Executive Summary

NA706 Occurrence Investigation

On February 5, 2017, The National Air Service Corps of the Ministry of the Interior (NASC), a UH-60M helicopter, registration numbered NA-706, executed the emergency medical service mission from Lanyu Airport to Taitung Fengnian Airport. There are one pilot, one co-pilot, one crew chief, one patient, patient spouse and one nursing staff, totally 6 people on board. The airplane lost contact 81 seconds after it took off from Lanyu Airport.

After the underwater search results, the positioning beacon signal installed on the airplane was detected on February 9. The airplane wreckage was recovered on April 12th, it was about 2 nautical miles off the western coast of Lanyu Airport, and the water depth was about 1,000 meters. After checking the recovered wreckage of the accident, the cockpit and the tail section were lost. Two people on board were killed and four were missing.

According to the Transportation Occurrence Investigation Act of Republic of China (ROC) and the content of Annex 13 to the Convention on International Civil Aviation Organization, the National Transportation Safety Board (TTSB), an independent transportation occurrence investigation agency, was responsible for conducting the investigation. The investigation team also included civil aviation Agency, NASC and the Army ROC.

The draft final report was reviewed and approved by TTSB 3rd Board Meeting on September 6th, 2019.

There are totally of 16 findings from the Final Report and 7 safety recommendations issued to the related organizations.

Finding

Finding related to the probable cause

1. The flight crew's threat management, situation awareness, communication and decision-making capabilities as well as the understanding of the aircraft system were not sufficient. They did not choose the appropriate takeoff mode at takeoff under the night circumstance and unsteady wind condition. During the take-off process, the flight crew failed to maintain a safe climbing attitude and speed, and in the event of turbulent flow, the flight crew was not able to immediately interpret the airplane attitude and maintain the control correctly, and may be accompanies by the phenomenon of space disorientation. Finally, while the pilot flying pushed down the airplane at low altitude to correct the low airspeed, both of the flight crew were not paying attention to the low altitude, resulted in the airplane controlled flight into the sea.

Find related to the risk

1. The airplane encountered tailwind about 23 seconds after taking off from Lanyu, and gradually increased. The maximum tailwind was 40 nautical miles, and it also had wind shear and turbulence, but it was still within the operation limits of the aircraft. The relevant flight data did not show any anomalies.
2. The flight environment at the time of the accident was subject to the condition of dark adaptation and space disorientation.

3. The NASC do not provide the complete standard operating procedures for the aircraft; and the flight crew did not totally followed the current standard operation procedures and calls in this occurrence flight, it is easy to omit the relevant important operation procedures.
4. The NASC failed to plan the appropriate training to the flight crew; it may affecting the qualification of the flight crew and flight safety.
5. The NASC did not properly arrange the training resources of the UH-60M aircraft, and did not plan the suitable ground course for the advanced training, and the training hours of the simulators were insufficient, it may affect the system proficiency of the trainee, and the expected training benefits. .
6. The NASC does not define the minimum requirements related to night flight and instrument flight time.
7. The NASC has no specific complete training material for crew resource management training, and it is unable to achieve the purpose of CRM training.
8. The NASC did not define the weather standards for night EMS, which may affected the safety of the flight.

Other findings

1. The NASC did not install the water floating devices in accordance with its flight operation manual.
2. The runway edge light at the airport can greatly help identify the runway, obstacle isolation, approach and landing at night flight.
3. The parameters of 「FD COUPLE」、「Cyclic Longitudinal」、「Collective Trim」and 「Yaw trim posn」are not correctly recorded in both FDR1 and FDR2.
4. The pilot wears night-vision goggles during the night flight, which

helps to guide the terrain and features.

5. The relevant certificates of the flight crew comply with the provisions of the existing NASC regulations. There is no evidence that any alcohol drugs affected the flight crew during the flight.
6. The occurrence was irrelevant to weight and balance and the system of the helicopter.
7. In accordance with the data, provide by central weather bureau, the maximum gust wind was 040, wind speed was 68 nautical miles.

Safety recommendation

To the National Airborne Service Corps, Ministry of the Interior

1. Enhance the training of flight crew in threat management, situation awareness, communication decision-making, and understanding of the aircraft system, and establish the requirements and standards for instrument flight and night flight training（TTSB-ASR-19-09-001）

2. Examine the integrity and training resources of the UH-60M aircraft flight crew training program to implement the training effectiveness of the flight crew（TTSB-ASR-19-09-002）

3. Review the consistency and integrity of the flight operation manual and mission procedures to facilitate the safety of related flight missions.（TTSB-ASR-19-09-003）

4. Consider to define the weather standards for conducting the EMS mission at night and the necessity of the UH-60M standard operating procedures to facilitate related missions.（TTSB-ASR-19-09-004）

5. Plan an appropriate crew resource management training material to facilitate the implementation of the flight mission（TTSB-ASR-19-09-005）

6. Review the correctness of related parameters recorded in IVHMS to facilitate the readiness of flight data（TTSB-ASR-19-09-006）

To civil aviation agency

1. Re-evaluate the demand for emergency medical service at night in Lanyu Airport and enhance the runway light identification and guidance functions. If the requirements for runway construction cannot be improved, the planning and operating procedures for the night mission should be strengthened.（TTSB-ASR-19-09-007）