

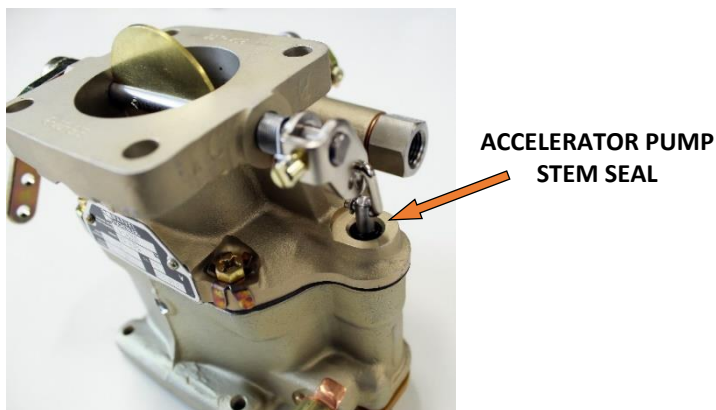


MSA PRODUCT IMPROVEMENT

New Polymer Accelerator Pump Stem Seal

Marvel-Schebler MA-3® and MA-4® series carburetors equip thousands of general aviation aircraft around the world.

A legacy issue with a small number of these carburetors was engine roughness when minor power changes were made during cruise flight. This happened because of an air leak past the accelerator pump push rod into float bowl.



When outside air leaks into the carburetor bowl it causes an increase in fuel flow. If the fuel flow increase is great enough, engine roughness will occur. Typically, adjusting the mixture clears up the roughness, but if the mixture needs adjusting with every little power change, it becomes a nuisance.

When the throttle is moved, forces applied to the accelerator pump rod change. If the seal is defective, the movement of the pump rod can cause an air leak between the seal and the rod.

Legacy carburetors used leather seals. Those seals could dry up, shrink, rot, split, or take on permanent deformation, causing them to leak excessively and, once deformed, the leather had very little ability to return to its original shape and make a good seal against the rod again.

Modern polymers do not suffer from the same problems as leather – at least not to the same extent. The material MSA used for its improved polymer seal is essentially immune to wear or deterioration in this application. Nearly three quarters of a million cycles were accumulated on the rod / seal combination during development of the new seal. No discernable wear or deterioration of the seal or rod was noted during these tests.

MSA pursues a relentless passion for continuous product improvement. Thus, we developed the new polymer seal to help eliminate the engine roughness problem described. The new seal achieved that goal. Since its introduction, reports of intermittent engine roughness concurrent with throttle changes have dropped to essentially zero.

MSA's tech support is always happy to help you with carburetor issues. If you are experiencing intermittent engine roughness when the throttle is moved, please contact MSA. We'd be happy to discuss the issue with you.

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