



Technical Highlights

Aftermarket Retrofit Device Evaluation Program

The U.S. Environmental Protection Agency (EPA) conducts a program to evaluate the effects of fully developed aftermarket devices on vehicle emissions and fuel economy. Participation in this program by manufacturers of devices is voluntary. EPA evaluations of engines, retrofit devices, emission control devices, and related products are conducted for the purpose of keeping policy makers, technical personnel in government and industry, and the general public abreast of developments in the field of automotive fuel economy and pollutant emission control.

Background

Aftermarket fuel additives and devices advertised to increase vehicle fuel economy and/or reduce vehicle emissions may claim to have EPA approval. EPA, however, does not approve, certify, endorse or register these products.

EPA evaluates aftermarket fuel additives and devices on a voluntary basis when an application is accepted from the company which manufactures the product. The Agency may also evaluate a product at the direction of the EPA Administrator or the Federal Trade Commission. Results of any evaluation are a matter of public record and are published in the Federal Register. All preliminary independent laboratory and EPA laboratory costs for a voluntary evaluation are paid for by the company offering the product. The evaluation program is restricted to fuel additives and devices and does not apply to oil additives and lubricants.

A minimum evaluation program employs the same type of scientific tests used by EPA to certify vehicles for sale in the United States. These are the Federal Test Procedure (FTP) and the Highway Fuel Economy Test

(HFET). Both involve controlled driving patterns on a laboratory test machine (a dynamometer) which simulates an actual road load condition and during which exhaust gases are captured and analyzed. Fuel economy for city and highway driving (FTP and HFET, respectively) is calculated using a carbon balance formula and the actual emission samples results which are the same methods used for calculating the city and highway fuel economy information displayed on windows of new vehicles.

EPA tests are conducted under very controlled conditions in a laboratory to eliminate uncontrollable variables such as individual driving habits, wind, weather, traffic and road conditions experienced with actual driving on roads. The make, model and year of vehicles used in an evaluation are selected to represent typical vehicles for which the device or additive is intended to be used.

The test vehicle's engine is first adjusted to the vehicle manufacturer's specifications and tested in this configuration to provide a base line. In the second stage the product is installed on the vehicle and the test is repeated. In the third stage the product is removed and the vehicle is reset to the original configuration of the first stage to determine whether use of the device affected original performance. Duplicate tests are conducted for each of the vehicle configurations.

EPA engineers report their findings based on the test data. The report is then published in the *Federal Register*. Individual copies of a test evaluation may be purchased from the National Technical Information Service (NTIS).

Product Evaluation

EPA has evaluated over one hundred products in this program. A listing of the products which have been tested (as of this publication's date) is attached to this document. The report number associated with each of the evaluated products may be used to purchase a copy of the report. Orders for the reports may be placed with:

NTIS
5285 Port Royal Road
Springfield, VA 22161
(800) 553-6847

It is suggested that individuals contemplating the purchase of these products request test data rather than testimonial or anecdotal evidence from the supplier. One should also weigh the cost of the product against the actual fuel savings over the intended use period.

For More Information

Additional documents on aftermarket product evaluations are available electronically from the EPA Internet server at:

<http://www.epa.gov/oms/consumer.htm>

For further information, please contact Russ Banush at:

U.S. EPA
Office of Mobile Sources
2000 Traverwood Dr.
Ann Arbor, MI 48105
(734) 214-4925

DEVICE AND ADDITIVE TEST LIST

<u>NAME</u>	<u>REPORT</u>	<u>SOURCE</u>	<u>TYPE</u>	<u>SUB TYPE</u>
ACDS Automotive Cylinder Deactivation System (2)	PB 81 228 256	NTIS	Internal Engine Modifier	
ADAKS Vacuum Breaker Air Bleed	PB 220 005	NTIS	Air Bleed Device	
Air-Jet Air Bleed	PB 220 002	NTIS	Air Bleed Device	
Analube Synthetic Lubricant	PB 80 181 985	NTIS	Oil/Additive	
Aquablast Wyman Valve Air Bleed	PB 81 113001	NTIS	Air Bleed Device	
Atomized Vapor Injector	PB 83 214 684	NTIS	Vapor Bleed Device	
Auto-Miser	EPA-AA-TEB-511-80-1	EPA	Air Bleed Device	
Autosaver	PB 81 220 840	NTIS	Ignition Device	
AUTOTHERM (1) (circulates coolant for heater)	PB 85 233 310	NTIS	Driving Habit Modifiers	
Ball-Matic Air Bleed	PB 80 159 429	NTIS	Air Bleed Device	
Basko Enginecoat	PB 82 123 837	NTIS	Mixture Enhancer	Other
Baur Condenser	EPA-AA-TEB-511-81-18	EPA	Ignition Device	
Berg Air Bleed	PB 218 574	NTIS	Air Bleed Device	
BIAP Electronic Ignition Unit	PB 218 647	NTIS	Ignition Device	
BRAKE-EZ	EPA-M-TEB-511-82-10	EPA	Miscellaneous	
Brisko PCV	PB 218 398	NTIS	Air Bleed Device	
Bycosin	EPA-AA-TEB-71-24	EPA	Fuel/Additive	
Cyclone-Z	PB 83 227 587	NTIS	Air Bleed Device	
Dresser Economizer	EPA-AA-TEB-511-82-6	EPA	Internal Engine Modifier	
Dresser Economizer	PB 84 155 936	NTIS	Mixture Enhancer	Other
Dynamix	PB 83 159 384	NTIS	Miscellaneous	
Econo Needle Air Bleed	PB 218 638	NTIS	Air Bleed Device	
Econo-Jet Air Bleed Idle Screws	PB 81 012 931	NTIS	Air Bleed Device	
Econo-Mist Vacuum Vapor Injection System	PB 80 190 952	NTIS	Vapor Bleed Device	
El-5 Fuel Additive	EPA-AA-TEB-76-28	EPA	Fuel/Additive	
Electro-Dyne Superchoke	EPA-AA-TEB-76-11	EPA	Mixture Enhancer	Other
Energy Gas Saver	EPA-AA-TEB-511-82-7	EPA	Mixture Enhancer	Under Carb
Environmental Fuel Saver	EPA-AA-TEB-511-80-3	EPA	Mixture Enhancer	Under Carb
Filtron Urethane Foam Filter	EPA-AA-TEB-74-23	EPA	Mixture Enhancer	Other
Frantz Vapor Injection System	EPA-AA-TEB-72-5	EPA	Vapor Bleed Device	
Fuel Conservation Device	PB 82 124 215	NTIS	Driving Habit Modifiers	
Fuel Economizer	PB 83 181 149	NTIS	Ignition Device	
Fuel Max (2)	PB 82 229 866	NTIS	Air Bleed Device	
Fuel Maximiser	PB 84 129 881	NTIS	Miscellaneous	
Fuelon Power	PB 93 236 693	NTIS	Fuel/Additive	
FuelXpander	PB 80 140 809	NTIS	Fuel Line Device	Heat/Cool
Gas Meiser I	PB 81 219 032	NTIS	Fuel Line Device	Heat/Cool
Gas Saving Device	PB 83 181 123	NTIS	Air Bleed Device	
Gas Saving/Emission Control Improvement	PB 83 181 123	NTIS	Mixture Enhancer	Under Carb

	<u>NAME</u>	<u>REPORT</u>	<u>SOURCE</u>	<u>TYPE</u>	<u>SUB TYPE</u>
	Gastell	PB 81 215 899	NTIS	Driving Habit Modifiers	
	Glynn-50	EPA-AA-TEB-511-81-28	EPA	Mixture Enhancer	Under Carb
	Goodman Engine System, Model 1800	EPA-AA-TEB-511-80-4	EPA	Liquid Injection	
	Grancor Air Computer	PB 82 215 899	NTIS	Air Bleed Device	
	Greer Fuel Preheater	PB 82168 949	NTIS	Fuel Line Device	Heat/Cool
	Gyroscopic Wheel Cover	PB 84 143 577	NTIS	Miscellaneous	
	Hot Tip	PB 83 181 156	NTIS	Air Bleed Device	
	Hydro-Catalyst Pre-Combustion Catalyst System	PB 81 153 827	NTIS	Mixture Enhancer	Under Carb
	Hydro-Vac	PB 84 144 088	NTIS	Vapor Bleed Device	
	IDALERT (1)	PB 84 1 54 111	NTIS	Driving Habit Modifiers	
	Jacona Fuel System	PB 83 159 301	NTIS	Fuel Line Device	Heat/Cool
	Johnson Fuel Additive	EPA AA-TEB-74-26	EPA	Fuel/Additive	
	Kamei Spoilers(1)	PB 83 211 243	NTIS	Miscellaneous	
	Kat's Engine Heater	PB 83 165 548	NTIS	Miscellaneous	
	Lamkin Fuel Metering Device	PB 80 177 272	NTIS	Mixture Enhancer	Other
	Landrum Mini-Carb	PB 82 142 100	NTIS	Air Bleed Device	
	Landrum Retrofit Air Bleed	PB 82 142 100	NTIS	Air Bleed Device	
	Lee Exhaust and Fuel Gasification EGR	EPA-M-TEB-74-14	EPA	Miscellaneous	
4	Magna Flash Ignition Control System	PB 218 570	NTIS	Ignition Device	
	Malpassi Filter King (fuel pressure)	PB 83 214 700	NTIS	Fuel Line Device	Other
	Mark II Vapor Injection System	EPA-AA-TEB-76-13	EPA	Vapor Bleed Device	
	Mesco Moisture Extraction System	PB 84 148 014	NTIS	Miscellaneous	
	Mini Turbocharger Air Bleed	EPA-AA-TEB-76-12	EPA	Air Bleed Device	
	Moleculetor (metallic)	PB 81 247 942	NTIS	Fuel Line Device	Other
	Monocar HC Control Air Bleed	PB 218 685	NTIS	Air Bleed Device	
	Morse Constant Speed Accessory Drive (1)	PB 80 159 601	NTIS	Accessory Drive Modifiers	
	MSU Cylinder Deactivation (2)	EPA-AA-TEB-75-11	EPA	Internal Engine Modifier	
	NRG #1 Fuel Additive	PB 80 226 558	NTIS	Fuel/Additive	
	Optimizer	PB 84 154 194	NTIS	Fuel Line Device	Heat/Cool
	P.A.S.S. KIT (1)	PB 83 194 381	NTIS	Accessory Drive Modifiers	
	P.S.C.U. 01 Device	PB 84 146 166	NTIS	Miscellaneous	
	Paser Magnum/Paser 500/Paser 500 HEI	PB 82 183 567	NTIS	Ignition Device	
	Pass Master Vehicle Air Conditioner (1)	PB 82 178 534	NTIS	Accessory Drive Modifiers	
	Peterman Air Bleed	EPA-AA-TEB-74-16	EPA	Air Bleed Device	
	PETRO-MIZER	PB 83 181 115	NTIS	Fuel Line Device	Magnet
	PETROMIZER SYSTEM	PB 81 227 043	NTIS	Mixture Enhancer	Under Carb
	Platinum Gasaver	PB 92 104 413	NTIS	Vapor Bleed Device	
	POLARION X	PB 83 175 752	NTIS	Fuel Line Device	Magnet
	POLARION X (second evaluation)	PB 86 127 107	NTIS	Fuel Line Device	Magnet

	<u>NAME</u>	<u>REPORT</u>	<u>SOURCE</u>	<u>TYPE</u>	<u>SUB TYPE</u>
	Pollution Master Air Bleed	PB 218 438	NTIS	Air Bleed Device	
	POWERFUEL	PB 84 148 543	NTIS	Vapor Bleed Device	
	QEI 400 Fuel Additive	EPA-M-TEB-76-8	EPA	Fuel/Additive	
	Ram-Jet	PB 80 170 657	NTIS	Air Bleed Device	
	Rolfite Upgrade Fuel Additive	PB 80 190 960	NTIS	Fuel/Additive	
	Russell Fuelmeiser	PB 83 181 131	NTIS	Fuel Line Device	Heat/Cool
	Sav-A-Mile	PB 82 197 417	NTIS	Mixture Enhancer	Under Carb
	SCATPAC Vacuum Vapor Induction System	PB 81 153 819	NTIS	Vapor Bleed Device	
	Smith Power and Deceleration Governor	PB 80 173 867	NTIS	Mixture Enhancer	Other
	Special Formula Ignition Advance Springs	EPA-AA-TEB-75-13	EPA	Ignition Device	
	Spritzer	EPA-AA-TEB-74-15	EPA	Mixture Enhancer	Under Carb
	Sta-Power Fuel Additive	PB 218 567	NTIS	Fuel/Additive	
	Stargas Fuel Additive	P8 218 568	NTIS	Fuel/Additive	
	Super-Mag Fuel Extender	PB 82 194 937	NTIS	Fuel Line Device	Magnet
	SYNeRGy 1	PB 82 122 169	NTIS	Fuel/Additive	
	Technoi G Fuel Additive	PB 219 396	NTIS	Fuel/Additive	
5	Tephguard	no number report	EPA	Oil/Additive	
	Treis Emulsifier	PB 82 109 711	NTIS	Miscellaneous	
	Turbo Vapor Injection System	EPA-AA-TEB-73-22	EPA	Vapor Bleed Device	
	Turbo-Carb	PB 83 159 939	NTIS	Mixture Enhancer	Under Carb
	Turbo-Dyne G.R. Valve	PB 285 381	NTIS	Air Bleed Device	
	Turbocarb	PB 84 156 462	NTIS	Mixture Enhancer	Under Carb
	ULX-15/ULX-15D	PB 81 226680	NTIS	Fuel/Additive	
	V-70 Vapor Injector	PB 84 163 062	NTIS	Vapor Bleed Device	
	Vareb10 Fuel Additive	EPA-M-TEB-74-30	EPA	Fuel/Additive	
	VEECD (Now EVECTM) (3)	PB 97 193 999 INF	NTIS	Air Bleed Device	
	Waag-Injection System (2)	EPA-AA-TEB-511-80-6	EPA	Liquid Injection	
	Wickliff Polarizer (fuel line and air intake)	PB 82 117 898	NTIS	Fuel Line Device	Magnet
	XRG #1 Fuel Additive	PB 80 180 672	NTIS	Fuel/Additive	

(1) Indicated a statistically significant improvement in fuel economy without an increase in exhaust emissions although cost effectiveness must be determined by the consumer for his particular application.

(2) Indicated a statistically significant improvement in fuel economy but with an increase in exhaust emissions. According to Federal Regulations, installation of this device could be considered tampering.

(3) Reduced carbon monoxide and hydrocarbons on older emission control technology vehicles.