Exclusive: Testing Three New Novas

MOTOR TREND

NOW COMBINED WITH SPORTS CAR GRAPHIC

SEPTEMBER 1971 75c

Wild Lamborghini GT
440 HP Bertone "Countach"

Pontiac Trans-Am GTO
Low-Buck Racing Returns

First Look! Renault 17
France's Newest Car

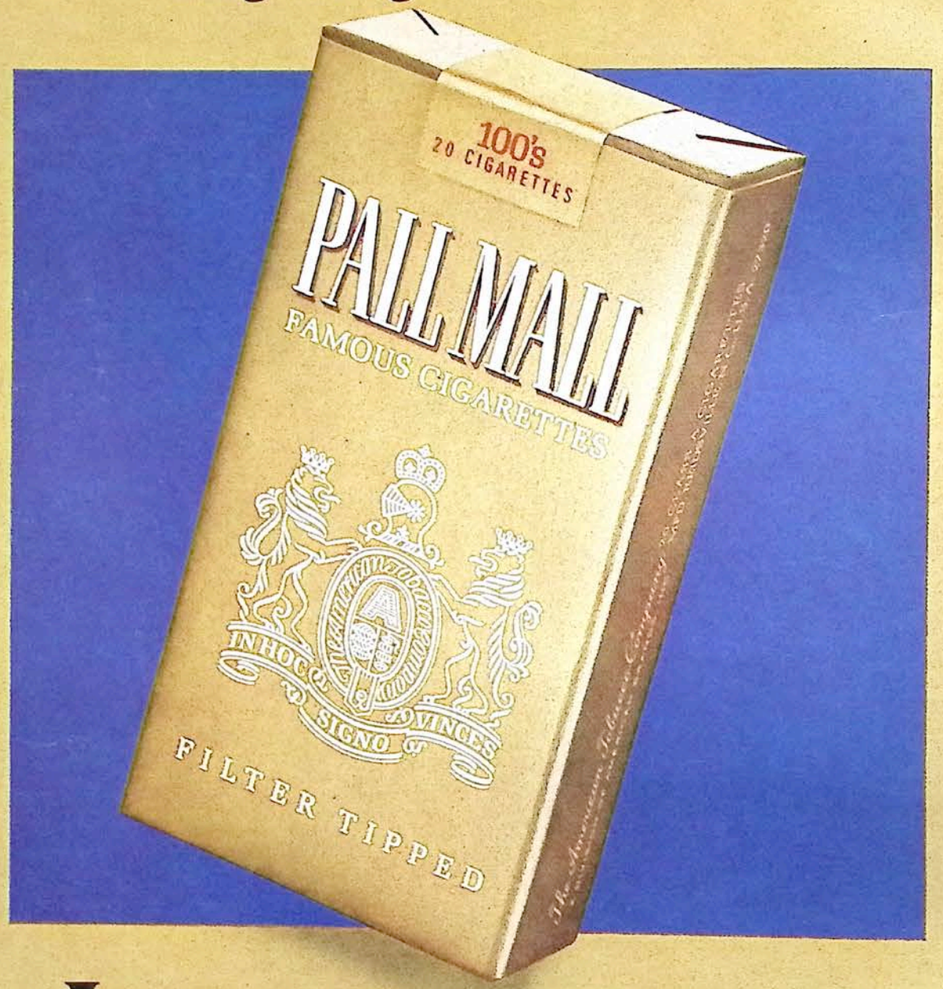
UK 30p Sweden Skr. 4.75 Inkl. moms

'72's New Faces

Ford · Plymouth · Dodge · Chevy · Mercury · Javelin · Barracuda · Challenger · Mustang · Maverick · Pinto · Torino · Montego · Ambassador ·

You get both

longer length–milder taste.

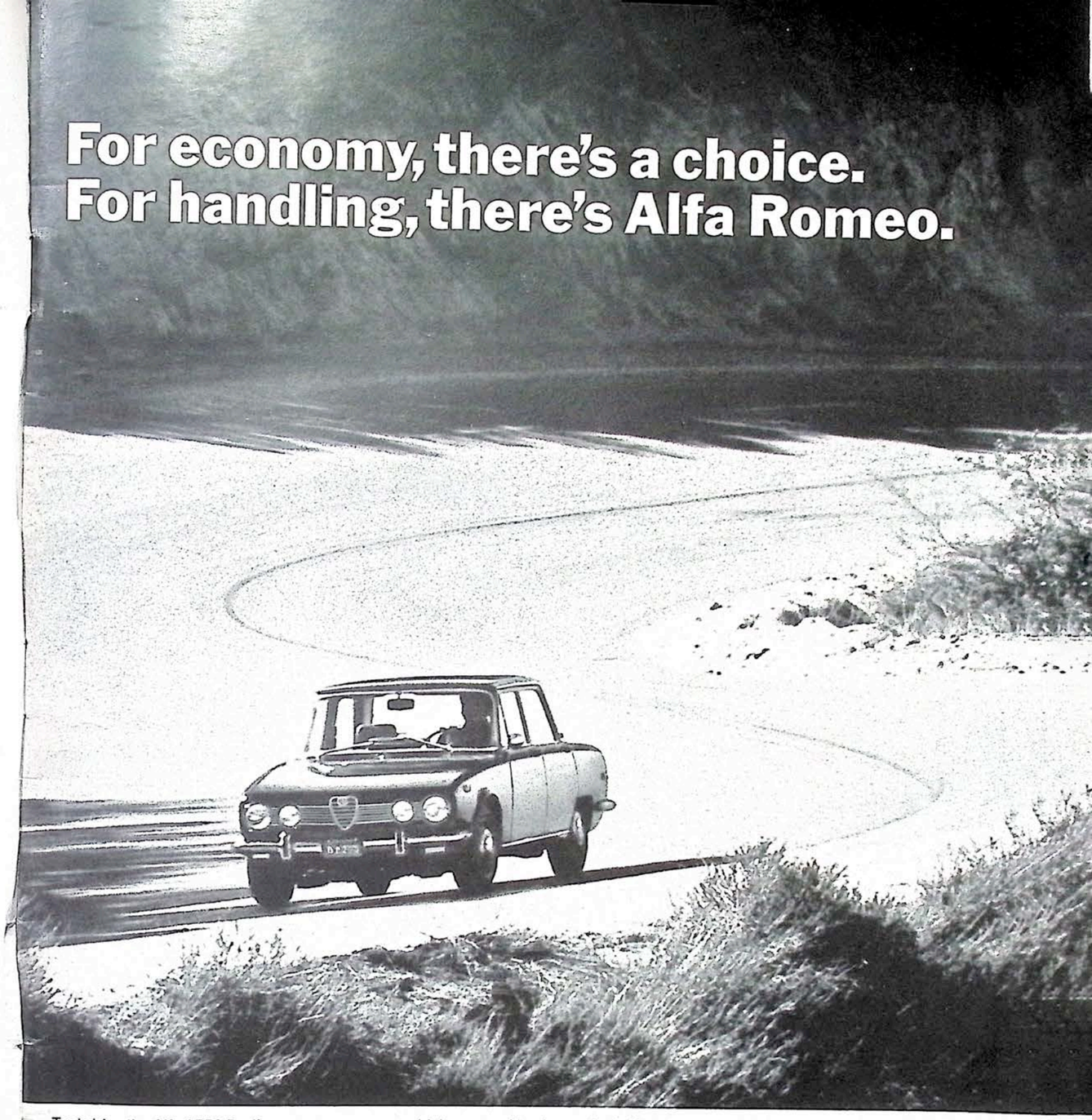


Longer...yet milder

PALL MALL GOLD 100's

20 mg. "tar", 1.4 mg. nicotine
av. per cigarette, FTC Report NOV.'70

For economy, there's a choice. For handling, there's Alfa Romeo.



Test-drive the Alfa 1750 Berlina.

It's a spacious, comfortable, four-door family sedan. With reclining bucket seats. Elegant interior appointments. A family-sized trunk.

Under the mild-mannered exterior, it's also a sports car. With the same double-overhead-cam engine, chassis and suspension that won the 1970 Trans-American Championship for Alfa Romeo.

The Berlina handles city traffic, superhighways and back-country twisters with the same flawless response.

Steering as fast as your reflexes. Classic cornering. Reserves of power to meet any situation.

And four-wheel disc brakes that stop the car in a straight line from 60 mph in less than 150 feet.

(That's faster than *every* car sold in the U.S. save one limited-production import at more than twice the price.)

We feel families deserve the same special handling racing drivers demand.

That's why our Berlina is called "the four-door sports car."

At $3795, it's called a bargain, too. *Alfa Romeo 1750 Berlina, $3795 East P.O.E., $3855 West P.O.E. Ready for a test-drive at your nearest Alfa dealer, along with facts about overseas delivery.*

Alfa Romeo Inc. (Eastern Division) 231 Johnson Ave., Newark, N.J. 07108 (Western Division) 215 Douglas St., S., El Segundo, Calif. 90245 Alfa Romeo (Canada) Ltd., 26 Greensboro Dr., Rexdale, Toronto, Ont.

September 1971

MOTOR TREND

Volume 23 Number 9

NOW COMBINED WITH SPORTS CAR GRAPHIC

MOTOR TREND combined with Car Life and Sports Car Graphic 8490 Sunset Blvd., Los Angeles, California 90069. Phone (213) 657-5100. SECOND CLASS postage paid at Los Angeles, and other mailing offices. Published monthly. SUBSCRIPTION RATES: 1 yr. $5; 2 yrs. $9 for United States and possessions. All others: 1 yr. $6; 2 yrs. $11. Single copy 75c United States currency POSTMASTER: Please send form 3579 to Motor Trend Magazine, Post office Box 3290, Los Angeles California 90028

A great idea. How it grew into the MGB. And why we're giving away the 250,000th one free.

MG-TC This is the classic 2-seater that American servicemen brought home with them. The TC was the spark that ignited the sports car phenomenon and we sold a surprising 10,000 TC's by 1950.

MG-TD The TD took over where the TC left off and the idea of a high-performance sports car continued to attract new fans. By 1954, the TD had hit 30,000 in sales.

MGA This is the MG sports car that sold more units than any other sports car ever before. The number, an incredible 100,000 by 1962

MGB This is the MG that's now holding down the all time best-seller position. The B, made in both Convertible and GT versions, reached the record breaking 250,000 mark a short time ago

MG has always stayed faithful to the idea of a sports car unhindered by compromises. And it's paid off.

On May 27, 1971, the 250,000th B came off the production line. It was designated with a plaque attesting to its historical significance in MG history. And, to cap the occasion, we are going to give the car away instead of selling it.

It's The Great 250,000th MGB Giveaway—and it's easy to get in the running. There's nothing to buy. Just visit an Austin MG Dealer and pick up an official entry blank with complete details.

Offer void in the State of Washington and wherever prohibited by law. Residents of Ohio, and Wisconsin may obtain an entry blank by writing to: 250,000th MGB Giveaway, Box 250,000, Blair, Nebraska 68009, before Sept. 4, 1971.

The Great 250,000th MGB Giveaway officially closes Sept. 18, 1971. So hurry—act today. For the name of your local Austin MG Dealer, dial (800) 631-1971 except in New Jersey where the number is (800) 962-2803. Calls are toll free

BRITISH LEYLAND

British Leyland Motors Inc., Leonia, New Jersey 07605

Marking Time

"A commitment must be made toward improvement of public transportation, not by planners or visionaries, but by us; that's right, us — the car enthusiasts."

Two things happened to me this weekend that helped gather together a lot of semi-connected ideas and perceptions floating around the very serious conversation about where the automobile is going in our society, presupposing there will be any after about 1980.

First, my wife Carolyn and I hopped into an MGB Roadster and headed off with the top down for a weekend in the mountains. Second, I read a new book edited by Ernest W. Williams., on the *Future of American Transportation.**

Whether the contemporary MG is what your average sports car intender does or does not want in 1971 is really immaterial. What is, I found, is rediscovering the same old attraction; whistiing over a deserted, black, asphalt ribbon at dawn, the chill mountain air rushing in great bursts with the special smell of pine and grass and campfires and . . . smog. Yes folks, pollution, rising in a great, huge, grey-brown cloud from the L.A. basin; pushed up by the tidbits of a jillion cars and a few oil refineries and power stations. But mainly cars. Ramming through the even-semi-violated breathing air in an open MG brings the pollution problem into vivid bas-relief, because you are right out there in the front line, knowing that anti-pollution controls are helping, but realizing, ultimately, there are just too many cars in places like L.A. So, maybe the simplistic, empirical approach is the most obvious — eliminate cars.

Now the second part. If you care anything about the country, *The Future of American Transportation* is probably one of the most rational, calm, free-of-inflammatory-rhetoric analyses yet compiled of what our total transportation system is all about. It reaches beyond other studies because for once the "system" is treated as a whole; every piece intimately involved with every other. With an eye to historical precedent, the book forthrightly puts today's situation on the line and projects what we can reasonably expect from trends now at work.

For openers, the simplistic, empirical solution is out; the car is our. America's, basic transportation system, and will be into the '80's and beyond. Reliable authorities project our current 112-million highway vehicle fleet swelling by. dint of a 50-percent expenditure increase in the next decade. Nothing else in the transportation spectrum has this financial commitment. And, despite what you might believe, it is not likely many more freeways will be funded to handle these cars. Road and parking lot construction have decimated the tax-base of most metropolitan areas as well as the quality of life, so it will become the popular cause to limit rather than underwrite expansion. Not only that, the Interstate Highway System is nearly complete, even redundant in some areas. With road building winding down, auto ownership winding up and "only spotty improvements in public transportation," congestion must escalate — by as much as 150-percent if percent trends continue.

The catch phrase in these dire realities is, "if present trends continue." Obviously, the single most important priority is reducing the passenger vehicle population — getting all those people out of cars they don't want to be in to begin with. A commitment must be made toward improvement of public transportation, not by planners or visionaries, but by us; that's right, us — the car enthusiasts. Civil disobedience, physically stopping society's wheels, so to speak, suggested by some, is silly, and will probably do more harm than good.

As with the rest of America's ongoing revolution, you don't want to slow the process, but change it to a new direction. Our media people tell us that by the time any single issue of MT is read, somewhere around *three million* of you have seen it. There's an awful lot of power in three million: power to create the mood for a balanced transportation system, including automobiles; leverage to put the gasoline taxes to work; persuasion to get people out of cars and into another transportation mode. Writers in *The Future of American Transportation* see this happening by the end of the decade. But in the meantime, there is the real chance that little pecans like the MG will disappear, forced from the scene by interim safety and smog regulations. Pity if all you could drive to the mountains in 1980 was a nine-year-old MG.

INTRODUCING
the world's largest producer of front-wheel drive cars.

Our first front-wheel drive car, the Renault 4.

That was over 10 years ago. Today we make over 4500 front-wheel drive cars a day. Nobody else even comes close.

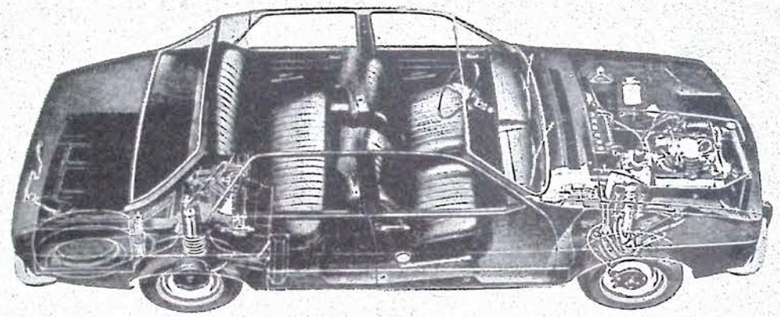
The singular benefits of front-wheel drive.

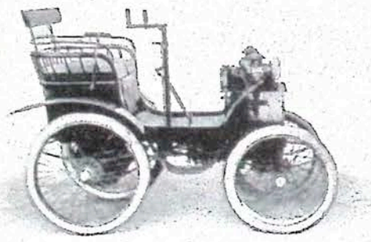
If you look at the x-ray drawing you'll see the drive wheels are in front for better handling with the engine over them for better traction.

With FWD the wheels that make the car go are the same wheels you steer with. With rear-wheel drive, the back wheels only want to push in one direction. Straight ahead. And they would if the front wheels didn't force them to pivot. With FWD there's no disagreement between power and steering. The front wheels call all the shots and the rest of the car follows along obediently.

Putting the engine weight over the front wheels also increases directional stability. More steering control, less problem with cross winds.

It boils down to this—we produce more FWD than anyone else in the world. So it shouldn't be surprising that we know how to bring you the best that FWD has to offer.





1898. Even we didn't start with front-wheel drive.

This is the rear-wheel drive Voiturette that started it all. Long before the Model T was a gleam in Henry's eye. Since then we have grown into one of the largest automobile companies in the world. We sold over a million cars last year alone. Not counting trucks and tractors.

The Renault 16—America's first look at our FWD.

We introduced it here a few years ago. After it took "Car of the Year" in Europe. It sells for $2695;* gets up to 30 mpg, converts from a sedan into a station wagon, and has converted a lot of people over to the terrific handling of front-wheel drive.

INTRODUCING
the new front-wheel drive Renault 12.

The left-hand page tells you all you need to know about front-wheel drive. Now we'll fill you in on the rest of the Renault 12.

Specifications

Seating: Because of FWD, no driveshaft hump to steal leg room. Because it's 7" longer than Pinto, even more leg room.

Engine: Aluminum. 1565cc. 5 main bearings. Up to 30 mpg. Essentially the same superb engine that powered Renaults to 1st, 2nd and 3rd in the 1971 Monte Carlo Rally.

Steering: Rack and pinion.

Brakes: Discs up front. Drums in rear with pressure equalizer to prevent locking.

Transmission: All synchromesh, 4 speed.

Trunk: 12.8 cubic feet. (Vega has 8.7, Pinto 5.6) If you need even more trunk, the Renault 12 Station Wagon has up to 58 cubic feet.

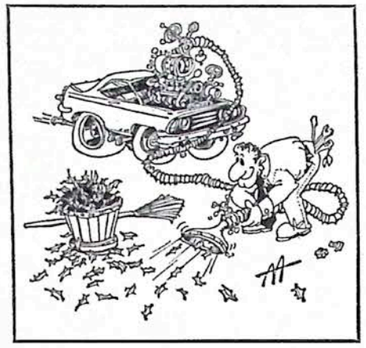
Price: $2195* for the sedan. $2595* for the station wagon.

Pound for pound, dollar for dollar, we believe this car holds the road better, people better, and has more advanced notions of engineering than you could possibly appreciate without coming in for a test drive.

*Suggested retail price P.O.E. The Renault 12 Sedan is shown with optional custom wheels, and front bumper overrider bar etc. Taxes, freight, dealer delivery charges, or other options on all models shown are additional. For overseas delivery info. see your dealer or write: Renault, Inc., 100 Sylvan Avenue, Englewood Cliffs, N.J. 07632

RENAULT

Letters



Styk-y Questions

I finally got my styks. They look like Baby Edsels, so I shot them to keep them from reproducing. Otherwise your mag is excellent.

Orville Barrett
Denver, Colo.

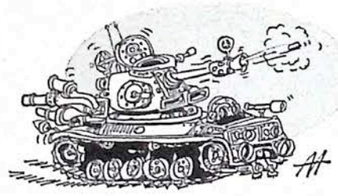
You shot the styx? Migawd, don't you know that that's how they do *reproduce?! – Ed.*

All right! I've had it, what the hell are styx?!!

A concerned wife
Bellevue, Neb.

See page 127 of this issue. – Ed.

For God's sake, will someone straighten out this mess?!! What in the world is a stix? a stykk? a stikk? a stick? a



styk? a schtick? a styx? As you can see, I really don't know what I am talking about, but I would appreciate it very much if you would also tell me where each one is available, where they are in/on the car etc., etc.

On second thought, why don't you just write an article on stix. styx? schticks? Oh, whatever. In the meantime, you'd better send me some old saaki too. I think I'm going to need it.

Todd Garth
Rye, N.Y.

God knows. Mortals will have to wait, but you're getting close on your spelling! – Ed.

I no longer wish to receive the military edition of your magazine with the extra advertisement insertions. In fact, I promptly destroy these pages. Please see to it that I stop receiving this version.

Also, just what the hell is a "stix," anyway?

Charles Kneipp
FPO New York

Glad you asked! We finally reveal the identity of Stix – in the next military edition of MT. – Ed.

Chevy Lives!

The foreign-car lovers, who believe that American automobiles self-destruct in two to three years, must have gone into shock when they read the June issue of Motor Trend. On page 36 you state that the one all-around Best Buy in a used car is a four-year-old Chevy.

Edwin Schampel
Appomattox, Va.

OK, But Please Buy Two In August

I'm not even going to bother buying next July's issue. We all know who you're going to pick as King of the Hill – no matter how lousy the new Mark IV is going to be or not.

By the way, how much is Ford paying you to keep picking their Mark III as King of the Hill? Since this year you proved the Eldo is the better car, they probably had to promise you a free Mark III.

Mark Monza
Waterloo, Iowa

It wasn't for free, but oughta see how much they gave us in trade on our Eldo! – Ed.

Lord, Jim!

Thank you for that great article on the British automotive scene. It was well written, except that Jim Brokaw did not go into as much depth regarding the histories of these vehicles as I would like to have seen.

The world tour seems to me a fantastic idea. Perhaps you should arrange your format around it, though. First, pack up and move to Washington, D.C., restrict circulation to subscribers only, bind the magazine in yellow, and rename it: "NATIONAL AUTOGRAPHIC."

Jim Rajca
Lombard, Ill.

Motown Shuffle

Is it any wonder that young enthusiasts are not buying cars? Insurance rates are only a minor deterrent. The real hang-up is lack of meaningful engineering in the past five years. Detroit has yet to offer a better power train than my five-year-old 396 with quick-shifting turbo-hydramatic.

Yes, there are some very good handlers in the pony car market but the underhood cast iron is held over from a generation past. Carburetors have the same inherent faults they had 50 years ago. Detroit, is, for some unknown reason, stubbornly refusing to offer us electronic fuel injection. Not only would it give a gasoline engine the operating precision of a diesel and give us engine lovers a new lease on life, it would help clean up our air and improve mileage. But no! They insist on meeting govt. specs with gobs of plumbing and detuning at the expense of mileage and serviceability.

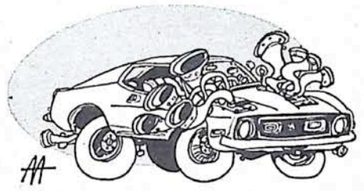
Wake up, Detroit – even the lowly Beetle is injected! As soon as I can get a Satellite, Mustang or Camaro with injection, I will be back in the showroom again – not until. I expect Ford will respond first unless their "listen better" philosophy is 100% Madison Ave. malarky.

Dave Gilman
Cornell, Ill.

As the '75 and '76 deadlines approach, there appears little hope that performance as we now think of it will survive – in the foreign or domestic cars sold in this country. – Ed.

Test Tubes

I have a '71 Mach I Mustang with the 429 CJ-R engine that I'd like to put



non-stock headers on. What brand did you use on the '71 Boss 351 test car that did so well?

James Stevenson
Newport Beach, Calif.

Doug Thorley Headers, 5533 East Whittier, Los Angeles, Calif. – Ed.

So, There!

I'm fourteen and have enjoyed MT for four years but don't know how you can compare a gas-gobbling, wallet-eating car that's about three inches off the ground, called a Ferrari, to a quality engineered and built car like a Porsche. Now I believe them when they say these cars are direct descendants of racing cars – not only is Porsche a better racing car for Le Mans, it is also a better street car, too! And that's the way it is!

David Goldin
Tarrytown, New York

About That Car In The Living Room...

The interview with "GM's ultra-stylists" is a stunning confession. Mitchell aptly characterizes his clientele: "They may not have any carpet in the living room but, boy, that car . . . status symbol, yes, yes, it's a status symbol." Could the dapper executive be ridiculing us?"

Mitchell does care about us, though in his own twisted way: "Now, I'll say this – what's going to stop the sale of automobiles is an excessive safety investment that puts the price out of bounds." But doesn't he own and drive a super-safe Mercedes? Is he secretly sold on disc brakes all around, fully independent suspensions, reinforced passenger compartments, quality workmanship and so on?

No, Mitchell dreams of old Duesenberks and Bugattis. The backward-lookers of that era were no doubt misty-

continued on page 14

LETTERS

eyed over Conestoga wagons. We rustics dream of Mitchell's Mercedes until we can afford to buy it, in 1984.

Mitchell and Jordan work to design cars that keep each of us exquisitely close to bankruptcy. They know we couldn't think of anything better to do with a quarter-year's income. We would only stumble into another way to brag, strut and show off that is as pointless as what we do now.

Peter Diller
Los Angeles, Calif.

Seers & Low-Bucks

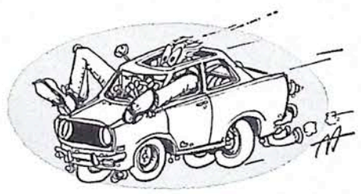
Your prediction that the Fiat 128 will outsell VW in the U.S. amused me. I have heard that same premature boast about nearly every new economy import that has come to these shores. I am certain that the 128 and many other fine cars have some individual features that are superior to the VW. The VW however has several important advantages that the others do not. VW is a very simple, reliable machine with detail quality unequaled by cars costing much more, and a factory controlled dealer, parts, and service organization superior to any make, foreign or domestic.

Now, I'll make a prediction. Until VW's competition, particularly Fiat, acts like they plan to stay in business by building a decent parts and service organization, they will *never* outsell VW.

Carl L. Seeley
La Crescenta, Calif.

Re: Big Things & Small Packages

After reading your article on the Fiat 128 in your July issue, I was amazed to learn that the Fiat offers me more room than my 1971 4-4-2 which has the same specifications as the 1971 Cutlass you



used in your comparison. Comfort means a great deal to me since my 6'5" frame struggles to get behind the wheel and gets banged up turning the wheel. American car companies have either forgotten about us "big guys" or feel that the expenses of making bigger specifications is just too much bother.

My 4-4-2 cost twice as much as the Fiat will sell for and I am ready to trade it in if I can gain up to six inches of leg and head room and more comfort. It's hard to give up performance and styling but it's all wasted if the driver is not comfortable.

The European car makers may not know it all, but they sure know how to make it easy on a big guy.

The Green Giant
FPO New York

How 'Bout Milky Ways Instead?

Your new technical series "Doing It" is surely welcome. But in your "How to Change Spark Plugs" (July '71), a serious point missed is the fact that most plugs should never be removed without first loosening them and then directing an air blast around the plug to remove accumulated dirt. Probably most car owners should not be removing carbon core wires without special instructions. Also, filing the electrodes so they have a flat surface before gap setting greatly reduces required voltage.

Removed plugs should be examined to determine internal engine condition, but your recommendation that car owners should keep their old plugs and take them to the garage if the car does not run properly will surely earn a few snickers from the automotive technicians.

Harry G. Hill
Automotive Service Instructor
Milwaukee Area Technical College
West Allis, Wis.

Min-Age (A Trois?)

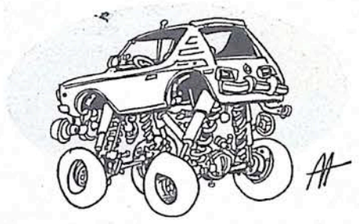
What is the legal minimum age and requirements for drag racing and stock car racing in Illinois?

Gregory J. Knapazyk
Chicago, Ill.

Although the rules vary with different associations, a legal driver's license satisfies the age qualification for many. – Ed.

Buy American!

Where can I find heavy-duty parts for a 1971 Gremlin X, such as sway



bars, air shocks, springs, traction bars and engine parts?

Lorenze Brice
Brooklyn, N.Y.

Your local AMC dealer. – Ed.

Corv-Addresses

We would appreciate any help you might be able to offer in locating the addresses of a national Chevrolet Corvair Club and the addresses of the National Corvette Club or clubs.

Charlie M. Beard
Northwest Nomad Association
Seattle, Washington

Corvair Society of America (CORSA), 270 Bronxville Road, N.Y., 10708; National Council of Corvette Clubs, Inc., 2400 Lampost Lane, Baltimore, Md., 21234. – Ed.

Button, Button . . .

Could you please tell me if you know of any major car companies which still make push-button automatics on their cars?

Phil Shamlian
San Francisco, Calif.

None to our knowledge. – Ed.

$7000 Bronco

My congratulations to Chuck Koch's article "The Great RV Binge," June Motor Trend. This is what I call a fantastic snow job for GM. Here's the way I see it:

Blazer	$5,560.10
Bronco	4,125.28
Difference in price	$1,434.82

Let's take the price differential and add this to the Blazer, then go out, buy a Bronco for $6,994.92. Wow! Bucket seats, automatic transmission, power steering, AM/FM stereo radio and wall-to-wall carpeting. We'll even change the name and call this machine a Bronco Baja. This is not so expensive as it sounds. After all it's only $1,434.82 (let's quote your article) "with a price differential of $1,000," etc . . . ! That's right on. We'll just throw out $434.82.

After all, the Blazer only had a 350 cu. in. engine, 40 more horses and 50 more lbs.-ft. of torque than the Bronco. Makes you feel sorry for the Jeepster.

SP/4 L.C. Test
APO San Francisco, Ca.

GRANATELLI ON AND OFF THE CARPET

At the beginning it seemed like the best way to air the whole STP controversy – whether the additive did or did not work, and the *Consumer Reports* article – was to sit down with Andy and the other principals and put the matter straight. But, even as Senior Editor A.B. Shuman was preparing himself for the severest test of his career, the Wall Street Journal, as well as most of the country's leading newspapers, broke the story, and all the inside stuff we'd been counting on leaked out all over the nation's financial pages.

To continue with the interview would have been like the government declassifying the information in the Pentagon papers after it went into paperback.

So, dear reader, there is no Andy Granatelli interview in this issue, because, quite frankly, it's old news, and that's not what we're about.

Submissions for use in "Letters" are subject to editing to size and style.

International Report

USA

. . . . Bob Irvin Reporting

GENERAL MOTORS IS EXPECTED TO INstall anti-pollution systems on more than 500,000 and perhaps as many as one million 1974 model cars. The remainder of GM's cars will get the equipment in 1975. Ford's expected to install the equipment on some 300,000 of its 1974 cars and light trucks — those sold in California. GM's will be nationwide, not just California. The guts of the system both companies are planning is a catalytic converter. Ford's is a platinum catalyst. GM's engineers say they will probably use a basic metal, such as copper. The catalysts are designed to change hydrocarbons and carbon monoxide to carbon dioxide and water. GM's and Ford's systems will also have exhaust gas recirculation systems to reduce oxides of nitrogen. The systems will do the best job the firms know how in meeting the federal air pollution standards which require a 90 percent reduction in emissions from present levels. The goal is supposed to be met by 1975 but GM and Ford will begin early to get experience with the devices ahead of time. GM's expected to put the devices on about 20 percent of the '74 models. Ford's will be on 10 percent of its cars that year.

RALPH NADER'S OUTLOOK FOR CARS in the 70's? The emphasis will be on engineering integrity rather than "stylistic pornography," he said. He stated the switch from style to safety and anti-pollution is because of consumerism. Nader said consumers will begin buying on quality and not style.

A UNIQUE BATTERYLESS AND WIRELESS communications system may be used to aid stranded motorists on freeways. The system has been developed by Solid State Technology Inc., of Wilmington, Mass. The unit can be mounted on posts and all that's necessary to activate it is to pull a handle. This energizes the system — which can run on a small battery supply. After pulling the handle, the motorist has a choice of four buttons to push — one for fire, police, ambulance and service. The signal is received by a computer located up to 40 miles away. The computer records the box number (part of the signal) and automatically locates it and notes the type of service needed.

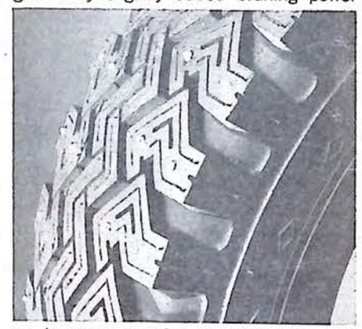
REVOLUTIONARY CHANGES IN AUTO INsurance can be expected in the 1970's, according to University of Michigan Prof. Dennis F. Reinmuth. Reinmuth predicts the current "fault" insurance system (which theoretically punishes the negligent driver in an accident) will be replaced totally or in part by a "no fault" compensation plan. He also said that insurance will be on a group basis at a person's place of employment, like current life and health insurance. The reason for the changes, he said, is that "consumer dissatisfaction with automobile insurance is widespread. Rising automobile insurance costs and the pricing structures of insurance companies are factors contributing to the dissatisfaction."

STP IS UNDER HEAVY CRITICISM. CONsumers Union said the much advertised oil treatment product consists mainly of an oil thickener. The group said its independent tests show that adding 10 percent STP to an automobile's oil increased the thickness 50 percent and could affect the new car warranty. This is because that much STP "can change the viscosity of a new car's oil to a considerably thicker grade than certain auto manufacturers recommend," Consumers Union said. Andy Granatelli, STP president, said "our STP oil treatment is sold on a money back guarantee. We sell more than two million cans a week and receive less than one complaint a week. Our files contain thousands of unsolicited testimonial letters. With millions and millions of satisfied customers our product speaks for itself."

GENERAL MOTORS' DEAL WITH ISUZU may lead to assembly of some GM cars in Japan. GM, under the agreement, will have 34.2 percent of Isuzu ownership. GM Vice President Pete Estes, in charge of the firm's overseas operations, said "it is likely that some current GM products might be produced" by Isuzu. He said, however, that "no decision has been made on what, if any, current GM products may be built at the Isuzu plants near Tokyo." In other countries of the world, GM wouldn't have given Isuzu a second glance. But because of trade restrictions in Japan, GM, the world's largest manufacturer, is going to link up with a company that last year sold only 21,000 units in a market of five million. "That's obviously very poor; it's nothing," Estes commented. "So one of our main interests is going to be to provide some technical assistance to Isuzu." Estes said if GM wanted to expand Isuzu's present two-car line — one smaller than the Opel Kadett and the other the size of the Vega — "it obviously wouldn't take very long" if they shipped in disassembled cars to be put together in Japan. But "to build a new vehicle there would take lead time similar to that in the U.S. even if we took existing tools," he said.

FORD'S POLLUTION AND SAFETY WORK is costing $500 million yearly. That's the estimate of Ford President Lee A. Iacocca. He also says a 3 percent reduction on automobile air pollution demanded by Congress in 1975 could add $200 to the price of a car. The auto industry had been working toward a 95 percent reduction by 1975 from uncontrolled cars 10 years ago. But a law passed last December changed that to 98 percent. "We may be talking about a couple of hundred dollars per car just to get that extra 3 percent," Iacocca said.

DRAWBACKS OF STUDDED TIRES ARE being publicized by highway men. Some states want to join Ontario in banning their use. A New York state highway research engineer, George A. McAplin, testified at a congressional hearing recently that "studded tires in one study gave only slightly added braking power



on ice over regular or snow tires and actually less on wet pavements." He also said studded tires can pound quarter-inch ruts into concrete highways in two years and in half that time on asphalt roads. "The ruts fill with water and cause what we call hydroplaning," he said. "It's a frightening experience because you have no braking control."

STEAM POWERED TRANSIT BUSES WITH low pollution engines will be running in California this year, according to the U.S. Transportation Department. The buses will be operated experimentally in public transit under federal grants — they will be run in Oakland, San Francisco and Los Angeles.

ARIZONA IS THE NAME OF A NEW FORD small-car project. The goal is to build a small, Pinto-size sporty car as a successor to the present Mustang and Cougar which have gotten much too large. General Motors' "F" body has been rumored to be on the way out in 1973 and the present Camaro and Firebird models may be switched to the new small-car Vega body at that time. Future is uncertain for the Barracuda/Challenger at Chrysler. Everything — not just the Javelin — is uncertain at American Motors.

WHAT'S BILLED AS AN UNALTERABLE driver's license is being used in New Jersey. The state officials say the license "has many of the built-in security features present in American currency and has the authenticity of money. Fluorescent printing, raised images and sensitive inks, plus totally secure production control helps make this a more reliable certificate which will assist law enforcement officials and the state's more than four million drivers." The new license was developed by the American Bank Note Company.

THE FIRST THREE CONTRACTS WHICH it's hoped will lead to pollution-free cars have been issued by the Environmental Protection Agency. The EPA said the contracts call for three companies to build prototype cars using new engine or exhaust designs. Austin Tool Co. of El Monte, Calif., has a $25,000 contract to develop a small lightweight diesel powered vehicle; Chemical Construction Corp., of New York, has a $40,000 contract for a catalytic converter for an internal combustion engine; and Petro-Electric Motors of New York has a $37,350 contract for a hybrid power system using a heat engine and battery.

SOME HIGHWAY DEPARTMENTS ARE EXpected to begin testing this winter a system of roadside reflectors which change color to warn motorists of icy conditions on the highways. Scientists from the Battelle Memorial Institute invented the system at the institute's laboratory in Frankfurt, Germany. The reflectors are composed of ground glass and a liquid. They can be mounted on existing highway reflective posts. At a temperature above 45 degrees, the reflector would show green. When temperatures are between 37 and 45 the reflector would show yellow. It is a reddish orange between 31 and 37 and red at 30 degrees and under. Battelle scientists say the system would cost only a fraction of the loss now incurred from accidents on icy roads. They expect some U.S. highway departments to begin testing the system soon and say that within the next few years they should come into widespread use. Holley Carburetor developed an ice detector system for bridges a few years ago but it is expensive and has not come into widespread use.

A CERAMIC THERMAL REACTOR FOR cutting down emissions of hydrocarbons and carbon monoxide from automobiles has also been built by Battelle Memorial Institute. It was built for Wahl Refractory Products Co. of Fremont, Ohio. The institute's Columbus, Ohio, laboratory did the work. Actually, the auto companies are more interested in a catalytic converter than a thermal reactor for meeting the mid-1970's anti-pollution standards.

THE "ULTIMATE" POLICE CAR WOULD cost $8,500 and even come equipped with a baby delivering kit, complete with diaper. The Federal Sign and Signal Co. is displaying the vehicle, a Plymouth car. It has a bullet proof plastic dome in the roof and under the instruments, besides a shotgun case, is a computer to measure the police car's speed to within a tenth of a mile an hour. The warning lights on the roof flash 650 times a minute compared with 125 a minute for conventional flashers.

A HOMEMADE ELECTRIC CAR IS NOT winning approval of police. A high school teacher in Ohio, Jim Halderman, has been trying to get a license for his vehicle. He says police want it to conform to all the federal safety standards — energy absorbing steering column and instrument panel, things like that. He now says he probably should have modified a conventional car to electric power since they have all the safety systems. He also says he's been told that if he ever gets a license he'll have to pay

»»»

$100 a year road use tax since the car won't pay any gasoline taxes.

BIG CHANGES ARE COMING IN THE sound systems of cars. Oscar P. Kusisto, vice-president and general manager of the automotive products division of Motorola Inc., says "within a few years AM/FM will be standard equipment" on cars. He said "car radios of the future will be more reliable and serviceable." He also sees "a possible rebirth of shortwave radios in cars . . . recent developments in shortwave design have considerably improved the reception characteristics of shortwave receivers." As for eight-track tape systems, he said 3.5 million will be sold this year (10 million were sold in 1965-70). "Many tape player innovations will be introduced in the future, including eight-track/cassette adaptors and individual track and song selection, or the so-called jukebox capability," he said. "Motorola and other companies are developing complete entertainment centers which will contain AM, FM stereo and stereo tape, all combined in a package considerably smaller than conventional AM radios were just five years ago." Kusisto says "the day is approaching when electronics could account for 25 percent of the manufactured cost of an automobile." He said that "by 1980 it is estimated that all voltage regulators will be fully electronic using integrated circuits." And, because of emphasis on emission control which requires better engine efficiency, "all cars will have electronic fuel injection within the next few years," he said. He also warned that the U.S. auto industry had better seriously consider a hybrid gas-electric car using lead-acid batteries and a small 40-horsepower engine. He said if the U.S. companies don't do it competitors in Japan and Europe will develop the system. He said Toyota is on a program to bring out a small electric commuter car within five years.

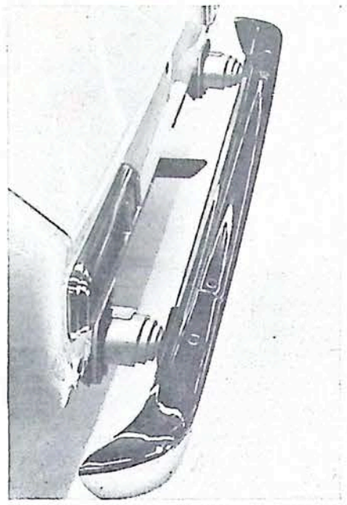
EUROPE

. . . Edouard Seidler Reporting

SPEED LIMITS are spreading in Europe, which leads specialists to predict that future cars will be increasingly disappointing in terms of active safety and performance. Great Britain was first to set a 70 mph speed limit on its roads. France was next to move with a 69 mph limit on all major roads, except freeways. Then came Sweden, with a surprisingly low 56 mph top. Belgium now also enforces a 56 mph limit on all roads except four-lane highways. Next on the list might be Germany. The Department of Transportation in Bonn is contemplat-

continued on page 22

The 5 MPH Barrier



A bumper that goes B-O-I-N-G instead of CRUNCH? It could happen, if North American Rockwell, a Detroit automotive parts maker, gets an order for its super bumper. Rockwell's inspiration was the Federal Government's new requirements for the prevention of needless property damage in low speed car crashes. The Feds got the power to impose regulations after insurance officials proved that, after crashing 1971 model cars, the damage was even worse than in comparable 1970 cars. Now the auto industry is under orders to come up with "bumpable" bumpers by '73, units that will take a 2½-mph impact, and, by '75, they'll have to be taking 5-mph bumps on the chin without damage. Naturally, this has Detroit's styling studios in a tizzy. American Motors officials, when asked at their new car preview about styling activities, joked "Oh, you mean the bumper shop." AMC chief stylist Dick Teague estimated that 25% of his staff's time is now taken up with trying to design a bumper that can take the gaff of the government's pendulum. Solutions to meeting the Federal requirements vary. Some bumper suppliers feel that the energy created by the impact has to be absorbed permanently. In other words, something has to crush. Others feel that recoil-type springs are sufficient, storing the energy only temporarily. It is the latter philosophy that resulted in North American Rockwell's volute spring. Nothing more than a wound metal coil which supports a heavy, thick gauge steel bumper. We watched a demonstration of Rockwell's volute spring-backed bumper, a broad flat-faced unit borrowed from a Ford Econoline van. Rockwell swung their pendulum (which simulates an oncoming car) into their bumper at a full 5 mph several times, even impacting it at a 45° angle (later on, the Government rules call for more than head-on protection). Yet the bumper stood firm, escaping entirely undamaged, even though Rockwell reports it impacted it more than 60 times. The only disadvantage to the Rockwell solution is the one posed by the problem of the potential danger of the retransmitted energy. Rockwell had hefty chains holding their Pinto in place, but without the chains it would have been possible for the Pinto to bounce back several car lengths after impacting the pendulum. For most parking lot type low-speed collisions, there isn't much danger, but out in open traffic, what you hit on the "bounceback" could put you in a worse situation than you were in at the time of the original impact. At any rate, there are drastic engineering problems to be solved before such a bumper could be put into mass production. The experimental Rockwell bumper weighed roughly 55 pounds, or almost four times what a stock Pinto bumper, with brackets, weighs. Adding that much weight both fore and aft to any car, especially a small one, is going to have detrimental effects on both handling and braking. The second problem is vibration. Rockwell's coil springs are partly extended already, and although Rockwell didn't say so, there are bound to be some vibration problems at speed when you hang a 50-lb. bumper on the end of the springs instead of solid supports. Now pity the poor stylists. The engineers, after months of testing, are going to walk in with a truck bumper and say, "Here, put this on every car for '75." The result could be like the AMF safety car proposal featured on the cover of MOTOR TREND awhile back — a Ubangi styled bumper, jutting far out from the body of the car. One thing the stylists have already found out is that trying to stamp a complex shape, such as a wrap-around bumper that'll take the impact, is tougher than making a flatter one. This could mean the end of bumpers styled to fit the body. Ultimately, the low-speed crash "bumpable" bumpers seem like a good thing. But, considering the National Highway Traffic Safety Administration's long-range goals, such as survival in a 50 mph head-on barrier crash, *un-belted*, we wonder if the concern for 5 mph bumpers is all time and money wasted in terms of the long-range goals. After all, when you hit that wall at 50, you're not going to be worried about bumper damage. One thing's sure. Detroit's no longer calling the shots on car design. It's the government now.

INTERNATIONAL REPORT

ing a 56 mph limit on regular roads, and a 75 mph top on freeways. Car manufacturers — especially B.M.W. and Mercedes-Benz — reacted so vigorously to the project, though, that no date has been set for the German cabinet to study the bill proposal.

ONE OF THE FIRST PROMISES made by Poland's new leader, Mr. Gierek, was that "universal motorization would be accelerated." To workers complaining about their low standard of living, Mr. Gierek promised an "economy car which would be within reach of broad groups of working people." Chances are that the new Polish car will be a local version of the Fiat 127, though Volkswagen and Toyota offered to help Poland build a car of their own making. So far, Poland is already producing the "Polski-Fiat," a slower version of the Fiat 125 powered by a 1.3 liter engine. The car is built in the Polski factory at Warsaw. The plant has an output potential of 250 cars per day, but most of the Polski-Fiats are made for export to occidental markets, where they cost between $300 and $400 less than similar cars out of Fiat's Mirafiori plant in Turin, Italy.

"SUPER-PORSCHE" WOULD BE THE best way to describe the 911S entered by Volkswagen Pacific at this year's Le Mans. Although the souped-up Porsche did not finish, we enjoyed seeing just how much further you can go with the same type of car that we tested in July. VW Pacific's 911S had many of its body panels replaced with fiberglass, and the engine was tricked up with two spark plugs per cylinder. The engine was also enlarged to 2381cc from 2195cc and ran a Weber 46mm carb rather than the standard Bosch mechanical fuel injection.

The compression ratio on the racer is 10.2 to 1 instead of 9.8 to 1 as on the stock 911S. Eight-inch wide wheels were put on the back and Goodyear 1045 racing treads were used all around, 7.7 inches wide in front and 9.5 inches wide in the rear. Drivers of the Super-Porsche were Alan Johnson and Elliott Forbes-Robinson, both of California. Team manager was Richie Ginther, former Grand Prix star. At the risk of repeating ourselves, we reiterate "... the 911S may be one of the last great, trick cars ever to be sold here at any price ..."

FORD OF BRITAIN spent $2.4 million to set up a new emission lab at its Dunton Research Center, purportedly the most technically advanced in Europe. Ford claims that this investment will ensure that all its engines will meet all current and pending European emission standards by the end of the year.

RISING PRODUCTION COSTS, along with noise, pollution and safety problems, is the biggest worry of German manufacturers, their chairman, Mr. von Brunn, said. Since 1962, the price index of cars has risen from 100 to 112, while the wage index has climbed to 119.

SAFETY BELTS are now compulsory in most of Europe. A recent survey showed that drivers, though equipped with the belts, are still quite reluctant to use them. Only 15 percent of all drivers put their belts on when alone in their cars. When they have a passenger alongside, 30 percent buckle their belts. The percentage rises to 80 percent only when the passenger himself takes initiative in using the belt.

RENAULT, PEUGEOT AND VOLVO have agreed to cooperate on developing and building new engines. A company will be founded by these three manufacturers, each of which will have equal rights in the new outfit. Engines will be produced in the factory being built by Renault and Peugeot at Douvrin, in the north of France. Contemplated output of the new plant is 350,000 engines per year once production is in full swing.

RALPH NADER took some time off his attacks on U.S. manufacturers to launch a series of bitter criticisms of British car makers. He stated that thousands were killed and injured in Great Britain because local manufacturers were not using safety devices in Britain which are compulsory in exports to America. "Mr. Nader should do his home work," one angry official replied in London. "For anybody to sound off like this is ridiculous," Ford-of-Britain's safety boss Kenneth Teesdale said. "It's a thoroughly unjustified statement based on ignorance more than knowledge." "Instead of criticizing Britain, Mr. Nader should get the U.S. to enforce some drink-and-driving laws. And what about getting Detroit manufacturers to use more disc brakes and radial ply tires, as we do?" another British government official said. Ralph Nader will have to try again before they start loving him in Britain.

THE RUSSIAN FIAT factory at Togliattigrad is expected to produce 160,000 units of the Soviet version of the Fiat 124 this year, and 560,000 next year. The USSR would thus produce over one million passenger cars per year for the first time in 1972.

OPEL LAUNCHED a stripped version of its 1.9 liter Rekord under the "Rekord Holiday" name. The car has a few gadgets less than the regular version, and sells for $110 less.

JAPAN

. . . Wally Wyss Reporting

MAZDA DOESN'T JUST MAKE ROTARIES, they make good ol' fashioned reciprocating-engined cars for the U.S., too, aimed at those buyers that haven't quite caught on to the fact that the rotary is The Engine of the Future. Their 1200 sport coupe is the reciprocating engine equivalent of their R-100 Sport Coupe and totes a 71.3-cu.-in. in-line overhead valve four rated at 64 hp (compared to 100 hp in the Wankel rotary version). The 1200 has the same suspension — strut with coils — up front and leafs out back as the R-100 but has a different rear end gear — 4.11 — compared to 3.70 for the

Wankel-operated version. The only advantage the 1200 has over its more powerful twin is a couple of hundred pounds less weight. Mazda's big "luxury" car, the RX-2, also has a non-Wankel twin, the 616, which is powered by a 96.8-cu.-in. in-line four with overhead valves. This car is almost identical to the Wankel rotary-powered RX-2, with a MacPherson strut suspension up front and a four-link coil suspension out back, but it offers an automatic transmission to replace the standard four-speed.

HONDA'S BIG CARS, as we said last month, are still more than a year away but that doesn't stop us from printing what our Man in Japan sends us on the models they've got out now. One of the most versatile is their 77 series, a family-oriented car that comes in both two- and four-door styles and is powered by a 1300cc overhead-valve four rated at roughly 95 hp at 7000 rpm. The 77 series is pretty up-to-date, with a MacPherson front suspension using coil springs and semi-elliptic leaf springs out back. It has an 88-inch wheelbase, about 9 inches shorter than a Vega's, and it tips the scales at just under a ton. Yet Honda claims it'll "top the ton" in speed, to use the British phrase for the 100-mph mark. Two of the other good things the 77 series has going for it are rack and pinion steering, like the Pinto's, and a four-speed trans. If all this intrigues

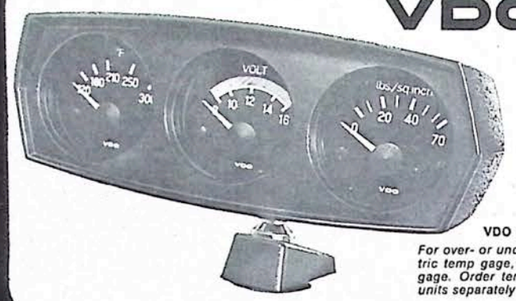
continued on page 26

Gratiot AUTO SUPPLY

WORLDS LARGEST HOT ROD SHOP

Mini Car Performance Headquarters

VDO INSTRUMENTS



An outstanding line of quality instruments for all cars. Highly accurate, very reliable.

We have a complete line of instruments for domestics, imports and mini-cars. VW specialists with custom in-dash replacement grills. Send 50c for full VDO catalog and decal.

VDO MINI-COCKPIT
For over- or under-dash installation. Electric temp gage, voltmeter, elect. pressure gage. Order temp and pressure sending units separately for proper application.
$29.95

TRANSISTORIZED TACHOMETER
Fits nearly any auto. Cup mount for steering column or under dash. In 2⅝" or 3⅜" face (specify). Includes dial pointer. To 8,000 rpm.
$56.00

GRANT MINI-CAR CUSTOM WHEEL

Hand-rubbed walnut with 3-hole spokes. Bonded, riveted smooth grip rim. Specify VW, Pinto, Vega, Toyota, Datsun, Gremlin.
13½" dia. **$24.95**

Also, foam plastic finger-grip style, cushioned for comfort. 13½" dia., black only **$10.95**

Adapter kits for above wheels (specify car) **$7.95**

BUGPIPES BY DOUG

Increase performance, horsepower, torque. And they look great.
$59.95

ANSEN MINI SPRINTS
13 x 5½
$29.95 ea.

(Accessories extra)
Also available: 13x7 & 13x8

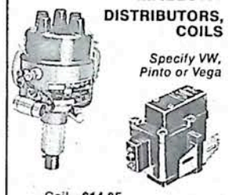
M/T WIDE OVALS FOR MINIS

D-70x13 7½" wide Fit standard or wide wheels. Blackwall only.
$32.95 plus Fed. Ex. Tax

RACING MIRRORS

$9.95 pr.
Tough Cycolac plastic. Unique two-piece base. Independent mirror head movement. Can be painted.

MALLORY DISTRIBUTORS, COILS



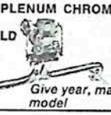
Specify VW, Pinto or Vega
Coil **$14.95**
Distributor **$29.95**

HOLLEY "BUGGY SPRAY" CARB

For off-road and dune buggies
#6113 300 cfm **$64.95**

HOLLEY "BUG SPRAY" CARB
#4691 300 cfm **$31.95**
#6244 200 cfm **$37.95**

ANDECK PLENUM CHROME INTAKE MANIFOLD FOR VW



$24.95
Give year, make, model

DUNE BUGGY DUAL CANNON EXHAUST

Your choice of black or chrome. Balanced length, dyno-tuned. Engineered to compensate for cylinder head offset.
Black **$31.95**
Chrome **$44.95**

ANDECK CHROME VW EXTRACTOR EXHAUST
All chrome, equal length tubes. Muffler vibration bracket. Megaphone tip. Includes all hardware, gaskets. It's a screamer!
#8101 '66-71 VW 1300, 1500, 1600
#8102 '63-late 65 & '61-63 40-hp Bus
#8103 Squarebacks and Fastbacks, all
#8104 '68 Bus only
#8105 All 36-hp
#8106 '61-63 early **$41.95**

ANDECK VW WOOD DASH KIT

Genuine walnut panels, 5/16" thick. Easily installed in minutes.
#7187 '68-71 VW **$8.95**

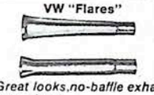
ANDECK INTERNATIONAL CAR PLAQUES

Metallic, pressure sensitive in national colors.
$1.20 ea.

VW SUPER STOCKER

Installs in minutes for a new sound and custom look.
#8110 **$17.95**

VW "Flares"



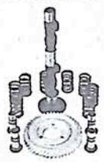
Great looks.no-baffle exhaust extensions.
#8108 Large **$4.95 ea.**
#8109 Small **$2.95 ea.**

CAL CUSTOM

VW BABY MOON HUBCAPS

Fit '68-71 VW
#20-1026 *set of 4*
$6.95

VW CAMS – the latest from General Kinetics



Cam only **$39.95**
(Lifters, springs, gear extra)

VW REMOTE OIL FILTER ADAPTER

$7.95

VW VALVE COVER

Fits 40-hp and over
#40-2400 **$12.95**

VW STRAIGHT SHIFT LEVER

#30-50-1P *no boot plain* **$5.85**
#30-50-1SP *no boot 4 speed emblem* **$6.45**

VW CURVED SHIFT LEVER

#30-52-1P *with boot plain* **$9.45**
#30-52-1SP *with boot 4-speed emblem* **$9.95**

VW WHEEL ADAPTER

Convert '66 and earlier VW to Chevy bolt pattern.
$8.95 pr.

VW AIR CLEANER
2" neck, 6½" dia., foam element
#CC701VW **$6.95**

VW WALNUT DASH KNOBS

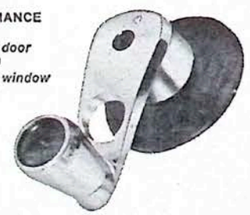
#30-41-13 *for late VW*
$5.50

Camaro, Corvette, Chevrolet, Cougar, Dodge, Dodge Scatpack, Firebird, Firestone, Ford, Goodyear, GTO, Mustang, Norton, Olds 442, Plymouth, Roadrunner, VW, BSA, Bultaco, Honda, Suzuki, Triumph, Yamaha, Hurst, Isky, Pinto, Vega, Peace Symbol, Ecology Symbol, American Flag

RACING DRESS SHIRTS

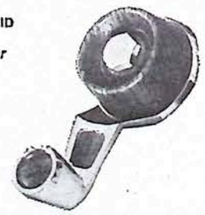
With emblem of your choice. Specify: Red, white, blue, yellow, gold, black; Small, medium, large, X-large; and emblem choice.

VW PERFORMANCE HANDLES



#30-306-2 *set door handles* **$5.50**
#30-307-2 *set window cranks* **$6.20**

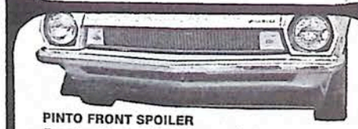
VW WALNUT INLAID HANDLES



#30-206-2 *set door handles* **$5.50**
#30-207-2 *set window cranks* **$6.20**

HOOKER HEADERS

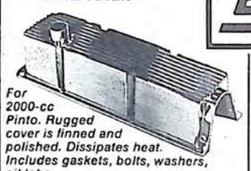
MINI-CAR BIG TUBE HEADERS
#6702 2000-cc Pinto
#2701 Vega
#8111 Datsun 240-Z
$54.95 @ $109.50



PINTO FRONT SPOILER
Functional at highway speeds. Easy bolt-on installation for great looks. Space age plastic is durable. (Specify Pinto, Vega, Mustang, Comet, Camaro, Cyclone).
$15.95

SPEARCO

FINNED ALUMINUM VALVE COVER



For 2000-cc Pinto. Rugged cover is finned and polished. Dissipates heat. Includes gaskets, bolts, washers, oil lube.
#2010 **$36.00**

FINNED ALUMINUM TIMING BELT COVER

Cast aluminum cover adds eye appeal to 2000-cc Pinto. Includes all hardware.
#2510 **$24.00**

FINNED ALUMINUM AIR CLEANER

Highly polished. Features washable, high-flow, low-loss poly-foam filter element. Emission outlets, hardware included.
#2610 *For Spearco Equa-Runner manifold/Holley 4-bbl.*
#2611 *For stock Pinto Weber/Ford carb* **$27.00**

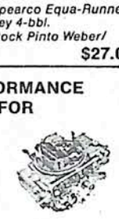
RACING VALVE SPRINGS
Take the 2000-cc Pinto beyond 6500 rpm reliably. Great with either Spearco cam above.
#1015 *Set of 8 springs* **$22.50**
#1016 *Set of 8 aluminum retainers for above springs* **$13.50**
#1017 *Set of rocker arms* **$13.50**

CARBURETOR LINKAGE KIT
Ball-bearing bell crank linkage with quick-disconnect ball rod ends. Complete for 4-speed or auto.
#4610 **$10.50**

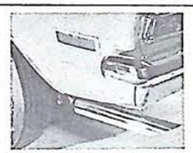
EQUA-RUNNER 4V ALUMINUM INTAKE MANIFOLD

#4010 **$52.50**
Ultimate for 2000-cc Pinto. Provides outstanding torque at bottom end, impressive top end performance. Equal-length runners. Emission hook-up provided. Best performance with Holley 4-bbl.

HI-PERFORMANCE HOLLEY FOR PINTO

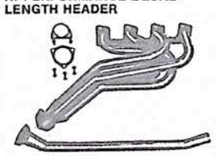


Recommended for Spearco Equal-Runner manifold. Special calibration and sizing for Pinto with 390 cfm. Provides solid 4-bbl performance throughout rpm range.
#R-6299 **$64.95**



PERFORMANCE EXHAUST SYSTEM
Features a glasspack muffler with dual chambers and twin tail pipes. Cut backpressure and add a mellow tone.
#3015 **$56.00**

HI-PERFORMANCE EQUAL-LENGTH HEADER



Makes a big difference on the two-litre engine. 1½" primaries merge into 2½" collector. Includes all hardware.
#3010 **$62.25**

FRONT & REAR STABILIZER BAR
Use either or both for fantastic improvement in handling. Normal or heavy-duty.
#5010 *Normal (½" dia. bar), front* **$22.50**
#5011 *H-D (⅝" dia. bar), front* **$26.50**
#5020 *Normal (7/16" dia. bar), rear* **$22.50**
#5021 *H-D (½" dia. bar), rear* **$26.25**

REAR TRACTION CONTROL KIT
Stop rear axle wind-up, wheel hop under acceleration, braking. Bolt-on kit, complete.
#5110 **$41.25**

PINTO PERFORMANCE CAMSHAFTS

Street/Strip cam for 4-speed or automatic 2000-cc Pinto. Slight lope at idle. Smooth response from idle to peak rpm. Add headers and big carb for maximum punch.
#1010 **$52.50**

The Killer. Long duration, more lift. For 4-speeds only. The 2000-cc really screams. Racing valve springs recommended. Add headers and big carb, then hang on.
#1011 **$52.50**

PINTO GT STRIPE KIT

Wrap-around stripes set your Pinto apart. Pressure-sensitive vinyl, paper backed for easy installation. Includes good instructions.
#7120 *White* **$19.50**
#7130 *Black* **$19.50**

BIG 20" JUMBO DECALS

For fenders, rear windows, deck lids. Specify brand.
$1.79
Chevrolet, GTO, Camaro, Ford, Pontiac, Plymouth, Dodge, Chevy, Pinto, Maverick, Vega, Cobra, VW.

HOW TO ORDER: Please list part number of products you desire, the year, make, and model of your car, and special shipping instructions if desired. (Normal shipment is by low-cost surface freight.) Send 25% deposit by certified check or money order, balance will be shipped C.O.D. including shipping charges. Personal checks require 15 days to clear prior to shipment.
Print or type all information, plus name and address, clearly and legibly.

USE YOUR BANKAMERICARD OR MASTER CHARGE
Send name of card, expiration date and 4-digit bank number

SEND $1.00 FOR ALL NEW 144 PAGE CATALOG

DETROIT • MADISON HEIGHTS • FLINT

Gratiot AUTO SUPPLY M.O. INC.
World's Largest Hot Rod Shops
Box 870- J9
Royal Oak, Mich. 48068

Gentlemen:
Enclosed please find ☐ $1.00 for New Catalog or ☐ $3.00 for catalog and t-shirt. I understand catalog price ($1.00) will be refunded with my first $10 order. Enclose 25%, we'll ship COD. Canadian residents add 10%.

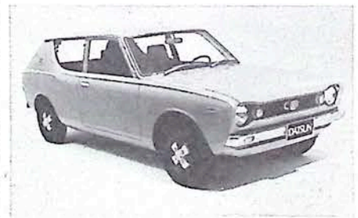
Specify t-shirt size:
☐ small ☐ medium ☐ large ☐ X-large

Name _____
Address _____
City _____ State _____ Zip _____
Car _____ Year _____ Model _____ Eng _____

you, now we'll throw in the "zinger" — the 77 is air-cooled! We don't know how they get away with it, but they do. Americans, except for their acceptance of the VW, have never really been receptive to air-cooled engines in cars. But if Honda can prove it works, maybe they'll duplicase the success they had with their motorcycles.

JAPAN DOESN'T WANT TO BE LEFT out in the cold when the auto makers of the world present their Stage I ESVs — experimental safety vehicles. That's why Japan's two giant auto makers — Toyota and Nissan (Datsun) — are working on ESVs in the 900 kg (c. 2,000 lbs.) class, or about the same weight as a Corona. Not only are the Japanese going to try and meet the crashability standards — which is a lot tougher with Corona-sized cars than it is with Oldsmobiles and the like — they are also going to work on controllability and visibility. Japan's budget for the operation seems small in some ways, but large in other respects. For instance, they're only going to spend $41,000 on the initial research but are going to spend 25 times that or almost $1½ million, on a test track for collision testing. The big bundle, almost $6 million each, will be spent on the production of the ESVs. All this goes to show that the Japanese don't intend to let Fiat, BLMC or any European auto maker beat them to the deadlines set up by the National Highway Traffic Safety Administration, which, in effect, is calling the shots in the auto industry in the '70s.

THE DATSUN CHERRY, THE GREAT little car we told you about almost a year ago, seems to be like Topsy, constantly growing in size. It started out as a cute little two-door but now it has a four-door and even a station wagon version. Built on a 92-in. wheelbase, about 5 in. shorter than a Vega, the Cherry, also called the 100A, is powered by a 1-liter four-cylinder engine mounted transversely over the



front wheels like Fiat's 128. It boasts 59 horsepower at 6000 rpm, is water-cooled, and weighs a mere 1,400 lbs. A five-seater, the 100A has an all-independent suspension and a four-speed. Aside from its Gremlin-mini-Charger styling, the 100A looks as if it would make a welcome addition to the U.S. mini-mini car picture, if only it could boost up that engine to at least match the Subaru's 1300cc four in size.

GTV · SPIDER · BERLINA

Alfa Romeo

It just so happens that three of the ten-best-imported-cars-under-$5,000 are Alfas./Story and photography by John Lamm

MT Comparison

It's cool at 7 a.m. in early June in California. The ocean has not warmed up yet to the temperature of the land and fog shrouds the coast for most of the day. Before I put the top down, I zipped up my jacket and moved the "temp" lever to hot. Two minutes later I was on the freeway. That was when it first came roaring back to me, this open, free feeling of running quickly down an almost empty road, top down, wind tangling my hair, in a car I enjoyed. It took »»»

me ten minutes to get to Santa Monica and pick up Chuck Queener, our assistant art director, and we headed out for the canyons north of L.A., looking for locations to photograph a Ferrari GTO a few Saturdays distant.

We headed up toward the mountains, climbing hard on the narrow road, the canyon wall on the left, a heavy drop on the right, twisting our way up and out of the fog and into the sunlight that already baked the mountain top. We spent the morning running up one canyon and back through another, sliding a bit, maybe even getting a little sideways occasionally, using up all the road propriety would allow. The weather was just right, the road a miniature Targo Florio and the car an Alfa Romeo Spider: a perfect hard-driving morning. We would take the engine to 6000 rpm, reach for 3rd to finish swallowing up a straight, then try to make a decent heel and toe coming back down for that sweeper that runs off to the right, up and around the top and back down the other side. For four hours we twisted and slid back and forth between the Pacific Coast Highway and the interior, not racing, just driving hard.

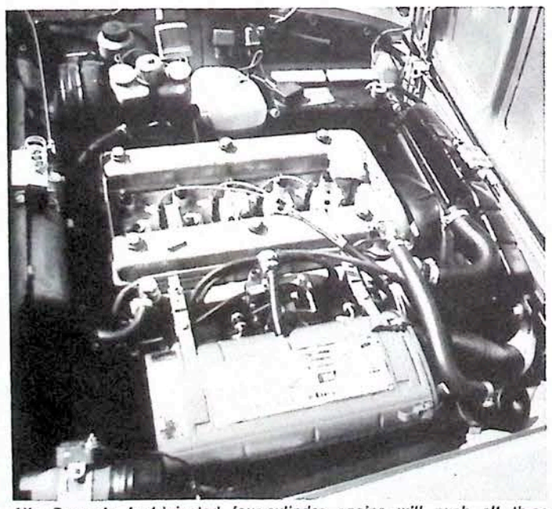
I always wonder if all the Alfas still feel as good as the last one I drove. I guess it's because of the present trend of the automobile in the U.S.; you try out a new car here, and you expect it to be less than the last one you drove. The new Z/28 Camaro is slow and discouraging compared to the '70 model. The cars are too timid. Yet here comes Alfa Romeo, not flinching a bit or holding back, but giving us the same fast, good-handling, well-built cars they've always given us. They gave in to fuel injection to meet the smog standards, but that is the only compromise and that wasn't necessarily a detriment; it dropped the engine power down 500 rpm and made the engine more satisfying over the whole power range.

But that engine still has dual overhead cams, aluminum alloy just about every place but the distributor cap, and even sodium-filled valves. The transmission is a five-speed for all three models, the open Spider, and 2 plus 1½ GTV and the four-door sedan Berlina. There are four-wheel disc brakes that make the 1750 Alfas the second shortest stopping cars tested by the U.S. government (Pantera is first and you could have two Alfas for that price). The suspension of all three, which is the same, is considered to be one of the best solid axle layouts in the world. Bodies for the GTV and Berlina were designed by Bertone and the Spider by Pininfarina, and that's a nice heritage. All that good equipment and they still meet U.S. safety specifications.

The present Alfa Romeo line got their "1750" name from one of the most famous sports cars, the Zagato-bodied 1750. The numbers represent engine size, 1750cc worth of six-cylinder, dual-overhead-camshaft, roaring power. Some were supercharged, some weren't, all were the benchmark for automobiles in the early thirties, culminating in the 1750 Gran Sport, still the premier Alfa. They get their 1750 (actually 1779cc) in four cylinders now, but power is greater than the original, 135 today, about 100 then. You can't get a Rootes-type blower anymore, the compression ratio has been raised from 5.25:1 to 9.0:1 and they did away with the external oil check (a float in the oil raised or lowered a graduated brass rod that stuck up through the block for reading) years ago, but now you have synchromesh in all five gears and hydraulic brakes, all for well under the old 1750's $7,000 price.

So far we've talked about the modern Alfa 1750s *en masse* because all three share the same engine, transmission differential, brakes, steering, wheels, suspension and automatic cigarette lighter. Differences within the Alfa line come when we start to discuss dimensions, body styles, handling and price. The only place to begin is the engine.

Right from the start, let's remember that the injection is not a racing injection; it's there strictly for smog purposes and isn't even available in Europe. Alfa didn't adapt the electronic Bosch smog injection as most manufacturers did, but installed their own SPICA mechanical plumbing. It's a direct port-type that involves a set of cam-driven plungers that measure out the fuel to each cylinder. They've eased the two big problems that plagued the early injection units by virtually eliminating the momentary bog when you first mash the throttle and cutting back the amount of backfire from the engine. However, the car will still pop and bang if you let your foot rest on the throttle when you cruise down a hill or up to a stop light. Embarrassing, but not dangerous. Then there's those sodium-filled valves that keep cooler, five main bearings, and the twin camshaft hemi-head. Horsepower tops out at 135 at 5500 rpm, while torque is 137 lbs.-ft. at 3000 but stays on in the 130s until 5300 rpm. Not a great drag racer, but fun on an open road. Actually the engine is well below potential rpm-wise, as the engine in its former 1600cc life was a 7000 rpm screamer. Now, with the red-line at 5700, you could miss a shift and over-rev it 1000 rpm and not worry about breaking anything (not that I'd recommend it). Over 5700 it just seems to rev on to no place.



Alfa Romeo's fuel-injected four-cylinder engine will push all three models over 110 mph and still give mileage in the 20-mpg range.

GTV interior is efficient and beautiful, though seats are a bit thin for some people. Like all the Alfas, GTV speedometer was incorrect.

Size plus classic Bertone design make GTV beautiful touring car for small families and one of the nicest imports, regardless of price. Handling and brakes are superb in the Alfa manner.

Spider is the free spirit of the Alfa line and the best for outright fun driving. Convertible top is one of the best in the world, a one-man, in-car operation. The car's finish is excellent.

Berlina has same drivetrain as GTV and Spider, but carries four adults easily. Storage space abounds with a 12.5 cu. ft. trunk. Seatbelts, though, are an utter disaster in all three cars.

That fuel injection is built to help the engine run as lean and efficient as possible and that does nice things for mileage, with all three cars running in the 18-25 mpg average. City traffic does take a heavy toll, being the 18 end, while the freway will run as high as the 25, so the engine is very hungry when worked hard. At the same time, you can spot any problem with the injection system by an immediate drop in mileage.

Like we said, the engine is the guts of the whole Alfa Romeo mystique and this four is another to pass that tradition on, in fact being more agreeable than the carbureted 1600cc engines that we got in the early sixties. It makes you chuckle to feel that power turn on at 3000 and carry you on through to 5500 while you pull away from the Porsche 912 behind you. And you should see the looks on the faces of the gas station attendents when you pull in with the boxy Berlina and lift the hood.

"Whatsat?"

"Just the engine."

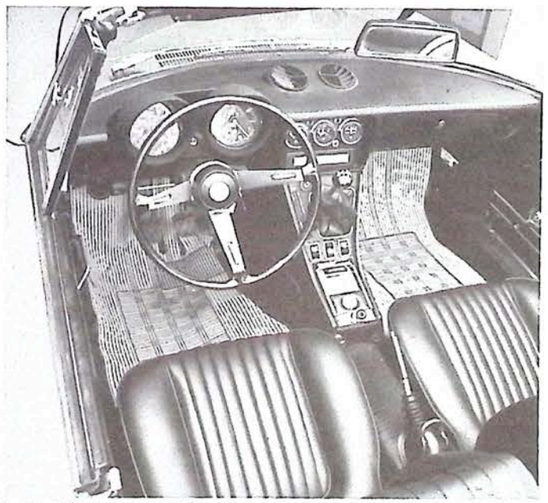
"Yeah, but are those cams up there? Hey, what kind of car is this anyway? Ernie, come here 'n look at this."

Almost worth the price of admission alone.

Five-speed gearboxes are the rule on all the Alfas and make it a lot easier to use that engine properly. They're very smooth, even in drag racing-type acceleration runs and fifth gear makes 70 mph an economical 3500 rpm. Power twists back to one very pretty rear end, a ribbed aluminum case enclosing the final drive gears. I mean this differential is more than just functional, it's pretty.

Before the Pantera, the Alfas were the quickest stopping cars the government had tested and all three are grouped in the statistics as one set of cars. With almost 400 square inches of swept brake

››››



Spider interior is rugged for top-down driving and occasional rain or dew. Typical Alfa instruments were well placed and easy to read.

Berlina has most comfortable interior, plenty of legroom front and rear. Car needs better ventilation as do the Spider and the GTV.

GTV·SPIDER·BERLINA

Berlina, Spider, GTV are three of the best handling, fastest stopping, well finished cars sold in the U.S. Prices are high, but fair.

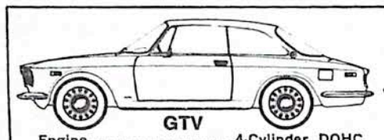
area, they'll haul the cars down straight, with just a twitch at the end, bringing the tail out. There's a servo assist and brake pressure modulator and separate drum handbrake system to fill in the system details. Those government brake tests, by the way, are without brake lock-up, while ours are, which explains why the Alfas are not the second fastest stopping cars we've ever tested. We don't feel most average drivers do anything other than just nail the brakes, though the average Alfa driver is probably sharp enough to bring the car down without that skid-producing lock-up. If he isn't sharp enough, he gets a set of thumpity-thumpity flat-spotted Pirellis for his dumbness.

Strangely, Alfa steering could be either worm and roller or recirculating ball, probably depending on outside suppliers at the factory and which day the car is built. Regardless, they're both precise steering, with minor differences we'll mention later.

Suspension for all three cars is identical, except for slightly stiffer spring rates in the Berlina, to allow for the car's additional 150 pounds. Up front is an independent suspension with unequal A-arms, coil springs, tube shocks, and an anti-roll bar. In back is that famous solid axle suspension, with the axle located by trailing arms at the ends and in the middle by a torque reaction T-bar, all mounted to the frame with rubber bushings. There are coil/shock units and again, an anti-roll bar. The cars' suspension act basically the same, with some differences we'll note later, but overall, it gives all three Alfas quite a decent ride along with traditional fine handling. It may be a bit rough for some, but that problem only shows up in one model, the GTV, and that's more a problem of too thin seats.

That's basically what makes up the Alfas mechanically, but despite their common parts, all three cars have very different personalities and the same person could love one and not the others. Alfa's managed to do a better job of commonizing than Detroit, without getting caught in the dullness that goes with common pieces.

continued on page 112



GTV

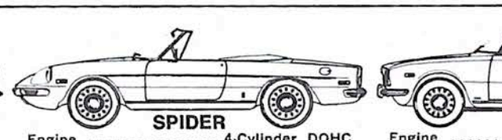
Engine	4-Cylinder DOHC
Bore & stroke	3.15 x 3.48 ins.
Displacement	108.4 cu. in.
HP @ RPM	135 @ 5500 rpm
Torque	134 lbs.-ft. @ 5000 rpm
Compression ratio/Fuel	9:0:1/Premium
Carburetion	Mech. fuel injection
Transmission	5-Speed
Final drive ratio	4.55:1
Steering type	Recirculating ball or worm & roller
Turning diameter	36.6 curb-to-curb-ft. 3.5 turns, lock-to-lock
Tire size	165HR14 on 5.5 in. wheels
Brakes	4-Wheel discs
Suspension: front	Independent — unequal A-arms, coil spring, tube shocks, anti-roll bar
Suspension: rear	Solid axle — located by trailing arms, transverse T-bar, coil/shocks, anti-roll bar
Body/frame construction	steel unit
Wheelbase	92.5 ins.
Overall length	161 ins.
Overall width	62.2 ins.
Overall height	51.8 ins.
Front track	52.1 ins.
Rear track	50.2 ins.
Curb weight	2,292 lbs.
Fuel capacity	12 gals.
Oil capacity	7.1 w/filter

Performance

Acceleration:	
0-30 mph	3.4 secs.
0-45 mph	6.5 secs.
0-60 mph	10.4 secs.
0-75 mph	16.2 secs.
Standing Start ¼-mile	80.93 mph, 17.0 secs.
Passing Speeds:	
40-60 mph	5.1 secs.
50-70 mph	6.2 secs.
Speeds in gears*	
1st ... mph @ rpm	26 @ 5700
2nd ... mph @ rpm	43 @ 5700
3rd ... mph @ rpm	64 @ 5700
4th ... mph @ rpm	86 @ 5700
5th ... mph @ rpm	95 @ 5000
Mph per 1000 rpm	19.0 in top gear
Stopping distances:	
from 30 mph	23 ft. 7 ins.
from 60 mph	125 ft.

Speedometer error:

Electric speedometer	30	45	50	60	70	80
Car speedometer	34	49	54	64	75	85



SPIDER

Engine	4-Cylinder DOHC
Bore & stroke	3.15 x 3.48 ins.
Displacement	108.4 cu. in.
HP @ RPM	135 @ 5500 rpm
Torque	134 lbs.-ft. @ 5000 rpm
Compression ratio/Fuel	9:0:1/Premium
Carburetion	Mech. fuel injection
Transmission	5-Speed
Final drive ratio	4.55:1
Steering type	Recirculating ball or worm & roller
Turning diameter	36.6 curb-to-curb-ft. 3.5 turns, lock-to-lock
Tire size	165HR14 on 5.5 in. wheels
Brakes	4-Wheel discs
Suspension: front	Independent — unequal A-arms, coil spring, tube shocks, anti-roll bar
Suspension: rear	Solid axle — located by trailing arms, transverse T-bar, coil/shocks, anti-roll bar
Body/frame construction	steel unit
Wheelbase	88.5 ins.
Overall length	162.2 ins.
Overall width	64.1 ins.
Overall height	50.8 ins.
Front track	52.1 ins.
Rear track	50.2 ins.
Curb weight	2,292 lbs.
Fuel capacity	12 gals.
Oil capacity	7.1 w/filter

Performance

Acceleration:	
0-30 mph	3.4 secs.
0-45 mph	6.3 secs.
0-60 mph	10.30 secs.
0-75 mph	16.0 secs.
Standing Start ¼-mile	80.86 mph, 17.0 secs.
Passing speeds:	
40-60 mph	5.2 secs.
50-70 mph	6.1 secs.
Speeds in gears*	
1st ... mph @ rpm	25 @ 5700
2nd ... mph @ rpm	41 @ 5700
3rd ... mph @ rpm	61 @ 5700
4th ... mph @ rpm	82 @ 5700
5th ... mph @ rpm	96 @ 5300
Mph per 1000 rpm	18.1 in top gear
Stopping distances:	
from 30 mph	35ft. 2 ins.
from 60 mph	141ft. 4 ins.

Speedometer error:

Electric speedometer	30	45	50	60	70	80
Car speedometer	33	49	55	66	76	87

BERLINA

Engine	4-Cylinder DOHC
Bore & stroke	3.15 x 3.48 ins.
Displacement	108.4 cu. in.
HP @ RPM	135 @ 5500 rpm
Torque	134 lbs.-ft. @ 5000 rpm
Compression ratio/Fuel	9:0:1/Premium
Carburetion	Mech. fuel injection
Transmission	5-Speed
Final drive ratio	4.55:1
Steering type	Recirculating ball or worm & roller
Turning diameter	36.6 curb-to-curb-ft. 3.5 turns, lock-to-lock
Tire size	165HR14 on 5.5 in. wheels
Brakes	4-Wheel discs
Suspension: front	Independent — unequal A-arms, coil spring, tube shocks, anti-roll bar
Suspension: rear	Solid axle — located by trailing arms, transverse T-bar, coil/shocks, anti-roll bar
Body/frame construction	steel unit
Wheelbase	101.2 ins.
Overall length	172.8 ins.
Overall width	61.6 ins.
Overall height	56.3 ins.
Front track	52.1 ins.
Rear track	50.2 ins.
Curb weight	2,442 lbs.
Fuel capacity	12 gals.
Oil capacity	7.1 w/filter

Performance

Acceleration:	
0-30 mph	3.6 secs.
0-45 mph	6.5 secs.
0-60 mph	10.7 secs.
0-75 mph	16.6 secs.
Standing Start ¼-mile	77.0*see text, 17.8 secs.
Passing Speeds:	
40-60 mph	5.6 secs.
50-70 mph	6.8 secs.
Speeds in gears*	
1st ... mph @ rpm	26 @ 5700
2nd ... mph @ rpm	43 @ 5700
3rd ... mph @ rpm	64 @ 5700
4th ... mph @ rpm	86 @ 5700
5th ... mph @ rpm	91 @ 4800
Mph pe. 000 rpm	18.9 in top gear
Stopping distances:	
from 30 mph	28 ft.
from 60 mph	134 ft. 9 ins.

Speedometer error:

Electric speedometer	30	45	50	60	70	80
Car speedometer	34	49	54	66	76	87

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

Ford Gets With It

All new Torino, Montego and Thunderbird. Mark III becomes Mark IV and FoMoCo holds the line with Pinto, Maverick and Comet / By Jim Brokaw

Ford has had their best idea yet – playing it straight. The annual long-lead new car press preview, held by all of the leading manufacturers, often comes off as the biggest dog and pony show of the year, rivaling reelection campaigns. Cries of "longer, lower, wider," and the "best ever," echo off the tinkling glasses of a jaded press. Not so this year. Cold, hard facts, with bone-chilling implications were read off without hesitation and without apology. In areas where Ford wasn't making it they said they weren't making it. On other fronts, where progress was slower than expected, the lecturing brass explained without equivocating or making excuses. The unabashed candor was as refreshing as it was surprising.

This doesn't mean that Henry Ford wears "Ecology Now" sweatshirts under his tailor-made double-breasted, nor that Lee Iacocca drives a '60 Falcon with chicken-track bumper stickers; but it does mean that the Pinto is receiving only necessary engineering changes to improve it and that the Maverick is subject only to running change, as customer input dictates. The sheet metal remains the same. Only the T-Bird is longer, lower, wider.

In matters environmental, Ford is deeply involved and making measurable, though painful progress as outlined further in our story. In matters automotive, the big news from Dearborn is the new Torino. Vividly contrasting the ogreish portrait painted by a certain unnamed champion of causes diverse, the corporate brass at Ford still believe in the love affair between the American people and the automobile. In the words of John Naughton, V.P. and Ford Division general manager, "The Torino is part of the latest effort to restore the gleam in the eye of the customer."

Torino is presented as the logically sized car for a wide range of potential buyers. The immediate objective is to recapture the 20 percent of the intermediate buyers who have fled to other fields between 1968 and 1971. The racy styling is for youth appeal, but the long wheelbased four-door model is specifically tailored for the big car buyer who will no longer be able to afford a big car when the price tag for safety and emissions is added to the recently elicited UAW wage increase, all of which will mean higher prices on the window sticker. The mass migration from standard sized cars to intermediates isn't likely to occur this year, but price alone will provide the impetus for some downward mobility, snob appeal notwithstanding.

Torino, and cousin Montego, are completely new, from the separate chassis/body to the different length wheelbases. Following the lead of GM and then Chrysler, Ford has put the two-door version on a short wheelbase, 114 ins., which lends itself to a convenient styling treatment as well as improving maneuverability, while the four-door model has a long wheelbase, 118 ins., to accommodate a full load of passengers in "big car comfort." They're not too far off in size; the 1964 Ford Galaxy wheelbase was 119 ins.

The primary reason for switching to a separate body/chassis was an effort to achieve the super quiet environment of the big Ford. The sound of silence was partially acquired by the use of a multiplicity of hollow rubber "hockey pucks" placed between the frame and the body. They do the trick. The old front coil, rear leaf spring suspension has been completely redesigned. The front coils are now frame mounted and the rear suspension is a four-link coil setup with a sway bar, which complements the silence with a new softness of ride heretofore not experienced in the Torino line. Some handling is sacrificed, but the basic differences in the two concepts is in technique of cornering rather than in total capability.

Torino comes in a two-door formal or notchback roof, a four-door formal roof and a four-door wagon. These are scaled according to elegance of decor in two levels: Torino, and Gran Torino. Gran Torino Sport is the class title for the top of the line two-door formal and the two-door fastback. The ultimate wagon is the Gran Torino Squire, modified to include color-matched wood grain trim.

Standard front disc brakes have been enlarged and improved over the '71 discs. Front bumpers are bolted directly to the protruding members of the "S" type front frame. A mini-steering column affords driver protection on impact while permitting greater placement flexibility. Diminutive drivers will no longer have to reach up to grab the wheel. Instrument panels have been modularized with a full bag of engine monitor gauges available as an option.

Styling of the four-door is there, but not much of a turn on. The two-door notchback is also among the reserve comment category, but the fastback tends to grow on you. At first glance it may not flip you out the door, but the second look will likely bring a smile of approval at the blending of lines and contours. Styling is, however, always a matter of taste. You may not like it at all. The true test of a fastback model is how it looks with a new paint job and numbers on the door.

Thunderbird is longer and taller, rather than lower and wider. The reason for the increase is to give the passengers more head, foot, back and side room. A 5.8-inch stretch of the wheelbase produced 0.7 in. of extra front leg room and a whopping 4.4 ins. in the back seat. As a four-passenger personal car, the Thunderbird is quite roomy, but we wonder how big it will get before there is enough room to get everyone comfortably seated.

The standard power plant is the Cleveland-based 400 cid 2V engine with the 429-4V as an option. The 400 has canted valves and round ports for better breathing. Both engines have been desmogged for '72 and are configured to burn regular fuel.

T-Bird utilizes the same type suspension as the Torino; however, there is a more liberal application of rubber isolation material as well as a bit more time spent on the computer to reduce noise, vibration and harshness (referred to as N.V.H. characteristics in contemporary engineering shorthand), regarding suspension tuning. Standard Michelin-X 215R15 BSW steel belted radial ply tires complete the

Ford Gets With It

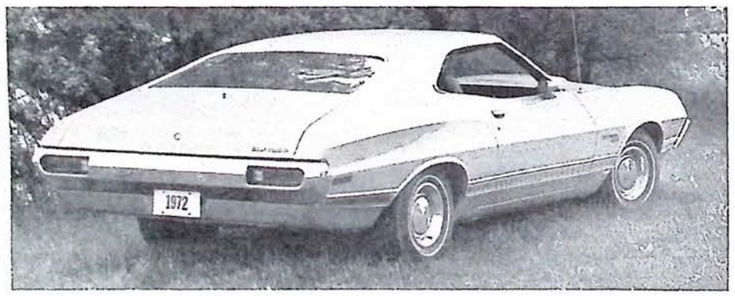
suspension package, which does produce a fine "boulevard" ride.

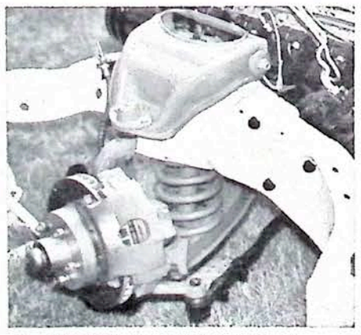
Other comfort improvements include an optional air conditioning system available throughout the line, with automatic temperature control incorporating 46 percent larger condenser and a continuously operating multi-cylinder compressor.

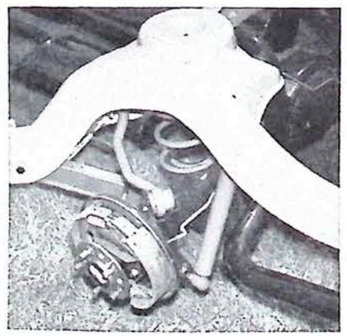
The revised power door-locking system employs minimeters in place of the old vacuum setup.

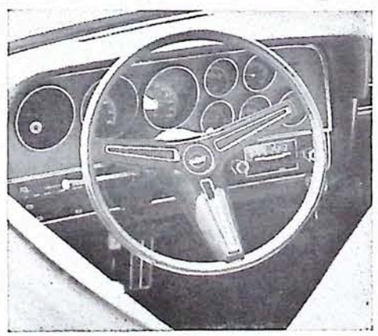
Pinto and Maverick are right in the middle of the combat zone. Five years ago, small cars accounted for 15.1 percent of the industry. That's small cars, not just imports. In 1970 the figure was up to 26.5 percent and the 1971 model year trend looks like it will peak out at a thumping 34 percent. Of that 34 percent the imports eat up just under half. While the move toward small cars may grow, Pinto has made great strides in turning the focus from the imports toward domestics. Naturally VW is the largest selling sub-compact, but Pinto ranks second. That's not too bad considering that VW lumps all of their models under one figure, and they've been at it for 20 years, while Pinto is finishing up its first year. It still isn't good enough. John Naughton stated, "As long as the imports are taking 16.6 percent of the U.S. market, no domestic manufacturer can be completely pleased with the job he is doing in the small car market."

Pinto and Maverick were conceived as long-term models subject to running changes as needed, with no gingerbread gewgaws for the sake of advertising copy. Ford has stuck to their word. Pinto changes are minimal and logical. The most obvious change is the enlargement of the rear window in the hatchback Runabout. The vertical dimension is 8 in. longer for greater visibility. Other changes just add to Pinto's desirability. Carpeting is standard; latch knobs on seat backs have been moved outboard; clearance between the brake pedal and the trans tunnel has been increased; units with 2-liter engines have standard disc brakes; the fresh air vent control system has been improved; and side guard door protection will be added later in the year as a running change. An illustrated service manual gives the Pinto owner a chance to do it for himself.









Above and left: Gran Torino Sport, top of the line fastback with 114" wheelbase, separate chassis. Below left: New front suspension with coil between frame and lower arm. Manual disc brakes standard, have 70% more piston area. Below center: Rear coil/link suspension for smoother ride. Below right: Optional performance dash with canted gauges.

Maverick picks up a 2.79:1 rear axle for the 250 cid six for improved fuel economy. Radial ply tires are also available. Running changes already incorporated are the addition of a 302 cid V8, 14-in. tires and wheels, staggered rear shocks and a four-door version for greater seating capacity. The most amazing phenomenon associated with the Maverick has been the Grabber. By flat-blacking the hood and sticking on a couple of stripes, the Plain Jane Maverick turned sporty and is selling so well that the Grabber is listed as a separate model. Revised striping and paint treatments are new for '72.

Mustang remains virtually unchanged except that the 351, in either two-barrel or four-barrel configuration, is the largest engine available. The 351 4V packs adequate street power but lacks crispness.

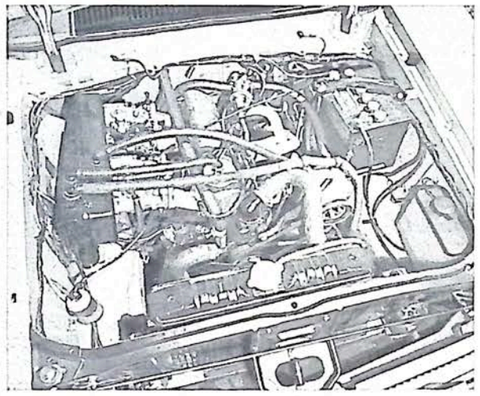
The big Ford gets a new grille, front and rear bumpers and not much else.

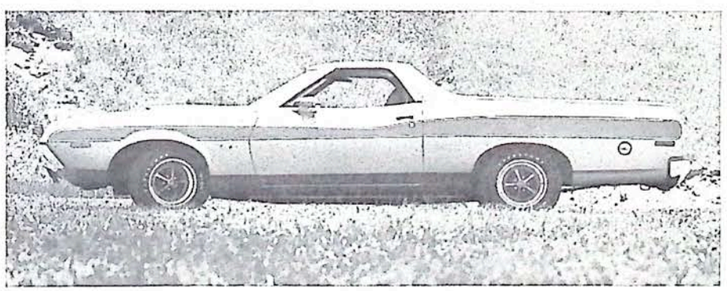
Technical changes shared by the entire line include buzzer and flashing light when belts are not hooked up. This aid to safety will be included in the line on 1 Dec. 1971. A new mini AM/FM and AM radio with micro circuits is available throughout the line.

LINCOLN MERCURY

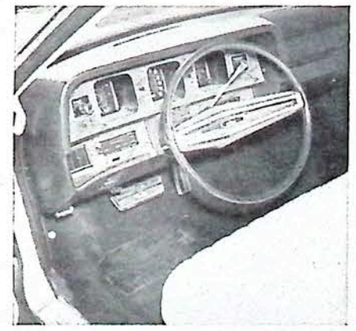
Although there is an intense inter-divisional rivalry between Ford and Lincoln-Mercury, there is a tendency on the part of the public and press alike to lump the two together, since there is a marked similarity between cars. Commonality of major components is obvious; the primary difference is in the grilles and interior decor. Lincoln-Mercury is essentially the "uptown" end of Ford. There is a second difference which is subtle but quite profound. Lincoln-Mercury puts a heavy emphasis on customer identification. It is interesting to note that the bulk of the L-M buyers have a median age in excess of 39, implying a rather high income and a sophisticated taste for comfort.

The two big changes at L-M are the Montego and the Mark IV. Montego contains all of the engineering features of its counterpart, Torino, with a bit of distinctive styling. The notchback version is very strongly Cougar in profile. The grille was intended to be Cougarish, but the net result comes closer to Pontiac Grand Prix. In any event, it is different and there is no way to confuse it with Torino. The fastback model has a distinct appearance all its own. It would look very good in racing trim. »»»





Above left: Stage 5 Pinto engine bristling with bolt-ons. Above: Wild striping options are already hot on West Coast. Both are slated as options later in the model year. Left: Ranchero GT with stripes and scoops for all-new profile. Below left: Super quiet LTD has minor grille change for '72. Below right: Mercury Monterey retains top quality interior.



Ford Gets With It

Capri will continue unchanged. Although price information is not available, it is reasonable to assume that they will retain their prime selling point of under $2,400.

For the true sports car fans, L-M is, after two false starts, marketing the mid-engine Pantera. The two-passenger coupe has a 351-4V engine, weighs 2,860 lbs. on a 98-in. wheelbase, features a monocoque chassis and an all-steel body. The power is most adequate and the handling is as close to dead neutral as you will find. No understeer and no oversteer. Just point it and punch it and hang on. The price tag will be up around $10,000, so most of us will just look with envy.

Comet is thankfully unchanged except for a few hardware improvements. The GT version has caught the public eye, accounting for one-sixth of the Comet sales, and with minor improvements could be the best small car made in America.

Cougar is also unchanged, which will undoubtedly please the potential repeat Cougar buyers.

The big Mercs have a new grille, quite strongly reminiscent of Cadillac. The net result is to lower the focal point of the front end, giving it the appearance of being lower. Some very nice visual legerdemain. All of the luxury is retained with some improvements in seating comfort and safety having been incorporated. A power sun roof and radial steel belted tires are new options.

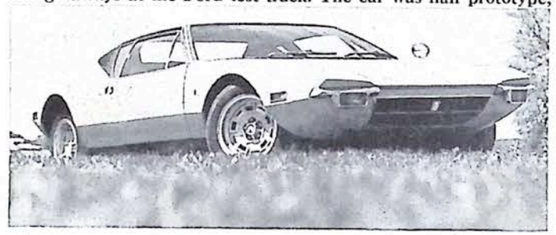
Lincoln Continental remains the ultimate statement of august dignity and affluence. Minor decor modifications have been effected, but only the fold-down hood ornament is unique to the empress of the line.

Continental Mark III has been supplanted by the all-new Mark IV. Having been previously discussed in great detail in our August issue, an analysis of the effect of the many changes shall have to wait for a road test.

The entire Ford Motor Company line-up is following current company policy of minimizing annual product changes

Above: Cougar is unchanged.
Below: Comet GT remains as is.
Above right: Swift Pantera.

Mercury's super import, the Pantera, has been announced, introduced and presented so many times its very existence has been argued and speculated on. This time, it must be here for real, because it was part of Ford's 1972 advance press preview. We first drove the car about two months prior to the preview, making acceleration runs on one of the high speed straightaways at the Ford test track. The car was half prototype,



Pantera

half production, but said to be representative of the average car sold.

Mid-engine cars are usually expensive enough that their interiors are a bit more exotic than your average sports car. The Pantera is a nice blend of both, though deTomaso put the critical points on the tach and speedometer (6000 rpm and 50-70 mph) right behind the steering wheel. The seats were comfortable for us, though the steering wheel was just a bit far away in relation to the seat. Finish inside was pretty good, especially considering the car had been passed around the Mercury staff and probably taken a lot of entrances, exits, switch-switching and fabric fondling.

They've put the shift pattern on a very smart Ferrari-like gate meant to guide you properly through the gears. Fair enough, and when we had taken the car for several warm-up trips on the straight, we came down from fifth to first, trying each slot. Clocks ready, rpm up, out with the clutch. Only we didn't move much and the revs skyrocketed. Quick! in with the clutch and off the gas. Being in first gear, I thought we'd messed up the clutch in their beautiful toy. It seems, though, that while I was in the first gear slot, the car was in third. It happened again while checking the linkage and just meant that we had to be very careful shifting. We were promised it would be removed before production started. We hope so.

Acceleration is what you'd expect from a Ford 351 Cleveland in a 2,860-pound car, more than enough to keep you busy. Briefly, 0-60 was a very swift 5.4 seconds, while the quarter-mile times were at 13.90 secs. and 101 mph. Most impressive, also, were the braking tests. Up till then, the best car we'd stopped was a Lincoln (honest) in 105 feet from 60 mph. The Pantera pulled down from 60 in 97 feet, very straight, very quietly. We thought we'd made a mistake, but on the second run, it did the trick in 99 feet. That must be why Federal tests place it number one among all cars sold in the U.S. on braking performance.

Handling was a guess for us, as that test was more a matter of dodging frost-heavy potholes on the handling course. It felt very good, though we'll be able to tell more when we get it on a skidpad.

A nine grand price tag makes the Pantera a bargain deal, with the final purchase tab being in the $10,000-Porsche-911S bracket. Best part, though, is that you'll be able to have it fixed in Cross Plains, Wisconsin. /MT

for mere styling purposes. The objective improvements are for safer, cleaner, simpler cars. A remarkable bit of common sense displayed by the Dearborn gang.

When I learned that Ford was replacing the Torino rear leaf springs with coils and links, my initial reaction was "sell out." The handling of the Torino has been consistently at the top of the industry, particularly the competition suspension. In order to put the mind at ease, we set up a head-to-head showdown at the Dearborn test track.

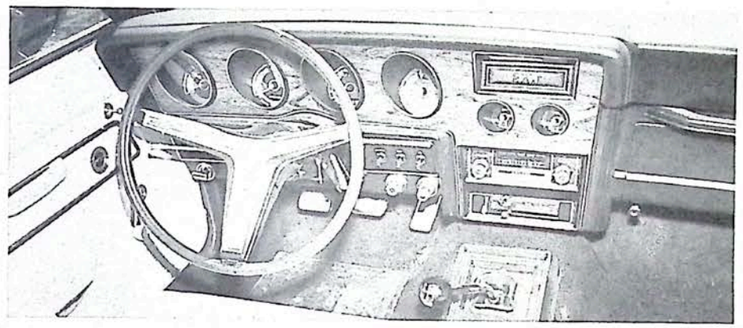
As a preliminary to the actual driving test, I interviewed Irv Usner, the Torino suspension project engineer. It turns out that a great deal of preliminary planning had gone into the decision to change springs. The new standard suspension is primarily intended to produce a smooth, quiet ride, while retaining as much handling as possible, but comfort comes first. The heavy-duty suspension is again primarily for smoothness and quiet, but with a load. The planned load is a trailer of same sort, rather than an on-board load. Previous HD setups gave ultimate performance with the load. The new one gives best ride without the load, since most of the driving will be unladen.

The competition version, which was my prime concern, was developed from suggestions by the Los Angeles Police Dept. from their extensive use of the Montego. The '71 version was tailored to achieve maximum handling without using a rear sway bar, resulting in a pretty harsh ride. Truly dedicated backsides did not complain, but evidently spending eight hours a day thrashing up and down was a bit much. Hence, the coils and links.

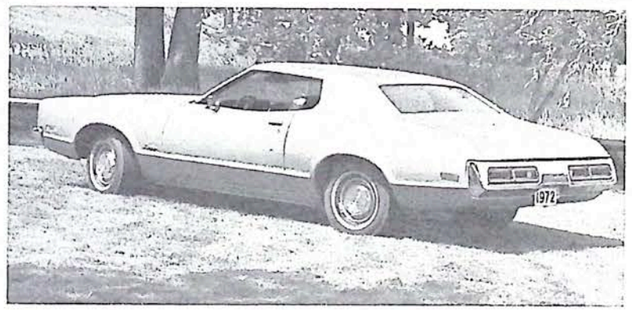
The '72 competition suspension is computer designed to permit maximum cornering without inadvertently going into oversteer. Oversteer is to be a power related function, so that an officer in pursuit won't have to broadslide out of a blind corner. Police work is the target, with maximum effective use of the suspension requiring a driving skill that is a cut above the average. The police criterion is to enable the driver to have a bit of fun when road conditions permit, without scaring himself.

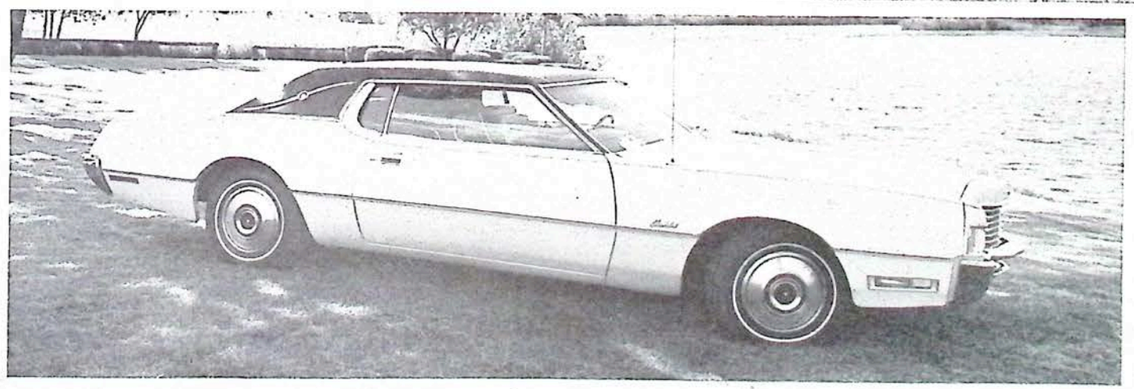
I met Ford Ride and Handling Development Engineer, Carl Wenzel out on the handling course with a 1971 429 Cobra and a '72, 351-4V Torino engineering prototype. I chased him around the course in the Cobra; then we switched cars and went at it again, and again. After a thorough wringing out of both cars I came away with two distinct impressions; first, Carl is one fine driver, and second, the

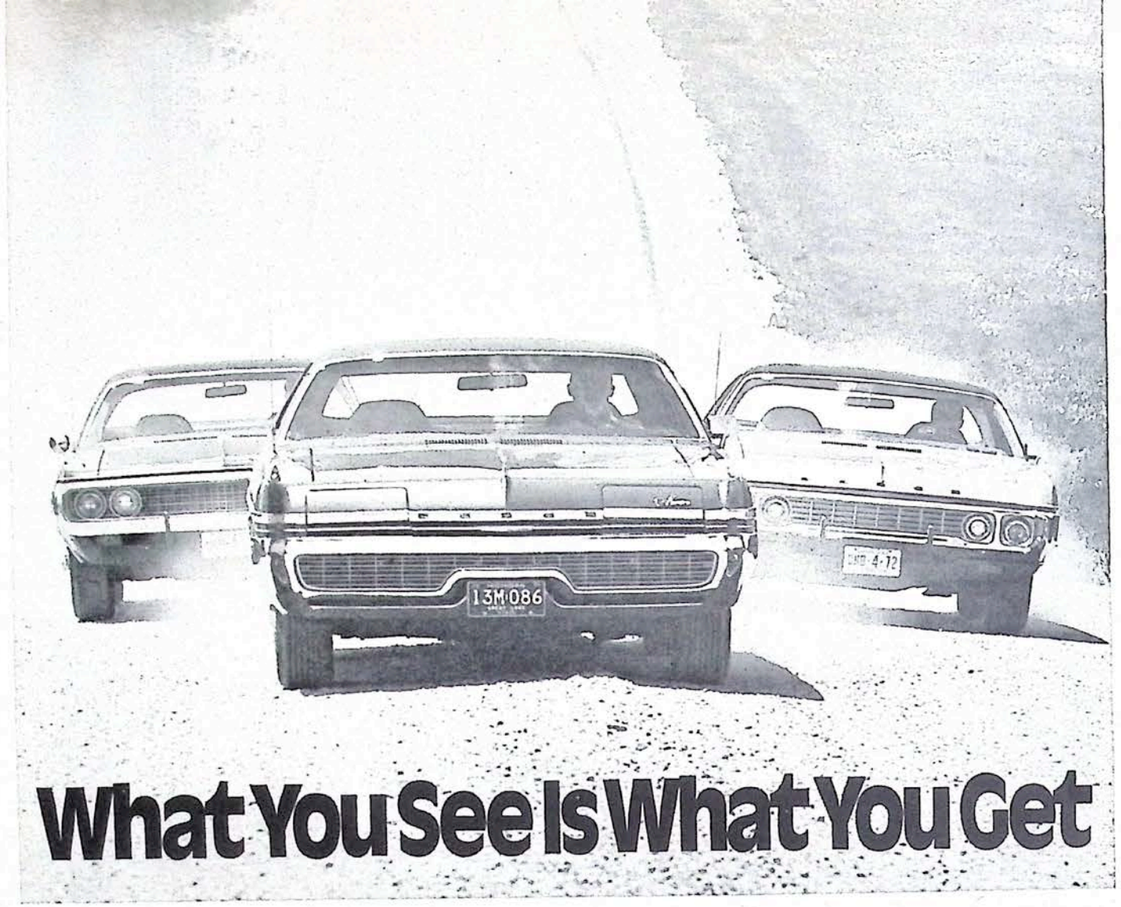
continued on page 106



Left: Cougar XR7 dash with full instrumentation, canted hoods, toggle switch controls. Below right: All new Montego GT fastback version of totally restyled intermediate line. Below left: Montego formal roof two-door acquires elegant lines of Cougar, luxurious, comfort oriented interior. Bottom: Thunderbird is the last word in personalized transportation with a flair.







What You See Is What You Get

Chrysler Corporation has again participated in the "Annual Re-style," perhaps the last we'll see in a long, long time / By Wally Wyss

Perhaps it is all semantics but somehow the '72 Chrysler-Plymouth-Dodge preview seemed to be more like a full-scale retreat rather than what an "administration spokesman" would refer to as a "strategic withdrawal."

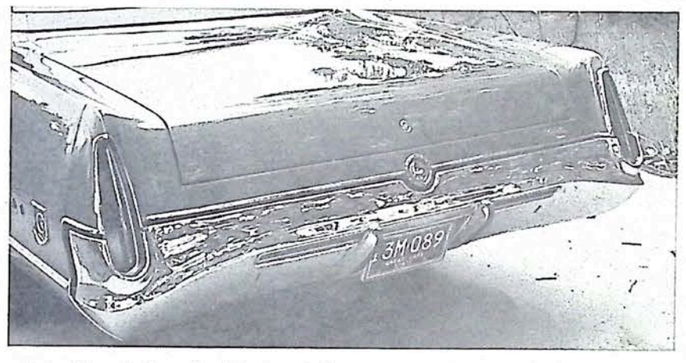
A retreat from what? From the Annual Model Change for one thing. Not only have consumer groups rallied against the old change-for-the-sake-of-change practice, but, with the extensive safety modifications required in the near future, nobody's going to waste money on purely cosmetic restyling of all their models. The second thing which shows signs of diminishing is the multiplicity of separate models. It's easier to offer option packages. For instance, Dodge has discontinued its R/T model but now offers a Rallye package which includes essentially the same suspension mods and trim. Even the number of engine, transmission and rear axle combinations has been reduced, partly for simplification, partly because the government requires every possible powertrain combination to be tested for emissions (including a 50,000-mile reliability cycle to see if the smog gear still works), and partly because the public is baffled by the array of choices. It's a lot cheaper, then, for the manufacturer to cut down on the number of mixes than to test dozens of combinations. This may lead to a further reduction of choice in the future, a sort of "what you see is what you get" philosophy. Besides the emissions bugaboo, there is also the problem of quality vs. the assembly line. By lowering the number of variations available, there's less chance the workers can screw on the wrong parts. That's why VW does so well on quality: every car's the same.

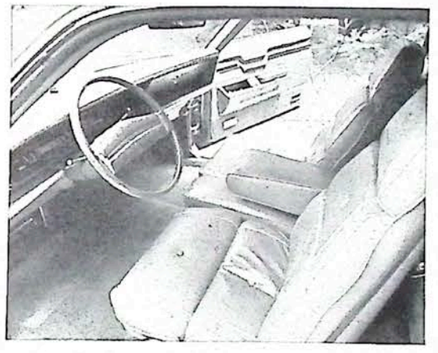
There has been a thinning of the ranks, too, from the number of models offered last year. Chrysler-Plymouth offers 12 fewer Plymouth models than they did in '71. Dodge cut back seven models, figuring to take up the slack by offering special option packages so the customer can tailor the existing models to his taste.

The only "new" engine offered for Chrysler-Plymouth and Dodge's new models, the 400-cu.-in. two-barrel V8, is actually a bored-out 383 using the crank and valve train from the 383. The heads utilize the wedge-shaped combustion chamber common to Chrysler's "B" type engine. With the two-barrel, the engine's designed to do what Chevy's 396-cu.-in. two-barrel V8 did – give you plenty of low range torque but try and economize on gas, too. Since it has a low, 8.2:1 compression ratio, it'll purr along on regular, or gas as low as 91 in its octane rating, with or without lead. Chrysler Engineering warns customers that, if they intend to do any "heavy-duty" driving, such as trailer towing, the continuous use of lead-free gasoline is not recommended. They suggest running a ratio of one tank of leaded gas to three non-leaded fillings.

One of the most significant improvements that Chrysler has added for '72 to many of its cars is its new electronic ignition system, which replaces the old breaker points and condenser with a permanent magnet-energized voltage generator. The unit was first tested on police cars and even on NASCAR stockers and found to last far longer than ordinary

Newest Imperial of all retains feeling of "fuselage" design now in current fashion at GM. Egg-crate front bumper will surely be hard-pressed to meet 5 mph bumper legislation in 1973. Rear end treatment flows with the same elegance of Imperials from the late '50s. Real leather bucket seats are probably MoTowns most plush. Standard engine is 440 V8.





points. Chrysler's unit will even deliver good spark up to eight grand if your engine can take it! But Chrysler didn't just add it for the enthusiasts. They put it on the 340 and some other V8s, with a nervous eye on the Federal smog emissions tests, hoping that there will be less engine misfiring with the electronic ignition than the old points.

IMPERIAL

The 1972 Imperial LeBaron, while having an uphill battle against the solidly entrenched Caddys and Lincolns, still must be the heartthrob of Chrysler's mahogany row, as it sports new sheet metal all around. In a way, it's mystifying why Chrysler pours money into the low-volume Imperial, but then again, it is a Fact of Life in Detroit that an auto-maker must have a car worthy of driving to the Bloomfield Hills Country Club. The new front bumpers culminate in vertical lamp pods, as do the rear, and the metal joining the two just flows on and on without a dimple, making the new Imperial look like the longest car since Ettore Bugatti's Royale. Chrysler even resurrected the fender skirt to preserve an unbroken sweep from the front wheelwells to the rear bumper. The powerplant is Chrysler's super strong-and-silent type "heavy," the 440 V8, rated last year at 335 hp.

We hopped into a new two-door Imperial for a quick tour of Chrysler's proving grounds and found that it was characteristic of its breed in that it successfully isolated the driver from the environment, which is supposedly what the luxury car buyer wants. We were disappointed in the instrumental panel, in that it looked as if it were a derivative from a lower-priced C-P product instead of something designed exclusively for the Imperial. The rest of the interior, though, fits our image of what the ultimate car in any auto-maker's line should look like, complete with details like separate reading lamps for each rear seat passenger and a "formal" roofline with a limousine-sized and configured rear window.

In the context of its market, the Imperial LeBaron is not far from the mark but there's still room for improvement. To begin, they have an exclusive, snooty name with legitimate ties to a respectable history. If they carefully detailed each and every Imperial, even going to complete show-car paint, mohair interior, individually balanced engines and drive lines, Chrysler could achieve the image they wanted. The company has annually failed to see that a couple of grand one way or other is of little consequence; people in this bracket are interested in quality finished, reliable automobiles – attributes, difficult to guarantee even in Cadillac and Lincoln these days.

FURY

Believing that there is still a wide market for the "standard size" car, Plymouth is offering a wide variety of Fury models for '72, all on a 120-inch wheelbase. There are two-door hardtops offered in the Fury II and Fury III models and in the Gran Coupe model. There are also two four-door hardtops, one in the Fury III and one in the Gran Sedan. Plymouth also has what they call a "formal hardtop," in the Fury III and Gran Coupe models. Formal in this case doesn't mean white tie and tails; it indicates the back window is likely to be smaller – an idea that started with limousines and somehow got ingrained into the American idea of luxury meaning privacy (Don't worry if you can't see out the back, Jack, that's for the chauffeur to worry about).

The standard workhorse for Plymouth's whole line is their 318-cu.-in. »»»

What You See

V8, running an economical two-barrel. If you plan on running a full complement of copilots, or perhaps toting your boat, trailer, snowmobile, you-name-it, then you'll want the torquier 360-in.-in. V8, which also runs the penny-pinching two-tube carb. The new 400-cu.-in. V8 is a new option in the Fury line. You pay a penalty in gas mileage as you climb upward in cubic inches, but if "effortless cruising" is a phrase that appeals to you, then you'll understand why Plymouth offers the big-inchers.

BARRACUDA

The Barracuda will still swim in '72, but the number of models available has been reduced to basically the two-door hardtop. Gone are the days of the "ragtop," although there's an electrically operated sunroof you can order. The long list of performance bolt-ons – Drag Paks and things – are not mentioned any more and, if you want a supercar right out of the showroom, the closest you are going to get in the Barracuda line is their 340 four-barrel V8, rated at 275 hp last year, which still makes for a well-balanced package.

In styling, the Barracudas continue the trend of years past with the long hood, short rear deck, etc., but the split grille has gone to a more businesslike horizontal format. Out back, there's a switch from rectangular taillights to quad circular jobs, identical to those found on the Camaro. We liked the old ones but maybe in the styling biz you have to do what sells? One small styling feature that appeals to the enthusiasts among us is the styling of running lamp/turn signals to look like European road/fog lamps. We hope that these look-alikes will turn people on to *real* road lamps – which are great aids to safe driving in foul weather. Actually, when the Camaro and Firebird are discontinued after 1973, Plymouth will inherit the field opposed only by Mustang.

Barracuda's powerplant story is a short one for '72 – there are only three engines, from mild to slightly wild. The basic bread-and-butter engine is the 225-cubic-inch in-line 6, rated at 145 hp last year. One step up, you have Chrysler's trusty 318 V8, rated at 230 hp in '71. Then there's the high-winding 340. One new option, an inside hood release, is something we've been waiting for. Whatever engine you get, this option is a wise expenditure if you want to keep idle hands off your engine.

We drove the 340 'Cuda equipped with Plymouth's "slap-stick" shifter around their Chelsea test track, and if there was any drop in power from last year, we couldn't tell it from behind the wheel. It still felt like a taut, tightly-wound machine, the exhausts rapping as the F70 wide ovals laid fat footprints onto the pavement. The "slap-shifter" is basically a step-by-step automatic which allows you to move up a gear just by ramming the lever forward. Even if you're careless, it prevents you from overshooting the runway, which doubtless saves a lot of engines on the dragstrip. Or else you can just put it in "Drive" and let the TorqueFlite do the whole number. A four-speed with a Hurst shifter is also available. The 'Cuda model can be ordered with a performance axle package consisting of a heavy-duty 3.55 rear gear, Sure-Grip differential, a wider radiator with a fan shroud and more efficient fan.

Left: Dodge Monaco has lost some of its bulk with crisp fender lines. Long-hood, short-deck is favored. Below left: Plymouth Fury has massive look, almost as if it were a mini-Imperial.

CRICKET

On the opposite end of the scale from the "hi-buck" luxury liners is Plymouth's little Cricket, their English import. It hasn't been restyled, but in a pattern which started with the Vega GT, it does offer a bolt-on engine "tweak," as the English say, a twin-carb option. The Cricket's 1.5-liter four-banger puts out 70 hp at 5200 rpm with the standard single-barrel carburetor and roughly 85 with the dual-throat. The regular Cricket comes with a four-speed but an automatic is optional. Though a front-engine, rear-wheel-drive car, the Cricket is very up-to-date, with a MacPherson strut coil front suspension, quick rack and pinion steering and power front discs. Scott Harvey, Chrysler's erstwhile rallyist (he has done quite well in the Canadian long-distance rallyes) demonstrated what, in effect, was the only really trick car at the preview (just a few years ago they used to have dragstrips set up for us . . . Christmas trees and all). His Super Cricket disdained the new twin carbs for Italian Weber 40mm DCOEs on a manifold worked up by Hooker headers, and cooled things off with an GM oil cooler. The car ran heavy-duty shocks, a non-stock 4.30 rear gear and, even with snow tires, Harvey could zing along the dirt portion of the test track slewing it into four-wheel drifts with perfect control. If English-style autocrossing (sort of a gymkhana conducted on rough terrain) ever catches on stateside, Harvey's mods for the Cricket will doubtless become available. At any rate, he reveals the car's sporting potential.

'72 DODGES

Dodge seems to have shrugged off the doldrums that robbed other car divisions of their spirit and offers two redesigned big cars, the Polara and Monaco, for '72. The Monaco, now with concealed headlights, is tailored for a sort of "medium-luxury" market – the kind of guy who buys four speakers instead of two for his stereo. The Polara is aimed at a slightly lower price range. Even the base V8s differ, with the Polara sporting a 318 while the plusher Monaco starts out the game with a bigger 360. Both lines further differentiate their "price range" by the rooflines they offer. The two- and four-door hardtops have that "semi-formal" top that simulates the shape of a convertible top in side profile. The four-door top is more rounded and, of course, has a lot more glass showing.

Four V8s are available in the Polara-Monaco line, starting with the 318 that's standard in the Polara and Polara Custom, and moving up to the 360 standard in the Monaco and optional in the Polaras. Two of Dodge's big-inch V8s – an economy-plus-power two-barrel 400 and the 440 with a four-barrel – are optional in both series. There's one thing you ought to know about shifting, though. If you order *any* V8, the standard trans is going to be an automatic, like it or not. This is just one example of the shortening of the option lists.

The parent corporation may have its Imperial, but each division has its own mini-limo, too, which is why Dodge offers a Brougham option in the Monaco that sort of makes a livable car more livable – you know, soft cloth on the seats, carpeting all over the place, cornering lights, vinyl roof and like that. In a way, once you have a car decked out like this, with air and stereo and all, you wonder why guys buy Imperials. They can't be any more comfy, which is Chrysler's problem. Could it be that True Luxury is only measurable in overall length, stem to stern?

Even if big cars aren't your bag, your family may someday grow to the point where it's either van them or wagon them. Dodge offers two- and three-seat wagons in the Monaco lines, and Polara has a two-seat wagon of its own. The great thing about both wagons is the tailgate. Sure, everybody has one that opens Dutch door style these days, but you can open Dodge's with the window up, which you can't do in some. On 3-seat wagons, the tailgate also locks when the car is running so you don't have kids jettisonning themselves out onto the tarmac at speed. It's an option on the two-seat wagons. Somebody at Dodge must be over 30 because they remember the two-tone wood trim on the Chrysler Town & Country and revived the two-tone treatment for the simulated wood on the new Monaco wagon. Now all we need is the pseudo rivets!

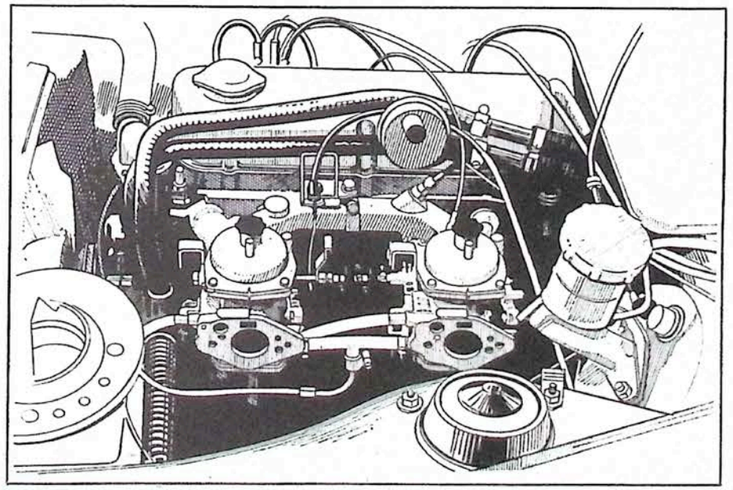
DART-DEMON

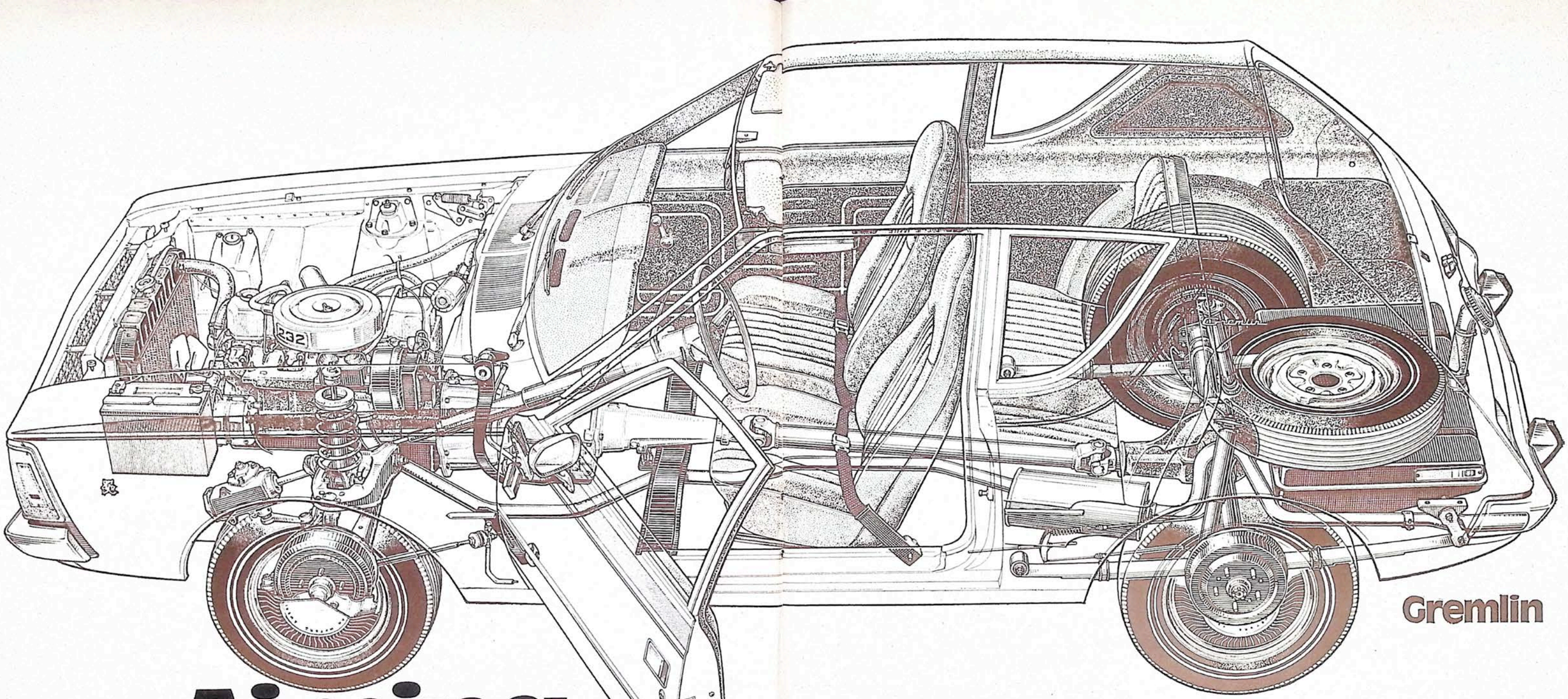
Except for minor trim and taillight changes, Dodge's two big-selling compacts have changed little. The Dart comes only in a four-door version, on a 111-in. wheelbase. The Demon comes in a two-door version, with a wheelbase of

continued on page 110

Above: Whistling at full song over a dust choked trail, dual-carb Cricket will even be better in '72 with more power. Factory has more good stuff to come.

Below: Stromberg-Zenith CDS carburetors meet smog regs yet increase gross horsepower from 70 @ 5200 to 85 @ 5400. Power feed is smooth.





Aiming Straight

In the late '50s Nash Motor Corporation, before it was AMC, narrowly rebounded from the financial abyss with an economy car. Ten years later they were at it again, this time with two economy cars, the Hornet and Gremlin. Facing foreign competition as well as stiff federal safety and smog regulations, they will not get another chance in 1980. The question remaining is whether or not their '72 line has sufficient depth to carry them on. Yes, but they still need an intermediate-sized, good performing luxury sedan.

While Detroit's Big Three tighten their belts, the Little Fourth, American Motors, gamefully treads water and counts $8.3 million earnings for the first nine months of 1971, compared to a $39.8 million loss last year. The way they do this is by building cars different enough from the usual Detroit fare to at least attract some "protest votes." Kenosha exploits this gap between themselves and the Big Three by creating stuff Detroit didn't think was worth building yet, according to their market research reports. Imagine Detroit's chagrin, then, when AMC brought out the Gremlin ahead of the Pinto and Vega and sold a bunch more than they would have, had all three been introduced simultaneously. This year AMC is taking comfort in their Sportabout wagon – a Hornet – which, when it has the wood on the side, brings back the gutsy image once projected by Chevy's "Nomad" wagon, built from '55-'57. The Sportabout has been selling very well, accounting for up to 30 percent of their wagon production.

AMC's attrition rate, a loss of six models from the '71 total of 21, seems alarming at first but when you look at their present offerings, you still see plenty of variety, including the Gremlin, Hornet two- and four-door sedans, Sportabout, Javelins, Matador two- and four-door sedans and even a few wagons. And, of course, it is part of the general belt-tightening that turned the profit.

AMBASSADOR

The Ambassador, AMC's luxury car, continues its rather boxy-shaped styling for '72, adding power brakes to already standard big-buck items like air conditioning, automatic transmission and V8 engine. The Ambassador does have new grille and taillights but the big concern to buyers in this market seems to be the decor of "the living room," and the Ambassador's is most livable. For one thing, the front seats are among the last reclining types offered in an American car. If you think you'd still prefer the Holiday Inn to bagging out in your car, think of it this way – for those marathon 700-miles-per-day drives, a reclining seat is a great way for your co-driver to rest between stints.

Exactly where the Ambassador fits in among America's luxury cars isn't quite clear. Its base price – around $3,200 – puts it up against Chev's Monte Carlo and maybe Ford's LTD. But, then again, it's not quite like either of those cars. It almost seems as if it's made in a foreign country – kind of a Mercedes with the handling qualities left out.

The Ambassador is available in three models, all on a 122-

»»»

Aiming Straight

inch wheelbase: a two-door hardtop, a four-door sedan and a station wagon. Although it's a big car, AMC has wisely permitted buyers to order a Handling Package Option, which includes h-d springs, shocks and a rear sway bar. With that and the discs up front, you've got a luxury car that can more than hold its own against anything in its range. Perhaps AMC is overlooking another chance to anticipate the rest of Detroit with a special, deluxed-up, upper-priced luxury-touring car in the mode of the BMW Bavaria. Olds is known to be working up such a machine based on the Cutlass Supreme but AMC could still beat them out.

One other option worth mentioning: variable ratio power steering which can shorten up the wheel turns lock-to-lock from the manual (nonpower) figure of 6 to a quick 3.3.

There are four Ambassador power plants, all V8s. AMC is, fortunately, wise enough to not allow you to order a six when you're going to be drawing off all that power for the Ambassador's plush accessories. AM's smallest V8 is the 304-cu.-in. model, rated at 210 hp last year; next is the 360-cu.-in. two-barrel, sort of an economy-plus-torque combo, and, if you want more *oomph* when you put it to the floor, you can order the same 360 in a four-barrel version, which puts out close to 300 horses. The top engine choice is the 401-cu.-in. V8 rated at 330 hp last year, though, due to

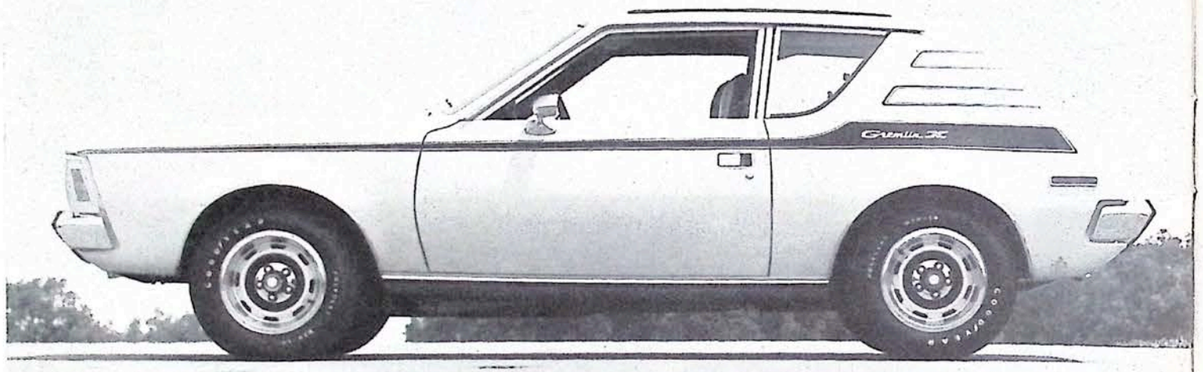
The Matador has minor trim changes but keeps its slab-sided look from last year. The two-door hardtop has a good roofline which shows that AMC stylists have it in them, even though their budget prevents them from getting in on every new fender-flare hood-scoop, spoiler bandwagon.

HORNET

The Hornet – AMC's anti-Nova entry – is back for '72 but with only half the models it had last year – the SST two-door sedan, the four-door and the ever-popular Sportabout, which came from nowhere a year ago.

As with AMC's other cars, the trim changes, like new wrap-around taillights, are practically invisible unless you've got last year's car alongside for a comparison. But there is a dress-up package that's new for '72, referred to simply as the "X" package, and consisting of rally stripes, slotted wheels, wide oval tires and even a "litre" emblem for the

First by a nose with an American subcompact, AMC is first to put a V8 in one, if that's what the Gremlin really needs. Called the Gremlin X for, we hope, a good reason, the 304-cu.-in. engine (200 hp, approx.) will turn the 2,600-pound machine into another one of those street sleepers, at least in a straight line. Some of the surprise value will be lost by a "5 Litre V8" decal on the tail but, of course, you won't see it until an "X" has gone by. If the Gremlin X sells well the old power race is on again.



constantly lowering compression ratios, don't take that as a firm figure for '72. All of the Ambassador V8s are mated with a super-low Turnpike Cruiser 2.87 to 1 rear axle ratio as standard and the only option is a 3.15 to 1 gear. They obviously don't expect any fast elapsed times.

MATADOR

The Matador, AMC's answer to the intermediate, also is offered in a two-door hardtop, four-door sedan and station wagon version for '72. The Matadors are built on 118-in. wheelbases, a couple of inches longer than the Chevelles and an inch more than that of the Torinos. The power plants start with the standard 232-cu.-in. six and move up to the 258-cu.-in. six. There are also four V8 engines, the same engines as offered in the Ambassadors. The three-speed Torque Command trans is offered in all the Matadors but only the 232 six is offered with the old shift-it-yourself three-speed manual trans. Last year, the 360 four-barrel and 401 were both available with four-speeds but, just like the other auto makers, AMC has cut down the number of options available to stay on the safe side of the emissions laws. Offer a four-speed and first thing you know the guy wants a 4.11 rear end. To show you how stringent AMC is getting on just the ordering of axle ratios, the *only* axle ratio available on all wagons is going to be 3.54, like it or not.

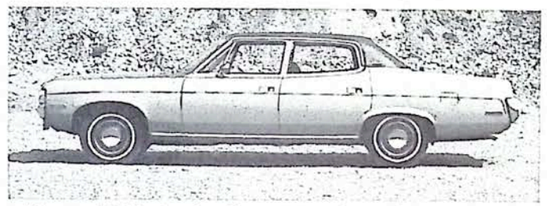
Hornet two-doors. (Maybe this is a subtle way, like Chevy's naming the Vega the "2300", of working the metric system into our psyches). The Sportabout is still available with its eye-catching simulated wood-grain. A word about the Sportabout: no wagon we've ever driven has drawn more comment. It's the only reasonably-sized wagon that feels like a sporty car. As with the other Hornets, you can order goodies like quick-ratio manual steering and front disc brakes for the Sportabout, which could make it an "Enthusiast's Wagon" of sorts, especially with the 360-cu.-in. V8, top engine in the Hornet line. Other engines are the 340 and the two sixes.

GREMLIN

The cute little Gremlin, AMC's darling of the working girl, is finally going to get its V8, which ought to make it perform similar to the hotted-up one that appeared in *Brewster McCloud*. Of course, the twin sixes, 232 and 258 cu.-ins., respectively, are still available; but the hot news for big-engines-in-light-cars fans is the availability of the 304-cu.-in. V8, rated at 210 hp last year with the two barrel. The Gremlin tipped 2,560 lbs. with the six, but the V8 shouldn't put it above 3,000 lbs.

The big "X" option, which is offered on the Hornet, means different things for the Gremlin, including a flip-open rear quarter window (for better flow-through ventilation), fold-down rear seats and minor trim geegaws. AMC is apparently trying to woo the stripes-make-a-sports-car crowd with a

continued on page 110



Above: 118-inch wheelbase Matador 4-door has list of real improvements Volkswagen would envy.
Top: Darling of the wagon set last year, AMC Sportabout continues sunroof introduced in late 1971.
Right: Ambassador offers more standard luxury than any other car except Eldo and Continental Mark IV. And they don't have reclining seats!
Below: Two-seat Matador wagon has rubber cargo mat with snap-in carpet.

Cars Of Sweden

The importance of the Swedish car industry reaches far beyond its borders

By Eric Dahlquist

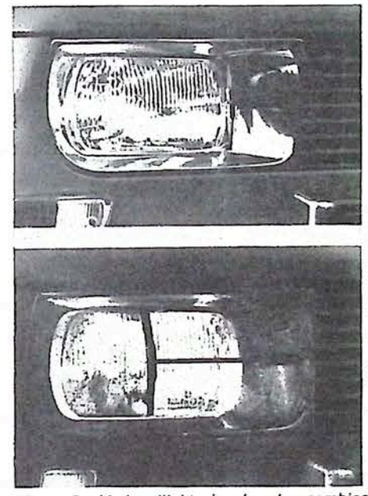
As I came around the curve I could see the brown, dead grass stretching down a steep slope to the lake shore. Except where the park was. There the land stuck out into the ice like a brown finger and at the very end was a white band-box with a few evergreen trees around. It looked a lot like the winterscape of the Finger Lakes region of New York State when there is no snow – rolling country with frozen crystal lakes set in valleys every so often. Only the houses of each village and town do not wander out of their natural boundaries, as in New York, jumbling everything together.

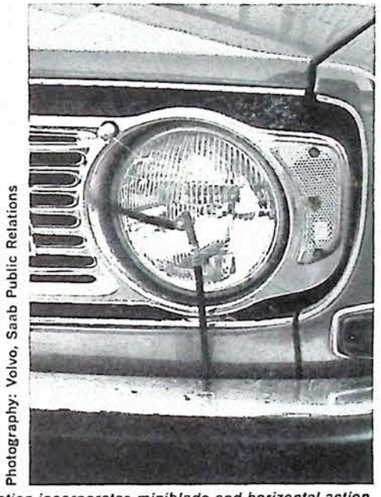
No, things are precisely defined. The farmland begins at the edge of town and all the different fields, the winter wheat waving green blades about two inches above ground, the plowed-under straw stubble from the harvest before, the wood lots, were all neatly arranged squares behind the farmhouses and barns. In many of the driveways were big black Plymouth and Dodge four-doors. Interesting, because this was Sweden.

If you have never been there, your mind tends to see a country snowbound for ten months of the year, populated by a race of tall, blond, blue-eyed Nordics who bloom instantly in the gaze of summer midnight sun, gamboling after one another through pseudo skin-flick escapades. That, and a haven for expatriate American Vietnam war dissenters. And a high suicide incidence, don't forget. Of course, it is not true, this stereotyped, distorted, long view through the transoceanic telescope. Even the business about so much of the country's roads being unimproved, like you see in the Volvo ads, is a little bit shaky. Right, there aren't a lot of freeways around, except for the capital, Stockholm; but their normal two-lane paved highways are smoother by-and-large than most in this country, blessed with wide shoulders, very well lighted in populated zones and maintained at a level boggling the potholed mind of the average New Yorker. And, there's one more thing. You are not likely to find any more courteous drivers anywhere else in the world, products of the only national driver education program we know of that worked.

In the point of fact, there are reasons why Swedish automobiles – the Volvo and the Saab – are significant far beyond their production numbers. They are products of one of the world's most technologically advanced civilizations, cars designed to master wildly severe climate extremes – arctic to temperate. For a society whose machinery is greased by a sharply graduated income tax, an automobile in Sweden is a long-term investment. This, interacting with industrial and geographic predeterminants, has created rather unique, robust vehicles particularly appealing and desirable in western markets. Especially North American markets, where much of the climatic circumstance is not far removed from Sweden. In America, Volvo, and their marketing whiz, Jim Lamar, who created campaigns like the "Eleven-Year Car," have exploited this happy coincidence of features, until, at 40,000 units annually, their cars are back-ordered. Saab, saddled early-on with things like a three-cylinder, two-stroke engine, have countered with new smash cars like the "99" range, enlarging their base from the small band of devoted car nuts who discovered the company after WWII.

On the Swedish front, the situation is different; Volvo and Saab are the Big Two, between them accounting for some 43.4 percent of the home market (Volvo 26.3, Saab 17.1). This is something like having GM and Ford together against Chrysler and AMC. Saab partially offsets Volvo's advantage by being sole distributors of the third place sales winner, Volkswagen (and Porsche), as well as distributoring Chrysler for all of Sweden.





Photography: Volvo, Saab Public Relations

Above: Saab's headlight wiper/washer combination incorporates miniblade and horizontal action. Above right: Volvo goes a different way with circular blade sweep U.S. may see these by '72.

Initially, Saab's major problem as a competitor in coming to grips with Volvo was not so much overreaching a lead of nearly two decades (Volvo was established in 1927, Saab 1947), but providing the customer with a real alternative in concept, design and style. Because Saab is a fighter-aircraft maker first, their approach has remained novel, if not ahead of the automotive state of the art. Unhampered by convention, Saab people thought the most advantageous automotive designs should incorporate space-saving front-wheel-drive wrapped by the smoothest metal skin possible to minimize wind resistance, further increasing efficiency. Nothing has happened in the last 24 years to change their minds. The basic car in their line, the "96" fastback, is essentially the company's original 1947 design, altered little except for detail improvements. A Ford Taunus 1498cc V4 replaces the corn-popper two-stroke. The two-stroke engine, Saab found to its dismay, tended to polarize people into two camps: those who loved it and those who hated it.

Even with a slick air-drag coefficient of 0.35, the Saab 96 design (the "95" is the station wagon version) is clearly dated; its place is that of price leader.

The shape of Saabs to come is the 99 model introduced in 1967. Created on a 97.4-inch wheelbase, the 99 is a packaging marvel. Although the car's overall length is 21.9 inches shorter than a 280 SE Mercedes, distance from brake pedal to the rear seat back is identical! Stacking the 1854cc Triumph-built engine over the transmission is the secret. In Sweden the 9.0:1 compression, OHC power plant is offered at 103-, 93- and 87 hp, varying with either Bosch electronic fuel injection or carburetors.

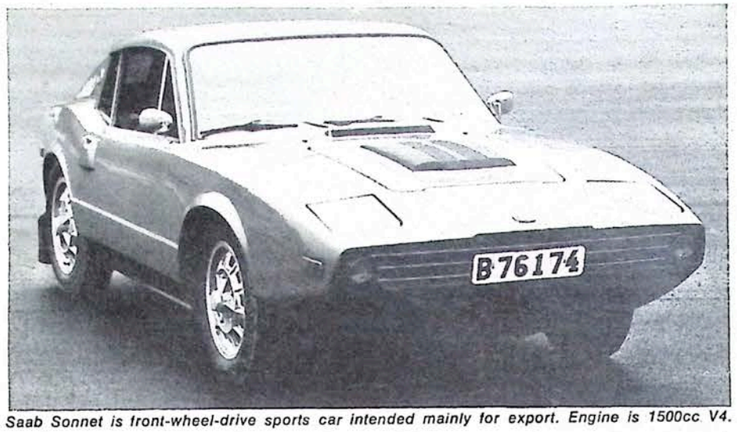
Writ larger than the new 99 in Saab's future is the recent merger with Scania-Vabis, a Swedish truck-bus firm dating to 1891. With Scania came a heavy vehicle (truck and bus) production amounting to some 50 percent of Volvo's, and, more important, the injection of new capital and thinking. A tour of the Scania truck assembly plant in Sodertalje (now also the home of the whole Saab-Scania operation) would shake an American manufacturer to his toes. Housed in a building sufficiently large to hangar two or three 747s, Scania's assembly line is a clean, well-lighted place where vehicles are built with the same sort of precision one pictures going into a Rolls. Raised in the cacophony and confusion of the typical American plant, the rank and »»»

Cars Of Sweden

file UAW man would completely shatter at the sight of automatic wrenches with noise suppressors and tiled rest areas gilded with vegetation, fountains and murals.

Saab-Scania ponders the effect of modern industrialization and mass society on us. Does the consequence of leading two entirely separate and distinct lives (home and work) twice daily predispose individuals to some kinds of schizophrenia? Will day-in, day-out, year-in, year-out rote performance of tedious repetitive tasks eventually erode a man's morality, precipitating lack of pride in workmanship in the short run and, in the long view, eventual societal decay from within? Heavy questions. Unfortunately, few others have found answers, let alone implement them; for, as we know from the American experience, that costs money and the dollar is almighty.

As a beginning, and although they know their unit price may escalate, Saab-Scania is attempting to abolish the traditional monotonous, mind-numbing engine assembly-line. Instead of the endless conveyor where each work station performs the same task over and over to a slowly progressing engine, five- or six-man worker teams will build complete power plants. Every individual will learn every step so that eventually, any one of them would be able to do the entire job. Ideally, in this situation the worker becomes a craftsman rather than a hapless, replaceable cog in the production chain.



Saab Sonnet is front-wheel-drive sports car intended mainly for export. Engine is 1500cc V4.

How extensively Saab-Scania will be able to extend this production idea depends on factors even they cannot foresee and one wonders how much quality could improve over the already high standard. More imperative than that, can a company remain competitive under such a system? Saab's biggest seller, the 99E, is about as finely detailed a car as you are likely to find short of hand building the things. If anything, it is more automatically assembled than some U.S. makes, except the lines move slower. Beyond the old Saab car plant in Trolhatten, and the Scania truck operation in Sodertalje are worlds apart in modernization and output; even manufacturing consensus in some areas.

Regardless, the innovation at Saab-Scania is evident at more levels than just creating more utopian working conditions. In diametric opposition to the attitude of U.S. car builders who have been dragged, protesting, by the government to face the reality of the 5-mph bumper law for 1972, Saab will offer, one full year ahead of time, bumpers that comply with our National Highway Safety Bureau standards. By the simple expedient of an impact absorbing cellular plastic egg-crate encased in a U-shaped steal case, Saab's bumpers will be able to address any 5-mph barrier without damage to themselves or the car. In an atmosphere supercharged with public safety awarness, Saab expects to capitalize for Allstate Insurance Company's announced 20 percent reduction offer. It will be the first test since Ford's disaster in 1956 to see if safety sells cars.

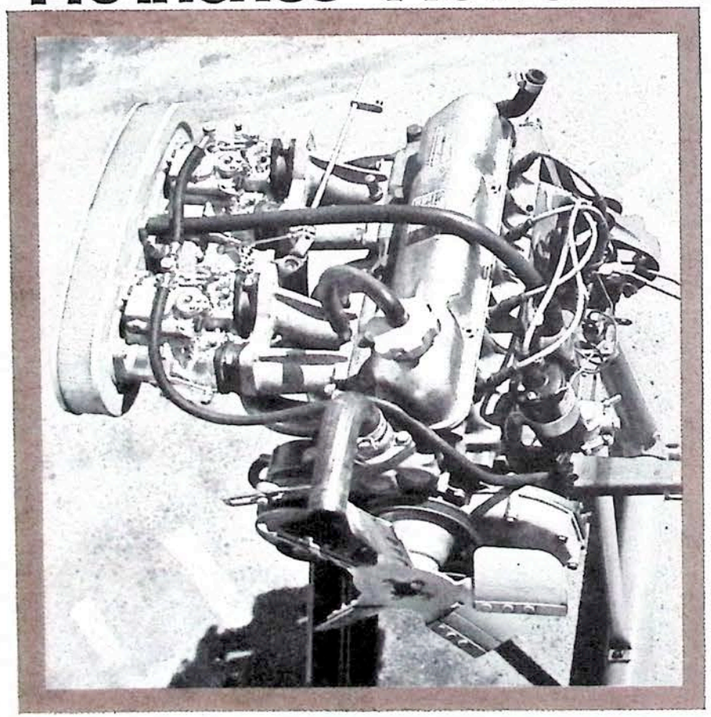
One thing the U.S. will not see immediately is Saab's headlight wiper-washer, a unique contrivance that cleans your lights even as you clean your windshield. This is another one of those blind spots in typical safety programs – failure to recognize that in order to avoid an accident you have to be forewarned early enough to react, which means you have to possess maximum visibility. It comes as a shock to learn that you may lose 10 percent head light efficiency driving 60 miles on a clear dry, paved road. For winter slush, learn that you may lose 10 percent headlight cleaners are a pair of small, vertically positioned wipers, actuated by horizontal arms off a common electric motor mounted behind the grille. Because the mechanism depends on the flat lens surface of a rectangular quartz-iodine lamp, it will probably be sometime before Saab adapts the wipers to the round seal beam light sold in the U.S.

Although Volvo's numerical advantage in Sweden continues, their market percentage dropped last year while Saab's climbed. Certainly, the country's largest employer is in no danger of being overwhelmed and yet the Saab-Scania merger brings the two on closer terms. Interestingly, Saab designs some of the world's best jet fighters in their class, powered by engines built at Volvo!

Actually, both Saabs and Volvos are constructed much in the same manner: to the basic body structure is added components built by various specialty sub-suppliers. The difference is, that over the years Volvo has been able to buy out most of their outside vendors, even as GM did before World War II.

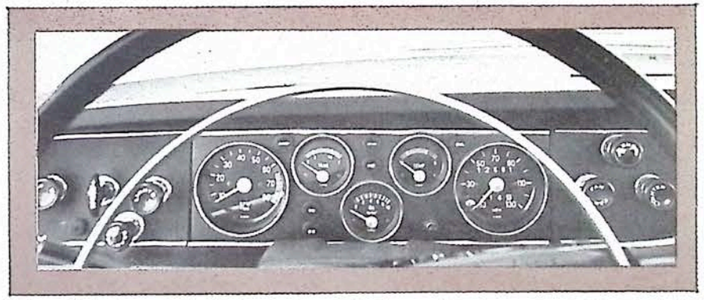
Saab may be the comer but Volvo is the establishment, the General Motors »»»

VOLVO 142-RS: 140 Inches=140 Horses



Those ads that Volvo used to run – the ones that said, "drive some place rotten this summer" – have always intrigued us and we have longed to take them up on it. Another thing that has had us sort of hooked is the plethora of factory performance and handling equipment that is around for the B20-engined cars that has never, except in rare instances, seemed to trickle down to the dealer/consumer level. This last is, in itself, more than passing strange. Volvo owners, by and large, are an enthusiastic lot and whenever we've allowed that such bits do exist, we've been inundated by mail. All this aside from the fact that expecting a 120-cubic-inch four-banger to haul a 2,650-lb. car around, that rightly merits a V8 or at least a biggish six, is asking a bit much. This is not to denigrate the Volvo engine (which would take someone with the ability to break an anvil in a sandpile to do it a mischief), but merely to underscore that it has a job to do that would herniate anything that was less robust, and that it can use all the help it can get.

Consequently when we were offered a Volvo 142 that had been tweaked with a complete tuning kit (Part #519881 – 1 tuning kit, compl.) plus the full suspension bits and pieces, we decided to drive it "someplace rotten" while evaluating the practicality of it all. There was only one small hitch to the proceedings and that is, what's rotten for some may well be paradise ruled by Nepenthe for others. For instance, we wanted to put the car into as many different situations as possible in the space of time allotted; i.e., day to day driving, flat Interstate and freeway running, sea level, high altitudes, hot weather, cold weather. A run from L.A. up to the Wyoming Bighorn country and back would solve that part of it since that loop encompasses everything from low desert to passes in the neighborhood of 10,000 feet and about anything you care to name in between.


Volvo rally instrument cluster has tach, speedo, temp, oil and gas gauges. Fits stock dash.

Now, anybody who went to the Bighorn country in the summer could hardly consider it someplace rotten, right? Before the white man arrived it was a mecca for such people as the Sioux, Cheyenne and Crow. To the Mountain men it was an ever-full supply of game and furs. Rich, fertile and CLEAN it is now dotted with prosperous ranches, both working and dude. Well, something over a century ago the U.S. Government placed an installation in the middle of all this grandeur called Fort Phil Kearney. The Indians considered *that* pretty rotten. Then, one winter day, 80 men under Captain William J. Fetterman went out to "show the flag" so to speak. They went just that bit too far and were massacred to a man. The whole thing is chronicled in the history books if you want details, but the point is that, for the members of Captain Fetterman's command it had to be a pretty rotten place, but the Indians loved it, especially after the fort was abandoned. See what we mean? Rotten is as rotten does. At any rate part of the mission was accomplished. We had driven some place *somebody* once considered rotten in a Volvo. We even passed by a few places such as McGill, Nevada, Magna, Utah, and Calpet, Wyoming that *we* considered rotten, thanks to the belching smokestacks fouling recently spotless country air with a thick, brown haze for miles that makes Los Angeles on a bad day look absolutely crystalline by comparison. But even those may not appear rotten to the stockholders and executives of the likes of Kennecott Copper and Utah Power & Light. Maybe Mr. Ruckelshaus can tell us all.

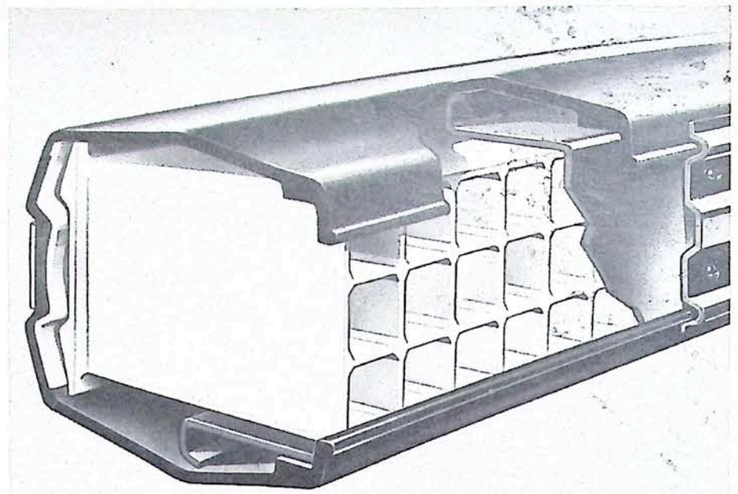
The second part of the mission, the evaluation of the Volvo tuning kit and handling options, turned out to be a continuous pleasure. The only indication at any time that it was in there at all, other than certain performance characteristics that we'll consider momentarily, was a lumpiness at idle caused by lots of cam timing, but which disappeared at any engine speed over 1000 rpm. Around town, docility reigns and on normal throttle application there is no difference from any other 142-S Volvo. It's only when the throttle is mashed solidly and the revs are allowed to mount, seemingly forever but actually to 6500 rpm, that the difference is felt. The car moves out solidly, perhaps even stolidly, and it is only when you reach the upper end of second gear that you realize you're ahead of the rest of the traffic. Rather than being raucus and flashy, the effect is strong and smooth, with much more range in each gear than is expected. As pointed out, the Volvo engine is a robust, rugged lugger – a tractor sort of engine. And, as with a tractor, if you hang performance equipment on it, you don't get an instant racer; you just get a better performing tractor – providing, that is, that everything is working together, which in this case it is. The equipment is very much a complete kit, developed by the factory so that every item complements every other item in the way it works. How the various bits would work piecemeal we aren't prepared to say but, put all together, they work very well indeed.

Where it all comes into its own is in the mountains. At anything under »»»

Cars Of Sweden

of Sweden in size, but not philosophy. Twenty of their plants dot the countryside and their managers speak from Volvo's fantastic new Torslanda headquarters building – already the world office community talk for a novel "landscape arrangement" – with confident authority in precise Oxford, English accents.

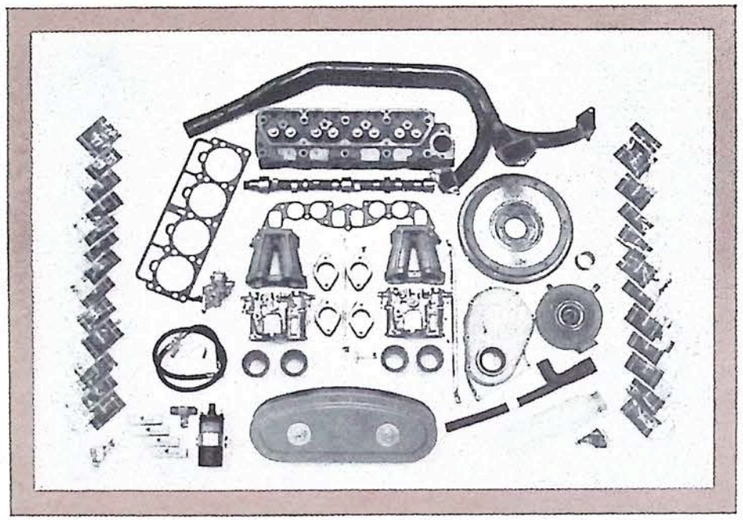
Sprawling just outside Gothenburg, Torslanda, Volvo's main assembly plant operations, is so large that Disneyland-like trams are needed if the visitor is to see most of various operations. From here all Volvo models – the new generation 144, 142, 142E sedans, 145 wagon, 164 six-cylinder "mini Mercedes," and 1800E sports car – find their way out to the world. Clean, brightly and organized, the place hums with cybernetic efficiency that will pump out 220,000 units this year. Unbridled by American overproduction, every one



Saab scoops entire automotive industry world with the absolute first five mph bumper. Certified for Allstate's insurance reduction, construction is cellular plastic inside a steel wrapper.

about 3,500 feet, a determinedly driven American V-8 of any fair size capacity can cruise on by, but as the Volvo and the V-8 approach 4,000 feet the Swedish four starts to come into its own and the V-8 starts to lag. Above 5,000 feet it's no contest; given that you've selected the right gear, the Volvo pulls away inexorably. On level high plateaus, such as the Bridger Wilderness at around 6,000 feet, we found we could cruise at 70 in overdrive, dropping down into fourth only for overtaking on the level, with third being useful for passing oxygen-starved V-8's on upgrades. The best part of all is that Volvo's justly famous mileage doesn't suffer with the addition of the kit. The overall average for the whole loop was 26 miles to the gallon and 300 to 350 miles between fillings were the order of the day. We did notice one bit of strangeness in checking the mileage, however. The lowest mileage at 25 mpg, was on long, flat, high speed Interstate 80 and the highest, at 30, was along the rim of the Sierras on hilly, twisting U.S. 395, where the altitude ranges from around 4,000 to 8,000 feet. This is exactly the opposite of what would be expected, but it does give a clue as to why the Volvo can pull away from the average V-8 under those conditions – it's obviously just that much more efficient in the mountains.

Augmenting the performance of the tuning kit, the chassis kit is what makes it worthwhile. With these bits underneath, the added performance can be used to its full extent. While it does let you know it's there on normally "smooth" roads by passing on all the little lumps and bumps, things don't change a bit on rougher pavement or



Volvo tuning kit is filled with the one thing that can help your 142, parts that make power.

even gravel. Where, on transition from smooth to rough surfaces, a normally suspended car would set up a fuss that creates instant shortening of the right leg, the kitted-up Volvo 142 acts just as though nothing had changed. Perhaps the most important effect, one both the writer and Volvophile John Lamm noticed immediately, is the curing of the insistent Volvo 142 understeer. The car with the suspension mods is very nearly dead neutral with a touch of final oversteer that can be very welcome on tight switchback turns and is in no way sudden or unexpected. Even without the tuning kit, any Volvo would be the better for its installation unless it were to remain solely on city streets.

One final addition, or rather substitution, on the test car was a dash module that replaces the usual ribbon-type speedometer and warning lights with (reading from left to right) a tachometer, fuel gauge, oil pressure gauge, water temperature indicator and speedometer, plus the usual set of indicator lights. It is a complete plug-in item and is also in the rally parts book. Would that it were only standard!

Mission accomplished. You can, indeed, drive someplace rotten in a Volvo with pleasure. And the tuning kits with the suspension modifications are eminently practical under any and all conditions. Hopefully they will get down to the consumer level shortly. /MT

of these cars is spoken for before it ever leaves the plant. As elsewhere in western Europe, Sweden suffers from an acute labor shortage; they cannot make enough cars for the lack of people.

Volvo's prime aim is to build the world's highest quality, most reliable mass-produced automobile. They shy away from involved engineering like front-wheel drive, thinking it unnecessary and more costly to build and service. Similarly, fully independent rear suspension systems don't interest them because, in their view, you just don't need rear-wheel articulation on smooth super-expressways. The American experience with "live" axles is supporting evidence, although Volvo springing is less soft than the Detroit norm.

The first Volvo Americans knew anything about was the PV 444, a car looking for all the world like a three-quarter scale '46 Ford sedan. Only it was faster and handled and rode better, a kind of 15-years-ago BMW 2002. Everything in Volvo's capability – solid, reliable, fast, economical transportation – came together in the next 121/122 series, outselling everything in Sweden through a fourteen-year production run.

Essentially, the new generation 103.1-inch wheelbase 144 (four-door; 142, two-door) sedan was more economically designed than the earlier PV and 122 successes. Philosophic engineering integrity is maintained with identical four-coil springing, front engine rear drive layout and even an identical M40 4-speed transmission. Over the years the OHV B20E engine has been prodded to 130 hp with Bosch electronic fuel injection on the Grand Luxe, a 142 gussied up with 164 leather trim, 165 SR Pirelli tires and hubcapless wheels, offered to satisfy complaints Volvo sedans aren't as sporty as they once were. (Note: The Grand Luxe, called the 142E in America, was tested in MT, May 1971.)

Not so easy to deal with (both in the U.S. and home), is the complaint that

Workmen lower 1900cc Triumph built engine into Saab 99 at Trollhatten plant. Modernization will embody pilot program to relieve worker of monotonous, boring, rote, assembly-line tasks.

Olof Lindkuist
Saab, Chief of Quality Control

When we are designing a car, the first point we like to make is one with good total economy. Then, we like to design a car which gives fun and satisfaction to the customers – a good feeling; good handling characteristics. Legislations (American Safety Regulations) influence the design. It is a tough, hard job to meet (your) standards, but we will do it. We are making it now and we intend to do it for the future – even if the legislation gets harder. Even if we didn't export a car to the U.S., we would have the same ones (regulations) here in two or three years, and we'd have to do it here.

Karl-Erik Larsson
Volvo Engineering

We have put a lot of emphasis on safety during the last year. Remember we were the first introducing seat-belts as standard (1959). Rear-end collisions are increasing in Sweden (as elsewhere), and for that reason, we have an ingenius device applied to our (front) seats. In the back rest adjustment mechanism is a friction-clutch-lock to avoid whiplash. If you are hit from behind, it will give. Still, although I think it's great to do everything you can to save lives, they're (the U.S.) making it too complicated. We are trying to convince people (manufacturers) to get together to discuss unified regulations.

the new generation Volvos are getting too expensive. Apprised of the fact car prices in Sweden are 15-percent higher than here, and with the onrush of competitors like VW K-70, Audi, Toyota Crown, BMW, Opel Commodore, Fiat 125 and a cast of thousands, it would not be difficult to conceive of Volvo considering alternate plans. One reliable source mentions the eminent revival of the popular 122 at a very attractive price, particulary in the U.S.

If anything, safety is Volvo's paramount consideration beyond quality and reliability. Back in 1956, before almost anybody but Ford and Tucker had thought about it, Volvo had provided for a crash-padded dash in the then-new 121/122 series as well as including seat belt anchorages. Three years later, the three-point harness, to become common a decade afterward, was standard in all Volvos. Not content to merely put the safety in the vehicle, they went on to present studies to show the public why they needed it. Out of more than 28,000 accident cases analyzed, three-point harnesses were found to reduce bodily injury from 40-

»»»

Cars Of Sweden

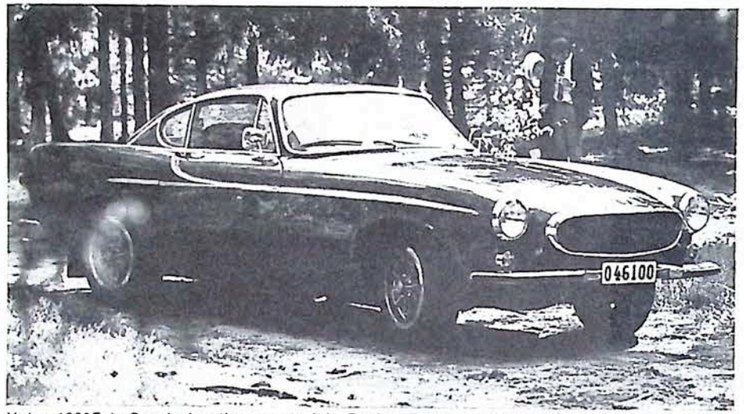
90 percent, depending on speed and injury type. Most significant of all, where unbelted occupants sustained fatal injuries throughout the whole range, no one was killed in 60 mph or slower accidents while wearing a three-point belt, air bags notwithstanding.

More basic to the problems even than this, the general hearty quality of Volvo construction legislates the cars to be safe, all else equal. Faced with sheer survival in such climatic conditions, the machines had to be strong and stay on the road, any road. So, Volvo has always used 15-inch diameter wheels, putting a bigger footprint on the road and providing better brake cooling. Even without four-wheel discs, Volvos have traditionally been overbraked. They were the first company to adopt the Girling "fail-safe" triangle braking arrangement in which two independent circuits operate on the two front wheels and one rear wheel. Should one circuit fail, 80 percent of the car's brake capacity is preserved; so too is its directional stability, via a front/rear proportioning valve.

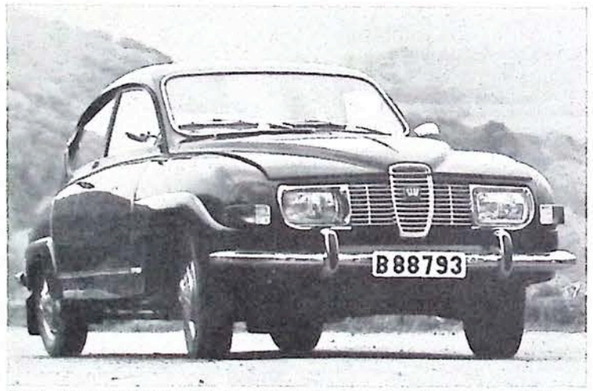
Almost at the moment of Saab's 5-mph bumper announcement, Volvo leaked news of a joint venture with Peugeot and Renault in design and development of low-pollution engines. Although the three companies will remain completely autonomous and independent, it rebukes the long-standing Detroit idea that foreign competitors would fall by the wayside when the U.S. laws went beyond the low 1973 exhaust emissions levels. Just as GM officials find it incredible Mercedes could have a produceable engine for 1975's choking regulations, the Volvo-Peugeot/Renault pact indicates the rest of the Europeans are not simply going to roll over and play dead.

Volvo and Saab's long-time safety commitment will ultimately bear fruit in their biggest market, the U.S. Unlike Detroit, who will be forced, kicking and screaming, to obey the law, the Swedes have not only the hardware but the documentation. Now, it turns out the pollution fight too may be a surmountable obstacle.

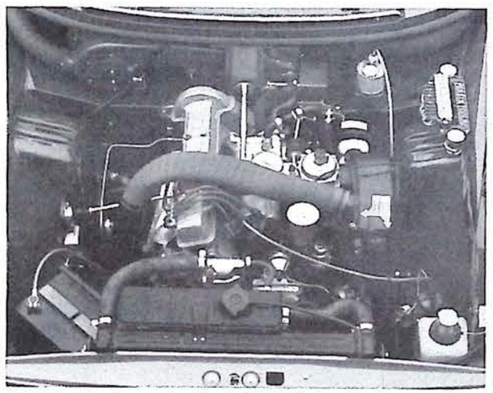
Perhaps we can get a clue of Swedish car futures from another specialty. As one individual put it, Sweden will ultimately control the world's supply of quality pulp paper after it is gone shortly from North America. "We started our reforesting program ninety years ago and the Americans didn't. It takes a hundred years for a good crop, you know." /MT



Volvo 1800E is Sweden's other sports job. Designed eleven years ago, car still sells briskly.

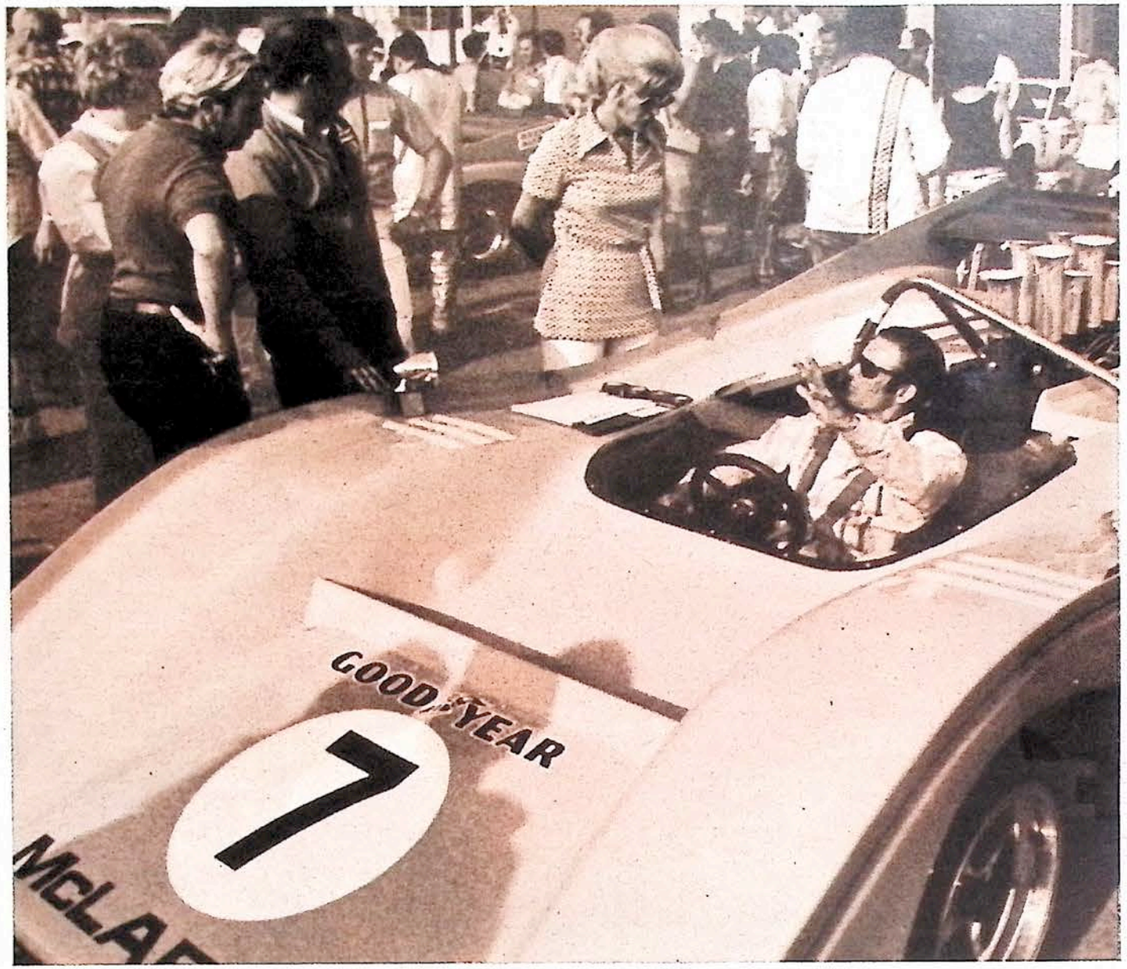


Saab 96 is latest version of company's first offering back in 1947. Unit steel body, front-wheel-drive, smooth shape are still trademarks.


Clearly, smooth running Saab 99 OHC four is the way things are going. Engine is offered in Sweden with carb, injection.


Volvos have probably the best seats in the entire world. Clutch on backrest limits whiplash.

Paced by 146, Volvo competes very well in European sales, especially in Germany. Aimed directly at luxury intermediate market, Volvo 146 is as fast and reliable as lower priced 142 and 144.



Can Am '71

The annual exercise to break the McLaren's domination of America's fastest sport

By Don Grey

The Pan-Am series is at its annual crossroads. In the past four years the McLaren team has won 29 of the 33 races and as each new season is launched the same questions are asked: Will there, finally, be some real competition for the bright orange cars? And can the series survive if there isn't? The answer to the second question depends, largely, on the answer to the first, and this year the opening race at Mosport thankfully gave reason for cautious optimism.

It came principally from the presence of the Mod Scot, 1969 world champion Jackie Stewart, who generates about him an aura of excitement unmatched by any other road racing driver. It came, too, from his somewhat radical new Lola T-260, owned by Carl Haas and sponsored by L&M, Goodyear and Castrol, which is obviously Eric Broadley's most serious Can-Am effort since his 1966, T-70 sweep.

And although Stewart was the only one given a serious chance of making Team McLaren work up a sweat, there was encouragement also in the much higher general standard (compared with previous years) of the private entries. Among them were two 1970 ex-works McLaren M8Ds for Lothar Motschenbacher and Chuck Parsons (subbing for injured owner Tony Dean); Motschenbacher's teammate, Bob Bondurant, in a 1971 "customer" McLaren M8E that has been largely reworked to M8D specs; Canadians John Cordts and Roger McCaig in an M8C and M8E, respectively (the 1970 and '71 McLaren customer cars); Dave Causey and Japanese newcomer Hiroshi Kazato in Lola T-222s (slightly refined customer versions of the long-wheelbase T-220 works car raced by Peter Revson last year); Jim Adams in the Ferrari "Can-Am" that has been extensively tidied up by Doane Spencer; and Milt Minter in the ex-Siffert Porsche 917 Spyder.

But the benchmark for the whole series, the standard by which all others are judged, is of course Team McLaren. They were originally considering a completely new design for the '71 Can-Am but their deep involvement with new Formula One and Indianapolis designs caused that project to be shelved and instead they have come up with a further refinement of the M8 series that has served them so successfully for the past three years. The new model is the M8F, and while it remains outwardly similar to last year's M8D, designer Gordon Coppuck has made detailed improvements to improve the handling, braking and aerodynamic efficiency.

Dimensionally, the monocoque tub is the same width but 3 inches longer, giving a corresponding increase in wheelbase (to 98 inches) and a slightly more forward seating position for the driver. In the interest of safety, the side panels are in thicker, 16-gauge aluminum alloy and a hat-section hoop has been added at the front to protect the driver's feet in case of an accident.

The transmission is a new four-speed Hewland LG500 Mk.2 that has been considerably beefed up to withstand not only the increased power of the engine, but also increased loadings imposed by the suspension (which attaches to a fabricated beam across the top of the transaxle and plates bolted beneath it), and by the 12- x 1.1-inch Lockheed disc brakes (which have been moved inboard to reduce unsprung weight). The inboard brakes, in turn, dictated replacing the reversed lower wishbone by parallel links; with the wishbone gone, the concentric Koni coil/shock units now pick up directly from the upright. The remainder of the rear suspension is as before – twin radius arms, single top link and sway bar – but the rear track has been narrowed fractionally to handle 17-inch wide wheels (up an inch).

Similarly at the front, the suspension components are as before – upper and lower wishbones and sway bar – but the upright has been replaced by a modified version of that used on the M16 Indy car because it is both stronger and provides for more adjustment.

More striking, and more visible, than these detailed changes, however, are those made to the body in the interest of greater aerodynamic efficiency. The most noticeable are the vertical fences running the full length of the car to prevent air spilling off the sides – an idea borrowed from Peter Bryant's Ti-22 cars. In addition, the body section between the front fenders is longer by approximately 6 inches, increasing the downforce area, but at a slightly smaller angle, providing better penetration.

Several of these improvements in the car have been made to extract the maximum benefit from the 494- and 480-cubic-inch engines prepared by Gary Knutson and Lee Muir. The big banger (a combination of 430 block and 454 crank) has a straight line torque curve that rises to a whopping 700 lbs.-ft. at 6800 rpm, at which point the power is approximately 750 hp! The 480 (a combination of the special high-silicon, linerless Reynolds aluminum block and a 427 crank) is a more "driveable" engine with a wider rev band, about the same power, but less torque.

In contrast to the M8F, which represents the gradual refinement of an existing concept, Eric Broadley's T-260 is an entirely new design that grew from a clean sheet of paper. Both Broadley and Bob Marston, his chief design engineer, have a number of doubts about the flying-wedge shape as exemplified by the McLarens and their own T-222 designs. In particular they were concerned about the "speedboat effect" – the tendency for the nose to rise as the car crests on a hill or large bump and then, as it loses its downforce and air gets under the car, for it to rise at an ever increasing rate until the car executes a complete backflip. A similar, slightly less drastic effect is noted when a wedge car moves up very closely behind another. Although some downforce is lost on both the nose and the rear-mounted wing, the loss on the nose is much greater (because it is running in more disturbed air) and the front end can become disconcertingly light.

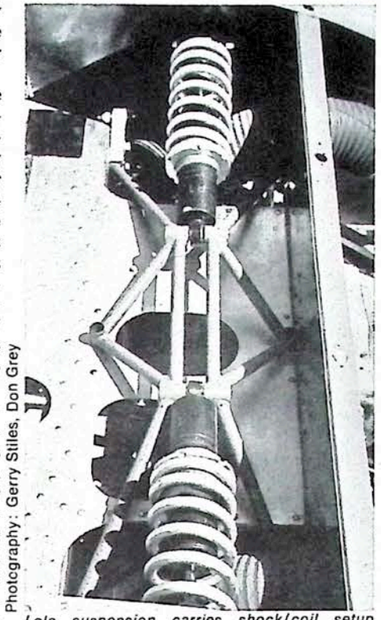
Broadley had also noted that the snub-nosed Porsches and Chevrons didn't appear to have this trouble and that they were still successful "even if they looked as though they shouldn't work." He decided to try such a design himself and after extensive work in the wind tunnel recently installed by Peter Jackson's Specialized Mouldings (builders of fiberglass bodies), the T-260 was evolved. The wind tunnel data showed that, compared with the T-70 or the T-212 (Broadley's 2-liner sports car design), the snub nose would work well and that there wasn't any drag disadvantage. It also fitted in with his desire for a light, compact car that would be more maneuverable than the opposition.

It had already been decided to move the radiator from the nose and mount twin radiators on either side of the car (with oil coolers behind them); while this has several advantages – it puts more weight near the middle of the car and makes the plumbing both simpler and more reliable – it is interesting that Broadley considers the greatest advantage of all to be that it provides a cool, more comfortable cockpit for the driver.

Like the McLaren, the Lola's engine acts as a stressed member and drives through the beefed-up Mk.2 version of Hewland's LG500. The 494 Chevy's are the responsibility of George Foltz.

Putting all its elements together, the car certainly looked business-like, purposeful – and compact. Although its 98-

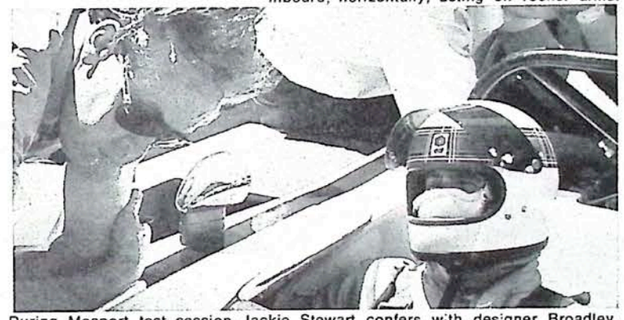
»»»



Photography: Gerry Stiles, Don Grey

Lola suspension carries shock/coil setup inboard, horizontally, acting off rocker arms.

Tricked-up Lola front has hole-punched plastic sheet over metal to break up boundary layer. Note creases in fenders.



During Mosport test session Jackie Stewart confers with designer Broadley. At next race, St. Jovite, Stewart waxed the McLarens for Lola's first win.

Can Am '71

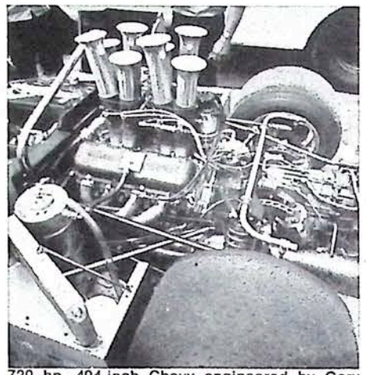
inch wheelbase is the same as Broadley's T-222 or the McLaren M8F, its overall length of 139 inches is almost 2½ feet shorter than those two cars.

And Stewart certainly upheld the faith invested in him when he drove the car for the first time in a private test session on the Thursday before the race. He found the car understeering at first, but after the typical intensive tuning session required of any new car, he ended the day at 1:18.3 – only 3/10ths off Dan Gurney's race record in an M8D last year. The following day, while Hulme, Revson and the rest of the field were still getting dialed in to the bumpy 2.46-mile circuit, Stewart chopped one second off his time and won the pole position from Hulme by 7/10ths of a second. One of the largest crowds in Mosport history packed the circuit on race day, many of them undoubtedly lured by the prospect of seeing Stewart upset the McLarens.

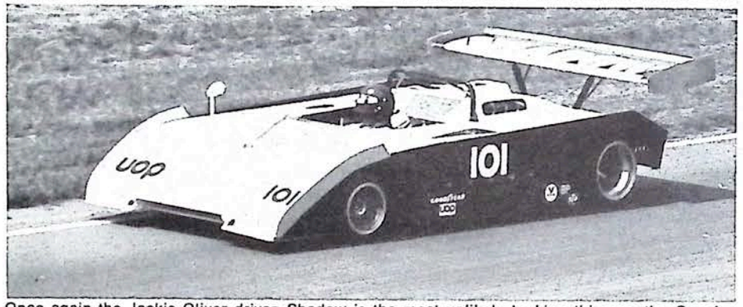
But is was not to be. A sticking throttle right from the start forced Stewart to back off at the first turn and although he slipped past Hulme on the 10th lap when the New Zealander was blocked by a car they were lapping, Hulme immediately saw that oil was dripping from the back of the Lola and decided that the leak would catch up with the Lola just as quickly as his McLaren. The unfortunate but inevitable end came nine laps later when Stewart's transmission seized, allowing Hulme and Revson to cruise to another easy victory, a lap ahead of the field.

Bryant's car began its final tests just after the Mosport race was run but since he has already established his credentials as a builder (Oliver drove the Ti-22 to three second places in four starts), the new car starts out on solid footing. It is basically a conventional machine that incorporates the low frontal area features of Don Nichols old Shadow, without the compromises that that unsuccessful design entailed. To that end, Goodyear has designed special low-profile tires that are mounted on 12-inch front and 15-inch rear wheels. The frontal area is further reduced by the use of a cross-ram intake manifold (as on the Chaparral 2H and 2J) for the Chevrolet engines being built by ex-McLaren engine man George Bolthoff. Unlike virtually all other Can-Am cars, the Shadow uses one of Pete Weismann's strong but light transmissions. The now "conventional" rear wing is mounted on this transmission, but at the front, acting as the top of the radiator inlet duct, is a smaller 32-inch wide wing. The car sits on a wheelbase of 96-inches, with an overall length of 146-inches, an overall width of only 72-inches and a height at the rear fender of only 25½-inches. Altogether a very tidy package.

Two weeks later at Mont Tremblant some further chassis sorting by Eric Broadley and a virulent flu virus that hit Denny Hulme on race day alloyed with Stewart's determined virtuosity to bring about the first real head-to-head defeat of the team from Colnbrook. This time around it was almost a reverse situation to that at Mosport. Denny had the pole with a qualifying time of 1.32.9 with Stewart sharing the front row outside at 1:33.2. Behind them were Revson at 1:35.0 and Jacky Oliver in the Shadow with a hard won 1:35.4.



720 hp. 494-inch Chevy engineered by Gary Knutson covers Can-Am field for McLaren.



Once again the Jackie Oliver driven Shadow is the most unlikely looking thing on the Can-Am trail. Debuted at St. Jovite, car ran with leaders at Road Atlanta until fuel bugs killed it.

Hulme led off in a double run against Stewart and the increasingly harsh bite of the bug. He held out for two thirds of the race but on the 52nd lap the bug and then Stewart caught up with him. His energy sapped, Denny couldn't sustain the effort and Stewart went by to draw out a lead of over a minute at the end of the race. Though violently ill and frequently raising his helmet visor for air, Hulme managed to hang in for second place ahead of teammate Revson. The debut of the Shadow was cut short at 12 laps with a long-standing gremlin: overheating of the small tires coupled with fuel-feed bothers.

At Road Atlanta it was Revson's turn as the Gulf-orange McLaren cars took everything, sweeping both qualifying and the race, though Stewart did his level best through a succession of frustrating mishaps to keep them honest during the latter affair. It has been said that the absolutely perfect win is accomplished when the car finishes the distance ahead of everybody else and then drops apart immediately after crossing the finish line. It seldom happens, but Revson came about as close as one would want to get. With a fair lead in hand over Hulme, three laps from the end, the center-lock nut on his left rear wheel came loose, allowing the wheel to wobble badly and bung up the driving pins. He slowed down enough to let Denny make up some 40 seconds on him but still managed to get over the line first, at which point he immediately pulled off the road and parked.

Revson and Hulme had to work and even sweat some for their sweep, thanks again to Wee Jackie. Charging from the grid at the start, Stewart picked off Hulme in three laps and then snaked by Revson in another five. It was a gallant effort but it was all too soon cut short when a rear tire on the Lola went flat and Jackie had to limp into the pits, followed by Oliver in the Shadow who had started in fourth place. His trouble was again fuel feed problems and it was to recur twice more with the final stop bringing retirement.

Stewart's stop went from merely frustrating to agonizing when the starter malfunctioned at the end of the tire change. When it finally fired, Stewart got out on the track and proceeded to outdo himself and everybody else with a dash that took him up eight places before brake trouble brought him in again. He was back out quickly and this time he turned it on even harder, accomplishing the impossible on his second lap out with a time of 1:17.4 which equalled the absolute track record set in 1970 qualifying by Vic Elford with the Chaparral 2J "vacuum cleaner." Again it was to little or no avail. This time a rear shock absorber let go and Jackie finally had to park. Frustrating.

With the pressure completely off, the McLaren cars cruised on in with a lap on the field. That is, Denny cruised. Peter had to sweat a little but then $13,500 ought to cost a *little* perspiration. /MT

Performance Polyglas

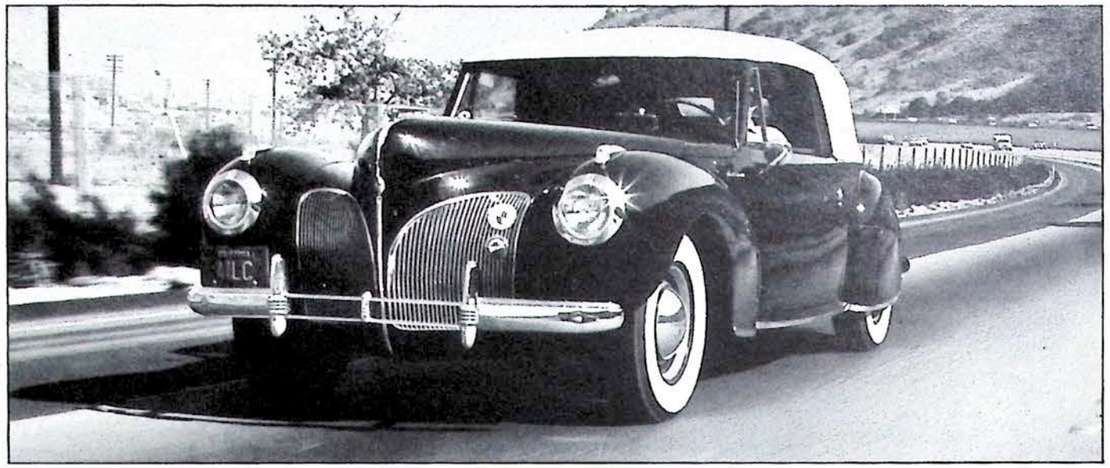
Now there are Performance Polyglas tires for mini, pony, compact or family cars. They're big, wide, white-lettered tires. Tires that bring the feel of the road right to your fingertips. That grab the road when you hit the brakes. That really hang on in corners and curves. Bold, brawny beauties. Tough enough to take almost anything the road can dish out. Choose from the Custom Wide Tread Polyglas 70 series or the Polyglas GT 60 series. Most cars can take Performance Polyglas tires. But first check your car's specs—they may be too much tire for your car.

GOODYEAR

Polyglas, Custom Wide Tread—T.M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

In Retrospect

1941 Lincoln Continental Cabriolet Owner: Lloyd P. Whitworth
Photography: John Lamm



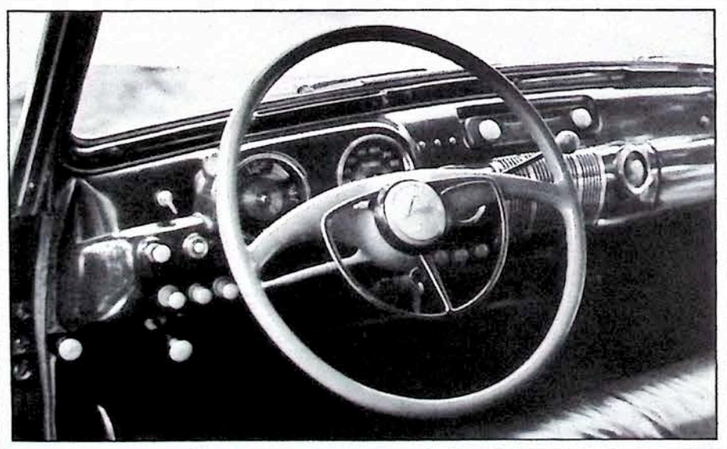
In Retrospect

Specifications

1941 Lincoln Continental

Engine	L-head V-12
Bore	2.875 in.
Stroke	3.75 in.
Displacement	292 cu. in.
Comp. ratio	7.2 to 1
Transmission	3-speed, column
Suspension front	Transverse, semi-elliptical solid axle.
Suspension rear	Transverse, semi-elliptical live axle.
Wheels	16 x 5
Tires	7.00 x 16
Brakes	Hydraulic, drum, servo
Wheelbase	125 in.
Tread, front	55½ in.
Tread, rear	58¼ in.
Height	62 in.
Width	73 in.
Weight	4,020 (Cabriolet)
Price (new)	$2,778
Price (now)	$3,000 and up

Top: Hundred-pointer or not, Lloyd Whitworth drives his '41 Continental daily. Above: "Whit" demonstrates one of the few faults, at least for those under 7 feet. Bottom: Original-looking dash in Whit's car was regrained by an anonymous San Diego casket-maker.



Deja vu, that feeling of having been there before, sometimes justified and sometimes not. So it was for me — justified — on a warm, sunny San Diego day last June.

The greenery and grounds around the Father Serra Museum and the old Presidio swirled down a time vortex and suddenly I was 16 years old and the greenery and grounds were those of the New Jersey shore and the campus of Admiral Farragut Academy reflected in the panels of Pop's Continental. There was the same smell of pine and salt air, but it was 3,000 miles and 30 years, almost to the day, away. It was the car that did it. I'd virtually grown up with it, or rather, one just like it. The same long hood and short deck; the same rich, deep green finish so clear and shiny it looked wet; the same Chino tan top; the same *real* whitewall tires; the same enameled V12 flathead engine with its brilliantly buffed aluminum heads and manifold surmounted by a ridiculously tiny Chandler Grove carburetor and miniscule oil-bath air cleaner; the same rich, brown natural leather upholstery and the same ivory plastic knobs on the dash that you couldn't dent with a hammer but which came apart like rotted teeth if exposed to the sun. It was all there, the very same.

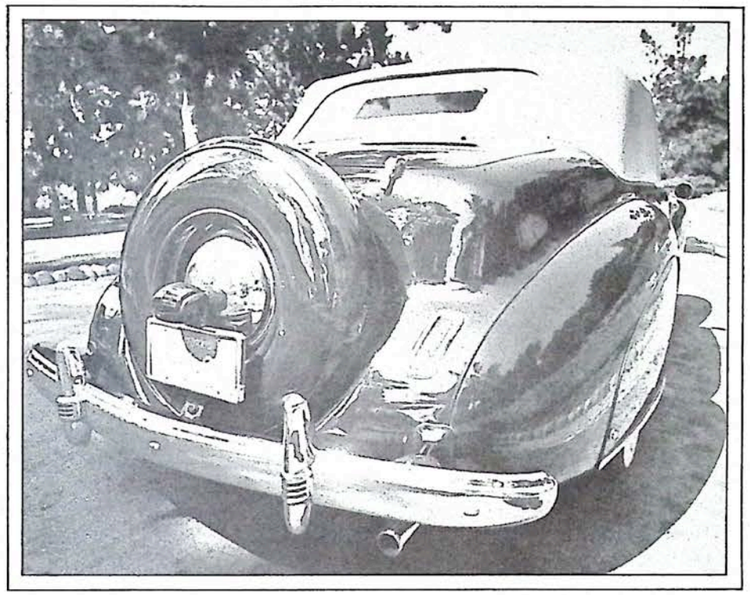
Only it wasn't. The time vortex turned back on itself and it was June, 1971, San Diego, California, and not June, 1941, Toms River, New Jersey. The Lincoln Continental in front of me was Lloyd Whitworth's, not my dad's. That one, the one in which I learned to drive, in which I muddled through early teenage amatory groping and on which I had left finger and knuckle tissue keeping it as pristine as Pop thought it should be kept, (even unto an annual 12-coat lacquer job applied by him and rubbed out by me) had

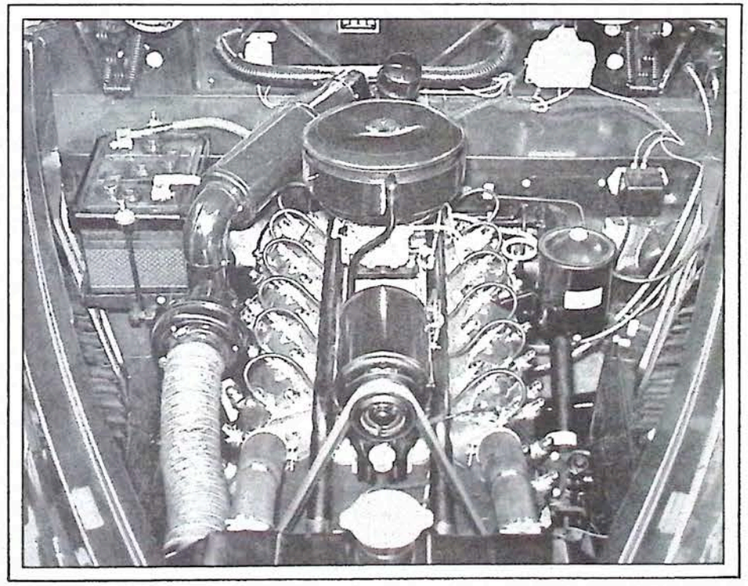
continued on page 69

In Retrospect

been sold six years ago, while I was out of town because I hated so much to see it go. It had to be; Pop was ill and couldn't give the care he felt it should have and I didn't have any place to keep it up either. Excuses in retrospect, and the next sound you hear will be that of my heel meeting that part of my pants where the little tag reads "levi," hard.

The vortex had returned back and Lamm was purposefully running Ektachrome through a Hasselblad and a Linhof, and Whit was talking about how 98 points out of a hundred in the last Concours wasn't good enough. He'd corrected those two or three points worth of blemish and it was next time bigod going to get the hundred it deserved. This one was Lincoln Continental Owners' Club Western Regional Director Lloyd P. Whitworth's hundred pointer and he was rightfully proud of it. But I was remembering the one just like it that I'd met on graduation day 30 years before.



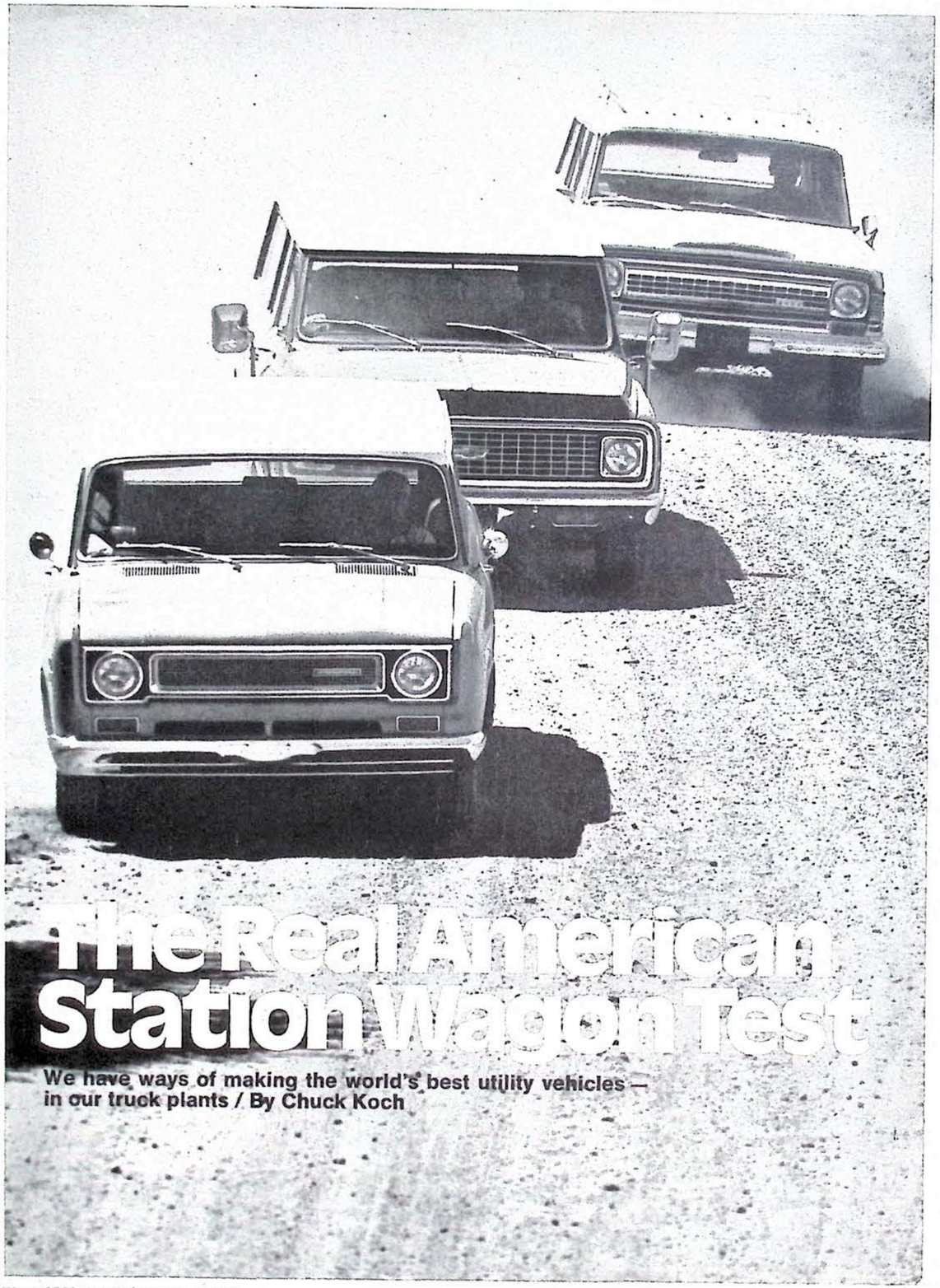


Top: So well finished and polished is the paint on this example that photographer Lamm had trouble keeping his reflection out of the picture. It's totally flawless. Bottom: The engine compartment is completely original, as if it were in as-delivered shape from a very careful dealer. Heads and manifold, now as then, are bright aluminum alloy, set off by acorn nuts.

Because, even today – today, hell – any day, the '41 Lincoln Continental was/is a lot of car. Take the styling for one example. In very recent memory people fell all over themselves for the Mustang's long hood-short deck, clean, uncluttered design. It's still the "now" look 30 years after Edsel Ford and Eugene Gregorie brought it to this country and modernized it. A clean '40 or '41 Continental still stops people cold on the street. Thirty years ago performance was a strong point of the Continental and even today they don't have to take any sass from half of the cars on the road if they're in any kind of decent shape. And handling? Compared to the other prestige cars of that era they were practically sports cars, about the only things on this side of the Atlantic that could outhandle them being the smaller products of the Ford line. The cross-sprung, solid axle suspension shared by Fords, Mercurys, Zephyrs and Continentals alike was considered a fairly high state of the art for the period, even being used in more refined form on Indy and sprint racers both post- and pre-World War II. Lest one get too parochial about "sports car handling," be it remembered that many of the so-called "greats" among sports cars of the immediate pre-war era were considerably less sophisticated in the suspension department. Even today, if one isn't afraid to utilize drift, a Continental will give a number of modern cars a tough act to follow on a relatively smooth but twisting road.

The car that was to set a styling trend lasting for over 30 years had its beginning in 1938. Actually it began even before that. Edsel Ford, as President of the Ford Motor Co., had long been interested in what he referred to as "continental" styling. He and Gregorie, during the Thirties, had designed and run up a number of cars on Ford chassis with long hoods and front fenders and other European design features, but in every case Edsel's wishes to produce cars that combined custom flavor and mass production were thwarted by old-line Ford production men, and the cars never got beyond the one-off stage, practical from a production standpoint though they might have been. Then one day in 1938 Edsel suggested that Gregorie design a special car for his own use based on the Lincoln Zephyr, and handed the designer a number of sketches of the car he wanted. A tenth-sized clay model was mocked up. Meeting with Edsel's approval, the model was turned over for a full engineering prototype with Edsel following every move. Using Zephyr panels,

continued on page 107

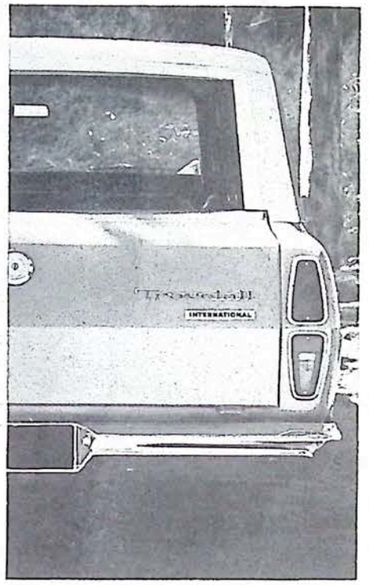


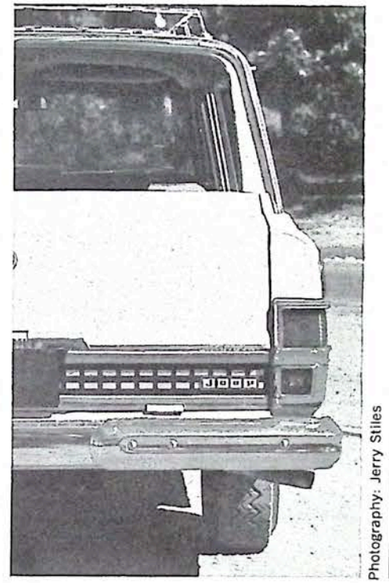
The Real American Station Wagon Test

We have ways of making the world's best utility vehicles — in our truck plants / By Chuck Koch

MT Comparison

Look, automobiles you assemble, trucks you build. It's important . . . maybe the most important thing you need to know if you need a *real* station wagon. Not the pseudo-country-club drive jobs that have been mostly compromised almost out of usefulness, but vehicles like Jeep Wagoneer, International Travelall, and the Chevrolet Suburban. Room enough for six people; folding back seats for huge expanses of cargo space; trailering options which allow you to tow the biggest delights of pleasure-time activity. Now, admittedly, these vehicles are not the most exciting things on wheels. After all, trucks are trucks and there's not much you can do to disguise them as something else, right? But, maybe not. Jeep, International and Chevrolet have refined these vehicles to a point where they can masquerade as family cars, not of just ordinary quality, but up in the Mercedes range.





Photography: Jerry Stiles

International Travelall is a superb example of this sort of utility vehicle; large but maneuverable; sprung to carry heavy loads, but soft riding when empty; and that's a trick we've been anticipating for years. In all, a very pleasing package. You know it is a quality-built vehicle from the 280SE-like "thunk" when you close the doors, the rattle-free silence on rough roads, and a big, comfortable driver's seat.

Entry and exit is easy in the Travelall, since there is no giant step up from the ground, and the floorboards are not at chin level. The bench seat is comfortable and provides adequate support, although the seat back is a little low and you really need those safety belts to keep from sliding around while negotiating a turn. Once behind the steering wheel you reach out and discover that, although it's a large diameter, it is not unpleasant, and it's placed so that the driver has adequate arm room and no sensation that his chest cavity is in imminent danger of collapse. Directly in front is the speedometer with a full complement of gauges, not lights, arrayed on either side; all legible and easily viewed. To the lower right are the air conditioning controls, a little difficult to reach but easy to operate.

Back seat comfort lacks a little with marginal leg room and seat backs which are far too low for adequate support. Still, it is possible to fit three adults in the seat for short to medium length drives without undue discomfort.

Those who regularly load into the rear compartment will love the one-handed tailgate operation, and a power window is included in the deal. Just insert the ignition key into the tailgate lock and turn; down comes the window; then an inside latch is pulled and the entire rear section opens to reveal a cavern of load space. With the back seat up, there is 77 cubic feet of cargo space. This expands to 124 when the seat is folded flush to the floor, which is a little difficult, since four latches must be operated, and in our test vehicle they didn't want to be – at least in proper synchronization. Tailgate liftover height is 24 inches, making it easy to get even heavy things into the cargo area. Total load capacity of the Travelall is 1,100 pounds.

Driving the Travelall is an unexpected pleasure. You sit up rather high, above the surrounding traffic, and have excellent visibility in all directions. This factor is aided by the inclusion of a passenger-side rear-view mirror, a must for anyone buying the car. The ride is stable and smooth – very soft even for a solid rear axle and longitudinal leaf-springs – but without wallow.

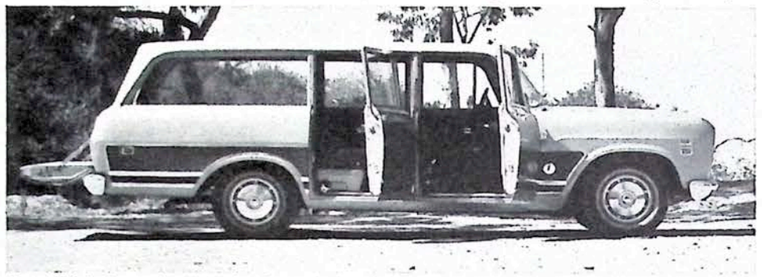
Maneuverability is surprisingly good for a vehicle with a 119-inch wheelbase and 204-inch overall length. Aided by a power steering unit which provides excellent road feel at any speed, the Travelall is easy to steer in and out of traffic pockets. Even on twisty mountain roads, the automobile exhibited surprising agility, as the 17.5:1 steering ratio transmits wheel input almost instantly, with acceptable body roll.

Our test Travelall came equipped with International's 392-2V powerhouse, which produces 253 hp at 4,200 rpm and 381 lb.-ft. of torque at 2,800 rpm, and booms out with the kind of authority you need to handle heavy loads. Gaining freeway speeds poses no problems, as the Travelall fairly sails to 60 mph in 11.1 seconds and zips through the quarter in 18.2 seconds with a speed of 76 mph. When we put a load in the vehicle, equivalent to six passengers, the times slowed some, but the car still showed a good deal of pep, recording times of 13 seconds to 60 mph and 18.9 in the quarter at 73 mph. Perfectly matched to this powerful engine is a smooth, precise, three-speed automatic transmission that shifts positively when it's supposed to. There is no delay and no jerking, from the quick shift movement. There is only one drawback to this otherwise fine power train: gas mileage. Our test »»»

Wagon Test

vehicle average barely 9 mpg with a 3.73:1 rear axle ratio, although a 19-gallon primary fuel tank and a 15-gallon auxiliary tank guarantee a 240-mile range.

While going is a pleasant experience in the Travelall, stopping can prove to be edgy, particularly when the vehicle is empty. The Travelall is equipped with power drum brakes at all four wheels and, while they brought the car to a halt in 143 feet from 60 mph, there was a trace of wheelhop and the rear end swung wildly to the right. However, when we repeated the test with a load, wheelhop ceased and swing-out was greatly diminished.



Travelall is far and away the best of the real station wagons in design, comfort, quality.

Chevy's Suburban has one more seat than Travelall, one less door. Performance is marginal.

Wagoneer fails to utilize good design potential. Ride is poor and handling not up to standard.

As nice as the Travelall is in the Utility vehicle class, it has strong competition from the Chevrolet Suburban Carryall, which ranks just behind the International in all facets except load space and ride. The Suburban has gone beyond being a combination passenger vehicle/truck combining the proportions of a small bus with the forward control feeling some drivers can't adjust to. You can order it with two rear seats, as our test car was, and carry 8 or 9 people, plus cargo.

It is a fairly comfortable vehicle, faintly reminiscent of a Blazer – with the same dashboard, steering wheel, and driving position – but since the wheel is too close to the driver and too large, arm fatigue sets in after a few miles. The seats are comfortable, with proper support, and legroom for all passengers is acceptable. All instrumentation is easy to read and all controls are very reachable, including the roof-mounted air conditioner which runs the full length of the vehicle and does a superb job of cooling the occupants.

With a gross vehicle weight of 4,800 pounds and a curb weight of 5,600 pounds, the Suburban can hold a good deal of cargo and there is plenty of space to put it in. If you remove the extreme rear seat, there is 103 cubic feet of load area and, when the middle seat is taken out, you are left with a massive 143 cubic feet of space. The problem is removing the seats, since they do not fold down but must be unbolted, carried from the vehicle, and stored in the garage. Even with a mind toward safety, another way can oelband.

To drive the Suburban you have to mentally prepare yourself for its size, since its 127-inch wheelbase and 215.5-inch length make it much larger than the other vehicles in this test. Once you get over the trauma of looking in the rear view mirror and seeing a never-ending expanse of sheet metal, the Suburban can be pleasurable. Its body is nearly as tight as the Travelall's, with only wind noise and the sound of tires thumping the road detracting from an otherwise quiet ride, although closing the doors does not broadcast the Mercedes ideal. Visibility is excellent, particularly to the side where truck-type mirrors are of immeasurable assistance.

Powered by Chevrolet's 350-2v V-8 engine, which develops 245 hp at 4,800 rpm and 350 lb.-ft. of torque at 2,800 rpm, the Suburban is at home on the freeway and yet not cumbersome on surface streets. Acceleration was not what it could have been, since our test vehicle came equipped with the standard 3.07:1 rear axle, and in the quarter-mile could do only 19.4 seconds. Loaded, this sagged to a VW-league-like 19.9 @ 70.45 mph. A Chevrolet small block's strong suit has never been bone-jarring low-speed torque. Still, they didn't manage to become the world's most successful performance engine by laying down at the starting line, so something's amiss on the Suburban. Too much weight perhaps? The machine just needs more inches.

As more and more figures get logged into Chevrolet's computers about suspension and brakes, their misjudgements on how much rate a certain car's springs must have, or what diameter the brakes ought to be should have pretty well been eliminated. And they have. That's one of the big reasons Vega is our Car of the Year. The Suburban could almost be voted Wagon-of-the-Year just for the way it stops – everytime. Empty from 60 mph, it stopped in 140 feet; loaded it was still like driving into a sandtrap, 141.6 feet.

After driving the Travelall and Suburban and becoming thoroughly accustomed to how good this type of vehicle can be, the Jeep Wagoneer was a disappointment. It just isn't in the same class, in either comfort or performance.

On paper, it looks like a good package; shorter, lower, weighing less than the other vehicles, yet able to carry as much cargo and possessing a V-8 engine nearly equal in horsepower, and better in its power-to-weight ratio. Yet, when Jeep puts these good points together in the Wagoneer, they come up short.

Comfort is our primary complaint. Entry is difficult, not so much a matter of ground clearance as inordinately high floorboards. You literally have to climb into the cab, and once you are situated

continued on page 74

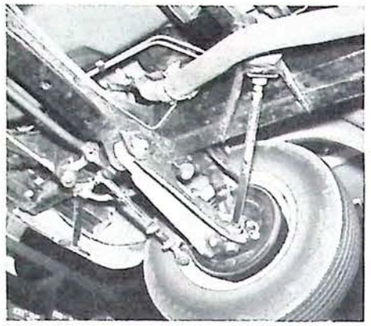
Wagon Test

behind the wheel, you aren't sure the task is worth it. The bench seat is actually uncomfortable, especially if you are the guy straddling the transmission hump. The seat back is far too low to provide good back support and the steering is located too close for the driver to assume a comfortable driving position. Side-to-side support is poor and the vinyl upholstery gets hot and sticky while driving, a situation the car's air conditioner could not rectify since the unit didn't work properly. The dashboard layout is good, though, with all controls easily reached and all gauges and lights in easy view.

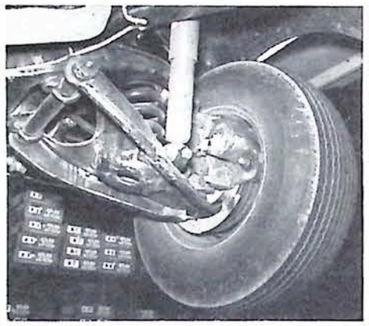
Load area behind the back seat is fairly small, compared to the other vehicles. With the seat up, cargo capacity is limited to 49 cubic feet which expands to 91 cubic feet when the seat is down. While the back seat is simple to fold, it does not fit flush with the floor, creating a hump which can cause packages to slide about. Although this load area is smaller than the other cars', the Wagoneer can hold theoretically as much cargo because of a gross vehicle weight of 5,500 pounds and a curb weight totaling 4,275 pounds, making it possible to accommodate up to a 1,225-pound load.

Even though the Wagoneer visibility is excellent and the relatively short overall length (183.6 inches) makes it possible to maneuver fairly easily in traffic, these factors are far outweighed by an overly harsh ride, created by a preponderance of unsprung weight (heavy-duty axles) and stiff, semi-elliptic springs. Add to this 8-ply nylon tires

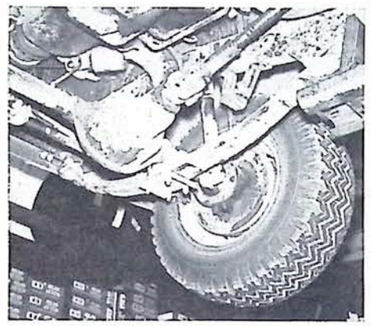
continued on page 111



IH has modern strut suspension, torsion bars. Or, if you prefer, opt for parallel leaf springs.



Chevrolet uses same sturdy lower wishbone, coil spring combination they have for years.



Jeep intends only business, with super rugged buggy springs, 8 ply tires and 4 wheel drive.

INTERNATIONAL TRAVELALL

Engine	Valve-in-head V8
Bore & stroke	4.12 x 3.66 in.
Displacement	390.89 cu. in.
HP @ RPM	253.4 @ 4200 mph
Torque	381.3 lbs.-ft. @ 2800 rpm
Compression ratio/fuel	8.02:1/regular
Carburetion	1 2-bbl.
Transmission	3-speed auto.
Final drive ratio	3.73:1
Steering type	Recirculating ball
Steering ratio	17.5:1
Turning diameter	NA
Wheel Turns	NA
Tire size	G78x15
Brakes	Drum/drum
Supension: front	Torsion bars, shocks, stabilizer bar
Suspension: rear	Longitudinal leaf springs, shocks
Body/frame construction	NA
Wheelbase	119 ins.
Overall length	204 ins.
Width	75 ins.
Height	68 ins.
Front track	63 ins.
Rear track	61 ins.
Curb weight	4,830 lbs.
Fuel capacity	19 gals.

Performance

Acceleration:

	Unloaded	Loaded
0-30 mph	4.0 secs.	4.5 secs.
0-45 mph	7.0 secs.	7.8 secs.
0-60 mph	11.1 secs.	13.0 secs.
0-75 mph	18.0 secs.	20.3 secs.
Standing start ¼-mile		
MPH	76 mph	73 mph
Elapsed time	18.2 secs.	18.9 secs.
Passing speeds		
40-60 mph	5.8 secs.	7.0 secs.
50-70 mph	7.1 secs.	8.1 secs.
Speeds in gears*		
1st	45 mph @ 4200 rpm	
2nd	72 mph @ 4200 rpm	
3rd	85 mph @ 3500 rpm	
Mph per 1000 rpm (in top gear)	24.2	
Stopping distances:		
From 30 mph	28.9 ft.	33.5 ft.
From 60 mph	143.0 ft.	149.6 ft.
Gas mileage range	8.5-9.2 mpg	
Speedometer error		
Electric		
speedometer 30	40 50 60 70 80	
Car		
speedometer 25	34 42 50 59 68	

CHEVROLET SUBURBAN

Engine	90° OHV V8
Bore & stroke	4.0 x 3.48 in.
Displacement	350 cu. in.
HP @ RPM	245 @ 4800 mph
Torque	350 lbs.-ft. @ 2800 rpm
Compression ratio/fuel	8.5:1/regular
Carburetion	1 2-bbl.
Transmission	3-speed auto.
Final drive ratio	3.07:1
Steering type	Recirculating ball
Turning diameter	NA
Wheel turns	NA
Tire size	H78x15B
Brakes	Disc/drum
Suspension: front	Coil springs, shocks, stabilizer bar
Suspension: rear	Coil springs, shocks
Body/frame construction	NA
Wheelbase	127 ins.
Overall length	215.5 ins.
Width	76.6 ins.
Height	70.5 ins.
Front track	64.1 ins.
Rear track	62.7 ins.
Fuel capacity	21 gals.

Performance

Acceleration:

	Unloaded	Loaded
0-30 mph	5.0 secs.	5.5 secs.
0-45 mph	8.5 secs.	9.0 secs.
0-60 mph	14.4 secs.	16.2 secs.
0-75 mph	23.3 secs.	26.9 secs.
Standing start ¼-mile:		
MPH	71 mph	68 mph
Elapsed time	21.0 secs.	21.6 secs.
Passing speeds:		
40-60 mph	7.5 secs.	8.4 secs.
50-70 mph	9.5 secs.	10.7 secs.
Speeds in gears*		
1st	42 mph @ 4000 rpm	
2nd	69 mph @ 4000 rpm	
3rd	86 mph @ 4000 rpm	
Mph per 1000 rpm (in top gear)	24.0 secs.	
Stopping distances:		
From 30 mph	33.5 ft.	
From 60 mph	154.0 ft.	161.5 ft.
Gas mileage range	9.6-10.0 mpg	
Speedometer error		
Electric		
speedometer 30	40 50 60 70 80	
Car		
speedometer 29.5	40 50 60 70 79.5	

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

JEEP WAGONEER

Engine	90° OHV V8
Bore & stroke	4.08 x 3.44 in.
Displacement	360 cu. in.
HP @ RPM	245 @ 4400 rpm
Torque	365 lbs.-ft. @ 2600 rpm
Compression ratio/fuel	8.5:1/regular
Carburetion	1 2-bbl.
Transmission	3-speed auto.
Final drive ratio	3.31:1
Steering type	Recirculating ball
Steering ratio	17:8.1
Turning diameter (Curb-to-curb-ft.)	NA
Wheel turns (lock to lock)	NA
Tire size	H78x15
Brakes	Drum/drum
Front suspension	Longitudinal leaf springs, stabilizer bar
Rear suspension	Longitudinal leaf springs, shocks
Body/Frame Construction	NA
Wheelbase — ins.	110
Overall length — ins.	183.6
Width	75.6 ins.
Height	65.3 ins.
Front track	57.0 ins.
Rear track	57.0 ins.
Curb weight	4,275 lbs.
Fuel capacity	22 gals.

Performance

Acceleration:

	Unloaded	Loaded
0-30 mph	4.0 secs	4.5 secs.
0-45 mph	7.5 secs.	8.0 secs.
0-60 mph	12.6 secs.	14.0 secs.
0-75 mph	20.2 secs.	24.5 secs.
Standard Start ¼-mile		
MPH	73 mph	69 mph
Elapsed time	18.9 secs.	19.6 secs.
Passing Speeds		
40-60 mph	6.6 secs.	7.6 secs.
50-70 mph	9.2 secs.	11.4 secs.
Speeds in gears*		
1st	38 mph @ 4400 rpm	
2nd	63 mph @ 4400 rpm	
3rd	80 mph @ 3600 rpm	
Mph per 1000 rpm (in top gear)	21.1	
Stopping distances:		
From 30 mph	33.6 ft.	
From 60 mph	179.1 ft.	160.2 ft.
Gas mileage range	10.6-11.2 mpg	
Speedometer error		
Electric		
speedometer 30	40 50 60 70 80	
Car		
speedometer 32	43 54 64 74 84	

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

The Seven Year Car

EMT Comparison

Every four or five years, U.S. manufacturers respond to a small, but vocal minority and produce an inexpensive car. And every four or five years, the lesson is relearned: cheap and inexpensive aren't necessarily the same. This time, perhaps inspired by computer printout, the cheap cars, e.g., Vega and Pinto, are not cheap. They are in fact, diminutive reproductions of their larger cousins.

Chevrolet has done it all along. The '68 Nova was designed to do a job in the small-car field and it has, every year since, quietly sold more than its quota despite the absence of significant restyling. It will remain the same until at least 1974, possibly '75, incorporating running changes into the car, even as the Vega does. If you get a late '71, then, you get a lot of '72 as well, especially if the thing comes from people who design it. So, we got three – one each from a distinct price and use class – hand delivered by the very gentlemen who monitor Nova progress – Dave McLellan, Chassis and Development; Larry Coleman, Suspension; and Jim Engle, Transmission and Exhaust.

Vega, Pinto, Gremlin, and a host of imports satisfy a need for what is, essentially, one man transport, but man is not a solo beast. He is a gregarious fellow and needs a back seat which can accommodate two adult bodies in reasonable comfort. The 1972 Nova has a fairly good sized back seat and it is reasonably comfortable. The four-door model is quite comfortable with lots of knee room for normal sized legs. The two-door has sufficient knee room but no extra space.

Chevrolet did some marketing research and came up with what may turn out to be a brilliant idea. To begin with, the researchers discovered that they sell a lot of Novas. Production figures for the 1970 model were 307,000. The strike hurt 1971 model production, with only 195,000 having been produced at this writing. In spite of the lag in numbers out the door, Nova still ranks seventh in overall nameplate production for '71.

Of the 502,000 sold over the two-year period, 89 percent were equipped with small engines, with 49 percent taking the six-cylinder 250 cid and 40 percent going with the 307 cid V8. The 350-2V went to 8 percent of the customers, but only 3 percent selected the relatively high performance 350-4V.

Although there are no customer profiles available, the significant fact that 74 percent of the Nova's sold were two-doors implies that the bulk of Nova fans are single, young marrieds or still have only small children.

The option mix for all Novas revealed a few salient factors: power steering went into 60 percent of the machines; automatic trans was bought by 80 percent of the drivers; air conditioning went in 19 percent of the units; but only 11 percent of the Nova owners selected power brakes. The arrow of optional trends points to comfort and economy.

Putting all of their data into the thinking machine, the product planners and marketeers decided to categorize their options and shoot for the relatively untouched, by Nova, performance segment of the compact arena, as well as the usual customer. Nova comes in five neatly planned well-thought-out packages for '72.

BASE MODEL or "grocery cart" version, almost totally devoid of frills. This spartan configuration is intended for use as a second car primarily in local runaround driving. Some of the suggested options are the Basic Group, consisting of wheel covers, AM radio, special interior group – day/night mirror and cigarette lighter. This can be built up from either the two-door or four-door version with the base six-cylinder engine or the eight. Power steering, power brakes and auto trans are, of course, customer's choice.

RALLY NOVA SIX, a low-priced, sporty appearing fun car. The objective of this little innovation is to provide a good handling car, with bright paint job and stripes for people who can't quite

Five years ago Chevrolet introduced the Nova as a cheap car. By 1974, it may be the Division's standard.

By Jim Brokaw

Chevrolet put all of their data into the thinking machine and came out with five neatly planned, well-balanced packages for the Nova customer.

The Seven Year Car

afford a true warm dog, or don't really want one.

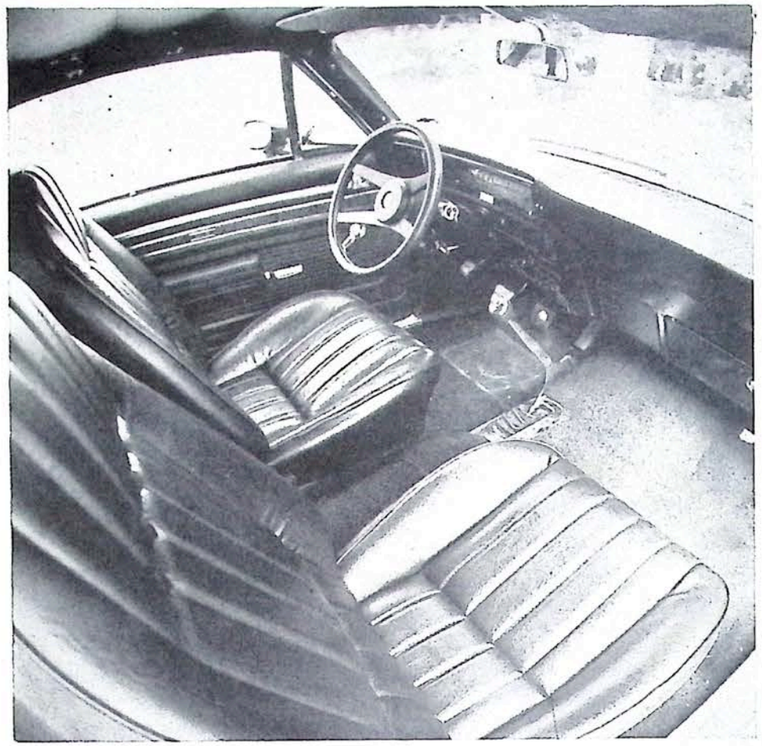
In addition to the basic group, the Rally Nova Six comes with a three-speed stick, sport steering wheel, and variable ratio power steering. The Rally Nova special equipment package consists of F-40 heavy-duty suspension, Rally wheels, left-hand racing mirror, stripes and floor carpet. The F-40 suspension includes a front stabilizer bar for the six-cylinder engine. The front stabilizer is standard with a V8.

Additional options provide base bucket seats, deluxe interior, power disc/drum brakes, wheel trim rings and bias-belted whitewall tires.

INSURANCE SPECIAL SPORT SEDAN, which is, in essence, a Rally Nova 8. Required equipment includes positraction limited slip differential, 350-2V engine, in addition to the Rally Nova six equipment. Deluxe buckets are the sole specific comfort option unique to the 8. This little creation is very specifically designed to counter the insurance vendetta against anything remotely resembling power.

LUXURY COMPACT is the four-door version with V8 engine. The three-speed automatic M38 transmission is a required option. Power steering, power brakes, deluxe interior and outside remote mirror are also required options.

The size, which applies logically to the entire Nova two-door line, is ideal for a commuter car, and most adequate for a small family.



Above: Rally Nova 8 with contoured, stratobucket seats, sport steering wheel, carpeting, and floor mounted, three-speed shifter.

Below: Four-door luxury compact interior includes carpeting, sidewall trim and courtesy lighting. Air conditioning is optional extra.

Rally Nova 8, with F40 suspension, demonstrates superior cornering capacity by passing luxury sedan on the outside of turn.

Optional options include tinted glass, vinyl roof, air conditioning, AM/FM radio and bias-belted tires.

SUPER SPORT is an example of yielding to temptation. Comfort and luxury items are played down in preference to performance and handling options. Even though the 350-4V engine could hardly be called a threat to peace and security, the addition of a four-speed manual transmission will make it an instant target for most insurance companies unless your signature glows in the dark or you can walk across your swimming pool. The Super Sport package includes a 3.42:1 rear axle ratio, 7-inch wide wheels, dual exhausts and belted E70x14 tires. The F41 High Performance suspension includes a heavy-duty rear sway bar. Options also provide for "Alternative Exterior Trim Schemes." Would you believe that?

The Plain Jane "grocery cart" was omitted, assuming that the average motoring writer can mentally create his own atmosphere of boredom. Our base vehicle was the Rally Nova 6 two-door, with yellow paint and a black stripe. Steering was of the manual variety as were the drum/drum brakes. A single-barrel carburetor nursed a 250 cid six-cylinder engine. We did have the F40 heavy-duty suspension, a three-speed manual stick shift, base buckets, and a stimulating adornment of decor items.

The size, which applies logically to the entire two-door line of Novas, is ideal for a commuter car, most adequate for a two-people family or social group, fine for one or two small children, and driver's choice for anything larger. Power on the six was a disappointment. It's not a complete slug by any means, but it definitely lacks the customary low end pulling power we came to expect of sixes back when that's all Chevy had. Response throughout the usable range is uninspired, and the top end is about as exciting as a women's liberation sergeant-at-arms.

The manual steering does not require a great amount of effort to turn the small diameter sport steering wheel, but it does take an endless number of turns to get that 21:1 ratio to show anything at the front wheels. Whipping through Hollywood Boulevard traffic at 5:30 p.m., the driver is a blur from shoulders to wrists.

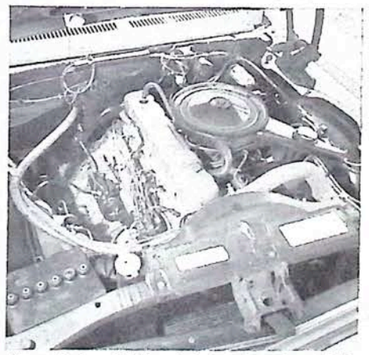
Manual drum/drum brakes don't make it either. Stopping distances are not unrespectable, but pedal pressure is enough to give you the leg muscles of an NFL placekicker. If you lose the challenge to feather foot the manual brakes, you may lose period. The situation is not difficult to understand but hard to justify. Chevrolet has only one basic drum brake package – with or without power assist. Since it's more of a problem to deal with the power assist, the manual-brake user has to overcome some compromise mechanical arrangement suiting both contingencies, and the end result is poorer brake reaction than we had 15 years ago.

Now, reviewing Chevrolet's own market research, you see that power brakes are specified only 11 percent of the time. We are left, then, trying to fathom why the majority of Nova buyers aren't being offered the best manual brakes, even though that is what they choose most often. What the Nova needs is a good unassisted disc front/drum rear brake arrangement.

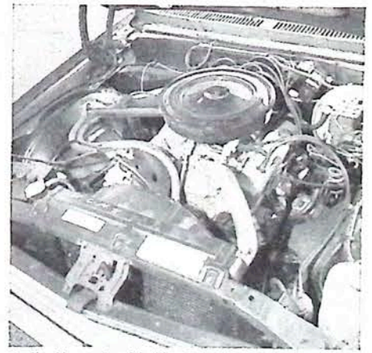
Everything else on the six was quite up to snuff, particularly the F40 suspension, which is a joy to the heart.

All of the good pieces were on the Rally Nova 8, or insurance beater special. Quick ratio power steering, power disc/drum brakes, a 350-2V engine, fancy bucket seats, positraction rear axle, plus the normal Rally Nova equipment. Power steering converts the Nova into a nimble, quick-handling machine. Power disc/drums are sure stoppers with a capacity for minute application.

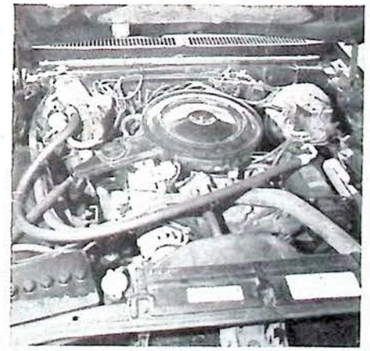
The 350-2V engine was a whole new ball game. With a torque peak of 350 lbs.-ft. at 2800 rpm, all of the go is down at the working end of the operating envelope. Acceleration is swift and sure, but not of the neck-snapping variety, as the 0-60 times of only 9.5 seconds will attest. It is, however, adequate »»»



Six-cylinder, 145-hp L-6 engine gives Rally Nova adequate power, plenty of working space.



Rally Nova 8 with V8, 245 hp, 330 cid power plant gives plenty of insurance-legal power.



When air conditioning unit is added to the 350 cid, the space gets a tad crowded.

The Seven Year Car

to any task required, including freeway on-ramp operation. The three-speed manual trans is a bit of an anachronism. The primary intent of the three-speed is ostensibly economy. The only thing wrong with that theory is that in most non-cruise situations, between 20 mph and 40 mph, all of your driving is done in second gear, which puts the revs well out of the economy range. The step between first, 2.54:1, and second, 1.50:1, is just a tad steep for real economy. Fortunately, second has a very wide usable range, so that you're not constantly shifting gears, but the gas mileage is not all it would be with a four-speed.

Handling in the Rally 8 is all you could ask. Under normal circumstances, the machine is extremely stable and firm, without undue harshness. When pushed to the limit, the Nova very surprisingly goes from slight understeer to a virtual neutral condition as long as power is liberally applied. This is as you want it, inasmuch as control can be retained as long as the driver retains his cool. It is fairly difficult to spin out.

Of the luxury/comfort options, the top quality Strato-bucket seats (up to '72, available only in Camaro), are worth the price although you may not think that the rest of the fancy interior demands $247. The Strato-buckets are more generously contoured for better lateral body retention, and more heavily padded for better support for that portion of the anatomy which is most in need of cushioning.

All things considered, the Rally Nova 8, with equipment as listed on the spec page, is just about as well balanced a package as could be put together, with the exception of a four-speed shifter and the omission of good radial-ply tires instead of the E78x14 Goodyears. If you had the newest Michelins, cornering forces would only drop marginally in exchange for significantly better wet-weather performance and much improved mileage. The good people at Chevrolet tell us they would even like radials but no domestic tire manufacturer has enough capacity to service the Division's needs.

On the luxury end of things, the four-door, top-of-the-line package, with V8 engine, automatic transmission and air conditioning, is a veritable bundle of environmental control. The price is high, maybe too high, $4,066, but any car with air and a fancy interior is going to be expensive. Instead of the questionable control of the typically American cream puff boulevard ride, you get some very comfortable transportation. The standard suspension suffers from some minor front end road noise when the springs are put to the test, but it is not overly disconcerting.

There is a problem with the 350 engine when mated to the Turbo Hydra-matic transmission. Seemingly because of tight emissions, on a cold start, the engine tends to stall initially when you go into drive from neutral or park. There is also a bog and surge on the first two or three cold engine accelerations from a stop. If you go to a higher idle setting, the warm engine idle will be too high, so the school solution is to keep your field boots resting on the gas pedal and hold the brake with the left foot while you engage the trans. This problem quickly dissipates as you drive along so it does not constitute a disqualifying defect.

There is an additional emission control penalty. In order to eliminate the offensive belch of pollution under compression braking, the engine is maintained at cruise rpm by means of a micro-switch in third for the manual trans, and a sensing device on the auto trans after the accelerator is released. This is good for the lungs since you won't be gassing any bystanders; however, you may suffer from involuntary expansion of the eyeballs the first couple of times you back off in third and the little machine maintains its rate of progress.

All in all, the '72 Nova comes tailor-made for your individual taste, whatever it may encompass. We feel that the ideal package is the Rally Nova 8, with power steering and brakes, four-speed manual, if it suits your fancy and your insurance agent's, or three-speed automatic if it doesn't; then, positraction, sport steering wheel, big tires and all the comfort luxury items your budget will hold. If a four-door is more suited to your needs, by all means pop for the four-door, but with the F-40 suspension and radial-ply tires. We strongly urge that you do not undertake the manual steering or manual drum/drum brakes without first road testing same.

All the signs for the next great American market swing, to the compact luxury touring car, are there for those with enough perception to see them. Chevrolet has most of the pieces in their parts bin for a head-on clash with BMW, Volvo, Audi and a host of others but don't seem to have the enthusiasm to do it.

Perhaps it is "Micro Shock." In spite of the move toward less bulk and girth in our thoughts on transportation, it is surprising to learn general American society doesn't buy small-size out of hand. While engaged in a lively discussion with a group of non-enthusiast big car drivers, one of the gentlemen described his reaction on going from a full-sized wagon, which was then under repair, to a Vega, not as a passenger, but as the driver. The sudden and dramatic shrinking of his mobile environment produced feelings not unlike that of claustrophobic panic. All of the normal judgment parameters were gone. All of the non-visual sensory inputs were alien, giving the driver no usable information. Naturally the initial response to the sub-compact experience was one of distaste. Not from actual evaluated dislike, but more from a rejection of an alien environment. Be forewarned. Even when considering a Nova, which is a bit larger than a Vega, you may have to move down from a full-sized model in steps. Chevelle first, then a Nova. Get adapted before you try to venture out behind the wheel. Naturally the younger bunch will adapt with no strain. Right?

Whatever you do in regard to Nova and its brethren, don't knock it till after you've read the price tag. /MT

Handling in the Rally 8 is all you could ask. Under normal circumstances the machine is extremely stable and firm, without undue harshness.

6-CYL. NOVA COUPE

Base price	$2,376.00
Custom deluxe belts	22.15
Soft-ray tinted glass	40.05
Rear window defroster	31.60
3-Speed floor shift	26.40
Sport steering wheel	15.80
Electric clock	16.90
AM pushbutton radio	66.40
Rally Nova equipment	99.55
Auxiliary lighting	18.45
Black cloth intereor	NC
52-52 Sunflower Yellow (car color)	NC
Car includes front shoulder belts, seat back latches	NC
Total	$2,713.30

8-CYL. NOVA COUPE

Base price	$2,471.00
Custom deluxe belts	20.55
Soft-ray tinted glass	40.05
Strato-bucket seat interior	247.55
Rear window defroster	31.60
Visor vanity mirror	3.20
Positraction rear axle	46.35
Power disc/drum brakes	69.55
245-hp Turbo-fire 350 V8	26.35
3-Speed floor shift	26.40
Sport steering wheel	15.80
Power steering	103.25
E78x14 belted white stripe tires	54.45
Wheel trim rings	29.00
Electric clock	16.90
AM/FM pushbutton radio	139.05
Rear seat speaker	15.80
Heavy-duty radiator	14.75
Rally Nova equipment	99.55
Auxiliary lighting	18.45
Black vinyl interior	NC
75-75 Cranberry red (car color)	NC
Total	$3,489.60

8-CYL. NOVA 4-DOOR SEDAN

Base Price	$2,503.00
Custom deluxe belts	22.15
Custom deluxe rear shoulder belts	26.35
Soft-ray tinted glass	40.05
Vinyl roof cover/green	84.30
Rear window defroster	31.60
4-Season air conditioning	391.80
Remote control rearview mirror	12.65
Visor vanity mirror	3.20
Power disc/drum brakes	69.55
245-hp Turbo-fire 350 V8	26.35
Turbo Hydra-matic	205.95
Sport steering wheel	15.80
Power steering	103.25
E78x14 belted white stripe tires	54.45
Electric clock	16.90
AM/FM pushbutton radio	139.05
Rear seat speaker	15.80
Front and rear bumper guards	25.30
Custom interior	121.15
Custom exterior	76.90
Rally wheels	45.30
Auxiliary lighting	15.80
Black cloth interior	NC
49-49 Antinque green (car color)	NC
Car includes: front shoulder belts; custom interior equipment — luxury trim, wood-grain door accent panels, bright interior accents, lighter, glove compartment light, carpeting, luggage mat, special insulation; custom exterior equipment — body sill and rear fender moldings, body side molding, rear trim panel	NC
Total	$4,046.65

SPECIFICATIONS

RALLY NOVA 6

Engine	OHV L6
Bore & stroke — ins.	3.875 x 3.53
Displacement — cu. in.	250
HP @ RPM	145 @ 4200
Torque: lbs.-ft. @ RPM	230 @ 1600
Compression Ratio/Fuel	8.5:1/Regular, non-leaded
Carburetion	1v
Transmission	3-Speed manual
Final Drive Ratio	3.08:1
Steering type	Manual, recirculating ball nut
Steering Ratio	27.68:1
Turning Diameter (Curb-to-curb-ft.)	41.4
Wheel Turns (lock to lock)	4.8
Tire size	E78x14
Brakes	Manual, drum/drum
Front Suspension	Coil spring
Rear Suspension	Leaf spring
Body/Frame Construction	Unit/sub-frame
Wheelbase — ins.	111
Overall length — ins.	189.4
Width — ins.	72.4
Height — ins.	52.5
Front Track — ins.	59.0
Rear Track — ins.	58.9
Curb Weight — lbs.	3,012
Fuel Capacity — gals.	16.0
Oil Capacity — qts.	4 (5)
Luggage Capacity — cu. ft.	14.6

PERFORMANCE

Acceleration	
0-30 mph	4.7
0-45 mph	7.9
0-60 mph	12.7
0-75 mph	21.2
Standing Start ¼-mile	
Mph	72.34
Elapsed time	18.76
Passing speeds	
40-60 mph	6.3
50-70 mph	8.5
Speeds in gears*	
1st ...mph @ rpm	38 @ 4500
2nd ...mph @ rpm	65 @ 4500
3rd ...mph @ rpm	94 @ 4500
Mph per 1000 rpm (in top gear)	20.8
Stopping distances	
From 30 mph	22 ft.
From 60 mph	157.9 ft.
Gas mileage range	12.9-19.6 mpg/16.58 ave.
Speedometer error	
Car speedometer 30 45 50 60 70 80	
Electric speedometer 28 45 50 61 72 82	

RALLY NOVA 8

Engine	OHV V8
Bore & stroke — ins.	4.00 x 3.48
Displacement — cu. in.	350
HP @ RPM	245 @ 4800
Torque: lbs.-ft. @ RPM	350 @ 2800
Compression Ratio/Fuel	8.5:1/Regular, non-leaded
Carburetion	2v
Transmission	3-Speed manual
Final Drive Ratio	3.08:1
Steering type	Variable ratio, power
Steering Ratio	15.8-12.9:1
Turning Diameter (Curb-to-curb-ft.)	41.4
Wheel Turns (lock to lock)	3.1
Tire size	E78x14
Brakes	Power, disc/drum
Front Suspension	Coil/stabilizer
Rear Suspension	Leaf spring
Body/Frame Construction	Unit/sub-frame
Wheelbase — ins.	111
Overall length — ins.	189.4
Width — ins.	72.4
Height — ins.	52.5
Front Track — ins.	59.0
Rear Track — ins.	58.9
Curb Weight — lbs.	3,250
Fuel Capacity — gals.	16.0
Oil Capacity — qts.	4 (5)
Luggage Capacity — cu. ft.	14.6

PERFORMANCE

Acceleration	
0-30 mph	3.5
0-45 mph	5.8
0-60 mph	9.5
0-75 mph	14.3
Standing Start ¼-mile	
Mph	81.96
Elapsed time	16.80
Passing speeds	
40-60 mph	4.2
50-70 mph	4.7
Speeds in gears*	
1st ...mph @ rpm	54 @ 5500
2nd ...mph @ rpm	90 @ 5500
3rd ...mph @ rpm	98 @ 4000
Mph per 1000 rpm (in top gear)	24.5
Stopping distances	
From 30 mph	26 ft.
From 60 mph	118 ft.
Gas mileage range	13.5-14.3 mpg/13.84 ave.
Speedometer error	
Car speedometer 30 45 50 60 70 80	
Electric speedometer 30 45 50 60 70 80	

NOVA SEDAN V8 AUTOMATIC

Engine	OHV V8
Bore & stroke — ins.	4.00 x 3.48
Displacement — cu. in.	350
HP @ RPM	245 @ 4800
Torque: lbs.-ft. @ RPM	350 @ 2800
Compression Ratio/Fuel	8.5:1/Regular, non-leaded
Carburetion	2v
Transmission	3-Speed auto Turbo Hydra-matic
Final Drive Ratio	2.56:1
Steering type	Variable ratio, power
Steering Ratio	15.8-12.9:1
Turning Diameter (Curb-to-curb-ft.)	41.4
Wheel Turns (lock to lock)	3.1
Tire size	E78x14
Brakes	Power, disc/drum
Front Suspension	Coil/stabilizer
Rear Suspension	Leaf spring
Body/Frame Construction	Unit/sub-frame
Wheelbase — ins.	111
Overall length — ins.	189.4
Width — ins.	72.4
Height — ins.	53.9
Front Track — ins.	59.0
Rear Track — ins.	58.9
Curb Weight — lbs.	3,490
Fuel Capacity — gals.	16.0
Oil Capacity — qts.	4 (5)
Luggage Capacity — cu. ft.	13.7

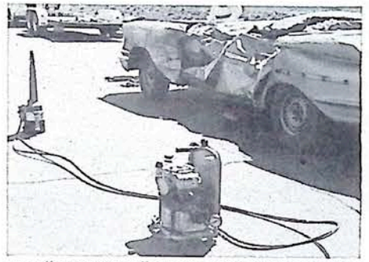
PERFORMANCE

Acceleration	
0-30 mph	3.7
0-45 mph	6.3
0-60 mph	9.5
0-75 mph	14.5
Standing Start ¼-mile	
Mph	81.89
Elapsed time	17.20
Passing speeds	
40-60 mph	5.0
50-70 mph	5.9
Speeds in gears*	
1st ...mph @ rpm	58 @ 5000
2nd ...mph @ rpm	96 @ 5000
3rd ...mph @ rpm	103 @ 4000
Mph per 1000 rpm (in top gear)	25.75
Stopping distances	
From 30 mph	40.5 ft.
From 60 mph	146 ft.
Gas mileage range	13.02-15.68/14.35 ave.
Speedometer error	
Car speedometer .. 30 45 50 60 70 80	
Electric speedometer .. 31.5 46 51 61 71 80	

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

Hurst Rescue Tool

Auto equipment manufacturer George Hurst (left) with John Reed, National Transportation Safety Council, during a recent demonstration of the new rescue tool for Washington safety officials.



new "can opener" rescue tool really portable. Small gas engine and hydraulic pump make the

We do not have any specific figures concerning the number of persons who lose their lives annually because they are unable to get out of or be removed from a vehicle following an accident. However, it's probably safe to assume that such figures are fairly high. Often an accident victim's life could have been saved had rescuers been able to extract him from the wreakage in time to administer emergency medical treatment. Many times when help reaches the site of an accident (even though it got there in a hurry) the rescuers will find that the occupants of the vehicle have been trapped inside, by either a crushed roof, a crash-jammed door or a collapsed steering column. In the majority of such cases the emergency crews must spend precious minutes, many times even hours, trying to extract the victims from the wreckage. And in many cases, had they been able to get the people out quickly, lives would doubtless have been saved. These unfortunate situations may alter in the future, however, with the introduction of a new tool by Hurst Performance, Incorporated.

The Hurst Rescue Tool was invented by that company's founder, George Hurst, after he viewed a stock car race accident in which it took workers over an hour to remove an injured driver from his car. That was about ten years ago, and the tool has now reached the prototype stage of development. It is currently being shown to various safety organizations throughout the country to test its marketing possibilities.

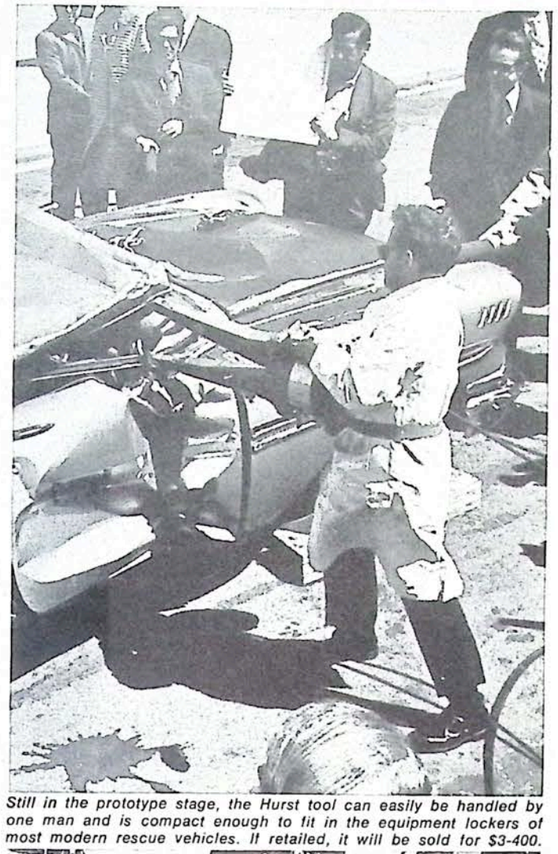
The device consists of large steel jaw arms which are extracted or expanded by means of a 5000-psi hydraulic pressure. It can be hand-held for operation in any position and is portable, the unit's compact size allowing easy storage in rescue vehicles. The "can opener," as it has been nicknamed by safety officials, is capable of moving six tons of wreckage in order to allow the removal of trapped persons by prying off jammed doors or collapsed roofs. (It can right an overturned vehicle in less than 60 seconds.)

During a recent safety demonstration in Washington, D.C., Secretary of Transportation John Volpe personally demonstrated how the tool can be used to remove a person trapped underneath a car. Also attending this particular demonstration were Doug Toms, administrator of the NHSB, and John Reed, chairman of the National Transportation Safety Council, as well as officials of 14 national safety organizations. Tests are also being staged for fire and police departments and other groups which deal in emergency rescue operations.

Some of the features of the Hurst tool which make it unique among present rescue devices are its silence and the fact that, unlike a cutting torch, there is no flame involved. In addition, it produces no flying abrasives, like a cutting or grinding wheel.

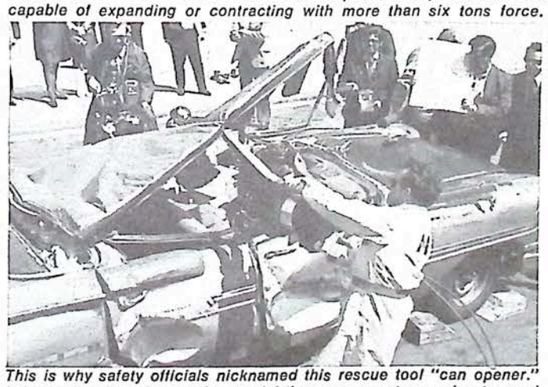
Conceivably, a tool like the Hurst device could also be useful in auto racing application – in instances such as the one involving Mr. Hurst, mentioned above, as well as in ones where a race car might be trapped beneath debris or another car, or between the rails of a guard fence.

Should the Hurst Rescue Tool go into production, the retail price would be somewhere between $3-4000. It is also envisioned that it could have equal potential in areas such as avaition, construction and industry. /MT

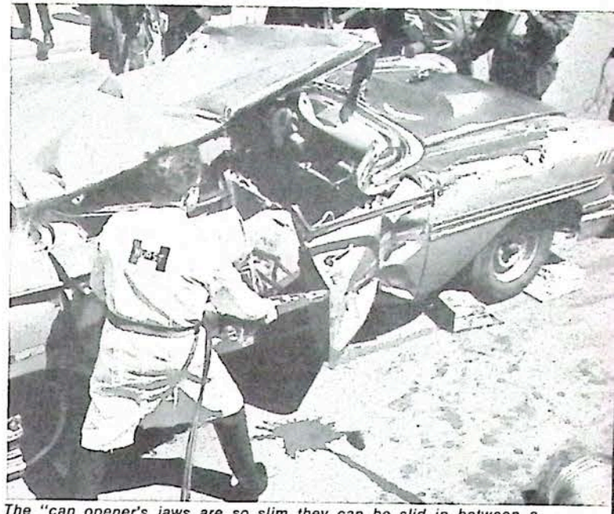


Still in the prototype stage, the Hurst tool can easily be handled by one man and is compact enough to fit in the equipment lockers of most modern rescue vehicles. It retailed, it will be sold for $3-400.

After an overturned car has been righted (using the rescue tool) the flattened roof can be raised with the tool's pincer-like jaws which are capable of expanding or contracting with more than six tons force.

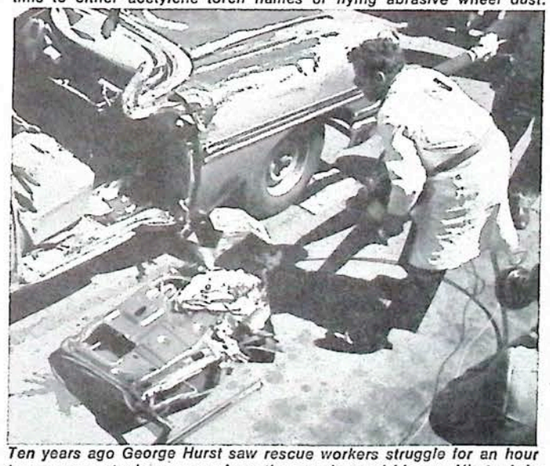


This is why safety officials nicknamed this rescue tool "can opener." It is expected to shorten the crucial time now spent removing trapped victims from auto wrecks, reducing the nation's highway death rate.

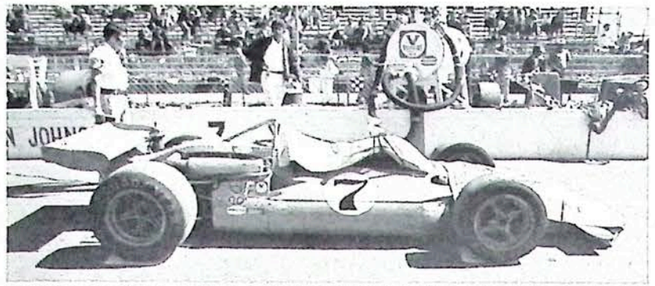


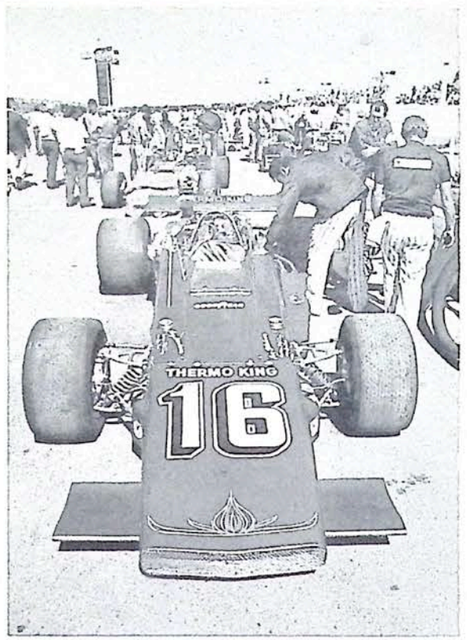
The "can opener's jaws are so slim they can be slid in between a car's door and door pillar to pop open crash-jammed doors and remove victims wedged underneath the dashboard during an impact.

Hurst Performance Inc., makers of the rescue tool, claim it is superior to rescue equipment now in use because it doesn't expose crash victims to either acetylene torch flames or flying abrasive wheel dust.

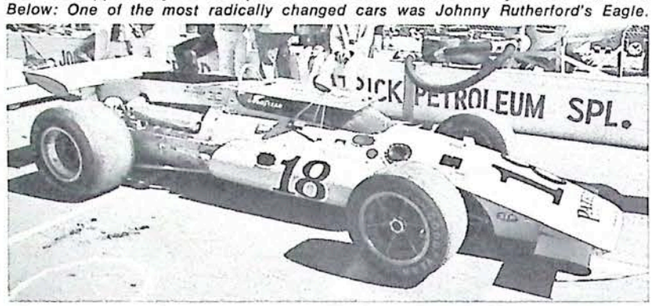


Ten years ago George Hurst saw rescue workers struggle for an hour to remove a stock car racer from the wreckage of his car. His tool, in the development stage the past ten years, does the job in minutes.





The influence of the McLaren M16s was felt sooner than expected as nearly half the cars in the Pocono field suddenly sprouted wings. Above: Gordon Johncock took the opportunity to incorporate the latest tricks in his year-old McLaren. Below: One of the most radically changed cars was Johnny Rutherford's Eagle.



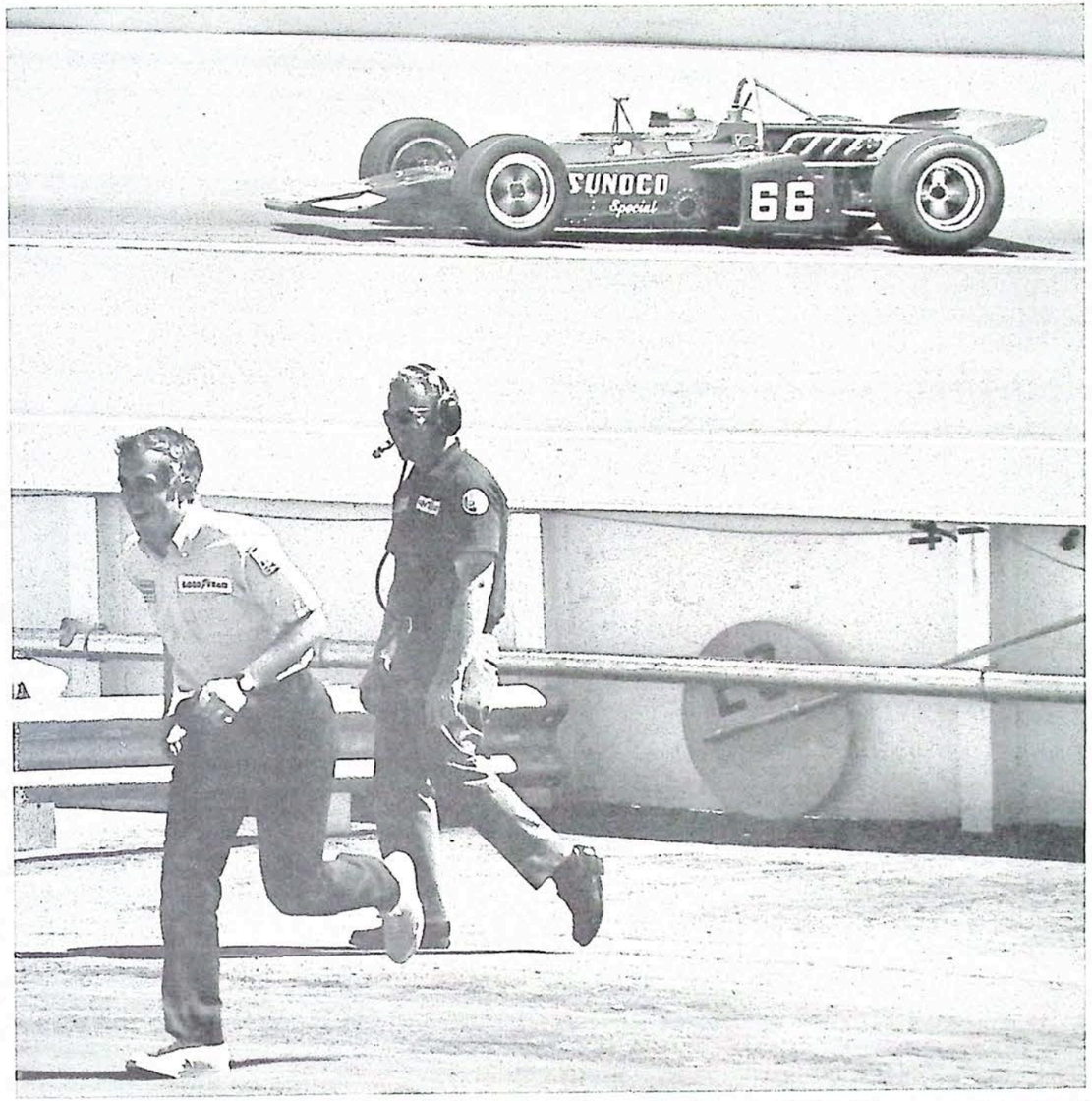
Schaefer 500 At POCONO

While most of the attendees at the inaugural California 500 last Labor Day were still trying to get it straight in their heads that there would now be two Indys each year, the word suddenly was that by July 4th, 1971 there would be three. Minds just beginning to grasp the idea that Ontario was a reality were sent reeling by the announcement that with the completion of the tri-oval at Pocono, USAC championship racing would soon have a Triple Crown of 500-milers.

Pocono? Was that a punch-line, or what?

The Pocono Mountains of eastern Pennsylvania ("The vacation and honeymoon capital of the East"), a very green, largely natural and unspoiled resort area, is among the Keystone state's greatest tourist attractions. There are more miles of deciduous forest than one believes could still exist in our country, especially when overflying the strip-mined desolation that eats its way westward from neighboring Scranton. The Poconos are rural and rustic, and, like most resorts, there is really nothing to do and no place to go. Which is probably precisely why the city folks flock there and pay outlandish rates.

The idea of plunking down a full-blown racing plant plumb in the middle of all this lush greenery dates back about 15 years, but the sprawling 1,025-acre spinach patch wasn't purchased until 1962. Racing Incorporated, the group behind the project, had since its formation five years before been checking the various major racing facilities then in existence with an eye toward utilizing the best features of each. Stocks and debentures to finance the multi-million dollar raceway went on sale in '65, allowing the rough grading to be completed, the first phase of construction. A ¾-mile oval and a drag strip were completed three years later, but the inaugural event, a Super-Modified race on the oval, was delayed until May, 1969. Later a 1.8-mile road course for club racing was completed. However, when the 10-year contract with USAC to hold an annual 500-mile championship car race was signed in January of 1970, construction of the 2½-mile oval hadn't even begun. The raceway directors like to say, in fact, that it was less than a year before their big race that the oval was just an empty field. They're not too high, though, on the fact that practice had to be shut down less than 10 days before the race so that the pavement at turn two could be patched because USAC Chief Steward Dick King considered it too dangerous to run on. Patching work in that same turn (which had sunk where the traffic tunnel to the infield passes under the track) was reportedly still going on at 1:00 a.m. on the morning of the race. But, come race time, the track was ready.



The overall feel of the place is a mixture of Daytona and Ontario, though the tri-oval layout, with just three turns, reminds the West Coast drivers of a super Hanford. The setting is Daytona, with trees and mud, but the garage area is very much like OMS, though that facility wasn't even dreamed of when Racing Incorporated started its surveying. The tri-oval is quite interesting from the driver standpoint in that not only is it not symmetrical, but that each corner and each straight is totally different, meaning that the approach and driving technique for each portion is likewise totally different. The front straight is the longest and widest (3,740 x 100 feet) and is the best place to pass. Turn one is banked at 14 degrees and the drivers come in high and shoot down across to the second straight like pilots doing wingovers. They liken it to Trenton. The straight that follows is 3,055 feet long and ends in an Indianapolis-like turn with 8-degree banking. This turned out to be where most of the drivers got into trouble, a lot of it due to the roughness of the surface. The last leg, the north straight, is the shortest, at 1,780 feet. It gets bumpy going into turn three (6-degree banking, like Milwaukee). Through the center of the turn and on to the front straight the paving in the groove becomes increasingly rough. The pits are 80 feet wide, located along the front straight, and have room for 51 cars.

The general consensus of driver opinion is that it is a good track and they enjoy it. Most agree, however, that it should be repaved before the next race. »»»

POCONO

Donnie Allison, who felt that turn three was the toughest, told us that he thought the layout was ideal and it would be a fine track if smoother. Other drivers, most of whom found two to be the most difficult turn, commented that at the speeds involved the course becomes physically and mentally tiring after just 5 laps. For these reasons and because of the number of accidents at Indy this year, there was a gentleman's agreement made at the drivers' meeting the day before the race that everybody would take it easy for the first few laps until everyone got settled down. There were also a few official post-Indy changes to general procedure to be instituted. The Camaro pace car, set up for high-speed running by driver Sam Hanks was to make three laps at the head of the field and then pull into the pits at the end of the third lap. The field, if in proper order, would then get the green flag, signaling the start. In the event of any yellow caution signals during the race the pace car would go out on the track and get ahead of the leader, with the rest of the field bunching behind. (This procedure is already used at most USAC championship races other than Indy.) Also, the race was to be halted as soon as the first car completed the distance, rather than allowing the rest of the pack to run an additional five minutes, as is done at Indy.

Entries for this first 500-mile race at Pocono totalled about 40, half the average number that shows up at Indianapolis. Qualifying took place in just one weekend, with the 33-car field being filled after just 42 qualifying attempts. Thirty-third car was the front-engine Mallard roadster of Jim Hurtubise, which averaged 158.245 for its four laps to bump George Follmer's anemic 156.158 in an old STP Grant King-Offy. At the other end of the scale, the Media Flash, Mark Donohue, put his all-new Sunoco McLaren M16 on the pole with a 172.393 clocking. The dark blue car was a virtual duplicate of the machine that was running away with the Indy 500 and then had to be parked when the transaxle gave out, later to be demolished by Mike Mosley's caroming G.C. Murphy Spl. Car-owner Roger Penske at first thought that the McLaren could be rebuilt for the Pocono race, but examination showed little was salvageable and a new monocoque tub, the major chassis component, had to be obtained from the McLaren works in England.

Donohue, who did not grab the Indy pole despite being the fastest driver ever to run there (with an unofficial 180.9 mph practice lap), was wary of having someone "pull a Revson" on him at Pocono, so came in after running 172 on his first qualification warm-up lap, complaining of "hot weather oversteer." While the track cooled and the Penske team made like it was changing the car around, Mark snoozed on the floor of the garage and waited to try again. In the meantime, Bobby Unser became the titular pole-sitter, having gotten his Olsonite Eagle around the big triangle in 3:29.488, for a 171.847 average. This speed was about 12 mph faster than Bobby had been able to run earlier in the week, but late changes to aerodynamics by the Gurney AAR crew – particularly the rear wing – had suddenly paid off. Donohue took to the track with about an hour left and made his four orbits in an aggregate time just .65-second quicker than Unser, but that's all it took to make his average over half a mile-per-hour faster and put him on the inside of the front row.

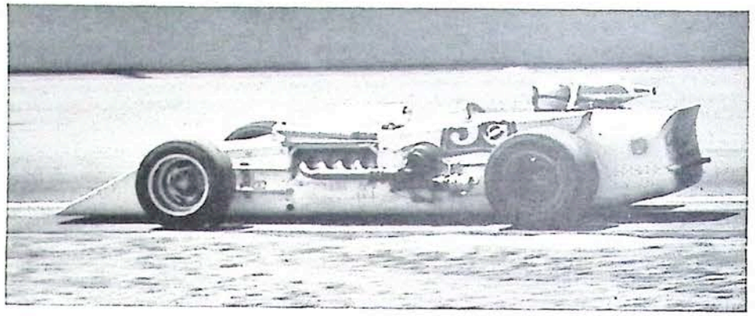
Bobby Unser wasn't the only one that had benefited from aerodynamic trickery, as nearly half the cars in the field had become "McLarenized" since the convincing debut of the flying wedges at Indy. Among the converts to the large inverted rear wing and front foils were the Colts of Al Unser and Joe Leonard. Al remarked that he really didn't know if or how much the changes helped his car as the team didn't have time to run comparative tests before going to Pocono, but they would check it before Ontario. Leonard, who ran very well in the race, later commented that his Ford-powered Samsonite Special was still a long way from being competitive with Donohue's car. Al U. qualified right behind brother Bobby, and Joe behind him, first man in the second row. Lined beside Leonard were Andretti and Johncock, both of whose cars also sported the "hot setup." Johncock's '70 McLaren had to be extensively rebuilt after its shunt with Mel Kenyon's machine at Indy and got the new look along with a new blue paint job to replace the faded Gulf orange of the ex-Team McLaren car. A.J. Foyt and Donnie Allison were in the two Coyotes that already had been converted to side-mounted radiators and had big and little wings added prior to the running of the Memorial Day race. Roger McCluskey's Sprite Kenyon-Ford, the Gilmore Scorpions of Jimmy Caruthers and Art Pollard and even Bob Harkey's little MSV Cecil-Ford all had large wings out back, but the most radically changed machines were the cars driven by Johnny Rutherford and Gary Bettenhausen. Bettenhausen's Thermo King Spl is in essence Don Gerhardt's factory car and even B.M. (before McLaren) had quite an accentuated wedge shape. Chief mechanic Phil Casey added a set of large air foils to the nose piece, as well as a large screen to keep the trash out of the radiators, and a wing at the rear. In addition, the engine cover over the turbocharged Offy had vertical fences that ran longitudinally to direct air under the wing, now considered one of the most important aspects of the whole exercise. Rutherford's car underwent the same basic changes, though the ducting of air from aft of the cockpit to the underside of the wing appeared to be given more attention. Nothing in the way of relocation of the water or oil radiators was undertaken, however. Though neither car led at any time, they finished sixth and seventh respectively.

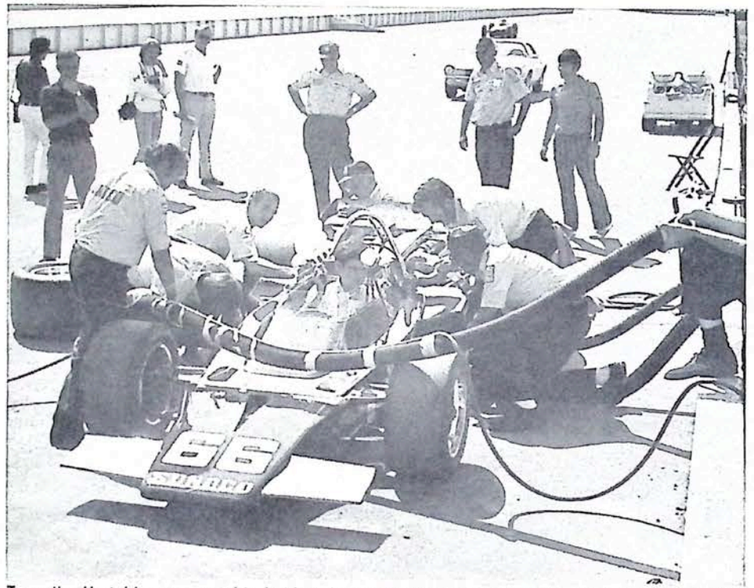
Despite appearances that everybody is lovingly embracing these aerodynamic innovations, there are some who would rather do without them. Although Clint Brawner has put wings on his cars, he isn't too fond of them. "Before we had the wings everybody went about the same speed. Now everybody runs faster with the wings. Take them off and everybody would be even again. I don't like them . . . I have to take them off the cars to fit them in the trailers, and if a guy gets the back end into the wall that's another 300 bucks to get a new wing. I'd just as soon see them done away with."

As it turned out, they really didn't make too much difference, as 47 laps under the yellow served to keep the speeds down considerably, and Donohue's winning time worked out to a 138.649-mph average. Bringing the pace car out for each yellow NASCAR-style, however, did keep Donohue from running away completely and kept spectator interest high, indicating, perhaps, that close racing is more exciting than fast racing. Maybe Bill France and his southern-fried philosophy is right after all.

Raceday weather was forecast as bright, sunny and hot, and Pennsylvania fans eager to see Mark or Mario win began arriving early. Advance ticket sales had looked grim until a few stories broke in the local sports pages and stirred up interest in the race. The route to the speedway terminated in a 3½-mile ride along a tree-shaded two-lane road. Concessionaires, not knowing what to expect, had set up their fried chicken tents and souvenir stands along

continued on page 104



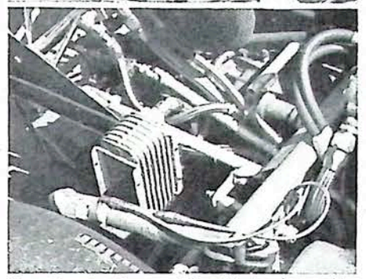


Top: Jim Hurtubise was notable holdout in new wave of aerodynamics. Hurk qualified in 33rd spot and held his own for 35 laps until engine let go. Above: At other end of spectrum, Roger Penske (at left) drilled his troops in precision pit stops on the afternoon before the race. Donohue put the Sunoco Spl. on the pole and was apparently able to outrun everyone at will.

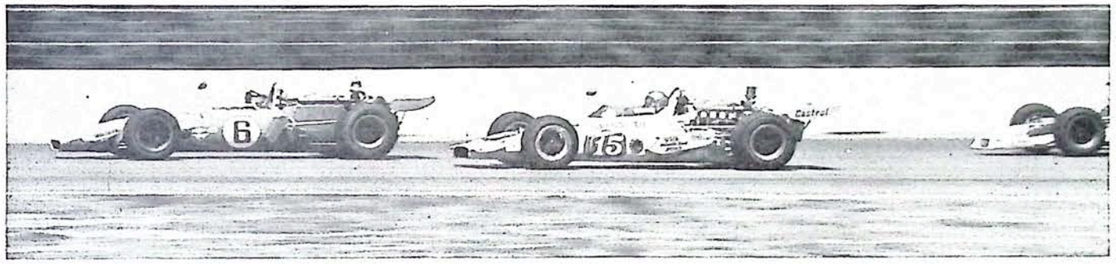
SCHAEFER 500

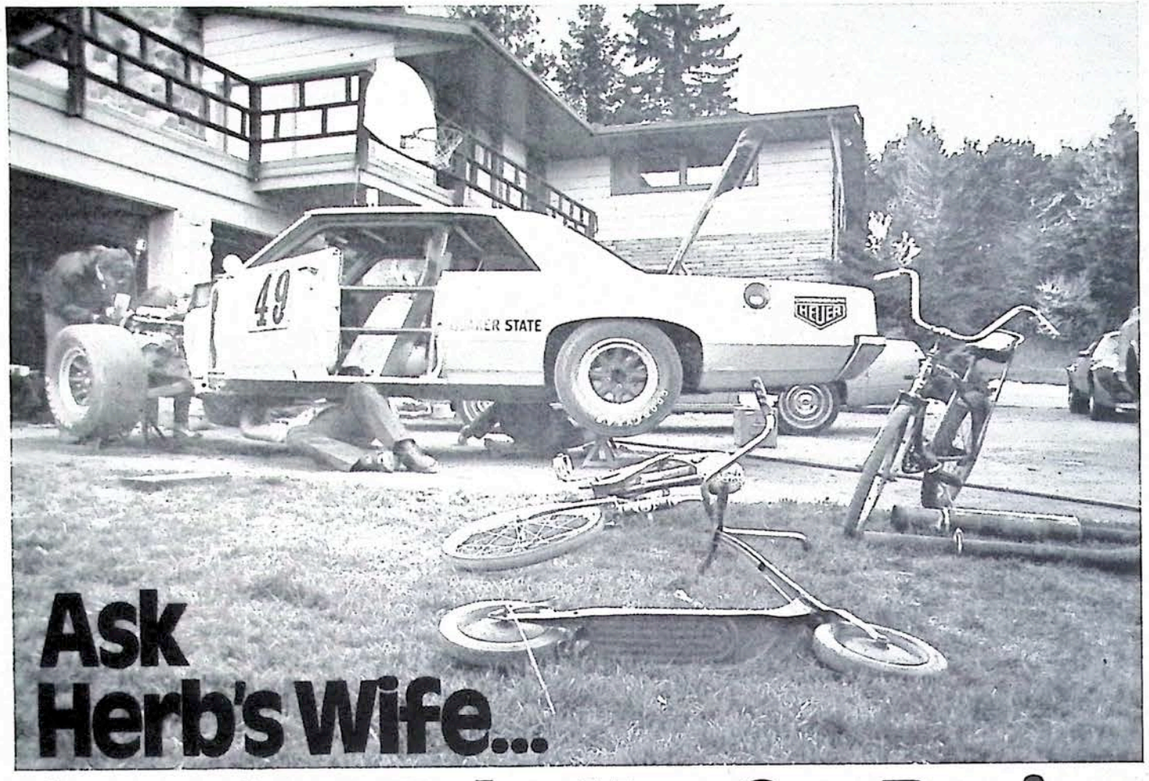
Date: July 3, 1971 **Site:** Pocono International Raceway, Long Pond, Pa.
Course: 2.5-mile tri-oval **Race Distance:** 200 laps, 500 miles

Pos.	Driver	Car	Qualifying/ Start Pos.	Laps	Remarks
1.	Mark Donohue	Sunoco McLaren-Offy	172.393/1	200	Issue never in doubt, won $88,924
2.	Joe Leonard	Samsonite Colt-Ford	169.533/4	200	Never had race in the bag
3.	A.J. Foyt	ITT Thompson Coyote-Ford	168.608/8	200	Car ailing
4.	Mario Andretti	STP McNamara-Ford	169.510/5	198	Trouble with front diaplanes
5.	Bill Vukovich	Sugaripe Prune Brabham-Offy	165.104/16	198	4th in point standings
6.	Gary Bettenhausen	Thermo King Gerhardt-Offy	165.563/13	198	Highly McLarenized
7.	Johnny Rutherford	Patrick Petroleum Eagle Offy	165.809/12	197	One of the most radically restyled cars since Indy
8.	Lloyd Ruby	Utah Stars Mongoose-Ford	165.208/14	197	Rebuilt car the day before
9.	Bobby Unser	Olsonite Eagle-Offy	171.847/2	190	Lost 10 laps when turbocharger had to be replaced
10.	Steve Krisiloff	STP King-Offy	163.706/22	190	McNamara car destroyed at Indy
11.	Sam Sessions	Agajanian-Faas Colt-Ford	161.877/29	187	Black-flagged for leaking oil
12.	Greg Weld	Federal Engineering Gerhardt-Offy	163.693/28	186	Shunned aero-dynamic trickery
13.	Jimmy Caruthers	Gilmore Scorpion-Ford	164.394/20	183	Rookie showed promise
14.	Bill Puterbaugh	Murphy Watson-Offy	164.242/27	181	Advanced one spot on recheck
15.	Wally Dallenbach	Sprite Kenyon-Offy	164.621/19	181	Mel Kenyon's ride, last car running



Top: Maestro George Bignotti checks cooling scoop for Leonard's troublesome turbocharger. Above: Bobby Unser's Eagle had provision for suspension jacking at speed. Below: Leonard's winged Colt about to inhale McCluskey. Finish put Joe second in Marlboro points.





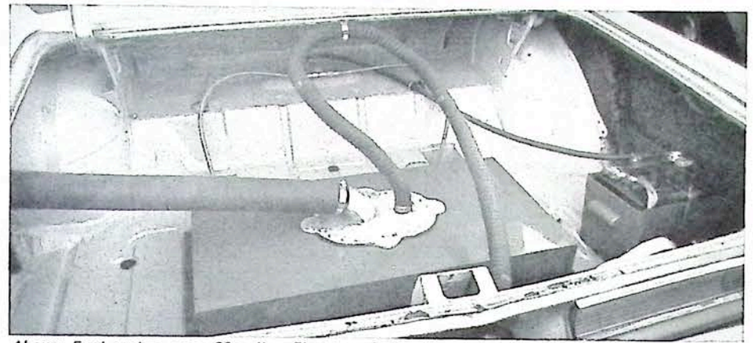
Ask Herb's Wife...

If We Can Take Her Car Racing

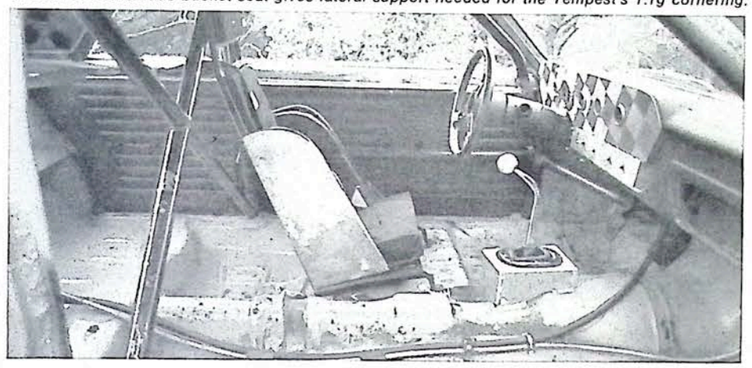
Seven Pontiac engineers prove that good Trans-Am cars are made not born — the junkyards are full of them/Text and Photos by A.B. Shuman

Normally, you'd expect any large company to do all that it could to drum up loyalty and enthusiasm among its employees, or, at the very least, to encourage it. And most do, in approved areas. Pontiac's no different. Its particular taboo comes from the fact that, like GM's other divisions, it operates under the corporate "no racing" edict, which Pontiac, however, interprets as including even the *appearance* of factory participation. So, they squelched Herb Adams' plan to run a Firebird in the '71 Trans-Am series. Adams, supervisor of the Special Projects department at Pontiac engineering, had talked-up the idea of buying and campaigning a car with fellow engineers when he learned that no one was planning to race a Pontiac in Trans-Am this year. Herb by nature is a quiet, unassuming guy (who also happens to be responsible

Using the "brain trust" approach, the Trans/Action team was able to build their Trans-Am car at about a fourth of the cost of a professionally assembled machine. Herb Adams is team manager and spiritual leader, backed by Tom Goad (transportation), Ted Lambiris (fuel system), Joe Brady (chassis), Dutch Scheppelmann (machine work) and Jeff Young and Tom Nell (engine and driveline). Each is physically and financially responsible for his specific area, but team confers on matters dealing with entire car. Work is done evenings, weekends and vacations.



Above: Fuel system uses 22-gallon Firestone fuel cell and two Holley centrifugal fuel pumps. Two batteries are now carried to aid traction out of turns. Below: Interior is less sparkling, but driver Bob Tullius finds it livable. Collapsible steering column and tilt wheel are out of late GTO. Homemade bucket seat gives lateral support needed for the Tempest's 1.1g cornering.



for more of the good things that have reached production — and a few that haven't, like the X4 2-cycle engine that might have powered the Vega — than you'll ever get him to talk about), but he wasn't about to be put off. After a few sessions with his bosses he got them to concede that what he and his collaborators did in their spare time — whether fly-tieing or racing — was their business. By then, though, the dissidents had given up on the Firebird, because it smacked too much of "factory," and turned to something less controversial, if less conventional: Herb's wife's '64 Tempest.

Actually, Sandy hadn't driven the car since the previous spring, when Herb put in a rollbar, added racing wheels and tires, and took it to SCCA driver's school at Waterford Hills. The magic thing about that particular model was that it had been homologated, meaning that it was eligible for SCCA competition. It was all part of the *Gran Turismo Omologato* image of the original Pontiac GTO, though it wasn't a GTO: it was a Le Mans with a 326 HO engine and a 2-speed automatic that he bought new for $2,500 in September of '63. He later traded it to his father and then bought it back in '68 for his wife to use.

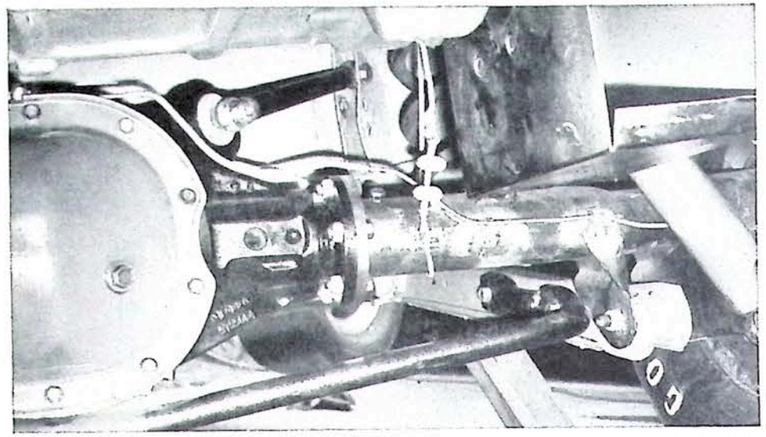
After going through the driver's school, Herb ran the basically stock Tempest in club races through the summer, starting out rather inauspiciously by spinning in his own oil after four rods simultaneously took leave of the 70,000-mile engine. After that, Jeff Young, a senior engineer in his department, put together a low-buck 305 engine for the car by adding a "cheapie" ¼-inch destroker crank to the 326 block. Tom Nell, another senior project engineer, took an interest and provided a drag-race type 3-speed automatic. Eventually, power steering was added. Herb drove and managed to win a few trophies on the tight Waterford course, climaxing the season by winning the *Detroit News* race. It was never more than a hobby, though; they even drove the car to the track. This made it all the harder for Herb to convince potential partners in the enterprise that he was really serious about turning the seven-year-old machine into a competitive Trans-Am car.

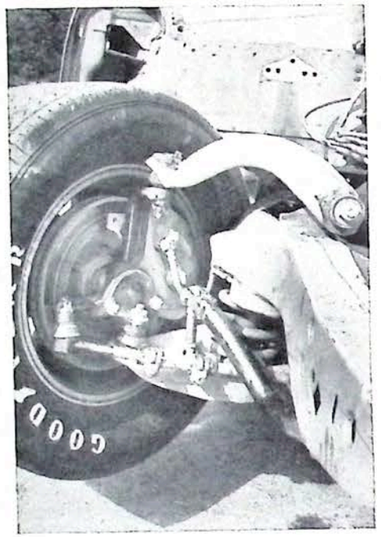
"The key was finding the right group of guys," Adams recalls. "Initially there were nine people involved, but by the time we started work in early March only seven had made a financial commitment." Beside Nell and Young, who would take on responsibility for the engines and drivetrain, Herb recruited Joe Brady (project engineer in Pontiac's experimental chassis department) to work out the chassis and suspension, Ted Lambiris (a senior layout artist in the Pontiac transmission and axle group) to handle the fuel system, dash panel and bodywork, Deitrich "Dutch" Scheppelmann (GM engineering staff senior experimental technician) to fabricate special pieces, and Tom Goad (Pontiac product planning manager) to supply the trailer. Adams, himself, was to be team manager and chassis development driver. The assignment and financial commitments were finalized and written into an informal "incorporation" paper which established each's share of what purses there might be and gave the group the name Trans/Action.

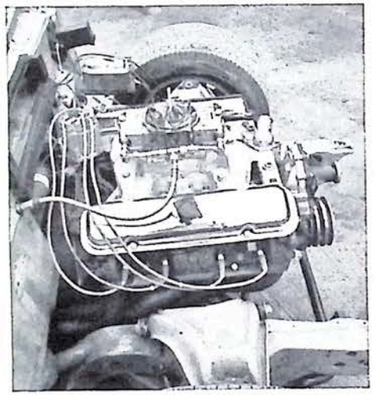
As far as the newly formed team was concerned, a race car is essentially just a chassis, power train and body. They felt that the only place they were giving away any competitiveness in comparison to the smaller pony cars was in the aerodynamics of the body, believing that engine and chassis-wise they could be equal to or better than the competition. Actual preparation of the car started with removal of the body. The frame was reinforced and gusseted, but only in the six areas where experience had shown potential weak spots. Starting point for the suspension began with Brady plotting revised camber curves for the front end. The critical point, Brady and Adams believe, is the amount of camber gain experienced as the wheel moves through its full vertical travel. Therefore Joe was looking for only enough gain to handle the expected roll. "We think that present race tires work best with a certain inclination at the top, rather than being exactly perpendicular to the road," Brady explains. For their purposes, the best way to achieve this was through the use of a taller steering knuckle. A little searching turned up a GM-produced knuckle that was a third-again as tall as the stock part. The new knuckle, however, created a bump steer problem, aggravated by the lack of directional stability inherent in racing tires. This meant revising the linkage, steering arms and intermediate rods to achieve close to the desired zero bump steer. Reversing the knuckles to place the linkage ahead of wheel centerline, a la late GM, also helped.

In order to reach their goal of a minimum of 1.1g lateral acceleration in cornering, they initially sought a 50/50 weight distribution, actually ending up 51 percent on the front end, which is still quite good. "The high front end weight," says Brady, "is one of the biggest drawbacks of Trans-Am cars. One end has to do more work than the other, work that can't be used to transfer the power to the ground."

Departing from standard practice, the car has the same size tires on all four wheels. Herb and Joe say that there is a significant advantage to running the big tires on front when dealing with the weights they are, as long as the car is tuned to it. Spring rates are relatively soft, at 400 pounds/inch at the »»»







Above: Bolt-together flanges are machined to decamber rear tires while providing virtual quickchange center section. Left: With front fenders removed, stock control arms, taller steering knuckle, Corvette disc brakes and Firebird sway bar are laid bare. Below: The 303 engine is based on 389 HO block and Ram Air IV heads. Power is close to 480. Latest addition is team-built dry sump oil system.

Ask Herb's Wife

front and 200 at the rear, about a third lower than the rates seen in the average Trans-Am car. One of their secrets is the utilization of rebound bumpers (which most teams remove) to effectively increase the spring rate in full jounce. High rates in themselves, they believe, can cause a loss of wheel control on bumps, whereas the softer springs and selectively designed rebound bumpers make the car more driveable.

The stock upper and lower control arms were retained, with revised bushings and ball joints to match the taller steering knuckle. Stock wheel bearings were placed with items from a full-sized Pontiac, to increase durability. The front anti-sway bar is the 1.250-inch diameter stabilizer used on the '71 Trans-Am Firebird, chosen as a simple starting point. The stock, rubber-ended drop-links were considered to have marginal strength for racing, so new, Heim joint-ended links were added, and anchored further forward on the lower control arms to shorten the moment arm and make the bar about 40 percent more effective. They may use a lighter, tubular front bar later. Double-adjustable Koni Camaro shocks are used, though damping is not considered as critical as in a road car.

Since just about every other Trans-Am car uses parallel leaf rear suspension, the Tempest's four-link coil setup is a definite oddity. The upper arms are used as lateral locators, requiring Heim ends, but obviating the need for track bars or Watts linkages required with leaf spring suspensions. Slightly raising the upper arm inboard pivot point lengthened the swing arm of the suspension over three times, at the loss of some anti-squat, though this is not considered as significant in a Trans-Am car as it would be in a drag race vehicle. The threaded Heim ends also permit a degree of adjustment in the upper arms, allowing the pinion angle to be varied, as well as further lengthening of the swing arm to reduce rear wheelhop during downshifting or hard braking.

A unique arrangement in the rear axle housing gives a small degree of decambering to the rear wheels and also provides a virtual quick-change center section. Reasoning that if decambering was helpful on the front end it might also help on the rear, Herb and Joe checked the theory by bending the rear axle housing and seeing how various amounts of decambering affected times on the skid pad. They were able to pick up about a .05g increase in cornering power, which they felt warranted their efforts. To implement the camber change they cut the axle housing tubes on both sides of the center section and welded on bolt-together flanges which "Dutch" Scheppelmann had machined to provide the desired inclination of the rear tires. The actual angular difference is slight enough that normal play between the axle shaft splines and the differential assembly takes up the misalignment. A limited slip differential, highly biased to locking, is used, with 3.90, 4.10 and 4.30:1 gear sets. Rear suspension roll control is aided by a production 1.125-inch diameter GTO anti-sway bar.

Corvette disc brakes are used, with full metallic linings and heavy-duty calipers, in conjunction with a Ford truck master cylinder. Different size front and rear wheel cylinders were used to help achieve a 37/63 brake proportioning split. Brady believes that with development the car will be able to achieve 1.3g braking deceleration. The discs are vented and the fronts receive cooling air ducted from the inboard headlight housings.

The 303-cubic-inch engines built by Jeff Young are estimated to produce 450-480 hp, making them competitive even with highly developed 302 Fords. He starts with a '59-71 389 HO block with 4-bolt malleable iron main caps (now specified as Pontiac's service replacement block), acid dips it to remove 30 pounds, clean-up bores to 4.125 inches and adds a Moldex 2.84-inch stroke crankshaft. TRW extruded pistons give an 11.5:1 compression ratio, limited by the combustion chamber configuration. Carillo connecting rods, ½-inch longer than stock, are also used. Rod and main bearings, potentially a problem in the 303, are Delco Moraine 400. All machine work on the engines is carried out by Diamond Racing Engines in Detroit, which recently joined the team as a sponsor.

Ram Air IV-type heads are used, with lightweight TRW valves, titanium retainers, Crane roller rocker arms and General Kinetics springs. Camshaft is by General Kinetics and gives .500-inch valve lift (net). Manifold is an early Edelbrock P4B with small stainless steel

continued on page 102

Renault 15/17

France's largest auto manufacturer has rebodied and brightened their R12 to assault the young world of the Fiat 124 Sport, Opel Manta, Ford Capri and other Mustangs of the world./By Edouard Seidler

Renault's new 15s and 17s take a cue from Opel and Ford, offering a long list of different, but similar models, allowing Europeans 1300cc to 1700cc engines and up to 112 mph top end.

GM Impression

You do remember the Renault Dauphine, don't you? That roundy little symbol of mismanagement to Americans. If you are even more unlucky, you remember one of the 4CVs that slipped into the country and somehow got disseminated to the public. We had reason to dislike the cars, the Dauphines or 4CVs were a disaster in the U.S., though for reasons that have nothing to do with the cars themselves. Those two little Gallic gas misers put an entire country back on wheels. They helped roll France from the economic doldrums of 1945, back to the proud, independent country she is today.

They were little saviors to a country that needed wheels, and they were admittedly a bit dull, but then it wasn't a time for splurging. In the early sixties Renault began to expand their car line with the rear-engined R8 and R10. Then came the front-wheel-drive R4 and R6, the big R16 sedan-station wagon and finally, two years ago, the medium-sized R12. There were shockingly fast Gordini versions and the low Alpine Renault sports car, but they were really outside additions, not a real part of the Renault line. For those years, whenever anyone asked why Renault stuck to good and functional, but mostly dull cars, Pierre Dreyfus, president of Renault since 1955, would smile and reply, "Please wait and give us time. We have more urgent problems to solve. We are baking our bread now. We'll add the butter later."

Well, later is now, and France's only one-million-cars-per-year manufacturer has put on its sporting clothes.

Renault managers and engineers have learned their lessons well. U.S. competitors have taught them how to stretch their tooling further, and build "new" cars with existing elements. Fiat, Opel and Ford have shown them how to make specialty cars. Since Renault did not need anyone to teach them how to develop compact front-wheel-drive cars with first-class suspensions, relative high performance and above average comfort, the result—a new Renault 15 and 17 range—is bound to score a major success.

The public was led to expect one new car (May 1971 MT). Instead, six new models will hit the specialty car market in the fall to fit various purses from $2,700 to $3,600, with performance ranging from 94 mph (Renault 15 TL coach) to 112 mph (Renault 17 TS coupe and convertible).

The new Renaults come as challengers to the Fiat 124 sports coupe, the Capri range and the Opel Manta 1900 — with possibly something more to them, brains. We don't just mean the brains that went into developing the new cars, but also the brains you need to tell one from the other, since the various versions use: two engine sizes and three power versions, two different 4-speed and 5-speed manual transmissions, two types of front brakes (normal and ventilated discs), two types of rear brakes (discs and drums), two types of bodies (coach and coupe) of which one — the decouvrable *type — can be gotten with an electrically operated sunroof and a hard top, two types of seats, three types of wheels, three types of tires, three types of fuel-feed, two types of lights and we don't know how many different types of gadgets.*

Just in case we have you all confused, let's start all over again. Things are actually simpler than they look, and complications arise only from the thoroughness of Renault engineers. Unlike competitors who chose to build just one car with different trim and engine packages, Renault found it necessary to adapt basic elements like gearboxes, brakes, wheels and tires, etc. . . . to various ranges of performance.

As it is, all versions use the same Renault 12 chassis. The body differences are slim: the 15 TL and 15 TS versions are introduced as coaches, meaning they have two side windows in the rear, while the 17 TL and 17 TS are coupes, with striped sheet-metal covering up the rear windows. The one last thing you have to know about body differences is that both "17" models also come in open top versions. For safety's sake, though, Renault did not build a classical convertible. They preferred a sun-roof solution, with a wide plastic roof gliding electrically over the top. One of the benefits is that the body keeps its rigidity. »»»

Three variations on Renault's sporting theme, the top being your basic small-engine 15 coach. In the middle is the 17 coupe and at the bottom, the 17 "decouvrable." Body variations are matched by list of engine, brake, transmission, interior options. Car uses Renault 12 chassis.

Renault

In winter, a plastic hard-top can be fitted over the sun-roof, mostly to improve thermic insulation.

That's it, as far as body differences are concerned, if you except a small vent in the rear of the 17s, right at the bottom of the hinged rear door (they just love the sedan-wagon concept in France), which improves air flow and is said to increase top speed by almost 2 mph. Every version has the same type of interesting bumpers. The idea was to build a car which could resist any other car in parking exercises, whatever the height of its bumpers. Up front, the car's nose is circled by a metal and rubber frame made of two separate elements: the lower part gives and the car absorbs collisions up to 4.5 mph without any damage. In the rear, the usual bumper was replaced by a polyester "shield" which can absorb small shocks with no ill-effect to the body, whatever the height of the "aggressor."

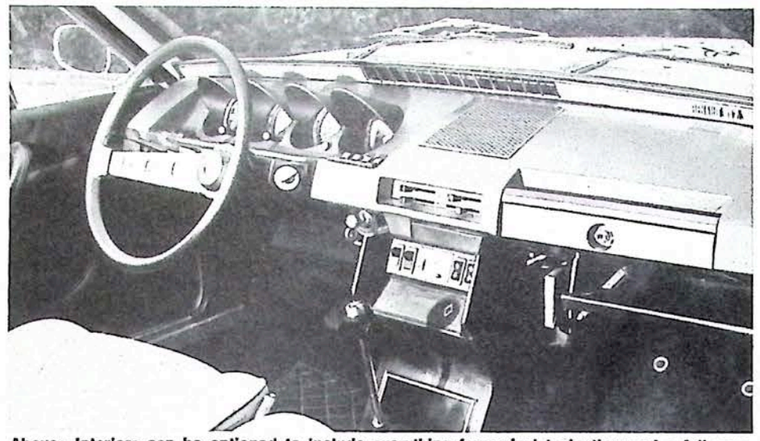
All tolled, the new Renaults are relatively low (51.5 in.) and compact (overall length: 168 in.), ranging among the best styled cars of their type in Europe, though designed in Paris, not Turin.

The 15 and 17 are powered by new versions of two existing Renault power plants. The 15 TL uses the 1.3-liter engine of the Renault 12, with power output increased to 68 hp through the use of a Weber dual-carburetor and a longer duration camshaft.

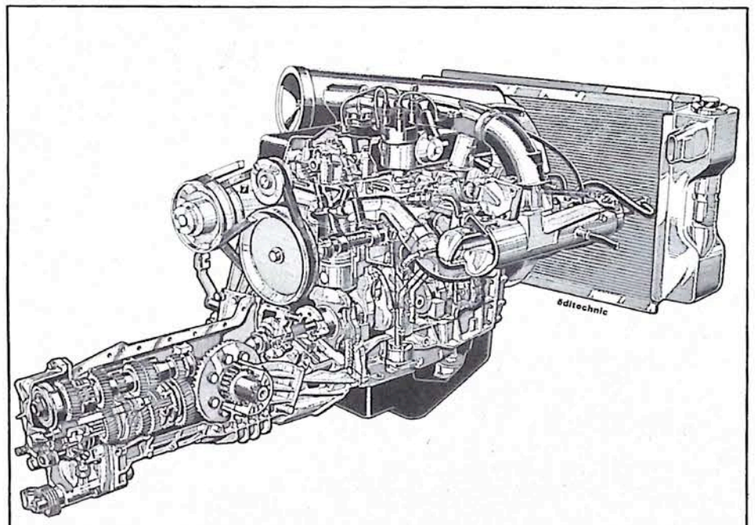
All other versions use the 1656cc engine of the Renault 16 TS in two rendi-

continued on page 115

Driving up from World War II in dull, but cheap-to-own 4CVs, Dauphines, R4s, R8s and others, Renault changes step with the sporting 15/17 series, built on the 12 chassis.



Above: Interiors can be optioned to include everything from vinyl to leather and a full complement of instruments. Being French, the seats are bound to be extremely comfortable, adjustable. Below: Renault's first injected engine comes in the 17 TS, mated to a 5-speed gearbox from 12 Gordini. Injection was developed with Bosch, should have good desmogging potential.



SPECIFICATIONS

	Renault 15 TL (Coach)	Renault 15 TS (Coach)	Renault 17 TL (Coupe or Convertible)	Renault 17 TS (Coupe or Convertible)
Engine	4-cylinder	4-cylinder	4-cylinder	4-cylinder
Displacement	1289cc	1565cc	1565cc	1565cc
Bore and Stroke	73 x 77mm	77 x 84mm	77 x 84mm	77 x 84mm
HP @ RPM	68 @ 5500	102 @ 5800	102 @ 5800	102 @ 5800
Compression ratio	9.5:1	9.25:1	9.25:1	10.25:1
Carburetion	2 Weber 32 Dir	2 Weber 32 Dir	2 Weber 32 Dir	Bosch electronic fuel injection
Trans	4-speed synchro	4-speed synchro	4-speed synchro	5-speed synchro
Final drive ratio	3.77:1	3.55:1	3.55:1	3.77:1
Steering	Rack and pinion	Rack and pinion	Rack and pinion	Rack and pinion
Turning diameter (curb-to-curb ft.)	32.8	33.62	33.62	33.62
Wheel turns (lock-to-lock)	3.5	3.5	3.5	3.5
Tire size	145 x 13	155 x 13	155 x 13	165 x 13
Brakes	Discs (F), drums (R)	Ventilated discs (F), drums (R)	Ventilated discs (F), drums (R)	Ventilated discs (F), normal discs (R)
Wheelbase — ins.	96	96	96	96
Overall length — ins.	168	168	168	168
Width — ins.	64	64	64	64
Height — ins.	51.5	51.5	51.5	51.5
Curb Weight — lbs.	2,830	2,860	2,940	3,015

BFG'S NEW RADIAL T/A: THE STREET TIRE THAT TOOK ON THE RACING TIRES. AND WON.

Nobody thought a street tire could hold its own against racing tires. Until we raced the new BFG Radial T/A.

It was in an SCCA race at Lime Rock. The BFG Radial Tirebird—driven by Larry Dent—was riding on Radial T/A street tires with only half their normal tread depth. All other cars were on special racing rubber, but we won. First in class. Tenth overall.

About the tire that did it: BFG's Radial T/A is the widest radial anywhere. 60-series wide. It's built with four big belts of Dynacor® Rayon Cord over a pair of radial body plies. It says its name big in proud raised white letters.

It has more than enough muscle for your kind of driving. You'd know that if you saw it race at Lime Rock. Or Daytona. Or Sebring. Or Watkins Glen.

BFG'S LIFESAVER RADIAL: THE STREET TIRE THAT TOOK ON THE STREET TIRES. AND WON.

It was at an IMSA-GT race in Danville, Virginia. Byron Morris and Clint Abernethy, co-driving a BMW, were riding on BFG Lifesaver Radials at half their normal tread depth.

All tires in the class were belted and radial street tires. You'd know all of them by name.

Byron took 1st in the Baby Grand Sedan Class. 6th overall.

Then on to Talladega, Alabama for the second IMSA-GT. Byron and BFG took 1st. At Charlotte, North Carolina, 1st again.

About the tire that did it: BFG Lifesaver Radials are 70-series wide to fit almost any car.

They have four belts of Dynacor® Rayon Cord and a pair of radial body plies. Just like the T/A.

And they win. Just like the T/A.

BFG.
THE LIFESAVER® RADIAL TIRE PEOPLE.

B.F.Goodrich

...in pursuit of excellence

Lamborghini Countach!

Stated one way, the name for Bertone's latest confection denotes a mixture of astonishment and wonder. Stated another, to a Piedmontese, it might get you trouble. Maybe you'd better just call it the wildest Lambo yet.

Every new car exposition worthy of the name has had it's show-stopper, one car out of the lot that gathers headlines, crowds or both far out of proportion to the rest of the exhibits. Some, such as the first Corvette, the Nomad and the Cobra are eminently practical and ready for production almost as shown. Others are merely far-out design exercises meant to gauge public acceptance of styling or engineering features buried in the overall confectionary, which will probably never be seen on a public road. Still others are a combination of the far-out and the practical with some very definite goals in mind.

The 1971 Geneva show-stopper was of the last variety. Unheralded by the usual fanfare, ruffles and flourishes, the Bertone exercise based on some new Lamborghini engineering just quietly appeared on the scene and took the game away from everything else. No mean feat considering that the Geneva show contained more than its share of what the organizers are pleased to refer to as *nouveautes* or "novelties," as well as a number of new, practical, you-can-buy-it-right-now models of various persuasions. This particular *nouveaute* was known variously as the LP-500, (probably signifying Lamborghini Prototype 5-liter or some such) and Bertone Countach. Please don't ask for a pronounciation of the latter; we're given to understand that it requires a native of the province of Piedmont, i.e. the area around Torino to say it with the proper inflection. The publicity merely says it is a Piedmontese exclamation expressing astonishment, wonder and amazement but other sources indicate that, improperly said, it can mean a number of things, one or more of which can net the pronouncer a session of dentistry or worse.

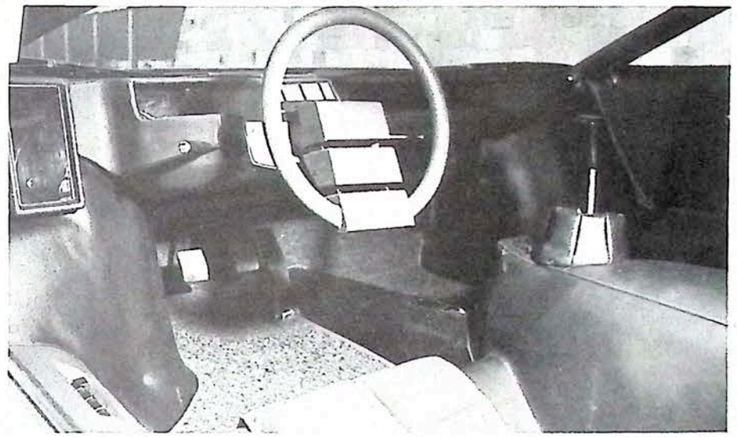
Regardless of what it's called, the car is worthy of the attention it received. While obviously not meant as a production item, if you could insure it, you could probably license it and drive it – anywhere but in these free United States where safety is coming to be measured by the rate of knots at which one can stuff a piece of machinery into a brick wall and remain unscathed, rather than the ability to avoid the wall in the first place.

Apparently the designers *chez* Bertone have taken the view that the driving populace of the rest of the world (at least the better heeled thereof) retains a sense of personal responsibility and as a result the car bristles with innovations. Perhaps the most interesting excursion is in the area of instrumentation. A result of an exchange of ideas between Bertone and Italian motoring journalist, Gianni Rogliatti, the system is an application of aerospace experience in immediate detection and pinpointing of failures, both *de facto* and imminent. It also seeks to avoid the necessity and distraction of continuous monitoring of many separate instruments and at the same time avoiding the vagueness of idiot lights. Only two main instruments, a tachometer and speedometer are normally in view, the others being normally blanked out under a panel of darkened plexiglass to the right of the driver. Directly in front of the driver is a set of large warning lights in yellow and red, the first indicating that something is about to happen and the second meaning that it already has happened. In either case, the driver can flip switches lighting the instrument panel and another panel to the left on which a schematic much like a lube diagram showing all pertinent installations appears. This one has pilot lights, all of which come on except the one pertaining to the trouble, pinpointing the fault instantly. The gauges are then used primarily to check the gravity of the problem.

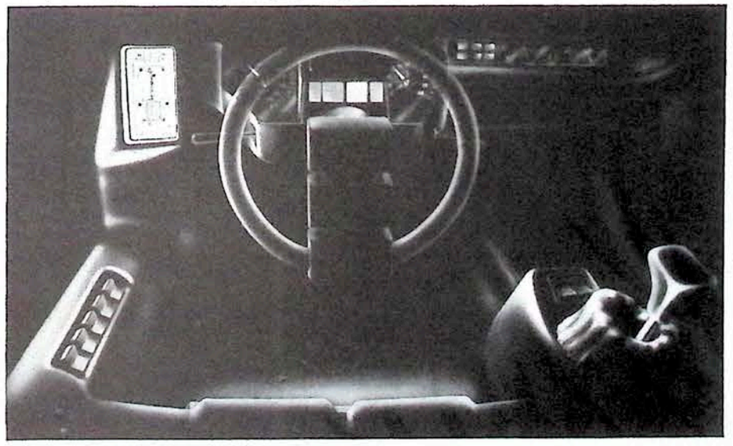
Another feature is the engine-transmission relationship which could well see production on some future Lamborghini. The big 5-liter (4971 cc) V-12 is set longitudinally but not with the gearbox overhanging the rear end as commonly used in racing cars. Instead the gearbox is ahead of the engine and drives the differential via a shaft running back through the sump. The advantages claimed for the arrangement are better weight distribution and a more positive shift control than is possible with a remote linkage leading to a rear mounted gearbox-axle combination.

At first glance, visibility to the rear would seem to be even more limited than is usual with this sort of Group 5 type of design complicated by the high side-mounted cooling radiators. The problem is solved to a large extent as it is in Group 5 race cars, with a peri-

»»»



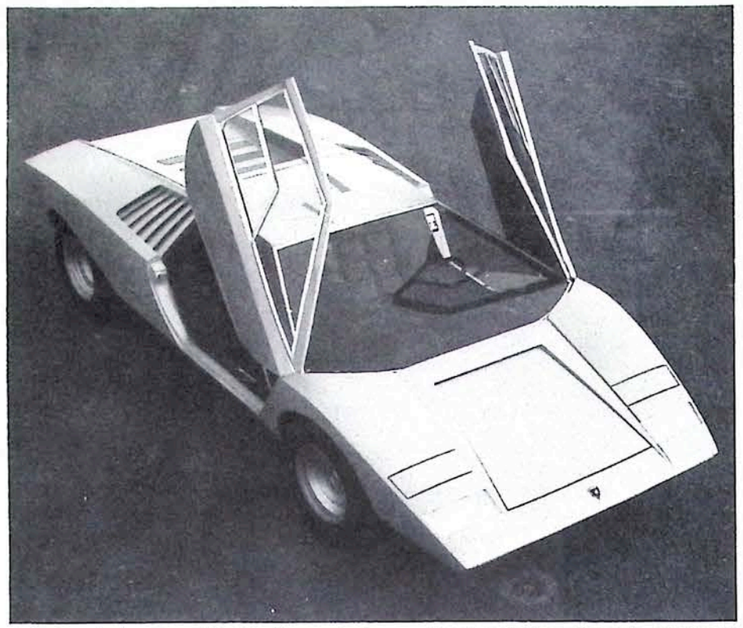
Most outstanding feature of the Bertone Countach is the instrumentation. Only the tachometer and speedometer are normally visible. When center warning lights come on, switches can be turned on to illuminate instruments and diagram to show location and gravity of the problem. The system applies current aerospace techniques to avoid monitoring of many gauges.



Lamborghini

scope type mirror set into the top. This, incidentally, is one of the more rational recommendations made to our own manufacturers and its use in the Countach proves that it can be done and, at the same time, neatly integrated with modern styling. There are obviously blind spots but not nearly as severe as the design would seem to indicate. Rolling on all-new Pirelli .60-ratio profiled radials mounted on Bertone-designed alloy wheels, the car could be a viable street machine, at least as much so as a Pantera or a Miura. It can even be parked in close quarters without the usual ingress-egress problem since the doors swing upward assisted by hydropneumatic struts. If you've ever had the experience of trying to get into a GT coupe after some careless parking lot attendant has hemmed it in with a couple of other cars, you'd appreciate this particular feature.

Progress. But, unfortunately not for the likes of us – it's sort of short in the ironmongery-and-padding department and five-speed gearboxes and disc brakes are dangerous, right? /MT



A feature to be appreciated by those who have suffered in tight parking lots, Countach's doors swing up, not out, pneumatically assisted. Hopefully the idea will become common.

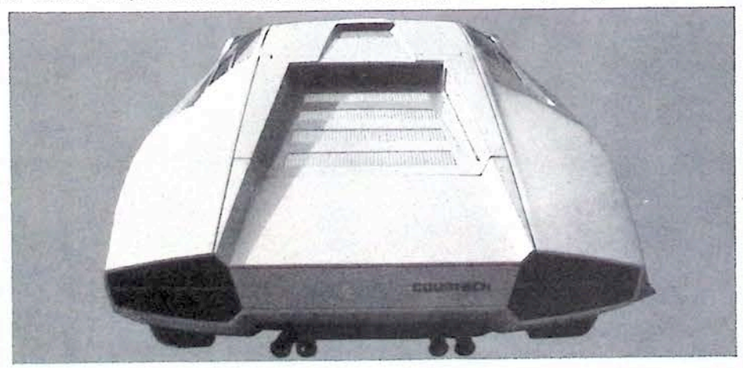
With the radiators and intakes mounted high in the rear, visibility to the rear would seem to be limited. The problem is solved (below) by a tastefully concealed periscope mirror in roof.

SPECIFICATIONS

Engine	V-12
Displacement	4971 cc (303.3 CID)
Max. hp	440 (DIN) @ 7400 rpm
Max. torque	365 lbs.-ft. @ 5000 rpm
Valve actuation	2 DOHC
Carburetion	6 Weber DCOE
Gearbox	5-speed + reverse

DIMENSIONS

Weight	2,750 lbs. wet
Length	157 in.
Width	72 in.
Height	40 in.
Wheelbase	96 in.
Track	59 in. front 59.7 in. rear



ASK HERB'S WIFE *continued*

runners epoxied to the manifold floor to equalize flow, allowing the 830 cfm Holley carburetor (necked to the legal $1^{11}/_{16}$ throttle bore size) to be square-jetted. Adding a second set of stock springs to the points in the Ram Air IV distributor provides an 8000-rpm ignition system, with the advance curve modified to give 50 degrees of spark lead at 7600 rpm.

Lubrication is a particular problem in this engine, partially cured by installing small restrictors in the cam bearing and lifter bore oiling holes to cut the oil flow away from the main and rod bearings. In conjunction with this, the oil pump is "stuffed" by machining a half-inch off the pump gears. The purpose of this is to reduce pump capacity so that it will not bypass internally at high rpm (causing pumping losses and possibly overloading the drive gears to the point of failure). For high-rpm reliability, the engine requires a special distributor-and-oil pump drive gear (running off a specially ground gear on the camshaft) to minimize gear wear. This pump system was initially used in the Trans/Action Tempest, but was changed at mid-season when the engine was converted to dry sump oiling. A new, small sump oil pan and stock pump handle the scavenging and an externally mounted belt-driven single-element pump supplies the pressure. The oil is stored in a 14-quart tank placed between the firewall and the right front fenderwell.

Gasoline for the engine is supplied by Ted Lambiris' fuel system, based on a 22-gallon Firestone safety cell and two Holley 110-gallons-per-hour centrifugal fuel pumps. AN braided fuel lines and fittings (which were bought new from aircraft surplus, saving considerable money) are used throughout. The filler neck on the top of the cell can be switched 180 degrees, so that fueling can be accomplished from either side of the car, determined by the pit layout at the track. Herb Adams spoke to Bob Tullius at Daytona about the possibility of Bob's driving the car earlier this year and got an affirmative answer. When the team showed up with the car at Lime Rock in early May for the Series' opening race Tullius saw the car for the first time. They had towed it from Michigan to Connecticut in the rain on Tom Goad's open trailer and when it arrived at the track the unpainted parts were rusty and the painted ones filthy. "Tullius was a real good sport about it," Herb recalls with a smile, "and after he drove it for a few laps said he liked it." In the rain-soaked race that followed he was running in second place to the Penske-Donohue multi-thousand dollar Javelin until the engine blew a head gasket and overheated. In the races that followed, at Bryar and Mid-Ohio, the car has never finished further back than fifth, putting Pontiac in a position to beat Chevrolet in points standings as of this writing.

"How are they for traction?"

At the Mid-Ohio race, the first opportunity the team had to see how much they were losing to aerodynamics, the silver Tempest was timed at 142 mph on the fastest part of the Lexington, Ohio, course, within 3 mph of the fastest car running. Tullius was in third spot when he pulled in for dry-track tires and spent nearly four minutes in the pits as the crew struggled with its single impact wrench and floor jack. (The Bud Moore team in the next pit did the same job in 50 seconds.) Bob managed to finish fourth, but the team has since acquired the right wrenches and jacks to get the job done. Other than that they are working on cutting down on wheelspin coming off the corners, where they feel the car may be losing as much as a second. There have been some changes to the rear suspension geometry and a second battery was placed in the trunk to get more weight on the rear tires, while the front end is being lightened.

Besides doing a good job of driving, Tullius has been quite influential in helping the team get the needed sponsors that have made their participation beyond Lime Rock possible. Classic Car Wax was the first to see the value of sponsoring the attention-getter, followed by Quaker State Oil, Heuer Chronographs and Goodyear Tires. "The sponsors are the ones who allow us to keep running," Adams points out, "by meeting the expenses of replacement parts, entry fees and towing."

Herb provided me with an opportunity to drive the car at Waterford when they were breaking in a new engine for running at the Ohio race. I was attending the drivers school at Waterford and had borrowed the necessary safety equipment from local Formula Vee driver Terry Satchell, satisfying the track's beady-eyed officials. "It drives like a baby buggy, you'll really enjoy it," Herb said, by way of invitation. "Please be careful. This is our only good engine," Brady whispered to me as I strapped in. The tach being disconnected didn't help matters.

The homemade bucket seat was tight even on my 148-pound body, but after I got moving on the Porsche-styled course I was thankful for the lateral support. I was first conscious of the extremely high steering effort and then of the unbelievable cornering power. Though running the whole course in third gear, I was impressed with the power and response of the engine. The car is very firm and at the speeds I reached seemed to have completely neutral handling, with no drift into hard corners: when you turned the wheel the car turned. The brakes, likewise, were really strong. When I stood on the loud pedal, though, the car seemed to vibrate around me (or was it my vision blurring?). I had worked down to a 1:26 lap in three orbits (1:30 is supposed to be good and 1:19.5 is the record), and was ready to let it all hang out for my fourth go-round, when the engine suddenly seemed to lose power. I threw in the clutch and blipped it once. It sounded terrible. Up went the arm and I pulled onto the grass, and killed it, and sat, looking across the infield at the blanched faces of Lambiris and Brady, wondering if I had single-handedly broken up the team as well as the motor. I figured it would only be fair to pay for the damage and wondered if it was over $20. Then, on a hunch, I flipped on the master and checked the fuel pressure gauge. Zero. I had run out of gas. /MT

POCONO

continued

that road, hoping to catch the race-goers on their way by. But the long line of cars motored slowly and inexorably by, bumper-to-bumper, without stopping. The road bordered the track property and dumped cars off into freshly graded parking lots carved out of the rich, brown soil, where it cost $5 to leave your car. The air was crystal, and at 8 o'clock the stands were just beginning to fill. Estimates put the final spectator count at 60,000-75,000.

The garage area was busy and noisy with the sounds of Fords and Offys being warmed. Because of the landmark decision at Indy, women were able to circulate freely in this traditionally males-only holy of holies, with the only complications caused by the distractive influence of an overly graphic pair of hot pants. Bill Simpson's crew was making final adjustments to the new upper control arm support installed after the Swik-Kool Eagle had given Simpson something to think about by dropping down on the track and making a sudden turn toward the wall at full speed during qualifying a week earlier. Chief mechanic Cliff Haverson was able to repair the car and Bill got into the ninth row with a 164.73 average the following day. Now he wanted to make sure that nothing similar would happen during the race. Dave Laycock was sweeping out Lloyd Ruby's garage after working all night to get the Utah Stars-sponsored machine back together. There had been some problems with the injection and the unit had been air-lifted to Detroit for a checkout. Whatever the problem, the car never did become a threat.

As noon approached, the cars were moved first to the pit area and then onto the starting grid. Photographers began positioning themselves around the track, vainly trying to avoid standing in a muddy spot, and helicopter traffic to the infield landing pad became increasingly heavy. Indianapolis Motor Speedway owner Tony Hulman rendered his usual ceremonial aria of "Gentlemen, start your engines!" and the Schaefer 500, sixth stop on the Marlboro Championship Trail and second leg of the Triple Crown, was underway. Sam Hanks led the pack around at 95 mph for three laps, ducked into the pits and stopped, and Donohue took off like a rabbit. Mark continued to open, but it appeared that the agreement to "cool it" was being honored, as the average after four laps was just 158.822. The speeds soon kicked up to over 164, however, and it began to look as though the race might be a lot faster than the 148-mph average that most of the press people had predicted. But then the first of the race's eight yellows came out on lap 18 and the pace slowed.

Al Unser was black-flagged out of the running after just 32 laps, while in second place, when his Ford engine broke the scavenge pump drive and began to blow oil out of the breathers. Jim Hurtubise's antique roadster dropped out three laps later with a blown rod after managing to pass a few of the backmarkers at the rear of the field. Joe Leonard pitted under a yellow on lap 44, and blasted away from the surprised Samsonite crew with the fueling nozzle and part of the hose still attached to his car. The very same thing had happened to Lloyd Ruby while he was leading at Indy in '69, ripping the side off his car and putting him out. Miraculously, Joe's car was not damaged and he was able to continue after pulling back into the pits on the next lap. The time lost was purely academic, as the regrouping of the pack behind the pace car under the subsequent yellows served to keep everybody in striking distance of the leader, who generally proved to be Donohue when he wasn't in the pits. Thus, it really didn't matter too much when Leonard again had trouble in the pits mid-way through, while leading, when he nearly drove off before his fresh right rear tire had been fully installed. He was still ready to pounce on the opportunity to pass Donohue

continued on page 107

FORD
continued

new comp suspension is very nearly as good as the old one.

The '71 goes into oversteer in a predictable fashion, with cornering being limited by tire adhesion. The '72 reaches its limit in two stages. The initial limit is still in understeer when the tires begin to slip, with the car pointed fairly straight. This is it for normal driving skill. If you've had the opportunity to scare yourself a few times, and learn something from it, enter phase two.

By punching the throttle to the floor just prior to phase one limit, the rear end comes out in a nicely controlled drift and phase two commences. Attitude control is achieved by judicious feathering of the throttle until turn exit, whereupon stable acceleration comes on without any fishtailing.

The '72 is superior as far as built-in safety factors are concerned as well as turn exit stability. The places where it falls behind the '71 are in roll recovery and predictability. The leaf springs come back to level quicker, giving it the edge on a sinuous road; however, when not getting it on, or on single corners, the '72 must get my grudging admiration. It will take some retraining, though, if you have been driving the old system. The police will like it, and you are not going to lose them unless you are an accomplished slalom driver and have a radio jammer on board.

The time is rapidly approaching for some soul searching cost analysis. Safety and smog regulations are being proliferated at a rate that would warm the hearts of the National Safety Council. By 1976, we'll have the safest cars in history along with some real progress under way for clean air – at least in minimization of automotive pollution, if not actual clean air. As in all things noble or utopian, there is a small fly in the ointment. One fly is time. Has enough test and development time been cranked into the requirements? A second fly is practicality. Are some of the smog-safety regulations programmable? Or do they rely on some, as yet uninvented, components and systems? The third fly is cost. The first two are of little concern to the motoring public, since it is the manufacturer who bears the burden, but it is the customer who will ultimately bear the burden of cost.

How much is a human life worth? It is a question which cannot be answered since one's own life is infinitely more valuable than that of a stranger; yet we are answering the question daily with our reaction toward increased highway taxes for better median barriers and safer roadways; and we will answer the question most directly in the next few model years with our reactions to the higher price tags on the same basic car with safety and smog improvements. Cost of living notwithstanding.

For example, a 5 mph, 80 percent damage-free front bumper, based on current energy technology, will add $50 to the vehicle's price and save an average of $49 in damage prevention during the lifetime of the car. The customer must receive part of the average $34 reduction in insurance costs through premium rebate in order to realize any monetary benefit from the new bumper. Moving up to the 10 mph bumper, the figures are even greater, with the customer on the short end of the stick.

The proposed indirect visibility requirement may generate some indirect costs, inasmuch as it would require a mirror extending 12 inches beyond the widest point of the car, as presently written. This, in the face of flush door handles, sets one to thinking.

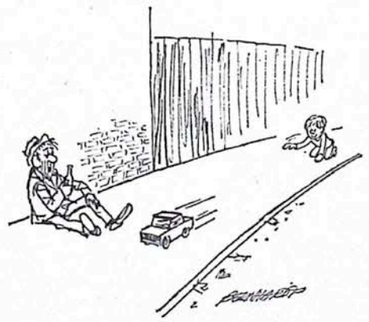
Proposed standards on brake systems involve 30 percent to 40 percent reduction in stopping distances. This can be achieved within the present state of the art, which is pretty good, but only at the sacrifice of valve modulation. This means that either the driver modulates the brakes for conditions of road adhesion, or we pay a bundle for the complex non-skid systems used on the luxury cars.

Smog has been hashed and rehashed and the only comment to be made at this time is that in November 1970, completely

Above: Marquis has new grille, emphasizing lowered visual center. Below: Big brother Lincoln retains individual identity, classic lines.

new test procedures and standards for '72 models were promulgated. The tightly prescribed 50,000-mile durability test includes 11 laps over a 3.7 mile course. Each lap requires a number of speed-ups and slow-downs. Ford had 136 cars running at the proving grounds, logging a total of 2.9 million miles before test completion. The first car started in January and the last one just beat the first '72 off the line. That doesn't allow much slack and underlines one of Ford's big complaints. They need more definitive requirements, stable requirements, and a practical time in which to accomplish the requirements. Time and money are constants. When you compress time, the cost goes up.

The Ford attitude can best be summed up in the words of Bill Innes, exeuctive vice-president in charge of North American Operations: "As a citizen, father, husband and businessman, I am just as much interested in less pollution and more safety as anyone else – maybe more so. Since I'm in the auto business I'm stuck with being part of the problem and I darn well want to be part of the solution as well."



"Cars are getting so small it's ridiculoush!"

POCONO
continued

as the lights went green on the 190th lap after the clean-up when Sam Session's machine drooled oil in turn two.

By his own admission, Donohue had been having trouble in that part of the course all day and backed off going in when he felt the car begin to slide a tad. He continued to get crossed up and the intrepid Leonard, right on his tail, shot by. By that time Donohue's rpm had dropped and he didn't have enough blower pressure to hold off the yellow car. "I followed Joe around for a couple of laps to see how he got through and when I got my bravery up went past him." That was on lap 194, and the crowd, partial to the Media, Pennsylvania, driver, was standing and actively exorting their favorite on, a very rare sight at a 500-mile USAC race. The blue Sunoco car continued to open on Leonard and there was no way he could catch him in the remaining distance. Donohue sped to the finish the winner, as an elated Roger Penske sprinted toward his jubilant crew. They had won their first USAC race.

Less than a day later they won the Trans-Am race at Donneybrook. It was a good weekend. /MT

IN RETROSPECT
continued

the prototype staff sliced four inches out of the vertical height and added 12 inches to the hood and front fenders. During this period, Edsel was pleased enough with the results to order another pair for his sons Benson and Henry II, so actually there were three prototypes, not one.

Satisfied that the work was underway as he wanted, Edsel took off for a vacation in Florida, leaving orders that the first one finished was to be shipped to him there. In March, 1939, the first Continental to see the light of day, eagle gray with gray leather upholstery, arrived in Florida and was an immediate sensation, so much so in fact that Edsel came home to Dearborn with 200-odd requests for copies. This plus the interest generated by the other two cars finally got through to the old-liners and the decision was made to produce a limited batch of 500. Tooling was begun in October of '39 and the first 25 cars were completed in December, all convertibles. A hardtop coupe version was designed, and from then on all the following cars of the batch were designated as 1940 models. From October 1939 to September 1940 a total of 394 cars were built, 350 coupes and a mere 44 Cabriolets.

Engines for these cars were ordinary 1940 Zephyr V12s but given polished alloy heads and intake manifolds set off by chrome acorn nuts. Compression ratio was 7.2 to 1, bore was 2.875 in. and stroke was 3.75 for a total of 292 cubic inches. Rated horsepower was 120 at 3600 rpm and torque was given as 225 lb.-ft. at 1800 rpm. It doesn't sound like much but it should be remembered that anything over 100 bhp at that time was considered to be more than adequate. Coupled with the smoothness produced by 12 cylinders and a lot of piston area, it felt like more than 120 horses lived under that hood.

With 1941 – and the subject car or cars – came refinements. Thankfully they were just that – refinements. The most obvious of these were the push-button door releases that replaced the door handles on the '40 models. Another was a slight change in the grille inserts, the vertical bars being surrounded by a rim rather than being left open at the ends. The Lincoln-Zephyr insignia was dropped from hubcaps and horn button and a tasteful script *Lincoln Continental* in metal was appliqued on the cowl and spare tire cap. Not so obvious were springs that were longer by two inches in the front and two-and-a-half inches at the rear,

continued on page 108

IN RETROSPECT
continued

each leaf being separated by rubber inserts. The 16-inch wheels were widened to five inches from 4½ and shod with 7.00 x 16 rubber. Directional signals were standard equipment and the radio could be controlled by a foot switch that changed stations at full tromp and shut down commercials at half-pedal. More important was an automatic overdrive that was optional in place of the two-speed Columbia rear axle that graced the '40 versions.

The 1942 model year, beginning in October, was notable for a number of things, most, if not all, catastrophic. First, someone who had been apparently impressed with the Burlington Zephyr got the upper hand in styling the Continental fenders and hood with the inevitable result that the car looked as though it had been driven under a Ford truck, emerging with the truck's fenders and front end. Second, some aggressive people from across the Pacific made a mess out of Pearl Harbor. The question of which was the messier – the styling or the bombing – depends on your date of birth. In any case the latter occurrence stopped production not only on the Continentals but all cars for the four war years.

In 1946 production of cars for civilians, including a new version of the Continental, was resumed. This time the stylist in charge had been impressed by a Cadillac. A heavy, waffle-iron grille and an equally heavy bumper was plastered on the front. On the sides the graceful flowing fenders had given way to a set of boxy pieces of sheet metal that looked as if, like the grille, they had been subcontracted to that section of the Fisher plant that supplied Cadillac. The end was in sight. The post-war price spiral pushed the cost from the $2,800 price of the '41 to $5,000 for the '46. Lacking the sheer class of the '40 and '41, coupled with the 60 percent price increase and faced into the bargain with a steamroller campaign on the part of Cadillac to become the "Standard of the World" and THE prestige car on the American market, the Continental with its abortive face-lift and outdated engine and driveline was doomed. At the end of 1948 the Continental program was quietly dropped; the Lincoln Continental was gone. And so was the gentle, sensitive man who dreamed it up and saw it into production. Edsel Ford, aged 50, died in May, 1943. The car he created died in October, 1948 but the terminal illness probably began in October, 1941. But those that still exist remain as monuments, tended with painstaking care by the likes of Lloyd Whitworth. And occasionally create time vortices for the likes of me. /MT

DODGE
continued

108 inches. Basic engine for the Dart line is the 198 CID 6, with the 225 6 optional. The base V8 is the 318, while the 340 is available. If you order the Demon 340, Dodge adds H-D shocks and springs, front and rear, a front sway bar, and heavy-duty torsion bars. They also continue to offer the buyer lots of choice in the shifting department, with floor-mounted 3- and 4-speeds available as well as the TorqueFlite 3-speed automatic.

Convertible lovers may insist it's not the same thing, but Dodge does offer a soft vinyl sliding sun roof in '72, as last year. It's manually operated and not as slick as the all-metal electric jobs, but considerably less expensive and opens a larger area to the sky as well.

COLT

The Dodge Colt, Dodge's mini-compact made in Japan by Mitsubishi (any company that makes good beer must make good cars!), is back for '72, with larger front disc brakes and two metallic colors. Dodge has it over Plymouth's Cricket by being able to offer a two-door hardtop, a four-door sedan *and* a wagon. Surprisingly, the wagon's selling quite well, giving the Vega wagon a run for its money. The Colt's engine, to refresh your memory, is a hemi-head overhead cam four, 1600cc (97.5 cu. in.) in size. It's rated at 100-hp. Colt comes with a four-speed as standard but an automatic three-speed is optional. Now all Colt needs is a twin-carb mod like the Cricket and it can hold its head high among the under 2.5-liter Trans-Ammers. /MT

AMC
continued

rally stripe combined with a pin stripe. (Hmmm, why not bubble skirts, too?). The Gremlin with the V8 in it lays absolute claim to America's understeer crown, even with a sway bar up front. The buyers much less AMC, don't seem to know or care about the Gremlin's lack of cornering ability, but they ought to if only for the fact the car would have even wider appeal.

Realistically, AMC's thin gray line for '72 isn't going to rattle The Big Three, once again anticipating Detroit's styling freeze. But, by scrambling headlong into new ventures, AMC seems closer to paydirt, with that great mass of increasingly militant American consumers seemingly weary of Annual Model Changes or fads like humped hoods and phony insignia. If the bumper game, and then the Muskie smog bill, doesn't do them in, AMC will be around for some time to come, always endeavoring to plug that hole in the line that Detroit didn't even see. Besides that, they know GM is pulling for them. Gauging the growing anti-monopoly sentiment, if AMC tumbles, so will the world's largest business. And that won't be good for the country – Charlie Wilson said so. /MT

WAGON TEST
continued

which transmit every road imperfection to the passenger compartment and the result is frequent rest stops. This harshness does not eliminate the uncomfortable sensation of undue body roll and does contribute to a noisy ride, as creaks and groans emanate from all corners of the vehicle. Directional stability is none too good either, a situation compounded by a power steering unit which permits little road feel to reach the driver.

One good feature the Wagoneer does possess is the American Motors 360-2v V-8 engine, which replaces the old Jeep Dauntless power unit. Offered for the first time in this vehicle, the engine not only develops more horsepower than the Dauntless, 245 at 4,400 rpm versus 230 at 4,400 rpm, but also has better low end torque, 365 lb.-ft. at 2,600 rpm. It cruises quietly at freeway speeds and does not strain when called upon to haul loads. In performance, the engine is hampered by a too high axle ratio, 3.31:1, and although it has a 17.4:1 power-to-weight ratio, lower than the other cars, it is slower. Without a six-passenger load, the Wagoneer recorded 12.6 seconds to 60 mph and 18.9 seconds at 73 mph in the quarter. Laden, the vehicle really slowed and could manage only 14 seconds to 60 mph and 19.7 in the quarter with a speed of 69 mph. However, fuel economy was above that of the Travelall, as the Wagoneer averaged 10.9 mpg.

Braking for the Wagoneer is supplied by power assisted drums which, surprisingly, work more efficiently when the vehicle is loaded. In our panic stops from 60 mph under unloaded conditions, the vehicle fishtailed badly and required 179.1 feet to stop; but when we put in a 1000-lb. load, the fishtailing turned into a mild right swing-out and distance improved to 160.2 feet. Both figures are exceptionally long, but brake fade was non-existent.

Choosing the best of these three vehicles is, at once, simple and difficult: the International Travelall is better than the Suburban but they're close. It is more comfortable, more powerful, and just as able at packing heavy loads as the Chevrolet. The Jeep Wagoneer? Well, somebody has to be last. Which is ironic since it probably has the most potential of the group with its smaller size but equal cargo capacity. Except for the Wagoneer, these vehicles as a class stand up as a sound alternative to the normal station wagon. Especially in the case of International Harvester, they represent a different manufacturing philosophy than the Average American is accustomed to. Even the sales approach is different. They know that you need a vehicle to do a job and if they build the best one they can, the public will buy it. /MT

ALPHA ROMERO
continued

SPIDER

The Spider is the Alfa's free spirit. This is the car for the top down on a beautiful day, the wind tangling your hair, making you want to shout with enthusiasm. This is the car we took up in the canyons. It makes you feel both free and a bit like Jackie Stewart. You sit back with the wheel placed in front of you, like a huge balance wheel. The car understeers at first, but the faster you go, the more it tends to be neutral. You make it oversteer, if you like, though it's not easy. If you grab onto more than you can handle, the car is quite forgiving. As Chuck Queener put it after our run through the canyon, "It's just a very easy car to drive fast." Enough said.

Spider interiors are apt to face the elements a lot more than the GTV and Berlina, so there's no wood. All necessary instruments are large and easy to read, switches easy to get to. Fit and finish is very good and the top should get someone a medal. Putting it down is about a 15-second job, if you're trying. Putting it up runs to maybe a minute. You can't even get some power tops down that quick. Seats are as easily adjustable and reclinable as all Alfa seats, but also as inadequately ventilated, leaving you with a wet, sweaty back on warm days. In fact, the whole car isn't too well ventilated when the top is up, but then if you have the top up and it's not raining or snowing, you've missed a very important message.

And speaking of messages, Alfa finally got the one telling them their old Spider looked like it had been squeezed from a tube of Crest, so they restyled the back end, chopping it off Kamm-fashion to make the car's overall appeal much greater. Which somehow also brings us to price: $4,595 p.o.e. East Coast (add $60, West Coast). Expensive, but well worth it.

GTV

I've fallen in love with about 10 cars in my life that I'd seriously consider selling my soul for. Unfortunately, all but two are over $10,000 and only one is under $5,000. That's the Alfa GTV. Feeling-wise, it's a Spider you can't put the top down on, with just a touch of conservatism. That Bertone design, in addition to being beautiful, has to be one of the best proportioned and sized cars built. Just enough for two adults, and maybe a baby or youngster to the age of about four. The trunk gives just about enough space to support that number of people for 10 days, though they shouldn't attend any formal affairs.

Perhaps because of the way you sit further down in the GTV, you don't get quite the "master-of-it-all" feeling you do with the Spider. You fit down in the car, more like a Corvette. This makes it slightly deceiving when you're driving the car quickly, though again you start at oversteer (just a bit more than the Spider) and the faster you go, the closer to neutral the car becomes.

There's something warmer about the GTV interior and I'm sure it's the wood that runs across the dash and down the center console. There are two huge Veglia dials (tach and speedo) staring you right in the eye, no way to miss them, though, as on all Alfas, the redline is marked so slightly, you have to know where it is to obey it. A newcomer to the car will often take it to six from the start. Two more quick complaints, one again being the car's ventilation, which is only fair at best, and those thin seats. The GTV seats have to be among the best looking, but are too thin for many riders (mainly the woman passengers) and they offer little lateral support, forcing you to hold yourself behind the wheel in hard cornering; a very tiring task. On the skid pad, where the GTV generated .738 g to the right and .723 to the left, our arms got very tired after five circuits just holding ourselves in front of the wheel.

Regardless of those problems, I still find the GTV one of the most desirable cars in the world, regardless of price. Except for those new, huge taillights, the design is magnificent. Anyone want to buy one slightly tattered soul for about $4,795?

BERLINA

Outwardly, it would appear that the GTV and Spider are the most exciting, and esthetically they are. But there's a certain grace to the Berlina and it only drops a small notch behind the other two. At $3,795, that makes it a bargain. A genuine Italian sleeper. Here that whole great package is wrapped in a four-door sedan body. It's not the prettiest car, but it's very efficient, with excellent seats (though again unventilated), plenty of room for four people and the ability to put down a whole passle of otherwise genuine sports cars.

Packaging is the secret again and all four adults riding in a Berlina are comfortable, with more real back seat legroom than a Chevy Caprice. There's a huge trunk with enough room to carry luggage for all four for 10 days. There's also a fold down arm rest/storage bin between the riders in back. But that's all icing, the heart is again underneath the wrappings.

The Berlina does not handle as well as the GTV and Spider on the majority of roads, but put 32 pounds of air in the front tires and 34 in the back, tighten your driving gloves and you'll find it isn't that far behind. There's more initial understeer (that tire pressure is critical) than the other cars and

continued on page 114

Show the whole pack thundering down Turn 2 with your 90mm and then seconds later zoom all the way out to 230mm and lock in on that Porsche lapping the field. The Vivitar Zoom is fully automatic (stops down automatically) and opens up to f4.5. It's only 7¾ inches long and 32 ozs. light. Part of the Vivitar T-4 lens system which means you can use it on the 35mm SLR camera you own today and on the one you may buy tomorrow. Just buy an inexpensive adapter for the new camera. Now available for Nikon, Nikkormat, Canon, Mamiya/Sekor, Miranda, Minolta, Exakta and Pentax cameras.
See it at your photo dealer or write for complete T-4 lens test reports.

Vivitar T-4 Zoom Lens

Vivitar products are marketed exclusively in the U.S.A. by **Ponder&Best, Inc.**
Corporate Offices: 11201 West Pico Blvd., Los Angeles, California 90064.
In Canada: Precision Cameras of Canada, Ltd.

The ideal lens for photographing sports car races.

Write for your free copy of "How to Photograph Auto Racing" an informative 20-page booklet by Gordon Chittenden, internationally known racing photographer.

the steering just a bit heavier, but once you get the hang of tucking that nose in the turn and keeping the engine above 3500 and buzzing, you'll get the Berlina through any corner in one hell of a hurry and the guy in that BMW 2002 better know at least as much about driving as you do, or he's lost. Just don't spill the groceries on the way home. In fairness to the Berlina, while the test chart will show only a 17.8-sec. quarter-mile, this time was taken on a very hot day at a slow drag strip. Run on the same track as the GTV and Spider, it could have easily matched last year's 17.5-sec. time.

There's some sneaky, gut-level thrill to driving a Berlina, perhaps the same thing that started the sleeper, big-engined Chevy Nova on its way to popularity. It's those double takes from gas station attendants, the disgruntled MG owners on twisty Mulholland Drive, over 20 miles to the gallon, shutting down an Opel GT owner on the freeway. I know it well. I own one.

I sold my very faithful Volvo to buy the Berlina, and to any one who cares to accuse me of a forked tongue after my Volvo test of three months ago, let me reiterate that the Volvo is a more rugged car than the Berlina. It's still an anvil. But cars are bought for more reasons than that and this is not the last car I will own. In fact, I still have to own a GTV.

There must be this one small note of warning. You do have to be careful where you buy your Alfa. While their parts are in ready supply on both coasts and Air Express is very efficient, you still have to have someone qualified to put them on, and good Alfa dealers aren't plentiful once you get 400 miles inland from either ocean. There are notable exceptions, such as Oklahoma City, Atlanta, Chicago, Kansas City, Ferndale, and Cuyahoga Falls, but all told, they only make up 29 of 48 continental states. If you're within 200 miles of a dealer, though, you're close enough. Alfas are worth suffering for, though the 1750s are dependable enough that any problems you have between normal maintenance, will be problems you bring on yourself. They aren't the cantankerous Alfas of old.

Summing up an Alfa test is easy: they're all well-built, fine-handling cars. If you don't believe me, drive one and if you have any automotive soul left, you should agree. They're a little on the expensive side for their size, but then if you're buying your cars on a cost-per-pound basis, as some recent Chevrolet ads would suggest you should, you also probably stay in bed on those cool, crisp Saturday mornings. /MT

tions. The 15 TS and 17 TL have a dual carburetor and produce 102 hp, good for a top speed of 106 mph. The flagship 17 TS is the first Renault to use electronic fuel injection. The system was developed in conjunction with Bosch. It is good for 120 hp at 6250 rpm and gives a top speed of 112 mph.

Transmission is a four-speed on the floor on all models, except on the 17 TS which is fitted with the five-speed box of the Renault 12 Gordini. Automatic transmission will be available optionally at a later stage.

As on the Renault 12, suspension is only independent up front with coil shocks and stabilizer bar. Brakes are hydraulic and MasterVac assisted. The TL has normal discs up front and drums in rear. All other versions have ventilated discs up front with drums in rear except for the 17 TS which employs nothing but discs. The wheels get prettier as you move up the range, and tires grow from 145x13 radials on the 15 TL to 115x13 on the intermediate models, with a 165x13 circle on the 17 TS. Steering is of the rack and pinion type.

Interior equipment, trim and finish are excellent, with various levels of luxury, ranging from the usual synthetic upholstery to traditional leather, from a classical wheel to a racing type. Most of the generally optional goodies, such as a rev-counter, electric windows and the like are standard on the 17 TS.

Keep your money in your pocket, though, if the cars sound good to you, because the 17 won't be seen in the U.S. for a year, and the 15 may never make it to Englewood Cliffs, N.J. There's the matter of meeting smog regulations and crash testing the cars, though Renault is holding three aces: the 1600cc engine, already desmogged and imported in the 16 and 12; the desmoggable Bosch-type injection engine, and that 4.5-mph bumper. The cars will be ready for introduction in Europe in conjunction with the resurrected Paris Auto Show in early October. By this time next year the cars should be fairly evident in France, brightly colored and buzzing down that long road that leads up from the drab days in 1945. The butter for Renault's bread. /MT

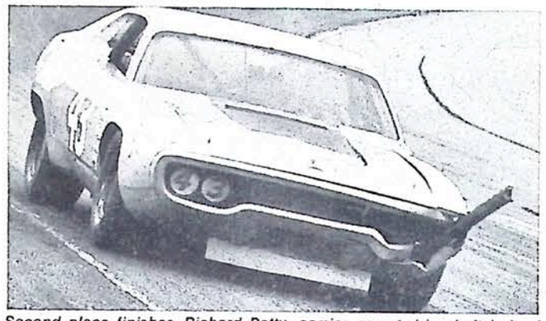
"Of course, batteries are extra."

ADVERTISERS INDEX

TRACKSIDE '71

FIRECRACKER 400 TO ISAAC

The ladies-in-charge-of-smiling-after-the-race, Union 76 Race stopper, Miss Winston, and Miss Daytona give Bobby Isaac the full treatment.



Second place finisher, Richard Petty, carries errant driveshaft lodged in front end. Debris miraculously missed oil cooler, radiator, Petty.

Daytona Beach, Fla. – If Bobby Isaac were a professional football player, he would be an offensive tackle. Isaac is a skilled driver and a fierce competitor, but he works for Nord Krauskopf, and his crew chief, Harry Hyde calls the plays from the pits. Bobby does what he is told, without complaint, and without second guessing.

Nord, one of the "K's" in K&K Insurance, disagreed with Bill France's system of handicapping and withdrew Bobby's car from further competition in protest of the carburetor plate. Mr. France didn't change the plates, but the engineers at Chrysler resurrected the old 426 wedge chambered relic engine in order to be eligible for the 1⅝" plate. By using the current 426 cid block and the rechambered 440 cid head, the 1963 "Wedge" acquired some 1971 durability and power.

Mr. Krauskopf changed his mind, allowing Isaac to enter competition, but only after the first twenty starting positions had been taken.

When Bobby finally took to the high-banked asphalt, he took off like a shot from 21st and picked up ten positions on the first ten laps. He didn't get to first until lap 62.

The Brothers Allison ran into some tire trouble and were unable to show their full potential, which in the case of Donnie was pretty good since he had placed the Wood Bros. Mercury on the pole.

Isaac ran out of fuel on lap 71, and languished in the pits for 37 seconds while crew got the Charger relit.

Bobby worked his way back into first again and was on his way until that strange creature which peers over Bobby's shoulder reached out and unlatched two of his hood pins. When a hood pin fails at Daytona, the hood takes on the structural rigidity of Reynolds wrap. Fortunately, one pin held, keeping the curled hood in place.

Isaac had opened a sufficient lead to back off a tad for the final 10 laps, allowing Richard Petty to close from 12 to 3 seconds behind. He got no closer as Bobby finally outwitted the odds and picked up his second career supertrack victory, and a sweet one it must have been.

Richard Petty, always the gentleman, saved the track clean-up crew a chore by scooping up an errant drive shaft in his grille and left front fender. He made several laps with the extra weight before his pit crew gingerly removed the unwanted hitch hiker.

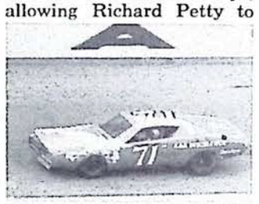
Richard finished second and Buddy Baker barely nipped Pete Hamilton for third.

The Mercurys took fifth and sixth while Fred Lorenzen and David Pearson, could manage only seventh and eighth. David rode in Lorenzen's backup Plymouth while the Pontiac is being fitted with a stronger engine.

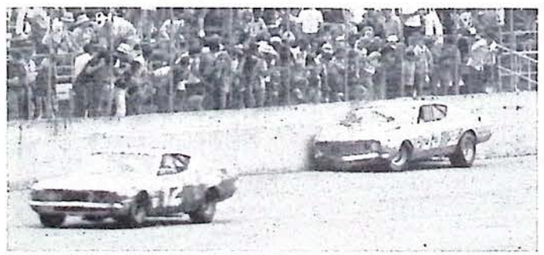
Chargin' Charlie Glotzbach put on a good show in the Jr. Johnson Chevy till a rocker arm let go.

A.J. Foyt parked his H&M Merc after 33 laps. The machine was not competitive.

Bobby Isaac's post race comments were a tribute to his candor when he stated that he didn't think anyone should be handicapped with a small plate regardless of who wins.



Bobby Issac streaks for the finish line; crumpled hood flapping.



Bobby Allison (12) clears wreckage of Tiny Lund's Mercury. Tiny broke ribs and punctured lung during 800-ft. slide along concrete wall.

RUNDOWN

1.	Isaac	K&K Ins-Dodge
2.	Petty	Petty-Plym
3.	Baker	Petty-Dodge
4.	Hamilton	AmBrkBlk-Plym
5.	D. Allison	Purltr-Merc
6.	B. Allison	Coke-Merc
7.	Lorenzen	STP-Plym
8.	Pearson	CV Ent.-Plym
9.	Hylton	Mullins-Ford
10.	Hassler	Chev

PETTY MASTERS TRENTON.. AGAIN

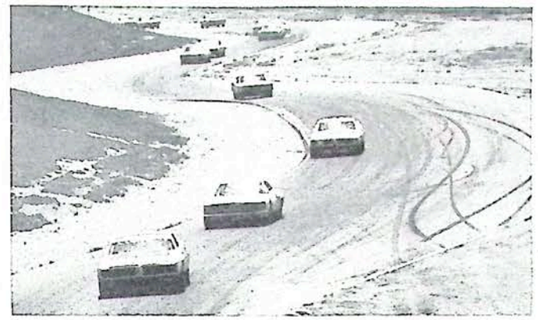
Trenton, N.J. – Richard Petty notched his third victory at the difficult Trenton dogleg oval. Unlike most NASCAR tracks, which consists of four left turns of varying sizes and angles of bank, Trenton spices up the action with a right hand dogleg two-thirds of the way down the back chute. The obvious problem involves the drivers who just aren't psychologically oriented to handle an abrupt right hander in the middle of their concentration. The second problem is the chassis setup. Since the odds are in favor of left turns, four to one, the most versatile driver and the most innovative crew have the edge. Therefore, it comes as no surprise to anyone that Richard Petty, perhaps the most versatile stock car driver in the South, has dominated Trenton to a degree unmatched.

In spite of his eventual triumph, even Richard had his problems. Friday Hassler, riding the crest of a sudden surge in Chevrolet competence, took the pole. Richard beat him around on the first lap and that was it for Friday. Bobby Allison, Pete Hamilton, Buddy Baker and Dave Marcis, of Talladega fame, gave Richard a bit of a challenge, but no one could cut it all the way. Richard had some handling problems part way along, puffing smoke from his left tire every time he whipped through the dogleg, but a couple of adjustments cured that and he was on his way. The $6,600 first place money brought Rapid Richard to within $6,000 of a career million.

RUNDOWN

1.	Petty	Petty Plym
2.	Baker	Dodge
3.	B. Allison	Coke Ford
4.	Marcis	Dodge
5.	Hamilton	AmBrkBlk Plym
6.	Hassler	Chev
7.	Dennis	Merc
8.	Troyer	Merc
9.	Hylton	Mullins Ford
10.	Chevalier	Chev

ALLISON SETS RECORD



Bobby Allison, Richard Petty, and Ray Elder lead 40-car field through the esses in blistering heat. Only 10 cars were running at the end.

Riverside, Ca. – Just to prove that his string of victories is no fluke, Bobby Allison picked up his record breaking fourth supertrack win in a row, while driving his third make of car in four races.

After picking off two wins in a Merc, sandwiched around his Dover victory in a Ford, Mr. Allison the elder, broke out his own '71 Charger, painted Marty Robbins purple and yellow, and proceeded to show the West Coast troops how easy it is to wheel one of those armor-plated taxi cabs around a sporty car track.

His only pre-race competition, in spite of publicity, was Richard Petty and Ray Elder, West Coast Champion and January conquerer of Riverside. Last June, when Richard and Bobby were the only hot dogs in town, they dragged from the green flag to turn two, whereupon, Richard got a wheel under Bobby, and Mr. Allison climbed the embankment.

This year when the green flew, the same two hot shoes again dragged from the start to turn two. This time, they went through in single file. It makes for a much longer race that way, and race they did.

For the first third of the race, Richard and Bobby were nose to tail. Sometimes Bobby came through the esses in the lead, and sometimes Richard was in front, but always they were tight. What was sure to be a dull and boring affair on a blistering hot day turned out to be a race and a half. Well, a half a race anyway.

At about the one-third point, Richard began to fall off the pace and finally parked with oil problems.

Benny Parsons had been dogging Bobby Allison's tailpipe all race long. He said that he didn't think he could catch him, but if he stayed close enough he could use Bobby's skill to help guide him around the course. Well, on lap 76 Benny got hungry and tried to close the gap. A racer must race, but Benny got loose in turn 9 and waltzed his Ford into the wall, that was it for the day.

The only remaining threat was cool Ray Elder, who had judiciously used his head and the frequent caution flags to dog Bobby's heels. When a caution flag about 15 laps from the finish, put Ray within shotgun distance, he had run out of brakes. If you don't have binders at Riverside, you are not racing.

Bobby picked up a well earned fourth in a row. His victory circle speech was a tribute to his crew and the longest Coke commercial heard since WW II.

The Allison crew, with brother Eddie and Ralph Moody in command, had a radio hook-up to keep Bobby advised of his position as well as track conditions. Although this had been tried many times before by various groups, this time it worked.

Bobby allowed as how it took a lot of the pain out of the 9 turn course to know what was going on.

RUNDOWN

1.	Allison	Coke-Dodge
2.	Elder	Hargis-Dodge
3.	Gordon	Merc
4.	Hylton	Mullins-Ford
5.	Oliver	Dodge
6.	Soares	Plym
7.	Terris	Plym
8.	Cain	Ford
9.	Fay	Ford
10.	James	Chev

MOTOR TREND'S 1971

SUPERTRACK CHAMP

MT Special – The carburetor plate has emerged as the dominant factor in the race for the '72 Supertrack crown.

In the one race where the infamous piece of sheetmetal was not significant, Bobby Allison set an amazing record with his fourth Supertrack win in a row at the Riverside Winston 400. Bobby used his own Dodge Charger with plated Hemi to defeat Petty and Elder in similarly powered machines.

The rumored showdown on the plate, scheduled for the Daytona Firecracker Medal of Honor 400, never came off. Chrysler engineers and the experts at Petty Enterprises had been laboring long into the nights mating a 426 block to a 440 head in order to come up with a power plant eligible for the 1⅝" plate. They found the right setup for power, but were in a deep sweat over durability. The 'Cracker 400 cleared up any doubts as to strength, at least for 400 miles; Isaac led a four-car Chrysler sweep.

The standings remain essentially the same with Bobby Allison hanging on by a nostril. Buddy Baker maintained his third place standing by scamming an outside ride at Trenton when his team car was left home.

Bobby Isaac would appear to be out of it, being ten points down, but Mr. Isaac has a habit of sneaking up front right after you count him out. If his boss ever makes peace with the NASCAR brass, Bobby is likely to cop a few more wins.

SUPERTRACK LEADERS

1.	Bobby Allison	32
2.	Richard Petty	31
3.	Buddy Baker	27
4.	Bobby Isaac	21
5.	Donnie Allison	14
6.	Pete Hamilton	14
7.	Fred Lorenzen	9
8.	Richard Brooks	6
9.	Dave Marcis	5
10.	Benny Parsons	4

MFG STANDINGS

DODGE	70
PLYMOUTH	55
MERCURY	46
FORD	18
CHEVY	1

TRACKSIDE '71

DONOHUE GETS HIS 5TH STRAIGHT WIN AT MICHIGAN 200

Irish Hills, Mich. – Mark Donohue logged his fifth straight racing victory, covering three Trans-Am wins and Pocono, by waltzing home 16.3 seconds in front of 11 clunking, wheezing survivors of the Michigan 200 USAC Marlboro Championship race.

Donohue surprised no one when he whistled the blue McLaren around the 2-mile banked oval at a record setting 190.476 mph to get a firm grip on the pole position. His grip didn't last very long, as Bobby Unser promptly ripped off a startling 193.444 mph to put the pole in his own pocket, along with the fastest speed ever recorded for an open cockpit car on a closed course.

Every one knew that MIS was a fast track, but few realized what a difference the removal of a couple of bumps would make in the track surface. Six drivers in all bettered Mario Andretti's old mark, including Mario Andretti.

Bobby Unser's position as most favored driver didn't last very long after the green fell. He held the primary slot for the first 30 miles before Donohue put the Penske machine out in front.

The attrition rate was extremely high with turbochargers spitting out blades like a Gillette commercial. It seems that the Schwitzer turbocharger, which is considered to be the best in the business, has a low end to its effective rpm range. When this bottom limit is passed, extended operation at low rpm causes a destructive harmonic which weakens the blades. When the boys stick their feet back onto the go-pedal, the blades in the turbo-charger commence to go their own way.

The obvious question is why operate down in the destructive range? The new system of sticking a pace car out in front of the pack to control the speed during a caution flag seems to be the primary cause, since the relatively stock machine is unable to maintain sufficient speed.

Since it is easier to generate a technological breakthrough than to go through the hassle of getting USAC to revise a rule in less than six months, the creative minds at Schwitzer are heavy on it trying to solve the harmonic problem.

Bobby Unser's promise went unfulfilled when his engine let go after 35 laps. His blazing speed came as the result of some aerodynamic revisions perpetrated on the machine by AAR's resident genius and senior wrench turner, Phil Remington. They changed the front canard fins and revised the "wings" on the rear of the Eagle by lowering the plane of the top surface. The latter was accomplished by turning the turbo-charger over with the waste gate on the bottom instead of the top. They were worried about overheating, which never developed, but had not anticipated oil pickup problems, which did develop.

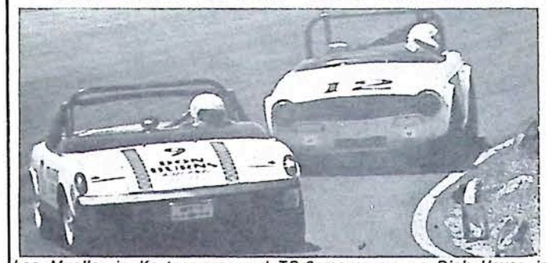
The unanticipated severity of the lateral G's, inherent at the high banked Michigan track, will not be a factor at the low banked oval at Ontario. The tremendous boost in speed experienced by the AAR Eagle should make the third round of the USAC Triple Crown much more of a race than was heretofore expected.

One of the big "secrets" of last year's champion Johnny Lightning team was preparation. They were ready for every race when they arrived, and their state of preparedness exceeded that of their competitors. They no longer have that edge. Preparation has long been the forte of Roger Penske, and he is graphically proving the value of such foresight by the success of the Penske-McLaren this year.

RUNDOWN

1. Donohue Sunoco-McLaren-O
2. Vukovich Prune-Brabham-O
3. McCluskey Sprite-Kusma-F
4. Dallenbach Sprite-Kusma-O
5. Yarborough White-Mongoose-F

TRIUMPH AT RIVERSIDE



Lee Mueller in Kastner-prepared TR-6 moves up on Dick Hayes in Porsche 914-6. Mueller took Cp National victory by one slim second.

Riverside, Calif. – Scoring a clean sweep in every Production category entered, Triumphs in the hands of Lee Mueller, Don Devendorf and Tito D'Oporto cleared the board in classes C, D, F and G in the SCCA National at Riverside International Raceway.

For perpetual National Championship contender Mueller, it was a double header. His first win was with the C Production Kastner-Brophy TR-6 after a see-saw battle with the Porsche 914-6's of Dick Hayes and Alan Johnson, and, for five laps, multiple National Champion Dan Parkinson in the Brock Racing Enterprises Datsun 240-Z. He then jumped into the Kastner - prepared Spitfire Mk III and proceeded to make it look easy by winning the F, G, H Production event by a 51-second margin.

At the start of the C, D, E event, Mueller gunned by Parkinson and Hayes to take a lead which he held for three laps; then Hayes moved ahead, only to lose the lead in a mild shunt with another car. Hayes almost made it up, taking the lead going into the last lap, but lost control momentarily and Mueller took the flag by a mere second, climbing another rung up the ladder toward the American Road Race of Champions national runoffs in the fall. Devendorf, in the Kastner-Brophy GT-6, one lap back, led the D production category to add to the Triumph sweep. While Mueller was running off and hiding in the following F, G, H event, D'Oporto was back in the field pulling out an equally long lead over the G production cars in his Mark II Spitfire. He ended up nearly a lap ahead of his nearest competitor in class G, completing the house - cleaning for British Leyland.

In other races, Vic Provenzano was a runaway winner in B sedans with his Alfa GTA, some 40 seconds ahead of the Datsun 510 of J. Baker. In the big-bore sports/racing event, Bert Ohlander, in Vasek Polak's Porsche Carrera 6 Spider, inherited the win after the McLarens of Jay Hills and Harry Kauffman dropped out. Second was the Chevron B-16 piloted by Jim Busby. In open-wheel Formula racing, Formula B Brabhams nailed down the first six places, with Mike Hansen edging out Dr. Bill Middleton and Jon Milledge.

ALFA HOLDS SLIM LEAD IN U-2.5

Horst Kwech in Alfa, is being pushed hard by BRE Datsun team.

DONOHUE THRASHES TRANS-AM FIELD

Mark Donohue in the immaculate Penske Javelin made a shambles of competition in both Trans-Am adventures at Donnybrooke and Elkhart.

Brainerd, Minn. – The northern climate must agree with Mark Donohue, formerly bright young driving prospect, more recently Ivy League gentleman racer, currently pressing Parnelli Jones and A.J. Foyt as one of the strongest all around racers in the country. Mr. Donohue caught the 2:00 a.m. Penske Airlines flight from Pocono to Brainerd, yawned, stretched, and promptly sprinted to the drop of the green and left all save Peter Revson in the dust.

Revson, also recently arrived from Pocono, in the Roy Woods ARA Javelin, Penske's old one, was the only driver able to keep the flying red, white and blue Javelin, Penske's new one, of Mark Donohue in sight. Peter might have made a race of it if he didn't have to make any pit stops. In the absence of the Bud Moore team, all else being equal, whomever is hassling with Donohue gives up a few seconds whenever a pit stop is required.

In this particular event, the first stop cost Revson 20 seconds when he made his in-and-out in 31 seconds while Marvelous Mark slipped in, refueled and exited in a bare 11 seconds.

Donohue's second refreshment stop was a long one at 21 seconds while he acquired four new tires along with his fuel. Revson, unable to capitalize, gave up 35 seconds on his own stop, which, when added to the driving gap, gave Donohue an advantage of one minute and 15 seconds, more than enough of a margin.

Temperatures were quite high giving credence to speculation that the attrition rate would be formidable, particularly when five cars dropped out on the first 20 laps. Surprisingly only two more joined them out of action throughout the remainder of the race.

Tony DeLorenzo and Jerry Thompson herded their twin Troy Promotions Mustangs across the line in third and fourth respectively for a very respectable finish.

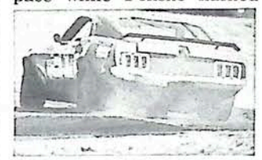
The sentimental favorite, the Backyard Race Team's 64 Pontiac Tempest "Silver Bullet" retired on the 10th lap with a broken rear control arm. The "Silver Bullet's" resident nurse, Bob Tullius was deprived of his chance to throw another scare into the big boys.

RUNDOWN

1.	Donohue	Javelin
2.	Revson	Javelin
3.	DeLorenzo	Mustang
4.	Thompson	Mustang
5.	Agor	Camaro
6.	Waco	Camaro
7.	Carter	Camaro
8.	Robbins	Camaro
9.	Kantrud	Camaro
10.	Chamberlain	Camaro

Elkhart Lake, Wis. – The Bud Moore Mustangs showed up at the beautiful Woodland course at Elkhart Lake, but it didn't make any difference, Mark Donohue did it again in the Penske Javelin. George Follmer sat on the pole in his Moore Mustang until Donohue arrived from MIS on race morning and promptly snatched the front row spot away by running two seconds quicker than George. This alone would have been cause for displeasure, but when Vic Elford in the ARA Javelin also bested Follmer's time to grab the second front row seat, the chagrin transcended the bounds of gentlemanly composure. Some heavy rumors went round the pits that the Javelin boys had qualified on "gumball" tires, extremely soft compound tires which are quite fast but do not last much beyond qualifying. When queried as to whether he had raced on the same tires he used for qualifying, Donohue replied that he had not. Once again, the Penske menage pulled a one-up on the rest of the field.

Just to show what could be done on similar rubber, Follmer flashed by Elford at the start and dogged Mark's tail for the first ten laps. On lap 14, Follmer's tire went flat just past the pits, forcing him to tour the course at a greatly reduced pace while Penske flashed



Warren Tope broadslides through turn 5 finishing 6th.

the joyous message to the flying Donohue. When Follmer rejoined the fray, he was in 10th position.

Elford failed to live up to his qualifying performance, running a weak second when he finally parked it on lap 30 with a broken oil pump drive belt. Dry sump oil system for those of you who may wonder about the oil pump drive belt.

tive speed, moving up as those in front dropped out.

Both Gregg and Follmer generated a bit of excitement by roaring out of the pits in a great ball of flame as their fuel overflow spillage ignited. Fortunately for all concerned, the spillage burned itself out before it reached anything essential, like the cockpit.

Hiroshi Fushida, driving a Camaro, stuffed himself into a tree, on the driver's side, with such vehemence that the hammer and chisel boys worked for two hours to unwind him from the remains of his car. The rescue crew wasn't really that inefficient. Medical people had confirmed that his life was not in danger, so the crew worked carefully in order not to aggravate his injuries. He is currently listed in good condition with fractured collar bone, ankle and four ribs.

Peter Revson never even got a chance at old Mark. He too broke his oil pump drive belt, except that his engine commenced to freeze up before he realized it. He parked on the course to save what remained of the engine. Since there was insufficient time to replace the engine, the ARA team withdrew the car.

Mark's win puts Javelin in first place over the Mustangs 46 to 40. That doesn't seem like much of a lead unless you've tried to catch

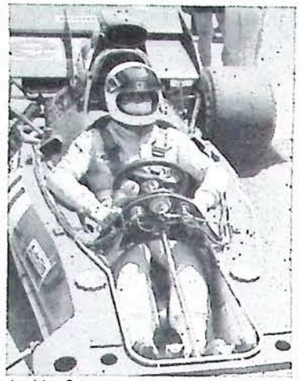
Three Camaros and a Bud Moore Mustang go thundering out of Hurry Downs early on at tree-lined Elkhart Lake. Camaros didn't place.

Peter Gregg had his share of troubles and several other people's share as well. After blowing two engines with new timing chains, the Moore crew installed an old engine with an old timing chain. His best qualifying time was good for the last row. In spite of such an ignominious start, Peter partially redeemed himself by leaping up to eighth place by the third lap. His old engine didn't have any more excitement left in it, so Peter maintained his relaDonohue lately. Unless Bud Moore can dig up enough money to lure Parnelli back out onto the track, it's going to be a long series.

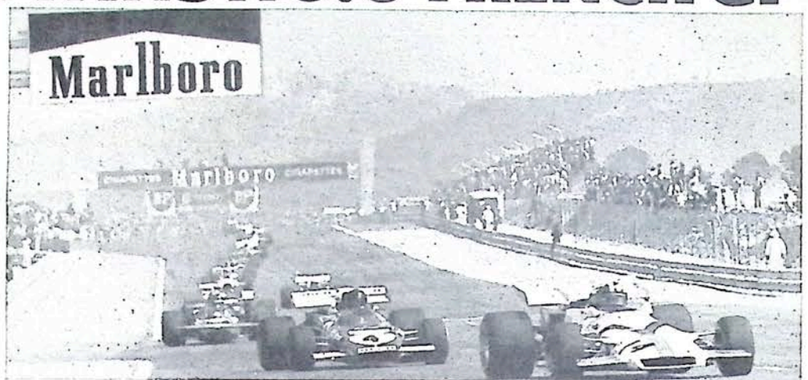
RUNDOWN

1.	Donohue	Javelin
2.	Follmer	Mustang
3.	Thompson	Mustang
4.	Gregg	Mustang
5.	DeLorenzo	Mustang
6.	Tope	Mustang
7.	Chamberlain	Camaro
8.	Parkins	Camaro
9.	Agor	Camaro
10.	McComb	Mustang

STEWART WINS NO. 3-FRENCH GP



Jackie Stewart, current points leader, waits to be snapped into his form-fitting, immaculate Tyrell-Ford.



Jo Siffert in Yardley B.R.M. P160, and Jacky Ickx driving a Ferrari 312B, lead the line down pit straight in vain pursuit of the flying Scot. Ickx, who is second to Stewart in standings, blew an engine; Siffert managed a 4th behind Cevert, Tyrell-Ford; Fittipaldi, Lotus-Ford; and of course, Jackie Stewart.

PEDRO RODRIGUEZ
1940-1971

At 31 years of age, Pedro Rodriguez is dead. He had agreed to drive Hebert Muller's Ferrari 512 M in the 4th round of Europe's equivalant to the Can-Am, the Interserie. Rodriguez was to have debuted the new BRM P154 but its engine had expired during private testing in England.

He had qualified just 2-tenths of a second off Pole winner Chris Craft in a 7 liter McLaren M8E at the Norisring at Nuremberg in Southern Germany. Rodriguez took command immediately only being passed once by Craft. Going into the esses on the 12th lap Rodriguez' car appeared to slip sideways glancing the Armco barrier on the left, then changed direction running into the barrier on the opposite side of the track. After coming to a halt the Ferrari burst into flames. Badly injured, Rodriguez was in an ambulance within 3½ minutes after the first impact. His body was returned to Mexico where he was buried next to his younger brother Ricardo, who died at the wheel of a Rob Walker Lotus while practicing for the Mexican Grand Prix in 1962.

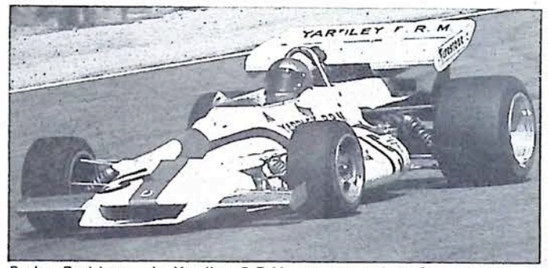
Pedro began racing motorcycles at 13, winning the Mexican Championship before graduating to a Porsche 1500 at the age of 15. He raced in the United States before he was old enough to carry a legal drivers license and ran at 18.

After his brother's death he went into semi-retirement for five years entering sporadic sports car races for Luigi Chinitti here in America. The lure of European motor racing was too strong and he returned to drive a Cooper-Maserati winning the first race of the 1967 season in South Africa.

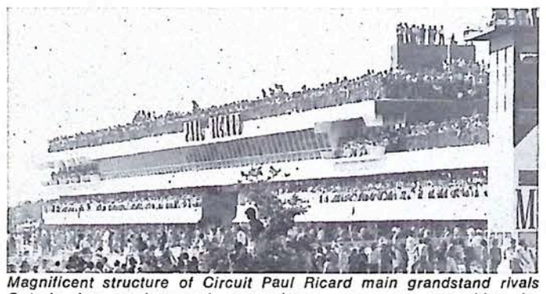
At his death he was number one driver for two British teams, BRM and John Wyer's. J.W. Automotive whose GT-40s and then Porsche 917s Pedro had driven to so many victories. He has been called "the king of sports car racing" and his success in this area ranks with Phil Hill and Olivier Gendebien.

He was also considered one of the top three Grand Prix drivers of his day. He was not a member of the celebrated Grand Prix Drivers Association. He believed that racing should be done at anytime (day or night) anywhere (Spa or Silverstone) and under any conditions (rain or shine). The cutting away of blind brows and removing of trees did not sit well with Rodriguez. On the other hand he was quite concerned for his cars and admitted to worrying about tire or wheel failure.

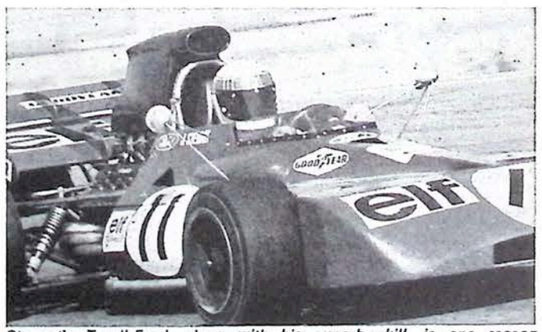
Like so many other drivers recently, it wasn't the circuit which claimed his life, but a puncture. His quiet stockiness will be greatly missed. We would like to extend our condolences to his wife, Angelina, his family in Mexico, and his associates in Europe.



Pedro Rodriguez, in Yardley B.R.M. ran second to Stewart until he was forced to retire with ignition trouble just prior to the halfway mark. This was the last race the Mexican ace was to finish.



Magnificent structure of Circuit Paul Ricard main grandstand rivals Ontario for comfort and convenience, surpasses everything for beauty; was built to help promote owner Ricard's aperitif, Pastis.



Stewart's Tyrell-Ford, along with his superb skill, is one reason why he leads in points. Air intake scoop sits high in the smooth air stream; Can-Am nose is great addition to aerodynamic stability.

MOTOR TREND'S HOT SHEET

BOB BONDURANT has joined Motschenbacher Racing Enterprises as co-driver to boss Lothar Motschenbacher. The well-known pair of Can-Am drivers will campaign two new McLarens, an M8D and an M8E. Bob's former sponsor, actor Paul Newman, has also tied in with the MRE operation.

DAN GURNEY has received another award to go with his long list of achievments, both recognized and otherwise. The Orange County Sports Celebrities have named Dan as the recipient of their first "Sportsman of the Year" award. The ACSC is a group of sports-minded businessmen and community leaders who were so impressed with the idea of the Washington, D.C. Touchdown Club, that they formed one of their own.

GENERAL MOTORS is definitely out of racing – they said so themselves. It is merely coincidence that Chevrolet has suddenly reached into its back pocket and pulled out masses of useful horsepower. Team McLaren, longtime user of Chevy power, recently sported a decal on the front of both cars with the inscription "Chevy Power." The orange Can-Am cars don't wear decals for decoration. NASCAR has seen a rash of new GM products on the track. Jr. Johnson's Monte Carlo has been more than competitive, Friday Hassler, longtime backmarker, took the pole at Trenton in a Chevy. Ray Nichels built a Pontiac for David Pearson, and there's more on the way.

MARIO ROSSI has hung up his racing coveralls. The inability to find a sponsor put the Spartanburg, S.C., car owner-mechanic behind the financial eight-ball. Race winnings just weren't enough to keep it all together.

BENNY PARSONS became an instant independent when sponsor L.G. DeWitt decided to pull out of racing after he suffered painful injuries in a car accident on the way home from one of the races. Benny purchased the '69 Mercury from DeWitt and plans to finish up the season on his own. Mr. DeWitt, a longtime NASCAR owner, will be sorely missed from the sport – especially by Benny.

RICHARD BROOKS, former driver for Mario Rossi, has found another ride, in a Pontiac GTO being built at Stevenson-Ferguson Pontiac in Daytona. The chief wrench is rumored to be Vernon Blank, an ex-Smokey Yunick mechanic. They'll be running an unplated 366-cid engine until someone figures out how to build the 400-cid base engine in a 427 configuration that will live.

LES RICHTER has had some fair-sized crowds at his Irish Hills speedway in the middle of the green woodland outside Jackson, Michigan, but the last major event at Riverside, his racing plant in the middle of the brown grasslands outside of L.A., drew only 18,700, which is so close to break-even that it is not worth re-checking. The absence of more name drivers undoubtedly hurt attendance at the Winston 400 in June. It may be to the advantage of some of the stars of the sport, as well as their sponsors, to get as much exposure as possible.

TELEVISED presentation of the Watkins Glen Can-Am race on 25 July ranks with the best ever on the tube. Camera angles and coverage were superb, rarely missing the action. Slow motion instant replay was right on. Commentator Tony Moy struck just the right balance of background info, technical explanation, and play-by-play – all in layman's language. He should be picked up for all future open cockpit racing coverage. Someone is thinking about the fans at home for a change.

LEE ROY YARBROUGH has become the seldom seen man since his blazing crunch in the AAR Eagle while practicing at Indy. Rumor had him dickering with Oscar Kovaleski for a ride in the AutoWorld Can-Am car, but apparently nothing came of it. At least not yet.

CHARLIE GLOTZBACH, with some relief help by Friday Hassler, gladdened the hearts of Chevy fans the country over by thumping the Jr. Johnson Chevy to the marque's first NASCAR victory this year when they outran the field at Bristol. Chevy's last NASCAR win was courtesy of Bobby Allison in 1968.

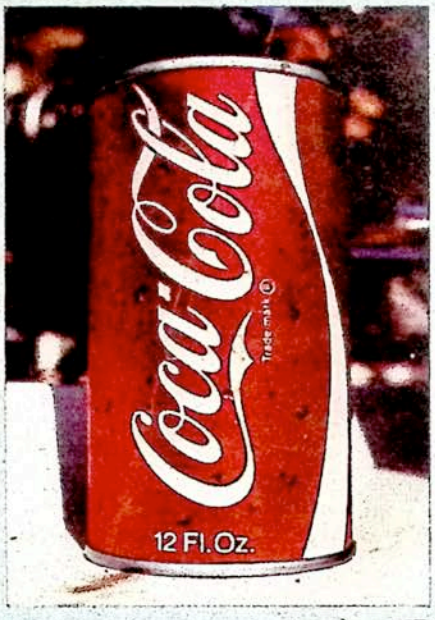
DAVID B. LOCKTON, late of Ontario Motor Speedway, has acquired the rights to license "Johnny Lightning" for areas outside the toy field. Based on his tour of duty at OMS, promotion seems to be Lockton's strong point. Stand by to be overwhelmed by Johnny-Lightning-everything, from toothpaste and pajamas to cereal and vitamin pills.

SKIP BARBER destroyed his new Triple R March 711 Formula I car in practice at Mid-Ohio when a suspension upright let go. This just about cooks it for the Triple R and their efforts to get a functional Formula I car to show the way in the Continental series. The first machine was wiped at Riverside.

SHERRY RALLY, will be held over some of Spain's wildest country between 20 and 23 September. Childing under complaints that last year's rally was too easy, the organizers have laid out a hair-raiser, twisting through wild forests and 3,000- to 4,000-ft. cliffs. The rally is open to cars in Groups 1-6, inclusive.

RACING SCHEDULE—SEPTEMBER

NASCAR	
Darling	6
TRANS-AM	
Michigan	5
Kent	19
CAN-AM	
Donnybrooke	12
Edmonton	26
USAC	
Ontario	5
Trenton	26
CONTINENTAL	
Lime Rock	5
FORMULA I	
Italy	5



It's the real thing. Coke.

Ice-cold Coca-Cola. You'll find it wherever there's excitement, fun and thirsty people. That's the way it should be.

Trade-mark®