Engine for tomorrow

KSIDC helps patent holder develop multi-fuel engine

He wanted to reinvent not the wheel, but the way it is rotated.

So when Das Ajee Kamath, an alumnus of the Regional Engineering College (now NIT), Durgapur, came out with an internal combustion engine with variable compression ratio instead of the fixed one, he invented not just another rotation. A revolution instead.

For beginners, an internal combustion engine works like this: fuel is mixed with compressed air and ignited in a chamber. As the mixture explodes, the pressure in the chamber increases, pushing a piston down within the chamber. As the piston is pushed down, the crank rotates, and this motion is transmitted to rotate the wheel.

When the air in the chamber is compressed, its temper-ature increases, making combustion possible. The compression ratio is fixed depending on the nature of the fuel. It is 7:1 for a petrol engine because petrol ignites fast, compared with 21: 1 for the less volatile diesel. A fuel has a fixed compression ratio; conver-sely, a fixed ratio engine can burn only one fuel.

Kamath did not quite like this fixation with the fixed ratio. He posited the theory that if we can make a chamber in which one can change the compression ratio by external manouevring, we can use any fuel we want. It will also improve the thermal (fuel) efficiency.

His search for materialising this idea has given birth to the Rotary Variable Compression Ration (RVCR) apparatus. Working in workshops in Kochi, he achieved the variable compression ratio by providing angular variation between vanes before combustion.

He designed the rotary engine to convert the explosive force directly to rotary motion, thereby eliminating the vertical motion used in conventional engines. This results in the engines, without pistons, gudgeon pins, connecting rods etc reducing the size considerably. The engine that operates on either two stroke or four stroke cycles will now operate on single or two stroke.

Another improvement is the elimination of slapping of piston on liner as the piston or vane is hinged to a sleeve. This results in reduced wear and tear, vibrations, and offers improved life.

The bottomline: Kamath's engine can run on any fuel such as petrol, LPG or diesel, offers better fuel efficiency, is quieter, cleaner and has longer life.

Kamath, a Merchant Navy Chief Engineer, has been granted the patent in India. The European Patent Office has confirmed his invention for novelty, inventive step, and most importantly its Industrial applicability through the Internati-onal Preliminary Examination Report.

Kamath says he got timely assistance from KSIDC which sanctioned Rs 5 lakh for producing a prototype. "The proactive attitude of KSIDC helpedme a lot," Kamath said.

"We decided to support Kamath because we found that his new engine is a futuristic product," said KSIDC deputy general manager T. A. Krishna Murthy. "We have an angel funding scheme through which we extend financial support to innovators who can translate their ideas into products with a demand in the future," he said. KSIDC has assisted several other units also he said.

Kamath is ready to join hands with organisations to see that the engine finally rotates the wheel in a different way. Any takers?

Mail him to ajee.kamath@gmail.com

THE PROMISE

Variable Compression Ratio

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A multi fuel engine

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Quieter, cleaner engine with longer life

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Substantial improvement in fuel efficiency