You can tell us by the company we keep....

....SAAB 99

When you drive a Saab 99 you travel in pretty fine company.

The Saab 99 is one of the cars that are available right now with features that automotive experts foresee as the features that will be incorporated into the cars of the future to make them safer, more comfortable and better handling.

When you drive a Saab 99 you're driving a car that is being purchased by some of the country's most discriminating automobile buyers — the buyers that study what's available before they buy, and that often have the incomes and jobs allowing them to buy almost anything available, regardless of price.

In this booklet you can learn what two of the country's foremost automotive journalists feel will be incorporated into the cars of the future and why Saab 99 was one of the cars they picked as representing the future. You can also learn who the research has determined is the buyer of the Saab 99, what he does and what he earns and even how he thinks about his car purchase.

Traveling in fine company is nothing new to Saab. We have done it since the very first Saab was produced back in 1950: Among the world's most high priced competition cars in the toughest European rallies; among discerning and discriminating car buyers the world over; and we have always been a bit ahead with important car features that have later been adapted by the entire auto industry for both safety and comfort.

Five unique cars that offer advanced-engineering elements: Above, Mazda RX-2, Mercedes-Benz 300 SEL 4.5, and Saab 99 E. At left, Chrysler Imperial and Cadillac Eldorado. Two have front-wheel drive; two have electronic fuel injection; one has air springs; one has four-wheel antiskid, and one is powered by a Wankel engine.

PHOTOS BY DAVE HOUSER

A Look at the Car of the Future

through a test of advanced features now available on five production cars

By **JAN P. NORBYE** / *PS Automotive Editor* **and JIM DUNNE** / *PS Detroit Editor*

We took the car of the future out to the Bridgehampton race track recently to see how it would compare with the car you're driving now. We ran it through the same POPULAR SCIENCE test course we use in our monthly Norbye/Dunne test reports on currently available cars.

There was one difference: Our car of the future wasn't one car—it was five cars. But each incorporated one or more features that we think that the car of the future will have: a Wankel engine and front-wheel drive, electronic ignition and electronic fuel injection, electronically controlled four-wheel antilock brakes, four-wheel disk brakes, air springs and automatic level control, strong bumpers and an ultra-rigid body.

All of these engineering elements exist, and are standard or can be purchased as options on certain cars. Thus, they can be tested. And we did test them. And so, on a piecemeal basis, we bring you a test report on "the car of the future." Its features can be found on five cars.

- The Cadillac Eldorado was chosen for its use of front-wheel drive, automatic rear-end level control, and rear-wheel antilock brakes.
- The Chrysler Imperial was chosen for its Sure-Brake four-wheel antilock system and electronic ignition.
- The Mazda RX-2 was selected because of its Wankel engine.
- From Mercedes-Benz, we took a 300 SEL 4.5 with electronic fuel injection, four-wheel disk brakes, air springs, and automatic level control.
- The Saab 99 E combines front-wheel drive, electronic fuel injection, five-mph bumpers, and a body shell that's just about the ultimate in structural strength and safety.

Four-wheel disk brakes. Judged for all-around performance, the 300 SEL 4.5 probably has the best brakes we've ever tested. With cool brakes, the Mercedes stopped from 60 mph in 128 ft. 1 in. with a mere 80 pounds of pedal pressure. Now, this is a heavy car,

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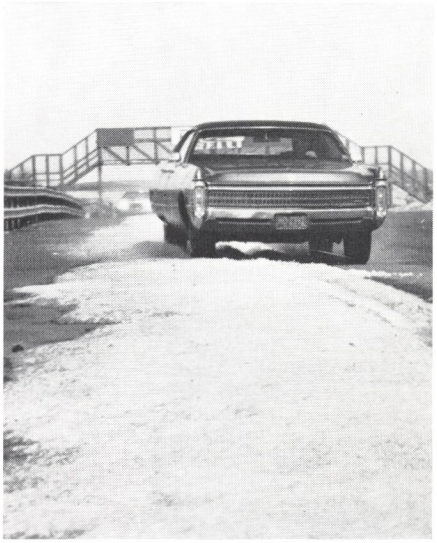
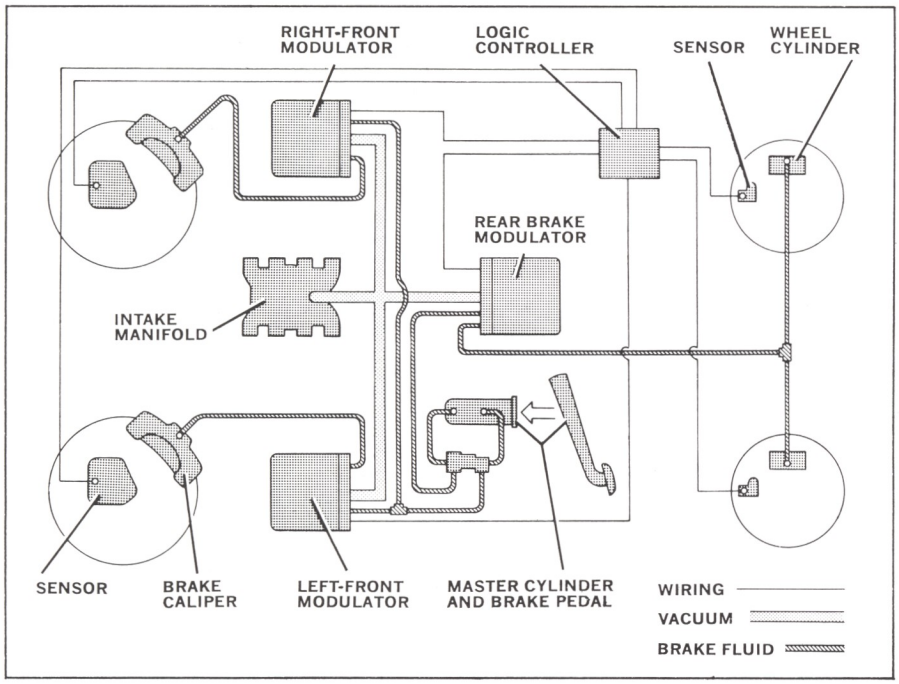
(Reprinted from Popular Science, May 1972)

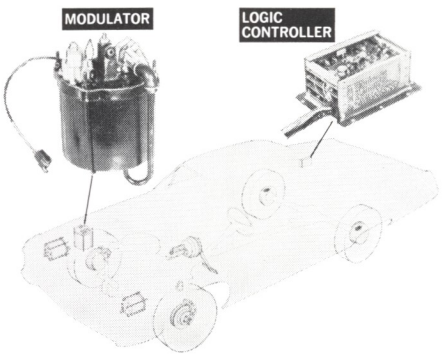
Eldorado has tail lift and nose dive, but stopped in a very short 126.6 feet. Smoke is from final locking in front wheels.

Mercedes-Benz, with its four-wheel disk brakes, showed good brake balance, plus an amazing resistance to fade.



Imperial (above) with four-wheel antilock (drawings at left and below) could be steered in and out of a snowdrift under hard braking with no problem. With two wheels on dry road surface and two wheels in the snow, the car gave absolutely straight, balanced stopping with full control.





with a curb weight of just under 4,000 pounds. Fade can be dismissed. After 10 warmup stops from 60 mph at ½g deceleration with one-minute intervals, the car made its final stop in 130 ft. 2 in. with 84 pounds of pedal pressure.

Why are four-wheel disk brakes so great? They are easier to keep cool, and give better front/rear balance with maximum brake system stability.

Four-wheel antilock brakes. We made panic stops with the Imperial on all kinds of surfaces. We ran it on the dry, highly abrasive roadway at Bridgehampton, and slammed on the brakes at 60 mph with about 200 pounds' pressure. The car stopped in 146 ft. 3 in. without locking any wheel, in a perfectly straight line. We tried it on snow-covered roads and, while stopping distances were long because of the low friction, we had no wheel-locking, no consequent threat of losing control. We ran two wheels on snow, two on dry pavement, and

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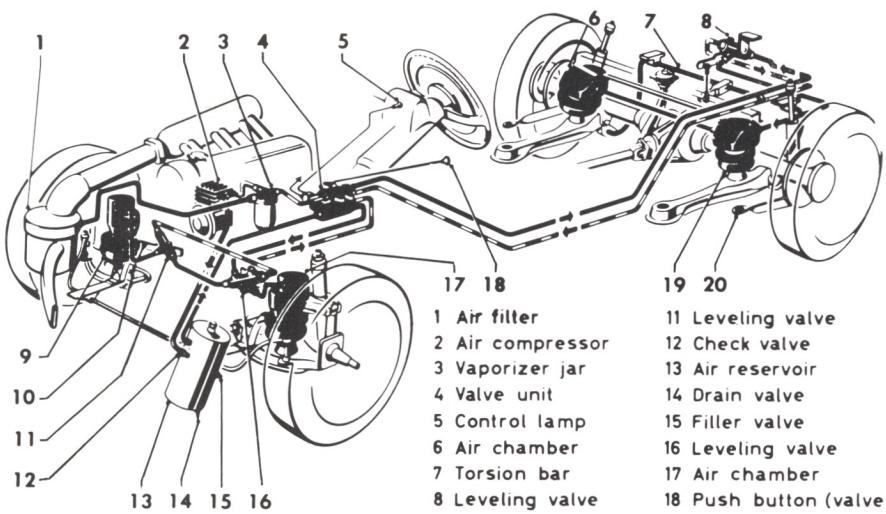
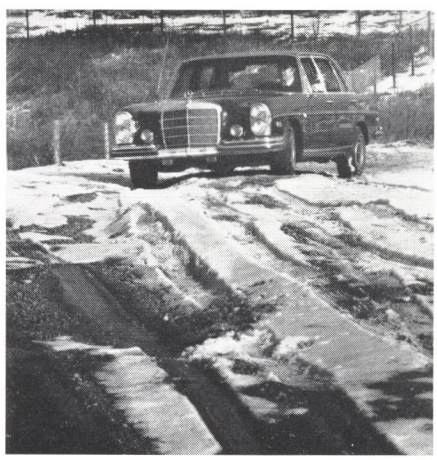


1 Air filter
2 Air compressor
3 Vaporizer jar
4 Valve unit
5 Control lamp
6 Air chamber
7 Torsion bar
8 Leveling valve
9 Rubber diaphragm
10 Valve link
11 Leveling valve
12 Check valve
13 Air reservoir
14 Drain valve
15 Filler valve
16 Leveling valve
17 Air chamber
18 Push button (valve unit)
19 Rubber diaphragm
20 Brake strut



Deep-rutted roads cause no loss of ride comfort in air-spring Mercedes. Suspension shock is filtered out and not transferred to the interior.

slammed on the brakes. No skidding, no side pull. We had full steering control all the way.

How does it work? Sensors in the front wheel hubs and rear axle pass signals to an electronic control unit whenever incipient wheel-locking occurs. The control unit operates modulators that relieve line pressure to lock-prone wheel(s), then reapply it, re-relieve it, and so on, in rapid cycles (four-six per second). We see this as a major safety feature.

Air springs and level control. You don't notice much difference in the ride at first, driving the Mercedes alone on a good road. Yes, the ride is fairly soft. Not too soft, but all ride motions are kind of slow. That's what engineers call a low-frequency suspension. Good.

Then load the car with people and luggage. It stays straight and level, with no lessening of ground clearance. And the ride is no different. On a rough road, it doesn't bottom, because the extra load hasn't reduced spring travel. And even the worst bumps are beautifully cushioned. Now unload the car, and go over that rough road again, alone. Great. The same slow ride motions.

Metal springs cannot give consistently low ride frequencies in cars designed for high load variations. With light loads, they tend toward harshness; with heavy loads, their travel is reduced, increasing the risk of bottoming. Uneven loading upsets headlight aim, too. All these problems are overcome in the Mercedes-Benz air-spring system.

Body safety and bumpers. The Saab 99 E steel body includes strong windshield profiles, reinforced doorsills, and side members able to withstand lateral impact—all to insure that the passenger compartment remains intact in a severe collision. Most manufacturers are building ever more structural strength into their bodies—the Saab leads in this area. Next year, all cars sold in the U.S. will have five-mph bumpers. Saab put them on a full year before required.

Wankel engines. Look at the cover, and read the story of the GM Rotary on page 108. Need we say more?

Front-wheel drive. With the light Saab as well as the heavy Cadillac, we tested traction on various low-friction surfaces: snow-covered grass,

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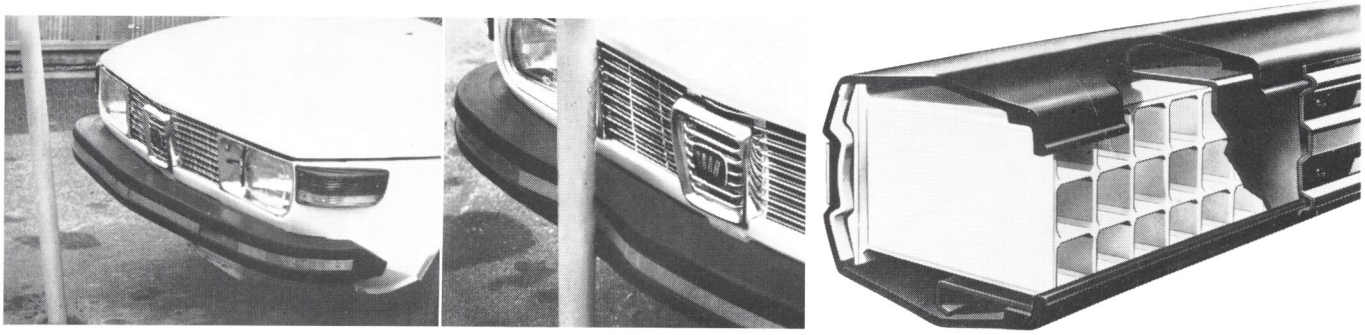
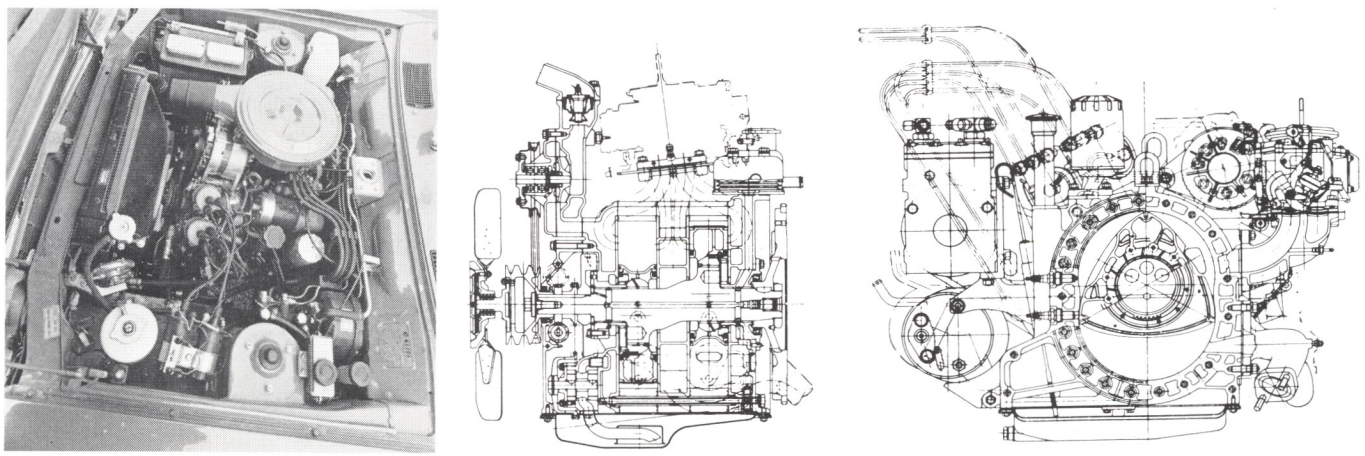
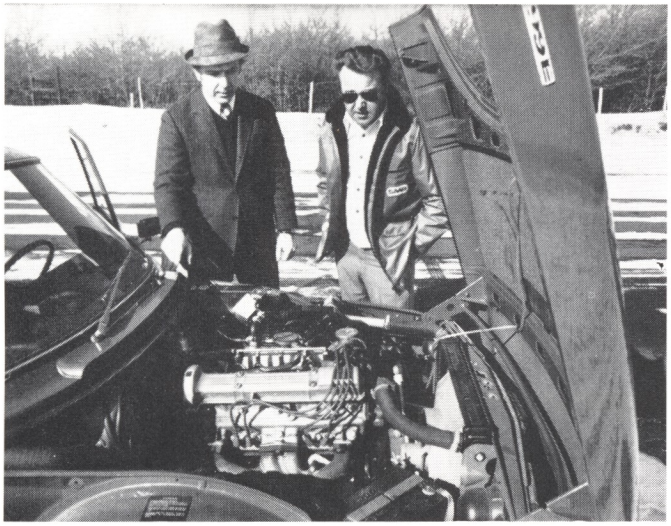
Roof-structure strength of the Saab 99 E is tested by maker in 21-foot free fall, complete car dropped upside down. Saab bodies are also tested under frontal impact and against lateral intrusion. Survival space inside the body structure remains intact.

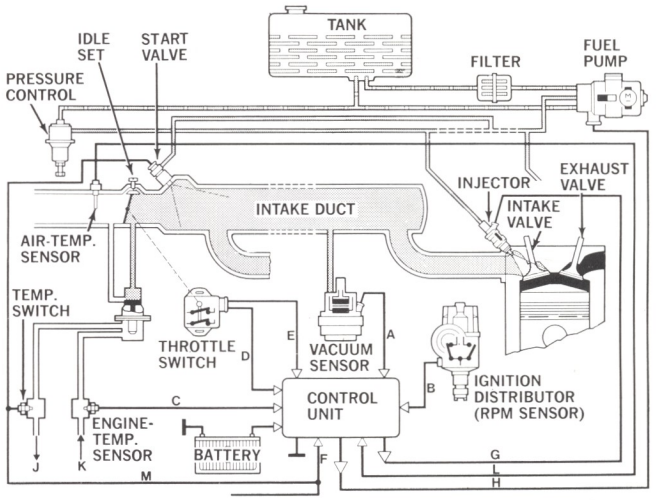


Saab bumpers, both front and rear, are good for five-mph collisions. The cellular plastic blocks, shaped like ice-cube trays (far right) are deformed under impact and absorb the energy, then (right) revert to normal shape after impact (center and left). All cars sold in the U.S. next year will be required to have five-mph bumpers; Saab is one full year ahead of its time.

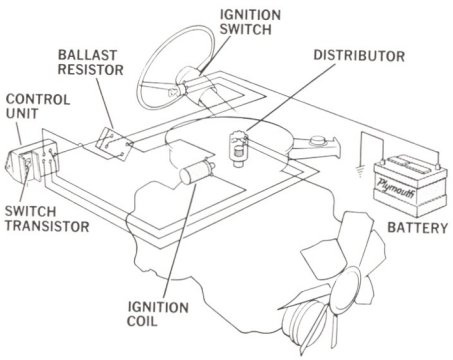


Wankel engine in the Mazda RX-2 almost disappears among its many accessories and ancillary-equipment items. Elevation and cross-section drawings show compactness of the basic power unit. The RX-2 engine is rated at 120 hp and 139.6-cu.-in. displacement. Despite a 9.4-to-1 compression ratio, it will run on low-octane unleaded gasoline without loss of power or fuel economy.



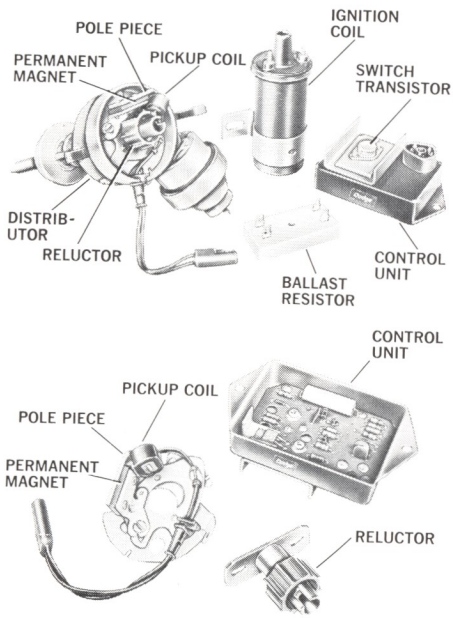


Four-cylinder SOHC Saab engine has electronic fuel injection. A control unit receives information about load, speed, air temperature, and engine temperature from sensors, and meters the right amount of fuel in accordance with the engine's requirements.



Chrysler Imperial has electronic ignition, with improved reliability, stronger spark, simplified maintenance, and longer life.

The front-drive Saab recovers from a tail-slide at 90 degrees—well beyond limit that would send the automobiles with rear drive into a complete spin. Amazing.



Chrysler's electronic ignition system has eliminated the usual breaker points; instead it uses a pickup coil and a permanent magnet with a pole piece. No parts are in sliding contact; no parts come together and separate. The system doesn't wear out, does not require inspection or adjustment, and has better reliability.

patches of ice, rain-wet roads, rutted dirt tracks, sandy beach. As expected, the front-drive cars had far less trouble with wheelspin than the rear-drive cars. And even when the front wheels did spin, they were pulling straight ahead.

Spinning rear wheels tend to skid sideways, creating a control problem. Front-wheel drive gives better directional stability, no matter what your speed. On dry roads, the front-drive cars showed consistent and predictable handling characteristics. In a skid, their ability to recover was vastly superior. We drove the cars at 70 mph in crosswinds gusting up to 40-45 mph, and were impressed with their ability to stay on course without steering corrections. Even the light Saab was superior to heavy rear-drive cars.

Electronic ignition. Chrysler's electronically controlled ignition is standard on the Imperial. It proved to have excellent reliability. Starting was swift and sure each morning, and we left it out in six-degree weather one night; in a teeming rainstorm another. We believe the claims for the system (though we did not test for durability or ability to overcome plug-fouling).

Electronic fuel injection. This is the answer to Detroit's driveability problems. Many '72 cars have big troubles in the carburetion department. They idle too fast, and give you a real jerk when you shift from Neutral to Drive. And when you turn off the ignition, they diesel (run on). With electronic fuel injection, these troubles go.

The Mercedes and the Saab had wonderful driveability. On that six-degree morning, the other cars needed a fast-idle warmup period before you could drive off. Put them in Drive too soon—they stall. The injection cars were instantly driveable. Not only that. They idled slowly and smoothly from the moment they fired up. They needed no warmup. They never stalled (both had automatic transmission). On top of that, electronic fuel injection gives you a power boost of about 20 percent due to improved fuel-mix uniformity and accurately timed delivery.

The Car of the Future. As soon as the auto manufacturers and their suppliers can perfect their designs and build up production capacity, all the elements we tested can be standardized. Many car makers, domestic and foreign, are already moving fast in the right direction. The true car of the future could be here sooner than you think. PS

- The Saab 99 buyer drives his car over 15,000 miles per year.
- The median family income of the Saab 99 buyer is $18,150.
- 84.3% of all Saab 99 buyers are married.
- Over 60% of all Saab 99 buyers have at least a college degree.
- Nearly 42% of Saab 99 buyers have done post graduate studies, and 27% have received post-graduate degrees.
- The median age of the Saab 99 buyer is 39.
- The Saab 99 owner spends a lot more time reading magazines and newspapers than he does looking at TV or listening to radio.
- 41% of trade-ins on new Saab 99's were U.S. cars; 26% were Saabs and 33% were other imported cars.
- Of all Saab owners disposing of their cars in a given year, nearly 70% purchase another Saab.
- Saab 99 buyers list the following factors as major influences toward their Saab purchase: Front-Wheel-Drive; Fuel Injection; Disc Brakes; Impact Absorbing bumpers; Price and value; Safety; Durability; Performance and Handling; Economy; Overall Quality; Engineering.

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