

Re: Water Fuel Rocket Science

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- *From:* Ian Stirling <root@xxxxxxxxxxxxxxxxxxxx>
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In article <1141785178.510082.125070@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx> you wrote:

Water contains hydrogen and oxygen. Liquid Hydrogen/Liquid Oxygen rocket engines burn these chemicals to produce water as a byproduct of combustion. Water is an extremely compact form of the two chemicals, saving a great deal of space over hydrogen by itself.

Water is also a stable form for water/oxygen, only igniting after having been separated and reunited.

<snip>

They can be separated with intense heat as proven by turbochargers on cars and engines of all sorts. I suspect, however, that only a tiny portion of the water mist is actually separated and reunited. This is because the total fusion of even a small amount of mist would instantly destroy most engines. Each molecule of water releases enormous energy on molecular fusion.

Okay...

How an internal combustion engine works.

There is no water mist injected.

It sucks air into the cylinder, which is mixed with fuel on the way in. Then the intake valve closes, and this mixture is compressed maybe 15 times as the piston rises, then ignited.

As the heated mixture expands, driving the piston down, and through the crankshaft the output shaft round, it cools, and comes out through the exhaust.

The exhaust gasses are pretty much the same as what happens when you burn petrol/diesel/... in an open flame. (more NoX because of the high temperature)

Because the exhaust gasses are much hotter (several hundred C), and because when you burn hydrocarbons, you get H₂O molecules as the hydrogen from the hydrocarbon, and oxygen combine, and CO₂ when the

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carbon and oxygen combine, which together have a greater volume than the incoming oxygen, the volume of output gas is higher.

A turbocharged engine adds a device called a turbocharger. This takes the exhaust gasses, and uses them to spin a turbine. The other half of this turbine compresses the air input into the engine.

Doubling the pressure into a cylinder means that you can burn double the amount of fuel, as you've got twice the amount of air. This (about) doubles the power, minus the power used to run the turbocharger.

The water/steam is formed during combustion of the hydrocarbon. It's formed at all times you burn it with oxygen. Just hold a cold metal plate over a lit candle, and you can see the condensation.

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