

**528e**

Bavarian Motor Works, Munich, Germany

BMW AG







**The BMW 528e:  
The forerunner of imitations  
to come.**

As one glances around the roads of America today, there is a surprising proliferation of BMW-inspired automobiles.

There are cars that flagrantly imitate the BMW silhouette.

And others that tout BMW-like performance.

And still others that boast Bavarian quality.

Yet, in the final analysis, only a BMW can offer you all the driving satisfaction of a BMW.

Why?

At the Bavarian Motor Works, our dedication to building the ultimate driving machine – a car that combines luxury, performance and economy – goes back several decades.

Not several months.

Our cars are the result of a 50-year single-minded pursuit of automotive excellence – and not merely a reaction to the latest trends and fads in the automotive marketplace.

Hence, the BMW will never be this year's 'revolutionary' new car. For it is far more the product of an evolutionary process – through which, over time, a higher order of automobile emerges.

The new BMW 528e is the logical result of this ongoing process of refinement.

And while it is sure to spawn a host of imitators in years to come, it is equally sure that few will be able to combine the elements of luxury, technological innovation, and performance that we feel justify the price of an expensive automobile.

Which is why, ultimately, there is only one ultimate driving machine.





The BMW 528e: The car the rest of the automotive community would build – if only they could figure out how.



The car conventional automotive wisdom decreed could not be built.

In the past, automotive soothsayers have insisted that the concepts of economy and performance were mutually exclusive in a luxury sedan.

They assumed that a luxury car could either be fuel-efficient or exhilarating to drive.

But not both.

And judging by the number of depressingly dull luxury sedans chugging down the highway today, one might assume they were right.

(After all, faced with an ever-mounting plethora of environmental, safety and efficiency standards, it's logical that performance would take a backseat to all else.)

Yet all hope is not lost for the serious driver.

For if there is one thing the automotive soothsayers failed to take into account, it is the tenacity of the BMW engineer.

At BMW, driving is more than a way of getting from one place to another.

It is an all-consuming passion.

A passion conducted by meticulous engineers who could not bear to drive a boring car, let alone build one.

So while the demands of society required BMW to build a safe, fuel-efficient car, the demands of BMW required that the car still be worth driving.

And there is perhaps no BMW that exemplifies this ideal better than the new 528e.

#### Introducing the technologically superior automobile.

If there is one area where BMW has continually excelled, it is in adapting technological innovations to the automobile.

While other manufacturers are rushing to meet today's demands by chopping cylinders and resorting to diesel fuel, BMW has followed a different path.

In 1975, BMW introduced L-Jetronic fuel injection to continually assess and adjust fuel flow. It eliminated the need for a carburetor – and resulted in a more efficient, smoother running car.

And now, while many automobile manufacturers have just begun tinkering with digital electronics in their radios and heating/cooling systems, BMW has gone a step further:

A new microprocessor (DME) is incorporated that monitors and controls virtually every function of the engine, continually refining and

adjusting the motor for peak performance.

Resulting in a car that offers still better efficiency, without compromising the performance that has always been the hallmark of a BMW.

#### An absence of the irrelevant.

You will find nothing on the BMW 528e that does not in some manner contribute to performance, safety or comfort.

You will find no inward-sloping door or windows to diminish passenger space.

You will find no louvers or whimsical window treatments that interfere with visibility.

And there are no nostalgic trunk designs, or superfluous wind scoops, or hood ornaments.

From our very beginnings, we at the Bavarian Motor Works have remained faithful to the principle that form should follow function.

Hence, the shape of the 528e is classic, uncluttered, and aerodynamically sound. As a result of extensive wind-tunnel testing and continual refinement, it offers a drag coefficient of .39 – which allows it to cut through the air with far less resistance than many similarly sized cars.

Additionally, its belt line is low, to bring down the center of gravity and provide astonishing visibility in every direction.

“The engineers at the Bavarian Motor Works did not invent the phrase ‘form follows function,’” say the editors of *Motor Trend* magazine, “But among all the world's automakers, BMW is perhaps the foremost practitioner of the philosophy.”









# BMW AG



1 **BMW re-introduces an otherwise obsolete concept: quality.**

If the quality of workmanship on today's expensive automobiles strikes you as leaving something to be desired, the BMW 528e will come as a refreshing surprise. The first time you approach the car, you'll notice an unusual quality of fit and finish seldom



2 encountered anywhere today. But instead of merely taking our word on this matter, consider this recent review by the editors of *Motor Trend*:

"The BMW's pieces just don't mesh and blend like those of ordinary sedans. There are no flaws, no bad joints, no runs in the paint, no stick-ons and no cover-ups. These are the details that keep coming back to reinforce the car's value every time



3 you open a door, wash the car or just sit and look at it."

A heady assessment indeed. But one that is not without explanation. Each 528e goes through what to most manufacturers would no doubt seem an excessively arduous process of preparation. First priming, then cavity sealing and undercoating. But that's only the beginning. Then there's painting, hand inspection, sanding and repainting – again



4 and again, until the car meets the approval of the BMW inspection team. A team of individuals who are notorious for their obstinate standards of perfection.

In a BMW, no detail is ever considered minor.

1 & 2) The gently sloping hood and notched trunk section not only contribute to the car's unusually efficient

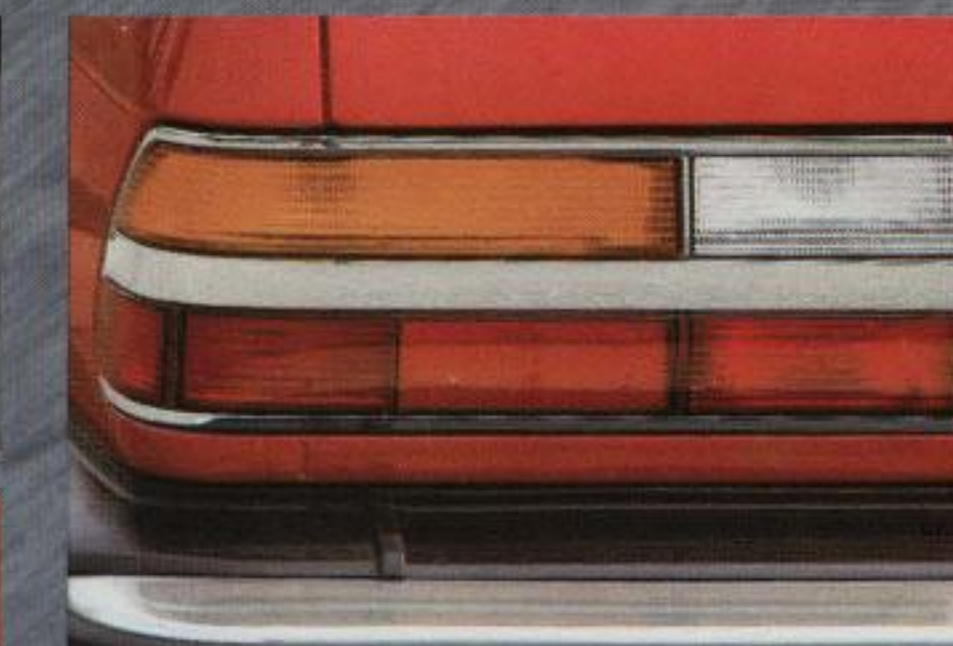


5 aerodynamics, but allow for high visibility in every direction.

3) A built-in spoiler helps aerodynamics and contributes to driving safety.

4) Quartz-halogen high-beam headlights are provided for increased nighttime safety.

5) The electrically operated outside rear-view mirrors are aerodynamically integrated into the window triangle, leaving your peripheral vision



6 unobstructed.

6) The rear part of the vehicle is clearly defined, with large wrap-around lights to enhance visibility at night.

Naturally, there are tinted windows to facilitate daytime driving, plus specially constructed front and rear columns that provide extremely strong construction. The double-sealed windows and doors keep noise to an absolute minimum.



**Electronic innovation that goes beyond a digital speedometer.**

Today, digital electronics are all the rage in automotive design.

Yet all too often, these devices serve little more function than to tune the radio or indicate your speed.

At BMW, digital and computerized electronics serve a more important purpose.

The BMW 528e incorporates a microprocessor that continually receives and assesses signals from sensors deep within the engine.

It takes into account engine speed, piston position, data on the throttle valve position and volume and temperature of the air intake.

And, having processed all this information, it instantly determines the precise fuel quantity to be injected into the cylinder ports.

All of which not only increases fuel efficiency and limits exhaust emissions, but also allows the BMW to offer the kind of performance that few cars delivered even before we entered this era of economy regulations and environmental standards.

**If you want to save gas, don't use any.**

In theory, an engine should only use gas when accelerating.

Not when you're slowing down, or coasting along the highway.

With BMW Digital Motor Electronics, whenever the engine is coasting above 960 rpm, the fuel flow is shut off – without affecting anything but the speed at which you use gas.

Which, needless to say, will obviously result in a significant savings of fuel.

**To err is worse than human. It's costly.**

Admittedly, the new BMW digital electronics improve fuel efficiency. But there's more.

It allows the engine to be continually adjusted to control fuel emissions.

It improves engine response at low rpms; enabling the vehicle to be run at low engine speeds and higher gears for better fuel efficiency.

It improves the idling – making it smoother.

It eliminates mechanical drive components – and their corresponding ignition adjustments.

**Digital Motor Electronics – DME:**

With an ever-increasing application of electronics to automobile engineering, BMW is pursuing an utterly logical goal: to make driving more comfortable, more efficient and safer. To do this in an optimum way, sophisticated and intelligent technology is needed. BMW takes on such challenges with enthusiasm – the enthusiasm that has turned into a synonym for advanced engineering.

**BMW digital engineering: the driving force is a computer.**

In the future, just as in the past, automobiles will need adequate power reserves for the agility that means active safety. At the same time, exhaust and noise emissions should be reduced still further for the sake of the environment. And all these objectives must be met with reduced energy consumption.

Quite an assignment. Electronics will make a major contribution – and a system called Motronic is one of the best examples of how it will happen.

**The BMW way: computing what the engine will be doing a microsecond later.**

Somewhat simplified, the function of the DME engine-control computer is to adjust ignition timing to what it predicts will be the engine's operating conditions by the next time a spark plug must fire – for each microsecond between two firings. DME receives input information from several sensors about engine speed, piston position (via the ignition system),





throttle opening and the quantity and temperature of incoming air. The computer processes these inputs to calculate the precise instant when the next spark plug must fire.

An indispensable prerequisite for this advanced system developed jointly by BMW and Bosch, is the electronically controlled fuel-injection system called L-Jetronic. Already used on all 6-cylinder BMW models currently sold in North America, L-Jetronic meters fuel to the cylinders through tiny nozzles on the basis of the quantity of air being "breathed" by the engine.

A step further:  
second-generation Digital Motor  
Electronics.

DME was first introduced in a European BMW model two years ago. With its introduction to the American market in 1982, the system goes into its second generation. This improved system includes a further input: from a so-called Lambda Sensor in the exhaust stream.

Taking continuous readings of the exhaust gases' oxygen content and feeding them back to the DME computer, the Lambda Sensor contributes to still more precise control of both fuel injection and ignition timing. The end results: ideal fuel/air mixture in all rpm and load ranges, further reduction of fuel consumption, better control of emissions, outstandingly smooth engine operation and still more precise tuning of the engine during all driving situations.

**At BMW, performance is not  
this year's marketing ploy.**

Suddenly, a majority of the world's automobile manufacturers seem to have discovered that performance sells luxury automobiles.

And just as suddenly, automobiles that were once being hailed as "fuel efficient" are now being touted as "thrilling to drive." Or exhilarating.

At the Bavarian Motor Works, our concept of extraordinary performance began in our engineering department decades ago.

Not in our advertising department late last winter.

Consider, if you will, the development of the BMW engines.

Under the hood of the BMW 528e is

the same basic six-cylinder engine that powers the famed BMW race cars that have nearly dominated international road-racing for more than a decade.

The technical explanation?

Bosch L-Jetronic fuel-injection – operating independently of the actual air intake – determines the precise amount of fuel to be injected.

Then, multiple swirl-action combustion chambers mix the fuel/air mixture, concentrating it around the spark plugs in a remarkably complete manner (1).

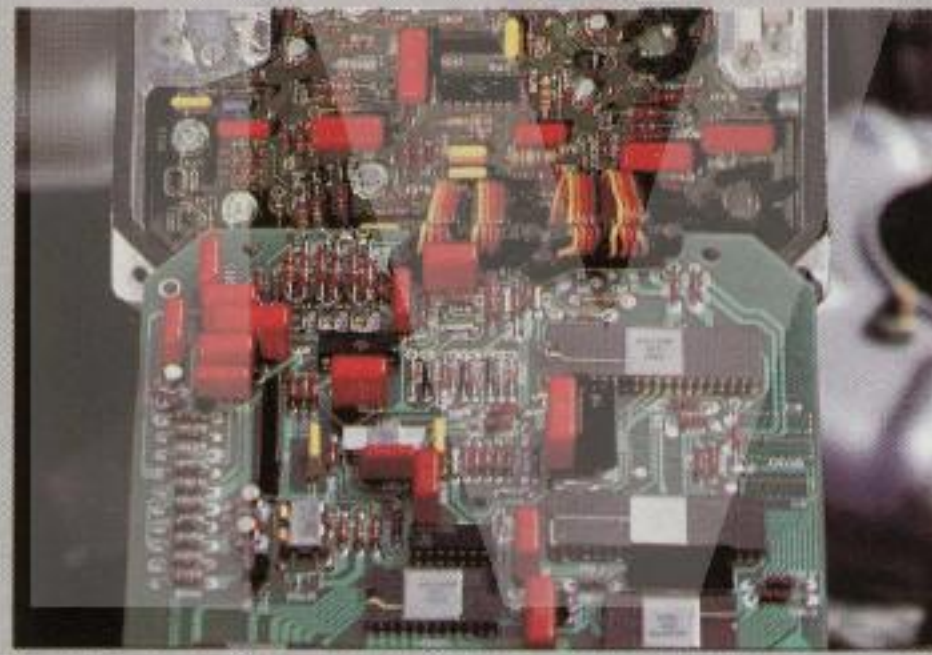
So well is this combustion process accomplished that the power plant of the BMW 528e – diminutive when compared to the V-8 behemoths still found in many conventional luxury sedans – produces prodigious horsepower from a modest displacement.

And 7 main bearings with 12 crankshaft counterbalance weights – unusual refinements in a luxury sedan –

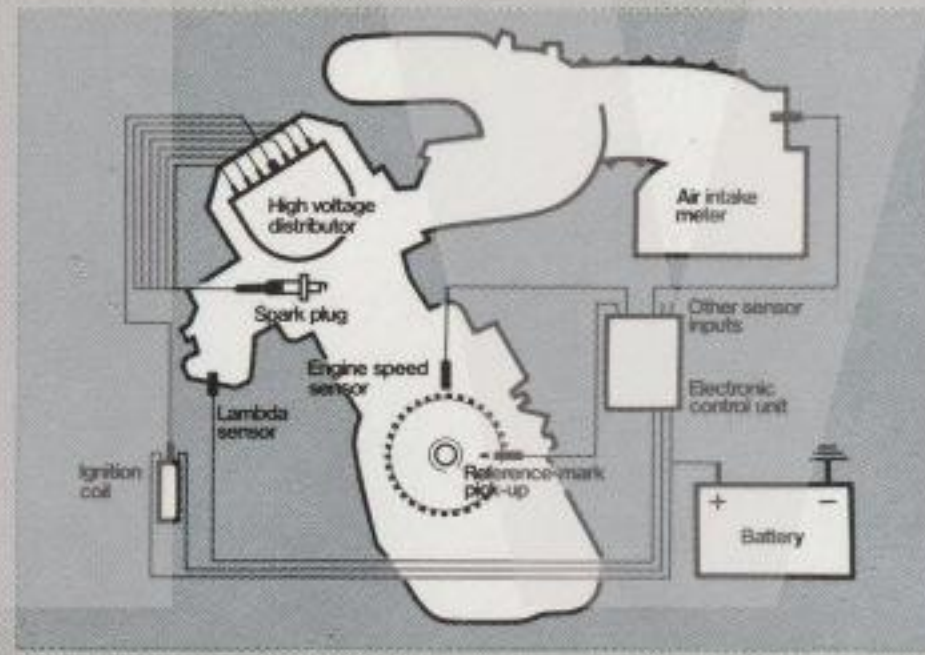
give the whole operation a turbine-like smoothness that never ceases to astound even the experts (2).

Exhaust emissions are controlled by a 3-way catalyst with Lambda-sensor. The Bosch-developed Lambda-sensor measures oxygen content in the exhaust stream and adjusts the incoming fuel so that the precise air/fuel mixture is maintained for optimum combustion efficiency. This in turn allows the 3-way catalyst to control all three of the harmful exhaust pollutants without the need for an air pump, thermal reactor, or EGR system.

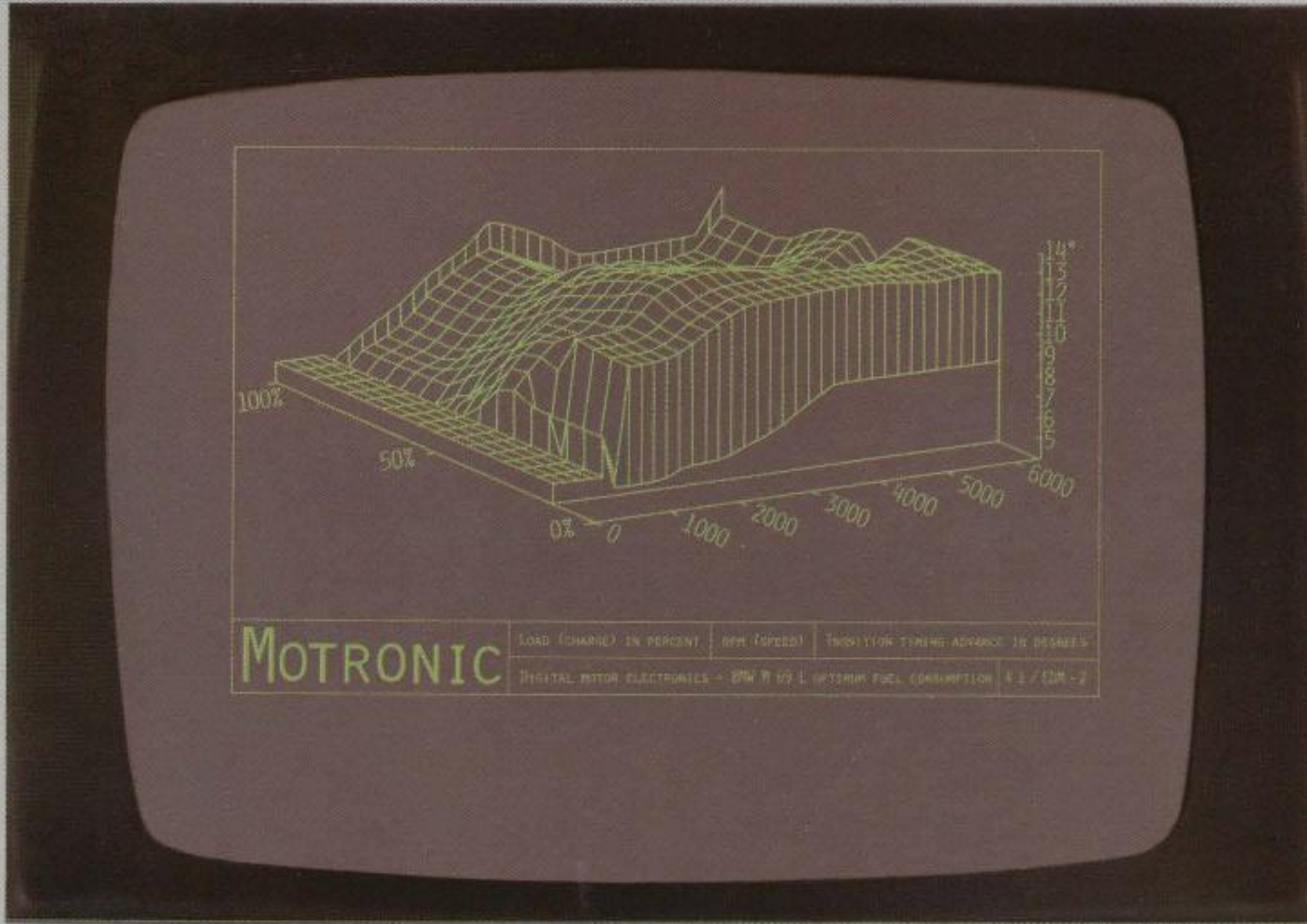
All this, in conjunction with the new BMW Digital Motor Electronics, helps create a car that is truly capable of meeting the demands of the 80's – for fuel efficiency and cleanliness – without ever violating the BMW concept that extraordinary performance is the only thing that makes an expensive car worth the money.



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**The new Eta engine:  
The perfect vehicle for moving  
into a new era of auto-  
motive technology.**

The problems facing the automotive designer are myriad.

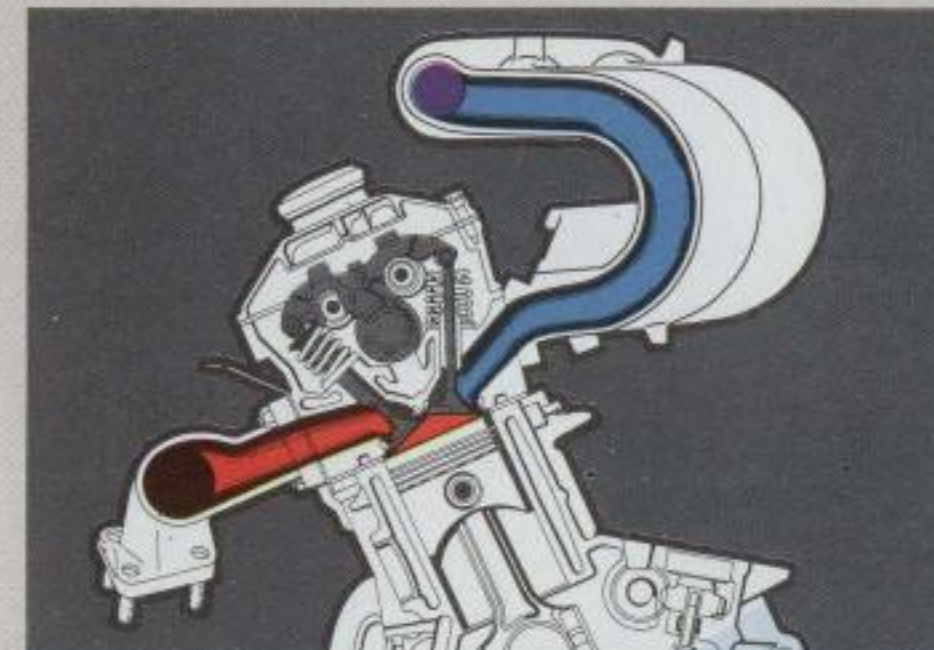
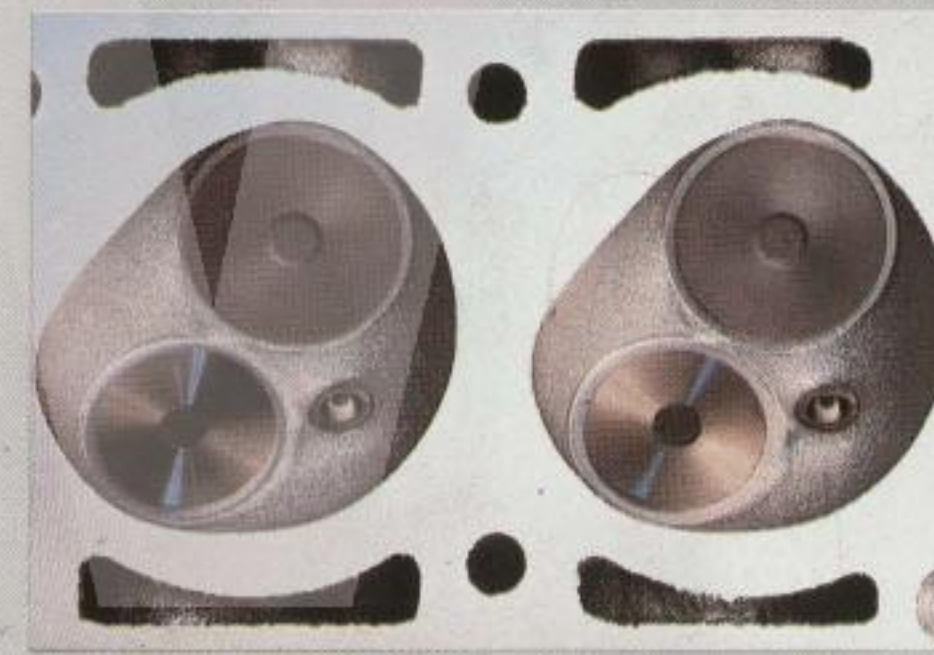
On one hand, he must create a car that is fuel-efficient and inexpensive to run.

And on the other, he must design a piece of transportation that is reliable, comfortable and powerful enough to master its given tasks.

Until now, the solution to these problems necessarily involved a compromise between efficiency and performance, sacrificing one for the other, and very often both.

BMW engineers do not regard compromise as a sufficient inspiration for an engine.

They created the Eta engine instead.



Maximum performance, minimum  
energy.

The Eta engine was designed to meet an engineering objective that reads like the modern equivalent of alchemy:

Turn minimum energy into maximum performance.

The conventional engine accepts a loss of response as a fair price for fuel efficiency.

The Eta engine does not. It actually develops higher torque at engine speeds where the car is most often driven. The response is exhilarating, even by BMW standards.

Convention says that an engine must run faster to be so responsive. Perfectly logical and absolutely untrue.

The Eta engine actually runs slower than that of its predecessor, the 528i. Engine wear is lessened accordingly.

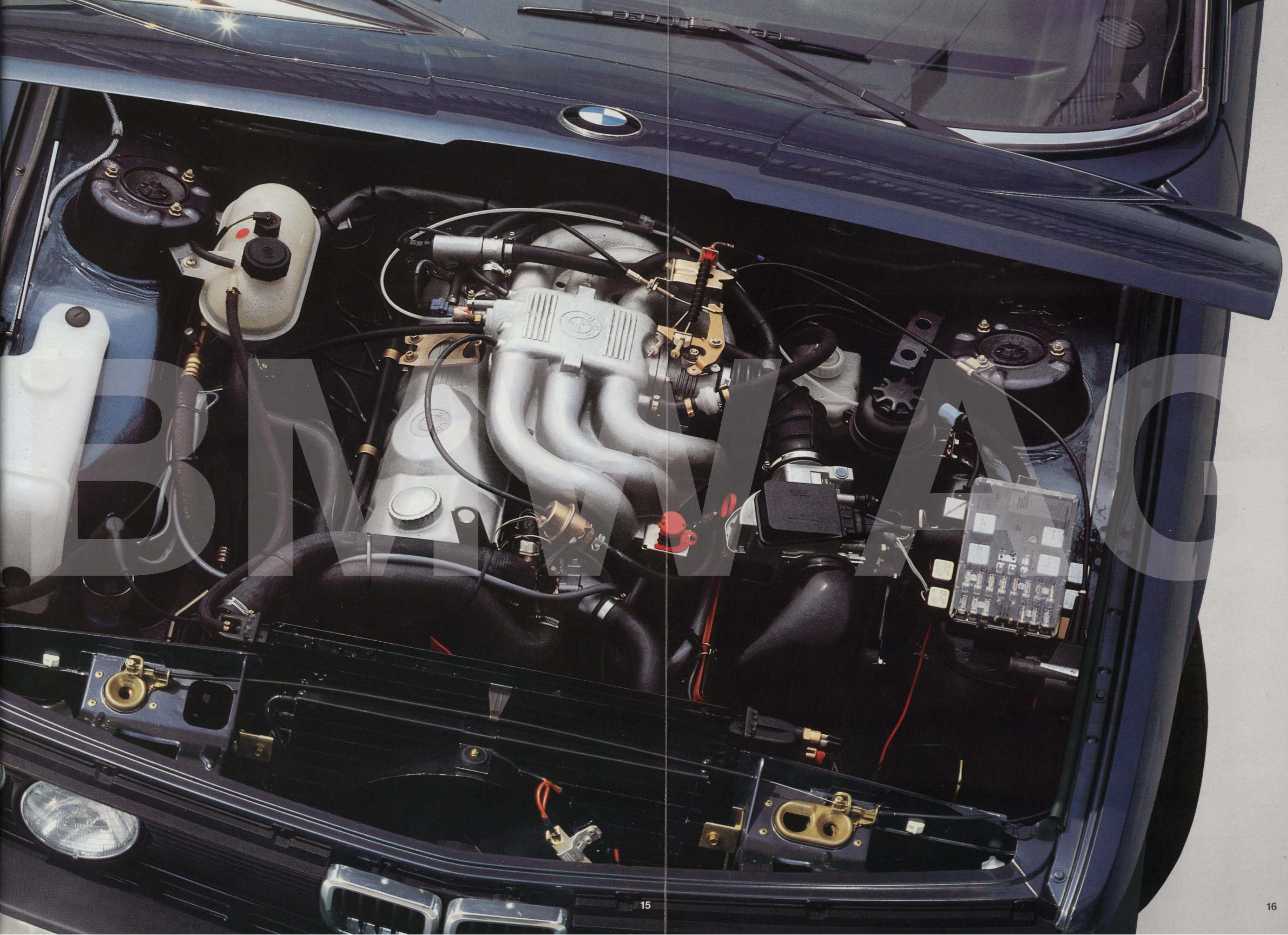
Digital Motor Electronics allows the use of more efficient higher compression ratios.

DME assures that the optimum fuel/air mixture is ignited at the optimum time – to the nearest one-thousandth of a second.

It constantly monitors and adjusts idling speed, and even cuts off fuel to cylinders when they're not needed – allowing the car to run on momentum instead of gasoline. (Contrary to popular belief, a 6-cylinder car does not always need 6 cylinders; sometimes it needs none.)

The result is the sort of paradox that confounds certain experts and delights BMW engineers – a genuine high-performance luxury car that somehow manages to deliver fuel mileage that would be respectable in an economy car.









**The BMW 528e: To its owners,  
the future will come as a  
fulfillment, not as a shock.**







**BMW is designed to assist the human element, not hinder it.**

There are two diametrically opposed schools of thought in the automotive community concerning the driver and his relationship to his car.

One school seeks to totally isolate the driver from the world outside, the road beneath and, most particularly, from the mechanical functioning of the car itself.

A passive, non-participatory approach many automotive experts consider most unwise.

Perhaps because of our long involvement in motor racing – where the idea that man and machine ought to function as one is not an alien concept – we at the Bavarian Motor Works take a completely different approach to automotive design.

One that literally includes the driver as one of the functioning parts of the car itself – the human part that completes the mechanical circuit.

BMW engineers have conducted

extensive physiological research to determine the optimum interaction of man and machine – in every conceivable driving situation, from the stress caused by high-speed driving over prolonged periods of time to the physical effects caused by navigating through dense city traffic.

So successfully is the integration of man and machine accomplished, that when you drive the BMW 528e for the first time you will experience an almost total oneness with the car. A unique feeling of effortless control which, if you're accustomed to conventional luxury sedans, will be completely and pleasantly new to you.

A car that adjusts to you. Not vice versa.

Recognizing the anatomical reality that no two people are made with precisely the same measurements, the BMW 528e is made to adjust to

the driver – instead of the other way around.

Careful study has been made of the critical interrelation between seat location, visual position, steering wheel, pedals and controls (1, 2).

Driver's seat and cushion are fully adjustable – forward and back – up and down (4, 7).

Front seats are adjustable and orthopedically shaped and padded to provide firm lateral support in tight, high-speed turns (5, 6).

The handbrake and seat belts are conveniently located (8).

A luxury automobile designed to see out of, not just be seen in.

On the BMW 528e you will find no vision-obscuring rooflines. On the contrary, using innovative laser-beam technology, BMW engineers have maximized visibility in all directions (2) within the driver's field of vision

and optimized the placement of the rear-view mirrors (3).

A heating and ventilation system as carefully engineered as the rest of the car.

Perhaps a car's heating and ventilation system cannot be ranked as one of its vital systems of control.

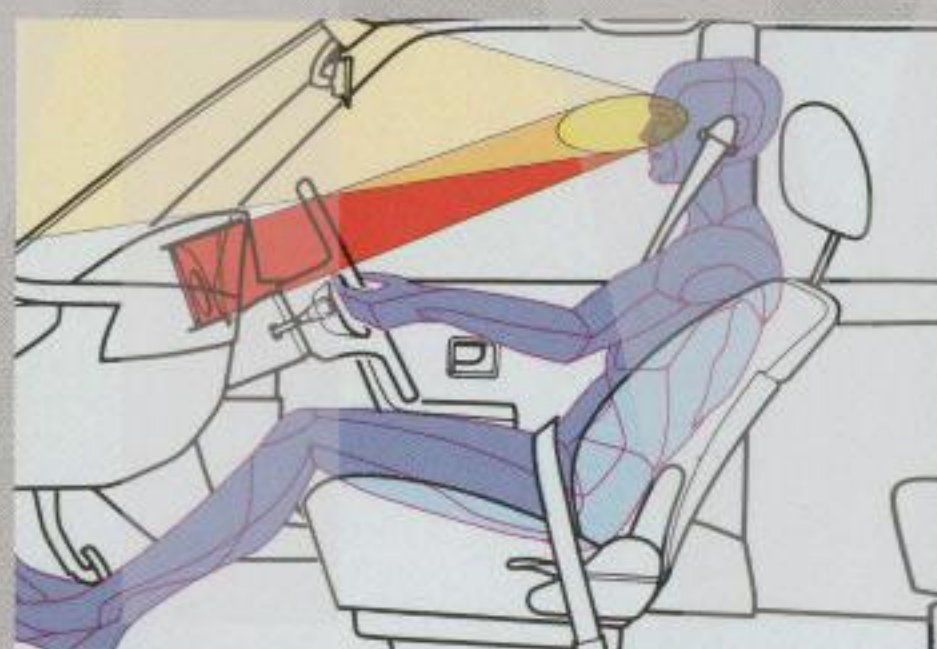
But an insufficient heating and ventilation system can be ranked as one of a car's most distracting shortcomings.

In the BMW 528e, an electronically-controlled heating and air conditioning system is the key to solving this problem. Thorough consideration has been given to interior air currents and the strategic placement of heating and ventilation outlets (11).

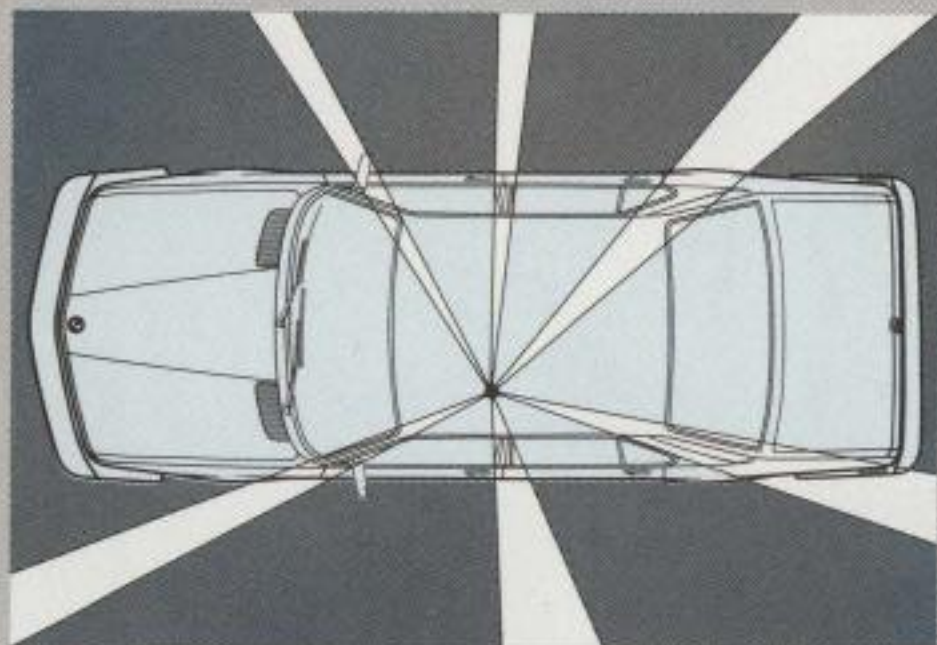
Fresh-air ventilation is achieved without drafts; heat is produced quickly and temperature is infinitely variable (12).

Warm air can be directed up or down, merely by adjusting the air outlets (horizontally or vertically), which are located at the sides of the car as well as the middle, and are separately adjustable.

Side-window defrosting is achieved through outlets located on either side of the dash panel (9, 10).



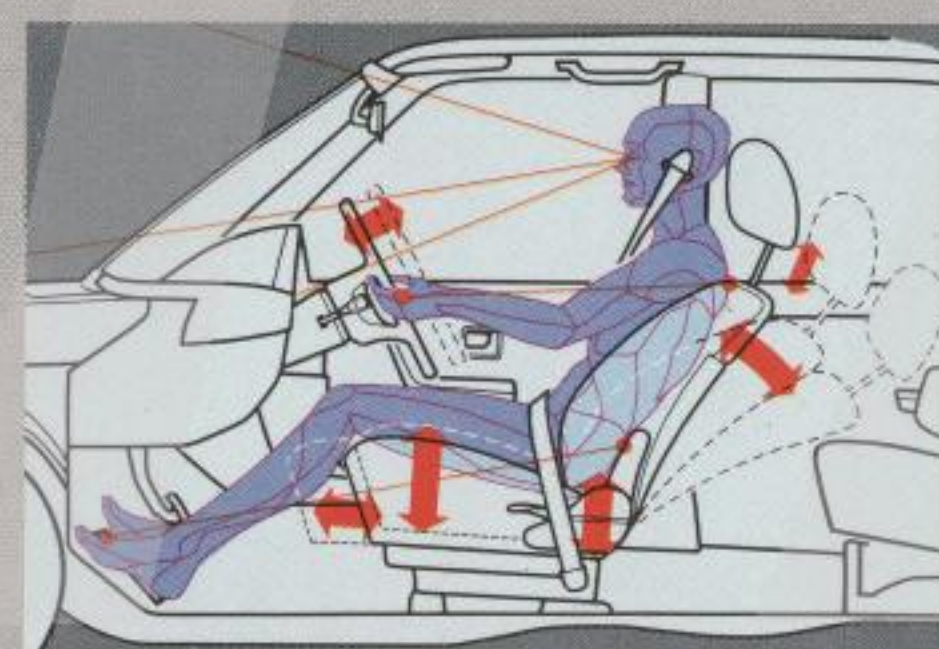
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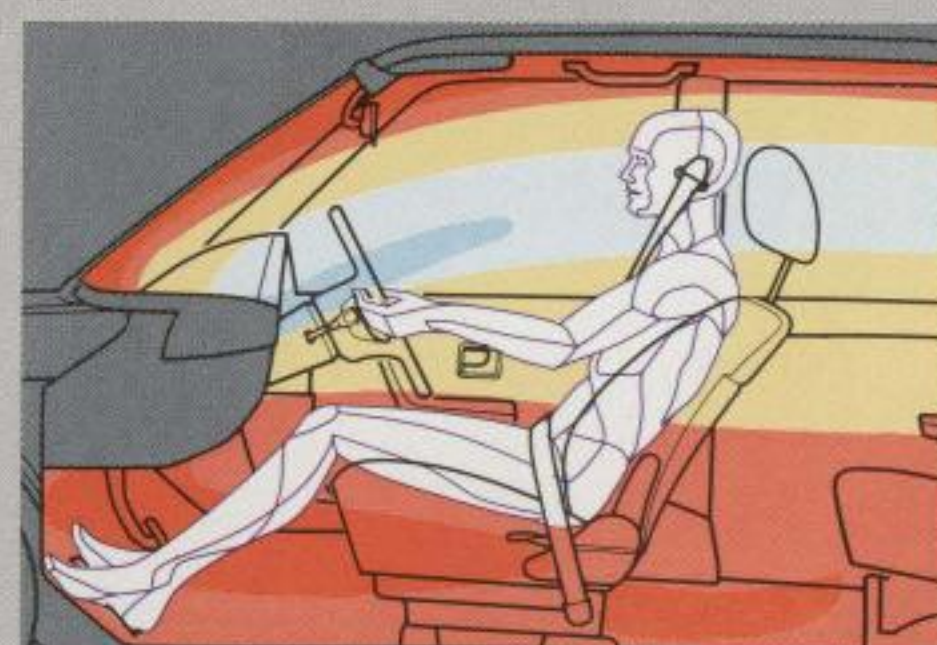
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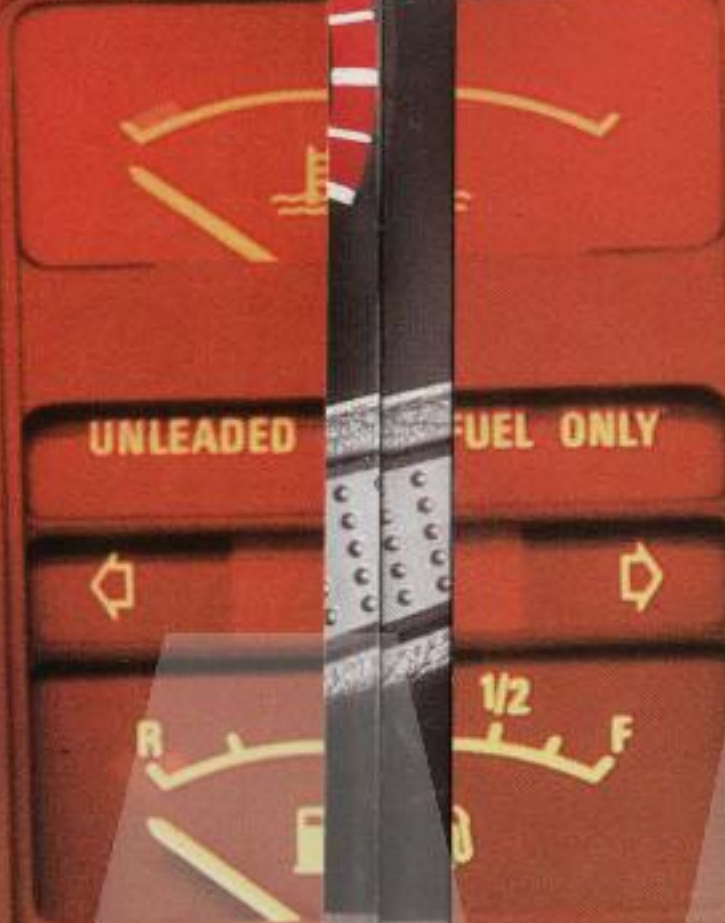


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In a BMW, the driver is master of the automobile. Not vice versa.

The goal of the BMW cockpit has always been the perfect integration of man and machine.

When you slip behind the wheel of the BMW 528e for the first time, you will no doubt notice that its instrument panel bears mercifully little resemblance to that of conventional luxury sedans.

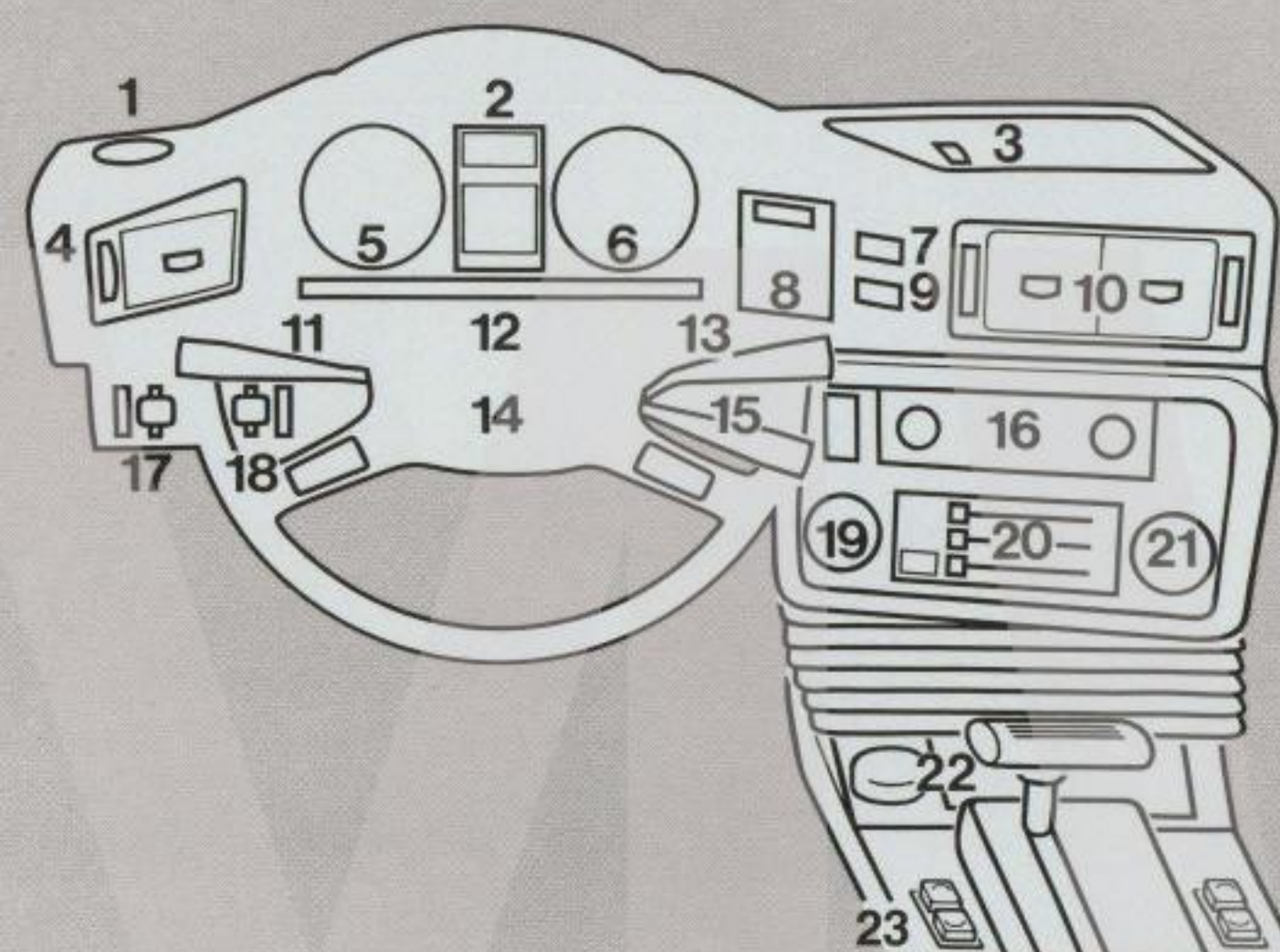
The cockpit of the 528e is the end result of extensive biomechanical testing, research, experimentation and refinement.

Everything has been carefully

arranged to facilitate effortless, total control at all times – even under the most difficult driving conditions.

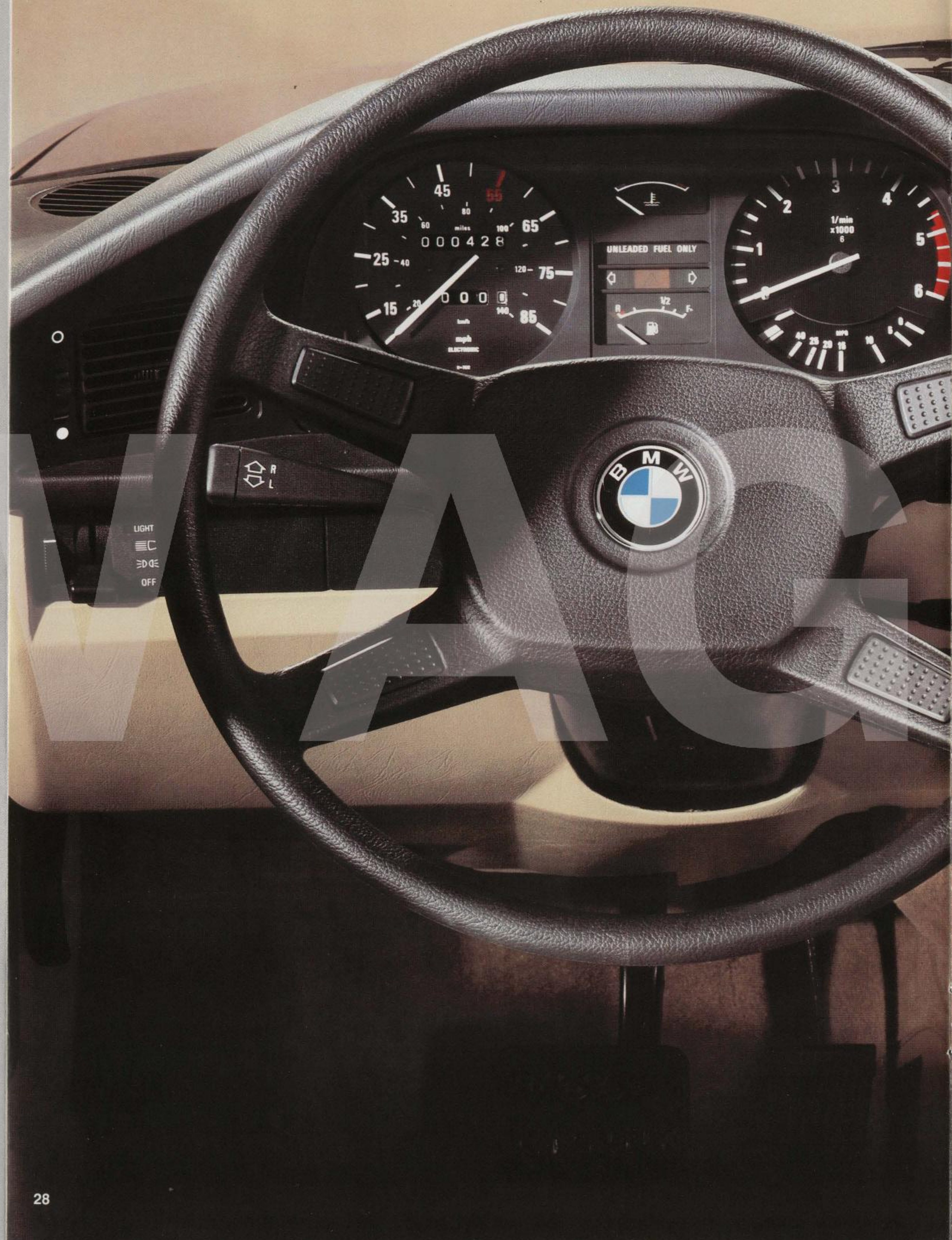
All controls are within easy reach. All instruments are grouped – airplane style – in a semicircular arrangement within the driver's field of vision.

And a special optically beneficial orange light illuminates the panel at night.



1. Warm air outlet grille – fixed position for side window defrosting.
2. Combined instrument cluster with coolant temperature gauge, indicator warning light for Active Check/Control readings, directional signal flasher, fuel gauge with “reserve fuel” warning light.
3. Fresh air outlet grille for the head area, adjustment by knurled control wheel.
4. Fresh air outlet grille, also on the front passenger's side. All 4 grilles may be adjusted both horizontally and vertically and can also be switched on/off individually (4/10).
5. Electronically controlled speedometer.
6. Tachometer with fuel economy indicator.
7. Hazard warning light button and flasher.
8. Digital quartz LCD clock.
9. Rear window defroster control.
10. Two fresh air outlet grilles, in particular to ensure a direct flow of air towards the driver.
11. Control arm for direction indicators, flasher and main beam.
12. (From left to right): Control Panel Indicator for foglights, rear window defroster and high beam lights.

13. Control arm for 2-speed windshield wiper, intermittent wipe and automatic wash.
14. Fully padded 4-spoke safety steering wheel.
15. Automatic Cruise Control.
16. AM/FM Stereo Cassette with fader control.
17. On/off switch for parking/driving lights. To the left sits the control wheel for infinitely variable control panel illumination.
18. (Not shown in photo): On/off button for foglamps. Varying intensity of symbol illumination to indicate which lights are on/off. At the right interior light switch.
19. Control switch for warm/cold air adjustment including temperature scale.
20. Sliding control for air distribution. Symbols indicating defrost position.
21. Control switch for the 3-speed fan.
22. Illuminated Ashtray and lighter.
23. Window controls conveniently located in center console.







A well-informed driver is a better driver.

A fuel economy indicator (3) indicates your fuel consumption at any given moment – allowing you to better monitor your driving habits and increase fuel efficiency.

Located above the windshield (2, 5) is the new BMW Active Check/Control system. It continuously monitors critical functions in the automobile – and instantly warns the driver of any problems. Among the things it monitors are key lighting systems, coolant level, engine oil level and windshield washer level...even when the engine is running.

The BMW 528e features a digital quartz clock with LCD display (4). Automatic cruise control aids in the prevention of driver fatigue over long distances (6).

Finally, there is a fuel level gauge which incorporates a warning light to indicate when you're using the reserve.



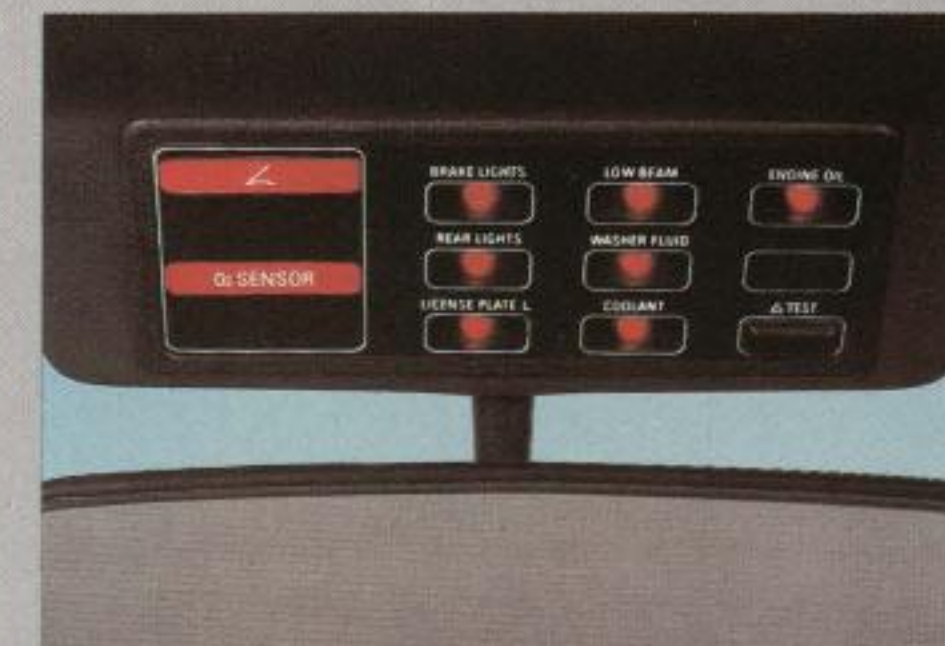
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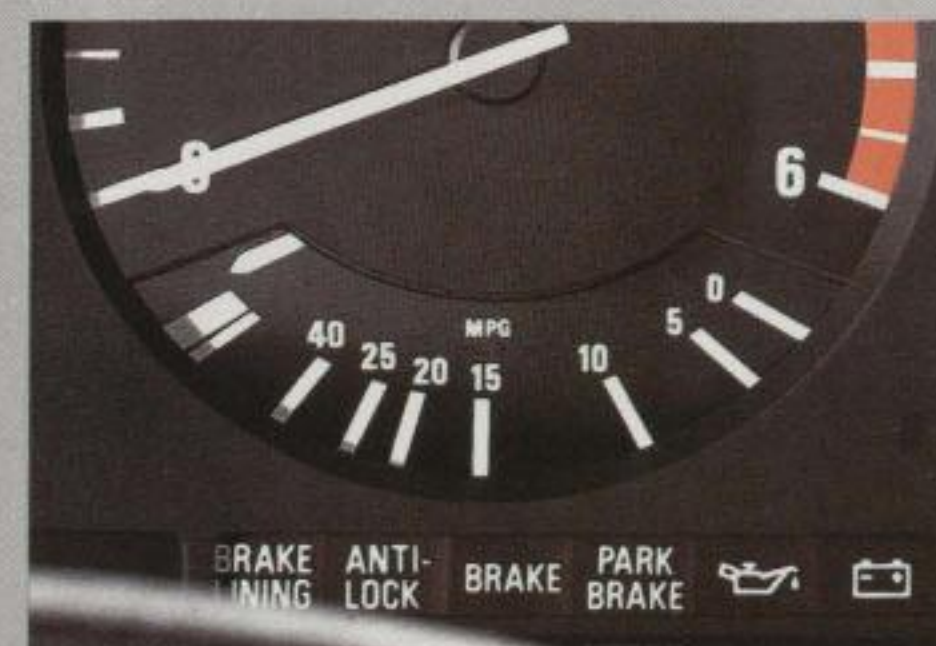
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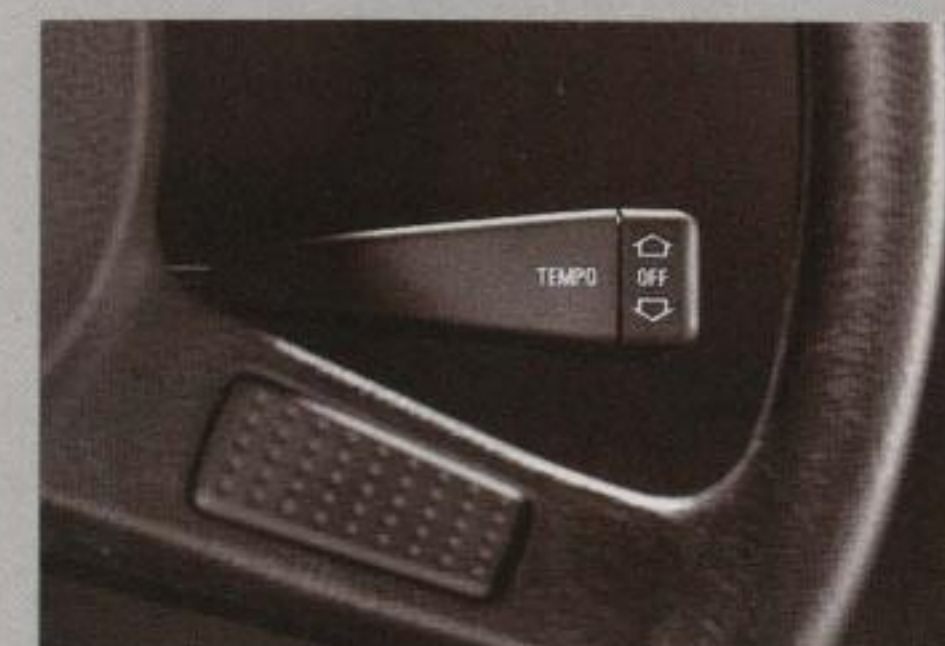
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A backseat one need never  
apologize for.



**In a BMW, the luxury is functional, not frivolous.**

It would be difficult to imagine a single appointment or accessory that has been omitted from the BMW 528e.

Yet while the 528e provides virtually every amenity one could sanely require of a luxury automobile, it does not boast acres of crushed velour seating, superfluous decorative items, or irrelevant etched-glass windows.

Instead, you'll find a wealth of practical, functional luxury items. Features that make the difference between true luxury and superficial opulence.

The front seats, for example, are fully adjustable.

The padded steering wheel is positioned to optimize control of the car.

An electronic signal-seeking AM/FM stereo cassette radio is provided along with four high-fidelity speakers (2, 7).

Window controls are conveniently located on the center console (3, 10).

The interior is available in a wide variety of colors and materials including leather.

Although the BMW is called a "European-sized car", it has no trouble fitting "American-sized" people. Especially in the backseat (5, 9). There is no bumping of knees. No need to sit partially sideways.

Even the interior of the trunk has not been overlooked (8). It is fully lined and finished – so as not to damage or soil expensive luggage.

The electric sunroof can be opened in two directions for optimum ventilation (11).

To allow the backseat riders more knee room, the front seats are concave (5).

A fold-down arm rest (9) makes the backseat more comfortable for passengers.

Every BMW 528e comes with a BMW tool kit – conveniently tucked away under the trunk lid (4).

For those wishing the ease of automatic shifting, a three-speed automatic transmission is available as an option (10).

Although not shown, the 528e also

boasts electrically adjustable outside rear-view mirrors (on both sides), plus an electrically retractable antenna and an interval-timed courtesy light.

The door pockets are integrated into the door panel, designed in rather than added on (6).

The glove box is spacious and lockable (1).

BBS Mahle light-alloy wheels enhance the 528e's sporty appearance (12).



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The BMW is designed to help you avoid accidents – not merely survive them.

The automotive community seems to be divided into two separate philosophies concerning automotive safety.

There are those who say that tank-like strength is the answer to automotive safety.

Others who say it is cat-like agility. At the Bavarian Motor Works, it is our contention that the most intelligent answer is a combination of both.

So, while the 528e has been designed by BMW engineers to be strong, its extraordinary handling and performance characteristics help provide the driver with the means and the split-second control necessary to avoid an accident in the first place.

However, should an accident prove unavoidable, the engineers at BMW have developed yet another – and perhaps even more innovative – solution: a programmed deformation system to absorb the brunt of the impact and help minimize injury.

For example, you can see the way all critical areas of the car are padded to minimize injury.

The safety padding extends from the instrument panel to the knee area. The metal reinforcements in the vicinity of the instrument panel are arranged at all times in such a manner behind the padding that the sharp metal edges face away from the passenger.

The shell of the automobile acts as a passenger safety cell with specially constructed roof pillars, cross struts in the instrument panel area and behind the rear seat, as well as rigid longitudinal struts – acting to increase the rigidity of the chassis.

Special attention has been paid to the head region. The roof is strong enough to support the weight of the car in the event of an overturning.

All the roof pillars and specially shaped reinforcements are systematically designed and rigorously tested.

The high standard of all-round safety offered by the BMW 5 Series is further enhanced by the refined upholstery in the passenger compartment. This high-quality upholstery represents the combined result of the experience BMW has gained with the 7 Series and the latest findings in crash research.

In designing this special safety cell, BMW has given particular attention to the head area: The roof must never be crushed too far should the car roll over. This is why the extra-strong central roof columns of the BMW 5 Series cars are combined with a rollover bar and special-profile front and rear roof columns, all of which act together in providing a particularly rigid roof structure.

The instrument panel is also rounded off and deformable to further reduce the risk of injury. The metal reinforcements behind the safety padding have been optimized for maximum safety by the use of aluminium and through their special design. The bottom section of the instrument panel is designed to protect the driver's and front passenger's knees, and the centre console is cushioned all round for extra safety.

All interior parts and components that may play a role in the event of a collision are rounded off at a maximum radius to provide extra protection.

The roof columns are heavily padded for extra protection. In conjunction with the sturdy door hinges and locks, upholstery strips directly beneath the windows improve the standard of safety in side-on collisions. For even more safety, the BMW 528e even has a wide upholstered strip above the windscreen and all-round upholstery on the doors.

The interior of the BMW 5 Series cars is made entirely of impact-absorbing, fire-resistant materials. The instrument panel, handles and mirror give way in the event of an impact.





At BMW, our dedication to safety was not created by legislation.

At BMW, the subject of automotive safety was a matter of serious concern long before the U.S. government mandated it.

Indeed, few automobile manufacturers have spent more time or exerted more effort in the field of automotive safety than the Bavarian Motor Works of Munich, Germany.

So it should come as no surprise that the BMW 528e not only meets all the legal requirements, but in many cases actually exceeds them.

Systematic collision research, for example, has enabled our engineers to determine the exact chronological connection between various types of automobile deformation and their relationship to various safety devices.

(To cite one technical example, the crush behavior of the BMW 528e was optimally synchronized with the response time lag of the front automatic seat belts. By means of the

structurally programmed shape of the deceleration curve for frontal crashes, the motion sequence of the passengers during an accident has been exactly adapted to the deceleration action and the effectiveness of the belts.

In highly specialized test centers – with the help of extremely sophisticated testing equipment – the entire structure, as well as structural details, are examined during rollovers, front/rear, front/side, front/front and transverse collisions for their stress resistance and reactions.

A few examples of our rigorous testing procedures – and added safety devices:

Front collision test at 30 mph with a fixed barrier (1).

Collision research has helped us to determine how the BMW will react in an accident – and compensate for it, with the intention of protecting the passengers (2).

Controlled, programmed energy-absorbing “crush zone” in front and rear – designed to absorb and dissipate the impact of an accident (3, 4).

The steering wheel column (5) is situated well outside the “crush zone”, behind the front axle.

The safety steering wheel has a special deformation-resistant tulip shape and a padded rim and center (6).

Extensive roll-over tests to help perfect the BMW safety cell (7).

Roof pillars that act to reinforce the roof (8).

Specially constructed columns add to rigid construction... without adding excess weight (9, 10).

Checking the resistance of the roof structure (11).

Testing the resistance of the side doors to intrusion and deformation (12).

The bumpers are tested on a pendulum – better simulation of real driving conditions (13).

Testing the seat belt anchors (14). Optimizing the seat belt restraint system by simulated collision on the test sled (15).

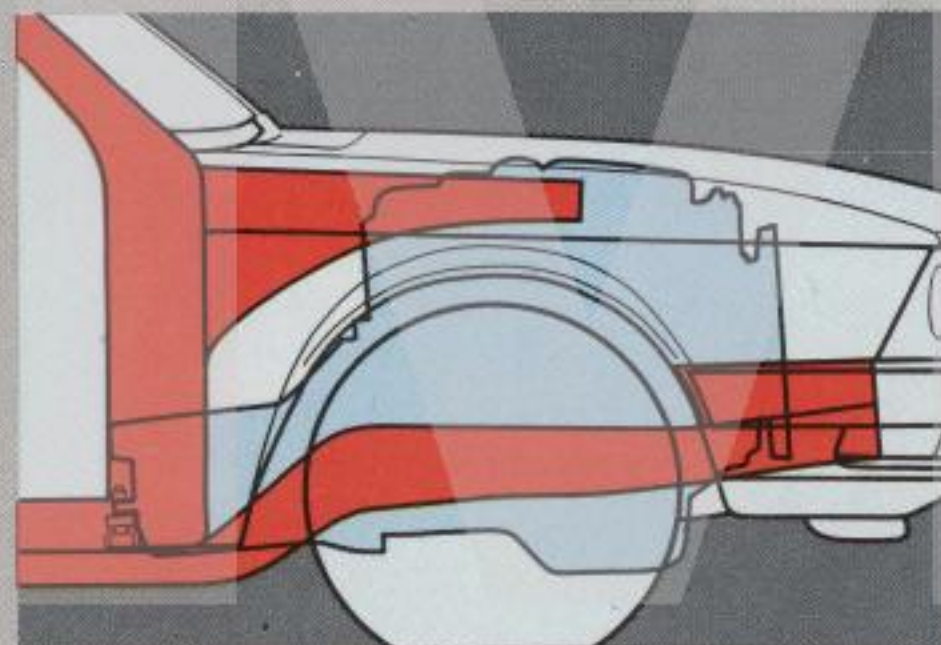
Load-testing the integrated seat/head restraint (16).

All critical areas of the dash are padded (17).

Checking the dashboard for its ability to absorb shock (18). The metal reinforcements are turned away from the passenger to further enhance safety.



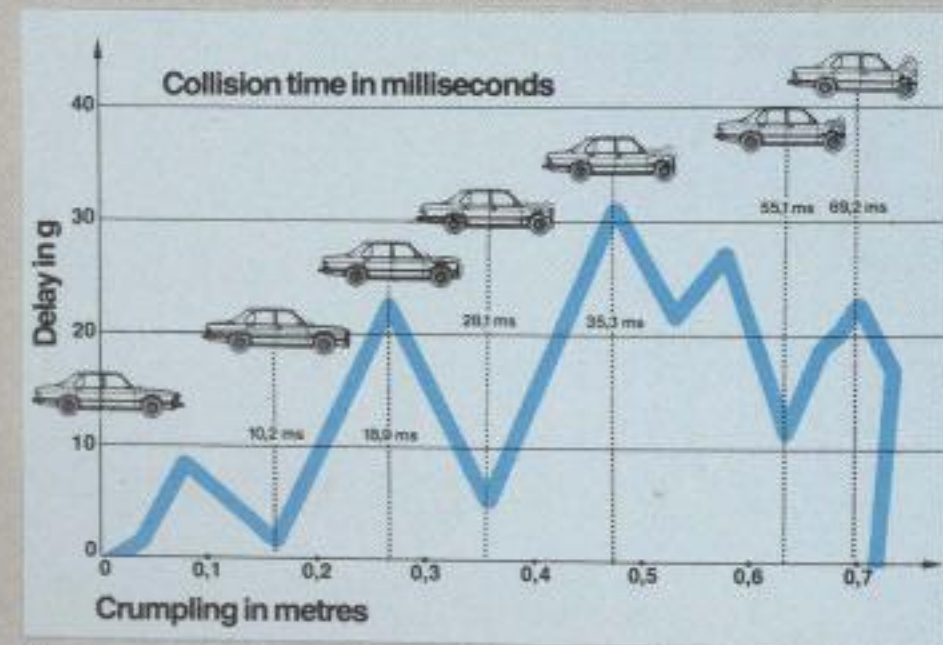
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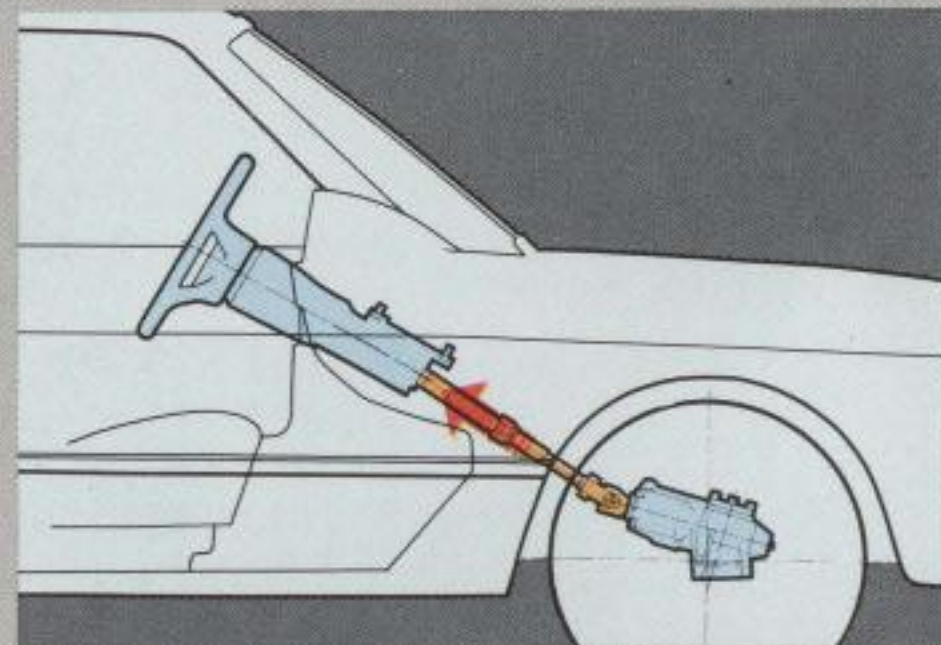
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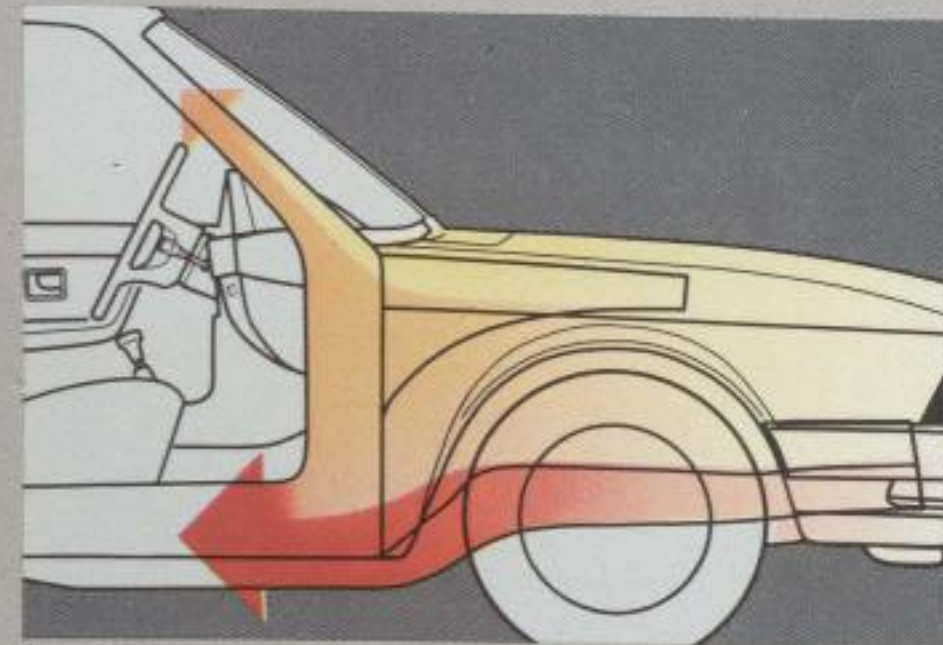
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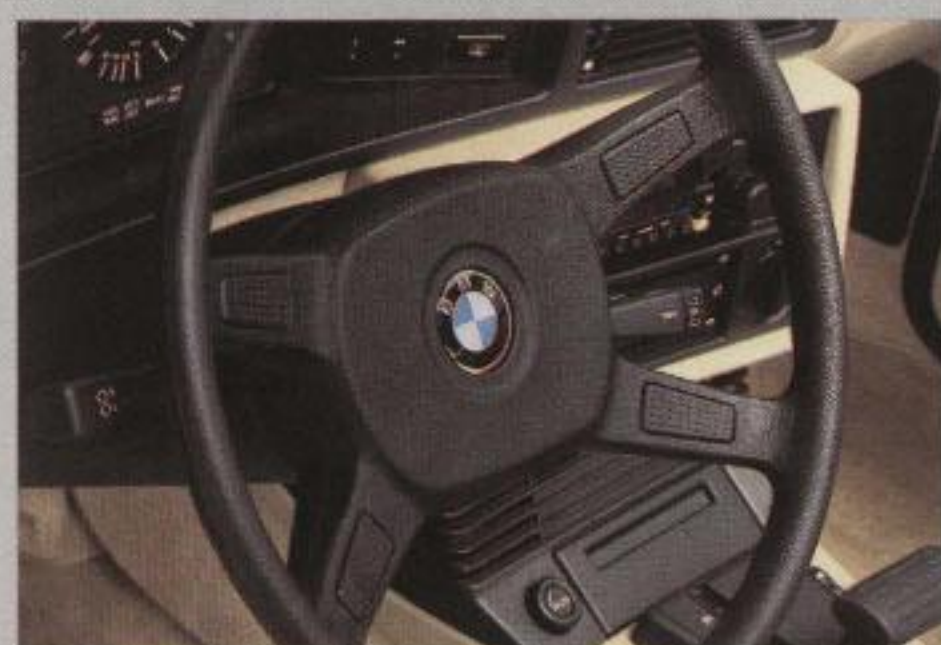
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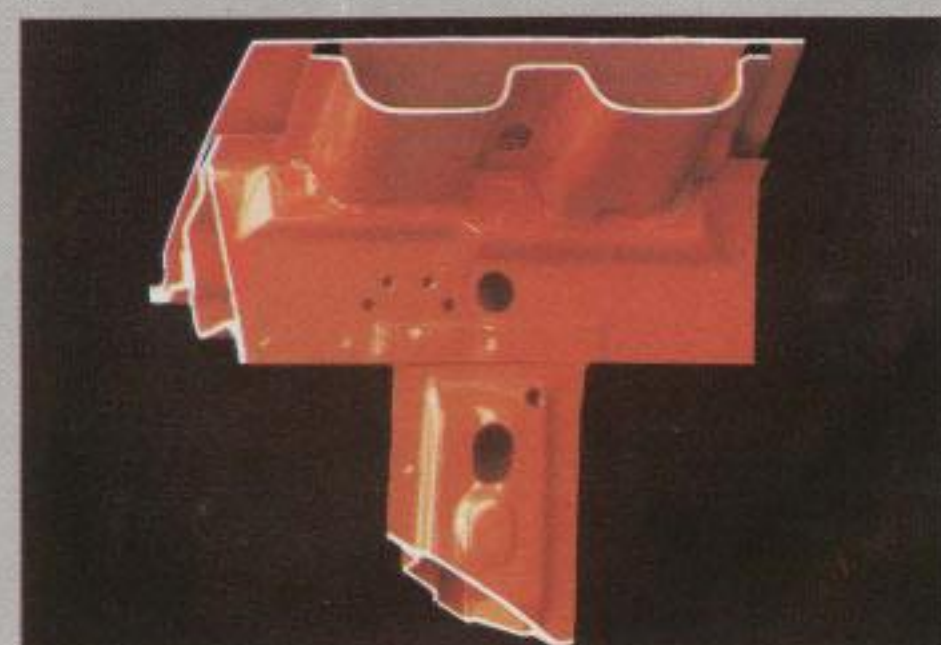
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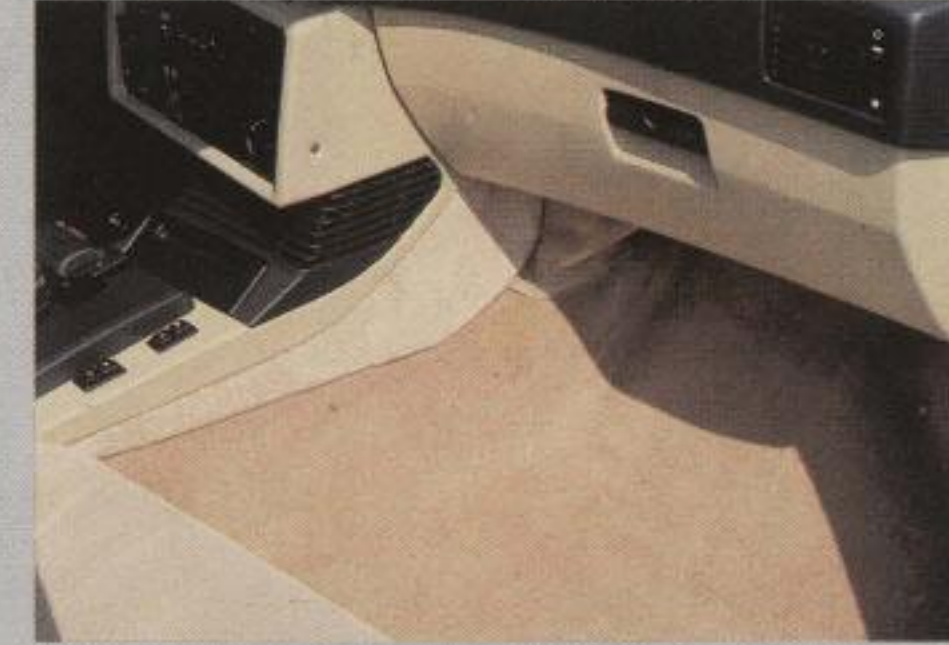
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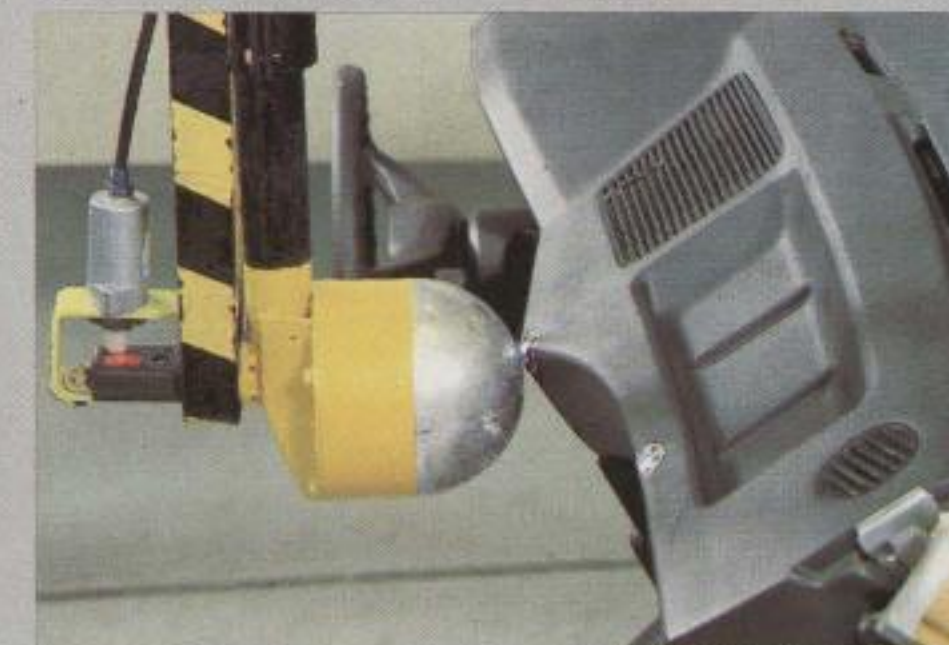
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The BMW is built for roads you'd be wise to avoid in your present luxury sedan.

Unaccountably, many of the world's luxury sedan makers seem to have arrived at the conclusion that the world is one long, flat highway where the driver need excel at nothing more serious than parallel parking.

Inevitably, this attitude has led to a proliferation of luxury sedans that provide a driving experience one automotive expert has described as "... the ultimate act of motoring passivity."

At the Bavarian Motor Works, we have a wholly different approach to building luxury sedans.

The BMW 528e is designed for long trips on high-speed expressways and twisting mountain roads – perfected on the world's most demanding racetracks.

Thus, if you've ever had the suspicion, say, while rounding a particularly tight curve, that you were not truly the master of your machine, you will thoroughly appreciate the road-holding capabilities of the BMW 528e.

Since road-holding and driver control are largely a function of a car's suspension system, it only follows that a superior suspension system will give you better control.

Instead of the solid rear axle systems found in some domestic – and foreign – sedans, the BMW suspension is fully independent on all four wheels.

Exclusive BMW MacPherson struts and eccentrically mounted coil springs for added safety and control in the front and semi-trailing arms and coil springs in the back.

And this, combined with a multi-jointed rear axle, puts a minimum amount of "unsprung" weight on the wheels, and allows each wheel to adapt itself independently to every driving and road condition. With a smoothness and precision that will spoil you for any other car.

The driver is not isolated from the feel of the road.

Research conducted by the University of Freiburg gives dramatic new importance to the kind of steering response designed into your car.

This research concludes that most emergency corrections are not made with conscious thought but by automatic, subconscious reflexes.

And, therefore, that the single most important source of information for

the driver concerning the behavior of his car and the condition of the road is not, as generally supposed, his eyes but rather, his steering wheel.

A conclusion not in the least surprising to the engineers at BMW. (It is axiomatic in motor racing that you cannot win without the utmost driver participation.)

So, rather than deprive the driver of road feel – as do the "dead" steering systems found in many of today's passive, autopiloted luxury sedans – the BMW 528e, with small positive kingpin offset steering, is designed to inform the driver of the functioning parts of the suspension system through the steering wheel itself.

Thus providing him with continuous information, instantly and precisely.

A power-steering system that compensates for different driving conditions.

Power steering that remains constant at all speeds, while convenient for pulling in and out of parking spaces, reduces the vital feel of the suspension for high-speed maneuvering.

In the BMW 528e the servo-assisted steering system is degressively linked to the engine's speed: at slower engine speeds, more power – at higher engine speeds, less.

While the 528e steering system makes parking and maneuvering in city traffic almost effortless, it does not reduce the vital feel of the road so essential to proper control.

A high-performance braking system befitting a high-performance car.

As a result of the specific efficiency of the new axle design, a new braking system, the diagonal twin-circuit system, is possible.

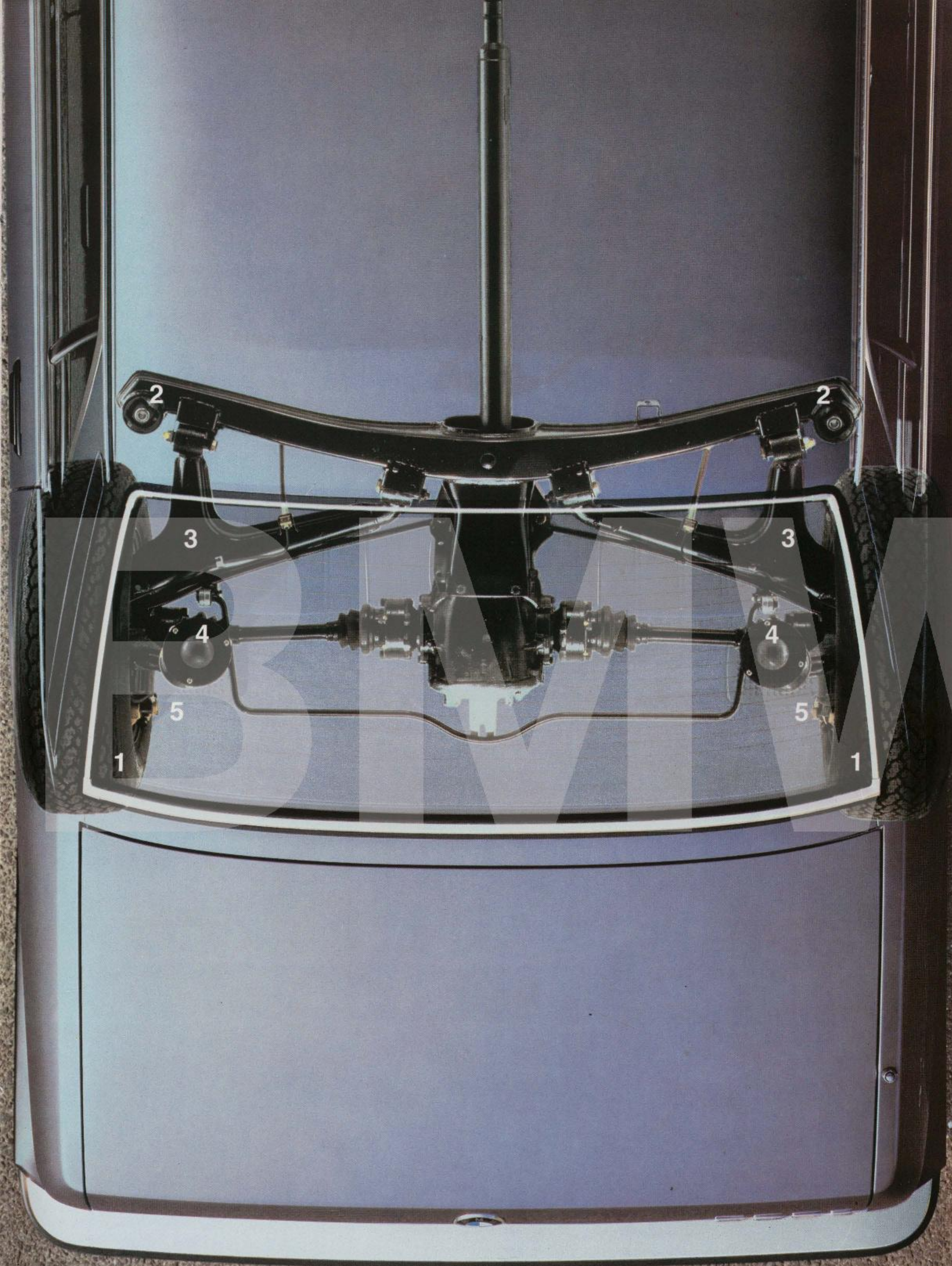
Each BMW 528e comes equipped with a dual twin-circuit, disc-braking system. One system operates in the usual manner on all four wheels.

The "backup" system is capable of providing adequate braking power – actually above the legally prescribed limit – even if the main circuit should fail totally.

Additionally, a sensor fitted into the left front disc brake and rear right brake registers brake lining thickness ... and is connected to a warning light in the instrument panel.







The bodywork design of the BMW 528e satisfies stringent structural requirements. The body is rigid all around and the passenger compartment is welded onto the floor as a torsion-resistant unit. There are no inherent movements in any part of the bodywork that can have any influence on the precise mechanics or the geometry of the vehicle.

1 The mounting and the position of each wheel is aligned on the basis of a predetermined program for each driving or road situation. When driving into a bend, or with a lane change at high speed on a straight road, the suspension transmits high lateral control forces in a well-controlled manner through the optimized wheel geometry.

The wide track and long wheelbase increase both driving comfort and safety.

The BMW 528e is equipped with 195/70 HR 14 steel-belted radial tires mounted on 6 1/2 x 14 BBS light-alloy rims. The wider rims provide better transfer of power to the road surface ... improving road-holding in critical situations.

2 Construction is designed to the last detail to ensure that the driving characteristics and comfort are not subject to any negative influences. In this way, for example, all rubber bushings between the wheel mountings and the bodywork are provided with metal housings with the aim of

minimizing possible tolerances.

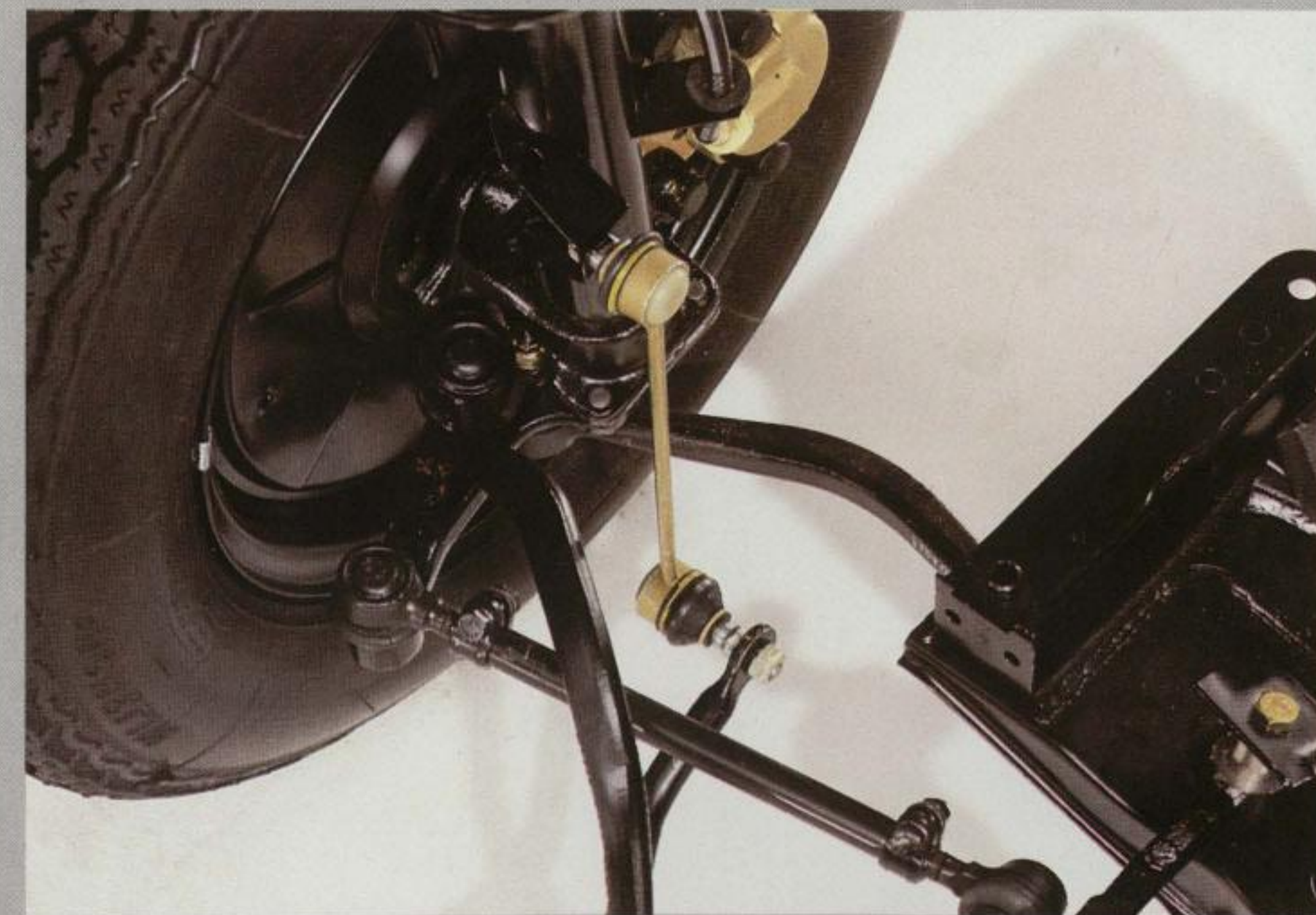
3 The semi-trailing arm rear suspension has an angled offset pivot axis which optimizes travel of the rear wheels, thus preventing major changes in wheel camber and toe-in.

4 The rear spring struts are suspended from the top through rubber thrust bearings. This eliminates any drumming noises when the car is cold and the possible penetration of these into the passenger compartment. The damper pistons are coated with Teflon® for a smoother ride.

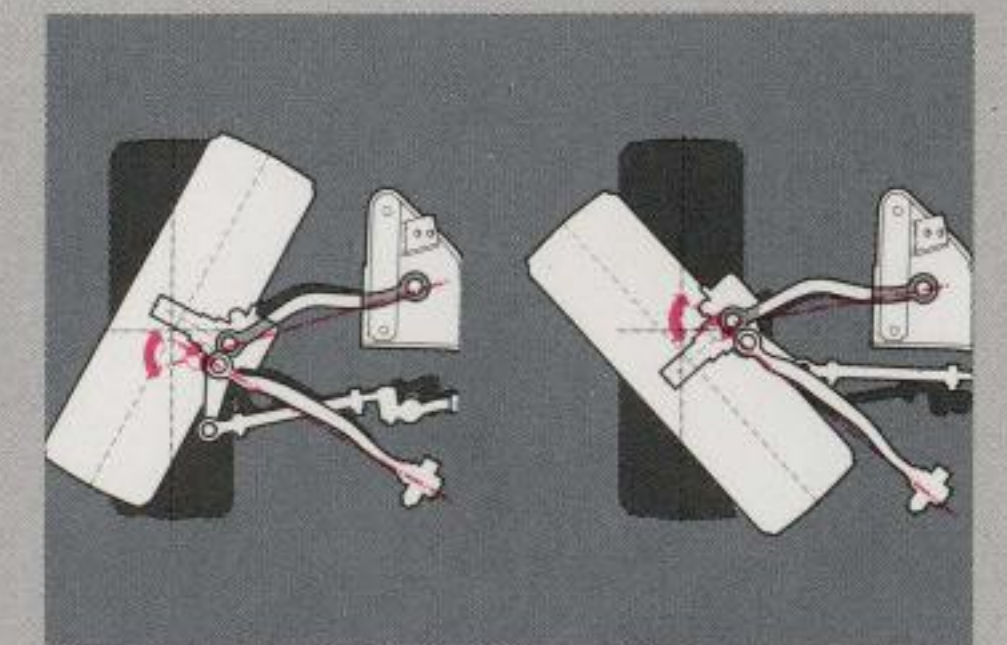
The available suspension travel for the rear axle has been increased in order to improve the standard of comfort and to prevent excessive squat of the vehicle tail under load.

5 The braking system, in conjunction with the new axle kinematics, is appropriate for the performance of the vehicle and makes full use of the superior suspension design. The diagonal twin-circuit system ensures that even if one braking circuit fails, the full braking effect is felt on one front wheel and on the diagonally opposed rear wheel, thereby helping to prevent skidding.

The BMW 528e is fitted with disc brakes (front discs are ventilated Fig. 3), the performance of which has been optimized using special computer programs for the simulation of thermal stresses in all situations. All brake-lines are protected by coating against corrosion.



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## BMW. The exception to the law of diminishing returns.

In the final analysis, the value of any car is determined by the price it brings on the used-car market.

For here – scrutinized by buyer and seller alike – is where the final vote of

confidence on an automobile's finish, quality, durability and design takes place.

And while we cannot guarantee what your BMW will bring on the open market several years hence, it is currently not unusual for a 5 Series BMW to retain a considerably higher percentage of its original purchase price than other cars in its category.

How do we account for this remarkable difference?

Admittedly, all expensive, imported automobiles feature an impressive list of sophisticated mechanical refinements.

Most have some sort of independent suspension system.

Most have fuel-injected engines. All are designed with more than a perfunctory nod to aerodynamics and functionality.

Yet, write the editors of *Motor Trend* magazine, "...once a knowledgeable

and experienced driver has driven a BMW, any BMW, nothing else feels quite as good as it did before."

The reason for this is not complex. The BMW 528e is far more than a collection of gears and axles and random parts.

It is a finely tuned, evolutionary machine. A practical sedan built by racing engineers and perfected on the great racetracks of the world, where precision is crucial and agility,

durability, and efficiency are more than just matters of theoretical speculation.

Its suspension – independent on all four wheels – is quick and clean through the corners; its steering is sharp and accurate.

Its five-speed manual transmission (automatic is optionally available) slips precisely into each gear. And its acceleration comes up smoothly, with the turbine-like whine so charac-

teristic of the 2.7-liter BMW engine.

Its rigid body construction – welded to the chassis to form one distortion-proof unit – allows the suspension system to function optimally; it makes inherent body movements that adversely influence precision all but impossible.

Look at it this way:

In the final analysis, a BMW may just be worth more used, because it's worth more new.



**Computers, lasers and robots:  
For Precision. Not Speed.**

At the Bavarian Motor Works, genuine quality represents much more than a vehicle's finish, paint and reliability. It comprises the quality of the underlying concept, the production line and the people who build BMWs. The original development of our cars, their design and production. And BMW quality always means active quality – quality orientated to a specific function, quality that serves only practical objectives.

With BMW, a higher standard of quality is not only the result of a long production process, but rather an ingredient that goes into our cars from the very beginning.

In addition to the meticulous production process, the careful finish and the very thorough inspections, the comprehensive BMW quality system is also based on a design and development concept that excludes possible deficiencies from the very beginning.

However, even the best concept and design will not be of any use without a correspondingly high standard of production quality. And it is to ensure such quality that BMW is making very major investments: From 1980 to 1984, for example, BMW plans to invest almost 2 billion dollars in new plants and refined facilities. A lot of this money will be invested in ultra-modern production facilities, such as additional robot welding lines (1-4).

Our new Aerothermal Test Centre is another example of BMW's continuous quest for an even higher standard of quality which is then put to the test at conditions far tougher than will ever occur in practice. This facility, one of the most modern of its kind



throughout Europe, allows us not only to solve every conceivable aerodynamic problem, but also to create all kinds of testing conditions: In the air-conditioned wind tunnel and the low-temperature chamber, for example, we can simulate a 75-mph snow storm in the middle of summer in order to test the function, efficiency and reliability of various units and components.

The quality of dimensions = the dimensions of quality.

The quality of any production process depends largely on the efficiency of the manufacturer in ensuring accurate dimensions with minimum tolerances. And this makes it essential to use sophisticated, complicated gauges and measuring systems that guarantee the accuracy required. Because only genuine production accuracy can provide the high standard of quality purchasers rightly expect of BMW.

To meet this demand, BMW has made substantial investments in recent years in an extremely refined and sophisticated system of measuring machines and instruments. An example is the fully-electronic coordinate measuring system shown here, which allows us to measure each end of the body to an accuracy of +/- 0.03 mm (10).

BMW quality-carried through to the smallest detail.

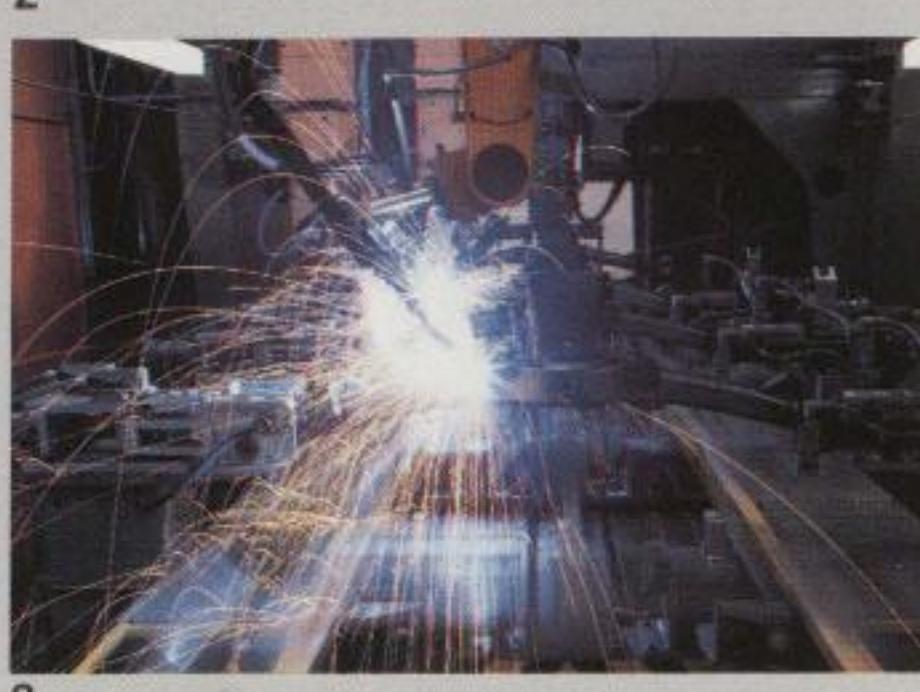
Each BMW's performance and handling characteristics set them apart from ordinary cars. This is attributable not only to the perfectly designed, high-quality chassis, but also to our high standard of production accuracy constantly verified by the most stringent tests and examinations. On every BMW, for example, the chassis geometry must be correctly aligned down to the last 10th of a millimetre. To guarantee this accuracy, all chassis elements are therefore checked not only once, but numerous times, in order to exclude even the smallest deviations from the required dimensions.

As soon as the body of a BMW leaves the automatic floor assembly welding line, it is checked from top to bottom by two control units. The first unit holds the body in position and swivels it round as required, the second

unit checks the accuracy of the axle supports – which ensures that all chassis elements are built accurately according to the necessary standards. This commitment is really taken very seriously: The front and rear axle supports must run exactly parallel with a maximum permissible tolerance of not more than +/- 7/10ths of a millimetre.

To maintain this high standard of accuracy, BMW has not only highly skilled, quality-conscious engineers, but also the most modern production machinery. And naturally, we also have the test units required to constantly monitor this machinery.

This machinery supervision is a particularly advanced feature of the BMW quality control system – a comprehensive, computerized system designed to reliably monitor the function of our most important





machine tools.

To ensure a supreme standard of quality, our sophisticated testing machinery checks not only the exterior dimensions of our cars, but also the interior structure and quality of all important parts. Here again, therefore, BMW uses the most modern testing procedures and equipment. In particular the parts and components that convey the power of the engine have to meet extreme quality requirements.

Computerization makes quality a standard feature of all BMW cars.

BMW cars represent the latest state of the art in automotive engineering. They are complex technical systems created with the knowledge of experienced engineers and maintained at the highest standard of optimum quality by analyses performed with the help of

modern data processing equipment. The concept of Computer Aided Design (CAD) provides the basis for the development: With this method, individual components and, eventually, the entire body can be displayed, varied and optimized on the screen using the data provided by three-dimensional models. Even in the initial conception phase, CAD allows our engineers to compare a large number of different possibilities and then to select the optimum solution.

In the subsequent design and calculation phase, BMW's engineers once again have the support of electronic data processing. The planned use of highly stable deep-drawn plate is only possible with the help of mathematical calculation procedures only a computer is able to handle. Applying the Finite Element Method (FEM), BMW's engineers theoretically subdivide the entire body into lines, areas and spatial

elements and are therefore able to calculate force and tension curves even in large areas with a very high degree of accuracy.

Another example of how design quality can be further improved with the help of ultra-modern electronic procedures is the so-called modal analysis, a method which serves to describe the dynamic properties of vibration systems: With this method, the vibrating structures of individual elements are displayed on the screen of a computer. With this data, our engineers are then able to develop solutions that eliminate vibration and noise problems.

Yet another example of the great lengths BMW goes in order to improve our standard of quality, is the use of holography for preventing body vibration and noise. BMW is one of the very few car manufacturers worldwide that apply this very expensive laser

technology with a double-impulse camera to solve the extremely complicated problems of reducing weight and, at the same time, minimizing the noise level in the car.

Preservation of BMW's high standard of high quality.

Maintaining a high standard of quality throughout a long running life is not just a matter of preserving your car's good looks. It also serves to ensure a high standard of lasting safety – because in the event of a collision only metal sheet structures that still have their original stability will provide the desired effect. A corroded support element, for example, does not really deserve its name any more.

BMW therefore applies a special paint application procedure in a phosphate bath in order to efficiently protect the body.

1/2 The body is manufactured by automatic welding machines that connect and weld the floor assembly, side panels, roof, front and rear sections. In all, several hundred welding points hold together the individual parts of the body with absolute precision and optimum rigidity. The quality of each individual point is checked automatically.

3/4/5 To ensure utmost precision, robot welding lines weld all the seams on the rear axle support fully automatically and with a consistent standard of accuracy of  $\pm 0.15$  mm.

6 Following production, each crankshaft is checked by an automatic measuring machine which measures 72 different dimensions fully automatically with a degree of accuracy of 1/1000th mm. If only one of these dimensions lies outside the predetermined tolerance limit, the crankshaft is automatically rejected.

7 The programmable coordinate measuring machine measures the crankshafts with an accuracy of 1/10,000th mm. This machine is used in spot checks to supervise the automatic measuring machine and to optimize quality in the introduction of new manufacturing technologies.

8/9 A three-coordinate measuring machine is used for spot checking each batch of steering stub axles, which are measured thoroughly with an accuracy of 0.2 microns. Subsequently, the stub axles are tested for hardness. The strength ratings

measured in these tests are up to 10 times the minimum strength required.

10/12 To supervise possible wear of pressing tools and automatic welding machines – and thus to ensure a consistent standard of quality – individual car bodies are checked at certain intervals by a large-scale computerized measuring system. This guarantees a degree of accuracy of  $\pm 0.03$  mm.

11 The paintwork is applied in a special dip bath: The cathodic electrical dip bath applies a smooth 20-micron layer of primer on the cleaned body, reaching all corners and hollow cavities. The absolute reliability provided by this system is the basis for the BMW anti-corrosion warranty.

13/large photo BMW uses ultra-modern production technologies. A robot called "Baptist", for example, applies the welding spots on the door cut-outs with a standard of accuracy that a human being could never achieve.

14/16 (next page) To ensure the highest standard of quality, BMW carefully selects the best material that is then processed with utmost precision – in many cases in the "classical" way by skilled craftsmen.

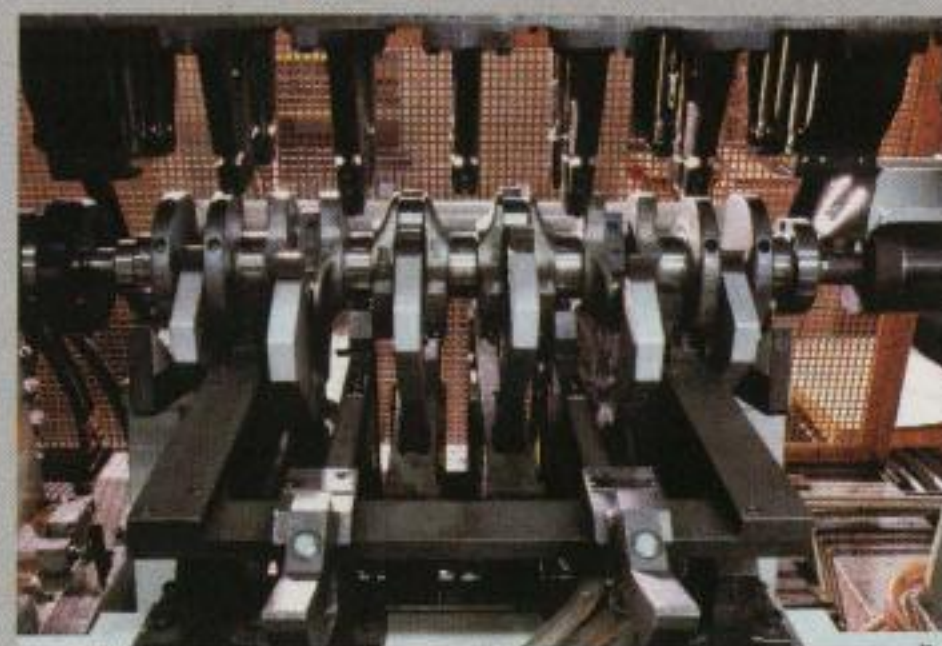
15 Ultra-modern testers and other units, such as a scanner electron microscope, are used for thorough tests and examinations.



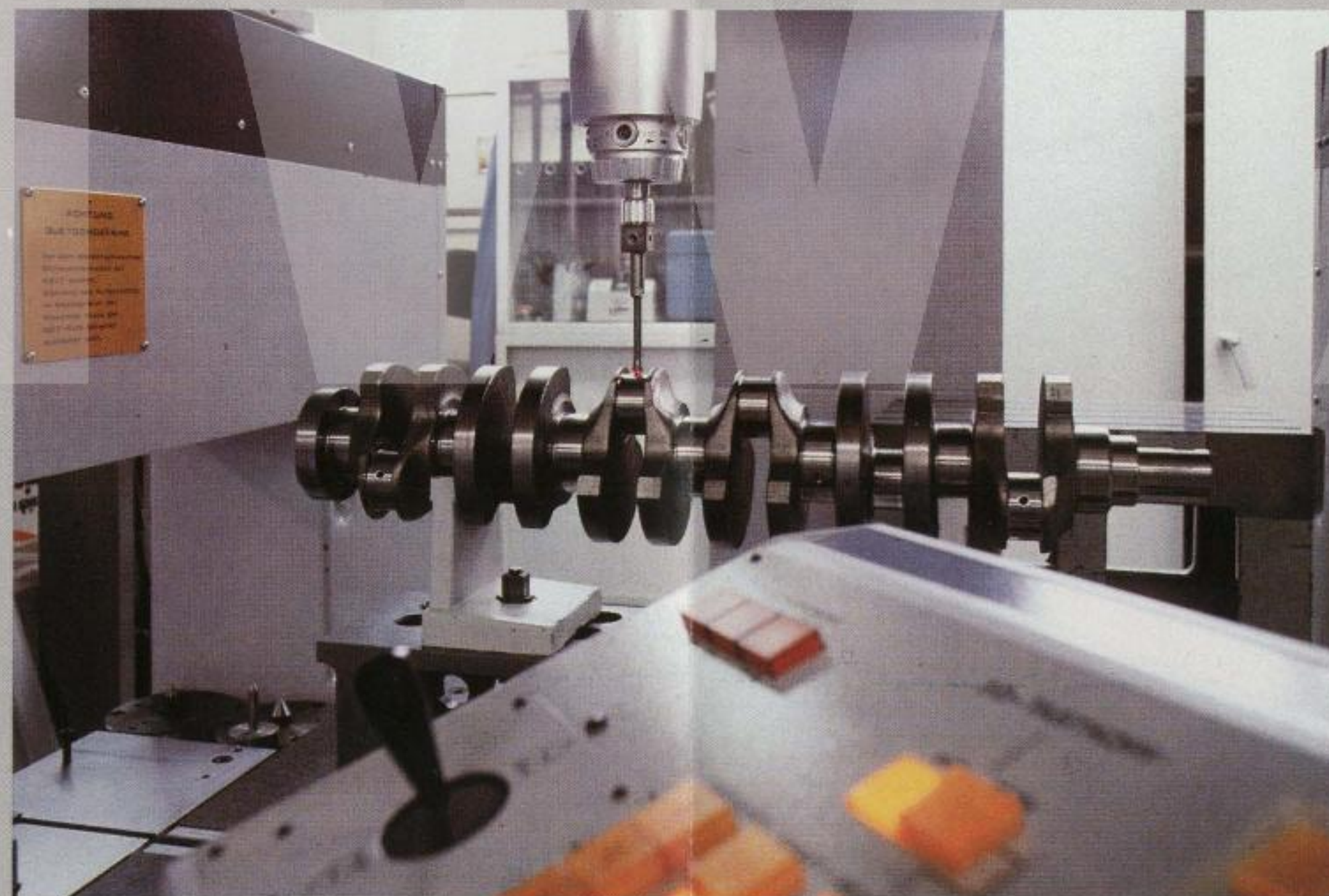
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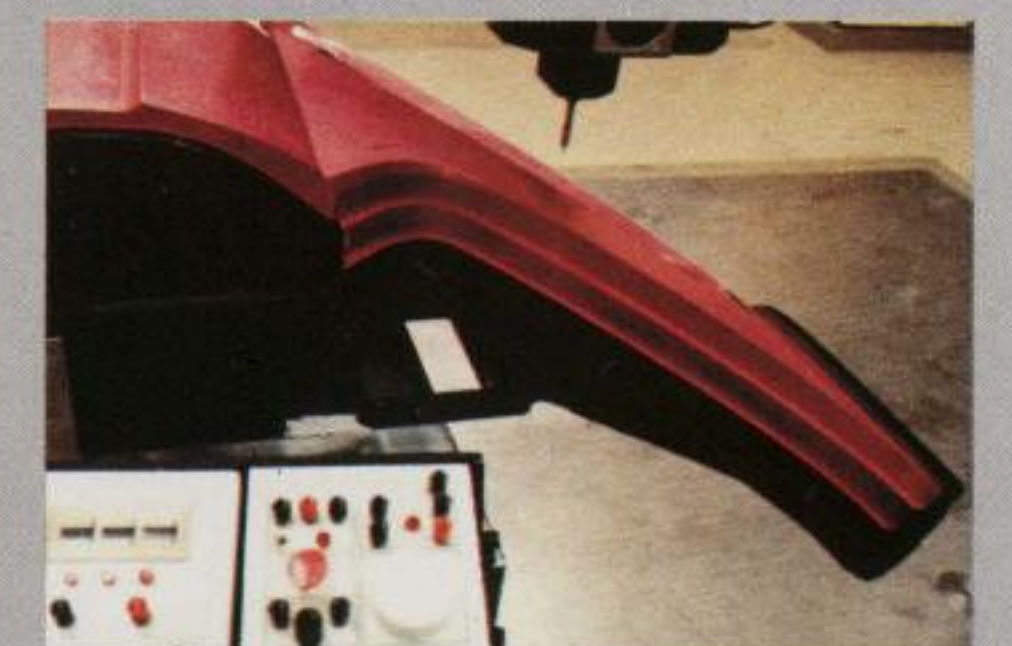
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## A dedication to quality that is Germanic to the nth degree.

And there must still be people who are willing to pay for that quality.

With this in mind, each BMW 528e is subject to the most severe scrutiny and testing on the assembly line.

To insure that each BMW will handle and perform in the same, predictable manner, each and every chassis is measured and correctly aligned to within a tenth of a millimeter.

The front and rear axle supports are painstakingly measured to be no more than seven-tenths of a millimeter out of parallel.

At the beginning of the painting process, each car is subject to a cathode dip bath that stifles rust and corrosion – not merely on the exposed surfaces, but in the hollow nooks and crannies where corrosion can reduce the reliability of critical support elements. Naturally, every BMW is under-coated.

And at the end of every assembly line, the car is not only subject to

rigorous road testing, but also an electronic analysis that tests the entire electrical system.

A car as meticulously crafted as the 528e deserves to be meticulously maintained.

At BMW, we take the concept of service as seriously as we take our cars themselves.

BMW service technicians have to earn their title through rigorous training. Consequently, they will have worked on many BMW's before they so much as touch your 528e.

They will be thoroughly familiar with all aspects of the car, since they maintain their knowledge with yearly updates and ongoing courses at a BMW training center.

They have tools specifically designed for BMW's and available only through authorized dealers.

BMW service and genuine parts are available coast to coast in the United States – and in over 100 countries around the world.

When was the last time you actually looked forward to driving?

There is an obsolescence built into most cars – and particularly most small, practical family sedans – that has nothing to do with the way they're built.

It's called boredom and it has to do with the way they drive.

Most cars simply are not built to perform in such a way that driving becomes something to be enjoyed – not merely an uninspired means of getting from one place to another.

The BMW 528e, on the other hand, is built to make even the most mundane errand more enjoyable.

It is an automobile built by racing engineers who could not bear to drive a boring car, let alone build one. Gentlemen, who are absolutely unwavering in their adherence to the basic BMW philosophy that extraordinary performance and brilliant engineering, are the only things that make an expensive car worth the money.

And the result? "The reaction to a BMW is always the same," say the editors of *Motor Trend* magazine. "The first-time driver takes the wheel and after a few miles no other automobile like this will ever be quite as good again".

## BMW Motorsports: The ultimate testing ground.

Can this not be achieved equally as well on the test track or in a controlled laboratory experiment?

To be blunt, no.

From the non-competitive vacuum of the test track and the laboratory come cars that are predictably non-competitive.

In racing, cars are prepared before a race and kept going during a race in unusual and often unfavorable conditions.

And from this energy-charged situation, one that demands the greatest individual and team skills and enthusiasm, come answers to engineering questions that could not be solved in a normal working life.

A heritage of high-performance engineering.

The white and blue BMW emblem has always been synonymous

with innovative high-performance engineering.

Since the beginning, the engineers of the Bavarian Motor Works have concentrated on building the finest high-performance machine it is physically and technically possible to build.

In 1919 a BMW airplane engine set the world's high-altitude record.

A BMW engine powered the first jet aircraft.

BMW motorcycles are universally acknowledged to be among the finest ever built.

And BMW race cars have scored endless victories on the great racing circuits of the world.

It is this single-minded dedication to technical excellence that explains the obsessive purity, the functional elegance and the unique harmony of performance, safety and comfort evident in all BMW automobiles – and optimized in the BMW 528e.

Words like sporting, progressive, successful, high performance, engineering and integrity come immediately to mind when one hears the name BMW.

But why?

Certainly the answer lies in the remarkable character of BMW cars themselves and their extraordinary record on the racetracks of the world.

Yet even that does not completely give the full answer.

At another level, and a less superficial one at that, is an attitude. A spirit. The belief that nothing of superior caliber is possible without a deep commitment to excellence.

The motivation, the dream, if you will, to meet the competition and rise to new heights.

We at the Bavarian Motor Works believe it is this spirit that separates us from many other automobile manufacturers.

### The challenge of the racetrack.

To the engineers at the Bavarian Motor Works, racing is not merely sport. Not simply a way to accumulate trophies, prizes and glory, though all of these have been earned by BMW in prodigious quantities.

It is seen instead as a test.

A yardstick by which the ability of our engineers to solve the most demanding technological and organizational problems can be measured. A proof of competence, to ourselves and others.



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A car perfected  
on the world's great racing  
circuits.



# Technical Data BMW 528e

## Dimensions and Weights

Four-door sedan with rigid steel safety cell passenger compartment and crush zones front and rear. Length: 188.4". Width: 66.9". Height (unloaded): 55.7". Wheelbase: 103.3". Track front: 56.3", rear: 57.9". Turning circle diameter (curb-to-curb) 32.8 ft. Front door cutouts: 39.4" Rear door cutouts: 34.3". Two front bucket seats: 24.4" wide each. Rear bench seat: 54.3". Width at shoulder height: front 54.3", rear 53.7".

Trunk capacity: approx. 22.6 cu. ft. Fuel tank capacity: approx. 16.6 U.S. gal. including 1.6 U.S. gal. reserve.

GVWR 3960 lbs.

GAWR front 1860 lbs.  
rear 2120 lbs.

Service load 970 lbs.

## Engine, Power, Transmission, Performance

Six-cylinder four-stroke in-line, water-cooled engine, longitudinally mounted and inclined, light alloy cylinder head, crossflow principle, hemispherical swirl-action combustion chambers, overhead camshaft with four bearings, inclined overhead valves in V-arrangement, toothed belt drive, vibration dampened crankshaft with seven main bearings and twelve counterbalance weights, pressure oil circulation, full-flow oil filter with regulation valve; viscous speed-related fan drive with thermostat control circuit. Bosch L-Jetronic fuel injection, 3-way catalyst with Lambda sensor controlled by Digital Motor Electronics (Motronic).

Capacity	2693 cc/164.3 cu. in.
Stroke	3.189"
Bore	3.307"
Power	121 hp (SAE net) at 4250 rpm
Torque	170 ft. lb. (SAE) at 3250 rpm
Compression ratio	9.0:1

Breakerless ignition system controlled by DME. Three-phase current alternator - 64 Amp, 910 Watt.

Battery - 12 Volt, 55 Amp hrs.

Hydraulically actuated single-plate dry clutch, torsional dampers and automatic adjustment. Optional automatic transmission: fluid clutch with torque converter. Cruise control is standard.

Gearbox:

a. Manual transmission 5-speed overdrive  
I 3.822 II 2.202 III 1.398 IV 1.0 V 0.813 R 3.705

b. Automatic transmission 3-speed (optional equipment)  
I 2.478 II 1.478 III 1.0 R 2.090

Final drive ratio 2.93:1 (hypoid gears)

Two-piece drive shaft with flexibly mounted central bearing and two universal joints; rear-wheel drive through double universal joint shafts with maintenance-free constant velocity joints.

Acceleration: 0-50 mph in 6.6 sec., manual transmission

Unleaded gasoline: 91 RON (87 AKI)

## Chassis and Brakes

Front-wheel suspension: independent with double-pivot strut, virtual steer axis with small positive kingpin offset, eccentrically mounted coil springs to reduce binding under load, roll stabilizer, urethane bump rubbers.

Rear wheel suspension: independent semi-trailing arms with helical springs and torsion bar stabilizer. Sports-tuned suspension.

Collapsible safety steering column, hydraulic speed related power-assisted steering system, three-part track rod. Overall ratio 16.2:1.

Light alloy rims: 6.5 x 14

Steel-belted radial tires: 195/70 x 14

Dual-circuit diagonal power braking system with servo unit and rear axle brake pressure regulating device. Sensor for brake lining wear indicator front left and right rear.

Front: ventilated single-piston floating caliper disc brakes with automatic adjustment, diameter 11.8"

Rear: floating-caliper disc brakes with automatic adjustment, diameter 11.8"

Mechanically operated handbrake - diameter 7.1" with self-servo shoes acting on rear wheels.

## Equipment

Exterior: Energy-absorbing bumpers with rubber moldings, mounted on hydraulic shock absorbers. Quad headlights with halogen high beams and ignition override, two back-up lights, rear window defroster, electrically controlled outside rearview mirror for both sides. Electric windows front and rear. Tinted glass all around with dark green border on top of windshield, chromeplated exhaust pipe tip. Central electric locking system for all four doors, gas filler flap and trunk lid. Choice of metallic or non-metallic paints. Foglights. Cavity seal, undercoating.

Heating and Ventilation: Air conditioning, fresh-air heater featuring low noise three-speed blower, electronic temperature setting for passenger compartment, defroster for windshield and side windows. Fresh air intake through individual adjustable grills at the side and in the center, with separate adjustment for driver and front seat passenger side, warm air outlets for rear seat passengers, illuminated heating controls, flow-through ventilation.

Interior: Instrument panel features speedometer, odometer and trip recorder, tachometer, fuel and temperature gauges, fuel economy indicator. Active Check/Control with warning lights for brake lights, rear lights, low beam lights, washer fluid level, engine oil level, coolant level and license plate lights. Infinitely adjustable orange lighted instrument panel.

Stalk controls for high beams and headlight flashers, cruise control, automatic windshield wiper/washer system with intermittent operation and two-speed wiper. Cigarette lighter, digital clock on dashboard. Interior lighting controlled by four-door-mounted contacts. Warning light for "Fasten Seat Belts," Oxygen Sensor Service. AM/FM Stereo Cassette Radio with automatic antenna and four speakers.

Reclining molded front seats, driver's seat with adjustable height and inclination, armrests on doors with integrated hand grips in front. Hand grips over doors for rear seat passengers. Center fold-down armrest. Three-point automatic seat belts, belt latches attached to front seat bases, recessed reel in front door post. Three-point automatic seat belts in rear, two-point automatic seat belt in the middle. Headrests with adjustable height and inclination in front. Four-spoke padded steering wheel with safety impact pad and four horn contacts. Door locks with safety wedges, childproof safety locks on rear doors. Storage in lockable (and lighted) glove compartment (with socket for rechargeable flashlight [optional]). Additional storage pockets on the front doors. Anti-glare rearview mirror. Illuminated ashtray in front, two ashtrays in rear.

Full carpeting, cloth upholstery. Carpeted luggage compartment. Deluxe tool kit in trunk lid.

## Optional Equipment

Automatic transmission with dashboard shift indicator panel, dual position steel sunroof (electrically operated), leather upholstery, limited slip differential.

GVWR = gross vehicle weight rating  
GAWR = gross axle weight rating

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Montvale, N.J. 07645

Alternations in models, standard and optional equipment, as described in the text and illustrations, may occur. Precise information should be obtained from your BMW dealer.



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