

Ralph Seekins

Several owners of hybrid vehicles have recently told me about their disappointment with fuel mileage during our Interior Alaska winter months. They wonder if something is wrong. Let's talk about cold weather and how it affects hybrid performance.

First, hybrids have some of the same cold weather fuel economy challenges experienced by vehicles with internal combustion engines. For example: tire pressure drops in cold weather increasing rolling resistance; lubricants in bearings and gear systems get stiff when sitting in cold weather and it takes longer for them to warm up and loosen up; and gasoline doesn't burn as well in cold engines leaving unburned fuel exiting through the exhaust system.

Then, a hybrid's gasoline engine needs to run more frequently as it gets colder to heat up the coolant so it can do its job heating the passenger compartment and defrosting the windows. And every time the cooled off gasoline engine is activated, it takes longer to get up to full operating temperature which

HYBRID VEHICLES IN COLD WEATHER

means it runs less efficiently than when it is warmed up.

Next, batteries work best when they are warm - in the 60 to 85 degree range. The colder it is the less happy they are. One electric vehicle expert tells why. "Batteries deliver their power through a chemical reaction inside the battery that releases electrons. When the temperature drops, the chemical reactions happen more slowly and the battery can't produce the same current that it can at room temperature. A change of ten degrees can sap 50% of a battery's output. In some situations the chemical reactions will happen so slowly and give off so little power that the battery will appear to be dead when in fact it is warmed up it will go right back to normal output ... "

Clearly, cold weather negatively affects all aspects of hybrid battery operation. Reduced range, less power, longer and less efficient charging – all can be expected when operating a hybrid vehicle in our extreme cold winter environment.

So what can you do to help?

If at all possible keep your hybrid in a heated garage. A warmer vehicle means less time for the vehicle to warm up to optimum operating temperature. And a prewarmed passenger compartment will make your winter driving a lot more enjoyable.

Watch your tire pressure. We highly recommend filling the tires with 100% nitrogen rather than just compressed air. Nitrogen, used in airliner and fighter jet tires, doesn't expand and contract anywhere near the rate of compressed air thereby keeping a more uniform tire pressure at all temperature ranges. And, a couple more the pounds than manufacturer's recommended tire pressure will help reduce rolling resistance and increase fuel mileage.

Hybrid technology is getting better and better as the manufacturers compete for that portion of the market. As a result, we have seen some and can expect more improvement in cold weather operation efficiencies over time. However, until different batteries become available, our extreme cold weather will always result in decreased fuel mileage as compared to that experienced by hybrids in other warmer climates.

Safe driving for you and your family in the New Year.

Ralph Seekins has more than 42 years' experience in the automotive industry. He started as a mechanic, worked in sales, and for the past 35 years, has been the owner of Seekins Ford Lincoln, Inc. If you have an automotive question you'd like answered, forward it to ralphs@seekins.com.