

## **Under the Hood November 2021**

I suspect that many of you had told your children about walking 5 miles in the snow to school (uphill both ways) and that the younger generation was soft. I am reminded of this thought when I go out and start our Corvette after it has been sitting in the garage for a couple of weeks. It starts immediately and settles into a low idle. Then smoothly motors off as we go about on our way. Think back to those C1 or C2 Corvettes. Depending on the engine, we had to perform serious maintenance to keep them running. In addition to the oil changes at 3,000 miles, we fussed and pattered over many other aspects. We changed the ignition points at least every year. The points are simply two electrical contacts that make and break contact 1,000+ times per minute. As they made contact the electrical charge was dispatched to individual spark plugs. Is it any wonder that these points would burn and sometimes literally try to fuse together? As we ran the engines a bit harder, we could find that the points would start to bounce, and the engine would run rough at higher revs. So, many of us installed a dual point distributor that had two sets of points and was promoted as being able to handle higher revs. Of course, now you had to set the gap on two sets of points and keep them in sync. When you changed the distributor, there was a steel shaft that went into the engine block and was driven by a gear deep in the block. Of course, it was difficult to keep the shaft with the distributor as you removed the distributor and sometimes the shaft would fall into that dark hole of the engine block. One time, I decided to pull the oil pan and retrieve the lost distributor shaft as I was concerned that it might be hung up on the crankshaft and cause some damage. In the bottom of the oil pan were three distributor shafts. Obviously, I was not the only one to drop a distributor shaft on that engine. Of course, we also changed the spark plugs at the same time as the points. We could "read" the plugs and determine if the engine was running hot/cold/lean or rich and either change the heat range of the plugs or make other adjustments. Everyone that had a Holley carburetor has probably changed the fuel jets. These were small screw-in fuel metering jets inside the carb, so that you had to first drain the fuel bowl to get access to the jets. The jets had a very small hole in the center and Holley make dozens of different sizes so that you could fine tune your carb air/fuel mixture (and often "read" the resulting mixture on the spark plugs). These jets were rather small and could get lost in your toolbox, so the more serious among us had a plastic card with holes in which you could store all your jets. I remember going to a meet in Colorado. As the altitude increases, the air density decreases. To maintain an appropriate air/fuel ratio, we would have to reduce the size of the carb jets. So, before the trip, I went down two sizes in jet size. I soon discovered that at 9500-foot elevation, I should have reduced more than 2 sizes, as the engine was still running very rich. Base Corvette engines generally had hydraulic valve lifters which did not require adjustment. The early hydraulic lifters tended to "pump up" at higher revs, so these engines had lower rev limits. The higher horsepower (and higher rev limit) engines had solid lifters that required adjustment. You would remove the valve cover and adjust the gap between the rocker arm and valve stem. If you did this with the engine running, you would have hot oil running onto the exhaust manifold and lots of smoke. Some tuners had special valve covers that could be temporarily installed which had a slot cut out of the top that would allow adjustment without all the oil loss. For instance, there were two tri-power 427 engines offered in 1967. The 400 hp version had hydraulic lifters and the 435 hp version had solid lifters that required adjustment. I suspect that more than a few buyers of the 435 hp version were surprised that a valve adjustment was considered routine maintenance. I still have a grease gun in my garage cabinet, but I don't think I have used it for a decade. At every oil change, I used to grease the ball joints and all the steering knuckles in the car's front end. Today, most cars are greased for life (of course then we must change out the whole part when the seal fails), spark plugs last 100,000 miles or more, computers

and fuel injection have replaced carburetors, roller lifters and roller rocker arms have replaced the solid valve lifters and still allow the higher revs. Yes, we have gotten soft, but isn't it grand?

It seems we cannot pick up a paper, magazine or turn on the TV without hearing electric vehicles will take over in the next (?) years. The latest is a feature on Iceland, where the government has announced a total ban on gas/diesel vehicles by 2030. Seven years ago, there were less than 100 electric vehicles (EV) in the country. A year ago, EVs were 37% of the vehicle numbers and this year they are up to 50%. So why has Iceland become the latest poster child for EVs and how does Iceland compare to even Washington State. First, the country is less than 60% of the area of Washington, while the population is only about 5%. 94% of the Icelandic population lives in urban areas, with 67% living in the major city Reykjavik. Since there is no vehicle manufacturing in the country, all vehicles are imported. The government favors EVs by providing VAT exemptions, or discounts, for EVs. However, probably the biggest difference is that Iceland has fantastic energy sources. Geothermal energy heats all of Reykjavik and many of the smaller communities. Electricity is 100% renewable, with 75% via hydro and 25% geothermal. Yet only 20% of the country's rivers have been tapped for hydropower, so there is a large possible electric source not yet used. The government has large duties on fossil fuel imports, making fossil fueled cars particularly unattractive. Iceland has low cost (and renewable) electricity, high fossil fuel costs, an import tax structure that favors EVs, and an urban population that probably has a low daily vehicle mileage. Seems Iceland is a natural for EVs. Perhaps Washington State not so much.

More electric news. Just last month I reported the latest on Lordstown Motors (LM). I had suggested that the latest company projection of the start of vehicle production in late September was probably optimistic. I have now seen one video of a prototype on a test track. Some projections now place production start in April, 2022. After all the changes reported last month, we now know that in October Foxconn, a Taiwan based company that assembles iPhones, has bought the Lordstown manufacturing plant and a minority interest in LM. iPhones are powered by batteries and electric vehicles are powered by batteries, so what could go wrong? Seems that everyone is trying to be the next Elon Musk. Perhaps Foxconn has enough money behind them to actually get this plant producing electric vehicles in numbers.