



STANDARD PRACTICE MAINTENANCE MANUAL

SPARK IGNITED ENGINES

Technical Portions Accepted by the Federal Aviation Administration

6-5.6. Contaminated Fuel System Inspection

Engines described in this manual are certified for operation with the aviation fuel specifications listed in the Type Certificate Data Sheet (TCDS) located on the FAA web site. If the fuel tanks are filled with an improper grade of fuel but neither the aircraft boost pump nor the engine is operated with the improper grade of fuel, purge the fuel tanks according to the aircraft maintenance manual instructions. If the aircraft boost pump or the engine are operated with an incorrect grade of aviation fuel or jet fuel:

Procedure

1. Do not fly the aircraft.
2. Drain and purge the aircraft fuel system according to the aircraft manufacturer's instructions.
3. Remove the engine(s) from the aircraft according to the instructions in Section 5-1.
4. Disassemble, clean, and inspect the engine(s) according to instructions in the primary ICA (Section 1-1.1). Replace any cylinder, piston, piston pin, connecting rod or crankshaft exhibiting signs of detonation.
5. Reassemble and test the engine(s) according to instructions in the primary ICA (Section 1-1.1).
6. Install the engine(s) according to instructions in Section 5-2.

6-5.7. Foreign Object Contamination Inspection

Foreign Object Damage (FOD) occurs when material that wasn't included in the original design contacts (internally or externally) and contaminates the engine. FOD can increase friction, prohibit normal distance of travel, block oil passages, accelerate wear on contact surfaces or cause immediate catastrophic failure of components or the entire engine. FOD may be caused by external elements (i.e. sand, grit or metal shavings) or debris from fractured internal components such as an improperly torqued fasteners.

WARNING

Exercise strict housekeeping standards when performing aircraft and engine maintenance. Inventory tools before and after performing maintenance. When replacing engine parts, remove all remnants (safety wire, gasket material, o-rings, fragmented parts, etc.) of the removed part from the engine before installing the new part.

Procedure

1. Drain the engine oil and remove the oil sump from the crankcase.
2. Conduct a thorough inspection of the oil sump, crankcase, crankshaft, camshaft, cylinder walls and pistons for the presence of, or damage caused by foreign objects.
 - a. If damage is discovered or any portion of the foreign material is not accounted for: disassemble, clean, inspect, repair and assemble the engine according to instructions and service limits in the primary ICA (Section 1-1.1).

CAUTION: Disassemble and thoroughly inspect the entire engine before assembly and return to service following a foreign object contamination event. Minimum inspection requirements are provided in step b if the owner/operator determines no foreign material remains in the engine and elects to not perform a complete inspection. Continental assumes no responsibility for engine operation or airworthiness after a contamination event.

- b. If 100% of the foreign material is retrieved from the oil sump and no further material is discovered, clean the sump according to “Engine Cleaning” instructions in the Chapter 12; install the oil sump, service the engine oil and return the engine to service. Perform the next three oil changes at ten hour intervals to confirm lack of foreign material in the oil.
3. Correct discrepancies discovered during the inspection. Do not return the engine to service until the contamination is eliminated and appropriate repairs are made to correct any discrepancies discovered during the inspection.

6-5.8. Sticking or Stuck Valves

Engines operated infrequently or engines consistently serviced with fuel containing high levels of lead are prone to deposit buildup in the valve guide and/or the valve stem. If the condition is ignored, the buildup may lead to sticking valves, or valve train damage.

If one or more valves in the valve train are sticking:

CAUTION: Removing cylinder flange nuts relieves the through-bolt clamping force on the crankcase. Do not remove cylinder flange nuts from more than one cylinder at a time. Do not turn the crankshaft with through-bolt nuts removed. A rotational check will be performed after cylinder installation to verify crankshaft main bearing integrity in the crankcase.

1. Remove the cylinder from the engine according to the “Cylinder Removal” instructions in Section 10-6.1.1.
 - a. Remove the valve keepers, springs, seats, and valves from the cylinder according to the primary engine ICA.
 - b. Thoroughly clean the cylinder assembly and valve train components with mineral spirits according to the instructions in Section 12-1.1.
 - c. Perform a visual and dimensional inspection of the valve guides according to the service limits in the primary engine ICA.
 - d. Perform a visual and dimensional inspection of the valve face and stem according to the service limits in the primary engine ICA. Verify the valve stem runout is within service limits.
 - e. Perform a visual and dimensional inspection of the rocker arms according to the service limits in the primary engine ICA. If the rocker arms meet the service limits, perform a magnetic particle inspection on the rocker arms to verify the sticking valves did not stress the rocker arms.