KOMITE NASIONAL KESELAMATAN TRANSPORTASI
REPUBLIC OF INDONESIA

PRELIMINARY

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Aircraft Serious Incident Investigation Report

Asia Cargo Airlines

Boeing 737-300F; PK-YGV

Syamsudin Noor International Airport, Banjarmasin

Republic of Indonesia

14 August 2022

2022

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, 21 September 2022
KOMITE NASIONAL
KESELAMATAN TRANSPORTASI
CHAIRMAN

SOERJANTO TJAHJONO

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ABBREVIATIONS AND DEFINITIONS

AFML	:	Aircraft Flight Maintenance Log
AIP	:	Aeronautical Information Publication
AMM	:	Aircraft Maintenance Manual
AOC	:	Air Operator Certificate
ARP	:	Aerodrome Reference Point
ATPL	:	Airline Transport Pilot License
ATC	:	Air Traffic Controller
ATS	:	Air Traffic Services
CASR	:	Civil Aviation Safety Regulation
C of A	:	Certificate of Airworthiness
C of R	:	Certificate of Registration
CPL	:	Commercial Pilot License
CVR	:	Cockpit Voice Recorder
FCOM	:	Flight Crew Operation Manual
FDR	:	Flight Data Recorder
LT	:	Local Time
Km	:	Kilometer
KNKT	:	*Komite Nasional Keselamatan Transportasi*
MSN	:	Manufacturer's Serial Number
OM-A	:	Operations Manual Part-A
PF	:	Pilot Flying
PIC	:	Pilot in Command
PM	:	Pilot Monitoring
SIC	:	Second in Command
UTC	:	Universal Time Coordinate

SYNOPSIS

On 14 August 2022, a Boeing 737-300F aircraft, registered PK-YGV was being operated by PT. Tri MG-Intra Asia Airlines (Tri MG) on an unscheduled cargo flight from Soekarno-Hatta International Airport (WAAA/CGK), Jakarta to Syamsudin Noor International Airport (WAOO/BDJ), Banjarmasin. On board of the aircraft were two pilots, one engineer and one flight operation officer. The Pilot in Command (PIC) acted as Pilot Monitoring (PM), and the Second in Command (SIC) acted as Pilot Flying (PF). The flight was uneventful until the aircraft approached Banjarmasin.

During approach, the pilot noticed that the flap indicator needles split indicating asymmetry, and the aircraft tended to roll to the left. The pilot performed a go around and flew to LIBNU point. The pilot attempted to reconfigure the aircraft by recycling the flap lever but the flap asymmetry issue remained. The pilot then performed non-normal landing procedure.

While the asymmetry remained, the pilot decided to land after completed the non-normal checklist by following the Instrument Landing System (ILS) Runway 10. At 0534 UTC, before touchdown, the aircraft rolled to the left. The left wingtip and engine cowling contacted the runway surface. The pilot managed to level the aircraft, touchdown before stopped on the runway and continued taxiing to the apron.

The aircraft was slightly damaged. There were scratches on lower surface of the left engine cowling, lower surface of left slat leading edge and left wing tip. There were also wrinkles and dents on the upper surface of left wing.

In the initial investigation, KNKT found safety issue in recording and reporting system. Therefore, KNKT provided safety recommendation to the aircraft operator to address identified safety issue.

1 FACTUAL INFORMATION

1.1 History of the Flight

On 14 August 2022, a Boeing 737-300F aircraft, registered PK-YGV was being operated by PT Tri MG-Intra Asia Airlines (Tri MG[1]) on an unscheduled cargo flight from Soekarno-Hatta International Airport (WAAA/CGK), Jakarta[2] to Syamsudin Noor International Airport (WAOO/BDJ), Banjarmasin[3].

The flight was the first flight of the day for both pilots. Prior to departure, neither blood pressure test nor alcohol test was performed on the flight crews.

At 0335 UTC[4] (1035 LT), in daylight conditions, the aircraft departed Jakarta and cruised at an altitude of 32,000 feet. On board of the aircraft were two pilots, one engineer and one flight operation officer. The Pilot in Command (PIC) acted as Pilot Monitoring (PM), and the Second in Command (SIC) acted as Pilot Flying (PF). The flight was uneventful until the aircraft approached Banjarmasin.

At 0441 UTC, the pilot made first contact with Banjarmasin Approach Controller, while the aircraft descending passing altitude of 30,000 feet, on radial 255° at 106 Nm from Banjarmasin. The pilot then received clearance to descend to altitude of 3,000 feet direct to LIBNU point.

At 0459 UTC, the pilot reported that the aircraft had intercepted the localizer for approach Runway 10. The Syamsudin Noor Tower controller (the controller) issued landing clearance and informed that the wind was from 050° direction with velocity of 7 knots.

At altitude 1,200 feet, after selecting the flap from position 30 to position 40, the pilot noticed that the flap indicator needles split indicating asymmetry, and the aircraft tended to roll to the left. The pilot performed a go around and flew to LIBNU point. During go around, the pilot attempted to reconfigure the aircraft by recycling the flap lever. The flap asymmetry condition remained with the right needle of the flap position indicator pointed to about 30, and the left needle to about 10. The pilot then performed non-normal checklist trailing edge flap asymmetry and configured the aircraft for landing.

While the asymmetry remained, the pilot decided to land after completed the non-normal checklist by following the Instrument Landing System (ILS) Runway 10. At 0530 UTC the aircraft was on final Runway 10 and received landing clearance from the controller.

1 PT. Tri MG-Intra Asia Airlines will be named as Tri MG for the purpose of this report.

2 Soekarno-Hatta International Airport (WIII/CGK), Jakarta will be named as Jakarta for the purpose of this report.

3 Syamsudin Noor International Airport (WAOO/BDJ), Banjarmasin will be named as Banjarmasin for the purpose of this report.

4 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 is UTC+8 hours.

At 0534 UTC, prior to touchdown, the aircraft rolled to the left. The left wingtip and engine cowling contacted the runway surface. The pilot managed to level the aircraft, touched down and stopped on the runway. Thereafter the pilot continued taxiing to the apron.

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 slightly damaged as illustrated by Figure 1 to Figure 4. There were scratches on lower surface of the left engine cowling. The damage was also found on the left wing as scratches on the lower surface of the slat leading edge and wing tip, wrinkles and dents on the upper surface.

Figure 1 Scratches on lower surface of the left engine cowling

Figure 2 Scratches on the lower surface of the slat leading edge

Figure 3 Scratches on the left wing tip

Figure 4 Wrinkles and dents on the wing upper surface

1.4 Other Damage

There was no other damage to property and/or the environment.

1.5 Personnel Information

1.5.1 Pilot in Command

The PIC was 44 years Indonesian who held valid Airline Transport Pilot License (ATPL) and qualified as Boeing 737 pilot. The PIC also held valid First-class medical certificate with limitation to possess glasses that correct for near vision. The last proficiency check was conducted on 3 June 2022.

The PIC had total flying hour of 7,215 hours 16 minutes, all on Boeing 737 aircraft. The PIC had day-off the day before and flown for 2 hours 30 minutes prior during the occurrence flight.

1.5.2 Second in Command

The SIC was 27 years Indonesian who held valid Commercial Pilot License (CPL) and qualified as Boeing 737 pilot. The SIC also held valid First-class medical certificate without limitation. The last proficiency check was conducted on 1 March 2022.

The SIC had total flying hour of 2,921 hours, on Boeing 737 aircraft. The SIC had day-off the day before and flown for 2 hours 30 minutes prior to the occurrence.

1.6 Aircraft Information

Boeing 737-300F registered PK-YGV is a cargo aircraft manufactured by The Boeing Company with serial number of 24711. At the day of the occurrence, the aircraft has a valid Certificate of Airworthiness (C of A) and Certificate of Registration (C of R).

According to the weight and balance sheet, the aircraft carried 32,674 lbs of payload and 23,000 lbs of fuel. The estimated landing weight was 116,543 lbs, and maximum landing weight of the aircraft was 125,407 lbs.

Since January 2022, there were several maintenance actions regarding flap conducted and mentioned as follows:

- On January 2022, although there were no discrepancies related to the flap recorded in the Aircraft Flight Maintenance Log (AFML), two corrective actions were performed. The inboard mid-flap and flap carriage were replaced due to bend. Four bearings of inboard mid-flap were also replaced due to stuck. The maintenance found satisfied after operational test.
- The aircraft was grounded for lap joint and engine replacement since 14 March to 9 August 2022 in maintenance facilities.
- On 11 August 2022, the aircraft performed flight test to check the engines. During the landing approach, the flaps were reported disagree. The flap indicator needles pointed to about 27, while flap lever was set to 30. Corrective action was carried out by lubricating the screw jack and gear box for all flaps. The aircraft was then released to service.
- On 13 August 2022, after positioning flight to Jakarta, the pilot reported verbally to the engineer that similar flap issue reoccurred during approach. While flap lever was set to 30, the flap indicator needles pointed in between 25-30. Neither the discrepancy nor the corrective actions were recorded in the AFML. In the next two flights, there was no reported problem regarding the flap.

1.7 Meteorological Information

Weather report for Syamsudin Noor International Airport, issued 14 August 2022, indicated that, in the time of occurrence, the weather was cloudy with visibility of 10 km and the wind speed was eight knots coming from 050° direction.

1.8 Aids to Navigation

Ground-based navigation aids and its serviceability were not a factor in this occurrence.

1.9 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 CVR also recorded the communication in the cockpit area.

1.10 Aerodrome Information

The Syamsudin Noor International Airport was operated by the PT Angkasa Pura I. The airport had a runway with direction of 10/28 (127.16°). The runway was 2,500 m in length and 45 m in width with elevation of 66 feet. The Aerodrome Reference Point (ARP) was on coordinate 03°26’23” S 114°45’10” E.

1.11 Flight Recorders

The aircraft was fitted with Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR). The FDR was manufactured by Honeywell with part number 940-4700-042 and serial number 7365. The CVR was manufactured by L3 Communications with part number 2100-1020-02 and serial number 00306284.

Both recorders were transported to the KNKT facility for data processing. Detail of the flight recorders data will be included in the final report.

1.12 Wreckage and Impact Information

On the runway, evidences of the impact were found as follows:

1. About 600 meters from the threshold Runway 10, a 14 meters long scratch mark was found in the left side of the runway centerline approximately 14 meters from the left runway edge as shown on Figure 5.

Figure 5 Fourteen meters long scratch mark on the runway

2. About 700 meters from the threshold runway 10, metal scratch mark with white paint colour was found with the dimension about 2 meters in length and 50 centimeters in width as shown on Figure 6.

Figure 6 Two meters long scratch mark on the runway

1.13 Medical and Pathological Information

No medical or pathological investigations were conducted as a result of this occurrence.

1.14 Fire

There was no evidence of fire in-flight or after the aircraft impacted runway.

1.15 Tests and Research

Should any tests or researches be carried out due to the occurrence, the result will be included in the final report.

1.16 Organizational and Management Information

The aircraft was being operated by Tri MG-Intra Asia Airlines which held valid operator certificate with AOC number of 121-018. The procedures and policies described on company manual relevant to the occurrence were described as follows.

1.16.1 Trailing Edge Flap Asymmetry

Trailing edge flap asymmetry condition is described on Flight Crew Operation Manual (FCOM) Doc D6-27370-33A-TMG page 9.20.21 as follows:

> *When a trailing edge asymmetry develops, a comparator switch closes the TE flap bypass valve, removing hydraulic power from the flap drive unit. The flap position will be displayed as a needle split on the flap position indicator.*

1.16.2 Landing Procedure

In order to configure the aircraft for landing under trailing edge flap asymmetry condition, the pilot must perform the procedure stated on FCOM Doc D6-27370-3H4-TMG page 9.28 to 9.30 as follows:

1. *Set flap lever to the nearest detent that is equal to or less than the smallest indicated flap position*

   Caution! Do not attempt to move the trailing edge flaps with the ALTERNATE FLAPS switch because there is no asymmetry protection

   Note: Do not use FMC performance predictions with any flaps or slats extended.

2. *Choose one:*

   - *Flap lever is set to 30:*

     Set VREF 30.

     Note: VREF + wind additive must not exceed the flap placard speed for flaps 40.

     >> Go to step 3.

   - *Flap lever is set to 15 or 25:*

     Set VREF 15.

     Note: VREF + wind additive must not exceed the flap placard speed for the next larger flap setting.

     >> Go to step 3.

   - *Flap lever is set to 1 or greater and less than 15:*

     Set VREF 40 + 30 knots.

     Note: VREF + wind additive must not exceed the flap placard speed for flaps 40.

     >> Go to step 3.

   - *Flap lever is set to UP:*

     >> Go to the Trailing Edge Flaps Up Landing checklist.

3. *Check the Non-Normal Configuration Landing Distance table in the Advisory Information section of the Performance Inflight chapter.*

4. *Checklist Complete Except Deferred Items.*

1.16.3 Responsibility of Command

The responsibilities of PIC after flight are stated Operations Manual Part-A (OM-A) Doc TMG-OM-01-ORG page 1-30 as follows:

1.4.3.5 THE PILOT-IN-COMMAND SHALL ENSURE AFTER THE FLIGHT THAT:

a) The flight plan or flight note is closed as applicable.

b) All known or suspected defects of the aircraft that have come to his/her knowledge during the course of the flight are entered in the Aircraft Maintenance Log.

c) The Aircraft Flight Log book is brought up to date.

d) Any special reports (Trip Report) such as the Operational Irregularity Report or any other report required by the Company are completed and submitted to Chief Pilot.

1.16.4 Aircraft Flight Maintenance Log

The company OM-A page 8-120:

The following should be stated in the Aircraft Flight Maintenance Log (AFML):

a) All technical complaints and remarks about the aircraft, its systems and equipment irrespective of the duration of their occurrence (continuous intermittent or momentary)

b) Corrective actions taken

c) Type of inspection performed, on the least slip of the previous stretch.

The use of AMFL by flight crew is regulated in page 8-121 stated as follows:

8.1.8.1. USE OF AIRCRAFT FLIGHT MAINTENANCE LOGBOOK BY FLIGHT CREW

a) The PIC is responsible for completing the AFML. However, he may delegate this to another crewmember.

b) Prior to departure, the flight crew will verify that the aircraft maintenance logbook is onboard the aircraft, that it contains a sufficient number of pages for the scheduled flights and the AFML is match with the aircraft MSN.

c) Prior to departure, the flight crew will review the AFML for corrective action taken on prior flight irregularities, type of service performed and airworthiness release, when required. At this time, any aircraft placards mentioned on the logbook will be reviewed for information and compliance with the Minimum Equipment List. If the airworthiness requirements of the

Minimum Equipment List are not satisfied, he will request that the condition be corrected.

d) *Discrepancies will be recorded in the AFML. Reporting limited to a verbal reporting to maintenance personnel is unacceptable.*

e) *One Pilot Report entry per system defect will be made. Each entry must contain sufficient details to assist maintenance personnel in making the necessary corrective action(s). The PIC must sign each flight crew entry.*

Any entry made by maintenance personnel in the AFML must be signed by the PIC.

The AFML should not be used only to report observed aircraft system malfunctions and should be used also to inform maintenance and to launch maintenance action in case of potential damage or potential degradation of the aircraft, such as in case of lightning strike, unusual noise, unusual vibrations, smells, etc.

In case of suspected hard landing by the crew, the captain must make an entry into the AFML.

Such report must be encouraged for obvious safety reasons and Asia Cargo Airlines non-punitive policy must be applied.

1.17 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.

1.18 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[5]

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

1. The aircraft had valid Certificate of Airworthiness (C of A) and Certificate of Registration (C of R).
2. Both pilots held valid licenses and medical certificates.
3. The Air Traffic Controller held valid license and medical certificates.
4. The Pilot in Command (PIC) acted as Pilot Monitoring (PM) and the Second in Command (SIC) acted as Pilot Flying (PF).
5. Prior to landing, the flight was uneventful. On its final approach, asymmetric flap condition happened. The pilot performed a go-around and flew to LIBNU point. During go-around, the pilot attempted to reconfigure the aircraft by recycling the flap lever.
6. The flap asymmetry condition remained. The needle indicator pointed to around 30 for the right and 10 for the left flap. The pilot then performed Non-Normal Checklist Trailing Edge Flap Asymmetry and configured the aircraft for landing on runway 10.
7. During touchdown, the aircraft rolled to the left. The left wingtip and engine cowling contacted the runway surface. The pilot managed to level the aircraft then stopped on the runway and continued taxiing to the apron.
8. Scratches were found on the left wing, engine cowling, and runway surface marking the contacted area.
9. There were no one injured in this occurrence.
10. On the flight test, three days before the occurrence, the flaps reported disagree as the lever was set to 30, the indicator needles pointed in between 25-30. The issue recorded in the AFML and corrective action was taken by lubricating the screw jack and gear box for all flaps.
11. During repositioning flight, the flaps problem reoccurred and the pilot reported verbally to the engineer. Neither the discrepancy nor the corrective action was recorded in the AFML. In the next two flights, there was no problem with the flap.

5 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.

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

In this Preliminary Report, KNKT issued safety recommendation to address the issues emerge during the course of the preliminary investigation. The safety recommendation 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 Tri-MG Intra Asia

- **04-O-2022-12-1**

  During the preliminary investigation, KNKT found several flap issues prior to the occurrence. However, the discrepancies and corrective actions taken were not always recorded in the Flight Maintenance Log. The absence of detail in pilot report allowed the flap problem remained unsolved. The Operational Manual mentioned that the PIC shall ensure to record all known/suspected defects during the course of the flight and report any operational irregularity. The procedure also mentioned that verbal reporting to maintenance personnel is unacceptable.

  Accordingly, KNKT recommends Tri-MG Intra Asia to encourage the implementation of reporting system by all company employees.