

October 2007

Mr. John Challen, Editor-In-Chief,
Engine Technology International Magazine
Abinger House, Church Street, Dorking,
Surrey RH4 1DF, UK

Dear Sir:

I am Walter Schmied, the inventor and builder of the Bonner Engine which was mentioned in your June 2007 Special Issue (Unusual Engines - Ray of light). I thank you for the article, which was very positive and showed a lot of engine experience on part of the writer. However, the article was not totally accurate in some instances, which is understandable. A totally accurate article would have required much more information than was available to the writer, and some of the details of the engine have changed.

One of the most important features responsible for the high efficiency and the widest usable RPM/power-setting range is the VCR (Variable Compression Ratio) feature of my engine. In the article titled "Internal Combustion Engineering" from one of your previous magazine issues, top engineers from major motor corporations explained what is desirable and what they are striving for in engine technology. Some quotes are: "The primary advances in engine design are coming in area of valve train and intake tract", and "Fully variable valve actuation at some point in the future is the holy grail. That is what engine makers will strive for, but it is a long way off in our estimation, given the cost and complexity of those solutions".

I agree with these quotes and the stated difficulties, given that they refer to conventional engine designs. However, my engine design incorporates every desirable feature that was alluded to in these quotes, and it does so in the following, very simple, inexpensive, and reliable way: The so called fixed pistons are actually moveable. They not only adjust the overall engine compression ratio, but at the same time regulate and control all aspects of a conventional intake tract and valve train (which I do not have). Specifically, intake port area and port timing are continuously varied with engine speed. At low RPM, the engine operates at maximum pressure ratio and the exposed port area is at minimum, along with minimum opening duration. At maximum power, the engine operates at its

lowest pressure ratio, and exposed port area and opening duration are at their maximum. This allows the engine to operate at its maximum efficiency over the entire operating RPM/power-setting range without the need for a power robbing setting device (butterfly valve).

The Bonner Engine incorporates additional features which were not revealed at the time of your magazine article's publication. For example, there no longer is an exhaust valve, which could have possibly limited the maximum achievable RPM. The valve is replaced by an innovative port design. The prototype engine now under construction (2 cylinders, 600 cubic cm total displacement, and an effective stroke of 65 mm) is expected to operate up to ten or twelve thousand RPM.

Perhaps the most intriguing aspect of my engine is that, despite being a two-stroke design, there is complete isolation between the fuel/air mixture and the lubrication system. The engine behaves like, and will burn as clean a four-stroke design.

The prototype engine is currently being assembled, and I anticipate firing it for the first time before the end of this year. I invite you to visit me, so that you may personally verify my claims for the Bonner Engine.

Sincerely,

Walter Schmied
Bonners Ferry, ID 83805 U.S.A.