Service Engineering Bulletin

Absolute Excellence

Payen
Sealing Mastery

SB2109

Identification of Dirt Contamination

Recognition of the source and if possible the type of abrasive dirt can help to prevent recurrence of the problem.

If wearing surfaces are scratched or have a matt or sand blasted appearance, it is probable that the engine has been contaminated by dirt. If the scratches are deep, the dirt particles will have been relatively large.

If an engine has been assembled dirty, some wear or abrasions will be evident on many of the engine's components:

If dirt particles have been compressed between the crankshaft bearings and their housings, the bearing backs will be marked, and as foreign material cannot penetrate behind a bearing after assembly, the mechanic must have included the dirt.

Scratching and pock marking of the crankshaft bearings with less damage to other components suggests that dirt has been left in the oil galleries and released when the engine was assembled and started.

Foreign material or dirt may enter an engine via the air intake or with contaminated oil, past the valves or into the oil pan:

Dirt which enters past the valves will cause more damage to the compression rings and the upper ring lands than the piston skirt areas. In such cases, an examination of the air filter and connections between filter and engine may reveal the cause.

Dirt introduced with the lubricating oil tends to cause more damage to crankcase components and the lower portion of the pistons, leaving the piston upper lands relatively undamaged.

It may be impossible to differentiate between built in dirt and dirt introduced with oil unless dirt particles are found trapped between bearing and housings in which case the dirt was introduced during engine build.

Having established that abrasive dirt has damaged engine components, the only true cure is to thoroughly clean the engine and its components, replacing or re-machining as necessary. If the source has been established, education of the people concerned is the most effective way to prove that prevention is better than cure.

Federal-Mogul Aftermarket UK Ltd.
Greyhound Drive • Off Legrams Lane • Bradford • West Yorkshire • BD7 1NQ
Tel. (01274) 723481 Fax. (01274) 848282 Email. fma@eu.fmo.com