Under the Hood, May, 2020

In the latest electric vehicle news, the National Academy of Sciences recently reported to the President that "All cars would eventually be driven electrically". The report further stated that success is dooming the internal combustion engine. Would it shock you to hear that the President receiving that report was Lyndon B. Johnson and that this report was issued in 1966? The report further indicated that there were about 85 million vehicles in the USA. In 2018 there were about 276 million vehicles registered, with cars representing only 44% of that total. In the 54 years following the report the total number of registered vehicles has about tripled. According to one study the total registered electric vehicles is about 1 million. This number can vary depending on whether the reported total includes plug-in hybrids which still have an internal combustion engine as a range extender. Once more, I have learned that we need to be careful not to believe everything we read, even when presented by the acknowledged "experts". In other electric news, Tesla continues to amaze me. Depending on the what day you read the stock market report, Tesla has had a stock market value exceeding GM & Ford combined. Almost a week later, Tesla is reported to the second most valuable auto manufacturer in the world; just behind Toyota. Again, depending on the day, Tesla's market value is approximately $100 billion. In 2019 Tesla sold 367,000 cars world wide. Ford and GM sold a combined 5.3 million vehicles in the USA alone. For 2019, Tesla did have a profitable quarter, but still posted an annual loss of $862 million. Compare that to either GM or Ford and I still stand on the side of the short sellers. However, for some time Tesla has had the last laugh against all the short sellers as Tesla's stock seems to be on a tear.

In this column I have previously discussed that horsepower is a calculated number determined by a formula that includes torque and time. HP=Torque X RPM/5252. For simplicity we generally simplify the denominator to 5250. The Scottish engineer James Watt in the late 1700s published a now well-established definition of HP as the ability of a horse to lift (via a pulley) 550 pounds in 1 second. This definition was used to demonstrate the power of the then newer steam engines. Since we currently rate the power of our Corvettes in horsepower, how do we relate our Corvettes to the electric vehicle in the next lane. Although electric motors can also be rated in horsepower, and some electric vehicles are now rated in horsepower, initially most electric vehicles were rated in kilowatts. Perhaps this was done to differentiate these vehicles from the more typical vehicles. Did you notice that this kilowatt rating also includes the word "watts"? Yes, the electric measure of work was named after the same James Watt. The relationship between horsepower and watts can be simplified to 1 HP= 750 Watts= 0.75 KW. Yes, I am cheating a bit in that formula, but do we really care that it is really 745.7 watts instead of 750? The result is almost the same and it is easier to remember the simplified formula. This formula can also be stated as 1 KW=1.33 HP. With this relationship it is easy to see that the electric vehicle (EV) rated at 300 KW has the equivalent of 400 HP. Having gone through this comparison, everyone that has driven an EV knows that the EV has a different feel as to how it puts the power to the road compared to the gasoline powered car. Electric motors produce the highest torque at very low rpms, while internal combustion engines produce maximum torque at much higher rpms. In the greater Seattle area, we live near sea level, with high air pressure. I am sure you have experienced driving your Corvette in the mountain pass and found that since the air pressure is lower at higher elevations, your Corvette has less engine power. A few years ago, we had our C7 on a road trip heading towards Denver. Along I-70 the Eisenhower Tunnel is at 11,200 feet elevation. The C7 cruised nicely but seemed to have half the normal acceleration as normal. Since the electric motor isn't ingesting air in the process, the EV should

not suffer the same power reduction due to altitude. Moral to this story: Resist trying to race that EV in the Rocky Mountains.

If you have been following collector car auction results, you have probably been amazed that restomods are often commanding higher dollars than stock restorations. Restomods look fairly stock externally, but generally the interior, engine, transmission, suspension and brakes have been upgraded. Certainly the '63 Split Window is considered the holy grail of Corvettes by many collectors. At one of the recent Mecum auctions, three split windows crossed the block. The highest price was $242,000 for a silver on red restomod. Next was a fuelie Bloomington Gold restored example at $231,000. The final split window was an unrestored, low miles, tan over tan combo for $126,500. Besting all the Corvettes was a 71 Plymouth Hemi GTX at $253,000. Wow. It seems to me that the restomod could well be very dated in just a few years, but the proper restoration will always be stock. We see cars like the '55-57 Chevys with C4 engine/transmission. While that might still make an excellent driver, it is hardly the latest and greatest. These current Corvette restomods typically have C5-C7 (LS or LT engines) running gear. Do you think they will be dated in 10 years? If you are buying a restomod to drive, you are probably buying a better driving car than the stock original. However, if you are buying the restomod as an investment, I expect there are better options. Do you think any of those '63 split window Vettes at Mecum were bought to actually be drivers?