Republic of the Philippines
CIVIL AVIATION AUTHORITY OF THE PHILIPPINES

AIRCRAFT ACCIDENT INVESTIGATION AND INQUIRY BOARD

FINAL REPORT

RP-C1762
CESSNA 152

OPERATOR: ALL ASIA AVIATION ACADEMY

TYPE OF OPERATION: FLIGHT TRAINING

DATE OF OCCURRENCE: SEPTEMBER 9, 2020

PLACE OF OCCURRENCE: IBA COMMUNITY AIRPORT, IBA, ZAMBALES, PHILIPPINES

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(Cessna 152, RP-C1762 Final Report)

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FOREWORD

This report was produced by the Aircraft Accident Investigation and Inquiry Board (AAIIB), Civil Aviation Authority of the Philippines, MIA Road, Pasay City, Philippines.

The report is based upon the investigation carried out by the AAIIB in accordance with Annex 13 to the Convention on International Civil Aviation, Republic Act 9497 Section 42, and Philippine Civil Aviation Regulation Part 13.

Readers are advised that the AAIIB investigates for the sole purpose of enhancing aviation safety. Consequently, AAIIB reports are confined to matters of safety significance and may be misleading if used for any other purpose. It should be noted that the information in AAIIB reports and recommendations is provided to promote aviation safety, and in no case is it intended to imply blame or liability.

Furthermore, no part of the AAIIB report or reports relating to any accident or investigation shall be admitted as evidence or used in any suit or action for damages arising out of any matter mentioned in such report or reports.

FINAL REPORT

TITLE: A serious incident involving a Textron Aviation Inc., Cessna 152 type of aircraft with Registry Number RP-C1762 operated by All Asia Aviation Academy, that resulted to a runway excursion during landing roll at Iba Community Airport, Iba, Zambales, Philippines on September 9, 2020 at about 1230H/0430UTC.

Notification of Occurrence to National Authority

The notification of serious incident to AAIIB CAAP was relayed by the Operator of the aircraft at 1645H (LOCAL) on September 9, 2020.

Identification of the Investigation Authority

The Aircraft Accident Investigation and Inquiry Board (AAIIB), the mandated accident investigation organization within the Civil Aviation Authority of the Philippines (CAAP) as the state of Occurrence/Registry/ Operator conducted the investigation.

Organization of the Investigation

In accordance with provisions of Philippine Civil Aviation Regulation (PCAR) Part 13, an Investigator-In-Charge was appointed.

Authority Releasing the Report

The Final investigation report was released by Aircraft Accident Investigation and Inquiry Board (AAIIB) and published on the CAAP website on **02 June 2025.**

Synopsis:

On September 9, 2020 at about 1215H, a Textron Aviation Inc., Cessna 152 with registry number RP-C1762 operated by All Asia Academy sustained damage following a runway excursion during landing roll at Iba Community Airport, Iba, Zambales, Philippines. The 3-flight crew on board, did not sustain any injuries. Visual Meteorological Conditions (VMC) prevailed at the time of the incident. The cause of the incident was attributed to the failure of the left nose landing gear steering tube assembly resulted in the collapse of the nose landing gear.

LIST OF ACRONYMS AND ABBREVIATIONS

AAIIB	:	Aircraft Accident Investigation and Inquiry Board
AANSOO	:	Aerodrome and Air Navigation Services Oversight Office
AIP	:	Airmen Information Publication
AMO	:	Aviation Maintenance Organization
ATOC	:	Air Training Organization Certificate
CAAP	:	Civil Aviation Authority of the Philippines
COA	:	Certificate of Airworthiness
CPL	:	Commercial Pilot License
COR	:	Certificate of Registration
FI	:	Flight Instructor
FSIS	:	Flight Standards Inspectorate Service
NLG	:	Nose Landing Gear
OEM	:	Original Equipment Manufacturer
OFSAM	:	Office of the Flight Surgeon and Aviation Medicine
PCAR	:	Philippine Civil Aviation Regulation
RPUI	:	ICAO designation for Iba Community Airport, Philippines
RPUG	:	ICAO designation for Lingayen Community Airport, Philippines
SP	:	Student Pilot
VFR	:	Visual Flight Rules
VMC	:	Visual Meteorological Conditions

1. FACTUAL INFORMATION

Aircraft Registration No.	:	RP-C1762
Aircraft Type/Model	:	Textron Aviation Inc./Cessna 152
Operator	:	All Asia Aviation Academy
Address of Operator	:	Unit 14A Bldg. A Salem International Complex, Domestic Road, Pasay City, Philippines
Place of Occurrence	:	Iba Community Airport, Iba, Zambales, Philippines
Date/Time of Occurrence	:	September 9, 2020 at about 1230H/0430UTC.
Type of Operation	:	Flight Training
Phase of Flight	:	Landing
Type of Occurrence	:	Runway side excursion

1.1 History of Flight

Last September 9, 2020 at on or about 1230H, a Cessna 152 type of aircraft with Registry Number RP-C1762 sustained damage to its nose landing gear (NLG) after a runway excursion at runway 32 Iba Community Airport, Iba, Zambales, Philippines (RPUI). The aircraft is being operated by All Asia Aviation Academy under PCAR Part 3, Approved Training Organizations. There were no injuries to the flight instructor (FI) or his student pilot (SP) on board. Visual meteorological conditions (VMC) prevailed at the time of occurrence, and a local flight plan had been filed. The flight had been made from Lingayen Community Airport (RPUG) at 1120H for a routine flight training operation.

After completing the routine aircraft 360 inspection by the Student Pilot (SP), at about 1020H local time, the aircraft took off from the active runway 32 RPUI. The flight was set for a cross-country to RPUG. After completing two touch-and-go maneuvers, the

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aircraft made its way back to Iba Community Airport. The flight was uneventful until the landing phase, when the student pilot lost horizontal directional control of the aircraft during a landing roll. Witnesses stated that the aircraft touched down about two hundred meters (200 m) beyond the threshold of runway 32. It rolled approximately one hundred meters (100 m) and started to veer to the right side of the runway. The FI took the controls and applied brakes to decelerate and stop the aircraft, but to no avail. The aircraft continued to roll, leaving the runway pavement and entering the grass field for a further thirty meters (30 m). However, it collided with loose boulders, causing the NLG to collapse and the propeller to strike the ground. The aircraft continued to travel for another twenty meters, scraping the ground, before coming to a complete stop with a final heading of 330 degrees and final resting point coordinates of 15.325778 N 119.969056 E. The aerodrome duty personnel and others who observed the event proceeded to the site to help the occupants and secure the aircraft. Both pilots egress the aircraft unhurt.

Figure 1 - RP-C1762 Final resting point.

1.2 Injuries to Person (s)

Injuries	Crew	Passengers	Others	TOTAL
Fatal	0	0	0	0
Serious	0	0	0	0
Minor	0	0	0	0
None	2	0	0	2

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1.3 Damage to Aircraft

The aircraft sustained minor damage.

1.4 Other Damages

The was no other damage noted.

1.5 Personnel Information

1.5.1 Flight Instructor (FI)

Gender	:	Male
Date of Birth	:	May 7, 1991
Nationality	:	Filipino
License	:	136854 CPL/FI
Valid up to	:	June 23, 2023
Type rating	:	Single and Multi-Engine Land-Instrument-C152, C172, P2006T
Medical Certificate Valid up to	:	June 23, 2023
Time on Aircraft	:	350+00 Hours as per Pilot logbook
Grand Total time	:	400+00 Hours as per Pilot logbook

1.5.2 Student Pilot (SP)

Gender	:	Male
Date of Birth	:	December 20, 1978
Nationality	:	Filipino
License	:	107206 CPL
Valid up to	:	November 15, 2020
Type rating	:	Single Engine Land- C152, C172
Medical Certificate Valid up to	:	November 15, 2020
Time on Aircraft	:	43 Hours as per Pilot logbook
Grand Total time	:	43 Hours as per Pilot logbook

1.6 Aircraft Information

The Cessna 152 is an American two-seat, fixed-tricycle-gear, general aviation airplane, used primarily for flight training and personal use. It was based on the earlier Cessna 150 incorporating a number of minor design changes and a slightly more powerful engine with a longer time between overhaul.

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1.6.1 Aircraft Data

Registration Mark	:	RP-C1762
Manufacturer	:	Textron Aviation Inc. Cessna
Country of Manufacturer	:	USA
Type/Model	:	Cessna 152
Operator	:	All Asia Aviation Academy
Serial No.	:	15284460
Date of Manufacture	:	1980
Certificate of Airworthiness valid up to	:	October 13, 2020
Certificate of Registration valid up to	:	December 17, 2022
Category	:	Utility
Number of Aircrew	:	2
Airframe total time	:	24,422+05 Hours

1.6.2 Engine Data

The Lycoming O-235 is a family of four-cylinder, air-cooled, horizontally opposed piston aircraft engines that produce 100 to 135 hp (75 to 101 kW), derived from the earlier O-233 engine. The engine has variants of C1, C1A, C1B, C1C, C2A, C2B, C2C, E1, E2A, E2B, F1, F1B, F2A, F2B, G1, G1B, G2A, H2C, J2A, J2B, K2A, K2B, K2C, L2A, L2C, M1, M2C, M3C, N2A, N2C, P1, P2A, P2C and P3C.

Manufacturer	:	Lycoming
Type	:	Piston
Type/Model	:	O-235-L2C
Engine SN#	:	RL-17905-15
Engine total time	:	13,966+10 Hours as of last C of A

1.6.3 Propeller Data

Sensenich Fixed Pitch/ 72CKS6-0-54 is an Aluminum Propeller was designed for use on the Lycoming O-235 engine. This propeller has become a favorite of Cessna 152 owners. This blade was designed for in aircraft with a speed range of 80 – 130 MPH.

Manufacturer	:	Sensenich
Type	:	Fixed Pitch
Type/Model	:	72CKS6-0-54
Propeller SN#	:	K9390
Propeller total time	:	6366+31 Hours as of last Sept. 8, 2020

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1.7 Meteorological Information

Visual Meteorological Conditions prevailed at the time of the occurrence.

1.8 Aids to Navigation

The flight was carried out under Visual Flight Rules (VFR). The pilot must be able to operate the aircraft with visual references to the ground and visually avoiding obstructions and other aircraft.

1.9 Communications

The aircraft is equipped with a standard radio transceiver. Communications were carried out between the pilot and air traffic controller within the area.

1.10 Aerodrome Information

Iba Community Airport (RPUI) is listed as a Community Aerodrome in the Airmen Information Publication (AIP) and is under the Civil Aviation Authority of the Philippines - Aerodrome and Air Navigation Services Oversight Office (CAAP-AANSOO) approved aerodrome facility data.

1.10.1 General Information

Aerodrome Name	:	Iba Community Airport
Coordinates	:	N15°19’53.8213” E119°58’05.1856”
Aerodrome Operator	:	Civil Aviation Authority of the Philippines Iba Airport, Iba Zambales 2201
Traffic Advisory Frequency	:	122.90Mhz
Runway Direction	:	14 /32 (140º MAG)/(320º MAG)
Runway Length	:	900M
Runway Width	:	30M
Surface	:	Concrete/Asphalt
Types of traffic permitted	:	VFR
AD Operator	:	Airport Operations: 2300 - 0800
Security	:	2200 - 1000
Restaurants	:	At the airport and at the town proper
Transportation	:	Vehicle for hire.
Medical facilities	:	Within the town proper
AD category for fire fighting	:	CAT III.

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Rescue equipment	:	Wheel Type Fire Extinguisher. SIDES DODGE VIRM 13.
Capability for removal of disabled aircraft	:	Nil.
TORA 14/32	:	900M
TODA 14/32	:	980M
ASDA 14/32	:	980M
LDA 14/32	:	900M

1.11 Flight Recorders

The aircraft is not equipped with any flight recorders and existing Philippine Civil Aviation Regulation does not require it.

1.12 Wreckage and Impact Information

The aircraft came to a complete stop in a nose-down position on soft ground, heading 330 degrees. Based on the tire marks on the runway, the aircraft landed to the right of the centerline. While on the landing roll, it veered to the right side of runway 32 (Figure 2). The aircraft continued to roll and departed the runway pavement into the grass field for another thirty meters (30 m) and subsequently collided with loose boulders that caused the NLG to collapse and subsequent propeller strikes (Figure 3-4). It traveled for another twenty meters (20 m) scrapping the ground and came to a complete stop and final resting point at coordinates 15.325778 N 119.969056 E.

Figure 2 - Heavy tire marks leading outside of the runway.

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Figure 3 - Collapse nose landing gear.

Figure 4 - Propeller ground strike.

1.13 Medical and Pathological Information

The pilots possess a medical certificate and underwent the medical examination at the Office of the Flight Surgeon and Aviation Medicine (CAAP-OFSAM) There were no indications of any disorder that the pilots could have had a bearing on this occurrence.

1.14 Fire

No evidence of post impact fire was noted during on-site investigation as a result of the occurrence.

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1.15 Search and Survival Aspects

The occurrence was survivable since the structural integrity of the flight compartment was not hampered, thereby providing safety for the pilots at the time of the event. The pilots of the aircraft were secured by a seatbelt and a harness, which remained intact after the event. No search operation was deployed since the occurrence was at an airport.

1.16 Organization and Management Information

1.16.1 Operator

All Asia Aviation Academy has an Air Training Organization Certificate (ATOC) with Certificate # 2007-03. It is authorized to perform flight training for private pilot, commercial pilot, flight instructor, multi-engine pilot and instrument rating. The aircraft RP-C1762 is listed on the company's current operation specifications. The base operation is located at IBA Airport, Zambales, Philippines.

1.16.2 Maintenance

The maintenance function of RP-C1762 is being undertaken by All Asia Aviation Maintenance which is an Approved Maintenance Organization (AMO) with certificate No. 160-16. The AMO facility located at IBA Airport, Zambales 2201, Philippines.

2. ANALYSIS

2.1 General

After completing two touch-and-go landings at Lingayen Community Airport (RPUG), the aircraft RP-C1762 proceeded to return to Iba Community Airport (RPUI). As the flight involved continuous circuit operations without a full-stop landing, the crew did not have an opportunity to exit the aircraft and perform a walk-around inspection. As a result, any potential structural damage or developing mechanical issues, particularly those affecting the nose landing gear (NLG)—went unnoticed.

During the landing phase at RPUI, the student pilot (SP) was at the controls. Upon touchdown and after rolling approximately 100 meters along the runway, the crew noticed that the aircraft was unexpectedly veering to the right. Reacting quickly, the flight instructor (FI) took over the controls in an attempt to correct the aircraft's

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directional path and steer it back to the runway centerline. Despite his efforts, he was unable to regain horizontal control of the aircraft.

In an attempt to stop the aircraft, the instructor applied full toe brakes. However, the aircraft continued rolling uncontrollably, eventually exiting the right side of the runway and entering the adjacent grass field. The aircraft traveled approximately 30 additional meters before colliding with a loose boulder, resulting in a collapse of the nose landing gear and a propeller strike. The aircraft sustained damage and came to rest in a nose-down position, oriented on a heading of approximately 330 degrees.

Subsequent investigation confirmed that the aircraft had been configured for a normal landing during the approach. However, the accident sequence was ultimately caused by a material failure of the left-side nose landing gear steering tube. This failure rendered the nose gear incapable of providing directional steering control during ground roll. Because the failure occurred in flight or during the initial phase of landing, and no abnormal steering feedback was detected beforehand, the flight crew was unaware of the compromised state of the steering system. As a result, the aircraft was unable to maintain directional control, leading to the runway excursion and collision.

2.2 Damage Assessment

During the post-accident inspection, it was observed that the left-hand side of the nose landing gear (NLG) steering tube had sustained a fracture (Figure 5). Upon closer examination, it became evident that this fracture had occurred prior to the aircraft's contact with the loose boulder on the runway. The fracture was not a direct result of the ground impact but instead appears to have developed progressively over time due to operational stress.

Earlier in the day, the aircraft was engaged in a series of training flights that included multiple touch-and-go landings, particularly during the leg to RPUG. While no nose wheel shimmy or abnormal steering behavior was reported by either the pilots or the maintenance crew during pre- and post-flight checks, the repeated stress loads on the steering mechanism, particularly during touchdown and ground roll that likely contributed to the gradual propagation of a crack in the left-hand steering tube.

Each touchdown would have subjected the nose gear to compressive and torsional forces, and over several cycles, these forces may have initiated metal fatigue in the steering tube, especially if a pre-existing microfracture or material flaw was present. As the crack incrementally expanded with each subsequent landing, the structural integrity of the left-hand steering tube was progressively compromised.

On the final leg of the flight to RPUI, the aircraft executed a full-stop landing. It was during this landing that the left-hand steering tube suffered complete failure, likely at a weakened point due to accumulated fatigue damage. With the left-side tube

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fractured, only the right-hand steering tube remained intact, resulting in a loss of balanced steering input. Consequently, the steering assembly was no longer centered, causing the aircraft to involuntarily veer to the right during the landing rollout. This deviation ultimately led to the aircraft exiting the runway surface.

This sequence of events underscores the critical importance of closely monitoring the NLG steering tubes, especially after multiple hard landings or extended training operations involving repetitive touch-and-go procedures. Since the initial signs of failure were not visible during routine inspections or noted by the flight crew, it suggests that fatigue-related damage can remain hidden until the point of structural failure. Therefore, a more detailed inspection protocol should be considered for steering tubes during frequent-use training operations or after any suspected nose gear-related anomalies.

Figure 5 - The damaged NLG left steering tube.

2.3 The Nose Landing Gear Steering Tube

The aircraft underwent its last annual inspection on August 26, 2019, carried out by an Approved Maintenance Organization (AMO). As part of the inspection, all primary components of the landing gear system were reviewed, including the nose landing gear. This inspection encompassed the nose gear wheel, torque links, steering rods, boots, bearing assemblies, nose gear strut, and the shimmy damper. However, while these components are routinely checked, special attention must be given to the nose wheel steering tube, particularly during the 100-hour inspection cycle.

The nose wheel steering tube is a critical component in the aircraft's steering mechanism, responsible for translating cockpit input into directional control on the ground. Due to its functional importance and location, it is subjected to high mechanical

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stress and vibration, especially during ground operations, hard landings, and in the event of a severe nose wheel shimmy.

While standard inspection protocols involve a general check for integrity, wear, and alignment of landing gear components, it is imperative that the nose wheel steering tube is specifically and thoroughly examined for:

a. Cracks, bends, or deformation, which could result from abrupt forces during a hard landing or excessive shimmy.
b. Excessive play or looseness, indicating possible wear at connection or pivot points.
c. Corrosion or pitting, especially in older aircraft or in humid environments, which may compromise the structural integrity of the tube.
d. Signs of fatigue, which may not be immediately visible but can escalate quickly if not identified and addressed in time.

Failure of the nose wheel steering tube in service could result in loss of directional control on the ground, increasing the risk of runway excursions or ground handling incidents. This highlights the importance of targeted inspections, particularly after events such as hard landings or repeated nose wheel shimmy occurrences, where the risk of hidden damage is elevated.

Therefore, during every 100-hour inspection, maintenance personnel should not only conduct a visual examination but also perform a detailed mechanical and structural assessment of the nose wheel steering tube. This includes checking for proper lubrication, alignment with adjacent components, and ensuring all fasteners and linkages are secure and serviceable.

Given its vital role and the consequences of failure, it is recommended that inspection protocols for the nose wheel steering tube be explicitly documented and emphasized in the aircraft's maintenance schedule. Doing so ensures the continued safe operation of the aircraft and prevents avoidable ground handling issues stemming from overlooked component fatigue or damage.

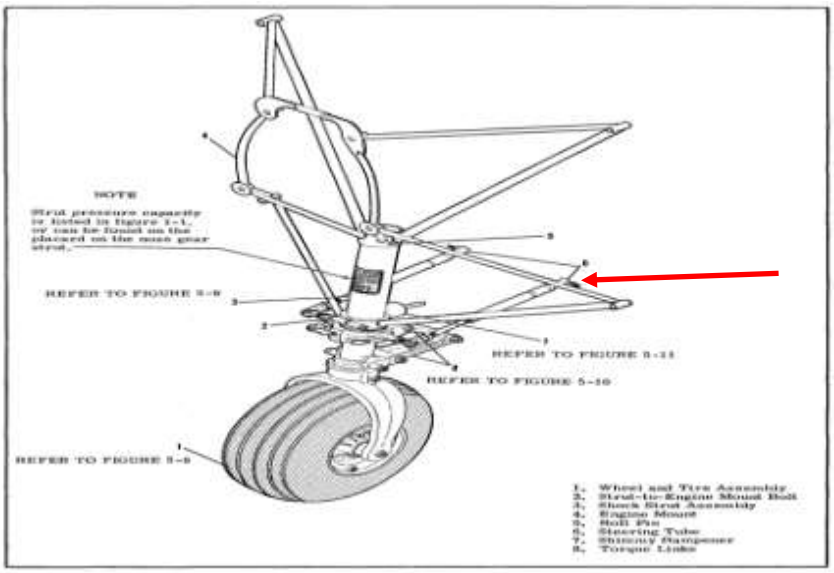

Figure 6 - Nose landing gear steering tube assembly.

3. CONCLUSIONS

3.1 Findings

a. The FI and SP were qualified on the Textron Aviation Inc. Cessna 152 type of aircraft.
b. Both pilots possess a valid license and medical certificate issued by the CAAP.
c. Both pilots safely got off the aircraft.
d. A visual meteorological condition prevailed at the time of the occurrence.
e. The aircraft was properly released for flight without any discrepancies noted in its logbook.
f. The aircraft has current Certificates of Airworthiness and Registration.
g. The left nose landing gear steering tube assembly component failed.
h. Damaged lower engine cowling.
i. The aircraft experienced propeller ground strike.

3.2 Probable Cause

a. Failure of the pilot to maintain directional control of the aircraft following a nose landing gear steering tube failure that resulted in a runway excursion. (Human Factor).

3.3 Contributory Factor:

a. The failure of the left nose landing gear steering tube assembly.

4. SAFETY RECOMMENDATIONS

4.1 Following the completion of the safety investigation, the **Aircraft Accident Investigation and Inquiry Board** proposes the following safety recommendations to the **CAAP-FSIS**:

a. To ensure that the operator, All Asia Aviation Academy, includes in their company maintenance program the detailed mechanical and structural assessment of the nose landing gear steering tubes every 100 hours or as necessary.

-----END-----

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