

Alternative **FUELS**

Volume 4, Number 1



Ford Liquefied Petroleum Gas-Powered F-700 May Set Sales Records

The introduction in 1992 of an American-made truck with a fully factory-installed/warranted liquefied petroleum gas (LPG) engine represents another “Ford first” in the alternative fuel arena. Now the company has introduced an LPG-powered F-700, a medium/heavy-duty truck. According to Tom Steckel, Ford’s medium-duty marketing manager, Ford’s latest sales figures already prove the alternative fuel F-700’s popularity. With a little more than 10 months of the model year finished, Ford has produced 1600 units and ordered 600 more, for a total of 2200 units. That’s triple the number of LPG units produced and ordered at the same time last year. In addition, the possibility of applying federal and state tax credits is being investigated.

Cummins B 5.9G Natural Gas Engine Debuts

Cummins Engine Company has started producing its B 5.9G six-cylinder natural gas engine, aimed at a truck market that ranges from pickups to trucks with a GVW of 20,000 lb. The engine, based on a 5.9-L diesel, produces 195 horsepower (hp) at a governed speed of 2800 rpm, and peak torque of 420 lb ft at 1600 rpm.



Photo courtesy of Ford Heavy Truck Marketing

Ford’s LPG-powered F-700 is proving popular

It is turbocharged, with charge air cooling, a watercooled turbocharger, and an electronically controlled wastegate. It utilizes a closed loop electronic control system with electronic energy ignition. Equipped with a suitable catalytic converter, Cummins says it will meet California Air Resources Board Ultra Low Emissions Vehicle standards. Cummins describes the combination of control systems used on the B 5.9G as second-generation technology.

INSIDE THIS ISSUE

- California Considers Fuel Specifications2*
- New Ultra-Safe LPG Fueling Nozzle2*
- CNG 18-Wheeler Proves Efficient.....3*
- Alternative Fuel Alliance Forms.....3*

The six-cylinder, two-valve-per-cylinder engine operates on a closely controlled lean-burn strategy that uses a higher air-to-fuel ratio than stoichiometric. This reduces oxides of nitrogen (NO_x) levels and results in lower fuel consumption. Cummins says the electronic closed-loop system is essential to maintain the lean burn strategy through a wide variety of operating conditions and variations in fuel quality. The B 5.9G follows the L10-240G natural gas engine, now widely used in trucks and buses. Slated for development are C8.3G and M11G natural gas-powered engines, all based on the equivalent diesels.



Photo courtesy of Vinyard Engine Systems, Inc.

This converted CNG engine performs efficiently and emits reduced levels of NO_x.

California Considers Compressed Natural Gas and Liquefied Petroleum Gas Engine Fuel Specifications

The California Division of Weights and Measures is soliciting industry input to help establish labeling and quality specifications for CNG and LPG sold as engine fuel. State law requires the agency to adopt and enforce performance and driveability standards for alternative fuels marketed for commercial use. Industry guidance is being sought to ensure the standards finally adopted will be compatible with national standards and no unusual regulations will be proposed.

Environmental Protection Agency to Take More Flexible Approach to State Clean Air Plans

A more flexible Environmental Protection Agency (EPA) policy on Clean Air Act implementation will continue to require states to commit to emissions reductions, but would allow delays in making additional reductions until emissions modeling becomes more definitive. In September 1994, the EPA said states could submit state implementation plans (SIPs) if they would meet only 80% of established emissions standards. A group of governors and state environmental leaders asked the EPA to rescind the 80% rule and approve ozone SIPs if the states provide a detailed strategy for meeting the goals. The new EPA approach will consider a 1995 SIP complete even if it does not completely meet the established emissions standards.

New Ultra-Safe LPG Fueling Nozzle Introduced

A new LPG refueling gas nozzle, the Sealmaster, has been introduced by Gogas Proprietary, Ltd., of Australia, a wholly owned subsidiary of Shell Australia. Some call the product the safest gas nozzle of its type in the world. The nozzle has a sliding seal designed to eliminate leaks caused by incorrect or loose connections and a ratchet interlock devised to prevent accidental unscrewing when the trigger is engaged. The Sealmaster is designed to stop all LPG discharge to the atmosphere during filling and to allow only a minimal discharge of gas from its safety vent holes after the tank is filled but before the nozzle is removed.

Compressed Natural Gas-Powered 18-Wheeler Operates Efficiently, Produces Low Emissions

A Cummins NTC 350-hp diesel engine, converted to dedicated CNG power by Vinyard Engine Systems, Inc., of San Antonio, Texas, performed efficiently while reducing NO_x emissions by more than 70%. The converted engine uses a state-of-the-art electronic technology (a closed-loop engine management system to equal diesel power and torque, while providing high efficiency and low operating temperatures. The truck is a 1985 Freightliner used by the Los Angeles County Sanitation District to haul waste sludge. Blue Skies NGV Conversion Co., of Ontario, California, performed the conversion with money made available by the South Coast Air Quality Management District.

Wisconsin Continues to Support Alternative Fuel Vehicles

The state of Wisconsin has made available more than \$180K to provide for the conversion of 99 vehicles for use by 17 municipalities. For this phase of the program, 32 will run on CNG and 67 on LPG. Since the program was started in 1991, more than \$660K has been granted for 345 alternative fuel vehicles. Participants are required to participate in user-convenience surveys, life-cycle costing, and emissions testing at the newly installed Alternative Fuels Laboratory at the University of Wisconsin Milwaukee. See *Alternative Fuels in Trucking*, Volume 3, Number 4.

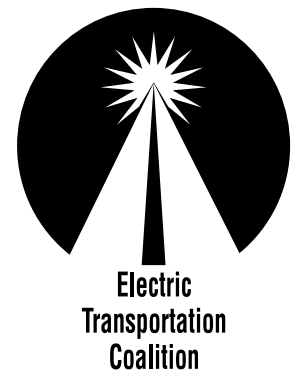
Alternative Fuel Groups Show United Front under Alternative Fuels Action

Individual alternative fuel organizations have formed an ad-hoc alliance, known as Alternative Fuels Action (AFA), to promote use of alternative fuels and to present a strong unified voice to Congress. Members include the Natural Gas Vehicle Coalition, the Propane Vehicle Council, the American Methanol Institute, the Electric Transportation Coalition, the American Soybean Association,

the Clean Fuels Development Coalition, and the American Biofuels Association. The AFA sent each member of Congress a letter stating that although individual members support specific alternative fuels, the nation as a whole will benefit from a reduced dependence on petroleum fuels. The key message to Congress is to keep the Clean Air Act and Energy Policy Act intact.



AMERICAN
METHANOL
INSTITUTE



CFDC
CLEAN FUELS DEVELOPMENT COALITION

Alternative **FUELS**

I N T R U C K I N G

Volume 4, Number 1

René Texeira, Editor

Linda Bolander, Graphic Designer

Alternative Fuels in Trucking is published quarterly by the National Renewable Energy Laboratory (NREL), a U.S. Department of Energy (DOE) national laboratory. The newsletter is written by the American Trucking Association Foundation's (ATAF's) Trucking Research Institute.

The aim of **Alternative Fuels in Trucking** is to inform fleet owners and operators, equipment suppliers, government officials, and other interested parties about important developments in the use of alternative fuels in heavy-duty trucks. Suggestions and comments are welcome and may be directed to the National Alternative Fuels Hotline at 1-800-423-1DOE. Views expressed by guest authors are their own, and not those of ATAF, DOE, or NREL.

NREL/TP-425-7630
Summer 1995



Printed with a renewable-source ink on paper containing at least 50% wastepaper, including 20% postconsumer waste



U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy
Office of Transportation Technologies