

DRIVING HINTS, MINOR DEFECTS

Fuel consumption
Economy
Engine oil consumption
Engineering modifications
Cold-weather driving
Breakdowns
Fault-tracing
Bulb changing

US model

In the miles speedometer you find an extra inner scale indicating kilometers per hour.

The covered distance you read in miles.
Fig.

Canada-version

In this version you read the speed and distance in kilometers whereas the inner scale indicates miles per hour. **Fig.**



On your way

Your BMW is designed to operate with Regular Grade Fuel with an anti-knock index of 87. This designation is comparable to Research Octane Number 91.

If you are forced to fill up fuel with a lower octane rating – and thus with lower knock resistance – note the following hints to avoid pre-ignition or “pinking”: keep engine turning at 2500 rpm or over, change down in good time, accelerate gently and carefully.

Your car's **fuel economy** is mainly dependent on your style of driving. Just as travel by the fastest trains involves payment of a supplement, so high-speed driving, acceleration to the limit in all gears, violent cornering and sudden braking all take their toll, not only in terms of heavy fuel and oil consumption, but also more rapid wear of brakes, tyres and all the engine parts.

After driving for some time in dense city traffic or in a queue of cars, we recommend letting your engine “**take a deep breath**”, as it were, by covering the next mile or two at engine speeds of 4500–5500 rev/min. This will help to dispel any carbon build-up in the cylinders.

Observance of the **prescribed tire pressures** does not only influence tire life, but also handling, fuel consumption etc. Make it a habit before starting any long journey, and in any case at least once a week, to check tire pressures. You will find a list of correct pressures inside the fuel filler flap and on the inside back cover of this handbook.

It is bad practice to allow the engine to warm up at idling speed. Drive away at moderate engine speeds, immediately after starting. However, if the outside temperature is exceptionally low the engine should be allowed to run at increased idle speed for about half a minute, to ensure proper circulation of the engine oil. Never run a cold engine at high speeds or its useful working life will be seriously reduced.

When **declutching**, always push the clutch pedal down fully; never drive with the foot resting on the pedal.

Drivers of cars with automatic transmission should operate the accelerator and brake pedal **with the right foot only**.

Engine oil consumption, like fuel consumption, depends on driving style and operating conditions.

We recommend checking engine oil level regularly, for instance when filling up with fuel. If necessary, add fresh oil of the same grade as before at the filler cap on the cylinder head rocker cover, until the dipstick oil level reaches the upper mark (for oil grades, see page 63 "CARE AND MAINTENANCE").

The most accurate oil level readings will be obtained if the dipstick is examined before starting a cold engine; if the engine is already warm, allow a short period for the oil to drain back into the sump. The car should stand on a flat, level surface. Make sure that the loop

handle on the dipstick points to the left (forwards), and the dipstick is pushed fully into its tube. The quantity of oil represented by the space between the upper and lower dipstick marks is 1.25 liters (1.32 US quarts).

Adding too much oil is useless and may even damage the engine or suggest abnormally high oil consumption. We recommend adding fresh engine oil only when the level has dropped almost to the lower dipstick mark, but before it drops below the minimum-level mark.

Change to another grade of oil only during a complete engine oil change including filter element renewal.

Our engines are designed to operate with the highly-advanced modern oils available commercially today without the addition of any other additives. The same applies to the manual gearbox, automatic transmission, final drive and power steering.

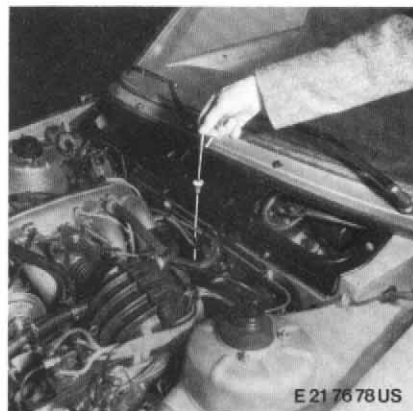
Check fluid levels in the automatic transmission regularly (see "CARE AND MAINTENANCE")



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An old but valuable hint: after a lengthy period of **mountain-pass or high-speed driving** at wide throttle openings, do not switch off the engine as soon as you stop the car, but allow it to idle (or drive very gently) for a few minutes, so that heat pockets in the engine and resulting loss of coolant are avoided.

Warning: Allow the engine to cool (coolant thermometer needle in center of white zone) before unscrewing the radiator overflow tank cap. To open, turn the cap a quarter-turn anticlockwise, to the first stop. Allow time for excess pressure to escape, then unscrew further and remove. To seal the radiator overflow tank, screw on the cap as far as the second stop.

When **driving downhill**, the engine's braking action can be increased by shifting down to a lower gear ratio. Never drive downhill with the clutch pedal depressed, the gear or selector lever in neutral or – more dangerous still – with the ignition switched off.

After a lengthy period on wet roads, in rain or slush, be prepared for the first brake application to need rather more pedal pressure than usual.

The brake booster servo on your BMW operates pneumatically, so that the necessary partial vacuum is available only when the engine is running. When being towed with the engine stopped, more pedal pressure than usual will be needed to achieve the desired braking effect.

When the **minimum brake pad thickness** is reached, a spreader spring in each disc brake caliper comes into operation and makes **increased pedal pressure** necessary. To protect the discs from damage the pads should then be renewed without delay by an authorized BMW service shop.

For major **journeys abroad**, we suggest that certain spare parts be carried as a precaution – bulbs, fuses, V-belts, spark plugs, gaskets etc. Your BMW service station will gladly assist you in selecting a suitable range of items.

In most cases, travel abroad calls for a nationality plate to be displayed at the rear of your car. However, some countries have differing or additional regulations. In case of doubt, it is best to approach a consulate, automobile club or similar authority.

Before you undertake any **engineering modifications, changes of tire size** or similar conversion work on your car, please contact your BMW service station for advice as to the value, legality or manufacturer's recommendations concerning the proposed work.

For **winter operation** of your car, a few essential steps must be taken in good time before the cold season commences. The cooling water, as delivered, contains a **long-life-anti-freeze and corrosion inhibitor**. Concentration must be kept at 35 % all the year round in order to provide the necessary corrosion resistance.

Total capacity of cooling system	7.4 US quarts 7 litres
including heater:	6.0 Imp. quarts
Frost protection down to approx.:	- 13° F - 25° C

Your BMW service station can recommend factory-approved brands of antifreeze. Change the coolant completely **every 2 years**. (For draining and refilling the cooling system, see "CARE AND MAINTENANCE".) Check the antifreeze properties of the coolant before and during the cold season of the year. At the same time, examine the cooling system for leaks and replace any porous or brittle hoses.

Engine temperature is controlled by thermostat, taking into account both engine load and outside temperature. For this reason **the grille must not be blanked off, nor a radiator blind fitted**.

The **screenwasher** can be protected in cold weather by adding 40 % domestic alcohol spirit. This is effective down to temperatures in the region of - 20° C (- 4° F). Please note the instructions regarding engine oil to be followed at the beginning of the cold season (see "CARE AND MAINTENANCE"). If the weather suddenly turns colder, do not wait until the next routine oil change before refilling with a suitable grade of oil.

If the engine is to start reliably in winter, the **battery** must be fully charged. When cold, a battery's output is reduced, yet the demands made on it are greater in winter than in summer.

Warning: To charge the battery **without removal** from the car, the engine must be stopped, then **both battery terminals removed**. **Never attempt to disconnect** the battery terminals **while the engine is running**.

If **winter tires** - (M + S) radial - are installed, please note that for good directional stability and light action steering tires of the same make and type should be fitted to **all four wheels** (and to the spare as well if possible).

Warning: For reasons of safety the rubber valve should always be exchanged when renewing or refitting tubeless tires.

Do not exceed the maximum speeds laid down by law or recommended by the tire manufacturer.

Observe the prescribed **tire pressures** at all times, and have the wheels rebalanced whenever a wheel or tire is changed.

Snow chains may be used on the drive wheels only. Max. speed is then 45 mph or 70 kph.

When leaving your car **parked in freezing conditions**, engage 1st or reverse gear to prevent it from rolling away, or select automatic transmission position 'P', but do not apply the handbrake. There is a risk that the handbrake shoes may freeze solid to their drums.

In order to improve handling and grip on icy or snow-covered roads and in the mountains we recommend loading an **empty luggage compartment with approx. 110 lbs (50 kg)**. Prevent from slipping.

Use only factory-approved products for the **locks** (your BMW service station can advise you), so as to avoid difficulties in functioning. These products will prevent the locks from freezing. If a lock freeze up despite these precautions, heat the key blade before insertion.

We recommend applying glycerin to prevent the **sealing rubber strips** on the doors and around the engine compartment and luggage compartment from freezing.

Your car is treated as standard with a **special coating on all cavities and inside surfaces**, and the **underside** is covered with a **one-season underseal coating**.

In winter, chromium plated and polished components can be protected with colorless lacquer.

After a heavy fall of snow, clear the air inlets in front of the windshield that the car's heating and air extraction systems can function correctly.

In winter, we also suggest carrying the following items in the car:

Sand, for starting on ice-covered slopes;
A shovel to dig the car out of drifts;
A board to act as a firm support for the jack;
Handbrush and scraper to remove ice and snow from the body and windows.

Car stuck in deep snow, sand, mud etc.:
Do not press the accelerator down too far; before the rear wheels sink in too deeply, place some form of support beneath them (in an emergency the car's floor mats can be used). It may help to apply the handbrake lightly to stop one rear wheel from spinning. If this remedy works, do not forget to release the handbrake immediately afterwards.

What to do, if ...

If your car should develop a fault which you are capable of dealing with yourself, proceed as follows if no service station is accessible.

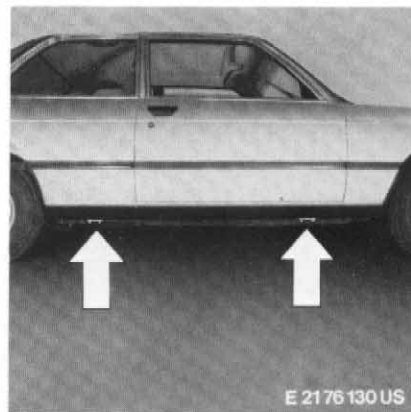
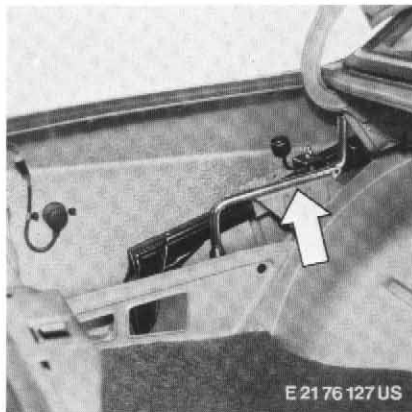
Tire trouble is a rare thing these days. But if you should be unlucky and suffer a flat tire, pull in to the side of the road and apply the handbrake. Do not forget to switch on the **hazard warning flashers** and to set up a warning triangle or flashing signal lamp at an adequate distance to the rear, if these measures are required by law.

The spare wheel is housed in the luggage compartment, under the floor panel; this is held by spring clips and can be lifted out.

The hexagon nut securing the spare wheel can be unscrewed with the aid of the wheel brace.

The **jack** (1) and **wheel brace** (2) are housed in a compartment on the left of the luggage compartment. The jack can be removed after unscrewing the wing nut (arrow).

Fit the jack to one of the **4 lifting points** provided on the body, and turn until the defective wheel is clear of the ground. **Fig.**



Press off the hub cap with the wheel brace. **Loosen** the wheel studs.

The hub cap can also be pressed off from the rear after removing the wheel, using a suitable tool - e.g.a hammer shaft - towards its rim (not in the center).

Remove the wheel studs and take down the wheel. Put the centering pin in one of the four tap holes (**Fig.** next page), set on the wheel and screw in an wheel stud. Then pull out the centering pin and replace the remaining wheel studs.

Tighten evenly until the wheel is held firmly. Lower the car until the wheel is supporting the load, then **finally tighten the wheel studs**, working in a crosswise pattern. Have the tightening torques checked by a service station right away, and have them checked again after 600 miles (1000 km) and then every 12.500 miles (20.000 km) during a BMW Program Test.



Set on the hub cap and press on with the flat of the hand.
Have the flat tire repaired and the wheel rebalanced as soon as possible.

Note: When changing or renewing tubeless tires, always discard and renew the rubber valve as a safety precaution.

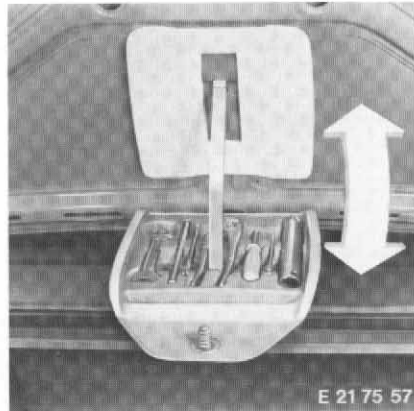
The toolkit is housed beneath the luggage compartment lid, and can be opened by unscrewing the wingnut.

To tow-start a manual transmission car, de-clutch, select third gear, and switch on ignition. When the car is moving forward smoothly, engage the clutch.

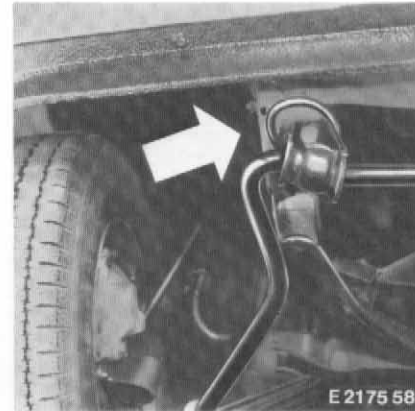
Owing to the design of the **automatic transmission**, cars so equipped cannot be push-started or towed for starting, and must be towed away for repair (see page 48). **Towing eyes** are located on the left and right hand sides of the front axle beam.



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Fault Tracing - Minor Defects

	Cause	see Page
Engine will not start	Battery flat, battery terminals loose, automatic transmission selector not in "O" or "P" position	47
Starter runs but engine does not fire	Fuel tank empty, no ignition spark (loose lead), engine flooded	47
Engine fires but immediately stalls	Loose or leaking air and vacuum hoses, wiring for fuel injection system loose	
Erratic idling	Fuel injection idle settings incorrect, misfiring or poorly adjusted ignition	71/72
Oil pressure warning light comes on	Oil level too low, oil being lost, check oil filter	48
Coolant temperature too high	Coolant level too low, V-belt slipping or broken	48
Charge warning lamp comes on	Loose or broken V-belt, loose lead or connection on alternator or regulator	48
Brake warning lamp comes on	Brake fluid level too low, handbrake not released, leak in clutch hydraulic circuit	48

Starter motor does not operate when ignition key is turned to position 3:

Check by switching on headlights, then operate starter again.

1. If the headlamps go out slowly, the battery is insufficiently charged or defective. Recharge the battery or have it changed. The car can be push-started or towed (not Automatic) if necessary, or the engine can be started using an auxiliary starting cable and a second 12 Volt battery (from another vehicle)

See next page -
Starting with a flat battery

2. If the headlights go out immediately, check that the cable terminals at the battery and starter motor are making proper contact, and tighten if necessary.
3. If the brightness of the headlights does not diminish, consult your BMW Service Station (a fault in the starter is indicated).

Engine will not start although starter motor is turning:

Provided that the instructions for starting have been observed, and there is enough fuel in the tank, the fault may lie in the ignition system or the fuel supply system.

1. Check that the plug leads are firmly attached to the spark plugs. Check the tightness of all cables on the coil, distributor and other terminals, and ensure that the fault has not been due to water entering the engine compartment during car washing.
2. Unscrew and check spark plugs.
3. To test each spark plug for correct operation, unscrew in turn, reconnect to plug lead and rest the metal exterior of the spark plug on the bare metal of the engine block. When the starter is operated, sparks should be seen to jump the electrode gap. If no spark is visible, try another plug on the same cable. If once again no sparks are to be seen, the distributor should be examined.
4. Check fuel flow at starting engine speed by noting pressure build-up in the supply line to the starting valve. The fuel hose should become harder when pressed in with the finger as fuel flows through it.

If this is not the case, check the fuel delivery pump (above the right halfshaft of the rear axle), the main fuel filter and the microfilter in the fuel tank suction head, or consult your BMW Service workshop.

The fuel injection lines need not be bled if the tank is run dry or drained, as the fuel delivery pump bleeds the system automatically when the starter is operated.



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Coolant temperature too high:

1. Allow engine to cool until coolant thermometer is in the white zone on the dial. Carefully remove the radiator cap and check coolant level. Never add water to the system **if the engine is hot**, after loosing a large quantity of coolant. Allow the engine to cool until the hand can be placed on the lock.
2. If coolant has been lost, check the radiator cap or hose connections and the radiator block itself for leaks.
3. Check V-belt condition and tension, adjust or renew as required.
4. Check ignition timing.
5. If necessary have the complete cooling system flushed out by your BMW Service Station.

Fault in brake system:

If the red **brake warning lamp** comes on while the car is being driven, and the handbrake is released, it indicates a loss of brake fluid; if at the same time brake pedal travel increases considerably, one circuit of the hydraulic safety brake system has failed.

If faults develop on the brake system, you are recommended to consult a BMW service station as soon as possible.

If one circuit of the hydraulic **dual-circuit brakes** should fail, **brake pedal travel** will immediately increase. In addition, higher pedal pressure will be needed to achieve the same braking action. Although the car can still be braked satisfactorily with only the remaining circuit in use, it is essential to consult your BMW service station immediately.

A spreader spring in each brake caliper causes **pedal pressure** to increase when the **minimum brake pad thickness** is reached.

If the red **oil pressure warning lamp** comes on while the car is being driven, declutch **at once** and switch off the ignition. If engine oil level is not too low, consult the BMW service station. It need cause no alarm if the lamp flickers or comes on briefly at idle speed, provided that it is extinguished immediately the accelerator is depressed.

If the red **battery charge warning lamp** comes on while the car is being driven, take the car to a BMW service station as soon as possible, or else the car's battery will gradually run down and become flat.

Starting with a flat battery

You can start the engine with jumper leads to another 12 Volt battery (in another car) as follows: first connect the positive, then the negative poles of the two batteries together.

Warning: do not let the cables touch part of either car or sparking will result. Operate the starter, and when the engine is running disconnect the jumper leads in the reverse order. Have the flat battery recharged if it is not otherwise defective.

Tow-starts – BMW 320 i Automatic

Design of the automatic transmission makes it impossible to start the engine by towing the car; for emergency starting procedure, see "Starting with a flat battery" below.

Towing away – BMW 320 i Automatic

If the car has to be towed, set the transmission selector lever to "O" = **Neutral**.

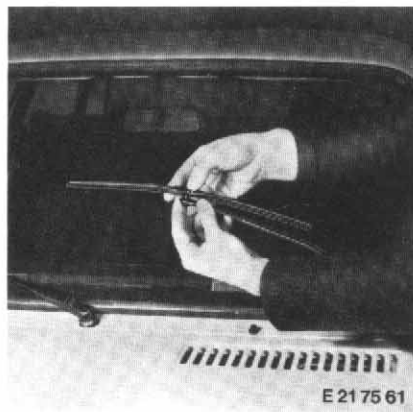
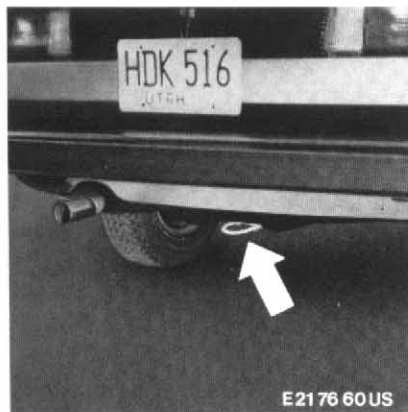
Towing speed should not exceed 50 km/h (30 miles/h), and the distance towed should be limited to 40–50 km (25–30 miles). If the car has to be towed for a distance greater than 50 km (30 miles), add 1 liter (1.1 US quart, 1.8 Imp. pints) of ATF (automatic transmission fluid) to the contents of the transmission, or remove the propeller shaft. After repairing the car, do not forget that the oil level in the transmission must be reduced to normal before the car is returned to use.

Towing another car:

If you wish to assist another driver by towing his car with your BMW, you should ensure the first of all the second car is not heavier than your own. **A rear towing eye** is located under the spare wheel pan. **Fig.**

To remove a **wiper blade** first lift the complete arm away from the windscreen. Then raise the spring catch and pull the wiper blade away to the side. **Fig.**

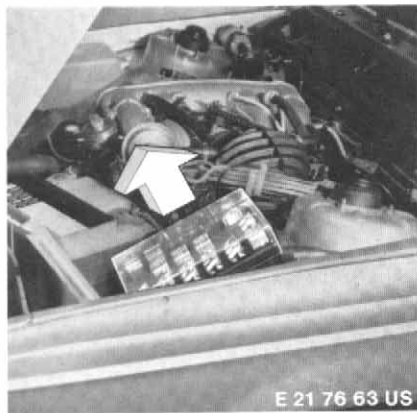
The complete wiper arm can be removed after lifting up the plastic cap and loosening the fastening nut (13 mm spanner). **Fig.**



If any current consuming unit on your car should fail, first check the fuse.

The **fusebox** (current distributor) with spare fuses and relays is located in a damp-proof case in the engine compartment, above the wheel arch on the left-hand side, and can be reached by opening the engine compartment lid. Details of the current consumers and fuse ratings in Amps are given on the transparent lid of the fusebox. **Fig.**

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.



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

When **changing a bulb** or carrying out any other work on the car electrical system, always switch off the item in question or detach the earth lead from the battery negative terminal to avoid short circuits.

Never handle new bulbs with bare hands: use a clean cloth, paper napkin, or something similar to avoid contact with grease.

When changing headlights inserts, make sure that the beam setting screws are not disturbed.

We recommend keeping a "BMW spares pack" in the car. Ask your BMW dealer for this pack.

Instrument lighting:

Before changing the 3 bulbs, the lower trim panel must be removed first. This provides access to the central screw which holds the instrument panel. After this screw and the speedometer shaft have been removed, the instrument panel can be pulled out forwards. The defective bulb can then be pulled out of its holder in the upper part of the trim panel.

Lighting: 3 valve-base bulbs,
W 12 V, 1.2 Watt.

The headlamp inserts for the **dipped lights** are in the two outer lamps.

After dismantling the ornamental grille, loosen the three screws on the clamping ring, remove insert to the front by pulling back the cable connector. **Fig.**

The headlamp inserts for the main beams - i.e. the inner lamps - must be replaced in the same way.

Front turn indicators:

Unscrew the two Phillips-head screws holding the plastic lens, and remove the lens. The 21 Watt (RL) spherical bulb should be pressed in slightly and turned to remove. **Fig.**

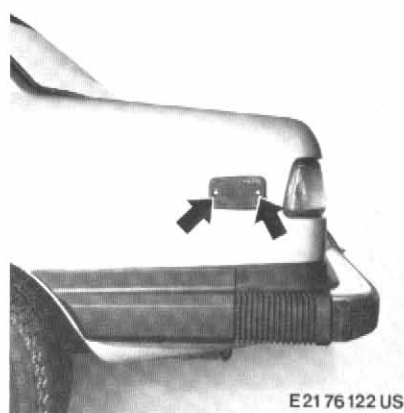
A rear side marker lamp is installed on both sides of your car. The side marker lamps are equipped with 4 Watt (HL) bulbs. To replace loosen screws and remove glass cover. **Fig.**



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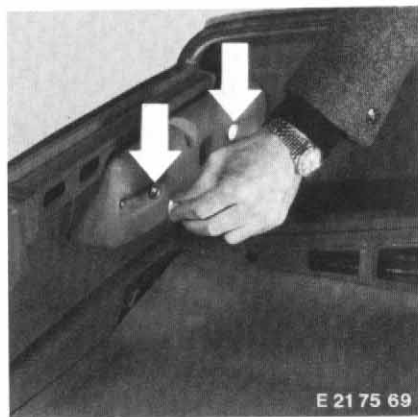
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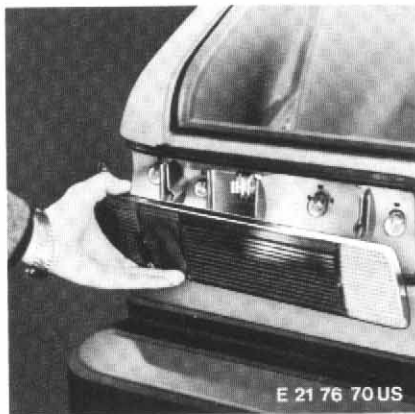
Rear light:

Open the luggage compartment, unscrew the two knurled nuts and take off the lens. **Fig.**



Remove the defective bulb from its holder and insert the new bulb. **Fig.**

Rear/parking/side light: spherical bulb (G), 10 Watt;
Turn indicator: spherical bulb (RL), 21 Watt;
Stop light: spherical bulb (RL), 21 Watt;
Reversing light: spherical bulb (RL), 21 Watt.



Licence plate light:

Loosen and remove the Phillips-head screw and take off the lens frame with rubber seal (**Fig.**). The contact clips for the 5 Watt (L) festoon-type bulb must grip the bulb and caps firmly and make good metal-to-metal contact. If necessary, bend the clips carefully or clean the contact areas.



Interior light:

The 18 Watt (K) festoon-type bulb can be reached by pulling out the interior light. **Fig.**

As correct headlight adjustment is of particular importance in view of traffic safety, the headlights should whenever possible be adjusted by a specialist workshop using the proper beam-setting equipment. If this is not possible, open the engine compartment and reset the headlight beam by turning the two knurled plastic knobs as required. **Fig.**

1 = Vertical adjustment

2 = Horizontal adjustment

