

## **SUMMARY**

The intention of the flight was to drop eight parachutists from an altitude of 1,500 metres. It was the twelfth and planned to be the last flight of the day. The weather conditions were good. The parachutist bench to the right of the pilot had been replaced with a pilot's seat to distance the parachutists from the pilot as a Covid-19 precautionary measure. The pilot had no ability to perform a mass and balance calculation with the available information.

After take-off, the aircraft climbed to an altitude of 400 to 500 feet above ground before changing course 180 degrees to the left. The aircraft turned around quickly in a descending turn with a high bank angle. During the final phase, the aircraft dived steeply and then slightly levelled off before impact. Upon impact, the landing gear was teared off, after which the aircraft skidded on its belly 48 metres straight ahead and caught fire. All nine persons on board sustained fatal injuries.

SOS Alarm was alerted and a rescue operation was initiated.

No technical fault with the aircraft that may have affected the accident has been identified. Nothing has emerged from the medical examinations to indicate that the pilot's mental or physical condition was impaired before or during the flight.

The elevator trim was set in an abnormal position for take-off and the aircraft's mass and balance were outside the approved area. High stick forces and reduced longitudinal stability contributed to handling difficulties of the aircraft. In connection with retracting the wing flaps, control of the aircraft was probably lost. Due to the low altitude, control of the aircraft could not be regained.

In the investigation, several latent threats have been identified. The threats have emerged during a long period of time and several safety procedural drifts in the operation have resulted in a reduced safety margin. A proper risk analysis would probably have identified these latent threats. It may be questioned whether pilots operating flights in non-commercial parachute operations have been provided with adequate tools to perform such a risk analysis.

Overall, SHK is of the opinion that a formal training that leads to a special rating should be introduced for pilots who carry out flights in parachute operations.

### **Causes/Contributing Factors**

Control of the aircraft was likely lost in connection with the wing flaps being retracted in a situation where the stick forces were high due to an abnormal elevator trim position, while the aircraft was unstable due to being tail-heavy and abnormally trimmed. Due to the low altitude, it was not possible to regain control of the aircraft.

The cause of the accident was that several safety slips occurred in the operation, which resulted in that the safety margin was too small for a safe flight.

## **SAFETY RECOMMENDATIONS**

### **EASA is recommended to:**

- Consider introducing formal training leading to a rating for pilots in parachute operations where the rating is maintained through refresher training (see Section 2.9 and 2.10). (*SHK 2023:03 R1*)
- Take measures to ensure that the oversight of non-commercial specialized aviation activities within parachute operations is conducted in such a way and to such an extent that it has an effect on compliance with the regulatory framework and thus has a safety-enhancing effect (see Section 2.11). (*SHK 2023:03 R2*)

### **The Swedish Transport Agency is recommended to:**

- Within the framework regarding oversight of airports with the Basic Airport concept or equivalent, verify whether the airports have taken adequate measures to ensure that the response time of the airport's rescue services complies with regulations (see Section 2.12). (*SHK 2023:03 R3*)
- With support of SFF, take measures to ensure that appropriate risk assessment is carried out by pilots according to checklist and applied during flights in relation to parachute operations (see Section 2.9 and 2.10). (*SHK 2023:03 R4*)

### **The Swedish parachute association (SFF) is recommended to:**

- In conjunction with the parachute clubs, take measures to ensure that mandatory information and training is received by all pilots (see Section 2.9 and 2.13). (*SHK 2023:03 R5*)