



**Aviation Safety Council  
Taipei, Taiwan**

**UNI AIR FLIGHT B7695 DASH-8-300  
B-15235 HARD LANDING ACCIDENT IN  
KINMEN AIRPORT**

**Executive Summary**

# Executive Summary

On January 15, 2001, UNI Airways (hereinafter called UNI Air ) Flight B7695, aircraft type DASH-8-300, bearing nationality mark and registration no.B-15235, departed from Tainan Airport at 1035 local time (Taipei), as a passenger flight. The aircraft landed on Runway 06 in Kinmen Shangyi Airport at 1113, the nose wheel, two main wheels and belly bounced after touchdown and right main gear door came off at around 200 feet from runway threshold. After touched down again at 1,300 feet from the runway threshold, the aft bottom fuselage dragged on the runway till around 3,380 feet and stopped. In this accident, both of main landing gear was damaged, aft bottom fuselage skin scratched and longeron fractured and deformed, no injuries were reported.

## Findings related to the probable causes

1. After B7695 passed 250 feet during descent, the aircraft encountered unstable airflows three times which altered the descent rate for more than 500 ft/min. Five seconds before touchdown, it encountered a downdraft again, two seconds before touchdown, the pilot flying tried to use elevators, but there was insufficient altitude remained to correct. The aircraft touched down with a descent rate of 28 ft/min, leading to a hard landing which damaged both left and right landing gear and caused the fuselage belly to be dragged on the runway.
2. The pilots of B7695 did not have enough situation awareness therefore unable to respond timely when encountering unstable airflows.

## **Findings Related to the Risks**

1. UNI Air did not have wind shear related training records for pilots except simulators. The training for special airports did not include low level gust training of Runway 06 in Kinmen Airport, therefore pilots did not achieve familiarity level when encountering unstable airflow.
2. During the approach, the pilot flying did not brief to the pilot non-flying about the response and notes of unstable airflow encounters, available resources were not effectively used.
3. The Operating Data Manual and Flight Manual of DASH-8 manufacturer (de HAVILLAND) did not include the maneuver procedures and techniques when encountering wind shear.
4. UNI Air did not include “Standard Callouts” for wind shear in the Flight Operations Manual, so the pilots did not make use of the wind shear standard callouts.
5. The situation awareness of the pilots and the cabin crewmembers for “Cabin Smoke” was insufficient, and “Emergency Evacuation” procedures were not declared and executed. The pilots did not inform the cabin smoke situation to the Tower, affecting the timing of emergency responses.
6. The First Officer did not adapt emergency procedures to open the jammed cockpit door, delaying the time effectiveness of “Cockpit Emergency Evacuation”.
7. When smoke appeared in the cabin, cabin crew did not follow procedures and press the “emergency call” button to inform flight crewmembers. And the flight crew did not respond to the

call from the cabin as well, hence unable to keep cabin abnormality under control and respond.

8. Cabin of DASH8-300 was not equipped with sufficient smoke masks, Civil Aviation Act did not define the numbers and deployment of smoke masks, affecting the ability of cabin crew to deal with contingencies when smoke appeared in the cabin.
9. Cabin crew did not follow procedures to seek for the origin of smoke and did not acquire fire extinguishers for backup, which were not complied with the rules in the “Cabin Crew Operation Manual” , causing negligence in safety measures .
10. UNI Air did not implement joint emergency evacuation trainings for pilots and cabin crew, in this incident, the communication and coordination among pilots and cabin crewmembers did not achieve the level of familiarity.
11. Competent authorities did not have any dedicated cabin safety inspectors to carry out cabin safety inspections, instead having the operations inspector to take the job concurrently, leading to the incompleteness of cabin safety supervisions.
12. The operating procedures of video surveillance system for Control Tower in Kinmen Airport were not included in the “ Operation Manual “ , prone to operation oversight .
13. The working location of Air Traffic Controllers in Kinmen Airport could not observe the touchdown zone on Runway 06; therefore video surveillance system was used to monitor the aircraft activity in that area. However, it was not listed in “AIP Taipei FIR “hence enterprises were not able to know.

14. The obstacle limitations surfaces area of Kinmen Shangyi Airport. There were 13 obstacles which busted the restriction height , and 3 buildings were inside the obstacle restriction area ; Uncovered ditches existed in the runway strip and taxiway strip, which were not conformed to “Civil Aerodrome Design and Construction Design Standards “ ; Business-related units in Civil Aeronautics Administration were unable to make effective communications and negotiations , causing flight related information not announced according to the related laws, potential hazards to aviation safety existed .
15. Part of CAA’s information in “Aeronautical Information Publication Taipei Flight Information Region” was not consistent with current situation, such as load and offload operation in Kinmen Shangyi Airport, and relevant units were not able to find out, which lacked for effective monitoring and supervising mechanism.
16. The boundary and obstruction facilities in Kinmen Shangyi Airport were incomplete, numerous civilian and animal intrusions occurred, causing threats to aviation safety.
17. The heights of surrounding obstacles of the anemometer near the threshold of Runway 06 in Kinmen Airport were not complied with the clearance standards of International Civil Aviation Organization, measurement errors existed in the instrument. Unable to establish effective mechanism to provide communications and feedbacks to weather information users, leading to the incapability of early detection of measurement errors.

## **Other Findings**

1. The pilots were properly certificated and qualified in accordance with Civil Aeronautics Administration regulations.
2. The pilots had completed relevant trainings required by the current Civil Aeronautics Administration regulations.
3. The pilots worked and rested as usual 72 hours before the accident; No evidence showed that before the accident, they were affected physically, mentally or by drug, or alcohol.
4. The aircraft had completed all airworthiness directives, and was in an airworthiness status.
5. Weight and balance of the aircraft was within the required limits.
6. The structural damage of the aircraft was caused by out force and overloading.
7. The Pilot Flying encountered downdraft 5 seconds before touchdown, his reaction and flight maneuvers were normal till touchdown.
8. The competent authority approved "Aircraft Maintenance Plan" in accordance with the "Maintenance Requirements "by the aircraft manufacturer, hence unable to find out the discrepancy of the scheduled examinations of the flight data recorder and the regulation standards of International Civil Aviation Organization.
9. The power of the flight data recorder was cut off by the acceleration inertia switch affect during the accident, causing important data required for the investigation unable to be

recorded which affected the investigation operations.

10. The FDR of DASH8 did not record time parameters, although Coordinated Universal Time (UTC) could be assumed from parameters like synchronous character, VHF Key and radar time, parameters of Frame Counter were disordered because of power cut; causing errors in the time parameter records, and affected the investigation operation, which were not complied with Article 104 of Civil Aviation Act and Annex 6 of International Civil Aviation Organization.

## **Safety Recommendations**

### **To UNI Air**

1. Enhance the pilots with situation awareness and operation procedure trainings of wind shear, including the recognition, judgment, standard callouts, operating procedures, teamwork and duty assignments of wind shears. (ASR-02-02-001)
2. Establish standard callout procedures when encountering wind shear situations during approach and landing phase. (ASR-02-02-002)
3. Require pilots to actually carry out duty briefings; Add special notes in approach/landing briefings in adverse weather conditions. (ASR-02-02-003)
4. Enhance the trainings of situation awareness and operation procedures of cabin smoke for pilots and cabin crews. (ASR-02-02-004)
5. Review the regulations, procedures and trainings of emergency encounters, such as the communication between cockpit and

cabin during emergency, the use of cockpit emergency equipments, cockpit emergency evacuation procedures, the recognition of “ Emergency Evacuation” of pilots and cabin crew, determination issued, declaration timing and execution procedures . (ASR-02-02-005)

6. Research and establish related procedures and standard callouts, require pilots to provide related information to Air Traffic Controllers for the benefits of further disposal operations when encountering abnormal situations , such as flat tires, landing gear breakage ( or possible landing gear problems leading to difficulties in direction or brake control ) or cabin smoke . (ASR-02-02-006)

### **To Civil Aeronautics Administration (CAA)**

1. Improve inconsistency with the regulations within Kinmen ShangYi Airport, such as the moratorium/restriction on buildings or ultra-high obstacles, and uncovered ditches in runway or taxiway areas, airport boundaries and obstructing facilities. The above situations which are unable to improve or have not finished improving and the non-visible area between aerodrome control tower and runways should be listed and published in “AIP Taipei FIR”. (ASR-02-02-007)
2. Amend the parts which are inconsistent with current situations in “AIP Taipei FIR” and establish effective mechanism to prevent similar situations from happening. (ASR-02-02-008)
3. Eliminate the non-visible areas between aerodrome control tower and runways in Kinmen ShanYi Airport, research and establish standard operating procedures of video



surveillance system. (ASR-02-02-009)

4. Review related operation regulations and agreements of the activation of “Accident Alarm “for relevant units in Kinmen ShanYi Airport. (ASR-02-02-010)
5. Review relevant laws and inspection methods of cabin safety for civil aviation transportation industry, and recruit dedicated inspectors to perform cabin safety inspections. (ASR-02-02-011)
6. Refer to International Civil Aviation Organization document No. 8896; improve the deployment environment of anemometer of Runway 06 threshold. (ASR-02-02-012)
7. Refer to section 6.3 of Annex 6 issued by International Civil Aviation Organization and US Federal Aviation Administration Advisory Circular No.20-141; establish the auditing basis of the maintenance plan for recording system periodic inspections. (ASR-02-02-013)
8. Evaluate the abolishment of accelerate inertia switch related laws. (ASR-02-02-014)
9. Review organization and management, increase energy and performance of internal coordination and communications, supervising mechanism, and the research and development of Civil Aviation Act for relevant departments (units). (ASR-02-02-015)

### **To Aircraft Manufacturer**

1. Explain the guidelines of disposition wind shear encounters or possible wind shear encounters in the Operation Manual of

DASH8 regarding to performance, characteristics, operating procedures, operate techniques and best configurations etc. . . .

( ASR-02-02-016 )

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