

**SAAB 1984**







turbo



# SAAB'S REAL-WORLD APPROACH TO DESIGNING THE AUTOMOBILE.

Look at the cars on the street around you. What you'll see, almost everywhere, is evidence of Saab's impact on the development of automotive technology.

You'll see a great many cars today using front-wheel drive for improved road-holding, safety and interior space. Almost nobody used front-wheel drive in 1950, when it was introduced on the first Saabs.

You'll see lots of compact cars (and a few fairly large cars, too) that make more efficient use of space with a hatchback body. In the early 1970's, when Saab built a hatchback coupe with bumper-level loading, it looked very different from other cars on the road.

You'll see other automobile manufacturers following our lead in the turbocharging of engines for performance, instead of relying on big, fuel-guzzling engines. They're following, but at a respectful distance; Saab has developed a second generation of turbo that allows the use of the highest compression turbocharged gasoline engine you can get in a production car.

This kind of leadership wouldn't

be surprising coming from one of the corporate giants that dominate the auto industry in the United States, Japan, Germany or Italy. But it comes from a company that only produces about 100,000 cars a year and that has only been in the auto business since the end of World War II.

## REAL PROBLEMS OR MARKETING FASHIONS?

The thing that limits the corporate giants in this area is their approach to design. New ideas seem to come from the marketing departments as new trends are perceived. By the time the engineers get into the act, important design decisions may already have been made. And, of course, if a design doesn't work, the company always has others in production.

Saab goes at design questions a little differently. From the very beginning, ideas for Saab automobiles have come from the engineering staff. The first Saab was designed by aeronautical engineers of Svenska Aeroplan AB.

They came to the problems of automobiles fresh from the enormous explosion of knowledge and technique that the aircraft industry saw in World War II. Having just participated in one of the most dramatic chapters of industrial history, they weren't content just to tamely copy someone else's notions about automobiles. In a lot of

crucial ways, the earliest Saabs were reinventions of the automobile.

The Saab 900 is one of the world's most technologically advanced cars, but it came out of the same problem-oriented approach that produced the company's first car. The 1950 Saab answered the problems of 1950. Some of the needs that the 1984 Saab 900 answers are:

An engine that balances the demands for power and economy.

A design that provides superb road manners in any conditions of traffic or weather.

Controls that give the driver positive command of the car.

A cockpit that keeps the driver relaxed and alert.

A protective passenger compartment.

A spacious and efficient interior with expandable cargo room.

The validity of this real-world approach is proven by the number of times Saab ideas are imitated by other manufacturers. It's also proven by Saab's record in international competition.

## THE PROVING GROUND.

It takes a long time to sort out all of the imperfections of any new machine, but there's a way to speed up the debugging process. The way to do that is to subject the machine to extreme amounts of the kinds of

stress that it will meet in its normal working life.

The very first Saab automobile off the assembly line was entered into international rallying within days of its completion. For many years afterward, Saab remained an important force in world rallying.

Unlike a race, which takes place on a restricted circuit, a rally can cover thousands of miles on dirt, gravel, snow, ice, mud and rock. It can involve driving through several extremes of harsh weather. By the time a car finishes a major rally like the East African Safari Rally, it has been exposed to more abuse and punishment than it's likely to encounter in years of normal driving.

Saabs compiled a distinguished record in international rallies throughout Europe, Africa, North America and Asia. They regularly dominated much larger, more powerful cars in those events.

From the kind of flogging that outstanding drivers like Erik Carlsson, Greta Molander and Stig Blomqvist have given the cars, Saab has learned a lot about designing and building for the stresses of the real world.





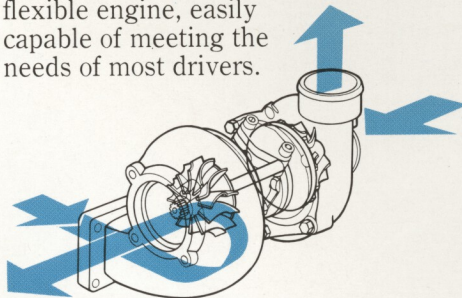


# AN ENGINE THAT BALANCES THE NEEDS FOR POWER AND ECONOMY.

The traditional way to increase an engine's power is to make it bigger. The traditional way to improve its fuel economy is to make it smaller.

Obviously, if you want an engine that is both powerful and economical, you have to abandon the usual way of doing things and approach the problem from a fresh angle. The Saab 900 power plant is an example of what happens when you think about old problems in new ways.

The basic engine which is in all of the Saab 900 models is a remarkable device for unlocking the energy available in gasoline. Its precise operation, modest size and light weight allow it to get more out of a gallon of fuel than heavier and less precise engines can manage. It's an extremely flexible engine, easily capable of meeting the needs of most drivers.



*Turbocharging gives this Saab plenty of reserve power when it's needed, without increasing fuel consumption during normal use. The turbocharger forces compressed air into the cylinders to provide a surge of power when it's needed.*

Those few drivers who want or need a truly outstanding high-performance automobile can look to the turbocharged version of the basic engine to meet their needs. The power plant in the Saab 900 Turbo develops 135 horsepower, instead of the 110 horsepower of the normally aspirated unit.

## THE 900 POWER PLANT.

Although the Turbo is our "high-performance" model, all of the Saab 900s are exciting cars. Performance was a major consideration in even the most basic automobiles, partly because the people who make Saabs are automotive enthusiasts and think that a car *should* be fun to drive.

There's a more important reason for making a car capable of performing briskly, though. That's safety. A big part of staying safe on today's highways lies in your ability to get out of harm's way.

When a driver has to go into an oncoming lane to pass slow traffic, he wants to be exposed for the shortest time possible. When he comes onto a highway, he wants to get up to cruising speed as quickly as possible. That kind of performance is demanded of a car every day, in all sorts of situations, and it requires an engine that is capable of accelerating quickly and maintaining high speeds.

The engine which all current Saabs share is a four-cylinder, two-liter power plant, with fuel injection and a single overhead camshaft. The engine's size makes it very flexible. It's small enough to use fuel conservatively but large enough to develop plenty of torque for moving the Saab from a full stop.

The engine's weight is kept down by casting the cylinder head, camshaft cover and intake manifold in lightweight aluminum alloy.

The engine's camshaft is mounted overhead, directly above the valves that it opens and closes. That permits much more precise timing of engine operations than previous systems did, with their complicated arrangements of pushrods and rocker



arms. It also reduces the weight of the engine and the number of moving parts.

All Saab 900s use a Bosch closed-loop fuel injection system instead of conventional carburetors. The advantage of fuel injection is that it maintains the optimum mixture of fuel and air at all speeds, so the engine operates efficiently throughout its entire range.

## FOR THE DEMANDING MINORITY: TURBOCHARGING.

The basic 900 series engine has plenty of power and response for most drivers. The handful of drivers who need more are the genuine high-performance enthusiasts. Saab takes the needs of that minority very seriously.

The evidence of their concern is

the Saab 900 Turbo APC, one of the world's most efficient turbocharged gasoline engines.

Saab introduced turbocharging in its passenger cars in 1977. Although a lot of manufacturers have since followed Saab into this area, none has developed a turbocharged engine that can safely operate at the compression ratio that Saab's Automatic Performance Control (APC) system allows.

Turbocharging lets the driver get power from his Saab that's equivalent to the power of a six-cylinder or V-8 engine, *when he wants it*. When he doesn't want that power, the engine behaves like any other small engine, using fuel conservatively.

The point is that a big engine usually wastes fuel because even the most enthusiastic driver can get the full use of the engine's power only



SAAB 900 S





about 10 or 15 percent of the time. The turbocharger makes the same sparkling performance available on demand without adding a lot of weight or increasing the fuel demand at low speeds.

Adding a turbocharger to the Saab 900 engine boosted the horsepower from 110 to 135 and increased the maximum torque from 119 foot pounds to 172 foot pounds (using 91 octane fuel). Thanks to the new APC system, the Turbo can even run comfortably on low-octane fuels. Using 87 octane, the Turbo still develops 160 foot pounds of torque.

As complicated as it sounds, turbocharging is a pretty simple, commonsense idea. Even before Saab developed a system that makes it practical on passenger cars, turbocharging was being used successfully on aircraft, trucks and racing cars.

## MAKING IT ALL WORK.

Basically, a turbocharger is two wheels connected by a shaft. One of the wheels, the turbine, is spun at high speeds by the heated exhaust gases as they leave the engine. As the turbine spins, it spins the second wheel, the compressor.

The compressor pressurizes fresh air on its way to the engine cylinders. Since the air is pressurized, more of it can be forced into the cylinders, and the engine can burn greater amounts of fuel than it could usually burn.

Because the turbocharged engine can burn more fuel on each piston stroke, it behaves like a much larger engine. It produces far more power than a normally aspirated (nonturbocharged) engine of the same size.

Until the invention of the wastegate, the turbocharger was only useful on engines which would operate most of the time at high speeds and with

high internal pressures. The wastegate protects the engine from the high pressures which the turbocharger develops.

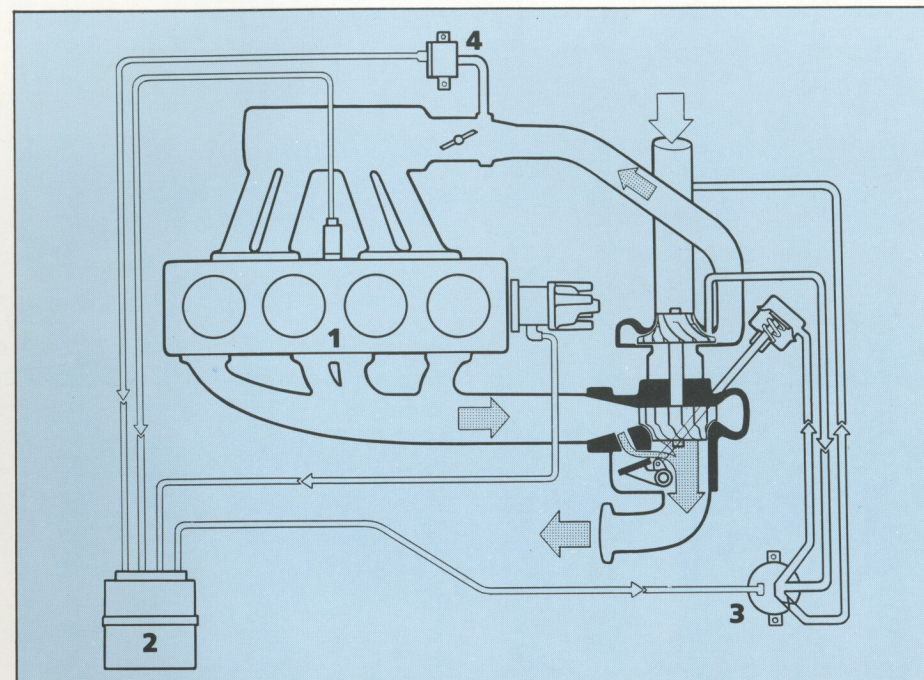
When the pressure in the intake manifold of the engine reaches a predetermined level, the wastegate opens and bypasses most of the exhaust gases around the turbine. The spinning turbine slows down, making the compressor slow and reducing the pressures on the intake side. That reduces the amount of turbo boost until the intake pressures drop below the maximum and the wastegate closes again. The wastegate is also called a charging pressure control valve.

Thanks to the protection that the wastegate provides, Saab engineers were able to utilize a very small turbocharger that is lightweight enough to respond to normal driving speeds. The Saab turbocharger begins operating at engine speeds between 1,500 and 2,000 revolutions per minute. By the time the engine is turning at 3,000 rpm, horsepower has already been boosted by a third.

## AUTOMATIC PERFORMANCE CONTROL.

All 1984 Saab Turbos are equipped with a new APC micro-processor that monitors the octane rating of the gasoline being used. The system adjusts the amount of turbo boost by modulating the wastegate to take maximum advantage of the gasoline being used. It increases boost when high-octane fuels are used and decreases it when low-octane fuels are used in the engine.

Octane rating is a measure of the fuel/air mixture's ability to withstand compression in the combustion chamber. The higher the octane rating of the gasoline, the more the fuel/air mixture can be safely compressed. A 93 octane fuel can be used safely in



Saab's Automatic Performance Control (APC) system consists of: (1) a knock detector that measures excessive engine vibration; (2) a pressure sensor which monitors air pressure in the intake manifold; (3) an electronic control unit which processes the information from the knock detector and pressure sensor and then operates (4) the solenoid valve.

an engine that may be too efficient for an 87 octane fuel, for example.

An engine's efficiency depends on its compression ratio. By compressing the fuel-air mixture into a smaller space, the engine gets more work from burning the mixture. The higher the compression ratio, the greater the engine's efficiency.

However, the danger of engine knock also increases with pressure. A fuel that is compressed too far can self-ignite at the wrong moment, "knocking" inside the cylinder. Too much knock can severely damage an engine.

To prevent excessive knock, most manufacturers of turbocharged cars have opted for very low compression ratios and low maximum turbo boosts. That may be safe, but it isn't efficient.

The APC system provides com-

prehensive protection to the engine, regardless of the octane rating of the gasoline. So we've been able to increase the Turbo's compression ratio from 7.2:1 to 8.5:1. That makes it the highest compression turbocharged gasoline passenger car in the world.

The APC system consists of a knock detector, a pressure transducer, the microprocessor unit and a solenoid valve. The solenoid valve is opened or closed by the microprocessor unit in response to signals that the unit gets from the pressure transducer, the knock detector and the ignition system. The solenoid valve modulates the wastegate turbocharger.

If any part of the APC system fails, the entire system stops operating, and the turbocharger functions as a conventional unit until the system can be repaired.



# SAAB 900 S





## A DESIGN THAT PROVIDES SUPERB ROAD MANNERS IN ANY CONDITIONS OF TRAFFIC OR WEATHER.

The joy of driving a Saab comes on roads that, in other cars, aren't any pleasure at all. The confidence that a Saab driver has as he takes on winding curves, rough weather and poor surfaces is a reflection of how well-engineered this car really is.

The Saab's handling is superb under conditions that many other cars can't handle at all. The cars are famous especially for the ease with which they take on icy winter conditions.

The Saab 900 answers the steering wheel quickly, precisely and consistently. It holds the road with a sure grip, and brakes powerfully to help keep you out of trouble in the worst of times.

### DIRECTIONAL STABILITY.

Front-wheel drive gives the Saab a number of important advantages over cars with the more conventional rear-wheel drive format. The directional stability of the Saab 900 is excellent, mainly because the front-wheel drive improves traction, steering response and resistance to side winds.

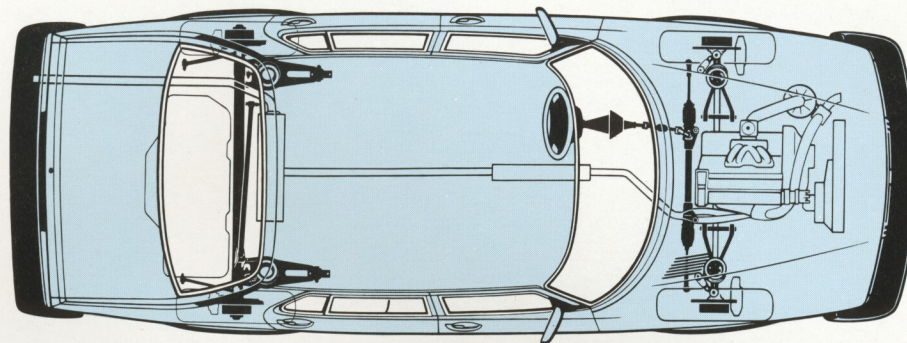
The car has a consistent slight understeer that it retains under almost all conditions. That means that the car tends to move through a curve at a

slightly wider radius than indicated by the angle of the front wheels; that is, it tends to move toward the outside of the curve. Oversteer is a car's tendency to move to the inside of a curve during turns.

There are two factors that can usually affect those steering characteristics and change a normal understeer to an oversteer. The first factor is acceleration. When a rear-wheel drive car is accelerated in a turn, the rear wheels can't maintain directional stability because of the driving pressures placed on them. High acceleration, therefore, can change a normal understeer to a tendency to oversteer and make the car's behavior less predictable. A front-wheel drive car like the Saab, though, retains its normal understeer because the rear wheels maintain the directional stability.

The second factor is weight distribution. An unloaded Saab 900 has 60 percent of its weight on the front wheels. At maximum load, it still has 51 percent of its weight resting on the front wheels. Because of that, the car's steering characteristics are consistent. In most other cars, the weight distribution is more nearly even and a maximum load can change a normal understeer to an oversteer.

Saab's engineers paid a lot of attention to the details of suspension. The front wheels, for example, are suspended on double wishbones and on



*The Saab 900's superb handling results from a nearly perfect balance of features such as front-wheel drive; rack-and-pinion steering; a rigid rear axle; 15-inch wheels that can accommodate larger brakes; pivot-mounted front coil springs; and a dual braking system.*

pivot-mounted coil springs. Because they're mounted on pivots, the springs always operate in a straight line, regardless of the road surface. That means that the spring is always fully effective, giving a smoother ride and greater control than a spring which is being deflected to the side.

Telescoping shock absorbers also improve the Saab's ride and control. On the Turbo and 900S, gas-filled shocks are standard, and give the car a smoother ride than conventional shock absorbers.

### STOPPING POWER.

Saab has continued to fit all of its models with 15-inch wheels, even though many other manufacturers have gone to smaller wheel sizes. There are two good reasons for using the larger wheel.

The first reason is that they provide more stability than a smaller wheel. The larger tire puts more rubber on the road than a smaller one that's the same width.

The second reason is that the larger wheel allows a larger disc brake for greater stopping ability. The pads of the front disc brakes are made of a semi-metallic, non-asbestos material which outlasts other brake pad materials. The rear brake pads are also non-asbestos.

Dual, diagonally-opposed hydraulic brake lines assure effective braking even if one entire hydraulic system fails. The other will still operate one front brake and one rear brake, allowing a controlled, straight-line stop.

The Saab's hand brakes are real emergency brakes, unlike the "parking brakes" that are fitted on most cars. The hand brake operates the front-wheel disc brakes, where more than half of the Saab's stopping power is, so the emergency brake will really stop the Saab in an emergency.





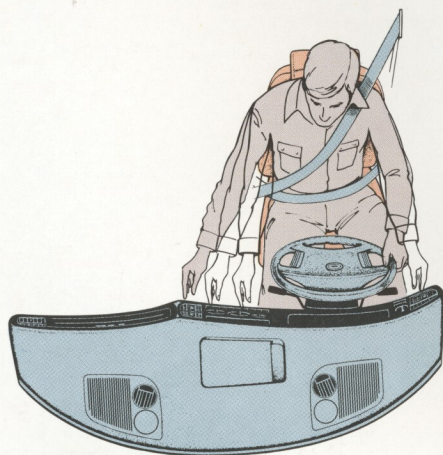


## CONTROLS THAT GIVE THE DRIVER POSITIVE COMMAND OF THE CAR.

The cockpit of the Saab 900 is crisp, clean, functional.

Everything about the cockpit works to give the driver a fast and accurate flow of information and to enable him to respond just as quickly and accurately. It's designed to serve the driver who has to make fast judgments and to react on them immediately.

Ergonomics, the science of the workplace, came of age in the aircraft industry because pilots have to be able to monitor lots of different kinds of information and respond quickly and surely. Some of the leading scientists in the field are employed by Saab-Scania's Aerospace Division and the application of their research to Saab cars has been almost immediate.



*The Saab cockpit is designed for comfortable and efficient command of the car.*

Their influence on the Saab 900 shows in things like the deeply curved sweep of the windshield that gives the driver a broad, unobstructed view. Or like instruments which provide information at a fast glance.

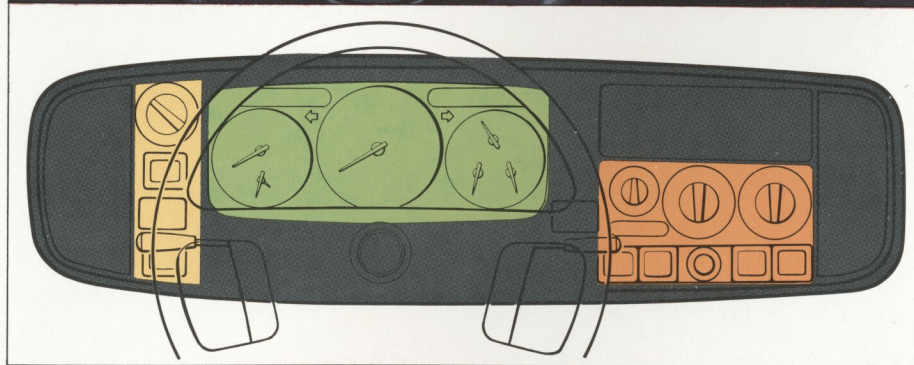
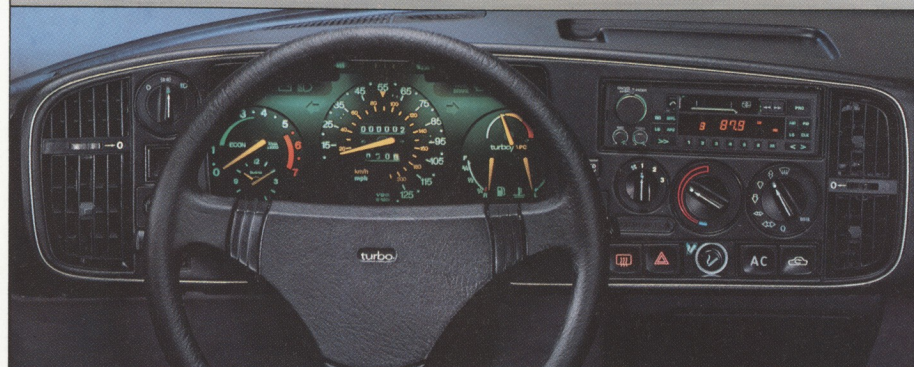
The instruments are large, round gauges, with white figures and orange pointers against a black background. A sudden change of a pointer's position is much easier for a driver's peripheral vision to pick up than a change in a digital display. The instruments are clustered at the bottom edge of a driver's vision, directly in front of him, so he can read them easily, just by glancing straight down from his normal driving position.

They're set deeply into a curved control panel, so that they don't create any distracting reflection in the windshield. The same curve of the panel puts many of the car's controls close to the steering wheel, clustered together by function.

Visibility from inside the Saab 900 is superb. Windshield wipers sweep in an asymmetrical pattern to clear the broadest possible area in bad weather, and the sweeping curve of the windshield itself tends to move water and road dirt back and out of the driver's line of vision.

Backup lighting includes side guidance lamps to help in parking or backing from tight spaces. Indicator and parking lamps are wrapped around the fenders for visibility through an arc of at least 235 degrees.

Large external mirrors are adjustable from the driver's seat and the interior mirror is adjustable for day or night driving.



*Middle: Saab's instruments are large and easy to read. All controls are located where the driver can operate them quickly and easily.*

*Bottom: The Saab 900 clusters all of the driver's functions into zones. All lighting controls (yellow) are at the driver's left hand; all the instruments (green) are directly in front of him; and all heating and ventilation controls (orange) are clustered on his right.*







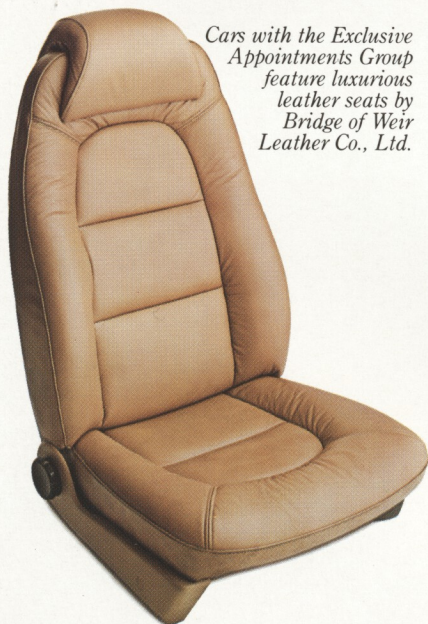
## A COCKPIT THAT KEEPS THE DRIVER RELAXED AND ALERT.

However sophisticated a car may be, the things that happen to it happen because the driver makes decisions and acts on them. His judgment is more apt to be sound, and his reactions appropriate, when he feels relaxed and alert.

The cockpit of the Saab 900 provides a comfortable and supportive environment, where a driver can spend several hours at a time without suffering a loss of effectiveness.

### NECK TO KNEE SUPPORT.

One of the obvious keys to providing that kind of support is the design of the seats, and Saab has been widely praised for its seats. In some cars,



*Cars with the Exclusive Appointments Group feature luxurious leather seats by Bridge of Weir Leather Co., Ltd.*

including some very expensive ones, the seats are like living room furniture: deep, soft, luxurious. Not in a Saab.

In the first place, the kind of "comfort" those cars offer is suitable to quiet reverie, not to an activity as dangerous and demanding as driving a car. In the second place, it isn't even very comfortable after you've driven in those seats for a few hours.

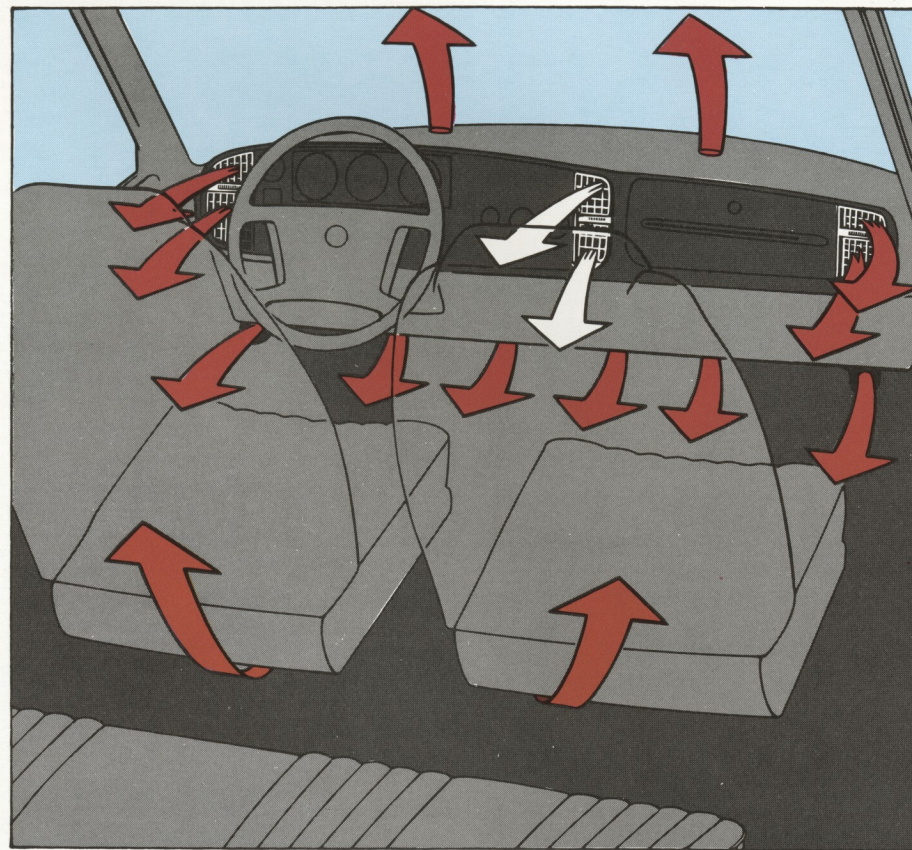
The Saab's foam is firm, not quite hard. It gives you a feeling of being lifted, instead of sinking into it. The foam has been orthopedically molded to support the driver's back muscles from his neck to his knees, with reinforcements at critical places like the top of the back and the lumbar region.

The dished shape of the seats gives good lateral support, to hold the driver and passengers comfortably in place even in fairly hard turns.

Perhaps the most famous feature of Saab's seats is the internal electric heaters in the 900S and 900 Turbo models. The heater comes on for a few minutes when the car is started in cold weather, and warms the driver and front-seat passenger.

A lot of people think that's a nice luxury touch. Saab thinks it's an intelligent way of assuring that the driver is relaxed enough to function well even in very cold weather. It's important to take the chill off the driver fast because an emergency is just as likely to arise in the first 15 minutes after you start out as it is four hours later.

Naturally, the car's own heater takes over after a very few minutes and warms the entire passenger compartment. Vents for heating and fresh



*The 900's heating and ventilation system can move 100 liters of clean, fresh air through the passenger compartment every second. Fresh air nozzles in the middle of the instrument panel give the driver and passenger the option to enjoy a flow of cool air, while the heating system warms the rest of the compartment.*

air are located above, below and alongside the instrument panel. The driver has a large number of combinations of fan speeds and vent openings to choose from, so the cockpit can be kept well ventilated at all times.

The Saab's insulation helps to control the passenger compartment temperature and acts as an effective noise dampener. That also helps prevent driver fatigue, because excessive

noise over long periods can be very tiring.

In cars that aren't equipped with air conditioning, Saab has installed a filter which strains dust, pollen, oil and soot, and even some bacteria, from the air that enters the passenger compartment. That helps to keep the interior clean and fresh. It's a real benefit to asthma and allergy sufferers, too.





SAAB 900 TURBO







## A PROTECTIVE PASSENGER COMPARTMENT.

The Saab 900 is built to take you to one of the world's most dangerous places: the public highway.

The car surrounds you with a padded steel safety cage that helps to protect you from the force of a collision. Steel reinforcements at the front and rear of the car give additional protection both to the car's occupants and to its mechanical systems.

Saab engineers designed areas of programmed collapsibility between the bumpers and the safety cage that absorb some of the force of an impact and allow the body to crumple in a way that has the least effect on the passenger compartment after a crash.

Despite the extraordinary safety of the Saab's design, it's worth keeping in mind that the safety of any car depends far more on the prudence and good sense of the driver than it does on the design. The best seat belts in the world won't help you if you don't fasten them.

### THE SAFETY CAGE.

The steel uprights alongside the windshield and windows of the Saab are exceptionally strong. They support a steel reinforcement around the edge of the car's roof, forming a strong cage around the car's occupants. The upright portions of the cage are supported by the strong doorsills, the crossmembers in the Saab's floor and behind the rear seat, and by the front bulkhead.

Steel beams inside the doors give a degree of protection in the event of a broadside collision and help the

doors to retain their shape so they will remain shut during impact, but can be opened after a crash. Striker plates on the door locks are equipped with backing plates to help prevent jamming.

The Saab's hood is latched at the rear, so that it isn't likely ever to open accidentally, even if it hasn't been securely closed. The hood has front and rear reinforcements and a buckling zone in the center. Special arrestor hooks at the rear edge of the hood reduce chances of its being forced through the windshield in a crash.

Extensions of some of the chassis members at the front of the car help to protect the engine from damage in a low-speed head-on collision. The Saab's fuel tank is located between

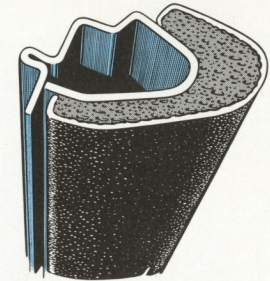
keep going forward until they are either thrown from the car or hit something inside it and stop.

The Saab's safety cage and energy-absorbing crumple zones are designed to help protect the car's occupants from the full force of the first collision and to keep them inside the car. The remaining problem is to protect them from injury inside the safety cage.

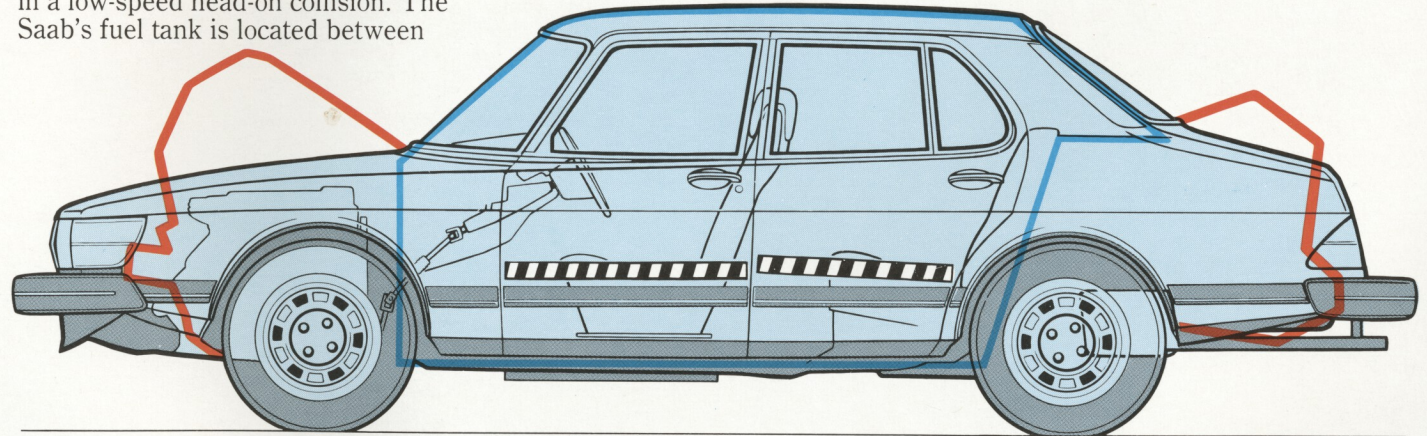
This, naturally, is what makes safety belts so important. The Saab 900 is equipped with three-point inertia reel belts for four passengers. The middle position of the rear seat is equipped with a lap belt. Used properly, those restraints can be an

for example, have low profiles or are recessed into the doors or dashboard of the car.

The roof is thickly padded with glass fiber insulation that is capable



Roof pillars and windshield supports are covered with thick padding for occupant protection.



The steel members supporting the roof, floor, sills and windshield form a protective safety cage around the Saab's passengers. Saab was a pioneer in passive safety systems for automobiles.

the rear wheels and under the floor, where there is reduced danger of its being ruptured in an accident.

### WITHIN THE CAGE.

When a car crashes, there are really two collisions. First, the car hits something and stops. At the same time, though, the occupants of the car

enormous help in preventing injuries in a collision. Once again, they won't protect you if you don't fasten them.

The whole interior of the Saab is smooth and shock-absorbent. Wherever possible, Saab's designers have removed or recessed anything that might puncture someone thrown against it. Door handles and switches,

of absorbing a very heavy impact without bottoming. The windshield supports are covered with a thick padding of polyurethane foam.

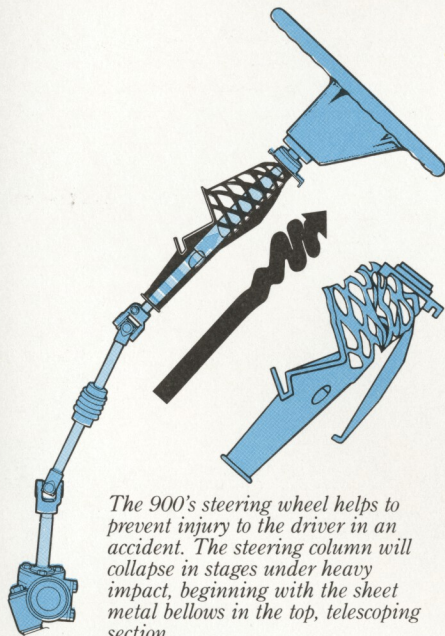
The design of the 900's steering wheel and steering column is among the safest of any car in the world. The padded center of the wheel will cushion a significant impact, helping to protect



the driver from serious head, neck or chest injury. The column itself is designed to gradually give way in a collision with the driver's body.

The Saab's steering column is constructed in three sections. The one nearest to the driver is a telescoping section inside a steel mesh cage. This section will give way quickly in heavy stress. In a head-on crash, when the driver's body is thrown against the steering wheel, this section is the first thing to give way, collapsing to absorb some of the force of the impact.

The middle section of the steering column is a sheet metal bellows



*The 900's steering wheel helps to prevent injury to the driver in an accident. The steering column will collapse in stages under heavy impact, beginning with the sheet metal bellows in the top, telescoping section.*

that joins the top section to the rigid steel shaft at the lower end of the column. The middle section is joined to the other two by universal joints. Under heavy impact, this section will collapse at its center, absorbing some of the force of the collision instead of directing it toward the driver.

A rear-seat passenger thrown

forward in a crash will, of course, hit the seat in front of him. Saab has padded the backs of the front seats to absorb that kind of impact and has made sure that there are no sharp edges or corners that might increase the possibility of injury to the passenger.

### SAVING YOUR NECK.

The greatest danger in a rear-end collision is of injury to your neck. The most important protection against that sort of injury is the Saab seat with its integral adjustable headrest.

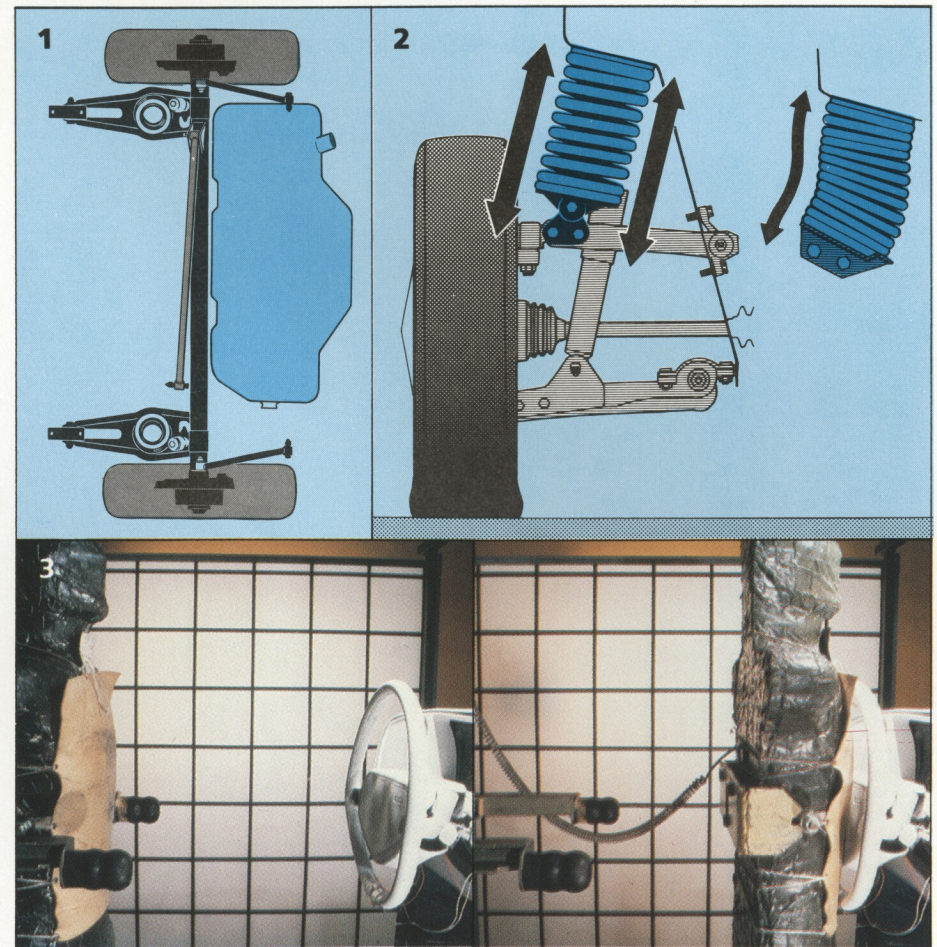
When your car is hit from the rear, you are thrown forcibly backwards. The backward thrust is arrested by the back of the seat which, in the Saab 900, cushions the impact and supports your back. The headrest must be able to keep your head from being forced over the top of the seat.

Saab's headrests are strong and supportive, and can be adjusted to fit even very tall individuals. They are made of an energy-absorbing foam which is molded around a flexible plate. Properly raised to fit the passenger, the headrests will prevent the head from bending the neck to more than a 40-degree angle.

### FIGHTING THE FENDER-BENDER.

Most collisions, though, are very minor and don't threaten the passengers at all. They happen in parking lots and on local streets in slow traffic, and they're responsible for enormous amounts of money being spent in body-repair shops every year.

To protect the 900 against damage from minor accidents, Saab has fitted it with a self-restoring bumper filled with cellular plastic blocks that absorb the energy of a low-speed collision and then resume their original shape.



*1: The fuel tank is located between the rear wheels, the safest location in case of collision.  
2: The front coil springs are pivot-mounted to assure maximum control of the car even on uneven surfaces.  
3: The Saab steering wheel will give way in the event of a serious collision, absorbing much of the driver's forward motion, in order to reduce possible injury.*

The bumpers meet and exceed current U.S. standards, but the same type were fitted before the law required them. They are so effective that Saab has fitted all 900s with them, no matter where in the world they are sold.

The Saab's bumpers give the car

substantial protection from the kind of minor collision that accounts for much of the body damage to cars on American roads. Naturally, they don't provide absolute protection; the best defense against damage is an alert and defensive driving style.



**SAAB 900**





## A SPACIOUS AND EFFICIENT INTERIOR WITH EXPANDABLE CARGO ROOM.

From the outside, the Saab 900 isn't a very large car. It has the same overall dimensions as many compact automobiles.

Yet it has as much luggage space as a large luxury sedan. Moreover, the Saab's luggage space can be quickly and easily expanded until the car has as much usable carrying capacity as a small station wagon.

Part of the reason for the generous interior space is the lack of a long drive shaft tunnel through the floor. Since the Saab uses front-wheel drive, there's no drive shaft running beneath the passenger compartment and stealing floor space. By eliminating the hump in the middle of the floor, Saab provided much more legroom for all the occupants and made the car much more comfortable.

The body design in both three-door and four-door styles allows plenty of headroom for rear-seat passengers, an unusual treat, especially in a hatchback design.

Saab's three-door model was one of the first and most practical hatchback styles introduced by an auto manufacturer and it combines many of the virtues of a sedan, a coupe and a station wagon. It's more aerodynamically "slippery" and less bulky than a conventional wagon but still provides lots of cargo space, with the convenience of a bumper-level loading height.

The four-door sedan is preferred by lovers of more traditional sedans, but it too

has an expandable cargo deck for occasional hauling jobs.

Without any expansion at all, the three-door body provides a 21.3-cubic-foot trunk; 14.9 cubic feet by SAE standards, which reflect the amount of standard-sized luggage that can be fitted in the space. The figures for the four-door model are 21.8 cubic feet and 14.2 cubic feet SAE.

By lowering the rear seats, an operation which requires only a few moments and no tools, the cargo area is more than doubled, to 56.5 cubic feet in the three-door and 53.0 cubic feet in the four-door. The large hatch on the three-door model and the low sill make loading and unloading bulky items much easier.

Under a hatch on the floor of the luggage space is a well for the spare tire which also has enough room for carrying a jack, tools and emergency gear.

Other convenient carrying space inside the car includes the lockable glove compartment, pockets on the inside of the front doors, and recesses for coins and other accessories in both the center console and on the dashboard.



*The Saab has greater luggage capacity than most larger cars. Its cargo space can even be expanded to the size of many station wagons. The three-door model, shown here, provides a 21.3 cubic foot trunk, expandable to 56.5 cubic feet when the rear seats are lowered.*



SAAB 900





## WHY CHANGE A GOOD THING?

The 1984 Saab 900 is one of the world's most refined cars. It has come through a long evolutionary design process that is very different from the process used by most automobile manufacturers.

Saab engineers didn't stop thinking about the 900 when the first cars came off the assembly line. Instead of turning their attention to next year's model, they kept on refining the design of the 900, making it safer, more responsive, more comfortable, more convenient, more useful, better looking.

This year's Saab is one of the most thought-about, fussed-over designs in the world. It's the end result of steady improvement from the first Saab 99s, which were introduced in 1967.

That steady line of improvement has included innovations like the world's first practical turbocharger for a passenger car, introduced in 1977. And the Automatic Performance Control that enormously increases the efficiency of that turbocharged engine, introduced in 1982. And the world's most sensible automobile bumpers. The hatchback body style.

All of those things are the fruits of a long and deliberate process that could not have taken place in an atmosphere of annual style changes and superficial alterations.

Naturally, an invention as important as the Automatic Performance Control doesn't emerge every year. Naturally, too, as the 900's design has become more carefully refined, the changes in the car have generally become smaller.

The refinements to the 1984 Saab 900 make this year's cars a little more comfortable, a little better looking, and a little crisper in performance than previous Saabs.

Sometimes several small changes were necessary to achieve a desired result. For example, the 1984 Saabs start a little more easily and accelerate from a stop more smoothly than earlier models. To achieve that, Saab engineers recalibrated the vacuum advance on the ignition distributor, revised the fuel injection system to make it more precisely responsive and readjusted Saab's famous Lambda emissions control system.

To improve the electrical system, both to make it more reliable and to protect it from overload, Saab engineers upgraded the alternator from 70 amps to 80 amps and added twin-belt drive for it; built in cut-out circuits for the air conditioner compressor to keep it from drawing current either during the first 10 seconds of engine warm-up or when the throttle is wide open. A new time relay limits the length of time that the rear windshield defroster will function. Another limits the after-run of the engine cooling fan.

A new exhaust system for the Turbos reduces back pressure and improves the service life of the turbocharger unit. Halogen-sealed beam headlights on all models and better sealing of the fuel tank add to the safety of driving a Saab.

Other changes are more obvious. Some of them, like new paint and interior colors, you will notice just by looking through this brochure. A new high-line seat has been introduced for all Turbo cars, and Saab's famous



heated front seats are now being installed in the basic Saab 900, as well as in the Turbo and 900S cars.

The 1984 Saabs have a new grille design, a softer and simpler look than other Saabs. Bumpers have been extended around the sides of the car to the wheel arches, giving additional protection from fender benders. The black front spoiler on all three-door Turbos and the "black-out" area between the taillights on three-door Turbo and 900S models give the cars a sportier, more muscular look.

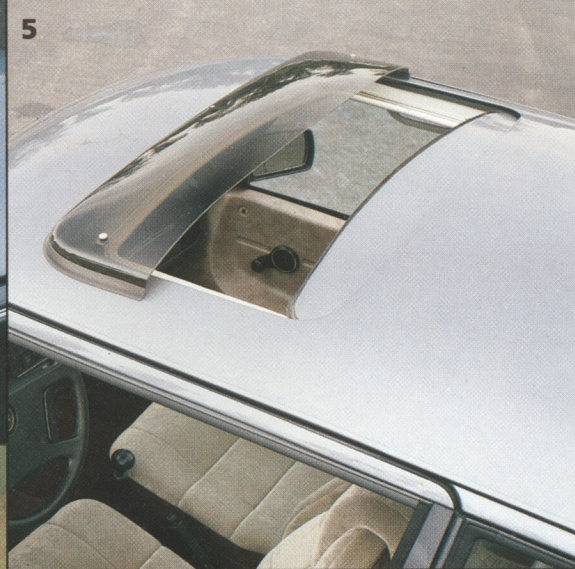
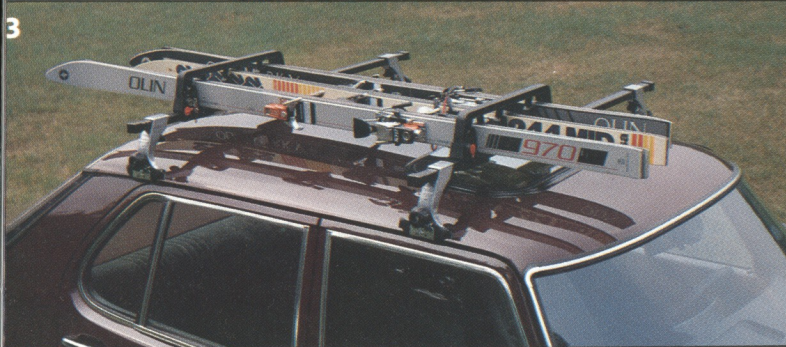
Inside the 1984 Turbo, you'll find a new front console and three-

spoke sports steering wheel. On four-door models of both the Turbo and the 900S, rear windows are now electrically operated, with a child safety switch on the switch cluster.

Turbos with the Exclusive Appointments Group will all come with cruise control in 1984.

The 1984 Saab 900 is the best available answer to 1984's personal transportation problems. As the problems change, Saab engineers will change the cars to meet them.







## OPTIONS AND ACCESSORIES

The typical Saab owner is very individualistic and very, very hard to please.

When he or she chooses a car, he ignores what most of his neighbors are driving and concentrates on finding a car that meets all of his own needs.

Almost always, though, he'll want to improve on even a factory-fresh Saab, by adding some distinctive personal touch to the car. He'll add fog lights for improved visibility, or an upgraded sound system for terrific stereo performance. He'll put on a roof rack to make the car more useful for hauling skis or bicycles. He'll add a "moon roof" to brighten the car's interior and improve ventilation.

Once you've decided to buy a Saab, it's very likely that you'll start thinking of ways to make it a little more perfectly suited to your tastes. Whether that means giving it a more distinctive appearance, squeezing a little more performance from it, or just adding a trailer hitch to it, the place to start is at your local Saab dealer.

The accessories shown on the facing page are a sampling of the things that your Saab dealer can add to your new car:

1. Moon roof. Smoke-colored glass lets daylight in without glare. The removable, snap-lock glass brightens the car's interior and provides improved ventilation, while giving the driver and passengers full protection from the elements.

2. Thule carrier system—bulk carrier.

This adds cargo flexibility, especially on longer trips. The end rungs shift upward to cradle luggage or cargo, keeping it securely in place. The rungs can also lie flat if longer loads have to be secured.

3. Thule carrier system—ski rack.

This versatile Saab carrier system adapts to do lots of jobs, from carrying garden supplies to bringing skis or bicycles along on vacation trips. Each of the ski racks shown here can hold up to three pairs of skis, locked securely between plastic bars. Two ski attachments can be fitted to each Thule rack, so that a total of six pairs of skis can be safely carried on the roof of your Saab.

4. Side window deflector. Like the sunroof deflector, this is made of tinted, high-impact acrylic. It helps to reduce noise and drafts through the side window, and adds protection from glare.

5. Sunroof wind deflector. This high-impact, tinted acrylic shield lets you enjoy maximum ventilation through your sunroof. The deflector reduces noise, drafts and glare, and its smart styling blends beautifully with the sleek lines of the Saab 900.



6. Radial tire chains. Heavy-duty chains of tough, flexible steel cable mount easily for improved traction over snow and ice.

7. Floor mats. Color-coordinated Saab floor mats help to protect the interior of your car from dirt, water, snow, etc. The mats are available either in deep-pile carpeting or easy-to-clean vinyl. Both styles feature reinforced heel pads.

8. Saab-Blaupunkt 3000. Looks and performance to complement your new Saab. This system provides AM/FM stereo listening, along with an auto-reverse cassette player, Dolby\* noise reduction, and automatic signal enhancement.

\*TM Dolby Laboratories

9. Saab-Blaupunkt 1500. Quality sound in both AM and FM. The system includes separate bass and treble controls, local/distance switch and a noise-reduction system.

10. Ushio fog lights. Twin quartz halogen beams cut through the deepest gloom for better visibility and improved safety. The lights are complete with flip-up protective covers, mounting hardware and illuminated dashboard switch.

11. Hood edge protector. A good-looking and useful option that protects the front edge of the Saab's hood from stone chips. A strip of Scotchcal® covers this vulnerable area and absorbs the impact of small pieces thrown up from the road surface.



## NEW ANSWERS TO NEW TRANSPORTATION PROBLEMS.

Saab Scania AB, the company that built your new Saab 900, is one of the world leaders in specialized transportation technology.

The corporation's three major divisions attack an extraordinary range of technical problems every day in the course of manufacturing trucks, buses, military fighter aircraft and turboprop airliners, in addition to high-performance cars.



*Scania buses have recently been introduced in some parts of the United States.*

Saab Scania's unique position as the only manufacturer in the world who is simultaneously involved in building cars, trucks and aircraft gives the corporation a real technological edge. New information and ideas flow constantly among the three divisions, so that a technique developed in one field may find an application in another.

When the Saab Car Division designed your 900, for instance, they drew on the research that the Aerospace Division conducted in aerodynamics and ergonomics. That research is reflected in the Saab's body shape and in the efficient



arrangement of the cockpit. The engine in your car was developed and manufactured by the Scania Division, which brought its years of experience in turbocharging diesel truck engines to bear in creating the passenger car turbocharger.

The Aerospace Division has received orders from the Swedish government for a new, all-purpose, military jet, the JAS, to be delivered in the 1990s. The techniques and materials that will have to be devel-

oped to make the JAS a reality will almost certainly find later applications in new Saab cars and Scania trucks.

### UNDERWRITING THE RISKS OF INNOVATION.

The corporation is deeply involved in several areas of specialized transport, and this diversity gives Saab Scania another tremendous advantage over other manufacturers. It gives the corporation a financial

stability that very few car builders enjoy today.

While recession has forced other car builders to slow their research and development programs and to be conservative about introducing new technical features, Saab has been able to take the risks of developing better and more sophisticated systems.

The financial strength of the Saab Scania group has permitted important long-term investments in other areas and has allowed work to



go forward on the long-range development of a new generation of Saab cars and on the JAS project.



*The Viggen is one of the world's most advanced fighter aircraft.*

Diversity makes Saab Scania less subject to changing economic conditions than other manufacturers.

### **A NEW KIND OF PARTNERSHIP.**

Saab Scania's technological leadership and financial strength have made possible a new kind of international cooperation on several fronts. The corporation is sharing research, testing and development costs with other companies in producing Saab automobiles and a new 34-passenger airliner.

The agreement with Fairchild Industries, in fact, goes far beyond just the development of the Saab Fairchild 340. Both companies share in the manufacturing and marketing of the turboprop airliner, contributing technical, production and sales capability to the project.

This is the first time that an American and a European aerospace company have entered into a project as extensive and important as the creation of a new commercial aircraft.

### **DARING AND DIVERSE.**

At a time when other manufacturers seem to have suffered a collective loss of nerve due to a harsh economic climate, Saab Scania has been

willing to forge ahead.

It has maintained its leadership in major segments of the transportation industry because it has been willing to risk innovations, both in project management and in technical development.

Rather than seeking security in a cautious "wait-and-see" approach, Saab Scania has put its faith in the diversity of its products and in its superior ability to solve the transportation problems of the 1980s. Saab Scania AB consists of:

The Scania Division—One of the world's major producers of trucks over 16 tons Gross Vehicle Weight and of commuter buses.



The Saab Car Division—Manufacturers of one of the world's most sophisticated high-performance automobiles, the Saab 900 series.

The Aerospace Division—Famous for the military aircraft it has developed ever since World War II, this division manufactures the Viggen fighter as well as advanced missile systems. With the introduction last year of the Saab Fairchild 340, the division has made an important entry into commercial aircraft production.

Saab-Scania Combitech AB—Consists of five specialized manufactur-



*The Saab-Fairchild 340 is the first aircraft jointly developed by American and European aerospace firms. The quiet, energy-saving turboprop plane is aimed at serving regional traffic.*

ing groups: Saab Training Systems AB; Saab Marine Electronics AB; Saab Space AB; Saab Missiles AB; and AB Mikro-Verktyg.

### **YOU CAN SAVE THOUSANDS OF DOLLARS BY PICKING UP YOUR SAAB ON YOUR EUROPEAN VACATION.**

If you're planning to visit Europe this year, talk to your Saab dealer about taking delivery of your new Saab 900 overseas. It could actually save you more than the trip itself would cost.

First of all, you save a substantial amount of money by buying your new Saab at European prices rather than at American prices. You can save even more through Saab Scania's Free Home Shipment Plan because

Saab will pay the cost of ocean freight, marine insurance, U.S. Customs duty and port fees for you. If you buy your car in America, of course, all of those costs are built into the price you pay.

Finally, you'll have your own car to drive on your vacation instead of a rental car. Not only will you save the money you would have spent on renting transportation, you'll be getting to know your Saab while you have the time and place to fully enjoy the experience.



# TECHNICAL SPECIFICATIONS SAAB 900, 1984

## ENGINE

Four-cylinder, in-line, overhead camshaft.  
Bosch CI (continuous injection) mechanical fuel injection.  
Displacement: 121 cu. in./1985 cc.  
Cylinder bore: 3.54 in./90 mm.  
Piston stroke: 3.07 in./78 mm.  
Compression ratio: 9.2:1, normally aspirated.  
8.5:1, Turbo.  
Horsepower, SAE net: 110 HP/81 kw @ 5250 RPM, normally aspirated.  
135 HP/100 kw @ 4800 RPM, Turbo.  
Peak torque: 119 ft. lbs./161 nm @ 3500 RPM, normally aspirated.  
160 ft. lbs./217 nm @ 3500 RPM, Turbo @ 87 octane.  
172 ft. lbs./233 nm @ 3500 RPM, Turbo @ 92 octane.  
Recommended octane rating: 87 minimum (pump rating).  
Fuel-tank capacity: 16.6 U.S. gal./63 liters.

## ELECTRICAL

Battery: 12V, 60 AH, maintenance free.  
80A alternator with integral voltage regulator, twin V-belt drive.  
Breakerless electronic ignition, Hall-effect.

## DRIVE TRAIN

Front-wheel drive.  
Five-speed manual transmission with single dry plate, Borg & Beck clutch.  
Gear ratios: 1st. . . . . 4.53:1  
2nd. . . . . 2.56:1  
3rd. . . . . 1.72:1  
4th. . . . . 1.24:1  
5th. . . . . 1.00:1  
Final drive. . . . . 3.67:1  
Primary ratio. . . 0.78:1 (900/900S)  
0.84:1 (900 Turbo)

Three-speed automatic, built by Borg-Warner.

Gear ratios: 1st. . . . . 2.39:1  
2nd. . . . . 1.45:1  
Drive. . . . . 1.00:1  
Final drive. . . . . 3.67:1  
Primary ratio. . . 0.93:1

## WHEELS AND TIRES

Disc brakes with asbestos-free, semi-metallic inner and outer brake pads on front wheels.  
Asbestos-free disc brakes on rear wheels.  
Independent front suspension comprised of transverse wishbones, coil springs and hydraulic telescoping shock absorbers.  
Lightweight rigid axle in rear. Coil springs; hydraulic telescoping shock absorbers.  
Rack-and-pinion steering, 3.65 turns lock-to-lock.  
Turning circle: 33.8 ft./10.3 m.  
Tires: 185/65 SR 15  
900, 900S, 900 Turbo 4-door.  
195/60 HR 15  
900 Turbo 3-door.

## CURB WEIGHTS

900: 2,600-2,630 lbs., 3-door.  
2,640-2,680 lbs., 4-door.  
900S: 2,710-2,750 lbs., 3-door.  
2,750-2,800 lbs., 4-door.  
900 Turbo: 2,790-2,880 lbs., 3-door.  
2,830-2,890 lbs., 4-door.

## STANDARD EQUIPMENT

All models:  
Power-assisted steering. Four-spoke steering wheel (three-spoke sport steering wheel on Turbo models) with padded rim and impact-absorbing center pad. Energy-absorbing steering column. Impact shield below instrument panel. Child-proof safety locks for rear doors. Rheostat-controlled green lighting for instrument panel. Three-point safety belts for four seats. Lap belt for rear-seat center passenger. Day/night interior rearview mirror.

Econometer-tachometer. Trip odometer. Quartz-crystal electric clock.

Instrument panel mounted stereo speakers.  
Halogen headlights. Side-guidance reversing lights. Large outside rear-view mirrors with anti-dazzle treatment. Hazard-warning lights. Reflectors on driver's-side door edges.

Non-glare interior lighting. Ignition key light. Map-reading light. Glove compartment lighting. Luggage compartment lighting.

Electrically heated rear window defogger with time limiter circuit.

Electrically heated front seats with lumbar support and adjustable headrests; backrest rake adjustment. Driver's seat adjustable for height and tilt.

Bronze-tinted glass on all windows.  
"Self-restoring" bumpers.

900S and 900 Turbo only:

Air conditioning.  
Gas-pressurized shock absorbers.  
Deluxe velour upholstery.  
Folding center armrest in rear.  
Sliding steel sunroof.  
Electrically operated exterior mirrors.  
Central locking system.  
Power windows.

Turbo only:

Four-speaker, electronic AM/FM stereo receiver/cassette player, graphic equalizer and electrically retracting antenna.  
Turbo boost gauge.  
Front and rear spoilers (3-door models).  
Front console.  
Three-spoke sports steering wheel.  
Deep contour sport seats.  
Time-delay shut-off for interior lights.

Turbo with Exclusive Appointments Group:

Leather upholstered seating surfaces.  
Fog lights.  
Electrically operated sunroof.  
Cruise control.



## BODY COLORS AND INTERIORS

Saabs are being made more colorful and luxurious for 1984, with new body colors and interior options available.

The Exclusive Appointments Group for Turbos that was introduced last year has been expanded to include more than the three original body colors, and to add a Colorado Red leather interior option to the Sierra

Tan leather that has been offered since 1983.

Platinum Blue Metallic, Azure Blue and Amaranth Red Metallic make their first appearance on Saab bodies this year, along with a new Persian Blue interior color. Saab buyers can choose among 13 body colors and six interior options this year.

Not all models are available in all colors, but the selection is wide enough to assure you of a car that

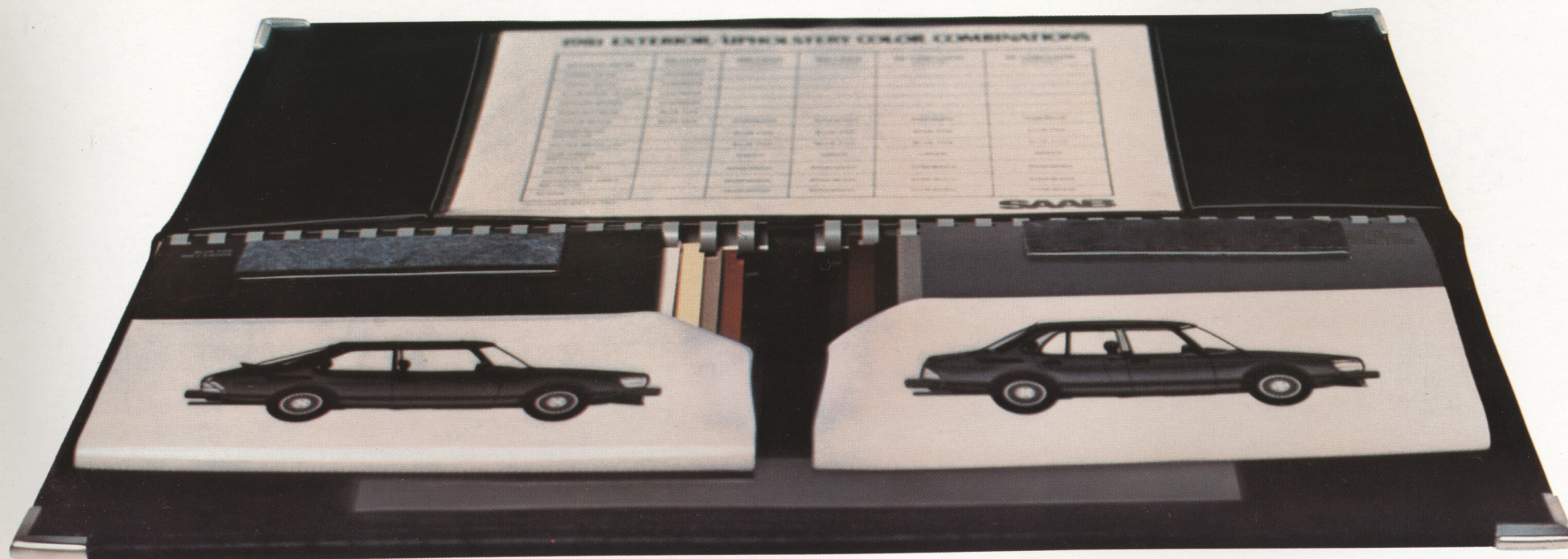
pleases your eye as well as your desire for practical and exciting transportation.

The full line of body colors available in 1984 includes: Ivory; Cherry Red; Azure Blue; Admiral Blue; Cirrus White; Black; Maroon; Pine Green Metallic; Silver Metallic; Platinum Blue Metallic; Slate Blue Metallic; Walnut Brown Metallic; and Amaranth Red Metallic.

Interior options include Sierra Tan

leather and Colorado Red leather for the Exclusive Appointments Group and Cashmere, Sierra Tan, Bokhara Red and Persian Blue velour on other models.

Since photographs don't always do justice to colors, we invite you to inspect the color chart in this brochure, and to visit your Saab dealer for a firsthand look at exterior and upholstery color combinations.



### AN IMPORTANT WORD ABOUT THIS BROCHURE.

We hope you find this brochure helpful, as we have tried to make it as comprehensive and factual as possible. However, since this brochure was printed, some of the information you see within may have been updated. Also, some of the equipment described in the brochure is available at extra cost. Further, certain photographs and illustrations in the brochure are also common to editions published for

other markets. Consequently, certain details shown in these photographs or illustrations may not be available in the U.S. market.

Finally, we reserve the right to make changes at any time, without prior notice, in prices, colors, materials, equipment, specifications and models, including the discontinuation of models. Check with your Saab dealer for complete and up-to-date information before ordering. International and Diplomat Sales (IDS) available. Your dealer can supply information.





**SAAB**

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