

EPA Patents

Vehicles and Fuel Emissions

Patent #	Patent Title	Issue Date
13/637847 pat. pend.	Methods for Safe Operation of Hydraulic Hybrid Vehicles with Over-Center Pump/Motors	N/A
13/451587 pat. pend.	Raw Proportional Toxic Sampler for Sampling Exhaust	N/A
11/174391 pat. pend.	Multi-Stage Turbo Charging System With Efficient Bypass	N/A
10/887325 pat. pend.	Vehicle On-Board Reporting System for State Emissions Test	N/A
10/795797 pat. pend.	Efficient Pump/Motor With Reduced Energy Cost	N/A
8,407,999	Efficiency Turbocharged Engine System With Bottoming Cycle, and Method of Operation	04/02/2013
8,397,848	Hydraulic-Electric Regenerative Storage System For Plug-In Hybrid Motor Vehicles	03/19/2013
8,387,385	Efficient By-Pass Valve for Multi-Stage Turbocharging System	03/05/2013
8,356,985	Safe Over-Center Pump/Motor	01/22/2013
8,272,356	Two Mode Dual Crankshaft Engine	09/25/2012
8,104,436	Quasi Free Piston Engine	01/31/2012
8,069,657	Diesel Particulate Filter Regeneration System	12/06/2011
8,065,990	Low Emission Dimethyl Ether (DME) Engine	11/29/2011
8,061,121	Flex Fuel Internal Combustion Engine System	11/22/2011
8,055,432	Method and System of Transient Control for Homogeneous Charge Compression Ignition (HCCI) Engines	11/08/2011
8,011,600	Fuel Injector Nozzle	09/06/2011
7,866,204	Adaptive Real-Time Contaminant Detection and Early Warning for Drinking Water Systems	01/11/2011
7,644,585	Multi-Stage Turbo Charging System With Efficient Bypass	01/12/2010
7,464,697	High Pressure Fuel Intensifier System	12/16/2008
7,237,532	Methods of Operation for Controlled Temperature Combustion Engines using Gasoline-Like Fuel, Particularly Multi-cylinder Homogenous Charge Compression Ignition (HCCI) Engines	07/03/2007



7,047,933	Low Emission Fuel for Use with Controlled Temperature Combustion, Direct Injection, Compression Ignition Engines	05/23/2006
7,047,741	Methods for Low Emission, Controlled Temperature Combustion in Engines which Utilize Late Direct Cylinder Injection of Fuel	05/23/2006
7,032,385	Multi-Crankshaft, Variable-Displacement Engine	04/25/2006
7,025,042	Methods of Operation for Controlled Temperature Combustion Engines Using Gasoline-Like Fuel, Particularly Multicylinder Homogenous Charge Compression Ignition (HCCI) Engines	04/11/2006
7,024,858	Multi-Crankshaft, Variable-Displacement Engine	04/11/2006
6,962,090	Heated Stainless Steel Emissions Canister	11/08/2005
6,910,459	HCCI Engine with Combustion-Tailoring Chamber	06/28/2005
6,857,263	Low Emission Diesel Combustion System with Low Charge-Air Oxygen Concentration Levels and High Fuel Injection Pressures	02/22/2005
6,820,417	Exhaust Aftertreatment System and Method for an Internal Combustion Engine	11/23/2004
6,810,838	Individual Cylinder Coolant Control System and Method	11/02/2004
6,786,205	Hydraulically Intensified High Pressure Fuel System for Common Rail Application	09/07/2004
6,752,105	Piston-In-Piston Variable Compression Ratio Engine	06/22/2004
6,652,247	Fully-Controlled, Free-Piston Engine	11/25/2003
6,651,432	Controlled Temperature Combustion Engine	11/25/2003
6,582,204	Fully-Controlled, Free-Piston Engine	06/24/2003
6,470,682	Low Emission, Diesel-Cycle Engine	10/29/2002
6,301,888	Low Emission, Diesel-Cycle Engine	10/16/2001
6,216,462	High Efficiency, Air Bottoming Engine	04/17/2001
6,186,126	Phase Change Heat Engine	02/13/2001
5,609,131	Multi-Stage Combustion Engine	03/11/1997
5,562,079	Low-Temperature, Near-Adiabatic Engine	10/08/1996
5,549,087	Combined Cycle Engine	08/27/1996

