

Under the Hood, August 2019

One indisputable fact in auto racing that the team that hires the best talent and spends the most money will probably be at the front at the end of the race. In an effort to encourage more competitive racing, as well as hold down costs, the various racing organizations have tried many things to provide “balance of performance”, or similar goals by other names. Several race series require “sealed engines” that are all built by the same company and are sealed to prevent the teams from any engine modifications. NASCAR routinely used restrictor plates between the carburetor and engine to reduce the amount of air allowed into the engine. Remember that if gasoline burns at a constant air:fuel ratio that as we reduce the amount of air, it will automatically reduce the useable fuel and thus the horsepower. NASCAR no longer uses carburetors, but they still will use restrictor plates in the engine intake, especially on the longer speedway tracks. Many sports car racing series will monitor the teams at the beginning of the year and then either require air restrictors, control the turbo boost, or force the teams to add weight in order to better balance the team’s performance. The series will further monitor the teams during the year and make more adjustments if it appears that some of the teams have overcome the initial performance obstacles. Drag racing has its own problems with the ever-advancing technology which has resulted in ever higher speeds. After a driver death, NHRA had reduced the actual distance of a race for the top fuel and funny car teams from the traditional ¼ mile to 1,000 feet. Less fast classifications still race the full ¼ mile. Even with that distance change, speeds for the top teams had increased to over 330 mph in only 1,000 feet. NHRA hasn’t tried to force restrictions such as sealed engines on the teams. However, they recently changed the traction compound that is laid down on the track to aid the racers in reducing, or controlling, wheel spin and thus building speed. The traction compound is mixed with alcohol. NHRA has reduced the ratio of traction compound in the solution from 75% to 65%. While the latest races still have shown a few teams near the 330 mph finish, the change has resulted in the teams being more closely grouped. Fans like close racing, and every race series wants to encourage fans. Closer to home, the C7R race car is detuned from our available street Corvettes. Engine size is only 5.5 liters and supercharging is not allowed, so the engine puts out about 550 hp. Of course, the race car is lighter than our street cars, but it is obvious that the C7R is complying with race series rules to control speed and provide closer competition.

In other racing news it is hard not to be impressed with Courtney Force. Courtney is the daughter of funny car legend John Force, and she is a force to be reckoned with. Courtney is the winningest female funny car driver in history. Even against her father her record is 13-16. Courtney retired from NHRA racing at the end of the 2018 season, but it was a short retirement as she is back on the track. Her older sister, Ashley, was also very competitive and retired in 2011. You might remember that Courtney is married to Indy car driver Graham Rahal. In NASCAR, through the end of the 2017 season, Chevy had been racing the Chevrolet SS, an Australian built V8 powered sedan. GM shut down the Australian factory at the end of 2017 and Chevy switched to the Camaro SS. Yes, I realize you can hardly tell the difference, but the manufacturers still think “win on Sunday, sell on Monday. Anyway, Chevy had their teething problems in 2018 and won few events. Now Ford has announced that their NASCAR entry Ford Fusion will be replaced by Mustang. I think this should be good for both Chevy and Ford as we can all get more enthused about a pony car battle in NASCAR, than Ford Fusions or a Chevy sedan that hardly anyone could even name. Could we get Dodge back to NASCAR with their Challenger?

Couple of quick thoughts: 1. It is not only Boeing Dreamliners and BMWs that are produced in South Carolina. This state is becoming a manufacturer powerhouse. Kia’s assembly plant will celebrate its 10<sup>th</sup>

anniversary in November. This plant has an annual capacity of 340,000 vehicles and about 40% of all Kias sold in the States are built in S.C. 2. It seems I can't pick up a paper or magazine without another article on autonomous vehicles. A recent article compared the long-term design approach taken by various manufacturers. One fact hit me hard. Apparently, we humans stream 500 million hours of YouTube content every day, and the autonomous vehicles are being designed to allow that streaming. All I could think is "That is a lot of cat videos". Probably a lot of advertisement as well.