



Axor 940 – 954

Operating Instructions

Mercedes-Benz



Symbols

WARNING

Warning notes make you aware of dangers which could pose a threat to your health or life, or to the health and life of others.

Environmental note

Environmental notes provide you with information on environmentally aware actions or disposal.

 Notes on material damage alert you to dangers that could lead to damage to your vehicle.

 These symbols indicate useful instructions or further information that could be helpful to you.

► This symbol designates an instruction you must follow.

► Several consecutive symbols indicate an instruction with several steps.

(► page) This symbol tells you where you can find further information on a topic.

▷ ▷ This symbol indicates a warning or an instruction that is continued on the next page.

Display This text indicates a message on the display.

Welcome to the world of Mercedes-Benz

Before you first drive off, read these Operating Instructions carefully and familiarise yourself with your vehicle. For your own safety and a longer vehicle life, follow the instructions and warning notices in these operating instructions. Disregarding them may lead to damage to the vehicle or personal injury.

The standard equipment and product description of your vehicle may vary, depending on:

- model
- order
- country variant
- availability

The illustrations in these Operating Instructions show a left-hand-drive vehicle. In right-hand-drive vehicles, the arrangement and location of vehicle parts and controls differ accordingly.

Mercedes-Benz is constantly updating its vehicles to the state of the art.

Mercedes-Benz reserves the right to make changes to the following:

- design
- equipment
- technical features

Descriptions may therefore differ from your vehicle in individual cases.

The following are integral parts of the vehicle:

- Operating Instructions
- Maintenance or Service Booklet
- Supplements relating to vehicle equipment

Keep these documents in the vehicle at all times. If you sell the vehicle, always pass the documents on to the new owner.

i You can find out about important features of your vehicle in the online Operating Instructions on the Internet at:

**[www.mercedes-benz.de/
betriebsanleitung-lkw](http://www.mercedes-benz.de/betriebsanleitung-lkw)**

The technical documentation team at Daimler AG wishes you safe and pleasant motoring.

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Operating Instructions

Before the first journey

These Operating Instructions, the Maintenance or Service Booklet and the additional equipment-specific instructions are integral parts of the vehicle. Always keep these documents in the vehicle. If you sell the vehicle, always pass on all documents to the new owner.

Before you first drive off, read these documents carefully and familiarise yourself with your vehicle.

For your own safety and a longer vehicle life, follow the instructions and warning notices in these Operating Instructions. Failure to observe the instructions may lead to damage to the vehicle or personal injury.

Implied warranty

- !** Follow the instructions in this manual about the proper operation of your vehicle as well as about possible vehicle damage. Damage to your vehicle that arises from culpable contraventions against these instructions are not covered either by Mercedes-Benz implied warranty or by the New or Used-Vehicle Warranty.

Vehicle equipment

These Operating Instructions describe all models as well as standard and optional equipment of your vehicle that was available at the time of going to print. Country-specific variations are possible. Note that your vehicle may not be equipped with all of the described functions. This also applies to safety-relevant systems and functions. Therefore, your vehicle's equipment may differ from certain descriptions and illustrations.

The original purchase contract documentation for your vehicle contains a list of all of the systems in your vehicle.

Should you have any questions concerning equipment and operation, consult any Mercedes-Benz Service Centre.

Correct use

Observe the following information when driving your vehicle:

- the safety notes in these Operating Instructions
- the technical data in these Operating Instructions
- traffic rules and regulations
- laws and safety standards pertaining to motor vehicles

Various warning stickers are attached to the vehicle. If you remove any warning stickers, you or others could fail to recognise certain dangers. Leave warning stickers in position.

WARNING

Modifications to electronic components, their software as well as wiring could affect their function and/or the operation of other networked components. This could in particular also be the case for systems relevant to safety. They might not function properly anymore and/or jeopardise the operational safety of the vehicle. There is an increased risk of an accident and injury.

Do not attempt to modify the wiring as well as electronic components or their software.

Always have work on electrical and electronic components carried out at a qualified specialist workshop.

If you carry out modifications to electronic components, their software or wiring, this could result in the invalidation of your vehicle's operating permit.

WARNING

Gases and liquids from substances that constitute a health hazard or react aggressively can escape, even from securely closed containers. If you transport these substances inside the vehicle, this may affect your health and impair your concentration while you are driving. It may also cause malfunctions or electrical component system failures. There is a risk of fire and accident.

Do not store or transport any substances in the vehicle that are hazardous to health or react aggressively.

Substances that constitute a health hazard or react aggressively include, for example:

- solvents
- fuel
- oil and grease
- cleaning agents
- acid

Protection of the environment

Economical and environmentally aware driving

Environmental note

Daimler AG has a declared policy of comprehensive environmental protection.

The objective is to use natural resources sparingly and in a manner that takes the requirements of both nature and humanity into account.

You too can help to protect the environment by operating your vehicle in an environmentally responsible manner.

Fuel consumption and the rate of engine, transmission, brake and tyre wear depend on the following factors:

- the operating conditions of your vehicle
- your personal driving style

You can influence both factors. For this reason, observe the following notes:

Operating conditions

- avoid short trips as these increase fuel consumption.
- make sure that the tyre pressures are always correct.
- do not carry any unnecessary weight.

- a regularly serviced vehicle will contribute to environmental protection. You should therefore adhere to the service intervals.
- all maintenance work should be carried out at a qualified specialist workshop.

Personal driving style

- do not depress the accelerator pedal when starting the engine.
- do not warm up the engine with the vehicle stationary.
- drive carefully and maintain a safe distance from the vehicle in front.
- avoid frequent and heavy acceleration and braking.
- change gear in good time and use each gear only up to $\frac{2}{3}$ of its maximum engine speed.
- switch off the engine when waiting in stationary traffic.
- keep an eye on the vehicle's fuel consumption.

Operating safety and vehicle registration

Notes on driving

There is a risk of damage to the vehicle if:

- the vehicle becomes stuck, e.g. on a high kerb or an unpaved road
- you drive too fast over an obstacle, e.g. a kerb, a speed bump or a pothole in the road
- a heavy object strikes the underbody or parts of the chassis

In such situations, the body, frame, underbody, chassis parts, wheels or tyres could be damaged without the damage being visible. Components damaged in this way can unexpectedly fail or, in the case of an accident, no longer withstand the strain they are designed for. If the underbody panelling is damaged, combustible materials such as leaves, grass or twigs can gather between the underbody and the underbody panelling. If these materials come in contact with hot parts of the exhaust system for an extended period, they can catch fire.

 WARNING

Flammable material such as leaves, grass or twigs may ignite if they come into contact with hot parts of the exhaust system. There is a risk of fire.

When driving off road or on unpaved roads, check the vehicle's underside regularly. In particular, remove parts of plants or other flammable materials which have become trapped. In the case of damage, contact a qualified specialist workshop.

Have the vehicle checked and repaired immediately at a qualified specialist workshop. If, on continuing your journey, you notice that driving safety is impaired, pull over and stop the vehicle immediately, paying attention to road and traffic conditions. In such cases, consult a qualified specialist workshop.

Declarations of conformity**Vehicle components which receive and/or transmit radio waves**

The following note refers to all components of the vehicle which receive and/or transmit radio waves and the integrated information systems and communications equipment in the vehicle: The components of the vehicle that receive and/or transmit radio waves are compliant with the basic requirements and all other relevant regulations stipulated by Directive 2014/53/EU.

Electromagnetic compatibility

The electromagnetic compatibility of the vehicle components has been checked and certified according to the currently valid version of Directive ECE-R 10.

Jack

Transcript and translation of the original declaration of conformity:

EC Declaration of conformity 2006/42/EC
WEBER-HYDRAULIK GMBH, Heilbronner Str. 30,
74363 Güglingen, Germany, declares that the
product "Weber hydraulic jack" models:

A AD ADX AH AHX AL AT ATD ATDX ATG ATN
ATGX ATPX ATQ AX

Load: 2,000 to 100,000 kg

Serial no.: from construction year 01/2010
comply with the relevant fundamental regulations of the EC machinery directive for safety and health.

This EC declaration of conformity shall become void:

- if modifications are made or repairs are carried out by unqualified persons
- if the products are not employed in accordance with the application specified in the Operating Instructions
- if the mandatory regular inspections are not carried out

Relevant EC Directives: Machinery guideline
mark 2006/42/EC

Applicable norms: ISO 11530

Quality assurance: DIN EN ISO 9001:2000

Güglingen, 1 July 2013

Signed by:

Managing Director, WEBER-HYDRAULIK GmbH
Authorised technical documentation representative,
WEBER-HYDRAULIK GmbH
Heilbronner Straße 30, 74363 Güglingen, Germany

Diagnostics connection

The diagnostics connection is used for connecting diagnostic equipment at a qualified specialist workshop.

 WARNING

If you connect equipment to a diagnostics connection in the vehicle, it may affect the operation of vehicle systems. As a result, the operating safety of the vehicle could be affected. There is a risk of an accident.

Only connect equipment to a diagnostics connection in the vehicle, which is approved for your vehicle by Mercedes-Benz.

Modifying the engine output

! Increased power could:

- change emission levels
- cause malfunctions
- lead to consequential damage

The operating safety of the engine cannot be guaranteed in all situations.

Any tampering with the engine management system in order to increase the engine power output will lead to the loss of warranty entitlements.

If the vehicle's engine power output is increased:

- tyres, suspension, brake and engine cooling systems must be adapted to the increased engine power output
- have the vehicle recertified
- report changes in power output to the vehicle insurers

This will otherwise lead to the invalidation of the vehicle's general operating permit and its insurance cover.

If you sell the vehicle, inform the buyer of any alterations to the vehicle's engine power output. If you do not inform the buyer, this may constitute a punishable offence under national legislation.

Qualified specialist workshop

A qualified specialist workshop has the necessary specialist knowledge, tools and qualifications to carry out the work required on the vehicle correctly.

This is particularly applicable to work relevant to safety. Observe the notes in the Maintenance or Service booklet.

You should always have the following work on your vehicle carried out at a qualified specialist workshop:

- safety-relevant work
- service and maintenance work
- repair work
- modifications as well as installations and conversions
- work on electronic components

Mercedes-Benz recommends that you use a Mercedes-Benz Service Centre.

! Only have work carried out on the engine electronics and its associated parts, such as control units, sensors, actuating components and connector leads, at a qualified specialist workshop. Vehicle components may otherwise wear more quickly and the vehicle's operating permit may be invalidated.

Vehicle registration

Mercedes-Benz may ask its Service Centres to carry out technical inspections on certain vehicles. This is always the case if it is possible to improve quality or safety levels. Mercedes-Benz can only inform you about vehicle checks if it has your registration data.

Your registration data are not available if:

- your vehicle was not purchased at an authorised specialist dealer
- your vehicle has not yet been inspected at a Mercedes-Benz Service Centre

It is advisable to register your vehicle with a Mercedes-Benz Service Centre. Inform Mercedes-Benz as soon as possible about any change in address or vehicle ownership.

BlueTec® exhaust gas aftertreatment

The BlueTec® exhaust gas aftertreatment system must be operated in conjunction with the reducing agent AdBlue® if it is to function correctly.

Information about AdBlue® can be found in the Service products section (> page 272).

AdBlue® is not topped up as part of the maintenance or service scope. Therefore, top up the AdBlue® tank regularly during vehicle operation. Topping up and operating the vehicle with AdBlue® is required for compliance with emissions requirements and is, therefore, a condition of the operating permit for the vehicle. The operating permit is invalidated if the vehicle is operated without AdBlue®. The legal consequence of this is that the vehicle may no longer be operated on public roads.

This may be an offence or a breach of road traffic regulations in certain countries. Special concessions granted either at the time of purchase or to reduce operating costs, e.g. reduced taxes or tolls, may also be rendered invalid retroac-

tively. This may be the case in the country of registration as well as the country of operation.

If the AdBlue® tank is empty or if there is a malfunction, the  indicator lamp lights up or flashes in the instrument cluster. In addition, a display message is shown. The engine output may be automatically reduced the first time the vehicle comes to a standstill. Adapt your driving style accordingly. Drive with even greater care. Top up the AdBlue® tank as soon as possible. If there is a malfunction with the BlueTec® exhaust gas aftertreatment system, have it checked and repaired at a qualified specialist workshop.

Attachments, bodies, equipment and conversions

Notes on body/equipment mounting directives

I For safety reasons, have bodies manufactured and fitted in accordance with the applicable Mercedes-Benz body/equipment mounting directives. These body/equipment mounting directives ensure that the chassis and the body form one unit and that maximum operating and road safety is achieved.

For safety reasons, Mercedes-Benz recommends that:

- no other modifications should be made to the vehicle.
- approval should be obtained from Mercedes-Benz in the event of deviations from approved body/equipment mounting directives.

Approval from certified inspection agencies or official approvals cannot rule out risks to your safety.

Technical changes to the vehicle can affect the functionality of stability control. Observe the notes in the body/equipment mounting directives.

Observe the information on genuine Mercedes-Benz parts (► page 23).

The Mercedes-Benz body/equipment mounting directives can be found on the Internet at <http://bb-portal.mercedes-benz.com>.

There you can also find information on pin assignment and fuse replacement.

You can obtain further information from any Mercedes-Benz Service Centre.

Notes on the engine radiator

Even seemingly small changes to the vehicle, such as attaching a radiator trim for winter driving or as protection against insects, are not permitted. Do not cover the radiator. Do not use thermal mats, insect protection covers or anything similar.

Doing so can cause the diagnostics system to display inaccurate values. In some countries, the recording of engine diagnostics data is a legal requirement, and must always be verifiable and accurate.

Genuine Mercedes-Benz parts

Environmental note

Daimler AG also supplies reconditioned assemblies and parts which are of the same quality as new parts. For these, the same warranty applies as for new parts.

If you use parts, tyres, or wheels which have not been approved by Mercedes-Benz, the operational safety of the vehicle may be jeopardised. Safety-relevant systems, e.g. the brake system, may malfunction. Only use genuine Mercedes-Benz parts or parts of an equivalent quality standard. Only use tyres and wheels that are approved for your type of vehicle.

Mercedes-Benz checks genuine Mercedes-Benz parts for:

- reliability
- safety
- suitability

Despite ongoing market research, Mercedes-Benz is unable to assess other parts. Mercedes-Benz accepts no responsibility for the use of such parts in Mercedes-Benz vehicles, even if they have been independently or officially approved.

In Germany, certain parts are only officially approved for installation or modification if they comply with legal requirements. This also applies to some other countries. All genuine Mercedes-Benz parts meet the approval requirements. The use of non-approved parts

may invalidate the vehicle's general operating permit.

This is the case if:

- it results in a change to the vehicle type from that for which the vehicle's general operating permit was granted
- they pose a possible risk for road users
- they adversely affect the emission or noise levels

Always specify the vehicle identification number (VIN) (> page 265) when ordering genuine Mercedes-Benz parts.

Data stored in the vehicle

A wide range of electronic components in your vehicle contain data memories.

These data memories temporarily or permanently store technical information about:

- the vehicle's operating status
- events
- malfunctions

In general, this technical information documents the state of a component, a module, a system or the surroundings.

This includes, for example:

- operating conditions of system components. For example, fluid levels
- the vehicle's status messages and those of its individual components, e.g. number of wheel revolutions/speed, deceleration in movement, lateral acceleration, accelerator pedal position
- malfunctions and defects in important system components, e.g. lights, brakes.
- the vehicle's reactions and operating statuses in special driving situations, e.g. airbag deployment, intervention of stability control systems.
- ambient conditions, e.g. outside temperature

This data is exclusively technical in nature and can be used to:

- assist in the detection and rectification of faults and defects
- analyse vehicle functions, e.g. after an accident
- optimise vehicle functions

The data cannot be used to trace the vehicle's movements.

When you use one of the available services, technical information may be read from the event data memory and fault data memory.

Services include, for example:

- repair services
- service processes
- warranty claims
- quality assurance

It is read by service network employees (including the manufacturer) using special diagnostic testers. Further information is available there if required.

After a fault has been rectified, the information is deleted from the fault memory or is continually overwritten.

When operating the vehicle, situations are conceivable in which this technical data, in connection with other information - if necessary, under consultation with an authorised expert - could be traced to a person.

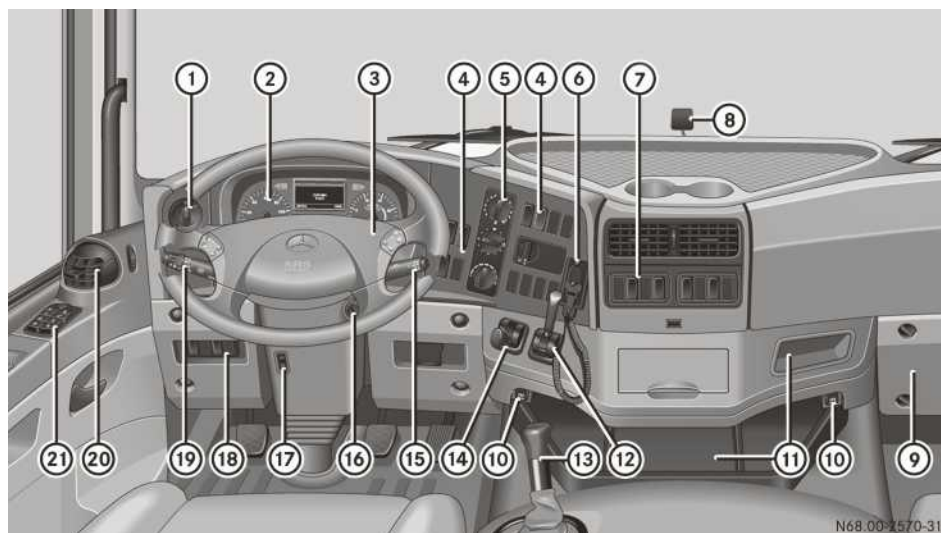
Examples include:

- accident reports
- damage to the vehicle
- witness statements

Further additional functions which are contractually agreed upon with the customer likewise allow specific vehicle data to be obtained from the vehicle. Such additional functions include vehicle locating in an emergency, for example.

If your vehicle has telematics equipment (e.g. FleetBoard), additional data can be stored. This data can be transferred to the central fleet office for additional analyses, for example.

Cockpit

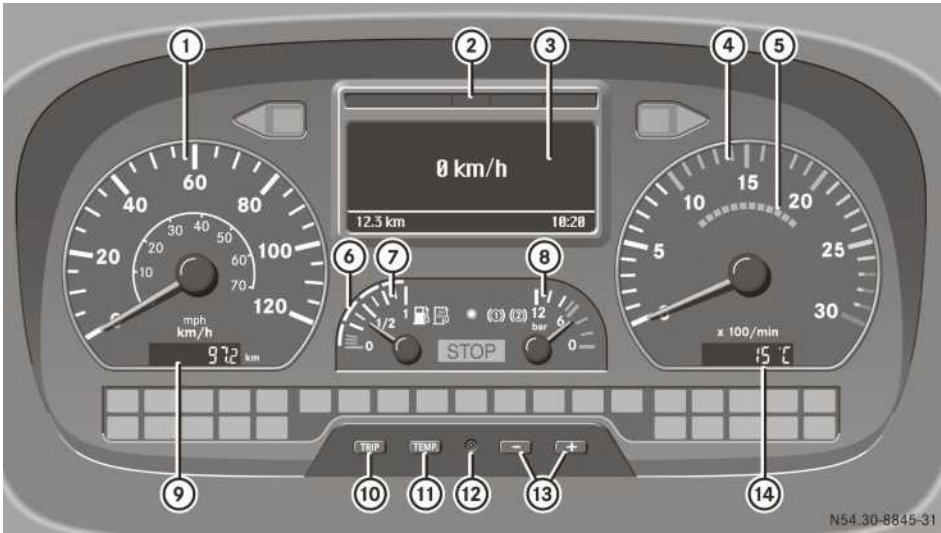


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④	Instrument panel switch units	28	⑬	Transmission shift system (gear lever, gearshift unit or control panel)	136
⑤	Climate control panel	77	⑭	Parking brake	131
⑥	Mobile phone fitting	75	⑮	Multifunction lever	31
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Instrument cluster

Displays and controls

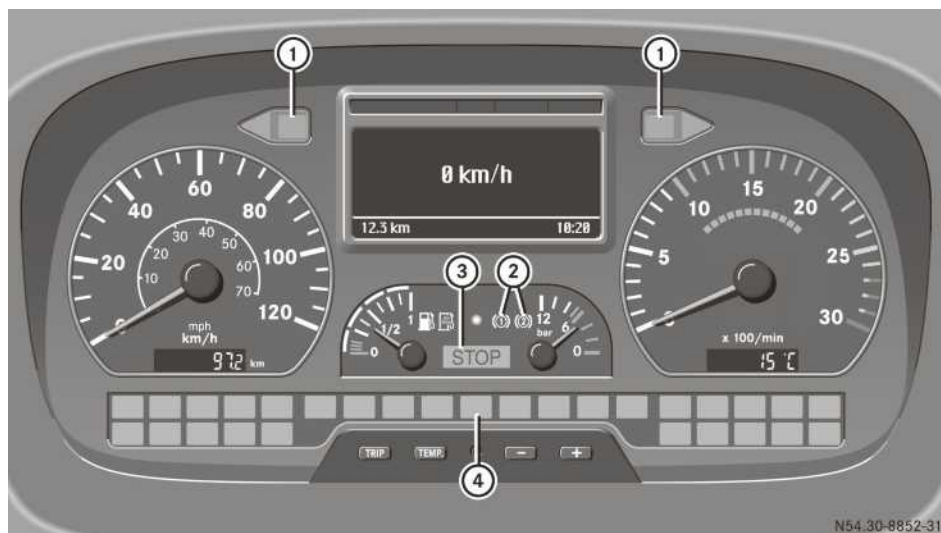


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Indicator lamps

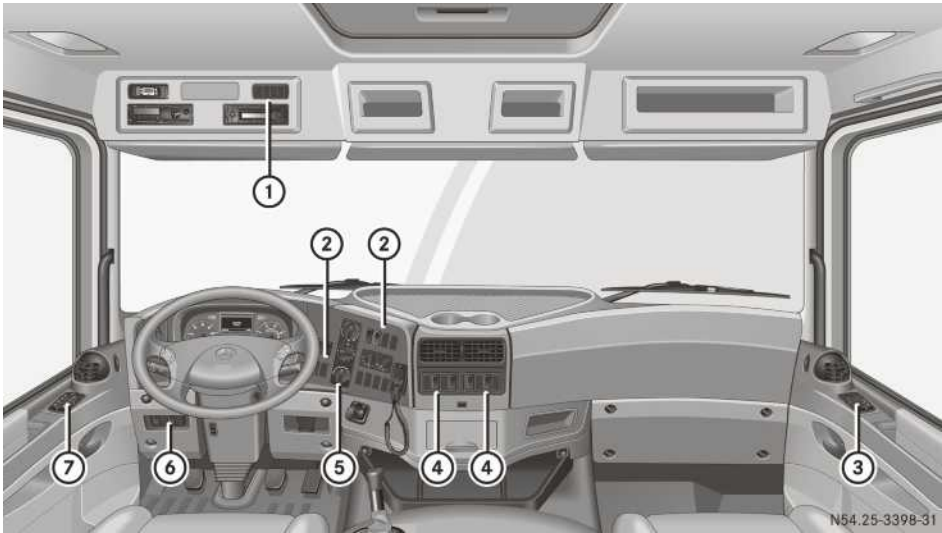


N54.30-8852-31

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Switch units

Cockpit



N54.25-3398-31

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	 Switches on the co-driver's reading lamp	59
	 Switches off the co-driver's reading lamp	59
④	Switch unit on the centre instrument panel	
	 Scrolls through Fleet-Board®; see the separate operating instructions	
	 Windscreen heating	70
	 Frequent-stop brake	133
	 EMERGENCY OFF	71
	 Constant engine speed	202
	 Power take-off 1	200
	 Power take-off 2	200

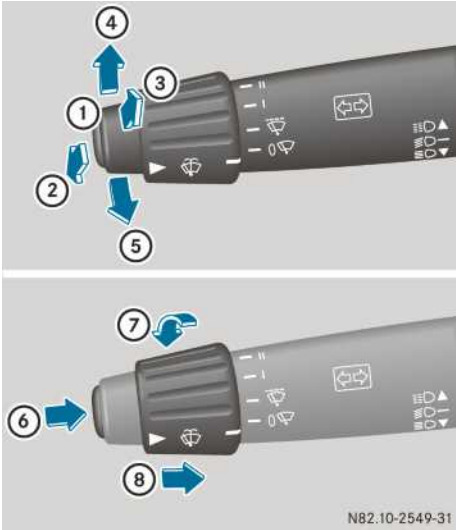
	Function	Page
	 Power take-off 3	200
⑤	Climate control/heating control panel	77
⑥	Additional lamps switch unit	
	 Switches the load compartment light on/off	
	 Switches the rotating beacon on/off	
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⑦	Switch unit on the driver's door	
	Adjusts the external mirrors	57
	 Switches on the mirror heating	57
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	 Locks the doors	39
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	 Closes the window on the co-driver's side	43
	 Opens the window on the co-driver's side	43
	 Closes the window on the driver's side	43
	 Opens the window on the driver's side	43

Berth



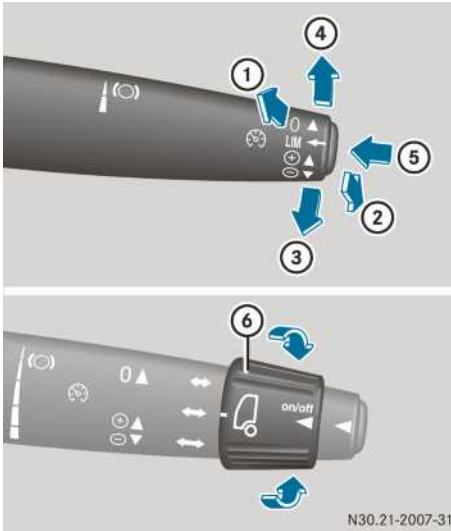
	Function	Page
①	Berth reading lamp	59
②	 Opens the pop-up roof	44
	 Closes the pop-up roof	44
	 Auxiliary heating	80

Combination switch



	Function	Page
①	Main-beam headlamps off (when dipped-beam headlamps are switched on)	59
②	Main-beam headlamps on (when dipped-beam headlamps are switched on)	59
③	Headlamp flasher	59
④	Turn signal, right	59
⑤	Turn signal, left	59
⑥	Horn	
⑦	Windscreen wipers	69
⑧	Windscreen washer system Headlamp cleaning system	70 70

Multifunction lever



	Function	Page
⑤	Selects the driving system: speed limiter or cruise control	
⑥	Vehicles with Telligent® distance control: changes the specified distance to the vehicle in front	

	Function	Page
	Continuous brake	134
	Idling speed	166
	Speed limiter	167
	Cruise control	168
	Telligent® distance control	170
①	Increases idling speed Increases speed: cruise control, speed limiter, Telligent® distance control	
②	Reduces idling speed Reduces speed: cruise control, speed limiter, Telligent® distance control	
③	Activates the continuous brake	
④	Switches off: cruise control, speed limiter, Telligent® distance control, idling speed increase	

Useful information

These Operating Instructions describe all the models and standard and optional equipment of your vehicle that were available at the time of going to print. Country-specific differences are possible. Bear in mind that your vehicle may not be equipped with all the functions described. This also applies to safety-relevant systems and functions.

Read the information on qualified specialist workshops (► page 22).

Occupant safety

Restraint systems

WARNING

If the restraint system is modified, it may no longer work as intended. The restraint system may then not perform its intended protective function by failing in an accident or triggering unexpectedly, for example. There is an increased risk of injury.

Never modify parts of the restraint system. Do not attempt to modify the wiring as well as electronic components or their software.

In an accident, your vehicle may be subjected to rapid acceleration or deceleration. During this acceleration or deceleration, the vehicle occupants will be propelled towards the point of impact. There is therefore the risk of vehicle occupants injuring themselves on parts of the vehicle interior or on parts of the vehicle. The purpose of the vehicle's complementary restraint systems is to minimise this risk of injury.

However, seat belts and the driver's airbag are generally unable to prevent injuries caused by objects penetrating the vehicle from the outside.

The most important restraint systems are the seat belts and the child restraint systems. SRS (Supplemental Restraint System) offers additional protection potential. SRS consists of a belt tensioner on the driver's side and an airbag system with airbag control unit and driver's airbag.

The driver's airbag increases the degree of protection for the driver and is therefore only an

additional restraint system to the seat belt. The driver's airbag does not replace the requirement for the seat belt to be worn correctly at all times. The driver's airbag is not deployed in all types of accidents. The driver's airbag is not deployed if, for example, the protection already provided by a correctly fastened seat belt would not be enhanced by the airbag deploying.

Deployment of the driver's airbag only provides increased protection if the seat belt is worn correctly. The seat belt helps to keep the driver in the best position in relation to the airbag. The seat belt also prevents the driver from being propelled towards the point of impact, e.g. in the event of a frontal collision.

The airbag system can be modified to accommodate a person with disabilities. Consult a Mercedes-Benz Service Centre.

Seat belts

Important safety notes

WARNING

A seat belt which is not worn correctly, or which has not been engaged in the seat belt buckle correctly, cannot provide the intended level of protection. Under certain circumstances, this could cause severe or even fatal injuries in the event of an accident.

Therefore, make sure that all occupants – in particular, pregnant women – wear their seat belts correctly at all times.

- The seat belt must fit snugly on your body and must not be twisted. Therefore, avoid wearing bulky clothing, e.g. a winter coat. The shoulder section of the belt must be routed across the centre of your shoulder – on no account across your neck or under your arm – and pulled tight against your upper body. The lap belt must always pass across your lap as low down as possible, i.e. over your hip joints – not across your abdomen. If necessary, push the seat belt slightly downwards and adjust it by pulling it in the direction the seat belt retracts.
- Do not route the seat belt strap over sharp or fragile objects. Please make sure that

such objects are not on or in your clothing, e.g. spectacles, pens or keys etc. The seat belt strap could become damaged and tear during an accident and you or other vehicle occupants could be injured.

- Only one person should use each seat belt at any one time. Children must never travel sitting on the lap of another occupant. The child will not be secured in the event of an accident, heavy braking or sudden change of direction. This may result in the child or other occupants being seriously or fatally injured.
- Persons under 1.50 m tall cannot wear the seat belts correctly. For this reason secure persons less than 1.50 m tall in specially designed, suitable restraint systems.
- Children under 1.50 m tall and younger than twelve years of age cannot wear the seat belts correctly. For this reason secure them in special suitable child restraint systems installed on a suitable seat. Additional information can be found in the Operating Instructions in the chapter "Safety", "Children in the Vehicle". Observe the installation instructions of the child restraint system manufacturer.
- Do not secure an object with a seat belt if the seat belt is also being used by one of the vehicle's occupants.

WARNING

The seat belt does not offer the intended level of protection if you have not moved the backrest to an almost vertical position. When braking or in the event of an accident, you could slide underneath the seat belt and sustain abdomen or neck injuries, for example. This poses an increased risk of injury or even fatal injury.

Adjust the seat properly before beginning your journey. Always ensure that the backrest is in an almost vertical position and that the shoulder section of your seatbelt is routed across the centre of your shoulder.

WARNING

Seat belts cannot protect as intended, if:

- they are damaged, have been modified, are extremely dirty, bleached or dyed
- the seat belt buckle is damaged or extremely dirty
- modifications have been made to the belt tensioners, belt anchorages or inertia reels

Seat belts may sustain non-visible damage in an accident, e.g. due to glass splinters. Modified or damaged seat belts can tear or fail, for example in the event of an accident. Modified seat belt tensioners may be deployed unintentionally or fail to be deployed when required. There is an increased risk of injury, possibly even fatal.

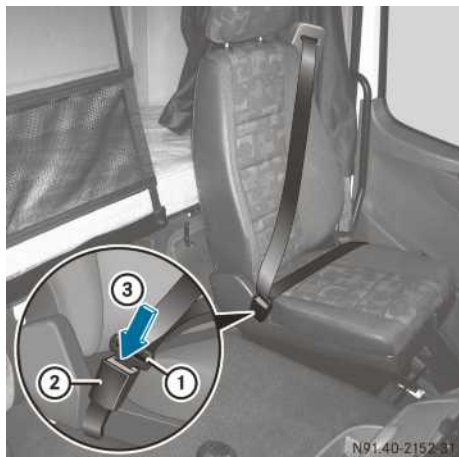
Never modify safety belts, seat belt tensioners, seat belt anchorages and inertia reels. Ensure that seat belts are not damaged or worn and are clean. After an accident, have the seat belts checked immediately at a qualified specialist workshop.

Mercedes-Benz recommends that you use seat belts that have been specifically approved for the relevant seat by Mercedes-Benz.

Please observe the information provided for cleaning the radiator (> page 205).

Seat belts and child restraint systems are the most effective means of restraining the movement of vehicle occupants in the event of an accident. This lowers the risk of vehicle occupants coming into contact with parts of the vehicle interior.

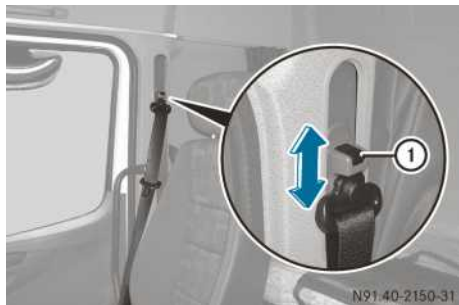
Fastening the seat belt



- ▶ **To fasten a seat belt:** pull the belt smoothly from the inertia reel and guide it over the shoulder.
- ▶ Engage belt tongue ① in buckle ②.
- ▶ Pull the shoulder section upwards to tighten the belt across your body.
- ▶ If necessary, adjust the seat belt to the appropriate height.
- ▶ **To release the seat belt:** press release button ③ on belt buckle ②.

Belt height adjustment

Depending on the seat design, you can adjust the belt height for the driver's seat and co-driver's seat.



Belt sash guide (example: right side)

- ▶ Press button ① and hold it down.
- ▶ Adjust the belt sash guide to the appropriate height.
- ▶ Release button ① and snap the belt sash guide into place.

Seat belt warning system

If the driver's seat belt is not fastened and the engine is started:

-  will be shown in the display.
- the status indicator lights up yellow.
- a warning tone sounds for approximately 8 seconds.

When the driver's seat belt is fastened, the  icon in the display and the status indicator go out.

SRS (Supplemental Restraint System)

Important safety notes

WARNING

If SRS is malfunctioning, components of the restraint system could be triggered inadvertently or may not be triggered in the event of an accident with a high rate of vehicle deceleration. There is an increased risk of injury.

Have the SRS checked and repaired immediately at a qualified specialist workshop.

If the **SRS** indicator lamp in the instrument cluster lights up, SRS (Supplemental Restraint System) is malfunctioning.

SRS consists of a belt tensioner on the driver's side and an airbag system with airbag control unit and driver's airbag.

Belt tensioners and airbag systems are items of optional equipment and are therefore not fitted to every vehicle.

Triggering of the belt tensioner and of the driver's airbag

In the event of a collision, the airbag control unit evaluates important physical data relating to the vehicle deceleration or acceleration during the first phase of the collision, such as:

- duration
- direction
- force

Deployment of the driver's airbag depends on various factors. These factors include: the force of the initial deceleration or acceleration, duration and direction of acceleration or deceleration.

Vehicle deceleration or acceleration and the direction of the force are essentially determined by:

- the distribution of forces during the collision
- the collision angle
- the deformation characteristics of the vehicle
- the characteristics of the object with which the vehicle has collided, e.g. the other vehicle

Factors that can only be seen and measured after the impact are not decisive for the deployment of an airbag. They also do not provide an indication of deployment.

The vehicle can be substantially deformed without the driver's airbag being deployed. This is the case if only relatively easily deformable vehicle parts are affected by the collision and the required deceleration threshold is not reached. On the other hand, airbags may be deployed even though the vehicle only displays minor deformation. This is the case if, for example, very rigid vehicle parts such as the longitudinal members are hit in an accident and the rate of deceleration is sufficient.

- i** The driver's airbag is not deployed in all types of accidents. SRS is controlled through a complex system of sensors and evaluation logic.

Belt tensioners



WARNING

Pyrotechnic seat belt tensioners that have been deployed are no longer operational and are unable to perform their intended protec-

tive function. This poses an increased risk of injury or even fatal injury.

Therefore, have pyrotechnic belt tensioners which have been triggered immediately replaced at a qualified specialist workshop.

The belt tensioner is a belt reel tensioner, which is fastened directly to the seat belt retractor in the seat. In an impact, it tightens the belt to pull it close to the body.

- i** The belt tensioner cannot compensate for the seat position being incorrect or for a seat belt being worn incorrectly.

The seat belt tensioner does not pull the driver back to the seat backrest.

The seat belt tensioner can be triggered if:

- the key is turned to the drive position in the ignition lock (> page 123)
- the restraint systems are operational
- the driver's safety belt is engaged in its buckle
- in the event of head-on and rear-end impacts, the vehicle decelerates or accelerates rapidly in a longitudinal direction in the initial stages of the impact

If the belt tensioner is triggered, you will hear a bang and some fine powder may be released. This bang will not damage your hearing and the powder does not constitute a health hazard. The **SRS** indicator lamp in the instrument cluster lights up.

Airbag

Introduction

The AIRBAG symbol indicates the installation location of the driver's airbag.

The airbag is a safety device that is supplementary to a correctly fastened seatbelt. It does not act as a substitute for a seatbelt. The airbag serves to provide additional protection in an accident situation.

However, no system available today can completely eliminate injuries and fatalities.

Due to the high speed of airbag deployment, it is also not possible to entirely rule out the risk of injuries caused by the driver's airbag deploying.

Important safety notes

WARNING

If you deviate from the correct seat position, the airbag cannot perform its intended protective function and can even cause additional injuries when deployed. There is an increased risk of serious or even fatal injuries.

In order to avoid such risks, always ensure that all vehicle occupants:

- fasten their seatbelts correctly, including pregnant women
- observe the following notes

Always ensure that there are no objects located between the airbag and the vehicle occupant.

- Adjust seats properly before beginning your journey. Always make sure that the seat backrest is in an almost vertical position. The middle of the head restraint must support the head at about eye level.
- Move the driver's seat as far back as possible. The seat position must allow the vehicle to be driven safely.
- Only hold the steering wheel by the rim. This allows the airbag to inflate fully.
- During a journey, always sit with your back leaning against the backrest. Do not lean forward. You will otherwise be in the deployment area of the airbag.
- Secure persons under 1.50 m tall in suitable restraint systems. The seat belt cannot be correctly fastened on persons below this height.

If children are travelling in the vehicle, also observe the following instructions.

- Always secure children younger than 12 years of age and under 1.50 m tall in suitable child restraint systems.
- Ensure that you observe the instructions and safety notes in the "Children in the vehicle" section (> page 36) in addition to the child restraint system manufacturer's instructions.

Objects in the vehicle interior can jeopardise the intended functionality of an airbag.

In order to avoid the risks posed by the necessary high-speed deployment of the airbag, before starting your journey, make sure that:

- there are no additional people, animals or objects between the driver and the driver's airbag
- there are no accessories, such as cup holders, in the deployment area of an airbag, e.g. on the steering wheel or against the door
- there are no heavy, sharp or fragile objects in the pockets of your clothing. Stow such objects in a suitable place.

WARNING

If you modify an airbag cover or affix objects such as stickers to it, the airbag can no longer function correctly. There is an increased risk of injury.

Never modify an airbag cover or affix objects to it.

Driver's airbag

The driver's airbag deploys in front of the steering wheel. When activated, it increases protection for the head and thorax of the driver.

Children in the vehicle

Important safety notes

If you are travelling with a child younger than 12 years of age and under 1.50 m tall in the vehicle:

- always secure the child in a child restraint system suitable for Mercedes-Benz vehicles. The child restraint system must be appropriate to the age, weight and size of the child.
- always observe the instructions and safety notes in this chapter in addition to the child restraint system manufacturer's instructions.

 WARNING

If you leave children unattended in the vehicle, they could set the vehicle in motion by, for example:

- releasing the parking brake
- shifting the transmission into neutral
- starting the engine

They could also operate the vehicle's equipment and become trapped. There is a risk of an accident and injury.

When leaving the vehicle, always take the key with you and lock the vehicle. Never leave children unattended in the vehicle.

 WARNING

If persons (particularly children) are exposed to heat or cold for a prolonged period, there is a risk of serious or even fatal injuries. Never leave persons (particularly children) unattended in the vehicle.

 WARNING

If the child restraint system is placed in direct sunlight, the parts could become very hot. Children could be suffer burns by touching these parts, in particular on the metallic parts of the child restraint system. There is a risk of injury.

If you and your child leave the vehicle, always make sure that the child restraint system is not in direct sunlight. Cover it with a blanket, for example. If the child restraint system has been exposed to direct sunlight, leave it to cool down before securing the child in it. Never leave children unattended in the vehicle.

Make sure that all vehicle occupants have fastened their seat belts properly and are seated correctly. This is particularly important for children.

Child restraint systems **WARNING**

If the child restraint system is incorrectly fitted on the seat position suitable for this purpose, it cannot perform its intended protective function. In the event of an accident, sharp braking or a sudden change in direction, the child may not be held securely. There is an increased risk of serious or even fatal injuries.

Observe the manufacturer's installation instructions and the correct use for the child restraint system. Make sure that the entire surface of the child restraint system is resting on the seat surface. Never place objects under or behind the child restraint system, e.g. cushions. Only use child restraint systems with the original cover designed for them. Only replace damaged covers with genuine covers.

 WARNING

If the child restraint system is fitted incorrectly or is not secured, it can come loose in the event of an accident, heavy braking or a sudden change in direction. The child restraint system could be thrown about, striking vehicle occupants. There is an increased risk of injury, possibly even fatal.

Always fit child restraint systems properly, even if they are not being used. Make sure that you observe the child restraint system manufacturer's installation instructions.

You will find further information on securely stowing objects, luggage and loads under "Stowage spaces and compartments" (▷ page 74).

 WARNING

Child restraint systems or their securing systems that have been damaged or subjected to a load in an accident cannot perform their intended protective function. In the event of an accident, sharp braking or a sudden change in direction, the child may not be held securely. There is an increased risk of serious or even fatal injuries.

Immediately replace child restraint systems that have been damaged or subjected to a load in an accident. Have the child restraint securing systems checked in a qualified specialist workshop before fitting a child restraint system again.

Observe the warning labels on the child restraint system.

If a child is travelling in the vehicle, always observe the safety notes on "Children in the vehicle".

Only child restraint systems in the "Universal" category which are approved in accordance with the ECE standard ECE R44 are permitted for use in the vehicle.

Universal child restraint systems are identified by their orange approval label.



Example: approval label on the child restraint system

The securing system of the child restraint system is the seat belt (> page 32).

If you secure a child in a forward-facing child restraint system on the co-driver's seat, always move the co-driver's seat as far back as possible. When doing so, always ensure that the shoulder belt strap is correctly routed from the belt sash guide to the shoulder belt sash guide on the child restraint system. The shoulder belt strap must be routed forwards and downwards from the belt sash guide. If necessary, adjust the belt sash guide accordingly. Always comply with the child restraint system manufacturer's installation instructions.

You can obtain child restraint systems and information about the correct child restraint system from any Mercedes-Benz Service Centre.

Pets in the vehicle

WARNING

If you leave animals unsupervised or unsecured in the vehicle, they may push a button or a switch, for example.

They could:

- activate vehicle equipment and become trapped, for example
- switch vehicle systems on or off, thus endangering other road users

In the event of an accident, sudden braking or abrupt changes of direction, unsecured animals could be flung around the vehicle, injuring the vehicle occupants. There is a risk of an accident and injury.

Never leave animals unattended in the vehicle. Always secure animals correctly during a journey, e.g. in an animal transport box.

Useful information

These Operating Instructions describe all the models and standard and optional equipment of your vehicle that were available at the time of going to print. Country-specific differences are possible. Bear in mind that your vehicle may not be equipped with all the functions described. This also applies to safety-relevant systems and functions.

Read the information on qualified specialist workshops (▷ page 22).

Locking system

Key

WARNING

If you attach heavy or large objects to the key, the key could be unintentionally turned in the ignition lock. This could cause the engine to be switched off. There is a risk of an accident.

Do not attach any heavy or large objects to the key. Remove any bulky keyrings before inserting the key into the ignition lock.

Your vehicle is equipped with a special key system. The engine can only be started using the key coded to the vehicle.

- i** If a vehicle key is lost, obtaining a replacement is a time-consuming process. This can only be done through a Mercedes-Benz Service Centre.

Mercedes-Benz therefore recommends that you always keep an easily accessible spare key with you for emergencies.

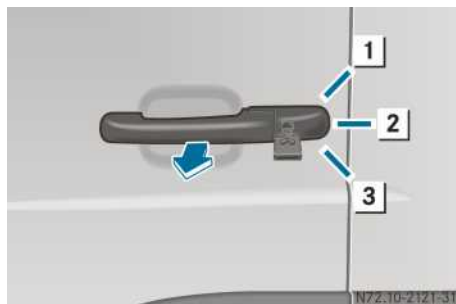
Unlocking/locking the vehicle

Important safety notes

- !** Only open the doors when traffic conditions permit. Make sure that there is sufficient clearance when opening the doors. Otherwise, you could damage your vehicle or other vehicles.

Exterior door lock

Unlocking/locking using the key



Example: door lock on the left-hand door

- ▶ Insert the key in the door lock in position **2**.
- ▶ **To unlock:** turn the key to position **1**.
Vehicles with central locking: both doors are unlocked.
- ▶ **To lock:** turn the key to position **3**.
Vehicles with central locking: both doors are locked.
- ▶ **To open:** remove the key from position **2**.
- ▶ Pull the door handle.

Unlocking/locking with the remote control

- i** If you unlock the vehicle using the remote control and a door is not opened within 25 seconds, the vehicle automatically locks itself again.

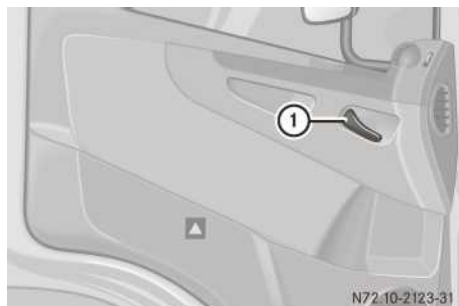
Observe the general instructions for the remote control in the "Enhanced central locking system" section (▷ page 41).



- ▶ **To unlock:** press and hold button ① for about one second.
Indicator lamp ③ flashes. The driver's door is unlocked.
- ▶ Press and hold button ① again for about one second.
Indicator lamp ③ flashes. The co-driver's door is unlocked.
- ▶ **To lock:** close the doors.
- ▶ Press and hold button ② for about one second.
Indicator lamp ③ flashes. Both doors are locked.

Interior door lock

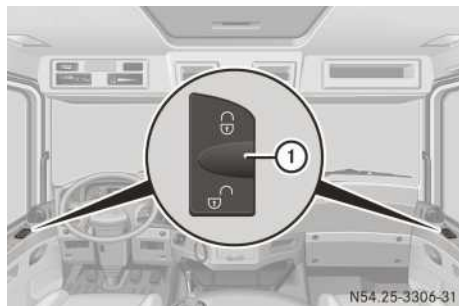
Locking/unlocking using the door handle



Example: release lever on left-hand door

- ▶ Close the door.
- ▶ **To lock:** push release lever ①.
- ▶ **To unlock and open:** pull release lever ①.

Locking/unlocking centrally using the switch



In vehicles with central locking, both doors will be automatically locked/unlocked if you:

- lock and unlock a door with the key, or
 - lock and unlock the vehicle with switch ①.
- ▶ Close the doors.
- ▶ **To lock centrally:** press the upper section of switch ①.
- ▶ **To unlock centrally:** press the lower section of switch ①.

Enhanced central locking system

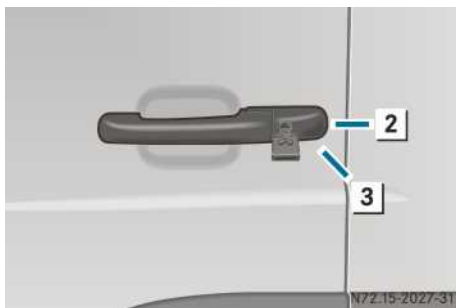
Important safety notes

WARNING

When using convenience closing, you could become trapped within the sweep of the closing window. There is a risk of injury.

Monitor the entire closing procedure when using convenience closing. When closing, make sure that no one has any parts of the body within the closing area.

Convenience closing using the key



Example: door lock on the left-hand door

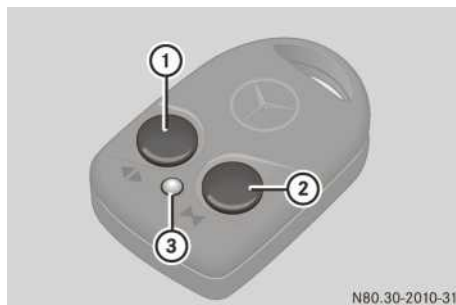
- ▶ Insert the key in position ② in the driver's door lock.
- ▶ Turn the key to position ③ for longer than 1 second.
The doors are locked. The side windows close.
- ▶ Turn the key to position ② and remove it.

If there is a risk of becoming trapped:

- ▶ Turn the key to position **2** immediately. The movement of the side windows stops.
- ▶ Unlock the door and open the side windows (▷ page 43).

General notes about the remote control

The remote control works regardless of the direction in which it is pointed. The vehicle can also be unlocked/locked from a distance. Only use the remote control in the immediate vicinity of the vehicle. This helps to prevent theft.



Remote control

If indicator lamp **3** only flashes once when unlocking or locking, replace the batteries in the remote control (▷ page 41).

If you lose a remote control, have it disabled at a Mercedes-Benz Service Centre. This prevents the lost remote control from being misused. Have the remaining remote controls recoded.

Convenience closing using the remote control

Observe the safety notes on the enhanced central locking system (▷ page 40).

- ▶ Press and hold button **2** for about 1 second. Indicator lamp **3** flashes. The doors are locked. The side windows close.

If there is a risk of becoming trapped:

- ▶ Press button **1** immediately. Indicator lamp **3** flashes. The side windows stop moving and the driver's door is unlocked.
- ▶ Open the side windows (▷ page 43).

Unlocking using the remote control

- i** If you unlock the vehicle using the remote control and a door is not opened within 25 seconds, the vehicle automatically locks itself.
- ▶ Press and hold button **1** for about 1 second. Indicator lamp **3** flashes. The driver's door is unlocked.
- or
- ▶ Press and hold button **1** for about 1 second again. Indicator lamp **3** flashes. The co-driver's door is unlocked.

Remote control batteries

Important safety notes

WARNING

Batteries contain toxic and corrosive substances. If batteries are swallowed, it can result in severe health problems. There is a risk of fatal injury.

Keep batteries out of the reach of children. If a battery is swallowed, seek medical attention immediately.

Environmental note



Batteries contain pollutants. It is illegal to dispose of them with the household rubbish. They must be collected separately and disposed of in an environmentally responsible recycling system.

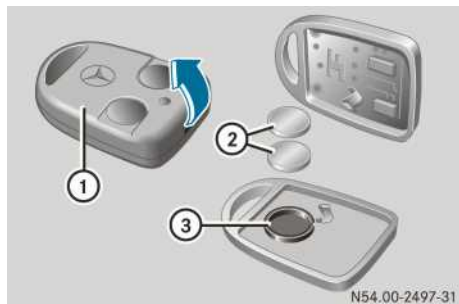


Dispose of batteries in an environmentally responsible manner. Take discharged batteries to a qualified specialist workshop or to a collection point for used batteries.

A remote control with discharged batteries can no longer lock or unlock the vehicle.

Replacing the batteries

Use 2 CR 1620 batteries.



- Prise open remote control ①, e.g. by inserting a screwdriver in the direction of the arrow in the slot.
- Remove batteries ②.
- Use a lint-free cloth to clean new batteries ②.
- Push both batteries ② with the positive pole (+) facing downwards into battery carrier ③.
- Press both halves of the housing together until they engage.

Teaching-in the remote control

If central locking no longer works after replacing the batteries, you must teach in the remote control again.

- Turn the key to the drive position in the ignition lock and back as far as it will go within 3 seconds.
- Press one of the buttons on the remote control three times within 20 seconds.

The remote control has now been taught in and is ready for use.

Doors

Entering and exiting

⚠ WARNING

If you leave children unattended in the vehicle, they could set the vehicle in motion by, for example:

- releasing the parking brake
- shifting the transmission into neutral
- starting the engine

They could also operate the vehicle's equipment and become trapped. There is a risk of an accident and injury.

When leaving the vehicle, always take the key with you and lock the vehicle. Never leave children unattended in the vehicle.

Ensure that you observe the safety notes in the "Children in the vehicle" section (▷ page 36).

Safe entry and exit from the vehicle can only be guaranteed if you use the grab handles and steps. Only these are designed to withstand the necessary weight. Do not jump down from the cab.

Keep steps, door sills, grab handles and footwear free from dirt, such as:

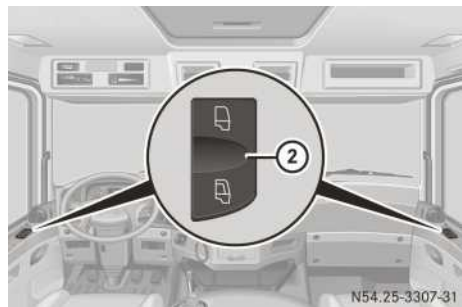
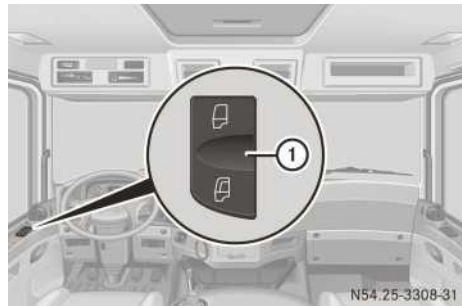
- mud
- clay
- snow
- ice

This increases the safety of your footing.



Example: getting into and out of the vehicle using the left-hand door

- Use the EASY-ENTRY/EXIT system of the suspension seat (► page 46).
- Use grab handles ① and access step ② provided.



- ① Left-hand side window button
- ② Right-hand side window button

- Turn the key to the radio position in the ignition lock.

- **To open:** press and hold the lower section of button ① or ② until the corresponding side window reaches the desired position.
- **To close:** press and hold the upper section of button ① or ② until the corresponding side window reaches the desired position.
- **Convenience closing:** press the upper section of button ① or ② for approximately 1 second.
The corresponding side window closes completely.
- ❗ For vehicles with the enhanced central locking system: you can also use the remote control to close the side windows (► page 41).

⚠ WARNING

When opening a side window, parts of the body can drawn into or trapped between the side window and the window frame. There is a risk of injury.

Make sure that nobody is touching the side window before you open it. If someone becomes trapped, release the switch or press the upper section of the switch to close the side window again.

⚠ WARNING

When a side window is closed, body parts may become trapped in the closing range. There is a risk of injury.

Ensure that there are no body parts in the closing range of the window when closing it. If somebody becomes trapped, release the button immediately or press the lower section of the button to open the side window again.

Roof

Pop-up roof

Opening and closing the pop-up roof

WARNING

When the pop-up roof is closed, body parts may become trapped. Persons may also be in the closing range or may move into the closing range while the roof is being closed, e.g. children. There is a risk of injury.

Ensure that nobody is in the vicinity of the closing range during the closing process. If somebody becomes trapped, release the switch immediately. Press the other end of the switch to open the pop-up roof again.



Example: switch unit above the windscreen

- **To open:** press and hold the lower section of button ① until the pop-up roof reaches the desired position.
- **To close:** press and hold the upper section of button ① until the pop-up roof reaches the desired position.

i You can also open and close the pop-up roof using the button in the switch unit of the lower berth.

In an emergency, you can also close the pop-up roof manually (► page 44).

Sun screen/insect screen



- **To close the insect screen:** pull out insect screen ② and hook it into opening ③.
- **To close the sun screen:** pull out sun screen ① and hook it into the handle of insect screen ②.
- **To open the sun screen/insect screen:** unhook sun screen ① or insect screen ② and guide in the direction of the windscreen.

Closing the pop-up roof manually



Glass pop-up roof (example)

- Take flat screwdriver (blade width 4 mm) out of the vehicle tool kit.
- Remove the plug.
- Insert the screwdriver into the actuator through the opening.
- Turn the screwdriver anti-clockwise until the pop-up roof is completely closed.
- Remove the screwdriver.
- Replace the plug in the opening.

Roof hatch

You can open the roof hatch at one end (at the front or rear) or at both ends (at the front and rear).



- Push the roof hatch up or pull it down by handles ①.

Useful information

These Operating Instructions describe all the models and standard and optional equipment of your vehicle that were available at the time of going to print. Country-specific differences are possible. Bear in mind that your vehicle may not be equipped with all the functions described. This also applies to safety-relevant systems and functions.

Read the information on qualified specialist workshops (▷ page 22).

Seats

Important safety notes

WARNING

You could lose control of the vehicle while driving if you:

- adjust the driver's seat, steering wheel or mirrors
- fasten the seat belt

There is a risk of an accident.

Adjust the driver's seat, head restraint, steering wheel and mirrors and fasten your seat belt before starting the engine.

WARNING

When adjusting a seat, you or another vehicle occupant could become trapped by the guide rail of the seat, for instance. There is a risk of injury.

Make sure that no one has any part of their body within the sweep of the seat when adjusting it.

WARNING

The seat belt does not offer the intended level of protection if you have not moved the backrest to an almost vertical position. When braking or in the event of an accident, you could slide underneath the seat belt and sustain abdomen or neck injuries, for example. This poses an increased risk of injury or even fatal injury.

Adjust the seat properly before beginning your journey. Always ensure that the backrest is in an almost vertical position and that the shoulder section of your seatbelt is routed across the centre of your shoulder.

WARNING

If the driver's seat is not engaged, it can move unexpectedly while the vehicle is in motion. This could cause you to lose control of the vehicle. There is a risk of an accident.

Always make sure that the driver's seat is engaged before starting the engine.

WARNING

The head restraints cannot provide the intended protection unless they are fitted and adjusted correctly. There is an increased risk of injury to the head and neck in the event of an accident or sudden braking, for example.

Always drive with the head restraints fitted. Ensure that the centre of the head restraints support the back of each vehicle occupant's head at eye level before driving off.

WARNING

If there is not enough clearance, the suspension seat could trap body parts between the steering wheel and the suspension seat. There is a risk of injury.

Ensure that there is enough clearance for the movements of the suspension seat. Before getting out, lower the suspension seat completely.

WARNING

If you push the suspension seat bellows inwards, your hand could become trapped. There is a risk of injury.

Do not push the bellows inwards.

! To prevent damage to the seats and the seat heating, observe the following notes:

- Do not pour any fluid on the seats. If fluid is poured on the seats, dry it as quickly as possible.
- If the seat covers are damp or wet, do not switch on the seat heating. Also, do not use the seat heating to dry the seats.
- Clean the seat covers as recommended; see the "Cleaning and care" section.
- Do not transport any heavy loads on the seats. Do not place any pointed objects on the seat cushions, such as e.g. knives, nails or tools. As far as possible, only use the seats for people.
- When operating the seat heating, do not cover the seats with insulating materials, e.g. blankets, coats, bags, protective covers, child seats or booster seats.

! Ensure that no objects in the cab are blocking the seats. The seats could otherwise be damaged.

Your seat must be adjusted in such a way that you can fasten your seat belt correctly.

Keep the seat anchorages on the floor of the cabin free of dirt and objects.

Observe the following points:

- set the seat backrest to a position as near to vertical as possible and sit as upright as possible. Never drive with the seat backrest tilted back too far.
- your arms should be slightly bent when you are holding the steering wheel.
- avoid seat positions which do not allow a seat belt to be routed correctly. The shoulder section of the belt must be routed across the centre of your shoulder and must be pulled tight against your upper body. The lap belt must always be routed across your lap as low down as possible, i.e. across your hips.
- adjust the head restraint so that it supports the rear of your head at eye level. On head restraints with a detent, the head restraint must be engaged.
- maintain a distance to the pedals that allows you to depress them fully.

If your vehicle is equipped with a suspension seat, always use the EASY-ENTRY/EXIT feature when getting out of the vehicle.

A seat with an integrated seat belt is a safety-relevant component and restraint system.

Ensure that you read the safety guidelines in the "Occupant safety" section (▷ page 32).

Also observe the safety notes on the airbag system (▷ page 35) and on children in the vehicle (▷ page 36).

Information on seat cleaning can be found in the "Cleaning and care" section (▷ page 205).

Always have work on the seats performed at a qualified specialist workshop.

Operating the seats

General notes

Your vehicle may be equipped with different types of seats depending on the cab and the vehicle's equipment:

- static seat without suspension
- standard suspension seat
- air-conditioned suspension seat
- luxury suspension seat
- co-driver's and centre seat

To operate a suspension seat, a supply pressure of at least 7 bar is required in your vehicle's compressed-air system.

Do not use the seat as a step to help you access the upper berth, for example.

Static seat and standard suspension seat

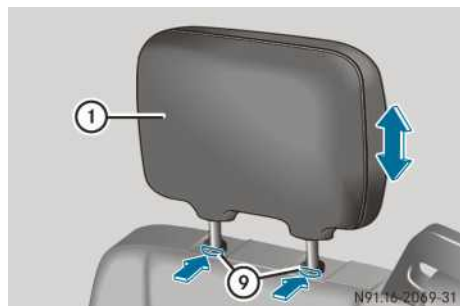


Example: standard suspension seat

- Observe the notes on seats (> page 46).

i Depending on the seat design, some setting options may not be available.

- **To adjust the head restraint:** pull head restraint ① up or push it down to the desired height.



- **To remove the head restraint:** press and hold release catch ⑨.
- Pull head restraint ① up and out with a single movement.
- **To adjust the backrest:** relieve the backrest of any weight.

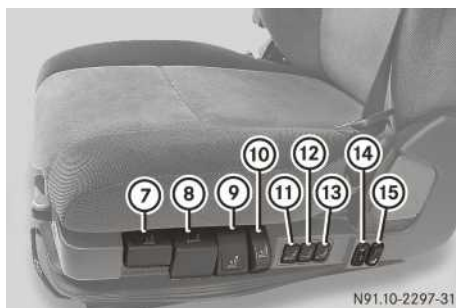
- Pull lever ② up and hold it.
- Apply weight to or relieve the seat backrest of any weight in order to move it into the desired position.
- Release lever ②.
- **To set the seat fore-and-aft adjustment:** pull lever ⑦ upwards and hold it.
- Push the seat forwards or backwards in order to move it into the desired position.
- Release lever ⑦.
- Slide the seat forwards/backwards until it engages audibly.
- **To adjust the seat cushion length:** pull lever ⑧ upwards and hold it.
- Push the seat cushion forwards or backwards in order to move it into the desired position.
- Release lever ⑧.
- **To adjust the seat cushion angle:** pull lever ⑤ upwards and hold it.
- Apply weight to or relieve the seat cushion or backrest of any weight in order to move it into the desired position.
- Release lever ⑤.
- **To adjust the seat height:** pull lever ④ up or push it down one level.
The seat is raised or lowered by one level.
- **To adjust the oscillation damper:** set the oscillation damper using lever ⑥ to prevent the seat from bottoming out.
- **To use the EASY-ENTRY/EXIT feature:** press lever ③ downwards.
The seat is lowered completely.
- Pull lever ③ upwards.
The seat returns to the previously set height.

Air-conditioned suspension seat



- ▶ Observe the notes on seats (▷ page 46).
- ▶ **To adjust the neck cushion:** adjust neck cushion ① to suit your height using the Velcro fasteners on the rear of the backrest.
 - i** The neck cushion cover can be removed and washed. Before washing, read the label on the neck cushion cover.
- ▶ **To adjust the belt height:** press and hold button ②.
- ▶ Adjust the seat belt accordingly to suit your height.
- ▶ Release button ②.
- ▶ **To adjust the backrest:** relieve the backrest of any weight.
 - ▶ Pull lever ③ up and hold it.
 - ▶ Apply weight to or relieve the seat backrest of any weight in order to move it into the desired position.
 - ▶ Release lever ③.
- ▶ **To set the seat fore-and-aft adjustment:** pull lever ⑤ upwards and hold it.
 - ▶ Push the seat forwards or backwards in order to move it into the desired position.
 - ▶ Release lever ⑤.
 - ▶ Slide the seat forwards/backwards until it engages audibly.

- ▶ **To release the suspension-lock:** set lever ④ to the right.
The seat is able to oscillate freely.
- ▶ **To engage suspension-lock:** set lever ④ to the left.
The suspension lock engages and the seat suspension is locked in place.
- ▶ **To adjust the seat cushion length:** pull lever ⑥ upwards and hold it.
- ▶ Push the seat cushion forwards or backwards in order to move it into the desired position.
- ▶ Release lever ⑥.



- ▶ **To adjust the seat cushion angle:** pull lever ⑧ upwards and hold it.
- ▶ Apply weight to or relieve the seat cushion or backrest of any weight in order to move it into the desired position.
- ▶ Release lever ⑧.
- ▶ **To adjust the seat height:** pull lever ⑨ up or push it down one level.
The seat is raised or lowered by one level.
- ▶ **To adjust the oscillation damper:** set the oscillation damper using lever ⑦ to prevent the seat from bottoming out.
- ▶ **To use the EASY-ENTRY/EXIT feature:** press lever ⑩ downwards.
The seat is lowered completely.
- ▶ Pull lever ⑩ upwards.
The seat returns to the previously set height.
- i** You can adjust the backrest contour (lumbar support) and the side contours to support your spine.
- ▶ **To adjust the backrest contour:** press the upper or lower section of switch ⑪.
The lower seat backrest contour is increased or decreased.

- ▶ Press the upper or lower section of switch (12). The upper seat backrest contour is increased or decreased.
 - ▶ Press the upper or lower section of switch (13). The side contours are increased or decreased.
 - ▶ **To activate the seat ventilation:** turn blower control unit (14) to position 1-3.
 - ▶ **To deactivate the seat ventilation:** turn blower control unit (14) to position 0.
 - ▶ **To activate the seat heating:** press the upper section of switch (15). The seat heating is active and is set to the first heating level.
- or
- ▶ Press the lower section of switch (15). The seat heating is active and is set to the second heating level.
 - ▶ **To deactivate the seat heating:** press switch (15) into the centre position.

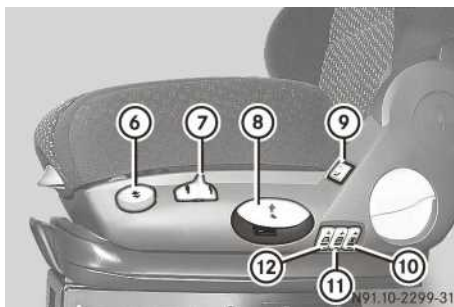
Luxury suspension seat



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- ▶ Observe the notes on seats (► page 46).
- ▶ **To adjust the backrest:** relieve the backrest of any weight.
- ▶ Pull lever (3) up and hold it.

- ▶ Apply weight to or relieve the seat backrest of any weight in order to move it into the desired position.
- ▶ Release lever (3).
- ▶ **To set the seat fore-and-aft adjustment:** pull lever (4) upwards and hold it.
- ▶ Push the seat forwards or backwards in order to move it into the desired position.
- ▶ Release lever (4).
- ▶ Slide the seat forwards or backwards until it engages audibly.
- ▶ **To engage the suspension-lock:** pull lever (2) upwards. The suspension lock engages and the seat suspension is locked in place.
- ▶ **To release the suspension-lock:** push lever (2) downwards. The seat is able to oscillate freely.
- ▶ **To adjust the seat cushion length:** pull lever (5) upwards and hold it.
- ▶ Push the seat cushion forwards or backwards in order to move it into the desired position.
- ▶ Release lever (5).
- ▶ **To adjust the seat cushion angle:** pull lever (1) upwards and hold it.
- ▶ Apply weight to or relieve the seat cushion or backrest of any weight in order to move it into the desired position.
- ▶ Release lever (1).



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- ▶ **To adjust the seat height:** pull lever (8) up or push it down one level. The seat is raised or lowered by one level.
- ▶ **To adjust the oscillation damper:** set the oscillation damper using handle (7) to prevent the seat from bottoming out.

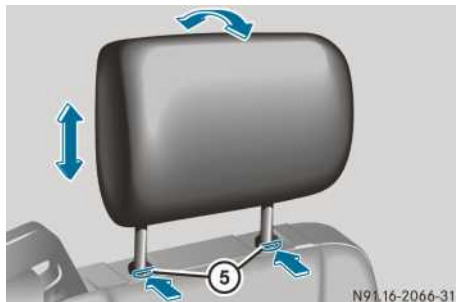
- **To use the EASY-ENTRY/EXIT feature:** press button ⑥ downwards and click it into place.
The seat is lowered completely.
 - Press button ⑥ downwards again.
The seat returns to the previously set height.
 - ❗ You can adjust the backrest contour (lumbar support) and the side contours to support your spine.
 - **To adjust the backrest contour:** press the upper or lower section of switch ⑩.
The side contours are increased or decreased.
 - Press the upper or lower section of switch ⑪.
The upper seat backrest contour is increased or decreased.
 - Press the upper or lower section of switch ⑫.
The lower seat backrest contour is increased or decreased.
 - **To activate the seat heating:** press the upper section of switch ⑨.
The seat heating is active and is set to the first heating level.
- or
- Press the lower section of switch ⑨.
The seat heating is active and is set to the second heating level.
 - **To deactivate the seat heating:** press switch ⑨ into the centre position.

Co-driver's seat and centre seat with luxury head restraint



Example: centre seat

- Observe the notes on seats (► page 46).



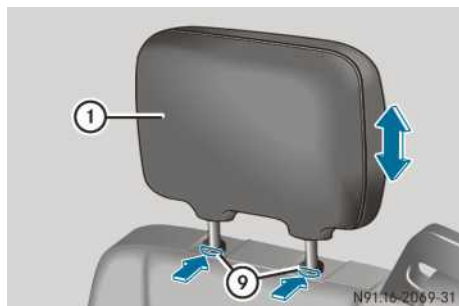
- **To adjust the head restraint:** pull head restraint ① up or push it down to the desired height.
- Push head restraint ① back or pull it forward to the desired angle.
- **To remove the head restraint:** press and hold release catch ⑤.
- Pull head restraint ① up and out with a single movement.
- **To adjust the armrests:** swing armrest ② upwards.
- Use the handwheel on the underside to set the angle of armrests ②.
- **To adjust the backrest:** relieve the backrest of any weight.
- Pull lever ③ up and hold it.
- Apply weight to or relieve the seat backrest of any weight in order to move it into the desired position.
- Release lever ③.
- **To fold the armrests forward/to use the storage function:** pull lever ③ upwards and hold it.
- Fold the backrest forwards completely until it engages.
- Pull lever ③ up and hold it again.
The backrest is unlocked and can be adjusted again.
- **To adjust the seat cushion angle:** pull lever ④ upwards and hold it.
- Apply weight to or relieve the seat cushion or backrest of any weight in order to move it into the desired position.
- Release lever ④.

Co-driver's and centre seat



Example: centre seat

- Observe the notes on seats (► page 46).



- **To adjust the head restraint:** pull head restraint ① up or push it down to the desired height.
- **To remove the head restraint:** press and hold release catch ⑨.
- Pull head restraint ① up and out with a single movement.
- **To adjust the backrest:** relieve the backrest of any weight.
- Pull lever ② up and hold it.

- Apply weight to or relieve the seat backrest of any weight in order to move it into the desired position.
- Release lever ②.
- **To fold the armrests forward/to use the storage function:** pull lever ② upwards and hold it.
- Fold the backrest forwards completely until it engages.
- Pull lever ② up and hold it again.
The backrest is unlocked and can be adjusted again.

Berths

Upper berth

Important safety notes

WARNING

A vehicle occupant on the berth while the vehicle is in motion cannot be restrained. There is a risk of injury, possibly even fatal. Only use the berth when the vehicle is stationary.

WARNING

If a vehicle occupant is on the berth, he or she can fall and become injured. When staying on the berth, always use the safety net.

WARNING

If the berth is not folded up as far as it will go, it may strike you while the vehicle is moving. There is a risk of injury. Always fold the berth up as far as it will go before starting your journey.

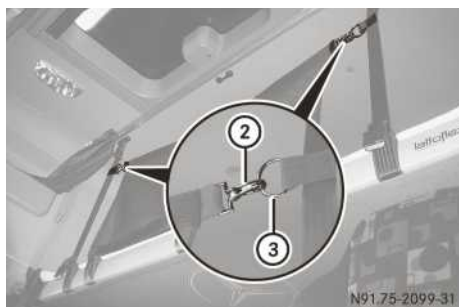
Folding down the berth

- ❗ Make sure that the berth does not hit the seats when you fold it up or down. Swing or fold the backrests of the driver's and co-driver's seats forward or adjust the seats further forward. The berth can otherwise hit the seats and damage both components.



- ▶ Fold the backrest on the driver's and co-driver's seat forwards.
- ▶ Slightly raise the berth and hold it in that position.
- ▶ Push release buttons ① on the belt buckles and release the retaining straps.
- ▶ Fold the berth down.

Setting up the safety net



- ▶ When using the berth, hook safety net hooks ② into eyelets ③.

Folding up the berth

- ▶ Fold the berth up and hold it in place.
- ▶ Push the belt tongues of the retaining straps into the buckles until they engage.

Lower berth

Lower berth (extended cab)

Important safety notes

WARNING

A vehicle occupant on the berth while the vehicle is in motion cannot be restrained. There is a risk of injury, possibly even fatal. Only use the berth when the vehicle is stationary.

WARNING

If a vehicle occupant is on the berth, he or she can fall and become injured.

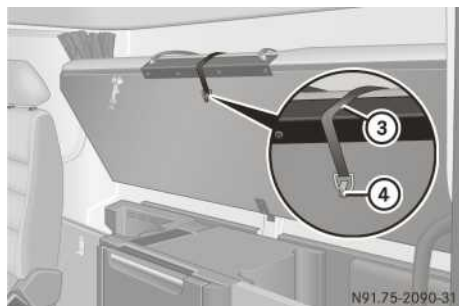
When staying on the berth, always use the safety net.

WARNING

When folding the seat backrest up or down, you or other vehicle occupants could become trapped. There is a risk of injury.

Make sure that the seat backrest swinging range is not obstructed and that no one could become trapped.

Folding up the berth

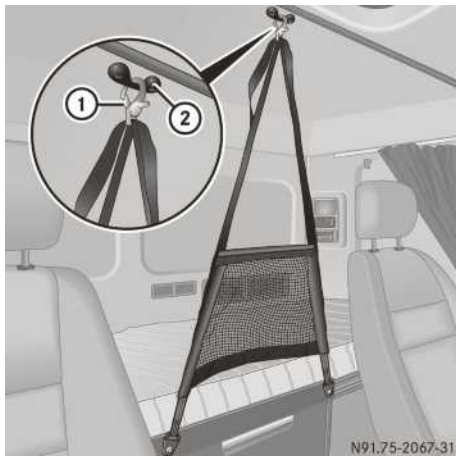


- ▶ Pull retaining band ① down and unhook it from retainer ②.
- ▶ Fold the berth up and hold it in place.
- ▶ Remove retainer belt ③ from the rear panel using the Velcro fastener.
- ▶ Attach retainer belt ③ over the berth and attach it onto hook ④ on the underside of the berth.

Folding down the berth

- ▶ Lift the berth slightly and unhook retaining strap ③ from hook ④ on the underside of the berth.
- ▶ Fold the berth down.
- ▶ Pull retaining band ① down and hook it into retainer ②.
- ▶ Affix retainer belt ③ to the rear panel using the Velcro fastener.

Setting up the safety net



- ▶ Hook safety net hook ① onto eyelet ② on the cab roof.

Lower berth (short cab)

Important safety notes

WARNING

A vehicle occupant on the berth while the vehicle is in motion cannot be restrained. There is a risk of injury, possibly even fatal. Only use the berth when the vehicle is stationary.

Folding down the berth

- !** Make sure that the berth does not hit the seats when you fold it up or down. Swing or fold the backrests of the driver's and co-driver's seats forward or adjust the seats further forward. The berth can otherwise hit the seats and damage both components.



- Move the driver's and co-driver's seats as far forward as possible.
- Fold the driver's seat backrest forward.
- Adjust the co-driver's seat backrest to a vertical position.
- Lift the berth slightly and press release button ① on the belt buckle.
- Release the buckle and fold down the berth.

Folding up the berth

- Fold the berth up and hold it in place.
- Press the seat belt tongue into the buckle until it engages.
- Adjust the driver's and co-driver's seats to the desired position.

Seat/berth combination

Converting the seat cushion into a berth

Important safety notes

WARNING

A vehicle occupant on the berth while the vehicle is in motion cannot be restrained. There is a risk of injury, possibly even fatal. Only use the berth when the vehicle is stationary.

WARNING

If the seat cushion is not locked in the seat position, it could move. The seat belt cannot perform its intended protective function. There is an increased risk of serious or even fatal injuries.

Before beginning the journey, always make sure that the seat cushion is locked in the seat position.

WARNING

When folding the seat backrest up or down, you or other vehicle occupants could become trapped. There is a risk of injury.

Make sure that the seat backrest swinging range is not obstructed and that no one could become trapped.

WARNING

If you do not hold the seat backrest in place when folding it up or down, it will fall down. It could strike a vehicle occupant and cause body parts to become trapped. There is a risk of injury.

Always hold the seat backrest in place when folding it up or down.

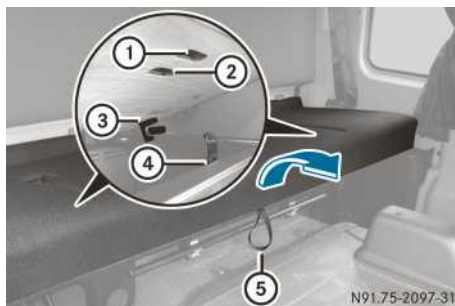
WARNING

When pulling out the seat cushion, you or other vehicle occupants could become trapped between the seat frame and the seat cushion. There is a risk of injury.

When pulling out the seat cushion, make sure that no one is within the sweep range of the seat cushion.

The seat/berth combination is not intended for child restraint systems. Only fit a child restraint system to the co-driver's seat. Observe the safety notes in the "Children in the vehicle" section (► page 36).

Extending the seat cushion



- Pull the seat cushion up and forward by loop ⑤.
- The seat cushion is hooked into guide point ③.
- Hook the seat cushion onto bracket ④ using detent ②.

Resetting the seat cushion

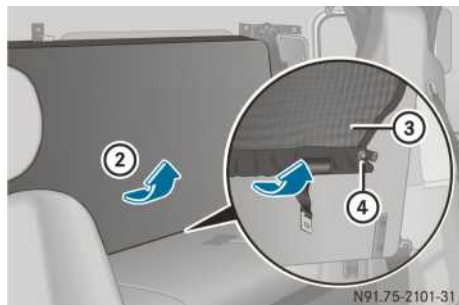
- Lift the seat cushion by loop ⑤ and slide it back.
- Hook the seat cushion onto bracket ④ using detent ①.

Converting the backrest into a berth

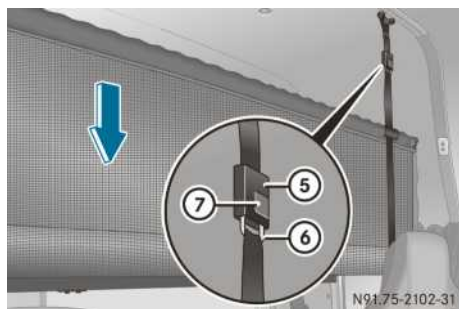
Folding up the seat backrest



Example: left retainer belt



Example: safety net anchorage, left-hand side



Example: left-hand belt buckle

- ▶ Unhook retainer belts ① on the right and left of backrest ②.
- ▶ Swing up backrest ②.
- ▶ Pull locking knobs ④ on the right and left and release safety net ③ from the back of backrest ②.

- ▶ Swing backrest ② to the horizontal position and hold it there.
- ▶ Clip belt tongues ⑥ into place in seat belt buckles ⑤ on the right and left.

Folding down the backrest

- ▶ Lift up backrest ② slightly, hold it in place and press release buttons ⑦ of buckles ⑤ on the left and right.
- ▶ Release retaining straps ①.
- ▶ Swing up backrest ②.
- ▶ Fasten safety net ③ on the back of seat backrest ②.
- ▶ Swing the berth down to the rear panel.
- ▶ Hook retainer belts ① onto the right and left of backrest ②.

Adjusting the steering wheel

⚠ WARNING

You could lose control of the vehicle while driving if you:

- adjust the driver's seat, steering wheel or mirrors
- fasten the seat belt

There is a risk of an accident.

Adjust the driver's seat, head restraint, steering wheel and mirrors and fasten your seat belt before starting the engine.

⚠ WARNING

The steering wheel may move unexpectedly if you adjust it while driving. This could cause you to lose control of the vehicle. There is a risk of an accident.

Make sure that the steering wheel is locked before driving off. Never unlock the steering wheel when the vehicle is in motion.

The steering wheel adjustment mechanism is locked/unlocked pneumatically.



- ▶ Stop the vehicle.
 - ▶ Apply the parking brake.
 - ▶ Press lower section of button ②.
The steering wheel unlocks.
 - ▶ Adjust the steering wheel height and angle.
 - ▶ Press upper section of switch ①.
The steering wheel locks.
- i** The steering wheel locks automatically approximately 10 seconds after it is unlocked.

Mirrors

Adjusting the exterior mirrors

WARNING

You could lose control of the vehicle while driving if you:

- adjust the driver's seat, steering wheel or mirrors
- fasten the seat belt

There is a risk of an accident.

Adjust the driver's seat, head restraint, steering wheel and mirrors and fasten your seat belt before starting the engine.

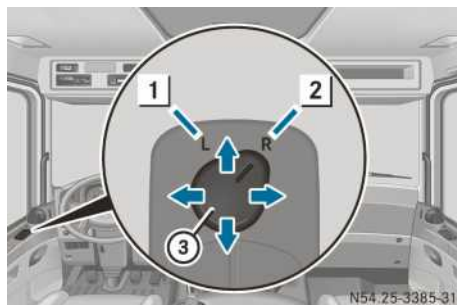
WARNING

The exterior mirrors reduce the size of the image. Objects visible in the mirrors are closer than they appear. You could misjudge the distance from road users driving behind you when changing lanes, for instance. There is a risk of an accident.

You should therefore always look over your shoulder to determine the actual distance from road users driving behind you.

An incorrectly adjusted exterior mirror may impair visibility to the rear. For this reason, always check the position of the exterior mirrors on the vehicle before starting a journey.

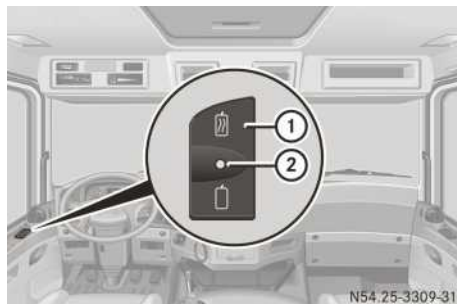
- i** Adjust the starting-off mirror, the kerb mirror and the wide-angle mirror by hand.



- ▶ In the case of extra-wide body types, first push or pull the left and right-hand mirror arm into the desired position.
- ▶ Turn the key to the drive position in the ignition lock.
- ▶ Turn switch ③ to position ① for the left-hand exterior mirror or to position ② for the right-hand exterior mirror.
- ▶ Press switch ③ forwards or backwards, right or left, until the exterior mirror is correctly set.

Switching the mirror heating on/off

In damp or cold weather, use the mirror heating to keep the exterior mirrors demisted and free of ice. The kerb mirror is not heated.



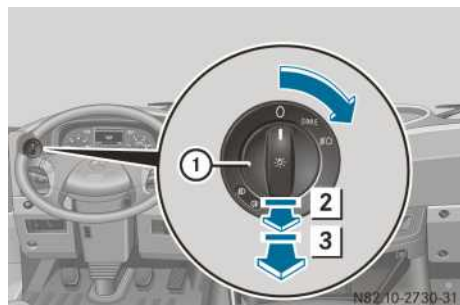
- Turn the key to the drive position in the ignition lock.
- **To activate:** press the upper section of button ①. Indicator lamp ② in the button lights up.
- **To deactivate:** press the lower section of button ①. Indicator lamp ② in the button goes out.

Lighting system

Light switch

Overview

The light switch can be used to switch the vehicle lighting on or off.



- ❗ If you remove the key from the ignition lock and open the driver's door when the vehicle lighting is switched on, a warning buzzer sounds.

Switching on the lights

Side lamps

- Turn light switch ① to the position. The side lamp, the licence plate lighting and the perimeter/side marker lamps are switched on.

Dipped-beam headlamps

The dipped-beam headlamps are asymmetrical. For this reason, in countries where vehicles drive on the opposite side of the road as the country where the vehicle is registered, there is a danger of oncoming traffic being dazzled. Mask the headlamps partially when driving in these countries (► page 68).

- Turn the key to the drive position in the ignition lock.
- Turn light switch ① to the position. The dipped-beam headlamps and side lamps are switched on.

Daytime driving lights

- ❗ In some countries, daytime driving lights are required by law.
- Start the engine.
- Turn light switch ① to the position. The dipped-beam headlamps and side lamps are switched on.

Foglamps and rear foglamps

- Turn the key to the drive position in the ignition lock.
- **To switch on the foglamps:** pull light switch ① out to position ②. The foglamps and the foglamp indicator lamp next to light switch ① light up.
- **To switch on the front and rear foglamps:** pull light switch ① out to position ③. The front foglamps, rear foglamps and the foglamp and rear foglamp indicator lamps next to light switch ① light up.
- ❗ If your vehicle only has rear fog lamps, turn light switch ① to and pull it out one level.

Adjusting the headlamp range

Vehicles with steel-spring suspension:
Adjust the headlamp beam to suit the vehicle load using the headlamp range control.

- ❗ The headlamp range is controlled automatically in vehicles with xenon headlamps.



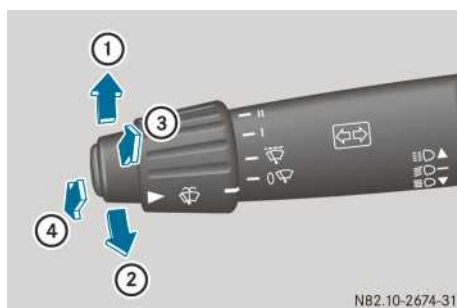
Control settings

- 0 Unladen vehicle (basic setting)
- 1 – 3 Laden vehicle

- Always adjust the headlamp range control so that oncoming traffic is not dazzled.

Combination switch

Overview



Combination switch on the left-hand side of the steering column

- Turn the key to the drive position in the ignition lock.

Main-beam headlamps

- Switch on the dipped-beam headlamps.
- Push the combination switch forwards ④ and engage.
The  indicator lamp in the instrument cluster lights up.

Headlamp flasher

- Briefly pull the combination switch back ③.
The  indicator lamp in the instrument cluster and the main-beam headlamps light up briefly.

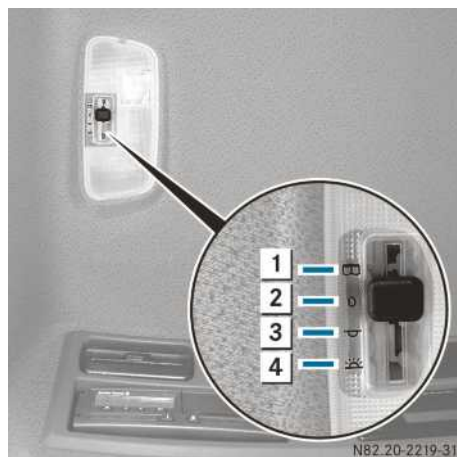
Turn signals

- Press and engage the combination switch in the desired position, indicate right ① or indicate left ②.
The corresponding turn signal lamps and the indicator lamp flash.

The combination switch returns to its original position automatically after large steering movements.

Interior lighting

Switching the interior lighting on/off (low-roof cab)



- 1 Reading lamp switched on
- 2 Interior lighting switched off
- 3 Automatic interior lighting
- 4 Interior lighting switched on

- Slide the switch to the desired position.

- i** If you set the switch to position ③ and open a door, the interior lighting switches on.

Switching the interior lighting on/off (high-roof cab)

Switch above the windscreen

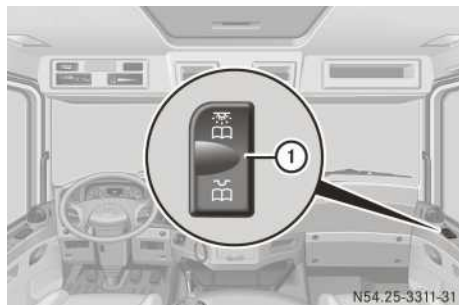


- **To switch on driver's reading lamp:** press the upper section of switch ①.
- **To switch on the nightlight:** press the lower section of switch ①.
- **To switch off the driver's reading lamp/nightlight:** press switch ① to the neutral position.



- **To switch on the interior lighting:** press the upper section of switch ①.
- **Automatic interior lighting:** press the lower section of switch ①. The interior lighting switches on when a door is opened.
- **To switch off the interior lighting:** press switch ① to the neutral position.

Switching the co-driver's reading lamp on/off



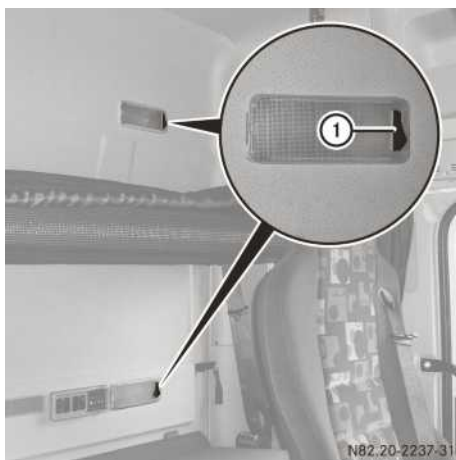
- **To activate:** press the upper section of switch ①.
- **To deactivate:** press the lower section of switch ①.

Switching the reading lamp on/off (side wall)



- **To switch on:** press the lower section of reading lamp ①.
- **To switch off:** press the upper section of reading lamp ①.

Switching the reading lamp on/off (rear wall)



- **To switch on:** press the lower section of switch ①.
- **To switch off:** press the upper section of switch ①.

Notes on replacing bulbs

WARNING

Bulbs, lamps and plug connectors can become very hot during use. When replacing a bulb, you could burn yourself on these components. There is a risk of injury.

Allow these components to cool down before replacing the bulb.

DANGER

Xenon bulbs are under high voltage. You can get an electric shock if you remove the cover of the xenon bulb and touch the electrical contacts. There is a risk of fatal injury.

Never touch the parts or the electrical contacts of the xenon bulb. Always have work on the xenon bulbs carried out at a qualified specialist workshop.

You can ascertain whether your vehicle is equipped with xenon lamps by switching on the engine: the light cone of xenon lamps moves down and then back up again when the engine is switched on. The dipped-beam headlamp must be switched on before the engine is switched on.

Bulbs and lamps are an important aspect of vehicle safety. You must therefore ensure that all bulbs are functioning at all times.

Mercedes-Benz recommends that if a dipped-beam headlamp or main-beam headlamp bulb fails, the corresponding bulb in the other headlamp should be replaced at the same time. Mercedes-Benz recommends that you use Mercedes-Benz longlife bulbs for this purpose.

- To prevent a short-circuit, switch the lighting system off and the ignition lock to position **0** before replacing a bulb.
- Wear eye protection and gloves when removing the defective bulbs.
- Always replace defective bulbs with the specified new bulbs, i.e. those with the correct wattage and voltage.
- Only hold bulbs with a clean, lint-free cloth or a similar item. Do not work with wet or greasy fingers.
- Test the contacts for corrosion and clean them if necessary.
- Check that all seals are positioned correctly, and replace damaged seals.

- If the new bulb does not light up, consult a qualified specialist workshop.
- Have the xenon lamps replaced by a qualified specialist workshop.

Replacing bulbs

General notes

- ▶ Carry several bulbs in the vehicle for use in an emergency.
- ▶ Switch off the lighting system before replacing bulbs to prevent a short circuit.
- ▶ Only touch new bulbs with a clean, lint-free cloth – never with wet or oily fingers.
- ▶ Check contacts for corrosion and clean them if necessary.
- ▶ Check that all seals are sitting correctly.
- ▶ Replace damaged seals.
- ▶ Contact a qualified specialist workshop if the new bulbs do not light.

Overview of bulbs

Front bulbs

Front turn signals	P 21 W24 V
Dipped-beam headlamps (halogen headlamps)	H7 70 W24 V
Main-beam headlamps	H1 70 W24 V
Side lamps	W 5 W24 V
Side turn signals, side marker lamps	P 21/5 W24 V
Front perimeter lamps	R 10 W24 V
Foglamps	H3 70 W24 V

Rear bulbs

Rear turn signals, brake lamp, reversing lamp, rear foglamp	P 21 W24 V
Rear lamps, licence plate lamp, position lamp	R 10 W24 V
Perimeter lamp/side marker lamp	R 10 W24 V

Interior lighting

Roof lighting/interior lighting	P 18 W24 V
Roof lighting/reading lamp	R 10 W24 V
Roof lighting/night-light	W 1.2 W24 V
Reading lamp/berth (festoon lamp)	10 W24 V

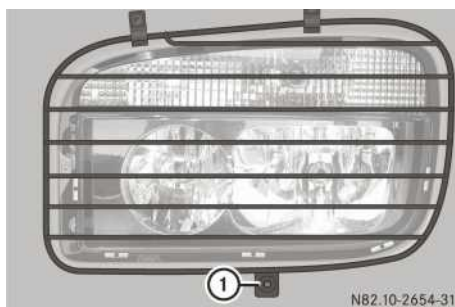
Additional bulbs

Side marker lamp	LED module
Upper working-area lamp	H11 70 W24 V
Lower working-area lamp	H3 70 W24 V
Exit light	W 5 W24 V
Rotating lights	H1 70 W24 V

Front bulbs

Dipped-beam headlamps, main-beam headlamps, side lamps, turn signals

Bulb replacement is described for the left-hand headlamp.



Example: protective grid

- Unscrew screw ① on the protective grid.
- Lift the protective grid upwards.



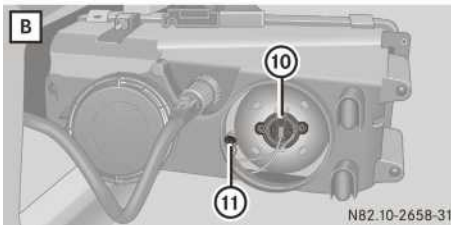
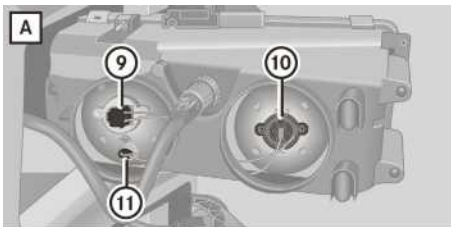
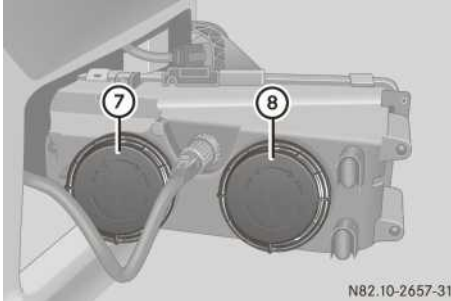
- Unscrew screw ① from front panel ②.
- Swing out front panel ② and remove it.



i Do not turn adjustment screws ⑥. Otherwise, the headlamps will have to be readjusted.

- **Turn signals:** unscrew upper screw ⑤.
- Remove turn signal lamp ③.
- Disconnect the cable connector from turn signal lamp ③.
- Turn the bulb holder anti-clockwise, applying light pressure, and remove it.

- ▶ Turn the bulb anti-clockwise, applying light pressure, and remove it.
- ▶ Insert the new bulb and turn clockwise, applying light pressure.
- ▶ **Dipped-beam headlamps, main-beam headlamps and side lamps:** Unscrew screws ⑤.
- ▶ Swing out headlamp ④ fully.



- A** Halogen headlamps
- B** Xenon headlamps

- ▶ **Dipped-beam headlamps:** unscrew plastic cap ⑦ and remove.
- ▶ Turn bulb ⑨ with the retaining plate anti-clockwise.
- ▶ Remove bulb ⑨ with the retaining plate.
- ▶ Insert the new bulb with the retaining plate and turn clockwise.
- ▶ **Main-beam headlamps:** unscrew plastic cap ⑧ and remove.
- ▶ Pull the connector off bulb ⑩.
- ▶ Unclip the retaining spring.

- ▶ Remove bulb ⑩.
- ▶ Insert the new bulb in such a way that its base fits into the recess of the bulb holder.
- ▶ **Side lamps:** turn plastic cap ⑦ on halogen headlamps or plastic cap ⑧ on xenon headlamps and remove it.
- ▶ Pull out the cable connector with bulb holder ⑪.
- ▶ Pull the bulb out of bulb holder ⑪.
- ▶ Insert the new bulb into bulb holder ⑪.

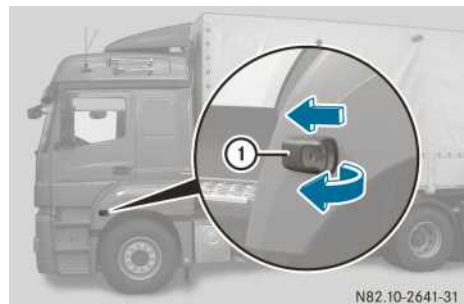
Side turn signal lamp



Example: side turn signal lamp, round

- ▶ Push turn signal lamp ① upwards and fold it out.
- ▶ Turn the bulb holder anti-clockwise, applying light pressure, and remove it.
- ▶ Turn the bulb anti-clockwise, applying light pressure, and remove it.
- ▶ Insert the new bulb and turn clockwise, applying light pressure.

Side turn signals, side marker lamps

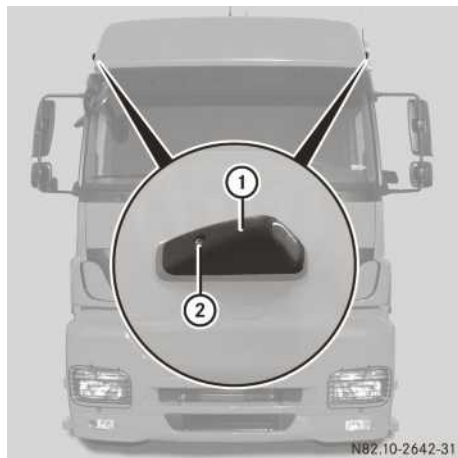


Example: side turn signal lamp, square

- ▶ Push turn signal lamp ① forwards and fold it out.
- ▶ Turn the bulb holder anti-clockwise, applying light pressure, and remove it.
- ▶ Turn the bulb anti-clockwise, applying light pressure, and remove it.
- ▶ Insert the new bulb and turn clockwise, applying light pressure.

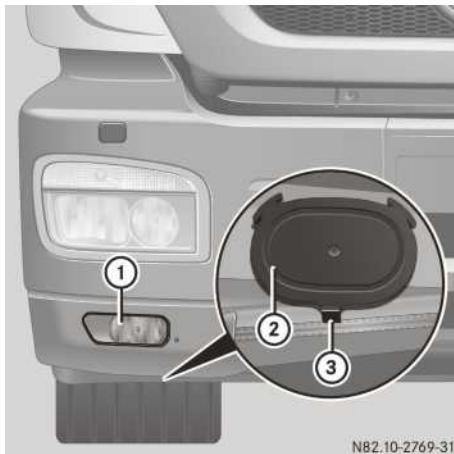
i Depending on the vehicle's equipment, there may be a side marker lamp integrated into the indicator lamp.

Front perimeter lamp



- ▶ Unscrew screw ②.
- ▶ Remove perimeter lamp ①.
- ▶ Turn the bulb anti-clockwise, applying light pressure, and remove it.
- ▶ Insert the new bulb and turn clockwise, applying light pressure.

Foglamps in the bumper



Example: right-hand front foglamp

- ▶ Unclip plastic cap ② under the bumper on retaining lug ③ and remove it.
- ▶ Disconnect the cable connector from front foglamp ①.
- ▶ Unclip the retaining spring.
- ▶ Remove the bulb.
- ▶ Insert the new bulb in such a way that its base fits into the recess of the bulb holder.

Foglamps under the bumper



- ▶ Remove screws ①.
- i** Do not turn adjustment screws ②. Otherwise, the front foglamps will have to be readjusted.

- Remove the reflector unit.
- Disconnect the cable connector from the front foglamp.
- Unclip the retaining spring.
- Remove the bulb.
- Insert the new bulb in such a way that its base fits into the recess of the bulb holder.

Rear bulbs

Tail lamps



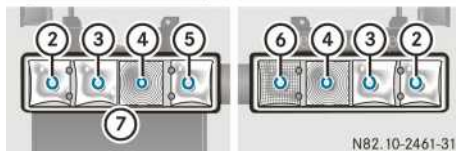
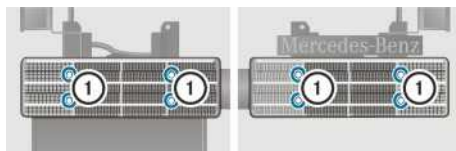
Six-chamber tail lamp, left



Six-chamber tail lamp, right

- ① Screws
 - ② Perimeter lamp/side marker lamp
 - ③ Turn signals
 - ④ Brake lamp
 - ⑤ Tail lamp
 - ⑥ Reversing lamp
 - ⑦ Rear foglamp
 - ⑧ Licence plate lamp
- Remove screws ①.
 - Remove the lamp lens.
 - Turn the bulb anti-clockwise, applying light pressure, and remove it.

- Insert the new bulb and turn clockwise, applying light pressure.
- To replace licence plate light bulb ⑧, pull out the reflector unit.

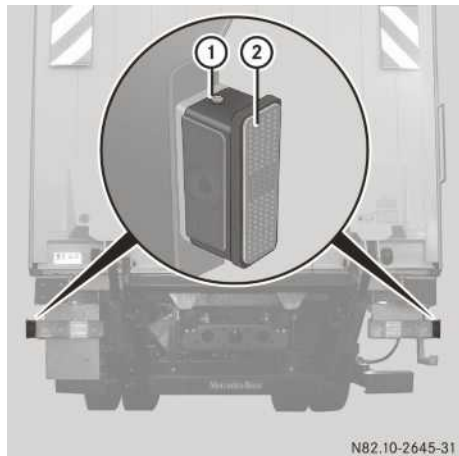


Four-chamber tail lamp

- ① Screws
- ② Turn signals
- ③ Brake lamp
- ④ Tail lamp
- ⑤ Rear foglamp
- ⑥ Reversing lamp
- ⑦ Licence plate lamp

- Remove screws ①.
- Remove the lamp lens.
- Turn the bulb anti-clockwise, applying light pressure, and remove it.
- Insert the new bulb and turn clockwise, applying light pressure.
- To replace licence plate light bulb ⑦, pull out the reflector unit.

Perimeter lamp/side marker lamp



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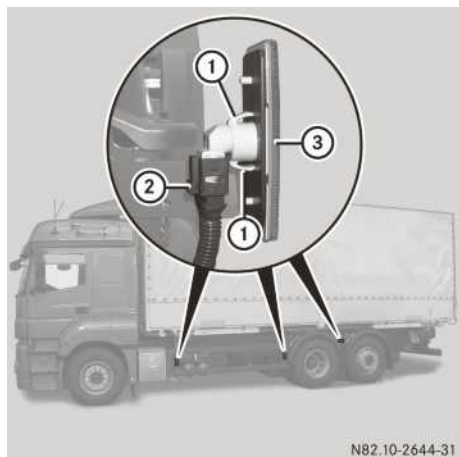
- ▶ Unscrew screw ①.
- ▶ Remove lens with housing ②.
- ▶ Turn the bulb anti-clockwise, applying light pressure, and remove it.
- ▶ Insert the new bulb and turn clockwise, applying light pressure.

Additional bulbs

Side marker lamps

- i** Semitrailer tractor vehicle:

Swing the side panel out before replacing the side marker lamp.



N82.10-2644-31

Example: side marker lamp, left

- ▶ Press the retainer on cable connector ② and hold it.
- ▶ Disconnect cable connector ②.
- ▶ Press retainers ① on side marker lamp ③ together and hold in this position.
- ▶ Replace side marker lamp ③.

Upper working-area lamp



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- ▶ Press securing knobs ① and swing the housing upwards.

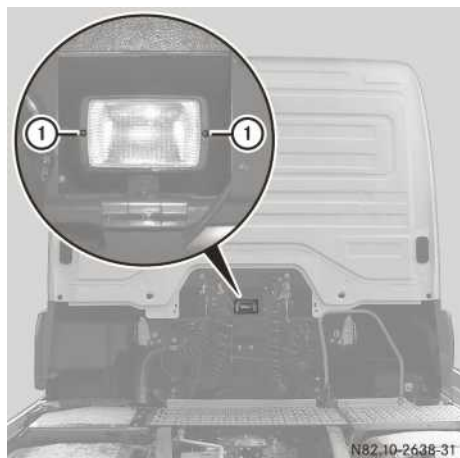


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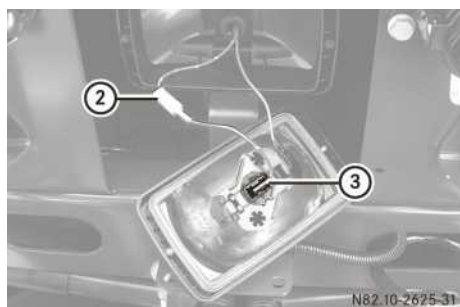
Example: bulb, right

- ▶ Turn bulb ② with cable connector ③ upwards and remove it.
- ▶ Press the retainers on cable connector ③ together and hold in this position.
- ▶ Disconnect cable connector ③.
- ▶ Remove bulb ②.
- ▶ Insert the new bulb in such a way that its base fits into the recess of the bulb holder.

Lower working-area lamp



- Loosen screws ①.
- Remove the reflector with the frame.



- Disconnect cable connector ②.
- Unclip the retaining spring.
- Remove bulb ③.
- Insert the new bulb in such a way that its base fits into the recess of the bulb holder.

Entry lamps, door trim and steps



Example: left entry lamp

- Prise off entry lamp ① with a screwdriver.
- Turn the bulb holder anti-clockwise, applying light pressure, and remove it.
- Turn the bulb anti-clockwise, applying light pressure, and remove it.
- Insert the new bulb and turn clockwise, applying light pressure.

Interior lighting

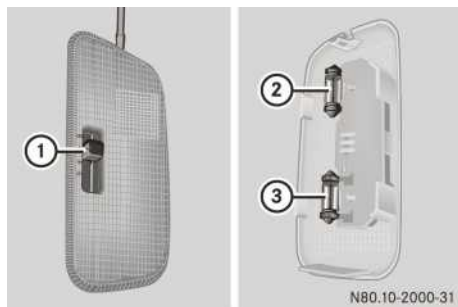


- ▶ Prise off the lamp lens with a screwdriver.
- ▶ Applying light pressure, turn interior lighting bulb ①/reading lamp bulb ③ anti-clockwise and remove.
- ▶ Insert the new bulb and turn clockwise, applying light pressure.

or

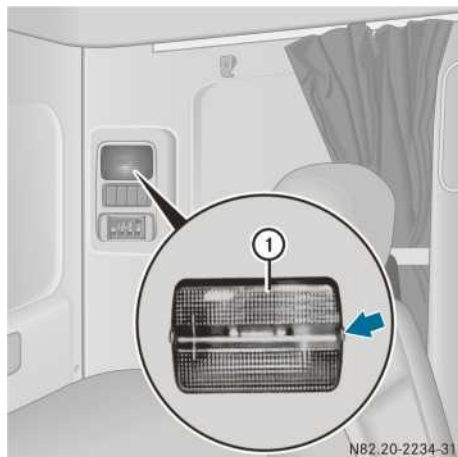
- ▶ Pull the cover off and remove nightlight bulb ②.
- ▶ Insert the new bulb.

Interior lighting in the low-roof cab



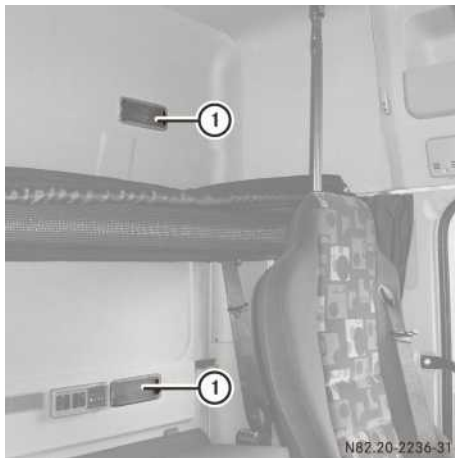
- ▶ Push in the catch springs using a screwdriver and remove lamp lens ①.
- ▶ Remove interior lighting bulb ③/reading lamp bulb ②.
- ▶ Insert the new bulb.

Berth reading lamp



- ▶ Prise lamp lens ① out of the pivot hinge using a screwdriver.
- ▶ Remove the bulb.
- ▶ Insert the new bulb.

Reading lamp, berth rear wall



- ▶ Prise off lens ① with a screwdriver.
- ▶ Turn the bulb anti-clockwise, applying light pressure, and remove it.
- ▶ Insert the new bulb and turn clockwise, applying light pressure.

Partially masking headlamps – driving on the left/right

Switch the headlamps to symmetrical dipped beam when driving in countries where vehicles drive on the opposite side of the road as the country where the vehicle is registered. This prevents oncoming traffic from being dazzled. Symmetrical dipped-beam headlamps do not illuminate as large an area of the edge of the carriageway.

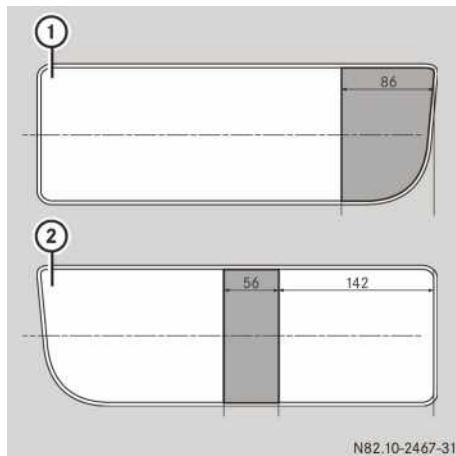
When using the vehicle in other countries, observe the relevant national regulations.

The driver is responsible for the vehicle lighting at all times.

Have xenon headlamps switched over at a qualified specialist workshop as close to the border as possible before crossing into one of these countries. On your return journey, have the xenon headlamps switched back to asymmetri-

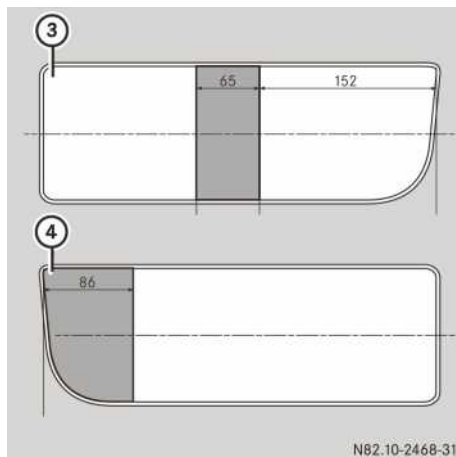
cal dipped beam as close to the border as possible.

Halogen headlamps must be masked in accordance with the following Mercedes-Benz specifications as close to the border as possible before crossing into one of these countries. Use a commercially available opaque adhesive tape. On your return journey, remove the adhesive tape as close to the border as possible.



Headlamp masking surface for left-hand-drive vehicles for use in countries where vehicles drive on the left.

- ① Headlamp left
- ② Headlamp right



Headlamp masking surface for right-hand-drive vehicles for use in countries where vehicles drive on the right.

- ③ Headlamp left
- ④ Headlamp right

- Make masking strips from commercially available opaque adhesive tape, cutting to the size and shape shown in the illustrations.
- Apply to the corresponding area of the headlamp.

Good visibility

Windscreen wipers

Important safety notes

- ❗ Switch off the windscreen wipers before you stop the engine. Otherwise, undesired wiper sweeps could occur when starting the next journey. This may damage the wiper blades or windscreen, especially if the windscreen is dirty or iced up.

Worn or damaged wiper blades result in smearing on the windscreen. This impairs visibility.

Therefore, check the wiper blades on the driver's and co-driver's side regularly and replace worn or damaged wiper blades immediately.

Switching the windscreen wipers on/off



N82.30-2074-31

Combination switch on the left-hand side of the steering column

-  Windscreen wipers off
-  Intermittent wipe
-  Slow wipe
-  Rapid wipe

- **To switch on:** turn the key in the ignition lock to drive position.
- Turn switch ① to the appropriate setting depending on the intensity of the rain.
- **To switch off:** turn switch ① to the  position.
The windscreen wiper sweeps once more.

Intermittent wipe

The interval between 2 consecutive wipes is 4 seconds. You can set this interval to any value between 2 and 20 seconds.

- Turn switch ① to the  position and wait for the first wipe.
- Turn switch ① back to the  position.
- Wait for the desired interval between wipes to elapse, up to a maximum of 20 seconds.
- Turn switch ① to the  position again.
The time which elapses between switching off and switching on again is stored as the new wipe interval.

If the switch is kept in the  position for longer than 20 seconds, the interval between wipes is automatically 4 seconds.

Windscreen washer system



N82.30-2085-31

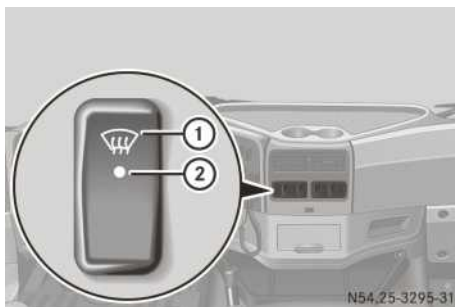
Combination switch on the left-hand side of the steering column

- **Activate:** slide switch ① towards the steering column as far as it will go and hold it.
Washer fluid will be sprayed onto the windscreen as long as switch ① is in this position.

Headlamp cleaning system

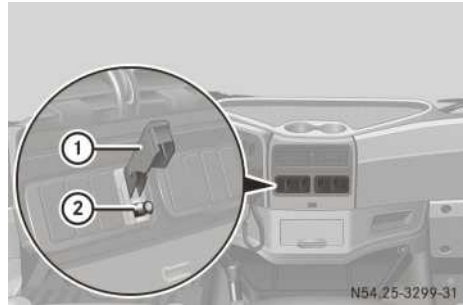
- **To activate:** turn the key to the drive position in the ignition lock.
- Switch on the dipped-beam headlamps (▷ page 58).
- Switch on the windscreen washer system (▷ page 69).
The headlamp cleaning system sprays washer fluid onto the headlamps once.

Windscreen heating



N54.25-3295-31

- **To switch on:** start the engine.
 - Press the upper section of windscreen heating switch ①.
Indicator lamp ② in the switch comes on.
 - **To switch off:** press the lower section of windscreen heating switch ①.
Indicator lamp ② in the switch goes off.
- i** The windscreen heating automatically switches off after 15 minutes or if you switch the engine off.



N54.25-3299-31

Voltage supply

EMERGENCY OFF switch

General notes

In the event of an emergency, interrupt the power supply with the EMERGENCY OFF switch. This prevents short circuits, which could create sparks that might in turn cause a fire or an explosion. Only ADR class EX/III and FL vehicles are equipped with EMERGENCY OFF switches.

Interrupting the voltage supply

WARNING

If the power supply is interrupted with the EMERGENCY OFF switch, the engine is switched off automatically. Safety-relevant functions may therefore be restricted or unavailable, e.g. power steering, lighting system and ABS. The compressed-air supply fails. To steer, you will require considerably more force. The wheels could lock during braking. Also, the spring-loaded parking brake can activate if there is a loss of compressed air and the vehicle may then brake uncontrollably. You could lose control of the vehicle. There is a risk of an accident.

Only use the EMERGENCY OFF switch in hazardous situations, and only when the vehicle is stationary.



N54.25-3332-31

Example: EMERGENCY OFF switch behind the right-hand wheel arch

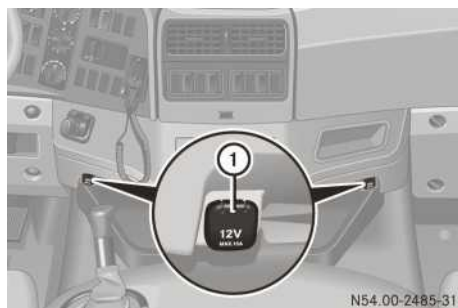
- Swing cover ① upwards.
- Pull out switch pin ② or lift switch pin ③ upwards.
All consumers other than the tachograph are disconnected from the batteries.

Reconnecting the voltage supply

- Turn the key back in the ignition lock as far as it will go.
- Push cover ① down until it engages audibly.
- Turn the key to the drive position in the ignition lock.
The voltage supply is restored to all consumers.

Sockets

Depending on the vehicle's equipment, either 12 V or 24 V sockets may be installed in the centre console.



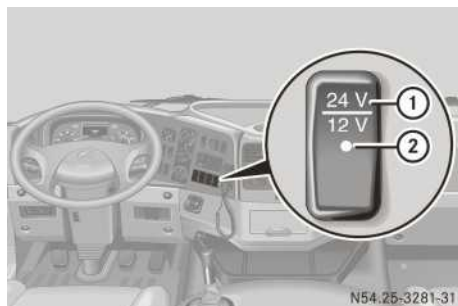
① Example: 12 V sockets

Do not exceed a load of 180 W for each of the 12 V sockets.

Do not exceed a load of 360 W for each of the 24 V sockets.

Voltage transformer

You can use the 24 V/12 V voltage transformer switch to switch all the electrical consumers connected to the 12 V-socket on and off.



- ▶ Press the upper section of voltage transformer switch ①.
The 12 V socket is switched on and indicator lamp ② in the voltage transformer switch lights up.
- ▶ Press the lower section of voltage transformer switch ①.
The 12 V socket is switched off and indicator lamp ② in the voltage transformer switch goes out.

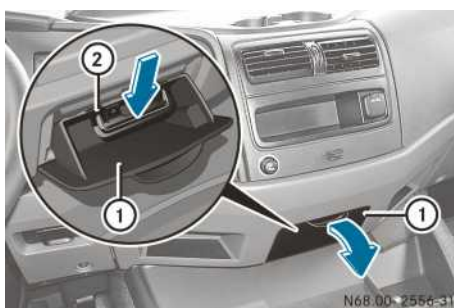
Practical tips

Air horn/horn



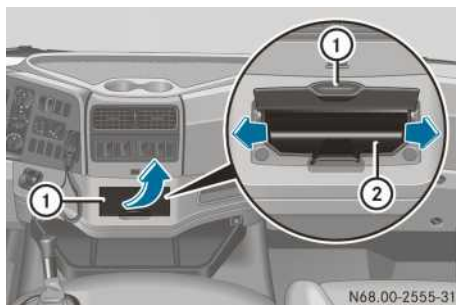
- ▶ **To activate the air horn:** press the upper section of switch ①.
When the horn button on the combination switch is depressed, the air horn sounds.
- ▶ **To deactivate the air horn:** press the lower section of switch ①.
When the horn button on the combination switch is depressed, the horn sounds.

Ashtray



Ashtray in the long-distance/distribution-vehicle cockpit

- ▶ **To open the ashtray:** grasp ashtray ① by the handle strip and open it in the direction of the arrow as far as it will go.
- ▶ **To remove the ashtray:** press release catch ② downwards, hold it down and pull out ashtray ① completely.



Ashtray in the luxury cockpit

- **To open the ashtray:** grasp front panel ① by the grip and pivot it upwards.
- **To remove the ashtray insert:** lift ashtray insert ② sideways and remove it from the bracket.

Cigarette lighter

WARNING

You can burn yourself if you touch the hot heating element or the socket of the cigarette lighter.

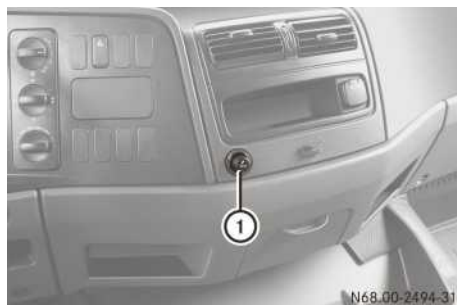
In addition, flammable materials can ignite if:

- the hot cigarette lighter falls
- a child holds the hot cigarette lighter to objects, for example

There is a risk of fire and injury.

Always hold the cigarette lighter by the knob. Always make sure that the cigarette lighter is out of reach of children. Never leave children unattended in the vehicle.

Your attention must always be focused on the traffic conditions. Only use the cigarette lighter when road and traffic conditions permit.



- Turn the key to the radio position in the ignition lock.
- Push cigarette lighter ① in. When the heating element is glowing, the cigarette lighter moves back automatically.

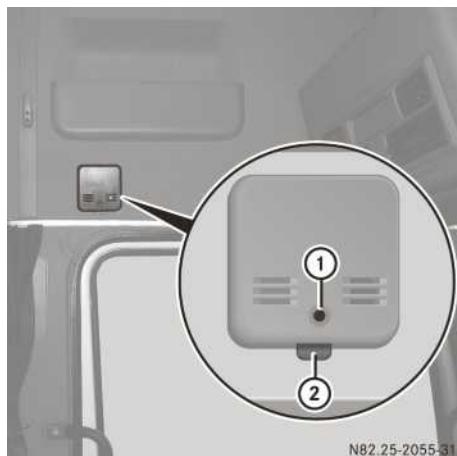
You can also use the 24 V socket with cigarette lighter ① as a power source for electrical devices up to 100 W.

Smoke detector

General notes

The smoke detector warns you of smoke in the cab. The alarm could also be triggered by particles, for example cigarette smoke, dust or exhaust fumes.

The smoke detector is located either above the driver's door or on the cabin ceiling behind the driver.



Smoke detector above the driver's door (example)

Switching off the alarm/temporarily deactivating the smoke detector

- Press the ① button.
The smoke detector is deactivated for approximately 20 minutes and then automatically reactivated.

i A brief tone sounds approximately every 40 seconds while the smoke detector is deactivated.

Smoke detector function test

WARNING

If the battery is discharged or the smoke detector is faulty, it is unable to issue you a warning. There is a risk of fatal injury.

Test the smoke detector regularly. Replace discharged batteries immediately.

Check the smoke detector for functionality once a week.

- Hold down the ① button.
If the smoke detector is working correctly, the alarm sounds. The smoke detector is deactivated for approximately 20 minutes after the button is pressed.

When the battery is empty, a short tone will sound approximately every 40 seconds. You must then replace the battery as soon as possible. Otherwise, the function of the smoke detector is not guaranteed.

Replacing the battery

The smoke detector runs on a 9 V block battery.

- Press release catch ② and remove the smoke detector from the bracket.
- Replace the battery.
- Insert the smoke detector in the bracket.

Stowage spaces and compartments

Important safety notes

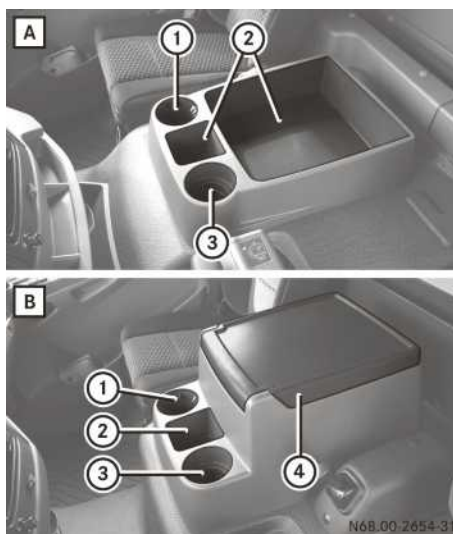
WARNING

If you do not correctly store objects in the vehicle interior, they can slip or be flung around, thus striking vehicle occupants.

There is a risk of injury, especially when braking or abruptly changing directions.

- Always store objects so that they cannot be flung around in these or in similar situations.
- Always make sure that objects do not protrude from stowage compartments, luggage nets or stowage nets.
- Close lockable stowage compartments while driving.
- Stow and secure objects that are heavy, hard, pointy, sharp-edged, fragile or too large in the luggage compartment.

Engine tunnel stowage space



A Stowage space without folding table

B Stowage space with folding table

① Bottle holder

② Stowage spaces

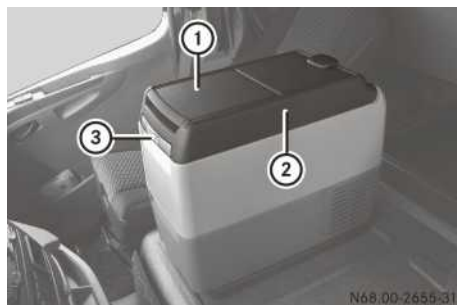
③ Cup holder

④ Lid/folding table

- **To open stowage compartment/pull out folding table:** swing lid/folding table ④ up towards the front.

Coolbox

The coolbox temperature can be regulated from 10 °C to -18 °C.

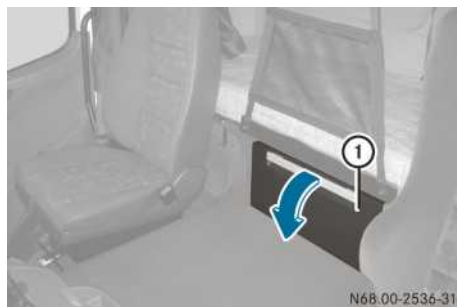


- **To open the drinks compartment:** lift lid ① up.
- **To open the coolbox:** press button ③ and push lid ② back.

Notes on operating and settings for the coolbox can be found in the separate operating instructions.

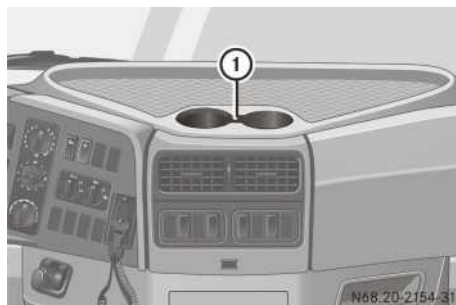
Stowage compartment/coolbox below the berth

The stowage compartment below the berth can also be fitted with a coolbox.



- Swing lid ① downwards by the handle.

Cup holder



① Cup holder

Only place containers that fit into the cup holder. Otherwise, it cannot be guaranteed that they will be held securely while the vehicle is moving; liquids may spill. Close the container, especially if it contains hot liquid.

Communications

Telephone

General notes

⚠ WARNING

Operating the integrated information systems and communications equipment in the vehicle while driving will distract you from traffic conditions. You could then lose control of the vehicle. There is a risk of an accident.

Only operate these devices if road traffic conditions permit. If you are unsure about the surrounding conditions, pull over to a safe location and make entries only while the vehicle is stationary.

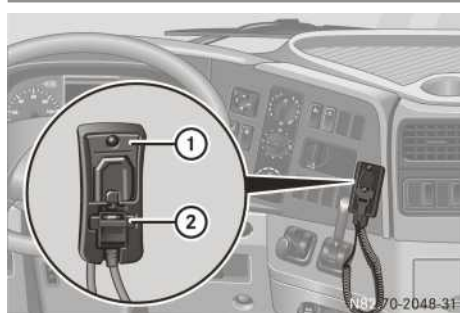
The vehicle can be equipped with a Bluetooth® hands-free system. To operate a Bluetooth® mobile phone with an exterior aerial and charge it in the vehicle, you will require a suitable holder. These are available from retailers of Mercedes-Benz accessories.

The Mercedes-Benz installation specifications must be observed if you subsequently install one of the following communication devices:

- mobile phone
- two-way radio
- fax machine

When using the communications equipment, observe the legal requirements of the country in which you are currently driving.

Connecting the mobile phone to the hands-free system



Example: pre-installation for mobile phone

- Attach the mobile phone bracket to bracket holder ① for the hands-free system.
- ❗ For detailed operating instructions, please see the operating instructions for the pre-installation for the mobile phone. This is supplied with the mobile phone bracket.
- If no mobile phone bracket has been connected, engage plug ② in bracket holder ①.

Useful information

These Operating Instructions describe all the models and standard and optional equipment of your vehicle that were available at the time of going to print. Country-specific differences are possible. Bear in mind that your vehicle may not be equipped with all the functions described. This also applies to safety-relevant systems and functions.

Read the information on qualified specialist workshops (▷ page 22).

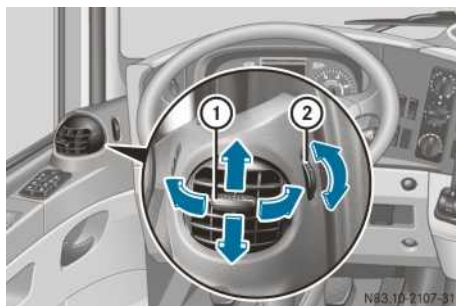
Operating the climate control systems

Air vents

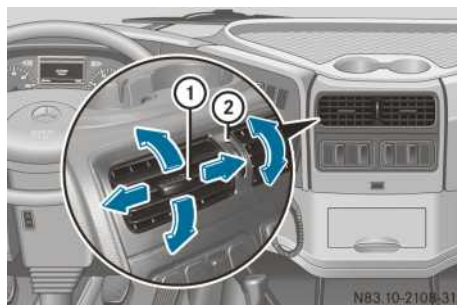
WARNING

Very hot or very cold air can flow from the air vents. This could result in burns or frostbite in the immediate vicinity of the air vents. There is a risk of injury.

Make sure that all vehicle occupants always maintain a sufficient distance to the air outlets. If necessary, redirect the airflow to another area of the vehicle interior.



Side air vent (example: left side)

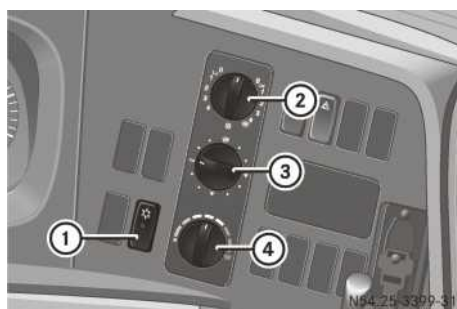


Example: centre air vents

- Keep air vents free of obstruction so that the air can flow through freely.
- **To open:** turn thumbwheel ② upwards.
- **To close:** turn thumbwheel ② downwards.
- **To adjust:** push the air vent to the desired position by handle ①.

Ventilation and heating

Climate control panel



- ① Air-conditioning system switch
- ② Blower switch
- ③ Air-distribution switch
- ④ Temperature control

With the climate control panel, you can regulate:

- the airflow
- the air distribution
- the air temperature

Adjusting the airflow



Blower switch

- ① Air-recirculation mode
- ② Fresh air mode

► Turn the key to the radio position in the ignition lock.

Airflow control settings

- 0 Off
- 1 – 3 Heating/ventilation/cooling
- 4 Demisting/ventilating/cooling

If dust or unpleasant odours enter the vehicle:

- Turn the blower switch to air-recirculation mode ①.
To prevent the windows from misting up, reset the blower to fresh air mode ② as soon as possible.

Setting the air distribution



Air-distribution switch

- Directs air to the windscreen and side windows
- Directs airflow to the windscreen and footwell

- Directs airflow to the footwell as well as the centre and side air vents
- Direct ventilation, centre and side air vents

Selecting the temperature



Temperature control

- ! Operate the temperature selector at least once or twice every month.
This will ensure its operational reliability.
- Turn the temperature selector clockwise to increase or anti-clockwise to reduce the temperature.

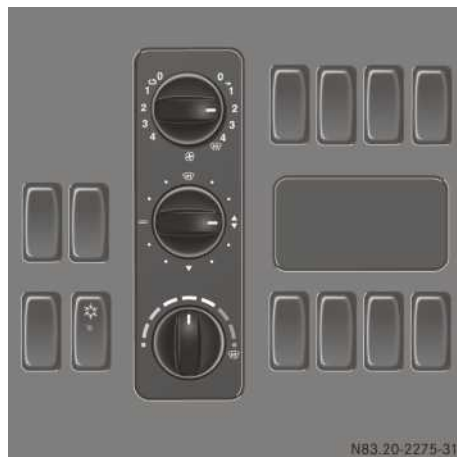
Example settings

Demisting the windscreen



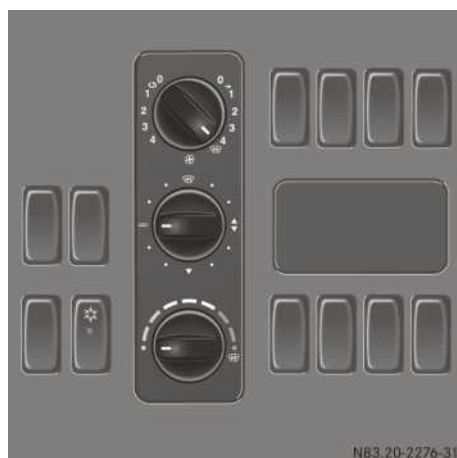
- ▶ Set the climate control panel as shown in the illustration.
- ▶ Close the air vents (▷ page 77).
- ▶ If the engine has not yet reached operating temperature, switch on the auxiliary heating (▷ page 80).

Heating



- ▶ Set the climate control panel as shown in the illustration.
- ▶ Open the air vents (▷ page 77) as desired.
- ▶ If the engine has not yet reached operating temperature, switch on the auxiliary heating (▷ page 80).

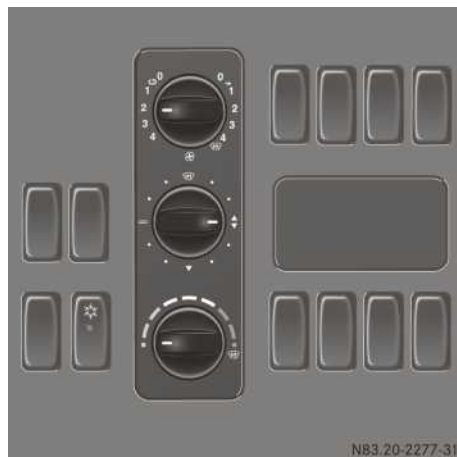
Ventilation



- ▶ Set the climate control panel as shown in the illustration.
- ▶ Open the roof hatch (▷ page 45) or the pop-up roof (▷ page 44).
- ▶ Open the air vents (▷ page 77).

Unpleasant odours

If you switch the air-recirculation mode on, the windscreens may mist up more quickly, especially at low outside temperatures. Only switch the air-recirculation mode on for a short time.



- ▶ Set the climate control panel as shown in the illustration.
- ▶ Close the side windows and the roof hatch (▷ page 45) or pop-up roof (▷ page 44).

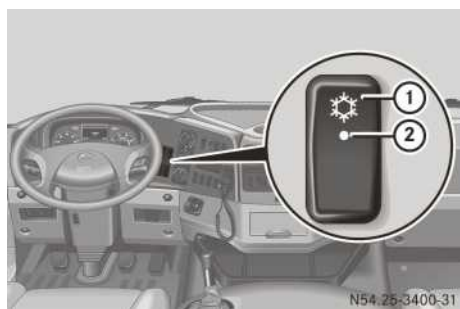
Air-conditioning system

General notes

The air-conditioning system regulates the temperature and humidity of the vehicle interior and filters undesired particles out of the air.

If you deactivate the air conditioning, the air inside the vehicle will not be cooled (in warm weather) or dehumidified. Therefore, only deactivate the air conditioning briefly. The windows may otherwise mist up more quickly.

If the outside temperature is very high, turn the blower switch to air-recirculation mode (▷ page 77). If the windows mist up, set the blower switch back to fresh air mode.



! Turn on the air-conditioning system at least once a month for approximately 10 minutes. The refrigerant compressor may otherwise be damaged.

- ▶ **To switch on the air-conditioning system:** start the engine.
- ▶ Press the upper section of air-conditioning system switch ①. Indicator lamp ② in the switch comes on.
- ▶ **To set the temperature:** turn the temperature control to the desired temperature.
- ▶ **To switch off the air-conditioning system:** press the lower section of air-conditioning system switch ①. Indicator lamp ② in the switch goes out.

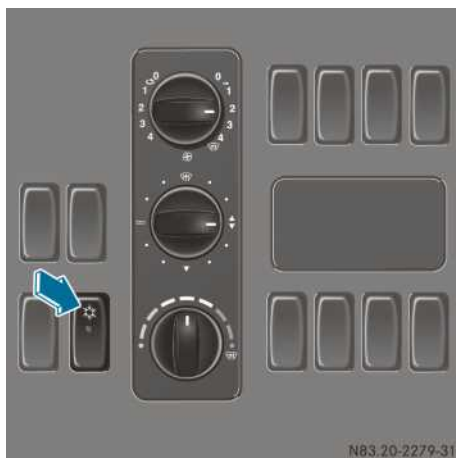
Example settings

Cooling



- ▶ Set the climate control panel as shown in the illustration.
- Cooling in air-recirculation mode is shown in the example settings. Only use air-recirculation mode briefly for rapid cooling or at very high outside temperatures. If you use air-recirculation mode as a permanent setting, this can lead to a lack of oxygen in the cab. Set fresh air mode to continuous operation.
- ▶ Switch on the air-conditioning system.
- ▶ Close the roof hatch or the pop-up roof.
- ▶ Open the air vents as desired.

Dehumidifying



- ▶ Set the climate control panel as shown in the illustration.
- ▶ Switch on the air-conditioning system.
- ▶ Close the roof hatch or the pop-up roof.
- ▶ Close the air vents.

Auxiliary heating

Important safety notes

DANGER

If the exhaust pipe is blocked or sufficient ventilation is not possible, toxic exhaust fumes may enter the vehicle, especially carbon monoxide. This is the case in enclosed spaces or if the vehicle is stuck in snow, for example. There is a risk of fatal injuries.

Switch off the auxiliary heating in enclosed spaces without extraction systems, e.g. in a garage. If the vehicle is stuck in snow and you have to leave the auxiliary heating running, keep the exhaust pipe and the area around the vehicle clear of snow. To guarantee a sufficient supply of fresh air, open a window on the side of the vehicle away from the wind.

WARNING

When the auxiliary heating is switched on, very hot air can flow from the vent on the rear of the driver's seat base. There is a risk of burns in the immediate proximity of the vent. There is a risk of injury.

Always make sure that vehicle occupants remain a safe distance from the vent.

When transporting hazardous goods, always observe the relevant safety regulations. Keep objects a safe distance away from the vent of the auxiliary heating.

The auxiliary heating system operates independently of the engine and complements the vehicle heating.

Your vehicle is equipped with either a hot-water auxiliary heater or a hot-air auxiliary heater.

You can switch the auxiliary heating on/off either by using the auxiliary heating switch or by using the timer.

You can use the auxiliary heating to:

- preheat the vehicle interior and defrost the windows
- better start the engine in cold conditions (hot-water auxiliary heater only)
- heat up the coolant. This reduces the load on the engine and saves fuel (hot-water auxiliary heater only)
- support the vehicle's heating system while the engine is running and outside temperatures are low

Mandatory switch-off

Vehicles transporting hazardous goods: you must switch off the heater before entering a hazardous area (e.g. a refinery).

The heater automatically switches off if you switch off the engine or engage a power take-off.

The combustion air blower then runs on for a maximum of 40 seconds.

! When the auxiliary heating is running, only use the EMERGENCY-OFF switch if danger threatens. If the heater is switched off without a run-on period, it may be damaged.

Fuels

! If the auxiliary heating has not been used for an extended period, exposure to heat and condensation can lead to deposits forming in the auxiliary heating fuel system. These deposits can cause the auxiliary heating to malfunction. Have the auxiliary heating checked and repaired at a qualified specialist workshop before using it again.

! Switch on the auxiliary heating at least once a month for approximately 10 minutes. Otherwise, the auxiliary heating could be damaged.

! Operate the auxiliary heating only using conventional diesel fuel. Operation with 100 % fatty acid methyl ester (FAME) fuel or diesel fuel with an added quantity of more than 10 % fatty acid methyl ester (FAME) fuel results in malfunctions and is therefore not permitted. An additional fuel tank for conventional diesel fuel is required for the auxiliary heating system, if you operate the vehicle:

- using fatty acid methyl ester (FAME) fuel
- using conventional diesel fuel with the addition of more than 10 % fatty acid methyl ester (FAME) fuel

Air distribution and temperature

Only for vehicles with a hot-water auxiliary heater.

- Turn the temperature control to the  position.
- Adjust the air-distribution switch and the air vents as desired.
- Adjust the blower switch as required while driving.

i If immediate or preselected heating mode is active, the blower is set at least to level 1.

Operation using the switch



Example: switch unit on the sidewall above the berth

- **To switch on the auxiliary heating:** press the upper section of switch ①.
The auxiliary heating heats or ventilates to the temperature that you have set.
- **To switch off the auxiliary heating:** press the lower section of auxiliary heating switch ①.
The auxiliary heating operates for approximately another 3 minutes and then switches off automatically.

Operation using the timer

DANGER

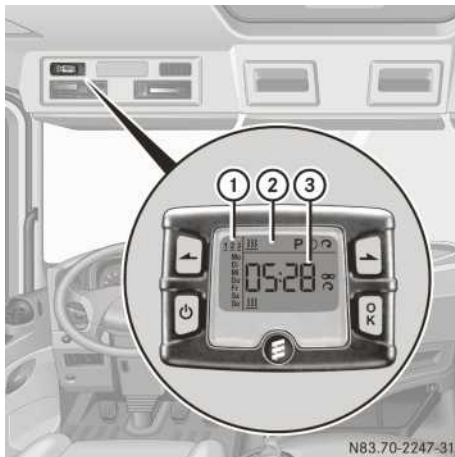
If you have preselected a switch-on time, the auxiliary heating system switches on automatically.

- Toxic exhaust fumes may accumulate if there is insufficient ventilation, carbon monoxide in particular. This is the case in enclosed spaces, for example. There is a risk of fatal injuries.
- There is a risk of fire and explosion if there are highly flammable materials or flammable materials nearby!

If you park the vehicle in these or similar conditions, always deactivate the preselected switch-on times.

Using the timer, you can:

- activate/deactivate immediate heating mode
- set up to 3 programmed times
- set the operating duration from 10 to 120 minutes or to continuous operation
- set the heating level



Activating the timer

- Press and hold the  button until menu bar ② and the time appear in the display.

On vehicles with a hot-water auxiliary heater, the timer can display either the time or the temperature in the vehicle interior. The display switches every time you press the  button. The timer switches to idle mode after 10 seconds. The display goes off.

When the timer switches to idle mode, any settings not stored are lost.

Setting the weekday, time and operating duration

When switching on the auxiliary heating for the first time following a malfunction, you will need to set the time and day.

You can find further information on malfunctions under "Problems with the auxiliary heating" (▷ page 84).

- Activate the timer.
- Press the  or  button until the  symbol flashes in menu bar ②.
- Press the  button.
The selected day flashes in program column ①.

- ▶ Press the  or  button to set the desired weekday.
- ▶ Press the **OK** button.
The day selected is stored. The hour setting flashes in display panel ③.
- ▶ Adjust the hour and then the minute setting in the same way as the day.
- ▶ Press the **OK** button.
The time is stored. Program column ① is hidden and the operating duration flashes in display panel ③.
- ❗ The operating duration set becomes the default setting for the immediate heating mode. Set the operating duration from 10 to 120 minutes or to continuous operation.
- ▶ Using the  or  button, set the minute value or select the  symbol for continuous operation.
- ▶ Press the **OK** button.
The operating duration is stored and the time appears in display panel ③.

Setting the heating level

You can set the heating level to between 10 and 30 (hot-air auxiliary heater) or to between 8 and 36 (hot-water auxiliary heater). If you set the heating level to 8 on the hot-water auxiliary heater, the vehicle interior will be heated to 8 °C. Once the temperature has been reached, only the engine is preheated.

- ❗ The heating level corresponds to a preselection temperature for the vehicle interior. This is a guide value and may, depending on the outside temperature, differ from the actual vehicle interior temperature.
- ▶ Activate the timer.
- ▶ Press the  or  button until the  symbol flashes in menu bar ②.
- ▶ Press the **OK** button.
The heating level flashes in display panel ③.
- ▶ Set the desired heating level using the  or  button.
- ▶ Press the **OK** button.

Immediate heating mode

- ▶ **To switch on:** activate the timer.
- ▶ Press the  or  button until the  symbol flashes in menu bar ②.

- ▶ Press the **OK** button.
The  symbol appears and the operating duration flashes in display panel ③.
- ▶ Set the operating duration.
The temperature level is shown in display panel ③.
- ▶ **To switch off:** press the  or  button until the  symbol flashes in menu bar ②.
- ▶ Press the **OK** button.
The  symbol is no longer shown in display panel ③.
The auxiliary heating operates for about another three minutes and then switches off automatically.

Preselected heating mode

- ❗ Preselected heating mode is only available in vehicles not designed for transporting hazardous goods.

You can set 3 preselection times using the timer.

When setting the preselection time, make sure that it does not correspond to the switch-on time but to the switch-off or departure time. The auxiliary heating system starts up automatically prior to departure and runs for the set operating duration.

Example: for a planned departure time of 7:00 a.m., you should also set the programmed time to 7:00 a.m. If the operating duration is preset to 40 minutes, for example, the auxiliary heating starts up at 6:20 a.m.

- ❗ If identical preselection times (time and weekday) are set in the preselection memory, only the last preselection time set is saved.

When switching on the auxiliary heating for the first time following a malfunction/interruption in the power supply, you will need to set the preselection times again. You can find further information on malfunctions under "Problems with the auxiliary heating" (> page 84).

- ▶ **To set the switch-on time:** activate the timer.
- ▶ Press the  or  button until the **P** symbol flashes in menu bar ②.
- ▶ Press the **OK** button.
The  preselection memory numbers appear in program column ①. The selected preselection memory flashes.

- ▶ Press the  or  button to select the desired preselection memory.
 - ▶ Press the **OK** button.
The preselection memory is selected. The weekdays are shown.
 - ▶ Set the weekday and time as described in the "Setting the weekday, time and operating duration" section (▷ page 82).
The preselection time is stored. Program column ① disappears. The **On** message and the  symbol appear in display panel ③.
 - ▶ Press the **OK** button.
The operating duration flashes in display panel ③.
 - ▶ Set the operating duration (▷ page 82).
The operating duration for the programmed time is saved. The time and number of the selected preselection memory are shown.
- i** The preselection memory that will be activated next is underlined. Additionally, the weekday that is set appears.
 - ▶ **To deactivate the switch-on time:** proceed as described in the "Setting the switch-on time" section.
 - ▶ When the  symbol is shown in display panel ③, press the  or  button repeatedly until **Off** appears.
 - ▶ Press the **OK** button.
The programmed time is deactivated and the time appears in display panel ③.

Problems with the auxiliary heating

Problem	Possible causes/consequences and ► Solutions
The ini message appears in the timer display panel or the time is flashing.	The on-board voltage has been interrupted. All stored settings are deleted. Automatic hardware recognition is currently active. ▶ Once automatic hardware recognition is complete, set the week day, time and operating duration. ▶ Set the programmed time.
The auxiliary heating cannot be switched on or is switched off automatically.	There is not enough fuel in the fuel tank. ▶ Refuel (▷ page 189). ▶ Switch on the auxiliary heating several times until the fuel lines are filled. ▶ If the auxiliary heating cannot be switched on, have the auxiliary heating repaired at a qualified specialist workshop.
The hot-water auxiliary heater cannot be switched on or is switched off automatically.	The coolant level is too low. ▶ Top up the coolant (▷ page 211). ▶ If the auxiliary heating cannot be switched on, have the auxiliary heating repaired at a qualified specialist workshop.

Problem	Possible causes/consequences and ► Solutions
The hot-air auxiliary heater cannot be switched on or is switched off automatically.	The air ducts are blocked. ► Make sure that the flow of hot air is not blocked. ► Have the auxiliary heating checked at a qualified specialist workshop.
Hot-air auxiliary heater: the Err message appears in the timer display panel.	A malfunction has occurred. ► Have the auxiliary heating checked at a qualified specialist workshop.

Useful information

These Operating Instructions describe all the models and standard and optional equipment of your vehicle that were available at the time of going to print. Country-specific differences are possible. Bear in mind that your vehicle may not be equipped with all the functions described. This also applies to safety-relevant systems and functions.

Read the information on qualified specialist workshops (▷ page 22).

Instrument cluster

Important safety notes

WARNING

If you are driving and reach through the steering wheel to operate the adjustment knob, you could lose control of the vehicle. There is a risk of an accident and injury.

Only operate the adjustment knobs when the vehicle is stationary. Do not reach through the steering wheel when driving.

WARNING

Operating the integrated information systems and communications equipment in the vehicle while driving will distract you from traffic conditions. You could then lose control of the vehicle. There is a risk of an accident.

Only operate these devices if road traffic conditions permit. If you are unsure about the surrounding conditions, pull over to a safe location and make entries only while the vehicle is stationary.

WARNING

If the instrument cluster has failed or malfunctioned, you may not recognise function restrictions relevant to safety. The operating safety of your vehicle may be impaired. There is a risk of an accident.

Drive on carefully. Have the vehicle checked at a qualified specialist workshop immediately.

The on-board computer only shows messages or warnings from certain systems in the display. You should therefore make sure your vehicle is operating safely at all times. Otherwise, you could cause an accident by driving an unsafe vehicle. If your vehicle is not operating safely, stop immediately, paying attention to the road and traffic conditions.

Observe the legal requirements for the country you are currently in while operating the instrument cluster.

Rev counter

Overview

The rev counter shows the engine speed.

The scale is divided into 3 engine speed ranges.



Example: rev counter

- ① Economical speed range (green)
- ② Engine brake operating range (yellow)
- ③ Overrevving range, danger of engine damage (red)
- ④ Ecometer (green LED strip)

! If you exceed the maximum permissible engine speed, the warning buzzer sounds. You should not drive and change gear by the sound of the engine, but according to the engine speed shown in the rev counter. Avoid driving in the red overrevving range. This could lead to engine damage.

Observe the rev counter while driving and stay within economical speed range ①.

When driving downhill, make sure that the engine speed does not rise into red overrevving range ③.

Idling speed is set automatically depending on the coolant temperature.

You can set the idling speed (▷ page 166).

Economical engine speed range

Drive in the economical speed range. Doing so will help you achieve low fuel consumption and low wear.

In some situations it may make sense to operate the engine outside the economical engine speed range, e.g. on uphill gradients or when overtaking.

Ecometer

The ecometer indicates the engine speed range with low fuel consumption and is active above speeds of 20 km/h.

When driving at a more or less constant road speed, the ecometer lights up if the engine speed range and the selected gear are not economically favourable.

The ecometer does not light up if the engine speed remains in the economic range or the transmission is switched to automatic mode. The ecometer goes out if you:

- keep the engine speed within the indicated rev range for 2 seconds
- run the engine at high load
- depress the clutch pedal for longer than 5 seconds
- keep the transmission in the neutral position for longer than 5 seconds

Fuel/AdBlue® gauge

Checking the fuel and AdBlue® levels



- ▶ Turn the key to the drive position in the ignition lock.
- ▶ Check the AdBlue® level on AdBlue® gauge ①.
- ▶ Check the fuel level on fuel gauge ②.

Fuel gauge

If the fuel level drops to about 14 %, the display shows . At the same time, the status indicator will light up in yellow.

AdBlue® gauge

The AdBlue® reducing agent is required for reduction of engine emissions.

AdBlue gauge ① provides only an approximate indication of the AdBlue level. 4 blue segments in the instrument cluster show the AdBlue® level.

- If 1 segment lights up, the AdBlue® level in the AdBlue® tank is between reserve and ¼ full.
- If 2 segments light up, the AdBlue® level in the AdBlue® tank is between ¼ and ½ full.
- If 3 segments light up, the AdBlue® level in the AdBlue® tank is between ½ and ¾ full.
- If 4 segments light up, the AdBlue® level in the AdBlue® tank is between ¾ and full.

i You can check the AdBlue® level in litres in the on-board computer (▷ page 94).

AdBlue® level sufficient

Segments	At least 1 segment lights up.
Display	–
Indicator lamp	–

AdBlue® reserve level

Segments	No segments are lit.
Display	Top up with AdBlue
Indicator lamp	–

AdBlue® used up

Segments	No segments are lit.
----------	----------------------

Display	 Top up with AdBlue
---------	--

Indicator lamp	
----------------	---

Outside temperature/coolant temperature

You should pay special attention to road conditions when temperatures are around the freezing point.

There is a delay in displaying a change in outside temperature.

The rev counter display can show either the outside temperature or the coolant temperature. Depending on the country of delivery, the display shows the temperature in Celsius (°C) or Fahrenheit (°F).

The unit of measurement for temperature can be changed in the **Settings** menu of the on-board computer (▷ page 97).

- Turn the key to the drive position in the ignition lock.
The display shows the outside temperature.

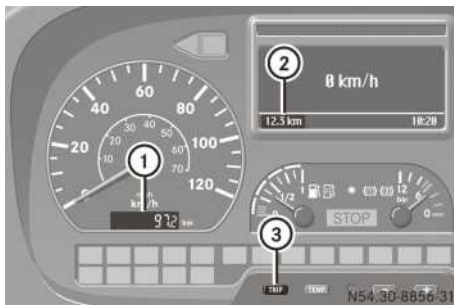


- If the outside temperature is shown, press selector button ②.
Display ① shows the coolant temperature.
- Press selector button ② again.
Display ① shows the outside temperature.

If the coolant temperature is too high, the display automatically shows the coolant temperature. The display also shows a message.

Odometer**Resetting the trip meter**

- Turn the key to the drive position in the ignition lock.



- ① Total distance recorder
- ② Trip meter
- ③ To reset the trip meter

- Press TRIP button ③ for approximately 2 seconds.
Trip meter ② is reset.

Brake circuit reservoir pressure**⚠ WARNING**

It is not possible to brake the vehicle if the compressed-air brake system has a leak or if there is insufficient reservoir pressure. There is a risk of an accident.

Do not pull away until the required reservoir pressures have been reached.

In the event of loss of pressure while driving, immediately bring the vehicle to a halt in accordance with the traffic conditions.

Secure the vehicle using the parking brake. Have the compressed-air system repaired at a qualified specialist workshop.

A reservoir pressure of at least 10 bar is required in the pressure circuits of the brake system in order to ensure the operational safety of the vehicle. The auxiliary consumer circuit is only filled after brake circuits 1 and 2 have been filled.

- Turn the key to the drive position in the ignition lock.



The brake circuit with the lower reservoir pressure is automatically shown by indicator lamp ① or ②. The pressure in this brake circuit appears on display ③.

- ① The reservoir pressure of both brake circuits can be shown in the **Monitoring info > Supply pressure** menu (▷ page 94).

On-board computer

Important safety notes

⚠ WARNING

Operating the integrated information systems and communications equipment in the vehicle while driving will distract you from traffic conditions. You could then lose control of the vehicle. There is a risk of an accident.

Only operate these devices if road traffic conditions permit. If you are unsure about the surrounding conditions, pull over to a safe location and make entries only while the vehicle is stationary.

⚠ WARNING

If you are driving and reach through the steering wheel to operate the adjustment knob, you could lose control of the vehicle. There is a risk of an accident and injury.

Only operate the adjustment knobs when the vehicle is stationary. Do not reach through the steering wheel when driving.

⚠ WARNING

If the instrument cluster has failed or malfunctioned, you may not recognise function

restrictions relevant to safety. The operating safety of your vehicle may be impaired. There is a risk of an accident.

Drive on carefully. Have the vehicle checked at a qualified specialist workshop immediately.

Observe the legal requirements for the country you are currently in while operating the on-board computer.

The on-board computer only shows messages or warnings from certain systems in the display. You should therefore make sure your vehicle is operating safely at all times. Otherwise, you could cause an accident by driving an unsafe vehicle. If your vehicle is not operating safely, stop immediately, paying attention to the road and traffic conditions.

Layout and operation

General notes

The on-board computer is activated when you turn the key to the drive position in the ignition lock. You can use the on-board computer to call up information about your vehicle and to make settings.

You can operate the on-board computer using the buttons on the multifunction steering wheel and on the instrument cluster.

Operation



① Display

② 

Rejects/ends a call



To start dialling/accept a call/redial/go directly to the telephone menu



Adjusting the volume

- ③ To select the main menu/submenu, to confirm settings



To exit the main menu/submenu, to acknowledge display messages



To scroll up



To scroll down

Display check

- Turn the key to the drive position in the ignition lock.

During the display check:

- the warning buzzer sounds for approximately one second.
- the indicator lamps in the instrument cluster light up for approximately two seconds.
- the ABS equipment is checked.

If ABS equipment is identified, the ABS system is shown in the display for approximately three seconds following the display check.

If the on-board computer detects system malfunctions, the display messages are shown one after the other (> page 98). The status indicator lights up yellow or red.

Departure check routine

If there are no display messages with a red status indicator, the departure check begins after the display check.

During the departure check, the on-board computer checks the following functions:

- oil level
- coolant level
- condition of the brake pads
- washer fluid level
- condition of the air filter
- condition of the bulbs



Example display

- ① Function
② Condition:

OK ✓

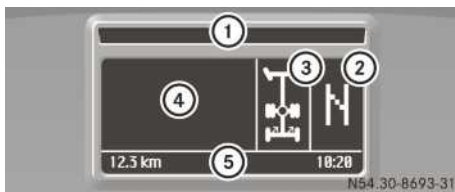
Not OK !

- ③ Function name or [Check complete](#)

Once the departure check is complete and there are no malfunctions, the display shows the basic display (> page 91).

Display fields

The display panels shown depend on the equipment installed and the functions being used. Display messages and malfunctions are displayed one after another according to their significance.



Example display

- ① Status indicator
② Gear indicator
③ Display for differential locks, power take-offs and additional axle
④ Display messages, system abbreviation, malfunction symbol and fault location field
⑤ Information display field

Status indicator

To indicate the significance of display messages, certain segments in status display ① light up yellow or red.

Notes on display messages with a yellow or red status indicator can be found in the "Notes on display messages" section (> page 98).

Display messages

Display messages are operating information, warnings or faults which are shown automatically in the display (> page 101).

System abbreviation, malfunction symbol and fault location

If a display message is shown, the following additional information may be displayed:

- the system abbreviation of the affected control unit
- a malfunction symbol, e.g. for excessive coolant temperature
- the fault location, e.g. the tractor vehicle

Notes on system abbreviations can be found in the "Electronic system abbreviations" section (▷ page 100).

information display

The display can show the following information in field ⑤:

- the time
- the alarm symbol (for when the alarm clock is activated)
- the speed for the  speed limiter/  cruise control
- the trip meter

Menus in detail

General notes

The number and order of the menus depends on the type of vehicle and its equipment. The values stated are examples.

- ▶ Turn the key to the drive position in the ignition lock.
Once the display check and departure check are complete, the display shows the most recently viewed start-up menu.

Start-up menu

Depending on the vehicle equipment, the start-up menu contains the following displays:

- basic display with speed
- date
- audio equipment
- navigation
- telephone
- trip computer
- ▶ Use the  or  button on the steering wheel to select the desired display.

Basic display



- ① Speed
- ② Time
- ③ Trip meter

Audio equipment

Adjusting the volume

Use the buttons on the multifunction steering wheel.

▶ 	The volume increases.
▶ 	The volume decreases.

Operating the radio

- ▶ Switch on the audio equipment.
- ▶ Select the radio; see the separate operating instructions.

i In the **Settings** menu, you can set how the radio changes station (▷ page 97).

Store new stations using the radio.

You can also operate the radio as normal.

Use the buttons on the multifunction steering wheel.

▶  	
▶ 	Arrow buttons on the steering wheel activated
▶  	Station search or memory

If the **Station search** function is active, the radio will find the next available station on the selected waveband.

If the **Memory** function is active, the radio switches to the previous or next station preset.

Operating the CD player

- ▶ Switch on the audio equipment.
- ▶ Select the CD player; see the separate operating instructions.

Use the buttons on the multifunction steering wheel.

▶  	
▶ 	Arrow buttons on the steering wheel activated
▶ 	Changes to the next track
▶ 	Changes to the preceding track

Navigation

If you select the navigation system, the display shows the road name and the distance to the next junction.

Further information on the navigation system can be found in the separate operating instructions.

Telephone

General notes

WARNING

Operating mobile communications equipment while driving distracts you from paying attention to traffic conditions. This could also cause you to lose control of the vehicle. There is a risk of an accident.

Use this device only when the vehicle is stationary.

Observe the legal stipulations of the country you are driving in.

The menu is available on vehicles with:

- CD radio with Bluetooth®
- CD radio Comfort with Bluetooth®
- Bluetooth® CD radio with permanently installed telephone

If you connect a Bluetooth®-capable mobile phone with the CD radio, you can operate the phone via the **Telephone** menu. If you have a CD radio with Bluetooth® with a permanently installed telephone, you can operate the phone via the **Telephone** menu.

- ▶ To switch on the mobile phone; see the manufacturer's operating instructions.
- ▶ To connect a mobile phone with the CD radio; see the manufacturer's operating instructions.

Dialling a number in the phone book

- ▶ Use the ,  or  button on the steering wheel to select the **Telephone** menu.
- ▶ Use the ,  buttons to switch to the phone book.
The display shows **Please wait**. The on-board computer reads the phone book of the mobile phone. This can take up to 30 seconds. When the display goes out, the reading process is finished.
- ▶ Use the  or  button to select the desired name.
The display shows the names in alphabetical order.

i If you press and hold the  or  button, you scroll through alphabetically. If you release the button, the display shows the next available name.

- ▶ Use the  button to start dialling.

Redialling

The on-board computer stores the last dialled name or telephone number in the redialling memory.

- ▶ Use the  button to switch to the redial memory.
- ▶ Use the  or  button to select the desired name or desired number.
- ▶ Use the  button to start dialling.

Adjusting the call volume

- ▶ During a call, use the  or  button to increase or reduce the volume.

Ending a call

- ▶ Press the  button.

Trip computer



- ① Distance covered
- ② Trip time
- ③ Average speed
- ④ Average fuel consumption

- **To reset the trip computer:** press the TRIP button until the values in the trip computer have been reset.

Operating the menus

Calling up the menu

- Press the  or  button on the steering wheel repeatedly until the list of the main menus is displayed.
 - Use the  or  button to call up the desired main menu and the  button to select it.
The display shows a list of submenus or a selected menu item.
 - Use the  or  button to call up the desired submenu and use the  button to access it.
- or
- Use the  or  button to make a selection and the  button to save it.

The sequence of action is shown in this section in a table:

►  	List of the main menus
►   	Select and call up a main menu
►   	Select and call up a submenu/make and save a selection

Exiting the menu

- Press the  button.
The display shows the next-higher menu.
- To reach the basic display, press and hold the  button until the display shows the basic display.

Main menus and submenus

Functions are arranged thematically in the individual main menus.

You can select the following main menus and submenus:

Main menu	Submenu
Monitoring info (▷ page 94)	AdBlue tank
	Social data

Main menu	Submenu
	Supply pressure
	Oil level
	Axle load indicator
	Operating hours
	Trailer ID
Fault info (▷ page 98)	
Alarm(▷ page 95)	Alarm mode:
	Alarm time:
Language (▷ page 96)	
Settings (▷ page 96)	Display locks?
	Time
	Service products
	Arrow buttons in radio mode
	Temperature unit
Service info (▷ page 97)	Engine
	Air cleaner
	Coolant
	Retarder
	Time-based maintenance
	1. General
	Rear axles
	Front axles
	Transfer case
	Transmission
	Brake pad A1
	Brake pad A2
	Brake pad A3

Main menu	Submenu
	Brake pad A4
	Air drier
Diagnostics (▷ page 98)	List of control units: BS, FR...
	Delete all events

Monitoring info menu

Checking the AdBlue® level

▶  	List of the main menus
▶ 	Monitoring info
▶   	AdBlue tank

The display shows the AdBlue® level, for example, 20 l. The AdBlue® level is additionally displayed as a bar graph.

Checking the social data

▶  	List of the main menus
▶ 	Monitoring info
▶   	Social data

The display shows the driving time, e.g.  01:19, and the rest time, e.g.  00:30.

Checking the reservoir pressure in the brake circuits

▶  	List of the main menus
▶ 	Monitoring info
▶   	Supply pressure

The display shows the reservoir pressure in the brake circuits, e.g. 1: 6.3 bar and 2: 6.2 bar. The reservoir pressures are additionally displayed as bar graphs.

- ▶ If a trailer is recognised by the system, use the  or  button to select **Towing vehi-**

cle or **Trailer** and use the  button to call it up.

Checking the engine oil level

Check the engine oil level on a regular basis, e.g. every week or each time you refuel.

- ▶ Park the vehicle on a level surface.
- ▶ Apply the parking brake.
- ▶ Switch off the engine.
- ▶ Turn the key to the drive position in the ignition lock.
- ▶ If the engine is at normal operating temperature: wait approximately one minute.
- ▶ If the engine is cold: wait approximately five to ten minutes.

If you call up the oil level display too soon, this may result in the missing quantity shown being greater than the actual value.

▶  	List of the main menus
▶ 	Monitoring info
▶   	Oil level 0.K.

The display shows, for example, **Oil level 0.K.** or **Oil level 2.5 l** (topping-up quantity).

If it is not possible to display the oil level, a display message is shown.

Repeat the engine oil level check. If it is not possible to display the engine oil level gauge after repeated attempts, have the engine oil level gauge checked at a qualified specialist workshop.

- ▶ If a topping-up quantity is displayed, top up engine oil (▷ page 214).

Checking the axle loads

▶  	List of the main menus
▶ 	Monitoring info
▶   	Axle load indicator

- ▶ If a trailer is recognised by the system, use the  or  button to select **Towing vehi-**

cle or **Trailer** and use the  button to call it up.

The display shows the overall axle load, e.g. **Total axle load 17.3 t**. In addition, the display shows a vehicle symbol with the axle loads of the individual axles.

Further information can be found in the "Axle load measurement facility" section (▷ page 178).

Checking the engine operating hours

▶  	List of the main menus
▶ 	Monitoring info
▶  	Operating hours

The display shows the engine operating hours, e.g. **Operating hours 51 h**.

Checking the semitrailer/trailer identification number

▶  	List of the main menus
▶ 	Monitoring info
▶  	Trailer ID

- ▶ Use the  or  button to select a trailer or semitrailer and call it up using the  button.

The display shows the identification number of the trailer or semitrailer, e.g. **Trailer ID WK0471112MB 654321**.

Fault information menu

Information on the **Fault info** menu can be found in the "Notes on display messages" section (▷ page 98).

Alarm clock menu

Setting alarm clock mode

▶  	List of the main menus
▶  	Alarm
▶  	Alarm mode:

- ▶ Use the  or  button to select an alarm mode and use the  button to save it.

- Radio
- Buzzer
- Off

If you have activated the alarm, the display shows the alarm symbol next to the time.

If you select the **Radio** alarm mode and the radio supports this function, the radio switches on at the set wake-up time.

When the alarm is switched on, the display shows the **Alarm mode:** submenu.

- ▶ **To switch off the alarm:** when the warning buzzer sounds, press any button.

or

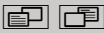
- ▶ When the radio switches on, switch it off; see the separate operating instructions.

Setting the alarm time

▶  	List of the main menus
▶  	Alarm
▶  	Alarm time:

- ▶ Use the  or  button to select an hour and the  button to save it.
- ▶ Use the  or  button to select a minute and the  button to save it.

Language menu

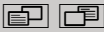
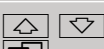
► 	List of the main menus
► 	Language

The display shows the available languages.

- Use the  or  button to select a language and the  button to save it. All display messages and menus appear in the selected language.

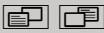
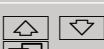
Settings menu

Displaying locks

► 	List of the main menus
► 	Settings
► 	Display locks?

- Use the  or  button to select **On** or **Off** and use the  button to save. If you store the option **Display locks? On**, the display shows the following in the basic display:
 - the differential locks
 - the power take-off
 - the additional axles

Setting the time

► 	List of the main menus
► 	Settings
► 	Time

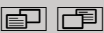
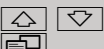
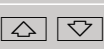
- Use the  or  button to select an hour and the  button to save it.
- Use the  or  button to select a minute and the  button to save it.

Setting the service products

! If you change the service product data in the **Service products** menu, the Telligent® maintenance system adjusts the service due dates accordingly.

To avoid damage to the vehicle's major assemblies, always set the data of the service products.

See the "Service products" section (► page 266).

► 	List of the main menus
► 	Settings
► 	Service products

- Use the  or  button to select a setting:
 - **Engine oil grade**, e.g. 228.3
 - **Engine oil viscosity**, e.g. 5W30
 - **Transmission oil grade**, e.g. 235.1
 - **Sulphur**, e.g. 0...0.1
 The display shows the current setting.
- Press the  reset button with a pen, for example.
- Repeat this procedure until the settings correspond to the service products. Once the  **Setting changed** display is shown, the current setting is stored.

Fuel sulphur content: if you are using the vehicle for international transport, set the fuel sulphur content of your home country.

Set the fuel sulphur content for the predominantly used fuel.

Set the adjustment value for the on-board computer under **Sulphur**. The adjustment value indicates the fuel sulphur content as a weight percentage of the diesel fuel used.

i Certain countries have diesel fuel with varying sulphur content. Diesel fuel with low sulphur content is sold in certain countries under the name "Euro diesel". If you do not know the sulphur content of the diesel fuel you are using, select the least favourable sulphur content in the on-board computer.

A higher fuel sulphur content accelerates the ageing process of the engine oil. The Telligent® maintenance system calculates the service due

date for the engine based on the fuel sulphur content specified.

! If you are running the vehicle on fatty acid methyl ester (FAME), the intervals for changing the engine oil and replacing the engine oil filter are reduced.

If you are running the vehicle on fatty acid methyl ester (FAME) or have added FAME to the diesel fuel, set the value **0.8...** under **Sulphur**. You could otherwise damage the engine.

Engine oil grade: set the engine oil grade for the engine oil used according to the Sheet Numbers of the Mercedes-Benz Specifications for Service Products under **Engine oil grade**. The higher the Sheet Number, the higher the engine oil grade.

i If you add engine oil according to Sheet Number 228.31, select 228.3 in the on-board computer.

If you add engine oil according to data Sheet Number 228.51, select 228.5 in the on-board computer.

! If you mix engine oils with differing oil grades, the change interval for the engine oil is reduced in comparison to mixtures of engine oil of identical grade.

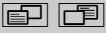
Therefore, only mix engine oils of differing grade in exceptional circumstances. To prevent damage to the engine, set the sheet number of the engine oil with the lower grade under **Engine oil grade**.

Engine oil viscosity: set the viscosity classification (SAE class) of the engine oil used under **Engine oil viscosity**.

Transmission oil grade: set the transmission oil grade for the transmission oil used according to the Sheet Numbers of the Mercedes-Benz Specifications for Service Products under **Transmission oil grade**. The higher the Sheet Number, the higher the transmission oil grade.

Setting the function of the arrow keys in radio mode

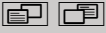
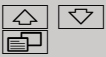
The display can show the **Arrow buttons in cassette mode** or the **Arrow buttons in CD mode** submenu by using the **Track search** menu and **Fast forward and Rew**. If you retrofit a cassette radio or CD player, you can use this menu.

▶ 	List of the main menus
▶ 	Settings
▶ 	Arrow buttons in radio mode

▶ Use the  or  button to select **Track search** or **Memory** and use the  button to save it.

Information on operating the audio equipment can be found in the "Audio equipment" section (▷ page 91).

Setting the temperature unit of measurement

▶ 	List of the main menus
▶ 	Settings
▶ 	Temperature unit

▶ Use the  or  button to select **°C** or **°F** and use the  button to save. The display shows temperatures in the saved units.

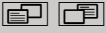
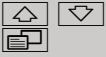
Service info menu

Calling up service information

The Telligent® maintenance system calculates service due dates for the vehicle and its assemblies on the basis of the operating conditions (▷ page 209). The service due dates are first displayed automatically 14 days before the respective service is due.

You can call up the service due dates in the **Service info** menu. The display shows the service points in the order they are due.

If the Telligent® maintenance system is unable to calculate the service due date or the remaining distance for a service point, the display shows **--,--,--**.

▶ 	List of the main menus
▶ 	Service info

- ▶ Use the  button to call up the desired service point.
The display shows the service due date for the selected service point, e.g. **Engine 23.03.09**.
- ▶ Use the  button to call up the remaining distance.
The display shows the remaining distance, e.g. **Engine 2000 km**.
- ▶ Use the  button to call up the next respective service point.

You can call up the following service points:

- **Engine**
- **Air cleaner**
- **Air drier**
- **Coolant**
- **Retarder**
- **Time-based maintenance**
- **1. General**
- **Rear axles**
- **Front axles**
- **Transmission**
- **Transfer case**
- **Brake pad A1**
- **Brake pad A2**
- **Brake pad A3**
- **Brake pad A4**

-  The **Brake pad Ax** menus are displayed according to the number of axles fitted.

Diagnostics menu

Calling up diagnostics data

Diagnostics data contains information with which you can assist the service personnel during fault diagnosis, e.g. through remote diagnosis.

▶  	List of the main menus
▶  	Diagnostics

- ▶ Use the  or  button to select a system and use the  button to call it up, e.g. **ABS, FR**.
- ▶ Use the  or  button to select a sub-system and use the  button to call it up.

- **MB item number**
- **Events**
- **Measured values**
- **Binary values**
- **Delete events**

- ▶ **To delete events:** use the  or  button to select **Yes** or **No** and press the  button to save.
If you save the **Yes** option, the display messages of the selected system are deleted.

Deleting all events

▶  	List of the main menus
▶  	Diagnostics

- ▶ Use the  or  button to select the **Delete all events** submenu and use the  button to call it up.
- ▶ Use the  or  button to select **Yes** or **No** and use the  button to save.
If you save the **Yes** option, the display messages of all systems are deleted.

Notes on display messages

Display messages introduction

Display messages contain operational information, fault messages or warnings that are automatically shown in the display. The status indicator lights up in yellow or red, depending on the significance of the event. In addition to the display message, an indicator lamp may light up in the instrument cluster.

You can hide display messages and call them up again at a later time. If an indicator lamp lights up in addition to the appearance of a display message, it does not go out even when you confirm the display message.

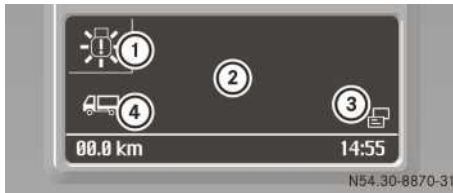
If you ignore warning and indicator lamps, display messages and the status indicator, you will not be able to recognise failures and malfunctions in components or systems. Driving/braking characteristics may be different and the operating and road safety of your vehicle may be limited. Have the affected system checked and repaired at a qualified specialist workshop. Always observe the warning and indicator

lamps, display messages and the status indicator and follow the corresponding measures.

If high-priority malfunctions appear in the display, the warning buzzer also sounds and the stop lamp comes on.

Display messages

Display segments



Example display

- ① Symbol indicating cause of malfunction
- ② Display message, e.g. **Bulb/fuse faulty**
- ③ Call up further information using
- ④ Fault location (tractor vehicle or trailer/semitrailer)

Acknowledging display messages

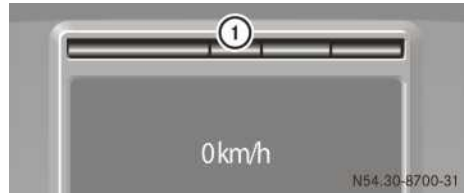
- Press button .

The display message will no longer be shown in the display. It can, however, be called up at any time via the **Fault info** menu.

Calling up a display message

- Press the or button repeatedly until the main menu list appears in the display.
- Use or to select the **Fault info** main menu and to call it up.
If an error message has been stored, a message, such as **Bulb/fuse faulty**, will appear in the display.
If the symbol is also shown in the display, this indicates additional information or instructions.
- Press the button again.
Further information or instructions are displayed.

Status indicator



To indicate the significance of display messages, certain segments in status display ① light up yellow or red.

Display messages with a yellow status indicator

Status indicator ① lights up yellow for low priority faults, e.g. for a faulty bulb. Status indicator ① also lights up yellow for special operating modes, e.g. if the power take-off is activated.

Display messages with red status indicator

Status indicator ① lights up red for higher priority faults, e.g. if the generator is faulty.

Stop lamp

If the stop lamp does not go out, or comes on while you are driving, the vehicle's operational safety and roadworthiness are at risk.

- Stop the vehicle as soon as possible, taking road and traffic conditions into account.
- Apply the parking brake.
- Switch off the engine.
- Consult a qualified specialist workshop.

The STOP lamp will also light up if the serious faults listed below occur:

- the supply pressure in brake circuit 1 or 2 of the tractor vehicle is too low.
- the supply pressure in the brake circuit of the trailer/semitrailer is too low.
- the supply pressure in the spring-loaded brake circuit of the tractor vehicle is too low.

You will find further information on the STOP lamp in the "Warning buzzer" section (► page 188).

Electronic system abbreviations	
Abbreviation	System
ABS	Anti-lock braking system
AGN	Automatic transmission
BS	Telligent® brake system
EAB	Electronic trailer brake
Rem. ctrl	Remote control
FLA	Cold-start aid
FR	Drive control
GS	Telligent® transmission control
HPS	Hydraulic-pneumatic gear-shift
INS	Instrument panel
KOM	Communication interface
KSA	Enhanced central locking system

Abbreviation	System
MR	Telligent® engine control
NR	Telligent® level control
PSM	Programmable special module
RS	Retarder control
SCR	BlueTec® exhaust gas after-treatment
SRS	Supplemental Restraint System
TCO	Tachograph
WR	Telligent® roll control
WS	Telligent® maintenance system
ZHE	Auxiliary heating
ZL	Auxiliary steering
ZV	Central locking

Display messages

Display message with a yellow status indicator

Display messages	Possible causes/consequences and ► Solutions
 ABS malfunction, trailer	• The brake system on the vehicle or trailer/semitrailer is malfunctioning. The corresponding  and/or  indicator lamp lights up. • ABS may be switched off.  WARNING The vehicle's driving and braking characteristics may change. Also observe the information in the separate operating instructions provided by the trailer/semitrailer manufacturer. There is a risk of an accident. ► Switch on ABS. ► If the fault continues to be displayed, have the brake system checked at a qualified specialist workshop.
 Function restric- tion possible	• The brake system on the vehicle or trailer/semitrailer is malfunctioning. The corresponding  and/or  indicator lamp lights up. • ABS may be switched off.  WARNING The vehicle's driving and braking characteristics may change. Also observe the information in the separate operating instructions provided by the trailer/semitrailer manufacturer. There is a risk of an accident. ► Switch on ABS. ► If the fault continues to be displayed, have the brake system checked at a qualified specialist workshop.
 Function restric- tion possible	• The brake system on the vehicle or trailer/semitrailer is malfunctioning. The corresponding  and/or  indicator lamp lights up. • ABS may be switched off.  WARNING The vehicle's driving and braking characteristics may change. Also observe the information in the separate operating instructions provided by the trailer/semitrailer manufacturer. There is a risk of an accident. ► Switch on ABS. ► If the fault continues to be displayed, have the brake system checked at a qualified specialist workshop.

Display messages	Possible causes/consequences and ► Solutions
 Braking characteristics may change Visit workshop soon	The trailer's/semitrailer's brake system is malfunctioning. The  indicator lamp lights up. i The display message consists of two parts. To see the second part, press the  button. ⚠ WARNING The vehicle's driving and braking characteristics may change. Also observe the information in the separate operating instructions provided by the trailer/semitrailer manufacturer. There is a risk of an accident. ► Have the brake system checked at a qualified specialist workshop.
 Wheel brake overloaded Adapt driving style	The service brake temperature on one of the wheels is too high. i The display message consists of two parts. To see the second part, press the  button. ► Drive with even greater care. ► Shift to a lower gear. ► Brake the vehicle additionally with the continuous brake. ► Have the brake system checked at a qualified specialist workshop.
 Engage parking brake	The parking brake is not applied. Vehicles with a programmable special module (PSM): the parking brake is not applied and power take-off is engaged. The vehicle could roll away. You could endanger yourself and others. ⚠ WARNING The parked vehicle could roll away. You could endanger yourself and others. There is a risk of an accident. ► Apply the parking brake. or ► Before engaging the power take-off: apply the parking brake.

Display messages	Possible causes/consequences and ► Solutions
	The reservoir pressure in the auxiliary consumers circuit has dropped below 5.5 bar.  WARNING The gears can no longer be changed properly. There is a risk of an accident. ► Stop the vehicle as soon as possible, paying attention to traffic conditions. ► Apply the parking brake. ► Let the engine run until the display message goes out and the reservoir pressure has reached an adequate level. ► If the fault occurs repeatedly, check the compressed-air brake system for leaks (► page 129). ► Have the compressed-air brake system repaired at a qualified specialist workshop.
 Example: Coolant temperature high 100 °C	The coolant temperature has reached approximately 100 °C while driving. ► Use less engine power. ► Remove objects that could block the air supply to the radiator, e.g. paper which has flown onto the grille.
 Engine protection: output reduced	The coolant temperature has reached approximately 100 °C while driving. ► Use less engine power. ► Remove objects that could block the air supply to the radiator, e.g. paper which has flown onto the grille.
 Example: Top up 5.0 l engine oil	The engine oil level is too low. ► Top up immediately with the amount of oil shown (► page 214). ► If there is visible oil loss, have the fault rectified immediately at a qualified specialist workshop.
 Clutch: overload Let clutch cool down	The permissible operating temperature for the clutch has been exceeded. There is a risk of clutch damage. A warning tone also sounds.  The display message consists of two parts. To see the second part, press the  button. ► Engage a lower gear when manoeuvring or pulling away. ► Complete the pulling away or manoeuvring process as quickly as possible. Otherwise, the clutch will be overloaded.

Display messages	Possible causes/consequences and ► Solutions
MR  Immobiliser activated	You cannot start the engine. You have made several starting attempts using an invalid key. The immobiliser is now activated. ► Use the valid key/spare key. Mercedes-Benz recommends that you always keep an easily accessible spare key with you for emergencies.
MR 	You cannot start the engine. The starter batteries are discharged. ► Jump-start your vehicle with the help of another vehicle (► page 245).
FR 	• The electronic drive control is malfunctioning. • The accelerator pedal is not operational. The engine is running in emergency mode. • Engine power output is reduced. ► Stop the vehicle as soon as possible, paying attention to traffic conditions. ► Apply the parking brake. ► Switch off the engine. ► Restart the engine after approximately 10 seconds. ► If the engine continues to run in emergency mode, have the malfunction rectified at a qualified specialist workshop.
WS  Example: Service in 4000 km	A service is due soon. ► Schedule a service appointment for the date displayed.
WS  Service due	A service is due. ► Have maintenance work carried out at a qualified specialist workshop.
WS  Service now	A service due date has been significantly exceeded. There is a risk that the vehicle or a major assembly could be damaged. ► Have maintenance work carried out immediately at a qualified specialist workshop.
AGN 	There are problems with shifting in automatic transmission. It is still possible to drive the vehicle. Depending on the fault, a specialist workshop may be able to assist you in restricted continuation of your journey if you supply the fault code. Display fault code (► page 98). ► Continue your journey with care. ► Have the automatic transmission repaired at a qualified specialist workshop.

Display messages	Possible causes/consequences and ► Solutions
  Fill up with diesel	The fuel tank is empty. ► Refuel (► page 189). The display message disappears. If you do not refuel, the display message will reappear the next time the engine is started.
  Top up with AdBlue	The AdBlue® level has dropped to the reserve level. ► Top up with AdBlue® (► page 190). The display message disappears. If you do not top up with AdBlue®, the display message will reappear the next time the engine is started.
  Fill w.diesel/ AdBlue	The fuel has dropped to the reserve level. ► Refuel (► page 189). ► To avoid having to make another refuelling stop, top up with AdBlue® (► page 190). The display message disappears. If you do not refuel and top up with AdBlue®, the display message will reappear the next time the engine is started.
  Top up washer fluid soon	The washer fluid level in the windscreen washer/headlamp cleaning system reservoir has dropped to approximately 1 l. ► Top up the washer fluid (► page 212).
  Example: Bulb/fuse faulty Check bulb/ fuse	• If the display message appears when the lights are switched on, one of the following bulbs or fuses is faulty: - Side lamps - Dipped-beam headlamps - Tail lamps - Licence plate lamp - Rear foglamp • If the display message appears during braking, a brake lamp is faulty. • If the display message appears during indication of a turn, a turn signal is faulty. • If the display message appears after an instrument cluster function check, the brake lamp fuse is faulty. i The display message consists of two parts. To see the second part, press the  button. ► Check the corresponding fuses and replace if necessary (► page 241). ► Check the corresponding bulb and replace if necessary (► page 62).

Display messages	Possible causes/consequences and ► Solutions
  Brake lamp, left: failure (example)	On trailers/semitrailers with an electric braking system: the left brake lamp on the trailer/semitrailer is faulty. ► Replace the corresponding bulb; see the operating instructions for the trailer/semitrailer.
 Cleaning the dis- tance sensor	The distance sensor is dirty. ► Clean the cover of the distance sensor in the front bumper using clear water and a soft cloth. Do not use any dry, rough or hard cloths and do not scrub or scratch. or ► Acknowledge the display message by pressing the  button. The display message disappears. If the distance sensor is not cleaned, the display message will reappear the next time the engine is started.
 Distance control: may be restricted	Telligent® distance control (ART) is malfunctioning. ► Have the ART system checked at a qualified specialised workshop. or ► Acknowledge the display message by pressing the  button. The display message disappears. If the fault is not rectified, the display message will reappear the next time the engine is started.
 Distance control: set vehicle level	The chassis frame is not in the normal position (drive position). ► Move the chassis frame into the normal position (drive position). ► Acknowledge the display message by pressing the  button. The display message disappears. If the fault is not rectified, the display message will reappear the next time the engine is started.

Display messages with a red status indicator

Display messages	Possible causes/consequences and ► Solutions
	The trailer's/semitrailer's ABS is inoperative. There is a danger that the trailer/semitrailer could overbrake.  WARNING The vehicle's driving and braking characteristics may change. Also observe the information in the separate operating instructions provided by the trailer/semitrailer manufacturer. ► Drive with even greater care. ► Avoid braking hard. ► Have the trailer/semitrailer ABS checked at a qualified specialist workshop.
 Braking characteristics changed Visit workshop soon	The trailer's/semitrailer's brake system is malfunctioning.  The display message consists of two parts. To see the second part, press the  button.  WARNING The vehicle's driving and braking characteristics may change. Also observe the information in the separate operating instructions provided by the trailer/semitrailer manufacturer. There is a risk of an accident. ► Have the brake system checked at a qualified specialist workshop.
 Brake pads completely worn	The brake pads/linings are worn down to the minimum thickness. ► Have the brake pads/linings replaced at a qualified specialist workshop. Vehicles with Telligent® maintenance system: you can call up the Service info menu to see on which axle the brake pads/linings or brake discs are worn.
 Service now	Due service work has not been performed on the trailer/semitrailer. The wear limit of the brake pads/linings and/or brake discs of the trailer/semitrailer has been exceeded.  WARNING The vehicle's driving and braking characteristics may change. There is a risk of an accident. ► Have maintenance work carried out immediately at a qualified specialist workshop.

Display messages	Possible causes/consequences and ► Solutions
 V-belt/alternator Visit workshop	The voltage in the vehicle's electrical circuit has dropped below 22 V. The vehicle's driving and braking characteristics may change. Possible causes are a defective alternator or a torn poly-V-belt. i The display message consists of two parts. To see the second part, press the  button. ► Stop the vehicle as soon as possible, paying attention to traffic conditions. ► Switch off the engine and apply the parking brake. ► Contact a qualified specialist workshop and have the poly-V-belt and alternator checked.
 Output reduced Top up with AdBlue	• The AdBlue® tank is empty. • The  indicator lamp flashes. • The engine power output is reduced. Vehicles with Telligent® automatic gearshift or Mercedes PowerShift: the transmission switches to manual operation mode. i The display message consists of two parts. To see the second part, press the  button. ► Top up with AdBlue® (► page 190). ► Shift gears manually (► page 145). ► Acknowledge the display messages. If you have topped up with AdBlue®, the display message will not be shown again the next time the engine is started. The  indicator lamp goes out. Full engine output becomes available again.
 AdBlue empty	The AdBlue® tank is empty. ► Top up with AdBlue® (► page 190). If you do not top up with AdBlue®, the  indicator lamp flashes. The engine output will be reduced automatically the next time the vehicle comes to a standstill. If you have topped up with AdBlue®, the display message will not be shown again the next time the engine is started. The  indicator lamp goes out. Full engine output becomes available again.
SCR  Output reduced	• BlueTec® exhaust gas aftertreatment may be malfunctioning. • The  indicator lamp flashes. • The engine power output is reduced. Vehicles with Telligent® automatic gearshift or Mercedes PowerShift: the transmission switches to manual operation mode. ► Shift gears manually (► page 142). ► Acknowledge the display message. There is no need for action if this display message only appears temporarily. ► Have the cause of the malfunction rectified at a qualified specialist workshop.

Display messages	Possible causes/consequences and ► Solutions
SCR  Visit workshop	BlueTec® exhaust gas aftertreatment is malfunctioning. Emissions are exceeding the permissible limits. ► Have the cause of the malfunction rectified at a qualified specialist workshop. If the display shows the malfunction during several journeys, the  indicator lamp flashes. The engine output will be reduced automatically the next time the vehicle comes to a standstill. If BlueTec® exhaust gas aftertreatment functions correctly for several journeys, the engine output becomes fully available again. The  indicator lamp goes out.
SCR  Visit workshop	The  indicator lamp flashes. The NO_x sensor is faulty. ► Have the fault rectified immediately at a qualified specialist workshop. Have the fault rectified within the next 50 hours of vehicle operation. The engine output will otherwise be reduced automatically the next time the vehicle comes to a standstill.
  Example: Steering heavy Visit workshop immediately	The hydraulic part of the steering is leaking. The steering characteristics of the vehicle may change. i The display message consists of two parts. To see the second part, press the  button. ⚠ WARNING Driving/braking characteristics may change. There is a risk of an accident. ► Have the steering checked immediately at a qualified specialist workshop.
 	Steering circuit 2 has failed. You can only steer the vehicle with increased effort. ► Adapt your driving style. ► When approaching bends: reduce speed. ► Have the steering checked at a qualified specialist workshop.
  Retarder shutdown not possible Visit workshop	The retarder control is malfunctioning. The retarder is not switched off if you depress the accelerator pedal or if ABS intervenes. i The display message consists of two parts. To see the second part, press the  button. ► Drive with even greater care. ► Have the retarder control checked at a qualified specialist workshop.

Display messages	Possible causes/consequences and ► Solutions
 Example: Coolant temperature too high 115 °C	The coolant temperature is too high. Engine power output is reduced. ► Reduce the speed. ► Shift to a lower gear. ► Remove objects that could block the air supply to the radiator, e.g. paper which has flown onto the grille.
 Air cleaner dirty Service due	The air filter is dirty. Engine output may be reduced. i The display message consists of two parts. To see the second part, press the  button. ► Have the air filter replaced at a qualified specialist workshop.
 Drain off engine oil	The engine oil level is too high. The engine oil pressure may fall. The operating safety of the engine is jeopardised. On vehicles with BlueTec® exhaust gas aftertreatment: there is a risk of damage to the engine or catalytic converter. ► Have at least 2 l of engine oil siphoned off at a qualified specialist workshop.
 Switch off engine	The engine oil pressure is too low. The operating safety of the engine is jeopardised. ► Stop the vehicle as soon as possible, paying attention to traffic conditions. ► Switch off the engine. ► Apply the parking brake. ► Check the engine oil level via the on-board computer (> page 94). ► Top up the engine oil (> page 214). ► Consult a qualified specialist workshop.
 Example: Top up 7.5 l engine oil immediately	The engine oil level is significantly too low. The operating safety of the engine is jeopardised. ► Stop the vehicle as soon as possible, paying attention to traffic conditions. ► Switch off the engine. ► Apply the parking brake. ► Check the engine for leaks. ► If the engine is leaking oil, consult a qualified specialist workshop. ► If the engine is leaking oil, collect the oil to prevent it from entering the environment. ► Add the quantity of oil shown in the display immediately (> page 214).

Display messages	Possible causes/consequences and ► Solutions
  Top up coolant	The coolant level has dropped to 2 l below the normal filling level. The operating safety of the engine is jeopardised. ► Stop the vehicle as soon as possible, paying attention to traffic conditions. ► Switch off the engine. ► Apply the parking brake. ► Top up the coolant (► page 211). ► Have the engine cooling system checked for leaks at a qualified specialist workshop.
AGN 	There are problems with shifting in automatic transmission. It is no longer possible to drive the vehicle. ► Stop the vehicle as soon as possible, paying attention to traffic conditions. Depending on the fault, a specialist workshop may be able to assist you in restricted continuation of your journey if you supply the fault code. Display fault code (► page 98). ► Consult a qualified specialist workshop immediately and have the fault rectified.
GS  Clutch: failed Visit workshop	Vehicles with Telligent® gearshift, Telligent® automatic gearshift or Mercedes PowerShift: the reservoir pressure in the auxiliary consumers circuit is insufficient.  WARNING The gears can no longer be changed properly. There is a risk of an accident. ► Stop the vehicle as soon as possible, paying attention to traffic conditions. ► Apply the parking brake. ► Run the engine until there is sufficient reservoir pressure in the auxiliary consumers circuit. The auxiliary consumers circuit pressure message disappears. ► Switch off the engine. ► Start the engine again after waiting approximately 10 seconds. ► If the Clutch: failed message is still shown in the display, carry out the teach-in procedure (► page 152).

Display messages	Possible causes/consequences and ► Solutions
 Gearshift: failed Carry out teach-in procedure	Vehicles with Telligent® gearshift, Telligent® automatic gearshift or Mercedes PowerShift: the transmission no longer changes gear.  WARNING The gears can no longer be changed properly. There is a risk of an accident. ► Stop the vehicle as soon as possible, paying attention to traffic conditions. ► Apply the parking brake. ► Switch off the engine. ► Carry out a long teach-in procedure (► page 152).
 Gearshift: failed Visit workshop	Vehicles with Telligent® gearshift, Telligent® automatic gearshift or Mercedes PowerShift: the electronic system of the transmission control is malfunctioning.  WARNING The gears can no longer be changed properly. There is a risk of an accident. ► Have the vehicle towed away (► page 247). ► Have the transmission shift system checked at a qualified specialist workshop.
 Parameterisation fault Carry out teach-in procedure	Vehicles with Telligent® gearshift, Telligent® automatic gearshift or Mercedes PowerShift: the transmission no longer changes gear.  WARNING The gears can no longer be changed properly. There is a risk of an accident. ► Stop the vehicle as soon as possible, paying attention to traffic conditions. ► Apply the parking brake. ► Switch off the engine. ► Carry out a long teach-in procedure (► page 152).
 Gear 3, 4: gear-shift not applicable	There are problems with the transmission shift system. ► Stop the vehicle as soon as possible, paying attention to traffic conditions. ► Switch off the engine and apply the parking brake. ► Carry out a teach-in procedure (► page 152). or ► Carry out an emergency gearshift (► page 155). ► Have the transmission shift system checked at a qualified specialist workshop.

Display messages	Possible causes/consequences and ► Solutions
 Gear R: Gear shift not possible	There are problems with the transmission shift system. ► Stop the vehicle as soon as possible, paying attention to traffic conditions. ► Switch off the engine and apply the parking brake. ► Carry out a teach-in procedure (► page 152). or ► Carry out an emergency gearshift (► page 155). ► Have the transmission shift system checked at a qualified specialist workshop.
  Braking characteristics may change (example)	The vehicle's brake system is malfunctioning. The  indicator lamp lights up.  WARNING The vehicle's driving and braking characteristics may change. There is a risk of an accident. ► Have the brake system checked at a qualified specialist workshop.
  Visit workshop immediately	The CAN connection to the instrument cluster is interrupted. A warning tone also sounds.  WARNING The display can no longer show important information about the operating and road safety of the vehicle. There is a risk of an accident. ► Stop the vehicle as soon as possible, paying attention to traffic conditions. ► Switch off the engine and apply the parking brake. ► Consult a qualified specialist workshop.
  STOP Brake reservoir pressure too low	The reservoir pressure in the spring-loaded brake circuit and/or in brake circuits 1 and 2 is too low. Possible causes: • too much compressed air was used during manoeuvring • there is a leak in the compressed-air system  WARNING The operating and road safety of the vehicle are jeopardised. There is a risk of an accident. ► Stop the vehicle as soon as possible, paying attention to traffic conditions. ► Apply the parking brake. ► Run the engine to charge the compressed-air supply. ► Continue driving when the STOP lamp goes out. ► Check the compressed-air brake system for leaks (► page 129). ► Have the compressed-air brake system checked at a qualified specialist workshop.

Engine diagnostics indicator lamp

Problem	Possible causes/consequences and ► Solutions
The  indicator lamp lights up briefly and goes out again.	If there are no malfunctions, the  indicator lamp lights up briefly during the instrument cluster's display check and then goes out again.
The  indicator lamp flashes. At the same time, a display message with a red status indicator appears in the display. 	The AdBlue® tank is empty. There is a fault. The engine output may be reduced ¹ . ► Follow the instructions in the display messages.
The  indicator lamp lights up permanently.	The BlueTec® exhaust gas aftertreatment is malfunctioning or has an emissions-related fault. A malfunction or fault could damage the BlueTec® exhaust gas aftertreatment. The engine output may be reduced ¹ . ► Have the BlueTec® exhaust gas aftertreatment checked immediately at a qualified specialist workshop.

Once the AdBlue® tank has been refilled or the fault rectified, full engine output is restored. If the system check does not detect any other faults, the  indicator lamp goes out. It may take several journeys to complete the system check.

¹ The engine output is not reduced in the case of emergency vehicles, e.g. fire engines.

Important safety notes

WARNING

The CD/DVD drive is a class 1 laser product. If you open the housing of the CD/DVD drive, invisible laser beams may be released. These laser beams may damage your retina. There is a risk of injury.

Do not open the housing. Always have maintenance work and repairs carried out at a qualified specialist workshop.

WARNING

If you handle a disc while driving, you may be distracted from the traffic situation. This could also cause you to lose control of the vehicle. There is a risk of an accident.

Only handle a disc when the vehicle is stationary.

WARNING

If you operate information and communication equipment integrated in the vehicle when driving, you could be distracted from the traffic situation. This could also cause you to lose control of the vehicle. There is a risk of an accident.

Only operate this equipment when the traffic situation permits. If you cannot be sure of this, stop the vehicle paying attention to road and traffic conditions and operate the equipment with the vehicle stationary.

You must observe the legal requirements for the country in which you are currently driving when operating the system.

WARNING

If you use mobile information systems and communications devices while driving, you will be distracted from traffic conditions. You could then lose control of the vehicle. There is a risk of an accident.

Only operate these devices when the vehicle is stationary.

WARNING

If you handle or operate mobile audio/video sources while driving, your attention may be diverted from the traffic conditions. You could then lose control of the vehicle. There is a risk of an accident.

Only handle or operate these mobile audio/video sources when the vehicle is stationary.

Only operate mobile audio/video sources via the communications devices integrated into the vehicle when traffic conditions permit. If this is not the case, pull over to a safe location and make entries only while the vehicle is stationary.

WARNING

If you operate two-way radios incorrectly in the vehicle, their electromagnetic radiation can interfere with the vehicle electronics, for example if:

- the two-way radio is not connected to an exterior aerial
- the exterior aerial is not correctly mounted or is not low-reflection

This could jeopardise the operating safety of the vehicle. There is a risk of an accident.

Have the low-reflection exterior aerial fitted at a qualified specialist workshop. When operating two-way radios in the vehicle, always connect them to the low-reflection exterior aerial.

General notes

These brief instructions only describe the basic operation of your audio system.

All further information on the individual functions can be found on the Internet at www.mercedes-benz.de/betriebsanleitung-lkw.

Anti-theft protection

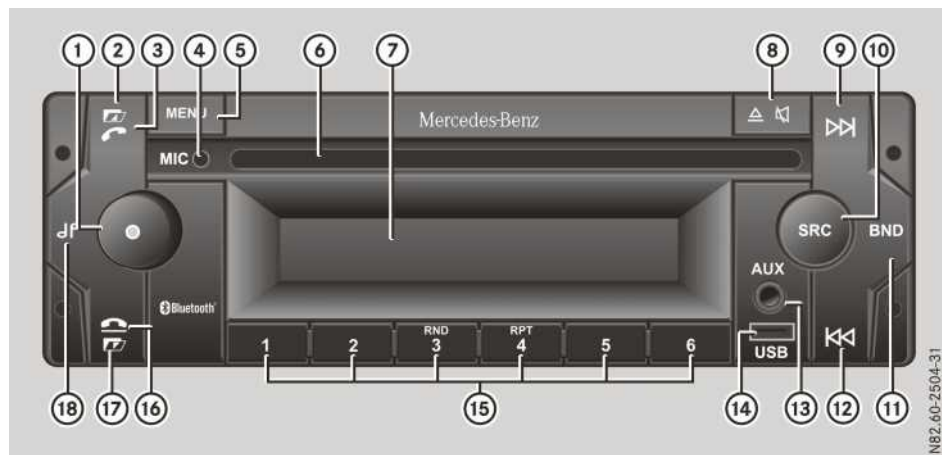
In order to render the CD radio useless for thieves, it is protected by a four-digit code. The

code for your CD radio comes with this Supplement. If the CD radio has been disconnected

from the voltage supply, you will need to enter the code after switching the CD radio on.

Operating system

CD radio overview



Function

- | | |
|---|---|
| ① | Control knob <ul style="list-style-type: none"> • Press:
Switches on/off • Turn:
Sets the volume
Changes settings in menus |
| ② |  Switches folders in MP3 and USB mode |
| ③ |  <ul style="list-style-type: none"> • Press briefly:
Accepts a call • Press and hold:
Activates Bluetooth®
Starts Bluetooth® search
Starts Bluetooth® pairing (pairing/external) |
| ④ | Microphone for making calls via Bluetooth® |

	Function
⑤	 • Press briefly: - Selects menu: - Activates/deactivates the TP function - Changes the track time display - Activates/deactivates XMUT - Switches RDS on/off - Sets the type of Bluetooth® pairing • Press and hold: - Displays connected mobile phone
⑥	CD drive
⑦	Display
⑧	  • Press briefly: - Mutes the audio source • Press and hold: - Ejects a CD
⑨	 • Radio: - Press briefly: - Station search forwards - Press and hold: - Manual station search • CD and USB audio mode: - Press briefly: - Skips forward² - Press and hold: - Fast forward • AUX mode - Switches over to a rear AUX port

² Also possible in Bluetooth® audio mode.

Function	
⑩	SRC • Press briefly: Selects an audio source: Radio CD playback USB AUX function BT audio (MP3 playback) Exits the menu • Press and hold: Ends the current traffic report
⑪	BND • Press briefly: Switches wavebands • Press and hold: Stores stations automatically
⑫	⏮ • Radio: - Press briefly: Station search backwards - Press and hold: Manual station search • CD and USB audio mode: - Press briefly: Skips back² - Press and hold: Fast rewind • AUX mode Switches over to a front AUX port
⑬	AUX socket
⑭	Mini USB port
⑮	1 to 6 • Radio: - Press briefly: Selects stations from the presets - Press and hold: Stores stations manually • CD and USB audio mode: ⏮ 3 Activates/deactivates random track ⏮ 4 Activates/deactivates track repeat

² Also possible in Bluetooth® audio mode.

	Function
⑩	 • Press briefly: Ends/rejects an incoming call • Press and hold: Deactivates Bluetooth®
⑪	 Switches folders in MP3 and USB mode
⑫	 • Press briefly: Calls up the sound menu • Press and hold: Resets the sound settings

Function overview

You can use the CD radio to operate the following functions:

- radio, to receive FM and AM (SW, MW, LW) wavebands
- CD, to play WMA and MP3 formats
- play MP3 files, which are saved on USB devices
- make a call
- to play MP3 players which are connected via Bluetooth® (if supported by your device)
- play external devices, which are connected via the AUX jack

Bluetooth® settings

Notes on Bluetooth® function

Information on suitable mobile phones

Bluetooth® mode via the CD/radio is available in conjunction with a Bluetooth®-capable mobile phone.

Further information on suitable mobile phones and connecting Bluetooth®-capable mobile phones with the audio system can be obtained:

- at your Mercedes-Benz Service Centre or
- on the Internet at <http://www.mercedes-benz.com/connect>.

Requirements for a Bluetooth® connection

The following requirements must be met for the CD/radio to detect the mobile phone:

- the mobile phone must be in the vehicle in the vicinity of the CD/radio.
- the Bluetooth® function of the CD/radio must be activated (▷ page 119).
- the mobile phone must be ready for pairing.

Activating/deactivating the Bluetooth® function

Activating the Bluetooth® function

- Press and hold the  button. **BT ON** appears briefly in the display. The  Bluetooth® symbol flashes in the display, the CD/radio searches automatically for mobile phones that have already been coupled with the CD/radio.



- ❗ The Bluetooth® function will remain active until you deactivate it again. When you switch off the CD/radio, the Bluetooth® connection

is interrupted. When the CD/radio is switched on it re-establishes the connection automatically.

Deactivating the Bluetooth® function

- ▶ Press and hold the  button. **BT OFF** appears briefly in the display. The connection to the mobile phone has been interrupted.



Pairing a mobile phone

Pairing the mobile phone via Bluetooth®

- ▶ Press the **MENU** button repeatedly until **BT PAIR** or **BT EXT** appears in the display.
- ▶ Turn the control knob anti-clockwise. **BT PAIR** appears briefly in the display.



- ▶ **To exit the menu:** press the **SRC** button or wait 10 seconds.
- ▶ **To start a search for mobile phones:** press and hold the  button. The  Bluetooth® symbol flashes in the display. The CD/radio searches for a certain period for mobile phones in range. After the search, a tone sounds. If at least one mobile phone is detected, **BT LIST** appears briefly in the display and then the device name of the mobile phone.



- ❶ If the CD/radio cannot find a mobile phone, **BT LIST EMPTY** appears briefly in the display.

- ▶ Press the  or  button to select the desired mobile phone.
- ▶ Press and hold the  button.



- ▶ Use the number keys to enter a number with one to six digits that can be easily memorised, e.g. 1111.
- ▶ Press and hold the  button. The CD/radio is ready for pairing with a mobile phone.
- ▶ On the mobile phone, select the Bluetooth® device name **MB-Bluetooth**.
- ▶ Enter the previously dialled number on the mobile phone. The CD/radio establishes a connection to the mobile phone. When the connection has been established, **PAIR OK** appears briefly in the display.
- ▶ Confirm any prompts via the mobile phone. Telephone data is transferred from the mobile phone to the CD/radio. When the transfer has been completed, the current audio source and the  Bluetooth® symbol are shown permanently in the display.

Pairing a mobile phone externally via Bluetooth®

- ▶ Press the **MENU** button repeatedly until **BT PAIR** or **BT EXT** appears in the display.
- ▶ Turn the control knob clockwise. **BT EXT** appears in the display.



- ▶ **To exit the menu:** press the **SRC** button or wait 10 seconds.
- ▶ **To prepare the CD/radio for a search:** Press and hold the  button. The  Bluetooth® symbol flashes in the display.



- ▶ Use the number keys to enter a number with one to six digits that can be easily memorised, e.g. 1111.
- ▶ Press and hold the  button until a tone sounds.
The CD/radio is ready for pairing with a mobile phone.
- ▶ On the mobile phone, start the search for Bluetooth® devices. See the manufacturer's operating instructions.
- ▶ On the mobile phone, select the Bluetooth® device name **MB-Bluetooth**.
- ▶ Enter the previously dialled number on the mobile phone.
The CD/radio establishes a connection to the mobile phone. When the connection has been established, **PAIR OK** appears briefly in the display.
- ▶ Confirm any prompts via the mobile phone.
Telephone data is transferred from the mobile phone to the CD/radio. When the transfer has been completed, the current audio source and the  Bluetooth® symbol are shown permanently in the display.

Useful information

These Operating Instructions describe all the models and standard and optional equipment of your vehicle that were available at the time of going to print. Country-specific differences are possible. Bear in mind that your vehicle may not be equipped with all the functions described. This also applies to safety-relevant systems and functions.

Read the information on qualified specialist workshops (▷ page 22).

Driving

Preparing for a journey

Visual check of the vehicle exterior

- ▶ Check the following components on the tractor vehicle and trailer/semitrailer:
 - make sure that the licence plate, vehicle lighting, turn signal and brake lamps are not dirty or damaged (▷ page 62)
 - check the condition of the contour markings at all attachments and bodies.
 - make sure that the tyres and wheels are firmly seated, have correct tyre pressures and a general good condition (▷ page 253)
 - make sure that the side gates and exterior flaps are locked securely and not damaged
 - make sure that the load compartment is loaded correctly
 - make sure that the cables and compressed-air lines are connected correctly (▷ page 195)
 - make sure that the semitrailer/trailer coupling is locked and secured correctly (▷ page 192)
- i** Observe the separate instructions issued by the manufacturer for the operation, care and maintenance of the semitrailer coupling/trailer coupling.

Visual and function check in the vehicle

Checking the emergency equipment/first-aid kit

You will find an overview of emergency equipment and first-aid kits in the "Breakdown assistance" section (▷ page 224).

- ▶ Check the emergency equipment to make sure that it is accessible, complete and ready for use, for example:
 - Reflective safety vest
 - Warning triangle
 - Warning beacon
 - First-aid kit
 - Fire extinguisher
- ▶ At regular intervals, check that the first-aid kit is usable. Note the use-by dates of the contents.
- ▶ Have the fire extinguisher checked every 1 to 2 years.
- ▶ The fire extinguisher must be refilled after each use.

In some countries, it is a legal requirement to carry additional emergency equipment on board. Observe the legal requirements regarding emergency equipment in all countries concerned. Supplement your emergency equipment accordingly.

Checking the vehicle lighting, turn signal lamps and brake lamps

- ▶ Turn the key to the drive position in the ignition lock.

If a bulb on the tractor vehicle or trailer/semi-trailer is faulty, a message will appear in the display (▷ page 101).
- ▶ Check the vehicle lighting, turn signal lamps and brake lamps on the tractor vehicle and trailer/semi-trailer with the help of a second person.
- ▶ Replace faulty bulbs (▷ page 62).

Checking the fuel/AdBlue® supply

- ▶ Check the fuel level/AdBlue® level shown on the fuel gauge and the AdBlue® gauge (▷ page 87).
- ▶ If necessary, refuel (▷ page 189) and top up the AdBlue® (▷ page 190).

Ignition lock

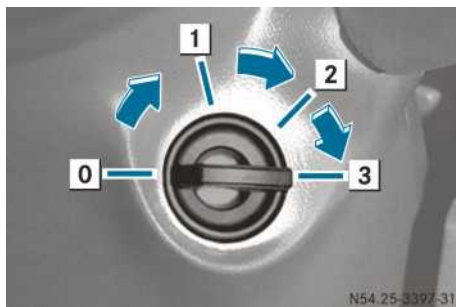
⚠ WARNING

If you attach heavy or large objects to the key, the key could be unintentionally turned in the ignition lock. This could cause the engine to be switched off. There is a risk of an accident. Do not attach any heavy or large objects to the key. Remove any bulky keyrings before inserting the key into the ignition lock.

⚠ WARNING

If you switch off the ignition while the vehicle is in motion, safety-relevant functions are restricted or not available. This can affect, e.g. the power steering. To steer, you will require considerably more force. There is a risk of an accident.

Do not switch off the ignition while the vehicle is in motion.



- 0 To insert/remove the vehicle key
- 1 Steering wheel unlocked/radio position
- 2 Drive position
- 3 Start position

When you remove the key in position 0, the steering is locked.

Before driving off

Important safety notes

⚠ WARNING

Objects in the driver's footwell can impede pedal travel or block a pedal which is

depressed. This jeopardises safe operation of the vehicle. There is a risk of an accident.

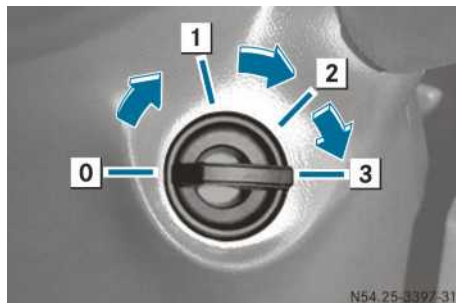
Stow all objects in the vehicle safely, so that they cannot reach the driver's footwell. Make sure the floor mats and carpets are properly secured so that they cannot slip and obstruct the pedals. Do not lay several floor mats or carpets on top of one another.

- Close all doors.
- Make sure that the floor mats and carpets are properly secured so that they cannot slip and obstruct the pedals.

Starting the engine

❗ If the warning buzzer sounds and the STOP lamp lights up, the engine oil pressure is too low.

The operating safety of the engine is endangered. Switch off the engine immediately.



- 0 To insert/remove the vehicle key
- 1 Steering wheel unlocked/radio position
- 2 Drive position
- 3 Start position

► Turn the key to drive position 2 in the ignition lock.

The display check for the instrument cluster starts (> page 90).

After the display check, the basic display is shown.

The transmission position is displayed on vehicles with Telligent® gearshift.

For vehicles with Telligent® automatic gearshift/Mercedes PowerShift, the transmission position and the selected operating mode (man. or auto.) are displayed.

After approximately 2 seconds, the immobiliser is deactivated and the engine can be started.

If you do not wait for 2 seconds or if you use an invalid key, the display will show the **CODE** display message. Use a valid spare key.

- ▶ Vehicles with manual transmission: shift the transmission to the neutral position (> page 140).
- ▶ Disengage power take-off (> page 200). The display shows .
- ▶ Vehicles with cold-start aid: wait until the  indicator lamp in the instrument cluster goes out (> page 164).
- ▶ Turn the key to start position  in the ignition lock. While doing so, do not depress the accelerator or clutch pedal.
- ▶ When the engine has started, release the key. The idling speed (approx. 600 rpm) is controlled automatically.
- ▶ If the engine does not start, interrupt the starting procedure after no more than 20 seconds.
- ▶ Turn the key fully back to  in the ignition lock.
- ▶ Repeat the starting procedure after approximately 1 minute.
- ▶ After 3 starting attempts, wait approximately 3 minutes before trying again.

Safety inspection

Checking the reservoir pressure in the compressed-air brake system

WARNING

It is not possible to brake the vehicle if the compressed-air brake system has a leak or if there is insufficient reservoir pressure. There is a risk of an accident.

Do not drive the vehicle until the necessary reservoir pressures have been reached and the STOP lamp goes out.

In the event of loss of pressure while driving, immediately bring the vehicle to a halt in accordance with the traffic conditions. Secure the vehicle using the parking brake. Have the compressed-air system repaired at a qualified specialist workshop.

- ▶ Start the engine.
- ▶ Let the engine run until a minimum reservoir pressure of 10 bar for both brake circuits appears in the reservoir pressure display in the instrument cluster (> page 88).
- ▶ If this reservoir pressure is not reached, check the compressed-air brake system for leaks (> page 129).

Observe the display messages regarding the reservoir pressure and the compressed-air brake system (> page 101).

Checking the reservoir pressure in the auxiliary consumer circuit

WARNING

If there is a loss of pressure or the reservoir pressure in the auxiliary consumers circuit is too low:

- on vehicles with Telligent® automatic gearshift, the automatic gearshift will no longer function
- on vehicles with Telligent® automatic gearshift, you will need to use considerably more force to change gear

There is a risk of an accident.

Do not pull away, or stop the vehicle as soon as possible, paying attention to road and traffic conditions. Secure the vehicle against rolling away, e.g. with the parking brake. Have the compressed-air system repaired at a qualified specialist workshop.

The reservoir pressure in the auxiliary consumer circuit is supplied once brake circuits 1 and 2 are pressurised.

If the reservoir pressure in the auxiliary consumer circuit is too low, the  symbol appears in the display with a yellow status indicator.

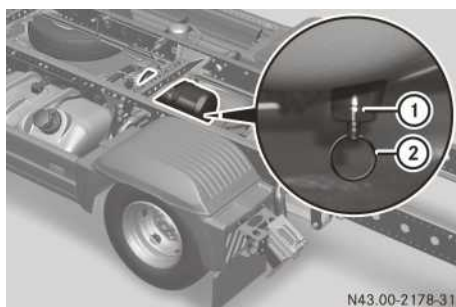
- ▶ Start the engine.
- ▶ Leave the engine running until the  display message and the status indicator go out. When the  display message and the status indicator go out, the reservoir pressure in the auxiliary consumer circuit is sufficient.

Checking the function of the compressed-air drier

WARNING

If the condensation level in the compressed-air reservoir is too high, the braking effect may reduce or the brake system may fail. There is a risk of an accident.

Check the compressed-air system for condensation before starting a journey. If the condensation level is high, have the compressed-air brake system checked at a qualified specialist workshop immediately.



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Drain plug on the compressed-air reservoir

- ▶ Start the engine.
- ▶ Check the reservoir pressure in the compressed-air brake system.
- ▶ If the on-board computer displays the red **Brake supply pressure in circuit 1 too low** and/or **Brake supply pressure in circuit 2 too low** event window, leave the engine running until the red event window goes out.
The compressed-air system is charged.
- ▶ Switch off the engine.
- ▶ Pull ring ② on drain plug ① and drain off the condensation.
- ▶ If a large amount of condensation runs out, have the compressed-air brake system checked at a qualified specialist workshop.

Checking the vehicle height

Only for vehicles with Telligent® level control.

WARNING

When driving with a lowered or raised chassis frame, the driving and braking characteristics may be seriously affected. A raised chassis

frame may also exceed the permissible vehicle height. There is a risk of an accident.

Set the driving level before pulling away.

- ▶ Raise or lower the chassis frame to driving level (▶ page 175).
The  or  display message and the status indicator go out.
The  indicator lamp in the instrument cluster goes out.

Checking the steering play

WARNING

If the steering play is too great, the vehicle may no longer be able to keep to a straight course. The operating and road safety of the vehicle are jeopardised. There is a risk of an accident.

Have the steering checked and repaired immediately at a qualified specialist workshop.

- ▶ Start the engine.
- ▶ Turn the steering wheel until the front wheels are in the straight-ahead position.
- ▶ Slightly turn the steering wheel alternately to the right and left.
The front wheels should move when the steering wheel is turned by no more than 30 mm, measured at the steering wheel rim. If this is not the case, have the steering and the steering linkage checked at a qualified specialist workshop immediately.

Checking the cab tilt lock

WARNING

If the cab is not locked, it could tip forwards, e.g. when braking. There is a risk of an accident.

Lock the cab before pulling away.

Always observe the warning lamps and display messages and follow the described remedial measures.

If the cab is not correctly locked in position, the  indicator lamp lights up in the instrument cluster.

- ▶ Turn the key to drive position **[2]** in the ignition lock.
- ▶ If the  indicator lamp in the instrument cluster does not go out, tilt the cab to the travelling position (> page 228).

Pulling away

General notes

- !** Do not pull away as soon as the engine starts. Let the engine run in neutral for a short time after starting, until there is sufficient engine oil pressure. Do not drive at high engine speeds when the engine is cold. This will prevent excessive wear and possible engine failure.

You should pay special attention to road conditions when temperatures are around freezing point.

An altered outside temperature is gradually displayed.

- i** When the vehicle is stationary and the transmission is in neutral, the engine has delayed throttle response.
- ▶ Change gear or select a shift range; see Transmission shift system (> page 136).
- ▶ Release the brake pedal or parking brake and slowly depress the accelerator pedal.
- ▶ If the drive wheels spin when pulling away, switch on the starting-off aid (> page 178).
- ▶ When starting a journey, carry out a brake test. Observe the road and traffic conditions when doing so.

If you notice a reduction in braking power when testing the brakes, stop the vehicle as soon as possible while paying attention to traffic conditions. Have the brake system checked and repaired at a qualified specialist workshop.

Do not judge when to change gear by the sound of the engine. The engine speed should always remain within the green zone of the rev counter where possible.

Warm up the engine quickly by driving at moderate engine speeds. Depending on the outside temperature, the engine will reach its operating temperature of between approximately 70 and 95 °C after around 10 to 20 minutes.

You can utilise the full engine power output once the engine has reached its normal operating temperature.

Stopping and switching off the engine

WARNING

Flammable material such as leaves, grass or twigs may ignite if they come into contact with hot parts of the exhaust system or exhaust gas flow. There is a risk of fire.

Park the vehicle so that no flammable material can come into contact with hot vehicle components. In particular, do not park on dry grassland or harvested grain fields.

WARNING

The parking brake may not be sufficient to ensure that the loaded vehicles does not roll away on uphill and downhill gradients. There is a risk of an accident.

In the test position, check whether the parking brake will hold the loaded vehicle. If the vehicle is not held, secure it using other methods, e.g. wheel chocks.

WARNING

If you switch off the ignition while the vehicle is in motion, safety-relevant functions are restricted or not available. This can affect the power steering function and the brake boosting effect, for example. You will then require considerably more force to steer and brake. There is a risk of an accident.

Do not switch off the ignition while the vehicle is in motion.

WARNING

If you leave children unattended in the vehicle, they could set the vehicle in motion by, for example:

- releasing the parking brake
- shifting the transmission into neutral
- starting the engine

They could also operate the vehicle's equipment and become trapped. There is a risk of an accident and injury.

When leaving the vehicle, always take the key with you and lock the vehicle. Never leave children unattended in the vehicle.

Ensure that you observe the safety notes in the "Children in the vehicle" section (▷ page 36).

- ▶ Stop the vehicle.
- ▶ Apply the parking brake.
- ▶ Shift into neutral.

Let the engine idle for approximately 2 minutes before switching it off if:

- the coolant temperature is very high (over 90 °C).
- the full engine power has been used, e.g. while driving in mountainous terrain.
- ▶ **To switch off the engine:** turn the key in the ignition lock back fully.
- ▶ Safeguard the vehicle against rolling away, e.g. using chocks.

i When you switch off the engine, BlueTec® exhaust gas aftertreatment automatically flushes the exhaust system with fresh air. Residues of AdBlue® on the metering unit or the injection nozzle might otherwise impair the function of BlueTec® exhaust gas aftertreatment. Depending on the vehicle's previous operating load, BlueTec® exhaust gas aftertreatment may flush the exhaust system several times.

When BlueTec® exhaust gas aftertreatment flushes the exhaust system, an air valve is activated. You may then hear a hissing sound. This hissing sound does not indicate a leak in the compressed-air system.

Brakes

Important safety notes

WARNING

If you shift down on a slippery road surface in an attempt to increase the engine's braking effect, the drive wheels could lose their grip. This increases the risk of skidding and having an accident.

Do not shift down for additional engine braking on a slippery road surface.

If the display shows a display message and the status indicator lights up red, the braking characteristics of the vehicle have changed. Do not then pull away or, if the vehicle is already in motion, stop as soon as possible, paying attention to road and traffic conditions. The pedal travel and pedal force required to brake the vehicle or the vehicle combination may increase. Have the brake system checked at a qualified specialist workshop.

Always pay attention to the display messages. The brake lights do not light up when you brake the vehicle with the parking brake.

Introduction

This section contains important information on the subject of brakes and is structured as follows:

- BS (Telligent® brake system) (▷ page 128)
- Checking the compressed-air brake system for leaks (▷ page 129)
- ABS (anti-lock braking system) (▷ page 129)
- BAS (Brake Assist) (▷ page 131)
- Independent trailer brake (for export only) (▷ page 131)
- Parking brake (▷ page 131)
- Frequent-stop brake (▷ page 133)
- Hill holder (▷ page 133)
- Continuous brake (▷ page 134)

Downhill gradients

Change into a lower gear in good time on long and steep downhill gradients. Take particular note of this when driving a laden vehicle and when towing a trailer.

i This also applies if you have activated cruise control or the speed limiter.

In addition, activate the continuous brake.

This will use the braking effect of the engine, so less braking will be required to maintain vehicle speed. This relieves the load on the brake system and prevents the brakes from overheating and wearing too quickly.

Heavy and light loads

WARNING

The braking system can overheat if you leave your foot on the brake pedal while driving. This increases the braking distance and could even cause the braking system to fail. There is a risk of an accident.

Never use the brake pedal as a footrest. Do not simultaneously depress both the brake pedal and the accelerator pedal while driving.

- !** Depressing the brake pedal constantly results in excessive and premature wear to the brake pads.

If heavy demands are made on the brakes, do not park the vehicle immediately. Drive on for a short while. This allows the airflow to cool the brakes more quickly.

If the brakes have been used only moderately, you should occasionally test their effectiveness. To do this, brake the vehicle more firmly from a higher speed, paying attention to traffic conditions. This improves the grip of the brakes.

Wet road surfaces

If you have driven for a long time in heavy rain without braking, there may be a delayed reaction from the brakes when braking for the first time. This may also occur after a car wash or after driving through deep water.

You will have to depress the brake pedal more firmly. Maintain a greater distance to the vehicle in front.

After driving on a wet road or having the vehicle washed, brake firmly while paying attention to the traffic conditions. This will warm up the brake discs, thereby drying them more quickly and protecting them against corrosion.

Limited braking performance on gritted roads

If you drive on salt-treated roads, a layer of salt may form on the brake discs and pads. This can increase the braking distance considerably.

- Apply the brakes occasionally in order to prevent any salt build-up. Ensure that you do not endanger other road users when doing so.
- Carefully depress the brake pedal at the end of the journey and when starting the next journey.
- Maintain a much greater distance to the vehicle in front.

New brake pads/linings

New brake pads/linings and discs that have been replaced only achieve optimum braking effect after several hundred kilometres of driving. Compensate for the reduced braking effect by applying greater force to the brake pedal.

For safety reasons, Mercedes-Benz recommends that you only have brake pads/linings fitted to your vehicle which have been approved for Mercedes-Benz vehicles or which correspond to an equivalent quality standard. Brake pads/linings which have not been approved for Mercedes-Benz vehicles or which are not of an equivalent quality could affect your vehicle's operating safety.

BS (Telligent® brake system)

The basic version of the service brake is a pneumatically controlled brake with ABS (Anti-lock Braking System).

In addition to the basic version, the service brake is also available as BS.

BS has electronic control for regulating and monitoring the service brake. This also incorporates the following systems:

- ABS (Anti-lock Braking System)
- ASR (acceleration skid control)
- ALB (automatic load-dependent brake)
- Hill holder
- BAS (Brake Assist)

BS is able to relieve the load on the service brake by activating the continuous brake (engine brake/retarder), depending on the vehicle load and the weather conditions.

If there are malfunctions in BS, a corresponding message appears in the display.

If the status indicator lights up yellow, the vehicle's braking characteristics may change. Drive

to a qualified specialist workshop with particular care and attention.

If the status indicator lights up red, the vehicle's braking characteristics have changed. Do not then pull away or, if the vehicle is already in motion, stop as soon as possible, paying attention to road and traffic conditions. The pedal travel and pedal force required to brake the vehicle or the vehicle combination may increase. The anti-lock function may be deactivated. The vehicle can only be decelerated by normal braking. Have the brake system checked at a qualified specialist workshop.

Always pay attention to the display messages.

Checking the compressed-air system for leaks

WARNING

It is not possible to brake the vehicle if the compressed-air brake system has a leak or if there is insufficient reservoir pressure. There is a risk of an accident.

Do not drive the vehicle until the necessary reservoir pressures have been reached and the STOP lamp goes out.

In the event of loss of pressure while driving, immediately bring the vehicle to a halt in accordance with the traffic conditions.

Secure the vehicle using the parking brake. Have the compressed-air system repaired at a qualified specialist workshop.

Do not let anyone enter or exit the vehicle during the test. This will help to prevent you from mistaking pressure loss, due to air-sprung seats or the Telligent® level control system, for leakage.

- ▶ Stop the vehicle on a level surface.
- ▶ Apply the parking brake.
- ▶ Use chocks to safeguard the vehicle against rolling away.
- ▶ Release the parking brake.
- ▶ Turn the key to the drive position in the ignition lock.
- ▶ In the **Monitoring info** menu in the on-board computer, call up the **reservoir pressure** submenu (▶ page 94).
- ▶ Leave the engine running until the reservoir pressure is approximately 10 bar.

- ▶ Switch off the engine.
- ▶ Turn the key to the drive position in the ignition lock after approximately 5 minutes. A waiting time of at least 5 minutes is required to eliminate pressure loss due to auxiliary consumers, e.g. BlueTec® exhaust gas after-treatment.
- ▶ Call up the **Supply pressure** submenu again.
- ▶ Depress the brake pedal to effect a half brake application – half of the pedal travel – and hold it in this position.
- ▶ Read off the reservoir pressure after approximately 1 minute.
- ▶ After approximately 3 minutes, read off the reservoir pressure again. If after 3 minutes the on-board computer shows a pressure loss of max. 0.4 bar in the **Supply pressure** submenu, the compressed-air brake system is free from leaks.

ABS (Anti-lock Braking System)

General notes

ABS controls the braking pressure so that the wheels do not lock under braking. This means that the vehicle can still be steered while braking.

ABS is operational from walking pace, regardless of road surface conditions. If the road is slippery, ABS intervenes even if you only brake gently.

If you engage a differential lock, ABS is deactivated.

ABS display check

WARNING

If ABS is faulty, the wheels could lock when braking. The steerability and braking characteristics may be severely impaired. Additionally, further driving safety systems are deactivated. There is an increased danger of skidding and accidents.

Drive on carefully. Have ABS checked immediately at a qualified specialist workshop.

The anti-lock protection function is not guaranteed if:

- no display for the Telligent® brake system appears or
 - the display does not go out after 3 seconds or
 - the display does not go out when the vehicle pulls away
- Turn the key to the drive position in the ignition lock.

The display lights up for approximately 2 seconds. At the same time, the warning buzzer sounds. The display then shows  or  for approximately 3 seconds.

Braking with anti-lock protection

WARNING

The wheels of the trailer/semitrailer may lock when braking and the vehicle combination may become unstable if:

- the trailer/semitrailer does not have ABS
- the ABS of the trailer/semitrailer has failed
- ABS has failed completely

As a result, you could lose control of the vehicle and cause an accident.

Always adapt your driving style to the prevailing road and weather conditions and maintain a sufficient, safe distance from other road users. Avoid full brake applications; except in emergency situations.

Anti-lock protection improves the directional stability and steerability of the tractor/trailer combination under braking.

If you fail to adapt your driving style or if you are inattentive, the driving safety systems can neither reduce the risk of an accident nor override the laws of physics. Driving safety systems are merely aids designed to assist driving. You are responsible for the distance to the vehicle in front, for vehicle speed and for braking in good time. Always adapt your driving style to the prevailing road and weather conditions and maintain a sufficient, safe distance from other road users. Drive carefully.

- When ABS is intervening, keep the brake pedal depressed until the braking situation has passed.
- For full brake application, fully depress the brake pedal.

When ABS is intervening, the continuous brake is switched off. The  indicator lamp in the instrument cluster does not go out.

If you want to drive the tractor vehicle with a trailer/semitrailer with ABS or an electronic brake system:

- Connect a control cable to the socket or to the ABS/BS plug (► page 195).

If you want to drive the semitrailer tractor vehicle without a trailer or with a trailer without ABS:

- Insert the control cable into the blank socket.

Deactivating/activating ABS

WARNING

If ABS is deactivated, the wheels may lock when braked. As a result, the vehicle can no longer be steered. There is an increased risk of skidding and an accident.

Always leave ABS on when driving on roads and firm surfaces.

By deactivating ABS, it may be possible to achieve shorter braking distances on rough terrain and on unpaved roads, e.g. on soft ground. You can only deactivate ABS for the tractor vehicle.



- Start the engine.
ABS is activated.
- **To deactivate:** press the upper section of button ①.
The display shows  **ABS deactivated** with a yellow status indicator. The 

indicator lamp lights up in the instrument cluster at the same time.

- **To activate:** press the upper section of button ①.

The display message disappears.

BAS (Brake Assist)

⚠ WARNING

If BAS is malfunctioning, the braking distance in an emergency braking situation is increased. There is a risk of accident.

In an emergency braking situation, depress the brake pedal with full force. ABS prevents the wheels from locking.

BAS operates in emergency braking situations. If you depress the brake pedal quickly, BAS boosts the braking force and thus shortens the braking distance.

If you engage a differential lock, ABS is deactivated.

- Keep the brake pedal firmly depressed until the emergency braking situation has passed. ABS prevents the wheels from locking when this occurs.

The brakes will function as usual once you release the brake pedal. BAS is deactivated.

Independent trailer brake

⚠ WARNING

If the independent trailer brake is used incorrectly, e.g. as a substitute for the continuous brake, the trailer/semitrailer brake may over-heat or lock. The vehicle is then no longer safe or roadworthy. There is a risk of an accident.

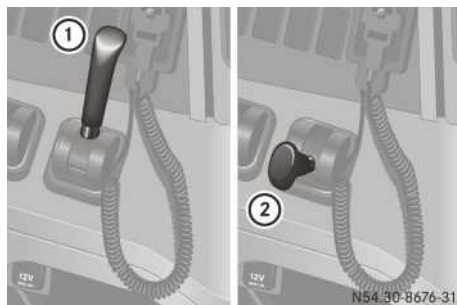
Only use the independent trailer brake for short-term adaptive braking.

The independent trailer brake can be used independently of the towing vehicle's service and parking brakes.

The lever of the independent trailer brake is on the instrument panel next to the parking brake lever.

The independent trailer brake only brakes the wheels on the trailer/semitrailer.

The independent trailer brake can be used to perform adaptive braking on downhill gradients. This prevents the tractor/trailer combination from jack-knifing.



- **To brake:** pull the independent trailer brake lever to fully applied position ② until the required braking effect of the trailer/semi-trailer is achieved. Hold the lever in this position.

- **To release the independent trailer brake:** let go of the independent trailer brake lever. The independent trailer brake lever returns to release position ①.

Parking brake

Important safety notes

⚠ WARNING

If the parking brake lever is not in the fully applied position, it automatically returns to the released position. The vehicle could roll away as a result. There is a risk of an accident. Move the lever into the fully applied position when parking the vehicle.

⚠ WARNING

The parking brake may not be sufficient to secure the vehicle against rolling away on uphill or downhill gradients. A vehicle with a trailer/semitrailer or a laden vehicle could roll away. There is a risk of accident.

In the test position, check if the parking brake is sufficient to hold the tractor vehicle. If the tractor vehicle is not held, secure the vehicle and the trailer/semitrailer additionally using

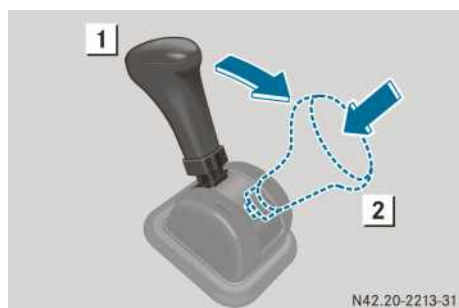
wheel chocks. Secure the trailer/semitrailer additionally using its parking brake.

Secure the parked vehicle against rolling away by applying the parking brake. The parking brake actuates the spring-loaded parking brake cylinder.

The brake lights do not light up when you brake the vehicle with the parking brake.

The lever for the parking brake is located on the dashboard or next to the driver's seat.

Applying the parking brake



- Move the parking brake lever from release position ① to fully applied position ②, push it downwards and engage it.

If you cannot move the parking brake lever further, then it is engaged and the parking brake has been applied. The  indicator lamp in the instrument cluster lights up.

Trailer/semitrailer with EC brake system: when the trailer/semitrailer is attached, the parking brake acts on the service brake of the trailer/semitrailer.

You can find further information about the parking brake on the trailer/semitrailer in the manufacturer's operating instructions.

Testing the parking brake



When the parking brake is applied:

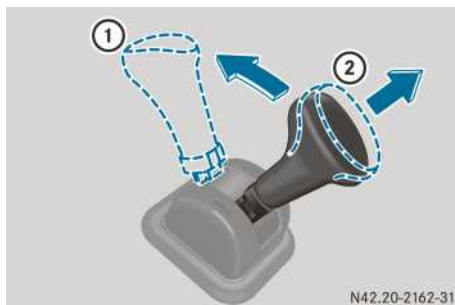
- Press down the parking brake lever, move it beyond fully applied position into control position ③ and hold it in place. During the test, the vehicle combination is only held by the force exerted by the spring-loaded brake of the tractor vehicle. The trailer/semitrailer brakes are released.

On fire engines with a four-wheel parking brake: the parking brake on the front axle is released. The vehicle is only held by the spring-loaded parking brake.

The vehicle must not move.

- If the force exerted by the spring-loaded brake cannot hold the vehicle combination, secure the tractor vehicle and trailer/semitrailer with chocks.
- Move parking brake lever from control position ③ back to fully applied position and engage it.

Releasing the parking brake



- Pull the parking brake lever upwards from fully applied position ② and swing it up into released position ① as far as it will go. The  indicator lamp in the instrument cluster goes out.

If the reservoir pressure in both brake circuits is above 8 bar, the parking brake releases fully.

If the  indicator lamp in the instrument cluster does not go out, the reservoir pressure in the spring-loaded brake circuit is too low (below 5.5 bar).

To tow the vehicle, you can also manually release the spring-loaded parking brake cylinder on the parking brake (► page 251).

Frequent-stop brake

WARNING

When securing the vehicle against rolling away with the frequent-stop brake, the braking pressure may be too low. The vehicle could roll away even though the frequent-stop brake is engaged. There is a risk of an accident.

Never leave the driver's seat with the frequent-stop brake activated and be prepared to apply the brakes. If the vehicle begins to roll, apply the service brake.

WARNING

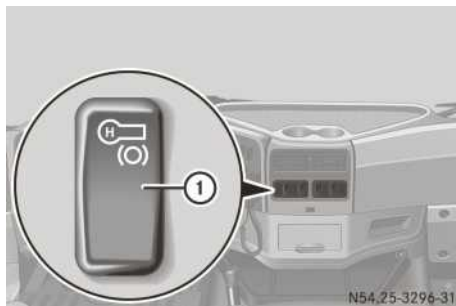
If you brake in wintry road conditions while the frequent-stop brake is activated, the wheels may lock shortly before stopping. Even if you take your foot off the brake pedal, the wheels remain locked. The vehicle may skid or slip away, e.g. on uphill or downhill gradients. There is a risk of an accident.

Never activate the frequent-stop brake in wintry conditions.

The frequent-stop brake requires less compressed air than the service brake and the parking brake. Use the frequent-stop brake if you frequently pull away and stop for short periods of time, e.g. in refuse collection operation. The frequent-stop brake does not replace the service brake or the parking brake. When you want to park the vehicle, observe the instruc-

tions in the "Stopping and parking" section (► page 126).

If you turn the key back to the stop in the ignition lock while the frequent-stop brake is engaged, the frequent-stop brake remains engaged. If you also release the service/parking brake, the warning buzzer sounds and the  indicator lamp flashes in the instrument cluster.



- **To switch on the frequent-stop brake:** press the upper section of switch ①.

The  indicator lamp in the instrument cluster lights up.

The frequent-stop brake is primed but not active.

- **To activate the frequent-stop brake:** depress the brake pedal until the vehicle is stationary. The frequent-stop brake is active.

- **To release the frequent-stop brake:** depress the accelerator pedal. The frequent-stop brake is automatically released and primed when the vehicle pulls away.

- **To deactivate the frequent-stop brake:** press the lower section of switch ①. The  indicator lamp in the instrument cluster goes out.

Hill holder

WARNING

If you do not stop the vehicle using the service brake, e.g. when coasting to a stop, the hill holder will not be activated. The vehicle could roll away. There is a risk of an accident.

Always brake the vehicle to a standstill using the service brake in order to activate the hill holder.

The hill holder is part of BS (Telligent® brake system) and provides support when pulling away on uphill gradients or downhill gradients. The hill holder prevents the vehicle from rolling and facilitates smoother pulling away.

If the hill holder is activated, it remains primed in forward and reverse gear at all times, even after a brief stop or after the engine is switched off.



- **To switch on the hill holder:** press the upper section of switch ①.

The hill holder is primed but not active.

- **To activate the hill holder:** depress the brake pedal until the vehicle is stationary. The hill holder is activated. The  indicator lamp in the instrument cluster lights up.

The hill holder remains activated when you depress the brake or clutch pedal.

- **To release the hill holder:** depress the accelerator pedal. When the vehicle pulls away, the hill holder is automatically released. The  indicator lamp in the instrument cluster goes out.

- **To switch off the hill holder:** press the bottom section of switch ①. The  indicator lamp in the instrument cluster goes out.

If you apply the parking brake, the  indicator lamp in the instrument cluster goes out. The hill holder function is no longer active but remains primed.

Vehicles with Telligent® automatic gear-shift:

If the brake pedal is released while the hill holder is activated, a warning buzzer sounds briefly.

The hill holder is deactivated and the  indicator lamp in the instrument panel goes out.

Vehicles without Telligent® automatic gear-shift:

If you do not depress the accelerator, clutch or brake pedal while the vehicle is stationary and the hill holder is active, a warning buzzer sounds briefly. The hill holder is deactivated and the  indicator lamp in the instrument panel goes out.

Continuous brake

Important safety notes

WARNING

If there is a retarder or retarder control malfunction, braking characteristics can change. The vehicle can brake uncontrollably. The wheels can block and thus lose traction on slippery road surfaces. This can cause the vehicle to skid. There is a risk of an accident. Drive with even greater care or stop the vehicle immediately in accordance with the traffic conditions. Have the retarder checked and repaired immediately at a qualified specialist workshop.

Always observe the warning lamps and display messages and follow the described measures.

WARNING

If you activate the continuous brake or shift to a lower gear on a slippery road surface in order to increase the engine's braking effect, the drive wheels may lose traction. There is an increased risk of skidding and an accident.

Do not activate the continuous brake and do not shift to a lower gear in order to increase the engine's braking effect on a slippery road surface.

The continuous brake consists of the engine brake and the retarder.

You can utilise the engine's braking effect, particularly on long downhill gradients if you:

- activate the continuous brake
- shift to a lower gear in good time

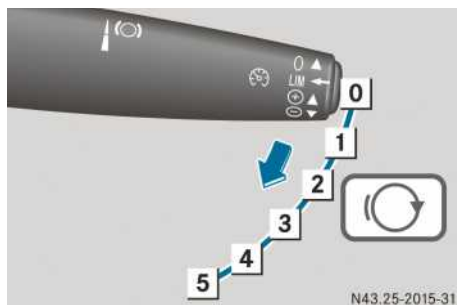
The continuous brake is activated automatically if:

- after several brake applications, the vehicle electronics detect that the vehicle is loaded and you then depress the brake pedal.
- ART (Telligent® distance control) is active in overrun mode.
- cruise control is active in overrun mode.

Switching continuous brake on and off

! Have the continuous brake checked at a qualified specialist workshop if the continuous brake:

- is activated and the  indicator lamp lights up or
- is deactivated and the  indicator lamp does not go out.



Example: multifunction lever

► **To switch on:** pull the multifunction lever to set to the desired brake level.

The  indicator lamp in the instrument cluster lights up.

► **To switch off:** push the multifunction lever to position .

The  indicator lamp in the instrument cluster goes out.

Vehicles without a retarder and with:

- an engine output of up to 240 kW are only equipped with the first brake level
- an engine output of 265 kW or more are only equipped with the first two brake levels

On vehicles with a retarder, the retarder is activated from position .

The braking effect of the continuous brake is lowest in position  and highest in position .

If the  indicator lamp flashes in the instrument cluster after the display check, the continuous brake lever is not in position .

When ABS (Anti-lock Braking System) intervenes, the continuous brake is switched off. The  indicator lamp in the instrument cluster remains on.

Engine brake

The effectiveness of the engine brake depends on the engine speed. A high engine speed results in more effective engine braking.

Observe the effective engine braking range marked on the rev counter (> page 86).

Retarder

If the  indicator lamp flashes or the  indicator lamp lights up or flashes, the retarder's braking power is reduced.

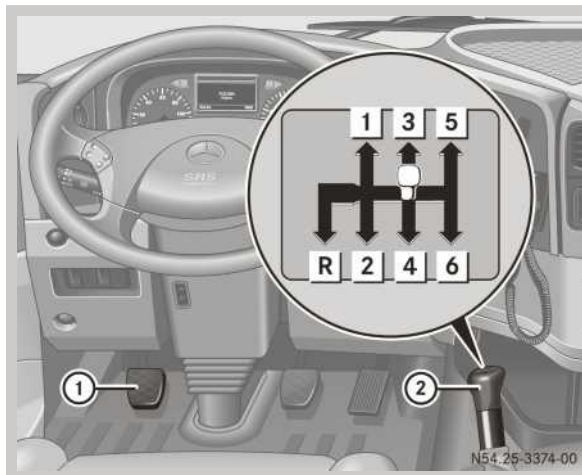
► Change down in good time.

The engine braking effect and the engine cooling effect are increased.

You can find information about the cleaning and care of the retarder in the "Care and maintenance" section (> page 208).

Overview of the transmission shift system

Six-speed manual transmission

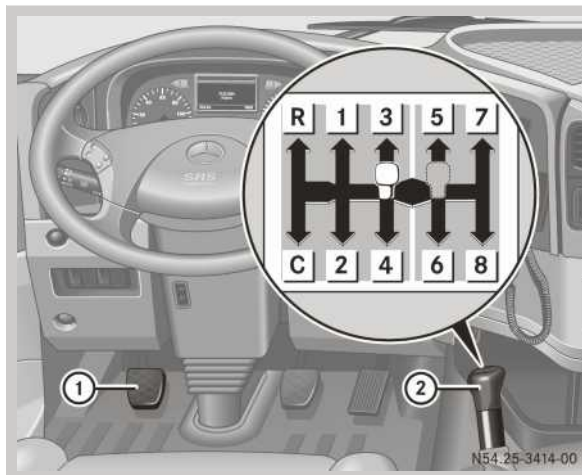


The transmission has six forward gears and one reverse gear.

You shift gears using gear lever ② and clutch pedal ①.

Refer to the "Manual transmission" section (> page 140) for further information on the transmission shift system. In particular, observe the notes on shifting gear.

Nine-speed manual transmission



The transmission has eight forward gears, one crawler gear and one reverse gear.

The mechanical/hydraulic gear-shift is designed as a double-H gearshift.

You shift gears using gear lever ② and clutch pedal ①.

Refer to the "Manual transmission" section (> page 140) for further information on the transmission shift system. In particular, observe the notes on shifting gear.

16-speed manual transmission



The transmission has 16 forward gears and 2 reverse gears.

The mechanical/hydraulic gear-shift is designed as a double-H gearshift.

The gears are shifted using:

- gear lever (2)
- splitter switch (3)
- clutch pedal (1)

You can use splitter switch (3) to select a low-range or high-range ratio for the gear selected, without changing the gear itself.

Refer to the "Manual transmission" section (> page 140) for further information on the transmission shift system. In particular, observe the notes on shifting gear.

Telligent® gearshift



The transmission has 16 forward gears and 2 reverse gears.

You shift the gears using gearshift unit (8) and clutch pedal (1).

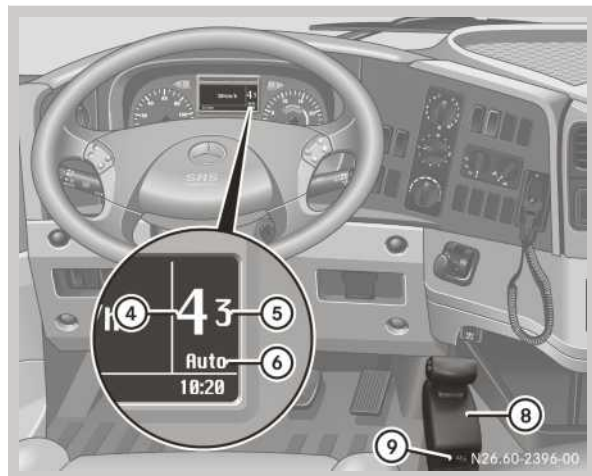
Gear selection is performed by the electronic management system or by the driver.

You can use the splitter switch to select a low-range or high-range ratio for the gear selected, without changing the gear itself.

The display shows selected gear and splitter group (4). It also shows the recommended or pre-selected gear with appropriate splitter group (5) (flashing).

Further information on gearshifting can be found in the "Telligent® gearshift" section (▷ page 142). In particular, observe the notes on shifting gear.

Telligent® automatic gearshift



The transmission has six forward gears and one reverse gear.

You change gear with gearshift unit ⑧. The clutch system engages automatically.

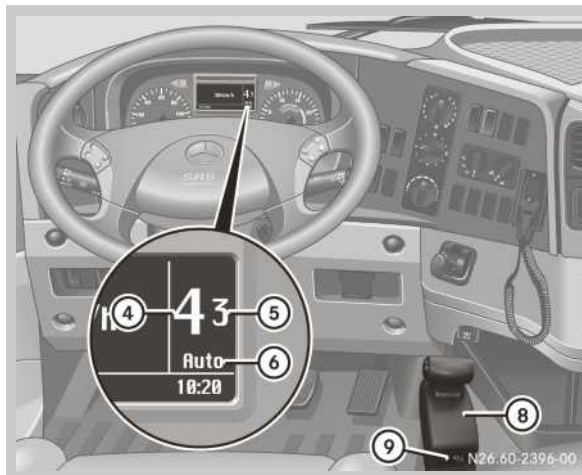
With operating mode selector button ⑨, you can select manual or automatic mode.

You decide the shift direction using gearshift unit ⑧ in automatic operating mode. Gear selection is performed by the electronic management system or by the driver.

The display shows selected gear ④, recommended or preselected gear ⑤ and active operating mode ⑥.

Further information on the transmission shift system can be found in the "Telligent® automatic gearshift and Mercedes PowerShift" section (▷ page 145). In particular, observe the notes on shifting gear.

Mercedes PowerShift (12-gear transmission)



The transmission has twelve forward gears and four reverse gears.

You change gear with gearshift unit ⑧. The clutch system engages automatically.

With operating mode selector button ⑨, you can select manual or automatic mode.

You decide the shift direction using gearshift unit ⑧ in automatic operating mode. Gear selection is performed by the electronic management system or by the driver.

The display shows selected gear ④, recommended or preselected gear ⑤ and active operating mode ⑥.

Further information on the transmission shift system can be found in the "Telligent® automatic gearshift and Mercedes PowerShift" section (▷ page 145). In particular, observe the notes on shifting gear.

Touch-key gearshift for automatic transmission



The automatic transmission automatically shifts all five or six forward gears. The drive position **D** will provide optimal handling in almost all operating circumstances.

While driving, you can restrict or de-restrict the shift range manually for uphill or downhill gradients using the  and  buttons on the touch-key gearshift ①.

Refer to the "Automatic transmission" section (► page 157) for further information. In particular, observe the notes on shifting gear.

Manual transmission

Manual gearshift

Important safety notes

WARNING

If there is a loss of pressure or the reservoir pressure in the auxiliary consumers circuit is too low:

- on vehicles with Telligent® automatic gearshift, the automatic gearshift will no longer function
- on vehicles with Telligent® automatic gearshift, you will need to use considerably more force to change gear

There is a risk of an accident.

Do not pull away, or stop the vehicle as soon as possible, paying attention to road and traffic conditions. Secure the vehicle against rolling away, e.g. with the parking brake. Have the compressed-air system repaired at a qualified specialist workshop.

! Observe the following information to avoid risking damage to the transmission, the engine or the clutch:

- do not drive with an engine speed that is too high or too low.
- only engage reverse gear with the engine at idling speed and the vehicle stationary.
- when changing gear, make sure that the engine speed does not enter the red over-revving range in the rev counter.
- release the gear lever when you have finished changing gear. Do not rest your hand or arm on the gear lever.
- if the warning buzzer sounds when downshifting, the maximum permissible engine speed has been exceeded. Shift to a higher gear, not a lower gear. The power-assisted gearshift is deactivated to protect the transmission synchronisation. As a result, more force is required when shifting gear.

The engine has delayed throttle response, if:

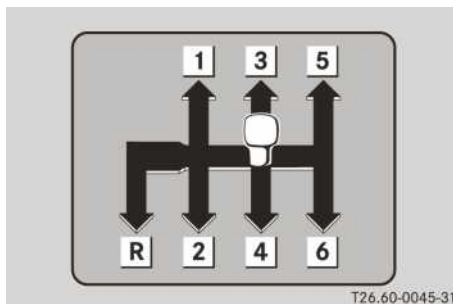
- the vehicle is stationary
- the engine is running
- the transmission is in neutral

Changing gears

- Depress the clutch pedal.
- Shift the gear lever to neutral.
- Vehicles with 9-speed or 16-speed transmission: if necessary, change the shift range.
- Use the gear lever to shift to the desired gear. Do not use excessive force.
- Slowly release the clutch pedal.

6-speed transmission

The 6-speed transmission is a manually operated gearbox.



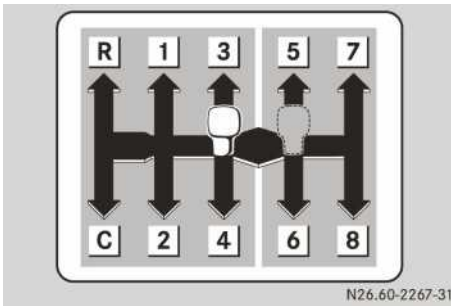
Gearshift pattern

The shift range is divided into reverse gear **R** and gears **1** to **6**.

9-speed transmission

General notes

The 9-speed transmission is a manually operated gearbox. The gearbox is designed as a double-H gearshift.



Gearshift pattern

The shift ranges of the transmission are divided into:

- the low shift range "L" with:
 - reverse gear **R**
 - crawler gear **C**
 - gears **1** to **4**
- the high shift range "H" with gears **5** to **8**.

When in neutral position, the gear lever is in the gate between the 3rd and 4th gear and the 5th and 6th gear.

Changing the shift range

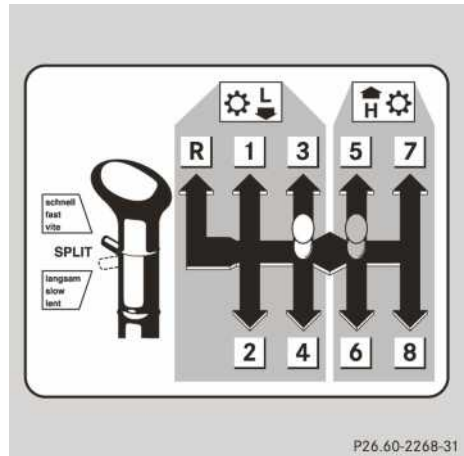
I When changing from the high-range group to the low-range group, keep the speed of the vehicle below 25 km/h. If you change from the high-range group to the low-range group at high speed, the transmission may be damaged.

- ▶ Depress the clutch pedal.
- ▶ Shift the gear lever to neutral.
- ▶ Overcome the gear lever pressure point between the shift ranges with a gentle sideways tap of the hand on the gear lever.
- ▶ After approximately 1 second, select the desired gear without using excessive force.
- ▶ Slowly release the clutch pedal.

16-speed transmission

General notes

The 16-speed transmission is a manually operated gearbox. The gearbox is designed as a double-H gearshift.



Gearshift pattern

The shift ranges of the transmission are divided into:

- the low shift range "L" with gears **1** to **4** and reverse gear **R**
- the high shift range "H" with gears **5** to **8**
- the splitter groups with the switch on the front side of the gear lever

The additional gear reduction means that you can select a total of 16 forward gears and 2 reverse gears.

When in neutral position, the gear lever is in the gate between the 3rd and 4th gear and the 5th and 6th gear.

Gearshift options

You can shift gears:

- in the selected low-range splitter group, e.g. off-road driving
- in the selected high-range splitter group, e.g. on-road driving
- between low-range and high-range splitter groups, e.g. when the vehicle is laden

Changing the shift range

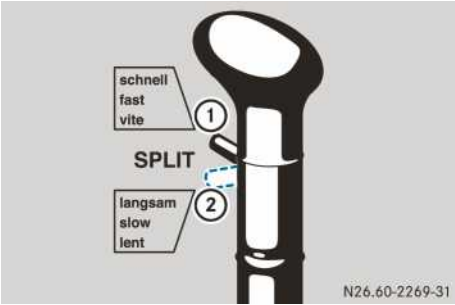
I When changing from the high-range group to the low-range group, keep the speed of the vehicle below 25 km/h. If you change from the high-range group to the low-range group at high speed, the transmission may be damaged.

- ▶ Depress the clutch pedal.
- ▶ Shift the gear lever to neutral.

- ▶ Overcome the gear lever pressure point between the shift ranges with a gentle sideways tap of the hand on the gear lever.
- ▶ After approximately 1 second, select the desired gear without using excessive force.
- ▶ Slowly release the clutch pedal.
- ▶ Move the splitter switch to the upper position for high-range splitter group ① or to the lower position for low-range splitter group ②.
- ▶ Depress and hold the clutch pedal until the splitter group is engaged.
- ▶ Release the clutch pedal.

Selecting the splitter group

By selecting a splitter group, you select a low-range or high-range ratio for the gear selected without changing the gear itself.



Problems with the transmission

Problem	Possible causes/consequences and ► Solutions
There is no power transmission to the drive axles.	The transfer case is in neutral position. ► Switch the transfer case into road or off-road position (► page 163).

Automated transmission

Telligent® gearshift

Important safety notes

 WARNING

If there is a loss of pressure or the reservoir pressure in the auxiliary consumers circuit is too low:

- on vehicles with Telligent® automatic gearshift, the automatic gearshift will no longer function
- on vehicles with Telligent® automatic gearshift, you will need to use considerably more force to change gear

There is a risk of an accident.

Do not pull away, or stop the vehicle as soon as possible, paying attention to road and traffic conditions. Secure the vehicle against rolling away, e.g. with the parking brake. Have the compressed-air system repaired at a qualified specialist workshop.

The Telligent® gearshift transmission has 16 forward gears and 2 reverse gears.
A gear range can be selected by the electronic management system (electronic gear selection) or by the driver (manual gear selection).

Gear indicator



Example: gear indicator in the display

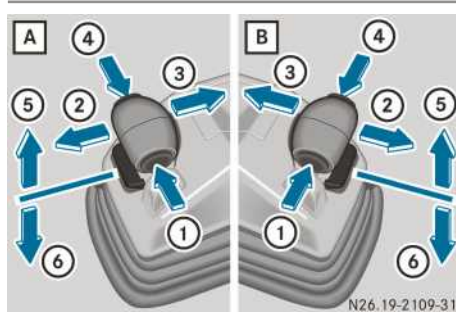
- ① Selected: 4th gear, high-range splitter group
- ② Recommended or preselected: 3rd gear, low-range splitter group

The display shows the following information:

- the engaged gear and the selected splitter group
- the recommended or preselected gear with appropriate splitter group (flashing)

	High-range splitter group
	Low-range splitter group
1–8	1st to 8th gear
N	Neutral position
R	Reverse gear

Gearshift unit



- A** Left-hand-drive vehicle
- B** Right-hand-drive vehicle
- ① Button
- ② Gear lever: to shift up
- ③ Gear lever: to shift down/select reverse gear
- ④ Neutral button
- ⑤ Splitter switch, to shift up ½ gear
- ⑥ Splitter switch, to shift down ½ gear

Gearshift options

Telligent® gearshift offers four ways of changing gear:

- directly with electronic gear selection, for example in urban traffic.
- with electronic gear selection and preselection, for example at traffic lights.
- directly with manual gear selection, for example before an uphill gradient.
- with manual gear selection and preselection, for example when overtaking.

i A gearshift or a shift of the splitter group while the vehicle is moving is only possible at appropriate engine speeds. If these engine speeds have not been reached, a warning tone sounds. The gear or the splitter group is not selected. The electronic management system only selects permissible gears.

Shifting using electronic gear selection

You determine the shift direction and the electronic management system selects the optimum gear (target gear).

This depends on the operating conditions, e.g. speed, load and accelerator pedal position.

- Press the gear lever forwards ② (to shift up) or pull back ③ (to shift down).

The electronic management system selects the most suitable gear range.

If the optimal gear range has already been selected, the electronic management system selects the next gear range in the selected direction.

- Reverse gear can only be selected manually.

Shifting with manual gear selection

You determine the shift direction and the gear range.

You can shift up by ½, 1, 1½ or 2 gears.

In construction-site mode (differential lock activated) you cannot shift up by more than one gear.

To pull away, you cannot shift higher than 4th gear.

- To shift ½ gear:** pull splitter switch up ⑤ (to shift up) or push down ⑥ (to shift down).

i If you are changing gear with preselection, you can also pull/push the splitter switch multiple times. In this way, you can preselect 1, 1½ or 2 gears.

- ▶ **To shift one gear:** press and hold button ①.
- ▶ Press the gear lever forwards ② (to shift up) or pull back ③ (to shift down).

i If you are changing gear directly, you can also pull/push the splitter switch twice. This enables you to switch 2 gears.

- ▶ **To shift 1½ gears directly:** press and hold button ①.
- ▶ Pull the splitter switch up ⑤ and push the gear lever forwards ② (shift up) or
- ▶ Push the splitter switch down ⑥ and pull the gear lever back ③ (shift down).

Changing gear using preselection

i Gear range selection takes place before you depress the clutch pedal. The gear range is not engaged until you depress the clutch pedal.

- ▶ Select a gear range with electronic or manual gear selection.
- ▶ Release the gear lever or splitter switch. The preselected gear range flashes briefly in the display.

The preselected gear range is stored:

- approx. 10 seconds when driving or while the parking/service brake is released
- approx. 2 minutes if the vehicle is stationary and the parking/service brake is applied
- approx. 30 seconds in construction-site mode (differential lock activated).

During the preselection period:

- you can change the preselected gear range by briefly pressing the gear lever or the splitter switch. The new target gear flashes in the display.
- you can delete the preselected gear range. Briefly press neutral button ④ to do so.
- the preselected gear range will automatically be adapted to a change in driving conditions if electronic gear selection is activated.

- ▶ Depress the clutch pedal. The gearshift is completed when the selected gear range is shown in the display.
- ▶ Slowly release the clutch pedal.

If you release the clutch pedal before the gear has engaged, Telligent® gearshift shifts into neutral. **N** flashes in the display and a warning tone sounds.

- ▶ Depress the clutch pedal again within 2 seconds and wait until the gear has applied.

Changing gear directly

- ▶ Depress the clutch pedal.
- ▶ Select a gear range with electronic or manual gear selection. The selected gear range flashes briefly in the display.

The gearshift is completed when the gear lever or the splitter switch can be moved further and the selected gear range is shown in the display.

- ▶ Release the gear lever or splitter switch.
- ▶ Slowly release the clutch pedal.

If you release the clutch pedal before the gear has engaged, Telligent® gearshift shifts into neutral. **N** flashes in the display and a warning tone sounds.

- ▶ Depress the clutch pedal again within 2 seconds and wait until the gear has applied.

Shifting into neutral

Shift the transmission to neutral when stopping for a longer time, e.g. at traffic lights or before stopping the engine. The neutral position cannot be preselected.

- ▶ Slow down the vehicle and bring it to a halt.
- ▶ Depress the brake pedal or apply the parking brake.
- ▶ Press and hold neutral button ④. **N** flashes in the display.
- ▶ Depress the clutch pedal. The gear change is complete when **N** is shown in the display.
- ▶ Release the clutch pedal and neutral button ④.

i If you pull/push the splitter switch when the transmission is in neutral, only the splitter group is changed.

Engaging reverse gear

Reverse gear cannot be preselected.

With the vehicle stationary and the transmission in neutral:

- ▶ Depress the brake pedal or apply the parking brake.
- ▶ Press and hold button ①.
- ▶ Pull the gear lever back ③ until resistance is felt.
- ▶ Depress the clutch pedal.
The gearshift is completed when gear lever ② can be moved further and R is shown in the display.
- ▶ Slowly release the clutch pedal.

i When reverse gear is engaged, pulling/pushing the splitter switch only changes the splitter group (high-range or low-range reverse gear).

Changing direction quickly

This procedure may be necessary to rock free a bogged-in vehicle, for example.

You can only make rapid changes of direction by starting in reverse gear.

With the vehicle stationary and the engine running:

- ▶ Engage reverse gear.

From reverse into first gear:

- ▶ Press and hold button ①.
- ▶ Push the gear lever forward ② until resistance is felt.
- ▶ Depress the clutch pedal.
The gearshift is completed when the gear lever can be moved further and 1 is shown in the display.
- ▶ Release the clutch pedal.

From first gear into reverse:

- ▶ Press and hold button ①.
- ▶ Pull the gear lever back ③ until resistance is felt.
- ▶ Depress the clutch pedal.
The gearshift is completed when the gear lever can be moved further and R is shown in the display.
- ▶ Release the clutch pedal.

Repeat the gear change process until the vehicle is free again.

Construction-site mode

Construction vehicles:

In construction-site mode, the shift strategy changes. The transmission shifts up at a later point and shifts down earlier, making the vehicle more dynamic. When you engage the differential locks (▶ page 162) construction-site mode is also activated.

If you wish to select a gear using electronic gear selection in construction-site mode, you can only shift up a maximum of one gear or must shift down at least one gear.

Telligent® automatic gearshift and Mercedes PowerShift

Important safety notes

WARNING

If there is a loss of pressure or the reservoir pressure in the auxiliary consumers circuit is too low:

- on vehicles with Telligent® automatic gearshift, the automatic gearshift will no longer function
- on vehicles with Telligent® automatic gearshift, you will need to use considerably more force to change gear

There is a risk of an accident.

Do not pull away, or stop the vehicle as soon as possible, paying attention to road and traffic conditions. Secure the vehicle against rolling away, e.g. with the parking brake. Have the compressed-air system repaired at a qualified specialist workshop.

Telligent® automatic gearshift has 6 forward gears and 1 reverse gear.

Mercedes PowerShift has 12 forward gears and 4 reverse gears.

The electronic management system controls the clutch when driving, e.g. when:

- pulling away
- manoeuvring
- changing gear
- stopping

Gear indicator



Example: gear indicator in the display

- ① Selected: fourth gear
- ② Recommended or preselected: third gear
- ③ Automatic mode

The display shows the following information:

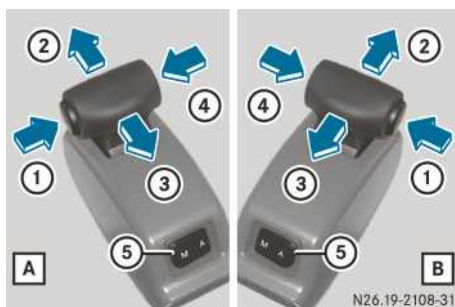
- selected gear ①
- recommended or preselected gear (flashing) ②
- operating mode activated ③

1–6	Gears 1 to 6 (Telligent® automatic gearshift)
1–12	Gears 1 to 12 (Mercedes PowerShift)
N	Neutral position
R	Reverse gear (Telligent® automatic gearshift)
R1 – R4	Reverse gears 1 to 4 (Mercedes PowerShift)
Auto	Automatic mode
Man	Manual mode

Vehicles with Mercedes PowerShift: the arrows for high-range  and low-range  splitter groups only appear when power take-off is engaged and the transmission is in neutral.

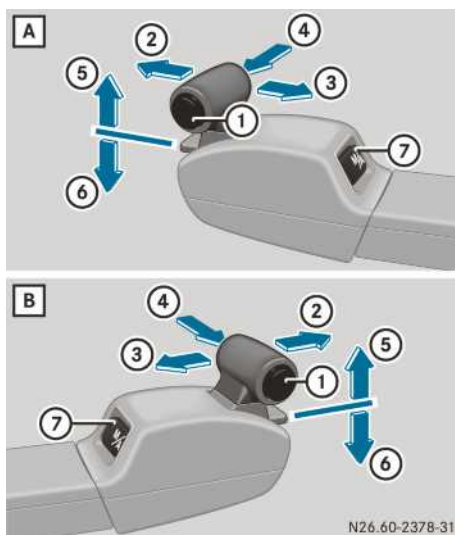
Gearshift unit

Telligent® automatic gearshift



- A** Left-hand-drive vehicle
- B** Right-hand-drive vehicle
- ① Shift button
- ② Gear lever: to shift up
- ③ Gear lever: to shift down/select reverse gear
- ④ Neutral button
- ⑤ Operating mode selector button

Mercedes PowerShift



- A** Left-hand-drive vehicle
- B** Right-hand-drive vehicle
- ① Shift button
- ② Gear lever: to shift up
- ③ Gear lever: to shift down/select reverse gear

- ④ Neutral button
- ⑤ Gearshift rocker: to shift up
- ⑥ Gearshift rocker: to shift down
- ⑦ Operating mode selector button

i If you are operating the transmission using the gear lever, push or pull the gear lever until you feel resistance.

Operating modes

Two modes can be selected:

- Automatic mode
The electronic management system shifts the gear depending on:
 - engine speed
 - accelerator pedal position
 - status of the continuous brake
 - load status of the vehicle
 - condition of the road surface
- Manual mode
Shift to pulling-away gear; determine the time and direction of the shift yourself.

When the engine has been started, automatic operation mode is always activated.

i For vehicles with Telligent® automatic gearshift: after the display check of the instrument cluster, the current operating mode briefly appears in the display.

Vehicles with Mercedes PowerShift: after the display check of the instrument cluster, automatic mode **Auto** briefly appears in the display. It also briefly displays the  symbol and **auto**.

You can change the operating mode at any time.

► To activate manual mode:

Press operating mode selector button ⑤ (Telligent® automatic gearshift) or operating mode selector button ⑦ (Mercedes PowerShift).

Manual mode **Man** appears on the right of the display.

On vehicles with Mercedes PowerShift, it also briefly displays the  symbol and **man**.

► To activate automatic mode:

Press operating mode selector button ⑤ (Telligent® automatic gearshift) or operating

mode selector button ⑦ (Mercedes PowerShift) again.

Auto automatic mode appears on the right of the display.

On vehicles with Mercedes PowerShift, the display also briefly shows the  symbol and **auto**.

Pulling away

Vehicles with Telligent® automatic gearshift: if the transmission is cold (outside temperatures below –15 °C), let the engine run with the transmission in neutral for 60 seconds before pulling away. You cannot select a gear higher than second gear to pull away.

Vehicles with Mercedes PowerShift: in manual mode, you can shift from neutral into gears 1 to 6 to pull away.

► Depress the brake pedal or apply the parking brake.

► Press and hold shift button ①.

► Push gear lever ② forward.

Vehicles with Telligent® automatic gearshift: the electronic management system selects first gear (pulling-away gear). The selected gear briefly flashes on the right-hand side of the gear indicator and then appears on the left-hand side.

Vehicles with Mercedes PowerShift: in automatic mode, the electronic management system selects a suitable pulling-away gear, depending on the vehicle load. In manual mode, the electronic management system shifts into third gear. The gear change is complete when the display shows the selected gear.

► Release the brake pedal or parking brake and slowly depress the accelerator pedal.

Vehicles with Mercedes PowerShift: when pulling away, the engine speed may increase to approximately 1,000 rpm.

WARNING

If the engine revs drop below the minimum engine speed, the electronics automatically disengage the clutch. This interrupts the transmission of power. The vehicle may, for example, roll backwards on gradients. There is a risk of an accident.

Never let the engine revs drop below the minimum engine speed.

- ▶ Do not let the engine speed drop below the minimum engine speed of 550 rpm. Otherwise, the electronic management system automatically disengages the clutch and power transmission is interrupted.

i For this reason, always switch to manual operating mode when driving off-road or when driving with the differential lock engaged. This enables you to initiate the gear selection process manually, according to the driving conditions.

To change the pulling-away gear on vehicles with Telligent® automatic gearshift:

- ▶ Press the gear lever forwards ② (to shift up) or pull back ③ (to shift down).

On vehicles with Mercedes PowerShift, you can change the pulling-away gear in manual mode:

- ▶ Push the gear lever forwards ② again. The electronic management system shifts to 6th gear. The gear change is complete when 6 is shown in the display.

or

- ▶ Pull the gear lever back ③. The electronic management system shifts to first gear. The gear change is complete when 1 is shown in the display.

or

- ▶ Pull gearshift rocker up ⑤ (to shift up) or push down ⑥ (to shift down). The electronic management system shifts up or down one gear. The gear change is complete when the display shows the selected gear.

Automatic mode

Accelerating

You can use the accelerator pedal position to actively influence the shift point:

- light throttle: early upshift
- heavy throttle: late upshift
- kickdown: maximum upshift delay and extremely early downshift

i Vehicles with Mercedes PowerShift: if you depress the accelerator pedal with the continuous brake activated, the continuous

brake is deactivated and the vehicle shifts up by no more than one gear.

Kickdown gear shifting

Use kickdown for maximum acceleration of the vehicle.

- ▶ Depress the accelerator pedal past the pressure point to the stop. The electronic management system shifts to a lower gear if necessary.
- ▶ Ease off the accelerator pedal slightly once the desired speed is reached. The electronic management system shifts up again.

i You can increase performance when pulling away using kickdown if required, e.g. on steep uphill gradients.

Decelerating

- ▶ Release the accelerator pedal.
- ▶ Depress the brake pedal. The electronic management system shifts down automatically according to the driving situation.

or

- ▶ Activate the continuous brake (> page 134). The electronic management system shifts down automatically according to the driving situation.

i Vehicles with Telligent® automatic gearshift: when the continuous brake is activated, the electronic management system does not shift to a lower gear if the  indicator lamp does not go out in the instrument cluster.

Shifting with manual gear selection

You can also select a different gear in automatic mode. The automatic mode functions are not affected by doing this.

Vehicles with Telligent® automatic gearshift:

- ▶ Press the gear lever forwards ② (to shift up) or pull back ③ (to shift down). The electronic management system shifts up or down one gear.

or

- ▶ Press and hold shift button ①.
- ▶ Press the gear lever forwards ② (to shift up) or pull back ③ (to shift down).
The electronic management system shifts down two gears or up by a maximum of two gears.

Vehicles with Mercedes PowerShift:

- ▶ Press the gear lever forwards ② (to shift up) or pull back ③ (to shift down).
The electronic management system shifts down or up to a suitable gear.

or

- ▶ Pull gearshift rocker up ⑤ (to shift up) or push down ⑥ (to shift down).
The electronic management system shifts up or down one gear.

or

- ▶ Press and hold shift button ①.
- ▶ Press the gear lever forwards ② (to shift up) or pull back ③ (to shift down).
The electronic management system shifts up or down two gears.

i Changing gear while the vehicle is in motion is only possible at suitable engine speeds. If these engine speeds have not been reached, a warning tone sounds. The gear is not selected. The electronic management system only selects permissible gears.

Manual mode

General notes

In manual operating mode, the driver is responsible for selecting gears.

Vehicles with Telligent® automatic gearshift: gear selection is performed by the driver.

Vehicles with Mercedes PowerShift: gear selection is performed by the electronic management system or by the driver (manual gearshift).

Mercedes-Benz recommends switching to manual operating mode when driving in difficult terrain. This helps to prevent undesired repeated shifting (changing up or down), for example, or the engine speed falling below the minimum engine speed of 600 rpm. This enables you to initiate the gear selection process manually, according to the driving conditions.

i Changing gear while the vehicle is in motion is only possible at suitable engine speeds. If these engine speeds have not been reached,

a warning tone sounds. The gear is not selected. The electronic management system only selects permissible gears.

Shifting gears

Vehicles with Telligent® automatic gearshift:

- ▶ Press the gear lever forwards ② (to shift up) or pull back ③ (to shift down).
The electronic management system shifts up or down one gear.

or

- ▶ Press and hold shift button ①.
- ▶ Press the gear lever forwards ② (to shift up) or pull back ③ (to shift down).
The electronic management system shifts down two gears or up by maximum two gears.

Vehicles with Mercedes PowerShift:

- ▶ **To shift one gear:** pull gearshift rocker up ⑤ (to shift up) or push it down ⑥ (to shift down).
The gear change is complete when the display shows the selected gear.

- ▶ **To shift two gears:** press and hold shift button ①.

- ▶ Press the gear lever forwards ② (to shift up) or pull back ③ (to shift down).
The gear change is complete when the display shows the selected gear.

- ▶ **To shift using electronic gear selection:** press the gear lever forwards ② (to shift up) or pull it back ③ (to shift down).
The electronic management system determines the most suitable gear (target gear) for the desired gearshift direction, depending on the vehicle load. The gear change is complete when the display shows the selected gear.

Stopping

- ▶ Braking the vehicle.

- ▶ If necessary, shift down.

The electronic management system disengages the clutch just before idling speed is reached.

Vehicles with Telligent® automatic gearshift: if you stop the vehicle, the electronic management system selects first gear (pulling-away gear).

Vehicles with Mercedes PowerShift: if you stop the vehicle in manual operating mode, the electronic management system automatically shifts to a suitable gear for pulling away.

- i** If the vehicle is stationary for 2 minutes with a gear engaged and the engine running, a warning tone sounds. **N** flashes in the display. After a further 30 seconds, a warning tone sounds again and the electronic management system shifts to neutral.

Vehicles with Mercedes PowerShift: this function is not active if the power take-off is engaged.

To stay in the gear selected:

- ▶ Briefly depress the accelerator pedal or press shift button ① within 2½ minutes of stopping. The starting gear remains engaged for another 2½ minutes.

Shifting into neutral

Shift the transmission to neutral when stopping for a longer time, e.g. at traffic lights or before stopping the engine.

- ▶ Slow down the vehicle and bring it to a halt.
- ▶ Depress the brake pedal or apply the parking brake.
- ▶ Press neutral button ④. The gear change is complete when **N** is shown in the display.

Engaging reverse gear

Vehicles with Telligent® automatic gear-shift

With the vehicle stationary and the transmission in neutral:

- ▶ Depress the brake pedal or apply the parking brake.
- ▶ Press and hold shift button ①.
- ▶ Pull the gear lever back ③. The gear change is complete when **R** is shown in the display. Vehicles with a reverse warning device: the reverse warning device sounds.
- ▶ Release the brake pedal or parking brake and slowly depress the accelerator pedal.

Vehicles with Mercedes PowerShift

To pull away, you can only shift from neutral to the first or second reverse gear.

With the vehicle stationary and the transmission in neutral:

- ▶ Depress the brake pedal or apply the parking brake.
- ▶ Press and hold shift button ①.
- ▶ Pull the gear lever back ③. The gear change is complete when **R1** is shown in the display. Vehicles with a reverse warning device: the reverse warning device sounds.
- ▶ **To select the second reverse gear:** pull the gearshift rocker up ⑤. The gear change is complete when **R2** is shown in the display. Vehicles with a reverse warning device: the reverse warning device sounds.
- ▶ Release the brake pedal or parking brake and slowly depress the accelerator.

The first and second reverse gear can be preselected up to a speed of 8 km/h from the first or second forward gear:

- ▶ Press and hold shift button ①.
- ▶ Pull the gear lever back ③. From the first forward gear, the first reverse gear is preselected and then selected when the vehicle is stationary. From the second forward gear, the second reverse gear is preselected and then selected when the vehicle is stationary. After five seconds, the preselection is erased.

You can shift up or down by single reverse gears in succession while reversing:

- ▶ Pull the gearshift rocker up ⑤ or push down ⑥. The gear change is complete when the next higher or next lower reverse gear appears in the display.

- i** Shifting reverse gears while the vehicle is in motion is only possible at suitable engine speeds. If these engine speeds have not been reached, a warning tone sounds. The selected reverse gear is not engaged. The electronic management system only selects permissible reverse gears.

- i** If you stop the vehicle in automatic mode with the third or fourth reverse gear selected, the electronic management system selects the first reverse gear.

Changing direction quickly

This procedure helps to rock a vehicle free which has become stuck when driving off-road, for example.

Vehicles with Telligent® automatic gearshift: you can only make rapid changes of direction by starting in reverse gear.

Vehicles with Mercedes PowerShift: you can start a quick change of direction in the first forward gear or the first reverse gear.

- ▶ Press and hold shift button ①.
 - ▶ Press the gear lever forwards ② (first gear) or pull back ③ (reverse gear).
- Vehicles with Telligent® automatic gearshift: the gear change is complete when **1** or **R** is shown in the display.

Vehicles with Mercedes PowerShift: the gear is preselected and then selected as soon as the vehicle comes to a standstill. The gear change is complete when **1** or **R1** is shown in the display.

Repeat the gear change process until the vehicle is free again.

manoeuvring

! Manoeuvring at high engine speeds causes increased wear on the clutch. Therefore, the idling speed should be increased only briefly in extreme manoeuvring conditions, e.g. on steep gradients.

If   appears in the display with a yellow status indicator, stop the manoeuvring process as quickly as possible. Otherwise, the clutch will be overloaded.

Vehicles with Telligent® automatic gearshift: In difficult terrain, the idling speed can be increased up to a maximum of 1,200 rpm using the multifunction lever on the steering column (▷ page 166).

Manoeuvring mode

! Driving in manoeuvring mode causes increased wear on the clutch. Therefore, remain in manoeuvring mode no longer than is absolutely necessary.

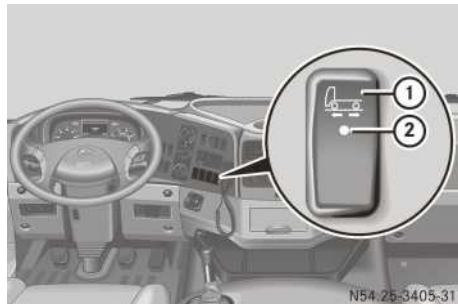
If   appears in the display with a yellow status indicator and the warning buzzer sounds, stop the manoeuvring process as

quickly as possible. Otherwise, the clutch will be overloaded.

Vehicles with Mercedes PowerShift:

Manoeuvring mode allows you to manoeuvre more precisely.

Manoeuvring mode can only be activated when the vehicle is stationary and the engine is running.



- ▶ **To activate manoeuvring mode:** press the upper section of button ①. Indicator lamp ② in button ① lights up. Depending on the type of transmission, the  symbol and the **Manoeuvring On** message are displayed.
- ▶ **To deactivate manoeuvring mode:** press the upper section of button ①. Indicator lamp ② in button ① goes out.

Parking the vehicle

WARNING

When the engine is switched off, the transmission shifts into neutral position. When the parking brake is not applied, the vehicle may roll away. There is a risk of an accident.

Secure the parked vehicle against rolling away by applying the parking brake.

- ▶ Stop the vehicle.
 - ▶ Apply the parking brake.
 - ▶ Press neutral button ④.
The gear change is complete when **N** is shown in the display.
 - ▶ Switch off the engine.
- i** Vehicles with Telligent® automatic gearshift: if you switch off the engine with a gear engaged and without the parking brake

applied, the  symbol appears in the display.

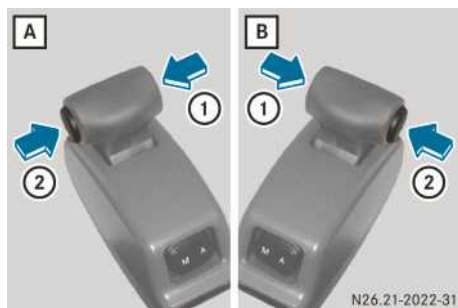
Problems with the transmission

Problem	Possible causes/consequences and ► Solutions
There is no power transmission to the drive axles.	The transfer case is in neutral position. ► Switch the transfer case into road or off-road position (► page 163).

Teach-in procedure

General notes

The teach-in procedure has to be carried out in order for vehicle-specific data from the electronic management system of the automatic gearshift control (GS) to be taken into account.



- A** Left-hand-drive vehicle
- B** Right-hand-drive vehicle
- ① Neutral button
- ② Shift button

The reservoir pressure must be sufficient. If the reservoir pressure is insufficient, the  symbol is shown in the display (► page 124).

During the teach-in procedure, teach-in or operating errors are indicated as fault codes in the display (► page 154). These fault codes are not stored. In such cases, note down the fault codes for the service personnel.

If the teach-in procedure is cancelled, an event message is shown in the display.

- Turn the key back fully in the ignition lock and wait at least five seconds.
- Repeat the teach-in procedure.

The short teach-in procedure is required if sensors on the transmission or the clutch, or the clutch itself have been replaced.

The long teach-in procedure is required if:

- the GS control unit has been replaced.
- the engine has been replaced.
- the display shows the **a 2 1011** fault code.

After this message appears, turn the key fully back in the ignition lock, wait approximately five seconds, and then turn it back to the drive position.

- the display shows the **a 2 8093** fault code.

Carrying out a short teach-in procedure

Vehicles with Telligent® gearshift

- Apply the parking brake.
 - Turn the key back in the ignition lock as far as it will go.
 - Depress and hold down the clutch pedal.
 - Press and hold neutral button ①.
 - Turn the key to the drive position in the ignition lock.
- The warning buzzer sounds and a clicking sound in the gearshift unit can be heard. The arrows of the splitter group flash alternately in the display.
- Release the clutch pedal within 3 seconds.
- The warning buzzer sounds and a clicking sound in the gearshift unit can be heard.
- Depress and hold the clutch pedal within 3 seconds.
- The teach-in procedure is finished if the warning buzzer sounds and a clicking sound in the

gearshift unit can be heard, and if **N** appears in the display.

- Release the clutch pedal and neutral button ①.

If the fault reappears in the display once the short teach-in procedure is finished:

- Carry out a long teach-in procedure.

Vehicles with Telligent® automatic gearshift

- Apply the parking brake.
- Turn the key back in the ignition lock as far as it will go.
- Press and hold neutral button ①.
- Turn the key to the drive position in the ignition lock.

A warning tone sounds in the loudspeaker and **M/Man** and **A/Auto** flash alternately in the display.

The teach-in procedure is finished if **N** appears in the display.

- Release neutral button ①.

If the fault reappears in the display once the short teach-in procedure is finished:

- Carry out a long teach-in procedure.

Vehicles with Mercedes PowerShift

- Apply the parking brake.
- Turn the key back in the ignition lock as far as it will go.
- Press and hold neutral button ①.
- Turn the key to the drive position in the ignition lock.

A warning tone sounds over the loudspeaker. In the display, the splitter group arrows flash as well as **Man** and **Auto** alternately.

- Start the engine if **N** (small) appears in the display.

A warning tone sounds over the loudspeaker.

The teach-in procedure is finished if **N** (large) appears in the display.

- Release neutral button ①.

Carrying out a long teach-in procedure

Vehicles with Telligent® gearshift

- Apply the parking brake.
- Turn the key back in the ignition lock as far as it will go.
- Depress and hold down the clutch pedal.
- Press and hold neutral button ① and shift button ② simultaneously.
- Turn the key to the drive position in the ignition lock.
The arrows of the splitter group flash alternately in the display.
- If **N** flashes in the display, start the engine within 10 seconds.
The warning buzzer sounds and a clicking sound in the gearshift unit can be heard.
- Release the clutch pedal within 3 seconds.
The warning buzzer sounds and a clicking sound in the gearshift unit can be heard.
- Depress and hold the clutch pedal within 3 seconds.
The warning buzzer sounds and a clicking sound in the gearshift unit can be heard.
- Release the clutch pedal within 3 seconds.
The warning buzzer sounds and a clicking sound in the gearshift unit can be heard.
- Depress and hold the clutch pedal within 3 seconds.
The teach-in procedure is finished if the warning buzzer sounds and a clicking sound in the gearshift unit can be heard, and if **N** appears in the display.
- Release the clutch pedal, neutral button ① and shift button ②.

If the fault reappears in the display once the long teach-in procedure is finished:

- Carry out an emergency gearshift (> page 155) and have the transmission shift system checked at a qualified specialist workshop.

Vehicles with Telligent® automatic gearshift

- Apply the parking brake.
- Turn the key back in the ignition lock as far as it will go.
- Press and hold neutral button ① and shift button ② simultaneously.

- ▶ Turn the key to the drive position in the ignition lock.
- ▶ If **N** flashes in the display, start the engine within 10 seconds.
A warning tone sounds in the loudspeaker and **M/Man** and **A/Auto** flash alternately in the display.
The teach-in procedure is finished if **N** appears in the display.
- ▶ Release neutral button ① and shift button ②.

If the fault reappears in the display once the long teach-in procedure is finished:

- ▶ Have the transmission shift system checked at a qualified specialist workshop.

Vehicles with Mercedes PowerShift

- ▶ Apply the parking brake.
- ▶ Turn the key back in the ignition lock as far as it will go.

- ▶ Press and hold neutral button ① and shift button ② simultaneously.
- ▶ Turn the key to the drive position in the ignition lock.
A warning tone sounds over the loudspeaker. In the display, the splitter group arrows flash as well as **Man** and **Auto** alternately.
- ▶ Start the engine if **N** (small) appears in the display.
A warning tone sounds over the loudspeaker. The teach-in procedure is finished if **N** (large) appears in the display.
- ▶ Release neutral button ① and shift button ②.

If the fault reappears in the display once the long teach-in procedure is finished:

- ▶ Have the transmission shift system checked at a qualified specialist workshop.

Teach-in error

During the teach-in procedure, teach-in or operating errors are indicated as fault codes in the display. These fault codes are not stored.

Fault code	Possible causes and solutions
GS 01	The emergency switch is not in basic position during the teach-in procedure. ▶ Set the emergency switch to basic position.
GS 02	Emergency operation is activated. ▶ Set the emergency switch to basic position.
GS 06 to GS 18, GS 27, GS 29, GS 32	Teach-in error ▶ Repeat the teach-in procedure ³
GS 19	The vehicle is rolling. ▶ Apply the parking brake.
GS 20	The display shows U << (undervoltage). ▶ Recharge or replace the battery.
GS 21	The clutch pedal was released either too early or too late during the teach-in procedure. ▶ Depress the clutch pedal at the correct time (observe the warning buzzer).

³ If the fault code reappears after the teach-in procedure, you need to have the malfunction rectified at a qualified specialist workshop.

Fault code	Possible causes and solutions
GS 22	The neutral button was released during the teach-in procedure. ► Press and hold the neutral button.
GS 23	Teach-in error ► Carry out a long teach-in procedure.
GS 24	The parking brake has not been engaged during the teach-in. ► Apply the parking brake.
GS 25	Emergency gearshift has been operated during teach-in. ► Do not operate the emergency gearshift.
GS 26	The engine is running. ► Short teach-in procedure: switch off the engine. ► Long teach-in procedure: do not start the engine until the display shows N .
GS 28	The engine has not been started. ► If the display shows N , start the engine.
GS 30	The accelerator pedal has been depressed during teach-in. ► Do not depress the accelerator pedal during teach-in.
GS 31	The clutch pedal was not depressed during teach-in. ► Repeat the teach-in procedure.

Telligent® gearshift emergency operation

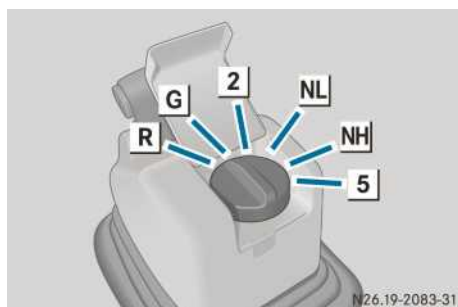
General notes

If Telligent® gearshift is malfunctioning, the display shows **Gearshift control malfunction** with a red status indicator.

The reservoir pressure must be sufficient. If the supply pressure is insufficient,  is shown in the display (► page 124).



► Lift cover ① up.



Switch positions for the emergency switch

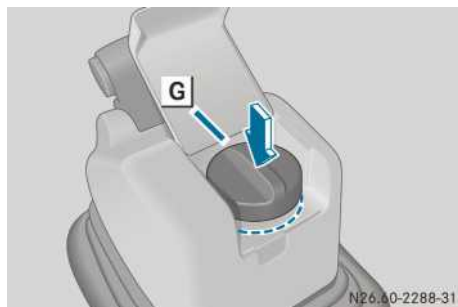
- R** Reverse gear
- G** Rest position
- 2** 2nd gear
- NL** Neutral (low-range group)
- NH** Neutral (fast-range group)
- 5** 5th gear

It is only possible to change from normal operation to emergency gearshift if:

- the emergency switch is in rest position **G**.
- the vehicle is stationary
- the clutch pedal is not depressed.
- there is no malfunction which prohibits an emergency gearshift

The individual shift positions can only be engaged in sequence.

Shifting into neutral

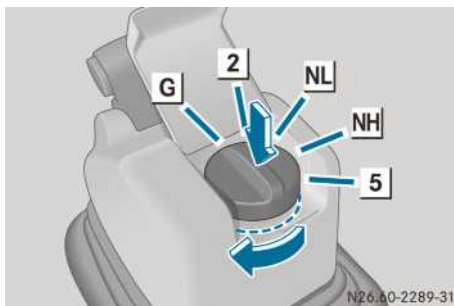


With the vehicle stationary and the engine running at idling speed:

- Depress and hold down the clutch pedal.
- Lift up the cover of the emergency switch.
- Press and hold down the emergency switch, from rest position **G** for about 2 seconds. The display shows **N**.

- release the emergency switch.
- Release the clutch pedal.

Shifting gear from the rest position



- G** Rest position
- 2** 2nd gear
- NL** Neutral (low-range group)
- NH** Neutral (fast-range group)
- 5** 5th gear

With the vehicle stationary and the engine running at idling speed:

- Depress and hold down the clutch pedal.
- Successively set the emergency switch to the individual shift positions:
 - press the emergency switch down and hold for approximately 2 seconds.
 - turn the emergency switch clockwise to the next shift position and hold it for approximately 2 seconds. The display shows the engaged gear.
 - release the emergency switch.
- Slowly release the clutch pedal.

Changing gear

It is possible to change from 2nd to 5th gear while driving on a level road.

Changing from 5th to 2nd gear is only possible if the vehicle is stationary and the engine is idling.

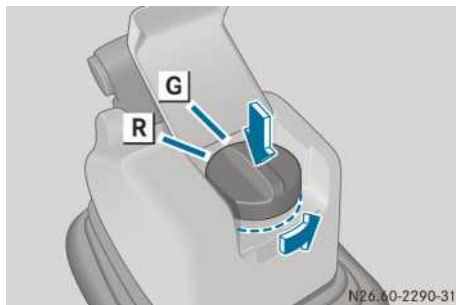
- Depress and hold down the clutch pedal.
- Successively set the emergency switch to the individual shift positions:
 - press the emergency switch down.
 - turn the emergency switch to the next shift position and hold it for approximately 2 seconds.

The display shows the engaged gear.

- release the emergency switch.

► Slowly release the clutch pedal.

Shifting to reverse gear from the rest position



With the vehicle stationary and the engine running at idling speed:

- Depress and hold down the clutch pedal.
- Press and hold down the emergency switch, from rest position **G** for about 2 seconds.
- Turn the emergency switch anti-clockwise to position **R** and hold it for approx. 2 seconds. The display shows **R**.
- release the emergency switch.
- Slowly release the clutch pedal.

Automatic gearshift

Automatic transmission

Important safety notes

! If the  indicator lamp in the instrument panel lights up during the journey, the temperature of either the transmission oil or the coolant is too high. It may be that the transmission oil level is too low or too high. If excessive oil temperature persists in the transmission, the transmission may be damaged.

The automatic transmission features touch-key gearshift.

The individual gears are shifted automatically depending on:

- shift range
- speed

- accelerator pedal position
- drive program
- retarder

You can restrict or derestrict the shift range at any time.

If the  indicator lamp lights up or flashes in the instrument cluster while driving, the retarder output is reduced.

! If the **ACH** display is shown and the status indicator lights up yellow or red, there is a faulty gearshift in the transmission. The transmission may be damaged.



① Display

Left: selected shift range, e.g. **5**

Right: selected gear, e.g. **1**

② Indicator lamp

③ MODE button

④ To extend the shift range 

⑤ To restrict the shift range 

⑥ Drive position **D**

⑦ Neutral **N**

⑧ Reverse gear **R**

The  symbol in display ① does not have a function.

Shift ranges

Display ① shows the selected shift range on the left, and the selected gear on the right, e.g. **5** **1**. When you change gear, the indicator on the right in display ① flashes.

R	Reverse gear Only engage reverse gear when the vehicle is stationary and the engine at idling speed.
N	Neutral position Power transmission from the engine to the drive axle is disconnected. When you release the service brake and the parking brake, the vehicle can be moved freely. When transmission is set to neutral position, the  indicator lamp lights up in the instrument cluster.
D	Drive position The automatic transmission automatically shifts all five or six forward gears. The drive position will provide optimal handling in almost all operating circumstances. The left part of display ① shows  (5-speed transmission) or  (6-speed transmission).  While driving, you can restrict or derestrict the shift range manually for uphill or downhill gradients using the  and  buttons.

Switching the drive program

The automatic transmission offers the Economy and Power drive programs. The drive programs support your desired driving style.

The Economy drive program is designed for a comfortable, economic driving style and makes driving on slippery road surfaces easier.

The Power drive program is designed for driving where high performance or driving dynamics are required.

You can switch between the drive programs at any time.

- ▶ Start the engine.
The Economy drive program is active.
- ▶ Press MODE button ③.
Indicator lamp ② lights up. The Power drive program is activated.
- ▶ Press MODE button ③ again.
Indicator lamp ② goes out. The Economy drive program is reactivated.

i On fire engines, the Power drive program is always active when the engine is started.

Pulling away

- ▶ Depress the brake pedal.
- ▶ Press the **D** or **R** button.
Vehicles with reverse warning device: if reverse gear is engaged, the reverse warning device sounds.
- ▶ If the  indicator lamp goes out in the instrument cluster, release the brake pedal.
- ▶ Depress the accelerator pedal.

i If the transmission is cold (outside temperature below -10°C), the electronic management system only selects 2nd gear as a forward gear.

Accelerating

You can use the accelerator pedal position to actively influence the shift point:

- light throttle application: early upshift
- heavy throttle application: late upshift
- kickdown: maximum upshift delay and extremely early downshift

Kickdown shifting

Use kickdown for maximum acceleration of the vehicle.

- ▶ Depress the accelerator pedal past the pressure point to the stop.
The automatic transmission shifts down to a lower gear depending on the engine speed.
- ▶ Ease off the accelerator pedal slightly once the desired speed is reached.
The automatic transmission shifts up again.

Uphill and downhill gradients

! If you have restricted the shift range, make sure that the engine revs do not enter the red danger zone in the rev counter. Exceeding the limiting speed for longer periods can result in engine damage.

When driving on long uphill and downhill gradients, shift in good time to a shift range with high engine performance and engine braking effect.

Manoeuvring

When manoeuvring in tight spaces:

- Regulate the speed by a controlled release of the service brake. Where required, accelerate slightly.

Stopping

- ❗ When the transmission is set to neutral position, only let the vehicle roll for short periods. Prolonged rolling of the wheels, e.g. when being towed, will result in transmission damage.

While the continuous brake (engine brake/retarder) is activated, the engine speed for downshifts is higher than when the continuous brake is not applied. Observe the rev counter.

While the continuous brake (engine brake/retarder) is activated, the transmission only shifts down to 2nd gear. In extreme situations, you must therefore restrict the shift range to 1st gear in good time.

When stopping briefly, e.g. at traffic lights:

- Maintain the gear position and stop the vehicle with the service brake.

If the vehicle begins to slip or skid:

- Shift the transmission to neutral.
The  indicator lamp in the instrument cluster lights up.

When stopping for a longer period with the engine running:

- Shift the transmission to neutral.
The  indicator lamp in the instrument cluster lights up.

Problems with the transmission

Problem	Possible causes/consequences and ► Solutions
The  indicator lamp in the instrument cluster lights up.	If the  indicator lamp is lit continuously, the temperature of the automatic transmission fluid is too high. ► Switch off the retarder. ► Stop the vehicle as soon as possible, paying attention to traffic conditions. ► Engage the parking brake and shift the automatic transmission to neutral. ► Run the engine at a speed between 1,200 and 1,500 rpm for 2 to 3 minutes and then switch off the engine. ► If the temperature of the oil does not drop, check the oil level in the automatic transmission (► page 215). ► If the  indicator lamp does not go out, consult a qualified specialist workshop and have the malfunction rectified.
The display shows ACN .	The automatic transmission is malfunctioning. Depending on the fault, a specialist workshop may be able to assist you in restricted continuation of your journey if you supply the fault code. To call up the fault code: ► Simultaneously press the  and  buttons on the touch-key gearshift twice. The automatic transmission's display shows the characters of the fault code in sequence. The display first shows the number of the fault code, e.g. D1 and then shows a 5-digit fault code, e.g. P 25 11. ► To display the next fault code, press the MODE button. A maximum of 5 fault codes can be stored. To cancel the fault code: ► Simultaneously press the  and  buttons on the automatic transmission. or ► Shift the transmission to neutral position.
There is no power transmission to the drive axles.	The transfer case is in neutral. ► Shift the transfer case into on-road or off-road position (► page 163).

Operation

ASR (acceleration skid control)

Important safety notes

 WARNING

If deactivated, ASR will not attempt to stabilise the vehicle during pulling away and accel-

eration. There is an increased risk of skidding and of an accident.

Only deactivate ASR in the situations described in the following.

ASR can neither reduce the risk of an accident nor override the laws of physics if the driver does not pay attention when pulling away or accelerating. ASR is only an aid. You should

always adapt your driving style to suit prevailing road and weather conditions.

Driving with ASR

ASR prevents the drive wheels from spinning when pulling away or accelerating, regardless of the road conditions.

If the drive wheels:

- spin on one or both sides of the vehicle, ASR is activated automatically
- spin on one side, ASR brakes them automatically
- spin on both sides, ASR automatically reduces the engine's power output

If ASR intervenes:

- the  indicator lamp in the instrument cluster flashes.
 - you cannot activate cruise control.
 - and cruise control has already been activated, it will remain active. It is not possible to accelerate or decelerate using cruise control.
- Turn the key to the drive position in the ignition lock.
The  indicator lamp in the instrument cluster lights up and goes out after approximately 2 seconds. ASR is activated.
If the  indicator lamp does not go out, then ASR has a malfunction. Have the cause of the malfunction rectified at a qualified specialist workshop.

Deactivating and activating ASR



You can temporarily deactivate ASR when pulling away, e.g. on loose surfaces or snow.

- If traction problems occur when driving with snow chains or driving on loose surfaces, e.g. gravel, deactivate ASR.

- **To deactivate:** press button ①.

If the  indicator lamp lights up, ASR is deactivated.

- **To activate:** press button ① again.

or

- Switch off and restart the engine.

The  indicator lamp in the instrument cluster goes out.

SR (Telligent® stability control)

Driving with SR

SR stabilises the tractor/semitrailer combination in critical driving situations, e.g. sudden swerving or fast cornering.

If you fail to adapt your driving style or if you are inattentive, stability control can neither reduce the risk of an accident nor override the laws of physics. Stability control is only an aid. You are responsible for the speed of the vehicle. You should always adapt your driving style to suit prevailing road and weather conditions.

If the ABS of the trailer/semitrailer is not functioning, the function of the stability control may be limited. Modifications to the vehicle may also lead to limited functioning or malfunctions.

SR stabilises the tractor/semitrailer combination using the following automatic control interventions:

- reducing engine output
- targeted braking of individual wheels on the tractor vehicle
- braking of the semitrailer
- braking of the entire tractor/semitrailer combination

Regardless of the vehicle load or road surface conditions, SR reduces the likelihood that the tractor/semitrailer combination:

- skids
- jack-knives
- tips

SR operates at speeds of over 10 km/h. When SR intervenes, the  indicator lamp lights up in the instrument cluster.

If you engage reverse gear or a differential lock, SR is not operational.

SR operates regardless of the operating condition of the service brake or continuous brake.

If SR intervenes:

- When pulling away only depress the accelerator pedal as far as is necessary.
- Adapt your driving style to suit the prevailing road and weather conditions.
- Release the accelerator pedal while the vehicle is in motion.
- Only deactivate SR under the operating conditions described.
- ▶ If traction problems occur when driving with snow chains or driving on loose surfaces, e.g. gravel, deactivate SR.

Deactivating and activating SR



- ▶ Turn the key to the drive position in the ignition lock.
The indicator lamp in the instrument cluster lights up and goes out after approximately 2 seconds.
- ▶ **To deactivate:** press the upper section of switch 1.
The indicator lamp in the instrument cluster flashes. SR and ASR are deactivated.
- ▶ **To activate:** press the upper section of switch 1 again.
The indicator lamp in the instrument cluster goes out. SR and ASR are activated again.

Differential locks

Important safety notes

WARNING

When driving off-road or driving with an engaged differential lock in the automatic driving program, the electronic management system may perform unwanted gear changes. Due to the interruption in the tractive power, the vehicle may roll backwards on uphill slopes, for instance. There is a risk of an accident.

Always drive carefully and be prepared to brake. In particularly difficult driving conditions, switch to the manual driving program.

WARNING

If you engage the differential lock when driving on a firm, high-traction surface, the steerability of the vehicle is severely impaired. You could lose control of the vehicle, especially when engaging on a bend. There is a risk of an accident.

Disengage the differential lock immediately when driving on a firm, high-traction surface.

WARNING

If ABS is deactivated, the wheels may lock when braked. As a result, the vehicle can no longer be steered. There is an increased risk of skidding and an accident.

Always leave ABS on when driving on roads and firm surfaces.

- ❗ Observe the following points. You could otherwise damage the differential lock.

- Do not engage the differential lock if the drive wheels are spinning.
- Engage the differential lock only when the vehicle is stationary or when travelling at walking pace.
- Do not engage the differential lock while depressing the accelerator or brake pedal.
- Pull away slowly after engaging the differential lock. The differential lock teeth may not be fully engaged.

- Do not drive on high-grip surfaces with the differential lock engaged.
- Do not exceed a maximum speed of 50 km/h with the differential lock engaged.

If you engage a differential lock, ABS, BAS and SR are deactivated.

Engaging/disengaging the differential locks

General notes

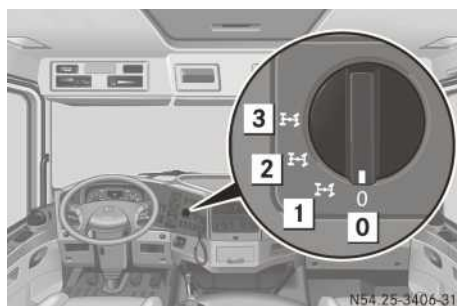
The individual differential locks can only be engaged in sequence.

Vehicles with Telligent® gearshift: when you engage the differential locks, construction-site mode is activated (▷ page 145).

Vehicles with Telligent® automatic gearshift or Mercedes PowerShift: if you switch to manual mode, you can prevent undesired gear changes and interruptions in the tractive power.

- ▶ Vehicles with Telligent® automatic gearshift: press the operating mode selector button on the gearshift unit and select manual mode. The display continuously shows **Man**.
- ▶ Vehicles with Mercedes PowerShift: press the operating mode selector button on the gearshift unit and select manual mode. Manual mode **Man** appears on the right of the display. It also briefly displays the  symbol and **man**.

Engaging



Example: differential lock switch

- ▶ Turn the differential lock switch to position **1**.
The inter-axle lock /through-drive is engaged.
- ▶ Turn the differential lock switch to position **2**.
The rear axle cross-axle lock is also engaged.
- ▶ Turn the differential lock switch to position **3**.
The front axle cross-axle lock is also engaged.

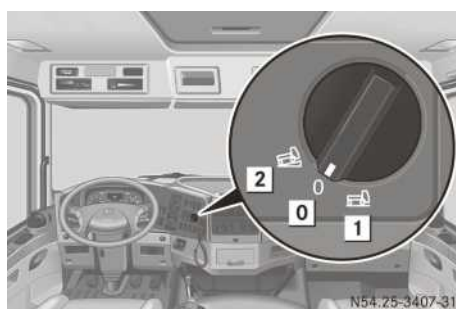
The display shows the activation states of the differential locks once the engagement process is finished, and the status indicator lights up yellow.

Disengaging

- ▶ Turn the differential lock switch to position **0**.
The differential locks are disengaged. The differential lock indicators in the display go out.
- ▶ If the indicator does not go out when the cross-axle lock is disengaged: make slight adjustments to the direction of the vehicle.
- ▶ If the indicator does not go out when the inter-axle lock is disengaged: stop the vehicle and reverse it a short distance.

Transfer case

General notes



When driving, always set the transfer case to on-road position **1** or off-road position **2**. In neutral position **0**, no power is transmitted from the transfer case to the drive axles.

- i** Neutral position **0** of the transfer case is required only to change gears from switch position **1** to switch position **2**.

Off-road position **2** of the transfer case is for off-road driving and for steep gradients.

Switching the transfer case

- ▶ Stop the vehicle.
- ▶ Depress the brake pedal or apply the parking brake.
- ▶ Vehicles with automatic transmission: switch off the engine.
- ▶ Vehicles with Telligent® automatic gearshift: press the operating mode selector button on the gearshift unit and select manual mode. The display continuously shows **Man**.
- ▶ Vehicles with Mercedes PowerShift: press the operating mode selector button on the gearshift unit and select manual mode. Manual mode **Man** appears on the right of the display. It also briefly displays the  symbol and **man**.
- ▶ Vehicles with manual transmission or Telligent® gearshift: depress the clutch pedal.
- ▶ Vehicles with manual transmission, Telligent® gearshift/automatic gearshift or Mercedes PowerShift: shift gear.
- ▶ Turn the transfer case switch to on-road position **1** or off-road position **2**.
- ▶ Vehicles with automatic transmission: start the engine and select shift range.

Cold-start aid

Environmental note

At outside temperatures below approximately -4 °C, the cold-start aid minimises pollutant emissions (after the engine is started). In addition, it reduces the load on the starter motor and batteries and enables the engine to be started more rapidly. For this reason, only start the engine once the  indicator lamp in the status area of the on-board computer has gone out.

The cold-start aid makes it easier to start the engine at low outside temperatures (below -15 °C); it is already activated at outside temperatures below -4 °C.

- ▶ **To activate the cold-start aid:** turn the vehicle key to the drive position in the ignition lock.

The  indicator lamp in the instrument cluster lights up. The cold-start aid is operating.

- ▶ If the  indicator lamp goes out in the instrument cluster, start the engine within 30 seconds.

At a coolant temperature above approximately -4 °C, the  indicator lamp goes out after approximately 2 seconds (display check).

At a coolant temperature below approximately -4 °C, the  indicator lamp goes out after approximately 20 seconds.

The cold-start aid is deactivated if:

- you do not start the engine within 30 seconds of the  indicator lamp going out.
- you start the engine while the  indicator lamp is lit.
- the coolant temperature reaches about 0 °C while the engine is running.

A malfunction in the cold-start aid is indicated in the display by a display message with a yellow status indicator and the system abbreviation **FLA**. Have the cold-start aid checked and repaired at a qualified specialist workshop.

Automatic engine start/stop function (MSS)

Important safety notes

WARNING

If the engine is switched off automatically and you exit the vehicle, the engine is restarted automatically. The vehicle may begin moving. There is a risk of accident and injury.

If you wish to exit the vehicle, always turn off the ignition and secure the vehicle against rolling away.

WARNING

When automatic engine start/stop is switched on, the engine can be inadvertently started e.g. by depressing the clutch pedal. In this situation, if work is being carried out on

the engine, there is a risk of injury due to moving parts.

Switch off automatic engine start/stop before tilting the cab or during maintenance work.

! If the **MSS** indicator lamp lights up, automatic engine start/stop function (MSS) is malfunctioning.

Have the malfunction rectified at a qualified specialist workshop.

General notes

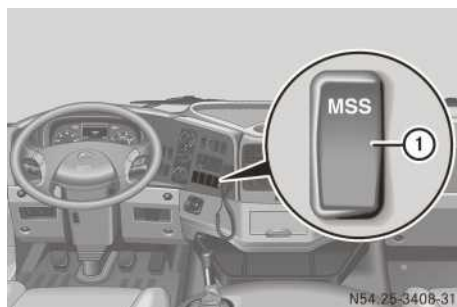


Environmental note

The use of the automatic engine start/stop (MSS) function reduces fuel consumption, thereby protecting the environment.

MSS can switch off the engine and start it up again automatically.

Switching on MSS



► Press the upper section of switch ①.

MSS is activated automatically if you turn the key to the drive position in the ignition lock. MSS is deactivated automatically if you turn the key back.

The engine is automatically switched off if the following conditions apply for at least 3 seconds:

- the engine speed is below 660 rpm
- the vehicle is stationary
- the transmission is in neutral
- the clutch pedal is not depressed

- the coolant temperature is between 60 °C and 96 °C

- the outside temperature is above 0 °C

If one of the conditions is not fulfilled, the indicator lamp on the instrument cluster **MSS** flashes.

The engine is automatically started if:

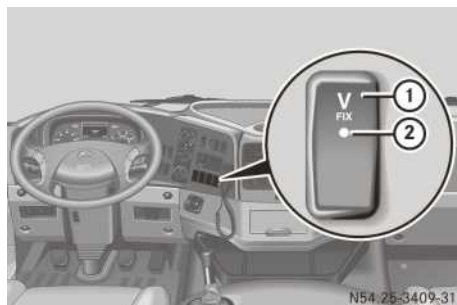
- the engine has been switched off automatically
- the key is turned to the drive position in the ignition lock
- the transmission is in neutral
- the clutch pedal is depressed
- the vehicle begins to roll

Switching off MSS

► Press the lower section of switch ①.

Second limit speed

A second limit speed can be activated for special vehicle use (e.g. for winter road service vehicles). The set speed is programmable.



► **To activate:** stop the vehicle.

► Press upper section of switch ①. Indicator lamp ① in the switch lights up.

Once the set speed is reached, the engine is regulated to not exceed this speed.

► **To disengage:** press the lower section of switch ①. Indicator lamp ② in the switch goes out.

Idling speed

General notes

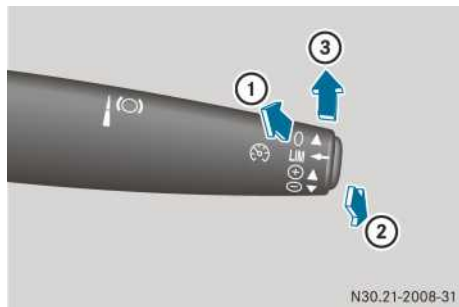
After the engine has started, the idling speed is controlled automatically according to the coolant temperature.

The idling speed is about 600 rpm with the engine at normal operating temperature.

Setting the idling speed

The idling speed can be adjusted using the multifunction lever on the steering column. This makes it possible to drive auxiliary equipment such as pumps at their working speed.

The engine runs at the idling speed set as soon as you release the multifunction lever.



- **To increase the idling speed:** push the multifunction lever into position ①.

The idling speed increases in increments of approximately 20 rpm up to a maximum of 800 rpm.

or

- Keep the multifunction lever in position ①. The idling speed increases up to approximately 800 rpm.
- Vehicles with Telligent® automatic gearshift: keep the multifunction lever in position ① for a further 5 seconds. The idling speed increases to a maximum of 1200 rpm.
- Vehicles with Mercedes PowerShift: keep the multifunction lever in position ① for a further 5 seconds. The idling speed increases to a maximum of 1000 rpm.

- **To reduce the idling speed:** push the multifunction lever into position ②.

The idling speed is reduced in increments of approximately 20 rpm.

or

- Keep the multifunction lever in position ②. The idling speed is reduced to approximately 600 rpm.
- **To deactivate idling speed adjustment:** push the multifunction lever into position ③.

- ① The idling speed is reset once the vehicle has pulled away (above approximately 20 km/h).

Driving systems

Introduction to driving systems

The vehicle can be equipped with the following driving systems:

- Speed limiter (▷ page 167)
- Cruise control (▷ page 168)
- Telligent® distance control (▷ page 170)
- SPA (Telligent® Lane Assistant) (▷ page 174)

The driving systems listed are only an aid to assist you in driving at a preselected speed.

Switching between driving system functions

Switching between cruise control and the speed limiter



- ▶ Press button ① briefly.
Cruise control is selected but not active. The display shows the  symbol.
- ▶ Briefly press button ① again.
The speed limiter is selected but not active. The display shows the  symbol.

Switching between Telligent® distance control and speed limiter functions



- ▶ Press button ① briefly.
The speed limiter is selected but not active. The display shows the  symbol.
- ▶ Briefly press button ① again.
Telligent® distance control is selected. The display shows the  symbol.

Switching between Telligent® distance control and cruise control functions

Switching between functions is only possible while the vehicle is in motion and a driving system is activated.



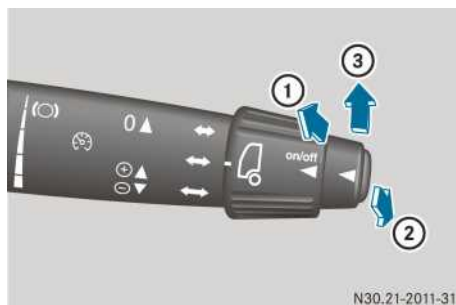
- ▶ Briefly press rotary switch ①.
Cruise control is activated. The display shows the  symbol.
- ▶ Briefly press rotary switch ① again.
Telligent® distance control is activated. The display shows the  symbol.

Speed limiter

Important safety notes

If you fail to adapt your driving style or if you are inattentive, the speed limiter can neither reduce the risk of accident nor override the laws of physics. The speed limiter cannot take road and weather conditions into account, nor the prevailing traffic situation. The speed limiter is only an aid. You are responsible for the distance to the vehicle in front, for vehicle speed, braking in good time and remaining in lane. You should always adapt your driving style to suit prevailing road and weather conditions.

Multifunction lever overview



- ① Switches on and sets the current limit speed/increases the set limit speed
- ② Switches on and calls up the stored limit speed/decreases the set limit speed
- ③ Deactivates the speed limiter

Activating

Functions and activation conditions

The speed limiter restricts the vehicle speed to the set limit speed. It is possible to accelerate the vehicle up to the set limit speed using the accelerator pedal. In order keep the set limit speed on downhill gradients, the speed limiter

automatically brakes the vehicle with the continuous brake.

Activating when driving

- ▶ Select the speed limiter (> page 166). The display shows the  symbol.
- ▶ Drive at the speed you wish to set above 15 km/h.
- ▶ Briefly push the multifunction lever in the direction of arrow ①.
The speed limiter is activated and the current vehicle speed is stored as the limit speed.

or

- ▶ Briefly push the multifunction lever in the direction of arrow ②.
The speed limiter is activated and assumes the stored limit speed.

Increasing/decreasing the limit speed

- ▶ Activate the speed limiter.
- ▶ **To adjust in 1 km/h increments:** press the multifunction lever in the direction of arrow ① or ② repeatedly until the desired speed is shown in the display.

or

- ▶ **To adjust in 5 km/h increments:** press and hold the multifunction lever in the direction of arrow ① or ② until the desired speed is shown in the display.

Driving

It is possible to exceed the set limit speed, e.g. when overtaking:

- ▶ Briefly depress the accelerator pedal beyond the point of resistance (kickdown).
- ▶ When overtaking is completed, briefly release the accelerator pedal and depress it again.
The speed limiter again restricts the vehicle speed to the set limit speed.

Deactivating

The limit speed remains stored if you deactivate the speed limiter.

- ▶ Briefly push the multifunction lever in the direction of arrow ③.

or

- ▶ Switch to another driving system.

Cruise control

Important safety notes

WARNING

If you call up a stored speed and this is different from the current speed, the vehicle accelerates or brakes. If you do not know what the stored speed is, the vehicle may accelerate or brake unexpectedly. There is a risk of an accident.

Take the traffic conditions into account before calling up the stored speed. If you do not know what the stored speed is, store the desired speed again.

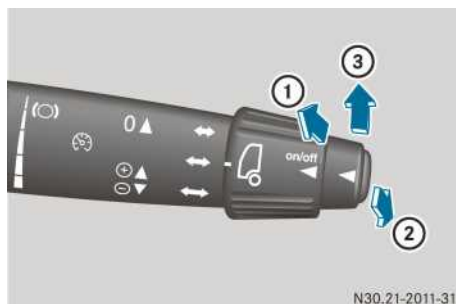
- ❗ Do not exceed the maximum speed of the individual gears. Keep an eye on the rev counter.

If you fail to adapt your driving style or if you are inattentive, cruise control can neither reduce the risk of accident nor override the laws of physics. Cruise control cannot take road and weather conditions into account, nor the prevailing traffic situation. Cruise control is only an aid. You are responsible for the distance to the vehicle in front, for vehicle speed, braking in good time and remaining in lane. You should always adapt your driving style to suit prevailing road and weather conditions.

Do not use cruise control:

- in traffic conditions that do not allow you to drive at a constant speed, e.g. heavy traffic, winding roads or off-road.
- on icy or slippery road surfaces. The drive wheels may lose their grip when braking or accelerating and the vehicle may skid.
- when there is low visibility, e.g. due to fog, heavy rain or snow.

Multifunction lever overview



- ① Activates and adjusts current speed/increases set speed
- ② Activates and calls up stored speed/reduces set speed
- ③ Deactivates cruise control

Activating

Functions and activation conditions

Cruise control maintains the set speed of the vehicle for you. In order to keep the speed within the specified tolerance range of between 4 and 15 km/h, cruise control brakes on downhill gradients using the continuous brake. When the continuous brake slows the vehicle, the  indicator lamp lights up in the instrument cluster.

Cruise control cannot be activated if:

- you are driving slower than 15 km/h
- ASR malfunctions and you drive slower than 50 km/h

If cruise control cannot be activated, the on-board computer will display - - .- km/h in grey.

Cruise control is deactivated automatically if:

- you depress the brake pedal
- you are driving slower than 10 km/h
- on vehicles with a clutch pedal, you depress the clutch pedal for longer than 5 seconds, e.g. during gear selection
- the transmission is shifted into neutral for more than approximately 5 seconds
- you switch to the speed limiter.

If cruise control automatically deactivates, a warning tone sounds.

Activating when driving

- ▶ Select cruise control.
- ▶ Drive at the desired speed.
- ▶ Briefly push the multifunction lever in the direction of arrow ①. Cruise control is activated and the current speed is stored.

or

- ▶ Briefly push the multifunction lever in the direction of arrow ②. Cruise control is activated and assumes the stored speed. The display shows the  symbol.
- ▶ Release the accelerator pedal. In order to maintain the set speed, cruise control automatically brakes or accelerates the vehicle.

Increasing/reducing the speed

- ▶ Activate cruise control.
- ▶ Briefly push the multifunction lever in the direction of arrow ① or ② until the required speed is displayed in the on-board computer. You can increase or decrease the speed in 0.5 km/h increments.

or

- ▶ Briefly push and hold the multifunction lever in the direction of arrow ① or ② until the required speed is displayed in the on-board computer. The speed is increased or reduced continuously.

Driving

Driving tips

On downhill gradients, cruise control maintains the stored vehicle speed to within 4 km/h.

You can decelerate using the continuous brake. Cruise control remains activated.

If the continuous brake is deactivated, the vehicle will accelerate to the last stored speed.

If cruise control is decelerating the vehicle using the continuous brake and you simultaneously depress the brake pedal, cruise control remains activated.

If the braking power from the continuous brake is insufficient:

- Shift down a gear and reduce your speed. The set speed remains stored and is automatically re-established as soon as this is possible in a higher gear.

If you shift down on a downhill gradient without adjusting the speed, cruise control sets:

- the engine speed to approximately 2,200 rpm (Axor from 260 kW)
- the engine speed to approximately 2,700 rpm (Axor up to 240 kW)

Overtaking

It is possible to exceed the set speed, e.g. when overtaking:

- Depress the accelerator pedal.
- When the overtaking manoeuvre is finished, release the accelerator pedal again.

Cruise control adjusts the vehicle's speed to the set speed.

Deactivating

The speed remains stored if you deactivate cruise control.

- Briefly push the multifunction lever in the direction of arrow ③.

or

- If cruise control accelerates the vehicle, depress the brake pedal.

or

- Switch to another driving system.

ART (Telligent® distance control)

Important safety notes

WARNING

Telligent® distance control does not react to:

- people or animals
- stationary obstacles on the road, e.g. stopping or parking vehicles
- oncoming vehicles

As a result, Telligent® distance control may not warn you or intervene in these situations. There is a risk of an accident.

Always pay careful attention to the traffic situation and be ready to brake.

WARNING

Telligent® distance control cannot always detect other road users and complex traffic conditions.

In such cases, Telligent® distance control may:

- give an unnecessary warning and then brake the vehicle
- neither give a warning nor intervene

There is a risk of an accident.

Continue to drive carefully and be prepared to brake, particularly if Telligent® distance control issues a warning.

WARNING

Telligent® distance control brakes your vehicle with up to 20% of the maximum possible deceleration. If this deceleration is insufficient, Telligent® distance control issues an audible and visual warning. There is a risk of an accident.

In these cases, apply the brakes yourself and try to take evasive action.

If you fail to adapt your driving style or if you are inattentive, Telligent® distance control can neither reduce the risk of an accident nor override the laws of physics. Telligent® distance control cannot take road and weather conditions into account, nor the prevailing traffic situation. Telligent® distance control is only an aid. You are responsible for the distance to the vehicle in front, for vehicle speed, braking in good time and remaining in lane. You should always adapt your driving style to suit prevailing road and weather conditions.

In particular, be aware of the following driving situations:

- cornering, entering and exiting bends
- your own vehicle driving on a different line or vehicles in front of you driving on a different line
- narrow vehicles driving in front, e.g. motorcycles

- other vehicles changing lane
- vehicles turning off
- overtaking
- winding stretches of road
- obstacles and stationary vehicles

In particular, the detection of obstacles may be restricted if:

- the sensor is dirty or obscured
- it is snowing or raining heavily
- there is interference from other radar sources
- there are strong radar reflections, e.g. in multi-storey car parks

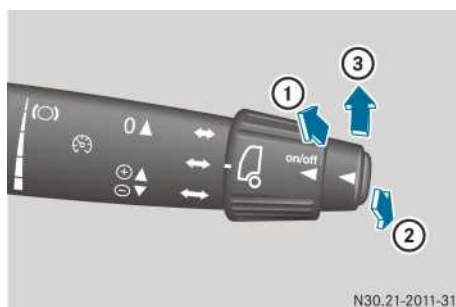
Do not use Telligent® distance control:

- in traffic conditions that do not allow you to drive at a constant speed, e.g. heavy traffic, winding roads or off-road.
- on icy or slippery road surfaces. The drive wheels may lose their grip when braking or accelerating and the vehicle may skid.
- when there is low visibility, e.g. due to fog, heavy rain or snow.

When Telligent® distance control no longer detects a vehicle driving in front, Telligent® distance control may accelerate to the stored speed. On a filter lane or a slip road, this speed may be too high.

Clean the Telligent® distance control distance sensor regularly (▷ page 207).

Multifunction lever overview



Multifunction lever

- ① To activate and adjust current speed/
increases set speed
- ② To activate and call up stored speed/
reduces set speed
- ③ To deactivate Telligent® distance control

Telligent® distance control cannot be activated if:

- another driving safety system intervenes, e.g. ABS.
- there is a malfunction in the brake system.
- there is a malfunction in the electronics.

If Telligent® distance control cannot be activated, --, - km/h appears in the display for approximately 3 seconds.

Messages in the display



When Telligent® distance control is activated, the display shows:

- current distance ① from the vehicle in front
- symbol ②
- current speed ③

Activating

Functions and activation conditions

Telligent® distance control regulates the speed and automatically helps you maintain the distance to the vehicle detected in front. If there is no vehicle in front, Telligent® distance control operates in the same way as cruise control in the speed range between 15 and 90 km/h.

If Telligent® distance control detects a vehicle in front driving at a slower speed, it brakes the vehicle and maintains the specified minimum distance selected.

Telligent® distance control brakes the vehicle with the continuous brake if:

- the vehicle exceeds the set speed, including the set speed tolerance, e.g. on a downhill gradient
- a slower vehicle in front is detected

When the continuous brake slows the vehicle, the [Ⓢ] indicator lamp lights up in the instrument cluster.

Telligent® distance control cannot be activated or deactivates automatically if:

- you drive slower than 15 km/h
- you depress the brake pedal
- on vehicles with a clutch pedal, you depress the clutch pedal for longer than 5 seconds, e.g. during gear selection
- you shift to neutral or reverse gear
- you deactivate ABS

Telligent® distance control remains active when:

- you decelerate using the continuous brake
- it decelerates the vehicle using the continuous brake/service brake and you simultaneously depress the brake pedal

If your vehicle accelerates and you depress the brake pedal, Telligent® distance control is deactivated automatically.

Activating when driving

- Vehicles with air suspension: raise or lower the chassis frame to the driving level (▷ page 175).
- Select Telligent® distance control (▷ page 166).
The display shows the  symbol.
- Drive at a speed above 15 km/h.
- Briefly push the multifunction lever in the direction of arrow ①.
Telligent® distance control is activated and set to the current speed.

or

- Briefly push the multifunction lever in the direction of arrow ②.
Telligent® distance control is activated and the last stored speed is set.
- Release the accelerator pedal.
The vehicle adapts its speed to that of the vehicle in front, but only up to the desired and set speed.

Setting the speed and specified minimum distance

Increasing/reducing the speed

- **To adjust in 0.5 km/h increments:** press the multifunction lever in the direction of

arrow ① or ② repeatedly until the desired speed is shown in the on-board computer.

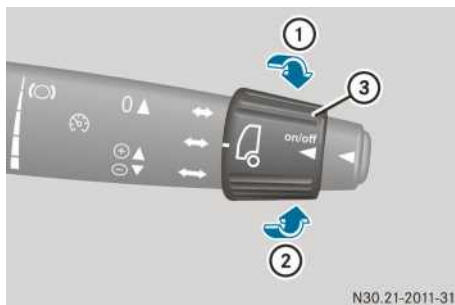
or

- **To adjust in 5 km/h increments:** press and hold the multifunction lever in the direction of arrow ① or ② until the desired speed is shown in the on-board computer.

Setting the specified distance to the vehicle in front

Make sure that you maintain the minimum distance to the vehicle in front required by law. Adjust the specified minimum distance to the vehicle in front if necessary.

If you restart the engine, the mean specified distance is available for selection.



- Activate Telligent® distance control.
- **To decrease the specified distance:** turn rotary switch ③ in the direction of arrow ① and hold it until the desired specified distance is reached.
While the specified distance is being adjusted, the display shows the specified distance and the  symbol.
- Release rotary switch ③.
The set specified distance is stored.
- **To increase the specified distance:** turn rotary switch ③ in the direction of arrow ② and hold it until the desired specified distance is reached.
While the specified distance is being adjusted, the display shows the specified distance and the  symbol.
- Release rotary switch ③.
The set specified distance is stored.

Driving

Collision warnings

When a collision warning occurs, the  symbol is shown in the display with a red status indicator. A double warning tone also sounds. The warning is displayed for as long as the hazardous situation persists.

If a collision warning occurs while the vehicle is in motion:

- ▶ Pay particular attention to the traffic situation.
- ▶ Slow down the vehicle using the service brake.

If you depress the accelerator pedal, the distance warning tone is suppressed.

Overtaking

It is possible to exceed the stored speed, e.g. when overtaking.

- ▶ Maintain a sufficient distance to the vehicle in front.
- ▶ Depress the accelerator pedal.
- ▶ When the overtaking manoeuvre is finished, release the accelerator pedal again.

Telligent® distance control adjusts to the stored speed.

Deactivating

The speed remains stored if you deactivate Telligent® distance control.

- ▶ Briefly push the multifunction lever in the direction of arrow ③.

or

- ▶ If Telligent® distance control accelerates the vehicle, depress the brake pedal.

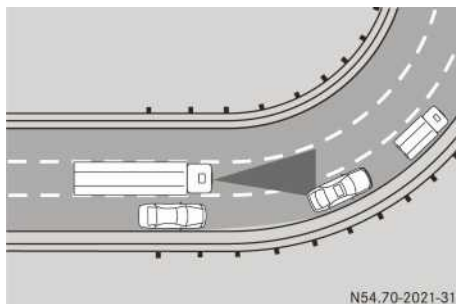
or

- ▶ Switch to another driving system.

Observe the conditions that lead to automatic deactivation of Telligent® distance control in the "Functions and switch on conditions" section.

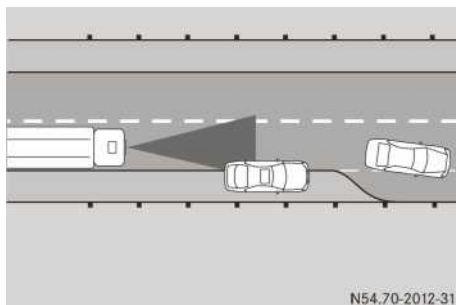
Particular driving situations

Cornering, entering and exiting bends



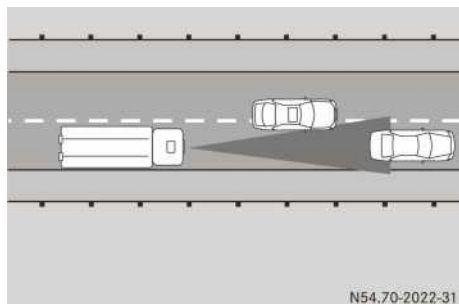
The ability of Telligent® distance control to detect vehicles on bends is limited. Telligent® distance control may unexpectedly issue warnings or brake your vehicle. Telligent® distance control may also accelerate unexpectedly.

Driving on a different line



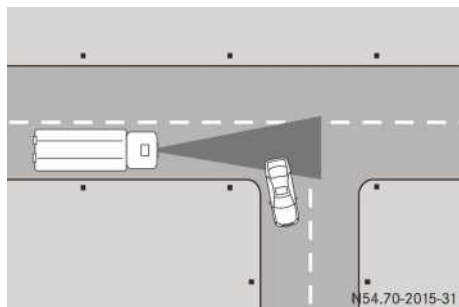
The ability of Telligent® distance control to detect vehicles driving on a different line is limited. Telligent® distance control may unexpectedly issue warnings or brake your vehicle. Telligent® distance control may also accelerate unexpectedly.

Other vehicles changing lane



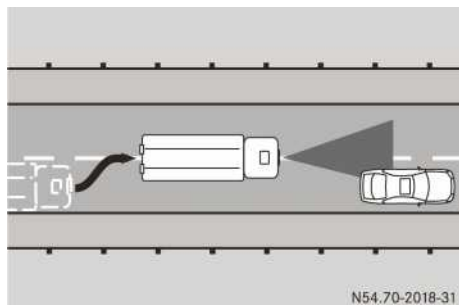
The ability of Telligent® distance control to detect vehicles pulling into your lane is limited. The distance to the vehicle in front entering your lane may then be too short. Telligent® distance control may unexpectedly issue warnings or brake your vehicle. Telligent® distance control may also accelerate unexpectedly.

Vehicles turning off



The ability of Telligent® distance control to detect vehicles turning off is limited. Telligent® distance control may unexpectedly issue warnings or brake your vehicle.

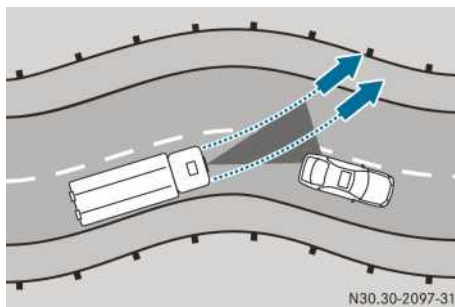
Overtaking



Telligent® distance control may unexpectedly issue warnings or brake your vehicle during overtaking if you:

- drive too close to the vehicle in front and
- are in the same lane as the vehicle in front

Winding stretches of road



On winding stretches of road, Telligent® distance control cannot detect which lane the vehicle in front is driving in. Telligent® distance control may unexpectedly issue warnings or brake your vehicle. Telligent® distance control may also accelerate unexpectedly.

SPA (Telligent® Lane Assistant)

General safety notes

WARNING

Telligent® Lane Assistant may not always detect lane markings.

In such cases, Telligent® Lane Assistant may:

- give an unnecessary warning
- not give a warning

There is a risk of an accident.

Always pay particular attention to the traffic situation and stay in lane, especially if Telligent® Lane Assistant issues a warning.

Using a camera behind the windscreen, SPA continuously monitors the position of the vehicle relative to the road lane markings. Make sure that the windscreen is always kept clean in the area of the camera. You can switch on the windscreen wiper to clean the windscreen, for example.

If you fail to adapt your driving style or if you are inattentive, SPA can neither reduce the risk of accident nor override the laws of physics. SPA cannot take road and weather conditions into account, nor the prevailing traffic situation. SPA is only an aid. You are responsible for keeping a safe distance to the vehicle in front, for the vehicle speed, braking in good time and remaining in lane. You should always adapt your driving style to suit prevailing road and weather conditions.

SPA does not issue warnings:

- at speeds below 60 km/h
- when a turn signal is switched on
- if you change lanes quickly
- when lanes are very narrow, e.g. on narrow secondary roads
- during acceleration or braking
- in a critical driving situation, e.g. when ABS intervenes or a distance warning signal is issued, for example by Telligent® distance control.

SPA's function is restricted, e.g.

- on tight bends
- if the road is very wet or covered by snow
- if there is sand or debris on the road surface
- if shadows are being cast on the road surface
- if there are several road lane markings or they are difficult to distinguish, e.g. on construction sites

SPA cannot take weather conditions into account, e.g.

- snow, slush,
- heavy rain, a wet road surface
- very dirty windscreen

If you drive over roadside markings while SPA is activated, a direction-related "rumble-strip noise" sounds from the left or right loudspeaker. SPA does not keep the vehicle in lane.

If a warning is not possible or is restricted when SPA is activated, the  indicator lamp in the instrument cluster lights up.

The  indicator lamp in the instrument cluster lights up if, for example:

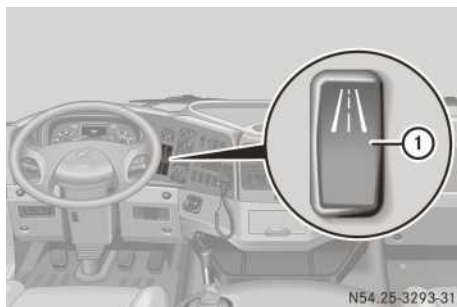
- no roadside markings are detected.
- the vehicle speed drops below 60 km/h.

SPA will warn you when changing lane if a turn signal has been switched on for more than 1 minute.

If SPA issues a warning, the audio device (radio) is muted.

Once SPA has issued a warning, further warnings will only be issued when the vehicle is once again fully within the road lane markings.

Activating and deactivating SPA



- ▶ Turn the key to the drive position in the ignition lock.
- ▶ **To switch on:** press the upper section of switch ①.
- ▶ **To switch off:** press the lower section of switch ①.

Level control

NR (Telligent® level control)

Important safety notes

WARNING

When driving with a lowered or raised chassis frame, the driving and braking characteristics may be seriously affected. A raised chassis frame may also exceed the permissible vehicle height. There is a risk of an accident. Set the driving level before pulling away.

Observe the legal requirements on permissible vehicle heights for the country in which you are driving.

Raise or lower the chassis frame to pick up or set down demountable bodies or semitrailers.

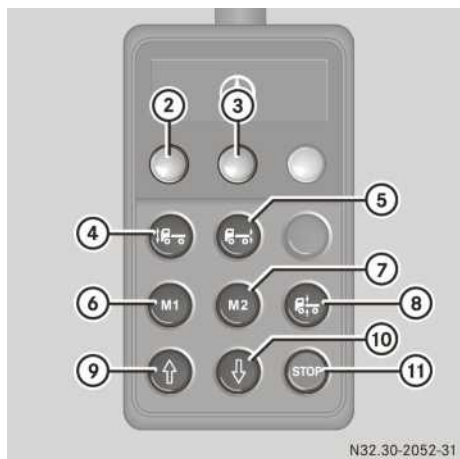
If you wish to continue the journey after the chassis height has been modified, raise or lower the chassis to the driving level.

If the  indicator lamp in the instrument cluster lights up, the chassis is not at driving level or Telligent® level control is malfunctioning.

Control unit



- Remove control unit (1) from the bracket on the driver's seat.



Control unit for Telligent® level control

- (2) Indicator lamp for the front of chassis: raising/lowering
- (3) Indicator lamp for the rear of chassis: raising/lowering
- (4) Front chassis frame preselection on/off
- (5) Rear chassis frame preselection on/off
- (6) M1 = memory, chassis level 1

- (7) M2 = memory, chassis level 2
- (8) Driving level
- (9) Raises chassis frame
- (10) Lowers chassis frame
- (11) STOP (when raising/lowering chassis frame)

- Apply the parking brake.
- Turn the key to the drive position in the ignition lock.
NR automatically adjusts the chassis frame to the previously stored height.
The chassis frame is raised or lowered at the front or rear axle.
Vehicles with an air-sprung rear axle: the chassis frame is raised or lowered at the rear axle.
- If the charge pressure in the compressed-air system is too low, leave the engine running. The compressed-air system is charged.

Raising/lowering the chassis frame

WARNING

People's limbs may become trapped if they are located underneath the vehicle or between the vehicle body and the tyres when the vehicle is lowering. There is a danger of injury.

When lowering the vehicle, make sure no one is underneath the vehicle or in the immediate vicinity of the wheel arches.

- Press button (4) or (5).
Corresponding indicator lamp (2) or (3) lights up.
- To raise the front and rear of the chassis frame on vehicles with full pneumatic suspension, press buttons (4) and (5) at the same time.
Indicator lamps (2) and (3) light up.
- Press button (9) to raise the chassis frame or button (10) to lower it.
The  or  symbol and the **Level outside of drive position** message are shown in the display. At the same time, the status indicator lights up yellow.
The  indicator lamp also lights up in the instrument cluster.
- Once the desired height is reached, press button (11).

Storing/calling up the chassis frame height

Buttons ⑥ and ⑦ can each be used to store a chassis frame height.

- ▶ **To store:** raise/lower the chassis to the desired height.
- ▶ Once the desired height is reached, press and hold button ⑪ and also press button ⑥ or ⑦.

The current chassis frame height is stored under corresponding button ⑥ or ⑦.

- ▶ **To call up:** press button ④ or ⑤. Corresponding indicator lamp ② or ③ lights up.

- ▶ Press button ⑥ or ⑦. The chassis frame is automatically raised or lowered to the stored height.

The  or  symbol and the **Level outside of drive position** message are shown in the display. At the same time, the status indicator lights up yellow.

The  indicator lamp also lights up in the instrument cluster.

Activating the driving level

- ▶ Press the ⑧ button. Indicator lamp ② or ③ goes out. The chassis frame is raised or lowered automatically to the driving level. Once the chassis frame is at driving level, the  or  symbol in the display and the status indicator go out.

The  indicator lamp in the instrument cluster goes out.

Loading and unloading the vehicle

- ▶ **!** Before removing the demountable body, lower the chassis frame completely. Otherwise, the chassis frame could spring up suddenly when the special-purpose body is removed. This could damage the shock absorbers.

Store a constant chassis frame height for loading and unloading the vehicle.

- ▶ Vehicles with a leading axle/trailing axle: lower the leading axle (> page 179) or trailing axle (> page 180).
- ▶ If required, raise/lower the chassis to the desired height.

- ▶ Run the engine until the pressure regulator cuts out.
- ▶ Press and hold button ⑪.
- ▶ Switch off the engine.
- ▶ Turn the key back in the ignition lock as far as it will go.
- ▶ Release button ⑪. If there is sufficient supply pressure in the compressed-air system, the height of the chassis frame is kept constant for approximately 4 to 5 hours.

Raised vehicle level (vehicles for large-capacity transport)



To improve ride comfort, raise the chassis frame while the vehicle is in motion.

- ▶ **To raise the chassis frame to the raised vehicle level:** press the upper section of switch ①. The  symbol is shown in the display and the status indicator lights up yellow. The  indicator lamp also lights up in the instrument cluster.
- ▶ **To lower the chassis frame to the normal vehicle level:** press the lower section of switch ①. Once the driving level has been reached, the  symbol in the display and the status indicator go out. The  indicator lamp in the instrument cluster goes out.

Axle load measuring device

General notes

When the chassis is at driving level, the axle load measuring system determines the axle load from the pressure in the air spring bellows.

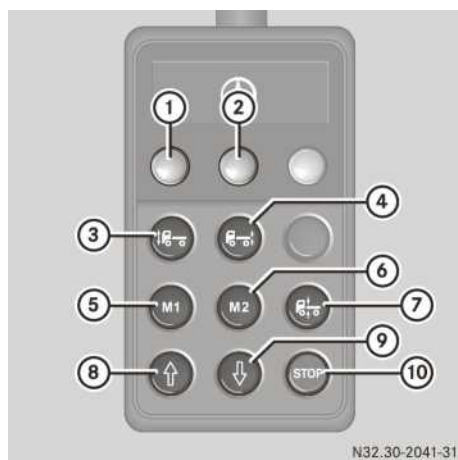
i The axle load measuring device is not calibrated nor is it a system capable of calibration. The measured data only provides an approximate guide which is not suitable for official use.

In order to avoid inaccuracies when measuring, make sure that the vehicle is uniformly laden.

If you call up the axle load indicator and the chassis is set to driving level, the  indicator lamp flashes. The display shows

 **Axle load display: not possible** and **Set vehicle level**.

Setting the axle load indicator



Control unit for Telligent® level control

- ① Operating indicator lamp when raising/lowering front chassis frame
- ② Operating indicator lamp when raising/lowering rear chassis frame
- ③ Front chassis frame preselection on/off
- ④ Rear chassis frame preselection on/off
- ⑤ M1 = memory, chassis level 1
- ⑥ M2 = memory, chassis level 2
- ⑦ Driving level
- ⑧ Raises chassis frame

- ⑨ Lowers chassis frame
- ⑩ STOP (when raising/lowering chassis frame)
- ▶ Park the vehicle on a level surface.
- ▶ Engage the parking brake.
- ▶ Raise or lower the chassis to the driving level (▷ page 175).
- ▶ Switch off the starting-off aid (▷ page 178).
- ▶ Drive the vehicle onto the single axle weighbridge.
- ▶ Call up the axle load indicator (▷ page 94).
- ▶ To switch off the control unit for Telligent® level control: press button ③ or ④. Indicator lamps ① and ② must not light up.
- ▶ Press and hold down one of the following buttons:
 - button ⑤ for the first axle
 - button ⑥ for the second axle
 - button ⑦ for the third axle
- ▶ To increase the display value: press and hold button ⑧ until the displayed value equals the value indicated by the weighbridge.

or

- ▶ To decrease the display value: press and hold button ⑨ until the displayed value equals the value indicated by the weighbridge.

Additional axles

Starting-off aid

Activating the starting-off aid

Activate the starting-off aid if the drive wheels spin while pulling away with the vehicle laden.

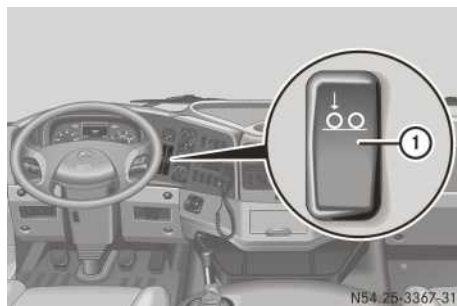
i If you activate the starting-off aid, the rear axle load will increase. Only activate the starting-off aid on snow and ice-covered roads and only if the wheels are spinning. Permanently exceeding the tyre load-bearing capacity can damage the rear axle tyres and cause the tyres to explode.

The vehicle's starting-off aid has either a speed limiter or a time limit (switch-on interlock):

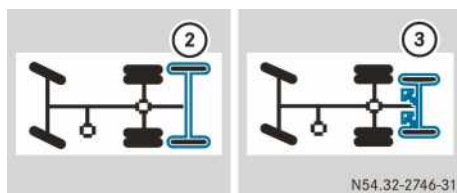
- The starting-off aid with speed limiter is switched off automatically when the speed exceeds approximately 30 km/h. The starting-off aid can only be activated again when

the speed falls below approximately 30 km/h.

- The starting-off aid with switch-on interlock switches off automatically after 90 seconds. After approximately 50 seconds, the starting-off aid with switch-on interlock can be reactivated.
- The starting-off aid without switch-on interlock is deactivated automatically after 120 seconds and can be reactivated immediately thereafter.



Starting-off aid leading axle display



Starting-off aid trailing axle display

- Press the upper section of switch ①. The display shows symbols ② or ③ alternately as long as the starting-off aid is activated.

Leading axle

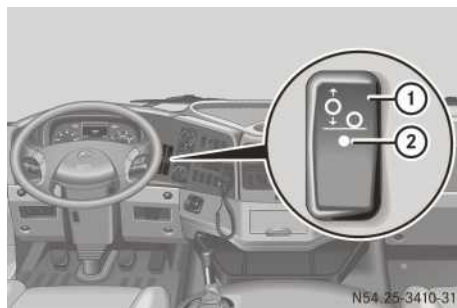
General notes

ⓘ Environmental note

When the leading axle is raised, roll resistance is reduced. This reduces tyre wear and fuel consumption.

- If the vehicle is empty or only partially laden, raise the leading axle before pulling away.
- If the reservoir pressure in the compressed-air system is too low, leave the engine running.
- When loading or unloading the vehicle, lower the leading axle.

The leading axle is automatically lowered shortly before the maximum permissible axle load on the drive axle is reached.



Raising the leading axle

- Turn the key to the drive position in the ignition lock.
- Press the upper section of leading axle switch ①. Indicator lamp ② in the switch lights up. The display also shows  with a yellow status indicator.

Lowering the leading axle

- Press the top of leading axle switch ① again. Indicator lamp ② in the switch, the  display message and the status indicator go out.

Trailing axle

Environmental note

When the trailing axle is raised, roll resistance is reduced. This reduces tyre wear and fuel consumption.

- If the vehicle is empty or only partially laden, raise the trailing axle before pulling away.
- If the reservoir pressure in the compressed-air system is too low, run the engine.
- When loading or unloading the vehicle, lower the trailing axle.
- Vehicles with a rear loading crane: observe the information in the manufacturer's operating instructions before raising the trailing axle.

On vehicles for transportation of bulk cargo, the trailing axle cannot be raised.

The trailing axle is lowered shortly before the maximum permissible axle load on the drive axle is reached.



- **To raise a trailing axle:** turn the key to the drive position in the ignition lock.
- Press the upper section of button ①. The display shows  with a yellow status indicator.
- **To lower the trailing axle:** press the upper section of switch ① again. The  display message disappears and the status indicator goes out.
- ❗ Vehicles with the Telligent® trailing axle: when the trailing axle is raised, the wheels are put in the straight-ahead position and the steering is locked.

Telligent® trailing axle

❗ When manoeuvring close to kerbstones or when travelling through narrow passages, there is a risk of tyre damage.

In such cases, disable the steerign for the Telligent® trailing axle.

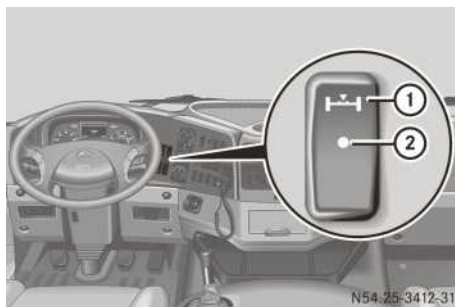
❗ If the  indicator lamp in the instrument cluster does not go out, the Telligent® trailing axle is malfunctioning. Have the malfunction rectified at a qualified specialist workshop.

The Telligent® trailing axle is a hydraulically steered trailing axle, which steers additionally up to a speed of approximately 45 km/h. The Telligent® trailing axle reduces the turning circle of the vehicle and thereby reduces tyre wear.

If you raise the Telligent® trailing axle or travel at speeds of above 45 km/h, the wheels return to the straight-ahead position. The Telligent® trailing axle will then not steer additionally.

If the trailing axle has been lowered, the Telligent® trailing axle will be steered once the wheels on the front axle have passed through the straight-ahead position.

Information on raising and lowering the Telligent® trailing axle can be found in the "Trailing axle" section (▷ page 180).



- **To lock steering of the Telligent® trailing axle:** turn the key in the ignition lock to the drive position.
- Press the upper section of Telligent® trailing axle switch ①. Indicator lamp ② in the switch lights up. The wheels return to the straight-ahead position. The Telligent® trailing axle will then not steer additionally.

- **To release the steering of the Telligent® trailing axle:** press the lower section of Telligent® trailing axle switch ①. Indicator lamp ② in the switch goes out. If the front axle wheels pass through the straight-ahead position, the Telligent® trailing axle is also steered.

Driving tips

General notes on driving

WARNING

If you switch off the ignition while the vehicle is in motion, safety-relevant functions are restricted or not available. This can affect, e.g. the power steering. To steer, you will require considerably more force. There is a risk of an accident.

Do not switch off the ignition while the vehicle is in motion.

WARNING

The parking brake may not be sufficient to secure the vehicle against rolling away on uphill or downhill gradients. A vehicle with a trailer/semitrailer or a laden vehicle could roll away. There is a risk of accident.

In the test position, check if the parking brake is sufficient to hold the tractor vehicle. If the tractor vehicle is not held, secure the vehicle and the trailer/semitrailer additionally using wheel chocks. Secure the trailer/semitrailer additionally using its parking brake.

WARNING

If you load the vehicle unevenly, driving characteristics such as steering and braking behaviour may be severely impaired. There is a risk of an accident.

Load the vehicle evenly. Secure the load so that it cannot slip.

The vehicle's driving, braking and steering characteristics vary with the type, weight and centre of gravity of the load.

Running-in

The running-in period of the engine has a significant effect on the vehicle, especially for the:

- service life
- operating reliability
- economy

Observe the following notes during the running-in period (up to 2,000 km):

- avoid subjecting the engine to full load.
- run-in the engine with care using differing speeds and engine revs.
- avoid high engine revs.
- do not drive at more than $\frac{3}{4}$ of the maximum road speed for each gear.
- change gear in good time.
- do not shift down to brake the vehicle.
- in the case of vehicles with automatic transmission, do not press the accelerator pedal beyond the point of resistance (kickdown) and only engage the shift ranges **4, 3, 2**, or **1** when driving slowly.

After 2,000 km, you can gradually bring the vehicle up to full speed and increase engine speeds.

Driving mode

- !** Do not exceed the permissible axle loads and wheel loads. Do not exceed the permissible gross weight. The difference between wheel loads must not exceed 10 % of the axle load.

The following parts of the vehicle may otherwise be damaged:

- tyres
- chassis frame
- axles

During the trip, observe the following at regular intervals:

- messages in the display
- warning and indicator lamps
- the gauges

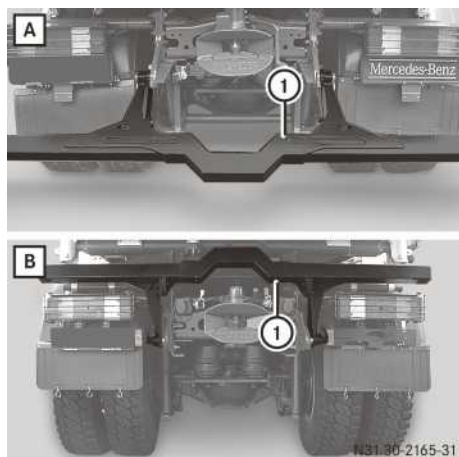
Folding underride guard

You can achieve a higher approach/departure angle when driving off-road if you fold up the underride guard.

WARNING

If the underride guard is folded up, in a collision with the vehicle in front this vehicle could become trapped underneath the frame. There is a risk of fatal injury for the occupants of the vehicle in front.

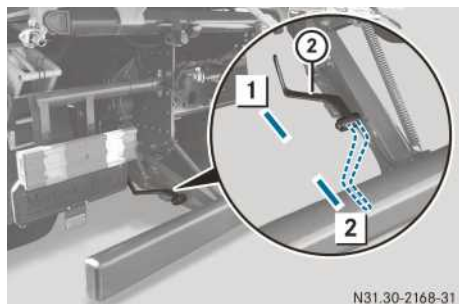
Fold the underride guard down and lock it in place when driving on public roads.



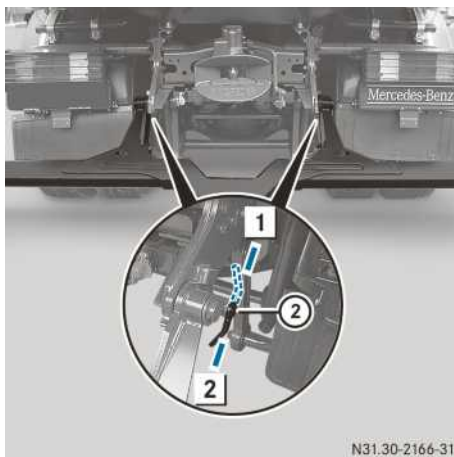
Underride guard (example)

- A** Road position
- B** Off-road position

► Hold underride guard ① in position.



Example: underride guard with a lever



Example: underride guard with 2 levers

- Swing lever ② to position ②.
- or
- Swing both levers ② to position ②.
- Underride guard ① is released.
- Swing underride guard ① into the desired position and hold it in place.
- Swing lever ② to position ① and release underride guard ①.
- or
- Swing both levers ② to position ① and release underride guard ①.
- Underride guard ① is locked.

Driving off-road

Important safety notes

WARNING

When driving off-road, your body is subject to forces from all directions due to the uneven surface. You could be thrown from your seat, for instance. There is a danger of injury.

Always wear a seat belt, even when driving off-road.

WARNING

Flammable material such as leaves, grass or twigs may ignite if they come into contact with hot parts of the exhaust system. There is a risk of fire.

When driving off road or on unpaved roads, check the vehicle's underside regularly. In particular, remove parts of plants or other flammable materials which have become trapped. In the case of damage, contact a qualified specialist workshop.

WARNING

If ABS is deactivated, the wheels may lock when braked. As a result, the vehicle can no longer be steered. There is an increased risk of skidding and an accident.

Always leave ABS on when driving on roads and firm surfaces.

! If the vehicle is being driven off-road, it can be damaged by obstacles.

Obstacles may damage vehicle parts such as:

- axles
- propeller shafts
- fuel tank
- compressed-air reservoir
- engine
- transmission

For this reason, you should always drive slowly when off-road. Ask passengers for guidance when driving over obstacles. Always observe the vehicle's ground clearance. Avoid obstacles if possible.

! When driving the vehicle on rough terrain, ensure that the drive wheels always have sufficient traction. Avoid wheelspin of the drive wheels. You could otherwise damage the differential gear system.

Driving off-road increases the possibility of damage to the vehicle, which may cause assemblies or systems to fail. Adapt your driving style to the conditions of the terrain. Drive carefully. Have vehicle damage rectified as quickly as possible at a qualified specialist workshop.

When driving off-road, substances such as sand, mud and water or water mixed with oil may get into the brakes. This may lead to a reduction in braking performance or total brake failure as a result of increased wear. The braking characteristics will vary depending on the substances that get into the brakes. Clean the brakes after driving off-road. If you notice grinding noises or a reduction in braking performance, have the

brake system checked at a qualified specialist workshop as quickly as possible. Adapt your driving style to suit the altered braking characteristics.

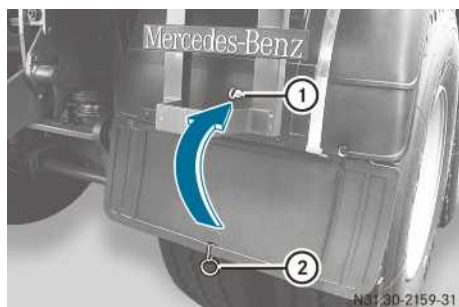
Driving off-road demands special driving skills and concentration. Furthermore, the driver must take special care when driving off-road and before driving on-road again.

Please make sure you read this section thoroughly before attempting to drive the vehicle off-road. You will then understand the particular advantages your vehicle offers to enable you to always reach your destination safely.

Mercedes-Benz recommends that you practice driving off-road in less demanding terrain. When driving on difficult terrain for the first time, ask an experienced off-road driver to accompany and advise you.

Checklist before driving off-road

- ▶ Check the fuel and AdBlue[®] supplies (▷ page 87) and top up (▷ page 189).
- ▶ Check the engine oil level and top up the engine oil (▷ page 214).
Before driving up or down steep gradients, fill the engine oil to the maximum level.
- i** If you drive up or down steep gradients, the  symbol may appear in the display. The engine operating safety is not put at risk if you have filled the engine oil to the maximum level before the journey.
- ▶ **Automatic transmission:** check the oil level and top up the oil (▷ page 215).
Before driving up or down extreme gradients, check that the oil level is topped up to the maximum.
- ▶ **Vehicle tool kit:** check that the jack is working (▷ page 225).
- ▶ Make sure that a wheel wrench, wooden underlay for the jack, a robust tow cable and a folding spade are carried in the vehicle.
- ▶ **Tyres:** check tread depth (▷ page 254) and tyre pressure (▷ page 256).
- ▶ **Driver's seat:** block horizontal springing.
- ▶ **Folding underride guard:** fold the underride guard to the off-road position (▷ page 182).



Example: mud flap

- **Mud flaps:** attach the mud flap to hook ① using ring ② in the direction of the arrow.

Checklist before fording

- Assess the depth and characteristics of the body of water before driving through it. As a precaution, have a closer look on foot.
- Identify the maximum permissible water depth for fording in the sales documentation.
- Switch off the auxiliary heating (▷ page 83).
- Wait for the auxiliary heating run-on phase to end.

Rules for off-road driving

WARNING

If you drive over obstacles or in ruts, the steering wheel may jerk out of your grip, causing injury to your hands.

Always hold the steering wheel firmly with both hands. When driving over obstacles, you must expect steering forces to increase briefly and suddenly.

WARNING

When driving off-road or driving with an engaged differential lock in the automatic driving program, the electronic management system may perform unwanted gear changes. Due to the interruption in the tractive power, the vehicle may roll backwards on uphill slopes, for instance. There is a risk of an accident.

Always drive carefully and be prepared to brake. In particularly difficult driving conditions, switch to the manual driving program.

On gradients and inclines, always follow the line of fall and avoid changing gear. Drive up gradients without stopping until you are at the top of the hill. If your vehicle is unable to cope with the gradient, stop. Shift into reverse gear and allow the vehicle to slowly roll backwards.

- Securely stow away all loose objects.
- Securely fasten the load.
- Secure bulk material (e.g. sand or gravel) with partition walls or covers to prevent it slipping.
- Secure add-on and attached equipment, such as tipper bodies or loading cranes, against inadvertent activation and movement. Observe the operating instructions given by the body and equipment manufacturer.
- Close the side windows (▷ page 43).
- Vehicles with level control: raise the chassis frame (▷ page 175).
- Vehicles with manual transmission or Telligent® gearshift: stop and engage a low gear before driving off-road.
- Vehicles with automatic transmission: limit the shift range (▷ page 157).
- Vehicles with Telligent® automatic gearshift or Mercedes PowerShift: activate the manual drive program (▷ page 145). Do not allow the engine speed to drop below 600 rpm.
- Deactivate ASR (▷ page 160).
- Deactivate ABS (▷ page 129).
- Shift the transfer case to off-road position (▷ page 163).
- Engage the differential locks if traction is insufficient (▷ page 162).
- Vehicles with Telligent® gearshift, automatic gearshift or Mercedes PowerShift: activate rapid change of direction to rock the vehicle free from a rut (▷ page 142), (▷ page 145).
- Always keep the engine running and in gear while driving.
- Drive slowly and smoothly. Walking pace is necessary in many situations.
- Make sure that the wheels remain in contact with the ground.
- Drive with extreme care over unknown terrain where you can only see for a short distance.

As a precaution, get out of the vehicle to take a look at the route to be taken first.

- ▶ Watch out for obstacles such as rocks, holes, tree stumps and tyre ruts.
- ▶ If possible, always drive over obstacles with the wheels of one side of the vehicle. This means damage to the vehicle is avoided.

Driving on inclines

WARNING

If you drive on a steep incline at an angle or turn on a steep incline, the vehicle could slip sideways, tip and overturn. There is a risk of an accident.

When driving on an incline, drive into the line of fall (upwards or downwards in a straight line) and do not turn.

Do not shift the transmission into neutral on downhill gradients.

- ▶ If the vehicle is being driven up or down a slope and begins to tilt, steer the vehicle into the line of the fall immediately.
Only drive over embankments and on slopes along the line of fall.
- ▶ Do not brake until the vehicle is in the line of fall.
- ▶ Slowly depress the brake pedal if the engine's braking effect is insufficient when driving downhill.

Fording

- ! If you drive into water at speed, the bow wave may damage parts of the vehicle.
- ▶ Drive into the water at walking pace at a shallow point.
- ▶ Adapt your driving style to the unaccustomed environment.
- ▶ Drive through the water slowly at a constant speed.
- ▶ Do not declutch, change gear or stop while driving.
- i Pulling away in water is difficult due to the strong resistance and the shallow bottom.
- ▶ Ensure that no bow wave forms while driving.

- ▶ Do not switch off the engine while in the water.
- ▶ If the engine cuts out while in the water, start it again immediately.

Driving on sand

Loose sand is a particularly treacherous surface for off-road driving.

- ▶ Drive quickly to overcome rolling resistance.
- ▶ Drive in the tyre tracks of vehicles ahead.
- ▶ Pay attention to the vehicle's ground clearance in the case of deep tyre ruts.

Checklist after driving off-road

- ! Parts of plants or branches which have become trapped may damage the following components:
 - fuel lines
 - brake lines
 - axle joints
 - drive shafts
- ▶ Activate ASR (▷ page 160).
- ▶ Switch on ABS (▷ page 129).
- ▶ Disengage differential locks (▷ page 162).
- ▶ Shift the transfer case to on-road position (▷ page 163).
- ▶ Test the brakes.
- ▶ Check the headlamps and tail lamps for damage.
- ▶ Inspect the tyres for damage.
- ▶ Replace buckled or damaged wheels.
- ▶ Replace missing valve caps.
- ▶ Check and adjust the tyre pressure (▷ page 256).
- ▶ Check whether parts of plants or branches have become trapped.
- ▶ Check the entire vehicle underside, brakes, steering, chassis and exhaust system for damage.
- ▶ Check the engine oil level (▷ page 214).
- ▶ Fold the folding underride guard to the road position (▷ page 182).
- ▶ Fold down the mud flaps.
- ▶ Observe the notes on cleaning after driving off-road or on construction sites.

Checklist after fording

- ▶ Check whether parts of plants or branches have become trapped.
- ▶ Clean the wheels, tyres and wheel arches and remove any foreign objects.
- ▶ Check the headlamps and tail lamps for damage.
- ▶ Check the entire vehicle underside, brakes, steering, chassis and exhaust system for damage.
- ▶ Clean the brake discs, brake linings, wheels and axle joints and check them for damage.
- ▶ Check the engine oil level (▷ page 94).
- ▶ Test the brakes while paying attention to the road and traffic conditions.

Cleaning after driving off-road or on construction sites

! Only direct the compressed-air, steam or water jet towards the radiator surface in a vertical direction. Ensure that the radiator fins are not damaged. Remove any dirt from the radiator fins. Damaged or dirty radiator fins can cause the engine to overheat. If there is a loss of coolant or damage to the cooling and heating system, have it checked at a qualified specialist workshop.

Foreign bodies that have become trapped can be expelled during the journey, e.g. stones in the tyre tread or between the tyres (twin tyres). This could cause other road users to be injured or vehicles – especially the windscreens – to be damaged.

Check the tyres for foreign bodies that have become trapped after every journey off-road or on a construction site and before journeys on public roads. Remove any trapped foreign bodies.

Dirt and mud on the tyres and on the road surface reduce road grip, particularly if the road surface is wet. This could cause your vehicle to start to skid. Always clean your vehicle carefully after every journey off-road or on a construction site and before journeys on public roads.

Clean the following vehicle parts after driving off-road or on construction sites:

- lighting system
- side windows and windscreen
- exterior mirrors
- steps

- door sills
- grab handles
- wheels and tyres
- wheel housing and mudguard
- steering
- axles
- brakes
- spring elements
- chassis
- licence plate
- engine
- engine radiator
- transmission
- oil cooler (transmission)

After operation in mud, sand, water or after exposure to similar dirty conditions:

- ▶ Clean the brake discs, brake linings, wheels and axle joints and check them for damage.
- ▶ Lubricate the axle joints. Observe the information in the Maintenance Booklet.
- ▶ Test the brakes while paying attention to the road and traffic conditions.

Fuel consumption

General information

Fuel consumption depends on:

- the type of fuel used
- the vehicle's equipment
- the driving style
- the operating conditions

For these reasons, exact figures about any individual vehicle's fuel consumption cannot be provided.

You can call up fuel consumption figures in the on-board computer (▷ page 92).

Vehicle equipment

The following components influence fuel consumption:

- tyres (e.g. tyre pressure, tyre condition)
- body type
- wind deflectors

- drive train (e.g. transmission ratio)
- additional equipment (e.g. air conditioning, auxiliary heating)

Driving style

Your driving style can help to keep the fuel consumption down:

- anticipate road and traffic conditions.
- avoid frequent acceleration and braking.
- stay within the economical engine speed range.

Operating conditions

Fuel consumption can increase due to poor operating conditions.

Observe the following notes:

- avoid driving in mountainous terrain.
- avoid urban traffic and frequent short journeys.
- do not allow the engine to idle when the vehicle is stationary.
- do not drive with unnecessary weight.
- avoid frequent cold starts.

AdBlue® consumption

AdBlue consumption is approximately 4 % of fuel consumption when BlueTec®4 is used, and approximately 6 % with BlueTec®5.

Engine oil consumption

After running in the engine, oil consumption may reach 0.5 % of the vehicle's fuel consumption. Increased distance covered and more arduous operating conditions could result in vehicles exceeding this value.

Limiting the speed

WARNING

If the vehicle combination swerves, you could lose control of the vehicle combination. The vehicle combination may even overturn. There is a risk of an accident.

On no account should you attempt to straighten up the vehicle combination by increasing the speed. Reduce your speed and do not countersteer. Brake if necessary.

For vehicles with a speed limit, the maximum speed is set to 90 km/h.

This may vary according to legal requirements in certain countries. The engine speed is automatically limited when the restricted top speed is reached. Take this into account when overtaking.

Reverse warning device

Important safety notes

WARNING

Other road users may ignore or fail to hear the warning tone of the reverse warning feature. There is a risk of injury if you fail to ensure that the area in which you are manoeuvring is clear.

Make sure that there are no persons or objects in the area in which you are manoeuvring. It may be necessary to enlist the help of a second person when manoeuvring.

The reverse warning feature is a system designed to assist you in ensuring the safety of other road users.

The reverse warning feature cannot guarantee that there are no people or objects behind your vehicle.

The reverse warning device is an acoustic warning system. If you shift into reverse gear, the reverse warning device is activated and emits a warning tone.

The reverse warning device can be installed on the tail lamp or on the cross member.

Reducing the volume of the reverse warning device

Reducing the volume of the reverse warning device is only possible on vehicles without automatic transmission.

- Engage reverse gear twice within 4 seconds. The volume is reduced.

Switching the reverse warning device on/off

In some countries, deviations from the use of the reverse warning device that is described here are possible as a result of legal requirements.

Always observe the legal requirements in all countries concerned.



- **To switch off:** press the upper section of switch ①.
- **To switch on:** press the lower section of switch ①.

Reverse gear lock

Refuse-collection vehicle:

If the side running boards are loaded in the rear area, the vehicle speed is restricted to a maximum of 30 km/h and the reverse gear lock is activated.

In the case of vehicles with automated transmission or automatic transmission: the reverse gear lock disables the reverse gear.

In the case of vehicles with manual transmission: the warning buzzer sounds if the reverse gear is selected. The reverse gear lock stops the engine and activates the frequent-stop brake.

If the side running boards are loaded when reverse gear is engaged:

- the warning buzzer sounds
- the engine switches off
- the frequent-stop brake is activated.

If the engine is switched off by the reverse gear lock:

- turn the key back in the ignition lock as far as it will go.
- Engage the parking brake.
- Restart the engine.

Warning buzzer

The warning buzzer sounds if:

- you have not fastened the seat belt on the driver's seat
- the immobiliser is activated
- neither the clutch pedal nor the brake pedal is depressed when the hill holder is activated and the vehicle is stationary
- you select the reverse gear
- the key in the ignition lock is turned back or removed when the frequent-stop brake is engaged and the parking brake is released
- you exceed the maximum permissible engine speed (not for vehicles with automatic transmission)
- you select a gear that is too low when shifting down (not for vehicles with automatic transmission)
- you open the driver's door when the vehicle is stationary and the parking brake is released

The warning buzzer sounds in addition to the warning indicator in the display if:

- Telligent® distance control is activated and there is a danger of colliding with another vehicle.
- the coolant level is too low or the permissible coolant temperature (approximately 105 °C) is exceeded. At the same time, the status indicator lights up in yellow or red. The operating safety of the engine is jeopardised by this.
- there is a display failure. Important operating information, warning displays or service indicators can no longer be displayed. The display shows a message and the system abbreviation for electronic systems.

❗ The operating safety of the engine is compromised if:

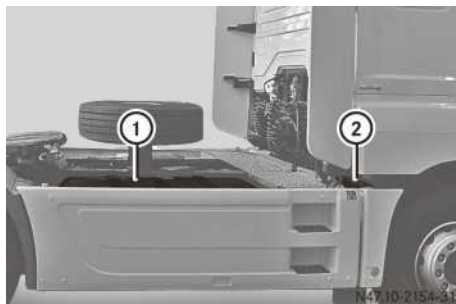
- the warning buzzer sounds
- the STOP lamp lights up

- the status indicator lights up red and
- the display shows the  symbol

Do not pull away, or stop the vehicle as soon as possible, paying attention to road and traffic conditions. You could otherwise damage the engine.

Refuelling

Fuel/AdBlue® tank



Example: fuel/AdBlue® tank

- ① Fuel tank
- ② AdBlue® tank

Fuel

Important safety notes

WARNING

Fuels are poisonous and hazardous to health. There is a danger of injury.

Do not swallow fuel or let it come into contact with skin, eyes or clothing. Do not inhale fuel vapours. Keep fuels out of the reach of children.

If you or others come into contact with fuel, observe the following:

- Wash the fuel off any affected areas of skin with water and soap immediately.
- If you get fuel in your eyes, rinse them thoroughly with clean water immediately. Seek immediate medical attention.

- If fuel is swallowed, seek immediate medical attention. Do not induce vomiting.
- Change any clothing that has come into contact with fuel immediately.

WARNING

Fuel is highly flammable. When fuel is handled improperly, there is a risk of fire and explosion.

Avoid fire, naked flames, smoking and the creation of sparks. Make sure that fuels do not come into contact with a hot exhaust system. Before carrying out work on the fuel system, switch off the ignition and the auxiliary heater. Always wear protective gloves.

WARNING

If you mix diesel fuel with petrol, the flash point of this fuel mixture is lower than that of pure diesel fuel. When the engine is running, components in the exhaust system may overheat unnoticed. There is a risk of fire.

Never refuel with petrol. Never add petrol to diesel fuel.

! Do not use petrol to refuel vehicles with a diesel engine. Even small amounts of petrol result in damage to the fuel system and engine.

! Do not switch on the ignition if you accidentally refuel with the wrong fuel. Otherwise, the fuel will enter the fuel lines. Notify a qualified specialist workshop and have the fuel tank and fuel lines drained completely.

! Do not add any special fuel additives to the diesel fuel or fatty acid methyl ester FAME fuel.

Special fuel additives can lead to:

- malfunctions
- damage to the catalytic converter
- engine failure

You will find further information on fuel in the "Service products" section (> page 270).

Environmental note

If fuels are handled improperly, they pose a danger to persons and the environment. Do

not allow fuels to run into the sewage system, the surface waters, the ground water or into the ground.

Before filling the tank

- ▶ Switch off the engine.
- ▶ Apply the parking brake.
- ▶ Switch off the auxiliary heating system (▷ page 80).
- ▶ Turn the key back in the ignition lock as far as it will go.
- ▶ Observe the fuel grade (▷ page 270).

! If you are using drums or canisters to refuel the vehicle, you should filter the fuel before adding it.

This will prevent malfunctions in the fuel system due to contaminated fuel.

- i** Regularly check the fuel prefilter with heated water separator for condensation.

AdBlue®

Important safety notes

! Do not allow diesel fuel to run into the AdBlue® tank. This could damage the BlueTec® exhaust gas aftertreatment.

! Only use AdBlue®/DEF in accordance with DIN 70070/ISO 22241. Do not use any additives.

If AdBlue®/DEF comes into contact with painted or aluminium surfaces when filling the tank, rinse the affected area immediately with plenty of water.

! Do not mix additives to AdBlue®. Do not thin AdBlue® with tap water. This could destroy the BlueTec® exhaust gas aftertreatment system.

! Always close the AdBlue® tank properly. Otherwise, impurities could enter the BlueTec® exhaust gas aftertreatment and damage it.

! Make sure that you do not overfill the AdBlue® tank. Otherwise the AdBlue® tank could be damaged at very low temperatures.

When you open the AdBlue® tank cap, small amounts of ammonia vapour may be released. Ammonia vapours have a pungent smell and are particularly irritating to:

- skin
- mucous membranes
- eyes

The vapours may cause a burning sensation in the eyes, nose and throat as well as irritation of the throat and watering eyes. Avoid inhaling ammonia vapours. Only fill the AdBlue® tank in well-ventilated areas.

AdBlue® should not come into contact with skin, eyes or clothing, and should not be swallowed. Keep AdBlue® out of the reach of children.

If you come into contact with AdBlue®, observe the following:

- Wash AdBlue® from affected areas of skin immediately with water and soap.
- If AdBlue® comes into contact with your eyes, rinse them out thoroughly with clean water as soon as possible. Consult a doctor without delay.
- If AdBlue® is swallowed, rinse the mouth out with plenty of water immediately and drink plenty of water. Consult a doctor without delay.
- Change clothing soiled with AdBlue® as soon as possible.

You will find further information on AdBlue® in the "Service products" section (▷ page 272).

Environmental note

Dispose of AdBlue® in an environmentally responsible manner.

Before filling the tank

- ▶ Switch off the engine.
- ▶ Apply the parking brake.
- ▶ Switch off the auxiliary heating system (▷ page 80).
- ▶ Turn the key back in the ignition lock as far as it will go.

Trailers/semitrailers

Trailer/semitrailer coupling

The trailer or semitrailer coupling is one of the vehicle components with particular importance for road safety. Please comply precisely with the manufacturer's operating, care and maintenance instructions.

Driving tips for trailers/semitrailers

General notes

! Ensure that you observe the following safety instructions for driving with trailers and semitrailers:

- only attach a trailer/semitrailer at an appropriate trailer/semitrailer coupling.
- ensure there is adequate clearance between the trailer/semitrailer and the tractor vehicle.
- if the vehicle is being driven without a load, only a centre-axle trailer without a load may be coupled up.
- do not exceed the permissible axle loads.
- adhere to a minimum front axle load. This ensures adequate steerability for the tractor vehicle.

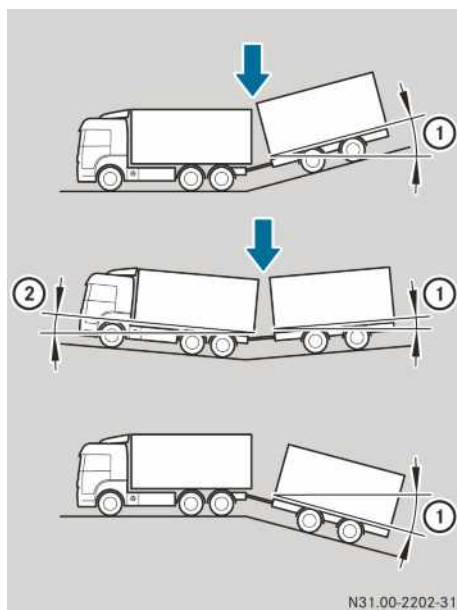
i In the case of air sprung vehicles with axle load measuring systems, the current axle loads can be called up on the on-board computer (▷ page 178).

Articulation angles

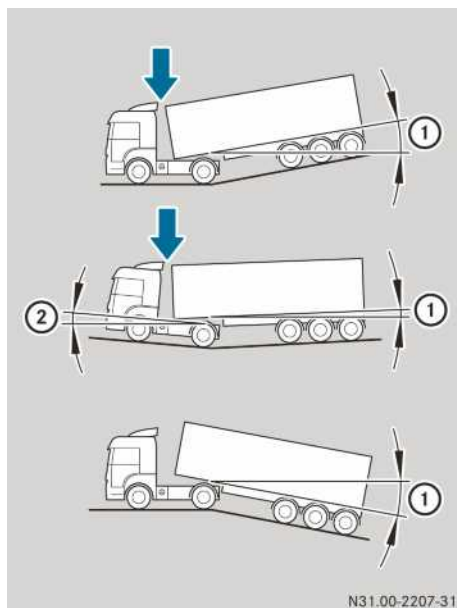
! If the articulation angle is exceeded, the tractor vehicle and the trailer/semitrailer can be damaged.

The articulation angles are dependent on the particular tractor vehicle and trailer/semitrailer and are influenced by:

- wheelbase
- height of add-on equipment
- overhang
- distance from the tractor vehicle to the trailer/semitrailer



Example: tractor vehicle and centre-axle trailer



Example: tractor vehicle and semitrailer

► If driving over depressions or elevations, please be aware that the articulation angle at the front ② or at the rear ① changes.

i If the articulation angle between the tractor/trailer combination is reduced, the clearance between the tractor vehicle and the trailer/semitrailer is reduced.

Swivel angle

WARNING

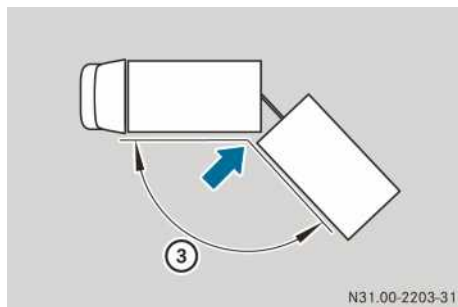
If the swivel angle is exceeded during extreme cornering, the following can happen:

- the cable, compressed-air and hydraulic lines may break away
- the trailer tow hitch and the trailer drawbar may be damaged

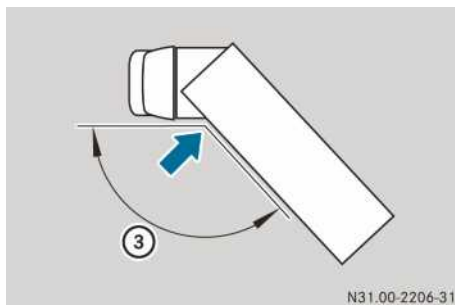
This could cause you to lose control of the vehicle or the trailer. The trailer may even break away. There is a risk of an accident.

Always pay attention to the swivel angle of the vehicle combination when cornering.

The swivel angle is dependent on the coupling system on the tractor vehicle and trailer/semitrailer.



Example: tractor vehicle and centre-axle trailer



Example: tractor vehicle and semitrailer

► Pay attention to swivel angle ③ during extreme cornering.

Coupling up

Information on trailer synchronisation

Only for vehicles without BS (Telligent® brake system).

! Tractor/trailer synchronisation should be carried out when you couple up/attach a trailer or semitrailer to the tractor vehicle for the first time. Not doing so could lead to increased brake wear. Always have tractor/trailer synchronisation carried out at a qualified specialist workshop.

Semitrailers

WARNING

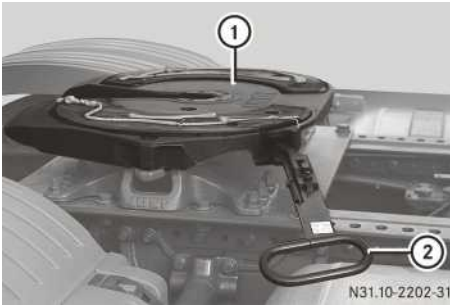
If there is too much play on the tractor/semitrailer combination between the semitrailer coupling pin and the coupling plate, the semitrailer may break away from the coupling plate. You could lose the semitrailer as a result. There is a risk of an accident.

Follow the coupling manufacturer's instructions.

WARNING

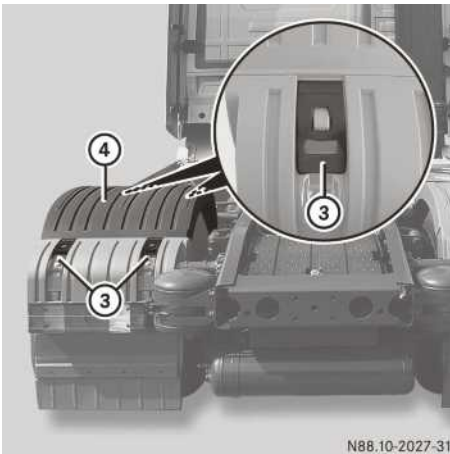
If the semitrailer coupling is damaged or not correctly engaged, you could lose the semitrailer. There is a risk of an accident.

Always check that the semitrailer coupling is free of damage and properly engaged after coupling-up.



Example: semitrailer coupling

- ▶ Chock the semitrailer's wheels to prevent it from rolling away.
- ▶ Open semitrailer coupling ① with lever ②; see the manufacturer's operating instructions.
- ▶ Vehicles with air suspension: raise or lower the chassis frame (> page 175), so that the semitrailer plate is 50 mm lower than semitrailer coupling ①.
- ▶ Vehicles with steel suspension: use the saddle supports to set the height of the semitrailer so that the semitrailer plate is 50 mm lower than semitrailer coupling ①.



Example: left-hand side of the vehicle

Only remove mudguard centre part ④ if:

- the semitrailer makes the use of mudguard centre part ④ impossible and
 - the semitrailer's body covers the wheels
- Observe country-specific laws and regulations for using mudguard centre parts ④.

- ▶ Release rubber retainers ③ of mudguard centre part ④ on the left and the right-hand side of the vehicle.
- ▶ Remove mudguard centre sections ④.
- ▶ Back up slowly until semitrailer coupling ① locks.
- ▶ Stop the vehicle and apply the parking brake.
- ▶ After coupling: secure semitrailer coupling ① to prevent unauthorised operation; see the manufacturer's operating instructions.
- ▶ Retract the saddle supports fully; see the manufacturer's operating instructions.
- ▶ Connect the cable and compressed-air lines (> page 195).

Tractor/trailer combination

WARNING

There is a risk of the drawbar swinging out when coupling up the trailer. In this case, the trailer drawbar swings uncontrollably from side to side. If a person is in the area of danger, there is a risk of injury.

Make sure that no persons are in the area of danger. Set the trailer drawbar to the correct height before coupling up, e.g. by using the height adjustment device.

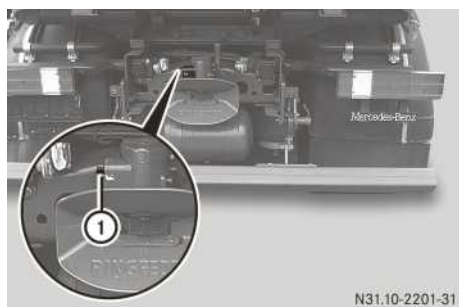
WARNING

If the trailer coupling has too much longitudinal play, the trailer can tear away. You could lose the semitrailer as a result. There is a risk of an accident.

Check the trailer coupling daily for longitudinal play by moving the towbar body of the trailer coupling forwards and back firmly. Have any longitudinal play eliminated at a qualified specialist workshop as soon as possible.

Do not check the longitudinal play on the coupling jaw.

Couple up the trailer by reversing the tractor vehicle. Never let the trailer run on.



Example: securing knob

- ▶ Before coupling on the trailer: apply the parking brake and release the service brake on the trailer; see the manufacturer's operating instructions.
- ▶ Chock the trailer's rear wheels to prevent it from rolling away.
The unbraked front axle of the trailer must remain pivotable.
- ▶ Set the towbar supports to the height of the trailer coupling; see the manufacturer's operating instructions.
- ▶ Back up slowly until the trailer coupling closes.
- ▶ After coupling: check to ensure that the trailer coupling's coupling pin is positioned correctly on securing knob ① or check pin.
- ▶ Connect the cable and compressed-air lines (▷ page 195).

Uncoupling

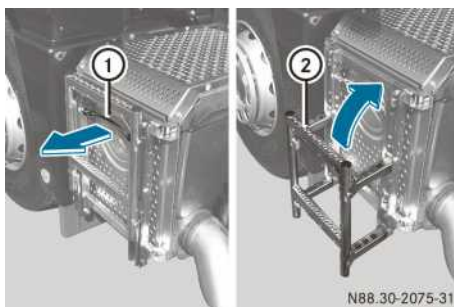
- ❗ **Semitrailer tractor vehicles with air suspension:** before completely uncoupling, lower the chassis frame until there is a gap between the semitrailer plate and the semitrailer coupling. Otherwise, the chassis frame will spring up suddenly when uncoupling. This can cause damage to the chassis frame and the semitrailer.
- ▶ Park the vehicle on a firm and level surface.
- ▶ Apply the parking brake.
- ▶ Semitrailer tractor vehicle with air suspension: lower the chassis frame completely (▷ page 175).
- ▶ Chock the trailer/semitrailer's wheels to secure it against rolling away.

- ▶ Extend the saddle supports of the semitrailer; see the manufacturer's operating instructions.
- ▶ Set the trailer's towbar support to the height of the trailer coupling; see the manufacturer's operating instructions.
- ▶ Remove the cable and compressed-air lines (▷ page 196).
- ▶ Open the trailer coupling/semitrailer coupling; see the manufacturer's operating instructions.
- ▶ Drive the tractor vehicle forwards slowly.
- ▶ On semitrailer tractor vehicles: fit the mud-guard centre parts (▷ page 192).

Folding ladder

Folding the ladder up and down (semitrailer tractor vehicle)

Use the folding ladder to connect cables and compressed-air lines from the semitrailer, for example.



- ▶ **To fold down:** pull out control cable ① in the direction of arrow and fold down folding ladder ②.
- ▶ **To fold up and lock:** fold up folding ladder ② in the direction of arrow until you hear it engage.
- ▶ Pull folding ladder ② outwards and check whether it is locked in place.

Cables and compressed-air lines

Important safety notes

WARNING

If you climb onto or down from the vehicle in order to connect/disconnect the cables and compressed-air lines without appropriate climbing aids, you could:

- slip and/or fall
- damage components, e.g. the battery cover, and fall as a result
- burn yourself on hot components

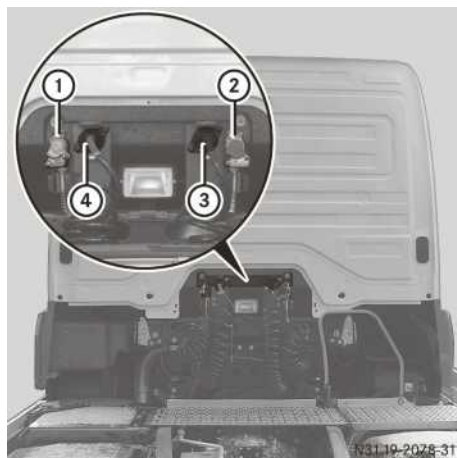
There is a risk of injury.

Always use secure climbing aids, e.g. a suitable ladder.

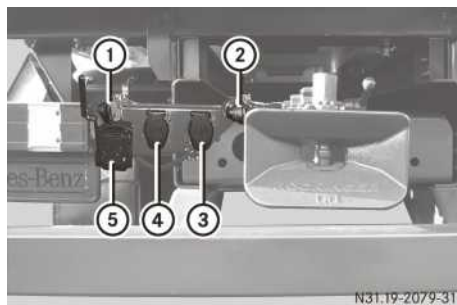
WARNING

The cover of the silencer can get very hot when driving. You could burn your foot if, for example, you step on this cover in order to connect/disconnect the cables and compressed-air lines. There is a risk of injury. Never step on the cover of the silencer.

Arrangement of connections



Example: connections for semitrailer



Example: connections for trailers

Connecting cables and compressed-air lines

! Arrange the cables and compressed-air lines in such a way that they easily yield to all movements without tension, kinking or friction when cornering, etc. Before connecting the cable, make sure the voltage rating of the consumer equipment on the trailer is correct.

If you connect a trailer/semitrailer to the vehicle's 12 V electrical system, use an appropriate voltage transformer. You can obtain a voltage transformer from any Mercedes-Benz Service Centre.

Vehicles with a double coupling head:

- Press down and hold the lever on double coupling head ⑤.
- Connect the compressed-air lines.
- Swing the lever on double coupling head ⑤ upwards and release it.

Vehicles without a double coupling head:

- Semitrailer tractor vehicles: fold down the folding ladder (> page 194).
- Connect brake line coupling head ① (yellow).
- Connect reservoir line coupling head ② (red).

i The shutoff valves in the coupling heads open automatically when the connection is made.

- After connecting the compressed-air lines to the trailer, adjust the brake pressure regulator (if installed).
- Connect the power supply to the socket or to 24 V (15-pin) plug ④.
- Connect the connecting cable to the socket or to ABS/BS (5/7-pin) plug ③.

- ▶ Semitrailer tractor vehicles with ABS: if the semitrailer tractor vehicle is being driven with a semitrailer without ABS, insert the connection cable into the empty socket.
- ▶ Semitrailer tractor vehicles: fold the folding ladder up.
- ▶ Check lighting systems, turn signals and brake lamps on the vehicle and on the trailer/ semitrailer for correct functioning and cleanliness.
- ▶ Check the operation of the indicator lamps for the tractor and trailer/ semitrailer turn signals in the instrument cluster.
- ▶ After pulling away, check that the brake circuit on the trailer/ semitrailer is functioning correctly, paying attention to the road and traffic conditions.

Disconnecting cables and compressed-air lines

WARNING

If you remove the coupling heads in the wrong order, the trailer/ semitrailer brake is released and the trailer/ semitrailer may roll away. There is a risk of an accident.

Always detach the coupling heads in the correct order.

- !** After disconnecting the compressed-air lines, ensure that the covers of the coupling heads on the vehicle are closed. If the covers are not closed, the coupling heads may become contaminated, causing a malfunction.
 - ▶ Apply the parking brake of the tractor vehicle.
 - ▶ Apply the parking brake of the trailer/ semitrailer. Observe the manufacturer's operating instructions.
- Vehicles with a double coupling head:
- ▶ Press down and hold the lever on double coupling head ⑤.
 - ▶ Disconnect the compressed-air lines.
 - ▶ Swing the lever on double coupling head ⑤ upwards and release it.

Vehicles without a double coupling head:

- ▶ Semitrailer tractor vehicles: fold down the folding ladder (▷ page 194).
- ▶ Detach reservoir line coupling head ② (red). The brakes of the trailer/ semitrailer will be applied automatically.
- ▶ Detach brake line coupling head ① (yellow).
- ▶ Disconnect the power supply from the socket or from 24 V (15-pin) plug ④.
- ▶ Disconnect the connecting cable from ABS (5/7-pin) socket ③.
- ▶ Semitrailer tractor vehicles with ABS: if the semitrailer tractor vehicle is being driven without a semitrailer, insert the connection cable into the empty socket.
- ▶ Semitrailer tractor vehicles: fold the folding ladder up.
- ▶ Check the operation and cleanliness of the lighting system as well as that of the turn signals and brake lamps.

Wind deflector

Setting

WARNING

There are no working surfaces fitted on the vehicle for adjusting the wind deflector. If you adjust the wind deflector yourself, there is a danger of falling. There is a risk of injury.

For this reason, use firm, non-slip working surfaces, e.g. a ladder. You must not stand on the roof.

WARNING

If you adjust the wind deflector, you could get trapped between parts of the wind deflector or between the wind deflector and the cab. There is a risk of injury.

When adjusting the wind deflector make sure that there is adequate clearance. Do not place parts of your body between the wind deflector and the cab. Have a second person assist you.



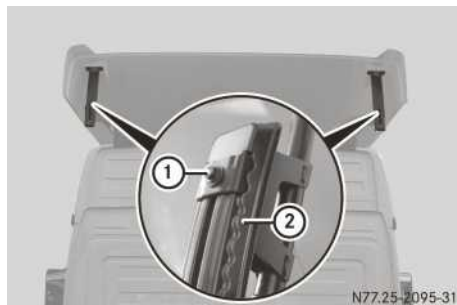
Environmental note

When the wind deflector is adjusted correctly, the air resistance is lowered. This reduces fuel consumption.

Mercedes-Benz recommends that you have the wind deflector adjusted at a qualified specialist workshop.

When adjusting the wind deflector, make sure that the permissible vehicle height is not exceeded. Observe the relevant legal requirements for each country.

- Determine which diagram corresponds to your vehicle.
- Measure height difference **H** between the drip rail and body.
- Measure clearance **S** between the rear wall and body.
- Using height difference **H** and clearance **S** in the diagram, determine adjustment detent **A**.



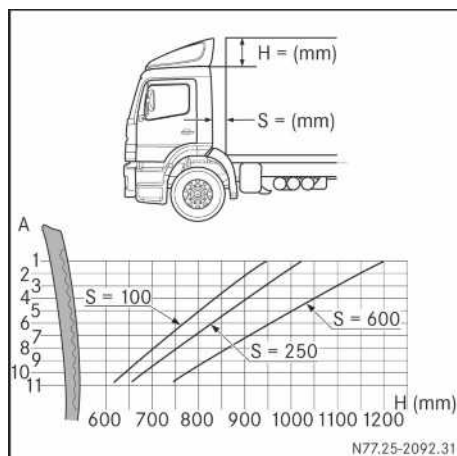
Example: wind deflector adjustment

On both sides of the vehicle:

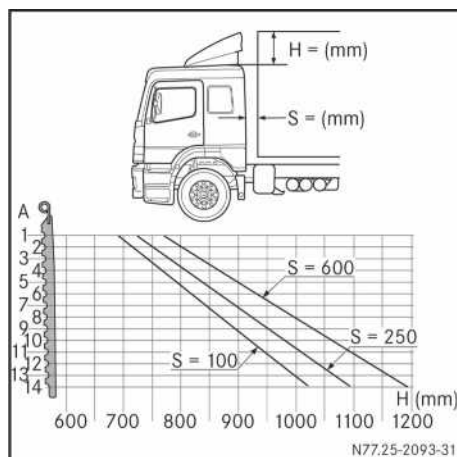
- Loosen bolts ① on adjustment rails ②.
- Insert adjustment rails ② on bolts ① to the adjustment detent **A** that has been determined.
- Tighten bolts ①.

Diagrams

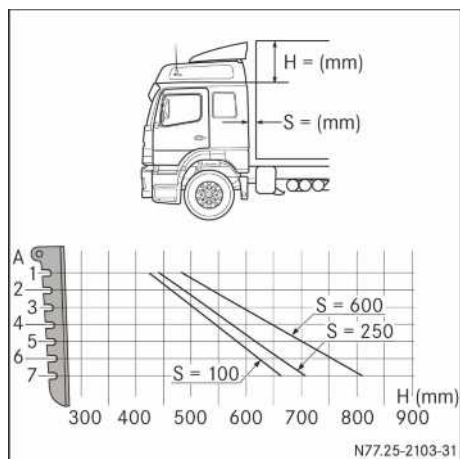
Axor up to 240 kW



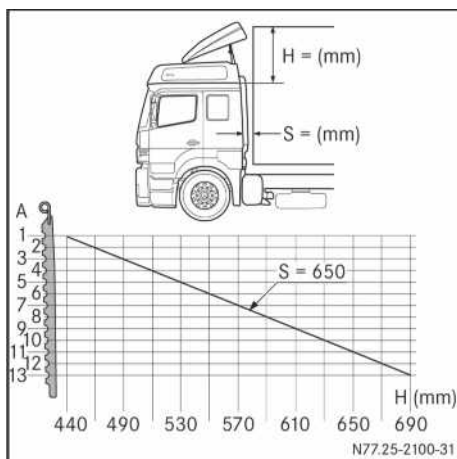
S cab with one-piece wind deflector



S or L cab with two-piece wind deflector (example: L cab)

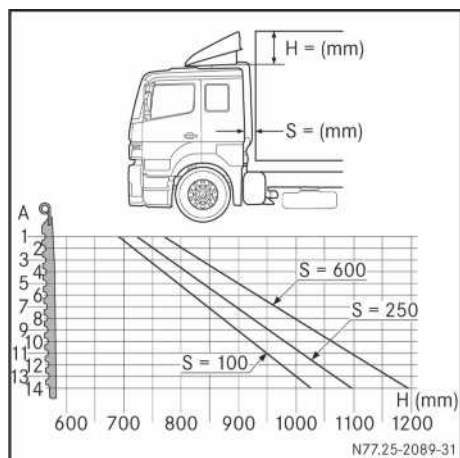


L cab with high roof

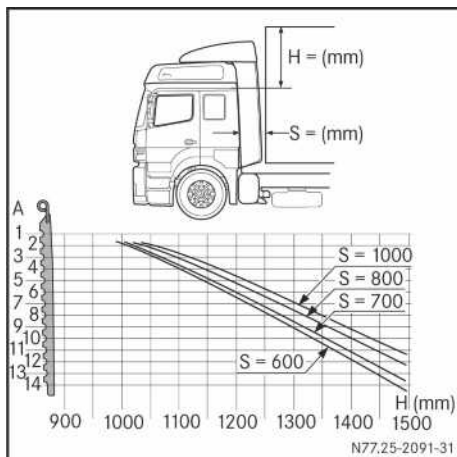


L cab with high roof and one-piece wind deflector

Axor from 265 kW



S or L cab with two-piece wind deflector (example: L cab)



L cab with high roof and two-piece wind deflector

Winter operation

Winter driving

DANGER

If the exhaust pipe is blocked or sufficient ventilation is not possible, toxic exhaust fumes may enter the vehicle, especially carbon monoxide. This is the case, for example, if the vehicle gets stuck in snow. There is a risk of fatal injuries.

If you have to leave the engine or the auxiliary heating running, keep the exhaust pipe and the area around the vehicle free of snow. To guarantee a sufficient supply of fresh air, open a window on the side of the vehicle away from the wind.

! Vehicles without acceleration skid control (ASR): quick changes from slippery to high grip surfaces whilst the drive wheels are spinning can result in damage to the differential gear system. For this reason, avoid wheelspin of the drive wheels.

! At very low outside temperatures, make sure that the engine oil added is of an appropriate SAE classification. Using engine oils that are not suitable for very low outside temperatures may result in engine damage.

More information on engine oils can be found in the "Service products" section (▷ page 267). Before the onset of winter, make sure that:

- the coolant contains sufficient antifreeze (▷ page 269)
- the fuel used is suitable for winter use (▷ page 270)
- the oil is changed in due time if single-grade engine oil is being used (▷ page 267).
- the windscreen washer system/headlamp cleaning system contains sufficient antifreeze (▷ page 212)
- suitable winter tyres are fitted

In wintry conditions, the law may require that winter tyres be fitted on the wheels of the drive axle. Find out which winter tyres are suitable for your needs. Observe country-specific laws.

- snow chains are carried in the vehicle
- In snow, slush and on icy roads, fit snow chains to the drive wheels in good time.
- Adapt your driving style to suit the road conditions.
- If, when driving, traction problems arise while snow chains are being used, switch off ASR (▷ page 160) and stability control (▷ page 161).

Snow chains

Notes on snow chains

Snow chains increase traction in wintry conditions.

WARNING

If you drive too fast with snow chains fitted, they may snap. As a result, you could injure others and damage the vehicle. There is a risk of an accident.

Observe the maximum permissible speed for operation with snow chains.

! Only use snow chains that have been approved and recommended for Mercedes-Benz. This will prevent you from causing damage to the vehicle. If you have questions, consult a qualified specialist workshop.

! Mercedes-Benz recommends that you fit snow chains to all drive wheels. If your vehicle has permanent all-wheel drive and you do not fit snow chains to all drive wheels, activate the inter-axle lock. You could otherwise damage the differential.

Do not exceed the maximum permissible speed of 50 km/h for snow chains.

The law may require that snow chains be removed as soon as possible once the road is clear of snow. The vehicle's driving and braking characteristics will be adversely affected if you drive on roads that are clear of snow with snow chains fitted to the vehicle.

Due to legal requirements in individual countries, there may be slight deviations from the description in these Operating Instructions regarding the use of snow chains. Observe the legal requirements for the country in which you are driving.

► Vehicles with ASR/SR: if, when driving, traction problems arise while snow chains are being used, deactivate ASR (▷ page 160) or SR (▷ page 161).

Useful information

These Operating Instructions describe all the models and standard and optional equipment of your vehicle that were available at the time of going to print. Country-specific differences are possible. Bear in mind that your vehicle may not be equipped with all the functions described. This also applies to safety-relevant systems and functions.

Read the information on qualified specialist workshops (► page 22).

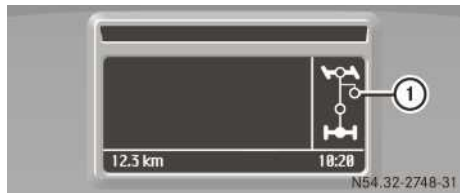
Power take-offs

Power take-offs

General information

❗ Vehicles with a clutch pedal:

After declutching, you must wait for 10 seconds before engaging or disengaging the power take-off. In this way you will avoid consequential damage.



① Example: power take-off display

The display shows the activation state of the power take-off:

- ☐ Power take-off disengaged
- ☒ Power take-off engaged

You can use the power take-off to drive auxiliary equipment, e.g. hydraulic pumps. The engine and power take-offs must be operated at a certain engine speed (working speed), depending on the conditions of use.

Depending on the design, you can engage and disengage the power take-off:

- transmission-driven power take-off:

You can only engage the power take-off if:

- the vehicle is stationary.
- the parking brake is applied.
- the engine is running (idling speed).
- vehicles with a clutch pedal: the clutch pedal is depressed.
- the transmission is in neutral.

You can only disengage the power take-off when the engine is running at idling speed and, on vehicles with a clutch pedal, when the clutch pedal is depressed.

- Engine-driven power take-off (NMV):

The power take-off can be engaged/disengaged with the engine running (maximum 1700 rpm). This is possible when the vehicle is stationary or in motion and under load.

- Camshaft-driven power take-off:
The power take-off cannot be engaged.

Shift lock

Vehicles with manual transmission

- Transmission with shift lock:

When the power take-off is activated, the manual transmission is locked.

- Transmission without shift lock:

The power take-off can be engaged when the vehicle is stationary or when it is travelling in first, second or third gear. Do not change gear while the vehicle is in motion.

Vehicles with automatic transmission

- Transmission with shift lock:

While the power take-off is engaged, the transmission is locked in neutral.

- Transmission without shift lock:

If you engage a shift range, the power take-off is deactivated.

Preselecting the working speed

Use the splitter switch/gearshift rocker on the gear lever or gearshift unit to preselect two different working speeds.

- Pull up the splitter switch or gearshift rocker.
The high working speed is preselected.

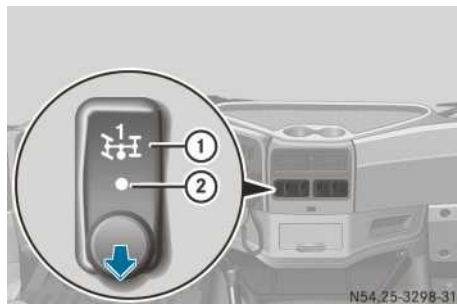
or

- Press down the splitter switch or gearshift rocker.
The low working speed is preselected.

- Adjust the working speed (▷ page 202) and the constant engine speed (▷ page 202).

Engaging/disengaging the power take-off

Engaging transmission-driven power take-off



- Stop the vehicle.
- Apply the parking brake.
- Shift the transmission to neutral position and leave the engine running at idling speed.
- Vehicles with a clutch pedal: depress and hold down the clutch pedal.
- After about ten seconds, pull switch ① down. Indicator lamp ② lights up.

If the power take-off is engaged, the  symbol appears in the display. At the same time, the status indicator will light up in yellow.

Vehicles with Mercedes PowerShift: the high-range or the low-range splitter group  /  appears in the display.

- Vehicles with a clutch pedal: release the clutch pedal.

Disengaging transmission-driven power take-off

Running at idling speed:

- Vehicles with a clutch pedal: depress and hold down the clutch pedal.
- After about ten seconds, press the lower section of switch ①. Indicator lamp ② goes out.

When the power take-off is disengaged, the  symbol appears in the display. The status indicator goes out.

Vehicles with Mercedes PowerShift: the high-range or the low-range splitter group  /  no longer appears in the display.

- Vehicles with a clutch pedal: release the clutch pedal.

Engaging engine-driven power take-off (NMV)

- With the engine running (maximum 1700 rpm), pull switch ① down. Indicator lamp ② lights up.

If the power take-off is engaged, the  symbol appears in the display. At the same time, the status indicator will light up in yellow.

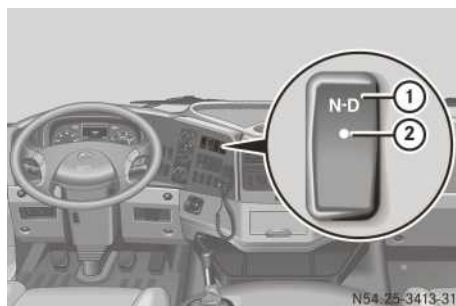
Disengaging the engine-driven power take-off (NMV)

- Press the lower section of switch ①. Indicator lamp ② goes out.

When the power take-off is disengaged, the  symbol appears in the display. The status indicator goes out.

Automatic transmission with shift lock release

Releasing the shift lock



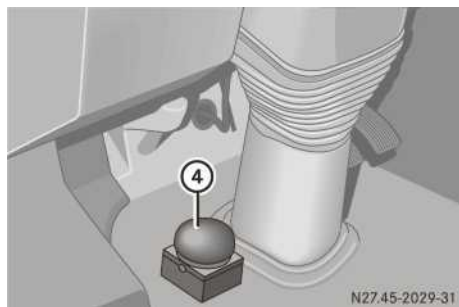
- Stop the vehicle.
- Apply the parking brake.
- Shift the transmission to neutral position and leave the engine running at idling speed.
- After approximately 10 seconds, engage the power take-off.
- Press the upper section of shift lock release switch ①. Indicator lamp ② lights up.

The display shows the  symbol. The status indicator goes out. The power take-off is disengaged but remains on standby.

Engaging the power take-off while driving



- ▶ Press drive position button ③.
- ▶ Release the parking brake. The vehicle starts moving.



- ▶ Depress and hold power take-off pedal ④. If the power take-off is engaged, the  symbol appears in the display. At the same time, the status indicator will light up in yellow.

Disengaging the power take-off while driving

- ▶ Release power take-off pedal ④. When the power take-off is disengaged, the  symbol appears in the display. At the same time, the status indicator goes out.

Locking the shift lock

- ▶ Stop the vehicle.
- ▶ Apply the parking brake.

- ▶ Shift to neutral.
- ▶ Press the lower section of shift lock release switch ①. Indicator lamp ② goes out. If the power take-off is engaged, the  symbol appears in the display. At the same time, the status indicator will light up in yellow.

Vehicles with PSM (programmable special module)

You cannot engage the power take-off if the parking brake is released. In this case, the  symbol is shown in the display. At the same time, the status indicator will light up in yellow.

- ▶ Engage the parking brake and re-engage the power take-off.

If  flashes in the display, the electronic management system does not recognise the vehicle's current operating state:

- transmission in neutral
 - vehicle stationary
 - parking brake applied
- The power take-off cannot be engaged.

- ▶ Check the vehicle's operating state and re-engage the power take-off.

If the  symbol flashes in the display again, visit a qualified specialist workshop.

Engine speed setting

To operate auxiliary equipment, e.g. hydraulic pumps, the engine must be running at a specific speed (working speed).

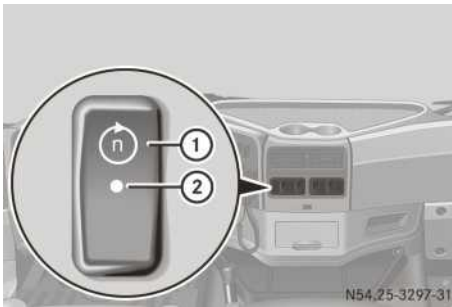
Depending on the vehicle equipment, you can adjust the working speed using:

- the accelerator pedal
- the multifunction lever on the steering column
- the constant engine speed switch

Power take-offs with speed limiter: when the power take-off is engaged, the set working speed cannot be exceeded.

Constant engine speed

When the constant engine speed function is switched on, the set working speed for the power take-off is controlled by the electronic management system, regardless of the load.



The constant engine speed function can only be switched on if:

- the vehicle is stationary.
 - the parking brake is applied.
 - the transmission is in neutral.
 - power take-off is engaged.
- **To activate:** press the upper section of switch ①.
Indicator lamp ② lights up.
- **To disengage:** press the lower section of switch ①.
Indicator lamp ② goes out.

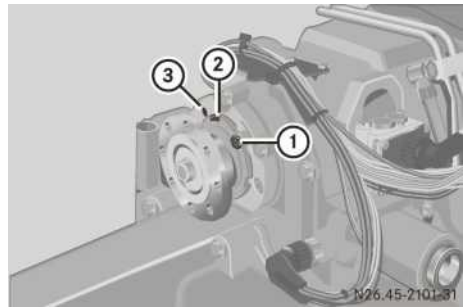
Power take-off (NMV) emergency mode

WARNING

With the engine running, the output shaft for the engine-bound power take-off may turn. There is a risk of injury.

Only operate the emergency gearshift for the engine-driven power take-off when the vehicle is stationary, the parking brake applied and the engine switched off.

If the engine-driven power take-off fails, a rigid power transmission link can be established in the power take-off.



Example of a power take-off (NMV)

- Unscrew catch ①.
 - Unscrew slotted nut ② to the stop, by approximately 4½ turns.
- i** If slotted nut ② is hard to move, turn the drive shaft slightly.
- Lock slotted nut ② using catch ①, do this by turning catch ① and screw it into the appropriate threaded hole ③.

Tipper operation

Before tipping

WARNING

Vehicles with Telligent® level control:

If the chassis is not completely lowered before tipping, the vehicle could overturn due to its high centre of gravity. There is a risk of an accident.

Make sure that the chassis is completely lowered before tipping.

WARNING

When opening the side panel lock, the drop-side may drop downwards. This is particularly the case when it is subjected to a load and is therefore under increased strain. There is a danger of injury.

Before opening, make sure that no persons are in the swinging range of the drop-side. Always open the side panel lock laterally from the drop-side to be opened. Be particularly careful if the side panel latches cannot be released using the normal amount of force.

 WARNING

If you drive off with the tipper platform raised, it could get caught on buildings, bridges or trees, for example. There is a risk of an accident.

Before driving off, always make sure that you have lowered the tipper platform and that it is correctly secured.

! When picking up or setting down a container, the wheels on the front axle must not be allowed to lift clear of the ground. Otherwise, the chassis frame can be damaged.

Run the engine when coupling to a semitrailer or picking up demountable bodies or containers.

Be sure to follow the safety regulations and the tipper manufacturer's separate operating instructions.

A vehicle that is not parked on stable surface could overturn during tipping. Therefore, always make sure that the vehicle is on a firm, level surface when tipping. The loaded wheels must be on firm ground when tipping.

- ▶ Park the vehicle on a firm and level surface.
- ▶ Apply the parking brake.
- ▶ Check and secure the pins on the tipper body; see the separate manufacturer's operating instructions.
The tipper body must always be secured with pins on a side to which the load is to be tipped. The pins have different shapes to prevent confusion or diagonal insertion.

▶ Start the engine.

▶ **Vehicles with automatic chassis frame lowering:** switch on the tipper pump (power take-off) (▷ page 200).

The chassis frame is lowered automatically. The display shows the  symbol for chassis frames below driving level.

▶ **Vehicles without automatic chassis frame lowering:** lower the chassis frame as far as possible (▷ page 175).

The display shows the  symbol for chassis frames below driving level.

- ▶ Switch on the tipper pump (power take-off) (▷ page 200).
- ▶ Open the dropside and ensure that the dropside unlocks and opens in the case of automatic release/locking mechanisms. See the

manufacturer's separate operating instructions.

Tipping

- ▶ Make sure that nobody is in the tipping area.
- ▶ Observe the operating instructions issued by the tipper manufacturer.

After tipping

- ▶ Close the dropside and ensure that the dropside closes and locks in the case of automatic release/locking mechanisms. See the manufacturer's separate operating instructions.
- ▶ Switch off the tipper pump (power take-off) (▷ page 200).
- ▶ **Vehicles with automatic chassis frame lowering:** press the STOP button (raise/lower) on the control unit of the Telligent® level control (▷ page 175).
- ▶ Raise the chassis frame to driving level (▷ page 175).
The  symbol for chassis frames below driving level goes out in the display.
- ▶ **Vehicles without automatic chassis frame lowering:** raise the chassis frame to driving level (▷ page 175).
The  symbol for chassis frames below driving level goes out in the display.

Useful information

These Operating Instructions describe all the models and standard and optional equipment of your vehicle that were available at the time of going to print. Country-specific differences are possible. Bear in mind that your vehicle may not be equipped with all the functions described. This also applies to safety-relevant systems and functions.

Read the information on qualified specialist workshops (▷ page 22).

Cleaning and care

Notes on care

Environmental note

Only wash your vehicle at a wash bay designed for this purpose. Dispose of empty containers and used cleaning products in an environmentally responsible manner.

Regular care helps to maintain the value of the vehicle.

Mercedes-Benz recommends that you only use care products that have been approved for Mercedes-Benz. You can obtain these care products from any Mercedes-Benz Service Centre. Do not use fuel as a cleaning agent.

If you need to wash upper parts of the vehicle, always use suitable ladders or other non-slip climbing aids.

Cleaning the interior

Cleaning the cab floor

- !** If splashes of water get under the floormat when cleaning the cab floor, it could cause malfunctions in the electrical systems and electronics fitted below.

Use only a clean, water moistened cloth to clean the cab floor. Use a mild washing solution for stubborn dirt.

Cleaning the seat covers

- !** Microfibre cloths should not be used to clean covers made from artificial leather. The

microfibre cloth can damage the cover if used frequently.

! Clean:

- covers made from artificial leather with a 1 % detergent solution, e.g. washing-up liquid, and a moistened cloth
- covers made from fabric with a 1 % detergent solution, e.g. washing-up liquid, and a moistened microfibre cloth. You can avoid visible edges by carefully rubbing clean the entire cover part. Allow the seat to dry subsequently. Cleaning results are dependent on the type and the age of the soiling.

Cleaning the seat belts

- !** Observe the following notes on cleaning the seat belts:

- remove any stains or dirt immediately. This will avoid residue or damage.
- do not bleach or dye the seat belts. This could impair the function of the seat belts.
- do not dry the seat belts in direct sunlight or at temperatures above 80 °C.

Clean the seat belts with a mild washing solution.

Cleaning the vehicle exterior

Important safety notes

WARNING

If the windscreen wipers are set in motion when cleaning the windscreen or wiper blades, you could become trapped. There is a danger of injury.

Always switch off the windscreen wipers and the ignition before cleaning the windscreen or wiper blades.

WARNING

If you use openings in the bodywork or detachable parts as steps, you could:

- slip and/or fall
- damage the vehicle and cause yourself to fall.

There is a danger of injury.

Always use secure climbing aids, e.g. a suitable ladder.

- !** Do not use parts of the vehicle or openings in the bodywork, such as battery compartment covers or fuel/AdBlue® tanks, as steps. Parts of the vehicle or openings in the bodywork can otherwise be damaged.

When cleaning the vehicle, always use the vehicle's steps and grab-handles or secure climbing aids, e.g. a suitable ladder.

- !** In order to avoid consequential damage, repair damage caused by loose chippings and remove any dirt immediately, in particular:

- insect remains
- bird droppings
- flash rust
- tree resin
- oils and grease
- fuels
- tar stains
- salt residue

Wash your vehicle more frequently if it gets dirty more often.

Scratches, corrosive deposits, corrosion and damage caused by neglect or incorrect care cannot always be completely rectified. In such cases, contact a qualified specialist workshop.

- !** If the vehicle has Mercedes-Benz protective chassis sealing:

- do not use high-pressure cleaners or pulsating circular-jet nozzles.
- only clean with a water pressure up to a maximum of 3 bar.
- clean the vehicle with a water temperature up to a maximum of 40 °C.
- keep a distance of at least 30 cm between the nozzle and the vehicle.
- only use neutral cleaning agents in the mixing ratio prescribed by the manufacturer and do not use alkaline or acidic products.
- do not use any petrol-based substances, rape seed oil, diesel, petrol or other solvents.
- whenever the vehicle is used, remove corrosive substances with water afterward.
- before and after each use during winter, check the anti-corrosion protection, and touch it up if necessary.

Access steps

General notes

Observe the safety notes on cleaning the exterior (▷ page 205).

Keep steps and grab handles free from dirt, such as:

- mud
- clay
- snow
- ice

This increases the safety of your footing.

Access steps, front



Example: steps and grab handles

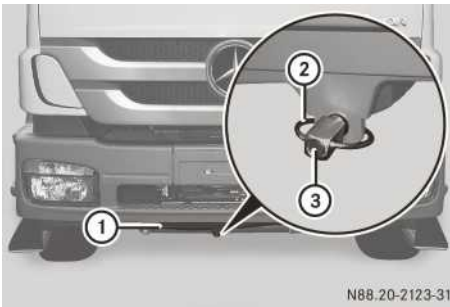
- ① Grab handles
- ② Access steps

Folding steps, front

- !** If you drive the vehicle with the step folded down, the step can come into contact with the road surface and be damaged, e.g. when driving off-road.

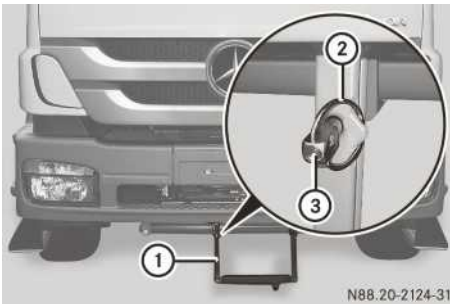
Therefore, fold up the step before driving off. Do not drive with the step folded down.

When you clean the windscreen, fold the step down beforehand.



N88.20-2123-31

- **To fold down:** fold circlip ② forwards and pull out catch ③.
- Swing down access step ①.



N88.20-2124-31

- Reinsert catch ③ and fold circlip ② back.
- **To fold up:** fold circlip ② forwards and pull out catch ③.
- Swing the step upwards and hold it.
- Reinsert catch ③ and fold circlip ② back.

Cleaning the distance sensor



N54.25-3486-31

Clean the cover of distance sensor ① regularly. If the distance sensor is dirty, the display shows the **[ART]** symbol and the **Clean distance sensor** message with a yellow status indicator.

High-pressure cleaning

⚠ WARNING

The water jet of circular-jet nozzles (dirt grinders) can cause damage not visible from the outside to tyres or chassis components. Components damaged in this way can unexpectedly fail. There is a risk of an accident.

Do not use high-pressure cleaners with circular-jet nozzles to clean the vehicle. Have damaged tyres or chassis components replaced immediately.

🌿 Environmental note

Only wash your vehicle at a wash bay designed for this purpose. Dispose of empty containers and used cleaning products in an environmentally responsible manner.

- ❗ The BlueTec® exhaust gas aftertreatment system may only be cleaned when it is cool. The sensors can otherwise be damaged. When cleaning, never point the water jet at the exhaust pipe. The exhaust gas aftertreatment may otherwise be damaged.

! When using a high-pressure cleaner, keep a minimum distance of approximately 30 cm between the high pressure nozzle and the vehicle parts. Do not use a high-pressure cleaner with a round jet nozzle. Parts of the vehicle or engine can otherwise be damaged.

! Keep the water jet moving constantly while cleaning. In this way, you will avoid causing damage.

Do not point the water jet at:

- door joints
- air bellows
- brake hoses
- wheel balance weights
- electrical components
- electrical connectors
- seals

! If your vehicle has Mercedes-Benz protective chassis sealing, do not use a high-pressure cleaner. You could otherwise damage the protective sealing.

Observe the notes on cleaning the exterior (▷ page 205).



① Example: air intake pipe

Automatic car wash

! Fold in the exterior mirrors before driving through an automatic car wash. Set the windscreen wiper switch to the  position. The exterior mirrors and windscreen wipers could otherwise be damaged.

Make sure that the exterior mirrors are fully folded out again when you leave the automatic car wash.

If the vehicle is very dirty, pre-wash it before you put it through an automatic car wash.

After using an automatic car wash, wipe off wax from the windscreen and the wiper blades. This will prevent smears caused by residue on the windscreen.

Cleaning the engine

! Observe the following notes when cleaning the engine. This avoids malfunctions and damage to the engine.

- When using high-pressure or steam cleaners, do not point the spray directly at electrical components and electric cables.
- Make sure that no water enters the air intake and ventilation openings.
- Treat the engine with preservative agents after it has been cleaned. When doing so, protect the belt drive system from the preservative agent.
- Use only wax preservative for engines according to sheet number 385.4 of the Mercedes-Benz Specifications for Service Products.

Retarder

Observe the following notes:

- clean the retarder regularly with a high-pressure cleaner but without any cleaning agent.
- make sure that the retarder is cold.
- pay particular attention when cleaning electrical components and electrical connections.

Light-alloy disc wheels

Clean the light-alloy wheels regularly.

! When cleaning the light-alloy wheels, do not use any acidic or alkaline cleaning agent. They may corrode the wheel nuts or the locking springs of the wheel balance weight.

Maintenance

Important safety notes



Environmental note

If circumstances demand that you have to do some maintenance work yourself, environmental protection requirements must be observed. When disposing of service products, e.g. engine oil, you must comply with the legal requirements. This also applies to all parts, e.g. filters, that have been in contact with service products. For vehicles running on FAME (fatty acid methyl ester) fuel, the special instructions on disposing of engine oil must be observed. For more information, visit a qualified specialist workshop, e.g. a Mercedes-Benz or MTU Service Centre. Dispose of empty containers, cleaning cloths and care products in an environmentally responsible manner. Observe the instructions for care products. Do not let the engine run longer than necessary when stationary.

Before carrying out maintenance work and repairs, read the following relating to maintenance and repair measures:

- the relevant sections of the technical documentation, e.g. the Operating Instructions and workshop information.
- legal regulations, e.g. work safety regulations and accident prevention regulations

You must secure the vehicle on axle stands of sufficient load-bearing capacity if work is being carried out underneath the vehicle.

Never use the jack instead of stands. The jack is only intended to raise the vehicle for a short time. It is not suitable for performing maintenance work under the vehicle.

Please also refer to the notes about the qualified specialist workshop (▷ page 22).

Like all technical equipment, the vehicle requires care and maintenance. The scope and frequency of maintenance work mainly depends on the operating conditions, which can differ widely.

The enclosed Maintenance Booklet contains information on the scope and frequency of maintenance work and notes on warranty, service products and maintenance work.

A qualified specialist workshop will confirm the work that has been carried out in the Maintenance Booklet.

Inspection and maintenance work requires special skills that cannot be acquired by reading these Operating Instructions. Have this work carried out by trained and skilled personnel.

Always have maintenance work carried out at a qualified specialist workshop.

Expert technicians, the latest technical information supplied by the factory along with state-of-the-art tools and facilities ensure that the vehicle is serviced to the highest professional standards.

WS (Telligent® maintenance system)

Introduction

The Telligent® maintenance system calculates service due dates for the vehicle and its assemblies based on the vehicle's operating conditions.

You can call up the service due dates calculated for the vehicle and its assemblies in the on-board computer (▷ page 97).

The service due dates are first displayed automatically 14 days before the respective service is due. When the service due date has been reached or exceeded, the display shows additional messages (▷ page 209).

- i** A qualified specialist workshop can program the first service message to appear between 0 and 30 days before the service due date.

All maintenance work carried out should be confirmed using the on-board computer (▷ page 210).

Automatic service messages

- !** Not observing service messages and not having service work performed on time can lead to damage to the vehicle or its assemblies. It could also result in increased wear.

Always have maintenance work carried out on time and at a qualified specialist workshop.

The Telligent® maintenance system automatically notifies you of service due dates, for example:

- 

Air cleaner, 12.03.09, 6000 km

The service due dates are first displayed automatically 14 days before the respective service is due.



Air cleaner, Service due

The service is due.



Air cleaner, Service now

The service due date has been exceeded.



Brake AI, Service now

The service due date for the brake system has been significantly exceeded.

Confirming service messages:

- ▶ Press the  or  button on the steering wheel.

i When you turn the key to the driving position in the ignition lock, the display shows upcoming and due service dates.

If you do not acknowledge a service message, it is shown for approximately 20 seconds. The previously shown display then reappears.

Confirming service work carried out

i If the work is carried out at a Mercedes-Benz Service Centre, the fact that the work has been carried out professionally will be confirmed in the on-board computer and the Maintenance Booklet.

! Confirming service work that has not been performed on time can lead to increased wear and damage to the vehicle or its assemblies. It could also result in increased wear.

If you confirm service work accidentally or before it has been performed, the Telligent® maintenance system will calculate a new service due date. To prevent damage to the vehicle and its assemblies, have the corresponding service work carried out immediately.

Only confirm service work if the service work has actually been completed.



Press the buttons on the multifunction steering wheel:

- ▶ Press the  or  button to call up the **Service info** menu.
- ▶ Use the  or  button to call up the service point for which service work has been performed, e.g. **Transmission**.
- ▶ Press reset button **1** in the instrument cluster for approximately one second, e.g. using a ball point pen.

The on-board computer resets the displayed service due date. The display shows the ☒ **Setting changed** and **--,--,--** messages.

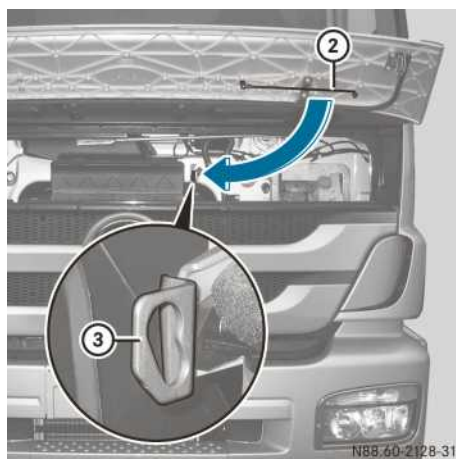
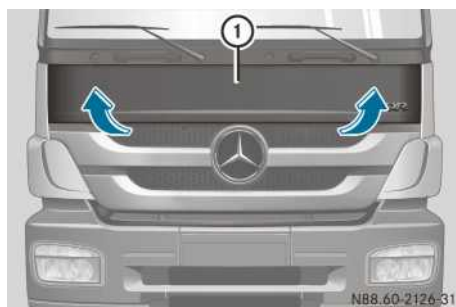
- ▶ Check whether the oil grade and viscosity (SAE class) set in the on-board computer correspond to the service product filled in the assembly (▶ page 96).
- ▶ If the data does not match, correct the setting.

Air filter

! Do not clean the filter elements of the engine air cleaner. Knocking, blowing out or washing the filter medium could cause structural changes and damage. The necessary filtration grade of the filter element is then no longer guaranteed. This results in increased wear and tear and a reduced service life for the engine. Replace the air filter elements. Otherwise, you will lose your warranty entitlements and you can damage then engine.

Maintenance flap

Opening



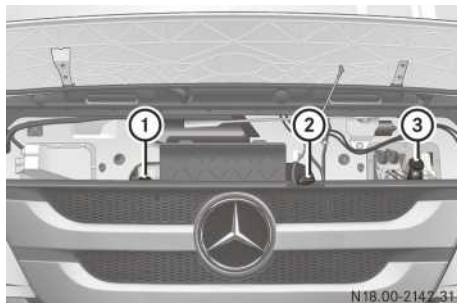
Maintenance flap without gas strut

- Pull the exterior of maintenance flap ① on the left and right sides and swing it up in the direction of the arrow.
- Vehicles without a gas strut on maintenance flap ①: release safety strut ② from maintenance flap ① and attach it to bracket ③.

Closing

- Vehicles without a gas strut on maintenance flap ①: remove safety strut ② from bracket ③ and attach it to maintenance flap ①.
- Swing maintenance flap ① down.

Maintenance points



- ① To check the coolant level and to top up (► page 211)
- ② To top up the engine oil (► page 214)
- ③ To check the hydraulic clutch system fluid level (► page 212)

Coolant level

WARNING

The engine cooling system is under pressure, particularly if the engine is warm. You could be scalded by hot coolant spraying out when opening the cap. There is a danger of injury. Allow the engine to cool before opening the cap. Wear gloves and protective eyewear when opening. Slowly turn the cap half a turn to allow pressure to escape.

WARNING

Coolant contains glycol and is therefore toxic. Do not swallow the coolant. See a doctor immediately if you swallow coolant.

Make sure that coolant does not come into contact with skin, eyes or clothing. In case of contact with eyes, rinse immediately with plenty of clean water. Clean affected areas of skin and clothing with soap and water immediately. Change any affected clothing immediately.

Only open the coolant expansion tank when the coolant has cooled down.

If the coolant level in the coolant expansion tank is too low, the  symbol appears in the display and the status indicator lights up red.



- ▶ Park the vehicle on a level surface.
- ▶ Apply the parking brake.
- ▶ Switch off the engine.
- ▶ Check the coolant temperature in the on-board computer (▷ page 88).
- ▶ Wait until the coolant temperature drops below 50 °C.
- ▶ Open the maintenance flap (▷ page 211).
- ▶ Turn cap ① slowly anti-clockwise and release the pressure.
- ▶ Check coolant level.
The coolant in the coolant expansion tank must reach minimum mark ②.
- ▶ Unscrew and remove cap ①.
- ▶ Top coolant up to the edge of the filler neck. Pay attention to the coolant mixture ratio and the water quality (▷ page 269).
- ▶ Replace cap ① and tighten it as far as it will go.
- ▶ Run the engine briefly at varying engine speeds.
- ▶ Switch off the engine and recheck the coolant level.
- ▶ Close the maintenance flap.

Clutch system

Checking the fluid level

- ⚠ Never top up with a brake fluid or hydraulic fluid of a different quality grade. You could otherwise damage the hydraulic clutch system.

- ⚠ The hydraulic system may be leaking if the fluid level in the hydraulic clutch system reservoir is below the minimum mark.

Have the hydraulic system checked at a qualified specialist workshop.



Clutch system fluid reservoir

The hydraulic fluid for the hydraulic clutch system is specified on Sheet No. 345.0 of the Mercedes-Benz Specifications for Service Products and no deviation is permitted.

It is not necessary to renew the hydraulic fluid in the hydraulic clutch system.

- ▶ Open the maintenance flap (▷ page 211).
- ▶ Check the fluid level in the reservoir.
The fluid level must be between maximum mark ① and minimum mark ②.
- ▶ Close the maintenance flap.

Windscreen washer system/head-lamp cleaning system

Topping up the washer fluid

⚠ WARNING

Windscreen washer concentrate is highly flammable. If it comes into contact with hot engine components or the exhaust system it could ignite. There is a risk of fire and injury.

Make sure that no windscreen washer concentrate is spilled next to the filler neck.

Add a washer fluid concentrate according to Mercedes-Benz Specifications for Service Products Sheet No. 371.0 throughout the entire year. Adjust the mixing ratio to suit the outside temperature.

At temperatures above freezing, use a washer concentrate for the summer to prevent smearing. If there is a risk of frost, use a washer fluid concentrate for winter to prevent the water from freezing on the windscreen.

The washer fluid reservoir for the windscreen washer system has a capacity of approximately 16 litres. On vehicles with headlamp cleaning systems, the washer fluid reservoir has a capacity of approximately 24.5 litres.

i If the washer fluid level in the washer fluid reservoir is too low, the  symbol appears in the display and the status indicator lights up yellow.

- ▶ Mix the washer fluid to the appropriate mixing ratio in a container beforehand.
- ▶ Open the driver's door.



Example: left-hand-drive vehicle

- ▶ Remove cap ① of the washer fluid reservoir.
- ▶ Refill the washer fluid reservoir.
- ▶ Press cap ① back on.
- ▶ Close the driver's door.

Replacing the wiper blades

WARNING

If you use the steps and grab handles at the front of the cab when replacing the wiper blades, you could slip and/or fall. There is a risk of injury.

When replacing the wiper blades, always use secure climbing aids, e.g. a suitable ladder.

WARNING

If the windscreen wipers begin to move while you are changing the wiper blades, you can be trapped by the wiper arm. There is a risk of injury.

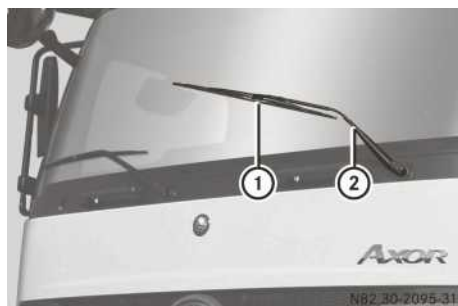
Always switch off the windscreen wipers and ignition before changing the wiper blades.

! Only touch the wiper blade on the wiper arm. Otherwise, you could damage the wiper blade.

! Do not open the bonnet when a wiper arm is folded away from the windscreen. Otherwise, you could damage the bonnet.

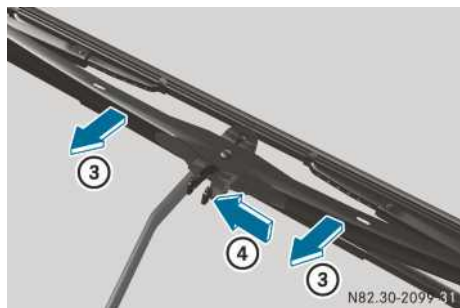
Do not fold the wiper arms back onto the windscreen without wiper blades fitted. Otherwise, you could damage the windscreen.

Worn or damaged wiper blades result in smearing on the windscreen. This impairs visibility. Therefore, check the wiper blades on the driver's and co-driver's side regularly and replace worn or damaged wiper blades immediately.

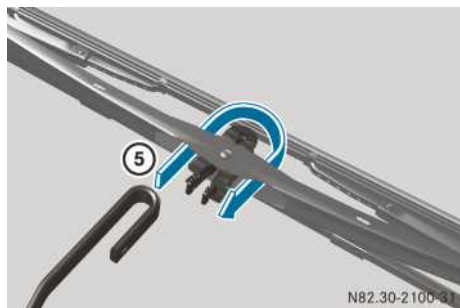


- ▶ Apply the parking brake.
- ▶ Shift the transmission to neutral position **N**.
- ▶ Switch off the engine.
- ▶ Remove the key from the ignition lock.

- ▶ **To remove the wiper blade:** fold wiper arm ② away from the windscreen.
- ▶ Set wiper blade ① at right angles to the wiper arm.



- ▶ Press locking springs ④ together and push wiper blade ① out of the curvature of wiper arm ② in the direction of arrow ③.
- ▶ Remove wiper blade ①.



- ▶ **To fit the wiper blade:** push the hinge piece of the wiper blade into the curvature of wiper arm ② in the direction of arrow ⑤ until you hear the locking springs engage.
- ▶ Press the wiper blade fully into the curvature on wiper arm ② until you hear the locking springs engage.
- ▶ Turn wiper blade ① parallel to wiper arm ②.
- ▶ Fold wiper arm ② onto the windscreen again.

Engine oil level

Checking the oil level in the display

Check the engine oil level on a regular basis, e.g. every week or each time you refuel.

- ▶ Check the engine oil level via the on-board computer (▷ page 94).
- ▶ Top up the engine oil as required.

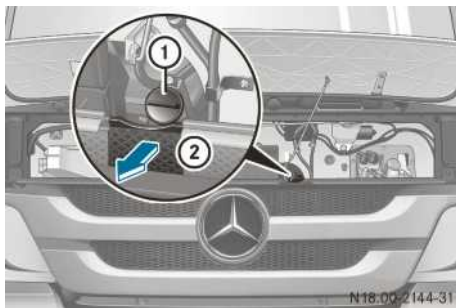
Topping up the engine oil

You will find information about engine oils in the "Service products" section (▷ page 267).

Mercedes-Benz recommends that you add the amount of oil displayed in the on-board computer before starting a long journey.

Do not add the topping-up quantity shown in the on-board computer until the display shows the  symbol.

- ▶ Park the vehicle on a level surface.
- ▶ Apply the parking brake.
- ▶ Switch off the engine.
- ▶ Open the maintenance flap (▷ page 211).



- ▶ Fold cap ② forwards in the direction of the arrow.
- ▶ Unscrew and remove cap ①.

! Only use oils which have been approved for the vehicle and with the prescribed SAE classification.

Do not add too much oil. If you add too much oil, the engine or the exhaust system could be damaged. Have excess oil siphoned off.

- ▶ Top up the oil fill level shown in the display.
- ▶ Replace and screw on cap ①.
- ▶ Fold cover ② backwards.
- ▶ Close the maintenance flap.

Oil level in the automatic transmission

General notes

! If the  indicator lamp is lit or flashing while driving, the temperature of the transmission oil or coolant is too high. The reason for this may be that the transmission oil level is too high or too low. If the transmission fluid temperature is frequently too high, there is a risk of damage to the transmission.

Only check the oil level when the automatic transmission is at normal operating temperature.

Checking the oil level in the display

Starting oil level measurement

- ▶ Park the vehicle on a level surface.
- ▶ Apply the parking brake.
- ▶ Shift the automatic transmission to the neutral position
- ▶ Start the engine and allow it to idle.

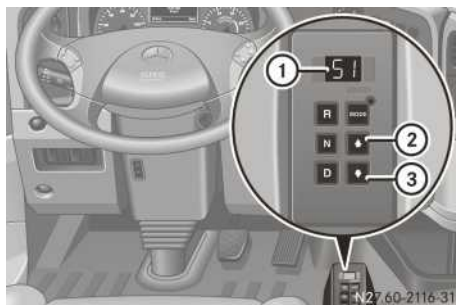
Codes that can be shown in the display

Codes for the oil level:

Code	Meaning
oL oK	The oil level in the transmission is sufficient.
oL Lo	The oil level in the transmission is too low.
	The number subsequently displayed indicates the transmission oil quantity that must be refilled, for example 01 = 1 litre.
oL HI	The oil level in the transmission is too high.
	The number subsequently displayed indicates the transmission oil quantity that must be drained or siphoned off, for example 01 = 1 litre.

Possible fault codes during the oil level measurement:

Code	Meaning	Remedy
oL EL	The engine speed is too low.	▶ Leave the engine running at idling speed.
oL EH	The engine speed is too high.	▶ Leave the engine running at idling speed.
oL SN	The automatic transmission is not in the neutral position.	▶ Shift the automatic transmission to the neutral position
oL TL	The oil temperature is too low.	▶ Leave the engine running until the transmission oil reaches operating temperature.



- ▶ Press buttons ② and ③ at the same time. The oil level measurement starts. During oil level measurement, display ① shows the codes oL 08 to oL 01 in succession.
- ▶ Wait approximately 2 minutes. After a delay, display ① automatically shows a code for the oil level or a fault code.

Code	Meaning	Remedy
oL TH	The oil temperature is too high.	► Switch off the engine until the oil temperature in the transmission has dropped to operating temperature.
oL SH	The vehicle is rolling.	► Stop the vehicle. ► Apply the parking brake.
oL FL	The sensor for the oil level is malfunctioning.	► Check the oil level with the oil dipstick. ► Have the malfunction checked at a qualified specialist workshop.

Ending oil level measurement

- Press any gear button.
The oil level measurement is finished. The shift position appears on the left and the selected gear appears on the right in display ① again.
- Top up the transmission oil if necessary.

Checking the oil level with the oil dipstick and topping up transmission oil

WARNING

Certain engine components can become very hot. There is a risk of injury when carrying out work at the engine.

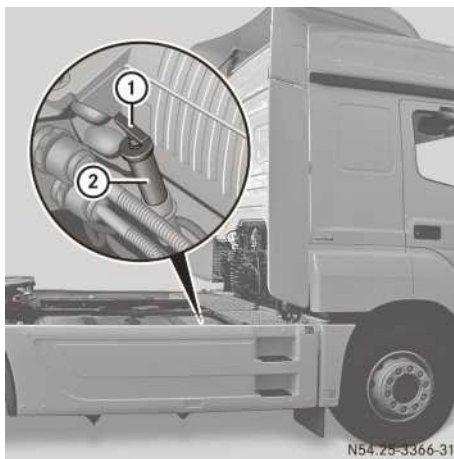
Where possible, allow the engine to cool down and only touch the components described below.

- Park the vehicle on a level surface.
- Apply the parking brake.
- Shift the automatic transmission to the neutral position.
- Start the engine and let it run at idling speed for approximately 1 minute.
- Shift the automatic transmission to D and wait approximately 30 seconds.
- Shift the automatic transmission to R and wait approximately 30 seconds.
- Shift the automatic transmission to N and wait approximately 30 seconds.
- Switch off the engine.
- Tilt the cab forwards (> page 228).

or

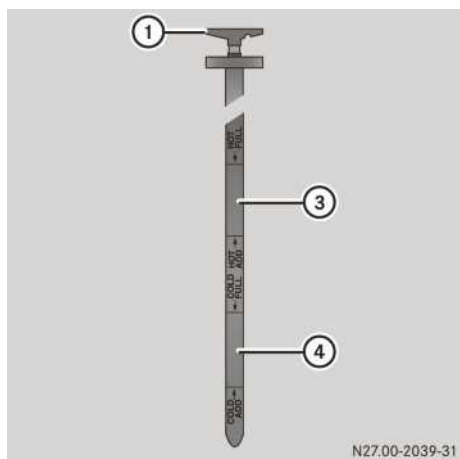
- Semitrailer tractor vehicle: detach the semitrailer (> page 194).

- Start the engine with the cab tilted (> page 230).
- or
- Semitrailer tractor vehicle: start the engine with the key.



Example: oil dipstick on the automatic transmission

- Pull out oil dipstick ①.
- Wipe oil dipstick ① with a lint-free cloth.
- Insert oil dipstick ① into dipstick tube ② as far as it will go and pull it out again.



- Check the oil level on dipstick ①.
When the automatic transmission is at normal operating temperature: the oil level must be within hot range ③.

When the automatic transmission is cold: the oil level must be within cold range ④.

- Switch off the engine.

- !** Only use approved transmission oils of the prescribed SAE viscosity classes.

With the automatic transmission at normal operating temperature, do not fill the transmission oil above the upper hot range marking. If you add too much transmission oil, have the transmission oil siphoned off. You could otherwise damage the automatic transmission.

- Add the required quantity of transmission oil into dipstick tube ②.
 - Insert oil dipstick ① back into dipstick tube ② as far as it will go.
 - Check the engine oil level again.
 - Tilt the cab back into the driving position.
- or
- Semitrailer tractor vehicle: couple up the semitrailer (> page 192).

Vehicle assemblies

Checking the vehicle assemblies for leaks

Environmental note

Improper handling of service products is hazardous to the environment.

Do not allow service products to enter the sewage system, surface waters, ground water or soil.

Check the vehicle assemblies for leaks regularly. If fluid loss is identified, e.g. through oil drops on the parking area, have the cause of the fluid loss rectified at a qualified specialist workshop.

Checking the anti-corrosion protection

- !** Road salt has a corrosive effect. In winter, wash the vehicle more frequently in order to remove salt residue. Salt residues can otherwise damage the anti-corrosion protection.

The vehicle can be provided with Mercedes-Benz protective chassis sealing. The Mercedes-Benz protective chassis sealing is a transparent anti-corrosion wax with outstanding protective qualities.

All Mercedes-Benz cabs have body cavity protection.

- Check the vehicle regularly for corrosion damage, particularly the compressed-air lines, hydraulic lines and electrical contact points (earth contacts).
- Have any damage to the factory-fitted anti-corrosion protection rectified at a qualified specialist workshop.
- Vehicles without Mercedes-Benz protective chassis sealing: as a precautionary measure, spray the underside of the vehicle with a wax-based underbody protective agent according to Sheet No. 385.1 of the Mercedes-Benz Specification for Service Products.

Batteries

Important safety notes



Risk of explosion. Explosive oxyhydrogen is produced when batteries are being charged. Only charge the batteries in a well-ventilated area.



Risk of explosion. Avoid creating sparks! Avoid fire, open flames and do not smoke when handling the battery.



Battery acid is caustic. Wear acid-resistant protective gloves! Splashes of acid on skin or clothing should be neutralised immediately using soapy water or acid neutraliser and then rinsed with water.



Wear eye protection. When mixing water and acid, the liquid may splash into your eyes. Rinse out any acid that splashes into eyes immediately using clean water and seek medical attention at once!



Keep out of the reach of children. Children are not able to evaluate the risk involved in handling batteries and acid.



Always observe the safety instructions, protective measures and procedures specified in these Operating Instructions when handling the battery.

WARNING

Battery acid is caustic. There is a risk of injury. Avoid contact with the skin, eyes or clothing. Do not inhale battery vapours. When carrying out maintenance work on the battery, wear acid-resistant protective clothing, in particular eye protection, protective gloves and an apron. Do not lean over the battery. Keep batteries out of the reach of children.

If you come into contact with battery acid, observe the following:

- Rinse battery acid off the affected areas of skin immediately and seek medical attention without delay.
- If battery acid comes into contact with your eyes, rinse them out thoroughly with clean

water immediately. Seek medical attention without delay.



Environmental note



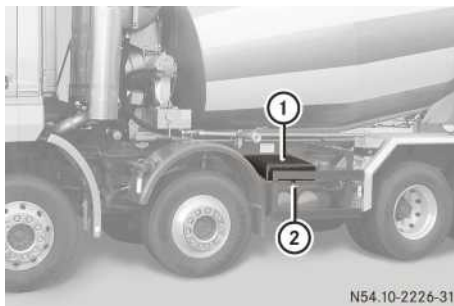
Batteries contain pollutants. It is illegal to dispose of them with the household rubbish. They must be collected separately and disposed of in an environmentally responsible recycling system.



Dispose of batteries in an environmentally responsible manner. Take discharged batteries to a qualified specialist workshop or to a collection point for used batteries.

Battery compartment

Removing the cap



N54.10-2226-31

Example: battery cover

- Open catch ②.
- Remove battery cover ① upwards.

Arrangement of the batteries

The batteries are located on the side of the chassis or, on semitrailer tractor vehicles (depending on the vehicle version), in the rear area between the longitudinal frame members.



Example: battery carrier on the side of the chassis



Example: batteries between the longitudinal frame members



Example: battery support frame on the side of the chassis – batteries arranged one above the other

Disconnecting and connecting the batteries

Important safety notes

WARNING

During the charging process, a battery produces hydrogen gas. If a short circuit occurs or sparks are created, the hydrogen gas can ignite. There is a risk of an explosion.

- Make sure that the positive terminal of a connected battery does not come into contact with vehicle parts.
- Never place metal objects or tools on a battery.
- It is important that you observe the described order of the battery terminals when connecting and disconnecting a battery.
- When jump-starting, make sure that the battery poles with identical polarity are connected.
- It is particularly important to observe the described order when connecting and disconnecting the jump leads.
- Never connect or disconnect the battery terminals while the engine is running.

! Vehicles with BlueTec® exhaust gas after-treatment: do not disconnect the battery until the engine has been switched off for at least 5 minutes. This ensures that the exhaust gas aftertreatment functions after restarting.

Disconnecting

- ▶ Semitrailer tractor vehicle with batteries at the rear area: detach the semitrailer (> page 194).
- ▶ Remove the key from the ignition lock.
- ▶ Switch off all electrical consumers.
- ▶ Remove the battery cover.
- ▶ Disconnect the negative terminals.
- ▶ Disconnect the positive terminals.

Connecting

- ▶ Remove the key from the ignition lock.
- ▶ Switch off all electrical consumers.
- ▶ Connect the positive terminals.
Do not interchange the battery terminals.

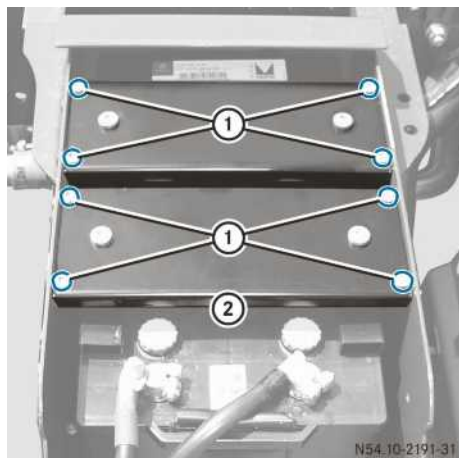
- ▶ Connect the negative terminals.
- ▶ Refit the battery cover.

Carry out the following tasks after an interruption of the power supply or after reconnecting the batteries:

- ▶ Deactivate anti-theft protection on the audio equipment (radio). See the manufacturer's operating instructions.
- ▶ Set the clock (▷ page 96).
- ▶ Reprogram the preselected heating mode for the auxiliary heating system (▷ page 83).

Removing and installing batteries (4-axle vehicles)

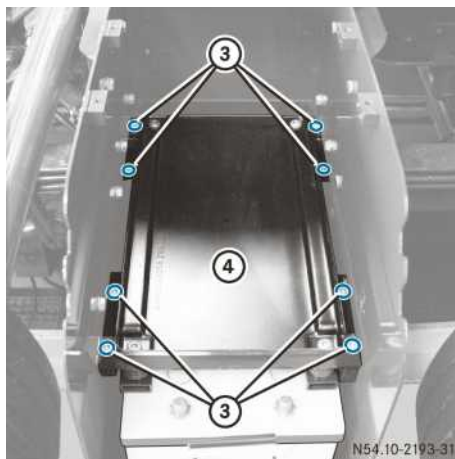
Removing



Upper battery

If you remove the batteries, remove the outer bolts of the support frame. Do not loosen the inner bolts of the support frame. The inner bolts connect the components of the support frame.

- ▶ Observe the safety instructions.
- ▶ Remove the battery cover.
- ▶ Disconnect the negative terminals.
- ▶ Disconnect the positive terminals.
- ▶ Remove screws ①.
- ▶ Remove support frame ②.
- ▶ Remove the upper battery.



Lower battery

- ▶ Remove screws ③.
- ▶ Remove support frame ④.
- ▶ Remove the lower battery.

Fitting

! Tighten the bolts of the battery support frame to a tightening torque of 20 Nm. Do not use an impact wrench. You could otherwise damage the threads.

- ▶ Observe the safety instructions.
- ▶ Insert the lower battery.
- ▶ Replace support frame ④ and tighten bolts ③.
- ▶ Insert the upper battery.
- ▶ Replace support frame ② and tighten bolts ①.
- ▶ Connect the positive terminals.
- ▶ Connect the negative terminals.
- ▶ Refit the battery cover.

Maintenance and care

General notes

In this section you will find notes and information about the batteries. This means you can ensure that the batteries are charged and ready for use.

Battery capacity and power

- Battery capacity is limited and operating time depends on the number of electrical consumers that are switched on and the duration used.
- The given nominal capacity of the battery may be higher than the actual battery capacity. Battery capacity depends on:
 - the age of the battery
 - the outside temperature
 - the engine speed
- Regardless of the power of the alternator, the battery can only be charged a certain amount per hour. The rate of charge is significantly reduced by low outside temperatures. As a result, the battery may take much longer to charge in winter.
- Please note, the alternator cannot fully charge the batteries.
- If the battery is used intensively when the vehicle is stationary, e.g. remaining in the vehicle overnight, recharging the battery may be required after several days.

Example:

If the coolbox consumes approximately 1 A in one hour and remains switched on over a weekend, this results in an overall consumption of approximately 60 Ah.

Parking up the vehicle for an extended time period and storage

! Disconnect the negative terminal of the battery when the vehicle is to be idle for longer than 1 week. This prevents the battery from being discharged or damaged.

! For idle times of longer than 1 month, remove the battery and store it in a dry place at temperatures between 0 °C and 30 °C. Maintain a constant battery voltage of 12.6 V. If the battery voltage falls below 12.1 V, the battery is damaged and must be replaced.

Charge the battery when the no-load voltage is under 12.6 V. This ensures that the vehicle can always be started.

If you park up your vehicle for longer than 3 weeks, observe the notes on parking up your vehicle (> page 223).

When storing the battery, comply with all safety regulations, such as operating instructions, regulations concerning hazardous materials, envi-

ronmental protection measures, work safety and accident prevention regulations.

Replacing the battery and operating life

! Do not connect any electrical consumers directly to the battery terminals. This leads to uncontrolled discharge of the battery. Current drain in one battery results in damage being caused to both batteries.

Avoid the battery becoming fully discharged. This can significantly reduce the operating life of the battery.

Long battery service life can be achieved by keeping the batteries adequately charged. Mercedes-Benz recommends the following when replacing the batteries:

- always replace both batteries.
 - use the same type of battery.
 - use batteries of the same age.
- Do not combine old and new batteries.

Checking the battery charge level

If the vehicle is used often or predominantly over short distances or is parked for a long period, check the battery charge level more often.

- Disconnect the batteries.
- Wait for approximately 8 seconds.
- Measure the no-load voltage of the battery.
- If the no-load voltage of the battery is over 12.6 V, reconnect the battery.
- If the no-load voltage of the battery is under 12.6 V, charge the battery separately.

Charging the batteries

WARNING

During charging and jump-starting, explosive gases can escape from the battery. There is a risk of an explosion.

Particularly avoid fire, naked flames, creating sparks and smoking. Ensure there is sufficient ventilation while charging and jump-starting. Do not lean over a battery.

WARNING

A discharged battery can freeze at temperatures below freezing point. When jump-starting the vehicle or charging the battery, gases

can escape from the battery. There is a risk of an explosion.

Allow the frozen battery to thaw out before charging it or jump-starting.

! Use a commercially-available battery charger to charge the batteries. Make sure that the charging voltage is correct. Do not charge new batteries with rapid charging. The charge current of used batteries should be maximum 75% of the battery capacity for rapid charging. Otherwise, you could damage the batteries.

! The charge current should not exceed 10% of the battery capacity. A higher charge current can damage the batteries.

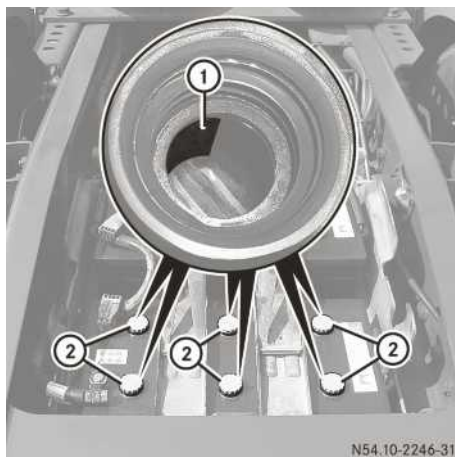
Charge the batteries when the outside temperature is above 0 °C. The optimal outside temperature is between 10 °C and 25 °C.

- ▶ Remove the batteries.
- ▶ Unscrew the battery cell caps.
- ▶ Check the battery fluid level.
- ▶ Charge the batteries separately.
- ▶ Connect and switch on the battery charger. See the battery charger's operating instructions.
- ▶ If the batteries are charged, deactivate the battery charger and screw the plugs into the batteries.
- ▶ Fit the batteries.

Checking the battery fluid level

! Tap water reduces the electrical power output of the batteries. Add only distilled or de-ionised water.

Do not use a metal funnel when adding distilled water. The metal funnel may cause a short circuit and the batteries may be damaged.



Example: batteries between the longitudinal frame members

- ▶ Check the battery fluid level every six months or, at the latest, after 50,000 km.
- ▶ Observe the safety instructions.
- ▶ Remove the battery compartment cover.
- ▶ Vehicles with batteries fitted one above the other: remove the batteries.
- ▶ Unscrew cell caps ②.
- ▶ Check the battery fluid level.
- ▶ Top up with distilled/de-ionised water.
- ▶ Screw on cell caps ②.
- ▶ Vehicles with batteries fitted one above the other: fit the batteries.
- ▶ Replace the battery compartment cover.

Battery care

! Dirty battery terminals and battery surfaces cause creepage current. This can cause the batteries to discharge.

! Do not use any cleaning agents containing fuel. Cleaning agents containing fuel corrode the battery housing.

! If dirt enters the battery cell, self-discharging of the battery is increased and the battery may be damaged.

Observe the following on battery care:

- ▶ Always keep the terminal clamps and battery surfaces clean and dry.
- ▶ Lightly grease the undersides of the battery terminal clamps with acid-resistant grease.

- ▶ Only clean the battery housing with commercially available cleaning agents.
- ▶ Only clean the batteries with the cell caps screwed in.
Otherwise, dirt can enter the battery cells.
- ▶ Unscrew the plugs whose vent holes are blocked.
- ▶ Clean blocked vent holes with a suitable tool, e.g. a piece of wire.
If the vent holes are blocked, gases cannot escape.
- ▶ Recharge batteries that are not in use with a no-load voltage of less than 12.4 V.

Parking up the vehicle

When parking up the vehicle, special measures according to Mercedes-Benz Specifications for Service Products Sheet No. 382.0 need to be taken.

You can obtain detailed information from any Mercedes-Benz Service Centre.

Useful information

These Operating Instructions describe all the models and standard and optional equipment of your vehicle that were available at the time of going to print. Country-specific differences are possible. Bear in mind that your vehicle may not be equipped with all the functions described. This also applies to safety-relevant systems and functions.

Read the information on qualified specialist workshops (▷ page 22).

Where will I find...?

Tool kit compartment



Release button (left door frame)

- ▶ **To open the tool kit compartment:** firmly press the release button. The exterior flap opens until stopped by the retaining hook.
- ▶ Press the release button again. The exterior flap is fully unlocked.



- ▶ Swing the exterior flap upwards until support strut ② engages.
- ▶ **To close the tool kit compartment:** lift the exterior flap slightly and press support strut ② upwards.
- ▶ Swing the exterior flap downwards until you hear the catch engage.

Vehicle tool kit and emergency equipment

Important safety notes

When working on the vehicle, comply with all safety regulations, such as the operating instructions, regulations concerning hazardous materials, environmental protection measures, work safety and accident prevention regulations.

See the "Changing a wheel in the event of a flat tyre" section for further information (▷ page 234).

Stowage compartment in the left-hand door



Warning triangle

Stowage compartment in the right-hand door

	First-aid kit
N99.00-2459-31	
	Reflective safety vest
N99.00-2460-31	
	Warning beacon
N99.00-2462-31	

Stowage compartment behind the co-driver's seat or underneath the berth in the extended cab

	Vehicle tool bag
N58.10-2055-31	
	Jack (under the removable cover)
N99.00-2463-31	
	Hand crank for the spare wheel
N99.00-2405-31	

	Support block
N58.10-2068-31	
	Drive-on wedge
N58.10-2075-31	
	Assembly lever set for Trilex® rim
N58.10-2081-31	
	Lamp with 10 m cable
N99.00-2402-31	
	Connecting cable for the trailer
N99.00-2406-31	
	Spare bulbs
N99.00-2404-31	

Jack

- i** Depending on the equipment, the jack has a maximum weight of 14.3 kg. The maximum jack payload can be found on the sticker attached to the jack. Following a malfunction, please contact a qualified specialist workshop.

Jack maintenance

- **After usage:** clean all moving parts and reapply grease to them.
- **Every six months:** completely extend and retract the piston.

Pump lever (two-part)

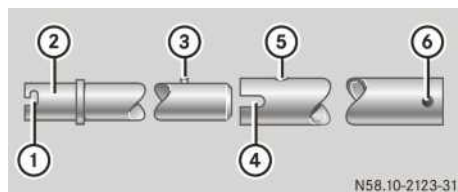
WARNING

If you do not assemble the pump lever as described, the handle can slip out of the guide while pumping. There is a risk of injury.

Make sure that the locking pin of the pump lever is engaged in the recess intended for the purpose.

Use the pump lever to operate:

- the jack
- the wheel wrench
- the spare wheel winch



- ① Cut-out for operating the lowering screw on the jack
- ② Wheel wrench bracket (to tilt the cab or loosen/tighten wheel nuts)
- ③ Retaining pin
- ④ Cut-out for operating the winch
- ⑤ Hole for retaining pin
- ⑥ Retaining sleeve for inserting the hand crank (spare wheel hoist operation)

- **To assemble the pump lever:** align and insert retaining pin ③ into hole ⑤ of both pump lever parts.
- Press retaining pin ③ into hole ⑤ until it engages.
- **To disassemble the pump lever:** press locking pin ③ and pull apart the pump lever.

External stowage compartment (Axor from 260 kW) or inside on the transmission tunnel (Axor from 240 kW)



N99.00-2464-31

Fire extinguisher

Vehicle tools in the tool bag



N58.10-2062-31

Assembly sleeve for changing a wheel



N58.10-2061-31

Wheel wrench/pump wrench



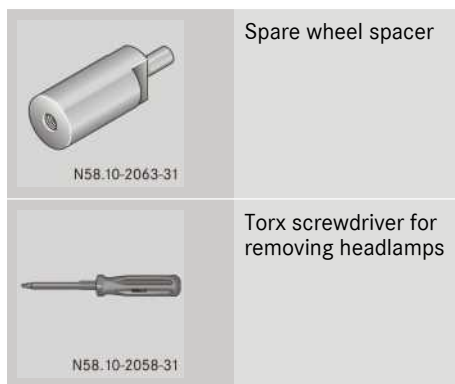
N58.10-2060-31

Extension rod for the wheel wrench

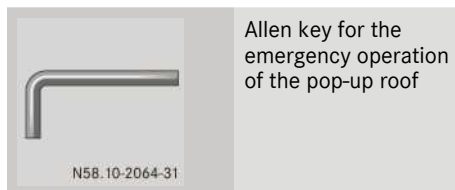


N58.10-2059-31

Socket spanner for releasing the spare wheel



Vehicle tools in the vehicle document wallet



Wheel chock

Storage location of the wheel chock

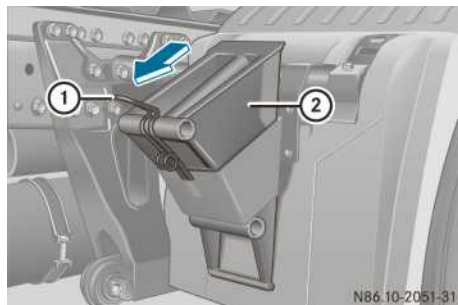
Depending on the vehicle version and equipment, the storage location of the wheel chock may vary.

The wheel chock may be found at the following locations in the vehicle:

- on the wheel arch
- on the rear cross member

Wheel chock on the wheel arch

Removing the wheel chock



Example: wheel chock in front of the left wheel arch

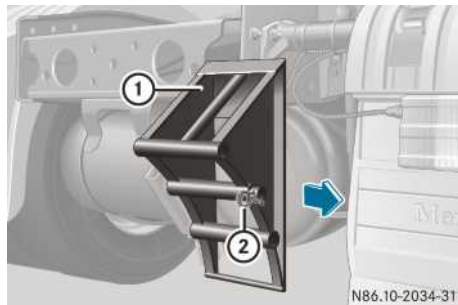
- Press and hold retainer ① in the direction of the arrow.
- Pull chock ② out upwards.

Inserting the wheel chock

- Press and hold retainer ① in the direction of the arrow.
- Insert wheel chock ② into the bracket.
- Release retainer ①.

Chocks on the rear cross member

Removing the wheel chock



- Pull plug retainer ② out of the eyelet.
- Remove chock ① from its mounting sideways.
- Push plug retainer ② back into the eyelet.

Inserting the wheel chock

- Pull plug retainer ② out of the eyelet.
- Insert wheel chock ① on the bracket sideways.
- Push plug retainer ② back into the eyelet.

Cab

Before tilting the cab

Before tilting the cab, carry out the following steps:

- Apply the parking brake.
- Shift into neutral.
- Switch off the engine.
- To start the engine after tilting the cab, turn the key in the ignition to the drive position.
- Switch off the auxiliary heating system (> page 80).
- Remove all loose objects from the cab, for example:
 - cans
 - bottles
 - tools
 - bags
- Close the stowage compartments on the inside (> page 74) and the tool kit compartment on the outside (> page 224).
- For safety reasons, keep the area in front of the gear lever unobstructed.
- Close the doors.
- Use chocks to safeguard the vehicle against rolling away.
- Check for correct seating of the front coupling pin (> page 247).

WARNING

When the cab is being tilted, it could suddenly fall forwards to its end position or out-of-use position. There is a risk of injury for persons in the tipping range of the cab.

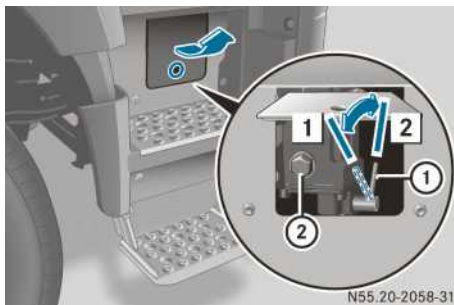
Only tilt the cab when there are no persons within the tilting range. Do not approach the area underneath the cab unless it has been tilted fully forwards.



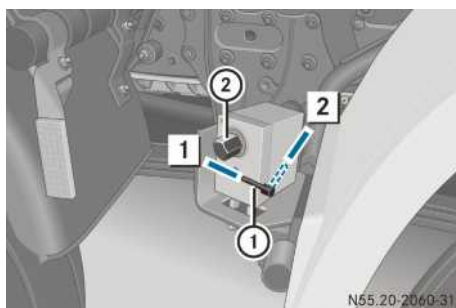
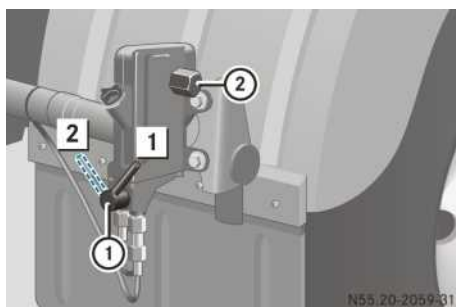
- For safety reasons, keep the area in front of the cab unobstructed.

Mechanical-hydraulic cab tilting unit

Overview



Example: tilting pump, in doorway on the right-hand side, behind the flap



Tilting pump behind the cab on the right

Tilting the cab forwards

- ▶ Before tilting the cab, observe the notes (▷ page 228).
- ▶ Swing up the flap on the right-hand side of the doorway.
- ▶ Swing valve lever ① on the tilting pump to position ①.
- ▶ Fit the pump lever to hexagon nut ② on the tilting pump using the wheel wrench (vehicle tool kit).
- ▶ Move the pump lever up and down on the tilting pump until the cab tilts into the front end position.
The cab is released automatically.
- ▶ If there is noticeable resistance when you operate the pump lever, check that tilting position ① has been set correctly on valve lever ① on the tilting pump.
- ▶ If there is no noticeable resistance when you operate the pump lever, have the tilting hydraulics checked at a qualified specialist workshop.

Tilting back to the driving position

⚠ WARNING

If the cab is not locked, the following dangerous situations could arise when the vehicle decelerates:

- it could tilt forwards
- you could lose control of the vehicle
- persons in the cab could be thrown forwards
- persons or objects in the swinging range could be hit

There is a risk of an accident and injury.

Before every journey, make sure that:

- the cab is locked
- the cab is engaged in driving position and the valve lever is in driving position
- the indicator lamp goes out when the engine is started

- ▶ Swing valve lever ① on the tilting pump to driving position ②.
- ▶ Fit the pump lever with the wheel wrench to hexagon nut ② on the tilting pump.
- ▶ Move the pump lever up and down on the tilting pump until the cab is tipped into the rear end position.
The locking mechanism engages audibly.
- ▶ Then, move the pump lever on the tilting pump up and down 10 times.

! When the cab has been tilted back to the driving position, move the pump lever on the tilting pump up and down 10 times. This returns the tipper cylinder to the rest position. Otherwise, the tilting hydraulics may be damaged.

- ▶ Swing the flap in the right-hand entry area down until you hear it engage.
- ▶ Make sure that the  indicator lamp in the instrument cluster goes out after you start the engine.
When the  indicator lamp goes out, the cab is locked. If the  indicator lamp does not go out, repeat the process and tip the cab back again.

Problems when tilting the cab

Mechanical hydraulic cab tilting unit

Problem	Possible causes/consequences and ► Solutions
The cab cannot be tilted.	The valve lever of the mechanical-hydraulic cab tilting pump is in the "Tilt back in driving position". ► Turn the valve lever of the mechanical-hydraulic cab tilting pump so that it points towards the "Tilt forward" position (► page 228).
The cab cannot be tilted.	The tilting hydraulics are leaking or have failed. ► Have the tilting hydraulics repaired at a qualified specialist workshop.

Engine

Starting and stopping the engine with the cab tilted

Before starting and stopping the engine

WARNING

Certain engine components can become very hot. There is a risk of injury when carrying out work at the engine.

Where possible, allow the engine to cool down and only touch the components described below.

WARNING

There are moving components in the engine compartment. Certain components may continue to move or suddenly move again even after the ignition has been switched off, e.g. the radiator fan. There is a risk of injury.

If you have to carry out work in the engine compartment:

- switch off the ignition
- never touch the dangerous areas surrounding moving components, e.g. the rotation area of the fan
- remove jewellery and watches
- keep items of clothing and hair, for example, away from moving parts.

Be aware of the road and traffic situation when working on public roads and secure your position accordingly.

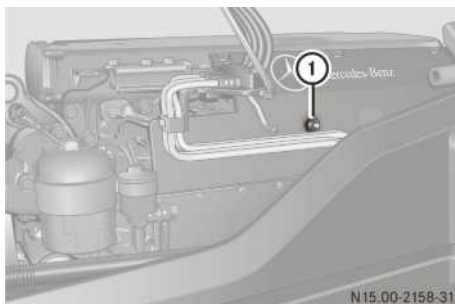
- Turn the key to the drive position in the ignition lock.
- Shift into neutral.
- Tilt the cab forwards (► page 228).

External engine start/engine stop

Starting the engine



External engine start/engine stop switch mounted on the engine (example: engine from 260 kW)



External engine start/engine stop switch mounted on the engine (example: engine up to 240 kW)

- ▶ Press external engine start/engine stop ① until the engine starts.

Starting the engine and increasing the engine speed

- ▶ Press and hold external engine start/engine stop ①.
After about 3 seconds, the engine speed increases.
- ▶ Hold down external engine start/engine stop ① until the desired engine speed is achieved.
After external engine start/engine stop ① has been released, the engine continues to run at the speed currently set.
The engine speed can be increased up to the limiting speed.

Stopping the engine

- ▶ Press external engine start/engine stop ① again.
- ▶ Tilt the cab back to the driving position.

Bleeding the fuel system

Important safety notes

⚠ WARNING

Fuel is highly flammable. Improper handling of fuel creates a risk of fire and explosion.

Avoid fire, naked flames, smoking and creating sparks under all circumstances. Switch off the ignition and auxiliary heating before carrying out work to the fuel system. Always wear protective gloves.

Be aware of the road and traffic situation when working on public roads and secure your position accordingly.

Automatic bleeding (fuel system without fuel prefilter)

- ❗ Do not bleed the fuel system by operating the starter motor for an extended period of time. You could otherwise damage the starter motor.
- ▶ Start the engine for up to 1 minute without interruption until the engine is running smoothly.
The fuel system is automatically bled when the tank is empty.
- ▶ If the engine does not start after approximately 1 minute, or if it switches off again, bleed the fuel system using the hand pump.

Bleeding with the hand pump (fuel system without fuel prefilter)

Important safety notes

⚠ WARNING

Certain engine components can become very hot. There is a risk of injury when carrying out work at the engine.

Where possible, allow the engine to cool down and only touch the components described below.

⚠ WARNING

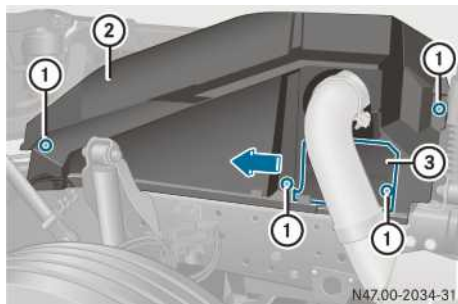
There are moving components in the engine compartment. Certain components may continue to move or suddenly move again even after the ignition has been switched off, e.g. the radiator fan. There is a risk of injury.

If you have to carry out work in the engine compartment:

- switch off the ignition
- never touch the dangerous areas surrounding moving components, e.g. the rotation area of the fan
- remove jewellery and watches
- keep items of clothing and hair, for example, away from moving parts.

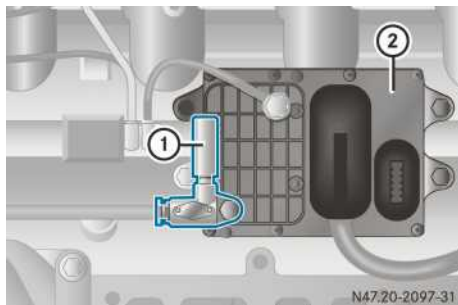
Removing the cap

- Tilt the cab forwards (► page 228).



- Unscrew fasteners ①.
- Slide cap ③ to the side and remove cover ②.

Bleeding

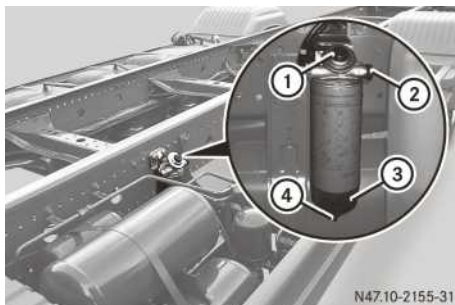


Fuel system on crankcase (left side of engine)

- Push hand pump ① on engine control unit ② repeatedly (approximately 100 times), until you hear the overflow valve open.
- Refit the cover.
- Tilt the cab back into the driving position.

Fuel system with fuel prefilter

Fuel prefilter overview



Fuel prefilter (behind the cab or on the right section of the vehicle frame)

Draining the fuel prefilter

Drain the fuel prefilter regularly.

- Place a collector under drain plug ④.
- Turn drain plug ④ open.
- Operate hand pump ① and collect the fuel/water mixture.
- Turn drain plug ④ closed.
- Vehicle with fuel prefilter at tank level: turn shutoff valve ② open.
- Start the engine and allow it to run for approximately 1 minute.
The fuel system is bled automatically.
- Check the fuel system for leaks.

⚠ Environmental note

Dispose of the water-fuel mixture in an environmentally responsible manner.

Bleeding the fuel prefilter with the hand pump

- ▶ Push hand pump ① of the fuel prefilter repeatedly until the filter housing is completely filled with fuel.
- ▶ Start the engine and allow it to run for approximately 1 minute.
The fuel system is bled automatically.

Engine emergency running mode

Activating engine emergency running mode

If the display shows the **MR** message, activate engine emergency running mode. In engine emergency running mode, the accelerator pedal is not operational and the engine speed is limited.

- ▶ Stop the vehicle, taking road and traffic conditions into account.
- ▶ Engage the parking brake.

- ▶ Switch off the engine.
- ▶ Restart the engine after approximately 10 seconds.
The engine is in emergency running mode and the engine speed is limited to approximately 1300 rpm.

Gear change methods in engine emergency running mode (vehicles with automatic transmission)

Selecting forward or reverse gear

You cannot change the direction of travel while driving.

- ▶ Stop the vehicle, taking road and traffic conditions into account.
- ▶ Engage the parking brake.
- ▶ Switch off the engine.
- ▶ Start the engine.
- ▶ Select the shift range within 3 to 4 seconds(▶ page 157).

Engine does not start

Problem	Possible causes/consequences and ▶ Solutions
Engine fails to start when the outside temperature is low.	The flow properties of the diesel fuel are inadequate due to paraffin separation. ▶ Malfunctions resulting from paraffin separation can be corrected by warming the entire fuel system, e.g. by parking the vehicle in a heated area. ▶ If the engine does not start after several attempts, have the cause traced and rectified at a qualified specialist workshop.
The engine will not start.	The engine electronics are malfunctioning. ▶ Turn the vehicle key fully back in the ignition lock before the next starting attempt.

Flat tyre

Changing a wheel in the event of a flat tyre

Important safety notes

WARNING

On uphill and downhill slopes, the jack could tip over with the vehicle raised. There is a danger of injury.

Do not change wheels on uphill or downhill gradients. Contact a qualified specialist workshop.

WARNING

If you do not position the jack correctly at the appropriate jacking point of the vehicle, the jack could tip over with the vehicle raised. There is a risk of injury.

Only position the jack at the appropriate jacking point of the vehicle. The base of the jack must be positioned vertically, directly under the jacking point of the vehicle.

WARNING

If you park a vehicle with pneumatic suspension and leave the ignition switched on, the pneumatic suspension remains active. If you then raise the vehicle using the jack, the pneumatic suspension attempts to compensate the vehicle level. The jack could tip over. There is a danger of injury.

Remove the key from the ignition lock before raising the vehicle. This prevents automatic readjustment of the vehicle level.

WARNING

Oiled, greased or damaged wheel nuts or wheel bolt threads can cause the wheel nuts to loosen or be damaged. As a result, you could lose a wheel while driving. There is a risk of an accident.

Never oil or grease the threads. In the event of damage to the threads, contact a qualified specialist workshop immediately. Have the

damaged wheel nuts or wheel bolts replaced. Do not drive on.

WARNING

If you remove a wheel that is resting on the wheel bolts under load, it may fall off or tip. There is a risk of injury.

Remove the last three wheel nuts when it is clear that the wheel is being held tension-free on the wheel bolts.

WARNING

Wheel and tyre dimensions as well as the type of tyre can vary between the spare wheel and the wheel to be replaced. When the spare wheel is fitted, driving characteristics may be severely affected. There is a risk of an accident.

To prevent risks:

- you should therefore adapt your driving style and drive carefully.
- never fit more than one spare wheel that differs from the wheel to be replaced.
- only use a spare wheel that differs from the wheel to be replaced for a short time.
- have a spare wheel that differs from the wheel that has been changed replaced at the nearest qualified specialist workshop. You must observe the correct wheel and tyre dimensions as well as the wheel type.

Warning

When, in the case of twin tyres, you are changing the outer wheel and you drive onto an underlay with the inner wheel, the inner wheel is then under load. In this case, the wheel cannot be correctly pressed up against the contact surface and tightened.

As a result, you could lose a wheel while driving. There is a risk of an accident.

When changing a wheel, always use the jack.

- ❗ Do not raise vehicles equipped with a loading crane or loading tailgate by using the hydraulic supports. This would cause damage to the chassis frame.

! For safety reasons, Mercedes-Benz recommends that you only use tyres and wheels which have been approved by Mercedes-Benz specifically for your vehicle.

These tyres have been specially adapted for use with the control systems, such as ABS or ESP®.

Only use tyres, wheels or accessories tested and approved by Mercedes-Benz. Certain characteristics, e.g. handling, vehicle noise emissions or fuel consumption, may otherwise be adversely affected. In addition, when driving with a load, tyre dimension variations could cause the tyres to come into contact with the bodywork and axle components. This could result in damage to the tyres or the vehicle.

Mercedes-Benz accepts no liability for damage resulting from the use of tyres, wheels or accessories other than those tested and approved.

Further information on wheels, tyres and approved combinations can be obtained from any qualified specialist workshop.

The vehicle wheels are heavy. Have a second person assist you when carrying out work on them.

When changing a wheel:

- only use wheel nuts that are approved for your vehicle.
- note that the wheel nuts for steel and light-alloy wheels differ.
- note that the wheel nuts for light-alloy wheels on the front and rear axles differ.

Observe the following when raising the vehicle:

- the jack is designed only to raise the vehicle for a short time, e.g. while a wheel is being changed. It is not suitable for raising and holding the vehicle so that work can be carried out underneath it.
- only position the jack at the appropriate jacking point of the vehicle. Make sure that the jack is correctly positioned on the jacking point before raising the vehicle.
- secure the vehicle before raising it to prevent it from rolling away, e.g. by applying the parking brake and/or using chocks. Do not release the parking brake while the vehicle is raised.
- the surface on which the jack is standing must be firm and level. Place the jack on an underlay if the surface is not firm.

- make sure that the gap between the underside of the raised tyre and the ground does not exceed 30 mm. The vehicle could otherwise slip off the jack or tip over.
- do not change a wheel on a slope. The vehicle could otherwise slip off the jack.
- do not place your hands or feet under the raised vehicle.
- do not lie under the raised vehicle.
- make sure that nobody is in the vehicle when it is raised.
- do not raise vehicles equipped with a loading crane or loading tailgate by using the hydraulic supports. This would cause damage to the chassis.
- do not start the engine and avoid other jolts while the vehicle is raised. The vehicle could otherwise slip off the jack.

Accessories which have not been approved by Mercedes-Benz or which are used incorrectly, could compromise the driving safety of the vehicle.

Before purchasing and using non-approved accessories, contact a qualified specialist workshop to obtain information about:

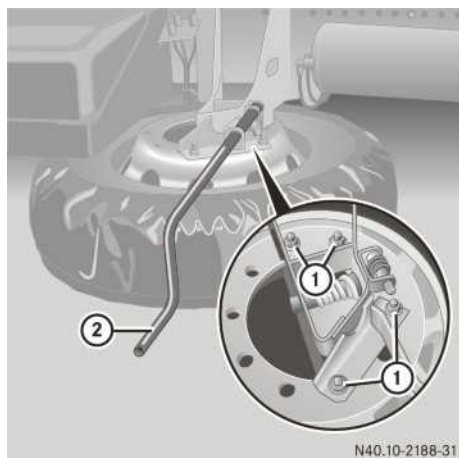
- suitability
- legal requirements
- factory recommendations

In particular, observe the country-specific permissible tyre specifications. These requirements may stipulate a specific tyre type for your vehicle. In addition, the use of specific tyre types may be advisable for certain regions and areas of operation. You can find further information regarding tyres at specialist tyre retailers, at qualified specialist workshops or at any Mercedes-Benz Service Centre.

For further information on tyre pressure; see the "Tyre pressure" section (> page 256).

- ▶ Park the vehicle on a firm and level surface.
- ▶ Apply the parking brake.
- ▶ Use chocks to safeguard the vehicle against rolling away.

Removing the spare wheel



N40.10-2188-31

Spare wheel on the side of the chassis (example: platform vehicles)

For tipper vehicles, the spare wheel is either upright behind the cab or underneath the tipper body.

For tipper vehicles, the ratchet for operating the spare wheel hoist is in the vehicle tool kit (▷ page 224).

- ▶ Tipper vehicles: observe the manufacturer's operating instructions.
- ▶ If necessary, remove the side panel or side override guard.
- ▶ Remove the tyre's protective covering.
- ▶ Assemble hand crank (2) and the pump lever (from the vehicle tool kit).
- ▶ Fit the pump lever with hand crank (2) on the spare wheel hoist. Make sure that the retaining sleeve on the spare wheel hoist grips in the recesses of the pump lever.
- ▶ Rotate the spare wheel hoist until the cable is taut.
- ▶ Unscrew nuts (1).
- ▶ Lower the spare wheel using the spare wheel winch, completely unwinding the cable.
- ▶ Pull the spare wheel out to the side or to the rear.
- ▶ Unscrew the spare wheel from the spare wheel bracket.
- ▶ Remove the retaining plate through the centre hole of the wheel rim.

Regularly remove rust and dirt from nuts (1) and bolts. Spray securing nuts (1) and bolts regularly with rust-penetrating oil.



N58.10-2120-31

Spacer

! Always secure wheels of the following sizes to the spare wheel bracket using spacers:

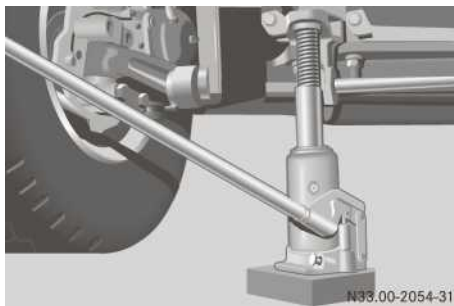
- 375/50 R 22.5
- 385/55 R 22.5
- 385/65 R 22.5
- 425/65 R 22.5

You could otherwise damage the wheel or the spare wheel bracket.

Before fitting the wheel to the spare wheel bracket, guide the retaining plate with the fastening bolts through the centre of the wheel rim. From the other side of the wheel, screw the spacer (from the vehicle tool kit) to the fastening bolts.

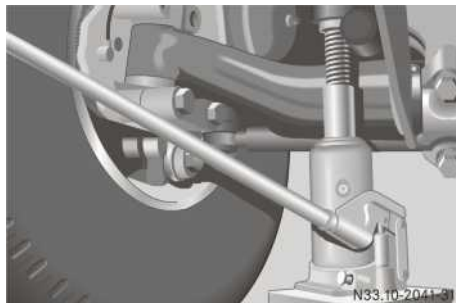
Positioning the jack

Steel-sprung front axle

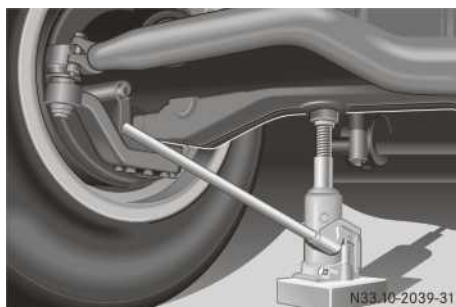


N33.00-2054-31

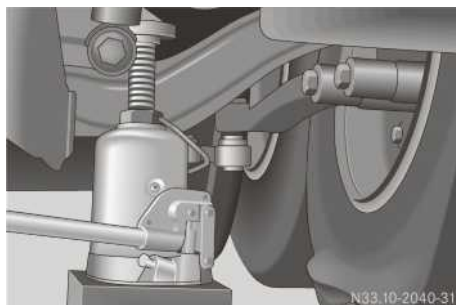
- ▶ Tilt the cab forwards (▷ page 228).
- ▶ Position the jack beneath the jack mounting point directly behind the front axle.

Air-sprung front axle

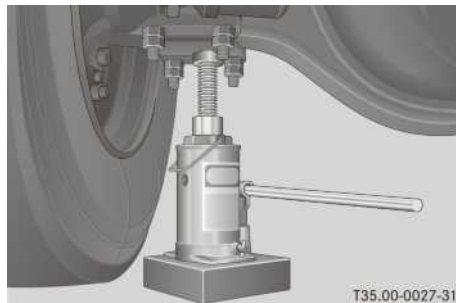
- Tilt the cab forwards (▷ page 228).
- Position the jack under the jacking point of the air spring carrier, just in front of the front axle.

All-wheel-drive front axle

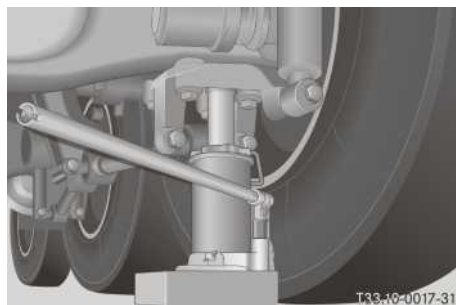
- Position the jack under the jack mounting point on the axle tube.

Second air-sprung steered front axle

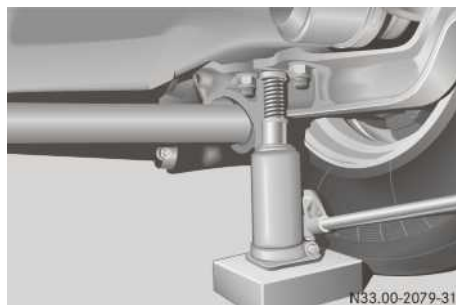
- Position the jack beneath the jack mounting point directly in front of the front axle.

Steel-sprung rear axle

- Position the jack on the rear axle beam directly beneath the spring mounting. Never position it under the differential gear system.

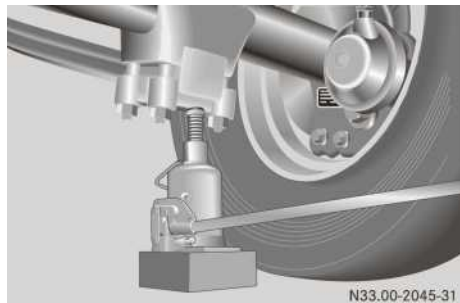
Steel-sprung rear axle (6x4)

- Position the jack directly under the spring mounting on the rear axle beam.

Air-sprung rear axle

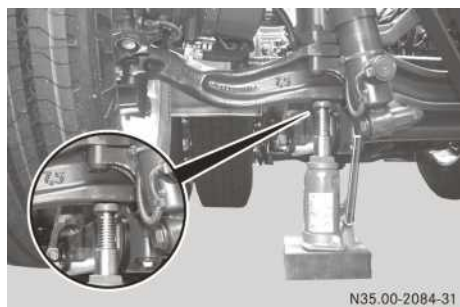
- Position the jack under the jack mounting point on the air spring carrier.

Leading axle



- Position the jack in such a way that the spring mounting fixture fits in the depression on the jack.

Telligent® trailing axle



- Position the jack so that the jack plunger is centrally located under the axle carrier.

Removing a wheel



Wheel nut caps

- 1 To loosen
- 2 To tighten

- Using the wheel nut wrench, loosen 1 the wheel nut caps and remove them.



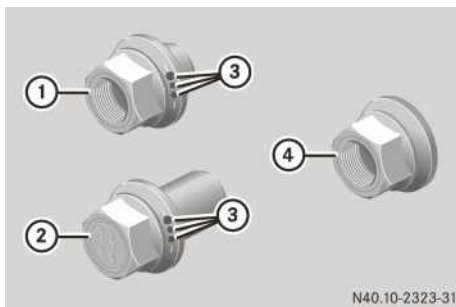
- Unscrew the wheel nuts that secure wheel nut cover 1.
- Remove wheel nut cover 1.
- Unscrew the remaining wheel nuts.
- Remove the wheel.

Fitting a wheel

Important safety notes

- ! After changing a wheel, check the tyre pressure immediately.
Observe the notes on operating and road safety.

- ! Do not tighten the wheel nuts with an impact wrench. This could damage the wheel nuts or wheel bolts.



Wheel nuts

- 1 For single tyres with light-alloy wheels
- 2 For twin tyres with light-alloy wheels
- 3 Wheel nut identification for light-alloy wheels
- 4 For steel wheels

- **Before fitting the wheel:** remove any corrosion and dirt from the contact areas of the wheel hub, rim and wheel nuts.
- Lightly oil the friction contact surfaces between the pressure plate and the wheel nut.

Single tyres

- Put the wheel in place and screw on 2 to 3 wheel nuts.
- Screw on the remaining wheel nuts together with the wheel nut cover.
- Tighten the wheel nuts in a crosswise pattern, observing the tightening torque while doing so (▷ page 275).
- Check the tyre pressure (▷ page 256).
- The wheel nuts must be retightened after 50 km (▷ page 241).

Twin tyres

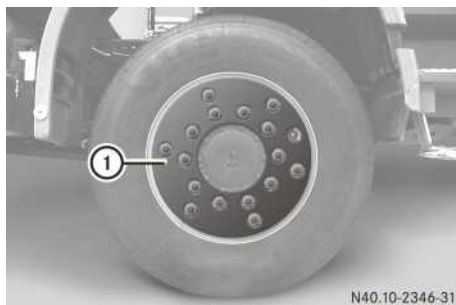


Assembly sleeve for twin tyres (vehicles with light-alloy wheels)

- Light-alloy wheels: before fitting the wheels, fit the assembly sleeves (from the vehicle tool kit) to the wheel bolts.
- Fit the wheels and screw on two to three wheel nuts.
- Light-alloy wheels: pull off the assembly sleeves.
- Screw on the remaining wheel nuts.
- Tighten the wheel nuts in a crosswise pattern, observing the tightening torque while doing so (▷ page 275).
- Check the tyre pressure (▷ page 256).
- The wheel nuts must be retightened after 50 km (▷ page 241).

Trilex® wheels

Removing the Trilex® wheel



- Unscrew the wheel nuts securing wheel nut cover ① in place.
- Remove wheel nut cover ①.
- Unscrew the remaining wheel nuts.
- Remove the wheel.

Fitting a Trilex® wheel

- Before fitting the wheel, remove any rust and dirt from contact areas on the following parts:
 - wheel hub
 - wheel rim
 - wheel nuts
- Place the wheel in position.
- Screw on two wheel nuts in diametrically opposite positions.
- Screw on the remaining wheel nuts together with wheel nut cover ①.
- Tighten wheel nuts in a clockwise pattern and in several stages, observing the tightening torque while doing so (▷ page 275).
- Retighten the wheel nuts after 10 km and again after a further 50 km (▷ page 241).

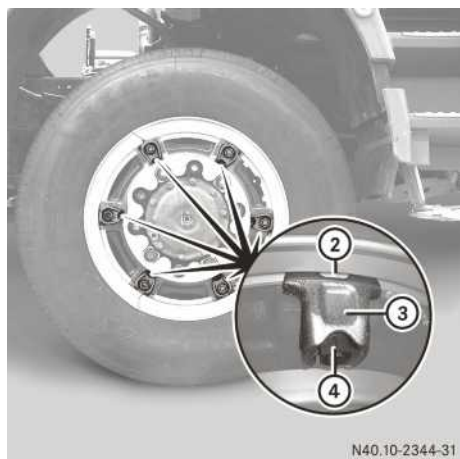
Removing a Trilex® rim with tyre

WARNING

The clamping plates on the Trilex® rim are under tension. If you completely unscrew the nuts from the clamping plate, it may be released suddenly from the rim. There is a risk of an injury.

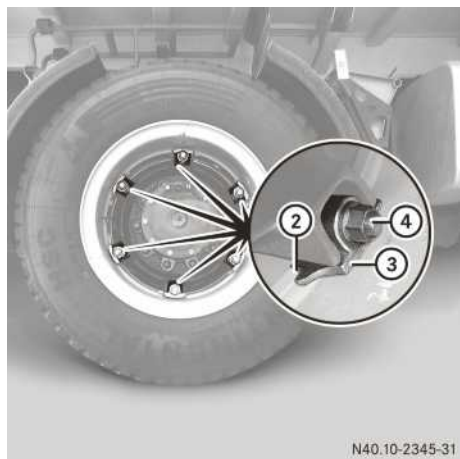
Only unscrew the nuts from the clamping plate once all clamping plates have been loosened and are no longer under tension.

- Unscrew the wheel nuts securing wheel nut cover ① in place.
- Remove wheel nut cover ①.



N40.10-2344-31

Example: single tyre



N40.10-2345-31

Example: twin tyres

- Undo nuts ④ on clamping plate ③.
- Position the assembly lever (from the vehicle tool kit) on recess ② and release clamping plates ③ by pulling once.
- Once all the clamping plates have been loosened, unscrew nuts ④ on clamping plates ③.
- Remove clamping plates ③.
- Remove the Trilex® rim with its tyre.

Fitting the Trilex® rim with tyres

⚠ WARNING

Tyre valves in contact with the wheel spider can be abraded, resulting in a loss of tyre pressure.

Tyre pressure loss:

- jeopardises road and traffic safety
- damages or destroys tyres
- may cause tyres to overheat and catch fire

There is a risk of fire and an accident.

Guide the tyre valve or valve extension through the centre of the valve cut-out.

- ❗ Tightening the clamping plate nuts in a crosswise pattern puts the rim under stress and the wheel becomes imbalanced. Tighten the nuts in a clockwise sequence. Tighten the nuts to the specified tightening torque in several stages.

- Before fitting the wheel, remove any rust and dirt from contact areas on the following parts:
 - spoke heads
 - contact surfaces of the rims
 - nuts
 - clamping plates
- Single tyres: position the Trilex® rim with tyre on the wheel spider.
- Twin tyres: position the inner Trilex® rim with tyre on the wheel spider.
- Twin tyres: position the spacer ring so that the valve on the inner Trilex® rim fits in the recess.
- Twin tyres: position the outer Trilex® rim so that the valve is opposite the valve on the inner Trilex® rim.
- Position clamping plates ③ on the bolts.
- Tighten nuts ④ slightly and make sure that the rim is not under tension.
- Tighten nuts ④ on clamping plate ③ in a clockwise direction in several stages, observing the tightening torque whilst doing so (► page 275).
- Single tyres: screw wheel nut cover ① to the wheel using the appropriate wheel nuts.
- Single tyres: tighten wheel nuts in a clockwise direction and in several stages, observing the

tightening torque while doing so
(▷ page 275).

- Retighten wheel nuts and nuts ④ on clamping plates ③ after 10 km and again after a further 100 km (▷ page 241).

Retightening the wheel nuts

⚠ WARNING

The wheels could work loose if the wheel nuts and bolts are not tightened to the specified tightening torque. There is a risk of accident.

Have the tightening torque immediately checked at a qualified specialist workshop after a wheel is changed.

Always observe the instructions and safety notes on "Changing a wheel in the event of a flat tyre" (▷ page 234).

Observe the wheel nut tightening torques
(▷ page 275).

Retighten the wheel nuts after 50 km.

When using new or newly-painted wheel rims, check the tightening torque of the wheel nuts again after travelling approximately 1,000 to 5,000 km.

- ❗ Check wheel nuts regularly for tightness. Retighten if necessary. Replace damaged wheel nut cover caps and wheel nut covers. Observe the wheel nut tightening torque.

On light-alloy wheels, the wheel nuts are not flush with the wheel bolts when tightened.

- **Disc wheel with hub centring:** retighten the wheel nuts in a crosswise pattern.
- **Twin tyres 14.00 R 20:** remove the outer wheel.
- Retighten the wheel nuts on the intermediate flange in a crosswise pattern.
- Fit the outer wheel and tighten the wheel nuts in a crosswise pattern.
- Retighten the wheel nuts for the outer wheel rim after 50 km.
- **Trilux® wheels:** tighten the clamping plate bolt connections clockwise in several stages.

Electrical fuses

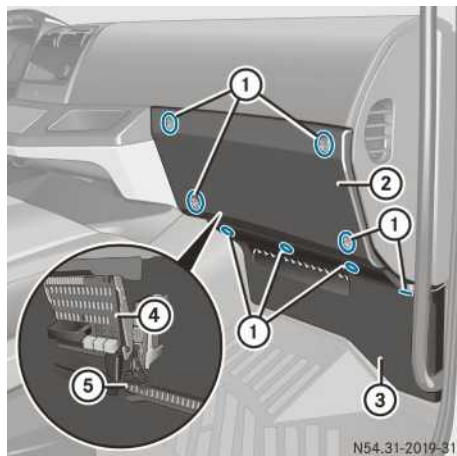
Fuse box

⚠ WARNING

If you manipulate, bridge or replace a faulty fuse with a fuse of a higher amperage, the electric cables could be overloaded. This may result in a fire. There is a risk of an accident and injury.

Always replace faulty fuses with specified new fuses of the correct amperage.

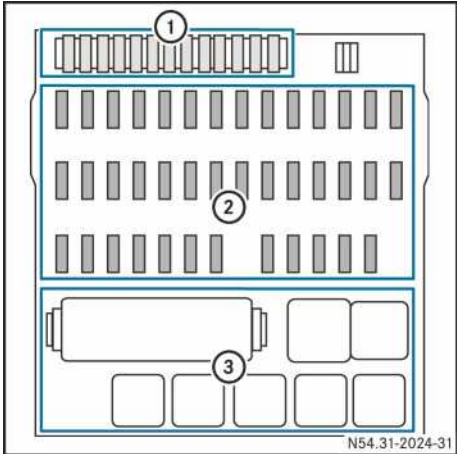
The fuse box containing the main and auxiliary fuse carriers is located in the footwell on the co-driver's side.



- ① Fasteners
- ② Upper cover
- ③ Lower cover
- ④ Main fuse carrier
- ⑤ Auxiliary fuse carrier

- Release fasteners ①.
- First, remove lower cover ③ and then upper cover ②.

Layout of the fuses on the main fuse carrier



Main fuse carrier base module (GM)

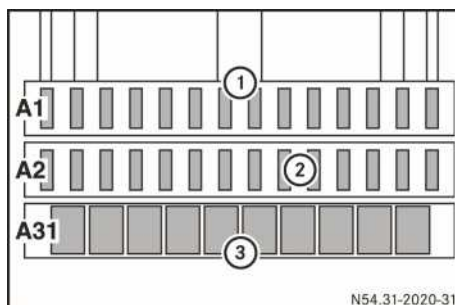
- ① Spare fuses
- ② Fuses F1 – F41
- ③ Relays

GM	Consumer	
F1	Rear foglamps including trailer	10 A
F2	Instrument panel/switch lighting, headlamp cleaning system, headlamp range adjustment, distribution (terminal 58)	10 A
F3	Telligent® roll control, additional turn signals	10 A
F4	Pop-up roof, 24 V radio, frequent-stop brake (terminal 30)	10 A
F5	Working-area lamp, LSVA (Swiss heavy goods vehicle fee), (terminal 30)	10 A
F6	Unassigned	
F7	Distribution (terminal D+)	15 A
F8	Exterior mirror heating	10 A
F9	24 V power sockets	15 A

GM	Consumer	
F10	Diagnostics connection, instrument cluster, digital tachograph (terminal 30)	10 A
F11	Trailer power socket (terminal 30)	20 A
F12	Trailer power socket for ABS (terminal 30)	20 A
F13	Interior lighting, Toll Collect (terminal 30)	10 A
F14	Headlamp cleaning system	10 A
F15	Alternator, transmission, LSVA (Swiss heavy goods vehicle fee) terminal 15	10 A
F16	Power take-offs	10 A
F17	Blower, air-conditioning system	20 A
F18	Instrument cluster, radio, telephone, hands-free system, fax (terminal 15R)	5 A
F19	Cigarette lighter	10 A
F20	Co-driver switch unit	15 A
F21	Switch unit on the driver's door	15 A
F22	Windscreen washer system, turn signals (terminal 30)	10 A
F23	Dipped-beam headlamp, right	10 A
F24	Dipped-beam headlight, left	10 A
F25	Main-beam headlamp, right	10 A
F26	Left main-beam headlamp, main-beam indicator lamp	10 A
F27	Tail lamp, side lamp, left-hand side marker lamps, trailer power socket, Toll Collect (terminal 58)	10 A
F28	Tail lamp, side lamp, right-hand side marker lamps, trailer power socket	10 A
F29	Transmission control	10 A

GM	Consumer	
F30	Engine management (terminal 15), GGVSE: EMERGENCY OFF	10 A
F31	Driver's door switch unit, exterior mirror setting, exhaust gas aftertreatment unit (terminal 15)	10 A
F32	ESP®, auxiliary heating water-heater unit, all-wheel drive (terminal 15)	10 A
F33	Windscreen washer system, turn signals, trailer power socket (terminal 15)	10 A
F34	Brake lamps, trailer power socket, reversing lamp	10 A
F35	Trailer power socket for ABS (terminal 15)	10 A
F36	Auxiliary heating water-heater unit	15 A
F37	Windscreen washer system	10 A
F38	Digital tachograph, instrument cluster, airbag (terminal 15)	10 A
F39	Horn, Toll Collect, diagnostics connection, FleetBoard®, distribution (terminal 15)	10 A
F40	Differential lock	10 A
F41	Seat heating	10 A

Layout of the fuses on the auxiliary fuse carrier



① Fuses F1 – F14 (A1)

② Fuses F1 – F14 (A2)

③ Relays (A31/A32)

A1	Consumer	
F1	FleetBoard®, auxiliary heating system clock, Toll Collect (terminal 30)	10 A
F2	Auxiliary heating	20 A
F3	Central locking/enhanced central locking system	15 A
F4	Enhanced central locking system	15 A
F5	Electronic brake system, torch socket (terminal 15)	10 A
F6	12 V power socket	15 A
F7	Voltage transformer 24 V/12 V/8 A	10 A
	Voltage transformer 24 V/12 V/15 A	15 A
F8	Central locking/enhanced central locking system, remote control, retarder	10 A
F9	Compressed-air dryer	10 A
F10	Distribution (terminal 30)	15 A
F11	Exhaust gas aftertreatment unit (terminal 30)	15 A
F12	Loading tailgate	10 A
F13	Mercedes PowerShift	15 A

A1	Consumer	
	Transmission control	10 A
F14	Working-area lamp, retarder, turn signal for second trailer	10 A

A2	Consumer	
F1	Windscreen heating	20 A
F2	Daytime driving lights	10 A
F3	Windscreen heating, Telligent® Lane Assistant	10 A
F4	Coolbox	10 A
F5	Electrohydraulic auxiliary steering	10 A
	Oil cooler transfer case	20 A
F6	Electrohydraulic auxiliary steering, transfer case oil cooler (terminal 30)	10 A
F7	Mercedes PowerShift	15 A
	Basic wiring for camera	10 A
F8	Rotating beacon	10 A
F9	Electronic brake system (terminal 30)	15 A
F10	Telephone/navigation control panel, mobile phone (terminal 30)	10 A
F11	Steering wheel angle sensor, distribution (terminal 15)	10 A
F12	Telligent® distance control, telephone/navigation control panel, mobile phone (terminal 15)	10 A
F13	Windscreen heating	20 A
F14	Electronic brake system (terminal 30)	15 A

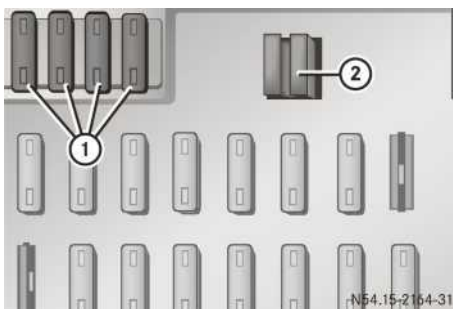
Checking and replacing

General notes

The individual electrical circuits are protected by safety fuses or automatic circuit-breakers.

- If a circuit fails, switch off the consumer.

Fuses

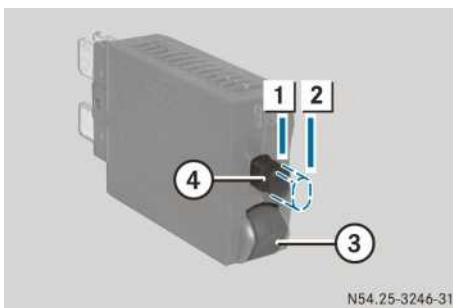


Main fuse carrier

- Remove the fuse using fuse extractor ② and visually inspect it.
- If the fuse wire has melted: replace the blown fuse with spare fuse ①.
- Switch on consumers and check that they function correctly.

If the safety fuse blows again, have the electrical system checked at a qualified specialist workshop.

Automatic circuit-breaker



If an automatic circuit-breaker is tripped, pin ④ moves to OFF position ②.

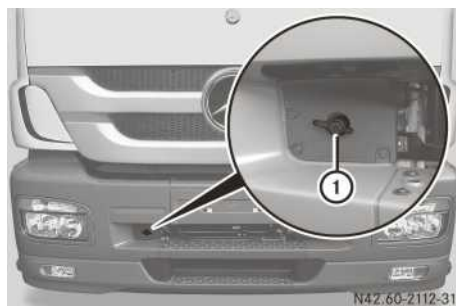
- Pull the automatic circuit-breaker out of the module.
- Press pin ④ into ON position ①.

- ▶ Press trip switch ③.
If pin ④ moves to OFF position ②, the automatic circuit-breaker is functioning correctly. If pin ④ does not move to OFF position ②, replace the automatic circuit-breaker.
- ▶ Press pin ④ into ON position ① and refit the circuit-breaker.
- ▶ Switch on consumers and check that they function correctly.

If the automatic circuit-breaker is tripped again, have the electrical system checked at a qualified specialist workshop.

Charging the compressed-air system

- !** If the supply pressure of the external compressed-air source is under 10 bar it cannot be guaranteed that you will be able to fill all the pressure circuits.



While the engine is not running, you can charge the compressed-air system via front supply connection ①.

To ensure full charging, the pressure regulator of the vehicle to be charged needs to be activated. Reduce the pressure to below 9 bar if necessary.

- i** You can release compressed air by depressing the brake pedal several times, for example.

Before towing, check that the spring-loaded cylinders of the parking brake are released. If the compressed-air supply is insufficient, release the spring-loaded cylinders manually (► page 251).

Jump-starting, tow-starting and towing away

Jump-starting

Important safety notes

WARNING

Battery acid is caustic. There is a risk of injury. Avoid contact with the skin, eyes or clothing. Do not inhale battery vapours. When carrying out maintenance work on the battery, wear acid-resistant protective clothing, in particular eye protection, protective gloves and an apron. Do not lean over the battery. Keep batteries out of the reach of children.

If you come into contact with battery acid, observe the following:

- Rinse battery acid off the affected areas of skin immediately and seek medical attention without delay.
- If battery acid comes into contact with your eyes, rinse them out thoroughly with clean water immediately. Seek medical attention without delay.

WARNING

During charging and jump-starting, explosive gases can escape from the battery. There is a risk of an explosion.

Particularly avoid fire, naked flames, creating sparks and smoking. Ensure there is sufficient ventilation while charging and jump-starting. Do not lean over a battery.

- !** Observe the following notes. You could otherwise damage the battery or electronic components in the vehicle:

- do not use a battery quick-charge unit for jump-starting.
- if you use a mobile battery charger (battery device with mains power stage), remove the mains plug before jump-starting.
- only have jump-starting provided by vehicles with a 24 V system.
- use jump leads which are protected against polarity reversal and with a wire cross sec-

tion of approximately 35–50 mm² and insulated terminal clamps.

- if the outside temperature drops below -10 °C, a discharged battery could freeze. Do not start the engine under these circumstances. Let the battery thaw out first.

! When you remove the jump leads, let the engine of the vehicle being jump-started idle. This avoids damage being caused to the vehicle electronics.

! Do not connect the negative terminal clamp of the jump lead to the chassis frame. Otherwise, engine or transmission components can be damaged.

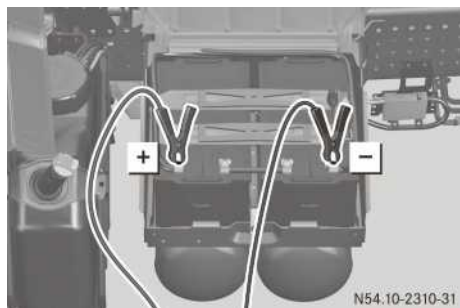
General notes

Observe the safety notes and protective measures when handling the battery (▷ page 218). After jump-starting, have the batteries checked at a qualified specialist workshop.

If the batteries are discharged, jump-start the vehicle by connecting to another vehicle.

- Make sure that the vehicles are not touching.
- Apply the parking brake.
- Switch off all electrical consumers.
- Turn the key to position **0** in the ignition lock.

Vehicles without a jump-starting connection point

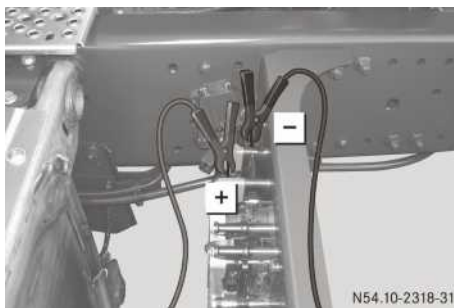
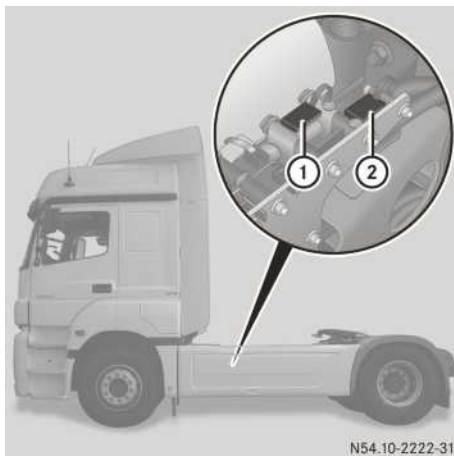


- **To connect the jump leads:** remove the battery compartment cover (▷ page 218).
- First, connect the positive terminal clamp of the jump lead to the positive terminal of the other vehicle's battery and then to the **+** positive terminal of the starter battery.
- First, connect the negative terminal clamp of the jump lead to the negative terminal of the

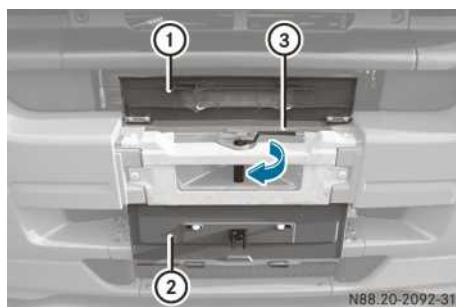
other vehicle's battery and then to the **-** negative terminal of the starter battery.

- Assisting vehicle: run the engine at a high speed.
- Vehicles with cold-start aid: observe the "Cold-start aid" section before starting the engine (▷ page 164).
- Start the engine and allow it to idle.
- **To disconnect the jump lead:** first, disconnect the negative terminal clamps of the jump lead from the negative terminals.
- Remove the positive terminal clamps of the jump lead from the positive terminals.

Vehicles with a jump-starting connection point



- ▶ **To connect the jump lead:** remove positive terminal cover ① and negative terminal cover ②.
- ▶ First, connect the positive terminal clamp of the jump lead to the positive terminal of the other vehicle's battery.
- ▶ Connect the other positive terminal clamp of the jump lead to the $+$ positive terminal.
- ▶ First, connect the negative terminal clamp of the jump lead to the negative terminal of the other vehicle's battery.
- ▶ Connect the other negative terminal clamp of the jump lead to the $-$ negative terminal.
- ▶ Assisting vehicle: run the engine at a high speed.
- ▶ Vehicles with cold-start aid: observe the "Cold-start aid" section before starting the engine (▷ page 164).
- ▶ Start the engine and allow it to idle.
- ▶ **To disconnect the jump lead:** first, disconnect the negative terminal clamps of the jump lead from the negative terminals.
- ▶ Remove the positive terminal clamps of the jump lead from the positive terminals.
- ▶ Replace positive terminal cover ① and negative terminal cover ②.



- ▶ Swing up coupling pin cover ①.
- ▶ Flip coupling jaw cover ② downwards.
- ▶ Swing coupling pin ③ approximately 90° forwards and pull it up and out.
- ▶ Attach the towbar.
- ▶ Push coupling pin ③ down through the eyelet of the towing bar.
- ▶ Swing coupling pin ③ approximately 90° backwards and engage it in the locking mechanism.

Rear trailer tow hitch

Use the rear trailer tow hitch for manoeuvring, tow-starting and towing away.

⚠ WARNING

The trailer tow hitch can only be loaded to a limited degree. If you use the trailer tow hitch for towing a trailer, the trailer may be torn off. You could lose the semitrailer as a result. There is a risk of an accident.

Observe the maximum permitted load of the trailer tow hitch. Use the trailer tow hitch for manoeuvring, towing or for steering actuation of semitrailers with positive steering.

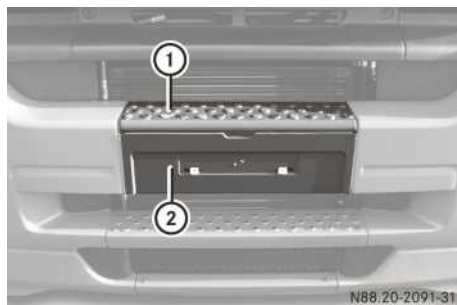
- ❗ Observe the following notes on the rear trailer tow hitch. You could otherwise damage vehicle parts:

- the trailer tow hitch should not be used for trailer towing or vehicle recovery.
- only use the trailer tow hitch for manoeuvring, tow-starting or towing.
- only load the trailer tow hitch with approximately 12 t. Otherwise, you could damage the cross member.
- observe the details on the trailer tow hitch type plate.

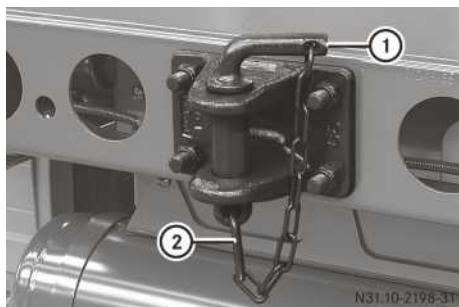
Manoeuvring/tow-starting and towing away

Front trailer tow hitch

Use the front coupling jaw for manoeuvring, tow-starting and towing away.



Example: vehicle front end



Example: cross member with trailer tow hitch

- ▶ Unhook catch ② on coupling pin ①.
- ▶ Remove coupling pin ①.
- ▶ Attach the towbar.
- ▶ Push coupling pin ① down through the eyelet of the towing bar.
- ▶ Hook catch ② onto coupling pin ① again.

Tow-starting the vehicle

Important safety notes

Vehicles with a retarder:

WARNING

While the vehicle is being tow-started, the active retarder (eddy current brake) could brake the vehicle in an uncontrolled manner. You could therefore lose control of the vehicle. There is a risk of an accident.

Pull the retarder fuse in the fuse box to deactivate the retarder during a tow-starting procedure. Replace the fuse immediately after tow-starting.

The fuse can be found in the "Fuses" section (▷ page 241).

- ▶ Turn the key to the drive position in the ignition lock.
- ▶ Deactivate ASR (▷ page 160).
- ▶ Deactivate SR (▷ page 161).

Vehicles with automatic transmission

Vehicles with automatic transmission cannot be tow-started.

Vehicles with manual gearshift or Telligent® gearshift

- ▶ Depress and hold down the clutch pedal.
 - ▶ 6-speed transmission: shift to 4th or 5th gear.
 - ▶ 9-speed and 16-speed transmission without Telligent® gearshift: shift to 5th or 6th gear.
 - ▶ Telligent® gearshift: shift to 3rd or 4th gear. The display shows the engaged gear.
 - ▶ Tow-start the vehicle.
- Do not exceed a towing speed of 20 km/h.
- ▶ Release the clutch pedal and depress the accelerator pedal.

! If the permitted engine speed is exceeded, the warning buzzer sounds. Shift to a higher pulling-away gear or reduce the tow-starting speed. Do not exceed the permitted engine speed. Otherwise, you could damage the engine.

- ▶ When the engine starts, shift the transmission into neutral.

Example: Telligent® automatic gearshift/Mercedes PowerShift

- ▶ Vehicles with Telligent® automatic gearshift: shift into 2nd gear. The display shows the engaged gear.
- ▶ Vehicles with Mercedes PowerShift: shift into 6th gear. The display shows the engaged gear.
- ▶ Tow-start the vehicle.
- ▶ Depress the accelerator pedal at approximately 20 km/h. The electronics automatically engage the clutch.

i Depending on whether you depress the accelerator pedal rapidly or slowly, the electronics disengage the clutch accordingly.

- ▶ When the engine starts, shift the transmission into neutral.

Towing the vehicle away

Important safety notes

Specialist knowledge beyond the scope of these Operating Instructions is required for towing. Have the vehicle towed away by trained personnel.

 WARNING

If the engine is not running, the power steering and the compressed-air supply are inoperative. To steer, you will require considerably more force. The spring-loaded parking brake can activate if there is a loss of compressed air and the vehicle may then brake uncontrollably. You could therefore lose control of the vehicle. There is a risk of an accident.

Always use a tow bar. Always ensure the compressed-air supply using an external compressed-air source.

 WARNING

The spring-loaded parking brake can activate if there is a loss of compressed air and the vehicle may then brake uncontrollably. You could therefore lose control of the vehicle. There is a risk of an accident.

Always use a tow bar. Release the spring-loaded parking brake cylinder manually. Have the spring-loaded parking brake cylinder restored to its operational state at a qualified specialist workshop immediately after towing.

! If the vehicle is towed away and the engine is not running, the compressed air supply will not be available.

The spring-loaded parking brake may be activated if the parking brake is released and there is a loss of compressed air. This could cause the brakes to overheat. If the compressed-air brake system cannot be charged, disengage the spring-loaded parking brake manually.

Vehicles with air suspension: during towing, check the driving level and correct it if necessary. Otherwise, the air suspension or parts of the vehicle could be damaged.

! If the vehicle is raised while being towed, mirrors and add-on equipment could exceed the vehicle height and width. Drive carefully and anticipate road and traffic conditions. Observe the maximum clearance of underpasses.

Information on charging the compressed-air system using an external compressed-air

source can be found in the "Charging the compressed-air system" section (▷ page 245). Information on releasing the spring-loaded parking brake can be found in the "Releasing the spring-loaded parking brake" section (▷ page 251).

General advice on towing away **WARNING**

If the ignition is switched on when towing with the front axle raised, ASR could brake the wheels of the rear axle in an uncontrolled manner. The vehicle could then lose directional stability and skid. There is a risk of an accident.

Switch off the ignition before the vehicle is towed with the front axle raised.

Before towing away, agree on a clear signal with the towing vehicle driver. Both you and the towing vehicle driver must adapt your driving styles to the more difficult conditions.

- ▶ Vehicles with automatic transmission: shift the transmission to neutral.
- ▶ Remove the propeller shafts leading to the driven axles.
- ▶ If it is not possible to remove the propeller shaft, remove the drive shafts.
- ▶ Deactivate ASR (▷ page 160).
- ▶ Deactivate SR (▷ page 161).
- ▶ All-wheel-drive vehicles: switch the transfer case to the on-road position (▷ page 163).
- ▶ Charge the compressed-air system (▷ page 245).

Towing a vehicle with front-axle damage away

! Only raise the front axle of four-axle vehicles when the vehicle is unladen. Only tow away the vehicle when it is unladen.

If when raised, the wheels on the second front axle touch the ground:

- remove the wheels and
 - secure the brake drums with wheel nuts.
- ▶ Observe the general information on towing away.
 - ▶ Lift the vehicle by the front axle.

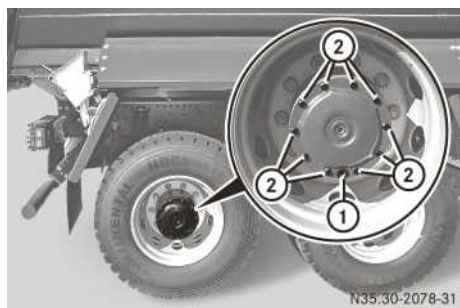
- ▶ Vehicles with all-wheel drive: remove the propeller shaft between the rear axle and the transfer case.
- ▶ Vehicles with air suspension: set the required chassis height using the control panel (▷ page 176).

Towing a vehicle with rear-axle damage away

- ▶ Observe the general information on towing away.
- ▶ Engage the cross-axle lock (▷ page 162).
- ▶ Remove both drive shafts.
- ▶ Vehicles with two driven rear axles: remove the drive shafts on both rear axles.
- ▶ All-wheel-drive vehicles: remove the propeller shaft between the front axle and the transfer case.

Removing the drive shafts from the rear axle RL 7 and RD 7

- i** Complete the vehicle tool kit with an M8 x 120 mm hexagon bolt from a specialist store. You need the hexagon bolt in order to remove the drive shaft on the rear axle (RL 7, RD 7).



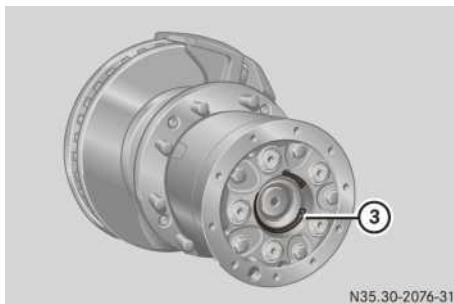
Remove the drive shaft on the right and left-hand sides of the vehicle.

- ▶ Park the vehicle with drain plug ① at the bottom.
- ▶ Unscrew drain plug ① on the planetary hub.
- ▶ Collect the oil that runs out in an oil-collecting tray.

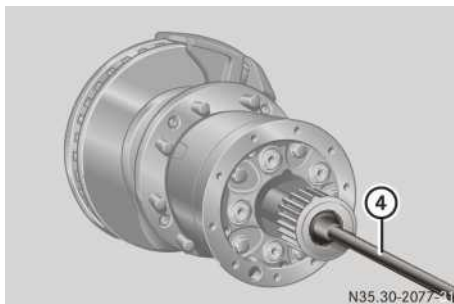
Environmental note

Dispose of service products in an environmentally-responsible manner.

- ▶ Unscrew bolts ② from the end cover.
- ▶ Remove the end cover.



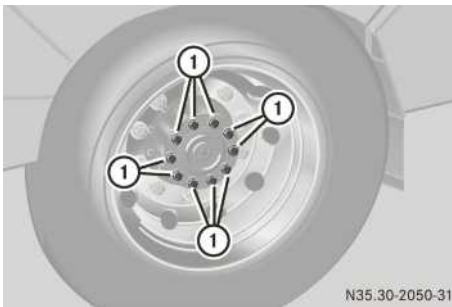
- ▶ Remove circlip ③ using a set of pliers.



- ▶ Remove the drive shaft together with the sun gear.
For this purpose, use special tool ④ or a 120 mm long M8 bolt.
- ▶ Remove the sun gear from the drive shaft and refit the drive shaft in the rear axle.
- ▶ Replace the end cover.
- ▶ Screw in bolts ②.
- ▶ Screw in drain plug ①.
- ▶ Unscrew the oil filler opening bolts in the centre of the end cover.
- ▶ Add clean transmission oil (3.25 l per wheel end) to the planetary hub.
- ▶ Screw in the oil filler opening bolts.

Removing drive shafts RL 6 and RL 8 on the rear axle

- ▶ Turn the key to the drive position in the ignition lock.
- ▶ Engage the cross-axle lock (▷ page 162).



- Loosen bolts ① on the wheel hub.
- Remove both drive shafts.
- Cover up the wheel hub so that the bearing does not become dirty.

Releasing the spring-loaded parking brake

Arrangement of the spring-loaded parking brake cylinders

The location of the spring-loaded parking brake cylinders depends on the axle equipment.

	Front axle		Rear axle	
	1	2	1	2
4x2, 4x4	x ⁴	–	x	–
6x2 /2	x	–	–	x
6x2, 6x2/4, 6x4, 8x2/4	–	–	x	x
8x4/4	–	x	x	x

⁴ Optional extra.

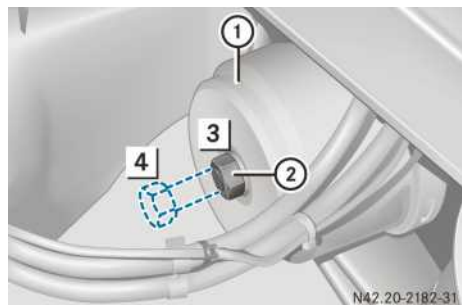


Spring-loaded parking brake cylinder (example: semitrailer tractor vehicle)

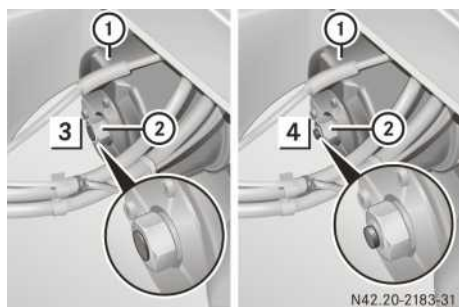
Manually releasing the spring-loaded parking brake cylinder

If there is insufficient reservoir pressure to release the parking brake, release the spring-loaded parking brake cylinders mechanically in the event of an emergency.

The vehicles may be fitted with different types of spring-loaded parking brake cylinders depending on the axle, e.g. spring-loaded parking brake cylinders with a release screw or with a release indicator.



Spring-loaded parking brake cylinder with release screw



Spring-loaded parking brake cylinder with release screw and release indicator

- Use chocks to safeguard the vehicle against rolling away.

! Undo the release bolt with a maximum torque of 70 Nm. Do not use an impact wrench. You could otherwise damage the spring-loaded parking brake cylinder.

Release all spring-loaded parking brake cylinders ① on the vehicle.

- Turn release screw ② of spring-loaded parking brake cylinder ① anti-clockwise until the stop in release position ④.

Moving the spring-loaded parking brake cylinder to the driving position

! Tighten the release bolt up to a torque of 35 Nm. Do not use an impact wrench. You could otherwise damage the spring-loaded parking brake cylinder.

Reset all spring-loaded parking brake cylinders ① to driving position ③.

- Charge the brake circuit until the cut-off pressure is reached.
- Swing the parking brake lever as far as it will go to the released position.
- Turn release screw ② of spring-loaded parking brake cylinder ① clockwise to driving position ③.
- Tighten release screw ②.

Useful information

These Operating Instructions describe all the models and standard and optional equipment of your vehicle that were available at the time of going to print. Country-specific differences are possible. Bear in mind that your vehicle may not be equipped with all the functions described. This also applies to safety-relevant systems and functions.

Read the information on qualified specialist workshops (▷ page 22).

Important safety notes

Operating and road safety

Regular checking of wheels and tyres

Tyres are of particular importance to the operating and road safety of the vehicle.

Regularly check the following:

- tyre pressure
- tyre tread
- tyre condition

A tyre dealer, a qualified specialist workshop or any Mercedes-Benz Service Centre will be able to provide further information about the:

- tyre load-bearing capacity (LI, Load Index)
- speed rating (maximum permissible speed of the tyre)
- tyre age
- causes and consequences of tyre wear
- measures to be taken in the event of tyre damage
- types of tyre for specific regions, areas of operation or conditions of vehicle use
- interchangeability of tyres, etc.

Tyre pressures

WARNING

Underinflated or overinflated tyres pose the following risks:

- the tyres may burst, especially as the load and vehicle speed increase.
- the tyres may wear excessively and/or unevenly, which may greatly impair tyre traction.
- the driving characteristics, as well as steering and braking, may be greatly impaired.

There is a risk of an accident.

Observe the recommended tyre pressure and check the tyre pressure of all the tyres including the spare wheel:

- at least once a month
- when the load changes
- before embarking on a longer journey
- for changed operating conditions, e.g. off-road driving.

If necessary, correct the tyre pressure.

WARNING

The tyre temperature and pressure increase when the vehicle is in motion. Reducing the pressure of warm tyres leads to a tyre pressure that is too low when the tyres have cooled. If the tyre pressure is too low, it may cause the tyre to burst, especially when the load or speed increases. There is a risk of an accident.

You should never reduce the pressure of warm tyres. Observe the specified tyre pressure.

Before starting your journey, check the specified tyre pressures while the tyres are cold.

If the tyre pressure is too low, it leads to:

- excessive build-up of heat in the tyres
- increased tyre wear
- altered driving stability
- increased fuel consumption

Excessive tyre pressure leads to:

- an increased braking distance
- a deterioration in tyre traction
- increased tyre wear

The valve caps on the tyre valves protect the valve cores from moisture and dirt. Always screw the valve caps tightly onto the tyre valves.

In the event of repeated pressure loss in the tyres, external damage or leaking tyre valves may be the cause. Check the condition of the tyres regularly.

Further information on tyre pressure can be found in the "Tyre pressure" section (▷ page 256).

Tyre tread

WARNING

Insufficient tyre tread will reduce tyre traction. The tyre is no longer able to dissipate water. This means that on wet road surfaces, the risk of aquaplaning increases, in particular where speed is not adapted to suit the driving conditions. There is a risk of accident.

If the tyre pressure is too high or too low, tyres may exhibit different levels of wear at different locations on the tyre tread. Thus, you should regularly check the tread depth and the condition of the tread across the entire width of all tyres.

Minimum tyre tread depth for:

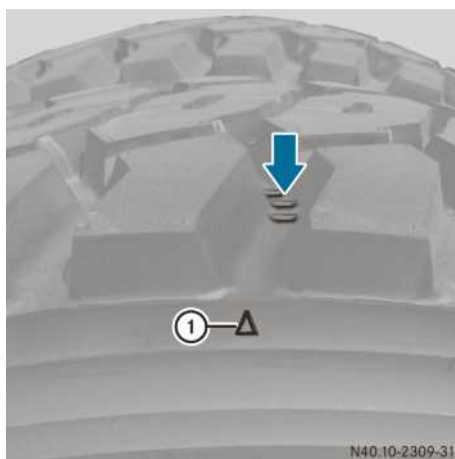
- summer tyres: 3 mm
- M+S tyres: 4 mm

For safety reasons, replace the tyres before the legally prescribed limit for the minimum tyre tread depth is reached.

WARNING

There is a danger of aquaplaning occurring, even if you are driving slowly and your tyres have sufficient tread depth, depending on the depth of water on the road. There is a risk of an accident.

For this reason, avoid tyre ruts and brake carefully.



① Example: tyre tread wear indicator

A specified minimum tread depth is a legal requirement for all tyres. Observe the relevant legal requirements for each country.

The less tyre tread depth remaining, the poorer the road grip and handling characteristics of the vehicle, particularly if the road surface is wet or snow-covered.

A tyre has reached the minimum tread depth when the tread wear indicator (arrow) is flush with the tyre tread.

For safety reasons, have the tyres replaced before the legally specified minimum tread depth is reached.

Tyre condition

Important safety notes

WARNING

Damaged tyres can cause tyre inflation pressure loss. As a result, you could lose control of your vehicle. There is a risk of accident.

Check the tyres regularly for signs of damage and replace any damaged tyres immediately.

Before starting your journey, check the tyre condition for:

- external damage
- foreign objects in the tyre tread
- foreign objects between the tyres (on vehicles with twin tyres)

- cracks or bulges
- uneven tread wear or excessive wear on one side

Tyre damage

Tyre damage can, for example, be caused by:

- the operating conditions of the vehicle
- tyre ageing
- kerbs
- foreign objects
- insufficient or excessive tyre pressure
- weather conditions and environmental factors
- contact with oil, grease, fuel, etc.

Tyre age

Tyres age, even if they are used infrequently or not at all. Operating and road safety diminish with age. For this reason have tyres more than 6 years old checked and, if necessary, replaced at a qualified specialist workshop. This also applies to the spare wheel.



Date of manufacture ① informs you about the age of a tyre. The first and second digits refer to the week of manufacture, starting with "01" for the first calendar week of the year. The third and fourth digits refer to the year of manufacture. A tyre that is marked "3808", for example, was thus manufactured in the 38th calendar week of 2008.

Tyre load-bearing capacity, tyre speed rating and tyre types

WARNING

Exceeding the stated tyre load-bearing capacity and the approved maximum speed could

lead to tyre damage or the tyre bursting. There is a risk of accident.

Therefore, only use tyre types and sizes approved for your vehicle model. Observe the tyre load rating and speed rating required for your vehicle.

In particular, observe the country-specific permissible tyre specifications. These requirements may stipulate a specific tyre type for your vehicle. In addition, the use of specific tyre types may be advisable for certain regions and areas of operation.

You can find further information regarding tyres at specialist tyre retailers, at qualified specialist workshops or at any Mercedes-Benz Service Centre.

Replacing the tyres and retreaded tyres

Replacing tyres

If replacing the standard tyres of your vehicle, use only the tyre and wheel rim sizes approved for your vehicle type.

A tyre dealer, a qualified specialist workshop or any Mercedes-Benz Service Centre will be able to provide further information.

After replacing your tyres, carry with you the vehicle's type approval for the new tyre and wheel rim size as well as the manufacturer's certification showing that the tyres may be used on the vehicle. Observe the relevant legal requirements for each country.

Any Mercedes-Benz Service Centre can provide information on obtaining a manufacturer's certificate.

Retreaded tyres

Mercedes-Benz recommends that you only use tyres and wheels which have been tested and approved by Mercedes-Benz specifically for your vehicle.

Balancing tyres

Mercedes-Benz recommends that you only use clip-on and adhesive wheel balance weights which have been tested and approved by Mercedes-Benz specifically for your vehicle to balance the tyres.

Adding balancing granulate, balancing beads or balancing gel to the tyres can damage the inliner of the tyre.

Tyre pressures

Important safety notes

WARNING

Underinflated or overinflated tyres pose the following risks:

- the tyres may burst, especially as the load and vehicle speed increase.
- the tyres may wear excessively and/or unevenly, which may greatly impair tyre traction.
- the driving characteristics, as well as steering and braking, may be greatly impaired.

There is a risk of an accident.

Observe the recommended tyre pressure and check the tyre pressure of all the tyres including the spare wheel:

- at least once a month
- when the load changes
- before embarking on a longer journey
- for changed operating conditions, e.g. off-road driving.

If necessary, correct the tyre pressure.

WARNING

The tyre temperature and pressure increase when the vehicle is in motion. Reducing the pressure of warm tyres leads to a tyre pressure that is too low when the tyres have cooled. If the tyre pressure is too low, it may cause the tyre to burst, especially when the load or speed increases. There is a risk of an accident.

You should never reduce the pressure of warm tyres. Observe the specified tyre pressure.

For every 10 °C change in air temperature, the tyre pressure changes by around 30 to 40 kPa (0.3 to 0.4 bar/4.4 to 5.8 psi). Bear this temperature-related change in tyre pressure in mind when checking tyre pressures indoors, where the temperature may be higher than the outside temperature.

Example:

- the room temperature is approximately 20 °C
- the outside temperature is approximately 0 °C
- set the tyre pressure to around 60 to 80 kPa (0.6 to 0.8 bar/8.7 to 11.6 psi) higher than that prescribed in the tyre pressure table.

The tyre pressures are specified according to E.T.R.T.O. standards and may deviate from the manufacturer's specifications.

Also observe the general notes in the "Operating and road safety" section (► page 253).

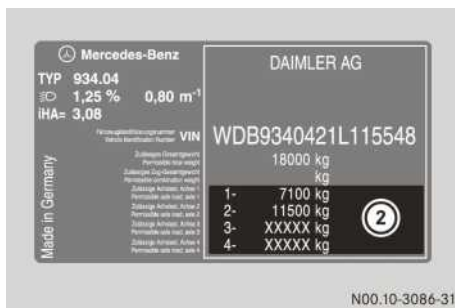
Determining tyre pressures

-  Correct the tyre pressures for each axle on the vehicle.



Example: tyre size

- Read tyre size ① on the tyre.



Example: vehicle identification plate

- Determine permissible axle load ② by checking the vehicle identification plate.
- Select the tyre pressure table which corresponds to the tyre type.

- Single tyres (▷ page 257)
 - Twin tyres (▷ page 262)
- Look for tyre size ① in the tyre pressure table.
- Search for load bearing index which corresponds to the tyre type next to the tyre size in the tyre pressure table.
- Find maximum permissible axle load ② in the tyre pressure table and read off the tyre pressure.

Single tyres

The figures given for axle load values are in kg.

Tyres	Load index	4300	6300	6700	7100
215/75 R 17.5	135	850 kPa (8.5 bar/ 123 psi)	–	–	–
12.00 R 20	154	–	700 kPa (7.0 bar/ 102 psi)	750 kPa (7.5 bar/ 109 psi)	800 kPa (8.0 bar/ 116 psi)
14.00 R 20	160	–	–	500 kPa (5.0 bar/ 72 psi)	525 kPa (5.25 bar/ 76 psi)
14.00 R 20	164	–	–	–	500 kPa (5.0 bar/ 72 psi)
395/85 R 20	161	–	–	–	500 kPa (5.0 bar/ 72 psi)
11 R 22.5	148	–	850 kPa (8.5 bar/ 123 psi)	–	–
12 R 22.5	152	–	750 kPa (7.5 bar/ 109 psi)	800 kPa (8.0 bar/ 116 psi)	850 kPa (8.5 bar/ 123 psi)
13 R 22.5	154	–	700 kPa (7.0 bar/ 102 psi)	750 kPa (7.5 bar/ 109 psi)	800 kPa (8.0 bar/ 116 psi)
13 R 22.5	156	–	650 kPa (6.5 bar/ 94 psi)	700 kPa (7.0 bar/ 102 psi)	750 kPa (7.5 bar/ 109 psi)
275/80 R 22.5	149	–	825 kPa (8.25 bar/ 120 psi)	–	–
295/80 R 22.5	152	–	700 kPa (7.0 bar/ 102 psi)	750 kPa (7.5 bar/ 109 psi)	800 kPa (8.0 bar/ 116 psi)

Tyres	Load index	4300	6300	6700	7100
295/80 R 22.5	154	–	700 kPa (7.0 bar/ 102 psi)	750 kPa (7.5 bar/ 109 psi)	800 kPa (8.0 bar/ 116 psi)
305/70 R 22.5	150	–	800 kPa (8.0 bar/ 116 psi)	850 kPa (8.5 bar/ 123 psi)	–
305/70 R 22.5	152	–	775 kPa (7.75 bar/ 112 psi)	850 kPa (8.5 bar/ 123 psi)	900 kPa (9.0 bar/ 131 psi)
305/70 R 22.5	153	–	750 kPa (7.5 bar/ 109 psi)	825 kPa (8.25 bar/ 120 psi)	875 kPa (8.75 bar/ 127 psi)
315/60 R 22.5	152	–	775 kPa (7.75 bar/ 112 psi)	850 kPa (8.5 bar/ 123 psi)	900 kPa (9.0 bar/ 131 psi)
315/60 R 22.5	154	–	725 kPa (7.25 bar/ 105 psi)	800 kPa (8.0 bar/ 116 psi)	850 kPa (8.5 bar/ 123 psi)
315/70 R 22.5	154	–	725 kPa (7.25 bar/ 105 psi)	800 kPa (8.0 bar/ 116 psi)	850 kPa (8.5 bar/ 123 psi)
315/70 R 22.5	156	–	675 kPa (6.75 bar/ 98 psi)	725 kPa (7.25 bar/ 105 psi)	775 kPa (7.75 bar/ 112 psi)
315/80 R 22.5	154	–	675 kPa (6.75 bar/ 98 psi)	725 kPa (7.25 bar/ 105 psi)	775 kPa (7.75 bar/ 112 psi)
315/80 R 22.5	156	–	650 kPa (6.5 bar/ 94 psi)	700 kPa (7.0 bar/ 102 psi)	750 kPa (7.5 bar/ 109 psi)
385/55 R 22.5	158	–	600 kPa (6.0 bar/ 87 psi)	650 kPa (6.5 bar/ 94 psi)	675 kPa (6.75 bar/ 98 psi)
385/55 R 22.5	160	–	575 kPa (5.75 bar/ 83 psi)	625 kPa (6.25 bar/ 91 psi)	675 kPa (6.75 bar/ 98 psi)
385/65 R 22.5	158	–	600 kPa (6.0 bar/ 87 psi)	650 kPa (6.5 bar/ 94 psi)	675 kPa (6.75 bar/ 98 psi)
385/65 R 22.5	160	–	575 kPa (5.75 bar/ 83 psi)	625 kPa (6.25 bar/ 91 psi)	675 kPa (6.75 bar/ 98 psi)

Tyres	Load index	4300	6300	6700	7100
385/65 R 22.5	164	–	500 kPa (5.0 bar/ 72 psi)	550 kPa (5.5 bar/ 80 psi)	600 kPa (6.0 bar/ 87 psi)
425/65 R 22.5	165	–	–	500 kPa (5.0 bar/ 72 psi)	525 kPa (5.25 bar/ 76 psi)
12.00 R 24	156	–	575 kPa (5.75 bar/ 83 psi)	625 kPa (6.25 bar/ 91 psi)	675 kPa (6.75 bar/ 98 psi)
12.00 R 24	160	–	550 kPa (5.5 bar/ 80 psi)	600 kPa (6.0 bar/ 87 psi)	650 kPa (6.5 bar/ 94 psi)
325/95 R 24	162	–	525 kPa (5.25 bar/ 76 psi)	550 kPa (5.5 bar/ 80 psi)	600 kPa (6.0 bar/ 87 psi)

The figures given for axle load values are in kg.

Tyres	Load index	7300	7500	8000	8500
13 R 22.5	154	825 kPa (8.25 bar/ 120 psi)	850 kPa (8.5 bar/ 123 psi)	–	–
13 R 22.5	156	775 kPa (7.75 bar/ 112 psi)	825 kPa (8.25 bar/ 120 psi)	875 kPa (8.75 bar/ 127 psi)	–
295/80 R 22.5	152	850 kPa (8.5 bar/ 123 psi)	–	–	–
295/80 R 22.5	154	825 kPa (8.25 bar/ 120 psi)	850 kPa (8.5 bar/ 123 psi)	–	–
305/70 R 22.5	153	900 kPa (9.0 bar/ 131 psi)	–	–	–
315/60 R 22.5	154	875 kPa (8.75 bar/ 127 psi)	900 kPa (9.0 bar/ 131 psi)	–	–
315/70 R 22.5	154	875 kPa (8.75 bar/ 127 psi)	900 kPa (9.0 bar/ 131 psi)	–	–

Tyres	Load index	7300	7500	8000	8500
315/70 R 22.5	156	825 kPa (8.25 bar/ 120 psi)	850 kPa (8.5 bar/ 123 psi)	900 kPa (9.0 bar/ 131 psi)	–
315/80 R 22.5	154	800 kPa (8.0 bar/ 116 psi)	825 kPa (8.25 bar/ 120 psi)	–	–
315/80 R 22.5	156	775 kPa (7.75 bar/ 112 psi)	800 kPa (8.0 bar/ 116 psi)	850 kPa (8.5 bar/ 123 psi)	–
385/55 R 22.5	158	700 kPa (7.0 bar/ 102 psi)	725 kPa (7.25 bar/ 105 psi)	800 kPa (8.0 bar/ 116 psi)	850 kPa (8.5 bar/ 123 psi)
385/55 R 22.5	160	700 kPa (7.0 bar/ 102 psi)	725 kPa (7.25 bar/ 105 psi)	775 kPa (7.75 bar/ 112 psi)	850 kPa (8.5 bar/ 123 psi)
385/65 R 22.5	158	700 kPa (7.0 bar/ 102 psi)	725 kPa (7.25 bar/ 105 psi)	800 kPa (8.0 bar/ 116 psi)	850 kPa (8.5 bar/ 123 psi)
385/65 R 22.5	160	700 kPa (7.0 bar/ 102 psi)	725 kPa (7.25 bar/ 105 psi)	775 kPa (7.75 bar/ 112 psi)	850 kPa (8.5 bar/ 123 psi)
385/65 R 22.5	164	625 kPa (6.25 bar/ 91 psi)	625 kPa (6.25 bar/ 91 psi)	700 kPa (7.0 bar/ 102 psi)	750 kPa (7.5 bar/ 109 psi)
425/65 R 22.5	165	550 kPa (5.5 bar/ 80 psi)	575 kPa (5.75 bar/ 83 psi)	600 kPa (6.0 bar/ 87 psi)	650 kPa (6.5 bar/ 94 psi)
12.00 R 20	154	825 kPa (8.25 bar/ 120 psi)	850 kPa (8.5 bar/ 123 psi)	–	–
14.00 R 20	160	550 kPa (5.5 bar/ 80 psi)	575 kPa (5.75 bar/ 83 psi)	600 kPa (6.0 bar/ 87 psi)	650 kPa (6.5 bar/ 94 psi)
14.00 R 20	164	525 kPa (5.25 bar/ 76 psi)	525 kPa (5.25 bar/ 76 psi)	575 kPa (5.75 bar/ 83 psi)	625 kPa (6.25 bar/ 91 psi)
395/85 R 20	161	525 kPa (5.25 bar/ 76 psi)	550 kPa (5.5 bar/ 80 psi)	600 kPa (6.0 bar/ 87 psi)	650 kPa (6.5 bar/ 94 psi)
395/85 R 20	168	500 kPa (5.0 bar/ 72 psi)	525 kPa (5.25 bar/ 76 psi)	575 kPa (5.75 bar/ 83 psi)	600 kPa (6.0 bar/ 87 psi)

Tyres	Load index	7300	7500	8000	8500
12.00 R 24	156	700 kPa (7.0 bar/ 102 psi)	725 kPa (7.25 bar/ 105 psi)	775 kPa (7.75 bar/ 112 psi)	–
12.00 R 24	160	650 kPa (6.5 bar/ 94 psi)	675 kPa (6.75 bar/ 98 psi)	750 kPa (7.5 bar/ 109 psi)	800 kPa (8.0 bar/ 116 psi)
325/95 R 24	162	625 kPa (6.25 bar/ 91 psi)	650 kPa (6.5 bar/ 94 psi)	700 kPa (7.0 bar/ 102 psi)	750 kPa (7.5 bar/ 109 psi)

The figures given for axle load values are in kg.

Tyres	Load index	9000	10000	10500
385/55 R 22.5	160	900 kPa (9.0 bar/ 131 psi)	–	–
385/65 R 22.5	160	900 kPa (9.0 bar/ 131 psi)	–	–
385/65 R 22.5	164	800 kPa (8.0 bar/ 116 psi)	900 kPa (9.0 bar/ 131 psi)	–
425/65 R 22.5	165	700 kPa (7.0 bar/ 102 psi)	800 kPa (8.0 bar/ 116 psi)	–
14.00 R 20	160	700 kPa (7.0 bar/ 102 psi)	–	–
14.00 R 20	164	675 kPa (6.75 bar/ 98 psi)	750 kPa (7.5 bar/ 109 psi)	–
395/85 R 20	161	675 kPa (6.75 bar/ 98 psi)	–	–
395/85 R 20	168	650 kPa (6.5 bar/94 psi)	750 kPa (7.5 bar/ 109 psi)	800 kPa (8.0 bar/ 116 psi)
12.00 R 24	160	850 kPa (8.5 bar/ 123 psi)	–	–
325/95 R 24	162	800 kPa (8.0 bar/ 116 psi)	–	–

Twin tyres

The figures given for axle load values are in kg.

Tyres	Load index	9000	9500	10000	10500
11 R 22.5	145	625 kPa (6.25 bar/ 91 psi)	675 kPa (6.75 bar/ 98 psi)	725 kPa (7.25 bar/ 105 psi)	750 kPa (7.5 bar/ 109 psi)
12 R 22.5	148	575 kPa (5.75 bar/ 83 psi)	600 kPa (6.0 bar/ 87 psi)	650 kPa (6.5 bar/ 94 psi)	675 kPa (6.75 bar/ 98 psi)
13 R 22.5	150	550 kPa (5.5 bar/ 80 psi)	575 kPa (5.75 bar/ 83 psi)	625 kPa (6.25 bar/ 91 psi)	650 kPa (6.5 bar/ 94 psi)
13 R 22.5	151	525 kPa (5.25 bar/ 76 psi)	550 kPa (5.5 bar/ 80 psi)	600 kPa (6.0 bar/ 87 psi)	625 kPa (6.25 bar/ 91 psi)
275/80 R 22.5	146	600 kPa (6.0 bar/ 87 psi)	650 kPa (6.5 bar/ 94 psi)	675 kPa (6.75 bar/ 98 psi)	725 kPa (7.25 bar/ 105 psi)
295/80 R 22.5	148	575 kPa (5.75 bar/ 83 psi)	600 kPa (6.0 bar/ 87 psi)	650 kPa (6.5 bar/ 94 psi)	675 kPa (6.75 bar/ 98 psi)
295/80 R 22.5	149	550 kPa (5.5 bar/ 80 psi)	575 kPa (5.75 bar/ 83 psi)	625 kPa (6.25 bar/ 91 psi)	650 kPa (6.5 bar/ 94 psi)
305/70 R 22.5	148	575 kPa (5.75 bar/ 83 psi)	600 kPa (6.0 bar/ 87 psi)	650 kPa (6.5 bar/ 94 psi)	675 kPa (6.75 bar/ 98 psi)
305/70 R 22.5	150	550 kPa (5.5 bar/ 80 psi)	600 kPa (6.0 bar/ 87 psi)	625 kPa (6.25 bar/ 91 psi)	675 kPa (6.75 bar/ 98 psi)
315/60 R 22.5	148	600 kPa (6.0 bar/ 87 psi)	650 kPa (6.5 bar/ 94 psi)	675 kPa (6.75 bar/ 98 psi)	725 kPa (7.25 bar/ 105 psi)
315/70 R 22.5	148	575 kPa (5.75 bar/ 83 psi)	600 kPa (6.0 bar/ 87 psi)	650 kPa (6.5 bar/ 94 psi)	675 kPa (6.75 bar/ 98 psi)
315/70 R 22.5	150	550 kPa (5.5 bar/ 80 psi)	600 kPa (6.0 bar/ 87 psi)	625 kPa (6.25 bar/ 91 psi)	675 kPa (6.75 bar/ 98 psi)
315/80 R 22.5	150	525 kPa (5.25 bar/ 76 psi)	550 kPa (5.5 bar/ 80 psi)	600 kPa (6.0 bar/ 87 psi)	625 kPa (6.25 bar/ 91 psi)

Tyres	Load index	9000	9500	10000	10500
12.00 R 20	150	525 kPa (5.25 bar/ 76 psi)	550 kPa (5.5 bar/ 80 psi)	600 kPa (6.0 bar/ 87 psi)	625 kPa (6.25 bar/ 91 psi)
12.00 R 24	153	–	–	500 kPa (5.0 bar/ 72 psi)	525 kPa (5.25 bar/ 76 psi)
12.00 R 24	156	–	–	–	500 kPa (5.0 bar/ 72 psi)

The figures given for axle load values are in kg.

Tyres	Load index	11000	11500	12000	13000
11 R 22.5	145	800 kPa (8.0 bar/ 116 psi)	850 kPa (8.5 bar/ 123 psi)	–	–
12 R 22.5	148	725 kPa (7.25 bar/ 105 psi)	775 kPa (7.75 bar/ 112 psi)	800 kPa (8.0 bar/ 116 psi)	–
13 R 22.5	150	700 kPa (7.0 bar/ 102 psi)	725 kPa (7.25 bar/ 105 psi)	775 kPa (7.75 bar/ 112 psi)	850 kPa (8.5 bar/ 123 psi)
13 R 22.5	151	675 kPa (6.75 bar/ 98 psi)	700 kPa (7.0 bar/ 102 psi)	750 kPa (7.5 bar/ 109 psi)	825 kPa (8.25 bar/ 120 psi)
275/80 R 22.5	146	775 kPa (7.75 bar/ 112 psi)	825 kPa (8.25 bar/ 120 psi)	850 kPa (8.5 bar/ 123 psi)	–
295/80 R 22.5	148	725 kPa (7.25 bar/ 105 psi)	775 kPa (7.75 bar/ 112 psi)	800 kPa (8.0 bar/ 116 psi)	–
295/80 R 22.5	149	700 kPa (7.0 bar/ 102 psi)	725 kPa (7.25 bar/ 105 psi)	775 kPa (7.75 bar/ 112 psi)	850 kPa (8.5 bar/ 123 psi)
305/70 R 22.5	148	725 kPa (7.25 bar/ 105 psi)	775 kPa (7.75 bar/ 112 psi)	800 kPa (8.0 bar/ 116 psi)	–
305/70 R 22.5	150	700 kPa (7.0 bar/ 102 psi)	750 kPa (7.5 bar/ 109 psi)	800 kPa (8.0 bar/ 116 psi)	875 kPa (8.75 bar/ 127 psi)
315/60 R 22.5	148	775 kPa (7.75 bar/ 112 psi)	800 kPa (8.0 bar/ 116 psi)	850 kPa (8.5 bar/ 123 psi)	–

Tyres	Load index	11000	11500	12000	13000
315/70 R 22.5	148	725 kPa (7.25 bar/ 105 psi)	775 kPa (7.75 bar/ 112 psi)	800 kPa (8.0 bar/ 116 psi)	–
315/70 R 22.5	150	700 kPa (7.0 bar/ 102 psi)	750 kPa (7.5 bar/ 109 psi)	800 kPa (8.0 bar/ 116 psi)	875 kPa (8.75 bar/ 127 psi)
315/80 R 22.5	150	675 kPa (6.75 bar/ 98 psi)	700 kPa (7.0 bar/ 102 psi)	750 kPa (7.5 bar/ 109 psi)	825 kPa (8.25 bar/ 120 psi)
12.00 R 20	150	675 kPa (6.75 bar/ 98 psi)	700 kPa (7.0 bar/ 102 psi)	750 kPa (7.5 bar/ 109 psi)	825 kPa (8.25 bar/ 120 psi)
14.00 R 20	157	–	–	500 kPa (5.0 bar/ 72 psi)	525 kPa (5.25 bar/ 76 psi)
14.00 R 20	160	–	–	–	500 kPa (5.0 bar/ 72 psi)
12.00 R 24	153	550 kPa (5.5 bar/ 80 psi)	575 kPa (5.75 bar/ 83 psi)	625 kPa (6.25 bar/ 91 psi)	675 kPa (6.75 bar/ 98 psi)
12.00 R 24	156	550 kPa (5.5 bar/ 80 psi)	575 kPa (5.75 bar/ 83 psi)	600 kPa (6.0 bar/ 87 psi)	675 kPa (6.75 bar/ 98 psi)
325/95 R 24	160	–	500 kPa (5.0 bar/ 72 psi)	525 kPa (5.25 bar/ 76 psi)	575 kPa (5.75 bar/ 83 psi)

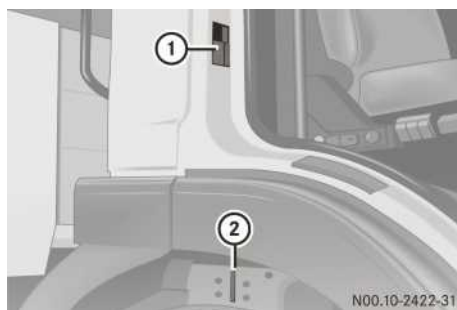
Useful information

These Operating Instructions describe all the models and standard and optional equipment of your vehicle that were available at the time of going to print. Country-specific differences are possible. Bear in mind that your vehicle may not be equipped with all the functions described. This also applies to safety-relevant systems and functions.

Read the information on qualified specialist workshops (► page 22).

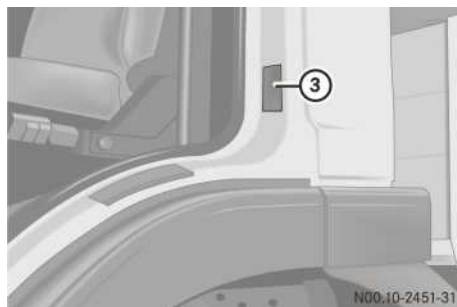
Vehicle identification plate/axle loads

Vehicle identification plate and vehicle identification number (VIN)



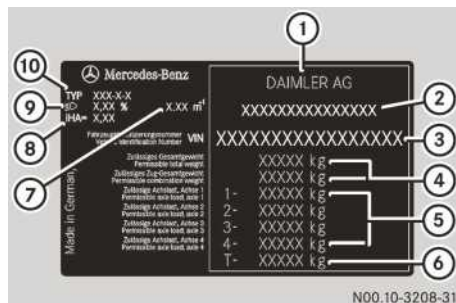
Vehicle identification plate ① is located in the door frame on the co-driver's side.

Vehicle identification number (VIN) ② is stamped on the longitudinal frame member in the right wheel housing.



Vehicle identification number (VIN) ③ is also in the door frame on the driver's side.

Information on the vehicle identification plate



Example: vehicle identification plate

- ① Vehicle manufacturer (Daimler AG)
- ② EU general operating permit number (only in certain countries)
- ③ Vehicle identification number (VIN)
- ④ Maximum permissible gross vehicle weight (kg)
Maximum permissible vehicle combination gross weight (kg)
- ⑤ Maximum permissible axle loads (kg)
- ⑥ Permissible load of axle group T (kg)
- ⑦ Flue gas coefficient
- ⑧ Axle reduction ratio
- ⑨ Basic headlamp setting
- ⑩ Type of vehicle (model series)

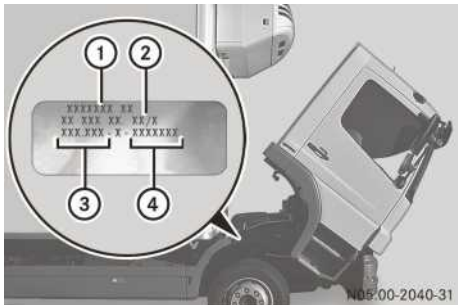
Vehicle model designation



Example: vehicle model designation

25	43	
25		Maximum gross vehicle weight in metric tonnes
	43	Engine power output in bhp (= x 10)

Engine data plate



- ① Manufacturer
- ② Engine type
- ③ Engine model series
- ④ Engine number

The engine data plate is located in the rear on the engine, on the left-hand side when viewed in the direction of travel.

Service products

Important safety notes

WARNING

Service product can be poisonous and hazardous to health. There is a risk of injury. Observe the instructions on the respective original container when using, storing and disposing off service products. Always store service products in the sealed original container. Always keep service products out of the reach of children.

- ❗ Special additives (except approved fuel additives) are neither required nor approved for use with approved service products. Additives may cause damage to major assemblies. Therefore, do not mix any additives with ser-

vice products. You are responsible for the results of using fuel additives.

Environmental note

Dispose of service products in an environmentally-responsible manner.

Service products are:

- windscreen washer concentrate
- fuels (e.g. diesel)
- lubricants (e.g. engine oil, transmission oil, hydraulic fluid, grease)
- antifreeze, coolant
- AdBlue® (BlueTec® exhaust gas aftertreatment reduction agent)

Approved service products fulfil the highest quality standards and are documented in the Mercedes-Benz Specifications for Service Products. For this reason, only use approved service products for your vehicle. Information about approved service products is available from any Mercedes-Benz Service Centre.

You can recognise service products approved by Mercedes-Benz by the following inscription on the container:

- MB-Freigabe (e.g. Freigabe 228.5)
or
- MB Approval 228.5

Other labels and recommendations relating to the quality or indicating that the product meets a certain specification are not necessarily approved by Mercedes-Benz.

You can obtain further information from any Mercedes-Benz Service Centre.

- i** You can obtain information about service products that have been tested by Mercedes-Benz and approved for your vehicle on the Internet at <http://bevo.mercedes-benz.com/>
- i** The specification and availability of lubricants may vary. Some lubricants are no longer available, especially for older vehicles. Information is available from any Mercedes-Benz Service Centre.

Hydraulic fluids

- ❗ Hydraulic fluids for the hydraulic clutch mechanism and the transmission shift system are specified on Sheet number 345.0 of the

Mercedes-Benz Specifications for Service Products and no deviation is permitted.

Do not top up with hydraulic fluids of a different quality grade or brake fluid. Doing so could cause damage to the hydraulic clutch mechanism or to the gearshift.

Observe the safety notes on service products (▷ page 266).

You do not need to renew the hydraulic fluid for the hydraulic clutch mechanism and gearshift.

Engine oils

Notes on engine oils

! Engine oils of a different quality grade are not permissible and may damage the engine.



The quality of the engine oil is decisive for the function and service life of an engine. After extensive tests, Mercedes-Benz approves engine oils that correspond to the current technical standard.

Be sure to observe the safety notes on service products (▷ page 266).

Only use engine oils that comply with the Mercedes-Benz Specifications for Service Products:

- on vehicles without BlueTec® exhaust gas aftertreatment, only use multi-grade engine oils compliant with Sheet No. 228.1/.3/.31/.5/.51 or single-grade engine oil compliant with Sheet No. 228.0/.2.
- on vehicles with BlueTec® exhaust gas aftertreatment, only use multi-grade engine oils compliant with Sheet No. 228.3/.31/.5/.51 or single-grade engine oil compliant with Sheet No. 228.2.
- with vehicles with FAME fatty acid methyl ester fuel (bio-diesel fuel), only use engine oils

compliant with Sheet No. 228.3/.5. This is also required for a mixture of conventional diesel fuels and FAME fatty acid methyl ester fuels.

Mercedes-Benz particularly recommends engine oils that comply with Sheet No. 228.5 of the Mercedes-Benz Specifications for Service Products.

These engine oils are of a high standard of quality and have a beneficial effect on:

- engine wear
- fuel consumption
- exhaust emissions

i You can get information on the quality grade, e.g. Sheet No. 228.5, and the viscosity, e.g. SAE class 5W-30 from the designation on the oil container.

Scope of use

- Multi-grade oils which comply with Sheet No. 228.1/.3/.31/.5/.51 can be used all year round. Oil change intervals may be reduced depending on the fuel grade (fuel sulphur content or FAME fatty acid methyl ester fuel).
 - Single-grade oils which comply with Sheet No. 228.0/.2 are only designed for one SAE viscosity class for specific temperature ranges. Change the engine oil to an SAE class suitable for the time of year and the respective outside temperatures.
- Vehicles with Telligent® maintenance system: set the fuel sulphur content in the on-board computer (▷ page 96).

Oil change

! If you do not use oil for all-year-round operation in your engine, change the engine oil right at the beginning of the cold season. Use only an approved engine oil in the specified SAE classification.

If the SAE class (viscosity) of the engine oil used is not suitable for continually low outside temperatures below -20 °C, this could cause engine damage.

The specified temperatures of the SAE class always refer to freshly added oil. Engine oil ages during driving due to soot and fuel residue. This impairs the characteristics of the engine oil, particularly at low outside temperatures.

Mercedes-Benz strongly recommends that, at outside temperatures below -20°C , you use engine oils of SAE class 5W-30.



Environmental note

If you operate your vehicle using FAME fatty acid methyl ester fuel (bio-diesel), special precautions must be taken and national specifications complied with when disposing of engine oils. Information is available from any Mercedes-Benz Service Centre.

Oil change intervals are dependent on the following:

- the operating conditions of the vehicle
- the grade of the engine oil used
- the fuel type, e.g. FAME fatty acid methyl ester fuel

On vehicles with the Telligent® maintenance system, the display automatically shows the date of the next oil change.

- ▶ Select the SAE class of engine oil in accordance with outside temperatures.
- ▶ Set the SAE viscosity class and Sheet No. (quality grade) of the engine oil in the on-board computer (▷ page 96).

i You can only achieve the maximum oil change intervals by using engine oils of particularly high quality (e.g. in accordance with Sheet No. 228.5 of the Mercedes-Benz Specifications for Service Products).

Adding/topping up the engine oil

! There is a risk of damage to the catalytic converter or to the engine if too much oil is added. Have excess oil drained off.

When topping up, Mercedes-Benz recommends that you only use engine oil of the same grade and SAE class as the oil filled at the last oil change.

Check the oil level in the on-board computer (▷ page 94) before you top up the oil.

You will find more information on topping up the engine oil in the "Maintenance" section (▷ page 214).

Miscibility of engine oils

The benefits of high-quality engine oils are diminished if you mix them.

Engine oils are differentiated according to:

- engine oil brand
- quality grade (Sheet No.)
- SAE viscosity class

If, in exceptional circumstances, the type of engine oil currently used in the engine is not available, another engine oil approved for Mercedes-Benz may be used.

Setting the oil grade (vehicles with Telligent® maintenance system)

! If the on-board computer shows the  symbol and you top up with the quantity of oil displayed in the on-board computer, note the following:

- If you top up with an engine oil of a lower quality, set the lower quality (Sheet no.) in the on-board computer.
 - If you top up with an engine oil of a higher quality, do not set the higher quality (Sheet no.) in the on-board computer.
- ▶ Set the Sheet No. (quality grade) of the engine oil in the on-board computer (▷ page 96).

Transmission oils

General notes

Observe the safety notes on service products (▷ page 266).

Depending on the vehicle version, the following assemblies may be filled with a high quality synthetic oil at the factory:

- drive axles
- transmission
- transfer case

! If you replace the synthetic oil in these assemblies with a mineral transmission oil, you may damage the assemblies. Before the oil change, check whether the use of a mineral transmission oil is permitted. Information is available from any Mercedes-Benz Service Centre.

Transmission oil grade

Vehicles with the Telligent® maintenance system: the quality grade of the transmission oil used can be checked and changed in the on-board computer (▷ page 96).

Coolant

Coolant additive with antifreeze properties

WARNING

If antifreeze comes into contact with hot components in the engine compartment, it may ignite. There is a risk of fire and injury.

Let the engine cool down before you top up the antifreeze. Make sure that antifreeze is not spilled next to the filler neck. Thoroughly clean the antifreeze from components before starting the engine.

Observe the safety notes on service products (▷ page 266).

A coolant that ensures anti-corrosion/antifreeze protection and other important protective effects is added at the factory.

Use only coolants specified in Sheet No. 325.5, e.g. Glyscan® G40®.

The coolant is a mixture of water and corrosion inhibitor/antifreeze.

The corrosion inhibitor/antifreeze in the coolant has the following properties:

- heat transfer
- anti-corrosion protection
- cavitation protection (protection against pitting)
- antifreeze protection
- raising the boiling point

Leave the coolant in the engine cooling system all year round – even in countries with high outside temperatures.

Check the corrosion inhibitor/antifreeze concentration in the coolant every six months.

Use only approved antifreeze/corrosion inhibitor according to Sheet No. 325.5. This prevents damage to the engine cooling system and engine.

When renewing the coolant, ensure that it contains 50% antifreeze/corrosion inhibitor by volume. This corresponds to antifreeze protection down to -37 °C.

Do not exceed 55% by volume (antifreeze down to approximately -45 °C). The heat dissipation and antifreeze may otherwise be negatively affected.

If there is a loss of coolant, do not top it up by using only water, also add an approved corrosion inhibitor/antifreeze agent.

The water in the coolant must meet certain requirements which are often met by drinking water. The water must be treated if its quality does not meet the required standards.

Observe the Mercedes-Benz Specifications for Service Products, Sheet No. 325.5.

Further information about operational and road safety can be obtained from any Mercedes-Benz Service Centre.

Coolant additive without antifreeze properties

If your vehicle does not need antifreeze protection, e.g. in countries with consistently high outside temperatures, you can, as an exception, use a coolant additive.

Instead of corrosion inhibitor/antifreeze additive, add a coolant additive compliant with Sheet Number 312.0 of the Mercedes-Benz Specifications for Service Products to the water.

Improvers (corrosion-inhibiting oils) are not permitted.

Renew the coolant annually.

Further information concerning the requisite water quality and approved coolant additives without antifreeze properties is available at every Mercedes-Benz Service Centre.

Refrigerant

Important safety notes

Your vehicle's climate control system is filled with R-134a refrigerant and contains fluorinated greenhouse gas.

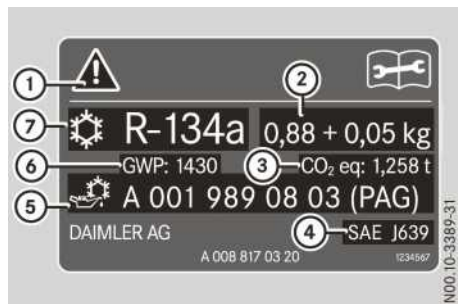
The instruction label regarding the refrigerant type used can be found behind the maintenance flap.

! Only the refrigerant R-134a and the PAG oil approved by Mercedes-Benz may be used. The approved PAG oil may not be mixed with any other PAG oil that is not approved for R-134a refrigerant. The climate control system may otherwise be damaged.

Maintenance work such as refilling refrigerant or replacing components may only be carried out at a qualified specialist workshop. All applicable regulations as well as SAE standard J639 must be adhered to.

Always have all work on the climate control system carried out at a qualified specialist workshop.

Refrigerant instruction label



Example: refrigerant instruction label

- ① Symbols for hazard and service information
- ② Refrigerant filling capacity
- ③ CO₂ equivalent of the refrigerant used
- ④ Applicable standards
- ⑤ PAG oil part number
- ⑥ GWP (global warming potential) of the refrigerant used
- ⑦ Refrigerant type

Symbols ① advise you about:

- possible dangers
- having service work carried out at a qualified specialist workshop

Diesel fuels

Important safety notes

WARNING

Fuel is highly flammable. Improper handling of fuel creates a risk of fire and explosion.

Avoid fire, naked flames, smoking and creating sparks under all circumstances. Switch off the engine and, if applicable, the auxiliary heating before refuelling.

! A higher fuel sulphur content accelerates the ageing process of the engine oil and can damage the engine and exhaust system.

! Vehicles without BlueTec® exhaust gas aftertreatment:

Only commercially available fuels which conform to the European standard EN 590 or equivalent national fuel standards are permitted. Mercedes-Benz recommends fuels with a low fuel sulphur content. The use of fuels with a high fuel sulphur content reduces the life expectancy of the engine and exhaust system.

! Vehicles with BlueTec® exhaust gas aftertreatment:

Only standardised fuels with a maximum sulphur content of 0.05% (500 ppm) by weight are permissible. However, Mercedes-Benz only recommends fuel that complies with the European standard EN 590 as of 2005, et seq. (max. 0.005% (50 ppm) sulphur by weight). The use of fuels with a sulphur content higher than 0.005% (50 ppm) by weight reduces the life expectancy of the engine and exhaust system.

When handling fuel, observe the "Important safety notes" section (▷ page 266).

Fuel grade

Before delivery, the fuel sulphur content is set to the standards of the country in which the vehicle is to be sold. If you fill the vehicle using a fuel with a different fuel sulphur content, adjust the fuel sulphur content using the on-board computer (▷ page 91).

Information regarding the current country-specific sulphur content of fuel can be obtained from any Mercedes-Benz Service Centre or found on Sheet No. 136.1/2.

Certain countries have diesel fuel with varying sulphur content. Diesel fuel with low sulphur content is sold in certain countries under the name "Euro diesel".

i If you do not know the sulphur content of the diesel fuel you are using, select the least

favourable sulphur content in the on-board computer.

Diesel fuels at low temperatures

WARNING

If you heat fuel system components, e.g. with a hot-air gun or naked flame, these components could be damaged. This can cause fuel to escape and ignite. Depending on the type of damage, fuel may also not escape until the engine is running. There is a risk of fire and explosion.

Never heat fuel system components. Contact a qualified specialist workshop to rectify the malfunction.

! Do not add any petrol or kerosene to diesel fuel to improve its flow characteristics. Petrol or kerosene impairs the lubricity of the diesel fuel. This can cause damage to the injection system, for example.

At low outside temperatures, paraffin separation may cause the flow properties of the diesel fuel to be insufficient.

To prevent operating problems, diesel fuel with improved flow properties is available in the winter months.

Winter diesel fuels are reliable down to outside temperatures of -22 °C in Germany and other Central European countries. You can normally use winter diesel fuel without problems at the outside temperatures expected in the country where it is on sale.

The vehicle may be equipped with a fuel preheating system. The fuel preheating system can warm up the fuel by approximately 8 °C. This improves the flow characteristics of the fuel.

Fatty acid methyl ester (FAME) fuel (bio-diesel)

General notes

Observe the safety notes on service products (▷ page 266).

Operate your vehicle using pure FAME fatty acid methyl ester fuel in compliance with DIN EN 14214. You can also operate your vehicle using a mixture of conventional diesel fuel

and FAME fatty acid methyl ester fuel. This also applies to vehicles with BlueTec® exhaust gas aftertreatment.

Observe the specifications in accordance with Sheet no. 135 of the Mercedes-Benz Specifications for Service Products for operation with FAME fatty acid methyl ester fuel.

Operating the vehicle with FAME fatty acid methyl ester fuel results in:

- a slightly higher fuel consumption
- a slightly reduced engine power output
- more white smoke than usual after a cold start

! To avoid damage to the assemblies and components, observe the following points when using FAME fatty acid methyl ester fuel:

- Have the fuel filter and the oil filter replaced approximately 1,000 km after switching to FAME fatty acid methyl ester fuel.
- Have the oil filter and the fuel filter replaced at every oil change.
- The oil will have to be changed and the oil filter replaced much more frequently.
- FAME fatty acid methyl ester fuel shortens the service life of conventional fuel filters. Mercedes-Benz recommends fitting a special fuel prefilter. Information about this is available at any qualified specialist workshop.
- If you operate your vehicle using FAME fatty acid methyl ester fuel, adjust the fuel grade in the on-board computer. If you operate your vehicle using a mixture of conventional diesel fuel and FAME fatty acid methyl ester, adjust the fuel grade in the on-board computer. Otherwise, there is a danger of engine damage.
- Only add FAME fatty acid methyl ester fuel in compliance with DIN EN 14214. Fuel additives or fuels that do not comply with DIN EN 14214 may cause malfunctions or engine damage.
- FAME fatty acid methyl ester fuel corrodes painted surfaces. Do not allow FAME fatty acid methyl ester fuel to come into contact with the paintwork. Rinse off FAME fatty acid methyl ester fuel with water immediately.
- Only use engine oils which comply with Sheet no. 228.5 or 228.3 of the Mercedes-Benz Specifications for Service Products.

- If the vehicle is not used for long periods of time, FAME fatty acid methyl ester fuel can clog fuel system components. For this reason, use up all of the FAME fatty acid methyl ester fuel before the vehicle is parked up for an extended period. Fill up the fuel tank with conventional diesel fuel. Before parking up the vehicle, allow the engine to idle for at least 1 hour.
- Mercedes-Benz recommends that you do not use FAME fatty acid methyl ester fuel in vehicles which are out of use for long periods, e.g. fire engines.
- The auxiliary heating may only be operated with conventional diesel fuel. Malfunctions may otherwise occur. Do not add more than 7% FAME fatty acid methyl ester fuel to the conventional diesel fuel.

An additional fuel tank for conventional diesel fuel is required for the auxiliary heating system, if you operate the vehicle:

- using FAME fatty acid methyl ester fuel
- using a mixture of conventional diesel fuel and more than 7% FAME fatty acid methyl ester fuel.

- Set the fuel grade in the on-board computer (> page 96).



Environmental note

If the vehicle runs on FAME fatty acid methyl ester fuel, ask your disposal plant whether you have to collect the engine oil separately. Not all manufacturers of refined products (lubricant manufactured from used engine oil) can process engine oil which has been enriched with FAME fatty acid methyl ester fuel.

Observe the special notes and national regulations when disposing of engine oils. Information about this is available at any qualified specialist workshop, e.g. any Mercedes-Benz or MTU Service Centre.

Low outside temperatures

FAME fatty acid methyl ester fuel compliant with DIN EN 14214 can be used reliably at outside temperatures down to -20 °C.

The vehicle is equipped with a fuel preheating system. This improves the flow of the FAME fatty acid methyl ester fuel by an additional 8 °C.

AdBlue®

AdBlue® notes

- ❗ Only use AdBlue®/DEF in accordance with DIN 70070/ISO 22241. Do not use any additives.

If AdBlue®/DEF comes into contact with painted or aluminium surfaces when filling the tank, rinse the affected area immediately with plenty of water.

- ❗ AdBlue® is not a fuel additive and must not be added to the fuel tank. If AdBlue® is added to the fuel tank, this can lead to engine damage.

Observe the safety notes on service products (> page 266).

AdBlue® is a non-flammable, non-toxic, colourless, odourless and water-soluble liquid.

High outside temperatures

If you open the AdBlue® tank cap, small amounts of ammonia vapour may be released. Ammonia vapours have a pungent smell and are particularly irritating to:

- skin
- mucous membranes
- eyes

The vapours may cause a burning sensation in the eyes, nose and throat as well as irritation of the throat and watering eyes. Avoid inhaling ammonia vapours. Only fill the AdBlue® tank in well-ventilated areas.

The chemical composition of AdBlue® can break down if it heats up to 50 °C over a long period of time (e.g. as a result of direct sunlight on the tank). This creates ammonia vapour.

Low outside temperatures

AdBlue® freezes at temperatures of approximately -11 °C. Depending on equipment and country, the vehicle may be equipped with an AdBlue® preheating system. Winter operation is also ensured for temperatures below -11 °C.

At low temperatures, AdBlue® crystals may form on the coiled hose between the engine and the silencer. This crystallisation does not pose a risk to the correct operation of BlueTec® exhaust gas aftertreatment. The AdBlue® crystals can be

removed with a sponge and clean water if necessary.

Additives, tap water

! Do not mix additives to AdBlue®. Do not thin AdBlue® with tap water. This could destroy the BlueTec® exhaust gas aftertreatment system.

Storage

! Containers made of the following materials are not suitable for the storage of AdBlue® / DEF:

- aluminium
- copper
- copper alloys
- unalloyed steel
- galvanised steel

If AdBlue® is stored in these types of container, constituents of these metals may dissolve and damage the BlueTec® exhaust gas aftertreatment beyond repair.

Only use containers made of the following materials to store AdBlue®:

- Cr-Ni steels in accordance with DIN EN 10 088-1/2/3
- Mo-Cr-Ni steels in accordance with DIN EN 10 088-1/2/3

- Polypropylene
- Polyethylene

Disposal

Environmental note

Dispose of AdBlue® in an environmentally responsible manner.

Observe the relevant national laws and regulations when disposing of AdBlue®.

Purity

! Impurities in AdBlue®, e.g. due to other service products, cleaning products or dust, may lead to:

- increased emission values
- damage to the catalytic converter
- engine damage
- malfunctions in the BlueTec® exhaust gas aftertreatment

Ensure that AdBlue® is always pure to avoid malfunctions in BlueTec® exhaust gas aftertreatment.

If AdBlue® is pumped from the AdBlue® tank, e.g. during repairs, do not use this fluid to refill the tank. Otherwise the purity of the fluid would no longer be guaranteed.

Operating data

Compressed-air system

Service brake	Approximately 10.0 bar
Brake circuit 1	Minimum 6.8 bar
Brake circuit 2	Minimum 6.8 bar
Brake circuit on trailer/semitrailer	Minimum 5.5 bar
Pressure regulator (activation/deactivation pressure)	Approximately 9.3/10.6 bar
Constant-pressure system (activation/deactivation pressure)	Approximately 9.8/12.6 bar
Spring-loaded brake release circuit	Minimum 5.5 bar
External compressed-air source (charging the compressed-air system)	Maximum 10.0 bar

Gearshift	Minimum 7.0 bar
Auxiliary consumers	Minimum 5.5 bar

Engine	
Engine speed limiter (transmission in neutral)	Approximately 1800 rpm
Engine speed limiter (emergency running mode)	Approximately 1300 rpm
Idling speed	Approximately 600 rpm
Minimum engine operating speed	Approximately 600 rpm
Engine brake (Axor operating range from 260 kW)	1500-2500 rpm
Engine brake (Axor operating range up to 240 kW)	1800 – 2700 rpm
Oil pressure (at idling speed)	Minimum 0.5 bar
Oil pressure (at rated engine speed)	Minimum 2.5 bar
Rated engine speed (Axor from 260 kW)	Approximately 1900 rpm
Rated engine speed (Axor up to 240 kW)	Approx. 2200 rpm

Operating temperature	
Normal operation	Approximately 80 – 95 °C
Arduous operation (automatically reduced engine power output)	From approximately 105 °C
Maximum permissible coolant temperature	110 °C

Tyre pressures	
Tyre pressure table for single tyres	(▷ page 257)
Tyre pressure table for twin tyres	(▷ page 262)
Permissible difference in pressure between tyres on an axle	20 kPa (0.2 bar, 3 psi)
Maximum permissible air pressure for inflating tyres	1000 kPa (10.0 bar / 145 psi)

Wheel nut tightening torques

Alloy wheels	600 Nm
Steel wheels, hub centring by wheel hub	600 Nm
Steel wheels, centring by spherical spring washers and wheel bolts	450 Nm
Wheel nut caps	60 Nm
Trilex® rim to wheel rim or wheel spider (clamping plate connection)	400 Nm
Wheel rim to wheel hub	600 Nm

Spring-loaded cylinder

Release torque of the spring-loaded parking brake cylinder release screw	Maximum 70 Nm
Tightening torque of the spring-loaded parking brake cylinder release screw	Maximum 35 Nm
Release pressure (supply pressure in compressed-air system)	Minimum 8.0 bar
Release pressure (with external source of compressed air)	Minimum 9.0 bar

NR (Telligent® level control)

Filling the pneumatic suspension via the tyre inflator connection or front coupling head	Minimum 10.3 bar
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Steering play

Maximum permissible steering play (measured at the rim of the steering wheel with the engine running)	30 mm
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Compressed-air reservoir**Information on the compressed-air reservoir**

For the initial purchaser and other users
Accompanying documentation in accordance with Directives 87/404/EEC and EN 286-2
The reservoir is:

- a – only intended for use in compressed-air systems and auxiliary equipment on motor vehicles and their trailers, and is only to be used to hold compressed air.
- b – to be marked for identification with a works number and the reservoir manufacturer's

name, together with the principal operating data and the EC mark; see the identification plate or engravings directly on the reservoir wall.

- c – to be manufactured with a "Declaration of conformity" in accordance with Article 12 of Directive 87/404/EEC.
- d – to be secured to the vehicle by retaining straps (clamps).

In the case of aluminium reservoirs, contact surfaces must be designed to inhibit corrosion or mechanical damage. Securing straps are to be positioned in such a way that they do not come in contact with the base connecting seams; the reservoir is not

to be subjected to any stress that would jeopardise operating safety.

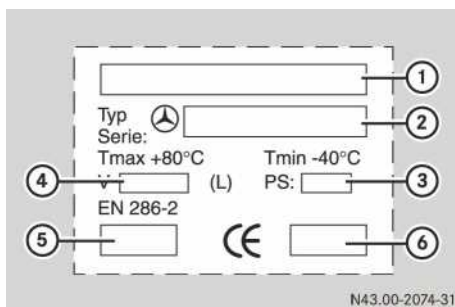
Coatings applied to aluminium reservoirs must not contain lead, and the top coat of paint must only be applied over a suitable primer coat. Steel threaded connections for aluminium reservoirs must have a corrosion-proof coating.

- only to be cleaned using non-alkaline cleaning agents (aluminium reservoirs).
 - to have the interior visible through the threaded connections.
 - to be emptied at regular intervals to prevent the accumulation of condensation (pull ring on drain plug at the lowest point of the reservoir).
- e – to require no maintenance if Item d is complied with.
- f – no welding, heat treatment or other operation relevant to safety is to be performed on the pressure-bearing walls of the reservoir (casing, base, ring nuts).
- g – the internal supply pressure may exceed maximum operating pressure P_s by not more than 10 % for a brief period.

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- ⑤ Testing establishment code number
- ⑥ Year of construction

Steel reservoir

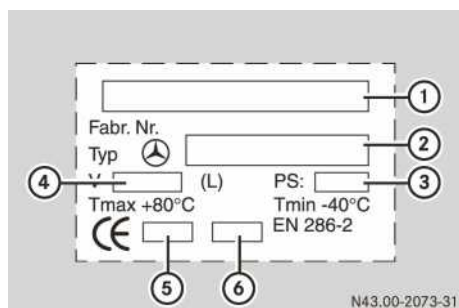


Example: identification plate on the steel reservoir

- ① Manufacturer:
L&S (Germany)
Elesfr. (France)
- ② MB part number
- ③ Maximum operating pressure (bar)
- ④ Volume (litres)
- ⑤ Year of construction
- ⑥ Testing establishment code number

Compressed-air reservoir identification plates

Aluminium reservoir



Example: identification plate on the aluminium reservoir

- ① Manufacturer: SAG (Austria)
- ② MB part number
- ③ Maximum operating pressure (bar)
- ④ Volume (litres)

Legal information

Internet

Further information about Mercedes-Benz vehicles and about Daimler AG can be found on the following websites:

<http://www.mercedes-benz.com>

<http://www.daimler.com>

Editorial office

You are welcome to forward any queries or suggestions you may have regarding these Operating Instructions to:

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Vehicle manufacturer

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