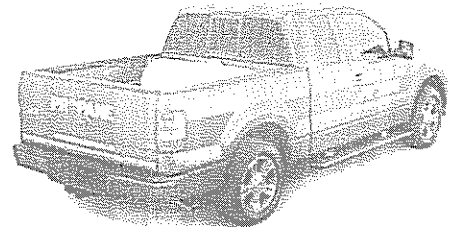


Roush Racing Propane Conversion Ford F150/250 5.4L with Tow Package

This material adapted from Roush web site by Dan Abbott.



Advantages

- Fewer Emissions than Gasoline or Diesel
- Lower Maintenance Cost
- Lower Operating Cost for Commercial Fleet Users (but not for me)
- Much safer than gasoline
- Easily transported as a liquid unlike compressed natural gas
- 97% Domestically produced helping to reduce dependency on foreign oil
- Reliable, safe, and built to OEM quality and specifications

Disadvantage: Requires more planning and delivers lower MPG (80% of gas energy)

Is propane use for motor fuel new?

- I converted a 1964 Ford Falcon to run on gasoline or propane in 1973 and drove it across the U.S. six times. Engine still in excellent condition after 126,000 miles.
- Propane (autogas) currently powers more than 10 million vehicles worldwide; from busses and taxis, to forklifts and light-, medium-, and heavy-duty trucks.

What's Different about Roush system?

- Liquid propane at the injectors rather than vapor
- Increase in power – 9800 pound towing capacity
- Full Ford warranty with Roush warranty on fuel system

Where does Propane Come From?

- By-product of oil refining and natural gas processing
- 90% produced in U.S.
- 7% produced in Canada

What does it cost?

- Conversion adds \$8000 - \$10,000 to cost of vehicle
- Can be purchased as a kit – not an easy conversion
- National average propane price is about 78% of gasoline
 - U-Haul price has varied from \$1.89 - \$4.50 per gallon in past 1.5 years
 - Current (3/15/2011) price is \$3.09/gallon in Portland, \$2.89 in Portsmouth

Are There Tax Incentives?

- \$2500 tax rebate on F150
- \$5000 tax rebate on F250
- Reimbursement to seller of \$.50/gallon pumped (not to owner)

Where can you refuel if you don't have your own tank?

- More than 2,500 fueling stations around the U.S
- Locally I get it at U-Haul
- Fleets normally purchase in bulk and pump their own propane.

What are the Environmental Benefits?

- Lower carbon content than gasoline, diesel, heavy fuel oil, and ethanol.
- Propane does not have the contaminants of some other fuels like diesel
- Reduce greenhouse gas emissions by 18 percent
- Create 20 percent less nitrous oxide
- Up to 60 percent less carbon monoxide
- Fewer particulate emissions than gasoline
- Propane itself is not a direct greenhouse gas
- Unlike natural gas, propane vapor is removed from the atmosphere faster than it takes for it to become well-mixed and impact the global climate.

Carbon dioxide released per Btu	
Fuel Type	Kg CO ₂ /million Btu
Natural Gas	52.8
LPG	62.7
Ethanol (E85)	66.6
Motor Gasoline	70.5
Kerosene	70.7
Distillate Fuel (Diesel)	72.5
Residual Fuel (Heavy fuel oil)	78.6
Bituminous Coal	92.7

On-site emissions estimates based on chemical composition of the fuel with 99 percent combustion.

Source: U.S. Department of Energy (DOE); 1994 DOE/PO-00283 Vol. 2 (October).

The greenhouse gas (GHG) calculations mentioned here were developed in a study commissioned by the Propane Education & Research Council (PERC) and conducted by Energetics Incorporated. Using the Greenhouse Gases, Regulated Emissions and Energy Use in Transportation (GREET) model recognized by the U.S. Department of Energy, the study reviewed the full lifecycle accounting (on-site and upstream) of GHG emissions resulting from the use of propane and other fuels in various market sectors. Comparisons of nitrous oxide and carbon monoxide emissions are taken from studies conducted by the World LP Gas Association and the California Energy Commission in January 2003. Data on particulate emissions comes from studies by the Southwest Research Institute.

Is it safe?

- Automatic shut-off of the filling process when the tank reaches 80 percent
- Propane fuel tanks are 20 times more puncture resistant than gasoline tanks
- Automatic shut-off valves in the case of a fuel line rupture
- Myth-Busters couldn't get a tank to explode (Google it on You Tube)