

NATIONAL AIRBORNE SERVICE CORPS, MINISTRY OF THE INTERIOR, UH-1H HELICOPTER REGISTRATION NA-518 FORCED LANDING OCCURRENCE AT MATAIAN RIVER DIKE IN FENG-LIN, HUALIAN COUNTY

Executive Summary

On July 11, 2008 National Airborne Service Corps, Ministry of the Interior (abbreviated as Airborne Service Corps) an UH-1H helicopter registration NA-518 had a joint training of search and rescue. The helicopter took off around 0829, from Hualian Airport and arrived at 17 nautical miles south of Hualian Airport at 0851, to carry out a joint training of search and rescue related to abseiling, karabiners, litters, cross forests, rescue harnesses. When the training was over at 09:32, the helicopter was temporarily parked at a dike nearby Mataian River training field. At 09:33, it started the recurrent hovering training for the pilot in command, and the flight instructor was demonstrating a normal take off before training. The helicopter took off at 09:33. When air speed reached 15 knots/hour at an altitude of 20 ft, the aural low RPM warning sound came up together with 'RPM LIMIT' and the 'Master Caution' warning light illuminated. The flight instructor checked RPM to be 6,000 rpm, which kept slowing down. The aircraft was rapidly descending and bounced 5 meters forward after touching ground, then stopped on the dike with the flight instructor, pilot in command, one flight engineer, 4 rescue team members, in total 7 people on board. All passengers were safe, but helicopter structure had substantial damage.

Findings Related to Probable Causes

1. Due to RPM decelerating, those factors related to mechanical issues, weather and aircraft structure may be excluded. Without the flight log book data, no evidence showed that the decelerating RPM was related to the operation of the pilot; but still the possibility was not excluded.

Findings Related to Risks

1. The pilot's performance at the time of engine malfunction at low altitude was all compliance with NASC UH-1H helicopter emergency procedures. However he did not have proper training on the emergency procedures of

UH-1H helicopter engine malfunction before the occurrence; which increased the risk for pilots to encounter any similar situation.

2. Because UH-1H has one single engine, the risk of engine malfunction at low altitude is higher during actual operation. Besides, at present it exists none of UH-1H simulators for training purposes neither in Taiwan nor abroad. For those pilots who are unable to have on-board training and cannot have simulator training, they would face more challenges and risks when encountering engine malfunction situation at low altitude.
3. NASC failed to avoid the mistakes and failed to discover promptly the mistakes in the operation mechanism of weight and balance calculation, audit and archiving and during the process of operation.
4. The rescue team members were on board for non-rescue related recurrent training; which would increase risks. NASC's existing training did not include the planning to avoid the above mentioned risk.
5. NASC's existing flight safety organization was not fully functioning for the management system of aviation safety.

Other Findings

1. NASC's existing UH-1H helicopters cannot obtain complete commercial service or the support from the air force; which is unfavorable to keep maintenance quality and has a bad affect on occurrence investigation to this type of helicopters.
2. After inspection it was found that all the damage of structure components were caused by the collision into terrain during hard landing, so the factor of structure defects may be excluded.
3. At the time of the occurrence the weather condition was good, so the factor of bad weather condition may be excluded.

Safety Recommendations

To National Airborne Service Corps., Ministry of the Interior

1. Note and reinforce the operation procedures of this helicopter type to pilots, to prevent the possibility of occurrences due to engine thrust not set to maximum during take-off. (ASC-ASR-10-07-001)
2. Evaluate UH-1H's existing available training and resources and to establish appropriate technical training for emergency procedures during engine malfunction at low altitude to reinforce pilots' capacity. (ASC-ASR-10-07-002)
3. Review the operation mechanism and process concerning pre-flight weight and balance calculation, check procedures and archiving; reinforce pilot training on weight and balance to prevent miss-calculation of weight and balance and to set up efficient audit mechanism to ensure the accuracy of the calculation. (ASC-ASR-10-07-003)
4. Negotiate with existing and future manufacturers of all aircraft types who should provide assistance to all of the occurrence investigations to be in accordance with ICAO ANNEX 13 International Requirement for Aircraft Accident Investigation to improve aircraft maintenance quality and to keep integrity of occurrence investigation procedures. (ASC-ASR-10-07-004)
5. Consider the risk of having rescue team members on board when planning recurrent training. (ASC-ASR-10-07-005)
6. National Airborne Service Corps should establish promptly one dedicated full-time and effective mechanism to supervise flight safety to improve aviation safety of public aircraft. (ASC-ASR-10-07-006)

To Ministry of the Interior

1. Supervise National Airborne Service Corps to negotiate with the existing and future manufacturers of all the aircraft types that they should be in accordance with ICAO ANNEX 13 International Requirement for Aircraft Accident Investigation to provide assistance to all of the occurrence investigations to improve aircraft maintenance quality and to keep integrity of occurrence investigation procedures. (ASC-ASR-10-07-008)

2. Establish promptly one dedicated full-time and effective mechanism to supervise flight safety to improve aviation safety of public aircraft.
(ASC-ASR-10-07-008)