Republic of the Philippines
DEPARTMENT OF TRANSPORTATION
CIVIL AVIATION AUTHORITY OF THE PHILIPPINES
MIA Road, Pasay City 1300

AIRCRAFT ACCIDENT INVESTIGATION AND INQUIRY BOARD

FINAL REPORT

RP-C8811
CESSNA C172R

OPERATOR: FIRST AVIATION ACADEMY, INC.

TYPE OF OPERATION: FLIGHT TRAINING

DATE OF OCCURRENCE: AUGUST 16, 2022

PLACE OF OCCURRENCE: OMNI AIRFIELD, CIVIL AVIATION COMPLEX, CLARK FREEPORT ZONE, PAMPANGA, PHILIPPINES

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(Textron Aviation Inc., Cessna C-172R, RP-C8811 Final Report)

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.

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FINAL REPORT

TITLE: Serious incident involving a Textron Aviation Inc., Cessna C172R type of aircraft with Registry Number RP-C8811 owned and operated by First Aviation Academy, Inc. (FAA) that had a bounced landing resulting to runway excursion at Omni Airfield (PH-0178), Civil Aviation Complex Clark Freeport Zone, Pampanga, Philippines, on August 16, 2022 at about 0844H/0044 UTC.

Notification of Occurrence to National Authority

The notification of serious incident to AAIIB CAAP was relayed by the Operator of the aircraft at 1100H (local) on August 16, 2022.

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 and Deputy Investigator-In Charge were 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 **12 February 2024**.

Synopsis:

On August 16, 2022 at about 0844H (local), a Textron Aviation Inc., Cessna C172R type of aircraft with registry number RP-C8811 operated by First Aviation Academy, Inc. (FAA) had a bounced landing resulting to runway excursion at Omni Airfield (PH-0178), Civil Aviation Complex Clark Freeport Zone, Pampanga, Philippines. The solo pilot did not sustain any injuries, however the aircraft sustained minor damage as a result of the occurrence. Visual Meteorological Condition (VMC) prevailed at the time of the serious incident. The cause of the occurrence was attributed to the pilot's improper recovery techniques during a bounced landing.

LIST OF ACRONYMS AND ABBREVIATIONS

AAIIB	:	Aircraft Accident Investigation and Inquiry Board
AMO	:	Approved Maintenance Organization
AANSOO	:	Aerodrome and Air Navigation Safety Oversight Office
ATOC	:	Aircraft Training Organization Certificate
AUW	:	All Up Weight
BKN	:	Broken
CAAP	:	Civil Aviation Authority of the Philippines
COA	:	Certificate of Airworthiness
FAA	:	First Aviation Academy
FI	:	Flight Instructor
FT	:	Feet
ICAO	:	International Civil Aviation Organization
KTS	:	Knots
M	:	Meter(s)
MLG	:	Main Landing Gear
NIL	:	Not In List
OFSAM	:	Office of the Flight Surgeon and Aviation Medicine
PCAR	:	Philippine Civil Aviation Regulations
PPL	:	Private Pilot License
QNH	:	Altimeter Setting
RPLC	:	Diosdado Macapagal International Airport
RWY	:	Runway
SA	:	Situational Awareness
SCT	:	Scattered
SP	:	Student Pilot
TBO	:	Time Between Overhaul
UTC	:	Universal Time Coordinated
VFR	:	Visual Flight Rules
VMC	:	Visual Meteorological Condition

1. FACTUAL INFORMATION

Aircraft Registration No.	:	RP- C8811
Aircraft Type/Model	:	Textron Aviation Inc., Cessna C172R
Operator	:	First Aviation Academy, Inc. (FAA)
Address of Operator	:	Bldg. 8303S Southwest Apron B, Subic Bay International Airport, SBFZ, Zambales, Philippines
Place of Occurrence	:	Omni Airfield (PH-0178), Civil Aviation Complex Clark Freeport Zone, Pampanga, Philippines
Date/Time of Occurrence	:	August 16, 2022 at about 0844H/0044 UTC
Type of Operation	:	Flight Training
Phase of Flight	:	Landing
Type of Occurrence	:	Runway side excursion

1.1 History of Flight

On or about 0844H, August 16, 2022, a Textron Aviation Inc. Cessna C172R type of aircraft with Registry Number RP-C8811 sustained substantial damage after a bounced landing that resulted in a runway excursion at Omni Airfield (RPLC), Civil Aviation Complex Clark Freeport Zone, Pampanga, Philippines. First Aviation Academy, Inc. is operating the aircraft in accordance with PCAR Part 3. The Student Pilot (SP) on board was not injured. Visual meteorological conditions prevailed at the time of the occurrence, and a training flight plan was filed. The solo flight originated from the same airfield at 0730H and was to be terminated after the flight training operation.

The Flight Instructor (FI) released the Student Pilot for a solo flight after about two (2) years of flight training due to the 2019 pandemic. The FI released her for a solo after she accumulated fifty-five (55) prior flight hours, seventeen (17) recent flight hours, and performed well in all recent flight lessons.

The SP was scheduled to perform two (2) touch-and-go followed by a full-stop landing. The FI was monitoring the flight via radio nearby at the makeshift tower at Omni. The first touch-

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and-go was uneventful. In her second pattern, the SP landed approximately 70 meters after the threshold of runway (RWY) 20. The aircraft bounced three (3) times, consuming one hundred (100) meters of runway. The SP lost directional control of the aircraft, swerved to the right side of the runway, and eventually went out of the paved portion of the runway. The aircraft exited the runway pavement and settled on the grassy area about twenty (20) meters away from RWY marker three (3) at coordinates 15°10'23.22"N, 120°33'51.13"E, with a final heading of 261^0. Witnesses rushed to the scene to help secure the aircraft. The SP alighted safely from the aircraft by herself. Inspection of the aircraft shows it sustained impact damage to its nose landing gear, engine fire wall, propeller, and engine. No fire ensued.

Figure 1: The aircraft at its 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	1	0	0	**1**

1.3 Damage to Aircraft

The aircraft sustained substantial damage.

1.4 Other Damages

OMNI runway received surface nick damage due to propeller ground strike.

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1.5 Personnel Information

1.5.1 Student Pilot (SP)

Gender	:	Female
Date of Birth	:	March 01, 1998
Nationality	:	Filipino
License	:	144246-PPL
Valid up to	:	July 31, 2024
Type rating	:	Airplane: Single Engine Land-C172
Medical Certificate Valid up to	:	November 17, 2022
Time on Aircraft	:	72+00 Hours as per Pilot logbook
Grand Total time	:	72+00 Hours as per Pilot logbook

1.6 Aircraft Information

The Cessna 172 Skyhawk is a single-engine, high wing, fixed wing aircraft made by the Cessna Aircraft Company. First flown in 1955, more 172's has been built than any other aircraft. It was developed from the 1948 Cessna 170 but with tricycle landing gear rather than conventional landing gear. The 1974 172M was also the first to introduce the optional 'II' package which offered higher standard equipment, including a second nav/comm radio, an ADF and transponder.

1.6.1 Aircraft Data

Registration Mark	:	RP-C8811
Manufacturer	:	Textron Aviation Inc.
Country of Manufacturer	:	USA
Type/Model	:	Textron Aviation Inc./ Cessna C172R
Operator	:	First Aviation Academy, Inc.
Serial No./Type Certificate	:	17281349/TC3A12
Year of Manufacture	:	2006
Certificate of Airworthiness	:	February 21, 2023
Certificate of Registration	:	January 11, 2024
Category	:	Normal
Number of Flight Crew	:	1
Number of Passenger	:	3
Airframe total time	:	7,006+30 Hours

1.6.2 Engine Data

The Lycoming O-360 is a family of four-cylinder, direct-drive, horizontally opposed, air-cooled, piston aircraft engines. Engines in the O-360 series produce between 145 and 225 horsepower (109 to 168 kW), with the basic O-360 producing 180 horsepower. The engine family has been installed in thousands of aircraft, including the Cessna 172, Piper Cherokee/Archer, Grumman Tiger, and many home-built types. It has a factory rated time between overhaul (TBO) of 2,000 hours or twelve years.

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Manufacturer	:	Lycoming
Type	:	Piston
Type/Model	:	Lycoming/ IO-360-L2A
Engine SN#	:	L-33012-51E
Engine time since new	:	5,402+30 Hours as per aircraft logbook
Engine time since overhaul	:	1,020+39 Hours as per aircraft logbook

1.6.3 Propeller Data

Manufacturer	:	McCauley
Type	:	Fixed Pitch
Type/Model	:	Constant Speed/ 1C235/LFA7570
Propeller SN#	:	AAC48010
Date last Installed	:	New
Propeller time since new	:	5,013+04 Hours as per aircraft logbook
Propeller time since overhaul	:	206+31 Hours as per aircraft logbook

1.7 Meteorological Information

Visual Meteorological Conditions (VMC) prevailed at the time of the occurrence.

1.8 Aids to Navigation

The flight was carried out under Visual Flight Rules (VFR). Using 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 was equipped with a standard radio transceiver. Communications were carried out between the pilot and air traffic controller within the area.

1.10 Aerodrome Information

Omni Aviation Corporation Aerodrome is a small airport in Mabalacat, Philippines. The ICAO designator of this field is PH-0178. It is listed as private aerodrome facility on the CAAP aerodrome and air navigation facility under the Aerodrome And Air Navigation Safety Oversight Office (AANSOO).

1.10.1 General Information

Aerodrome Name	:	Omni Aviation Corporation Aerodrome (PH-0178)
Coordinates	:	15°10’12.42” N 120°33’46.85” E

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Aerodrome Operator	:	OMNI Aviation Complex, Manuel A. Roxas Highway, Clark Special Economic Zone Field, Pampanga
Runway Direction	:	02/20
ATS Frequency c/o RPLC	:	118.70 MHZ/124.30 MHZ
Runway Length	:	640 meters
Runway Width	:	16 meters
Runway Elevation	:	170.41 m AMSL
Surface	:	Asphalt Strength: 5,455 kg. AUW
Slope	:	0.14%
Types of traffic permitted	:	VFR
AD Operator	:	Airport Operations: 2200Z – 0800Z.
Security	:	H24
Restaurants	:	At the town proper
Transportation	:	Vehicle for hire.
Visual Ground Aids	:	Standard day markers and wind direction indicator.
Facilities	:	Hangar, flight dispatch station, radio transceiver, refueling station, first aid kit, firefighting equipment and land transportation.
Capability for removal of disabled aircraft	:	Nil.
Cautions:	:	RWY 02 approach is displace 200m from threshold to provide adequate clearance from Subic-Tarlac-Clark express way overpass construction

1.11 Flight Recorders

The aircraft is not equipped with any flight recorders and existing CAAP regulation does not require it.

1.12 Wreckage and Impact Information

The SP landed approximately 70 meters after the threshold of runway (RWY) 20. The aircraft bounced three (3) times, consuming one hundred (100) meters of runway and sustaining damage to the equipment. The pilot lost directional control of the aircraft and swerved to the right, going out of the paved portion of the runway. The aircraft exited the runway pavement and settled on a nose-low position on the grassy area about twenty (20) meters away from RWY marker three (3) at coordinates 15°10'23.22"N, 120°33'51.13"E, with a final heading of 261^0. Inspection of the aircraft shows it sustained impact damage to its nose landing gear, engine fire wall, propeller, and engine (Figure 2). No fire ensued.

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Figure 2. RP-C8811 relocated at the Operator's hangar for further damage assessment.

1.13 Medical and Pathological Information

The pilot has undergone the post-accident medical examination at CAAP-OFSAM, and there was no medical impediment that could hinder her fitness to fly. The pilot's medical examination confirmed that she met the CAAP and ICAO Annex 1 Medical Standards for exercising the privileges of the license she held.

1.14 Fire

There was no reported post-crash fire during on-site investigation.

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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 pilot at the time of the event. The pilot of the aircraft was secured by a seatbelt and a harness, which remained intact after the event. No search operation was deployed since the occurrence was at a controlled aerodrome facility.

1.16 Organizational and Management Information

1.16.1 Operator

First Aviation Academy, Inc. (FAA) has an Aircraft Training Organization Certificate (ATOC) #2019-02 valid until March 22, 2026. It is authorized to perform flight and ground training operations that provide private pilot courses, single-engine land course, commercial pilot course, multi-engine land flight instructor course, flight instructor course, land and instrument rating for airplanes, airline transport pilot license ground theory, and jet orientation training. The organization is also equipped with a Redbird MCX and a Redbird TD2 G-1000 simulator trainer. First Aviation Academy, Inc. flight operations are located at Building 8303, Southwest Apron B, Argonaut Highway, Subic Bay International Airport, Subic Bay Freeport Zone, Philippines. The aircraft RP-C8811 is listed on their ATOC operations specification.

1.16.2 Maintenance

The maintenance function of RP-C8811 is being undertaken by Aviation Hub Asia, Inc. an Approved Maintenance Organization (AMO) with a current Certificate number 151-16 with facility located at Building 33K Philexcel Business Park, Clark Freeport, Clark Field, Angeles, Pampanga, Philippines.

2.0 ANALYSIS

2.1 General

A Textron Aviation Inc. Cessna C172R aircraft, registered as RP-C8811, suffered significant damage on August 16, 2022, at Omni Airfield (RPLC), Civil Aviation Complex Clark Freeport Zone, Pampanga, Philippines, following a bounced landing that caused a runway excursion. The incident occurred at or around 08:44H. The aircraft is being operated by First Aviation Academy, Inc. in compliance with PCAR Part 3. At the time of the incident, visual meteorological conditions prevailed, and a training flight plan was submitted. On her second attempt for touch-and-go, the aircraft bounced three (3) times on the runway and sustaining damage on the nose landing gear. The SP then lost directional control of the aircraft and swerved to the right side going out of the paved portion of the runway. The aircraft exited the runway pavement and settled on a nose low position on the grassy area about twenty (20) meters away from RWY marker three (3) at coordinates 15°10'23.22"N, 120°33'51.13"E with a final heading of 261degrees**.** Witnesses rushed to the scene to help and secure the aircraft. The SP alighted safely out of the aircraft by herself. No fire was ensued.

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2.2 Airfield Condition

Ocular inspection of the runway was made on August 16, 2022 and during this visit, it was found that the runway surface condition had no physical deficiencies (i.e. potholes/uneven pavement/slippery areas) that might pose hazard to the take-off/landing of aircrafts. Likewise, markings and RWY markers are available within the aircraft movement area to serve as reference guide to pilots.

2.3 Flight Handling and Actions

During the approach, witnesses stated that the flight was slightly high, the SP stated she initiated corrections. The aircraft touchdown on the centerline of the runway 70 meters after the threshold of runway (RWY) 20. The aircraft bounced three (3) times consuming one hundred (100) meters of runway and sustaining damage on the aircraft. The SP applied left rudder to bring the aircraft back on the runway centerline as it was observed to be going to the right side but to no avail. The aircraft continued to veer to the right and subsequently left the runway pavement. Visual Meteorological Conditions (VMC) prevailed at the time of occurrence. Where winds are Calm, Visibility about unlimited, Sky Condition SCT 020, BKN100 Temperature 30 Dew and Point 23 QNH setting at 1011 millibars with no significant remarks.

The aircraft veered to the right side of the active runway; the SP applied wheel brakes to stop the momentum. But the aircraft continued to depart from the runway. The aircraft came to a complete stop and settled on the grassy area about twenty (20) meters away from RWY marker three (3) at coordinates 15°10'23.22"N, 120°33'51.13"E with a final heading of 261^0.

There are many interventions that have been created by the regulatory body to assist in reducing the risk of accidents in the approach and landing phases of flight. These interventions address risk in all aspects of the approach and landing phases. One of these is the stabilized approach criterion, which is designed to assist the pilot in flying a safe approach and landing. The SP was, in a way, not stabilized for the approach.

The SP's inappropriate actions and inactions are probably attributable to her becoming progressively overwhelmed by successive indications caused by poor management of the aircraft's performance. The investigation depicts that the SP missed the landing briefing and did not monitor her descent against the required vertical profile, and the landing zone was way off their aim point, so she should have aborted the landing.

2.4 Recovery from Bounced Landing

Many bounced landings can still end with a smooth touchdown. Configure the aircraft for landing (as per POH), if the aircraft bounces upon landing, the first thing pilots should do is hold back pressure to keep the aircraft in a nose-high landing attitude. Pilots might need to release some back pressure on the yoke or stick if the nose is too high, but they should not push the nose down. If pilots force the nose down, the aircraft could land even harder than the first time, or worse, land on the nose gear. As the aircraft starts descending back to the runway, it might also need to add some power to reduce the descent rate. But do not overcorrect with power. Adding small amounts of power is all it takes to safely reduce the

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descent rate for a soft touchdown. Executing a go-around is not a bad idea either. Although a number of factors created the scenario in which the accident could occur, the most plausible explanation for the descent was that the SP focused on the landing and the failure to recover from it, and that the lack of situational awareness on controlling the aircraft was overlooked.

3.0 CONCLUSIONS

3.1 Findings

a. The aircraft was certified, equipped, and maintained in accordance with CAAP-PCARs and approved procedures.
b. The aircraft was properly released for flight without any discrepancies noted on its logbook.
c. Visual meteorological condition prevailed at the time of the incident.
d. The SP was qualified on the Textron Aviation Inc. Cessna C172R type of aircraft.
e. The SP have a valid airmen licenses and medical certificates issued by the CAAP.
f. The aircraft has current Certificates of Airworthiness and Registration.

3.2 Probable Cause

3.2.1 Primary Cause Factor

a. Improper recovery techniques during bounced landing. (Human Factor).

3.2.2 Contributory Cause Factor

a. The SP's decision to continue landing despite its unstabilized approach.
b. Lack of situational awareness.
c. Unable to identify and manage threat during landing.

4.0 SAFETY RECOMMENDATIONS

The safety deficiencies presented in this report have been fully addressed and no further safety recommendations are being proposed.

5.0 SAFETY ACTIONS

5.1 Following the occurrence, First Aviation Academy, Inc. initiated the following safety corrective action:

a. Conducted Lectures on flight instructors and pilot trainees with emphasis on “Go-Around” procedures and items to consider on landing.

b. The Operator issued a stabilized approach and bounce landing policy (Appendix A).

-----END-----

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