SUMMARY

The incident occurred during a scheduled flight from Bromma to Visby.

The commander has stated that small vibrations were felt during descent, at around 7,000 feet. The indicated speed was 250 kts and the power levers were set to idle.

The vibrations increased in intensity and the commander reduced the rate of descent to 2,500 feet per minute.

The vibrations became so severe that the cabin crew had difficulties moving in the cabin and that there were difficulties reading the instruments in cockpit.

Information from the flight recorders shows that the left propeller was first feathered momentarily. The right propeller was feathered thereafter, after which the right engine was shut off. The flight continued with the left engine in operation. The information also reveals that the communication between the pilots did not include confirmation of which engine's power levers were manoeuvred. A number of warning signals were activated during the sequence of events. The signals were not reset during the acute phase of the event.

When the commander moved the right propeller control to feather position, he was unable to push it all the way to fuel shut-off position. The control was therefore returned to the "auto" position and then pushed back via the feather position to fuel shut-off, whereby the vibrations subsided.

The co-pilot explained the situation to the air traffic controller in the Visby tower and declared an emergency situation. The air traffic controller triggered the alert signal.

The approach and landing were executed without problems.

The investigation revealed following damages:

- The eccentric trunnion pin on blade no. 2 was ruptured.
- The front propeller pitch change actuator plate was severely bent on all six positions.
- The engine mounts had received damage from contact with metal.
- The engine's compressor housing was cracked along half of its circumference.
- The shaft of the AC generator was ruptured.

SHK has been unable to establish the cause of the serious incident.

Safety recommendations

SHK's assessment is that additional extensive engineering initiatives are necessary in order to find the cause of the incident and that such initiatives should be the responsibility of the aircraft and propeller type certificate holders, under supervision of the certifying authorities. It has also been possible to establish that the known incidents of a similar nature have taken place under similar circumstances. In light of this, the following recom-mendation is issued. EASA is recommended to:

- Consider introducing temporary limitations in the manoeuvring envelope, or limitations of the power ranges within the latter, until the problem is resolved and rectified. *(RL 2016:07 R1)*