

**CIVIL AVIATION AUTHORITY OF THE PHILIPPINES**  
**Aircraft Accident Investigation and Inquiry Board**  
**Aircraft Accident Report**

**BASIC INFORMATION**

Aircraft Registration	:	RP-C2045
Aircraft Type/Model	:	Robinson Helicopter RAVEN-II (R-44)
Owner/Operator	:	Philippine National Police, SAF, Air Unit
Address of Operator	:	Philippine National Police, PNP Hangar, C.A.A Domestic Airport, Pasay City
Date/Time of Accident	:	June 19, 2013/1120H
Type of Operation	:	Joint Operations
Phase of Operation	:	Landing
Type of Occurrence	:	Hard landing
Place of Accident	:	Brgy Bitulayungan, Tinglayan, Kalinga at Coordinates: 17°14'21.97''N121°10'18.59"E

**EXECUTIVE SUMMARY**

A Robinson RAVEN-II (R-44) type of helicopter with registry number RP-C2045, owned and operated by Philippine National Police (PNP), with one (1) pilot and two (2) passengers (PAX) on board departed at La Trinidad, Benguet on or about 0715H June 17, 2013 and proceeded to Mt Bitulayungan, Tinglayan, Kalinga on a joint operations flight mission. Arriving at the Area of Operations (AOR), an aerial survey was initially conducted over Tinglayan, after which the chopper proceeded to Tabuk, Kalinga and landed on or about 0830H and Rest-Over-Night (RON) on the same day.

After conducting a coordinating conference and pre-departure briefing on or about 1028H 19 June 2013, RP-C2045 with the pilot and two (2) PAX plus 3/4<sup>th</sup> Aviation Gasoline (AVGAS) fuel on board, the aircraft took-off within the maximum allowable gross weight of 2,500 lbs or 1,134 kgs from T abuk, Kalinga bound to Bitulayungan, Tinglayan, Kalinga, 24 nautical miles southwest or 20 minutes out. According to the pilot, two (2) UH-1H helicopters took-off five (5) minutes ahead to the area of the joint operations. Thus, upon reaching the already cleared area, the pilot performed the pre-landing procedure where he once again made several aerial reconnaissance sorties, assessed and evaluated the designated landing zone before deciding to make the traffic pattern and approach for landing. The landing zone feature was an elevation of approximately 5,840 feet Pressure Altitude (PA), approximately 2,000 square meter clearance, uneven and rugged terrain surrounded by tall grassland. At around 1115H, the pilot using the grassland and an informal marshal as wing walker as points of reference in determining the wind condition and direction, made the final approach for landing which he perceived to be within the normal glide slope towards the landing zone. Getting the go-ahead hand signal from an informal wing walker/marshal at the designated LZ, the pilot after achieving the desired rate of closure was guided by the informal marshal to land. At this juncture, when at approximately 10-15 feet AGL, the pilot at around 1120H suddenly experienced being hit by a strong gusty

wind causing the chopper's rapid descent and abrupt touchdown or hard landing followed by an uncontrolled violent roll-over. The pilot initially corrected the unusual attitude of the chopper, however, due to the inevitable rapid descent and loss of altitude and according to the pilot, making the proper emergency procedure such as a go-around or running landing autorotation was an exercise in futility. The pilot considered the critical situation a GO-No-Go event beyond his control. After the hard landing, the main rotor blades unfortunately hit the ground and as a consequence, the chopper rested with the right side fuselage tilted down facing the ground and was rendered inoperative. Subsequently, due to underlying factors such as, security risks involving the presence of armed NPA insurgents, rugged terrain, remote location, high density altitude and unpredictable weather condition, recovery of the ill-fated chopper intact was deemed neither practical nor feasible. Thus, the carcass of the disabled chopper was ultimately transported to the PNP Hangar, Pasay City in a disintegrated state or disassembled into parts beyond economic repair.

## **PROBABLE CAUSE**

The Aircraft Accident Investigation and Inquiry Board determined that the probable cause of this accident was:

- **Primary Cause Factor**

Main rotor strike as a result of hard landing due to the failure of the pilot (Human Factor) to maintain aircraft control when the chopper encountered gusty winds or wind shear during landing.

- **Contributory Factors**

- a. The pilot have failed to plan and establish the standard safe parameters for landing when based on his personal perception, he erroneously decided a pattern on a tailwind approach making the grassland and the unqualified informal marshal as points of reference in determining the wind direction.
- b. Failure of the pilot to perform the standard emergency procedure of a Go-Around or running landing upon sensing that he would enter into a tailwind landing and encounter gusty wind or wind shear at low finals.
- c. There was a failure in communication wherein air to air communication between the pilot of RP-C2045 and the pilots of the two (2) UH-1H helicopters as well as air to ground communication with the ground operatives at the LZ were not utilized during the entire joint operations.
- d. There was a failure in the general planning and supervision of the joint operations as far as the conduct of the overall air operational execution is concerned.
- e. The Training Syllabus in the Program of Instruction (POI) for Robinson R44 Helicopter of the PNP Air Unit does not include Mountain Operations which in

effect disqualifies their pilots and helicopters in participating in any conduct of flight operations over mountainous environment. (Appendix 10)

- f. The underpowered engine capacity of 245 SHP of an R44 Raven helicopter makes its performance capability on a limited scale especially flying in mountain operations requiring a highly skilled pilot and a very powerful equipment to safely conduct and operate maximum performance maneuvers.

- **Underlying Factor**

There was a supervisory lapse on the part of the PNP Air Unit, as it overlooked an apparent oversight on the highly debatable qualification of the pilot, whose aggregate total flying time is only 289+46 hours and a measly 253+39 hours for an R44, Raven II helicopter and considered ill-equipped and not trained to handle and fly maximum performance maneuvers during mountain operations which obviously require highly qualified, high-timer, skilled and experienced pilots. (Appendix 4)

## **SAFETY RECOMMENDATIONS**

As a result of this investigation, the Aircraft Accident Investigation and Inquiry Board made the following safety recommendations:

- CAAP-FSIS, Licensing Department shall study regulatory requirements to include pilot's compulsory training in emergency procedures and psychomotor skills especially in critical conditions to fully grasp and experience the standard technique of Go-around maneuver as well as autorotation during landing at an unusual attitude at high density altitude environment.
- CAAP-FSIS, Licensing Department, aside from the regular proficiency in training and check-rides, shall make a study and review the current Training Syllabus for Owner/Operators of helicopter companies to include the conduct of flight training on maximum performance maneuvers in mountain operations for all rotary pilots.
- CAAP-FSIS, Licensing Department shall strictly require all helicopter pilots to fully adhere to the pilot's checklist specifically giving emphasis to the flight and maneuver limitations as well as performance charts when flying at high density altitude environment.
- CAAP-FSIS, Licensing Department shall review and make the necessary insertions in the existing rules and regulation that will establish parameters as far as pilot qualification in terms of the standard minimum flying time required of rotary pilots in the conduct of flight missions in mountain operations.
- CAAP-FSIS shall strictly regulate and enforce the mandatory requirements for Operators to establish safety essential tools like, Command and Control, Communications, designation of trained and qualified Air-to-Ground Operations Specialist, Ground Radio Controller, Wing Walker/Marshal, etc., during the conduct

of Joint Operations particularly flying in mountain operations.