WARM UP THAT ENGINE BEFORE DRIVING

Ralph Seekins

Question: Why should I warm up the engine in my car before driving off?

Answer: It simply a matter of how much you like your vehicle's engine.

Today's modern engines will start and run at super cold temperatures. And a lot of folks believe that, if it runs, it can be driven just as if it was at operating temperatures. WRONG! WRONG! WRONG! Your engine will suffer if that is how you treat it.

Let's look at two basic parts of that engine – the block and the pistons. The block is generally made of cast iron. The pistons are generally made of an aluminum alloy (Ford commonly uses hypereutectic aluminum – an aluminum/silicon alloy). The aluminum pistons move up and down in a cylinder bored into the block. The block is built in such a manner that the cylinders are surrounded by what is called a water jacket – through which the water pump pushes a mixture of coolant (more commonly called anti-freeze).

It takes a lot longer to heat or cool a coolant filled engine block than it does to heat or cool a much smaller and lighter hypereutectic aluminum alloy piston. In fact, during normal operation, the average temperature at the top of a piston is about 600 degrees Fahrenheit while the coolant running through the engine is about 190 degrees Fahrenheit. Aluminum expands a lot more and considerably faster than iron at these temperature ranges. So, the manufacturers design the pistons to have a loose fit within the cylinder when cold thereby allowing a tighter fit at operating temperatures. This provides for better fuel economy and less exhaust pollution.

Engine block heaters pre-warm the coolant which warms both the block and all the engine's internal parts – including the pistons. So, when you start up your pre-warmed engine, it takes less time for the block and pistons to expand to their optimum fit.

Let's say it's minus 20 outside and your car has been parked there for four or more hours. The engine block and coolant are now cold soaked to minus 20 Fahrenheit. When you start the engine up, the aluminum pistons immediately start expanding toward maximum but the coolant surrounded cylinder takes much longer to reach its stabilized size. And, if you immediately drive off placing a heavy load on the engine, those pistons expand even faster in comparison to the cylinders. This can lead to cylinder wall scoring and piston damage – an expensive proposition down the road.

There are other reasons for pre-heating or warming up your engine in cold weather such as proper oil disbursement. But, What I'm recommending is that, when possible, pre-heat your engine before operation. If that isn't always possible, when you start an engine, give it a few minutes at idle before driving off. And, then, try to accelerate slowly for a while before you pour the coal to it. That will make sure oil pressure has reached all the nooks and crannies of the engine as well as allow the pistons and block to begin expanding more evenly. Your engine will be trouble free a lot longer if you follow these simple procedures.

As with all things automotive, if you have questions as to how to best equip or properly operate your vehicle in sub-arctic and arctic environments, it is in your best interest to consult with the local dealer franchised to sell your brand of vehicle.