

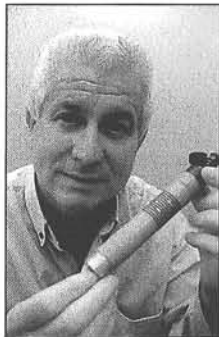
Aussie Injection Invention Creates 'Green Diesel'

It was built in the backyard of a Geelong engineer, cost around \$4 million to develop, looks something like a cigar cylinder, was awarded 'Invention of the Year' in 2003, and if fate and fortune smile on its inventor, may yet prove to play a major part in future diesel engine technology.

It's called 'Green Diesel' and is described by its inventor Ron Kukler as an in-cylinder, direct injection complete fuel delivery system that replaces an external fuel pump with combustion energy to inject fuel in two stages at immensely high pressures - 30,000 psi at the first stage and 60,000 psi at the second. In effect, it is an injector and fuel pump encased in the size and form of a somewhat unusual looking injector.

Additionally, Kukler explains the high injection pressures generate a low micron fuel droplet size that facilitates complete combustion and eliminates particulate matter - black smoke - to the point where it meets the USA's tough EPA 2010 emissions standards.

The big feature though is that the immense fuel injection pressures are developed without the use of an external fuel pump. As Ron Kukler explains in printed material, 'External fuel pumps are expensive and also use considerable



Ron Kukler and his Green Diesel injection invention.

engine horsepower,' thus providing the claim that his injection system is capable of delivering up to a 30 percent increase in horsepower, up to a 30 percent longer torque curve, up to 30 percent less fuel consumption, all while reducing particulate matter to US EPA 2010 standards.

Furthermore, he states that whereas most diesel fuel systems cost between 15 to 25 percent of the actual engine cost, his Green Diesel system represents between two and five percent.

Fuel, he continues, is delivered at a constant pressure drop throughout delivery, promoting smoother combustion and dramatically reducing vibration and harshness. The fuel system is hydraulically operated and electronically controlled using current engine management systems.

Finally, he asserts that while diesel engine manufacturers in the USA and Europe are meeting emissions requirements with expensive attachments to their engines, in most cases fuel consumption is reduced. This additional equipment, Ron Kukler says, is costing thousands of dollars which the consumer ultimately pays.