1502

OWNER'S HANDBOOK

BMW


M-PE 1437

Dear BMW enthusiast,

In congratulating you on your new BMW, we trust you apppreciate the qualities of the car you now own. The road-holding and performance of the car enable you to be courteous and careful in traffic, yet accelerate away from the crowd when conditions permit.

However, the power of your car only has real meaning if you handle it with confidence. Therefore, please take a little time to study the handbook, with its recommendations for trouble-free driving pleasure.

Sincerely yours,
BAYERISCHE MOTOREN WERKE
Aktiengesellschaft

Contents

Before you start –
Where is everything?

"Daddy said
I'm too young to understand –
those grown ups!"

The **maker's plate, chassis and engine numbers** are the means of identifying your car and can be checked against its official registration papers.
The type designation, chassis number and other information are entered on these official registration papers. It is a good idea to compare these entries with the details stamped at various points on the car. Queries, inspections and spare part orders, all require these details to be given, so it is essential to know where to find them.

Maker's plate: in the engine compartment, at the back on the right-hand side (looking forward). **Fig. 1**

Chassis No.: on the underside of the engine compartment lid, on the support of the wheel arch. **Fig. 1**

Engine No.: on the rear left-hand side of the crankcase (looking forward) above the starter. **Fig. 2**

You have received two pairs of keys with your new BMW. It is best to deposit the second pair in a safe place so that they can be obtained without difficulty if the first pair is lost.

Please make a note of the key numbers immediately, as these numbers are very important should you need new keys. All of the BMW service stations will be glad to assist you in procuring new keys whenever necessary. **Fig. 3**

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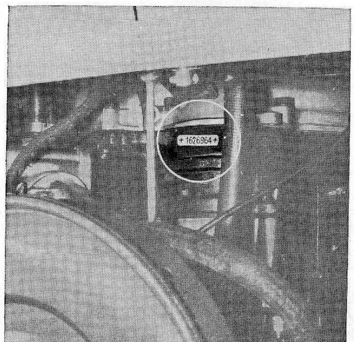

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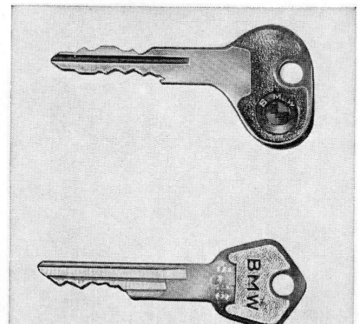

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To unlock the doors, insert the larger key and turn towards the front of the car. To lock the doors, turn the key in the opposite direction. When unlocked, press the button beneath the handle to open the door. **Fig. 4**

To lock the doors from the inside, press down the safety knob; to open from the inside, first raise the safety knob, then pull up the handle beneath the arm-rest. **Fig. 5**

When the door is open the safety knob cannot be pressed down. This prevents the door from being locked accidentally.

The **luggage compartment** is locked and unlocked by the smaller key. **Fig. 6**

Do not forget to lock the luggage compartment with the key after closing the lid.

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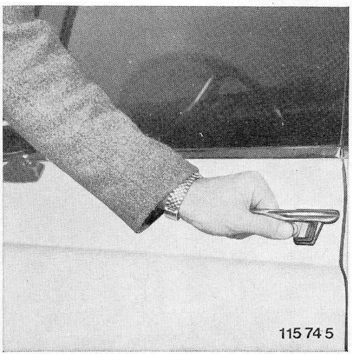

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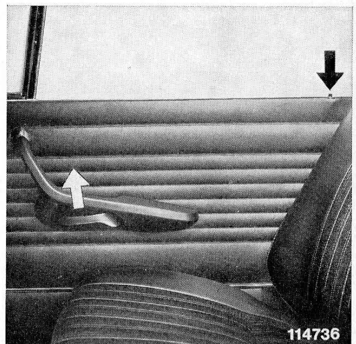

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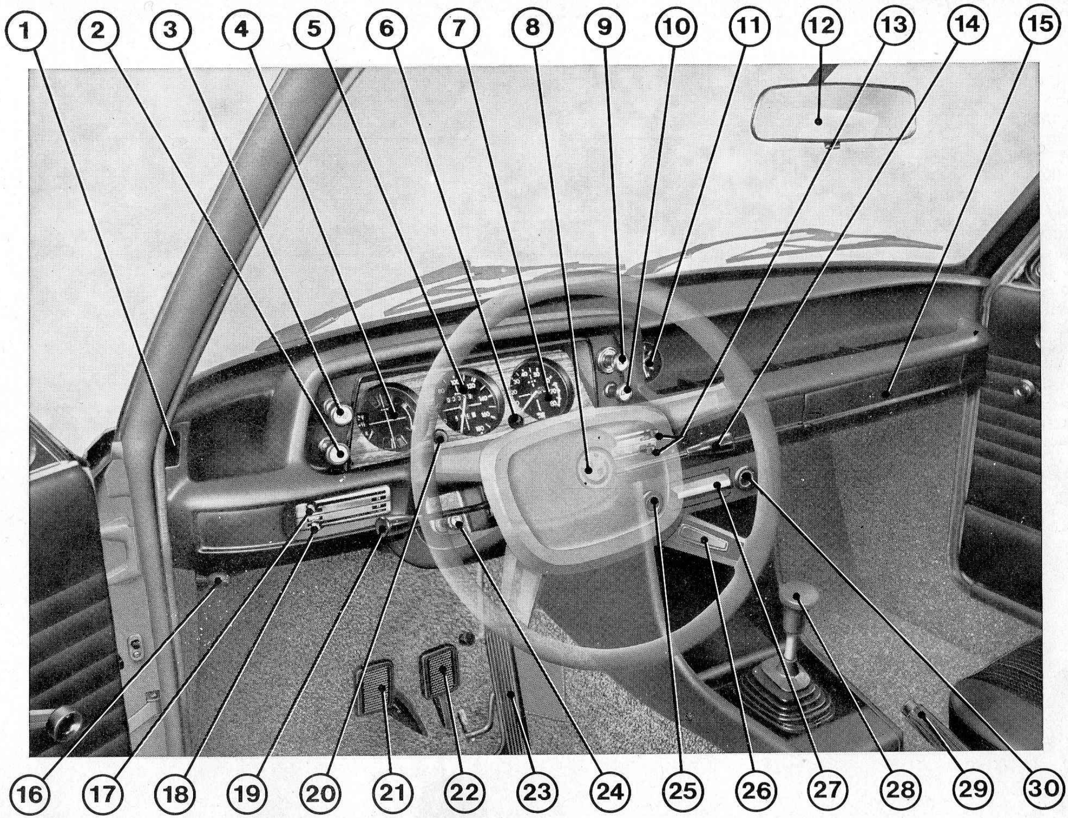
Instruments and controls

Note: Number in square brackets [ ] indicates page on which description is to be found.

1. Air distributing vent for side window (left) [20]
2. Pull knob for fog lamp (optional) [14]
3. 2-position head and side light switch, with instrument panel illumination [10]
4. Combined instrument containing fuel gauge, coolant temperature gauge and warning lamps [15] for:
   battery charge (red)
   oil pressure (red)
   turn indicators (green)
   main beam (blue)
5. Speedometer with mileage recorder and trip recorder [13]
6. Trip recorder reset knob [13]
7. Revolution counter (optional)
8. Steering lock and ignition [10]
9. Combined cigar lighter and plug socket [19]
10. Pull knob for heater rear window (optional) [21]
11. Clock [13]
12. Interior rear view mirror [15]
13. Heater temperature control lever and blower lever, 3-stage [20]
14. Screenwiper and screenwasher lever [11]
    screenwasher lever [11]
15. Glove compartment [18]
16. Lever for engine compartment lock [12]
17. Air distributing lever for defroster vents [20]
18. Air distributing lever for footwells [20]
19. Lever for turn indicators, parking lights, headlight dip and flasher [10]
20. Warning lamp (red) for fuel tank reserve, handbrake and choke pull knob [13]
21. Clutch pedal [22]
22. Brake pedal [22]
23. Accelerator pedal [22]
24. Choke pull knob [22]
25. Hazard warning flasher switch [14]
26. Horn pushers [13]
27. Ashtray [19]
28. Gear lever [18]
29. Handbrake [18]
30. Switch for rear fog light [14] (optional)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The **ignition and starter switch,** mounted on the right-hand side of the steering column housing, is combined with the steering lock. Insert key 1 only at the "Halt" position of the lock. **Fig. 7**
Turn the key to the right as far as the "**o**" position: the steering lock will be released with an audible click as the key is turned (if necessary the steering wheel should be moved slightly to assist). The steering is now unlocked, the radio and the electric steel sliding roof (optional extra) will operate if required. If the key is now turned further to the "Fahrt" (Drive) position, the ignition will be switched on, the battery charge (red) and oil pressure (red) telltales will be illuminated, and the fuel gauge will register.

To lock the steering, turn the key back to the "Halt" position and withdraw. Move the steering wheel slightly if necessary until the steering lock is heard to engage. The ignition key can be withdrawn **only** in this position.

2-position headlamp and light switch (Fig. 8):

Position 1 – parking lights
Position 2 – headlights

The intensity of the **instrument panel lighting** can be continuously adjusted by turning the light switch knob in its pulled-out position.

The **dip lever and turn indicator lever** at the left of the steering column can be finger-tip operated with your left hand, while both hands are holding the steering wheel **(Fig. 9).** When the lever is set to main beam (upper position) a blue warning lamp in the combination instrument is illuminated. To **flash the headlights,** pull the lever towards the steering wheel. If the ignition key is turned to "**o**" or "Halt" while the headlights are on, the headlights will be switched off and only the parking lights will stay on.

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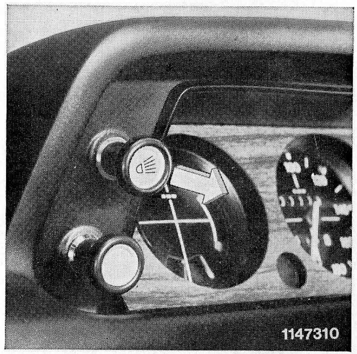

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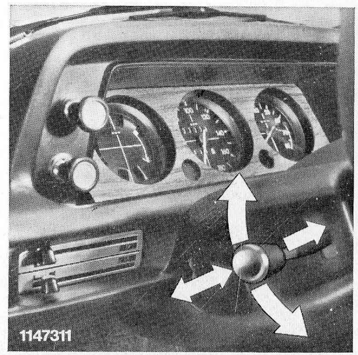

The **wiper and screenwasher lever** on the right hand side of the steering column has 3 positions. **Fig. 10:**

Lever pushed down (0)
  off
Lever in middle (1)
  wiper speed 1 (normal)
Lever pushed up (2)
  wiper speed 2 (fast)

Use stage 2 (fast) only in heavy rain or snow.

10

The **turn indicator lever** beneath the steering wheel on the right-hand side of the steering column operates the right or left flashing indicators when moved up and down respectively. **Fig. 10**

A regular ticking sound and illumination of the green warning light in the combination instrument tells you that the flasher unit is operating correctly. **(Fig. 11)** The oil pressure telltale also serves as a turn indicator telltale for a trailer.

When the steering wheel is returned to the straight-ahead position the turn indicator is automatically cancelled, but if the turn was only slight it may be necessary to cancel the lever by hand.

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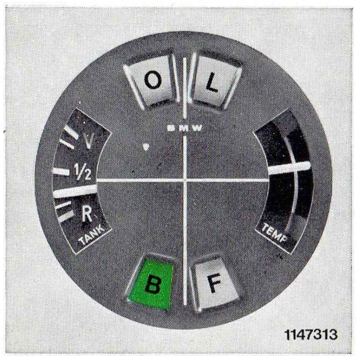

If the flashing indicators are to be operated for a short period only (e.g. changing lanes, overtaking, starting) press the turn indicator lever only slightly from its original position in the direction desired, without letting it engage. As soon as you let it go it will return to its original position without the steering wheel being turned.

When the steering lock is engaged, the turn indicator lever is used instead to switch on the **parking lights** on the appropriate side of the car:

Lever up – left front and rear
Lever down – right front and rear

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If the wiper and screenwasher lever is pulled up towards the steering wheel rim, the automatic screenwasher will operate. The electric fluid pump and the wipers are both set in motion simultaneously. When the lever is released, a relay prevents the wipers from switching off immediately. **Fig. 12**

Warning: The automatic washer unit should not be operated when the fluid container is empty.

Headlight cleaning system
As a further contribution to active road safety, your BMW may be fitted as special equipment or subsequently with a headlight cleaning system and enlarged fluid tank (approx. 4.2 litres/7.6 Imp. pints/8.8 US pints).

When the lights are switched on, the individual deaming cycles can be actuated at 60 second intervals by operating the windshield washer control.

The two **washer jets** are located under the rear edge of the engine compartment lid in a position where they are not likely to be damaged. If either water jet fails to strike the glass correctly, the jet nozzle can easily be bent by hand to the correct position. **Fig. 13**

The **fluid container** (approx. 1.5 litres/ 2.6 Imp. pints/3.2 US pints) is located on the right-hand side of the engine compartment. **Fig. 14**

The forward-opening **engine compartment lid** is released from inside the car by pulling the lever close to the left side panel beneath the instrument panel. **(Fig. 15)** A built-in spring mechanism then assists in raising the lid from the outside.

Warning: Close the engine compartment only when the interior lever is in the rearward position. After closing, lock by pushing the lever forward.

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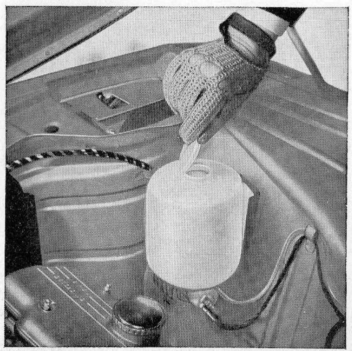

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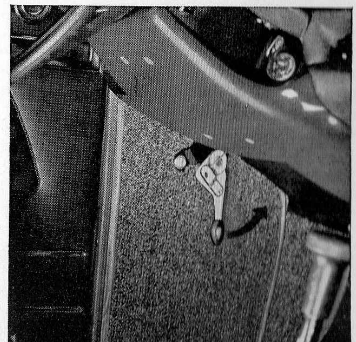

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A knurled knob in the centre of the electric **clock** should be pushed in and turned to adjust the hands **Fig. 16,1** – or **Fig. 17** if equipped with rev. counter.

A reset knob is provided to return the **trip mileage recorder** in the speedometer to zero. The knob should be turned to the right. **Fig. 16,2**

Operating the **single-tone horn:** horn pushes in the steering wheel spokes. The **red warning lamp** on the instrument panel is illuminated if:

1. the fuel tank level drops to the reserve mark

2. the handbrake is pulled

3. the choke knob is pulled. **Fig. 18**

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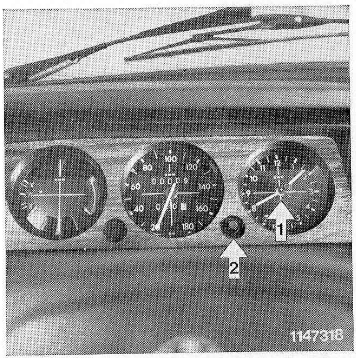

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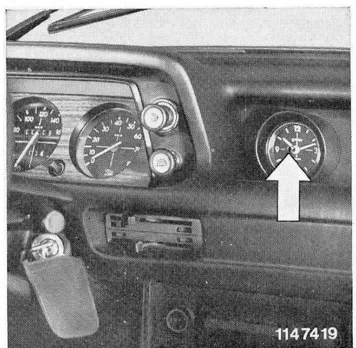

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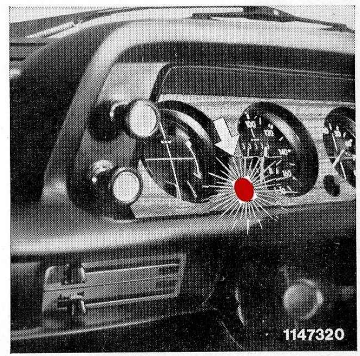

Fog lamps
By pulling the knob when the headlights are on, the fog lamps (optional) are switched on. **Fig. 19**

The **hazard warning flashers** can be operated with the ignition switched on or off by pressing in the knob at the left of the ashtray. The **red knob** is illuminated periodically to show that the hazard warning flashers are operating correctly. **Fig. 20**

Press the knob at the right of the ashtray to switch on the rear fog lamp (optional). When the lamp is switched on, the telltale lamp in the **green knob** is illuminated. **Fig. 21**

The **interior light switch** has 3 positions:

Position 1: permanently switched on;

Position 2: permanently switched off;

Position 3: light operates only when a door is opened (switches fitted to door pillars).

Fig. 22

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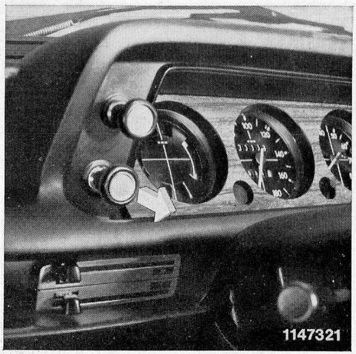

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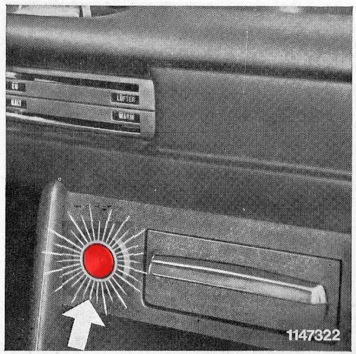

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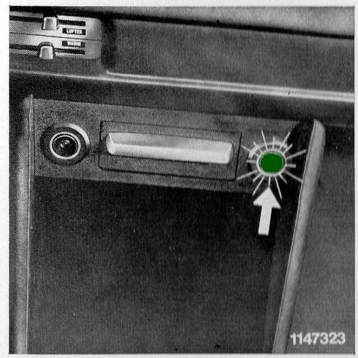

Adjust the positions of both the **interior and exterior rear view mirrors** to suit your driving position.

Each **sun visor** may be swung sideways to cover the side window if the sun is dazzling from that direction. **Fig. 24**

The **combination instrument** contains the fuel gauge, coolant thermometer and telltale lamps for:
Oil pressure (O) red, also turn indicator for trailer
Battery charge (L) red
Turn indicators (B) green
Headlight main beam (F) blue
Fig. 24

The **coolant thermometer** is divided into 3 colour zones:

Blue: engine is running too cold. If the thermometer needle is in this region road speed and engine speed must be kept low.

White: normal operating temperature range.

Red: engine is too hot. No anxiety need be felt if the needle reaches the red zone or enters it for a short period if the engine is working very hard or the outside temperature is extremely high. However, if the needle tends to remain in the red zone for longer periods, the engine is definitely in need of attention (see procedure described on p. 32).

When the ignition is switched on, the **fuel level** can be seen from the gauge. If the needle is indicating **"Reserve"** or if the red warning lamp on the instrument panel is illuminated fill up as soon as possible, although the tank still contains enough fuel for about another 30 miles, depending on how you drive.

The **fuel filler cap** is located on the right side of the car at the rear.

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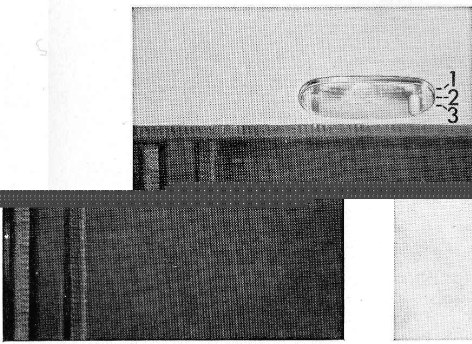

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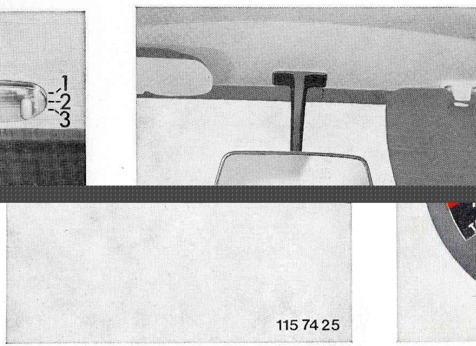

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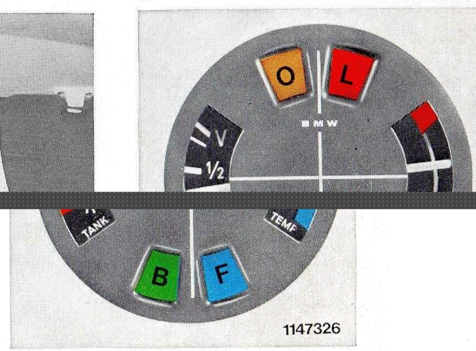

Fig. 25 shows the layout of the **rear light cluster:**

1. Turn indicator light (yellow)
2. Rear light and reflector (red)
3. Stop light (red)
4. Reversing light (white)

When the headlight switch is on (page 10, **Fig. 8**), the **luggage compartment lighting** is also switched on.

For fore-and-aft **adjustment of the front seats,** pull up lever at the outside edge of the seat base and slide the seat to the desired position. Release the lever and move the seat very slightly to ensure that the locking catch has engaged. **Fig. 26,1**

The **front seat backrests** are adjustable for rake by lifting the lever **(Fig. 26,2)** on the outside seat hinge fitting and leaning back against slight spring pressure until the desired angle is reached or allowing the backrest to spring forward automatically. On releasing the lever the seat engages at the point. The seat backs also have a locking mechanism to prevent accidental tipping forward. To release, pull up the knob **(Fig. 23,6)** on the outer edge of the seat back.

The height of both the **headrests** (optional extras) can be altered by either pushing down or pulling up. Make sure that the headrests are not distorted and that the locking catch has engaged. In the interest of safety the headrests should be on the level of the head and on no account behind the neck. **Fig. 27**

Inertia-reel seat belts can be fitted (optional) on the front seats to replace the standard static lap/diagonal belts. The two outer rear seats can also be fitted (optional) with a static or automatic seat belt.

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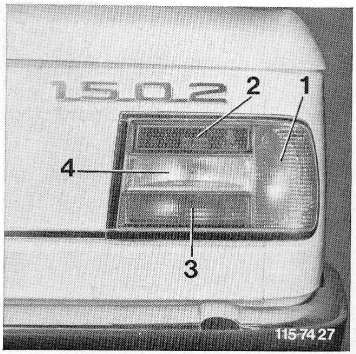

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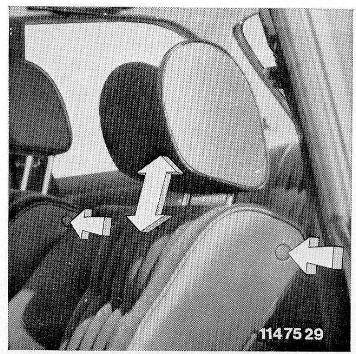

Your BMW Service department knows the anchorage points and will gladly fit your car with seat belts if requested.
Seat belts can only protect yourself and your passengers if worn at all times, even during town driving.
Children should always sit in the rear seats and wear either a lap belt, special belt or harness according to age and size.
In the interests of your own and your passenger's safety you should note the following:
The practical design of the seat belt facilitates wear. Fit the belt across the chest and over the hips. Pull the tongue to check whether the locking mechanism has engaged. Ensure that the belt is not twisted. **Fig. 28**

It is of particular importance that the length of the belt is correct to ensure full effectivity.
The lap belt must fit snugly and should be adjusting on inertia-reel belts by using the diagonal belt.
If it is necessary to shorten the length of the static version, hold the sliding adjuster in one hand and pull the webbing until the desired length is obtained. **Fig. 29**

If the belt is to be lengthened tilt the sliding adjuster upwards, **Fig. 30,1** and pull away from the body, **Fig. 30,2.**
The diagonal belt should also fit snugly so that a hand can be passed between the belt and the chest. Inertia-reel belts are self-adjusting in length. To release the belt press the push-button in the centre of the lock. **Fig. 28**
To prevent the belts from being soiled or damaged and to prevent them from obstructing entry and exit the buckle should be snapped into the holder clip at the upper anchorage point.
If the seat belts are damaged have them replaced together with their fittings in the interests of your own safety.
From time to time you should have the lock parts, the retract mechanism on inertia-reel belts, the fittings and the webbing examined by your BMW customer service department.
Tips about the care and maintenance of your seat belts are given on page 38.

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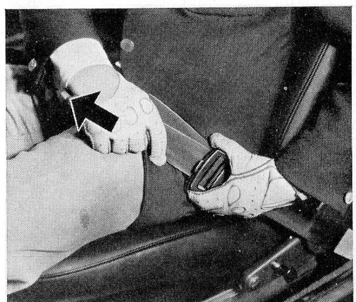

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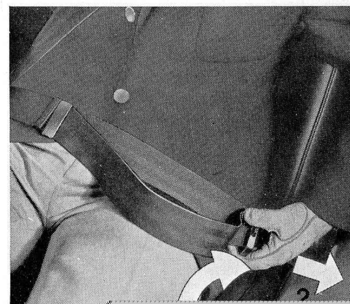

The **handbrake** works on the rear wheels. To brake or secure the car, pull the lever upwards. To release the lever, first pull upwards slightly, then press the knob on the end of the lever and push downwards. **Fig. 31**

A useful hint: to avoid the noise of the handbrake when being pulled, first depress the knob.
When the handbrake is pulled, the red warning lamp on the instrument panel is illuminated (see page 13).

The position of the gear lever for each speed can be seen from the **gate layout.** All forward gears are synchronized. **Fig. 32**

To engage reverse gear (only when car is standing still) press the lever over to the left until a slight resistance is felt and overcome.

When the ignition is on and reverse gear is engaged, both **reversing lights** will be illuminated.

Open the **glove compartment** by pulling down the recessed grip; close by moving the lid firmly upwards. **Fig. 33**

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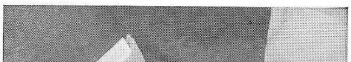

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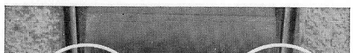

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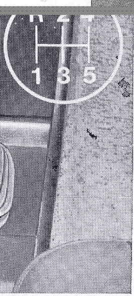

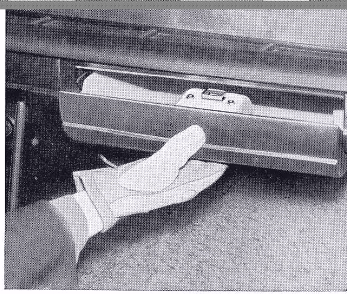

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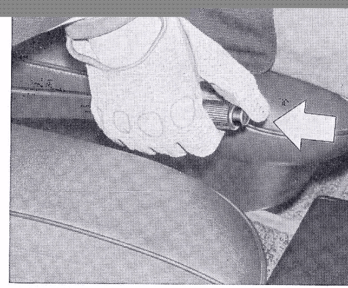

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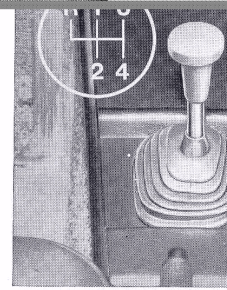

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To use the **cigar lighter,** press the knob inwards. When the coil filament glows red-hot the knob will automatically spring back to the original position. **Fig. 34**

The cigar lighter **socket** is also designed to accept plugs attached to handlamps, electric razors or similar apparatus. The maximum rating must not exceed 200 watts for a 12 volt supply. Make sure that the socket is not damaged by attempting to insert the wrong kind of plug.

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To empty the **ashtray on the instrument panel:**

Pull out ashtray as far as possible, press down on the leaf spring and withdraw the ashtray completely. **Fig. 35**

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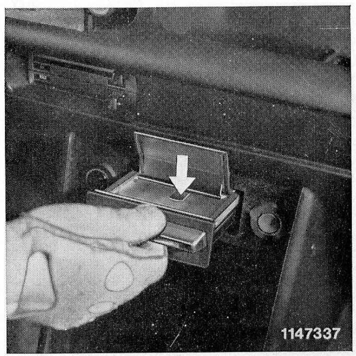

To empty the **ashtray in the rear passenger compartment:** Hinge out, press down firmly and remove. **Fig. 36**

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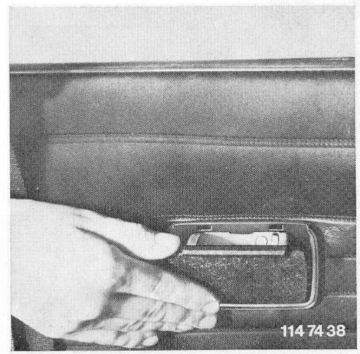

The **heating and ventilating unit** in your BMW allows particularly accurate temperature control: The lower slide lever on the right-hand side of the steering column permits infinitely variable temperature adjustment and varies output between full heat (lever to right) and cool air only (lever to left). Except when at the extreme limit positions, slightly cooler air is automatically passed to the demister slot than to the footwells. This provides stratified heating throughout the vehicle. The higher temperatures in the footwells and cooler air at head height make for fatigue-free driving. **Fig. 37**
Lever to right: warm
Lever to left: cool

The twin levers on the left-hand side of the steering column serve to open and close the outlet slots for demisting the windows (upper lever) and warming the footwells (lower lever), and can be operated independently. In very damp conditions or when the screen mists over it is recommendable at first to move the lower lever to the right to cut off the supply to the footwells, so that the full output can reach the front and side windows. **Fig. 38**
Lever to left: air supply open
Lever to right: air supply shut off

When warm or cool air output is needed, it is always advisable to switch on the blower and to increase air throughput by adjusting the upper lever to the right of the steering column **(Fig. 39)** to stage I or II. If the windows are misted over or icy, or if the car's interior is exceptionally cold, use the fast blower stage III, provided that the coolant temperature is sufficiently high (pointer of temperature gauge in white zone).

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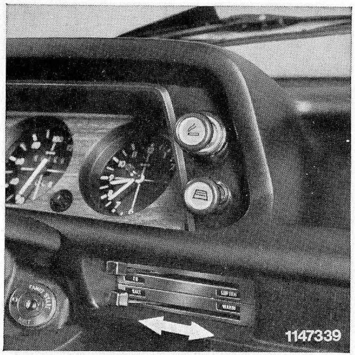

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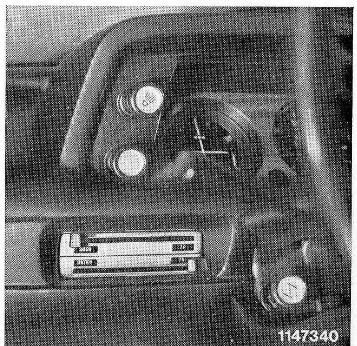

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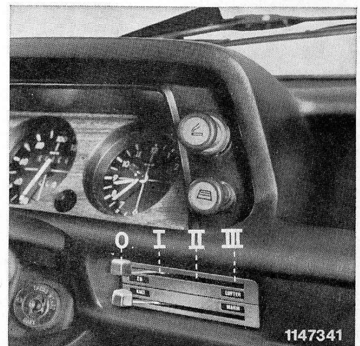
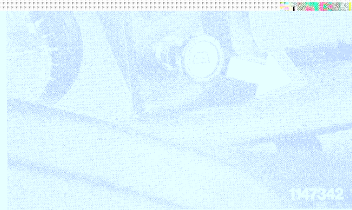
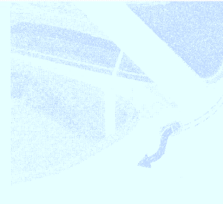


Heated rear window (optional extra): The rear window is electrically heated by **pulling out the knob** when the ignition is switched on. **Fig. 40**

Air extraction: While the car is moving stale air is extracted from the interior through slots above the rear window and ducted to openings below the luggage compartment lid (only on vehicles without steel panel sliding roof). **Fig. 41**

Extra ventilation or air extraction can be obtained by opening the hinged rear side windows. **Fig. 42**





Depending on engine and outside temperature, it may be necessary before operating the starter to pull out the **choke knob** (fitted with a half-way stop position) located to the left of the steering column housing. **(Fig. 43):**

With cold engine

a) and outside temperatures above + 50° F (+ 10° C) pull out until the half-way stop position is reached;

b) and outside temperatures below + 50° F (+ 10° C) pull out totally;

c) if the outside temperatures are very deep (below + 14° F, – 10° C – and lower), depress the accelerator once or twice briefly to inject a little fuel into the inlet manifold while the starter is cranking the engine.

43

After the engine has fired, allow it to idle for 3–5 seconds, then push the choke knob into the half-way stop position so that the engine idles smoothly. Leave the choke in this position after moving off until the needle of the water temperature gauge begins to indicate the temperature in the blue zone. The choke knob may then be pushed back completely.

If the engine is warm (within the normal operating temperature range), the choke and accelerator need not be touched when starting the engine .
If the engine is hot, the accelerator only should be depressed while operating the starter.

The **starter** is operated by turning the ignition key fully to the right ("Start" position) until the engine begins to fire. However, do not allow the starter to turn the engine for more than about 10 seconds. When released, the ignition key will spring back of its own accord to the "Fahrt" ("Drive") position.

While operating the starter the radio (optional extra) is automatically switched off.

To make starting easier, especially during extremely cold weather, it is a good idea to switch off all other items which draw their electric supply from the battery, and to press down the clutch pedal.

If the starter has to be operated a second time before the engine will run, the ignition key must first be returned from the "Fahrt" ("Drive") to the "**0**" position. This intentional delay is introduced in order to prevent as far as possible the starter from being reengaged while the engine is still turning. Always try to avoid using the starter unless the engine has come to a complete standstill. This will prevent damage to the starter and flywheel.

In very cold weather protect the battery by operating the starter for not more than about 10 seconds. If the engine does not fire, wait about 20–30 seconds before making a second attempt, which should be no longer than the first.

...mits of the gears, violent cornering and braking all take their toll, not only in terms of increased petrol and oil consumption but also through rapid tyre wear, early brake lining renewal and a more severe load on the transmission.

The diagram on page 25 shows **fuel consumption** throughout the speed range for standard models with 2 passengers.

tests, or the brake linings will subsequently fail to achieve their normal low wear rates and high stopping power.
During the running-in period the gear lever, steering and other controls may be a bit **stiff to move**. As the running-in process continues this stiffness will soon disappear.

After you have reached 1200 miles (2000 km) you may **gradually** increase your driving speed, provided traffic conditions permit, to the permitted **continuous and maximum speeds.** (See chart.)
At all times avoid engine revolution speeds in the red zone on the dial, e. g. when driving on long downhill stretches of motorway or in low gears.

1st gear	25 mph	(40 kph)
2nd gear	47 mph	(75 kph)
3rd gear	74 mph	(120 kph)
4th gear	96 mph	(155 kph)

Permitted top speed:

1st gear	28 mph	(45 kph)
2nd gear	50 mph	(80 kph)
3rd gear	78 mph	(125 kph)
4th gear	96 mph	(155 kph)

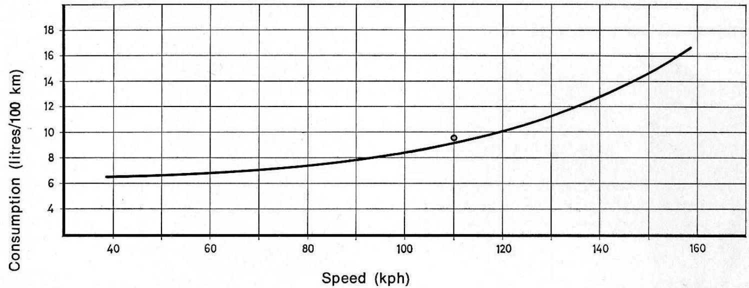
The **standard fuel consumption** graph is calculated in accordance with the standardized test procedures. It is in no way identical with the average fuel consumption, which may be affected by a large number of different factors: way of driving load carried, road conditions, traffic density and flow, weather conditions, tyre pressures, etc.

After driving for some time in dense city traffic or in a queue of cars, we suggest that you take the first opportunity of letting your car's engine "take a deep breath", as it were, by travelling for a mile or two using fairly high engine speeds. If any build-up of carbon has occured, this routine will disperse it.

The **prescribed tyre pressures** are to be observed not only for preserving the tyres, but also for maintaining good driving conditions and fuel consumption, etc.

The tyre pressures should be checked regularly, i. e. at least once a week and before embarking on a long journey. Charts with the prescribed pressures are to be found on the inside of the engine compartment lid (on the left-hand side) and on the last page of this owner's handbook.

Fuel consumption at steady speeds BMW 1502



o = Standard fuel consumption

And now –
full speed ahead!

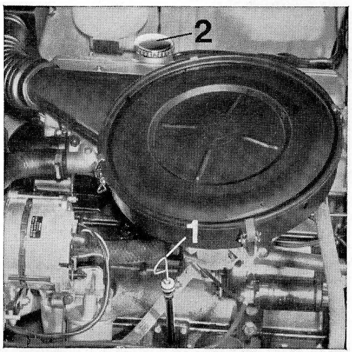
"This is daddy's helmet –
and this is my BMW racer!"

Engine oil consumption, like fuel consumption, depends on a variety of factors.

We recommend checking the oil level at regular intervals **Fig. 44, 1.** If necessary add fresh oil of the same brand as that already filled into the engine. The filler cap is to be seen in **Fig. 44, 2.**
Fill until the oil level reaches the upper mark on the dipstick. It is useless to overfill the engine and can even cause harm in certain circumstances.

The quantity of oil represented by the distance between the upper and lower marks on the dipstick is 2.6 Imp. pints/3.2 US pints/1.5 litres. The oil level must

44



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never fall below the lower mark. Do not take off the filler cap while the engine is running.

Do not change to a different make of oil unless a complete oil change, including the oil filter, is carried out.

Our engines are designed in such a way that they take full advantage of the highly developed oils supplied by well-known companies. Neither the engine itself nor the gearbox and final drive oils require the employment of **any additive.**

A well-tried rule: After a long spell of **pass climbing** or **motorway and freeway driving** at full throttle, do not switch off the engine at once but allow it to idle or run under light load for a short while. This will disperse pockets of heat in the cooling system and prevent loss of cooling water.

Warning: To remove the radiator cap when the engine is warm, use a glove or cloth, and turn the cap a quarter-turn to the left until it reaches the first stop; let the pressure escape, then turn further and remove. When replacing the cap, tighten all the way to the second stop.

Downhill stretches can be better negotiated if the engine's braking effect is increased by changing down to a lower gear. Never drive downhill with the clutch released, the gear lever in neutral or ignition switched off.

After a long run on wet roads, through rain or snow, the first subsequent brake application may call for rather more pedal pressure than usual.

If once circuit of the **dual circuit hydraulic brake system** should fail, **brake pedal travel** will immediately increase. Higher **pedal pressure** will thus be needed for the same braking effect. Although the vehicle can still be braked effectively with only one circuit in action, it is wise to consult a BMW service station without delay.

A spreader spring in each brake caliper makes **increased pedal pressure** necessary as soon as the **minimum brake pad thickness** is reached. To protect the brake discs, the pads should be renewed without delay by a BMW service station.

The brake pressure booster of your BMW operates pneumatically, so that the required pressure only builds up when the engine is running. On journeys where the engine is not running, e. g. on tow, greater pressure must be exerted on the braking pedal in order to obtain the required braking effect.

Whenever you go on a long **journey abroad** we recommend that you pack certain spare parts in case of emergency; bulbs, fuses, V-belts, spark plugs, gaskets, etc., are useful. Your BMW dealer will gladly help you in selecting these parts.

In general, you are required to display an international registration plate at the rear of your car when driving abroad, but the regulations differ in various countries. You can obtain information from motor clubs, consulates, etc.
When crossing the border into a country

coming traffic. **Fig. 54** shows how to attach the strip when using a left-hand drive car in a country where traffic runs on the left-hand side of the road.

Before carrying out any **technical modification**

...or detaching
rubber valve should
for safety reasons.

Warning: When rep...
tubeless tyres, the r...
always be renewed

45

When using the car in the winter months, please note the following recommendations to be complied with in good time before the winter:

A long-term **antifreeze and corrosion inhibitor** has already been added to the cooling water.

Total capacity of the cooling system including heater
12.3 Imp. pints/14.7 US pints/7 litres
Frost level down to approx.
−25° C (−12°F)

The factory-recommended antifreeze brands are known to your BMW service station. To ensure the required frost resistance, it is necessary to renew the coolant **every 2 years.** (Draining and filling the coolant, see page 47.)
Before and during the cold seasons the antifreeze properties of the coolant should be checked. At the same time, examine the cooling system for leaks and renew porous or brittle hoses.

Engine temperature is controlled by the thermostat, taking into account engine load and ambient temperature. For this reason the **radiator and air inlet grill should not be blanked off.**

The **screenwasher unit and headlight cleaning system** can be maintained in working order during cold weather with temperatures down to −20° C (approx. −5° F) by adding 40 % branded antifreeze (total reservoir capacity approx. 2.6 Imp. pints/3.2 US pints/1.5 litres; 40 % branded antifreeze = 1 Imp. pint/ 1.3 US pints/0.6 litres).
Please note the **regulations** concerning the **engine oil** prior to the cold season (see page 43).

If the weather suddenly becomes much colder, change to the required grade of oil even if a routine oil change is not yet due.

Do not forget to move the **flap** for automatic intake air preheat to the "winter" position during cold weather (see page 51).

One essential for quick starting is a well-charged **battery.** In cold conditions the battery's efficiency falls, but the loads imposed on it are much greater than in summer.

Warning: If the battery is recharged **without** removing it from the car, **both battery cables** must be disconnected. Do this only **with the car's engine switched off!**

In the interests of directional stability and accurate steering **winter tyres,** whether cross or radial ply (M+S or M, S+E), should be of the same make and type, and should be fitted to **all four wheels** (and to the spare if possible).

Warning: When replacing or detaching tubeless tyres, the rubber valve should always be renewed for safety reasons. Always inflate the tyres to the correct pressures, and have the wheel rebalanced whenever the tyre or the wheel itself is changed.

Note tightening torque of the wheel nuts, check after 1000 kms (600 miles) and then every 15,000 kms (10,000 miles).

Snow chains may only be used on the driving wheels – never exceed 45 mph (70 kph) with chains.

In order to improve the driving behaviour on icy or snow-covered roads and in the mountains, we recommend to load your empty luggage compartment with approx. 50 kgs. (110 lbs.).

If **parking** the car in **freezing conditions,** engage 1st or reverse gear to hold the car firm, but do not apply the handbrake. This is to ensure that the brake pads and linings do not freeze solid to the discs or drums.

Starter fails to operate when ignition key is in "Start" position:

Test by switching on headlights, then try starter again.

1. If the lights go out slowly, the battery is insufficiently charged or faulty. Recharge the battery or exchange it. To start the car it may be necessary to push or have it towed. The front axle support beam is fitted with a **towing eye** at the left and the right side.

To tow-start, engine third gear, switch on the ignition and depress the clutch pedal. When the car is moving steadily forward, engage the clutch.

2. If the headlights go out instantly, check that the cable terminals at the battery and starter are making good contact, and tighten if necessary.
3. If the brightness of the lights does not diminish, consult your BMW service station (a fault in the starter is indicated).

gap. If no spark is visible, attach a different plug to the same lead and repeat the test. If no spark occurs this time, the ignition distributor must be examined (see page 45).

4. To check fuel supply separate the fuel line from the carburettor and operate the starter. If no fuel emerges from the supply line, the fuel lines and the fuel pump must be examined (see page 49). On the other hand, if fuel is pumped through to the carburettor, unscrew the c

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tributor and plug leads are making good contact. Examine for traces of water left over from when the car was washed, in case these are causing the fault.

2. Remove spark plugs and check gaps and general appearance (see page 49).
3. Each plug can be checked by attaching the appropriate lead and laying the metal body of the plug on an unpainted part of the engine block. When the starter is operated, sparks should be seen jumping the electrode

away if the **engine is hot** and if a gr
deal of water has been lost; wait u
the engine has cooled to the ext
that you can place your hand upor

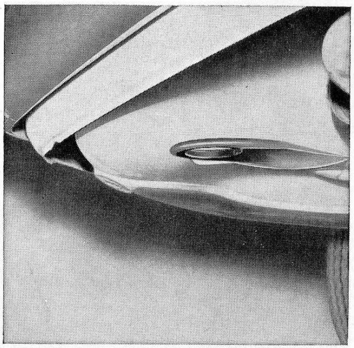
2. If coolant escapes, check the fi cap, all hose connections and radiator block itself for leaks.
3. Check V-belt, and adjust tension replace if necessary (see page 51).
4. Check ignition timing (see page 49
5. If necessary, instruct your BMW se ice station to flush out the radia system.

Faulty brakes
At the first sign that a fault may have occurred in the brake system, we strongly recommend that you contact your BMW service station immediately.
Car **brought to a standstill** with the wheels spinning (deep snow, sand, soft ground,etc.):
Do not press the accelerator down too far; before the next attempt to extricate the car is made, place some form of firm support beneath the rear wheels (in a real emergency the car's own mats will do). Obtain help in pushing the car out of the ruts it has made before they become too deep. Apply the handbrake to the extent necessary to prevent a single rear wheel from spinning. Do not forget to release the handbrake as soon as it has had the desired effect.

Towing another car
If you wish to assist another motorist by towing his car with your BMW, first ensure that the other car is not larger and heavier than your own. A **towing eye** is provided beneath the spare wheel well. **Fig. 75**

To remove a wiper blade, lift the wiper arm away from the windscreen. Press the blade out of its locking spring on the arm **(Fig. 51,1)** and withdraw upwards. **(Fig. 51,2)**
When fitting a wiper blade (direction of arrow. **Fig. 52,1)** make sure the securing mechanism is properly engaged. **(Fig. 52,2)**

50



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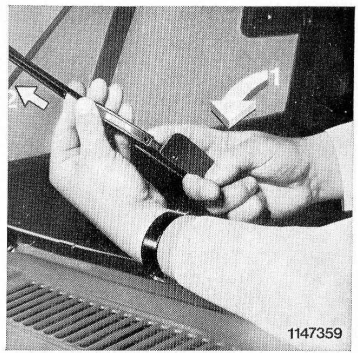

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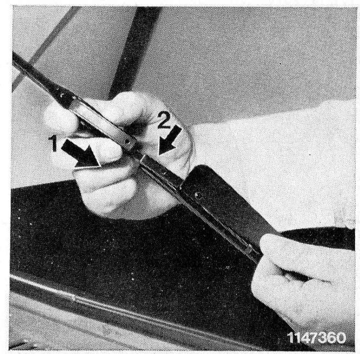

If any power-consuming electrical component fails on your car, you should first check the fuses. The **fuse-box** is located under the bonnet at the top on the left-hand side. **Fig. 53**

The melted metal band indicating a blown fuse can be clearly seen through the clear plastic cover of the fuse-box. Snap the blown fuse out of its spring clip fastenings and press in a replacement fuse.

Never try to replace a blown fuse with a piece of wire etc. (risk of fire). If the fuse blows repeatedly, the fault should be investigated by a specialist workshop.

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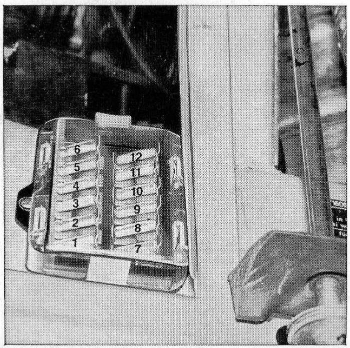

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Fuse coding

No.	Fuse insert to DIN 72581	Item
1	16 A (red)	Cigar lighter (autom. antenna)
2	8 A (white or black)	Clock, interior light, hazard warning flashers, (turning indicator for trailer)
3	16 A (red)	Heated rear window
4	16 A (red) 25 A	Heater blower, (electr. sliding roof)
5	16 A (red)	Stop lights, wiper motor, screenwasher
6	8 A (white or black)	Turn indicator lights, horn relay, reversing lights, (radio, turning indicator for trailer)
7	8 A (white or black)	Rear, side and parking lights (left)
8	8 A (white or black)	Rear, side and parking lights (right), number plate lights, instrument panel lights, (rear fog light, fog lamp relay)
9	8 A (white or black)	Dipped headlamp (left)
10	8 A (white or black)	Dipped headlamp (right)
11	16 A (red)	Headlamps, high beam
12	8 A (white or black)	Fuel and temperature gauges, oil pressure telltale, telltale for handbrake, choke pull knob and fuel tank reserve

When **changing bulbs** or carrying out any other work on the electrical system always switch off the item concerned in order to avoid short circuits. The earth cable can also be removed from the negative pole of the battery.
Try to avoid touching the glass of new bulbs with your hands. Rather, handle them with a clean cloth or paper handkerchief. When removing headlamp bulbs, do not disturb the setting of the beam adjustment screws.

Instrument panel lights:

Before the bulbs can be changed, the padded cover below the instrument panel must be removed. The affected bulb in its holder can then be withdrawn from the rear face of the instrument concerned. The bulb is released from its holder by pressing in slightly and turning.

Speedometer:

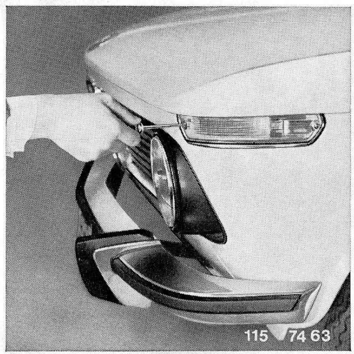
Illumination:
2 indicator type bulbs, 3 W

Clock illumination:
1 indicator type bulb, 3 W

Combination instrument:
Centre illumination:
3 W
Illumination:
2 indicator type bulbs, 3 W
Main beam telltale:
1 indicator type bulb, 3 W
Battery charge telltale:
1 indicator type bulb, 3 W
Oil pressure telltale:
1 indicator type bulb, 3 W
Turn indicator telltale:
1 indicator type bulb, 3 W

Front flashing indicators:
Unscrew the 2 Philips screws and remove the plastic lens and seal. Press in the round-headed bulb slightly and turn until it can be removed. Bulb rating 21 W spherical. **Fig. 54**

54



Main and dipped headlamp beams:
To gain access to headlamps, open the engine compartment lid and remove the plastic cover protecting the rear of the lamp. Withdraw the plug, turn the bayonet joint to the left and remove. Take out the bulb. When inserting the twin-filament 45/40 W or the quartz-iodine H 4 bulb (optional) bulb note the recess formed in the reflector to simplify fitting. **Fig. 55**

The **side and parking bulbs** (4 W indicator type) are held in the reflector by a small spring and can be withdrawn without difficulty by pulling rearwards.

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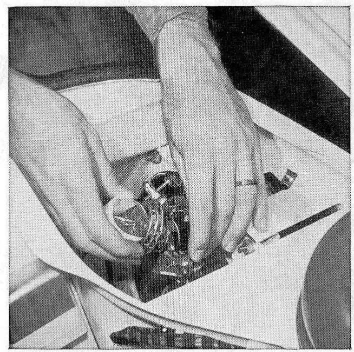

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Rear lights:
Open the lid of the luggage compartment, unscrew the 2 knurled nuts and remove the cover and lens. **Fig. 56**
Remove the defective bulb from its holder and renew as follows:

1. Flashing indicator, spherical bulb, 21 W;

2. Reversing light, spherical bulb 21 W; bulb, 5 W;

3. Rear, side or parking light, spherical bulb, 5 W;

4. Stop light, spherical bulb, 21 W.

Number plate light:
Remove 2 Philips screws and withdraw frame complete with glass and seal. **Fig. 57**

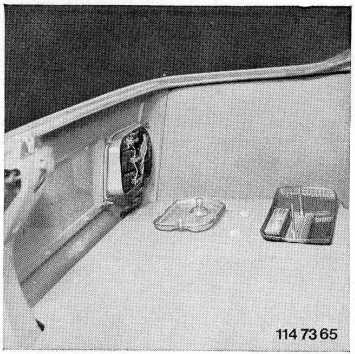
The contact clamps for the 5 W festoon-type bulbs must have adequate spring tension and make good metal-to-metal contact with the bulb end caps. If necessary squeeze the contact clamps together slightly and clean the contact surfaces.

Interior light:
The lamp housing contains one 10 W festoon-type bulb. Using a screwdriver or similar tool, the housing can easily be removed and the bulb changed if required.

Correct headlamp adjustment is of vital importance for road safety and should therefore be carried out by a specialist workshop with the proper equipment. If this is not possible, open the engine compartment lid and turn the knurled plastic knobs until the correct setting is obtained. **Fig. 58**

1 = Vertical adjustment
2 = Horizontal adjustment

56



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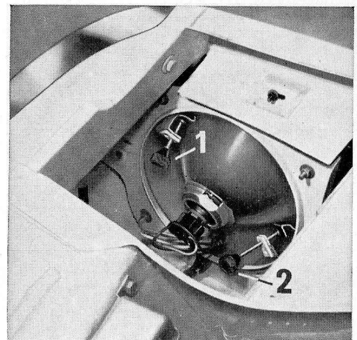

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Care and maintenance

Your brand-new BMW is a fine sight. How long it continues to appear so attractive depends on the care with which yon look after it.

Please **do not wash the car** in direct sunlight, nor when the engine compartment lid is still warm, as patches may develop in the paintwork.

Road dirt and dust contain many chemicals which can damage the paintwork if allowed to remain in place for too long. For this reason any car – particularly a new one – should be washed as often as possible.

Traces of tar, dead insects or marks caused by thrown up stones should be removed without delay or touched up where necessary. This will prevent discoloration of the paintwork or the formation of rust at the affected spots.

Clean out the interior of the car with a brush or vacuum cleaner.

The paintwork should be cleaned down with a fine spray of water, and all traces of dirt hosed away.

Do not direct the hose into the heater intake slots in front of the windscreen.

After hosing down, wash the car with abundant luke-warm water using a sponge or car-wash-glove starting with the roof. Rinse the sponge at frequent intervals.

Wash the lower part of the body and the wheels last of all and if possible keep a separate sponge for these areas. After washing, spray the car down thoroughly a second time and dry off with a clean leather, so that no marks are left by residual water.

If washing with water alone is not sufficient, use a branded car cleaner or shampoo, mixed with the water in proportions specified by the manufacturer. The car should then be washed or hosed down with an abundant supply of pure water. Too frequent use of shampoos and cleaners removes oil from the paintwork, which then tends to become brittle, necessitating the application of a good quality paintwork preservative.

It is easy to tell when your car's paintwork needs the application of a polish or preservative: the water no longer forms round globules when it comes into contact with the paint surface.

Use only branded products for your car's bodywork and always apply these products in strict accordance with the maker's instructions.

Minor paintwork damage may be touched up with the aid of a BMW paint spray aerosol or touch-up paint stick. You will find the respective colour code on a reference label located near the maker's plate.

The standard **underseal** and **inside rust protection** should be renewed at the latest 8 months after first registration and subsequently every 12 months and

The seat belts should be cleaned only with a mild soapy solution while still in place. Do not dry clean since this could damage the fabric. Retract seat belt

...tely, using a separate drying cloth.

When you take delivery of your car you will also receive a **Service Booklet,** in which your name and details of the car will have been entered. After carrying out the **free pre-delivery inspection,** your BMW dealer will remove the appropriate section in the booklet and will make an entry to confirm that the work has been done. The same procedure will be followed when it is time for your 1st BMW Inspection at 600 miles (1000 km), which is to be invoiced.

Your BMW dealer will also put an adhesive label on the driver's door post **(Fig. 59)** to remind you when the next oil renewal service is due. You will receive confirmation that this and all other

59

specified oil-renewal services and inspections have been carried out when you look in the appropriate area of the service booklet.

Always ensure that the entries are made correctly; in the event of a warranty claim this evidence will be required, and you will in any case be glad later on to have this clear proof that you car has been well looked after.

We recommend to have the prescribed maintenance work and safety tests carried out **at the correct intervals** by your BMW service station. This is the only safe way of ensuring that all the work is done in accordance with the latest factory standards. A list giving details of the widespread BMW dealer network is supplied to you on delivery, so that your car can receive proper attention wherever you may travel.

To ensure the reliability and long life of your car we advise **a minimum of two BMW Inspections** a year, even if the distance laid down between maintenance operations has not yet been reached.

1st BMW Inspection

after 600 miles (1000 km)

1. Change oil in engine while engine is warm. Renew oil filter element.
2. Change oil in gearbox while warm.
3. Change oil in final drive while warm.
4. Rear half-shaft sliding joints: check for leaks.
5. Check oil in steering box for leaks, and top up if necessary.
6. Check coolant level and top up if necessary.
7. Examine brake lines and connections for leaks, damage or distortion. Check level of brake fluid in reservoir and top up if necessary.
8. Clean fine mesh filter. Tighten screws on fuel pump.
9. Tighten screws and nuts on carburettor.
10. Check automatic intake air pre-heat valve for freedom of movement, and operating lever setting for summer/winter adjustment.
11. Check V-belt tension, and retension if necessary.
12. Take up any slack on all engine bolts and nuts to the required torque levels (see specifications). Check nuts on rubber engine mountings (right and left), inlet manifold and exhaust pipe, oil sump and cylinder head bolts.
13. Check valve clearances and adjust if necessary.
14. Tighten all bolts and nuts on front axle, steering, gearbox, drive shafts, rear axle and brakes to the torque levels stated in the specifications for these parts.
15. Tighten all bolts and nuts on front and rear compartment lids, hinges catches, door locks, strikers and exhaust system.
16. Check steering in straight-ahead position for absence of play, and adjust if necessary.
17. Test foot brake and adjust (rear only) as necessary. Bleed the brake system. Check handbrake and adjust as necessary.
18. Check front wheel bearing play and adjust if necessary.
19. Check the track of the front wheels and adjust if necessary.
20. Check tyre pressure and adjust if necessary.
21. Check lighting system, instrument readings, horns, controls and mirror.
22. Check headlamp settings and correct if necessary.
23. Carry out the prescribed engine test a BMW Program Tester. Check engine idling and adjust if necessary.
24. Make a final check on items affecting road safety (brakes, steering, clutch).

Note: If desired, rebalance all four road wheels (to be invoiced separately).

BMW Oil-renewal Service

with option of BMW Safety Test
every 10,000 miles (15,000 km)
beginning at 5000 miles (7500 km)

Change oil in engine while engine is warm. Renew oil filter element.

Warning:

During the BMW oil-renewal service at 7500 km (5000 miles), tighten cylinder head bolts to torque as indicated in the Specifications section (invoiced additionally).

BMW Safety Test

1. Checking steering:
   Steering box, linkage, joint disc, threaded connections, oil leaks, oil content, V-belt tension.

2. Checking brakes:
   Brake pads (including detaching and re-attaching road wheels), brake discs, lines, hoses, unions, fluid level, handbrake cables, handbrake adjustment.

Warning: Change brake fluid at least once a year.

3. Checking tyres and steel disc wheels:
   General condition, tyre pressures, permissible tread depth and size.

4. Checking lighting:
   Headlights, auxiliary lights (including beam settings), parking lights, rear lights, licence plate lights, turn indicators, instrument lighting and telltale lamps.

5. Checking warning equipment: Horn, hazard warning flashers, headlight flasher, rear fog warning light.

6. Checking wipers, windshield washer and headlight cleaning system:
   Wiper blades, washer system (windshield and headlights if fitted), fluid reservoir (fluid level/antifreeze), spray jet positions (windshield/headlights).

7. Test drive and exhaust emission check.

BMW Inspection

every 10,000 miles (15,000 km)
beginning at 10,000 miles (15,000 km)

1. Renew spark plugs.

2. Renew contact breaker points. Apply a small quantity of Bosch Ft 1 v 4 grease to the heel of the contact breaker arm. Allow two drops of engine oil to soak into the lubricating pad in the distributor shaft.

3. Change oil in engine while the engine is warm. Renew oil filter element.

4. Check gearbox oil level and top up if necessary (check oil while engine is warm: every 20,000 miles = 30,000 km).

5. Check final drive oil level, top up if necessary.

6. Half shafts: check flexible gaiters for leaks.

7. Check oil level in steering and top up if necessary.

8. Check coolant level, top up if necessary.

9. Check battery acid level, top up with distilled water if necessary.

10. Check brake fluid level in reservoir and top up if necessary.

11. Check automatic air intake pre-heat valve for freedom of movement and correct setting of lever for summer and winter operation.

12. Check V-belt tension, and retension if necessary.

13. Oil joints and bearing of the carburettor linkage.

14. Tighten the nuts of the exhaust manifold (keep to correct torque value), visual check of nuts on rubber engine mountings (left and right), inlet manifold, carburettor and fuel pump.

15. Check valve clearances. Adjust as necessary.

16. Renew intake air silencer filter element. With greater dust deposits, change at more frequent intervals.

17. Check steering for absence of play in straight-ahead position, and adjust accordingly. Check condition of track rod joints.

18. Final drive and half-shafts: check condition of rubber couplings and examine universal and sliding joints.

19. Disc brakes: check overall thickness of pads and surface of discs. If necessary renew pads.

20. Tighten the following bolts and nuts (keep to corrent torque values shown in specifications): steering and brake mountings.

21. Front wheel bearings: check play and adjust if necessary.

22. Check tyre pressure and correct if necessary. Check condition of tyres. If uneven wear is evident, check toe-in. Optional complete check and correction of wheel position measurements (to be invoiced separately).

23. Check brake lines and connections for leaks, damage or distortion. Clean out brake drums and linings and examine for wear. Check that handbrake cables move easily. Adjust brakes.

24. Tighten all bolts and nuts on door locks, strikers and exhaust system.

25. Oil door, engine and luggage compartment hinges. Lightly grease engine and luggage compartment lid catches as well as door strikers and latches. Test for correct operation.

26. Examine engine as instructed with a BMW Program Tester. Check engine idling and adjust if necessary.

27. Make a final check on items affecting road safety (brakes, steering, clutch, headlamp setting, lighting system, instrument lighting, horns, controls, rear view mirror).

Note: If desired, interchange the road wheels in the prescribed pattern and rebalance (to be invoiced separately).

Every 40,000 miles (60,000 km) (to be invoiced separately):

Clean fine-mesh filter in the fuel pump. Tighten nuts and bolts as follows (see Specifications for tightening torques): rubber engine mountings left and right, intake, carburettor, fuel pump, and exhaust mountings.

Check clutch drive plate for wear.

Total capacity: 0.56 Imp. pints/0.65 US pints/0.3 litres.

Oil level: to lower edge of filler orifice.
Oil grade: branded hypoid gear oil, SAE 90.

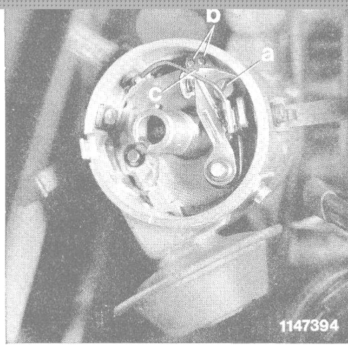
The **wheel bearings** should be serviced only by a BMW service station; every 40,000 miles (60,000 km) the grease content should be checked and grease added if required. **Fig. 65**

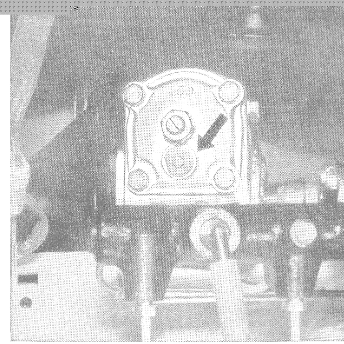
Grease: Shell Darina II grease, drip point in excess of 260° C (500° F).

Greasing hinges, pivots etc.
Every 10,000 miles (15,000 km) apply a few drops of an oil containing graphite

Renew contact breaker points every 10,000 miles (15,000 km) during a BMW Inspection:
Adjust dwell angle (see last page) using a BMW Program Tester (instrument for measuring dwell angle).
If no instrument for the measurement of dwell angle is available, adjust the contact breaker points gap in the following way:
Turn the engine until the contact breaker arm is fully raised (fibre heel is resting on the highest point of the distributor shaft cam.)
Resetting contact breaker gap:
Slig

of 0.016″ (0.4 mm) can be measured between the points. Re-tighten locking screw "a" and check that the setting was not altered by using a feeler gauge.
Fig. 66
Lubrication of ignition distributor every 10,000 miles (15,000 km), during a BMW Inspection:
Apply a thin layer of Bosch Ft 1 v 4 grease to the **fibre heel** of the contact breaker rocker arm.
Take out the distributor rotor and let a couple of drops of engine oil soak into the **felt pad** in the distributor shaft.
Warning: Do not let any oil overflow and





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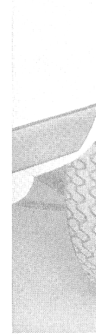
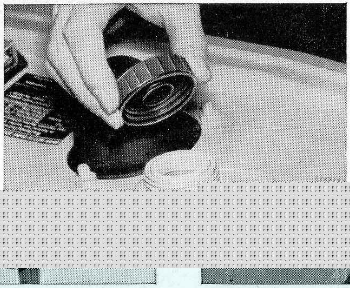


The transparent **reservoir for brake and clutch fluid** is in the engine compartment on the left hand side, and enables the level to be inspected at a glance. **Fig. 67**
Brake fluid is a hygroscopic substance, and over a period absorbs moisture from the atmosphere. To ensure that the brakes remain absolutely safe we recommend that the **brake fluid be drained and renewed once a year** by a BMW service station.
Capacity: fill to upper "MAX" mark on reservoir. **Fig. 67**
Grade: ATE blue brake fluid "S"
Castrol Disc Brake Fluid
Castrol Girling Brake Fluid green
The **clutch requires no maintenance** and is automatically adjusted at the clutch slave cylinder. In the course of a BMW Inspection every 40,000 miles (60,000 km), wear of the clutch driving plate should be measured in situ.
Push the withdrawal lever by hand towards the front of the car until it contacts the stop on the clutch slave cylinder.
When new, travel at the thrust rod A is 0.67–0.75″ (17–19 mm).
As the clutch plate wears, distance A becomes smaller; and when the lower limit A = 0.2″ (5 mm) is reached, the clutch driving plate must be renewed by a BMW service station. **Fig. 68**
Loss of fluid from the hydraulic clutch operating system, or air in the hydraulic system can lead to incomplete clutch disengagement and thus to gearbox damage.
Bleed the hydraulic system in good time by means of the bleed screw provided.
With a view to achieving even tyre wear, the **wheels** should be interchanged on request during a BMW Inspection every 10,000 miles (15,000 km). On each side of the car the front and rear wheels should be exchanged. Never change the wheels crosswise from one side of the car to the other. The spare wheel can naturally be included in the wheel changing pattern if desired. **Fig. 69**

Have **the wheels** statically and dynamically **balanced** every 10,000 miles (15,000 km), if desired, i. e. when carrying out a BMW Inspection. Do this if possible while in place on the car and as soon as they have been changed round.

67



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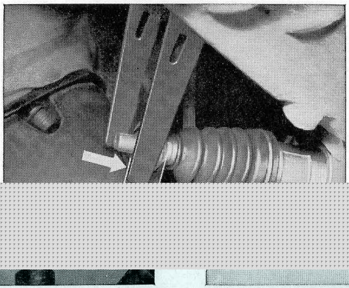

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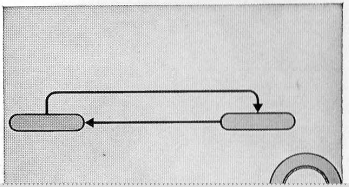

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If signs of uneven wear are detected in the course of a regular tyre inspection for wear, damage, foreign bodies, etc. we recommend that an expert check on wheel positioning at normal load be carried out as soon as possible.

In addition to regular checks on water level in the radiator, the hoses and hose connections we also suggest that the **water in the cooling system** (see page 28) be thoroughly renewed every two years. While doing this, check the filler cap for good sealing and correct functioning of the pressure and vacuum relief valves.

The complete **cooling system**, including heater, has a **capacity** of 12.3 Imp pints/ 14.8 US pints/7 litres. To **drain the system**, open

1. drain plug at the bottom left on the radiator (13 mm hex. nut);

2. plug at the rear right-hand side of the engine block (19 mm hex. nut).

Figs. 70 and 71

While draining the cooling system the heater temperature control on the instrument panel must be set to "WARM" (see page 20, Fig. 37).

Refilling the cooling system:
Set the heater temperature control lever to "WARM", and fill the radiator slowly. Replace the filler cap, turning as far as the second stop. Allow the engine to run at 2000–2500 rev/min until normal operating temperature is reached, then stop the engine. Restart after about 1 minute and run at not less than 4000 rev/min for another 30 seconds. Then check at idle speed that heater is blowing warm. Allow engine to cool until the thermometer needle is in the centre of the white zone. Top up radiator to a point no higher than 3/4" (2 cm) below the base of the filler aperture. Replace cap and tighten. **Fig. 72**

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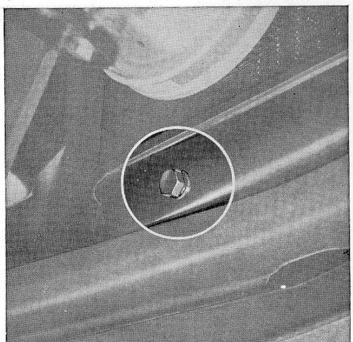

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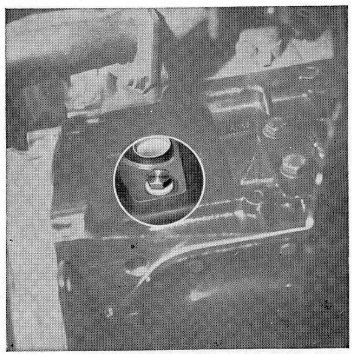

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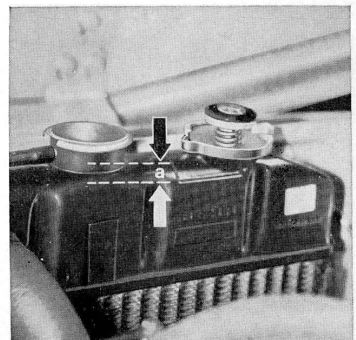

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Every 5000 miles (7500 km) or at least once a month, the **battery acid level** should be checked. To do this, unscrew and remove the 6 plugs along the centre of the battery. The acid level should be approx. 0.2″ (5 mm) above the upper surface of the plates in each cell, or level with the bar which can be seen through the plug opening.
If the level is too low, top up to the correct marking with distilled water. Do not use acid for this purpose. **Fig. 73**

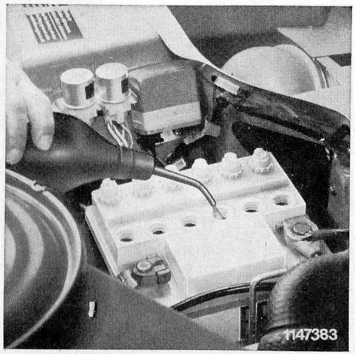
The upper part of the battery should always be kept clean and dry.

Warning: Make sure that no acid or lead oxide from the terminals reaches your clothing. Do not bring a naked light near the battery, as there is a risk of explosion.

If the clamping screw is loosened, the battery can be removed from its holder. **Fig. 74**

The air cleaner element should be renewed during a BMW Inspection, every 15,000 km (10,000 miles).
Fig. 75
Continuous use of a choked air filter element will increase fuel consumption and lower the car's performance.

73



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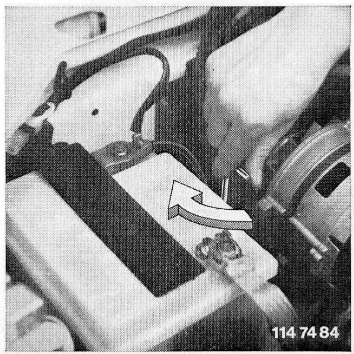

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Check V-belt tension
every 10,000 miles (15,000 km) during a BMW Inspection. The V-belt is correctly tensioned if it can be pushed down by 0.2–0.4″ (5 to 10 mm) with the finger in the centre of the top run, between the alternator and the fan pulley. **Fig. 82**

Resetting V-belt tension
Loosen the upper and lower alternator securing bolts (13 mm) and move the alternator bodily to one side on the tensioning strap.

Renewing V-belt
Loosen upper and lower alternator se-

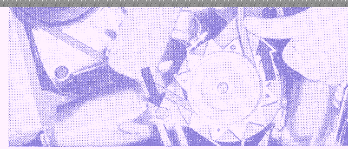
Pass the new V-belt over the fan and the crankshaft, fan and alternator pulleys, seat in pulley grooves and set correct tension as above.

The **automatic induction air preheat valve** is located in a housing to the right of the radiator. Every 10,000 miles (15,000 km) when carrying out a BMW Inspection the lever should be placed in the winter (W) setting and the valve's freedom of movement checked. If necessary, oil the valve.

In the "W" position fresh air drawn in at th

approx. 30° C (86° F). At approx. 30° C (86° F) outside temperature the preheat supply hose is completely closed and the car obtains all its induction air supply from the fresh air hose.

In summer, the external lever should be used to set the valve to position "S" (see also text on valve housing cover plate. The cover plate can be removed for inspection purposes by unfastening one slotted screw). **Fig. 83**



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The brakes should be adjusted every 10,000 miles (15,000 km) when carrying out a BMW Inspection: The front disc brakes have automatic adjustment.

Each **rear wheel brake plate** carries 2 eccentric adjusters (17 mm spanner), providing separate adjustment of each brake shoe.

Turn the left eccentric hexagon nut counter-clockwise and the right nut clockwise to adjust, at the same time turning the wheel forcibly forwards until the shoes contact the brake drum and prevent further movement. Then turn each adjuster back approx. $^1/_8$ turn until the wheel just begins to turn without binding. **Fig. 84**

Warning: When adjusting the brake shoes, make sure that the handbrake is released.

If the brake pedal is springy and has excessive travel, the brake system must be bled (see also page 27).

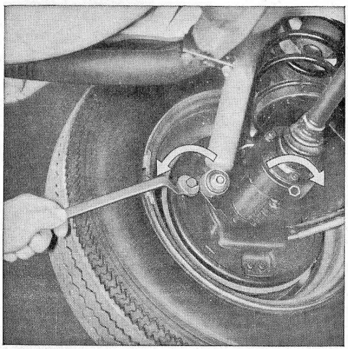
Handbrake adjustment (brake shoes should first be adjusted as described above):

Push back rubber sleeve protecting the handbrake lever, loosen the locknut (10 mm) on each adjusting screw, pull the handbrake up for about 4 notches, tighten the adjusting nut (10 mm) while-holding the adjusting screw with pliers **Fig. 85** – to prevent it from turning, until the rear wheels can easily be rotated by hand.

Re-tighten locknut. **Fig. 86**

Following this, check that the rear wheels can turn without binding when the handbrake is released.

84



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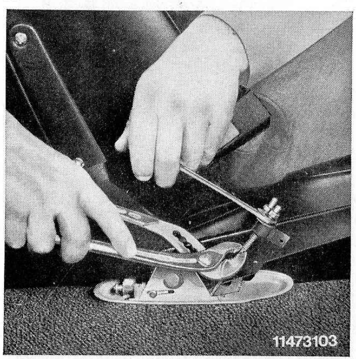

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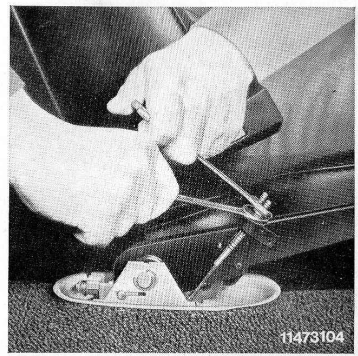


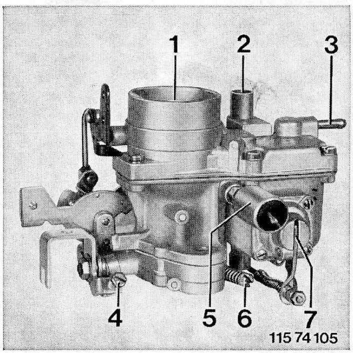
Solex downdraught carburettor 38 PDSI

1 Cold start butterfly
2 Float chamber breather
3 Fuel inlet
4 Idling adjustment screw
5 Idling shut-off valve
6 Idling mixture control screw
7 Accelerator pump
8 Main jet closure plug
9 Cold start connecting link

The carburettor should be **adjusted and cleaned** only by a BMW service station. The jet sizes and basic carburettor adjustment adopted by the manufacturers should not be altered.

See specifications for details.

87



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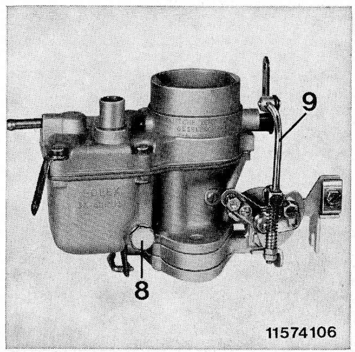
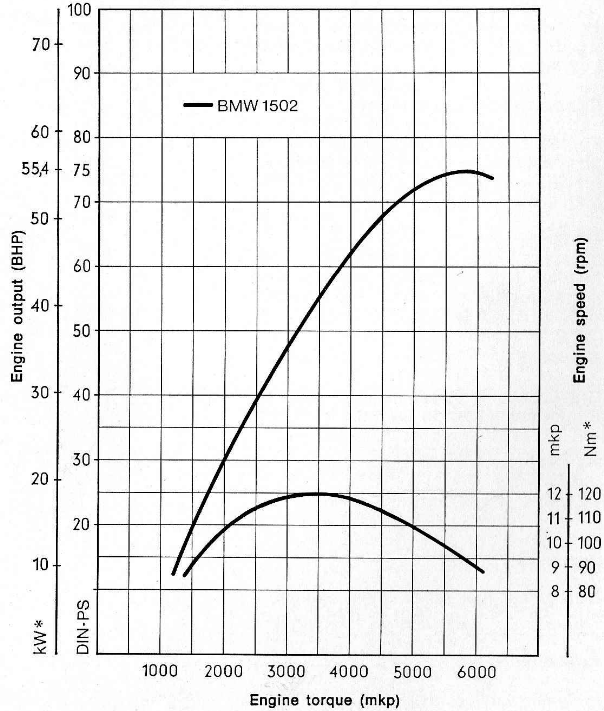


Capacity	
fiscal	95.38 cu. in (1563 cc)
effective	95.99 cu. in (1573 cc)
Max. output	75 bhp (DIN) (55,4 kW)
at	5800 rpm
Output per litre	47.7 bhp (35,1 kW)
Max. permitted engine speed	6200 rpm
Max. continuous engine speed	6000 rpm
Max. torque	86.8 ft. lb. (12 mkp)
at	(120 Nm) 3700 rpm
Compression ratio	8.0:1
Stroke/bore ratio	71/84 mm (= 0.85)
Mean piston speed	2699 ft/min. (13.7 m/sec.)
at	5700 rpm
Torque/weight ratio	92.5 ft. lb./ton
(unladen)	(12.8 mkp/1000 kg) (128 Nm/1000 kg)
Power/weight ratio	
Car with full tank	28.4 lb/bhp (12.9 kg/bhp) (17.0 kg/kW)
Car fully laden, with luggage	40.3 lb/bhp (18.3 kg/bhp) (24.8 kg/kW)

Engine output



WHEELS AND SUSPENSION

Front wheel mounting
Independent suspension by lower wishbones and spring struts incorporating double-acting hydraulic shock absorbers, coils springs and rubber auxiliary springs. Wheel travel 7.1" (180 mm).

Toe-in in normal load position *

$0.06''^{+0.04''}_{-0.02''}$ ($1.5^{+1.0}_{-0.5}$ mm) equals $0^\circ\ 14'^{+9'}_{-4'}$

Camber angle in normal load position *
$0^\circ\ 30' \pm 30'$

Castor angle $4^\circ \pm 30'$

King pin angle $8^\circ\ 30'$

Toe-out on turns for 20° deflection of inside wheel: 1°

Max. wheel lock
Inside wheel 42°
Outside wheel 34°

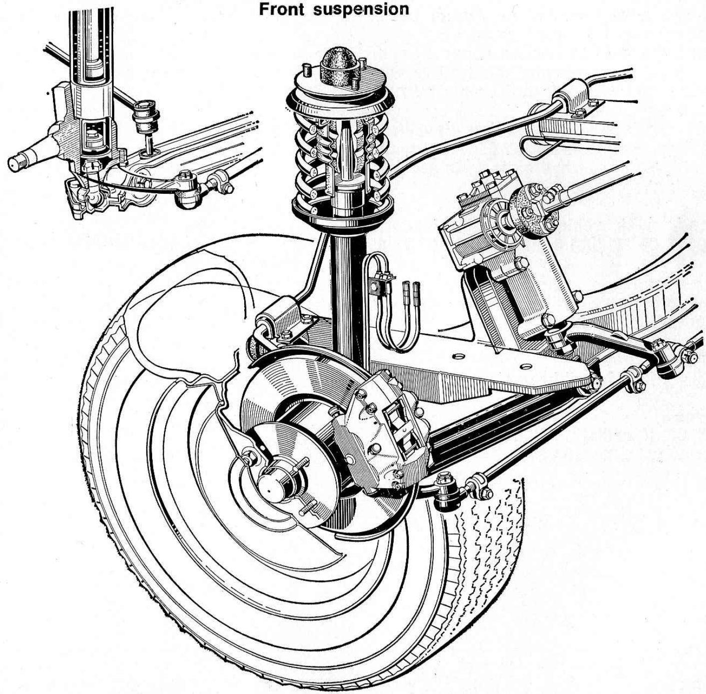
Steering
ZF Gemmer hourglass worm and roller

Gear ratio 15.5:1

Overall steering ratio 17.57:1

Three-piece track rod

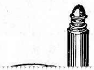
Front suspension



* Normal load: car with full tank, 2 x 143 lb (65 kg) on front seats, 1 x 143 lb (65 kg) on back seats + 66 lb (30 kg) in luggage compartment.

Rear wheel mounting
Independently sprung wheels with semi-trailing arms mounted on rubber bushes requiring no maintenance.
Delta-shaped box-section support beam for traillling arms and final drive, attached to bodywork at 4 points by rubber mountings.

Rear suspension



BRAKES

Foot brake (dual circuit system)
Hydraulic, acting on all four wheels, and fitted with servo assistance.
Tandem master cylinder diameter: 0.81" (20.64 mm)

Transparent brake fluid reservoir located in engine compartment.

Front

2-piston fixed caliper disc brakes with automatic pad wear compensation.

Disc diameter:	9.43" (240 mm)
Piston diameter:	1.78" (48 mm)

Rear

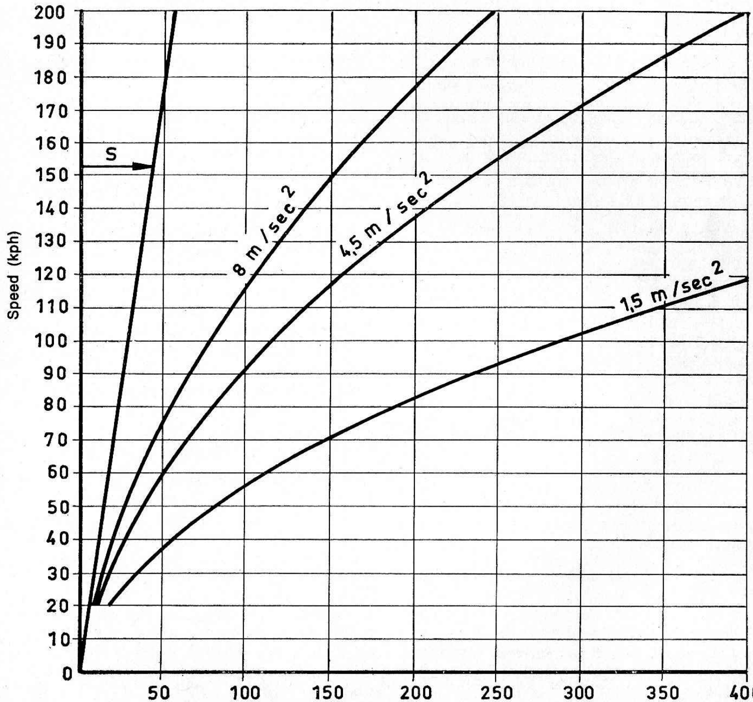
Drum brakes with self-centering shoes.

Cylinder diameter:	0.625"	(15.87 mm)
Brake drum diameter:	9.05"	(230 mm)
Lining width:	1.57"	(40 mm)

Handbrake

Operates mechanically on rear wheels. Adjust at handbrake lever after lifting rubber sleeve. Cable to each rear wheel adjustable separately.

Overall stopping distance related to speed and retardation



Overall stopping distance

This takes into account one second reaction time (about 30 yards at 60 mph), the time needed for the brakes to apply, and the actual braking distance.

The best possible brakes can only attain a degree of road efficiency corresponding to the friction between tyre and road surface. As the graph shows, the maximum possible retardation of a vehicle travelling on an icy surface is only in the region of 1.5 m/sec^2 (4.9 ft per sec).

This implies that your car's speed is reduced by only 1.5 metres per second (4.9 ft per sec). In other words, every second the speed drops by only 5.4 kph (3.375 mph). If you had, for example, been travelling at 54 kph (33.75 mph), it would take 10 seconds for you to stop. As the graph shows, you would cover almost 100 m (330′) in that time. The lowest curve (1.5 m/sec^2) shows you your overall stopping distance related to travelling speed under the conditions just described.

In contrast, the uppermost curve (8 m/sec^2) refers to the shortest overall stopping distances generally obtainable in ideal conditions.

The middle curve (4.5 m/sec^2) applies to a damp road not entirely devoid of grip for the tyres, and thus represents an average set of values which could be used as a guide for normal braking efficiency during everyday driving on dry roads.

All the values plotted on the graph can vary for better or worse, depending on the state of the brakes, the condition of the tyre treads and the road surface itself.
The lenghts quoted for overall stopping distances include the factor "S" covered during one second's reaction time on the part of the driver.
Most efficient braking takes place not with locked wheels, but when the wheels are still just turning.
Locking of the wheels can be dangerous, as locked front wheels can no longer be steered, and locked rear wheels cause the car to slide sideways or spin.

BODYWORK

Load-carrying all-steel body welded to floor section, and giving a particularly torsion-resistant complete unit. Two doors and engine compartment lid hinged at front.

Luggage compartment capacity:
approx. 15.9 cu. ft. (450 litres).

Fuel tank capacity:
11 Imp. gal.; 13.5 US gal.; 50 litres.

Heating and ventilation
Fresh-air heater with warm water heat exchanger and 3-speed axial blower (120 Watts). Output volume: 1st speed 2.5 cu. m/min (98.3 cu. ft/min), 2nd speed 3.7 cu. m/min (130.6 cu. ft/min), 3rd speed 5.1 cu. m/min (180.1 cu. ft/min).
6 outlet nozzles covering all parts of the front screen, side windows and foot area. Air extraction from the car's interior through slots above the rear window (not on vehicles with sliding roof) through openings below the luggage compartment lid.

ELECTRICAL SYSTEM

Battery 12 V, 36 Amp/hr

Coil Bosch TE 12 V

Distributor JF 4 D 4

Ignition point 25° BTDC at 1900 rpm

Check adjustment: dynamically without vacuum adjustment with engine running at its normal operating temperature (1400 or 2400 rpm) by pointing a strobe light at the ignition timing mark on the flywheel.

Firing order 1–3–4–2

Contact breaker dwell angle 61°–65°

Contact breaker gap 0.016″ (0.4 mm)

Ignition advance and retard
Begins: approx. 800 rpm
Ends: approx. 3800 rpm
Max. adjustment range 44°±2° CS

Alternator Bosch K 1 14 V 45 A

Voltage regulator
Bosch AD 1/14 V

Starter Bosch 12 V 0,8 PS

Spark plugs

Beru 145/14/3 A

Bosch W 145 T 30

Champion N 12 Y

Spark plug gap:
0.024+0.004″ (0.6+0.1 mm)

TIGHTENING TORQUE VALUES OF BOLTS AND NUTS

Note: To obtain Nm, multiply mkp by 10.

Engine	
Cylinder head bolts	50.6±1.4 ft. lb. (7±0.2 mkp)
Crankshaft V-belt pulley	100 ft. lb. (14 mkp)
Coolant pump V-belt pulley	28.9 ft. lb. (4 mkp)
Engine mounting bracket	34.0 ft. lb. (4.7 mkp)
Rubber mounting nuts	18.1 ft. lb. (2.5 mkp)
Oil filter housing	21.7±3.6 ft. lb. (3±0.5 mkp)
Exhaust manifold – cylinder head	21.7+2.2 ft. lb. (3.0+0.3 mkp)
Gearbox	
Engine attachment flange	18.1 ft. lb. M 8 (2.5 mkp) 34 ft. lb. M 10 (4.7 mkp)
Front axle	
Spring/shock absorber unit, top centre	57.8 ft. lb. (8 mkp)
Spring/shock absorber unit, support bearing	18.1 ft. lb. (2.5 mkp)
Tierod arm to kingpin	18.1 ft. lb. (2.5 mkp)
Tierod arm guide joint	50.6 ft. lb. (7 mkp)
Front axle carrier to engine carrier	34.0 ft. lb. (4.7 mkp)
Wishbone to front axle carrier	108.5 ft. lb. (15 mkp)*
Final drive to axle carrier	65.1 ft. lb. (9 mkp)
Axle carrier to body floor	86.8 ft. lb. (12 mkp)
Compression strut to body floor	32.5 ft. lb. (4.5 mkp)
Trailing arms on axle carrier	54.2 ft. lb. (7.5 mkp)*
Shock absorber, lower end	32.5 ft. lb. (4.5 mkp)*
Half shaft pick-up flange	21.7 ft. lb. (3 mkp)
Half shaft at rear-axle shaft	21.7 ft. lb. (3 mkp)
Universal joint shaft at gearbox take-off flange	32.5 ft. lb. (4.5 mkp)
Rear axle carrier rubber mountings	32.5 ft. lb. (4.5 mkp)
Rubber coupling	32.5 ft. lb. (4.5 mkp)
Rear axle shaft castellated nuts	289.0+36.2 ft. lb. (40+5 mkp)
Axle carrier support points	32.5 ft. lb. (4.5 mkp)
Steering	
Steering wheel securing nut	39.7+3.6 ft. lb. (5.5+0.5 mkp)
Plate mounted joint	13.7 ft. lb. (1.9 mkp)
Flange mounted joint	18.1 ft. lb. (2.5 mkp)
Drop arm to steering box	101.3 ft. lb. (14 mkp)
Tierod castellated nuts	25.3 ft. lb. (3.5 mkp)
Steering box to front axle carrier	34.0 ft. lb. (4.7 mkp)
Track rod clamp bolts	18.1 ft. lb. (2.5 mkp)
Brakes	
Brake disc to wheel hub	43.3 ft. lb. (6 mkp)

Service Instruction Plan

		1st BMW Inspection at 600 miles	BMW Oil-Service every 5.000 miles	BMW Inspection every 10.000 miles
Engine	Check oil level regularly	x	x	x
	Change engine oil	x	x	x
	Branded HD 4-stroke engine oil (see page 43)			
Engine oil filter	Change oil filter	x	x	x
Mech. steering	Check oil level	x	x	x
	Branded hypoid gearbox oil SAE 90			
Manual gearbox	Check oil level			x
	Change oil	x		x [1]
	Branded gear oil SAE 80 (in emergency, HD engine oil, see pg. 43 — no hypoid oils)			
Final drive	Check oil level			x
	Change oil	x		
	Branded running-in grade hypoid gear oil SAE 90 (factory-approved grades can be recommended by a BMW dealer)			
Wheel bearings	Check grease filling			x
	Shell Darina II grease			
Distributor	Lubricate: Branded HD 4-stroke engine oil and Bosch Ft 1 v 4 grease or Ft v 26			x
Throttle linkage	Lubricate: Engine oil	x		x
Hinges on doors, hood and trunk	Lubricate: Engine oil			x
Hood and trunk locks, door lock catches and latches	Grease: Multi purpose grease			x
Tank	Branded grade fuel (see pg. 24)			

		1st BMW Inspection at 600 miles	BMW Oil-Service every 5,000 miles	BMW Inspection every 10,000 miles
Radiator	Check coolant level regularly (see pg. 47) (factory approved antifreeze can be recommended by a BMW dealer)	x Renew coolant filling every two years	x	x
Brake **Clutch**	Check fluid level regularly Grades: Blue ATE-Brake fluid "S" Castrol Disk Brake Fluid Castrol Girling Brake Fluid GREEN	x Renew brake fluid once a year	x	x
Battery	Check battery acid level regularly	x	x	x
Screen-washer unit	Top up fluid level regularly Antifreeze: Add household alcohol (40 % vol.) to the water. See page 36	x	x	x
Fuel supply Mesh-filter in fuel pump	Clean, see page 49	x		x[2]
Air filter	Renew			x

Important instruction for service shops

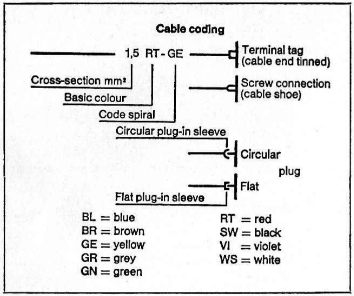
Lifting points for single-column car hoists with 4 pick-up pads:

Outer side end of body, under the reinforced areas for the car's own jack.

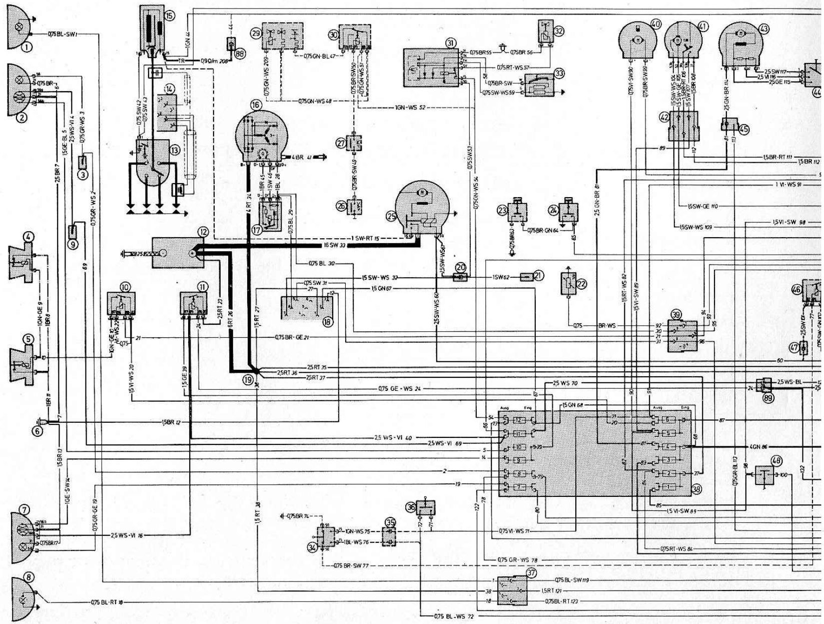
Warning: If the car is hoisted up directly beneath the final drive, place a suitable piece of material between the jack pad and the housing to prevent damage to the final drive.

[1] every 20,000 miles
[2] every 40.000 miles

Electrical wiring diagram BMW 1502

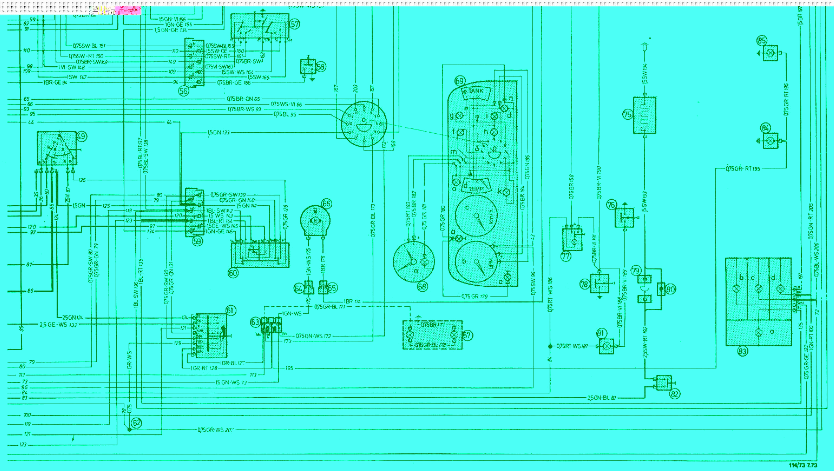


Number following colour code = cable number
1. Turn indicator, front right
2. Headlamp, right, with parking light
3. Connection for headlamp wiper unit
4. Horn, right (optional)
5. Horn, left
6. Earth (ground)
8. Turn indicator, front left
7. Headlamp, left, with parking light
9. Connection for fog lamp and extra headlamp relay
10. Horn relay
11. Dipped beam relay
12. Battery, 12 V
13. Distributor
14. Connection for diagnosis unit with cable and transducer
15. Coil
16. Alternator
17. Voltage regulator
18. Connection for diagnosis unit
19. Solder tag 30
20. 1-pole plug
21. Connection 50
22. Remote thermometer sensor
23. Brake fluid telltale (optional)
24. Oil pressure sensor
25. Starter
26. Water temperature sensor (only on automatic)
27. Air temperature sensor (only on automatic)
28.
29. Automatic choke (only on automatic)
30. Switch-over relay
31. Time relay (on tii only)
32. Starting valve (on tii only)
33. Temperature/time switch (on tii only)
34. Relay for reversing lights with starting lock (only on automatic)
35. 2-pole plug (only on automatic)
36. Relay for reversing lights
37. 5-pole plug
38. Fuse box
39. 5-pole plug
40. Screenwasher plug
41. Wiper motor
42. 5-pole plug for wiper motor



e) Fuel gauge
f) Battery charge telltale (red)
g) Oil pressure telltale (red) — „Sweden" optional extra, brake fluid telltale
h) Headlight main beam telltale (blue)
i) Turn indicator telltale (green)
k) Central telltale (choke, handbrake, fuel reserve)
m) 3-pole socket (clock)
n) 3-pole socket (revolution counter)
o) 12-pole socket

70. Choke (except on tii)
71. Solder tag
72. Handbrake switch
73. Door operated switch, right
74. Fuel gauge float
75. Heated rear window
76. Rear door contact (only on touring)
77. Interior light
78. Door operated switch, left
79. Contact plate, left (only on touring)
80. 1-pole plug for heated rear window
81. Luggage compartment light (only on touring)
82. Switch for heated rear window
83. Rear light cluster, left
   a) Turn indicator
   b) Rear light
   c) Reversing light
   d) Stop light
84. Number plate light, left
85. Number plate light, right
86. Earth (ground)
87. Rear light cluster
   a) Turn indicator
   b) Rear light
   c) Reversing light
   d) Stop light
88. Resistance cable for high-performance ignition system (only on Turbo and with high-performance ignition system as optional extra)
89. 2-pole plug



Service all the way

Superior engineering is worthy of your confidence. You will certainly have noticed that after having driven just a few miles in your new BMW.

Naturally, a quality car like yours should be serviced and cared for in the correct way, so that your sheer driving pleasure will remain just as great for years to come.

When having your car serviced or when repair is to be done, please make sure that it is carried out by an authorized BMW service station only. BMW service stations have all the equipment and tools that are specially designed for your car, and they are obliged by contract to use only ORIGINAL BMW PARTS for your BMW.

It pays off to be careful when somebody offers you spares other than the "original ones". As we are unable to examine these parts for quality, you may lose your warranty if they are used. And it might even lead to legal difficulties if your BMW is fitted with non-BMW spares.

Thanks to ORIGINAL BMW PARTS, you can always protect yourself against any such trouble and need not run a risk. ORIGINAL BMW PARTS are not like normal spares. They are completely identical with the original parts used in a new BMW. **So that "replacing an original part by another original part" gives you the same technical superiority that is so characteristic of BMW. Needless to say, this is essential for maintaining the supreme power and inner safety of your car.**

Every BMW dealer has concluded a contract with the factory, stipulating that he must always keep a stock of the following ORIGINAL BMW PARTS:

- spare parts and replacement parts required frequently
- ORIGINAL BMW ACCESSORIES (complete range)

Original BMW Parts needed only rarely – there are about 30,000 parts in all – are procured by the small dealer in Germany from his nearest BMW contractual dealer with parts supply; abroad parts can be supplied by larger dealers and from the BMW Importer.

Original BMW Parts are all parts including accessories supplied by BMW irrespective of whether they are manufactured by BMW or other firms.

BMW Quality Guarantee

Original BMW parts are completely identical with the parts used in a new BMW.

Bayerische Motoren Werke AG guarantees that Original BMW Parts are genuine and free of defects in material and finish.

BMW – Perfection to the very last detail.

Original BMW Teile

BMW

Look for this sign

Equip your BMW individually
BMW-tested equipment by renowned radio manufacturers are available. Assembly with original BMW kits and suppressor sets including aerial – matched to meet BMW standards. A tip, stereo is just as fascinating in the car as in the home.

BMW interior carpets
For front and rear, cut to exact size, non-slip, protect and decorate at the same time. Available in various colours: "korrekt" and "modern" coconut and velours carpets.

BMW rubber floor mats
Just the right thing for the wet season. Bearing the BMW emblem.

BMW rear safety headrests
The rear BMW safety headrests are also incorporated in the seat back. They are the optimal extra to supplement the seat belts for your passengers in the rear seats.

BMW light-alloy wheel rims
Tested by BMW on BMWs in the most severe conditions. Subject to continuous tests, X-rayed individually – the only original BMW alloy wheel rim on the world market.

BMW quartz-iodine fog lamps
Available as a complete installation kit with rear fog lamp. In most countries there is a risk of fog the whole year round.

BMW quartz-iodine headlights
For your BMW choose between additional quartz-iodine headlamps (mainbeam and lowbeam) or H-4 quartz-iodine conversion kits with low and high-beam.

BMW breakdown kit
Contains electrical components and V-belts for each BMW model – from 2-door to 6-cylinder models. The selection was compiled in conjunction with an Automobile Club.

BMW trailer bracket
For caravans, boat trailers or horse boxes. Also available with detachable ball head.

BMW headlight washer
Water is squirted onto the headlight by a special washer nozzle. Dirt is washed away immediately.

BMW air-conditioning
A high-output air conditioning system can be built into your BMW whenever you like, and not only when your car is new.

BMW mudguards
Show how considerate the BMW driver is when overtaking, protect your BMW from dirt and flying stones.

BMW first-aid cushion
Available in brown, blue or black with the BMW emblem. In Germany and in many other countries it is compulsory to carry a first-aid kit.

BMW "Bavarian Foal" synthetic seat cover

BMW emblem. In Germany and in High-quality synthetic shaped covers in imitation animal fur – black and beautiful. For the front seats and headrests of your BMW. Warm in winter, cool in summer.

BMW gear shift lever head
An attractive accessory – finished in wood or leather with BMW emblem.

Further accessories from the BMW programme

Rear loudspeaker, revolution counter, grab handle for front passenger, glove box lock, luggage compartment box or container, luggage compartment mats or lining, engine compartment light, seat belts front and rear, safety rally steering wheel, rally seats, quartz clock, seat height adjustment, exhaust tips, replacement windscreen, safety glass windscreen, heated rear window, intermittent wiper unit, vented steel wheel rims, wheel caps and trim lockable tank cap, pocket torch with or without cable, warning triangle, headlight covers in phosphorescent colours, luggage compartment light, outside thermometer, reading lamp for rear seats, stabilizers, rally rear view mirrors, rally strips in black, dark green or blue, BMW paint spray, phosphorescent spray, rally spray and touch-up sticks.

Notes

Notes

At a glance

Tyre pressure in bar (psi) with cold tyres (add 0.3 bar = 4.3 with warm tyres):
165 SR 13

	front		rear	
Load	bar	psi	bar	psi
up to 4 persons	1.8	26	1.8	26
5 persons and luggage	1.8	26	2.0	29

Special rules apply for **competition** use.

Winter and ice tyres
160 SR 13 M+S (E)

	front		rear	
Load	bar	psi	bar	psi
up to 4 persons	1.9	27	1.9	27
5 persons and luggage	1.9	27	2.1	30

Spark plugs
Beru 145/14/3 A
Bosch W 145 T 30
Champion N 12 Y

Spark plug gap:
0.024+0.004″ (0.6+0.1 mm)

Contact breaker gap 0.016″ (0.4 mm)

Dwell angle
61°–66°

Ignition timing
25° BTDC at 1900 rpm

Valve clearance (engine cold)):
Inlet and exhaust:
0.006–0.008″ (0.15–0.20 mm)

V-belt
alternatively:
9.1 x 870
9.5 x 875 LA DIN 7753

Capacities

Fuel tank	11 Imp. gal/13.5 US gal/50 litres	Branded grade fuel
Cooling system incl. heater	1.28 Imp. gal/1.5 US gal/7 litres	For details, see page 47
Engine oil	7 Imp. pints/8.5 US pints/4 litres plus 0.44 Imp. pints /0.53 US pints/ 0.25 litres if oil filter is changed	Branded HD petrol engine oil (for oil grades, see page 43)
Manual gearbox	1.8 Imp pints/2.1 US pints/1 litre (2.5 Imp. pints/3.0 US pints/1.4 litres) (5-speed gearbox)	Branded gearbox oil SAE 80 (or if not available, HD engine oil, see page 43)
Final drive	1.7 Imp. pints/1.9 US pints/0.95 litres	Branded running-in grade hypoid oil, SAE 90 (your BMW service station knows the approved grades)
Steering box	0.55 Imp. pints/0.64 US pints/0.3 litres (Permanently filled, without drain plug)	Branded hypoid gear oil, SAE 90.

Bayerische Motoren Werke AG München

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