

## **SUMMARY**

The accident occurred on 30 June 2017 during take-off from Siljansnäs Airport. The aircraft was of the model Piper PA-28-161 (Cherokee Warrior II) and had the registration OH-PHE. The flight was performed as a cross-country flight and was a part of the training for two students. The aircraft was based in Jyväskylä in central Finland. The training was carried out by Blue Skies Aviation Oy, which is a training organisation whose registered office is in Vesivehmaa north of Helsinki.

During the flight from Jyväskylä via Helsinki, Turku and Mariehamn to Siljansnäs, the students had taken turns flying a sector each, while the instructor supervised the flights from the right seat. Blue Skies' duty limitations had already been exceeded before the flight commenced from Siljansnäs.

In Siljansnäs, the aircraft was refuelled in order to achieve maximum take-off mass to fly on to Åre. However, the take-off mass exceeded the maximum permitted.

A video film was recorded from a rear seat with a camera of the type Go-Pro directed towards the right wing. SHK has used the film and its soundtrack as well as ground reference points to the right of the runway in order to calculate engine RPM, airspeeds and pitch angles.

For training purposes, the intention was to execute the take-off using the procedure for take-off from a short runway. The rotation speed was set at 43 knots, which is nine knots below the recommended speed for maximum take-off mass. The recorded film shows that the aircraft, after lift-off, was flying with a high attitude with the aural stall warning continuously activated while the aircraft stalled twice before it came down in a cornfield.

The instructor was injured in the chest by impacting the GPS screen that was mounted on the steering wheel. He was transported to a hospital for treatment.

The accident was caused by prescribed operational take-off procedures not being applied with regard to the indicated airspeed, which resulted in a flight condition where the drag exceeded the available thrust.

SHK has found several contributing factors such as:

- The mass and balance were outside of permitted limitations, which may have had some effect on the course of events.
- The assessment of the wind conditions might have been adversely affected by the fact that the airport's windsock stood on the lee side of a forest.
- There were no detailed instructions in the operator's manual regarding rejected take-off.
- During the latter part of the event, a wind shear might have contributed to the airspeed dropping.
- The manoeuvring towards obstacle clearance area resulted in a banked turn, which at the low speed worsened the situation further.

## **Safety recommendations**

None.