TEXTRON Lycoming

Reciprocating Engine Division/
Subsidiary of Textron Inc.
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SERVICE INSTRUCTION

DATE: September 25, 1981

Service Instruction No. 1388C
(Supersedes Service Instruction No. 1388B)
Engineering Aspects are
FAA (DER) Approved

SUBJECT: Trouble Shooting of the 0-235 Series Engines.

MODELS AFFECTED: All 0-235 Series Engines.

TIME OF COMPLIANCE: Whenever the engine exhibits an unexplained reduction of static RPM or uneven operation.

There have been reports from the field of unexplained reduction of static RPM or uneven engine operation. It must be remembered that changes in temperature and altitude have a direct effect on engine power output which is normal.

The following steps can be taken to determine the cause of the unexplained reduction in static RPM or uneven operation so that corrective action can be accomplished.

1. Check induction air system for restrictions or dirty/clogged air filter.

2. Check alternate induction air (carburetor heat) for leaks and for proper positioning of the butterfly.

3. Check throttle and mixture control so that full travel is obtained at the carburetor.

4. Perform a magneto check at 2000 RPM maximum. Drop-off should not exceed 175 RPM and should not exceed 50 RPM difference between the right and left magneto. If magneto check indicates high drop-off or more than 50 RPM difference, accomplish steps 5 and 6 as required.

5. Check magneto to engine timing. Re-time if necessary. Consult Operator's Manual for correct timing mark for your installation.

6. Remove spark plugs, clean and check. Re-gap as necessary.

7. Check carburetor for over-rich or over-lean condition.

OVER-RICH - Run the engine at full throttle (maximum static RPM). Slowly pull mixture control towards idle cut-off and watch for an RPM increase. A rise of 0 to 75 RPM can be considered normal. Any rise above 100 RPM indicates a power loss due to over-richness. As the degree of over-richness increases, so does the power loss.

OVER-LEAN - If during the above check no rise in RPM is noted, or a rapid fall-off of RPM is noted; apply full carburetor heat. This will enrich the mixture. If the application of carburetor heat results in an RPM rise, the carburetor is over-lean.

In a case of over-rich or over-lean carburetor, corrective action should be taken immediately.

CAUTION

This check should be completed in a minimum amount of time to prevent engine overheating. It can normally be completed in two 30 second runs.

8. As this series engine employs solid tappet bodies, it is advisable to check the valve tappet clearance. The clearance should be .007 to .009 inch with the engine cold or .006 to .012 when the engine is hot. After the valve tappet clearance is recorded on all four cylinders, compare these figures with the clearance recorded at the last 100 hour inspection of the engine. If any of these figures recorded at this time are in excess of .015 inch more than the figures at 100 hour inspection, remove the push rod from that cylinder or cylinders and check for excessive wear or looseness of the ball end. Check the length of the push rod which should be no less than 11.531 inches long. Any push rod that shows excessive wear or looseness on the ball ends or is shorter than the specified length should be replaced.

NOTE

Engines with no previous recorded 100 hour inspection of the valve tappet clearance will use the figures of .019 inch for cold engine or .022 inch for a hot engine, to determine whether to inspect the push rod.

9. Check cylinder compression as stated in Service Instruction No. 1191.

10. Check the tachometer for correct calibration.

11. Check propeller for correct pitch, length and balance.

NOTE: Revision "C" changes the RPM limits in step 7.