

New Valve for modified two stroke engine⁴⁵

CONSOLATION

D. Subramanian(36) belongs to Chennimalai, Erode district, Tamil Nadu. He is a weaver by profession, though his family is involved in farming. Subramanian has studied upto the tenth standard. He has always been interested in research. He was awarded the Tamil Nadu Scientists' award for the year 1999 in the discipline of Non Formal Education for his work on the "Fuel Efficient Two-Stroke Engine" by the Tamil Nadu State Council for Science and Technology. This innovation was also published in 'Dinamalar', a leading Tamil Daily in 1999. He thanks his friends Nallasivam, Lokanathan, Kumarapuri Govindarajan and Dandapani who have helped and assisted him in his ventures in many ways.

Genesis Petrol engines of two wheelers function under two systems, namely, two-stroke and four-stroke system. There are two valves in the four-stroke engine. The first valve draws in the petrol-air mixture and closes. The second valve sends only the smoke out and closes. So there is no wastage of petrol in the four-stroke engine. But in the case of the present two-stroke engine, the petrol-air mixture is drawn from the carburettor to the cylinder. The passage from the carburettor to the cylinder and the smoke outlet are located at the same place. Under this system, the petrol-air mixture is drawn in and the smoke is sent out at the same time. So there is a possibility of a leakage of the petrol-air mixture. This leads to environmental pollution. This made Subramanian think of some solution which would make the two-stroke engine more efficient and this led to the development of the valve for the modified two-stroke engine.

At present Subramanian has all the components for manufacturing single valve type engine. To demonstrate the working of the valve, a TVS 50 moped is

required and to demonstrate the working of the two-valve engine he has developed, a TVS Suzuki, Yamaha, Bajaj or any other 100cc motor cycle is required.

The innovation

In the modified two-stroke engine, an outlet valve has been constructed on the top of the cylinder. The innovator claims that the outlet valve timing is controlled by the rotary movement of the camshaft. The outlet valve facilitates complete drain-out of burned gases. Thus by the time fresh charge enters the cylinder, the valve closes. Thus there is no possibility of leakage of the petrol mixture. Due to controlled emission of smoke, atmospheric pollution is reduced and the engine has better fuel efficiency as the wastage of petrol is minimised.

For two-stroke engines with more revolutions per minute (rpm), two valves should be fixed at the top of the cylinder to regulate emission of smoke. These two valves will work alternately and ensure protection of the environment as well as reduction of petrol consumption.



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Dr. P.S.S Srinivasan, Head of the Department, Mechanical Engineering, at Kongu Engineering College, Perundurai, Erode tested and approved this new valve for the modified two-stroke engine, developed by Subramanian, in August 2004.

Innovative mind

An earlier innovation of Subramanian's was a new metric system clock which he developed in 1998. In this clock, 100 seconds make one minute, 100 minutes are one hour and such 20 hours form a day. He believes that just as measures of length, weight etc., are based on the metric system, time will also one day be based on this system. He hopes that by accepting this system now, India can set the trend for others.

Keenly interested in projects of national importance, Subramanian had sent a letter to the President,

Dr.A.P.J. Abdul Kalam regarding "Easy ways and plans for connecting river waters." Subramanian's detailed plan which includes a new method of cutting canals and water diversion, claims to be easier to implement, and would save costs and time. He hopes his alternative approach might be taken up for detailed research and study.

Subramanian has also developed a new method of bio-gas production and its introduction earned him the Tamil Nadu Government's recognition. His new method differs from the conventional method in that it does not require a big cylinder and the tank is square, not round. Using this method, the automatic process of gas-pressure maintenance and continuous gas production are possible. Further the gas producing tank does not rust and is durable for many years. Subramanian exemplifies in many ways, the true spirit of innovation.