



Towing - Recovery Atego

Mercedes-Benz



Towing – Recovery

Atego

Guidelines for Breakdown Services

2009 Edition

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If you have any questions or problems in connection with the towing or recovery of Atego vehicles, please contact:

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Safety and liability information

The aim of these guidelines is to provide roadside assistance and towing personnel with the instructions and information necessary in order to remove the vehicle from the scene of the breakdown or accident within 30 minutes whenever possible.

These guidelines assume that the reader understands and complies with the pertinent accident prevention regulations, any relevant professional guidelines for vehicle ownership or recovery and towing company association regulations, and the road traffic regulations of the country in question.

The instructions in these guidelines, in particular those pertaining to vehicle recovery, are intended exclusively for experienced recovery specialists and are left to the discretion of the user.

Compensation and/or warranty claims arising from towing or recovery measures will not be accepted by Daimler AG.

Risk of accident



All vehicles that have been towed or recovered from a breakdown must be examined for technical condition and checked for damage at a qualified workshop which possesses all the expertise and tools required to properly perform the necessary work.

Mercedes-Benz recommends a Mercedes-Benz service center for this work. It is absolutely essential that all safety-relevant work and all work on safety-relevant systems is performed by a qualified specialist workshop.

Pay attention to the notes in the chapter "Recovery", see page 8.

Risk of accident



Tampering with electronic components and their software can cause them to stop functioning. The electronic systems are networked together by interfaces. In some cases, interfering with these electronic systems can also cause malfunctions in systems that were not directly affected. Such malfunctions can put the operational safety of your vehicle, and thus your own personal safety, at considerable risk.

Other improperly performed work or modifications to the vehicle can also jeopardize operational safety.

Some safety systems operate only when the engine is running. For this reason, do not switch the engine off while driving.

Conventions



Warning



Environmental warning



Potential damage



Tip



Instruction

Displays On-screen display

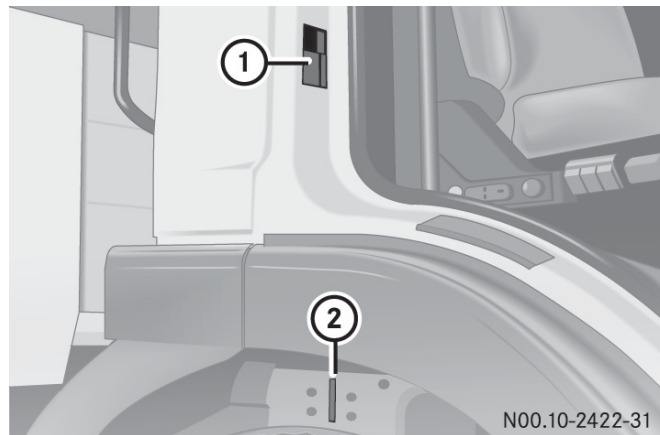
Vehicle model designation

12	24	
12		Permissible gross vehicle weight in tonnes
	24	Engine output in hp (x 10)

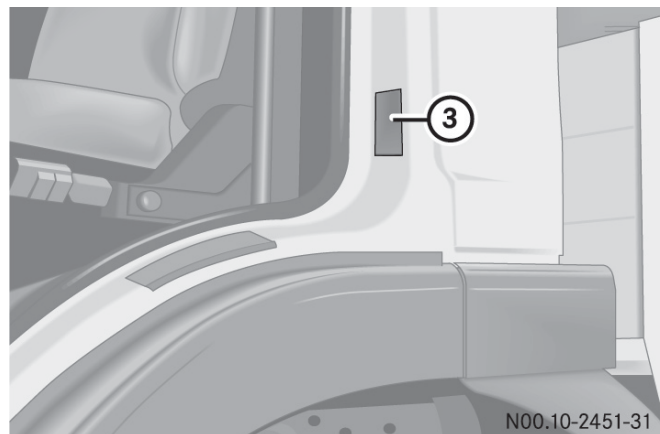


Location of vehicle model plate/vehicle identification number

①	Model plate (example)
②	Vehicle identification number on right longitudinal frame member



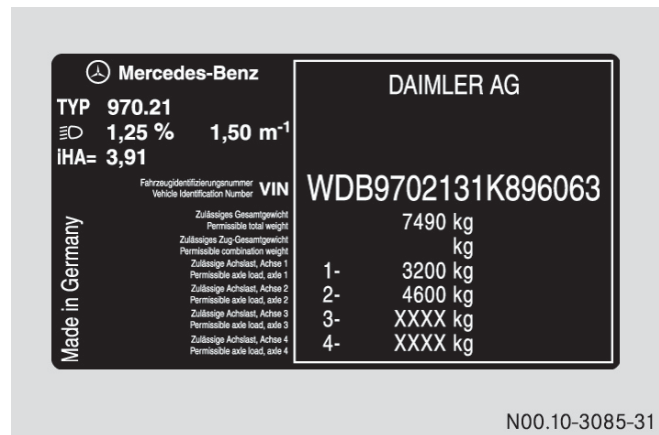
③	Vehicle identification number (example)
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Vehicle identification

Data on the vehicle model plate

- Vehicle model
- Headlamp basic setting
- Smoke index
- Rear axle ratio
- Vehicle identification number (VIN)
- Permissible gross vehicle weight
- Permissible axle loads



(example)

Key to vehicle identification number

Vehicle identification number (VIN)					
WDB	970.213	1	K	896063	
WDB					Vehicle manufacturer
970.213					Vehicle model designation (see below)
			1	Steering (1 = left-hand drive vehicles, 2 = right-hand drive vehicles)	
			K	Code letter or code number of manufacturing plant	
			896063	Vehicle identification end number	

970	.2	1	
970	Model designation/vehicle version 970 = Platform vehicle 972 = Dumper vehicle 974 = Semitrailer tractor 975 = Municipal vehicle 976 = Fire-fighting vehicle		
	.2	Suspension/drive configuration (abbreviation) 0 = Steel suspension 2 = Air suspension 3 = Steel suspension/all-wheel drive	
		1	Tonnage (abbreviation)

4 x 2	
4	Number of wheels or wheel pairs
x2	Number of driven wheels or wheel pairs

Instrument panel

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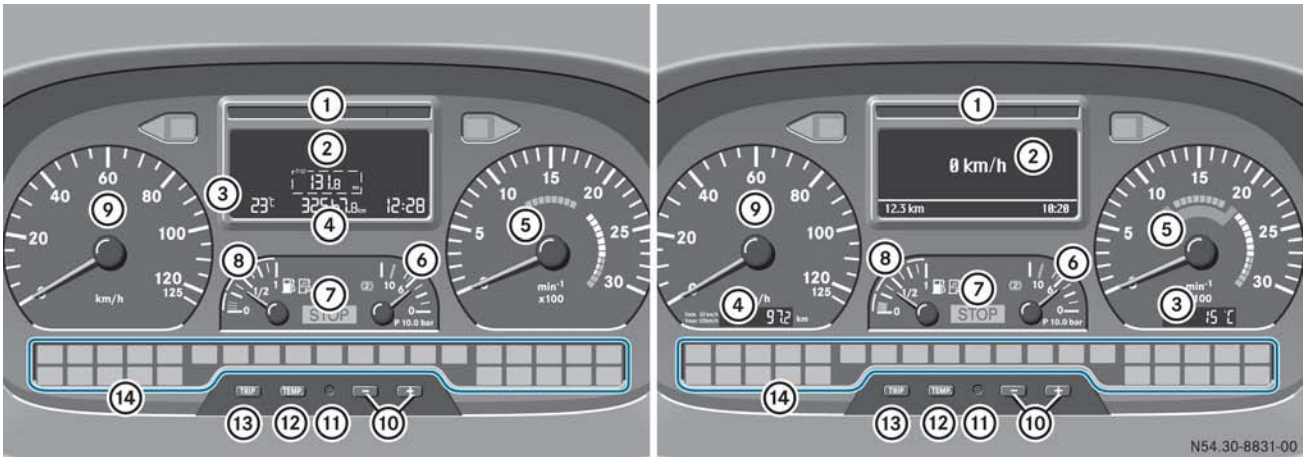
Tilting the cab



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Engine

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Overview



Standard onboard computer	The Standard and Plus onboard computers can be distinguished by the symbols on the control pad. Vehicles with Plus onboard computer have an additional display in the tachometer (outside/coolant temperature display ③) and a display in the speedometer (total mileage ④).	Plus onboard computer
		

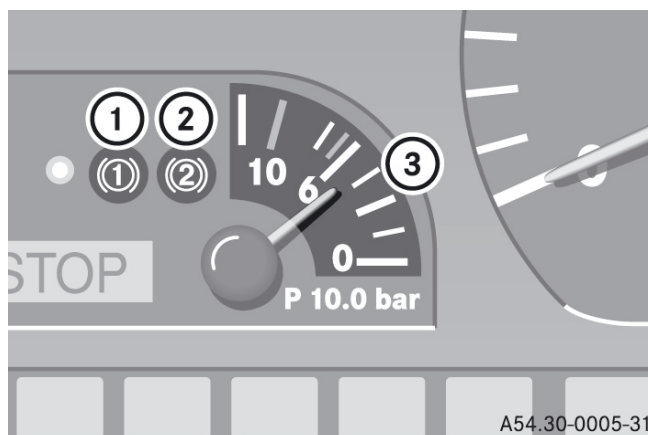
①	Status indicator (see page 28)	⑧	Fuel/AdBlue [®] level gauge (see page 14)
②	Display Vehicles with <ul style="list-style-type: none"> • Standard onboard computer (see page 16) • Plus onboard computer (see page 20) 	⑨	Speedometer
		⑩	Instrument illumination <ul style="list-style-type: none"> •  brighter •  darker
③	Outside/coolant temperature display	⑪	Reset button
④	Total mileage	⑫	Selector button for outside/coolant temperature display
⑤	Tachometer	⑬	TRIP button for resetting trip mileage and for trip data or trip computer
⑥	Reservoir pressure gauge for brake circuit 1 or 2 (see page 12)	⑭	Indicator lamps (see page 43)
⑦	STOP lamp (see page 29)		

Instrument panel

Reservoir pressure gauge for brake circuit 1 or 2

①	Brake circuit 1 indicator lamp
②	Brake circuit 2 indicator lamp
③	Reservoir pressure gauge for brake circuit 1 or 2

► Turn vehicle key in steering lock to drive position. The brake circuit with the lowest reservoir pressure is displayed automatically by the appropriate indicator lamp ① or ②. The gauge ③ shows the pressure in this brake circuit.



i

Vehicles with Plus onboard computer:


The reservoir pressure of both brake circuits can be shown in the display. To do this, call up menu Check Info > Reservoir Pressure (see page 25).

Risk of accident



Leaks in the compressed air brake system put the operational safety of the vehicle at risk. If the reservoir pressure in the compressed air brake system is too low, it is not possible to brake the vehicle. This could make you cause an accident with possible injury to yourself and others.

Do not set the vehicle in motion until the reservoir pressures have been reached and the STOP lamp has gone out.

If the display shows , do not start to move the vehicle or, if moving, stop it as quickly as possible taking into account the traffic situation. In addition, the segments of the status indicator light up red and the STOP lamp does not go out.

Have the brake system checked and repaired as quickly as possible at a qualified specialist workshop possessing the required expertise and tools in order to perform the necessary work.

Mercedes-Benz recommends a Mercedes-Benz service center for this work. It is absolutely essential that all safety-relevant work and all work on safety-relevant systems is performed by a qualified specialist workshop.

The necessary reservoir pressure for the service brake is 10 bar (constant pressure system).

The ancillary consumer circuit is filled only after brake circuits 1 and 2 have been filled.

The operational safety of the vehicle requires an adequate reservoir pressure in brake circuits 1 and 2 (10 bar) and in the ancillary consumer circuit (8.5 bar).

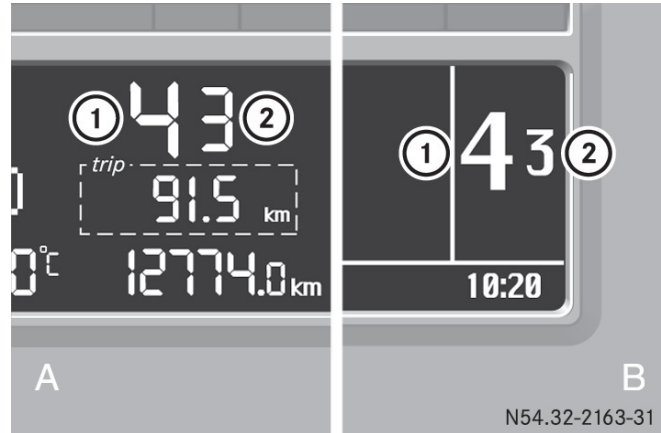
Gear indicator

Telligent® automatic gearshift system

A	Standard onboard computer
B	Plus onboard computer
①	Engaged: 4th gear
②	Recommended or preselected: 3rd gear

The display shows the engaged gear ① and the recommended or preselected gear ②.

1-6	1st to 6th gear
N	Transmission neutral
R	Reverse gear

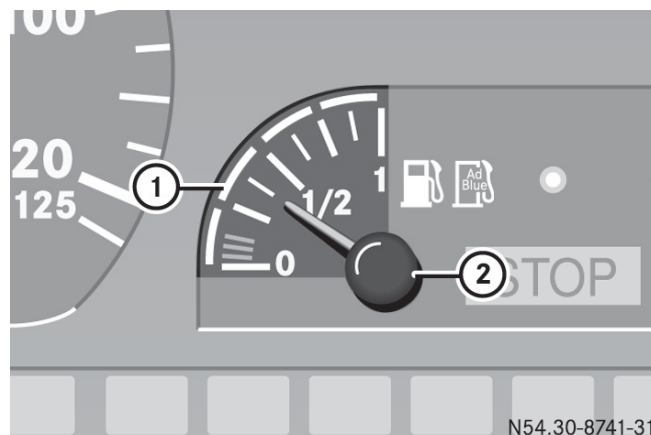


Instrument panel


Fuel/AdBlue® level gauge

①	AdBlue® level gauge
②	Fuel level gauge

- ▶ Turn vehicle key in steering lock to drive position.
- ▶ Check level on fuel/AdBlue® level gauge and top up if necessary.
- ▶ Switch off the engine and the auxiliary heater before filling the reservoir.



Fuel reserve indicator


When the content of the fuel tank has dropped to about 14%, the display shows . At the same time the segments of the status indicator light up yellow.

AdBlue® level gauge

The AdBlue® level gauge ① provides only a rough indication of the AdBlue® supply. The AdBlue® level is indicated by 4 blue segments in the Instrument.



①

The current AdBlue® level in liters can be called up on the display of the Standard onboard computer (see page 18) or the Plus onboard computer (see page 25).

If the AdBlue® reservoir is empty or there is a malfunction in the BlueTec® exhaust aftertreatment system, the indicator lamp  lights up. A display message also appears. In this case the vehicle must be refueled with AdBlue® or the fault must be rectified immediately.

1 segment	AdBlue® level between reserve and tank 1/4 full
2 segments	AdBlue® level between tank 1/4 and 1/2 full
3 segments	AdBlue® level between tank 1/2 and 3/4 full
4 segments	AdBlue® level between tank 3/4 full and tank full

AdBlue® level at reserve

Segments	All segments are off
Display	Standard onboard computer:  RES Plus onboard computer:  Refuel AdBlue
Indicator lamp	-



If the AdBlue® supply is exhausted or there is a malfunction, the engine power may be significantly reduced the first time the vehicle comes to a standstill.¹

¹ The engine power is not reduced in emergency vehicles.

AdBlue® supply exhausted	
Segments	All segments are off
Display	Standard onboard computer: 0 1
	Plus onboard computer: Refuel AdBlue
Indicator lamp	

Instrument panel

Standard onboard computer

Design and operation

The Standard onboard computer is activated as soon as you turn the vehicle key in the steering lock to the drive position. The Standard onboard computer allows you to call up information about your vehicle and to make and change various settings.





Risk of accident

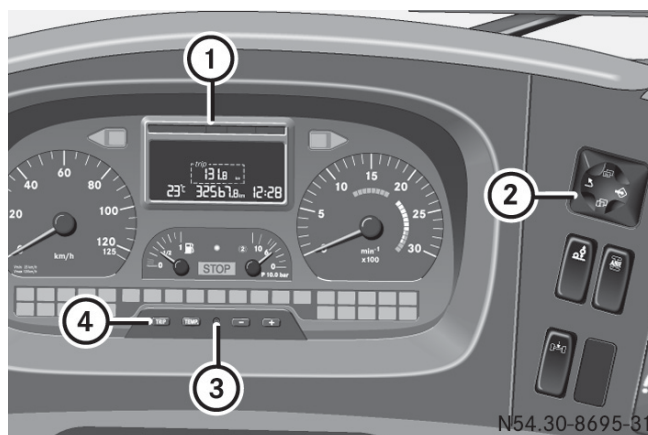


Operating the onboard computer while driving can distract your attention away from what is happening on the road. You could lose control of the vehicle and cause an accident.

For this reason, only operate the onboard computer when the vehicle is stationary with the parking brake applied.

Buttons and display

①	Display
②	Control pad  Back  Page up/down  Info  Settings
③	Reset button
④	TRIP button



The control pad ② and the buttons ③ and ④ on the instrument panel are used to operate the Standard onboard computer e.g. to call up displays or to change settings.

Display check

- ▶ Turn vehicle key in steering lock to drive position.

During the display check

- the warning buzzer sounds for about 1 second
- the segments of the status indicator light up yellow
- all the indicator lamps in the instrument panel light up for about 2 seconds
- the ABS equipment is checked

When the display check is complete, the default display appears.



If ABS equipment is detected, the display shows the ABS equipment for about 3 seconds after the display check.

Default display

①	Outside/coolant temperature display
②	Main odometer
③	Trip odometer
④	Time



The TRIP button can be used to change between the trip mileage display and the trip data in the instrument panel.

❗

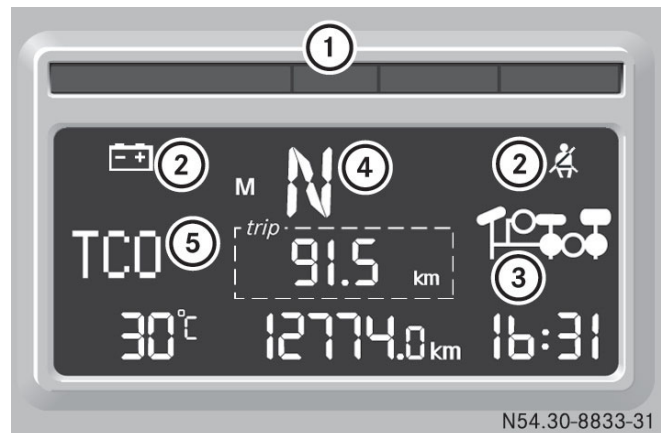
If the Standard onboard computer detects malfunctions in the system, the messages appear in sequence on the display and the segments of the status indicator lights up yellow or red, see page 27.

Confirming display messages, see page 28.

Display fields

The display fields are actuated according to the installed equipment or the activated functions.

①	Status indicator
②	Fault symbol fields
③	Operating display for differential locks and PTOs
④	Gear indicator
⑤	System abbreviations



Status indicator

The segments of the status indicator ① light up yellow or red to distinguish display messages according to their priority rating. Display message with yellow/red status indicator, see page 27.

System abbreviation or fault symbol

When a display message is shown on the Standard onboard computer, the display field shows the system abbreviation ⑤ of the affected control unit or a fault symbol, e.g. if the coolant temperature is excessively high. System abbreviations, see page 42.

Instrument panel

Menus in detail



The number and sequence of the menus depend on the vehicle model and the vehicle equipment. The values given are examples.

Risk of accident



















Operating the onboard computer while driving can distract your attention away from what is happening on the road. You could lose control of the vehicle and cause an accident.

For this reason, only operate the onboard computer when the vehicle is stationary with the parking brake applied.

Menu overview

Menu structure					
					Description
Default display					If the control pad is not pressed within a period of 15 minutes after a menu is called up, the default display reappears.
AdBlue		Fuel level			The Standard onboard computer displays the AdBlue [®] and fuel levels in liters and percent.
56% 28 l		19% 66 l			
Engine oil level: OEL ok or OIL ok or 2.5 l		Engine operating hours: MTBS 192 h or HRS 192 h			Check engine oil level with engine at operating temperature about 1 minute after switching off the engine. Top up engine oil if necessary.

Menu structure					
					Description
Total axle load: GES 23.5t or SUM 23.5t		Axle load: VA 7.5t or FA 7.5t		... other axle loads: Axle load HA 1 or RA 1 Axle load HA 2 or RA 2	The front axle (VA/FA) or rear axle (HA/RA) indicated flashes in the display. The axle load display is not a calibrated system and cannot be used for official purposes.
					
Condensation: 		Condensation: reset	Reset button	Condensation: ok	The menu only appears in conjunction with a relevant display message, (see page 31). In some cases the condensation message can be reset by pressing the Reset button.
					
Diagnosis 1: FR 0004 463902		Display message 1: FR 0406 E01		... other display messages	After the last display message the fault memory can be erased with the Reset button. Display messages, see page 27.
					
Diagnosis.. ...		Display message ...		... other display messages	Other control units are displayed with the associated system abbreviations, see page 42.

Instrument panel

Plus onboard computer

Design and operation

The Plus onboard computer is activated as soon as you turn the vehicle key in the steering lock to the drive position. The Plus onboard computer allows you to call up information about your vehicle and to make and change various settings.

Risk of accident

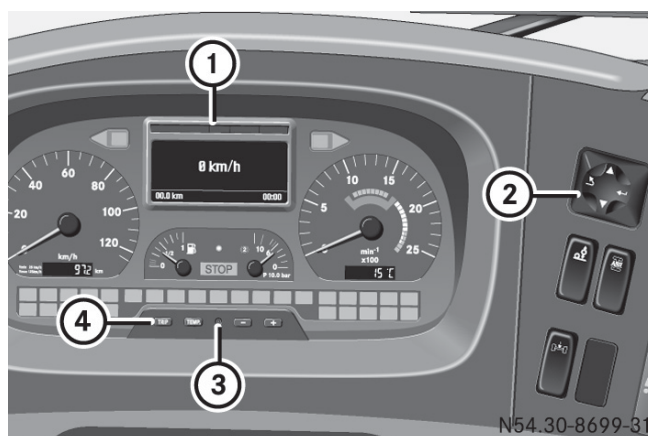


Operating the onboard computer while driving can distract your attention away from what is happening on the road. You could lose control of the vehicle and cause an accident.

For this reason, only operate the onboard computer when the vehicle is stationary with the parking brake applied.

Buttons and display

①	Display
②	Control pad Page up Page down Select main menu/submenu, confirm settings Exit main menu/submenu, confirm display messages
③	Reset button
④	TRIP button



The control pad ② and the buttons ③ and ④ on the instrument panel are used to operate the Plus onboard computer e.g. to call up submenus, to change settings, to confirm messages etc.

Display check

- ▶ Turn vehicle key in steering lock to drive position.

During the display check

- the warning buzzer sounds for about 1 second
- the segments of the status indicator light up yellow
- all the indicator lamps in the instrument panel light up for about 2 seconds
- the ABS equipment is checked

When the display check is complete, the default display appears.



If ABS equipment is detected, the display shows the ABS equipment for about 3 seconds after the display check.

1

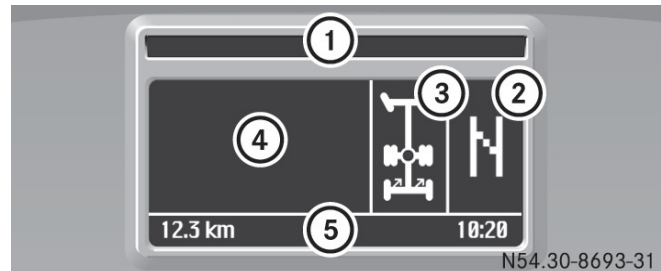
If the Plus onboard computer detects malfunctions in the system, the display messages appear in sequence and the segments of the status indicator lights up yellow or red, see page 27.

Confirming display messages, see page 27.

Display fields

The display fields are actuated according to the installed equipment or the activated functions.

①	Status indicator
②	Gear indicator
③	Operating display for differential locks, PTOs and additional axles
④	Field for display messages, system abbreviations/fault symbols and fault type
⑤	Information display



Status indicator

Individual segments of the status indicator ① light up yellow or red to distinguish display messages according to their priority rating. Display messages with yellow/red status indicator, see page 27.

Display messages



Display messages are operating information, faults or warnings that appear automatically in the display, see page 27.

System abbreviation or fault symbol

When a display message is shown on the Plus onboard computer due to a fault, the display shows the system abbreviation of the affected control unit or a fault symbol, e.g. if the coolant temperature is excessively high. System abbreviations, see page 42.

Information display

The following information is displayed:

- Time
- Alarm clock symbol (if alarm clock is activated)
- Speed for the variable speed limiter  /cruise control 
- Trip mileage

Instrument panel

Menus in detail



The number and sequence of the menus depend on the vehicle model and the vehicle equipment. The values given are examples.

Risk of accident



Operating the onboard computer while driving can distract your attention away from what is happening on the road. You could lose control of the vehicle and cause an accident.

For this reason, only operate the onboard computer when the vehicle is stationary with the parking brake applied.

Calling up the main menu

- ▶ When the default display or another display from the home menu appears, press control pad or . The list of main menus appears in the display.
- ▶ Press control pad or repeatedly until the desired main menu is highlighted in the display.
- ▶ Press control pad to open the highlighted main menu. Another list of the submenus appears in the display.

Calling up a submenu

- ▶ Select the main menu. Another list of the submenus appears in the display.
- ▶ Press control pad or repeatedly until the desired submenu is highlighted in the display.
- ▶ Press control pad to open the highlighted submenu. Another submenu list or the desired display, e.g. Oil level O.K., appears.

Exiting a submenu



- ▶ Press control pad .
- The next menu up appears in the display.

To go directly to the home menu:

- ▶ Hold down control pad for about 2 seconds. The default display appears.

Home menu

The home menu follows a circular pattern and contains the following displays, depending on the vehicle equipment:

- Default display with speed
 - Date display
 - Info display
 - Trip computer
 - Radio
 - Navigation
- ▶ Press control pad  or  repeatedly until the desired display appears.

Instrument panel

Default display

①	Speed display
②	Time
③	Trip mileage



Main menus and submenus

The various main menus each comprise a number of functions pertaining to the same subject. In the Check Info main menu, the submenus Reservoir pressure, Oil level, Axle load indicator etc. can be displayed.

The following main menus and submenus can be selected:

Check Info	AdBlue tank	see page 25
	Driver data	
	Reservoir pressure	see page 25
	Oil level	see page 25
	Axle load indicator	
	Operating hours	
	Cargo	
	Trailer ID	
Fault Info		see page 25
Alarm Clock	Wakeup mode	
	Wakeup time	
Language		
Settings	Display differential locks?	
	Time	
	Cargo temperature	
	Cargo pressure	
	Cargo fluid	
	Temperature unit	
Service Info	Engine	
	Condensation	see page 26
Diagnosis	Control unit list: BS, FR ...	see page 26
	Erase all events	see page 26

Check Info menu

► Call up home menu (), Check Info main menu (and), and submenu ().

					Description
AdBlue tank		AdBlue tank 28 l	-	-	The tank content is displayed as a bar graph.
Reservoir pressure		<ul style="list-style-type: none"> Tractor vehicle Trailer (The menu is only displayed when a trailer is detected by the system.)	 and 	1: 6.3 bar 2: 6.2 bar	1 = Reservoir pressure, brake circuit 1 2 = Reservoir pressure, brake circuit 2 The reservoir pressures are displayed as bar graphs.
Oil level		Oil level O.K. or Oil 2.5 l	-	-	Check engine oil level with engine at operating temperature about 1 minute after switching off. Top up engine oil if necessary.

Fault Info menu

► Call up home menu () and Fault Info main menu (and).

	Description
e.g. bulb/fuse defective	If a fault message was stored, it can be displayed in the Fault Info menu. Display messages, see page 27. If the symbol is also shown in the display, this indicates that further information or instructions are available. ► Press control pad . Further information or instructions are displayed.

Instrument panel

Service Info menu

► Call up main menu ( ) and Service Info main menu (  and ).










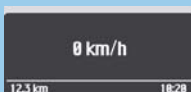
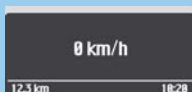
Description

RESET condensation?

The RESET condensation? submenu only appears in conjunction with a relevant display message, see page 27. In some cases the condensation message can be reset by pressing the Reset button. When reset, the message O.K. appears in the display.

Diagnosis menu

► Call up home menu ( ), Diagnosis main menu (  and ), and submenu ( ).



Description

Control unit list:

- BS
- FR
- INS
- ...



- MB object number
- Events
- Measurements
- Binary values
- Erase all events



MBS 0004464833

MB object number/Binary values/Measurements: These menus contain information that can be used to ascertain the cause of a fault in a system by remote diagnosis.

Events: This menu contains any existing display messages from the system selected.

Erase all events



Yes/No



-

All display messages are erased.

Display messages

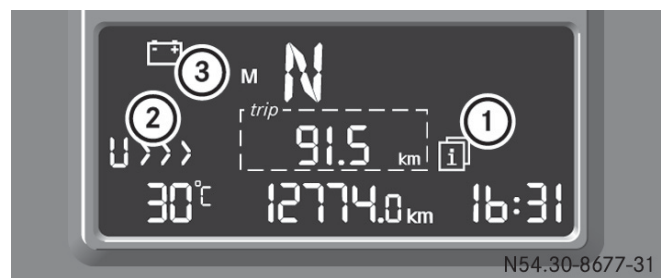
Display messages are operating information, fault messages or warnings that appear automatically in the display. The segments of the status indicator light up yellow or red depending on the priority rating. In addition to the display message, an indicator lamp in the instrument panel may light up.

Display messages can be canceled and called up at a later time. If an indicator lamp lights up with the display message, it will not go out again even when the display message is confirmed.


In the case of significant malfunctions, the display message is backed up by a warning buzzer and the STOP lamp.

Display messages in the Standard onboard computer

①	Fault Info menu
②	System abbreviations
③	Fault symbol for cause



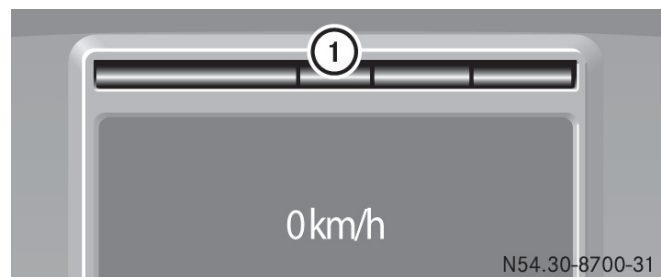
Display messages in the Plus onboard computer

①	Display message, e.g. bulb/fuse defective
②	Call up further information with control pad 
③	Fault location (tractor vehicle or trailer/ semitrailer)
④	Fault symbol for cause



Status indicator

①	Status indicator
---	------------------



Instrument panel

Confirm display message

- ▶ Press control pad .

The display message disappears from the display.

Standard onboard computer: The display message is stored in the diagnosis memory or in the *Fault Info* menu.

Plus onboard computer: The display message can be called up at any time through the *Fault Info* menu (see page 25).

Status indicator

Individual segments of the status indicator light up yellow or red to distinguish display messages according to their priority rating.

The status indicator lights up yellow for malfunctions of low priority, e.g. when a bulb is defective. The status indicator also lights up yellow in particular operating states, e.g. when a power take-off has been activated.

The status indicator lights up red for malfunctions of high priority, e.g. when the alternator is defective.

Display message with yellow status indicator

Risk of accident



The operational safety of the vehicle may be compromised if there is a display message with yellow status indicator.

Adjust your driving style accordingly and drive with special care.

Follow the instructions and observe the additional information in the display.

Have the cause checked and repaired as quickly as possible at a qualified specialist workshop possessing the required expertise and tools in order to perform the necessary work.

Mercedes-Benz recommends a Mercedes-Benz service center for this work. It is absolutely essential that all safety-relevant work and all work on safety-relevant systems is performed by a qualified specialist workshop.

Display message with red status indicator**Risk of accident**

The operational safety of the vehicle is compromised if there is a display message with red status indicator. The handling and braking behavior of the vehicle may change.

If it is possible to drive on:

Adjust your driving style accordingly and drive with special care.

Continuing to drive may result in damage to the vehicle and is against the law.

If it is not possible to drive on:

- Stop the vehicle immediately in a safe place taking into account the traffic situation
- Follow the instructions and observe the additional information in the display
- Have the affected system checked and repaired as quickly as possible at a qualified specialist workshop possessing the required expertise and tools in order to perform the necessary work

Mercedes-Benz recommends a Mercedes-Benz service center for this work. It is absolutely essential that all safety-relevant work and all work on safety-relevant systems is performed by a qualified specialist workshop.

STOP lamp**Risk of accident**

If the STOP lamp does not go out or if it lights up while driving, the operational safety of the vehicle is at risk.

- Stop the vehicle as soon as possible taking into account the traffic situation
- Switch off the engine and apply the parking brake
- Have the affected system checked and repaired as quickly as possible at a qualified specialist workshop possessing the required expertise and tools in order to perform the necessary work




























Mercedes-Benz recommends a Mercedes-Benz service center for this work. It is absolutely essential that all safety-relevant work and all work on safety-relevant systems is performed by a qualified specialist workshop.







In the case of the following serious malfunctions the STOP lamp also lights up:

- Reservoir pressure in brake circuit 1 or 2 of tractor vehicle too low.
- Reservoir pressure in spring-loaded brake actuator circuit of tractor vehicle too low.
- Reservoir pressure in brake circuit of trailer/semitrailer too low.













Instrument panel









Symbol and text messages

Display message with yellow status indicator			
Standard onboard computer:	Plus onboard computer:	Possible cause/consequence	Possible remedy
 	  Malfunction in trailer ABS	Risk of accident  Malfunction in brake system of vehicle (indicator lamp  lights up) and/or of trailer/semitrailer (indicator lamp  lights up).	<ul style="list-style-type: none"> ▶ Switch on antilock brake system (ABS). If the fault is still displayed: <ul style="list-style-type: none"> ▶ Have the brake system checked at a qualified workshop.
 	  Function restrictions possible	The antilock brake system (ABS) may be switched off. The handling and braking behavior may change.	
 	  Function restrictions possible		
	  The braking behavior may change. Visit a workshop at the first opportunity.	Risk of accident  Malfunction in brake system of trailer/semitrailer (indicator lamp  lights up). The handling and braking behavior may change. i The display message consists of 2 parts. Press button  to see the 2nd part.	<ul style="list-style-type: none"> ▶ Have the brake system checked at a qualified workshop.
	  Brake linings fully worn	The brake linings are worn down to the minimum thickness.	<ul style="list-style-type: none"> ▶ Have the brake linings replaced at a qualified workshop. Vehicles with Telligent [®] maintenance system: The axle on which the brake linings or disks are worn can be requested in the Service Info menu.
	  Wheel brake overloaded Adjust your driving style.	The temperature at one wheel brake is too high. The wheel brake may overheat. i The display message consists of 2 parts. Press button  to see the 2nd part.	<ul style="list-style-type: none"> ▶ Drive with special care. ▶ Shift to a low gear and use the permanent brake (engine brake/retarder) as much as possible to brake the vehicle. ▶ Have the brake system checked at a qualified workshop.
















Display message with yellow status indicator			
Standard onboard computer:	Plus onboard computer:	Possible cause/consequence	Possible remedy
	 Apply parking brake.	<p>Risk of accident </p> <p>The parking brake is not applied.</p> <p>The parked vehicle may roll away. This may cause injury to yourself and others.</p>	<ul style="list-style-type: none"> ▶ Apply parking brake.
		<p>Vehicles with parameterizable special module (PSM):</p> <p>The parking brake is not applied.</p> <p>Risk of accident </p> <p>The parking brake was not applied before switching on the PTO. This can cause the vehicle to roll away. This may cause injury to yourself and others.</p>	<ul style="list-style-type: none"> ▶ Apply the parking brake before switching on the PTO.
	 Condensation in compressed air reservoir	<p>The condensation level in the compressed air reservoirs is too high.</p> <p>Even at temperatures around freezing (0 °C), condensation in the compressed air reservoir can freeze and render the brake system inoperative.</p>	<p>Have the following work carried out without delay at a qualified specialist workshop, e.g. a Mercedes-Benz service center.</p> <ul style="list-style-type: none"> ▶ Drain condensation from compressed air reservoir. ▶ Replace granulate cartridge of compressed air drier. ▶ Reset condensation message in Standard onboard computer (see page 19) or Plus onboard computer (see page 26).






Instrument panel

Display message with yellow status indicator			
Standard onboard computer:	Plus onboard computer:	Possible cause/consequence	Possible remedy
		<p>Risk of accident </p> <p>The reservoir pressure in the ancillary consumer circuit has dropped below 5.5 bar.</p> <p>Gears can no longer be shifted correctly.</p>	<ul style="list-style-type: none"> ▶ Stop the vehicle as soon as possible taking into account the traffic situation. ▶ Apply parking brake. ▶ Run the engine until the display message disappears and a sufficient reservoir pressure is obtained. ▶ If the fault occurs frequently, check the compressed air system for leaks. <p>Have the compressed air system repaired at a qualified workshop.</p>
 100 °C	 Coolant temperature high 100 °C (example)	A coolant temperature of about 100 °C has been reached while driving.	<ul style="list-style-type: none"> ▶ Demand less power from the engine. ▶ Make sure that the air supply to the radiator is not obstructed.
	 Engine protection: Power reduced	The coolant temperature is too high. The engine output is automatically reduced.	<ul style="list-style-type: none"> ▶ Reduce speed and shift to a lower gear if necessary. ▶ Make sure that the air supply to the radiator is not obstructed.
	 5.0 l Top up engine oil (example)	The engine oil level is too low.	<ul style="list-style-type: none"> ▶ Vehicles with Plus onboard computer: Add the oil quantity shown in the display. ▶ If it is not possible to top up the displayed oil quantity, the vehicle can be driven approximately another 2000 to 6000 km, depending on operating conditions, until the status indicator lights up red.
	 Clutch: Overload Leave clutch to cool	<p>The permissible operating temperature of the clutch has been exceeded. There is a risk of clutch damage.</p> <p>i The display message consists of 2 parts. Press button  to see the 2nd part.</p>	<ul style="list-style-type: none"> ▶ Shift to a lower gear to maneuver the vehicle or to move off. ▶ Finish the moving-off or maneuvering process as quickly as possible.





















Display message with yellow status indicator			
Standard onboard computer:	Plus onboard computer:	Possible cause/consequence	Possible remedy
MR	MR 	You cannot start the engine. The starter batteries are discharged.	<ul style="list-style-type: none"> ▶ Repeat the start attempt after about 10 seconds. Excessively long start attempts can drain the batteries. ▶ Jump start the engine from another vehicle.
CODE	MR  Immobilizer activated.	You cannot start the engine. You have attempted to start the engine several times with an invalid vehicle key. The immobilizer is activated.	<ul style="list-style-type: none"> ▶ Use a valid vehicle key or the spare key. <p>Mercedes-Benz recommends that you always carry a spare key in an easily accessible location for emergencies.</p>
FR	FR 	Malfunction in the electronic drive control. The accelerator pedal is inoperative and the engine runs in limp-home mode. The engine output is reduced.	<ul style="list-style-type: none"> ▶ Stop the vehicle as soon as possible taking into account the traffic situation, apply the parking brake and switch off the engine. ▶ Wait about 10 seconds and restart the engine. ▶ If the engine is still running in limp-home mode: Have the fault rectified at a qualified specialist workshop, e.g. a Mercedes-Benz service center.
AGN	AGN 	The automatic transmission has shifting problems. The vehicle is still drivable.	<ul style="list-style-type: none"> ▶ Continue driving with special care. Have the automatic transmission repaired at a qualified workshop.
	  Cargo temperature 50°C (example)	The cargo temperature set on the cargo monitor in the trailer/ semitrailer has been exceeded or undershot.	<ul style="list-style-type: none"> ▶ Have the cargo monitor checked at a qualified workshop.
	  Cargo pressure 0 bar (example)	The cargo pressure set on the cargo monitor in the trailer/ semitrailer has been exceeded or undershot.	<ul style="list-style-type: none"> ▶ Have the cargo monitor checked at a qualified workshop.
















Instrument panel

Display message with yellow status indicator			
Standard onboard computer:	Plus onboard computer:	Possible cause/consequence	Possible remedy
	  Cargo fluid 8 l (example)	The cargo fluid level set on the cargo monitor in the trailer/ semitrailer has been exceeded or undershot.	<ul style="list-style-type: none"> ▶ Have the cargo monitor checked at a qualified workshop.
	  Refuel diesel	The fuel supply is exhausted.	<ul style="list-style-type: none"> ▶ Fill the fuel tank. The display message disappears. If the fuel supply is not topped up, the message reappears the next time the engine is started.
 RES	  Refuel AdBlue	The AdBlue [®] supply is down to the reserve level.	<ul style="list-style-type: none"> ▶ Fill AdBlue[®] tank. The display message disappears. If the AdBlue [®] supply is not topped up, the message reappears the next time the engine is started.
 	  Refuel diesel, refueling AdBlue recommended	The fuel supply is down to the reserve level.	<ul style="list-style-type: none"> ▶ Fill the fuel tank. To avoid the need for another refueling stop, fill the AdBlue[®] tank at the same time. The display message disappears. If the fuel and AdBlue [®] supplies are not topped up, the message reappears the next time the engine is started.
	  Top up washer fluid at the first opportunity	The fluid level in the reservoir of the windshield washer/ headlamp cleaning system has dropped to about 1 liter.	<ul style="list-style-type: none"> ▶ Fill the reservoir of the windshield washer/ headlamp cleaning system at the next opportunity.






















Display message with yellow status indicator			
Standard onboard computer:	Plus onboard computer:	Possible cause/consequence	Possible remedy
	 Bulb/fuse defective Check bulb/fuse (example)	<ul style="list-style-type: none"> When the lights are switched on: Bulb or fuse for standing lamps, low beam lamps, taillamps, license plate illumination or rear fog lamp is defective When braking: Brake lamp is defective When signaling: Turn signal lamp is defective After the instrument panel function check: Fuse for brake lamps is defective. <p>i The display message consists of 2 parts. Press button  to see the 2nd part.</p>	<ul style="list-style-type: none"> ▶ Check and replace the appropriate fuses. ▶ Check the appropriate bulb and replace if necessary.
	 Left brake lamp: Failure (example)	On semitrailers with electronics to ISO 11992: The indicated lamp on the trailer/semitrailer is defective.	<ul style="list-style-type: none"> ▶ Replace the appropriate bulb (see operator's manual of trailer/semitrailer).










Instrument panel

Display message with red status indicator			
Standard onboard computer:	Plus onboard computer:	Possible cause/consequence	Possible remedy
 	  Malfunction in trailer ABS	<p>Risk of accident </p> <p>The antilock brake system (ABS) in the trailer/semitrailer (indicator lamp  lights up) is inoperative. There is a risk of excessive braking at the trailer/semitrailer.</p> <p>The handling and braking behavior may change.</p>	<ul style="list-style-type: none"> ▶ Drive with special care. Avoid heavy braking, except in emergency situations, so that the wheels of the trailer/semitrailer do not lock up. ▶ Have the trailer/semitrailer ABS checked at a qualified workshop.
	  The braking behavior is changed Visit a workshop at the first opportunity.	<p>Risk of accident </p> <p>Malfunction in brake system of trailer/semitrailer (indicator lamp  lights up). The handling and braking behavior may change.</p> <p>i The display message consists of 2 parts. Press button  to see the 2nd part.</p>	<ul style="list-style-type: none"> ▶ Have the brake system checked at a qualified workshop.
	  Immediate service	<p>Risk of accident </p> <p>Due service work has not been performed. The service limit of the brake linings or the brake disks is past maximum.</p> <p>The handling and braking behavior may change.</p>	<ul style="list-style-type: none"> ▶ Have the service work performed without delay at a qualified workshop.
	  V-belt/alternator Service required	<p>Risk of accident </p> <p>The V-belt has snapped or the alternator is defective.</p> <p>The voltage in the on-board electrical system has dropped below about 22 V. The handling and braking behavior may change.</p> <p>i The display message consists of 2 parts. Press button  to see the 2nd part.</p>	<ul style="list-style-type: none"> ▶ Stop the vehicle as soon as possible taking into account the traffic situation. ▶ Switch off engine and apply parking brake. ▶ Contact a qualified workshop and have the V-belt or alternator checked.











Display message with red status indicator			
Standard onboard computer:	Plus onboard computer:	Possible cause/consequence	Possible remedy
 0% 0 1	  Power reduced - Refuel AdBlue	The AdBlue [®] supply is exhausted. The indicator lamp  flashes. The engine output is reduced. ⓘ The display message consists of 2 parts. Press button  to see the 2nd part.	► Fill AdBlue [®] tank. When the AdBlue [®] supply is topped up, the display message does not reappear the next time the engine is started.
 0% 0 1	  AdBlue empty	The AdBlue [®] supply is exhausted.	► Fill AdBlue [®] tank. If the AdBlue [®] supply is not topped up, the indicator lamp  flashes and the engine power is automatically reduced the next time the vehicle comes to a standstill. When the AdBlue [®] supply is topped up, the display message does not reappear the next time the engine is started. The indicator lamp  goes out. The full engine power is available again.
SCR	SCR  Power reduced	There may be fault. The indicator lamp  flashes. The engine output is reduced.	If this message appears only temporarily, no action is required.
SCR	SCR  Service required	There is a fault in the exhaust system. The permissible emission levels are exceeded.	► Have the fault rectified at a qualified workshop. If the fault is shown in the display over the course of several journeys, the indicator lamp  flashes and the engine power is automatically reduced the next time the vehicle comes to a standstill. If the exhaust system operates properly over the course of several journeys, the full engine power is available again and the indicator lamp  goes out.








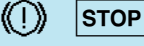


Instrument panel

Display message with red status indicator			
Standard onboard computer:	Plus onboard computer:	Possible cause/consequence	Possible remedy
SCR	SCR  Power reduced	The indicator lamp  flashes. The NOx sensor is defective.	▶ Have the fault rectified at a qualified workshop. If the cause of the fault is not rectified within 50 operating hours, the engine power is automatically reduced the next time the vehicle comes to a standstill.
	  Steering sluggish Immediate service required	Risk of accident  The hydraulic steering system is leaking. The steering ability of the vehicle may change. i The display message consists of 2 parts. Press button  to see the 2nd part.	▶ Have the steering checked immediately at a qualified workshop.
	 	Steering circuit 2 has failed. The vehicle can only be steered with increased effort.	▶ Adjust your driving style. Reduce speed before corners in particular. ▶ Have the steering system checked at a qualified workshop.
 	  Retarder shutoff not possible Service required	Malfunction in the retarder control. The retarder is not switched off <ul style="list-style-type: none"> • During ABS control • When the accelerator pedal is operated 	▶ Drive with special care. ▶ Have the retarder control checked at a qualified workshop.
 115°C (example)	  Coolant temperature too high 115°C	The coolant temperature is too high. The engine output is automatically reduced.	▶ Reduce speed and shift to a lower gear if necessary. ▶ Make sure that the air supply to the radiator is not obstructed.
	  Air filter clogged Service due	The air filter is clogged. The engine output may be reduced. i The display message consists of 2 parts. Press button  to see the 2nd part.	▶ Have the air filter replaced at a qualified specialist workshop at the first opportunity, e.g. at a Mercedes-Benz service center.

Display message with red status indicator			
Standard onboard computer:	Plus onboard computer:	Possible cause/consequence	Possible remedy
	  Drain the engine oil	The engine oil level is too high. This can cause the engine oil pressure to drop. The operational safety of the engine is at risk. Vehicles with BlueTec [®] exhaust aftertreatment: There is a risk of damage to the engine or catalytic converter.	<ul style="list-style-type: none"> ▶ Have at least 2 liters of engine oil drained or extracted at a qualified workshop.
	  Switch off engine	The engine oil pressure is significantly too low. The operational safety of the engine is at risk.	<ul style="list-style-type: none"> ▶ Stop the vehicle as soon as possible taking into account the traffic situation. ▶ Switch off engine and apply parking brake. ▶ Check engine oil level via the Standard onboard computer, see page 48, or the Plus onboard computer, see page 48, and top up engine oil if necessary. ▶ Notify a qualified specialist workshop.
	  7.5 l Top up engine oil immediately (example)	The engine oil level is significantly too low. The operational safety of the engine is at risk.	<ul style="list-style-type: none"> ▶ Stop the vehicle as soon as possible taking into account the traffic situation. ▶ Switch off engine and apply parking brake. ▶ Check engine for leaks. ▶ Contact a qualified specialist workshop if there is visible oil leakage. Make sure that escaping oil does not contaminate the environment. ▶ Add the oil quantity shown in the display immediately.

Instrument panel

Display message with red status indicator			
Standard onboard computer:	Plus onboard computer:	Possible cause/consequence	Possible remedy
	  Top up coolant	The coolant level has dropped 2 liters below the normal fill level. The operational safety of the engine is at risk.	<ul style="list-style-type: none"> ▶ Stop the vehicle as soon as possible taking into account the traffic situation. ▶ Switch off engine and apply parking brake. ▶ Top up coolant. ▶ Have the cooling system checked for leaks at a qualified workshop.
AGN	AGN 	The automatic transmission has shifting problems. The vehicle is no longer drivable.	<ul style="list-style-type: none"> ▶ Do not continue driving! ▶ Contact a qualified workshop without delay and have the fault rectified.
GS  	 Gear 3, 4: Shift not possible	The gearshift has shifting problems. In extreme cases the vehicle is no longer drivable.	<ul style="list-style-type: none"> ▶ Stop the vehicle as soon as possible taking into account the traffic situation. ▶ Switch off engine and apply parking brake. ▶ Perform teach-in process, see page 75. <p>or</p> <ul style="list-style-type: none"> ▶ Have the gearshift checked at a qualified workshop.
GS  	 Gear R: Shift not possible	The gearshift has shifting problems. In extreme cases the vehicle is no longer drivable.	<ul style="list-style-type: none"> ▶ Stop the vehicle as soon as possible taking into account the traffic situation. ▶ Switch off engine and apply parking brake. ▶ Perform teach-in process, see page 75. <p>or</p> <ul style="list-style-type: none"> ▶ Have the gearshift checked at a qualified workshop.

























Display message with red status indicator			
Standard onboard computer:	Plus onboard computer:	Possible cause/consequence	Possible remedy
	 The braking behavior may change.	Risk of accident  Malfunction in brake system of vehicle (indicator lamp  lights up). The handling and braking behavior may change.	<ul style="list-style-type: none"> ▶ Have the brake system checked at a qualified workshop.
	 Immediate service required	Risk of accident  The CAN bus, the data transfer system to the instrument panel, has failed. The display can no longer show important information concerning the operational safety of the vehicle.	<ul style="list-style-type: none"> ▶ Stop the vehicle as soon as possible taking into account the traffic situation. ▶ Switch off engine and apply parking brake. ▶ Notify a qualified specialist workshop.
	 Brake reservoir pressure too low	Risk of accident  The reservoir pressure in the spring-loaded brake and/or service brake circuit is too low. Possible causes are excessive compressed air consumption while maneuvering or a leak in the compressed air system. The operational safety of the vehicle is at risk.	<ul style="list-style-type: none"> ▶ Stop the vehicle as soon as possible taking into account the traffic situation. ▶ Apply parking brake. ▶ Run the engine to top up the compressed air supply. ▶ Do not continue to drive until the STOP lamp has gone out. ▶ Check the compressed air brake system for leaks. ▶ Have the compressed air brake system checked at a qualified workshop.

Instrument panel

System abbreviations

Abbrevia- tion	System	Abbrevia- tion	System
ABS	Antilock brake system	KSA	Comfort locking system
AGN	Automatic transmission	MR	Telligent [®] engine control
BS	Telligent [®] brake system	NR	Telligent [®] level control
EAB	Electronic trailer brake	PSM	Parameterizable special module
FFB	Radio remote control	RS	Retarder control
FLA	Cold-start aid	SRS	Supplemental restraint system
FR	Drive control	TCO	Tachograph
GS	Telligent [®] transmission control	ZHE	Auxiliary heater
INS	Instrument	ZL	Auxiliary steering
KOM	Communications interface	ZV	Central locking

Indicator lamps

Indicator lamp	Function
	Turn signal indicator, tractor vehicle, left
	Turn signal indicator, tractor vehicle, right
	High beam
	Permanent brake
	Parking brake
	STOP lamp (see page 29)
	Cab lock (see page 91)
	Acceleration skid control (ASR)
	Apply brake
	Brake pressure
	Supplemental restraint system
	Level control, tractor vehicle and trailer
	Excessive height, tractor vehicle and trailer
	Automatic engine start/stop
	Automatic transmission malfunction lamp: Transmission oil or coolant temperature too high (see page 45)
	Tractor vehicle brake
	Trailer brake
	Engine diagnosis (see page 44)
	Permanent brake malfunction lamp
	Cold-start aid
	Clutch
	Telligent [®] trailing axle
	Hill holder (see page 80)
	Tipper mode

Instrument panel

Engine diagnosis indicator lamp








Risk of accident and injury



Always have service work performed at a qualified specialist workshop possessing the required expertise and tools in order to perform the necessary work.

Mercedes-Benz recommends a Mercedes-Benz service center for this work.

In particular, it is absolutely essential that all safety-relevant work and all work on safety-relevant systems is performed by a qualified specialist workshop. There is a risk of accident and injury if these jobs are not performed properly.

Problem	Possible cause/consequence	Suggested solutions
The indicator lamp  lights up briefly.	During the Instrument display check, the indicator lamp  lights up briefly and goes out again if there is no malfunction.	-
The indicator lamp  flashes. At the same time the display shows a display message with yellow status indicator. Standard onboard computer:  Plus onboard computer:  	The AdBlue [®] supply is exhausted or there is a malfunction. The engine output may be reduced. ¹	Follow the instructions in the display messages, see page 37.
The indicator lamp  lights up.	Emissions-relevant malfunction or fault in the BlueTec [®] exhaust aftertreatment system. This malfunction or fault could result in damage or degradation of the exhaust aftertreatment system. The engine output may be reduced. ²	► Have the BlueTec [®] exhaust aftertreatment system checked as quickly as possible at a qualified specialist workshop.

¹ The engine power is not reduced in emergency vehicles, e.g. fire-fighting vehicles.

² The engine power is not reduced in emergency vehicles, e.g. fire-fighting vehicles.

Automatic transmission indicator lamp

Risk of accident and injury









The operational safety of your vehicle may be impaired if service work is not carried out properly. There is a risk that you could lose control of the vehicle and cause an accident. Also the safety systems may not protect you or others as they are supposed to.

Always have service work performed at a qualified specialist workshop possessing the required expertise and tools in order to perform the necessary work.

Mercedes-Benz recommends a Mercedes-Benz service center for this work.

In particular, it is absolutely essential that all safety-relevant work and all work on safety-relevant systems is performed by a qualified specialist workshop.

Problem	Possible cause/consequence	Suggested solutions
The indicator lamp  in the instrument panel lights up.	If the indicator lamp  is constantly lit, the transmission oil temperature in the automatic transmission is too high.	<ul style="list-style-type: none"> ▶ Switch off retarder. ▶ Stop the vehicle as soon as possible taking into account the traffic situation. ▶ Apply parking brake and shift automatic transmission to neutral. ▶ Run engine at a speed of 1200 – 1500 rpm for 2 – 3 minutes and then switch off engine. ▶ If the transmission oil temperature does not drop, check transmission oil level, see page 50. ▶ If the fault reoccurs, contact a qualified specialist workshop.
The display shows AGN.	The automatic transmission has a malfunction.	<p>A specialist workshop may be able to help you continue your journey with certain limitations if you give them the fault code.</p> <p>To display the fault code:</p> <ul style="list-style-type: none"> ▶ Press the automatic transmission buttons  and  simultaneously twice. <p>The display shows the number of the fault code, e.g. D 1, and then a 5-digit fault code, e.g. P 25 11, in succession.</p> <ul style="list-style-type: none"> ▶ Press the MODE button to display the next fault code. A maximum of 5 fault codes can be stored. <p>To exit the fault code:</p> <ul style="list-style-type: none"> ▶ Press the automatic transmission buttons  and  simultaneously or select any gear button.

Warning buzzer

Warning buzzer








The warning buzzer sounds in addition to the operating information in the display.


Warning buzzer function (test circuit)

- ▶ Turn vehicle key in steering lock to drive position.

The warning buzzer sounds for about 2 seconds.

Overview of warning buzzer in addition to display message or indicator lamp

Warning buzzer  sounds when	Display	Action
Engine oil level too low. The STOP lamp lights up at the same time. The operational safety of the vehicle is at risk. Engine damage is possible.	 	Standard onboard computer (see page 48), Plus onboard computer (see page 48)
Engine oil pressure too low. The STOP lamp lights up at the same time. The operational safety of the vehicle is at risk. Engine damage is possible.	 	<ul style="list-style-type: none"> ▶ Top up engine oil or ▶ Tow the vehicle away.
Malfunctions in certain electronic systems. The operational safety of the vehicle is at risk. Engine damage is possible.		(see page 27).
Maximum permissible engine speed exceeded. The operational safety of the vehicle is at risk. Engine damage is possible.		If the warning buzzer sounds when shifting down, select a higher gear. If the warning buzzer sounds when tow-starting, reduce the towing speed or select a higher moving-off gear.
Coolant level too low. The operational safety of the vehicle is at risk. Engine damage is possible.		<ul style="list-style-type: none"> ▶ Check cooling system for leaks. ▶ Top up coolant or tow the vehicle away if necessary.
Permissible coolant temperature (about 115 °C) exceeded.		<ul style="list-style-type: none"> ▶ Demand less power from the engine. ▶ Reduce speed and shift down to a lower gear if necessary. ▶ Make sure that the air supply to the radiator is not obstructed.


Warning buzzer  sounds when	Display	Action
<p>Display failure.</p> <p>Important operating information, warnings or service indicators in the display can no longer be shown.</p>	!	▶ Tow the vehicle away.
With lights switched on and the vehicle key removed.		▶ Switch off lights.

Oil level in engine

Calling up the engine oil level in the display (Standard onboard computer)

To check the engine oil level the vehicle must be parked on level ground and the engine must be at operating temperature and must have been switched off for at least one minute.

If the engine oil level is called up earlier, the display will not show the correct quantity. If the engine oil level is called up while driving, the display always shows the engine oil level measured the last time the engine was off.

- ▶ Switch off engine.
- ▶ Apply parking brake.
- ▶ Turn vehicle key in steering lock to drive position.
- ▶ Wait at least 1 minute.
- ▶ Press control pad  repeatedly until the display shows OEL ok or OIL ok or 2.5 l.

If the display shows OEL ok or OIL ok, the engine oil level is correct. If the display shows 2.5 l, the engine oil level is too low by the displayed amount.





Only top up the engine oil when the display shows  with a yellow/red status indicator, see page 32.







Calling up the engine oil level in the display (Plus onboard computer)

To check the engine oil level the vehicle must be parked on level ground and the engine must be at operating temperature and must have been switched off for at least one minute.

If the engine oil level is called up earlier, the display will not show the correct quantity. If the engine oil level is called up while driving, the display always shows the engine oil level measured the last time the engine was off.

- ▶ Switch off engine.
- ▶ Apply parking brake.
- ▶ Turn vehicle key in steering lock to drive position.
- ▶ Wait about 1 minute.
- ▶ Press control pad  or .

The list of main menus appears in the display.

- ▶ Press control pad  or  repeatedly until the Check Info menu is highlighted.
- ▶ Press control pad .
- ▶ Press control pad  or  repeatedly until the Oil level menu is highlighted.
- ▶ Press control pad .



If the display shows Oil level O.K., the engine oil level is correct. If the display shows Oil level 3.5l, the engine oil level is too low by the displayed amount.




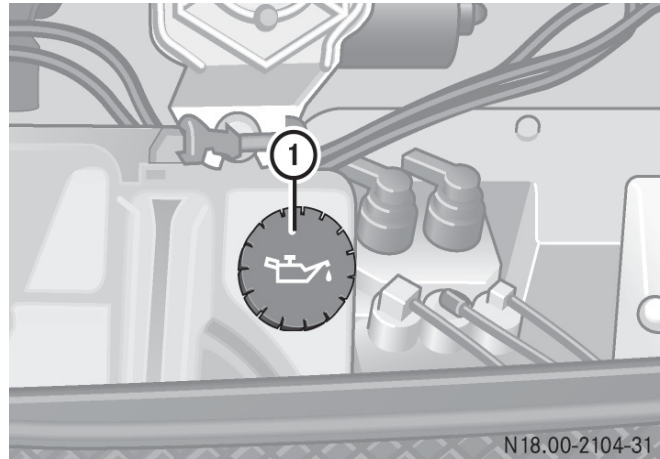
Only top up the engine oil when the display shows  with a yellow/red status indicator, see page 32.

Topping up engine oil

The filler neck for the engine oil is at the front of the vehicle behind the maintenance flap.

If the oil level in the engine is too low or too high, the status indicator lights up yellow and the display shows  and the necessary top-up quantity, or .

If a correct engine oil level reading is not possible, the display shows  and a message.



i

Add the displayed top-up quantity only when the display  appears. Add the full recommended quantity.

- ▶ Open maintenance flap.
- ▶ Unscrew and remove cap ① on oil filler neck.
- ▶ Top up engine oil.

!

Only use approved engine oils of the specified SAE grades.

If too much engine oil is added, drain off or extract the excess.


- ▶ Fit cap ① on oil filler neck and screw tight, check for tight seating and check for leaks.
- ▶ Close maintenance flap.

Oil level in automatic transmission

Oil level in automatic transmission

To check the oil level in the automatic transmission the vehicle must be parked on level ground and the transmission must be at operating temperature.



If the indicator lamp  lights up or flashes while driving, the temperature of the transmission oil or coolant is too high. This may be caused by an excessive or insufficient transmission oil level. If the transmission oil temperature is continuously too high, transmission damage is possible.

Only use approved transmission oils of the specified SAE grades. Do not overfill. If too much transmission oil is added, drain off or extract the excess. There is a risk of transmission damage.

Checking the transmission oil level in the display

Starting transmission oil level measurement

- ▶ Apply parking brake.
- ▶ Shift transmission to neutral N and run engine at idle speed.
- ▶ Press buttons ② and ③ simultaneously.

The display ① shows the numbers 8 to 1 in succession, counting down a waiting time of about 2 minutes.

The display ① then shows the transmission oil level in the form of a code or a fault code.



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Transmission oil level display

Code	Meaning
oL oK	Transmission oil level OK.
oL Lo	Transmission oil level too low.
	The number displayed after indicates the quantity of transmission oil to be topped up, e.g. 01 = 1 liter.
oL HI	Transmission oil level too high.
	The number displayed after indicates the quantity of transmission oil to be drained or extracted, e.g. 01 = 1 liter.

Fault code display during transmission oil level measurement

Code	Cause	Remedy
oL 50	Engine speed too low.	▶ Make sure engine is at idle speed.
oL 59	Engine speed too high.	▶ Make sure engine is at idle speed.
oL 65	Transmission is not in neutral N.	▶ Shift transmission to neutral N.
oL 70	Transmission oil temperature too low.	▶ Run the engine until the operating temperature is reached.
oL 79	Transmission oil temperature too high.	▶ Switch off engine until the operating temperature of the transmission oil is reached.
oL 89	Vehicle is moving.	▶ Stop vehicle and apply parking brake.
oL 95	Transmission oil level sensor defective.	▶ Check transmission oil level using oil dipstick. ▶ Have the fault checked at a qualified workshop.

Ending transmission oil level measurement

- ▶ Press buttons ② and ③ simultaneously or press any gear button.
The display ① shows the shift position on the left and the engaged gear on the right.

Oil level in automatic transmission

Checking the transmission oil level using the oil dipstick

①	Oil dipstick
②	Oil filler neck
③	Warm zone
④	Cold zone

Checking the transmission oil level

- ▶ Park the vehicle on a flat, horizontal surface.
- ▶ Apply parking brake.
- ▶ Shift transmission to neutral N.
- ▶ Start engine and run at idle speed for about 1 minute.
- ▶ Shift transmission to D position and wait about 30 seconds.
- ▶ Shift transmission to R position and wait about 30 seconds.
- ▶ Shift transmission to N position and wait about 30 seconds.
- ▶ Switch off engine.
- ▶ Tilt cab forwards, see page 91.
- ▶ Start engine with the cab tilted and run at idle speed, see page 95
- ▶ Remove oil dipstick ①.

If the transmission is warm: The oil level must be within the warm zone mark ③ on the oil dipstick ①.

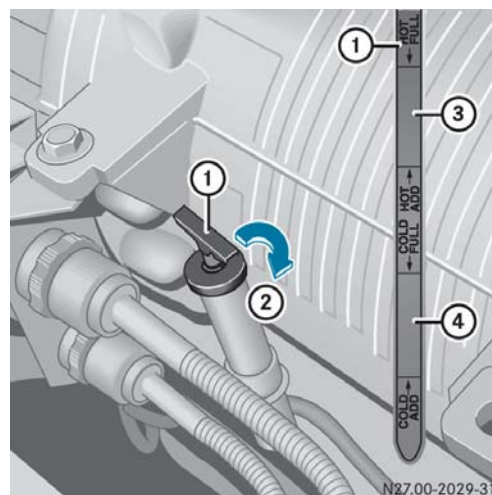
If the transmission is cold: The oil level must be within the cold zone mark ④ on the oil dipstick ①.

Check the oil level again with the transmission at operating temperature.

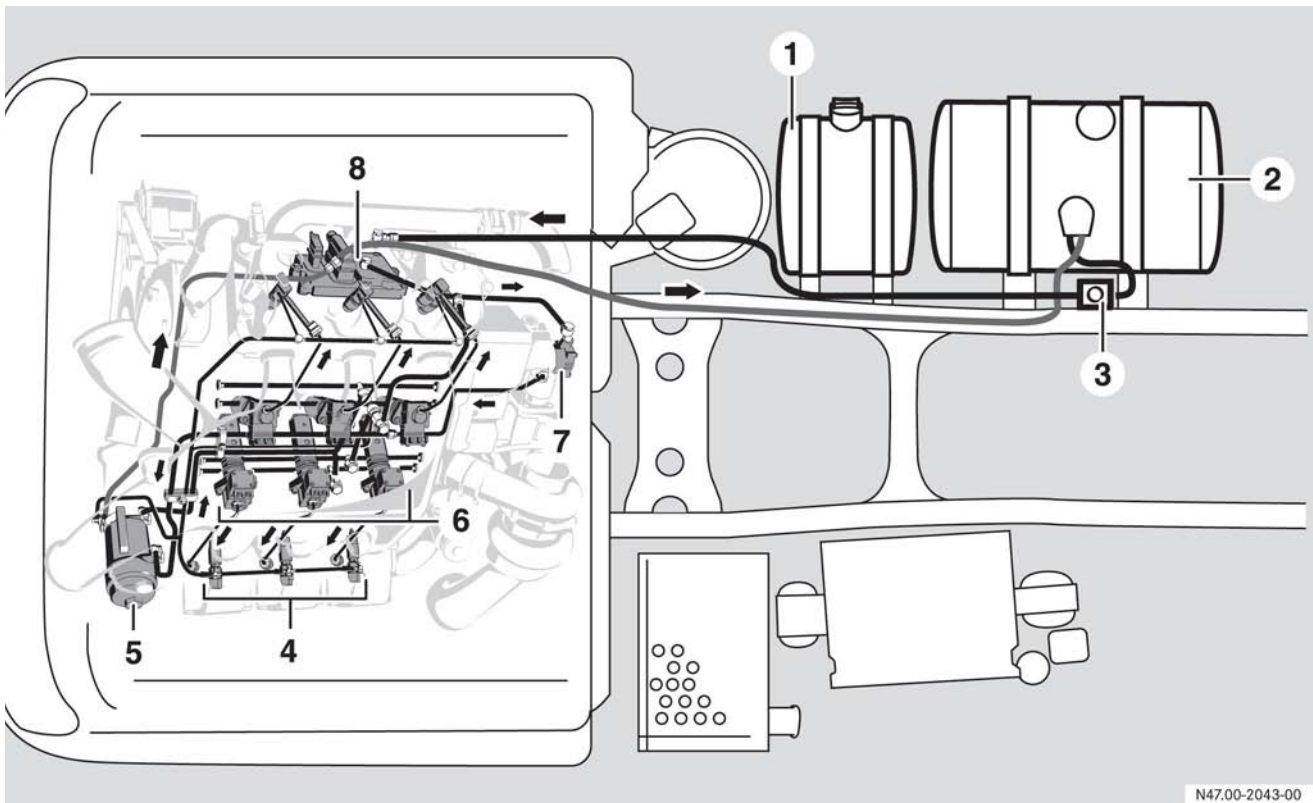


Do not top up the transmission oil above the upper warm zone mark.

- ▶ Reinsert oil dipstick ① and check for tight seating and leaks.
- ▶ Switch off engine, see page 95, and tilt cab back to driving position.



Fuel system overview (example)



①	AdBlue® tank	⑤	Fuel filter
②	Fuel tank with fuel pump unit	⑥	High pressure pumps
③	Hand pump (example) Location of hand pump, (see page 56).	⑦	Fuel pump
④	Injection nozzles	⑧	Engine control unit

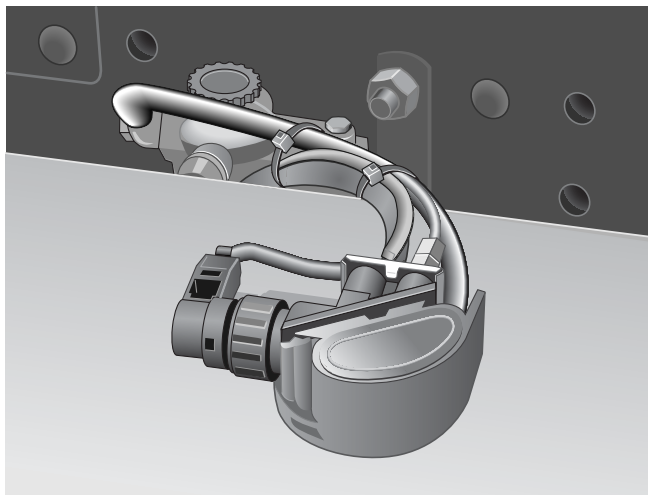
Fuel system

Fuel tank

Main fuel tank

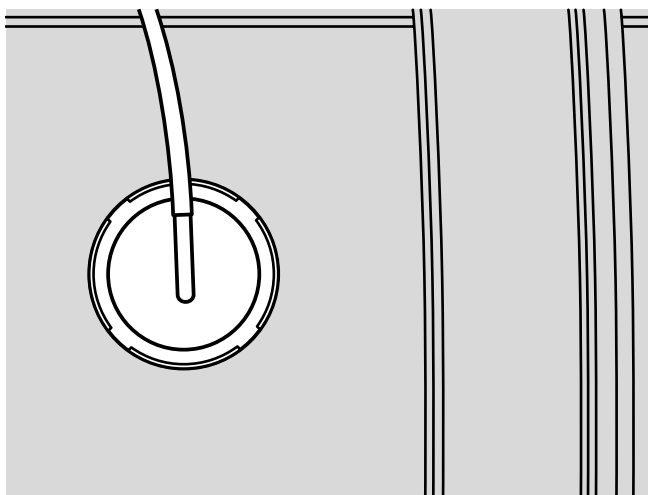
The main fuel tank is usually located on the right-hand side of the vehicle frame.

The main fuel tank can be recognized by the fuel pump unit.



Additional fuel tank

Additional fuel tanks may be mounted on the left or right side of the vehicle frame and are identifiable by a cap with vent line or by a fuel pump unit with no electrical connection.



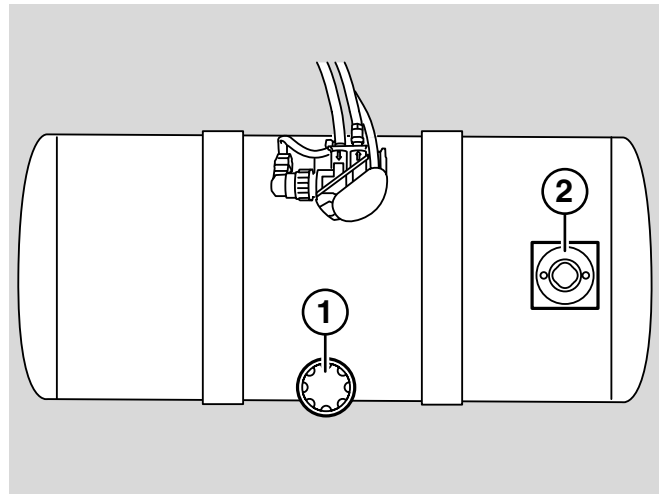
Combination tank

Filler neck	
①	Diesel fuel
②	Hydraulic fluid

The combination tank consists of two separate chambers for diesel fuel and hydraulic fluid.



It is possible for the hydraulic tank to be installed separately.



AdBlue® tank

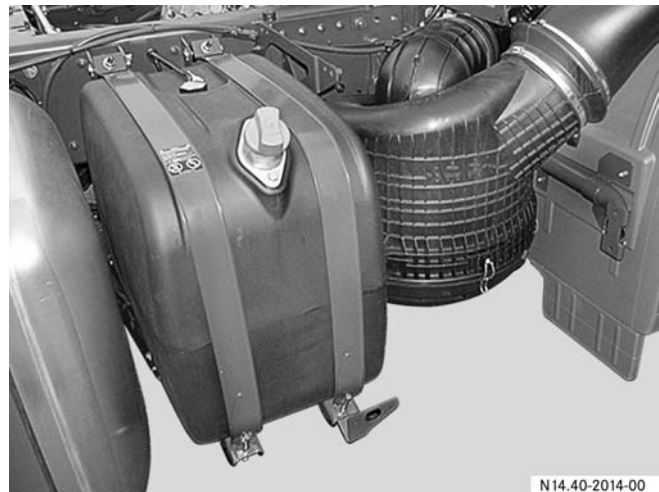
The AdBlue® tank is located on the right-hand side of the vehicle frame and is identifiable by its blue cap.

AdBlue® is a noncombustible, nontoxic, colorless, odorless and water-soluble liquid.



Only use AdBlue® that conforms with DIN 70 070. Special additives are not permissible.

If AdBlue® comes into contact with painted or aluminum surfaces during refueling, rinse off the affected areas immediately with plenty of water.



(example)

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Risk of injury



Please make sure that:

- AdBlue® does not come into contact with your skin, eyes or clothing
- AdBlue® is kept away from children

If you or others have come into contact with AdBlue®:

- In the event of eye contact, flush out the eyes immediately with plenty of clean water and seek medical attention if necessary
- Wash affected areas of the skin with plenty of clean water
- If AdBlue® has been swallowed, rinse out the mouth immediately with plenty of clean water and drink plenty of water. Seek medical attention if necessary.

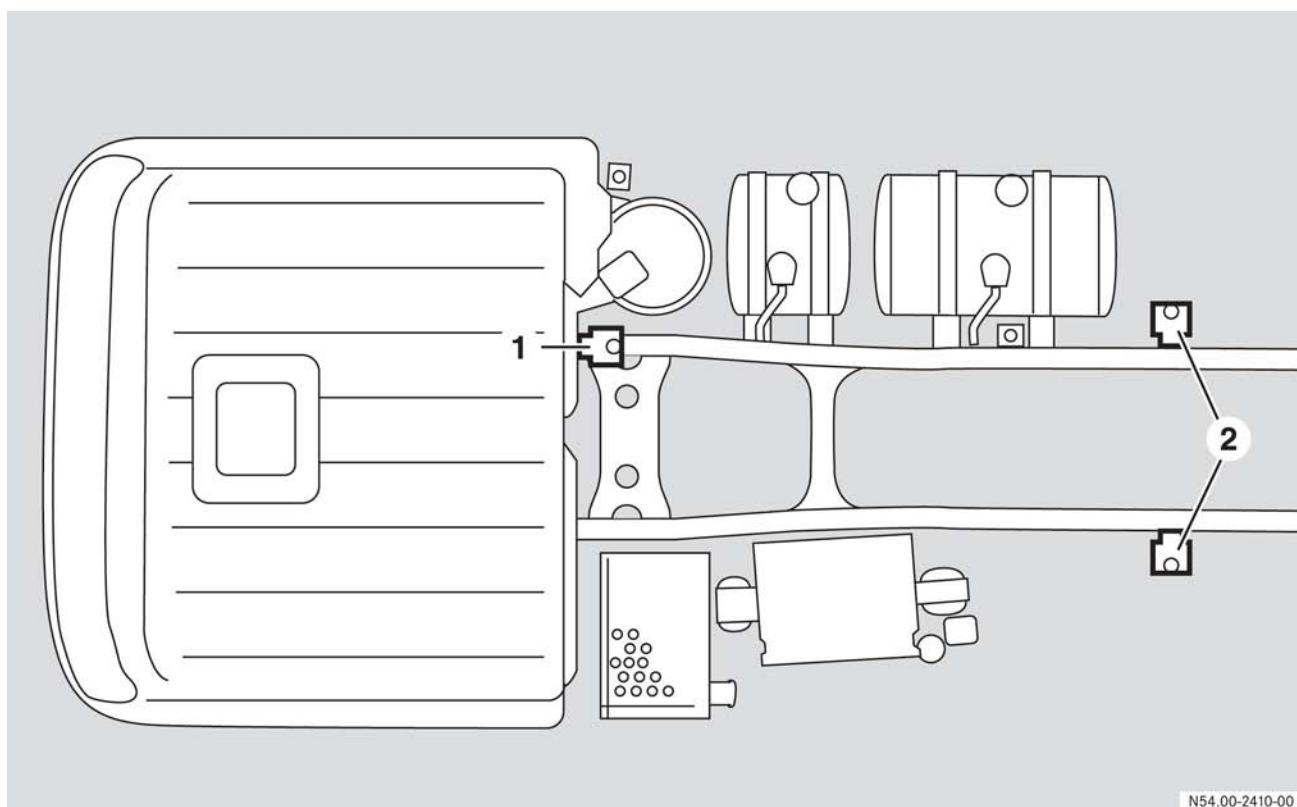
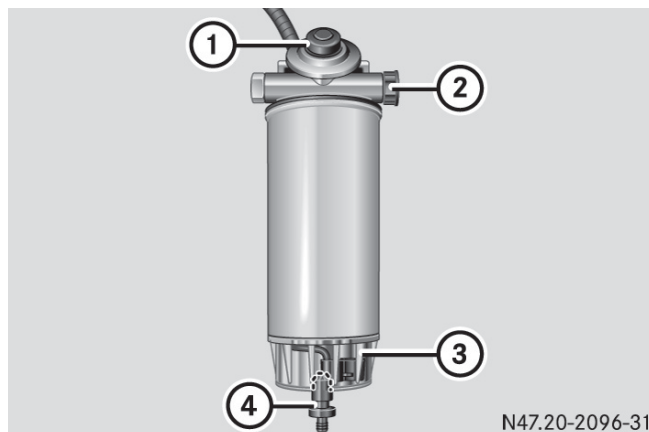
Fuel system

Hand pump (location)

A hand pump is integrated into the top section of the fuel prefilter housing.

The fuel prefilter may be installed in various locations depending on the vehicle version.

①	Hand pump
②	Shutoff valve
③	Sightglass
④	Drain screw



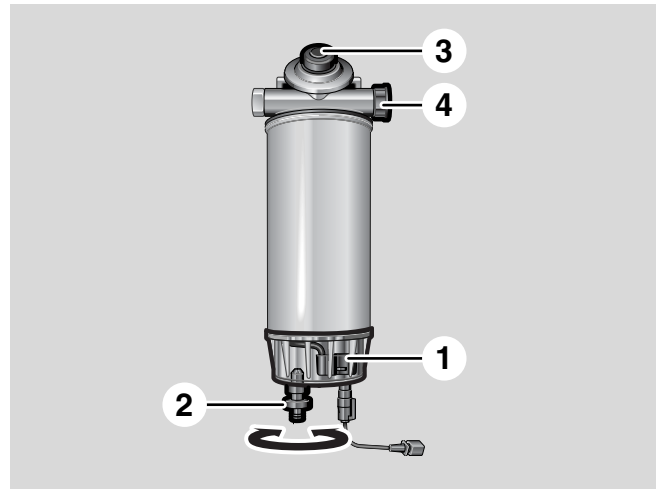
- | | |
|---|---|
| ① | Fuel prefilter with hand pump on cab rear panel |
| ② | Fuel prefilter with hand pump on frame |

Checking the fuel system

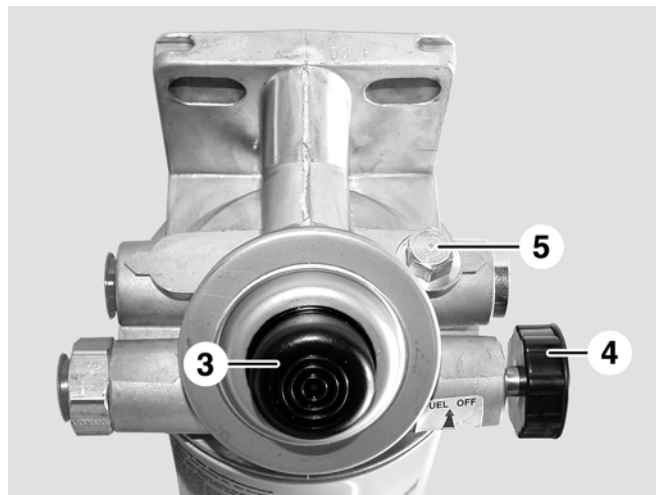
- ▶ Check that the sightglass ① of the fuel prefilter is full of diesel fuel.
- ▶ If the sightglass ① is not full of diesel: Bleed/de-water the fuel system, see page 58.

❶

When driving uphill/downhill with an almost empty fuel tank, the system may be unable to draw fuel from the tank. In this case air is ingested into the fuel system and the vehicle comes to a stop while driving uphill/downhill or shortly afterwards.



①	Sightglass
②	Drain screw
③	Hand pump
④	Knurled screw
⑤	Bleed screw



Bleeding/dewatering the fuel system with the hand pump on the fuel prefilter

Dewatering

Dewater the fuel prefilter at regular intervals.

- ▶ Place a container under drain screw ②.
- ▶ Shut off fuel supply (only when the fuel prefilter is installed at the height of the tank). To do this, turn knurled screw ④ clockwise.
- ▶ Operate hand pump ③ and collect the water/fuel mixture.
- ▶ Tighten drain screw ②.
- ▶ Open fuel supply by opening knurled screw ④.
- ▶ Start engine and run for about 1 minute.
The fuel system bleeds itself automatically.
- ▶ Check fuel system for leaks.

Fuel system

Bleeding

- ▶ Press hand pump ③ of fuel prefilter repeatedly until the filter housing is completely filled with fuel.
- ▶ Start engine and run for about 1 minute.
The fuel system bleeds itself automatically.

Environmental warning



Dispose of the water/fuel mixture properly without contaminating the environment.

Vehicles with fuel prefilter and heated water separator

Dewatering

- ▶ Before bleeding, check whether water has settled in the sightglass ①.
If water has settled in the sightglass ①, drain water from fuel system.
- ▶ Close knurled screw ④ on fuel prefilter.
- ▶ Place a container under drain screw ②.
- ▶ Slacken drain screw ②.
- ▶ Operate hand pump ③ and collect the water/fuel mixture.
- ▶ Tighten drain screw ②.
- ▶ Open knurled screw ④ on fuel prefilter.

Bleeding

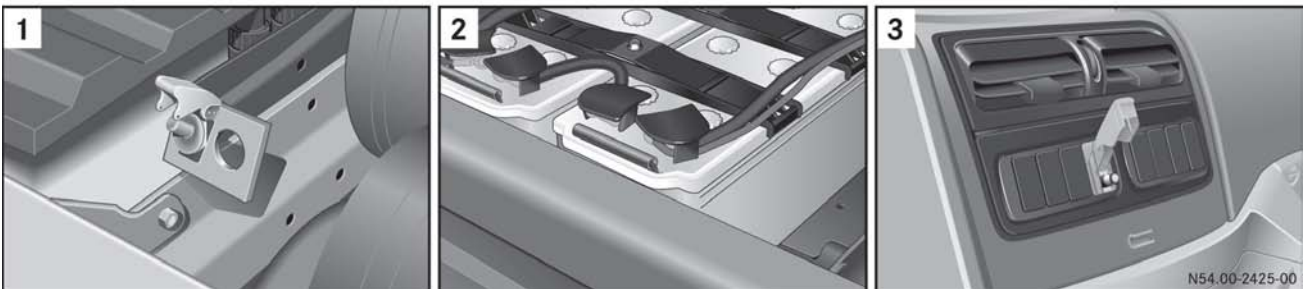
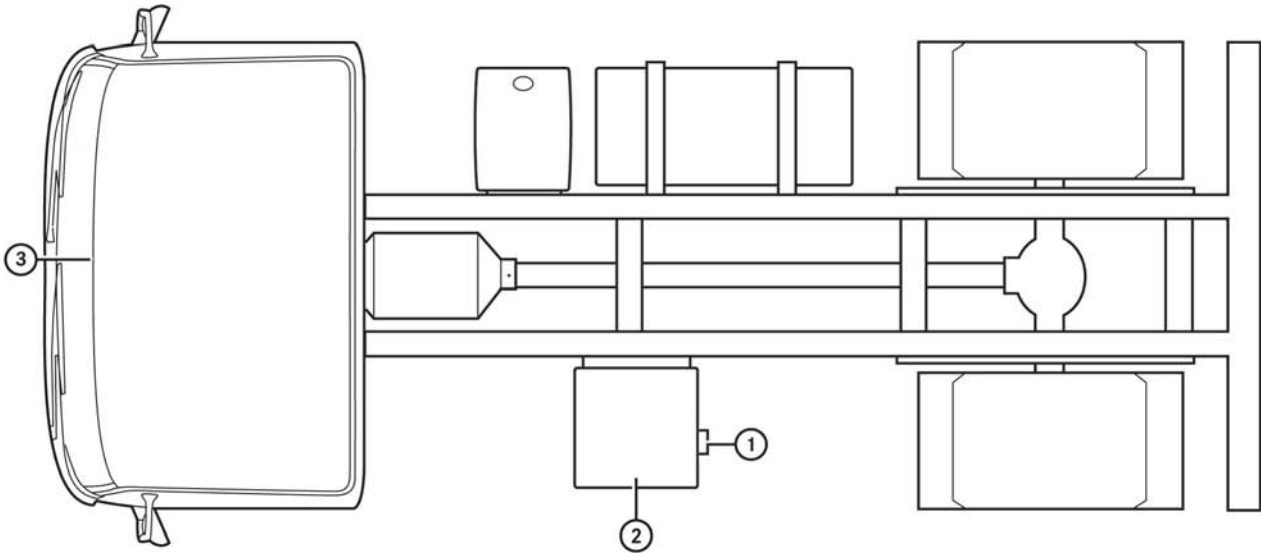
- ▶ Remove cap from main fuel tank.
- ▶ Slacken bleed screw ⑤.
- ▶ Check that the knurled screw ④ is at "FUEL ON".
- ▶ Place receptacle underneath.
- ▶ Operate hand pump ③.
- ▶ Bleed until the fuel emerges free of bubbles. If no fuel emerges, refuel main fuel tank with diesel and repeat the procedure.
- ▶ Tighten bleed screw ⑤.
- ▶ Operate hand pump ③ about 200 times if the system is completely empty.
The fuel system is bled.
- ▶ Fit and tighten cap on main fuel tank.
- ▶ Start engine.

Environmental warning



Dispose of the water/fuel mixture properly without contaminating the environment.

Overview of electrical system



①	EMERGENCY OFF switch on carrier frame (see page 60)	③	EMERGENCY OFF switch on dashboard (see page 60)
②	Batteries (see page 62)		

Electrical system

EMERGENCY OFF switch

Vehicles used to transport hazardous goods are equipped with two EMERGENCY OFF switches. The switches are used to interrupt the power supply in an emergency. This prevents short circuits with sparks which may ignite a fire or an explosion.

Risk of accident



Press the EMERGENCY OFF switch only in the event of danger and only when the vehicle is stationary; never while driving. The EMERGENCY OFF switch kills the engine automatically, i.e. the power steering is inoperative as well. The vehicle can only be steered with increased effort.

EMERGENCY OFF switch on dashboard

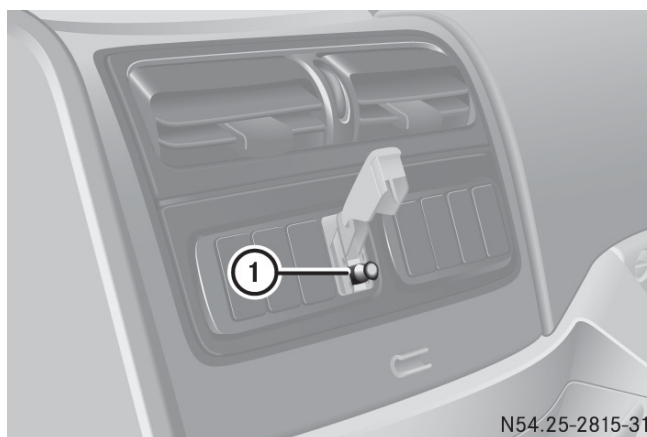
Interrupting the power supply

- ▶ Open cover.
- ▶ Pull out switch pin ①.

All consumers are disconnected from the battery with the exception of the tachograph.

Restoring the power supply

- ▶ Turn the vehicle key in the steering lock all the way back.
- ▶ Press cover down until it clicks into place.
- ▶ Turn vehicle key in steering lock to drive position.



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EMERGENCY OFF switch on battery carrier frame

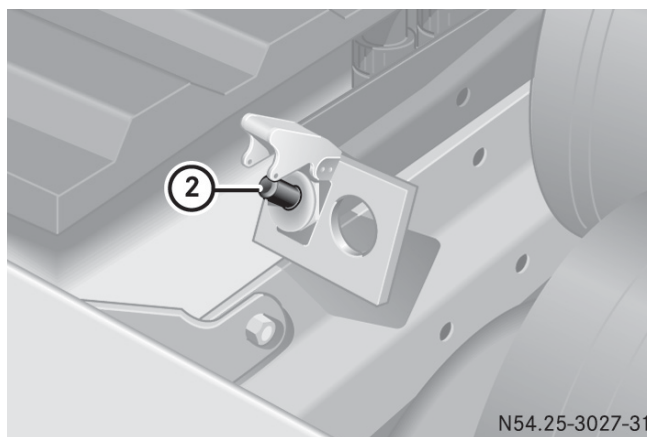
Interrupting the power supply

- ▶ Open cover.
- ▶ Swing switch lever ② up.

All consumers are disconnected from the battery with the exception of the tachograph.

Restoring the power supply

- ▶ Press cover all the way down.
- The EMERGENCY OFF switch is switched off and the power supply is restored.



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Jump starting

When the vehicle batteries are flat, another vehicle can be used to jump start the engine.

Risk of explosion



While jump starting, deflagration may occur due to gases escaping from the batteries. Avoid producing sparks. Do not use open flames near batteries, and do not smoke.

When handling batteries, always comply with the safety information and precautions, see page 62



Before jump starting, the condition of the batteries must be checked.

The vehicle must not be jump started when the batteries

- are visibly damaged
- are frozen
- or the fluid level has dropped below "Min." (see "Min./Max." mark on battery housing).

Replace the batteries.

Discharged batteries may freeze at temperatures of $-10\text{ }^{\circ}\text{C}$. In this case do not start the engine. Let the battery thaw out first.

Do not use a quick charger for jump starting.

Only jump start from two 12 V batteries connected in series or from vehicles with 24 V system.

Use jumper cables that are protected against reverse polarity and have a cross section of about 35–50 mm² and insulated terminal clips.

Before jump starting with a mobile charging station (batteries with power supply unit), pull the mains plug. Overvoltages can damage electronic components in the vehicle.

Do not connect the ground cable to the vehicle frame. This can cause damage to the engine or transmission components.

Electrical system

Batteries

Risk of explosion/injury



Risk of explosion

Charging batteries produces explosive oxyhydrogen gas. Batteries should only be charged in well-ventilated rooms.



Risk of explosion

Avoid producing sparks! Do not use fire or open flames near batteries, and do not smoke.



Battery acid is corrosive.

Wear acid-proof protective gloves! Splashes of acid on the skin or clothing should be neutralized immediately with soapy water or an acid neutralizer, and then rinsed with water.



Wear eye protection. When mixing water and acid the fluid can splash into your eyes. If acid splashes in the eyes, flush it out immediately with clean water and seek medical attention without delay!



Keep children away. Children are incapable of appreciating the dangers of handling batteries and acid.



When handling batteries, always comply with the safety information, precautions and procedures contained in the operating instructions.

Environmental warning



Batteries contain pollutants. Old batteries must not be discarded with household refuse.



Dispose of batteries in an environmentally acceptable way. Hand in batteries to a specialist workshop, e.g. a Mercedes-Benz service center, or a recycling station for used batteries.

Full batteries must be transported and stored upright. Secure batteries to prevent them from tipping over while transporting. Battery acid can escape from the blow holes of the stop plugs and contaminate the environment.

Disconnecting and connecting batteries

The batteries are on the left-hand side on the frame behind the cab.

Risk of injury



There is a risk of short circuit if the positive terminal of the connected battery comes into contact with vehicle parts. This can cause the highly volatile gas mixture to ignite. You and others could be seriously injured.

- Never place any metal objects or tools on the batteries
- When disconnecting the batteries, always disconnect first the negative and then the positive terminal
- When connecting the batteries, always connect first the positive and then the negative terminal
- Never disconnect or connect the battery terminals while the engine is running.

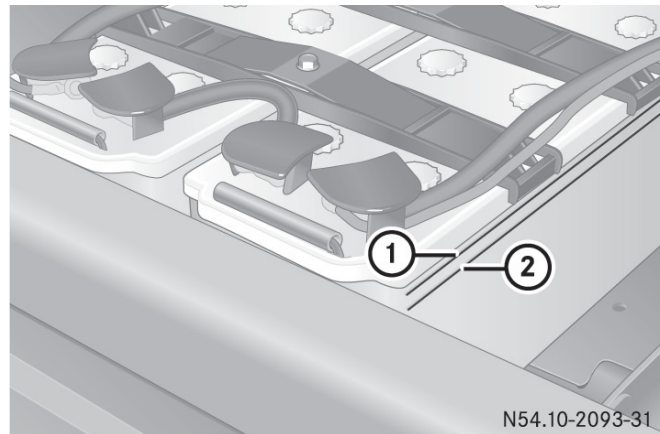
Disconnecting batteries



Vehicles with BlueTec[®] exhaust aftertreatment: Wait at least 5 minutes after switching off the engine before disconnecting the battery.

This period is necessary to ensure proper operation of the exhaust aftertreatment system after restarting.

- ▶ Turn the vehicle key in the steering lock all the way back and remove.
- ▶ Switch off all electrical consumers.
- ▶ Open and remove battery cover.
- ▶ Disconnect negative terminal.
- ▶ Disconnect positive terminal.



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Connecting batteries

- ▶ Turn the vehicle key in the steering lock all the way back and remove.
- ▶ Switch off all electrical consumers.
- ▶ Connect positive terminal.
Do not mix up the terminals!
- ▶ Connect negative terminal.
- ▶ Install battery cover.

After a power interruption, perform the following work:

- ▶ Set clock.
- ▶ Deactivate anti-theft system on audio device (radio) (see manufacturer's operating instructions).

Electrical system

Fuses

Risk of fire



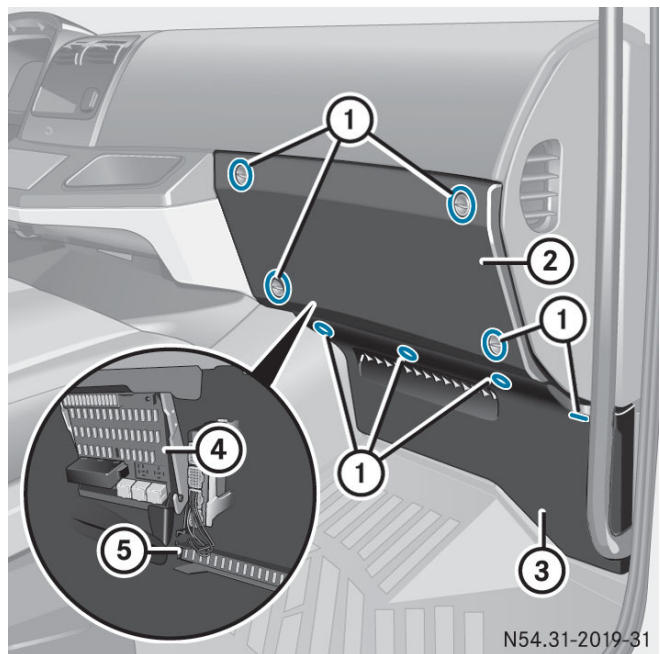
Do not use fuses with a higher amperage than that specified. This could result in damage to the electrical system and even cable fires.

Only use fuses of the specified amperage and never bridge or repair any fuses. Only replace fuses when the cause of the fault has been rectified.

①	Latches
②	Top cover
③	Bottom cover
④	Main fuse carrier
⑤	Additional fuse carrier

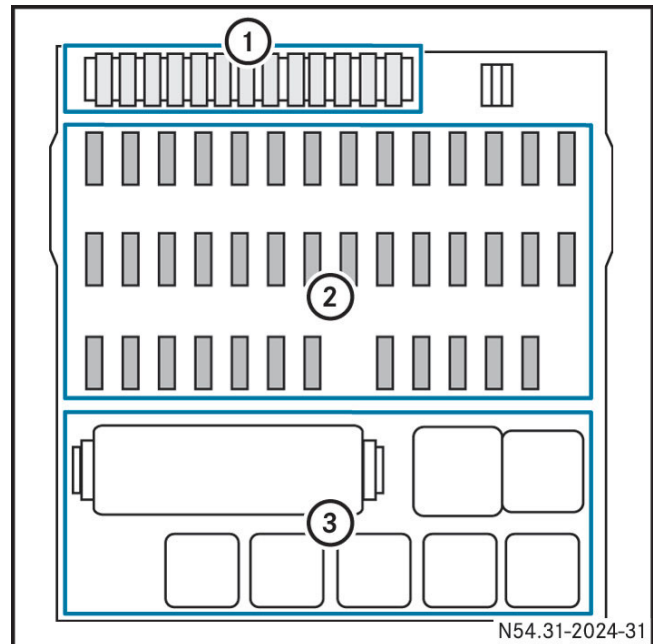
The fuse box with the main and additional fuse carriers is located in the footwell on the passenger side.

- ▶ Undo latches ①.
- ▶ Remove the bottom cover ③ first and then the top cover ②.



Location of fuses in main fuse carrier

①	Spare fuses
②	Fuses F1 – F41
③	Relays



Fuse assignment of Atego base module

GM	Consumer		GM	Consumer	
F1	Fog lamps, including trailer	10 A	F14	Headlamp cleaning system	10 A
F2	Instrument/switch illumination, headlamp cleaning, distributor terminal 58	10 A	F15	Alternator, transmission, heavy vehicle fee system terminal 15	10 A
F3	Additional turn signal lamps	10 A	F16	Power take-off	10 A
F4	Pop-up roof, radio 24 V, frequent-stop brake terminal 30	10 A	F17	Blower, air conditioning	20 A
F5	Work lamp, heavy vehicle fee system terminal 30	10 A	F18	Radio, telephone, auxiliary heater, fax, Instrument terminal 15R	10 A
F6	Not assigned		F19	Cigarette lighter	10 A
F7	Distributor terminal D+	15 A	F20	Passenger door power window	15 A
F8	Heated outside mirror	10 A	F21	Driver door switch unit	15 A
F9	24 V sockets	15 A	F22	Wiper/washer/turn signal system terminal 30	10 A
F10	Diagnostic socket, Instrument, tachograph terminal 30	10 A	F23	Right low beam	10 A
F11	Trailer socket terminal 30	20 A	F24	Left low beam	10 A
F12	Trailer socket, ABS terminal 30	20 A	F25	Right high beam	10 A
F13	Interior illumination, Toll Collect terminal 30	10 A	F26	Left high beam, high beam indicator lamp	10 A

Electrical system

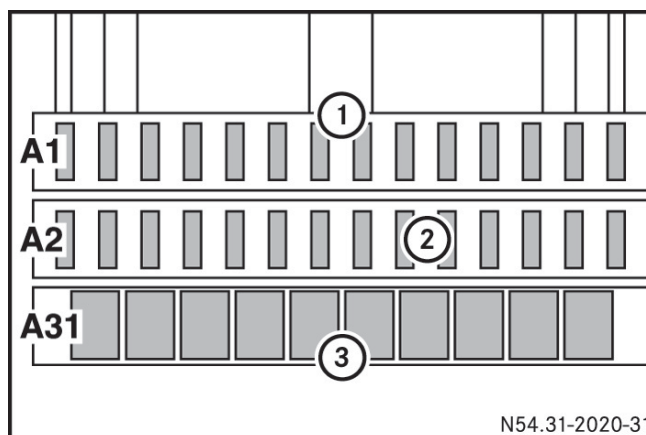
GM	Consumer		GM	Consumer	
F27	Left taillight, standing light, side marker lamp, trailer socket, Toll Collect terminal 58	10 A	F35	Trailer socket ABS, condensation sensor	10 A
F28	Right taillight, standing light, side marker lamp, trailer socket	10 A	F36	Not assigned	
F29	Transmission control	10 A	F37	Windshield washer system	10 A
F30	Engine control terminal 15, hazardous goods: EMERGENCY OFF	10 A	F38	Tachograph, Instrument, airbag terminal 15	10 A
F31	Outside mirror adjustment, SCR frame module terminal 15	10 A	F39	Horn, air horn, Toll Collect, diagnostic socket, FleetBoard®, distributor terminal 15	10 A
F32	All-wheel drive, transmission oil cooling terminal 15	10 A	F40	Differential locks	10 A
F33	Wiper/washer/turn signal system, trailer socket terminal 15	10 A	F41	Seat heater	10 A
F34	Brake lights, trailer socket, backup lamp	10 A			

Location of fuses in additional fuse carrier

①	Fuses F1 – F14 (A1)
②	Fuses F1 – F14 (A2)
③	Relays (A31/A32)

❗

The inside of the fuse box cover bears a vehicle-specific adhesive label showing the fuse assignments.



Fuse assignment of Atego additional fuse carrier

Fuse module A1

A1	Consumer		A1	Consumer	
F1	Auxiliary heater clock, Toll Collect, FleetBoard® terminal 30	10 A	F8	Central locking/comfort locking system, radio remote control	10 A
F2	Auxiliary heater	20 A	F9	Compressed air drier	10 A
F3	Central locking/comfort locking system	15 A	F10	Other make body electrical system	15 A
F4	Comfort locking system	10 A	F11	SCR frame module terminal 30	15 A
F5	Electropneumatic brake, hand lamp socket terminal 15	10 A	F12	Cargo liftgate	10 A
F6	12 V sockets	15 A	F13	Transmission control	10 A
F7	Voltage converter 24 V/12 V 8 A,	10 A	F14	Work lamp	10 A
	Voltage converter 24 V/12 V 15 A	15 A			

Fuse module A2

A2	Consumer		A2	Consumer	
F1	Windshield heater	20 A	F8	Rotating beacon	10 A
F2	Daytime running lights	10 A	F9	Electropneumatic brake	15 A
F3	Windshield heater	10 A	F10	Mobile phone terminal 30	10 A
F4	Transmission oil cooling	15 A	F11	Not assigned	
	Allison transmission oil cooling	25 A	F12	Mobile phone terminal 15	10 A
F5			F13	Windshield heater	20 A
F6			F14	Electropneumatic brake	15 A
F7	Additional headlamps	10 A			

Transmission

Overview of transmissions

The Atego is available with three different versions of transmission shift.



N26.60-2370-31

Manual gearshift system, see page 69



N27.60-2097-31

Automatic transmission, see page 71



N26.19-2096-31


Telligent[®] automatic gearshift system, see page 73

Manual gearshift system

Risk of accident



You may not be able to operate the clutch or change gears properly if there is pressure loss in the ancillary consumer circuit. This could mean that you may not be able to escape from danger areas quickly enough.

If the display shows  and the status indicator lights up yellow, do not start to move the vehicle or, if moving, stop it as quickly as possible taking into account the traffic situation.

Have the compressed air system checked and repaired as quickly as possible at a qualified specialist workshop possessing the required expertise and tools in order to perform the necessary safety-relevant work.

Mercedes-Benz recommends a Mercedes-Benz service center for this work. It is absolutely essential that all safety-relevant work and all work on safety-relevant systems is performed by a qualified specialist workshop.



When changing gear make sure that the engine speed does not rise to the red danger area on the tachometer.

Always release the gearshift lever when the shift operation is complete and do not rest your hand or arm on the gearshift lever. You might otherwise damage the transmission.

If the warning buzzer sounds when shifting down, the maximum permissible engine speed has been exceeded. Do not let in the clutch, but select a higher gear (risk of clutch and engine damage due to overrevving). To protect the transmission synchronization the power assistance for the gearshift is deactivated automatically. This means that greater force is required to operate the gearshift lever.

Only engage reverse gear when at idle speed with the vehicle stationary.

Driving with very low or very high engine speeds will damage the engine.

- ▶ Fully depress clutch pedal.
- ▶ Move the gearshift lever to shift to the desired gear without using excessive force.
- ▶ Select the shift range according to the model of manual transmission installed:
 - 6-speed transmission, see page 70
 - 9-speed transmission, see page 70
- ▶ Gradually release clutch pedal.

When the vehicle is stationary with the engine running and the transmission in neutral, the engine responds only gradually to the throttle.

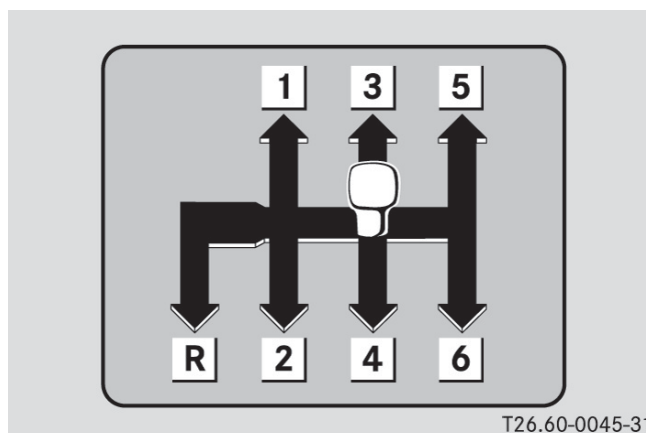
Transmission

6-speed transmission

The 6-speed transmission is a manually operated transmission.

The shift range is divided into:

- Reverse gear **R**
- Gears **1** to **6**.



!

If it is not possible to change gear while driving, the journey can be continued in the engaged gear as long as circumstances allow (pay attention to the traffic situation). Whether it is possible to move off from stationary depends on the gear engaged and on the vehicle load.

Have the malfunction repaired immediately at a qualified specialist workshop possessing the required expertise and tools in order to perform the necessary work. Mercedes-Benz recommends a Mercedes-Benz service center for this work.

It is absolutely essential that all safety-relevant work and all work on safety-relevant systems is performed by a qualified specialist workshop.

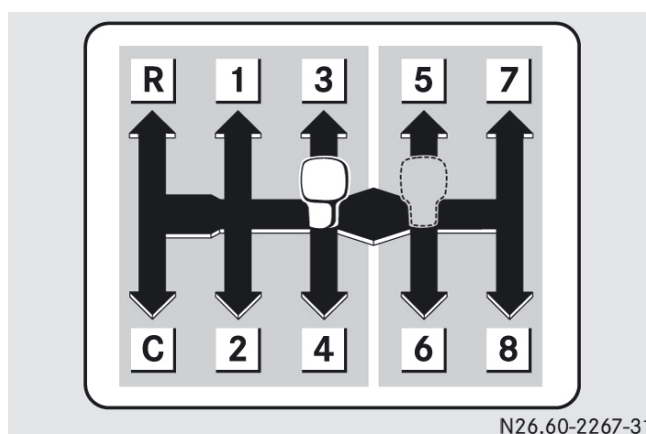
9-speed transmission

The 9-speed transmission is a manually operated transmission. It is arranged as a double H shift.

The shift ranges of the transmission are divided into:

- The low-speed shift range "L"; it comprises:
 - Reverse gear **R**
 - Crawler gear **C**
 - Gears **1** to **4**
- The high-speed shift range "H"; it comprises:
 - Gears **5** to **8**.

When the transmission is in neutral, the gearshift lever is in the shift track between 3rd and 4th gear or between 5th and 6th gear.



Shift range change

!

Only change the shift range from the high range to the low range when traveling at a speed of less than 25 km/h.

Automatic transmission

Risk of accident



Do not shift down to braking on slippery roads. The drive wheels could lose grip and the vehicle could start to skid.

The automatic transmission is equipped with a button shift.


The individual gears are shifted automatically according to:

- Shift range
- Vehicle speed
- Accelerator pedal position
- Shift program
- Retarder


The driver can limit or extend the shift range at any time.

The engine can only be started when the transmission is in neutral N.



If the indicator lamp  lights up while driving, the temperature of the transmission oil or coolant is too high. This may be caused by an excessive or insufficient transmission oil level. If the transmission oil temperature is continuously too high, transmission damage is possible.

If there are shift problems in the transmission, the display shows **ACN** and the status indicator lights up yellow or red. There is a risk of transmission damage.



If the indicator lamp  flashes while driving, the power of the retarder is reduced automatically.

①	2-digit display Left: Selected shift range, e.g. 5 Right: Engaged gear, e.g. 1
②	MODE indicator lamp
③	MODE button
④	Extend shift range
⑤	Limit shift range
⑥	Drive position
⑦	Transmission neutral
⑧	Reverse gear



Transmission

Starting off

- ▶ Apply the service brake; do not depress the accelerator pedal.
- ▶ Press button D  or R .
- ▶ Vehicles with backup warning system: The backup warning system sounds in reverse gear.
- ▶ Only release the brakes when ready to move off, otherwise there is a risk of the vehicle starting off prematurely (creeping forward). On uphill gradients release the brakes and simultaneously depress the accelerator pedal.

Telligent® automatic gearshift system


The Telligent® automatic gearshift system has 6 forward gears and 1 reverse gear.

The electronic system controls the operation of the clutch automatically while driving (e.g. when moving off, maneuvering, changing gear and stopping).

Risk of accident



There is a risk of accident if there is a pressure loss in the ancillary consumer circuit. You may not be able to operate the clutch or change gears properly, and may not be able to escape from danger areas quickly enough.

If the display shows  and the status indicator lights up yellow, do not start to move the vehicle or, if moving, stop it as quickly as possible taking into account the traffic situation.

Have the compressed air system checked and repaired as quickly as possible at a qualified specialist workshop possessing the required expertise and tools in order to perform the necessary work.

Mercedes-Benz recommends a Mercedes-Benz service center for this work. It is absolutely essential that all safety-relevant work and all work on safety-relevant systems is performed by a qualified specialist workshop.

Risk of accident

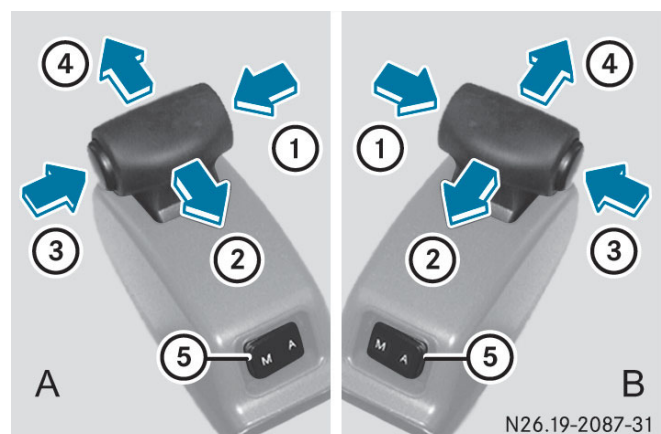


When driving off-road or with the differential lock engaged in automatic mode A, shift operations performed by the electronic system can lead to undesirable interruptions of the tractive power. The power flow is interrupted and the vehicle may roll back on uphill gradients, for example, causing an accident.

Never drive off-road with the differential lock engaged in automatic mode A.

For this sort of driving, always select manual mode M in order to be able to initiate the gearchanges yourself according to the driving situation.

A	Left-hand drive vehicles
B	Right-hand drive vehicles
①	Neutral button
②	Downshift/shift to reverse gear
③	Function button
④	Upshift
⑤	Mode selector switch
M	Manual mode
A	Automatic mode



Transmission

Operating modes

Automatic mode

- ▶ Press mode selector switch ⑤.

Vehicles with Standard onboard computer: The display shows A constantly.

Vehicles with Plus onboard computer: The display shows Auto constantly.

Manual mode

- ▶ Press mode selector switch ⑤.

Vehicles with Standard onboard computer: The display shows M constantly.

Vehicles with Plus onboard computer: The display shows Man constantly.

Starting off

- ▶ Press function button ③.

- ▶ Push gearshift lever forward ④.

The Telligent[®] automatic gearshift system shifts to 1st gear (start-off gear) automatically.

The selected gear flashes briefly on the right-hand side of the gear indicator and then changes to the left-hand position.

- ▶ Release parking brake and slowly depress accelerator pedal.

The vehicle moves off.

Neutral position

- ▶ Stop the vehicle.

- ▶ Press neutral button ①.

The display shows N.

Reverse gear

Reverse gear can only be engaged when the vehicle is stationary and the transmission is in neutral N.

- ▶ Depress brake pedal or apply parking brake.

- ▶ Press function button ③, hold down and pull gearshift lever back ②.

The gearshift is complete when the display shows R.

Vehicles with backup warning system: The backup warning system sounds.

- ▶ Release brake pedal or parking brake.

- ▶ Slowly depress accelerator pedal.

Teach-in process



The teach-in process cannot be performed in vehicles with automatic transmission.

In vehicles with Telligent[®] automatic gearshift system, the minor or major teach-in process is necessary in order to program vehicle-specific data in the electronic system of the transmission control (GS), e.g. if the clutch has been replaced or a fault has occurred.

If a fault is displayed:

- ▶ Stop the vehicle.
- ▶ Apply parking brake.
- ▶ Switch off engine.
- ▶ Perform minor or major teach-in process.

Notes on the teach-in process

The display of the engaged gear remains off for the entire duration of the teach-in process.

If a teach-in process is aborted, an event message is shown in the display.

- ▶ Turn the vehicle key in the steering lock all the way back and wait at least 5 seconds.
- ▶ The displays in the gear indicator disappear.
- ▶ Repeat teach-in process.



Teach-in or operating errors are indicated by a fault code in the display, see page 77.

Minor teach-in process

The minor teach-in process is necessary when sensors on the transmission or on the clutch, or the clutch itself, have been replaced.

- ▶ Press and hold down neutral button.
- ▶ Turn vehicle key in steering lock to drive position.
The gear indicator displays the transmission neutral position N.
- ▶ Release neutral button.
The teach-in process is complete.



If the fault display reappears in the electronic system of the transmission control (GS) after the minor teach-in process, perform the major teach-in process.

Transmission

Major teach-in process

The major teach-in process is necessary when

- The GS control unit has been replaced
- The engine has been replaced
- Fault code a 2 1011 is displayed
- Fault code a 2 8093 is displayed



If fault code a 2 1011 was displayed, turn the vehicle key in the steering lock all the way back, wait about 5 seconds and then turn it back to the drive position.

- ▶ Press and hold down neutral button and function button.
- ▶ Turn vehicle key in steering lock to drive position.
- ▶ Start the engine within 10 seconds when the transmission neutral position N flashes in the display.
- ▶ Release neutral button and function button.

The teach-in process is complete.



If the fault displays do not disappear after the teach-in process, have the fault rectified at a qualified specialist workshop possessing the required expertise and tools in order to perform the necessary work.

Mercedes-Benz recommends a Mercedes-Benz service center for this work.

Teach-in errors

Teach-in or operating errors during the teach-in process are indicated by fault codes in the display. These fault codes are not stored.

Fault code	Cause	Remedy
GS 06-GS 18/ GS 27/GS 29/ GS 32	Learning error	<ul style="list-style-type: none"> ▶ Repeat teach-in process. <p>If this fault code reappears after the teach-in process, have the fault rectified at a qualified specialist workshop possessing the required expertise and tools in order to perform the necessary work. Mercedes-Benz recommends a Mercedes-Benz service center for this work.</p>
GS 19	Vehicle rolling.	<ul style="list-style-type: none"> ▶ Apply parking brake.
GS 20	The display shows U <<<.	<ul style="list-style-type: none"> ▶ Charge or replace the battery.
GS 21	The clutch pedal was released too early or too late during the teach-in process.	<ul style="list-style-type: none"> ▶ Depress the clutch pedal at the right time (listen for the warning buzzer).
GS 22	The neutral button was released during the teach-in process.	<ul style="list-style-type: none"> ▶ Press and hold down neutral button.
GS 23	Learning error	<ul style="list-style-type: none"> ▶ Perform major teach-in process.
GS 24	Parking brake not applied during the teach-in process.	<ul style="list-style-type: none"> ▶ Apply parking brake.
GS 26	Engine running.	<ul style="list-style-type: none"> ▶ Minor teach-in process: Switch off the engine. ▶ Major teach-in process: Do not start the engine until the transmission neutral position flashes.
GS 28	Engine not started.	<ul style="list-style-type: none"> ▶ Start the engine when the transmission neutral position flashes.
GS 30	The accelerator pedal was operated during the teach-in process.	<ul style="list-style-type: none"> ▶ Do not depress the accelerator pedal during the teach-in process.

Brake system

General

In the basic version the service brake is a pneumatically controlled brake with antilock brake system (ABS). As well as the basic version, the service brake is also available as the Telligent[®] brake system. The Telligent[®] brake system features an electronic control system to control and monitor the brake system and incorporating the following systems:

- Antilock brake system (ABS)
- Acceleration skid control (ASR)
- Hill holder
- Frequent-stop brake

To relieve the strain on the wheel brakes the Telligent[®] brake system can activate the vehicle's built-in permanent brake depending on the load state of the vehicle and the weather conditions.

If there are any faults in the brake system, an appropriate message is shown in the display.

If the electronic system fails, the brake system is controlled pneumatically in two circuits. Braking behavior is significantly different from that of the intact system. The ABS function is no longer available, the pedal travel is longer and the pedal forces are higher.

While driving, the air compressor replenishment function prevents the trailer brake from responding.

Releasing the spring-loaded parking brake, see page 82.

Pressure table

	Pressure	Circuit	Four-circuit protection valve
Pressure regulator cut-in/cutoff pressure	about 10.2/12.3 bar		
Reservoir pressure, rear axle service brake	about 9.7–10.7 bar	1	21
Reservoir pressure, front axle service brake	about 9.7–10.7 bar	2	22
Reservoir pressure, parking brake and trailer brake	about 8.0–8.7 bar	3	23/25
Reservoir pressure, ancillary consumers	about 8.0–8.7 bar	4	24/26
Release pressure, spring-loaded parking brake	about 6.5 bar		
Reservoir pressure, Telligent [®] level control	max. 12.3 bar		
Air suspension system overflow valve	about 9.6–10 bar		

Frequent-stop brake

The frequent-stop brake requires less compressed air than the parking brake. When the frequent-stop brake switch is operated, a certain brake pressure is applied to all brake cylinders. The parking brake system is unaffected.

Risk of accident




The parking brake must be applied in order to switch off the engine. Otherwise the vehicle can roll away unintentionally. If necessary (e.g. on uphill or downhill gradients), secure the vehicle with wheel chocks.



N54.25-2761-31


Activating the frequent-stop brake


- ▶ Press top of frequent-stop brake switch.
The indicator lamp  in the instrument panel lights up.
The frequent-stop brake is standing by and will be activated when the vehicle stops.
- ▶ Brake vehicle to a standstill.
The frequent-stop brake is active and is ready to operate again when the vehicle moves off.

Releasing the frequent-stop brake

- ▶ Depress accelerator pedal.
As soon as the vehicle moves off, the frequent-stop brake is released automatically.

Deactivating the frequent-stop brake

- ▶ Press bottom of frequent-stop brake switch.
The indicator lamp  in the instrument panel goes out.

If the vehicle key in the steering lock is turned all the way back with the service brake released and the frequent-stop brake activated, the warning buzzer sounds. In addition the indicator lamp  in the instrument panel flashes.


- ▶ Apply parking brake.

Brake system

Hill holder

The hill holder is part of the Telligent[®] brake system and assists with moving off on gradients. When the hill holder is switched on, it remains in the ready state in forward and reverse gear even after an intermediate stop or when the engine is switched off. The hill holder prevents the vehicle from rolling away on uphill and downhill gradients and enables it to start off smoothly.

Activating the hill holder

- ▶ Press top of hill holder switch.
The hill holder is standing by, but is not yet active.
- ▶ Brake vehicle to a standstill.
The hill holder is active. The indicator lamp  in the instrument panel lights up.
The hill holder remains active as long as the brake or clutch pedal is slightly depressed.




N54.25-2760-31

Risk of accident



Do not activate the hill holder in wintry road conditions. The wheels could lock up after stopping on an uphill or downhill gradient, and the vehicle could slide away. The hill holder is merely an aid intended to provide assistance when moving off.


Releasing the hill holder

When the vehicle moves off, the hill holder is released automatically. The indicator lamp  in the instrument panel goes out.


Risk of accident




Vehicles with Telligent[®] automatic gearshift system:

If you release the brake pedal while the hill holder is active, the warning buzzer sounds briefly. The hill holder is released and the indicator lamp  in the instrument panel goes out. The vehicle can roll away unintentionally.

Vehicles without Telligent[®] automatic gearshift system:

If you do not depress the accelerator, clutch or brake pedal while the vehicle is stationary with the hill holder active, the warning buzzer sounds briefly. The hill holder is released and the indicator lamp  in the instrument panel goes out. The vehicle can roll away unintentionally.

Deactivating the hill holder

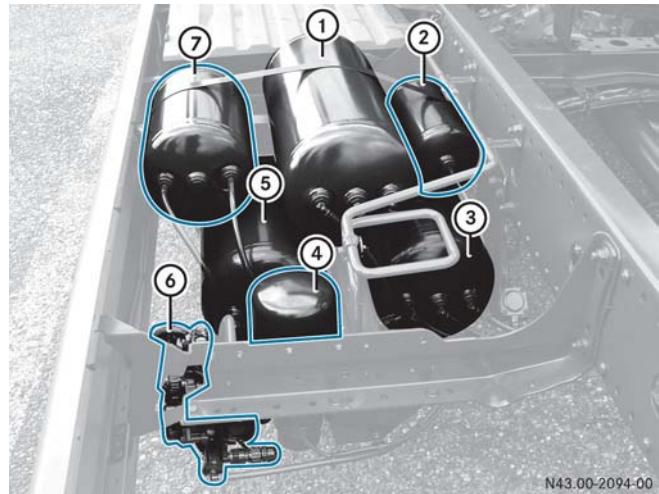
- ▶ Press bottom of hill holder switch.
The indicator lamp  in the instrument panel goes out.



If you apply the parking brake, the indicator lamp  in the instrument panel goes out. The hill holder is no longer active but continues to stand by.

Overview of compressed air reservoirs

①	Compressed air reservoir, circuit 1
②	Separate compressed air reservoir
③	Compressed air reservoir, circuit 2
④	Compressed air drier
⑤	Compressed air reservoir, circuit 4
⑥	Four-circuit protection valve
⑦	Compressed air reservoir, circuit 3



Filling the compressed air system from an external source

The entire compressed-air system can only be filled from an external source via the tire inflation connection ① or via the coupling head/filler connection (see page 90). Filling the brake system with ancillary consumers (except air suspension) from an external source requires a minimum pressure of 9 bar.

Vehicles with air suspension:

Filling the entire compressed air system requires a minimum pressure of about 10.5 bar.

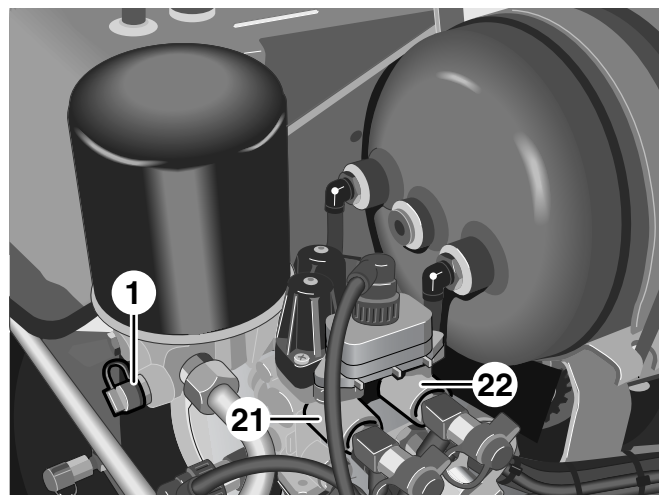
Separate filling of the air suspension system (see page 90).

Tire inflation connection

①	Tire inflation connection
②1	Test connection, brake circuit 1
②2	Test connection, brake circuit 2

The four-circuit protection valve and the compressed air drier are usually located on the vehicle frame on the left side.

On semitrailer tractors the four-circuit protection valve and the compressed air drier may be installed inside the frame. Detach any covers if necessary.



Brake system

The tire inflation connection ① is located on the compressed air drier. If the compressed air system is filled via the tire inflation connection ①, the compressed air is neither cleaned nor dried. The pressure safeguard of the pressure regulator is bypassed.

The maximum filling pressure of 12.5 bar must not be exceeded.

If the pressure in the towing vehicle is too low, brake circuits 1 and 2 can be filled directly via the corresponding test connections (②1 or ②2) on the four-circuit protection valve.



Compressed air that has not been cleaned and dried can lead to malfunctions and/or damage in the compressed air system. When filling the compressed air system, make sure that no dirt and no damp air is allowed to enter the compressed air system.

Releasing the spring-loaded parking brake

If there is no compressed air supply, the spring-loaded parking brake cannot be released. The emergency release devices allow the spring-loaded parking brake to be released pneumatically or mechanically.

Risk of accident



Before releasing the spring-loaded parking brake, secure the vehicle with wheel chocks to prevent it from rolling.

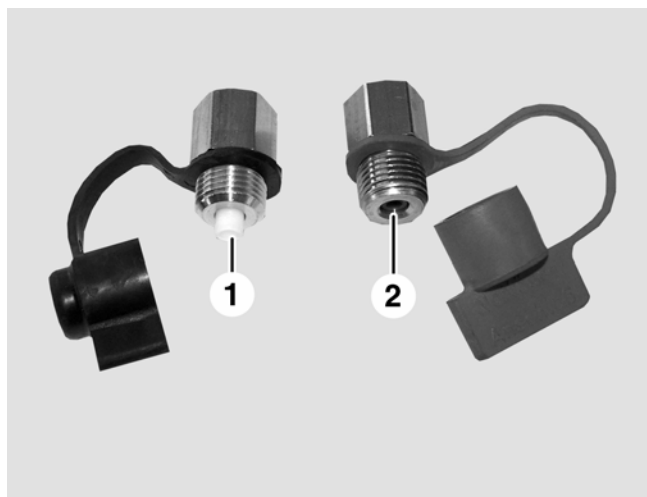
The spring-loaded cylinders of the parking brake must be restored to the operational state before the vehicle is operated.

Releasing the spring-loaded parking brake pneumatically

If it is not possible to fill the system via the tire inflation connection or the coupling head (see page 81), circuit 3 (see page 78) can be filled via the filling valve.

On vehicles manufactured from mid-2000 onwards, the filling valve ② is replaced by a test connection ①.

Do not confuse the filling valve ② with a test connection ①. The filling valve ② has a red dust cap with a wide rubber lip. The rubber lip bears the inscription "Emergency release connection". When the dust cap is removed, you will see the valve which is flush with the threaded connection. The valve in the test connection ① protrudes.



Releasing the spring-loaded parking brake mechanically

In an emergency, if there is insufficient reservoir pressure in the brake system, the spring-loaded parking brake can be released mechanically to allow the vehicle to be towed away.

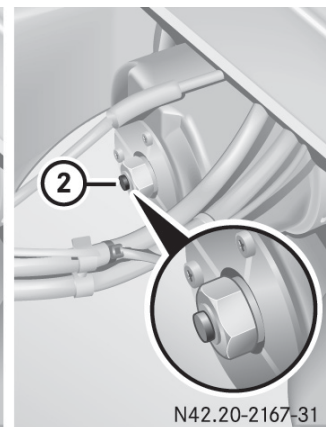
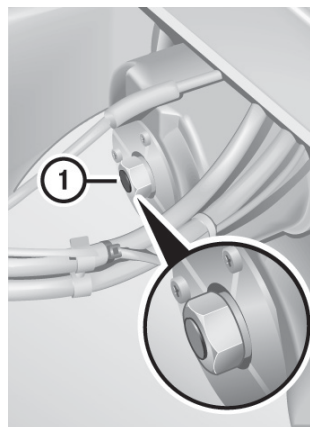
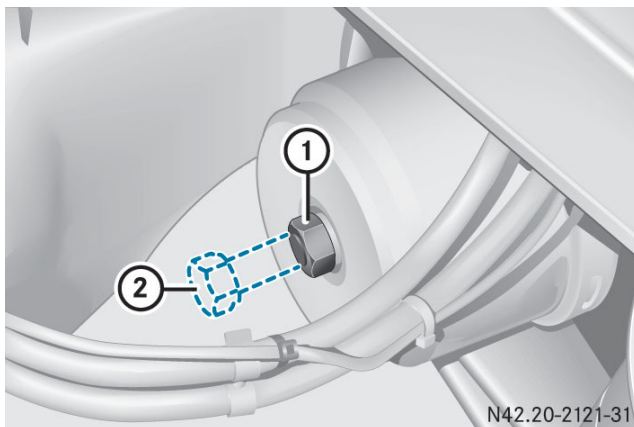
Risk of accident



Before releasing the spring-loaded parking brake, secure the vehicle with wheel chocks to prevent it from rolling. Attach a clearly visible sign on the mechanically released spring-loaded parking brake in the vehicle interior. The spring-loaded cylinders of the parking brake must be restored to the operational state before the vehicle is operated.

The vehicles can be fitted with the spring-loaded cylinder with release screw, the spring-loaded cylinder with release indicator or the twin-diaphragm brake cylinder on different axles.

Vehicle	Front axle	Rear axle(s)	
4 x 2, 4 x 4	X	X	–
6 x 2, 6 x 2/4		X	–



①	Brake position
②	Release position

Releasing the spring-loaded parking brake mechanically



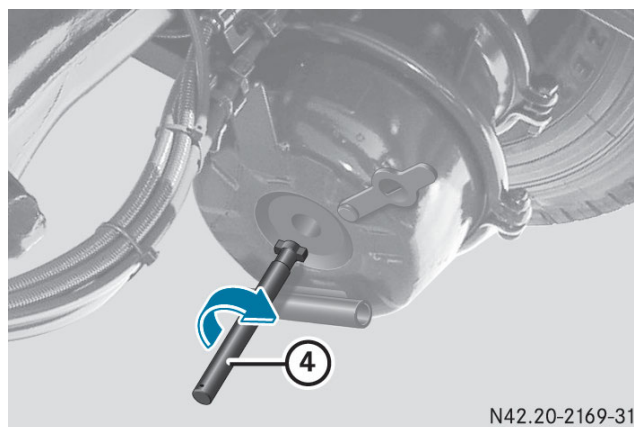
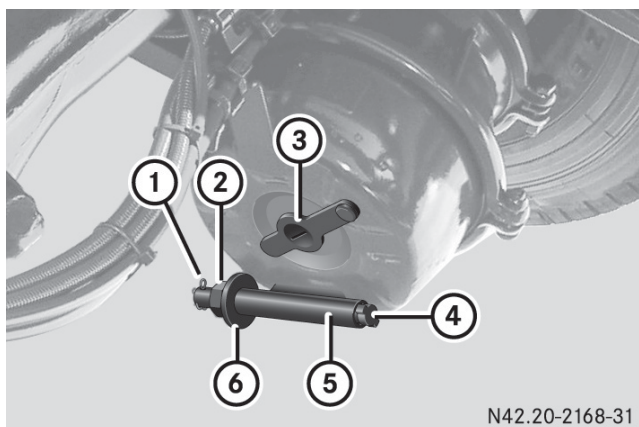
Maximum release torque 70 Nm. Do not use an impact wrench.

- ▶ Turn the release screws of the spring-loaded cylinders all the way counterclockwise to the release position ②.

Restoring spring-loaded parking brake to operational state

- ▶ Fill brake system up to cutoff pressure.
- ▶ Secure vehicle using wheel chocks to prevent it from rolling.
- ▶ Move lever of parking brake valve to release position.
- ▶ Clean and grease release screw before screwing in.
- ▶ Turn the release screw of the spring-loaded cylinder clockwise into position and screw tight.

Brake system



①	Cotter pin
②	Nut
③	Stop plug
④	Release bolt
⑤	Bracket (for release bolt)
⑥	Washer

Releasing the spring-loaded parking brake mechanically

- ▶ Remove cotter pin ① and unscrew nut ②.
- ▶ Remove washer ⑥.
- ▶ Pull release bolt ④ out of bracket ⑤.
- ▶ Remove stop plug ③.
- ▶ Insert release bolt ④ into hole of spring-loaded cylinder and turn 90° clockwise.
- ▶ Pull on the release bolt ④ to make sure that the release bolt ④ is firmly seated at the spring stop.

Risk of injury



Make sure that the release bolt is firmly seated at the spring stop. Otherwise the release bolt can come loose when the nut is tightened, and you could be injured.

- ▶ Screw nut ② with washer ⑥ onto release bolt ④.
- ▶ Release spring in spring-loaded cylinder mechanically by tightening nut ② in clockwise direction.



Tighten the nut to no more than 120 Nm otherwise the spring-loaded cylinder will be damaged.

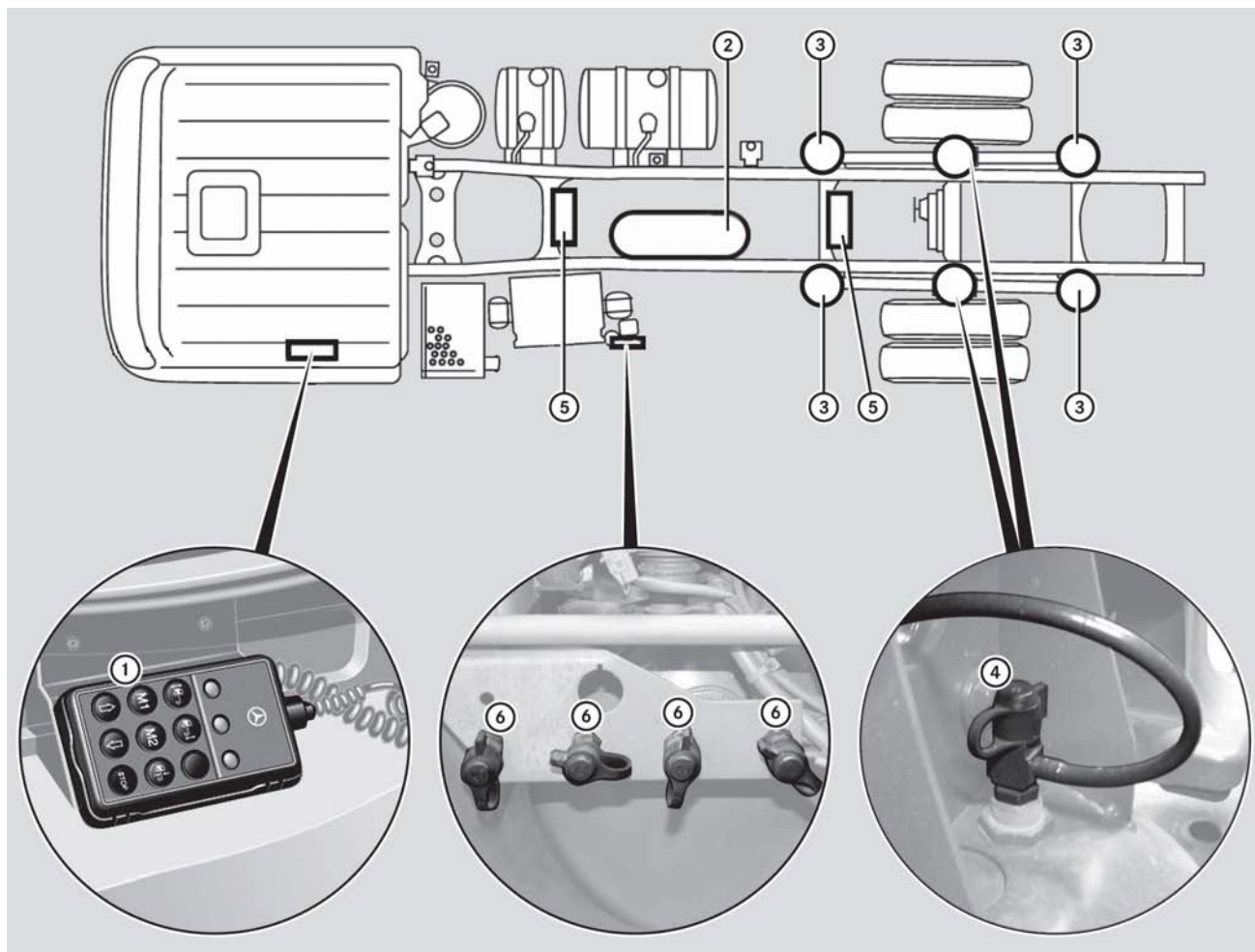
- ▶ Swing lever of parking brake valve to full brake position.
The combination cylinder is vented.

Restoring spring-loaded parking brake to driving position

- ▶ Clean and grease release screws before screwing in.
- ▶ Fill brake system up to cutoff pressure.
- ▶ Move lever of parking brake valve to release position.
- ▶ Unscrew nut ② with washer ⑥ from release bolt ④.
Unscrewing the nut ② retightens the spring in the spring-loaded cylinder.
- ▶ Turn release bolt ④ 90° counterclockwise and remove.
- ▶ Insert release bolt ④ into bracket ⑤.
- ▶ Screw nut ② with washer ⑥ onto release bolt ④ and secure with a new cotter pin ①.
- ▶ Seal hole in spring-loaded actuator with stop plug ③.

Telligent® level control

Diagram of Telligent® level control



①	Telligent® level control operating unit (beside driver seat)	④	Air spring bellows with test valve (2-bellows system)
②	Compressed air reservoir	⑤	Valve block for front or rear axle
③	Air spring bellows (4-bellows system)	⑥	Filler and test connections for air suspension system



Because of the pneumatic pilot control, a reservoir pressure is always necessary to actuate the air suspension with the operating unit.

General

The chassis frame can be raised/lowered.


❗

Vehicles with air-sprung rear axle:

The chassis frame can only be raised or lowered at the rear axle.

Vehicles with full air suspension:

The chassis frame can be raised or lowered at the front and rear axles.

When the vehicle key in the ignition lock is in the drive position, the height of the chassis frame readjusts automatically. If the height of the chassis frame is unable to readjust automatically, e.g. due to insufficient reservoir pressure in the compressed-air system, the display shows . Automatic readjustment is deactivated. If a fault occurs in the Telligent® level control, this is shown in the display. If the reservoir pressure in the compressed air system is too low:

- ▶ Start engine and leave to run.
The compressed air system is filled.

Operating unit

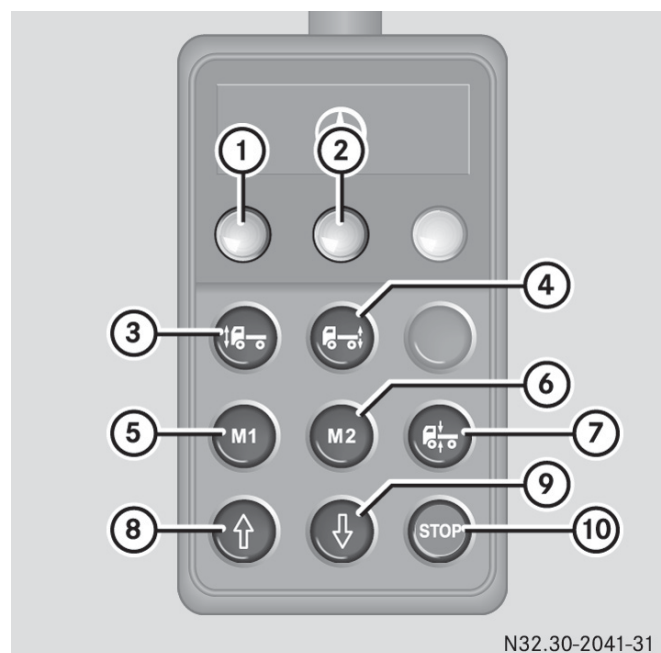
Risk of injury



If the operating unit for the Telligent® level control is not properly inserted into the holder provided, there is a risk of injury when leaving the cab. You could catch your foot in the connecting cable of the operating unit and trip.

For this reason, always insert the operating unit into the holder provided with the connecting cable towards the cab rear wall.

①	Operation indicator lamp, raise/lower chassis frame at front
②	Operation indicator lamp, raise/lower chassis frame at rear
③	ON/OFF, preselect chassis frame at front
④	ON/OFF, preselect chassis frame at rear
⑤	M1 = Memory, chassis frame height 1
⑥	M2 = Memory, chassis frame height 2
⑦	Normal level (driving position)
⑧	Raise
⑨	Lower
⑩	STOP (raise/lower)



N32.30-2041-31

Telligent® level control

Raising/lowering the chassis frame




Risk of accident



When driving with a raised driving level, there is a risk of damage if you fail to observe the headroom of underpasses.

Do not exceed the maximum permissible vehicle height when driving with a raised driving level. In the Federal Republic of Germany the permissible vehicle height is limited to 4 m. In other countries or if the vehicle is operated on international services, comply with all the relevant national regulations.

The handling and braking behavior of the vehicle may change when driving with a raised driving level.

- ▶ Apply parking brake.
- ▶ Turn vehicle key in steering lock to drive position.
- ▶ Press preselect button ③ or ④.
The operation indicator lamp ① or ② lights up.
- ▶ To raise the chassis frame at the front and rear simultaneously on vehicles with full air suspension, press preselect buttons ③ and ④ together.
The operation indicator lamps ① and ② light up.
- ▶ Press Raise button ⑧ or Lower button ⑨.
The display shows  or  and the status indicator lights up yellow.
Vehicles with Plus onboard computer: The indicator lamp  in the instrument panel lights up.
- ▶ When the desired height is reached, press STOP button ⑩.

Maintaining the level

A constant chassis frame height can be saved for loading and unloading the vehicle.

- ▶ Apply parking brake.
- ▶ Vehicles with leading axle: Lower the leading axle.
- ▶ If necessary, use the Raise ⑧ or Lower ⑨ button to set the desired height of the chassis frame.
- ▶ Start engine and run until the pressure regulator cuts out.
- ▶ Press and hold down the STOP button ⑩.
- ▶ Turn the vehicle key in the steering lock all the way back.
- ▶ Release STOP button ⑩.

If the reservoir pressure in the compressed air system is sufficient, the stored height of the chassis frame is kept constant for about 4 to 5 hours.





Lower the chassis frame all the way before removing interchangeable flatbeds or containers, otherwise the chassis frame will rebound violently when the body is removed. This can cause damage to the shock absorbers.


Normal level



When continuing to drive after changing the chassis frame height, you must return the chassis frame to the normal level (driving position).

- ▶ Press normal level button

The operation indicator lamps go out. The chassis frame rises or drops to the stored height automatically. When the normal level (driving position) is reached, the display  or  in the display and the status indicator go out.

Vehicles with Plus onboard computer: The indicator lamp  in the instrument panel goes out.

Telligent® level control

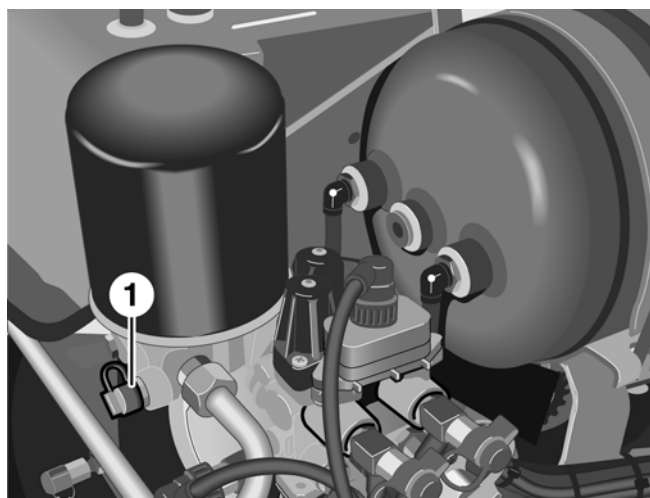
Filling the air suspension system from an external source

If it is not possible to fill the air suspension system via the tire inflation connection ① or the coupling head ② (see page 81), the system can be filled directly via the test connection ⑤.

Filling the air suspension system via the test connection ⑤ requires a minimum pressure of 8.5 bar.

Filling the air suspension system via the tire inflation connection ① or coupling head ② requires a minimum pressure of 10 bar.

The test connection for the air suspension is located on the left-hand side of the vehicle below the implement carrier.



Test connections

If the air suspension control system fails, the test connections ③, ④ and ⑥ can be used to raise and lower the chassis (minimum pressure 8.5 bar).

③	Front axle
④	Left rear axle
⑤	Air suspension supply (external filling)
⑥	Right rear axle



Raising or lowering the chassis frame via test connections

- ▶ Turn the vehicle key in the steering lock all the way back.

Raising or lowering the chassis frame at the front

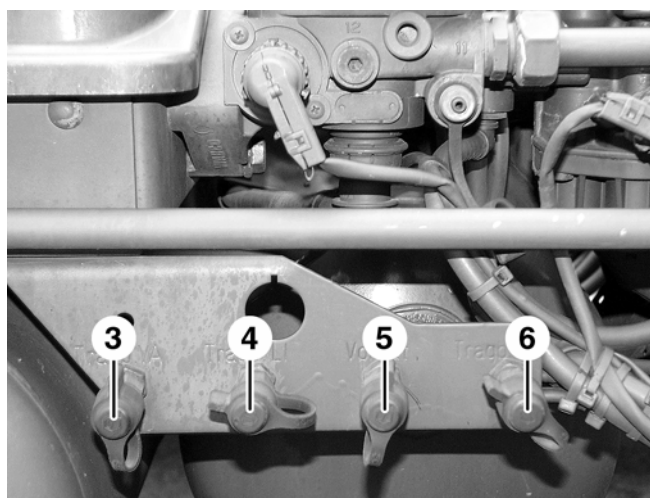
- ▶ Pressurize or depressurize test connection ③.

Raising or lowering the chassis frame at the rear

- ▶ Pressurize or depressurize test connection ④ for the left side and/or test connection ⑥ for the right side.



Do not raise the chassis frame all the way up. The shock absorbers could be damaged.



Tilting the cab

Before tilting the cab

- ▶ Apply parking brake.
- ▶ Shift transmission to neutral.
- ▶ Switch off engine.
- ▶ Switch off auxiliary heater.
- ▶ If you have to start the engine after tilting the cab: Turn the vehicle key in the steering lock to the drive position.
- ▶ Remove all loose objects (e.g. cans, bottles, tools, bags, etc.) from vehicle.
- ▶ Keep the areas in front of the gearshift lever and in front of the cab clear for safety reasons.
- ▶ Close all doors and stowage compartments in the cab.
- ▶ Close all outside flaps.
- ▶ Additionally secure the vehicle using wheel chocks to prevent it from rolling.
- ▶ Check that the coupling pin at the front is correctly inserted.

Mechanical cab tilt system

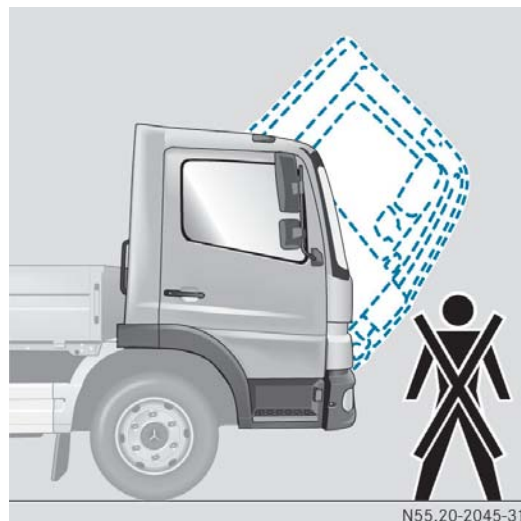
Risk of injury



The cab may suddenly drop forward to the end position when it is being tilted. Anybody standing in the tilting range of the cab could be injured.

Only tilt the cab when you are certain that nobody is standing in the tilting range. Only stand under the cab when it is in the fully tilted position.

Always tilt the cab all the way forward as far as the end stop.

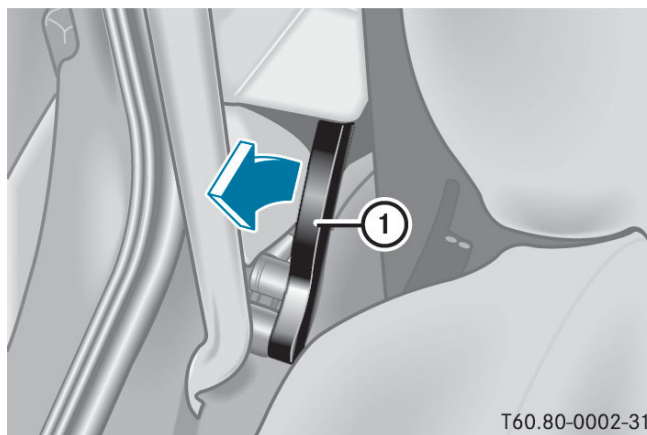


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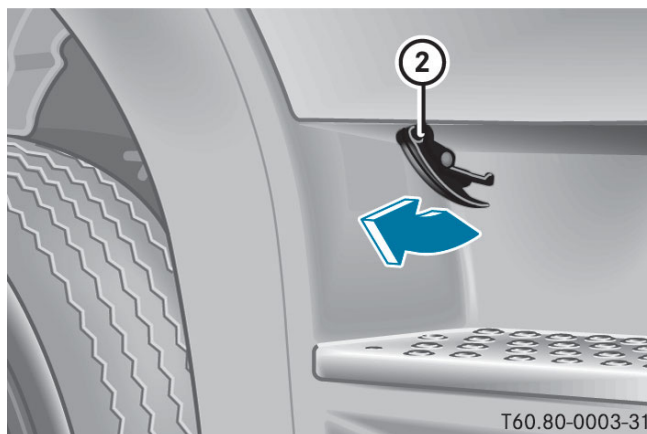
Tilting the cab

Tilting the cab forward

- ▶ Unlock the cab lock using the operating lever ① on the right behind the passenger seat.





- ▶ Unlock safety catch ② using operating lever. Unlocking can be facilitated by pulling the cab downwards by the grab handles.
- ▶ Tilt cab forward by the grab handles. The cab must engage in the safety catch ②.




Tilting back to driving position

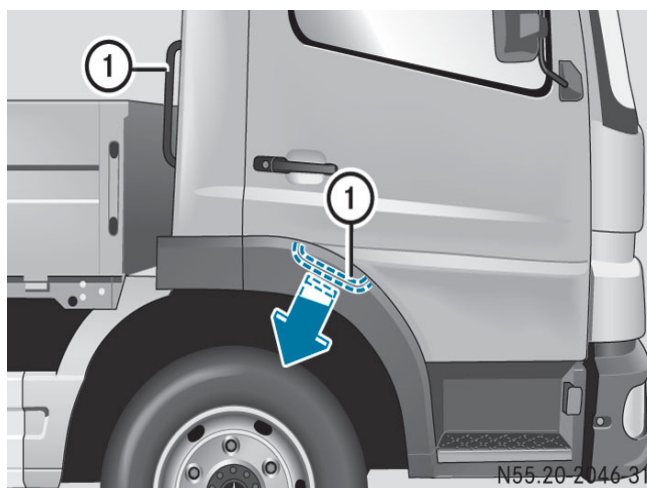
Risk of accident



If the indicator lamp  fails to go out when the engine is started, the cab is not locked. There is a danger of the cab tipping forward when the vehicle decelerates. Make sure that the indicator lamp  goes out after engine start. If necessary, repeat the lowering procedure and make sure that the cab locks in the driving position.

- ▶ Unlock safety catch at right-hand step using operating lever.
- ▶ Tilt cab back to driving position until it engages audibly in the cab lock.
- ▶ If necessary, push the cab into the cab lock by the grab handles.

The indicator lamp  should go out when the engine starts.



Mechanical/hydraulic cab tilt system

Always tilt the cab all the way forward as far as the end stop.

If the tilting hydraulics are defective or leaking, contact a qualified specialist workshop possessing the required expertise and tools for the necessary work.

Mercedes-Benz recommends a Mercedes-Benz service center for this work.

It is absolutely essential that all safety-relevant work and all work on safety-relevant systems is performed by a qualified specialist workshop.

Tilting the cab forward

The tilt pump is located behind the cab on the right-hand side.

- ▶ Move valve lever on tilt pump to "Tilt forward" position ①.
- ▶ Attach pump lever to tilt pump with nut wrench (in vehicle tool kit).
- ▶ Operate tilt pump until the cab is tilted all the way forward to the end position.

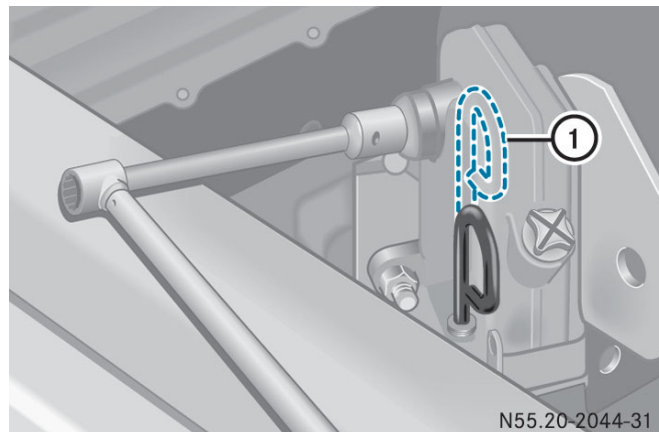
The cab is unlocked automatically when the tilt pump is operated.

If no resistance can be felt when operating the tilt pump:

- ▶ Check that there is sufficient oil in the tilt pump.

If firm resistance can be felt when operating the tilt pump:

- ▶ Check that the valve lever ① on the tilt pump is pointing in the desired direction.



Tilting the cab

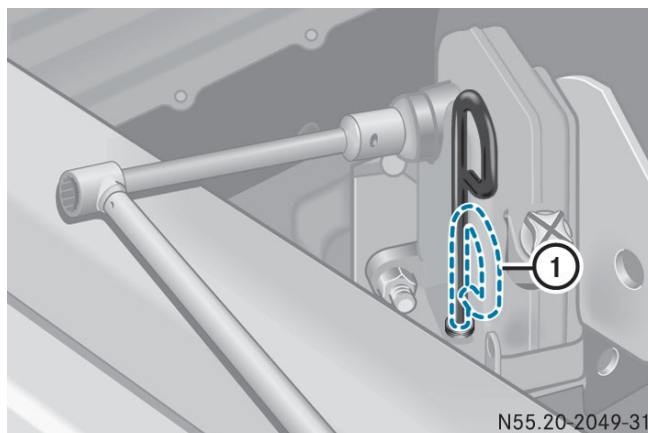
Tilting back to driving position

Risk of accident



Before driving off, make sure that the valve lever is at "Lower to driving position". Otherwise there is a danger that the cab lock could open by itself while driving and the cab could tip forward if the vehicle brakes hard.



- ▶ Move valve lever on tilt pump to "Lower to driving position" ①.
- ▶ Operate tilt pump until the cab has tilted back to the driving position and engages audibly into the cab lock.
- ▶ Then operate the tilt pump 10 times.



When the cab is tilted back to the driving position, the tilt pump must be operated 10 times to ensure that the tilt cylinder reaches its rest position. Otherwise the tilting hydraulics will be damaged.

Risk of accident



If the indicator lamp  fails to go out when the engine is started, the cab is not locked. There is a danger of the cab tipping forward when the vehicle decelerates. Make sure that the indicator lamp  goes out after engine start. If necessary, repeat the lowering procedure and make sure that the cab locks in the driving position.

Starting and stopping the engine with the cab tilted

Risk of injury



When the cab is tilted and the engine is running, make sure that you do not touch hot or moving engine parts (e.g. exhaust manifold, poly-V belt, fan). You may be injured.

If working on public roads, pay attention to the traffic situation and secure the area around the vehicle accordingly.

- ▶ Turn vehicle key in steering lock to drive position.
- ▶ Tilt cab forwards (see page 91).

Vehicles with two pushbuttons on the engine

The pushbuttons are on the left-hand side of the engine.

①	Stop pushbutton on engine
②	Start pushbutton on engine

Starting the engine

- ▶ Hold down the start pushbutton ② until the engine starts.

If a gear is engaged, the start pushbutton is inoperative.

Starting the engine and increasing the engine rpm

- ▶ Press and hold down start pushbutton ②.
The engine starts and the rpm increase after about 3 seconds.
- ▶ Hold down the start pushbutton ② until the desired engine speed is reached.
When the start pushbutton ② is released, the engine continues to run at the set speed.



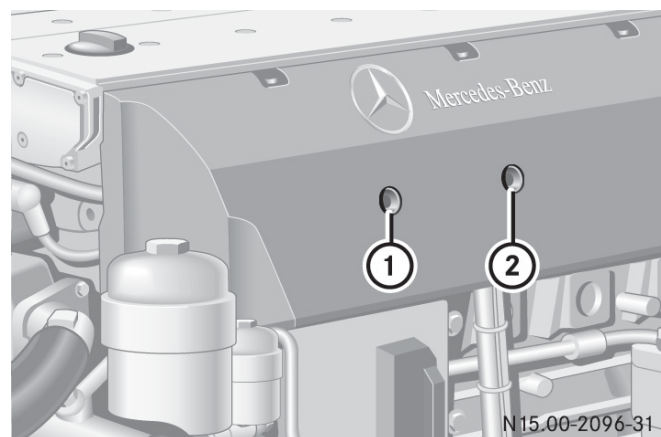
The engine speed can be increased up to the maximum governed rpm.

Switching off the engine

- ▶ With the engine running, press the start pushbutton ② or the stop pushbutton ①.
The engine dies.

Cranking the engine without starting

- ▶ Hold down the start pushbutton ② and the stop pushbutton ① at the same time.
The engine turns over without starting.



Engine

Vehicles with one pushbutton on the engine

The pushbutton is on the left-hand side of the engine.

Starting the engine

- ▶ Hold down the start/stop pushbutton ① until the engine starts.

If a gear is engaged, the start/stop pushbutton ① is inoperative.

Starting the engine and increasing the engine rpm

- ▶ Press and hold down the start/stop pushbutton ①.

The engine starts and the rpm increase after about 3 seconds.

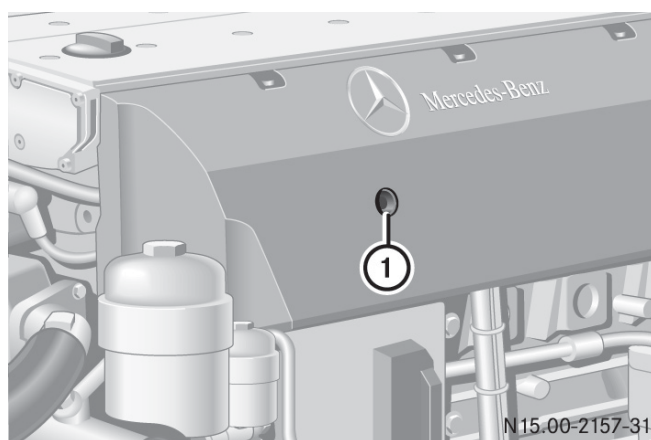
- ▶ Hold down the start/stop pushbutton ① until the desired engine speed is reached.

When the start/stop pushbutton ① is released, the engine continues to run at the set speed.

Switching off the engine

- ▶ With the engine running, press the start/stop pushbutton ① again.

The engine dies.



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General

Risk of accident



- If the reservoir pressure in the compressed air system is too low or nonexistent (STOP lamp lights up below 6.8 bar), there will not be adequate braking effect. The clutch booster and gearshift system may be inoperative depending on the pressure level.
- If possible, fill the compressed air system from an external source before tow-starting, see page 81.
- If the engine is not running, only tow-start the vehicle on a straight stretch of road (no power steering).
- Only use a tow bar.
- Risk of skidding on wet or slippery roads.
- Do not tow-start in the reversing direction with reverse gear engaged.
- If spring-loaded brake cylinders have been mechanically released, the parking brake is inoperative.
- Do not tow-start if there is engine, transmission, transfer case, axle or steering damage.
- Only tow-start the vehicle with the batteries connected.

Risk of accident



When tow-starting, the retarder in the vehicle may perform uncontrolled braking actions.


Switch off the retarder before tow-starting. If necessary, use the service brake to brake the vehicle while tow-starting.


Preparations for tow-starting



If the maximum permissible engine speed is exceeded, the warning buzzer sounds. Select a higher moving-off gear or reduce the towing speed.

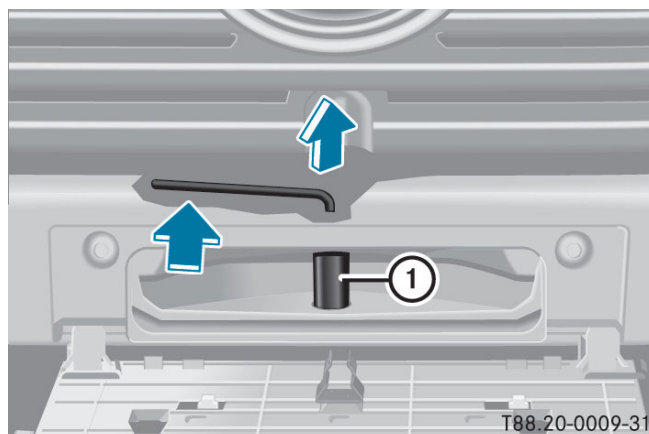
Vehicles with automatic transmission cannot be tow-started.

If the display shows , reliable gearchanges cannot be guaranteed.

- ▶ Turn vehicle key in steering lock to drive position.
The indicator lamps should light up. If the indicator lamps do not light up, the vehicle cannot be tow-started.
- ▶ Deactivate acceleration skid control (ASR).
- ▶ In vehicles used to transport hazardous goods, check that the EMERGENCY OFF switches are deactivated, see page 60.
- ▶ Check compressed air supply. The STOP lamp must not light up. If the display shows , the system must be filled from an external source, see page 81.

Tow-starting

- ▶ Swing cover of coupling jaw down.
- ▶ Disengage coupling pin ①, swing forward about 90° and pull out upwards.
- ▶ Insert tow bar into coupling jaw.
- ▶ Engage coupling pin ① in the catch with an audible click.



Tow-starting vehicles with manual transmission

- ▶ Fully depress clutch pedal.
 - On 6-speed transmissions: Shift to 4th or 5th gear.
 - On 9-speed transmissions: Shift to 5th or 6th gear.
- ▶ Tow-start vehicle.
Do not exceed a towing speed of 20 km/h.
- ▶ Slowly release clutch pedal and slowly depress accelerator pedal.
- ▶ Immediately after the engine starts:
Fully depress clutch pedal and shift transmission to neutral.



Vehicles with Telligent[®] automatic gearshift system

- ▶ Shift to 2nd gear.
The engaged gear must be shown in the display.
- ▶ Tow-start vehicle.
- ▶ At about 20 km/h slowly depress accelerator pedal.
The electronic system engages the clutch automatically.
- ▶ Immediately after the engine starts:
Shift transmission to neutral.

i

If the accelerator pedal is depressed slowly, the electronics engage the clutch slowly.

If the accelerator pedal is depressed quickly, the electronics engage the clutch quickly.



Quick guide

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General

Hazard information

Risk of accident



If the vehicle must be transported on a low loader (e.g. after an accident), the maximum permissible vehicle height may be exceeded. Drive with particular care and attention. Observe the maximum headroom of bridges and underpasses. Otherwise you could cause an accident.

Risk of accident



If you tow the vehicle without the engine running, the power steering and the compressed air system are inoperative.

It then takes a great deal of effort to steer the vehicle and you may leave the road when cornering or collide with the towing vehicle. Before starting to tow, talk to the driver of the towing vehicle and agree on clear communication signals. Then make sure that you and the driver of the towing vehicle adjust your driving style to suit the more difficult conditions.

Risk of accident



When you start to move a vehicle with the front axle raised and the acceleration skid control (ASR) switched on, the ASR may perform uncontrolled braking actions. Switch off the ASR and the ignition before starting to move the vehicle.

Risk of accident



When towing with a gear engaged, there is a danger that the engine could start and the vehicle could drive off out of control. Before towing, make sure that the ignition in the vehicle is switched off.

Disconnect the battery if:

- the ignition cannot be switched off
- the batteries are deeply discharged
- the cab is not accessible, e.g. due to an accident

You might otherwise cause an accident with possible serious or fatal injury to yourself.



When towing air-sprung vehicles, check the driving level and correct it if necessary.

If the compressed air system cannot be filled, mechanically release the spring-loaded parking brake, see page 83.

If the vehicle is raised at the rear, all wind guides must be folded in or removed.

Towing

General rules for towing

- The propeller shafts must be removed to avoid damage to the transmission and transfer case, see page 102.
- The safety features for ASR must be switched off, see page 103.
- The transfer case must be switched to road position, see page 103.
- There must be sufficient reservoir pressure in the compressed air system. Make sure that the air suspension is supplied with sufficient compressed air, see page 105.
- Wind guides such as mirrors and bodies may protrude above and to either side of the vehicle. Pay attention to the height of the vehicle when driving through tunnels and bridges.
- Ensure that the vehicle to be towed has an adequate power supply.
- Ensure that the vehicle to be towed is adequately lit, if necessary by installing additional lights, including turn signals.

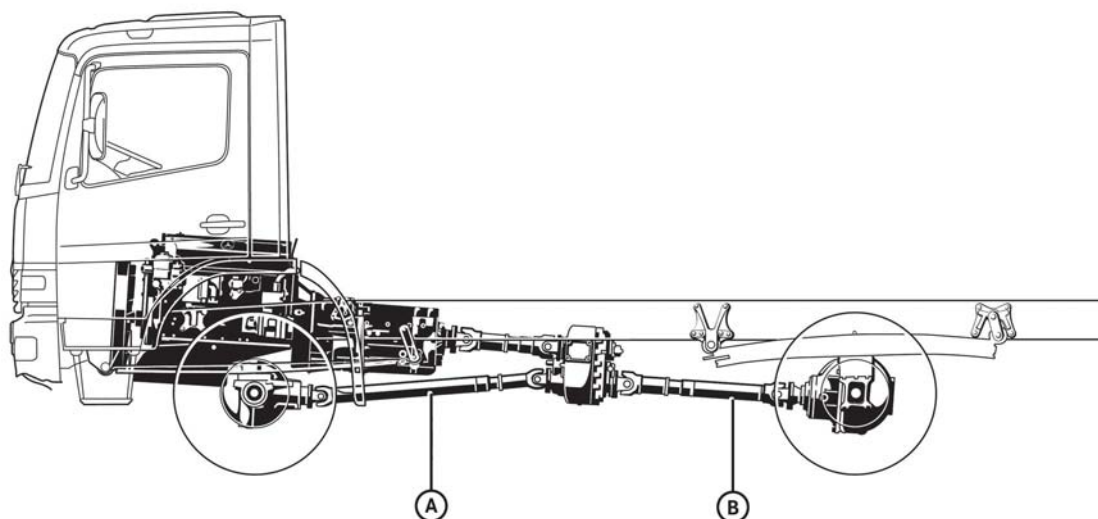
Propeller shaft removal

Risk of injury



A propeller shaft may fall down and injure you when being removed. Secure the propeller shaft prior to removal to prevent it from falling, e.g. with the aid of a second person or by tying up the propeller shaft.

To avoid damage to the transmission and transfer case, certain propeller shafts must be removed according to the towing method used.



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Model	Tow bar	Raised at front	Raised at rear
4 x 2	B	B	-
4 x 4	A and B	B	A
6 x 2	B	B	-
6 x 2/4	B	B	-

Electrical circuits

Deactivating acceleration skid control (ASR)

Deactivating acceleration skid control (ASR):

- ▶ Turn vehicle key in steering lock to drive position.
- ▶ Press top of ASR shutoff switch.

The indicator lamp  in the instrument panel flashes.

❗

The ASR system is reactivated automatically when the engine is switched off and restarted.



Switching transfer case to road position

Transfer case switch

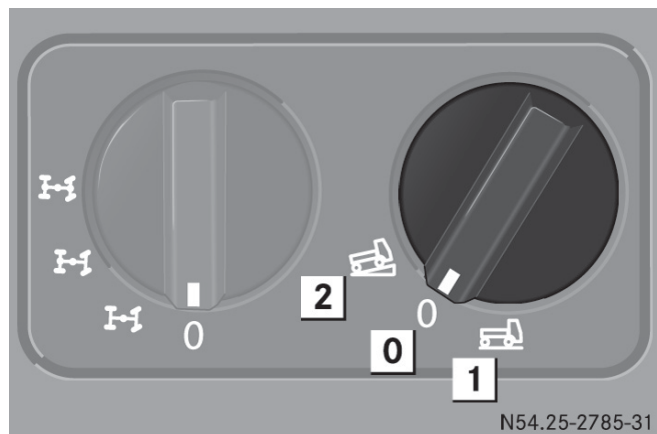
0	Neutral position
1	Road position
2	Off-road position

The transfer case may only be shifted when the vehicle is stationary. The neutral position **0** of the transfer case is only necessary when changing from the road position **1** to the off-road position **2**.

- ▶ Vehicles with Telligent[®] automatic gearshift system: Press mode selector switch **M**, see page 73.
- ▶ Move transfer case switch to road position **1**.
The road position is engaged.

❗

If there is insufficient reservoir pressure, the road position is engaged.



Towing

Air brake system

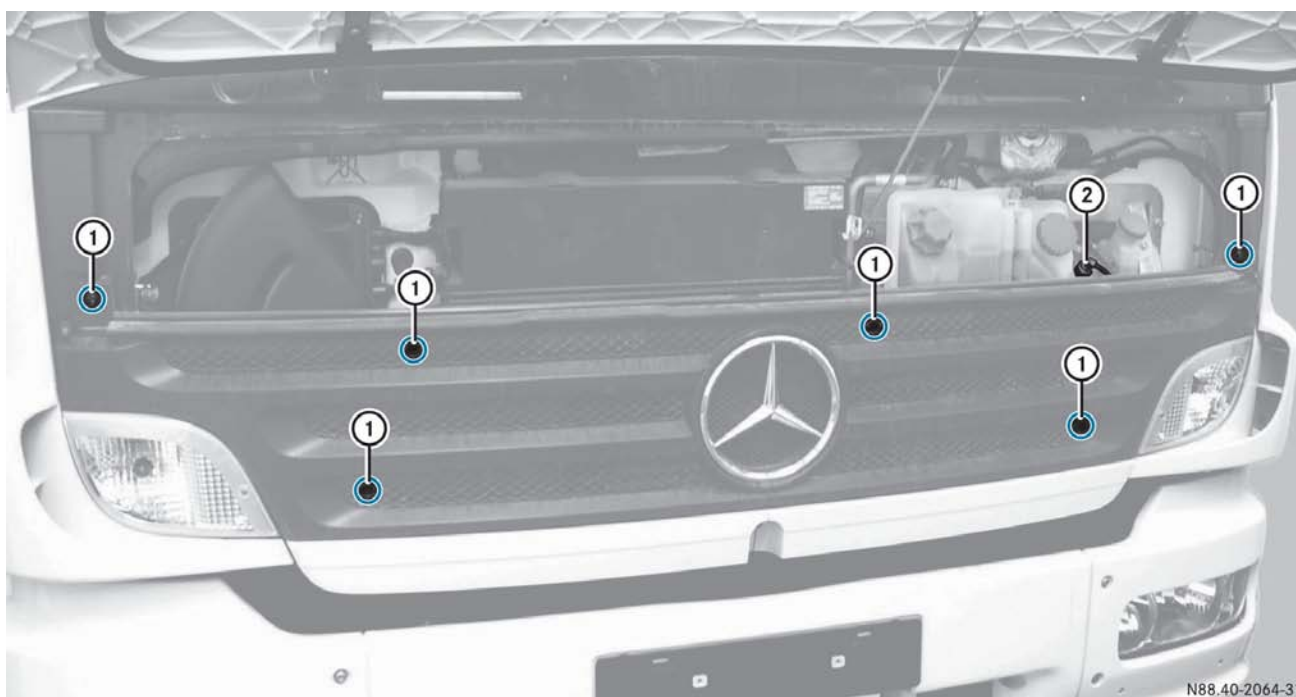
If the engine of the vehicle to be towed is inoperative, a compressed air connection must be made from the towing vehicle to the towed vehicle in order to guarantee a constant reservoir pressure in the compressed air system.

Maintenance flap/cover

Risk of injury



When the maintenance flap is opened or closed, persons may be injured or objects damaged if they are inside the swivel range of the maintenance flap. Make sure that there are no people or objects within the swivel range of the maintenance flap.



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① Mounting bolts

② Service brake valve

Removing the cover

- ▶ Open and secure maintenance flap.
- ▶ Unscrew mounting bolts ① and remove cover.

Connecting an external source

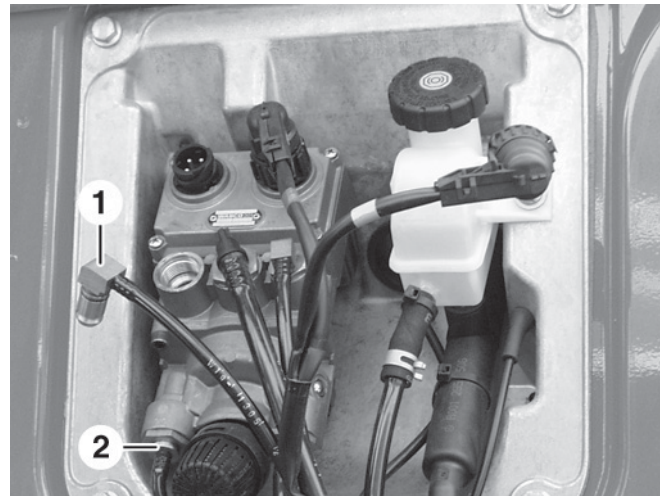
- ▶ Open maintenance flap.
- ▶ Unscrew cover, see page 104.

Different service brake valves may be installed depending on the vehicle version.

- ▶ On vehicles raised at the front for towing: Unscrew connection 21 ① on service brake valve.
- ▶ On vehicles raised at the rear for towing: Unscrew connection 22 ② on service brake valve.

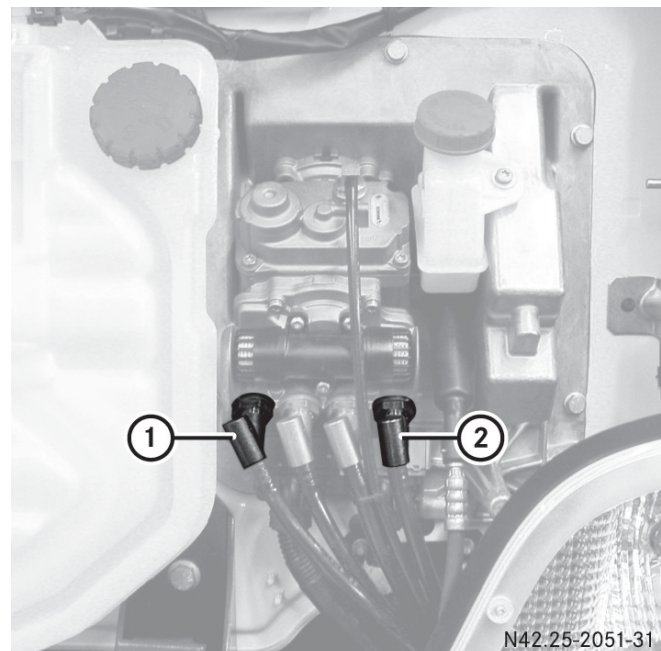
Identical adapters are required for both brake circuits.

Special tools, see page 121.



Voss connector:

Pay attention to the clip and seal in the stepped hole; do not disassemble the connectors.



- ▶ Establish connection between yellow coupling head (brake) of towing vehicle and line from connection 21/22.

Special tools, see page 121.



Towing

- ▶ Connect compressed air supply line of towing vehicle (red coupling head) to tire inflation connection ③ or to front coupling head.

A reservoir pressure of 10 bar is required.



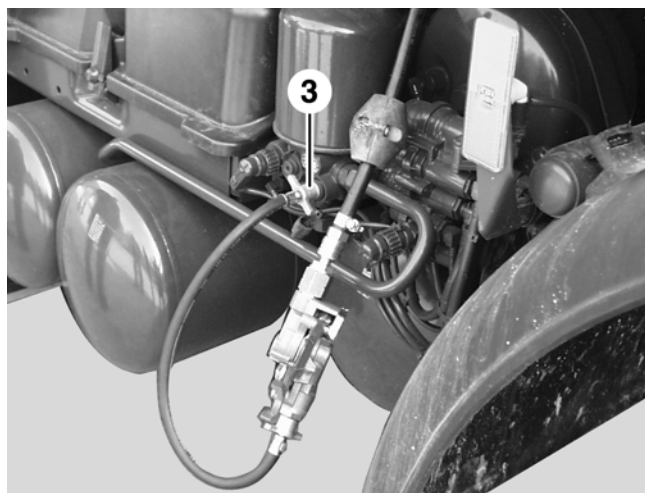
When filling directly at four-circuit protection valve: Test connection 22 for rear axle brake circuit, test connection 21 for front axle brake circuit.

On vehicles with continuous brake systems, note that the brake force at the towed vehicle may be relatively high/low depending on the vehicle load and the type of brake system.

Install a manual brake force regulator if necessary.

A reservoir pressure of 8.5 bar is required.

If the spring-loaded parking brake cannot be reliably released pneumatically, release it mechanically, see page 83.



Notes on stopped engine, transmission and/or axle damage

Stopped engine

Comply with section entitled "Towing with a tow bar", see page 111.

- ▶ Remove propeller shaft to drive axles complete.
- ▶ If it is not possible to remove the propeller shaft, remove the appropriate drive shafts, see page 109.
- ▶ All-wheel drive vehicles: Switch transfer case to road position.
- ▶ Ensure that the compressed air supply is provided by the towing vehicle.

Transmission/transfer case damage

Risk of injury



A propeller shaft may fall down and injure you when being removed. Secure the propeller shaft prior to removal to prevent it from falling, e.g. with the aid of a second person or by tying up the propeller shaft.

Do not turn the vehicle key in the steering lock to the drive position when the front axle is raised. Otherwise the automatic ASR function may cause uncontrolled braking of the rear wheels may while the vehicle is being towed. This can cause the vehicle to lose lateral stability and break away.

- ▶ Remove propeller shaft to drive axles complete.

Front axle damage



Observe the towing instructions as for a stopped engine, see above.

- ▶ Raise vehicle at front axle.
- ▶ Deactivate acceleration skid control (ASR), see page 103.
- ▶ All-wheel drive vehicles: Remove the propeller shaft between the rear axle and transfer case.
- ▶ On vehicles with air suspension: Set the required chassis height with the operating unit, see page 86.

Damage to the rear axle differential

- ▶ On vehicles with more than one driven axle or insufficient air pressure in the compressed air system: Engage differential lock with bolt, see page 109.
- ▶ Remove both drive shafts on the damaged axle, see page 109.
- ▶ On vehicles with two driven rear axles: Remove drive shafts on both driven rear axles.
- ▶ All-wheel drive vehicles: Also remove the propeller shaft from the front axle to the transfer case.

Towing

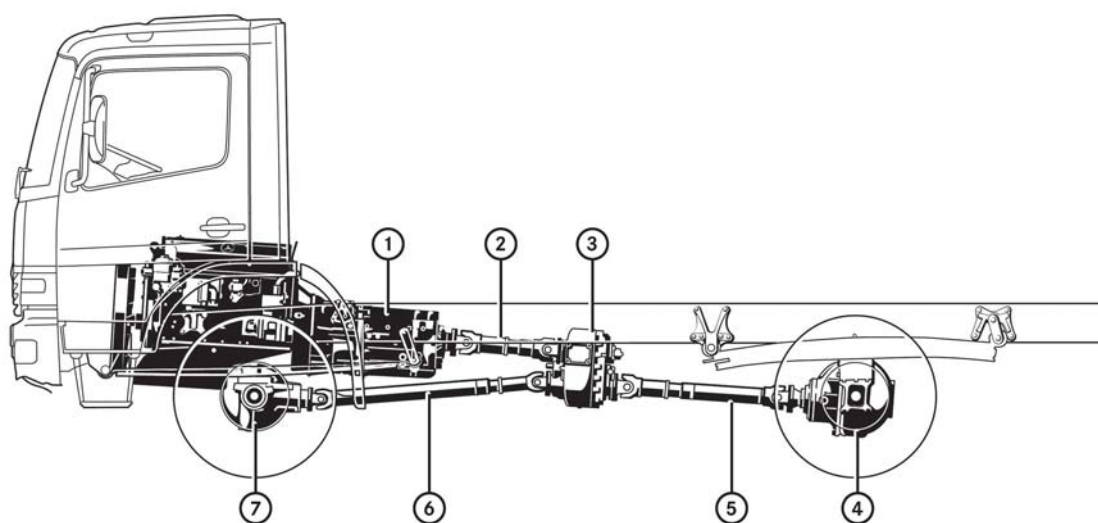
Drive shafts

Ascertaining the damage location on a blocked drive train

- ▶ Secure the vehicle to prevent it from rolling.
- ▶ Start engine.
- ▶ Fill compressed air system up to cutoff pressure.
- ▶ Release parking brake.

The indicator lamp  and the STOP lamp in the instrument panel must not light up.

- ▶ Disengage the clutch, select a gear and gradually release the clutch pedal.



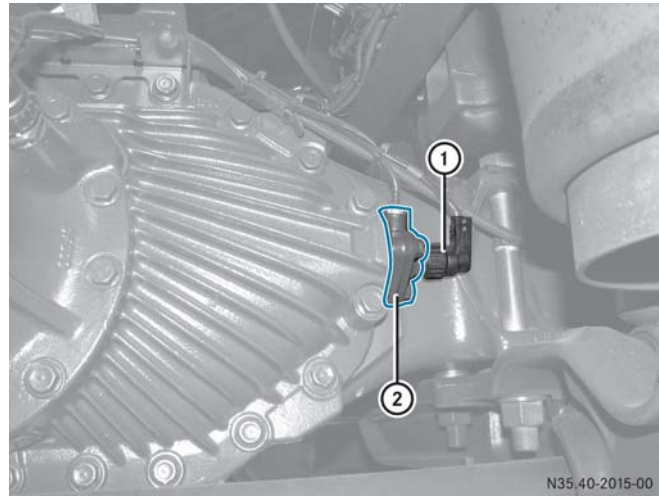
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Transmission damage ①	The engine stalls without propeller shaft ② moving.
Transfer case damage ③	Propeller shaft ② moves. Propeller shafts ⑤ and ⑥ do not move.
Rear axle damage ④	On vehicles without transfer case, the engine/transmission block twists in the frame; on vehicles with transfer case, propeller shafts ② and ⑥ also move.
Front axle damage ⑦	Propeller shafts ② and ⑤ move. Propeller shaft ⑥ does not move.

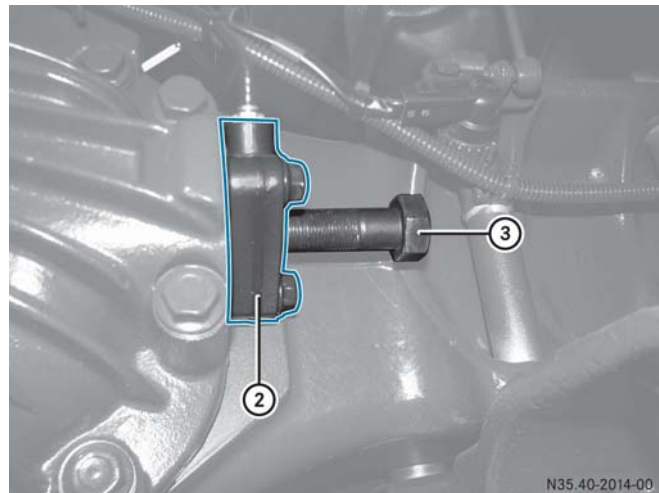
Removing the rear axle drive shafts

Engaging differential lock with bolt (HL4):

- ▶ Remove cable connector ① from shift cylinder housing ②.
- ▶ Unscrew switch using socket wrench (size 24 mm).
- ▶ Carefully screw bolt ③ all the way into shift cylinder housing ②.
Bolt M 18 x 1.5 x 60 mm
Special tools, see page 121.
- ▶ If it is not possible to screw the bolt ③ all the way in: Pull out drive shaft about 150 mm and twist until the bolt ③ can be screwed fully home.



(example)



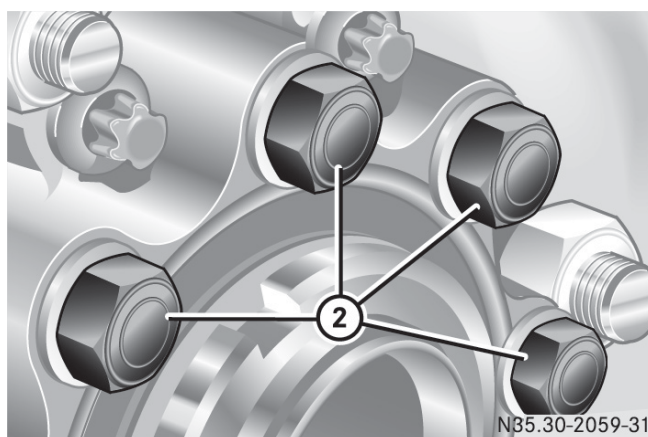
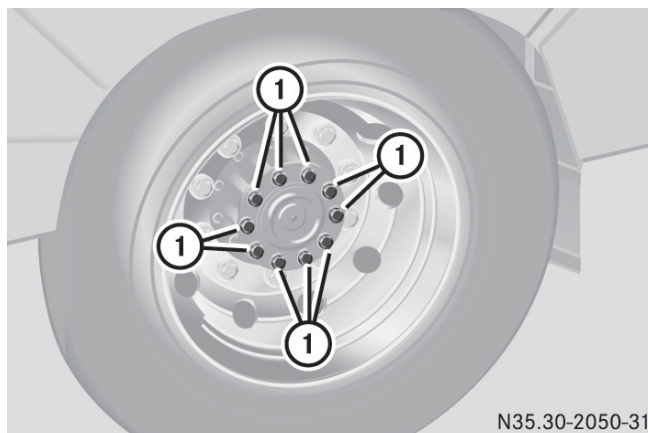
(example)

Towing

Removing drive shafts on rear axles HL 2 and HL 4:

- ▶ Turn the vehicle key in the steering lock all the way back or remove.
- ▶ Engage differential lock (interwheel differential lock) with bolt.
- ▶ Unscrew bolts ① on wheel hubs.
- ▶ Place oil pan under wheel hub.
- ▶ Collect escaping oil.
- ▶ Pull out both drive shafts.
- ▶ Rear axle HL 2: Screw the positioning bolts ② back in.
- ▶ Fit a wheel hub cover.

Special tools, see page 121.



Preparations for towing

Towing with a tow bar

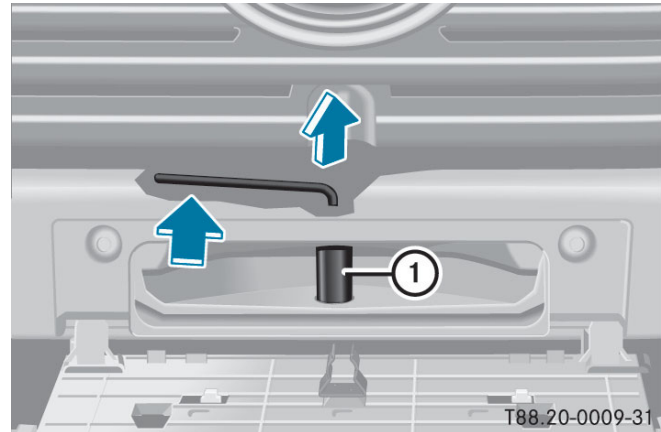


Do not tow the vehicle without a compressed air supply.

Always use a tow bar for towing.

If possible, tow the vehicle empty; unload the vehicle if necessary in order to avoid consequential damage.

Load the coupling jaw with no more than half the permissible gross weight of the tractor vehicle, see page 119.



Towing:

- ▶ Swing coupling jaw cover down.
- ▶ Disengage coupling pin ①, swing forward about 90° and pull out upwards.
- ▶ Insert tow bar into coupling jaw.
- ▶ Engage coupling pin ① in the catch with an audible click.
- ▶ Run the engine if possible in order to ensure that the power steering, compressed air supply and transmission lubrication work properly.
- ▶ If the engine cannot be run: Ensure that the compressed air supply is provided by the towing vehicle.



If the engine is not running, greater effort will be required to steer.

Towing in raised position



If possible, tow the vehicle empty; unload the vehicle if necessary in order to avoid consequential damage.

If the vehicle is raised, always turn the vehicle key in the steering lock all the way back and remove.

Do not raise the vehicle by the front coupling jaw, by the rear towing coupling or by the rear trailer hitch. Risk of frame damage!

Do not raise the vehicle by the frame on one side only.

Secure the vehicle on the lifting arm of the towing vehicle with suitable fastening materials.

Install warning lamps on the vehicle if necessary.

Towing

Vehicles involved in an accident:

- ▶ Before raising the vehicle, check the connections between the frame sections and between the frame and the axle.
- ▶ On air-sprung vehicles: Set air suspension (on the raised axle) to "Lower".
- ▶ If the air spring bellows on a rolling axle are defective, ensure adequate clearance and tow at a maximum of 10 km/h.
- ▶ Fold up or detach the underride guard if necessary.

Additionally for semitrailer tractors with semitrailer:

- ▶ Make sure there is sufficient clearance between the semitrailer tractor and the semitrailer, particularly when cornering and when starting to drive up steep slopes.

Risk of accident



Trailer/semitrailer with ABS/EAB:

When towing entire truck/trailer combinations with braked trailer and electronic trailer brake, there is a danger of uncontrolled braking of the trailer/semitrailer.

This can cause the trailer/semitrailer to lose lateral stability and break away.

Connect the towing vehicle and the trailer/semitrailer with an ABS cable (5-pin).

Retrofit an ABS socket on the towing vehicle if necessary.

- ▶ Deactivate acceleration skid control (ASR), see page 103.
- ▶ Remove the propeller shaft to the rolling axles.
- ▶ When towing entire combinations, route an ABS cable from the towing vehicle to the trailer or semitrailer (5-pin).

Overview of towing options

Vehicle model	Raised at the front by		Raised at the rear by ³		
	Wheels on front axle or front axle housing ²	Leaf springs	Wheels on rear axle or rear axle housing ²	Wheels on trailing axle	End crossmember ³
4 x 2	x	x ¹	x		x ¹
4 x 4	x	x ¹	x ¹		x ¹
6 x 2	x	x ¹		x	
6 x 2/4	x	x ¹	x ¹		x ¹

¹ Empty vehicle only

² Make sure suitable axle forks are used (axle diameter and width)

³ Additionally secure the steering wheel and remove the roof spoiler

Raising by the wheels (taking the Actros as an example)

- ▶ Secure vehicle using wheel chocks to prevent it from rolling.
- ▶ Set the lift fork ② to the track width of the vehicle.
- ▶ Raise the vehicle with the aid of inflatable jacks if necessary.

Pay attention to tie rods, soundproofing panels and the level control system on vehicles with full air suspension.



- ▶ Move the lift fork ② under the vehicle and set to the tire size of the vehicle.
- ▶ Raise vehicle.

!

Make sure there is sufficient clearance between the arm of the lift fork and the front trim, particularly when cornering and when starting to drive up steep slopes.

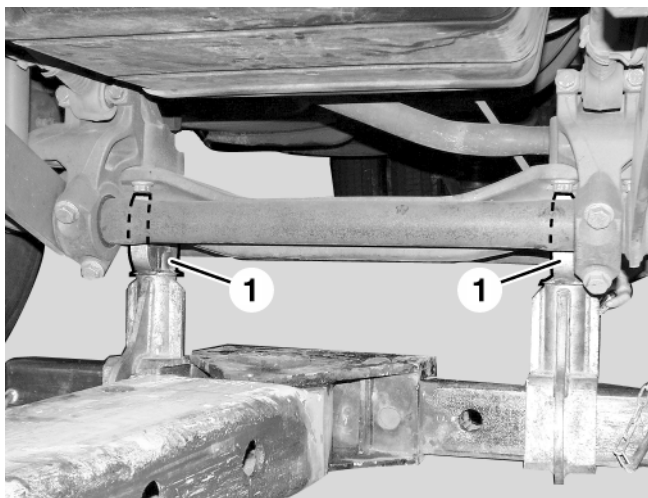
- ▶ Secure the vehicle with straps ① on the wheels and chains on the axles and transfer bar.



Towing

Raising by the front axle

- ▶ Lift the front axle with lifting forks ①. Ensure that the steering linkage, springs, stabilizer bars, hoses and cables are not damaged.
- ▶ Secure the front axle to the lifting device with chains ②.



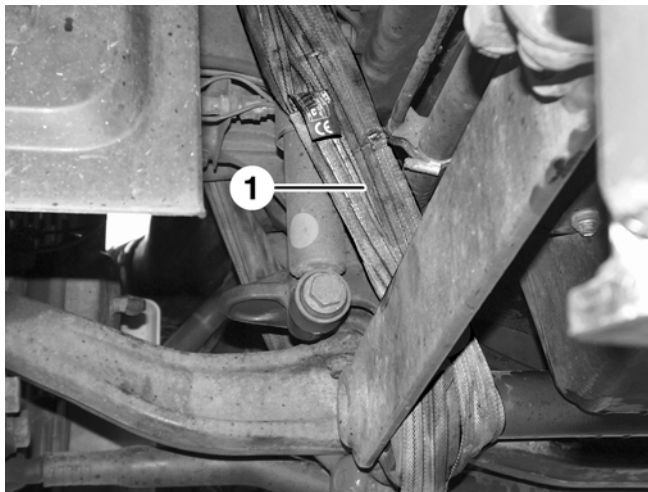
Air-sprung vehicles

Do not raise the vehicle by the front crossmember.

- ▶ Fit the support fixture so that it cannot slip out of place.
- ▶ Attach the support fixture so that lines, cables, hoses and other detachable parts are not damaged.
- ▶ Tie the axle up to the frame using a chain or strap ①.

Lateral forces arising when a laden vehicle is raised can lead to distortion at the cargo area.

- ▶ Set rear axle to driving level, see page 88.
- ▶ Secure the vehicle to the lifting device with chains or straps to prevent it from slipping forward or backward.



Leaf-sprung vehicle

Do not raise the vehicle by the front crossmember.

- ▶ Fit the support fixture so that it cannot slip out of place.
- ▶ Attach the support fixture so that lines, cables, hoses and other detachable parts are not damaged.
- ▶ Tie the axle up to the frame using a chain or strap ①.
- ▶ Secure the vehicle to the lifting device with chains or straps to prevent it from slipping forward or backward.

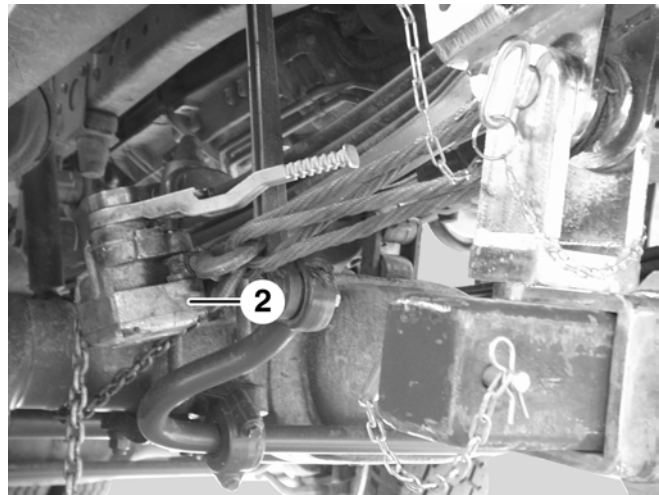
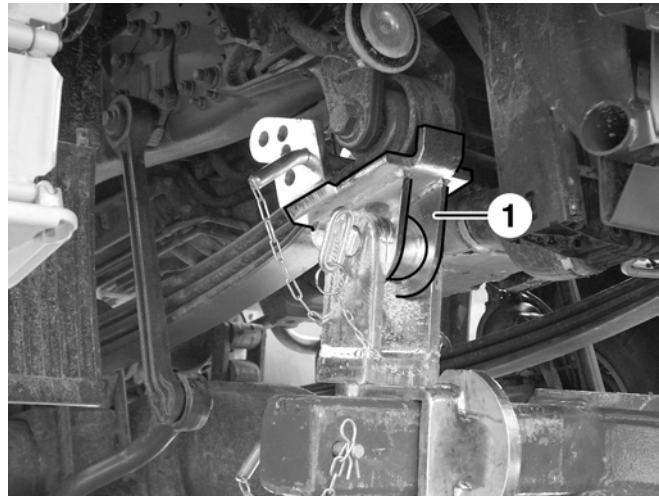
Lateral forces arising when a laden vehicle is raised can lead to distortion at the cargo area.

Raising by the leaf springs (construction site vehicles only)

In certain vehicles a crossmember may be installed under the spring mounting. The spring support ① cannot be used on these vehicles.

Only unladen vehicles should be raised by the leaf springs.

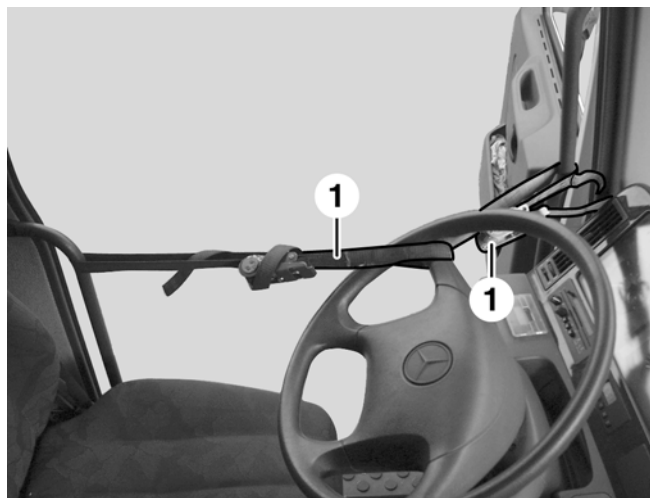
- ▶ Install jointed spring support ① in the support fixture or lifting device and secure.
- ▶ Fasten lifting device with spring support ① to leaf spring and secure.
- ▶ Secure the vehicle with a chain hoist ② to prevent it from slipping.



Towing

Raising at the rear

- ▶ On vehicles with driven front axle: Remove propeller shaft between transfer case and front axle complete; mark the propeller shaft before removing.
- ▶ Remove the vehicle key from the steering lock and engage the steering wheel lock.
- ▶ Secure the steering wheel with two additional straps ① in the tangential direction to prevent it from turning.
- ▶ Make sure there is sufficient clearance of the front cab trim (front spoiler).
- ▶ Detach wind guides.



Raising by the rear wheels

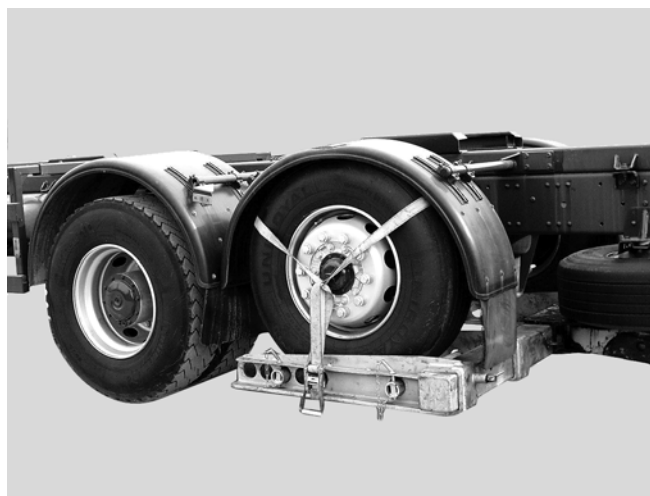
- ▶ Push the lift fork under the vehicle.
- ▶ Set the lift fork to the track width and tire size.
- ▶ Raise the vehicle and secure at the wheels with straps and at the axle with chains.



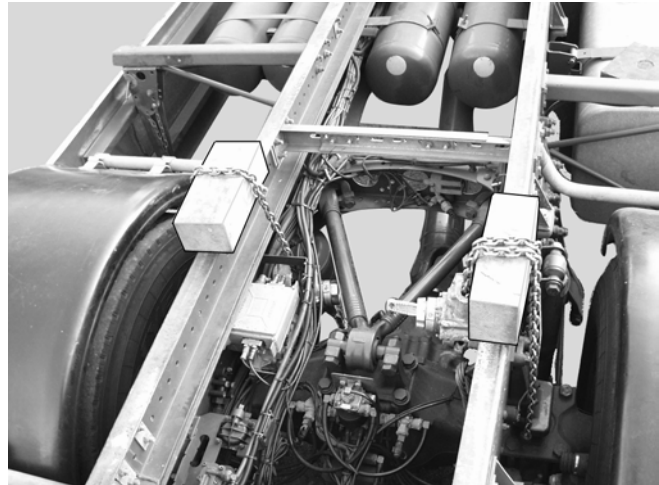
Raising the vehicle at the lift axle

It is only permissible to raise the vehicle at the lift axle when the vehicle is unladen, i.e. without superstructure or swap body. On semi-laden vehicles, place a square wooden block between the longitudinal frame member and the lift axle.

- ▶ Secure the vehicle to the lifting device with chains. Attach the chains so that lines, cables, hoses and other detachable parts are not damaged.
- ▶ Before raising, tie the first rear axle to the frame with chains, see page 117.



- ▶ Tie the axle up to the frame with chains. Place a wooden block between the frame and the chain.
- ▶ Attach lifting device.
- ▶ Secure the vehicle to the lifting device with straps.



Observe the tire pressure and changes in the tire temperature. The front axle load increases when multi-axle vehicles are raised at the last axle.

Raising the vehicle at the rear crossmember (semitrailer tractors only)



Raising the vehicle by the end of the frame can lead to frame damage, so only raise by the wheels or the axle housings.

- ▶ If necessary, detach the trailer hitch or towing coupling.
- ▶ Unfasten the wiring harness in the crossmember and the compressed air reservoir if necessary and push to one side.



Recovery

General



The force application points referred to in these guidelines do not have an infinite load capacity. They should only be regarded as suitable points for the application of external forces and are intended for experienced recovery experts. Application of these instructions is left to the discretion of the recovery experts.

The steering may be damaged if the vehicle is towed with recovery tools which are fastened to the wheels/hubs on steering axles.

Force application points

- To avoid concentrating the frame load at single points, the connecting points between the longitudinal frame members and the frame crossmembers are most suitable. The straps used should be as wide as possible so as not to damage any detachable frame parts, lines, cables and hoses.
- Use as many force application points as possible.
- One-sided pulling will cause distortion or cracking of the frame.
- The towing straps should form an isosceles triangle with the smallest possible angle.
- Load compensating rollers should be used to ensure that the pulling force is equal on both sides.
- Avoid towing at an angle wherever possible. A towing angle of max. 15° to the longitudinal axis of the vehicle must not be exceeded.
- The utmost care is to be exercised when applying external forces to the axles and axle connecting components.

Before recovering

- ▶ Always unload the vehicle first, especially vehicles with box bodies. This reduces the towing forces required. Further damage to the vehicle can be reduced to a minimum.
- ▶ If it is not possible to unload the vehicle, choose as many force application points as possible.

Straightening the vehicle

- ▶ Apply parking brake.
- ▶ Use as many force application points as possible or apply the forces in the vicinity of frame crossmembers. Use straps.
- ▶ If possible, assist the procedure using inflatable jacks.
- ▶ The forces can be distributed evenly by using guide pulleys or load compensation rollers.

After straightening



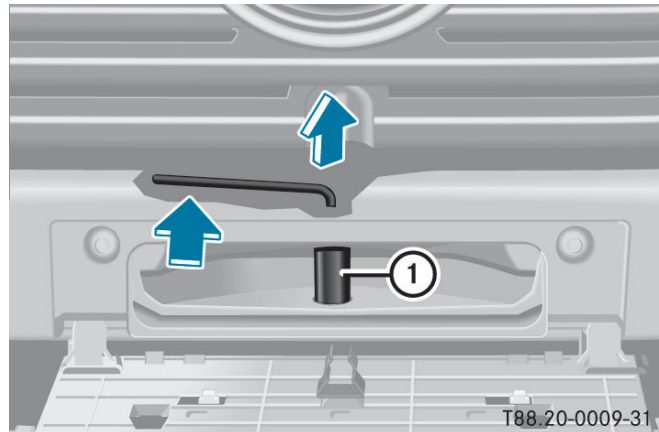
Do not start the engine. Oil residues in the intake system can cause the engine to overrev, which may result in engine damage.

Maximum permissible pulling forces



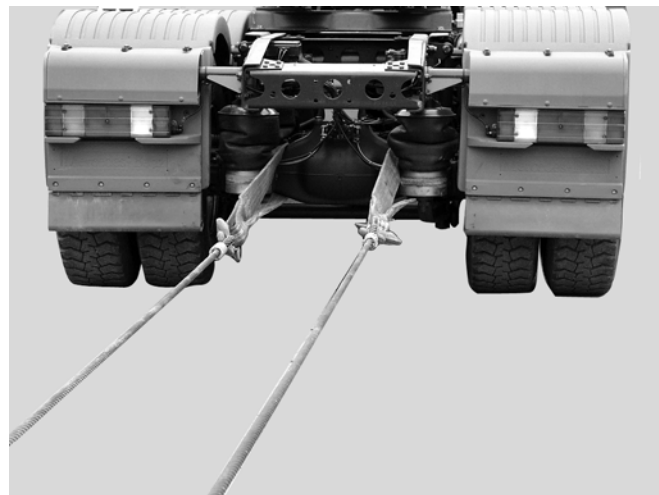
Recovery at the front coupling jaw

- Atego up to 12t with 17.5" tires
Permissible pulling force: 6t
- Atego over 12t with 19.5" tires
Permissible pulling force: 8t

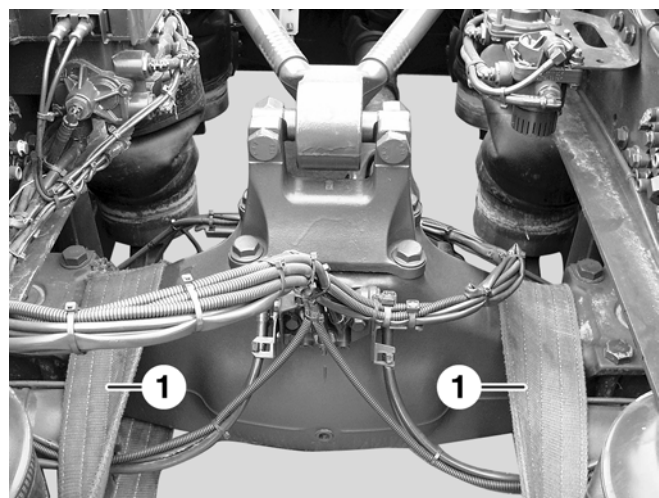


Recovering by the axle (sunken vehicles)

- ▶ Attach towing straps to axle housing.



- ▶ Fit the straps ① so that detachable parts, stabilizer bars, hoses and cables are not damaged.



Recovery

Safety components

When recovering a vehicle, pay attention to the following safety components:

Frame

- Longitudinal members and crossmembers.

Cab

- Cab mounting including catch.

Steering system

- Steering shaft, steering wheel with steering lock, steering gear, steering gear pitman arms, pitman arms, steering cylinders, drag links, track levers, tie rods and joints.
- Mounting of the steering gear on the frame.

Front axle

- Front axle housing and attaching parts for suspension and brakes, kingpins, steering knuckles.

Rear axle(s)

- Rear axle housing and attaching parts for suspension and brakes.

Axle joints

- Springs, spring shackles, spring bracket.
- Air spring bellows, detachable parts of air spring bellows.
- Wishbone control arm, longitudinal and transverse control arms, stabilizer bars, including attaching parts.

Wheels

- Wheel hub, tires, rims, wheel mounting parts.

Brakes

- All mechanical, hydraulic, pneumatic and electrical actuating systems and brake force transmission mechanisms.
- Brake drums, disks and calipers.

Propeller shafts

Vehicle connecting parts

- Fifth wheel couplings and articulation journals, trailer hitches and towing couplings at front and rear with installations.

Electrical system

- Wiring harnesses and electrical lines.

Mercedes-Benz special tools

The following special tools/aids can be acquired from any Mercedes-Benz service center. Special tools and bolts are not included in the vehicle tool kit.

Bolt

M 18 x 1.5 x 60 mm

(for locking the rear axle differentials, see page 109).

Adapter for compressed air connection

① M 18 x 1.5 part no. A 000 431 29 31

② M 22 x 1.5 part no. A 004 997 82 72

Adapter for test connections

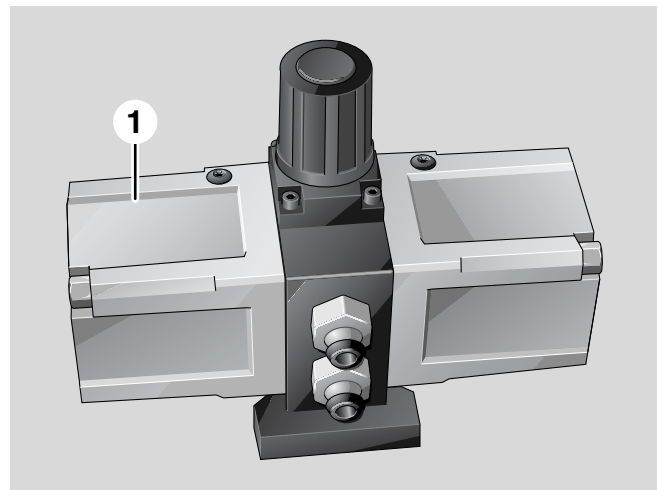
M 18 part no. A 000 431 29 31

M 22 part no. A 000 431 30 31



Pressure booster ①

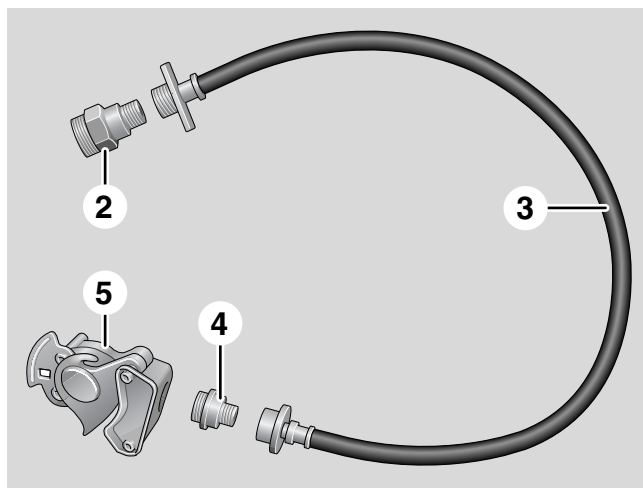
for vehicles with brake system operating pressure of 8.5 bar.



Special tools

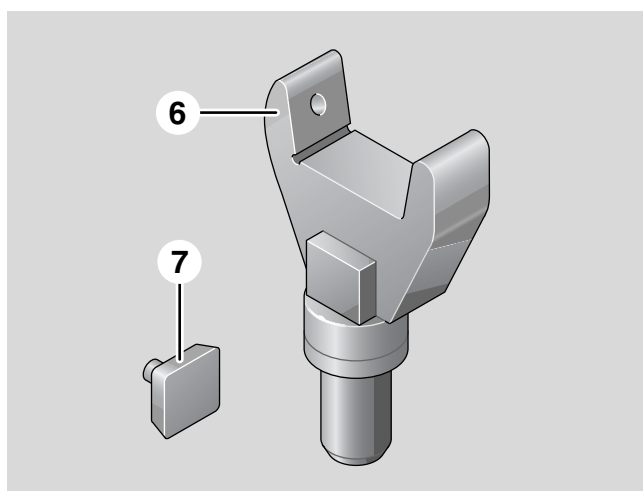
Compressed air hose

②	Connection
③	Hose
④	Adapter
⑤	Coupling head



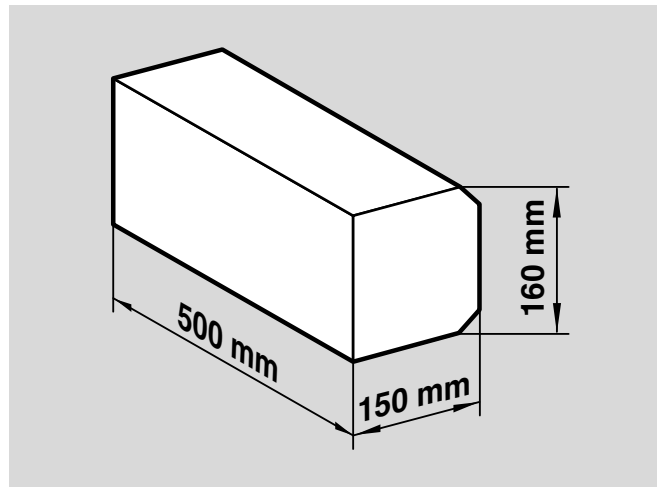
Lifting fork

⑥	Front axle lifting fork
⑦	Spacer plate



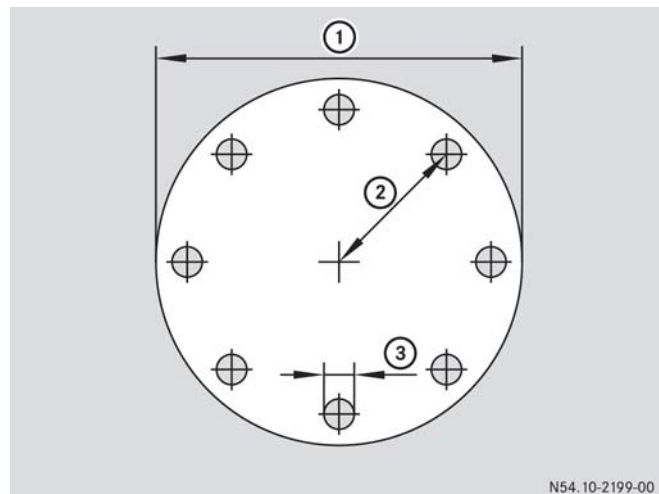
Shop-made special tools

Square wooden block for rear crossmember



Wheel hub cover HL4

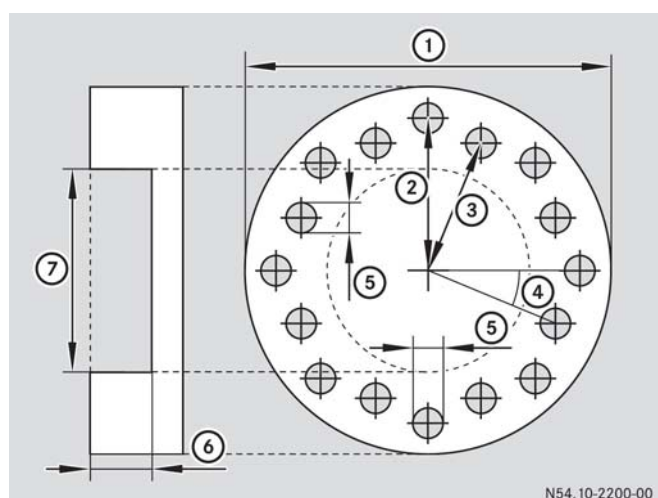
Item	Designation	Dimension
①	Diameter	190 mm
②	Hole circle radius	78 mm
③	Hole diameter	17 mm



N54.10-2199-00

Wheel hub cover HL2

Item	Designation	Dimension
①	Diameter	194 mm
②	Hole circle radius, outside	82 mm
③	Hole circle radius, inside	78 mm
④	Angle, outside/inside radius	22.5°
⑤	Hole diameter	15 mm
⑥	Undercut depth	23 mm
⑦	Undercut diameter	126 mm



N54.10-2200-00

1

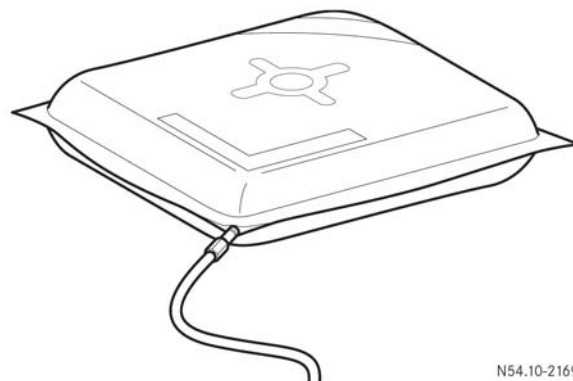
The cover has two offset hole circles because there are two HL2 rear axles with different hole circles. The undercut is necessary because, when the drive shaft is removed, the axle tube still protrudes a little and otherwise the cover cannot lie flat.

Special tools

The following special tools/aids are recommended by Mercedes-Benz

Inflatable jack

Lift height up to 200 mm, lift force up to 9000 kg



N54.10-2169-00

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 BS 42
 EAB 42
 EDW 42
 FLA 42
 FR 42
 GS 42
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