Under the Hood, December 2020

It is winter so not the normal time we think about boats, but a recent article got me thinking about outboard engines. When I was young, I learned to water ski behind a 14' wood boat with a 25 horsepower Johnson outboard. The outboard would pull an adult skier, but only if they left from the dock. If they fell into the water, the engine did not have enough power to pull a good-sized adult from a water launch. A few years later we replaced that boat with a similar sized, but lightweight aluminum, boat with a 4 cylinder, 45 horsepower Mercury outboard. That boat would easily pull two skiers, although a dock launch was recommended. At the time we were starting to see 75-90 hp outboards, but we thought the 45 hp Merc was all we would ever need. I hadn't paid a lot of attention to outboard motors until a year or so ago when we went to the Ballard Locks to watch the salmon run and the boats in the locks. I was surprised to see an open cockpit boat with twin 300 hp outboards. Doing a bit of research I discovered how large outboard engines have grown. Honda produces a 250 hp outboard engine based upon the V6 engine in the Odyssey minivan. Mercury has a 4.6 liter V8 with 300 hp. This is a 64 degree V engine (auto V8 engines are generally 90 degrees between the cylinder banks), which I assume was done to make the outboard engine narrower. Mercury also has a supercharged 2.6 liter 6 cylinder that has ratings of 350 & 400 hp. Yamaha has introduced a 5.6 liter V8 with 425 hp. The current king of the hill appears to be Volvo Penta's Seven Marine Division which is producing a 627 hp outboard engine. This outboard is based upon the supercharged 6.2 liter GM engine found in the C7 Z06. The engine is slightly detuned, with a lower compression ratio and slightly lower boost pressure, to allow it to run on 89 octane fuel. The engine is turned on end which requires extensive changes to cooling and oiling systems. At full throttle, the outboard will burn 1.1 gallons of fuel per minute. The article on the Seven Marine outboard included a picture of a 65' open cockpit fishing boat with five of these outboards mounted on the transom. This seems an odd combination, as I would think a couple of large diesel inboard engines would be a better power source. I can imagine that my fishing budget would be exhausted in the first minute after that 65' boat left the dock.

It is not just auto manufacturers and dealers that are suffering in the pandemic. I watch local truck builder, Paccar, as a good indicator of our economy. If consumers are buying, then freight traffic is in demand, which ultimately drives truck sales. Paccar shut down its manufacturing facilities for 5 weeks with the pandemic. Second quarter sales were down more than 50% and profits were down 76%, from the year earlier period. Sales have been slowly increasing, but still far below pre-pandemic levels.

When I bought my college car, my father provided his maintenance lecture. "Change the engine oil every 3,000 miles and change the oil filter every other oil change". I haven't heard this oil filter frequency recommendation for years, but I just happened to be reading a 1978 Corvette Owner's Manual (don't ask me why I was reading a 78 manual). Sure enough, in the manual is the statement: "Change oil each 7,500 miles or once a year, whichever comes first. Change oil filter at the first oil change and each second oil change after that, if you drive more than 7,500 miles per year. If you change oil once a year, change the filter each time you change oil." My first car did not have a spin on filter, so an oil change was a messy affair. Perhaps the ease of changing a spin on filter is the basis for the current recommendation to change the filter with each oil change. You are probably thinking that I should find more interesting reading material.

In the movie Ford v Ferrari, we watched main characters Carroll Shelby and driver Ken Miles. At the beginning of the movie we see Miles at his sports car repair shop. Miles had his own shop and also

worked with Shelby as his chief development engineer and test driver. Some of you know that Judy and I also own a 67 Sunbeam Tiger, which we purchased as a used car in 76. I want to relate the story of the Tiger and involvement of Shelby and Miles. I am sure you know that Shelby developed the AC Cobra, combining the chassis/body of an AC Ace (British sports car) and Ford's new small block V8. The first Cobra was exhibited at the New York Auto Show in 1962. The Cobra was very successful in racing from almost the very first trial. This success was noted by the Rootes Group (manufacturer of Sunbeam and other English marques) West Coat manager, Ian Garrard. Garrard could see the interest being shown in the Cobra and other performance cars and tried to visualize how he could improve the sales prospect of the Sunbeam Alpine sports car, then powered by a 1.6 liter 4 cylinder. Garrard approached Shelby with the idea of installing the small block Ford engine in an Alpine. Shelby agreed to accept the demonstration project and quoted a price of $10,000 and estimated delivery in 8 weeks. Garrard was impatient and he then contacted Miles at his shop and asked Miles if he could perform a quick engine swap. Miles agreed and quoted the cost of about $600. In early 1963, an Alpine was delivered to the Miles shop. Miles didn't want to wait for a 4 speed transmission to be available, so he quickly sourced a Ford 260 engine with a 2 speed automatic transmission. Again, in the interest of time, Miles simply pulled the Alpine engine and transmission and dropped the new engine in the void. The Alpine recirculating steering gear was located behind the engine, which forced the new engine to be installed very forward in the body resulting in a rather front heavy car with resulting poor handling. However, the quick swap did prove that the Ford engine would fit without major body changes. Shelby had more time and money for his project and the major difference was that Shelby abandoned the Alpine steering gear and installed a rack and pinion steering unit in front of the cross member which allowed him to move the engine rearward providing much better handling. Garrard was very impressed with the Shelby prototype and after a few tweaks, the car was shipped to England for inspection by the Rootes Group brass. After a few lower ranking brass drove the prototype, they convinced CEO Lord Rootes to give it a try. According to the story, Lord Rootes returns from his test drive with a big smile and smoking rear brakes, as he drove the test route with the hand brake engaged. Even with the hand brakes engaged the performance of the modified Alpine with a 4.2 liter V8 vs. the 1.6 liter 4 cylinder was impressive. Lord Rootes calls Henry Ford direct, orders a batch of Ford engines, and the rest is history. Ultimately about 7,000 Tigers were built, almost all with the Ford 260 engine. Later in the Tiger period, Rootes Group spends a fortune developing a small rear engine car to compete with the Beetle and Mini, and then finances are further compromised with a long labor strike. Ultimately Chrysler acquires a controlling interest in Rootes. The original Tigers had small fender and truck badges that read "Powered by Ford 260". With the acquisition, Chrysler had a problem with the Tiger. If you have seen a Tiger engine compartment, you realize that Chrysler's small 273 engine with a rear mounted distributer would not fit without major rework of the body. However, the assembly line was running, and they still had a bunch of Ford engines. Chrysler changes the badges to read "Sunbeam V8" and even install the Chrysler pentagram on the front fender and continues to sell the Tiger. I have an original Tiger brochure by Chrysler that simply mentions the "American V8 engine". Even today, some still think Chrysler installed their own engine, but I can assure you that every Tiger had either a Ford 260 or 289 engine. Now you probably know more than you ever wanted to know about the tie in between the Tiger, Carroll Shelby and Ken Miles.