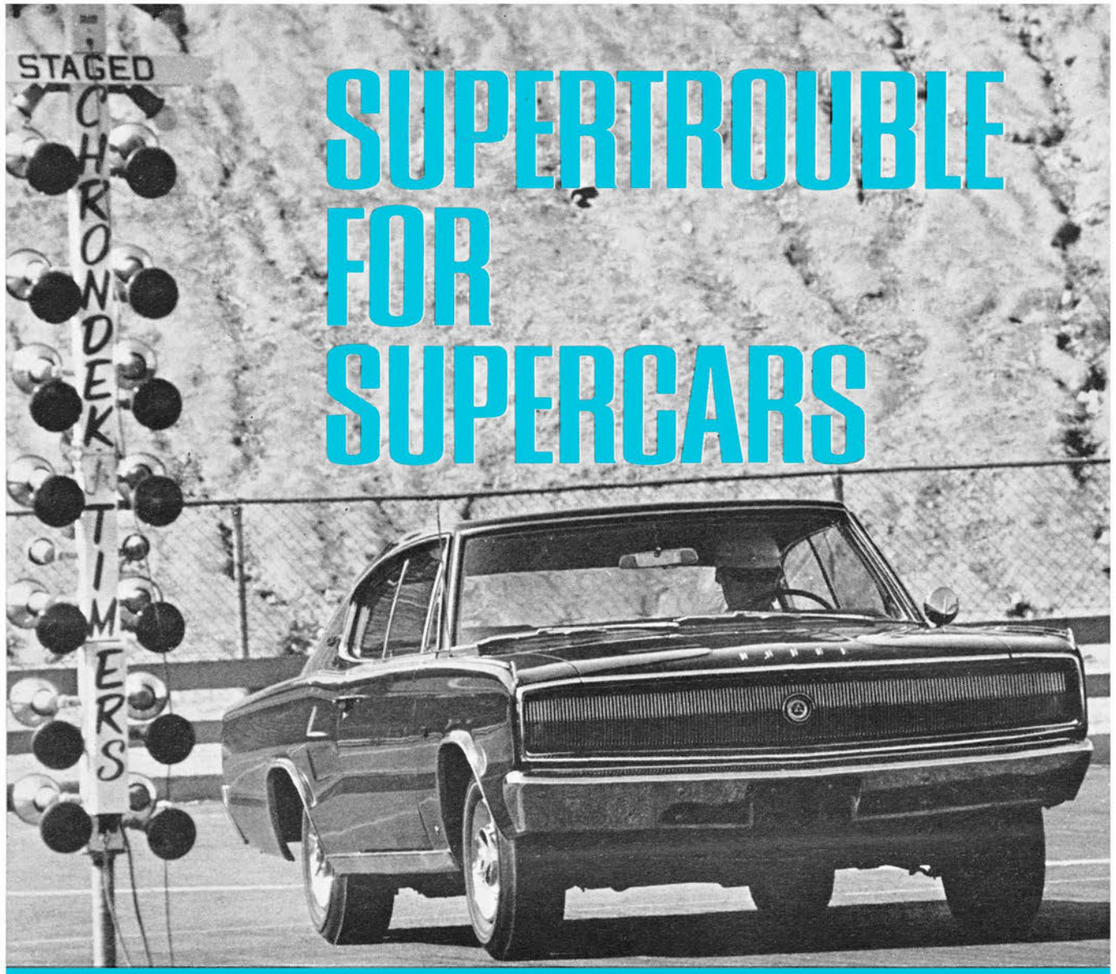


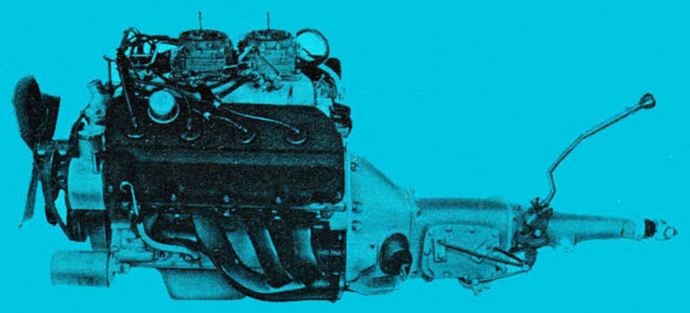
CHAN BUSH

SUPERTROUBLE FOR SUPERCARS

Part III: Development of the American High-Performance Automobile

BY ROGER HUNTINGTON

PERFORMANCE is a more potent sales factor in the American car market today than ever before. The current vigorous economic climate, in a country geared to the pace of the family car, makes this inevitable. And automotive enthusiasts probably benefit from this situation more than anyone.



MOST MUSCULAR among Musclecars from Dodge is the Hemi/Charger, above. Its 426-cu. in./425-bhp engine, left, delivers a brute performance that may be doomed by rising insurance rates, bhp limitations, bhp/weight factors, air pollution control laws and the decreasing number of places where an enthusiast may operate such equipment.

However, black clouds are on the horizon. Powerful forces are at work today in this country that will tend to downgrade car performance in the future, not ten years from now, but within two or three years. In fact, some effects of these forces are being felt today. Every American car enthusiast should know what's going on behind the scenes.

Certainly the most powerful "anti-performance" force today is the possibility of restrictive legislation on car design aimed at reducing traffic accidents. There is no question that a serious highway safety problem exists in America today. Safety authorities agree, however, that it basically is a three-part problem made up of cars, drivers and highways. Radical improvements are demanded in each area, but it appears that cars will receive a major portion of lawmakers' attention in the near future. As long as drivers can vote, and must pay the taxes that build better highways, Detroit will remain a more convenient whipping boy!

New safety legislation concentrates on protecting drivers and passengers in crash situations and on prevention of collisions. Collapsible steering columns, additional interior padding, seat belts, dual-circuit brakes, 2-speed wipers, emergency flashers, safety door locks and so forth have been added to these ends. So far, safety equipment hasn't greatly affected performance of the cars other than to add a little weight and slightly increase costs. However, there is a definite possibility that much more weight will be added in the future. It appears that most crash protection features add weight to the car. The ultimate, of course, would be a car built like a combat tank. Styling of cars also will be seriously affected, though this is not part of the performance problem.

What Detroit is more concerned about right now is restriction on engine design aimed at reducing horsepower and torque. It seems to be common belief among safety authorities and lawmakers that high horsepower, *per se*, is a bad thing to have in a car. These so-called experts generally connect horsepower with speed. The safety people have believed for years that speed is a very great factor in highway death rate increases. They apparently believe that high bhp cars are driven at higher average cruising speeds than lower powered cars and that higher powered cars are more often involved in excessive-speed driving and racing than are the lower powered cars. Admittedly there are no statistics available to prove any correlation between a car's horsepower and accident involvement. And, it is well established that most fatal traffic accidents happen at speeds under 45 mph, within a few miles of the victims' homes.

No matter. The powers that be feel that super-powered engines are a safety hazard in passenger cars on public roads. There is a very good chance that government officialdom will try, sometime in the future, to set limits on total horsepower.

THIS LEGISLATION could take many forms. Restrictions could be placed on carburetion, piston displacement, camshaft timing and even valve diameter, or lawmakers might be satisfied to limit bhp ratings. Carmakers could easily circumvent such a requirement, hence government agencies may someday run their own dynamometer tests! Another possibility is limitations on the weight/bhp ratio of the car. Heavier cars would be allowed to have stronger engines than lighter ones. Insurance companies already are thinking along these lines and top GM officials have placed a limit of 10 lb./bhp on all 1967 passenger models. It is said this was done in anticipation of laws that will restrict weight/power ratios. It is quite possible that the lawmakers will take a cue from GM and place the early limitation right at 10 lb./bhp. It could happen, but it still would allow the enthusiast fairly strong street performance. Many current Supercars have weight/power ratios well above 10 lb./bhp.

Then there are the possible effects on engine performance of future "anti-smog" legislation. Such laws restrict the emission by cars of unburned hydrocarbons and carbon monoxide. These requirements really can harm engine performance, especially if the lawmakers continue to reduce the allowable emissions in the future—as they promise to do. Even today California motorists are suffering tune-up headaches with exhaust air pumps and plumbing on GM and Ford cars, and with Chrysler's "Cleaner Air Package" that tries to improve combustion within the cylinder, instead of afterburning unused fuel in the exhaust manifold. Performance is sluggish, warm-up is slow, throttle response is slow, and the GM and Ford air systems tend to overheat engine compartments.

Many car enthusiasts don't realize these monstrosities will be required on all cars in 1968. In a country where smog is a problem in only four or five areas, affecting at most 2–3% of the population, everyone will be required to pay for the antismog devices in 1968, and suffer through the performance problems.

Perhaps Detroit engineers by then will be able to get most of the problems out of control systems. Most observers believe that air pump "afterburner" systems, presently used by GM and Ford, will be superseded before they will be put into production for national consumption. Everyone now is following the Chrysler lead, trying to design the engine to complete combustion inside the cylinders, so there is no need to afterburn the unused mixture in the exhaust manifolds.

Most design tricks that improve cylinder combustion, however, tend to reduce performance. These include lower compression ratios, smaller quench areas, longer strokes, leaner carburetion and less spark advance. If engineers must resort to these tricks to ▶

ANTIPERFORMANCE FORCES today are at work against such cars as Pontiac's **GTO**, the progenitor of all cars in the big engine/small chassis idiom.

IN CREATING such cars as the 390-cu. in. Mustang, Detroit appears to be offering the image and excitement of the Musclecars with some degree of economy through lower insurance premiums. Result of this trend may be dilution of image.

SUPERTROUBLE

meet future exhaust emission limitations—how can they improve horsepower and torque at the same time? This is a very real problem in Detroit today, one that isn't much advertised.

Insurance premiums on special high-performance cars are going out of sight, making it impossible for many thousands of potential owners to drive these cars. This problem has been building up in just the past two or three years. It is a matter of rising repair costs, increased accident exposure on today's crowded highways and higher damages being awarded accident victims by juries. These factors are raising insurance rates on all cars today, and it could be expected that special high-performance models would be penalized proportionally.

However, high-performance cars are being hit much more than proportionally these days. It is ironic that the reason lies in the "package" concept, the key factor in the great sales success of high-performance cars today. It is well established that drivers in the under-25 age group, especially unmarried males, are involved in much more than their proportionate share of accidents. Sales statistics show this group is the chief buyer of today's new crop of Supercars such as Pontiac's GTO and Oldsmobile's 4-4-2. Insurance people also believe that high horsepower is a safety hazard. Thus it is easily seen why Supercars are being hardest hit.

Here is how the package concept enters into the picture. The key is that today's Supercars, with their special engines, chassis and body trim are readily identified on the registration slip. In the old days, one could order a Corvette engine in a Chevrolet, or a high-performance Super/Stock engine in a Ford, and the car would be registered simply as an 8-cyl. Ford or Chevrolet. Only a tiny fender emblem would betray what was under the hood. The insurance people, who don't know any more about cars than most Detroit executives, didn't know that such performance combinations existed. Accident statistics never revealed them, even if there was any correlation. And there was no reliable way to connect the young drivers with these cars, without registration identification. Everyone knew the young fellows were the chief buyers, but this didn't impress insurance people as an important market segment.

TODAY THIS is changed. Almost everyone recognizes a GTO or a 4-4-2 or a Corvette. Many people realize that young men buy such cars. Buyers can't conceal model identification from their insurance men. The result is that these cars are perfect targets for exorbitant insurance rates. In most states today an under-25, unmarried owner of a GTO or 4-4-2 must pay $600-$700 per year for normal collision coverage and $10,000/$20,000 public liability and property damage insurance, even with a clean driving record! A bad record can double these rates. Corvettes are just about as hard hit, although many Corvette owners are older. These people say that in some areas of the U.S. prices of used Corvettes have dropped $1000 in the past year because of the difficulty in obtaining insurance. The majority of insurers won't touch Corvettes. Many won't insure GTOs and 4-4-2s. Many won't accept any car with over 300 horsepower. Some go by a minimum weight/power ratio of 10 lb./bhp. Some of the more conservative companies charge an extra premium for 4-speed transmissions—or even fastback bodies.

However, insurance people are missing some obvious ploys that make one wonder about the effectiveness of the whole thing. For example, one may

insure a Buick Gran Sport or Fairlane GT with the majority of companies with no premium penalty. Apparently the insurance people are not aware that these two also are Supercars, with all the performance of a GTO. Obviously the models that are being hit are the most popular ones that sell in large numbers. These are the GTO, Olds 4-4-2, Chevelle SS, Corvettes, Mustangs and some Chrysler Corp. models.

It is certain, however, that the insurance factor will have a profound effect on the sales of American high-performance cars. Even today, many young buyers are forced out of the market. An extra $600-$1200 a year for insurance is very rough, even for a young unmarried man with a steady, well-paying job. And youngsters dare not take the risk of operating a car without insurance. Many states now have compulsory insurance laws. Finance companies require full insurance to protect their investments. The youthful car buyer is stuck.

Detroit is starting to take steps to ease the problem. Pontiac's new Sprint Six package with the 4-barrel sohc Six engine is a "poor man's GTO" that can turn 0-60 mph in under 10 sec. The sohc Six also comes under low insurance rates. This year Pontiac offers a GTO model with an "economy" 265-bhp engine that should be easy to insure. The standard engine in the Fairlane GT now is the 2-barrel 289 at 200 bhp. Those who order the 390 special must pay extra for it. Either the 289 or 390 engine is available with the new Mustang GT package. It's obvious that Detroit wishes to offer the buyer all the image and excitement of highly promoted Supercars with engines that are more economical and easier to insure. Perhaps the end result will be a general "dilution" of the Supercar image within the youth market so eventually no one will take them seriously. This would do Detroit more harm than good. The car companies perhaps would be better off trying to convince the insurance people they should charge insurance premiums entirely according to the driver, not the car he drives.

ANOTHER FACTOR that may harm the future of the U.S. high-performance car is traffic. There are fewer and fewer opportunities to really use the full potential of 350-400 bhp on today's crowded roads. The potential of a Supercar can't be exploited on crowded city streets at rush hour. (And rush hour seems to extend through the entire day now.) Those who play around on deserted streets at night eventually will encounter the police. The trend in the open countryside is toward wide, level superhighways to take drivers wherever they desire at a steady, uninteresting 70 mph. The hilly, curvy 2-lane rural highway is on the way out. On such roads, one really needed quick acceleration to pass slower cars in a hurry and get back into his lane. Today's Supercars would have been great on 1950 highways! Today's superhighways, however, call for an entirely different design concept for maximum efficiency. Specifications include "faster" axle ratios, engines of large cubic inch displacement with short-duration camshafts turning at low speeds, 2-barrel carburetors and more streamlined bodies. A car that can reach 60 mph from a standing start in 6 sec. is of no particular advantage on superhighways.

The fact remains that the enthusiast can be arrested for turning on the full performance of his modern Supercar —any place or any time.

What is the near-future outlook for the U.S. high-performance passenger car? There is no doubt that development must slow down radically. Performance won't be rolled back measurably in the next few years, but it won't progress at the same rate it has in the past 10 years, during which 0-60 times have been cut almost in half. Engine performance tricks such as overhead camshafts, exhaust-driven turbo-superchargers, 500-cu. in. engines and hemispherical combustion chambers probably will be minimized.

Substantial changes will occur in the various types of cars that are popular. Today's dolled-up Supercars, based on production models with some special trim and components, could fade away. Dilution of the image in an attempt to appease safety critics could do this. What may evolve is more specialized, limited-production sports models designed specifically for pleasure driving. These would use many production engine and chassis components, but would have very special plastic bodies. Maybe they won't get much use on public roads. The day may come when car owners will drive a few miles to special "pleasure driving" road courses, pay a toll, and just have a ball for 50 laps! Organized racing on these courses could become a major sport in ten years, drawing from a large segment of the mass of car enthusiasts.

THIS IS speculation, but the fact remains that major antiperformance factors are at work today. These are safety legislation, antismog legislation, insurance problems and traffic density. These will have a profound effect on tomorrow's high-performance car. Performance is bound to suffer. Yet an inner drive in many men makes them seek the pleasure of handling a quick, responsive car, the thrills of speed and acceleration. Lawmakers can't put out this fire. There always will be a strong demand for high-performance cars, and this demand is likely to be satisfied one way or another in a free economy. If high-performance cars are outlawed, a healthy black market in performance cars and equipment may be the end result. ■

FORD'S RELIABLE 390-cu. in. V-8 will maintain performance image for Mustang and Fairlane, but won't exceed insurance bhp/weight ratio.