



**KOMITE NASIONAL KESELAMATAN TRANSPORTASI  
REPUBLIC OF INDONESIA**

# **PRELIMINARY**

**KNKT.22.12.19.04**

**Aircraft Accident Investigation Report**

**PT Sinar Mas Super Air**

**Thrush S2R-T34; PK-PND**

**Kajui Airstrip, Gunung Mas, Central Kalimantan**

**Republic of Indonesia**

**17 December 2022**

**2023**

This Preliminary Report is published by the Komite Nasional Keselamatan Transportasi (KNKT), Transportation Building, 3rd Floor, Jalan Medan Merdeka Timur No. 5 Jakarta 10110, Indonesia.

The report is based upon the investigation carried out by the KNKT in accordance with Annex 13 to the Convention on International Civil Aviation, the Indonesian Aviation Act (UU No. 1/2009) and Government Regulation (PP No. 62/2013).

The preliminary report consists of factual information collected until the preliminary report published. This report will not include analysis and conclusion.

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Jakarta, 15 February 2023  
**KOMITE NASIONAL  
KESELAMATAN TRANSPORTASI  
CHAIRMAN**



**SOERJANTO TIAHJONO**

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## ABBREVIATIONS AND DEFINITIONS

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AOC	: Aircraft Operator Certificate
AFM	: Airplane Flight Manual
AML	: Aircraft Maintenance Log
AOM	: Agricultural Operational Manual
C of A	: Certificate of Airworthiness
C of R	: Certificate of Registration
CASR	: Civil Aviation Safety Regulation
CPL	: Commercial Pilot License
CVR	: Cockpit Voice Recorder
DGPS	: Differential Global Positioning System
FDR	: Flight Data Recorder
ICAO	: International Civil Aviation Organization
KNKT	: <i>Komite Nasional Keselamatan Transportasi</i>
LT	: Local Time
OFP	: Operational Flight Plan
SMSA	: PT. Sinar Mas Super Air
UTC	: Universal Time Coordinated
VFR	: Visual Flight Rules

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## SYNOPSIS

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On 17 December 2022, a Thrush S2R-T34 aircraft, registered PK-PND was being operated by PT Sinar Mas Super Air (SMSA) in Kajui airstrip, Gunung Mas Regency, Central Kalimantan to perform an aerial topdressing of fertilizers over palm oil plantation-

There were two pilots on duty that day, each for morning and afternoon shifts. Prior to the morning shift, the left brake pads were change due to wear thickness limitation. After ensuring the brakes were working properly, the first pilot departed Kajui for the first sortie of the morning shift at 0735 LT. The first shift then ended at 1205 LT. During the shift change, the first pilot informed the second pilot that the left brake pads were replaced. The first pilot reported that the tail wheel was dirty and a bit difficult to unlock. The engineer cleaned and readjusted the tail wheel to solve the issue.

At 1205 LT, prior to the afternoon shift, the engineer refueled the aircraft in refueling area near Runway 36. Afterwards, the pilot performed the preflight procedures, and there were no abnormalities reported. At 1220 LT, the pilot started taxi to loading area near Runway 18 to fill in the aircraft with fertilizers. At 1225 LT, the aircraft departed Kajui for the first sortie of the shift. The weather was sunny, and the wind was calm.

At 1235 LT, the pilot landed and then taxied to loading area wanting to refill the fertilizers. But there was a problem with the fertilizers' equipment. The pilot then decided to taxi to the parking area, while the problem was being settled. During the taxi maneuver, the pilot felt that the left brake less gripped and reported the issue to the engineer. Prior to the second sortie, the pilot tested the left brake and found it to be normal. The aircraft departed for its second sortie at 1255 LT. The aircraft landed at 1305 LT refilled the fertilizers prepared for the third sortie.

Prior to takeoff rolling, the pilot attempted to direct the aircraft to the right since the aircraft was on the left side of the runway with the left wheel touching the grass. But the aircraft kept going straight. Afterwards, the aircraft shifted more to the left. Both left wheel and tail wheel were on the grass in the shoulder, while the right wheel was on the edge of the runway. Despite of the power increased along with the pilot's effort to veer to the right, the aircraft went straight ahead. The pilot then felt the aircraft jumped a little and attempted to dump the fertilizers. But the aircraft rolled over and landed upside down. The aircraft was substantially damaged, and the pilot suffered minor injury due to the impact forces.

KNKT acknowledged the safety action taken by SMSA to address Runway Excursion issue by defining Temporary Emergency Procedure. However, there still safety issues remain to be considered. Therefore, the KNKT issued safety recommendation to encourage the implementation of the operational control procedures and reporting system for a safer flight operation. Nonetheless, 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.

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# 1 FACTUAL INFORMATION

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## 1.1 History of the Flight

On 17 December 2022, a Thrush S2R-T34 aircraft, registered PK-PND was being operated by PT Sinar Mas Super Air (SMSA<sup>1</sup>) in Kajui Airstrip, Gunung Mas Regency, Central Kalimantan (Kajui<sup>2</sup>) to perform an aerial topdressing of fertilizers over palm oil plantation.

On the day of occurrence, there were two pilots on duty divided into two shifts. The morning shift was scheduled at 0600 LT<sup>3</sup> to 1200 LT, while the afternoon shift was at 1200 LT to 1700 LT.

Prior to the morning shift, the first pilot asked the engineer to check the left brake. The engineer decided to change the brake pads because the wear thickness was approaching the limit. After visually checked the brake installation, the pilot tested the brakes. At first, the brake pedals were asymmetric, but after pumping them a few times, the brakes were balanced.

While taxiing to the fertilizer loading area, the pilot checked both brakes by maneuvering slightly to the lefts and rights and ensured the brakes were properly worked to steer the aircraft. At 0735 LT, on a daylight condition, the aircraft takeoff for the first sortie of the morning shift. The morning shift then finished at 1205 LT.

During the shift change, the first pilot informed the second pilot that the left brake pads were replaced in the morning. The first pilot also mentioned to the engineer that the tail wheel was dirty and a bit difficult to unlock. The engineer cleaned and readjusted the tail wheel to solve the issue.

Prior to the afternoon shift, the engineer filled the aircraft with 88 gallons of fuel. The refueling area was located near Runway 36. After refueling, the pilot performed the preflight procedures, and there were no abnormalities reported. At 1220 LT, the pilot started taxi to fertilizer loading area near Runway 18 to fill in the aircraft with fertilizers. While approaching the threshold of Runway 18, the aircraft turned to the right approaching the loading area.

At 1225 LT, the aircraft takeoff for the first sortie of the afternoon shift. The weather was sunny with visibility of 10 kilometers, and the wind was calm.

At 1235 LT, the pilot landed on Runway 36 and then taxied to loading area to refill the fertilizers. But there was a problem with the fertilizers' equipment. While the problem was being settled, the pilot decided to taxi to the parking area. During the taxi maneuver, the pilot felt that the left brake less gripped and reported the issue to the engineer.

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<sup>1</sup> PT Sinar Mas Super Air will be named as SMSA for the purpose of this report.

<sup>2</sup> Kajui airstrip, Gunung Mas Regency, Central Kalimantan will be named as Kajui for the purpose of this report.

<sup>3</sup> The 24-hours clock in Local Time (LT) is used in this report to describe the time as specific events occurred. Universal Time Coordinated (UTC) is LT-7 hours.



After issues on the fertilizers equipment and the left brake had been resolved, at 1250 LT, the pilot taxied to the loading area to refill the fertilizers for the second application. During taxi, the pilot tested the left brake and found it to be normal and gripped as usual. The aircraft departed for its second sortie at 1255 LT and landed at 1305 LT. Thereafter, the pilot refilled the fertilizers prior to the third sortie.

After completed the fertilizers loading, as the aircraft taxied, the pilot opened the power gradually to initiate takeoff. Prior to takeoff rolling, the flap has not been set as the pilot would select later on if the runway was not long enough for aircraft weight condition at that time.

The aircraft travelled on the left runway shoulder and the pilot attempted to direct the aircraft to the right toward the center of the runway using brake and rudder control. The aircraft did not respond and kept going straight on the left side of the runway up to 350 meters from the initial point. Afterwards, the aircraft shifted more to the left. Both left wheel and tail wheel were on the grass in the shoulder, while the right wheel was on the edge of the runway. Despite of the power increased along with the pilot's effort to veer to the right, the aircraft went straight ahead. At approximately 610 meters from the initial point, the pilot felt the aircraft jumped a little and attempted to dump the fertilizers with intention of reducing the aircraft weight so it could ascend. But, about one second later, the aircraft rolled over and stopped in upside down position.

## **1.2 Injuries to Persons**

The pilot was the only person on board and suffered minor injury.

## **1.3 Damage to Aircraft**

The aircraft was substantially damaged. Damage to the aircraft was described by Figure 1 to Figure 3.

The left wing tip was dented and torn. The upper fuselage suffered major damaged. The cockpit canopy and front windshield were ruptured.



**Figure 1: Damage to the aircraft**

The aircraft nose and tubing structure to the engine attachment were bent to the right. The propellers were fractured and bent.



**Figure 2: Damage to the aircraft nose and propellers**

The horizontal tail and elevators were crumpled. The vertical tail was detached from the fuselage and severely damaged.



**Figure 3: Damage to the empennage**

#### **1.4 Other Damage**

There was no other damage to property or the environment.

#### **1.5 Personnel Information**

##### **1.5.1 Pilot Information**

The pilot was Indonesia nationality who joined the company since April 2017. The pilot held valid Commercial Pilot License (CPL) and qualified as Single Engine Land

pilot. The pilot also held valid first-class medical certificate without any medical limitation.

The pilot had total flying hour of 1,455 hours, included 1,282 hours on Thrush S2R-T34 aircraft. The pilot had flown for 20 minutes prior to the occurrence. The last proficiency check was conducted on 19 January 2022.

## **1.6 Aircraft Information**

### **1.6.1 General**

The Thrush S2R-T34 aircraft, with serial number of T34-297DC, was manufactured by Thrush Aircraft in the United State of America, in 2009. The aircraft was registered as PK-PND and had valid Certificate of Airworthiness (C of A) and Certificate of Registration (C of R). The aircraft was used for agricultural aircraft operation to spread fertilizer over palm oil plantations. The total time since new was 8,639 hours, and the total cycles since new was 62,419 cycles.

The aircraft had single turbo propeller PT6A-34AG engine manufactured by Pratt & Whitney Canada with serial number of PCE-PH0513. The total time of the engine since new was 4,782 hours and 2,528 cycles.

The propeller installed on the aircraft was 3 bladed Hartzell HC-B3TN-3D propellers with serial number of BUA32535. The total time of the propellers since new was 4,782 hours and 2,528 cycles.

The aircraft was ferried from a maintenance hangar at Tangar, Sampit to Kajui on 11 December 2022 as a backup fleet for the agricultural operation. Prior to the occurrence, there were three maintenance actions taken to the aircraft discrepancies recorded on the Aircraft Maintenance Log (AML):

- On 13 December 2022, the left main wheel tire was replaced due to bald, and the right brake pad was replaced as the wear thickness approaching the limit.
- On 16 December 2022, the hydraulic fluid at the hydraulic motor was added as the fluid was below the indicator limit.
- On 17 December 2022, the left brake pad was replaced as the wear thickness approaching the limit.

On the day of occurrence, during the shift change the tail wheel was cleaned and readjusted as it was reported to be difficult to unlock, but these discrepancy and corrective action were not recorded on the AML.

### **1.6.2 Weight and Balance**

According to the weight and balance sheet, the aircraft carried about 3,300 lbs fertilizers and 590 lbs fuel. The estimated takeoff weight of the aircraft was 9,324 lbs, and the maximum allowable takeoff weight was 10,500 lbs.

The aircraft center of gravity estimation was 28.12 inches, while the limit range was 25.00-30.00 inches aft of the datum.

## 1.7 Meteorological Information

Aviation meteorological provider was not available at Kajui. The weather information was relied on the visual observation by pilot on duty before flying. A windsock was provided as guidance to estimate the wind speed and direction. On the day of occurrence, the weather was good with the visibility around 10 kilometers, and the wind was calm.

## 1.8 Aids to Navigation

A ground-based navigation aid was not available in the Kajui. For agricultural operation, the aircraft was equipped with AG-NAV system, a Differential Global Positioning System (DGPS) that designated to provide pilots with guidance in aerial application.

## 1.9 Communications

Kajui was not equipped with Air to Ground radio communication.

## 1.10 Aerodrome Information

Kajui airstrip was located in a palm oil plantation area in Gunung Mas Regency, Central Kalimantan. It was an unpaved runway with direction of 18/36. The runway surface was made of laterite with the dimension of 790 meters in length and 20 meters in width. The elevation was 35 feet, and the aerodrome reference point was on coordinate  $1^{\circ}22'39.29''$  S,  $113^{\circ}28'52.07''$  E.

The refueling area was located on the south near Runway 36, while the fertilizer area was on the north close to Runway 18. The windsock was located on the east side of the runway, approximately 400 meters from Runway 18. The runway illustration was shown on Figure 4.

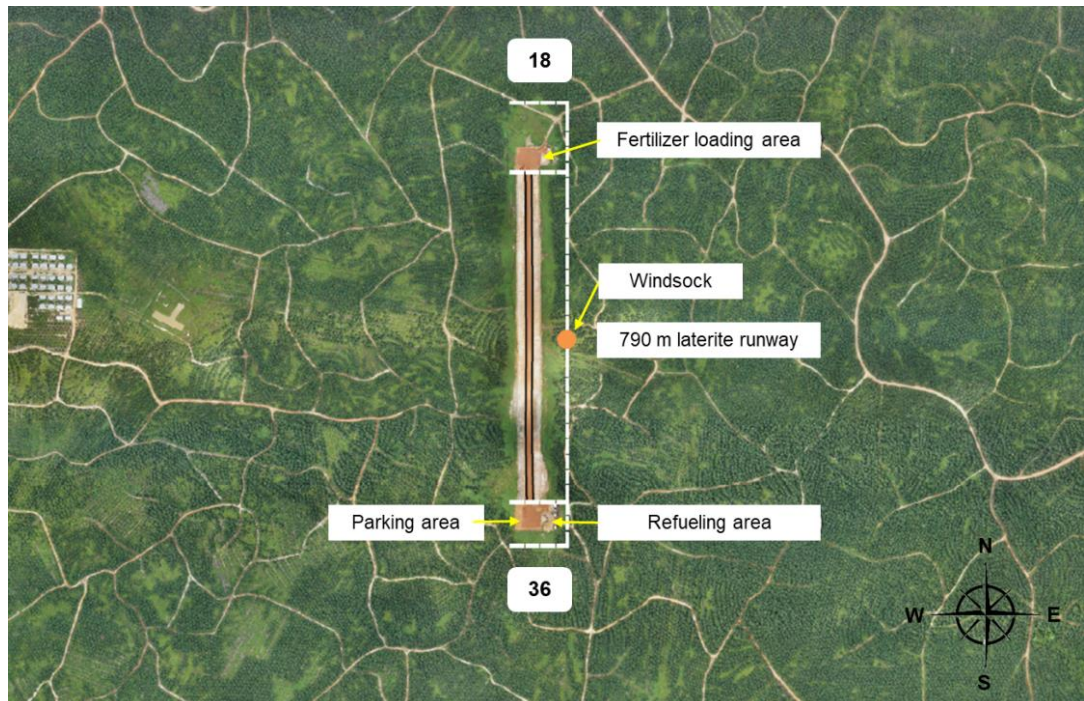


Figure 4: Kajui airstrip aerial photograph

The left and right side of the Runway 18 had different condition and color caused by constant and repetitive rolling in the left area near the runway shoulder after fertilizer loading.

### **1.11 Flight Recorders**

The aircraft was not fitted with a Flight Data Recorder (FDR) or Cockpit Voice Recorder (CVR). Neither recorder was required by applicable Indonesian aviation regulation.

The AG-NAV system records each flight path including swatch, height, and speed characteristics required for accurate fertilizer application mapping. The equipment was transported to *Komite Nasional Keselamatan Transportasi* (KNKT) recorder facility for data processing. Should the data relevant to the accident, the detail will be included in the Final Report.

### **1.12 Wreckage and Impact Information**

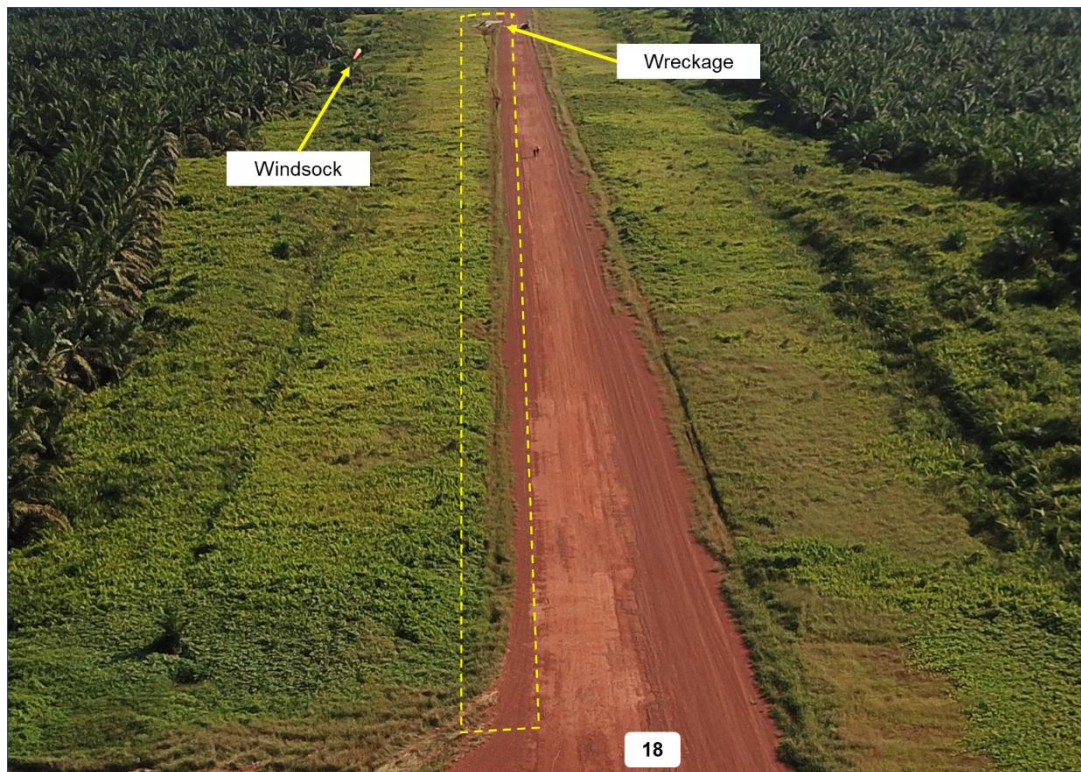
The aircraft was stopped in upside down position at 620 meters from the initial point as shown by Figure 5.



**Figure 5: The wreckage position**

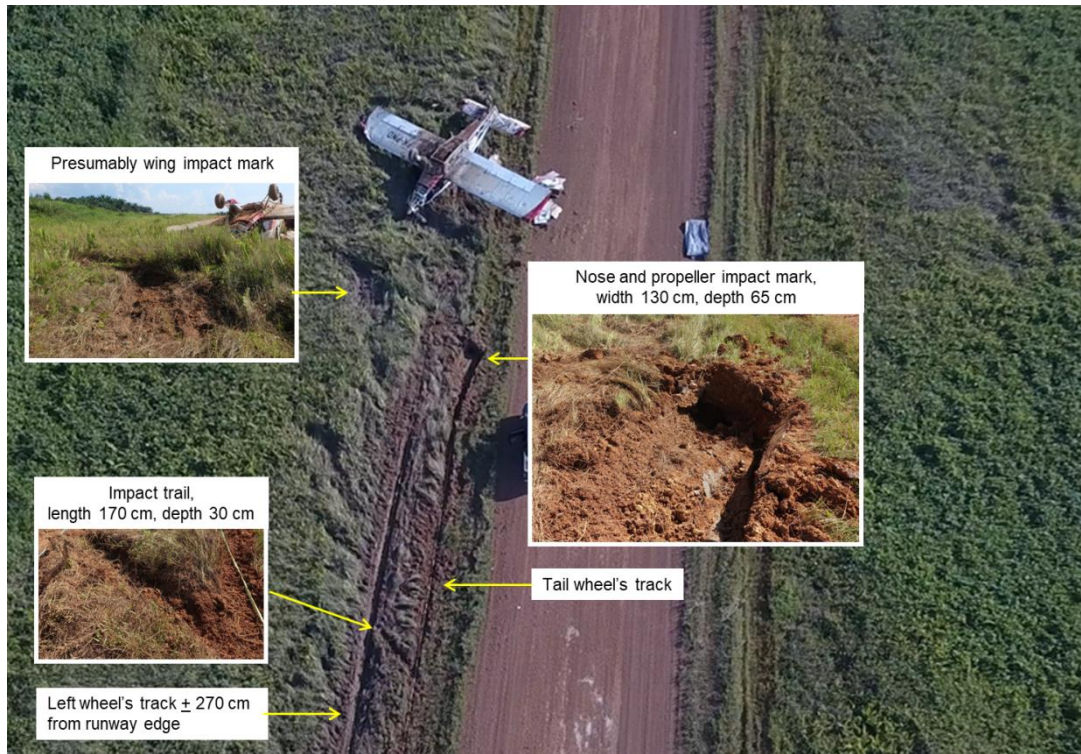
The wheel and impact evidences were found along the runway edge and shoulder as illustrated by Figure 6 and Figure 7.

As shown by Figure 6, the left and right side of the Runway 18 had different condition and color. Near the intersection with fertilizer loading area, initial trace of the left wheel was found on the runway edge touching the grass in the runway shoulder. The trail continued up to 350 meters from the initial point, before it shifted more to the left around 2.7 meters from the runway edge.



**Figure 6: The aircraft wheels trail**

Figure 7 shows the area around the occurrence where the left wheel had entered the runway shoulder. The tail wheel track was found at approximately one meter parallel to the left wheel trail. A diagonal impact mark, around 1.7 meters long and 0.3 meters deep, was found in between left wheel and tail wheel trail at 590 meters from the initial point. End of impact point along the trail was found at 610 meters from the initial point. Sharp hoe marks suspected to have come from aircraft propellers made a large hole with a depth of 0.65 meters and width of 1.3 meters. Presumably wing impact mark was found on the left of the hole, parallel to the landed wing position.



**Figure 7: Wreckage and impact information**

### **1.13 Medical and Pathological Information**

No medical or pathological investigations were conducted as a result of this occurrence, nor were they required.

### **1.14 Fire**

There was no evidence of in-flight or post-impact fire.

### **1.15 Survival Aspects**

In this occurrence, the aircraft was upside down. The pilot restrained by the shoulder hardness and had difficulty breathing. The pilot's head hit front part of the aircraft and bled. The pilot heard the engine's sound and fuel dripping but noticed that the propellers has stopped turning. Both pilot's hands were strained, but the pilot tried to free the left hand to switch off the switch panel. Since the aircraft door was blocked by the clay soil, the pilot could not open the door and got out of the plane. The ground crew became aware of the occurrence after seeing the smoke. Five minutes later, the pilot was evacuated and taken to a nearby medical facility.

### **1.16 Tests and Research**

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

## 1.17 Organizational and Management Information

### 1.17.1 Company Profile

PT Sinar Mas Super Air is an aircraft operator having address at Plaza BII Tower 2, 30th Floor, Jalan MH. Thamrin No. 50 Jakarta. It held a valid Air Operator Certificate (AOC) number 137-001 which authorized the Thrush S2R-T34 aircraft, registered PK-PND, to perform agricultural operation.

### 1.17.2 Takeoff Procedure

The Airplane Flight Manual (AFM) of Thrush Aircraft Model S2R-T34 document mentioned Before Take and Takeoff procedures as follows:

...

#### ***BEFORE TAKE-OFF***

*Before proceeding with a ground run-up, be sure that the propeller system is purged, by feathering the propeller once or twice with Power Lever in the Idle Position.*

*The following procedures should be used to check the Propeller Overspeed Governor:*

- 1. Place the propeller lever in full increase RPM (forward) position.*
- 2. Increase RPM with the power lever to at least 2100 RPM.*
- 3. Momentarily exercise the prop test switch and note a small decrease in the RPM (2025 $\pm$ 20). This checks the prop overspeed governor.*

#### **CAUTION**

***HOLD the Elevator Control firmly FULL UP during all high power ground operation to keep the airplane from nosing over.***

- 4. Flight Controls – CHECK free and full travel.*
- 5. Elevator Tab – SET for take-off*
- 6. Flaps – As required*
- 7. Fuel Lever – HIGH IDLE/ FLIGHT IDLE (check, 68%Ng).*
- 8. Fuel Aux. Pump –ON*
- 9. Ignition Switch – ON*
- 10. Rear Sear Occupant – CONFIRM ready (Dual Cockpit Only)*
- 11. Prior to flights apply take off power and read the filter condition indicator. If the needle enters the red arc, do not fly until the filter element has been cleaned.*



## **TAKE-OFF**

1. *Brakes – RELEASE*
2. *Power Lever – ADVANCE. Do not exceed engine operational limitations. (See the Limitations Section)*
3. *After breaking ground, allow airspeed to build up to best-rate-of-climb speed of 85 MPH*

...

### **1.17.3 Operational Flight Plan**

SMSA's Agricultural Operational Manual (AOM) Rev. 1 Chapter 4 described the operational control procedures. Chapter 4.3 mentioned that SMSA shall prepare an Operational Flight Plan (OFP) when dispatching the aircraft under the pilot self-dispatch system as quoted below:

#### **4.3 OPERATIONAL FLIGHT PLAN**

*The format of the operational flight plan shall allow the pilot to record the fuel state and the progress of the flight relative to the plan. The operational flight plan produced manually using approved manual flight plan form, working from charts and tables, by pilot on duty.*

*The signing of the flight plan indicated the pilot on duty's approval and acceptance.*

*PT. Sinar Mas Super Air when dispatching its aircraft under the pilot self-dispatch system shall prepare an Operational Flight Plan (OFP) that contains the following information as applicable:*

1. *Company name and operational base*
2. *Date;*
3. *Aircraft registration;*
4. *Aircraft type and model;*
5. *Crew names;*
6. *Spraying area*
7. *Shorty;*
8. *Signature of pilot in command and as applicable;*
9. *Total Fertilizer loaded.*

However, there were no OFP documents reported. SMSA relied on the Dispensing Plan for agricultural operation. The occurrence flight was part of the plan on Document Number 002/DP/SMSA/IX/2022 for operation from 03 September 2022 – 31 December 2022.

#### **1.17.4 Discrepancy and Maintenance Reporting**

SMSA's AOM Rev. 1 Chapter 4.6 described the discrepancy reporting procedures while Chapter 8.5 mentioned the technical recording system applied to the company quoted as follows:

##### **4.3 DISCREPANCY REPORTING**

*It is the responsibility of the PIC to ensure that all discrepancies noted during a flight or series of flights is entered in the Aircraft Flight Maintenance Log as soon as practical. The PIC shall brief the maintenance personnel directly regarding aircraft defects where possible.*

*The PIC shall ensure that trend monitoring is accomplished at least once daily and noted in the aircraft Journey logbook, or on aircraft equipped with an automated trend data system, that it is functioning properly.*

...

##### **8.5 TECHNICAL RECORD**

*Immediately upon finding a defect in an aircraft, or upon completing any maintenance on an aircraft, the person discovering the defect or performing the maintenance shall enter detail of the event the applicable technical records required by the CASR.*

*If the event occurs between scheduled maintenance checks, the entries shall be made in the Aircraft Flight Maintenance Log Book clipboard in the aircraft. The Safety & Quality Officer and Engineer Senior shall ensure that aircraft flight maintenance log entries are transcribed to the applicable airframe, engine, and propeller or component records within 30 days of the events to which they relate. Details of defects found during a scheduled maintenance check, or of maintenance performed during such a check, may be entered directly in the applicable airframe, engine, propeller, or component record, provided that any outstanding items remaining upon completion of the maintenance check are entered in the aircraft log upon certification of the maintenance event/check or prior to flight.*

*Aircraft maintenance record must be keep on PT. Sinar Mas Super Air base operation.*

#### **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 KNKT approved policies and procedures, and in accordance with the standards and recommended practices of Annex 13 to the Chicago Convention.

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## 2 FINDINGS

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

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

1. The aircraft had valid Certificate of Airworthiness (C of A) and a valid Certificate of Registration (C of R).
2. 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 without any medical limitation.
3. The mass and the center of gravity of the aircraft were within the prescribed limits.
4. There was no Operational Flight Plan for the flight.
5. The pilot is the afternoon shift pilot on duty during the day.
6. During the time of occurrence, the weather was clear with visibility of 10 km, and the wind was calm.
7. Prior to the morning shift, the left brake pads were changed.
8. The first pilot reported the tail wheel issue to the engineer during the shift change. The engineer cleaned and readjusted the tail wheel.
9. Prior to the occurrence, the second pilot had flown two sorties on the afternoon shift.
10. After the second sortie, the pilot reported that the left brake less gripped but confirmed the issue had been resolved by the engineer prior to the third sortie.
11. The flap was not selected prior to takeoff rolling for the third sortie.
12. The aircraft was on the left side of the runway with the left wheel touching the grass before rolling takeoff for the third sortie.
13. The pilot attempted to direct the aircraft to the right toward the center of the runway, but the aircraft did not respond the aircraft kept going straight.
14. Around 350 meters from the rolling point the aircraft shifted more to the left. Both left wheel and tail wheel were on the grass in the shoulder, while the right wheel was on the edge of the runway.
15. At approximately 610 meters from the initial point, the aircraft rolled over and stopped at upside down position.
16. The pilot was restrained by the shoulder hardness and suffered minor injury. The pilot got off the aircraft with assistance from the ground crew and directly evacuated to the nearest medical facility.

17. There was no emergency procedure for use under runway excursion condition.
18. There was no standard for takeoff roll position to prevent the runway excursion.

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### **3 SAFETY ACTION**

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During the time of issuing this Preliminary Report, the KNKT had been informed of safety actions resulting from this occurrence taken by the related parties.

#### **3.1 PT. Sinar Mas Super Air**

On 28 December 2022, the KNKT was informed that SMSA had taken the following safety action to address Runway Excursion issue by defining Temporary Emergency Procedure, Notice Number 001/SMSA/ XII/2022, stated as follow:

*AT THE FIRST OPPORTUNITY WHEN BOTH MAIN LANDING GEAR HAS VEERED OFF THE RUNWAY AND ENTERING THE AIRSTRIP SHOULDER, PILOT SHOULD DO THE FOLLOWING ACTIONS SEQUENTIALLY:*

- 1) SHUTDOWN ENGINE IMMEDIATELY*
- 2) KEEP ELEVATOR IN FULL UP POSITION*
- 3) APPLY RUDDER AND BRAKE TO STEERING AND FULL STOP (IF POSSIBLE)*
- 4) STAY ON AIRCRAFT UNTIL AICRAFT FULL STOP (IF POSSIBLE)*
- 5) TURN OFF ELECTRICAL SYSTEM BEFORE EXIT THE COCKPIT (IF POSSIBLE)*

On 16 Januari 2023, the KNKT was informed that SMSA had issued Pilot Notice No 001/SMSA/PN/I/2023 dated 2 January 2023 to address the importance of centerline takeoff, stated as follow:

*BEFORE START TAKE OFF ROLL – PILOT SHOULD ALWAYS POSITIONING THE AIRCRAFT AND HEADING CENTERLINE WITH AIRSTRIP RUNWAY*

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## **4 SAFETY RECOMMENDATIONS**

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

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

### **4.1 PT Sinar Mas Super Air**

- **04.O-2022-19.01**

The flap was not set prior to takeoff rolling, aqs per pilot understanding, the flap could be selected later on if the runway was not long enough for loading condition at that time. The AFM mentioned that the flap shall be selected as required before takeoff. The deviation from procedure indicates the misconception of the normal standard which may lead to the improper aircraft performance and increase pilot workload during takeoff.

Therefore, the KNKT recommends SMSA to ensure that the pilot implement the applicable procedure to calculate the takeoff distance required for the loading condition and decide the takeoff configuration.

- **04.O-2022-19.02**

The Operational Flight Plan (OFP) documents was not made prior to the flight and the pilot relied on the Dispensing Plan for agricultural operation. The AOM Chapter 4.3 mentioned that SMSA shall prepare an OFP when dispatching its aircraft under the pilot self-dispatch system. The absence of OFP allowed inavailability of the record of the fuel state and the progress of the flight relative to the plan.

Hence, KNKT recommends SMSA to encourage the implementation of operational control system by all company employees as mentioned in the AOM.

- **04.O-2022-19.03**

An abnormality on the tail wheel occurred on the day of the occurrence however, the information was not found in the Aircraft Maintenance Log. The operation manual mentioned that the detail of discrepancy and maintenance action taken shall be entered in the applicable technical record as soon as practical. The absence of aircraft discrepancy record on the AML may result in incomplete aircraft maintenance record.

Accordingly, the KNKT recommends SMSA to encourage the implementation of reporting procedure by all company employees

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