KOMITE NASIONAL KESELAMATAN TRANSPORTASI
REPUBLIC OF INDONESIA

PRELIMINARY

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Aircraft Accident Investigation Report

Angkasa Aviation Academy

Beechcraft G58 Baron; PK-LRV

Cakrabhuwana Airport, Cirebon

Republic of Indonesia

5 October 2023

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, 5 January 2024
KOMITE NASIONAL KESELAMATAN TRANSPORTASI
CHAIRMAN

SOERJANTO TJAHJONO

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ABBREVIATIONS AND DEFINITIONS

AAA	:	Angkasa Aviation Academy
AOC	:	Air Operator Certificate
ARFF	:	Airport Rescue and Fire Fighting
ATC	:	Air Traffic Controller
ATPL	:	Airline Transport Pilot License
CASR	:	Civil Aviation Safety Regulation
CB	:	Circuit Breaker
CPL	:	Commercial Pilot License
DGCA	:	Directorate General Civil Aviation
FI	:	Flight Instructor
FTD	:	Flight Training Device
KNKT	:	*Komite Nasional Keselamatan Transportasi* also known as National Transportation Safety Committee is the government institution of Republic of Indonesia, responsible to conduct transportation safety investigation.
LT	:	Local Time
MFD	:	Multi-Function Display
PF	:	Pilot Flying
PM	:	Pilot Monitoring
POH	:	Pilot Operating's Handbook
RPM	:	Rotation Per Minute
SD	:	Secure Digital
SEL	:	Single Engine Land
SOP	:	Standard Operating Procedure
TPM	:	Training Procedure Manual
UPBU	:	*Unit Penyelenggara Bandar Udara* is a unit within the Directorate General of Civil Aviation responsible to provide aviation services as airport operator.
UPRT	:	Upset Prevention and Recovery Training
UTC	:	Universal Time Coordinated
VFR	:	Visual Flight Rules
VHF	:	Very High Frequency
VMCA	:	Velocity Minimum Controllable Aircraft is defined as the minimum speed, whilst in the air, that directional control can be maintained with one engine inoperative.

SYNOPSIS

On 5 October 2023, a Beechcraft G58 Baron aircraft, registered PK-LRV was being operated by Angkasa Aviation Academy (AAA) on a multi engine training flight at Cakrabhuwana Airport (WICD), Cirebon. The training was planned to be conducted in two flights by the Flight Instructor (FI) with one student pilot on each flight.

The Flight Instructor (FI) position in the AAA was the Assistance Chief Instructor and acted as Head of AAA. At the day of the occurrence, the FI was scheduled to attend the management meeting with the finance department personnel at 1000 Local Time (LT) for discussing about management matters. The FI was in fasting condition.

The first flight was multi engine training with the first student pilot. The flight was conducted in training area and aerodrome traffic circuit. The first flight with the first student pilot was completed uneventfully.

After completion of the first flight, while the aircraft was refuelled, the FI went to the office. In the office the FI met with another FI who had the license expired. Having the finance department personnel was not ready for the meeting the FI changed the schedule to conduct recurrent flight for the FI. The flights conducted in aerodrome traffic circuit for normal touch and go training. The second flight was uneventfully.

The third flight was multi engine rating training for the second student pilot. At 1221 LT, the aircraft took off using Runway 04 then proceed to Drama training area. The exercise on training area consisted of clean stall, dirty stall, UPRT, VMCA and simulated one engine failure. After the exercises in the Drama training area completed, the training continued by the exercises in the aerodrome traffic circuit Runway 04. The exercises at the aerodrome traffic circuit were touch and go for both normal engine and simulated one engine failure.

At 1408 LT, at the downwind the FI planned to make a full stop landing and would attend to the management meeting.

At the final Runway 04 the FI requested to the Air Traffic Controller (ATC) for full stop for landing and was approved by the ATC who then issued the landing clearance. The aircraft landed and the FI noticed by the strange sound that the aircraft was landed without landing gear. The FI recalled that the landing checklist had not been executed and the FI lowered the landing gear lever. After the landing gear lever was lowered, the Circuit Breaker (CB) landing gear motor pop up. The aircraft stopped about 600 meters from beginning Runway 04 in front of Airport Rescue and Fire Fighting (ARFF) Station.

At the time of issuing this preliminary report, the KNKT had been informed of safety actions resulting from this occurrence taken by the aircraft operator. However, there is still safety issue to be considered, therefore, the KNKT issued safety recommendations to the aircraft operator.

The investigation is continuing, should any further relevant safety issues emerge during 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 5 October 2023, a Beechcraft G58 Baron aircraft, registered PK-LRV was being operated by Angkasa Aviation Academy (AAA) on a multi engine training flight at Cakrabhuwana Airport (WICD), Cirebon. The training was planned to be conducted in two flights by the Flight Instructor (FI) with one student pilot on each flight.

The FI position in the AAA was the Assistance Chief Instructor and acted as Head of AAA. At the day of the occurrence, the FI was scheduled to attend the management meeting with the finance department personnel at 1000 Local Time (LT[1]) for discussing about management matters. The FI was in fasting condition.

The first flight was multi engine training with the first student pilot. The flight was conducted in training area and aerodrome traffic circuit. In the training area the FI and first student pilot performed some exercises consisted of clean stall, dirty stall, Upset Prevention & Recovery Training (UPRT), Velocity Minimum Controllable Aircraft (VMCA) and simulated one engine failure. The simulated one engine failure was performed by reducing power lever to idle position and maintaining the propeller pitch in full forward position (high propeller Rotation per Minute (RPM)). According to the FI during the one engine failure exercise the landing gear warning was active. On the aerodrome traffic circuit training, the exercises performed were touch and go with normal engine and simulated one engine failure.

The first flight was completed uneventfully and while waited the aircraft being refuel, the FI went to the office to reconfirm whether the finance department personnel were ready to conduct the meeting. While in the office, the FI met with another FI who had the type rating expired. Having the finance department personnel was not ready for the meeting the FI changed the schedule to conduct recurrent flight for another FI. After the refuel completed, the second flight was conducted for the recurrent flight. The flights conducted in aerodrome traffic circuit for normal touch and go training. The second flight was completed uneventful.

After the second flight, the FI checked again whether the finance department personnel were ready for meeting. Having the finance department personnel were not ready, the FI decided to continue the training flight with the second student pilot.

The third flight was multi engine rating training for the second student pilot. The multi engine training for the student pilot consisted of several stages and this flight was the last stage before the student pilot conducted the Directorate General Civil Aviation (DGCA) check ride. Prior to departure, the FI and the student pilot conducted preflight inspection and found the aircraft condition was normal. The flight was conducted in accordance with Visual Flight Rules (VFR).

1 Local time for Cakrabhuwana Airport (WICD), Cirebon is Western Indonesia Standard Time (Waktu Indonesia Barat - WIB) or UTC + 7.

At 0521 Universal Time Coordinated (UTC[2]) or 1221 LT, the aircraft took off using Runway 04 then proceed to Drama[3] training area. The exercise on training area consisted of clean stall, dirty stall, UPRT, VMCA and simulated one engine failure. After the exercises in the Drama training area completed, the training continued by the exercises in the aerodrome traffic circuit Runway 04. The exercises at the aerodrome traffic circuit were touch and go for both normal engine and simulated one engine failure.

At 1343 LT, the aircraft was on left downwind Runway 04 and the exercise was normal engine touch and go.

At 1347 LT, the normal touch and go was successfully executed. After the aircraft lift off, when the altitude about 600 or 700 feet, the exercise was simulated one engine failure by reducing power lever on engine number one (left engine) and maintaining the propeller in high RPM. The simulated one engine failure exercise was conducted until the aircraft landed and continued take off using both engines operated normally. Before landing, the FI guided the student pilot in conducting the landing checklist and the aircraft landed uneventful.

At 1352 LT, the aircraft took off with the normal both engine operations. When the aircraft altitude was about 600 or 700 feet above MSL, the FI performed simulated one engine failure exercise by reducing power lever on engine number two (right engine) until the aircraft landed.

At 1357 LT, during the final approach, the FI instructed to go around with one engine due to the approach was un-stabilized. The aircraft then proceed to left downwind Runway 04 and while there was another aircraft was making an approach. The aircraft was instructed by the Cakrabhuwana Air Traffic Controller (ATC) to orbit on the left downwind and scheduled to land after the traffic landed.

At 1408 LT, at the downwind the FI planned to make a full stop landing and would attend to the management meeting.

At the final Runway 04 the FI requested to the ATC for full stop for landing and was approved by the ATC who then issued the landing clearance. The aircraft landed and the FI noticed by the strange sound and realized that the aircraft was landed without landing gear. The FI recalled that the landing checklist had not been executed and the FI immediately lowered the landing gear lever. After the landing gear lever was lowered, the Circuit Breaker (CB) landing gear motor pop up.

The aircraft stopped about 600 meters from beginning Runway 04 in front of Airport Rescue and Fire Fighting (ARFF) Station.

2 The 24-hour clock used in this report to describe the time of day as specific events occurred is in Universal Coordinated Time (UTC).

3 The Drama training area located at radial 330° from Cakrabhuwana Non-Directional Beacon (NDB) with the distance about 33 Nm.

Figure 1: The aircraft condition after stop

1.2 Injuries to Persons

No one injured as result of this occurrence.

1.3 Damage to Aircraft

The aircraft was substantially damaged as result of this accident.

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	:	32 years
Nationality	:	Indonesia
Marital status	:	Married
Date of joining company	:	July 2013
License	:	ATPL
Date of issue	:	12 September 2017
Aircraft type rating	:	Boeing 737, Beechcraft G58
Instrument rating validity	:	Valid
Medical certificate	:	First Class
Last of medical	:	31 July 2023
Validity	:	2 February 2024
Medical limitation	:	Holder shall wear corrective lenses
Certificate of flight instructor	:	Aircraft Multi Engine Land
Date of issue	:	14 April 2023
Validity	:	13 April 2025

Flying experience

Total hours	:	7,518 hours 16 minutes
Total on type	:	275 hours 22 minutes
Last 90 days	:	146 hours 34 minutes
Last 60 days	:	79 hours 59 minutes
Last 7 days	:	26 hours 20 minutes
Last 24 hours	:	4 hours 48 minutes
This flight	:	2 hours 5 minutes

1.5.2 Student Pilot

Gender	:	Male
Age	:	21 years
Nationality	:	Indonesia
Marital status	:	Single
Date of joining flying school	:	11 January 2021
License	:	CPL
Date of issue	:	6 April 2023
Aircraft type rating	:	Class Rating Single Engine Land (SEL)
Instrument rating	:	
Date of issue	:	8 March 2023
Medical certificate	:	First Class
Last of medical	:	27 June 2023
Validity	:	27 December 2023
Medical limitation	:	None
Last line check	:	Not Applicable
Last proficiency check	:	Not Applicable

Flying experience

Total hours	:	205 hours 6 minutes
Total on type	:	14 hours 22 minutes (include FTD 6 hours)
Last 90 days	:	8 hours 22 minutes
Last 60 days	:	8 hours 22 minutes
Last 24 hours	:	2 hours 5 minutes
This flight	:	2 hours 5 minutes

1.6 Aircraft Information

1.6.1 The Aircraft

Registration Mark	:	PK-LRV
Manufacturer	:	Beechcraft
Country of Manufacturer	:	United States of America
Type/Model	:	Baron G58
Serial Number	:	TH-2505
Year of Manufacture	:	2018
Certificate of Airworthiness		
Issued	:	15 October 2022
Validity	:	14 October 2023
Category	:	Normal
Limitations	:	None
Certificate of Registration		
Number	:	4090
Issued	:	2 October 2021
Validity	:	1 October 2024
Time Since New	:	857 hours 49 minutes
Cycles Since New	:	1,411 cycles
Last Major Check	:	31 July 2023
Last Minor Check	:	12 September 2023

1.6.2 The Engines

Manufacturer	:	Continental Motors. Inc
Country of Manufacturer	:	United States of America
Type/Model	:	IO550C72B
Serial Number-1 engine	:	1035604
▪ Type/ Model	:	IO550C72B
▪ Installed	:	5 March 2018
▪ Time Since New	:	857 hours 49 minutes
▪ Cycles Since New	:	1,411 cycles
Serial Number-2 engine	:	1035605
▪ Type/ Model	:	IO550C72B
▪ Installed	:	5 March 2018

- Time Since New : 857 hours 49 minutes
- Cycles Since New : 1,411 cycles

1.6.3 Landing Gear Warning Horn & (Gear Up) Annunciation

Pilot Operating's Handbook (POH) Baron G58 section 7 stated that:

… with the landing gear retracted, a warning horn will sound intermittently and the red [GEAR UP] warning alert will be displayed in the annunciation window of the PFD if either throttle is retarded below approximately 13 in. Hg manifold pressure or if the flaps are fully extended. The ALERTS softkey in the lower right of the PFD will also change to a red flashing WARNING. During one engine operation, the horn can be silenced by advancing the throttle of the inoperative engine until the throttle warning horn switch opens the circuit…

1.7 Meteorological Information

Weather report for Cakrabhuwana Airport, issued 5 October 2023, at 1400 LT (0700 UTC) were as follows:

Wind	:	050° / 10 knots
Visibility	:	6,000 meters
Cloud[4]	:	Scatter at 1,900 feet
Temperature	:	33°C
Dewpoint	:	20°C
Pressure (QNH[5])	:	1009 hPa
Weather	:	No significant

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. The crew used the VHF radios for routine communications with ATC. All VHF radios were serviceable. All communications between ATC and the pilots were recorded by ground based automatic voice recording equipment. The quality of the aircraft's recorded transmissions was good.

The excerpt of the communication between ATC and the pilots will be included in the Final Report.

4 Cloud scatter is amount of cloud 3-4 oktas

5 QNH is the Q code indicating the atmospheric pressure adjusted to mean sea level.

1.10 Aerodrome Information

Airport Name	:	Cakrabhuwana Airport
Airport Identification	:	WICD
Airport Operator	:	*Unit Penyelenggara Bandar Udara* (UPBU) under DGCA
Airport Certificate	:	0106/SBU/I/2022
Validity	:	25 January 2027
Coordinate	:	$06^0$45’23” S $108^0$32’18” E
Elevation	:	90 feet
Runway Direction	:	04-22
Runway Length	:	1,280 meters
Runway Width	:	30 meters
Surface	:	Asphalt

1.11 Flight Recorders

The aircraft was not equipped with the flight recorder as was not required by the current Indonesia Civil Aviation Safety Regulation (CASR).

The aircraft was equipped with Garmin G1000 which has capability of flight navigation and flight data logging. The flight data logging had the capability to record several parameters including time, coordinate, GPS altitude, indicated airspeed, vertical speed, ground speed, pitch attitude angle and roll attitude angle. All these recorded parameters are stored on a Secure Digital (SD) data card which inserts into the top card slot of the Multi-Function Display (MFD). The navigation data is stored on an SD card which is inserted into the bottom card slot of the MFD. The detail flight data as retrieved from the SD card will be included in the Final Report.

1.12 Wreckage and Impact Information

The aircraft propeller marks found on the runway and able to be clearly identified about 390 meters around the runway centerline and from beginning of Runway 04. The aircraft lower fuselage marks found about 2 meters from the propeller marks and continued to the aircraft stop position.

Figure 2: Propeller marks found on the runway

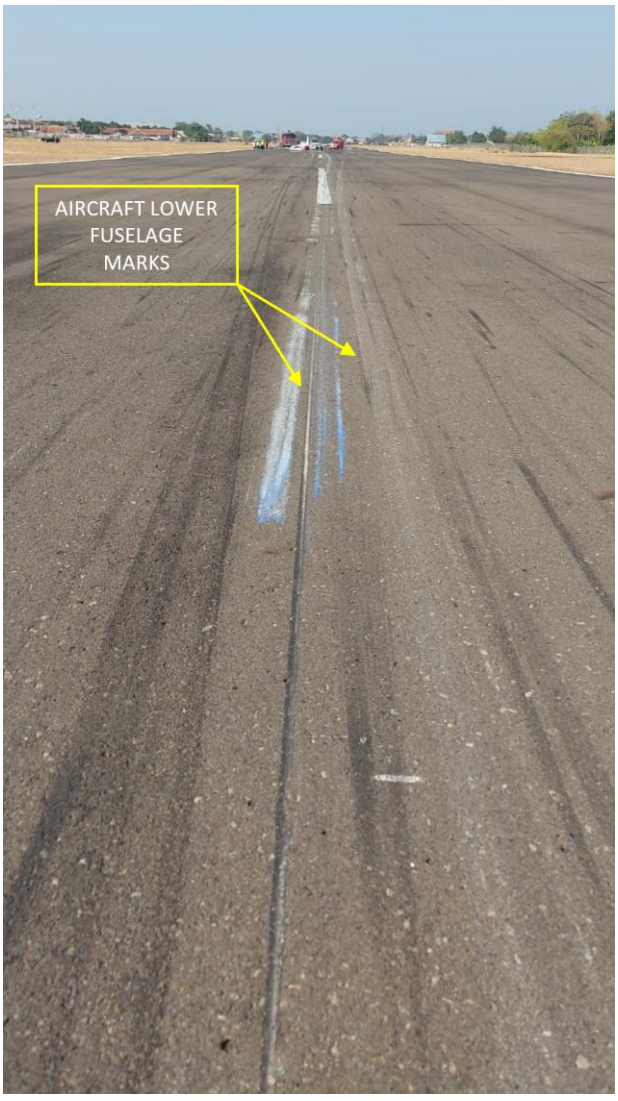

Figure 3: Aircraft lower fuselage marks found on the runway

1.13 Medical and Pathological Information

After the occurrence, the pilots undergone drugs tests consisted of cocaine, methamphetamine, amphetamine, morphine, cannabinoid, and benzodiazepine. The result of the drug tests was negative.

1.14 Fire

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

1.15 Survival Aspects

During the aircraft landing, the Airport Rescue and Fire Fighting (ARFF) personnel noticed unusual sound coming from the runway and saw that the aircraft landing without landing gear. The aircraft stopped on the runway, in front of ARFF station. The ATC pressed the crash bell and informed the ARFF that the aircraft crashed while the ARFF personnel deployed to accident site. The ARFF deployed one fire truck and one ambulance to the site.

After the aircraft stopped, the student pilot shut down the engine and turned off the electrical system. The FI opened the cockpit door and both pilots evacuated safely from the aircraft. Both pilots were evacuating using airport ambulance to AAA flight operation office.

1.16 Tests and Research

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

1.17 Organizational and Management Information

1.17.1 Aircraft Operator

The aircraft was operated by Angkasa Aviation Academy (AAA) which had a valid Air Operator Certificate (AOC) number 141D-21. The AAA is authorized under Civil Aviation Safety Regulation (CASR) Part 141 to conduct initial pilot training consisted of private pilot training, commercial pilot training, instrument rating training, multi engine training, flight instructor training and CPL endorsement training.

At the time of the occurrence, the AAA operated 15 Cessna 172S and 1 Baron B58 aircraft.

1.17.2 Crew Coordination

Standard Operating Procedure (SOP) Beechcraft Baron G58 in AAA at section 4 stated that:

During dual and mutual flights, crew coordination's are practiced throughout the operations for training purpose. The Baron G58 is certified and approved for single pilot operations.

Task Distribution is divided between Pilot Flying (PF) and Pilot Monitoring (PM) though the following table below.

Checklist Reading and Procedures	
When Aircraft is Stationary	When Aircraft is in Motion
PIC (Left seat pilot)	Safety Pilot / Flight Instructor (Right seat pilot)

Task Distribution During Normal Condition	
PF	PM
Flight Path Airspeed Control Navigation Configuration Requests Conduct of Normal Checklist (stationary) Direct other tasks as required	Communication Navigation Logging Monitoring flight path, airspeed navigation Performing Configuration Requests Conduct of Normal Checklist (in motion) Perform other tasks as directed by the PF

Note: Configuration Requests include: flaps and landing gear operations. During Manual Flight, the PM will operate the HDG/ALT/SPD bug and AFCS modes. During Autoflight with AP engaged, the PF will operate the bugs and FD modes

Task Distribution During Non-Normal Condition	
PF	PM
Flight Path Airspeed Control Navigation Configuration Requests Communication Confirming and Monitoring Actions done by PM Direct other tasks as required	Monitoring flight path, airspeed, navigation Performing Configuration Requests Conduct of Abnormal/ Emergency Checklist Perform the task as directed by the PF Navigation Logging

Note: During performance of Abnormal/ Emergency Checklist, the PF will take over the COM task, as the cognitive and attention of the PM will be directed towards checklist operations. Therefore the situational awareness of the environment, navigation, and communications are better than PM's. The PM, however is still responsible to monitor the PF's flying

Figure 4: PF and PM task distribution

1.17.3 Standard Callouts

Standard Operating Procedure (SOP) Beechcraft Baron G58 in AAA at section 4 stated that:

During all operations where Crew Coordination is exercised. It is also recommended to use a standard terminology and callouts to serve a clear, quick, and unambiguous message between pilots. The terminology to be used are as follows:

PF	PM
Raise the nose and begin unstick	At 85 knots, call "*UNSTICK*"
Verify the positive rate of climb on the altimeter and call *"GEAR UP"*	When positive rate of climb is indicated on the altimeter, call *"POSITIVE RATE"*
Verify the action being done	Set LDG GEAR Lever to UP Call *"GEAR UP"* When landing gear indicator lights are off, call *"GEAR IS UP"*
Setting the flaps to UP, call *"Flaps Up"* Verify the flaps to be in UP	Reply *"Flaps Up"* Set the flap handle to approach When the flaps up is set and flaps lights are extinguished, call *"Flaps Up Set"*
Setting the flaps to APH, call *"Flaps Approach"* Verify the flaps to be in APH	Reply *"Flaps Approach"* Set the flap handle to approach When the flaps approach is set and blue light is illuminated, call *"Flaps Approach Set"*
Setting the flaps to DN, call *"Flaps Down"* Verify the flaps to be in DN	Reply *"Flaps Down"* Set the flap handle to DOWN When the flaps approach is set and amber light is illuminated, call *"Flaps Down Set"*
Setting the Landing Gear to Down position, call *"Gear Down"* Verify action and Landing Gear to be in DOWN position	Reply *"Gear Down"* Set Landing Gear lever to DOWN When landing gear is verified to be DOWN, by 3 green landing light is illuminated, call *"Gear Down Set"*
Opening the Cowl Flaps, call *"Set Cowl Flaps OPEN"* Verify the Cowl Flaps Handle to be in OPEN position	Reply *"Cowl Flaps OPEN"* Set both cowl flaps handle to OPEN Call *" Cowl Flaps Open, Set"*
Closing the Cowl Flaps, call *"Set Cowl Flaps CLOSE"* Verify the Cowl Flaps Handle to be in CLOSE position	Reply *"Cowl Flaps CLOSE"* Set both cowl flaps handle to CLOSE Call *" Cowl Flaps CLOSED, Set"*

Figure 5: Configuration changes callouts

1.17.4 Flight Hour Limitation

Training Procedure Manual (TPM) AAA at chapter 4 stated that

A Flight Instructor performing a flight instruction is imposed to the following limit;

Duration	Limitation
Within consecutive 24 hours	8 Flight Hours, comprising: • Maximum 3 hours of A stage • If combination of A stage and other than A stage: 5 hours • Stages other than A stage: 8 hours *(includes flight and FTD hours)*
Within 7 consecutive days	30 hours
Within 1 calendar month	110 hours
Within 12 consecutive months	1050 hours
For specific details regarding the flight hour and duty limitations, refer to AAA Operation Manual	
If a Flight Instructor is also flying in other company than AAA, the combination of flight hours from both flying activity is included in the limitation of this chapter	

Figure 6: Flight hour limitations

1.17.5 Fasting

Operation Manual (OM) AAA on chapter 5 stated that:

Fasting when flying has and will remain a sensitive issue. This serves as information to all flight crew who observe fasting. The common effects of fasting is: Low blood sugar, drowsiness, lack of emotional control, easily tired, etc. It is company policy that fasting cannot be banned / restricted as is a religious right. It is however, the crew's responsibilities to monitor his well- being and report to the SAFETY department and Flight Operations if he sees that his physical condition declines.

HYPOGLYCAEMIA (Low Blood Sugar Level) had been known to cause pilot incapacitation.

Low blood sugar (hypoglycaemia) can occur spontaneously on any occasion (for example through the process of fasting). Symptoms of hypoglycaemia begin when the blood sugar level drops to 60 mg% (decrease of 30-40 mg% from normal level) and this condition could cause a decrease in brain function whenever blood sugar level drops to 50 mg%. This hypoglycaemic condition will affect the performance of the pilot. Physical Symptoms Related to Low Blood Sugar:

A. Weakness

B. Tremors

C. Dizziness

D. Lethargy

E. Unconsciousness

F. Dehydration

G. Fatigue

H. Hypoxia

Degraded Performance Symptoms Related to Low Blood Sugar:

A. Increasing irritability

B. Impaired judgement

C. Slow / improper decision making

D. Diminished checklist discipline

E. Poor communications

F. Poor crew interaction

G. Manual handling and Instrument Flying Skills deteriorated

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 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

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.

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

1. The aircraft had valid Certificate of Airworthiness (C of A) and a valid Certificate of Registration (C of R).
2. Both pilots held valid licenses and first-class medical certificates. PIC had valid multi engine flight instructor certificate.
3. The FI position in the AAA was the Assistance Chief Instructor and acted as Head of AAA. At the day of the occurrence, the FI was scheduled to attend the management meeting with the finance department personnel at 1000 LT for discussing about management matters.
4. The Flight Instructor (FI) was in fasting condition.
5. The FI conducted multi engine training flight with the first student pilot on training area and aerodrome traffic circuit. During the training some exercises were performed consisted of clean stall, dirty stall, Upset Prevention and Recovery Training (UPRT), Velocity Minimum Controllable Aircraft (VMCA), and simulated one engine failure both on training area and the aerodrome traffic circuit. Some of the exercises were performed by reducing power lever(s) to idle position which would trigger the activation of landing gear warning.
6. According to the FI during the one engine failure exercise the landing gear warning was active.
7. Having the finance department personnel was not ready for the meeting the FI changed the schedule to conduct recurrent flight for the FI who had the type rating expired.
8. At 1221 Local Time (LT), the aircraft took off using Runway 04 for the third flight that was multi engine training for the second student pilot with exercises similar to the first student pilot.
9. After several touch and go exercises, at 1408 LT, when the aircraft position was on the downwind the FI planned to make a full stop landing and would attend to the management meeting.
10. While the aircraft landed and the FI noticed of the strange sound and realized that the aircraft was landed without landing gear. The FI recalled that the landing checklist had not been executed and immediately the FI lowered the landing gear lever. After the landing gear lever was lowered, the Circuit Breaker (CB) landing gear motor pop up.
11. The aircraft stopped about 600 meters from beginning Runway 04 in front of Airport Rescue and Fire Fighting (ARFF) Station.

12. The ATC pressed the crash bell and informed the ARFF that the aircraft crashed while the ARFF personnel deployed to accident site with one fire truck and one ambulance to the site.
13. The student pilot shut down the engine and turned off the electrical system. The FI opened the cockpit door and both pilots evacuated safely from the aircraft. Both pilots were evacuating using airport ambulance to AAA flight operation office. No one was injured.

3 SAFETY ACTION

At the time of issuing this report, the KNKT had been informed by the operator that the operator performed any safety actions resulting from this occurrence. The safety actions are as follow:

1. On 9 October 2023, Chief of Safety, Security, and Quality published Safety Notice to Pilots No. 01/AAA-SSQ/SN/X/22023 "Fasting Policy" for all pilots including Flight Instructor (FI) and Student Pilot. The notice contains information related the effect of fasting to human performance and recommendation. The notice reminded that FI who are in fasting are not allowed to perform flight training activities except backseat for instructional evaluation but allow to do flight simulator training for maximum 5 hours per day. Student pilot who are in fasting, only allow to do flight training or flight simulator training maximum 1 (one) stage per day.
2. On 20 October 2023, Chief of Safety, Security and Quality published Safety Notice to Pilots No. 02/AAA-SSQ/SN/X/22023 "Operating Handphone Inflight" for all pilots. The notice contains information related the effect of operating mobile phone during flight training and recommendation. The notice reminded the FI to turn off mobile data (airplane mode) and silencing handphone during flight.

4 SAFETY RECOMMENDATIONS

The KNKT acknowledges the safety actions taken by AAA and considered that the safety actions 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.

4.1 Angkasa Aviation Academy

- **04.O-2023-15.01**

  The FI who was the Assistance Chief Instructor and acted as Head of AAA, at the day of the occurrence had schedule to conduct training flights and management meeting. The FI also conducted unscheduled recurrent flight for another FI. The FI was in fasting. The training flights and the management meeting might create significant workload for the FI. The fasting might degrade the human performance which reduce the ability to handle the existing workload.

  Therefore, KNKT recommends the AAA to review the procedure for the FI flight schedule to consider the workload.

- **04.O-2023-15.02**

  The FI conducted multi engine training flights with some exercises that were performed by reducing power lever(s) to idle position which would trigger the activation of landing gear warning. During the one engine failure exercise the landing gear warning was active. After landing, the FI recalled that the landing checklist had not been executed. Several exercises with activation of the landing gear warning might create alarm fatigue[6].

  Therefore, KNKT recommends the AAA to ensure the checklist executes in all phase of flight.

6 Alarm fatigue occurs when busy workers are exposed to numerous frequent safety alerts and as a result become desensitized to them. This desensitization can lead to longer response times or to missing important alarms.

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