

Annual Awards Issue

MOTOR TREND

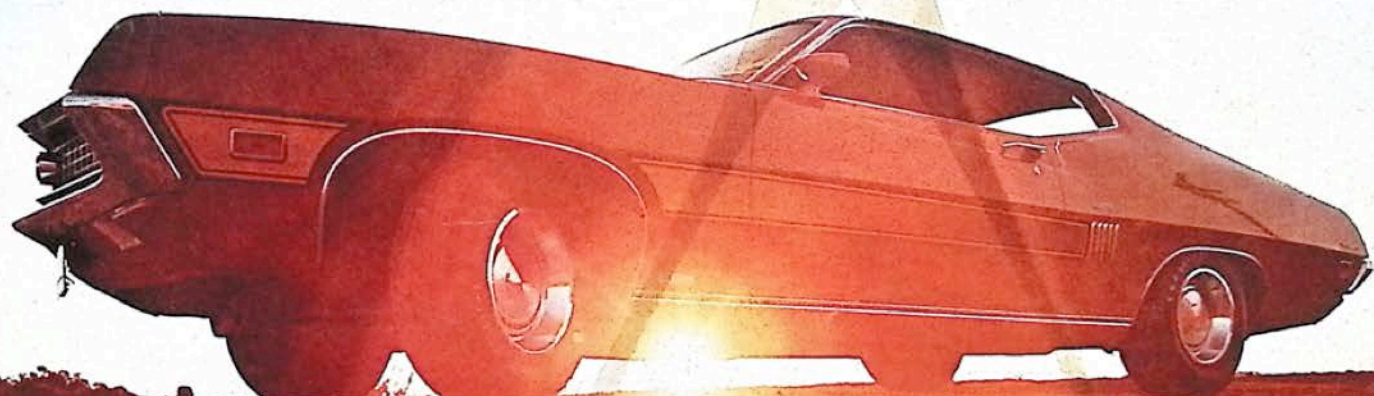
Propane Gas for High-performance
70½ Pontiac Firebird Road Test
NASCAR in the Heart of Texas
New 350 Olds Beats Insurance Rap
Peugeot 504: Filet of French Soul

UK 4/3 Sweden KR. 3.95 Inkl. moms

50c FEBRUARY 1970



CAR of the YEAR



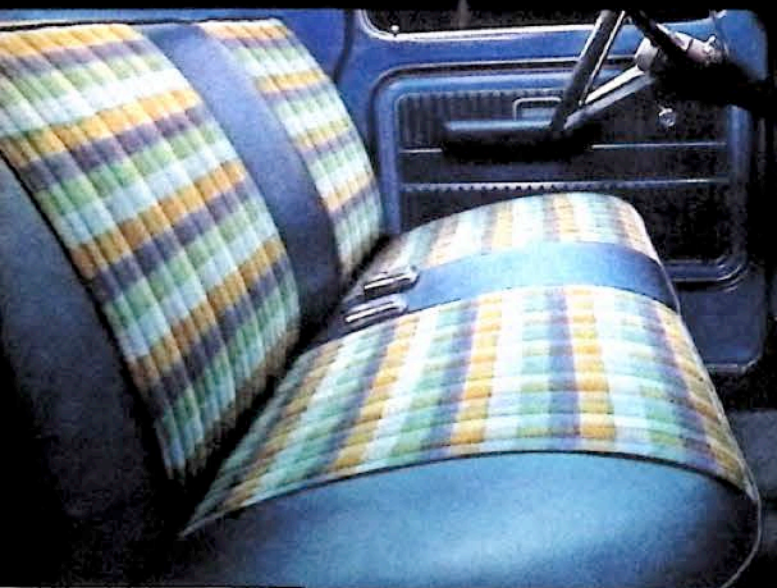
Four-Car Comparison Test • How To Order: Performance, Luxury, Economy, Options, Accessories



**Better ideas make Ford pickups
work like a truck
ride like a car.**

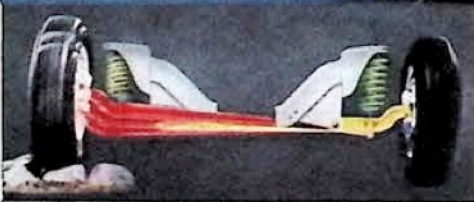


**Special Value
Explorer Special model
now on sale!**



Ford's limited production "Explorer Special" pickup shown here is distinguished by a number of special features. Special colors with special harmonizing Shetland Plaid interiors, bright western mirrors, box rails or tool storage box, are just a few. But there's something special about all Ford pickups because of their better ideas. Ideas like Twin-I-Beam independent front suspension that delivers a car-smooth ride. Or Flex-O-Matic rear suspension that keeps the ride smooth, with or without a load. Or a cab that's the roomiest and quietest on the road. And to customize your comfort you can add power steering, power front disc brakes, sliding rear cab window, air conditioning, Cruise-O-Matic transmission, and a choice of five Six and V-8 engines up to 390 cu. in. See Ford's great line of pickups. Value check the Explorer Special, now on sale for a limited time only. See, too, how better ideas make every Ford pickup something special.

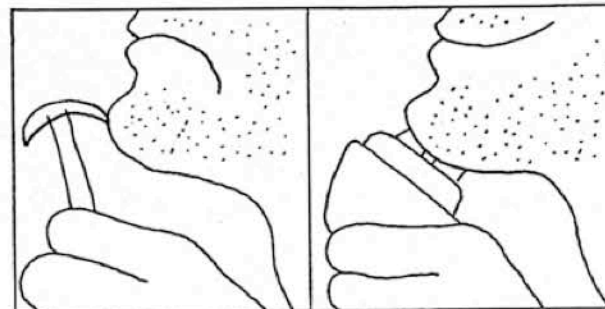
Twin-I-Beam front suspension—Ford's better idea for smooth riding. Two forged steel I-beam front axles work independently to step over bumps; big coil springs cushion the ride. Result: pickups that work like trucks, ride like cars.



**FORD
PICKUPS**



**A blade can give you a great
shave on the easy parts of your face.
Norelco made a shaver to
shave the hard parts.**



The easiest place to get a close shave is on your cheeks. Because your cheeks are almost flat, like a razor blade.

But when you get to your chin and your neck and your upper lip, it gets harder.

We designed the Norelco Tripleheader Shaver for the hard parts of your face.

The Tripleheader has 18 self-sharpening rotary blades, inside of 3 Microgroove™ shaving heads.

The heads actually float, to follow your face.

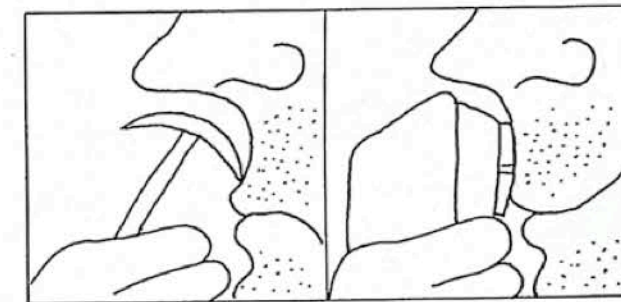
They go in where your face curves in, and out where your face curves out.

And because the blades are rotary, they shave your beard in every direction at once. (If you don't think that means anything, feel your face. Feel how your beard grows in different directions on different parts of your face?)

The Norelco Tripleheader was tested in an independent laboratory on some very independent men, and it shaved them as close or closer than a stainless steel blade in 2 out of 3 shaves.

The Norelco Tripleheader also has a pop-up trimmer, so you can see exactly what you're trimming.

It comes in two models. The Cord Model Tripleheader (with easy flip-top cleaning). And the Rechargeable Tripleheader (the shaver that gives you nearly twice as many shaves per charge as any other rechargeable).



If you're shaving with a blade, feel around your chin and neck and upper lip.

If it feels like you could use a closer shave, get yourself a Norelco Tripleheader Shaver.

And shave your whole face for a change.



Norelco®
you can't get any closer

©1970 North American Philips Corporation, 100 East 42nd Street, New York, N.Y. 10017. Norelco consumer products include: Men's and Women's Electric Shavers, Rembrandt Square Lotions, Instant Hair Setters, Mini-Saunas, Sun & Heat Lamps, Hair Dryers, Massagers, Hearing Aids, Tape Recorders, Cassettes, Radios, Hi-Fidelity Components, Electronic Educational Kits.

Champion driver
RICHARD PETTY says,
"Any car will handle loads better
and safer with Air Lift Air Springs.
I use them on my LTD Station
Wagon."



Stiffer shock absorbers won't stabilize your car's springs, and suspension *begins* in the springs. That's where Air Lift Air Springs go to work. They're tough, butyl bags that mount inside the rear coil springs. Spring stiffness is adjusted, in minutes, simply by adding air to or bleeding air out through an air hose fitting. They are individually adjusted to allow you to level out your car for better, safer handling.

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MOTOR TREND

The Complete Automotive Magazine



FEBRUARY 1970, Vol. 22, No. 2

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COVER It wasn't easy, but after a long, involved, and highly successful process of elimination, we've come up with the 1970 Car of the Year and if you're still not sure what it is, check page 30. After we picked it, we gave it to our photographer, Fred Enke, who shot this month's cover.

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BMW comes from a tough neighborhood.

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To drive them at all takes guts.
To drive them at high speed takes something more.
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A suspension that doesn't get rattled by rough roads. Or thrown by unbanked Alpine turns.
Flawless steering.
And unflinching brakes that won't

lose control even on wet pavement.
The cars that can do all this are built in the neighborhood at the Bavarian Motor Works.
Slowly. With painstaking care.
And it shows.
In the Alps. On the Autobahn where they cruise all day at 130 mph. And on the highways of America where they out-perform most of the two-seaters on the road.

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You'll see why Car and Driver calls BMW the most spectacular bargain in the whole spectrum of imported cars.
And even where we come from, that's saying something.

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Bavarian Motor Works



"It's all right," I said. "We'll chase 'em down in a few miles." Here our Managing Editor, sometimes photographer, John Lamm, is hanging out the window of our 200 automatic Maverick at about sixty, trying to get off a couple more shots of the 454 Monte Carlo with which A.B. Shuman



is going to reestablish American top end preeminence. Affecting the casual aplomb of Erik Carlsson, I reassure him that we'll soon get back into range.

Flat out, the Maverick will do 99 mph indicated. Which is a surprise. And it doesn't fly off the road, either. Which is surprise number two, because out in the good old California desert, they just sort of lay the asphalt over the existing terrain, so its mostly like one big, long, black-oiled roller-coaster. Not only that, but we're starting to wind ourselves up into the mountains and the curves are getting sharper by the number. Womph! Up ahead we see this little cloud of dust where the road turns and then — Womph! — a bigger cloud at the next sharper bend and the next until the impossible happens; a Maverick has run down a Monte Carlo. Another chapter on American understeer written in the great western desert.

In our own, small way, what we attempted to do was the same thing all the manufacturers do — use the machines in the general manner for which they were intended and see where they fail. Of course, whatever reactions we got were completely individual and unblemished by job security worries, a situation we fear is disappointingly infrequent at the factory. Else, why should all the cars except the Continental and Hornet have insufficient seat travel compounded by negligible rear seat room? All the automotive engineers in this country can't be 5 feet 2.

If any one thing stood out about the Car of the Year Rally, it was the youthful enthusiasm with which the CARS (Confederation of Automotive Research Specialists) approached their job. The reactions of the staff were pretty much a foregone conclusion; they wouldn't be around here if they didn't like cars in the first place. But, with the others it was different. When you deal with a Sam Hanks or a Wally Parks or a Bob Thomas or a Mike Jones or a Roy Richter, these are busy men whose lives are in the swirl and toss of the mainstream of the automotive culture. Expecting them to not be pre-occupied is naive, and yet, somehow, they approached our nominees with a refreshing single-mindedness of purpose.

It got to be a matter of time to see who could check his car over more thoroughly. And this didn't mean ash-tray travel or tread design on the brake pedal. People lifted those hoods to see if you actually could get your hand between the engine and fender-panel to change the spark plugs. They looked into the trunks and noted the space and the position of the spare and if you had to be Steve Reeves to get stuff over the sill. Maybe it doesn't mean anything to actually try a back seat and hook up the seat belts and the shoulder harnesses. But then you'd never know that the belt/harness in most cars is pretty grim and Ford's retractable three-point arrangement is the only one that made sense, and some people had trouble with that the first time.

Experience is the vehicle of discovery — about ourselves and relating to this whole automobile biz. At the finish of this year's Car of the Year program we had a certain amount of justifiable pride in the way the whole affair came off. Next year, the ride and drive will be longer, the CARS panel and staff will have more time with individual cars, and the testing schedule will be more comprehensive. We are even toying with the idea of having representatives of the various nominated manufacturers go along as observers and sample competitors' products in the process.

The automobile industry accounts for about twenty-percent of this country's economy and they are compensated for it. But there's more to this life than pure monetary gratification. After you build nine or so million passenger vehicles, enduring all the headaches that go with them, there is a certain pleasure in knowing that yours has been selected as the single best automobile to be offered that year. The Car of the Year calipers don't look like the Oscar, but they're accepted with the same sort of speech halting-pride that you hear on Academy night.

Eric Hallquist

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it's your nickel

30-Day Improvement Plan

I have a few suggestions on how you might improve your magazine. First, recall November issues; replace pages 40-42 with back cover, another Budweiser ad. Second, replace Bill Sanders with Dodge PR man. Then, discontinue publishing *Motor Trend*, replace with such equally important items as: underground newspapers, garden seed packages, "Up with Rebel Machine" stickers. Nobody will know the difference.

Dave Carter
Meriden, Connecticut

Carter, can we assume you don't like Dodge products, or do you talk this way to everyone? — Ed.

Who's Got It?

While reading over your November issue, I noted a flaw in your article about Paul Hudgin's beautiful T-birds. The first 'Bird sold wasn't sold to



George Watts of Santa Ana. It was sold to Tom McCahill of *Mechanics Illustrated*. McCahill took delivery at the factory.

Bob Wilkie
Placentia, Calif.

Who Built the First Torino?

Ford did not build the first Torino! American Motors did. It was a limited edition Argentine Rambler. Introduced in December, 1966, by I.K.A. Renault, which began building Ramblers for the Argentine market in 1961, it was designed by Pininfarina. This original Torino sported racing-type seats and controls and a walnut-inlaid instrument panel. Approximately 15,000 were built in the 1967-69 period.

Rick Garvia
Rochester, New York

Burned Up

Today I went to the store to buy your mag. As usual I didn't look in it because I trusted you. You really know how to hurt a guy. I took it home and looked through it. Am I sorry I turned to page 58. I took out the page and burned it (enclosed is page 58, I don't want, you can keep it).

Why? Because what was on top of the

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list of nominees but Maverick. Maverick is a combination of Mustang and Falcon and as the saying goes, "two bads don't make a good."

Andy Cozzi
Rahway, N.J.

And our editor trusted you, Andy, when he opened the letter and now he has *Motor Trend* page 58 ashes all over his white linen pants. — Ed.

Keep Off the Sand

Regarding "A Date With Three Stripers," Dec. 1969:

You guys usually have good road tests, etc., but when you compare three cars such as the Chevelle, Torino, and Road Runner, you should do so under comparable track conditions ("the wind has blown a light coating of sand onto the track surface" — concerning the Road Runner test). Since the sand was not mentioned concerning the other car tests, I assume there was no such problem when they were tested.

How about doing tests like these under the same conditions, such as on a track with "no sand" (at all?) — otherwise the tests are of no value, concerning e.t.'s. — and this is a very important part.

Larry Middleton
Blacksburg, Va.

It should be obvious that we make every attempt to conduct our comparison tests under exactly the same conditions. In this particular case, however, two of the cars were in Detroit and the third, the Road Runner, was in Los Angeles. The strip conditions during the test weren't ideal for the Plymouth, but we were careful to mention that fact. In any case, the car was given a second chance — following a professional tune-up — and it did considerably better. Even without sand. — Ed.

The Steam Driven Dream

Motor Trend's interview with William J. Besler in the November 1969 issue was outstanding for its discussion of the steam car, and comparison with the inherently more efficient internal combustion engine. The explanation of how the steam condenser and radiator limit performance was particularly good.

At least part of the interest in the steam car has been motivated by the desire to develop an automotive engine that would not poison the air as does the gasoline engine.

Henry R. Korman
Longview, Washington

The Rumors End

Why do you print ridiculous letters like the one from Gerald M. Cote in

the November issue concerning the "super carburetors?" There is no such thing. As every student of high school chemistry knows, there is an ideal gas-to-air mixture for maximum power. Every carburetor manufacturer strives to achieve this ratio and does so with varying degrees of success.

I first heard the myth of the "magic carburetor" thirty-five years ago, and I have heard it repeated in all seriousness several times since then. Why doesn't *Motor Trend* set the record straight rather than perpetuate this type of foolish rumor?

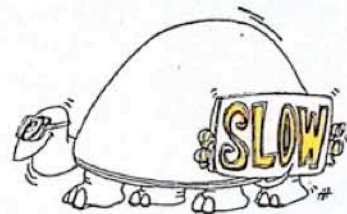
Charles L. Morse
South Dartmouth,
Massachusetts

The word from our official record straightener is that there are no "super carburetors." We used the letter, though, to show that there are a disturbing number of people who believe these stories. — Ed.

Speed Up

I, as well as many others, agree with Mr. Raymond De Meis about people that drive too slowly for safety. Cars traveling at legal speeds may have to cross lanes or skid into on-coming cars or guard rails while the real cause keeps on driving slowly down the highway.

I feel that the law should be as hard on these kind of drivers as on speed-



ers. Speed kills. I think that driving too slow for safety can also kill.

I don't believe in speeding, but if the slow driver was watched for by the police as the speeder is, there would be fewer accidents.

Martin Cohen
Jacksonville, Fla.

Kind of a Stone

Your comment concerning the Porsche 912 (Oct. Issue), as "kind of a stone" was both untrue and shows a great deal of inexperience on the part of the author.

To what is he comparing the 912? The King Cobra as shown on the cover? I would enjoy seeing the Cobra travel top end for twelve hours and not overheat — much less blow up or

continued

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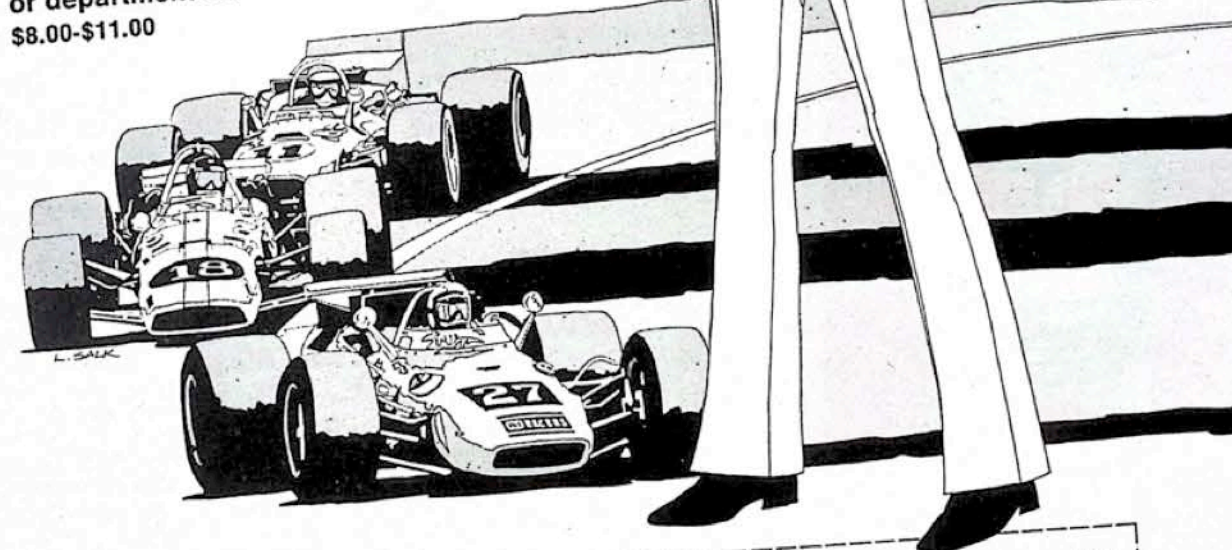
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IT'S YOUR NICKEL
continued

break in half. (We all realize the quality control that goes into every Ford product.) But you say the 912 is slow. What other stock (as in production) four-cylinder car can beat it on a decent straight? And, with the possible exception of a Mini-Cooper, what stock four-cylinder car beat it on a decent set of curves?

David A. Nahrstedt
Burbank, Calif.

The Porsche 912 is brilliantly designed, superbly built, extremely rugged, one of the best handling machines on the road, and slow. Or don't you read the acceleration charts in road tests.—Ed.

Seriously Now

Be serious regarding the Opel GT. Quarter-mile time of a 912 Porsche is 77 mph at 18.2 seconds. So please, define what you mean by "vacuum the doors from a 912". Incidentally, the 911 S turns the quarter-mile in 15.1 seconds at 91 mph.

Barry Valder
Albany, Oregon

You say the Porsche's 18.2 in the quarter-mile puts it in the same acceleration class as the Opel GT with its 17.5. In that case, Valder, you've also put the 912 in the same class as the Datsun 510 and Opel Mini-Brute and their low-buck sedans. The 911 is the real Porsche and the 912 is still a stone.—Ed.

Examination of Judgment

After reading Mr. Harold Miller's letter (Dec. Motor Trend) as to the excellence of Volkswagen and the lack of quality in American Motors products, I felt it necessary to comment. Any person who prefers a car of thirty-year-old design to a modern automobile should examine his standards of judgment. If a motorist wants little room, less visibility, an inexcusable lack of styling in a car, then they want a Volkswagen. A VW is a poor excuse for an automobile in an age when improvements are needed.

Byron Hoeffner
Waco, Texas

Sorry, Hoeffner, you lose, just like American Motors has. Didn't you know the worth of a car is judged not on the road, but in the counting house?—Ed.

Hapless VW Owners

This is in regards to the poor soul that has owned six successive Volkswagens in a row. He wrote to Motor Trend last month to protect Mr. Chapin's hatred of the Volkswagen.

Mr. Chapin said, "I get so darned sick of seeing them (Volkswagens), I would like to drive right over them." Well pity the hapless driver that does get run over while he is driving a Volkswagen, for he is likely to get very injured in his little bug.

I am not cutting the Volkswagen for its good dependable transportation, I'm

merely cutting it for its safety, comfort, and style.

Cameron Earnshaw
Poway, California

Whatever turns you on, Earnshaw.—Ed.

Blind Spots

While new cars are being improved every year, I think the industry has taken a step backward in one respect: I am talking about the "blind spots" in the rear of cars. I own a 1960 Chevrolet, which has more all-around visibil-



ity than the cars they are making today. Do you remember those wrap-around rear windows they used to make?

Jean Ross
Danvers, Mass.

There's a new solution called "over the top viewing" that involves a series of mirrors in the top of the car's roof. This gives around 100 degrees of rearward viewing as opposed to 20 degrees, the standard of today.—Ed.

Stop Teasing

After reading your excellent article about Ford's Mach 2 and Chevy's Astro 2, my first response is: When will Henry and John stop playing games with marketing schedules and give us American believers an automobile we can compare with a Ferrari Daytona GTB with justified smugness?

I say to Ford and Chevy... and to American Motors, "Stop teasing us with your fantasies and start giving us what American auto manufacturers are capable of offering!"

Tim Berry
Larkspur, California

All Glitter And No Guts

I would like to know who Mort Sahl thinks he is.

Michael Williams
Cedar Rapids, Iowa

Good For Mama

In regard to "Mopar Mama" Lenette Hamm, I have to say good for you. There are not many people around that are willing to admit that Chrysler is slowly, but surely, taking the lead with fast cars. I am a Full Fledged Chrysler Fan, and I aim to see that Ford and Chevy do not hog all the fame and glory. In most of the big stock car races today you hardly ever hear of Chevy coming in first or second. It's usually

continued

How did Mark Donohue get started?



It took Rookie-of-the-Year Mark Donohue 9 years of racing to get to Indy. After all that effort—and with only 30 seconds to get the big Penske Racing machine started—he chose the DieHard® from Sears.

Why? Maybe for the same reasons he's counting on the DieHard to give his Penske Camaro start after roaring start in the brutal TransAm series.

Most of those reasons stem from the DieHard's thin-walled polypropylene case.

About 6 times as strong as heavy black rubber cases—only half as thick. That means the DieHard can take much more of a beating in bruising competition. With much less danger of cracking.

And the big payoff is in power. Thin walls give more room inside to pack in more acid and larger plates.

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So remember. No matter what's under your hood, you can't pull into the winner's circle if you don't get off the apron.

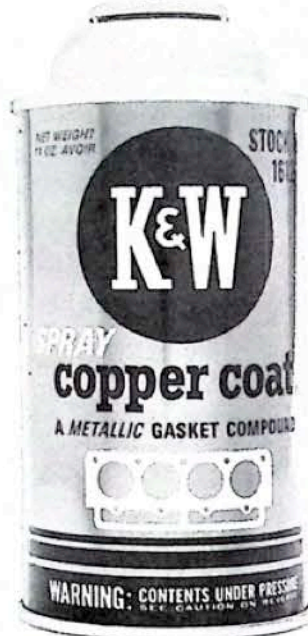
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excitement of driving a fine car—man and machine matched... in motion for sheer joy. This is a book you will read, re-read and treasure. Written with warmth and affection by Ralph Stein, acknowledged expert of automobiles and stylish prose. Photography by Tom Burnside, using collector's models photographed in the U.S.A. and in Europe!

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IT'S YOUR NICKEL *continued*

Ford, then Chrysler, but I think this year it will be Chrysler, then Ford. With this new Charger Daytona, Ford will have a tough job to keep up with them.

Tell "Mopar Mama" to keep shutting down those poor Firebirds.

Ed Senecal
Tonawanda, New York

Bail in, Firebird fans, you have a fight on your hands. — Ed.

I can't let that letter go by. The one by Lenette Hamm of Shawnee Mission, Kansas. I have a stock 383 Dodge Dart, automatic, and no 340 Barracuda or Dart ever beat me!! Who is she trying to kid??

George Taibi
Queens, New York

Taibi, you lack corporate spirit. You need a talk with Senecal. — Ed.

In regards to "Mopar Mama," Lenette Hamm, she must think she is some kind of ham.

L. Bonds
Las, Vegas, Nevada

Hey, Bonds, that's no way to talk to a lady. — Ed.

Talladega's Troubles Continue

If Petty had the driving ability in comparison to his vocal efforts, he would have raced. After all, racing is a test of skill and courage. And racing is not



benefited by a few who are in a position to pick their tracks because they are sitting on fat bank books.

Joseph P. Wilms
Xenia, Ohio

On the other hand, sitting on a fat bank book doesn't mean a thing if you get your "sitter" hacked off in an accident caused by a track in poor condition. — Ed.

Lessons Required

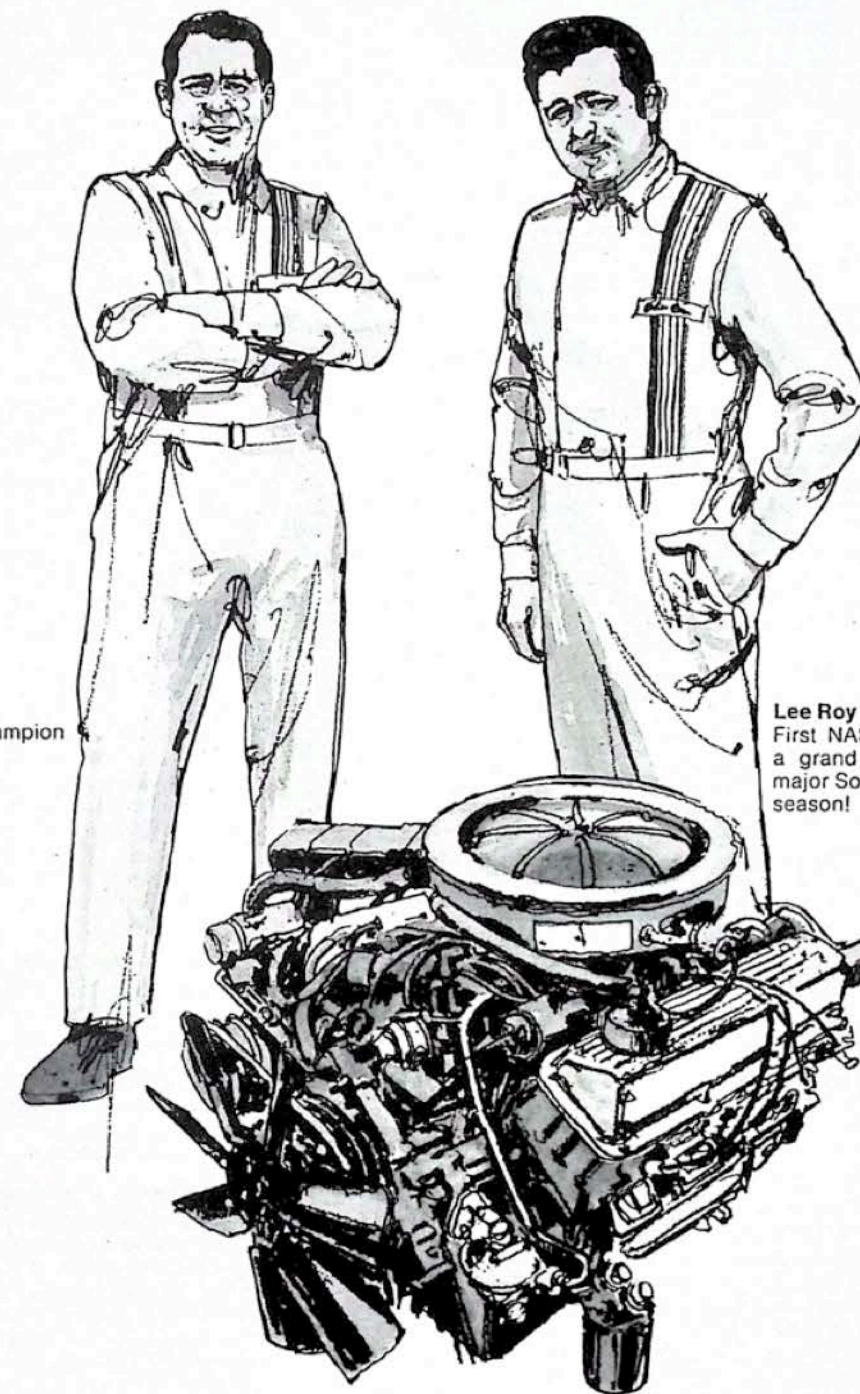
I don't think R. Thibault of Akron, Ohio needs headrests as much as he needs driving lessons.

Anyone that has had four rear-end accidents must be doing something wrong... like constantly making panic stops. Four in six months must be a sort of record.

I think today's headrests are absurd, ugly, inconvenient, and practically useless.

Ken Greenberg
Chicago, Ill.

Meet the Winners



David Pearson
1969 NASCAR driver Champion

Lee Roy Yarbrough
First NASCAR driver to pull off a grand slam victory at all 5 major Southern tracks in a single season!

and the 429 C.I.D. FORD V-8!

This is the team that has dominated NASCAR for two years in a row. Ford Power and the top drivers, David Pearson and Lee Roy Yarbrough. Winning here is the most winning you can do. The banks are steeper, the speeds are higher, the competition is tougher—you go flat out all the way to win.

And we wouldn't have it any other way. When these boys put our specially modified Torino Cobras in the winner's circle, we know we've built the best there is. And in race after race, Ford engineers can't help coming away with

better ideas on brakes, handling and engine performance that make the Ford you buy a better car.

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P.O. Box 747, Dearborn, Michigan 48121.

FORD

inside detroit

There's a Jeep in AMC's future. There will be no '70½ Falcon, right? Wrong. Nixon Administration driving ahead.

AFTER ALMOST A YEAR OF SPINNING its wheels, the Nixon administration is finally driving ahead but in a new direction in the traffic safety field. It took 11 months alone to find a successor for Dr. William Haddon, Jr., as director of the National Highway Safety Bureau. The new director is Douglas Toms, who had been motor vehicle administrator for the state of Washington. Before agreeing to make the switch, Toms got what he asked for from Transportation Secretary John Volpe. The safety bureau is being upgraded, spun off from the Federal Highway Administration and the new director will report directly to Volpe. Interestingly, Toms had the support of both the auto industry and auto critic Ralph Nader. "He's the best guy around," says Nader. "I think he's open minded and will work well with the states." Toms says, "I think there is still a lot of interest in traffic safety on Capitol Hill. I firmly believe that a balanced program can reduce the number of traffic deaths." Toms' goal for the agency is to embark on a program that will reduce traffic fatalities by one-third by 1980. "I think we can do this," he said. Toms wants to change the name of his agency to the Highway Safety Administration. He compiled a good record doing safety work on the West Coast in California and Washington. The latter state now has a fully computerized driver-record keeping and licensing program. He can be expected to push for a balanced approach to the nation's highway safety program. That is, there will likely be more emphasis on the driver's role than there has been in the past when the main thrust seemed to be towards putting more and more safety features on cars. Haddon, a safety researcher before going to Washington and now head of the Insurance Institute for Highway Safety, likes the choice of Toms as his successor. He calls Toms "one of the new breed who rejects the safety nonsense handed out for years."

STATION WAGONS ARE BECOMING more popular again. About one out of every 10 cars sold is a wagon. Ford is No. 1, accounting for about one third of all wagon sales. Chevy is No. 2 with one out of four sales. General Motors President Edward N. Cole says "It's hard to predict where this market will go but I would not be surprised if it reached 20 percent." Ford has experimented with a futuristic wagon called the Aurora. It has a special children's compartment in back, a corner-shaped second seat and a front passenger seat that swivels to the rear. As a show car, the Aurora might be one of Ford's better ideas. But Ford Division Sales Manager Gordon MacKenzie sounds as if it won't be going into production. He says the public reacted with phrases like "very clever... very interesting." But he adds that he doesn't think enough people would buy this type of wagon to justify making it. "You have to consider how much volume there would be and the cost, and we haven't been able to bring the two close enough together to warrant it," he says.

THE PROPOSAL FOR AMERICAN MOTORS to acquire Kaiser Jeep Corp. is viewed as a good deal for both companies. It gives AMC a better chance to survive in the auto business than it has had for many years. If the deal goes through, AMC would no longer be staking its whole future on passenger cars. AMC would be entering the truck market for the first time. The company and its dealers would have an entirely new line of products. In return for cash and stock

valued at \$85 million, Kaiser would become AMC's largest stockholder, owning about 22 percent. It remains to be seen how much control it will exercise. The assumption is that Kaiser will be satisfied with representation on the board of directors as long as things are headed in the right direction at AMC. But if the company should show signs of going into a tailspin, then Kaiser would be in a position to move in and force a major shakeup. Kaiser had been trying to sell its Jeep subsidiary for two or three years. Sales are down at Jeep, partly due to competition from Detroit auto firms which are now building Jeep-type vehicles.

LARGE INSURANCE COMPANIES are accused of boycotting repair shops that don't give them discounts. The charge comes from Senator Philip A. Hart, who has been holding hearings on the high cost of automobile repairs. Hart says the discount/boycott system "doesn't benefit the insurance companies nearly as much as they think. Body shops forced to accept discounts most often will make up for it by charging for work they didn't do." What all this does to insurance rates is a matter for conjecture. The only certain thing about insurance rates is that they have been going up for the past several years.

FORD HAS HAD TO GIVE THE CAPRI a new set of eyes. The front end had to be redesigned so it could be imported into the U.S. The square European headlights wouldn't qualify. So North American versions of the cars have round sealed beam lights. Ford calls this "federalizing" the cars. "The rest of the Americanization of the Capri was relatively simple," said one source. The U.S. version of the car, an instant hit when it was introduced in Europe in the spring of 1968 as a mini-Mustang, went into production in January.

WHY IS GENERAL MOTORS USING AN ALUMINUM ENGINE in its small car? The GM Mini, as it's called, will feature an engine block of a new alloy of aluminum and silicon. Made by the Acurad casting technique, the block will have a density and durability previously unattainable in aluminum engines. While the new engine may cut the car's weight 50 pounds, the powerplant will likely cost more than an iron job. So why do it? One theory is that GM went this route to have something new when the car is introduced in the fall. This also might be why Daimler-Benz is developing the C111 Wankel-engined Mercedes.

NO HAGGLING OVER PRICE. That's what a Ford man found recently when an Arab leader bought 16 Mustangs. The Ford man got paid in 42 \$1,000 bills. He later found he'd overestimated cost by \$8,000... had to give it back.

IT NOW LOOKS LIKE IN A YEAR OR TWO some insurance firms will start tying premiums to repairability. "I think they will come to use a similar system in this country," said Dag Wedmalm, an official of the Folksam Insurance Group in Sweden. He's been visiting this country, examining our insurance practices. "It is a good way to reduce costs," he said, noting that car companies in Sweden cut parts prices after the plan went into use there. American insurance officials say the system will start to be used here in a couple of years. Thomas E. Morrill, vice-president of State Farm Mutual, which insures 12 million automobiles in the United States, praised Senator Philip A. Hart's repair hearings. He

mentioned testimony that GM bumpers would only protect in 2.8-mile-per-hour crashes. "My suggestion to that is that we need a whole new set of speed limits in the United States," he said sarcastically. "The average man walks faster than that... but you can do \$200 damage running into a wall at 4 mph. I think we need to protect the cars from the pedestrians." The problem is going to get worse as the older cars, which were better built, disappear. In five years, Morrill says, "all that will be left will be the new, delicate cars. So you have just begun to feel the cost of building highly damageable autos. The life span of cars is being shortened. All that can be done is to arouse the public that Detroit is handing them eggshell cars. They are beautiful but highly vulnerable. The car doors can even be caved in by a car wash."

THERE'S A NEW BOOKLET IN THE GLOVE COMPARTMENT of most cars. The booklet provides buyers with the first information from the companies on just how well those new models perform. The Federal government is requiring the companies to provide their customers and potential customers with three basic items of information about automobile performance: 1. How much of a reserve load there is in the tires on the new cars. 2. Acceleration and passing ability. This is a report on how long it takes the cars to accelerate from 20 to 35 miles an hour and from 50 to 80 mph. 3. Vehicle stopping distance. This is a report on how many feet it takes to stop a car going 60 mph. The stopping must be done without locking the brakes. Most of the car divisions are putting the information in booklets, similar to the owners' instruction manuals now found in the glove compartment. But Chrysler Corp. is furnishing the material on a computer readout sheet. There is precedent for furnishing this data. In many European countries the car makers have to specify the top speed of their cars. In some places there also is a requirement on gas mileage. But performance figures on American cars have been hard to come by from the manufacturers. There have been road test reports by buff books and tests from Consumers Union. Now the manufacturers have to certify the minimum performance of these cars. Look for the standards to be broadened in the future.

AUSTRALIA'S NOT GETTING ANY MORE AMERICAN CARS from General Motors. GM has decided to stop sending cars there because of problems connected with new Australian safety standards. It's not that GM has any trouble meeting the standards. After all, the GM subsidiary, Holden, is No. 1 in the Australian market. But modifying American cars to meet the standards Down Under—that's another matter. GM would rather not and so it quietly stopped exporting them to Australia a few months back. Not that many were involved. The total for 1969 was less than 1,000, compared with 2,400 in 1965.

EATON YALE & TOWNE HOPES to have 50,000 cars equipped with air bags on an experimental basis this year. The units wouldn't be sold to the public, however. That's still a year away at least.

A SECOND-GENERATION DRIVING TRAINER developed by General Motors is pretty realistic as far as secretaries at the GM Tech Center are concerned. "We've had a couple of women scream, and we have measured heart rates that have doubled from 90 to 180 per minute," says Jerry K. Williams, one of the GM engineers who developed the simulator. The unit looks like a Link trainer. You climb into the unit, behind a steering wheel and instrument panel and windshield. Then you are locked inside and everything is blacked out. As you operate the controls a 35 mm color motion picture film is projected on both the front windshield and rear window. As you accelerate, the film speeds up. You have to avoid simulated accidents if you can. The device was developed to test drivers' reactions in emergency situations. GM's going to install an experimental air bag in the simulator to test people's reaction when the device is fired. The Federal government has proposed installing the air bag as a safety feature in all cars in 1972. The bag inflates to cushion a person in an accident. "We want to see what people do in an accidental firing of these pop sacks," Williams said. He said it's also important "to see how hard people will push a brake pedal in an emergency situation, so we can design for that. The simulator is also going to be used to test a new type of speedometer GM styling is considering. We want

to learn how well people follow the speedometer." The device projects the speed on the windshield so the driver doesn't have to take his eyes from the road to see how fast he's going. GM hopes the new simulator may have some uses in driver training or driver licensing. But Williams admits that the way to go in the future is to eliminate the film entirely and develop a "completely variable system using television tubes and computers." General Electric is already experimenting with this type of system. It uses computer generated television pictures. The system was developed for the Apollo programs so astronauts could practice docking maneuvers in lunar orbit.

AN EFFORT TO PREVENT CHECKER MOTORS from making taxicabs and autos is being made by a stockholder of the firm. Martin B. Pearlman, of Kew Gardens Hills, N.Y., filed a suit in Federal District Court in New York. The suit charged that Checker, based in Kalamazoo, Mich., has had operating losses of almost \$15 million on vehicle production since 1955. The company makes about 6,000 vehicles a year.

THAT BURNING RUBBER FROM A SUPER CAR doesn't smell sweet to everyone. Ralph Nader complained about super cars to the National Violence Commission. He says, "Inflammatory advertisements by the auto companies, directed toward teenagers and young men in their early twenties, goad and spur them to handle their vehicles as 'nuclear deterrents' or to become 'human cannonballs'—to take two excerpts from widely-circulated color ads."

FORD HAS TURNED THE FALCON into the cheapest intermediate car. The success of the Maverick as a price advertised car—\$1995 in case you missed it today—was one reason Ford decided on the same approach with the 1970½ Falcon. The compact 1970 Falcon went out of production in early December and was immediately replaced by an inter-



It may look like a Fairlane, but it's a 70½ Falcon, really. The new-model-with-the-old-name will retail for \$2,400.

mediate of the same name. The new one is a stripped version of the Fairlane. The base price is \$2,460 for a two-door sedan. This is \$70 more than the 1970 Falcon. But it's \$219 less than a 1970 Chevelle, \$143 under a Plymouth Belvedere, \$200 under an American Motors Rebel and \$163 less than a Pontiac Tempest. It's \$39 less than a 1969 Fairlane sedan which has comparable trim and \$200 under a 1970 Fairlane 500 hardtop. Betting is, this will prove to be another shrewd marketing move by Ford—the decision to reshape the Falcon as a low-priced intermediate.

AUTO MAKERS IN DETROIT are taking a close look at the latest Swedish car safety check results. They show that one out of every four cars failed... but that this is not as bad as a year ago. The exhaustive study on 1969 results showed that 25.9 percent of the cars failed, an improvement over 1968 when 29.5 percent failed. The failure rate in 1965 was 33 percent. Improperly aimed headlights continue to be the most common fault, showing up on 25 percent of the reports. Braking problems were found on almost 20 percent of the cars. Inspectors found exhaust system problems on 16 percent of the cars. Cars do not have to be tested until they are three years old. Thus, the 1966 models were tested for the first time in 1969. And an analysis was made of the 110 different makes and types of 1966 models tested. They included 12 American-made cars sold in Sweden and 16 other makes built overseas by subsidiaries of U.S. firms. The exhaust system was the most common complaint on U.S. cars. The defects were leaks or incorrectly aligned tailpipes. The average failure rate on all 1966 cars was 15.6 percent. The Chevy II, Chevelle, Mustang, Fairlane, Satellite and Rambler were all above the average failing

continued

rate. Moreover, most of Ford and Chrysler's overseas models did not fare well in the Swedish tests while GM's did. The Volkswagen Beetle's failure rate was 10.1 percent.

CONNECTICUT IS JOINING NEW YORK AND VERMONT in banning the Dodge Super Lite. The decision followed a ruling by a U.S. Appeals Court upholding the power of states to ban auto equipment they consider unsafe. Chrysler contended the states didn't have the power anymore as a result of the Federal safety regulations which it said superceded state regulations. The Super Lite was developed to assist in night driving situations where the high beam lights couldn't be used.

KAISER ISN'T USING JEEP to take over American Motors. AMC Chairman Roy D. Chapin, Jr., says that even though Kaiser Industries is getting two seats on the AMC Board of Directors, that's as far as it goes, despite Kaiser's 22 percent share in the auto firm. That's what AMC gave up to acquire Jeep from Kaiser. The agreement came on Kaiser's third effort to sell Jeep to AMC. Kaiser tried before in 1961 and 1965. The price once was \$140 million but at that time Kaiser wanted to sell Jeep facilities in South America as part of the deal.

FORD TURBINE ENGINEERS have installed one of their engines in a giant earth mover as part of a pre-production testing program. A couple of months ago, Ford completed installation of one of the "707E" turbines in a Continental Trailways bus. Ivan M. Swatman, chief turbine engineer at the Ford engine and foundry division, said that even though General Motors has announced plans to go into production in 1971, "we're not ready to make any production announcement." But he makes it plain he figures Ford is ahead. "We've quit worrying about what General Motors is doing. We have turbines on the highway in bus and truck testing. I don't see how you can make a production announcement until you have finished durability tests."

IT'S NOT A CHEERING PROSPECT, but Charlie Heinen, Chrysler's chief air pollution control engineer, says that as things now stand, you might need \$300 afterburners to meet the mid-1970 standards proposed in California. "They are getting a little ahead of the technology," Heinen says. "We're having trouble with the 1974 standards. We can do these things, but they just take time."

GMINI LOOKS LIKE A SHINING STAR in the economy field. The General Motors small car is racking up some impressive results in economy tests against other small cars. The GMini, due to be introduced this fall, has been tested against the Volkswagen and Maverick on an 830-mile run from Pike's Peak in Colorado to Mesa, Arizona. The GMini got the best mileage, averaging 30.6 miles per gallon compared with 30.2 for VW and 27.3 for the Maverick. That was done with the cars equipped with a manual transmission. With an automatic, the GMini and VW averaged 27.1, while the Maverick dipped to 22.5 mpg.

IS FORD SERIOUS ABOUT MAKING CARS easier to repair? A good indication that it is was the appointment of Robert C. Graham as director of engineering and administration at Ford's design center. This makes him one of the top people at styling. Graham was quality control manager for the company's automotive assembly division. Before that he was national service manager for the Ford Division and the man who masterminded the company's Service Research Center in Dearborn. It's well known that many of the service and repair problems on cars in recent years are traceable to the way the models were styled. So it's interesting to speculate on what impact a man with Graham's background in service will have on styling of Ford's cars in the 1970's.

GENERAL MOTORS' INLAND MANUFACTURING DIVISION in Dayton, Ohio, is experimenting with a process which uses a radioisotope in quality control checks on brake linings. "It is a completely revolutionary way of inspecting the quality of brake linings and gives us an inspection tool that no one in the industry has ever enjoyed," says John Prikkel III, an experimental engineering department supervisor at Inland. The device uses a radioisotope enclosed in a double sealed lead container. The unit has been licensed by the Atomic Energy Commission and is considered completely

safe. Prikkel said that a brake lining being tested is placed between the shielded radioactive material and an ionization chamber. The gamma radiation passing through the brake lining must be within a specified range or the lining is automatically rejected. About 8,000 brake linings a shift are being inspected on the experimental unit. A production unit has been designed and will be installed in several months, Inland says. Prikkel said Inland intends to make the new device available to the rest of the auto industry.

THAT SIDE BEAM STRUCTURE IN THE DOORS of new General Motors cars has sometimes been referred to as "side armor." It now turns out that this is a pretty good description even though GM safety engineers never expected it to serve as a protection against weapons. It's designed to protect people in side impact accidents. And accident researchers have found it is working. One of the studies also disclosed how it works in a shoot out. It seems that on a freeway someone fired five .32 caliber pistol bullets into the side of a GM car equipped with the side beam. "The slugs were deflected by the beam and the family escaped injury," GM's Fisher Body Division says.

GENERAL MOTORS IS WORKING on throw-away auto parts. A Ford executive revealed recently his firm is also developing parts which can be pulled and replaced easily rather than repaired. GM's plans were revealed by Wallace E. Wilson, vice president in charge of the firm's automobile components group. Wilson said future cars will be designed and built more on a modular concept. "We may even see the arrival of replaceable panels as well," he said. "To help the mechanic we may see more color-coding and better organization and styling of parts and components under the hood."

THE NEW FORD FALCON IS NOT ONLY BIGGER but also costlier than its predecessor. The 1970½ model starts at \$2,460 for the two-door sedan. Besides being some \$200 more it's 22 inches longer than the old Falcon compact. The new one is a stripped down Fairlane intermediate. The car is also available as a four-door sedan and four-door wagon.

BUNKIE KNUDSEN EXPECTS TO DECIDE SOMETIME in the early part of the year what job to take. He says he's had "all kinds of offers" since being fired as president of Ford Motor Co. in September. He said he's had "no discussions" with Chrysler but did arrange an interview at Chrysler for talented stylist Larry Shinoda. Shinoda followed Knudsen from General Motors to Ford in early 1968 and was fired two weeks after Knudsen. A Chrysler spokesman said company officials have met with Shinoda but there have been no job offers made.

DARK VEHICLES WITH COLOR STRIPES are much safer in traffic. J. B. den Tandt, a Belgian professor, says red, yellow and orange painted cars are preferred from a traffic safety point of view.

A MECHANICS SHORTAGE? Baloney. That's the view of some auto industry service officials. They claim that the problem is a management gap, not a mechanic gap. "There is no real shortage of mechanics—just a shortage of sound service management," says American Motors Service Manager George Brown. He and others say dealer repair facilities are poorly run and sorely need professional managers.

A FEDERAL REGULATION that would minimize the likelihood of car hoods penetrating a windshield in an accident is being proposed by the National Highway Safety Bureau. This first became a problem when General Motors' Pontiac division developed concealed windshield wipers. An official of the Automobile Club of Michigan, Ed Daniels, complained that the hoods often would break the windshield in an accident. However, GM later redesigned the hoods to reduce the likelihood of this happening. But Washington obviously feels it could be a problem what with other manufacturers adopting this system. The bureau also wants to tighten its regulation governing hood latches. A standard which went into effect last January required a double latch system for hoods, the second latch as a safety measure. The bureau now says it wants to amend the standards to require separate mounting for both the primary and secondary latches and a means of visibly telling when the latches are locked. Both this proposal and the one about hoods breaking windshields would go into effect in January 1972. /MT

Jim Travers talks to Alcoa about Traco racing engines. What they are and why they win. And, incidentally, about aluminum.



Jim Travers is surrounded by racing memorabilia in Traco Engineering office.

Anyone who follows racing could be excused for thinking that all those Traco engines are turned out on a production line. Fact is, Traco Engineering painstakingly produces winning Cam-Am, Trans-Am and USRRC engines at a modest 10-man shop in Culver City, California. Jim Travers and Frank Coon (Traco is a combination of their names) blueprint and re-engineer stock

engines to meet the incredible demands imposed by high-speed, long-distance races.

Frank is as quiet as Jim is loquacious. As spokesman, Jim told Alcoa about Traco and the engines they build.

"Frank and I started fooling around with high-performance cars in the Thirties, building and racing special roadsters. After the war, we started building racers.

"In 1953, Bill Vukovich won the '500' in one of our cars with the first fuel-injected Offy engine at Indy. We won again in '54 with Vuky driving. In those days we prepared the cars 100 percent, both engine and chassis. Now we only prepare engines. "Of course we do go to dozens of races every year. But we make it a point to be back here every Monday morning.

"What does a customer get from Traco? We bore the cylinders on his stock engine to increase capacity. We measure and machine the decks absolutely parallel with the crankshaft, machine the spring seats, install aluminum valve retainers, match spring weights and tensions. Then we assemble the engine, clearance and blueprint everything to our specs and test it on our dynamometer. We try for consistent, reliable

high output. For racing, every tolerance has to be near perfect or power—it blows up.

"We've prepared engines raced by most big name drivers. Had a lot of winners. You *have* to win to stay in this business. But all of our customers get exactly the same service. "Aluminum? If you don't have that, you've got nothing. You've gotta be light to win. All the Cam-Am engines are aluminum now. Blocks, heads and all. The big Chevrolet 427 Cam-Am engine actually weighs less than 302, 327 and 350-cu-in. cast-iron engines.

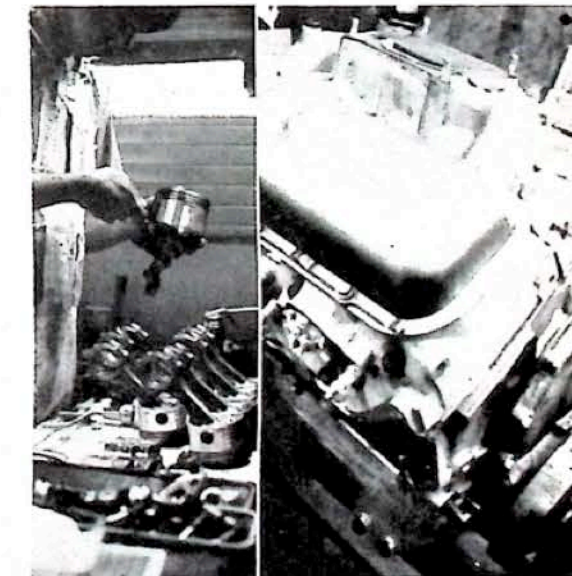
"We use beefed-up aluminum water pumps. Also, aluminum timing gear covers, and a lot of smaller parts. We even use aluminum rocker arms—impact extrusions—on our 365 iron engines."

Alcoa supplies a lot of aluminum to the automotive industry. But we supply more than our metal. Alcoa provides technical assistance and research data to car builders, in and out of Detroit.

That's one reason there's so much Alcoa® Aluminum on high-performance cars. And aluminum's success on high-performance cars is one big reason why there's going to be more and more aluminum on all cars.



Aluminum rocker arms are installed in stock block at Traco shop.



Aluminum piston gets final polish and inspection (left), before it goes into 427-cu-in. aluminum engine (right).

Change for the better with
Alcoa Aluminum

ALCOA

MOTOR TREND/FEBRUARY 1970 17

Bill McCrary is deserving of the "Mr. Auto Racing" title if anyone is. He likely has witnessed more auto races in his lifetime than anyone else.

At only 49, he has been on the sidelines of racing more than three decades. It's quite possible he hasn't missed an Indianapolis race in 30 years. He gained entrance to the famous old Speedway for the first time while selling papers as a boy of 10.

Bill—his given name is William Robert—now is director of racing for the Firestone Tire & Rubber Company, a company which has benefited from and has devoted much to auto racing during the past 60 years.

McCrary has not always occupied such an envious pinnacle in motor sports. In fact, when he joined Firestone 30 years ago he took one of the company's dirtiest and toughest jobs, that of buffing tire carcasses for retreading. He did well at that job. His superiors were so impressed by the young man's willingness to work, his intelligence, and his ever-present smile they offered him a job in Firestone's Racing Division following his hitch in the Navy during World War II.

Bill continued to progress, eventually becoming head of Firestone's Racing operations in Speedway, Ind., and in 1965, was named director of racing.

He has seen auto racing grow into the fast-paced, spectator-loved sport it is today. He has seen supporting manufacturers come and go, while his company continued to be one of the sport's firmest boosters.

In the next several paragraphs McCrary gives his opinions on auto racing today, forecasts the future and explains his company's philosophies on the sport.

— Editor

rap 'n' opinion

"How do contracts harm racing? They eventually snuff out competition . . . one manufacturer—the guy with the biggest pocketbook—wins out."



Bill McCrary

Contracts can harm auto racing! Drivers and car owners should be left free to choose the best brake lining, oil filter, fuel, oil, shock absorbers, tires and what have you.

Some drivers and car owners are getting rich today on their lush contracts. Pickings may not be so easy tomorrow.

How do contracts harm racing? They eventually snuff out competition. Competing product manufacturers get into bidding games on the services of this or that driver. Following the "war," one manufacturer—the guy with the biggest pocketbook—wins out.

When that happens, the single supplier of a particular product immediately cuts off the big payola and, without competition the quality of the product may suffer.

Firestone chose three years ago to not make any new contracts with drivers or car owners.

There's no doubt our company's move was a wise one. The bidding game, particularly for drivers, was becoming too costly. It's true our company has used the auto racing courses of the world as laboratories for our products for 60 years. Much of what we learned on the race tracks was valuable to us in building other types of tires. And, I will be the first to admit we promoted our products by advertising our racing wins.

But our expenses in auto racing became unjustifiable. We were not getting nearly as much from racing as we were putting into it.

We proved our theory in at least two categories of racing, in drag and NASCAR's GT division, during 1969.

We took our tires to three big drag meets during the year. Top drivers—not restricted by contracts—tried our tires and drove to championships on them. We were most elated with our successes in the NHRA World Finals in Dallas.

We had tire sizes available for three classes. Our tires were on the top eliminator in each class.

In the highly popular NASCAR GT series our tires were on a majority of the cars in every race. When the season ended, Firestone had equipped 23 winners in the 35 races, Ken Rush and his Firestone-equipped Camaro was the point winner and Pete Hamilton had won 12 of the events in the Gene White Camaro on Firestones.

Our tires fared well in USAC Championship competition, also. We were on the winning car in 16 of the 21 events including the big one, the Indianapolis "500." Three of the drivers in this division are contracted, however, Mario Andretti, who won eight events; Al Unser, who won five times, and Lloyd Ruby.

In an effort to stamp out contracts in NASCAR Grand National competition, we accepted a proposal of Bill France and posted some \$750,000 in contingency awards for Grand National, GT, Pacific Late Model, Modified and Sportsman Divisions.

We pledged to pay—at the end of the season—the Grand National champion driver \$50,000, and the registered car owner \$50,000, if the car ran on Firestone's in 75 percent of the races. The Grand National driver who won the most races of 400 miles or more in length and was on Firestone tires in at least 10 of the 14 events could earn another \$100,000.

Drivers of the most competitive cars in Grand National racing apparently chose to not wait until the end of the season to receive the contingency awards. Few of the drivers in the most competitive machinery bought our tires and sought the contingency money.

During the year, however, our tires equipped the most winners in Pacific Late Model, Sportsman, Modified, and GT competition, while the champions in these divisions rode on our tires in most races.

Presently, contingency awards are being determined for all the divisions. We expect to pay \$150,000 of the pledged \$750,000.

The NASCAR contingency program, since it did not work in 1969, is being scrapped this year.

Auto racing is a great sport. I've watched it grow from those lean days following World War II to its present healthy, rambunctious self. I've been a friend to everyone I've met in racing. I've seen the rawest rookies grow into champions.

There's much more to be seen in auto racing, however. It is just emerging from adolescence, and entering adulthood. Popularity of auto racing will continue to increase.

Exquisite auto racing facilities are being constructed in every section of the country to bring "live" racing next door. The number of fans of tomorrow is almost unimaginable.

More exotic racing machinery—with safety as the theme—will appear. Our research scientists will give us better tires. Other manufacturers will improve their products.

Yes, the great days of auto racing are in the future. Drivers will replace football, baseball and golf stars as the sports heroes of tomorrow.

However, auto racing's greatness need not come with contracted drivers. The sport can grow much healthier, and can be more stable, if open competition is exercised in all phases of the sport.

—Bill McCrary

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import report

Citroën customer-test: Wankel prototypes
Maxi Austin — Maxi Mistake
Australia moves up from down under

by Edouard Seidler

Maxi Flop

The Austin Maxi, though developed under BMC rule, was the first "new car" introduced by British Leyland after the Leyland-BMC merger. Hopes for this car were so high that the company built a brand-new plant for its production. But the factory will soon be available for other types of production. Too slow for its 1.6-liter engine and too expensive for its limited potential, the "Maxi" already ranks among Europe's major flops of recent times, along with Volkswagen's 411. While British Leyland was hoping that the Maxi would take a 5-percent share of the home market, it is struggling to maintain its 3.2-percent stake. Export sales are nothing more than symbolic. Six months after the car's introduction, production schedules were cut by one-half, to 1,000 weekly units, and future reductions are expected. Know what they call the latest Austin in London? The "Maxi Edsel"...

The Growing Rotary Club

Early in January, the first of 500 gray and—on the outside unexciting—front-wheel-drive coupes took to the road all over France. Each had a number on the wing (ranging from 1 to 500) and an unusual motif was painted on the body in big white letters: "Prototype M 35." Another inscription on the back window reads: "This car is running for you. This prototype Citroën M 35, with rotary piston engine, is carrying out a long-term trial in the hands of a Citroën customer."

The long-term trial is a rather unique testing program by Citroën of their new Wankel engine. They have selected 500 customers (each willing to pay \$2700 for the car and the honor) to give their new engine a true man-on-the-street test. The drivers all put a minimum of 20,000 miles on their cars in a year and are from all parts of France, to help test the cars under many conditions.

The car is being built by Citroën and the engine by NSU, pioneer Wankel builders. Engine development has been done by Comotor, a common subsidiary of the two firms. They claim to be well along on solving the problems the NSU car ran into: high oil consumption (one quart per 110 to 160 miles); spark plug problems (they had to be cleaned or replaced every 300 miles); short life of the engine rotor sealing rings (500 to 10,000 miles); and heat problems between the hot and cold parts of the engine which often ended with a crack in the rotor casting. Many of the ideas

incorporated are very similar to those used in the Mazda, Mercedes, and other NSU Wankel cars. It demonstrates a unique interplay between these character members in the rotary club.

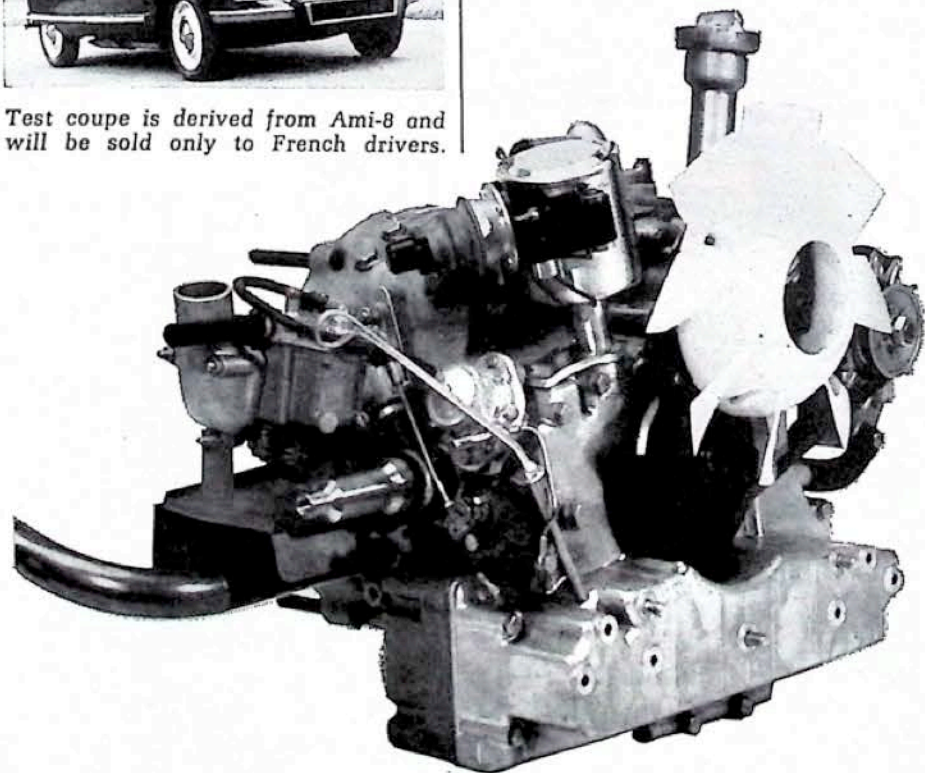
"We are all precursors in the field of rotary piston engines," said the president of Citroën, "and everyone who is involved as we are is fired with a sort of club spirit."

The engine itself is a single rotor unit with a theoretical displacement of 995cc. Compression ratio is 9:1 and power is 55 bhp. Maximum speed for the Ami-8-derived car is 90 mph, the quarter-mile is done in 20.7 seconds.

Emissions standards shouldn't prove too much of a problem and right now the engine is so quiet an audible rpm limit warning had to be added. Testing will be completed by the end of 1970 and a plant to build engines will be constructed in Sarreland (Germany), ready for production in 1972.



Test coupe is derived from Ami-8 and will be sold only to French drivers.



Citroën-NSU engine is a single rotor unit, has displacement of 955cc with 55 bhp. Emissions standards could be easily met with air pump and exhaust injection.

Down Under Moves Up

Once upon a time, cars were built only in the U.S. and in Europe—and exported to the rest of the world. Then came a time when American and European manufacturers started setting up assembly plants in previously "underdeveloped" countries. The automobile industry has now entered into its third age, where just about every country wants to have its own motor industry and gain full independence from traditional car builders. Australia is one of those. It hosts GM, Ford, Chrysler, and British Leyland assembly plants, but it is determined to travel alone.

GM's Holden subsidiary is not waiting for U.S. or European designs any more. It proved its technical independence once again by developing a dream car for Australia, which could well compete with any such jobs coming out of Bill Mitchell's own stable in Detroit. The "Hurricane," or RD 001, is a computer-age car, 161.8 inches long and 71 inches wide with a wheelbase of 96 inches. The fiberglass body has three main units, a one-piece body shell recessed into the chassis (a steel box section perimeter frame), a canopy

continued

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So, if you've gone the Corolla route and you're still spending your evenings alone, there's only one other suggestion we can make. Maybe if you grew a mustache...!

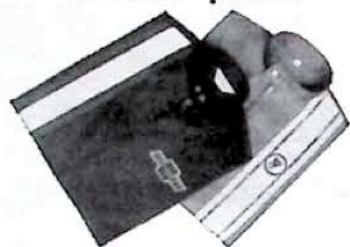
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IMPORT REPORT *continued*

tilting forward over the front wheels to give passenger access, and a rearward-tilting engine hood which can be removed for major servicing.

Holden's engineers used the Astro-Jet idea of combining the swinging-up of the powered hood with the movement of twin elevator seats to allow passengers to step into the 40-inch high car at armchair level. Another control lowers them 10 inches to a semi-reclining position while the roof swings back to lock above them.

An experimental GMH 253-cubic-inch V8, featuring a four-barrel carburetor, gives 260 hp at 6000 rpm. It is positioned forward of the rear axle. The Hurricane does the standing quarter-mile in 13 seconds. It moves from 0 to 60 mph in 5.3 seconds. Suspension is independent, and oil-cooled disc brakes are fitted up front.

At present, the car would be quite illegal in most parts of the world, since it has no other visibility to the rear than a closed circuit television rear-vision screen. It gives an unexcelled view from a wide-angle lens mounted at the back of the car. Possibly the greatest thing with this system: no commercials...

Development of the car is estimated at \$330,000. So far, though, the Hurricane is not for sale.

Aboriginal Sports Coupe

Also from Australia comes a 130-mph sports coupe, the "Nagari": an aboriginal word meaning "to flow." To build their car, brothers Campbell and Graeme Bolwell gave up their jobs as policeman and retail store salesman. They originally sold cars in kit form, until Graeme went to England for six months to study car design at Colin Chapman's Lotus factory. He returned to put the Nagari into the works.

The car uses a one-piece fiberglass body over a steel chassis, indepen-

dent-front and solid-rear-axle suspension, and power-assisted disc brakes up front. Overall length is 13 feet 2 inches with a 7-foot 6-inch wheelbase. Overall width is 5 feet 6 inches.

The car is powered by a Canadian-built Ford Falcon 302-cubic-inch V8,



U.S. market is one possible aim of the 130-mph Nagari Australian sports car.

with transmission through a Falcon four speed gearbox.

Production of the Nagari started late last year. One hundred are to be built in 1970 and 150 next year. The Bolwells are hopeful of exporting their coupe in the future to Commonwealth countries and the U.S. So far, the Nagari sells in Australia for 5,500 American dollars.

Japan Goes Electric

Lack of speed and insufficient autonomy are two reasons why electric cars could be considered operational only for milkmen, until a Japanese company issued claims that it had a car which could be used by other classes of drivers as well. Not a car manufacturer, the Yusa Battery Company of Japan announced it would build and market Gasnon, an electric vehicle, early this year. A "mini" four-seater, the car will be powered by lead-acid storage batteries and coupled to a silicon-controlled electric gearbox. Gasnon supposedly cruises at over 50 mph and travels 80 miles on a single charge. It is not scheduled for introduction to the U.S. so far. /MT



Holden, GM's Australian subsidiary, built this dream car, the Hurricane. The fiberglass-bodied car has a 260-hp V8, oil-cooled disc brakes and TV rear vision.

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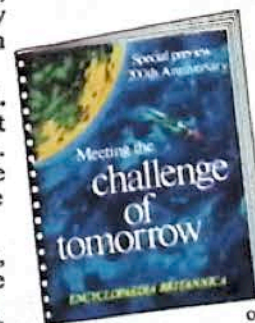
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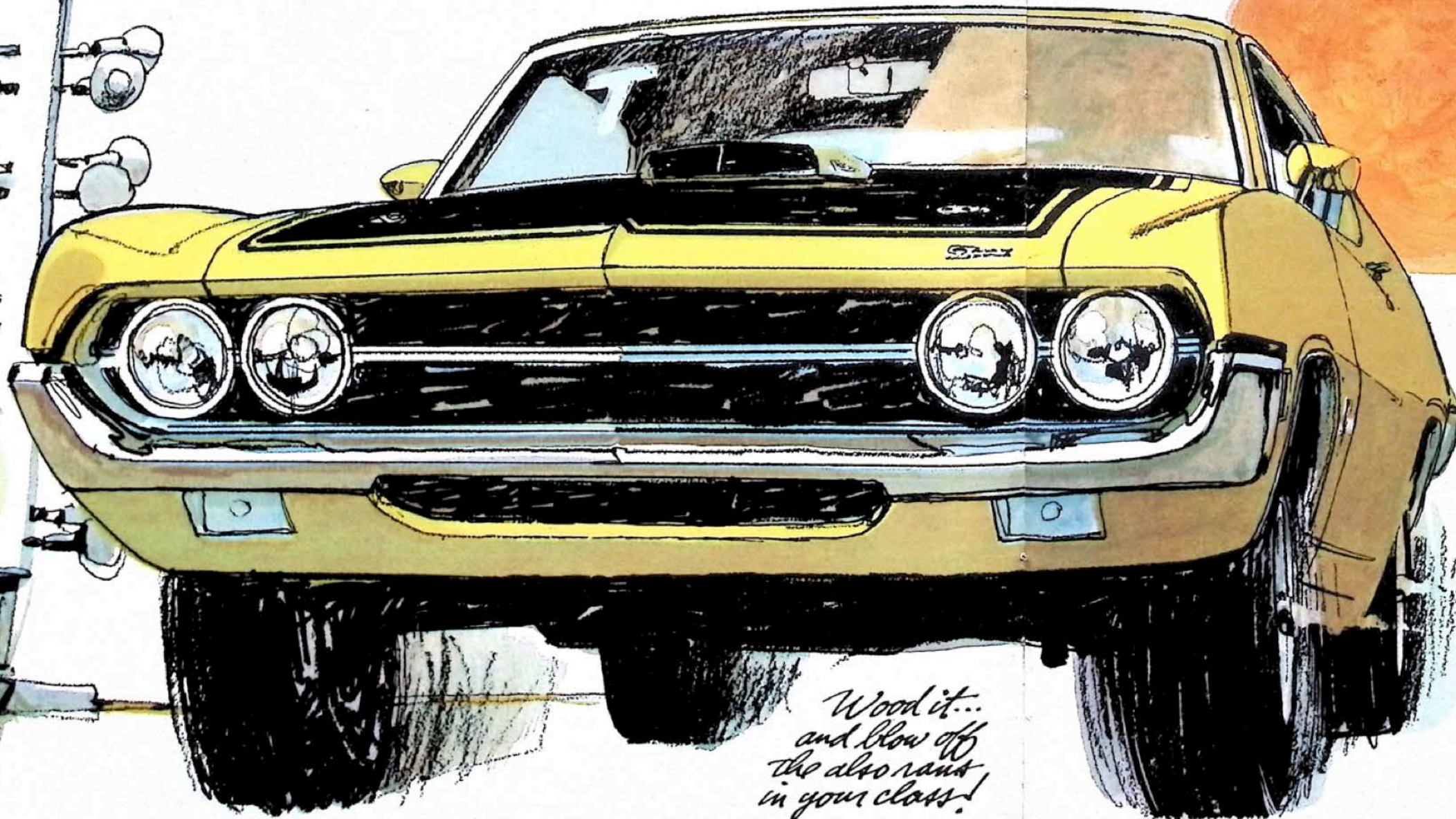
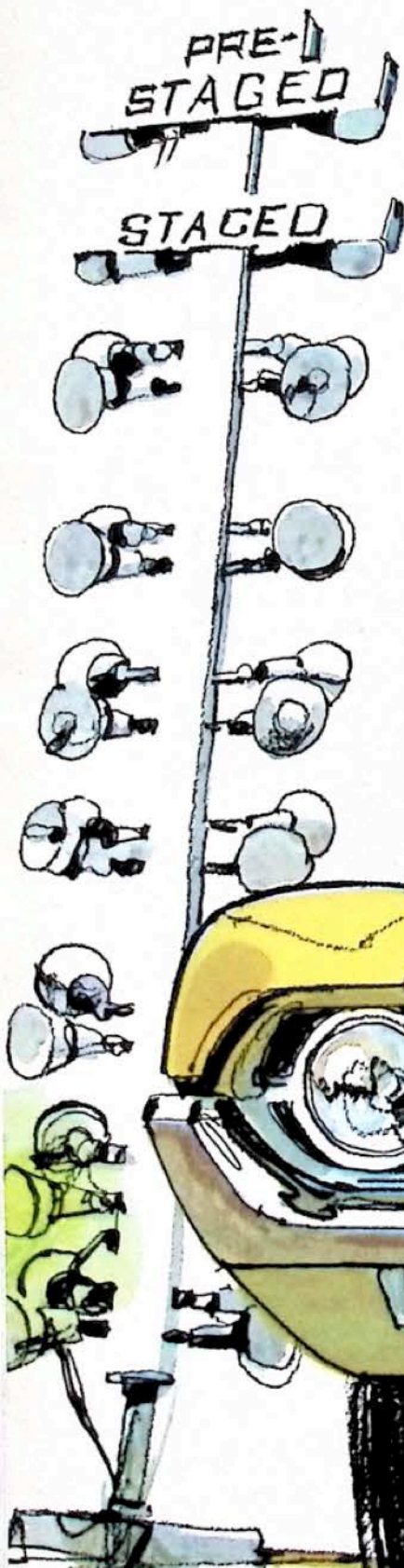
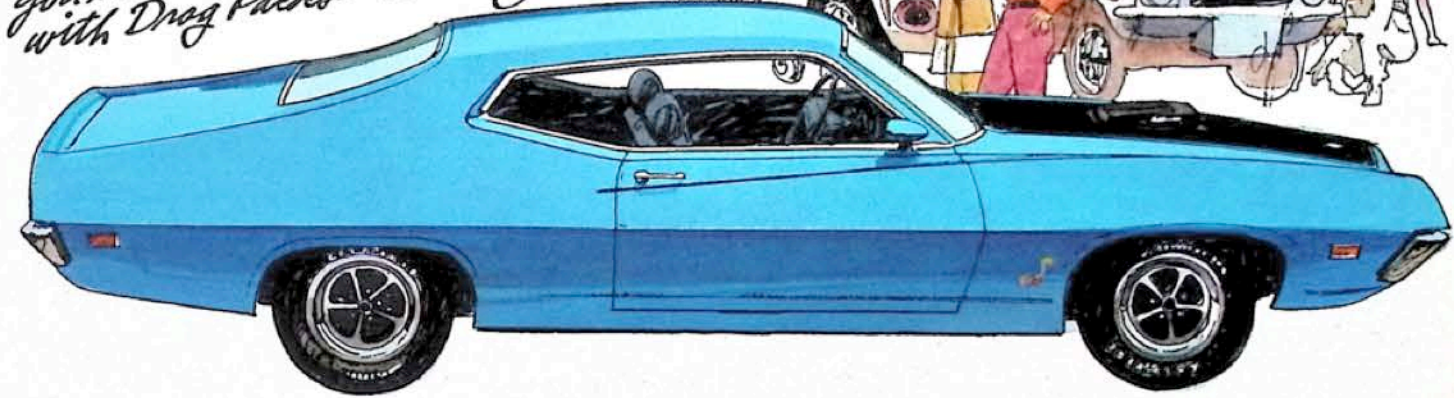
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But if you take trips longer than 1320 feet, fear not, Cobra's set up to hang tight like a road car should. After all, you don't send out National Championship stock car winners year after year without learning how to

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COBRA 



MOTOR TREND'S CAR OF THE YEAR 1970 FORD TORINO

Obviously, it was a tough call. Things aren't the way they used to be. Back in the '50's when this Car of the Year business started, a new model meant just that. There wasn't much funny business about recontoured door handles or nylon rollers for ash trays; a manufacturer would very likely pop with completely unique sheet metal, engine and drive-train all in one shot. Things were clear cut—either a machine was new or it wasn't. You could stand back and say with unchallenged certainty what was and was not a car with advanced engineering, breakthrough styling, and ground zero timeliness.

It was the period of revolution instead of evolution and as you know the going price of *coup d'etat's* has escalated steadily since the War of 1812, so a lot of the people that participated in these palace putsches aren't around anymore. When you start talking about seven, eight, and nine million units a year, a one- or two-buck goof may be your last. Besides that, absolute obsolescence doesn't send shivers of joy through your loyal owner's body whose Super Wombat GT's resale value is suddenly measured by the pound from one season to the next. Finally, there is the persistent possibility that what was banished from relevance by a General Manager's pen may, in fact, be inferior to what is replaced. Hear, hear.

But all of you keen-eyed automotive buffs know that, right? What you really want to get set straight in your skulls are these right-now, out-of-focus, crazy-quilt times. Distinctions of class and price and size are all kind of blurred together. You can't tell a car without a program anymore — let alone pick a Car of the Year.

So it makes sense that if the warp and the woof of the American automobile industries' fabric has changed, the way we select the most significant product of that industry must be changed, too. One man sorting through the reams of statistics hasn't much chance of succeeding when you remember the public relations people from some of the companies don't always know all the cars they make. Above all,

you must stay objective and working on an enthusiast car book is no guarantee, because what the enthusiast wants is not always one and the same with what the average buyer wants. Maybe there's a better way than using your ten-man staff to select eight nominees (MT, Nov. '69) and augmenting their judgments with five voices from the real outside world (MT, Jan. '70) but we haven't found it.

The plan was simple. We get together our staff and our associate CARS (Conference of Auto Research Specialists) panel (Sam Hanks, Mike Jones, Wally Parks, Roy Richter and Bob Thomas) and the cars nominated for Car of the Year (Barracuda, Challenger, Continental, Duster, Hornet, Maverick, Monte Carlo and Torino) and go out and drive. Just being a nominee for the award was a pretty special deal for these automobiles, because it marked them as machines that stand a head higher than the rest of the '70 crop. The trick was to decide which of these was truly Car of the Year. We would use criteria like engineering excellence, style execution, serviceability, market timing, quality control, and seat-of-the-pants stuff like steering, cornering, ride, stopping, entrance, and exit.

Now let's get a couple of things straight. You can't really speak of a car today because one single model doesn't exist anymore. Just as last year's winner Road Runner offered a couple of ways to go, even the bucks-down Maverick has an upper and lower series. All the 1970 nominees represented a line of automobiles — Hornet meant all Hornets; V8s, sixes, automatics, standards, the whole nest. Secondly, you want to know exactly how anyone can compare a Continental to a Duster or Hornet in the same breath. You can't. What you can do, though, is to evaluate each type or class of car within the environment it was built for. And, is the car a substantial improvement over its predecessor. A Hornet must succeed in Blue Collar Falls. If it also goes in Beverly Hills, well, then, that's the kind of bonus point that puts it over the top.

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O.K. We're all set. We start off from L.A. early on a Saturday and ride and drive the nominees down the center of the state almost to the Mexican border, and then back, up the Pacific Coast. Four hundred miles of freeways, two-lane country roads, city traffic, ravelled asphalt threads in the mountains — accelerating, stopping, dicing; switching vehicles; going flat-out in remote desert stretches; comparing notes at the gas stops. It was a very enlightening weekend. In the end, each person cast his vote for Car of the Year and the vehicle with the majority won. Torino, a new

car, a different, exciting concept, was the Car of the Year, 1970.

The thing everyone wants to know is why. And that question is at once an easy and a hard one to field. Easy, because you can simply say it got the majority vote. Hard, because the reasons behind that vote are as complex as the individuals involved.

Reflecting back over the last 15 years, the Ford Motor Company has played the innovator more times than the competition would care to remember. They had the first personal car, Thunderbird, and the Ranchero, and the Fairlane, and the Falcon, and the Mustang, and the LTD, and the Bronco and, of course, the Maverick. Sometimes their successes have been at the expense of other Ford models, but they were innovations nonetheless. The Torino is the next better idea.

With all the dislocations in the national market picture since 1965, the big bulge of new enthusiasm has come in the intermediate sector. And it's a queer thing, too. People want their smaller cars today alright, but they want optionally

loaded smaller cars. It isn't so much a trade for economy as bulk. With Torino, Ford is the first manufacturer to offer in their intermediates, the same, or if anything, a wider range of models and accessories than their full-sized car. The genius of it all is that in size, the Torino is halfway between what we thought of as the old intermediate and the current big Ford, attracting big slices of both groups.

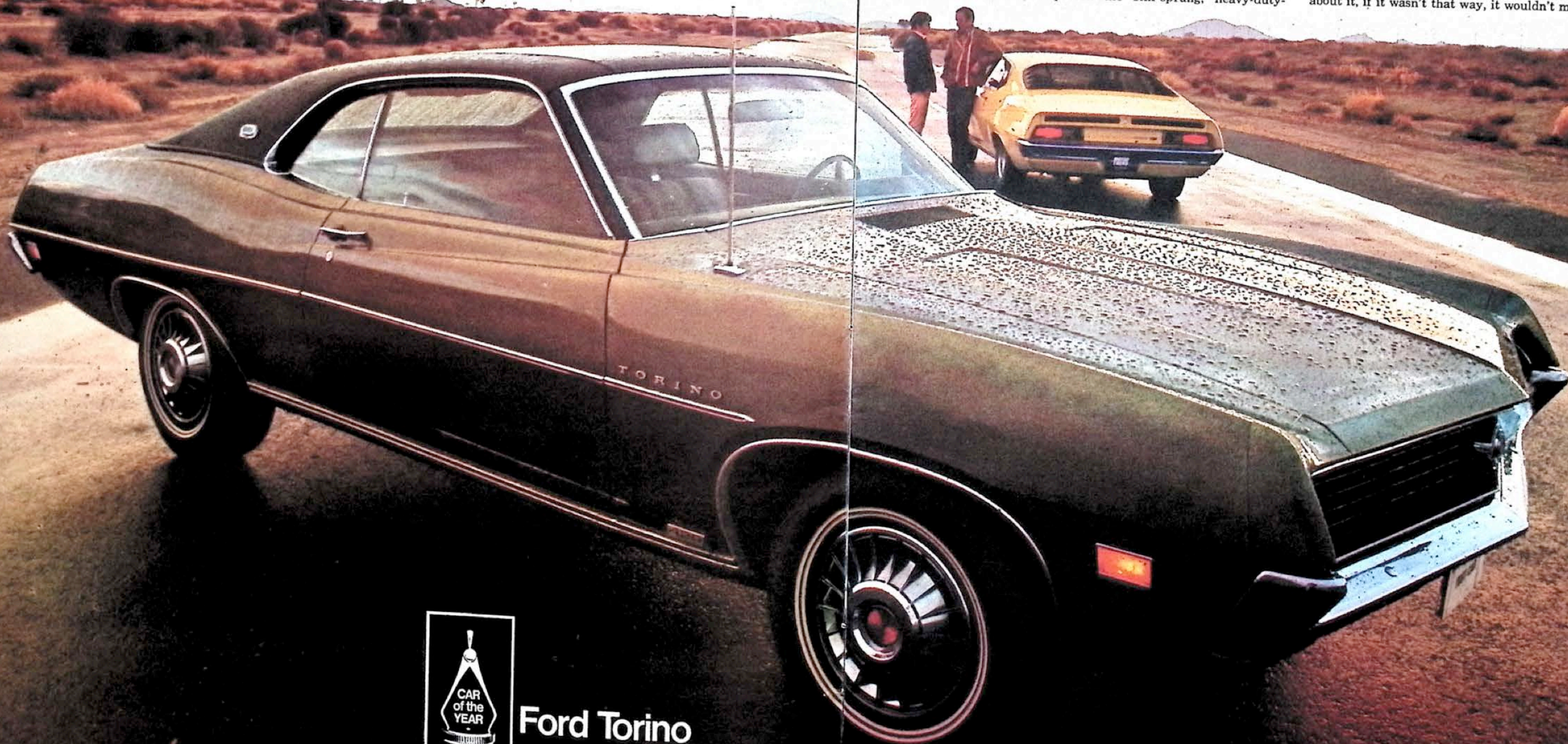
And it's got style. "Sleek" was the word that seemed to keep turning up on our evaluation forms. Some thought the Torino Cobra (called the "Yellow Banana" for obvious reasons) and the Torino GT slightly long for super cars, but no one could say they had poor style. The general consensus was the Brougham and regular two-door were A-1 with everyone and if you had hotter blood, the fastbacks were your bag. Or as one tester categorized the 'Banana,' "It's almost too racy looking for a supercar — maybe it should be camouflaged." The fact that it lived up to its looks was not overlooked either.

No one really expected the stiff-sprung, heavy-duty-

shocked, big-tired hot dogs not to make good marks in the mountains, yet the 351 hardtop and 429 Brougham accounted well of themselves, too. Perhaps we are on the threshold of a general elevation of handling characteristics in our normal production cars. The 351 4V automatic came forth as an especially desirable combination with a wonderful weight distribution-to-power-mix.

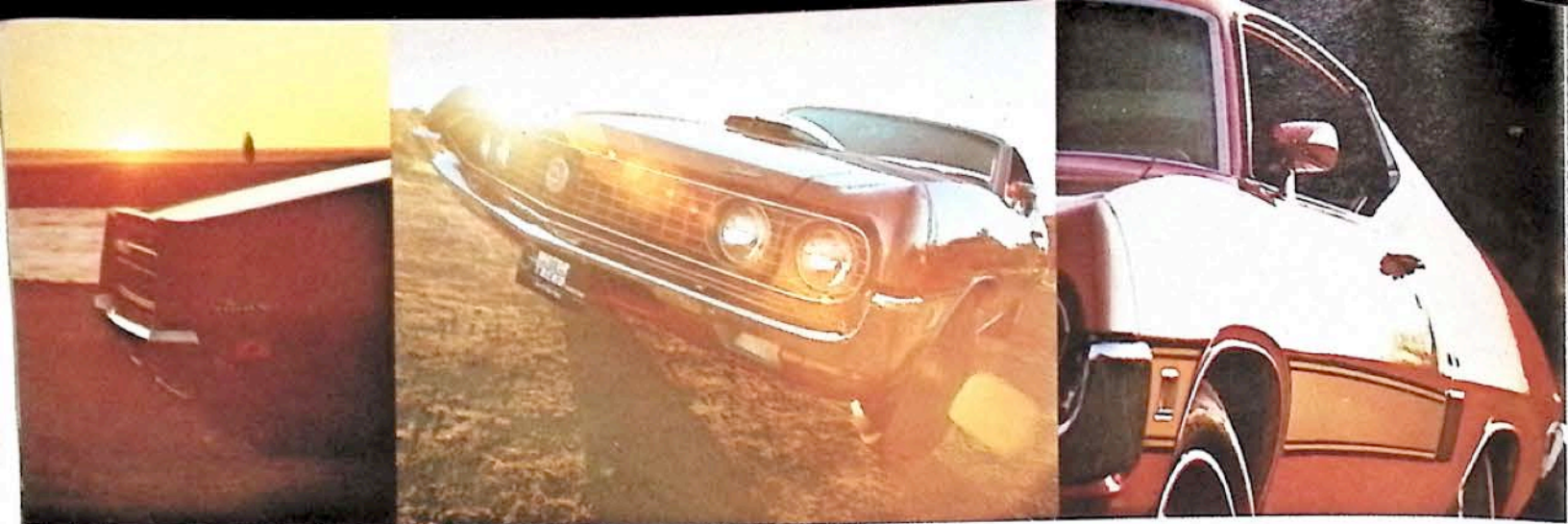
Perhaps Torino won because the various models are in fact what they're supposed to be. The 'Banana Cobra' race car and the GT were about as much race cars as you'd be willing to drive on the street. For LTD-like luxury, the Brougham was a pleasant surprise, and the normal 351 Torino two-door did its thing well as a reasonable family car — a happy compromise between all-out performance, comfort, and economy. That's really all you can ask.

In a way the Car of the Year award is like the Motion Picture Academy award: all the candidates go in winners and all but one come out losers. When you come to think about it, if it wasn't that way, it wouldn't mean much. /MT

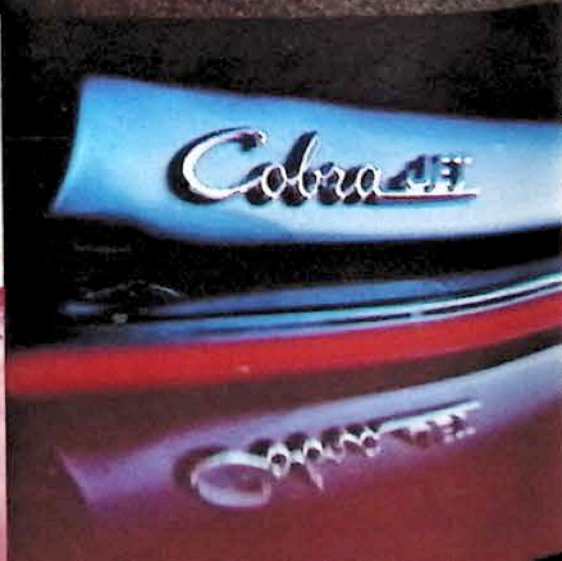


Ford Torino

Special Photography: Fred Enke



Torino Road Test



Now, for the best car of 1970 produced by an American manufacturer in black or white or any color. May we have the envelope, please. And the winner is — in Detroit, Michigan — Torino.

Theme and Variations

The Yellow Banana Torino Cobra is a figment of my adolescence. A flat-black-striped 429 rocket-sled where you slam the door and hear the faint, but unmistakable echo of a throbbing set of Dyna-Tone mufflers on a nosed and decked '41 Ford coupe with 4-inch shackles. To have had it sixteen years ago on Main Street in Lockport, New York, with all its shuttered back-lite, fat-tired, shaker-hooded, chopped-top magnificence would have equated with having the Bean Bandits' fuel dragster. Significantly, their performance is almost the same; we have come that far.

In the hiatus between teen-hood and maturity, Ford stumbled, but now they have almost taken the performance game ball back on downs. You know it when the kid at the Standard station around the corner lifts the Torino Cobra's hood and notes this week's ultimate status symbol, a pair of steel armored lines going from the small core in front of the radiator to an adapter between the oil-filter and the block. "What's that oil-cooler on here for? Is this a racer or something?"

You can con 'em with loud pipes and a rough idle and air scoops but when you start putting on things like oil-coolers, people know you're playing with real money. A couple of braided oil lines and an oil radiator are small potatoes in the scheme of a whole car, but when they represent that last appropriate touch of one-upmanship, they are the division between winner and runner-up. I mean, you used to identify engines by the decals on the air-cleaner, right? Now Ford has made the declension game more legitimate by integrating it with function — only the 429 355-horsepower Drag Pack Cobra Jet engine has a standard oil-cooler.

In particular, the 429 Torino Cobra is characteristic of Torinos generally — they are not really a line in the old sense, but a system of specialty cars, each for a different use. As a class, there are fourteen models in four distinct groups: luxury, performance, economy and, for want of a better word, normal. There is also a four-engine family of eight varying intensities and from here the possible combinations go off like a starburst.

By their nature, starbursts are hard to field, so from

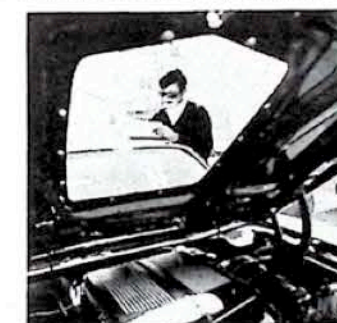
the Torino's multitude, the 429 Brougham, 351 hardtop, GT SportsRoof and "Banana" seemed likely enough candidates for tests after they helped to win the award. Besides that, we had had them for about a month and pretty much decided their virtues and hang-ups.

Somewhere back in a round of talks with the people who built this car it was mentioned in passing that the Torino was about the same general size as the 1959 Ford. It was nothing more than a kind of perspective reference and yet, when you recall that '59 was one of the few times Ford has outsold Chevy, maybe the comment is more meaningful than they know. Ford's dimensions in '59 were kind of in that magical mystery not-too-big-not-too-small, just-right kingdom and so is the Torino. Oh yes, you'll get some protests from the super-car sector that 4000 pounds is a lot to haul around, even for a house-a-fire 429, and maybe they've got something, but it doesn't seem to distress that many people.

Environmentally, the "Banana" is at zero plus one and counting. Out over the hood, the pavement seems to rush under the machine with the same sort of down-on-the-deck blur as a GT 40 and there is a real feeling of a cockpit — scrunched-low-on-the-shoulders roof, narrow windshield, front fenders looming up on either side. It is sort of a cross between a race car and a pill-box on the Seigfried line.

The seats are those slick high-back clamshell jobs introduced on Mustangs in '69 and from there everything—meaning the levers and switches that make this beast go — are close at hand. If you're over about six-foot-two, perhaps a little too close. Despite the situation that the seat tracks are slightly curved to tilt it back at the rear position, supposedly creating extra room, there is not enough

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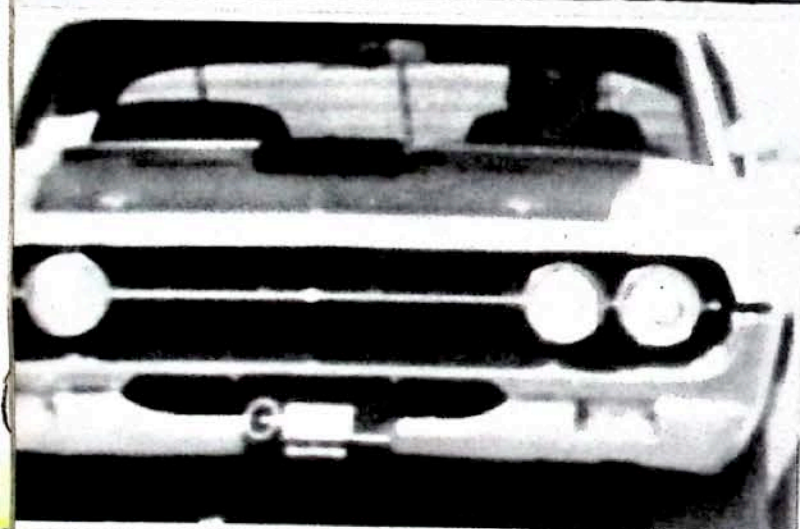
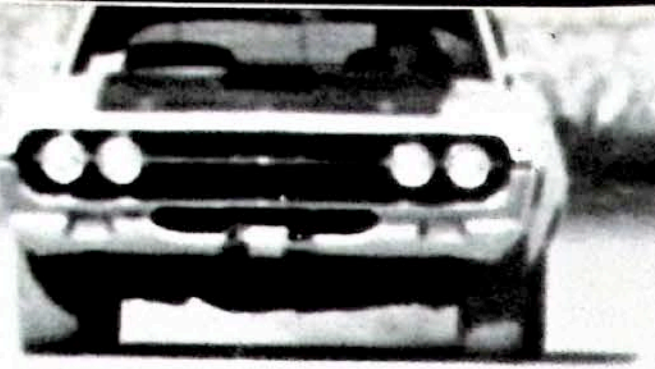
And believe that the evaluators evaluate — every last engine compartment, trunk, back seat, and shoulder belt.



The Car of the Year nominees were impressive. But, so was the battery of tough standards they had to meet.



Over the long, roller coaster desert, the Car of the Year Rally went, sometimes completely flat out.



You've got to remember that Ford invented this whole intermediate car business in the first place. When they say they've got a new plan, we'd better listen closely.

seat travel. Because the car is too good otherwise to discard, you have a choice. Either unbolt the bucket tracks and move them back a couple of inches, or opt for the bench seat which, for some construction fluke, doesn't have the problem.

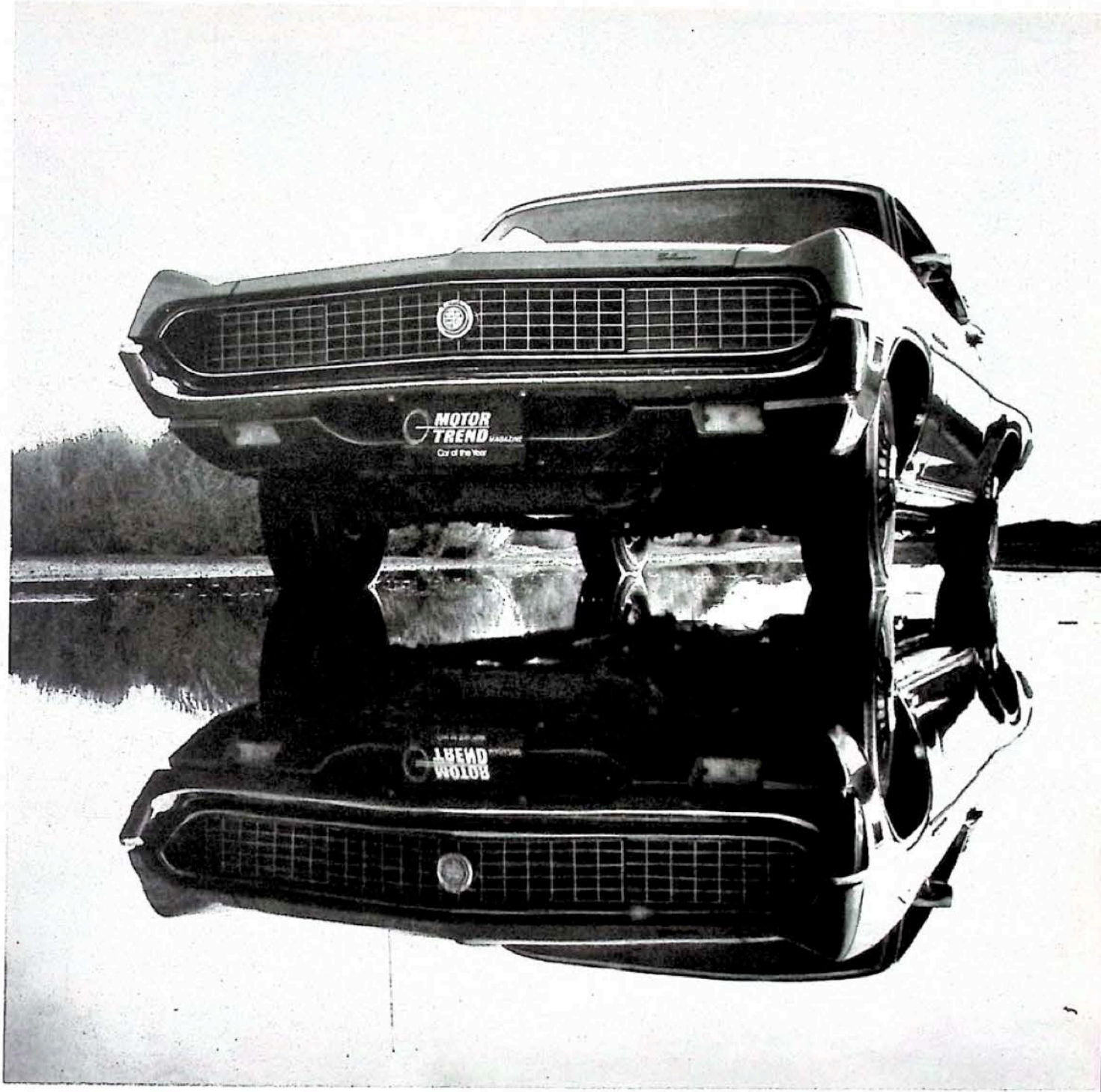
It says at the bottom of the spec chart that the GT and the Cobra have identical high-rate front and rear springs, .95-inch front stabilizer bar, and the heavy-duty shocks, but the Cobra still feels a bit tidier in the turns. Perhaps it was that the Hurst-handled 4-speed gives more control than the automatic GT. The standard shift's staggered rear shock arrangement (to prevent wheel hop), also gives the Cobra a slightly different disposition. It's not that big a deal. There is no doubt going in that these cars will understeer to a degree, but not quite as little as they do. You direct the machines around a corner and that's where they go. You have to horse them a little, but they get there.

Another thing the spec chart says is that there are two 370 hp C.J. engines — both with 4.36 x 3.59-inch bore and strokes, both with 11.3:1 compression ratios, both seemingly producing identical performance in identical cars. Of course, it isn't true. The 429 Drag Pack in the "Banana" was a real race mill. They put that oil cooler on there as a support system for the forged aluminum pistons, wilder cam, 780 CFM carburetor, 4-bolt mains and cast iron flow-through headers. The 429 automatic GT with a 3.50:1 gear did a 14.35 second quarter at 96 mph which is O.K. but not inspiring. Admittedly helped by a 3.91:1 screw, 4-speed and lighter weight, the "Banana" shot the "eyes" at 13.99-101 — in a word, good. It also shows good wheel hop on the 2-3-shift, staggered shocks or no.

Inevitably, after thrashing around on the tracks a couple of times and strafing hapless GTO owners at the lights, you come around to the conclusion that maybe those days on Main Street ought to stay locked in that far away country of your youth because no amount of wishing will get you and the "Banana" back across the border. The 429 Cobra as we tried it was a thing for the young and as that it succeeds very well. As for the shell-shocked in the no-mans land of over thirty, nothing can work for them long except the SportsRoof GT that is a mix of performance and practicality.

Otherwise, the other run-of-the-mill "Torino" Torinos are a better deal if what you care about is getting to wherever in some sort of reasonable/comfortable fashion. There is even the 429 Brougham but its 360 horsepower genius suggests pulling an air conditioner rather than your neighbor at a stoplight. And, it is related to the Cobra and GT about the same way it is to the 351 Torino. There is the common 117-inch wheelbase and the identical 206.2-inch overall length. When you get into a Brougham, it's the same feeling as an LTD or even, dare we say it, a Continental. But in more manageable scale.

There is the air, and the AM-FM stereo and the lush, satin-like fabric upholstery and the power seats and windows, wrapped by this easy to maneuver envelope. Of the Torinos in our flotilla, when all was said and done, the Brougham was the one you really wanted as long as someone else was footing the bill. At a steady 10 mpg the 429 tends to be a bit rich for the working stiff. If a 351 can generate sufficient energy to motivate the things that make the Brougham a Brougham, then this number will sell like a Kentucky Fried franchise. Roll up the curved ventless sideglass and at eighty the surprising quiet strikes you the



same way it did the first time you stepped into a library. Only the muffled thump of freeway expansion-joints intrude.

Now then, sharing the identical body configuration as the two-door formal roof hardtop Brougham 429 is the two-door hardtop Torino Torino 351. It is not as quiet at eighty as the Brougham and inside isn't the same tapestry and it won't knock off the "Banana" and still, you could very well prefer it to the others. For things like better balance, for instance. A 351 is sort of a welter-weight among engines, so, a 351 powered car is more agile than a 429 and has less understeer. Run-for-run the lighter 351 Torino is the quicker accelerating as well as slowing down again, although 60-0 distances of 145 and 150 feet respectively are both in an excellent range.

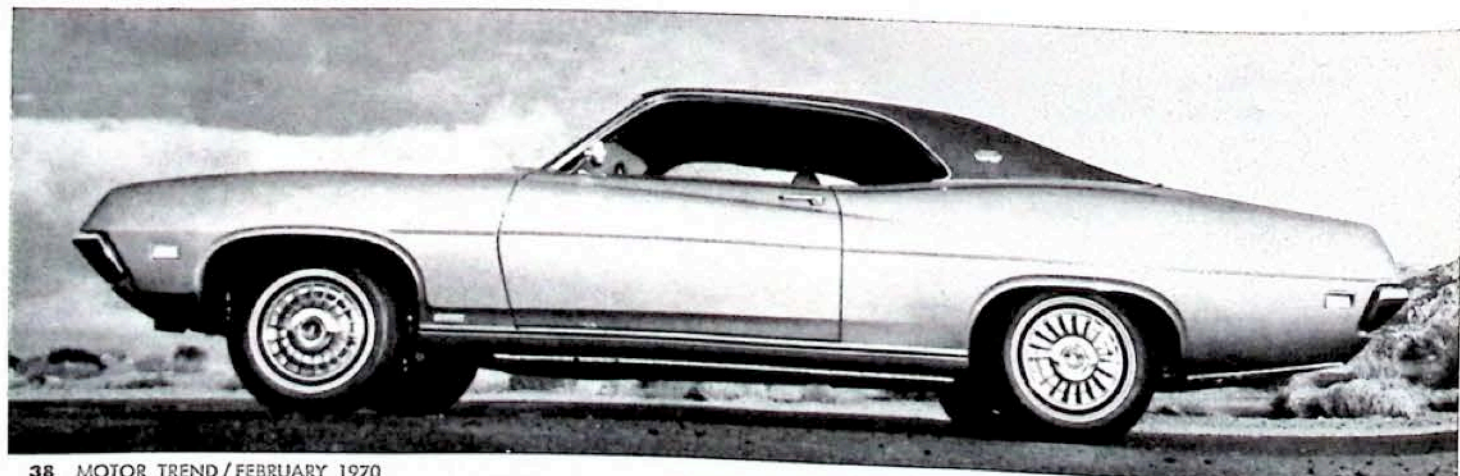
Inside a Torino Torino you find something from the Maverick's decorating book — the jazzy blazer stripe; i.e., the seats have wide swatches of Tartan fabric, broadcasting a

very warm feeling. Not as rich as the Brougham, but then, not as expensive either. Windows-up ventilation is noteworthy because there is some. Ever since Ford of England devised an effective draft-free air-circulation system that really worked, American manufacturers have struggled to create something as good. Torino's DirectAir deal is it, or at least it's better than anyone else's in Motown. Dashboard mounted adjustable air registers produce a quasi-air conditioning effect at anything over 30 mph and the only criticism you can level at the system is that the right-hand on-off control is where its designation implies — on the extreme far side of the car where the driver can't reach it while moving.

What you could say, I suppose, is that the Torino system of vehicles is like a giant decathlon team — each model is exceptional in several dimensions and above average in most of the rest. The gold medal is the 351 Torino Torino, yet the rest of the outfit all finishes in the silver. You can't lose. /MT

SPECIFICATIONS	TORINO COBRA	TORINO GT	TORINO BROUGHAM	TORINO 351
Engine	OHV V8	OHV V8	OHV V8	OHV V8
Bore and stroke	4.36 x 3.59 ins.	4.36 x 3.59 ins.	4.36 x 3.59 ins.	4.00 x 3.50 ins.
Displacement	429 c.i.	429 c.i.	429 c.i.	351 c.i.
Horsepower	370 @ 5400 rpm	370 @ 5400 rpm	360 @ 4600 rpm	300 @ 5400 rpm
Torque	450 @ 3400 rpm	450 @ 3400 rpm	480 @ 2800 rpm	380 @ 3400 rpm
Compression ratio	11.3:1	11.3:1	10.5:1	11.0:1
Carburetion	1 4-bbl.	1 4-bbl.	1 4-bbl.	1 4-bbl.
Transmission	4-speed	Automatic	Automatic	Automatic
Final drive ratio	3.91	3.50	3.0	3.0
Steering type	Power	Power	Power	Power
Steering ratio	20.64:1	20.64:1	20.64:1	20.64:1
Turning diameter (curb-to-curb)	42.75 ft.	42.75 ft.	42.75 ft.	42.75 ft.
Wheel turns (lock-to-lock)	3.5	3.5	3.5	3.5
Tire size	G70x14	F70x14	F78x14	E78x14
Brakes	Disc front, drum rear	Disc front, drum rear	Disc front, drum rear	Disc front, drum rear
Front suspension	Independent, coil	Independent, coil	Independent, coil	Independent, coil
Rear suspension	Parallel leaf spring	Parallel leaf spring	Parallel leaf spring	Parallel leaf spring
Body/frame construction	Unit steel with front frame	Unit steel with front frame	Unit steel with front frame	Unit steel with front frame
Wheelbase	117 ins.	117 ins.	117 ins.	117 ins.
Overall length	206.2 ins.	206.2 ins.	206.2 ins.	206.2 ins.
Width	76.8 ins.	76.8 ins.	76.8 ins.	76.8 ins.
Height	51.0 ins.	51.0 ins.	52.2 ins.	52.2 ins.
Front track	60.5 ins.	60.5 ins.	60.5 ins.	60.5 ins.
Rear track	60.0 ins.	60.0 ins.	60.0 ins.	60.0 ins.
Curb weight	3586 lbs.	3913 lbs.	3595 lbs.	3551 lbs.
Fuel capacity	22 gals. (20, Calif.)	22 gals. (20, Calif.)	22 gals. (20, Calif.)	22 gals. (20, Calif.)
Oil capacity	5 qts. + cooler	5 qts.	5 qts.	5 qts.
PERFORMANCE	TORINO COBRA	TORINO GT	TORINO BROUGHAM	TORINO 351
Acceleration				
0-30 mph	2.8 secs.	2.6 secs.	3.6 secs.	3.4 secs.
0-45 mph	4.3 secs.	4.2 secs.	5.6 secs.	5.7 secs.
0-60 mph	5.8 secs.	6.0 secs.	8.8 secs.	8.7 secs.
0-75 mph	8.7 secs.	9.0 secs.	13.2 secs.	12.5 secs.
Standing start (quarter-mile)	13.99 secs. at 101.0 mph	14.4 secs. at 100.2 mph	16.7 secs. at 86.1 mph	16.5 secs. at 86.6 mph
Passing speeds				
40-60 mph	3.0 secs.	3.2 secs.	4.3 secs.	5.1 secs.
50-70 mph	3.1 secs.	3.5 secs.	5.0 secs.	5.1 secs.
Speeds in gears				
1st	N.A.	48 mph @ 5400 rpm	50 mph @ 4600 rpm	58 mph @ 5400 rpm
2nd	N.A.	82 mph @ 5400 rpm	83 mph @ 4600 rpm	94 mph @ 5400 rpm
3rd	N.A.	119 mph @ 5400 rpm	115 mph @ 4600 rpm	110 mph @ 5400 rpm
MPH per 1000 rpm (In top gear)	N.A.	22.2 mph	20.6 mph	20.5 mph
Stopping distances				
From 30 mph	28 ft.	26 ft.	32.9 ft.	34 ft.
From 60 mph	131 ft.	128 ft.	150 ft.	145 ft.

Torino: Not really a car line in the old sense, but a system of specialty cars, each for a different use . . . 14 models in four distinct groups, from luxury to performance.



PRODUCT PLANNERS

Think about it. Wasn't it in 1952 that Ford products began to take on a "suddenly different," sporty new look, the result of introducing model lines which were, at the time, quite a departure from the norm in their day? In 1952 it was the Sunliner. In 1955, the Crown Victoria hardtop series, along with the first true personal car, Thunderbird. Then in 1957, greater diversification with the Fairlane 500 series to supplement the Fairlane line which was introduced in 1955. The Galaxie lineup came in 1959, followed by the Galaxie 500 XL. In 1960, the first Falcons; in 1964 the overwhelmingly successful Mustang; and Ford scored again in 1970 with the very timely Maverick.

You get the picture. Different cars with a certain special appeal intended to satisfy the different buying habits of a growing market, a more youthful image market. All in combination with economy and, if desired, performance, too. You name it; Ford has had it . . . and always just at the right time. An impressive record.

It's all easy to understand. Ford Motor Company is directed by young management, or at least young-thinking management. Which means products of contemporary design, consistent with "now" trends, but innovational objectives in future product planning. They're way ahead of us, know what we're going to want and demand in the cars we buy and drive years before we do. Ford officials take pride in their accomplishments, and further insist that if they did not maintain their innovational attitude, the entire industry would still be sluggish, offering only limited models from which to select. In short, someone

has to spur competition and Ford takes the credit for doing it.

That's how the 1970 Torino came to be. It's no exception to Ford's rule. It's a glowing example of their continual objective. Torino: Not just another intermediate with only a couple of models in the line, but a complete broad-base series in which is offered everything from an economy model to a spirited and slippery performance street 'n' tracker to a plush, luxuriously appointed sedan. No matter the buyer's need, there's a car with a Torino label, and value is a basic feature of each. That was part of the plan.

The 1970 Torino story dates back to 1965, but it was in 1961 that Ford took a close look at the trends of car buyers, detected and seriously considered the impending interest in an in-between-size vehicle. Intermediate-size cars first made an impressive mark in 1961, with the super-compacts — cars which approached intermediate size — taking 7.5 percent of the total market. Ford introduced their Fairlane in 1962, in two body styles, a harbinger of the other Big Three's in-betweens in 1964 and '65. The intermediate market took root and flourished, rising from its 7.5 percent level to 23.8 percent by 1966. Meanwhile, the standard-size cars — the big Fords, Chevs, and Plymouths — were waning in popularity with an accompanying decline in market penetration from 38.0 percent of industry sales in 1961 to 30.8 percent in 1966.

The Fairlane series was taking its share of the pie during the mid-1960s, but Ford's idea men gave it a stronger hold when they introduced the first Torino models in 1968. Acceptance of the

fastbacks in the Fairlane series jarred the industry, and their popularity zoomed throughout the 1969 model year. The wizards at Ford product planning were way ahead of the game, however. They were already charting the progress of intermediates as far back as 1965, and by 1967, the Torino story was more than just paperwork; a car was taking shape in Ford's styling studios. The directive: "Break the mold." This wasn't to be a refined Fairlane, nor was it to be a derivative of the 1968-'69 Torinos. The 1970 Torino was launched as an all-new car, a complete model line, with a new, hot looking, youthful appearance. It was to be low and wide, and project a totally new image with a definite performance personality. Racy. Bold. Fast lines, yet including in its models all the variety anticipated to be in demand, from sedans to station wagons.

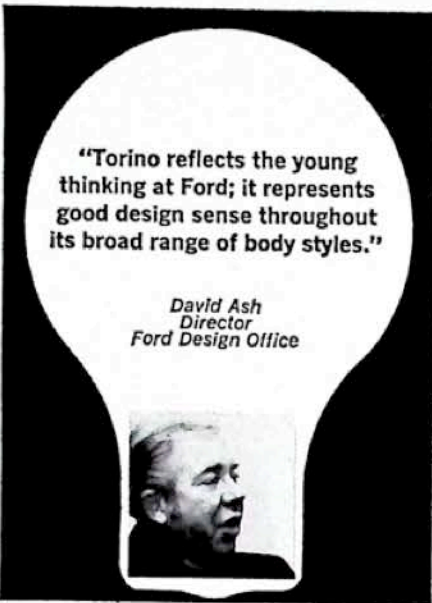
The two-door hardtop was the first design to be "frozen" (a stylist's term for finalized), since these models currently command 60 to 65 percent of the market. The four-door followed (four-doors were once the first cars to be styled and designed, then followed by two-doors, convertibles, and wagons, because a four-door takes longer to develop, but no more — the two-door is the sales leader, and all other models are based on its style). The program called for a complete line of cars, so the fastback was a natural, along with the more refined SportsRoof, giving Torino "one upmanship" in the industry with the widest spread of intermediate models ever to be produced.

That was the key. A complete car line. Until Torino, intermediates had been

continued



The 'better idea' innovators have stimulated the market with Thunderbird, Mustang, and Maverick. They're at it again with a new pacemaker, Torino.



"Torino reflects the young thinking at Ford; it represents good design sense throughout its broad range of body styles."

David Ash
Director
Ford Design Office

very unsettled for years. Their definition was uncertain. Manufacturers were not sure of car size or direction, and therefore were unable to determine the ideal package in models, dimensions, and power options. For nearly a decade the intermediates experienced a period of restless transition, some models nothing more than fluffed up super compacts, others off-target in size and weak in diversity of model offerings. Torino had to be different. There could be no gaps. It was to be, in the words of Hal Sperlich, Car Product Planning Manager at Ford, "... a minimum standard car." And it had to offer every possible model and option to ensure the availability of a vehicle suited to a specific need, along with sufficient personality potential for the image-conscious buyer. Torino offers 14 models in its lineup.

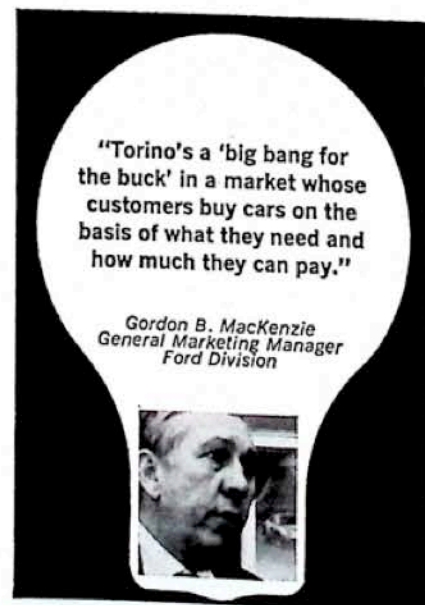
Ford is justifiably proud of Torino's styling. David Ash, Director of Ford Design, commented on the Torino concept: "It was one of our efforts that caught on from the very beginning. It was well-liked, and the model jelled very quickly. The long-line, low-silhouette roof prompted our 'shaped by the wind' slogan. The design characteristics are such that we're confident there will be a continuation of the concept in some guise in coming years."

Torino is different. It is a totally new car, conceptually radical, certainly not a product of traditional habits where "... changes in cars were made gradually since the middle '60s." The aerodynamic flavor of its basic styling imparts precision of design. Lower. Wider. Longer. Gracefully sculptured.

"The car looked good in its earliest design form, and we were impressed with the first test units — their appearance on the proving grounds and test tracks prompted not only favorable comments, but enthusiasm among our staff," said John Naughton, General Manager, Ford Division. "But the true test of a car comes when it is first seen on the streets in everyday use. If it stands out among all the others, you know you have a winner. And Torino does just that."

Beneath Torino's styled-for-tomorrow, striking exterior there is more new car, more than ever before. Using the 1969 Fairlane fastback for a comparison, overall length has been increased by 5 inches (to 206.2, just over 17 feet). This was accomplished by increasing the wheelbase 1 inch (to 117), and extending the overhang forward of the front wheel centerline by 4 inches. The profile emphasizes the long hood/short deck theme. The front and rear treads have been increased 2 inches to a wide 60.5 and 60.0 inches, respectively, for functional improvement as well as appearance and, after all this time, a larger engine bay. Low silhouette was achieved by a 0.7-inch height reduction (using the '69 for comparison again), and a certain massiveness with 1.9 inches more in width.

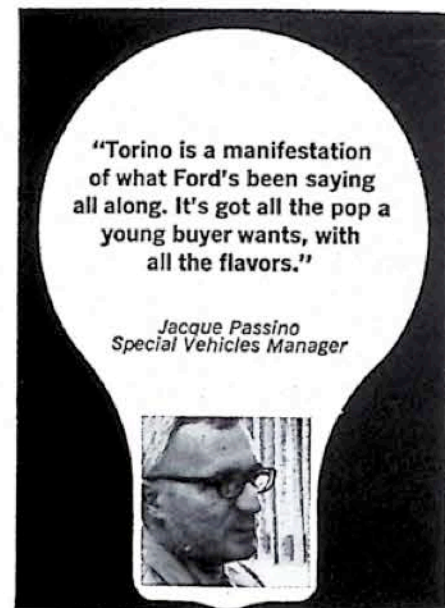
The 1970 fastback model is the most changed of all Torinos. In addition to its 1.2-inch lowered height, the windshield slope has been increased by 3.9 degrees, and the roof line has been lowered and extended to affect an authentic GT racing look. To compensate for the lower roof line, the interior package is changed by lowering the front seat.



"Torino's a 'big bang for the buck' in a market whose customers buy cars on the basis of what they need and how much they can pay."

Gordon B. MacKenzie
General Marketing Manager
Ford Division

Suspension, too, is new, developed specifically for Torino and extensively tested with the cooperation and assistance of the Los Angeles Police Department. Torino's competition ride is crisp and flat. High-rate front and rear springs, a high-rate front stabilizer bar, and heavy duty shock absorbers were tailored to provide firm, tight characteristics without being excessively harsh or jarring. [The Los Angeles Police Department in 1970 will put into service



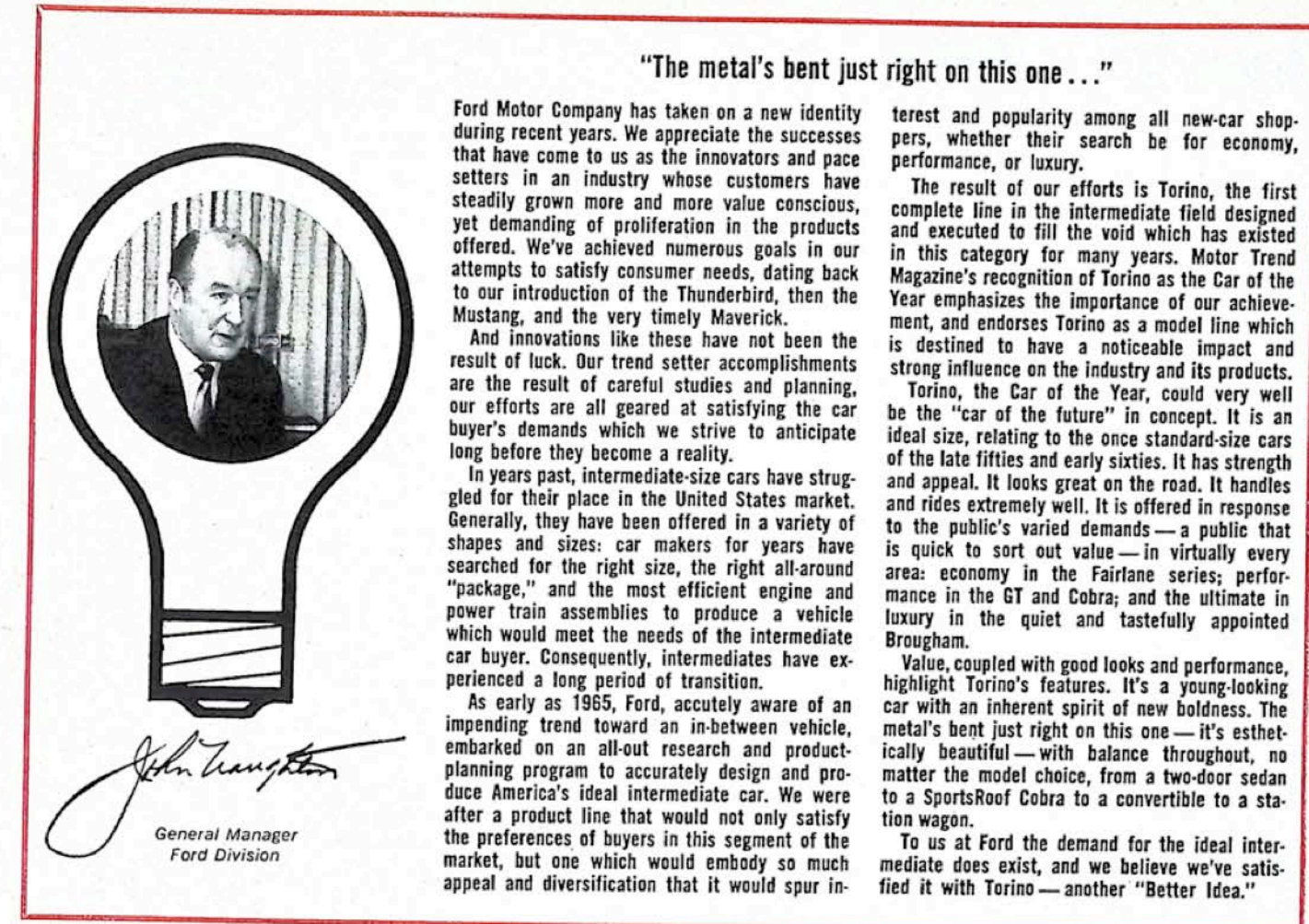
"Torino is a manifestation of what Ford's been saying all along. It's got all the pop a young buyer wants, with all the flavors."

Jacque Passino
Special Vehicles Manager

Mercury Montegos, Torino's sister car, equipped with the competition suspension as used on Torino.]

Most exciting is Torino's engine lineup. Howard Freers, Chief Engineer, Light Cars, at Ford, boasted of the engine lineup and powertrain options: "Just as the Torino offers a complete line of cars, also available is a complete line of engines, the latest and greatest powertrains in the industry."

Re-sized and improved in 1969, Ford's 250-cubic-inch six-cylinder is the standard engine on all models except Torino GT and Cobra models; standard on the GT and optional on all others (except Cobra) is the 302 c.i. 2V (2-bbl.) V8. And completely new for 1970, available on all models except the Cobra, is the 351 c.i. 2V and 4V V8s, destined to be the most popular option choice. Standard in the Cobra is Ford's "vanilla" engine (an engineering term for a base engine), the 429 c.i. 4V which was all new in 1968, standard in the Thunderbird, and offered for the first time in the intermediates this year. Options are varied in the 429 lineup, with the first performance version of the 429 being the 4V Cobra package, including the



"The metal's bent just right on this one..."

Ford Motor Company has taken on a new identity during recent years. We appreciate the successes that have come to us as the innovators and pace setters in an industry whose customers have steadily grown more and more value conscious, yet demanding of proliferation in the products offered. We've achieved numerous goals in our attempts to satisfy consumer needs, dating back to our introduction of the Thunderbird, then the Mustang, and the very timely Maverick.

And innovations like these have not been the result of luck. Our trend setter accomplishments are the result of careful studies and planning, our efforts are all geared at satisfying the car buyer's demands which we strive to anticipate long before they become a reality.

In years past, intermediate-size cars have struggled for their place in the United States market. Generally, they have been offered in a variety of shapes and sizes: car makers for years have searched for the right size, the right all-around "package," and the most efficient engine and power train assemblies to produce a vehicle which would meet the needs of the intermediate car buyer. Consequently, intermediates have experienced a long period of transition.

As early as 1965, Ford, acutely aware of an impending trend toward an in-between vehicle, embarked on an all-out research and product-planning program to accurately design and produce America's ideal intermediate car. We were after a product line that would not only satisfy the preferences of buyers in this segment of the market, but one which would embody so much appeal and diversification that it would spur in-

terest and popularity among all new-car shoppers, whether their search be for economy, performance, or luxury.

The result of our efforts is Torino, the first complete line in the intermediate field designed and executed to fill the void which has existed in this category for many years. Motor Trend Magazine's recognition of Torino as the Car of the Year emphasizes the importance of our achievement, and endorses Torino as a model line which is destined to have a noticeable impact and strong influence on the industry and its products.

Torino, the Car of the Year, could very well be the "car of the future" in concept. It is an ideal size, relating to the once standard-size cars of the late fifties and early sixties. It has strength and appeal. It looks great on the road. It handles and rides extremely well. It is offered in response to the public's varied demands — a public that is quick to sort out value — in virtually every area: economy in the Fairlane series; performance in the GT and Cobra; and the ultimate in luxury in the quiet and tastefully appointed Brougham.

Value, coupled with good looks and performance, highlight Torino's features. It's a young-looking car with an inherent spirit of new boldness. The metal's bent just right on this one — it's esthetically beautiful — with balance throughout, no matter the model choice, from a two-door sedan to a SportsRoof Cobra to a convertible to a station wagon.

To us at Ford the demand for the ideal intermediate does exist, and we believe we've satisfied it with Torino — another "Better Idea."

new competition suspension, cast aluminum rocker arm covers, and an engine dress-up package. Next is the Cobra Jet. The third performance choice in the 429, the Drag Pack version, includes mechanical valve train, 4-bolt mains, oil cooler, and forged pistons. It comes with mandatory 3.91 or 4.30 differential. All 4-speed transmissions are equipped with the smooth, responsive Hurst shifters. The ram air option, using a pop-through "shaker" scoop, is offered with the 351-4V, 429-4V CJ, and Drag Pack engines. Improved acceleration (and looks) is

realized with the scoop, due, of course, to the "supercharging" effect.

Readily apparent is the possibility of the Torino buyer to tailor his car, by model choice and engine availability, to specific needs and preferences. No model, no option has been overlooked in Torino planning, and each incorporates a bundle of "better idea" engineering items for driver safety, comfort, and convenience.

Torino's engineering story goes much deeper. There are the less apparent, often "assumed to be there" improvements one would expect in a new car. Heading Torino's list is sound, or rather lack of it. "Shaped by the wind" is more than an advertising slogan. During early wind-tunnel tests, the objective was to produce, through application of design and engineering principles, not only an aerodynamically stable car, but one free of wind noise. By design, this was accomplished through the use of curved side glass which is as flush as possible to the car's sculptured sheet metal, no vent "wings" (except on two-door and four-door sedans), and use of an electronically developed sound silencing system.

In laboratory transmissibility tests, a new fiber-belt laminate material was found to be very effective in reducing noise transmission and, consequently, is used in the critical rear quarter area of the passenger compartment. To reduce engine noise, the material extends from the dash down to the toeboard. So quiet were the early test cars that



"Torino for '70 features a whole raft of 'better idea' engineering items with the latest and greatest engines in the industry."

Howard P. Freers
Chief Engineer,
Light Cars Systems
Engineering



"The more rational consumer will welcome Torino, the intermediate that has grown to standard-size proportion."

Hal Sperlich
Car Product Planning
Manager

some noise had to be put back into performance models — specifically the GT and Cobra. The Brougham, for example, remains so quiet inside the passenger compartment that at 80 or 90 mph, there is no feeling of speed. A necessary result: the GT and Cobra employ certain "noise areas" to enhance their performance image: tuned exhausts, tuned-for-sound air cleaner intakes... all carefully designed and very effective. Not only do they look like factory produced racing cars, but they sound it.

continued on page 90

How to Buy: a Torino



ECONOMY

ECONOMY-PERFORMANCE

PERFORMANCE

PERFORMANCE-LUXURY

LUXURY

For each buyer there is an "ideal" model in any car line, and for that reason, *Motor Trend* introduces its "How to Buy:" regular feature, beginning, logically, with this year's Car of the Year: 1970 Torino.

Model suggestions, by category, are based on sales records, along with the opinions of engineers and marketing experts who, admittedly, know more about what we need in a car than we do. It's all a matter of design and equipment compatibility and efficiency.

For convenience, and to supplement the suggested "ideal" models we've reviewed here, a complete listing of all Torino equipment and accessories at optional cost accompany this article . . . from engines to transmissions to trailer-towing packages.

Motor Trend suggests the price leader in the Torino line, the formal two-door hardtop, with the 250-cubic-inch (155 hp) six-cylinder engine as standard equipment. Ford's Cruise-O-Matic automatic transmission is a recommended option, particularly in those areas of heavy traffic congestion, and a 2.79:1 axle ratio is the most efficient all-around choice.

Power steering, an AM radio, and dress-up wheel covers are suggested options to tailor a good-appearing economy car . . . one that is economical to purchase (approximate retail of \$3,000, not including transportation charges and taxes), and one that should render low-cost operation.

Other trim options, of course, would enhance the car's overall appearance, such as the available body side molding/insert; and air conditioning, along with the tinted glass, should be a consideration of those living in the southwest.

And, it should be noted, for as little as \$90 more, the Torino formal two-door hardtop is available with Ford's 302 c.i., 220-hp V8 engine with two-barrel carb, the V8 economy leader in the Torino line.

Our choice in this category is Torino's formal two-door hardtop, and for the performance enthusiast, fitted out with the 351 c.i. V8 with four-barrel for 300 horsepower. Since "economy-performance" suggests everyday street use, the Cruise-O-Matic automatic transmission is a suggested option, along with power steering, and a 3.00:1 axle ratio. An AM radio and wheel covers should be included, and although statistics reveal that only 30 percent of cars in this category are usually equipped with power disc brakes, we recommend them, since the retail price is a mere \$65. Thus, a 300-hp Torino, so equipped, would carry a manufacturer's suggested retail of less than \$3,300 (exclusive of transportation charges and taxes), yet should prove to be a good performing street machine.

To enhance the appearance of the car, a vinyl roof is available, and for comfort, air conditioning and tinted glass should be a consideration.

Torino's performance car, obviously, is the Cobra two-door hardtop SportsRoof model. Torino Cobras are delivered with the 429 c.i. 4V (four-barrel carb) engine, four-speed transmission with Hurst shifter as standard equipment, and a 3.50:1 axle ratio for street use. Other items of standard equipment include competition suspension, 7-inch-wide rims and hub caps, Cobra identification, black-base grille, black two-tone hood, Shelby-type hood locks, wheel lip molding, color-keyed carpets, and a heavy-duty 80-amp battery.

Additional options recommended for the performance car buyer include power steering, power disc brakes, AM radio, dual racing mirrors (with remote control, driver's side), and console. Fitted out with the foregoing equipment, the Torino Cobra is available at \$3,560 (less transportation charges and taxes). Torino's custom Magnum 500 chrome wheels raise the suggested retail to slightly more than \$3,700.

The result is a slick 360-hp street machine with a top-of-the-line performance personality and appeal. Appearance can be enhanced with Torino's sport slats (rear window louvers) which carry a retail price of \$65. As with other models, a few dress-up options may be preferred by the buyer, along with more deluxe accessories such as AM/FM stereo radio.

For the ultimate in performance, Torino has available the Drag Pack, including traction-lok differential, 3.91 or 4.30 ratio; and the following 429 c.i. 4V engine modifications: engine oil cooler, cap screw connecting rods, mechanical lifters, and modified crankshaft, flywheel, and damper. All at a suggested retail of \$155. And, of course, the 429 Cobra 370-hp, and the 429 Cobra Jet ram-air induction engines are available options on the Cobra, both moderately priced. (The Drag Pack is a required installation with these engines if the car is built with the 3.91 or 4.30 axle ratio.)

Thus, in the Cobra two-door hardtop, you can get everything from an efficient street machine to an all-out racer, and at surprisingly low suggested retail prices.

Cars of this classification have steadily gained in popularity, since they bridge the gap between an all-out racing machine and the plushness of a luxury sedan. They are among the most popular of personalized cars, and Torino features the GT two-door hardtop as a perfect choice.

We recommend the GT with the following equipment which results in the "ideal" performance-luxury car at a price of about \$4,000. The 429 c.i. engine with four-barrel (360 horsepower), Cruise-O-Matic transmission, 3.00:1 axle ratio, power steering, power disc brakes, AM radio, Torino's Laser Stripe (available only on the GT), tinted glass, high-back bucket seats, and console. Because this unit is intended to be a comfortable car, as well as a good performer, air conditioning, at an additional \$389, would undoubtedly be favored by many buyers, but raising the suggested retail price to slightly below \$4,500.

On the GT, Torino options include a special visibility group (mirror and lights throughout the car), hideaway headlamps, and the AM/FM stereo radio, along with rear-seat speakers, all of which enhance the car's appearance and complement its luxury identification and purpose.

For those in search of a luxury car at a reasonable price (and want one that will fit into their garage), Torino models include the Brougham, both two- and four-door hardtops. All tastefully designed for luxurious convenience.

Our selection of a Torino Brougham will retail at slightly more than \$4,000 (plus transportation and taxes), equipped as follows: The optional 351 c.i. two-barrel V8 (250 hp); Cruise-O-Matic transmission; 3.00:1 axle ratio; power steering; power disc brakes; air conditioning with tinted glass; AM radio; vinyl roof and body side molding with insert; as a trunk light, glove-box light, etc., along with outside rear-view mirror, remote control driver's side.

Although the 351 c.i. 2V (two-barrel) engine is adequate, the 351 4V, at less than \$50 more, is available and offers an increase of 50 horsepower. Apparent is the advantage of a 300-horsepower engine on a vehicle carrying a generous number of engine-drive accessories, such as air conditioning.

Additional accessories, often preferred by car buyers in this classification, include AM/FM stereo radio, rear-seat speakers, an electric clock, and the rear window defogger if the climate so dictates.

While the two-door hardtop is the more popular choice, for just \$72 more in suggested retail price, the Torino Brougham four-door hardtop is available, and *Motor Trend* suggests the same equipment as that recommended for the two-door.

Options & Accessories

Extra Charge Over Base 302 CID 2V 8-Cylinder 220 HP
 351 CID 2V 8-CYLINDER 250 HP . . . 45.00
 Not available on Cobra model.
 351 CID 4V 8-CYLINDER 300 HP . . . 93.00
 Includes dual exhausts. Not available on Cobra model.

429 CID 4V 8-CYLINDER 360 HP . . . 192.00
 Includes 80-ampere heavy-duty battery and dual exhausts. Standard on Cobra model.
 Not available with shaker hood scoop or with three-speed manual transmission. Power front disc brakes required at extra cost when Torino GT 2-door convertible is ordered.

429 CID 4V COBRA 8-CYLINDER 370 HP
 NON-RAM AIR INDUCTION
 Includes competition suspension, 80-ampere heavy duty battery, 55-ampere alternator, dual exhausts, extra-cooling package, bright engine dress-up with locking axle. Not available on station wagons or with three-speed manual transmission, or shaker hood scoop. Drag-Pack required at extra cost when 3.91 or 4.30 high ratio axle is ordered.

Also, power front disc brakes required at extra cost when Torino GT 2-door convertible is ordered. Extra cost tire requirements on engine and model available from dealer.
 Cobra model . . . 164.00
 All other models . . . 356.00

429 CID 4V COBRA JET 8-CYLINDER
 370 HP RAM AIR INDUCTION
 Same as above, but with shaker hood scoop.
 Cobra models—229.00 All other models—421.00

SELECT SHIFT CRUISE-O-MATIC
 250 CID 4V 6-cylinder engine . . . 201.00
 302 CID 2V and 351 CID 2V or 4V 8-cylinder engines . . . 201.00

429 CID 4V, 429 CID 4V Cobra, and 429 CID 4V Cobra Jet 8-cylinder engines.
 Cobra model . . . 39.00
 All other models . . . 222.00

FOUR-SPEED MANUAL WITH HURST SHIFTER
 Standard on Cobra model. Not available on station wagons, police packages, or with 250 CID 4V or 302 CID 2V engine.

351 CID 2V 8-cylinder engine . . . 194.00
 Wide ratio standard, close ratio optional.
 351 CID 4V 8-cylinder engine . . . 194.00
 Wide ratio standard, close ratio optional.

429 CID 4V 8-cylinder engine . . . 194.00
 Close ratio only.
 429 CID 4V Cobra 8-cylinder engine . . . 194.00
 Close ratio only.
 429 CID 4V Cobra Jet 8-cylinder engine . . . 194.00
 Close ratio only.

AIR CONDITIONER — SELECTAIRE . . . 389.00
 Not available on station wagons with 6-cylinder engines, models with 429 CID 4V Cobra or Cobra Jet engine and four-speed manual transmission, models with 429 CID 4V engines not equipped with power steering or models with Drag-Pack, Directaire ventilation, or delete heater and defroster. Tinted glass, complete, recommended.

AXLE, DRAG-PACK
 Includes traction-lok differential, 3.91 or 4.30 ratio axle, and the following 429 CID 4V engine modifications: engine oil cooler, cap screw connecting rods, mechanical lifters, and modified crankshaft, flywheel, and damper.
 Available only with 429 CID 4V Cobra or Cobra Jet engine. Not available with other optional ratio axles or air conditioner.
 3.91 axle ratio . . . 155.00
 4.30 axle ratio . . . 155.00

AXLE, OPTIONAL RATIO . . . 13.00
 AXLE, TRACTION-LOK DIFFERENTIAL . . . 43.00
 Not available with 429 CID 4V Cobra or Cobra Jet engine in combination with 3.91 or 4.30 ratio axle.

CLOCK, ELECTRIC . . . 16.00
 Not available with tachometer.

CONSOLE . . . 54.00
 Available only with high back bucket seats on Torino 2-door hardtop, Torino GT 2-door SportsRoof or convertible, and Cobra 2-door SportsRoof.

DEFOGGER, REAR WINDOW . . . 26.00
 Available only on sedans or hardtops.

EMISSION CONTROL SYSTEM, FUEL EVAPORATIVE . . . 37.00
 Required in State of California, not available elsewhere.

GLASS, TINTED — COMPLETE . . . 36.00
 Recommended with air conditioner.

HEADLAMPS, HIDEAWAY . . . 53.00
 Standard on Torino Brougham hardtops.
 Available only on Torino, Torino GT and Torino Squire models.

HOOD SCOOP, SHAKER . . . 65.00
 Standard with 429 CID 4V Cobra Jet engine.
 Available only with 351 CID 4V engine.

LASER STRIPE . . . 39.00
 Available only on Torino GT models. Not available with body side molding with color-keyed vinyl insert or special paint (DSO or PTO).

LUGGAGE RACK . . . 46.00
 Available only on station wagons.

LUGGAGE RACK DELUXE . . . 73.00
 Includes woodtone appliques, adjustable inner-rail, and integral rear window air deflector.
 Available only on station wagons.

MIRRORS, OUTSIDE COLOR-KEYED DUAL RACING . . . 26.00
 Includes left-hand remote control and right-hand manual control mirrors. Standard on Torino GT. Available only on 2-door hardtops and convertible. Not available with special paint (DSO or PTO). Required at extra cost with Sport Slats.

MIRROR, OUTSIDE LEFT-HAND REMOTE CONTROL . . . 13.00
 Standard with visibility group.

MOLDING WITH COLOR-KEYED VINYL INSERT, BODY SIDE . . . 26.00
 Standard on Torino. Not available on Torino Squire or with Laser Stripe.

PAINT, TU-TONE ROOF . . . 27.00
 Available only on sedans and formal roof hardtops.

POWER FRONT DISC BRAKES . . . 65.00
 Includes bridal pad pads. Standard on Torino Squire and with Trailer Towing Package. Required at extra cost on Torino GT 2-door convertible equipped with any 429 CID 4V engine.

POWER SEATS — 4-WAY FULL WIDTH . . . 74.00
 POWER SIDE WINDOWS . . . 105.00

POWER STEERING
 This option required with 429 CID 4V engines in combination with air conditioner. Power front disc brakes recommended.
 Station wagon models . . . 100.00
 All other models . . . 105.00

POWER TAILGATE WINDOW . . . 35.00
 Available only on station wagons.

RADIO, AM . . . 61.00
 RADIO, AM/FM STEREO . . . 214.00
 Includes two front cowl-mounted speakers.

ROOF, VINYL . . . 95.00
 Available only on 4-door sedans, 2-door formal roof hardtops, and 4-door hardtops.

SEATS, HIGH BACK BUCKET . . . 133.00
 Includes knitted vinyl trim and carpet runner.
 Available only on Torino 2-door hardtop, Torino GT, and Cobra models.

SEAT, REAR FACING THIRD . . . 66.00
 Available only on station wagons. This option color-keyed vinyl when ordered with plaid trim on Torino and Torino Squire station wagons.

SPEAKERS, DUAL REAR SEAT . . . 26.00
 Available only on sedans and hardtops.
 Requires AM radio or AM/FM Stereo radio at extra cost.

SPORT SLATS . . . 65.00
 Rear window louvers. Available only on SportsRoof models. Not available in State of Pennsylvania. Requires outside color-keyed dual racing mirrors at extra cost.

STEERING WHEEL, RIM BLOW — DELUXE THREE-SPOKE . . . 39.00
 SUSPENSION, HEAVY-DUTY LOAD . . . 23.00
 Includes heavy-duty front and rear shock absorbers, and heavy-duty stabilizer bar. Not available on Cobra model, Torino GT models with 429 CID 4V engines, or with 429 CID 4V Cobra or Cobra Jet engines.

TACHOMETER — 8,000 RPM . . . 49.00
 Available only on 8-cylinder engines. Not available with electric clock.

TRIM, BLAZER STRIPE SEAT
 Available only on the following models:
 Torino GT 2-door SportsRoof . . . 32.00
 Torino 2-door hardtop and Cobra models . . . 52.00

TRIM, KNITTED VINYL SEAT . . . 32.00
 Standard with high back bucket seat. Available only on Torino, Torino GT 2-door SportsRoof, and Torino or Torino Squire station wagons.

TRIM, PLAID SEAT . . . 32.00
 Available only in Black Watch (black) or Rob Roy (red) on Torino and Torino Squire station wagons. Third rear facing seat option will be color-keyed vinyl in combination with plaid trim.

TRIM, VINYL SEAT . . . 19.00
 Standard on Torino GT models and station wagons. Available only on Torino and Cobra models.

TRIM RINGS/HUB CAPS
 Standard on Torino GT models. Available only on models with wide oval tires. Not available on station wagons.
 Torino Brougham models . . . N/C
 All other models . . . 26.00

VENTILATION, DIRECTAIRE . . . 16.00
 Standard on 2-door hardtops and convertible. Not available with air conditioner.

VISIBILITY GROUP
 Includes ash tray light, map light, glove box light, trunk light, cargo light on station wagons, engine compartment light, rear door courtesy light switches on 4-door models, outside left-hand remote control mirror, front "lights-on" warning light and buzzer, parking brake warning light, front door actuated seat belt warning light, and front door actuated flood lighting for windshield wiper and headlamp switch knobs.
 Models with outside color-keyed dual racing mirrors . . . 25.00
 All other models . . . 38.00

WHEEL COVERS . . . 26.00
 Standard on Torino Brougham models. Not available on Torino GT models.

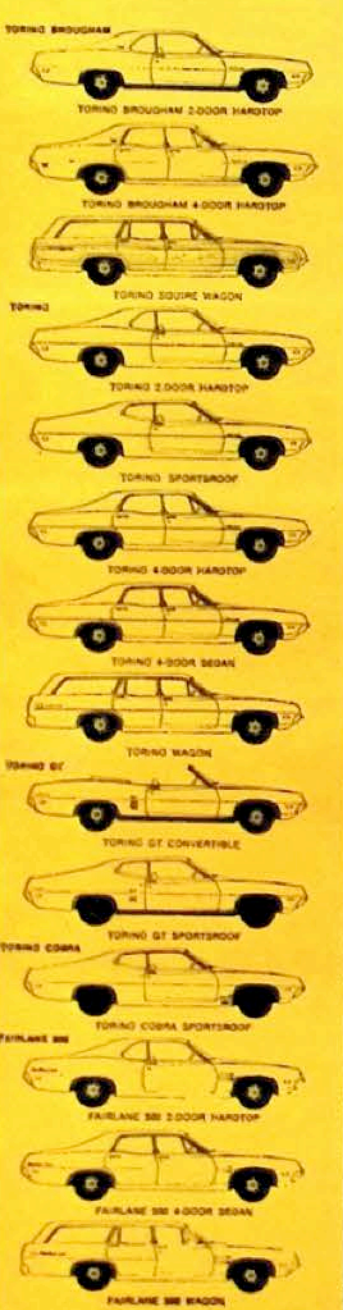
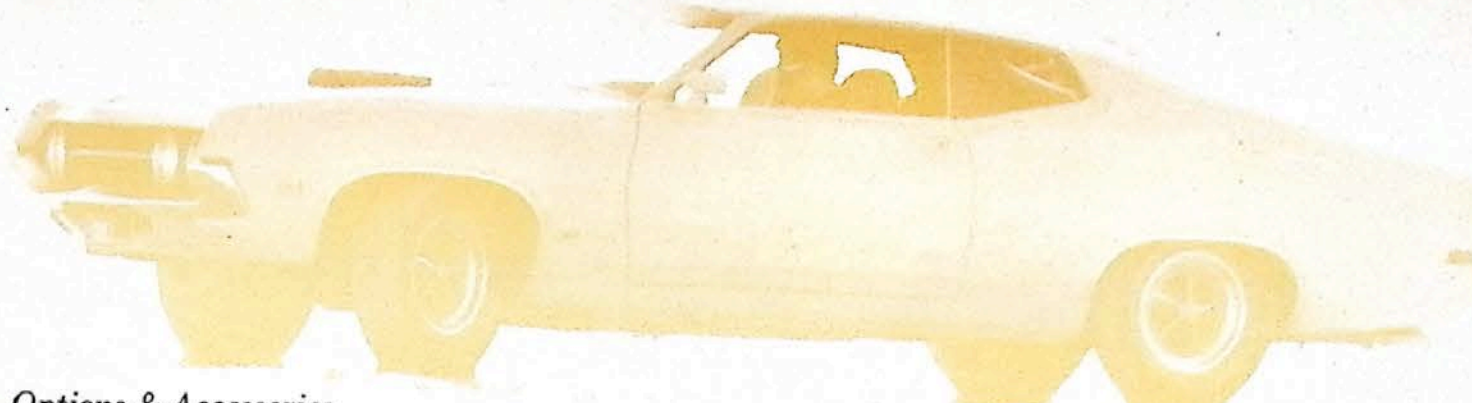
WHEEL COVERS, DELUXE
 Torino Brougham models . . . 52.00
 Torino GT models . . . 52.00
 All other models . . . 78.00

WHEEL COVERS, SPORTY
 Available only on models with wide oval tires. Not available on station wagons.
 Torino Brougham models . . . 32.00
 Torino GT models . . . 32.00
 All other models . . . 58.00

WHEELS, ARGENT STYLED STEEL
 Available on models with wide oval tires except F60x15. Not available on station wagons.
 Torino Brougham models . . . 32.00
 Torino GT models . . . 32.00
 All other models . . . 58.00

WHEELS, MAGNUM 500 CHROME
 Available only on sedans and hardtops equipped with 429 CID 4V engine less air conditioner. Requires F60x15 wide oval belted BSW tires with raised white letters at extra cost.
 Torino Brougham models . . . 129.00
 Torino GT model . . . 129.00
 All other models . . . 155.00

WINDSHIELD WIPERS, INTERMITTENT . . . 26.00
 DELETE HEATER AND DEFROSTER . . . (credit, 17.00)
 Available only on models sold in Hawaii. Not available with air conditioner.

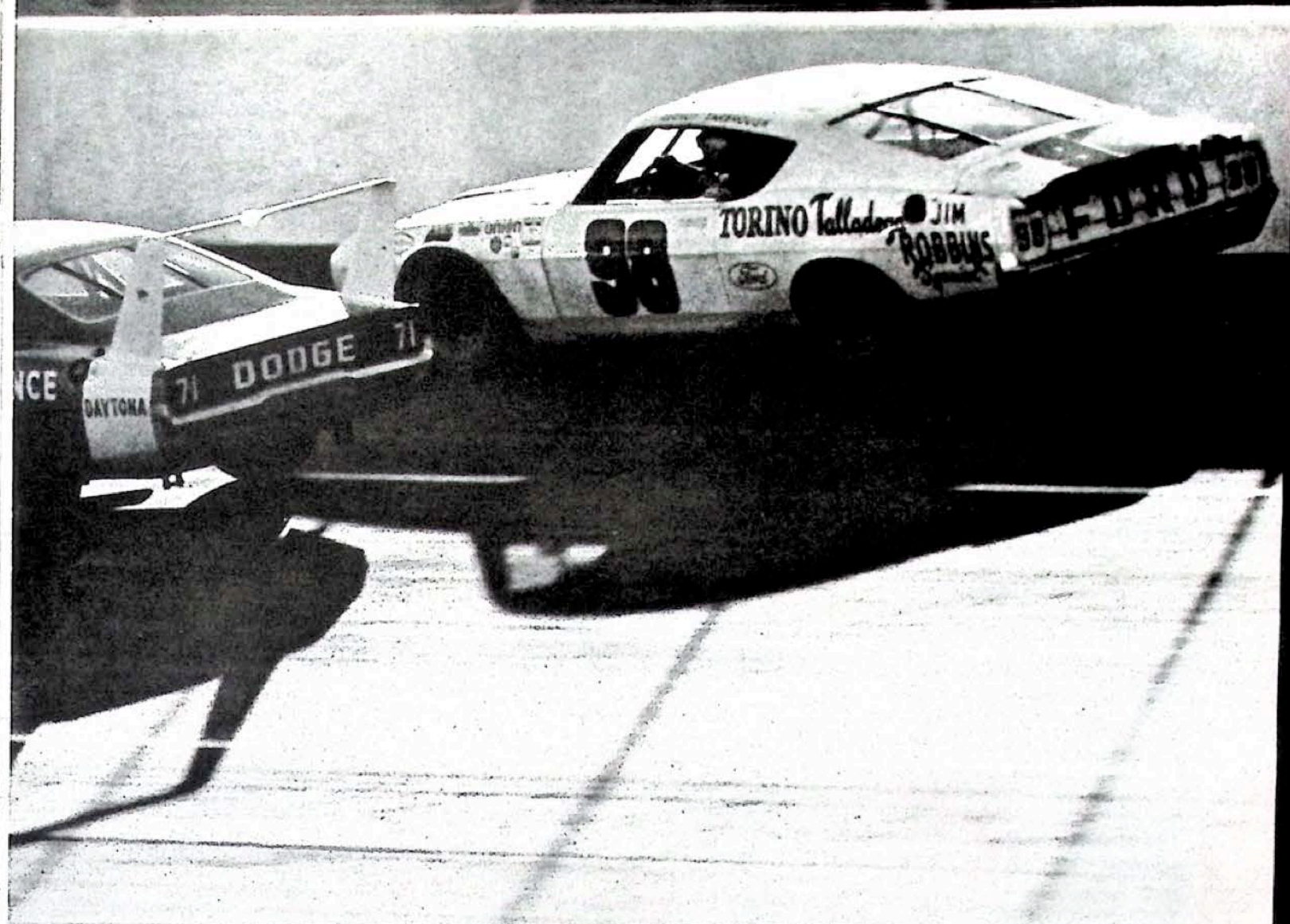


THE LAST STOP

NASCAR's
season
ends and
College
Station
becomes
Dodge City

by Leonard Laye

photos: Don Hunter



Winner Bobby Isaacs dices with Ford-mounted LeeRoy Yarbrough during the inaugural race at Texas International Speedway.

Texas. Big, sprawling Texas. Comprising one-twelfth of the entire area of the United States. Proud, lordly Texas. Home of the 10-gallon hats, sharp-toed cowboy boots and the nation's number one college football team. A state steeped in history, the kind every native loves to brag about.

Over on the southeast side of Texas, some 90 miles from the metropolis that is Houston, are the combined communities of Bryan and College Station. A quiet area, far removed from the hustle and bustle of Houston and Dallas, it is the site of Texas A&M University and, until recently, little else. The total population is 50,000, including some 14,000 Aggies at A&M, and the people are peace-loving, holding dear to their hearts such things as Aggie football and country music as performed by Faron Young and Ernest Tubb.

It was with some confusion and some anxiety, then, that the townspeople around Bryan and College Station welcomed the birth of Texas International Speedway, a sprawling plant of speed that sits majestically some six miles out of town on Highway 6. It is in deep contrast to the entire countryside surrounding this \$8 million product of American Raceways, Inc. It is a plush example of the coming trend for the country's super speedways, showing off its beauty with its acres of rich green rye grass and multi-color grandstand seats and proclaiming its usefulness with its large enclosed garage areas and its wide, moderately banked two-mile racing surface.

It was in this setting that NASCAR's Grand National stock cars rumbled in the first week in December in preparation for the inaugural Texas 500-mile scramble on the 7th. It was to be the final race of the season for Bill France's stocks, and everyone in the racing world expected the goldarndest show of the season. After all, they had seen what had

happened in two splendidly competitive races at Michigan International Speedway, which was also constructed under the guiding hand of American Raceways head, Lawrence LoPatin. They expected a smooth, raceable surface as they had found at Michigan, and they got it. They expected a wide, multi-lane track which encouraged those bent-for-leather three-abreast duels, and they got it. The one disappointment was in the banking, 22 degrees worth. Michigan, to the racers and the fans, had been almost perfect with its 18-degree banks. The additional four degrees here, however, sent speeds soaring to the 176 mile per hour mark. "This is still one helluva race track," said one driver, "but I think they made a mistake on the banks. We don't need that much for a real good show." There was concern, too, over the purse, which at a total of \$93,150 was one of the lowest on the super speedway circuit.

Still, the fraternity came en masse, eager for the test of the unknown on its first official visit to the state of Texas. Plans for the coming season, which usually occupy every waking moment of a driver's life in December, were forgotten. Ford Motor Company came in search of another in a long string of 1969 successes, and Dodge Division of Chrysler tagged along with high hopes of reversing the trend.

Ford set the stage for the week, sending its star-studded team of drivers into Houston and Dallas on Sunday, November 30, for promotional work. On Tuesday, LeeRoy Yarbrough and David Pearson highlighted a stock car racing seminar for the Texas press by taking the braver members of the corps for rides around the speedway. Second seats were installed in their Ford Torinos, and the rides were supposed to be given at relatively slow speeds. Yarbrough and Pearson got a little racy, though, and the press guys were more than

a little frightened. "It really tore one fellow up," laughed Pearson, the Grand National champion. "He was moaning when we came out of the second turn." "That was the fellow we had to help out of the car," chimed in crew chief Dick Hutcherson.

The Ford boys weren't able to laugh on Sunday, however. Dodge stole the thunder with Bobby Isaac of Catawba, N.C., claiming his first super speedway victory in 53 tries. It was a "first" of sorts for Dodge Division, too, for its only other major triumph of the season had come in the Talladega, Ala., 500 when there were no factory Fords in the field.

Qualifying began on Wednesday, with another Dodge driver, Buddy Baker of Charlotte, N.C., taking the pole with an average of 176.284 miles per hour. The edge wasn't a big one, with Pearson and the Holman-Moody Torino following second at 175.751. Indeed, only 2.7 seconds separated the first from the last of the 12 qualifiers. Of the contenders, only Richard Petty failed to qualify, losing the engine in his Torino. This time trial and practice dicing was short-lived, however, as heavy rains came, Texas-style, and stayed for two long days.

The rains and the heavy, chilled winds they brought closed the track all day on Friday and all but 10 minutes on Saturday, forcing NASCAR to line up the remainder of the starting field by the order in which the teams signed in. A bigger problem, though, was presented to the crews who could not get their tires scuffed and their new race engines tested. They had time on their hands and, with the stakes so high, they didn't like it. The drivers didn't either, but there was nothing they could do about it. They busied themselves, first hunting some of the deer which so heavily populated the area around the speedway, and later with shopping

trips to the western shops, late-night poker games, and lively bull sessions over coffee in the Ramada Inn restaurant. The shopping trip produced, among other things, deflated egos for a couple of speedway officials from North Carolina. They decked themselves out in full western gear and thought it only proper that they go with all the homefolk to the Faron Young show. That was fine, until they ran across a Texas hippie who looked them up and down and said, "I'll be derved. A couple of goat ropers!"

The hunting excursion was productive too. Mercury's Cale Yarborough got a deer, which was to provide the evening meal for a dozen drivers the next night. Others, who must go unnamed, didn't want to leave empty-handed and, at nightfall, turned on the headlights of their late model passenger car and began racing through the Texas flatlands in hot pursuit of another slow deer. They missed their target but got some new stripes on their car after busting through a barbed-wire fence at full speed.

All the while the townspeople kept ringing up the dollar signs on their cash registers and talking not about the race, but about the Texas-Arkansas football game on Saturday afternoon. The Longhorns were ranked number one, the Razorbacks number two and everybody — but everybody — was interested in the outcome. It received the full treatment in the Texas press, of course, with the race being relegated to the second sports page. Other factors worked against the speedway's hope of a large crowd. The same rains which halted time trials left the speedway grounds and the parking lots flooded. The earth was new and would not hold the weight of the cars which were expected Sunday. Inquiries were made about chartering buses which could transport

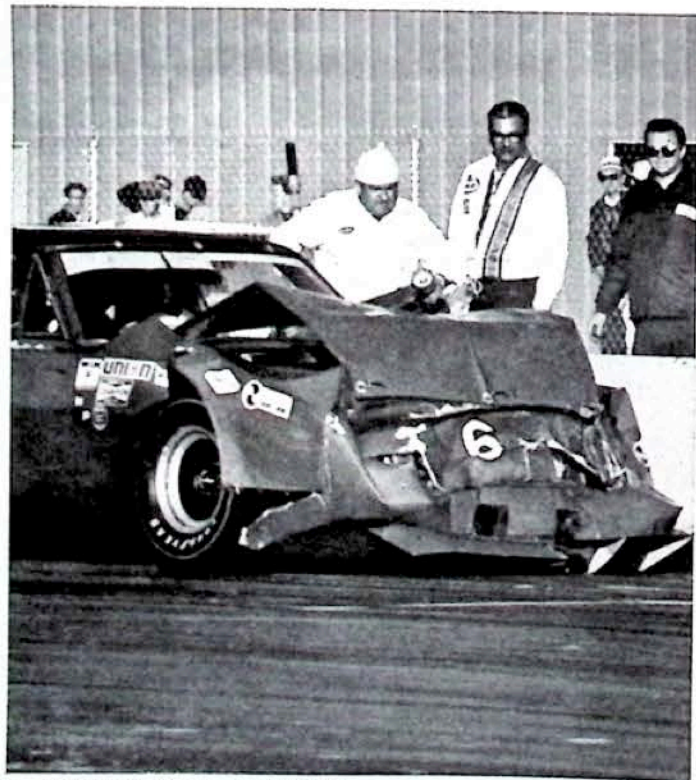
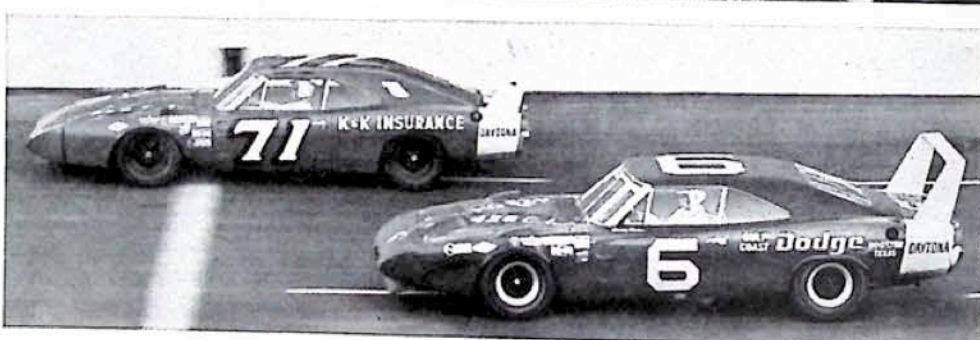
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TEXAS 500

1. Bobby Isaac, '69 Dodge
2. Donnie Allison, '69 Ford
3. Benny Parsons, '69 Ford
4. James Hylton, '69 Dodge
5. Dick Brooks, '69 Plymouth
6. Ray Elder, '69 Dodge
7. Jack McCoy, '69 Dodge
8. Buddy Baker, '69 Dodge
9. Dave Marcis, '69 Dodge
10. LeeRoy Yarbrough, '69 Ford

Bobby Isaac (above, right) tried 53 times for a victory in Grand National before he won at Texas. Buddy Baker (6), running with Isaacs (71), was winning when he glanced back under caution flag, hitting a car and putting himself out (below).



some of the fans from downtown parking areas to the speedway, but they were all being used for the football game. So with reluctance, TIS officials announced Saturday night that only 3,000 of the 30,000 parking spaces would be in use and that those who had already purchased tickets could use them at a later race if they wished. The infield, too, would have to be closed.

Despite the obstacles, race morning brought a better-than-expected crowd of 28,500. The weather had broken clear, cold and windy. All but one of the crews fretted about the new engines, which would be taxed unmercifully at the low temperatures. The exception was the LeRoy Yarbrough outfit, headed by Junior Johnson and Herb Nab. They didn't have time to worry after discovering an oil leak around the main bearing just before the cars were due on the starting line for pre-race ceremonies. They immediately went to work and installed a new engine in 1 hour and 15 minutes.

After five warmup laps to heat the engines, the green flag fell over the 38-car field. The show lived up to its billing of competitiveness only in the early stages, for tire problems sent contender after contender scrambling to the pits

continued on page 94

MOTOR TREND

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4. **CAR LIFE** 146,448*
(effective October, 1969)

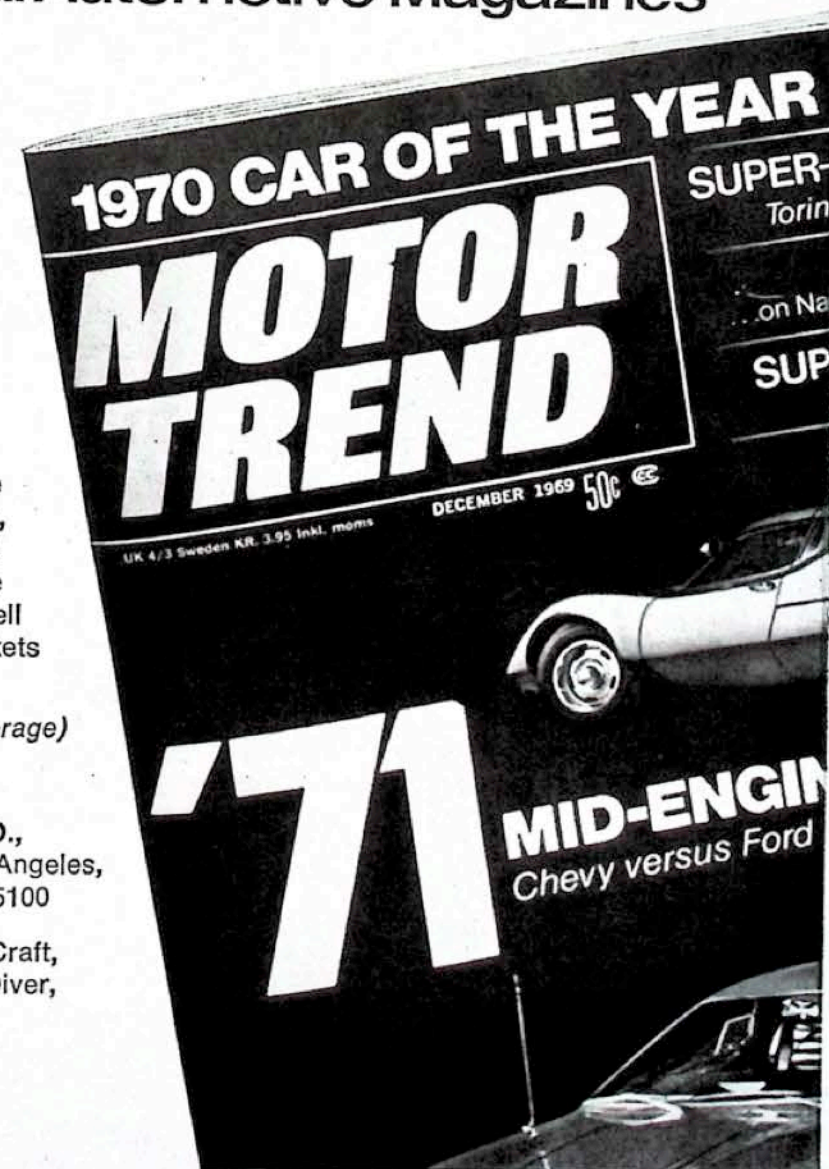
MOTOR TREND, the complete automotive magazine, always Number 1 in circulation, offers you more high-performance buyers than ever, effective July, 1970. More of the men who want the products you want to sell — whether it's tires, tachometers... or tickets to romantic places.

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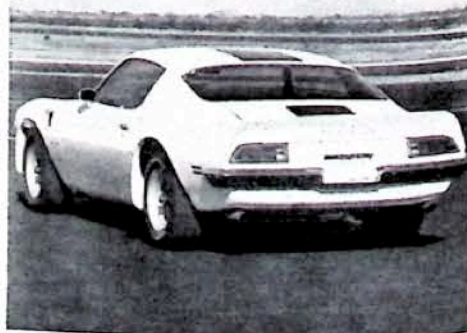




It's a Maserrariac, white eyes

The new Firebird: not so much an
Indian pony as a Turin car.

Despite new emphasis on Firebird theme, the Trans Am emerges more Italian than Navajo, but don't expect anybody to complain about broken treaties. With the looks and suspension of a racer, the car could be right for the right man.



by A. B. Shuman



There's a school of thought among certain chauvinistic automaniacs which holds that the ideal car has got to be a combination of European—that is, Italian—coachwork and American running gear. And, although anyone allowing his Zagato GT to fall into the hands of such pagan defilers would immediately be drummed out of the local Maserrari owners club (such crossbreeding operations having slightly lower prestige than Nazi medical experiments), a few true believers actually do get to put their Freudian dream machines together. But most of the time they somehow just don't seem to work out. Somewhere, in amongst the cutting and bending and fabricating, something's lost: the front tires go bald after 2000 miles, there are exhaust leaks which can never be traced, the engine runs hot in traffic. Still, it really isn't such a bad idea, this blending of good looks and handling, with the tractability and serviceability of U.S. parts—if it could be carried off.

It almost seems that this is what Pontiac stylists and engineers had in mind when they hatched the "70-plus" Firebird. The look is Italian, though the GTO/Tempest family resemblance is definitely there. It's unmistakably a Pontiac, yet it's totally different. So different, in fact, that there are virtually no pieces inside, outside or underneath, which are carryovers from the '67-69 Firebirds. It's a completely new car. Actually, it's four completely new cars. The standard Firebird; the Tempest-like Esprit; the hotter, sportier Formula 400; and the Trans Am, a super road car. Even the Firebird emblem is new—more fiery and more birdy. The one on the Trans Am is big enough to choke a horse, or, hopefully, to eat one.

All of these 'Birds are available solely as four-seater, semi-fastback, two-door hardtops; the convertible model line has folded. Engines range from the 155-hp corporate six, standard in the base Firebird, to the Ram Air "Super Duty" 400, optional in the Formula 400 and Trans Am. Every one, bottom to top, comes with front wheel disc brakes and Endura front end standard. Suspension systems become progressively firmer going up the ladder, reaching the pinnacle in the Trans Am.

In light of the current trepidations in the pony and muscle car fields caused by faltering sales, the rationale behind the new Firebird(s) is interesting. From their marketing research, Pontiac found that the average pony car buyer tended to be a young, single male, with the "pony" being his first new car. Less than half would buy another, but most would stay loyal to the manufacturer. Aha! Today's Firebird owner is tomorrow's Grand Prix buyer. So that's what they mean in their "This is the beginning of tomorrow" jingle. At any rate, the many varied versions of the Firebird (in

fifteen crazy colors) reflects the effort to give the prospective pony car buyer all that he or she wants. They figured it all out with computers.

The car is perched on a 108-inch wheelbase and spans a total length of 192.3 inches, up 1.2 inches from '69. The front tread, at 61.6 inches, has also gained an inch, but the maximum width has been shaved a half-inch to 73.4. The hood has been lengthened, the deck shortened, the wipers and radio antenna hidden, and the side quarter windows and two headlights eliminated. The package is long, lean and clean. Using the firewall as datum and comparing the new 'Bird to last year's, the front and rear wheels have been moved ahead three inches. Effectively, the body was moved back on the chassis. The engine couldn't go as far back as the body due to a cross-member in the front frame section, but is about two inches further to the rear, giving an additional inch ahead of the firewall. This is just enough to simplify checking the fluid level in the automatic trans. The steering box has been relocated ahead of the front wheels. This was done to cause any deflection steer—the effect caused by the inherent give in the front end bushings—to tend toward understeer, making the car easier to handle for the average driver. This, however, necessitates the use of a faster steering ratio. On the Trans Am, variable-ratio power steering and 14-inch diameter Formula wheel are standard, with an extremely fast overall ratio range of 16.0 to 12.1:1. The same power steering setup is available optionally in the Formula 400 and the Esprit with 400-cubic-inch engine, but is somewhat slower in cars with the six or 350 CID V8. All manual steering cars use the same recirculating ball Saginaw unit with a 30.8:1 overall ratio.

The steering knuckles are made of malleable cast iron, and are identical in design to those used on the Cadillac. Independent, coil spring front suspension is used, with 10 percent stiffer springs on the Formula 400 and Trans

Am than on the Firebird and Esprit. The higher powered cars also feature stiffer shock absorbers. All have a front stabilizer bar, 1.00-inch in diameter on the Firebird and Esprit, 1.125-inch in diameter on the Formula 400. The bar on the Trans Am is even thicker, 1.250-inch, the biggest one ever used on any Pontiac.

The rear suspension is based on multiple-leaf springs, with rates varying from 90 pounds/inch on the Firebird six to 125 pounds/inch on the Trans Am. These rates may seem fairly soft in light of the handling goals established for the car, but by increasing the driveshaft tunnel height, the engineers were able to allow greater vertical rear axle travel without danger of bottoming out. This results in a much-improved ride. The higher tunnel also separates the rear seats into two semi-buckets, making the car strictly a four-seater.

New this year is the .620-inch diameter rear stabilizer bar, used to reduce roll and increase understeer on the Formula 400. A .875-inch bar is used on the Trans Am. Staggered mounting of the rear shocks, with the right one ahead of the rear axle and the left one behind, has been carried over from the '69 models. All of this couples on the Trans Am to make it corner flatter than yesterday's beer.

Returning to the power plants available, a 255-hp 350 two-barrel is the step-up option for the base Firebird and is the standard engine in the Esprit. Optional in the Esprit is a 265-hp two-barrel 400. The Formula 400 comes with a 330-hp 400 four-barrel standard, with choice of two Ram Air options. The first, which also happens to be the standard engine in the Trans Am, is called at 345 hp at 5000 rpm and is called the 400 Ram Air. The second, as yet unrated, is called the Ram Air "Super Duty" (also optional in the Trans Am). This is a ruggedized version of the 370-hp Ram Air IV offered in the GTO, featuring the forged steel crankshaft and connecting rods,

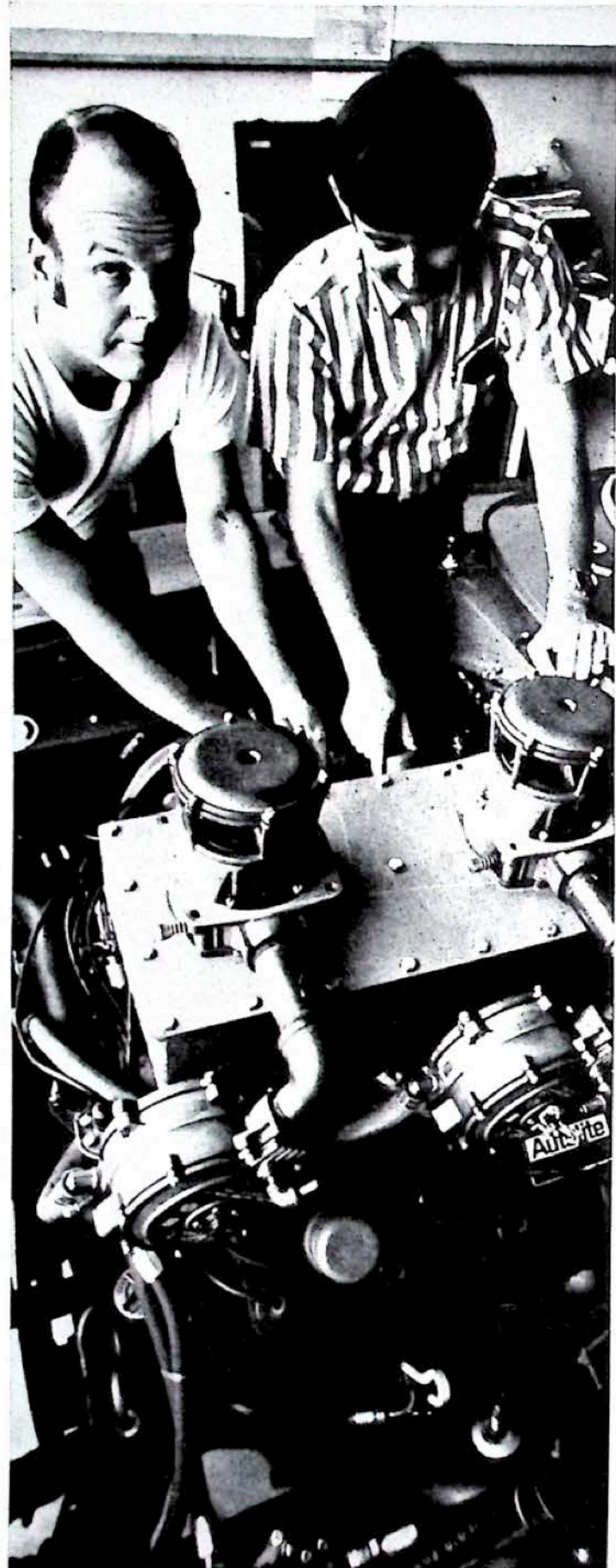
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PONTIAC FIREBIRD

Engine type	OHV V8
Bore & Stroke	4.120 x 3.746
Displacement	400 cu. in.
Horsepower	370 hp (est.)
Torque	445 lbs.-ft. @ 3900 rpm
Compression ratio	10.5:1
Carburetion	one 4-bbl.
Transmission	4 speed manual
Final Drive ratio	3.90:1
Steering type	Variable-ratio power
Tire size	F60-15
Brakes	Front disc/rear drum
Front suspension	Independent, coil spring
Rear suspension	Multi-leaf spring

Body/frame construction	Integral body-frame, separate ladder-type front frame section
Wheelbase	108 ins.
Overall length	192.3 ins.
Overall width	73.4 ins.
Height	50.4 ins.
Front track	61.6 ins.
Rear track	60.3 ins.
Acceleration 0-60 mph	6.5 secs.
Standing start ¼-mile @ 99 mph	14.5
Stopping distances:	
From 30 mph	24 ft.
From 60 mph	119 ft.
Braking stability	Excellent





To prove a point, Impco Carburetion had general manager, Don Bass, left, build a propane-burning 426 Hemi for racing. Producing 561 hp, it accelerates a 4000 pound Dodge Charger to 120 in under 12 seconds.

BOTTLED HEAT

Racing (on propane) improves the breathing.

By A.B. Shuman

LPG?

That's liquefied petroleum gas... the stuff they use in camp stoves. It's one of those "useful by-products" of petroleum distillation, gaseous hydrocarbons that

turn to a liquid when compressed. You know, propane and butane. Ah, yes, C₃H₈ and C₄H₁₀, members of the good ol' C_nH_{2n+2} family: servants of man, cookers of hot dogs, warmers of frost-nipped knuckles, and motor fuels for a few kinky eccentrics interested in economy, reliability, and cutting air pollution. But not all of us drive milk trucks, so it doesn't apply, right? We want performance and response. Getting rid of smog is nice, but so's cruising at 70 mph and moving on and off the freeway without getting clobbered. There it is, the eternal dilemma: the private good vs. the public good. Or is it a dilemma? Think now, would Plato be proud of us? How 'bout Hippocrates?

There are probably a couple a'hundred thousand vehicles in the U.S. presently running on propane/butane. Aside from the low hydrocarbon and carbon monoxide emissions, its adherents talk about lower cost per mile of operation and extended engine life. The average guy, on the other hand, wonders about the number of neighborhood service stations that dispense LPG, and isn't quite sure he'll like the way his car will run with a gasoline substitute. Let's face it, when's the last time anybody set a record with a Coleman stove? No wonder so few people have warmed to the idea of paying the \$300-\$400 for converting the family wheels to Bunsen burner power.

To try to dispel misconceptions about the power and performance capable of being produced by LPG-fired internal combustion engines, Impco Carburetion, a Cerritos, California manufacturer of natural gas and LP gas fuel system components, has recently taken to the drag strip with a '69 Dodge Charger 500 running on propane. Called the Propane X, it's powered by a 426-cubic-inch Hemi and was donated by Dodge expressly for the project. Impco service manager Don Bass, a long-time racing enthusiast and mechanic, handled the building of the engine and general preparation of the car. Aside from the fuel system and the fuel being used, everything is basically the same as it would be in a car running on gasoline.

As far as the engine, it was first blueprinted—brought up to the correct internal clearances and key dimensions. The stock pistons were replaced with racing-type 12.5:1 compression ratio forged aluminum pistons, fitted with molybdenum-filled compression rings. (Since there is no gasoline washdown of the cylinder walls, it would be almost impossible for chrome piston rings to seat, but there's no problem with moly.) The stock camshaft was also discarded and replaced with a .585-inch lift, 320-degree duration, 104-degree overlap, racing grind. (Propane enters the engine as a dry gas—rather than a liquid—and therefore displaces some of the air in the intake system. Gasoline, on the other hand, is only partially vaporized as it enters the engine, so

continued on page 54

Now — Run Your Car Without Spark Plugs—

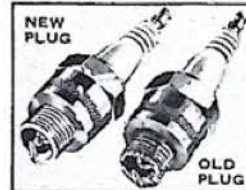
Get Up To 31 More Horsepower, 8 More Miles Per Gallon USING ONLY REGULAR GAS!

Yes—this revolutionary new FIRE INJECTION SYSTEM—installed in 15 minutes, must deliver maximum power and economy WITHOUT CHANGING TO HIGH-PRICED PREMIUM GAS—must give you up to 31 more H.P., 8 more miles per gallon for the life of your car. See unprecedented GUARANTEE!

Your car runs because gasoline is fed into the cylinders where a spark causes it to fire. This action causes the gas to explode—this explosion pushes down the piston. Now here is the important thing to you. The larger this spark is, the more powerful the explosion. The more powerful the explosion, the more power you get from a given amount of gasoline. Poor explosion means wasted gas — loss of power, poor getaway, bad starting, a sluggish car. Good explosion means more miles per gallon, more horsepower, blazing pickup, instant starting, an exciting car to drive!

WHAT CONTROLS YOUR ENGINE'S EFFICIENCY?

Your spark plugs control the efficiency of that explosion. And not only do they give a small, weak spark to begin with, but they get worse every mile you drive. And that you can see for yourself. Put a new set of spark plugs in your car and then look at them at 100 miles, at 1,000 miles, at 5,000.



Every time you look you will see more filth and carbon and you will see more of the electrode burning away. Why, some of the new high compression engines can burn up a set of plugs in a couple of thousand miles. Now you ask yourself how a weak, inefficient spark from a filthy, burned-out plug can possibly give you the kind of flashing, economical performance you want. With ordinary spark plugs you are using, or should be using premium gas, which costs from 4 to 8 cents more than regular gas. With fire injectors, regular gas will give you up to 8 more gas.

Now — read very carefully what we're going to suggest... that you stop using spark plugs in your car! That's right—get rid of them—forever. But—if you get rid of your plugs, what will make the engine run? Well, please remember that if you were told a couple of years ago that your car could run without a carburetor, you wouldn't have believed it—yet today you can have gas injection and get far more mileage, efficiency and power from less gas—and in a few years gas injection will have completely

replaced carburetors on most automobiles. In the same way, now is the time to replace your old, temporary, inefficient spark plugs with a modern, efficient permanent fire injection system, and you can do it yourself in 15 minutes if you've never handled a tool in your whole life!

MECHANICS & ENGINEERS READ THIS CAREFULLY

Now...this new fire injection system is so inexpensive that it can pay for itself in gas savings alone in one month of driving. Forget, for the moment, about the extra pep, power and performance you are going to get. Forget about the savings in spark plug servicing and replacement, the savings in wear and tear on your pistons and cylinders that come from unburned gas washing the protective oil coating off the cylinder walls. Just remember that this fire injection system will pay for itself in gas savings alone in a single month of driving. Here's how:

A spark plug jumps a spark of electricity across an air gap; this is most wasteful, and limits the size of the spark.

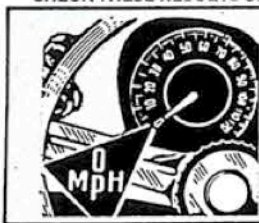
A fire injector fires on the surface of an electrical conductor. You get a heavy, powerful flame that will not blow out at pressures far greater than those created by the highest compression engine!

On ordinary spark plugs, the air gap is always getting bigger, wasting power and gas. Your plug is constantly accumulating filth and carbon because of inefficient ignition.

A fire injector has no air gap and no electrode to burn away. It never needs cleaning or setting... and actually becomes more efficient with use. It will actually outlast your car, delivering maximum efficiency without servicing or replacement. There is no waste gasoline, no loss of power.

Now — USE REGULAR GAS! With ordinary spark plugs you are using, or should be using premium gas, which costs from 4 to 8 cents more than regular gas. With fire injectors, regular gas will give you up to 8 more gas.

Check these results on your own speedometer!



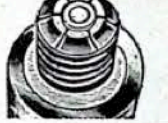
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CHECK THESE DIFFERENCES

SPARK PLUG

FIRE INJECTOR



Fires across air gap
Wire electrode burns away
Carbon ruins firing tip
Needs cleaning and setting
Needs periodic replacing
Must have exact heat range
Spark blows out under pressure

NO air gap required
NO wire electrode
NO tip deterioration
NO cleaning or setting
NO replacing
NO heat range
NO blowing out even at highest compressions

EVERY FIRE INJECTOR CARRIES THIS NO-RISK, MONEY-BACK GUARANTEE

FIRE INJECTOR GUARANTEE

Use these remarkable FIRE INJECTORS in your car entirely at our risk... give them every test you can think of... POWER — ECONOMY — STARTING — SURE-FIRE SMOOTHNESS — PERFORMANCE, etc. Now, if you are not completely satisfied in every possible way at the end of 30 full days, simply return your FIRE INJECTORS for a FULL and IMMEDIATE REFUND. We further guarantee FREE REPLACEMENT of any Fire Injector, regardless of the reason, for as long as you own that car. Remember: every set of Fire Injectors is fully protected by an internationally famous insurance company.

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If you're a driver who wants his car to MOVE when he steps on the gas; if you want your car to START when you turn the key, not after grinding your battery down; if you want every nickel's worth of mileage from every gallon of gas instead of wasting it in the firing chamber; if you're tired of cleaning, setting and replacing spark plugs — you'll order a set of FIRE INJECTORS for your car today!

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Please send me:
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 68-018—Set of 8 FIRE INJECTORS..... 12.98
My car or truck is:

MAKE	YEAR	MODEL
NO. OF CYLS.	ENG. MODEL or CU. IN. DISPL.	
MAKE	YEAR	MODEL
NO. OF CYLS.	ENG. MODEL or CU. IN. DISPL.	

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 Send C.O.D. I enclose 25% deposit and will pay postman balance plus postage and C.O.D. charges upon delivery.
Illinois Residents: Please add 5% Sales Tax to your order.
Send Order and FREE Bonus Gift to:

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BOTTLED MEAT continued

its displacement of air is much less. In addition, the cooling effect of gasoline vaporization serves to increase the density of the intake charge. Thus, a propane-burning engine can benefit quite a bit from increased "breathing.")

The cylinder heads were not radically reworked: the intake ports were polished, but the stock contours were retained. The stock valves were used, but a racing valve job, with 45-degree seat angles, was applied. Bolting to the intake side of the heads is the base assembly from an Enderle direct-port fuel injection system, modified so that each of the eight throttle butterflies is individually adjustable for idle setting. Atop this is a fabricated aluminum plenum box which contains a volume close to twice that swept by the engine. Two Impco #600 carburetors (having 960 cubic feet per minute airflow capacity each) mount on the plenum box cover and are fed by two independent delivery/regulator systems from the common 23-gallon propane tank in the Charger's trunk. On the exhaust side, four tube headers with collectors are used, which probably helps keep combustion chamber temperatures from getting too hot. (Again, since we are dealing with a dry gas, the mixture cannot be richened to cool the cylinders, as can be done with gasoline. The engine does run cool, however.)

The burning rate of propane is higher than gasoline, so spark lead is limited to 30 degrees maximum in this engine. A Mallory dual-point distributor and Echelin high performance coil are used, along with Autolite AG2 spark plugs. Based on dynamometer tests at Bill Thomas' shop, where the engine produced a spectacular 561 horsepower at 6800 rpm, this combination was proven to be the best. A point that impressed the dyno personnel was the steadiness of the engine's output, a notable difference from the "flash" readings usually obtained with conventionally fueled engines.

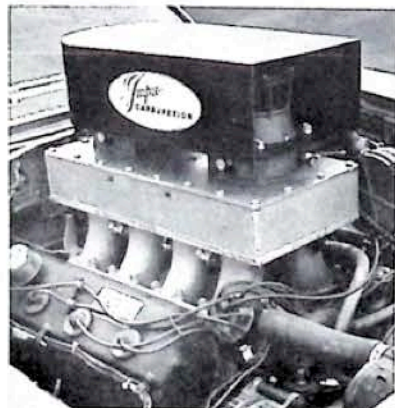
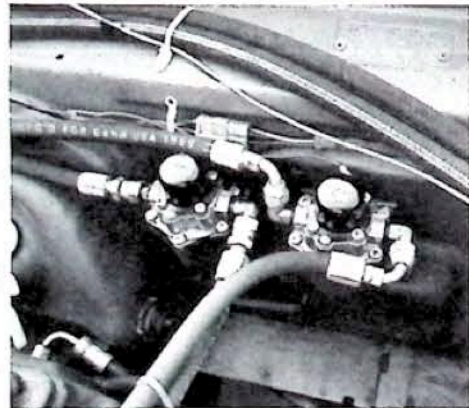
In the car, the fuel is stored as a liquid in the steel cylindrical tank. The internal pressure is determined strictly by temperature, regardless of the volume of liquid in the tank. Since propane boils at -44 degrees F. (compared to +32 degrees F. for butane) there is always an ample pressure head, even at low ambient temperatures. Should the pressure build to an unsafe level (about 250 psi), there is a safety

valve which will vent the system, but the temperature required to create this pressure is extremely high. As another safety device, there is an excess flow sensing valve at each tank outlet which snaps shut should the flow exceed a predetermined level, as would happen if a fuel line was severed. Two braided stainless steel hoses carry the liquid propane to the fenderwell area of the Charger. There, each line goes to a combination fuel strainer and solenoid lock-off valve. The lock-off valves are connected to the "hot" side of the ignition switch, allowing flow only when the ignition is on. From here the propane goes to a converter/regulator, which transforms it from a liquid at 70-100 psi pressure to a dry gas at less than atmospheric pressure. To counteract the refrigerating effect of the vaporization process, the converter is heated by water from the engine block. (There is enough of a temperature differential even under cold-start conditions for coolant system water to satisfactorily perform this function.)

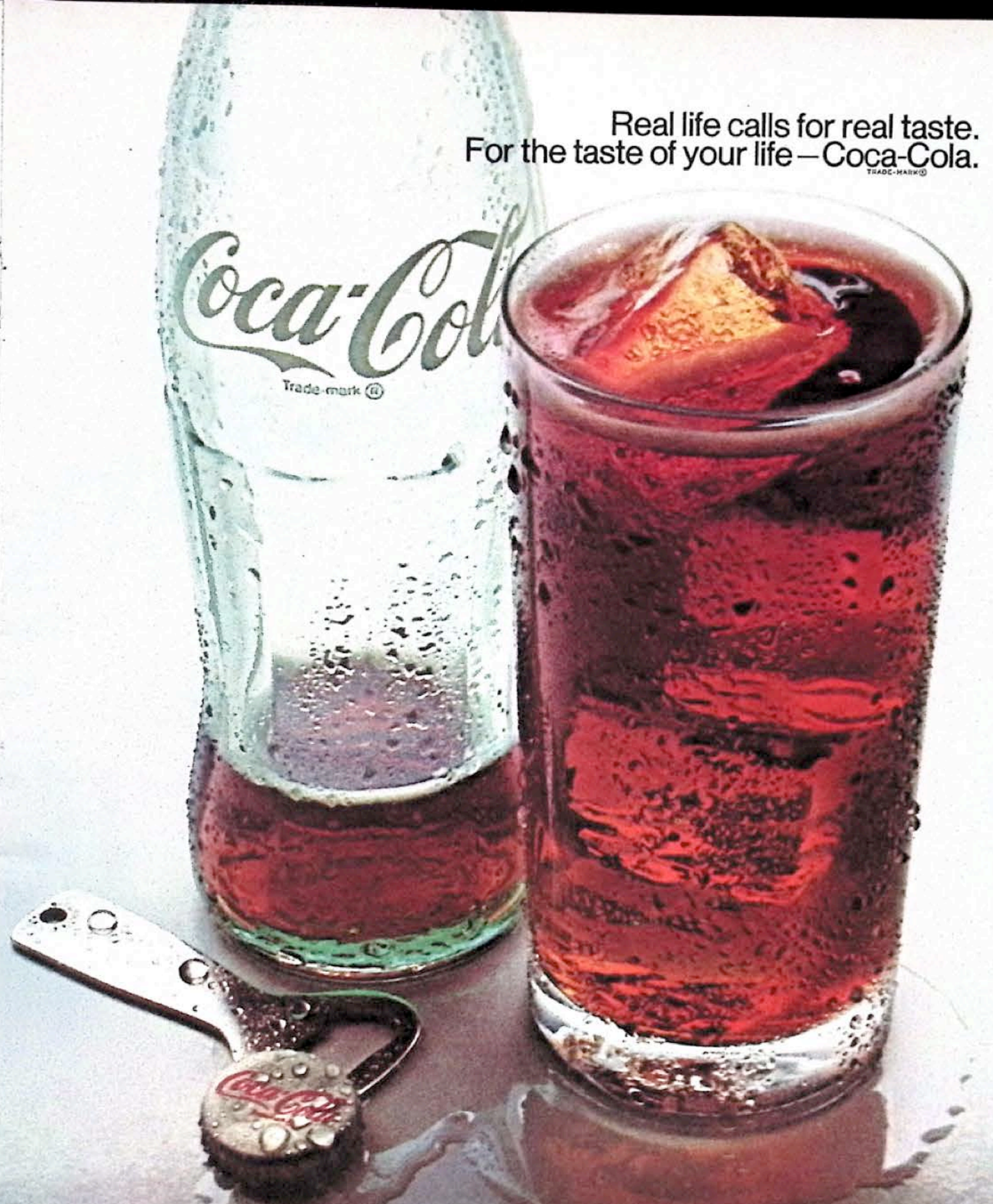
The propane then enters each carburetor as a gas. The Impco carburetors work on the air valve principle, similar to SU carbs, though they utilize a double venturi air valve. As air flow through the carburetor changes, a metering valve moves up or down, thereby changing the amount of dry propane being admitted to the engine.

On its first few outings, the Propane X was equipped with a four-speed manual transmission, but the combination of high power and a car weight over 4000 pounds proved too much for the clutch. Since then, a B&M-modified Torqueflite has been installed and the drivetrain problems are being ironed out. Driver Al Pulliem reports that with the 4.88:1 rear axle ratio and 9.00x15 racing slicks, the engine is hitting 6900 rpm at the finish line. The car has run a best elapsed time of 11.85 seconds and a top speed for the quarter of 120 mph. All of this with power steering! The engine has been completely troublefree, the majority of work being involved in making the drivetrain reliable and getting the chassis to "work."

There was a problem in determining what drag racing class the Propane X would fall into, as there are no rule book provisions for cars running such fuels. One wag tried to settle the question by suggesting that it compete as a "double-A stove." Yeah, and Pulliem could be known as the "Range Rider." /MT



Each carburetor has its own fuel delivery system, requiring use of two solenoid lock-off valves (far left), which permit flow only when ignition is on. Induction system uses base assembly from fuel injection unit (left) and 900-cubic-inch plenum box. Excess flow sensing valves in 23-gallon tank automatically shut should a fuel line rupture, two of several safety devices.

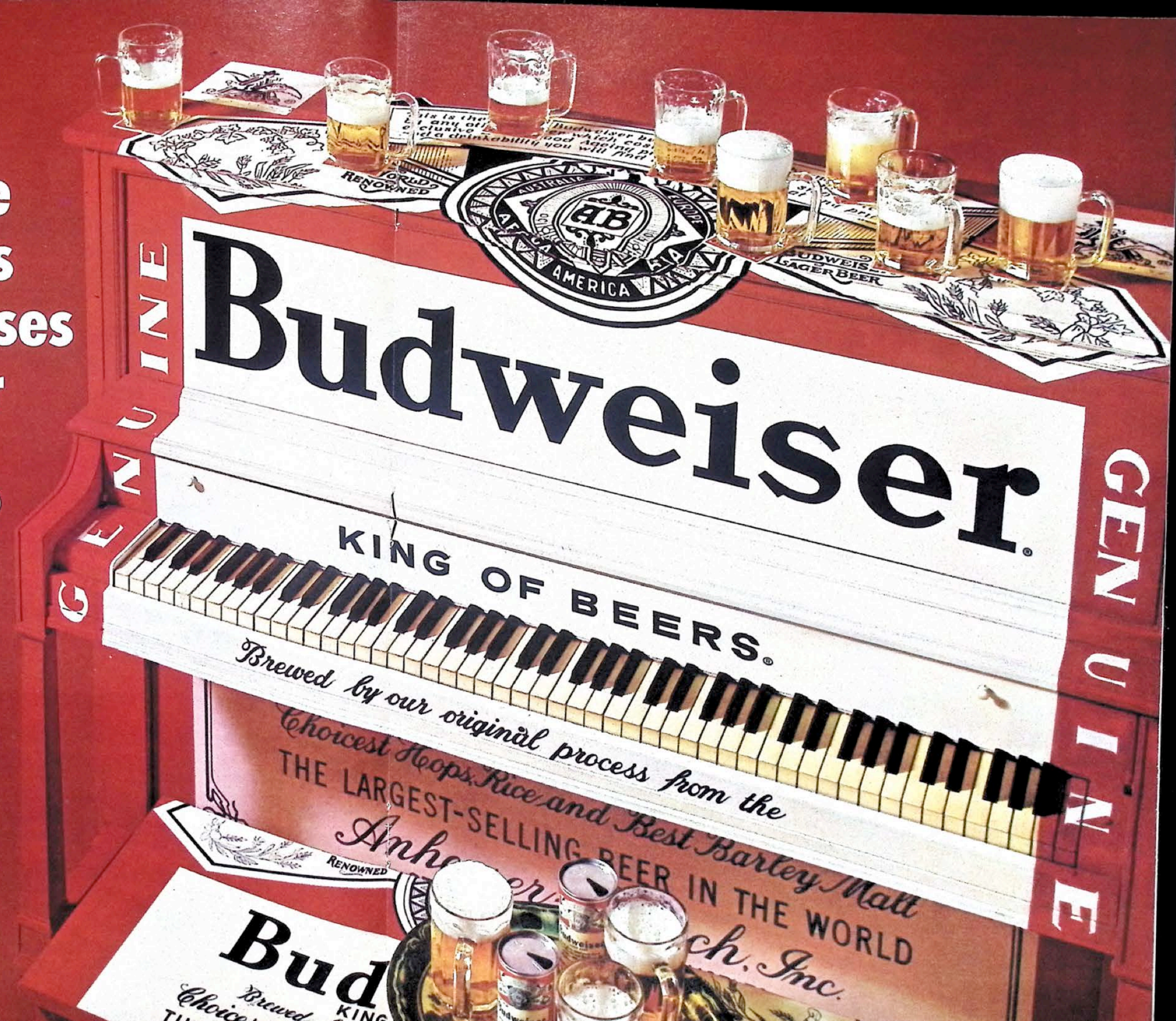


Real life calls for real taste.
For the taste of your life — Coca-Cola.

It's the real thing.
Coke

Why do more
beer drinkers
sing the praises
of Budweiser
than any
other brand?

(You'll know why
after a bar
or two.)



Budweiser

KING OF BEERS.

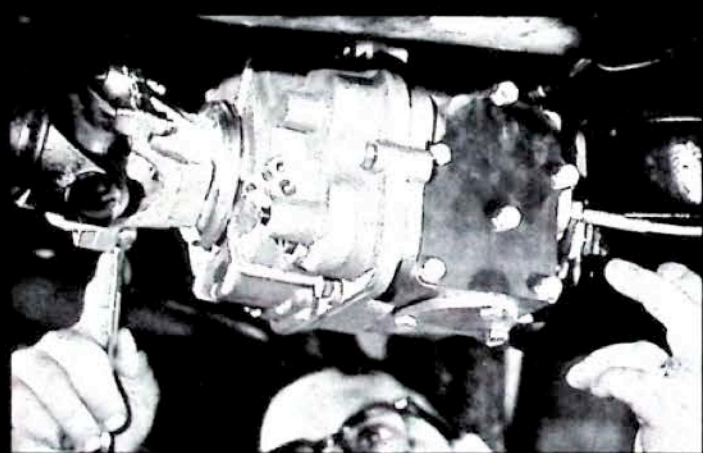
Brewed by our original process from the
choicest Hops, Rice and Best Barley Malt
THE LARGEST-SELLING BEER IN THE WORLD
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Choice
KING

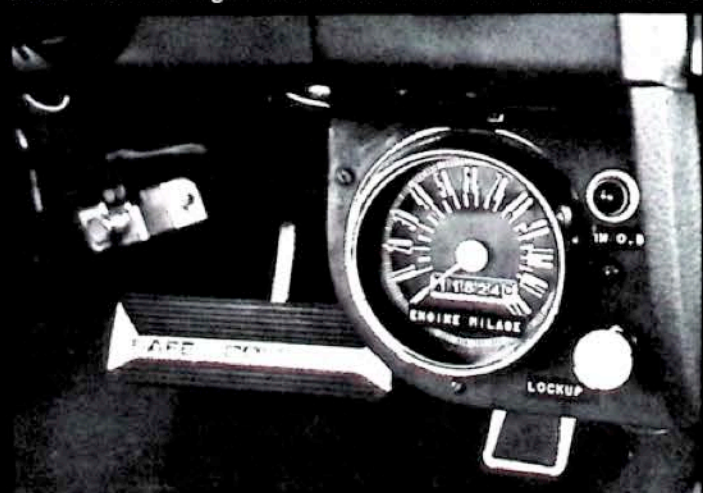
BORG-WARNER'S MAGIC DUPLICATOR

BOLT-ON OVERDRIVE COULD GIVE YOU TWO CARS FOR THE PRICE OF ONE

by **KARL LUDVIGSEN**



In order to be more compatible with the many different types of automatic transmissions, aluminum unit mounts at rear end. Small indicator light illuminates when unit is in overdrive.



Not much of it shows. There might just be a switch on the dash. At the most, there might be a signal light, too, and a foot switch on the floorboard like a headlight dimmer. They'd all be wired into Borg-Warner's magic duplicator, an aluminum box hidden deep down inside, able to convert an automobile from a mild-mannered gas-hoarding turnpike cruiser into a fire-breathing, tire-burning scourge of the drag strips.

To Borg-Warner, it's not magic. They call it an "overdrive," a name that may be new to the now generation of car buyers, but that's all too familiar to the legions of traveling salesmen, who roamed this great country of ours in their vacuum-shifted Chevy business coupes. What does an "overdrive" do? In brief, it changes the rear axle ratio, giving a high one for cruising and a low one for accelerating. It's like a quick-change gear you can swap while you're on the move.

How much of a ratio change does it make? A surprisingly big one. The overdrive ratio of Borg-Warner's magic box is 0.72 to one. To find out what your "new" axle ratio is with the overdrive operating, you multiply the number times 0.72. An axle of 5.00-to-one becomes an almost civilized 3.60 gear when multiplied by the magic 0.72. A 4.11 axle, a popular one for speed away from the stoplight, drops to 2.96-to-one with the B-W duplicator in action. And on the AMX in which we tried the device, a 3.54 axle ratio diminished to an almost imperceptible 2.55 gear in overdrive. Bonneville, anyone?

Another way to look at an overdrive is that it reverses the effect of a normal transmission, which delivers less speed than is fed into it, but more torque. When the overdrive's engaged, it delivers more shaft speed, 1.39 times the input speed, to be exact, but less torque. Cruising on the open road, torque is no big problem. There's enough available to propel any car at any legal speed, up and down hills. But there might not be enough to reach extremely high speeds. Sometimes a car will go slower in overdrive than it will in direct drive because the gearing doesn't let the engine climb high enough up the horsepower curve.

To the drummer rolling down route 20 in his Studebaker Commander, the important feature of an overdrive was not performance, but economy. It does produce better economy. An AMX, like the one I drove for this report — 390 CID

continued on page 101



Now you can see the power of a Delco Energizer.

West Quoddy Head, Maine. We connected one Delco Energizer to a special 12-volt lighting system.

It produced enough power to light the lighthouse. Plus ten 100-watt bulbs. Then the headlights. And still had plenty of power left over to start the car.

The Coast Guard couldn't operate a light-

house that way. But we made this unique demonstration to dramatize the cranking power of a 12-volt R59S Delco Energizer. Even at zero



degrees, it can produce up to 3,250 Peak Watts of cranking power—in the first few seconds—to start your car.

The Delco Energizer has a Peak Watts Rating

molded in the case. So when you get a Delco Energizer you can check the rating for the exact starting power you need.

A United Delco Care-taker Serviceman can help you.

Look for this sign. Or Dial Delco, 800-243-0355. Free. Dial as you would for long distance. In Connecticut, call collect 325-4336.



See the Care-taker.

February 1970. **Craig eliminates all the reasons you've ever had for not buying a car stereo.**



The Craig floor-mounted, burglar-proof car stereo. Model 3123-\$119.95 suggested list. Model 3124 (with FM)-\$179.95 suggested list.

We've made it as hard as possible for you not to buy our new car stereo. We mounted it on the floor so you couldn't complain about it looking out of place. Then we put an intricate magnetic lock on it so you couldn't complain about it being stolen.

We designed the face at an angle so you couldn't complain about taking your eyes off the road to load tapes. Finally we priced it so you couldn't complain about the price. The Craig Floor-mounted, Burglar-proof car stereo. For information, write Dept. MT-F.

CRAIG making now a little nicer.

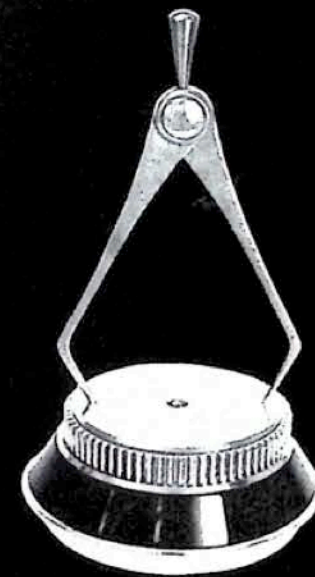
Craig Corporation, 2302 East 15th Street, Los Angeles, California 90021

**LA MIGLIORE AUTO
ESTERA DEL 1970**

**IMPORT AUTO
DES JAHRES**

**MEILLEUR VOITURE
IMPORTEE DE L'ANNEE**

**KOTOSHI NO "BESUTO"
YUNYU JIDOSHA**



**MOTOR
TREND'S *Import*
Car of the Year
is coming...**

In recognition of progress and achievement

Import car sales increased spectacularly during an eight-year period, from 1952 to 1960. Then, when U.S.-produced compacts were introduced, the foreign manufacturers with poor sales organizations fell by the wayside and were forced to regroup. In 1959, for example, foreign cars comprised about 10 percent of the market, same as today. The salient difference is that today's importer is probably in better shape financially than his U.S. competitors. Many, such as VW, have superior parts availability, training schools for service personnel, and, consequently, good service. The imports aren't going away anymore.

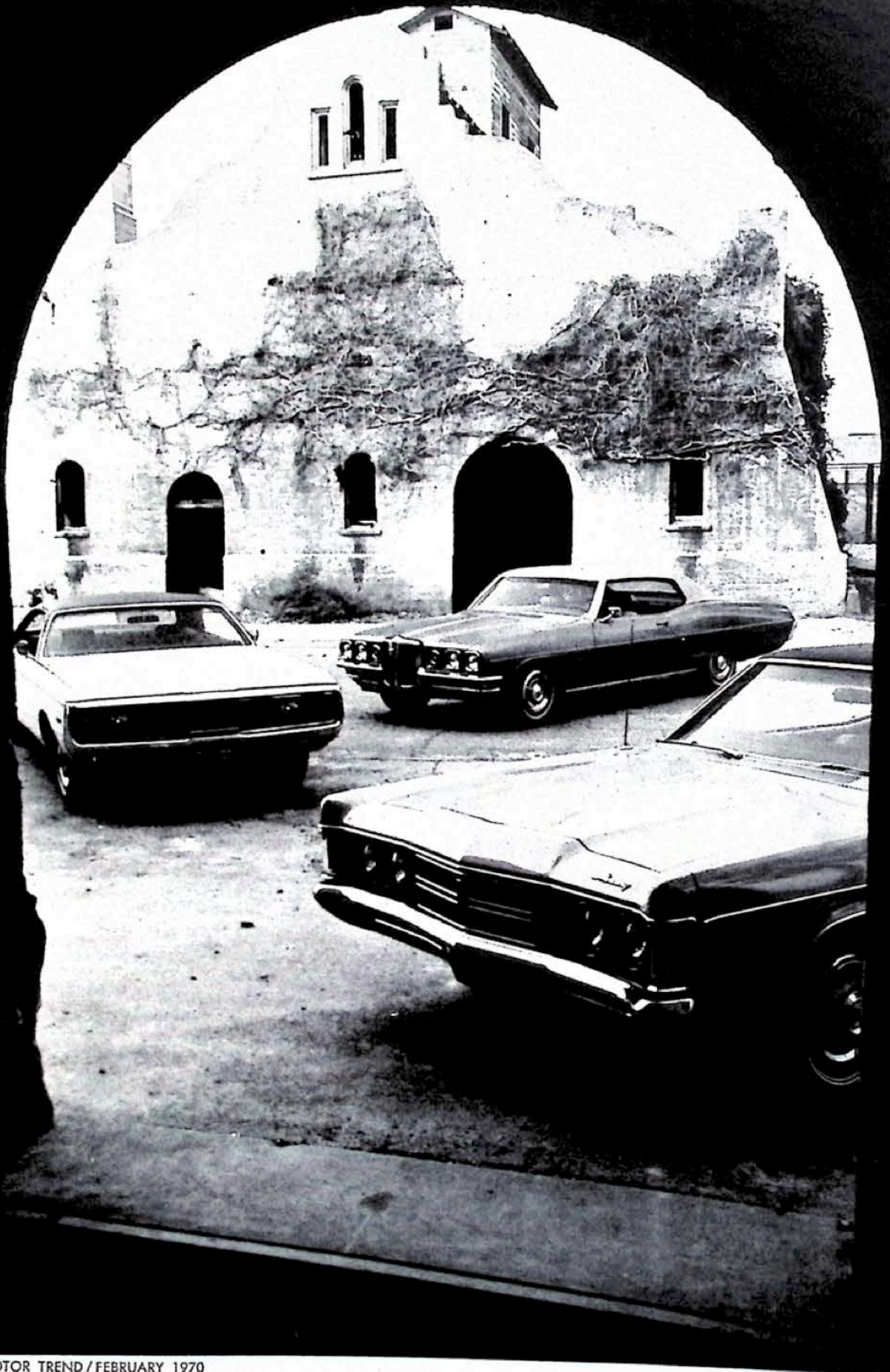
The prestigious *Motor Trend* Car of the Year award, in rank the most valued and sought after of industry honors, has traditionally been restricted to vehicles of domestic origin, excluding those cars of foreign manufacture. Because

of their pronounced popularity among American motorists, and their continued success in the domestic market, both economically and as a trend influence, the imported vehicles now take a place in the industry's most illustrious awards program. *Motor Trend* announces the Import Car of the Year, a new dimension to the industry's established and respected Car of the Year award.

Dependent largely on the collective qualities and features of the vehicle — a composite of engineering and design excellence, as well as overall market appeal — the Import Car of the Year candidates will be announced next month in *Motor Trend*. Following a critical inspection and exhaustive testing program, the final winner will receive the new Import Car of the Year award. Another *Motor Trend* first ... in recognition of progress and achievement. /MT



CONSERVATIVE LUXURY...



... is what you'll find in the Pontiac Executive, Mercury Monterey and Chrysler Newport.

By Bill Sanders

How do you define a car, its personality, its appeal? Marketing. Maybe. That's an attempt, an approximation of where and how you sell. People who buy cars have an assertive influence over those cars in the long run. It's like the dog and his master; the longer they're together, the more they begin to resemble each other and take on the other's personality. Cars are designed for relatively general categories, and if they are produced long enough, they begin to evolve a personality concomitant with the people who most often buy them.

The "toys," the super cars, the pony cars, appeal to distinct personalities, and the longer these cars are around the more they are influenced in design and performance by consumer demand. The same is true of compacts, luxury cars, intermediates, and all other categories of cars. But nowhere does that thesis apply more strongly than amongst that gray area of cars designed for upper middle class conservatism. Conservative Luxury.

Somewhere up there just before the accepted elements of luxury, the Cads, Continentals, Imperials, and Mercedes-Benz, and removed from the camp display of the Grand Prix, Toronados, T-Birds, and Rivieras, rests a group of competent boats steeped in conservative luxury. It's an intangible thing; it's hard to put your finger on it. But it's there. That socio-politico-economic feeling of conservatism. It's all pervasive. They have the flavor, the look, the flamboyance of luxury, but it's reserved and innocuous. These are the cars of guys who wear Kuppenheimer suits, Arrow shirts, and Princess Mara ties. The guys who bought De Sotos and Fraziers. Dedicated civil servants who've almost reached the top of the ladder. Conservatism in a car. It doesn't infringe above 'cause there's no room at the top and what's left is a little too gaudy to suit them.

What are these cars? They abound. They're everywhere. But in their very conservatism lies their beauty: they blend with the background. You seldom notice them. Yet even in this obsequious attitude there is value. If you're about to plunk down five grand for a new car it'd be nice to get some tangible benefit in the way of luxury and comfort besides whiz-bang scoops and sculptured lines. The Executive, the Monterey, and the Newport are all representative of this genre of car and the variations of luxury and comfort just between these three is itself an indication of just how much value you can find in similarly priced cars if you look farther than the first dealer in view.

DEFINITION: LUXURY, COMFORT, AND CONVENIENCE

If you begin inside where it's all happening, there are noticeable similarities immediately recognizable on the surface: air conditioning, power windows,

power seats, tilt steering wheel. These little luxury touches obviously have a salutary effect on anyone's reaction to a car. Their convenience is undisputable. But on the nitty-gritty level, things that are inherent in the car also have the big effect in the long run. Besides, most of the power operations are options anyway and have a big influence on the total price.

Luxury is reflected in comfort and there is definitely a disparity of that. The Pontiac Executive is a dressed-up Catalina or a dressed-down Bonneville, whichever you prefer. Although it is the same width overall as the Monterey and actually wider than the Newport, it appears from the driver's seat to be the narrowest of the three. Now this in itself isn't bad. Psychologically it's better for whipping through traffic and getting into parking spaces. But it does detract from luxury and comfort. Driving the Executive is like driving a Grand Prix without the wraparound dash and bucket seats. The divided front bench seats in the Executive 2-door hardtop sit up extremely high. Too high, even with the six-way power seat adjustment at the lowest position. With it "up" your head may be bumping the headliner. That creates an uncomfortable feeling. The seats aren't softly padded, or as soft as should be expected with a car of this type. Rear seat knee room was poor, even with the front seat in a forward position. Although we've found most Pontiacs to be tight and well put together, our test car showed the effects of abominable quality control and the doors were beginning to squeak loudly. The rearview mirror is also rather poorly located, especially for tall people. It is too high and can't be adjusted so you have a full view of the road for some distance behind. Because of that, rear visibility is limited to a few hundred feet behind the car.

The trip down luxury road goes a little farther in the Mercury Monterey. Yet, conversely, while the Executive has styling that is more exotic, the Monterey is the epitome of staid, conservative styling. Squared off and functional. Our test car was a 4-door hardtop sedan, and if it had been black it could have taken its place in line with any luxury limousine costing quite a few bucks more. For that reason, the Monterey may be a vastly underrated car. As one person who got behind the wheel remarked: "It's like sitting in that Lincoln Continental." And so it is. The Monterey does have a level of comfort and a ride quite close to that of the Lincoln. And that makes it every bit an equal to more expensive cars like the Mercury Marquis. Front seats are quite softly padded and nearly seem as comfortable as those in the Lincoln. You sit snugly enough down in the seats to feel comfortable, yet visibility is excellent. The Monterey had roll up windows and manually adjustable front seat, yet there was no problem without the power op-

tions. The convenience of those options is more explicit in these cars, though, for the additional price. Upholstery in the Monterey was plush and tasteful. Although the Executive had vinyl, which is easier to keep clean, upholstery in the Monterey and especially the Newport had a much more luxurious touch. Usually 4-door hardtops are the most prone to early rattles and looseness. But our Monterey, which had 2000 miles on the odometer, was tight in all four doors and had few rattles and little wind noise around the door glass. Front seat legroom is excellent in the Monterey — with the seat in a full aft position you can hardly reach the pedals. That fact contributes to the wonderfully refreshing amount of room in the rear seat, room that allows you to sit in comfort and move around. Interior space has been used wisely in the Monterey.

If the Monterey is a little longer trip, the Newport Custom is a full mind blower. Everything, and I mean everything, about the 1970 Newport Custom is about as excellent as any domestic car, in any price range or category, could be. It out-Imperials the Imperial. Not only does the Newport Custom exude luxury, it has gentle flowing lines that set it apart distinctly from the other two cars. It doesn't have the ostentatious flash of the Executive or the boxy statement of the Monterey. It's somewhere above on its own plateau, and styling is part of the cohesive whole that is the Newport Custom. Although it is the narrowest of the three cars at 79 inches even, the Newport gives the feeling of being much wider. That fact in itself adds immensely to the spacious, luxury feeling. The front bench seats are by far the most comfortable of the three cars. The backs are split by a pull-down center armrest that gives a cockpit feeling. Front seat legroom is also spacious and allows for plenty of rear seat legroom, even for a 2-door hardtop. Even the mandatory head restraints are the most softly padded and best placed. The Newport Custom has the most luxurious interior upholstery, and cushioning. Small touches add a lot. Like the seatback release levers. They're placed on the side of the seatback where you can immediately see them and reach them, not on the back or down on the floor somewhere. One bad feature that still persists on Chrysler products in 1970 is the metal strip on the door glass of 2-door hardtops. The top of the strip is knife sharp and if you get out of the car when the window is up there is often the tendency to rip sleeves and arms and other valuable things.

Many Chrysler products we've tested have had rattles and were the victims of poor quality control. Our test Newport was just the opposite. It was tight and solid. Everything fit perfectly and there was absolutely no wind or road

continued

noise, even at high turnpike speeds.

Even dash panels, which you mainly look at, show a difference in luxury. All three cars have relatively simple dash layouts as is the vogue for domestic luxury cars these days, with a large speedo, a fuel gauge, a clock, and nothing more, although the Newport did have an alternator gauge. Radio and heater/air conditioning controls are both located on the right side of the steering column in the Executive, but are somewhat difficult for both passenger and driver to reach. The Monterey has the heater/air controls on the left side of the steering column so the passenger can't reach them at all. In the Newport, both the radio and heater/air buttons are centrally located on the dash for anyone in the front seat to reach. And, notice, I said buttons. Chrysler utilizes a push-button heater and air conditioning system so there is never any mistaking what is working and how. Both the Pontiac and Mercury systems are too confusing, especially when you're driving and paying attention to the road. Even the ash trays show a touch of

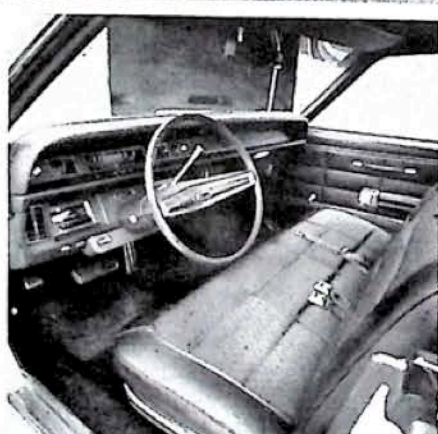
luxury, or lack of it. The Executive has one large ash tray and the large map light is directly over it on the dash, so you can't miss the ash tray at night. Unfortunately, the lighter is placed next to the steering column so a passenger getting a light must fumble over the drivers' knee to get the lighter, which could lead to all kinds of hilarious happenings, especially if your chick is driving. But, mainly, it's unsafe. The Monterey has a small ash tray and the opening is restricted, which means ashes on the carpet. For a real touch of class, the Newport has two huge ash trays on the dash, one for the driver and one directly in front of the passenger seat. That's a design feature that outdoes some of the much higher priced luxury cars. And, each ash tray has its own light for night use. Glove boxes on the Pontiac and Mercury are on the under side of the dash and difficult to reach. The Chrysler has the glove box up and within easy reach. Unfortunately, Chrysler still uses their new overhead lighting technique for the dash instruments and we still don't like it.

BIG RIDE FOR BIG CARS

When it comes to ride, the Executive is lacking in the qualities of a true luxury car; ride is fairly stiff and lacks comfort. Freeway driving leaves something to be desired. The Monterey ride is very plush and soft, similar to the Lincoln, and is softly comfortable on the freeway. Most luxurious, when it comes to ride, is the Newport Custom. Its understated comfort is there, especially on the freeway. You just sit back and steer. Ride is soft, but not as mushy as the Mercury. It's a wide, firm stance that propels you along without distraction and a minimum of effort. The Newport is by far the easiest to control.

Steering and handling are surprising in some instances. Flogging cars of this type around a race course doesn't prove anything, but if you do any mountain driving their response is worth noting. The Executive has variable-ratio power steering, which is excellent. Of all three cars, the Executive gets around quickest and is lightly maneuverable due to the variable ratio. But, at speed it has a tremendous amount of oversteer when

continued on page 96



Pontiac Executive was large on the outside, but felt small on inside. Seats were too high and not very softly padded. Placement of rear view mirror is too high, cutting rearward vision.

Squared off Mercury had feel of Lincoln. Car had well designed, soft seats and surprising rear seat legroom. Interior space is well utilized and overall construction appears to be very solid.

Chrysler had a true touch of luxury, especially for price. Seats were the most comfortable, legroom ample front and back and everything was finished off with small, appreciated touches.

Pontiac Executive hardtop coupe	
Base price	\$3600.00
Includes: 400-cubic-inch engine, deluxe steering wheel, deluxe trim package — brake pedal, electric clock, moldings and decor.	
Vinyl roof	115.85
Automatic transmission	227.04
Whitewall tires	33.70
AM radio	84.42
Rear seat speaker	15.80
Remote control left door mirror	10.53
Custom seat belts	12.64
Custom wheel covers	30.54
Variable ratio power steering	115.85
Power disc brakes, front	71.62
Tinted glass	44.23
Power windows	110.59
Power seat, six way	100.05
Air conditioning	421.28
Fender skirts	36.86
Evaporative emission system	36.86

Mercury Monterey 4-door hardtop custom	
Base Price	\$3676.00
Includes: 390-cubic-inch engine, deluxe wheel covers, body moldings, front seat center arm rest, deluxe steering wheel, Flo-Thru ventilation system.	
Vinyl roof	115.30
Evaporative emission control	37.60
Automatic transmission	238.40
Electric clock	15.60
Whitewall tires	33.70
Power front disc brakes	71.30
Power steering	115.30
Air conditioning	421.00
AM radio	63.50
Tinted glass	44.10
Deluxe seat belts	15.60
Remote control left door mirror	10.40

Chrysler Newport Custom 2-door hardtop	
Base price	\$3781.00
Light group	36.95
Basic luxury group AM radio, power steering, power brakes, 3-speed windshield wipers, remote control, left door mirror	
Front disc brakes	272.35
Automatic transmission	32.10
383-cubic-inch engine	233.65
Tinted glass	67.90
Air conditioning	44.80
Electric clock	405.85
Undercoat and hood insulation	19.05
Bumper guards, front and rear	20.50
Evaporative control system	35.00
Power bench seat, six way	38.35
Power windows	102.80
FM radio with search tuner (addition to above)	111.55
Rear seat speaker	94.65
Tilt and telescope steering wheel	17.00
Vinyl roof	90.50
	124.55

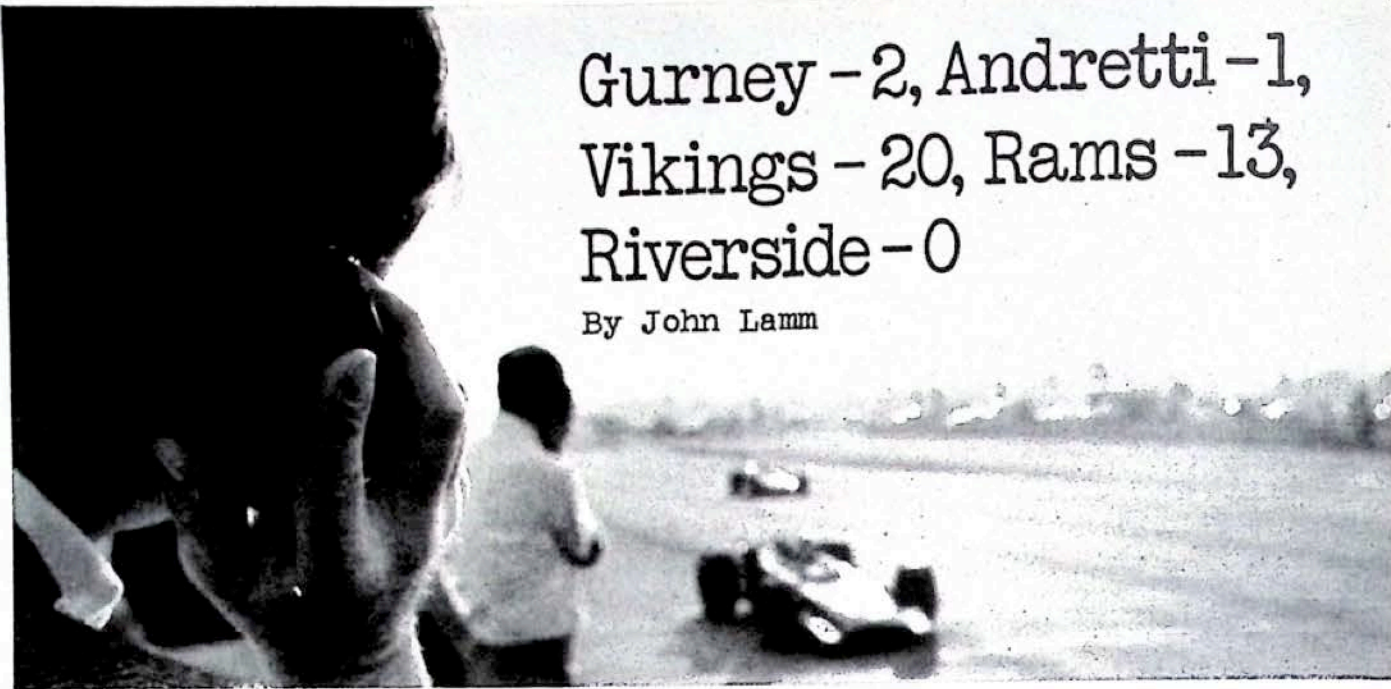


SPECIFICATIONS	EXECUTIVE	MONTEREY	NEWPORT
Engine	90° OHV V8	90° OHV V8	90° OHV V8
Bore & Stroke	4.120 x 3.754 ins.	4.052 x 3.784 ins.	4.25 x 3.38 ins.
Displacement	400 c.i.	390 c.i.	383 c.i.
Horsepower	290 @ 4600 rpm	265 @ 4400 rpm	330 @ 5000 rpm
Torque	428 @ 2500 rpm	390 @ 2600 rpm	425 @ 3200 rpm
Compression ratio	10.0:1	9.5:1	9.5:1
Carburetion	1 2-bbl.	1 2-bbl.	1 4-bbl.
Transmission	Automatic	Automatic	Automatic
Final drive ratio	2.73:1	2.75:1	3.23:1
Steering type	Power (Variable Ratio)	Power	Power
Steering ratio	16.0 to 12.4:1	17.0:1	15.7:1
Turning diameter (curb-to-curb)	42.8 feet	42.8 feet	44.2 feet
Wheel turns (lock-to-lock)	3.5	3.99	3.5
Tire size	H78x15	H78x15	H78x15
Brakes	Power: disc front, drum rear	Power: disc front, drum rear	Power: disc front, drum rear
Front suspension	Independent, ball joint with coil springs	Independent, ball joint with coil springs	Independent, non parallel control arms, torsion bars
Rear suspension	4-link pivoted control arms with coil springs	3-link control arms with coil springs	Parallel, longitudinal leaf springs
Body/frame construction	Separate body, perimeter-type frame	Separate body, perimeter-type frame	Unit construction
Wheelbase	125.0 ins.	124.0 ins.	124.0 ins.
Overall length	223.9 ins.	221.8 ins.	224.7 ins.
Width	79.8 ins.	79.8 ins.	79.0 ins.
Height	54.3 ins.	53.8 ins.	54.7 ins.
Front track	64.0 ins.	63.0 ins.	62.1 ins.
Rear track	64.0 ins.	64.0 ins.	62.0 ins.
Curb weight	4,214 lbs.	4,178 lbs.	4,195 lbs.
Fuel capacity	26 gals.	24.5 gals.	24 gals.
Oil capacity	5 qts.	4 qts.	4 qts.
PERFORMANCE	EXECUTIVE	MONTEREY	NEWPORT
Acceleration			
0-30 mph	3.6 secs.	4.1 secs.	3.2 secs.
0-45 mph	6.4 secs.	7.0 secs.	5.1 secs.
0-60 mph	10.3 secs.	11.3 secs.	8.3 secs.
0-75 mph	15.8 secs.	17.2 secs.	12.4 secs.
Standing start 1/4-mile	79.6 mph 17.7 secs.	77.4 mph 18.0 secs.	86.4 mph 16.3 secs.
Passing speeds			
40-60 mph	5.9 secs.	6.6 secs.	5.0 secs.
50-70 mph	7.4 secs.	7.0 secs.	5.7 secs.
Speeds in gears*			
1st	55 mph @ 4600 rpm	54 mph @ 4400 rpm	52 mph @ 5000 rpm
2nd	93 mph @ 4600 rpm	82 mph @ 4000 rpm	87 mph @ 5000 rpm
3rd	89 mph @ 3000 rpm	86 mph @ 3000 rpm	95 mph @ 4000 rpm
MPH per 100 rpm (in top gear)	29.7 mph	28.7 mph	23.7 mph
Stopping distances			
From 30 mph	29.8 ft.	28.1 ft.	30.7 ft.
From 60 mph	140.0 ft.	136.0 ft.	154.8 ft.
Gas mileage range	11.2 to 15.0 mpg	10.0 to 16.7 mpg	11.8 to 13.5 mpg
Speedometer error			
Electric	30 45 50 60 70 80	30 45 50 60 70 80	30 45 50 60 70 80
Car speedometer	30 45 50 60 70 80	31 46 51 61 70 80	30 45 50 60 70 80

*Speeds in gears are at shift points (limited by length of track) and do not represent maximum speeds.

Gurney - 2, Andretti - 1, Vikings - 20, Rams - 13, Riverside - 0

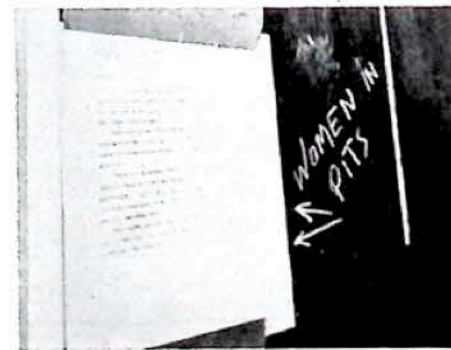
By John Lamm



The Rex Mays 300 may have been first in the minds of the fans, but it was second in their ears. Many preferred Ram's game.



Gurney is consoled by his sponsor, Ozzie Olson (above) after loss. For the first time, USAC allowed women correspondents in the pits at a Championship race (below). Honest ladies, if you can beat USAC, you can have the world.



REX MAYS 300

1. Mario Andretti, Nazareth, Pa.
2. Al Unser, Albuquerque
3. Dan Gurney, Santa Ana, Calif.
4. Bobby Unser, Albuquerque
5. Johnny Rutherford, Fort Worth, Texas
6. Swede Savage, Costa Mesa, Calif.
7. Wally Dallenbach, Brunswick, N.J.
8. Bill Simpson, Torrance, Calif.
9. Gordon Johncock, Hastings, Mich.
10. Mike Mosley, West Covina, Calif.

Despite what the chamber of commerce may say, the sun sets early in California during the winter. By 4:30 it's just a faint pink globe obscured behind the smog. A chill sets in quickly and completely; and it's then you start to miss that sweater you didn't bring because you couldn't possibly need it. Not in California, anyway.

As the dropping sun sucked down what little heat remained in the sandy wastes at Riverside Raceway, a dejected Dan Gurney was sitting in the huge, well-stocked refreshment tent his sponsor, Ozzie Olson, had set up on turn 7, trying to eat something. It hadn't even been an hour since he had lost the 3rd Annual Rex Mays 300 and he probably deserved a little time to himself. But there he was, nursing a cup of coffee between autographs, "I've always wanted to meet you's" and handshakes. He rose graciously for everyone who came to whip another trite phrase of consolation on him, until it just wasn't worth getting up and down any more and he just stood there. Behind him sat his wife, Evy, a now-cold cup of coffee and a forlorn-looking, unopened bottle of champagne.

Gurney lost it three laps from the end. With 30 laps left, the Eagle's limited-slip differential began slipping, something that it's not supposed to do. "I got on it and the motor rpm'ed out of sight," Dan said later. "I thought it might have been the clutch. After I let off, it was all right again for a little while, and then it started slipping every time I gave it some throttle. When you came back out of the engine, the limited slip would lock up with a jerk. About seven laps from the end, the strain finally snapped the right halfshaft."

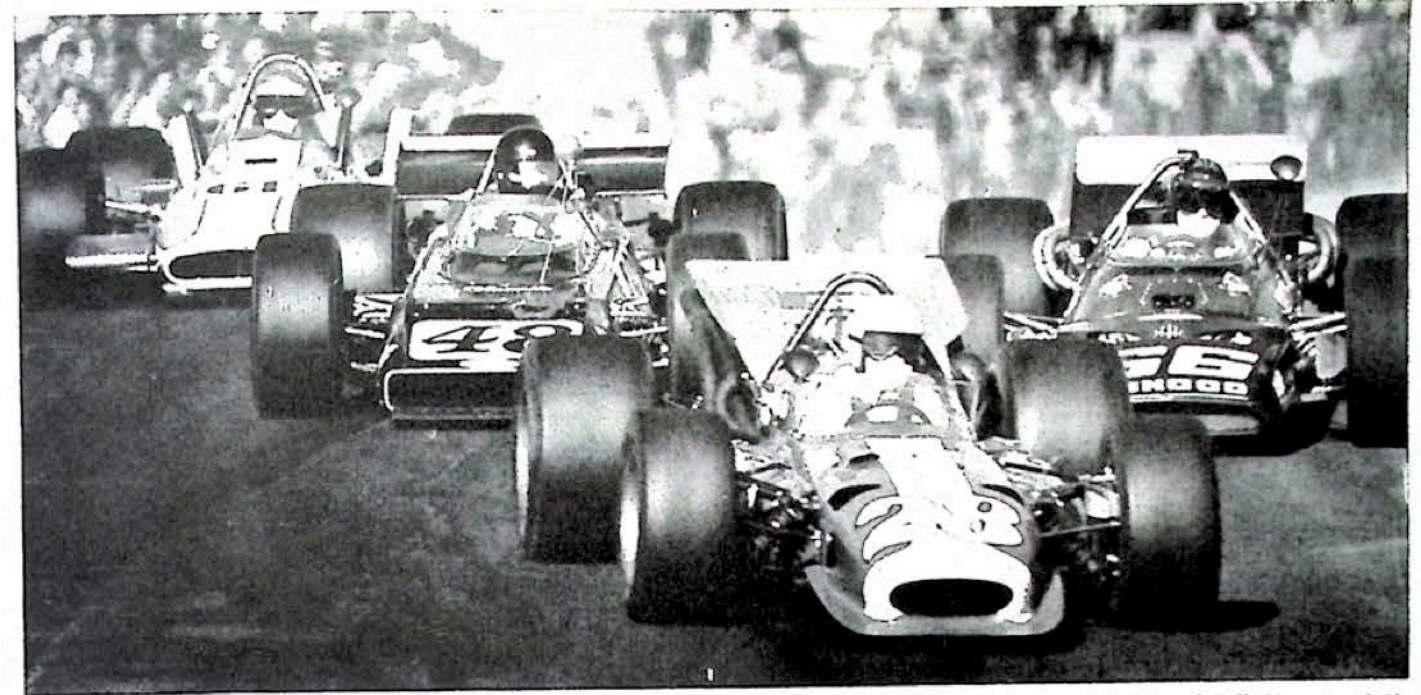
Mario could hardly believe it when he came upon Dan struggling at a much reduced pace. But he knew precisely how he felt. Almost two years ago to

the day, the time, and the lap, Andretti, with a lock on the first Rex Mays, the money, and the National Driving Championship, ran out of fuel. Like Lombardi said about breaks in football games, it all evens up in the end.

Chances are good, though, that Gurney wasn't beaten by that halfshaft; Andretti didn't just win out of luck and the people didn't stay away just because the Rams were playing the Vikings. It's the mysterious, unavoidable Rex Mays 300-Gurney-Andretti-Donohue-It's-too-Cold-to-Go Syndrome. The factors are these: (1) The top three front-runners will be Gurney, Andretti, and Donohue; (2) it will be an exciting race, but (3) the excitement won't show until the last half of the race; (4) it will be cold (for California); and (5) nobody will show up. USAC and Riverside would be well advised, when scheduling this race in the future, to check closely the alignment of the stars, maybe have their tea leaves read or at least send Les Richter and Henry Banks to a phrenologist.

Gurney headed the field for the \$85,000 race by putting himself on the pole with a one minute, 15.9 second lap, averaging 118.5 miles per hour. Mark Donohue in Roger Penske's immaculate-as-always Lola was second with a 1:16.30, Andretti was third with a 1:16.46 and the next five qualifiers, Al Unser, Gordon Johncock, Roger McCluskey, Swede Savage and Bobby Unser were all within .52 seconds of each other.

Ninth and tenth qualifiers were the twin STP Lotus-Plymouths of George Follmer and Sam Posey. The cars had the B & M automatic transmissions (Dec-MT) and both drivers were very enthusiastic about it. However, they both said that while the transmissions and the Keith Black-built engines were strong, they were having trouble setting up the chassis. And remember the big problem everyone has always had with auto-



Mark Donohue (66) and Dan Gurney (48), having already passed Max Dudley (61), prepare to get around Bill Simpson (28).

matic racing transmissions overheating? "They're staying 100 degrees below anything they were worried about," claimed Posey. Hmm-m-m.

Gurney's All-American Racers brought cars for both Gurney and his protégé, Swede Savage. The stock block engines with Gurney-Weslake heads were pulling 603 hp on straight alcohol, up from 511 hp in '68 and 466 hp in '67. Not bad for an "old" engine with a set of "old" heads on it.

Penske's team, resplendent in chrome wheels and plaid pants, brought their Lola-Chevy for Mark Donohue. The car was prepared like all Penske cars and was so clean it seemed a shame to send it out on the course where it was bound to get dirty. The team's only major problem seemed to be with the heads, one of which cracked after practice on Saturday. For the race they replaced both to make sure they wouldn't have the problem again — they thought.

A.J. Foyt and Dick Simon wrapped Saturday up with two rather spectacular accidents that put their cars out of the field. Foyt was entering turn one in his Coyote when he got off on the dirt and slid into the retaining wall, badly damaging his car. Rather than bump Roger McCluskey, Foyt decided to sit the race out. A distinct contrast to the musical cars competition of a year ago. Simon had his left front brake lock going up the hill into turn 7. He went straight off the course, through a chain link fence and into a wall, but climbed out of the wreck unhurt.

Sunday morning was again rather cool, a setback for the no-bra cult, but a great step forward for the tight sweater set. They threw the gates open waiting for the tens of thousands of automobile-crazed southern Californians that always go to the Riverside for any race they have there — except one, the Rex Mays 300. In fact, the official body count

placed the crowd around 18,500 and that must have included drivers, babies, and stray dogs.

The race started at one, and by lap two, half the fans were tuned into the real battle of the day — the L.A. Rams-Minnesota Vikings game. And therein lies part of the reason only 18,500 showed up for the race. The Rams haven't exactly been world beaters, so when they get a winner in L.A., they have to take advantage of it. Riverside Raceway's president, Les Richter, should have known that, being a former Ram himself.

The race was a Gurney-Donohue-Andretti thing from the time Sam Hanks pulled off the course in his Boss 429 Mustang pace car. Who led each lap depended on which corner you were on as the lead changed several times on every lap.

Mario Andretti pulled into the pits on lap 12 and had his left rear wheel changed. It happened he was running a brand new type of spun aluminum wheel that required a very similar, but not matching, tapered wingnut as his old wheels. Someone had put on the wrong wingnut and the wheel loosened up. "At first I thought it was a flat," Mario commented the next evening at a Sports Headliners party. "So I didn't worry about it because you can drive almost full speed on the inner liner. It's a good thing I came in." It was a long pit stop and when Andretti went out again, he seemed doomed to be an also-ran.

Gurney and Donohue had this tremendous dice going until lap 43, when Donohue made his first pit stop. Their pace, though, was enough to keep Donohue ahead of third-place runner, Gordon Johncock. But then you also have to consider that it was a Penske pit stop and brother, if you ain't seen one, you ain't gonna believe it.

By lap 60, the halfway point, Gurney

was well in command, Donohue second, and Andretti had climbed back to third. Al Unser was in fourth, brother Bobby, fifth, and Swede Savage, sixth, in the second Eagle.

On lap 61, Gurney pitted for a 22-second pit stop and came out 6 seconds down on Donohue. Andretti pitted on the same lap for a minute and 10 seconds. (Does that tell you something?) Donohue held the lead for only 6 laps before coming in, shutting the car down and climbing out. One of the replacement heads had also cracked. Penske and Donohue both looked like they'd rather be in Philadelphia. Oh, and do you know what you do if you're Roger Penske and your car drops out? You push it back to its trailer, naturally, but before you load it, you have it all wiped down and shined. I guess it has something to do with chrome wheels, plaid pants, and a fantastic win record.

Gurney settled down to a comfortable lead and Andretti was figuring it would take a miracle to win the race. By lap 100 it was Gurney 1st; Andretti 2nd; Bobby Unser 3rd; Al Unser 4th; Vikings, 20; Rams, 6.

Ah, God was in heaven and all was right with the world — until lap 117.

There is a terse entry in the race rundown. It's Press Bulletin #61 and it says, "Gurney moving very slowly on lap 116. Andretti was 22 seconds back and running strong. Andretti passed on lap 117 and moved away easily."

It was Gurney's broken halfshaft and Andretti's miracle. There was nothing to stop the bright red #2 STP car and Andretti went ahead to take the \$18,650 first prize. Al Unser also passed Gurney to take second, Gurney was third, Bobby Unser fourth, and up in L.A. the Vikings beat the Rams, 20-13.

And then the sun went down and it got very, very cold in sunny Southern California.

Fifteen years ago, more or less, my friend Steve Makris had an Olds 88 coupe. It was gray, a clean car with little chrome, yet somehow shapely and sharp. Light and quick, an 88 was the standard against which all other cars were measured. By timing the lights just right we used it to set a lap record of Brooklyn's Prospect Park that's probably still on the books.

Lots of cars have since been likened to the nimble 88 and, Oldsmobile, which still has a knack for bolting together well-balanced cars, just came up with the most likely successor to its famous prodigy: a brand-new collection of parts carrying the designation "Rallye 350." If that doesn't conjure up visions of a fire-breathing, tire-burning, thousand-horse juggernaut, it's just fine with Olds. The Rallye 350 is a new kind of car aimed at the younger driver who has trouble getting insurance, especially if the car of his choice weighs less than 10 pounds per horsepower. With 310 bhp and 3500+ pounds, the Rallye 350 is in the clear with your insurance agent.

Not too many young drivers will be able to benefit from Agent 88's latest inspiration. The plan is to make not less than 2000 during the rest of the model year, perhaps as many as 4000, but that's the outside figure. So in 1970 the Rallye 350 will be a very distinctive machine.

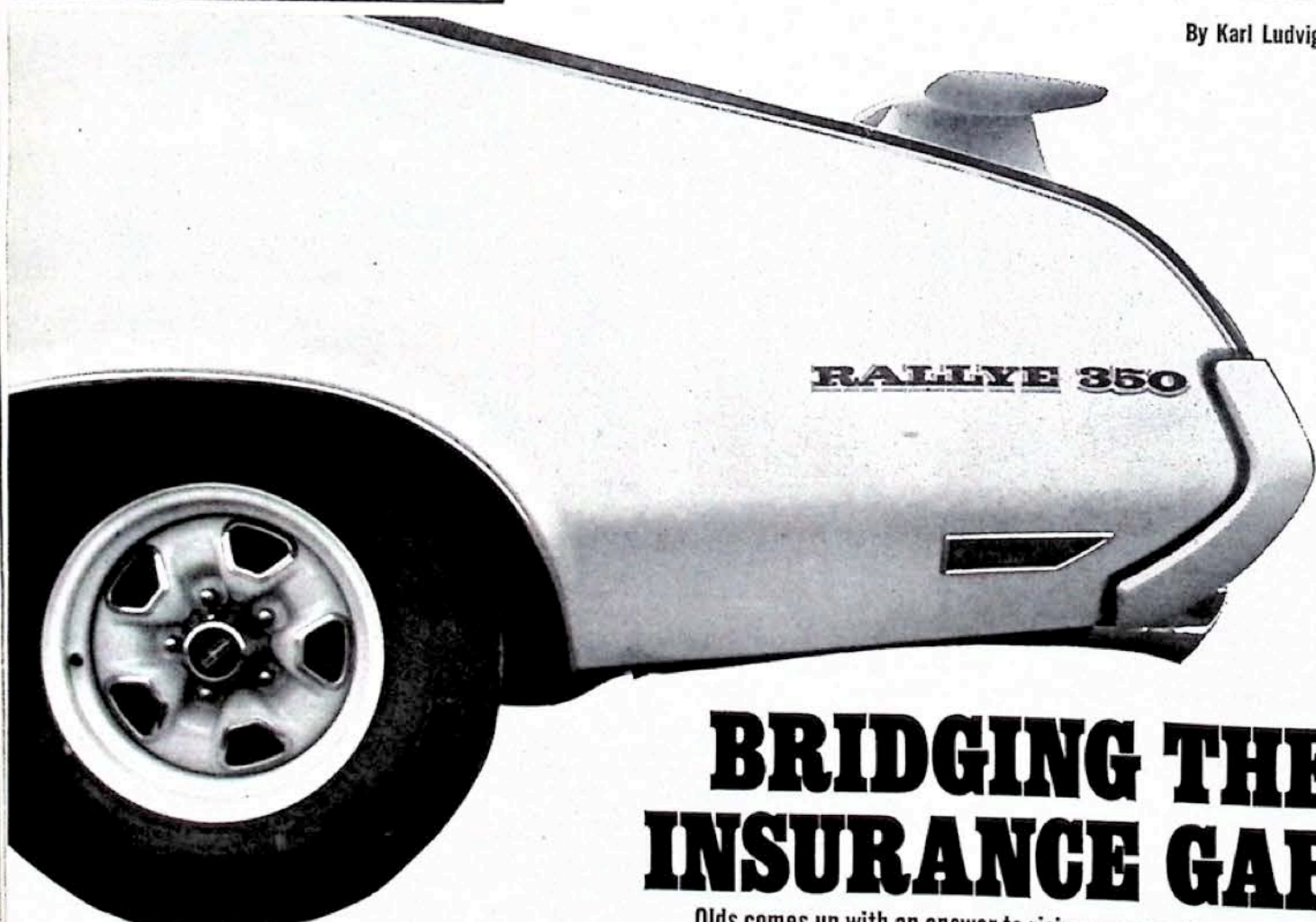
As this was written, the list price—a fairly significant feature—wasn't set. Olds people expect the tab to be over \$3000, ready to go, but not too much over, since it competes within range of Roadrunners, Dusters, and others of the econo-supercar breed.

If the price does come out on the high side, before you go back to the BMW 2002, take a second look at all the equipment of the Rallye 350 package. There's the rear spoiler, of the same design and supplier as the one on the now-defunct Hurst-Olds hybrids. Fortunately, Olds is satisfied that it really works. The cold-air hood, with two huge nostrils inhaling high-velocity air as it curves over the front of the hood works, too. Inlet location was arrived at after trials of forward extensions and other types of cool-air feed. Air is drawn from the hood only when a vacuum motor opens a cast plastic trap door inside the air cleaner, at or near full throttle.

Trick wheels are part of the package; the great-looking N66 option wheels with 7-inch rims, painted Sebring Yellow to match the car. They carry black-wall G70x14 rubber. The color-matched approach is carried to the bumpers, something new for Olds. First the steel bumpers are primed, then sprayed with a self-colored polyurethane coating. It won't resist big dents, as Pontiac's En-

By Karl Ludvigsen

High spring rates, anti-roll bars front and rear, wide rubber make Rallye 350 a real handler. Rear deck spoiler is adapted from defunct Hurst-Olds.



BRIDGING THE INSURANCE GAP

Olds comes up with an answer to rising supercar insurance rates.

dura stuff does, but the coating has a "memory" that fills in small nicks and scratches.

With wheels and bumpers color-coded, there's no mistaking that the Rallye 350 is a yellow car, which is to say it looks strong. But these days you can't tell a racer without stripes, so there are black and orange eyebrows over the front wheels and outlined black accents for the hood scoops. "Rallye 350" strips are along the rear flanks. I like the "frenched" look of the rear end with the big taillights set into the bumper, which is from the 4-4-2, so it's notched at the bottom to suit the megaphones for the dual exhausts.

Only 310 horsepower? Is all this flash just to carry a stock L74 option 350 CID engine? Not quite. There are the duals, for example. They free up the exhaust flow as the cold-air hood helps the inlet. The carb is special too, a 4MV Rochester Q-jet like the one used on the manual versions of the 4-4-2, instead of the 4MC that comes with the L74 engine. The intake manifold remains iron instead of the aluminum part used on the select-fit and costly W31 engine.

The camshaft is new to the 350 CID engine, a neat compromise between the

stock 250/264° duration cam and the hairy 308° cam of the W31. It is the stick used in last year's manual-shift 4-4-2, which has 286° of duration and 58° overlap with a lift of 0.472 instead of the stock 0.400 inch. Valve spring dampers are also used. The combination has proved such a nice one that it may be used on all manual versions of the L74 engine for the rest of 1970.

With hydraulic lifters and the new valve rotators, this Rallye 350 engine can turn safely to 5600-5800 rpm. Olds dealers carry a kit (part #231003) to substitute lighter retainers for the rotators if you prefer an extra 200 rpm margin at the expense of valve life. As it stands it's a just plain nice engine. It idles dead smooth, yet responds quickly and keeps pulling hard with a professional whine to the point of valve buzz. With the standard three-on-the-tree close-ratio box in the car we tested, it was good for 50 in first and 83 in second. Ours had a Hurst floor shifter (as do the optional four-speeds), a 2.52 low gear, and a 3.23 axle ratio. With a 2.20-low four-speed the axle supplied is 3.42. The Turbo Hydra-Matic is an option.

Is the performance adequate? I thought so. Covering the quarter in 15.4 seconds

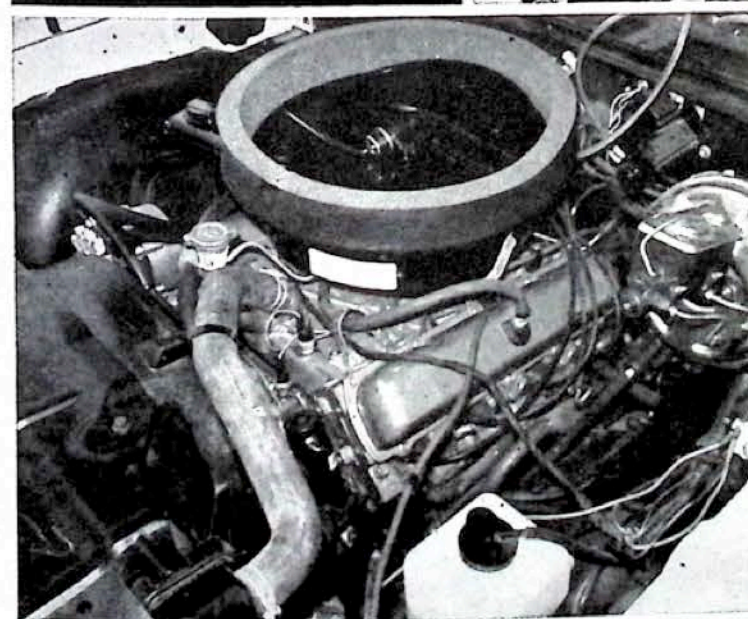
at 89 mph with Wide Ovals and an unspectacular start is fine in stock form for a car that would be classed in H with its original engine, and G with the W31 parts under the hood. It reached 60 in 7.7 seconds and 80 in 12.1, which is the kind of acceleration you can use on the highway without drawing any more attention than the yellow paint already does. And with those axle ratios, reasonable economy could also be expected from the 350.

Other options are unsurprising. Drum brakes are standard with discs optional, either power or manual. Variable-ratio power steering is optional, bringing the turns lock-to-lock down to a handy three. There's no suspension option, because the Rallye 350 comes with the 4-4-2 underpinnings, including wheel rates of 150 pounds/inch both front and rear and twin anti-roll bars, 0.937 inch in front and 0.875 inch in back.

This combination, with just-right power in a smooth range, makes the Rallye 350 one of 1970's most "throwable" cars. You can toss it into a tight corner and decide, with the throttle, whether you want the front or the back to swing out, which it will do easily, with no drama

continued on page 98

OLDSMOBILE 350	
Type	V8
Bore & Stroke	4.06 x 3.39
Displacement	350 cu. ins.
Max. Horsepower	310 @ 4800
Max. Torque	390 @ 3200
Compression Ratio	10.25:1
Carburetion	Rochester 1 4-bbl.
Transmission	3-speed std.
Final Drive Ratio	3.23
Steering Type	Variable Ratio
Anti-roll Bar Diameter:	
Front	0.937
Rear	0.875
Brakes	Disc/Front—Drums/Rear
Tires	G70 x 14
Weight	3500 pounds
Acceleration 0-60 mph	7.7 seconds
Standing Start 1/4-mile	15.4 @ 89 mph



Author, engineer Marv Thomson (top photo), discuss Olds' insurance beater. Engine puts out 310 hp from 350 cubes.

Interior is uncluttered and well-suited for even tall drivers. Car has flashy paint: bright yellow, trick stripes.



Beating out cycles and buggies, the HMS-built Minor/Hall Motor Trend Bronco was overall winner of Baja 1000 offroad race.

Just how tough does a car have to be to win the Baja 1000... does it have to be bulletproof?" "It's got to be an iron anvil."

Bill Stroppe started building off-road racers long before the era of the Broncos, long before the Baja 1000 and long before the absorption of his Long Beach, California, shop by Holman & Moody. Before all of that there were those unbelievable Carrera Pan Americana Lincolns, innumerable NASCAR-type Pikes Peak stockers and the African Safari Comets. Stroppe got his first Bronco in 1966, before its public release, readying it for a competition debut shortly after the official introduction. That first one, with a little six-cylinder engine, was overall winner at the Riverside Four-Wheel-Drive Grand Prix at the start of the '67 season. The prize, by the way, was a new Jeep.

In 1968, HMS Broncos won their class at the Skyline Snow Rally, the Riverside Grand Prix (again), the Mint 400, the Stardust 7-11, and the Baja 1000, where the Larry Minor/Jack Bayer stock Bronco was the first four-wheeled vehicle of any kind across the finish line. In 1969, they won that Riverside race yet another time, finished third at the Mint 400 and most recently, and spectacularly, took a class and overall win in the Baja 1000. It was Larry Minor again, this time with Rodney Hall, a Baja winner in his own right, as co-driver, in one of our Motor Trend Broncos. The way HMS put that machine together is representative of the extensive preparation that is a trademark of Bill Stroppe. Anybody who thinks that all that's required is a roll bar, big tires, and stiff shocks is mistaken.

Starting as a regular production vehicle, the winner-to-be was first stripped to the bare frame. Then, specially-fabricated shock absorber towers, two per wheel, were welded on. The car uses heavy-duty Gabriel racing shocks, with the fronts mounted vertically for steering clearance and the rears angled out 45° to cut piston travel (thereby conserving the seals). The rear shocks also angle inboard to the frame at the top, helping control tire side bite. The front springs are the optional heavy-duty Bronco coils, fitted with Air Lift air bags, which are inflated to 16 psi. The air bags control bottoming and dampen spring oscillation. At the rear, the Air Lifts are fitted with coiled

helper springs, giving a soft "cushy" ride even with the heavy racing fuel load. The rear springs are heavy-duty Bronco leafs, which have been re-arched. The springs are located closer to the center section than on stock Broncos, with the outrigger spring perches eliminated. This results in a quicker roll center and also increases side bite.

A heavy-duty rear axle housing, which has larger outer bearings than the standard part, is used, with a steel strap welded underneath to make it more rigid. The differential is a Detroit Locker with a 4.86:1 ratio, the same ratio as used up front. Heavy-duty Dana driveshafts, with double back-to-back U-joints, and Bronco HR axles fill out the rear end package. At the other end, Dana teflon spherical ball joints, from an F250 Ford truck front end, were used. A variable-ratio power steering box was sandwiched into the frame and all the stock steering parts modified to be compatible with it. In addition the column had to be shortened and fitted with double U-joints.

Two brake systems, one for the front and one for the rear, are actuated through a double master cylinder. Velvet-Touch metallic brake linings were fitted to the stock drums, which are drilled with small holes to release dust, sand and water. Brake action is set for 60/40 front to rear proportioning. The 10-inch wide HMS steel wheels carry modified spiders for less flange flex and mount Goodyear or Firestone Pikes Peak Special tires (with inner liners).

With the chassis on wheels, the roll cage was built. The material is .125-inch wall, 1 3/4-inch o.d. seamless tubing, heliarced together according to SEMA (Specialty Equipment Manufacturers Association) specifications. Next came the Bronco's basic body shell, less doors and front end sheet metal. The stock body mounts were swapped for hard rubber biscuits. The dash, steering column, floor-shift tower, and battery box (under the co-driver's seat) were then fabricated. The twin 22-gallon NASCAR fuel cells, with rubber bladders, anti-slosh baffles and two H&M ball-check filler neck safety valves, were built and installed. Shock absorbing Bostrum seats, with both hydraulic and spring action, were bolted in and HMS fiberglass door and rear fender cut-outs rivetted in place.

In the cockpit, a small hydraulic jack, jack handle, first-aid kit, and parts box were securely mounted. Instrumentation

How the Bronco Builder Beats the Bronco Busters

Or, why Motor Trend's Project Bronco won the Baja 1000.

By A. B. Shuman

followed: Stewart-Warner gauges, an Auto-Meter tach and a police car speedo (for accurate distance measurements). The Purolator air cleaner element was mounted on the dash in front of the co-driver, as it is in all Holman & Moody-Stroppe-prepared Broncos, allowing it to be changed underway, with plastic and metal ducting making the connection between the carburetor and air cleaner.

For this particular car, a roll cage was built around the engine compartment before the front end sheet metal was put on. This was done to prevent any panels from being pushed into the fan in the event of collisions with stray cattle. Just the outer body panels are used, here tied to the roll cage structure.

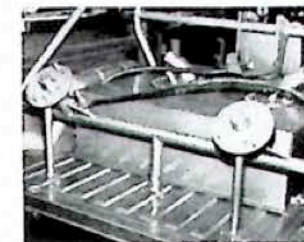
The power steering was fitted with an oil cooler and the engine radiator was custom-built with a three-inch core, protected from clogging by a front-mounted shaker screen. The blueprinted 302 CID V8 drives a Flexi-Lite fiberglass fan and heavy-duty 55-ampere alternator. The mill uses a completely shielded ignition system, with plastic sealant applied at all points of possible dust entry on the exterior of the engine. The baffled oil pan is reinforced to prevent stone punctures and the carburetor fitted with special floats and float bowls to stand the pounding of the race. A single S-W electric fuel pump, mounted behind the driver's seat, pushes the gasoline through a Purolator filter to the engine.

A Schiefer clutch rides inside a Lakewood steel bell-housing and drives the Hurst-controlled Ford T&C four-speed trans. Other details include four Lucas quartz-iodine lights (two mounted on the roll cage), Purlux flood-beam lights, stock horns with piggy-back "diesel" horns, a rear view mirror, full Impact belts and harnesses, HMS rubber-dipped steering wheel, rubber tubing/vinyl tape covering over the roll bars, naugahyde "roof" and "doors," and two spare tire mounts at the rear of the bed. Along the way, everything is safety-wired and fitted with Marsden and Elastistop nuts. *The ignition key is safety-wired to the dash!*

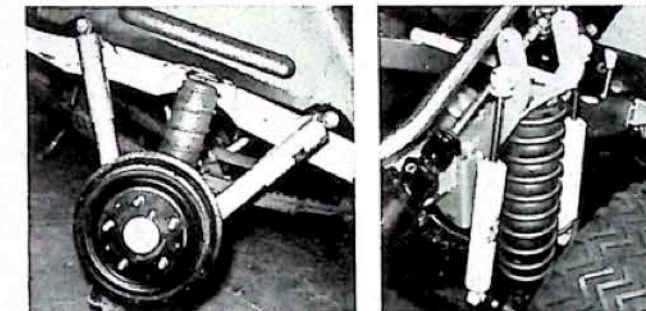
The total package weighs about 3700 pounds ready to race and has a top speed of 122 mph on pavement. With the facilities at the Holman & Moody-Stroppe plant, it still takes four full weeks to prepare each car — and before each is raced again, it is completely rebuilt. Even an anvil can sometimes wear out.



Front roll cage cuts bovine damage. The Broncos are rebuilt from the frame up.



Most of bed is filled with dual 22-gallon fuel tanks.



Air Lift air bag and double Gabriel racing shocks are used at each wheel. Springs are heavy-duty Bronco parts, but mounts and shock towers are Holman & Moody-Stroppe.



Bill Stroppe, right, maintains tight rein on the operation, personally checking on progress of each unit.



Once chassis is on wheels, roll cage can be built and basic body shell bolted on. Complete car weighs 3700 pounds and has speed of 122.

only six left

At last count just a half dozen
Rolls Derby Speedsters remained.
Of course, they only built ten.

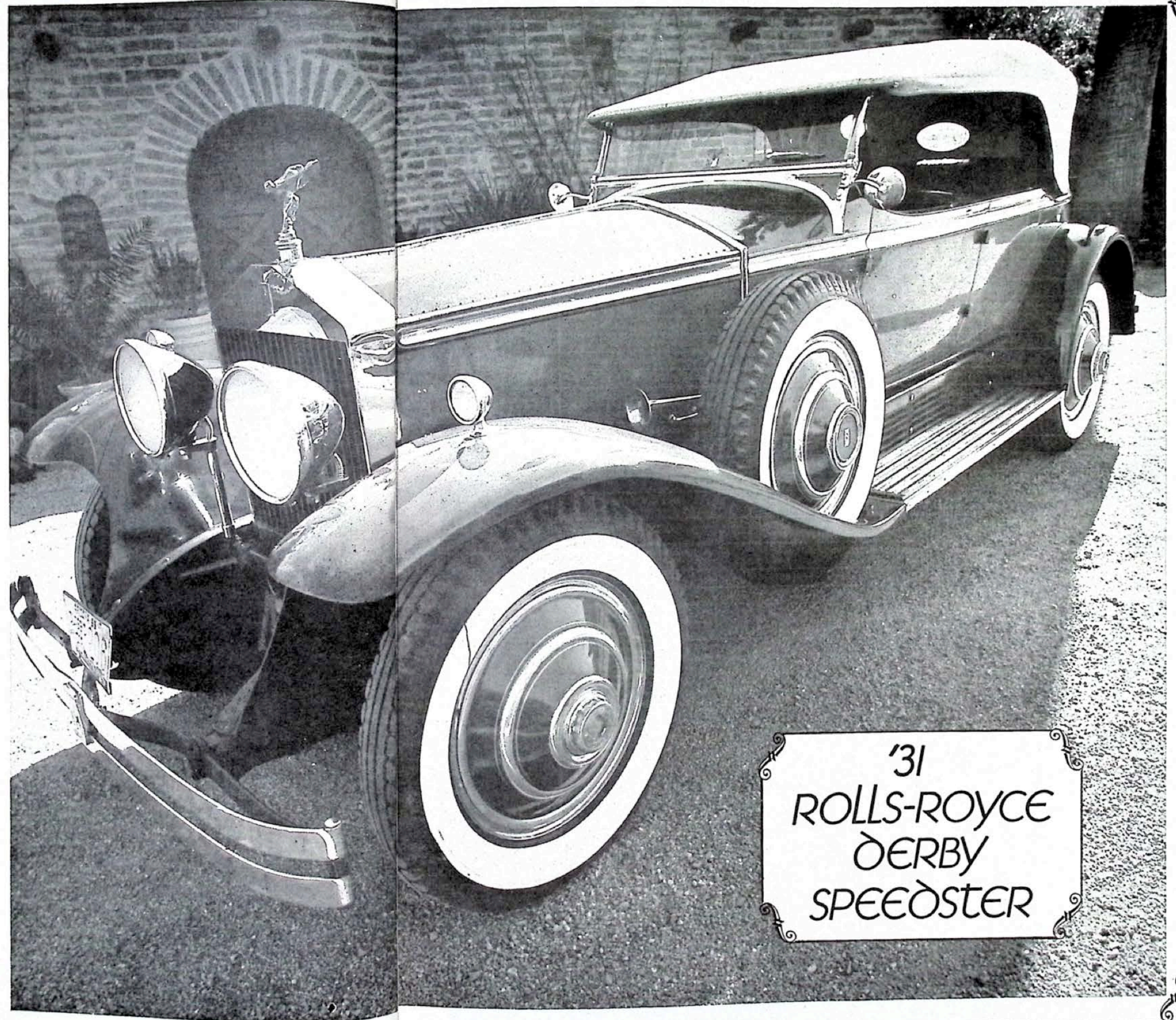
By A.B. Shuman

There was a time when Rolls Royce had a factory in the U.S. It was located in Springfield, Massachusetts, and turned out Ghosts from 1920 to '27 and Phantoms from '27 to '31, when it ceased operations, a casualty of the Depression and customer demand for "the real thing." One of the last left-hand-drive chassis to roll down the Springfield line — perhaps the last one — was a Phantom I Derby Speedster. Now owned by Tom Barrett of Phoenix, Arizona, it was originally called a Brewster Speedster. Rolls-o-philes will point out the tulipped doors, straightout front fenders, and flared rear fenders as the chief recognition features. At last accounting, in 1964, only six of the ten built were still extant. The six-digit odometer on Barrett's indicated just shy of 53,000 miles, connoting a rather leisurely existence for a thirty-nine year old car.

The engine is a redoubtable seven main bearing OHV six, with a healthy 4½-inch bore and an even healthier 5½-inch stroke. Drinking from a 21-gallon fuel tank at the rate of 11 miles per gallon, the 4800 pound machine can still cruise along comfortably at 65 mph, and is a common sight in the Phoenix area. Power is routed to the tall 7.00 x 20 six-ply tires through a three-speed manual transmission, torque tube and 3.72:1 rear axle. Residing on a 146½-inch wheelbase, it has a 25-foot turning radius. An 18-inch diameter wood wheel works the worm and nut steering and mounts centralized control for throttle, spark advance, and carburetor mixture. Interior appointments are straight forward more functional than regal. The upholstery, of course, is real leather and the dash is wooden, but there is none of that elegance-exuding trim that fullfills the puffed-up popular conception of what a Rolls should be. Maybe that's why the Springfield plant folded. /MT



The 4½ x 5½ OHV six is still strong enough to permit 65 mph cruising in 4800 pound Rolls. Small pigskin-covered trunk has about as much space as those in most pony cars.



'31
ROLLS-ROYCE
DERBY
SPEEDSTER

It was the day after the Firebird long-lead press preview; a bright, sunny day. Most of our fellow Fourth Estaters had long-since left and were, no doubt, already pouring out their hearts to their typewriters. Fred Enke and I had stayed around to test and photograph the Trans Am. We were at GM's Mesa Proving Grounds, just outside of Scottsdale, Arizona, and despite the sun, the early December wind, coming off the snow at Flagstaff, was chill. It was the kind of wind that makes your eyes water and nose run, and I welcomed any chance to get back in the car, periodically asking Fred if he was absolutely sure we didn't need any more action shots. We were out on the skid pad, a great, circular asphalt patch where you could indulge your secret desire to cut endless doughnuts without fear of running afoul of man, machine, or law officer.

"O.K.," he said offhandedly, changing the magazine on one of his Hasselblads, "put it into a couple of spins and we'll see if we can get anything good."

It was easy to oblige. The ultra-fast steering and low speed torque of the Trans Am made it writer's play to throw the car into a pattern of precise, if horizontal, Cuban Eights; but strange thoughts run through your mind when you're casually

spinning around... something to do with the inner ear I believe. We had driven out from Los Angeles in a Peugeot 504 and I began to wonder — groundlooping as I was — how it would fare under similar abuse. When Enke signalled that he had what he wanted, I immediately wheeled off the pad, jumped out of the Trans Am, jumped into the Peugeot and wheeled back onto the pad.

Now, maybe I was a little gentler with it, or maybe its speedo was overly optimistic, but somehow I was holding that little French car in a tight turn at some 15 mph above the Pontiac's breakaway speed, and just hangin' in there. Smoke was gently wisping off the Michelins, the body was tilting at a jaunty angle, giving the feeling that I was riding in some motorized British pram, but *sacre bleu*, it didn't spin. I got an instant lesson in what European handling philosophy is all about.

To be fair about it, the 504 is 1100 pounds lighter. Hmmm, 1100 pounds lighter than the Trans Am Firebird and about as roomy inside as the Grand Prix. Can that be? Yes! And the trunk is 20 cubic feet big, compared to 14.3 for the GP. Of course, those sneaky Frenchmen cheat: the spare tire fits under the trunk, not in it. (Should you need the spare —

though the odds of that are slim with steel-belted Michelin radials as standard equipment — there's a little handle you pull, and *voilà*, there she is, smiling up at you from underneath the bumper. You don't even have to move a single suit case or one case of wine.)

Ask the average guy what he knows about Peugeots and he'll probably mumble something about never having eaten there. Go on to explain that it's a car, not a restaurant, and he'll most likely allude to its storied engineering. Yes, they are supposed to have good engineering, but, if that's true, why doesn't anybody buy them? What we found out was that people do buy them, but only a small percentage of the relatively modest annual production is sent to the U.S. So few 504s had been seen in the States, Peugeot's massive ad campaign notwithstanding, that our test car was variously tagged as a Lancia, a Mercedes-Benz, and a Volvo. Not bad company to be in, but still rather bad for the ego. This condition may be eased shortly as they're building a new plant and there are plans to increase the number of cars coming over. There's even talk about the Kugelfischer fuel-injected version (with 103 hp, compared to 87 for the Solex-carburetted standard model) getting past the customs officials. Air conditioning is definitely on the way, at least, and the optional ZF three-speed automatic transmission is already here, both obviously aimed at American sales.

Our test car, however, had the standard BA7 four-speed gear box with column-mounted selector. This is an extremely smooth, quiet, and easy-to-shift combination, but the ratio change from third (1.41:1) to fourth (direct) seemed a little steep for the 1800cc four-banger at moderate speeds. The car was definitely happier at 80 mph than at 40. Passing situations at speeds below 50 mph generally call for a down-shift to third gear, which is easily accomplished as the box is fully synchro'd, but it's still somewhat bothersome. The basic rule of thumb with this car is: Keep the revs up. The

photography: Fred Enke

engine, which develops its power at 5500 rpm and easily buzzes to 6000, readily obliges. The only problem is that there's no tachometer to guide you in the uncharted region between bog and valve float. A nice big electric clock, but no tach. There is enough of a change in exhaust note through the rpm range to keep you apprised of the approximate situation, though, and for most this is adequate, if not precise. The source of the sonic signals is what appears at first glance to be half a Mopar 426, a demi-Hemi. It's a compact four-cylinder, inclined at a 45-degree angle. The one-barrel Solex carb bolts directly to the hemispherical chamber aluminum cylinder head via a small adapter; there is no intake manifold per se. The five main bearing crank moves the pistons up and down 3.2 inches through the 3.3-inch bores, for a swept volume just shy of 110 cubic inches. The block is cast iron and the wet sleeve cylinder liners are removable. They, along with almost everything but the head and crank, are carried over from the 1618cc 404 engine.

While you're messing around under the bonnet (chapeau?), you'll also notice the thermostatically-controlled, electrically driven cooling fan. It is actuated only when the coolant temperature is between 175 and 195 degrees F. We don't know if the thing ever gets to turn on, as the engine seems to be particularly cold-blooded. In sustained high-speed cross-desert driving and bumper-to-bumper in-town crawling, the temperature indicator never got above the normal range, whatever that might be — there are no numerical benchmarks. [I wonder if Consumers Union will let us say that?] Also in the engine compartment you'll find the handy tool set, a quaint throwback to the time when owners would tinker with their cars before calling the auto club.

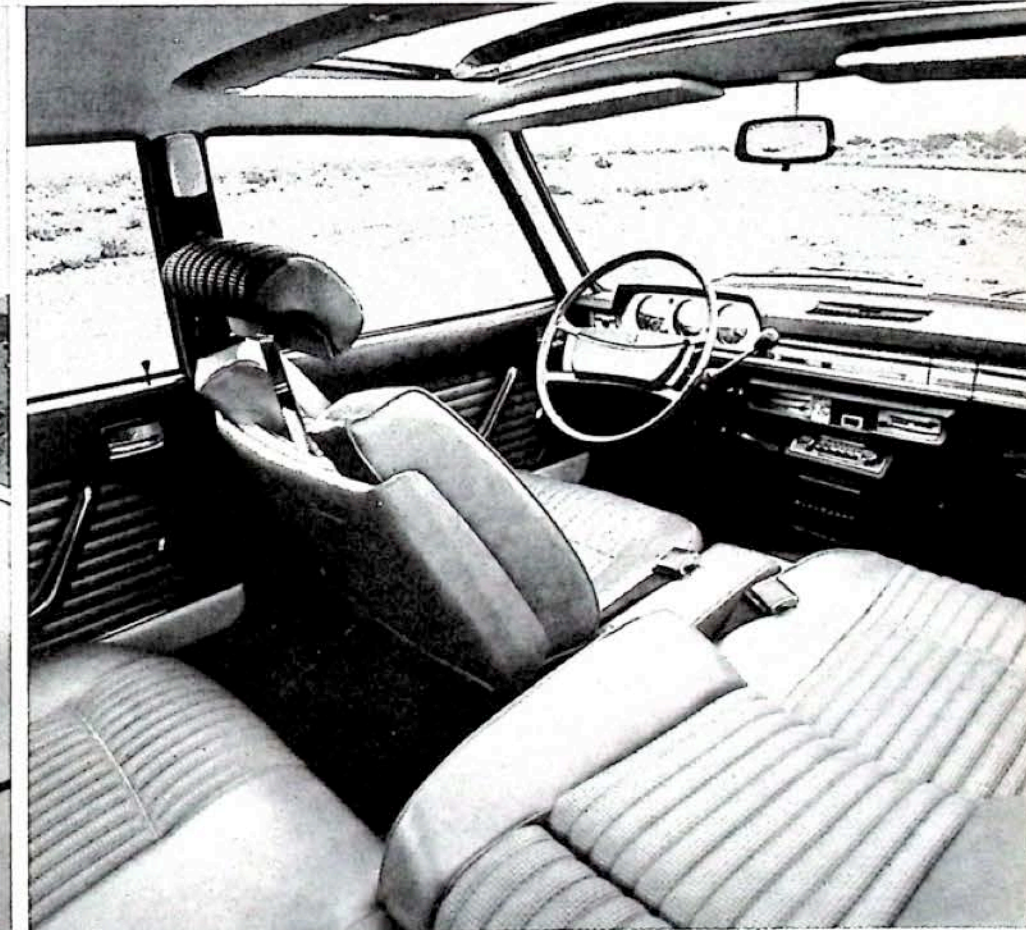
The aforementioned interior roominess reflects the people-package school of design. Up front there are two big, fully adjustable buckets. They slide fore and aft to accommodate

continued

La Vérité

The truth is . . . the Peugeot 504 is a good car.

By A.B. Shuman



Here, monsieur, is the Peugeot 504. Please note the stainless steel exterior trim, monocoque construction and doors that swing open more than 85°. The interior, you will note, is quite spacious for a vehicle on a 108-inch wheelbase and the driver's view panoramic, with 331° of all-around visibility.

MOTOR TREND/FEBRUARY 1970 75

both Lautrecs and DeGaulles, and the backs swing through almost 90 degrees, for whatever grand designs the owner may have. Meanwhile, overhead there's a sliding sun roof that's standard equipment. The rear seat capaciousness and legroom is unbelievable in light of the 108-inch wheelbase—the same as the Firebird, 'Cuda, Challenger, Mustang, Valiant, Duster, etc., etc. A man could get lost back there. They've even got an armrest that folds down like a padded bundling board. So much for fun and games. The mandatory head restraints are part of the front seat package and stow away neatly should you be a rebel or come up barber-chair style if you're a complier. The upholstery, like everything these days, is some kind of amorphous plastic, molded into what looks breathable but isn't. Oh well, you can always pick up a ventilated seat cushion from J. C. Whitney.

Speaking of ventilation, the 504's got an elaborate system of cooling and heating. They've even got air coming out of the door handles. Actually, the draftiness and wind noise are about the two biggest complaints we had with the car. If you intend to carry on a conversation at speeds above 60, it's best to bring along a Rudy Vallee megaphone, otherwise you may never get your point across. Just about none of the racket comes from the engine or drivetrain and virtually no road noise is conducted to the passenger compartment, though exhaust resonance becomes noticeable above 70 mph. It's just about all pure wind noise; but while the gale howls about you, you're nice and comfy inside. So, what does it matter, just turn up the Blaupunkt another notch.

Cornering and handling are very fine, inspiring you to emulate Kirk Douglas winning the *Mille Miglia*, as seen in "The Racers" on the late show. Should you end up drafting a little too closely, the excellent power-assisted four-wheel Girling discs will slow you like a LEM retro, unless you lock them. The suspension is independent all the way around, with MacPherson strut-type (I-beam section, triangular lower control arms, coil springs and telescoping shocks) up front, swing axles and trailing arms at the rear. Healthy anti-roll bars are used at both ends and the rack and pinion steering makes for a turning circle under 36 feet in diameter. The steering effort is quite light at speed, where we found that when left to its own devices the 504 flies straight and level "hands off." In the parking lot environment, it takes little extra effort to wheel her around. At any speed it goes where you point it, but, like we said before, everything's better at 80 mph. Except the police, of course.

The Peugeot 504 is not perfect, but what shortcomings it has are chiefly in detailing: the concept and design are very sound. U.S. manufacturers would do well to take a long, hard look at it.

/MT



With fully independent suspension and large diameter anti-sway bars front and rear, the 504 handles quite well. The steering is neutral, the turning effort light and the car goes where you point it. What more could a fellow ask for?



PEUGEOT 504

Engine	OHV Four
Bore & Stroke	3.3 in. x 3.2 in.
Displacement	1796cc/109.8 cu. in.
Max. horsepower	87 @ 5500 rpm
Max. torque	108.5 lbs-ft @ 3000 rpm
Compression ratio	8.35:1
Carburetion	1-bbl Solex
Main bearings	5
Transmission	4-speed manual
Final drive ratio	3.90:1
Steering type	rack & pinion
Steering ratio	22.2:1
Turning diameter (curb-to-curb)	35.9 ft.
Tire size	175x14
Brakes	4-wheel power disc
Front suspension	Independent/McPherson strut with coil springs
Rear suspension	Independent/trailing arms with coil springs
Body/Frame construction	Monocoque body
Wheelbase	108 inches
Track, Front/Rear	56½ inches/53½ inches
Curb weight	2650 lbs.

Performance (Two aboard)	
0-30	4.2 seconds
0-45	8.2 seconds
0-60	14.2 seconds
0-75	24.4 seconds
Standing start ¼-mile	19.2 secs @ 69.3 mph
40-60	8.0 seconds
50-70	12.2 seconds
Speeds in gears at shift points	
1st	31 mph @ 6000 rpm
2nd	53 mph @ 6000 rpm
3rd	80 mph @ 6000 rpm
4th	95 mph @ 5150 rpm

Speedometer error	
Actual	Indicated
30 mph	31 mph
45 mph	47 mph
60 mph	52 mph
70 mph	62 mph
80 mph	72 mph
	82 mph

Stopping distances (panic stops)	
From 30 mph	30 feet
From 60 mph	141 feet
Braking stability	good
Gas mileage	19.5-21.1 mpg (premium fuel)
List price (West Coast)	\$3295.00
Price as tested	\$3540.86



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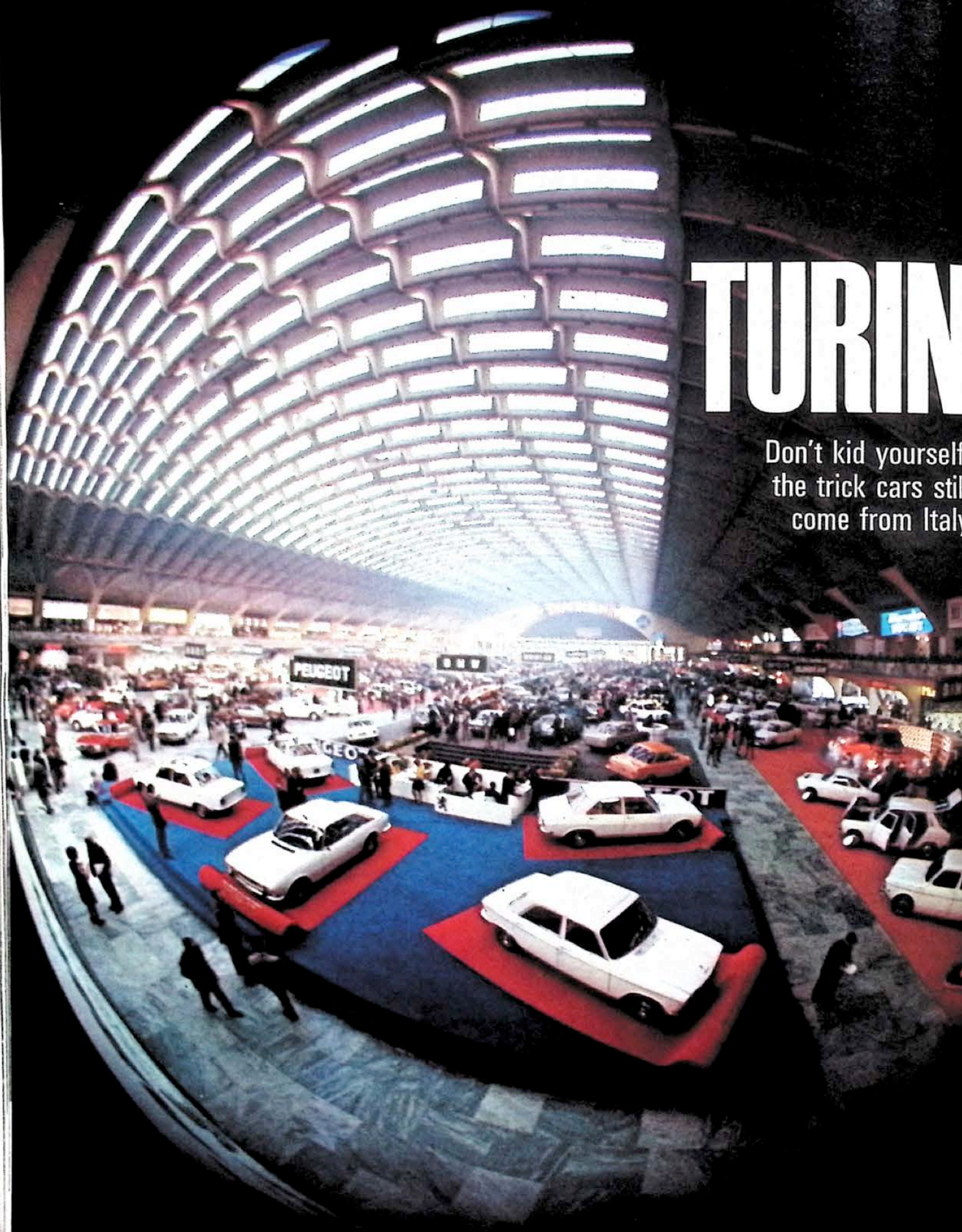
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TURIN

Don't kid yourself,
the trick cars still
come from Italy

By EDUARD SEIDLER/Photography Ranier Schlegelmilch

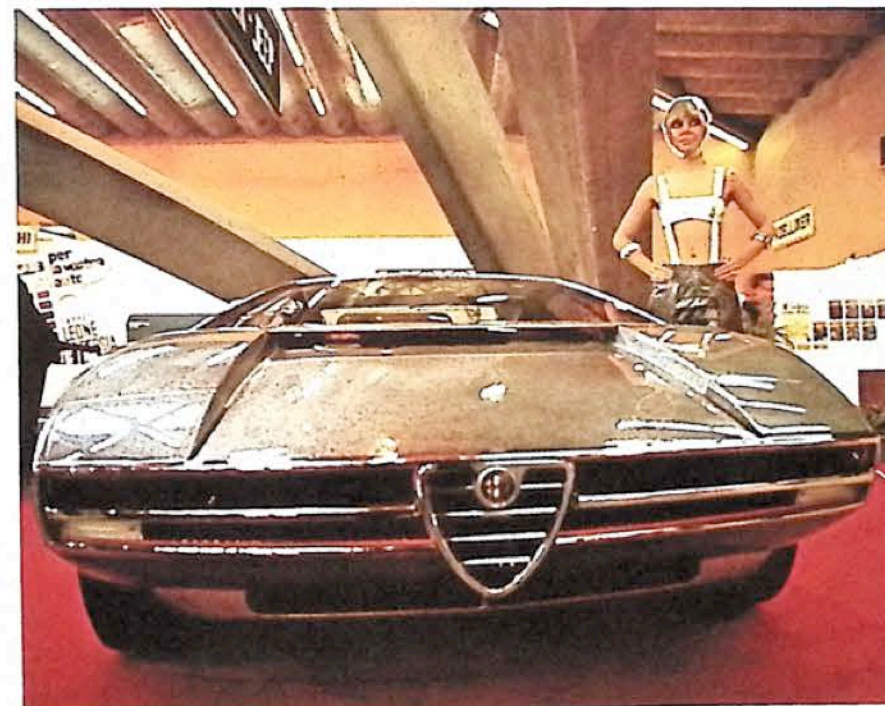
As Fiat boss Giovanni Agnelli was strolling through "his" auto show, leading the way for a member of government, a few fat and balding officials and a herd of assistants, police and armed troopers were protecting the Palazzo del Valentino from crowds of angry rioters: pro-Chinese students, Guevaraist revolutionaries and striking Fiat workers. The Turin show was off-limits to them. A few hours earlier, Fiat managers had figured out the total loss their firm had already suffered through recurring strike waves: nine million working hours and 174,000 cars lost in 1969—more than four times the yearly output of a company such as Lancia, which was bought over by Fiat on the eve of the Turin show.

While Agnelli was inspecting the cars his competitors were displaying at the Valentino and the police were tied up protecting the show, another group of rioters was sabotaging assembly lines and breaking up 180 brand-new cars at the Mirafiori plant.

But the show was going on just the same, and it was to be Europe's greatest of the fall season. Frankfurt had been all about techniques of the future and a demonstration of the Deutschmark strength. Paris had been little more than a display of new and functional economy cars. London had demonstrated that British carmakers were drifting away from tradition to follow increasingly Detroit's example of innovation through face-lifting. Turin, at long last, was to be "something different": it was going to restore beauty, dream, or utopia and to revive an era when cars were more than a sheer means of transportation.

It all happened in the small square hall to the right of the main exhibition, where Turin stylists are placed in a sort of confinement. It might well be automobile's

RENAISSANCE & REFORMATION



Iguana coupe is constructed on Alfa Romeo 33 racing chassis, with 2-liter engine.



Zagato's Alfa Romeo Junior Z will be produced.



Bertone Runabout with high-mounted headlights.



Abarth 1600 uses the arrow shape, large glass area concept.

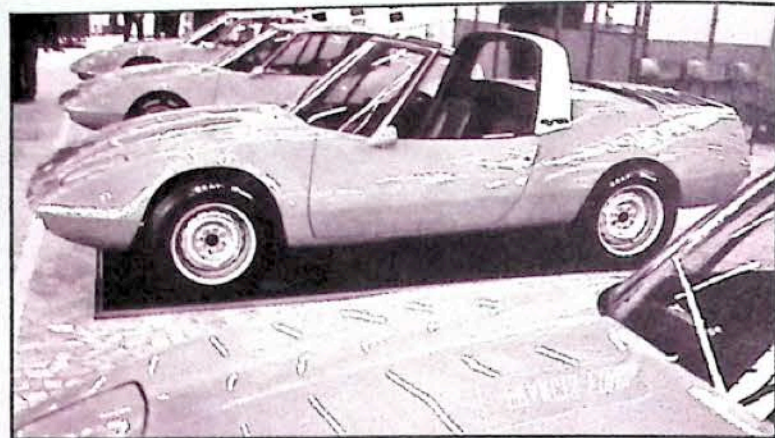


Wild Pininfarina Ferrari 512S houses their new 5-liter racing engine.

CONTINUED



TURIN



Everyone has a variation of the Fiat 850, this one called the "Monza."

real Hall of Fame. As Bill Mitchell, G.M.'s styling boss, put it: "This is the place where you meet everyone who counts in the industry and where you see everything that counts in terms of car bodies. It does not take more than two hours each year. But it's worth the trip from Detroit. As a matter of fact, I can't think of a better place to ever go to."

Five years ago, there were still about twenty coach builders around. The count was down to fourteen this time, with three styling shops (Osi, Touring, and Boneschi) out for good, but with a new outfit, Giugiaro's "Ital Design" company. A former Bertone and Ghia stylist, 30-year-old Giorgetto Giugiaro was associated in the creation of such beauties as Lamborghini's Miura (though Bertone is taking Giugiaro to court for claiming that Miura is his). More than any other stylist, Giugiaro is responsible for two major contemporary trends: arrow-shaped cars with high rears and pointed fronts with slanted windshields, and cars which are increasingly turning into little "glass houses." Never before has so much glass been used on cars: rear, front, side, and roof. Carrossiers are fighting against driver claustrophobia. No one really knows whether the idea is to increase the driver's vision or whether it is to make the driver more visible from the outside. Whichever the case, the trend is clear: the landscape is moving into the car, and the driver is being integrated into the landscape.

Giugiaro himself did it again with a new 1600 Abarth, but most of all with an "Iguana" coupe using the chassis and 2-liter engine of the Alfa Romeo 33 racer. The interior is padded with a luxurious gray and silver lamé fabric. Among Guigiaro's better ideas is a slip-on safety belt cut like a man's vest and set against the back of the seat. You slip into it and button it up like a tight jacket. The only thing Giugiaro has not yet thought of is changing the fabric to suit the season!

Don't be surprised if some of Giugiaro's cars show up in the U. S. shortly: Ital Design is working on still secret projects for American Motors, Alfa Romeo, and a few Japanese manufacturers.



Ferrari 512S interior is excellent, if you can manage to get in.

His is not the only Turin styling center acting as consultant to Detroit. Pininfarina's longtime connection with G.M. is no secret, and Ford has just hired de Tomaso of Ghia to develop prototypes and build a few thousand "special cars" a year to be released in the U.S. through Ford dealers. While preparing for this, de Tomaso satisfied himself this time with showing a new but conventional Lancia coupe.

Pininfarina was to steal the show along with Bertone. Pininfarina alone had five new cars on hand. Three were no more than face-lift jobs: Fiat's 124 sports coupe and Dino Spider got a new grille and front design (along with larger 1.6 and 2.4-liter powerplants), while Alfa Romeo's 1750 Spider received a new cut-off back to replace the rounded-out trunk which supposedly is now out of fashion. Next to these bread-and-butter jobs, Pininfarina was showing an exciting Ferrari 512 S, using the new 5-liter racing engine to make its debut in February at Daytona, and a cute vacation car, the Teen-Ager. Inspired by Citroen's Mehari, the Teen-Ager uses a Fiat 128 chassis shortened by 10 inches and the 1100cc engine of Fiat's latest bestseller. A topless car, the Teen-Ager has a smart trunk under the back seat (it can be locked—a well-needed novelty on this type of car), and a special storage area for a set of walkie-talkies, in case you want to call the kids back from the beach while driving home with the groceries!

As for the 512 S, the result of lengthy aerodynamic testing, it is a wide (6 ft. 5 in.) and very low (3 ft. 2 3/4 in.) coupe, certainly the most aggressive car at the show. For lack of lateral windows, however, visibility is scarce from this arrow-shaped monster, which would hardly be considered "legal," whether you asked the Commission Sportive Internationale or the U.S. Safety Bureau.

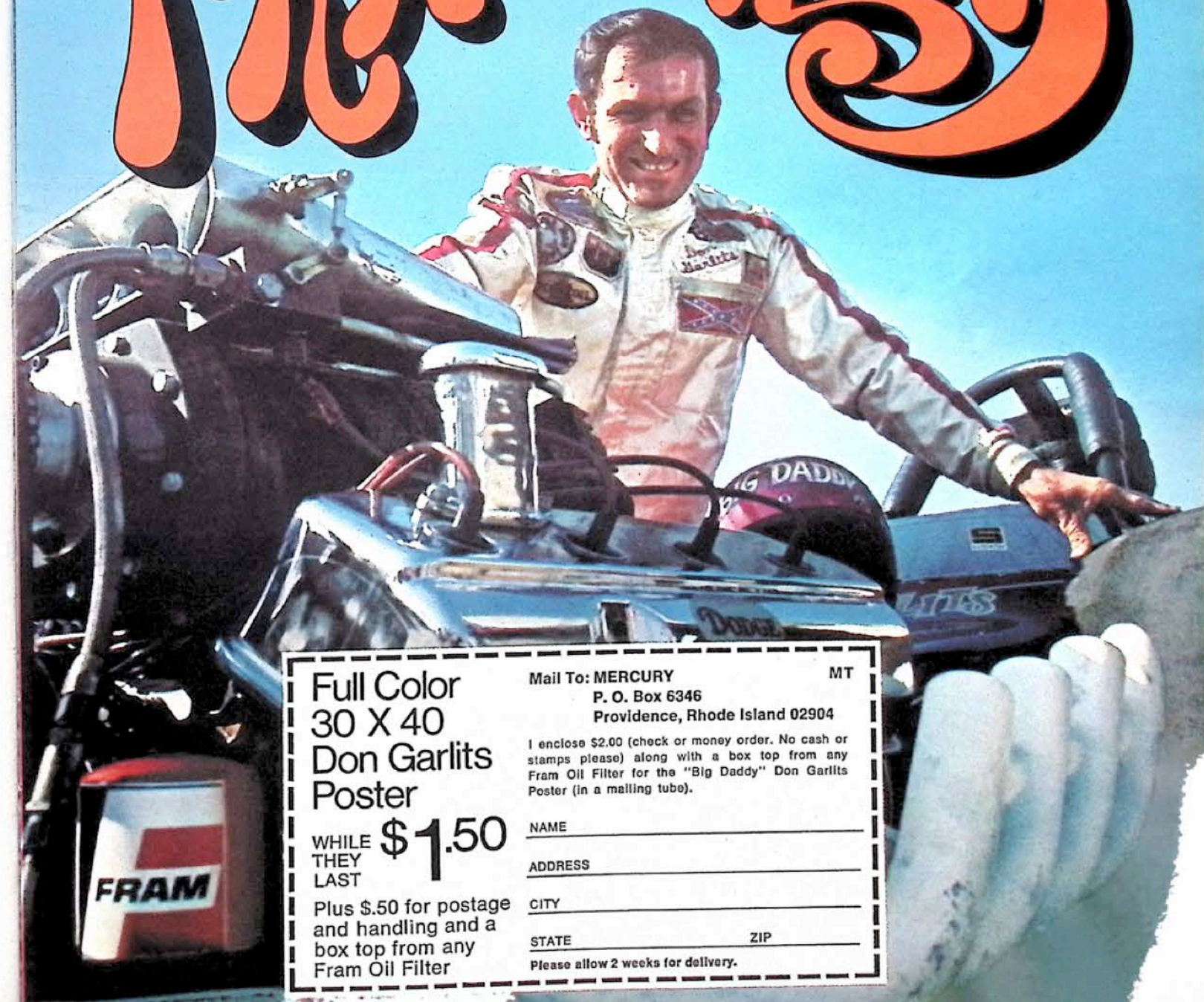
Bertone's "Runabout" Spider (using a Mini-Autobianchi chassis and 903cc engine moved from front to rear) would not stand much of a chance either under serious scrutiny. Headlights, strangely enough, were placed high up in the back at the bottom of the roll-bar. They are sure to blind every driver in sight, including the one sitting at the car's



Italy is the home of all those fast, low-slung sports cars, right?

CONTINUED

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TURIN



Fiat's Autobianchi 112, a new, roomy, surprisingly fast 903cc mini-car.

steering wheel. "We have no intention of producing the 'Runabout' as it is," Nuccio Bertone admitted. "It is only a show car. But some of its ideas might be carried over to real production bodies."

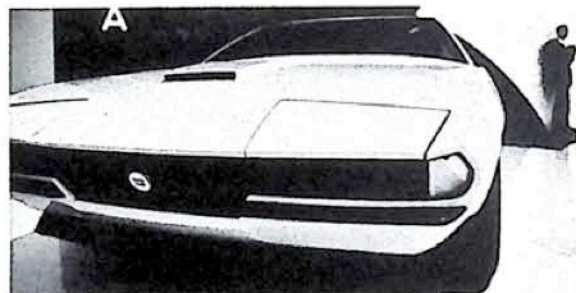
Bertone's best job was the four-seater coupe he developed using a Fiat 128 chassis and engine. His effort is proof enough that a small front-wheel-drive car does not necessarily have to look like two or three boxes of different sizes pasted on to each other. By lowering the radiator less than an inch and using a well-slanted windshield, Bertone managed to draw an almost continual line from the front of the hood to the top of the roof. The car's interior decoration is superb. Bertone created original seats using back-rests made of two different panels which can be adjusted by means of a hydraulic device to take just about any shape and provide maximum seating comfort.

Bertone's most original idea, however, was hidden in the rear. Using all the space generally wasted below the trunk and under the chassis, he managed to find room for a small shopping basket on two little wheels. It slides in and out (like a drawer) under the trunk platform. When you have finished shopping, you just roll this container into its receptacle without having to transfer packages into the trunk. Bertone even padded his basket with some carpeting material, in case you want to use it as a baby carriage. In this case, though, you'd better take the baby out before locking the basket back into place...

These were only some of the most exciting jobs shown at Turin. Zagato displayed a 2-liter Volvo GTZ coupe and an Alfa Romeo Junior Z coupe (using the 1.3-liter engine), of which Alfa immediately ordered 1,000 units to be sold through its network.

Vignale showed his latest creations, with Maserati's Indy as the star of his display, but he did not add any new cars to his stable. Vignale's appearance was the saddest note of the show inasmuch as it was his last. Due to financial difficulty, Vignale will not return next year. The carrossiers keep melting away. But most of them managed to demonstrate that they were quite alive nonetheless.

When the last of them has gone, there won't be much left in the auto world for car lovers. Turin fortunately demonstrated that that day has not yet come.



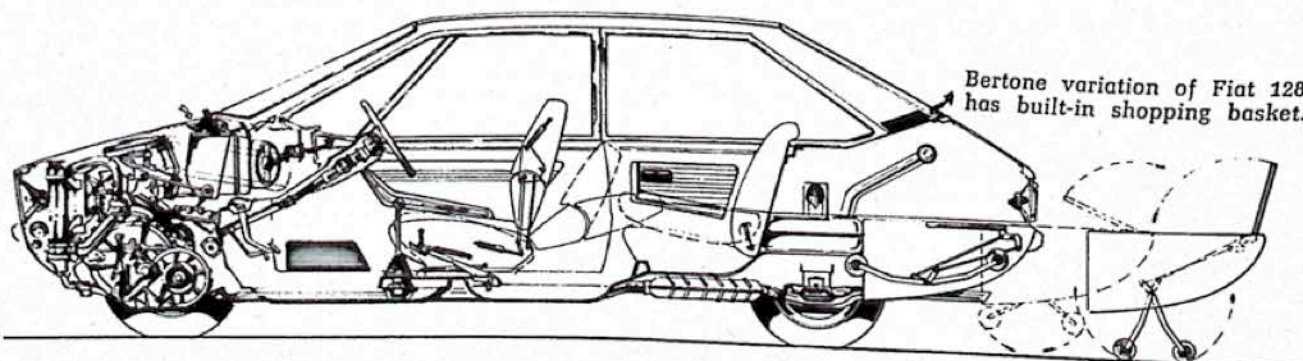
De Tomaso had a sleek, but conventional Lancia.



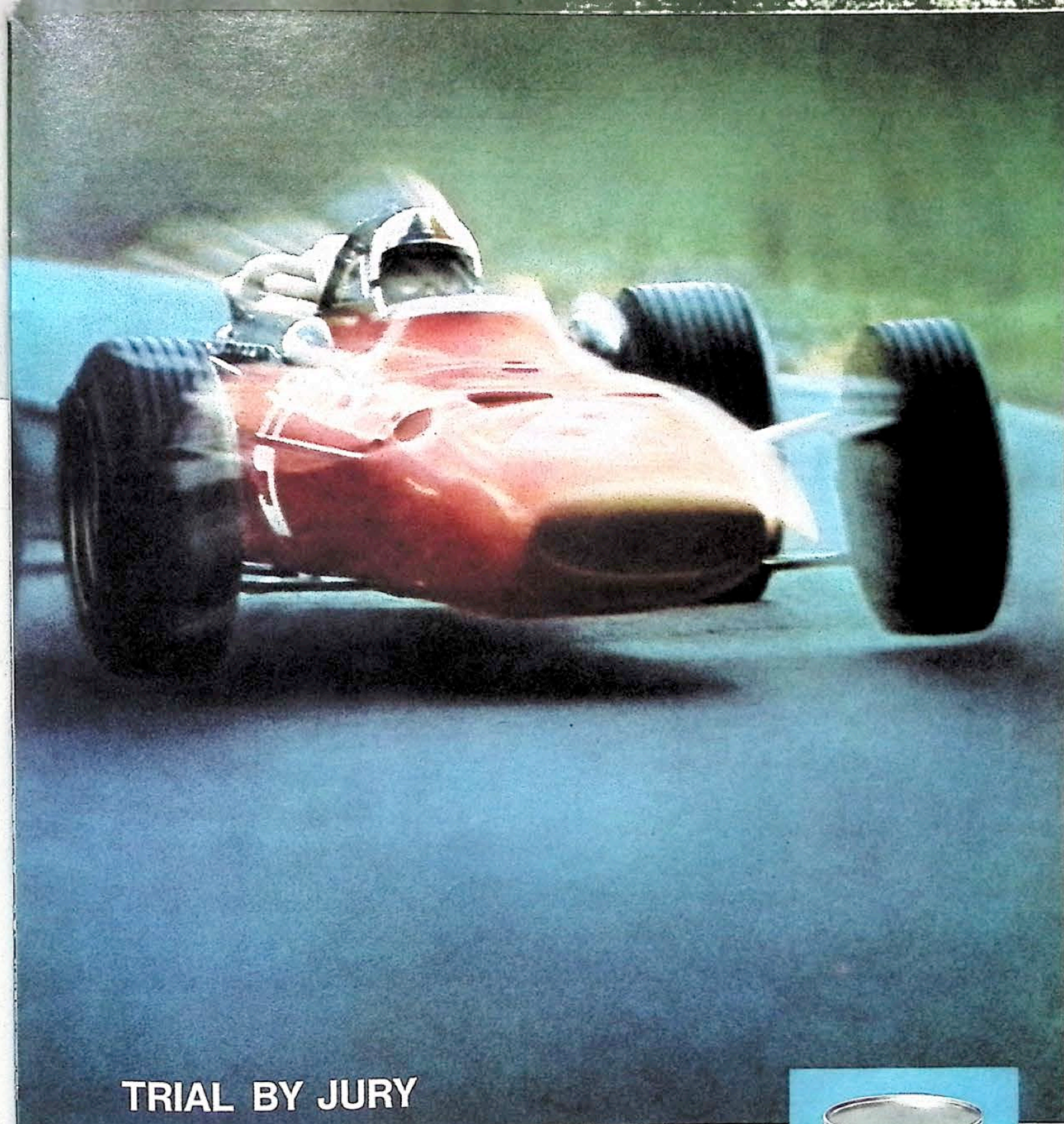
Maserati DOHC straight 8 with 16 exhaust valves.



Alfa Romeo's 1750 spider gets a new kamm-type tail.



Bertone variation of Fiat 128 has built-in shopping basket.

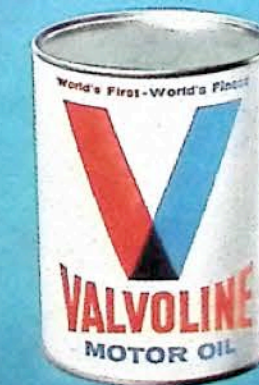


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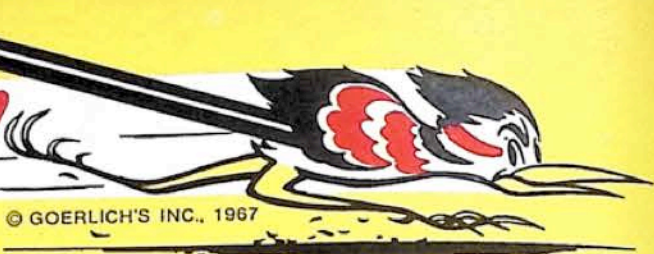
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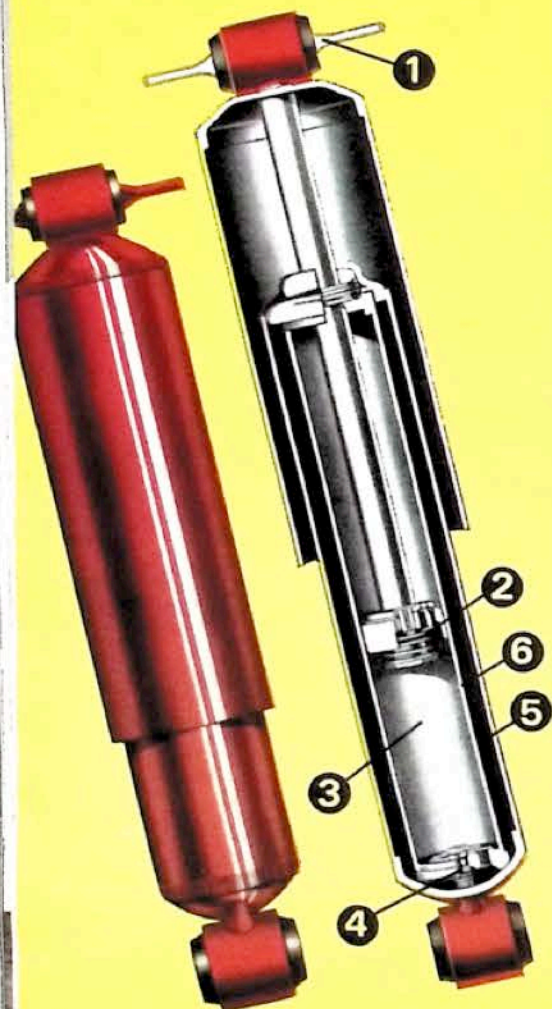


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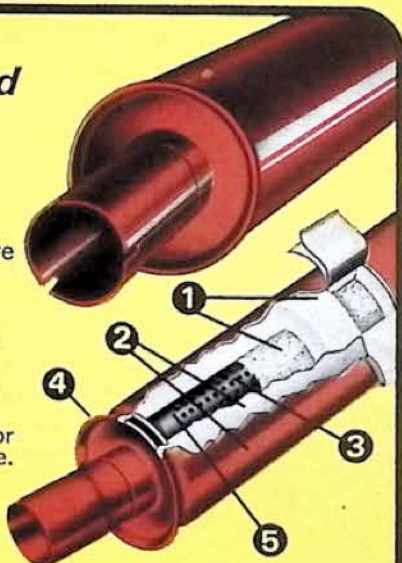


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DECALS—Matched Set, left and right.

The first time I met Erik Carlsson, he had come with two other people from Saab to show me the new 99. He was a mountain of a man, an open, friendly Swede and he reminded me a lot of my father. I couldn't really put together that this was maybe the greatest rally driver of all time—he did not fit the racing mold.

We climbed into the 99 and he started out by maneuvering the car through spaces that made our parking attendant's jaw slack. In traffic, Carlsson wriggled and dodged like O. J. Simpson—using openings that didn't look possible and doing it all with an incredible smoothness. The revs never screamed, yet the engine never lugged, and I couldn't help thinking it was like a movie where everyone, except the hero, is in slow motion.

It was in the late spring of 1969 and Carlsson was in Southern California with more on his mind than demonstrating his driving skill or showing off the new 99. There was a new kind of long-distance race, a thousand miles of it, down the appendix of Lower California and he wanted to find out all about the thing—the competition, the hazards, the possibility of winning. Behind him were several African Safari Rallies, and all the bone-tiring rallies of Europe—almost all of which he won at one time or another.

And, so, Erik Carlsson and co-driver Torsten Aaman came to the Baja 1000 five months later with a very sophisticated Saab 96 and before the second checkpoint, most of the competition conceded them victory. It was premature. The 96 broke down twice and only finished third, but another Saab won the class. On his way home, he stopped by to tell us what it was like. Erik will be back next year, probably with more

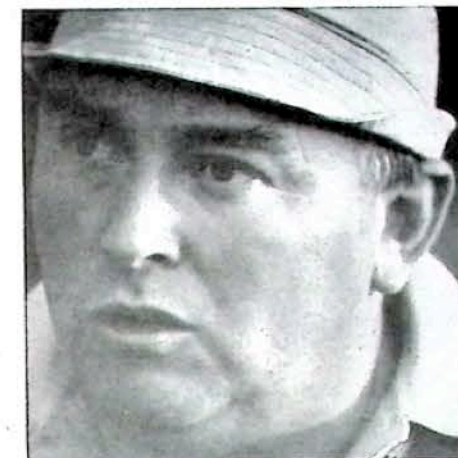
drive shaft, going off in the transmission: First, we broke the right hand side about 10 miles out of Santa Ynez, and it took us roughly two and a half hours before we got going again. And after that we ran quite well during the night. At five in the morning, fifteen miles before checkpoint seven, the left one snapped exactly the same as the right. But there we have problems; we didn't have any spare parts at the checkpoint. So, we had to ask the guy with an Aero Commander to fly up to Santa Ynez, call the service crew we had there, and pick up my new universal and axle and come back again. We were going by ten o'clock, so we were there just about five hours.

MT: Did you go on after that?
Carlsson: Yes, yes. We pressed on quite well but we knew another Saab was hours ahead. When we come up to checkpoint seven, we heard Jim Garner had a bit of oil pressure trouble, or brakes, or something like that. So, we didn't know if he was going very slowly or not.

MT: Did Lindqvist, in the other Saab, finish first in the Production Two-Wheel Drive Passenger Vehicle class?
Carlsson: Yes, we were third. Garner was second with the Olds. Lindqvist beat his own record from last year by over five hours.

MT: Did Lindqvist have any trouble?
Carlsson: No, not at all.
MT: Did he drive slower than you?
Carlsson: I should think so, for we were parked, I think, two hours before he arrived, and he started a minute behind us. He did 25 hours 50 minutes, and our time was 27:30 or something.

MT: So you went much faster.
Carlsson: And we started off like that. We were trying to go a bit quicker than him and he was to try and take it a bit steadier.



"There's not much improvement on the bikes. You know they have good suspension and tires, and they can't improve it much more. And, it's a long run for one driver to sit on a bike, jumping around for ten hours at a time."



"I did one practice run with my co-driver before, and he did one also before I came out here. He made the same type of notes we use in Europe, you know, with all the corners of the bends, stones, and things like that."

MOTOR TREND INTERVIEW:

ERIK CARLSSON

Erik Carlsson just may be the greatest rally driver in the world.

of the European teams. Like the Can-Am, you see, it's easy pickings.

—Eric Dahlquist

MT: Well, Erik, what did you think of the Baja 1000?

Carlsson: Dusty. Awful dusty. I've never seen so much dust in all my life.

MT: How does it compare with, say, the Acropolis Rally, or the African Safari?
Carlsson: Here, it's rougher, certainly. If you do the Acropolis you have 50 miles maybe really rough, and after that you have a god tarmac road and things like that. Same in Africa. You have really rough stuff for 10-12 miles, or mud, or water, and after that you come out on the better roads, so you can relax and the car gets a bit settled down again. But there is really no place to relax at all (in the Baja).

MT: I understand that you broke the universal joints.

Carlsson: The drive shaft. The inside

MT: What was the winning time of the Minor-Hall Bronco?

Carlsson: Twenty hours or something like that, I think.

MT: So actually your running time was quicker than his.

Carlsson: Yes. We went under 20 hours in running time. But that doesn't count.

MT: No. How fast did you run most of the time?

Carlsson: Oh, I should think we were between five and 105 mph. I don't think we were quicker than 105.

MT: 105 mph on pavement?

Carlsson: Even on the gravel pieces.

MT: On the gravel pieces too?

Carlsson: Yes. We were geared for 110, but I've never really used all the revs. We used 6500 and we could have used 7400.

MT: How does that compare with the top speed of the other cars?

Carlsson: Well, we heard before the



"I called Pat (Pat Moss Carlsson) last night in England, and she asked what was it like and I said I don't think I can remember, I had so much fun. That's fun, to go like mad for 1000 miles, no restrictions, nothing."

start that some were doing 150 and some were doing 120. We talked to guys that said they were doing 100, and we passed them, so I don't know what speedometer they had.

MT: Are you going to come back next year?

Carlsson: I really hope so. The only thing I know today is, I shouldn't have run big wheels. You know, on the practice car we went around 120 and we used the smaller-sized wheels. Then we got starting number 82 and thought there should be deep ruts after so many cars, so we went up the 185:15 tires. With the big wheels the angle on universals was too much and that's what broke them. And it wasn't necessary to have so much ground clearance. I only think we hit stones about five or six times.

MT: What tire did Lindquist have?

Carlsson: He had one size smaller.

MT: And he didn't hang his car up on any rocks?

Carlsson: No. It was smoother, I think, during the race than it was in the practice. And the funny thing is, all the boys who did it last year said it was rougher this year. The attrition rate was very high.

MT: That's what I understand, that more cars dropped out this year than ever before.

Carlsson: Ya, I think the competition is better each year, and the faster you go, the easier it is to break. And also, when we saw the cars before the start in Ensenada, I think there's quite a few there who never have any intention to go further than the tarmac, really.

MT: Do you think that because Saab has been in this race that other European Rally teams will look at it?

Carlsson: Yes, I think Opel will. Because Buick dealers sell them here, I think I will try to get the Opel boys over here. They're quite good. It should be fun to see some European teams.

MT: I think it's better for competition.

Carlsson: Oh, yes. As it is now, I don't mean to be big-headed, but I don't think there are more than... what could it be, twenty good teams in the event. The rest are more or less tourists. I was surprised to see Garner in that big Olds. He did very well to get the thing around the rocks.

MT: That was more or less a factory car.

Carlsson: I should think so. But even so, he drove it all the way.

MT: He drove it himself?

Carlsson: Ya. And he was the best guy you could meet to pass. You know passing is a problem. And we passed him before... between the second and third checkpoints. And no problem at all... he just went off to the right and let us go by. Some of the others were quite selfish. We were flashing and hooting and they didn't even try to help us to get past. But he was very, very good. And a nice guy, too.

MT: Did you get any dirt into the engine?

Carlsson: No. We changed the air cleaner filter four times but I don't think we needed to.

MT: So dirt inside the engine is not a problem?

Carlsson: No. I heard that also when I was here in the spring. That it is a

great problem for the carburetor, alternator, electric stuff... that you really have to seal everything off. I don't think it was necessary.

MT: Of course a Saab is built quite a bit differently than most of the cars running down there. It's sealed off a bit better in a lot of areas.

Carlsson: Ya, I should think so.

MT: And I don't think as much dirt gets into the engine compartment.

Carlsson: We didn't have any dust problem at all. No cooling problem, either. They also told us that the radiator would be blocked up, but no. The temperature was just right all the way.

MT: How about driving conditions inside the car. Did the dust bother you much?

Carlsson: No, maybe three-four times when you really get close to somebody and you hit this powder dust, you get it in. I had my window down all the time. Torsten (Aaman) kept his closed. So we got in quite a bit of dust, but there wasn't any problem. We had face masks with us, from Sweden, you know, like they have in the spray paint boxes and things, but we never put them on. But I should think the people who run with no windows must have a lot of dust in that 1000 miles.

MT: The Saab 96 is designed so that you don't get much draft in the window anyway.

Carlsson: Very, very little.

MT: How fast do you think the run can be made if you don't have any trouble?

Carlsson: I should think, with a car like ours, trying, you could do it about 17-18 hours. People laugh at me now, but I think it's possible.

MT: Do you think the motorcycles have a real chance of being competitive?

Carlsson: I should think they are on the limit now with the motorbikes. I think around 18-20 hours, that is quite the limit for motorcycles.

MT: Why?

Carlsson: There's not much improvement on the bikes. You know they have good suspension and tires, and they can't improve it much more. And it's a long run for one driver to sit on a bike, jumping around for ten hours at a time. I have a good friend, Gunnar Nilsson, who won the over 250cc class, and he had never been so tired after 10 hours as he was on this.

MT: Is he from Sweden?

Carlsson: Yes.

MT: Has he ridden on many long runs before?

Carlsson: No, nothing like this. But he was European Champion in Motocross this year, so he is a really tough guy, you know.

MT: How many practice runs did you make before the race?

Carlsson: I only did one.

MT: How many notes did you have when you started out?

Carlsson: Over three hundred pages. And Torsten was reading all the time. And we used intercom also, in the helmets, you know... so you don't have to shout a lot. You can sit talking like this. Much easier than shouting and screaming.

MT: Do many of the other teams have the route mapped like that?

Carlsson: No, I don't think so. But I'm sure they will. I still say that is the only way to do it, if you should do it right. Even in the dust, if I couldn't see, I kept my foot down to do about 90-95, and Torsten said, "500, 400, 300, sharp right or something like that. When he said 100, I know there was 100 meters left. And he'd say 100, big stones on the right, so I'd keep left. And you know, you just did that, and that saved the car a helluva lot. I saw the dune buggies, Broncos and jeeps and things, you know, they were going straight over all this stuff. If you don't have it on the paper, you can never remember the whole 1000 miles.

MT: Did the course change much from the time that you practiced?

Carlsson: No, surprisingly few places. Very few. If it changed, it changed for better.

MT: What about the last part of the run, down towards La Paz, what's that like?

Carlsson: Boring. There's about 130 miles, I think it was, tarmac, nearly straight. When we hit the tarmac, there was 33.9 miles to the first corner, and that was a very slight left we had in the notes. So if you are in a fast car, you can go like mad on that. I'm sure you could pick up a half hour if you had the car going quick down there.

MT: You mean 125-130 miles per hour.

Carlsson: Ya, ya.

MT: Are there any European Rally Teams that have cars that run that fast?

Carlsson: Yes, we could have geared ours for 125, but you lose so much on the rough stuff. With a twin-cam Ford Escort, you could easily do 125 if you want. The right idea, I should think, was to have a good fifth gear, that you could use on the last piece.

MT: From what you've said so far, it sounds like a hard race.

Carlsson: I called Pat (Pat Moss Carlsson) last night in England, and she asked what was it like, and I said I don't think I can remember, I had so much fun.

MT: Why did you have a lot of fun?

Carlsson: That's fun, to go like mad for a 1000 miles. No restrictions, nothing. No coppers to stop you.

MT: Do you have that problem in Europe on rallies?

Carlsson: Ya. There you have small, fast sections, between 10 and 50 miles, and after that you come out on the main road and there you have to stick to traffic regulations. But here you know as soon as you sit in the car, you can forget all things and just try to get on as quick as you can. Good road race.

MT: Did they pave any more of the course this year?

Carlsson: I think they have done a few miles more, down on the south end.

MT: It seems to me they keep paving more of it every year. The first year there was hardly any paved, and the second year there was more. It's almost kind of developing into the old Mexican Road Race they had back in the fifties.

Carlsson: I hope they will not improve the roads. This is fun, really fun, and it's not very dangerous, either. One thing I wish to change on this thing is the way they do the drawing for the

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ERIK CARLSSON

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starting number; I think it is ridiculous. First ones in have a low number. MT: You mean the first one to check in the ...

Carlsson: To get the entry in.

MT: How do you think it should be done?

Carlsson: Like everywhere in the world; you maybe have one month or two months to send in your entry fee. And when that is closed, you draw. All other races like this draw a number.

MT: I see. Before the race starts, everybody just draws a number.

Carlsson: Ya. Here, you know, they have people sitting a week outside the office with \$300 and they enter. It's quite difficult, if you live in Europe, to get a low number. We had a chap sitting up four days, and we got 82.

MT: Is there a real advantage to having a low number?

Carlsson: Oh, sure. The dust. If you have number one, you're clear all the way. I should happily pay a thousand dollars to get number one.

MT: What did you do to the car for modifications?

Carlsson: We started really from scratch. We took a body shell down to the competition department, and welded it up completely. We put four Billstein gas/oil shocks on the front instead of two. A lot stiffer springs. Stiffer springs in the rear. We used the normal two shock absorbers in the back and we didn't have any problem at all. And a good sumpguard about a yard down past the gearbox. We also had a lot of protection for rear-axle fittings, you know, for the trailing arms. We have welded a piece of iron in front of each, so you couldn't catch it. We were told before, you could be on the belly all the way, so we really have to protect everything that counts.

MT: But you didn't catch it.

Carlsson: No. We used the radiator from the 99, so we wouldn't worry about the heat. We took the battery from the front and put it in the back to get a bit of weight off the front end.

MT: How much did the car weigh, ready to go?

Carlsson: Exactly one ton.

MT: When you had your breakage in the front axle, did you fix that yourself?

Carlsson: No, no. I am not a good mechanic, and we didn't carry that spare part either. We also had walkie-talkie, and that saved us both times. For when we broke down the first time, our service crew were ten miles away, and when they left by airplanes to go to the next point, they just passed us, and they saw us turn back. We used the walkie-talkie and told them what's gone. I thought the gearbox had gone first, so I said to the mechanic the gearbox broke, so try to get back. And they went back to Santa Ynez and landed there, borrowed an old '46 Chevy pickup from the farm, and he came down with the gearbox. And it wasn't the gearbox when we looked; it was the drive shaft, and it took us twenty minutes and we had it going again.

/MT

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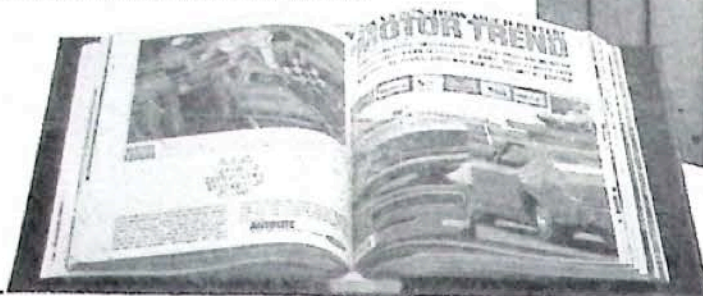
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'70 RACING PREVIEW

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PRODUCT PLANNERS

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Not to be overlooked are the less significant (at first glance) engineering improvements: Concealed windshield wipers; intermittent electric wipers as an option; locking steering column with interlock; Ford's Hi-Lo ventilation on two-doors; a new front-end accessory drive on all engines, resulting in improved alternator performance and longer water pump life; a plastic fuel tank evaporative emissions system; flashing side marker lamps; and a two-position turn signal switch (a part-way setting for short signals during lane changes, with a switch lock-in for full turns), known as the lane-change indicator.

With slick styling and a wide range of performance engines available, Torino is destined to be among the favorites on the track. Sales figures suggest the groundswell of interest in the 351, and Ford has in the works a complete line of performance equipment for the 351.

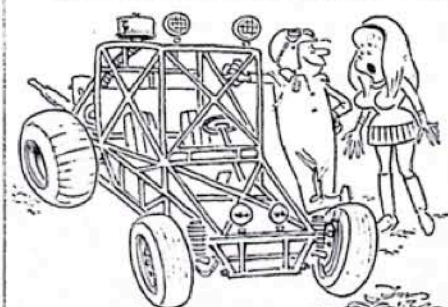
Jacques Passino, Ford's Special Vehicles Manager, indicated that some variant of the Torino will find its way onto the speedways; the 429 Cobra Jet will fit into the F/Stock drag racing class. There are notchbacks, fastbacks, SportsRoofs, scoop hoods, smooth hoods, different grille designs, exposed headlights, concealed headlights... and that overall wind-tunnel-proved aerodynamics design potential.

Passino commented: "The performance image of this car will have an interesting effect on the car's market volume. In Torino we offer what the public's been asking for: a youth-image, race-ready appearing car, even though it is, in reality, a luxury personal car with a reasonable price tag, since it needn't be fitted out with a big, race-tuned engine. Though it has this optional capability, too."

Torino is already selected as NASCAR's 1970 pace car, and Ford drag teams have their entries in the works for the 1970 season.

Indeed, as Gordon MacKenzie, Ford Division General Marketing Manager pointed out, 1970 could very well be the year of the intermediates, and Torino, because of proliferation in model offerings, should snare the lion's share of that market.

It is entirely possible that Torino 1970, Motor Trend's Car of the Year, will join the ranks of Ford Division's "better idea" pacesetter cousins: Thunderbird, Mustang, Maverick. But then, that's one of the chief reasons it was judged as Car of the Year. /MT



"Oh, it looks quite safe, but how do I get in?"

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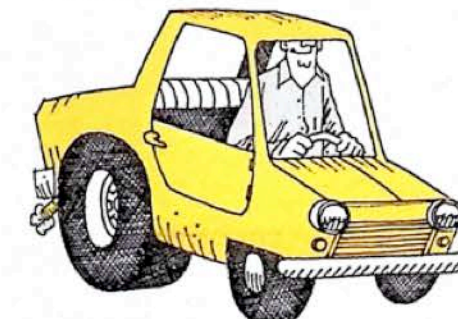
Keep It Quiet... I bought a '64 model with a 326 cu. in. engine. It ran fine until I changed the oil from 10W-30 to 10W-40. Since then, I've noticed a loud clattering sound whenever I start it up after it has set for a while. The longer it sets, the longer the noise lasts when I start it up, (about 25 seconds at most). And in the morning when I race it, the noise gets louder but lasts almost as long as it does when it idles. What's wrong?
D.A., Spencerport, N.Y.



Apparently, after your car has set a while, the oil drains from the hydraulic lifters. Until you start the car again and the lifters refill with oil, they'll be noisy and will sound like mechanical lifters. Once they're full of oil again, they usually quiet down... so it isn't too serious a problem... unless the noise persists. We suggest you drain the oil and go back to 10W-30 or 20-20W for optimum performance.

Riser Racket... The heat riser on my '69 Malibu is very noisy. Will it hurt the engine to take it out and run the exhaust straight through as headers do? What does a heat riser do?
C.E., Fort Worth, Texas

A heat riser is designed to make an engine warm up faster, which, in time, will prolong its life. Sometimes they are noisy, but this condition can be corrected. They should not be removed.



Size Switch... My '65 El Camino came with 7.35 x 14 tires, but I just changed to 15-inch wide ones. Will this size change cause the ball joints to go bad early?
S.A.B., San Francisco, Calif.

Going from a 14-inch to a 15-inch tire should not affect ball joints in any way. We have seen this change made on several cars and have not heard of ball joint failure at an early date.

Soiled Oil... Does oil ever wear out? If you could keep oil clean would you have to change it? Isn't that the only reason people change oil... because it's dirty? I've asked different people and no one knew.
R. R. S., Dorchester, Iowa

While oil does not wear out as far as lubricity is concerned, it can become overly contaminated. Keeping oil clean is the purpose of the oil filter; however, the filter will retain only oil insoluble materials such as dirt and fuel soot in particles larger than the filter itself. So all the contaminants that pass through the filter are retained in the oil. These include very small particles, fuel dilution and dissolved acids and fuel resins. Unless these are drained away in the oil stream, they can accumulate in the engine and cause lubrication problems. This is the reason all manufacturers recommend regular oil and filter changes.

Credit Rating... Since Pennzoil now markets a 10W-40 oil, I wonder if you would rate it in comparison to your 10W-30 and 20W-40 oils? Does the 10W-40 oil do as good a job alone as the 10W-30 or 20W-40 oil? My car is equipped with hydraulic valve lifters. I have to change the oil and filter every 1500 to 2000 miles or my lifters are noisy on start-ups... what would the 10W-40 oil do for me?
J.A.P., Pasco, Wash.

A 10W-40 oil has the viscosity of SAE 10W when cold and SAE 40 when hot. It therefore gives a wider range of performance than 10W-30 or 20W-40. In many cases it has quieted hydraulic valve lifters to a great extent. It would be very satisfactory for use in your car, particularly with changing weather conditions in your area.

Stuffy Crankcase... I own a '56 with 60,000 miles on it. When I take out the dipstick there are beads of water on it and tiny particles of rust in the oil. What can be done to get rid of this and prevent it in the future?
E. J. Y., Upper Darby, Penn.

The moisture and rust indicate a cold running engine, and one with inefficient crankcase ventilation. We recommend that you check the thermostat on your radiator and also be certain that the cooling system is clean. It may be necessary to have the ventilating system completely checked and cleaned.

Added Zip... I'm thinking of buying a '61 Corvette with a 327 cubic inch, fuel-injected engine. How would this system affect the car's power and gas mileage? What oil should I use?
M.B., La Habra, California

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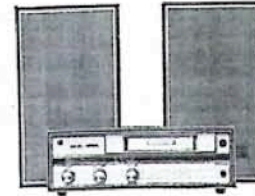
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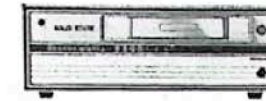
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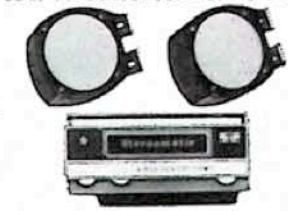
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SHOW AND CLASSICAL	COUNTRY AND WESTERN	
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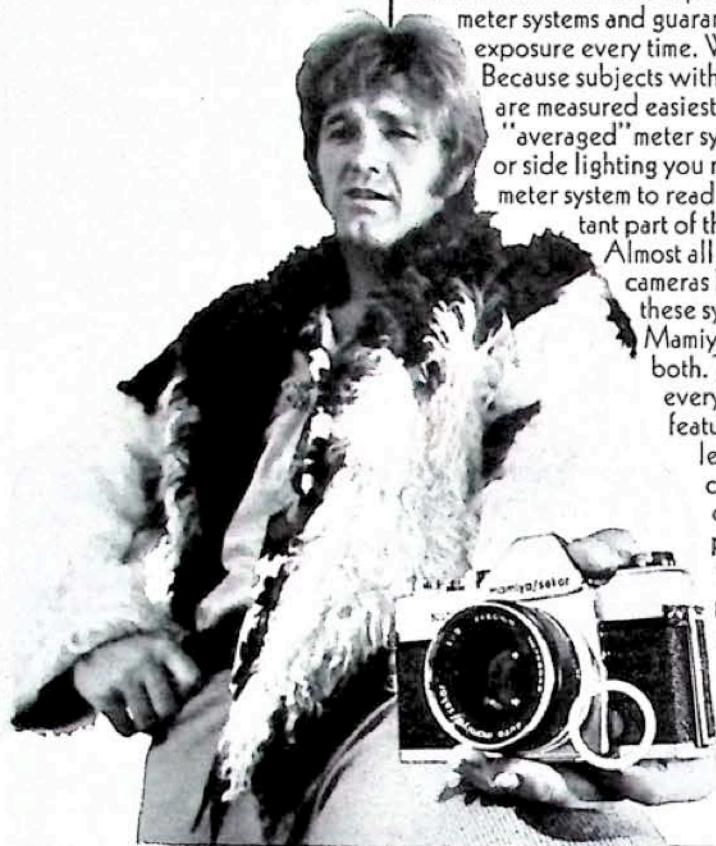
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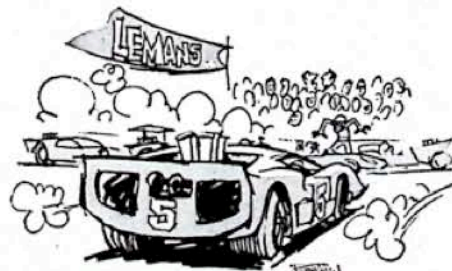
THE LAST STOP

under the green. The tires were separating and chunking, thanks to a combination of the cold weather and the fresh pavement, and after 50 laps only two cars, the Dodge of Baker and the Ford of Pearson, were in the same lap. Those two exchanged the lead until the 142nd lap when Pearson's clutch finally burned out as he tried to leave the pits. It had received rough treatment all afternoon, as transmission linkage problems forced David to exit the pits each time in third gear. His departure left Baker in command, though Donnie Allison and Yarborough brought Fords up front briefly.

Cale Yarborough's right front tire blew on the 143rd lap, sending his Mercury into the concrete wall between turns one and two and then onto the muddy apron on the back stretch. It took the safety vehicle a full four laps to reach the injured Yarborough, who suffered a broken shoulder bone. While it doesn't sound like a crippling injury, it could keep Yarborough from ever driving again. If he can, it will be after a minimum of eight months of recuperation. Yarborough's physician, Dr. George Dawson, Florence, S.C., said, "I think Cale is going to do all right in time. It's a very rare injury and people are usually killed when this bone is broken. He has no head or internal injuries."

The race wore on into the final stages with Baker and Dodge looking like sure winners. Then, suddenly, cruelly, Baker took himself out on lap 229, with only 21 remaining. Running under the caution he took too much time looking back over his shoulder at a sign from the pits. He crashed into the rear of James Hylton's Dodge, smashing his radiator and his hood. That left Isaac and Donnie Allison to resolve the issue and, after Donnie pitted with a flat right front tire on lap 235, Isaac coasted home. The checkered flag that fell over the hood of his bright orange Charger Daytona wiped away the frustrations that had continually beset the slender Tar Heel in his six-year career with factory teams.

The Grand National outlook for 1970 changed abruptly on this most unusual afternoon in the Lone Star State. Dodge, set to return with the same super-sleek Charger Daytona next year, looms as the dominant threat on the super speedways. Ford, the king for so long, is still in the experimental stage as it attempts to put life into the restyled 1970 Torino. That it will find the answer is not to be disputed. How long it will take, though, is another question. In the meantime, Dodge is looking better and better. /MT



"He's the fastest driver in the world, but awful on LeMans starts."

Have you been bugged by das shiften-missen? No longer should you be this groupen mit. Science (a few bucks) und der Luftwaffe notwithstanding, beetle gear selection has now graduated from the class of hunt and peck. Gone are the days when you flipped nickels over the decision of whether to use stock VW shift levers for scratching your back, rendering ground hogs helpless at thirty-eight paces, or attempting the ponderous challenge of grouping three back-to-back gear changes of flawless quality and design-defying ease. Little wonder that an automatic transmission became VW O.E.M.

But in typical fashion, domestic assistance has been given to a European problem . . . and the Deutschemark will suffer little, if any, for our intervention. Gathered for you here is a current selection of VW shift equipment. Not every source of manufacture is included, but it does bracket the extremes of dress-up pieces to complete replacement of the stock hardware. For your convenience, we'll bunch them as follows: (1) Changes for cosmetic reasons; and (2) changes for functional reasons.

The Cosmetic (and quasi-cosmetic) Group
First, you must understand the mechanical principle of the VW shift unit at the point where it rears its head from beneath the car through the floorpan. If you were to grasp a pencil with the index finger and thumb of your left hand (about an inch from the writing end of the pencil), you would have a fifth-grade science class show-and-tell version of the VW shift stick. A ball sockets into a receptacle below the floorpan, a pin/pivot point is located at the place where your thumb and index finger are strangling the pencil, and the long (eraser) end affixes the shift knob.

It's a simple case of lever ratio as a function of pivot point location. Move the pivot location nearer the shift knob, and less lever movement (at the knob end) is required for the same amount of travel than when the pivot point was lower. This, then, is the crafty Yankee approach to shortening shift-lever travel in the good old VW. Call it "slick shift," "short shift," or "swift shift," it all boils down to an improved method of gear changing.

A majority of the cosmetic-type shift levers do shorten the length of travel at the knob end of the lever. Dipped or plated shift sticks and hand-rubbed or decal-inlaid knobs usually characterize this group . . . and they do account for some measure of shifting improvement by virtue of the mechanical advantage change on the long end of the lever. Some of these units are designed to screw directly onto the stock shift stick (subsequent to removal of the stock VW shifter knob), while others require measurement and saw-removal of a portion of the upper section of the stock stick. These latter types normally provide more reduction of shift-lever travel than the screw-on variety.

They all come complete with the necessary tools and instructions, oft times alternately printed in broken German in the event you'd like to recall some unpleasant memories from attempts at "German made easy."

The Latest in Beetle Schticks

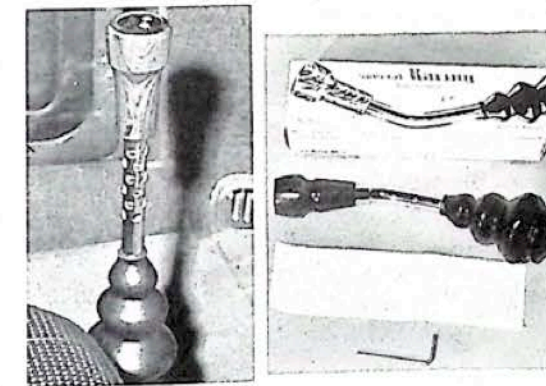
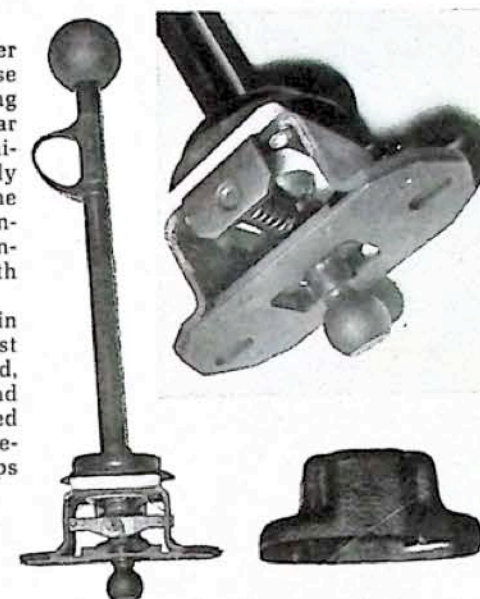
VW shift conversions can make your beetle prettier, better, or both.

By Jim McFarland

The Functional Group

Now we're into the category of shifter that can really improve the car. These units are beamed directly at changing the lever throw ratio, providing wear material changes (nylon, treated aluminum, etc.) where needed, and generally removing the residual problems of the stock VW shift mechanism (likely generated when the designing German engineer's wife split his prize umlaut with an English muffin).

The two most prominent shifters in this group are manufactured by Hurst Performance Products and Vanguard, Inc., of Warminster, Pennsylvania, and Medina, Ohio, respectively. Advertised features of the Hurst unit include reduced lever throw, positive lever stops



The heart of the matter, the ball (above) that sockets into linkage under floor pan. To its left is Hurst conversion shifter unit.

for overshifted transmission damage prevention, reduced width of shift pattern, and inclusion of nylon and heat-treated load-carrying components. A patented, spring-loaded "Saf-T-Trigger" doubles as a reverse lock-out (eliminating the chance of accidentally grabbing the backward gear) and 3-4 eliminator, since it permits use of 1st and 2nd (for rocking the car out of sand or snow) in conjunction with reverse. Installation tools are reduced to a minimum if you own a 6-inch adjustable "metric" wrench. Two Hurst models are built to cover the entire VW shifter range.

Vanguard, Inc., manufactures a second "functional change" unit. According to Vanguard, their "Formula Vee Competition Shifter" package will replace the entire shift mechanism on VW applications ranging from '58 through '70. The Vanguard unit is said to contain a spring-loaded reverse lock-out device that eliminates ring pulling or shift-stick depression. Paralleling counterpart features of the Hurst unit, the Vanguard shifter comes rust-prevention plated, wear-life-prolongation designed (use of high-impact nylon, etc.), and "Kydex" base covered. Your money will be very well invested.

Cosmetic group (above, left) is to improve looks of shifter in VW. Vanguard unit (above) is one of group to help looks and at the same time ease use.

Synopsis? The factory-supplied VW shift mechanism assumes that the American female (and semi-buff male) has certified 127 hours on the Autobahn (sans brakes, in blinding rain and with directions based on the visions of an inebriated Polish golf caddie). What the manufacturers of Volkswagen shift kits intend is a solution commensurate with owner intent: fix it "purty" to work "purty well" or "fix it once and for all." In the final analysis, it's reduced to a case of "pay your money and take your pick" . . . and the results will fall right in line. Das shiften should no longer be buggen. /MT

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CONSERVATIVE LUXURY

continued

going through a corner. That reduces radically as speed diminishes. The Monterey is the mushiest in turns and has a high degree of roll steer by comparison. It has a noticeable front end dip when cornering in tight situations, but stays fairly flat in loose curves. We don't know what adjustments, if any, Chrysler engineers have made to their power steering for '70, but the Newport seemed like a changed machine. Gone is the loose-feeling power steering that pulsed incessantly at full lock and in its place is a firm, solid feeling that gives good road feel and yet is quick to respond to the lightest touch. That change, coupled to the Chrysler's flat stability, produces tremendous handling characteristics in any situation. It never dips or rolls and steering is close to neutral, although a slight oversteer can be induced. The combination of ride and handling in the Newport is about as good as you'll find anywhere and is far and away the best in this comparison.

PERFORMANCE AND ECONOMY

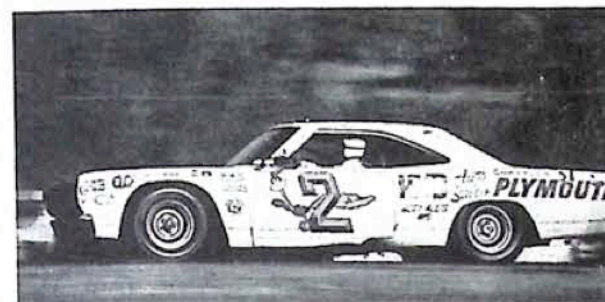
The Newport was the only car sporting a four-barrel carburetor, and with a 383 V8 it showed the best performance. It felt the best during acceleration and got away from stops quickly with no strain. The same was true in passing other cars . . . it moved right out. The Executive felt peppy on the street for running a two-barrel version of the big 400 V8. It was second fastest in performance. Running the lowest horsepower engine, a 390 two-barrel V8 with 265 horses, the Monterey was slowest in the acceleration race and it felt the least responsive. But, that's just one side of the coin. If you want performance, economy will suffer and it shows in our mileage. The highest mile-per-gallon figure with the Monterey was 16.7, which is good for a car its size and weight. The best we got with the Executive was 15 mpg and with the Newport, 13.5 mpg. So, it's a toss up; power vs. economy.

All three cars have expansive trunk space that should be overly adequate for any trip within reason. The Monterey had the smallest deck lid and smallest opening, but the trunk is deep, again similar to the Lincoln, and holds a good quantity of luggage.

THE PRICE OF LUXURY

So, for five grand you can find a lot going for you if you look around enough. Conservative cars are just that. They don't come out and jump on you like some of the caged animals you'll see in showroom windows. Even the names accentuate their subtle silence; Executive, Monterey, Newport. A roll call of the conservative man and his plush luxury. No wild-eyed liberalism could get past the sound proofing. But, on the Dow-Jones average, the Executive leaves a lot of loopholes that need to be filled. The Monterey is a good, solid investment that will fill your needs, but the Newport Custom is a Blue Chip from every angle and in every respect. For luxury, comfort, performance, style, and quality the Newport Custom should keep your market up no matter what. /MT

1969 Race Report: Champions use Champions—world's fastest spark plug on land, on sea and in the air! Like most racing champions every year, these engine experts know Champion spark plugs give outstanding performance in every engine. Always specify Champions!



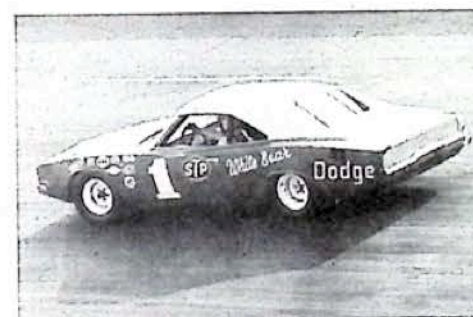
Roger McCluskey wins USAC Stock Car Championship in Norm Nelson's Plymouth Road Runner—sparked by Champion!



Bill Sterett pilots the Champion-fitted, Rolls-Royce powered "Miss Budweiser" to APBA Unlimited National Championship!



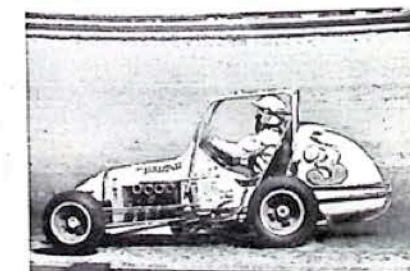
Mark Donohue leads Roger Penske's Champion-equipped Traco Chevrolet Sunoco Camaros to SCCA Trans-American Sedan Championship!



National IMCA New Model Stock Car Championship goes to Ernie Derr in a Champion-fitted Dodge Charger!



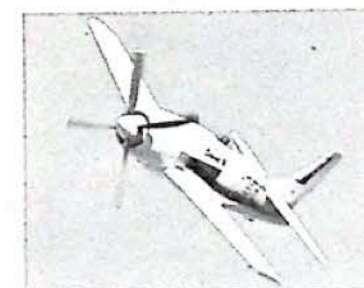
Mert Lawwill rides to AMA Grand National Championship on a Harley-Davidson fitted with spark plugs made by Champion!



USAC Midget Championship is won by Bob Tattersall driving Drake-Offy and SESCO-powered midgets — both Champion sparked!



Benny Parsons takes ARCA New Car Division National Championship driving a Champion-fired Ford Torino!



Darryl Greenmyer's Pratt & Whitney powered Bearcat flies to National Air Racing Unlimited Championship and World Air Speed Record for piston engines—sparked by Champion!



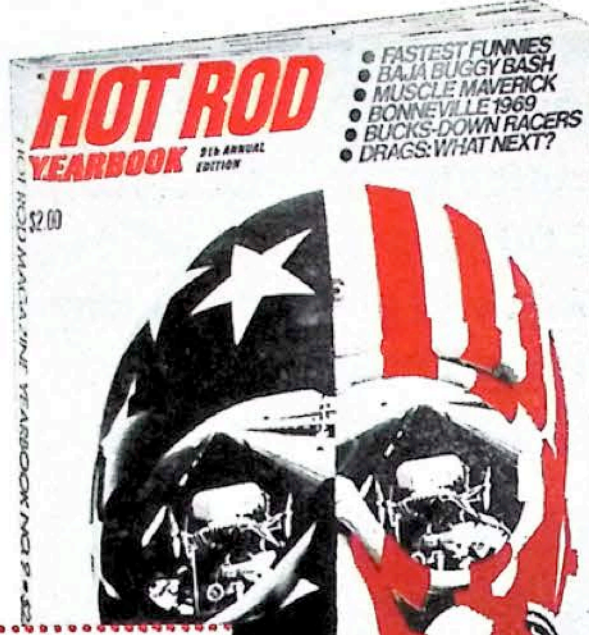
Don Prudhomme uses Champions to capture NHRA Nationals Championship in a Keith Black Plymouth Hemi powered AA/fuel dragster!



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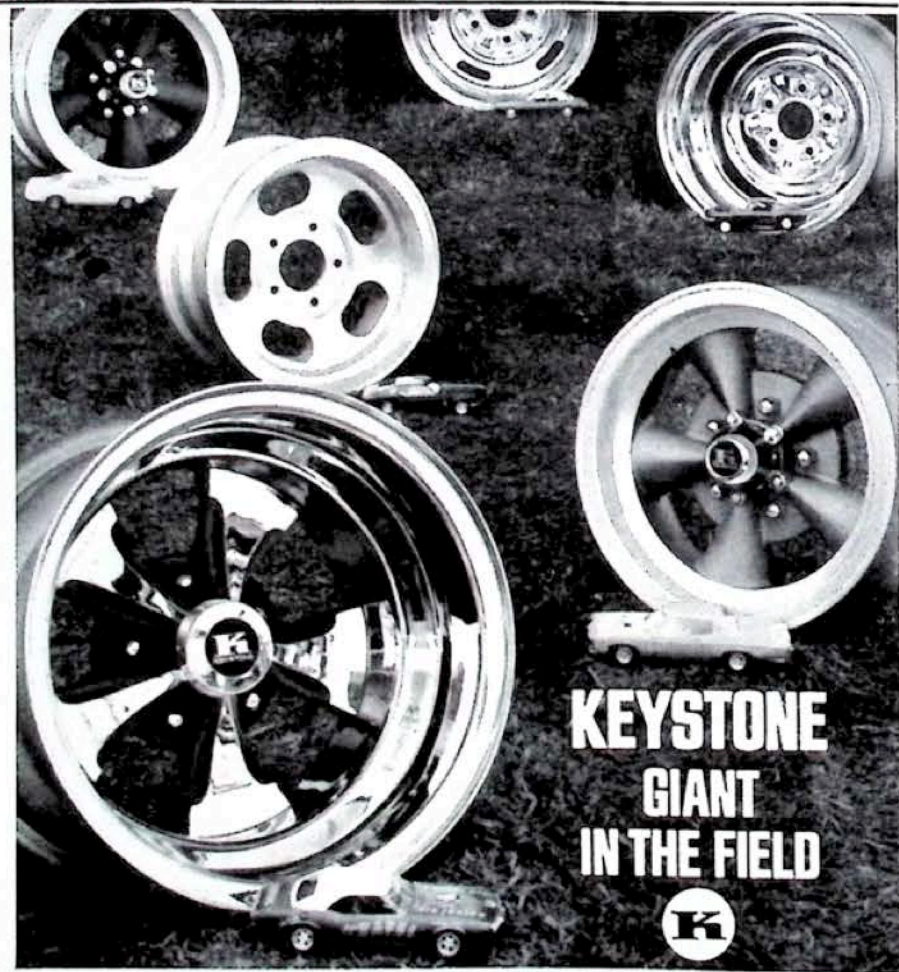
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RALLYE 350

continued

and under full control. It has a neutral feel on slow corners and more understeer on fast ones, which is just the way it should be, more easily described than done.

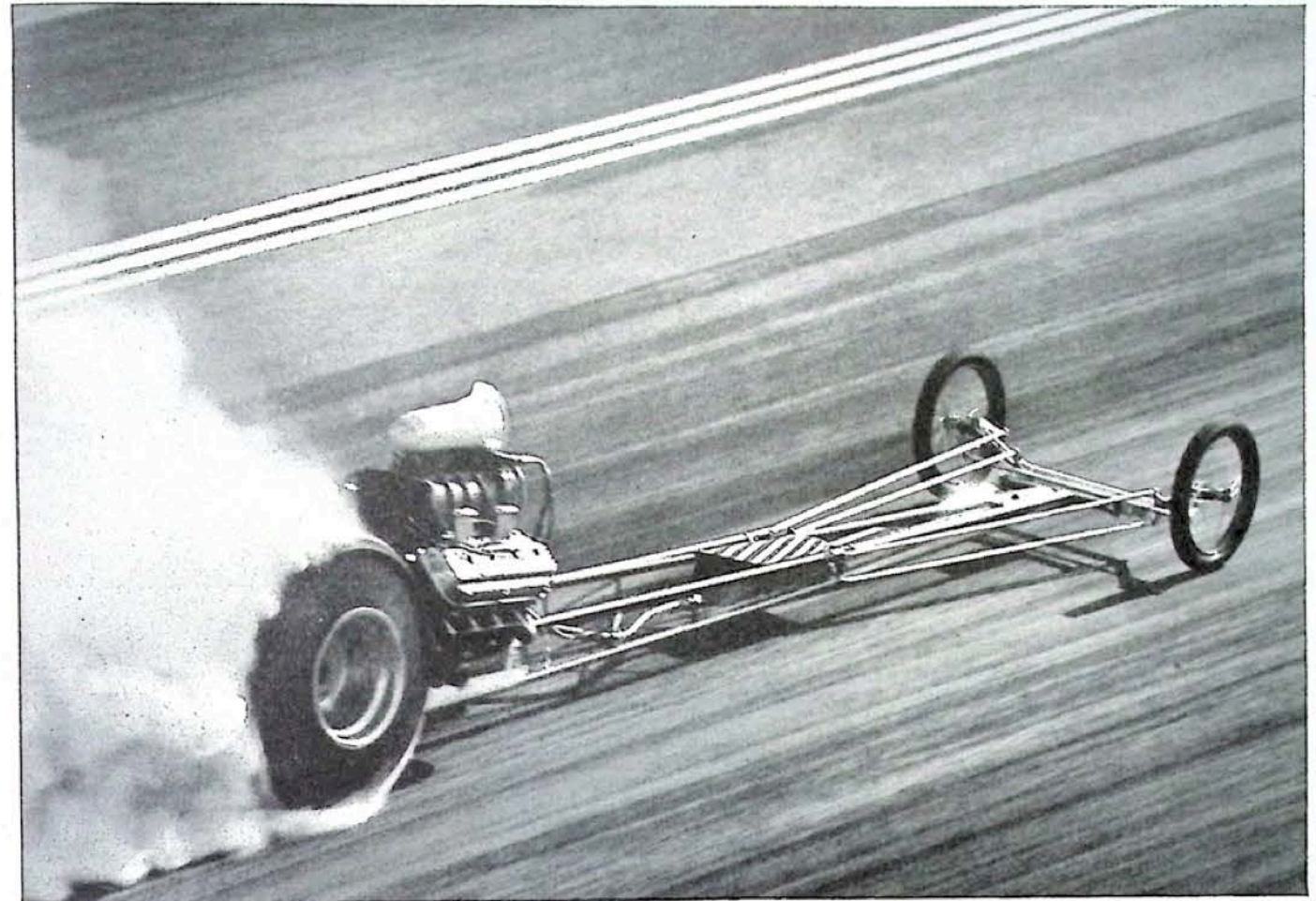
For me the power steering was quick enough, but lacking in the feel I like—to sense what the front tires are doing. In this I differed with Marv Thomson, the young North Carolina State graduate who had a lot to do with the Rallye 350's fine handling. When I found that Marv had worked out the right combinations of tires and pressures by trying it on a handling road, then taking it to a skid pad, then going back to the road again and cross-checking I realized that the work was being done by someone who understood the problem. It's also to Marv's credit that he's a top SCCA competitor in a Sunbeam-powered Bobsy.

No, Olds isn't about to start a rally team using Rallye 350's. The car is almost right for it, but not quite. Hurst shifters are fine going up through the gears but not very nice for playing tunes on road-racing style. When I tried the prototype car the brakes weren't right: a pressure-limiting valve for the rear drums should stave off locking longer and permit higher deceleration rates. And with the bench seat in the base F-85 body it's not possible to use the car's good cornering grip. A Cutlass-style bucket-seat is the way to go.

These cars have uncluttered interiors with restrained pseudo-wood touches around a simple round-dial dash. There's enough room for a tall driver, which is rare. A new four-spoke sports steering wheel, small and warm to the touch, is pleasant to use and it, like the racing-style rear-view mirrors, may be a "required option." Both go so well with the Rallye 350 that you'd probably want them anyway. That's Agent 88's subtle suggestion for a way to spend some of that money you'll be saving on insurance from now on. /MT



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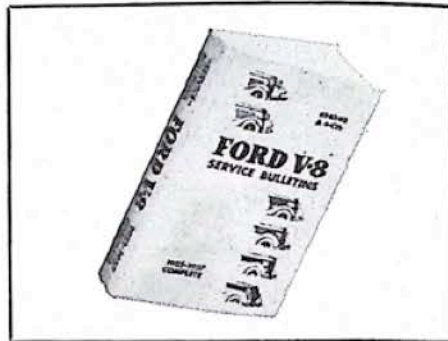
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product trends

Ford V-8 Service Bulletin

A reference book for all exacting restorers, in a complete single volume, includes the original series of Ford Service Bulletins, which were issued by the factory as a primary reference for dealers. List from the beginning of the line in 1932 thru 1937. Contains 750 photos and drawings. J.C. Whitney, Dept. MT, 1917 Archer Avenue, Chicago, Ill. 60616.

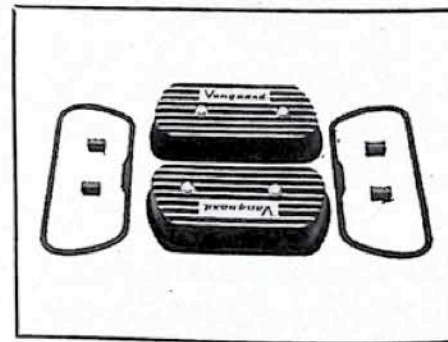


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Poly Plaid Seat Covers

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MAGIC DUPLICATOR

continued

engine, automatic box — normally manages from 12 to 13 miles per gallon. During a full month of all kinds of road driving and testing, this car, with the same rear axle ratio but with overdrive, did just about 15 miles per gallon. That's a difference that will show up in your monthly oil company bill.

Borg-Warner's Warner Gear division hopes you'll be interested in their new overdrive unit because it's an aid to economy. But they're not kidding themselves. They know its strongest appeal is to the muscle car owner who wants a low axle ratio for drag racing or peak performance out of the drive-in, yet likes to be able to cruise comfortably on the highway without an infernal roaring under the hood. This is an operating requirement that was unknown in the days of the old overdrives.

Take our AMX, for instance. A 3.54 rear end is not exactly what you'd call an all-out performance ratio, but it does give the car a sharp response around town. Most testers, used to slower-turning engines with higher rear-end gears, found the AMX to be too noisy with its engine spinning at 3500 rpm instead of 2800. In every way, the car was much more relaxing to drive when the Borg-Warner box was switched into its ultra-high gear. And there's that good gas mileage to think about, too.

There have been overdrives around for years, of course. Warner Gear still makes the type they pioneered as long ago as 1934, a box that bolts onto the back of a manual transmission in place of the usual tailshaft extension. So what's the shouting all about? This one is different in several ways, including both location and operation. Both make it more compatible for use with automatic transmissions.

Borg-Warner engineers realized that an overdrive was needed that could work with automatics, since more and more motorists are switching to shiftless driving. But the automatic boxes are so varied and complicated that it wasn't possible to design a unit that could be added on behind them, one that would still be adaptable to many makes of cars. So B-W took a different approach, that of mounting the overdrive in unit with the rear end, putting the gearing at the back end of the drive shaft instead of the front.

At first the new setup looked cumbersome. It adds weight, more than 33 pounds, to the axle, weight that's bouncing up and down. Wiring and vacuum hoses have to connect the aluminum-cased unit to the car. On the one I drove, there was a vacuum canister in the trunk, but that's being eliminated in the production designs. The beauty of the new B-W unit lies not in its looks but in its versatility. It's generally easier to find room for an add-on overdrive by the axle than it is under the front floor or between the seats, where space is already scarce.

Add-on adaptability is important because the magic duplicator is scheduled to be offered as an accessory six months

or so after its bow as an option on some of Detroit's new cars, probably on some 1971 models. As an option from the factory, the overdrive would probably set you back no more than \$200. Over the counter for installation in your present car, as a kit, the figure will be higher. Kits are now being worked out, with installations at Muncie in such hard-to-fit cars as the Jaguar XKE.

To work better with automatics, the overdrive's operation has been changed too. But some form of industrial tunnel-vision caused the B-W designers to use the same operating mode for the electric "lockout" switch that used to be used for the old mechanical overdrive T-handle under the dash: pull it out for direct drive, push it in for overdrive operation. Somehow in this day and age this old arrangement no longer makes sense. Those who use the unit as an option can, of course, use any kind of control that turns them on.

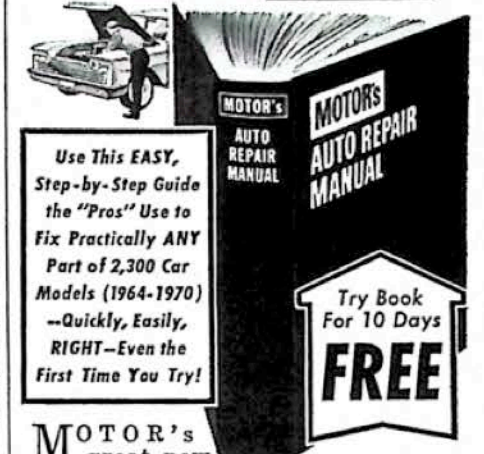
The new Warner unit makes more sophisticated upshifts than the older ones used to. Instead of requiring you to back off all the way on the throttle to go into o.d., this one upshifts all by itself, with a vacuum-operated control, when the engine vacuum rises above 10.5 inches and when the car speed is above 23 mph. It does it almost imperceptibly, switching on a dash indicator light to show it's gone into overdrive. As you slow down again it automatically drops down into direct drive, below 18 mph.

Getting a downshift from overdrive to direct under power, for example to pass another car, is tricky when the unit is used with an automatic box. It has its own down-shifters, of course, and the two units would get confused if the overdrive were hooked up to shift down when the throttle was punched hard. So on the AMX there was a special downshift button, like a headlight dimmer switch on the floor, high to the left of the brake pedal.

You can't use that button any old time, and have it take effect. A downshifting or kickdown effect is provided only when you're on the throttle; then it stays in direct drive until the manifold vacuum starts rising again. If you push the button while cruising or coasting it allows the drive to free-wheel, with no braking effect. This is a handy little button, a new kind of control for a car. It's like a go-faster button you punch for more performance. Though I tried it on an automatic, I felt it would come in very handy on a manual-shift car, even a four-speed. It's a lazy man's downshifter that can add extra performance fast when you need it.

It's not known yet who'll be offering the magic duplicator and how it will be controlled. Both Ford and Pontiac are among those said to be interested. Someone will probably take the step, even at the high price that's been mentioned. After that they'll be on the market so you can buy one to put two different automobiles inside your family's one-car garage. /MT

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FIREBIRD

continued

beefed block, 60 psi oil pump and 45-degree distributor drive gears designed for the tunnel port Ram Air V engine. This is quite a package.

All Formula 400s have laminated fiberglass hoods with dual air intake scoops, which are functional when either of the Ram Air engines are installed. The Trans Am uses a rearward-facing shaker-style Power Charge Valve, which pokes up through an opening in the hood. An electrically-operated trap door flips open when the accelerator is floored, channelling cool air directly to the Rochester carburetor. The big engines are offered with choice of Turbo Hydro, three-speed manual or wide or close ratio four-speed. In addition, a new, stronger four-speed, Muncie's so-called "rock crusher," may be offered later.

One of the points made by chief engineer Steve Malone at the long lead press preview was that the Firebird would be the pilot for innovations that would later be proliferated to the remainder of the line. As if to illustrate this, the new Firebird features radically improved serviceability of the instrument panel and associated bulbs. Any dashboard bulb can be changed in less than a minute, with access gained through an easily removable panel. The same panel also provides access to the speedometer cable and signal flasher. By removing another panel, you can get at all the dashboard instruments, switches and controls, greatly simplifying servicing. Other new details include mesh-type window seals, which the side windows actually push into rather than slide up against (however, don't try it at speed, as air pressure moves the windows out); molded storage pockets in the full-length arm rests on each door; replacement of the ammeter with a voltmeter in the Rally Pack instrument package (standard on the Trans Am); and a steel cargo barrier between the trunk and passenger compartment. A new, softer material is also being used on the dashboard and for other internal padding.

There's lots more, but these cars are made to be driven, so let's get to it. Our test car was a Trans Am with a Ram Air Super Duty engine, close-ratio four-speed, 3.90:1 Safe-T-Track rear axle and F60x15 Polyglas GT tires. As you can see, it certainly looks the part of a Trans Am car. We were surprised to see the rear deck spoiler, expecting the inverted airfoil type stabilizer used on the current Judge. Early work had been done with the wing, but the spoiler worked out better—in the wind tunnel and on the track. Up front and ahead of each wheel well is what Pontiac prefers to call "airdams." The former keeps air from flowing under the car and cuts front end lift, while the latter smooth-out the flow around the tires, which create a great deal of turbulence at speed. The engine compartment air outlets are for real.

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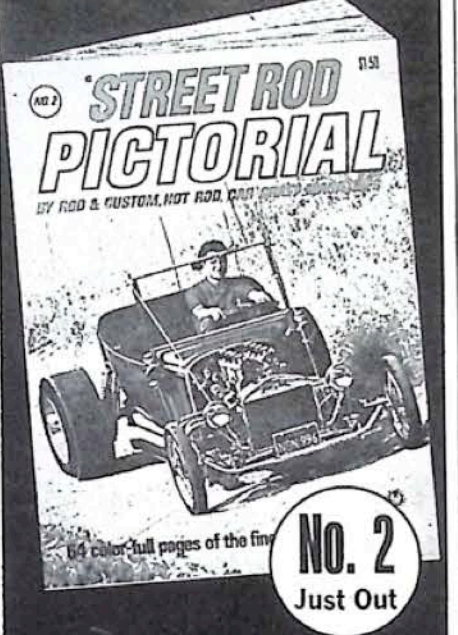
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the new Firebird, once behind the wheel, is the length of the hood, especially on the Formula 400, the visual effect heightened—or lengthened—by the long scoops. In the Trans Am, you soon forget this. The steering is exceptionally fast, perhaps too fast. At the limit, the gear ratio is 11:1—and that's getting down into go kart country, brother. Combine this with the torque and low speed response of the engine and you've got a mandate that says, "Be smooth or be gone...into the toolies." This is a lot of car—not in the sense of brute tire-shredding, gut-rending acceleration, but in its ability to get through the esses... with the right driver. It's very easy to overcorrect should you get crossed up in a tight turn. But you'll only get into trouble in the first place if you're pushing too hard, and that's the real temptation.

The purists wonder how Pontiac can call a car with a 400-cubic-inch engine a "Trans Am," when the displacement limit is 305 for the category. Well, those actually going racing will merely convert the 400 to a 303 with a handy destroyer kit, Pontiac realizing that the stop light-to-stop light scene is much better handled by a bigger, more flexible engine. The external package and chassis is definitely "Trans Am," though. The interior? That's Grand Touring. There's plenty of headroom front and back, and even acceptable legroom for those occasional rear seat passengers. The seats, especially with the optional knitted vinyl upholstery, are very comfortable, and all controls are within reach of the driver. The small diameter steering wheel can obscure part of the tachometer face, especially with tall drivers. For these people the adjustable wheel option would be good.

The shift linkage on our four speed was a little stiff, but the throws were short. The simulated leather knob was a bit uncomfortable to use, primarily because of the "stitched" seam around the top. The Formula steering wheel, on the other hand, was quite comfortable on either hand. (The pedals were equally comfortable on either foot.)

The acceleration, while not fantastic, is certainly more than adequate, as attested to by the 6.5 seconds to 60 mph and 14.5/99 quarter-mile, all with two people aboard and a fifth wheel. In the mid range, it only took 2.5 seconds to whisk from 40 to 60 mph, and 3.0 seconds to get from 50 to 70. Reversing the vector, our Trans Am went from 60 to 0 in under 120 feet, and from 30 to 0 in just 24 feet, which spells great brakes. The stops were (appropriately) arrow straight, with absolutely no tendency for the rear end to come around.

It's quite certain that Pontiac, if not already there, is hot on the trail of that elusive combination of style, flair, performance, practicality and individuality that the young-thinking automotive public would really like to have. And if the Trans Am isn't it, maybe the Formula 400 or the Esprit or the base Firebird is. /MT

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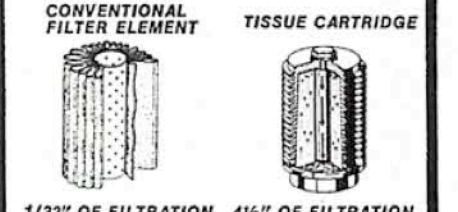
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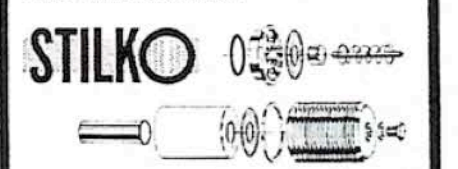
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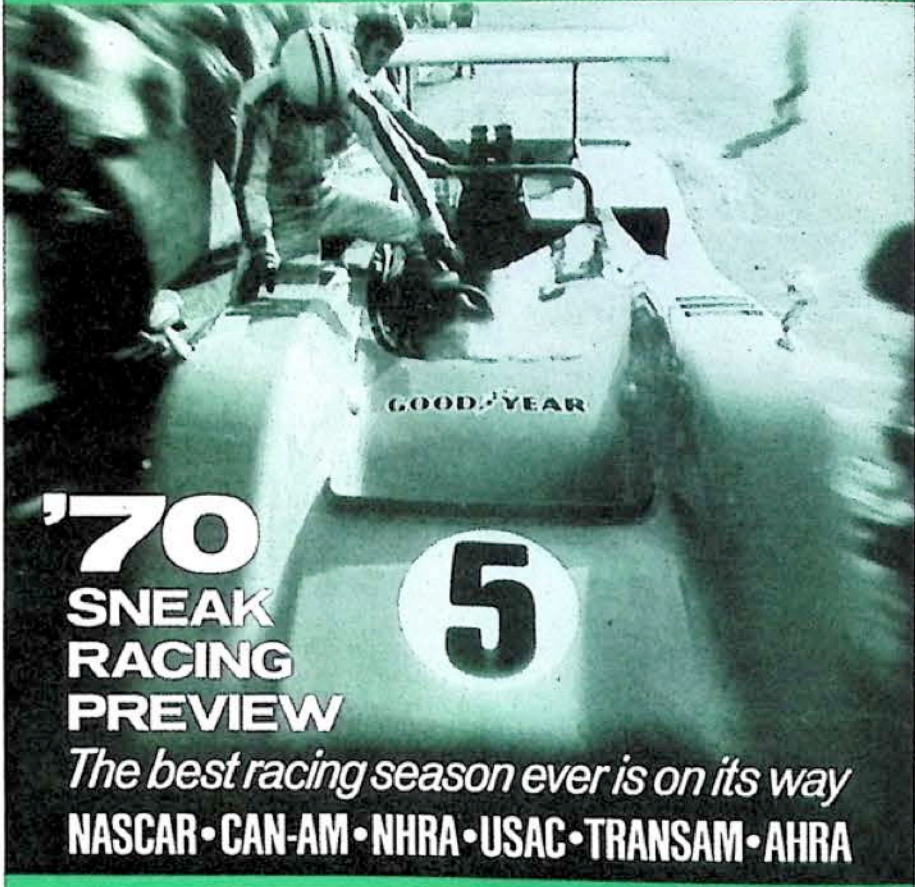
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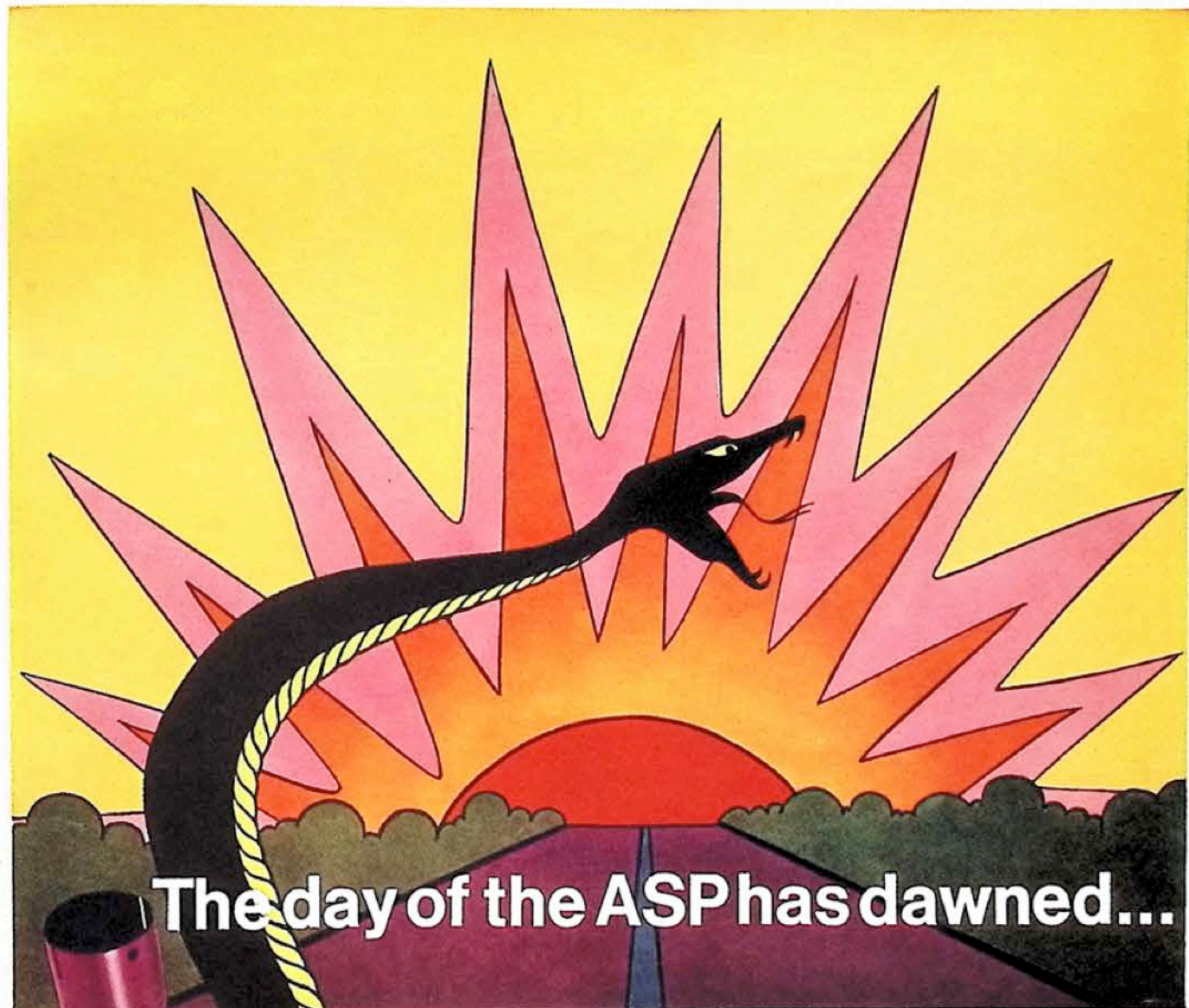
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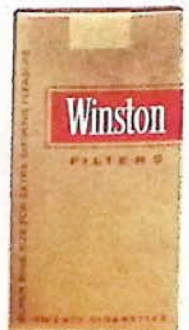


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