Towing and Recovery
Actros (Model 963)

Mercedes-Benz

Towing and Recovery
Actros (Model 963)

Guidelines for Breakdown Services

Daimler AG · Technical Information and Workshop Equipment (GSP/OI) · D-70546 Stuttgart

Information and copyright

Product Portfolio

You can also find comprehensive information on our complete product portfolio in our Internet portal:
Link: http://aftersales.mercedes-benz.com

Questions and suggestions

If you have any questions or suggestions concerning this product, please write to us.
Email: customer.support@daimler.com
Fax: +49-(0)18 05/0 10-79 78

or alternatively
Address: Daimler AG
GSP/OIS
HPC R822, W002
D-70546 Stuttgart

© 2012 by Daimler AG

This document, including all its parts, is protected by copyright.
Any further processing or use requires th

Contents

Gearshift

Backup drive mode 26

Towing mode 26

Compressed air system

Filling the compressed air system from an external source 27

Emergency filling of the compressed air system 28

Releasing the spring-loaded parking brake 29

Level control 31

Tow-starting

Tow-starting vehicles 32

Towing

General 33

Ascertaining the damage location on a blocked drive train 35

Engine, transmission and/or axle damage 36

Propeller shaft removal 37

Drive shaft removal 38

Towing with a tow bar 40

Towing in raised position 41

Recovery

General information 49

Safety components 51

Maximum permissible pulling forces 52

Special tools

Mercedes-Benz special tools 53

Shop-made special tools 55

Recommended special tools 56

Annex

Abbreviations 57

Preface

Dear reader,

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.

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.

All the data listed in this brochure are valid as of the copy deadline in November 2011 and may therefore differ from the series production configuration.

Daimler AG

Product Service Wörth, GSP/TTH

February 2012

Contact person

Boris Himmelsbach
GSP/TTH, Technical Author
Telephone: +49 (0)7271 71-2403
boris.himmelsbach@daimler.com

Conventions

⚠	Warning
	Environmental warning
❗	Potential damage
ℹ	Note
▶	Instruction
Displays	On-screen display

Note

All instructions and messages in the multifunction display are illustrated in the German-language version only as the other language versions were not available by the copy deadline.

Note

Information on the vehicles and on operating the vehicle functions can also be found in the interactive operator's manual on the Internet at:

www.mercedes-benz.de/betriebsanleitung

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.

Compensation and/or warranty claims arising from towing or recovery measures will not be accepted by Daimler AG. If you are towing the vehicle raised at the front, do not run the engine and always switch the electronic ignition lock to position **0**.

Warning

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.

Pay attention to the notes in the chapter "Recovery", see page 49.

Warning

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.

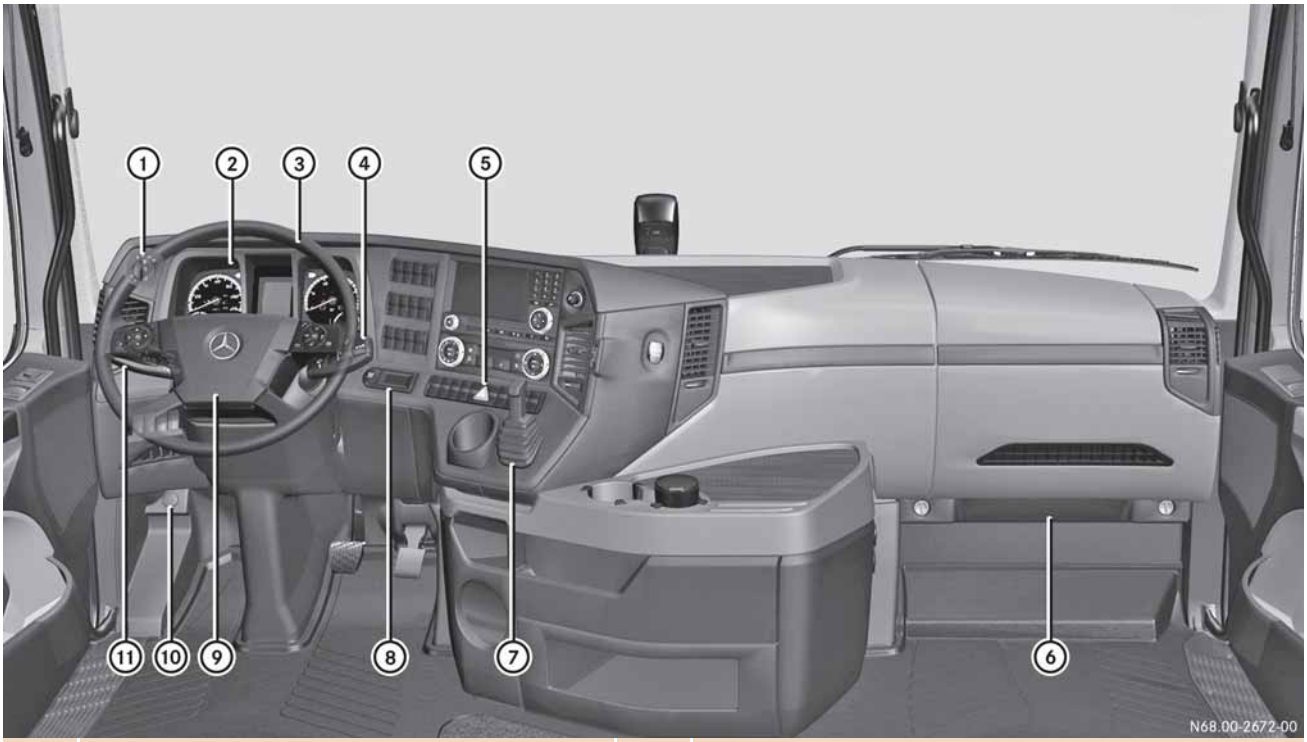
Vehicle identification

Location of model plate/vehicle identification number

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

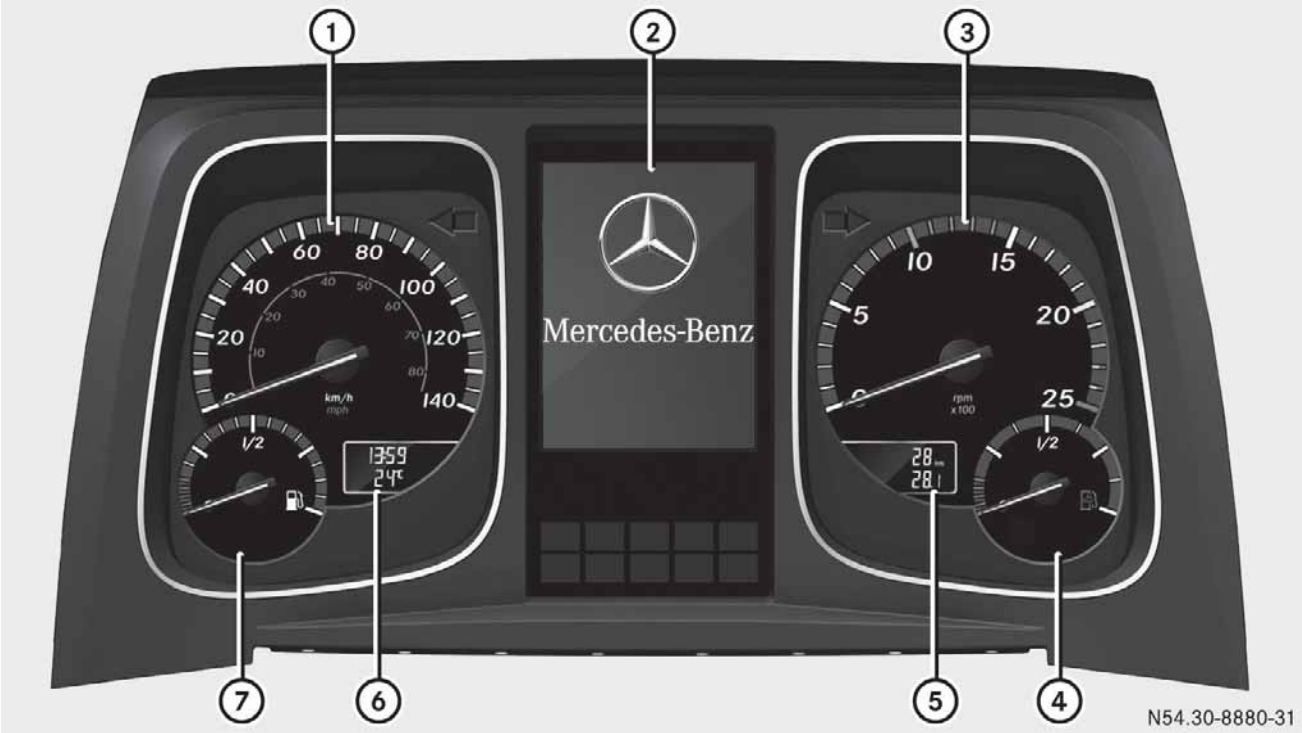
Data on the model plate

- Vehicle manufacturer (Daimler AG)
- EC operating permit number (only for certain countries)
- Vehicle identification number
- Permissible gross vehicle weight
- Permissible gross combination weight
- Permissible axle loads of axles 1 to 4 (kg)
- Permissible load of the axle group
- Vehicle model
- Headlamp basic setting
- Rear axle ratio
- Smoke index



①	Exterior lights switch	⑦	Parking brake
②	Instrument cluster	⑧	Electronic ignition lock
③	Multifunction steering wheel	⑨	Horn
④	Right multifunction control lever	⑩	Multifunction steering wheel adjuster
⑤	Hazard warning system switch	⑪	Left multifunction control lever
⑥	Fuse box		

Instrument cluster



①	**Speedometer**		Tire pressure monitor warning
②	**Multifunction display**		Tire pressure monitor
	SRS warning lamp		Sensed fifth wheel coupling not locked
	Driver seat belt reminder		Sensed fifth wheel coupling locked
	Emissions-relevant malfunction or AdBlue® supply low		Sensed fifth wheel coupling malfunction
			Power take-off switched on
	Oil pressure too low		Frequent-stop brake switched on
	Oil level too low		Permanent brake malfunction
	Battery charge low or malfunction		ABS equipment (supplemented by , or for tractor and/or trailer/ semitrailer)
	Power supply malfunction		
	Service date due		
	Leading axle raised		Trailer/semitrailer ABS malfunction
	Trailing axle raised		Trailer/semitrailer brake system malfunction
	Starting-off aid switched on		Brake wear limit exceeded
	Steering leading/trailing axle centered		Trailer/semitrailer ESP® control intervention
	Steering leading/trailing axle steering angle difference	③	**Tachometer**
		④	**AdBlue® level**
	Power steering oil level too low	⑤	**Total distance and trip distance**
	(Yellow) auxiliary steering malfunction	⑥	**Clock and outside temperature indicator**
	(Red) steering malfunction	⑦	**Fuel level**
	Cargo liftgate open		

①	**Warning/indicator lamps in the speedometer**		ASR (acceleration skid control) off/control/ malfunction
	Engine diagnosis malfunction		
	Cab lock not locked		ABS (anti-lock braking system) control/ malfunction
	Level control outside driving level		Brake system malfunction
	Differential lock engaged	④	**Warning/indicator lamps in the AdBlue® gauge**
	Braking request at high engine speed		Diesel particulate filter malfunction
②	**Turn signals**		Diesel particulate filter, automatic regeneration
③	**Warning/indicator lamps in the tachometer**	⑤	**Warning/indicator lamps below the multifunction display**
	Hill holder engaged		High beams switched on
	Active Brake Assist 2 switched off		Permanent brake switched on
	Stability Control Assist control/malfunction		Parking brake applied
			Standing lights switched on
	Stability Control Assist switched off		

Safety systems

When you switch the electronic ignition lock to position **1** again, the safety systems are reactivated automatically.

Switching ASR (acceleration skid control) off/on

▶ Press button ASR OFF.

When the indicator lamp (TC) in the instrument cluster lights up, ASR is switched off.

Switching Stability Control Assist off/on

▶ Press button OFF.

When the indicator lamp OFF in the instrument cluster lights up, Stability Control Assist and ESP® are switched off.

Switching ABA (Active Brake Assist) on/off

▶ **Switching off:** Press top of button OFF.

When the indicator lamp OFF in the instrument cluster lights up, ABA is switched off.

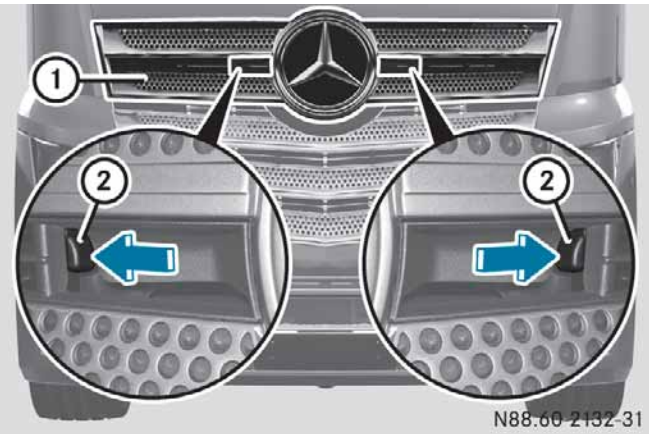
▶ **Switching on:** Hold down top of button OFF for approx. 1 second.

When the indicator lamp OFF in the instrument cluster goes out, ABA is switched on.

Warning

When the maintenance flap is opened or closed, people may be injured or object damaged if they are inside the swivel radius of the maintenance flap.

Make sure that there are no people or objects in the swivel radius of the maintenance flap.



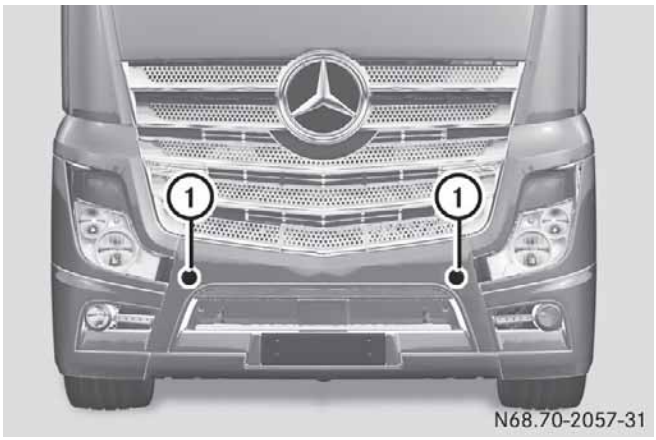
- **Opening:** Press both release levers ② outwards in the direction of the arrows.
- Swing the maintenance flap ① upwards.
- **Closing:** Swing the maintenance flap ① down and make sure it locks audibly.

Towing eye/coupling

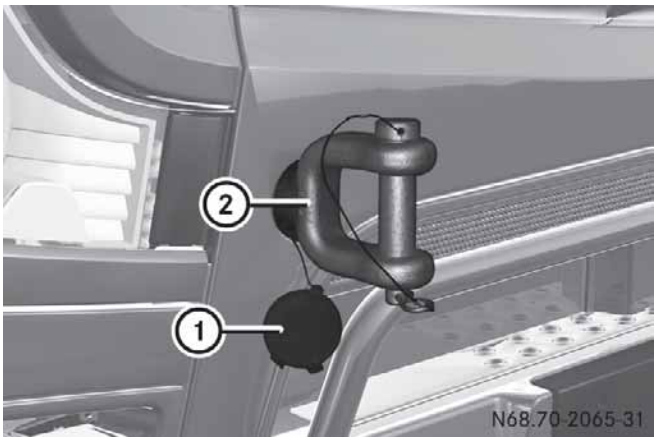
Towing eye

The towing eye ② is included in the vehicle tool kit and is screwed into the frame end behind the cover ①. Make sure that the towing eye ② is screwed in all the way. If the thread is dirty, clean it before screwing in the towing eye ②. If necessary, recut the thread using an M45 x 3 tap.

The towing eye ② is made of a special material with exceptionally high strength properties. For this reason only the original towing eyes should be used. Maximum permissible pulling forces, see page 52.

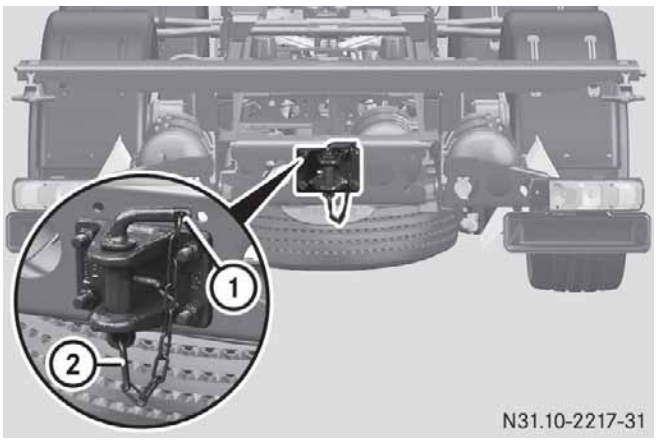


A second towing eye is required if you wish to raise the vehicle at the front. These can be bought from a Mercedes-Benz service center, see page 53. You can now tow the vehicle raised at the front even when it is fully laden, see page 44.



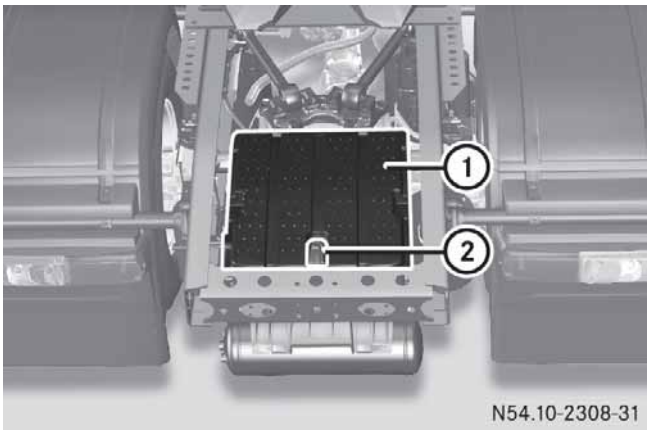
Towing coupling

- ▶ Remove retainer ② from coupling pin ①.
- ▶ Pull out coupling pin ①.
- ▶ Insert tow bar.
- ▶ Press coupling pin ① down through eye of tow bar.
- ▶ Reattach retainer ② to coupling pin ①.



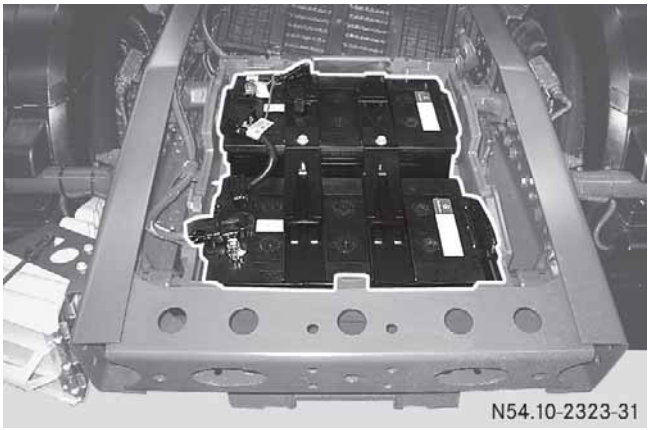
Cover

- ▶ **Removing:** Open catch ② and remove cover ① upwards.
- ▶ **Installing:** Fit cover ①.
- ▶ Engage catch ② and close.

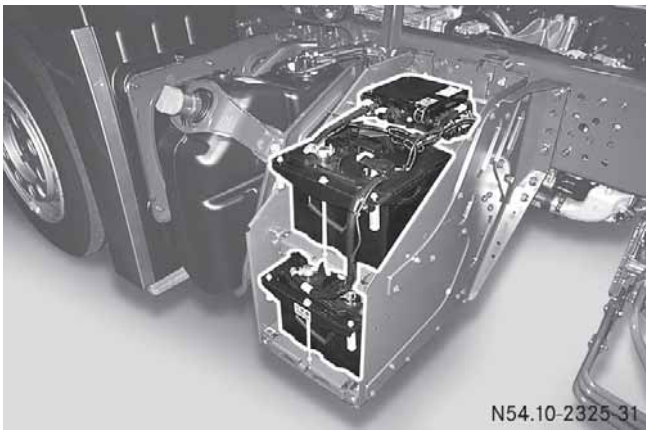


Location of batteries

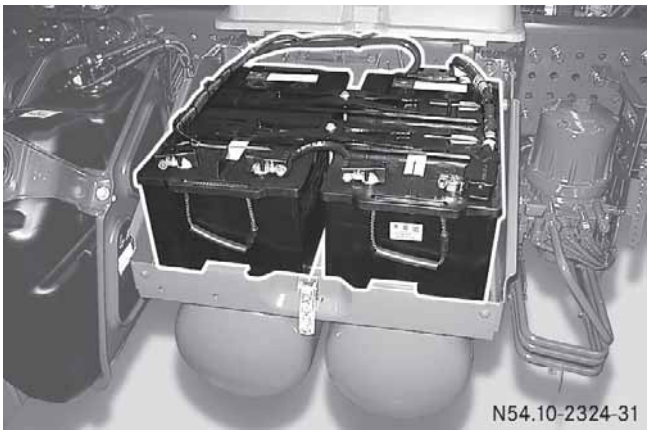
The batteries are located side by side or stacked in the rear area between the longitudinal frame members or on the side of the frame.



Batteries between the longitudinal frame members



Batteries stacked at the side of the frame



Batteries side by side at the side of the frame

Starting assistance

Important safety information

Warning

Charging batteries produces explosive oxyhydrogen gas. For this reason, always ensure good ventilation when working on batteries.

Do not use fire or open flames near batteries, and do not smoke.

Avoid producing sparks (e.g. when disconnecting the batteries). Sparks can ignite the oxyhydrogen gas and cause the batteries to explode. You and others could be seriously injured.

Warning

While jump starting, there is a risk of caustic burns due to gases escaping from the batteries. Do not lean over the batteries when jump starting.

Observe the instructions below. You could otherwise damage the batteries or electronic components:

- Do not use a quick charger for jump starting.
- If you are using a mobile charger (batteries with power supply unit), pull the mains plug before jump starting.
- Only jump start 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 clamps.
- If the outside temperature has dropped below -10 °C, discharged batteries may freeze. In this case do not start the engine. Let the batteries thaw out first.

Do not connect the negative terminal clamp of the jumper cable to the chassis frame. The engine, transmission or electrical and electronic component could otherwise be damaged.

When removing the jumper cables, leave the engine of the power-receiving vehicle running at idle. This avoids damaging the electrical and electronic components in the vehicle.

After jump starting, have the batteries checked at a qualified workshop.

Preparation for jump starting

▶ Make sure that the vehicles do not touch.

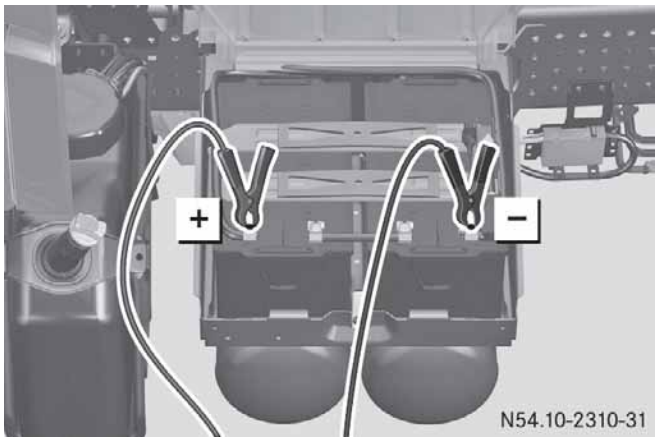
▶ Apply parking brake.

▶ Switch off all electrical consumers.

▶ Switch electronic ignition lock to position **0**.

Vehicles without jump-start connection point

Connecting the jumper cables



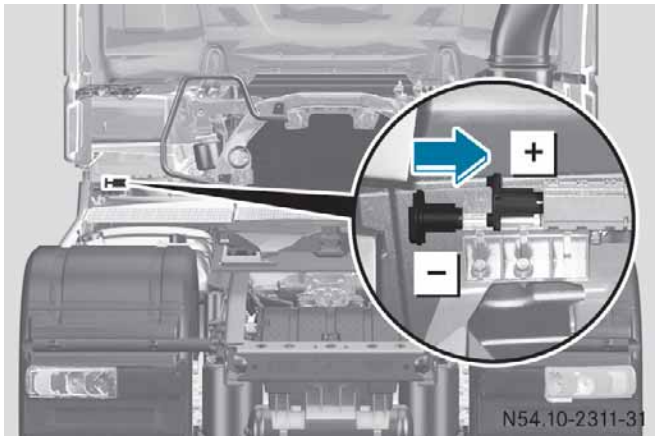
- ▶ Remove cover, see page 15.
- ▶ Clip the positive terminal clamp of the jumper cable first to the positive terminal of the external battery and then to the positive terminal [+] of the starter battery.
- ▶ Clip the negative terminal clamp of the jumper cable first to the negative terminal of the external battery and then to the negative terminal [−] of the starter battery.
- ▶ Run the engine of the vehicle supplying power at a high speed.
- ▶ Start engine and run at idle speed.

Disconnecting the jumper cables

- ▶ Unclip the negative terminal clamps of the jumper cable from the negative terminals first.
- ▶ Unclip the positive terminal clamps of the jumper cable from the positive terminals.

Vehicles with jump-start connection point

Connecting the jumper cables



- ▶ Clip the positive terminal clamp of the jumper cable to the positive terminal of the external battery first.
- ▶ Push back the red cap with the positive terminal clamp of the jumper cable and clip it onto the positive terminal [+].
- ▶ Clip the negative terminal clamp of the jumper cable to the negative terminal of the external battery first.
- ▶ Push back the black cap with the negative terminal clamp of the jumper cable and clip it onto the negative terminal [−].
- ▶ Run the engine of the vehicle supplying power at a high speed.
- ▶ Start engine and run at idle speed.

Disconnecting the jumper cables

- ▶ Unclip the negative terminal clamps of the jumper cable from the negative terminals first.

  The black cap on the jump-start connection point springs back to its original position.
- ▶ Remove the positive terminal clamps of the jumper cable from the positive terminals.

  The red cap on the jump-start connection point springs back to its original position.

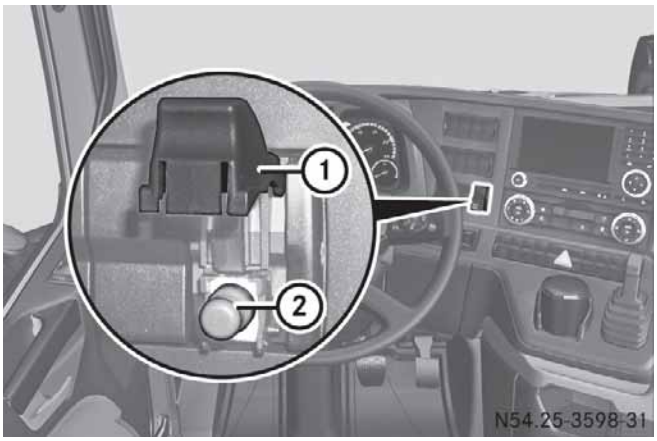
EMERGENCY OFF switch

Warning

Never operate the EMERGENCY OFF switch while driving. Even in dangerous situations, do not operate the EMERGENCY OFF switch until the vehicle is stationary. When you operate the EMERGENCY OFF switch, the power supply is interrupted and the engine is switched off automatically. The compressed air supply and the power steering are inoperative. The power supply to all major electrical consumers, e.g. the lights, is interrupted. The vehicle can only be steered with increased effort. This could cause you e.g. to leave the road when cornering, or cause an accident with injury to yourself and others.

The EMERGENCY OFF switch is normally used e.g. when loading the vehicle in a hazardous materials area. Before you operate the EMERGENCY OFF switch, turn the electronic ignition lock to position **0** and remove the key. In vehicles with a retarder, wait for about 5 seconds. The EMERGENCY OFF switch interrupts the power supply. In this way you avoid short circuits with sparks which may ignite a fire or an explosion. Vehicles used to transport hazardous goods may be equipped with 2 EMERGENCY OFF switches depending on their ADR classification.

If you interrupt the power supply with the EMERGENCY OFF switch while the anti-theft alarm system is active, the anti-theft alarm system triggers an alarm.



Interrupting the power supply

- ▶ Flip the cover ① upwards.
- ▶ Pull out the switch stalk ② or flip the switch stalk ③ upwards.

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

Restoring the power supply

- ▶ Flip the cover ① downwards.

Warning

Do not use fuses with an amperage that is higher than specified. This could result in damage to the electrical system or even charred cables and fires in the vehicle.

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

The individual circuits are protected by fuses or circuit breakers.

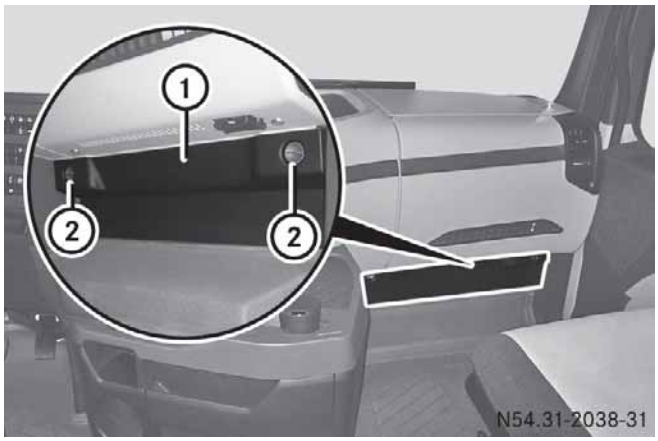
Blown fuses and defective circuit breakers must be replaced with equivalent fuses with the ratings recommended in the fuse assignment diagram. Fuses of the same rating are the same color. Further information can be obtained from any Mercedes-Benz service center.

The fuse assignment diagram is located on the inside of the electronics compartment cover.

▶ If a circuit fails, switch off all consumers and switch the electronic ignition lock to position **0**.

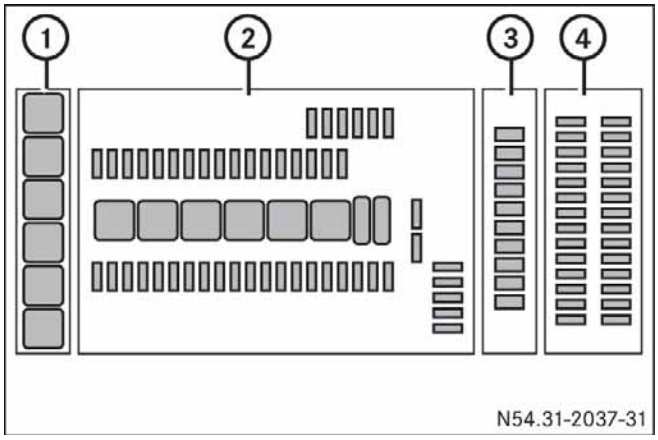
Removing the cover of the electronics compartment

▶ Open catches ② and remove cover ①.



Location of fuses

①	Module A32 (relays)
②	SCA (fuses, relays and diodes)
③	Module A31 (relays)
④	Modules A1 and A2 (fuses)

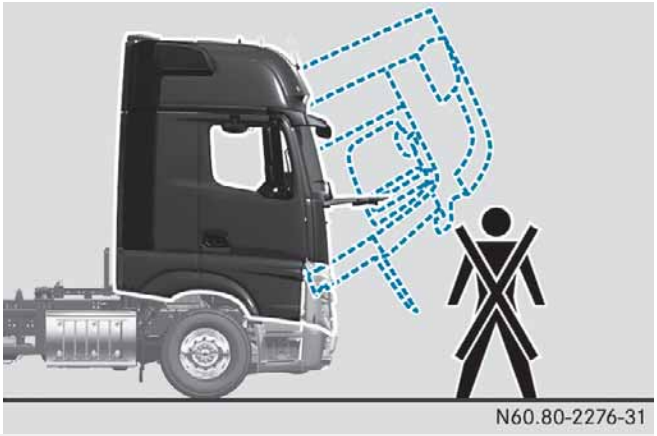


Important safety information

Warning

The cab may suddenly drop into 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.


N60.80-2276-31

Warning

If the indicator lamp in the instrument cluster 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. You may be injured and cause an accident.

After tilting the cab back and starting the engine, always check the indicator lamp first. If the indicator lamp does not go out, repeat the lowering procedure and make sure that the cab locks in the driving position. Do not drive if the indicator lamp is lit.

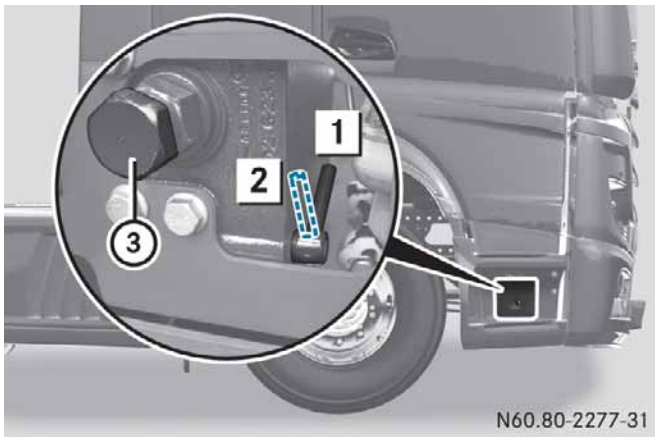
Before tilting the cab

Before tilting the cab, perform the following operations:

- ▶ Keep the area in front of the cab clear for safety reasons.
- ▶ Apply parking brake.
- ▶ Shift transmission to neutral.
- ▶ Switch off engine.
- ▶ If the engine is to be started after tilting the cab, switch the electronic ignition lock to drive position.
- ▶ Switch off auxiliary heater.
- ▶ Switch off stationary air conditioning.
- ▶ Remove loose objects from the cab, e.g.
  - cans
  - bottles
  - tools
  - bags
- ▶ Close interior stowage compartments and the exterior tool compartment.
- ▶ Close doors.
- ▶ Open maintenance flap, see page 13.
- ▶ Secure vehicle using wheel chocks to prevent it from rolling.

Tilting the cab forward

1	Driving position
2	Tilt position
③	Hexagon



- ▶ Observe the instructions before tilting the cab.
- ▶ Open flap on right at entryway steps.
- ▶ Move valve lever of tilt pump to tilt position 2.
- ▶ Fit pump lever over hexagon ③ on tilt pump using lug wrench (vehicle tool kit).
- ▶ Move pump lever on tilt pump up and down until the cab is tilted to the forward end position.
- ▶ If strong resistance can be felt on the pump lever, check the tilt position 2 at the valve lever of the tilt pump.
- ▶ If no resistance can be felt on the pump lever, have the tilting hydraulics checked at a qualified workshop.

Tilting the cab back to the driving position

- ▶ Move valve lever on tilt pump to tilt position 1.
- ▶ Fit pump lever over hexagon ③ on tilt pump using lug wrench (vehicle tool kit).
- ▶ Move pump lever on tilt pump up and down until the cab is tilted back to the rear end position. The locks can be heard to engage and the cab locks automatically.

  When the cab is locked, stop moving the pump lever on the tilt pump up and down.
- ▶ Close maintenance flap, see page 13.
- ▶ Swing down flap on right at entryway steps so that it clicks into place.
- ▶ Check that the indicator lamp in the instrument cluster goes out after the engine starts.

  If the indicator lamp goes out, the cab is locked. If the indicator lamp does not go out, repeat the procedure and tilt the cab back again.

Electrohydraulic cab tilt system

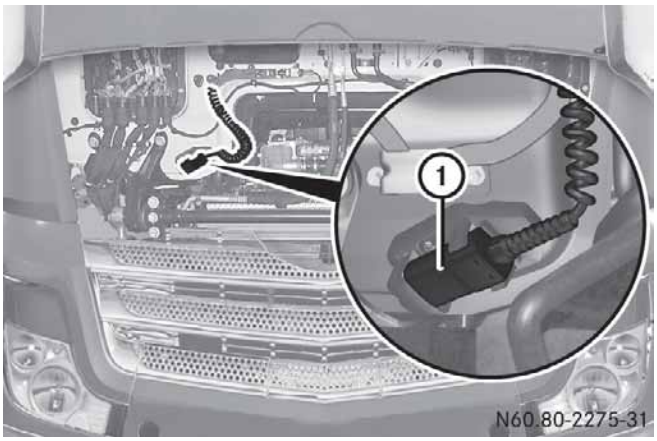
Tilting the cab forward

- ▶ Observe the instructions before tilting the cab.
- ▶ Press top of button [ ].

  The indicator lamp in the button [ ] lights up. The cab tilt system is switched on.

- ▶ Take remote control ① from holder and walk away from the swivel range of the cab.
- ▶ Hold down button [ ] on remote control ① until the cab is tilted to the forward end position.

  When the pump noise starts to get louder, the cab is at the forward end position.



Tilting the cab back to the driving position

- ▶ Hold down button [ ] on remote control ① until the cab is tilted back to the rear end position and is heard to lock.

  The cab locks automatically.
- ▶ Place remote control in holder.
- ▶ Close maintenance flap, see page 13.
- ▶ In the cab, press bottom of button [ ].

  The indicator lamp in the button [ ] goes out.
- ▶ Check that the indicator lamp [ ] in the instrument cluster goes out after the engine starts.

  If the indicator lamp [ ] goes out, the cab is locked. If the indicator lamp does not go out, repeat the procedure and tilt the cab back again.

Starting/stopping the engine with the cab tilted

Important safety information

Warning ⚠

When the cab is tilted and the engine is running, make sure that you do not touch hot or moving parts. You may be injured.

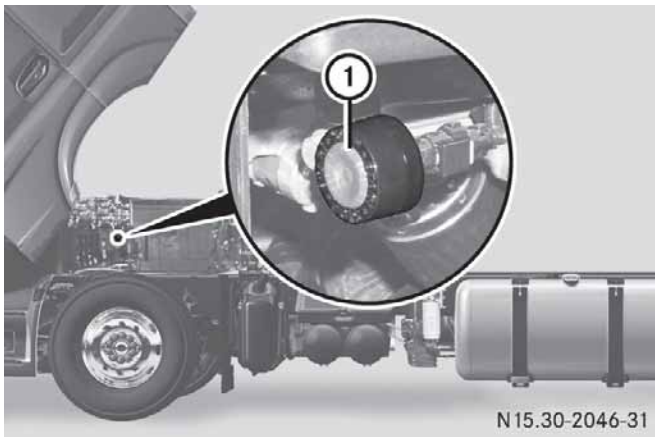
If working on public roads, pay attention to the traffic situation and secure the area around the vehicle accordingly.

Before starting and stopping the engine

- ▶ Switch electronic ignition lock to drive position.
- ▶ Shift transmission to neutral.
- ▶ Tilt cab forwards, see page 20.

Starting the engine

- ▶ Press engine start/stop button ① until the engine starts.



Starting the engine and increasing the engine rpm

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

  The engine speed stars to increase after about 3 seconds. When the external engine start/stop button ① is released, the engine continues to run at the currently set speed.

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

Switching off the engine

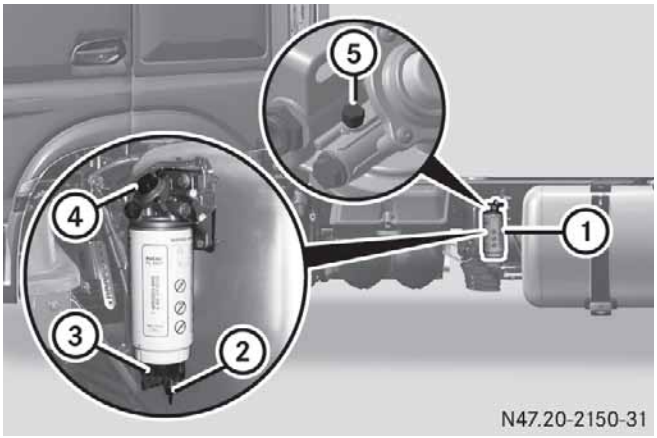
- ▶ Press engine start/stop button ① again.
- ▶ Tilt the cab back to the driving position, see page 20.

Bleeding the fuel prefilter with the hand pump

Environmental warning

Dispose of the water/fuel mixture in an environmentally safe manner.

If water has settled in the inspection glass ③, drain the water from the fuel prefilter ① before bleeding. Drain the fuel prefilter ① regularly.



Draining the fuel prefilter

- ▶ Place a container under the drain screw ②.
- ▶ Open the drain screw ②.
- ▶ Press the hand pump ④ and collect the water/fuel mixture.
- ▶ Close the drain screw ②.

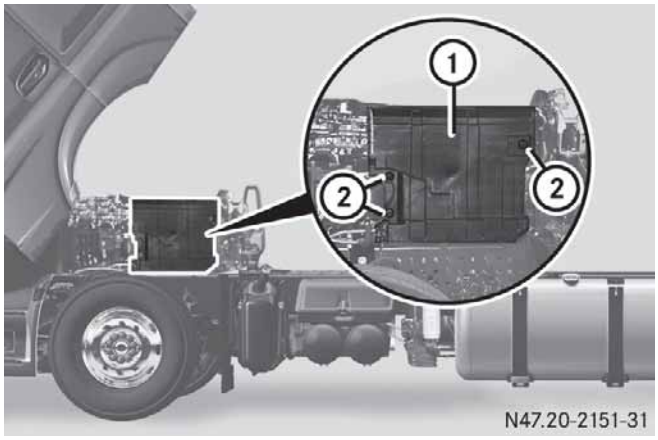
Bleeding the fuel prefilter

- ▶ Open the cap of the fuel tank.
- ▶ Place a container under the fuel prefilter ①.
- ▶ Slacken the bleed screw ⑤.
- ▶ Operate the hand pump ④ until the fuel emerges at the bleed screw ⑤ free of bubbles.
- ▶ Tighten the bleed screw ⑤.
- ▶ Close the cap of the fuel tank.
- ▶ Start engine.

Bleeding the fuel system with the hand pump

The fuel system cannot be bled by repeated engine starts. If you attempt to bleed the fuel system with the starter, you could damage the starter.

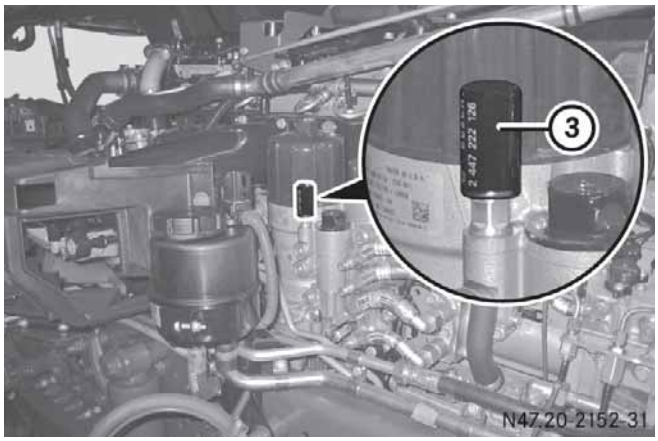
- ▶ Switch electronic ignition lock to drive position.
- ▶ Shift transmission to neutral.
- ▶ Tilt the cab, see page 23.
- ▶ Unscrew bolts ②.
- ▶ Remove cover ①.



- ▶ Press handle on hand pump ③ about 400 times until a noticeable resistance can be felt.
- ▶ Within about 5 seconds press the engine start/ stop button and start the engine, see page 23.

Note that you must start the engine within about 5 seconds of building up the fuel pressure with the hand pump ③. Otherwise the fuel pressure drops and you will have to repeat the process.

- ▶ If the engine starts: Run engine at higher rpms.
- ▶ If the engine does not start: Repeat the process.
- ▶ Tilt the cab back to the driving position, see page 23.



Backup drive mode

General information

If the automatic gearshift malfunctions, you may be able to continue driving in backup drive mode under certain conditions. In backup drive mode it is not possible to change gear while driving.

In backup drive mode the vehicle may exhibit unusual reactions which demand a high level of attention from the driver.

Backup drive mode remains active for as long as the electronic ignition lock is switched to the drive position. When you remove the key from the electronic ignition lock, backup drive mode is deactivated. If the transmission is cold, the multifunction display may not indicate the selected gear in backup drive mode. Select the gear again. If the multifunction display still fails to show the selected gear after repeated gear selections, switch off the engine. Restart the engine and select a gear.

Towing mode reduces the risk of transmission damage when you are towing the vehicle over a short distance with the propeller shaft installed. Only use towing mode to tow the vehicle away from a danger area. When you have towed the vehicle away from the danger area, stop and reinstall the propeller shaft before continuing to tow.

Towing mode can be found in the drive mode menu → `Backup drive mode`.

Selecting a shift position

- ▶ Use the button [▶] or [◀] on the multifunction steering wheel to navigate to the drive mode menu.
- ▶ Use the button [▼] or [▲] on the multifunction steering wheel to navigate to the `Backup drive mode` menu window.

  The menu window shows `Press "OK" to activate`.
- ▶ Press button [OK] on the multifunction steering wheel.

  The menu window shows `Parking brake engaged?`
- ▶ Press button [▶] on the multifunction steering wheel.

  The input window shows:

  - `R` for reverse gear
  - `N` for neutral
  - `D1` for low forward gear, 2nd gear
  - `D2` for high forward gear, 6th gear
  - [🚚] for towing mode
- ▶ Use the button [▼] or [▲] on the multifunction steering wheel to select the desired gear, neutral or towing mode and confirm with button [▶] on the multifunction steering wheel.

  The status area of the multifunction display shows the direction of travel engaged.
- ▶ When the menu window shows `Ready to drive for 10 sec.`, depress the accelerator pedal.

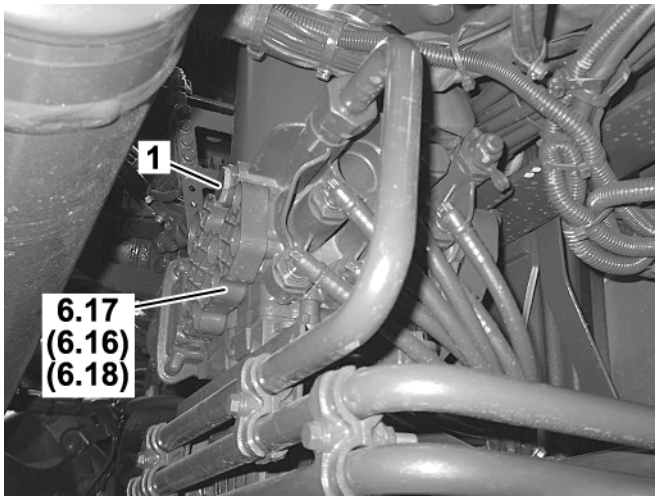
  When you are driving in backup drive mode, the event window displays `Engage neutral?`. You can only shift to neutral while driving.

Filling the compressed air system from an external source

When you fill the compressed air system via connection 12 on the EAPU, the compressed air is dried and restricted by the pressure limiting valve.

The EAPU contains the following components:

- Pressure regulator
- Compressed air drier
- Multiple-circuit protection valve
- Pressure limiting valve
- Control unit



▶ Unscrew screw plug ①.

▶ Screw in adapter for filling connection in place of screw plug ①, see page 53.

▶ Connect external compressed air source and fill the system.

When you remove the adapter and install the screw plug ①, replace the sealing ring.

Emergency filling of the compressed air system

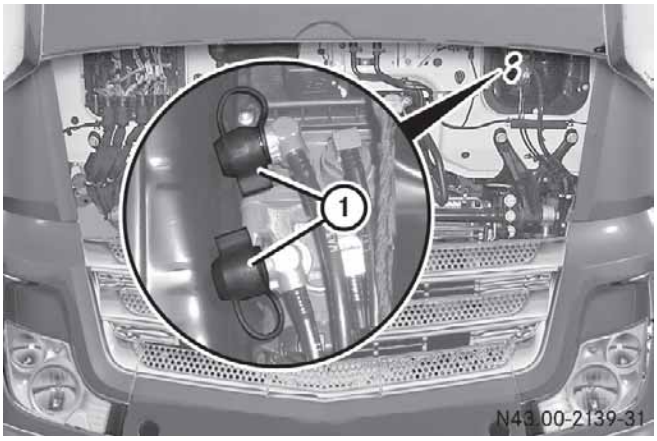
If the supply pressure of the external compressed air source is below 11 bar, you might not be able to fill all of the pressure circuits.

Note that the compressed air is not routed via the compressed air drier if you fill the compressed air system via:

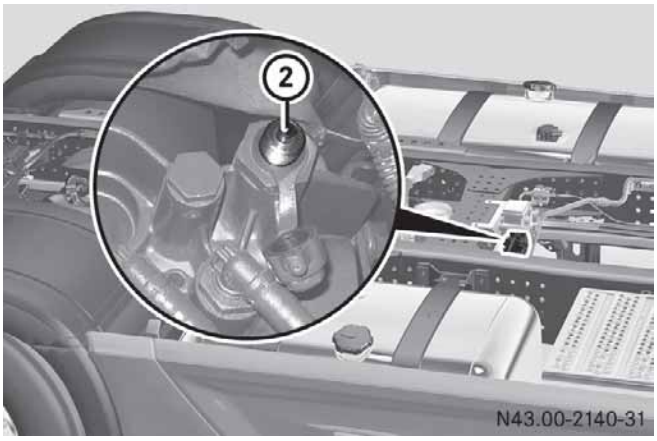
- connection 28 ② on the EAPU (Electronic Air-Processing Unit).
- the filling connection ① on the brake value sensor behind the maintenance flap.

Fill the pressure circuits to max. 12.5 bar. Otherwise components of the compressed air system could be damaged.

When the engine is not running, fill the compressed air system via the front test connection ① on the brake value sensor. If you fill the compressed air system via a test connection, the air suspension may be filled at the same time, depending on the vehicle equipment and the residual pressure.



If you fill the compressed air system via connection 28 ② on the EAPU, the pressure circuit of the air suspension is filled at the same time.



Releasing the spring-loaded parking brake

Warning

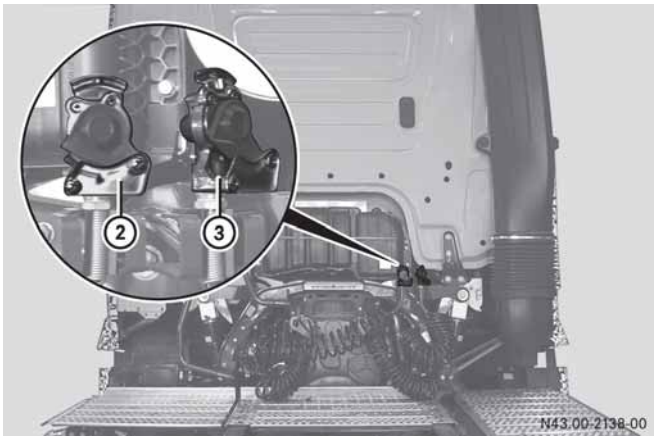
Before releasing the spring-loaded parking brake, secure the vehicle with wheel chocks to prevent it from rolling. Attach a clearly visible sign on the mechanically released spring-loaded parking brake in the vehicle interior. Before operating the vehicle again, the spring brake cylinders must be returned to the driving position.

If there is no compressed air supply, the spring-loaded parking brake can be released either pneumatically via an external compressed air source or mechanically.

Releasing the spring-loaded parking brake pneumatically

The arrangement of spring brake cylinders on the front and/or rear axle depends on the axle configuration.

②	Brake coupling head (yellow)
③	Supply coupling head (red)



▶ The supply coupling head ③ can be used to fill circuit 3 (tractor vehicle and trailer). Depending on the design of the EAPU, it is possible to fill circuit 1 (rear axle) at the same time.

The filling pressure must not exceed 8.5 bar.

Releasing the spring-loaded parking brake

Releasing the spring-loaded parking brake mechanically

The vehicles may be fitted with different spring brake cylinders on each axle, e.g. spring brake cylinders with an unscrewing release screw or with a release indicator.

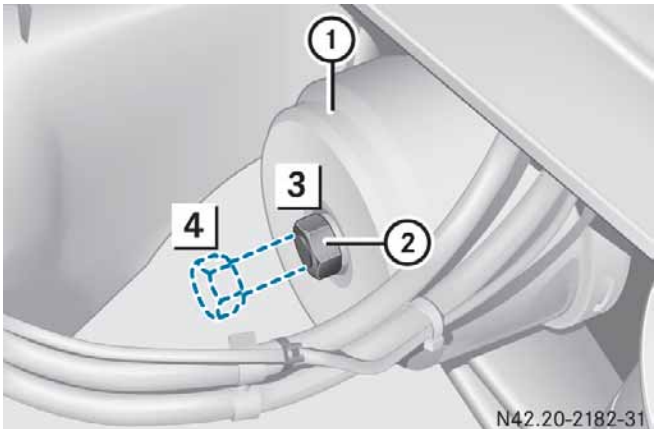
Release all the spring brake cylinders on the vehicle.

!

Slacken the release screw with a maximum torque of 70 Nm. Do not use an impact wrench. Otherwise the spring brake cylinder could be damaged. The release screws on some spring brake cylinders require only 2/3 of the usual release travel. Do not unscrew the release screws any further. Otherwise the spring brake cylinders could be damaged.

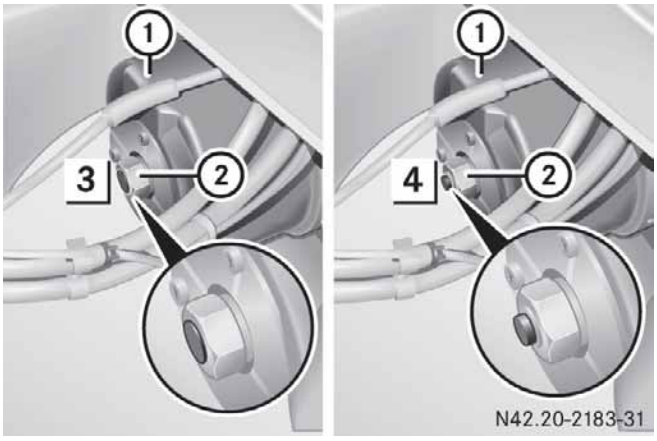
Tighten the release screws with a maximum torque of 35 Nm. Do not use an impact wrench. Otherwise the spring brake cylinders could be damaged.

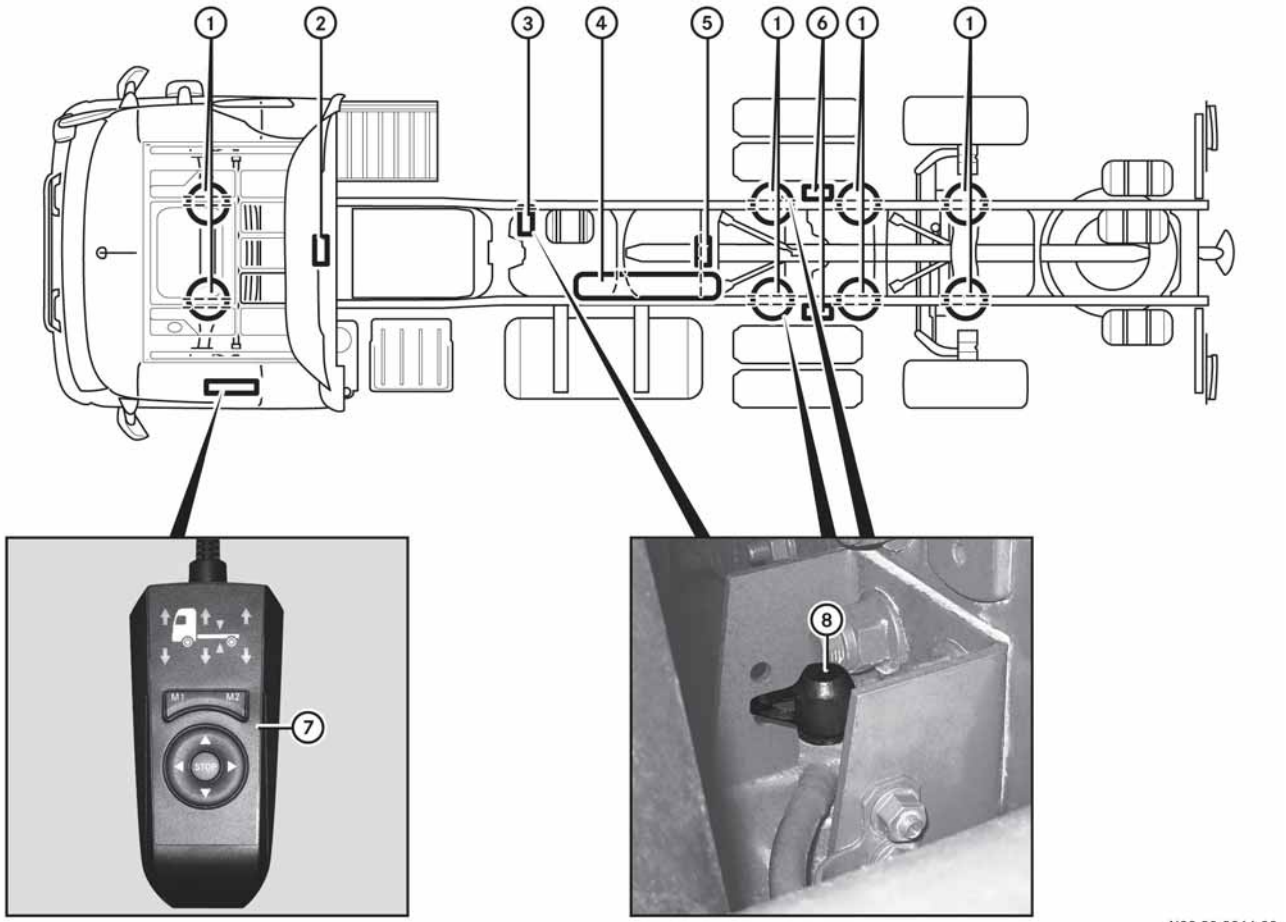
- ▶ Secure vehicle using wheel chocks to prevent it from rolling.
- ▶ Turn release screw ② of spring brake cylinder ① counterclockwise to the stop in the release position [4].



Restoring spring brake cylinders to driving position

- ▶ Clean and grease the release screws ② before installing.
- ▶ Fill compressed air system up to cutoff pressure.
- ▶ Swing lever of parking brake all the way to the release position.
- ▶ Turn release screw ② of spring brake cylinder ① clockwise to the driving position [3].
- ▶ Tighten release screw ②.





①	Air spring bellows	⑤	Valve block (rear axle)
②	Travel sensor	⑥	Travel sensor
③	Valve block (front axle) with test connection	⑦	Operating unit
④	Compressed air reservoir	⑧	Test connection (example on rear axle)

Raising and lowering the chassis via test connections

If the air suspension control system fails, you can use the test connections to raise/lower the chassis.

In laden vehicles pressures up to 8.5 bar are permissible, or correspondingly less for an unladen vehicle.

!

When you reach the stop, cease filling immediately.

▶ If possible, fill via connection 28 on the EAPU and adjust the level control via the operating unit.

▶ Fill or vent the spring bellows via the test connections ⑧.

Tow-starting vehicles

Warning ⚠

- If the reservoir pressure in the compressed air system is too low or nonexistent (warning lamp lights up below 6.8 bar), there will not be adequate braking effect. The clutch and transmission control systems may be inoperative depending on the pressure level. Tow-starting is not possible.
- Fill the compressed air system from an external source before tow-starting, see page 27.
- When the vehicle is tow-started, there will be no power steering or pneumatic assistance.
- 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 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.

Warning ⚠

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

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

▶ Switch electronic ignition lock to drive position.

The indicator check runs. If the indicator check does not run, the vehicle cannot be tow-started.

▶ Switch off ASR (acceleration skid control).

▶ Switch off ESP® (Electronic Stability Program).

▶ Switch off ABA (Active Brake Assist).

▶ In vehicles with ADR classification, check that the EMERGENCY OFF switches are deactivated, see page 18.

▶ Attach a tow bar to the drawbar, see page 14.

▶ Shift to 4th gear.

The engaged gear must be shown in the display.

▶ Tow-start vehicle.

▶ At about 10 km/h slowly depress accelerator pedal.

The electronic system engages the clutch automatically.

▶ Immediately when the engine starts: Shift transmission to neutral.

If the accelerator pedal is operated slowly, the clutch is eased in slowly. If the accelerator pedal is operated quickly, the clutch is let in quickly.

Important safety information

Warning

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.

Warning

If you have your vehicle towed without the engine running, the power steering, the compressed air supply and the oil pump in the transmission are inoperative.

It then takes a great deal of effort to steer the vehicle. You could leave the road when cornering or collide with the towing vehicle.

When the brake system has no compressed air supply, you can no longer brake the vehicle with the service brake and this could cause you to collide with the towing vehicle. Fill the compressed air system from an external compressed air source.

Before starting to tow, talk to the driver of the towing vehicle and agree on clear communication signals. Make sure that you and the driver of the towing vehicle adjust your driving style accordingly.

Warning

If you are towing a vehicle with ASR (acceleration skid control), ESP® (Electronic Stability Program) or ABA (Active Brake Assist), the ASR/ESP®/ABA system may perform uncontrolled braking actions. Switch the ASR/ESP®/ABA and the ignition off before towing the vehicle.

!

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 brake cylinder, see page 30. If the vehicle is raised at the rear for towing and is towed backwards, the steering wheel must be immobilized, see page 47. Permissible maximum speed: 60 km/h.

!

When the engine is not running, the oil pump in the transmission is inoperative. If you tow the vehicle with the propeller shaft installed, the transmission could be damaged.

General

Rules for towing

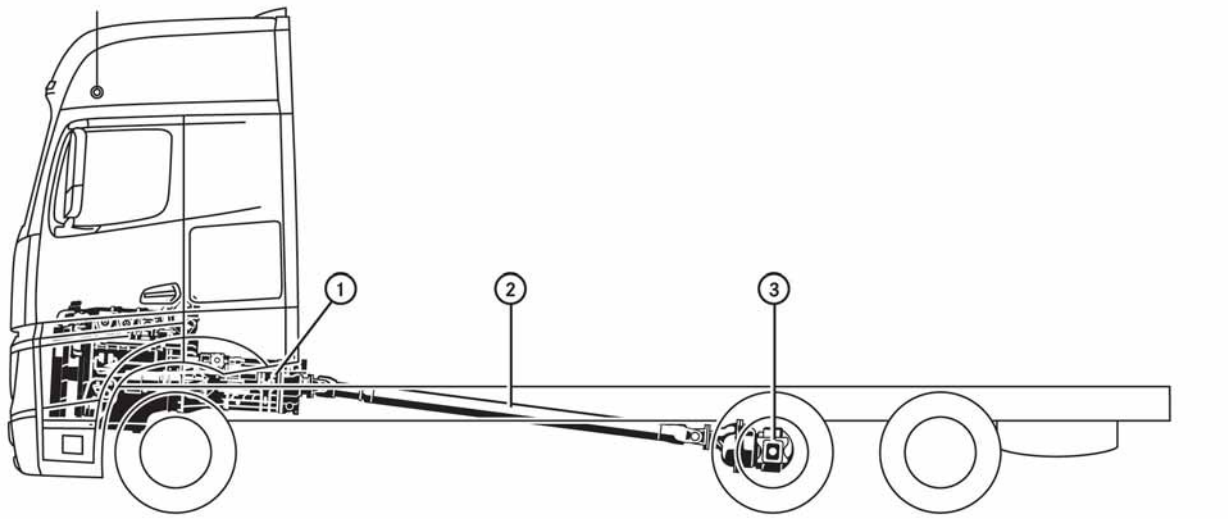
- Remove the propeller shaft in order to avoid damaging the transmission, see page 37.
- ASR, ESP® and ABA must be switched off, see page 12.
- There must be sufficient pressure in the compressed air system, see page 27.
- Wind guides, mirrors and bodies may protrude above and to either side of the vehicle.
- Connect the towing vehicle and the trailer/semitrailer with an ABS cable (5-pin or 7-pin).
- Make sure that the vehicle to be towed has all the required lights operating.
- If you are towing the vehicle raised at the rear axle, fold in and secure the wind guides.

Towing vehicles away from danger areas

The vehicle should only be towed with the propeller shaft installed in exceptional cases, e.g. in order to remove the vehicle from a danger area. To do this, activate towing mode, see page 26.

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.
- ▶ Disengage clutch, select a gear.



N41.00-2020-00

Symptom	Diagnosis
The engine stalls without the propeller shaft ② moving.	Transmission damage ①
The engine/transmission block twists in the frame.	Rear axle damage ③
The intact wheel turns.	Wheel bearing/planetary hub reduction drive

Engine, transmission and/or axle damage

Warning

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.

Engine damage

▶ Remove the propeller shaft to the drive axle complete, see page 37.

Transmission damage

▶ Remove the propeller shaft to the drive axle complete, see page 37.

Damage to the rear axle differential

▶ Lock the differential with a bolt, see page 38.

▶ Remove both drive shafts (stub axles) of the damaged axle, see page 38.

Damage to the planetary gear system or the wheel bearings

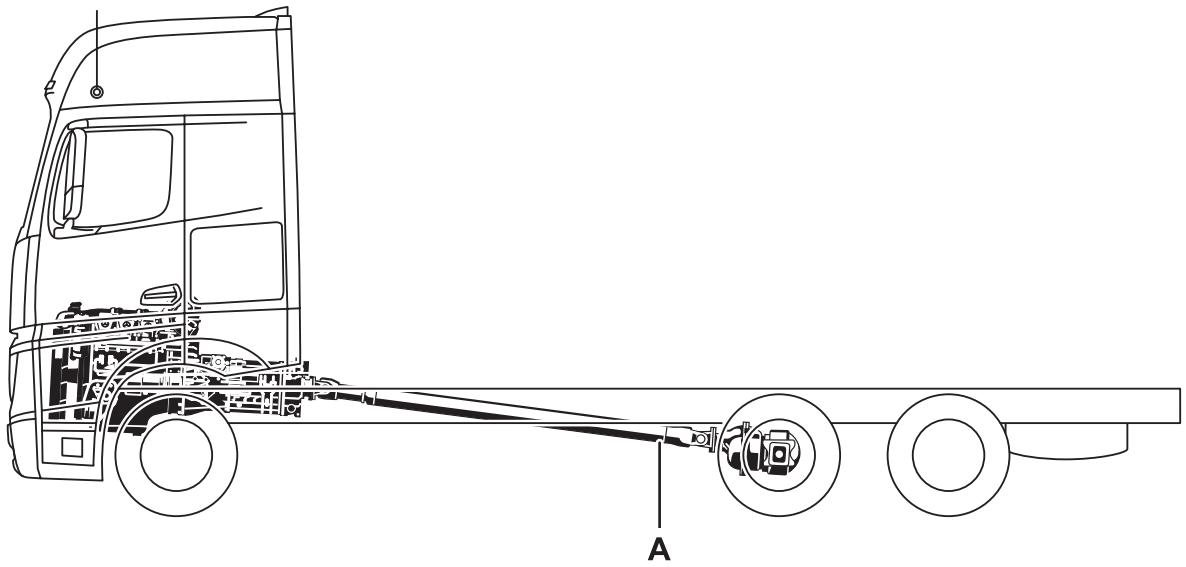
▶ Raise the damaged axle.

Propeller shaft removal

Warning

The 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.

The propeller shaft should not be pulled apart when it is being removed. However, if it is necessary to pull the propeller shaft apart, the installation position must be marked on the sliding piece beforehand. If this is not done, there may be imbalance in the propeller shaft when it is reinstalled.



N41.00-2019-00

Model	Raised at front	Raised at rear
4x2	A	-
6x2	A	-

If you are towing the vehicle on all its wheels or raised at the front axle, the propeller shaft must be removed.

Drive shaft removal

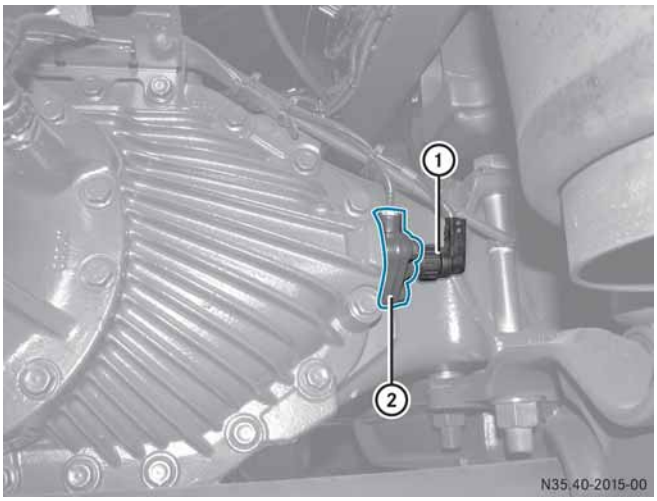
Removing the rear axle drive shafts

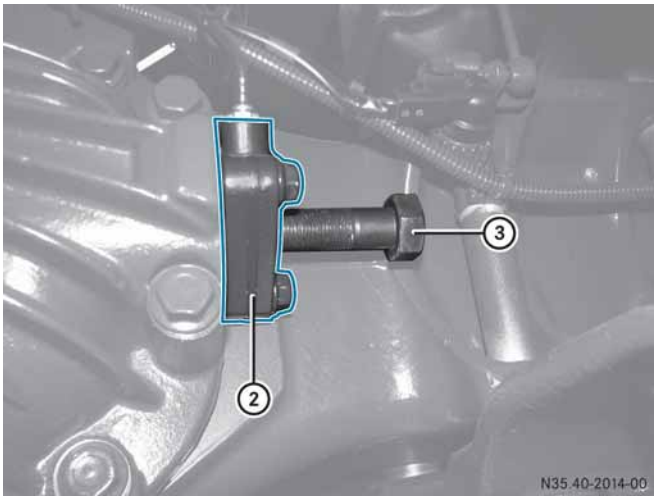
Locking the differential with a bolt:

- ▶ Unplug electrical connection ① from sensor housing ②.
- ▶ Unscrew sensor using box wrench (size 27 mm).
- ▶ Carefully screw the bolt ③ as far as the stop into the shift cylinder housing ②.

  M 18 x 1.5 x 80 mm

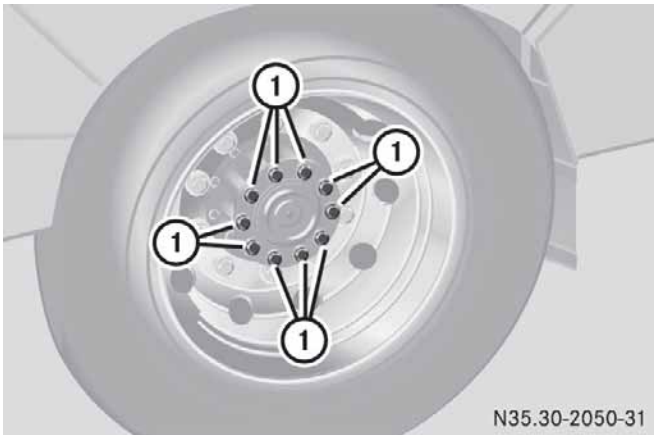
  Special tools, see page 53.
- ▶ If it is not possible to screw in the bolt ③ all the way: Pull the drive shaft out approx. 100 mm and twist it until the bolt ③ can be screwed in all the way.





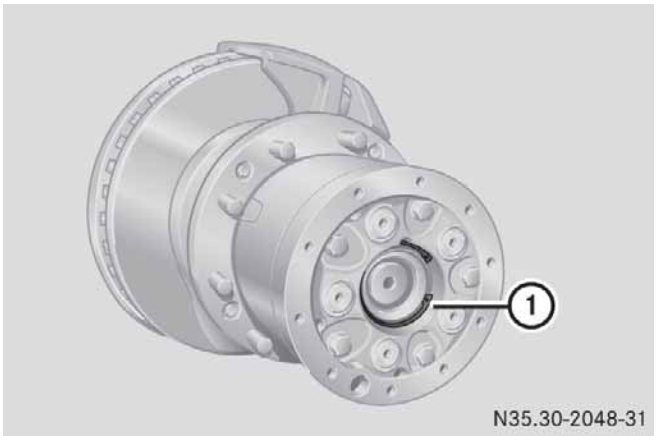
Removing the rear axle drive shafts:

- ▶ Switch electronic ignition lock to **0** and remove vehicle key.
- ▶ Lock the differential with a bolt.
- ▶ Unscrew bolts ① on wheel hubs.
- ▶ Place oil pan under wheel hub.
- ▶ Collect escaping oil.
- ▶ Pull out both drive shafts.
- ▶ Use a cover to protect the wheel hub against dirt, see page 55.
- ▶ Refill with oil.



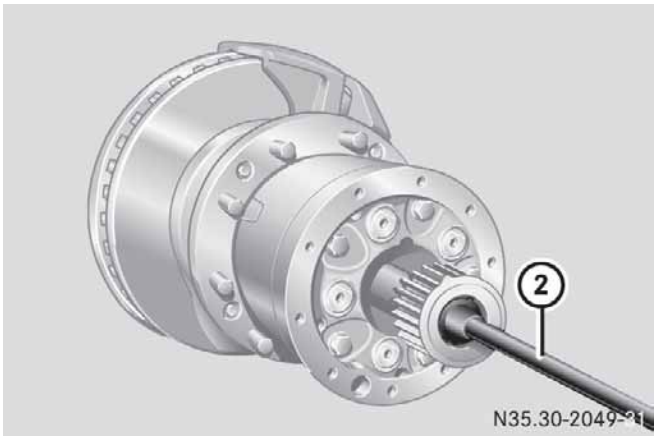
Removing the drive shafts of the planetary hub reduction axle

- ▶ Switch electronic ignition lock to **0** and remove vehicle key.
- ▶ Lock the differential with a bolt.
- ▶ Unscrew oil drain screws of planetary hub reduction axle.
- ▶ Collect escaping oil in an oil pan.
- ▶ Detach end cover ③ of planetary hub reduction axle.
- ▶ Remove retaining rings ① using pliers.



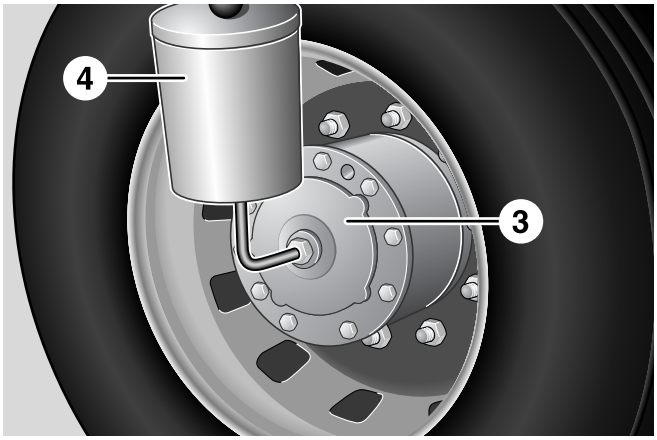
- ▶ Remove both drive shafts together with sun gear.

  To do this, use special tool ② or a 120 mm long M 8 bolt.
- ▶ Detach sun gear from drive shaft and reinstall in axle gear.
- ▶ Attach end cover ③.



Filling the planetary hub reduction axle with oil

!
If the towing distance exceeds 100 km, add oil to the planetary hub reduction drives.



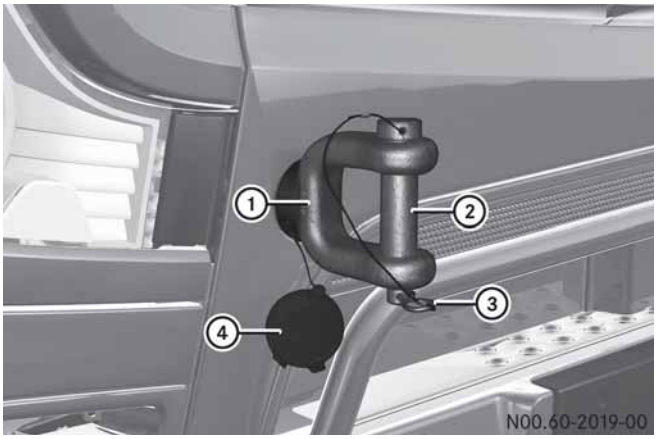
- ▶ Unscrew oil filler screw in center of end cover ③.
- ▶ Unscrew oil container ④ into end cover ③.
- ▶ Fill planetary hub reduction drive with oil (3.25 l on each side of the wheel). Only use clean transmission oil.
- ▶ Unscrew oil container ④.
- ▶ Screw in oil filler screw and tighten.

Information on approved operating fluids can be obtained at any Mercedes-Benz service center or on the Internet at:

http://bevo.mercedes-benz.com/bevolisten/bevo-blaetter-sort1.html

Towing with a tow bar

- ▶ Remove protective cap ④ on front crossmember.
- ▶ Screw towing eye ① all the way into front crossmember and turn to vertical position.
- ▶ Pull out locking pin ③ and remove journal ② upwards.
- ▶ Connect tow bar to towing eye ① and to the towing vehicle.
- ▶ Insert journal ② and secure with locking pin ③.
- ▶ Remove propeller shaft(s).



Important safety information

Warning

Do not switch the electronic ignition lock to the drive position when the front axle is raised. Otherwise the automatic ASR function may cause uncontrollable braking of the rear wheels may while the vehicle is being towed. This can cause the vehicle to lose lateral stability and break away.

!

If possible, tow the vehicle empty.

Vehicles involved in an accident

- ▶ Before raising the vehicle, check the connections between the frame sections and between the frame and the axle.
- ▶ If any air spring bellows on the rolling axle are defective, ensure adequate clearance and tow at max. 10 km/h.
- ▶ Fold up or detach the underride guard if necessary.

Semitrailer vehicles with semitrailer

Warning

Trailer/semitrailer with ABS:

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 or 7-pin).

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

Towing in raised position

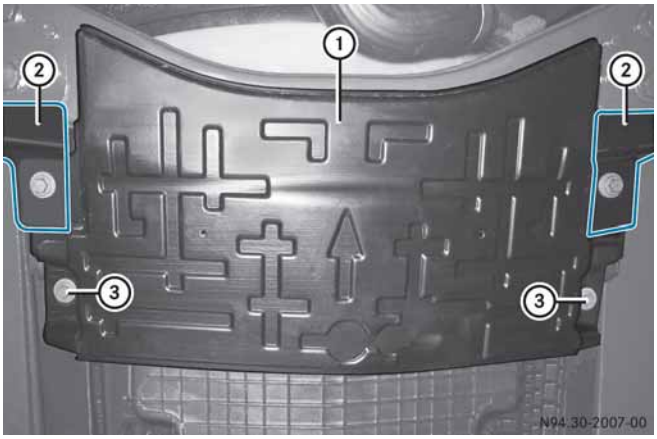
Towing

On Low-liner and low-frame vehicles in particular, it is recommended to remove the soundproofing, see page 42. Damage could otherwise occur.

- Lift the vehicle only at the specified points.
- Do not raise the vehicle by the frame on one side only.
- Secure the vehicle to the lifting device with a chain or straps to prevent it from slipping or bouncing out.
- 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.
- Install warning lamps on the vehicle if necessary.
- Switch off ASR (acceleration skid control), Stability Control Assist/ESP® (Electronic Stability Program) and ABA (Active Brake Assist), see page 12.
- Remove the propeller shaft to the rolling axle.
- When towing entire combinations, route an ABS cable from the towing vehicle to the trailer/semitrailer (5-pin or 7-pin).
- Switch electronic ignition lock to position **0**.

Removing the soundproofing

- Unscrew both bolts ③ a quarter turn to the left.
- Remove cover ① from guides ② towards the rear.



Overview of towing options at the front

Lifting option for front axle variant	By the towing eyes(1)	By the wheels	By the front axle
Steel-sprung axle	X	X	X
Air-sprung axle, lowered	X	X[2]	X
Air-sprung axle, Low-liner, lowered	X	X[3]	X

1 When raising by the towing eyes, it may be necessary to tie up the front axle. When cornering, the angle of the telescopic arm must be taken into account due to the roll angle of the lifting yoke. Laden vehicles raised by the towing eyes may only be towed at low speeds and without dynamic shock loads.

2 Depending on the height of the telescopic arm and other factors.

3 It may be necessary to remove the soundproofing.

The spacing of the two drawbars is 1170 mm. Depending on the width of the yoke, a yoke width extension may be necessary to accommodate the drawbars, see page 55.

!

Use only drawbars that have been approved by Mercedes-Benz. The drawbars could otherwise be damaged.

Raising by the towing eyes or the front axle

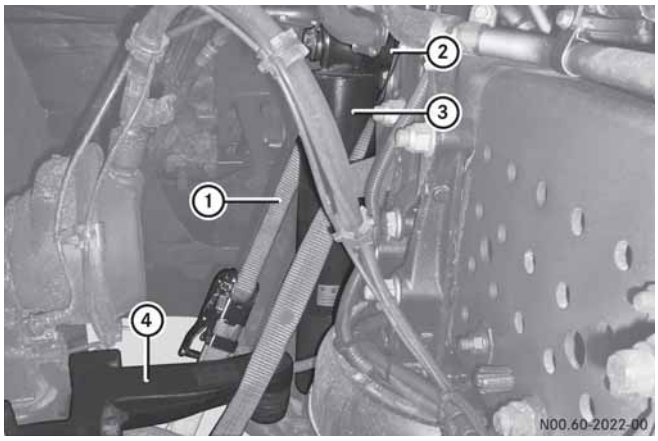
Notes on air-sprung vehicles

!

When the vehicle is being lowered, make sure that the air spring bellows return correctly into their guides if they have lifted out.

- ▶ Depressurize the spring bellows.
- ▶ Tie the front axle beam with chains or straps ① up to the shock absorber bracket ②.

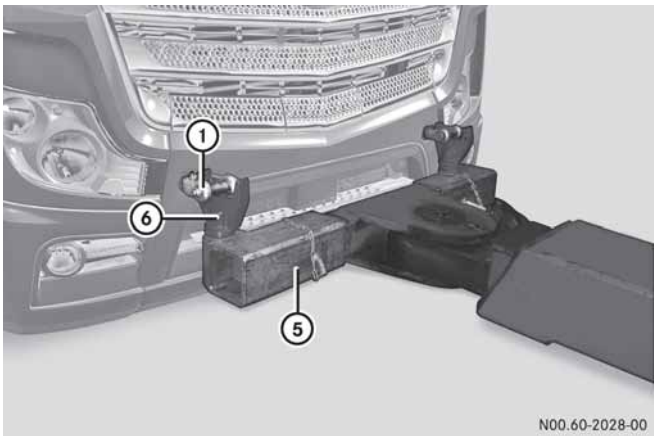
①	Strap
②	Shock absorber bracket
③	Shock absorber
④	Steering arm



Towing in raised position

Raising and towing by the towing eyes

- ▶ Adjust yoke with yoke width extension ⑤ to fit the vehicle.
- ▶ Screw towing eyes ① all the way into front crossmember and turn to horizontal position.
- ▶ Pick up the towing eyes ① with the support forks ⑥.
- ▶ Remove propeller shaft(s).



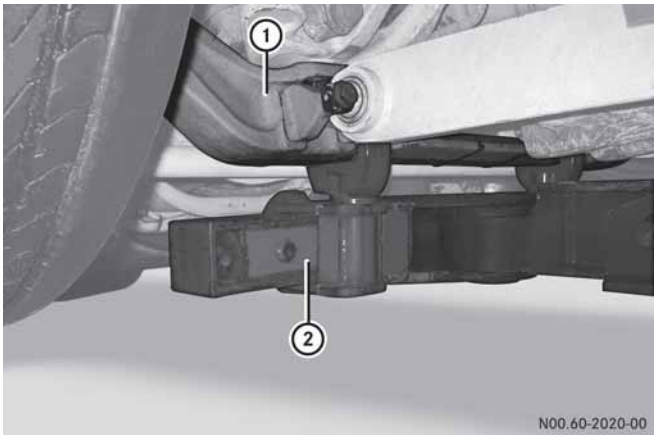
!

To prevent the towing eyes from bouncing out of the forks of the yoke when cornering or on surface undulations, they must be secured e.g. with a chain.

Raising by the front axle

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

Depending on the level of the air suspension, the wheels must be pulled onto wedges or placed on blocks of wood in order to fit the yoke to the front axle.



!

On vehicles with notches in the axle housing: Do not position the support forks directly underneath the notches. On vehicles with weight-optimized front axle, do not lift the front axle in the center.

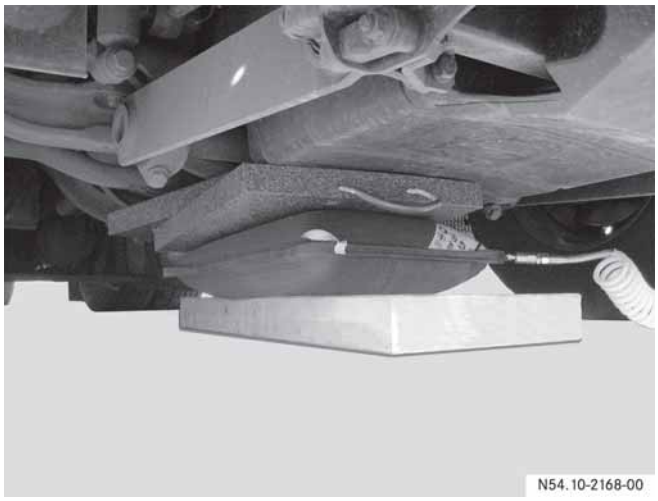
Raising and towing by the wheels

- ▶ Secure vehicle using wheel chocks to prevent it from rolling.
- ▶ Raise the vehicle with the aid of air cushions or the drawbars if necessary.

  Pay attention to tie rods, soundproofing panels and the level control system.
- ▶ Set the lift fork to the track width of the vehicle.

!

It is recommended to remove the soundproofing, see page 42. Damage could otherwise occur.



- ▶ Push the lift fork under the vehicle.
- ▶ Raise vehicle.

!

Make sure there is sufficient clearance between the arm of the lift fork and the front trim.

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

Towing in raised position

Overview of towing options at the rear

	Raised at the rear by		
	The crossmember[2]	The wheels	The rear axle
Semitrailer tractor	X	X[1]	Not permissible
Semitrailer tractor, Low-line			X

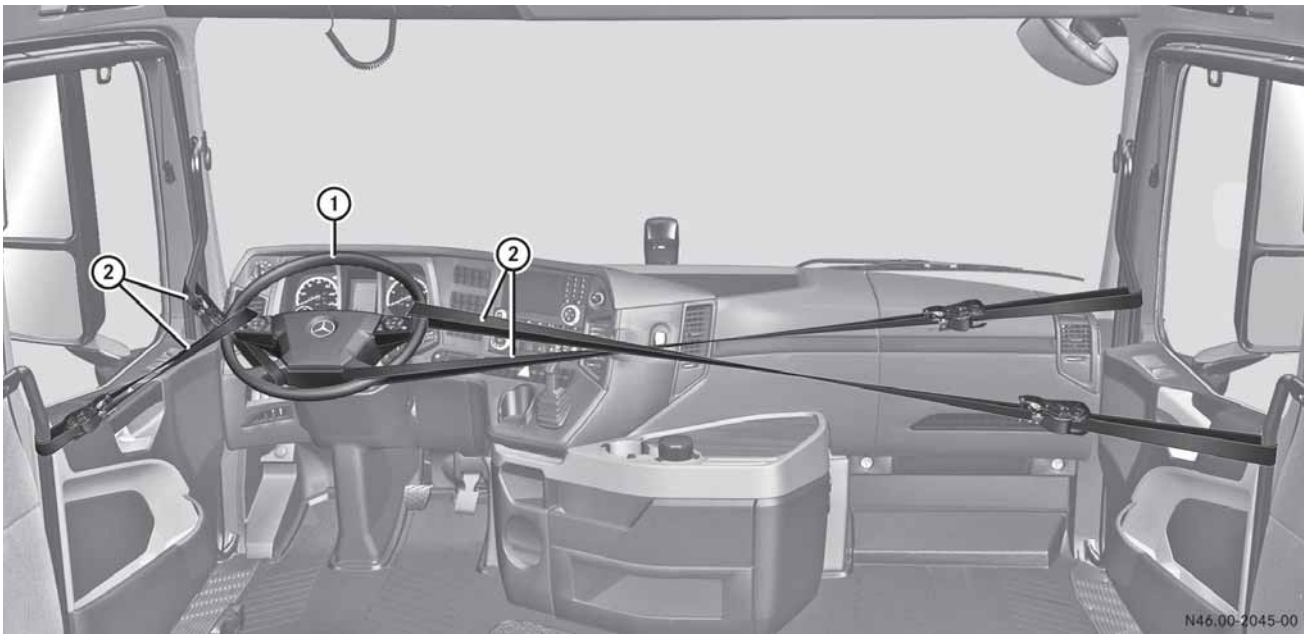
1 On vehicles with lowered rear axle it may be necessary to remove the fender in order to hold the vehicle by the wheels.

!

Any application of force in the end crossmember is not permissible on semitrailer tractors with weight-optimized end crossmember. Weight-optimized end crossmembers do not have the hole pattern for a trailer hitch, are 2.5 mm thick and have the stamped object number A 960 312 16 35.

If you are towing the vehicle with the rear axle raised, pay attention to the clearance of the front spoiler and underride guard. If the clearance is not adequate, remove the front spoiler and/or the underride guard.

Immobilizing the steering wheel



▶ Move the steering column to the vertical position.

▶ Secure the steering wheel ①: tangentially with 4 straps ②; attached to the door grab handles.

!
Fit the straps tightly, but do not stretch them.

!
Make sure that the switch panels and the FleetBoard® monitor are not damaged.

!
Maximum speed with immobilized steering wheel: 60 km/h.

Note that the vehicle does not have a steering wheel lock.

Towing in raised position

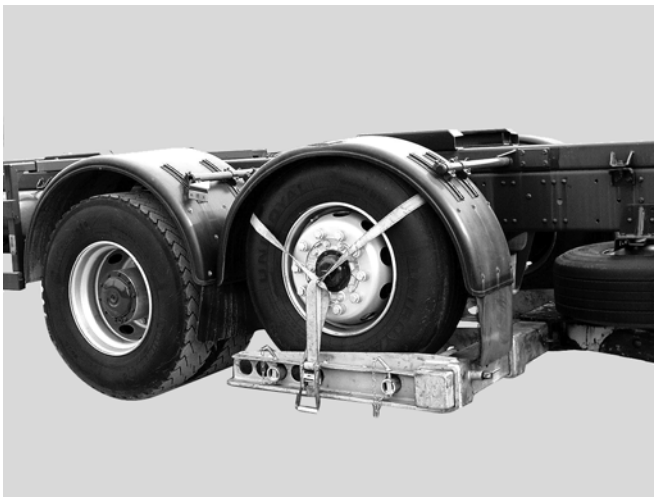
Raising by the rear wheels

- Immobilize the steering wheel.
- Set the lift fork to the track width of the vehicle.
- Move the lift fork under the vehicle and set to the 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 without a wooden block when the vehicle is unladen, i.e. without superstructure or swap body. If the vehicle is partially laden, 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 1st rear axle to the frame with chains.



!

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.

Important safety information

Warning

When recovering the vehicle with a gear engaged, there is a danger that the engine could start and the vehicle could drive off out of control. Before recovering, make sure that the ignition in the vehicle is switched off. Disconnect the batteries if the ignition cannot be switched off or if the batteries are deeply discharged or the cab is inaccessible.

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 minimize the bending stress and the frame load, the areas of 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.
- When pulling in the longitudinal direction, always use a towing crossmember and a 2nd towing eye if possible.

Before recovering

▶ If possible, 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.

General information

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 towing crossmembers, guide pulleys or load compensation rollers.
- Tractor/semitrailer combinations should be straightened at the front and rear simultaneously.
- Absorb the straightening forces. Do not drop the vehicle in its suspension.

After straightening

Do not start the engine. Accumulations of engine oil in the exhaust system, in the charge air cooler, in the engine intake area, in the cylinder head or in the cylinders themselves could cause the engine to overrev or suffer an oil hammer during a start attempt. This could result in engine damage. Have the engine, the cooling system and the exhaust system checked at a qualified workshop before restarting the engine for the first time.

After recovering

After recovery, check all the safety components, see page 51.

Vehicles with air suspension: Check the air spring bellows for damage and whether they operate correctly and are properly seated in the guides. To do this, set the highest and lowest settings on the operating unit and check the behavior of the air spring bellows.

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

Front axle(s)

- 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.
- Rear axle housing with steering elements.

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, drawbars.

Electrical system

- Wiring harnesses and electrical lines.

Maximum permissible pulling forces

Recovering by both towing eyes using a suitable towing crossmember:

- 40 t pulling force at max. 0° towing angle
- 20 t pulling force at max. 15° towing angle

Recovering by one towing eye using a suitable tow bar or a suitable tow rope

- 20 t pulling force at max. 15° towing angle

Any application of force in the end crossmember is not permissible on semitrailer tractors with weight-optimized end crossmember. Weight-optimized end crossmembers do not have the hole pattern for a trailer hitch, are 2.5 mm thick and have the stamped object number A 960 312 16 35.

Recovery at the trailer hitch

- Journal diameter 38 mm: max. 12 t pulling force
- Journal diameter 48 mm: max. 20 t pulling force
- Towing angle max. 15°

Mercedes-Benz special tools

The following special tools/aids can be acquired from any Mercedes-Benz service center.

Information on regular tools and special tools can be found on the Internet at:

- http://gotis.aftersales.mercedes-benz.com

Special tool, general

Towing eye M45 x 3

Part no. A 000 583 13 20

!

Use only drawbars that have been approved by Mercedes-Benz. The drawbars could otherwise be damaged.

Special tool, drive shafts

For extracting the drive shafts on axles with planetary hub reduction drive, see page 38.

Bolts

Bolt M8 x 120 mm

For extracting the drive shafts on axles with planetary hub reduction drive, see page 38.

Bolt M18 x 1.5 x 80 mm

For locking the rear axle differential, see page 38.

Adapter for compressed air connection (male and female thread)

M16 x 1.5 part no. A 007 997 35 72

M22 x 1.5 part no. A 000 430 02 34

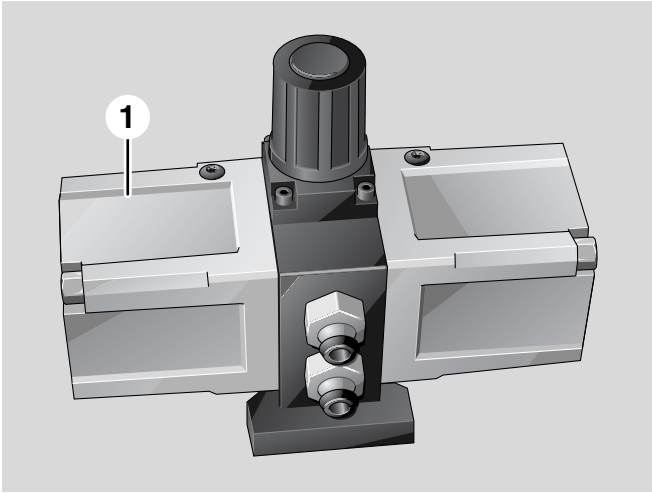
Adapter for test connection (female thread)

M16 x 1.5 part no. A 000 431 29 31

Mercedes-Benz special tools

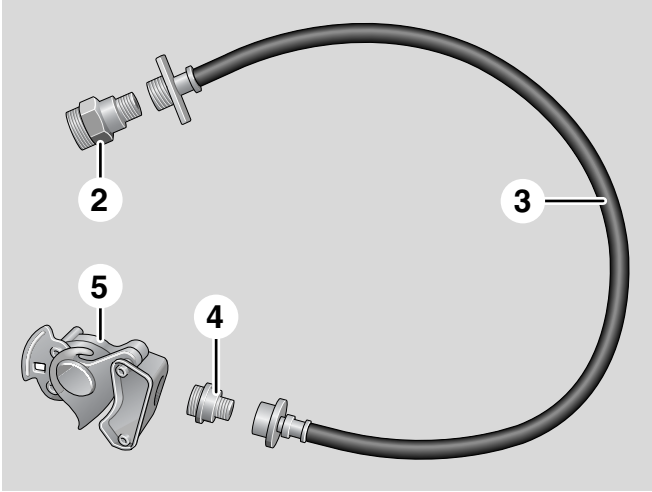
Pressure booster

①	Pressure booster



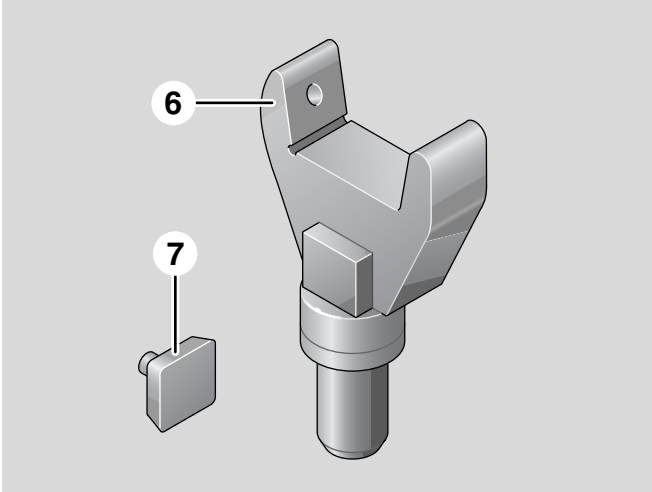
Compressed air hose

②	Connection
③	Hose
④	Adapter
⑤	Coupling head



Lifting fork

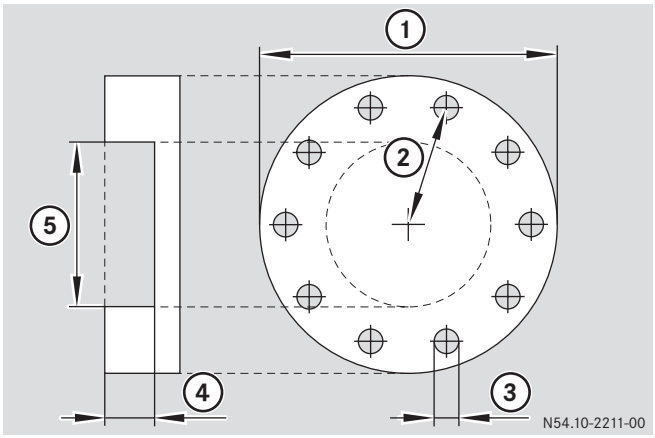
⑥	Front axle lifting fork
⑦	Spacer plate



Shop-made special tools

Wheel hub cover

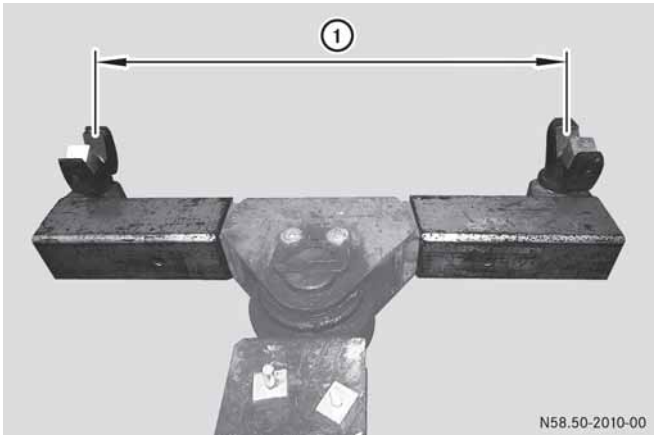
Item	Designation	Dimension
①	Diameter	230 mm
②	Hole circle radius	95 mm
③	Hole diameter	19 mm
④	Undercut depth	5 mm
⑤	Undercut diameter	150 mm



The undercut is necessary because of the protruding axle tube, otherwise the cover will not lie flat.

Yoke width extension

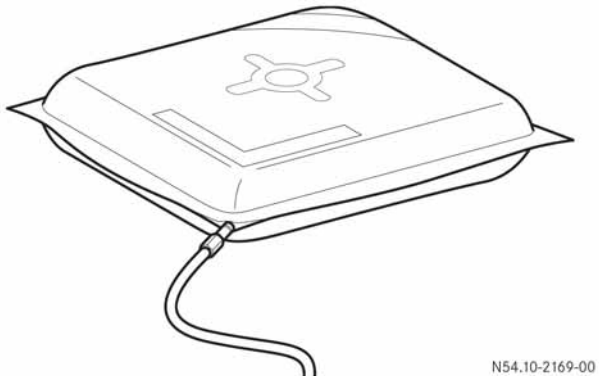
Item	Designation	Dimension
①	Spacing of drawbars	1170 mm



Recommended special tools

Inflatable jack

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



Abbreviations

ABA

Active Brake Assist

ABS

Anti-lock braking system

ADR

Accord européen relatif au transport international des marchandises **D**angereuses par **R**oute
(European Agreement Concerning the International Carriage of Dangerous Goods by Road)

ASR

Acceleration skid control

EAPU

Electronic **A**ir-**P**rocessing **U**nit

ESP®

Electronic Stability Program

GGVS

Hazardous Materials Road Transport Regulations
(RTMD)

Index

A

ABA (Active Brake Assist) 12
Abbreviations 57
ADR 18
Aids 53
Air-Processing Unit 27
ASR (acceleration skid control) 12
Axle damage 36

B

Backup drive mode 26
Battery box 15
Bleeding 25
Blocked drive train 35
Brake value sensor 27

C

Chassis number 8
Chassis raising/lowering 31
Compressed air system 27
Contents 3

D

Detachable frame parts 49
Differential 38
Display (instrument cluster) 10
Draining 24
Drawbars, raising 44
Drive shafts 35
Drive train 35
Driving systems 12

E

EAPU 30
Electrical fuses 19
Electrical system 15
Electrohydraulic cab tilt system 22
Emergency gearshift 26
EMERGENCY OFF switch 18
Emergency shift, transmission 26
Engine damage 36
Engine, starting and stopping with the cab tilted 23
ESP® (Electronic Stability Program) 12
External engine start/stop 23
External force application 49

F

Filling connections 27
Filling pressure 27, 28
Force application points 49
Frame crossmember 50
Frame distortion 49
Frame load 49
Front axle 43
Fuel prefilter 24
Fuel system 25
Fuses 19

G

GGVS 18
Guide pulleys 50
Guidelines
- Trade association 7
- Vehicle ownership 7

H

Hand pump 25
Hazardous goods 18

I

Identification number 8
Indicator lamps 11
Inflatable jack 50
Instrument cluster 10
Instrument panel 9

J

Jump starting 16
Jump-start connection point 17

L

Level control 31
Liability information 7
Lift axle 48
Lift fork 45
Lifting fork 54
Longitudinal frame member 49

M

Maintenance flap 13
Maximum permissible pulling forces 52
Mechanical/hydraulic cab tilt system 21
Model plate 8
Multifunction display 10

P

Planetary gear system 39
Pressure booster 54
Propeller shaft removal 37

R

Raising 44
Raising the vehicle 44
Rear axle 38
Recovery 49
Recovery and towing company association 7

S

Safety components 51
Service brake valve 29
Soundproofing, removing 42
Special tools 53
Spring bellows 31
Spring-loaded actuator 29
Stability Control Assist 12
Stabilizer bars 44
Starting and stopping the engine with the cab tilted 23
Starting assistance 16
Straightening 50
Straps 49
Symbols 10

T

Test connection 31
Tilt pump 21
Tilting the cab 20
Tire inflation connection 30
Tow bar 40

Towing angle 49
Towing coupling 14
Towing eye 14
Towing options 43
Towing straps 49
Tow-starting 32
Trailer coupling 52
Transmission damage 36
Travel sensor 31

V
Valve block 31
Vehicle model designation 8
Vehicle model plate 8

W
Warning lamps 11
Wheel hub cover 55
Wheel hubs 38

Y
Yoke width extension 55

Daimler AG, GSP/OIS, HPC R 822, D-70546 Stuttgart
03/12