SPECIAL ANNUAL AWARDS ISSUE

CCC

MOTOR TREND

50¢

FEBRUARY 1968

UK 3'6 SWEDEN KR. 3.95 INKL. OMS

Motor Trend names

TOP '68s

FOR THE FIRST TIME:
Outstanding Cars in Class!
Significant Foreign Cars!
Individual Merit Awards!
Achievement Awards!

AND

CAR OF THE YEAR!

'68 Preview

Will Petty/Plymouth Repeat?

The Missing Link.

Until now, there were two distinct types of stock cars.

There was the street stock. And, indeed, it was just that. Despite the acquisition of big-displacement engines and ferocious nicknames, it was basically a boulevard car. The emphasis was on luxury: expensive interiors, lavish adornments, and lots of brightwork.

Then there was the other type—the Grand National stocker. You couldn't buy it, and even if you could, your name would have to be Petty or something to get it started on a cold morning.

Nevertheless, it was infinitely attractive—the low silhouette; the super-wide tires; the stovepipe exhausts; the absence of chrome; the Spartan cockpit—sort of brutally good-looking.

Obviously there was a need for a car that combined some of the civilized comforts of the street stock with the integrity of the Grand National type.

So we created the Missing Link.

It's called the Road Runner, and you'd better believe it's one hairy-idling, stiffly-sprung, squat-sitting, wide-tired, de-chromed automobile.

Unlike most stocks, Road Runner doesn't sport an interior of hand-rubbed, fake Ukembeki wood. It doesn't even have Buck Rogers signature-model seats. Like a real stocker, it's all-business inside: a couple of gauges, a big Hurst gear lever and clutch, brake and accelerator pedals. The exterior is similarly functional.

The standard engine is an exclusive high-output version of Plymouth's 383 cu. in. V-8. Optional, and very fitting, is the big 426 Hemi.

The body is a two-door coupe with a hardtop roofline, and it's rigid as only a stocker can be.

The suspension is completely heavy-duty, front and rear.

The only real concession to the boulevard is the addition of a horn, and even that has character. It goes "Beep-Beep!" just like the bird in the cartoons.

Oh yes—and the doors work. On Grand National cars they're welded shut.

. . . the Plymouth win-you-over beat goes on.

Plymouth CHRYSLER MOTORS CORPORATION

We're all fired up over the Pontiac GTO winning the Car of the Year award

We're excited and pleased because when Pontiac engineers were designing the high-performance GTO engine, they chose AC Fire-Ring Spark Plugs to power it.

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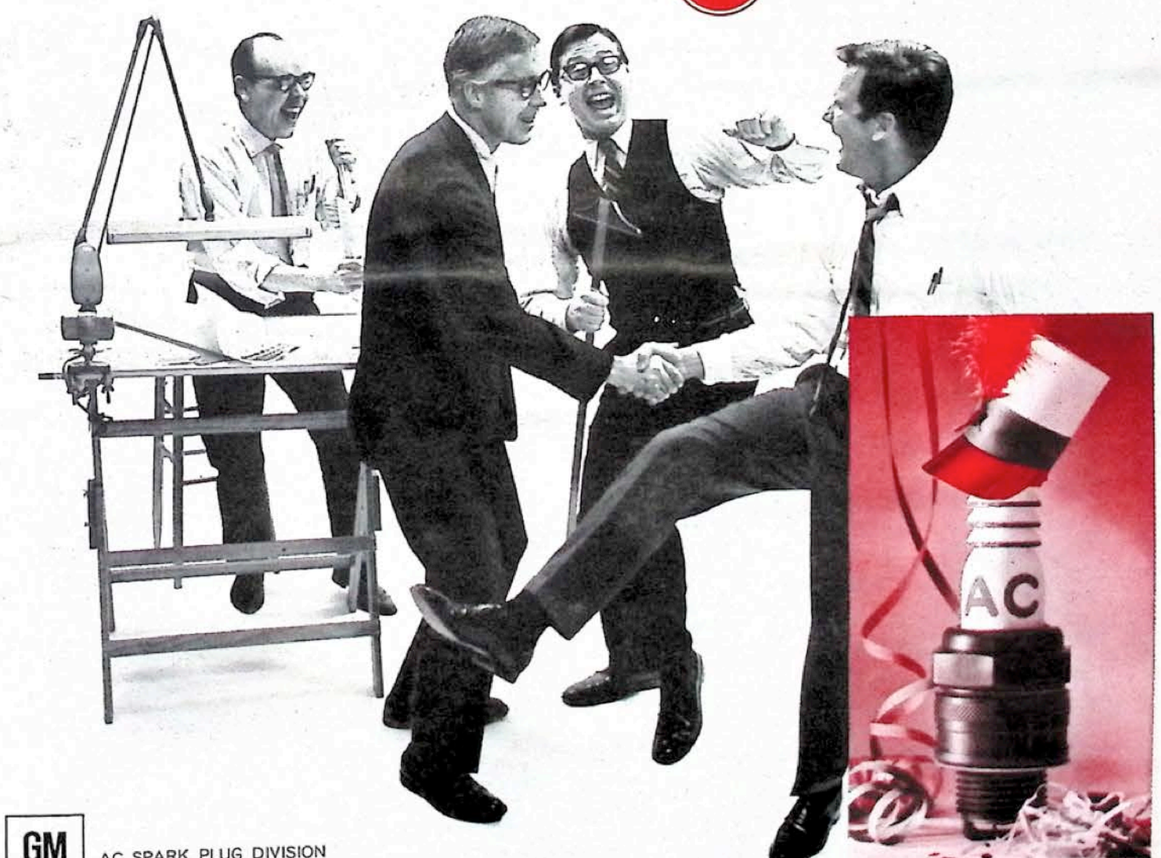
AC Full Time Firepower



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PUBLISHER / Walter A. Woron
EXECUTIVE EDITOR / Erwin M. Rosen
SPECIAL PROJECTS ED. / Ben Sussman
ROAD TEST EDITOR / Steven A. Kelly
FEATURE EDITOR / Julian G. Schmidt
NEWS EDITOR / Bill Sanders
PRODUCTION EDITOR / Ellen Merlo
GRAPHICS / George Foon
EDITORIAL ASSTS. / D. Pace, S. Troedsen

CONTRIBUTING EDITORS
Donald MacDonald / SR. CONTRIB. ED
Robert J. Gottlieb / LEGAL
Ralph Stein / VINTAGE CARS
Griffith Borgeson / EUROPE
Bob E. Myers / STOCK CAR RACING
LeRoi Smith / PERFORMANCE
V. Lee Oertle / TRAVEL
R. F. Ansdale / UNITED KINGDOM

ADVERTISING OFFICES
NEW YORK
770 Lexington Ave
New York, N.Y. 10021
DETROIT
2208 Detroit Bank & Trust Bldg.
Detroit, Mich. 48226
Robert Brown, Mgr.
CHICAGO
401 No. Michigan Ave.
Chicago, Ill. 60611
Everett Allen, Mgr.
CLEVELAND
One Public Square
Suite 905
Cleveland, Ohio 44113
John Millar, Mgr.
ST. LOUIS
34 N. Brentwood Blvd.
St. Louis, Mo. 63105
Chris Moran, Jr., Mgr.
LOS ANGELES
5959 Hollywood Blvd.
Los Angeles, Calif. 90028
Clark Graves, Mgr.

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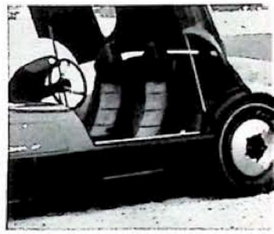

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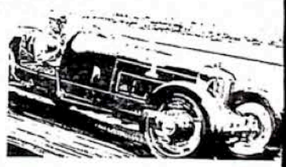

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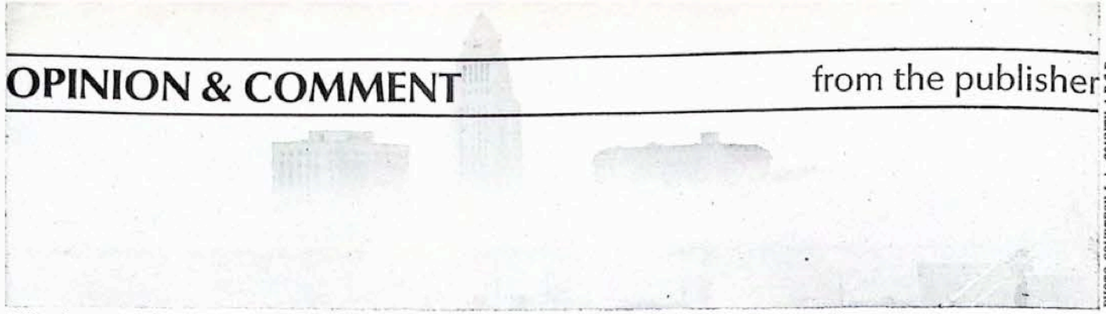
OPINION & COMMENT

from the publisher



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"Nothing to breathe but air, Quick as a flash 'tis gone;" Ben Franklin King

A LARGE PART OF THIS ISSUE is devoted to the awards we feel should be made to various cars, accessories and people in the automotive and related industries. There is one award, however, that is missing from this year's expanded program and that is MOTOR TREND's Special Award. This is a classification established with the 1968 program to be given on an occasional basis to a person or organization in industry, government or private life, in recognition of some achievement that cannot be satisfactorily judged in any other category. We wish there wasn't the blank space where a recipient's name should be, but in our estimation there was no one significant achievement made by a person or company worthy of being so honored.

We would like to think that next year there will be more than one individual or company we can single out—that the choice will be hard. And personally, we hope that it will be in the air pollution control area. There has certainly been enough interest aroused in this subject lately to allow for the emergence of some bright company or individual who has taken a giant step toward solving this nationwide problem.

....Maybe it will be someone who decides that the cause can't be cured and that the answer might lie in changing the effect. (As in water pollution/purification.)

....Maybe it will be someone in the Department of Health, Education and Welfare developing the new "air quality criteria" (guidelines that fuel-using-and-producing industries must follow for permissible amounts of various pollutants) under the newly-enacted Air Quality Act of 1967. Or maybe someone in the same department researching and/or developing in conjunction with the fuel industry ways to eliminate harmful pollutants from fuel will come across some new "clean" fuel. The HEW department is now empowered to spend much of the $428 million allocated for this over the next three years.) However, anyone working for the government in this area is going to find himself next to a buzz saw with no guard, for once the air quality standards are set—no matter how loose or how stringent—there is bound to be great controversy. The fuel industry *has* to look at it from an economics standpoint, so the battle line is drawn.

....Or, maybe someone who was on "The Panel on Electrically Powered Vehicles," concluded in Oct., 1967, after 10 months of study, or one of its many sub-panels, will come up with a solution. There were *all-kinds* of talent on the basic panel and its six sub-panels, including academic and business experts from all related industries. A real Think Tank. This is not to say that the panel did not come up with some good ideas as it is. Their final report, "The Automobile & Air Pollution: A Program for Progress," published by the Department of Commerce at the conclusion of the panel, listed 16 strong recommendations for "urgent, effective action."

Among the recommendations:

—The Federal government should support and help develop mass transportation systems, local pollution control inspection stations and establish a worldwide interchange of information.

—Higher priorities and responsibilities for action should be set up within the Dept. of HEW and in the Executive Branch of government.

—The Federal government should set up standards in the area of harmful auto emissions, in lead content in gasoline and should revise readings of emissions for all internal combustion engines to be in terms of total mass rather than in percent of pollutant.

—The Federal government should sponsor research programs in the area of the effects of total air pollution on atmospheric processes and upon the health and welfare of the population, plus studying long-term health effects of lead in the atmosphere. It should also set up a special 5-year program to support "innovative developments useful in the establishment of future emission standards in the following areas: energy sources for vehicles, vehicular propulsion systems, emission control devices, special-purpose urban cars and general-purpose vehicles.

"The cost of these (all 16) steps is small," says the conclusion in the report by the panel, "and should be considered a minimum investment in the quality of life for the future." Certainly, if our health is important, the investment *is* small. The new Air Quality Act allocates $428 million over three years. *One* Saturn moon rocket costs $180 million. The Viet Nam war is costing us $26 billion a year. It seems to us that the investment is hardly proportional to the problem.

....So, maybe a Special Award in 1969 could go to someone in government with the foresight to push through a larger allocation to allow much more weight to be put into developing an anti-smog answer. Most experts agree that more Federal assistance is needed to solve the problem.

....Possibly someone in the auto industry will deserve our Special Award because he develops a totally new approach to effectively curb emissions. Certainly the automobile is getting the major part of the blame. In its report, the Panel on Electrically Powered Vehicles contends that of the 142 million tons of pollutants pumped into the air each year in this country, 60.6% are due to motor vehicles, 16.8% come from industries, 14.1% from powerplants, 5.6% from space heating and 3.5% from refuse disposal. Though the panel pointed out that the percentage amounts should not be construed as having the same relative effects on health, it is without doubt that the automobile and the fuel it uses together must shoulder the majority of the smog-producing blame.

It's doubtful that any early solution will be a new powerplant, such as an electric car. (Early in the study conducted by the electric car panel, that panel realized that focussing on the electric car would not produce a report of great usefulness and therefore expanded its study to include (and set up sub-panels on): air pollution, current automotive systems, energy storage and conversion systems, the automobile as it relates to the economy, automotive energy sources and transportation system requirements.) More likely it will be yet another variation on internal combustion engine design that will result in fuller burning of the fuel and reduced emissions.

....One of the major battlegrounds that could produce a Special Award winner next year could be in California, where the greatest problem due to photo-chemical smog exists because of the combination of emissions, topographic and meteorological conditions. (Air pollution is higher in several other cities than in Los Angeles—New York for one—but it is a *pollution* problem there and not nearly so much an *auto smog* problem.)

The major area of disagreement between California and the automobile industry centers around the fact that if the industry were to design smog-free cars, they would be forcing the general public throughout the country to pay for, unnecessarily, what is needed only in California. On the other hand, California pollution control experts contend that if the smog problem is solved there, "other states that may later be faced with the problem will be years ahead in being able to base their decisions on the efforts and results which take place in California." Officials also point out that "California has almost one-tenth of the total population of the 50 states and, more than 10% of all automobiles sold are purchased in California."

It's hard to say where this all will end, but it would seem that the general public can do no more than benefit, while the auto industry, fuel industry and new car purchasers are all going to have to take their lumps. Maybe our first Special Award should go to the poor car owner who will eventually have to pay for it all?

—Walter A. Woron

You've got to believe power is very important to the "Car of the Year."

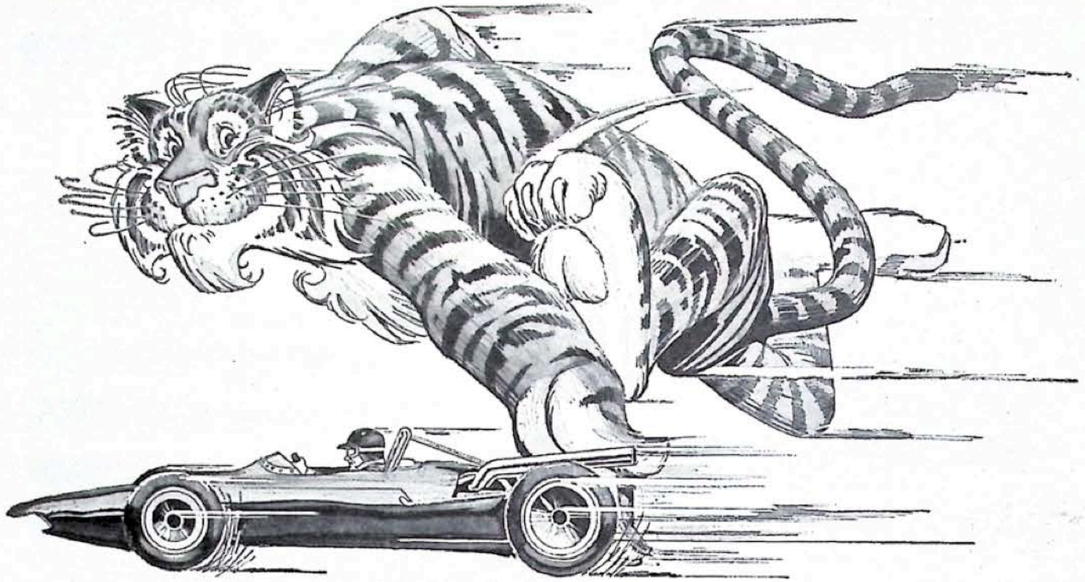
(That's why they're so particular about who powers the windows and seats in Pontiac's GTO.)

It's so nice to be on a winner. And when the winner is as much a car as Pontiac's GTO, it's even more rewarding.

Pontiac wants quality for their cars and value for their customers' money. That's one reason we're the power behind their windows and seats.

GM Power Windows and Seats are available on other Pontiac models as well. And they're also available on Chevrolets, Oldsmobiles, Buicks and Cadillacs.

GM Power Windows and GM Power Seats by Ternstedt Division



It's a winning streak!

Our Tiger is building quite a reputation around the race tracks of the world. His winning streak throughout 1967 was remarkable.

U.S. Auto Club Championship
Winner, A. J. Foyt with a Tiger in his tank.

Indianapolis 500
Winner, A. J. Foyt, with a Tiger in his tank.

World Driving Championship
Winner, Denis Hulme, with a Tiger in his tank.

24 Hours at Le Mans
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The top drivers choose the Tiger (special racing fuels supplied by Humble) and Humble's lubricants for their race cars. Just as you can choose the Tiger (new Enco Extra gasoline) at your nearest Enco station. The same people who blend the winning racing fuels also blend Enco Extra gasoline. And the same kind of clean, smooth, winning power is available to you. Make your next pit stop at the Enco sign of "Happy Motoring!"®

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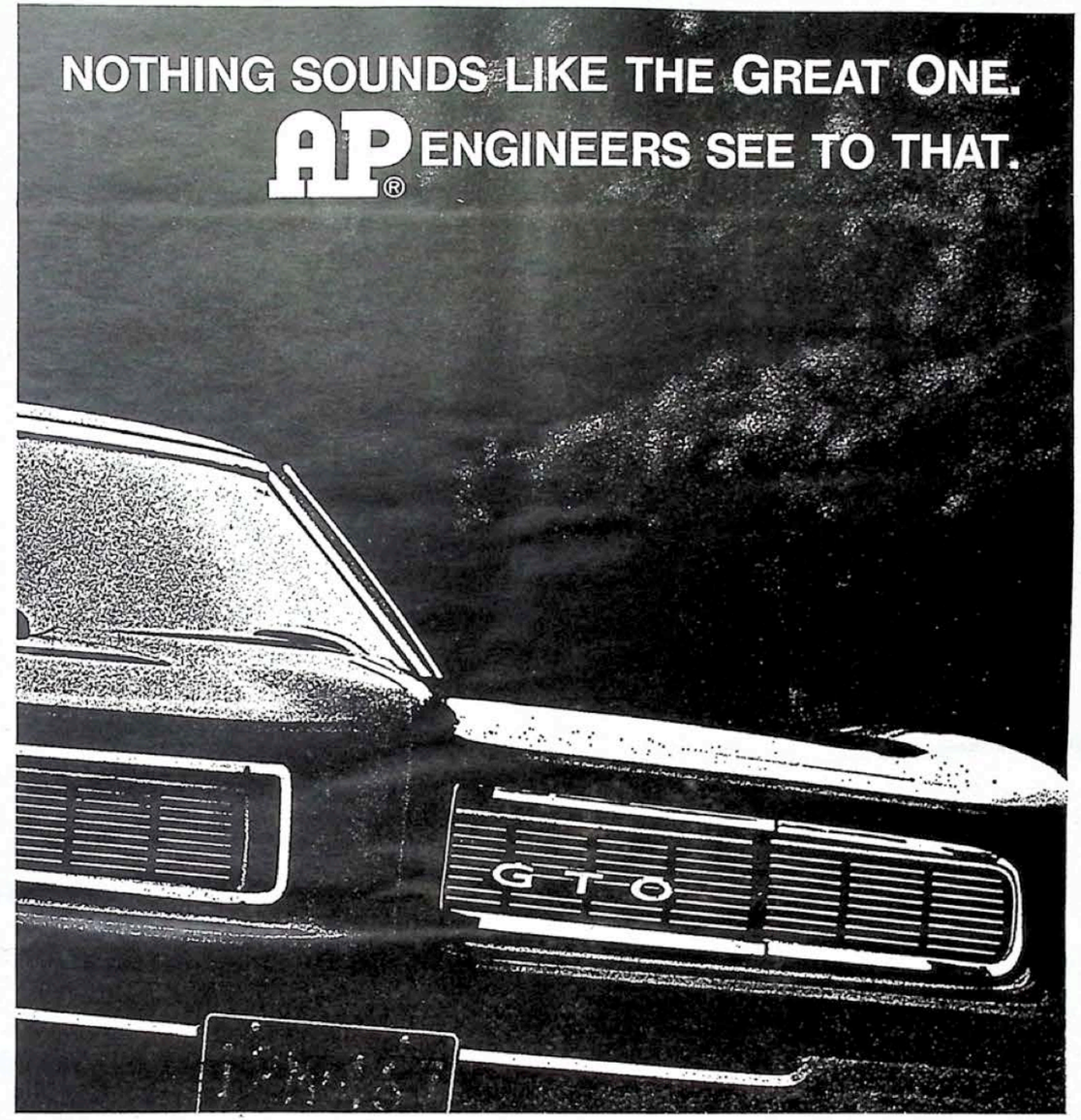

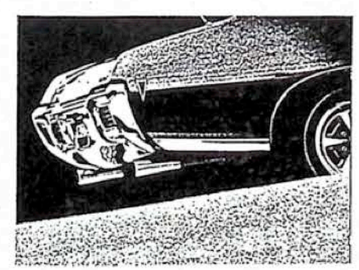

When you blow exhaust from 400 cubes, you don't hang just any exhaust system on the brute. You build one as part of the power-plant. With deep-breathing pipes and super-tough, minimum restriction mufflers. So you get all the horses out that Pontiac puts in.

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They've done the same for *your* Car of the Year—no matter what its make and model. Get the performance/personality-engineered exhaust system custom-made for it. From the service stations, garages, or car dealers nearest you that handle the best.

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A. J. Foyt, like 19 other drivers at the 1967 Indianapolis 500, carried the Wynn's decal on the side of his car ...and Wynn's Radiator Stop-Leak in his cooling system. For 500 blistering Indy miles the product worked. It stopped leaks before they could start. It kept A. J. Foyt running strong all the way to the checkered flag. It'll keep your car running strong—anytime.

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A. J. Foyt on the move at the '67 Indianapolis 500.

INSIDE DETROIT

Insurance Cancellations Cut

The controversy over auto insurance cancellations has been resolved to a degree after widespread complaints had increasingly mounted against the insurance industry. As of Jan. 1, the reasons for cancelling auto insurance policies have been reduced to two by companies insuring about 40% of the nation's 75 million insured drivers. The only cases in which policies will now be cancelled are for nonpayment of premiums or suspension of a driver's license or car registration. Insurance companies moved to put the new stipulations into effect after repeated complaints about what drivers considered unwarranted cancellations prompted the enactment of new laws and regulations in many states.

Fewer Fatalities

Federal officials believe their car safety standards are already paying off in terms of lower fatality rates. Dr. William Haddon, Jr., director of the National Highway Safety Bureau, said research indicates large reductions in crash fatalities as a result of the new energy-absorbing windshields and steering assemblies. "The pattern of huge annual increases in deaths has broken in recent months," he says.

Forget It

Ford can forget for at least another year any thoughts they had of catching Chevrolet. Final tally showed the strike last fall cost them 545,000 cars and trucks.

Don't Do It Yourself

A Ford researcher predicts "we'll have simple versions of automated highway links within the next five years." Foster Weldon, manager of Ford's Transportation Sciences Department, says his "think group" is studying a "guideway system" which could enable motorists to have a second cup of coffee and read the morning paper as they drive to work. Each car would have a built-in "hand" which reaches out and "grabs" a guide rail. This would whisk the car quickly and safely to its destination along a lane that carries eight times as much traffic as a normal freeway lane.

Another Ford idea is for an "air bus." This would be an oversize plane that would carry 24 buses filled with customers picked up near their homes. The bus would be computer-dispatched. A passenger going on a trip would automatically route the bus to his home in a few minutes. It would take him and fellow passengers directly to the plane. The body of the bus would be lifted onto the plane.

Also under study is a pushbutton taxi. Driverless taxis, which would be used in downtown areas, would wait at stations for passengers to step in and press a button for their destination. The taxi would be routed along a track or overhead rail by a computer. It would also calculate the cab fare . . . with no tipping necessary.

With another new Ford Division idea car, the Thunderbird Saturn (Jan., MT), you can throw away your road maps. It has an unique computerized travel information console. It's based on some gadgetry shown previously, but with some new twists. Essentially, the travel information system is designed to "tell" the driver which direction to go, when to turn and what road and traffic conditions ahead are like.

The driver of this futuristic car could theoretically "monitor" his way to his destination after merely placing a punched "trip control" computer card in a slot at the top of the console. Pictures projected on a small screen in the upper left portion of the control panel would show the driver the distance and direction of the next turn. Displayed on another screen in the upper right portion of the panel would be pictures showing a map layout of the route ahead. A radar screen in the center of the panel would provide a clear view of traffic ahead regardless of the visibility outside the car.

Adversary Is An Advocate

This month's sermon on electric cars comes from Prof. Jay A. Bolt, of the University of Michigan's mechanical engineering department. He believes the long-term trend is in the direction of practical electric cars. Bolt says the future usefulness of electric vehicles will depend to a great degree on the development of improved low-cost batteries.

"Given impetus by the air pollution problem, this is likely to be the long-term trend, since gasoline may be expected to continue to rise in cost, while electric power will become less expensive," he says. Belt believes "there is a place for battery-powered vehicles in small size and short-range applications, especially for areas with serious air pollution."

Plastics Are In

Ford and Chrysler have been looking seriously at a new Borg-Warner plastic automobile called the Formacar. It's made of Cycolac, an ABS plastic developed by B-W's Marbon Chemical Division. Centaur Engineering, a Marbon subsidiary in Detroit, developed the car. The body has a new grade of Cycolac said to be tougher than that used on previous B-W experimental cars. Ford is known to be working on a 2-seat sports car, but it's believed the long United Auto Workers' strike has delayed any plans for production until 1969 or 1970.

Speculation about a Chrysler sports car has been strengthened by its Charger III (see page 86), a 2-seat Dodge experimental car with a jet-type canopy, which also recalls a similar entry arrangement on Chevrolet's Astro I "idea car."

"Many of the features seen in Charger III might well be included in our cars in the not too distant future," says Dodge General Manager Robert B. McCurry.

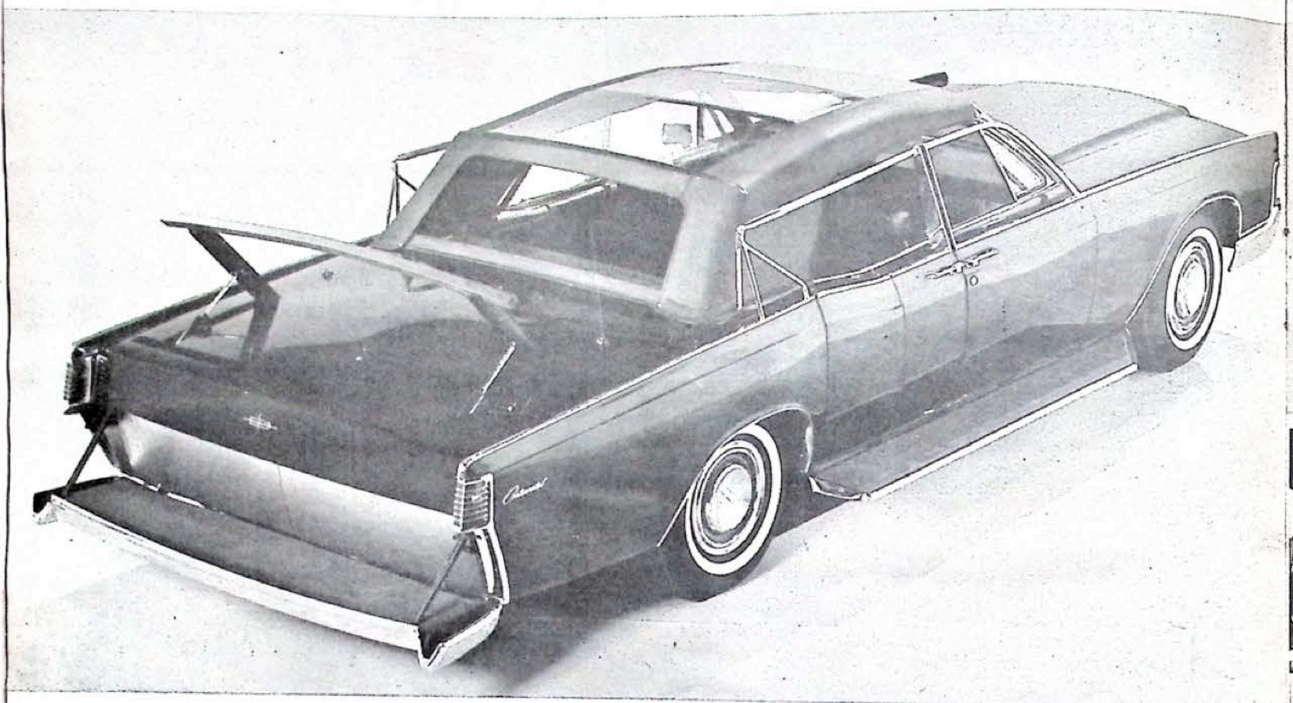
Kids Must Be Rich, Nowadays

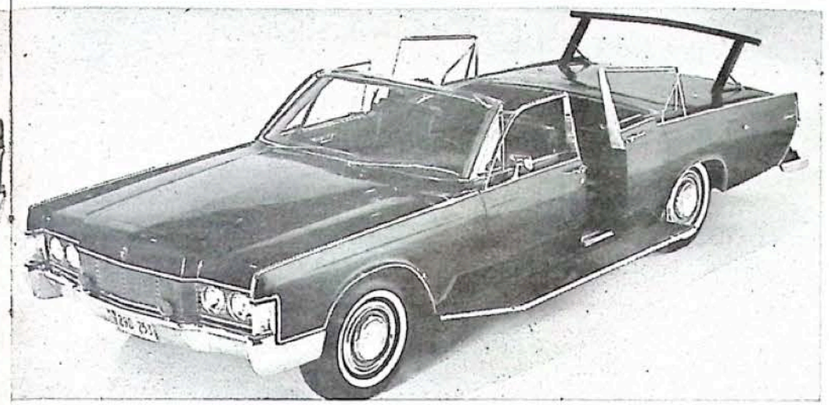
Shades of the Mustang! American Motors says that while its Javelin is the industry's lowest priced specialty car, buyers are showing a strong preference for performance and luxury options. The Javelin sticker price is $2459 but AMC says a study shows that the average car being ordered carries a sticker price of $3053 because of the optional equipment ordered. The 1965 Mustang, when it was introduced, carried an advertised price of under $2400 but Ford found that buyers were adding on so many extras that the real delivered price was closer to $3100.

1984 Costs Money

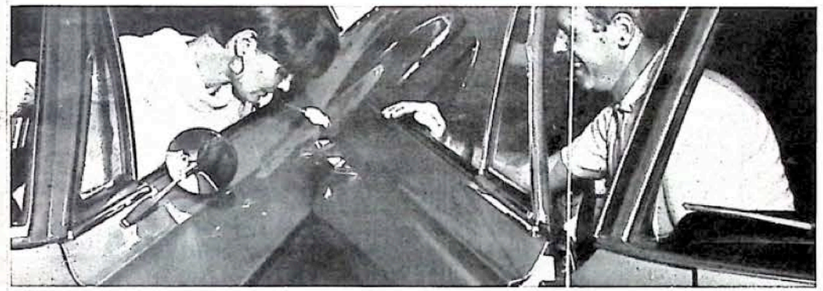
The government's new tire safety standards shouldn't prove any more difficult for the rubber industry than the proposed new car safety standards are for the auto industry. The tire standards generally follow what the industry is already doing, anyway. The regulations require labeling of tires for maximum load and inflation. They also call for each tire to have a tread wear indicator. Moreover, they set up laboratory tests for tire strength, endurance and load ratings.

In most cases, manufacturers are already meeting the standards. For example, the Rubber Manufacturers' Association notes that since the 1967 model run new cars have been equipped with tires containing tread

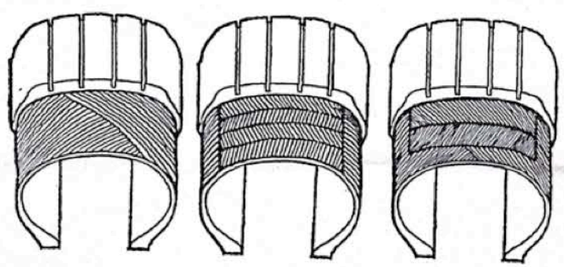




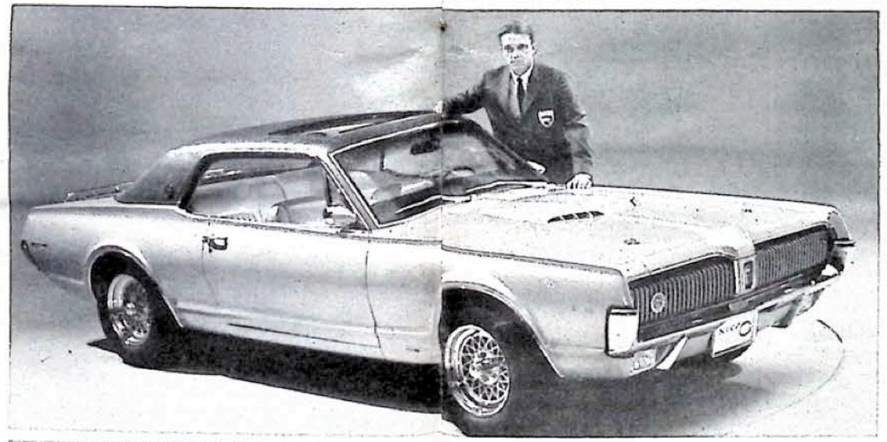
(Far left and left) Two new "Queens" to serve the President are now on the road. The queens are two specially built Lincoln Continental 4-door convertibles and are called "Queen Mary" and "Queen Elizabeth" from a tradition that dates back to 1938. The new cars are nearly 19 feet long with 340-hp V-8s that will push the cars along at 115 mph. They have 11-inch wide running boards and an 11-inch wide retractable platform across the rear. Specially designed rear doors allow secret service agents to enter the moving car from the running boards. Each car is equipped with the latest electronic gadgetry.

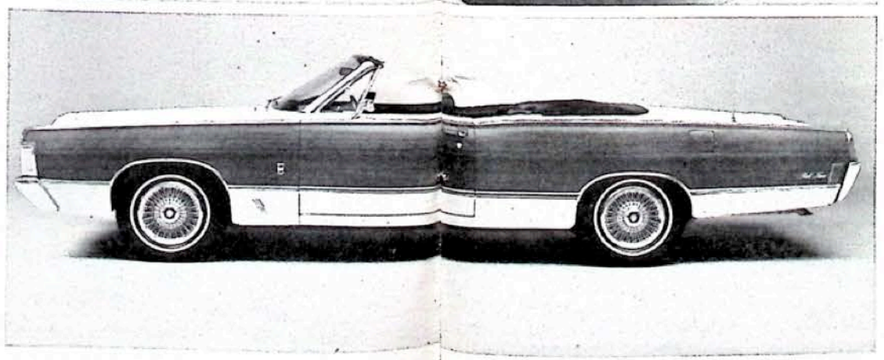


(Left) Oops, sorry . . but no harm is done as the gentleman opens his car and accidentally bumps the car in the next parking space. Her car is protected against an irritating parking lot "ding" by a cushioned vinyl insert body molding, a new feature on several 1968 General Motors models. The molding runs the length of the car.

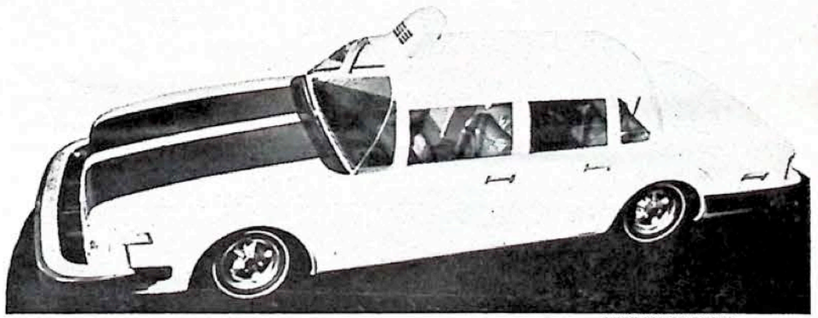


(Above) For more than 60 years, motorists have been driving on bias-ply tires, but now two new types of construction are revolutionizing the industry. In a conventional bias-ply tire (left) cords cross at an angle. In the new radial-ply tire (center) cords run straight across with an additional layer between plies and tread. The newest belted bias-ply (right) construction by Goodyear combines both concepts and adds to wearability.





(Above right) The Mercury Cougar XR7-G – a one-of-a-kind personalized sports car – made its debut at the Detroit Auto Show in November. Dan Gurney, popular international race driver (with car), wrote the formula for this new show car and included European road car features in it. XR7-G features a power-operated sun roof, competition hood lock pins, quad exhaust ports and hand finished leather interior. (Right) Also at the show was the Mercury Park Lane convertible with Colony Park simulated woodgrain side paneling. Power is supplied by a 390-cu.-in. V-8 with 4-bbl. carburetor for 315 hp.



WIDE WORLD PHOTO

New York State and Fairchild Hiller's Republic Aviation Division have finally shown their scale model (above) of a safety car. Features include: rounded corners designed to sweep aside pedestrians who might get in the way of the car, an energy-absorbing, hydraulically operated front bumper that extends out at speeds over 37 mph, 4-wheel drive with an anti-skid system, a flat windshield, and a periscope jutting up above the windshield that is designed to give the driver a 160-degree rear view of the road behind. It's also supposed to be able to withstand front and rear impacts at speeds of 50 mph and side impacts at 40 mph, would be powered by a 260-hp V-8, would weigh 4000 pounds and be similar in size and performance to a standard Pontiac.

George Hildebrand, the Republic Aviation engineer who has worked on the project the past few years, said the car uses items right off the shelf. "Every item is available to the auto industry," he said. "We have done nothing that would create an economic juggernaut." The difference between his car and Detroit's, he said, is that "we treated the problem of safety as a whole rather than the method used by Detroit of adding gadget by gadget." That's fine, but will it sell?

continued

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wear indicators. This is a line built into the tire that shows when only 1/16 of an inch of tread depth is left.

Overall safety standards for the 95 million used vehicles in use in the United States have been a knotty problem. The National Highway Safety Bureau has developed some proposed standards that emphasize brakes, the steering system and throttle linkage because suspected failures in these components have popped up so frequently in new car recalls. Generally speaking, the standards will require motorists to see that their cars are checked periodically to insure that the major running components are still operating properly. Thus, the "used car standards" will amount to the same thing as regulations covering periodic motor vehicle inspection . . . another problem for the safety bureau.

The question has often been posed: do required vehicle inspections really make cars and highways safer? "Except for a few anecdotal accounts, there is little evidence that inspection of vehicles prevents accidents," according to researchers at the University of Michigan's Highway Safety Research Institute. Nor for that matter, they feel, does it help much to reduce the number of cars on the road having defects like faulty tail lights. Nevertheless, more states are requiring periodic inspection — the federal government wants it, too — but the whole thing is frightfully expensive. An annual inspection for all automobiles in the country would cost an estimated $350 million, or some $3.50 to $4 per vehicle, according to the U-M estimate.

Laws To Enforce Laws

A law requiring you to wear a seat belt? The National Safety Council has decided against recommending laws at this time requiring people to wear belts. The council doesn't feel they're needed since many states have laws requiring the installation of belts in cars. "The legal requirements that seat belts be installed suggest that officials expect they will be worn," said M. R. Darlington, chairman of a council committee which investigated the matter. There are now laws in 29 states requiring motorcyclists to wear safety helmets — although a Michigan judge has ruled this unconstitutional. The safety council feels seat belt installation laws are "analogous" to the motorcycle laws.

Speaking of seat belts, the latest survey indicates that more cars are equipped with belts than ever before but fewer people proportionately are wearing them. About 65% of one million cars checked were equipped with belts, yet barely half the drivers said they always use them on long trips and only 38% said they always use them in local travel. A year ago, 43% of those questioned said they always use belts on long trips.

Less Liberal Warranties

The auto industry is tightening up on those 5-year/50,000-mile guarantees. Chrysler was the first to offer the "5/50" warranty — in 1962 with the start of the 1963 model run. And thus it was the one to uncover a major problem in the guarantee — the absence of any restriction on the number of owners. In the past five years, one official reported, Chrysler had instances of some cars "turning over three, four and five times. It was difficult trying to make sure the warranty had been kept valid during all these transactions."

So the warranty is now being restricted to the first and second registered owners of the cars. And, of course, to keep the warranty in force, the owners must follow the maintenance procedures prescribed in the owner's manual. The problem at Chrysler was estimated to have involved a few thousand cars a year. "We found that the number of people who bought one of our cars fourth or fifth hand and came back to file a warranty claim was very minimal," a source said. "When this did happen, about half the time the records were so clouded that it was hard to justify the claim. We found we could satisfactorily manage the warranty only through the first and second owners." Therefore, a change was made.

Chrysler's experience obviously scared its competitors who only started the 5/50 warranty last year. Within days after Chrysler put the clamps on, General Motors and then Ford came up with even tougher regulations. GM announced that the 5/50 powertrain warranty and the 24-month/24,000-mile guarantee on the rest of the car will now cover only the first owner. If the car is sold before the 24/24 period is up, the next owner can keep the warranty in force by paying $25, a new twist not thought of by Chrysler. A third or subsequent owner in this period can get only the unexpired portion of the 24-24 warranty by paying another $2.

Then, in a little gamesmanship, Ford did even better than GM. In addition to the $25 fee GM decided to charge second owners, Ford decided they must pay the first $25 of each warranty claim from then on. Only the first owner gets free claim work. In addition to the other fees, Ford says its dealers can charge owners of 1968 model cars up to $2 annually for inspecting their cars. The annual inspections are required to keep the warranties valid. In effect, Ford and

Find another car under $2,000 with all these advantages, and we'll buy it for you.

35 miles per gallon

And that's an honest 35. (A lot of people say they get more.)

Concave seats that recline for sleeping

You know how soft foam rubber is. Well, that's the stuff we stuff our seats with. So if you sleep well at home you'll sleep well in a Renault 10.

You'll sit well, too. There are 18 adjustable seat positions. And 13½ inches of seat travel to make up for short or long legs.

Engine over the drive wheels

In the winter you'll pass a lot of those big powerful cars.

The rear drive wheels can really bear down on snow and ice because the entire engine is bearing down on them.

4 doors as standard equipment

The two back doors make it easy to get to the back seat. Logical?

4-wheel independent suspension

Independent suspension means each wheel can move up or down without moving the one on the other side.

So when one wheel hits a bump, only one gets bumped. The other three keep the car and you going in a level position.

4-wheel disc brakes

Because of this system's ability to withstand heavy braking without fade, they have long been used on cars capable of over 160 m.p.h.

Imagine how fast they can make the Renault 10 stop.

4-speed synchromesh transmission

This design synchronizes the speeds of the engine and the transmission to allow the gears to mesh easily. Which makes shifting a lot easier on you and your transmission.

Wet sleeve

When the cylinders wear out in a conventional engine, the whole engine has to be pulled out and rebored. (Sometimes it pays to buy a new car.)

A Renault 10 piston moves in a removable wet sleeve. (It's 'wet' because it's surrounded by liquid coolant.) If the sleeve wears out, it can be easily replaced.

Liquid cooling system with expansion tank

Water-cooled engines are much quieter than air-cooled engines. But in ordinary water-cooled engines, water and anti-freeze can frequently overflow and escape. Our system, however, has a tank which keeps the overflow from escaping. So you won't have to add anything. (But we do recommend checking the system about every 18 months.)

5-main bearing engine

Instead of three bearings, we support the crankshaft at five points, (which is more than some six cylinder engines do).

Draft-free ventilation

On a hot day you don't have to get your hair blown off.

You can roll up the windows, open the dashboard vents, crack the back windows, and enjoy a little peace and quiet.

Rack and pinion steering

Driving is no time for playing. That's why we use a system that eliminates play in the steering wheel.

Turning circle of 30 feet

A short turning circle means you can make most u-turns in one clean sweep. (That funny little car you've seen so much of has a turning circle of 36 feet.)

2-speed hot-water heater and double outlet defroster (at no extra cost)

Our heater uses the same hot water that circulates around the engine. And because water heats more evenly than air, our system can produce more even heat than any of the air-type heaters.

11 cubic feet of trunk capacity

We're not the biggest in this compartment but we're not the smallest, either.

The smallest has 2.3 cubic feet, which is about as much space as we have behind our back seat.

A separate compartment for the spare tire

If you get a flat, you don't have to unload all your luggage to unload your spare tire. And you don't have to get dirt on everything when you put the flat tire away.

15 inch wheel

A larger wheel makes fewer revolutions to go the same distance. Which means you save rubber. Which means you save money.

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Top speed 84 m.p.h.

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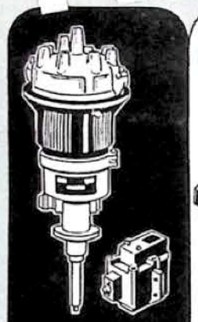

SUPER-MAG MAGNETO
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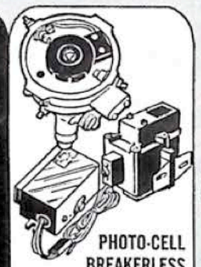
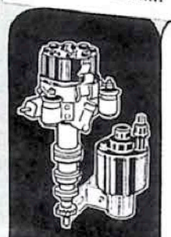
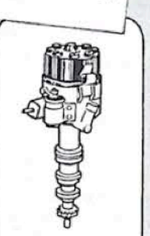


PHOTO-CELL BREAKERLESS CAPACITIVE DISCHARGE IGNITION
Operates on a "Beam of Light." No points to wear out. Capacitive Discharge feature fires fouled plugs, improves engine performance. Spark Plugs last 50,000 to 100,000 miles. Designed to outlast the engine itself. Times engine more accurately than ever before possible.



REV-POL IGNITION
The ultimate of conventional ignition systems. Uses less current, reduces half the wear on contact points. A truly long life system. Induces a spark of long duration and high value which improves as engine speed increases.



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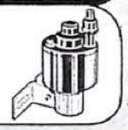

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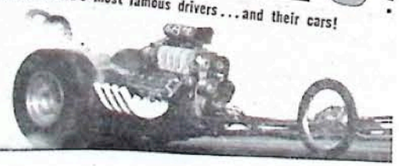

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Chrysler now have what amounts to a 1-owner guarantee. General Motors and American Motors, which followed Chrysler's lead, now have 2-owner guarantees.

Smog Spy

Automotive engineers and government officials talk wishfully about some day developing "a little black box" which can determine easily and quickly whether a car's anti-smog device is working properly. "We don't know when we'll have that, but we do have right now a pretty big blue box," joked Charles Heinen, Chrysler's chief air pollution control engineer. He was referring to the auto industry's first mobile exhaust control laboratory.

The traveling lab is a blue-colored, 30-foot-long Dodge Motor Home. Its equipment includes a computer, a dynamometer and a gas analyzer—part of a total package worth about $75,000. The idea is to use the lab to train dealer mechanics on how to maintain engines using the anti-smog systems. The unit, first of several the company will build, may help solve a problem California officials have found in checking performance of the anti-smog systems installed on cars there. They discovered that in many cases mechanics did not know how to adjust the systems during a tuneup, with the result that they no longer worked properly.

Black Days For Black Paint

Most popular car colors? White, according to General Motors, which said it represented 13.1% of GM car production last year. Gold zoomed into No. 2 with 12% while medium blue came in close behind in third. Green has been selling at close to 10% of recent production and a further increase is forecast for '68. Black? At its lowest popularity in history, GM says. It now goes on only 2% of GM cars. There was a time when black was on over 90% of GM cars, and every schoolboy has heard of Henry Ford's saying, "You can have any color you want so long as it's black."

Built-in Inertia Reels

When inertia reels that hold safety belts finally appear on American cars they most likely will be built right into the seats. But the big problem, according to a top General Motors engineer, "is to build the seats strong enough so they can support the belt loads." This engineer doesn't use the stock American industry claim that inertia reels haven't yet been proved reliable. "There is no question they will work," he says. "Seat structures now won't take the loads if you attach inertia

continued on page 22

New Zealander Bruce McLaren is the undisputed champion of the 1967 Canadian-American Challenge Cup Series. His chassis: an immaculate McLaren Mark 6A which he designed and built. His engine: a powerful 358-cubic inch Chevrolet. His motor oil: Valvoline Racing Oil, SAE 50. Second place was captured by world champion Denis Hulme, McLaren's teammate, who also relied on Valvoline for winning power and performance throughout the series.

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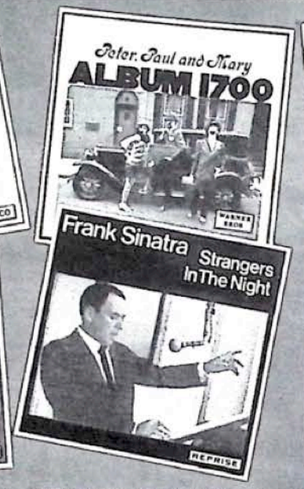

5509. PETER, PAUL & MARY — Album 1700, I Dig Rock And Roll Music, The House Son, 12 in all

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3789. Also: I Wish You Love, Who Can I Turn To, 8 more

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3767-3768. Two Record Set (Counts As Two Selections)

3442. Also: A Poem on the Underground Wall, Cloudy, etc.

2696. Also: Running Scared, Blue Angel, It's Over, 12 in all

5238. Plus: Cabaret, Time After Time, Hasta Luego, etc.

3798. Also: Summer Wind, Guantanamera, Cabaret, etc.

2887. "The most fun since Tom Swift."—Wash. Sun. Star

5376. Plus: Let's Ride Again, C'mon Marianne, 6 more

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3632. Also: Louise, Undecided Man, Good Thing, 12 in all

3855. Plus: Free Again, Nice 'N' Easy, Girl Talk, etc.

5373. March Of The Boyars, Wedding March, etc.

1022. Also: Love for Sale, Candy Kisses, Marry Young, etc.

5809. Also: Try To Remember, You Pass Me By, Today, etc.

5378. Changes, Mr. Blues, Someday, Hey Grandma, 13 in all

5515. This album includes Lulu singing the hit title song

5792. Plus: Before You Go, You're A Big Girl Now, etc.

3202. Special two-record set counts as one selection. Also included: Moonglow, Stardust, Take Me, 20 more

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reels and shoulder belts. Fisher Body has every conceivable kind under development and I'm not sure myself how it's going to end up. There's a big cost problem too and we're trying to simplify the designs as much as possible." But they will go into production one of these years.

CHRYSLER TURBINE TRIES AGAIN

Chrysler is working on plans for its "sixth generation" experimental gas turbine engine. It's still in the design concept stage. But Chrysler Vice-President Harry E. Chesebrough says there are three goals the firm wants to achieve with the new engine. It will have still more performance than its predecessors. It will provide better fuel economy in city driving. And there will be significantly less weight and bulk to the turbine powerplant, according to Chesebrough.

CADDY JUGGERNAUT

Cadillac's 472-cu.-in. V-8 — largest in the auto industry (Motor Trend, December 1967, p. 80) — may get even bigger in a few years. Engineers left room to increase the displacement and have tested larger versions of the engine. Caddy officials say one dealer in Florida wants to race the engine. Its 525 lbs.-ft. of torque are the highest around. Asked just how big the engine could get, Cadillac General Manager Calvin Werner replied, "We could sneak up on 600 inches."

RUMORS
True or False?

Ford is testing a steam car . . . True. Richard Morse, head of the government's Panel on Electrically Powered Vehicles, thinks so. In addition, he, of all people believes that steam may be the only possible alternative to the gasoline engine.

A transverse-amidship-engined car will soon debut from Detroit . . . False. It will debut, but not for a few years. Even at that, it will probably be a 6 in a very small car.

Ford's Delta small car won't be produced until 1970 . . . True. It will have a conventional powertrain, unlike the front-wheel-drive V-4 Cardinal of a few years ago, but it will look like the Cortina.

This means that the Falcon will be dropped . . . False. At least, not at this stage. Remember that there were similar rumors about the Chevy II when the Chevelle came out, and there's been talk for years about the Corvair's demise — yet both cars are still around.

Insurance companies are enthusiastic about Pontiac GTO's new bumper . . . True. At least they're making overtures though nothing has been accomplished as yet. *continued on page 24*

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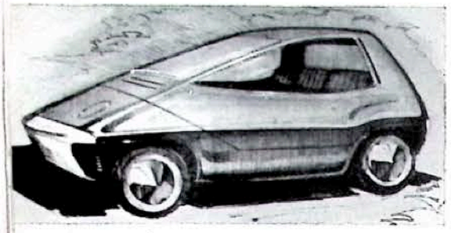


"Five-by-Five" is American Motors mini electric car. Gulton supplies batteries.

American Motors has joined the electric car race with a minicar designed to use batteries supplied by Gulton Industries, the Metuchen, N.J., electronics firm. The car has been nicknamed the "Five-by-five" because its wheelbase is five feet and so is the tread. Overall length is 81 inches (one more than the Ford Comuta—the city shopping car developed by Ford of Britain); height is only 44 inches. Styling is wedge-shaped, peaking at the back, and is designed to hold three adults, seated abreast. A unique feature is the lack of doors; to enter, the roof lifts up, much like the canopy on a jet fighter plane. AMC insists, however, that there are no plans for immediate production. The car has two battery supplies, one a lithium battery arrangement that Gulton developed a year ago. They say it could give a small car a range of 150 miles without recharging. The second power source is a nickel-cadmium battery, a type slightly more powerful than the lead-acid batteries now used to start today's cars.

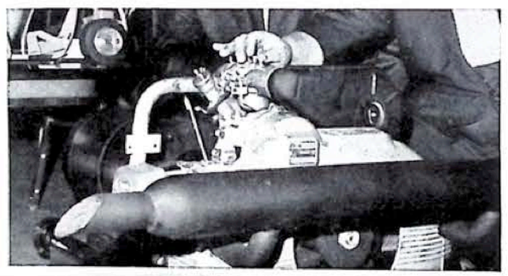
Gulton has long eyed the electric car field. Its president, Dr. Leslie Gulton, said the major problem in developing the electric car is psychological, not technical. Gulton said it's a matter of getting Detroit interested. He likens it to the compact car which the Big 3 had to reluctantly build because of AMC's success and that of the small import cars. Gulton feels Detroit shouldn't attempt to build an electric purely as an answer to the air pollution problem. "If they take this approach, it will never work," he says. "First, it has to be an exciting car that people will want in their garage." He believes the AMC approach may be just that. Comuta, or the GE electric which looks like a group project designed by a kindergarten class.

Details are emerging on General Motors' project to develop a hybrid car that will use both battery-electric power and a gasoline engine. Developed under a $300,000 federal grant in cooperation with the University of Pennsylvania, it's like AMC's new electric, a 3-passenger job. To be one-third the size of a standard station wagon, the car hasn't actually been built, according to the government, although GM sources say it has. At any rate, the car could be in production using existing technology within five years, government officials maintain. Electric power would be from standard lead-acid batteries. This would be used when driving in restricted areas—places where air pollution is a severe problem. In suburban areas, the gasoline engine would drive the car. A top speed of 60 mph and acceleration comparable to a Volkswagen is predicted, along with a price $1600-$1700. Dr. Manfred Altman, Professor of Mechanical Engineering at the University of Pennsylvania who headed the project, said a final report (ready in June) will attempt to find out how the minicar can be used in present urban traffic systems. Researchers on the project concluded that the hybrid vehicle would give off only 10% of the pollutants that a 1968 car emits. The gasoline engine would be used to recharge the batteries. Both systems could be used at once if need be. The way the government sees it, "If the majority of urban cars can be replaced by these vehicles, it may be unnecessary to allow on-street parking, since sufficient off-street parking spaces would be available. This would increase traffic flow by making more lanes available."

The University of Pennsylvania later accused GM of dragging its feet on the project. Altman said GM was reluctant to work on the minicar and that he had to pressure company officials into it.

GM denied the charges. A spokesman said GM "cooperated fully in providing the data which the university asked us to develop. We do not know how Dr. Altman could reach his conclusions which are not supported by the record."

Actually, GM researchers have long held the belief that a hybrid car is the only kind of electric "that could possibly achieve widespread use any time in the decade of the 1970s." Specifically, that was the statement of Don Friedman, head of commercial projects for the GM Research Laboratories. He also has said that "a hybrid car using a small internal combustion engine powertrain to supplement a conventional electric powertrain can possibly achieve an attractive performance level, an appropriately low emission capability and a fairly competitive cost level." /MT



(Left) General Motors and the University of Pennsylvania are working on 3-seat mini car to cut down on air pollution. Engine is 2-cylinder gas job coupled to battery operated motor. Operation is by gas engine, battery or combination. Car has range up to 100 miles.

(Above) Mini car would be about half the length of an average-sized American car and could seat three people. Top speed would be about 60 mph. If produced, car would cost an estimated $1600.

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THE BODY RATTLE BATTLE

Each winter, cars suddenly seem to sprout a whole new crop of body noises. Actually, those nagging rattles, clunks, groans and creaks were probably there all summer, but since winter makes you drive with the windows rolled up, you hear them more plainly in cold weather.

If you can spend the few hours it takes to get rid of them, body noises aren't really that hard to combat.

Road rumbles—the sort that washboard roads telegraph up through the body itself—constitute the most common annoyances. To kill these, you might start with the following:

First, tighten all the body bolts you can get at. Start under the hood and follow the lines of sheetmetal bolts that hold the inner fenders to their outer panels. These lines extend down into the front of the engine compartment, include the bumper pan, and meet at the front center. Be sure not to over-tighten these bolts, though, because if you do you'll strip them. Body bolts should get periodic attention every year or two.

While you're under the front end, tighten the bumper and bumper brackets, the bolts that hold on the radiator, the grille and the license plate. Then tap the parking lights, all insignia and chrome molding to see if they rattle. Tighten the hood supports, hood-latch bolts, upper grille sill, hood spring hangers, heater and firewall bolts.

Also tighten door hinges, latches and striker plates. If the latter are movable, you might want to move them inward slightly to tighten the doors. It's good, too, to remove door panels and tighten the bolts inside these. If the windows rattle in their channels, auto-supply stores carry special bolt-on rollers to put tension on the glass.

On, then, to the car's interior. Be sure to get at the bolts holding on the steering column, the braces for brake and clutch pedals and everything else up under the dashboard. Seat runners, rear-seat braces and the package shelf inside sedans sometimes give trouble, and so do the smaller panels and seat hinges in station wagons.

Around back, go inside the trunk and repeat the underhood procedure, including the bumpers and hinges. Body-to-fender bolts inside the trunk, those holding the gas-tank straps, plus anything loose back there (spare tire, tools, jack, etc.) should all be snugged down.

Crawl underneath the car and tighten any body bolts you see there. Many cars have thin secondary crossmembers that sometimes work loose. The Volkswagen, although it's unit construction, has two rows of bolts near the periphery of its underside, and so do some domestic cars.

With everything snugged down, it's now a good idea to insulate the interior with waffle-padding—the rubberized sort used under household carpeting. This costs about $1 a square yard new (less if it's used), and the average full-sized sedan takes between five and eight yards, depending on how extensively you want to insulate it.

Cut the waffle padding to fit onto the floor panels, including under the seats and as far as possible up the firewall. Cover this with your car's carpeting. Then cut other sections to fit behind the rear seat between the trunk and passenger compartments. Place more padding inside the trunk itself, not only on the floor but up the sides. If you can, it doesn't hurt to put a piece atop the gas tank, too—between the tank and the body.

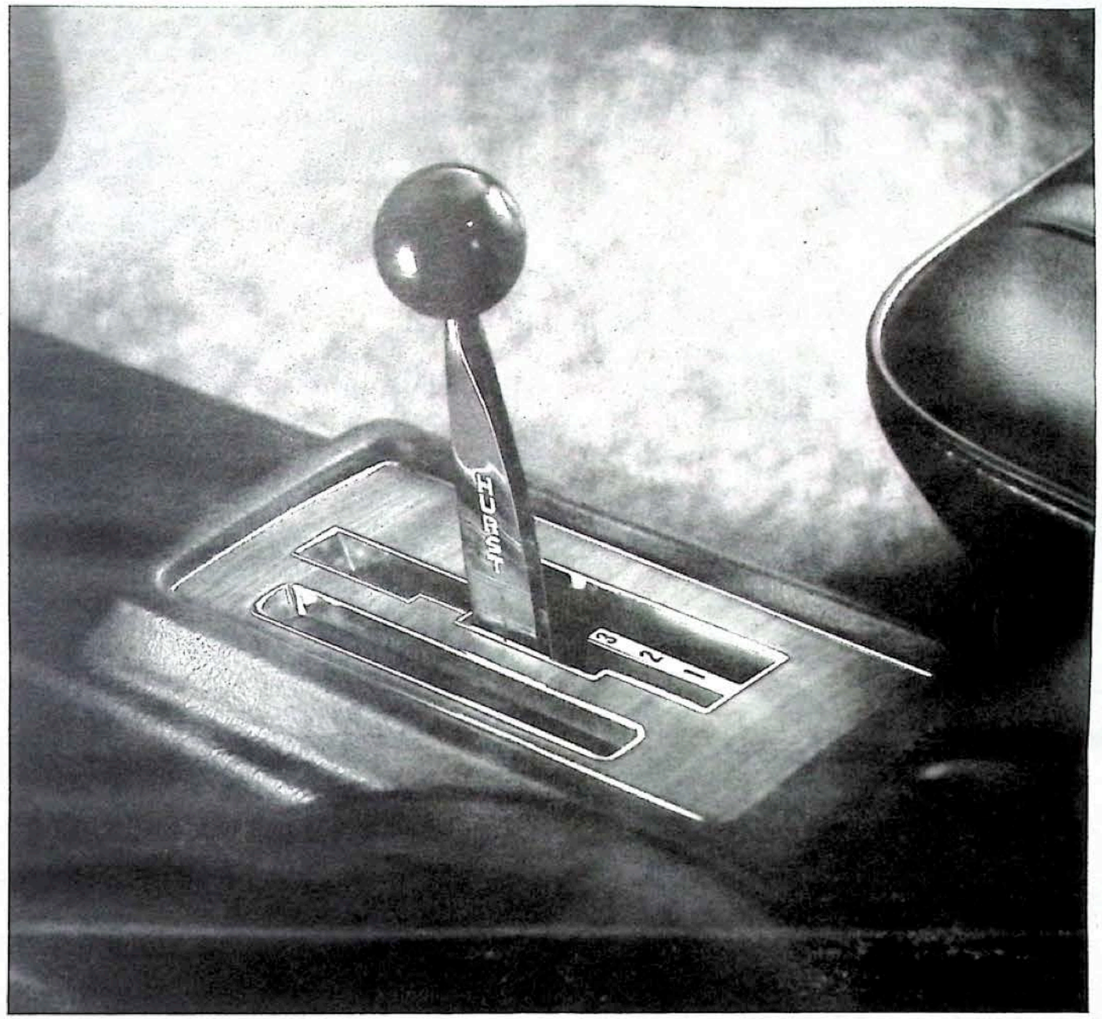
For the underside of the hood, most auto parts stores sell spun fiberglass panels. These can be glued up under the hood with epoxy. It's wise to wedge long spring-metal clips (the kind used to bale paper and cotton, for example) into the hood lips on either side to help hold the fiberglass in place. Otherwise it tends to sag after a time.

Another effective way to cut down road rumbles is to undercoat the car. Not only does undercoating help prevent rust, but if applied heavily to the insides of fenders and under the body, it definitely makes the car quieter. Spray undercoating usually costs $10-$20, but you can also brush it on. For $2.50, you get a can with enough for several coats. And it's best to put it on thickly, one coat after another (starting with a clean base), being sure to get up into all the hidden crannies. This job is best done on a hoist.

With all this accomplished, you should have the car well enough insulated and tightened so you can track down and pinpoint any remaining noises. See MT. Oct., 1967, for tips on tackling sounds caused by moving parts.

—*Michael Lamm*

"You talk too much!"



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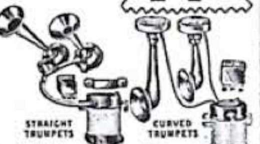

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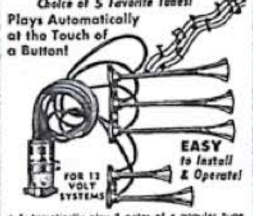

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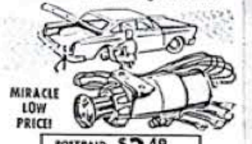

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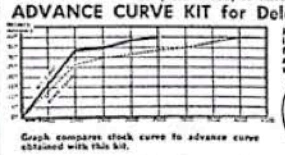
ADVANCE CURVE KIT for Delco Distributors



Permits full advance timing at 2,000 to 2,500 RPM for maximum power and acceleration. For street, strip or marine use.

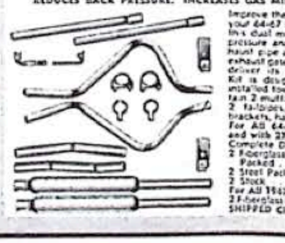
This is the kit that does the trick.

Graph compares stock curve to advance curve obtained with this kit.

Your stock distributor will not allow full advance timing to your engine until as much as 4,500 RPM. This kit permits full advance between 2,000 and 2,500 RPM — gives you the maximum power and acceleration your engine can produce. In minutes, you can obtain same results as top race car drivers get with their "stock" ignition setups. Kit consists of springs, bushings, weights, and instructions. Easily installed—no special tools or machinery needed.
73-1218
POSTPAID—Per Kit $3.45

DUAL MUFFLER KIT for 64-67 MUSTANG

With Stock, Fiberglass or Steel Packed Mufflers
REDUCES BACK PRESSURE. INCREASES GAS MILEAGE, HORSEPOWER.



Improve the all-around performance of your 64-67 Ford "Mustang" . . . install this dual muffler kit. Eliminates back pressure and congestion of single exhaust pipe and stock muffler—allows exhaust gases to flow freely, lets engine deliver its top power, top economy. Kit is designed so that mufflers are installed toward front of car. Kits contain 2 mufflers, 2 headpipe extensions, 2 tailpipes, 2 tail pipe extensions, brackets, hangers and instructions. For All 64-66 Mustang except conv. and with 271 HP engine.

Complete Dual Muffler Kit with:

	Stock No.	Per Kit
2 Fiberglass Packed	24-1021E	$29.95
2 Steel Packed	24-1022E	$29.95
2 Stock	29-461 L	$31.50
For All 1967 Cars, 2 Fiberglass Packed	24-1240E	$29.95

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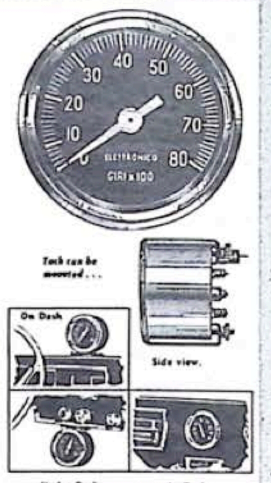
for ALL CARS and TRUCKS with 12 Volt System*



Manufactured by one of the world's leading instrument manufacturers. Has all of the following deluxe features of tachs selling for almost twice this fantastically low, low price:—

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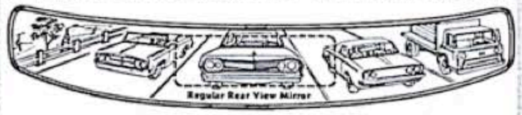
- **Easy to Install.** Only simple wiring required after installation in, on or under dash.

Tach has black face with easy-to-read, large white numerals and pointer, fully illuminated for night driving. Sealed housing with chromed front bezel. 3½" diameter face, 2" deep from back of bezel to back of case. With in dash mounting bracket. Also can be mounted on or under dash with special mounting bracket listed below. Easy to follow instructions included. For all 6 or 8 cyl. cars and trucks with 12 volt negative ground system. POSTPAID
89-3967—8 cyl. Cars and Trucks
89-3968—6 cyl. Cars and Trucks Ea. $15.50
89-4377—4 Cyl. Cars and Trucks with 12 volt negative or positive ground Each $14.98
On or Under Dash Mounting Bracket. For use with above tach.
89-3969— POSTPAID Each $1.79

Tach can be mounted . . . On Dash / Side view. / Under Dash / In Dash

GIANT 18" CONVEX REAR VIEW

PANORAMIC MIRROR



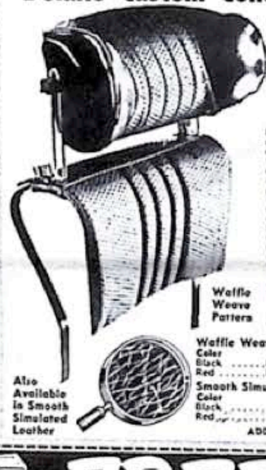
Regular Rear View Mirror

Provides Complete Wraparound 180° Vision

- **Here's the mirror every motorist needs!**
- **Gives complete rear and side vision — enables you to see all vehicles behind you, in addition to vehicles passing on either side, at a glance!**
- **Easily installed—clips on right over your regular inside rear view mirror.**

New oversize 18" wide mirror is convex both in length and width—completely eliminates blind spots, helps promote safer driving. Lets you see the complete road behind you and on either side of you—a "must" accessory for city driving, turnpike driving, for passing, for overtaking, for every type of driving. Overall size: 18" wide x 3" high. Can be installed or removed in a jiffy—easily transferred from car to car.
89-3743—Each. POSTPAID $9.00

Deluxe Custom Contoured HEADREST



MAKES ANY CAR SEAT YOUR OWN CONTOUR CHAIR IN SECONDS!

BUILT ON SAME PRINCIPLE AS AN ASTRONAUT'S CONTOUR SEAT.

LOOKS LIKE THOSE USED ON EXPENSIVE IMPORTED CARS!

Now you can add to your driving pleasure, especially on long trips, when you install a pair of these imported comfort-designed contoured foam padded headrests in your car. Specially developed to support head and neck for greater comfort, safety. Molded wing rests hold head in position—prevent head from slipping off cushion—help prevent whiplash neck injuries in case of rear end collision. Handsomely styled to dress up interior—looks expensive, feels expensive, adds loads of passenger comfort. Easy to adjust with wing nuts to any angle or height for relaxing comfort. Upholstered in choice of luxury styled channel quilted waffle weave or smooth simulated leather with heavy vinyl foam padding throughout. Choice of 4 colors. Sturdy plastic-covered steel frame fits over any seat (even bucket style)—no adjustment required—stays firmly anchored. Fits tall or short persons—fits all American or imported cars. Overall size: approx. 11½" wide x 18½" high.

Waffle Weave Pattern

Also Available in Smooth Simulated Leather

Waffle Weave Style Headrest.

Color	Stk. No.	Color	Stk. No.	Each
Black	89-2958	White	89-2960	$9.95
Red	89-2959	Brown	89-2961	

Smooth Simulated Leather Style Headrest.

Color	Stk. No.	Color	Stk. No.	Each
Black	89-133	White	89-135	$9.95
Red	89-134	Brown	89-1261	

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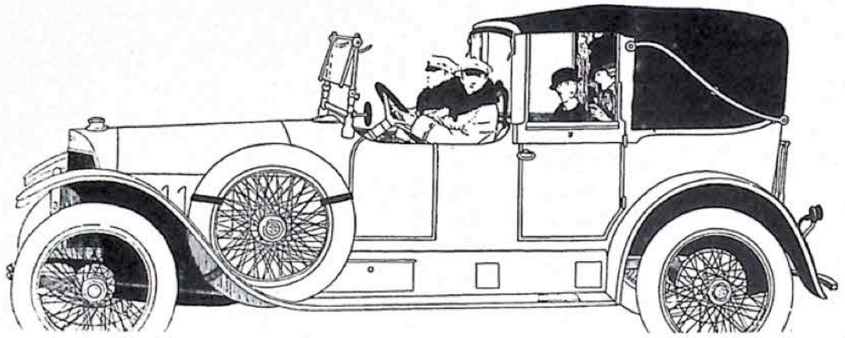
How the Insistent Metal from Alcoa takes corrosive weather with a grain of salt

One day, we asked a sea captain for his opinion of Alcoa® Aluminum trim. "A fine metal, matey," he replied. "Defies seawater like the skin of a shark! Makes a car worth more at trade-in time, too. Now let me tell you about the time I was stranded off Nova Scotia . . ."
Oh, the stories we could tell about Alcoa Aluminum trim! How it calls a halt to ugly pitting and peeling.
How it resists corrosion, even when splattered with road salt. And how it keeps its showroom shine with just a simple swabbing of soap and water.
Alcoa's cooperation with auto manufacturers makes aluminum insist on being used to give automobiles extra value.
As the salty old sea captain says, "It keeps my car shipshape!"

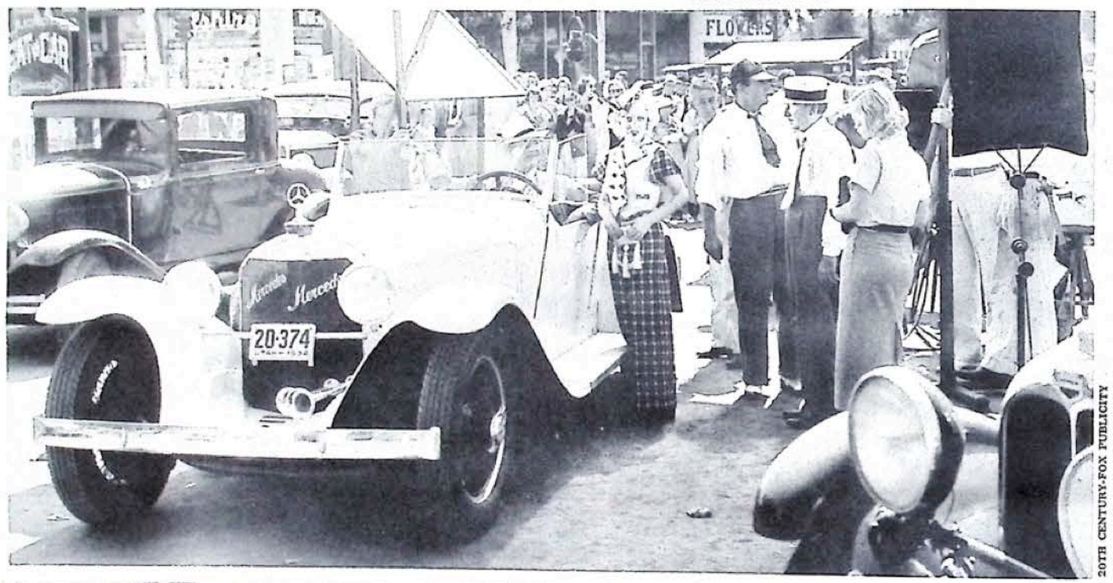
Change for the better with Alcoa Aluminum

ALCOA



WILLARD BATTERY CO.

(Left) Custom-built for the luxury market, this 1917 Singer was made in New York City and sold for $5350. Six-cylinder engine was supplied by Herschell-Spillman, also a builder of merry-go-rounds.
(Below) Traffic on Los Angeles' Wilshire Boulevard was stopped for hours while this drive-in cafe sequence was filmed in 1934 for Fox Film's "365 Nights In Hollywood." Star Alice Faye is next to Mercedes-Benz customer.

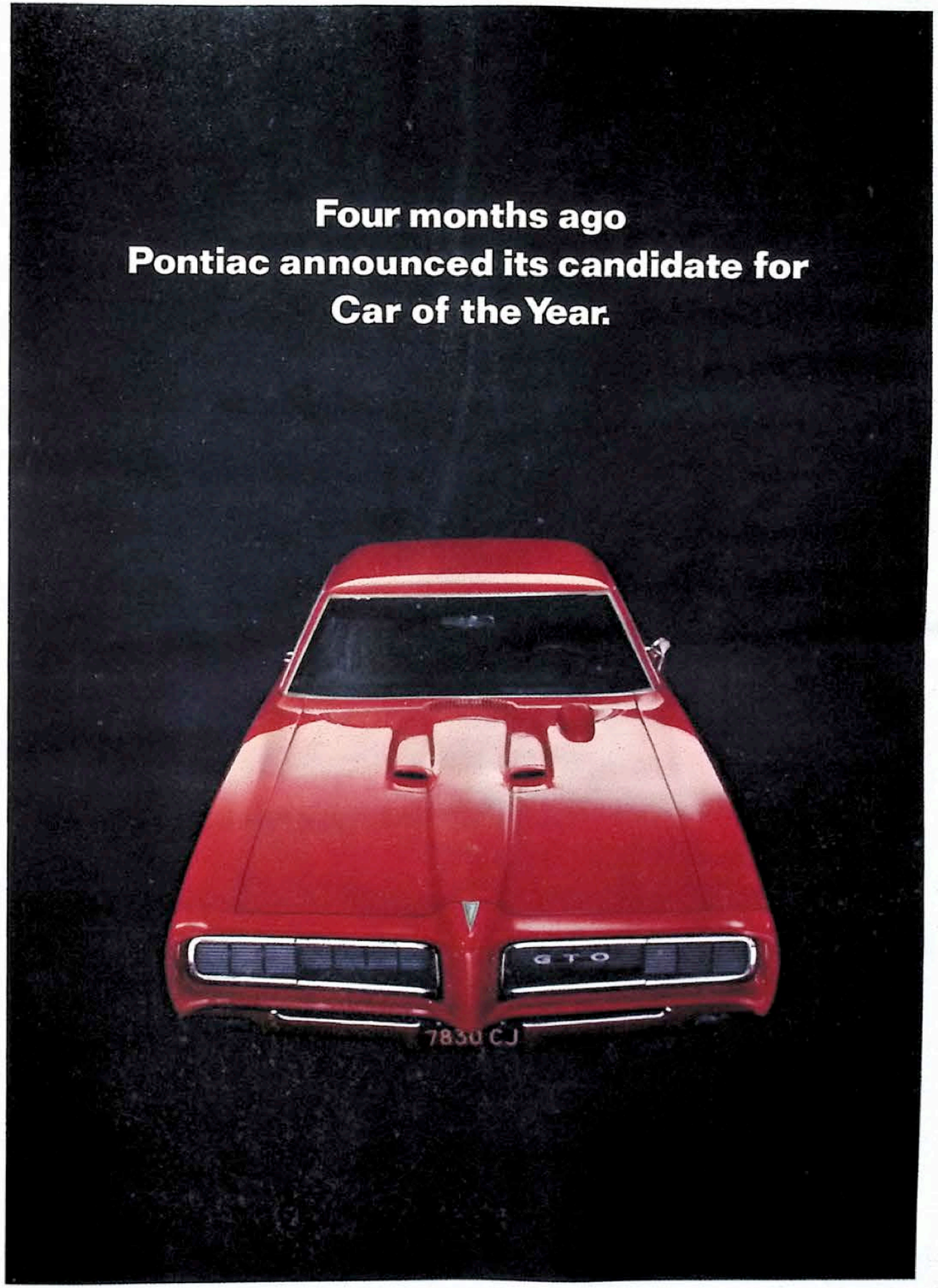


20TH CENTURY-FOX PUBLICITY

GETTY OIL CO.

EINAR PETERSEN COLLECTION

(Above) Eddie Rickenbacker in his Peugeot prior to start of 300-mile 1914 road race on 2.77-mile circular course at Corona, Calif.
(Right) Thomas A. Edison stands next to two White Steamers in Virginia during 1906 search for cobalt to perfect his storage battery. Cars were built by sewing machine division of White Co., Cleveland, Ohio.



Pontiac's indomitable GTO. Car of the Year for 1968. A study in greatness from its revolutionary bumper that looks like it isn't there, to the tantalizing way it replies to the need for unmanicured driving. The 1968 Great One makes Pontiac the only car manufacturer to have won Motor Trend magazine's Car of the Year Award four separate times. You'd think after so many wins they'd retire the trophy.

Specs, decals and 5 color pictures are yours for 30c (50c outside U.S.A.). Send to: '68 Wide-Tracks, P.O. Box 888A, 196 Wide-Track Blvd., Pontiac, Michigan 48056.

GM

MARK OF EXCELLENCE

Pontiac Motor Division

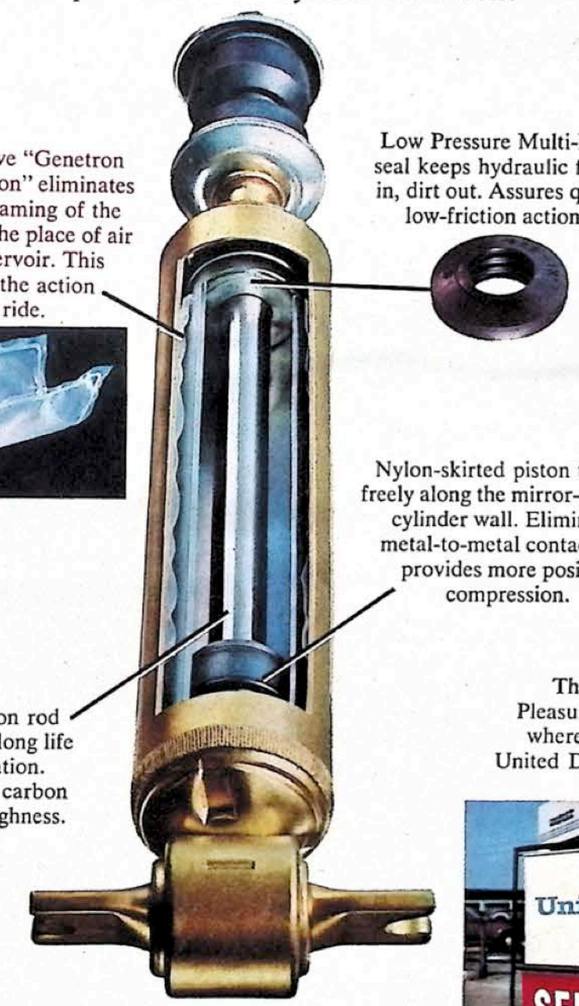
"125" BERTONE EXECUTIVE

a fiat with flair

Italian luxury with distinctive good looks and commercial possibilities . . . that's the "125" Bertone Executive, another Bertone prototype. Attracted by the basic good features of the Fiat "125," Bertone set out to derive a model of increased elegance while retaining the comfort and high-class qualities of the original car. Built on the Fiat "125" chassis, the Executive is out to capture that sphere of driving buffs who, even when satisfied with the mechanics of quality sedans, also want to satisfy aesthetic requirements of distinction and particular use. The "125" Bertone Executive features a low-slung, high-roofed body with long hood and short deck that has been popular in Europe and is now the bold new look in the U.S. Interior appointments feature plush bucket seats, 4-speed gearbox, center console radio, and a wood trimmed dash.

Get a new riding sensation

Pleasurizers help smooth out an older car's ride. Make driving a pleasure again. The new Delco Pleasurizer has an exclusive "Genetron Gas Filled Cushion" . . . a GM engineering development that replaces air in the hydraulic reservoir.



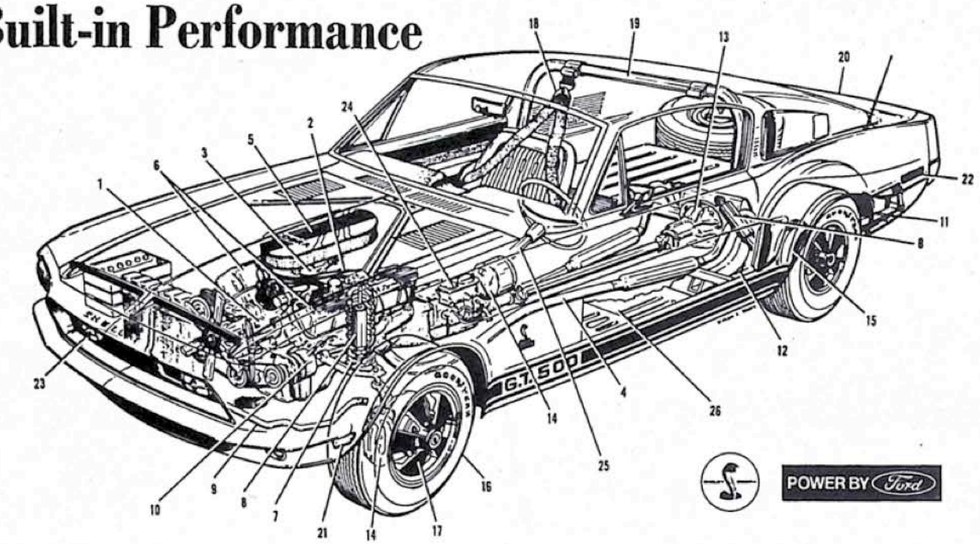
The New Delco Pleasurizer — available wherever you see the United Delco Service sign.

GM
MARK OF EXCELLENCE

New Delco Pleasurizer

with exclusive Genetron Gas Filled Cushion

These Unique Features Give the Shelby Cobra GT Built-in Performance



POWER BY Ford

(1) Performance is exciting with these GT engines: GT 350, 250 hp 302 cu. in. V-8; GT 500, 360 hp 428 cu. in. V-8 (400 hp 427 cu. in. V-8 optional). Each engine features (2) high volume Cobra intake manifold, (3) 4-barrel carburetion, (4) dual exhausts, (5) low restriction air cleaner. Every engine looks the part, too, with (6) Cobra rocker covers, chromed filler cap, dipstick. Handling is "right now" with (7) high-rate front coil springs, (8) high capacity adjustable shock absorbers front and rear, (9) front stabilizer bar, (10) 16.0:1 power steering, (11) heavy duty four-leaf rear springs with (12) anti-windup dampers, (13) heavy-duty rear axle. Tires and brakes match the GT's performance. (14) Power-assisted front disc and (15) heavy duty rear drum brakes work with (16) 4-ply nylon tires and (17) 6" rim width 15" safety wheels. Other safety items include (18) front inertia-reel shoulder harnesses and seat belts (seat belts in rear), (19) integral overhead safety bar, (20) safety-sequence tail lights, (21) front marker lights and (22) rear quarter reflectors, (23) rectangular fog lights and (24) dual brake system, (25) collapsible steering column and padded center steering wheel, (26) unitized chassis and body.

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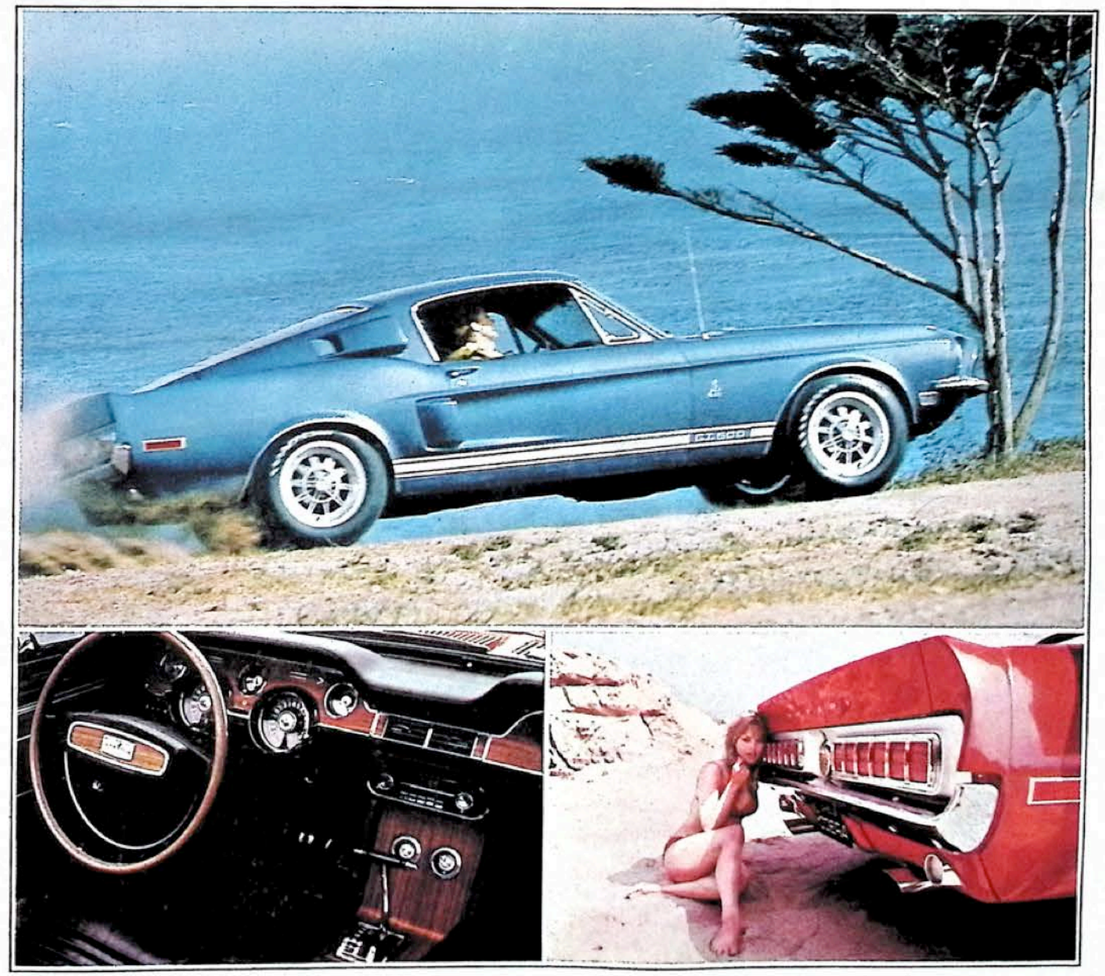
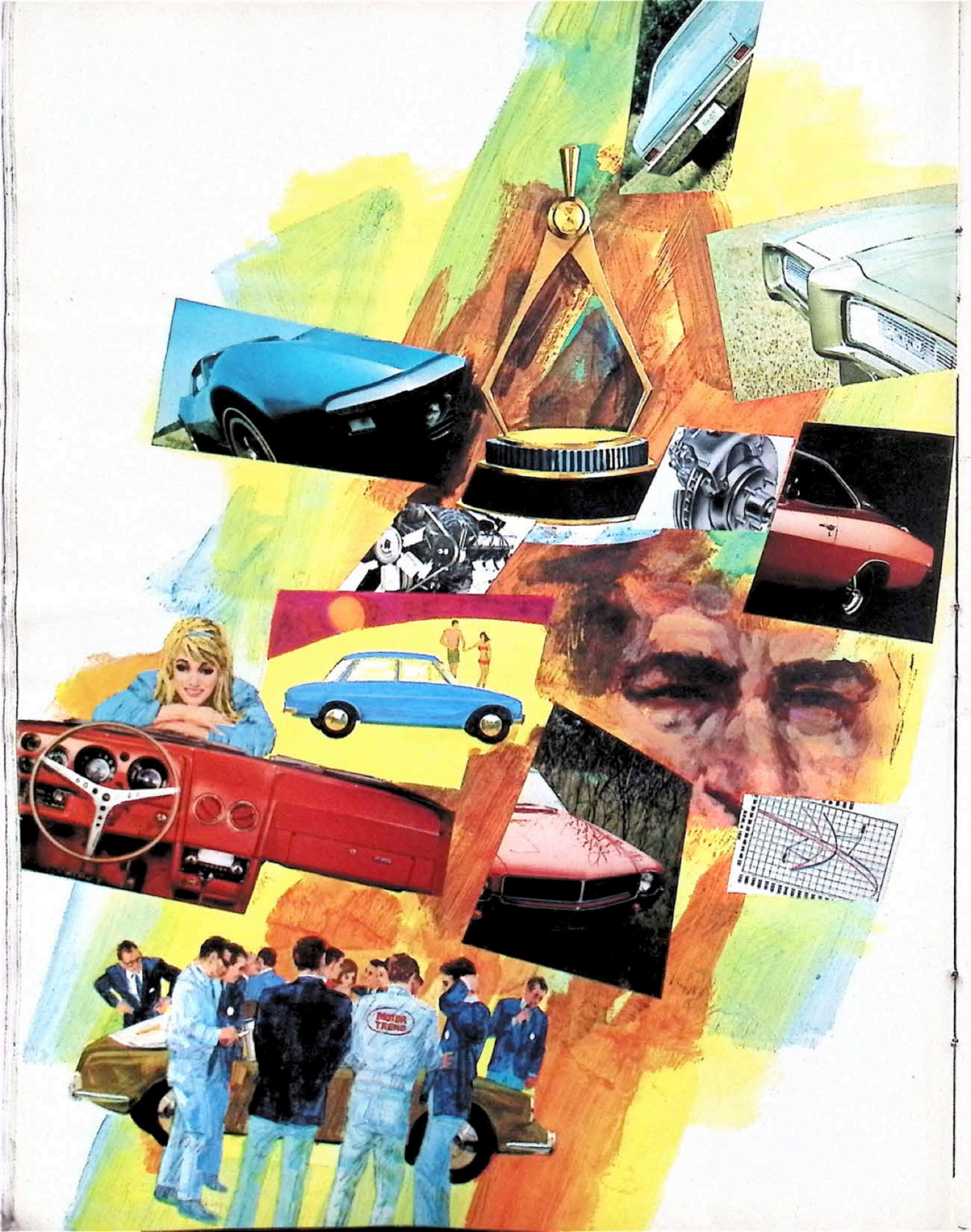
Carroll Shelby designed his COBRA GT to go like it looks

A brand-new Ford 302 cubic inch V-8 delivers for the GT 350. On the GT 500, a Ford 428 cubic inch V-8 is standard, with a new 427 V-8 powerhouse as a super-performance option. ☐ Four-speed transmissions are standard, close-coupled automatics are low-cost options. ☐ Great handling comes from competition-engineered suspension, 16-to-1 ratio power steering, adjustable shocks, heavy duty driveline and rear axle, and special high performance 130-MPH rated nylon tires. Front disc brakes, of course. ☐ And with this superb performance, Cobra GTs deliver head-turning styling *and* luxury, too. ☐ Interiors gleam with unique simulated wood grain trim on instrument panel, steering wheel, console and door panels. ☐ The exterior styling features *work* for you. ☐ Hood scoops supply extra carburetor air, fastback louvers are air extractors. ☐ Safety has not been overlooked — wide-rim wheels, integral overhead bar and shoulder harnesses are included. ☐ Carroll Shelby's unique fastbacks and new-for-'68 convertibles, are design-based on the Mustang, winner of two consecutive Trans-Am road racing championships. ☐ And that means real economy, a surprisingly low price for you. ☐ All four Cobra GTs say "Let's go!" ☐ See your Shelby Cobra dealer — and get going!

Shelby COBRA GT 350/500

POWER BY Ford





Motor Trend presents its thirteenth annual achievement awards for outstanding contributions to the automotive world.

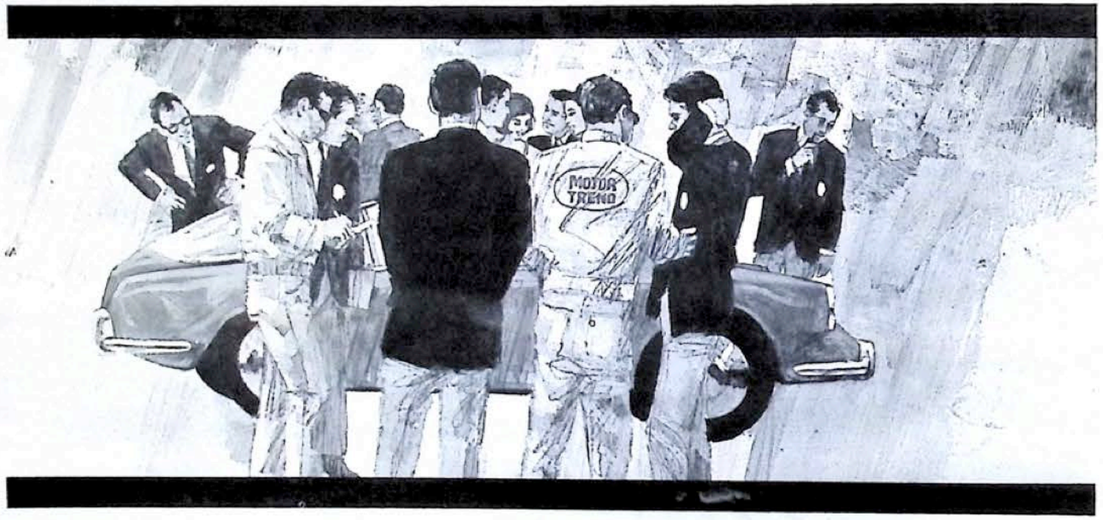
Announcing Motor Trend's 1968 Car of the Year and winners of awards in four new categories.

Each year, beginning in 1956, it has been the responsibility of the editors and technical staff of Motor Trend to weigh the many contributions and new developments inherent in all makes and models from all automotive manufacturers, and to present awards to those who, in the opinion of the staff, deserve to be recognized for their achievements. The awards are presented not only to honor the quest for automotive excellence, but as an inducement for others to look ahead to even greater accomplishments. To those in the automobile business, the Annual Motor Trend Awards are comparable to receiving Oscars in the motion picture industry.

Over the years, Motor Trend readers have responded to the Awards announcements with a degree of interest and enthusiasm that serves to affirm the authority with which the selections are made. During this time, however, a new breed of car buyer has come to demand an entirely new variety of specialized styling and performance capabilities. A vigorous economy has spawned a conglomerate of many market segments, all with their own unique attitudes and expectations. The battle cry of the influential younger—and not-so-young—generation is "involvement," the personal involvement of performance wedded to a complex variety of equipment and design options. At the same time, millions of motorists continue to insist upon progress in economy, safety, function and luxury.

This year, Motor Trend has expanded its Annual Awards Program to fulfill an obligation to its readers to recognize the diversification of automotive interests and the accelerating efforts of industry and individuals on behalf of the motoring public.

In 1968, cars have been evaluated for achievements in the generally acknowledged groups into which they fall by virtue of design/function concept, price, size and other distinguishing characteristics.



In addition to

1 Car of the Year, awards have been presented this year to

2 Cars in Category which, in the opinion of Motor Trend, have achieved outstanding significance in engineering, styling and/or market timing. The winners have been selected from among the product lines of U.S. manufacturers. To qualify, cars must have been introduced to the public by January 10, 1968. Since there are some entirely new cars and major changes in others, group classification has been broadened, where necessary, to permit their inclusion in the most logical judging category.

3 Accessory Achievement Awards, initiated in 1967, again honor those original equipment suppliers or manufacturers whose features and accessories, appearing on 1968 cars, reflect significant achievements in comfort, safety, convenience, performance, economy, engineering or applied research.

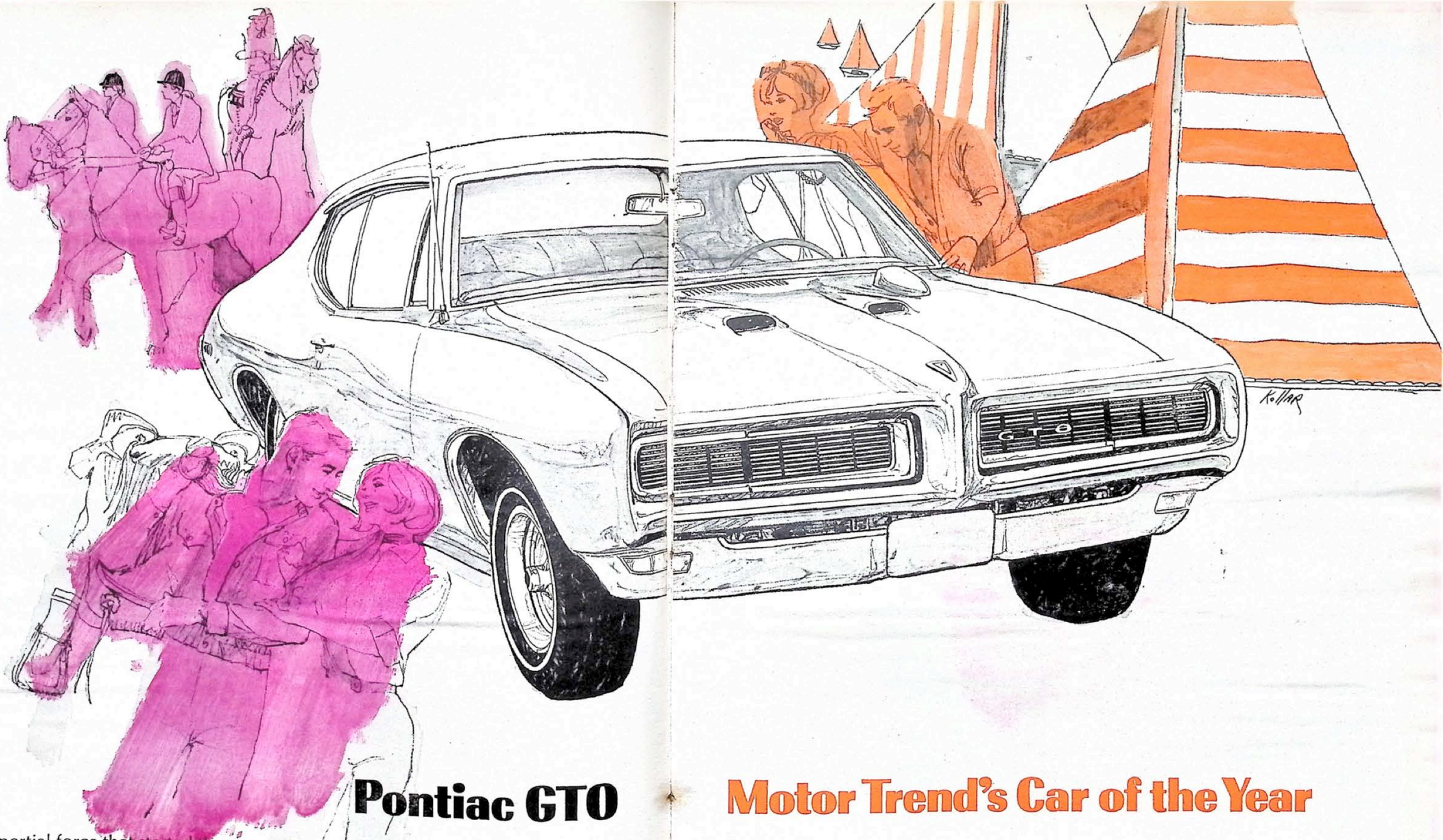
4 Foreign Car Awards, presented here for the first time in the history of the Motor Trend Awards Program, recognize cars from overseas for their achievements in engineering design, safety, styling, or a combination of factors related to product excellence. They have been selected from among the product lines of foreign automobile manufacturers without regard to distribution in the U.S.

5 Merit Awards for 1968 were created to recognize the human effort that so frequently goes unrewarded in the formulation of automotive progress. In a departure from customary selection procedure, the nation's automotive press has cooperated in the presentation of Merit Awards. Utilizing ballots provided by Motor Trend, they have cast their votes for outstanding individuals who, in the opinion of the press, have influenced the industry to the ultimate benefit of the public.

Once again in 1968, the traditional criteria used to select the recipient of Motor Trend's coveted Car of the Year Award has been "that combination of engineering, styling and market timing that when perfectly enjoined creates progress sufficient to set an industry trend." The significance of automotive concept, in addition to pure mechanical achievement, was among the prime considerations and, as in the past, contenders must be introduced to the public by January 10th. This year, following careful evaluation of the 1968 product lines of all domestic manufacturers, the winner of the Car of the Year Award was the unanimous choice of Motor Trend's editorial staff.

Car of the Year

1



Pontiac GTO

Motor Trend's Car of the Year

The inertial force that started the supercar trend—Pontiac GTO—holds a distinctive position in the automotive world for 1968. Not only does it continue to establish the class standard in the fifth year of its existence, but it also represents a unique and revolutionary engineering/styling function. Its salient innovation is the integration of a rubber bumper with the body design, rendered in a manner that provides a direction and impetus for the entire industry. Never before has an automobile been so successful in confirming the correlation between safety, styling and performance as the 1968 GTO. With the new combinations of aesthetic unity, unbroken styling lines, decreased body vulnerability, increased impact absorption, and responsive power, handling and controllability, it convincingly proves that optimum design/function criteria for nearly all automotive purposes, can be achieved in one unit.

Pontiac people eat well. Prime rib an inch and a half thick, choice veal with a grapefruit and cheese condiment, filets, grapefruit in V.S.O.P. brandy for dessert . . . all in the company cafeterias. Maybe that's where they developed their technique.

They're all epicureans . . . sophisticated . . . they know that the best way to assess the competence of the chef is by his omelette. Turning a proper omelette takes guts and time and some pretty crafty legerdemain, but once it's done you'll stand two heads higher than the next man.

With most people, their eggs shall always be chickens. Never Benedicted. Not even a mediocre liver omelette. Just chickens. They're members of The Establishment, so they let things develop in their own conventional, natural, inferior way without any attempt to buck the tide with improvements. Then they all disappear in anonymity.

But lots of people are different. John DeLorean, for instance, is Pontiac's general manager and only 42 years old; Jack Humbert, chief stylist, is 40; Josh Madden, plastics expert, appears to be less than that; and they're all just too far removed from that inglorious moment of being dropped into the dregs of oblivion known as corporate retirement programs, to let it dull their acumen.

So they spend their time perfecting that omelette and turning out new ones, because that's where the fulfillment is. The result speaks for itself, and it's considerably more than a plastic-lipped supercar. It's five years of new attempts that have matured into a new-dimension-type automobile that is almost revolutionary without being kooky.

Ever since the GTO brazenly established itself in 1964, it has exuded an undeniable kind of magnetism that distinguishes it from its imitators. It is the important kind of magnetism that seems to be imparted without conscious effort. It was just there, and you somehow knew that if anything new was ever introduced, it would be done by the GTO.

The product itself was already a clue to this. Never before had anyone tapped such a dynamic reservoir of meaningful desires, nor had satisfied them with such a soulful solution. Those youthful heads working on the car were far beyond the rest of us, and they just seem to stay there. About the time everyone else appears to be catching up they introduce another keen discovery and away they go again.

Their timing is uncanny. Right in the middle of the displacement mania, when engine sizes were running rampant, Pontiac offered an overhead cam powerplant and changed the standards of engine sophistication.

But the finest commentary on the fallacies of modern technology has now been presented to the American automotive world by the 1968 GTO — a car that incorporates not only the best taste in GM's "A"-body variations — and an excellent handling and performing supercar package — but also the most significant achievement in materials technology in contemporary automotive engineering all combining to substantiate it as the outstanding intermediate of the year, and the outstanding car.

It's a good lesson in the old epigram that you simply cannot create by committee. The flexible bumper concept has been around since World War II, but under the onus of bureaucratic niggling and the inertia of archaic trivia, an efficient and intelligent compatibility between materials technology development and aesthetic values has been impossible.

Pontiac saw that the only hope was to extract itself from this morass of mundane mentalities and start thinking by themselves rather than by corporate priorities. The talent was there, but it wasn't found until Pontiac had the smallest engineering department in the corporation and only five engineers in New Materials Engineering. Parkinson's Law.

For the first time in 20 years, intelligent cooperation between engineering and styling was possible. Each recognized the other's contribution, and most important, the synergism that was possible only through joint effort, finally achieved reality. Styling studios were opened to engineers, engineering labs were opened to stylists, and the entire division became materials-development conscious.

It wasn't merely a naive, vertical attempt at developing an automotive defense system that would simply rebound your adversary. Now, everything was one, and it all had to make sense aesthetically. After all, it had been proved that the human being was more than a utilitarian, corporeal mechanism. He also had cultural and aesthetic standards that any functional object had to meet. So, Pontiac put the body engineer and stylist in the same building, made sure there was intimate intellectual contact and rapport, and assigned both to the same basic projects from the start.

Before long, various experimental foams and non-rigid materials were discovered to possess possible applications values, and under the direction of DeLorean, the stage was set to feed him every new concept there was, regardless of its immediate validity.

The most logical of all new materials applications was the flexible bumper, and if used as a color and styling element, it would also allow for tasteful and different "A"-body designs, a visual body balance and a unified personality that was perfectly consistent with the neo-integrationists of modern automotive artwork in which prevailing philosophies demand elegance to be defined as the absence of ornamentation — a greater unity.

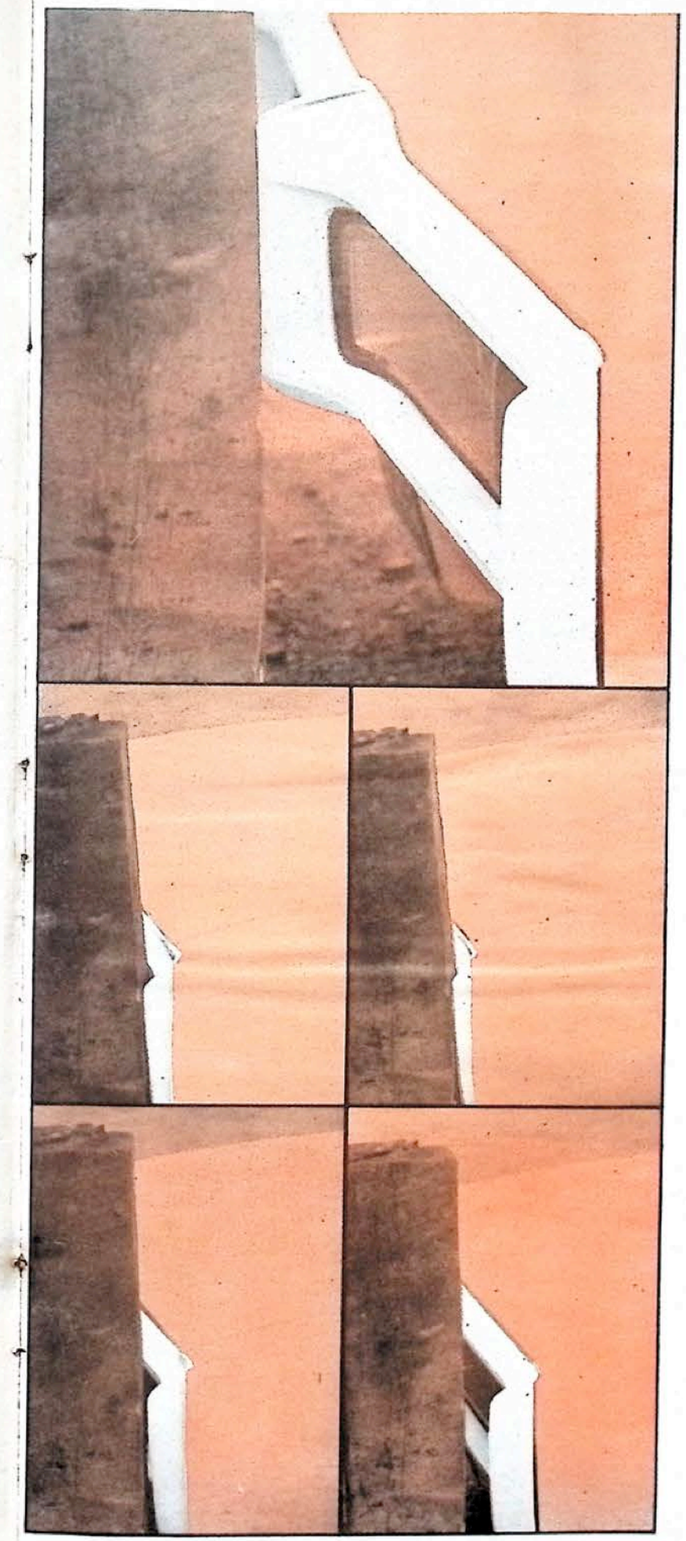
Realistic application began in 1964 when the flexible bumpers were attached to push trucks in Pontiac's yards. They not only withstood impact, but weathering and corrosion as well. The basic material, called Endura by Pontiac, had been resolved: high-density urethane-elastomer foam weighing 44 pounds per cubic foot, and with a deflection of ½-inch under a 1000-psi. load, with complete recovery in 24 hours after depression by a 4000-pound load for eight hours.

The front surface of the bumper is very hard — virtually indistinguishable from steel, or, perhaps, fiberglass. This rigidity, however, decreases progressively toward the rear of the bumper so the material can compress against the metal fenders and hood where impact absorption is most critical.

Normal harmless testing on the new bumper is done at speeds of 4 mph — more than twice the speed conventional bumpers can withstand. When the new 5 mph standards are invoked, Pontiac will already be able to meet them.

At this point in development, both cost and weight are somewhat of a disadvantage, though very little. Both, however, will soon be solved.

As great an achievement as the bumper material was, Pontiac claims that the development of the paint was even more significant. Inland Manufacturing Division at Dayton had been a recognized factor in foam technology for



At 4 mph — more than twice the impact speed other bumpers can take — GTO registers no damage whatever.

years, and when named as initial fabricators for the '68 GTO bumpers, it was basically a relatively simple matter of perfecting a paint material for this specific application. It soon became apparent that the only paint suitable for the new bumper would entail an entirely new project for its development. Conventional paints simply did not possess the necessary flexibility.

The advanced quality of the paint and the technology involved is evident in the fabricating process itself. First the paint is sprayed on bare, solid nickel molds that have extremely smooth, plated surfaces. Then a .150-inch thick steel frame is placed into the mold, the cover half is dropped on, and the urethane is injected, heated, cured and removed, *all without additional finishing and polishing.* There is also no real limitation to color availability, since the present GTO range consists of 17 different hues.

Though further perfection will naturally follow, the ability of the material to conform so easily is a triumph. Indicative of even better performance is the fact that the urethane forms much easier than chrome, so possibilities of design flexibility are enhanced even more.

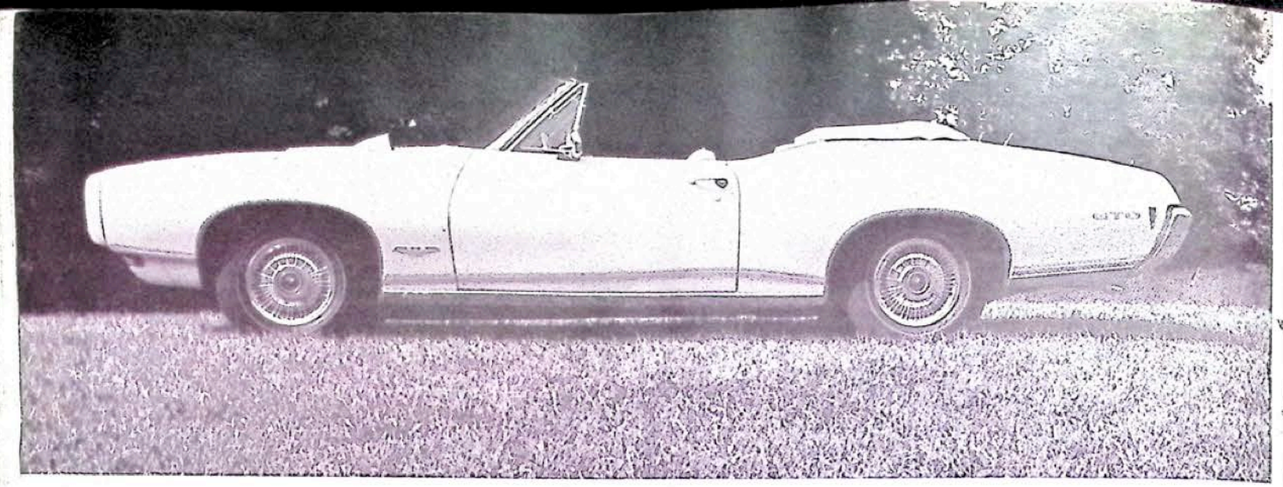
The rest of the division has already capitalized on the importance of the urethane-type material. Both the Firebird 400 and all "B"-bodies have an Endura emblem protecting them from initial contact.

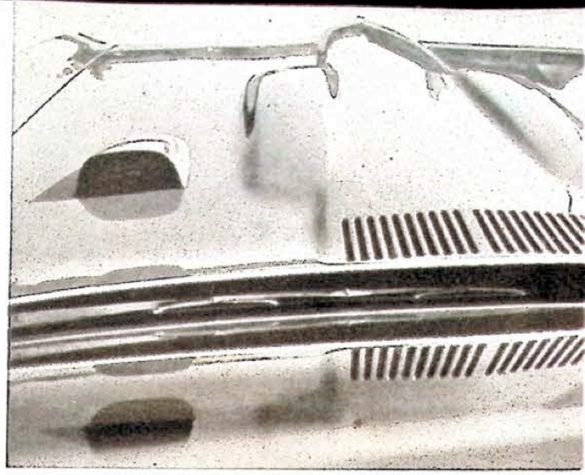
According to Ken Valentine, staff engineer for materials, "Through the judicious use of materials, we can accomplish so many things where we would otherwise be hamstrung by regulations."

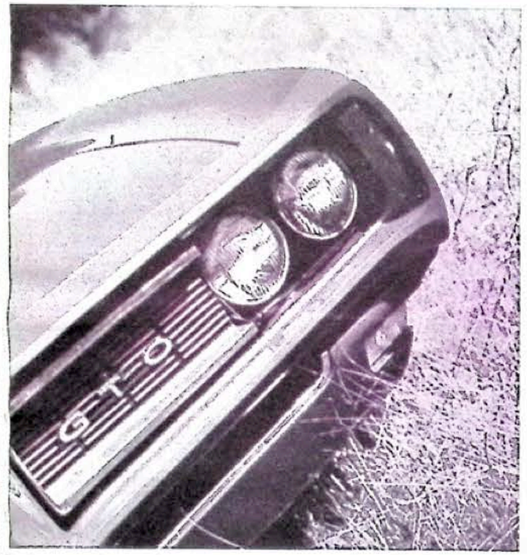
For styling, it liberated many advanced concepts that had been suppressed by conventional materials. You will have to wait a year to see them, but Pontiac claims they will definitely incorporate some of them in 1969.

Endura's contribution to styling is limited only by what the consumer is willing to accept. There is certainly no doubt that it has provided the stylist with a vastly increased scope for designs he has craved for so long. Oh, it will be misused; not every car should have it, nor every bumper. There are applications where our vanity will always demand scintillating accents, and the only way to achieve that is by contrasts to body paint and material. For instance, on limousines and luxury cars, a massive, wide, or regal countenance is normally desired, and this can best be conveyed by a chrome grille, side molding, or some other silly gimmick. But in the burgeoning hedonism of youth markets, the ease and flexibility with which a sculptured, smooth, unified, compact entity can be wrought, is invaluable.

Advantages of the new GTO bumper are already evident in styling, safety and maintenance. Equally as important is that it provides us with an innovation that is a sure way to force the hands of honesty and fairness from the windy temples of the insurance kingdom.



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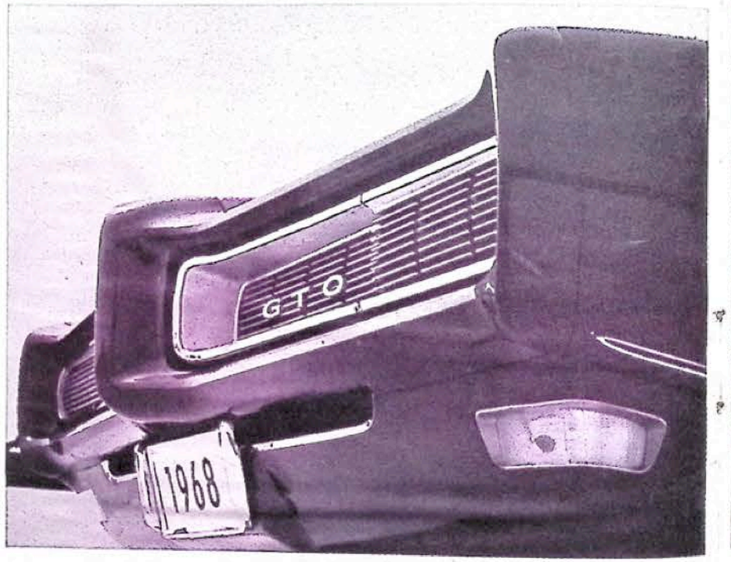
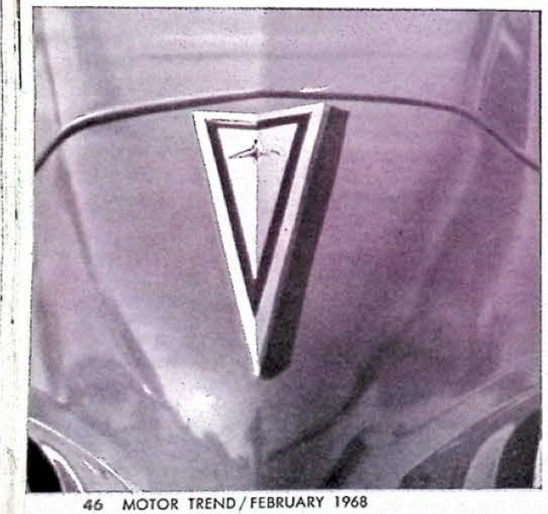
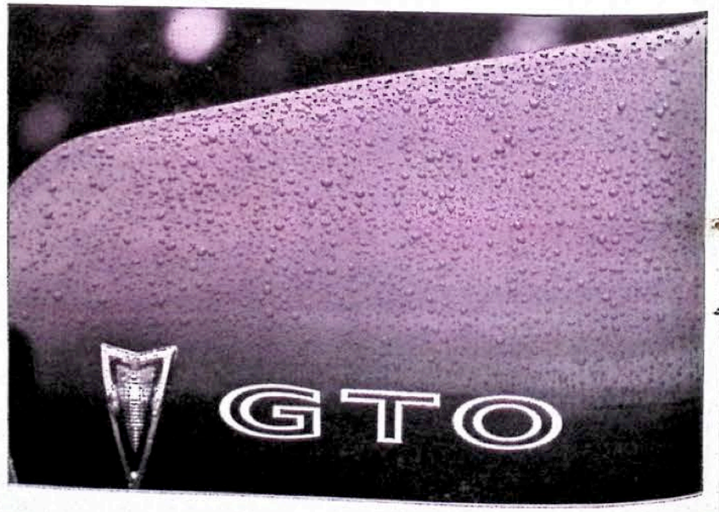

GTO
1968

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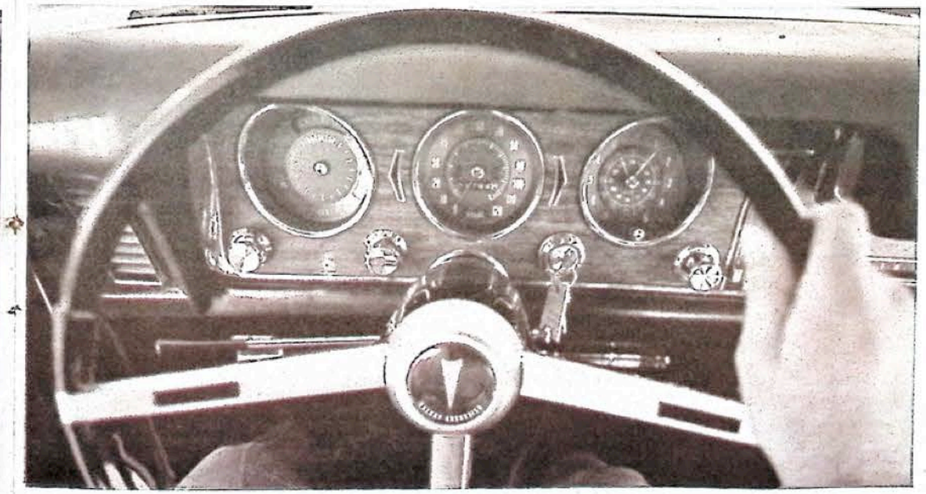


First, this sporty looking exec tools up beside us in his new Mercedes 250SL and checks out our GTO. He moves forward a bit, then drops behind. We see him in our rear-view mirror carefully considering the bright red coupe, and noting the sweet sound from the exhausts. He stays behind all the way to the Hollywood Blvd. off-ramp, and as we leave traffic, he's still checking us out. By the time he's reached the San Fernando Valley, we figure he's thought about the good looks of our machine, a price tag less than half the one he peeled off his window, 5-year/50,000-mile warranty, and the fact that no one in a '68 GTO ever checked out his SL.

That gave us the first hint of what we'd be going through during the next few weeks of driving the GeeTo.

The following Wednesday, we made it out to Orange County International Raceway for "street racers" night where all the local hot-dogs gather for grudge racing. While we waited for our turn at the line, a couple of car owners from a few lanes over gave our Ram-Air car the eye and came over. We've got the 4-speed lever in low, the engine is idling at just under a grand, the stock high-lift cam is "rump-rumping" through the exhaust system, and the guy up front is getting ready for us. "Okay, just grab a quick look fellas, and then we gotta wail." Fat chance.

By the time we can start engaging the clutch, there's a Coxey's army of hot-rodders circling the coupe, and it would take all of the 360 hp on tap to mow 'em down. What's the use. We shut it off and climbed out. Can't beat them.

We got the feeling there was an army of woodpeckers around. Tap, tap. Tap-tap-tap-tap. "Hey man, this bumper's not rubber — is it?"

"Just hit it with a hammer pal and see what bounces. You'll be pulling your arm back into its socket for a week."

Wherever we took the groovy looking super car, a 15-minute question and answer session developed. First the bit about the rubber bumper (we were always careful not to mention the line about a hammer to a carpenter). Down at the barbershop, this car can be a useful weapon when the Saturday afternoon crowds pack the joint.

All we had to do was walk in the door, quietly of course, and announce "there's the wildest looking machine parked outside you ever did see." Whoosh! All the old guys with shiny domes (why do *they* always come in on Saturday?) throw down the girly books and make it out the door so fast it takes the footwork of a ballet dancer to avoid them. What a kicker! By the time the gents file back in, our ears are lowered and we sail out the door smelling of fresh aftershave. A blast of the horn and a spin of wide-ovals, and mighty "tiger" disappears from sight.

That trick won't work for long, but it's good for now.

We became as addicted to the GTO as onlookers. It goes, rides, handles, steers, stops and looks like a car should. We halfway believe Pontiac took the best parts of all cars made, poured them into a mixing bowl, and stirred up GTO. But they didn't have to. They've been working their way toward this beautiful result for the past four years.

Niceties abound in this machine. Like the Hurst 4-speed shifter that's standard, and the hood-mounted tach that's optional. The first power shift we threw between first and second was so short and quick, we pushed the clutch pedal back in thinking we'd stopped in neutral and blown the shift. Checking the tach is easier than accepting a free drink. It reposes in a straight-forward position, and not far down from line of sight.

Finding instruments is a snap. They're all bunched in front of the driver, and the wood rimmed steering wheel seems fresh from Ferrari-land. The high positioned console storage bin is softly padded on top, and while being too low for use as an armrest will hold gobs of essentials near-at-hand.

There's a quietness inside reminiscent of a church. Tight window sealing as well as smooth suspension pieces keep all road or traffic noise outside where it belongs.

One thing only smokers will criticize is that when the ash tray is open, it interferes with shifting into or out of first or third gear. Why no one at Pontiac found this out during testing is beyond our comprehension. We know for a fact that some of their engineers support the tobacco industry.

GTO is a beautiful road machine. Speeds of 60 to 80 mph are as steady and firm as a drive through the car wash. Any reasonable speed won't upset its balance. We've had GTOs well over 120 mph — under controlled conditions — without noting any skittishness.

Handling maneuvers will make converts of anyone who ever doubted U.S. cars could go-around-corners. In fact, most domestic supercars will do this, but that's another story and this one's for the GTO. Like the fabled tiger connected with GTO, it paws around corners flat and true, then leaps through short straights, ready to have another go at a seemingly hard turn. Only driver inability will reveal any difficulty in the car's handling spirit.

Straight-line performance is just short of stupendous. After finally breaking away from our fan club at Orange County, we dropped a best of 14.80 seconds e.t. and a speed of 96 mph in *completely* street worthy trim. This means mufflers, air-cleaner, power assist belts, and street tires intact. We pulled off the air-cleaner and bolted on a pair of Goodyear Super-Stock "slicks" on Ansen Top Eliminator wheels and immediately kicked .3-second off this time, with speed going up to 97 mph. A few more passes through the quarter-mile and we knocked off another .05-second, finishing the evening with a 14.45-second reading and a speed of 98 mph. We still hadn't tampered with any part of the engine, and kept the exhaust running through the mufflers.

MOTOR TREND Car of the Year 1

Earlier GTO's were outrunning us, but no other comparable car could finish the quarter first. It took a modified GTO to beat us, and we even had the pleasure of getting to a few of these by "reading" the Christmas Tree Chrondek starting lights a little better than their drivers.

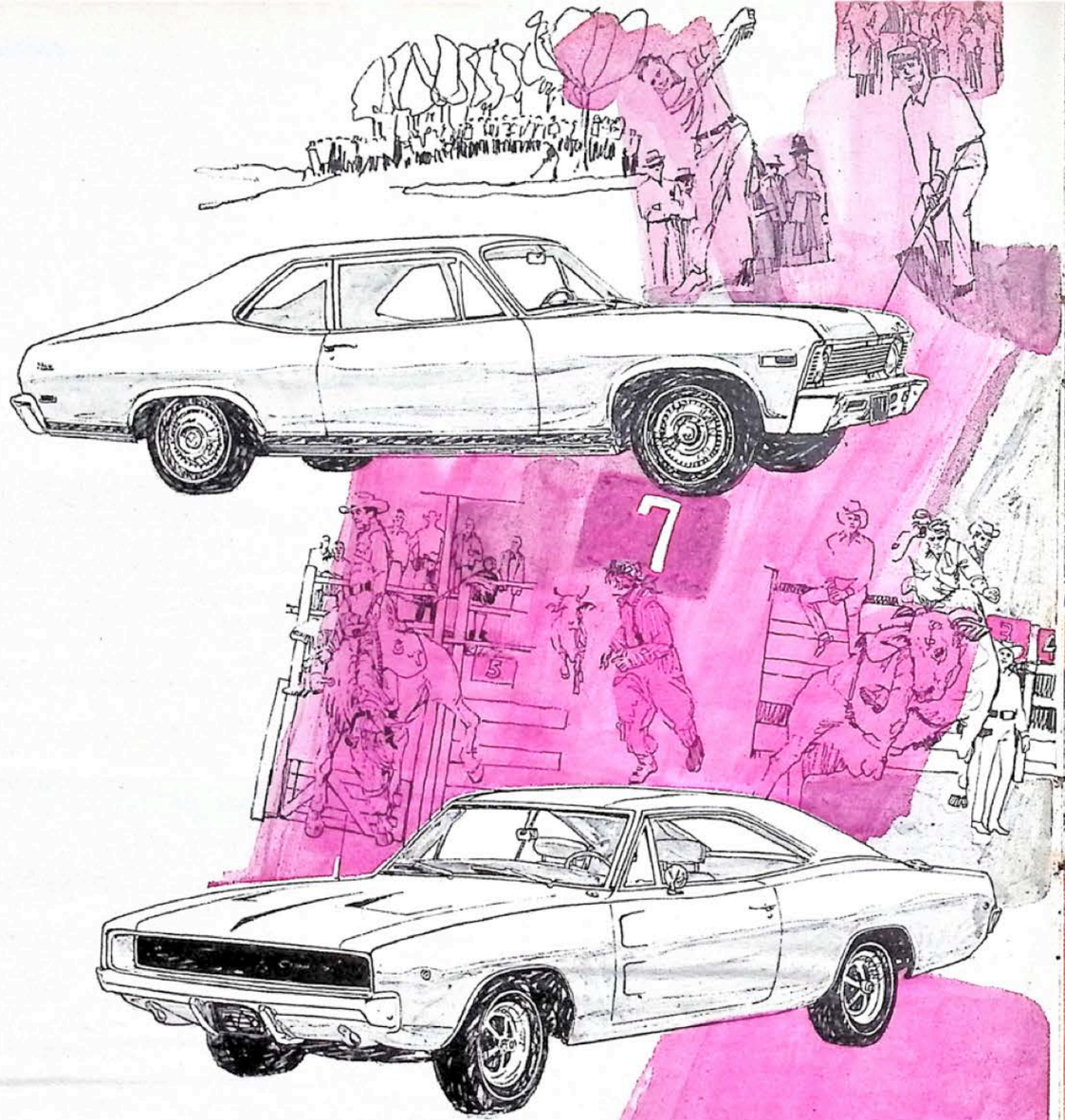
We were asked, frequently, "What's the gas mileage?" Not to be facetious, our only reply was and can be, "If you have to ask, there's not much use in knowing." Quite frankly the car isn't built to go far on a gallon of gas. Our low reading was 7.0 mph, while the high was 14.4. This car had the 360-hp Ram-Air 400-cu.-in. V-8 with a 4.33 rear axle gear, and the 14.4 came as more of a shock than the 7.0. Mileage gets progressively better as the power descends through the range of GTO engines, hitting an all-time high with the 265-hp, 2-bbl. 400 V-8.

We had the pleasure of running-in our test GTO, as well as some with milder engines and more creature comforts such as air-conditioning and automatic transmissions. We've owned several other new cars that wore thin on our temperaments soon after their newness wore off — which usually wasn't long after noticing the first scratch. This wasn't the case here. Even when we'd clocked thousands of miles, the GTO still appealed to us as a "new" car, with the thought of its becoming "old" a nearly impossible happening.

PERFORMANCE	Automatic 400	4-speed Ram-Air
Acceleration		
0-30 mph	3.1 secs.	2.8 secs.
0-45 mph	4.9 secs.	4.5 secs.
0-60 mph	7.3 secs.	6.5 secs.
0-75 mph	10.4 secs.	9.6 secs.
Passing Speeds		
40-60 mph	2.9 secs., 212 ft.	2.8 secs., 205 ft.
50-70 mph	3.6 secs., 316.8 ft.	3.0 secs., 264 ft.
Standing Start ¼-mile	15.93 secs., 88.32 mph	14.45 secs., 98.20 mph
Speeds In Gears		
1st...mph @ rpm	39 @ 5000	41 @ 5000
2nd...mph @ rpm	66 @ 5000	56 @ 5000
3rd...mph @ rpm	95 @ 5000	73 @ 5000
4th...mph @ rpm		92 @ 5000
Mph Per 1000 rpm	19	18.4
Stopping Distances		
From 30 mph	26 ft.	28 ft.
From 60 mph	145 ft.	150 ft.
Mileage Range	8.9-15.6	7.0-14.4

SPECIFICATIONS	Automatic 400	4-speed Ram-Air
Bore & Stroke	4.12 x 3.75 in.	4.12 x 3.75 in.
Displacement—Cu. In.	400	400
Hp @ rpm	350 @ 5000	360 @ 5400
Torque: lbs.-ft. @ rpm	445 @ 3000	445 @ 3800
Compression Ratio	10.75:1	10.75:1
Carburetion	1 4-bbl.	1 4-bbl.
Transmission	Turbo Hydra-Matic	4-speed manual
Final Drive Ratio	3.23:1	4.33:1
Steering	Recirculating Ball Bearing Gear with power assist	
Steering Gear Ratio	17.5:1	17.5:1
Turning Diameter—curb-to-curb	40.9 ft.	
Wheel Turns—lock-to-lock	4.2	
Tires	G77x14 2-ply—4-ply rated	
Brakes	4-wheel drum with power assist	Front disc/rear drum with power assist
Fuel Capacity—gals.	21.5	
Curb Weight—lbs.	3707	3650
Wheelbase—ins.	112	
Front Track—ins.	60	
Rear Track—ins.	60	
Overall Length—ins.	200.7	
Width—ins.	74.8	
Height—ins.	52.2	

OPTIONS & PRICES Manufacturer's Suggested Retail Price (hdtp. cpe), 3228.00; Engine options, 76.88-400 H.O., 342.29—Ram-Air; Automatic transmission, 236.97; 4-speed transmission, 184.31; H-D 3-speed transmission, 84.26; limited slip differential, 42.13; high performance tires, std.; special instrumentation, 84.26; hood mounted tachometer, 63.19; AM radio, 61.09; AM/FM radio, 133.76; custom wheels, 63.19; power brakes, 42.13; front disc brakes, 63.19; console, 52.66; power steering, 94.79; adjustable steering wheel, 42.13; hide-away headlights, 52.66; air conditioning, 360.20.



MOTOR TREND
Cars in Category Awards

2

Compacts: **Chevy II**

In an overall point-by-point comparison, the 1968 Chevy II came out on top in the compact class with the most extensive styling and engineering developments. Major body redesigning with crisp new lines has turned Chevy II into the stylish compact, with more room, less bulk, big car look and the largest range of power options in its class. Still the only domestic car with a 4-cylinder powerplant, Chevy II can be tailored to particular driving needs with a choice of engine options that range all the way up to a big 350-cu.-in., 295-hp Turbo-Fire V-8. With the addition of a new chassis design, Chevy II represents the broadest achievement in all areas of development for 1968 in the compact category.

Specialty: **Charger**

Restyled and re-engineered throughout, the "new" Charger has moved into the specialty class with the most striking achievements in styling modifications and performance engine options. Dropping the fastback body contours gave the 1968 Charger a unique sporty appeal in a big car, while comfort was lavished with an abundance, and was not sacrificed for the restrictions imposed by additional safety requirements. Outstanding performance and handling advancements were incorporated in the 1968 Charger to produce a formidable combination of unrivaled power and styling excellence in the specialty field.

Sports-personal: **Javelin**

Javelin exemplifies the most significant achievement for an all-new car and is the most notable new entry in class. American Motors has created a car that is outstanding in every way. Styling is crisp and clean yet dramatically bold. Overall size has been limited to fit the sports-personal category, but, in contrast to others in this class, inside roominess is a prime consideration and gives driver and passengers big car dimensions. Javelin offers numerous handling and performance options while maintaining low price. As an example of what competition and good taste can produce, Javelin represents a praiseworthy addition to the sporty car class.

Sports: **Corvette**

Corvette has made the most dramatic contributions to American sports cars in 1968. Completely restyled, the 1968 Corvette also incorporates numerous engineering advancements. Unique changes in styling include a low-profile, sloping hood and an aerodynamic rear-end redesign. Roof treatment features removable panels and rear window, and includes a built-in roll bar, while chassis developments for 1968 add to already noteworthy handling and ride characteristics. Motor Trend recognizes Corvette for the continuing contributions in the sports car category and the significant achievements in this direction for 1968.

In looking over the inherent feature and/or accessory aspects of the 1968 models — to single out those meriting special commendation for achievement — it soon became apparent that many of the noteworthy ideas were related to the prevailing emphasis on safety. This opportunity to capitalize on state-of-the-art advances in many technologies was seized by engineers and/or designers for both product improvement and public benefit. MOTOR TREND Magazine presents Achievement Awards to the following manufacturers and suppliers for their significant contributions in this area:

(a) Full Circumference Horn Control by Oldsmobile

Exclusive to Oldsmobiles with Tilt-Telescope steering wheels is a new invisible horn ring encircling the inner circumference of the wheel. Two 1/2-inch brass contact strips are sandwiched in extruded vinyl with .030-.050-inch separation between them. One contact strip is laminated to the inside of the wheel and the other is pushed against it by finger pressure to close the separation between them and to activate the horn. Finger pressure can be applied anywhere on the wheel's inner circumference. Searching for a horn button or ring is eliminated. Designed by Olds, it is manufactured by Inland Manufacturing Div. of GM. Convenience and safety are outstanding in this new design.

(b) Light Monitoring System by Packard Electric

Light system failures can as easily result in accidents as in citations. The light monitor application perfected by Packard Electric, and using a system known as fiber-optics, transmits light directly from the light source — headlight, tail light, etc. — to a monitoring console in the driver's direct line of sight. An inoperative monitor lens quickly reveals a burned out lamp outside the car. Light monitors are standard on Corvettes, and optionally available for Thunderbird, Chevrolet, Chevelle and Camaro. The safety value is priceless and the system merits installation on all cars as standard equipment.

(c) Self-Aligning, "Floating" Caliper Disc Brake By Kelsey Hayes and Ford Motor Co.

Advantages of disc brakes are well known and documented. Ford has added greater reliability and braking power with the introduction of the new "floating" caliper, co-designed by Kelsey-Hayes. The distinctive feature of the new unit is that hydraulic pressure on the wheel cylinder piston causes equal and opposite motion of the caliper housing, thus forcing, with equal pressure, the linings against both sides of the rotor. Resultant advantages are better reliability and life because of fewer moving parts, and more braking power for pedal effort exerted than on previous designs. Ford has taken a step further in recognizing the value of disc brakes by making front disc/rear drum systems the only power brake option in their lines. All except Continental use the new "floating" caliper.

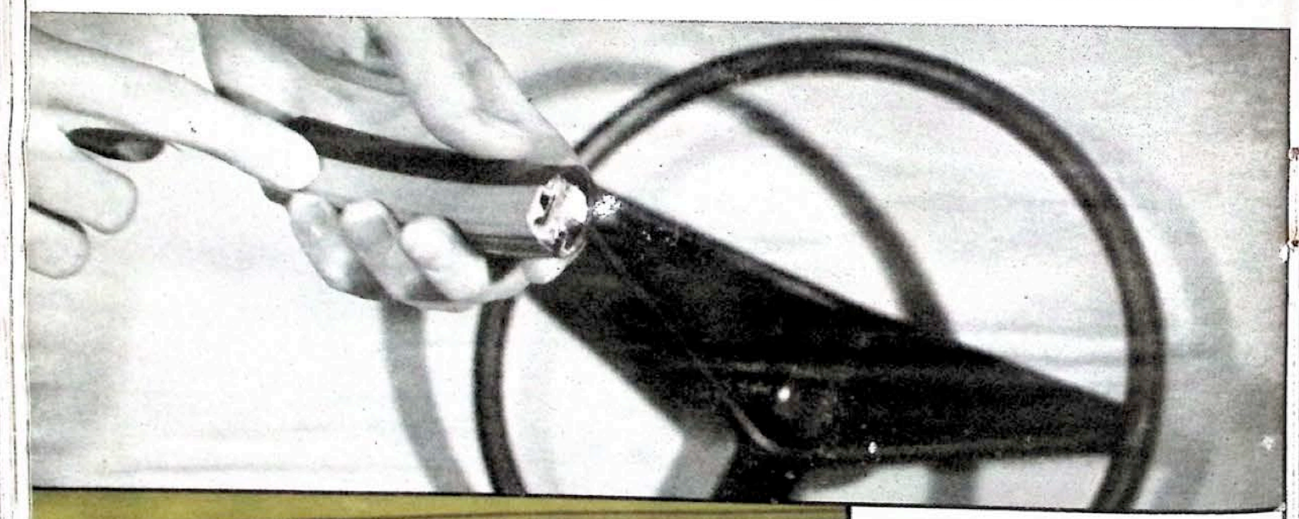
(d) Convoluted Fuel Tank Filler Neck by Oldsmobile

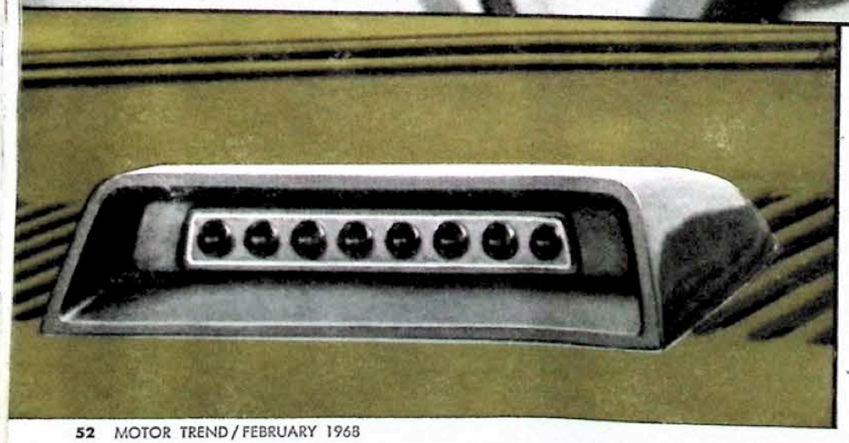
Fuel tanks mounted low and having center fill necks have caused serious problems resulting from fuel-spillage upon impact. Most serious is the possibility of fire. The Olds-designed convoluted fuel tank filler neck will bend and collapse upon impact, thus preventing fuel leaks caused by the neck rupturing at the tank joint. The new feature is standard on all Oldsmobile, Pontiac and Buick models except station wagons, which have an outboard tank and side fills. It is also used on all Chevrolet models except Corvair, Corvette and station wagon models. The convoluted fuel tank filler is a significant advance in auto passenger protection.

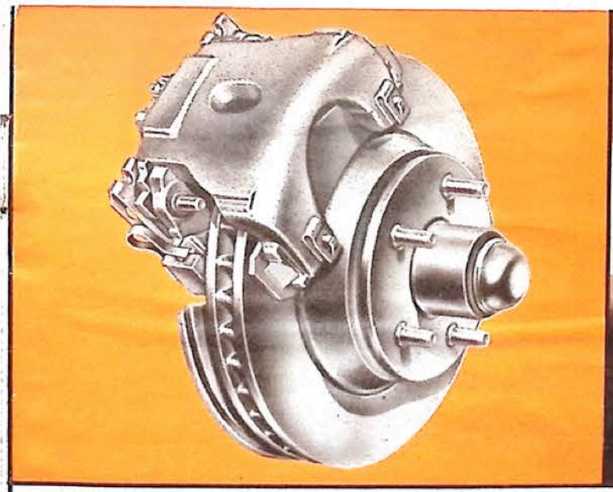
(e) Endura Bumper by Inland Manufacturing

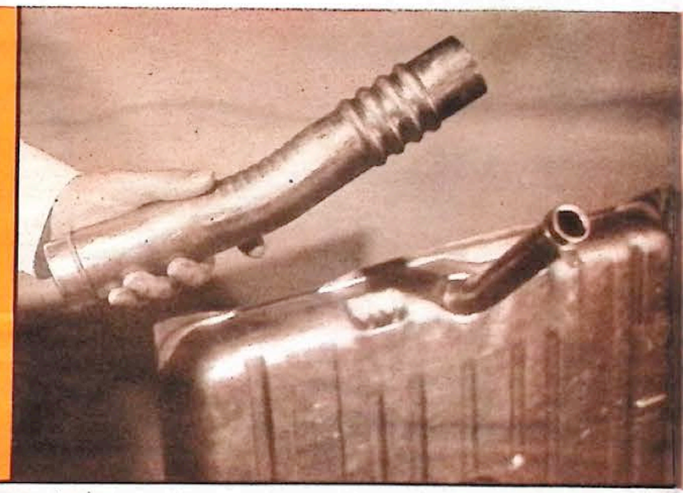
Countless advantages highlight the revolutionary "rubber" bumper on the front of all '68 GTOs. It's resistant to corrosion or finish deterioration, and slight encounters will leave the surface unscathed. Repairs, when needed, are easily accomplished. Brightwork glare to oncoming cars, or to those traveling ahead, is virtually eliminated. The Endura material is comprised of urethane rubber and backed with steel, making the entire piece an energy-absorbing system. In addition, it frees stylists to design many curves and features hitherto impossible using steel. Cost is still a limiting factor in application, but Endura is too good not to be used on other parts of the car.

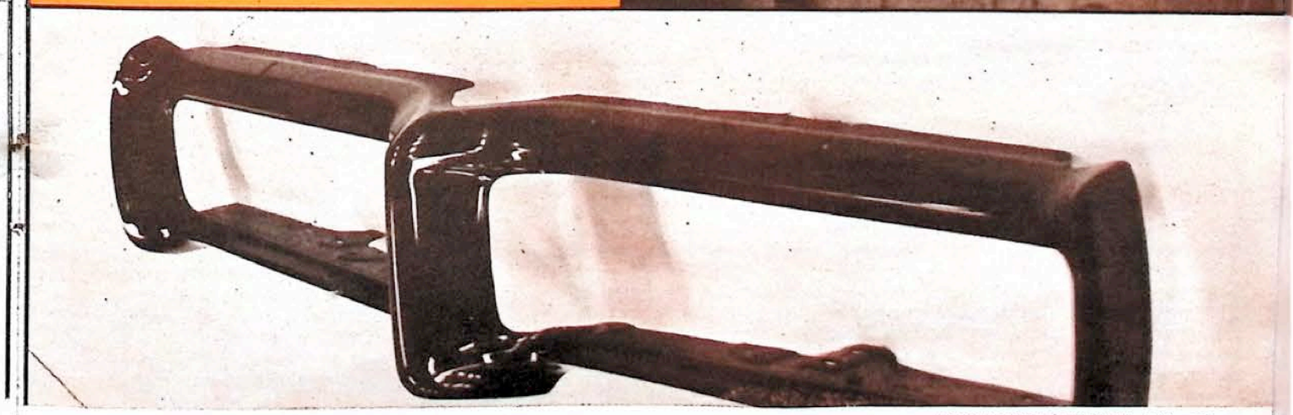
MOTOR TREND
Accessory Achievement Awards
3











MOTOR TREND
Foreign Car Awards

4

Integrity is a rare quality among the glorified profit margins and planned obsolescence of modern day marketing magic, but there are some independent minds that value intelligent and creative ideas as being a bit more gratifying in trying to achieve that One Universal Good. To both NSU and Mazda, the rotary piston concept was valid even if it only represented a common-sense, well-engineered approach to the next stage of car development.

As a mechanical application, it promised no revolutionary sales sweeps. Nevertheless, faith in the intelligence of mankind, and pride in their own creations, carried both into extensive, bold research for a revolutionary engine design.

When NSU launched its new twin-rotor Ro 80 at the September Frankfurt Show, it had done a minimum of market research; it had no scientific forecast of who its new customers would be, or of their probable numbers. To a very important extent, they forged ahead on faith.

It was rewarded. The car was the hands-down star of the show, and, within four weeks, orders had been received to cover the next seven months of production capacity. NSU always has deserved kudos for courage. Now it deserves them not just for championing an unorthodox idea, but for seeing it through — it appears — to acceptance and success in the marketplace.

Out of the orders to date the missing market survey has emerged, and it rewards their faith in the intelligence of mankind. Doctors are the Ro 80's best customers. Next come engineers, then architects, and workers in the communications industry.

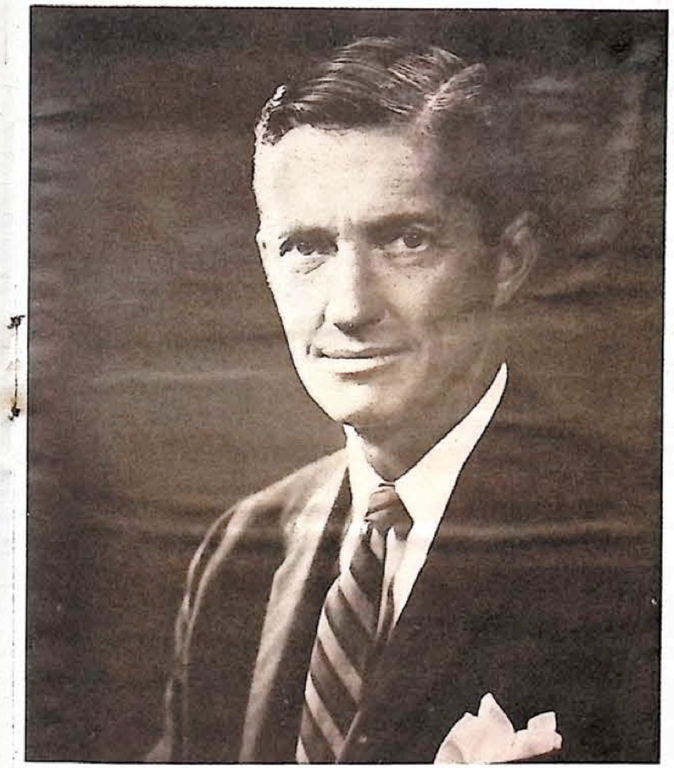
An interesting side-effect of the Ro 80's arrival is that the little, low-priced, piston-engined NSU cars have been enjoying a sudden boom. And the same rub-off of glamour has been taking place in Japan.

Mazda, made by Toyo Kogyo of Hiroshima, scooped NSU last summer by introducing the world's first production car to be powered by a twin-rotor Wankel engine. Manufacture of the attractive sports car began last summer with 60 units per month and by the end of the year had been increased to 100 per month. But the 2-seater was just the starter for a more complete Mazda line. It was previewed at the Tokyo Show at the end of October and consists of a pair of stylish sedans which are to go into production in mid-1968, when Toyo Kogyo's total production may top 300,000 for the model year.

MOTOR TREND
Merit Awards

5

Roy D. Chapin Jr., Chairman of the Board, American Motors Corporation, is presented with a 1968 Motor Trend Merit Award for having the courage to redirect company policy along the following lines: (1) to establish a "philosophy of difference," wherein the differences are significant — i.e., the American "frozen design" concept, standard air conditioning on the Ambassador, and a unique advertising campaign; (2) to point up the need for independent manufacturers, who have traditionally innovated many product advances; and (3) to target its cars in size and price at and below those of the standard sized Big 3, a segment of the market that accounts for half of total automotive sales. To date, it would seem that Mr. Chapin, with the American, Javelin and upcoming AMX, is well on the road to implementing his company's policy.



HOW THE MERIT AWARDS WERE CHOSEN. Last October, 11 representatives of the national auto press formed a panel to select nominees for a unique election. The members' affiliations included ABC News, CBS Radio, NBC News, AP, UPI, Copley News Service, Newspaper Enterprise Assoc., Russell Service, Christian Science Monitor, Journal of Commerce and Newsweek.

In the opinion of this distinguished panel, these men deserved to be considered for Motor Trend's 1968 Merit Awards: Alan Boyd, Roy Chapin, Henry Ford II, Bill France, Dan Gurney, Charles Heinen, Lee Iacocca, Ralph Nader, Derwyn Severy and Carroll Shelby.

A printed ballot, listing candidates and qualifications, were then mailed to 170 newspaper auto editors in 50 states asking them to vote for their choice of Award recipients. Ballots were returned to certified public accountants, whose audit revealed a tie.

Lee A. Iacocca, Executive Vice President, North American Automotive Operations, Ford Motor Company, has been elected to receive a 1968 Motor Trend Merit Award for pioneering the concept of a flexible response to the emotional automotive preferences of a burgeoning young adult population, by fathering the Mustang, which became the pace car for the sports-personal field. Utilizing a blend of intuition, merchandising expertise and market research, Mr. Iacocca thus accelerated the trend to one of the industry's major themes in the '60s: a new generation of cars for a new generation of people who are interested in the fun of driving as personified by comfort, styling and performance.

Don't Get Shot Down With a Spray Gun

If the old car needs a new look, here's what to do to enjoy repainting without repenting.

BY MICHAEL LAMM

Whether it's an urge or a need, the decision to repaint a car usually comes to a head quickly. One day you decide you want a new paint job, the next day it's done.

But is that really a safe way to get a paint job? No, because there's a lot more to painting an automobile than just having it sprayed in the shortest possible time. Just how *do* you shop for a finish . . . ?

To start, there's the question of price. You have your choice of paint jobs ranging from the $29.95 quicky to custom finishes that can easily run upwards of $600. There's also the question of types of paint — baked or plain enamels, the older and less expensive nitrocellulose lacquers, the newer acrylics (both acrylic lacquer and the very recent acrylic enamel), metallics, plain and solid colors, 2-tones, plus such added oddments as spray-on vinyl tops, fire-mists, candy colors, metalflakes, fogging and pinstriping.

It's not actually so confusing as it might sound at first. All you really need is a broad picture of the paint situation plus a level head. If you know what's available and what's involved, you can determine your paint needs before you go shopping. That way you will save money and get a better finish too.

THE PRICE

Most car owners shop first and foremost for price. Before you jump at the least expensive paint job advertised, it's wisest to get three or four estimate bids from different types of paint and body shops.

Basically, there are four different sorts of shops: 1) the independent, who owns his own business and who usually does as much body repair work as painting. 2) The dealer-associated shop, which is either owned and run by the car dealer himself or is a semi-independent body-and-paint establishment on the dealer's premises. 3) The shop that specializes in inexpensive painting, does minor body repairs and advertises 1-day service for $29.95 or thereabouts. 4) The custom painter — sometimes doing only custom work, sometimes also taking on more standard jobs. This man is competent to apply the candies, metalflakes, and other fancy finishes now becoming voguish.

The average full-sized American car, painted in *enamel* by an independent shop, usually runs between $80 and $100. For smaller imports or sports cars, an enamel job costs $60-75.

For an acrylic *lacquer* job on big cars, figure $150-300 for a full-sized car; $100-$150 for an import. These again are prices from ordinary independent shops.

Dealer paint shops nearly always charge more than the independents. Dealers' rates average 10 to 15% higher.

If you want your car's interior painted, figure on this costing extra. The average interior paint job runs around $60.

Two-tone paint jobs also cost more, of course. On these, it's hard to pin down prices, but on the average, an independent shop will charge $40-70 more for a 2-tone job; a dealer shop will charge $50-85 extra.

As for the much-advertised bargain painters — those traditionally charging $29.95 — you *can* get a good, durable finish here if you invest some of your own time and elbow grease in precleaning, masking and priming.

THE SHOP

As important as price are the shop's reputation and appearance. What have you heard about any given painter's quality and service? When you visit his shop, whether large or small, walk around it and look at the cars being painted. Do the individual sanding, masking and undercoating operations seem thorough, or are they shoddy and too quick? How about the shop's general cleanliness — is there dirt on the floor, dust on the windows, odds and ends of sandpaper lying around? Is the lighting good? Also important, is the spray booth clean and is the bake oven likewise (if there is one)?

Good bodymen and auto painters have a fairly set routine to sell paint prospects. He knows, for example, that your decision to give him the job is made pretty much on the spur of the moment. To help sway you, a good painter will explain what's involved in your particular case, will get you out of your car, take you around it to show you trouble spots (dents, rust, hard-to-remove chrome), and will finally make out an itemized estimate, keeping one copy for himself and handing you the other. This is the professional way, and it's to be respected though not necessarily expected.

You should ask though, whether his estimate includes painting the wheels the same color as the body, if it includes painting the underside of the trunklid, the sides of the hood, and how far into the door jambs he intends to spray.

VINYL & STRIPES

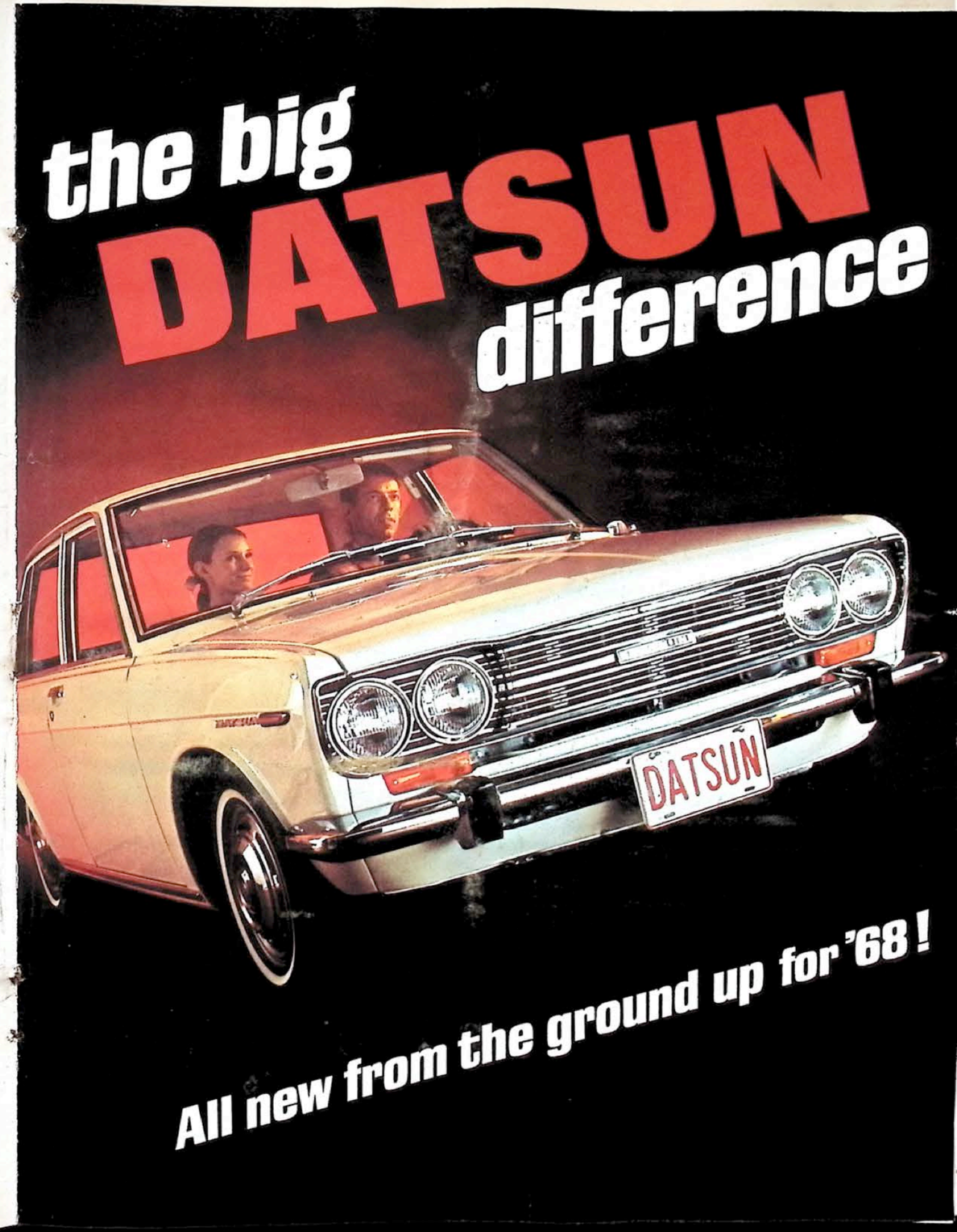
Increasingly popular today is the spray-on vinyl roof. Most painters are equipped to apply these. About the only piece of special equipment they need for spray-on tops is a so-called "pressure pot," which pressurizes the liquid vinyl to the spray nozzle. Many painters use pressure pots even for regular paint jobs, because it gives more even finish in fewer coats.

These spray-on vinyl roofs are virtually indistinguishable from the real thing. To simulate top seams, manufacturers now supply a special plastic tape. This tape goes onto the roof before it's sprayed. Colors at the moment include only black, beige and cordova, but others should be added soon.

The average spray-on vinyl top costs between $40 and $75, with most at the lower end of this scale. Chrysler Corp. has already recommended that dealers use spray-on vinyls as replacements for the real thing.

To replace pinstriping on the newer cars, dealer paint shops now use another sort of special tape — masking tape whose center section can be pulled out. After the car has been painted, the painter merely takes this tape, lays it in place, attaches shielding paper to its outer edges with regular masking tape, then pulls out the center strip much as he would the tear-pull of a gum wrapper. He shoots the exposed surface and afterward carefully unmasks the pinstripe.

If you can get hold of this tape, you can do the pinstriping with a pressure can of paint. *continued on page 63*



Datsun Sedan-features that make fine cars famous... for under $2000*

Value breakthrough! First time ever in a popular-pric[illegible] features found in the world's finest cars—now here in [illegible] Datsun for under $2000!

Overhead Cam Engine A new era in engine efficiency, h[illegible] 96 horsepower—with amazing gas economy. Same Overhead [illegible] as found in many of the most expensive cars.

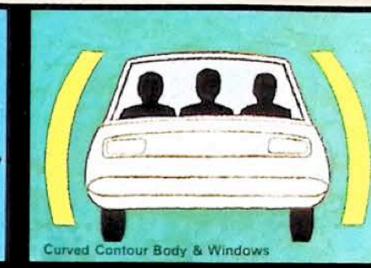
Windows-Up Fresh Air System. Close the windows! Dri[illegible] luxury—with constant fresh air. Front intakes draw cool fr[illegible] rear vents exhaust it automatically. Wind roar and street nois[illegible] out. Result: the "Quiet Ride"—Datsun style.

Independent Rear Suspension and Single Strut Fro[illegible]sion—combine to produce Datsun's Deep Coil Ride at a[illegible]

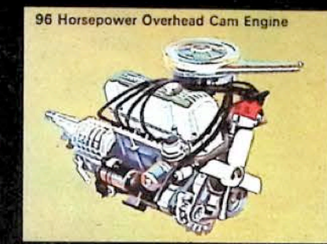
1968 DATSUN!

The biggest value package of the year!

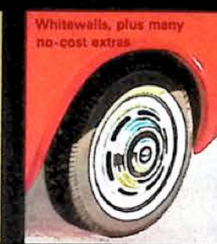
Safety Front Disc Brakes



Curved Contour Body & Windows

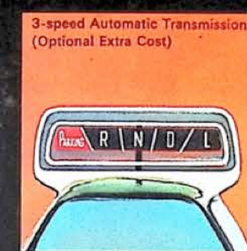


96 Horsepower Overhead Cam Engine

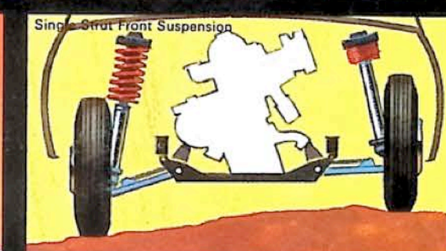


Whitewalls, plus many no-cost extras

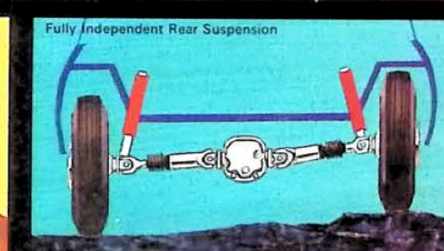
Windows Up Fresh Air System



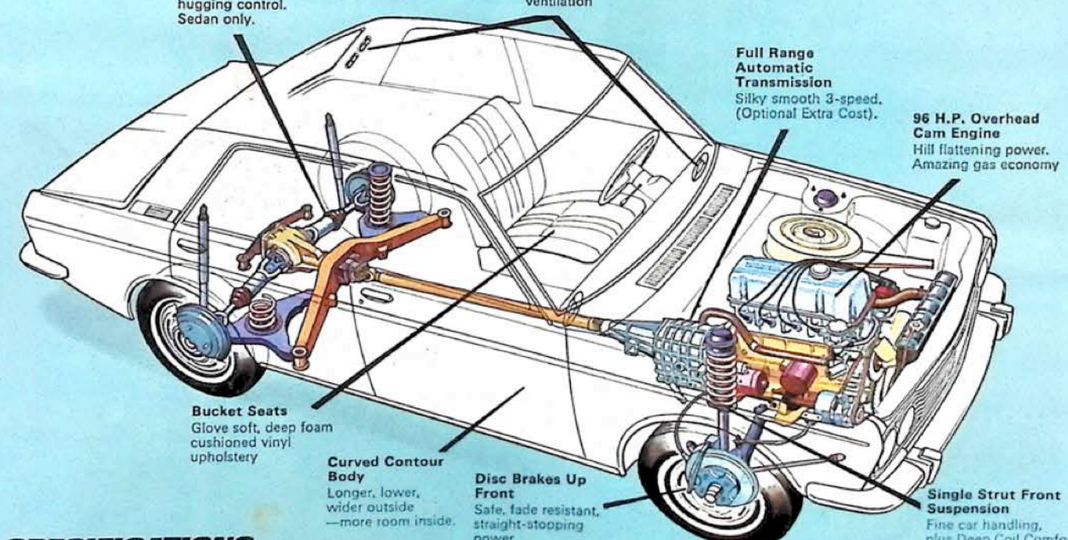
3-speed Automatic Transmission (Optional Extra Cost)



Single Strut Front Suspension



Fully Independent Rear Suspension



SPECIFICATIONS

Datsun Sedan PL 510, Station Wagon WPL 510

Dimensions	Sedan	Wagon
Length	162.2"	163.2"
Width	61.4"	61.4"
Height	55.1"	56.5"
Wheelbase	95.3"	95.3"

Engine. Overhead Cam

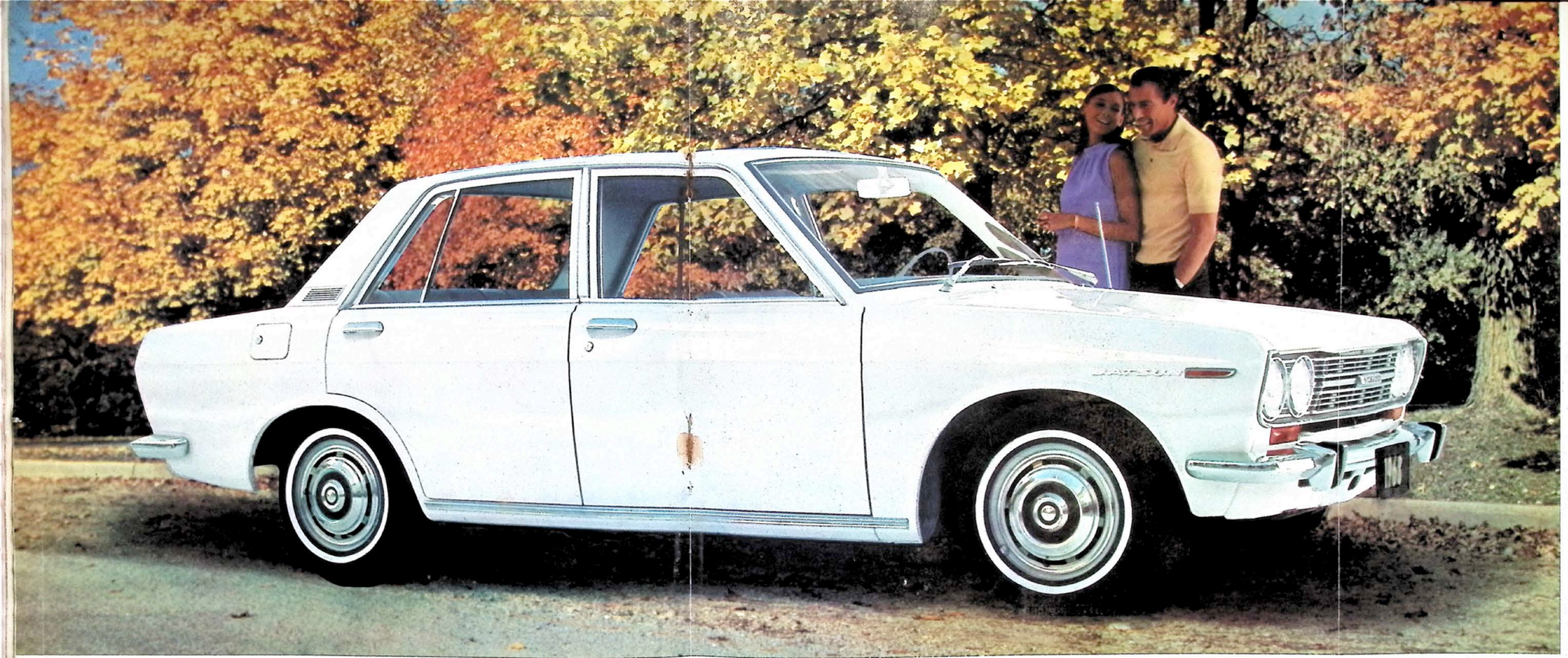
Horsepower	96 at 5600 RPM
Displacement	1595 cc
No. of cylinders	4
Compression ratio	9.5 to 1
Bore & Stroke	3.3" x 2.9"

Full-Range Automatic Transmission
3-speed, Borg-Warner

All synchromesh 4-speed Transmission

Gear ratios:	
1st	3.66
2nd	2.18
3rd	1.31
4th	1.00
Reverse	3.64

Weight	Sedan	Wagon
4-Speed Trans.	2017 lbs.	2083 lbs.
Auto. Trans.	2061 lbs.	2138 lbs.



Datsun Sedan-features that make fine cars famous... for under $2000*

Value breakthrough! First time ever in a popular-priced import—the features found in the world's finest cars—now here in the all new Datsun for under $2000!

Overhead Cam Engine A new era in engine efficiency hill flattening 96 horsepower—with amazing gas economy. Same Overhead Cam design as found in many of the most expensive cars.

Windows-Up Fresh Air System. Close the windows! Drive in hushed luxury—with constant fresh air. Front intakes draw cool fresh air in... rear vents exhaust it automatically. Wind roar and street noise are closed out. Result: the "Quiet Ride"—Datsun style.

Independent Rear Suspension and Single Strut Front Suspension—combine to produce Datsun's Deep Coil Ride at all 4 wheels. Soaks up bumps. Assures level, road-hugging control. Now you can enjoy comfort and driving ease that characterize the finest expensive cars.

Curved Contour Body. Wider, lower, longer—curved windows and body contour provide more inside room. Integrated frame assures solid, squeak-free, quiet running. Full insulation and factory undercoat soak up sound.

Safety Front Disc Brakes. Fade-resistant, straight stopping power to rely on. Just one of the complete package of safety features for '68.

Full-Range Automatic Transmission (optional extra cost). Proven in millions of fine cars around the world. 3-speed automatic combined with Datsun's 96 h.p. engine offers the silky-smooth ease of no shift driving. Datsun's famed all-synchromesh 4-speed transmission is standard.

A Host of No-Cost Extras. The big Datsun Difference is Value: More Datsun-per-dollar than ever before. Whitewall tires. Chrome wheel covers. Heater & Defroster. Courtesy light. Bucket seats. Wall to wall carpeting. Deluxe vinyl interior and deep pleated foam cushions. Glove compartment and extra package shelf. Large trunk space. Battery-saving alternator. Oil filter. And countless luxury touches.

Datsun is built by the Nissan Motor Co., Ltd., one of the world's leading manufacturers of quality automotive products.

This year more than ever the big Datsun Difference is Value... drive a Datsun... then decide.

*Prices and specifications are subject to change without notice. Prices do not include tax, license, options, D&H and freight, if any.

There's a new '68 DATSUN for everyone.

DATSUN STATION WAGON Loaded with practical luxury

DATSUN 2000 SPORTS CAR Potent power package—plus value

DATSUN PICKUP America's No. 1 import truck

Turn on 135 New Horses!

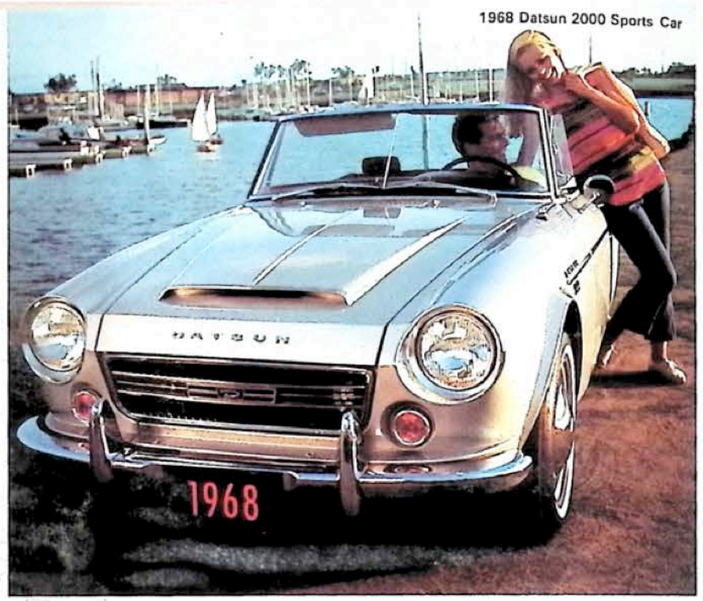
This winner has everything! A new 135 h.p. overhead cam engine. All synchromesh 5-speed transmission. Disc Brakes up front. The complete package of features and no-cost extras that make Datsun famous for value! Plus beauty that captures admiring looks wherever you go!

Datsun... the complete one: Delivered with all transistor radio. Foam bucket seats. Deep pile carpets. Locking console, plus glove compartment. Whitewalls. Large dial tachometer. Tonneau cover, Top boot, the works!

SPECIFICATIONS · Model 2000—SRL-311

ENGINE: 4 cylinder, Overhead Cam, 1982 cc. Bore & Stroke 3.433" x 3.267". 135 H.P. @ 6000 RPM. **TRANSMISSION:** All-synchromesh, 5 speeds forward. **DIFFERENTIAL:** Hypoid, semi-floating. Ratio 3.70 std. **STEERING:** Cam & lever. 14.8:1 ratio. Turn circle 32 ft. **BRAKES:** Front disc, 11.18" dia. Rear, Al-Fin drum, 9" dia. **DIMENSIONS:** Length 155.7". Height 51.2". Width 58.9". Wheelbase 89.8". Weight 2006 lbs.

ALSO AVAILABLE: Model SPL-311 with 1600 cc., 96 H.P., Overhead Valve Engine and All-Synchromesh 4-speed Transmission.



1968 Datsun 2000 Sports Car

Give your pocketbook a new pickup!

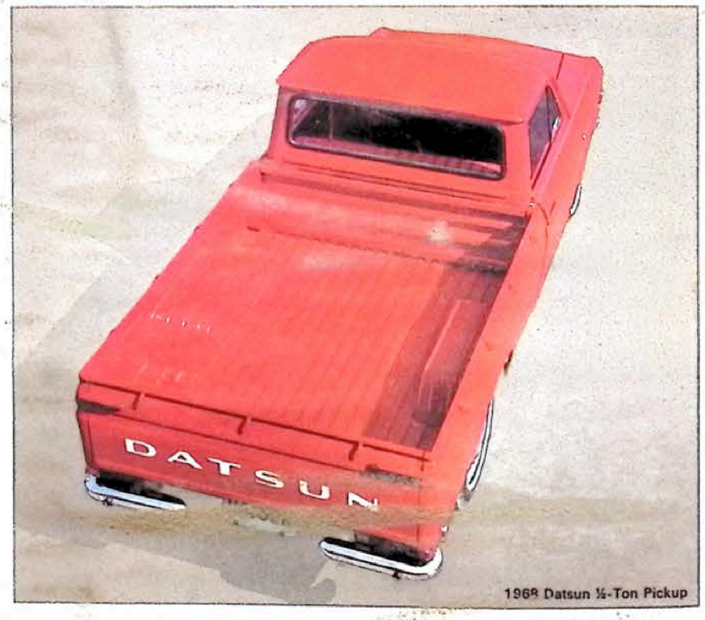
There's just nothing to match it... either as a profit making tool on farm or city jobs...or as a 'second car'. And when it's time to find fun, just pop on a camper top and go!

Saves up to 50%. Datsun costs less to buy...costs less to operate. Yet hauls up to 2,000 lbs. loads.

Datsun comes complete: All synchromesh 4-speed transmission. Battery-saving alternator. Comfortized cab with vinyl interior. Heater & defroster. 6-ply R whitewall tires. All steel 6' bed. Dual headlights...and more!

SPECIFICATIONS

ENGINE: 4 Cylinder, Overhead Valve. Bore & Stroke: 2.875" x 3.055". Compression ratio: 8.2:1 (Regular Gas). **TRANSMISSION:** Floor mounted, 4 speeds forward, all-synchromesh. Gear ratios: 1st 3.657, 2nd 2.177, 3rd 1.419, 4th 1.00, Reverse 3.638. **DIFFERENTIAL:** Hypoid bevel, semi-floating. Ratio 4.875. **BRAKES:** Uni-servo front, duo-servo rear. **DIMENSIONS:** Length 168.5". Height 60.8". Width 62". Wheelbase 99.6". Weight 2216 lbs.



1968 Datsun ½-Ton Pickup

This year... drive a DATSUN... then decide! Parts & Service Coast to Coast.

Nissan Motor Corporation In U.S.A.

National Headquarters
137 E. Alondra Blvd.
Gardena, California 90247

Eastern Division
400 County Avenue
Secaucus, New Jersey 07094

Houston Region
5647 Hartsdale Drive
Houston, Texas 77036

San Francisco Region
1820 Ogden Drive
Burlingame, California

Portland Region
4832 S. W. Schools Ferry Road
Portland, Oregon 97225

Nissan Motor Corp., in U.S.A., Gardena, California

Prices and Specifications subject to change without notice. Printed in U.S.A. Form No. 100/3L/GP/10-67

Pinstriping can cost anywhere from $15 to $50, depending on how intricate you want to get. But if you do it yourself, you can complete the job for less than $3.

TYPES OF PAINT

In the early days of the automobile, it used to take at least a week to paint a car at the factory. These vintage paints were called enamels, but they consisted mostly of pigments suspended in natural clear varnishes. Then, with synthetic enamels, painting time was cut to about two days. Later, baked enamels brought this down to one day. Now, with the acrylics used since 1961 by most automakers, a factory paint job can take as little as two hours.

At the factory, though there's no need to strip off old paint, to sand or repair rust spots, fill dents or to remove or mask glass and chromed parts. A car that has to be repainted presents quite a different problem from the new car that's getting its first finish.

In repainting, you can choose between enamel (baked or air-dried), lacquer (acrylic or nitrocellulose), and a number of custom finishes (the candies, etc.). Here are some of the basic differences:

Air-dried enamel: This finish requires the least amount of special equipment. It also demands the most cleanliness, because airborne dust and lint have more time to settle on freshly painted, tacky surfaces. Air-dried enamel can be applied in only two coats, although three or four make a more durable finish; it's less durable than a good baked-enamel finish, but you can still expect straight colors to last two or three years under normal conditions without fading.

Baked enamel: Many paint shops have baking ovens to speed the drying process of enamels. These ovens use either infra-red bulb lamps or infra-red heating rods. A car is placed into the oven after shooting, left there for 45 minutes to an hour (temperatures range from 160° to 175°F.), and this actually amounts to force-drying, not baking at high temperatures like the factories do it (250° to 450°F.).

Baked enamels are usually more durable and color-fast than air-dried. Again bake jobs demand at least two coats.

Nitrocellulose lacquers: These aren't used much anymore; very few shops paint with the older-style lacquer, simply because there's no good reason to. These pre-acrylic lacquers must be buffed after the final coat goes on. Also, the old-style lacquers tend to chalk or oxidize more quickly than enamels, and they're harder to polish once they begin to chalk. They resist fading longer, but their tendency to chalk gives them no advantage in lifespan. Shops use them nowadays mostly to spot in old lacquer jobs.

Acrylic lacquer: As mentioned, most new cars are now painted in acrylic lacquer. Like nitrocel lacquer, it has to be applied in several coats, in this case from five to 25. Each coat dries almost instantaneously.

The way factories apply acrylic lacquers, they're baked in the final stage and require no buffing. But when applied as a repaint, thev aren't baked and do need to be rubbed out.

Acrylics last much longer than any of the foregoing — easily eight years in normal service. They also cost more. Although they're supposed to require no polishing or waxing, they do benefit from periodic maintenance — a good coat of wax once or twice a year.

Acrylic enamel: True acrylic enamels constitute a very recent breakthrough in paint technology. Hardly any paint shops use true acrylic enamels as yet, although many advertise them. These new paints are limited to factory application, where they're baked on at 450°F. No repaint would withstand temperatures that high, because upholstery and tires would start to burn.

The "acrylic enamels" used for repainting are actually baking enamels with some clear acrylic mixed in. This increases the durability of the finish, but it's still not so lasting as acrylic lacquer.

Now we come to variations and sophistications of the foregoing basic types.

Metallic colors: These consist of regular paints, either enamel or lacquer, with finely ground aluminum powder mixed in with the pigment. The aluminum gives added brilliance to the color. But at the same time, a metallic finish will fade more quickly than the same paint applied without aluminum. Metallics are a bit harder and more expensive to apply than non-metallic paint jobs.

Candy colors: The term "candy" applies to a wide range of bright colors. A good candy paint job costs from $300 to $500, the reason being that it takes more care and much longer to apply than a conventional paint job.

First, an underbase of gold, silver or copper mixed in clear lacquer is applied to the car. This has to dry overnight. Then a color toner of clear lacquer is sprayed over the underbase to the desired depth. It takes time and talent to get consistent tone — plus at least 10 coats of the color.

Finally, clear lacquer is shot over the color toner. But if too much clear is put on, the finish soon tends to yellow or crack. After all this has set for two to four weeks, the whole thing is rubbed out.

Candy colors fade very quickly, lasting about one year before they begin to wash out badly. They're particularly susceptible to strong sunlight and drastic temperature changes.

Fire-mist colors: Fire-mist is the name of new, dark acrylic lacquers used primarily by the factories for special, deep-gloss finishes. The Eldorado, Riviera and others of this type come with fire-mists. The paint's appearance stands between a regular metallic and a metalflake job. Fire-mists are put on just like acrylic lacquers, and they last just as long. Drawback: they're rather expensive, costing some $24 per gallon as compared with $13-18 for regular acrylic lacquers.

Metalflake colors: Expect to pay between $350 and $700 for a metalflake paint job. And expect it to last only nine to 14 months under ordinary conditions (although some very well-cared-for metalflake finishes have lasted almost four years).

Metalflake jobs are applied thus: first, an underbase of the actual color (red, blue, green or whatever) goes on the prepared car. Then actual metal flakes cut from anodized aluminum (the aluminum anodized in the same color as the underbase, usually) are suspended in clear lacquer and applied. The individual chips of aluminum adhere to the surface at all different angles, and the finish is now very rough. The painter then puts on coat after coat of clear lacquer until almost all the roughness has been covered.

At this point, there might already be 40 coats on the car. Next he "colorsands" the clear lacquer to knock down all the protruding chips and to get rid of any "orange-peel" effect. Then he puts on 14-20 more coats of clear lacquer and finally rubs it all out after a normal drying period.

In all, a metalflake paint job can take two or three weeks to apply, which helps account for its high price.

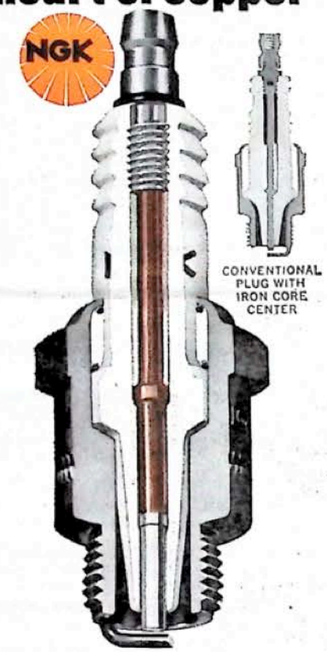
There are, of course, other special effects: pearlescent finishes, fogging with a lighter or darker color to highlight certain lines or areas, and so on.

PREPARATION

Generally speaking, a paint job is only as good as the surface it's being applied to. Any grease, dust or moisture will leave the paint vulnerable to peeling, cracking, blistering or "fish-eyeing." Unless the surface is completely smooth and free from scratches and dents, the paint's gloss will show up these imperfections, not hide them.

Equally important is the undercoat. Most painters prefer to put on an enamel undercoat for enamels and a lacquer undercoat for lacquers. But there is a universal undercoat which takes both. The undercoat must be feathered lightly before the topcoat(s) is applied. Without it, the topcoat won't stick properly. *continued*

heart of copper



Amazing Spark Plug Development!

NGK Spark Plugs have the widest thermal range of any spark plugs! They avoid both "hot" plug pre-ignition...and "cold" plug fouling problems. Save gas. Significantly improve street or speed performance!

Other spark plugs today have an iron core. Fine for limited driving. But cannot give you top performance in both high and low speed driving. This is why NGK, selling over 50 million plugs a year in 80 countries, invented the exclusive "Heart of Copper" Spark Plug. Here's the story in a nutshell:

1. In a "cold" running engine, "hot" plugs with an iron core work fine at low speeds. But are overheated at high speeds. Quick erosion of the tip and pre-ignition will often result.

2. In a "hot" running engine, conventional "cold" iron core plugs run good at high speeds, but too often foul at low speeds. Misfire. Waste gas.

3. "Hot" engine or "cold," NGK's have the flexibility to keep up with demands of either slow or fast driving. At high speeds, NGK's "Heart of Copper" more easily dissipates heat — preventing pre-ignition. At low speeds, NGK's longer nose prevents fouling, waste of fuel.

Special Offer! Send $1.00, get three NGK decals, big fact-filled booklet on racing spark plugs, plug conversion chart and heat range charts! Mail coupon today!

NGK SPARK PLUGS (U.S.A.) INC. MT-2
4010 Sawtelle Blvd.
Los Angeles, California 90066
Enclosed is $1.00 for NGK decals and literature.

Name _____
Address _____
City _____ State _____ Zip _____

A good paint shop will remove or mask everything that's not to be painted. This includes smaller items like insignias, wiper drives, the base of radio antennas, rubber grommets around tail lights, etc. This, in fact, is the mark of a good paint shop. If, in your tour of inspection, you find poorly masked cars, shun the painter.

Generally speaking, firms offering paint jobs for extremely low prices have to cut costs somewhere. Most of them do it in several combined areas: by reducing preparation time and by using less expensive paints. Expect a $29.95 job to last only as long as its guarantee (if there is one) — usually one or two years.

WHAT ABOUT COLOR?

Color is usually a matter of individual preference, and no one can tell you precisely which is best for your car. A good auto painter will trot out a color-sample chart as soon as he knows you're serious about giving him your business.

Don't let the chart fool you, though. A given color that looks great in a 1/2 x 1-inch sample might look terrible when it covers a whole car. Try to envision a huge expanse of the same color. Similarly, be sure the color complements or matches upholstery or interior decor.

You're always safest repainting your car exactly the same color it was when it came from the factory. This way you don't run the risks just mentioned, you don't have to worry about door jambs being half one color and half another, and coverage will come more easily and evenly. The finish will also come out better with less preparation, thus will cost you less.

Certain colors, of course, are more practical for certain purposes and climates. The lighter colors, especially off-white, reflect sunlight and are cooler in hotter climates. A black car in Baton Rouge or Tampa will be 20° hotter when left closed on a summer day than a white one. The lighter colors also tend to show dust and spatter less than dark ones. Dark blues and black are the hardest to maintain.

Metallics fade more quickly than plain paints. Within the metallics, darker ones tend to last longer than lighter ones. Of course, there are no very light metallics — no yellows, whites, or light tans. But a navy blue metallic will last longer than, say a metallic gold, and in this case the dark metallic is easier to maintain than the dark plain color.

SPOTTING & TOUCH-UP

As often as not, you'll merely want your car touched up and not completely repainted. In relation to area covered, the touch-up costs more than an entire repaint. That is, a painter might charge $35 to repaint one door whereas he'd charge $100 to paint the whole car. The door surely doesn't represent a third of the car's total surface.

This higher price results because the painter has to spend time matching colors, masking the surrounding area, and preparing the shop (settling dust, turning on the bake oven, cleaning his equipment) just as much as he would for the whole car.

You can probably handle *minor* touch-ups yourself. Whenever you have your car repainted, be sure to bring along a small bottle with a tight-fitting lid so the painter can give you some extra paint for later touch-ups.

If you need to buy touch-up paint, dealers and auto supply stores carry matches for all factory colors — either in pressurized spray cans or in brush-in-cap bottles. Though they duplicate factory colors, they might not match your finish perfectly because it might be faded. But by adding minute amounts of light gray, you can try to blend the touch-up paint with the finish. Remember, though, that color-matching is an art.

For scratches and minor dings, you are best off using bottled touch-up paint. Here, try to lay the paint *into* the crevice itself. Use either a very fine-tipped camel-hair brush or take a toothpick and fray one end by pounding it gently with a hammer. Then settle the paint into the scratch and try not to let any overage build up on the surrounding, good paint.

For broader scratches or mars, you'll need to spray the touch-up paint on. Prepare the surface by sanding it smooth, feathering the edges and then spraying on lacquer primer, and finally shooting the finish in several thin coats. After allowing ample time for drying (at least a week), buff out any overspray with rubbing compound.

SUMMING IT UP

In conclusion, it's wisest to rush into an automotive paint job as slowly as possible. Shop carefully, and appraise the painter as well as his work. Pit price against what you think his finished job will be. Choose color carefully, and pick the type of finish that will last at least as long as you plan to keep your car.

Watch out for hidden expenses like bodywork. Most shops won't give a written guarantee, but ask about one even if it's not offered (they'll usually be pro-rated).

If you know what painting a car involves, you'll be much better able to make judgments in all these areas. Painting is really not such a confusing subject — once you brush up on it. /MT

Test Drag a Javelin.

Don't laugh. The Javelin SST is even faster than it looks.

When equipped with a 343 cube/280-BHP 4-barrel V-8, and a 4-speed manual transmission with a 3.54 rear axle, it will move from a standstill to 60 in about 7.86 seconds and pin your backbone to the bucket in the process.

The engine pumps out a tough 365 lb.-ft. of torque at 3000 RPM. This SST in pure stock form will cover a standing quarter in 15.8.

But performance just begins there.

The real surprise comes in the Javelin's handling.

The Javelin can be equipped with front disc brakes, and a special handling suspension that includes a larger diameter sway bar and heavy-duty springs and shocks.

You'll notice the Javelin's phenomenal control in tight turns and high speed cornering.

Popular Science Monthly wrote that "The Javelin reacts almost the same at high speed as it does during low-speed maneuvers. Steering ratio was 18.1 to 1 overall and it felt just right for this car. Not too slow, not too fast. I particularly liked the action of the power steering. Aside from handling, the ride is excellent — tight and firm, yet comfortable enough for long-distance or everyday driving."

That's what the experts say.

And they say it better than we do.

American Motors

Ambassador • Rebel • Rambler American • And the new Javelin

THE STOCKERS: '68 FORECAST

CAN PETTY/PLYMOUTH DO IT AGAIN . . . OR WAS AMERICAN 500 AN OMEN FOR FORD?

by Bob Myers

Lining up the cars and putting the proper drivers in them on the Southern stock car circuit for 1968 is as futile as commanding a brood of 2-year-olds to sit quietly.

The most accurate method of determining who will be driving what for whom is to show up at Daytona International Speedway in unusually not-so-sunny Florida on Feb. 25 and see first hand.

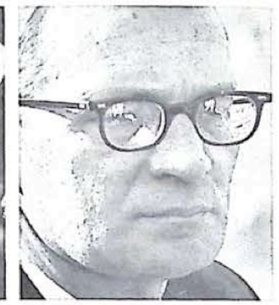
And even then it's often confusing, for factory performance people and their superiors who govern stock car operations sometimes change their minds. They have the power to hire and fire, and security off — as well as on — the track is not one of the virtues shared by drivers in the profession.

In addition to indications that Plymouth, Dodge and Chrysler will compete on about the same financial basis as they did in 1967, reports have persisted throughout the winter that Chevrolet Division of General Motors will return to the round tracks in force — and these reports have been denied as frequently as they have persisted.

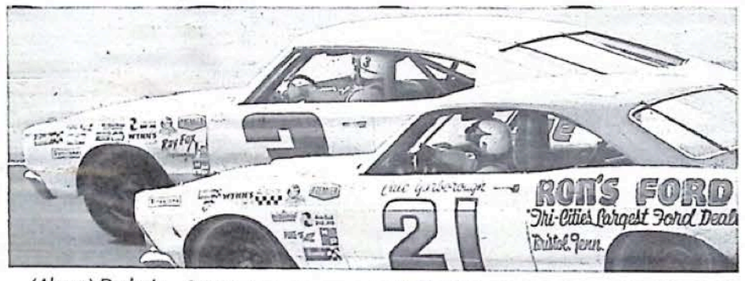
If Chevrolet does return, among the first to know will be master Daytona Beach mechanic Henry (Smokey) Yunick who deals in General Motors trucks and builds as fine a stock car racer as anybody on the NASCAR Grand National circuit.

Since GM, namely Chevrolet and Pontiac Divisions, stopped financing stock cars in 1963, when such greats as Junior Johnson and the late Fireball Roberts drove them, Yunick has fielded Chevelles on something of an experimental basis, insisting that the cars came out of his pocketbook. People snooping around under the table felt otherwise, thinking that Chevrolet was keeping in practice until it decided to play the competitive and expensive game once more.

Yunick spent part of last fall testing Camaros on the Bonneville Salt Flats. With Curtis Turner as one of his drivers, the cars cracked about every land-speed record for stock cars in the books. This may well have been a warm-up for participation on NASCAR's new Grand Touring Circuit in 1968. The circuit, dubbed Baby Grand Nationals, will bring Mustangs, Camaros, Firebirds, Cougars, Javelins, etc. to the major Southern speedways on a competitive basis for the first time. The first race is scheduled at North Carolina Motor Speedway at Rockingham in March.



(Right) International drivers are getting into the picture: Jimmy Clark discusses stockers with Austrian Jochen Rindt. (Far right) Ford performance boss Jacque Passino says, "There shouldn't be too many changes in 1968."



(Above) Dodge's Buddy Baker and Ford's Cale Yarborough dice in 500. (Right) In Bobby Allison pits, (L to R) Swede Savage, Fred Lorenzen, Moody, and Allison.

Although no one is speaking publicly during the winter months, the possibility of Chevrolet sponsoring a stock car team — and a GT team — are better than they have been since it pulled out. Yunick put his powerful Chevelle, with its near incomparable engines, on the tracks early in the 1967 season, but failed to return after Turner demolished one of the cars in a practice accident at Atlanta in April.

The year 1967 in the Southeast was undisputedly Plymouth's and the driver of the year was 30-year-old Richard Petty, from Randleman, N.C. Plymouth dealt Ford a severe beating on the short tracks, and Dodge suffered through a miserable year.

Petty broke nearly every major record in the Grand National books, winning 27 races in 48 starts (10 in a string), finishing 36 of 39 and pocketing $130,275 — all new marks. The Plymouth star captured three supertrack events, both the Rebel 400-miler and the Southern 500-miler, the latter the prestige classic in stock car racing, at Darlington, S.C. He also won a 500-miler at Rockingham early in the campaign.

With 24 victories on short tracks in intermediate distance and 100-mile events, Petty hurt Ford most in these areas, especially the 10-race streak unprecedented in NASCAR history.

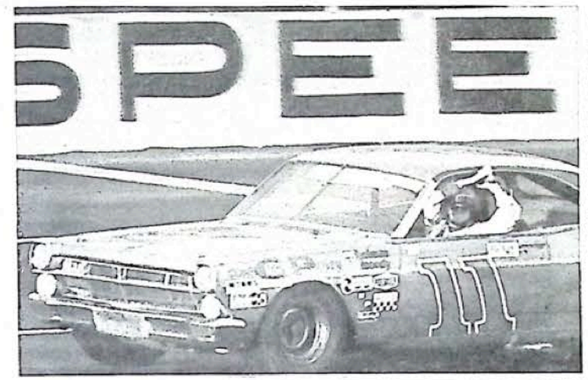
The wildest rumor about 1968 involves Petty, and if it's true it's closely guarded. It says Petty will switch from Plymouth to Ford. The reports go so far as to say Chrysler officials have gotten all they want from Petty and that he's free to move on.

The reports sound more like fiction than fact, for Petty has never driven anything but a Plymouth, and his father, Lee Petty, gained most of his fame in that make of car. Richard has said on occasion that he might leave Plymouth "if somebody else has enough money," but that he has no immediate plans to do so. Plymouth has gotten all it could ever expect — and much more — out of one driver in one season. Actually, having been forced to cut expenditures drastically in the 1967 season, Chrysler was put back into business by the Petty sweep, and it appears very unlikely that it is ready to permit its bread and butter to join a rival team at almost any cost.

During the past season, Ford fared well on the supertracks, a factor which some Ford executives who control the purse strings seemingly overlooked in the wake of Petty's overall blitz. Ford won the Riverside 500, both Daytona races and both Atlanta 500-milers, and climaxed the season with victory in the American 500-miler at 1-mile North Carolina Motor Speedway.

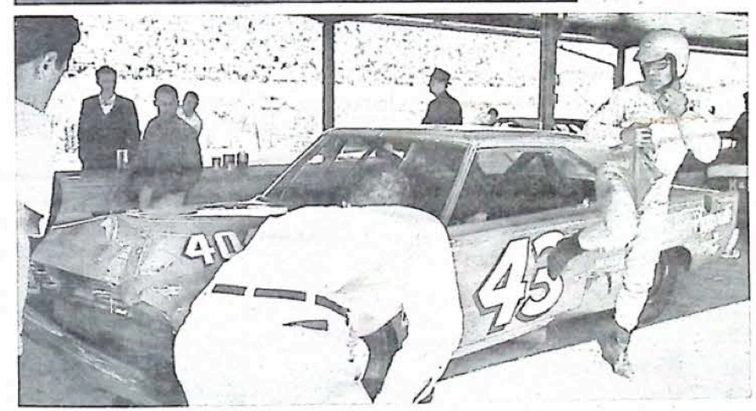
Bobby Allison, the ex-modified champion from Hueytown, Ala., driving a Ford Fairlane built by Charlotte's Holman-Moody shops and supervised by retired superspeedway star Fred Lorenzen, presented Ford with the final win on a major speedway. The same Allison-Lorenzen team also captured the final event of the 1967 season, a 250-miler at Weaverville, N.C. Allison outdueled Petty in the fender-banging 500-lapper over the half-mile track.

And if little else is concrete in the factory ranks, the 29-year-old Allison will drive a Lorenzen supervised Ford in 1968, and since Allison excels on intermediate and short tracks, they might persuade Ford to go all-out for the point championship, which Petty, naturally, won going away in 1967.



(Left) Bobby Allison looks happy as he receives checkered flag at Rockingham. (Below) Go ahead and kick it . . . Richard Petty climbs out of Plymouth after pit accident with David Pearson put him out of race.

PHOTOS: DON HUNTER



Allison was picked up by Ford especially for the American 500-miler, Oct. 29, because, according to Lorenzen, "Bobby has proved that he can drive a lightweight car as well or better than anyone on a track such as Rockingham and other smaller ones. I wanted to give him a chance to see what he could do in a Ford, and the company went along with the idea."

It might well have been the smartest and most profitable move Ford made all year, for the back-to-back wins by Allison left a favorable impression with fans about the time that assembly lines began to roll after a crippling strike. Still Ford's achievements did not equal the performance costs, since its cars always claimed the numerical advantage in all the races of 250 miles and greater.

In fact, only three regular NASCAR drivers captured supertrack events. Young Cale Yarborough, destined to return to the Ford army in Wood Brothers-built machines out of Stuart, Va., in 1968, won the Atlanta 500, celebrating his first major win. Then the 28-year-old Charlotte driver added the Daytona 400. Dick Hutcherson won the second Atlanta 500 in a machine prepared by Bondy Long of Camden, S.C., and proceeded to chase Petty home seven times in short races.

Parnelli Jones won the Riverside 500-miler over the road course and Mario Andretti won the Daytona 500 in Fords. Jones competed in no other NASCAR stock events and Andretti appeared in only two others. As far as Southeastern stock car buffs are concerned, they're foreigners.

Ford performance director Jacque Passino says he does not expect any major changes in the Ford operation in 1968. "What a lot of people do not realize is that we won five superspeedway races and because of our contracts, we were not represented as a factory in the races Petty won," he said.

Precisely the number of cars Ford will campaign in NASCAR events is not certain at this writing. Hutcherson, who had the best average finish of any other Ford driver on the supertracks in 1967 as well as the numerous runners-up to Petty, will not drive for the Long team in Camden, S.C., this year.

The former IMCA champion from Iowa may rejoin the Holman-Moody team, which had defending Grand National Point champion David Pearson of Spartanburg, S.C., as its No. 1 chauffeur after Lorenzen retired. Pearson left Cotton Owens' Dodge team under rather guarded circumstances shortly before Lorenzen quit racing.

If Hutcherson joins Holman-Moody — that is, if he continues to drive as some reports say he will not — then Allison, with Lorenzen as chief, may join the Long operation.

There's also another Allison in the picture, Bobby's brother, Donnie, a sensation late in the 1967 season in a Fairlane built by independent Mario Rossi of Spartanburg.

The Rossi car carried the blessings of Ford as well as Allison, who operated under the wings of Lorenzen and Ford field boss Ralph Moody. Donnie posted several good finishes in the Fairlane and, as one Ford official "His chances of landing a factory Ford with Holman-Moody or team are good. In fact, it looks good for the Allison brothers."

continued

Rumors had it after the American 500-miler that Pearson's ride was in jeopardy, but the 32-year-old driver trailed Allison across the finish line and said he wasn't "worried about any rumors."

John Holman, president of the Charlotte Ford outlet, and John Cowley Ford assistant performance chief, confirmed earlier that "we are very well satisfied with Pearson." Pearson posted four 2nd places in major races in the Holman-Moody machine, even though he hasn't won a big track event since he won three as a rookie in 1961.

Lee Roy Yarbrough, the charger from Columbia, S.C., will be Junior Johnson's Ford driver in 1968. Yarbrough replaced veteran Darel Dieringer, former Southern 500 winner in a Mercury, in the Johnson car which won one major event of 250 miles and was plagued by mechanical ills most of the season. Ford dismissed Dieringer, who joined Owens' Dodge operation for the final two supertrack races of the year.

Ford is also impressed with a California youngster, Swede Savage, who came East and who has been working at the Holman-Moody shops. Savage, a former motorcycle ace, drove a couple of 250-milers in an H-M machine and was respectable for one not familiar with stock cars and Southern competition.

Mercury's stock car program was a flop last year, but that's not all the fault of Spartanburg builder Bud Moore. Moore spent much of the season concentrating on Mercury's successful Trans-American Series Cougar entries and the stockers had to more or less mind themselves until late in the season when Moore got the Comets moving. A Mercury didn't win a race, and perhaps there were other reasons than mechanical ills.

Moore had trouble keeping drivers. Sam McQuagg, who finished the year walking, and Bobby Allison drove the cars early in the season. McQuagg was dismissed rather suddenly and Allison departed to join the Owens Dodge team. Lee Roy Yarbrough took over, but left to join Johnson when Dieringer was dismissed. That left Moore without a driver, so USAC's Gordon Johncock was hired to wheel the car in the season's two final big track races.

Whether Moore will build Mercury factory stockers in 1968 was touch and go at the end of the season.

Dodge had its miseries until young Buddy Baker—came to the rescue in a Charger built by master mechanic Ray Fox of Daytona Beach. Baker highlighted Dodge's greatest day—by far—in 1967 by winning the Charlotte National 500-miler last Oct. 15 (Jan. MT). Baker, 26, led a Dodge parade that claimed four of the first six positions in a race that was billed as Petty against the world, largely Ford's army which included all the NASCAR gang and A. J. Foyt, Andretti, and Jack Bowsher, among others.

Before that, Dodge had won only one race of 250 miles or longer in NASCAR—a 250-miler at Bristol, Tenn. in March. Pearson, then working for Owens, was the driver. Owens was deluged by mechanical failure on which he blamed lack of funds to make most of the races. During the throes of losing, he moaned;

"I spent a lot of money early in the season with little return. That's when it hurts. Faced with a budget cut, I've had to run used equipment, some older than I've ever used before. Everything has gone wrong."

Owens, whose shops are also in Spartanburg, used several drivers, too—Pearson, McQuagg, Bobby Allison and finally, Dieringer. Not knowing who would chauffeur his cars simply added to Owens' frustration.

Don White, the veteran from Iowa, carried the Dodge banner well in USAC, however, winning some seven races and the point championship. White drove Ray Nichels Engineering cars.

But the gravy, Dodge realizes, is in NASCAR, and, for this reason, Fox and Baker are expected to form its No. 1 factory team in the South this year. Fox has fielded winners at nearly every speedway over his long career, including four at Charlotte Motor Speedway. He was highly impressed by Baker last year and the independently-sponsored cars he built led nearly every major race before the triumph at Charlotte. Fox's work and Baker's brilliance struck Dodge's fancy. What will happen to Owens as far as factory connections are concerned is just conjecture.

Another promising young driver who is about ready for a factory ride is Paul (Bud) Moore, a rookie from Charleston, S.C., who distinguished himself in an independent Dodge the latter part of the year and caught the attention of both Dodge and Ford. Moore had two finishes in the first five in supertrack races, and was 6th in the American 500.

As Dodge had done in the Charlotte 500, Ford swept the '67 big-track finale at Rockingham. Allison took home the $16,075 first prize and Pearson posted another 2nd. A. J. Foyt was 4th in a Banjo Matthews Fairlane and Johncock placed 6th in the season's top finish by the Mercury.

Plymouth's Goldsmith, who speculation says will retire, had one of his best finishes in 3rd place. Goldsmith, driving a Nichels machine, was victim of untold mechanical problems in 1967 and was disgusted at his inability to win a major event.

Twenty-year racing veteran Jim Paschal is expected to be back in Plymouths sponsored by West Coast airline pilot Tom Friedkin in 1968, with Bill Ellis as chief mechanic. Paschal's big win was the Charlotte 600-miler in May.

Dodge's ranks may be strengthened by the appearance of cars sponsored by K and K Insurance of Ft. Wayne, Ind., in more races in the South. Bobby Isaac and Charlie Glotzbach drove the cars on a regular basis in supertrack races in 1967. Both finished in the top five at Charlotte, Isaac second. Owner Nord Krauskoff reportedly plans to move his operation to Charlotte.

Ford's Matthews, former driver from Asheville, built cars for Foyt on both the USAC and NASCAR circuits last year. The American 500-miler was their best finish in NASCAR and the 3-time Indianapolis 500 champion, Foyt won a 250-miler at Milwaukee. Matthews says he hopes to have a similar arrangement with Ford in 1968 and denies rumors he will build Chevrolets.

The American 500 was balm for Bobby Allison, truly an oasis at the right time in a desert. He kicked around in four different machines, including his own Chevelle, until Ford approached him for the Rockingham run and he posted his first victory of consequence.

"I'm just glad to get the Ford ride. I hope to have it in 1968. I had become so discouraged that I did not know which way to turn. I tried everything and I could not win. That's the way racing goes. I appreciate this Ford ride more than some would because I know what it is to lose factory rides and to run as an independent," he said.

The American 500 was the first major stock car race to have international flavor—very rich flavor with the appearance of world champion Grand Prix driver Jimmy Clark, as well as Austrian Jochen Rindt and Italian Lodovico Scarfiotti.

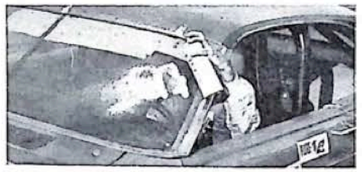
Clark, driving a competitive stock car for the first time, failed to finish in a Holman-Moody Ford. The Flying Scotsman was ousted by engine trouble after moving from 25th to 12th place in the sterling field.

The 1965 Indianapolis 500 champion and the winner of 24 Grand Prix races said he entered the stock car event "just to do something different and to get out of the normal routine. I enjoyed the experience and hope to come back for more stock car races in the future."

Rindt was scheduled to serve as Clark's co-driver and Scarfiotti was to drive a 1967 Plymouth owned by Tom Friedkin. However, Clark blew before he needed relief and Scarfiotti's machine was disqualified on race day because it did not meet template measurements.

The year 1967 was the healthiest for stock car racing since 1964. Attendance boomed, with 100,000 paid customers attending the October events at Charlotte and Rockingham.

NASCAR President Bill France sees further growth in 1968. "Charlotte and Darlington offered $100,000 purses for the first time for a 500-mile race except the Daytona 500 last February," said France. "This year the Daytona purse will be in excess of $190,000 and the race will be televised by closed circuit again. I see unprecedented growth and even international interest in the sport."



(Left) Winner Bobby Allison conducts his own cleanup campaign during pit stop. (Right) Allison, new Ford hero, beams after winning 500.

FINAL RESULTS OF NASCAR'S 1967 DOLLAR DERBY

DRIVER, AUTO	POINTS	MONEY
1. Richard Petty, Plymouth	42,472	$130,275
2. Dick Hutcherson, Ford	33,658	$ 75,985
3. David Pearson, Ford	26,302	$ 69,455
4. Cale Yarborough, Ford	16,228	$ 56,990
5. Bobby Allison, Ford	30,812	$ 53,415
6. Jim Paschal, Plymouth	27,624	$ 53,380
7. Mario Andretti, Ford	USAC	$ 46,795
8. Buddy Baker, Dodge	18,600	$ 45,495
9. James Hylton, Dodge	36,444	$ 39,005
10. Paul Goldsmith, Plymouth	20,402	$ 35,360

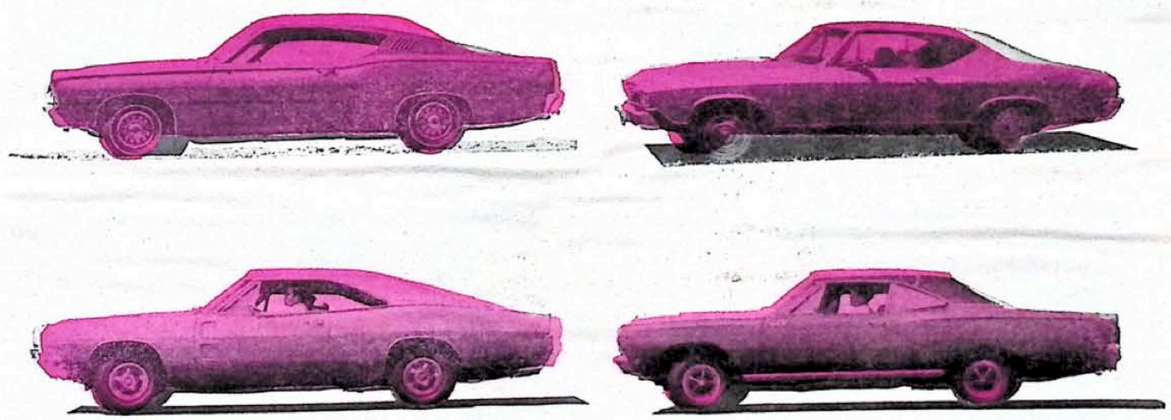
BODY DESIGN COULD MAKE THEM GO FASTER THIS YEAR

The 1968 stock hardware is something to behold. A look made it rather obvious which cars were ticketed for the race tracks when they came off the drawing boards and assembly lines. Plymouth, the success story of 1967 in NASCAR events, has its sleek Road Runner in the intermediate Belvedere series, as well as the sporty GTX, both of which are eligible. The Road Runner has the inside track as the company's choice. Dodge will race the all-new Charger, an aerodynamic beauty with its notchback and lower lines, as opposed to the previous fastbacks which handled poorly when they first hit the race track. The Ford choice is likely to be the Torino, with its sweptback, in the Fairlane series. The Fairlane has been highly adaptable to the race track since Ford switched from their popular seller, the Galaxie.

Styling may win the Daytona 500, according to some designers. They cite some tests indicating that the intermediate size Ford and Mercury fastbacks may be one or two mph slower for 1968 than their 1967 counterparts—because of the shape. "That grille work is slowing them up, too," chimed in Plymouth driver Richard Petty. He believes the Plymouth and Dodge intermediates are about two mph faster because of their new body shapes. "They're about one inch lower and there's less wind resistance," he adds. It could add up to trouble for Ford.

HOW THEY COMPARE—THE '68s VS. THE '67s

1968 CARS ARE PICTURED WITH OUTLINE OF 1967 CARS IN RED



(Top) Ford Torino is a bit longer than 1967 Fairlane with fastback styling added.

(Above) Dodge Charger has gotten away from complete fastback. '68 is lower, creates less wind resistance.

(Top) 1968 Chevelle has been redesigned, roofline has more slope than in 1967.

(Above) Plymouth Road Runner is slightly longer than 1967 Belvedere, has altered roofline.

All except Toyota competitors seem happy over the new Corona 2-door hardtop. It looks great, has good economy, comfort and performance, and should further strengthen their position in the auto market.

It's been a year since we last tested a Corona, and nothing's happened to it since to dull our enthusiasm. Freeway driving is as pleasureable as in a big domestic sedan, and rough road maneuvering brings out many virtues of the little coupe.

Ride, Handling & Performance

Hit a bump, dip or set of railroad tracks, and it comes gently back to a level position. No flogging of the undercarriage, no wheel drift, just smooth reaction.

Steering is vibration free, firm, responsive, and returns to center with no effort. Even the frailest of drivers has no problem cranking the wheel. Turning diameter is a short 32.4 feet, curb-to-curb.

Performance is exceptional, with registered 0-60 times of less than 16 seconds. Quarter-mile times never exceeded 20 seconds, and the little 4-cylinder overhead valve engine will easily run 5500 rpm before power drops off.

Rear wheel hop — which is evident under hard acceleration — is a by-product of Toyota's desire to have as soft a ride in back as possible. Early Datsun models were criticized for their harsh rear suspension, and the Toyota people took a lesson from this and went the "soft" route. The hop comes only from a standing start, and doesn't happen when upshifts are made. Spring wind-up isn't present under deceleration, therefore braking is free of any suspension misbehavior.

The 4-speed works clean and neat. Linkage is accurate and the "H" pattern floor shift is distinct. No wandering around looking for a slot.

Economy is a strong point in any little car, but we can't say the Toyota amazed us here. While some owners have reported up to 30 mpg, the only way we could even approach this was by very methodical driving, avoiding stop lights and traffic tie-ups. Our best overall reading was 24.5 mpg, and the poorest was 19. This is on regular gas, and we averaged out just a shade over 22 mpg. Not bad at all from a 90-hp engine that goes 95 mph, and cruises all day at 85 mph. It's definitely not a sewing machine motor in a washtub.

High speeds in the Corona 2-door are straight and stable. Heavy winds can affect the 2200-pound coupe, but it'll never get skittish if driven sanely.

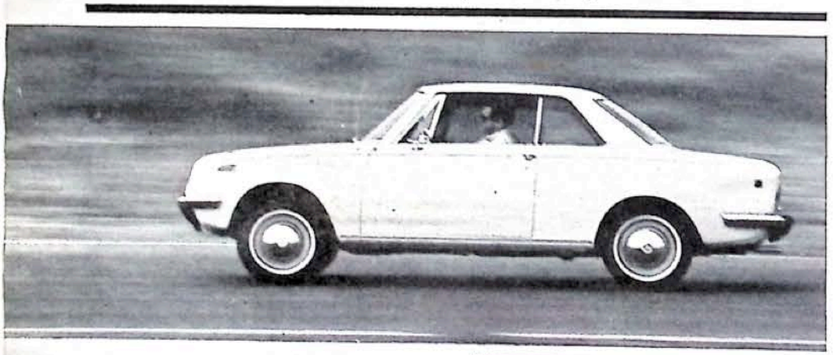
Handling enjoyment is an inherent part of the Corona coupe, though not equal to sports car traits. It's quite agile in tight turns, but heavy lean is evident. The tail end has no desire to race the front, and steering remains nearly neutral at all points. There's no tire roll-under, the car preferring to just lift weight off the opposite wheel and not transfer it over.

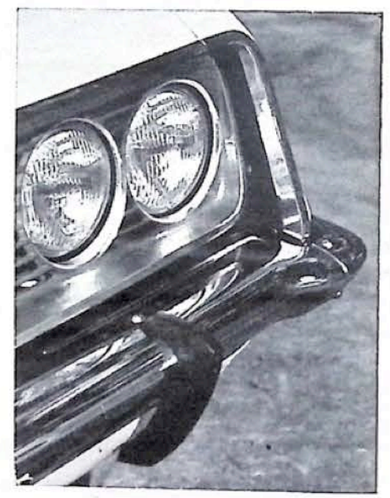
We assumed the car would stop much shorter than it did, from its boulevard behavior. It stops better than large cars — generally — but this is a case of lighter weight and not better brakes. The 148-foot 60 to 0 mph stopping distance has been equalled and bettered by bigger cars, but they've had larger tires and/or disc brakes. The 9-inch Toyota drums bring the car to rest in a straight line, but they are prone to fade after two or three heavy applications. Discs would be welcome in either standard or optional form.

TOYOTA CORONA 2-Door Hardtop

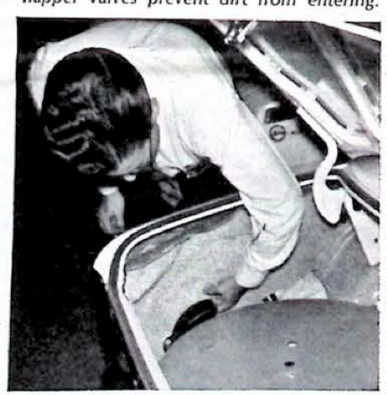
Economical and attractive . . . . for the man who doesn't need everything

Road Test by Steve Kelly





Toyota is one of the few "small" cars to have 4-place headlight system. Rubber tipped bumper guards are standard items.



Flow-through ventilation outlets in trunk corners keep stale air moving out, and flapper valves prevent dirt from entering.

Latches on each side of rear seatback allow it to fold down for extra loads. The feature is standard on all 2-doors.

PHOTOS BY GERRY STILES

Comfort & Convenience

Interior layout is simple and to-the-point. Once you've discovered the light dimmer on the turn signal lever, everything else is right on tap. The bottom control of the standard heater lever panel provides air and blower speeds, but you pull out on this sliding bar as well as move it across. This gets two items on one control, and is a clever bit of incorporation.

Nearly every square inch of windshield is wiped by the 2-speed electric-powered wipers, and it takes care of all the area that the driver needs for forward vision. All-round visibility is near-perfect.

While the sedan will take full-size adults in its back seat, the coupe won't. No matter how the specs read, a 5-foot 8-inch adult — or larger — will hit his head on the roof and his knees on the back of the front seat. We know — we tried. It's perfect for smaller adults or children, and the seat padding is comfortable by any standard.

Front bucket seats will accept the total bulk of anyone comfortably. Pedal space isn't cramped, and front seat occupants don't have to fight each other for elbow room.

The ample trunk compartment is augmented by the rear fold-down seat, a feature every maker could copy. A flick of levers on each side of the seatback, and you've doubled your cargo space. Like the rest of the flooring in the car, the cargo space atop the seatback is fully carpeted.

The fold-down seat is just one of the many things we found on our own. It's a good thing we did — the literature accompanying the test coupe didn't bother to mention it. In this day of touting *everything*, we can't imagine why Toyota has kept quiet about some items that are worthwhile.

There's a flow-through ventilation system that really works. Fresh air enters the car via dash-mounted outlets similar to air-conditioning vents, and then travels through the interior, exiting by way of a louvered panel behind the rear seat. Air then goes through the trunk and out flapper-valves on each side of the trunk floor, with outlets behind the wrap-around bumper ends.

A 3-way switch operates the interior dome light. One position turns it on all the time. The second position has it working when the doors are opened, and the third turns it off altogether for convenience late at night, should Junior be curled up asleep in the back seat, or the young lady's father is engaged in a midnight vigil at the front room window.

Our eye also stopped on the front seatback latch release. Instead of pushing it in, you merely pull it up and the seat pops forward. No strain, and it's a 1-handed operation. The same latch works the standard reclining front seats.

Other included items are tinted glass, whitewall tires, full hubcaps, trip odometer, trouble light, tool kit, and touch-up paint.

Styling is one of the 2-door's more appealing virtues. Outside of performance, we registered more comments on the car's good looks than all else combined. It doesn't resemble a "kiddie-car" any more than it drives like one, and is not cause for degradation when parked in the driveway.

The only option, an AM radio, can be left at the same volume setting throughout all driving ranges. It's library quiet inside, with no disturbances seeping in around door or window seals from outside traffic or wind noise. This peacefulness is unmatched in an "economy" import.

We recently spoke to a man who was adamantly against foreign cars, especially those "toys from Japan." We didn't tell him then, but he sure missed the mark. The Japanese are the world's second largest automobile producers, and their cars are by no means "foreign." They've learned there's no use in importing a car that won't stand up to hard knocks doled out by brutish American drivers, and a poor reputation will precede a car that fails.

It's hardly likely everyone will favor the Corona 2-door hardtop. The need for a car has to be suited first, and the man with four kids, two dogs, a mother-in-law — and a budget for only one car in the family — will be numbered with the missing at the showroom. But the Corona certainly excels as an economical second car or an attractive first car for the driver with little need or concern for bulk.

PERFORMANCE

Acceleration	
0-30 mph	4.5 secs.
0-45 mph	8.9 secs.
0-60 mph	15.5 secs.
0-75 mph	25.5 secs.
Passing Speeds	
40-60 mph	7.2 secs. 527 ft.
50-70 mph	10.7 secs. 941.6 ft.
Standing Start ¼ mile	
68 mph	19.6 secs.
Speeds in Gear	
1st	26 mph @ 5500 rpm
2nd	45 mph @ 5500 rpm
3rd	68 mph @ 5500 rpm
4th	96 mph @ 5500 rpm
MPH Per 1000 RPM	17.5 mph
Stopping Distances	
from 30 mph	33 ft.
from 60 mph	148 ft.
Mileage Range	19-24.5 mpg
Average Mileage	22.1 mpg

SPECIFICATIONS

ENGINE: 4-cyl in-line OHV. **BORE & STROKE:** 3.46 x 3.07 in. **DISPLACEMENT:** 115.7 cu. in. **HORSEPOWER:** 90 @ 4600 rpm. **TORQUE:** 110 lbs. ft. @ 2600 rpm. **COMPRESSION RATIO:** 8.0:1. **CARBURETION:** 1 2-bbl downdraft. **TRANSMISSION:** 4-speed manual, all-synchro-forward gears. **FINAL DRIVE RATIO:** 3.7:1. **STEERING:** Recirculating ball type. 20.8:1 gear ratio. **TURNING DIAMETER:** 32.4 ft, curb to curb. **TIRES:** 6.50 x 13 4-ply tubeless. **BRAKES:** Hydraulic, drum type. 9.0 in. diameter drum. Mechanical parking brake on rear wheels. **SUSPENSION:** Front: independent coil spring. Rear: Semi-floating hypoid axle in one-unit housing. Semi-elliptic leaf spring. **BODY/FRAME:** Unit construction. **DIMENSIONS, WEIGHTS, CAPACITIES:** Overall length: 162.4 ins. Overall width: 61.0 ins. Overall height: 54.1 ins. Wheelbase: 95.3 ins. Front track: 50 ins. Rear track: 50 ins. Curb Weight: 2205 lbs. Road Clearance: 7.1 ins. Fuel Capacity: 12 gals. Oil Capacity: 4.2 quarts.

OPTIONS & PRICES

Manufacturer's suggested retail price, P.O.E. $1995. Price at dealer's, including heater, w.s.w. tires, windshield washer & cleaner, 4-way flasher, safety belts, radiator anti-corrosive, tinted glass, outside mirror, preparation (all mandatory) $2214, stick shift cars; $2379, automatic. AM Radio, $65.00.

THE INCREDIBLE BOARDS

For 54 years — starting with the catastrophic Paris-Madrid road race of 1903 — W. F. Bradley was European correspondent for *Automotive Industries*. In 1913 he was appointed European representative of the Indianapolis Speedway and a few years later became the AAA Contest Board's man in Paris and its delegate to the AIACR, as the present FIA then was called. In addition Bradley managed most of the European racing teams which competed in the U.S. between 1913 and 1925, when they threw in the towel. He also managed the few American campaigns in Europe, ending with Leon Duray's participation in the Grand Prix of Italy at Monza in 1929. On the road circuit, not just on Monza's speedway circuit, and after only two practice laps, Duray astonished the racing world by breaking the lap record . . . with a 91-cu.-in., front-drive Miller which was highly unsuited to the course. The Continental press readily and regretfully admitted that Europe was years behind in engine technology.

Bradley, now 91 and a sharp, bright little man, recently reminisced with me about those days. From the balcony of his apartment on the Côte d'Azur he looked far out across time and the Mediterranean and said:

"Racing in Europe, of course, stopped in 1914. We, here, never realized that while we were at war, America was continuing much as usual; that Indianapolis was closed but that many of the great board tracks continued in full swing. The Americans had all the European cars to dissect — Peugeot, Delage, Sunbeam, Mercedes and others — and their technology was making strides that we could not dream of. When we went over in 1919 and 1920 we found that American designers and drivers were becoming unbeatable on their own ground, and we reeled in astonishment at the progress that had been made in the States while we had been busy fighting one another in Europe."

Strangely enough, the significance of the boards in racing history has been almost totally overlooked in the literature of the automobile.

The Speedway Era was launched with the opening of the Indianapolis Motor Speedway in 1909; construction had begun the previous year. The speedway concept was a simple and logical adaptation of the typical, well-built horse racing plant to the needs of the automobile. Others were quick to pick up Carl Fisher's idea. In the spring of 1909 Asa G. Chandler and Ed Durant began the construction of a 2-mile oval at Atlanta, which they surfaced with local gravel. Simultaneously, out on the West Coast, Fred E. Moskovics hatched an idea which was to rock the racing world.

This pioneer member of the Society of Automotive Engineers (and later president of Stutz) had a lifelong passion for speed. He died in 1966 but when we last met, in 1955, he was 76 years old and hurtled daily between his home in Connecticut and his engineering office in New York in his Mercedes-Benz 300SL gull-wing coupe.

When Moskovics was a young student at the Armour Institute in Chicago and at the Polytechnic in Zurich his favorite sport was bicycle racing. In the States and in Europe he came to know many of the celebrities of this sport, including the British World's Champion, Jack Prince.

When Prince's athletic years were behind him he came to the U.S. and established a thriving business as *the* specialist in the design and construction of wooden velodromes for bicycle racing; it became the Prince Speedway Construction Co. Anyone who has witnessed a roller derby on a banked wooden track has a good idea of what these much more steeply banked 1/8- and 1/4-mile ovals and saucers were like. Then Prince began building board tracks up to 1/2-mile in circumference for the new sport of motorcycle racing. Before 1910 speeds as high as 95 mph were being reached on these tracks.

Moskovics' employer, the Remy Electric Co., assigned him to the Los Angeles area early in 1910. There he promptly made contact with the racing fraternity, including well-to-do former competition driver Frank A. Garbutt. These men became good friends and when Fisher's Indianapolis Speedway showed promise of financial success they decided to try the idea in Southern California. But what sort of track should it be?

"A huge wooden saucer!" Moskovics announced, stunning his about-to-be partner. "Nothing can be as cheap, as fast or as safe. And I know just the man who can do the job for us," he added, thinking of Prince.

BY GRIFFITH BORGESON

The world's first 1-mile board track was built at Playa del Rey, a beach town just a few miles from Los Angeles and connected with it then by fast electric trains. Its first race was held on April 8, 1910, and was a smashing success in every way.

It was an astonishing structure, the likes of which never had been seen in history. It was 45 feet wide and was banked one foot for each three of its width — a very steeply curved, perfectly circular bowl. Gubrut had the idea of lining its upper edge with steel guardrails. They cost money but they saved lives and they may have been the inspiration for what later became general practice on public roads. The board track itself, including its huge, fine, covered grandstands, cost only $75,000 to build at the time. Then the partners invested another $10,000 in a generating plant for lighting their wooden motordrome for night racing.

Working with Jack Prince, Moskovics did much of the designing on the project. It was he who specified that the lower guardrail should be 17.5 inches above the track surface, to snub the hubs of cars whose tires were of that radius. A second rail was placed 12 inches higher to arrest any tendencies of out-of-control cars to overturn. Then, between the track and the turf infield, the designers laid a 30-foot wide strip of packed, crushed granite. Thus, it was almost impossible for a

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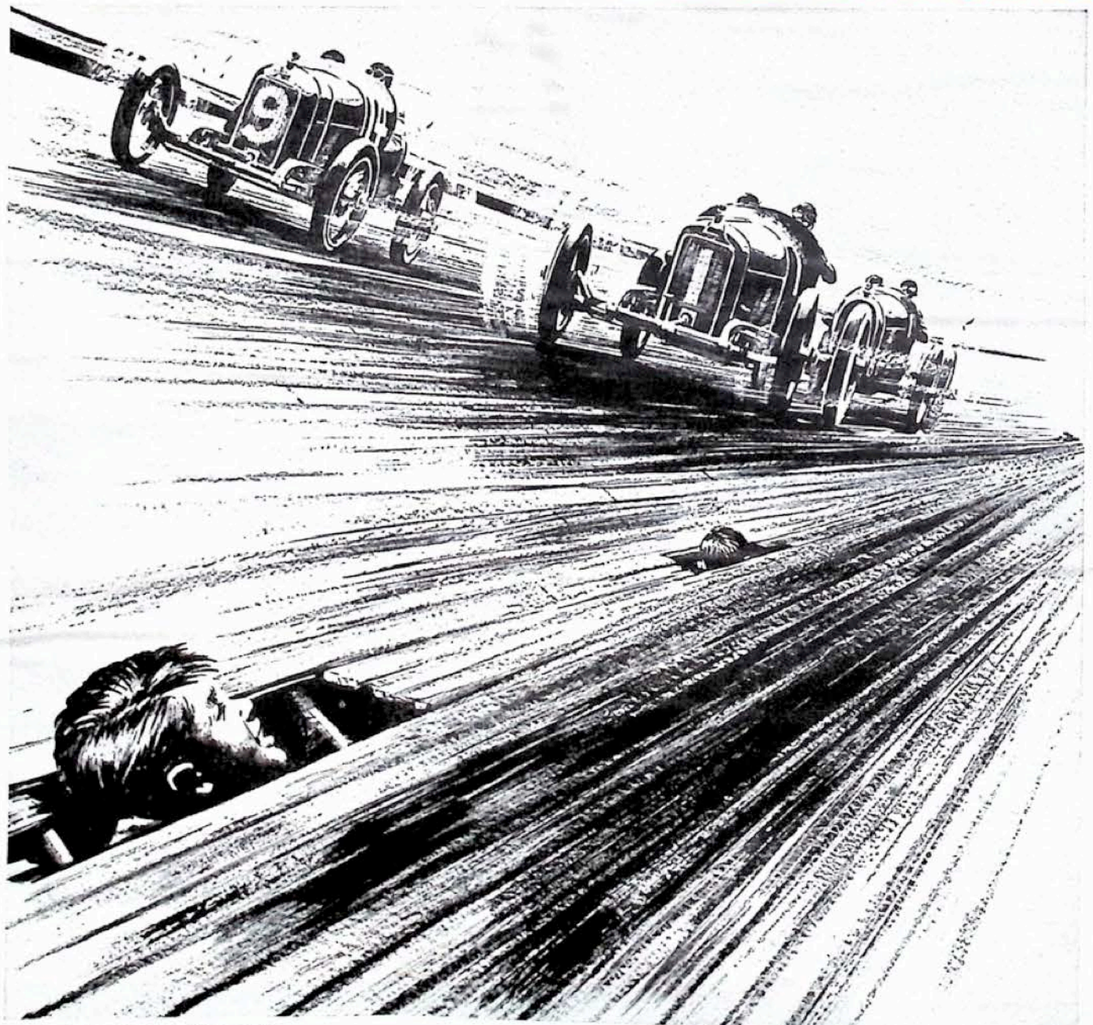
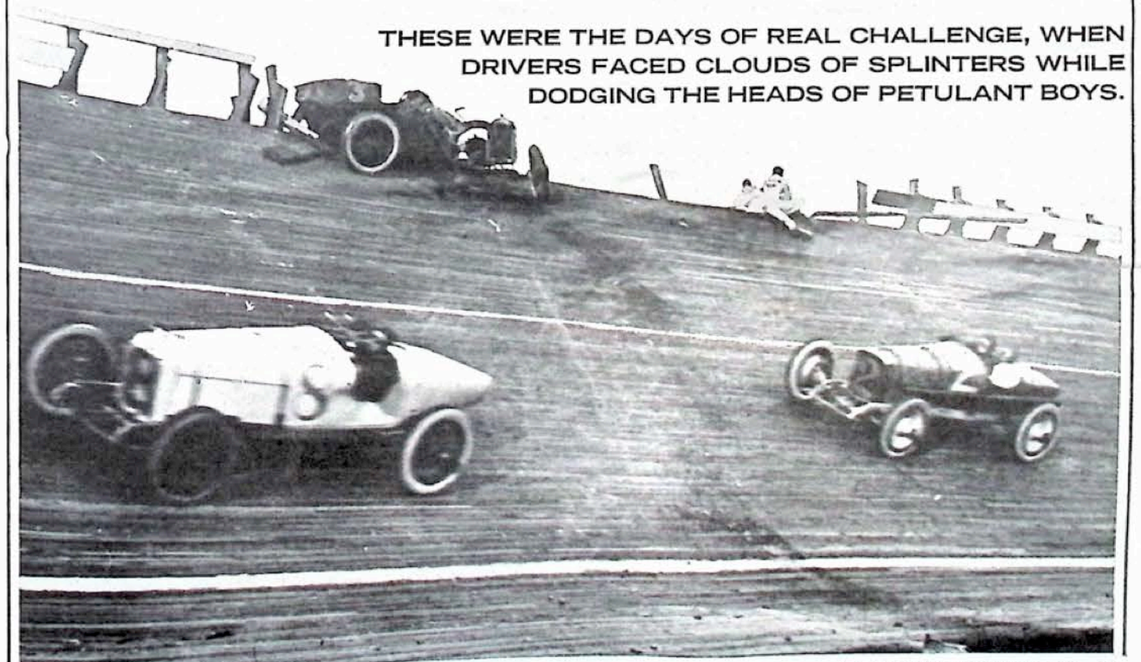


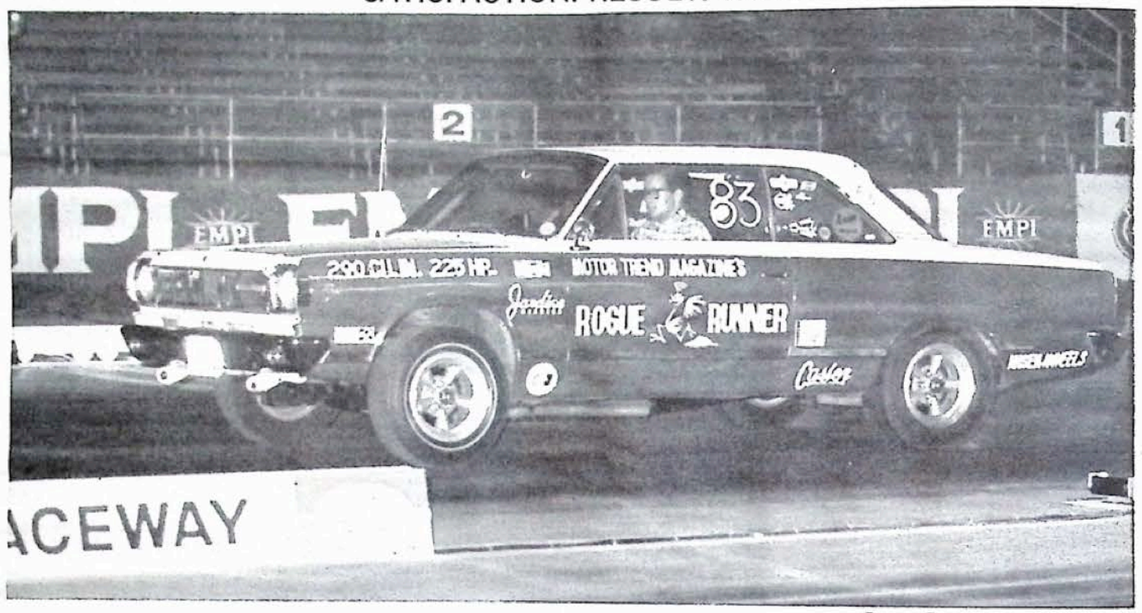
ILLUSTRATION BY CARLO DEMAND

THESE WERE THE DAYS OF REAL CHALLENGE, WHEN DRIVERS FACED CLOUDS OF SPLINTERS WHILE DODGING THE HEADS OF PETULANT BOYS.



MT PROJECT REPORT

TIME SLIPS AND TROPHIES. SKINNED KNUCKLES AND SORE MUSCLES. GRIEF AND SATISFACTION. RESULT: THE ROGUE IS A "RUNNER"



by Steve Kelly

After what seems like scores of work-filled and sleepless nights, hundreds of trips down the quarter-mile aisle, endless hours of waiting in line for a run at the drags, and at least 5000 miles of parts chasing, we've finally achieved our goal of turning MOTOR TREND's '67 Rambler American project car into a winner. Our Rogue Runner is currently cutting elapsed times of under 14 seconds, and speeds of 97-100 mph. This is a long way from the lonesome trips we made almost a year ago with the car in purely stock condition, capable of 90 mph speeds with times well above 15 seconds.

We've earned over a dozen class-win trophies at Irwindale Raceway, shut 'em down at Orange County International Raceway's weekly grudge races, and won an eliminator bracket at Lions Drag Strip.

The Rogue Runner is still "stock," by drag standards, and very street-worthy. Probably the most gratifying element derived from the project is the enthusiasm it's generated among speed equipment manufacturers. At least 10 large makers are now actively producing American Motors speed equipment — and more are setting up.

It hasn't been the simplest task in the world, but one made a lot simpler because of Bill Hanyon's able assistance. Bill works for Roger Bursch's Scientific Automotive in Pasadena, Calif. (you know, Rose Parade, little ol' ladies, etc.). Bill's race and performance experience dates back over a 10-year period (he's not yet 30), and he's driven and built a lot of stockers for a lot of people.

A couple of things on the Rogue bugged us from the beginning, so we dropped over to see Bill. He took a look at our red and white hardtop, and after recovering from a slight case of the chuckles, decided it'd be fun to "tinker" with an underdog. After all, when you pull to the line in a Rambler, you're not supposed to beat a Mustang. If you do, you're a double hero.

Bill has been with us ever since. Out to the track each weekend, up all night preparing for another outing, and mulling over what else might be done to drop elapsed time.

Hanyon's boss has also been generous with time and space, allowing us to use his facilities for heavy work. Of course now and then we make it a point to stop and admire his road-course winning 911S Porsche, but that's easy. He even smiles once in awhile when he sees the Rogue drive up — but not always.

Since our last get-together — when we were running 14.50s — (Sept., 67, MT) we've bolted on an Offenhauser single 4-bbl. aluminum hi-rise intake manifold. The stock Carter AFB carb is still with us, but the manifold made a surprising difference, once we got it working correctly. The first one was a very (very!) early prototype unit and not properly suited. We traded it for a later production unit and quickly saw a .2 second time reduction.

Due to the increased height of the carburetor, our original air cleaner wouldn't fit. We rectified this by installing Offenhauser's low height unit. It does the job the stock one accomplished and is less than half its height.

While discussing manifold/air cleaner happenings with friendly Carl Offenhauser, he suggested (wow! some suggestion!) that we also install a pair of aluminum valve covers they'd just introduced. They're groovy looking and only 100% easier to remove and install. We topped them off with some (some? would you believe 14 are needed?) long wing nuts for further maintenance ease.

Biggest attraction of the hi-rise Offy is its lighter weight. The stock iron manifold guarantees at least a week off from work for the man attempting to hoist it singlehandedly.

American Motors is also getting into the hi-rise business. Introduced with their new 390-cu.-in. V-8 is a cast iron (yeah, its heavy) single 4-bbl. "riser," retailing from AM dealer shelves for about $50. That's close to half the tab the Offy unit carries, but it weighs twice as much. Early tests indicate it works just as good as the Offenhauser design, and a few say better. The new manifold carries AM part number 3191737.

In the course of parts chasing, we also put in frequent visits to Grant Industries. They took a liking to us, though we're sure it was the Rogue that held the appeal. During a bench racing session with Grant MacCoon, company President, he came on with "how about fitting one of our dual-coil Flamethrowers to the Rambler?" Last time we turned down *any* kind of an offer, it was from Uncle Sam. So we ventured out — later — with a new ignition. We also connected with a Grant steering wheel, an all-wood type that feels as welcome as freshly minted dollars.

The Flamethrower helped — briefly. Rpm readings grew higher, we lost point "bounce," and even saw a .1-.2-second time improvement. Soon though, the unit started acting up the way a wife does at odd times. Couldn't tell exactly what was wrong, but something happened. Turned out that one set of points (this is a dual coil and dual point system) was holding at 8-degree advance, while the other set advanced to our pre-determined setting. We've been running anywhere from 15 to 19 degrees lead.

The Flamethrower went back to Grant, and they subsequently discovered serious quality infractions in outside supplied parts. You can bet that supplier isn't selling anymore parts to Grant Industries. Anyway, the trouble has been rectified and the ignition now works fine. The only other Flamethrower to develop similar difficulties was on Grant's car. Some days you win, and some you don't.

We demonstrated the Flamethrower's power to ourselves by soaking a set of Champion Spark Plugs in oil, then hooking them to an ignition on a Sun machine. The oil couldn't dampen the fire, and the juice was still strong at 8000 rpm, the limit of the machine. We're highly confident of Grant's ability to produce a quality product, and backed our faith by using a set of their Moly rings. And also by passing the word to you.

Funny thing occurred while the Flamethrower was out for repairs. An electrical failure somewhere in the ignition plagued us, and we couldn't find it. Bill ran the car on Scientific's dyno, noting a collapse via the scope. In checking he merely switched coils, using the pair remaining from the Flamethrower hookup. No help, The bad circuit remained. Checking the stock distributor didn't reveal anything either.

Then Bursch leaned under the head and queried, "Check the coil?"

"Sure. Checked 'em against each other."

"Okay. Now check them both. Get a new one off the shelf."

You guessed it. They were both bad. Put in a new coil, and let's go racing.

All this time we'd been detecting a whisper of a burned valve. It worried us enough to prompt our pulling the heads. Didn't find any burned valves, just 16 bent ones. Everyone of them had planted its face into the top of a piston.

A quick phone call to Detroit brought answers to "How come?" and "What do we do now?" A new set of valves and springs were strapped to the next California-bound pigeon, and suggestions were made we notch the piston tops. Okay, will do.

Incidentally, early high-performance cam kit springs have been reported to "coil bind," and AM will gladly replace them with a new design to buyers of the initial models.

Notching pistons in an American, unless done with a chisel, means pulling the engine. The oil pan rests directly over the front crossmember. Of course a guy could take off the front suspension, but . . . the engine route seems easier.

"While it's out, let's take a look around inside." Taking a look around brought forth a crankshaft balancing job, a new set of bearings, rings, and "c.c. 'ing" the heads. We cut the pistons .060 on the intake relief and .025 on the exhaust. The heads were surfaced and cylinder head volume corrected to 55cc. Minimum is 54.43. Everything was cleaned thoroughly and then gathered together.

Out came the set of Crescent Tools, and zip, snap, bang, pop, ouch! Eight hours later, the Rogue was running.

Next time out, with everything working correctly, we cut a 14.02-second elapsed time. Carl Schiefer lent an assist here by providing us with a lightweight aluminum flywheel. It's a little rougher to drive now, but the rpms come quickly.

Jerry Jardine is really interested in seeing AM cars run, as well as others, and offered to fit a set of equal length headers on the Rogue. Jardine's name is attached to a lot of strong running cars — in decal form — and Jerry is an old high school buddy of Hanyon's. Makes getting acquainted much easier.

We made tracks for Jerry's Garden Grove, Calif., shop, and when we picked up the Rambler a few days later, just knew he'd dropped in a Hemi. That's how good it sounded, and still does. A pair of 30-inch collector extensions (now shortened to 20) were part cause for the new tone, coupled with the proper diameter 1³/₈-inch equal length tube extractors.

Next pass through the clocks netted us a 13.90-second e.t., and a speed of 98 mph plus. An honest .10-second gain, on a consistent basis. Happy? You bet.

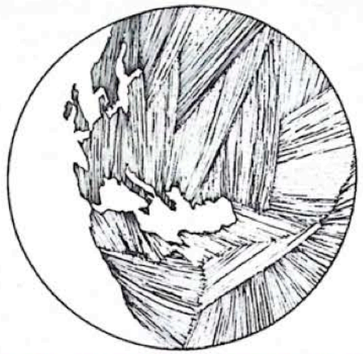
The Cyclone system removed had no real problem. It's just that the tubes weren't equal length and didn't have the benefit of collector extensions.

That's about it for the final chapter of project "Rogue Runner." However, it's far from finished. The car will remain in circulation around Southern California under "super-wrench" Bill Hanyon's capable guidance. By the time you read this he should have it in the 13.50's, and way over 100 mph.

He'll have a lot of Rambler company at the drags. Grant Industries is adding a second Rambler funny-car to their stable. Doug Thorley of Doug's Headers is building a Javelin funny-car, and judging by Doug's previous success in the funny field (NHRA Nationals winner), it should wail! Ricker Motors in Whittier, Calif., is preparing an American stocker. Dave Kempton, the '66 NHRA Nationals Jr. Stock Eliminator, has peddled his MoPar and is setting-up a Javelin Super Stocker. Ron Root, NHRA's Car Club Director and a former Winternationals title winner, has a Super Stock Javelin ready to go. Don Whittington of Randall Rambler in Mesa, Ariz., is completing a "funny" Javelin, and Skip Randall is rumored to be working on an AHRA stock Rambler. Roberts' Rambler in Oakland, Calif., will continue to engage in weekly contests with their American and Rebel drag machines.

There's also a big group of Javelin Car Clubs banded together under the National Hot Rod Association banner, sponsored by American Motors dealers. Those clubs will undoubtedly be hitting the strips in full force.

Even though there'll be lots of company for MT's "Rogue Runner," we can at least lay claim to being in from the beginning. We weren't the first, but the field was sparsely populated just one year ago. My, how the crowd has gathered. /MT



EUROPEAN HOT LINE

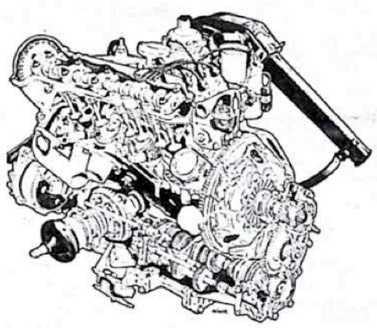
The swinging Swedes have developed a real winner with the new Saab "99." (Below left) Windshield posts, while narrow, are extremely strong. Double sealed-beams will be used in U.S. (Below right) 87-hp, slant-4 engine has clutch up front behind radiator for cooling and easy repairs. Aluminum head has 9.0:1 compression. Five-main crank testifies to rugged construction, engine should give good performance, specifications required 400 hours (50-60,000 miles) running without valve adjustment. (Bottom left) Interior features wool fabric seat covers and safety padding. Full flow heat and ventilation system includes rear window defroster. Four-speed gearbox uses free-wheeling device for good handling during Swedish winters. (Bottom right) Rear deck styling shows influence of wind tunnel testing. New body has lower air resistance than previous Saab models.

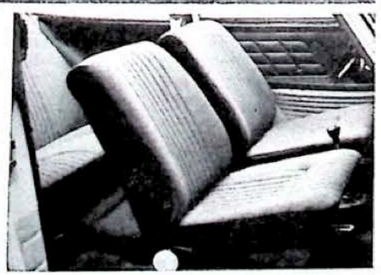
AFTER YEARS OF RUMORS, a completely new model Saab is being introduced to the world market. The new model, the Saab "99," was shown recently in Stockholm for the first time. Production of the "99" will not start until Sept. 1968. The car is being introduced now because the factory plans further extensive testing of prototypes without the secrecy that would be necessary with a new car. The car must be built for Sweden, and no nearby country offers secret driving and a severe climate at the same time.

The Saab "99" will be powered by a 4-cylinder overhead cam engine developing 87 bhp. The engine will be built by the Standard Triumph Motor Co. in Coventry, England, under a unique cooperative agreement. Under this agreement, all engine specifications were established by the Swedish firm. A major specification requires the engine to run 400 hours under changing conditions without a valve adjustment. Test engines have traveled 50,000 to 60,000 miles without any adjustments. The engine is slanted 45 degrees to the right, with all components requiring service placed on the upper side. The clutch is located in front and the cam drive near the firewall. The advantages of this layout are good cooling for the clutch, plus easy access for repairs and adjustments.

The model "99" is a front-wheel-drive and uses a transmission setup similar to the Olds Toronado, but utilizes a conventional 4-speed gearbox with a free-wheeling device for economy and winter safety. The "99" suspension and front-wheel-drive should give outstanding road stability under any conditions. Stopping power is supplied by three independent brake systems using power-assisted 4-wheel discs. Suspension and steering are self-lubricating, although there might be a last minute change, as it has recently been found that some cars with self-lubricating systems do not function properly in the Swedish climate.

Built like a lady's shoe — small outside, roomy inside — the "99" interior width has been increased by seven inches, front and rear, over the present V-4 model. Overall length is 171.25 inches. Because of the front-wheel-drive, a large trunk is possible, containing 12 cubic feet of luggage space. As on the V-4, the rear seat can be folded for additional storage area.





IN ADDITION to introducing a new model, Saab of Sweden is now going to sea . . . literally. Starting in 1968, Saab cars shipped from Sweden to the U.S. will make the trip across the Atlantic in their own ship, the M/S SAAB, a specially built vessel equipped with five auto decks and drive ramps, and able to carry about 1000 cars on each trip. The ship is on a long-term charter for Saab and, in addition to bringing Saabs to the U.S., will return with Chrysler cars for ANA Sweden, the general agent in Sweden for Saab and Chrysler.

THE RUSSIANS have developed their own little black box to trap drinking drivers. A motorist suspected of being intoxicated breathes into a tube at one end of the box. His breath is automatically analyzed and collected in a plastic bag. The device prints a ticket with one of four results — sober, slightly affected, moderately affected, or drunk. Any vodka on the breath will produce one of the last three verdicts. In this case, the driver loses his license for a year. The device is being used by authorities in Moscow.

RENAULT WARRANTY terms have been revised for 1968 models. The new warranty covers parts and labor for a 12-month period with no limitation on mileage. Prior to instituting the new "U.S. type" warranty, which applies exclusively to 1968 models, the Renault owner was covered for 12 months or 12,000 miles.

VOLKSWAGEN has introduced its torque-converter transmission which does away with the clutch pedal and puts an end to shifting in traffic. Called the VW "Automatic Stickshift," the new 3-speed transmission is optional on the "beetle" and the VW Karmann Ghia coupe models. The driver sets the shift lever in either first or second speed range and drives without additional shifting in most traffic conditions. A special low-gear range is used primarily for extra pulling power when starting up steep hills from a standstill. The torque converter in the new transmission system not only multiplies engine torque, but also permits the car to be brought to a stop in any gear range with the engine running without moving the shift lever. The converter has its own oil supply and there is an oil temperature indicator on the instrument panel. Fuel consumption for the VW with the "Automatic Stickshift" is rated at about 25 mpg under normal driving conditions.

1967 WAS A BAD YEAR for European automen . . . except in Italy. Italian auto-industry sales in the first nine months of 1967 were up 17% over the record business of 1966. Seven years ago there was only one car for every 25 Italians. At the end of 1967 there was one for every seven. Fiat had its best year ever in 1967, capturing 75% of the Italian market, and passing Volkswagen as the largest European producer. Fiat is the world's fourth largest car manufacturer now, after G.M., Ford and Chrysler.

IMPORTERS OF BRITISH CARS are confident 1968 will show a big increase in sales as a result of price cuts brought about by devaluation of the pound sterling. "This should be very helpful to us," said Graham Whitehead, in charge of British Motor Holdings Corp. of America. "It will more than offset the cost of putting in the safety and anti-smog devices required by the federal government. Chrysler President Virgil E. Boyd says the devaluation "should improve British car sales in this country since they will cost $175 to $200 less." Chrysler imports some models made by its British subsidiary, Rootes. The price cuts mean that some British imports like the Ford Cortina may be delivered for less than the Volkswagen. The VW beetle now carries a price tag of slightly less than $1700.

NEWEST ADDITION TO BMC LINE is the MGC, scheduled to make its U.S. debut sometime in mid-spring. The MGC will be a high-performance car and is said to accelerate from 0 to 70 in 13.2 seconds. It will be available with an automatic transmission as optional equipment, the first time on an MG sports car. The MGC will feature two body styles, an open 2-seater and the GT, and will be powered by a 6-cylinder, 3-liter engine coupled to a 4-speed, all synchromesh gearbox. The MGC will not affect the company's marketing of the MGB.

GOODYEAR INTERNATIONAL plans to build a tire proving ground and test track in the Grand Duchy of Luxembourg. The testing facility, to be called the Goodyear Test Circuit, will be operated by the Goodyear Technical Center-Europe and will be situated on a 150-acre site. The test circuit will include a 3.3-mile track with a mile-long straightaway. The track will be available for international and national auto and motorcycle races. The new track will provide Luxembourg with facilities for all types of road racing, including Formula 1 Grand Prix.

A NEW SYSTEM to cut down the number of rear-end accidents has been developed by Kenkosha Co. Ltd., a Japanese firm. It's called the Automatic Car Guard, or ACG for short. It consists of an electronic eye mounted in the rear window of the car. If the car is parked on a dark street and another vehicle approaches, the electronic eye activates the tail lights to warn the oncoming driver. When the car is in motion, and a following car comes within 35 feet, a special optional yellow caution lamp warns the approaching driver that he is following too closely. Sounds like a useful device, but, perhaps impractical for rush-hour traffic unless it could be set for 10 feet!

MAZDA OF JAPAN has introduced the new "1000" sedan, featuring eight different model selections, to the domestic Japanese market. The new series is a face-lifted version of the Mazda 5-seater which was originally introduced in 1964 and has since become one of the dominant contenders for the family-car market in Japan. The Mazda "1000" claims the largest interior space for a Japanese car in the 1000cc class and embodies a curved windshield, a quieter ride, a new ventilation system that maintains fresh air continuously, and a new suspension system for better handling and ride control. Power is supplied by a 4-cylinder, aluminum alloy engine that produces 58 hp at 6000 rpm. The car will do a standing start quarter-mile in 19.6 seconds with a top speed of 83.9 mph. A minimum turning radius of 13 feet makes the Mazda "1000" a highly maneuverable machine.

FORD OF BRITAIN has opened a $24 million research and engineering center near the main Ford factory at Dagenham (Essex) in England. It is reported to be the largest and most comprehensive facility in Europe and will be utilized for the development of Ford cars and trucks. The new center will employ 3620 engineers, designers and technicians and has facilities for styling cars and commercial vehicles, engine and transmission design, and body and electrical design engineering.

PRODUCTION of the NSU series Ro 80 is now going full bore at the NSU plant in Neckarsulm, Germany. Present plans call for a production total of 12,000 Ro 80s during 1968. The new twin Wankel RC car from NSU has met with great success all over Europe, and orders have already been received to cover the first seven months of production. Exhibits at Paris, London and Turin also produced many orders from abroad.

AN ELECTRIC CAR, priced at $840 is scheduled to be introduced this spring by Carter Engineering, Tamford, England. Top speed is said to be 40 mph, with a 50-mile driving range between rechargings.

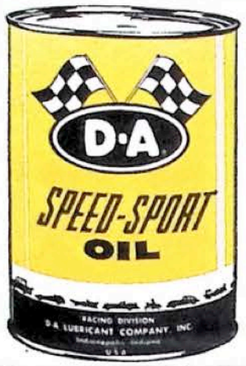
'68 DATSUN sedans are now making their appearance in the U.S., however, many have been sold in Japan since their introduction in August last year. One has already met and passed an unusual safety test. The car was in a Tokyo intersection when it was hit in the rear by an 11-ton truck traveling approximately 30 mph. The force of the impact shoved the sedan into the path of an 8-ton truck which completed the shortening operation. The result was a super-compact Datsun. The driver? Bruised, but alive.

LATEST INTO the electric car race: British Motor Holdings. BMH, Great Britain's largest car maker, says it's designing an electric car with a range of 500 miles. It will use a new zinc-air battery developed by Leesona Corp. of Warwick, R.I. Crompton-Parkinson Ltd. of London has the manufacutring and sales rights on the new battery. The new battery was described as being able to produce 80 watt-hours per pound. This compares with 20 watt-hours per pound for a lead-acid battery and 150 envisioned by Ford for its new sodium-sulphur battery.

Researchers involved with the zinc-air battery say it uses readily available materials, operates in varied temperatures and at competitive costs. BMH officials say the new battery is only half the size of a conventional auto battery but four times as powerful. They say it will solve the weight problem which stymied an earlier electric car research program launched by the firm. Since BMH makes the Austin, Morris and Jaguar cars, a small, inexpensive electric car designed for running about London would fit nicely into BMH's marketing plans.

As an indication of the amount of electric car work going on now, General Telephone & Electronics says it has developed an iron-air battery system which also will give 80 watt-hours per pound. With all this interest, can some sort of electric car be far behind?

continued



"Specially blended for performance-minded people who think they're happy with their present brand of OIL"

All high-performance oils are not the same. Most don't even meet the engine sequence tests. True, any oil of the right weight can lubricate and remove heat. But . . . here's the catch: oil is also the engine's "garbage disposal" system. The oil must take all the "garbage" that pours into the crankcase and hold it harmlessly in suspension until it's drained. D-A Speed-Sport Oil is specially blended with sludge and varnish inhibitors, anti-foam ingredients and film strength to keep your engine running smoothly, quietly and responsively. Oil really takes a beating in today's engines. If the oil doesn't stand up . . . the engine doesn't either! Check your oil. You (and your engine) will be happier switching to Speed-Sport.

Exceeds Car Manufacturers' Engine Sequence Tests I through V for (MS) Most Severe Service.

D-A LUBRICANT COMPANY, INC.
1331 West 29th St. • Indianapolis, Ind. 46208

HARRY WESLAKE, best known to Americans for his authorship of the Eagle Formula 1 engine, is now developing a powerplant for Formula 2. It is based on the British Hillman Hunter block, has four valves per cylinder and is expected to develop around 205 hp at 9000 rpm. It is also expected to give Ford of Britain some sorely needed competition.

JAGUAR, in the last 20 years, has exported the record amount of 52% of its total production and this has brought the useful sum of $115 million to Britain. In recognition of this performance the firm has received the Queen's Award to Industry for Export Achievement. Jaguar cars are sold in 126 countries, but the U.S. absorbs half their output. Even so, American dealers are putting pressure on the factory to get back into racing. The Jag image, many of them feel, is becoming stodgy and needs an injection of sporting appeal for the ever-growing youth market.

TOYOTA came in third in 1967 in the foreign car import race, according to the R. L. Polk report of retail registrations in the United States. Total Toyota production hit 850,000 units in 1967 to set an all-time Japanese auto record for a single year. This year Toyota has set up a production schedule of 100,000 units for the U.S. market, and plans to spend $1.4 billion to improve production facilities at three existing factories and build a new plant near Toyota City. Combined production of all Toyota facilities when completed will total one million units a year. Four-door Corona sport sedans account for nearly 80% of Toyota sales in this country.

FIAT is meeting Volkswagen competition with the introduction of an 850 sedan featuring the new Fiat "Idromatic" transmission—a clutchless, semi-automatic transmission incorporating a hydraulic torque converter and an electrically actuated system controlled by the gearshift. For city driving 3rd gear is used; for maximum speed on a level road 4th gear is used for economy. For maximum pickup and in hilly country, 2nd gear gets the nod, while 1st gear is in the low-low range for emergencies. The 850 follows the tradition of the Fiat Bianchina, featuring economy and maneuverability, with a short turning radius of 14 feet, 8 inches. Steering linkage is greased for life, and, with suspension linkages rubber-bushed, there are only two grease points. These features plus the sealed cooling system offer good economy in addition to the low fuel consumption. With an 817cc, 4-cylinder engine boasting an aluminum head, it is capable of maintaining speeds of 77 mph. 850 buyers get a good torque curve, which translates into lively driving at American legal speeds. Suspension includes anti-sway bars for improved roadability. Interior appointments are serviceable, with safety padding and a convenient folding rear seat. Front trunk is also roomy for a car this size.

SHOULDER BELT requirements, which became effective January 1, will probably create a raft of '68¼ models from major foreign importers.

ABARTH DOES IT AGAIN! From the speed factory in Turin comes Carlo's latest innovation, the Fiat-Abarth OT 1300. An extension of existing 1000 OT coupe and spider lines developed by Abarth and directed at American performance car buyers, the 1300 has a top speed of about 110 mph. Abarth put together the good looking, lightweight 850 coupe body with Fiat's newest 124 engine and has created an exciting small GT machine. Those little old wine makers at Abarth have boosted displacement on the 124 engine to 1300cc and internal parts have been replaced by Abarth equipment. Chassis design also felt the creative touch of the Abarth men and is reworked for better handling. Such items as 5½-inch wide rims, a leather racing wheel, complete instrumentation, down to an oil temperature gauge, are all standard equipment. Because it is designed for street use, and in keeping with that idea, a front mounted radiator with a thermo-electrically controlled fan is a standard feature. Price of the 1300, fully equipped, is $3295, P.O.E.

FORD OF BRITAIN has introduced "Crossflow" breathing to the Cortina series, an engine design innovation that boosts engine performance without an increase in fuel consumption. Principle of crossflow breathing is based on the most efficient method of moving the fuel mixture from the carburetor straight across the top of the cylinder to the exhaust valve. Ford's "Crossflow" cylinder head arrangement puts intake and exhaust ports on opposite sides of the cylinder. In most engines the inlet and exhaust ports are on the same side, so the fuel mixture must turn a corner to escape. On Ford's engine, the combustion chamber is bowled in top of the piston instead of being machined in the head. Improved breathing has boosted engine power 10% in the 1300cc Deluxe and GT and 15% in the 1600cc Super, while gas mileage remains constant. /MT

Chevy II Nova SS

MARK OF EXCELLENCE

The equal to cars known for their looks. The equal to cars known for their road-holding rides. The equal to cars known for their performance. The equal to cars known for their quietness.

The very low-priced Nova is a great way to stay equal with people who, for some reason, spend a lot more for a car. So, be smart. Be sure. Buy now at your Chevrolet dealer's.

Nova, the great equalizer

from Chevrolet CHEVROLET

Dream sequence—1968 edition.

We can't think of four better ways to take that new-car gleam out of your eye and put it in your driveway instead. That's if you're the kind who thinks an automobile is something other than a set of wheels.

And if the looks aren't enough to turn a young man's fancy, think about the total combination of engineering you've got going for you.

Just for starters, you've got a parcel of V-8's . . . each one a super sophisticate with tachs available to keep you aware of the numbers. For transmissions, take your pick of automatics like Turbo Hydra-Matic, Super Turbine and Powerglide (if you're a clutchless fan); or a choice of all-synch 3- and 4-speed manuals, if you're the kind of guy who wants to do it yourself. Match these to a raft of axle-ratio options and you've got a power train ready to do just about any job you want it to do.

Then consider suspensions. We've paid plenty of attention to these. And the result is that the road testers call this troupe the best handling in GM's history. And don't forget brakes. We've got hefty drums standard all around —with power discs available.

Still trying to make up your mind? Why not get down to earth with the man who sells your favorite.

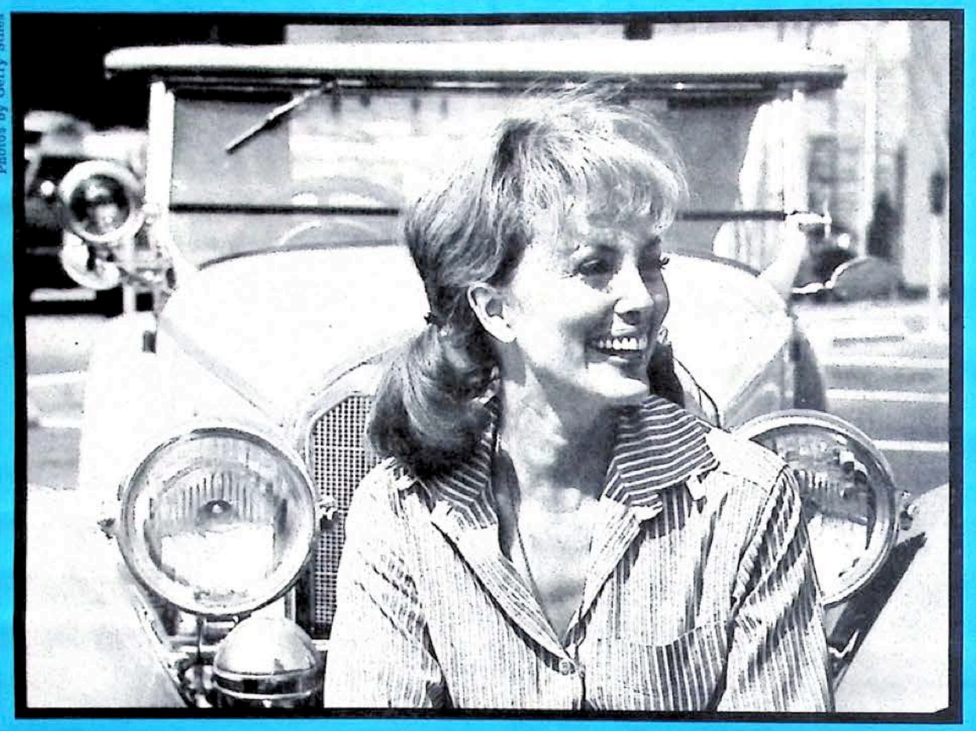
The more you look, the more our mark of excellence means.

CHEVROLET • PONTIAC • OLDSMOBILE • BUICK • CADILLAC

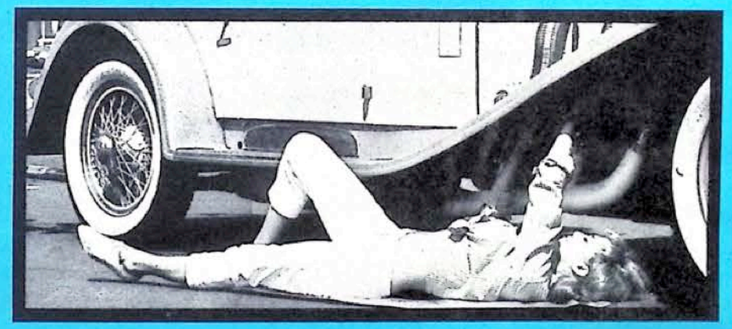
Our dream stable: Pontiac's GTO, Chevelle SS 396 from Chevrolet, GS 400 by Buick and Oldsmobile's 4-4-2.

MOTOR TREND
Discovery Series: No. 1

Photos by Gerry Stiles



Under the tinsel of Tinseltown are some bona-fide engineering masterpieces, one of which is a sparkling 1929 Mercedes SSK Sports Tourer.



by Julian G. Schmidt

(MT's man-on-the-street, our intrepid interviewer, lives for the automobile as a "machine." His dedicated detachment from all emotional influences enables him to ignore subjective distractions and concentrate on objectively investigating the mechanical excellence of the automobile. His interest is only in the car as an engineering masterpiece, so he collects facts with the cold, clinical sense of a true scientist, and gathers statistics with the penetrating approach of a lab technician.

To illustrate his relentless technique, our interviewer picked up a provocative rumor some months ago . . . namely, that one of those extremely rare and famous 1929 Mercedes SSK Sports Tourers was harbored in the Los Angeles area . . . that's right, folks, one of the same family that inspired its contemporary counterpart — the Excalibur SS! But this was the real thing — a genuine official bona-fide certified original Mercedes SSK — the same kind that sells for $30,000 fully restored! Not a moment was wasted. With typical tenacity, he grabbed the lead and followed it to its inception. And it was true! The Mercedes happens to be the pet restoration project of car-buff and well-known movie starlet, Charlene Holt, who also happens to be a respectable mechanic, herself, so MT's man wasted no time in concentrating on the task at hand.)

MISS HOLT: I presume you are interested in the Mercedes? I don't blame you . . . this particular car is one of seven built in 1929. And, as you can see, it has some unusual features . . . namely, right-hand drive and English accessories! The reason is that this car was built specifically for English road racing. It has the SS body and that famed 38/250 SSK engine . . . a 6-cylinder, 7.7-liter overhead cam unit supercharged by a Roots-type double-vane blower. Oh, what a sound! More like an airplane than a car! I must admit that of this style body, there were actually 62 built. However, these seven were mostly alloy — then, of course, they have the different engine. This is the type, you know, that von Brauchitsch used when he set his world's speed record of 156 mph at Avus in 1932.

MT: That's a swell outfit you're wearing, Miss Holt.

MISS HOLT: . . .Thank you . . . Racing this car was as exciting as any racing in history. You see, it has a glass fuel sight gauge mounted on the dashboard to indicate how much gas is being supplied to the supercharger. Now, if you want to pass a car, you press on the accelerator and start pumping with a little lever in the cockpit, watching the sight glass at the same time. As soon as you have pumped too much gas it overflows into the sight glass. That means it's time to stop, until the next time you want to pass, of course. So, all this meant that it was definitely a 2-man car if you wanted to race and use the supercharger See?

MT: . . .hmmm? . . .oh, yeah. Uh, Miss Holt, what's this glass thing?

MISS HOLT: That's the sight gauge I just explained to you. Now, fabrication of the . . .

MT: Would you say your hair is light auburn, blonde or red?

MISS HOLT: Light auburn. Now, as I was. . .

MT: (Sigh) Beautiful!

MISS HOLT: . . . Oh, thank you . . . As I was saying, fabrication of the engine was so precise, and involved such craftsmanship, that metal-to-metal fits were the rule, such as the pan casing and valve cover . . . and the block and upper part of the crankcase was made from one piece of silumin. As a matter of fact, the only gasket used is for the head. Standard versions had only a 5:1 compression ratio, but this racing version is raised to 5.75:1.

MT: I guess you must exercise a lot, huh?

MISS HOLT: What?

MT: Oh, I'm sorry. You were saying . . . ?

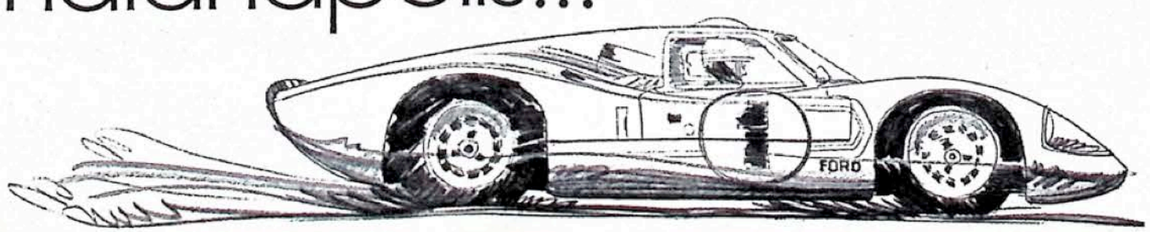
MISS HOLT: I'm extremely proud of the successes of this 38/250 engine. This is also the same version, you know, that won the 1929 Irish Tourist Trophy, took 1st in the Irish Grand Prix, 3rd in the Monaco Grand Prix, and 3rd in the Monza Grand Prix with a 1st in the first heat. And each year up through 1932, its string of successes continued, and, in fact, improved, including wins in both the '30 and '31 Mille Miglia.

MT: Isn't it a biological rarity for someone with such light hair to have such wonderful, penetrating, deep dark brown eyes?

MISS HOLT: . . . Well, I don't know . . . The car is absolute ecstasy to drive! Steering, which is a deep worm and nut assembly, is amazingly accurate, and there are triple Hartford shocks on the front. Of course, the brakes weren't built for our kind of traffic, so I'm going to install some different ones. Nevertheless, I raced some guy out Sunset Blvd. through the Santa Monica Mountains to the beach one day, and I beat him . . .And I had the Mercedes and he had some big new Detroit iron.

MEMO: c/o Executive Editor, MOTOR TREND. This is in application for extended assignment. Just discovered that above subject has, in addition, a 1928 Phantom II Rolls Royce and 1912 Flanders, both of which will lend themselves to same coverage. Anticipate required time to be somewhere around two to three years, or longer, for proper interviewing. Of course, after above cars, there's always the stable of family cars, then the lawnmower, motorized golf cart, washing machine, garbage disposal, and the. . .

Anyone can paint stripes on a car...we earned ours at Le Mans...Sebring... Indianapolis...



1968 Torino GT fastback's only concession to convention is six-passenger seating, if you prefer

1968 Torino GT fastback's only concession to convention is six-passenger seating, if you prefer

When you go fastback or GT... you've got to go Ford! And one of the reasons why is the newest member of Ford's winning fastback pack, the Torino GT. Built on a 116-inch wheelbase, this one sports such standard equipment items as a 302-cu. in. V-8, SelectShift transmission, unique GT stripes and identification, styled steel wheels and wide-oval tires.

But, Ford didn't stop with one well-bred fastback, it went on to make an entire pack . . . five models in three different sizes . . . small, medium, and large. Ford calls them the Mustang Fastback 2+2, Torino GT fastback, Fairlane 500 fastback, Ford XL fastback and Ford Galaxie 500 fastback. People who consider driving a sport call them great. The reasons why are as varied as the selection of models and options.

Consider five different V-8's for the XL. These run all the way from a new 302-cu. in. jewel with special lightweight pistons, to the proven 428-cu. in. V-8. These range from 210 to 390 hp. With five V-8's each for Torino, Fairlane and Mustang, the fastback pack really lays on V-8 choice.

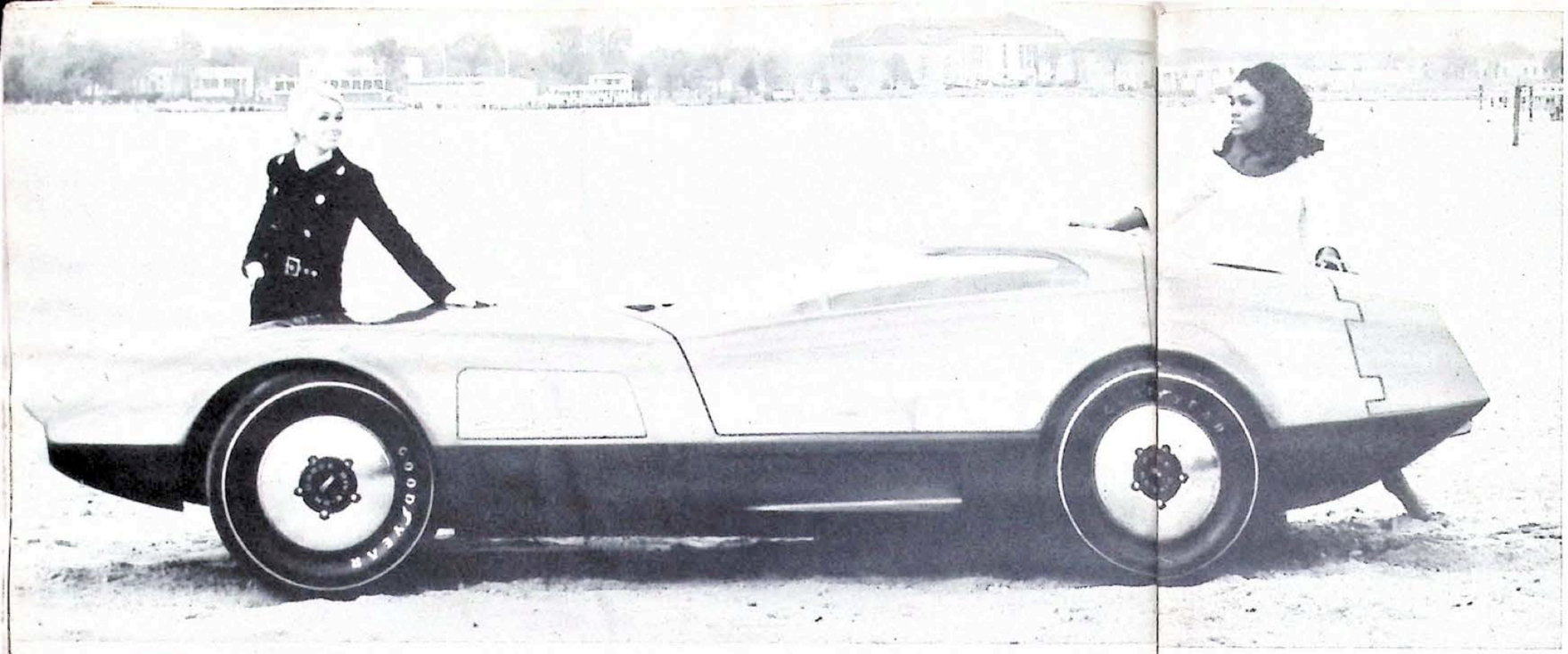
They're not stinting on transmissions either. On most of these engines you can have either 3-speed, 4-speed, or syrup-smooth 3-range SelectShift. That's the automatic that leaves the option to shift or not to shift up to you. Ford doesn't let you build in all this go without having something special in the stop department. That something is a new optional floating-caliper disc brake that quickly disperses heat for high fade resistance, more uniform braking action.

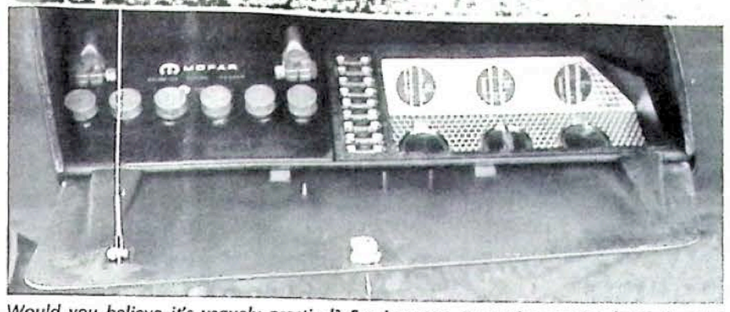
There are eight V-8's, three transmissions, two suspensions, three tire options, two brake setups and five models . . . if your choice is GT or fastback, is there any doubt that Ford gives you the biggest choice? There's no need to choose things like stripes, low-restriction exhaust, and special wheel covers . . . Ford includes these in the special GT packages available for both Ford and Mustang.

FORD

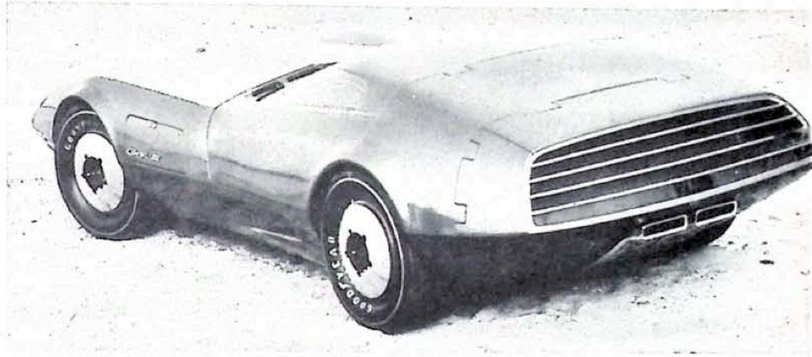
Ford ...has a better idea.

If there's a fastback in this mix with your name on it, the nicest surprise is yet to come. Just because it's pretty doesn't mean that Ford is going to twist your arm. You'll see what we mean when you check the price tag. Get the message? Ford did . . . loud and clear.





Would you believe it's vaguely practical? For instance, an engine service hatch located along the left forward panel area permits checking water, oil and battery levels without raising the hood.



Charger Marque Three

Never fear. About the time that Cliché Life starts creeping in, some primal force concerned with our identity causes someone to take a deep breath and get those creative juices flowing again.

When Dodge cleaned her pipes with the '68 Charger, she opened up an entire reservoir of juices that keeps pumping out more ideas than our prosaic public can handle. But that's all right. Even though these ideas are not in gear with the plodding, methodical Great Society, you've got to get them out of your system.

A POSITIVE ACCEPTANCE OF LIFE AS IT SHOULD BE

One of the impulses resulted in the Charger III, an expression of what's possible when the will is free. It was designed in Dodge's styling studios and built by Vince Gardner of Detroit. Charger III is a 2-seat, 184-inch long, 42-inch high Zont Car with a ritual instead of doors. To enter, you push a button, a canopy swings up, the two bucket seats elevate eight inches, the steering wheel instrument cluster swings away, and the whole thing beckons you to indulge in a wild, new experience. Inside, you push another button to close the canopy, lower the seats and return the steering wheel to control position. A periscope rear-view mirror is mounted in the top of the canopy to connect you with blasé reality.

Charger III is mostly an exercise in comfort and convenience: the engine is checked by gauges without raising the hood, the interior is a complete and complex monitoring system, and flow-through ventilation contributes more climatic compatibility than most mega-sedans. Fresh air is collected through scoops at the base of the windshield, circulated through the passenger compartment and exhausted through the rear vent.

Optimistic about the government's encroachment on speeds, Dodge added air brake flaps to the tail and synchronized them with the regular brake system.

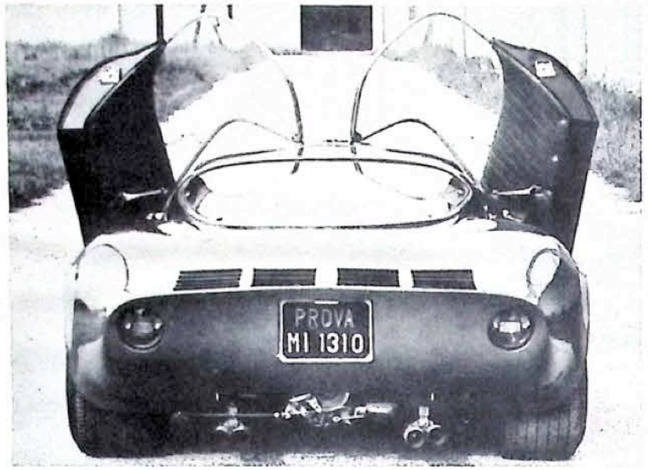
There are only two concessions to convention: concealed headlights and conventional engines. /MT

Center console is devoid of any instrumentation. Seats are contoured. Rear end features vent system exhaust grille, tail lights and air foil.

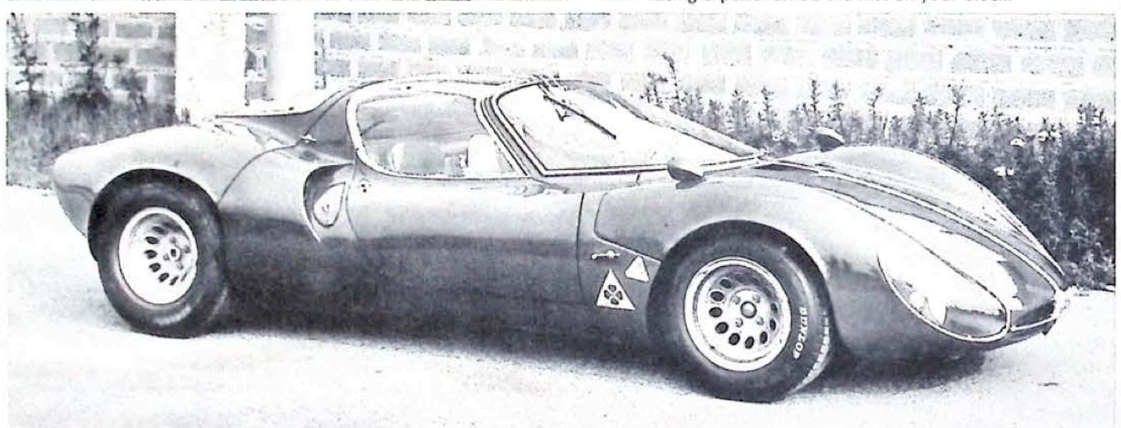
Hood and grille have concealed headlights, and any of the Dodge family of V-8s—even the 426-cu.-in. Hemi—can be fitted into the engine compartment. For a real air-brake effect, open the front "door."

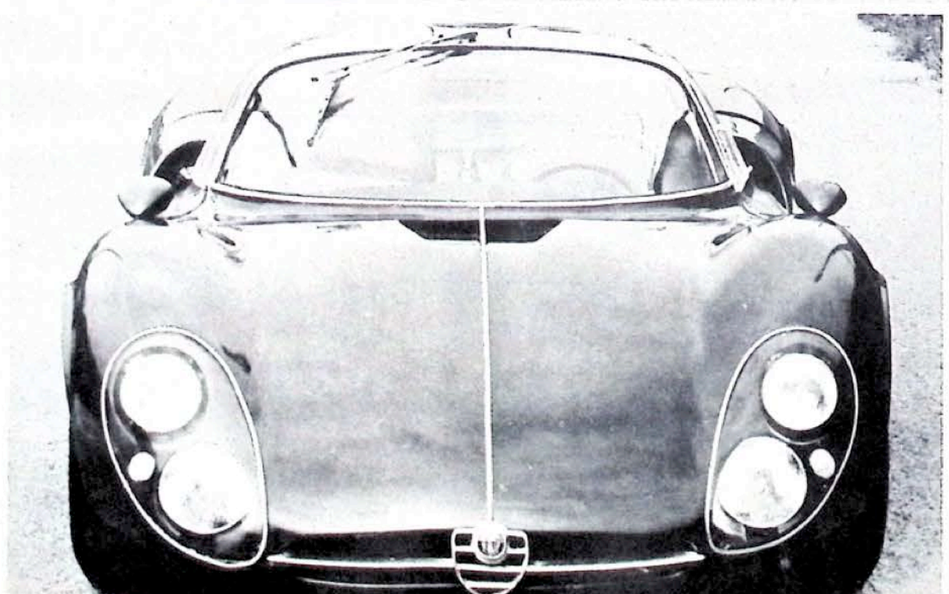
ALFA ROMEO "33" COUPE

means go in any language



Alfa Romeo does it again. Latest rendition of the prototype "33" is the coupe version, which was shown recently at the Monza Sports Car Show. Capable of making any aficionado's pulse rate quicken, the new 2-seater coupe is powered by an extraordinarily flexible 2-liter V-8 amidships engine. A special Alfa 6-speed gearbox puts the "33" coupe through its paces. The unique doors open out and forward for easy entry or exit. Although it was designed with characteristics appealing to racing enthusiasts, the "33" coupe is supposedly flexible enough for cross-country and city driving. Built on the remarkable chassis of the original "33" prototype, Alfa has incorporated the most advanced techniques developed through their many years of racing experience. Be the first on your block.





Loyal, colorful,
dependable, powerful,
long-lasting.

Meet the Mini-Brute.

Buick's new Opel Rallye Kadett. An economy import that delivers economy without weak-sisteritis.

Engines available up to 102 horses and muscle strung liberally from bumper to bumper means a car built to handle turnpikes, country stretches, hills and the stop-and-go grind of expressways and city traffic.

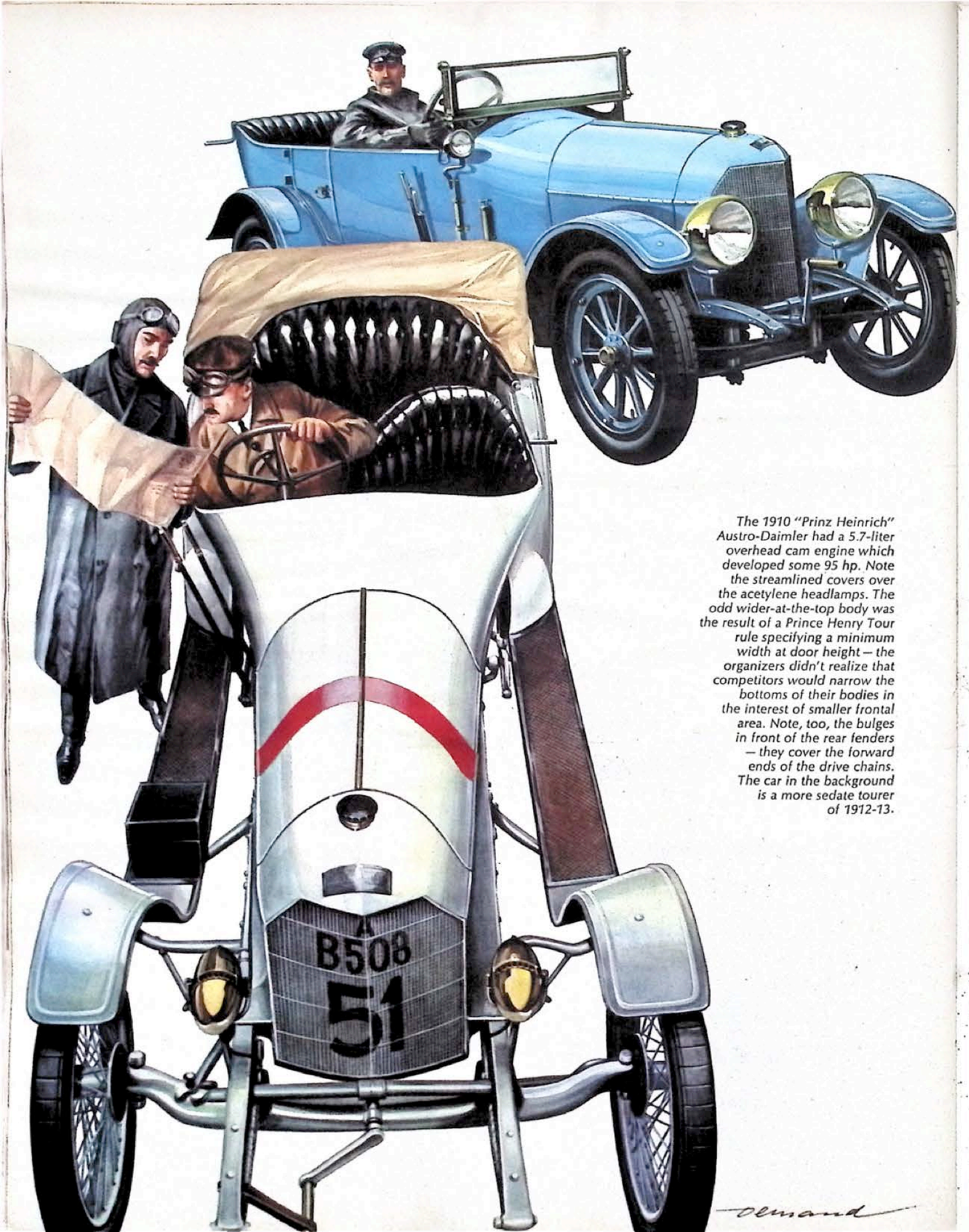
Pick your Mini-Brute this year from six new models. The Rallye Kadett, the Family Mini-Brute (our wagon), the LS Sport Coupe (our Super Deluxe Mini-Brute), the Deluxe Sport Coupe (our Deluxe Mini-Brute), an all new 2-door Sport Sedan (the Campus Mini-Brute), and a 2-door Sedan (the Commuter Mini-Brute). All include a pleasing list of standard comfort and convenience features plus all the new GM safety features.

This is noteworthy, too. Mini-Brutes are sold by over 1600 Buick-Opel dealers. That gives you more service points in this country than any other economy import.

See all the Mini-Brutes in person this week at your nearest Buick-Opel dealer. And bring an open mind.

Economy has had a brand new baby.

Buick's New Opel Kadett.



The 1910 "Prinz Heinrich" Austro-Daimler had a 5.7-liter overhead cam engine which developed some 95 hp. Note the streamlined covers over the acetylene headlamps. The odd wider-at-the-top body was the result of a Prince Henry Tour rule specifying a minimum width at door height — the organizers didn't realize that competitors would narrow the bottoms of their bodies in the interest of smaller frontal area. Note, too, the bulges in front of the rear fenders — they cover the forward ends of the drive chains. The car in the background is a more sedate tourer of 1912-13.

27/80 Prince Henry AUSTRO-DAIMLER

Sportz carz hadt to begin zomewhere, but with a name like zis?

BY RALPH STEIN

Tell people that Dr. Porsche built his first sports car 58 years ago and their eyebrows will go right up out of sight. Not only was the 27/80 Austro-Daimler Herr Porsche's first sports car, it was perhaps the *world's* first sports car albeit the term wouldn't become current for years to come.

Porsche's "Prince Henry" Austro-Daimler first appeared in the German "Tours" that *Prinz Heinrich von Preussen*, the Kaiser's brother, sponsored from 1908 to 1911. These so-called "Tours" were very odd competitions. They weren't what we today would call rallies nor were they races — although speed trials were a part of them. The winners were chosen by means of a wildly complex handicap formula that each year made the losers mad as hell, making them vow not to enter again the next year. Mostly they got sore because the "Tours" sometimes turned into pretty rough road races in spite of the stipulations that the cars were supposed to be strictly touring machines with 4-seater bodies of certain proportions and that they be completely equipped with lights and fenders.

By 1910 Ferdinand Porsche at the age of 34 had already been head designer of Austro-Daimler's Vienna-Neustadt factory for four years, but he had been involved mostly with prosaic and decidedly unsporting little machines. However, when Austro-Daimler decided to have a go at the Prince Henry Tour, they gave young Ferdinand a free hand and he came up with a design that really shook up the automotive world.

His engine was based on those he had designed for the Parsifal airship and had four individually cast cylinders with a bore of 105mm and a stroke of 165mm (5714cc). A single overhead camshaft driven by a vertical shaft operated huge valves inclined at 45 degrees and held in detachable cages. Light steel pistons were used. Twin magnetos were driven from the same vertical shaft that drove the camshaft, but they were not at right angles to the shaft. In order to allow for a narrow hood they were set at an angle rearwards. Strangely, this engine still used a total loss lubrication system — oil pumped into the engine from a belt-driven lubricator (a box full of oil with pipes feeding various parts of the machinery) collected in the crankcase and it did not recirculate.

I've long been fascinated by this 1910 Austro-Daimler's powerplant for it is almost exactly like that in the American-built 1907 Welch which I own — overhead cam, total loss oiling system and all; even the 45-degree valves in unscrewable cages. But the Welch engine develops only some 50 hp at 1600 rpm. The Austro-Daimler's bigger valves and lighter pistons *do* give it an advantage. The overhead cam Welch engine first appeared in about 1904. Might Ferdinand Porsche have seen one before he designed his engine?

The 27/80 Austro-Daimler's 120-inch chassis was quite conventional with four semi-elliptic springs and 2-wheel brakes. Chain drive was used because it was then thought that shaft drive somehow didn't give quite as good roadholding.

The 4-seater bodies mounted on the Prince Henry Austro-Daimlers were, like similar bodies on many of the Teutonic entries, of most peculiar "tulip" shape. The Tour organizers, in order to discourage freakishly narrow bodies, gave all entrants a drawing which specified a minimum width at the top of the doors. But nothing was said about the lower part of the bodywork. The sharp Germanic designers, who even then realized the air-splitting advantages of small frontal area, made the lower part of the bodies as narrow as possible. Where, I wonder, did the poor passengers put their feet?

The 27/80 Austro-Daimlers were fast — 90 mph was possible on straight stretches — fast enough and reliable enough to run away with that 1910 Prince Henry brannigan.

Porsche himself drove one of the eight Austro-Daimlers entered and with two others, driven by Herren Fischer and Schoenfeld, came in 1st, 2nd and 3rd. A couple of other Austro-Daimler 27/80s also came in among the top 20. When you remember that they were competing with Mercedes and Benz and other top marques driven by the greatest drivers of the day, and that the 27/80 was not a special one-off job but was a production machine of which hundreds were later built, Porche's feat seems unbelievable.

The 27/80 was produced until Prinz Heinrich's brother Willie (the Kaiser) got a world war named after him in 1914 — but it had shaft drive after 1912.

The Prince Henry Tour was not the only event in which the Austro-Daimler made a name for itself nor was the 27/80 the only successful model. In 1911 a team of 2.3-liter "Alpine" Austro-Daimlers with 30-hp, 4-cylinder "L" head engines ran off with top honors in the tough Alpine trial over the horrendous roads through the high passes of the Austrian and Italian Alps. These cars were similar to the 1912 sports tourer at the top of Carlo Demand's facing illustration which in production form was rated at 22 hps.

After World War I Ferdinand Porsche's first Austro-Daimler in 1920 was the AD 617, a top-quality 6 with a light alloy block into which iron cylinder sleeves were screwed á la Hispano-Suiza. Like Hispano-Suiza, too, this engine had an overhead camshaft. This was the first of a series of luxury and sporting cars which continued the name until 1935, by which time Austro-Daimler was part of Steyr, the big Austrian arms and motor company.

Notable during these between-the-war years were the "Sascha," a small 1100cc (later 1500cc) sports racer which won its class in the 1922 Targa-Florio and which did well in the Irish Tourist Trophy in the Twenties, and the big 6s and 8s — the A.D.R.s — with a central tubular frame and a trick transverse rear suspension. The 4624cc A.D.R. 8 would in 1934 exceed 100 mph. The smaller 6, however, was known as the "Bergmeister" in honor of Hans Stuck, the great race driver and hillclimb king who drove for Austro-Daimler until 1932. Stuck won 43 races in four years and in 1930 set a hillclimb mark of 42.8 seconds at Shelsley-Walsh in England — a record time which was improved only by six seconds over the next 25 years.

During some of these later years, of course, Ferdinand Porsche was not at Austro-Daimler — he was developing the great "S" series Mercedes-Benz. But the tradition which he had established with that mighty "Prinz Heinrich" model of 1910 still continued.

Where are the Austro-Daimlers today? Are any left? I know of but one in this country, a 1913 model which was for a time in the collection of D. Cameron Peck and is now in the Frederick C. Crawford Automotive and Aviation Museum. /MT

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PRODUCT TRENDS

in safety . . .

Children's safety seats are still making the scene. A new molded plastic seat with an upholstered vinyl armrest which folds back for quick and easy release of the child, is being built by Fisher Body. The new optional seat will be available at Chevrolet dealers. For rigidity the seat is lip-anchored between the back and bottom seat cushions.

Accidentally shifting into reverse, either with an automatic or standard gearbox, can be a highly disconcerting . . . and dangerous experience. Especially if you happen to be stopped behind someone who does, and proceeds to plow into your front end. Sparton Corp., 2400 E. Ganson Street, Jackson, Mich. 49202, has a new solid-state vehicle reverse alarm system that will be on the market March 1. The completely automatic system activates an external warning signal when rearward motion of the wheels occurs. It turns off the signal when rearward motion stops, regardless of the gearshift lever position. Because of its solid-state construction, the new device is said to be trouble free and should have an extremely long life.

Saf-Vue is a new windshield washer antifreeze that is ready to use so you don't have to bother mixing it with water. Saf-Vue removes road film, dirt and bugs and protects the windshield washer to -20° F. Saf-Vue is a product of Gold Eagle Products Co., 1872 N. Clybourn Ave., Chicago, Ill. 60614.

Another warning device is the Early-Warning Engine-Guard that lets you know when oil pressure is too low or when water temperature reaches 220° F. With the warning system installed on your car, an instrument panel mounted warning light or buzzer—preset to a specified time delay—allows the operator ample time to remove his vehicle from traffic lanes. The warning light or buzzer is installed quickly anywhere on the dashboard and provides sufficient advance warning to prevent engine damage. Early-Warning Engine-Guard is manufactured by Nycal Co., Inc., 700 Washington Ave., Carlstadt, N.J. 07072.

Datsun pick-up and 4-wheel-drive owners can now have roll-over protection by installing an Autopower Roll Bar. These roll bars were originally designed for the factory entries in the recent Tiajuana to La Paz, Baja Mexico road race, which went over some of the most rugged country in the Western Hemisphere. Priced at $59.50, these roll bars conform to racing association safety standards. Contact Autopower Corp., 3163 Adams Ave., San Diego, Calif. 92116.

in performance . . .

A new customized flywheel for Javelin has just hit the market and is available in both steel billet and aluminum. This new flywheel has been dyno tested to add racing performance to the newest American Motors offering. Available from Weber Speed Equipment, 310 S. Center Street, Santa Ana, Calif. 92703, the flywheel is said to give "dragster" performance to the Javelin.

Four-tube headers are now ready for your Firebird from Hedman Hedders, 4630 Leahy St., Culver City, Calif. 90230, at $125 per set.

Also for Firebird, are 4-tube headers from Jardine Header Co., 7565 Acacia, Garden Grove, Calif. 92641, at $130 per set.

A new material developed by Develco Mfg. Co. for rocker arm cover gaskets is said not to break or tear, and, because only a minimum of pressure is needed for a positive seal, long life is assured, making them reusable many times. Write for the $1.00 catalog to Develco Mfg. Co., 7216 Bessemer Ave., Cleveland, Ohio 44127.

Eight ratios of high-performance replacement gears are now available in Zoom Gears, manufactured by Perfection American, Harvey, Ill., 60426. Fitting 1965-67 Chevy, Chevy II, Chevelle and '67 Camaro, the ratios range from 4.10 to 6.14.

in miscellany . . .

Lift that barge, 'tote a lot; next thing you know your back is shot . . . but now, loading and unloading your station wagon is made easier with a new item from Mathis Industries called the EZ Load Mark II. The Mark II is a sliding wood platform that glides out of the wagon for easy access to the contents. Mounted on specially de-

signed runners with non-friction plastic, the platform has a retaining rail on all four sides and weighs only 35 pounds. When installed, it is only 2½-inches high. EZ Load installs in minutes and can be removed in 30 seconds. Retail price is $49.95. Contact Mathis Industries, 58 Powers Road, Binghamton, N.Y. 13903.

An Australian company has developed a seat cover of Merino wool sheepskin that is said to be warm in winter and cool in summer. Fitted over the original seat covers, the sheepskin covers have a vinyl back and foam padding and are dyed in a selection of colors to match car interiors. If interested, you could write to Mermax Pty. Ltd., 15 Bridge St., Epping, New South Wales, Australia. /MT

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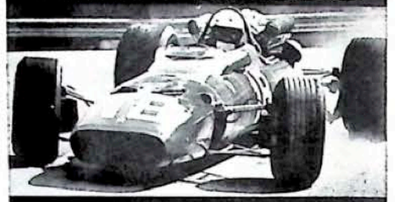

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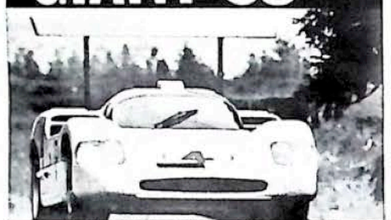

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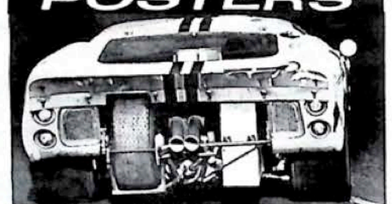

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Q & A

10 little mpg

Q I have a '56 6-cylinder Chevy with Powerglide—and a gas-eating problem. I put on a new carburetor, fuel pump, points, plugs, spark plug wires, and rod and main bearings. No matter how I drive it, I get 10 mpg. I checked it on a trip at 55 mph, and I checked it around town pushing it. Still I get 10 mpg. I am going to college, and a little gas economy would help.
Dean Jarosh — Calmar, Iowa

A *Dean, you will find that a little economy, no matter where it comes from, will be appreciated even after you leave college. But for your immediate problem, we don't think it arises from any of the things you've mentioned. Not that what you've done was needless, it's just that one of the not-so-obvious defects has cropped up. We would first check the fuel system for leaks, tank spillage, etc. Then make sure that the transmission shifts properly. Finally, have the odometer checked, or do it yourself on a marked section of highway to eliminate false mileage figures. We believe that somewhere among these you can locate the lost mpg.*

the cold scoop

Q I own a 1966 Mustang 390 with a 4-bbl. carburetor. I have mounted a 6 x 12-inch fiberglass hood scoop held on with six bolts. There is a 5-inch hole under the scoop to admit air to the carburetor. My question is, will the scoop crack or break during cold winter months? I'm afraid it might, due to engine heat expanding it and cold air suddenly contracting it when I stop.
James Merlo — Southfield, Mich.

A *Have no fear that so-called "thermal shock" will crack your scoop. If it does crack, something else will be to blame. You may, however, be troubled with something entirely different—carburetor icing. We suggest that you de-activate the scoop by plugging the hole in the hood and revert back to the stock air cleaner during the winter.*

more heft for a healey

Q I recently bought a 1959 Austin Healey which is in good condition except that the original 6-cylinder engine is badly worn. Is there an American V-8 and transmission that could be installed without a lot of trouble and expense?
Reg Gartland — Toronto, Ont.

A *Judging from the number of 283/327 Chevy V-8s we've seen in Healeys over the years, we would conclude that there are no unusual snags involved in such a swap. Some years back we had an opportunity to examine and drive a Chev-Healey. As we recall, there was some minor hacking done to either the firewall or the frame to clear something or other, but no major alterations. The front end had ridden high due to the difference in weight or weight distribution, but this was corrected by altering the springs. The transmission was the 2-speed Powerglide operated by a floor selector, which completely eliminated having to figure out a way to make a suitable clutch linkage. The original radiator was being used, and the owner would admit to no cooling problems. This particular engine/transmission came from a Corvette and gave truly outstanding performance — roughly on the order of that of a recent Sunbeam Tiger, we would guess. The owner seemed extremely pleased with the combination.*

a classic case

Q I have a 1963 Rambler Classic 287 V-8 with the twin stick floor shift. My friends have been after me to run it at the drags. I have been offered a pair of slicks. What class and what cars would I run against? Could you offer any suggestions?
Louis Van Arune — Tempe, Ariz.

A *Don't. The designers of the torque-tube drive and suspension on your car never had drag racing in mind any more than they did hauling sightseers to the top of Mt. Everest. We doubt if there's anything you can do to make the car competitive and remain in a stock class. Best you forget it until you can go in one of the later AMC models which have all the basic makings for drag racing.*

so solly, no molly

Q Would the addition of molybdenum to the crankcase or automatic transmission improve operation and lengthen the life of the motor or automatic transmission?
Willis S. Smith — Arlington, Va.

A *We assume you mean molybdenum disulphide. Most lubrication experts are against adding solids in these two locations due to the danger of something becoming plugged up. There are, however, liquid compounds available that have proved beneficial. See article on additives in October, 1967, MT.*

long, leaky summer

Q I have a '66 Fairlane 500 4-door sedan that has a habit of leaking gas from the overflow under the right rear fender when I park it on hot summer days. This never happens on cooler days, and is not due to over-filling (it often happens when only half or three-quarters full) or parking on an incline. It usually occurs just after I come to a stop at the end of a sustained period of driving. I'd appreciate anything you can tell me about the cause and cure of this.
Jack Levinson — Denver, Colo.

A *This is one of those dread diseases that's much simpler to diagnose than to cure. What's happening is that some fuel sloshes into the vent/overflow pipe and becomes trapped there. When driving this will normally splash back*

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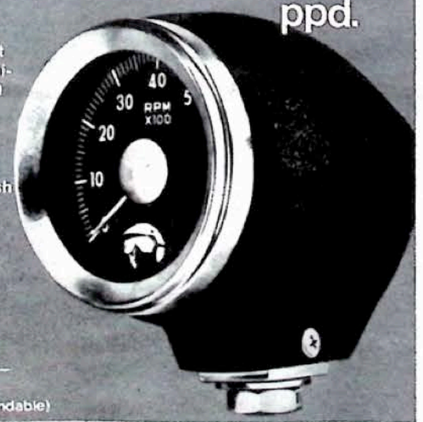

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or be drawn back by the fuel pump. When the car suddenly stops and the ambient temperature is high enough, the expanding mass of air and vapor soaks up additional heat from the nearby muffler. This percolates gasoline up through the overflow in much the same way as does a coffee percolator. You may try removing the filler cap when you stop to relieve the pressure. But if, as sometimes happens with low-neck designs, fuel is trapped in the filler neck itself, there's nothing much you can do except watch the precious stuff go to waste.

old faithful

Q For several years I have been plagued by a "hot" 1960 Buick. The block is scaling and the rust is depositing in the radiator core. In order to avoid overheating, the radiator must be rodded out about every two months in summer and every three to five months in winter. I tried some rust-removing products which do a good job on the tanks but don't seem to affect the large, thin flakes blocking the tubes. Even back-flushing with water and compressed air doesn't open the radiator 100%. Recently, I added 50% Prestone antifreeze to the cooling system. Will this stop further scaling?

A *What you've done is a step in the right direction. Good antifreezes, including the one you selected, have rust inhibitors in them. But antifreezes lose their anti-rust properties long before they begin to lag on protection against freezing. The reason is that these inhibitors are consumed as they do their job. The most economical route to take is to replenish them regularly with rust inhibitors that are available in more concentrated form. Aside from "add a can to your radiator," most service station attendants can advise you as to how often. Barring satisfactory answers, write the manufacturers of the products.*

rpm constant

Q I recently purchased a 1967 Chevelle 396 with the 350-hp engine and a 4.11 rear axle. The car is redlined at 5200 rpm. With a standard 3.31, what is the maximum rpm I could get?
Bill Fox Washington, N.J

A *Since maximum rpm is limited by the hydraulic valve gear and cam profile, this number would not change*

bucks for tips$

Want to make a quick ten-spot? All you have to do is jot down an automotive performance tip and send it to "Q&A," MOTOR TREND Magazine, 5959 Hollywood Blvd., Los Angeles, Calif. 90028. For each tip selected and used in this column, Q&A will award $10, but none submitted can be returned or acknowledged, nor can MOTOR TREND assume any liability.

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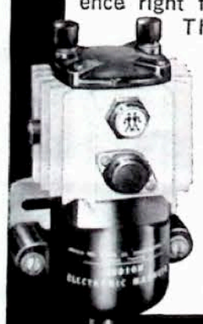

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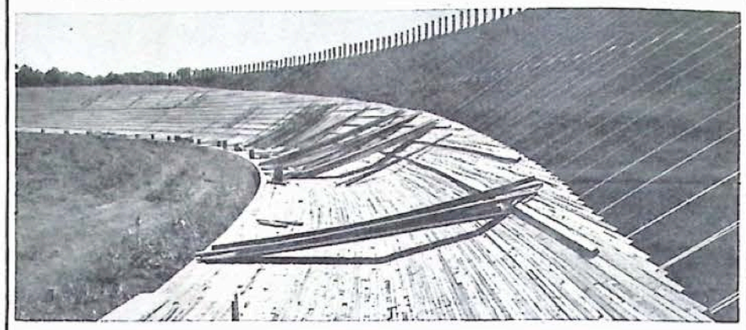


This is a racetrack, not a grandstand. It's also an expert rendition of the Searles Spiral Easement Curve by Art Pillsbury, to improve curve approaches, speed and splinters.

car to run off the outer edge of the track and, if it ran off the inner edge, it would have a hard time getting into trouble. The infield fence was located 125 feet from the track edge for the safety of infield spectators.

During its first week of operation the new plant drew as many as 15,000 spectators in a day—fantastic in view of Los Angeles' cowtown size at that time. Now, with a metropolitan area population heading toward 7 million, that is still a good crowd for an important race. The Los Angeles Motordrome as it was called, gripped the attention of the whole American racing world and it was hailed as the world's safest as well as fastest race course.

Atlanta, having a smaller and less prosperous population to draw upon, was a failure, and so was its gravel surface. Indianapolis went through the agonies of the damned learning that the best tar and crushed rock pavement of the period went to pieces immediately under the punishment of racing. In spite of staggering financial obstacles Fisher resurfaced his speedway with 3,200,000 paving bricks, weathered all storms and created his immortal institution. But out in the Wild West was that utterly wild board speedway, where absolute world records tumbled at every meet until the day in 1913 when it burned to the ground with, according to Damon Runyon, "a great saving of life." But it had shown the way that was to govern and shape American racing for almost two decades, and decades of almost unbelieveable glory they were.

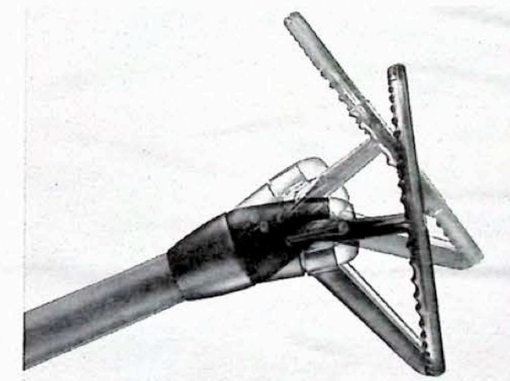
While the ashes were cooling at Playa del Rey, Jack Prince was one of the world's busiest men, dashing from city to city and coast to coast, spreading the new gospel among promoters. He found not one taker for his ideas, but several, so that 1915 ushered in a nation-wide circuit of superb new board tracks. Maywood Speedway at Chicago was a 2-mile oval, as were those at Tacoma and Sheepshead Bay. Of the total of 24 board tracks that existed between 1910 and 1931, these were the largest built and, had they survived, still would rank among the wonders of the world. Also in 1915 a 1¼-mile board speedway was opened at Omaha and a 1-mile saucer at Des Moines. These extremely fast tracks consisted of two straightaways joined by 180-degree curves whose bankings were as steep as 45 degrees. The present Monza banking reaches only 38 degrees.

The board-speedway era began in earnest on June 26, 1915 with the inaugural event at Chicago—a 500-mile race. Indianapolis had drawn about 60,000 spectators three weeks before, and the winning average of Ralph de Palma's Mercedes had been 89.84 mph. Chicago drew about 80,000 and the winning average of Dario Resta's Peugeot was 97.58 mph, a fabulous world record on many counts. Journalists were at a loss for words to describe what had taken place.

Speedway racing—meaning board speedways—did much more than merely provide the world for a decade and a half with some of the most fantastic spectacles in history, automotive or otherwise. It was the board tracks, with their almost boundless possibilities for speed, which brought about the remarkably swift evolution of the American thoroughbred race car and which astonished the Europeans who tried to repeat their overseas conquests after World War I. It was the boards, which permitted full-throttle driving at all times, that dictated the quick adoption and brilliant development of the straight-8 engine, of supercharging, streamlining, and front-wheel drive. It was the boards that spurred brilliant progress in tire technology and in the development of fuels, alloys, bearings and clutches. It was a period during which racing improved the breed in nearly every sense, and to the benefit of the motoring public.

The Indianapolis "500" never lost its major status, thanks to a management which made it a point always to offer

"My 1968 Pontiac has everything,



including an adjustable steering wheel."

"Of all the new and exciting things we like about our '68 Pontiac, the instant-fit Tilt Steering Wheel is high on the list. My idea of steering comfort isn't the same as my wife's. I like the wheel positioned high; she likes it low. The Tilt-Wheel puts *personalized* steering within easy reach of both of us, with just a flick of a finger. And talk about unobstructed entry and exit—a Tilt-Wheel in topmost position is almost like having no steering wheel at all!"

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the world's biggest purse, thereby making secure its rank as the world's most important racing event. However, any car that could win on the boards could win on the much slower bricks, providing its chassis were strong enough to take the pounding. Indianapolis was one event per year but during most of this epoch all the other Championship contests were fought out on the board speedways and always under the stress of much higher speeds. Hence their fundamental role in shaping the breed. Art Pillsbury, who died in September 1966, knew them intimately well. He built the best ones. He told me:

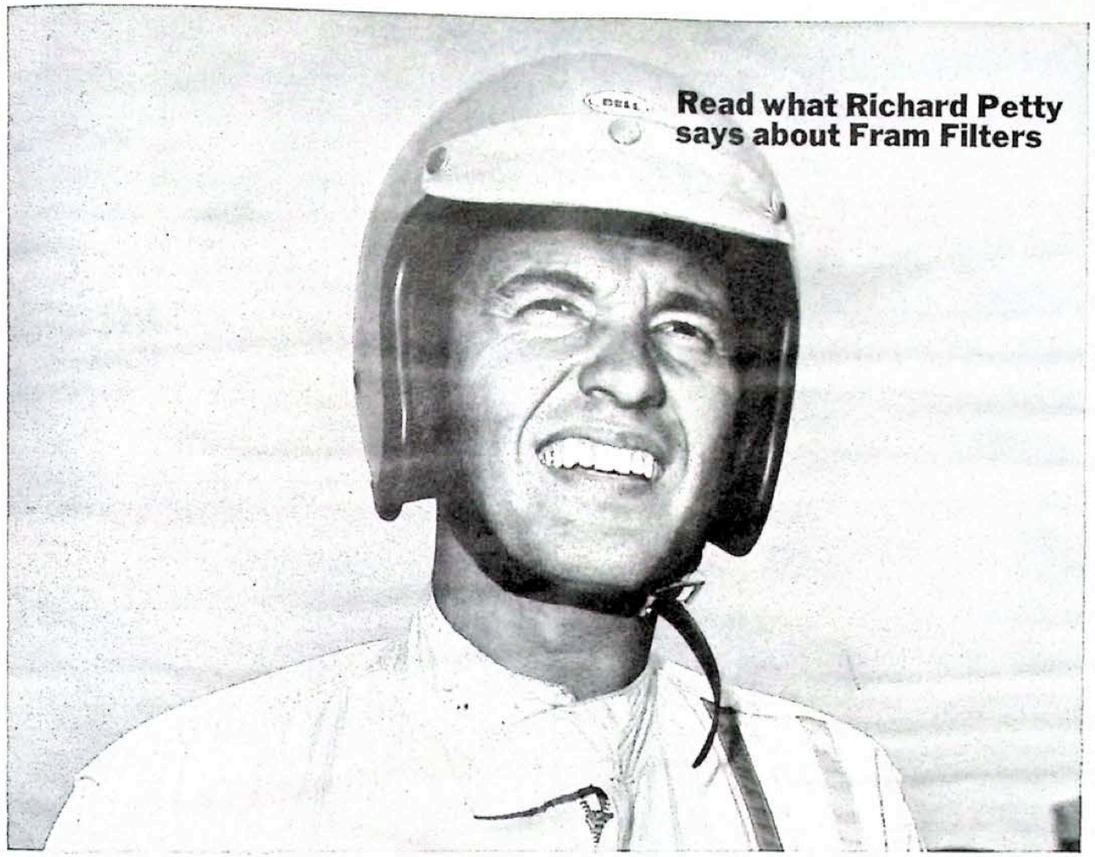
"Jack Prince was building all the board tracks and I was interested in racing. I was a civil engineer for the Rodeo Land and Water Co., which owned all of that big agricultural tract known as Beverly Hills. William Danziger, one of the company's directors, was also interested in racing. One day he came to me and said, 'We're going to have the world's finest board track, and you're going to build it.'

"Prince was the only man who had built board speedways up to that time, so I naturally turned to him as a consultant. I made a deal with him: One, he would get a flat fee of $5000 for his services, including access to the designs of all his previous automotive tracks. Two, he would get credit as the designer of the Beverly Hills Speedway. Three, I would be free to try to engineer the new track since, as all of us knew, all the previous ones had been designed by guess and by God and according to the whims of the individual track owners. Prince agreed, accepted $500 for his travel expenses to come west and then collected his five grand.

"Then we began to get down to business and it became clear that there were no figures, no designs, and that Prince was quite innocent of any engineering knowledge. He was very helpful, of course, but that first track that I designed and built in 1919 was the first one built with any serious attention paid to engineering principles.

"As vertical supports for the floor I used 2 x 12s on 4-foot centers. Prince had gone to using 2 x 3 planks on edge for his floors but I went back to Playa del Rey's 2x4s and to straight, vertical-grain lumber to minimize splintering.

"One of the notorious defects of the earlier banked ovals had been the difficulty of getting on and off the curves. The transitions were abrupt, tricky and dangerous. So I used a Searles Spiral Easement Curve. This is a formula widely used in railroad engineering whereby a train is lead into a central curve through a series of small curves of ever-decreasing radius. The formula includes the elevation of the outer rail



"Winning the NASCAR Grand National Championship meant driving over 10,000 miles... most of it at speeds over 180 miles per hour. That beats an engine worse than 100,000 miles of open highway driving. Fram oil, air and gasoline filters protected my Plymouth every inch of the way. Although they didn't make car 43 go any faster, Fram Filters sure helped me to finish."

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to a calculated degree and the purpose of all this is to achieve a smooth ride around curves at speed.

"There was no limit to the speed for which those tracks could be built. If you want one to handle 200 mph it's just a question of how steep you throw it up in the air. There was no steering.

"That first track was a private venture of Danziger's and 10 other men, including Louis B. Mayer and Cliff Durant. They bought 200 acres from the Rodeo Company, in the very heart of what became the city of Beverly Hills. I put the whole 1¼-mile track up in five days!

"I finished the whole plant in 5 weeks. It was beautiful and we spared no expense. We had roofed grandstands with large boxes, each holding 10 hand-built chairs that were contoured for real comfort. Everything was *deluxe* and so was our clientele, which included the whole film colony and about everyone else of importance within reasonable traveling distance of Los Angeles. The attendance was tremendous and the plant made nothing but money for five years, when it was sold because it couldn't afford to stay there. Those 200 acres had been bought for $1000 each. They were sold for exactly 10 times that.

"Of course we wanted another track and a group of us bought a property in Culver City between the MGM Studios and what finally became Jefferson Boulevard. Beverly was sold in '24 and, to hold our AAA franchise, we had to be in operation by Thanksgiving Day. We had to pay $4000 each for those 160 acres and we couldn't raise the necessary capital in time. When we opened we were over a quarter of a million in debt.

"Then, we thought we'd save money and we left the roof off the grandstand. We made the grandstand seats out of just flat planks. We cheapened the plant and we didn't get the same clientele that came to Beverly.

"Well, when we bought this property we were promised that Jefferson Boulevard would be in service before we opened. It never was and from the first race we were five to six hours getting the people off the premises. We could get 100,000 people in there but we couldn't get them out because there was only one exit. That gave us a black eye from our opening day and in four years the bank that had our loan foreclosed on us.

On the boards in 1919 is Duesenberg team of bare-headed Augie Duesenberg, Eddie Miller to his left, Tommy Milton below, Jimmy Milton at right. Track shows day's harvest.

"So that's why Culver failed. But what happened to all the other board tracks? For one thing, in those days we knew of no preservative that we could use to treat the lumber to prolong its life that did not become slippery under friction. All we knew of was creosote. We tried everything, but nothing worked. So, at the end of about four or five years, depending upon climatic conditions, the life of the 2 x 4s, although they were laid on edge, sapped out. They became brittle and the floors started going to pieces. No floor was good for more than 7½ years.

"The cost of the floor could have been overcome in any case. The real and final failure was that, as the cars became more perfect, any real racing ceased on the boards. The fastest car never was headed. There was no driving involved; there were just so many squirrels going around in a cage and positions changed only when there was some mechanical failure. Racing was lost and that, in the end, was probably the deciding factor."

Building the boards was one thing, driving them something else. The late Eddie Miller, Sr., drove them for Duesenberg. He recalled:

"Sheepshead Bay! What a beautiful thing it was, and two miles around! If we had it today we could lap it at an easy 180, maybe 200. We ran all those terribly fast tracks with wonderful reliability. I loved that kind of racing until the tracks began falling apart.

"You'd show up for a race, a few holes would show up in the floor during practice, but the carpenters would patch them up and things would look pretty good. Then, when you had maybe 15 cars starting a 250-mile race, holes would start developing under the pounding of the machines. They would have carpenters working away under the track. When a hole started as just a 3- or 4-inch crack there was nothing to do about it until it got bigger. Sometimes a crack would develop as much as a foot wide. Then you'd see a carpenter's head stick up like a gopher. He'd nail something on the side and duck his head down, then come back up and nail another one on. But he never could get the hole plugged. And kids who sneaked into the tracks used to watch the races from these holes, and between the kids and the carpenters, all those human heads bobbing up and down didn't exactly make for the most serene of driving conditions. But they made more than one driver swear off drink for a day or two!

"I remember times at Uniontown when there would be as many as 10 of these openings around the track, all from a foot to a foot and a half wide and up to about 40 feet long. All the way around you had either to dodge those things or to straddle them. That was hell at 110 mph and more and a lot of boys got caught and stacked up.

"You used to get hit with some terrific blocks and knots of wood. We all came in with pieces of wood bigger than kitchen matches driven into our faces and foreheads. They'd go in, hit the bone and spread out. Then you had to remove them, of course.

"At those speeds in those days we had our problems with tires. The casings were remarkably good but we all lived in terror of throwing treads. At 100 mph or so, half a tread would come flinging off, throwing the wheel violently out of balance. Well, you'd go hopping along hoping that the rest of the tread would fly off, particularly if you didn't have too far to go to finish the race..."

The ephemeral, forgotten boards were America's real crucible of speed.

Editor's Note: This article is based on a chapter in the book *The Golden Age of the American Racing Car*, published by W. W. Norton, N.Y., and authored by MT's man in Europe.

THE BOARD SPEEDWAYS

LOCATION	MILES	YEARS ACTIVE	DESIGNER
Playa del Rey, Calif.	1	1910 — 1913	JP
Oakland (Elmhurst), Calif.	½	1911	JP
Chicago (Maywood), Ill.	2	1915 — 1917	JP
Des Moines, Iowa	1	1915 — 1917	JP
Omaha, Neb.	1¼	1915 — 1917	JP
Sheepshead Bay (Brooklyn), N.Y.	2	1915 — 1919	JP
Uniontown, Penna.	1⅛	1916 — 1922	JP
Cincinnati, Ohio	2	1916 — 1919	JP
Tacoma, Wash.	2	1915 — 1922	JP
Beverly Hills, Calif.	1¼	1920 — 1924	ACP-JP
Fresno, Calif.	1	1920 — 1927	ACP-JP
San Carlos, Calif.	1¼	1921 — 1922	ACP-JP
Cotati, Calif.	1¼	1921 — 1922	JP
Kansas City, Mo.	1¼	1922 — 1924	ACP-JP
Altoona, Penna.	1¼	1923 — 1931	ACP-JP
Charlotte, N. C.	1¼	1924 — 1926	JP
Culver City, Calif.	1¼	1924 — 1927	ACP-JP
Salem (Rockingham), N. H.	1¼	1925 — 1927	ACP-JP
Laurel, Md.	1⅛	1925 — 1926	JP
Miami (Fulford-By-The-Sea), Fla.	1¼	1926	JP
Atlantic City (Amatol), N. J.	1½	1926 — 1928	ACP-JP
Akron, Ohio	½	1928 — 1931	UN
Woodbridge, N. J.	½	1929 — 1931	UN
Bridgeville, Penna.	½	1929 — 1931	UN

JP = JACK PRINCE / ACP = A. C. PILLSBURY / UN = UNKNOWN

AAA RECORDS ESTABLISHED ON BOARD SPEEDWAYS DURING THE 1926-'29, 91.5-CU.-IN. FORMULA. (All cars are Millers)

DISTANCE, MILES	DRIVER	SPEED, MPH	TRACK
1.5	Lockhart	147.7	Atlantic City
10	Lockhart	135.6	Atlantic City
25	Lockhart	132.4	Charlotte
50	Lewis	131.0	Atlantic City
100	Keech	131.8	Atlantic City
150	Woodbury	132.0	Atlantic City
200	Lewis	130.0	Atlantic City
250	Duray	124.7	Culver City

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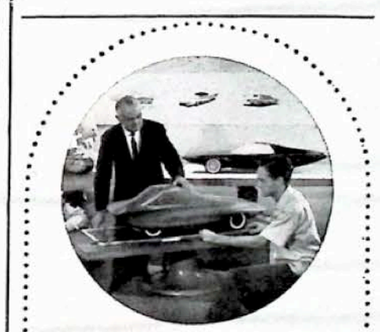

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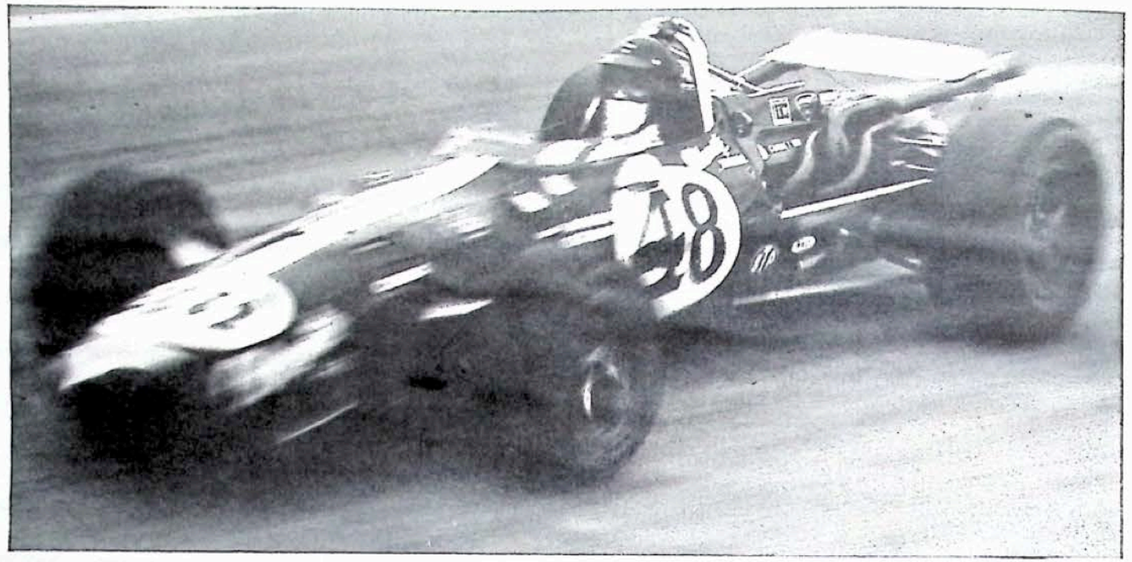


Dan Gurney won suspense filled Rex Mays 300 on last lap to beat Bobby Unser and Mario Andretti, who ran out of gas five laps from the finish. Gurney's Eagle-Ford ran magnificently all day, but he almost lost all the marbles when a hole in a tire caused lengthy pit stop.

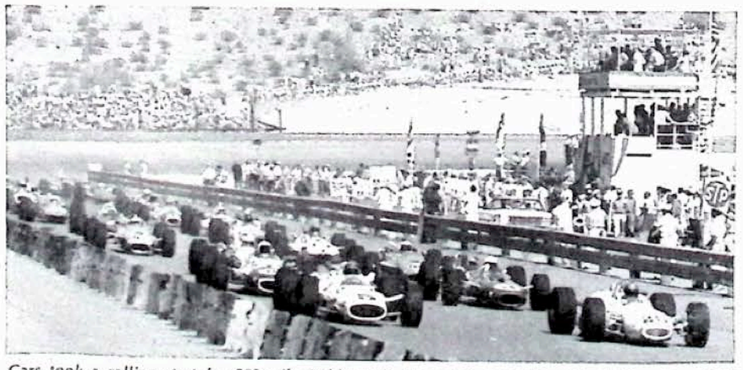
Gurney wins Rex Mays 300 as A.J. foils Andretti in Championship bid

A. J. Foyt won the Indianapolis 500 in May, and Mario Andretti blew a clutch and threw a wheel and finished 30th. But then Mario won six of the summer's 100-, 150- and 200-mile Championship Trail races and on Thanksgiving weekend, as the Eagle and Coyote and Mongoose cars rolled into Riverside International Raceway for the Rex Mays 300-mile road race finale, Andretti still had a chance to win his third consecutive national driving championship. Foyt, 32, wanted to win mainly to prove "that all those guys who wrote I was over the hill last year were wrong."

Foyt did prove them wrong. As dark rain clouds gathered above Riverside, A. J. alternately raced, ran, gasped and sweated his way to an unprecedented fifth USAC national driving championship. He drove two cars, ran a humorous quarter-mile foot race, survived an accident and two protests, and finished in a broken machine which had power going only to one rear wheel. He ended with 3440 points to Andretti's 3360. After eight months and 19 races in eight states and Canada, the great transcontinental battle was over.

Foyt, sharing a car with Roger McCluskey after his own went out, finished 5th in the 116-lap $75,000 epic which was won dramatically by Dan Gurney in Oscar Olson's Eagle-Ford. Dan in the past has never been able to win anything but stock car races at Riverside. He's 4-time winner of the Motor Trend 500. It was the first Indianapolis-type car race Gurney had ever won and the first time within recent memory (with the exception of the Pikes Peak hillclimb) that a stock-block engine had won. Gurney's 289-cu.-in. Ford pushrod was enlarged to 302 cubic inches and modified by Gurney-Weslake cylinder heads. It averaged 108.391 mph and hit over 180 on the backstraight.

Weight and engine size of Gurney's Eagle were immediately protested by Clint Brawner, chief mechanic for Andretti. A Gurney disqualification would have moved Andretti up to a 2nd place Riverside finish, and provided him the points to push past Foyt for the national championship. But as a mob of Gurney (and Foyt) fans watched officials weigh it four times, Gurney's potent little racer was ruled 100% legal. It easily met the 305-cu.-in. engine limit, and somehow squeaked past the 1250-pound minimum weight limit at a reported 1255 pounds. (Richie Ginther, crew manager of Gurney's car, filed a retaliation protest against the fuel capacity of Andretti's Brawner-Ford, but his protest was thrown out.)



Cars took a rolling start for 200-mile Bobby Ball Memorial on mile oval at Phoenix, which Andretti won. Bobby Unser set record 122.053 qualifying lap.

Andretti, ironically, ran out of fuel just five laps from the Riverside finish while leading. He dropped two positions on his late 12-second panic pit stop. Gurney and Bobby Unser's 4-cam Ford-powered Eagle both finished ahead of him.

Another protest was taken from Rolla Vollstedt, owner of a Ford-powered vehicle driven by George Follmer. Vollstedt challenged the 5th, 6th, 7th and 8th positions in a move that could have dropped Foyt from 5th to 8th and into a tie with Andretti for the championship. Officials moved Follmer from 8th to 6th position but Foyt's 5th place stood. The checking and rechecking took two hours, and for Foyt they were long hours.

The Rex Mays 300 was wild, confusing and exciting—a perfect capper to a season which, starting with the STP Turbocar's near-win at Indianapolis, was also wild, confusing and exciting.

Foyt was never really a factor for the lead at Riverside. It was all Gurney, and had Dan not lost the lead twice—once because of a jammed clutch, and a second time because of a flat right rear tire—no one would have seen him. Fastest qualifier around the 2.6-mile, 9-turn road course at 117.735 mph, Gurney flew into an immediate lead. He outdistanced all but Scotland's Jim Clark, who had jetted in from the Bahamas to drive a Vollstedt-Ford. Clark got a piece of the lead only when Gurney slipped in some oil at Turn 6. But Clark's glory was brief. On the 24th lap his engine blew up and by then Gurney was already neck-and-neck with him, challenging.

For Foyt it began when he was rolling along easily in the top five, preparing to lap the Gerhardt turbo-charged Offy of Al Miller. He and Miller tangled in the esses and both cars blasted off the road into the mud.

Immediately Foyt was out of his stalled Coyote-Ford and running desperately back to the pits, aiming to take over his Ford-powered Eagle, which Jim Hurtubise was holding in 8th place. Out of breath, heaving for air, the exhausted Texan arrived in his pit to be informed that Hurtubise's team car had just been black-flagged from the race for an oil leak. Fortunately Roger McCluskey's Eagle-Ford was available and was leading. Foyt jumped in, made one lap, stopped in the pit to check a tire, then damaged his clutch accelerating wildly back into the race. At the finish the car was limping from a broken halfshaft and was five laps behind.

As Foyt dropped back in McCluskey's car, a battle for the lead developed. Gurney was alone and out in front until he roared into the pits with a flat rear tire. He lost a minute. Andretti charged into the lead for the first time. And then, six laps from the finish as Andretti disappeared briefly into the pits for fuel, Bobby Unser stormed into the lead—but with Gurney on his neck.

"For the last 50 miles we knew Gurney was eating on us, we knew he'd be giving us hell before it was over," said an Unser mechanic. "So we got beat. But we got beat by a real racer."

Riverside was but one of four western races which brought the '67 championship trail to a steaming end. The series started in October at Sacramento, Calif., on the nostalgic mile-long dirt track.

It was a day for the high old dirt track cars, running big 255-cu.-in. Offy engines which roared and stung the ears of those in the grandstands. Roaring the loudest, however, was the unorthodox Jim Robbins Special driven by a young rookie. He was Bruce Walkup, 23, and when qualifications had finished he had driven his dohc Indy Ford-powered car to the fastest qualifying time on the mile, just as he had done at Indianapolis' Hoosier Hundred some weeks before.

Walkup got the ride in the hot experimental Ford when other name drivers turned it down. They didn't think high revs were the answer on dirt. They were wrong. The engine is owned by FoMoCo and none of the mechanics on the car is allowed to lay a wrench on it. It is that secret.

Walkup led one lap at Sacramento and it was the first lap. Foyt, starting from the second row, then overwhelmed the rookie and everyone else with a dazzling display on a rough track. Foyt won easily, with Andretti 2nd. Oddly, it was the last race A. J. would win all year. Walkup ended 6th, the big Ford still screaming.

The next race was at Hanford, smack in the middle of the flat, desolate raisin vineyards of central California. Promoters had spent a good amount of money refurbishing the 1.4-mile race plant and were rewarded with a sell-out crowd of 20,000.

Gordon Johncock won. In fact he momentarily brought himself into contention for the national championship. He piloted a Gerhardt-Ford at 127 mph for 200 miles (at Riverside he retired early with gearbox troubles, knocking himself out of the race for the title).

Gordon was not near the lead at Hanford until the final laps. Art Pollard, a 40-year-old rookie who had missed much of the season because of a broken leg received during a tire testing accident, had lapped Hanford at a breathtaking 154 mph in a turbo-charged Offy. Pollard left Andretti and everyone else gasping for the first 108 laps. Andretti was taken out, uninjured in a 19th lap crack-up with Al Unser, and only former 'cycle racer Joe Leonard could close on Pollard.

Leonard's Mongoose-Ford finally took the lead late in the race. Pollard ran out of fuel and pitted. Five laps from the end Leonard also found his

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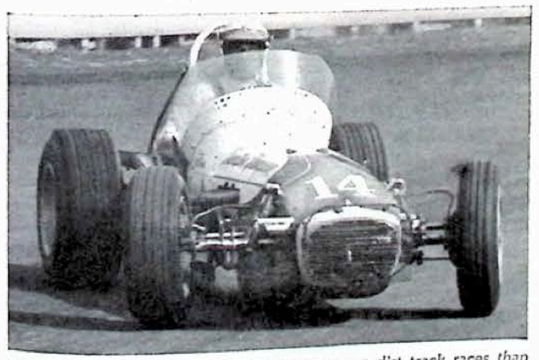
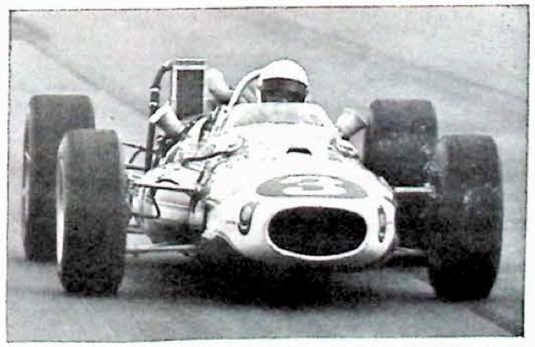
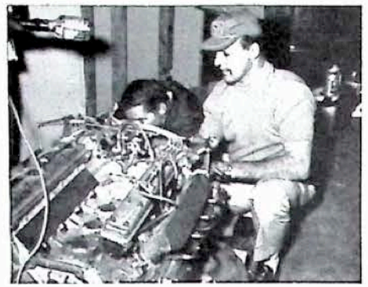


Winner at Sacramento, A.J. Foyt has won more dirt track races than any other active USAC driver.



Owner-driver Gordon Johncock won at Hanford, had chance to win USAC Championship. His car is a Gerhardt-Ford.



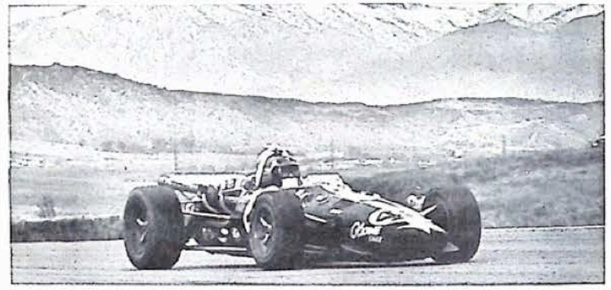
'Twas the night before the big day, but engine preparations continued into the wee small hours. A.J. Foyt pitched in to help tune his 4-cam Ford bomb. He owns 11

Even the night before, McCluskey (left), Foyt (center), and mechanic Jack Beckley decided A.J.'s fate when the deal was agreed to.

Mario Andretti pitted during qualifying runs to check time . . . good news produced grin. He and Foyt were only .10-second apart in qualifying times.

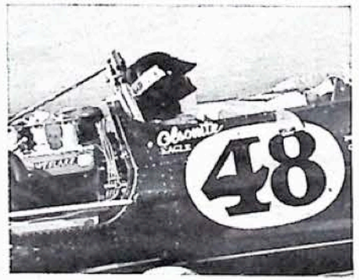
PHOTOS BY LESTER NEHAMKIN, BOB D'OLIVO, GERRY STILES, BOB TRONOLONE

Winner Gurney (left) and Jimmy Clark lead the pack through the Esses on the pace lap. Bobby Unser, behind Gurney, had lead in final laps when Gurney once again got in front – to win.



Out for a Sunday drive, Gurney tools along under scenic, snow capped peaks at about 110 mph . . . with the road to himself.

Even when Clark was breathing down his neck, Dapper Dan showed his stuff in the corners.

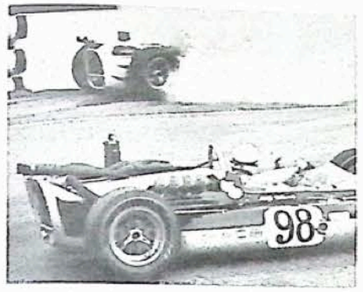


Giving the competition some pointers, Gurney makes a perfect line through the Esses, chopping seconds off every lap.

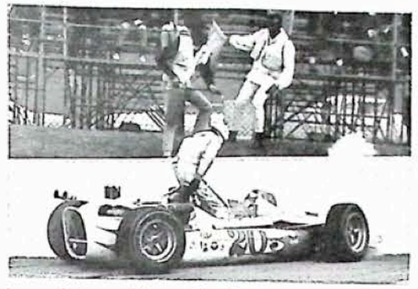
Ronnie Duman in the MVS Special developed a slight toe-in problem and left in the 81st lap.

Mr. Foyt and his Indy-winning Sheraton-Thompson Special were running beautifully before smash-up.

Which way are we going men? Lloyd Ruby in number 25 lost it in the early going as the leaders squeak by untouched. Ruby regained control and got back in the race.

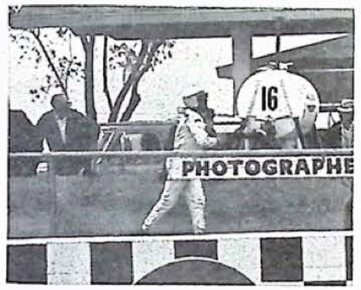


Billy Vukovich (98) proves rubbernecking is human nature as Joe Leonard makes a scene.

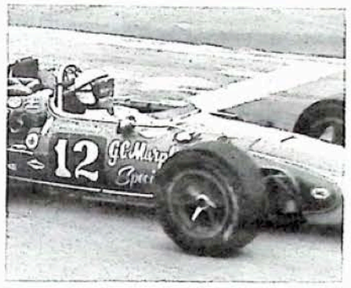


Leonard ejects with considerable dispatch when smoke indicates that something is amiss. Either that, or there's something else in the warterboy's jug.

High camp comes to the Rex Mays 300 Ronnie Bucknum's Vita-Pak Orange Juice Special upholds an image.



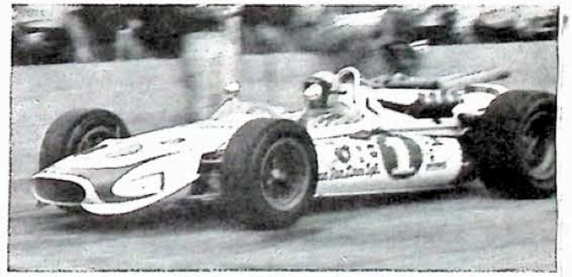
Foyt ran several races at the Rex Mays, one literal. Here he returns for Phase II.



Foyt's second breath came with McCluskey's No 12, but the hex had already been placed. His limping finish was poetic justice.

Gurney signals other drivers past as tire that almost cost him the race blew.

Panic in last laps. Andretti, USAC's Prince Valiant, is morose upon discovering crew's underestimation of fuel, only mini-miles from the finish.



Refueling gave him a 3rd place finish, but he could have had 1st, perhaps. He left pits in fury, finished in the same manner, got lots of glory, but lost the title.

A rare sight for Gurney is the long-deserved but unrequited checkered flag in anything but NASCAR stock machines.

"No. As a matter of fact, to the contrary I'm putting it on, to catch the champagne that spills."

"Awright, so what's so strange?" He's jumped into other guy's cars before. It's just that this time he didn't know someone was in it."

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tank dry and Johncock, who had dueled Bobby Unser for much of the race, moved in for the win, with Unser 2nd. Foyt finished 4th, one lap back.

Phoenix, Ariz., and the 200-mile Bobby Ball Memorial on the 1-mile oval, was the last stop before Riverside. Brave Bobby Unser, a hard-luck chauffeur all season, set a record 122.053 mph qualifying lap, then blazed into the lead.

Behind him, Foyt was quickly eliminated in a crash with Jerry Grant, setting up his Riverside vendetta with Andretti. Andretti, meanwhile, started a late sprint toward the leading Unser.

Unser gave way to the pressure 20 laps from the finish. His clutch had started to slip and he could not hold Andretti. Nor could he hold off the Lola-Ford of his driving brother, Al, who also sped past him in the closing laps. Andretti won, and the stage was set for the Riverside finale.

In 1968 it will be another series of battles between the Fords and the turbo-charged Offys; possibly the Gurney-Weslake Fords, also. And Andy Granatelli has said he will fight in court, if necessary, to have his STP Turbocar reinstated. USAC, of course, cut down the turbine air intake size for '68, making the popular Granatelli car illegal in its present form.

A. J. Foyt says, "I don't know what I'll be doing next year." That is all he says. And with an overall total of 20,115.2 championship points he is the first driver in history to go over 20,000. The hardest of all were the handful he fought for at Riverside.

— Joe Scalzo

Since this issue of MOTOR TREND presents our Annual Awards in many areas of automotive endeavor, it is only fitting that we include commendation to overseas drivers and company racing efforts that have helped to make international motorsports more exciting. We tip our hats to the following:

KEITH DUCKWORTH

For a young man who has designed only one complete racing engine in his career, 34-year-old graduate engineer Keith Duckworth is remarkably successful. The engine of course is the wonderfully compact V-8 which powers the GP Lotus-Fords, and which most experts expect to sweep the Grand Prix World Championship in 1968. But the V-8 is not his first ringing success.

In the early 'Sixties he and engineer Harry Mundy (of Coventry-Climax fame) designed the dohc head which made a tiger of the five mainbearing, 1500cc, 4-cylinder English Ford block. This engine powered the Lotus 23, then was taken over by Ford in '63 for its very successful Ford Lotus Cortina. It also was adopted for the Lotus Elan and continues to power various versions of the Lotus 47.

In 1965 this success led Ford of Britain to try Duckworth on a pair of far more ambitious projects. One was the design of a dohc head and accessories to make a full-race engine of the 1500. Purpose: to race in the 1600cc Formula 2, which was to go into effect at the start of 1967. Result: absolute domination of this important international formula by Ford.

The other project of course was the 3-liter V-8 engine for Formula 1. It performed the almost unheard-of feat of winning, decisively, its very first race — the Dutch GP of 1967. And it was instantly and universally recognized as one of the great racing powerplants of all time. It began its competition life in midseason, with the handicap of having had zero development. In the season ahead it will be *ready*.

No man does anything by himself and Duckworth is indebted to many helping hands, including those of several Ford engineers and his partner, Mike Costin, with whom he operates Cosworth Engineering. At the same time, everyone gives full credit for the 4-cam V-8's authorship to Keith Duckworth, racing-engine designer of the year.

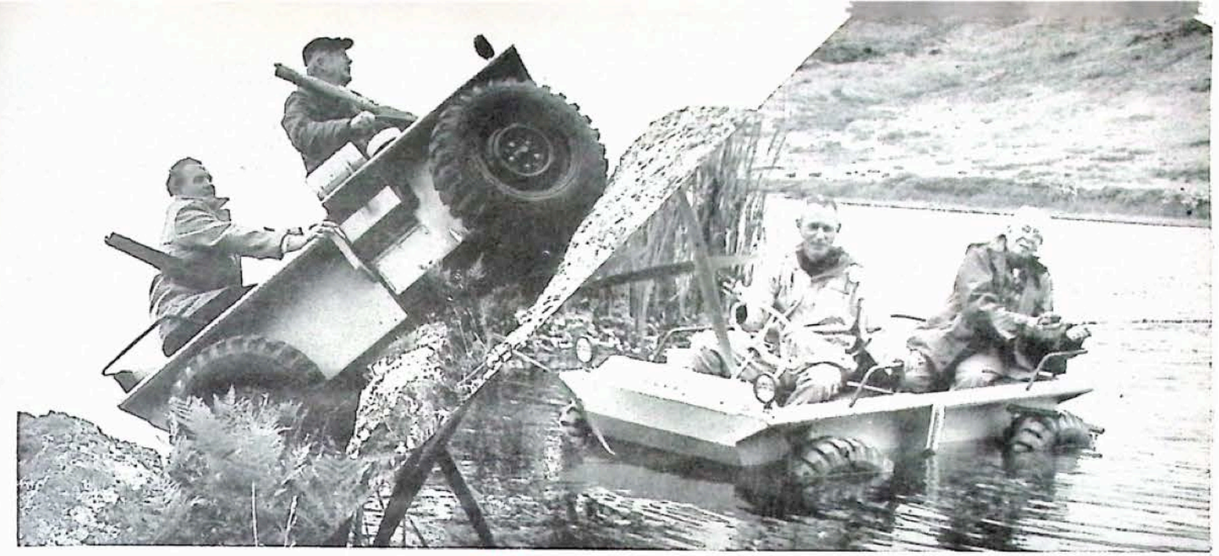
JACK BRABHAM

Denis Hulme won the 1967 World Championship of Drivers truly and well but it is his boss, crafty old Australian Jack Brabham, who gets our tribute as the most phenomenal figure in the history of the 3-liter formula to date.

Jack, born in 1926, won the world title in '59 and '60 and in recent years has been considered by many to be over the hill. In '65 he did not even drive in GP events. He turned his cars over to Gurney and Hulme, amid rumors that he was about to retire.

During that season, and in preparation for the next one, he designed and built his own new GP machines. There was a move afoot to limit engines for the new 3-liter formula to 12 cylinders, out of a widespread fear that, otherwise, 16s and even 24s would dominate the sport. They didn't, but still everyone built costly multi-cylinder engines . . . except Jack.

He says so little about his affairs that no one knows if he was activated by brains or necessity. It probably was a combination of both that motivated him, uniquely, to choose a simple space frame and cheap American V-8 stock block. Equipped with a pair of sohc heads it produced only about 300 bhp at a time when his competition was talking about having 400. But the



the COOT

by MICHAEL LAMM

Duck hunters know coots as inedible, tough little waterfowl who feel equally at home on land as in water. They scoot across muddy marshes with amazing agility, and they're very independent, hardy birds.

So is the mechanical Coot, a new go-anywhere vehicle invented and manufactured in Chico, Calif., by a 28-year-old sportsman named Buck Enos. The 4-wheel-drive Coot crawls over the roughest kind of country — it gets traction by keeping all four wheels on the ground at all times. But it doesn't do this in the usual way by means of a suspension system, because it doesn't have one. Rather, it uses a unique, frameless body made in two halves. Each half pivots around an articulated joint in the middle that hooks the front to the rear section. This pivot joint is hollow, threaded and packed with grease, and this keeps the Coot from shipping water while afloat. The driveshaft to the rear wheels passes through this joint like a straw through the hole in a donut.

Power comes from an aircooled 12-hp Tecumseh 1-lunger that nestles under the front seat. Next to the engine, attached by belt, is a centrifugal clutch and a 2-speed transmission. The gearbox drives both the front and rear wheels by worm gears and, as mentioned, there's no suspension, so the only U-joints are near the steering spindles. Brakes consist of a single disc on the rear driveshaft.

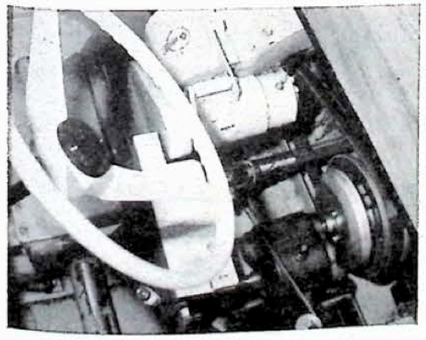
The Coot has a top land speed of about 20 mph. An optional water-drive prop can be attached at the rear without anyone getting out of the vehicle. This gives a water speed of about five knots. Even without the prop, the Coot parts the waves with its road wheels at about 1 mph.

Besides the easy-on prop, another clever piece of optional equipment is a set of traction cleats that attach to the big 8.85 x 15 tires with chains that snap-lock into the wheel rims. This again means you can attach them without getting out of the Coot. On dry land, the sawed-off vehicle can scrabble up a 75% grade without the slightest complaint.

The Coot comfortably holds four passengers. Its 16-gauge steel box construction and general huskiness can haul all the cargo it'll hold, weight making the difference. *In water*, the load limit is 600 pounds.

At base price of $1395 (with 45 authorized dealers now operating throughout the West and a projected invasion of the East soon), the manufacturer figures you can buy a Coot *plus* a half-ton pickup truck for about the same price as America's best-loved-4-wheel-drive vehicle.

Coots are now coming off Chico assembly lines at the rate of 100 per month. Factory capacity will soon be increased to 300 a month. This clever little vehicle should appeal especially to sportsmen, forestry and conservation people, farmers, and anyone else who wants to get off into wilderness.



Domesticated, the Coot becomes a tractable, yet much more useful member of modern society where leisure time must be used well.

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glamour cars carried huge weight penalties, while Jack's were very close to the minimum limit. They also were simple and reliable and they worked sufficiently well for "The Old Man" to drive them himself straight into the 1966 World Championship.

"What luck!" many critics said, and everyone expected the glamour cars to come into their own during the second season of the formula. Yet with the same basic machines he and Hulme remained top contenders throughout the season. Right up to the last of the 11 GPs Jack had the Championship in his grasp once more. When he did lose it at Mexico City he still finished 2nd in that race *and* in Championship points. And Hulme, who beat him, did so in one of his cars. For the second year running Jack Brabham out-thought everybody in the sport.

JACKY ICKX

Twenty-two-year-old Jacky Ickx (pronounced "eeks") was the GP racing discovery of 1967 and is the young driver most to be watched during the season ahead.

Jacky started out brilliantly in F2 and in May was given a ride in a Mirage Ford sports prototype. The race was the terribly fast and long Spa 1000 Km., one of the great international endurance events. With co-driver Johnothan Thompson, he won, against many of the world's finest drivers and in pouring rain. It was his first victory in the really big time.

The next landmark was the Grand Prix of Holland for F2, in which he drove one of the previous season's Matras for Tyrell. This time he not only won but did the seemingly impossible by breaking the absolute lap record which had been set just a few weeks before by Jim Clark in the formidable new Formula 1 Lotus-Ford.

Then in August Ickx took part in the German GP; on the very long Nürburgring circuit, F2 machines were allowed to run with the big F1s. In practice Jacky was the second fastest in the *entire* howling field! In the race itself he naturally started back, with the rest of the F2s, but hacked his way up among the F1 cars with amazing speed. He soon reached 4th place overall, which he held until his suspension failed just three laps from the finish. The experts again could not believe what they saw.

In October Jacky was back at the wheel of the Mirage, this time sharing it with Paul Hawkins, in the Paris 1000 Km. at Montlhéry, the final big endurance race of the season. Again the big car hurtled through pouring rain to victory.

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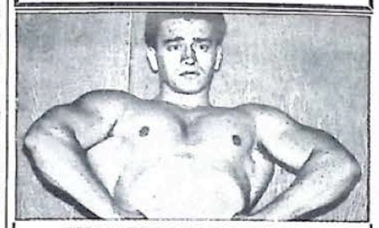

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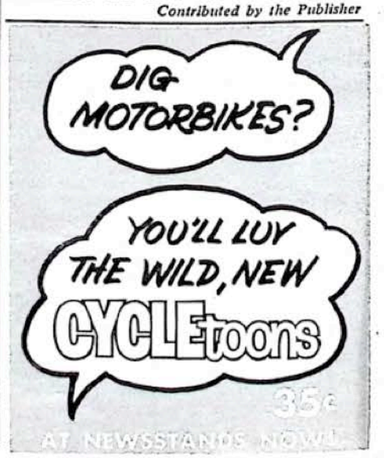


Ferrari wants Ickx and so do many other owners of F1 and prototype machines. But the young veteran of six years of intensive racing is not yet telling his plans for the seventh.

GOODYEAR INTERNATIONAL

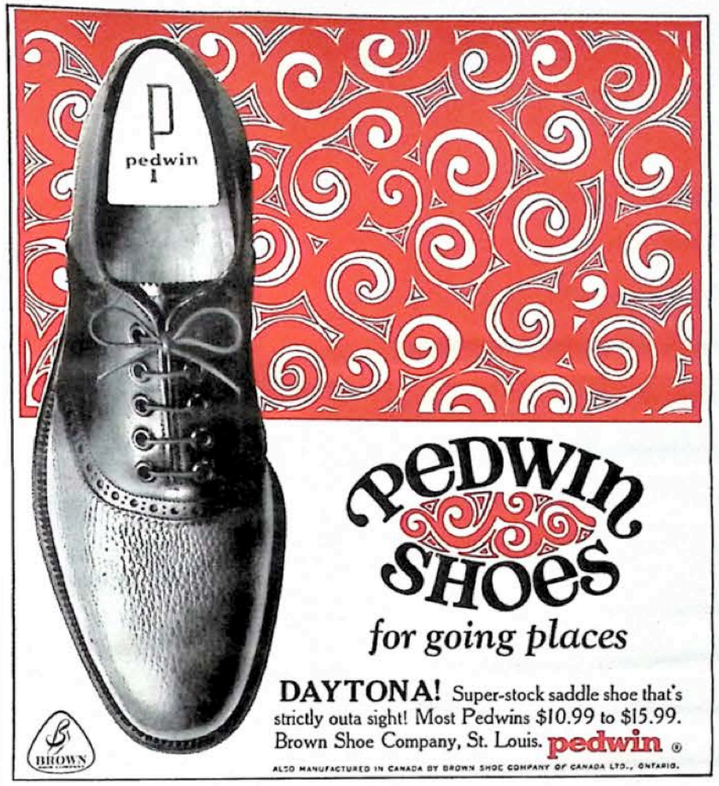
Never in the long history of the sport had American tires won the prestige-laden 24 Hours of Le Mans. Then, in 1965, Goodyear won there, and then again in '66 and again in '67.

Down through history American tires had been almost unheard of in the ultimate Big Time of World Championship Grand Prix racing. Then, in 1966, Goodyear shod the Champion of the year. It repeated the feat in '67. These were much more than victories; they were glorious triumphs.

It was only in 1964 that Goodyear of Akron decided to tackle Grand Prix racing — a supremely specialized field in which it was a total stranger. Rather than try to compete in Europe from its Stateside base, the company opted to establish its own overseas racing tire operation in England. It sent two key men to try to master-mind this utterly daring and unprecedented project.

One was top Akron engineer Walt de Vinney — young, warm, dynamic, brilliantly inventive, and one of the two men most responsible for his firm's whole gamut of racing successes up to that point. He was transferred to England for as long as the job would take. His chief aide on this project was young Floridian, Fred Gamble. He had come up through American sports-car racing ranks, then campaigned Europe with the Camoradi team, then joined Shelby in the early stages of the Cobra effort. He was a brilliant administrator who knew racing on both sides of the Atlantic, and Goodyear plucked him from Shelby. This tiny basic team was the core of Goodyear International Corporation's Racing Tire Division. It was fleshed out with excellent engineering and technical talent from the company's big plant in Wolverhampton, England. Scribe Bernard Cahier took care of European public relations.

There were two other personalities who played absolutely decisive roles in the amazing success story that was to come. One was Gamble's friend and racing buddy, Dan Gurney. He supplied advice from the beginning and urged the hiring of "the world's finest test driver," Jack Braham, whom most experts considered to be a has-been. Brabham gave fantastically good advice. He also won the 1966 World Championship, permitting de Vinney to go home, his mission accomplished almost miraculously. In '67 Brabham provided the car and much of the brains which made possible Hulme's victory and Goodyear's second championship in a row. /MT



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Dark Query. This may seem like a simple question, but I've wondered for a long time just what makes oil turn dark after a few hundred miles? Is it heat, dirt or what?

S.N., St. Louis, Mo.

Oil darkening is caused by the suspension of solids, made up of fuel soot and resins from unburned fuel. When allowed to accumulate, these solids will cause engine trouble. An oil with excellent dispersant action, such as Pennzoil Z-7, holds these solids harmlessly in suspension until they can be drained at normal oil change periods.

Ring Wrong? I just have one question, but it's an important one as far as I'm concerned! Since I'm burning a quart of oil every 300 miles or so, does this mean I have a cracked ring?

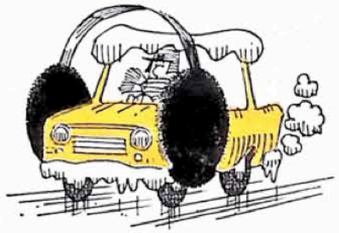
T.W., Glendale, Calif.

Not necessarily. If your car has 50,000 miles or more on it, ring wear could account for the oil burning. On the other hand, if the mileage is low, your trouble could be due to excessive valve guide clearance, a broken ring or (in the case of a double acting fuel pump) a cracked diaphragm. The latter problem allows oil to be drawn into the intake manifold.

Oil Aboard. Here's something I've been wondering about for a long time: how can Pennzoil be made from 100% Pennsylvania crude oil when you have plants in the west?

P.R.S., Lusk, Wyo.

Rest assured that all Pennzoil motor oil is made from 100% Pennsylvania oil. The refined base oils are shipped by large rail tank cars from our refinery in Pennsylvania to a storage facility on the east coast. From there, the oil is loaded aboard tankers and transported through the Panama Canal, to the west coast for final processing and canning.



Brrrr! Does Pennzoil make a 5W-20 motor oil? I feel this is the weight I should use in winter here in the north central part of Minnesota. (The last two winters it got down to –40.)

G.F.J., Garrison, Minn.

We certainly do make a 5W-20 oil. It should be available at your local distributor or dealer.

Breaking In. I'd like to get some information on breaking in my new car. Some of my friends tell me I should take it easy for the first several thousand miles. Others say I should break it in as I plan to run it later on. What do *you* say?

J.B.C., FPO San Francisco, Calif.

We say a new car engine should not be driven at constant speeds (either fast or slow) for the first thousand miles. Changing speeds, within reason, is the best way to break in an engine. Keeping speeds below 60 MPH for the first 300 miles is advisable, but it's not necessary to drive the car easy for the first several thousand miles... in fact, it may do more harm than good.

Some Like It Hot. Before draining the oil, I make sure that the car is thoroughly warmed up. I cover the radiator with a piece of cardboard, then start the engine and let it idle until the temperature gauge reads "hot"... then I drain. Recently, however, I was told that this is not really necessary—and it may be harmful to the engine. What is your opinion?

R.A.C., Alexandria, Va.

Our opinion is that you're doing exactly the right thing. When the oil is warm or hot, it is completely agitated and all solids are removed when drained. In addition, since oil tends to become thin when hot, a maximum amount of the dirty oil will be removed. A word of caution: don't overheat the engine... just make sure it's warm enough.

Unlisted. There was an article in a recent magazine entitled "Oil For Your Car." I've always been a faithful user of Pennzoil, but I was very disappointed not to see your oil on the list of those which exceed car manufacturers' specifications. I'd like to hear your side of the story.

Dr. D. B. E., Buena Park, Calif.

You can rest assured that Pennzoil Z-7, both straight-graded and multi-weight, exceeds all car manufacturers' specifications. (These include the current Ford M2C101B and the tentative General Motors GM6041 specifications.) It is unfortunate that this information was not received by the magazine for publication. Ever since oil specifications were written by car manufacturers, Pennzoil has exceeded them in every respect. This holds true today—and will continue to be so in the future.

WE'RE OPEN TO QUESTIONS about motor oils, lubricants, engines. But, you can tell *us* a few things, too. Maybe you have discovered something interesting about motor oils or lubricants. Or you have a special reason for being a Pennzoil fan. We would like to hear from you. Write to: Pennzoil Company, Research Department, P. O. Box 808, Oil City, Pennsylvania 16301. Note: sorry no pictures or material can be returned. Letters chosen for publication are subject to revision necessary for publication requirements.

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SELL & SWAP

REQUIREMENTS: Copy limit is 25 words (not including name and address). We reserve the right to edit; we are not responsible for accuracy of descriptions, but will reject any misleading statements. Only one CAR may be listed, but this limitation does not apply to parts, catalogs, etc. The charge is $7.50 per insertion, paid in advance. NOT open to commercial advertisers. We will publish photos of unusual cars at our option, but none are returned.

SELL

'38 CADILLAC Conv. Cpe. V-16. Fleetwood Silverknights body. Stored since 1941. 14,000 orig. mi., xlnt. cond. thruout. $11,500. Color photos $1. Sheldon J. Lewis, 154-62 71st Ave., Flushing, N.Y. 11367.

PRE-WAR AUTO sales catalogs, owners and shop manuals, MoToR Annual Show Issues, ATJ magazine ads. All cars 1920 to '42. Thousands of items. Introductory listing 25c. Sheldon J. Lewis, 154-62 71st Ave., Flushing, N.Y. 11367.

"SHUT-UP-Who the hell is driving this car?" This beautiful 2 x 3 red and gold brass plate will self-affix to glove compartment of any car. $2 ea., 3 for $5. Sheldon J. Lewis, 154-62 71st Ave., Flushing, N.Y. 11367.

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'37 PACKARD 120 Touring sed. Real road runner, r & h, luggage rack. Good one to restore. $475 or offer. Kenneth Hill, 176 No. Pearl St., Albany, N.Y. 12207.

'57 T-BIRD. Red with white hdtp. Black interior. Recently restored to xlnt stock cond. 312-cu.-in. eng. Ford-O-Matic trans. $2600. Bernard R. Graham, Main St., No. Grosvenordale, Conn. 06255. Phone (203) 923-9998.

'33 OLDS Spt. sed. Twin sidemounts, luggage rack. Nice running, solid, easy to restore. $375 or offer. Free parts car. Kenneth Hill, 176 No. Pearl St., Albany, N.Y. 12207.

'58 CHEVROLET Impala 2-dr. hdtp. Immac. cond., perf. running. R & h, power brakes and steering. Many chrome parts and extras. Auto trans. Make offer. Donald L. Heflin, 1805 Commercial Way, Sacramento, Calif. 95813.

'38 BUICK Special 4-dr. 2000 mi. on rebuilt eng. Rebuilt generator, carb. trans. distributor. Five new tires, clutch, shocks, brakes, carpets and seat covers. Immac. Stored San Diego. $800 or trade for car or motorcycle. T. L. Palmer, Jr., 1700 Va. St., E., Charleston, W. Va. 25311.

COMPUTER ANALYSIS Antique Auto Ads. Over 10,000 recent advertisements processed to sequentially list make, model, year, cond. and prices. Includes owner locating research service. $4. S. M. Pask, 12-37 Bateman Cres., Saskatoon, Sask., Canada.

SPORTS CAR DRIVERS. 25c for a very funny greeting card for your sports car friends. Postpaid. Jerry Moore, Box 10574 Riviera Beach, Fla. 33404.

VOLKSWAGEN OWNERS: World-wide VW owners assoc. Get more enjoyment, save money, hints, tips, service bulletins, technical help, newsletters. Satisfaction guaranteed. $6. Join Volkswagen International Association, P.O. Box 261, Claymount, Del. 19703.

'50 CHRYSLER New Yorker Conv. Cpe. Body perf., brown with white top. No rust, xlnt. running cond. 42,000 mi. $775. Mrs. Theodore Green, R.D. #1, Route 12, Waterville, N.Y. 13480.

TUCKER AUTO factory folders, test by Tom McCahill, history of the car, sales sheets, newspaper ads, etc. Package mailed anywhere for only $1. Jerry Moore, Box 10574, Riviera Beach, Fla. 33404.

'55 THUNDERBIRD Owner's Manual $3.95, '55 T-bird sales folder, $1.50, '57 T-bird owner's manual, $3.95, '57 T-bird sales folder, $1.50. All new, all postpaid. W. Peterson, 6809 39th Ave. No., Minneapolis, Minn. 55427.

AMERICAN AUTO and truck sales literature, brochures and catalogs. Most makes 1954-'64. Reasonably priced. Send 10c for complete listing. Frank E. Peiler, 2024 West Algonquin Rd., Mount Prospect, Ill. 60056.

'38 JENSEN double-cowl Phaeton. Beautifully restored, rt.-hand drive, complete accessories. Rakish alumin. body, Ford V-8 powered. $6000. Drive anywhere. Raymond Wolff, 8114 Warren Ave., Wauwatosa, Wisc. 53213.

'67 MERCEDES 230-SL Rdstr, Cpe. AM-FM radio, full power, auto. trans., air cond. 18 months. warranty. $6395. Thomas White, Box 1050, Jacksonville, Fla. 32211.

'67 LAMBORGHINI 400-GT 2+2 cpe. Blaupunkt radio, silver, blk leather. 8000 mi. Immac. American seller. $7950, includ. frt. & ins. any U.S. oceanport. Photos $1. Lavaser, Via Batt., Sassi 12, Milan, Italy.

'38 MERCEDES BENZ 220-B 5-pass., 2-dr. conv. Near mint orig. cond. 38,000 orig. mi. Blk., tan leather, twinmounts. Listed as classic. Located NW Pa. $2400. Dr. John H. Timmis, 10 Joneswood Dr., Athens, Ohio.

CONTINENTAL Mark II. Actually owned and driven by a little old lady for 11 yrs. Always pampered and carefully maintained. Air and power. $2895. Tom M. Nash, M.D., 6011 Harry Hines Blvd., Dallas, Tex. 75235.

'57 CADILLAC Eldorado Brougham. Blk. with white leather inter. Stainless steel top, pneumatic suspension, 2 4-bbl. carbs. Orig. cost $14,000. Spare diaphragms & compressor. 35,000 mi., $3500. V. W. Sills, 875 Fairway Dr., Miami Beach, Fla. 33141.

SELL OR SWAP

MESSERSCHMITT AUTO wanted. Will trade subdivision lots in semi-tropic Rio Grande Valley of Texas at $695 ea. Grey Pierson, 307 Hillcrest, Eastland, Tex. 76448.

WANTED

PRE-WAR AUTO sales catalogs, owners, shop manuals, Boyce auto nameplate motometers, radiator mascots, MoToR Annual Show Issues, defunct auto stock certificates. Top prices paid. Sheldon J. Lewis, 154-62 71st Ave., Flushing, N.Y. 11367.

ANTIQUE and CLASSIC Autos. Large size conv. preferred. Will pay for information leading to purchase of cars. Also want other antique items. Samuel Sherman, 88-08 32nd Ave., E. Elmhurst, N.Y. 11369.

MOTOR TREND GOES TO THE MOVIES

Only the pungent smells are missing; yet at times you can almost taste the alki and nitro fumes and burning rubber. To be sure, the nerve grabbing, pluse popping sights and sounds—even the *feel* of racing are all there in the Robert E. Petersen production, "Hot Rod Action."

If racing is your bag, this is what's happening baby. Cars, cars and more cars spill out of the screen, filling the theater with sounds you wouldn't believe. Funny cars, rails, stockers, Indy, Grand Prix Formula 1, show cars, restored cars, custom cars... they're all there for an hour and a half in fantastic color, running at one speed: wide open.

Action is the name of the game with spectacular scenes from the national drag meets, the "Indy 500," the major stock car events, and the Monaco Grand Prix, with a behind-the-camera look at the filming of another famous flick, "Grand Prix." They've even tossed in some wild boat drags for good measure to be sure there was something for everybody.

There isn't much plot, but the action, color, excitement, music, and most of all the sounds—from the deep, gutty roar of an AA fueler to the high pitched whine of a Formula 1 V-12—make up for that slight oversight. "Hot Rod Action" will make it to theaters and drive-ins near everybody. Don't miss it.

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INFLATION HITS DRIVING COSTS. According to a recent study made by the Bureau of Public Roads, Federal Highway Administration, the cost of owning and operating a car averages out to 11.02¢ per mile. Analysis of the cost was based on a 4-door sedan costing $2800 and driven 100,000 miles over a 10-year period. Actual operating costs amounted to 9.83¢ per mile, with an additional 1.19¢ per mile for taxes and fees, bringing the total bite to 11.02¢. *Workers of the world who are still only getting 8¢ a mile from your employers . . . arise! The cost of driving is going up, strike for a cost of driving increase before we are all drowned by inflation. The Editors.*

WHERE DID THEY PUT THE ENGINE? "Have you looked under the hood of a new car lately? I did and it scared me. I have never seen so many belts, wires and hoses under a hood in my life. I could hardly see the engine. Manufacturers have been able to make headlights, windshield wipers and even radio antennas disappear. Now, why don't they make that mess under the hood disappear? Have you ever stopped to think how much hp an engine uses just to run a car with all the accessories. Just picture a car with the following power equipment: steering, brakes, seats, windows, air conditioning and a stereo tape system. Now add to this a belt-driven pump for the smog device. Put all this on an engine and you have a car that will do everything but pass gas stations. I'm not really against all these accessories, I'm just against the cluttered mess under the hood. Tell me, isn't there some way this clutter could be simplified? Some day soon we will have to pull the engine just to change the spark plugs."
Royce Giffin Clifton, Ill.

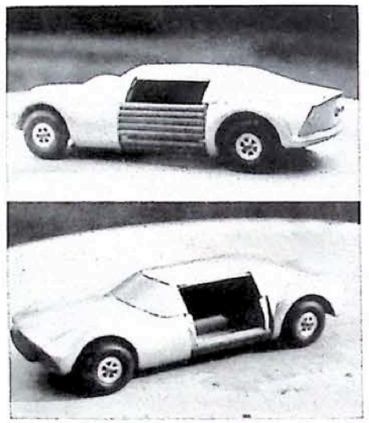
Go get 'em, baby . . . we're with you Royce. We felt exactly the same way when we looked under the hoods of some of the 1968 Models. To a real car devotee, that tangle of hoses and belts is a sorry sight. On the other hand, we all keep demanding more creature comforts such as power brakes, steering and air conditioning. But, the more technical advances we make with mechanical objects, the more complicated they become (Parkinson's law #XIV). It would be nice to open a hood and see a simple Model A 4-banger, but you wouldn't do much on a freeway. Still, we can hope. Keep talking and maybe someone up there in big 'D' will hear us someday. The Editors.

THE AIR ELECTRIC CAR? "I have designed a car that runs entirely on compressed air. I call it the "Thrifty" Model T of 1980. It gets no mpg. This car was designed in Huntington, W. Va., in the 1920s and had been kept in secret until the electric car was introduced. The air electric runs almost entirely on compressed air. The battery is used only for lights and the starting pump if the car is not driven for a month or longer. The car produces its own air in the main tanks for continuous driving. Valves are practically leak proof and the power is almost unlimited. The motor, a 2-cylinder, rear-mounted direct drive has almost no parts. Safety is controlled by three safety valves, and three gauges on the dash show air pressure. Three red lights and a buzzer on the dash indicate any increase in regular tank pressure. Upkeep is low, as wheel pumps can be changed as easily as spark plugs in a regular engine. The Air Electric can be built for under $500 and retail for $995 f.o.b. the manufacturing point."
Bill Truitt McKees Rocks, Pa.

Huh? The Editors.

EASY OUT: "Here are two shots of one of my late models showing a roll down door and a window on a true radius that slides up under the roof, an old idea I ran in national magazines in 1948. The door would consist of hinged steel tubes, water tight, cheaper and with greater impact protection, as well as nothing to swing out into traffic or into a close parking space."
Ray Russell, I.D. Coral Gables,Fla.

See photos below. The Editors.



(Top) Unique door operation on Russell car features a true radius window that slides up and under roof when open. (Above) Roll-down door uses water tight, hinged steel tubes. Safety is big factor with this construction.

JAVELIN OWNERS CLUB "A program to establish a nationwide network of Javelin Car Clubs has been announced jointly by American Motors Corp. and the National Hot Rod Assoc. (NHRA). Local car clubs, sponsored on a voluntary basis by American Motors-Rambler dealers, will have direct affiliation with the NHRA Charter Club Program, with administration sponsored by AM. Membership will be open to all car enthusiasts and will not be restricted to those who own a Javelin or other American Motors' cars. Local NHRA officials will act as club advisors. Facilities for meetings will be provided by the sponsoring dealer. Club members will receive special informational mailings, and club news coverage will be made in NHRA's weekly publication, "National Dragster." Javelin Car Club emblems will be provided to members."
American Motors

See your local Rambler dealer for more information. The Editors.

PARTY LINE ". . . Your column "Inside Detroit" had an article, "Dial One For Accidents" (Oct., 1967). This article stated that many accident victims die in transit or after hospitalization. As another possible means of quicker communications, wouldn't it be possible to equip autos with phones? Passing cars could get help quickly . . ."
Gary Nellermoe Fargo, N. D.

Most large cities in the world now have telephone exchange facilities for cars equipped with phones. In fact many car phones are in use already. Drive down the Hollywood Freeway any afternoon; you'll see numerous, expensive phone booths on wheels. Also, a car phone is an often-used gimmick in TV and films. (See some old "77 Sunset Strip" episodes on TV or the recent film "Blowup"). The Editors.

TRANSMISSION TROUBLES: "Who manufactures ZF transmissions, and where can information concerning them be obtained?"
Steven Thompson S. Charleston, W. Va.

They are manufactured by Zahnradfabrik Friedrichshafen, Friedrichhafen, West Germany. Information can be obtained at that address or from Hoffman Motors, 50 Louis St., Hackensack, N.J., telephone (201) 489-8081. The Editors.

HOLD THAT SNEEZE: "Sneeze when you are driving at 70 mph and you will cover 330 yards dazed and semi-blind. Sneeze three times in a 15 mph rush-hour traffic crawl and you will be in the same state for 220 yards. In a special medical analysis of a driver's sneeze, the Automobile Association of Britain reports that each sneeze involves about 15 seconds of grimacing and snorting. There are two seconds of complete distraction from the road and everything else on which a driver should be concentrating. And three seconds of head-shaking and eye wiping. Can a sneeze be stopped? Yes. A.A. says that a finger pressed hard against the upper lip, or a harsh slap to the thigh can stop any atishoo."
British Motor Corp. of Canada Ltd.

Ruddy good news for hay fever sufferers. The Editors.

SEQUENTIAL TURN SIGNALS: "Units are available, commercially, to install on autos to produce a sequential directional signal effect as on late model Thunderbirds and Cougars. I am writing to ask you whether there has been, to your knowledge, an article printed on this subject which would show the schematic diagram and component parts to build such a unit."
Charles Nolan N. Miami Beach, Fla.

Check with Tibbetts Electronics, Emporium, Pa. 15834, or G. T. Equipment Co., 1635 W. Gaylord St., Long Beach, Calif. 90813. The Editors.

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