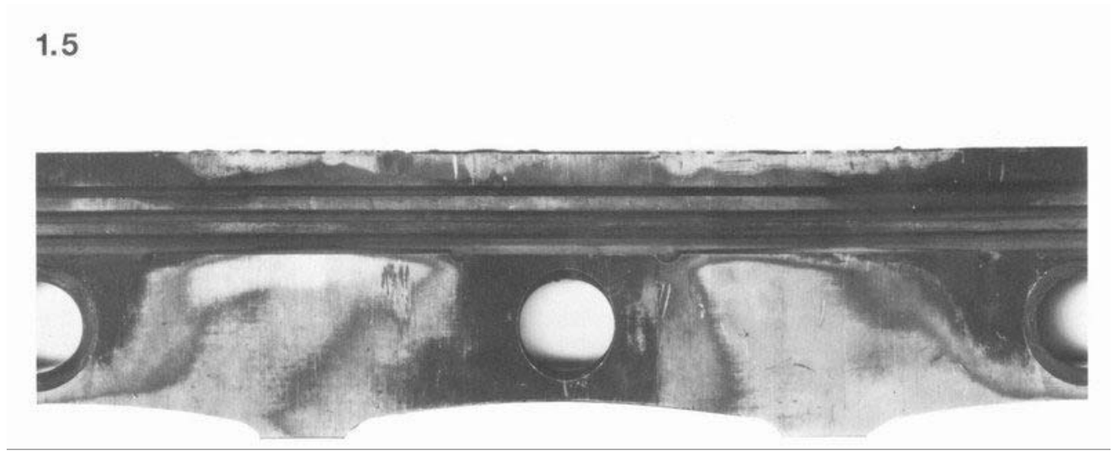

1 Piston Skirt

1-5 Oblique running of the piston Asymmetrical wear pattern

Symptoms

The developed view of the piston shows an area of hard bearing on the cylinder wall on one side.Above one pin bore,the top land has been blackened by oil carbon(at the extreme left and right of the photograph),whilst it is relatively clean above the pin bore in the centre of the picture,due to contact with the cylinder.The wear pattern on the skirt is oblique and displaced asymmetrically.Despite the ovality of the piston,it joins upat one side under the pin bore(Illustrated at the edge of the picture) at the lower skirt end..

Cause and Effect

Theoblique position of the piston may have the following causes:The gudgeon pin axis is not at the right angles to the connecting rod, or the connecting rod is not properly aligned, or the crankshaft is incorrectly mounted in its bearings.This produces various results:Under these conditions,the piston rings do not run-in well.This causes compression and power losses.It is also possible for hot combustion gases to blow past the rings,destroying the oil film on the cylinder wall,and producing dry running and piston seizures.

The oblique position of the piston causes the rings to flutter during up and down strokes,This produces a pump effect,with high oil consumption.The obliquity also produces an axial thrust on the gudgeon pin.The gudgeon pin circlip may wear or be forced out(the consequences of this aredescribed in 4.5)

Because of the many quality-control inspections which are carried out during manufacture,the possibility that the gudgeon pin axis and the piston axis are not at right angles is excluded.

Remedy

Ensure that the components of the driving gear are correctly aligned during assembly.Check the angular position of the connecting rods,After assembly,use a feeler gauge ar TDC and DBC to check the gap in the direction of the gudgeon pin.Especially with air-cooled single-cylinder engines.be sure to tighten the long cylinder studs equally.