



## Piston Pin circlip failures

There are three main types of circlips used to retain piston pins:

**Fig. 1 - Round wire circlip**

**Fig. 2 - Rectangular**

**Fig. 3 - Seeger type circlip**

The most common cause of failure of all three is due to over-stress when fitting. Only compress a circlip just enough to slip into the piston pin boss. Never butt the ends, as this will overstress the circlip causing cracking or loss of tension.

Always use circlip pliers of the correct type, particularly when fitting the Seeger type of circlips. Most Seeger type circlips have metric sized holes for the pliers.

Never twist a circlip when fitting. The circlip must enter the pin bore groove squarely and be under sufficient tension when fitted to prevent finger pressure rotation.

Install the circlip with the open end of the circlip towards the bottom of the piston. Never position the open end to either side of the vertical axis under any circumstance. During operation the reciprocating forces could compress the clip dislodging the ends to from the groove.

Never reuse circlips previously used in service. However, it is possible to reuse "transit" clips that hold the piston pin in place before initial fit into the engine. Take great care to avoid damage when removing and refitting the transit circlip when installing the piston onto the connecting rod.

Other causes of circlip displacement and ultimate engine failure are, e.g.:

- Tight small end connecting rod bearings
- Out of line connecting rods
- Excessive crankshaft end float .... etc.

**Fig. 1**

Round wire circlip



**Fig. 2**

Rectangular circlip



**Fig. 3**

Seeger type circlip

