

Engine Seizure in flight

Homebuilt Sonex – Whangarei to Dargaville

Date: 11th Jan 2020

Aircraft Type: Homebuilt: Model Sonex, designed by Sonex Aviation.
Engine fitted to this aircraft is the Aerovee 80HP model.
Model: 2180 cc.

Type of flight: Private Operation

POB: 1

Injuries: Moderate/Serious

Flight Details: Aircraft took off from Whangarei on track to Dargaville and had a sudden engine shut down after 24 minutes of flight time. A forced landing was made, resulting in a heavy impact with the ground and a ditch.

Damage: The Aerovee engine, had been virtually thrown from the aircraft on impact. It was only held by a side mount engine support tube and assorted wiring and tubing.
Oil lines to oil filter unit had sheared away at the oil filter attachment to the engine and the oil Filter housing was detached.
The Propeller had the lower of the non-rotating blades sheared away.
Crankcase lower protection plate had taken some of the impact and was distorted.
The fire wall was forced rearwards into the cockpit area and the fuselage section around the firewall was heavily distorted, floor section was bowed upward, forward of the wing box partition; which had also distorted to some degree, rear cockpit frame had also collapsed.
All cockpit structure showed some degree of distortion and misalignment.
Tail section also had damage as would be normal in this type of landing.
Both wings showed damage, and wing attachment areas were twisted and distorted.
Mount points of wings were twisted.

Findings: After investigation, a very large quantity of the engine oil had been dumped onto the ground before the aircraft went flying, (this, was after the pilot had completed his pre-flight checks) and had started his engine prior to Take-off.
This flight resulting in a complete Aerovee engine inflight seizure.
The pilot would not have been aware of the oil left on the tarmac.
The cause was found to be the use of an aftermarket oil filter and very high oil pressure that can be achieved on the initial start and maybe a cold morning?
The Aerovee website holds numerous blogs of this same occurrence happening and I believe this type of incident has happened in NZ a few times.
The answer to the above is: If you are going to use an aftermarket Oil Filter. Be very very careful! Or the appropriate and wise approach is to use the manufactures parts or gain their approval for the fitment of the alternate oil filter assemble.

Entered by. Gordon Swan SAC Technical Officer