

Engine Modifications 100% PPO (HVP)

Allen Holman

ECOCAR.IE

Engine Modifications 100% PPO (HVP)

Different chemical formulation than Diesel
(Gazole)

Higher viscosity

Higher flash point (very low fire risk)

Excellent lubricant (no sulphur or other additives
necessary)

Operating Conditions required for PPO

Requirement to heat engine and fuel for correct starting and running.

Warm engine with warm fuel will run correctly.

Without modification engine will experience problems such as carbon build up and contamination of lubrication oil.

Also pressure damage to injections system is possible.

These can lead to eventual failure of the engine

Contamination of lubrication oil



Overcoming challenges of using PPO fuel

The potential problems can be avoided or minimised by making modifications and adjustments to the engine system.

This is generally done using one of the following methods.

Modifications 1 Tank System

Larger diameter fuel pipes

Hydraulic fuel heater

Electric fuel heater

Modified glow plugs

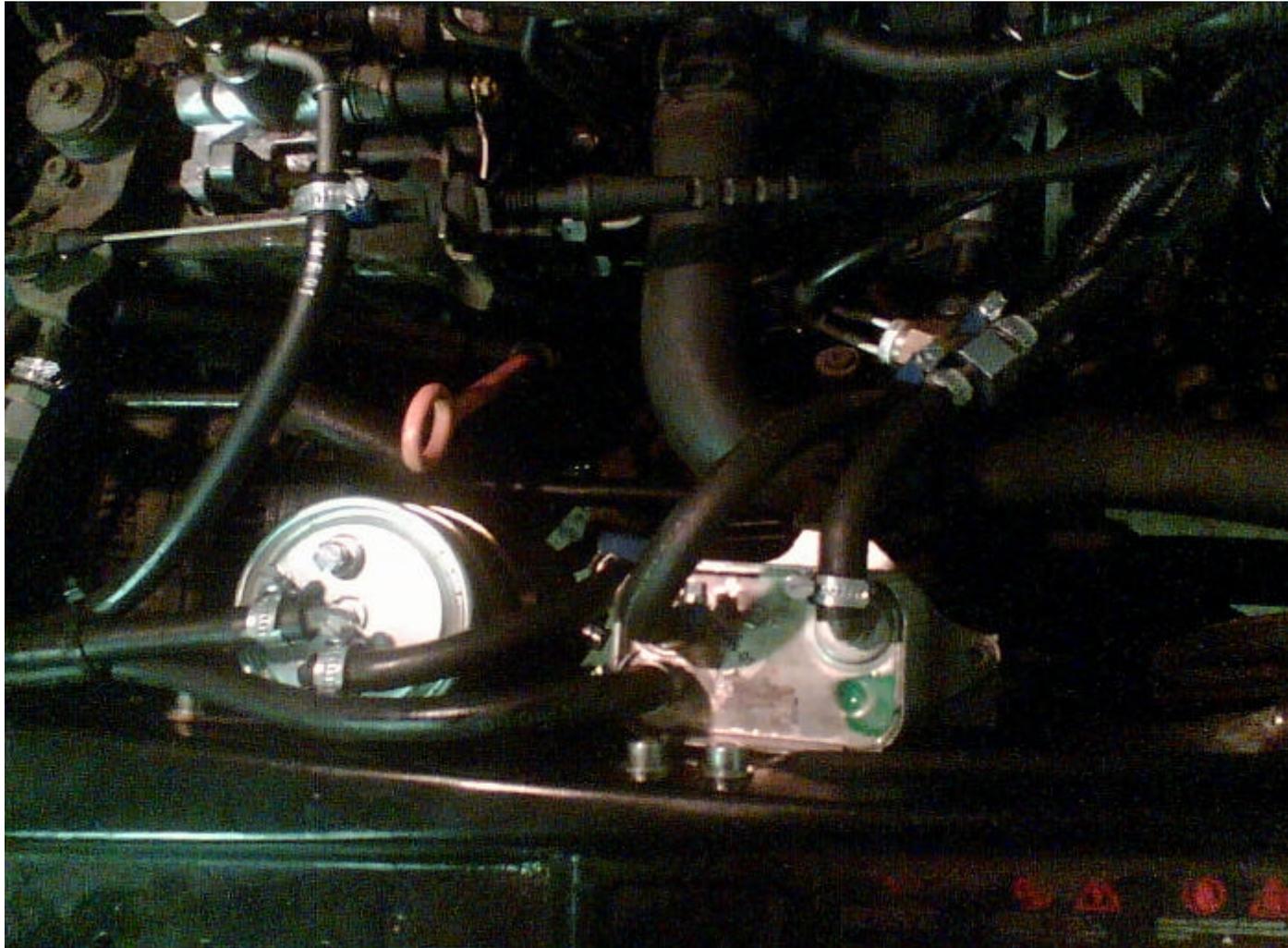
Extended heating time

Injection modification

Spare fuel filter

Typical Upgrade Components

Electric and hydraulic heaters



Modifications 2 Tank system with Diesel

Second fuel reservoir fitted for diesel fuel

Hydraulic fuel heater

Valve system to control fuel choice

Engine temperature protection

Suitable for modern engines such as Common Rail and Pumpe Duse

Working situations unsuitable for PPO

Low power requirement and extended periods of
idle time may cause excessive contamination of
lubricant

Very low ambient temperatures -15° C (diesel
must be added)

Vegetable Oil Lubricants

Using environmentally friendly, high grade engine lubricants produced from plant oils will help combat potential negative effects of PPO contamination of engine lubricants.

New Generation Fuel Systems

One tank systems for Pumpe Duse and Common Rail engines will be widely available.

This will require some mechanical modifications to assist fuel filtration

All other modifications will be reprogramming of engine computer.

Engine Manufacturers

Today engine manufacturers show very little interest in PPO fuel.

All advancements come from with after-market technology companies catering for the PPO market.

With oil resources declining I believe that this may change in the near future.

In the future new models may be available to use PPO from the factory.

2000km from Ireland with only PPO!

It really works!



Thank you

