

Under the Hood, Feb 2020

I have commented before about the coming problems with auto loans that are in default, but now I notice that even Fortune magazine has an article on this problem. According to this article more than 7 million Americans are in delinquency, or 90 days late. This is an all-time high. As the big banks have stepped away from making loans to high risk borrowers, non-bank lenders have stepped in. These alternative lenders are not regulated as prudently as banks. According to the same article 22% of auto loans and 50% of loans written by non-bank lenders, qualify as sub-prime. Wall Street has sold \$223 billion worth of auto loan asset-backed securities. Couple this issue with the fact that many auto borrowers are underwater with their loans, and I still feel that these issues will create problems down the road for the auto manufacturers with lower sales. At some point the car buyers cannot keep trading in cars that are underwater, either from long term loans, or simply that they haven't made all the payments. No question that this auto loan problem pales compared the sub-prime home lending fiasco, but there could still be pain ahead for some buyers and certainly sellers.

Here in the PNW we have been recycling for years. I am sure we collectively have prevented thousands of tons of materials from filling our trash sites. Chemical giant Dow has developed an asphalt mix using recycled plastics in the mix. Dow claims the road surfaces are cheaper, more eco-friendly, and even more durable than conventional asphalt. Sixty miles of highway have been paved with this mix, and according to the report that 60 miles consumed 200 tons of plastics. Currently, Dow is promoting the hybrid asphalt mix mostly in overseas countries. You might be aware that Washington State has been experimenting with recycled rubber in asphalt paving since 1977. To date, we have used two processes. The wet process basically involves cooking the asphalt long enough that some of the rubber melts and becomes part of binder that holds the aggregates together. Locally, the SR520 bridge and East approaches were one of the test areas. Of course, the bridge paving is long gone with the new bridge, but the State figures this test was a "success" in that the rubberized asphalt provided equivalent performance to conventional asphalt. The only problem is that the cost of the test portions has been 1.1 to 3.7 times as expensive. The State has tried another proprietary process where finely granulated rubber tires are used to replace some of the fine sand in the asphalt mix. These tests have generally been failures where some test sections have failed almost immediately. You might not realize that much of our highway asphalt is already recycled asphalt. I work next door to a large asphalt paving company. When they send those big machines out to scrape down the highways, the scrapings are returned to their plant. This material is re-crushed, graded to size, and a portion of this "old" asphalt is added to the new asphalt mix. I wish Dow success in their effort to utilize some of our plastic waste. Final thought on recycled tires: Ash Grove Cement has a large cement plant visible from the West Seattle bridge. Cement manufacturing uses a lot of heat in the process. I have toured the Ash Grove plant and witnessed their use of recycled tires as one of their heat sources. They use whole tires. There is a vertical elevator with hooks that pick up tires, carry them to the top of the kiln and drop the whole tires into the process. The rubber is totally consumed and some of the belting materials provide needed components in the cement production.

Continuing saga of exhaust envy. Many cars or SUVs now have large, fancy, chrome trapezoidal exhaust outlets framed in the bumper. Often if you look closely you will see a small round exhaust pipe inside the large chrome opening. A few days ago, I was behind a new Toyota Corolla hatchback. On the back bumper were two rather small shiny trapezoidal "exhaust outlets". Upon further inspection, I discovered a single exhaust pipe exiting below the back bumper. Appears on this car, the "exhaust

outlets" are simply glued on trim on the back bumper. Perhaps we have carried this performance exhaust theme a bit too far.

We all know racing at any level is expensive. I remember when I used to participate in open track events in our C5 Z06, that I would change the brake pads to a much more aggressive compound prior to the track day and then change back to street pads for everyday driving. Brake usage varied by track, but I could almost count on one hand the number of track days I would get from a set of front pads. Remember that with our front engine Corvettes the front pads would do 70% of the braking effort. You can confirm that by simply looking at the size of the calipers exposed in the wheel spokes. The front calipers are far larger than the rears. I was recently reading an article about the carbon brakes in the Le Mans LMP1 prototype cars (the fastest class). We all have been exposed to the carbon brake rotors in our Corvettes or other marques. For LMP1, Brembo supplies not only carbon rotors, but also carbon fiber pads. Part of this is for weight reasons, as a carbon rotor weighs about 20% of a steel rotor. However, the biggest advantage is the track life. During the 24 hours of Le Mans, the carbon rotors might lose 3-4 mm of thickness, and the carbon pads about 8-10 mm. The carbon pads lose less than half the thickness of the best metallic/ceramic pads. At Le Mans, there are 11 braking zones, and it is calculated that the typical LMP1 car has over 4200 brake applications per race. Although the carbon pads might last an entire race, most teams will try to have one pad change during the race, so that their car will finish the race on fresher pads. Fresh, thicker, pads allow less fluid behind the caliper pistons meaning less chance of boiling the brake fluid. Do all of these Brembo parts cost more? The calipers are machined from a single block of metal to reduce flex. The caliper pistons are titanium to help heat transfer from the fluid. The carbon rotors are secured by a sprocket arrangement that requires extensive tooling. Each rotor features 430 ventilation holes precision drilled. The estimated cost of a single caliper is \$3,500-\$4,000 and a single rotor is about \$5,000. To think that I used to complain about \$200 for a set of track friendly front brake pads.

The 1968 (green, 390 powered, 4 speed) Mustang driven by Steve McQueen in Bullitt just sold at the January Mecum auction. Final hammer price was \$3.4 million. These auction houses make most of their money on the "Buyer's Premium", and generally that is 10% added to the hammer price. This anonymous phone buyer spent \$3.74 million for a movie car that has no real value, other than it was the Bullitt Mustang. I suspect that the buyer will leave the car as is; dents, faded paint, a bit of rust and even the tubular steel camera mounts that are welded under the car and visible from the side. I would like to dream about the car collection that I could create with just the \$340,000 that this buyer spent on the auction house premium.