

# POWERFUL SOLUTIONS

For maximum F&I profitability

## Manufacturing and Engineering Changes

As always, keeping up with the current state of our industry equips us with the knowledge necessary to inform our Guests. Of what? Of that which helps ensure our Guests are best able to make fully informed decisions!

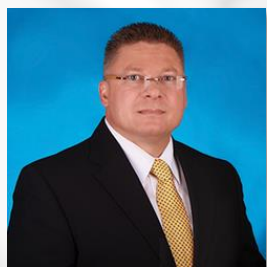
Take, for example, the race to meet the Federal Government's C.A.F.E. (Corporate Average Fuel Economy) Standards.

Failure to do so leads to massive fines which must be paid by Automobile Manufacturers who fail to meet these mandated standards. Record setting penalties have recently resulted in fines in the hundreds of millions of dollars, and these punitive measures are set to become even more severe! There is no way around it. Quite a shake-up is occurring in the marketplace, as a result. These mandates are forcing the OEM's to abandon popular drivetrain options which were in keeping with long-held beliefs (there's no replacement for displacement, for example) and marketing models. The sunset of the popular "Hemi" platform of engines is but one casualty. Manufacturers are scrambling to invent new ways to meet the Government's requirements including, but certainly not limited to, the manufacture of EV's at significant corporate financial loss, on a per unit basis. Here, however, we will be focusing on the I.C.E. (Internal Combustion Engine) changes which are being implemented in an attempt to satisfy the mandated standards.

Name it, and it is being tried in an attempt to squeeze fuel economy from an engine. From low-tension piston rings (to reduce friction), to variable valve timing (to more efficiently satisfy performance demands only when required), to oil weights that are the viscosity of water (to reduce pumping losses), and far more changes... the kitchen sink is being thrown at the problem!

### Turbo/Super-Charging

Forced induction permits a smaller displacement engine to develop more power. The more power created = more heat = more stress. The primary enemy of the Internal Combustion Engine has always been the heat created, and the challenge has always been how to manage it. Squeezing more power from a smaller package leads to greater heat and stress development. Engineers continue to address these challenges in the form of gussets to strengthen blocks, larger oil galleries to keep the engine's lifeblood flowing, more efficient cooling systems, etcetera. Sophisticated electronics are *absolutely* necessary to manage all these new, high-performance systems! Metallurgical challenges are also being created by all these additional stressors.



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## Manufacturing and Engineering Changes (cont.)

### Diesel Engines

Diesel engines are the workhorses of industry! It's no secret in the automotive world that diesel engines are *expensive*. One look at a Monroney label tells the story... if it's an HD (heavy duty) truck equipped with a diesel engine, it comes at a premium. They are very complex things, engineered to be strong and yield a lot of power to do work. The domestic manufactures of trucks have long been involved in a sort of "arms race" to power their HD trucks with the strongest engines for bragging rights. We've all seen the stickers on the rear cab windows. "I'd rather be \_\_\_\_\_, than \_\_\_\_\_!" Yet now we find that ½ ton trucks are being fitted with diesel engines, not with an emphasis on work/power development but on fuel economy, instead. And these engines are being built out of aluminum, to save weight and cost. This is a departure from the engineering perspective that steel was required to contain the violent forces created within these engines. Again, tremendous stress occurs within these engines. Engineers continue to address these challenges in the form of gussets to strengthen blocks, larger oil galleys to keep the engine's lifeblood flowing, more efficient cooling systems, etcetera. Sophisticated electronics are necessary to manage diesel engine systems! Metallurgical challenges will always be present in a diesel engine.

### Lean Is Mean, But Fat's Where It's At!

This is a belief as old as the hills in the racing community. In other words, run our engine lean and we probably won't see the checkered flag. We *will* find ourselves walking back to the pits because we suffered a catastrophic failure due to a lean running condition resulting in overheating. Too much stress will always find us in the same predicament, as well.

The oil embargo of the early 1970's killed the first-generation muscle cars. The C.A.F.E. Standards of our time are killing the modern era's muscle cars. Yet the public demands performance and utility from its transportation solutions. Therefore, the Automobile Manufacturers will continue in their quest to meet the demands of the Federal Government while satisfying the wants of their buying public.

We are just scratching the surface in our review here. We will be far better equipped to serve our Guests when we read up on the challenges facing our industry... when we familiarize ourselves with what is going on in our Service Department. We have an obligation to our Guests to ensure they are well informed of all these novel changes to engineering. What might we share with our Guests that will NOT compromise their decision to purchase this vehicle, but will lend some otherwise unrealized perspective? How could Our Guests be affected by these changes?? What sort of exposure to previously unseen expenses could occur as a result??? How might what we have available in the Business Office (our products) shield them from the exposure they will otherwise encounter????

Think about it.

Good luck and good selling!



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