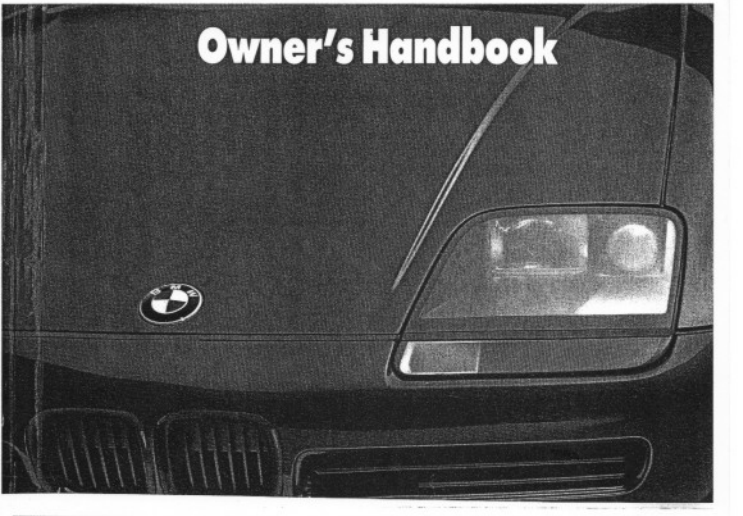
Owner's Handbook



The ultimate driving machine

Order No. 01 41 9 782 671 En Kle

In the interests of continuing technical development, we reserve the right to modify designs, equipment and accessories.

Dimensions, weights and performance data quoted in this handbook are to the tolerances laid down by the German Institute for Industrial Standards (DIN).

Fuel consumption data are according to the values available at the time of closing for press.

Therefore, no claims based on data, illustrations or descriptions in this handbook will be entertained. Errors and omissions excepted.

In the interests of operational reliability, vehicle safety and a high resale value, refrain from modifying the vehicle's specification in such a way that individual items no longer comply with the general operating permit or the model specification no longer applies.

Important information for your safety

For your own safety, use spare parts and accessories approved by BMW.

When you use accessories tested and approved by BMW and Original BMW Parts, you have the assurance that their suitability for your vehicle has been thoroughly tested by BMW. BMW bears full product responsibility for these items.

BMW cannot entertain any liability for spare parts and accessories of any kind which it has not approved.

BMW cannot test whether every product from other manufacturers can be used on a BMW safely and without risk to either the vehicle or the people it is carrying. Moreover, this guarantee cannot normally be provided by an official test or inspection, or by the general operating permit for the part or accessory in question, as tests do not necessarily cover all eventualities.

Original BMW Parts, BMW Accessories and other products approved by BMW, together with experienced advice on using these items, are available from all authorised BMW dealers.

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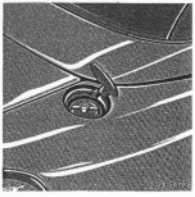
Congratulations on your choice of a BMW.

The better you are acquainted with your car, the easier you will discover driving to be. We therefore request you to heed the following piece of advice:

This owner's handbook contains important information on operating and looking after your BMW. Please read it carefully before setting out in your new car, so that you are fully familiar with the technical advantages of your BMW. It also contains useful information on care and maintenance, to maintain both the car's operating safety and its full resale value.

Wishing you many an enjoyable and safe journey.
BAYERISCHE MOTOREN WERKE AKTIENGESELLSCHAFT



Fuel grades

Normal (regular, 2-star) unleaded fuel (petrol, gasoline) for spark-ignition engines to DIN 51607 standard, minimum octane number 91 (Research Method).

A 3 % methanol content is permissible in each case.

Adding fuel

To open the fuel filler, turn the cap counter-clockwise and take it off.

To close the fuel filler, place the cap on the filler and turn it clockwise until it engages (bayonet-type catch).

Note: When operating the fuel filler lock, hold the cap to prevent it from turning.

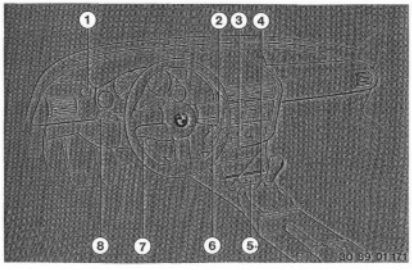
To avoid the risk of leaded fuel being added to the tank, the filler pipe has a smaller diameter than on cars without a catalytic converter, and also a check valve.

A special funnel* is available for adding fuel from a can.

* Available from BMW service shops

For further checks see Page

- Tyre pressures (including the spare), twice a month 72
- Engine oil 34
- Battery acid level (adding distilled water) 38
- Coolant 37
- Brake fluid 36
- Vehicle lights (renewing bulbs) 45
- Cleaning fluid for the windscreen washer system 36



Main controls

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2 – Rear fog light switch	21	7 – Steering column adjustment lever	13
3 – Switch for door mirror adjustment	15	8 – Lever for turn indicators, parking lights, low/high headlight beams and headlight flashing	17
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Keys

A. For doors, ignition, glove box and luggage compartment lid.

– Main key with battery and light in key head (press BMW emblem to operate)
– Spare key.
– Duplicate key for safe keeping, e.g. in wallet or purse.

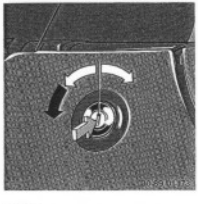
B. For doors and ignition.

C. For fuel filler cap only.

In case you need to have new keys cut, you are provided with a self-adhesive label bearing the key number. Keep this label in a safe place.

Main key with battery and light

Renew the battery when the light becomes dim, or else acid may leak out.



Doors

Locking/unlocking

When either door lock is operated, both doors are locked (key turned to rear) or unlocked (key turned to front).

When the doors are locked, both windows are closed automatically.

If a particular window position is required, hold the key in the locking position until the window has reached the desired position.

Lowering/raising windows

From outside: hold the key **briefly** in the lock position.

From inside: pull the door handle in the side skirt **briefly**.

When the lock or door handle is operated again, the direction is reversed.

When the door is lowered, the window is also automatically lowered.

When the door is raised, the window is raised to its previous position.

Note: If the anti-trap circuit has been activated (window is lowered several by centimetres, the window can be moved again at the control (see Page 9).

Emergency operation

in the event of a fault in the electrical system

To open from outside: turn the key to the front, simultaneously applying gentle pressure to the lock, until the key reaches the horizontal limit position. Then press the lock fully in and push the door down by hand.

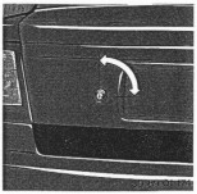
To open from inside: pull the door release handle and then pull the door down by hand.

To close from outside: follow the same procedure at the lock as for opening. Then press in the lock completely and hold in briefly until the door can be pulled up by hand (considerable effort is necessary).

Warning:
Uncontrolled or inadvertent closing of windows and doors can cause injuries.

Always ensure that children do not play with the switches.

Always remove the ignition key when leaving the car.



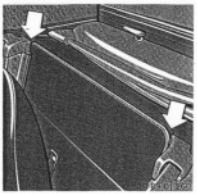
Luggage compartment

To lock: remove the key when in the horizontal position.

Luggage compartment light

Comes on when the luggage compartment light is on.

Warning:
The soft-top storage compartment lid must be closed when the luggage compartment lid is opened (see also Page 10)

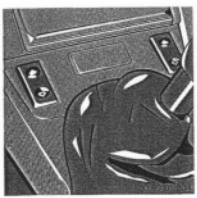


Rear bulkhead

In order to enlarge the luggage compartment or for storing long items, the rear bulkhead can be removed.

The rear bulkhead is mounted in rails at either side (arrows).

To remove and install the rear bulkhead, the soft top must be opened (see Page 9).



Electric window lifts

When the door is closed and the ignition key turned to position 1 or beyond, press the appropriate switch until the window has reached the desired position.

One-touch function: the windows can also be operated by touching the switch briefly. Renewed operation of the switch halts window movement.

Convenient closing circuit: when the doors are locked, both windows are automatically closed. If a particular window position is desired, hold the key in the locking position until this position is reached.

Roadster soft top

The soft top offers perfect bad-weather protection and is simple to stow away or erect single-handed.

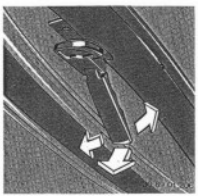
When the car is parked, ensure that it is protected against unauthorised access. Do not leave any valuables in the luggage compartment when the soft top is open.

When closed, the soft top both protects the interior against unexpected bad weather and effectively prevents theft.

When the soft top is open, the slight draught resulting from airflow when the car is in motion can be further reduced by keeping the windows in the correct position:

Raise both windows when both seats are occupied.

When driving alone, lower only the driver's window and select the lowest seat position possible, while ensuring that you retain a perfect view of the road.



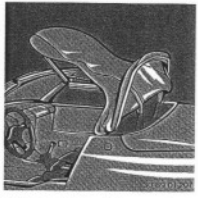
Opening the soft top

Before the soft top can be folded back, lower the side windows and doors.

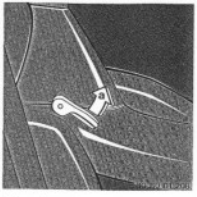
Fold down both sun visors by **pressing the outer mountings**, fold out both locking levers and turn as far as the limit position.

Keep the soft top in the closed position until both locking levers are completely released by holding the front edge at the recessed handle with one hand.

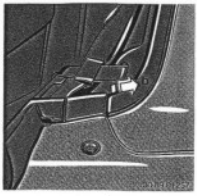
Fold back the locking levers and raise the soft top slightly.



Before opening the soft top compartment cover, **raise the rear soft top hoop to the vertical position.**



Release the soft top compartment cover at lever (a).



Release the catch at lever (b) and then fold up the soft top compartment cover.

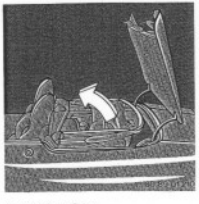
Important:
the **luggage compartment lid must be closed** when the soft top compartment cover is opened.

Fold the soft top down to the rear, ensuring that the rear soft top hoop is pointing downwards so that the soft top linkage does not rub against the storage compartment lining.

Lower the rear window evenly and without kinks into the compartment. So as to avoid scratching the window, place a soft cloth in the window fold.

The soft top compartment cover must be heard to engage in position at either side.

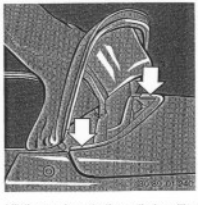
Important:
to avoid damage to the soft top from lingering moisture, never store away when wet (see also "Care of the car").



Closing the soft top

To close the soft top, lower the side windows and doors.

Release the soft top compartment cover at levers a and b, open cover and lift out the soft top at the side guides.



Lift the rear hoop to the vertical position and close the cover firmly by pressing down at the points indicated (it must be heard to engage in position); then fold the rear hoop back down.

Fold down at the sun visors by **pressing the outer mountings** and introduce the guide pins for the front hoop into the roll-over hoop by pulling the frame downwards. Hold the soft top securely at the recessed handle and lock in position with the locking levers (it must be heard to engage in position).

The rear hoop is automatically pressed onto the storage compartment cover and will lie flush as a result of the closing pressure.

Note: if the soft top is not used for any length of time, it may be necessary to use more force to close it.

Seats

Moving forward/back

Lift lever and slide the seat to the desired position.

After releasing the lever, make sure that the seat engages in the catches.

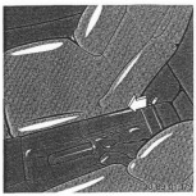
Seat back adjustment

Lift lever and lean against the seat back or allow it to come forward.

Driver's seat height adjustment

Pull the lever up to raise the seat.
Push the lever down to lower the seat.

Warning:
Do not reposition the driver's seat while the car is in motion. A sudden seat movement could cause you to lose control of the car and result in an accident.



Passenger's seat back release catch

Pull the lever: the seat can now be tilted forward.

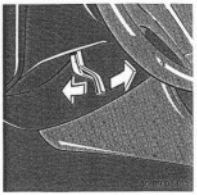
The lockable storage compartment is easily accessible.

Storage compartment

To open: pull handle.

To close: fold up lid.

Lock operated by type A key (see Page 7). If type B door and ignition key is handed in at hotels or workshops etc., the storage compartment remains inaccessible for unauthorised persons.



Steering column adjustment

Fold out the retaining lever.

Pull or push the steering wheel along its axis to the correct position. Fold the retaining lever back in.

Important:
Never adjust the steering column while the car is in motion, as you otherwise risk causing an accident.

Seat belts

Always wear the seat belts!

The seat belt catch must be heard to engage when the belt is inserted.

Releasing the catch:

Press the red button and guide the belt back on to the automatic reel if necessary.
Place the belt tongue beneath the guide loop on the side of the seat.
Place the belt across the pelvis and shoulder, making sure that it is not twisted (do not pass the belt over hard or breakable objects in your pockets or clothing).
The belt adjusts itself according to body movements.

It should just be possible to insert a hand between the belt and body. Avoid wearing thick and heavy clothing, and do not tilt the seat too far back. Take up slack regularly by pulling up the shoulder (diagonal) section of the belt.

Note in particular:

The belt locking mechanism may operate when:
– the belt is pulled too fast
– the car is braked or accelerated abruptly
– taking corners
– the car is at a steep angle.

Make sure that the belt does not pass over the neck.

The belt must not be trapped or rub against sharp edges.

If the belts are subjected to severe stresses in an accident, have them renewed and the anchoring points examined by a BMW service station.

Do not tamper with any occupant restraint system.

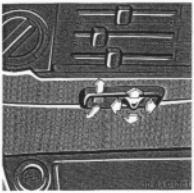
Care of the seat belts is described in the chapter headed "Care of the car".

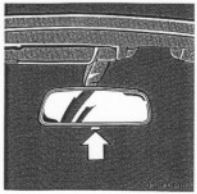
Notes on driver's seat position

The spine obtains most relief when you sit right back in the seat and rest against the seat back.

Ideally, the driver's head should be on a line forming a direct extension of the spinal column.

On long journeys the seat back angle can be increased slightly to reduce any strain on the body muscles. However, the driver must still be able reach the full circumference of the steering wheel with the arms slightly bent.





Mirrors

Electric remote-control door mirror

Operate the switch to move the mirror to the desired position.

Passenger's door mirror

Operate the changeover switch and then the mirror switch to move the mirror to the desired position.

Warning:
This mirror has a convex glass. Objects seen in it are closer than they appear to be, so that it is not always possible to estimate their distance behind the car accurately.

Manual mirror operation

Reposition the mirror by pressing on the edges of the glass.

Electric mirror heater

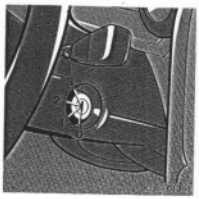
In ignition key position 2, the heater comes on and is controlled automatically when required.

Inside mirror

Reposition the small lever to reduce the effect of glare when driving at night.

Sun visors

These can be swung round in front of the side windows if necessary **at the outer pivots**.



Ignition/starter switch and steering lock

0 – Steering locked. The key can be inserted and removed in this position only.

All items of electrical equipment are switched off except a few which remain operational, for instance: side/parking lights, interior lighting, hazard warning flashers and cigarette lighter.

To lock the steering, pull out the key and turn the steering wheel until the lock engages.

Turn the key to release the steering lock; it may be necessary to turn the steering wheel slightly at the same time.

1 – Steering unlocked.
Further electrical equipment such as the radio can be operated.

2 – Ignition switched on.
All other items of electrical equipment can be operated.

A well-charged battery is essential if electrical equipment is to operate reliably and full driving convenience be maintained. When the engine is idling, the alternator only charges the battery very slightly. You are recommended to switch off electrical equipment with a high current consumption temporarily, unless absolutely needed, in slow-speed city driving or nose-to-tail traffic.

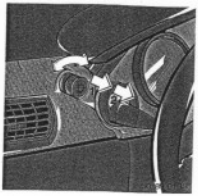
3 – Starter motor operated.
Do not depress the accelerator pedal while starting the engine.

Important notes

Never run the car's engine in an enclosed space. The exhaust contains carbon monoxide which, although colourless and odourless, is extremely toxic.

Never pull out the ignition key when the car is moving. Otherwise, the steering wheel lock will engage and render the car uncontrollable.

Always remove the ignition key and take it with you when leaving the car. Make sure that the steering lock has engaged.



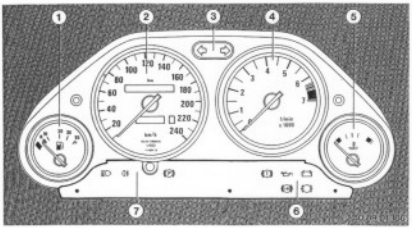
Headlight switch

Stage 1: Side lights
Stage 2: Low headlight beams

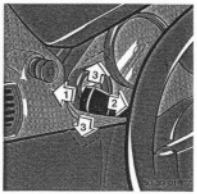
If the ignition is switched off with the headlights on, they will go out, but the sidelights will remain on.

Instrument lighting

Pull out and turn the headlight switch to adjust the light intensity.



Instrument cluster



Turn indicator and high/low headlight beam control lever

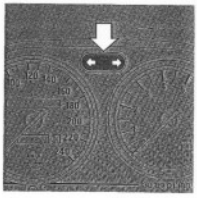
1 – High headlight beam (blue telltale)

2 – Headlight flasher

3 – Turn indicators (green telltale lamp flashes and flasher relay emits a regular ticking sound)

If the telltale lamp flashes faster and the ticking sound is more rapid than normal, one of the turn indicator bulbs has blown.

When the steering wheel is returned to the straight-ahead position after the turn indicator has been set, the lever is reset to the off position automatically.

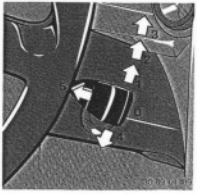


Brief operation of turn indicators

When pulling away from the roadside or changing lanes, you need only move the lever slightly away from its rest position. When released, it will cancel immediately.

Parking lights

The parking lights on one side of the car can be switched on when the steering lock is engaged, by moving the turn indicator lever beyond the normal indicating position and allowing it to engage.



Wash/wipe system

1 – Intermittent wipe
2 – Normal wiper speed
3 – Fast wiper speed
4 – Short wipe
5 – Automatic windscreen wash

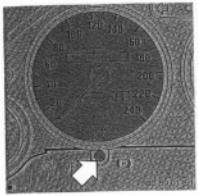
Windscreen washer jet heating

Operates automatically in ignition key position 2.

Warning:
Do not use the windscreen washer if there is any chance of the liquid freezing to the glass and interfering with your view of the road and traffic ahead.
Do not operate the windscreen washer when its fluid reservoir is empty, or else the pump will be damaged.
Detach wiper blades which have frozen to the glass before operating the windscreen wipers, to avoid overloading or damaging the system.

Horn

Press one of the pushes.



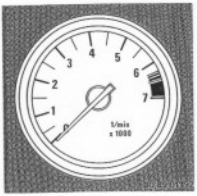
Distance recorder

The distance recorder shows the total number of kilometres or miles covered by the car.

Trip recorder

Records journey distances up to 999.9 km or miles.

Press the button to reset to zero.



Revolution counter

Avoid engine speeds in the red warning zone.

The fuel combustion process is interrupted in this zone to protect the engine, which runs unevenly as a result.

Fuel gauge

The telltale lamp comes on to indicate that there are app. 4 litres (0.9 Imp. gal) of fuel remaining in the tank.

Coolant gauge

Blue: engine cold. Drive with moderate engine and road speeds.

Red: engine too hot. Stop the engine immediately and allow it to cool down.

Needle between the two coloured zones: normal operating temperature. If outside temperatures are very high or the engine has been working very hard, the needle may approach the red zone.

Checking coolant level, see Page 37.

Telltale and warning lamps

Turn indicators, right/left

Comes on intermittently when turn indicators are operated.

Headlight main beams

Comes on when high-beam headlights are in use, also when headlight flasher is operated.

Engine oil pressure

Goes out after the engine has started.

It may come on when a hot engine is idling, but must go out when engine speed picks up.

If the lamp comes on during a journey, stop the car immediately and switch off the engine. Check the engine oil level and add more oil if necessary. If the oil level is correct, consult a BMW service station.

Battery charge

Goes out after the engine has started.

If the lamp comes on during a journey, there is a fault at the alternator V-belt or in the charging circuit so that the battery is not being charged.

Warning:
If the V-belt is faulty, the coolant pump is no longer being driven and the engine could overheat and incur damage. Consult a BMW service station.

Consult a BMW service station.

Antilock braking system (ABS)

Goes out after the engine has started.

If the lamp comes on during a journey, the ABS is faulty and out of action. The brakes can be operated conventionally, with no loss of efficiency.

For further notes, see Page 57.

Brake hydraulics

Goes out after the engine has started.

If the lamp comes on during a journey, brake fluid level is too low.

For further notes, see Page 44.

Brake lining wear

Comes on when the ignition key is turned and goes out after the engine has started.

If the lamp comes on during a journey, the brake linings must be renewed at the earliest opportunity.

Warning:
only BMW-approved brake linings should be used, in order to comply with the conditions of the general operating permit.

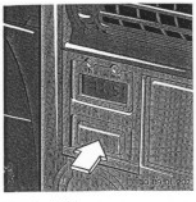
Handbrake

Goes out after the engine has started.

Comes on when the handbrake is applied.

Rear fog lights

Comes on when the rear fog lights are switched on.



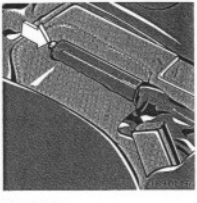
Rear fog light

The yellow telltale lamp in the instrument cluster comes on when the rear fog light is switched on.

Hazard warning flashers

The red telltale lamp in the pushbutton with the triangle symbol flashes when the hazard warning flashers are on.

When the car's lights are switched on, a locating bulb comes on in the pushbutton for the hazard warning flashers.



Handbrake

The handbrake engages automatically when pulled up and the "P" telltale lamp in the instrument cluster comes on.

To release the handbrake, pull the lever up slightly, press in the knob and push the lever fully down.

The handbrake acts on the rear wheels. Do not apply it too hard when the car is being driven, to avoid excessive rear-wheel braking and the possibility of the rear of the car skidding.

Warning:
On a gradient, do not try to keep the car still by slipping the clutch. Always apply the handbrake. A slipping clutch will suffer premature and excessive wear.

Manual gearbox

5-speed gearbox

The rest position for the gear lever (marked by a dot) is in the 3rd/4th gear plane. When the lever is moved out of gear, it springs automatically to the rest position.

All ratios are equipped with synchromesh.

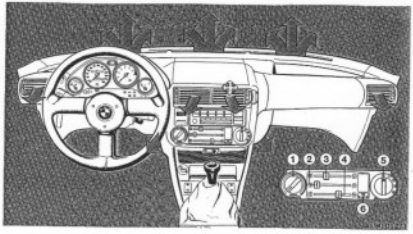
Considerable increases in engine speed when shifting down from 5th to 4th gear may result in engine damage.

Selecting reverse:

With the car standing still, press the gear lever to the left until the slight resistance is overcome.

Reversing lights

These come on when reverse gear is selected and the ignition is switched on.



Heating and ventilation

1 – Rotary temperature control
2 – Slide lever for distributing air to central part of car
3 – Slide lever for distributing air to upper part of car
4 – Slide lever for distributing air to lower part of car
5 – Rotary blower control
6 – Mimic diagram for maximum defrost settings

1 – Rotary temperature control

Turn clockwise to increase air temperature.

Depending on the setting, warm or fresh air enters the car's interior through all the grilles and outlets.

All the grilles in the instrument panel can be moved individually and closed by turning the knurled wheels.

2 – Lever for directing air to central area

Lever at left: closed
Lever at right: fully open

If the footwells are supplied with heated air, cooler air reaches the outlet grilles according to the setting of rotary temperature control (1) (between the "10 o'clock" and "2 o'clock" positions), and blends with the warm air to provide a pleasant, stratified temperature pattern inside the car.

3 – Lever for directing air to upper area
4 – Lever for directing air to lower area

The desired pattern of variable-temperature air can be obtained and continuously varied as required.

Lever at left: closed
Lever at right: fully open

5 – Rotary blower control

Turn clockwise to increase the volume of air supplied to the car's interior.

Correct heating or ventilation is ensured **only if the blower is switched on.**

At very low or high outside temperatures, you are recommended to use blower speeds 2, 3 or 4.

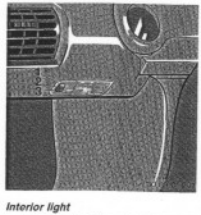
Do not use blower speeds 3 or 4 with the rotary temperature control at the **maximum setting until the engine has reached its normal operating temperature.**

6 – Mimic diagram for maximum windscreen defrost settings

Maximum defrosting effect is only achieved once the engine has reached operating temperature.

To prevent the side windows from misting over in very humid conditions, open the outer grilles and direct them to the side windows, with upper and centre air slides open (3 and 2). Switch on the blower and also heater if necessary, and close the centre grilles.

For maximum windscreen defrosting, the rotary temperature knob must be turned completely to the right (maximum setting).



Interior light

1 – Light is only on when a door is opened and goes out several seconds after the door is closed or when the ignition is turned on (automatic interior light).

2 – Light permanently off

3 – Light permanently on

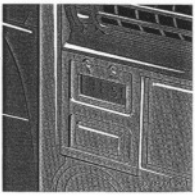
Changing bulbs, see Page 47.

Reading light

Operated by the switch.

The beam can be directed by rotating the lens.

Changing bulbs, see Page 48.

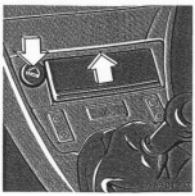


Digital clock

To set the time: press the tip of a ballpoint pen into the adjustment recesses.

h – hours
min – minutes

Erratic time display: the power supply has been interrupted; reset to the correct time.



Cigarette lighter

Press the knob to operate.

When the spiral element has heated up, the lighter jumps out to its original position and can be removed.

Cigarette lighter socket

This can also be used as a power socket for a hand lamp, car vacuum cleaner etc. rated up to app. 200 Watt at 12 V.

Be careful not to damage the socket by inserting a plug of the wrong pattern.

Warning:
The cigarette lighters can still be used when the ignition key has been removed. For this reason, never leave children unattended in the car.

Ashtray

To extinguish a cigarette, first knock off excess ash, then insert it into the funnel-shaped section of the ashtray. Do not press it in hard.

Emptying the ashtray:

Open the ashtray and lift it out.

Radio operation

The strength of the signal received by your car radio aerial, and thus the quality of sound emerging from the loudspeakers, depend on the position of the receiver and the height and directional location of the aerial.

These factors are relatively easy to take into account on a domestic radio set, but for a mobile radio such as that in a car, certain concessions have to be made. The position of the radio is constantly changing, and it is impossible to keep the aerial aligned with the direction of signal transmission. Other disturbance factors are hightension overhead wires, poor or missing interference suppression on other vehicles, buildings and natural obstacles. Even if your car radio is perfectly tuned and your car is equipped with proper interference suppression, unavoidable noises and loss of high-quality sound can be quite severe.

Climatic effects such as fog, rain and snow can interfere with good radio reception.

As the **strength of sunlight** increases, long, medium and short wave reception is adversely affected. These wavebands can be heard best after dark, when the ionosphere reflects more of the transmitted signals back to earth.

The medium (MW), long (LW) and short (SW) wavebands provide a larger, or in some cases, exceptionally wide reception range, since the signals are dispersed not only as **ground waves**, but also as **space waves**, which are reflected back to earth by the ionosphere.

There are physical reasons why the quality of **medium wave** reception is not as good as on VHF. Long-distance reception, however, is quite acceptable, particularly at night, so that a large number of stations can be picked up. However, station density is such that mutual interference often occurs.

Sound reproduction on the medium waveband appears rather dull in comparison with VHF.

On the **long waveband**, transmitters still farther away than on medium wave can be picked up.

Short wave offers the longest theoretical reception distance. Maximum station density and, subject to basic physical limitations, best sound quality, are obtained in the 49-metre band.

The **ultra-high frequency** transmission system uses the frequency modulation (FM) principle and offers far better sound quality than the other wavebands. However, reception is limited to only a few stations within any area, since the radio waves are emitted **in a straight line** from the transmitter tower, and therefore cover an area not more than app. 80 km in radius. As the distance between the transmitter and receiver increases, background noise becomes more of a problem, and finally the station can no longer be heard or is displaced by a more powerful one which the car is approaching. This situation can only be avoided by retuning to a stronger signal, something that has to be done relatively frequently when listening to VHF transmissions.

Stereo transmissions, if available in your area, can normally be received on VHF only. As you move away from the transmitter, interference becomes noticeable more rapidly than on mono transmissions. In this case, switch to mono reception or retune to a station providing a more reliable stereo signal.

Hissing, sizzling and spluttering noises occur when reflected signals are picked up by the aerial a fraction of a second after the main signals, from large buildings nearby for example. The sound level also fluctuates repeatedly as a result.

Continuous background noise normally indicates that the edge of the transmission zone has been reached, or that the car has been driven into a 'shadow', where no direct signals can be received. The only remedy is to tune to a nearer or more powerful transmitter.

Severe fade is a phenomenon more often encountered on medium wave and usually accompanied by distortion. It is caused by the superimposition of ground and space waves at the reception point.

Fluttering noise is caused by signal fade, when the line of sight between the transmitter and receiver is blocked by large buildings or topographical features. A similar effect is sometimes heard when driving along tree-lined roads.

Starting the engine

- Apply the handbrake
- Move the gear lever to neutral
- In particular at low outside temperatures, switch off all electric power consumers and fully depress the clutch pedal
- DO NOT DEPRESS THE ACCELERATOR PEDAL WHEN STARTING THE ENGINE

If the engine does not start at the first attempt, e.g. in very cold or hot conditions, press the accelerator pedal half-down when trying again.

Additional notes

Run the starter long enough for the engine to start, but no longer than app. 20 seconds without a break. Release the ignition key as soon as the engine starts.

Starter motor repeat lock:
Before repeating an attempt to start the engine, turn the ignition key back to position 1 or 0. This is to prevent re-engagement of the starter pinion while the engine is still turning.

Avoid repeated starting attempts at short intervals, or else the spark plugs will become wet.

In severe frost:
Observe a 20- to 30-second pause between attempts to start the engine in order to protect the battery.

The engine is automatically controlled to run at an idle speed appropriate to the operating conditions in each case. Do not run the engine up to its normal operating temperature with the car standing still, but drive off straight away at a moderate engine speed.

Switching off the engine

Turn the ignition key to position 1 or 0.

Energy-conscious driving:

Fuel consumption is influenced above all by **driving style.**

- Do not warm the engine up to operating temperature at idle speed and never allow the engine to idle for long periods.
- Do not run the engine up to maximum speed in 1st gear; use it for pulling away only.
- Shift up to a higher gear in good time and make full use of the higher and more economical 3rd, 4th or 5th gears.
- Avoid driving for long periods at full throttle.
- Do not carry any unnecessary weight.
- Comply with the recommended tyre pressures.

Furthermore:
Energy-conscious driving reduces exhaust and noise levels.

Warning:
The car should never be left unattended with the engine running; this constitutes a very serious potential hazard.

The **catalytic converter** fitted in the exhaust system reduces the exhaust emissions in the exhaust gas. These cars may only run on unleaded fuel.

Even minute amounts of lead in the fuel will cause irreparable damage to the lambda probe and catalytic converter.

The prescribed maintenance work should be carried out in order to keep the engine fully functional.

If unburned fuel reaches the catalytic converter as a result of misfiring or fuel-air mixture preparation malfunctions, overheating and damage may result. You should therefore avoid all operating conditions likely to cause unburned or insufficiently burned fuel reaching the catalytic converter. e.g.:

- frequent, prolonged operation of the starter motor within a short period, or repeated unsuccessful starting attempts. (Stopping and restarting the engine when functioning properly will present no problems. Only tow away when the engine is cold, otherwise unburned fuel will reach the catalytic converter; use jump leads.)
- allowing the engine to run with the spark plug caps disconnected.
- running the fuel tank empty. Switch off the engine immediately if misfiring occurs.

If misfiring or acute power loss occurs during a journey, drive to the nearest BMW service station, using low engine speeds only.

In unfavourable conditions, the exhaust catalytic converter may be subject to very high temperatures.

The car should therefore be parked in such a way that no inflammable parts can combust. The heat shields located around the exhaust system must not be removed or coated with underseal.

Engine refinement is influenced by the exhaust emissions purification technology, fuel consumption and the quality of the fuel used.

The modified operating conditions are largely taken into account by the electronic measuring and control functions and the high-quality design and workmanship of individual components, e.g. in individual features such as the electronic ignition and fuel injection system.

The car's altered engine and road behaviour, for instance when acceleratig from a low speed, when the combustion process resumes after the cruise control has been in operation and when the engine is running at a low idle speed, reflect the compromise between the need for low fuel consumption, improved enviromental acceptability and luxury driving; these differences constitute no cause for concern.

The Digital Motor Electronics system fitted for optimum engine operation causes a certain period of uneven running when this system has been disconnected from the power supply and reconnected again.

The engine will regain its customary refined running once it has passed through all adaptation phases at operating temperature.

Running-in

Maximum efficiency and a long operating life can be achieved by observing the following notes.

The first 2000 km (1200 miles):

Drive at varying engine and road speeds.

Do not exceed an engine speed of 4000/min.

Important:
do not exceed $^2/_3$ of the maximum road speed in 5th gear.

Do not fully depress the accelerator pedal.

After the first 2000 km (1200 miles):

Road and engine speeds can be increased gradually.

The running-in rules apply not only to the engine, but also to the final drive(s).

If either of these assemblies has to be renewed later in the car's life, the running-in procedure must be repeated.

During the running-in period, a degree of stiffness may be noticed at the gear shift, in the steering and other assemblies. This will disappear after a short while and should be regarded as part of the normal running-in process.

Tyres

The production methods used in the tyre industry result in brand-new tyres having less than their designed road-surface adhesion. For this reason, you are urged to drive with restraint for the first 300 km (app. 200 miles).

Brakes

As a means of achieving uniform wear patterns and a good friction coefficient on new brake linings, try to brake only at moderate rates of retardation during the first 500 km (app. 300 miles). In addition, avoid repeated brake applications, especially from high speeds, and also prolonged severe loads, such as when descending lengthy mountain passes.

Brake linings and discs need the distance and treatment stated above to bed down properly and avoid premature wear.

Handbrake

The handbrake operates in an entirely separate system from the normal service brake and has its own drums, which must also be bedded down correctly.

If road surface, weather and traffic conditions permit, the desired effect can be achieved by applying the handbrake lightly at about 40 km/h (25 mile/h) until definite resistance is felt. Then pull up the lever to the next notch and drive the car about another 400 metres before releasing the handbrake completely.

This procedure will enable the handbrake to operate at maximum efficiency.

During the pre-delivery check, inspection or Safety Test, your BMW service station will bed in the handbrake linings correctly.

You can repeat the process yourself, provided that due care is exercised, at three-monthly intervals, or whenever the handbrake becomes less effective.

Fuel quality

For further notes see Page 4.

In certain countries it is important to make sure that only fuel of the correct minimum quality is used.

If you have no choice but to refuel with petrol having a lower octane number than recommended, and thus less knock resistance, observe the following rules to avoid "pinking" or pre-ignition.

Drive at engine speeds between 2500 and 4000/min, shift gears in good time and accelerate gently and smoothly.

Fuel consumption

The standard test method used to determine fuel consumption (DIN 70030, Part 1) obtains values which are by no means identical with the car's average fuel consumption in everday driving. Average fuel consumption depends on a variety of factors such as driving style, load, road conditions, traffic density and flow, weather, tyre pressures etc.

For fuel consumption according to DIN standard test method, see Page 65.

Additional practical tips

Do not normally allow the engine to warm up to operating temperature at idle speed. At exceptionally low temperatures, however, allow the engine to run for about half a minute at a fast idle to ensure that oil reaches all parts of the engine.

Never run a cold engine at high speed, as this will cause rapid wear and shorten its operating life.

When driving under load, accelerating or climbing hills, try to prevent engine speed falling below 1500/min. Shift to a lower gear in good time.

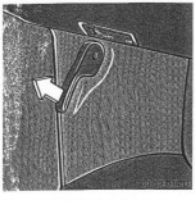
When declutching, press the clutch pedal down fully. During normal driving, do not rest the foot on the clutch pedal.

Warning:
Do not rest your foot on the brake pedal while driving the car. Even slight continuous pressure on the brake pedal can cause overheating, pad wear and possibly failure of the complete brake system.

Recommendations
After a lengthy period in heavy city traffic or in a slow-moving queue of vehicles, let the engine "breathe deeply" by driving for a few kilometres at engine speeds above 3000/min. This will disperse any soot deposits in the combustion chambers.

Warning:
When the car is driven on a wet or slushy surface, wedges of water can build up between the tyres and the road. This is known as aquaplaning, and can even lead to the tyre losing contact with the surface, so that the car cannot be steered or braked properly. Always reduce speed as a precaution on wet surfaces.

Always keep the luggage compartment lid closed when driving along to prevent dangerous exhaust fumes entering the car. If you have to drive with the luggage compartment lid open, when transporting a bulky load for example, you are advised to close all the windows and the sliding/vent roof (if fitted) and to run the heating/ventilation blower at a medium to high setting.



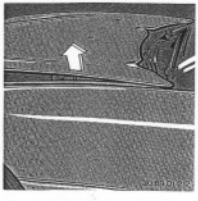
Engine compartment lid

To open: pull the lever on the left under the instrument panel.

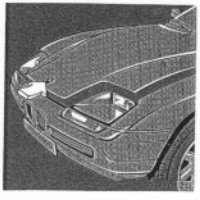
Warning:
Stop the engine and allow it to cool down before carrying out any work inside the engine compartment.

The battery must be disconnected before performing any work on the car's electrical system and any other repair and maintenance work, particularly inside the engine compartment.

Careless handling of parts and materials when working on the car may involve personal risk. If you are unfamiliar with the regulations or instructions which must be complied with, have any such work performed by your BMW service station.



A built-in spring mechanism automatically moves the lid forwards, after which it can be raised easily from the outside.



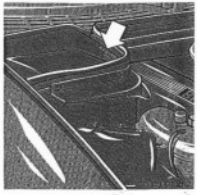
To close: lower the lid and press it down in the centre until it is heard to engage.

Check that the lid is locked by trying to lift it again.

Warning:
If you notice that the engine compartment lid is not shut and held firmly in the closed position while you are driving the car, stop as soon as possible and close it correctly.

Maker's plate

In the engine compartment, above the right headlight (looking forwards).



Vehicle identification number

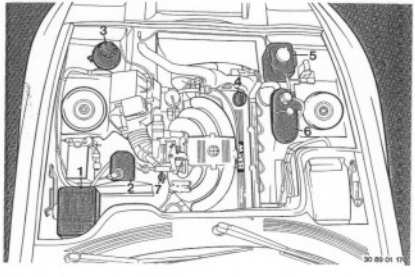
In the engine compartment, on the right side (looking forwards) of the heater bulkhead, outside the lid seal.

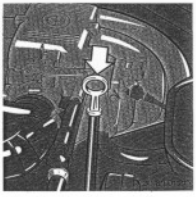
The information on the maker's plate and the vehicle identification number must comply with the data stated in the car's documents.

These data are used as a basis for all queries, checks and spare part requirements.

Principal engine compartment items

1 – Fuse box
2 – Brake fluid reservoir
3 – Oil reservoir for power steering
4 – Engine oil filler
5 – Windscreen washer fluid reservoir
6 – Coolant equalizing tank
7 – Engine oil dipstick





Engine oil consumption

Max. 0.15 litre per 100 km (app. 250 miles per pint).

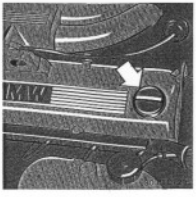
Like fuel consumption, engine oil consumption depends on the way in which the car is driven and on operating conditions.

Checking the engine oil level

Check the level regularly, always when adding fuel for example. When checking, the car should be standing on a level surface.

For best accuracy:
Check the oil level before starting the engine, while it is cold. Or, if the engine is warm, allow time for the oil to drain back into the sump (as long as it may take you to fill the fuel tank).

Insert the dipstick fully into the aperture.



Adding engine oil

If necessary, add fresh engine oil at the filler on the cylinder head cover. Do not fill above the maximum mark on the dipstick.

The quantity of oil represented by the space between the two marks on the dipstick is app. 1 litre (1.8 pints). Adding too much oil serves no useful purpose and harms the engine. Since excess oil is burned off rapidly, the engine could appear to be consuming too much oil.

Do not add fresh oil until the level has dropped almost to the lower mark on the dipstick. However, never allow the oil level to fall below this mark.

BMW engines are designed to operate without oil additives, provided that a highly-developed brand-name lubricating oil is used. Indeed, additives may actually damage the engine. The same applies to the manual gearbox, final drive and power steering.

Engine oil specifications

Brand-name HD engine oil to the following specification:

CCMC-G2 (API-SF)

Combinations with diesel-engine specifications are also permitted, e.g. CCMC-G2/D1, CCMC-G2/D2, CCMC-G2/PD1 (API-SF/CC, API-SF/CD; also APISG/CC, API-SG/CD).

Before using special (low-friction) oils of quality grade

CCMC-G3,

check with a BMW service station that the oil is on the factory's approved list.

Comply with environmental protection legislation applicable to the disposal of used oil.

Recommendation: have oil changes carried out only by a BMW service station.

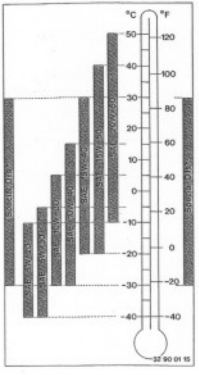
The SAE viscosity grade to be used depends on outside temperatures, and therefore on the time of year.

The chart on the right indicates the correct SAE grade of engine oil for various prevailing air temperatures.

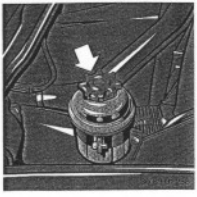
Note that the temperature limits quoted may be departed from, but only for brief periods.

Caution:
Continuous contact with used engine oil has caused cancer in laboratory tests. Wash skin thoroughly with soap and water after handling.

Always keep oils, greases etc. out of reach of children! Please note precautions on containers.



*) Special (low-friction) oils individually approved by BMW



Power steering: checking oil level

With **the engine at a standstill**, unscrew the reservoir cover and then insert the attached dipstick by resting the cover on the reservoir collar.

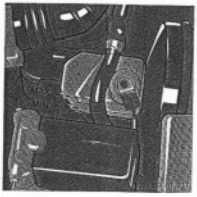
The oil level must be between the two marks on the dipstick.

Add fresh oil if necessary. BMW service stations know the approved grades.

After this, **run the engine**. Top up the oil level if necessary until the level is between the two dipstick marks.

Switch off the engine. The oil level may rise up to 5 mm (0.2 in) above the top mark.

Screw the reservoir cover back on.

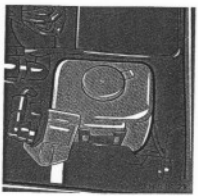


Reservoir for brake fluid

The oil level must be up to the top (MAX) mark. The cap need not be removed.

BMW service stations know the approved grades of brake fluid. The warning lamp comes on if the brake fluid level falls too low.

Warning:
Brake fluid is hygroscopic. That is to say, it gradually absorbs moisture from the atmosphere. To ensure that the brakes on your car remain fully operational, **have the brake fluid changed once a year** by a BMW service station.
Brake fluid is toxic (poisonous) and also attacks the car's paintwork.
It must therefore **always be kept tightly sealed in the original pack**, and stored **out of children's reach**.
Comply with environmental protection laws when disposing of brake fluid or packs which have contained it.



Windscreen cleaning system reservoir

Capacity app. 3.0 litres (5.3 pints).

Top up with water and, when necessary and in particular at low outside temperatures, add antifreeze according to the manufacturer's instructions.

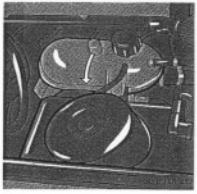
Windscreen washer jets

The cleaning fluid should be sprayed directly on to the windscreen, to ensure effective cleaning even at high road speeds.

If necessary, adjust by inserting a needle and moving the jets.

Electrically heated jets

The jets are heated automatically by a low power circuit.



Checking coolant level

The level when the engine is cold must be up to the MAX mark or arrow on the transparent equalizing tank.

Open the radiator or equalizing tank cap **only when the engine has cooled down** and the needle of the coolant temperature gauge is in the lower third of the scale, or else hot water and steam may escape and cause **scalding**.

Turn the cap counter-clockwise slightly to allow excess pressure to escape before opening.

Overfilling causes coolant to escape via the overflow pipe.

Warning: never add water to the radiator while the engine is still hot.

The cooling system is designed to be filled with long-life antifreeze and corrosion inhibitor. No other additives should be used.

To avoid damage, use only factory-approved, nitrite-free and amino-free, long-life antifreeze and corrosion inhibitor. BMW service stations know the approved grades.

Warning:
Antifreeze is toxic (poisonous). Always keep it in the original pack or container, and out of reach of children.

Coolant **concentration**: see winter operation, Page 49.

Change the coolant every 2 years.

Battery

The battery needs no maintenance and complies with DIN 43539 standard, Part 2. The electrolyte added initially should normally last for the life of the battery.

If the acid level falls too low, for instance after a long stay in a hot climate, top up with distilled water (not acid).

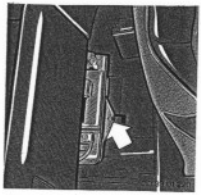
The acid level should be app. 5 mm (0.2 in) above the tops of the plates, level with the marks visible in the cell openings.

Keep the upper part of the battery dry and clean.

Starting with a flat battery: see Page 40

Important notes:

1. Particles containing acid or lead oxide must never be allowed to come into contact with the eyes, skin or clothing. If this does occur, rinse off immediately with clean water and consult a physician in the event of injury.
2. Never short-circuit the battery poles: the resulting spark could cause severe injury.
3. Never bring a naked flame near the battery or cause any sparks in its vicinity. This could lead to an explosion.
4. Never detach the battery leads when the engine is running, or else an overvoltage will occur and damage the car's electronic equipment beyond repair.
5. To recharge the battery without removing it from the car, the engine must be stopped and battery leads disconnected.
   The battery can be recharged without access to the battery itself via the terminal in the engine compartment and earth (see section 4, "Starting with a flat battery").
6. Before attempting any work on the car's electrical system, always disconnect the negative lead from the battery to avoid the risk of short-circuits.
7. If the car is laid up out of use for longer than 6 weeks, remove the battery, have it charged and store it in a cool place where there is no risk of frost damage. The battery must be recharged after no longer than 3 months, or else it will be damaged and rendered useless.



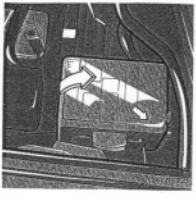
Removing the battery

The battery is located behind the driver's seat.

To remove, push the driver's seat forwards and release the cover at the two rapid fasteners.

Disconnect the negative lead first, then the positive lead. Unscrew the battery retaining bar (arrow).

When installing, connect the positive lead first, then the negative lead.



Fuses

If an item of electrical equipment should fail, switch it off and check the fuse.

The **fuse box** (power distribution box), with spare fuses, relays and plastic tweezers (arrow), is located in the engine compartment on the left.

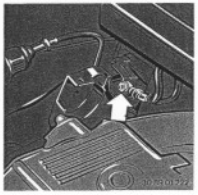
Take off the fuse box lid and use the plastic tweezers to pull out the fuse for the item of equipment which is not working. A blown fuse can be identified by the melted strip inside the transparent plastic cover, and must always be renewed.

Never attempt to repair blown fuses.

If a fuse blows repeatedly, have the fault repaired by a BMW service station.

Ratings in Amperes (A) and items of equipment supplied

1	= 7.5 A	Left high beam headlight
2	= 7.5 A	Right high beam headlight
3	=	Not in use
4	= 15 A	Flashing turn indicators
5	= 30 A	Wipe-wash systems
6	= 7.5 A	Brake lights
7	= 15 A	Horn
8	= 7.5 A	Electric window lifts
9	= 15 A	Engine electrical system
10	= 7.5 A	Instruments, reversing lights
11	= 15 A	Fuel pump
12	= 15 A	Radio, amplifier
13	= 7.5 A	Left low beam headlight
14	= 7.5 A	Right low beam headlight
15	= 7.5 A	Rear fog light
16	=	Not in use
17	= 30 A	Electric window lifts
18	=	Not in use
19	= 7.5 A	Mirror control, heated windscreen washer jets, mirror heating
20	= 30 A	Heater blower
21	= 7.5 A	Interior, reading and luggage compartment lights, clock, radio memory
22	= 7.5 A	Left side, rear and parking lights
23	= 7.5 A	Right side, rear and parking lights, licence plate lights, instrument lighting
24	= 15 A	Hazard warning flashers
25	= 30 A	Door lift, left
26	= 30 A	Door lift, right
27	= 7.5 A	Central locking system
28	= 30 A	Cigarette lighter
29	=	Not in use
30	=	Not in use



Starting with a flat battery

If the battery is run down, the engine can still be started by connecting jump leads (BMW accessory) from a second vehicle as follows:

1. Check that the second car has a 12 V electrical system and a battery of approximately the same capacity in Amp/h (this will be marked on the battery).
2. Leave the flat battery connected to the car's electrical system.
3. Do not allow the bodywork of the two cars to touch, or a short-circuit may be caused.
4. First connect the positive terminals of the two batteries with one of the jump leads. A connection is provided for this purpose in the engine compartment (remove cap, see Fig.). Then connect the second lead to the negative post of the second car's battery and to some part of your car's bodywork or engine block, as far away from the battery as possible.
5. If the battery of the second car is also weak, run its engine to boost the charge. Start your own car's engine in the usual way and keep it running. After the engine has started and **before disconnecting the jump leads**, switch on the lights and maximum heater blower speed to avoid an overvoltage between the governor and consumer equipment. Disconnect the jump leads in the opposite order to that described above. Depending on the cause of the fault, have the battery recharged.

Warning:
The car is equipped with a high-performance ignition system and any contact with live components while the engine is running could cause a **fatal electric shock**.

Do not depart from the procedure described here, otherwise personal injury or damage to both vehicles could occur.

Toolkit

The toolkit is located on the underside of the luggage compartment lid. Access is by unscrewing the wing nut.

Warning triangle

This item is stored on the right in the luggage compartment.

Note legal requirements with regard to carrying a warning triangle.

First aid box

This item can be stored in the luggage compartment (see Page 13).

Note legal requirements with regard to carrying a first aid box.

Towing eyes

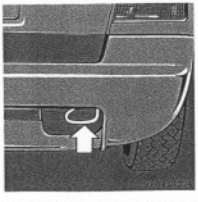
The front towing eye can be screwed in when required; it is stored in the luggage compartment (side trim on left).

To screw in at the front, lever off the cover cap with a screwdriver.

Important:
Screw the towing eye firmly in until tight.

Use nylon towropes or straps which are resilient enough to protect both vehicles against sudden jerking. Alternatively, a towbar may be used.

When using a towbar, both cars' towing eyes should be on the same side.



If the towbar runs at an angle, note the following:

- the amount of free movement between the cars is limited on bends
- the angle of the towbar gives rise to lateral forces (particularly dangerous on slippery road surfaces)
- do not attempt to steer the car being towed along the same line as the towing vehicle
- there is a danger of the towed car jackknifing when the towing vehicle is braked.

Important:
The vehicle being towed should not be heavier than the towing vehicle.

Tow-starting

Switch on the hazard warning flashers if required by law.

Switch on the ignition, engage 3rd gear and de-clutch. Let the clutch up when a suitable speed is reached.

De-clutch again when the engine starts.

Switch off the hazard warning flashers.

The cause of poor starting should be investigated and rectified by a BMW service station.

Towing away

If the vehicle has to be towed away, turn the ignition key to position 1 so that the brake lights, turn indicators, horn and wipers are operational.

Switch on the hazard warning flashers if required by law.

If the electrical system is out of action, the towed car must be identified as such (for instance by placing a notice or the warning triangle in the rear window).

Warning:
when the engine is at a standstill, the power assistance for the brakes and steering does not operate. Increased effort is then required to operate the affected systems.

Wheel changing

Apply the handbrake and select 1st or reverse gear.

If a tyre punctures, protect the car by switching on the hazard warning flashers and setting up a warning triangle or flashing lamp at an appropriate distance behind the car. Note legal requirements in this respect.

Temporary spare wheel, tyre inflating cylinder

The spare wheel is stored in the luggage compartment floor mat. Unscrew the wing nut by hand.

If no spare wheel is being carried for reasons of space, two inflating cylinders can be carried for use in the event of a puncture. These can be installed next to the car jack, to prevent rattling. Note the instructions for use on the cylinder.

One cylinder is normally sufficient to seal and inflate the tyre. Use the second cylinder if the required tyre pressure is not reached.

After filling, drive with restraint and renew the tyre at the next possible opportunity.

It is essential to drive with restraint and **not to exceed a speed of 80 km/h with the temporary spare wheel fitted.** Altered driving characteristics – delayed braking effect, longer braking distances, different self-steering effect at the limits of handling – are to be expected if the above points are not observed.

The change in driving characteristics is more marked if winter tyres are fitted.

Warning:
only **one** temporary spare wheel may be fitted. A wheel/tyre to match the other three should be fitted as soon as possible.

Note the specified tyre pressures.

The faulty wheel can be stored in the spare wheel sleeve.

Car jack and wheel stud wrench

Located in the luggage compartment, on the left (open flap in side trim for access).

To prevent noise after putting the jack back in the luggage compartment, retract it fully and secure it in its original position with the keeper.

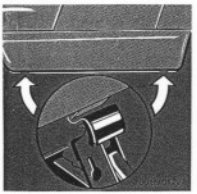
Wheel chock

The wheel chock is firmly located next to the jack in the luggage compartment to prevent noise. Place the chock in front of or behind the opposite rear wheel to prevent the car rolling away when it is lifted by the jack (this precaution is due to the layout of the handbrake).

If the car is facing down a considerable slope, it should be secured additionally against rolling away.

Pull off the wheel stud cover with cap remover (in toolkit). Insert the cap remover into the recess.

If 7 J x 15 H2 light-alloy wheels are fitted, the large hexagonal-nut type wheel stud cover with bayonet-type catch can be unscrewed with the corresponding hexagonal socket wrench (stored next to the car jack).



Slacken off the wheel studs. Attach the jack to one of the **four pick-up points** so that the foot of the jack is squarely on the ground. Turn the jack handle until the wheel is clear of the ground.

Warning:
Use the car's jack only for wheel changing. Never try to use it to raise a different car or any other kind of load, or else accidents and personal injury may occur.

Never lie underneath a jacked-up car, or else you risk a fatal accident.

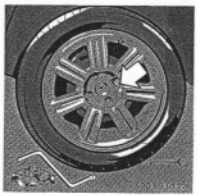
Unscrew and remove the wheel studs and change the wheel.

To fit the new wheel, insert the centering pin from the toolkit into one of the tapped holes. Mount the wheel on the pin, screw in one wheel stud, then remove the pin. Screw in the remaining wheel studs and tighten them uniformly.

Lower the car from the jack. Finally tighten the wheel studs in a crosswise pattern. For safety reasons, have the tightening torque (110 Nm) checked with a calibrated torque wrench at the earliest opportunity.

When a wheel is installed for the first time, check the tightening torque after the first 1000 km (600 miles).

When fitting other than Original BMW light-alloy wheels, it may be necessary to use the corresponding wheel studs in place of the standard BMW studs.



Have the flat tyre repaired and the wheel balanced as soon as possible.

Tyre repairs should always be entrusted to a BMW service station or specialist tyre dealer capable of examining the tyre to determine the full extent of possibly concealed damage.

Important:
When removing or renewing tubeless tyres, the rubber valve must always be renewed as well as a safety precaution.

Lockable wheel studs

Take off the end cap, using the edge of the key if necessary.

Insert the key in the lock, turn it app. 90° in either direction and lift off the lock.

0 = Locked
I = Unlocked

Fit the lock by following the same procedure, but in the reverse sequence. Hold the lock firmly when pulling out the key.

Recommendation: to ensure that the lockable wheel studs can always be removed when necessary (in the workshop, for example), keep a key in the car's toolkit.

Brake system

If the warning light for the brake hydraulics comes on:

– loss of brake fluid is indicated by increased brake pedal travel.

Failure of one brake circuit:

Pedal travel will increase and greater pedal effort will be needed.

The car can still be braked satisfactorily with only one circuit in operation.

As for all brake system faults, the car should nevertheless be taken to a BMW service station for immediate repair.

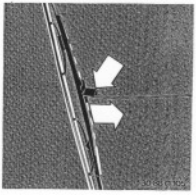
Power steering

If the steering becomes stiff, check the oil level (see Page 35).

If the steering is stiff when the wheel is turned quickly, the V-belt is slack. Have it retensioned or renewed.

If these measures prove ineffective, consult a BMW service station.

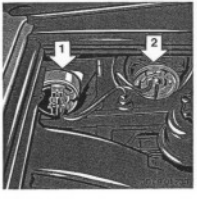
Warning:
if the power assistance fails, a greater force than usual must be applied at the steering wheel to steer the car.



Windscreen wipers

Renewing a wiper blade:

Press in the retaining spring and pull the blade off the wiper arm.



Changing bulbs

When performing any work on the car's electrical system, always switch off the item concerned or disconnect the battery negative lead to avoid the risk of short-circuits.

Do not hold new bulbs with bare fingers. Use a clean cloth, paper towel or similar, and only hold the base of the bulb.

A box of spare bulbs for emergency use is available from BMW service stations.

Low beam headlights (1)

55 Watt H1 halogen bulb

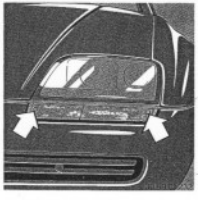
Open the engine compartment lid and take the plastic cap off the rear of the headlight unit. Turn the outer cover counter-clockwise and take it off.

Release the wire spring clip, pull off the plug and renew the bulb.

High beam headlights (2)

55 Watt H1 halogen bulb

Same procedure as for low beam headlights.



Parking and side lights

5 watt bulb

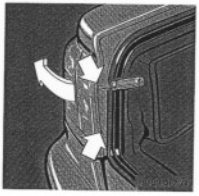
Remove the Phillips-head screws and take off the lens.

Press the bulb in gently and twist it to take it out.

Front turn indicators

21 watt bulb

Same procedure as for parking and side lights.



Rear lights cluster

Rear lights: 10 Watt bulb
Other lights: 21 Watt bulb

Press back the two springs using the screwdriver (in toolkit) and swivel out the lights unit to the side.

Pull off the appropriate rubber sleeve and turn the bulb counterclockwise, applying slight pressure, to release the bayonet catch.

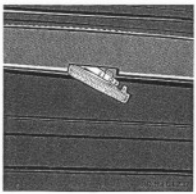
1 – Brake light (red)
2 – Turn indicator (yellow)
3 – Reversing light (white)
4 – Fog light (red)
5 – Rear light, reflector (red)

Licence plate light

5 Watt bulb

Remove the Phillips-head screws and take off the lens frame with rubber seal.

Pull the bulb out of the contact blades.



Luggage compartment light

10 Watt bulb

Pull out the assembly, using a screwdriver if necessary.

Pull the bulb out of the contact blades.

Interior light

10 Watt bulbs

Pull out the assembly, using a screwdriver if necessary.

Pull the bulb out of the contact blades.

Reading light

10 Watt bulb

Remove the Phillips-head screw and take off the frame.

Pull the bulb out of the contact tabs.

When refitting, first locate the base of the frame in place, then tighten the Phillips-head screw.

Laying up out of use

If the car is to be laid up out of use for **more than three months**, we recommend that the following maintenance work be carried out by a BMW service station to prevent deterioration during the storage period.

1. Clean and apply protective or preservative treatment to the engine, engine compartment, underbody, axles and other mechanical assemblies in accordance with BMW factory instructions. Wash the body, clean the interior and clean or protect the paintwork and chromium-plated parts as necessary. Clean rubber seals on doors and lids, and rub them with talc or glycerin.
2. Change the engine oil and renew the filter element while the engine is at normal operating temperature. As an additional anti-corrosion measure, a corrosion inhibitor can be added to the engine oil in accordance with the supplier's instructions.
3. Check coolant level and concentration, and correct if necessary.
4. Check acid level in the battery cells and top up with distilled water if necessary.
5. Drain the windscreen washer fluid tank and lines.
6. The fuel tank should be filled to prevent corrosion caused by moisture condensate.
7. Increase tyre pressures to 4 bar (app. 57 lb/in).

Drive the car immediately before it is to be taken out of use and apply the foot brake and the handbrake until sufficient heat is generated to dry out the brake pads and linings and ensure that the brake discs and drums cannot corrode.

Store the car in a dry, well-ventilated place. Select reverse gear. Do not apply the handbrake; if necessary, chock a wheel to prevent the car from rolling away.

Remove the battery, recharge it and store in a cool place where it will be protected against frost. The battery must be recharged at least every 3 months, or it will become unsuitable for further use.

Note that if the car's registration was allowed to lapse or the car was officially taken out of use, the proper legal procedure and the time limits for re-registration must be carefully observed, or else the general operating permit may be invalidated. Comply with your national regulations.

Restoring car to use

First recharge the battery or renew it if necessary.

An authorized BMW service station should then perform Inspection I, including the Annual Check if necessary.

Winter operation

The winter months often bring with them severe changes of weather, and you must not only adopt a correspondingly cautious attitude to driving but also take certain precautions to ensure that your car comes through the winter months reliably and without breakdowns.

On winter roads, tyre grip is often very poor, and the driver must remember that braking distances are much greater than usual in many situations.

Before the cold season of the year commences, you are recommended to take your car to the BMW service station for the necessary winter preparations to be carried out.

Comply with the appropriate **engine-oil requirements**, and do not wait until the next scheduled oil change to fill the engine with winter-grade oil if the weather turns cold suddenly.

Apart from checking oil levels, no special winter operating precautions are needed on the manual gearbox, final drive, power steering or hydraulic brake system.

The coolant already contains a **long-life antifreeze and corrosion inhibitor**. To ensure full corrosion protection, its concentration must be kept at 40% all the year round. This provides antifreeze protection down to approx. –27 °C (–16.6 °F).

Use only BMW-approved, nitrite-free and amino-free, long-life antifreeze and corrosion-inhibiting additives. BMW service stations know the approved grades.

Renew the coolant **every 2 years**. Check antifreeze concentration before and during the cold season of the year. At the same time, inspect the cooling system for leaks and renew any coolant hoses which have become porous or brittle.

Engine temperature is regulated by the coolant thermostat according to engine load and outside temperature. For this reason, no radiator blind or grille blanking-off material should be used.

The engine will not start reliably unless the **battery** is fully charged. Remember that a cold battery is less efficient, yet the demands made on it are more severe than in warm weather.

Use only BMW-approved care products* on the **door locks**, to prevent unreliable operation.

These products also help to prevent the locks from freezing; but if a lock should freeze despite these precautions, the key can be heated before inserting to thaw out the lock.

To prevent **rubber seals** on doors and lids from freezing, treat them with a rubber-care product* or silicone spray*. Mask over flock-covered parts when applying.

The car's **paintwork** should be protected before and during the winter months by applying suitable bodywork care products*.

Have your car's brakes checked as a precaution before and after each winter driving period by the BMW service station. This work can usually be combined with whatever maintenance routine happens to fall due.

*Available from BMW dealers

Winter tyres

If winter tyres (radial-ply tyres with a special winter tread pattern) are fitted, they must in the interests of good directional stability and steering control be of the same make and tread pattern **on all four wheels** (and preferably on the spare wheel as well).

You are recommended to fit only **BMW-approved winter tyres**. Any BMW service station will be glad to advise you on selecting the right winter tyres for the anticipated operating conditions.

The speed-rating code letters indicate the maximum permissible road speeds for winter tyres:

QM + S – up to 160 km/h (100 mile/h)
TM + S – up to 190 km/h (118 mile/h)
HM + S – up to 210 km/h (130 mile/h)

Always comply strictly with the maximum road speeds specified for your winter tyres.

Depending on national regulations, you may be required to display a **notice within the driver's field of view** stating the maximum speed limit for these tyres, if the car is capable of a higher speed.

Tyre dealers can supply suitable adhesive labels if they are needed.

When the tyre tread has worn to a depth of less than 4 mm (0.16 in), tyres become much less effective in winter, and should then be renewed as a safety precaution.

Always keep to the specified **tyre pressures** and have the wheels rebalanced whenever you change a tyre or a wheel.

In cold weather, we recommend carrying the following items in case of emergency:

A quantity of **sand** to aid starting on ice-covered slopes.

A **shovel** to dig the car out of snowdrifts.

A **plank** to act as a support for the car's jack.

A **brush and ice scraper** to clear the windows and body panels if covered with snow or ice.

For all severe winter driving conditions, **BMW snow chains** are available for use on winter and summer tyres, but only in pairs and on the rear wheels (see Page 55).

The **maximum permitted speed** should not be exceeded (for example 50 km/h (31 mile/h) in the Federal Republic of Germany). Always comply with the local speed regulations of the country in which you are driving.

Any BMW service station will be pleased to provide further details.

Winter driving hints

When planning a fairly long journey in winter, allow plenty of time in case severe weather conditions and bad roads are encountered. Local newspapers, radio and TV, the telephone service and the automobile clubs provide information on local road conditions, and also whether certain mountain passes are open to traffic.

Before starting the journey, remove ice and snow from the windows, outside mirrors and lights. After a heavy fall of snow, remove ice and snow from the roof and the engine and luggage compartment lids. Clear snow away from the entry grilles for the heating/ventilation system in front of the windscreen, so that the airflow is not impeded.

Before getting into the car, remove slush, snow and ice from your shoes to avoid the risk of slipping off the pedals.

Driving in ski boots is definitely not recommended, as it is difficult to operate the pedals with a sufficient degree of sensitivity.

After starting a cold engine, particularly at temperatures below -15C (+5F), the gear lever may be stiff and the car's suspension may not respond smoothly for the first few minutes of the journey, and other items of equipment may be noisier than usual. This is unavoidable while the oil is still cold and viscous.

When **driving on a slippery surface**, operate the accelerator pedal slowly and smoothly, and avoid high engine speeds by selecting a higher gear quite early. Keep a particularly generous safety margin between your car and the vehicle in front. Select the next-lower gear in good time before reaching an uphill or downhill gradient.

To improve starting on icy or snow-covered roads and in hilly country when the car is only lightly laden, ballast can be carried in the luggage compartment. Make sure that the ballast is firmly secured and cannot slip.

If the car slides, ease back the accelerator and disengage the clutch by pressing the clutch pedal down. Try to steer into the skid and get the car back under control in this way.

When **braking**, ABS prevents the wheels from locking and the car can be steered and manoeuvred. Should the ABS fail and the wheels lock, release pressure on the brake pedal until they just start to turn again but remain braked. Do this repeatedly if necessary. This "cadence braking" procedure reduces the car's stopping distance and enables you to steer safely. By easing off the brake pedal pressure, you stand a better chance of being able to steer round obstacles.

Note: if the brakes need to be applied sharply on slippery roads or surfaces with a variety of frictional values, the clutch should always be disengaged.

If the car is immobilised in deep snow, sand or soft ground, pack some firmer material under the rear wheels to provide extra grip before the car digs itself in too far. If nothing else is available, use the car's floor mats. With a degree of skill, the car can be "rocked" out of the holes: use a light throttle opening and select a forward gear and reverse in quick succession, or accelerate only when the car is moving in the desired direction. Avoid wheelspin, however, or the car will sink in deeper still. The handbrake can be applied lightly to prevent one of the driven wheels from spinning.

Snow chains are permitted only in pairs and on the rear wheels. If available, fit them in good time. They increase driving safety on snow and ice, enable the car to climb hills without slipping and reduce braking distances.

However, the driver must become accustomed to the car's changed handling characteristics. Remove the snow chains as soon as possible, as they wear out very rapidly on clear roads.

During a break in the journey or when filling the tank, remove **caked-on snow and ice from inside the wheel arches**, to ensure that steering and suspension movements are not impeded.

When **parking** your car, prevent it from rolling away by selecting 1st gear or reverse as appropriate. Apply the handbrake if parked on a slope. To prevent the handbrake linings from freezing to the drums in cold weather and to avoid corrosion, apply the handbrake to bring the car to a standstill from slow speed, so that the linings and drums are dried by the heat thus generated.

Useful information on disc brakes

A disc brake system offers optimum braking efficiency, smooth response and high load capacity. The high temperatures which occur during brake applications, for instance when driving hard in hilly areas, necessitate maximum cooling; this is provided by ram air and by the speed of rotation of the brake disc. Severe loads on the brakes affect the temperature of the brake fluid and the pads; overheating may reduce braking efficiency or cause "fading", increased pedal travel and possibly the need for greater effort to be applied at the pedal. However, the boiling point of modern brake fluids is so high that only exceptionally severe use of the brakes amounting to carelessness on the driver's part should cause such situations to arise.

Wet conditions, dirt, salt on the roads in winter and brake disc corrosion can impair braking performance by increasing braking distances, altering the car's normal brake force distribution or causing variations in the coefficient of friction at the various wheels, so that the car pulls to one side.

Brake disc corrosion is accelerated if the car is used very little or is garaged for long periods.

Gentle use of the brakes, although in itself not undesirable, can encourage brake disc corrosion and allow the pads to become dirty, since the minimum pressure needed for the disc brake's self-cleaning action is not attained between pad and disc.

Corroded brake discs may result in a knocking effect when the brakes are applied; this cannot always be eliminated by prolonged braking.

On the other hand, slight corrosion and surface roughness can be removed by fitting brake pads with an abrasive corundum coating. Any BMW dealer can provide information on braking during the running-in period, use of these brake pads etc.

Dirt burnt into the brake pads (glazing of rubbed area) leads to scoring of the brake discs and also a change, reduction or delay in braking effect.

Another problem in this connection is brake squeal, which tends to increase in intensity as the discs become dirtier or more glazed.

All these **climatic and environmental effects cause a change in the brakes' coefficient of friction**, that is to say less braking efficiency is available for a given pedal effort. If the coefficient of friction changes differently at the various brakes, the car may respond unevenly or pull to one side.

Recommended driving procedure for disc brakes

At intervals when traffic conditions allow, disc brakes should be applied quite hard once or twice from high speed. The resulting high braking pressure ensures that the brake pads and discs are kept clean.

Similarly, on long journeys in poor weather conditions, particularly in winter if salt has been spread on the roads, it is advisable to apply the brakes firmly from time to time when it is safe to do so. This not only tests their efficiency in the prevailing conditions (but take care at temperatures around freezing point!), but also results in a self-cleaning action to ensure that they are ready to operate efficiently even in the worst possible weather conditions.

In wet weather and when rain is actually falling, it is advisable to apply the brakes briefly at light pedal pressure at relatively frequent intervals during the journey. The heat generated in this way keeps the discs and pads dry for a certain period.

Before parking the car after driving through rain, and particularly if salt has been spread on the roads, lightly brake the car to a standstill so that the brake discs are dried and cannot corrode so easily.

If the brake discs already show signs of corrosion, the problem can be cured in its early stages by applying the brakes hard several times. Take care not to endanger other road users, and avoid locking the wheels.

The most effective braking action is always achieved not with locked wheels, but when the wheels are still just turning, the result obtained by the antilock brake system.

If the ABS should fail, use "cadence braking" if at all possible (see Page 51).

Locking the wheels can be dangerous, as locked front wheels can no longer be steered, and locked rear wheels cause the car to skid sideways or spin.

If the brake pads are severely corroded or the pads are very dirty (glazing of rubbed surfaces), they must be examined, cleaned, reconditioned or renewed by a BMW service station.

Even long, steep downhill gradients in the mountains need not adversely affect the action of the brakes if you select the correct gear ratio to ensure the required degree of engine braking as well. The engine braking effect is higher in the lower gears; in extreme cases, shift right down to 1st gear.

If the engine braking effect is still not sufficient to prevent the car from descending a hill faster than intended, it is wrong to apply the brakes continuously at light or medium pedal load. Instead, brake the car to a safe speed using quite high pedal pressure (but with due consideration for following traffic), then apply the brakes again at intervals to keep the speed down. The cooling phases between brake applications help to avoid overheating and the risk of brake fade.

Never drive with the clutch pedal depressed, the gear lever in neutral or – still more dangerous – with the engine switched off at the ignition. In neutral, engine braking is entirely lost, and if the engine is switched off the brake booster servo is no longer able to reduce pedal pressure in the normal way.

Warning:
Unrestricted movement of the brake, clutch and accelerator pedals must never be prevented by the floor mats, carpet or any other objects.

What you should know about tyres

Information for your safety

The factory-approved radial-ply tyres have been chosen to suit your car and provide both optimum road safety and the desired level of ride comfort.

The condition of the tyres and maintenance of the specified tyre pressure are vital factors affecting tyre life and also road safety to a very considerable degree.

Incorrect tyre pressures are frequently the cause of tyre defects. The tyre pressure also decisively influences the road behaviour of your BMW. **In the interests of your own safety**, we recommend checking the tyre pressures regularly and before the start of a long journey, **but in any event at least twice a month.**

It is particularly important to maintain the specified tyre pressure when a higher load is carried. If tyre pressure is too low, driving safety and stability fall as a result of reduced lateral support and limited high-speed performance from more acute flexing and higher temperatures, lead to higher fuel consumption due to greater roll resistance, cause greater tyre wear and damage the tyres prematurely, so increasing the risk of accidents.

It should be noted that a certain time may elapse between a tyre incurring damage and actually bursting, or that a damaged tyre may burst even at low load.

If considerable loss of pressure is detected, always identify and rectify the cause.

Do not forget to check the tyre pressure of the spare wheel.

Higher tyre pressures lead to poorer ride comfort and fuel economy, and accelerate tread wear.

The tyres are subject to very high loads at high speeds, in particular in hot weather, and at the maximum payload. The tyre pressure for high loads and the **axle load limits** should therefore be noted.

Tyre treads and tyre damage

Check the tyres frequently for damage, trapped stones and nails, premature wear and shallow tread depth.

The **tread depth** is regarded as acceptable in many countries when worn down to as little as 1 mm (0.04 in), but it is advisable to renew tyres when the tread depth is 3 mm (0.12 in). Below this depth there is a serious risk of aquaplaning at even moderately high speeds and when the roads do not seem particularly wet.

As the risk of aquaplaning always increases at higher speeds, drive with particular caution on wet roads and in accordance with tread depth.

We recommend renewing tyres when the tread has worn down to a depth of 2 – 3 mm (0.08 – 0.12 in). If the tyres wear down to 1.6 mm (0.063 in) tread depth, wear indicators become visible at the base of the tread pattern as a reminder that the legal wear limit is approaching.

Tyres must never have their treads recut, in view of the risk of damaging the tyre carcase.

Any **foreign body** (nail or similar sharp object) penetrating the tyre may cause a slow puncture, which will only be detected if tyre pressures are checked regularly. In this event the tyre should be checked and either repaired or renewed as soon as possible by a BMW service station or a specialised tyre fitting dealer.

Drive at moderate speeds over poor road surfaces and approach unavoidable obstructions such as a kerb or a severe bump in the road with care, so that the **inner carcase** of the tyre does not suffer damage that is invisible externally.

Take care not to bump the **tyre sidewalls** when parking or driving on to loading ramps, car hoists etc.

Avoid **overloading** your car, particularly on holiday trips. Overloading can exceed the tyres' permitted load capacities and cause premature or subsequent damage.

Tyre damage can be extremely dangerous, both for the car's occupants and for other road users, particularly if a sudden loss of pressure occurs.

Fitting new tyres

To ensure good road behaviour, only tyres of the same make and tread pattern should be fitted to all the car's wheels. Retreaded tyres are not approved, since their carcases may differ in construction or degree of ageing, with a possibly detrimental effect on subsequent operating life and, in certain cases, on the car's handling and safety.

Changing wheels round

The front and rear wheels incur tread wear at different rates. In the interests of safety and of optimum working conditions in conjunction with the chassis and suspension, we recommend that the wheels should not be interchanged.

Road wheels and tyres

You are recommended to use only tyres approved by BMW. Certain tyre makes and dimensions are obligatory. Every BMW service station knows further details.

Any national regulations should be observed.

The speed rating codes indicate the maximum permissible road speeds for summer tyres (subject to legal limits):

S = up to 180 km/h (112 mile/h)
T = up to 190 km/h (118 mile/h)
H = up to 210 km/h (130 mile/h)
V = up to 240 km/h (149 mile/h)
VR = over 210 km/h (130 mile/h)
ZR = over 240 km/h (149 mile/h)

The tyre valves are provided with **screw dust caps** to keep out dirt. If dirt enters a valve, a slow leak may result.

Tyres may be damaged and encourage accidents if they are treated improperly or incorrectly.

All work on tyres should be entrusted only to experts. A BMW service station will gladly advise you.

Approved BMW road-wheel and tyre sizes

Radial-ply tyre (tubeless)	Light-alloy wheel	Offset mm (in)
205/55 R 15 87 V	7 J x 15 H2	24 (0.94)
225/45 ZR 16	$7^1/_2$ J x 16 H2**	25 (0.98)
205/55 R 15 87 Q/T/H M+S	7 J x 15 H2	24 (0.94)
225/45 R 16 89 Q/T/H M+S	$7^1/_2$ J x 16 H2**	25 (0.98)
T 125/90 R 15 96 M*	4 J x 15 H2	25 (0.98)

* Temporary spare wheel, may only be used in order to drive to the nearest BMW service station, for instance. Due to the car's altered driving characteristics, do not exceed a speed of 80 km/h (50 mile/h). Note correct tyre pressures (see Page 72).

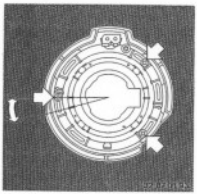
** Snow chains may not be fitted.

Fine-link BMW snow chains for summer or winter tyres may only be used in pairs on the rear wheels.

Technical modifications to the car

Any BMW service station will advise you on the practical value, legal position and factory attitude before modifications are undertaken; please quote the vehicle identification number and, where appropriate, the engine number.

Warning:
certain parts of the car may contain asbestos; spare parts containing asbestos will bear identification to this effect.



Adjusting headlights for travel abroad

When crossing a country with a different "rule of the road", that is to say where the traffic drives on the opposite side of the road:

- loosen the three recessed-head screws on the rear of the dipped headlights,
- turn the headlights until the stop is reached,
- tighten the screws again.

This work can be performed by a BMW service station if required.

Re-registration abroad

Each car is supplied in accordance with the road vehicle use regulations of the country for which it is intended.

If the owner moves abroad and wishes to re-register the car locally, information should be obtained well in advance as to possible import and licensing restrictions or differences in the legal position.

The Service Division of BMW AG, German telephone number (0)89–32380, will endeavour to supply this information if you quote the model, vehicle identification number and date first registered.

Antilock brake system (ABS)

BMW's unceasing efforts to improve its cars' active safety still further have led to the development of an antilock brake system (ABS).

Whenever the brakes are applied, the ABS is required to satisfy two fundamental requirements:

a) To maintain the car's stability on varying surfaces (asphalt, concrete, mud, wet roads, snow and ice)

b) To ensure that the car can be steered and manoeuvred under these adverse conditions.

These requirements must, however, be seen in the light of certain unavoidable accompanying factors.

Even ABS is unable to prevent the natural laws of physics and motion from acting on the car. For instance, it cannot avoid the consequences of braking when there is insufficient distance remaining from the car in front, when cornering limit speeds are exceeded or if there is a risk of aquaplaning (tyres riding up on a cushion of surface water). It remains the driver's task to judge speeds and brake applications correctly in such conditions.

The fact that a car is equipped with ABS must never tempt the driver into taking risks which could affect occupant safety and that of other road users, despite the increased safety margins this system frequently provides.

Driving a car equipped with ABS

After the engine has been started, the yellow **ABS warning light** on the instrument panel will go out.

The system itself is then in working order, but does not come into action until road speed exceeds approx. 8 km/h (5 mile/h). After this minimum control speed limit has been reached, the ABS prevents the wheels from locking when the driver applies the brakes. If the speed drops again below approx. 3 km/h (2 mile/h), the ABS ceases to operate, so that in theory the wheels could lock at the very end of a brake application, though in practice this is not critical at such a slow speed. The ABS regulating cycle is performed repeatedly within fractions of a second.

To inform the driver that his brake application has caused the ABS to come into action, a pulsating effect is noticed at the brake pedal, together with a characteristic chattering noise. This acts as a warning that grip between the tyre and the road is being lost (slippery surfaces), so that the driver can reduce speed accordingly.

ABS is capable of achieving the shortest possible braking distances in any given conditions (straight-line running or cornering, on smooth asphalt, ice, wet surfaces etc.).

The braking distance may be slightly longer than when the wheels are locked on loose surfaces covering a firm base, such as snow or gravel, or if snow chains are fitted.

However, the benefits of greater stability and the fact that the car can be steered more than outweigh this occasional slight drawback.

The ABS control unit incorporates an electronic fail-safe monitoring system which checks that all components are in working order before each journey, and repeats this check regularly when the car is in motion. The yellow ABS warning light on the instrument panel comes on to indicate any malfunction. The brake system then operates conventionally and with precisely the same standards of performance as on cars not equipped with ABS.

Care of the car

The car's high-quality paint finish is chosen not only to appeal to the owner's personal colour preferences, but also to provide maximum body protection. It consists of **several layers** for reliable corrosion-proofing.

The body is of thermoplastic of a high dimensional stability and resilience.

The compartment lids are of laminated fibreglass-reinforced plastic.

The body is galvanised and cataphoretic-dip coated before the paint coating is applied, for protection against corrosion.

Regular care and maintenance make a big contribution to safety and to your car's resale value.

A large number of **environmental influences** can affect the car's paintwork, some of them purely local in origin. They govern the amount of care the paintwork needs and how often it should be attended to.

Road dust and dirt, tar stains, dead insects, animal excretions (high level of alkali formation) as well as tree and plant materials (resin, pollen) all contain chemicals which, if allowed to remain on the car for any length of time, can damage the paintwork by causing patches, blisters, corrosion, flaking of the top coat etc.

In **industrial areas**, the horizontal panels of the body in particular may suffer from deposits of fly ash, lime, oily soot or substances containing sulphur dioxide ("acid rain"), as well as other deposits. Only regular care of the paintwork can avoid damage in such circumstances.

In **tropical climates**, ultra-violet radiation from the sun is very strong, the air is often very humid and temperatures can exceed 40 °C (104 °F) in the shade. Light paint finishes may heat up to 80 °C (176 °F) and darker colours as high as 120 °C (248 °F). Prolonged exposure could cause the paint finish to develop cracks, particularly on horizontal surfaces.

In the event of **mechanical damage** caused by sand, road salt, grit etc., the paint surface may be damaged.

Since the car's paintwork is exposed to so many potential environmental hazards, automobile manufacturers and paint suppliers are constantly working on further improvements to the strength and durability of modern paints.

The composition of the paints used by BMW and the manner in which they are applied are in accordance with the very latest standards in this specialised area.

BMW car care can be entrusted to the experts who know what's best for your car: the BMW Service Organisation. But even if you choose to look after the car yourself, BMW service stations can supply you with conveniently-sized packs of all the correct car care products.

Care of paintwork

To protect the car right from the start against gradual deterioration of the paintwork in areas of high atmospheric pollution or where natural substances could damage the paint finish (industrial zones, railways, sap and resin from trees, pollen, bird droppings), it is advisable to **wash the car once a week**. In severe cases, wash the car whenever the paint finish is seen to be dirty or contaminated.

Remove spilled fuel, oil, grease or brake fluid **at once**, as they can attack the paint and change its colour.

Bird droppings should also be **removed without delay**, or they will damage the paintwork.

Washing the car

Do not wash the car if the engine compartment lid is still hot, or if the car has been standing in strong sunlight, or else patches may form on the paint surface.

During the cold season of the year in particular it is advisable for the car to be washed more frequently, since heavy dirt deposits and salt from wet roads are more difficult to remove and will damage the entire car if left on too long.

Do not use an automatic car wash. **When washing the car by hand**, first soften the dirt deposits on the paint with a fine water spray, and rinse them off. Do not spray water directly into the air inlets or outlets of the heating/ventilation system.

After this, wash the upper part of the body with a sponge, washleather glove or similar, using plenty of no more than lukewarm water, and starting with the roof. Rinse out the sponge frequently.

Wash the lower part of the body and the wheels last of all, if possible keeping a separate sponge just for these areas.

After washing, rinse the car down again thoroughly with the hose and dry it with a clean chamois leather to prevent discoloured patches where the water has not been removed.

To protect the paintwork, a paint-care product* can be added to the water used for washing the car.

If washing with water alone is insufficient, a car shampoo or similar cleanser* which restores the fats content of the paintwork can be used, in the concentration stated on the pack. After this, rinse down with plenty of water.

Note: after washing, the car's brakes may be wet and therefore less effective in action. Apply them briefly if the car is driven immediately afterwards, to dry the discs.

Any local dirt patches or other contamination of the paint surface can best be seen after the car has been washed. Remove them as soon as possible with a clean cloth or wadding soaked in alcohol spirit or cleaning-grade petrol (gasoline). Eliminate tar stains with a special tar remover*.

Polish the paintwork at these points to restore its appearance and protect it.

Please use only **paint care products** containing carnauba or synthetic waxes.

It is quite easy to decide when the car's paintwork needs polishing or preservative treatment: water no longer forms large round droplets on the painted surfaces. Depending on use of the car, this may arise after some 3 to 4 months. Do not fail to carry out the necessary protective treatment as soon as it becomes necessary.

If the paintwork tends to lose its high gloss as a result of insufficient care, a suitable **polish*** must be applied. **Paint cleaner*** is needed if the finish is already matt or weathered. Ensure that any such products used do not contain aggressive media.

After care of the car's paintwork, remove traces of the products used from the windows with a suitable glass cleaner*.

*Obtainable from BMW dealers

Minor paint damage can be touched up with a BMW paint spray aerosol*, a BMW paint stick* or BMW Paint Film. The correct colour designation is on an adhesive label close to the maker's plate, and also on the first page of the Service Booklet.

Damage caused by flying stones, scratches etc. must be touched up without delay, to prevent rust from forming.

More extensive paint damage should be repaired professionally by a BMW service station, which uses only genuine BMW-approved materials in accordance with the manufacturer's instructions.

Important note:

If a tarpaulin or similar cover is used to protect the car against the weather, moisture condensate may collect, particularly in the case of plastic sheet, and cause the plasticisers to diffuse out of the paint. There is also a risk of scratching the paint surface. It is far better to protect your BMW against ultra-violet rays from bright sunlight and against rainfall etc. by giving it the full body care treatment described here. Ideally, in countries where the sun is extremely hot and powerful, a canvas sunsheet should be stretched 50 to 80 cm (2–3 ft) above the car.

Annual cleaning and protection or treatment of the engine, engine compartment, underbody, axles and other mechanical assemblies can be carried out with special equipment by a BMW service station. This not only **reduces the risk of serious corrosion** to a minimum, but avoids current leakages and reveals other leaks before they become too severe. This treatment is particularly important at the end of the winter season.

Alloy wheels should be treated with a special wheel-rim cleanser*, particularly during the cold season. Do not use aggressive-action products containing acids, strong alkalis or abrasives. Alloy wheels should not be cleaned with a steam jet at a temperature higher than 60 °C (140 °F).

* Obtainable from BMW dealers

The **inside surfaces of windows (and mirror glasses)** can be cleaned and smearing avoided with a special glass cleaner*. Never clean mirror glasses with polishing pastes or abrasive (quartz) cleansers.

Plastic components and light glasses should be cleaned with water to which a car shampoo* may be added. If necessary, treat plastic components with a suitable cleanser for synthetic materials*. Never use solvents such as nitro thinners, cold cleaning agents, fuel etc.

Rubber components should only be cleaned with water or treated with a rubber cleanser* or silicone spray*. Mask over flock-covered parts when applying.

Clean the **windscreen wiper blades** with soapy water. The wiper blades should be renewed twice a year, before and after the winter season.

Seat belts should only be cleaned with a weak soap and water solution, without removing them from the car. Never attempt chemical or dry cleaning, or the belt fabric may be damaged.

Automatic-reel seat belts should never be allowed to retract while still wet. Dirt on the belts could prevent them from retracting correctly, thus constituting a safety risk.

Floor mats and carpets can be cleaned with an interior cleanser* if very dirty.

Floor mats can be removed for more thorough cleaning of the car's interior.

Care of leather

The **upholstery leather** used in BMW cars is a high-grade natural product treated by the latest processes. If carefully looked after, it will retain its high quality for many years.

Like all natural products, however, due consideration must be given to its properties, to certain limitations in use and to the special care which leather needs.

It has been our aim to preserve the natural character of all leathers as far as possible, while endeavouring to meet all quality standards. This means that even leather hides of a supreme quality exhibit natural features which are typical of this material, such as folds in the animal's skin, scars caused by scratches and insect bites, etc.

Regular cleaning and care are essential, since dust and road dirt penetrate the pores and creases, and cause the surface to wear away and become brittle.

If the car is parked for a long time in bright sunlight, it is advisable to cover leather-upholstered items or all windows to prevent the colours from fading.

Moisten a cotton or woollen cloth slightly with water and clean the leather surface without allowing the seams to become wet through. After drying, the leather should be rubbed down with a soft, clean cloth.

Very dirty areas on leather upholstery can be cleaned with a mild detergent (as sold for woollens) containing no brightening agents. Use 2 dessert spoons to one litre (1¾ Imp. pints) of water. Dab oil or grease spots carefully with cleaning-grade fuel, but do not rub.

To maintain the condition of the leather after cleaning, and avoid the build-up of a static electrical charge, apply cornelian oil*. Shake well and apply a thin coating with a soft cloth. Allow to penetrate and dry, then rub with a clean, soft cloth.

It is advisable to repeat this treatment every 6 months if the leather is exposed to normal use.

Nubuk leather

This is an unembossed, full aniline chrome-tanned leather. It is handfinished to produce the velvety appearance and soft "writing effect". Nubuk leather acquires a certain patina in use, emphasising the character of this finish.

It repels water and dirt. Liquid cannot penetrate beneath the leather's surface, but only forms beads which can be wiped off with an absorbent cloth.

If the surface impaired by intensively worked-in moisture, marks can be eliminated with a coarse brush or, if necessary, using luke-warm soapy water.

Care of upholstery fabrics

Fluff and loose threads or abraded textile and leather particles on the upholstery are best removed with a suitable fluff brush* or burr-pile brush*. Clean off stains or large-area marks with lukewarm water, car-interior cleaner*, stain remover* or cleaning-grade fuel. Afterwards, brush the fabric to restore its pile.

Seat upholstery fabrics can acquire a **static electrical charge**, particularly when atmospheric humidity is low. Persons touching metal parts of the body **after** leaving the car may then receive an unpleasant but harmless electric shock. Remember to touch an exposed metal part of the car **while getting out**: this will disperse the electric charge without its being noticed.

Antistatic products* which largely prevent the build-up of static electricity can be applied if desired.

If the car is parked for a long time in bright sunlight, it is advisable to cover the seats to prevent the colours from bleaching out.

* Obtainable from BMW dealers

Looking after and cleaning the roadster soft top:

Maintaining the appearance of the soft top and ensuring that it keeps in good condition for a long time depend to a great extent on proper care and operation.

To prevent adverse affects from strong sunlight, park the car in the shade whenever possible. This will protect the paintwork, rubber components and fabrics used on and in the car.

Do not use an automatic car wash to avoid causing damage to the car. The pressure of the roof brush could damage the roll-over hoop and scratch the rear window, and silicones and waxes attack the rubberised soft top. For the above reasons, the roadster soft top should only be washed by hand.

To avoid marks caused by mildew or abrasion, do not fold the soft top and store it in its compartment when it is wet, dirty or frozen.

To avoid folds in the rear window and also to prevent mildew forming, do not leave the soft top folded away in its compartment for lengthy periods.

If stored for any length of time in enclosed spaces, ensure that the soft top remains dry and that the room is sufficiently ventilated.

Always remove bird droppings straight away, otherwise the caustic effect will damage the soft top and cause the rubber seals to swell.

Before washing, remove surface dirt by brushing in the direction of the fabric weave with a dry natural-hair brush.

As long as the soft top is not excessively dirty, clean water is sufficient for normal washing purposes. Stubborn marks and stains can be removed with a mild (alkali-free) detergent, applied over a large surface area with a sponge or soft brush, rubbing in the direction of the fabric weave. (Concentration: 1 dessert spoon of mild detergent to 1 litre of water.)

Finally rinse the soft top with a jet of clean water until all traces of soap have been removed.

Do not wash the soft top on every occasion that the car is washed.

Never use stain remover, paint thinners, solvents, petrol, benzene or similar products to remove stains from the soft top or rear window, since they will destroy the rubberising component and cause leaks.

Use only those cleaning agents* recommended by BMW. As well as the advantage of being extremely flexible, the rear window has a relatively soft surface, which has certain disadvantages.

The rear window should be cleaned only with a soft, antistatic cloth, commercially-available window cleaning agent, diluted methylated spirit or alkaline washing solutions.

Make sure that such cleaning agents do not come in contact with the soft top.

Never use sharp-edged implements to clean snow and ice off the rear window. The use of de-icing sprays is not permitted.

To avoid damage and discolouration, do not affix adhesive tape, stickers, plastic sheet etc. to the rear window.

Treat rubber seals regularly, especially if they feel dry or tend to stick. Apart from water, only talc, rubber care products* or silicone spray may be used.

Lubricate with sprays to eliminate abrasive noise.

Incorrect care and cleaning, as well as extended periods of use, can lead to leaks in the soft top and its seams. We recommend entrusting repair work to a BMW service station.

Warning:
Keep cleaning products out of the reach of children.

Before using any such product, study and comply with the instructions supplied with it, and note any warnings or precautions stated on the pack.

* Available from BMW dealers.

Engine data

Displacement		
effective	cm^3	2494
Number of cylinders		6
Max. output	kW	125
(DIN 70 020 standard)	bhp	170
at engine speed	1/min	5800
Max. torque	Nm	222
	lb.ft	164
at engine speed	1/min	4300
Compression ratio	ε	8.8
Stroke/bore	mm	75/84
Mixture preparation		Digital Motor Electronics

Dimensions and weights

Length	3921 mm (154.4 in)
Width	1690 mm (66.5 in)
Height	1277 mm (50.3 in)
Wheelbase	2447 mm (96.3 in)
Front overhang	767 mm (30.2 in)
Rear overhang	707 mm (27.8 in)
Front track	1456 mm (57.3 in)
Rear track	1470 mm (57.9 in)
Min. turning circle (wheels) ∅	9.40 m (30 ft 10 in)
Min. turning circle (overall) ∅	10.10 m (33 ft 2 in)
Unladen weight (ready to drive, full tank, without special equipment)	1250 kg (2756 lb)
Gross weight limit	1460 kg (3219 lb)
Front axle load limit	665 kg (1466 lb)
Rear axle load limit	820 kg (1808 lb)
Luggage capacity acc. to VDA test	* 260/180 litres (9.18/6.35 cu.ft)

*Soft top closed/open, in each case without spare wheel

Performance, fuel consumption

Top speed	km/h (mile/h)	225 (140)
Acceleration	km/h (mile/h)	s
from	0–50 0–31	2.9
	0–80 0–50	5.3
	0–100 0–62	7.9
	0–120 0–75	10.9
80–120 km/h (50–75 mile/h) in direct gearbox ratio		9.0
Standing-start kilometre		28.8

Fuel consumption (DIN 70030/1 ECE standard test method)		
At 90 km/h	l/100 km	6.8
(56 mile/h)	(Imp. mile/gal)	(41.5)
At 120 km/h	l/100 km	8.4
(75 mile/h)	(Imp. mile/gal)	(33.6)
Urban driving	l/100 km	12.9
cycle	(Imp. mile/gal)	(21.9)

Technical data

Gear ratios

1st gear	3.83
2nd gear	2.20
3rd gear	1.40
4th gear	1.00
5th gear	0.81
Reverse	3.46

Electrical system

Battery 12 V, 65 Amp/h
(behind driver's seat)

Firing order 1-5-3-6-2-4

Ignition timing

On cars equipped with Digital Motor Electronics, ignition timing is pre-programmed and cannot be adjusted.

Alternator 80 A, 1120 W

Starter motor 1.4 kW

Index

Filling capacities	Litres (Imp. units)	Notes
Fuel tank	55 (12.1 gal)	Fuel grade: see Page 4
Windscreen washer system	app. 3.0 (5.3 pints)	For details, see Page 36
Cooling system including heater	10.5 (18.5 pints)	For details, see Page 37
Engine with/without oil filter renewal	4.25/4.0 (7.5/7.0 pints)	Brand-name HD oil for spark-ignition engines; see Page 34 for oil grades
Gearbox (manual)	1.25 (2.2 pints)	Mobil SHC 630 gear oil
Final drive (rear axle)	1.7 (3.0 pints)	Brand-name hypoid gear oil, SAE 90*

* Authorised BMW service stations know the correct grades

Spark plugs

	Heat value
Bosch W 8 LCR	145

V-belt

Alternator and coolant pump

9.5 x 965 mm

Hydraulic power steering pump

9.5 x 900 mm

For your safety - check tyre pressures regularly

Incorrect tyre pressures can impair the car's stability or lead to tyre damage which in turn result in an accident.

Tyre pressures in bar (gauge pressure) when cold (ambient temperature); values in brackets = lb/in (psi).

Note: as the tyres become hot (e.g. fast main-road driving), pressure rises by approx. 0.3 bar (app. 4.0 lb/in). For every change in temperature of 10 °C, tyre pressure varies by 0.1 bar (1.4 lb/in).

Radial-ply tyres (tubeless)		
205/55 R 15 87 V 205/55 R 15 87 Q/T/H M + S 225/45 R 16 89 Q/T/H M + S	2.0 (28.4)	2.3 (31.3)
225/45 ZR 16	1.8 (25.6)	2.1 (29.9)
T 125/90 R 15 96 M*	4.2 (59.7)	4.2 (59.7)

A label showing tyre pressures is affixed on the inside of the fuel-filler flap.

* Temporary spare wheel, may only be used in order to drive to the nearest BMW service station, for instance. Due to the car's altered driving characteristics, do not exceed a speed of 80 km/h (50 mile/h).