.8	NIL	8	12.79	9,124	9,372

Note:

- Precipitation 1 hour means the average precipitation in one hour.
- Runway Visual Range 1 min means the average of Runway Visual Range in the period of 1 minute.
- Wind Direction True Heading 2 min means the average of true wind direction in the period of 2 minutes.
- Variable Wind 2 min means the average of variable wind direction in the period of 2 minutes.
- Visibility 1 min means the average of visibility in the period of 1 minute.

1.8 Aids to Navigation

Runway 13 of Balikpapan has Instrument Landing System (ILS) approach guidance facilities. The instrument approach chart provided by Directorate General of Civil Aviation (DGCA) on Aeronautical Information Publication (AIP) Volume II showed on the following figure.

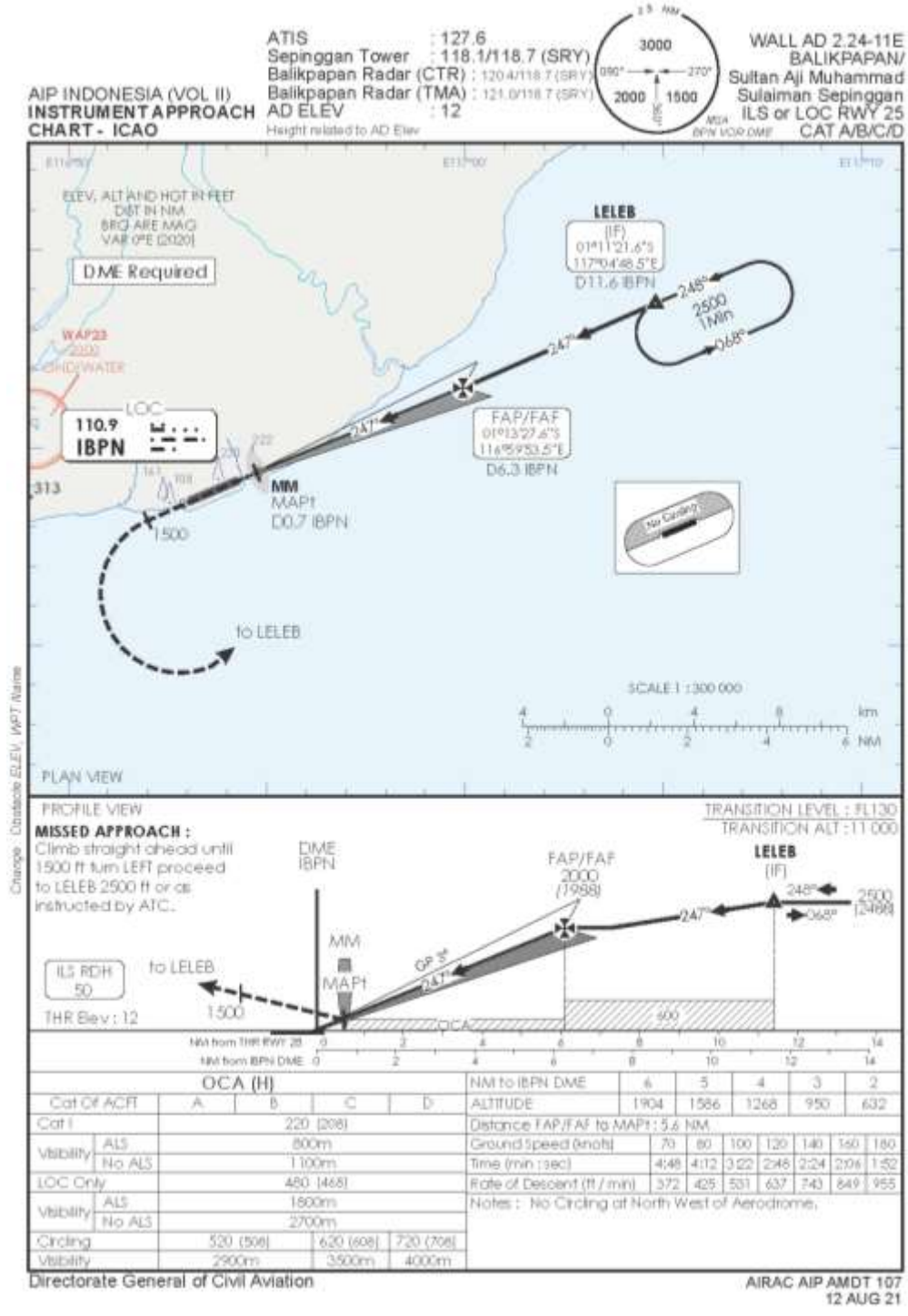


Figure 1: The Instrument Approach Chart for Runway 25 (ILS or Localizer)

The aircraft operator utilized instrument approach chart for Runway 25 of Balikpapan published by Jeppesen which contained the same information with the AIP Volume II. The chart was available in the cockpit during the occurrence.

Runway 25 was equipped with Precision Approach Lighting System (PALS) Category 1 and there was no record or report of system malfunction during the occurrence.

1.9 Communications

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

1.10 Aerodrome Information

Airport Name	:	Sultan Aji Muhammad Sulaiman Sepinggan International Airport
Airport Identification	:	WALL
Airport Operator	:	PT Angkasa Pura I (Persero)
ARP ¹¹ Coordinate	:	01°16'03"S 116°53'38"E
Elevation	:	12 feet
Runway		
Designation Number	:	07/25
True Bearing	:	067.03°/247.03°
Length	:	2,500 meters
Width	:	45 meters
Surface	:	Asphalt

1.11 Flight Recorders

The aircraft was fitted with a Flight Data Recorder (FDR) and a Cockpit Voice Recorder (CVR). Both flight recorders were manufactured by L3 Communication and the type/model of the recorders were FA2100.

The FDR part number was 2100-4043-00, and the serial number was 000268289. The CVR part number was 2100-1020-02, and the serial number was 000224883.

Both flight recorders were recovered from the aircraft and transported to *Komite Nasional Keselamatan Transportasi* (KNKT) recorder facility for data processing. The data of both flight recorders were successfully downloaded.

The CVR data of the occurrence flight has been overwritten with the subsequent flight because the aircraft continued the flight from Balikpapan to Bontang.

The FDR recorded 101.15 hours of aircraft operation with total 126 flights. Detail of the data will be included in the final report.

¹¹ Aerodrome Reference Point.

1.12 Wreckage and Impact Information

About 1,100 meters from the beginning of the Runway 25, right main wheel marks were found traveled out from the runway pavement to the grass. The marks on the grass continued and about 1,180 meters from the beginning runway, the marks traveled into the runway pavement.

A runway edge light, which located at 1,183 meters from the beginning Runway 25, was found broken. The tire number 2 was slightly damaged.

1.13 Medical and Pathological Information

Medical and pathological information were not available at the time of the issuance of this report. Should any relevant medical and/or pathological information be obtained during this investigation, it will be included in the final report.

1.14 Tests and Research

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

1.15 Organizational and Management Information

1.15.1 Aircraft Operator

The aircraft was operated by PT Pelita Air Service (PAS) which had valid Air Operator Certificate (AOC) number of 121-008. The PAS was authorized by the Directorate General of Civil Aviation (DGCA) to conduct air transportation carrying passenger and cargo in scheduled operation within and outside Indonesia for aircraft operations under Civil Aviation Safety Regulation (CASR) Part 121.

1.15.1.1 Aircraft Inspection after Runway Excursion

The PAS Company Maintenance Manual (CMM) chapter IV.3 described that the company maintenance program included unscheduled (non-routine) maintenance, which was described as follows:

Unscheduled (Non-routine) maintenance takes place when mechanical irregularities occur. These irregularities can be in the form of flight maintenance log discrepancies or irregularities discovered during the performance of scheduled maintenance, inspection or other maintenance.

- a. Aircraft discrepancies are entered on Flight Maintenance Log.*
- b. Unscheduled (Non-routine) maintenance is documented on Flight Maintenance Log and worksheet.*

According to the ATR72 Maintenance Procedure ATR-A-05-51-0001-282A-A, an unscheduled inspection must be carried out after the aircraft experienced a runway excursion to ensure the airworthiness of the aircraft.

After the occurrence, the engineer did not perform an unscheduled inspection of runway excursion considering that based on visual observation there was no abnormality of the aircraft system nor airframe failure during the transit check and no written discrepancies record from the PIC in the Flight Maintenance Log (FML).

1.15.1.2 Mechanical Defect and Irregularities Record

The PAS Company Maintenance Manual (CMM) chapter IV.12 described:

The pilot in command shall ensure that all mechanical defects and irregularities occurring during flight time are entered in the flight maintenance log of the aircraft at the end of that flight time. Before each flight the pilot in command shall ascertain the status of each defect or irregularity entered in the log at the end of the preceding flight.

The CMM chapter IV.12A.i described:

The Flight Maintenance Log is used to record all malfunction and irregularities reported by flight crew during aircraft flight operation, and rectification on the ground by maintenance personnel and or inspection finding and rectification during flight line maintenance.

Flight Maintenance Log serves the following:

- a. To record discrepancies observed by flight crew during operation of aircraft and inspection finding.*
- b. To record corrective action by maintenance to rectify discrepancies.*
- c. To entries airworthiness release of aircraft after maintenance checks.*
- d. To defer maintenance actions on discrepancies with refer to MEL.*

The discrepancies recorded in the maintenance log may include operational failures, malfunctions, as well as abnormal flight occurrences such as hard and overweight landings, foreign object damages and lightning strikes.

The PAS Operations Manual Part A (OM-A) chapter 9.17 described:

The Aircraft Flight and technical Log (AFML) and Cabin Maintenance Log is the link between flight crew and maintenance. It allows the supervision of the aircraft technical status and of the performed repairs.

Before the flight, the Pilot in Command ensure all information in AFML is legible, up to date, cannot be erased and provide each correction is identifiable an error remain legible is correctible. PIC must examine the AFML and Cabin Maintenance Log to enquire about the technical status of the aircraft. Signing of the AFML by the Pilot in Command implies he has found that the aircraft is in airworthy condition for the intended operations.

After the flight, the Pilot in Command must ensure that all discrepancies and mechanical irregularities noted during the course of a flight or series of flights are entered in the AFML and Cabin Maintenance Log. Where applicable, snags entered in the Cabin Maintenance log, which are airworthiness items, must be transferred by the Flight Crew into the AFML. In addition, and where possible, the PIC must debrief maintenance personnel directly regarding reported aircraft defects.

1.15.1.3 Serious Incident Reporting Procedure

The OM-A chapter Abbreviation and Definition described incident and serious incident as follows:

INCIDENT

An incident is an occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.

SERIOUS INCIDENT

A serious incident is an incident involving circumstances indicating that there was a high probability of an accident and associated with the operation of an aircraft

The OM-A chapter 19.4 described procedure to handle serious incident as follows:

19.4.1 INITIAL/IMMEDIATE NOTIFICATION TO THE COMPANY

In the event of an accident or a serious incident, either airborne or on the ground, the Pilot in Command or a crew member, if physically able, or any other person will advise OCC¹² by the quickest available means, that will in turn advise Safety, Security and Quality Division.

19.4.3 PRESERVATION, PRODUCTION AND USE OF FLIGHT DATA

Following an accident or a serious incident, the Company must attempt to preserve all FDR and CVR data and make it available to the investigating authority. In addition, Pelita Air Service will ensure all operational manuals and documents in force at the time of the accident/serious incident are collected and preserved.

Note: FDR & CDR only read by KNKT

19.5.1 NOTIFICATION AND REPORTING OF ACCIDENTS AND SERIOUS INCIDENTS

As soon as it is advised of an accident or serious incident (refer to paragraph 17.3.1 “INITIAL NOTIFICATION” of this Chapter, the Company (Safety, Security and Quality Division) must, in turn, immediately, and by the most suitable and quickest means available, report to the Indonesian National Transportation Safety Committee (NTSC)¹³ and the DGCA¹⁴, as well as to the Authority of the State of occurrence.

This immediate occurrence report must in all cases, be submitted within 24 hours following the accident or serious incident.

In addition to the immediate occurrence report, the Company must submit a further written occurrence report to NTSC and DGCA within 72 hours after the accident or serious incident. Pelita Air Service Safety, Security and Quality Division is in charge of transmitting this report, but will involve all adequate personnel in the preparation of the report, including, where possible and applicable, the PIC and/or crewmembers.

¹² The OCC in the OM-A is referred to the Operation Control Center.

¹³ The NTSC in the OM-A is referred to the Komite Nasional Keselamatan Transportasi (KNKT).

¹⁴ DGCA in the OM-A is referred to Directorate General of Civil Aviation

When an aircraft is believed to have been involved in an accident or serious incident, the requirement of immediate occurrence report to NTSC and DGCA also applies.

1.15.2 Airport Operator

The airport was operated by PT Angkasa Pura I (Persero) branch office Sultan Aji Muhammad Sulaiman Sepinggan International Airport which has valid airport certificate.

The airport operator Aerodrome Manual (AM) Chapter 5.4.5 required airport personnel to report a hazard or incident to the Airport Safety department.

The airport operator also developed *Manual Sistem Manajemen Keselamatan* (Safety Management System Manual/SMSM) which described the airport reporting system. The SMSM Chapter 5 described that incident must be reported in accordance with Standard Operating Procedure (SOP) of *Sistem Pelaporan di Bandar Udara* (Reporting System SOP).

The Reporting System SOP defined incident as occurrence which affects the airport operation and occupational health and safety (OHS) including near miss.

The Reporting System SOP did not describe any requirements to report any serious incidents with minimum delay and by the most suitable and quickest means available to the KNKT.

1.15.3 Air Traffic Services Provider

The Air Traffic Services (ATS) in Indonesia is provided by AirNav Indonesia, and the services at Balikpapan was provided by AirNav Indonesia branch Balikpapan which has valid Air Traffic Services Provider certificate. The AirNav branch Balikpapan was authorized to provide ATS which include air traffic control services.

1.15.3.1 Meteorological Information for Pilot

Balikpapan ATS SOP of Aerodrome Control Service (Tower SOP) chapter 2.8.1 stated that air traffic control would provide meteorological information from the meteorological station to pilot if the information was requested by the pilot. The chapter 2.8.7 of the SOP described that meteorological special report must be informed to pilot as soon as possible.

AirNav Indonesia branch Balikpapan developed a procedure for low visibility operation. The visibility value used in the procedure was taken from the AWOS data that has been coordinated with the *Badan Meteorologi Klimatologi dan Geofisika* (BMKG – the meteorology agency of Indonesia). The low visibility operation procedure required tower controller to advise pilot that the visibility was below minima during the first contact or when the aircraft would perform the landing approach. The procedure also required the controller to ask the pilot intention. According to the Tower SOP chapter 2.18.12.8, the visibility minima for IFR flight landing using ILS on Runway 25 was 800 meters.

1.15.3.2 Occurrence Reporting Procedure

The occurrence reporting procedure within AirNav Indonesia branch Balikpapan was described in the Tower SOP and *Standar Operasional Prosedur Sistem Pelaporan Keselamatan* (Reporting System SOP).

The Tower SOP Chapter 6.1 described the occurrences that must be reported as follows:

- accident;
- incident;
- damage of aviation system or facility; and
- hazard during operational level which affected aviation safety.

The Tower SOP Chapter 6.1.1 described that if an occurrence occurred, air traffic control must:

- record the occurrence in the ATS Operational Logbook;
- notify the supervisor;
- submit a report in accordance with the existing company procedure.

The Reporting System SOP Chapter 2.1 described that branch office must report an accident, serious incident and incident using the company reporting system. The SOP described that a runway excursion could be classified as an accident or serious incident.

According to the Reporting System SOP Chapter 2.2, branch office must send notification of an accident and serious incident to the Safety Security and Standard Directorate of the head office with minimum delay and by the most suitable and quickest means available. Thereafter, Safety Security and Standard Directorate of the head office will forward it to KNKT.

1.15.4 Handling of Runway Excursion Event

The tower controller who was aware of the runway excursion event contacted the Airport Rescue and Fire Fighting (ARFF) personnel asking to check the runway condition. The tower controller also wrote the runway excursion event in the operational logbook. No one within the ATS Provider management personnel reviewed the operational logbook nor aware of the runway excursion event until four days later after the KNKT requested occurrence report from the ATS Provider.

The Airport Operation Command Center (AOCC) personnel who monitored the communication between tower controller and ARFF personnel asked the Airport Facilities Section (AFS) personnel to check the runway condition with the ARFF personnel. The AFS personnel then checked the runway accompanied by Airport Safety¹⁵ personnel who also monitored the communication of the tower controller.

The AFS and Airport Safety personnel found runway excursion marks and damaged runway edge light. Thereafter, they went to the aircraft and was advised by the engineer that the aircraft was undamaged. The AFS personnel gave a post-flight report form to PAS FOO at Balikpapan (Balikpapan FOO). The airport operator did not notify or report the occurrence to KNKT or DGCA.

¹⁵ Airport Safety Risk and Performance Management unit will be named as Airport Safety for the purpose of this report.

The Balikpapan FOO advised the PIC to fill the report. The PIC did not consider filling the report immediately as there was no airworthiness issue with the aircraft. The pilot was aware that schedule for the next flight has been delayed, and the passengers were ready to board the aircraft. After the aircraft landed at Bontang for the next flight schedule, the PIC filed the report and notify the company chief pilot of the runway excursion event. The company chief pilot did not prohibit the pilot to continue the flight operation and no report was made to notify KNKT or DGCA of the event.

KNKT received the information of the event from voluntary reporting four days after the occurrence. KNKT confirmed the event to the aircraft operator, airport operator and was affirmed by all related parties. Thereafter, they submitted an occurrence report to KNKT and DGCA.

1.15.5 Civil Aviation Authority of Indonesia

Civil aviation in Indonesia is regulated and oversighted by Directorate General of Civil Aviation (DGCA) under the Ministry of Transportation.

The DGCA has several directorates including the Directorate of Air Navigation (DAN) that responsible in formulating regulations including the Directorate of Airworthiness and Aircraft Operation (DAAO) that responsible in formulating policy and standard including oversight to the civil aircraft operator, and the Directorate of Air Navigation (DAN) that responsible in formulating policy and standard including oversight to the ATS provider and aviation meteorological provider.

1.15.6 Provision of Significant Information for Arriving Aircraft

The DGCA developed Advisory Circular (AC) 170-02 as guideline procedure for ATS Provider, ATS personnel and pilot in accordance with the Civil Aviation Safety Regulation (CASR) Part 170. The AC 170-02 described a requirement for ATS Provider to provide significant information for arriving aircraft.

The AC 170-02 Chapter 6.6.4 required ATS unit concerned to transmit several information to aircraft at the commencement of the final approach as follows:

- a) *significant changes in the mean surface wind direction and speed;*
Note. – Significant changes are specified in Annex 3, Chapter 4. However, if the controller possesses wind information in the form of components, the significant changes are:
 - *Mean head-wind component: 19 km/h (10 kt)*
 - *Mean tail-wind component: 4 km/h (2 kt)*
 - *Mean cross-wind component: 9 km/h (5 kt)*
- b) *the latest information, if any, on wind shear and/or turbulence in the final approach area;*
- c) *the current visibility representative of the direction of approach and landing or, when provided, the current runway visual range value(s) and the trend.*

The AC 170-02 Chapter 6.6.5 also required the ATS unit concerned to transmit the following information without delay when an aircraft was on final approach:

- a) *the sudden occurrence of hazards (e.g. unauthorized traffic on the runway);*

- b) *significant variations in the current surface wind, expressed in terms of minimum and maximum values;*
- c) *significant changes in runway surface conditions;*
- d) *changes in the operational status of required visual or non-visual aids;*
- e) *changes in observed RVR value(s), in accordance with the reported scale in use, or changes in the visibility representative of the direction of approach and landing.*

1.15.7 Runway Excursion within Indonesia Territory

According to the Aviation Law Number 1 of 2009 and Government Decree Number 62 of 2013 described that *Komite Nasional Keselamatan Transportasi* (KNKT) has responsibility to conduct investigation on serious incident of civil aircraft occurred within the territory of Republic of Indonesia.

The definition of serious incident is described in the CASR part 830 subpart 830.2 as follows:

An incident involving circumstances indicating that there was a high probability of an accident and associated with the operation of an aircraft which, in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down.

The Appendix B of the CASR Part 830 described that take-off or landing incidents such as under-shooting, overrunning or running off the side of runways is included in the list examples of serious incident.

In the case of Indonesia civil aircraft experienced serious incident, the CASR Part 830 Subpart 830.06 required person, organization or enterprise engaged in or offering to engage in an aircraft operation, with minimum delay and by the most suitable and quickest means available, must report to KNKT. The report then enables KNKT to initiate and conduct investigation as soon as possible, as well as protect the evidence and maintain safe custody of the aircraft and its contents to avoid loss of useful information.

CASR Part 19 Subpart 19.57 requires aircraft operator, airport operator and ATS provider to report several occurrences including take-off or landing incidents such as under-shooting, overrunning or running off the side of runways to the DGCA no later than 72 hours after becoming aware of the occurrence.

1.16 Additional Information

The investigation involved the participation from *Bureau d'Enquêtes et d'Analyses* (BEA) as the State of Aircraft Design and Manufacture. The agency has appointed accredited representatives to assist the investigation in accordance with the provisions in International Civil Aviation Organization (ICAO) Annex 13.

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

1.17 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, KNKT identified several findings as follows:

1. Prior to the departure, the pilots conducted pre-flight preparation and there was no record or report of aircraft system malfunction.
2. The pilots held valid licenses and First-class medical certificates. Both pilots had medical limitation to possess glasses that correct for near vision.
3. The last proficiency check for the Pilot in Command (PIC) was conducted on 13 April 2022, while the Second in Command (SIC) was on 3 December 2021. The result of both checks was satisfactory without any remarks.
4. The aircraft engineer held a valid Aircraft Maintenance Engineer License (AMEL) and qualified as an ATR 72-212A aircraft engineer.
5. The approach and tower controller held Third-class of medical certificates without any limitations.
6. The tower controller on duty during the occurrence was also acted as supervisor on duty.
7. The departure of the flight from Bontang to Balikpapan was delayed about 30 minutes due to heavy rain at Balikpapan. According to the filed flight plan, the flight would be conducted under the Visual Flight Rules (VFR) and changed to Instrument Flight Rules (IFR).
8. The aircraft operator utilized instrument approach chart for Runway 25 of Balikpapan published by Jeppesen which contained the same information as the AIP Volume II. The chart was available in the cockpit during the occurrence.
9. The Runway 13 of Balikpapan has Instrument Landing System (ILS) approach guidance facilities.
10. During the flight, the pilots received meteorological report published at 0000 UTC (0800 LT) from the Automatic Terminal Information System (ATIS). The report indicated that the wind direction was 240° with velocity of 3 knots, and the visibility was more than 10 km without any significant weather.
11. During the landing approach, the pilots were aware that the visibility decreased to 1 km from the approach controller communication. Considering that the minimum visibility to conduct the ILS approach to Runway 25 was 800 meters, the PF decided to continue the approach.
12. At 0825 LT, the meteorological report indicated that over Balikpapan was in heavy rain, and about three minutes later, the visibility data from Automated Weather Observation System (AWOS) decreased to below 300 meters. The reduced value of the visibility has not been advised to the pilot by the tower controller.

13. At 0830 LT, the tower controller advised PAS140 if the runway was in sight, the PAS140 was cleared to land to Runway 25, in addition the tower controller also advised that the wind direction was 240° with velocity of 12 knots, and the runway was wet.
14. Balikpapan ATS SOP of Aerodrome Control Service (Tower SOP) chapter 2.8.1 stated that air traffic control would provide meteorological information from the meteorological station to pilot if the information was requested by the pilot. The chapter 2.8.7 of the SOP also described that meteorological special report must be informed to pilot as soon as possible.
15. According to the Tower SOP chapter 2.18.12.8, the visibility minima for IFR flight landing using ILS on Runway 25 was 800 meters.
16. The procedure for low visibility operation developed by the AirNav Indonesia branch Balikpapan required tower controller to advise pilot that the visibility was below minima during the first contact or when the aircraft would perform the landing approach. The procedure also required the controller to ask the pilot intention.
17. At 0832 LT, about 300 feet, the autopilot was disengaged. The pilots then set the wipers to slow position.
18. The aircraft touched down and veered to the right, and the right main wheel travelled outside runway pavement. While returning to the runway, the left mainwheel impacted one runway edge light.
19. After the passenger disembarkation, the Pilot in Command (PIC) advised the engineer that the aircraft was on grass and the wiper on the PIC side was stuck. Neither the pilot nor the engineer wrote any discrepancies in the aircraft Flight and Maintenance Log (FML) after the occurrence flight.
20. The Pelita Air Service (PAS) Company Maintenance Manual (CMM) and Operation Manual Part A (OM-A) required PIC to ensure that all discrepancies and mechanical irregularities during a flight or series of flights are entered in the FML.
21. According to the ATR72 Maintenance Procedure ATR-A-05-51-0001-282A-A, an unscheduled inspection must be carried out after the aircraft experienced a runway excursion.
22. After the occurrence, the engineer did not perform an unscheduled inspection of runway excursion considering that during the transit check, based on visual observation, there was no abnormality of the aircraft system or airframe failure, and no written discrepancies recorded by the PIC in the FML.
23. The Balikpapan FOO advised the PIC that the subsequent flight schedule has delayed for 40 minutes, and the passengers, who were Very Important Persons (VIPs), were ready for boarding. The PIC then decided to continue the flight schedule to Bontang.
24. Prior to the occurrence flight, the pilots had been aware that there would be VIPs on board the aircraft on the flight schedule from Balikpapan returned to Bontang.

25. The Appendix B of Civil Aviation Safety Regulation (CASR) Part 830 described that take-off or landing incidents such as under-shooting, overrunning or running off the side of runways are included in the list examples of serious incident.
26. In the case of Indonesia civil aircraft experienced serious incident, the CASR Part 830 requires person, organization or enterprise engaged in or offering to engage in an aircraft operation, with minimum delay and by the most suitable and quickest means available, must report to KNKT.
27. The OM-A requires in the event of serious incident, PIC or a crew member, if physically able, or any other person advise Operation Control Center (OCC) by the quickest available means, that will in turn advise the Safety, Security and Quality (SSQ) Division. The SSQ Division then must report to KNKT.
28. The OM-A stated that following accident or serious incident the company must attempt to preserve all Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR) data and make it available to the investigation authority.
29. Both flight recorders were recovered from the aircraft and transported to *Komite Nasional Keselamatan Transportasi* (KNKT) recorder facility for data processing. The data of both flight recorders were successfully downloaded. The CVR data of the occurrence flight has been overwritten by the subsequent flight because the aircraft continued the flight from Balikpapan to Bontang.
30. The *Standar Operasional Prosedur Sistem Pelaporan Keselamatan* (Reporting System SOP) of AirNav Indonesia required branch office to report an accident, serious incident and incident using the company reporting system. The SOP also described that runway excursion could be classified as an accident or serious incident.
31. The Tower SOP described that if an accident or incident occurred, air traffic control must record the occurrence in the ATS Operational Logbook, notify the supervisor, and submit a report in accordance with the existing company procedure.
32. According to the Reporting System SOP of the AirNav Indonesia, branch office must send notification of an accident and serious incident to the Safety Security and Standard Directorate of the head office with minimum delay and by the most suitable and quickest means available. Thereafter, Safety Security and Standard Directorate of the head office will forward it to KNKT.
33. The tower controller was aware of the runway excursion event and wrote the event in the operational logbook. No one within the ATS Provider management personnel reviewed the filled operational logbook nor aware of the runway excursion event.
34. The airport operator Standard Operating Procedure (SOP) of *Sistem Pelaporan di Bandar Udara* (Reporting System SOP) did not describe any requirement to report any serious incident with minimum delay and by the most suitable and quickest means available to the KNKT.
35. The Airport Rescue and Fire Fighting (ARFF), Airport Operation Command Center (AOCC), Airport Facilities Section (AFS), and Airport Safety personnel were aware of the runway excursion event.

36. The aircraft operator, airport operator and ATS provider did not reported the runway excursion event to KNKT and DGCA until KNKT confirmed the event four days after the occurrence.

3 SAFETY ACTION

At the time of issuing this investigation report, the KNKT had been informed of safety actions resulting from this occurrence taken by the related parties.

3.1 Pelita Air Service

The Pelita Air Service (PAS) conducted several safety actions as follows:

1. On 3 October 2022, issued safety notice to remind all operational personnel:
 - to review significant weather chart, TAFOR, METAR, Wind prognostic chart and conduct briefing accordingly.
 - to assess the condition before commencing takeoff or landing for windshear possibilities.
 - to accordingly implement procedure of the OM-A regarding adverse and potentially hazardous atmospheric conditions, wet runway operation, weather minima.
 - do not hesitate to go-around or delay the approach as necessary which depicted in OM-A.
 - immediately and do not hesitate to report if there is any deviation from normal operation in accordance with the OM-A reporting procedure and CMM chapter IV.
 - always perform good Crew Resource Management (CRM) and maintain situational awareness during all phase of the flight.
2. On 5 October 2022, issued Quality Control Information which included a reminder for all engineer to record discrepancies and mechanical irregularities in the Flight Maintenance Log (FML) in accordance with the Company Maintenance Manual (CMM).
3. On 12 October 2022, issued safety notice to remind all operational personnel to implement the reporting procedure of accident, serious incident, and incident. The notice also described the definition of each occurrence.
4. On 13 October 2022, issued safety notice to remind all pilot of several conditions which required pilot to perform a go around.
5. On 27 October 2022, issued notice to pilot which reminded the procedure to record discrepancies and mechanical irregularities are filed in the FML by pilot.
6. On 28 October 2022, issued Quality Control Information which reminded all engineer of unusual condition that requires unscheduled inspection including a runway excursion event.

3.2 *Angkasa Pura I* branch office Sultan Aji Muhammad Sulaiman Sepinggan International Airport

The airport operator reviewed the existing reporting procedure to ensure accident and serious incident is reported to KNKT with minimum delay and by the most suitable and quickest means available.

3.3 AirNav Indonesia Branch Balikpapan

The Air Traffic Services (ATS) Provider conducted safety briefing to all air traffic controller reminded the reporting procedure especially in the event of serious incident.

4 SAFETY RECOMMENDATIONS

The KNKT acknowledges the safety actions taken by the related parties and considered that the safety action(s) was/were relevant to improve safety, however there still safety issues remain to be considered. Therefore, the KNKT issued safety recommendations to address safety issues identified in this report.

The safety recommendation in this investigation report is made with the intention of preventing accidents or incidents and which in no case has the purpose of creating a presumption of blame or liability for an accident or incident.

4.1 AirNav Indonesia Branch Balikpapan

04.A-2022-14.01

The Advisory Circular (AC) 170-02 chapter 6.6.4 required ATS unit concerned to transmit several information to aircraft at the commencement of the final approach including the current visibility. The chapter 6.6.5 of the AC also required the ATS unit concerned to transmit several information without delay when an aircraft was on final approach, including change in the visibility representative of the direction of approach and landing.

Balikpapan ATS SOP of Aerodrome Control Service (Tower SOP) chapter 2.8.1 stated that air traffic control should provide meteorological information from the meteorological station to pilot if the information was requested by the pilot. However, the chapter 2.8.7 of the SOP also described that meteorological special report must be informed to pilot as soon as possible. AirNav Indonesia branch Balikpapan also developed a procedure for low visibility operation which required tower controller to advise pilot that the visibility was below minima during the first contact or when the aircraft would perform the landing approach. Those inconsistency of procedure might confuse the air traffic controller and the provision of visibility information in accordance with the AC could not be met.

Therefore, KNKT recommends the AirNav Indonesia branch Balikpapan to review the procedure to provide visibility information for ensuring the provision of visibility information was in accordance with the AC 170-02.

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