KOMITE NASIONAL KESELAMATAN TRANSPORTASI
REPUBLIC OF INDONESIA

PRELIMINARY

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Aircraft Serious Incident Investigation Report

Pelita Air Service

AT-802A; PK-PAG

Karubaga Airport, Papua

Republic of Indonesia

9 June 2020

2020

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 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 July 2020

KOMITE NASIONAL
KESELAMATAN TRANSPORTASI
CHAIRMAN

SOERJANTO TJAHJONO

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ABBREVIATIONS AND DEFINITIONS

ACL	:	Authorization, Conditions and Limitations
ACMI	:	Aircraft, Crew, Maintenance, and Insurance
AIP	:	Aeronautical Information Publication
AOC	:	Air Operator Certificate
ARFF	:	Airport Rescue and Fire Fighting
ATS	:	Air Traffic Services
BMKG	:	*Badan Meteorologi Klimatologi dan Geofisika* (Bureau of Meteorology, Climatology and Geophysics)
C of A	:	Certificate of Airworthiness
C of R	:	Certificate of Registration
CASR	:	Civil Aviation Safety Regulation
CCP	:	Company Check Pilot
CDU	:	Cockpit Display Unit
CPL	:	Commercial Pilot License
DAAM	:	Data Acquisition Alarm Monitor
DAAO	:	Directorate of Airworthiness and Aircraft Operation
DGCA	:	Directorate General of Civil Aviation
FOO	:	Flight Operation Officer
ft-lb	:	feet - pound/pound-mass
GPS	:	Global Positioning System
KG	:	Kilogram
KNKT	:	*Komite Nasional Keselamatan Transportasi* (National Transportation Safety Committee)
lbs	:	Pound or pound-mass
LT	:	Local Time
OM	:	Operation Manual
RPM	:	Rotation Per Minute
SOP	:	Standard Operating Procedure
TIBA	:	Traffic Broadcast by Aircraft
UTC	:	Universal Coordinated Time
VFR	:	Visual Flight Rules

SYNOPSIS

On 9 June 2020, a AT-802A aircraft registered PK-PAG was being operated by Pelita Air Service on unscheduled fuel hauling flight. The aircraft was single pilot operation, and the schedule flight of the day for the pilot and aircraft were from Mozes Kilangin Airport (WAYY), Timika to Karubaga Airport (WAVG), Tolikara and return for two times. The first flight from Timika to Karubaga and returned to Timika were uneventfully.

After the aircraft stopped and parked on the apron at Timika, the ground personnel hauled 3,500 liters of diesel fuel in the tank which divided into 2,200 liters in the upper tanks and 1,300 litters in the lower tanks.

After the hauling process had finished, the pilot started the aircraft engine and taxied to runway for continuing the second flight to Karubaga. The pilot conducted brake check during taxi and line up the runway. The pilot felt slightly different pedal pressure between the left and right brake, the right pedal travelled a little bit more than the left. As the aircraft decelerated and able to stop, the pilot considered that the brakes were normal.

At 0812 LT, the aircraft departed from Timika to Karubaga and continued climb to the intended cruising altitude of 15,000 feet. The flight was uneventful until the aircraft conducted the landing approach at Karubaga.

The aircraft flew overhead Karubaga at altitude of 8,000 feet, thereafter the pilot turned to the left for joining the left downwind of runway 17. On the left downwind, the pilot pumped the brake pedals with intention to check the brakes and the pilot considered that the brakes were normal.

The pilot turned the aircraft to the final when the aircraft passed 5,300 feet. On final, the pilot observed the surrounding environment and considered that the wind was calm. The pilot performed a landing flare over the touchdown zone marking. After the landing flare, the stall warning was active then the aircraft landed with three-point landing.

About 0907 LT, the aircraft touched down and bounced slightly to the right of the runway centerline and touched down about 30 meters from the first touched down. The pilot attempted to return to the runway centerline by applying the left brake. Thereafter the aircraft veered to the left, travelled out from the runway and impacted the airport fence.

The Airport Rescue and Fire Fighting (ARFF) personnel deployed to the aircraft immediately. There was no pre or post impact fire in this occurrence.

The aircraft was minor damaged and no one injured in this occurrence.

At the time of issuing this report, the KNKT had not been informed of any safety actions resulting from this occurrence taken by the involved parties. The investigation is continuing, should any further relevant safety issues emerge during the course of the investigation, KNKT will immediately bring the issues to the attention of the relevant parties and publish as required.

1 FACTUAL INFORMATION

1.1 History of the Flight

On 9 June 2020, a AT-802A aircraft registered PK-PAG was being operated by Pelita Air Service on unscheduled fuel hauling flight. The aircraft was single seater aircraft, and the schedule flights of the day for the pilot and aircraft were from Mozes Kilangin Airport (WAYY), Timika[1] to Karubaga Airport (WAVG), Tolikara[2] and return for two times.

The first flight from Timika to Karubaga departed at 2055 UTC (0555 LT[3]) on a daylight condition and cruised at Flight Level (FL) 150 (15,000 feet). The aircraft hauled 4,000 liters of gasoline which divided into 2,700 liters in the hopper (upper) tanks and 1,300 litters in the auxiliary (lower) tanks.

The airspace over Karubaga was class G airspace, therefore there was no air traffic services provided in the airspace.

At 0630 LT the aircraft landed safely using runway 17 at Karubaga. After unloaded the gasoline, at 0718 LT the pilot departed from Karubaga to Timika and landed safely at 0748 LT.

The aircraft stopped and parked on the apron, and the ground personnel hauled 3,500 liters of diesel fuel in the tank which divided into 2,200 liters in the upper tanks and 1,300 litters in the lower tanks.

After the hauling process had finished, the pilot started the aircraft engine and taxied to runway for continuing the second flight to Karubaga. The pilot conducted brake check during taxi and line up the runway. The pilot felt slightly different pedal pressure between the left and right brake, the right pedal travelled a little bit more than the left. As the aircraft decelerated and able to stop, the pilot considered that the brakes were normal.

At 0812 LT, the aircraft departed from Timika to Karubaga and continued climb to the intended cruising altitude of 15,000 feet. The flight was uneventful until the aircraft conducted the landing approach at Karubaga.

The aircraft flew overhead Karubaga at altitude of 8,000 feet, thereafter the pilot turned to the left for joining the left downwind of runway 17. On the left downwind, the pilot pumped the brake pedals with intention to check the brakes and the pilot considered that the brakes were normal.

The pilot turned the aircraft to the final when the aircraft passed 5,300 feet. On final, the aircraft speed was 85 knots, the aircraft power was 1,500 ft-lb and the flaps were full down.

1 Mozes Kilangin Airport (WAYY), Timika will be named as Timika for the purpose of this report.

2 Karubaga Airport (WAVG), Tolikara will be named as Karubaga for the purpose of this report.

3 The 24-hours clock in Local Time (LT) is used in this report to describe the local time as specific events occurred. Local time is Universal Time Coordinated (UTC) +9 hours. The date for the UTC time was on 8 June 2020 while the local time was 9 June 2020.

When the aircraft passed over the airport fence, which was about 85 meters from beginning runway 17, the aircraft speed was reduced to 80 knots. The pilot performed a landing flare[4] over the touchdown zone marking. After the landing flare, the stall warning was active then the aircraft landed with three-point landing[5].

About 0907 LT, the aircraft touched down and bounced slightly to the right of the runway centerline and touched down about 30 meters from the first touched down. The pilot attempted to return to the runway centerline by applying the left brake. Thereafter the aircraft veered to the left, travelled out from the runway and impacted the airport fence.

The Airport Rescue and Fire Fighting (ARFF) personnel deployed to the aircraft immediately. There was no pre or post impact fire in this occurrence.

The pilot then self-evacuated from the aircraft and no one injured in this occurrence.

1.2 Damage to Aircraft

The aircraft was minor damaged and the damage was as follows:

- The left-wing tip was damaged;
- The left-wing leading edge was bent;
- The tip of the propeller blades was bent and abraded;
- The auxiliary (lower) tank skin was bend;
- The tailwheel and mainwheel were bend.

1.3 Other Damage

The airport fence was damaged.

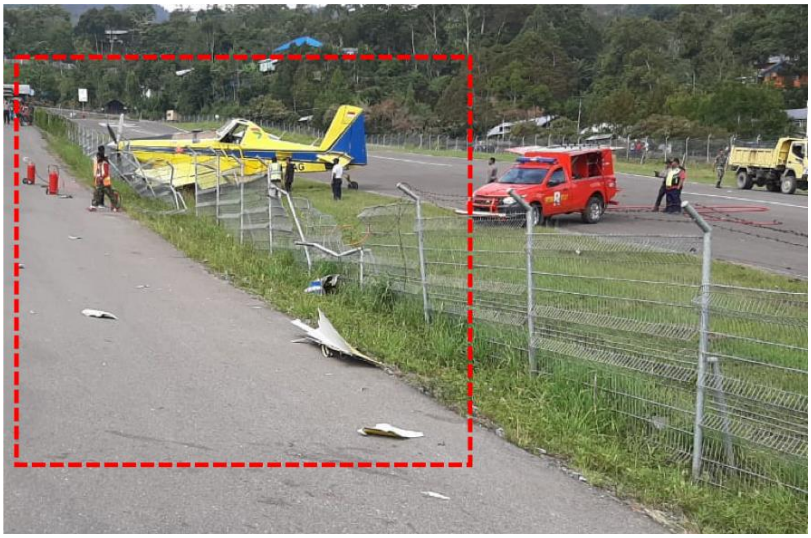

Figure 1: The aircraft last position and the damaged airport fence (inside the red-dotted square)

4 The landing flare is the transition phase between the final approach and the touchdown on the landing surface.

5 The three-point landing is an aircraft landing in which the two main wheels of the landing gear and the tail wheel or skid or nose wheel touch the ground simultaneously.

1.4 Personnel Information

The pilot is New Zealand nationality who held valid Commercial Pilot License (CPL) and qualified as a single engine land aircraft pilot. The pilot also had valid first-class medical certificate with medical limitation to wear corrective lenses for near and distant vision during flight.

The pilot had total flying hour of 8,560 hours, included about 760 hours on AT-802A aircraft. The total flying hour in the last 30 days was 68.8 hours and in the last 7 days was 15.8 hours, all of those flights were used AT-802A aircraft.

The pilot had about 9 years flying experience in Papua area to conduct passenger transport and cargo flights.

The pilot had experienced to conduct fuel hauling flight using AT-802A aircraft since April 2018 and had about 6 months experience to conduct fuel hauling flight in Papua area. The pilot had flown to Karubaga many times.

The occurrence flight was the third sector and the total flight hours at that day was 2.25 hours.

The last competency check for the pilot was conducted on 30 April 2020, the result was satisfactory without any remarks.

1.5 Aircraft Information

1.5.1 General

The AT-802A aircraft with serial number of 802A-0373, registered PK-PAG is manufactured by Air Tractor Inc., United States of America in 2010.

The aircraft had valid special Certificate of Airworthiness (C of A) for fuel hauling and valid Certificate of Registration (C of R).

The aircraft had total hour since new was 5,115.7 hours and the total cycles since new was 6,612 cycles. The engine installed on the aircraft was PT6A-67F model, manufactured by Pratt & Whitney Canada with serial number of PCE-RZ0047. The total time of the engine since new was 1,467.3 hours.

The aircraft was not fitted with flight data recorder or cockpit voice recorder. Neither recorder was required by current Indonesian aviation regulations.

1.5.2 Hauling Tank

The aircraft had two tanks to haul liquid consists of hopper (upper) tank which was located in the fuselage at the aft of the engine compartment and auxiliary (lower) tank which was installed on the lower fuselage. According to the Standard Operating Procedures for Fuel Haul Operations (Fuel Haul SOP) developed by Pelita Air Service the maximum capacity of the upper tank was 2,700 liters and lower tank was 1,300 liters.

The lower tank has six lateral baffles to prevent fluid sloshing in the fore and aft direction and a full-length center web to prevent sloshing from side to side.

1.5.3 Engine Trend Monitoring

The aircraft is equipped with Data Acquisition Alarm Monitor (DAAM) system manufactured by Perkins Technologies, Australia. The DAAM system is an onboard self-contained aircraft system monitor which is capable of monitoring, displaying, and recording critical aircraft and engine parameters, flight times, engine hours, engine trend monitoring data, and exceedance alarms.

The DAAM system can provide to pilot visual notification of any exceedance from the preset parameter limits of the aircraft, displayed in the single Cockpit Display Unit (CDU). The CDU is also equipped with a data port to download flight data from the system to a laptop computer for review and analysis.

The system can record 14 parameters data as follows:

- Starter button;
- Compressor Rotation Per Minute (RPM);
- Propeller RPM;
- Fuel Flow;
- 24-volt supply voltage;
- Air filter pressure;
- Outside air temperature;
- Torque;
- Fuselage g force;
- Turbine temperature;
- Indicated air speed;
- Pressure altitude;
- Horsepower;
- Engine oil pressure.

After the occurrence, the engineer attempted to download the data of the DAAM memory card and found that the memory card was corrupted and no data was successfully downloaded.

1.5.4 Weight and Balance

The weight and balance form of the occurrence flight provided by the Pelita Air Service contained relevant information as follows:

aircraft empty weight	:	7,597 lbs
fuel	:	1,800 lbs
baggage freight	:	6,475 lbs (included pilot weight)
takeoff weight	:	15,872 lbs (maximum 16,000 lbs)
fuel used	:	400 lbs
landing weight	:	15,472 lbs (maximum 16,000 lbs)

1.6 Meteorological Information

There was no meteorological service provided at Karubaga. The Pelita Air Service Flight Operation Officer (FOO) utilized an online web-based meteorological forecast application to obtain the weather information. The weather information for Karubaga at 0805 LT provided to the pilot prior to the departure was surface wind calm, visibility 5 km and the weather clear.

Using the same application, the investigation identified over Karubaga at 0900 LT, the forecasted surface wind was southerly wind with velocity of 2 knots with gusty up to 16 knots.

On final runway 17 of Karubaga, the pilot observed the surrounding environment and considered that the wind was calm.

Based on the satellite images provided by *Badan Meteorologi Klimatologi dan Geofisika* (BMKG – Bureau of Meteorology, Climatology and Geophysics), on 2300 UTC (0800 LT) and 0000 UTC (0900 LT), indicated several convective clouds (dense)[6] over Karubaga.

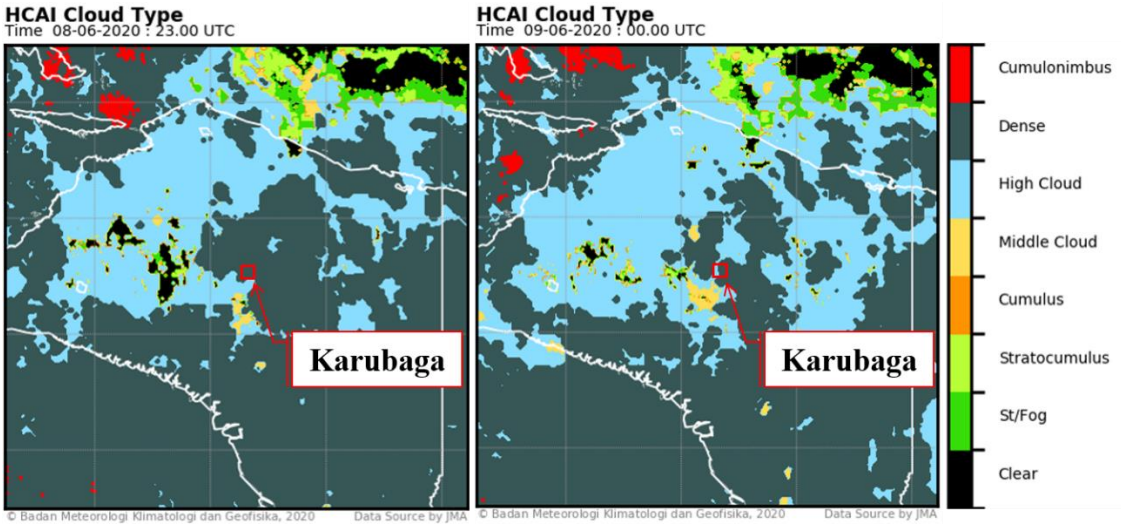

Figure 2: The satellite image of the Karubaga (red square)

1.7 Aids to Navigation

A ground-based navigation aid was not available in the Karubaga. The aerodrome information for light aircraft contained in the Aeronautical Information Publication (AIP) Volume IV which contained the aerodrome information of Karubaga and did not include approach guidance.

The aircraft was fitted with Global Positioning System (GPS) Garmin GNS 430 and Garmin GNS 530 which can provides navigation data. The GNS 530 allows the pilot to create, edit and store up to 20 flight plans with up to 31 waypoints on each flight plan. The GNS 530 can use direct point-to-point navigation to provide guidance from a certain point or position to another point on the flight plan.

6 Convective clouds are clouds that are formed by convection, which is simply the process of warmer air rising since it is less dense than the surrounding atmosphere.

1.8 Communications

On the flight from Timika to Karubaga, within 25 Nm from Timika the flight was controlled by Timika Air Traffic Services (ATS). After 25 Nm, the pilot used two different Traffic Broadcast by Aircraft (TIBA) frequencies. The communication in the TIBA frequency was not recorded. The communication was not an issue in this occurrence.

1.9 Aerodrome Information

The Karubaga airport (WAVG), Tolikara is operated by Directorate General of Civil Aviation. The airport had an asphalt surfaced-runway with direction of 17 – 35 (174° – 354°). The runway dimension was 710 meters length and 18 meters width.

The airport situated on mountainous area with airport elevation of 5,137 feet above mean sea level. The aerodrome reference point was on coordinate 03°41'11.65" S; 138°28'45.71" E. The illustration of the final area 17 was as follows:

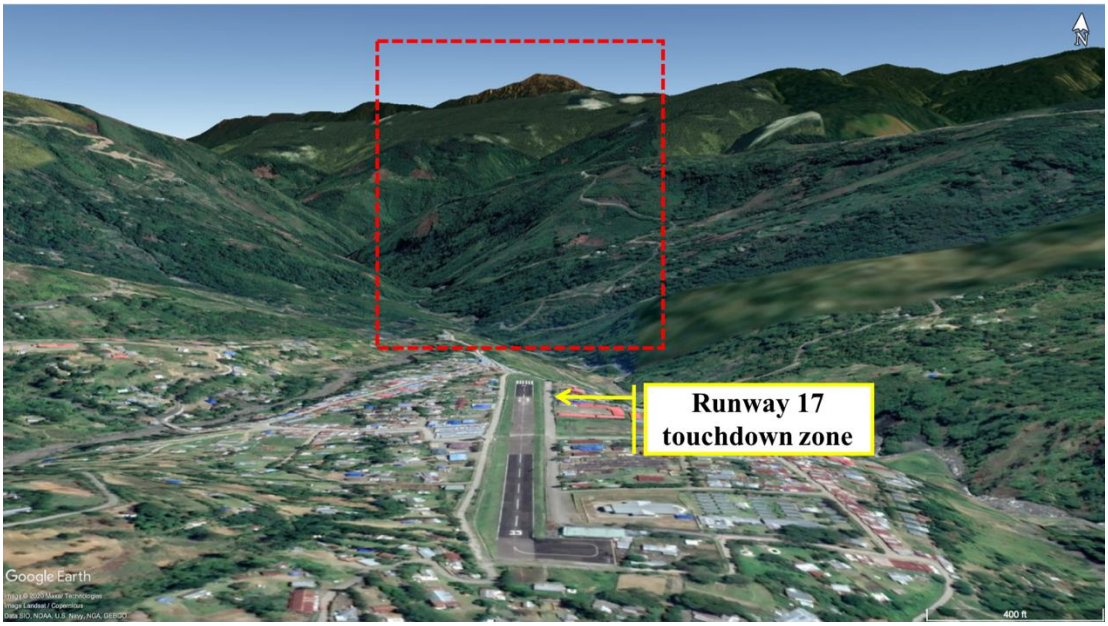

Figure 3: The terrain area on final runway 17 (red-dotted square)

1.10 Wreckage and Impact Information

Based on the pilot recollection, the pilot performed a landing flare over the touchdown zone marking, then touched down with three-point landing and the aircraft bounced. The aircraft bounced to slightly to the right of the runway centerline and touched down about 30 meters from the first touched down. After the second touchdown, the pilot attempted to returned the aircraft to the center line by applying left brake pedal. The aircraft veered to the left and travelled out from the runway and impacted to the airport fence on the left-wing tip followed by the left-wing leading edge and subsequently the nose section included the propellers.

Based on the site measurement conducted by the airport operator personnel, there were braking marks of the left and right wheels started about 200 meters from the beginning runway until the aircraft travelled out from the runway.

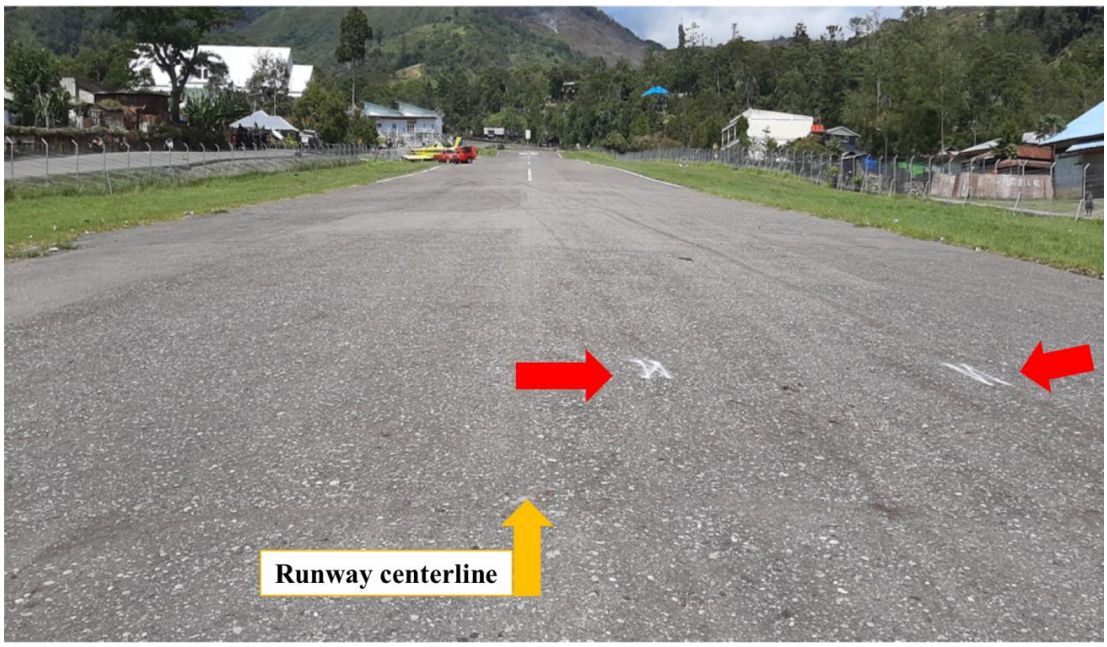

Figure 4: The beginning of braking marks on the runway (red arrows)

About 480 meters from the beginning runway 17, the left main wheel travelled out from runway (figure 5) and the braking mark of the right wheel on the runway still visible.

Figure 5: The wheel marks (red arrows) and the first damaged fence (red dotted square)

The first broken airport fence was found about 500 meters from beginning runway 17 or about 30 meters from the last aircraft stopped position. The distance from the left runway edge to the airport fence was 8.7 meters. The aircraft stopped about 530 meters from beginning runway 17 on heading about 110°. The right main wheel entered a ditch and the aircraft tilted to the left.

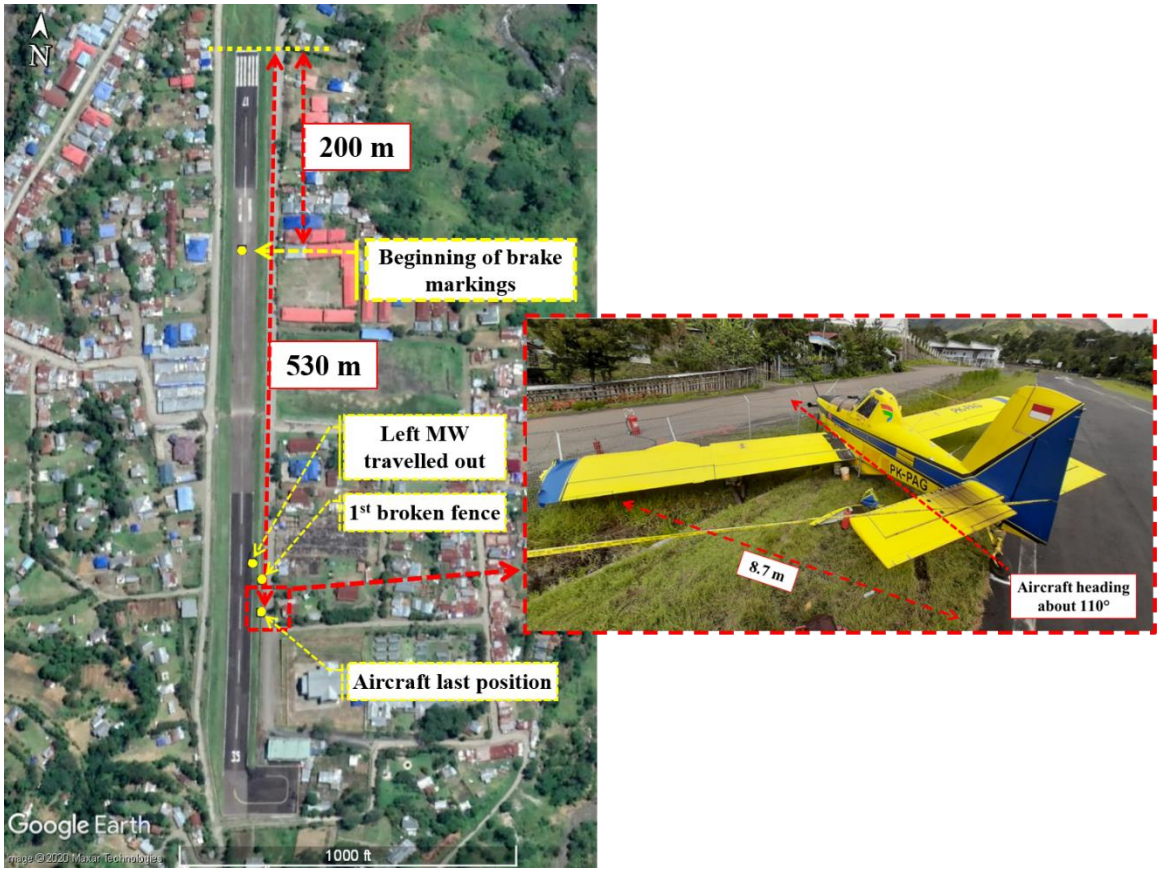

Figure 6: The sketch of the occurrence site

All propeller blades were bent and abraded as result of the impact to the airport fence and there were no propeller marks found on the ground.

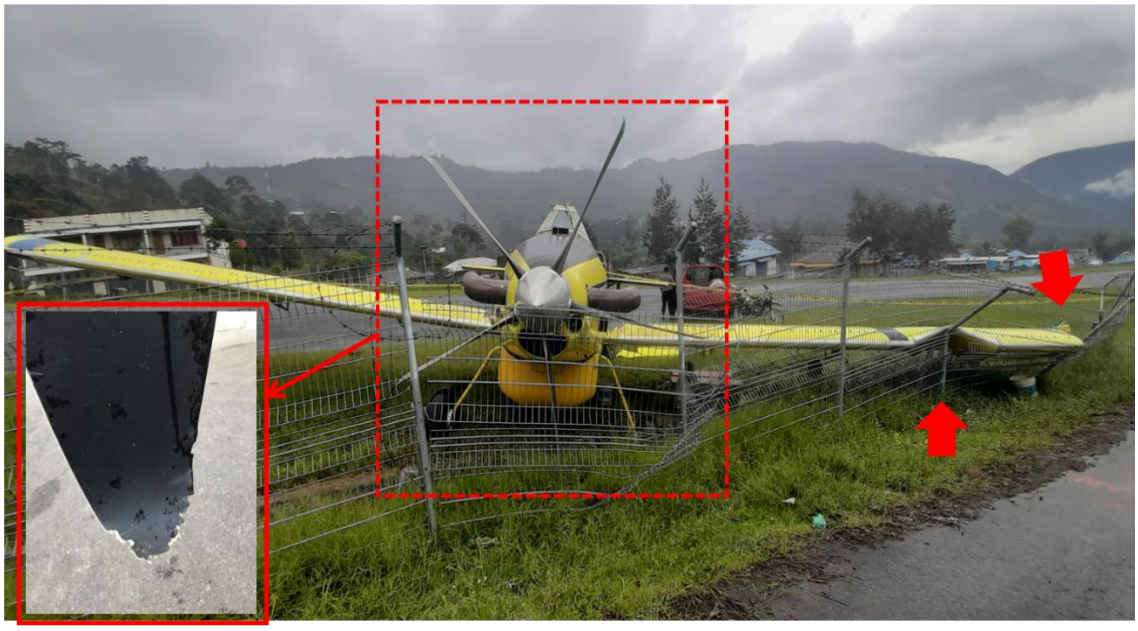

Figure 7: The damaged propeller blades, left-wing leading edge and the left-wing

tip

Figure 8: The damaged left-wing tip

Figure 9: The damaged left-wing leading edge

1.11 Organizational and Management Information

1.11.1 Aircraft Operator

The Pelita Air Service wet leased[7] two AT-802A aircraft from the Wilderness North Air (Canadian-based aircraft operator) to conduct fuel delivery operation in Kalimantan and Papua area since 2016.

The Pelita Air Service as the lessee has valid Air Operator Certificate (AOC) number 121-008. The Pelita Air Service was authorized by the Indonesia Directorate General of Civil Aviation (DGCA), to conduct air transportation carrying passengers and cargo within and outside Indonesia in accordance with Civil Aviation Safety

7 Wet lease is a lease where the aircraft is provided with the flight crew.

Regulation (CASR) Part 121 and also authorized to conduct on demand aircraft and helicopter operation carrying passenger and cargo in accordance with CASR Part 135.

According to the Authorization, Conditions and Limitations (ACL) issued by the DGCA, the AT-802A aircraft registered PK-PAG was operated under the requirement of CASR Part 135.

The Pelita Air Service developed several Operation Manuals (OM)s which contains policy and procedure approved by the DGCA.

1.11.1.1 Lease Condition

According to the General Condition Aircraft, Crew, Maintenance, and Insurance (ACMI) – Lease between Pelita Air Service and Wilderness North Air, the relevant lease condition of the aircraft was described as follows:

Article 17 - Operational Control

Paragraph 1:

Lessor is exclusively and explicitly competent to any operational control regarding the Aircraft whether or not on ground or during the flight. Lessor covenants and Lessee accepts that the Aircraft will be operated in a lawful manner according to the procedures established by Lessor, among others as stated in the Aircraft Flight Manual and Operations Manual Part B.

Paragraph 3:

The operational department of Lessor provides flight and navigation plans. Load sheets. fuel calculations, file operational flight plans and supply any other operational document required for the performance of the flight. Lessee will apply for slots and the route licenses. The costs related to the application of slots and route licenses shall be for account of Lessee.

Article 21 - Crew Training

All Flight Crews provided by Lessor are trained and competent in the operation of the aircraft for fuel delivery purposes.

The planning of Flight Crew training by Lessor is subject to the Flight Schedule of Lessee and the timely reported intended nonscheduled services.

Article 22 - Maintenance

Lessor:

a. *Has the sole responsibility related to all Maintenance on the Aircraft, scheduled or non-scheduled. At all times during the ACMI-lease Period Lessor will ensure that the Aircraft is maintained and operated in accordance with manufacturer instructions,*
b. *Will perform / have performed Maintenance including daily inspections in accordance with its approved maintenance schedules ~~in the~~ and in accordance with the requirements of the DGCA Authorities.*
c. *All such facilities will have to be assessed and accepted by Lessor prior to commencement of this Agreement;*
d. *Lessor will supply to Lessee the planning for the scheduled maintenance checks taking into consideration as much as reasonably possible the Flight*

Schedule of Lessee and the non-scheduled flights. Lessee has the right at its request to audit the maintenance records from time to time.

1.11.1.2 Brake Check and Usage Procedures

The Airplane Flight Manual for Air Tractor Model AT-802A applicable for the PK-PAG aircraft, required pilot to check the brakes condition during walk-around inspection and test the brakes before starts the aircraft engine.

The document also included the use of brakes as one of sequence to be conducted on checklist as follows:

BEFORE TAKEOFF:

12. Hold brakes and set power at 1500 Lb.-Ft. torque. (Stick full back).

TAKEOFF: (NORMAL-UP to 12,500 POUNDS (5670 KG.) GROSS WEIGHT)

1. *With power still approximately 1500 Lb-Ft. torque, Check Np at 1700 RPM, release brakes and as aircraft moves forward gradually advance power lever to provide a smooth and continuous acceleration of the engine to maximum take-off power.*

1.11.1.3 Pilot Competency Check

The pilot competency check was conducted by the Wilderness North Air as described in the Article 21 of the ACMI – Lease.

The last competency check for the PK-PAG pilot was conducted on a self-assessment check. A Company Check Pilot (CCP) of the Wilderness North Air who located at Canada conducted a briefing to the pilot using video conference application prior to the exercise. Afterwards, the pilot conducted a self-check of his flight during the daily flight schedule, and after the flight, the pilot had de-brief from the CCP using video conference application.

The checking item of the last competency check consisted of several phases of flight. The checking items on the landing phase were as follows:

- Normal landing;
- Crosswind landing;
- Short and soft field;
- Flapless landing;
- Rejected and missed approach.

1.11.1.4 Data Acquisition Alarm Monitor (DAAM) Procedure

The AFM applicable for the PK-PAG aircraft described additional steps to check the DAAM system as follows:

The following steps should be accomplished prior to starting the engine and in conjunction with the "SAFETY PRECAUTIONS BEFORE STARTING" procedures in the basic Airplane Flight Manual.

1. *Check DAAM circuit breaker - IN*

2. *Master Switch - ON*
3. *Verify DAAM CDU is ON and check for the following warning messages.*

--NOTE--
Warning messages will disappear after three seconds.

a. *"Memory Warning": .... Download stored data as soon as possible to avoid the possibility of not recording exceedance alarms due to a full memory. See "DAAM DATA DOWNLOAD PROCEDURE:*

b. *"Battery Warning!": .... Internal battery in data logger may need to be replaced.*

4. *Hold DAAM ID transmitter in front of CDU and push button on transmitter to register pilot. The CDU will display "User Confirmed" when registered.*

1.11.1.5 Fuel Haul Standard Operation Procedure

The Pelita Air Service developed Standard Operating Procedures for Fuel Haul Operations (Fuel Haul SOP) as a supplement of Operation Manuals (OM)s that must be used for all personnel within Pelita Air Service during fuel haul operation.

The Fuel Haul SOP subchapter 4.2 described weight limitation for the hopper (upper) tanks is 5,409 lbs. (2,295 kg) and the auxiliary (lower) tank is 2,431 lbs. (1,105 kg).

1.11.2 Indonesia Civil Aviation Authority

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

1.11.2.1 Pilot Proficiency Check in Indonesia

The CASR part 135 subpart 135.469 described pilot proficiency check must be conducted with checking standards that described in the CASR part 135 appendix N-A. The flight checking standard that applicable for fixed wing aircraft on Landings and Approaches to Landing phase is as follows:

(1) one normal landing which shall, where practicable, be conducted without external or internal glideslope information;

(2) one landing from an instrument approach, and where prevailing conditions prevent an actual landing, an approach to a point where a landing could have been made. A landing from an instrument approach is not required to be demonstrated where the certificate holder's operating certificate authorizes operations under day VFR only, or the air operator assigns the pilot undertaking the PPC to day VFR flights only;

(3) one cross wind landing where practicable under existing meteorological, airport and airport traffic conditions;

(4) one landing and manoeuvring to that landing with a simulated failure of 50 percent of the available engines; and

(5) one landing under simulated circling approach conditions except that where prevailing conditions prevent a landing, an approach to a point where a landing could have been made;

Note: Any of the landings and approaches to landings specified in this section may be combined. A minimum of two landings are required.

The CASR part 135 did not described any standard that applicable for single-seated aircraft.

The CASR part 135 subpart 135.471 described that:

(b)An approved company check pilot who has been delegated the authority to perform flight checks on that aircraft type, or a DGCA inspector shall conduct any pilot proficiency check required by this Subpart. The Director or a person acceptable to him, shall conduct all other checks required by this Subpart. A certificate holder shall submit to the Director for approval, a list of proposed examiners, including their qualifications relevant to their position as examiners.

1.12 Additional Information

The data collection in the occurrence site was limited due to the travel limitation during the Corona virus (Covid-19) pandemic. The investigation is continuing, should any further relevant safety issues emerge during the course of the investigation, KNKT will immediately bring the issues to the attention of the relevant parties and publish as required.

1.13 Useful or Effective Investigation Techniques

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

2 FINDINGS

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

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

1. The aircraft had valid special Certificate of Airworthiness (C of A) to conduct fuel hailing, and a valid Certificate of Registration (C of R).
2. The aircraft was not fitted with a flight data recorder or cockpit voice recorder. Neither recorder was required by current Indonesian aviation regulations.
3. After the occurrence, the engineer attempted to download the data of the DAAM memory card and found that the memory card was corrupted and no data was successfully downloaded.
4. The aircraft had tanks to haul liquid consists of hopper (upper) tank which was located in the fuselage at the aft of the engine compartment and auxiliary (lower) tank which was installed on the lower fuselage. According to Fuel Haul SOP developed by Pelita Air Service, the maximum capacity of the upper tank was 2,700 liters and lower tank was 1,300 liters. During the occurrence the aircraft was hauled 3,500 liters of diesel fuel in the tank which divided into 2,200 liters in the upper tanks and 1,300 litters in the lower tanks.
5. The aircraft was wet leased by the Pelita Air Service from the Wilderness North Air (Canadian-based aircraft operator) to conduct fuel delivery operation in Kalimantan and Papua area since 2016.
6. According to the General Condition Aircraft, Crew, Maintenance, and Insurance (ACMI) – Lease, the Wilderness North Air provided all flight crew included the training for the fuel delivery operation. In regards with the aircraft maintenance, the Wilderness North Air had the sole responsibility to all maintenance on the aircraft included the scheduled or non-scheduled maintenance.
7. The pilot held valid Commercial Pilot License (CPL) and qualified as a single engine land aircraft pilot. The pilot also had valid first-class medical certificate with medical limitation to wear corrective lenses for near and distant vision during flight.
8. The last competency check for the pilot was conducted on 30 April 2020, the result was satisfactory without any remarks.
9. The last competency check for the PK-PAG pilot was conducted on a self-assessment check. Prior to the check exercise, a Company Check Pilot (CCP) of the Wilderness North Air who located at Canada conducted a briefing to the pilot using video conference application. Afterwards, the pilot conducted a self-check of his flight during the daily flight schedule, and after the flight, the pilot had de-brief from the CCP using video conference application.

10. The checking item of the last competency check consisted of several phases of flight included normal landing exercise.
11. At the day of the occurrence the pilot had flown for three sectors included the occurrence flight.
12. The pilot conducted brakes check during taxi and line up the runway. The pilot felt slightly different pedal pressure between the left and right brake, the right pedal travelled a little bit more than the left. As the aircraft decelerated and able to stop, the pilot considered that the brakes were normal.
13. On the left downwind, the pilot checked the brakes and considered that the brakes were normal.
14. On final approach at altitude passed 5,300 feet, the aircraft speed was 85 knots, the aircraft power was 1,500 ft-lb and the flaps were full down. The pilot observed the surrounding environment and considered that the wind was calm.
15. When the aircraft passed over the airport fence, which was about 85 meters from beginning runway 17, the aircraft speed was reduced to 80 knots. The pilot performed a landing flare over the touchdown zone marking and afterward the stall warning was active and the aircraft landed with three-point landing.
16. The aircraft touched down and bounced slightly to the right and touched down about 30 meters from the first touched down. The pilot attempted to return to the runway centerline by applying the left brake. Thereafter the aircraft veered to the left, travelled out from the runway and impacted the airport fence.
17. The aircraft impacted to the airport fence on the left-wing tip followed by the left-wing leading edge and subsequently the nose section.
18. Based on the site measurement conducted by the airport operator personnel, there were braking marks of the left and right wheels started about 200 meters from the beginning runway until the aircraft travelled out from the runway.
19. The first broken airport fence was about 500 meters from the beginning runway 17 or about 30 meters from the last aircraft stopped position. The aircraft stopped about 750 meters from beginning runway 17 on heading about 110°. The right main wheel entered a ditch and the aircraft tilted to the left.

3 SAFETY ACTION

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

4 SAFETY RECOMMENDATIONS

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.

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