



## Erosion of Piston at Outer Ends of Piston Pin Hole

A hard object trapped in the space between the piston pin and the cylinder wall causes this type of damage. The rapid movement of the piston flings the object around in the confined space with sufficient violence as to erode the piston material. The effect is similar to prolonged shot blasting concentrated on to a small area.

Many types of foreign objects cause this type of damage such as small nuts, screws and even ball bearings trapped in the piston pin area. Take care to assemble an engine in a clean condition and without contamination.

However, the most common cause of this damage is a detached piece of a circlip or even whole circlip is. Over compression of a circlip will cause permanent deformation preventing it from springing back to its original shape. The clip will then not seat in its pin hole groove with sufficient force to retain it in operation. Over compression can also crack a circlip, which may fully fracture at some stage during service.

Tight small end connecting-rod bearings; out of line connecting rods or excessive crankshaft end float can all affect circlips by forcing the piston pin hard against one of the clips. A polished area on one end of a piston pin is a clear indication of such end thrust. In severe cases, the pin can hammer against a clip until it eventually dislodges. Piston erosion may then follow.

