



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-C8459**  
**SIKORSKY 269C-1**

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***OPERATOR: MASTERS FLYING SCHOOL***

***TYPE OF OPERATION: FLIGHT TRAINING***

***DATE OF OCCURRENCE : MARCH 30, 2022***

***PLACE OF OCCURRENCE: BARANGAY SAN ROQUE, SAN LUIS,  
PAMPANGA, PHILIPPINES***

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(Sikorsky 269C-1, RP-C8459 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.

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## **FINAL REPORT**

**TITLE:** An accident involving a Sikorsky 269C-1 type of aircraft with Registry Number RP-C8459 owned and operated by Masters Flying School that had a tail skid strike accident during training at Brgy. San Roque, San Luis, Pampanga, Philippines, on March 30, 2022, at around 1300H.

### **Notification of Occurrence to National Authority**

The accident was reported to the CAAP AAIIB by the Operator of the aircraft on March 30, 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 the provisions of Philippine Civil Aviation Regulation (PCAR) Part 13, an Investigator-In-Charge and a 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 **22 August 2022**.

### **Synopsis:**

At approximately 1300H on March 30, 2022, a Sikorsky 269C-1 type of aircraft with Registry Number RP-C8459 encountered a tail skid strike during training at Brgy. San Roque, San Luis, Pampanga. The aircraft was operated by Masters Flying School. On board were one (1) flight instructor and one (1) student pilot. Both occupants exited the aircraft without any reported injuries, but the aircraft sustained substantial damage. The investigation determined that the probable cause of the accident was the pilot's loss of control while in a stationary hover. Contributing factors included the flight instructor's lack of situational awareness and the absence of established internal procedures and standards during flight training.

## **LIST OF ACRONYMS AND ABBREVIATIONS**

AAIIB	:	Aircraft Accident Investigation and Inquiry Board
ATO	:	Approved Training Organization
ATOC	:	Approved Training Organization Certificate
BRGY	:	Barangay
CAAP	:	Civil Aviation Authority of the Philippines
COA	:	Certificate Of Airworthiness
CPL	:	Commercial Pilot License
FI	:	Flight Instructor
OFSAM	:	Office of the Flight Surgeon and Aviation Medicine
PCAR	:	Philippine Civil Aviation Regulations
SP	:	Student Pilot
SPL	:	Student Pilot License
TSN	:	Time since New
TSO	:	Time since Overhaul
VFR	:	Visual Flight Rules
VHF	:	Very High Frequency
VMC	:	Visual Meteorological Condition



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**1. FACTUAL INFORMATION**

Aircraft Registration No. : RP-C8459

Aircraft Type/Model : Sikorsky 269C-1

Operator : Masters Flying School

Address of Operator : 2317 Nissan Car Lease Bldg., Aurora Blvd.,  
Pasay City, Philippines

Place of Occurrence : Brgy. San Roque, San Luis, Pampanga,  
Philippines

Date/Time of Occurrence : March 30, 2022/ 1300H

Type of Operation : Flight Training

Phase of Flight : Hovering

Type of Occurrence : Helicopter-deviation from pitch altitude

**1.1 History of Flight**

On or about 1300H of 30 March 2022, a Sikorsky 269C-1 type of aircraft with Registry Number RP-C8459 encountered a tail skid strike accident during training at Brgy. San Roque, San Luis, Pampanga. The aircraft is being operated by Masters Flying School. On board the aircraft were one (1) Flight Instructor/FI and one (1) Student Pilot/SP.

The flight took-off from Plaridel Airport for a scheduled flight training at the flat lands (rice fields) of San Luis, Pampanga. On arrival at their designated training ground, they commenced their training activities by performing hovering maneuvers. During the process, the FI noted that the SP had some difficulty in handling the aircraft. Instructions were then given by the FI to make some corrections, but the SP was not able to understand what the FI was saying. The FI later took over the controls when he observed that the SP can no longer maintain control of the aircraft. However, the FI had difficulty taking over the aircraft controls because the SP became “frozen” at the controls. The aircraft tail skid got in contact with the ground followed by the tail rotor that resulted to the separation of the tail boom from the fuselage.

## 1.2 Injuries to Person (s)

Injuries	Crew	Passengers	Others	TOTAL
Missing/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 substantial damage.

## 1.4 Personnel Information

### 1.4.1 Flight Instructor

Gender : Male  
Date of Birth : May 29, 1954  
Nationality : Filipino  
License : 107310 CPL/FI  
Valid up to : August 31, 2024 (CPL)  
May 31, 2023 (FI)  
Medical Certificate : Class 1 valid until September 15, 2022  
Date of last medical : March 08, 2022  
Total Flying Time : 7,000 Hours as per Pilot logbook  
Total Flying Time On type : 800 Hours as per Pilot logbook

### 1.4.2 Student Pilot

Gender : Male  
Date of Birth : October 25, 2000  
Nationality : Nepalese  
License : 154027 SPL  
Valid up to : December 15, 2023  
Medical Certificate : Class 2 valid until November 29, 2023  
Date of last medical : November 29, 2021  
Total Flying Time : 7 Hours as per Pilot logbook  
Total Flying Time On type : 7 Hours as per Pilot logbook

## 1.5 Aircraft Information

The Schweizer S300 series is part of the family of light utility helicopters originally produced by Hughes Helicopters, as a development of the Hughes 269. Later manufactured by Schweizer Aircraft, and currently produced by Schweizer RSG, the basic design has been in production

for over 50 years. The single, three-bladed main rotor and piston-powered S300 is mostly used as a cost-effective platform for training and agriculture.

The 269C "Model 300C" is powered by a 190 hp (141 kW) Lycoming HIO-360-D1A and has a larger diameter main rotor. The larger rotor and engine give it a 45% performance increase over previous 269-series models. Hughes and Schweizer both marketed the 269C as the Model 300C.

### 1.5.1 Aircraft Data

Registration Mark	:	RP-C8459
Manufacturer	:	Sikorsky Aircraft Corp.
Type/Model	:	Sikorsky 269C-1
Serial Number	:	0220
Date of Manufactured	:	October 27, 2005
Aircraft Total Time	:	2,737+2 Hours
Certificate of Airworthiness valid up to	:	July 21, 2022
Certificate of Registration valid up to	:	May 04, 2024
Gross Weight	:	793.79 Kilograms (Kgs.)

### 1.5.2 Engine Data

The Lycoming HIO-360 horizontally mounted fuel-injected series for helicopters is part of the O-360 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.

Manufacturer	:	Lycoming
Type/Model	:	Piston/ HIO-360-G1A
Engine Serial Number	:	L-32164-51A
Time Between Overhaul	:	2,000 Hours
Time Since Overhaul	:	331+7 Hours on last C of A (21 May 2021)
Time Since New	:	2,330+7 Hours on last C of A (21 May 2021)

### 1.5.3 Propeller Data

The aircraft is equipped with a fully articulated three-bladed main rotor wherein the blades advance to the right and a two-bladed tail rotor that would remain as distinctive characteristics of all its variants.

Manufacturer	:	Schweizer
Type/Model	:	Constant Speed/269A1185-1
Propeller Serial Number	:	S3120, S3098 and S3090
Time Between Overhaul	:	5,500 Hours
Time Since Overhaul	:	0 Hours on last C of A (21 May 2021)
Time Since New	:	2,330+7 Hours on last C of A (21 May 2021)

## 1.6 Meteorological Information

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

## 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

Aircraft is equipped with operational Very High Frequency (VHF) transceiver used for communicating with aerodrome personnel and pilots in the area.

## 1.9 Flight Recorders

The aircraft is not equipped with flight recorders and neither relevant regulation requires it.

## 1.10 Wreckage and Impact Information

The accident site is in an open rice field located approximately 2 kilometers from the town proper and about 12 kilometers from Plaridel Airport (Figure 1). The aircraft last position was at coordinates 15°00'09.1" N, 120°49'35.9" E.

The aircraft was found to have sustained a broken tail boom and a damaged tail rotor (Figure 2 and 3). Likewise, part of its vertical stabilizer was found on the ground approximately five (5) meters North West from the nose of the aircraft. Ocular inspection also revealed markings on the soft ground indicating contact with the aircraft tail rotor.



Figure 1 – RP-C8459 at the accident site



Figure 2 – Damaged/broken tail boom and exhaust



Figure 3 – Damaged tail rotor

### 1.11 Medical and Pathological Information

The FI and SP were able to egress the aircraft without any injuries. On the following day after the incident, they submitted themselves for the mandatory drug and alcohol testing at the local hospital. They were later endorsed to CAAP OFSAM for the required post-accident medical

examination. Both pilots were later issued with a medical clearance by the mentioned CAAP office.

### **1.12 Fire**

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

### **1.13 Survival Aspects**

Upon impact with the ground, the aircraft was generally intact except its tail boom and vertical stabilizer who had been dislodged. With this, the occupants were able to safely egress the aircraft and call for assistance. Consequently, personnel of Masters Flying School stationed in Plaridel Airport later arrived at the site to assist the involved flight crew.

### **1.14 Organizational and Management Information**

Master Flying School (MFS) was founded in the year 1994. It is a CAAP Approved Training Organization under ATOC Cert. No. 94-02 and with TESDA certificate RCGN V-0023. It is also affiliated with the Philippine Air Force Air Reserve Command (PAF-ARCEN) and was designated as the 2201st Reserve Pilot Training Squadron. MFS is likewise issued by the Bureau of Immigration and Deportation (BID) the Authority to Accept Foreign Students under AAFS RBR No. 2000.

## **2.0 ANALYSIS**

### **2.1 General**

The PIC is rated and qualified to operate a Sikorsky 269C-1 type of aircraft. He is also a qualified FI for this type.

As for the aircraft, it has a valid issued Certificate of Registration and Certificate of Airworthiness.

### **2.2 Aircraft Status**

Review of the aircraft maintenance records was made and found the following to be in order:

- a. Aircraft Flight Log 21-30 March 2022;
- b. 100 hours Annual Inspection dated 28 February 2022;
- c. Airframe/Propeller/Engine logbooks available.

Likewise, there was no recorded maintenance issue on the aircraft prior to its flight last 30 March 2022.

## 2.3 Flight Training Proper

Investigation conducted by AAIB investigators to the Student Pilot (SP) revealed that it was his second (2<sup>nd</sup>) lesson on hovering, a maneuver in which the helicopter is maintained in a nearly motionless flight at a constant altitude and heading. However, he was not able to maintain the position over a reference point while on a stationary hover and encountered a change of heading. He also said that the aircraft started to move towards the left and made some erratic or pendulum movement. He froze in the controls making it hard for the Flight Instructor (FI) to recover the aircraft back to stable hover. Based on the statement of the FI, the erratic or pendulum movement was the result of the exaggerated movement of the cyclic by the SP whereas the changes in heading while on hover was caused by the failure to use the antitorque pedals properly.

The FI is the cornerstone of aviation safety. The FI assumes the responsibility for training the SP the knowledge areas and skills necessary to operate safely the aircraft. This training includes airmanship skills, pilot judgment and decision making, and accepted good operating practices. The FI must understand that threats and errors are part of flight training operations that should be managed through all the phases of flight. During pre-flight briefing, ample time must be spent on safety criteria for each maneuver being performed. If the maneuver exceeds those limits, recovery action needs to be taken immediately. Since the SP may lack the manipulative and cognitive skills that might not meet the specified flight tolerances or procedures, the FI must foresee impending threats in advance.

Prior to the start of the hovering maneuvers, the FI should have brief the SP of the planned procedures, anticipated threats and countermeasures of the flight sequence. During hover, the identified anticipated threats must have been pointed out by the FI to the SP if the latter failed to identify them. It is also important to ask the SP what countermeasures would mitigate the threats, ensuring that these are completed in the time available.

Investigation with the FI revealed that the aircraft started to change its heading to the left after handing over the controls to the SP to hover. As the aircraft deviates, he cautioned the SP that there is a loss of lift and to apply right pedal. He alleged that because of the strong winds and sound of the rotors that distorted his instruction from his sound sensing mic, he resorted to shouting at the SP to be understood. This indicates that the FI has insufficient strategies of potential error detection. In addition, there was no documented SOP within the company manuals that defined actions that will be undertaken while training and subjected to physical hazards (i.e. training with open aircraft doors and being exposed to outside noise thus resulting to communication problems). Further, there was no assessment made on the risk of interference brought by the introduction of health protocol requirements such as wearing of face mask while using headset communication.

The FI also said that a pre-flight briefing was conducted, and this includes the procedure for the exchange of flight controls. However, as the aircraft movement worsen, the SP froze in the controls making it difficult for him to bring the aircraft back to a stable condition. The unstable movement of the aircraft while hovering is an event that the FI should be aware in order to manage the threats and errors before an undesired aircraft state (UAS) develops. On the interview with the Head of Training, a query was raised to determine what actions or strategies will be executed by the FI in situation where the SP freeze in the controls, but there was none.

It also indicates that the organization has no established specific transfer of control procedures for rotorcrafts.

Moreover, the FI said that while the aircraft was experiencing erratic or pendulum movement, he was shouting at the SP to hand over the controls. He further alleged that the SP could not understand what he is saying. This indicates that both FI and SP had a miscommunication with each other. The FI must be alert to what the SP is doing and not wait too long to take over the control if the situation warrants. Regardless of the situation, it is the detection, interpretation and response that influence the potential effect on safety. The objective of error management is the timely detection and prompt appropriate response in flight operations for the error to become operationally inconsequential. The mismanaged error while the aircraft was on hover resulted for the tail skid followed by the tail rotor to hit the ground.

### **3. CONCLUSIONS**

#### **3.1. Findings**

- 3.1.1** The PIC/FI was qualified on the Sikorsky 269C-1 type of aircraft and possess a valid medical certificate issued by the CAAP.
- 3.1.2** The aircraft was properly released for flight without any discrepancies noted on its logbook.
- 3.1.3** The aircraft has a valid Certificates of Airworthiness and Registration.
- 3.1.4** The aircraft was equipped and maintained in accordance with CAAP-PCARs and approved manufacturer's procedures.

#### **3.2 Probable Cause**

##### **3.2.1 Primary Cause Factor**

- a.** Loss of control while on stationary hover (Human Factor).

##### **3.2.2 Contributory Factors**

- a.** The Flight Instructor's lack of situational awareness on the potential threats while the aircraft is hovering.
- b.** Absence of an established procedure pertaining to the specific transfer of control procedures for rotorcrafts.
- c.** Inadequate standards during the conduct of rotorcraft training (i.e. opening/closing of aircraft doors, utilization of noise cancelling communication equipment).
- d.** The organization's inability to identify and assess risk particularly on the effect of physical hazards during training with opened aircraft doors and communicating with face mask on.

## 4. SAFETY RECOMMENDATIONS

**4.1** For **CAAP-FSIS** to ensure that the Operator:

- a.** To emphasize during their regular pilots/instructor's safety meeting the importance of enhanced situational awareness during the conduct of flight operations.
- b.** Include in their company manual/s the following:
  - 1.** Establish a specific transfer of control procedures for rotorcrafts during training.
  - 2.** Defined SOP's during the conduct of training (i.e. opening/closing of aircraft doors, utilization of noise cancelling communication equipment).
  - 3.** Documented procedure related to hazard identification, risk assessment and mitigation in the organization's day-to-day operations.

**4.2** For **CAAP-FSIS** to consider the inclusion in their surveillance program the recommendations under *4.1 item b* to address possible similar systemic issues across other rotorcraft Approved Training Organizations.

**-END-**