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

BASIC INFORMATION

Aircraft Registration No.	:	RP-C7788
Make and Model	:	SE 3130 Alouette II
Owner/Operator	:	Sapphire Cargo Movers, Inc.
Address of Operator	:	Sapphire Logistics Center, Multinational Ave., Parañaque City
Date/Time of Accident	:	May 7, 2013/0070 UTC
Type of Operation	:	Local Flight
Phase of Operation	:	Take-off
Type of Occurrence	:	Engine Malfunction
Place of Accident	:	Rawis, Laoang, Northern Samar

EXECUTIVE SUMMARY

A SE 3130 Alouette II type of helicopter owned and operated by Sapphire Cargo Movers Inc., with registry number RP-C7788, on a local flight, departed Tanauan, Batangas enroute to Catarman, Northern Samar with one (1) Pilot-In-Command (PIC) on board, on or about 0170UTC April 20, 2013. Per Flight Plan, RP-C7788 landed at Legaspi, Albay to refuel on or about 0030UTC and departed 0230UTC for Barangay Rawis, Laoang, Northern Samar where it arrived on or about 0340UTC on the same day. The landing zone at Bgy Rawis was located at the backyard of a privately owned resort of Congressman Emil Ong which served as a helipad, a sandy area, approximately 20mx50m dimension between the Laoang Bay and surrounded by aligned coconut trees along seven (7) feet perimeter fence as well as a two (2) feet high concrete fence fronting the shoreline. Initial landing at Barangay Rawis, Laoang which has a distance 22.72 nautical miles or twenty (20) minutes flying time from Catarman National Airport, the nearest Aerodrome facility (Appendix 1), was uneventful; however, from the date of arrival of RP-C7788 on April 20, 2013, a series of local flights on May 5, 2013 were conducted before the date of the accident on May 7, 2013. (Appendix 5)

On or about 0070 UTC May 7, 2013, RP-C7788, took-off within the maximum allowable gross weight of 3,527 lbs or 1,600 kgs on a local flight from Bgy Rawis bound to the town of Lapinig, 22.72 nautical miles southeast or 20 minutes out (Appendix 1), with one (1) Pilot-in-Command (PIC) and four (4) passengers (PAX) on board. According to the PIC, the engine malfunction occurred during the take-off phase, from the point of departure with wind condition between 2-3 knots and wind direction coming from southeast. Before take-off, the PIC briefed all the passengers on the helicopter safety procedures. The seating arrangements of the passengers (PAX) were as follows: PAX No. 1 was seated at the left front seat, PAX No. 2 was at the rear seat behind PAX No. 1, PAX No. 3 was behind the PIC while the lone casualty, PAX No. 4 was seated in the middle of the rear seats. (Appendix 3) After the

standard engine run-up, the PIC prepositioned the chopper and took off from a hover heading northeast or directly towards Laoang Bay. Upon lift-off, crossing over the two (2) feet high fence and the shoreline, at about 100 meters from the point of departure, the PIC made a vertical take-off and unnecessarily pulled up the collective lever to above the maximum limit of 15°-16° pitch angle of attack torque (Appendix 6), ascended to approximately 80-100 feet altitude and a very critical 10 knots airspeed. At this juncture, the pilot surprisingly noticed and heard an unusual sound/noise coming from the engine which made him instinctively decide to return back, banking to the right and making a 180° change of direction from northeast to southwest and perform an emergency forced landing to the shoreline. During the final approach towards the selected forced landing field, approximately 60-70 feet altitude, the unusual sound continued to increase and further deteriorated at 50-60 feet coupled with an engine vibration prior to the rapid descent and abrupt touchdown and hard landing along the shoreline. (Appendix 2)

As a result of the accident, the helicopter sustained major damage with both cross tubes of the Left (LH) and Right Hand (RH) skids collapsed, tail boom bent and broken, one (1) main rotor blade cracked, the exhaust section broken and detached and cockpit windshield broken as a result of hard landing upon impact at the sandy surface along the shoreline about 50 meters away from the initial point of departure (Appendix 7). The PIC, reiterated his instructions for the passengers' safety to remain seated inside the chopper, but maybe due to fear and panic, two (2) PAX, No. 2 and No. 3 crawled out and sustained minor injuries while PAX No. 4 was seriously injured when upon exiting out vertically/standing position, caused the accidental head collision with one the downward movement and still rotating main rotor blades. (Appendix 3) Subsequently, due to the serious extent of head injuries, the latter crash victim was airlifted from Catarman Provincial Hospital to Chongwa Chinese General Hospital, Cebu City where he was confined and expired a week after, on May 13, 2013. In contrast, both the PIC and PAX No. 1 seated at the front left seat and who both remained seated during the touchdown/hard landing to the ground escaped unhurt.

PROBABLE CAUSE

The Aircraft Accident Investigation and Inquiry Board determined that the probable causes of this accident are the following:

- Primary Cause Factor

- Pilot-induced compressor stall. (Human Factor/Pilot Error)

  During the take-off phase, the PIC failed to safely perform the normal take-off roll, instead used the unnecessary maximum vertical performance take-off, disregarding the application of attaining the effective translational lift and safe airspeed before climbing to the desired altitude. The engine power failure was caused by over-torque or pulling the collective lever more than maximum limitation of 15° to 16° pitch angle of attack that resulted to a pilot induced compressor stall or engine power loss from the unnecessary maximum vertical take-off maneuver. (Appendix 6)

- **Contributory Factors**

  - Pilot's lack of training in Performance Planning. The pilot failed to make or conduct performance planning for take-off vertical from present location and was unprepared for the resultant emergency procedure requirement. (Human Factor)

  - Failure of the PIC to plan and establish the desired safe parameters for take-off like utilizing the entire length of the take-off roll clearance to the maximum limit, wait and attain the basic effective translational lift to achieve the safe airspeed before climbing to the desired safe altitude. (Human Factor)

  - Failure of the PIC to properly utilize aircraft controls specifically the collective lever which he unnecessarily raised to its maximum level/pitch, thus, exceeding the torque limitation which resulted to a pilot induced compressor stall or engine power loss. (Human Factor)

  - Failure of the PIC to perform the standard emergency procedure of 180° power-off autorotation during an engine failure/ malfunction during take-off. (Human Factor)

  - Failure of the Owner/Operator to avail the services of an accredited AMO in order for the aviation company to strictly monitor the proper maintenance status of the helicopter they are tasked to handle as well as its ill-advised decision to forgo with the conduct of the required teardown inspection of the engine, a post aircraft accident maintenance activity requirement due to budgetary constraints. (Appendix 11) (Human Factor)

  - Deliberate disregard by the Owner/Operator to comply to a safety bulletin dated 19 March 2013 that both of their Aloutte helicopters were reported by a Eurocopter field representative of Safran Turbomeca Asia Pacific based in Singapore as not airworthy and recommended the overhaul or replacement of the engines with Artouste IIIB1 and upgrade the airframe. (Human Factor)

  - Poor judgment and decision-making policies on the part of the Owner/Operator in the proper management and control of the aviation company they are bound to operate in the direction of their commitment to the highest degree of flight safety based on the rules and tenets of Philippine Civil Aviation Regulations (PCAR). (Human Factor)

  - Pilot indiscretion on his personal decision not to undergo the mandatory medical examination as a post aircraft accident procedure and finally retire from flying duties. (Human Factor)

- **Underlying Factor**

  - Probable maintenance problem existing in aircraft/engine.

    The owner/operator failed to comply with the internal inspection report by the field representative of the involved Alouette 3130 engine. (Refer to Appendix 10 on the report of Eurocopter as stated in Factual Information) The involved helicopter was found to be without proper documentation and engine logbooks. The report

considered the helicopter not airworthy and recommended the operator to overhaul or replace the engines with Artouste IIIB1 and upgrade the airframe. The operator did not comply. (Human Factor)

SAFETY RECOMMENDATIONS

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

- CAAP through the FSIS shall require all pilots to strictly adhere to the helicopter checklist and operators manual giving special emphasis to the aircraft limitations and performance charts for take-offs and landings.
- CAAP through FSIS shall study regulatory requirements to include pilots' compulsory training in emergency procedures and psychomotor skills especially in critical conditions to fully grasp and experience the standards technique of a power-off autorotation.
- CAAP through FSIS, Airworthiness Department shall ensure that the airworthiness certifications that are issued to the owner/operator of the general aviation companies are compliant with the required regular annual inspection as well as that with the manufacturer's periodic audit/inspection report.