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# TECH

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# MAHLE

*TECH INFORMATION FROM MAHLE CLEVITE INC.*

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## **PISTON PIN FIT – CUMMINS ENGINES**

Customers occasionally question Clevite's practice of fitting piston pins with a clearance fit in pistons for Cummins engines where Cummins uses a tight fit. Clevite uses a select fitting procedure to fit piston pins to pistons. This results in a clearance of .0002 to .0004" at room temperature. Cummins employs a line to line fit (zero clearance) at room temperature. This means that Cummins pistons and pins are essentially the same size, and requires that the piston be heated to expand the pin hole to allow installation of the pin. Clevite believes that this unnecessarily complicates the installation process without improving performance.

At engine operating temperature, the piston expands to provide approximately .003" clearance between the piston and pin. The .0002 to .0004" initial clearance provided at installation in the Clevite pistons becomes insignificant at engine operating temperature.

Clevite has employed this same pin fitting practice on pistons for Cummins and other engines for many years. A review of our service history over a period of more than ten years shows we have never encountered a failure in a Cummins engine as a result of our pin fit. At the same time Clevite pistons provide an easier, less complicated piston to connecting rod assembly procedure which reduces the chances of damage to the parts. We feel this is an improvement.

A review of Cummins service specifications reveals that the piston and pin dimensions allow up to .00025" clearance for new parts and up to .0015" clearance for used parts. Although some users have expressed concern regarding noise from the .0004" clearance pin fit, it can be seen that factory specs allow reuse of parts with almost four times the maximum employed by Clevite. It should also be noted that other engine builders utilize pin fits in excess of .0010" clearance in new production engines. We can therefore state with confidence that Clevite's pin fit will not result in any detectable increase in engine noise level.

It is important to note that Clevite piston pins are identical in size to Cummins. Pins are therefore interchangeable and no difference will result in fit to the connecting rod bushing.

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For further information contact:

**MAHLE Clevite Inc.** • 1240 Eisenhower Place • Ann Arbor, Michigan 48108-3388 U.S.A. • [www.mahlecle vite.com](http://www.mahlecle vite.com)