

Technology Forecast

Building a Better Engine Out of Thin Air

Air could help build better engines. With special gauges, automakers inject air into an engine and measure how much air escapes. This information is used to figure the engine's exact displacement. Such data is needed because today's micrometers are not always used correctly. Engine machining tools wear as they are used, so no two engines are completely alike.

Having exact measurements is important to the factory worker, who pairs the engine with a number of mass-produced components. These parts must then be installed as precisely as possible. Knowing the engine's true dimensions makes this job easier.

Using this new measuring technique would provide pistons with an almost tailor-made fit. Benefits include quieter operation, smoother power delivery, and lower exhaust emissions. Also, a piston with tighter clearances can be equipped with low-tension piston rings. Power and fuel economy improve, and engine wear drops.

This technique will present a challenge to the service industry. To restore an engine to its original specifications, technicians will need the same training and tools as the factory workers. Otherwise an engine may have to be replaced as a unit.

Action Activity

Use the Internet and other sources to find information about this measuring technique. How will the displacement in the engine be measured? What kind of tools and equipment will be needed? Do you think this technique will soon replace traditional methods? Why or why not?