SsangYong Motor Company

Owner's manual

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Notes concerning vehicle safety

We recommend that

- Only original parts and conversion parts and accessories expressly approved for the respective vehicle model should be used.
  Safety, reliability and suitability of these parts has been determined in a special test;
- Bodies should be made and mounted in compliance with current
  Body/Equipment Mounting Directives.
  Only in this way is it ensured that chassis and body form a unit and that optimum operational reliability and roadworthiness is offered.

We cannot be held liable for reliability, safety and suitability if

- Original parts or approved conversion parts and accessories have been replaced with other parts or if other modifications have been made to the vehicle;
- Bodies have not been manufactured or mounted in compliance with current Body/Equipment Mounting Directives, or if in the case of deviations from these directives the approval has not been obtained.
  Approval granted by public testing agencies or official authorizations do not rule out safety hazards.
  Every service station will offer further information.

Printed in Korea

We reserve the right to modify the technical details as given in the data and illustrations of these operating instructions (s.e.e.o.).
Reprinting, translation and copying, even of excerpts, is not permitted without our prior authorization in writing.

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These operating instructions are designed to provide clear answers to essential questions concerning operation, service and maintenance.

In some sections you will in addition find instructions for the economic operation of your vehicle. By complying with these instructions you can assist in effectively reducing the fuel consumption (energy consumption).

Owner's manual and Maintenance Booklet are important documents which should always be carried in the vehicle.

To ensure continuous operational reliability and roadworthiness, we strongly recommend that service and maintenance work listed in the Maintenance Booklet be carried out on time.

For this purpose, an extensive network of service stations is at your disposal.

Before operating the vehicle for the first time, please refer to the sections entitled.

"Components" and "Operation".

This Owner's Manual also describes special equipment to the extent required for operation. Since this special equipment depends on the order, the equipment in your vehicle may deviate from some descriptions and illustrations.

Our vehicles are subject to continuous development. We therefore request your understanding for the fact that changes in design, equipment and engineering are possible at any time. For this reason claims based on the contents of this Owner's Manual are excluded.

We wish you a good trip!

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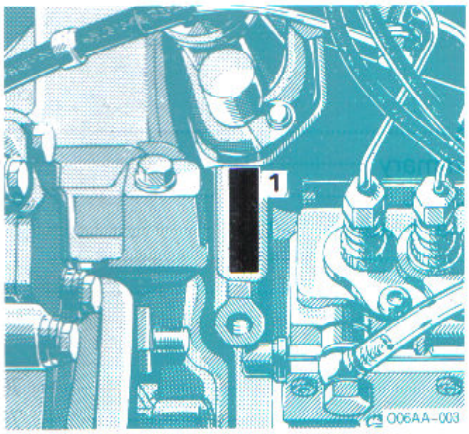
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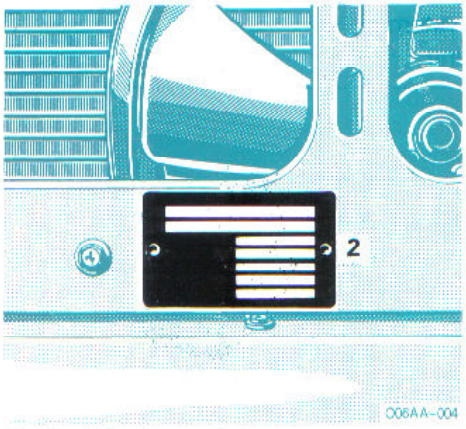
Tire pressure chart

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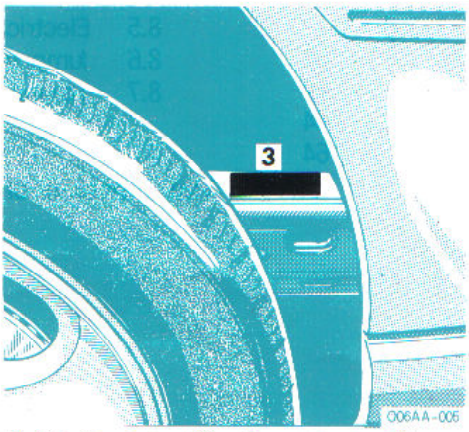
1 Identification plates



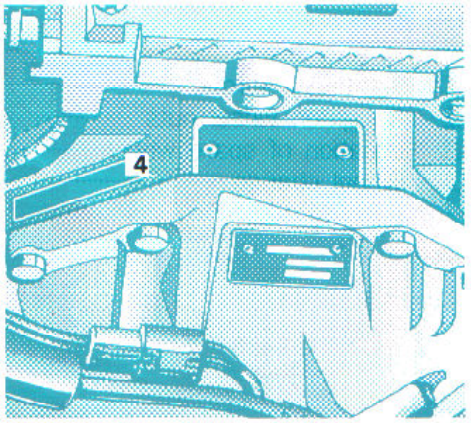
1 Diesel engine no. on LH engine side



2 Identification plate (vehicle ident. no. G.V.W,···)

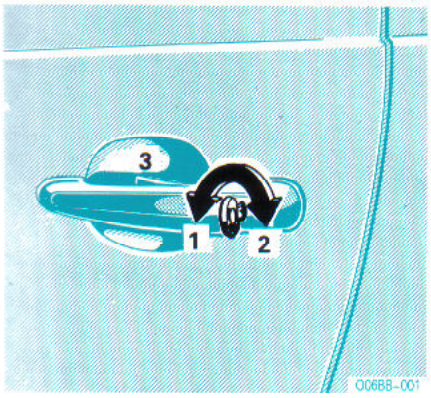


3 Vehicle identification no. on RH side frame member



4 Gasoline engine no. on rear engine side

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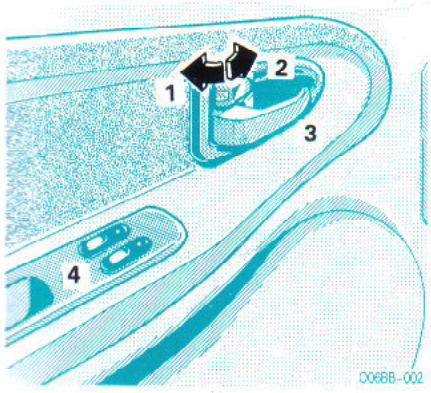


2 Components

2.1 Front door control

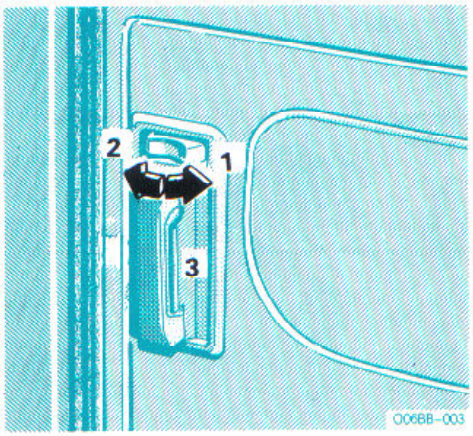
Caution!
Danger of accident and injury!
Do not drive unless the doors are properly closed.

Door control, outside
1 Locked
2 Unlocked
To open the door, pull door opening lever
3 Door opening lever



Door control, inside
1 Locked
2 Unlocked
To open the door, pull door opening lever
3 Door opening lever
4 Power window switches

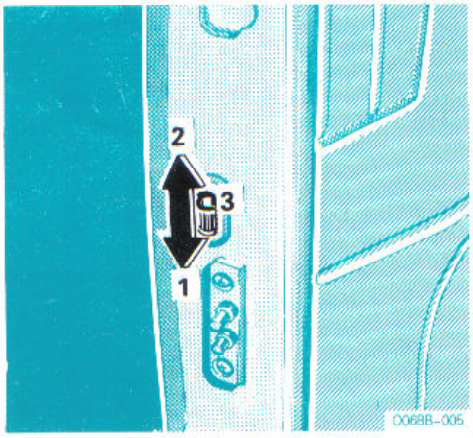
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2.2 Sliding door control

Door control, inside
1 Locked
2 Unlocked
To open the door, pull door opening lever and push door rearwards to the stop
3 Door opening lever

Note
Outside door control is the same way as the front door outside control.

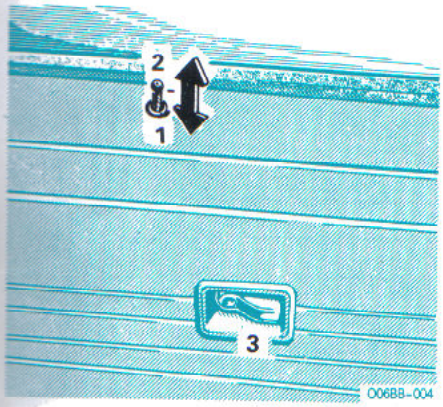


2.3 Childproof lock(coach)

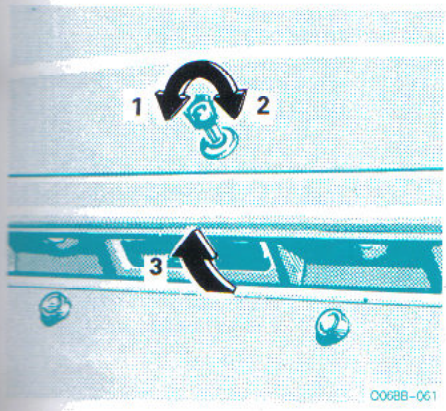
Sliding door
1 Locked
The door can be opened from outside only
2 Unlocked
3 Lock lever

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2.4 Tail gate control



Door control, inside
1 Locked
2 Unlocked
To open the door, pull up door opening lever
3 Door opening lever

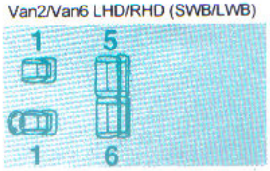


Door control, outside
1 Locked
2 Unlocked
To open the door, pull door opening lever and laise the tail gate upwards.

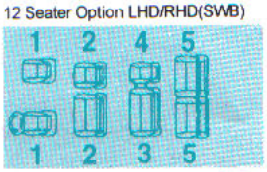
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Caution: Danger of injury.
Adjust driver's seat only when vehicle is parked.
Seat should catch audibly.

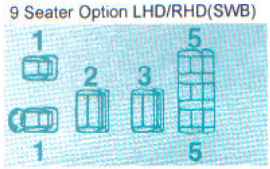
Van2/Van6 LHD/RHD (SWB/LWB)



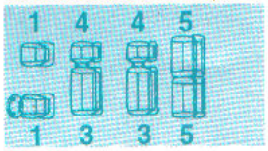
12 Seater Option LHD/RHD(SWB)



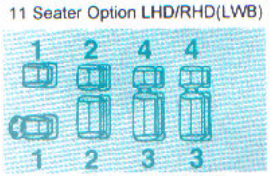
9 Seater Option LHD/RHD(SWB)



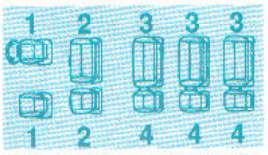
12 Seater Standard LHD/RHD(SWB)



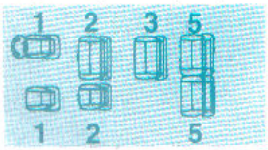
11 Seater Option LHD/RHD(LWB)



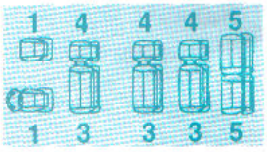
14 Seater Option RHD (LWB)



11 Seater Option RHD(SWB)



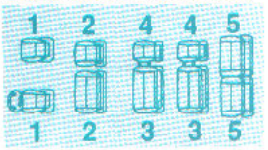
15 Seater Option LHD/RHD (LWB)



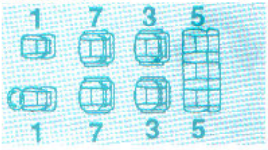
2.5 Seat adjustment

Function	1	2	3	4	5	6	7	8
Full flat	o	o	o	o			o	o
Foward/Backward	o	o					o	
360° Swivel		o					o	
Seat back position	o	o	o				o	o
Jump seat				o				
Folding					o			
Fixed adjustment						o		
Captain seat							o	o

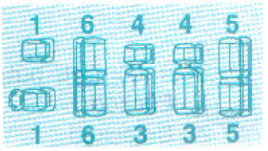
15 Seater Standard LHD/RHD (LWB)



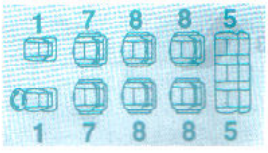
9 Seater Saloon LHD/RHD(SWB)



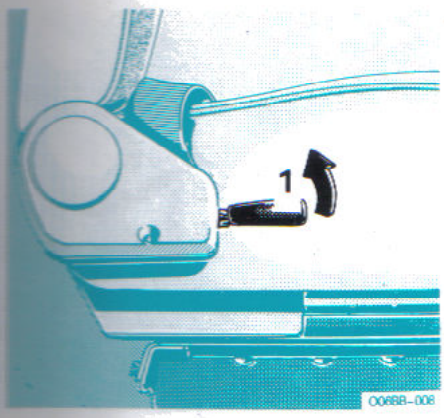
16 Seater Standard LHD/RHD (LWB)



11 Seater Saloon LHD/RHD(LWB)

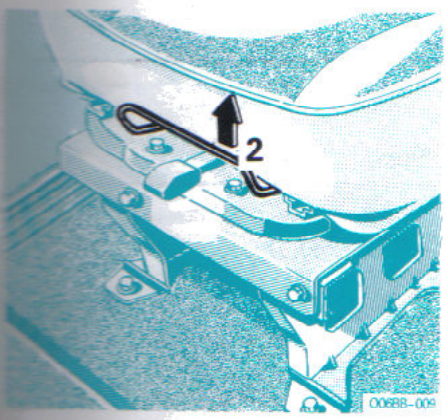


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Seat backrest position

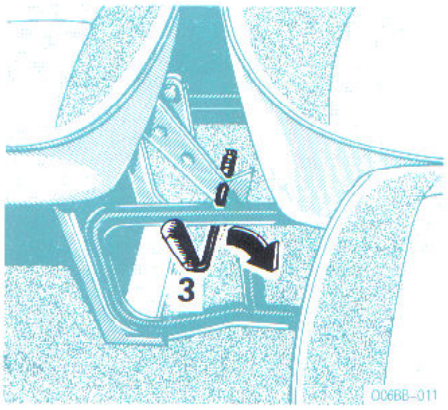
1 Angle of seat backrest adjusting lever



Forward and backward

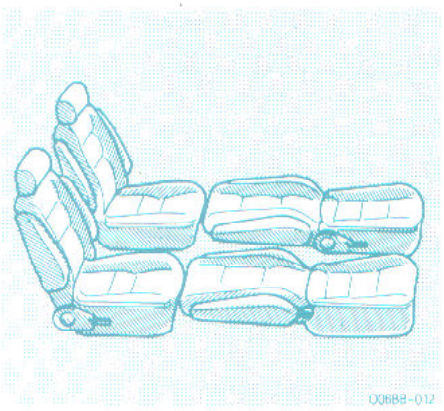
2 Seat sliding lever

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Jump seat

3 Seat jumping lever

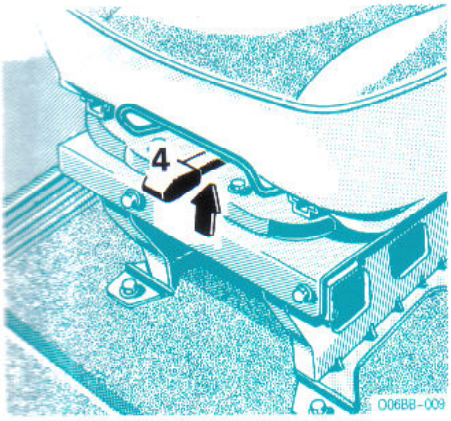


Full flat

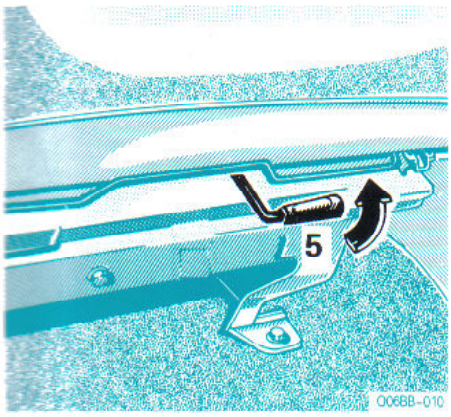
Caution!
Danger of injury!
Don't use full flat seat while vehicle is running.

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360° Swivel



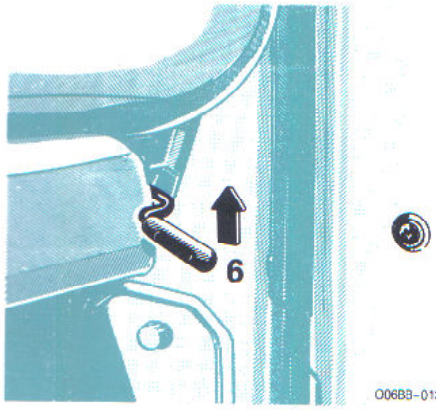
4 Swivel lever (for 1 seat)



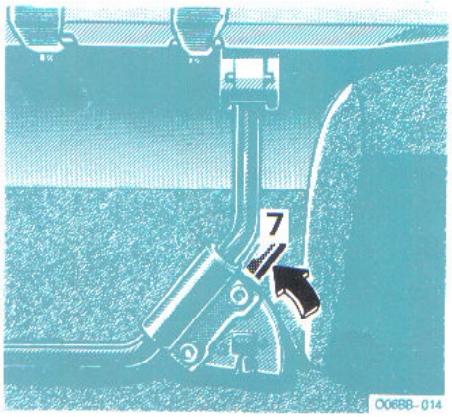
5 Swivel lever (for 2 seater)

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Folding

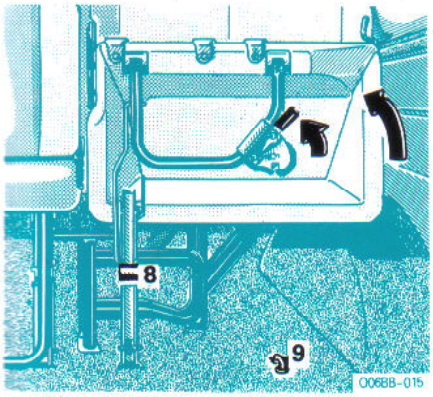


6 Seat backrest folding lever

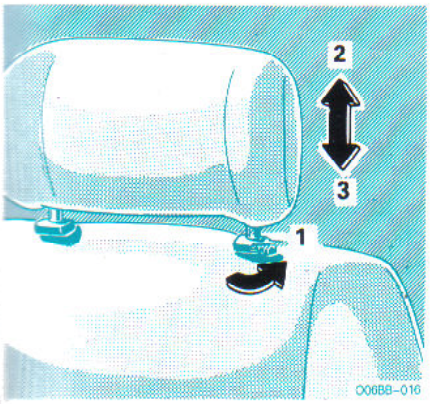


7 Seat folding lever

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8 Seat setting lever
9 Securing clamp



2.6 Headrests

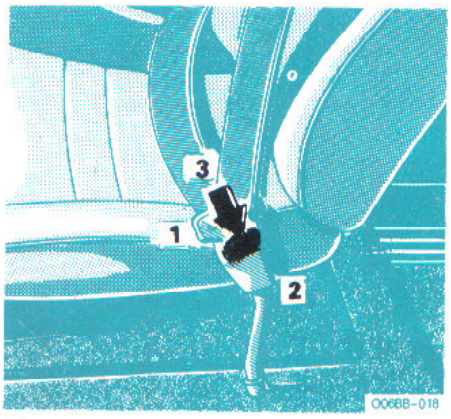
Height of headrest can be adjusted.

Caution

Danger of injury!

- **Where headrests are supplied, drive with headrests properly installed.**
- **Adjust headrests so that rear of head is supported at approximately ear level.**

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Three-point seat belt
1 Tongue
2 Buckle
3 Button

2.7 Seat belts

These instructions only apply to belts which have been installed at the automobile factory.
For installation after purchase use only seat belts recommended by us.

Cleaning and care of belt webbing
- Clean seat belt webbing with lukewarm water and soap. Do not apply any chemical cleaning agents.
- Do not dry the webbing at temperatures above 80℃/176°F or in direct sunlight.
- Never bleach or redye the webbing.

Seat belts with inertial reel

Inertial reel operation
The inertial reel of the seat belts stops the belts unwinding further in case of vehicle deceleration and if the belts are pulled out quickly.

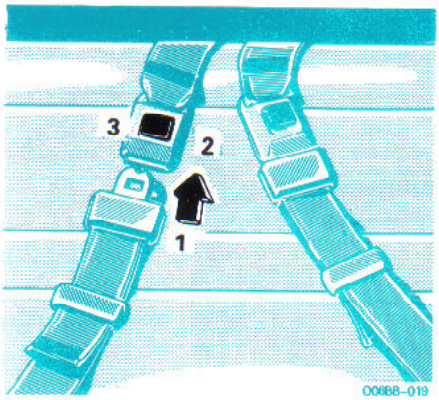
Function test:
The locking function of the inertial reel can be checked by braking, by cornering or by pulling the belt out quickly.

Three-point seat belt

Fastening:
- Pull belt with tongue (1) over shoulder and lap. The belt must not be twisted.
- Press tongue (1) into buckle (2) and allow to engage audibly.
- The belt must be tight. Check this condition immediately after having fastened it and regularly while driving. If necessary, tension lap belt by pulling the upper belt section upwards.

Unfastening:
- Push red button (3) in buckle.
- Return tongue (1) initial position.

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Lap belt without inertial reel
1 Tongue
2 Buckle
3 Button

Lap belt without inertial reel

- Pull belt with tongue (1) over the lap, engage in the buckle (2) and engage audibly.
  The belt may not be twisted and must hug the body.
  Shortening the belt: Engage tongue in the buckle. Pull the belt until it is taut.
  Extending the belt : Press the tongue into the buckle latch housing and adjust the belt web to the desired length.
- For loosening the belt press the red button (3) in the buckle.

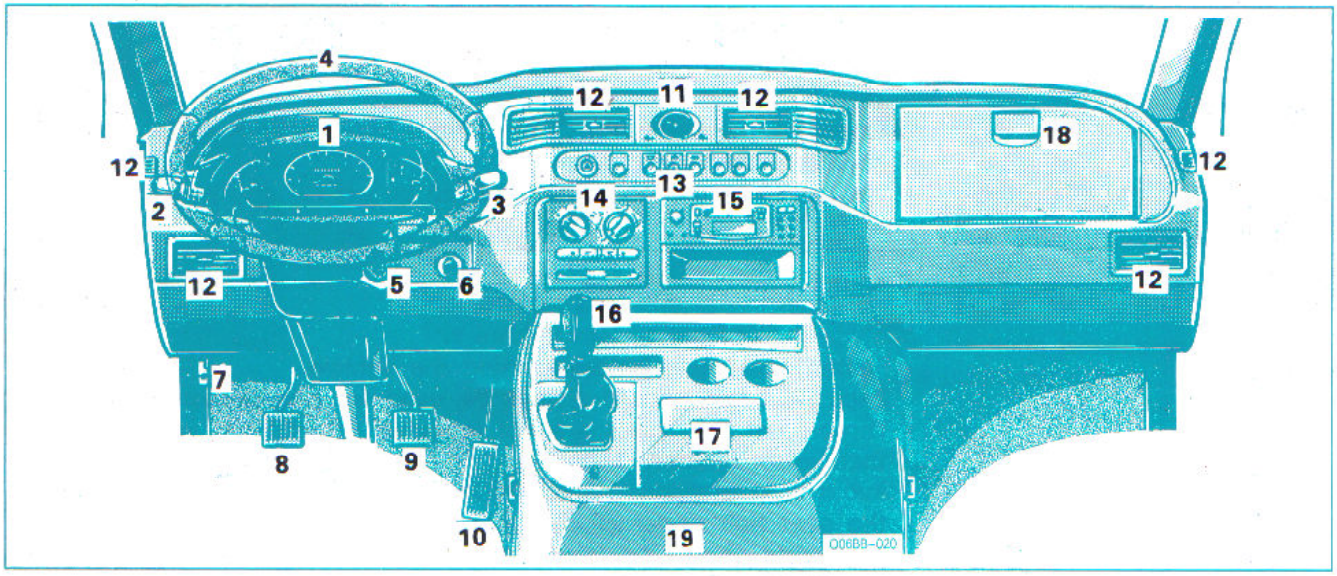
Caution!

Danger of injury!

- **Fasten seat belts before starting the vehicle.**
- **Each seat belt should always be used for one person only.**
- **Three-point seat belts are not intended for children with a height less than approximately 140cm.**
- **Avoid seat positions, which have a negative effect on the position of the seat belt under all circumstances.**
  Backrests should be nearly perpendicular. The back should contact the backrest and the seat belt at the shoulder.
- **Seat belts which have been heavily stressed during an accident should be replaced. Inspect belt anchoring points.**
- **Renew damaged seat belts.**
- **Belt webs may not be directed over sharp edges.**
- **Changes which impair the effectiveness of the belt may not be carried out.**

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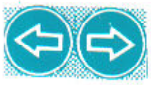
2.8 Instruments and controls



1 Instrument panel
2 Combination switch
3 Windshield wiper-washer switch
4 Steering wheel
5 Ignition key lock
6 Cigar lighter
7 Front flap opening lever
8 Clutch pedal
9 Brake pedal
10 Accelerator pedal
11 Clock
12 Ventilation vents
13 Switch panel
14 Heater/Air conditioner switches
15 Car audio set
16 Gearshifting lever
17 Ashtray
18 Glove compartment
19 Engine cover

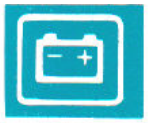
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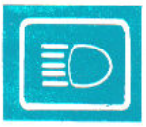
2.9 Indicator lights


Turn signal


Seat belt

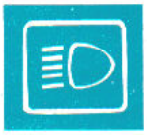

Rear heated glass (if equipped)


Battery Charge


High beam


Door opened


Oil pressure


Low beam


Hazard



Parking brake/
Brake fluid

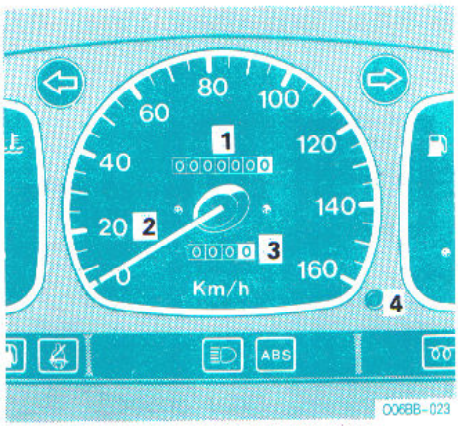


ABS(if equipped)


Fuel reserve

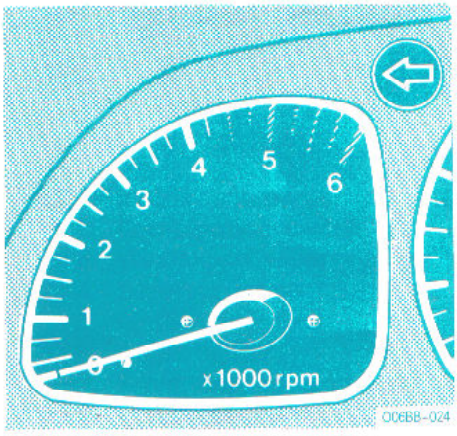

Pre-glow (only on diesel engine equipped vehicle)

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2.10 Speedometer

1 Odometer
2 Speedometer
3 Trip odometer
4 Reset button for trip odometer
Press button, trip odometer is reset to "0".

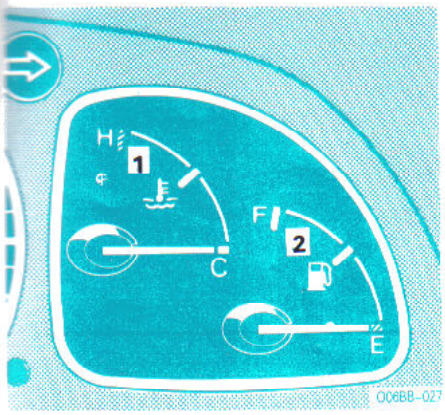


2.11 Tachometer

Optional feature

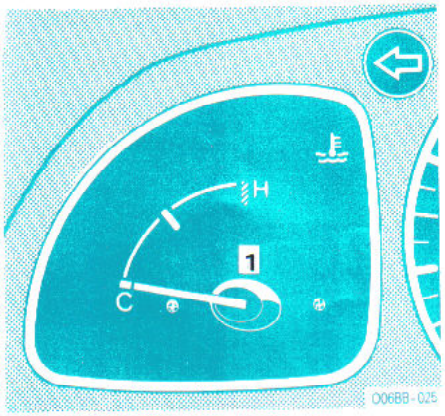
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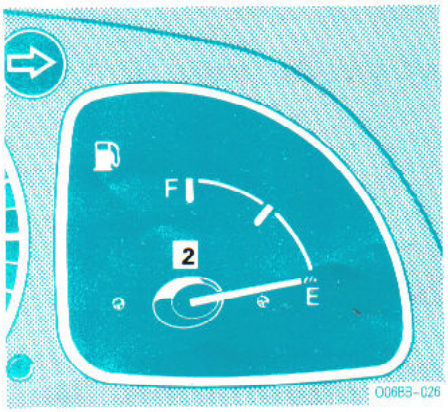
2.12 Coolant temperature gauge/Fuel gauge



Combined type
(vehicle with tachometer)

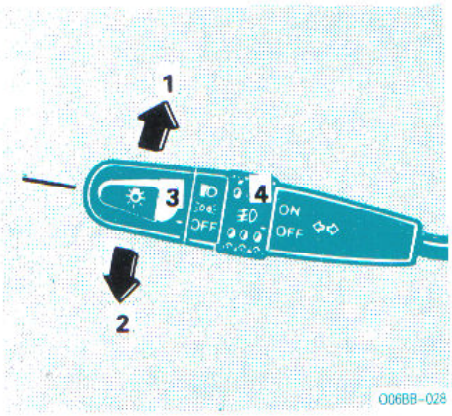
1 Coolant temperature gauge
H : Hot
C : Cool
2 Fuel gauge
F : Full
E : Empty





Separated type (vehicle without tachometer)

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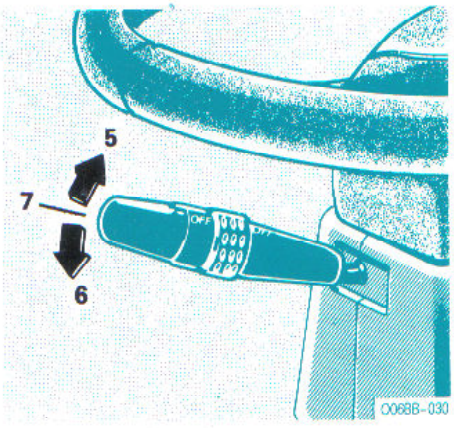


2.13 Combination switch

1 Turn signal light, right
2 Turn signal light, left
3 Light switch
OFF : Switched off
: Parking lights
: Head lights
4 Fog lamp switch

Caution!

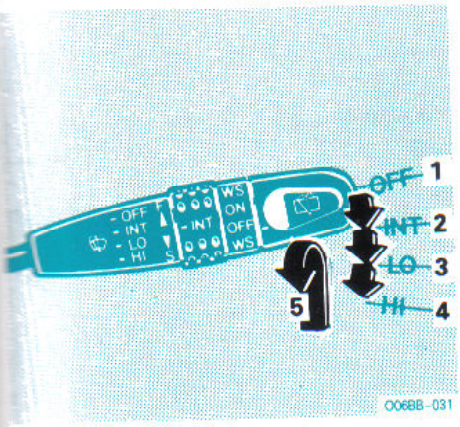
When you withdraw the key from the ignition lock without turning off the light switch, the warning buzzer sounds automatically.



5 Head light flasher
6 High beam
7 Low beam

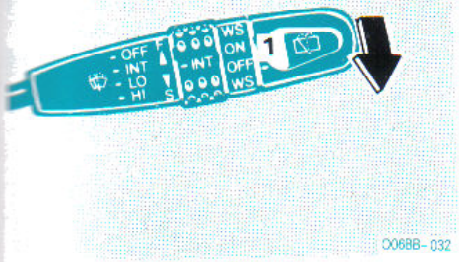
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2.14 Windshield wiper - washer switch



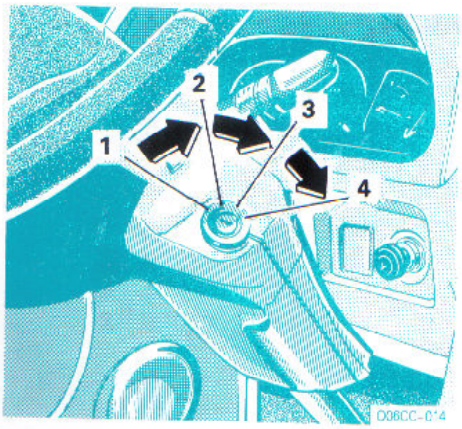
1 Wiper switched off
2 Intermittent wiping
3 Slow
4 Fast
5 Washer switched on

2.15 Rear wiper -washer switch



1 Rear wiper - washer switch
WS : Washer switched on
ON : Wiper switched on
OFF : Switched off

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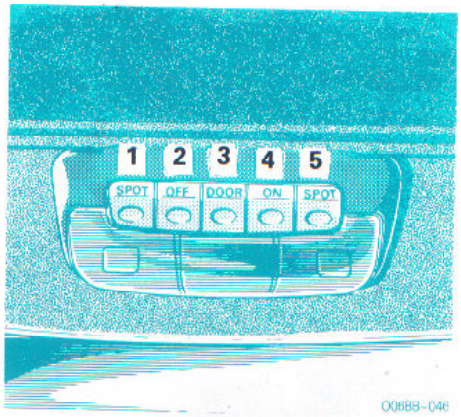
2.16 Steering/ignition lock

1 In this position the key can be inserted or removed.
When the key is withdrawn, the steering is locked.
2 Accessories are usable.
3 Preglowing(only on diesel engine)/driving position=Steering unlocked.
4 Starting position.

Caution!

Danger of accident!

- **Ensure that the steering wheel never locks when vehicle is moving.**
- **Remove key even when leaving vehicle for short time only.**

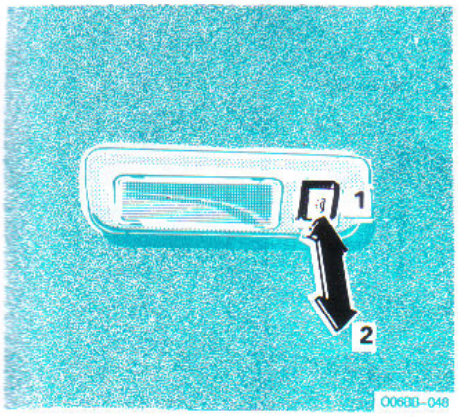


2.17 Interior light (front seat)

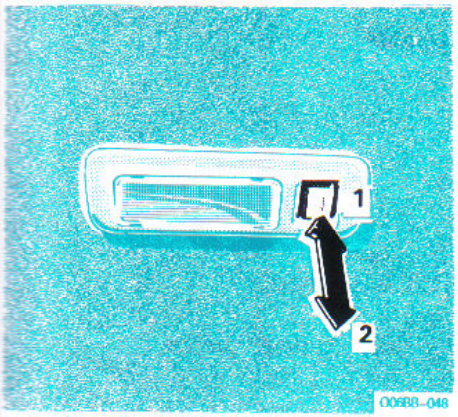
1 Left light is switched on and off.
2 Center light (spot) is off.
3 Light is switched on and off by the door contact switch.
4 Center light (spot) is on.
5 Right light is switched on and off.

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2.18 Cargo space lights (Van)



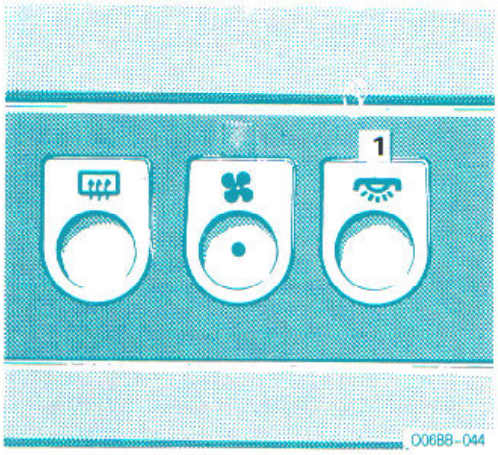
The first light
1 Van 6 : Light is switched on.
Van 2 : Light is switched on and off by the sliding door contact switch.
2 Light is switched off.



The second light
1 Light is switched on and off by tail gate contact switch.
2 Light is switched off.

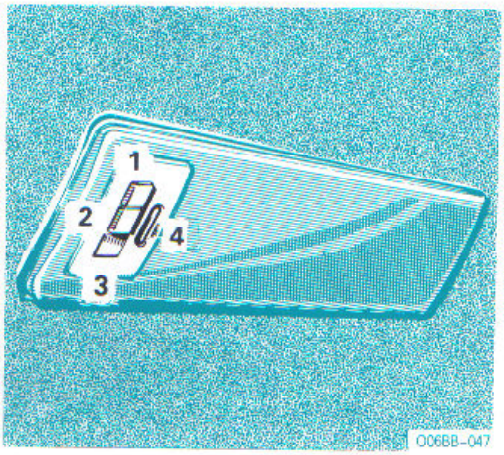
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2.19 Passenger's seat lights (Coach)



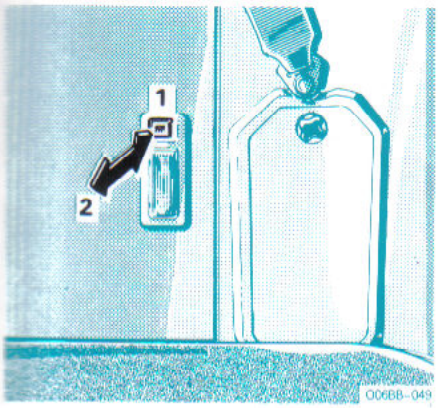
Passenger's seat light main switch

1 To turn on the light, this switch must be pushed.
This switch is not connected with the sliding door contact switch.



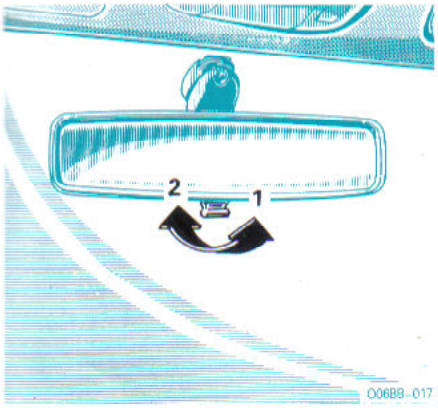
1 Light is switched on (when the main switch is pushed).
2 Light is switched off.
3 Light is switched on and off by the sliding door contact switch.
4 Press button - light becomes bright.
Release button - light is dimmed.

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2.20 Luggage space light (coach)

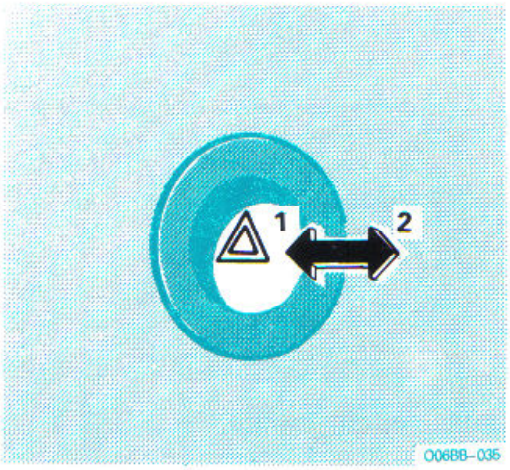
1 Light is switched on and off by the tail gate contact switch.
2 Light is switched off.



2.21 Interior mirror

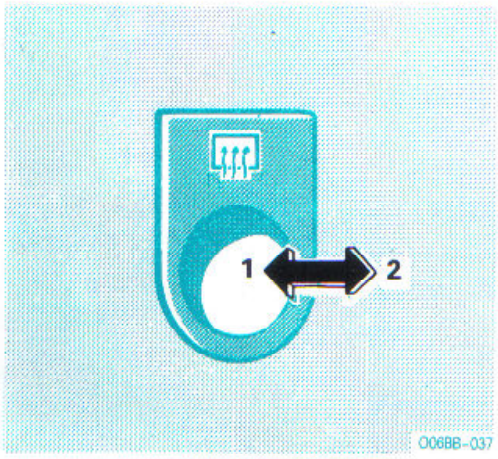
Operating lever
1 Normal position
2 Dimmed position

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2.22 Hazard switch

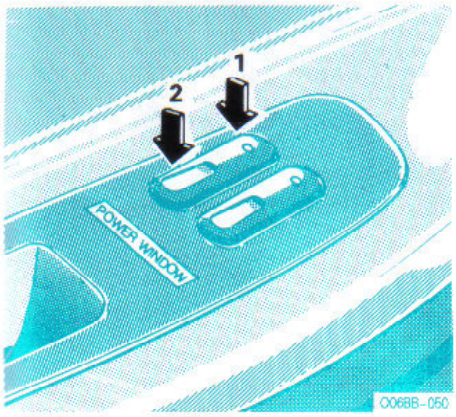
1 Hazard light is switched on.
2 Hazard light is switched off.



2.23 Rear heated glass switch

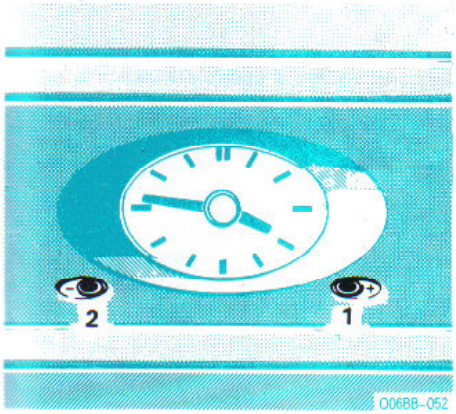
1 Rear heated glass is switched on.
2 Rear heated glass is switched off.

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2.24 Power window switch

1 Up
2 Down

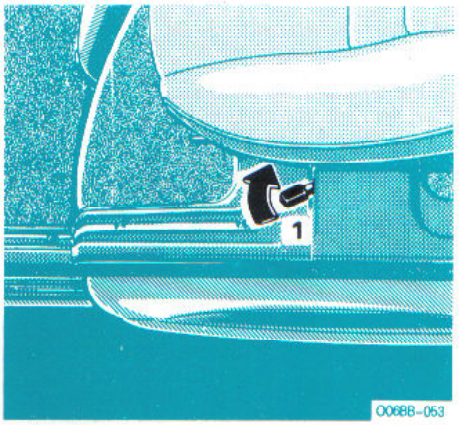


2.25 Clock

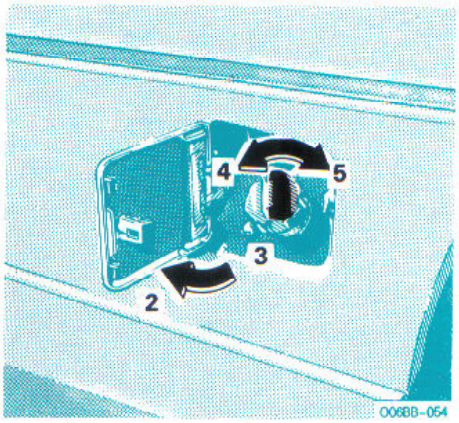
1 Button for time adjustment toward clockwise
2 Button for time adjustment toward counter-clockwise

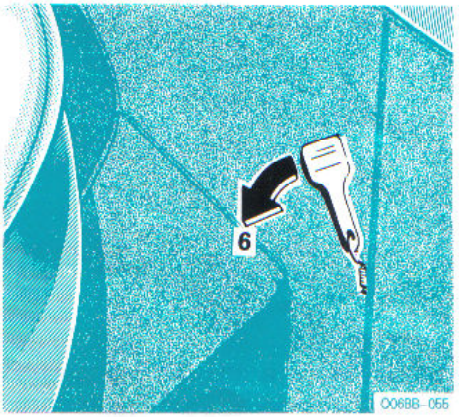
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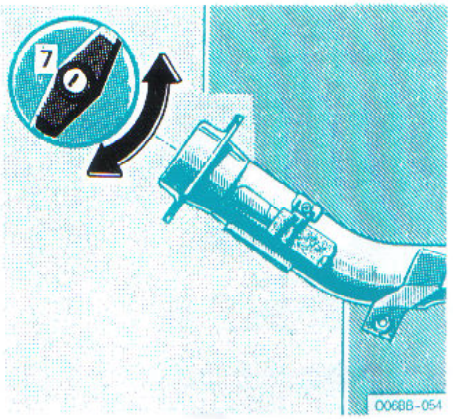
2.26 Fuel filling



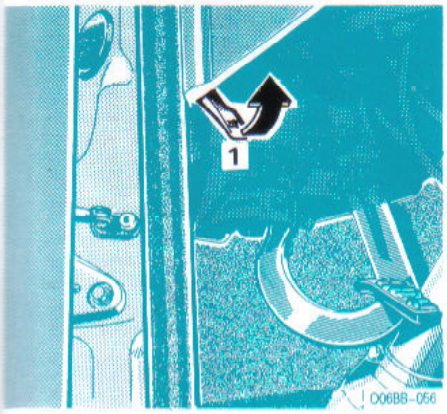
1 Fuel filling cover opening lever
2 Fuel filling cover
3 Fuel filling cap
4 Filling cap is opened.
5 Filling cap is closed.
6 Open the filling cover by pulling this cable when the opening lever doesn't work(van/coach).
7 Fuel filling cap opened and closed by key (cab chassis).







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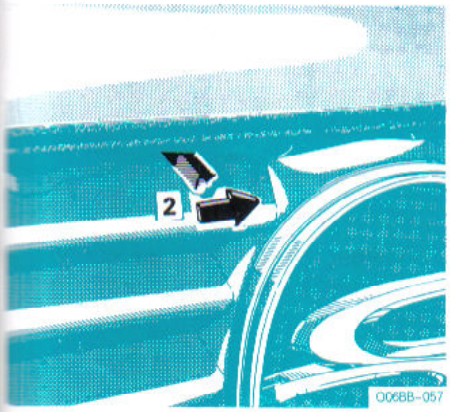
2.27 Front flap

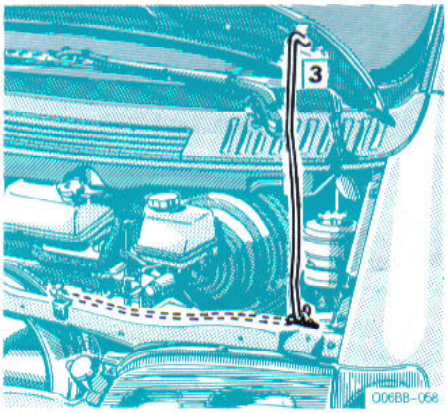
1 Front flap opening lever
2 Safety hook
3 Support

Opening front flap
- Actuate opening lever.
  The front flap opens to the stop on the safety hook.
- Press safety hook.
- Swivel front flap upwards and support.

Caution!

Danger of injury! When front flap is opened and engine is running.

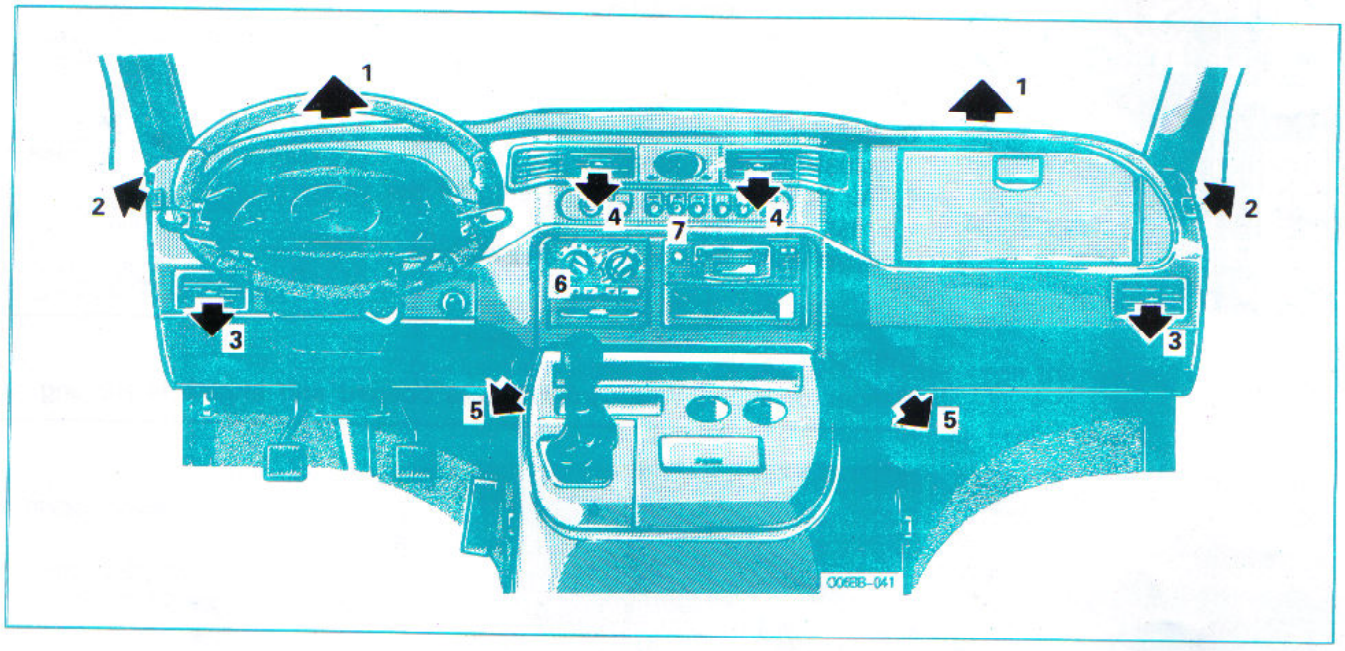




Closing front flap
- Disconnect support, swivel downwards and fasten.
- Push front flap downwards and engage into locks.

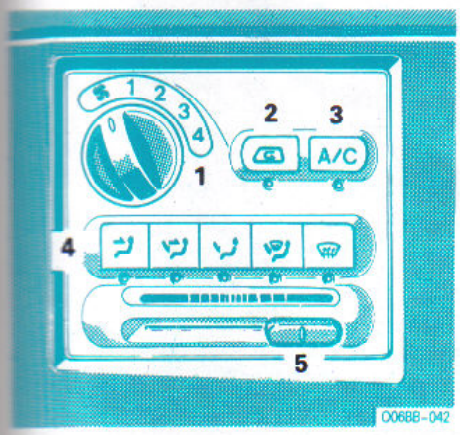
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2.28 Heating and ventilation



1 Windshield ventilation and defrosting vents
2 Side window ventilation and defrosting vents
3 Ventilation and heating vents
4 Ventilation and heating vents
5 Footwell ventilation and heating vents
6 Front heater and air conditioner control panel
7 Rear heater and air conditioner main switch (optional)

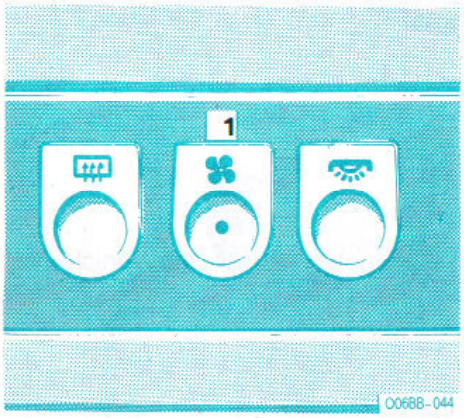
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Front heater and air conditioner control panel

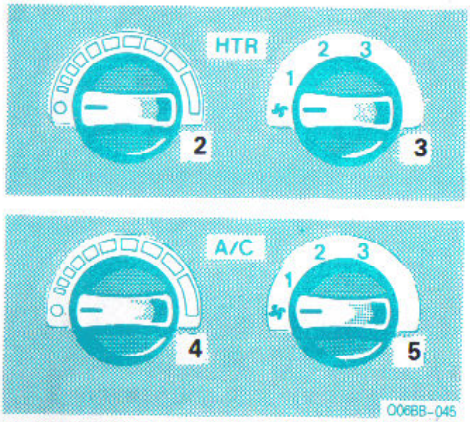
1 Blower switch
2 Air source switch
When the switch is pressed, exterior air shall not flow into the vehicle.
3 Air conditioner switch
4 Air flow selecting switches
5 Temperature control lever
- To the left : cool
- To the right : warm

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Rear heater and air conditioner control switch (optional)

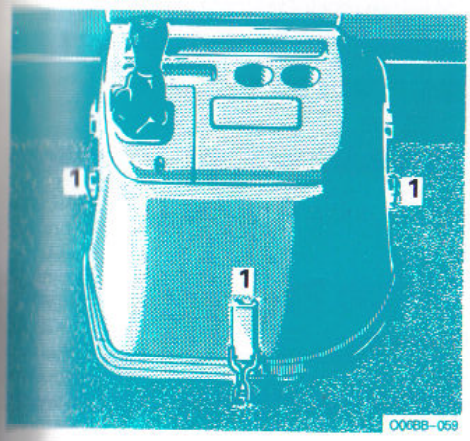
1 Rear heater and air conditioner main switch
This switch should be switched on by pressing for operating rear heater and air conditioner.



At the passenger's seat

2 Rear heating temperature control switch
At the left stop : switched off
To the right : warm
3 Rear heater blower switch
4 Rear air conditioning temperature control switch
At the left stop : switched off
To the right : cool
5 Rear air conditioner blower switch

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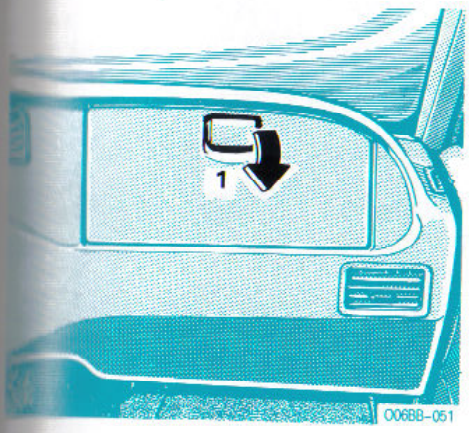
2.29 Engine cover

Before removing the engine cover, the gear lever has to be removed.
Removal: Push gear lever downwards, at the same time turn gear lever to the right to unlock.
Pull gear lever upwards.

Opening the engine cover
1 Clamps

Caution!

Danger of injury! When engine cover is opened and engine is running.



2.30 Glove compartment

Opening the compartment
1 Pull handle and swivel the cover downward.

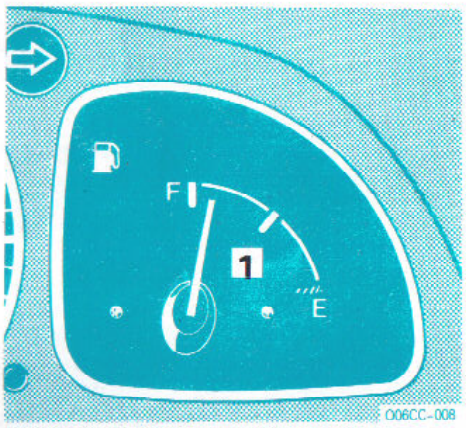
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3 Operation

3.1 Preparations for driving

Check the following items daily:
-Accessibility and completeness of the emergency equipment, e.g. first aid kit, hazard warning triangle, fire extinguisher.

Prior to starting the engine, check the followings:
-Fuel reserve
-Vehicle lighting, turn signal and stop lights
-Oil level in engine
-Coolant level in reservoir

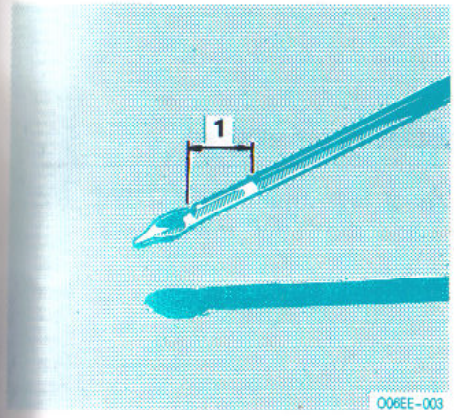


1 Fuel gauge

After having started the engine, check the followings:
-Engine oil pressure
-Coolant temperature
-Steering free play

Fuel reserve
Check fuel level on fuel gauge, replenish if necessary.
Prior to filling the fuel tank, shut off engine.
Do not fill fuel tank to the brim.
Observe fuel quality (page 55).

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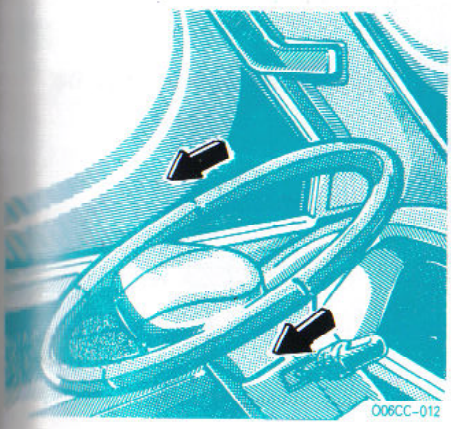


Oil level in engine

Vehicle has to be on level ground when oil level in oil sump is checked (at the earliest 2 minutes after shutting off the engine).
Oil level to be somewhere between the lower and upper(1) marks on the oil dipstick.

Caution!

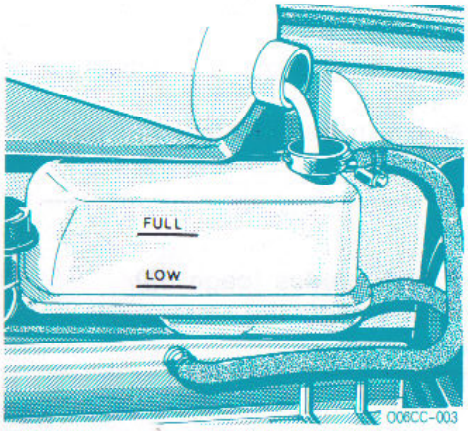
Use only approved engine oils of specified SAE grades (page 53)
Do not fill above top mark, if too much oil is added, the excess oil must be drained or evacuated.



Steering play

Start engine and move front wheels to straight-ahead position.
Turn steering wheel to left and right alternately.
The front wheels should move after the steering wheel has turned a maximum of 40mm (measured at steering wheel circumference).
If not, have steering and steering linkage checked in a service station.

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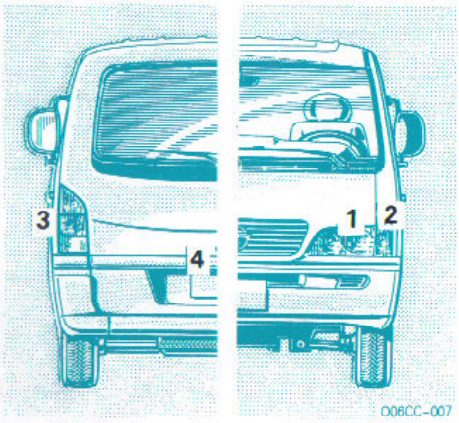


Coolant level

Caution!

Danger of scalding due to hot coolant. System is pressurized.

Only check the coolant level at a temperature of less than 50℃/ 122℉.
The coolant level must be between the "Full" and the "Low" markings.



Vehicle lighting, turn signal and stop lights

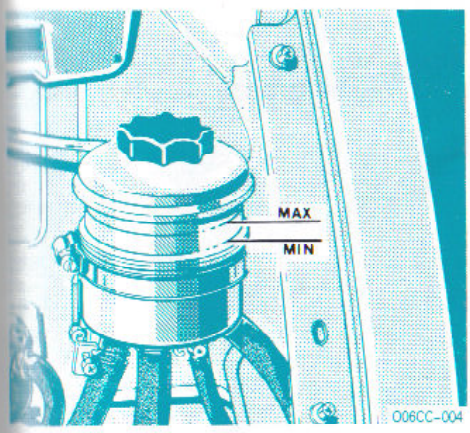
The lighting system includes turn signal and stop lights. All lights must be checked daily for good condition and clean lenses.
Replacement of defective bulbs (page 67-71).

1 Head light
2 Turn signal light
3 Rear combination light
4 License plate light

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Check at regular intervals:
(for example once a week or whenever you refuel)

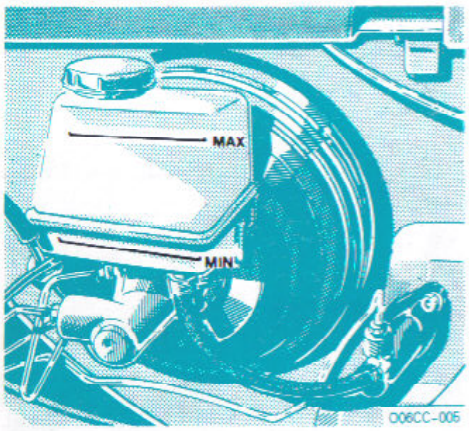
- Power steering - oil level
- Hydraulic brake system, hydraulic clutch control - fluid level
- Windshield washer system - fluid level
- Components for leaks
- Soiling of air cleaner
- Inflation pressure and condition of tires
- Wheel nuts for tightness (refer to page 64)
- Battery - condition of charging
- Seat belts



Power steering - oil level

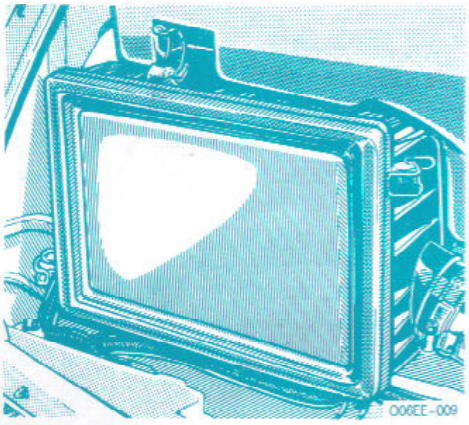
With the engine running, the oil level must be between the 'MIN' and the 'MAX' markings.
If hydraulic oil needs to be replenished, have the hydraulic system inspected.

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Hydraulic brake system, hydraulic clutch control - fluid level

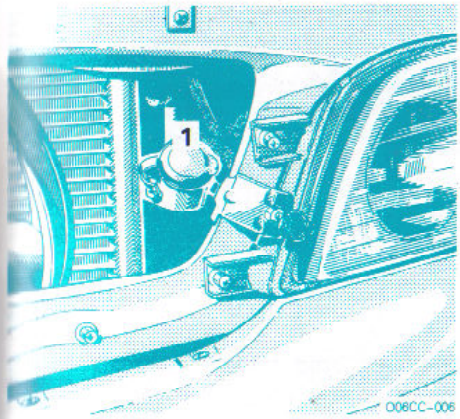
The brake fluid level in the reservoir must be between the "MIN" and "MAX" markings.
If brake fluid needs to be replenished, have the hydraulic system inspected.
Observe section on "Brake fluid" (page 55)



Soiling of air cleaner

In case of heavy dust accumulation, check weekly; in extreme cases, check daily.

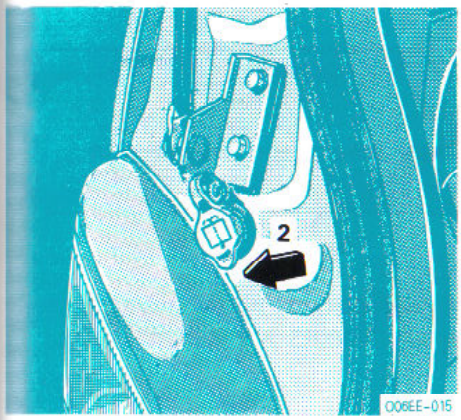
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Washer system - fluid level

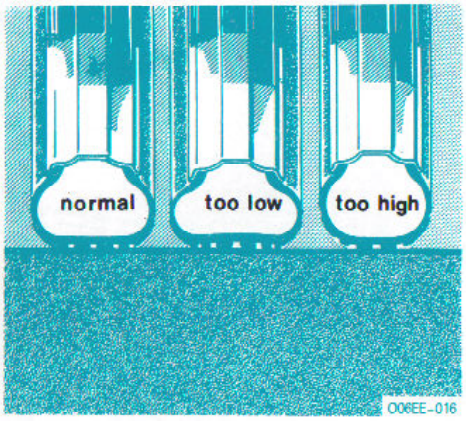
Add windshield washing detergent 'S' for summer or 'W' for winter to the water. Observe mixing ratio.

1 Windshield washer reservoir



2 Rear washer reservoir

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Inflation pressure and condition of tires

Condition:
Check tires for even tread wear, depth of tread (to comply with legal requirements) and exterior damage.
Remove foreign bodies from tread.
Interchange front and rear wheels, if necessary (e.g. when feathered edges occur on the outer shoulder tread). Retain sense of rotation.
Observe section on "Wheel change" (page 65).

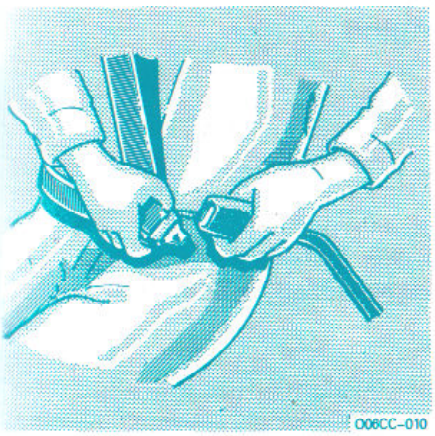
Inflation pressure:
Check inflation pressure (including spare wheel) on cold tires.
The pressure differential between the tires on one axle must not exceed 0.1 bar (1.4 psi). If the inflation pressure is too low on individual tires, check valves, wheels and tires for leaks. High speed operation or hot weather may increase the inflation pressure by as much as 1 bar (14 psi). Never bleed any air since the pressure will otherwise drop below specifications. For tires and inflation pressure, refer to "Tire pressure chart" (last page).

Caution!
Danger of accident!
Too low inflation pressure reduces operational safety and tire service life.

Check components for leaks

Visually check engine, transmission, steering gear box, hydraulic systems, cooling and heating system for leaks. If any components are leaking have them inspected at a service station.

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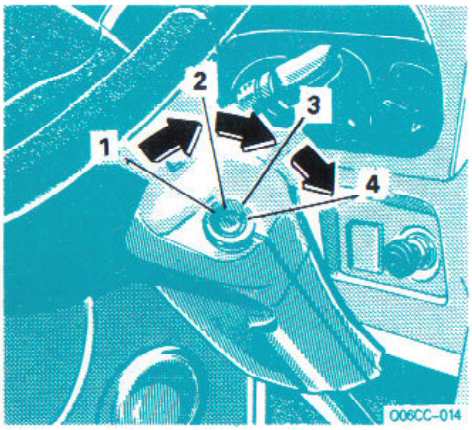


Seat belts

The inertial reel must stop the seat belt unwinding further if the vehicle:
- is braked or accelerated
- is cornering
- or when the belt is pulled out quickly.

Inspect belts visually for damage.
Renew damaged seat belts.

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1 Lock
2 Accessory
3 ON(driving position)
4 Start

3.2 Starting and shutting off the engine

- Shift transmission to neutral.
- Engage parking brake.

Starting the engine:

- Insert key into ignition lock and turn to driving position.
  The charge indicator light, oil pressure warning light, fuel reserve light and the "preglowing" indicatior light(only on diesel engine) comes on.

  Vehicle with diesel engine:

  - When the "preglowing" indicator light goes off, this is an indication that the engine can be started.
    When the engine is at operating temperature the "preglowing" indicator light comes on only briefly and the engine can be started immediately.

  Vehicle with gasoline engine:

  1)cold engine

  - Turn key in ignition lock clockwise to the stop and release after the engine is running regularly. Do not depress the accelerator during the starting process.

  2)engine at operating temperature

  - Turn key in ignition lock clockwise to the stop. Do not depress the accelerator. If the engine fails to start after approximately 4 seconds, fully depress accelerator and continue to crank until the engine runs regularly. Release the key and ease off the accelerator.
    At very high coolant temperatures the starting time can be reduced if the accelerator is depressed slowly from the very beginning of the starting process.

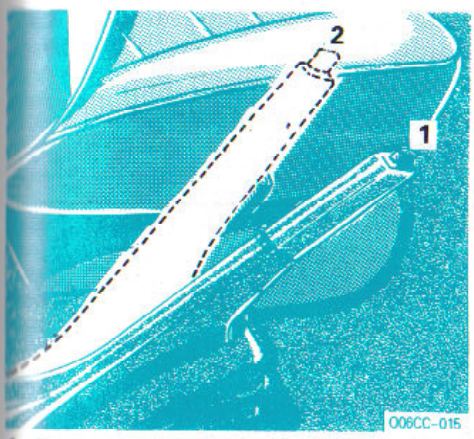
- Accelerate slightly turn key all the way to the right to start the engine.
- Release key after the engine has started, ease off the accelerator.

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- Observe oil pressure warning light immediately the engine starts. Should the oil pressure warning light fails to go off, shut off engine immediately and determine cause.

Shutting off the engine:
- Release accelerator.
- Turn key to position "1".

Notes:
- Don't use copy key.
- Prior to repeating the starting process, turn key in ignition lock back to the stop.
- The engine should never be shut off at a coolant temperature above normal (in excess of 90℃/194°F), e.g after operation in mountainous areas, but should be allowed to idle for about another 1-2 minutes.



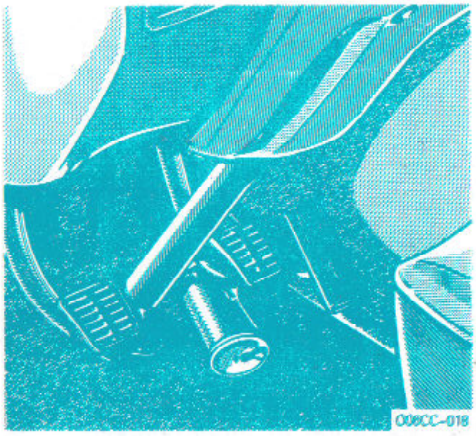
1 Parking brake released
2 parking brake engaged

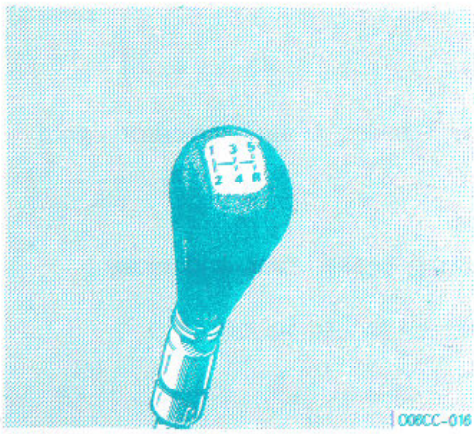
3.3 Parking brake operation

To engage:
- Pull lever firmly to the last possible catch. "Parking brake" indicator lights up.

To release:
- Pull lever slightly, press button (2) at parking brake lever and move lever downward.
"Parking brake" indicator light (release control) should go off.

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Shifting pattern on gearshift lever

3.4 Starting the vehicle and shifting gears

Do not drive off immediately after the first few engine revolutions!

Caution!

Danger of accident!

- **Ensure that pedal motion is not obstructed. When foot mats or carpets are installed ensure that a sufficient amount of free space is present.**
  Do not store objects in driver's foot well.
  Store loose objects (e.g. cans, bottles, tools, bags, etc.) so that they cannot get into the driver's foot well while driving.
- **Immediately after driving off, test brakes (service and parking brakes) on a dry road affording good grip.**
  The brake is in good working order if the brake action of the wheels is equal and if sufficient deceleration is obtained. Your sound judgment will tell you whether the vehicle is prepared for the road.
- **There must be no oil or water on the brake linings. If water has penetrated to the brake shoes, apply service brake with light pedal force until the required brake action is restored.**
- **If even only one brake fails to work, stop immediately.**

3.4.1 Gearshifting

Shift all gears consecutively in accordance with the shifting pattern.
Engage reverse gear only at engine idle speed and with vehicle at a standstill.

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3.5 Breaking in

With regard to service life, operational reliability and economical operation of the vehicle it is most important that the engine should not be runed to the limit of its output during the break-in period.

Break-in instructions

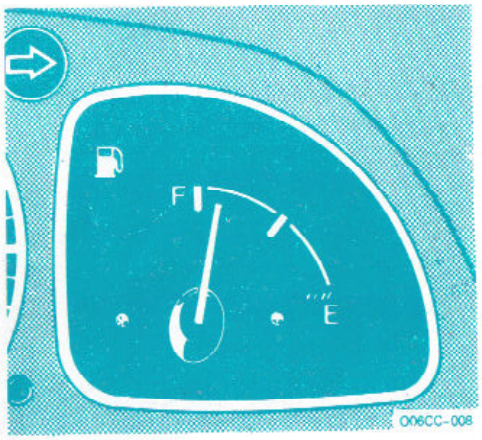
Up to 2,000 km (1,200 miles)
- Break in gently. Do not exceed 3/4 of top speed in each gear.
- Please avoid:
  High engine loads (driving at full throttle), high engine speeds, high speeds.
- Load : without trailer.

Over 2,000 km (1,200 miles)
- Gradually increase to full speed.

Wheel securing nuts

It is imperative that wheel securing nuts on all new vehicle be retightened after 50km (30 miles) (page 64).

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3.6 General driving instructions

Fuel consumption depends on vehicle equipment, individual driving style and operating conditions.

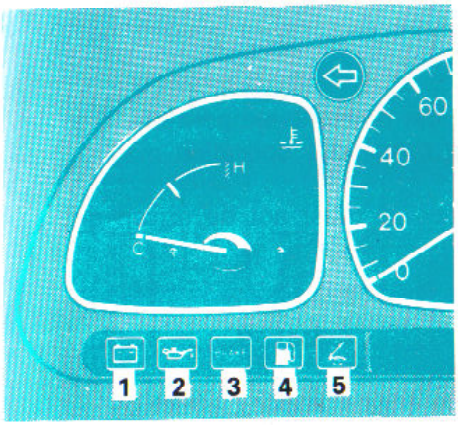
Examples
Vehicle equipment:
- tires (size, inflation pressure, condition),
- body, air deflector,
- drive unit ratios,
- additional equipment (air conditioner, supplementary heater, viscos fan).

Style of driving:
- drive steadily at reasonable speeds, being aware of the road in front of you(avoid frequent acceleration and deceleration),
- engine speed(shift gears on time).

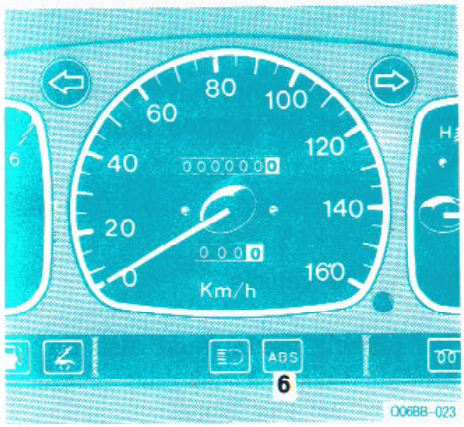
Operating conditions:
- hilly terrain,
- city and short distance traffic,
- vehicle loads,
- engine operation with vehicle stationary,
- frequent cold starts.

For these reasons no precise statements can be made on the fuel consumption of the individual vehicles.
The engine oil consumption may be up to 0.5% of the actual fuel consumption for a runed-in engine. Depending on the mileage and type of application (severe operating conditions), this value may be exceeded on some vehicles. Regular maintenance of the vehicle is one of the prerequisites for good fuel consumption levels.
The drive wheels must always be in firm contact with the ground. Avoid spinning of the drive wheels (damage to differential).
When driving, observe the gauges and control lights on the instrument panel from time to time. Travelling downhill, the vehicle determines the engine speed and the governor cannot limit it. In such a case the driver himself must make sure that the engine maximum revolutions are not exceeded in the individual gears.
Caution! Engine damage could be the result.

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1 Charging current
2 Engine-oil pressure
3 Brake fluid / parking brake
4 Fuel reserve
5 Seat belt



6 ABS safety light

3.6.1 Indicator lights

Brake fluid
The indicator light must go off when the engine has been started.
The indicator light comes on:
- When the fluid level in the reservoir is too low.

The fluid level can be too low:
- If the hydraulic system is leaking.

Have brake system checked immediately!

Engine-oil pressure
The indicator light should go off when the engine is started.
If the indicator light comes on or continues to stay on, shut off engine immediately.

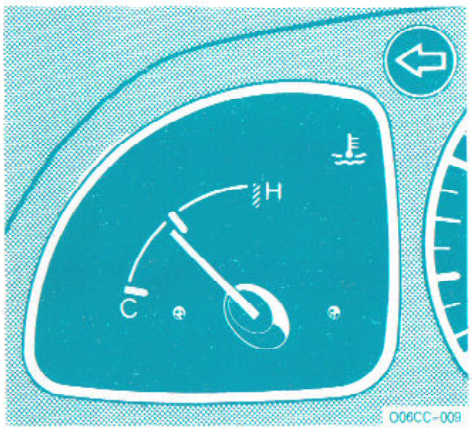
Caution! If oil level is okay, do not run engine.
Towing the vehicle (page 81) to a service station.

Charging current
The indicator light must go off after the engine has been started.
If the indicator light comes on while the engine is running, stop vehicle, switch off engine and inspect V-belt.

Caution! Do not run engine without a V-belt.

ABS safety light
With the ignition key in 'driving position' the ABS safety light comes on. The light should go off after approx. 4seconds and should not come on again after exceeding a speed of approx. 12km/h(system functioning).
If the light does not go off after approx. 4seconds or comes on after exceeding a speed of approx. 12km/h the system is not functioning.
In this case, go immediately to the next service station for inspection of the ABS system.

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Coolant temperature gauge

3.6.2 Instruments

Coolant temperature gauge
Depending on the operating conditions and the ambient temperature the operating temperature of the coolant during continuous operation may range from 70 to 100℃(158 to 212°F)
Should the pointer be in the red field the vehicle must not be driven any more.

3.6.3 Braking

When driving downhill for long stretches, use engine braking effect by engaging a low-speed gear.

After driving for some time in heavy rain without braking, the first brake action may be somewhat delayed and greater pedal pressure may be necessary. For this reason, the service brake should be operated slightly at regular intervals.

After driving on a wet road, particularly when thawing agents have been used, apply the brakes sharply before parking so that the heated brake discs can dry. Thus corrosion is prevented.

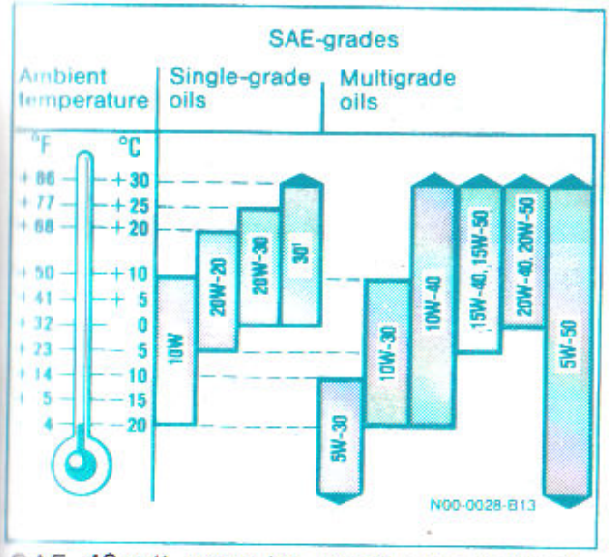
3.6.4 Parking

Engage parking brake when stopping and parking the vehicle.

When parked in the dark on public streets the parking lights must also be switched on.
Reflecting night parking plates can also be used within city limits.
Observe legal regulations!

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SAE 40 oil may be used at ambient temperatures continuously above 30° C (86°F)

3.7 Winter operation

3.7.1 Corrosion inhibition

The vehicle is provided with cavity protection coating and underseal as standard.

- Wash the vehicle more often during the cold season to remove adhering road salts and deposits of salty splash water from underbody, trailer coupling, painted and chromium-plated parts. Road salts are aggressive!
- The vehicle should be regularly inspected for corrosion. Brake, air and oil lines should be checked with particular care.
- As preventive measure, spray vehicle underside with wax-based preservative.

3.7.2 Service products

Coolants

Check coolant for its resistance to freezing several times during the cold season.

Engine oils

Change engine oil in good time before the start of the cold season and fill engine with a recommended oil of the specified SAE grade.

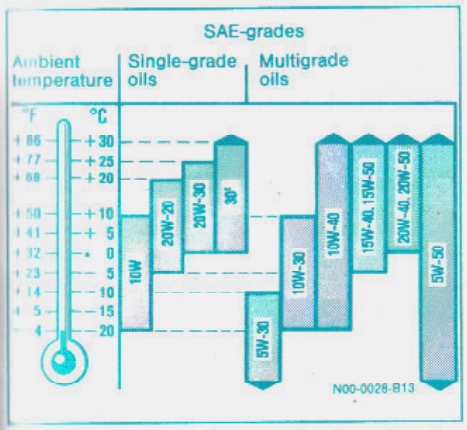
3.7.3 General driving instructions

- Use tires whose treads ensure good grip.
- Adapt your driving style to road conditions.
- Prevent the drive wheels from spinning(damage differential).
- On snow, slush and ice, mount tire chains on the front wheels on time. Comply with manufacturer's mounting instructions.

Caution!

Use only snow chains which we have tested and approved.
Information is available from any service station.

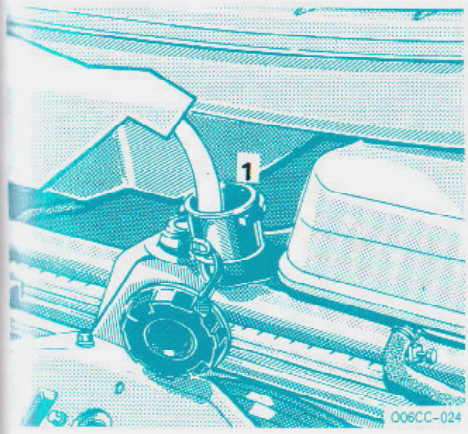
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SAE 40 oil may be used at ambient temperatures continuously above 30°C (86°F)

4 Service products

Components and lubricants must match.
Therefore, only brands tested and recommended by us must be used. They are included in the Specifications for Service Products.
service stations will give you all the information.



1 Oil filler neck

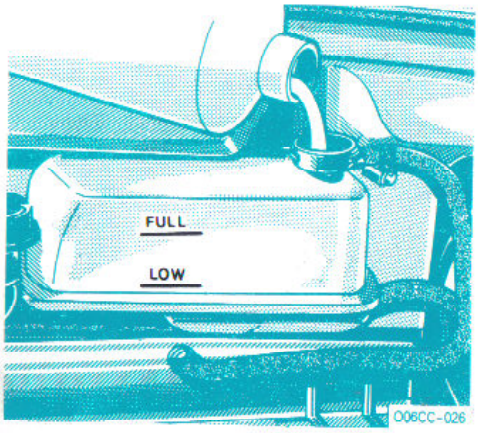
4.1 Engine oils

The suitability of the various engine oils is specially tested in our engines. For this reason, only use engine oils which have been recommended by our company. service stations have all the information on recommended brands.
We recommend you should use the oil which is described in page 58.

Caution!

In order to ensure sufficient lubrication of the moving parts, select engine oil viscosity (SAE grades) according to ambient temperature.
Uncompounded engine oils must not be used!

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4.2 Coolant

Coolant is a mixture of water and anticorrosion/antifreeze agent.
For reasons of corrosion protection and in order to raise the boiling point, the coolant must remain in the cooling system all year round.

Renew coolant every third year since the anticorrosion effect deteriorates.

Water

Water alone is not permitted to be used as coolant, even if no antifreeze properties are required. Water used as coolant must, however, meet specific requirements which are often but not always met by potable water. Should the quality of the water be insufficient, this water must be conditioned. Any service station will advise you accordingly.

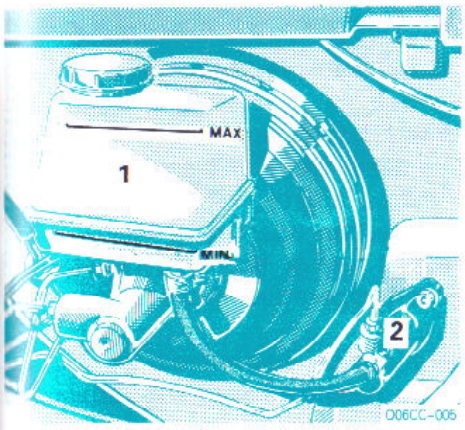
Anticorrosion/antifreeze agents

To prevent damage to the cooling system:
- Only use an approved brand of anticorrosion/antifreeze agent. (e.g. ALUTEC P-78)
  Any service station will advise you accordingly.
- A proportion of 50% by volume of anticorrosion/antifreeze agent (antifreeze protection to -37℃/-35°F) must be ensured when replenishing the system (after coolant losses).
- Never use any more than 55% by volume (=maximum antifreeze protection) of anticorrosion/antifreeze agent. Antifreeze protection and heat dissipation are reduced.

Coolant mixing ratio

Antifreeze to ℃ (°F)	Water % by volume	Anticorrosion/antifreeze agent % by volume
-37(-35)	50	50
approx. -45(-49)	45	max. 55

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4.3 Brake and clutch fluid

Use only tested and approved brands, pay attention to boiling point(DOT3). During the course of operation the boiling point of the brake fluid decreases due to continuous absorption of moisture from the atmosphere. When the brakes are subjected to extremely high loads (e. g. mountain driving) water vapor can form bubbles in the brake system. This reduces the braking effect.
Change brake fluid once each year, preferably in spring.

Caution!
Danger to life!
Brake fluid is a health hazard. Lethal dosage 100cm³.
Observe safety regulations when handling brake fluid.

4.4 Fuels

Gasoline fuels:
The engine is designed for the operation with premium fuels in order to achieve optimum performance and consumption values.
Only use commercially available unleaded premium fuels.

Diesel fuels:
Only use commercially available vehicle diesel fuels.
Marine diesel fuels, heating oils or the like must not be used.
If diesel fuels are used whose sulphur content exceeds 0.5% by weight, perform engine oil change at shorter intervals. Comply with data quoted in the Maintenance Booklet. When fuel is filled from barrels, it should be passed through a filter, a piece of chamois leather or even a clean flannel cloth, inserted into the filler neck. If diesel fuel has been spilt, the affected spot can be cleaned by using a mixture of 25 to 50% vinegar and 75 to 50% water (depending on the degree of contamination). This will help to get rid of the offensive odor.

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Diesel fuels at extremely low temperatures

At low ambient temperatures the fluidity of diesel fuel may become insufficient due to paraffin separation.
To avoid malfunctions, diesel fuels with improved fluidity are marketed during the cold season. If winter diesel fuel is used, there will usually be no malfunction at ambient temperatures as low as approx. -15°C (5°F). Depending on the ambient temperature, add a certain quantity of kerosene[1] or flow improver if only summer diesel fuel or less cold-resistant winter diesel fuel is available or if the ambient temperature drops below -15°C (5°F).
However, the efficiency of the flow improver cannot be guaranteed for every brand of fuel. Flow improvers can also be combined with regular gasoline or kerosene. Comply with manufacturers' recommendations. Every service station will advise you on approved flow improvers. Exceptionally, if no kerosene or flow improver is available, leaded or unleaded regular gasoline may also be used. Premium fuels must not be used for blending. For mixing ratio, refer to chart. The engine power may drop depending on the proportion of supplementary fuel. For this reason, keep percentage of fuel added to the minimum necessitated by the ambient temperature.

Percentage of supplementary fuel:
- Max. proportion of kerosene 50%
- Max. proportion of regular gasoline 30%

Pour the additive into the diesel fuel before its fluidity becomes insufficient because of paraffin separation. Failures due to paraffin separation can be eliminated only by heating the entire fuel system.

1 The use of kerosene in road vehicles is not permitted in some countries, e. g. UK. Therefore consult the authorities before such mixtures are used.

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For safety reasons, only blend kerosene or regular gasoline with diesel fuel in the fuel tank. For this purpose, pour in kerosene or regular gasoline first and then diesel fuel.
Idle the engine for some time so the supplementary fuel can enter the entire fuel system.

Caution!

Danger of fire and explosion!

Adding gasoline or kerosene will lower the flash point of the diesel fuel. This increases the dangers when this fuel mixture is handled. Comply with the respective safety regulations.

Ambient temperature ℃ (°F)	Summer diesel fuel %	Supplementary fuel %	Winter diesel fuel %	Supplementary fuel %
0 to -10 (32 to 14)	70	30	100	-
-10 to -15 (14 to 5)	50	50	100	-
-15 to -20 (5 to -4)	-	-	70	30
-20 to -25 (-4 to-13)	-	-	50	50

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4.5 Service products, capacities

	Model	Capacities, approx.	Service Products
Engine with oil filter and oil cooler(only diesel E/G)	OM661 E/G	max. 6.75 *l* , min. 5.25 *l*	Engine oil(The oil in sheet 227.1/228.3/227.5 of MB specifications for service products)
	OM662 E/G	max. 7.25 *l* , min. 5.75 *l*	
	M161 E/G	max. 7.5 *l* , min. 6.0 *l*	Engine oil(The oil in sheet 226.5/227.5/228.1 /228.3 of MB specifications for service products)
Transmission	G1/D18-5	2.5 *l*	Gear oil SAE80W (The oil in sheet 235.1 of MB specifications for service products)
Power steering		1.5 *l*	Automatic transmission fluid (ATF) Dexron Ⅱ
Rear wheel hub		80-100g each	Multi purpose grease
Hydraulic brake control system Hydraulic clutch control system		0.6 *l*	Brake fluid (DOT 3)
Battery terminals			Acid-proof grease
Fuel tank		75 *l*	fuel (page 55)
Cooling system	OM661/662 E/G	with single heater 8.0/8.7 *l*	Coolant (page 54)
		with dual heater 9.3/10.0 *l*	
		without heater 7.35/8.05 *l*	
	M161 E/G	with single heater 8.6 *l*	
		with dual heater 9.9 *l*	
		without heater 7.95 *l*	
Windshield washer system		2.5 *l*	Water plus MB-windshield detergent S in summer and detergent W in winter. Note mixing ratio.
Rear washer system		1.3 *l*	

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5 Vehicle service and maintenance

Like any technical equipment the vehicle requires care and maintenance. Extent and frequency of the maintenance jobs largely depends on the operating conditions which often differ considerably.

The enclosed maintenance booklet contains:
- Extent and frequency of the maintenance jobs,
- Notes on lubrication- and maintenance work,
- Information on warranty,

The jobs carried out are endorsed by the Service Station in the maintenance booklet. A small adhesive label attached by the Service Station to the door pillar of the driver's door is to remind about the next lubrication or maintenance service.

Special skills are required for inspections and maintenance work. They cannot be taught within the scope of these instructions. It is recommended to have these jobs performed by the trained personnel which is at your disposal in the large number of service stations. Expert service is guaranteed by experience and regular technical instructions from the factory, by workshop equipment and service tools.

Should any service and maintenance jobs have to be carried out on a do–it–yourself basis for organizational reasons, meet environmental protection requirements. For the disposal of fuels, coolants and lubricants for example, observe legislation. This also applies to those parts which come into contact with the fuels, coolants and lubricants (e. g. filters).

Operate stationary engine not longer than necessary.

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Caution!

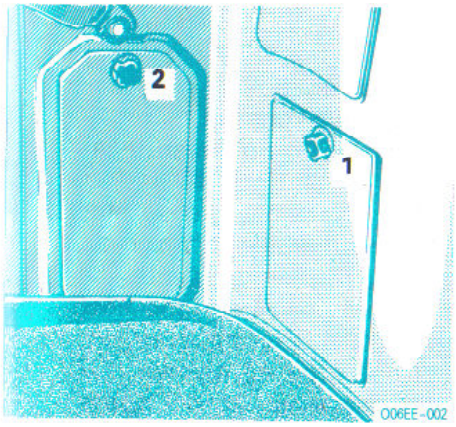
Danger of accident and injury!

- **When working on the vehicle, adhere to safety regulations.**
- **Regular and premium fuels are inflammable and hazardous to your health.**
  Do not use as cleaning agents.
- **The vehicle jack is intended only for jacking up the vehicle for a short time. When working beneath the vehicle always use jack stands.**

All service stations store the original parts required for maintenance and repair work. Besides this bases are provided all over the globe intended to ensure the rapid supply of original parts. More than 310,000 different spare parts, even for rather old vehicle models, are furthermore stocked in the central plant warehouses.
We guarantee maximum operational efficiency and reliability as well as optimum retention of the vehicle value when original parts are installed, as they are subjected to most severe quality inspections. Each part has been specifically developed, manufactured or selected for and adapted to vehicles.
In the Federal Republic of Germany and in a number of other countries certain parts are authorized to be installed or attached only if they comply with current legislation. this prerequisite is definitely met by original parts. If other parts are used the operating permit may expire.
For this reason, only original parts should be installed.

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5.1 Vehicle tools

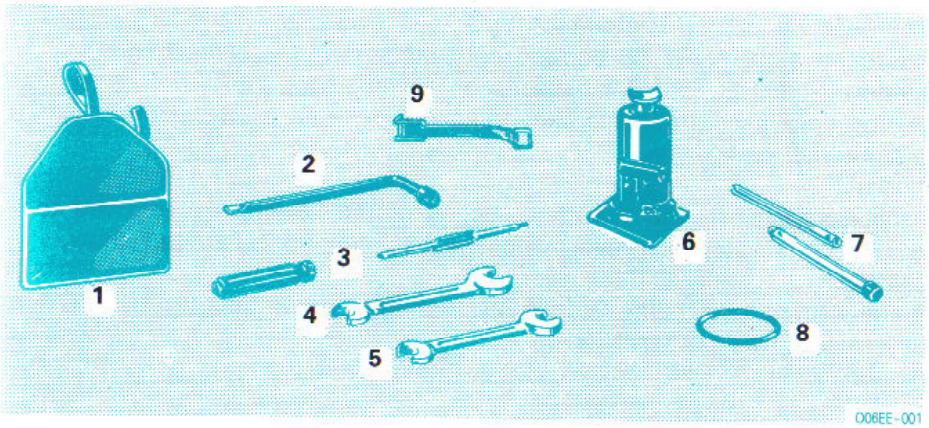


Coach/Van

1 Vehicle jack compartment in luggage space
2 Vehicle tools compartment in luggage space

Cab chassis

- Behind driver's seat



1 Tools bag
2 Wheel nut wrench
3 Screw driver (+,—)
4 Spanner (13×17)
5 Spanner (8×10)
6 Vehicle jack
7 Jack lever
8 Jack band
9 Jack clamp

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5.2 Vehicle cleaning and care

- Only wash the vehicle at an appropriate washing facility.
  Ensure that precautions are taken to protect the environment.
- Use an ample supply of water to wash the vehicle. Do not wash it in direct sunlight.
- Use dry-cleaning gasoline (not automotive fuel) to remove grease stains.
- Brush down heavily soiled aluminium dropsides with water to which a non-alkaline detergent may be added. Do not use scouring agents.
- For cleaning steering wheel, gearshift lever, soiled upholstery and floor covering in the cab, use only warm water with dish washing detergent or washing powder for delicate fabrics. Do not use scouring agents.
- Clean seat belt webbing with lukewarm water and soap. Do not apply any chemical cleaning agents. Do not dry the webbing at temperatures above 80℃(176°F) or in direct sunlight. Never bleach or redye the webbing.
- Apply some talcum to glass channels, window weatherstrips and door rubber seals.
- Have the chassis thoroughly cleaned and inspected prior to the performance of major maintenance work.
- Brake hoses must never be painted or cleaned with gasoline, benzol, kerosene or mineral oils. Clean hoses only with water. Be sure not to apply any sprays or grease to the brake hoses when spraying or lubricating the vehicle.

All chassis components and the undersection of the vehicle are exposed to outside influences (stones, gravel) and chemical reactions (melted snow, road salts).

- After the elimination of any (corrosion) damage, repair paintwork, PVC underseal and wax preservation.
  Every service station will advise you accordingly.

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5.2.1 High-pressure cleaning unit

Observe manufacture's operating instructions.

Minimum distance between high-pressure nozzle and object to be cleaned:
- with round jet nozzles approx. 700mm,
- with 25° flat jet nozzles and dirt cutters approx. 300mm.

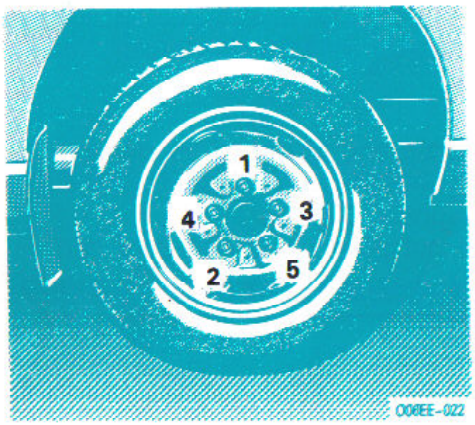
Keep water jet in motion while cleaning, do not point directly at door gap or gaskets.

Caution!

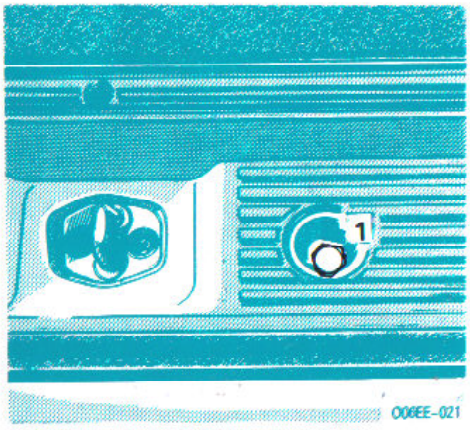
Danger of accident!

Clean tires with particular care. Do not use round jet nozzles. Tires can be damaged by the water jet. Replace damaged tires.

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Tightening sequence



1 Spare wheel fastening bolt

6 Wheels and tires

6.1 Tightening torque in Nm

Wheel nuts	140

6.2 Retighten wheel nuts

Caution!

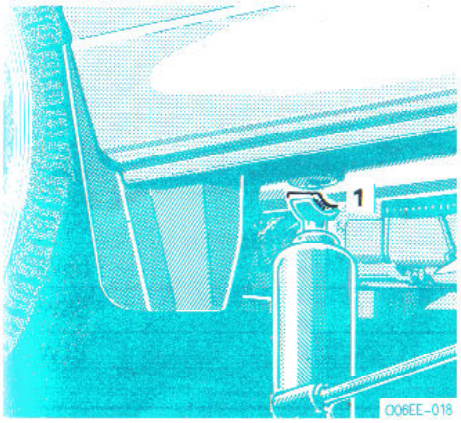
Danger of accident!

- **Check wheel nuts regularly for tightness, retighten, if required.**
- **After having changed the wheel always tighten wheel nuts after driving 50km.**
- **If new or repainted wheels are used, also retighten wheel nuts after driving approx. 1,000 to 5,000km (600 to 3,000 miles).**
- **Tighten wheel nuts in criss-cross pattern. Observe tightening torques.**

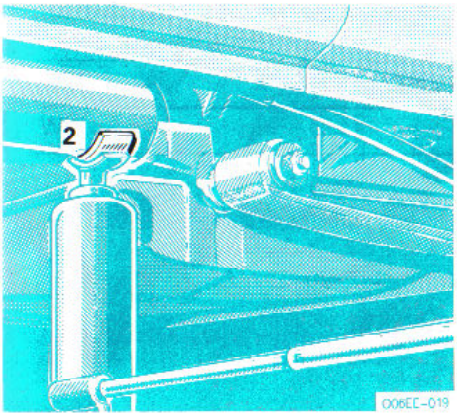
6.3 Location of spare wheel

The spare wheel is under the frame end.
- Remove fastening bolt and remove spare wheel.

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1 Positioning of jack
Front axle



2 Positioning of jack
Rear axle

6.4 Wheel change

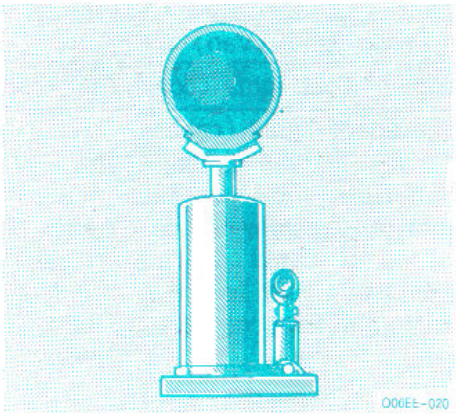
Caution!

Danger of accident!

When changing wheels, pay attention to the following:
- **Specified rim and tire size, tire load capacities and speed index.**
- **Tire pressure, refer to "Tire pressure chart" (last page).**
- **Maintain direction of rotation of tires.**
- **Do not damage bolt threads.**
- **Position jack only at support points provided for this purpose.**
- **Secure vehicle against rolling away.**

For tool kit refer to page 61

Positioning the jack
- On the frame side members under the support points provided for this purpose.



Jack application points at the frame side members (example)

Removing the wheel
- Unscrew wheel nuts and remove wheel.

Mounting the wheel
- Clean the contact surfaces of wheel hub, brake drum, rim and wheel nuts from corrosion and dirt prior to mounting the wheel.
- In order to prevent the wheel nuts from "jamming", apply some graphite paste to the bolt threads.
- Tighten wheel nuts crosswise. Pay attention to tightening torque!

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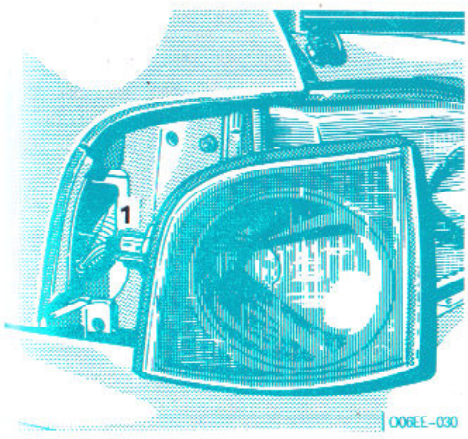
7 Electrical system

7.1 Bulbs-Summary

Always carry a set of bulbs in the vehicle for emergencies.

Head lights	High beam	60W
	Low beam	55W
Fog lights		55W
Turn signals, stop lights, back up lights		21W
Parking lights, license plate light		5W
Interior lights	Spot	8W
	Center	10W
Cargo space lights (Van)		10W
Passengers' seat lights (coach)-fluorescent light		10W
Luggage space lights (coach)		8W

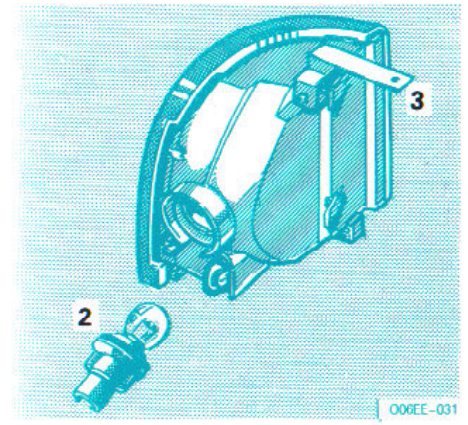
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7.2 Replacing bulbs

Notes:
- Switch off lights.
- Use tissue paper or similar to hold new bulbs; do not touch with moist or oily fingers.
- Check contacts for corrosion and clean.
- Ensure that gaskets are seated correctly. Replace damaged gaskets.

Caution!
Danger of burns!
Bulbs and bulb holders can be hot.

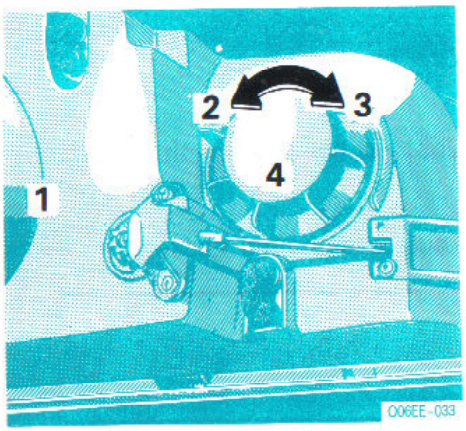


Front turn signal lights

1 Cable connector
2 Bulb socket
3 Mounting bracket

- Open front flap.
- Unscrew mounting bracket screw.
- Detach cable connector and remove turn signal light housing.
- Turn bulb socket with bulb to the left and pull out.
- Press down bulb, turn it to the left and remove.
- Install bulb socket with new bulb.
- Connect cable connector with bulb socket and install turn signal light housing.

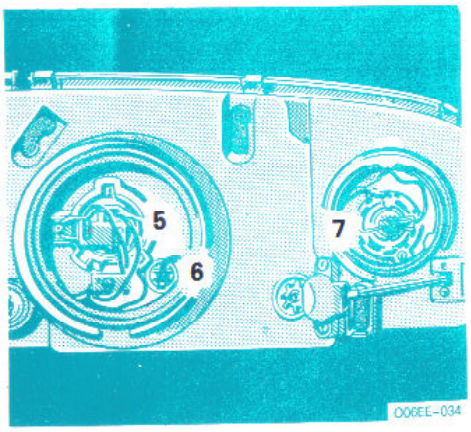
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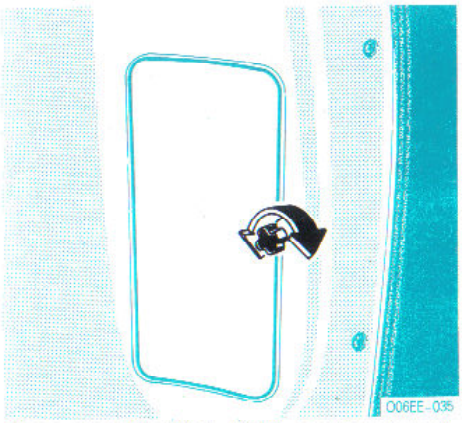
Head lights

1 Head light cap
2 Loosen cap
3 Tighten cap
4 Fog lamp cap
5 High beam / Low beam
6 Parking light
7 Fog light

- Open front flap.
- Remove turn signal lights housing.
- Unscrew head light mounting bolts and nuts.
- Detach wire connector and remove head light housing.
- Pull off cap.
- Detach retaining spring and remove bulb.
- Insert new bulb and connect wire connector.
- Install head light housing.



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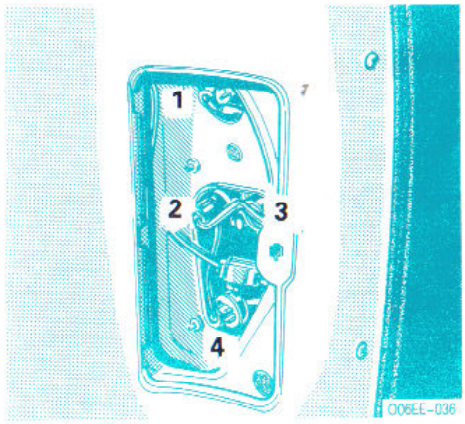


Rear combination light compartment

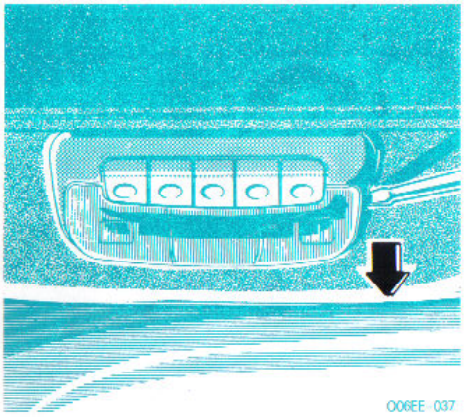
Rear combination lights (Van/coach)

1 Stop light/Tail light
2 Turn signal light
3 Back up light
4 Stop light/Tail light

- Open the cover in luggage space.
- Press bulb, turn to the left and remove.
- Insert new bulb and close the cover.

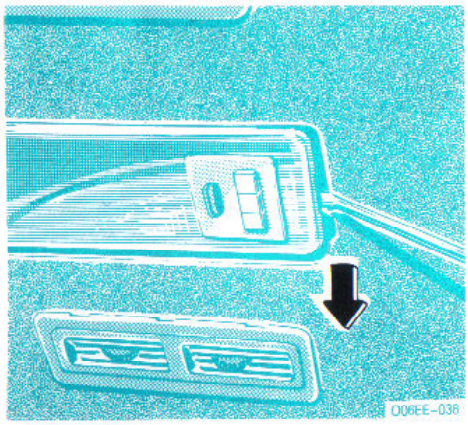


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Interior lights

Pry out the light cover with a screw driver and replace bulb.



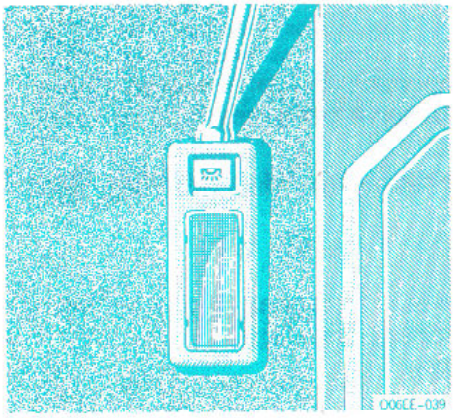
Passenger seat lights (coach)

Pry out the light cover with a screw driver and replace fluoresent lamp.

Cargo space lights (Van)

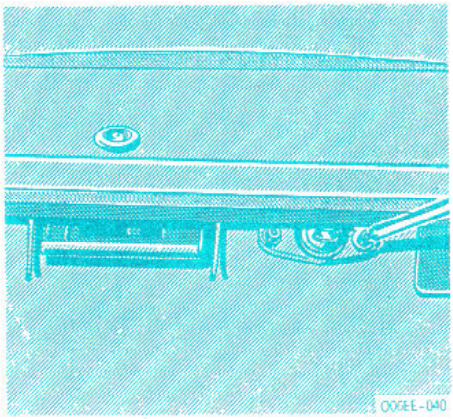
Pry out the light cover with a screw driver and replace bulb.

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Luggage space lights (coach)

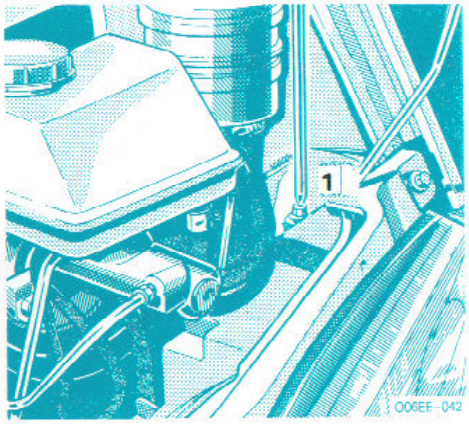
Pry out the light cover with a screw driver and replace bulb.



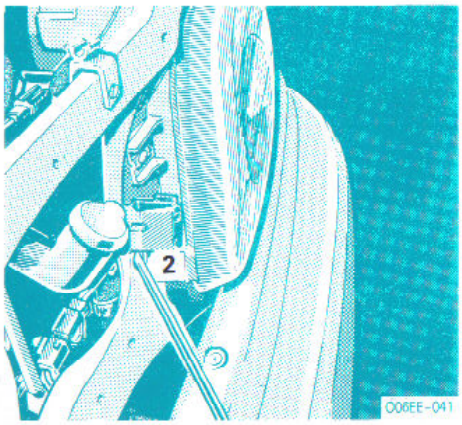
License plate lights (Van / Coach)

Unscrew lights holder bolts and replace bulb.

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1 Aiming screw, vertical direction



2 Aiming screw, horizontal direction

7.3 Checking the headlight setting

Proper headlight adjustment is extremely important for traffic safety. Check regularly with a headlight adjustment unit. Observe basic headlight adjustment (see rating plate).
Check headlight aim only with vehicle unloaded (ready for operation - tank full and loaded with 1 driver or 75kg).

- Park vehicle on even, level surface.
- Align headlight adjustment unit and vehicle at right angles to one another.
- Correct tire pressure (see tire pressure table - last page).
- Set headlight range control to initial position.
- Switch on headlights.
- Check each headlight separately. Mask second headlight and other lights.

Calculate the low beam cutoff at a distance of 10m by subtracting the specified basic headlight adjustment from the height of the headlights (from center of headlight to floor).
Basic headlight adjustment : 1% = 10cm, 1.5% = 15cm, 2% = 20cm etc.

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No naked lights, no smoking avoid the creation of sparks

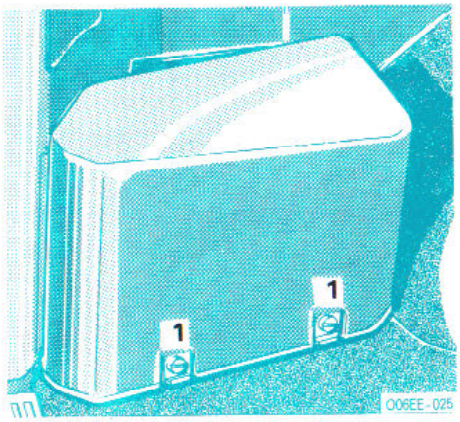
Wear eye protection

Keep children at a safe distance

Danger! Caustic chemicals

Observe operating instructions

Danger! Risk of explosion



1 Battery cover quick-release

7.4 Battery

Caution!

Danger of injury!

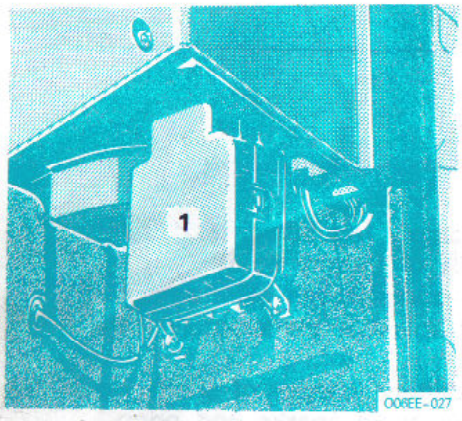
Danger of explosion!

- **Battery acid is highly caustic. Observe safety regulations and safety precautions when working with batteries or battery acid. Do not allow battery acid to come into contact with skin, eyes, clothing or vehicle paint. Rinse off acid splashes immediately with clear water.**
- **Do not place any metal objects on the battery (danger of short-circuit).**
- **Do not smoke in the vicinity of batteries; avoid sparks and open flames(explosion hazard)!**
- **Do not loosen or disconnect battery terminals with engine running.**
- **To disconnect battery terminals; Switch off all electrical loads. Remove negative terminal first, then positive terminal.**
- **To connect battery terminals; All electrical loads must be switched off. Connect positive terminal first, then negative terminal. Do not mix up terminals!**
- **Tow-start vehicle only with battery connected.**
- **For bridging battery, see page 80.**

Battery care

- Maintenance free (MF) battery doesn't need special care.
- Open the battery cover.
- Check the condition of battery through inspection hole. (Refer to table attached on the battery)

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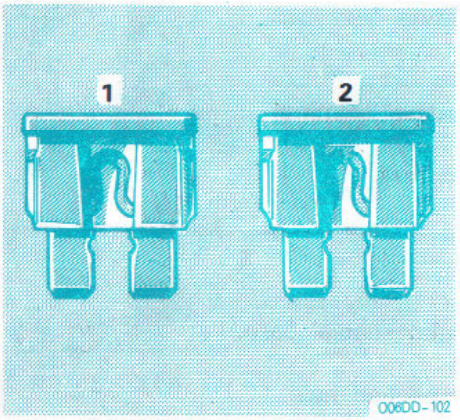
7.5 Fuses

- Always carry a few fuses in the vehicle for emergencies.
- Do not attempt to repair or bridge fuses.
- Before replacing a blown fuse determine and eliminate the cause for the short circuit.
- Ensure that the connecting points make good contact.

Caution!

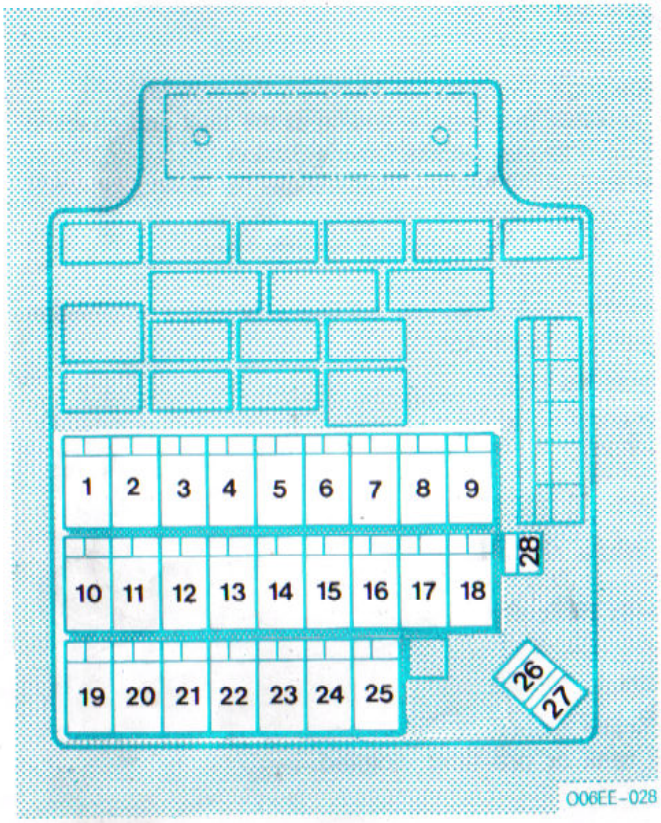
Danger of fire!

- **Before any type of work on the electrical system: switch off all consumers and disconnect negative terminals (-) from battery.**
- **Do not install fuses with higher amp rating. This could result in damage to the electrical system.**



1 Normal
2 Faulty

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Survey of fuses

Fuse	Ampere	Consumer
F1	10	Audio
F2	15	Door lock
F3	30	Rear heated glass
F4	-	-
F5	15	Hazard
F6	15	Stop light
F7	15	Room light/cluster
F8	30	Power window motor
F9	10	High beam
F10	10	Left low beam
F11	10	Right low beam
F12	30	Front blower motor
F13	10	Air conditioner
F14	20	Condenser fan motor
F15	20	Rear blower motor
F16	25	Cigar lighter
F17	10	Audio
F18	15	Front fog light
F19	-	-
F20	15	Front washer/wiper motor
F21	10	Rear washer/wiper motor
		Condenser fan/air conditioner relay
F22	15	Tail light/rear fog light/low beam relay
F23	10	Turn signal/high beam relay
F24	10	ABS/back up light
F25	10	Cluster/TACIS (TWCS)
F26	80	Alternator
F27	80	Engine
F28	60	ABS

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8 Troubleshooting

This section contains information regarding possible faults on the vehicle.
The information is intended to facilitate locating the source of the fault and enabling it to be rectified sufficiently to drive to the nearest Service Station.
Faults resulting from a failure to observe the section "Preparations for Driving" or which may occur as a result of defective servicing, are not considered here.
For understandable reasons, not all possible faults can be listed here.

If a fault is signalled by an indicator lighting up, you will find appropriate information in the description of the respective indicator light.

8.1 Engine

Engine does not start or with difficulty
Engine has poor power

- Fuel deficiency.
  Fuel tank almost or completely empty.
  Fuel line, strainers in fuel tank or pre-filter clogged.
  Fuel filter clogged.
  Fuel pump not operating.
  Fuel system has a leak.
  Fuel tank ventilation clogged.
  Air in fuel system.
  Ignition system has a leak.(Only on gasoline engine)
  Trouble of sensors; No.1 TDC, HFM···(Only on gasoline engine)

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- Outside temperature below 0 ℃.
  Fuel not suitable for winter operation.

Engine overheats

- Insufficient coolant.
  Cooling system has a leak.
- Thermostat not operating.
- Radiator or cooling system fouled.
- Coolant pump not operating.
  V-belt too slack or torn.

Engine emits black smoke

- Air filter fouled.
- Injection nozzles damaged.
- Start of delivery incorrectly set.
- Excessive delivery quantity of injection pump.

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8.2 Clutch

Clutch slipping

- Lining smeared or worn.

Clutch does not disengage properly

- Air in hydraulic system.
- Clutch pedal has too much free play.

8.3 Power steering

Steering difficult to operate
Vehicle cannot be properly steered when driving straight ahead

- Insufficient oil in hydraulic system.
  Hydraulic system has a leak.
- Power steering pump not operating.
  V-belt too slack or torn.
- Steering knuckle mounting worn or not lubricated.
- Steering has excessive play.
- Tires not inflated to correct pressure.
- Incorrect wheel toe-in.

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8.4 Brake System

No or insufficient braking action

- Insufficient brake fluid in hydraulic system.
  Hydraulic system has a leak.
- Air in hydraulic system.
- Fault in vacuum system of brake system.
- Brake linings worn or smeared with oil.
- Brake shoe mounting does not operate easily.

Uneven braking action

- Poor tires.
- Tires not inflated to correct pressure.
- Brakes incorrectly set.
- Brake linings unevenly worn or smeared with oil.
- Brake shoe mounting does not operate easily.
- Wrong wheel alignment adjustment.

Parking brake does not release

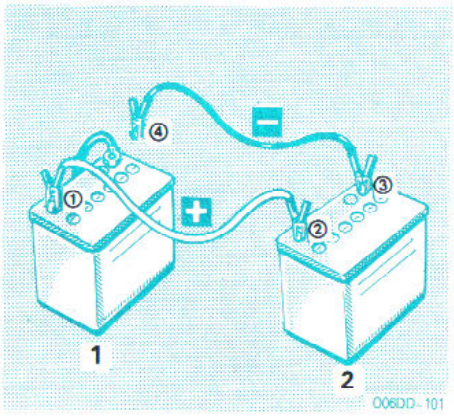
- Cable jammed.
- Brake shoes jammed.

8.5 Electrical system

Starter does not rotate when starting

- Battery discharged or damaged.
- Battery terminals slack, oxidized.
- Cable detached or faulty.
- Starter faulty.
- Ignition switch faulty.

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1 Discharged battery
2 Charged battery

8.6 Jump starting

When the battery is discharged, the engine can be started with the aid of battery jump leads and the battery of another vehicle.

Caution!

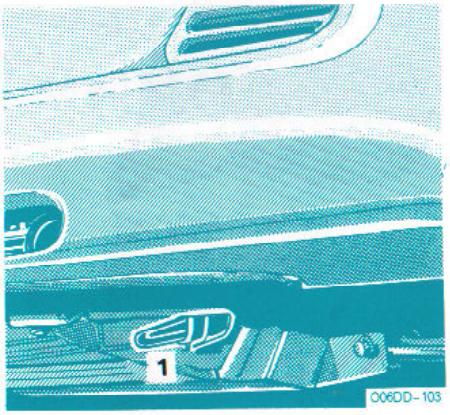
Danger of injury!

- **Before connecting jump leads:**
  Check for same operating voltage (12 volts).
- **Only use jump leads for starting (cable cross section approx. 25mm²), never attempt to start with quick charger. Observe safety regulations. Use jump leads with insulated pole terminals.**
- **A discharged battery can freeze at approx. -10°C. Thaw out before bridging.**
- **Do not lean over batteries while starting engine or connecting jump leads; battery acid can cause severe injury!**
- **When removing jump leads ensure that engine in the vehicle with discharged battery is running at idle speed.**

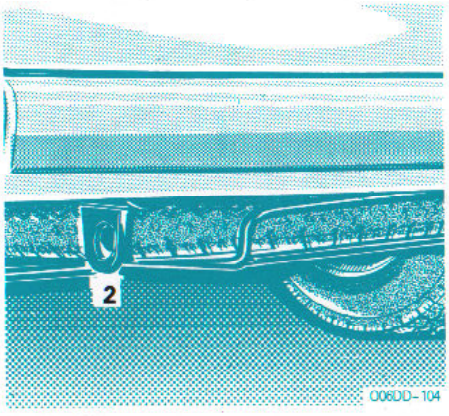
Procedure for starting:

- Turn key in ignition switch back to stop.
- First connect positive poles, then negative poles of batteries with jump leads.
- Allow engine in vehicle supplying power to run at higher speed.
- Start engine in vehicle receiving power and allow to run at idle speed. Remove jump leads from negative poles first, then from positive poles.

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1 Towing eye, front



2 Towing eye, rear

8.7 Towing

In case of engine damage

- Shift transmission to neutral.

In case of transmission damage

- Lift front axle!

In case of front axle damage

- Lift front axle!

In case of rear axle damage

- Shift transmission to neutral!
- Lift rear axle!

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Tire pressure chart

Tire pressure in bar		Front wheel	Rear wheel
195/75R 16C 10PR	C.V.W	3.79	3.79
	G.V.W	3.79	5.52
195/75R 16C 6PR	C.V.W	3.10	3.10
	G.V.W	3.79	3.79
Spare wheel			5.52

Top speed for summer and winter tires ; Diesel vehicle : 140km/h(87mph)
Gasoline vehicle : 165km/h(103mph)

Caution!

The tire inflation pressure changes by approx. 0.1 bar whenever the ambient air temperature changes by 10℃ (18°F). This must be kept in mind when checking the inflation pressure in a room of different ambient temperature, particularly during the cold season.

Example:
Room temperature=approx. 20℃ (68°F)
Outside temperature=approx. 0℃ (32°F)
Inflation pressure to be set=specified tire pressure+0.2 bar.

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