KOMITE NASIONAL KESELAMATAN TRANSPORTASI
REPUBLIC OF INDONESIA

PRELIMINARY

KNKT.22.08.13.04

Aircraft Accident Investigation Report

PT. Smart Cakrawala Aviation

Cessna Caravan 208B EX; PK-SNW

Runway of Sinak Airport, Papua

Republic of Indonesia

30 August 2022

2022

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

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

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

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Jakarta, 8 November 2022

KOMITE NASIONAL
KESELAMATAN TRANSPORTASI
CHAIRMAN

SOERJANTO TJAHJONO

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ABBREVIATIONS AND DEFINITIONS

AIP	:	Aeronautical Information Publication
AOC	:	Air Operator Certificate
ATS	:	Air Traffic Services
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
CVDR	:	Cockpit Voice and Data Recorder
DGCA	:	Directorate General of Civil Aviation
FDR	:	Flight Data Recorder
FOO	:	Flight Operation Officer
GPS	:	Global Positioning System
ICAO	:	International Civil Aviation Organization
KNKT	:	*Komite Nasional Keselamatan Transportasi*/National Transportation Safety Committee
LT	:	Local Time
OM	:	Operation Manual
OM-C	:	Operation Manual Part C
PIC	:	Pilot in Command
SD	:	Secure Digital
SIC	:	Second in Command
SOP	:	Standard Operating Procedure
STSB	:	Swiss Transportation Safety Investigation Board
TIBA	:	Traffic Information Broadcast by Aircraft
UTC	:	Universal Time Coordinated
VFR	:	Visual Flight Rules
VHF	:	Very High Frequency
VMC	:	Visual Meteorological Condition

SYNOPSIS

On 30 August 2022, a Cessna 208B EX aircraft, registration PK-SNW was being operated by PT Smart Cakrawala Aviation (Smart Aviation) to conduct unscheduled flightfrom Mozes Kilangin International Airport, Timika (TIM) to Sinak Airport, Puncak (NKD). The aircraft departed from Timika at 1220 LT, on day light condition to Sinak carried four people on board, comprising two pilots and two passengers. The aircraft operated within the weight and balance envelope.

The aircraft cruised at altitude of 13,500 feet and the flight was uneventful until commencing landing approach to Runway 35 at Sinak.

At 1307 LT, during landing the aircraft floated before touchdown, then pilot retracted the flap position to TO/APP. After touchdown, the PIC applied the brake. The PIC noticed that the aircraft speed was high and the aircraft would overrun from the runway. The PIC decided to bring the aircraft to the left side of the end of the runway which considered as the safest and suitable area.

After the aircraft stopped, the pilot and the passenger were safely evacuated from the aircraft by themselves with one pilot ad minor injury and received medical attention. The aircraft was substantially damaged.

The KNKT acknowledged the safety actions had been taken by the operator following the occurrence and considered relevant to improve safety however there are safety issues that remain to be considered. Therefore, KNKT issued safety recommendation to the aircraft operator to address safety issues identified in this report.

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 30 August 2022, a Cessna 208B EX aircraft, registered PK-SNW, was being operated by PT. Smart Cakrawala Aviation (Smart Aviation) to conduct unscheduled flight.

The flight planned of the day for the aircraft and the PIC were from Timika[1] – Ilaga[2] – Timika – Sinak[3] – Timika – Kenyam[4] – Timika – Sinak – Timika. The flight plans of those flights would be conducted in accordance with Visual Flight Rules (VFR).

The first six flights of PK-SNW on that day were uneventful.

On the seventh flight, the aircraft departed from Timika at 0320 UTC[5] (1220 LT) to Sinak carrying four people on board, comprising two pilots and two passengers. The aircraft also carried with 1,048 kg of cargo. The Pilot in Command (PIC) acted as Pilot Flying (PF) and the Second in Command (SIC) acted as Pilot Monitoring (PM). When the aircraft altitude was about 1,000 feet the autopilot was engaged.

At 1241 LT, during the aircraft climbed to the intended cruising altitude of 13,500 feet, the Timika tower controller directed the SIC to change the radio frequency to 122.9 MHz and to follow the Traffic Information Broadcast by Aircraft (TIBA) procedure.

The aircraft cruised at an altitude of 13,500 feet and the flight was uneventful. During cruising, the PIC was informed by another aircraft pilot that the weather at Sinak was rain and suitable for visual flight. The PIC acknowledged and was aware about the weather condition and decided to continue the flight.

About 7 Nm from Sinak, when the aircraft altitude about 2,000 feet Above Ground Level (AGL), the PIC disengaged the autopilot and switched for manual flying. The SIC performed the lading checklist.

About 1,000 feet AGL, the Enhanced Ground Proximity Warning System (EGPWS) aural warning “sinkrate” active twice. The SIC noticed that the aircraft speed was higher than normal and called out “speed” then the PIC responded by a call “correcting”.

At 1307 LT, during landing the aircraft floated before touchdown, then pilot retracted the flap position to TO/APP. After touchdown, the PIC applied the brake. The PIC noticed that the aircraft speed was high and the aircraft would overrun from the runway. The PIC decided to bring the aircraft to the left side of the end of the runway which considered as the safest and suitable area.

After the aircraft stopped, the pilot and the passenger safely evacuated from the aircraft by themselves. The PIC had a minor face injury and receiving medical attention. And the aircraft was substantially damaged.

1 Mozes Kilangin International Airport, Timika (TIM) will be named as Timika for the purpose of this report.
2 Ilaga Airport, Puncak (ILA) will be named as Ilaga for the purpose of this report.
3 Sinak Airport, Puncak (NKD) will be named as Sinak for the purpose of this report.
4 Kenyam Airport, Nduga (KEN) will be named as Kenyam for the purpose of this report.
5 The 24-hours clock in Universal Time Coordinated (UTC) is used in this report to describe the local time as specific events occurred. The Local Time in Sinak is UTC + 9 hours.

1.2 Injuries to Persons

Injuries	Flight crew	Passengers	Total in Aircraft	Others
Fatal	-	-	-	-
Serious	-	-	-	-
Minor	1	-	1	Not applicable
None	1	2	3	Not applicable
TOTAL	2	2	4	-

1.3 Damage to Aircraft

The aircraft was substantially damaged. The aircraft nose landing gear was detached and the propeller assembly detached from the propeller gear box and all propeller blades bent.

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	:	33 years
Nationality	:	Indonesia
Marital Status	:	Married
Date of joining company	:	26 August 2020
License	:	CPL
Date of issue	:	12 February 2020
Aircraft type rating	:	SE-Land
Instrument rating validity	:	13 December 2016
Medical certificate	:	First Class
Last of medical	:	21 July 2022
Validity	:	21 January 2023
Medical limitation	:	Holder small possess glasses that correct for near vision.
Last line check	:	5 March 2022
Last proficiency check	:	6 December 2021

Flying experience

Total hours	:	4,200 hours

Total on type	:	2,700 hours
Last 90 days	:	152 hours and 52 minutes
Last 30 days	:	85 hours and 3 minutes
Last 7 days	:	10 hours and 4 minutes
Last 24 hours	:	3 hours and 51 minutes
This flight	:	41 minutes

1.5.2 Second in Command

Gender	:	Male
Age	:	33 years
Nationality	:	Indonesia
Marital Status	:	Married
Date of joining company	:	26 August 2018
License	:	CPL
Date of issue	:	21 October 2021
Aircraft type rating	:	SE-Land
Instrument rating validity	:	5 October 2021
Medical certificate	:	First Class
Last of medical	:	9 August 2022
Validity	:	18 February 2023
Medical limitation	:	None
Last line check	:	21 June 2022
Last proficiency check	:	8 February 2022

Flying experience

Total hours	:	469 hours and 34 minutes
Total on type	:	290 hours and 49 minutes
Last 90 days	:	119 hours and 47 minutes
Last 30 days	:	60 hours and 10 minutes
Last 7 days	:	37 hours and 57 minutes
Last 24 hours	:	6 hours and 4 minutes
This flight	:	41 minutes

1.6 Aircraft Information

1.6.1 General

Registration Mark	:	PK-SNW
Manufacturer	:	Textron Aviation Inc.
Country of Manufacturer	:	United States
Type/Model	:	Cessna 208B EX
Serial Number	:	208B-5579
Year of Manufacture	:	2020

Certificate of Airworthiness

Date of issue	:	8 December 2021
Validity	:	7 December 2022
Category	:	Normal
Limitation	:	None

Certificate of Registration

Number	:	4283
Date of issue	:	8 December 2020
Validity	:	7 December 2023
Time Since New	:	2,143 hours 50 minutes
Cycles Since New	:	3,475
Last Major Check	:	HSI (Hot Section Inspection)
Last Minor Check	:	100-hour inspection

1.6.2 Engines

Manufacturer	:	Pratt & Whitney Canada
Type/Model	:	3076226-01-BS1294
Serial Number-1 engine	:	PCE-VA0651
Time Since New	:	2,143 hours 50 minutes
Cycle Since New	:	3,475 cycles

1.6.3 Propellers

Manufacturer	:	McCauley
Type/Model	:	P7785550-01
Serial Number-1 propeller	:	190815
Time Since New	:	2,143 hours 50 minutes
Cycle Since New	:	3,475 cycles

1.6.4 Weight and Balance

According to the weight and balance sheet the takeoff weight was 8,790 lbs of the maximum of 9.062 lbs. The landing eight was estimated 8,590 lbs of the maximum of 9,000 lbs. The aircraft was operated within the weight and balance envelop.

1.7 Meteorological Information

The details of meteorological information will be included in the Final Report.

1.8 Aids to Navigation

The aircraft was fitted with Global Positioning System (GPS) Garmin G1000 which has capability to provide navigation data. The G1000 allows the pilot to create, edit and store up to 99 flight plans with up to 99 waypoints on each flight plan. The G1000 can be used to navigate direct point-to-point, which also can be used as guidance from a certain point or position to another point on the flight plan.

The Garmin G1000 also records flight log which stored in a Secure Digital (SD) card. The flight log consists of several flight information and aircraft (including engine) performance which can be utilized as a simple flight data analysis and aircraft condition monitoring. The investigation revealed that the information of the Garmin G1000 never been reviewed.

A ground-based navigation aid was not available in the Sinak and the airstrip information for Sinak was not included in the Aeronautical Information Publication (AIP). The Smart Aviation developed Operation Manual Part C (OM-C) which included area, routes and aerodromes information of Sinak that were used internally. The aerodrome information which was used is shown in the figure below.

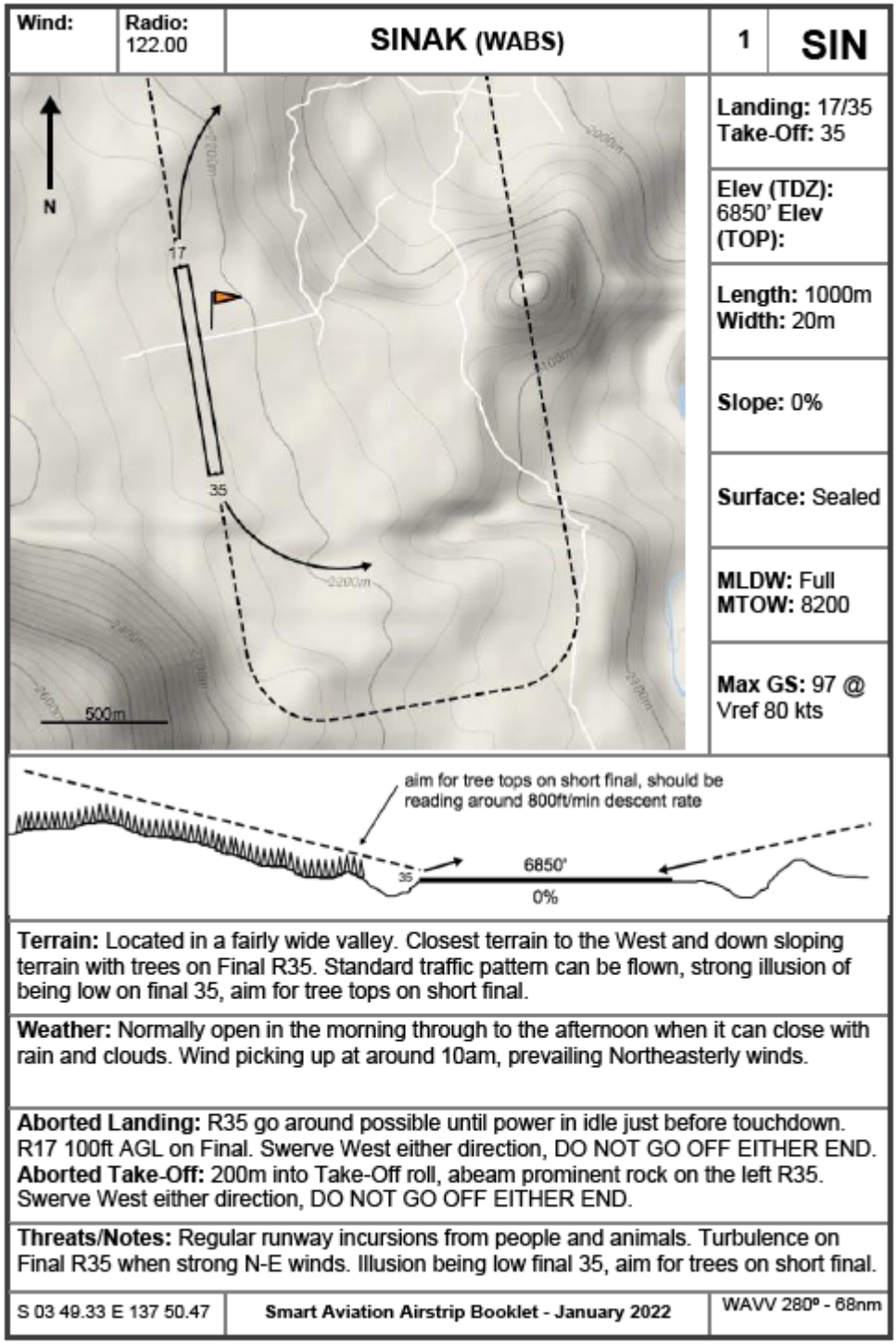

Figure 1: Area, routes, and aerodromes information of Sinak issued by Smart Aviation for internal use

1.9 Communications

The pilot used two-way Very High Frequency (VHF) radio communication to communicated with Timika Tower controller and then made broadcast on a frequency in the uncontrolled airspace.

The communication between pilot and Timika tower controller was recorded in ground-based communication recorder, and the communication in the uncontrolled airspace was only recorded in the Cockpit Voice and Data Recorder (CVDR).

1.10 Aerodrome Information

Airport Name	:	Sinak Airport
Airport Identification	:	WABS
Airport Operator	:	DGCA
Coordinate	:	3°49'21.94"S 137°50'22.06"E
Elevation	:	7,299 ft
Runway Direction	:	35/17
Runway Length	:	1,100 meters
Runway Width	:	23 meters
Surface	:	Asphalt

1.11 Flight Recorders

The aircraft fitted with Cockpit Voice and Data Recorder (CVDR), which recorded both flight data and cockpit voice. The CVDR (the recorder) manufactured by L-3 Comm with part number 2100-3083-51 and serial number 001169102.

After the occurrence, the recorder was transported to KNKT recorder facility for data download process. The recorder data successfully downloaded consisted of 170 parameters in 251 flight hours and 124 minutes of voice data including the occurrence flight.

The details of the flight and voice data will be included in the Final Report.

1.12 Wreckage and Impact Information

The mark of the aircraft touchdown on the runway was not clearly visible. The marks of the tire path leading to the end of the runway showed deviating to the left from the runway centerline towards the last position of the aircraft was visible.

Figure 2 : PK-SNW path on the runway

The aircraft stop on a ditch passed the runway end.

Figure 3 The aircraft condition after stopped

The detail damages of the aircraft were as follows:

a. Propeller and the gearbox was damaged and detached from the engine.

Figure 4 The damaged of the propeller and the blades

b. Nose landing gear was detached and collapse underneath the fuselage.

Figure 5 The damaged of the nose landing gear

1.13 Medical and Pathological Information

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

1.14 Fire

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

1.15 Survival Aspects

After the aircraft stopped, the pilot and the passenger evacuated by themselves from the aircraft.

1.16 Tests and Research

Test and research information were not available at the time of the issuance of this report. Should any test or research information be obtained during this investigation that is relevance to this investigation, it will be included in the final report.

1.17 Organizational and Management Information

The aircraft was operated by PT Smart Cakrawala Aviation (Smart Aviation) which had valid Air Operator Certificate (AOC) number 135-062. The Smart Aviation is authorized to conduct air transportation carrying passengers and cargo in scheduled and non-scheduled operation within and outside Indonesia for aircraft operations under Civil Aviation Safety Regulation (CASR) Part 135.

The Smart Aviation developed Operation Manuals (OM)s which contain policies and procedures approved by the Directorate General of Civil Aviation.

1.17.1 Stabilized Approach

The operator provided the procedure of the stabilized approach in the OM-A chapter 10 which described as follow:

10.8. STABILIZED APPROACH PROCEDURES

10.8.1. General

A stabilized approach is one of the key features of a safe approach and landing in public transport operations. A stabilized approach is characterized by a constant angle, constant-rate descent approach profile.

If at any time during an approach there is doubt that any element of the stabilize approach can not be achieved or maintained, the approach should be discontinued.

All Smart Cakrawala Aviation flights must be stabilized by 500 feet above airport elevation in visual meteorological conditions (VMC).

An approach is stabilized when all of the following criteria are met:

1. *The aircraft is on the correct flight path;*
2. *Only small changes in heading/ pitch are required to maintain the correct flight path;*
3. *The aircraft speed is not more than VREF+20 knots indicated airspeed and not less than VREF;*
4. *The aircraft is in the correct landing configuration;*
5. *Sink rate is no greater than 1,000 feet per minute; if an approach requires a sink rate greater than 1,000 feet per minute, a special briefing should be conducted;*
6. *Power setting is appropriate for the aircraft configuration and is not below the minimum power for approach as defined by the aircraft operating manual;*
7. *All briefing and checklists have been conducted;*
8. *Specific types of approaches are stabilized if they also full fill the following:*

   instrument landing system (ILS) approaches must be flown within one dot of the glide slope and localizer; during a circling approach, wings should be

level on final when the aircraft reaches 300 feet above airport elevation;

9. *Unique approach procedures or abnormal conditions requiring a deviation from the above elements of a stabilized approach require a special briefing.*

An approach that becomes un-stabilized below 500 feet above airport elevation in VMC requires an IMMEDIATE GO-AROUND.

DO NOT ATTEMPT TO LAND FROM AN UNSTABLE APPROACH

AN APPROACH THAT BECOMES UNSTABILIZED BELOW 1,000 FEET AFE IN IMC OR BELOW 500 FEET AFE IN VMC REQUIRES AN IMMEDIATE GOAROUND

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 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. Both pilots held valid licenses and first-class medical certificates with PIC medical limitation to possess glasses that correct for near vision.
2. The aircraft had valid Certificate of Airworthiness (C of A) and a valid Certificate of Registration (C of R).
3. There was no record of aircraft unserviceability in the past 3 months prior to the occurrence. During the occurrence flight, the aircraft was operated within the weight and balance envelope.
4. The operator utilized a customized chart of aerodrome information which described in Operation Manual Part C (OM-C). The chart included area, routes and aerodromes information of Sinak that were used internally.
5. The aircraft was operated within the weight and balance envelop.
6. The PIC was informed by another aircraft pilot that the weather at Sinak was rain and suitable for visual flight. The PIC acknowledged and was aware about the weather condition and decided to continue the flight.
7. About 1,000 feet AGL, the Enhanced Ground Proximity Warning System (EGPWS) aural warning “sinkrate” activated twice. The SIC noticed that the aircraft speed was higher than normal and called out “speed” then the PIC responded by a call “correcting”.
8. The aircraft floated before touchdown, then pilot retracted the flap position to TO/APP.
9. The PIC decided to bring the aircraft to the left side of the end of the runway which considered the most safe and suitable area.
10. The aircraft was substantially damaged. The aircraft nose landing gear was detached and the propeller assembly detached from the propeller gear box and all propeller blades bent.
11. The aircraft was equipped with Garmin G1000, which has capability of flight data logging.
12. The aircraft was fitted with L3 FA2100 CVDR recorder with part number 2100-3083-51 and serial number 001169102. This unit has the capability to record both flight and cockpit voice data.

3 SAFETY ACTION

At the time of issuing this report, the KNKT had been informed by the operator that the operator performed occurrence analysis and follow up from the occurrence. The Occurrence Analysis and Follow up is as follow.

OCCURRENCE ANALYSIS & FOLLOW-UP

PK-SNW/ACCIDENT/SINAK/ 30 AUGUST 2022

Revision :00

RISK CATEGORY (ASSOCIATED WITH)	HAZARD (WHAT CAN CAUSE HARM)	EXISITING DEFENCES	RISK INDEX	MITIGATING ACTION TO REDUCE RISK	ADJUSTED RISK INDEX	ACTIONS	TARGET COMPLETION DATE
People, Operation, Asset, and Reputation	Loss of control when the aircraft encounterd adverse on the runway . The photos evidence indicated that the aircraft was over-run from runway 35, and stopped at the end of runway 17. The Pilot decided to land, based on the information and the availability of the runway as the run way lenght is 1100 m which is safe for C208B Ex to land.	a. OM Part A Ch 2.4.7(2) Restriction or Suspension of Operations	3C	a. To remind all pilot to enhance safety practice, recognizing runway runway conditions, that are a hazard to safe operations, the operations staff or pilot in command, as the case may be, shall restrict or suspend operations until those conditions are corrected.	4D	a. Safety & Quality Manager with Operation Manager, supported by Instructor do the socialization about Restriction or Suspension of Operation	11-Sep-22
		b. SOP Mountainous Chapter 1.21 Approach and Landing		b. Advice Saefty & Quality Department for publishing Safety & Quality Notice related to accident PK-SNW about : 1. Operation in Papua Mountainous Area; 2. Safety Improvement; 3. RTB & Go Around.		b. Safety & Quality Department published 3 (three) Safety & Quality Notice 1. Operation in Papua Mountainous Area SN.013/SCA/SFD/IX/2022; 2. Safety Improvement SN.014/SCA/SFD/IX/2022; 3. RTB & Go Around SN.015/SCA/SFD/IX/2022 signed by President Director	11-Sep-22
		c. OM Part D Ch 2.7 Approach and Landing Accident Reduction (ALAR)		c. Upon successful completion of Approach and Landing Accident Reduction (ALAR) training, the trainee will be capable satisfactorily develops awareness of potential hazards during approach and landing.		c. Operation Department make sure all of the crew have been given ALAR Training & give socialization to all crew about ALAR	11-Sep-22
		d. OM Part D Ch 2.3 Basic Basic Indoctrination		b. To Do re-basic indoctrination to the related SIC, and socialize To emphasize flight crew practice/implemented the SOP and Pilot's Decision Making Proses during Pilot Corrective & Recovery Training.		b. The SIC was given re-basic indoctrination by Safety and Quality Manager and Operation Manager - plan the corrective flight & recovery training for SIC	11-Aug-22

4 SAFETY RECOMMENDATIONS

The *Komite Nasional Keselamatan Transportasi* (KNKT) acknowledged that the safety actions had been taken by the operator and relevant to improve safety, however there are safety issues that remain to be considered. The KNKT issued safety recommendations to address the safety issues as follow.

4.1 Smart Aviation

- **04.O-2022-13.1**

About 1,000 feet AGL, the Enhanced Ground Proximity Warning System (EGPWS) aural warning "sinkrate" activated twice. The SIC noticed that the aircraft speed was higher than normal and called out "speed" then the PIC responded by a call "correcting". The operator provided the procedure of the stabilized approach criteria which described in the OM-A chapter 10.8.

The EGPWS warning and the SIC called out indicated that the aircraft was in un-stabilized approached condition which require go around according to the OM-A.

Therefore KNKT recommend the operator to review the implementation of the stabilized approached as described in the OM-A.

- **04.O-2022-13.2**

The aircraft was fitted with Global Positioning System (GPS) Garmin G1000 which has capability to provide navigation data and flight log. The flight log consists of several flights information and aircraft (including engine) performance which can be utilized as a simple flight data analysis and aircraft condition monitoring. The investigation revealed that the information of the Garmin G1000 never been reviewed.

Therefore, KNKT recommend the operator to utilize the Garmin G1000 flight data log to monitor the pilot and aircraft performance.

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