

# **Executive Summary**

## **PA2002 Occurrence Investigation**

On March 16, 2015, at around 1041L, a Sport Aviation Association S-6 COYOTE II ultra-light vehicle, control number PA2002, took off from an airfield in Dapeng Bay National Scenic Area (Pingtung, Taiwan). There were one instructor pilot and one passenger on board.

According to the eyewitnesses' statements, the ultra-light vehicle took off and flew south bound from land into the airspace above the Dapeng Bay lagoon. At 1043L, the vehicle flying at an altitude of 500 feet suddenly turned east bound, then dived downward at a nearly vertical angle, and crashed into the lagoon with a running engine making increasing roaring sound. The vehicle showed no sign of substantial damage before crash. After being pulled out of the water, both the instructor pilot and passenger showed no vital signs and were declared dead in the hospital.

The Final Report was reviewed and approved by ASC's 37th Council Meeting on October 13, 2015.

There are a total of 1 finding and 12 items of Safety Recommendations from the Final Report.

### **Investigation Conclusions**

The structures, flight control systems, and the engine of the vehicle show no signs of anomaly. Due to no requirements and no equipage of an FDR, there is no means to identify the ways in which the instructor pilot controlled the vehicle and the interactions between the persons on board. Thereby by referring to the stall and spin characteristics stated in the manufacturer's operation manual, and the stall and spin recovery techniques stated in the FAA Airplane Flying Manual as the sole means of

reasoning the crash in a steep pitch down angle, it is very likely that without proper calculating the weight and balance before flight, while making a steep turn to the left during its takeoff climb phase with flaps 11 degree configuration, the vehicle might increase its G load and stall speed. Additionally, the instructor pilot might not aware of the 30 kilogram increase of takeoff weight by the change of passenger on the second flight, which could cause more rapid decrease in airspeed under certain conditions, increasing the likelihood of the vehicle to enter into a stall, or even a spin.

### **Safety Recommendations**

#### **To Civil Aeronautics Administration, CAA**

1. Require ultra-light vehicle body corporates to promote the importance of weight and balance calculation before flight and implement it accordingly. ( ASC-ASR-15-10-001 )
2. Require ultra-light vehicle body corporates to promote the importance of stall and spin recovery techniques of S-6 aircraft type and its variants. ( ASC-ASR-15-10-002 )
3. Reinforce the inspections on the recordkeeping mechanisms of ultra-light vehicle body corporates, to ensure all records of weight and balance calculation, maintenance, or inspection logs are properly maintained. ( ASC-ASR-15-10-003 )
4. Supervise the ultra-light vehicle body corporates to fully implement the instantaneous positioning reporting mechanism, the ultra-light vehicle pilots should keep positive communication with assigned personnel on ground, and fill or sign all required forms and documents as needed, thereby ensure the safety of flight in the

permitted airspace. (ASC-ASR-15-10-004)

**To Sport Aviation Association (ultra-light vehicle body corporate)**

1. Promote the importance of weight and balance calculation before flight and implement it accordingly. (ASC-ASR-15-10-005)
2. Promote the importance of stall and spin recovery techniques of S-6 aircraft type and its variants. (ASC-ASR-15-10-006)
3. Reinforce the recordkeeping mechanisms, to ensure all records of weight and balance calculation, maintenance, and inspection logs are properly maintained. (ASC-ASR-15-10-007)
4. Require vehicle pilots should keep the power for instruments on during flight, and assign a ground personnel in charge of the communication with pilots in flight, to ensure the safety of vehicle in flight and the airspace in use. (ASC-ASR-15-10-008)

**To Pen Bay International Ltd**

1. Supervise the Sport Aviation Association to calculate weight and balance before flight. (ASC-ASR-15-10-009)
2. Supervise the Sport Aviation Association to ensure the implementation of recordkeeping operation and properly keep all the records of weight and balance calculation, maintenance and inspection logs. (ASC-ASR-15-10-010)
3. Supervise the Sport Aviation Association to require its vehicle pilots to keep the power for instruments on during flight, and assign a ground personnel in charge of the communication with pilots in flight, to ensure the safety of vehicle in flight and the airspace in use. (ASC-ASR-15-10-011)

**To Dapeng Bay National Scenic Area Administration of Tourism  
Bureau, MOTC**

1. In accordance with the chapter 5 (supervision and management) of “Promote Nongovernmental Participate In Public Development Law” and as stipulated in the “Develop Management Contract” inform in written, require the Pen Bay International Ltd, to ensure ultra-light vehicle activities shall be held in accordance with the guidance manual of Sport Aviation Association. ( ASC-ASR-15-10-012 )