Research@ SMS: Innovative Design for Motorcycle Engines Powered by Compressed Air

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Dated: Jul 03, 2010

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SMS IT Lucknow has made a stride in innovating in the motor cycle engines.This aspect was given by the two personality involved in research in SMS IT.Most motorcycles in the world today use engines that burn gasoline, contributing to greenhouse gasses and adding air pollution to the surrounding area. Now two scientists in India have conceptually designed a new, cleaner motorcycle engine that uses compressed air to turn a small air turbine, generating enough power to run a motorcycle for up to 40 minutes.

Their design, described in a recent issue of the Journal of Renewable and Sustainable Energy, could be combined with a compressed air cylinder as a replacement for traditional internal combustion engines. In areas where motorcycles are a major source of public transportation, such a technology could cut emissions substantially if widely implemented.

According to Bharat Raj Singh, one of the two authors on the paper and a researcher at the SMS Institute of Technology in Lucknow, India, some 50 to 60 percent of present emissions in some areas could be reduced with the new technology, though a number of technical challenges remain. Designing a compact but high-capacity air tank to store sufficient "fuel" for long rides is a major hurdle. Existing tanks would require someone to stop about every 30 km (19 miles) to swap tanks.
Here is an excerpt from white paper which has been published JRSE (Journal of renewable & sustainable energy) by these 2 Indian Engineers:
The use of compressed air for running prime mover such as air turbine offers a potential solution to these issues as it does not involve combustion in producing shaft work. The great advantages such as availability of air as fuel and the absence of emissions are also apparent from air motors.
Compressed air driven prime movers are also found to be cost effective compared to fossil fuel driven engines. Such prime movers have perennial compressed air requirement, which needs some source of energy for running the compressor.
The overall analysis shows that the compressed air system is quite attractive option for light vehicle applications.

The article, "Study of the influence of vane angle on shaft output of a multi-vane air turbine" by Bharat Raj Singh and Onkar Singh was published May 6, 2010 in the Journal of Renewable and Sustainable Energy.

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