

Things Are Seldom What They Seem

By Stephen Ruback, Professional Inspector [TREC License #6030]

If you believe the hype, you might think the new hybrid gas-electric cars are all the rage. They seem heralded as the greatest automotive breakthrough since gas was 25 cents a gallon. People are said to be lining up to buy them. Are they the wave of things to come, or just another gimmick?

While it's true they get better mileage than the non-hybrid versions, it may be well to consider the numbers before running out and adding one to your automotive collection. Since they are generally small in size, many real estate professionals may not be tempted until the larger versions arrive, but checking the numbers is always a good idea.

On my recent visit to a local dealership, there was no one stationed at the door to hold back the crowd. There were more hybrids on the lot than customers in the show room, so the idea of a short supply may have been exaggerated. The salesman knew nothing about the workings, beyond higher gas mileage numbers.

The current form of gas/electric hybrid cars contain a small gasoline engine combined with an electric motor. A large part of the gas mileage savings comes from using the electric motor as a generator during braking and storing the energy in a second large capacity battery. Another prime energy saving is accomplished by automatically turning off the gasoline engine instead of idling during stops. The third primary savings come from optimizing the use of the electric motor to aid in acceleration and highway cruising.

The electric motor takes the place of the traditional alternator and starter, and is built into the drive train. No user serviceable parts here. There is still a regular 12 volt battery for a back-up starter and a 12 volt power supply for ignition and other normal electrical systems. The most exciting change is in the large Nickel -Metal-Hydride storage battery and control module hidden under or behind one of the seats. It typically operates at over 100 volts. The hybrid I looked at ran on 144 volts. That means there are at least two large cables running under the seats carrying potentially lethal voltages. Those who never plan to enter into a collision may not consider this a potential problem.

It's all worth it for the fuel savings, isn't it? Let's see. The cost premium for a hybrid vehicle appears to run between \$3,000 and \$6,000 dollars. The specific vehicles I examined had a difference of \$4199. A similar vehicle with regular drive train is listed at 32 miles per gallon, and the hybrid mileage is claimed as 47. That gives us a surface savings of \$175 in gas per year for 10,000 miles a year and a gas price of \$1.75 per gallon. In ten years that amounts to \$1,750 savings, not including the \$4199 higher initial cost. What if gas prices go up? If gas costs an average of \$3 per gallon and you drive 14,000 miles a year, your potential savings increase to as much as \$419 a year. Given your extra purchase cost of at least \$4199, your net, ten year savings may actually make it to the plus column to the tune of about \$9 in ten years.

However, there's more to consider.

Remember that hidden NiMH battery? The household

NiMH batteries we use in cameras and such are listed for a typical lifetime of 1,000 recharge cycles. Data about life cycles for these batteries in the hybrid cars is limited, but estimates quoted in automotive engineering magazines suggest 80,000 – 90,000 miles. The service department confirmed this estimate. They also confirm a replacement cost of at least \$2,300 plus labor.

How much will they charge for an extended warranty covering the replacement cost of this battery module? You can bet it will not be cheap. Assuming you actually manage 100,000 miles on the first battery pack, you then have a dysfunctional used car requiring a multi-thousand dollar cost to keep it running. Resale value would be not much, if any. This brings the net loss for the above examples from a minimum of \$3,000, to more than \$5,700.

With several, more complex systems involved in the drive train, it's a good bet that maintenance/repair costs, in general may be higher than non-hybrid designs. These systems are also more likely to be dealer-only repairs.

As far as the environment, the claimed fuel and emissions savings estimates are small. They don't include all the extra energy used in producing the extra motor, controls, cables, and battery module in a much more complex machine.

The manufacturer's have figured this out, and hybrids are not likely to be the car of the future. With all the current hype about the hybrids, and their need to sell the cars they are currently making, car makers are not likely to tell you about this. What will they be doing? Diesels are apparently the future. They cost less to make and are potentially much more efficient.

VW is said to be currently selling a diesel car in Europe that operates at 90 miles per gallon. The ten year fuel savings compared to a typical sedan today could be more than \$5,000. Diesels, when built right, have fewer parts to break, and tend to last longer than gasoline engines.

Houses are not the only things needing a thorough inspection. The best solution to any problem is prevention – even a new home needs an inspection.

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