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-C2893
PA-23-250

OPERATOR: INDIANA AEROSPACE UNIVERSITY

TYPE OF OPERATION: FLIGHT TRAINING

DATE OF OCCURRENCE: AUGUST 5, 2023

PLACE OF OCCURRENCE: ORMOC AIRPORT, ORMOC CITY, SOUTHERN LEYTE, PHILIPPINES

TABLE OF CONTENTS

(PA-230-250, RP-C2893 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.

Furthermore, No part of 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.

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FINAL REPORT

TITLE: Incident involving a Piper Aztec PA-23-250 type of aircraft with Registry Number RP-C2893 owned and operated by Indiana Aerospace University that landed on its belly at RWY 18 of Ormoc Airport, Ormoc City, Southern Leyte, Philippines, on August 5, 2023/1028H.

Notification of Occurrence to National Authority

The notification of incident to AAIIB CAAP was relayed by the Operator of the aircraft to the OIC, AAIIB through to the Operation Center-CAAP at 1200H (LOCAL) on August 5, 2023.

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 **03 June 2024.**

Synopsis:

On or about 1028H, August 5, 2023, a Piper Aztec PA-23-250 type of aircraft with Registry Number RP-C2893 being operated by Indiana Aerospace University landed on its belly at Ormoc Airport, Ormoc City, Southern Leyte, Philippines. The two pilots were not injured, however the aircraft sustained minor damage as a result of the incident. The Aircraft Accident Investigation and Inquiry Board determined that the cause factor was attributed to both pilot's omission of the key steps in the landing checklist that resulted in a belly landing.

LIST OF ACRONYMS AND ABBREVIATIONS

AAIIB	:	Aircraft Accident Investigation and Inquiry Board
CAAP	:	Civil Aviation Authority of the Philippines
CPL	:	Commercial Pilot License
CRM	:	Crew Resource Management
FI	:	Flight Instructor
IAU	:	Indiana Aerospace University
PCAR	:	Philippine Civil Aviation Regulations
PF	:	Pilot Flying
TFI	:	Training Flight Instructor
TEM	:	Threat and Error Management
UTC	:	Coordinated Universal Time
VFR	:	Visual Flight Rules
VMC	:	Visual Meteorological Condition

1. FACTUAL INFORMATION

Aircraft Registration No.	:	RP-C2893
Aircraft Type/Model	:	Piper Aztec/PA-23-250
Operator	:	Indiana Aerospace University
Address of Operator	:	IAU Town Center, Kagudoy Rd, Basak, Lapu-Lapu City, Mactan, Philippines
Place of Occurrence	:	Ormoc Airport, Ormoc City, Southern Leyte, Philippines
Date/Time of Occurrence	:	August 05, 2023/1028H/0228UTC
Type of Operation	:	Flight Training
Phase of Flight	:	Landing
Type of Occurrence	:	Wheels-up landing - unintentional

1.1 History of Flight

On or about 1028H, August 5, 2023, a Piper Aztec PA-23-250 type of aircraft with Registry Number RP-C2893 sustained substantial damage after landing on its belly at RWY 18 of Ormoc Airport, Ormoc City, Southern Leyte, Philippines. The aircraft is being operated by Indiana Aerospace University under PCAR Part 3, Approved Training Organizations. On board were a flight instructor (FI) and a training flight instructor undergoing additional rating on the said aircraft. Visual Meteorological Conditions (VMC) prevailed at the time of the occurrence.

The training FI, as the pilot flying, admitted that the pre-landing checklist was not used while simulating landing with the left engine inoperative. It was on the 4th traffic pattern when the accident happened. Moreover, both the Flight Instructor (FI) and the Training Flight Instructor (FI) admitted that they were unaware that the three green lights were illuminating, indicating that the landing gears were down and locked. The aircraft initially landed on its belly, 240 feet from the displaced marker on RWY 18. There were 200 and 89 propeller strikes on both right and left propellers, respectively, as the aircraft continued to move forward on the runway. Both crews egressed safely after shutting down the engine**.** The aircraft's final resting point was located at 217 degrees and grid coordinates 11.3'46"N124.33'57"E.

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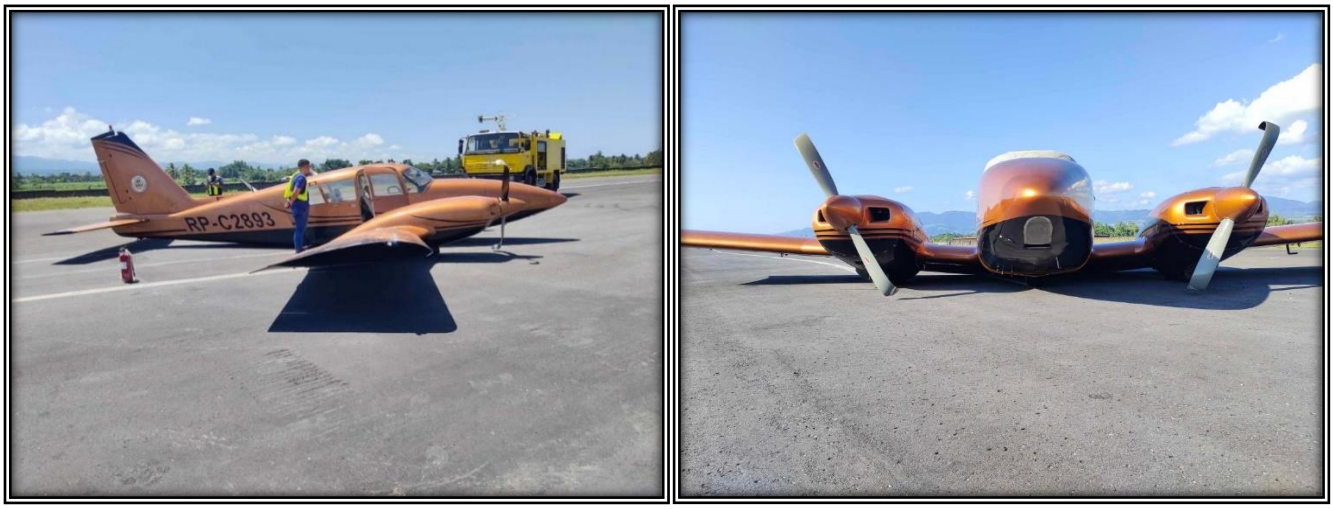

Figures 1: Aircraft's final resting point

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	0	0	0	0

1.3 Damage to Aircraft

The aircraft sustained substantial damage.

1.4 Personnel Information

1.4.1 Flight Instructor (FI)

Gender	:	Male
Date of Birth	:	May 11, 1985
Nationality	:	Kenya
License	:	106480 CPL/FI
Valid up to	:	December 31, 2024
Type rating	:	Single & Multi-Engine Land- C-150, C-172, AATDR-12/BATD Cirrus 2, PA-23-250 (5-03-23)
Medical Certificate Valid up to	:	05 September 2023
Time on Aircraft	:	145+00 Hours
Grand Total time	:	8,400+00 Hours

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1.4.2 Training Flight Instructor (TFI)

Gender	:	Female
Date of Birth	:	September 27, 1997
Nationality	:	Filipino
License	:	127990 CPL/FI
Valid up to	:	April 25, 2028
Type rating	:	Single Engine Land - C-150/C-172
Medical Certificate Valid up to	:	November 18, 2023
Time on Aircraft	:	7+06 Hours
Grand Total time	:	650+00 Hours as per Pilot logbook

1.5 Aircraft Information

1.5.1 Aircraft Data

Registration Mark	:	RP-C2893
Manufacturer	:	Piper Aircraft Inc.
Type/Model	:	PA-23-250
Serial Number	:	27-3786
Date of Manufactured	:	1967
Airframe Total Time	:	5,313+38 Hours
Certificate of Airworthiness	:	Valid until March 30, 2024
Certificate of Registration	:	Valid until May 25, 2024
Number of Aircrew	:	1

1.5.2 Engine Data

Manufacturer	:	Lycomming
Type/Model	:	Piston/ LH-10-540-C4B5/RH-10-540-C4B5
Engine Serial Number	:	R-10067-48/L-544-48
Time Since New	:	LH-2,514+51Hrs/RH-2,751+51Hrs

1.5.3 Propeller Data

Manufacturer	:	Hartzell
Propeller SN#	:	BP 10116B/BP10193B
Propeller total time	:	LH 410+10 Hrs. /RH 410+10 Hrs.

1.6 Meteorological Information

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

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1.7 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.

1.8 Communications

Communications were carried out between the pilot and other aircraft within the area.

1.9 Aerodrome Information

1.9.1 General Information

Aerodrome Name	:	Ormoc Principal Airport (RPVO)
Coordinates	:	110323.4717N 1243355.9729E
Aerodrome Operator	:	0000-0900
Runway Direction	:	18/36
Runway Length	:	1472m
Runway Width	:	36m
Surface	:	Concrete

1.10 Flight Recorder

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

1.11 Wreckage and Impact Information

The aircraft initially landed on its belly, 240 feet from the displaced marker on RWY 18. There were 200 and 89 propellers strike on both right and left propellers, respectively, as the aircraft continued to move forward on the runway. Both crews egressed safely after shutting down the engine.

1.12 Medical and Pathological Information

Both pilots were subjected to drug tests after the occurrence and were found to have no significant medical findings. They also underwent the post-flight accident medical examination conducted by the Office of the Flight Surgeon and Aviation Medicine (OFSAM) on April 19, 2023. There was no medical impediment for the pilots that could have contributed to this accident.

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1.13 Fire

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

1.14 Search and Survival Aspects

The incident was survivable.

1.15 Test and Research

On August 7, 2023, a retraction test witnessed by an AAIIB investigator was performed during the emergency hydraulic hand pump operation on the RP-C1975 landing gear. The manual landing gear extension and retraction were conducted to determine any malfunction or failure that might cause the accident. The test confirmed that the landing gear extension and retraction are operating normally.

1.16 Organizational and Management Information

Indiana Aerospace University (IAU) is the Philippine first and only aerospace university that offers to future aviation professionals with degree programs in: Aerospace Engineering, Airline Management, Aircraft Maintenance Technology, Avionics, Aviation Technology-Major in Flying, Hotel and Restaurant Management Tourism and Travel Management. It also offers special programs such as: Private Pilot License Course, Commercial Pilot License Course, Instrument Rating Course, and Flight Instructor Course. It was founded in 1992, to answer the growing demand for qualified and well-trained manpower in aeronautics and aviation related field. The opening of the Mactan-Cebu International Airport to direct international flight and the expansion of multinational aircraft maintenance and overhaul (MRO) stations in the country plays a vital role for IAU to be established.

2. ANALYSIS

The training flight instructor (TFI) was undergoing her additional rating on the particular type of aircraft. While simulating the landing with one engine inoperative, the TFI, in her role as pilot flying (PF), admitted that she did not use the checklist and relied solely on memory. On their fourth approach to landing, she failed to double check if the landing gears were fully extended.

Operation of an aircraft equipped with retractable landing gear requires the deliberate, careful, and continued use of an appropriate checklist consisting of a specific position on the downwind leg at which to lower the landing gear and rechecked prior to landing. Strict adherence to this procedure increases the pilot's awareness of the need to avoid unintentional gear-up landings. As PF, she should confirm that the landing gear has been extended and locked by the gear position indicators in the cockpit. Checklists have been the foundation of pilot standardization and cockpit safety. It is an aid to the memory and helps ensure that critical items necessary for the safe operation of aircraft are not overlooked or forgotten. However, if the pilot lacks

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commitment to their use, checklists hold no value. Without discipline and dedication to use the checklist at the appropriate time, the odds are on the side of error. Pilots who fail to take the checklist seriously become complacent when the only thing they can rely on is memory. A major objective in flight training is to establish habit patterns that will serve pilots well throughout their entire flying career. Because they are both flight instructors, they must promote a positive attitude toward the use of checklists and recognize their importance.

On the other hand, the flight instructor (FI), who was acting as the pilot monitoring also admitted that he did not notice the three green lights were illuminating. As the Flight Instructor (FI), he failed to fulfil his responsibilities of pilot monitoring and lacked assertiveness in adhering to procedures. As part of the crew resource management, there was a communication breakdown and a lack of situation awareness among the pilots. Clear and effective communication is crucial during critical phases of flight, such as landing. Situational awareness is the accurate perception of the operational and environmental factors that affect the aircraft and pilot during a specific period of time. Maintaining situational awareness requires an understanding of the significance of these factors and their impact on the flight. Complacency presents another obstacle to maintaining situational awareness. When activities become routine, pilots have a tendency to relax and not put as much effort into performance, which reduces effectiveness in the cockpit.

Meanwhile, a manual extension and retraction test was performed through the emergency hydraulic hand pump on the aircraft landing gears, as shown in the pictures below. This test was conducted to determine any malfunction or failure that might cause the accident. The test confirmed that the landing gear extension and retraction were operating normally.

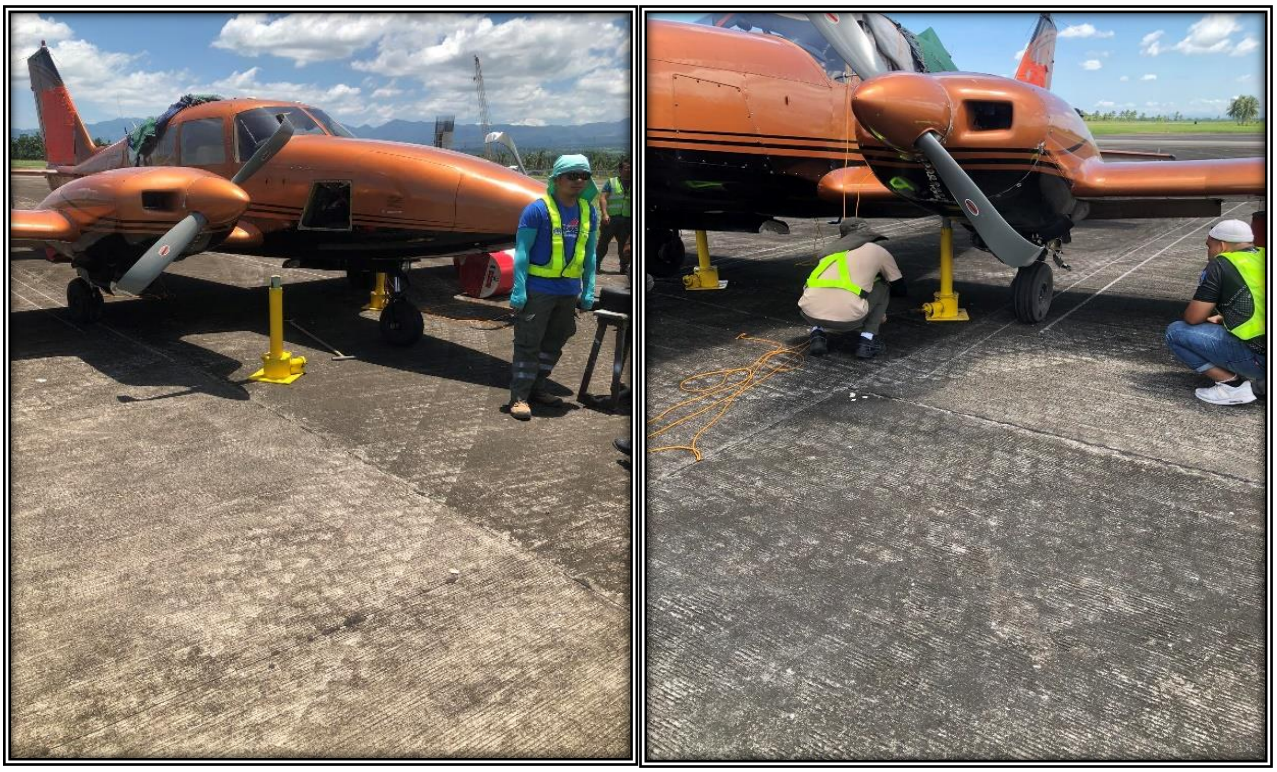

Figure 2: The manual landing gear extension and retraction test using the emergency hydraulic hand pump

3. CONCLUSIONS

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3.1 Findings

a. The PA-23-250 type of aircraft qualifies the flight instructor.

b. The training flight instructor is gaining time as a requirement for an additional rating in the PA-23-250 type of aircraft.

c. Both pilots did not use the checklist and relied only on memory while simulating the landing with one engine inoperative.

d. Both pilots failed to double-check if the landing gears were fully extended.

e. The flight instructor lacks pilot monitoring duties and assertiveness in adhering to procedures.

f. Both pilots possess a valid CAAP license and medical certificate.

g. A visual meteorological condition prevailed at the time of the incident.

h. The aircraft was properly released for flight, with no discrepancies noted in its logbook.

i. The aircraft has current certificates of airworthiness and registration.

3.2 Probable Cause

3.2.1 Primary Cause Factor

Both pilot's omission of the key steps in the landing checklist that resulted in a belly landing.

3.2.2 Contributory Cause Factor

a. Breakdown of communication between both pilots.

b. Both pilots lack situational awareness.

4. SAFETY RECOMMENDATIONS

The safety deficiencies detailed in this report have been fully addressed as a result of the safety measures implemented by the Operator. Consequently, no further safety recommendations are being proposed.

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5. SAFETY ACTIONS

5.1 Safety Actions taken by the Operator

Following the serious incident, the Operator initiated the following safety corrective actions to prevent the probability of a similar occurrence happening again:

a. Checklist provision: A provision requiring checklist on critical aspects of the flight was added to the Training Procedures Manual. Said provision will reinforce the significance of disciplined checklist usage in the cockpit.

b. Threat and Error Management (TEM) principles was added and integrated to Training Procedures Manual. This will enhance pilot training to:

1. Recognize and manage threats and error that could lead to procedural lapses.

2. Develop strategies in dealing with unexpected challenges during critical phases of flight.

c. Crew Resource Management (CRM) principles was added and integrated to Training Procedures Manual, to enhance communication, situational awareness, pilot monitoring duties and assertation on both crew members in adhering to procedures.

d. Safety Promotion: Foster a safety-oriented culture with the institution by having monthly safety meetings, encouraging reporting of deviations and fostering an environment that promotes adherence to SOPs.

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