



**KOMITE NASIONAL KESELAMATAN TRANSPORTASI
REPUBLIC OF INDONESIA**

PRELIMINARY

KNKT.17.10.31.04

Aircraft Accident Investigation Report

PT. Batik Air

Boeing 737-800; PK-LBY

Inflight from Jakarta to Medan

Republic of Indonesia

24 October 2017



2017

This Preliminary Report was produced 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.

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

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

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

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

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

TABLE OF CONTENTS

TABLE OF CONTENTS	i
TABLE OF FIGURES	iii
ABBREVIATIONS AND DEFINITIONS	iv
SYNOPSIS	v
1 FACTUAL INFORMATION	1
1.1 History of the Flight.....	1
1.2 Injuries to Persons.....	2
1.3 Damage to Aircraft	3
1.4 Other Damage	4
1.5 Personnel Information	4
1.5.1 Pilot in Command.....	4
1.5.2 Second in Command	5
1.5.3 Flight Attendant.....	5
1.6 Aircraft Information.....	6
1.6.1 General	6
1.6.2 Engines	6
1.6.3 Weather Radar Systems.....	7
1.7 Meteorological Information.....	7
1.8 Aids to Navigation.....	10
1.9 Communications.....	10
1.10 Aerodrome Information	11
1.11 Flight Recorders.....	11
1.11.1 Flight Data Recorder	11
1.11.2 Cockpit Voice Recorder	12
1.12 Wreckage and Impact Information	12
1.13 Medical and Pathological Information	12
1.14 Fire.....	12
1.15 Survival Aspects	12
1.16 Tests and Research	13
1.17 Organizational and Management Information.....	13
1.17.1 PT. Batik Air Indonesia.....	13
<i>1.17.1.1 Operation Manual</i>	14

1.17.1.2	<i>Flight Crew Operations Manual</i>	17
1.17.1.3	<i>Safety Emergency Procedures Manual</i>	18
1.18	Additional Information	20
1.19	Useful or Effective Investigation Techniques	20
2	FINDINGS	21
3	SAFETY ACTION	22
3.1	PT. Batik Air.....	22
4	SAFETY RECOMMENDATIONS	23
5	APPENDICES	24
5.1	Safety Circular	24

TABLE OF FIGURES

Figure 1: the flight route and the area of turbulence as recorded on the FDR.....	2
Figure 2: Dropped oxygen mask.....	3
Figure 3: Damaged Passenger Service Unit.....	3
Figure 4: Broken Aft Lavatory Ceiling.....	4
Figure 5. Prognosis Chart FL 250-630 valid for 24 October 2017 at 1200 UTC (highlighted blue).....	7
Figure 6: Wind direction around the occurrence area (red circle)	8
Figure 7: satellite image at 0900 UTC.....	9
Figure 8: satellite image at 1000 UTC.....	9
Figure 9: satellite image at 1100 UTC.....	10
Figure 10: relevant parameter of the FDR	11

ABBREVIATIONS AND DEFINITIONS

AOC	:	Airline Operator Certificate
ATC	:	Air Traffic Control
ATPL	:	Airline Transport Pilot License
BMKG	:	<i>Badan Meteorologi Klimatologi Geofisika</i> / Meteorological Climatological and Geophysics Agency
C of A	:	Certificate of Airworthiness
C of R	:	Certificate of Registration
CVR	:	Cockpit Voice Recorder
FA	:	Flight Attendant
FCOM	:	Flight Crew Operation Manual
FDR	:	Flight Data Recorder
FL	:	Flight Level
ft	:	Feet
ICAO	:	International Civil Aviation Organization
Km	:	Kilometer
KNKT	:	Komite Nasional Keselamatan Transportasi
LT	:	Local Time
OCC	:	Operation Control Center
PF	:	Pilot Flying
PIC	:	Pilot in Command
PM	:	Pilot Monitoring
QRH	:	Quick Reference Handbook
SIC	:	Second in Command
TAFOR	:	Terminal Aerodrome Forecast
TMA	:	Terminal Maneuvering Area
UTC	:	Universal Coordinated Time
VHF	:	Very High Frequency

SYNOPSIS

On 24 October 2017, an Boeing 737-800 aircraft, registered PK-LBY, was being operated by Batik Air as a passenger scheduled flight from Soekarno-Hatta International Airport (CGK/WIII) Jakarta to Kualanamu International Airport (KNO/WIMM), Medan, North Sumatera, Indonesia. The aircraft departed from Jakarta at 1525 LT (0825 UTC) on daylight condition.

During flight preparation, the pilot noticed that the weather forecast for Medan indicated possibility of thunderstorm and visibility 4 km.

On board of this flight were two pilots, five cabin crew and 114 passengers. The Pilot in Command (PIC) was Pilot Flying (PF) while the Second in Command (SIC) was Pilot Monitoring (PM). The aircraft cruised at altitude 36,000 feet or flight level (FL) 360 via route W12.

During descend, the pilot turned the aircraft to avoid clouds and when noticed potential turbulence and the SIC turned the fasten seat belt sign on.

At 0959 UTC, the aircraft encountered severe turbulence and the autopilot disengaged unintentionally. The turbulence lasted for approximately 20 seconds. The vertical acceleration recorded on the Flight Data Recorder (FDR) was between 2.334 G and -0.482 G at altitude approximately 24,500 feet. The pilot flew manually for 17 seconds, continued descend and reengaged the autopilot.

After the turbulence, the flight attendants (FA) check the cabin condition and found one passenger injured in the aft lavatory and FA-5 injured on the aft galley. FA-4 perform medical announcement two times and there was no medical expert onboard of this flight. FA-3 communicated with the pilot informing the cabin condition and injured occupants.

The aircraft continued descend and the pilot communicated with air traffic controller to avoid clouds and was informed that the flight on sequence number 4 for landing .

The pilot contacted the company operation personnel informed that the aircraft encountered severe turbulence and two occupants were injured and requested medical assistance on arrival.

The aircraft landed safely in Kualanamu and the injured occupants were transported to the airport health facility then transferred to the nearest hospital outside the airport.

KNKT had been informed safety actions taken by the Batik Air resulting from this occurrence and KNKT considered that the safety actions were relevant to improve their operational safety.

1 FACTUAL INFORMATION

1.1 History of the Flight

On 24 October 2017, a Boeing 737-800 aircraft, registered PK-LBY, was being operated by Batik Air as a passenger scheduled flight from Soekarno-Hatta International Airport (CGK/WIII) Jakarta to Kualanamu International Airport (KNO/WIMM), Medan, North Sumatera², Indonesia.

During flight preparation, the pilot noticed the weather forecast (TAFOR) possibility of thunderstorm at Medan area and the visibility 4 km.

The aircraft departed from Jakarta at 0825 UTC (1525 LT) on daylight condition. On board of this flight were two pilots, five cabin crew and 114 passengers. The Pilot in Command (PIC) acted as Pilot Flying (PF) while the Second in Command (SIC) acted as Pilot Monitoring (PM). The aircraft cruised at altitude 36,000 feet or flight level (FL) 360 via route W12.

At 0942 UTC, the pilot received clearance to fly direct to point MEDIA. At 0947 UTC, the pilot requested to change heading to 320° subsequently to heading 340° in order to avoid weather and it was approved by the Jakarta controller.

At 0949 UTC the pilot received clearance to descend to 22,000 feet (FL 220). At 0956 UTC the pilot requested to change heading to 290°, then the Jakarta controller instructed the pilot to contact Medan Terminal Maneuvering Area (TMA) controller.

At 0958 UTC, the pilot established communication with Medan TMA controller and instructed to continue heading and descend to FL180 subsequently to continue descent to FL 150.

The pilot noticed potential turbulence and the SIC turned the fasten seat belt sign on.

At 0959 UTC, the aircraft encountered severe turbulence³ and the autopilot disengaged. The turbulence lasted for approximately 20 seconds. The vertical acceleration recorded on the Flight Data Recorder (FDR) was between 2.334 G and -0.482 G at altitude approximately 24,500 feet. The pilot flew manually for 17 seconds, continued descend and reengaged the autopilot.

After the turbulence, the flight attendants (FA) check the cabin condition and found one passenger injured in the aft lavatory and FA-5 injured on the aft galley. FA-4 perform medical announcement two times and there was no medical expert onboard of this flight. FA-3 communicates with the pilot about the cabin condition and injured occupants.

The aircraft continued descend and the pilot communicate with air traffic controller to avoid clouds and was informed that the flight on sequence number 4 for landing.

At 1010 UTC, the pilot contacted the company operation personnel informed that the aircraft encountered severe turbulence, two occupants on board were injured and

² Kualanamu International Airport (KNO/WIMM), Medan, North Sumatera will be named as Kualanamu for the purpose of this report

³ Severe turbulence is large, abrupt changes in altitude and/or attitude. Usually causes large variation in airspeed. Refer to IATA Guidance for Turbulence Management.

request medical assistance on arrival.

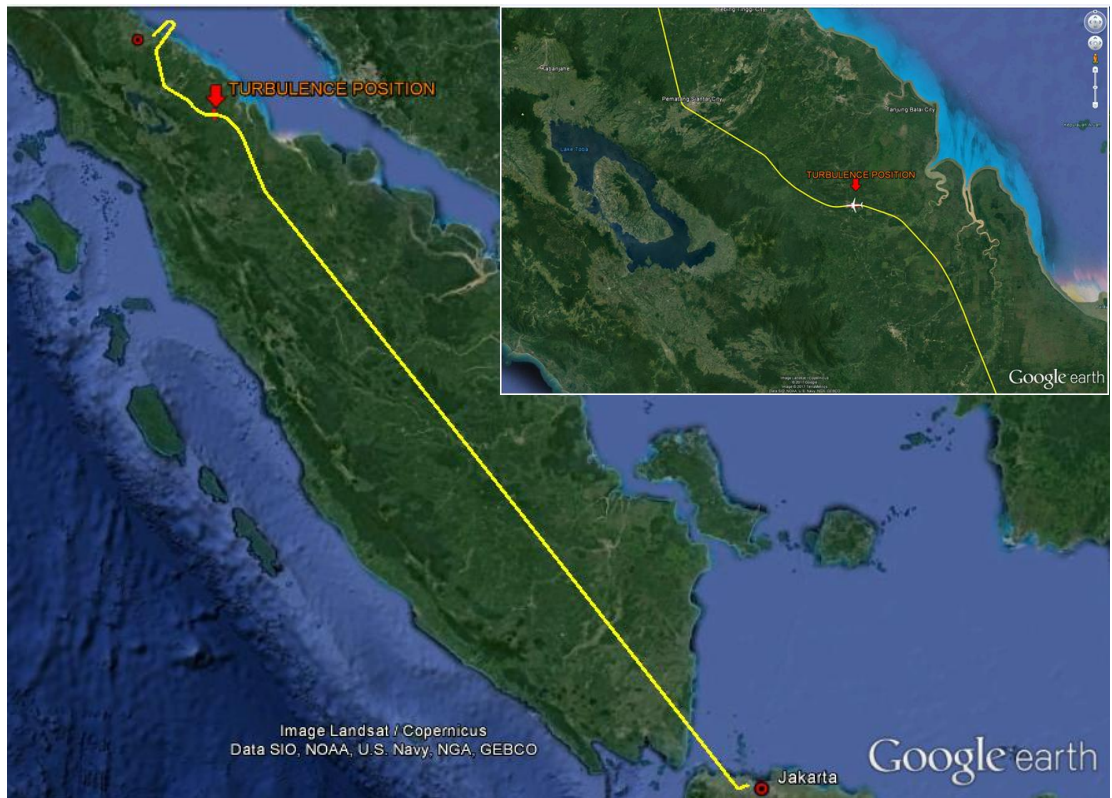


Figure 1: the flight route and the area of turbulence as recorded on the FDR

At 1026 UTC, the aircraft landed then taxi to the apron and stop at parking stand number 30. The non-injured occupants were disembarked normally and the injured occupants were transported to the airport health facility then transferred to the nearest hospital outside the airport.

1.2 Injuries to Persons

Injuries	Flight crew	Passengers	Total in Aircraft	Others
Fatal	-	-	-	-
Serious	1	1	2	-
Minor	1	-	1	-
None	5	113	118	-
TOTAL	7	114	121	-

Table below shows the sustained injuries occupants:

Occupants	Diagnose
FA-2	Minor injury with bruises on the forehead and wounds on the hand
FA-5	Fracture on the left leg.
Passenger	Cervical disc disorder with myelopathy and fracture on cervical vertebra.

1.3 Damage to Aircraft

Several interior parts damaged such as misalignment of left aft entry ceiling, broken ceiling on the left aft lavatory, oxygen mask container dropped and broken passenger service units. The damaged passenger service units found on passenger seat number 24A, 24B, 24C, 25D, 25E, 25F.



Figure 2: Dropped oxygen mask



Figure 3: Damaged Passenger Service Unit



Figure 4: Broken Aft Lavatory Ceiling

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

Gender : Male
Age : 28 years
Nationality : Indonesian
Marital status : Married
Date of joining company : 1 August 2014
License : ATPL
Date of issue : 21 December 2010
Aircraft type rating : Boeing 737 NG
Instrument rating validity : 31 August 2018
Medical certificate : First Class
Last of medical : 17 May 2017
Validity : 31 January 2018
Medical limitation : None
Last line check : 3 May 2017
Last proficiency check : 30 August 2017

Flying experience

Total hours : 4,534 Hours
Total on type : 4,534 Hours
Last 90 days : 254 Hours
Last 30 days : 68 Hours

Last 7 days : 0 Hours
Last 24 hours : 0 hours
This flight : 2 Hours 20 minutes

1.5.2 Second in Command

Gender : Male
Age : 38 years old
Nationality : Indonesian
Marital status : Married
Date of joining company : 7 April 2014
License : CPL
 Date of issue : 15 December 2010
 Aircraft type rating : Boeing 737 NG
Instrument rating validity : 30 November 2017
Medical certificate : First Class
 Last of medical : 7 August 2017
 Validity : 28 February 2018
 Medical limitation : None
Last line check : 11 February 2017
Last proficiency check : 20 November 2016

Flying experience

Total hours : 2,152 Hours
Total on type : 2,152 Hours
Last 90 days : 164 Hours
Last 30 days : 68 Hours
Last 7 days : 9 Hours 35 minutes
Last 24 hours : 0 Hours
This flight : 2 Hours 20 minutes

1.5.3 Flight Attendant

All flight attendants held valid Flight Attendant certificates and medical certificate.

1.6 Aircraft Information

1.6.1 General

Registration Mark	: PK-LBY
Manufacturer	: Boeing
Country of Manufacturer	: United States of America
Type/Model	: Boeing 737-800
Serial Number	: 39833
Year of Manufacture	: 2015
Certificate of Airworthiness	
Issued	: 6 March 2017
Validity	: 5 March 2018
Category	: Transport
Limitations	: None
Certificate of Registration	
Number	: 3622
Issued	: 29 June 2016
Validity	: 28 September 2019
Time Since New	: 7,259 Hours
Cycles Since New	: 4,730 Cycles
Last Major Check	: -
Last Minor Check	: 21 October 2017 (phase 8)

1.6.2 Engines

Manufacturer	: General Electric
Type/Model	: CFM56-7B24E
Serial Number-1 engine	: 661678
▪ Time Since New	: 7,259 Hours
▪ Cycles Since New	: 4,730 Cycles
Serial Number-2 engine	: 660758
▪ Time Since New	: 7,259 Hours
▪ Cycles Since New	: 4,730 Cycles

There was no abnormality of aircraft system reported and recorded before the accident.

1.6.3 Weather Radar Systems

The aircraft equipped with the RDR-4000 Multiscan Radar system. The radar system was serviceable at the time of the accident. The detail description of the radar system will be described in the final report.

1.7 Meteorological Information

Weather information provided by Meteorological Climatology and Geophysical Agency (*Badan Meteorologi Klimatologi dan Geofisika/BMKG*) utilized by the aircraft operator for the dispatch documents including prognosis chart, satellite image and wind/temperature chart.

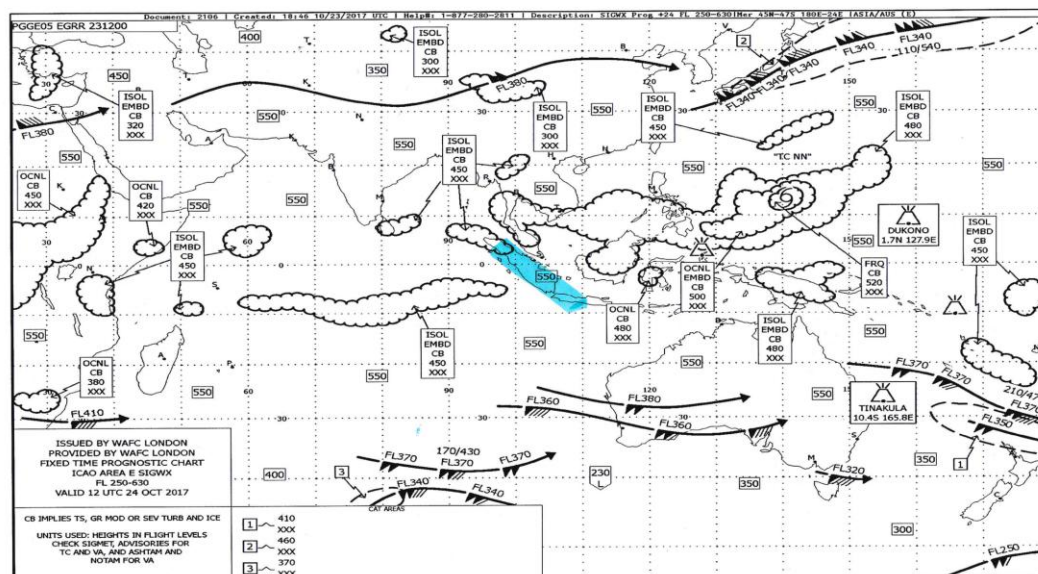


Figure 5. Prognosis Chart FL 250-630 valid for 24 October 2017 at 1200 UTC (highlighted blue)

The forecast weather from prognosis chart showed that on the area of turbulence event (red circle) was forecasted to have potential development of isolated embedded cumulonimbus clouds which may develop up to above 45,000 feet (FL 450).

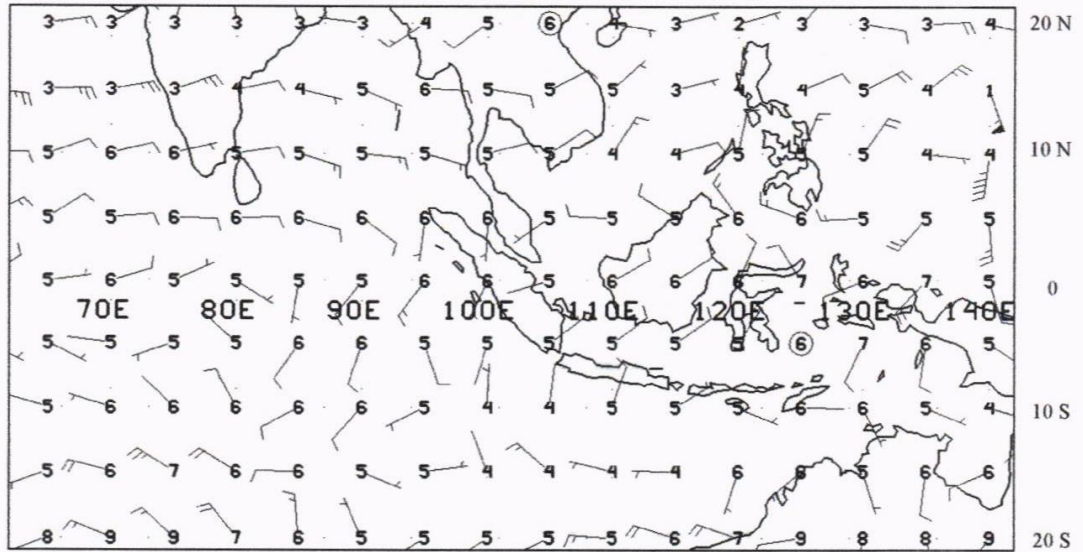
Weather information collected from BMKG during investigation showed that:

- At altitude of 10,000 to 25,000 feet, there was potential development of cumulonimbus cloud which covered less than 50 percent of area west Sumatra, Pekanbaru, north Sumatra and Aceh with validity at 0600 UTC until 1200 UTC.
- At altitude of 16,000 to 19,500 feet, the wind was from easterly with velocity of 10 knots in the area of south Sumatra and from southwesterly with velocity of 5 knots in the area of north Sumatra. Temperature was -5° up to -6° C.
- At altitude 22,000 to 28,000 feet, the wind was from easterly up to southerly with velocity of five up to twenty knots in the area of Sumatra and temperature was -15° up to -16° C.
- At altitude 29,000 to 31,000 feet, the wind was from easterly up to southeasterly with velocity of five up to twenty knots in the area of Sumatra and temperature was -30° up to -32° C.



WIND 500 HPa (16.000' – 19.500')

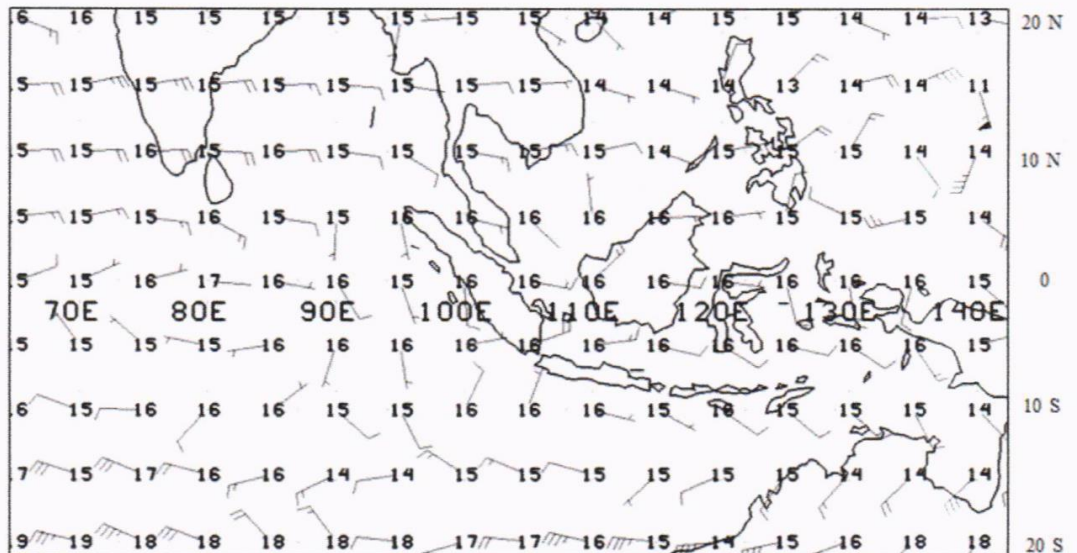
Valid 18.00 UTC October 24, 2017 Issued October 24, 2017 at 06.00 UTC



Source : WAFc (World Area Forecast Center) ICAO Area E

WIND 400 HPa (22.000' – 28.000')

Valid 18.00 UTC October 24, 2017 Issued October 24, 2017 at 06.00 UTC



Net Office Kuala Lumpur Airport, Medan, Indonesia

Source : WAFc (World Area Forecast Center) ICAO Area E

Figure 6: Wind direction around the occurrence area (red circle)

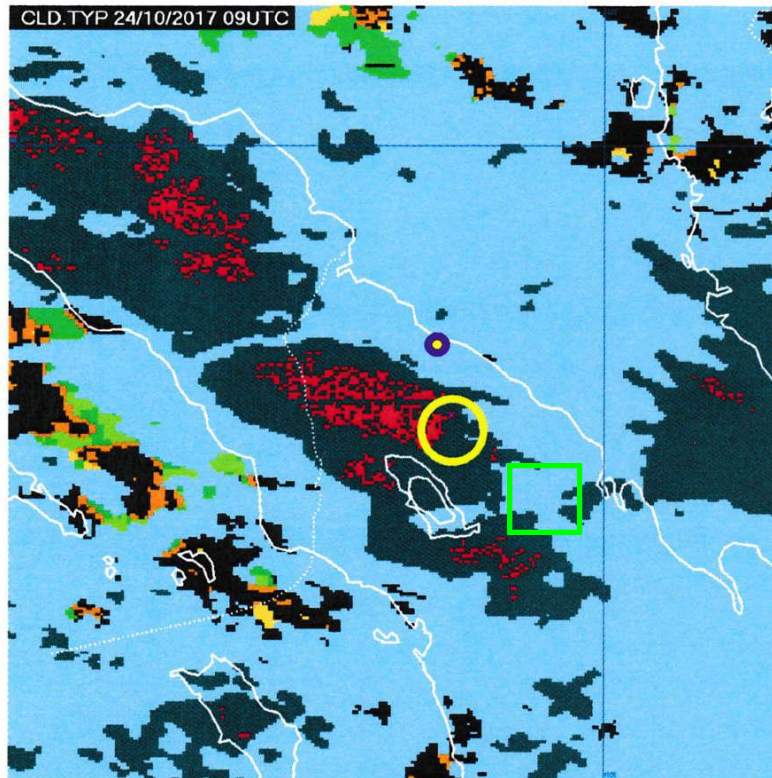


Figure 7: satellite image at 0900 UTC

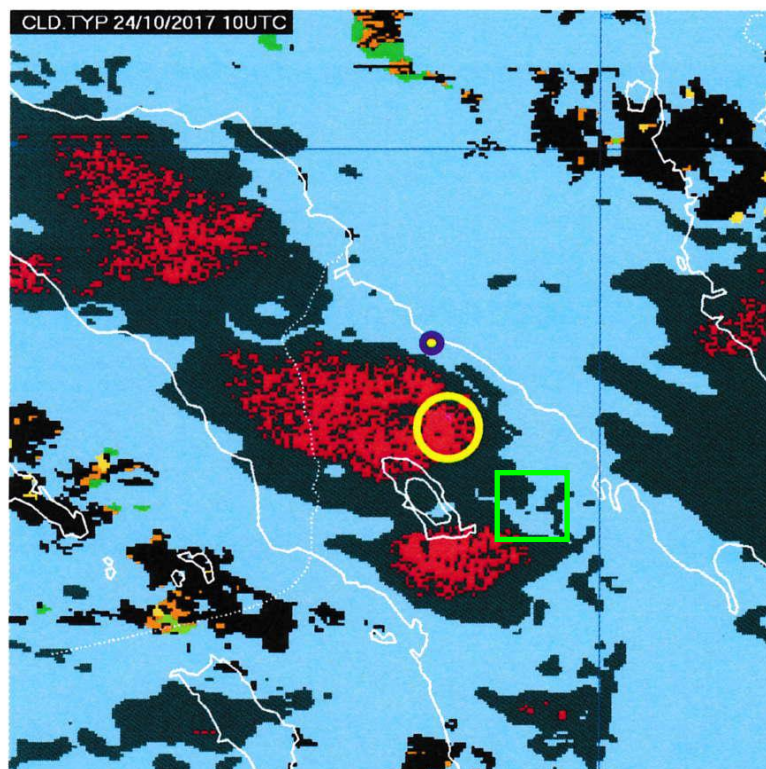


Figure 8: satellite image at 1000 UTC

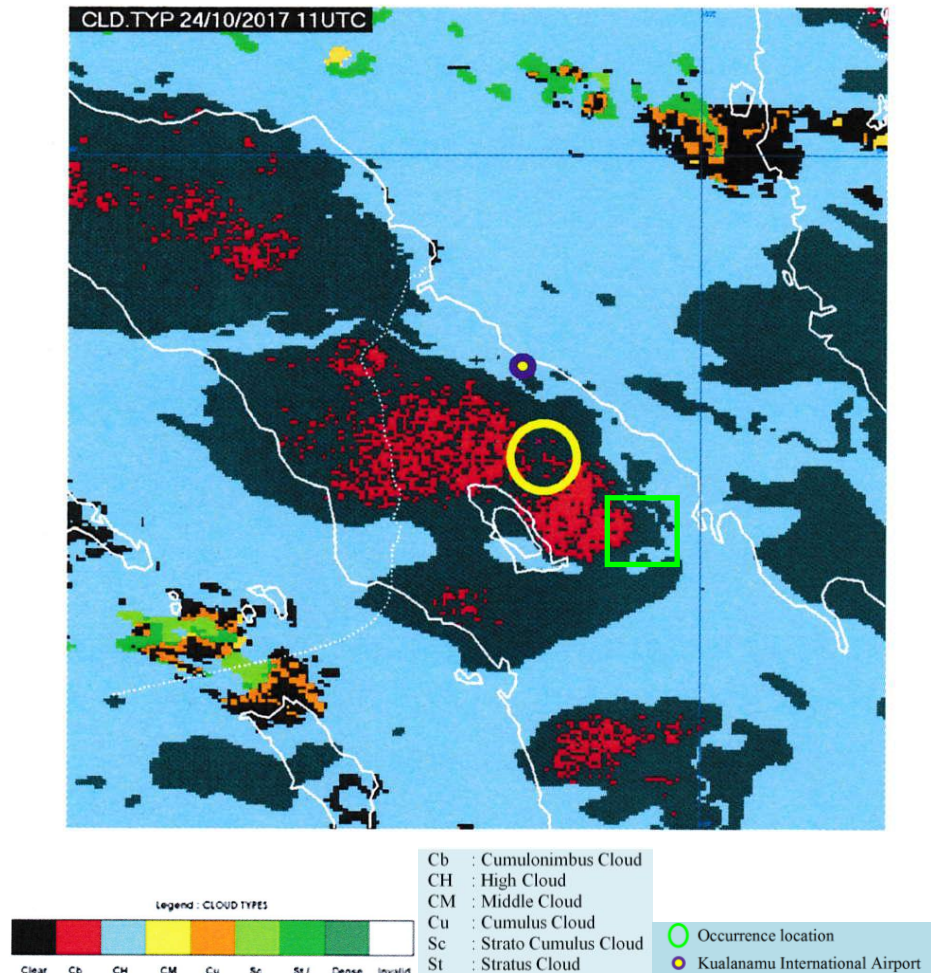


Figure 9: satellite image at 1100 UTC

The satellite images were provided by BMKG indicated that at surrounding area including the accident site (red square) at 0900 UTC, 1000 UTC and 1100 UTC was cloudy with development of cumulonimbus and high clouds.

1.8 Aids to Navigation

Ground-based navigation aids, onboard navigation aids, aerodrome visual ground aids and their serviceability were not a factor in this occurrence.

1.9 Communications

The aircraft was equipped with Very High Frequency (VHF) radio communication systems. All communications between ATS and the crew were recorded by ground based automatic voice recording equipment and Cockpit Voice Recorder (CVR) for the duration of the flight. The quality of the aircraft's recorded transmissions was good.

After the turbulence encounter, the pilot informed the company operation staff in Kualanamu via company radio communication frequency, informed that the aircraft encountered severe turbulence, two occupants injured and requested medical

assistance on arrival.

The pilot did not inform to Air Traffic Controller regarding the severe turbulence encounter and the injured occupants.

1.10 Aerodrome Information

The Kualanamu airport operated by PT. Angkasa Pura II. The airport has Airport Health Facility and the hospital located at about 20 km from the airport.

1.11 Flight Recorders

1.11.1 Flight Data Recorder

The aircraft was equipped with a Honeywell solid state Flight Data Recorder (FDR) with the information as follows:

Manufacturer : Honeywell
Type/Model : HFR5-D
Part Number : 980-4750-009
Serial Number : 03544

The FDR was successfully downloaded at the KNKT facility. The relevant parameters of the occurrence showed on figure below:

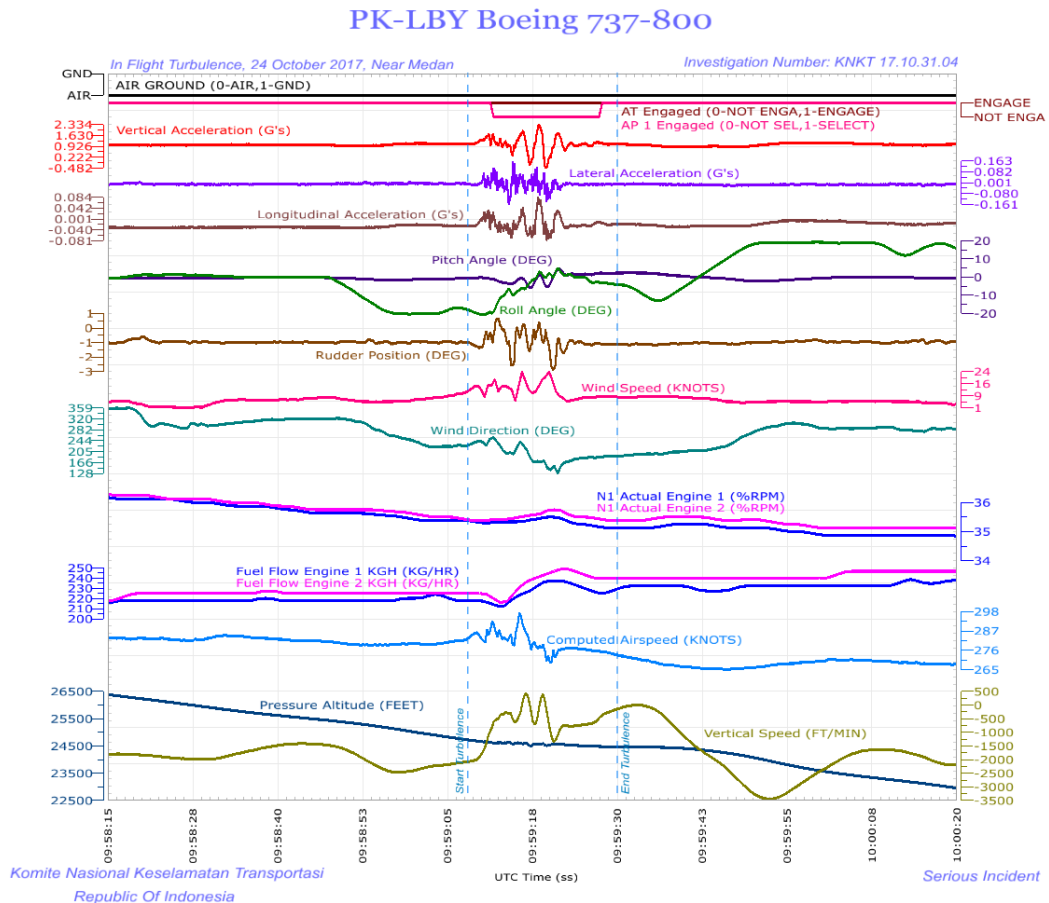


Figure 10: relevant parameter of the FDR

1.11.2 Cockpit Voice Recorder

The aircraft was equipped with Honeywell CVR with the information as follows:

Manufacturer : Honeywell
Type/Model : SSCVR
Part Number : 980-6022-001
Serial Number : 16246

The CVR was successfully downloaded at KNKT recorder facility. The CVR information useful to the investigation was limited due to the communication at the time of accident has been over written.

The relevant information taken from the CVR will be included in the final report.

1.12 Wreckage and Impact Information

Some damaged to the interior parts of the aircraft found in the aft cabin area such as passenger service unit broken on the passenger seat row 24 and 25, oxygen mask container dropped and misalignment of the cabin ceiling on the lavatory and aft cabin.

1.13 Medical and Pathological Information

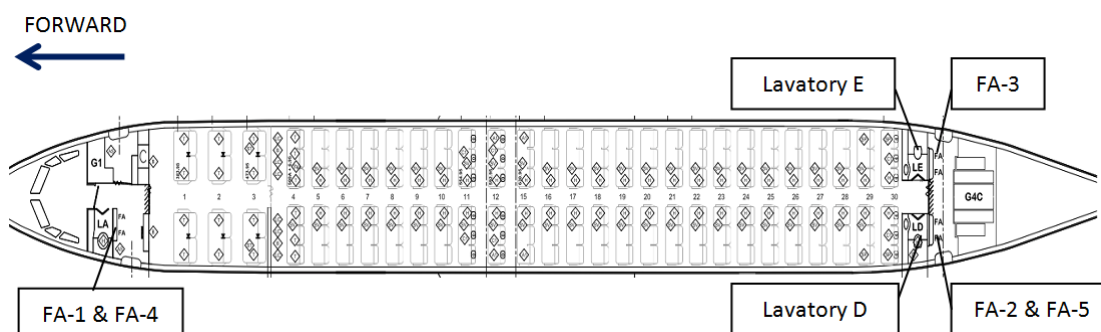
No medical or pathological investigations were conducted as a result of this occurrence.

1.14 Fire

There was no evidence of fire.

1.15 Survival Aspects

The FA-1 and FA-4 positions were in forward area and the FA-2, FA-3 and FA-5 were in aft area.



After received command from the PIC to prepare for arrival, FA-3 check the cabin condition. Two passengers observed entering lavatory D and E on the aft cabin. After several minutes, fasten seat belt sign illuminated, then followed by the aircraft experienced severe turbulence.

FA-1 and FA-4 immediately seated on their seat in the forward galley then FA-4 performed the announcement of weather encounter. FA-3 took seat immediately on a vacant passenger seat then fastened the seatbelt. FA-2 and FA-5 seated on their seat on the aft cabin and did not use seatbelt at that time of turbulence. FA-2 was unable to reach the interphone to perform the weather announcement.

FA-2 could not recall the memory of the event during the turbulence. After turbulence, FA-2 was lying on the floor on the aft galley and FA-5 seated next to the aft right (4R) door. FA-2 approached FA-5 and tried to calm her down. Then FA-2 checked the aft lavatory and found a passenger was on squatting position on the lavatory floor in the lavatory D. The FA 2 then assisted the passenger to seat on the toilet bowl. FA-2 found a passenger on lavatory E on position with head on the floor and foot standing on the wall. FA-2 assisted by other passenger move the passenger to the far aft aisle since the body could not be moved.

FA-1 check the cabin condition followed by FA-3 and found FA-2 assisted the injured passenger from the lavatory E. FA-2 informed that the FA-5 was injured on the aft galley, then FA-1 came up to FA-5 and calm her down then communicated with FA-4 via interphone and instructed to perform medical announcement. FA-4 announces two times and there was no medical expert onboard of this flight. FA-3 communicated with the pilot about the cabin condition and injured occupants.

At 1010 UTC, the pilot contacted the company operation personnel and informed that the aircraft encountered severe turbulence and there were two occupants on board were injured and request medical assistance on arrival.

During approach and landing with the acknowledgment of the PIC, FA-5 seated on the floor since she could not be able to move her body and hold by FA-3 which was seated on the floor. FA-2 was seated on the floor to hold the injured passenger on the aft aisle.

After landed, uninjured passengers disembarked normally using stairs. After disembarkation, injured occupants were evacuated by medical assistance team using stretcher and transported to Airport Health Facility. At 1100 UTC, the injury occupants arrived at airport health facility.

At 1125 UTC, after medical assessment by the medical team, the injury occupants were transferred to the hospital in Medan city, located at approximately 20 km from the airport and arrived at 1210 UTC.

1.16 Tests and Research

Any test and research conducted for this investigation will be included in the final report.

1.17 Organizational and Management Information

1.17.1 PT. Batik Air Indonesia

The aircraft was operated by PT. Batik Air Indonesia (Batik Air). The operator had a valid Air Operator Certificate (AOC) number 121-050. The aircraft operator office address was Lion Office Building B 2nd floor, Lion City Talaga Bestari, Balaraja, Tangerang, Indonesia.

Batik Air had several manuals that were approved by the Directorate General of Civil

Aviation. The following are the relevant excerpts taken from operator manuals.

1.17.1.1 Operation Manual

8.3.2.4.3 WEATHER DEVIATION PROCEDURE

Weather deviation should be planned early. Wherever possible, plan an avoidance path for all weather echoes which appear beyond 100 NM since this indicates they are quite dense. The most intense echoes indicate severe thunderstorms. Hail may fall several miles from the cloud, and hazardous turbulence may extend as much as 20 NM from the cloud. The most intense echoes should be avoided by at least 20 NMs, if possible and preferably on the upwind side. You should not deviate downwind unless absolutely necessary. The chances of encountering severe turbulence and damaging hail are greatly reduced by selecting the upwind side of a storm.

As echoes diminish in intensity the distance by which they should be avoided may be reduced.

8.3.2.4.4 EN-ROUTE WEATHER MONITORING

Flight crew must maintain situational awareness with respect to weather conditions at all times. During en-route phase, flight crew must monitor weather information during the en-route phase of flight, to include current weather reports and forecasts as applicable for:

- *Destination airport;*
- *Destination alternate airport(s);*
- *En-route alternate airports(s).*

8.3.13.1.5 PRECAUTIONARY PROCEDURE TO AVOID THUNDERSTORM

If the flight inadvertently flies into or is unable to avoid a thunderstorm, the flight crew should:

- *Disengage the autopilot, unless recommended or otherwise approved for use in turbulence;*
- *Fly at the recommended speed for turbulence penetration and set power accordingly;*
- *Use anti-icing equipment;*
- *Warn PAX and flight attendants to fasten seat belts well before entering possible turbulence area;*
- *Fly attitude and avoid large control corrections. Be prepared for and anticipate turbulence.*

8.3.13.3.3 PROCEDURES IN CASE OF TURBULENCE ENCOUNTER

Moderate to severe turbulence may be expected under the following weather conditions:

- *Inside and close to thunderstorm cells;*
- *Close to frontal surface;*
- *In mountain wave or dynamic gravity waves (even in the absence of lenticular clouds).*

If moderate to severe turbulence is expected, it is advisable to select a cruise level below the maximum operating altitude in order to increase the buffet margin. Flap and gear extension should be delayed as long as possible since the aircraft structure can withstand higher g-loads in the clean configuration.

“Fasten seat belt” signs should be on prior to entering the area of known or forecasted turbulence. Turns will increase ‘g-loading’. Avoid making turns and if necessary use the lowest possible bank angle.

Adjust power/thrust to maintain the required rough airspeed. The Autopilot is the best means for aircraft control in severe turbulence. In manual flight, trim the aircraft for the required speed, after that do not change stabilizer position. Control the aircraft with the elevator. Avoid large elevator inputs. Ride out the turbulence and allow altitude changes unless terrain clearance becomes critical. Whenever experiencing or anticipating moderate or severe turbulence, the following readiness actions should be performed:

<i>SPEED</i>	<i>Set as in FCOM</i>
<i>SEAT BELT SIGN</i>	<i>ON</i>
<i>NO SMOKING SIGN</i>	<i>ON</i>
<i>IGNITION</i>	<i>Set as in FCOM</i>
<i>AUTO PILOT</i>	<i>Set as in FCOM</i>

8.3.21 IRREGULARITIES, ABNORMAL AND EMERGENCY PROCEDURES

This section provides policies and guidance relative to the handling of emergency and abnormal situations in-flight. Content of this section must be used in conjunction with respective aircraft type related procedures contained in FCOM/QRH and in SEP manual.

8.3.21.1.3 COORDINATION REQUIREMENT

Communication between PIC and OCC/Station Manager are the best means of coordinating the aircraft in-flight and the requirements regarding disposition of the passengers, crew and aircraft after the flight arrives at the diversion airport. At remote station where such communications may be difficult, the PIC must assume an active role in coordinating these requirements.

Early recognition of a diversion potential is important in dealing with a diversion. The diversion airport is alerted to ensure adequate ground personnel and facilities to handle the diversion. OCC must be advised when the flight diverts, and concurrence

must be assumed unless he indicates otherwise.

8.3.21.11.2 COMMUNICATION WITH ATC

An aircraft is in distress condition, when it is threatened by serious and/or imminent danger and requires immediate assistance. It is important to remember that the first transmission of the distress call shall be on the designated air/ground route frequency in use at the time.

The distress call shall consist of the following:

- *MAYDAY MAYDAY MAYDAY*
- *.....(name of the station addressed)*
- *BATIK.....(identification of aircraft);*
- *Nature of distress condition;*
- *Intention of PIC;*
- *Present position, Flight Level, Heading;*

Other ways of indicating a distress condition are:

- *The activation of the appropriate SSR mode and code, i.e. mode A or B and code 7700;*
- *Transmitting the distress message on the emergency frequency 121.50 MHz.*

Distress communications have absolute priority over all other radio traffic, other stations shall not transmit on the frequency concerned until the distress communication is ended or transferred to another frequency.

Urgency communication concerns the safety of an aircraft or other vehicle, or of a person on board or in sight, not requiring immediate assistance. The urgency call shall consist of the following:

- *PAN PAN PAN*
- *..... (name of the station addressed);*
- *BATIK..... (identification of aircraft);*
- *Nature of urgency condition;*
- *Intention of PIC;*
- *Present position, Flight Level, Heading;*

Urgency communication has priority over all other communications, except distress communication. Other station shall not interfere with the transmission of urgency traffic. When an emergency landing will be carried out on an airport or when the PIC expects that the landing cannot be carried out with the normal standards of safety, the ATC of that airport should be notified prior to landing, indicating the nature of the trouble. The PIC may request the firefighting equipment to standby and should indicate which part of the landing run is considered critical so that the firefighting equipment can be positioned in the best location. Some airports will lay a foam path on the PIC request when a belly landing is to be made.

8.3.21.10 MEDICAL EMERGENCIES

8.3.21.10.1 SERIOUS MEASURES

If a person is injured or becomes seriously ill in flight, the PIC must be notified by SFA/FAI immediately. The aid of a physician or a trained nurse should be requested. In the absence of such aid, a crewmember's activities should be limited to first aid; this does not include the prescribing of remedies.

The passenger should be made as comfortable as possible, in the absence of a qualified physician. The PIC should consider the following symptoms as ground for suspecting infectious disease:

- *Fever accompanied by prostration, perspiring or glandular swelling;*
- *Any acute skin rash or eruptions, with or without fever;*
- *Severe diarrhea with symptoms of collapse;*
- *Jaundice accompanied by fever.*

All pertinent information, including time of the incident, is to be noted in the PAIDUR Form (Refer to OM Part A, Appendix 11.B for a sample form).

8.3.21.10.2 MEDICAL ATTENTION ON ARRIVAL REQUEST

When a medical problem develops in flight and PIC deems it advisable to have medical assistance available on arrival, a message should be addressed to the Station Manager at the arrival station. It should fully describe the person's condition. Medical expenses other than those for injuries aboard the aircraft are for the passenger's account. Accordingly, a request for medical aid on arrival should indicate that a passenger is in need for medical aid whenever it is the case

1.17.1.2 Flight Crew Operations Manual

Turbulence

During flight in light to moderate turbulence, the autopilot and/or autothrottle may remain engaged unless performance is objectionable. Increased thrust lever activity can be expected when encountering wind, temperature changes and large pressure changes. Short-time airspeed excursions of 10 to 15 knots can be expected.

Passenger signsON

Advise passengers to fasten seat belts prior to entering areas of reported or anticipated turbulence. Instruct flight attendants to check that all passengers' seat belts are fastened.

Severe Turbulence

Yaw DamperON

Autothrottle.....Disengage

AUTOPILOTCWS

A/P status annunciators display CWS for pitch and roll.

Note: If sustained trimming occurs, disengage the autopilot.

ENGINE START switchesFLT

ThrustSet

Set thrust as needed for the phase of flight. Change thrust setting only if needed to modify an unacceptable speed trend.

PHASE OF FLIGHT	AIRSPEED
CLIMB	280 knots or .76 Mach
CRUISE	Use FMC recommended thrust settings. If the FMC is inoperative, refer to the Unreliable Airspeed page in the Performance–Inflight section of the QRH for approximate NI settings that maintain near optimum penetration airspeed.
DESCENT	.76 Mach/280/250 knots. If severe turbulence is encountered at altitudes below 15,000 feet and the airplane gross weight is less than the maximum landing weight, the airplane may be slowed to 250 knots in the clean configuration.

Note: If an approach must be made into an area of severe turbulence, delay flap extension as long as possible. The airplane can withstand higher gust loads in the clean configuration.

1.17.1.3 Safety Emergency Procedures Manual

1.2.10. TURBULENCE

(Refer to OM part A 8.3.13.3)

Generally, the “Fasten seat belt” signs will be switched ON in case of expected or actual turbulence. FA 1 or other Flight Attendant shall make standard passenger announcement either manually or automatically by system. The Flight Attendants check that passengers are seated with seat belts fastened and adults hold infants. If Flight Crew determinates that the turbulence is unsafe for service, announcement will be made:

“FLIGHT ATTENDANT BE SEATED”

If no announcement made, FA 1 should ensure that the cabin is secured and flight attendants are seated.

Type of Turbulence:

- Light Turbulence

Aircraft occupants may feel a slight strain against seat belts.

- a. *Fasten seatbelt sign is illuminated (if applicable, PRAM will air automatically)*
- b. *FA 1 or other Flight Attendants shall make standard passenger announcement either manually or automatically by system*
- c. *Flight Attendants perform visual check of seatbelts*
- d. *Flight Attendants discourage movement about the cabin -Service may continue*

- **Moderate Turbulence**

Occupants feel definite strains against seatbelts. Food service may be difficult.

Action:

- a. *Fasten seatbelt sign is illuminated (if applicable, PRAM will air automatically)*
- b. *FA 1 or other Flight Attendants shall make standard passenger announcement either manually or automatically by system*
- c. *Purser/FA 1 will timely coordinate with PIC whether the existing and/or expected turbulence condition will affect the continuation of inflight service. If PIC decide:*

Service Continued:

- *Flight Attendants perform visual check of seatbelts.*
- *Trolleys and galleys must be secured prior checking pax seatbelt.*
- *Check open containers to prevent spillage.*
- *Move about cabin with caution.*

Service discontinued:

- *Flight crew will command “FLIGHT ATTENDANT, BE SEATED”.*
- *All other loose objects should be secured if situation permits.*
- *All Flight Attendants return to their stations and fasten seat belts.*

- **Severe Turbulence**

Occupants of the aircraft are thrown violently against their seat belts. Unsecured objects are tossed about. Walking and service are impossible (brake and try to secure the trolley).

- a. *Fasten seatbelt sign is illuminated (if applicable, PRAM will air automatically) Flight Crew command “FLIGHT ATTENDANT, BE SEATED”*
- b. *Discontinue service immediately*
- c. *Flight Attendants shall sit down immediately in nearest available seat. Flight attendants shall not attempt to walk through cabin.*
- d. *FA remain seated until advised by flight deck.*

NOTE: *No hot beverages services during fasten seat belt sign on.*

1.18 Additional Information

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

1.19 Useful or Effective Investigation Techniques

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

2 FINDINGS⁴

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

- The aircraft was airworthy prior to the occurrence.
- The crew held valid licenses and medical certificates.
- The forecasted weather and prognosis chart showed that on the area of turbulence event was forecasted to have potential development of isolated embedded cumulonimbus clouds which may develop up to above 45,000 feet (FL 450).
- The Pilot in Command (PIC) acted as Pilot Flying (PF), Second in Command (SIC) acted as Pilot Monitoring (PM).
- Prior the turbulence, the SIC turned the fasten seat belt sign on.
- The turbulence occurred while the aircraft descending at altitude approximately 24,500 feet. Flight Data Recorder (FDR) recorded the vertical acceleration was between 2.334 G and -0.482 G.
- A flight attendant communicated to the pilot informing the cabin condition and injured occupants. The pilot contacted the company operation personnel informed that the aircraft encountered severe turbulence, two occupants on board injured and requested medical assistance on arrival.
- During approach and landing with the acknowledgment of the PIC, two flight attendants seated on the floor to hold the injured occupants.
- The Operation Manual part requires the pilot to communicate to ATC of distress message when an aircraft is in distress condition, threatened by serious and/or imminent danger and requires immediate assistance and urgency message concerns the safety of an aircraft or other vehicle, or of a person on board or in sight, not requiring immediate assistance.

⁴ 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 been informed of safety actions resulting from this occurrence.

3.1 PT. Batik Air


- On 26 October 2017, Batik Air Operation Directorate issued reminder for pilot to anticipate in flight turbulence concerning to the Safety Emergency Procedure chapter 1.2.10 Turbulence and Operation Manual Part A 8.3.13.3 Turbulence.
- On 28 October 2017, Batik Air Safety Security and Quality Directorate issued a safety circular number 007/SSQ/SC/X/2017 subjected to turbulence encounter anticipation. The detail of the safety circular attached on the appendices of this report.
- On 6 November 2017, Batik Air Safety Security and Quality Directorate issued the preliminary internal investigation report and recommended the Operation Directorate regarding the communication procedure between flight crew and air traffic controller regarding the urgency declaration as described in the Operation Manual.

4 SAFETY RECOMMENDATIONS

The KNKT acknowledged the safety actions taken by Batik Air and considered that the safety actions were relevant to improve safety, therefore KNKT not issue safety recommendation in this preliminary report.

5 APPENDICES

5.1 Safety Circular

 <i>Safety, Security and Quality</i>	SAFETY, SECURITY AND QUALITY DIRECTORATE	007/SSQ/SC/X/2017
	SAFETY CIRCULAR	27 10 2017
		Page 1 / 2

<i>Date of effectiveness:</i>	October 27 th 2017
<i>Distribution list:</i>	DZ, DO, OF, OFA, OFB, OT, OTA, OTB, OFSA, OFSB
<i>Applicability:</i>	Pilot
<i>Prepared by</i>	SSF ID
<i>Checked by:</i>	SS ID
<i>Approved by:</i>	DS ID
<i>Subject</i>	SAFETY RECOMMENDATION: TURBULENCE ENCOUNTER ANTICIPATION



Dear All Batik Air Pilots,

On 24th October 2017, an aircraft experienced a severe turbulence during descent. The turbulence resulted two occupants seriously injured and several aircraft interior damages. While the investigation is still on progress by SSQ Directorate and NTSC (KNKT), Safety Office would like to recommend a course of actions to be considered by all pilots in order to mitigate the safety issues and to prevent the similar occurrence in the future.

To address these safety issues and to increase the safety margin, SSQ recommends all Pilots to:

1. Ensure the implementation of SOP in accordance with Company Manuals and Manufacture Manuals.
2. Ensure the good communication with cabin crew and passengers is established throughout the flight.
3. Use all source of information necessary to identify the potential turbulence area by:
 - Ensuring the validity of weather forecast during pre-flight briefing.
 - Assessing the weather information of departure, enroute, destination and alternate aerodrome.
 - During flight, use the weather radar efficiently in order to identify the significant weather condition.
4. Avoid every known forecasted area or suspected area of severe turbulence as soon as possible.
5. If the weather conditions indicate a potential turbulence encounter, the Cabin Crew should be pre-warned prior to entering the expected turbulence area.
6. If experiencing severe turbulence during flight, notify Air Traffic Controller (PIREP) and communicate with Flight Attendant to clarify passengers and cabin condition as to determine the best course of action.
7. If the weather radar was found working improperly, insert a report on the AFML discrepancy.

Note: If the turbulence encounter (or any other occurrences) results *serious injury to the occupants or aircraft damages*, the flight is possibly classified as a serious incident. After the flight, Flight Crew shall immediately notify SSQ and ensure the preservation of FDR and CVR data to be investigated by NTSC (KNKT).

KOMITE NASIONAL KESELAMATAN TRANSPORTASI REPUBLIK INDONESIA

Jl. Medan Merdeka Timur No.5 Jakarta 10110 INDONESIA

Phone : (021) 351 7606 / 384 7601 Fax : (021) 351 7606 Call Center : 0812 12 655 155

website 1 : <http://knkt.dephub.go.id/webknkt/> website 2 : <http://knkt.dephub.go.id/knkt/>

email : knkt@dephub.go.id