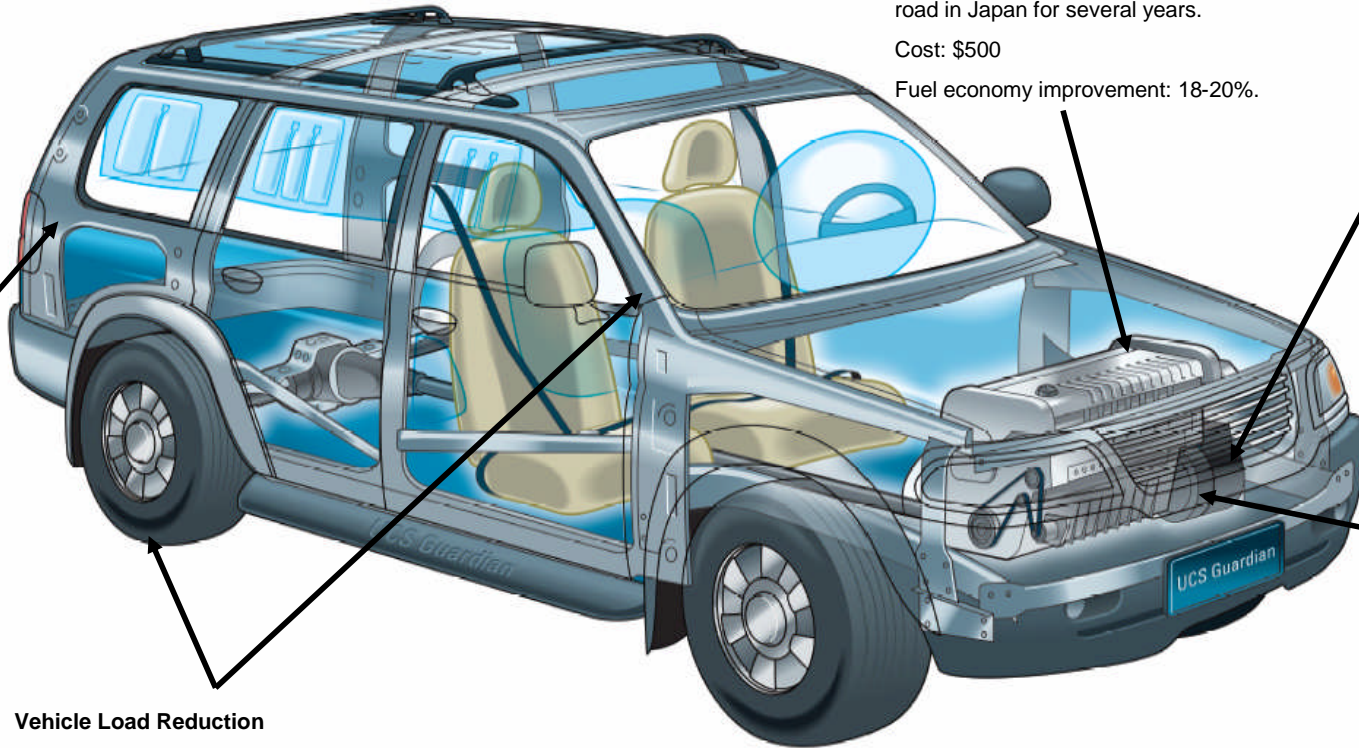


# The UCS Guardian XSE



## Unibody Construction & Better Materials

A combined body and frame reduces the number of parts needed, saving money. Unibody construction using high-strength steel and aluminum reduces weight and enhances safety while improving stiffness for towing.

Jeep Grand Cherokee and Honda Pilot use unibody construction and some high strength materials. Significant high strength aluminum used in some Jaguar and Audi vehicles.

Cost: \$1,000.

Fuel economy improvement: 25-30%.

## Vehicle Load Reduction

A smoother, lower body with redesigned mirrors improves aerodynamics. Lower-rolling resistance tires with better design and materials save fuel and maintain good traction. Accessories are more efficient, for example, electric power steering replaces mechanical system.

Improved aerodynamic features can be seen in many vehicles on the road. Lower-rolling resistance tires available on some hybrids and past electric vehicles. Electric power steering available in several hybrids, the Chevrolet Malibu and Saturn Vue.

Cost: \$260.

Fuel economy improvement: 5-7%.

## Efficient 6-Cylinder Gasoline Engine

Low-friction lubricants, four valves per cylinder, variable valve control, increased compression ratio and direct injection reduce engine friction and pumping losses and improve combustion efficiency. Delivers 0-60 mpg acceleration in under 9 seconds.

Mitsubishi, Toyota and Nissan have had similar engines on the road in Japan for several years.

Cost: \$500

Fuel economy improvement: 18-20%.

## 6-Speed Automatic/Manual Transmission

Added gears help the engine operate more efficiently. Eliminating the torque converter means less power lost while driving and cuts down on cost.

Available on several VW and BMW vehicles.

Cost: \$100.

Fuel economy improvement: 8-12%.

## Integrated Starter-Generator

Allows the engine to shut off at stoplights and in stop-and-go traffic. Restarts the engine when you take your foot off the brake.

Available on the GMC Sierra and Chevy Silverado, soon on Saturn Vue.

Cost: \$700.

Fuel economy improvement: 8-11%.

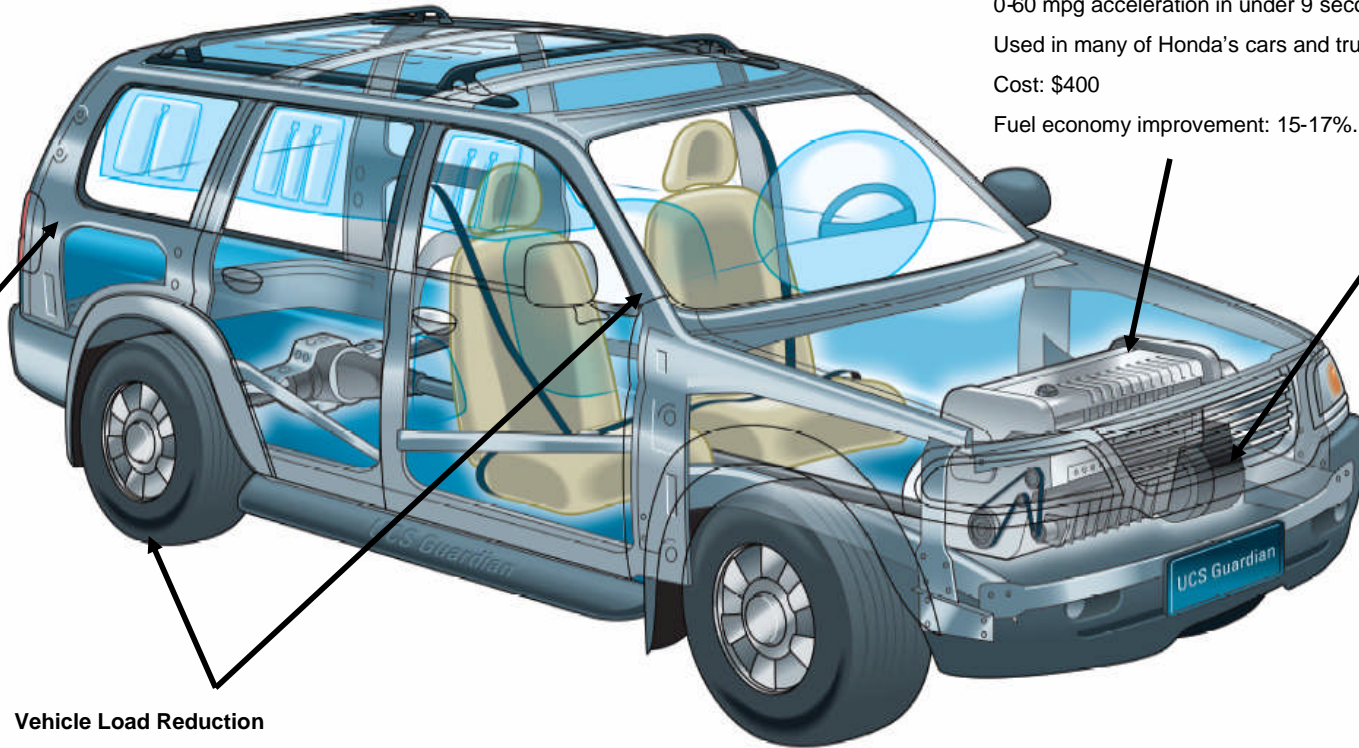
	UCS Guardian XSE*	Ford Explorer (Baseline)
Combined City/Highway Fuel Economy on Window Sticker	30 mpg	17 mpg
Lifetime Fuel Costs**	\$11,400	\$19,700
Lifetime Fuel Cost Savings	\$8,300	N.A.
Technology Cost	\$2,560	N.A.
Payback	2.9 years	N.A.

\* Based on analysis by the Union of Concerned Scientists (UCS).

\*\* Lifetime fuel costs based on \$2.50 per gallon of gasoline, typical lifetime of 15 years, and a 5% real discount rate (equivalent to a 7% car loan).

**NOTE: Individual fuel economy improvements are not additive, overall improvement is lower than the sum of the parts.**

# The UCS Guardian



## Unibody Construction & Better Materials

A combined body and frame reduces the number of parts needed, saving money to pay for added high-strength steel which reduces weight and enhances safety while improving stiffness for towing.

Jeep Grand Cherokee and Honda Pilot use unibody construction and some high strength materials. Additional high strength materials in use on Audi and Jaguar vehicles.

Cost: \$0.

Fuel economy improvement: 5-8%.

## Vehicle Load Reduction

A smoother, lower body with redesigned mirrors improves aerodynamics. Lower-rolling resistance tires with better design and materials save fuel and maintain good traction. Accessories are more efficient, for example, electric power steering replaces the mechanical system.

Improved aerodynamic features can be seen in many vehicles on the road. Lower-rolling resistance tires available on some hybrids and past electric vehicles. Electric power steering available in several hybrids, the Chevrolet Malibu and Saturn Vue.

Cost: \$260.

Fuel economy improvement: 6-7%.

## Efficient 6-Cylinder Gasoline Engine

Low-friction lubricants, four valves per cylinder, variable valve control, and increased compression ratio reduce engine friction and pumping losses and improve combustion efficiency. Delivers 0-60 mpg acceleration in under 9 seconds.

Used in many of Honda's cars and trucks.

Cost: \$400

Fuel economy improvement: 15-17%.

## 6-Speed Automatic Transmission

Added gears help the engine operate more efficiently.

Available on the Ford 500 and many luxury vehicles.

Cost: \$100.

Fuel economy improvement: 4-5%.

	UCS Guardian*	Ford Explorer (Baseline)
Combined City/Highway Fuel Economy on Window Sticker	23 mpg	17 mpg
Lifetime Fuel Costs**	\$14,700	\$19,700
Lifetime Fuel Cost Savings	\$5,000	N.A.
Technology Cost	\$760	N.A.
Payback	1.3 years	N.A.

\* Based on analysis by the Union of Concerned Scientists (UCS).

\*\* Lifetime fuel costs based on \$2.50 per gallon of gasoline, typical lifetime of 15 years, and a 5% real discount rate (equivalent to a 7% car loan).

**NOTE: Individual fuel economy improvements are not additive, overall improvement is lower than the sum of the parts.**