

Diesel vs. Hybrid-Electric Powertrains: Assessing Dependability

Perceptions Favor Diesel

Diesel engines have a reputation for durability. Among owners of diesel vehicles, 81% say they expect the future clean diesel engines to be more reliable and dependable than conventional gasoline engines, according to the *J.D. Power and Associates 2004 Consumer Acceptance of Alternative Powertrains Study*.SM In contrast, among owners of hybrid gasoline/electric vehicles, only 47% expect future hybrid gasoline/electric powertrains to be more reliable and dependable than conventional gasoline engines. Among owners of conventional gasoline-powered vehicles, 32% expect future clean-diesel engines to outperform gasoline engines in reliability and dependability, compared to only 9% who expect hybrid powertrains to do so.

Diesels Better on “Things Gone Wrong”

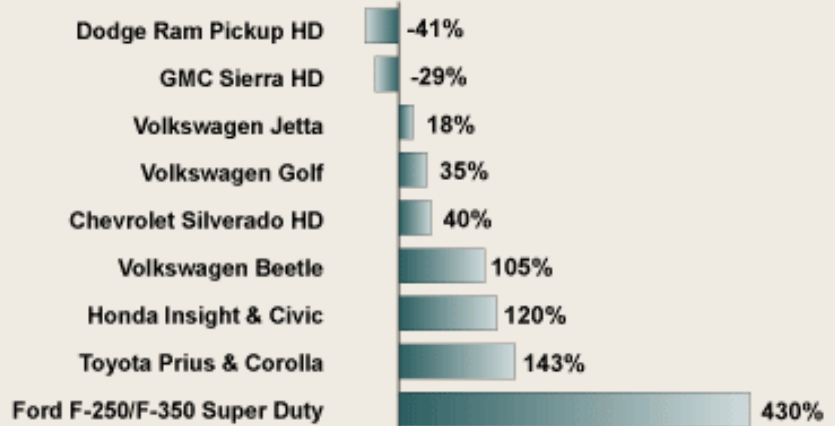
Owners of hybrid vehicles report more than twice as many engine problems as do owners of comparable gasoline-powered vehicles (Fig. 1), according to the *J.D. Power and Associates 2004 Vehicle Dependability Study*.SM (VDS). Among seven 2001 models with a diesel option, owners of the diesel version report fewer engine problems than do owners of the gasoline version in two models (Ram, Sierra) and more problems than gasoline – but at a smaller differential – than hybrids in four models (Silverado, Beetle, Golf, Jetta).

Diesels Better in Durability

For all seven 2001 models with a diesel option, owners of the diesel rate the overall engine quality (at three years of age) higher than do owners of the gasoline model (Fig. 2), according to VDS. Owners of hybrid vehicles also rate their engines higher than owners of comparable gasoline-powered vehicles do, but at a smaller differential.

Problems Per 100 Units
Diesel/Hybrid vs. Gasoline Engines

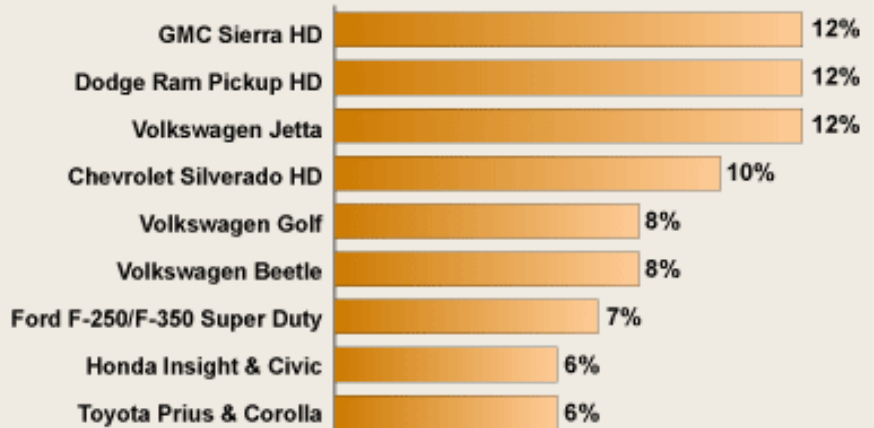
Fig. 1



Source: J.D. Power and Associates 2004 Vehicle Dependability StudySM (VDS)

Owners Rate Engine Quality
Diesel/Hybrid vs. Gasoline Engines

Fig. 2



Source: J.D. Power and Associates 2004 Vehicle Dependability StudySM (VDS)

Diesel and Hybrids Better on Costs...

While diesel and hybrid gasoline/electric engines may entail higher initial costs at purchase, the total costs of ownership is lower for these vehicles than it is for their conventional gasoline counterparts, with the exception of the F-Series (Fig. 3).

...Even with More Mileage

Given the superiority of diesel-powered and hybrid vehicles in total costs of ownership, it is well to note that all of the alternative vehicles considered in this analysis were driven more miles in three years than their conventional counterparts (Fig. 4). It would appear that buyers of alternative powertrains either bought vehicles that would have lower costs because they planned to drive many miles, or they were encouraged to drive more miles since it was relatively cheap to do so. Diesel-powered vehicles, in general, are driven many more miles than hybrid-electric vehicles are driven.

So Diesel is Better?

While diesel engines have an advantage over hybrid-electric powertrains in durability, the current evidence is not the final word. In 2001, diesel was already a mature technology but hybrid gasoline/electric technology was nascent. As more companies develop, produce and sell hybrid vehicles, the technology is likely to improve. However, diesel and gasoline technologies are also likely to improve, so the standard will continue to rise. Manufacturers will face an increasingly competitive environment, and the technology and companies that will succeed are difficult to predict. However, it is clear that consumers will benefit from an expanding range of ever improving powertrains.

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