

AIRCRAFT ACCIDENT INVESTIGATION AND INQUIRY BOARD

FINAL REPORT

<u>RP-C168</u> <u>SIKORSKY 269C-1</u>

OPERATOR: MASTERS FLYING SCHOOL INC.

TYPE OF OPERATION: FLIGHT TRAINING

DATE OF OCCURRENCE: NOVEMBER 23, 2023

PLACE OF OCCURRENCE: BARANGAY TALIMUNDOK, MAGALANG, PAMPANGA, PHILIPPINES

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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: Accident involving a Sikorsky 269C-1 type of aircraft with Registry Number RP-C168 owned and operated by Masters Flying School Inc., that experienced a hard landing at Brgy. Talimundok, Magalang, Pampanga, Philippines on November 23, 2023, at 1045H/0245UTC.

Notification of Occurrence to National Authority

The Notification of accident to AAIIB CAAP was relayed by the Operator of the aircraft to OIC, AAIIB at 1130H (LOCAL) on November 23, 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 <u>31 March 2025.</u>

Synopsis:

On or about 1045H November 23, 2023, a Sikorsky 269C-1 type of aircraft with Registry Number RP-C168 experienced a hard landing following a simulated 180-degree power recovery autorotation at Brgy. Talimundok, Magalang, Pampanga, Philippines. The helicopter was operated by Masters Flying School Inc., The Flight Instructor (FI) and Student Pilot (SP) did not sustained any injury, however, the helicopter sustained substantial damage. The cause of the occurrence was attributed to the Student Pilot's improper recovery of a 180-degree simulated autorotation that resulted in a hard landing.

LIST OF ACRONYMS AND ABBREVIATIONS

AAIIB	:	Aircraft Accident Investigation and Inquiry Board
AIP	:	Aeronautical Information Publication
ATOC	:	Approved Training Organization
BID	:	Bureau of Immigration and Deportation
BGRY	:	Barangay
CAAP	:	Civil Aviation Authority of the Philippines
IFR	:	Instruments Flight Rules
FI	:	Flight Instructor
MFS TPQM	:	Master's Flying School Training Procedures and Quality Manual
SP	:	Student Pilot
OFSAM	:	Office of the Flight Surgeon and Aviation Medicine
PCAR	:	Philippine Civil Aviation Regulations
PAF-ARCEN	:	Philippine Air Force Air Reserve Command
POH	:	Pilots Operating Handbook
RPUX	:	Plaridel Community Airport
VFR	:	Visual Flight Rules
VHF	:	Very High Frequency
VMC	:	Visual Meteorological Condition



1. FACTUAL INFORMATION

Aircraft Registration No. :		RP-C168		
Aircraft Type/Model :		Sikorsky 269C-1		
Operator	:	Masters Flying School Inc.		
Address of Operator	:	2317 Nissan Car Lease Bldg., Aurora Blvd., Pasay City, Philippines		
Place of Occurrence	:	Brgy. Talimundok, Magalang, Pampanga, Philippines		
Date/Time of Occurrence		November 23, 2023 / 1045H		
Type of Operation	:	Flight Training		
Phase of Flight :		Landing		
Type of Occurrence		Helicopter - inadequate rotor rpm		

1.1 History of Flight

On or about 1045H November 23, 2023, a Sikorsky 269C-1 type of aircraft with Registry Number RP-C168 experienced a hard landing following a simulated 180-degree power recovery autorotation at Brgy. Talimundok, Magalang, Pampanga, Philippines. The helicopter was operated by Masters Flying School Inc., The Flight Instructor (FI) and Student Pilot (SP) did not sustained any injury, however, the helicopter sustained substantial damage. The pilots were performing simulated 180-degree power recovery autorotation after departing from Plaridel Airport to Binalonan, Pangasinan. While performing the maneuver, the FI was giving instructions to the SP, to terminate with power and hover at five (5) feet above ground level. However, during the process, the SP was unable to roll in the throttle while initiating the flare to hover. The FI took over the control and rolled in the throttle, but to no avail the helicopter continued its descent and experienced a hard landing as it plunged to the ground. The aircraft's final resting point was located at 160 degrees with grid coordinates of 15.276293N, 120.712039E.

Figure 1- Aircraft's final position.

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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
Missing	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 29, 1954
Nationality	:	Filipino
License	:	107310 CPL/FI
Valid up to	:	August 31, 2024 (CPL) - May 03, 2025 (FI)
Medical Certificate	:	Class 1 valid until February 02, 2024
Date of last medical	:	July 25, 2023
Total Flying Time	:	8,591+41 Hours
Total Flying Time On type	:	1,570+18 Hours

1.4.2 Student Pilot (SP)

Gender	:	Male
Date of Birth	:	September 28, 1969
Nationality	:	Chinese
License	:	161701 (SPL)
Valid up to	:	October 04, 2025
Medical Certificate	:	Class 2 valid until August 17, 2024
Date of last medical	:	August 17, 2023
Total Flying Time	:	38+07 Hours
Total Flying Time On type	:	38+07 Hours

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-C168
Manufacturer	:	Sikorsky Aircraft Corp.
Type/Model	:	Sikorsky 269C-1
Serial Number	:	0069
Date of Manufactured	:	November 07, 1997
Aircraft Total Time	:	1932+002 Hours
Certificate of Airworthiness valid up	:	March 03, 2024
to		
Certificate of Registration valid up to	:	April 17, 2026
Gross Weight	:	793.79 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.

:	Lycoming
:	Piston/ HO-360-C1A
:	L-35436-96A
:	1,932+01 Hours
	:

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 Type/Model Propeller Serial Number Time Since New Schweizer
Constant Speed/269A1185-001
S1674, S2582 and S1685
1,932+01 Hours

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

1.9 Aerodrome Information

Plaridel Community Airport (RPUX) was operated by the Civil Aviation Authority of the Philippines, and is listed in the CAAP approved aerodrome facility data as well the Philippine Aeronautical Information Publication (AIP as of August 2017).

1.9.1 General Information

Aerodrome Name ARP coordinates and site at AD Aerodrome Operator address, telephone, telefax, telex, AFS Types of traffic permitted (IER/VER)	:	Plaridel Community Airport – RPUX 145329.5445N 1205111.1410E. Civil Aviation Authority of the Philippines Plaridel Airport, Plaridel 3004 Bulacan Province PHONE: (044) 795-0637 / (02) 879-9122 to 9125. VFR
AD category for fire fighting	:	CAT IV. One (1) fire truck - SIDES VMA28 and land rover.
Apron surface and strength		Surface: PCCP. Strength: Nil.

Taxiway width, surface and strength	:	Width: 9M. Surface: ASPH. Strength: Nil.
	:	17/35 Trees and houses. Water tank, Meralco post
Aerodrome Obstacles		Batching plant. Exercise caution during landing and
ATS Communication		lake-on. Plaridal Control Towar
Facilities	•	Plander Control Tower
Frequency/Operation	:	122.4MHZ, 5447.5KHZ, 3834KHZ / 2300 - 0900
Airspace classification	:	Class B
Runway Direction	:	17/35
Runway Length	:	900 Meters
Runway Width	:	30 Meters
Surface	:	PCN 8 F/C/Y/U/ASPH

1.10 Flight Recorders

The aircraft was not equipped with flight recorders and neither relevant regulation required it.

1.11 Wreckage and Impact Information

The accident site was located in a newly cultivated field. The aircraft's last position was 160 degrees, with grid coordinates of 15.276293N and 120.712039E. When the aircraft settled on the ground, it was generally intact. However, the aircraft was found to have sustained substantial damage to the main skid and engine due to the main rotor striking the ground.

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). There were no medical impediment for the pilots that could have had a bearing on this accident.

1.13 Fire

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

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1.14 Search and Survival Aspects

The incident was survivable.

1.15 Organizational and Management Information

Masters 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 was likewise issued by the Bureau of Immigration and Deportation (BID) the authority to accept foreign students under AAFS RBR No. 2000.

2. ANALYSIS

2.1 Flight Training Proper

The investigation on the pilots revealed that they initiated their training activities by performing a simulated 180-degree power recovery autorotation after departing from Plaridel Airport bound for Binalonan, Pangasinan. The SP, who was in the controls, admitted that in the process of performing the maneuver, he was not able to roll the twistgrip throttle from idle power back to full open. While initiating the flare, with the throttle not rolled in, the helicopter continued its descent during recovery from the auto rotation. The FI took over the control and rolled in the twistgrip throttle, but to no avail. The helicopter experienced a hard landing as it plunged to the ground.

Meanwhile, the FI revealed that he was giving instructions to the SP to roll in the twistgrip throttle from idle power back to full open and to terminate the maneuver to a hover at 5 feet above ground level. He also said that he was guiding the SP during the approach. Prior to the start of the maneuver, the FI should have briefed the SP on the planned procedures and anticipated the flight sequence's threats and countermeasures. 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 tell the SP what countermeasures that would mitigate the threats and ensure that these are completed within the time available. The FI must understand that threats and errors are part of flight training operations that should be managed throughout the phases of flight. Ample time must be spent on safety criteria for each maneuver being performed. Since the SP may lack the manipulative and cognitive skills that might not meet the specified flight tolerances or procedures, the FI must foresee these impending threats in advance.

2.2 Flight Training Program

The Operator's helicopter private pilot flight lesson guide outlines the basic training that SP should receive. It also outlines the sequence of flight time allocation and list of lessons to be completed. Upon reviewing the lesson guide revealed that the intended lesson was cross-country navigation. During this flight, the FI was tasked to supervise and evaluate the SP's performance in preparation for a solo cross-country navigation flight. There were also no training records that showed how the SP progressed in his training flights. Apparently, the SP continued with his flying training without adhering to the syllabus of instruction. The FI on the other hand, proceeded with the training without consulting the training curriculum. The FI also did not submit progress and monitoring report to the Head of Training who oversees the SP's training.

On the maneuver performed that resulted in the accident, it was emphasized to train the SP based on the approved training. The FI should omit inflight maneuvers that have not been discussed, even if they are well intentioned. Moreover, the head of training must take control of the training program. This is to ensure the right training program was conducted through regular monitoring and the maintenance of progress flight assessment reports for student pilots.

Furthermore, the SP's own admission of not being able to execute what the FI instructed suggests a miscommunication between the FI and SP. If the situation warrants, the FI must be alert to what the SP was doing and not wait too long to take over control. The FI must be prepared to respond correctly to emergency procedures. The FI has to take control of the aircraft and terminate the maneuver before it progresses to a point where the FI himself is not capable of recovering the aircraft in time to prevent damage to the aircraft or injury to personnel. Further, as FI, being the most knowledgeable and experienced person in that helicopter, FI should not let the SP fly the helicopter into some corner of its performance envelope where it is not recoverable.

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 when the aircraft twist grip throttle was not rolled in resulted in the aircraft not being recovered prior to termination of hover.

3. CONCLUSION

3.1 Findings

- **a.** The Pilots were qualified for the Sikorsky 269C-1 type of aircraft and possessed a valid medical certificate issued by the CAAP.
- **b.** The lesson during the accident flight was cross-country navigation.
- **c.** The pilots commenced their training activities by practicing simulated 360-degree power recovery autorotation on the way to Binalonan, Pangasinan.
- **d.** The SP was unable to roll the twist grip throttle from idle power to full open.
- **e.** The aircraft twist grip throttle not being rolled in resulted for the aircraft not to terminate to hover.
- **f.** The aircraft was properly released for flight without any discrepancies noted on its logbook.
- **g.** The aircraft has valid Certificates of Airworthiness and Registration.
- **h.** The aircraft was maintained in accordance with CAAP-PCARs and approved manufacturer's procedures.

3.2 Probable Cause

3.2.1 Primary Cause

a. The Student Pilot's improper recovery of a 180-degree simulated autorotation resulted in a hard landing.

3.2.2 Contributory Cause

- **a.** The Flight Instructor's delayed remedial action and inadequate supervision.
- **b.** The Flight Instructor's lack of situational awareness on the potential threats while simulating 180-degree power recovery autorotation.
- **c.** Both pilots had a miscommunication with each other.

4. SAFETY RECOMMENDATION

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

5. SAFETY ACTIONS

As a result of the accident, the Operator, Masters Flying School (MFS) initiated safety corrective actions to mitigate the probability of the same event recurring in the future.

- **a.** Enhancement of pre-flight and post flight briefing to Student Pilots.
- **b.** In coordination with Head of training, Chief Flight/Ground Instructor to have a uniform flight plan route for cross country navigation flight for fixed wing, multi-engine and rotary equipment.
- **c.** Adhere to syllabus of instruction as per Master's Flying School Training Procedures and Quality Manual (MFS TPQM) for flight instructor and student pilot.
- **d.** Reiterating provisions Section 3, Emergency procedures and Section 2, Normal procedure, as per POH for Cessna Airplanes, Multi-engine and Rotary Pilots Operating Manual.
- e. PCAR Part 8.5.1.1, Pilot in Command shall not deviate from filed flight plan except, when necessary, in the interest of safety.
- **f.** PCAR Part 13, strongly emphasized not to alter, tamper aircraft incident/accident evidence.
- g. Enhance Emergency Response Plan at MFS TPQMs Part 6, Chapter X, 10.7. -----END-----