

SERVICE BULLETIN

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Engineering Aspects are
FAA (DER) Approved

SUBJECT: Recommendation Regarding Use of Incorrect Fuel

MODELS AFFECTED: All Lycoming aircraft engines

TIME OF COMPLIANCE: Preventive and Corrective Action for Engines Operated with Incorrect Fuel

The incidence of engine malfunction due to use of fuels that are not suitable has noticeably increased over time. Usually, this situation occurs without the pilot's knowledge at the time the aircraft is refueled.

Actual damage to the engine from incorrect fuel may range from unnoticeable to severe damage or failure. Primary damage to the engine caused by incorrect fuel occurs in the combustion chambers and is usually characterized by increased cylinder head and oil temperatures resulting in tuliped intake valves and burned pistons. If detonation has been severe enough, further damage will occur to crank pins, main bearings, counterweights, and valve train components. The extent of damage varies accordingly as the duration of run, engine power level and the type of fuel consumed.

Any mixture of unapproved fuels and additive materials that result in a lower than specified octane rating can be harmful to the engine. For example, a blend of turbine fuel and piston gasoline can be a devastating mixture in a very short time. Refer to the latest revision of Service Instruction No. 1070 for a list of approved fuels and octane ratings for Lycoming engines.

Because of the many variables, it is impossible to determine the airworthiness of any Lycoming engine that has been operated with incorrect fuel, except by detailed inspection of the engine by qualified personnel. Therefore, after a Lycoming engine has been operated with incorrect fuel, regardless of the power setting or time of operation, Lycoming recommends:

1. Do not continue flight and engine operation with incorrect fuel.
2. Drain the aircraft fuel system until all fuel tanks are empty in accordance with the aircraft manufacturer's instructions.
3. If the aircraft manufacturer has a procedure for cleaning and/or purging the aircraft fuel system after the use of an incorrect fuel, follow the aircraft manufacturer's procedure. If there is no aircraft cleaning and/or purging procedure, service the aircraft fuel tanks in accordance with the aircraft manufacturer's instructions.
4. Disassemble, clean, do an overhaul inspection, and overhaul the engine in accordance with the Engine Overhaul Manual.
5. Reassemble and test the engine in accordance with the Engine Overhaul Manual.



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To prevent refueling with incorrect fuel, Lycoming recommends the following steps:

1. Know what fuel grades are specified for your engine and their color code. Refer to the latest revision of Service Instruction No. 1070.
2. Do not accept any fuel that has a lower octane rating than the fuel specified for your engine in the latest revision of Service Instruction No. 1070.

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