

**728
730 733i**





**The new, large BMWs:
A new approach to driving in the maximum
comfort class.**

BMW cars are regarded internationally as belonging to that small group of alternatives which is considered when the choice of a car is determined by stringent criteria. But unlike other manufacturers, who devote a considerable amount of technical expenditure, in an almost uniformly passive approach, on transporting a person as comfortably as possible from one place to another, BMW owes its market position to a variety of driver-orientated, sporting-dynamic, high performance cars. With the new, large 7-series BMWs, we have now taken a decisive step from this base into the automobile future. We have combined traditional BMW advantages with characteristics that were previously only found in a few luxury cars. From

this combination, cars have been developed that represent a new and incomparable alternative.

These new, large BMWs are intended as an alternative choice for those buyers who prefer the level of comfort provided by top-quality cars, but do not agree that cars in this category need necessarily have the appearance of being heavy, grandiose and pretentious. In fact, these BMWs are for drivers who regard a high level of dynamic driving features and sportiness as a pre-condition of exclusiveness. In this way, they represent a genuine alternative, which will make it very difficult for other sporting drivers to avoid joining the BMW "club".

**Superior independence
in three versions:
the new, large BMWs.**

The new, large BMWs are available in three versions: BMW 728, 730 and 733i. With power units ranging from 2.8 to 3.3 litres. From 125 kw (170 BHP) and 135 kw (184 BHP) to 145 kw (197 BHP).





Optional extra: light metal alloy rims



It was not necessary to build a better car in the top-class category – but rather a different one.

We have constructed the new, large BMWs in such a way that – from the point of view of driving comfort, equipment and space – they can hardly be distinguished from other top-class cars. But at the same time, they



are so distinctive that they cannot be overlooked.

Despite the increased dimensions essential for the additional space and comfort, the new, large BMWs reveal their distinctive BMW character: they appear

to be more compact than cars of a comparable size in the international comfort category. Their styling is practical, and their elegance is derived from a masterly reserve and a clear, functional form.

The large BMWs: The alternative choice.

Of particular importance in the new, large BMWs is the experience of driving in a top-class car: the combination of maximum comfort with a degree of mobility and flexibility that has so far been evident only in much more compact, high-performance cars. Characteristics, therefore, that enable these maximum-comfort cars to move more safely and more positively in increasingly heavy traffic, particularly in city centres.

It is the traffic itself that dictates the necessity for this new and dynamic concept in the luxury-car category. For even the most comfortable and the most exclusive cars must be subject to the rules of the road. And this they can be when man and machine work hand-in-hand to achieve maximum efficiency. For this reason, the new, large BMWs are equipped to make driving and being driven extremely comfortable, combined with a unique system of structural features, thereby ensuring optimum adaptation of the car to its driver.

The result is a spontaneous feeling of confidence and harmony with the vehicle, which leads to a masterly control of the vehicle and a new level of self-confidence at the steering wheel.

The large BMWs are therefore not only a suitable alternative for dynamic and ambitious drivers. They are also the optimum choice for those who cultivate an intelligent and rational relationship with their cars, and who have developed a discerning approach to new and practical ideas on the design of luxury cars.

The styling of the large BMWs.

The large BMWs have an unmistakeable, aesthetic form which is not an end in itself, but the result of functional design. The extended, clean-cut lines and a harmonious balance of bodywork and glass, provide an overall impression that is both timelessly elegant and modestly simple.

Balanced proportions, a gently sloping low line, large windows and the swung outline of the roof characterise the side view. The bumpers are covered with wide rubber protecting strips which extend along the side of the vehicle. At the rear, a special buckling element rounds off the rear bumper.

A new dimension in durability and value maintenance: design quality.

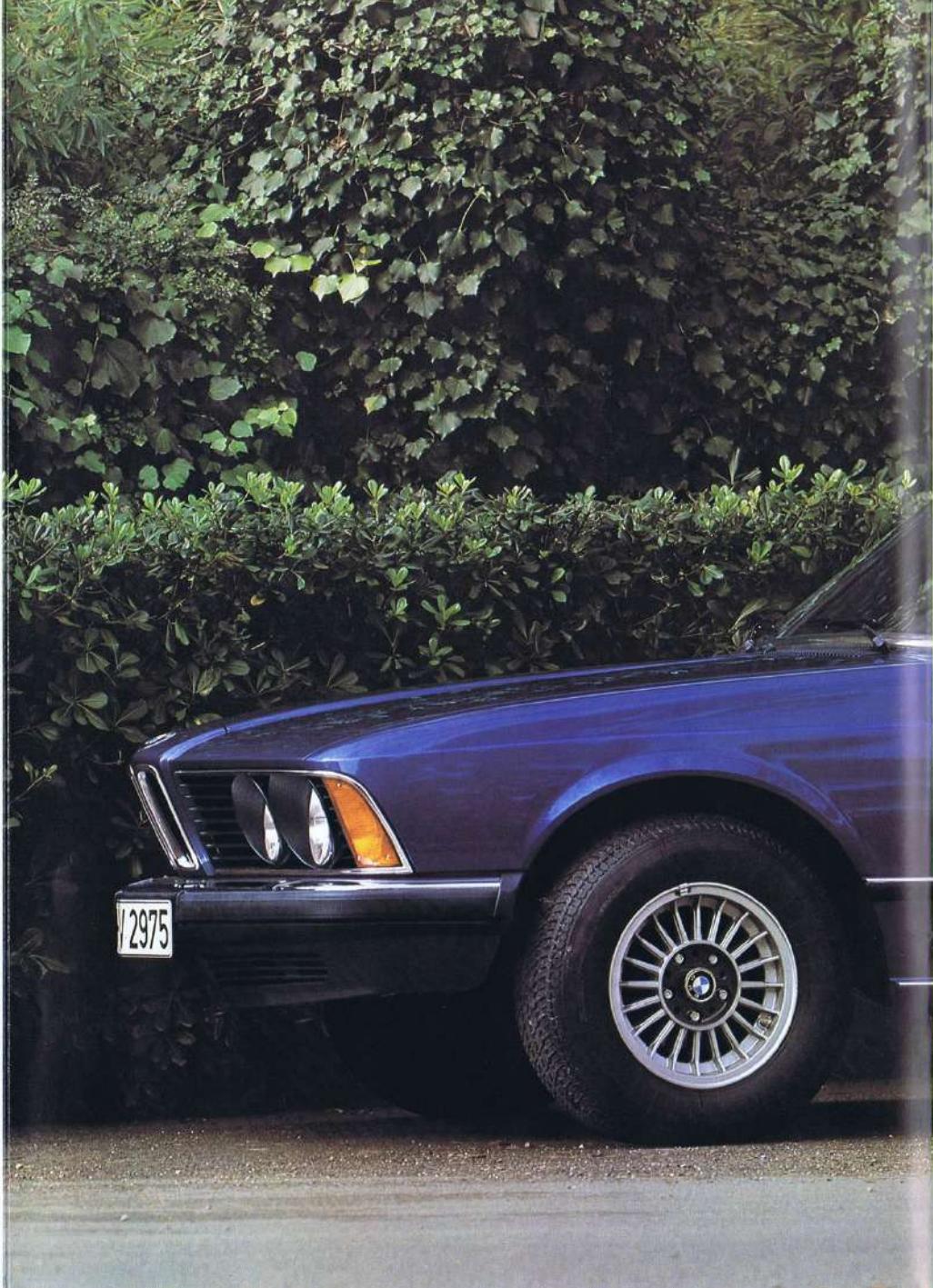
The development of the new, large BMWs includes the positive rethinking of all design details of all previous larger BMW models, with the aim of overall qualitative improvements. The extremely high quality standards reached are also the result of an independent approach to automobile quality.

This new quality goes far beyond the finish on the new, large BMWs. It goes right back to the initial design stage. Backed by almost perfect manufacture, careful finish and a high level of quality control, the quality is firmly grounded on the meticulous work done at the planning and development stage.

Not least, the visual elegance of the new, large BMWs is also attributable to the outstanding paint finish. This provides an ele-

gance that lasts, due to the careful research into corrosion protection carried out by BMW. The chassis is covered with a corrosion resistant primer in the electro-phoretic bath, and then given a number of coatings of stove enamelled paint. Careful underbody sealing, and the BMW system of hollow cavity protection which penetrates the furthest corners, contribute to guaranteeing the durability and value maintenance of BMW cars.

All BMW cars carry a six-year guarantee of freedom from corrosion for all parts that have been treated with Tectyl corrosion protection. After intervals of 14 months and 36 months (from initial registration), inspection with renovation where necessary is stipulated. The low cost of this procedure is well worth while in terms of car life.





Optional extra: light metal alloy rims

Unobtrusive elegance and conspicuous practicality in a harmonious fusion:
the form and function of every part of the bodywork show that the
thinking stage preceded the design stage – and not vice versa.



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The front of the new, large BMWs is characterised by two pairs of headlights (1). The larger dipped headlights provide a higher lighting level and a more intensive illumination.

The detail design of the front roof pillars, with special wind de-

flectors and the aerodynamic integration of the outside wing mirror, ensures reduced wind noise and splash-free side windows (2). There is a wing mirror on the driver's side controlled electrically from the vehicle interior, which is supplied as standard.

The rear part of the vehicle is clearly defined, with large lamps to ensure that the vehicle is perfectly visible at night (3).

The upper parts of the front and rear bumpers (5) are chromium plated, while the lower parts are covered with a wide

rubber strip.

At the front, a fully regeneratable apron, in deformable, corrosion-resistant and tear-resistant plastic material, is fitted in the form of an integrated spoiler. This has the effect of reducing the upward thrust of the front

axle, improving thereby the track and steering behaviour even further, and also of reducing the coefficient of air resistance (4).

Light alloy sports rims, available as an optional extra, result in a further reduction of the unsprung weight, and impro-

ve still more the outstanding roadholding of the vehicle. Furthermore, the turbine effect of these wheels contributes to improved ventilation of the disc brakes (6).



The new, large BMWs do not differ so much from other luxury cars in the world in what they actually offer – but rather in the manner in which it is offered.

The limited number of manufacturers in the world today who specialise in luxury cars, and who spend a considerable amount of money on research to improve their already outstanding designs, have roughly the same level of knowledge and have access to the same technical facilities. The fact that the

end products are not always the same may well be due to the different circle of customers and the different assessment of the part played by the driver in the man/machine system.

BMW cars have always been preferred by drivers who impose high conditions on the dynamic performance of a car. BMW

regards the driver as the decisive component of this system, and concentrates therefore on research as to how the car can best be adapted to the driver. The new, large BMWs also rely on the most up-to-date knowledge of safety research. All solutions are based both on the need for uninhibited contact with

the environment and on positive support and relaxation for the driver.

The exceptionally high level of expenditure made to ensure optimum safety for the driver, the maintenance of his well-being, and the provision of his comfort, are proof of our view that the possible should be considered

as necessary in the interplay of man and machine.

Climb in. You will be able to verify the results of these aims after only a few miles in the BMW cockpit.

A new concept in the man machine system: this is yet another difference between a BMW and other high-quality cars.

For BMW, the driver is the focal point and also the object of all technological research. Every detail is carefully aimed at making his task easier.

However, this support is not meant, in even the most comfortable of the BMW range, to result in the over-automation and systematic passivation of the driver. For one of the more serious problems encountered in driving is monotony. This is particularly dangerous, because it usually occurs very gradually and unobtrusively. If the stimuli that provoke the driver to a state of awareness weaken as a result of excessive detachment from his immediate environment, the reactions of the sense organs are dulled. Signals are more easily overlooked, and obstacles not immediately recognised as such. Reactions are slower and overall efficiency is reduced – just as much as they are by excessive fatigue.

The forward-looking concept of the large BMWs, on the basis of medical research, aims at the provision of a systematic support system. In addition, the large BMWs are designed so that contact between the driver and his environment is maintained. The driver is not lulled into a state of passivity through systematic encapsulation and concentration on excessive comfort.

All-round visibility

Instant action and reaction require perfect vision and all-round visibility. For this reason, starting with the driver's point of vision (1), the angle of visibility through the windows upwards, downwards and sideways (2), and vision through the rear view mirror and the wing mirrors, have been optimised by BMW. All instruments and controls are also instantly visible.

Seat and steering wheel adjustment

In the large BMW, the steering wheel and pedal positions can be adapted to suit different arm and leg lengths, along with the seating and visibility position to suit different body dimensions (3). There is an axial adjustment for the steering wheel (7/8) and a two-dimensional adjustability of the driving seat – the seat can easily and comfortably be adjusted longitudinally, in inclination and in height (4/5). This

provides an optimum individual seating position and effortless, reliable mastery of the vehicle. This is also available as an optional extra for the front passenger seat.

Pedal layout

The layout and the operation of the pedals have also been optimised – foot pressures and pressure directions are perfectly balanced. This ensures fine pressure control even over long periods and prevents fatigue (6).

The clutch has an over-deadpoint spring, which considerably reduces pedal application and continued pressure, and results in effortless gear changing.

Seating quality

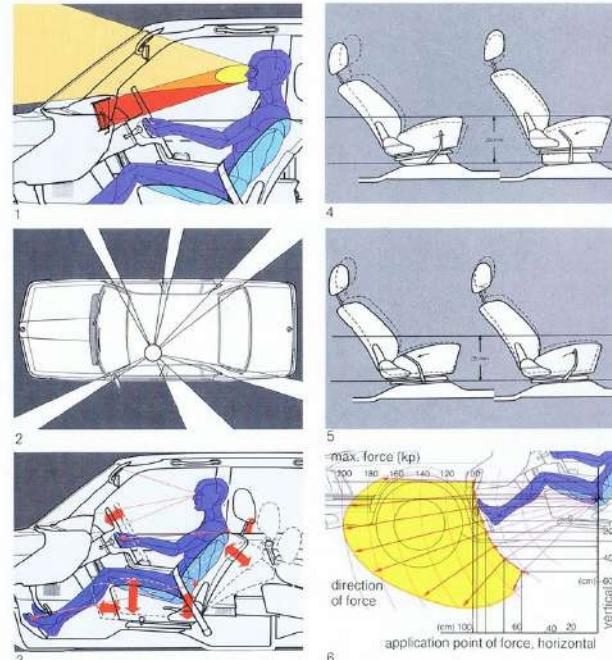
In their material and construction, BMW seats satisfy the highest requirements. The seating position is excellently maintained by the shaping and the firm padding of the seats and the

lateral hold is outstanding (10). The springing of the seats and that of the vehicle are exactly attuned.

The seats of the BMW 730 and 733i have wool velour upholstery and wide-ribbed obliquely striped covers for the central and side sections. The seats of the BMW 728 are fitted with nylon flock covers of a pleated design and wide-ribbed, obliquely striped sides (11). By way of optional extras, leather and leatherette upholstery is available in 6 and 5 colours respectively.

Individual head restraints, adjustable in both angle and height, are provided as standard for the front seats (9).

The BMW 730 and 733i models also have additional wooden strips in the doors and in the central console, wool velour upholstery in the central portion of the door cladding, integral grab handles in the ceiling both back and front, and velour carpeting throughout.



Heating and ventilation

An optimally functioning heating and ventilation system plays a decisive part in maintaining bodily well-being and thereby the general condition of the driver. With their sophisticated and perfected system, the large BMWs provide draught-free zones of fresh air at face level and zones of warm air around the passengers (13/14). The heating controls respond quickly and can be finely adjusted. The warm air flow can be directed either upwards and/or downwards. The 4-stage high-power blower has a very high throughput of warm air, even at the lowest setting. This means that the noise level is kept to a minimum.

A special technical feature of the superb heating and ventilation system is the pneumatic operation of the water valve, the stop valve and the air flow system, which results in extremely low

operating pressures being required.

The optimally positioned, vertically and horizontally adjustable fresh air outlets, in the centre and on the sides, are individually adjustable and controlled.

Together with the air extraction system, they provide ideal conditions for clear heads and individual warmth.

Defrosting the front side windows is effected through outlets located in the front doors. As a result of the standard heating in these doors, pleasantly warm air flows are provided at elbow and shoulder level (15).

Air conditioning is available as an optional extra. This acts as a basis for pleasantly balanced temperatures under all conditions (12). The air flow is controlled through the normal heater controls. The cooling effect can be enhanced by the standard 4-stage blower. A further advantage of this integrated BMW system lies in the fact

that conditioned fresh air can be ducted through the normal warm-air and fresh-air outlet grilles. This is particularly important for the rear passengers.

Noise damping

The noise level of the new, large BMWs has been considerably improved by a new mounting system for the power unit, by a larger and quieter air filter for the carburettor models. For the BMW 733i, a new soft suspension system, with large rubber bushings and gas pressure dampers, has been fitted. The subsequently very quiet noise level of the engine is improved even further by an additional damper of increased volume, which has the effect of reducing noise both inside and outside the vehicle.

As a result of the single-piece floor insulation system and the single-piece roof (with effect from the BMW 730), the internal noise level is considerably reduced.

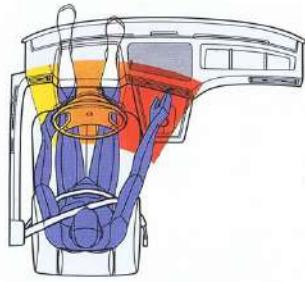






The enlarged area of action.

Masterly action and rapid reaction demand a system of perfectly interbalancing devices and controls, which reduces the process of anticipating the actions of other road-users to a minimum.



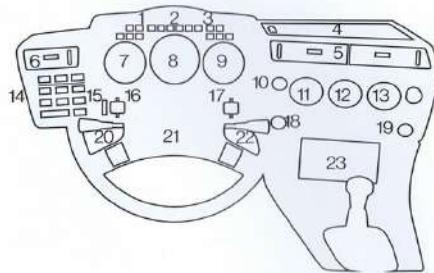
For the new, large BMWs therefore, the cockpit and the various controls have been optimally designed in accordance with the most recent ergonomic knowledge. This enables the driver to master his vehicle effortlessly and to devote his undivided attention to the traffic around him.

The functionality and logic of the layout and formation of the instruments and controls, minimise the chance of error in interpreting the information provided. The instrument panel is arranged in a semicircle around the driving position, so that all instruments and controls are easily accessible. The instruments are all illuminated with a relaxing orange light, the intensity of which can be adjusted for all controls and indicators.

The well-thought out colour scheme is a positive finish to the

driver-related interior finish. This also includes the relationship between the colours of different parts of the vehicle interior. In this way, for example, the upholstery at head level is executed in three, colours, the front knee protector

and glove box, the central console and the side claddings, in all six interior finishing colours. Another contribution to a more pleasant atmosphere and thereby to the morale of the driver.



1. Panel area with indicator lights for flashers and rear fog lamp.
2. List of gear selector positions when automatic transmission is fitted.
3. Panel area with indicator light for fog lamps (optional extra), main beam, handbrake when in the engaged position, (also functions as a monitor for the braking fluid level).
4. Outlet grilles for fresh air and warm air at face level, controlled and adjusted by a knurled wheel.
5. Two outlet grilles for fresh air and warm air, directed principally at the driver's body level.
6. Fresh air and warm air outlet grilles; two more on the passenger side. All 5 grilles are both vertically and horizontally adjustable and individually controlled (5/6).
7. Fuel and water temperature gauges with incorporated warning lights indicating fuel on reserve tank and water temperature too high.
8. Electronically controlled speedometer. Exact speed and trip recording indicated by means of a transmitter mounted on the rear axle system.
9. Engine rev. counter with incorporated warning lights for battery charge and oil pressure.
10. Compressor switch with blue light indicating that the air conditioning system is switched on (optional extra).
11. Rotary switch for the temperature control of the warm and fresh air supply; simultaneously, temperature control when the air conditioning is included as an optional extra, with a switch control for hot and cold.
12. Rotary switch for operation of the silent running, very powerful, 4-stage blower (settings 3 to 6) with indicator light. At the same time, control for the air flow (settings 1 to 3).
13. Rotary switch for the control of air flow, with defrosting function for maximum defrosting effect on windscreens and side windows.
14. Warm air duct for door heating and direct defrosting of side windows.
15. Check/Control: function check lights for the verification of the principal vehicle functions by the operation of a single test button when the ignition is switched on. When the lamps illuminate "In Order" is indicated.
16. Rocker switch for sidelights and headlights. Selection control through varying degrees of brightness of the symbol panel. Infinite control of instrument panel illumination.
17. Rocker switch for rear fog lamp and for main fog lamps when fitted as an optional extra. Selection control through varying degree of brightness of the symbol panel.
18. Push button for heated rear window with indicator light.
19. Push button for hazard warning lights with illuminated location and indicator light.
20. Combined lever for direction indicators, headlight flashers and main beam.
21. Fully padded, 4-spoke safety steering wheel with axial adjustment, large padded central boss and 4 horn buttons (7331 with leather covered rim).
22. Parking light switch mounted on top of the steering wheel casing with automatic disconnection.
23. Combined lever for two-speed windscreens wipers, intermittent wiping and automatic screen washer.
24. Illuminated safety ashtray.



Secondary zone



A thinking technology facilitates action.

An important contribution to the fascinating driving comfort of the new, large BMWs, at both high and low speeds, is the standard power-assisted steering system with the falling characteristic of the servo-pump. This varies the power back-up through the throughput of the pump in relation to the engine speed. In other words, it is fully operative during parking, so that the vehicle can be steered with two fingers, and is perceptibly reduced as the engine speed increases towards its maximum. In this way, the driver has once again the feeling of direct steering and thereby a better contact with the road.

An additional feature that contributes both to driving comfort and road safety is the automatic transmission system, available as an optional extra (1). It is a

perfectly integrated component of the overall power system and carefully balanced to match the capacity of the BMW engines. Automatic selection of the right engine speed at the right time also has the effect of keeping the noise level down to the minimum – to the benefit of the driver and the world outside.

Question and answer.

The BMW Check Control system: The Answer is Safety.

Another example of the positive attempts of BMW to adapt the car more to the driver is seen in the BMW "Check Control" system (2) – a check system enabling the correct functioning of seven important vehicle functions to be verified at the touch of a button.

This means that the driver knows, before he starts his journey and even without walking round the car or opening the bonnet, that his car is fully

functional and ready for use (3). The problem-free system of checking also means that vehicle checks are carried out more regularly and therefore more thoroughly. In-between checks can also be carried out en route (with the engine switched off). In this way, the driver knows at all times that he can rely on the functional efficiency of his car.

The BMW Check Control system checks: the oil level (only with the engine switched off, so that the oil can collect in the sump), the cooling water level, brake fluid level (together with the warning lamp on the instrument panel that indicates if the minimum level is not reached), the wear and tear on the brake linings (front left and rear right), the operation of the braking lights (for this the brake pedal has to be operated), the water level in the screen washer system and the functioning of the rear lights (for this the front lights have to be turned on).

If there is no malfunction in any of the above systems, the functioning lamps will glow green when the ignition is turned on and the test button is pressed.

If one of the functioning lamps does not illuminate, a malfunction in the area in question is indicated.

The contact points are designed in such a manner that sufficient reserve quantities are always available to take the car as far as the next service station.

The wing mirror, electrically controlled from the vehicle interior (4), is supplied as standard on the driver's side. It is available as an optional extra on the front seat passenger's side.

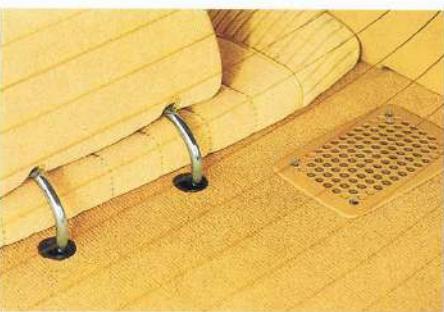
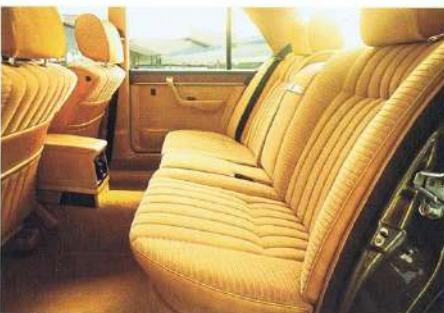
A standard feature on the BMW 733i is the convenient central locking system. The locking and unlocking of all four doors, the luggage compartment and the petrol filler cap is effected electrically. This has the advantage that the central locking system can be operated without any restrictions, even when the engine is switched off, and furthermore, it can be combined with an all-round mechanism which has the effect of unlocking the doors in cases of emergency braking so that they can be opened from the outside, if necessary.

Various types of radios can be supplied as required (5).



A split-image photograph of the interior of a BMW car. The left side shows the front seats, which are upholstered in light-colored, ribbed fabric with a prominent vertical grain. The right side shows the rear seats, which are also upholstered in the same fabric. The car's interior features wood paneling on the doors and a dark dashboard. A yellow headrest is visible in the front seat. The image is split vertically down the center, with a thin white line separating the two halves.

The sheer pleasure of driving – obligatory
for all the occupants of the large BMW.



Whether you drive yourself, or you are driven, the new, large BMW offers a new standard of overall comfort, leg room and ease of access, which satisfies all requirements wherever you are sitting.

Despite its active, dynamic character, the new BMW offers an extremely high standard of comfort and luxury, even for the rear seat passengers, in such a way that being driven can become a relaxing pleasure. There is hardly another car on the road that offers such a pleasant and comfortable ride for the rear seat passengers as the new BMW.

The rear seats too have a perfect, anatomical seating position. The BMW 730 and the 733i have individually moulded rear seats and can be fitted with an electrically operated seat adjustment system as an optional extra, in order to obtain an even more comfortable position for resting or reading (1). The BMW 728 has a rear bench seat divided into two individual seats. The central arm rest (5/6) also functions as a means of housing the first aid kit (supplied as standard in the 733i). Head restraints, with height and angle adjustment (from the 730) together with arm rests with incorporated grab-handles and grab-handles integrated in the roof at the rear are fitted as standard. Three-point automatic seat belts are available for the rear seat passengers as an optional extra (2).

The 730 and 733i have a heating and ventilation system with individual operation and control for the rear seat passengers. In this, the different air flows for warm and cold air have been

designed, not just with the aim of covering the rear passenger compartment in a general manner, but specifically for the purpose of making the atmosphere in the rear a pleasant experience.

From the 730 model, the upper tunnel construction houses integrated, horizontally and vertically adjustable grilles, which are directed into the rear passenger compartment (3). By means of an additional adjustment lever, the laterally arranged outlet grilles at foot level can be closed, so that the full flow can be directed at body level.

The air conditioning system, which is available as an optional extra, is fully integrated into the heating and ventilation system and allowed for in the design and construction of the ventilation ducts and air flows.

The rear window is heated. The heated area is enlarged to such an extent in the new large BMW, that it now covers almost the entire rear window area. A further optional extra is the laminated rear window with almost invisible heating filaments (4).

The rear loudspeakers for the stereo radio system (special accessory) are integrated into the rear shelf (4).

If required, the large BMW can be constructed for the subsequent addition of a car telephone.

A glance into the luggage compartment of the large BMW shows the striving for perfection and the love of detail (9) that has gone into the design of the car. It is fully covered, fully carpeted and, from the BMW 730, has a large tool box, which is conveniently located in the cladding of the compartment roof (10).

The new steel cranked sunroof, available as an optional extra, is operated either electrically or mechanically. There are no draughts, even when it is in the raised position, and no noise, even at high speeds (7/8).



Optional extra: light metal alloy rims



Safety through the BMW life preservation system: exceptional, even for such an exceptional category of car.

The new, large BMWs have a safety system which is found, in this form and with this positivism, in only a limited number of comparable cars.

An example of the level of BMW safety technology is, for instance, the interior upholstery - a result of the most up to date

knowledge of collision research. BMW offers a systematised, intentionally energy-absorbing system of protection for the occupants at a level below the window level and also at shoulder and face levels, which is visually fully integrated into the design of the vehicle interior.



There is abundant padding at face level around the sun visor - and also, from the BMW 730 - on all roof pillars and the roof frame, both at the sides and at the rear. From the BMW 730, the ceiling comprises a continuous construction of firm padding, thereby covering all necessary structural irregularities completely.

The doors have thick padded strips below the windows and, from the BMW 730, also in the glove pockets at the front. This systematic door upholstering is particularly important in view of the danger of lateral collisions.

The glove box and central console are constructed with foam upholstery. Below the instrument panel, there is an integrated knee protection. The interior trim materials are adapted to meet the non-inflammability regulations.

BMW safety systems: The perfect balance of interplay.

The superiority of the BMW safety system in emergencies does not depend only upon the high quality of its component parts, such as the planned crumpling effect of the front part of the vehicle, the fully integrated anti-roll bar, or the acribically constructed and carefully tested safety cell. But rather on the careful harmonisation of all safety details into one comprehensive safety system, which guarantees the driver an unparalleled degree of safety.

A balance of energies: Intelligence instead of mass.

The bodywork of the large BMW is based on the most up-to-date knowledge of safety research. The overall styling reflects the safety behind the construction: A strong, almost vertical central pillar in conjunction with the stable anti-roll bar – a special feature which protects the occupants, even in cases of extreme stress. This is also achieved by a particularly strong but elegant rear roof pillar which merges without any visible seam into the longitudinal side.

The passenger cell is protected on three levels: at the lower level of the vehicle, by means of reinforcing on the front wall, special lateral, longitudinal stringers and stringers behind the rear seat and in the luggage compartment. In the central section by the extended form of the instrument panel, the shape of the doors, including hinges and door catch reinforcements, together with a strengthened rear parcel shelf. Lastly, in the upper section by stabiliser sections all round in the roof and an anti-roll bar as a continuation of the central pillars (1).

The large BMW contains a number of cleverly interbalanced detail design aspects in the front of the vehicle, which ensure that, in the event of a frontal collision, the cell itself is not deformed. In principle, in addition to the energy-absorbing crumpling of the metalwork in the front of the vehicle, the aim is to transmit forces from one part of the vehicle to another with as much system as possible. An important component of this force transmission system is the rigid BMW wheel

housing area design for the spring strut axle construction (2). The mounting of the wheel in the wheel housing can permit high forces to be absorbed and these then can be transmitted easily into the area of the front roof pillars and the longitudinal stringers, without the effectiveness of the passenger cell as a survival area being affected.

The system of force transmission from the engine mountings to the rigid passenger cell has been considerably improved (3). The engine mountings are now no longer mounted on the underfloor of the vehicle, but lead directly into the lateral longitudinal stringers.

The crumple effect of the bonnet is controlled in such a way that the buckling occurs in an outwards direction and does not penetrate the laminated windscreen.

The bonnet has a safety locking system (4/5).

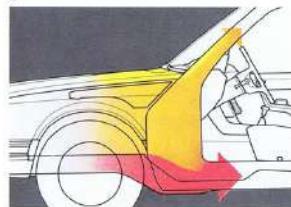
For rear impacts – a type of acci-



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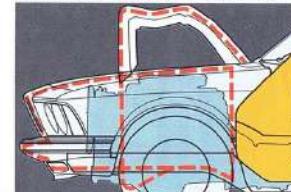
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dent that is becoming more and more important – the large BMW is equipped with special stringers below the floor of the luggage compartment, which are connected to the bumper mountings (6). These stringers transmit the forces of the impact, through reinforcements in the wheel housings, to the longitudinal stringers. Specific buckling points are provided in the stringers, the floor of the luggage compartment and in the lid of the luggage compartment.

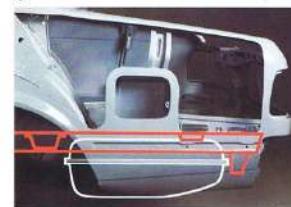
The fuel tank is located in a protected zone, at some distance from the end of the chassis. It is fully located beneath the floor of the luggage compartment and cannot therefore be damaged by the floor section in the event of a rear impact. Furthermore, it is flanked by special longitudinal stringers. There is a certain amount of freedom of movement all round the fuel tank, and all surrounding surfaces are rounded to prevent any damage



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being sustained during impacts. The filler nozzle is not connected to the vehicle side, so that it cannot be torn off in the event of the crumpling effect taking place. A specially designed cardan shaft tunnel and a rigid race wall prevent the engine and gearbox from penetrating the vehicle interior (7).

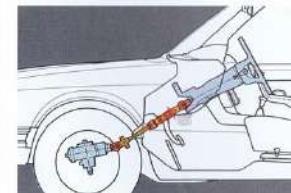
The steering mechanism is protected outside the buckling zone and the safety steering wheel is collapsible, preventing the transmission of impact forces (8).

Part of the safety cell is constituted by especially shaped reinforcements, such as – for example – the front and rear reinforced roof pillars, which are systematically designed and rigorously tested.

BMW has devoted particular attention to the head region in designing the safety cell (9). The roof must not be able to be compressed too much, particularly in the event of the car



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overturning. For this reason, a BMW is fitted with strong central columns in conjunction with an anti-roll bar (10) and specially constructed front and rear columns, guaranteeing an extremely rigid roof construction. The window frames on the doors are also designed along safety lines and act with the doors in reinforcing the anti-roll resistance of the chassis (11).

As result of special safety anti-burst locks, the doors remain closed in the event of a collision, after which they can be opened from either the outside or the inside, as deformation is prevented by the rigid safety cell (12).

The safety steering wheel has a large padded central boss in special deformation resistant tulip shape and a padded rim (13).

The ignition/starter lock has been integrated into the steering column with such a high degree of technical expertise that the key is not in a direct line with



10



11



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the knees in the event of a collision, so that the lock can be easily reached (14):

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 area (15).

Safety: Also a matter of reason.

The entire effectiveness of the BMW safety system is geared to the fact that the occupants are wearing safety belts. For this reason, the wearing of a seat belt is not just recommended but represents a decisive condition for maximum safety: Professionals always wear seat belts. The new automatic seat belts can be operated with one hand without any effort. In general, they have a double checking function: they react to the vehicle braking and to any tension on the belt itself.



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**Safety research at BMW:
More knowledge means more safety.**



1 Thousands of employees at BMW are engaged in manufacturing and assembling high-quality technology and several hundred specialists have the special and exclusive function of systematically destroying this technology. Detail for detail, aggregate for aggregate and car for car.

2 For this purpose, the BMW bodywork plant has one of the most modern test plants in existence for research into safety systems in the car. In highly specialised test departments, equipped with perfect test equipment, and in expensive simulated test series, the overall con-

struction and the different detail designs are thoroughly tested in overturning, front/rear, front/side and front/front impact tests in order to determine their resistance capacity and reaction.

3 One of the most critical situations for both the car and the occupants is an accident involv-



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ing overturning. In this test, the car is catapulted at a speed of approximately 30 mph sideways from the test sled. It overturns a number of times. The BMW life preservation system comes into play: the passenger safety cell remains intact, the rigid roof construction with its strong columns



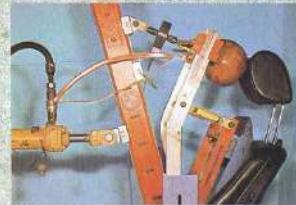
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and anti-roll bar protects the cell and all doors can be opened without difficulty.

Further examples of tests and test equipment:

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

Checking the bumper function with the pendulum system (2).



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Checking the resistance of the side doors (3).

Checking the resistance of the roof spars and the anti-roll bar (4).

Optimisation of the restraint system by simulated collision with the test sled (5).

Load testing the integrated unit seat/head restraint (6).

Optional extra: light metal alloy rims

**BMW power units –
high performance in a cultivated manner:
Power control.**

The large BMWs are designed in such a manner that their technology and performance are superior to traffic conditions at all times. This means that the driver can react to all situations in an untroubled manner and both flexibly and responsibly. He has better all-round vision and can be more understanding. For the mastery of his car does not require any patience.

The power units of the large BMW number among the most mature high-performance engines in the world. They represent a unique harmony of performance, low running noise, durability and economy. They display characteristics and performance data, for which other models usually require more cubic centimetres or more cylinders. This then has to be paid for with more weight, more expense and a high fuel consumption.

There is no power unit that has a greater flexibility of use than that of the large BMW. This is due to the unique torque development, which guarantees 85% of the maximum in the unusually wide range of 2000 to almost 6000 rpm. This means problem-free, quiet ambling in top gear, and at lower speeds, an equally effortless and sporting performance from any speed level. An ideal engine for today's traffic – with a performance that is not just intended to give high average speeds on motorways. The most convincing test drive in a large BMW will be on a busy main road at speeds of less than 60 mph. This will show the fascinating driving comfort, the feel of safety, the high per-

formance and the exhilarating acceleration of the large BMW.

For the new, large BMWs we have revised the engine programme to the last detail. The aim of this is to refine driving culture even further.

The BMW 728 and 730 are equipped with a new double down-draught carburettor, which operates both reliably and efficiently (2). A new air filter reduces the air inlet noise level quite considerably. A thermal shunt starter guarantees smooth driving characteristics, even in the hot running stage, better acceleration and lower fuel consumption.

The BMW 733i has an improved Bosch L-Jetronic fuel injection system with an electronic control system, which combines better fuel consumption figures with an increase in the reaction capability and temperament of the engine. It also has transistorized ignition, which maintains the ignition point very exactly.

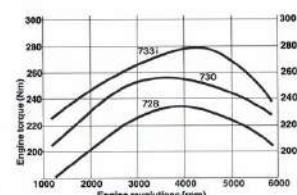
The famous spherical BMW combustion chamber has been adapted

quite specifically for the new, large BMWs to match the fuel mixture preparation system, thereby ensuring an optimum combustion process (3).

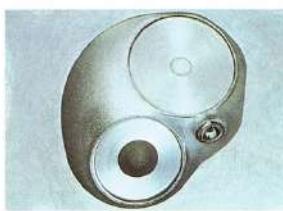
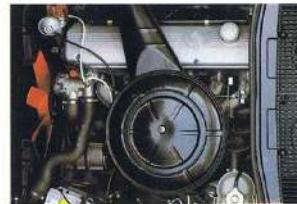
The mounting of the engine and transmission system is improved even further. The BMW 733i has a completely new, very soft engine suspension with particularly large rubber bushings and two gas pressure dampers. This guarantees an even lower noise level and absolutely vibration-free running.

A significant reduction of the external and internal noise levels is also achieved by the new twin pipe exhaust system. This further developed system is mounted exactly in the vibration focal points and is fitted with larger sound dampers overall.

An example of typical BMW perfection in detail is the viscose radiator fan. Over an engine speed of about 2300 rpm, its speed is kept constant, which guarantees optimum cooling at low speeds and at the same time exerts less influence on the engine performance at high speeds, reduces engine noise level and improves fuel consumption.



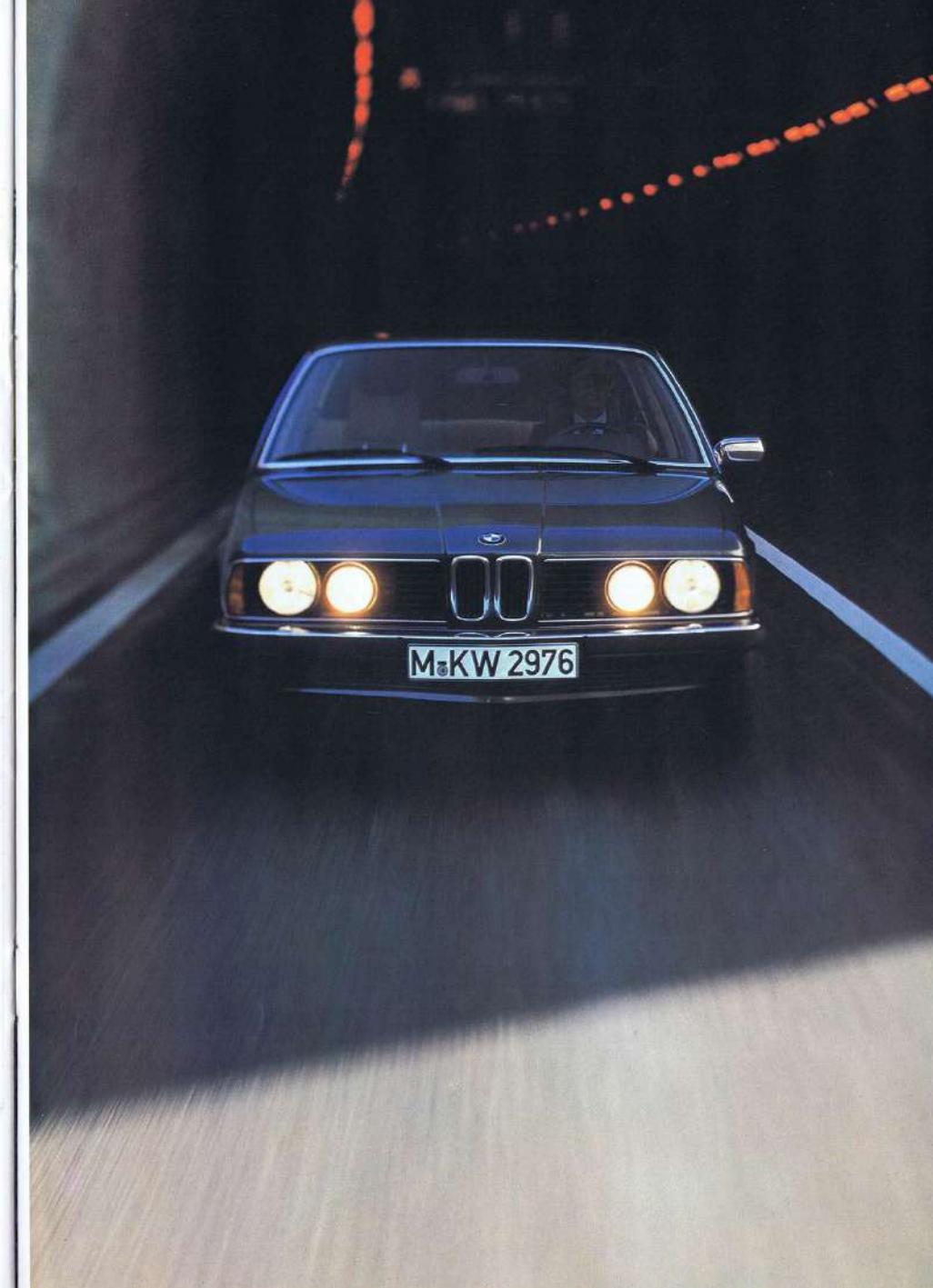
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The engine capacity and BHP rating reflects the size of an engine. The torque its efficiency.

The decisive factor for the quality of an engine is the amount of torque it develops at certain engine speeds. This demonstrates one of the principal differences between other engines and BMW power units. As a result of their high-quality detail constructions, BMW power units develop a much higher torque much sooner and thereby a greater elasticity. The important thing is not that a BMW 730 can accelerate to more than 100 mph, but that it can slow down to 25 mph in top gear without juddering.

High performance does not only increase the driver's safety, but also the life expectancy of the engine.

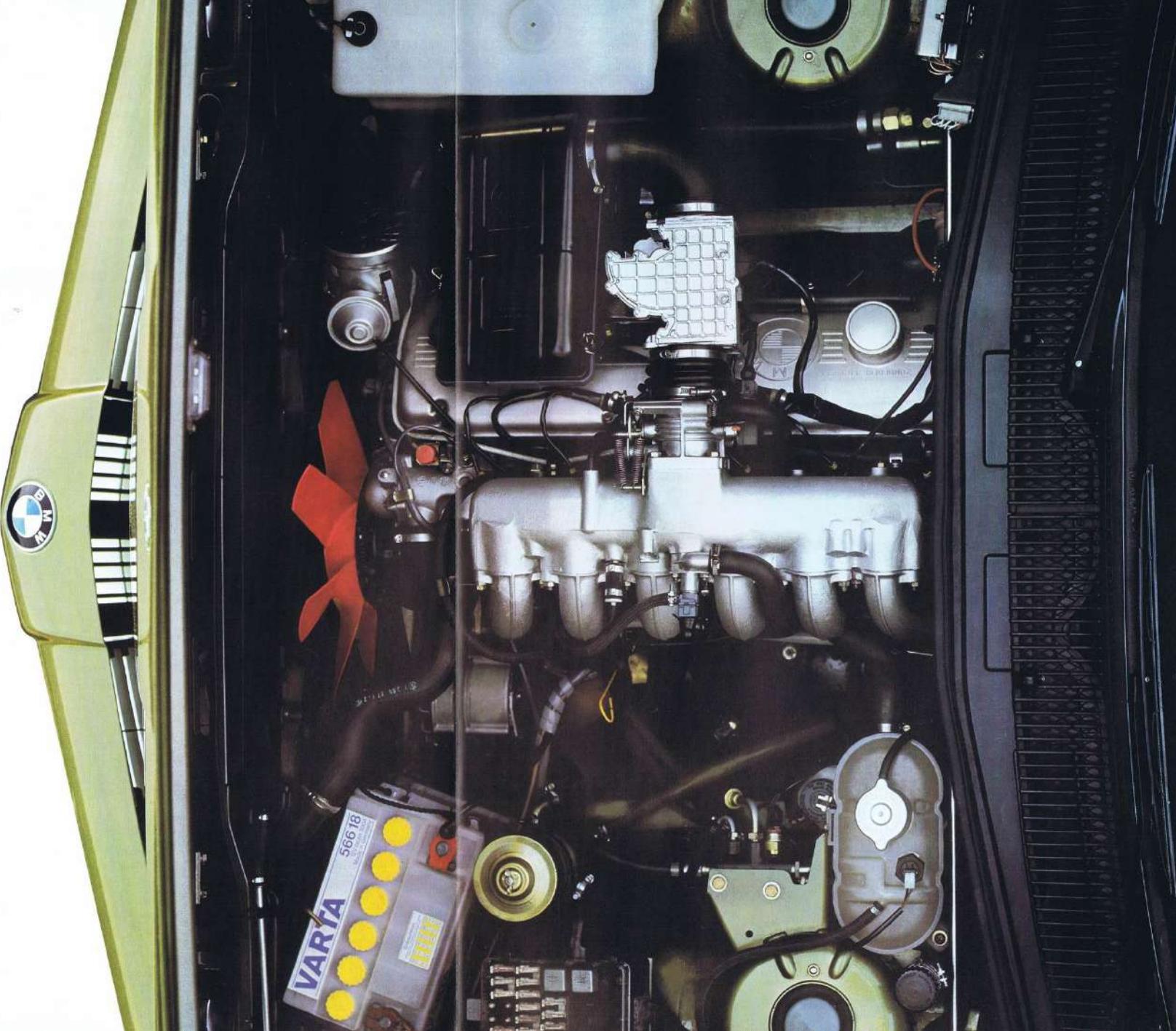
A superior torque level is a decisive factor for increased reliability, staying power, performance and durability. Power units that are equal to any traffic situation in the middle of their speed ranges will never need to be driven in the extreme speed ranges that have the effect of shortening their lives.

A high torque level at low engine speeds also guarantees lower fuel consumption.

BMW power units achieve superior torque ratings, even at low engine speeds. This ensures less wear on the engine (1) and, more particularly, lower fuel consumption.

**Sporting and standard:
Cause and effect.**

The extremely high degree of reliability, staying power and durability of BMW standard engines are not just the result of exhaustive, physical research work, but also the result of the unusually high total of experiences in the sporting sector (4). For apart from the carefully thought out basic design, a wealth of structural refinements in the fuel ducting system and combustion, in the valves and the crankshaft system and in the cooling and lubricating systems, is absolutely necessary in order to produce racing engines with more than twice standard performance that can withstand the most extreme conditions.



Even the best car can only be as good as its chassis: Basic research.

The chassis of a motor car does not just influence the driving comfort. It is also the basis for driving safety and flexibility. The best car in the world has a very poor start if the sole purpose of its chassis design is to improve comfort.

The BMW chassis – spring struts at the front and semi-trailing arms with spring struts at the rear – is renowned as being one of the safest and yet the most sporting designs in the world.

This successful concept has been carefully overhauled once again for the new, large BMWs. The result is an absolutely new standard in vehicle chassis design.

The large BMW has a chassis that seems to offer two almost contrasting objectives at a very high level. It offers excellent driving characteristics, the performance and thereby the active safety of dynamic sporting competitive cars. And at the same time, it offers the high level of luxury and comfort associated normally with luxury limousines, which – at great technological expense and effort – protect the driver and the passengers from the actual state of the road on which they are driving.

This is achieved not least by the newly developed, technologically very advanced and expensive BMW double-joint spring strut front axle, the kinematic system of which is so complicated that it can no longer be illustrated graphically but only by means of special computer programmes. The advantages of this new axle design, which is being used for the first time in automobile engineering: even better lateral control, improved straight-ahead running characteristics, improved resistance to irregularities on the road through the small steering roll radius, further adjustment action to reduce steering forces and to increase lateral control, brake snatch compensation also on the front axle.

The new steering kinematic system of the large BMWs is being used for the first time in automobile engineering. In the new BMW double joint spring strut front axle, the steering axis is formed not simply with two superimposed joints, but with one upper and two lower joints having an ideal centre of revolution (1/2).

The principal advantage lies in the wide range of variability in the design of steering kinematic system. Improvements in driving safety do not have to be paid for with other disadvantages, e.g. in the steering characteristics. Furthermore, the steering roll radius can be varied across a wide range. In conjunction with the rear axle design, BMW has opted for a small and positive radius, as this guarantees the best possible system of driving and braking performance and therefore optimum contact to the road. On the one hand, any untrue running of the vehicle through excessive stress on one side is prevented, and on the other, the steering system is not dead and the information is not incorrectly transmitted from the front wheels through to the steering wheel, as happens in cases of neutral or negative steering roll radii.

Together with the possibility of using large and therefore more resistant disc brakes, this axle design ensures an improved brake snatch compensation. The brake snatch compensation does not only reduce the dipping of the front part of the vehicle, but provides also a softer springing of the front axle. And not least, it improves driving performance, as it has a function similar to that of a stabiliser – an effect which, with the large BMWs, has no small contribution to the slight understeering to neutral behaviour of the car, with a gentle transition to a slight oversteering in the critical range.

Furthermore, a torsion bar stabiliser is fitted as standard to the front axle and this can react instantaneously as a result of the

completely new design concept of the spring struts. This concept also produces a progressive support of the rolling moment, thereby complementing the stabiliser.

It goes without saying that the front axle of the new BMW is also fitted with automatic track adjustment, i.e. a large track angle in conjunction with a small track length. This has the effect of reducing the steering forces and providing a considerable improvement of overall driving characteristics. For as a result of the large track angle, the outside wheel has a negative wheel thrust with the result that lateral control is improved even further.

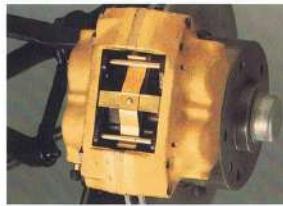
As a result of the specific efficiency of the new axle design, a new braking system, the diagonal twin-circuit system, is possible (4).

Another innovation for automobile design is the fact that a hydraulic system for the brakes and the power-assisted steering is included, which is operated from a single servo-pump.

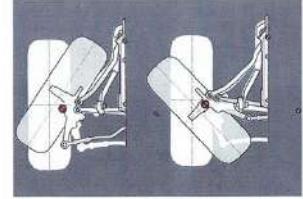
In comparison with the conventional, vacuum controlled amplifiers, the hydraulic braking amplifier in this construction has significant advantages: even braking pressure support, especially when the engine is cold; full braking pressure support from the very start, and greater reserves in the event of a defect in the braking system.



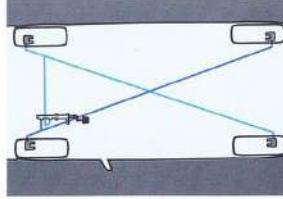
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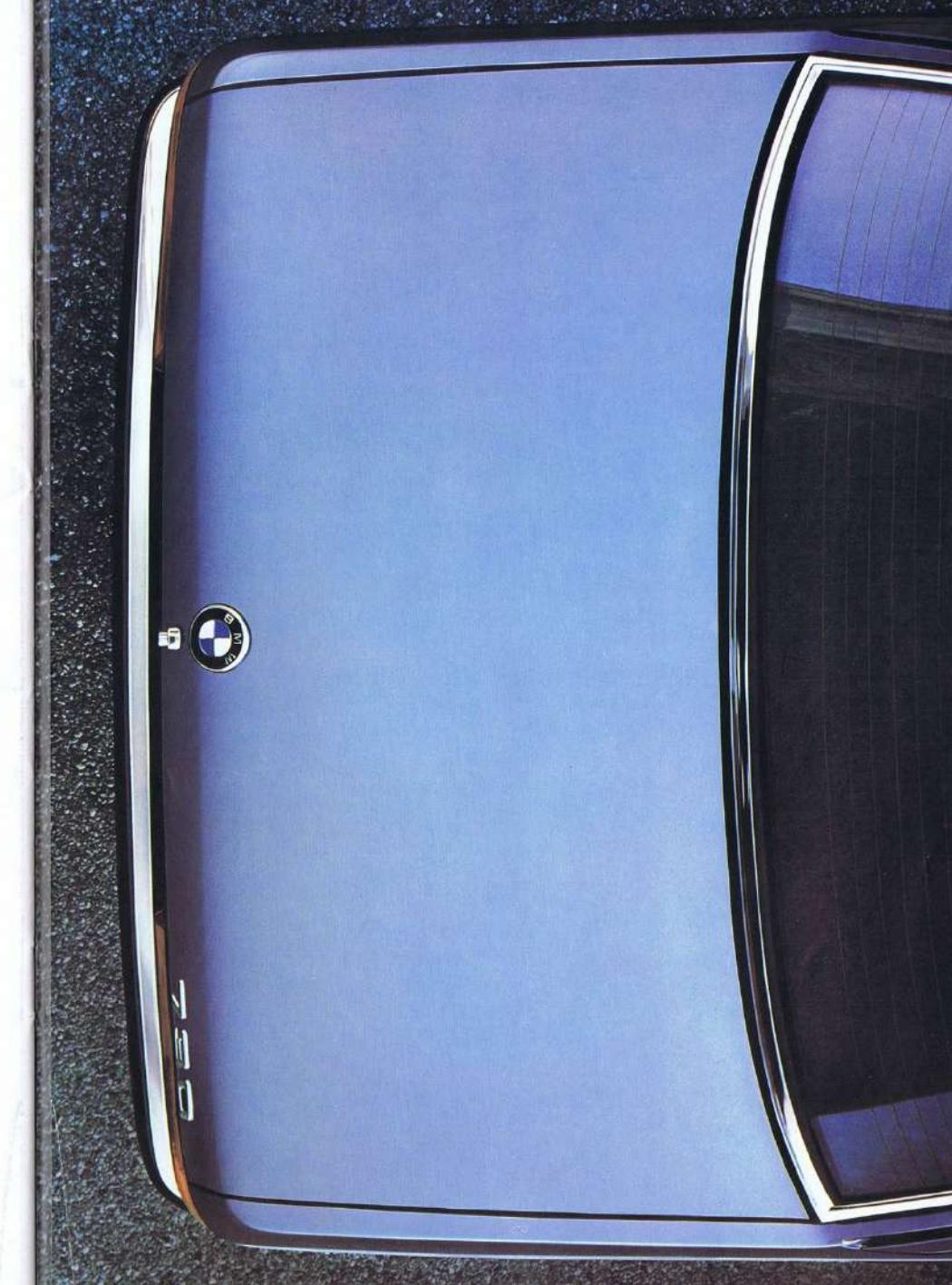
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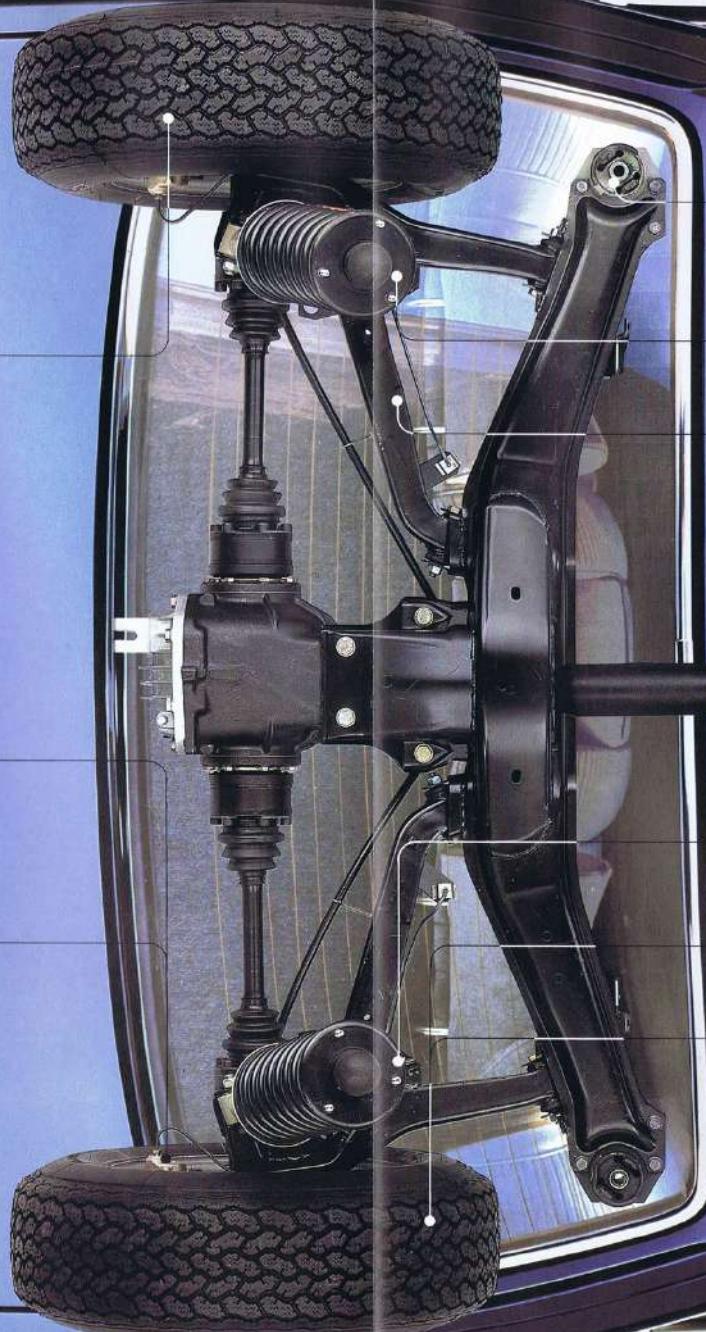
The bodywork design of the large BMWs satisfies maximum structural requirements. The body is rigid all round and the passenger compartment is welded onto the floor as a torsion-resistant unit. There are no inherent movements in any part of the bodywork that can have any influence on the precise mechanics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

The mounting and the position of each wheel in the BMW chassis combination are aligned on the basis of a predetermined programme for each driving or road situation. When driving into a bend, or with a lane change at high speed on a straight road, the outer wheel receives a wheel thrust appropriate to the speed. In this way, the chassis transmits high lateral control forces, is banked better against the curve and permits a faster cross acceleration.

The braking system of the large BMWs in conjunction with the new axle kinematics is appropriate for the performance of the vehicle and makes full use in every situation of the superior chassis 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 preventing skidding.

The large BMWs are fitted with disc brakes (front discs with interior ventilation) (3), the performance of which has been optimised using special computer programmes for the simulation of thermal stresses for all situations. All brake pipes are protected by cladding against corrosion.

The spare wheel is housed vertically on the right hand side of the luggage compartment. This means that it is accessible, even when the luggage compartment is full.



The chassis 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 minimising possible tolerances.

The spring paths for the rear axle on the new large BMWs have been increased, in order to improve the comfort level and to prevent excessive dropping of the vehicle tail.

The semi-trailing arm construction of rear axle provides automatic and total brake compensation.

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 new large BMWs have a wider track and a longer wheelbase with the object of increasing both driving comfort and driving safety.

The BMW 728 has 195/70 HR 14 size tyres on 6J rims and the BMW 730 has 205/70 HR 14 (7331 VR) on 6.1/2J rims as standard (BMW 728 as optional extras). Light alloy rims are also available as an optional extra.



