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General operating and maintenance recommendations for Lycoming engines in environments laden with volcanic ash

The recent eruption of the Iceland volcano has prompted many questions from the piston powered general aviation community. This announcement is intended to address current concerns regarding operation and maintenance of Lycoming aircraft engines in atmospheres contaminated with volcanic ash.

Given the dynamic conditions associated with volcanic ash, Lycoming advises Operators against engine operation in areas where volcanic ash is present - in the air or on the ground.

Piston engines can be adversely affected by inlet air contaminated with volcanic ash.

Solid deposits from any number of sources can accumulate on engine baffles or other engine surfaces significantly impacting engine cooling. Accumulation of deposits on the induction air filter can restrict or block air flow to the engine and significantly reduce engine power. Contamination of engine oil can lead to engine malfunction and/or failure from abrasive wear.

It is also important to note that ash on the ground and runways can inadvertently contaminate the engine compartment and cause engine damage as the aircraft lands or takes off.

In the event that flight through volcanic ash clouds or with ash on the ground and subsequent contamination is encountered, Lycoming recommends the following standard actions listed below.

CAUTION: DO NOT USE WATER INITIALLY TO REMOVE THE ASH. WHEN VOLCANIC ASH COMES INTO CONTACT WITH WATER IT MAY FORM A HARDENED, CORROSIVE COMPOUND.

During flight:	After flight...	After 10 hours of operation or the next flight...
Monitor the engine	Wearing personal protective	Inspect the external

During flight:	After flight...	After 10 hours of operation or the next flight...
temperature during flight (damaged or blocked cooling baffles or heavy deposits on engine cooling surfaces can reduce cooling efficiency and cause the engine to overheat)	equipment (gloves, respiratory, and eye protection), remove the ash from the aircraft thoroughly by hand brushing or air/vacuum cleaning per the airframe manufacturer's instructions. Ensure that all ash is removed from the engine, nacelle and cowling.	engine, cowling, and nacelle for any lingering ash residue. Wearing personal protective equipment, remove any lingering ash residue per the airframe manufacturer's instructions.
If the engine is not running smoothly in flight, land the aircraft as soon as possible and troubleshoot the engine.	Perform a post-flight inspection Particularly, inspect the induction filters, induction system, and engine baffles for blockage or damage.	Do pre-flight inspections
	Immediately, perform an oil change, collect an oil sample and have a spectrographic analysis done on the oil sample. Compare this analysis with past oil analyses to determine possible engine wear or contamination.	Perform an oil change and take another oil sample for spectrographic analysis. Compare the results against the last oil sample to determine engine wear or lingering effects of contamination. Repeat as necessary as a precaution.
	Replace the oil filter and intake air filter to remove any internal contamination that could lead to premature wear because of the highly abrasive effects of most solid particles.	Replace the oil filter and intake air filter as a precaution to be sure there are no lingering effects of ash contamination. Repeat as necessary.
	Inspect the external condition of the engine, all accessories, compressor and turbine blades, external fuel and oil cooling air baffles, oil lines, and all other	Inspect the external condition of the engine, all accessories, compressor and turbine blades, external fuel and oil cooling air baffles, oil

During flight:	After flight...	After 10 hours of operation or the next flight...
	components for corrosion or scoring to identify any possible damage caused by the high speed impact of solid particles as well as the corrosive effects wrought by the chemical composition of the ash.	lines, and all other components for corrosion or scoring to identify any possible damage caused by the high speed impact of solid particles as well as the corrosive effects wrought by the chemical composition of the ash. Repeat this inspection as necessary.
	Drain all other fuel/fluids from the engine and replenish with clean fluids. Replace the fuel filter.	Inspect the fuel filter for lingering contamination. Replace the fuel filter if contamination is found. Repeat as necessary.
	Inspect seals for damage and leaks.	Monitor oil temperature and pressure for indications of engine problems
	Clean the engine with high pressure air spray - with particular emphasis to the cooling fins on the cylinders.	
	In ash fall-out areas, after the engine cools, install inlet and exhaust covers to prevent ash from entering the static engine.	

NOTE: Additional measures may be necessary depending on specific operating conditions.