

Executive Summary of the Daily Air Helicopter B-55507 External Load Detachment in Dongpu, Nantou County

On December 8, 2023, a BK117 helicopter operated by Daily Air Corporation (hereinafter referred to as Daily Air), registration number B-55507, with two pilots on board, took off at 0728 Taipei time from the Tongfu temporary helipad in Xinyi, Nantou County. The aircraft was on an external sling cargo mission along the Chenyoulan River to Guangao. Upon reaching the 209 forestland as planned, the flight crew noticed during an engine power check that the external load had detached unintentionally. The aircraft immediately returned and landed at the Tongfu temporary helipad at 0748. Both the crew and aircraft were safe.

According to the Transportation Occurrence Investigation Act of the Republic of China and referencing Annex 13 to the Convention on International Civil Aviation, the TTSB is the independent agency responsible for investigating this transportation occurrence. Invited agencies participating in the investigation included the Civil Aeronautics Administration (CAA) and Daily Air. The final report of this occurrence investigation was published after being reviewed and approved during the 68th TTSB board meeting on October 11, 2024.

The investigation, based on a comprehensive analysis of factual data, resulted in 11 findings. No safety recommendations were made.

The 2 findings related to probable causes are as follows:

1. After reviewing the potential factors that could have caused the unintentional detachment of the external load, the investigation ruled out anomalies in the cargo hook electrical release system, failures in the manual release mechanism, and the use of inappropriate shackles as probable causes.
2. Considering the location of the cargo hook release switch on the cyclic stick and the flight crew's execution of flight operating procedures during the occurrence, while there is a possibility that inadvertent activation of the release switch could have caused the unintentional detachment, the investigation found no evidence to confirm that the detachment was related to the flight crew's operation.

The 7 findings related to risks are as follows:

1. During the occurrence flight, the flight crew did not follow standard operating procedures (SOP) or make standard calls during the helicopter's external load sling operations, increasing the risk of being unable to quickly jettison the external load in case of an emergency at low altitude. It also increased the likelihood of inadvertent activation of the cargo hook release switch, resulting in the unintentional release of the external load.
2. The flight crew did not inform each other when deviating from standard operating procedures (SOP) during their flight operations, which is

inconsistent with crew resource management principles. This lack of communication and cooperation made it difficult for the crew to fully understand the overall flight environment and aircraft status.

3. It was common for pilots in Daily Air's BK117 fleet to omit the procedure of setting the cargo hook arming switch to ARM during takeoff when conducting sling operations, which reflects an unsafe culture of non-compliance with standard operating procedures (SOP) within the fleet.
4. The internal audit mechanism conducted by Daily Air prior to the occurrence was ineffective in detecting and identifying deviations from standard operating procedures (SOP) during external load sling operations, as seen in this occurrence.
5. The Civil Aeronautics Administration's ability to detect operational risks, such as deviations from or violations of standard operating procedures (SOP) within Daily Air's BK117 fleet during special operations, was limited due to the challenges involved in conducting flight deck enroute inspections or evaluations.
6. There were discrepancies among Daily Air's BK117 Aircraft Operations Manual, Helicopter External Load Sling Operations Manual, and BK117 Flight Crew Training Manual regarding procedures for external load sling operations. These inconsistencies could require flight crews to compare differences and adjust their execution of standard operating procedures (SOP), thereby increasing the crew's workload and hindering consistency in adhering to SOPs.
7. The use of flat webbing slings as cargo slings in external load operations caused significant oscillations of the aircraft during flight, which affected control during those operations.

The 2 other findings are as follows:

1. The flight crew held valid flight and medical certificates issued by the Civil Aeronautics Administration (CAA), met the qualifications required by both the CAA and the company, and no irregularities related to this occurrence were found in their training or check records. The crew's rest and activities during the 72 hours prior to the occurrence were normal, and there was no evidence that medical, drug, or alcohol factors contributed to the event.
2. The aircraft's weight and balance were within limits, and no abnormalities were found in the airworthiness information prior to the occurrence flight.