Cylinder Fuel Wash

There is a condition that contributes too many failures of rebuilt or re-rung engines generally referred to as "fuel wash". It is caused by engine flooding at initial startup or in early operation of a newly rebuilt engine. This phenomenon can cause very serious damage to the cylinder bores, pistons, and piston rings. When flooding occurs, either from a fuel system malfunction, or over fueling when the engine fails to start, the excess fuel washes the oil film from the rings and cylinder walls. At this point metal to metal contact occurs and scuffing takes place. This condition is similar to and also sometimes referred to as dry start. It is highly advisable for rebuilders and installers to follow a program of fuel system maintenance and ignition system installation checks to greatly reduce the chance of fuel wash. A suggested program is outlined below.

A carburetor rebuild is recommended at the time of engine rebuild. If not rebuilt, the carburetor should be encased in a plastic bag during engine overhaul. Before installing the carburetor, remove the fuel filter and direct a soft stream of air into the fuel inlet to ensure that no dirt or metal particles are in the needle and seat. Reinstall new fuel filters throughout the system. Blow off the fitting on the fuel line and carburetor, start the fitting straight by hand as cross threading will remove metal particles which can hold the needle and seat open and cause flooding.

Timing chain, distributor, and ignition system installation should be done in accordance with the engine manufacturer's manual. The engine lubrication system should be prelubed with a pressure tank.

An overhauled engine that has been correctly assembled will start almost immediately. If after a reasonable period of cranking the engine does not start, something is wrong!! At this point the compression, ignition, and fuel systems should be checked. If, for example, there is no spark, the fuel being drawn into the cylinders will reach a saturation point and wash the oil film, or severely dilute and thus weaken the film, and scuffing will occur.

In general, the combination of accepted shop practices cleanliness, good fuel system maintenance, and good common sense can all but eliminate this potentially serious problem.

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