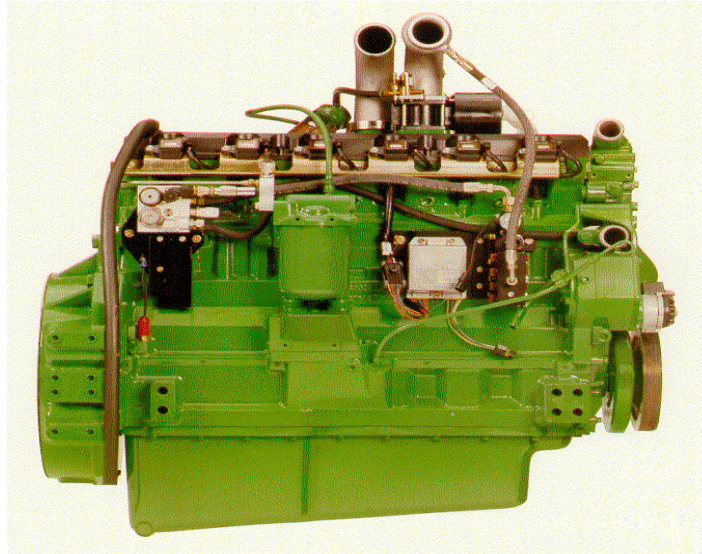


OH-1 Control System

for Heavy-duty, Lean-burn, Natural Gas Engines

Applications

Woodward's OH-1 control system is designed to control heavy-duty, lean-burn natural gas engines in urban buses and trucks and other alternative-fueled on-highway vehicles. The highly accurate closed-loop control system helps OEMs meet legislated emission levels, while maintaining diesel-like drivability and excellent fuel economy.

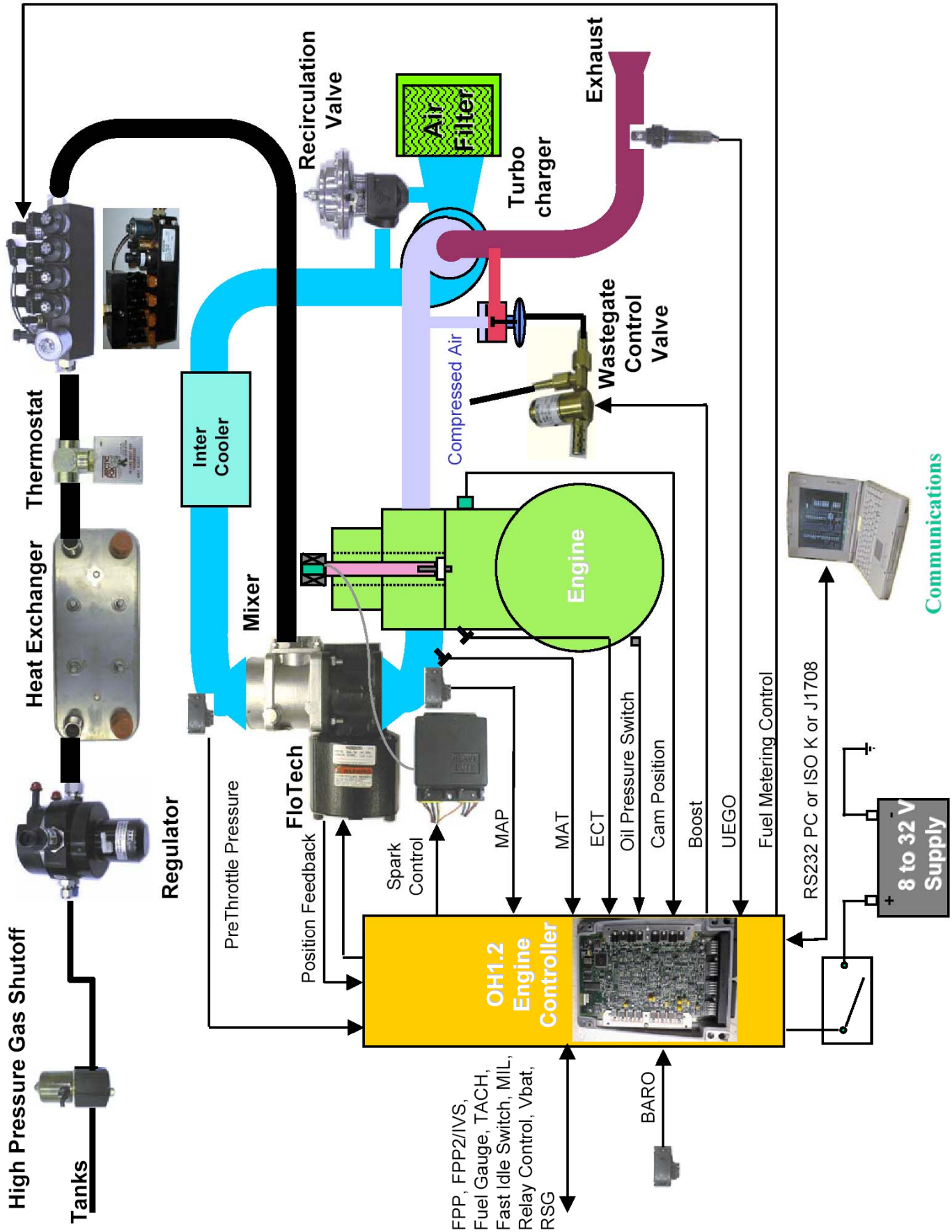


Key Technologies

This system is based on key technologies not available in other control systems on the market. These technologies include:

- **High Accuracy, Closed-Loop, Lean-Burn Control Strategy** results from using proprietary digital electronics and software technology that overcome the difficulties encountered with wide-range oxygen sensors (UEGO) in other systems available today.
- **Full-Authority Drive-by-Wire Strategy** is made possible by combining Woodward's Flo-Tech™ throttle and electronic wastegate actuator designs with advanced load control technologies that provide unmatched fuel economy, excellent vehicle drivability, and engine protection from turbo-overspeed and engine overboost conditions.
- **Precise Open-Loop, Fuel Control Strategy** has been designed into our system. The strategy combines additional key sensors and control algorithm technologies that improve the accuracy of volumetric efficient calculations. It also includes advanced manifold filling calculations for handling large transient speed and load changes that must be accommodated in heavy-duty, lean-burn, spark-ignited gas engine control systems.
- **Advanced Diagnostic Features** are a powerful tool for development engineers, as well as field technicians, when diagnosing engine or vehicle problems.
- **Model-Based Control Strategy** is used to compare actual engine operation with expected values.

- For urban buses & trucks and other alternative-fueled on-highway vehicles
- Helps meet legislated emission levels
- Improves fuel economy
- Diesel-like drivability
- Proven system
- Flexible configurations, available as a complete system or as components
- Complete systems engineering services
- Global engineering and service support



Typical OH-1 Layout

OH-1 Applications

Complete Systems

- Daewoo Heavy Industries 11 L
- Daewoo Heavy Industries 8 L
- Hyundai Motor Company 11 L
- John Deere 6.8 L
- John Deere 8.1 L
- Mack Trucks 12 L
- Mercedes Benz 5.9 L

OH-1 Components

- Cummins
- Detroit Diesel
- Mercedes Benz



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