

Executive Summary¹

On May 24, 2008, at 0015 Taipei local time (1615 UTC), Sunrise Airlines, a BK-117B1 helicopter, bearing registration B-77008, crashed on 2900 feet from Runway 24 threshold and the southern side about 20 meters from the runway during approach on KINMEN Airport (RCBS) ILS/DME RWY06, Taiwan. The flight was a ferry flight from Taipei/Songshan Airport (RCSS) at 2215 Taipei local time to RCBS, departed with 2 pilots and 1 EMT (Emergency Medical Technician) aboard, all of the 3 members suffered serious injuries. The helicopter was destroyed.

In accordance with Aviation Occurrence Investigation Act, and Annex13 to the Convention on International Civil Aviation (Chicago Convention), which is administered by the International Civil Aviation Organization (ICAO), the Aviation Safety Council (ASC), an independent government agency, which is responsible for civil aircraft accident investigation in the territory of R.O.C. launched an investigation of this accident immediately. The representatives from CAA (Taiwan), Sunrise Airlines (Taiwan), JTSB (Japan), NTSB(U.S.A.), and FBAAI (Germany) were invited to participate the investigation.

After collecting sufficiently factual information, ASC released a "Factual Report of B-77008 occurrence" to the public and posted on the ASC website on December 29, 2008. On July 28, 2009, the ASC issued a "Final Draft Report of B-77008 Occurrence" in Chinese version to all the participants (except FBAAI) for their comments and granted 60 days for comments. Based on a review of those comments and verification of factual evidence, the ASC completed its investigation report, which was approved by the ASC Council Members on December 29, 2009, and then released "the investigation report of B-77008 occurrence" to the public and posted on the ASC website on January 29, 2010.

The investigation report follows the format of ICAO 13 with few minor modifications. First, in Chapter3, Conclusions, the safety Council decided in their 39th Council Meeting that in order to further emphasize the importance that purpose of the investigation report is to enhance aviation safety, and not to apportion blame and liability, this report presents the findings in three categories: findings related to the probable causes, findings related to the risks, and other findings. Second, in Chapter4, Safety Recommendations, other than the safety recommendations suggested to the relevant organizations, the

¹ The Chinese version of B-77008 flight occurrence investigation report is the only one official report. The executive summary in English is for reference.

Safety Council also lists the safety action taken or being undertaken by all related organizations. This is the same as ATSB and TSB, Canada. The Safety Council believes this modification would better serve the purpose of improving aviation safety. It should also be noted that the Safety Council encourages the participants to take initiatives in safety improvements before the release of this report.

Therefore, based upon the analysis by the Safety Council, the following are the key findings and recommendations of this accident investigation

Conclusions

Finding Related to Probable Causes

1. The pilots did not comply with the instrument flight rules during the approach when visibility were below the limits of the operating minima specified and failed to execute the missed approach procedures when lost visual contact with runway at decision altitude. According to the pilot interview records and radar altitude of MLAT, pilot might lose situation awareness in spatial disorientation then developed a high rate descent on short final approach. The pilots were not able to arrest the rate of descent prior to impact and to cause the occurrence. (2.1.2.2)

Findings Related to Risk

1. The accident flight had not obtained the valid meteorological information of the destination and/or alternate airports when applied to their departing in Taipei/Songshan airport's Flight Information Station, nor completed flight preparation operation including the operational flight plan before commencing the flight. (2.1.2.1)

2. Sunrise Airlines lack of the appropriate flight operation management in adverse weather condition, such as the detail procedures in the reception and transmission of meteorological information. (2.1.2.1)

3. During the flight, the pilot-in-command conducted the flight without conforming to the Aircraft Flight Operation Regulations. Before commencing the flight, he had not obtained the valid weather information for destination airport or alternate airports, nor complete and certified the operational flight

plan; furthermore, he implemented the flight below the aerodrome operating minima, and did not ask his flight crew to fasten safety harness during departure and landing. (2.1.2.3)

4. Before commencing the flight, the pilots did not brief regarding the aerodrome meteorological information including weather forecasts, nor listen in to the latest weather information during the flight, losing several opportunities to aware the effectiveness from adverse weather condition. The pilots did not keep the appropriate situation awareness in usual fog season. (2.1.2.4)

5. Sunrise Airlines did not take any effective prevention implement of the potential threat due to the pilots carried out the task with an empty stomach. (2.1.3)

6. After communicated with the flight, the Taichung Approach provided the incomplete weather information to pilots. (2.2.1)

7. The flight information officer did not provide the pilots the latest weather information when CM2 submitted the flight plan to Taipei/Songshan Flight Information Station. (2.2.4)

8. Taichung Approach did not notify Kinmen Tower immediately after receipting B77008 takeoff information during Kinmen Tower's off duty time. (2.2.4)

9. Kinmen Tower did not immediately notify Aeronautical Meteorological Station when receipted the B77008's takeoff information. (2.2.4)

10. Without setting comprehensive operating procedures by considering the function and the characteristics of the EMS, and navigation service integrity, Air Navigation and Weather Services of CAA was failure to timely provide needed flight service support to B77008. (2.2.4)

11. The pilots did not keep safety harness fasten caused aggravated injury after encountering vibration and collisions. (2.6.1)

12. Only one fireman on duty at night in Kinmen Airport's Fire Fighting Station could easily lead to the lack of response ability in an emergency situation. (2.6.2)

13. The management system of the Sunrise Airlines failed to ask neither staffs to comply with all regulations and specifications, nor to operate in accordance

with the requirements of the aviation safety and the flight operational control.
(2.8.1)

14. The company's manpower dispatch, aircraft performance, the time limitation in contract, and night flight times, all of these contributing factors would increase operational risk in pilot's fatigue and time pressure. (2.8.2)

Other Findings

1. The aircraft maintenance manual and wiring diagram manual used by Sunrise Airlines did not incorporate the information of cockpit voice recorder system. (1.16)

2. The pilots were properly certificated and qualified in accordance with applicable CAA regulations, and normally work and rest within 72 hours before the occurrence; there are no evidence of the occurrence related to drugs or alcohol.(2.1)

3. Though the visibility was below the operating minima for Kinmen airport, there was no abnormality of the operations of providing weather information and issuing landing clearance by Kinmen Tower after took over the aircraft from Taichung Approach. (2.2.2)

4. According to the wreckage inspection, shop test of altimeters, pilot interview, and maintenance record, no evidence indicated the pressure altimeter abnormal before the occurrence. (2.4, 2.5)

5. Sunrise Airlines did not have any CVR voice sample records for playing and decoding in this helicopter's annually inspection. (1.11.1)

Safety Recommendations

Interim Flight Safety Bulletin

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Occurrence Description:

A national airlines helicopter categorized in general aviation probably committed controlled flight into terrain in its instrument approach during a night ferry flight when the ceiling and the visibility were below the limits of the

operating minima specified for the destination airport at the occurrence. The pilots suffered serious injuries and the aircraft crashed consequently.

Recommendations:

1. When pilots making an operational flight plan in accordance with the instrument rules, the weather information of the estimated airport that indicates the weather forecast of the estimated time of arrival shall be obtained in advance. The plan shall also be in compliance with the regulations and the limits of the operating minima specified for the instrument approach and landing.
2. Before commencing a flight, the pilot-in-command shall be familiarized with all available meteorological information appropriate to the intended flight and endorse all pertinent flight preparation forms, including the flight-operating plan.
3. A flight shall not be continued towards the aerodrome of intended landing when the latest available weather information indicates it is below the limits of the operating minima specified for the destination airport at the expected time of arrival. An instrument approach shall not be continued beyond the final approach fix when the reported visibility or controlling RVR is below the specified minima.
4. The Operator and pilots shall familiarize and comply with the laws, regulations and standard operating procedures to prevent recurrence of the similar occurrence.

Aviation Safety Recommendations

To Sunrise Airlines

1. A flight shall conform to the rule as following: A flight to be conducted in accordance with instrument flight rules shall not be commenced unless information is available which indicates that the conditions at the aerodrome of intended landing will be at or above the aerodrome operating minima. (ASC-ASR-10-01-001)
2. Ask the pilot-in-command and pilots shall indeed compliance with all pertinent laws and regulations. (ASC-ASR-10-01-002)

3. Enhance pilots' ability in reading of weather information and forecasts, moreover, pilots should monitor and pay attention to the latest weather reports while implementing a flight. (ASC-ASR-10-01-003)
4. Flight crew members shall keep their seat belt fastened when at their stations, and shall keep the safety harness fastened during the take-off and landing phases. (ASC-ASR-10-01-004)
5. Examine and complete the managerial procedure for operate in adverse weather. (ASC-ASR-10-01-005)
6. Set up effective preventive measures against the potential threat to aviation safety due to the pilots carried out a flight task with an empty stomach. (ASC-ASR-10-01-006)
7. Review and complete aircraft's related system and maintenance document. (ASC-ASR-10-01-007)
8. Examine and ensure the implementation of the annual inspection for CVR system. (ASC-ASR-10-01-008)
9. Enforce banning its irregularities to ensure that all the member carries out a task in comply with the laws, regulations, and manuals. (ASC-ASR-10-01-009)
10. Examine the provisions of the contract and estimate the risk about both ferries at night and the time limitation. (ASC-ASR-10-01-010)

To Civil Aeronautics Administration, ROC

1. Execute one-time inspection regarding the pilots' flight capability of Sunrise Airlines, the requirement and training indeed about instrument flight to ensure their instrument flight's ability could comply with related regulations. (Also for other internal operators of general aviation, if necessary.) (ASC-ASR-10-01-011)
2. Examine the function and the characteristics of EMS, and the integrity of navigation service, to establish comprehensive noticing and operating procedures, in order for supplying the necessary services. (ASC-ASR-10-01-012)

3. Ask flight information officer to provide relevant meteorological information in compliance with rules and regulations when pilots submit flight plan. (ASC-ASR-10-01-013)
4. Require Taichung Approach to implement aircraft noticing operation in accordance with pertinent regulations when Kinmen Tower is not in operating hours, and provide valid meteorological information after getting communication with aircraft. (ASC-ASR-10-01-014)
5. Kinmen Tower shall immediately notice Kinmen Aeronautical Meteorological Station as soon as the tower receives takeoff information outside of operating hours for weatherman to conduct weather observation promptly. (ASC-ASR-10-01-015)
6. Kinmen airport shall re-examine the dispatch of both the rescuing manpower and equipment for emergency medical services (EMS) during a night departure or landing. (ASC-ASR-10-01-016)
7. Require the Sunrise Airlines to maintain proper maintenance document regarding the aircraft alteration or system modification which was not provided by the aircraft manufacturer. (ASC-ASR-10-01-017)
8. Require the Sunrise Airlines to accomplish the annually inspection of cockpit voice system. (ASC-ASR-10-01-018)