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-C8229
COSTRUZIONI AERONAUTICHE TECNAM S.P.A.,
TECNAM P2006T

OPERATOR: FIRST AVIATION ACADEMY, INC.

TYPE OF OPERATION: FLIGHT TRAINING (PCAR PART 3)

DATE OF OCCURRENCE: MAY 12, 2023

PLACE OF OCCURRENCE: SUBIC BAY INTERNATIONAL AIRPORT, SUBIC BAY FREEPORT ZONE, ZAMBALES, PHILIPPINES

TABLE OF CONTENTS

(Tecnam S.P.A., Tecnam P2006T, RP-C8229 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.

Republic of the Philippines
DEPARTMENT OF TRANSPORTATION
CIVIL AVIATION AUTHORITY OF THE PHILIPPINES
MIA Road, Pasay City 1300
www.caap.gov.ph

FINAL REPORT

TITLE: Incident involving a Costruzioni Aeronautiche Tecnam P2006T type of aircraft with Registry Number RP-C8229 owned and operated by First Aviation Academy, Inc. that had a gear up landing incident at Subic Bay International Airport (RPLB), Subic Bay Freeport Zone, Zambales, Philippines, on May 12, 2023 at about 0844H/0044 UTC.

Notification of Occurrence to National Authority

The notification of incident to AAIIB CAAP was relayed by the Operator of the aircraft at 1230H (LOCAL) on May 12, 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 is conducting 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 at the CAAP website on **3 April 2024**.

Synopsis:

On May 12, 2023 at about 0844H (local), a Costruzioni Aeronautiche Tecnam P2006T type of aircraft with Registry Number RP-C8229 operated by First Aviation Academy, Inc. had a gear up landing incident at Subic Bay International Airport (RPLB), Subic Bay Freeport Zone, Zambales, Philippines. The two (2) occupants onboard did not sustain any injuries, however the aircraft sustained minor damage as a result of the incident. Visual Meteorological Condition (VMC) prevailed at the time of the incident. The cause of the occurrence was attributed to the faulty landing gear extension electric motor that resulted to gear-up landing.

LIST OF ACRONYMS AND ABBREVIATIONS

AAIIB	:	Aircraft Accident Investigation and Inquiry Board
AANSOO	:	Aerodrome and Air Navigation Safety Oversight Office
AMO	:	Approved Maintenance Organization
ARFF	:	Airport Rescue Fire Fighter
ATC	:	Air Traffic Controller
ATOC	:	Aircraft Training Organization Certificate
CAAP	:	Civil Aviation Authority of the Philippines
CB	:	Circuit Breaker
CPL	:	Commercial Pilot License
COA	:	Certificate of Airworthiness
DOTr	:	Department of Transportation
EASA	:	European Union Aviation Safety Agency
FAA	:	First Aviation Academy
FAR	:	Federal Aviation Regulation
FI	:	Flight Instructor
FT	:	Feet
KTS	:	Knots
M	:	Meter(s)
LG	:	Landing Gear
OFSAM	:	Office of the Flight Surgeon and Aviation Medicine
PCAR	:	Philippine Civil Aviation Regulations
PT	:	Pilot Trainee
RPLB	:	Subic Bay International Airport (SBIA)
RWY	:	Runway
TCU	:	Towering Cumulus Clouds
VFR	:	Visual Flight Rules
VMC	:	Visual Meteorological Condition

1. FACTUAL INFORMATION

Aircraft Registration No.	:	RP-C8229
Aircraft Type/Model	:	Costruzioni Aeronautiche Tecnam P2006T
Operator	:	First Aviation Academy, Inc.
Address of Operator	:	Bldg. 8303S Southwest Apron B, Subic Bay International Airport, Subic Bay Freeport Zone, Zambales, Philippines
Place of Occurrence	:	Subic Bay International Airport (RPLB), Subic Bay Freeport Zone, Zambales, Philippines
Date/Time of Occurrence	:	May 12, 2023 at about 0844H/0044 UTC
Type of Operation	:	Flight Training (PCAR Part 3)
Phase of Flight	:	Landing
Type of Occurrence	:	Wheels-up landing - unintentional failure

1.1 History of Flight

On or about 1637H of May 12, 2023, a Tecnam P2006T type of aircraft with registry number RP-C8229 was on routine flight training at Subic Bay International Airport (SBIA/RPLB) when it was involved in a landing incident (landing with undeployed landing gear) at runway 07. The aircraft was reported to have experienced a series of malfunctions on its primary and emergency landing gear extension systems. The aircraft is being operated by First Aviation Academy, Inc.

The flight took off from RPLB at about 1415H for a local training flight within the traffic area of the airport. The Pilot Trainee (PT) was seated on the left, and the Flight Instructor (FI) was in the right seat. The training was uneventful throughout the flight until the time that the PT was about to perform the third (3rd) touch-and-go landing. ATC communicated a change in runway in-use (from RWY 25 to RWY 07) during this period. The FI requested to proceed and orbit over Grande Island to have ample time to prepare for the landing. After receiving the cue from the tower regarding the landing sequence, the PT performed landing gear extension and set the flaps to 20 degrees. The propeller lever was moved to a full forward position, and flaps were set to a landing position (approximately 40°). Subsequently, both pilots noticed that the three (3) landing gear (LG) indicator lights were not illuminating on the "green.". The FI immediately took over the controls and initiated a go-around procedure. The

MIA Road corner Ninoy Aquino Avenue, Pasay City, Metro Manila, Philippines, 1300
Tel: (+632) 8246-2234, 8246-2235 / www.caap.gov.ph

FI requested that the tower visually verify the deployment of the landing gear. The ATC on-duty replied with “negative landing gears”.

The FI then performed troubleshooting while on the downwind leg and noticed that the circuit breaker (CB) for the landing gears had popped out. He pushed the CB back once, and the “Landing Gear Pump—On” annunciated. Following this, they made another pass to the tower to verify the status of its landing gear. Once again, the crew received confirmation that the landing gear had not deployed. Thereafter, the FI requested to proceed again over Grande Island to perform “Emergency Landing Gear Extension”. While completing the actions based on the checklist, the Pilots noticed that the right-hand (RH) emergency landing gear valve lever extension was missing and could not be functional. After making another pass with the tower, the FI received confirmation that their landing gears remained unextended. The FI decided to proceed back again over Grande Island to perform a series of G-maneuvers in order to aid in the extension of its gears, but to no avail. The FI advised ATC that they would perform circling for thirty (30) minutes to burn fuel and reduce the aircraft weight. The FI then requested to perform three (3) low passes to simulate the gear-up landing. On its fourth (4^{th}) and last approach, the FI committed to performing the landing without landing gear. The aircraft touched down abeam marker 7 of runway 07 and continued skidding forward for approximately 700 feet from its touched-down point until it finally stopped at approximately 300 feet before marker 6 of runway 07. The aircraft finally settled at grid coordinates of 14°47'33.162"N, 120°16'0.12"E, and a heading of 068°. ATC immediately dispatched the ARFF, together with FAA’s maintenance personnel. They responded immediately to the incident site to assist the pilots and secure the aircraft. No fire ensued, and the pilots safely deplaned the aircraft.

Figure 1. Aircraft’s final resting point.

MIA Road corner Ninoy Aquino Avenue, Pasay City, Metro Manila, Philippines, 1300
Tel: (+632) 8246-2234, 8246-2235 / www.caap.gov.ph

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

1.3 Damage to Aircraft

The aircraft sustained minor damage underneath the fuselage.

1.4 Other Damages

RPLB runway 07 sustained surface scar damage due to aircraft fuselage craping.

1.5 Personnel Information

1.5.1 Flight Instructor (FI)

Gender	:	Male
Date of Birth	:	December 31, 1994
Nationality	:	Filipino
License	:	117794-CPL/FI
Valid up to	:	July 31, 2023
Type Rating	:	Airplane : Single Engine & Multi Engine Land-C172/P2010 Tecnam, P2006T
Medical Certificate Valid up to	:	September 7, 2023
Time on Aircraft	:	1,635 + 37 Hours
Grand Total time	:	98+ 06 Hours

1.5.2 Pilot Trainee (PT) CPL

Gender	:	Male
Date of Birth	:	March 08, 1995
Nationality	:	Filipino
License	:	145578-CPL
Valid up to	:	November 30, 2027
Type rating	:	Airplane: Single Engine & Multi Engine Land-C172, P2006T, Instrument
Medical Certificate	:	February 09, 2024
Time on Aircraft	:	197+30 Hours as per Pilot logbook
Grand Total time	:	23+19 Hours as per Pilot logbook

MIA Road corner Ninoy Aquino Avenue, Pasay City, Metro Manila, Philippines, 1300
Tel: (+632) 8246-2234, 8246-2235 / www.caap.gov.ph

1.6 Aircraft Information

The Costruzioni Aeronautiche Tecnam S.P.A., Tecnam P2006T is n Italian high winged twin-engined all metal light aircraft, built by Costruzioni Aeronautiche Tecnam based in Capua, Italy, near Naples. The P2006T received airworthiness certification in the European Union by EASA under CS23 in 2003 and Federal Aviation Administration FAR part 23 certification in 2010.

1.6.1. Aircraft Data

Registration Mark	:	RP-C8229
Manufacturer	:	Costruzioni Aeronautiche Tecnam S.P.A.
Country of Manufacturer	:	Italy
Type/Model	:	Tecnam/ P2006T
Operator	:	First Aviation Academy, Inc.
Serial No./Type Certificate	:	270/EASA A.185
Date of Manufacture	:	January 19, 2019
Certificate of Airworthiness Valid up to	:	July 30, 2023
Certificate of Registration Valid up to	:	July 21, 2024
Category	:	Normal
Number of Crew	:	1
Passenger Seats	:	3
Airframe Total Time	:	41+09 Hours as of last COA

1.6.2 Engine Data

The Bombardier ROTAX 912S3 is a horizontally-opposed four-cylinder, naturally aspirated, four stroke aircraft engine with a reduction gearbox. It features liquid-cooled cylinder heads and air-cooled cylinders. Originally equipped with carburetors, later versions are fuel injected.

Manufacturer	:	Bombardier Rotax
Type	:	Piston
Type/Model	:	Injection/ 912S3
Engine SN#	:	9564955 (1) 9564958 (2)
Engine time since new	:	41+09 (1) 41+09 (2) Hours as of last COA

1.6.3 Propeller Data

The MT Propeller MTV 21-A-C-F propeller is a constant speed and optional for mechanical feathering propeller. The hub is milled out of aluminum alloy, The two (2) blades have a wood composite structure, The leading edge of the blade is equipped with an erosion protection device. Optional equipment includes spinner and ice protection. In this case both propellers were not damaged.

MIA Road corner Ninoy Aquino Avenue, Pasay City, Metro Manila, Philippines, 1300
Tel: (+632) 8246-2234, 8246-2235 / www.caap.gov.ph

Manufacturer	:	MT-Propeller Inc.
Type	:	Variable Pitch
Type/Model	:	Constant Speed/ MTV 21-A-C-F178-05
Propeller 1 SN#	:	181354
Propeller 2 SN#	:	181357
Propeller time since new	:	41+09 (1) 41+09 (2) Hours as of last COA

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 Communication

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

Subic Bay International Airport or SBIA (IATA: SFS, ICAO: RPLB), serves as a secondary and diversion airport for Ninoy Aquino International Airport in Metro Manila and Clark International Airport in Pampanga. It also serves the immediate area of the Subic Bay Freeport Zone, the provinces of Bataan and Zambales, and the general area of Olongapo in the Philippines. It is classified as a Principal Class 1 airport by the Civil Aviation Authority of the Philippines (CAAP), a body of the Department of Transportation (DOTr) responsible for the operations of airports in the Philippines. RPLB is listed as an aerodrome facility under the CAAP aerodrome and air navigation facility under the Aerodrome and Air Navigation Safety Oversight Office (AANSOO).

1.10.1 General Information

Aerodrome Name	:	Subic Bay International Airport - RPLB
ARP coordinates and site at AD	:	14°47’40.0162’’N; 120° 16’16.9175’’E
Aerodrome Operator address, telephone, telefax,	:	Subic Bay Metropolitan Authority Bldg. 229, Waterfront Road Subic Bay Freeport Zone 2222 Subic Bay International Airport Bldg. 8015, Argonaut Highway Subic Bay Freeport Zone 2222 Tel No.: (047) 252-3131 / 252-9360 to 252-9365
Types of traffic permitted	:	IFR-VFR
AD category for fire fighting	:	CAT X.

MIA Road corner Ninoy Aquino Avenue, Pasay City, Metro Manila, Philippines, 1300
Tel: (+632) 8246-2234, 8246-2235 / www.caap.gov.ph

Rescue Equipment		Three (3) rescue trucks, two (2) back-up fire trucks and two (2) ambulances. Twenty (20) firefighter/rescue personnel. Nineteen (19) paramedic personnel.
Helicopter Take-off/Landing Area Coordinates	:	On Airport Helipad landing areas: 1. Helipad Spot #1 - located on the south of RWY07/25 (unregistered). 2. Helipad Spot #2 - located on the south of RWY07/25 (unregistered). B. Off Airport Helipad landing areas: 1. Hospital - elevation 550FT MSL (unregistered) NOTE: Prior to any helicopter utilizing this helipad, inform Subic Tower and Airport Operation Center, the hospital and the fire station. 2. Grande Island Helipad - elevation 15FT MSL (unregistered). NOTE: Prior coordination required with Subic Tower and Airport Operation Center (Grande Fire House will be notified).
ATS Communication Facilities	:	H24
Operational Frequencies	:	Tower 118.20Mhz/122.20Mhz Ground Control: 121.80Mhz Approach Control: 119.10Mhz Clearance Delivery: 121.30Mhz Subic ATIS: 134.40Mhz
Airspace classification	:	ATZ - B; CTR - D; TMA - D (exclusive ATS routes at FL130 & above; ATS routes inside TMA below FL130) and A (ATS routes inside TMA at FL130 & above).
DVOR/DME	:	SBA 113.50Mhz
Runway Direction	:	07/25
Runway Length	:	07/25 840Meters
Runway Width	:	07/25 60Meters
Surface	:	07/25 PCN 66 R/B/W/T First 540M - CONC

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 aircraft touched down abeam marker 7 of runway 07 and continued skidding forward for approximately 700 feet until coming to a halt about 300 feet before marker 6 (Figure 2). The aircraft's final stopping point was at grid coordinates 14° 4733.162N, 120° 160.12E, with a general heading of 068°. The FAA personnel, together with the airport's RFFS, rushed quickly to the incident location to help the pilots and secure the aircraft. No fire broke out, and the pilots successfully deplaned the aircraft.

MIA Road corner Ninoy Aquino Avenue, Pasay City, Metro Manila, Philippines, 1300
Tel: (+632) 8246-2234, 8246-2235 / www.caap.gov.ph

Figure 2 – The aircraft's touched down point and visible skid marks over RWY 07.

1.13 Medical and Pathological Information

The pilots were subjected to medical and drug tests after the occurrence and found no significant medical findings. They had also undergone the post-flight incident medical examination review by the Office of the Flight Surgeon and Aviation Medicine (OFSAM). There was no medical impediment on both pilots' side that could have had a bearing on this incident

1.14 Fire

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

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 occupants 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 happened at a controlled aerodrome facility.

MIA Road corner Ninoy Aquino Avenue, Pasay City, Metro Manila, Philippines, 1300
Tel: (+632) 8246-2234, 8246-2235 / www.caap.gov.ph

1.16 Test and Research

On May 13, 2023, AAIIB investigators, together with FAA mechanics and representatives, examined the aircraft, its engine, and its propellers. The aircraft logbooks revealed no significant findings. It was also noticed that the circuit breaker (CB) for the landing gears had popped out, which indicates a landing gear fault. On the same day, we performed the aircraft landing gear extension with the help of a mobile crane to test its functionality.

Figure 2 – Landing gear CB's.

1.17 Organization and management information

1.17.1 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 courses, commercial pilot courses, multi-engine land flight instructor courses, flight instructor courses, 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-C8229 is listed on their ATOC operations specification.

MIA Road corner Ninoy Aquino Avenue, Pasay City, Metro Manila, Philippines, 1300
Tel: (+632) 8246-2234, 8246-2235 / www.caap.gov.ph

1.17.2 Maintenance

The maintenance function of RP-C8229 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 Tecnam P2006T type of aircraft with registry number RP-C8229 suffered minor damage on May 12, 2023, at Subic Bay International Airport (SBIA/RPLB) following a gear-up landing. The occurrence happened at around 0844H. The aircraft is being operated by First Aviation Academy, Inc., in compliance with PCAR Part 3. At the time of the occurrence, visual meteorological conditions prevailed, and a training flight plan had been filed. The PT was about to perform his third (3rd) touch and go when the aircraft landing gears did not extend. The PIC took control and executed an emergency landing gear extension. Apparently, the RH Emergency LG lever was missing. The FI was dumbfounded about the situation and committed to performing a forced landing on the active runway. The aircraft touched down abeam marker 7 of runway 07 and continued skidding forward for approximately 700 feet from its initial point of contact on the runway until it finally stopped at approximately 300 feet before marker 6 of runway 07. The aircraft settled at grid coordinates of 14°47'33.162"N, 120°16'0.12"E, and a general heading of 068°. Together with the airport's RFFS and FAA's maintenance personnel, they responded immediately to the incident site to assist the pilots and secure the aircraft. No fire ensued, and the pilots safely deplaned the aircraft on their own. The maintenance operator was not aware of the missing emergency LG lever. There was no routine maintenance found on the serviceability of the emergency LG lever, nor was there an equipment maintenance check for the said item.

2.2 Runway Condition

Ocular inspection of the runway was made on May 13, 2023, and during that time, it was found that the runway surface condition had no physical deficiencies (i.e., potholes, uneven pavement, or slippery areas) that might pose a hazard to the take-off and landing of aircraft. Likewise, markings and RWY markers are available within the aircraft movement area to serve as reference guides for pilots. Visual Meteorological Conditions (VMC) prevailed at the time of the occurrence. The current weather condition on May 12, 2023, at 0600Z has a wind direction of 320 degrees, wind velocity of 5 knots, visibility of more than 10 km, a sky condition of FEW 018 TCU BKN 020, a temperature of 29 degrees Celsius, a dew point of 25 degrees, and an altimeter setting of 1011hPa. The aircraft touched down abeam marker 7 of runway 07 and made a ground scar approximately 700 feet from its touched down point until it finally settled at approximately 300 feet before marker 6 of runway 07 (Figure 3).

MIA Road corner Ninoy Aquino Avenue, Pasay City, Metro Manila, Philippines, 1300
Tel: (+632) 8246-2234, 8246-2235 / www.caap.gov.ph

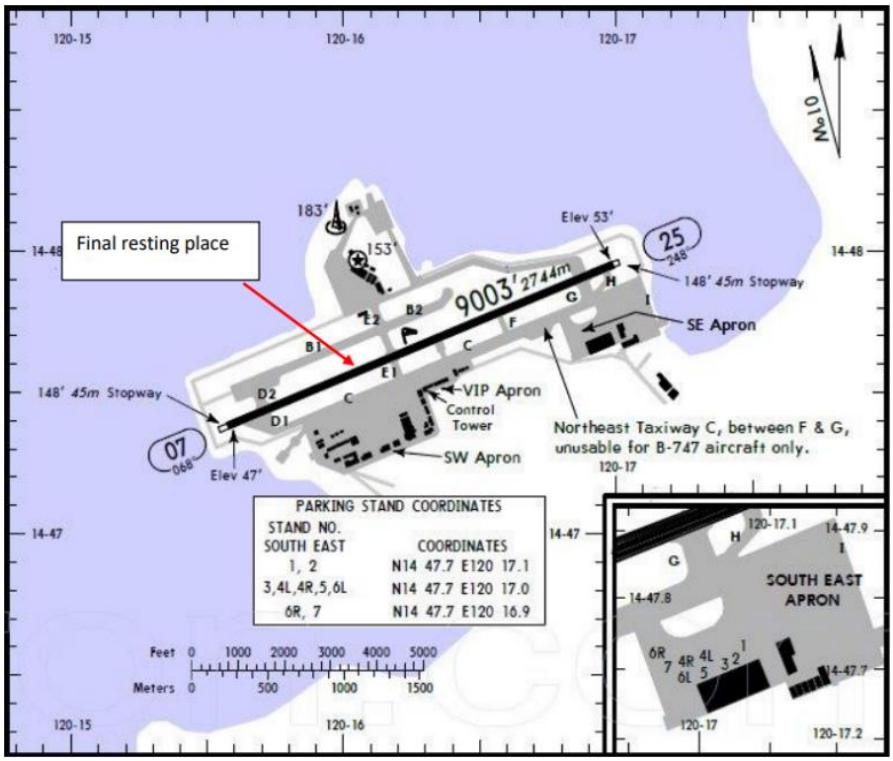


Figure 3 – The aircraft at its final location on RPLB.

2.3 Aircraft Landing Gear

The tricycle retractable landing gear of the Tecnam P2006T is powered by a reversible electric pump. The main landing gear has a trailing link suspension constructed from high-strength aluminum alloys and high-tensile steel, which is directly attached to the fuselage main bulkheads. An oleo-pneumatic shock absorber provides excellent ground load absorption.

The main landing gear retraction is very simple, rotating 90° into two fuselage side pods. The main gear of the Tecnam P2006T is actuated by an aluminum pushrod, which is connected to the hydraulic ram. The main landing gear is equipped with Cleveland wheels and rudder pedals with toe brakes. The nose landing gear features a telescopic strut with an oleo-pneumatic shock absorber. It is linked to the cabin's front bulkhead through a steel truss.

The gear extension of the Tecnam P2006T is fast for higher safety and is operated by a hydraulic ram through a drag brace, which in turn locks it into the down position. When extended, the nose wheel is connected by pushrods to the rudder pedals. A system of lights and a warning horn inform the pilot of the status of the landing gear's extended or retracted position. A backup, alternative, or emergency system ensures the gear can be extended even in the event of a main system failure.

A review of the aircraft maintenance logbook did not reveal significant findings or maintenance conducted related to the landing gears. The failure to extend the landing gears was due to a faulty electric motor, which was later replaced. On the other hand, the alternate landing gear extension system was not used due to a missing lever attached to the valve. The

MIA Road corner Ninoy Aquino Avenue, Pasay City, Metro Manila, Philippines, 1300
Tel: (+632) 8246-2234, 8246-2235 / www.caap.gov.ph

lever's absence prevents the valve from rotating, thereby preventing the landing gears from extending (Figure 4).

Figure 4 – The missing RH emergency landing gear valve lever.

A mobile crane lifted the aircraft to perform the landing gear extension. The missing emergency landing gear extension valve lever was replaced (Figure 5). The aircraft battery was used to extend the landing gear normally. Similar to earlier, the landing gear CBs popped out. Alternate landing gear extensions were then applied following the checklist provided (Figure 6). All landing gears were deployed in accordance with the manufacturer's checklist, and the results were satisfactory.

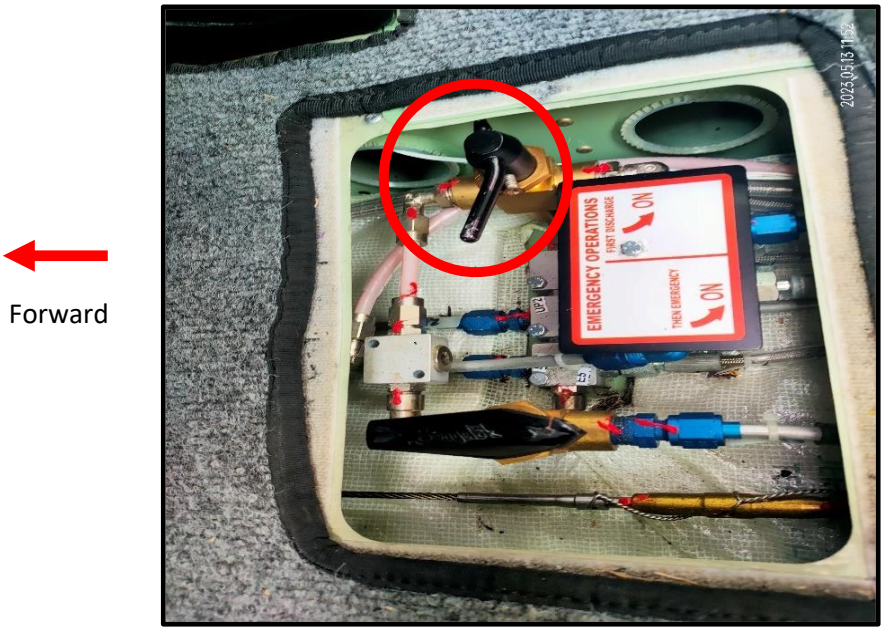
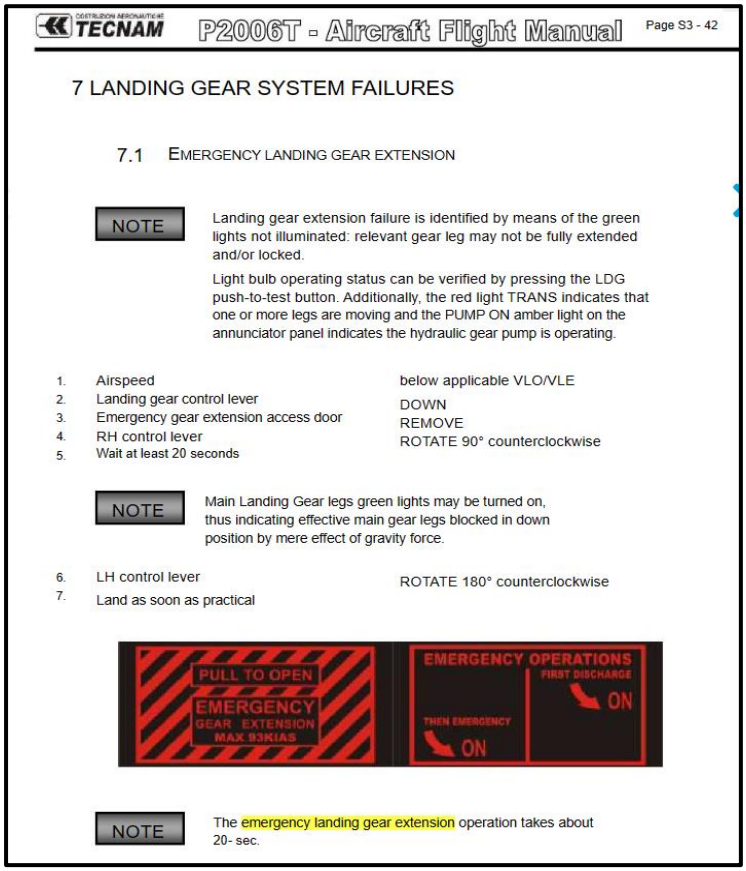


Figure 5 – Valve lever replacement.

MIA Road corner Ninoy Aquino Avenue, Pasay City, Metro Manila, Philippines, 1300
Tel: (+632) 8246-2234, 8246-2235 / www.caap.gov.ph



TECNAM P2006T - Aircraft Flight Manual Page S3 - 42

7 LANDING GEAR SYSTEM FAILURES

7.1 EMERGENCY LANDING GEAR EXTENSION

NOTE

Landing gear extension failure is identified by means of the green lights not illuminated: relevant gear leg may not be fully extended and/or locked.

Light bulb operating status can be verified by pressing the LDG push-to-test button. Additionally, the red light TRANS indicates that one or more legs are moving and the PUMP ON amber light on the annunciator panel indicates the hydraulic gear pump is operating.

1.	Airspeed	below applicable VLO/VLE
2.	Landing gear control lever	DOWN
3.	Emergency gear extension access door	REMOVE
4.	RH control lever	ROTATE 90° counterclockwise
5.	Wait at least 20 seconds	

NOTE

Main Landing Gear legs green lights may be turned on, thus indicating effective main gear legs blocked in down position by mere effect of gravity force.

6.	LH control lever	ROTATE 180° counterclockwise
7.	Land as soon as practical	

NOTE

The emergency landing gear extension operation takes about 20- sec.

Figure 6 – Emergency LG extension.

Figure 7 – The landing gears was deployed.

A review of the maintenance procedures revealed that the inspection of the alternate landing gear extension valve included a 100-hour periodic inspection being conducted by the operator. However, landing gear and alternate landing gear system tests are not regularly performed. The operator should strictly follow the inspections required in the maintenance program to ensure its reliability.

MIA Road corner Ninoy Aquino Avenue, Pasay City, Metro Manila, Philippines, 1300
Tel: (+632) 8246-2234, 8246-2235 / www.caap.gov.ph

3.0 CONCLUSIONS

3.1 Findings

a. The aircraft was properly released for flight without any discrepancies noted on its logbook.
b. Visual meteorological condition prevailed at the time of the incident.
c. The FI and PT was qualified on the Tecnam P2006T type of aircraft.
d. The FI and PT have a valid airmen licenses and medical certificates issued by the CAAP-OFSAM.
e. The aircraft has current Certificates of Airworthiness and Registration.
f. The aircraft landing gear down electric motor was found faulty.
g. The aircraft right alternate landing gear valve lever was missing.

3.2 Probable Cause

3.2.1 Primary Cause Factor.

a. Faulty landing gear extension electric motor that resulted to gear-up landing.

3.2.2 Contributory Factor.

a. Missing alternate landing gear extension valve lever.

4.0 SAFETY RECOMMENDATIONS

The safety deficiencies presented in this report have been fully addressed by the operator 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: (Appendix "A"):

a. Reduction of hydraulic periodic inspection from 100 hours to 50 hours.
b. Provision of multi-function tool to each aircraft.
c. Included in their training procedures the landing gear retraction and extension provisions.
d. Performed landing gear maintenance as per aircraft manufacturer safety bulletin before the aircraft was released back to service.

-----END----

MIA Road corner Ninoy Aquino Avenue, Pasay City, Metro Manila, Philippines, 1300
Tel: (+632) 8246-2234, 8246-2235 / www.caap.gov.ph