



Actros, Antos and Arocs Towing and recovery

Model series 963, 964



Mercedes-Benz

Actros, Antos and Arocs

Towing and recovery

Product portfolio

You can also find comprehensive information on our complete product portfolio in our Internet portal:

Link: <https://www.mercedes-benz-trucks.com>

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Dear Reader,

The aim of these guidelines is to provide roadside assistance and to provide 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 notes in this guide, particularly those concerning vehicle recovery, are exclusively intended for experienced recovery experts and are left to the discretion of the user.

Means of display**Warning note:****Note**

Warning

Warning

Possible vehicle damage:

Potential damage

Instruction for action:

- Procedural instruction

Environmental note:**Environmental note**

Environmental note

All of the data listed in this guide corresponds to the technical status as of copy deadline in May 2022 and may differ from the series production configuration as a result.

Daimler Truck AG

Wörth factory, TE/SCT



Information about the vehicles and about operating the vehicle functions can also be found in the interactive operator's manual on the Internet at:
<https://www.mercedes-benz-trucks.com>

Safety and liability information

Knowledge and compliance with the following relevant specifications and policies are required for this guide:

- Accident prevention regulations
- Trade Association Policies for Vehicle Maintenance
- Rescue and Towing Companies' Association Policies
- Respective country's road traffic regulations

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

Note

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.

You must observe the notes in chapter "Recovery".

Note

Modifications to electronic components, their software or wiring can impair their functioning and/or the functioning of other networked components. Safety-relevant systems, in particular, may also be affected.

Because of this, they may no longer function properly and/or compromise the operational safety of the vehicle. There is a heightened risk of accident and injury!

Never carry out any modifications to the wiring and electronic components or their software. Always have work on electrical or electronic component parts or their software performed at a qualified workshop.

Location of identification plate/vehicle identification number

L cab (Actros)

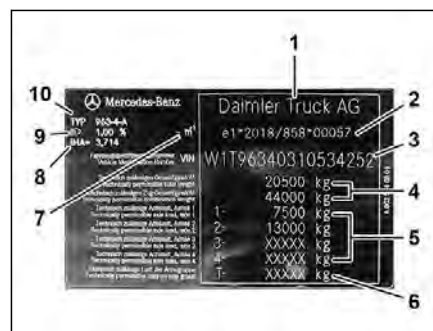
- 1 Identification plate
- 2 Vehicle identification number on right longitudinal frame member



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Information on the identification plate

- 1 Vehicle manufacturer (Daimler Truck AG)
- 2 EC operating permit number (only for certain countries)
- 3 Vehicle identification number (VIN)
- 4 Permissible gross mass (kg), permissible gross combination mass (kg)
- 5 Permissible axle loads of axles 1 to 4 (kg)
- 6 Permissible load of axle group T (kg)
- 7 Flue gas coefficient
- 8 Rear axle ratio
- 9 Basic headlamp adjustment
- 10 Vehicle model (vehicle model designation)



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Instrument panel

Ignition lock

Depending on the vehicle equipment, either an electronic ignition lock or a mechanical ignition lock may be installed.

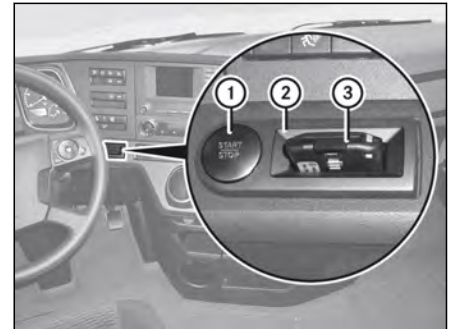
Switch positions of electronic ignition lock

The electronic ignition lock consists of the key slot (2) for holding the key (3) and the two-stage start/stop button (1). To switch the electronic ignition lock, insert the key (3) all the way into the key slot (2). Insert the key (3) into the key slot such that the Mercedes star is facing upward.

The electronic ignition lock has the following switch positions:

- **0**
Insert the key (3).
The ignition and instrument cluster display are off.
 - **1 - Radio position**
Power supply for some consumers.
 - **2 - Drive position**
The ignition is switched on. The instrument cluster display shows a menu window or an event message.
 - **3 - Start position**
If the key (3) is inserted and you press the start/stop button (1) up to the end stop, you switch the electronic ignition lock to position **3** and start the engine.

If the key (3) is inserted and you press the start/stop button (1) up to the 1st switching threshold, you switch the electronic ignition lock to the respective next position **0**, **1**, and **2**. When you press the start/stop button (1) in position **2**, you switch the electronic ignition lock back to position **0**.
- Performing one of the following actions while the vehicle is stationary will switch the engine off:
- Press the start/stop button (1) all the way down. The electronic ignition lock is then in position **1**.
 - Press the start/stop button (1) as far as the 1st switching threshold and then release it. The electronic ignition lock is then in position **1**.
 - Remove the key (3) from the key slot. The electronic ignition lock is then in position **0**.

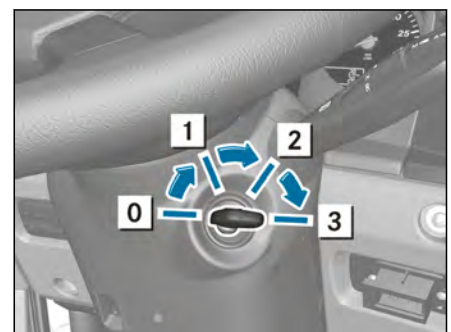


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Key positions in mechanical ignition lock

If you remove the key in position **0**, the steering is locked.

- 0 Insert/remove key
- 1 Steering unlocked/radio position
- 2 Drive position
- 3 Start position

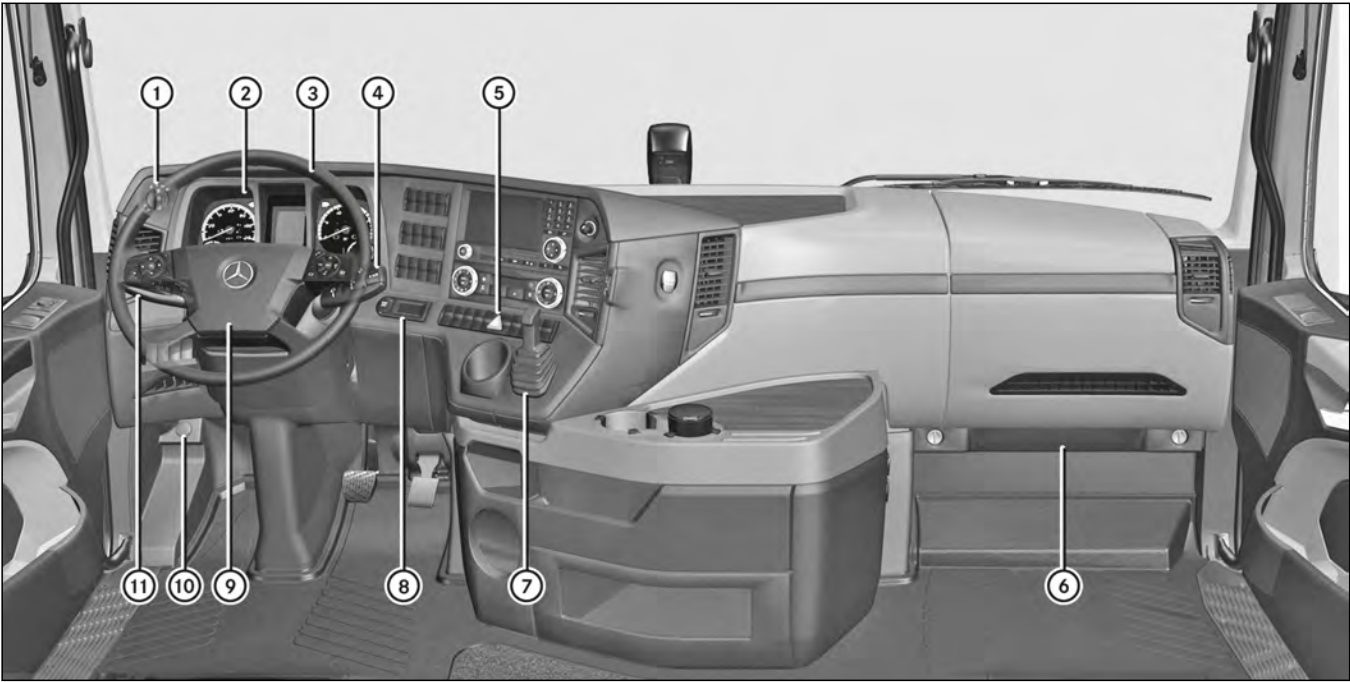


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The brochure describes all the switch positions on the electronic ignition lock.

CLASSIC cockpit



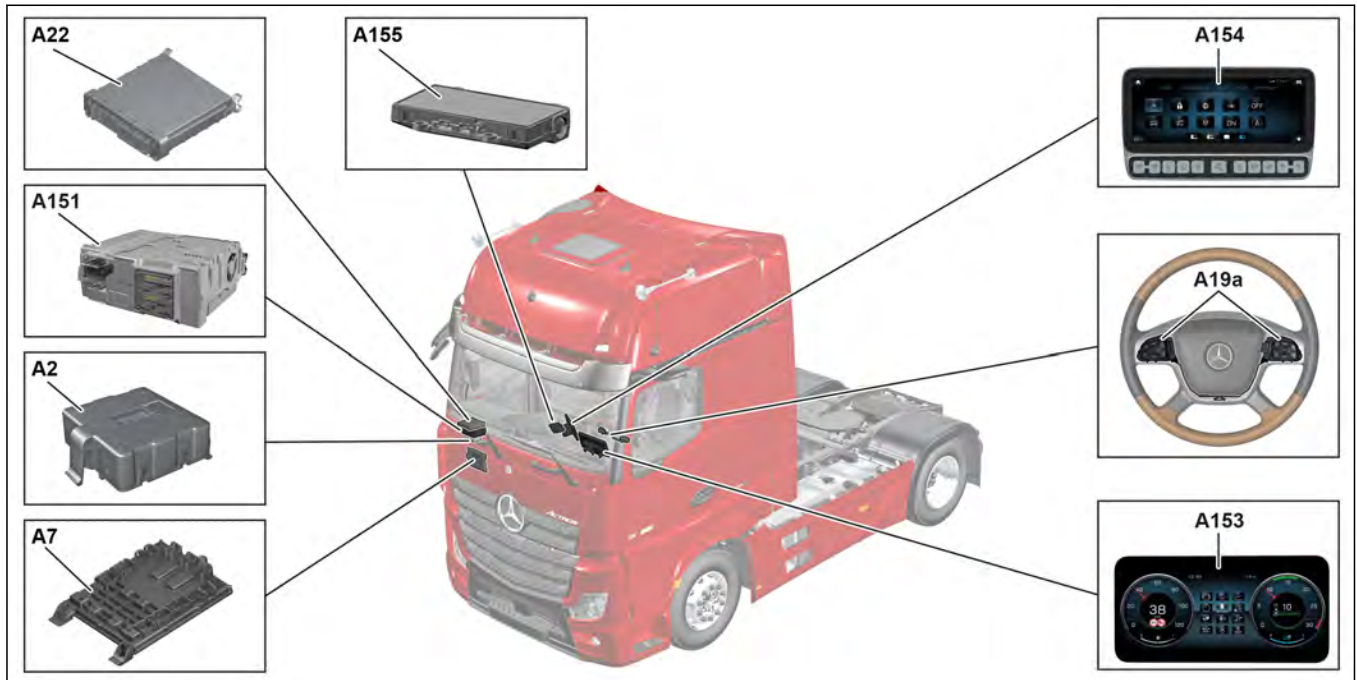
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Instrument panel (Actros)

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

Multimedia cockpit

Instrument panel



W54.30-A007-79

Overview of Multimedia Cockpit system components

A2	Central gateway control unit (CGW)	A151	Instrument cluster (IC) control unit
A7	Advanced signal acquisition and actuation module (ASAM) control unit	A153	Instrument cluster screen (ICS) control unit
A19a	Finger navigation pad (FNPd)	A154	Head unit screen (HUS) control unit
A22	SAM with additional functions (XMC)	A155	Wireless smartphone connection control unit (WSPC)



W68.10-A000-78

Multimedia cockpit

The new Multimedia Cockpit (code J6B (Multimedia Cockpit) or code J6C (Multimedia Cockpit, interactive)) is available as standard equipment in vehicles with L cab and as special equipment in vehicles with S/M cab. The previous cockpit (code J6A (Classic cockpit)) remains the standard equipment for vehicles with S/M cab.

The Multimedia Cockpit basically consists of the instrument cluster control unit and two high-resolution displays.

The primary display (instrument cluster screen control unit) is located centrally in front of the driver and replaces the previous instrument cluster. The instrument cluster screen control unit is installed in two versions:

- With a diagonal screen size of 26 cm (10.25") for code J6B (Multimedia Cockpit)
- With a diagonal screen size of 30.5 cm (12") for code J6C (Multimedia Cockpit, interactive)

The secondary display (head unit screen control unit) is located at the right in the driver's field of view where the classic radio used to be located. As a multitouch display

with a diagonal screen size of 26 cm (10.25"), it offers access to various infotainment systems. Primary functions can be operated via the hot keys.

A newly designed steering wheel with innovative operation via finger navigation pads is also an integral part of the Multimedia Cockpit.

Comparison of Classic Cockpit and Multimedia Cockpit

The Classic Cockpit is available as standard equipment for the overseas markets and for the Actros and Arocs model series with S/M cab. The design and layout remain largely unchanged. However, the Classic Cockpit has been adapted to the new electrics/electronics architecture.

The clearly structured instrument cluster with on-board computer is available in the following versions:

- With a 10.4 cm (4") display as standard equipment
- With a 12.7 cm (5") display for code J1E (Instrument cluster, 12.7 cm, with additional displays)
- With a 12.7 cm (5") display for code J1C (Instrument cluster, 12.7 cm, with video function)

The infotainment system consists optionally of the following components:

- Code J2E(Radio, with USB connector)
- Code J2B(CD radio, Bluetooth®)
- Code J2H(Multimedia touch radio)

The Multimedia Radio Touch is available in combination with code J2G (Digital radio) with a digital receiver for the reception of digital terrestrial broadcast radio programs.

Integration of functions for bodybuilders in the Multimedia Cockpit

The Multimedia Cockpit offers decisive advantages for the integration of bodybuilder functions and their display content. Five additional (virtual) indicator lamps with over 250 freely configurable symbols can be parameterized from a database in the instrument cluster control unit.

There are also 5 virtual switches whose signal output is realized via function pins on the advanced signal acquisition and actuation module control unit. 3 additional virtual switches as well as additional body functions can be optionally integrated and controlled in combination with the SAM with additional functions control unit. Furthermore, body warning notices can now also be shown in the instrument cluster screen control unit.

Instrument cluster control unit in vehicles with code J6B (Multimedia cockpit) or code J6C (Multimedia cockpit, interactive)

The instrument cluster control unit is located in the electronics compartment on the front passenger side and takes over the functionality of the following control units and components:

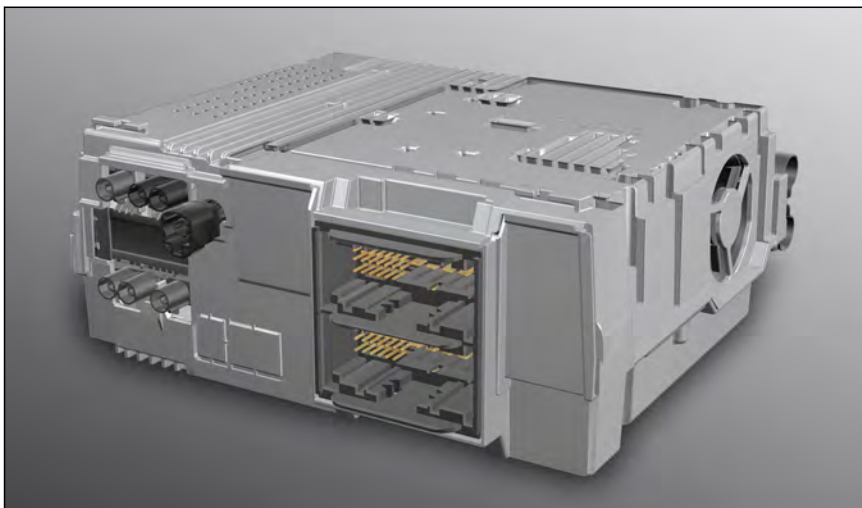
- Instrument cluster (ICUC) control unit (A1)
- Truck Control Center (TCC) (A9)
- Modular switch panel control unit (MSF) (A43)

Instrument cluster control unit (IC) (A151)

Instrument panel

The instrument cluster control unit is integrated via the following bus systems in the networking:

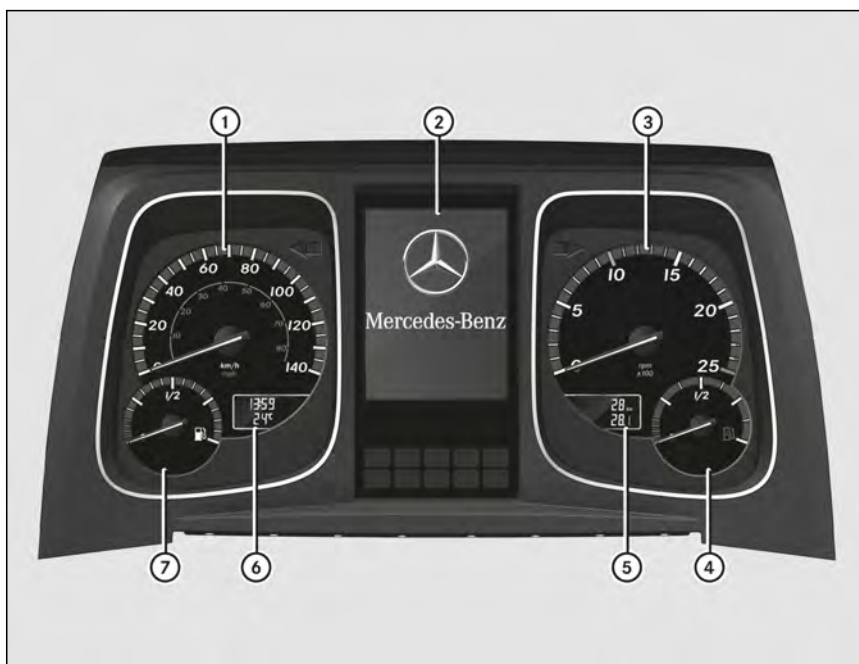
- User interface CAN (CAN 17)
- Frame CAN (CAN 3)



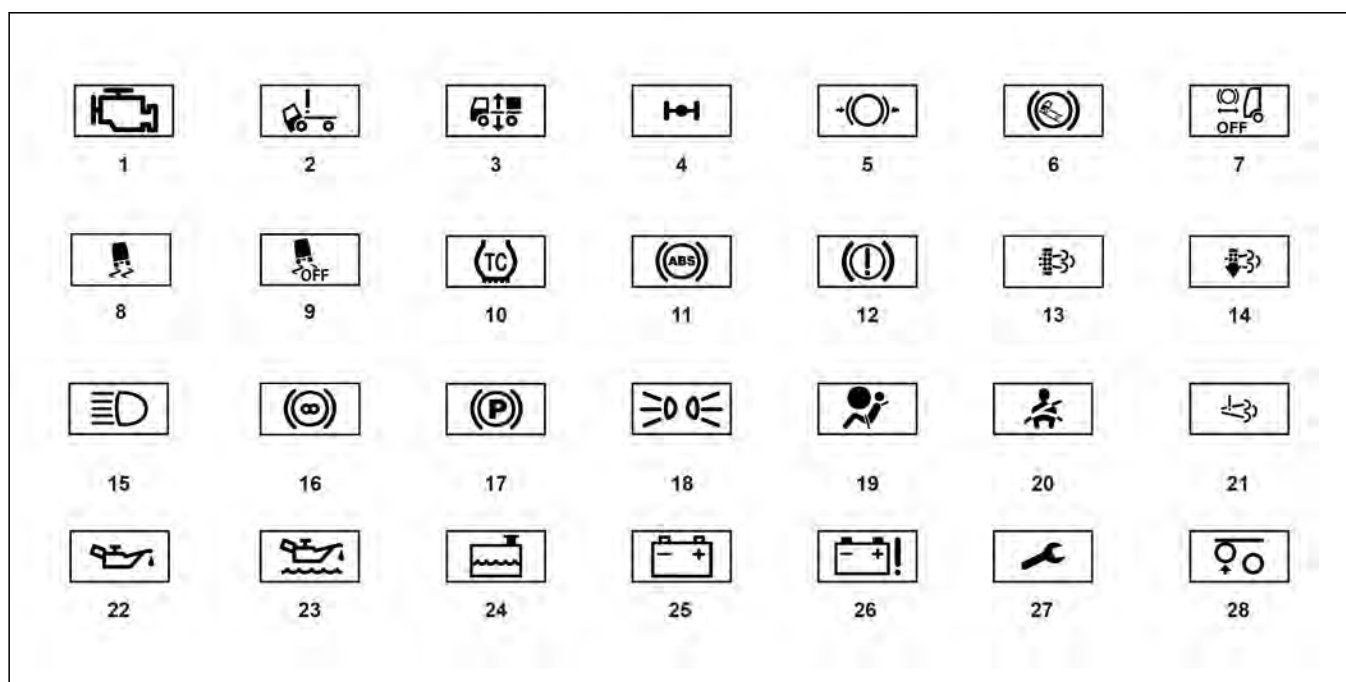
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Instrument cluster (Actros)

- 1 Speedometer
- 2 Multifunction display
- 3 Tachometer
- 4 AdBlue® level
- 5 Total distance and trip distance
- 6 Clock and outside temperature indicator
- 7 Fuel level



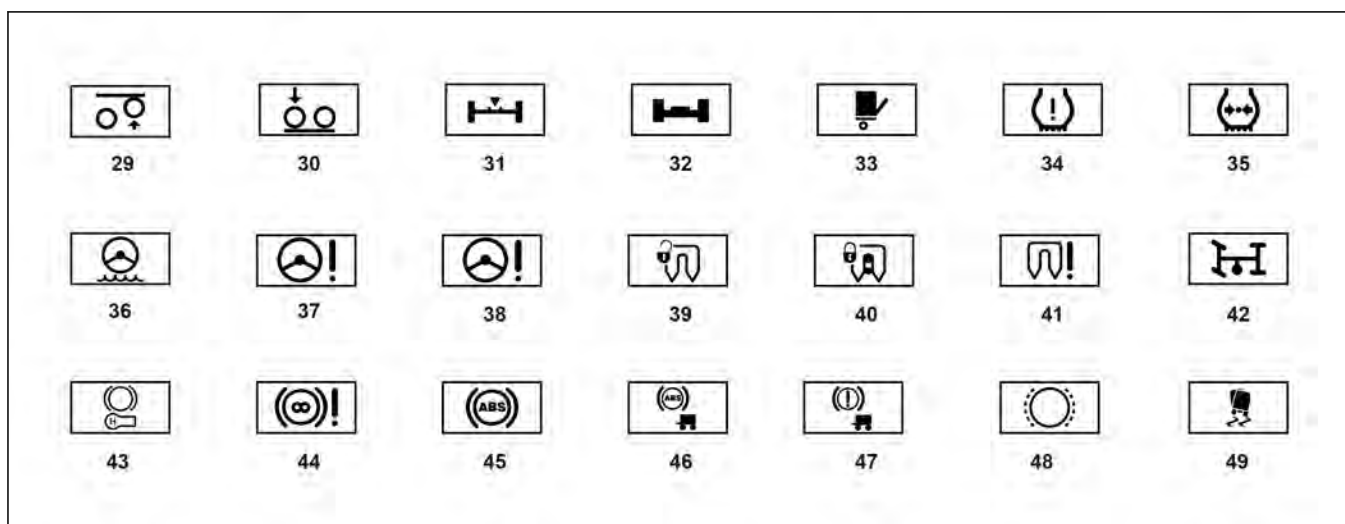
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W54.30-A065-09

Instrument cluster

1	Engine diagnosis malfunction	15	Main beam switched on
2	Cab lock not locked	16	Permanent brake switched on
3	Level control outside driving level	17	Parking brake applied
4	Differential lock switched on	18	Side lights switched on
5	Braking request at high engine speed	19	Driver airbag
6	Hill holder engaged	20	Driver seat belt reminder
7	Active Brake Assist 2 switched off	21	Emissions-relevant malfunction of BlueTEC® exhaust aftertreatment or AdBlue® supply too low
8	Stability Control Assist control/malfunction	22	Oil pressure low (engine)
9	Stability Control Assist switched off	23	Oil level too low (engine)
10	ASR (anti-slip control) switched off/regulation/ malfunctioning	24	Coolant level too low
11	ABS (anti-lock braking system) control/ malfunction	25	Low state of charge or malfunction
12	Brake system malfunction	26	Power supply malfunction
13	Diesel particulate filter malfunction	27	Service date due
14	Diesel particulate filter, automatic regeneration	28	Leading axle raised



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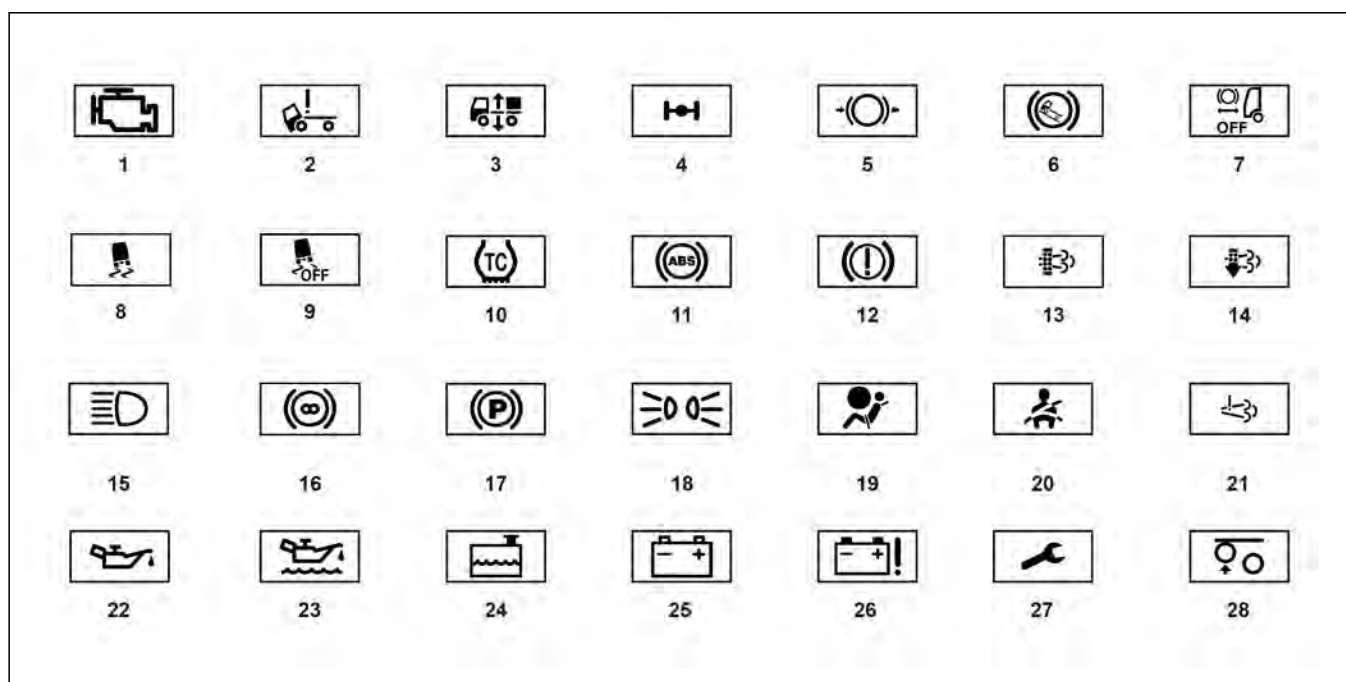
29	Trailing axle raised	40	Sensed fifth wheel coupling locked
30	Starting-off aid switched on	41	Sensed fifth wheel coupling malfunction
31	Steered trailing axle centered	42	Power take-off switched on
32	Trailing axle steering angle difference	43	Frequent-stop brake switched on
33	Cargo liftgate open	44	Permanent brake malfunction
34	Tire pressure monitor warning message	45	ABS equipment
35	Tire pressure monitor	46	Trailer/semitrailer ABS malfunction
36	Oil level too low (hydraulic power steering)	47	Trailer/semitrailer brake system malfunction
37	(Yellow) auxiliary steering/power steering	48	Brake wear limit exceeded
38	(Red) power steering malfunction	49	Trailer/semitrailer ESP® control intervention
39	Sensed fifth wheel coupling not locked		

Instrument cluster (Actros)

- 1 Warning/indicator lamps in the speedometer
- 2 Direction indicator lamp
- 3 Warning/indicator lamps in the tachometer
- 4 Warning/indicator lamps in the AdBlue® gauge
- 5 Warning/indicator lamps below the multifunction display



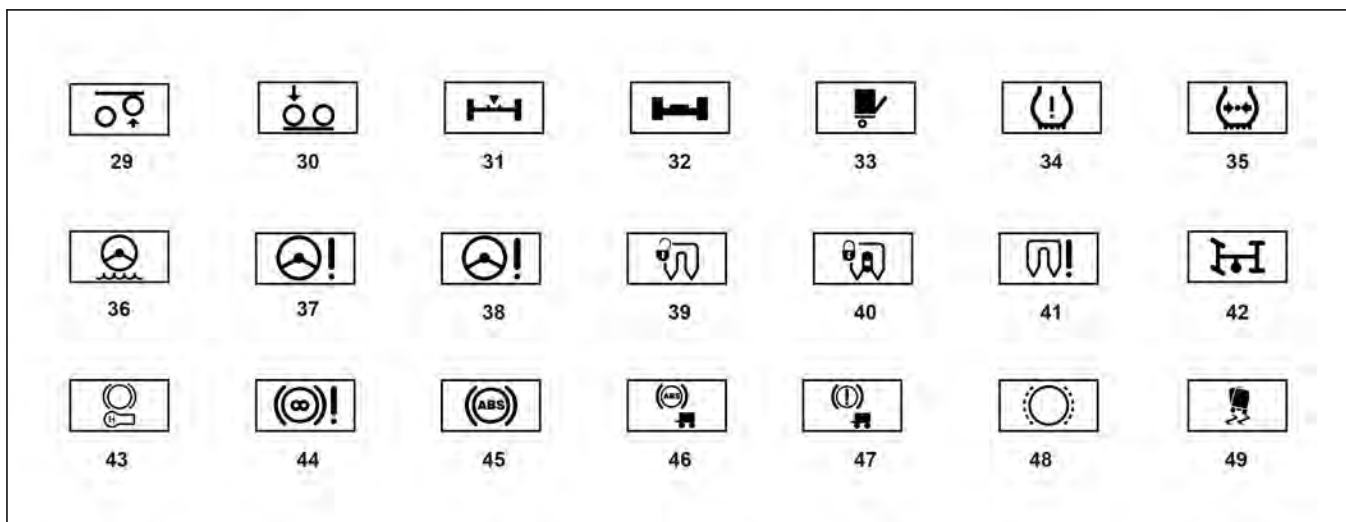
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W54.30-A065-09

Indicator lamps

1	Engine diagnosis malfunction	15	Main beam switched on
2	Cab lock not locked	16	Permanent brake switched on
3	Level control outside driving level	17	Parking brake applied
4	Differential lock switched on	18	Side lights switched on
5	Braking request at high engine speed	19	Driver airbag
6	Hill holder engaged	20	Driver seat belt reminder
7	Active Brake Assist 2 switched off	21	Emissions-relevant malfunction of BlueTEC® exhaust gas aftertreatment or AdBlue® supply low
8	Stability Control Assist control/malfunction	22	Oil pressure low (engine)
9	Stability Control Assist switched off	23	Oil level too low (engine)
10	ASR (Acceleration Skid Control) switched off/control/malfunction	24	Coolant level too low
11	ABS (anti-lock braking system) control/malfunction	25	State of charge low or malfunction
12	Brake system malfunction	26	Power supply malfunction
13	Diesel particulate filter malfunction	27	Service date due
14	Diesel particulate filter, automatic regeneration	28	Leading axle raised



W54.30-A066-08

29	Trailing axle raised	40	Sensed fifth wheel coupling locked
30	Starting-off aid switched on	41	Sensed fifth wheel coupling malfunction
31	Steered trailing axle centered	42	Power take-off switched on
32	Trailing axle steering angle difference	43	Frequent-stop brake switched on
33	Cargo liftgate open	44	Permanent brake malfunction
34	Tire pressure monitor warning message	45	ABS equipment
35	Tire pressure monitor	46	Trailer/semitrailer ABS malfunction
36	Oil level too low (hydraulic power steering)	47	Trailer/semitrailer brake system malfunction
37	(Yellow) auxiliary steering/power steering	48	Brake wear limit exceeded
38	(Red) power steering malfunction	49	Trailer/semitrailer ESP® control intervention
39	Sensed fifth wheel coupling not locked		

General notes

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

- Switch electronic ignition lock to position **1**.

Switching ASR (acceleration skid control) off/on**ASR switch (Actros)**

W54.25-A068-71

- Press **ASR OFF** button.

If **TC** indicator lamp in instrument cluster lights up, ASR is switched off.

Switching Stability Control Assist off/on**Stability Control Assist switch (Actros)**

W54.25-A069-71

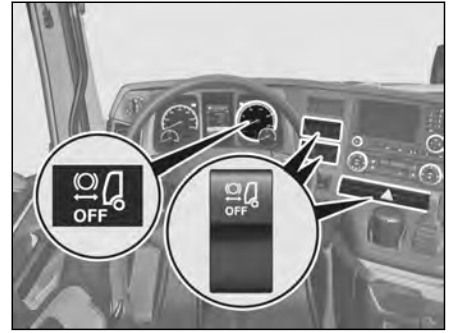
- Press **Stability Control Assist OFF** button.

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

Switching ABA (Active Brake Assist) on/off

Safety systems

Active Brake Assist Switch (Actros)



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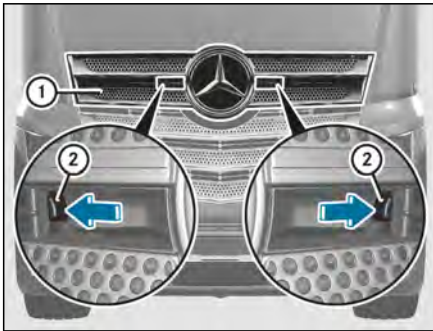
- **Switching off:** Press up on **Active Brake Assist OFF** button.

If **Active Brake Assist OFF** indicator lamp in instrument cluster lights up, ABA is switched off.

- **Switching on:** Press up on **Active Brake Assist OFF** button for around 1 second.

If **Active Brake Assist OFF** indicator lamp in instrument cluster goes out, ABA is switched on.

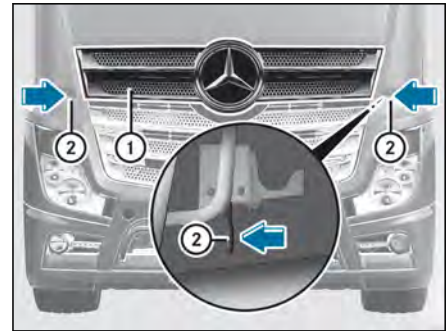
The release levers (2) are located in different positions depending on the equipment installed:



W88.60-A003-71

**Maintenance flap variant A
(Actros)**

**Maintenance flap variant B
(Actros)**



W88.60-A007-71

Variant A: There is one release lever (2) each on the left and right in the radiator grille (1) next to the Mercedes star.

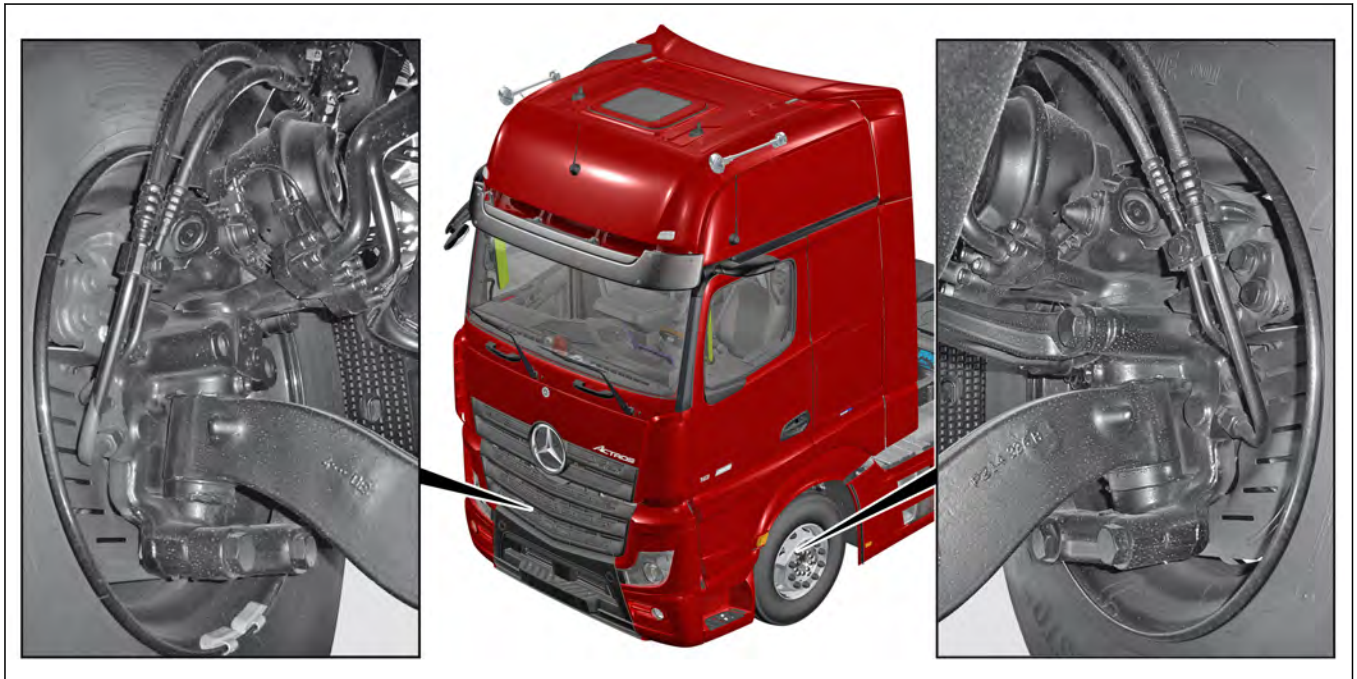
Variant B: There are release levers (2) under the side paneling above the headlamps.

- **To open variant A:** Push both release levers (2) outward in direction of arrow.

- **To open variant B:** Push left and right release levers (2) in direction of arrow one after the other.
- Swivel maintenance flap (1) upward.
- **To close:** Swivel maintenance flap (1) down until it locks audibly.

Hydraulic Auxiliary Drive (HAD)

General notes



W55.90-A037-79

Vehicle with hydraulic auxiliary drive

The hydraulic auxiliary drive (special equipment) is located at the wheel hubs on the front axle and can be identified by the integrated hydraulic motor and the hydraulic lines.

When the hydraulic auxiliary drive is intact, the vehicle can be towed without restrictions.

Remedy/measure if hydraulic auxiliary drive is leaking:

- Switch off engine.
- Remove propeller shaft.
- Tow the vehicle with the front axle raised.

Important safety information

Note

Battery acid is corrosive. There is a risk of injury! Avoid all contact with your skin, eyes or clothing. Do not inhale battery gases. When performing maintenance work on the battery, wear acid-proof protective clothing, particularly safety glasses, protective gloves and an apron. Do not lean over the battery. Keep children away from batteries. If you have come into contact with battery acid, observe the following:

Immediately rinse the battery acid off your skin thoroughly with plenty of clean water and seek medical attention without delay.

If you have got battery acid in your eyes, immediately flush them out thoroughly with plenty of clean water. Seek medical attention without delay.

Location of batteries

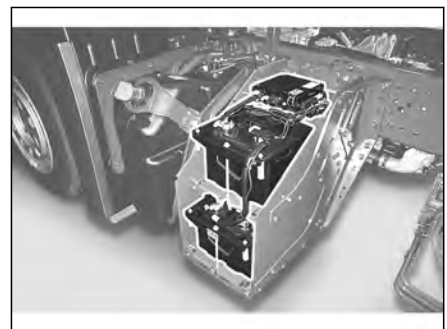
The batteries are located side by side or stacked in the rear area between the longitudinal frame members or on the side of the frame.

Vehicle with side-by-side batteries



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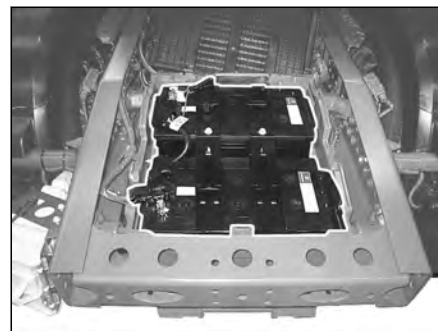
Vehicle with stacked batteries



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Battery box

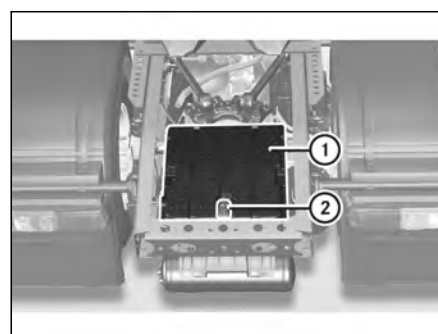
Vehicle with integral rear end



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Cover

Vehicle with integral rear end



W54.10-A047-71

- **Remove:** Open latch (2) and remove cover (1) upward.
- **Mount:** Mount cover (1).
- Hook in latch (2) and close.

Important safety information**Note**

An explosive gas mixture can escape from the battery when charging and when jump starting. There is a risk of explosion!

Avoid all fire, open flames, sparks and smoking. Ensure adequate ventilation when charging and when jump starting. Do not lean over the battery.

Note

Discharged batteries may freeze at temperatures around the freezing point. If you jump start or charge the battery, an explosive gas mixture can escape from it. There is a risk of explosion!

Always let a frozen battery thaw out before charging it or jump starting.



Observe the following instructions, otherwise you could 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 allow for starting assistance from vehicles with a 24 V system.
- Use jumper cables that are protected against reverse polarity and that have a cross section of around 35–50 mm² and insulated terminal clamps.
- A discharged battery can freeze if the outside temperature has dropped below -10 °C. In this case, do not start the engine. Let the batteries thaw out first.



Do not connect the NEGATIVE terminal of the jumper cable to the vehicle frame. The engine, transmission or electrical and electronic components could otherwise be damaged.

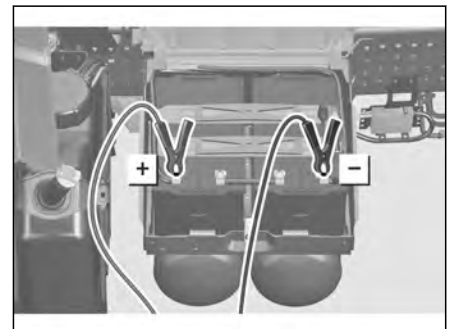


When removing the jumper cables, leave the engine of the power-receiving vehicle running at idle. This avoids damaging the electrical and electronic components in the vehicle.

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

Preparation for jump starting

- Make sure that the vehicles do not touch each other.
- 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****Vehicle with side-by-side batteries**

W54.10-A048-71

- Remove cover, see chapter "Battery box".

Jump start

- Clip POSITIVE terminal of jumper cable to positive terminal of booster battery first and then to positive terminal (+) of starter battery.
- Clip NEGATIVE terminal of jumper cable to negative terminal of booster battery first and then to negative terminal (-) of starter battery.
- Run engine of vehicle supplying power at high rotational speed.
- Start engine and run at idle speed.
- Only switch on inductive consumers (e.g. seat heating) in vehicle supplying power.

- **If battery is deeply discharged:** Leave jumper cables connected for a few minutes with engine running.

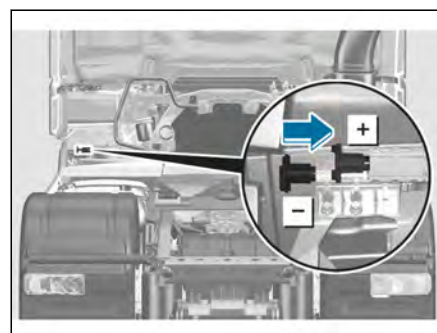
Disconnecting the jumper cables

- Unclip NEGATIVE terminal of jumper cable from negative terminals first.
- Unclip POSITIVE terminal clamps of jumper cable from positive terminals.

Vehicles with jump-start connection point

Connecting the jumper cables

Vehicle with jump-start connection point



W54.10-A049-71

- Clip POSITIVE terminal of jumper cable onto positive terminal of booster battery first.
- Push back red cover with POSITIVE terminal of jumper cable and clip onto positive terminal (+).
- Clip NEGATIVE terminal of jumper cable onto negative terminal of booster battery first.
- Push back black cover using NEGATIVE terminal clamp of jumper cable and clip onto negative terminal (-).
- Run engine of vehicle supplying power at high rotational speed.
- Start engine and run at idle speed.
- Only switch on inductive consumers (e.g. seat heating) in vehicle supplying power.

- **If battery is deeply discharged:** Leave jumper cables connected for a few minutes with engine running.

Disconnecting the jumper cables

- Unclip NEGATIVE terminal of jumper cable from negative terminals first.
- The black cap on the jump-start connection point springs back to its default position.
- Unclip POSITIVE terminal clamps of jumper cable from positive terminals.

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

General notes**Note**

When you interrupt the power supply with the battery disconnect switch, the engine is switched off automatically. Some safety-relevant functions will be limited or no longer available because of this, e.g. power steering, lighting system and ABS. The compressed air system is not filled any more. You will require considerably more effort to steer. The wheels may lock up when braking. If there is a loss of compressed air, the spring-loaded parking brake can activate and the vehicle may perform uncontrolled braking actions. You could lose control of the vehicle. There is a risk of accident!

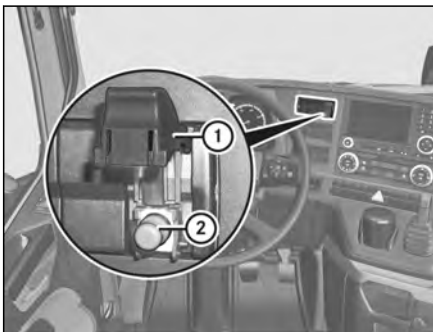
Do not operate the battery disconnect switch until the vehicle is stationary.

which could trigger a fire or explosion. Vehicles used to transport hazardous goods are equipped with 2 battery disconnect switches depending on their ADR classification. Once you have safely parked the vehicle, you can use the battery disconnect switch, e.g. when loading a vehicle in a hazardous goods zone. Only use the battery disconnect switch with the vehicle stationary. Observe notes on event message in on-board computer.

Switch the electronic ignition lock to position **0** and remove the key from the key slot. On vehicles with retarder, wait approximately 5 seconds after switching off the ignition before you interrupt the power supply with the battery disconnect switch. If the auxiliary heater was switched on, wait until the power-down of the auxiliary heater has finished.

In a hazardous situation, you can interrupt the power supply immediately with the battery disconnect switches. If you interrupt the power supply with the battery disconnect switch while the anti-theft alarm system is active, the anti-theft alarm system triggers an alarm.

The battery disconnect switches are used to interrupt the power supply. This prevents short circuits with arcing

Interrupting the power supply

W54.25-A071-71

- Swing cover (1) upward.
- Pull out shift pin (2) or swivel shift pin (3) upward.

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



W54.25-A067-71

Restoring the power supply

- Press in shift pin (2) or swivel shift pin (3) downward.
- Press cover (1) downward and engage.

Electrical fuse

General notes

Note

Blown fuses and defective circuit breakers must be replaced with equivalent fuses with the ratings specified 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.

Note

Tampering with defective fuses, bridging them or replacing them with fuses of a higher amperage can overload the electrical lines.

This can result in a fire. There is a risk of accident and injury!

Only replace defective fuses with the specified fuses of the correct amperage.

The individual circuits are protected by fuses or circuit breakers. Other electric circuits, e.g. the lighting system, are fused via electronic control units. If there is a malfunction, the electronic control unit switches the consumer off.

- If an electric circuit fails, switch off consumer and switch electronic ignition lock to position **0**.
- Switch electronic ignition lock to position **2**.
- Switch consumer on again.

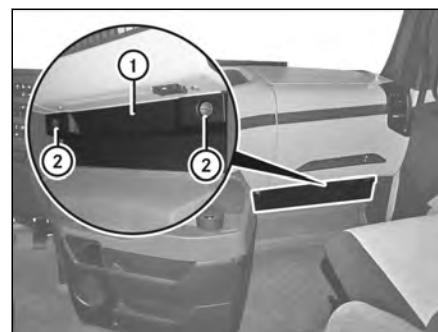
The electronic control unit checks the circuit. If there is no malfunction, the electronic control unit switches the consumer back on.

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

- Switch off consumer and switch electronic ignition lock to position **0**.

Removing the cover of the electronics compartment

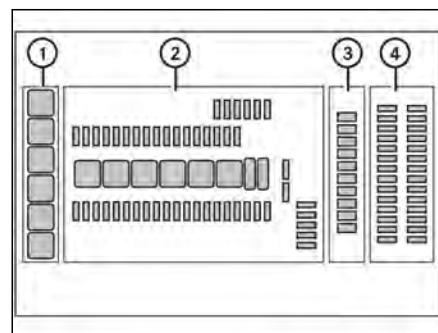
- Open latches (2) and remove cover (1).



W54.31-A002-71

Arrangement of fuses

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



W54.31-A001-71

Important safety information

Note

The cab may suddenly drop into the end position when it is being tilted. There is a risk of injury to any persons within the tilting range of the cab.

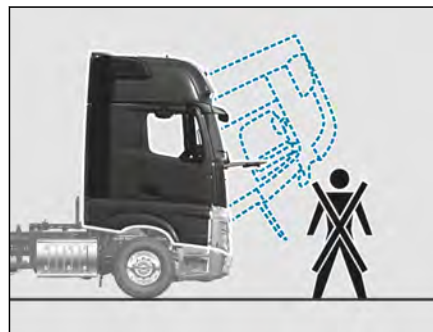
Only tilt the cab when you are certain that nobody is standing in the tilting range. Only stand under the cab when it is in the fully tilted position.



If you need to open a door when the cab is tilted, it must be moved carefully and slowly to the end position. The A-pillar or hinge may otherwise be damaged.



Do not turn the steering when the cab is tilted. The restricted articulation angle means that the universal joints could be damaged.



W60.80-A008-71

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.
- **Vehicles with air-sprung cab:** Let engine run until the compressed-air system is filled and the compressor shuts off.
- Switch off engine.
- If the engine is to be started after tilting the cab, switch the electronic ignition lock to the drive position.
- Switch off auxiliary heater.
- Switch off stationary air conditioning.
- Switch off refrigerator box.

Refer to the separate operator's manual for the refrigerator box. Wait 10 minutes after tilting back the cab before switching the refrigerator box on again.

- Remove loose objects from the cab or stow them securely, **e.g.**
 - Container
 - Bottles
 - Tools
 - Bags
- Close interior and exterior stowage compartments.
- Close doors.
If you need to open a door while the cab is tilted, guide it slowly and carefully all the way to the end position.
- Make sure that the coupling pin of the front coupling jaw is secured and that the coupling jaw is covered.
- Open maintenance flap, see Chapter "Maintenance Flap."
- Secure vehicle with chocks to prevent it from rolling.

Note

If the cab is left unlatched, the following hazards may occur when the vehicle decelerates:

The cab can tip forwards.

You could lose control of the vehicle.

People inside the cab could be thrown forwards.

People or objects within the swivel range could be hit.

There is a risk of accident and injury!

Before every trip, make sure that:

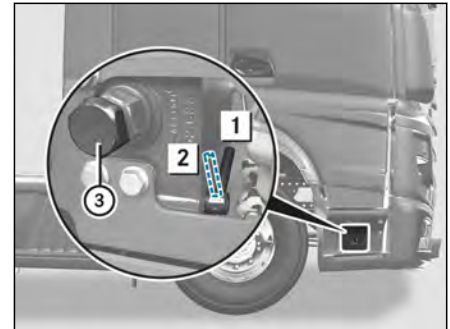
The cab is locked in place

The valve lever is in the drive position.

The indicator lamp goes out after engine start.

Tilt driver's cab forward

- 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 wheel 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.



W60.80-A009-71

Tilt cab back into driving position

- Move valve lever on tilt pump to tilt position (1).
 - Fit pump lever over hexagon (3) on tilt pump using wheel 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 Chapter "Maintenance flap."
- 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, tilt the cab forwards and back again.

Electrohydraulic cab tilt system

Tilt driver's cab forward

- Observe the instructions before tilting the cab.
- Press the **Tilt** button at the top. The indicator lamp on the **Tilt** button lights up.

The cab tilt system is switched on.

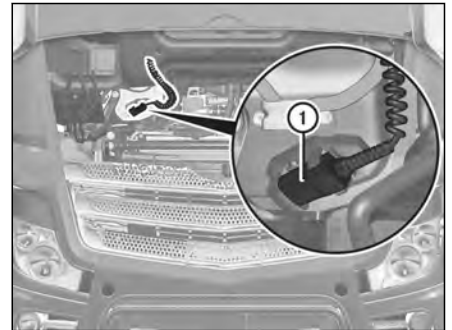
Depending on the equipment installed, the cab can be tilted forwards using the remote control under the maintenance flap or with the button on the cab tilt pump.



W54.25-A070-71

Tilting the cab forward with the remote control (1)

L cab (Actros)



W60.80-A007-71

- Open maintenance flap.
- Remove remote control (1) from holder and walk away from swivel range of cab.
- Press and hold the **Tilt** button on the 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.

Tilt cab back into driving position

- Press and hold the **Tilt** button on the remote control (1) until the cab is tilted back to the rear end position and locks in place audibly.

The cab locks automatically.

- Place remote control in holder.
- Close maintenance flap, see Chapter "Maintenance flap."
- In the bottom of the cab, push the **Tilt** button.

The indicator lamp on the **Tilt** button goes out.

- Check that the **Cab tilt lock not locked** indicator lamp in the instrument cluster goes out after the engine start.

If the **Cab tilt lock not locked** indicator lamp goes out, the cab is locked. If the **Cab tilt lock not locked** indicator lamp does not go out, repeat the process and tilt back the cab again.

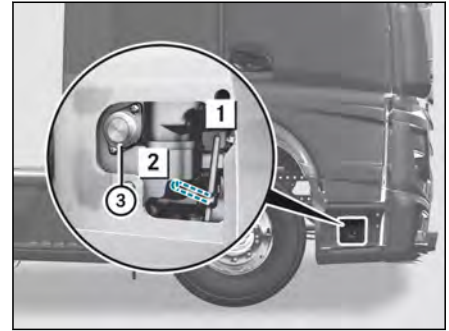
Tilting the cab forwards with the button on the cab tilt pump



Information label at entrance

W00.01-A001-71

Cab tilt pump on right of entryway steps



W60.80-A012-71

- Swing flap on right of entryway steps upwards.
- Check swivel direction of valve lever on information label at entrance.
- Move valve lever on tilt pump in cab-to tilt position (2).
- Press and hold the button (3) 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 with the button on the cab tilt pump

- Move valve lever on tilt pump in cab to drive position (1).
- Press and hold the button (3) until the cab is tilted back to the rear end position. The cab locks automatically.
- Swing down flap on right at entryway steps so that it clicks into place.
- In the bottom of the cab, push the **Tilt** button. The indicator lamp on the **Tilt** button goes out.
- Check that the **Cab tilt lock not locked** indicator lamp in the instrument cluster goes out after the engine start. If the **Cab tilt lock not locked** indicator lamp goes out, the cab is locked. If the **Cab tilt lock not locked** indicator lamp does not go out, repeat the process and tilt back the cab again.

Starting/stopping the engine with the cab tilted

Important safety information

Note

There are moving components inside the engine compartment.

Certain components can also run on or immediately restart when the ignition is switched off, e.g. cooler fan.

There is a risk of injury!

If you have to perform any work in the engine compartment,

Switch the ignition off.

Never reach into danger zone of moving component parts, e.g. fan rotation area.

Keep your clothing away from the moving parts.

Note

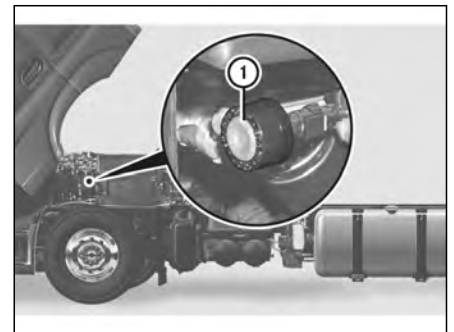
Certain components on the engine may be very hot. There is a risk of injury when working on the engine! Leave the engine to cool down if possible.

Before starting and stopping the engine

- Apply parking brake.
- Switch electronic ignition lock to drive position.
- Shift transmission to neutral.
- Tilt cab forward, see Chapter "Mechanical-hydraulic cab tilt system" or "Electrohydraulic cab tilt system".

Starting the engine and increasing the engine speed

External engine start/stop button (1)



W15.30-A001-71

- Press external engine start/stop button (1) until engine starts.

The engine runs at idle speed.

or

- Keep external engine start/stop button (1) pressed until engine starts and the desired engine speed is reached.

The engine speed starts to increase after about 3 seconds. Once the external engine start/stop button (1) is released, the engine runs at the currently set speed.

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

Turn off engine

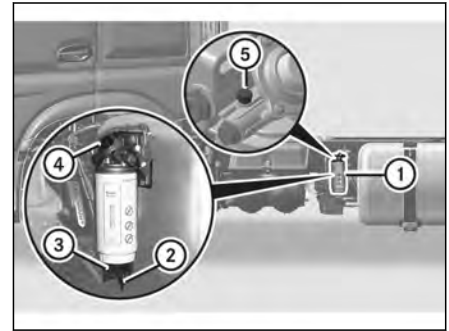
- Press external engine start/stop button (1).

- Tilt back cab into drive position, see Chapter "Mechanical-hydraulic cab tilt system" or "Electrohydraulic cab tilt system".

General notes**Environmental note**

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

When the water has separated in the inspection glass (3), drain the fuel prefilter (1) before bleeding. Drain fuel prefilter (1) regularly.

Drain fuel prefilter**Fuel prefilter (Actros)**

W47.20-A009-71

- Open the cap of the fuel tank.
- Place a container under drain screw (2).
- Open drain screw (2).
- Press on hand pump (4) and collect water/fuel mixture.
- Close drain screw (2).

Bleed fuel prefilter

W15.10-A000-71

- Open the cap of the fuel tank.
- Place collecting pan under fuel prefilter (1).
- Slacken bleed screw (5).
- Actuate hand pump (4) until fuel emerges bubble-free at vent screw (5).
- Tighten vent screw (5).
- If there was no fuel in the fuel tank, press hand pump (4) again until a perceivable resistance is perceptible.
- Also bleed with the hand pump at the engine.
- Close the cap of the fuel tank.
- Shift transmission to neutral.
- Apply parking brake.
- Press start/stop button (6) as far as end stop and hold. Do not depress the accelerator pedal.
The starting procedure is automatically interrupted.
- If the engine ignites regularly, release start/stop button (6) and depress accelerator pedal several times.
The fuel system will bleed itself fully.
- If the engine does not start, bleed using the hand pump at the engine.
- If the engine fails to start, check the fuel system.



Do not bleed the fuel system of engines OM 470/471/473 using multiple starting procedures. Otherwise you can damage the starter.



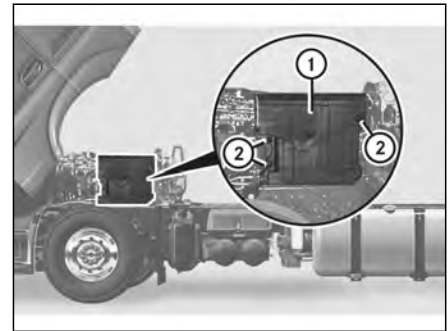
If you start the engine after bleeding: Wait for 10 minutes after three starting attempts. You could otherwise damage the starter.

Bleeding vehicles without fuel prefilter (Vehicles with OM 470/471/473)

Do not bleed the fuel system of engines OM 470/471/473 using multiple starting procedures. Otherwise you can damage the starter.



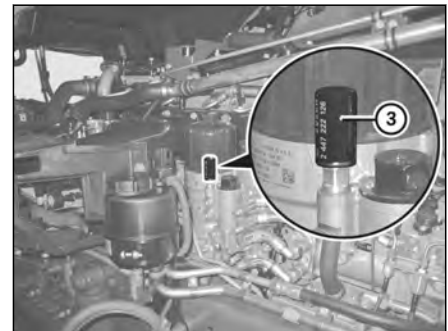
If you start the engine after bleeding: Wait for 10 minutes after three starting attempts. You could otherwise damage the starter.

OM 470 (Actros)

W47.20-A010-71

Bleeding vehicles with engines OM 470/471/473 with the hand pump at the engine:

- Switch electronic ignition lock to drive position.
- Tilt cab forward, see Chapter "Mechanical-hydraulic cab tilt system" or "Electrohydraulic cab tilt system".
- Open the cap of the fuel tank.
- Remove screws (2).
- Remove cover (1).
- Press handle at hand pump (3) for approx. 3 minutes or until a clear resistance is perceptible.
- Within approx. 5 seconds, press external engine start/stop button and start engine, see Chapter "Engine start/shut off for a tilted cab".



W47.20-A011-71

Please note that you must start the engine within approx. 5 seconds of the fuel pressure being built up by the hand pump. Otherwise the fuel pressure drops and you will have to repeat the process.

- **If the engine starts:** Allow engine to run at increased engine speed.
- **If engine does not start:** Repeat process.
- Install cover (1).
- Tilt back cab into drive position, see Chapter "Mechanical-hydraulic cab tilt system" or "Electrohydraulic cab tilt system".
- Close the cap of the fuel tank.

OM 470 (Actros)**Bleeding vehicles without fuel prefilter (vehicles with OM 936).**

Wait for 10 minutes after three starting attempts. You could otherwise damage the starter.

Vehicles without fuel prefilter



W15.10-A000-71

Bleeding vehicles with engine OM 936 with the starter:

- Apply parking brake.
- Shift transmission to neutral.
- Press start/stop button (6) as far as end top and hold. Do not depress the accelerator pedal. The starting procedure is automatically interrupted after approx. 60 seconds.
- If the engine ignites regularly, release start/stop button (6) and depress accelerator pedal several times. The fuel system will bleed itself fully.
- If the engine does not start, press start/stop button (6) again as far as end stop and hold.

Important notes

Watch out for loud hissing noises that are caused by natural gas escaping under high pressure.

Fire fighting should usually only be started when the natural gas supply has been stopped in order to prevent the development of an explosive gas-air mixture.

In terms of its properties, natural gas is usually less critical than gasoline, it has, for example, only a very restricted ignition range (approx. 4 up to 16.5 % by volume), an ignition temperature that is three times higher (approx. 640 °C) and it is lighter than air (density ratio of natural gas/air approx. 0.6).

Natural gas is usually colorless and odorless. To be able to localize possibly escaping natural gas, it is provided with a fragrance that ensures the typical gas odor.

The following must be observed in the case of escaping natural gas:

- Avoid ignition sources.
- Switch off engine.
- Measure gas concentration.
- Allow natural gas to escape and ensure ideally transverse ventilation ("blow away" natural gas).
- Use spark-proof tools and explosion-proof devices.

Take into account the blow-out directions of the gas cylinders in vehicles that are located on the side or on the roof, as controlled darting flames can occur when the thermal fuse is triggered. Conventional firefighting methods should not be used until all the natural gas has escaped. If necessary, use ventilation to help the natural gas to escape.

Extinguishing agent

In accordance with the European standard EN2 "Flammable materials of various kinds", natural gas is

assigned to fire class C "Flammable gases". All C class extinguishing agents such as ABC powder extinguisher are possible as extinguishing agents.

Gas cylinder component description and location

- 1 Gas cylinder with code JK5N (NGT tank system 580 l, on left on frame)
- 2 Gas cylinder with code JKGD (NGT tank system 4 x 100 l, additional, on right on frame)

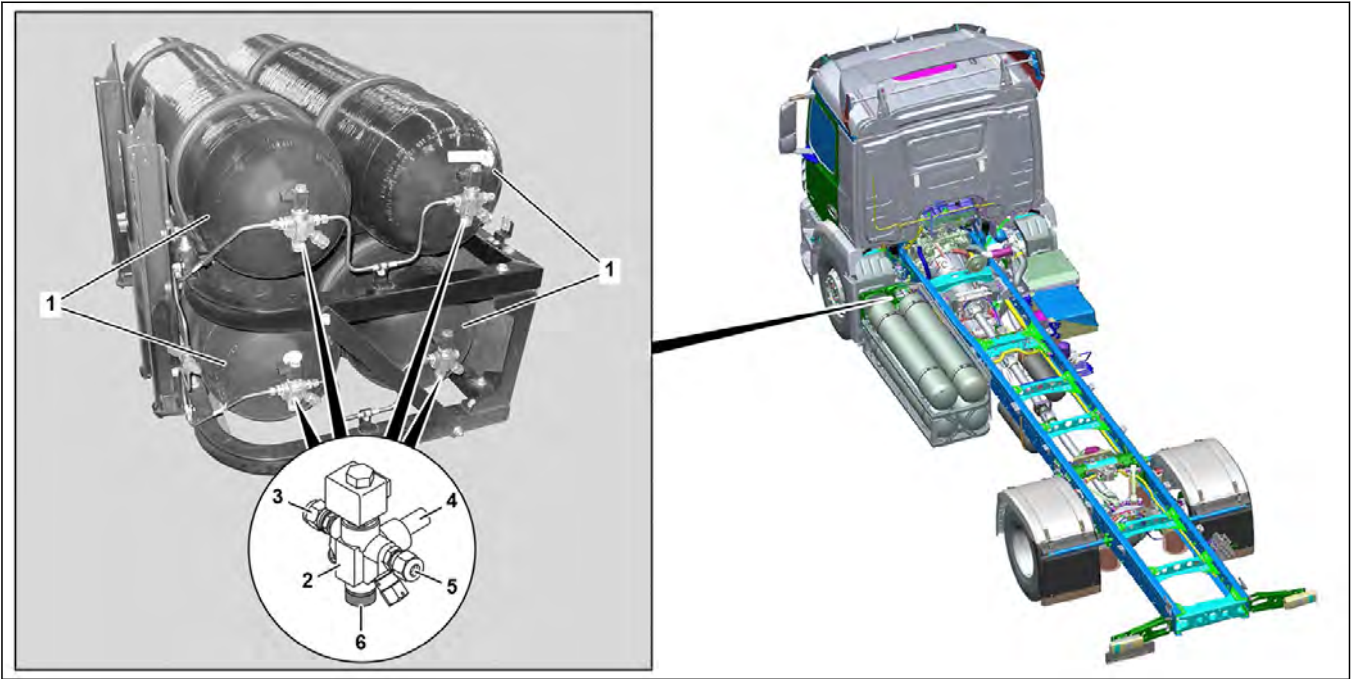


W47.10-A026-81

The gas cylinders are made from a robust steel specifically designed for lightweight design, with a casing made from carbon fibers.

Deactivation of natural gas system

The gas shutoff valves are located on the respective gas cylinders.



W07.54-A004-79

- | | | | |
|---|--------------------|---|----------------------|
| 1 | Gas cylinder | 4 | Flow limiter |
| 2 | Gas shutoff valve | 5 | Connection fitting |
| 3 | Connection fitting | 6 | Manual shutoff valve |

Automatic deactivation of natural gas system

The gas shutoff valves (2) of the gas cylinders (1) are designed for an operating pressure of 200 bar. They serve for closing and opening the gas cylinders (1). During engine operation, the gas shutoff valves (2) of the gas cylinders (1) are actuated by the motor control module (NGT) and thus facilitate the withdrawal of gas from the gas cylinder (1). When deenergized, they are closed.

In the case of a line break, the flow-rate limiter (4) prevents a sudden escape of gas from the gas cylinder

(1). The flow-rate limiter (4) is inactive for a normal withdrawal of gas for engine operation.

For a shutoff vehicle in gasoline operating mode and in the case of an accident, the gas cylinders (1) are automatically locked by an electromagnetic shutoff valve. The thermally activated safety valves with fuse (effective area $110^{\circ}\text{C} \pm 10^{\circ}\text{C}$), rupture disks as well as flow-rate limiter (4) prevent the gas cylinders (1) from bursting. In the event of overtemperature, the fuses are tripped to eject the gas in a controlled manner.

Manual deactivation of natural gas system

Gas cylinders (1) can be manually shut off if necessary. This is realized by turning the mechanical shutoff valve

(6) clockwise by means of a socket wrench. The manual shutoff may be necessary if the safety solenoid valve is damaged or the fuse is defective.

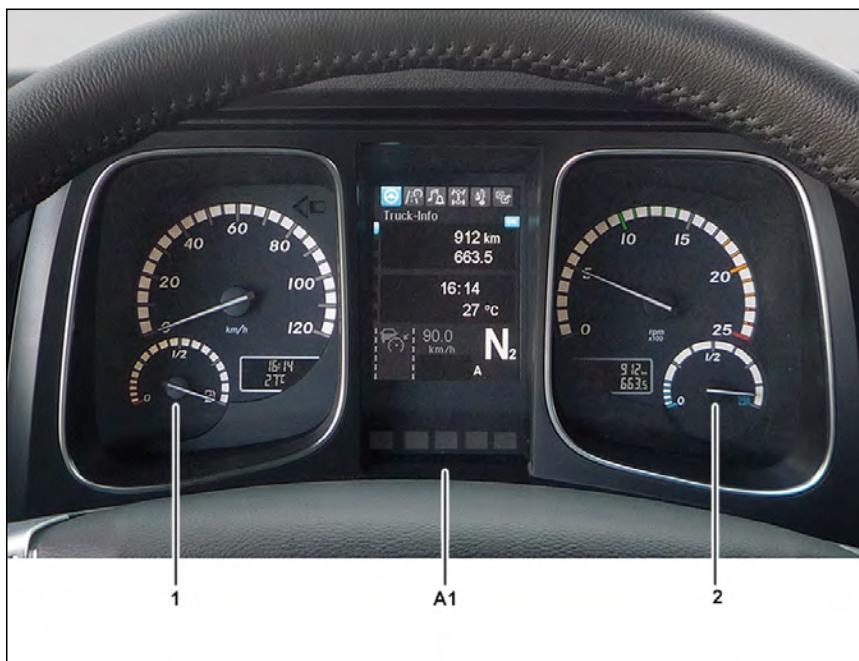
Gas cylinder fill level display (1)

The gas reservoir fill level indicator (1) is located at the bottom left in the IC (ICUC) control unit (A1).

The gas reservoir fill level indicator (1) shows the current reservoir pressure in the gas reservoirs and is subdivided in three display areas:

- Fuel pump (full): p approx. 200 up to 125 bar
- 1/2 (half full): p approx. 124 up to 50 bar
- 0 (fuel reserve indicator and empty): p approx. 49 up to 0 bar

- 1 Gas reservoir fill level indicator
- 2 AdBlue® display, nonfunctional
- A1 Instrument cluster (ICUC) control unit



W54.32-A001-76

Overview of gearshift

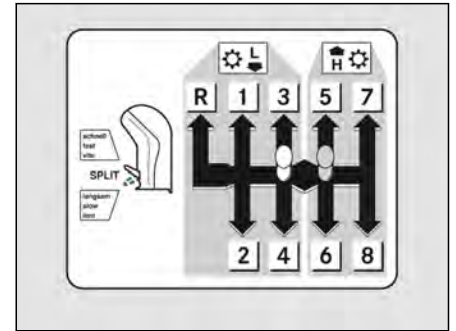
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Manual transmission

The manual transmission has 9 or 16 gears depending on the transmission in question.

The clutch is operated and the gears selected by the driver.

Shift diagram for 16-speed transmission



W26.60-A017-71

Mercedes PowerShift



W27.60-A002-71

Automated manual transmission (Mercedes PowerShift)

Depending on the transmission, Mercedes PowerShift has either 8, 12 or 16 forward gears and 2 or 4 reverse gears.

The clutch operation is controlled automatically by the transmission control. Depending on the transmission mode, the gears are selected either automatically by the transmission control or manually by the driver.

The vehicle features an engageable crawler mode. With crawler mode activated, the vehicle crawls forwards by

itself when the service brake is released and continues to roll at walking pace.



If the driving resistance is high, e.g. due to a high gross combination weight, the clutch could be overloaded in crawler mode.

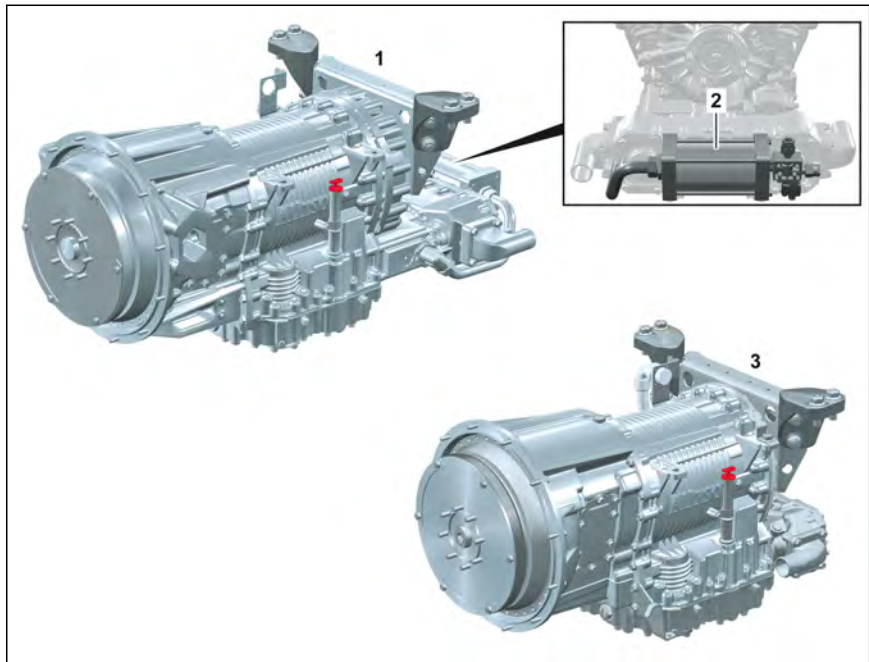
6-speed automatic transmission

The 6-speed automatic transmission is available as an option with integrated output shaft retarder. The output shaft retarder is a wear-free oil brake which is integrated into the rear of the transmission. It is operated via the multifunction control lever. The new retarder pressure reservoir is integrated in the frame.

The automatic transmission is operated using a touch-key gearshift on the instrument panel and features "economy" and "performance" transmission modes.

After starting the engine, the "Economy" standard drive program is active. On fire-fighting vehicles, the transmission mode "performance" is activated when the engine is started.

- 1 Allison 3000 PR
- 2 Pressure reservoir
- 3 Allison 3000 P

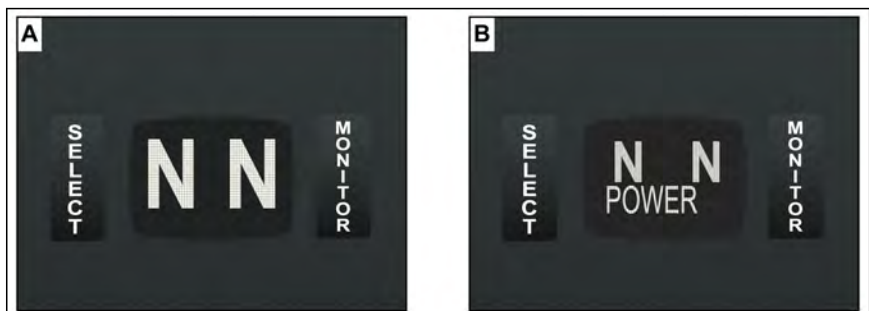


W27.10-A000-76

Overview of drive programs

Designation	Economy	Performance
Display of touch-key gearshift	Economy display (A)	Performance display (B)
Properties	Comfort-oriented, fuel efficient driving style, facilitates driving on smooth road surfaces. Active after engine start	Driving with high power requirements or dynamic driving. The Economy standard transmission mode is always active after an engine start. Active after engine start on fire-fighting vehicles

- A Economy display
- B Performance display



W27.60-A005-74

Mercedes PowerShift emergency operation mode

General notes

If the automatic gearshift malfunctions, you can continue to drive in emergency operation mode under certain circumstances. It is not possible to change gear while driving in emergency operation mode.

The vehicle may exhibit unusual reactions in emergency operation mode; these necessitate heightened driver attention.

Emergency operation mode is only active for as long as the electronic ignition lock is switched to the drive position. Emergency operation mode is deactivated if you remove the key from the electronic ignition lock. If

the transmission is cold whilst in emergency operation mode, it is possible that the selected gear may not appear in the driver's display. 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 a vehicle out of a danger zone. Once the vehicle has been towed out of the danger zone, stop and remove propeller shaft to continue towing.

Selecting a shift position

- Scroll to window menu Driving Operation using **left arrow** or **right arrow** buttons on multifunction steering wheel.

- Scroll to window menu Emergency Operation Mode using **up arrow** or **down arrow** button.

The menu window shows Press "OK" to activate.

- Press **OK** button.

The menu window shows Parking brake engaged?

- Press **right arrow** button.

The input window shows:

R for reverse gear

N for neutral

D1 for slow forward gear, 2nd gear

D2 for fast forward gear, 6th gear

Towing symbol for towing mode

- Select desired gear, neutral position or towing mode using **up arrow** or **down arrow** buttons and confirm using **right arrow** button.

The status area of the multifunction display shows the direction of travel engaged.

- If menu window shows Ready to drive for 10 sec, depress accelerator pedal. If you are driving in emergency operation mode and the event message Engage neutral? appears, you can only switch to neutral while driving.

Mercedes PowerShift neutral shift

Important safety information

Note

If you shift to neutral while the ignition is switched on, the control unit may execute sudden gearshift corrections.

There is a risk of injury!

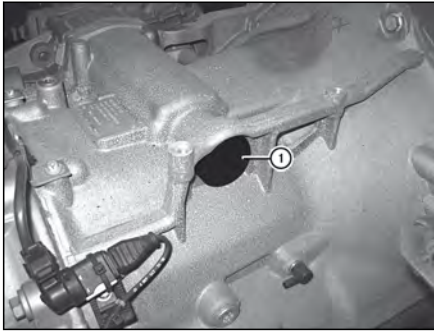
Perform the neutral shift at the transmission only when the vehicle is stationary, the parking brake is applied and the engine is off.

General notes

If the automatic gearshift is inoperative and an engaged gear is preventing the vehicle from moving, you can shift the Mercedes PowerShift transmission to the neutral position.

Depending on the vehicle equipment, it may be necessary to tilt the cab and remove the soundproofing cover in order to access the shift shaft.

Neutral shift



W27.60-A004-71

Cover (1) on gearshift shaft



W27.60-A003-71

Groove (2) in gearshift shaft

Neutral shift

- Switch electronic ignition lock to position **0**.
 - Apply parking brake.
 - **If necessary:** Tilt cab, see chapter "Manual-hydraulic cab tilt system" or "Electrohydraulic cab tilt system".
 - **If installed:** Remove soundproofing cover.
- Remove cover (1) of gearshift shaft using a flat screwdriver.
 - Turn gearshift shaft to neutral position using a suitable, flat screwdriver and an attached box wrench in the groove (2).

Transmission emergency shift mode with manual gearshift syst...

Important safety information

Note

If you engage a gear while the engine is running, the vehicle could suddenly start to move off out of control. There is a risk of accident and injury!

Perform the emergency shift at the transmission only when the vehicle is stationary, the parking brake is applied and the engine is off.

gearshift lever but with substantially greater effort. Occasional gear changes while driving are also possible using greater effort. Have the gearshift checked at a qualified workshop.

If the power transmission from the gearshift lever to the transmission is disrupted, you can engage 3rd, 4th or reverse gear manually at the transmission. You can move off in 4th gear. It is not possible to change gear while driving. Have the gearshift checked at a qualified workshop.

Depending on the equipment installed, the cab must be tilted to access the selector lever.

General notes

If the pneumatic power-assisted gear shifting is inoperative, the gears can still be shifted using the

- Switch electronic ignition lock to position **0**.
- Apply parking brake.
- Tilt cab if necessary, see chapter "Manual-hydraulic cab tilt system" or "Electrohydraulic cab tilt system".
- If a gear is engaged, shift selector lever down into neutral position (4).
- **Shifting 3rd of 4th gear:**

If 5th to 8th gear was engaged, shift gate lever at top of transmission to position (2).

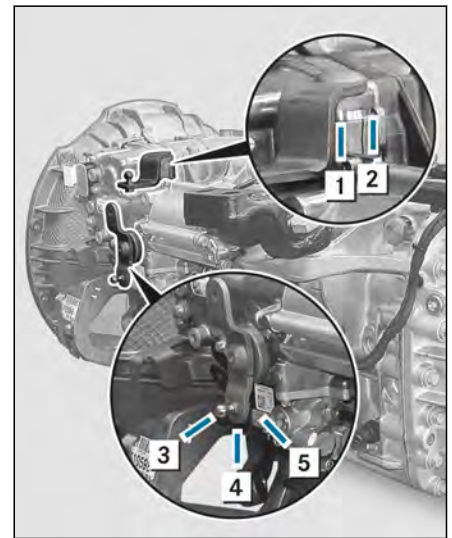
- Shift selector lever to position (3) to engage 3rd gear.
- Shift selector lever to position (5) to engage 4th gear.

The gear is engaged if the gearshift shaft noticeably engages into the corresponding position.

- **Shifting reverse gear:**

Push gate lever at transmission forward to position (1), push past high resistance and hold there.

- Shift selector lever at transmission to position (3). The gear is engaged if the selector lever noticeably engages at position (3).
- Release gate lever.



W26.60-A015-72

General notes

Note

The drive shaft of the live power take-off can turn with the engine running. There is a risk of injury.

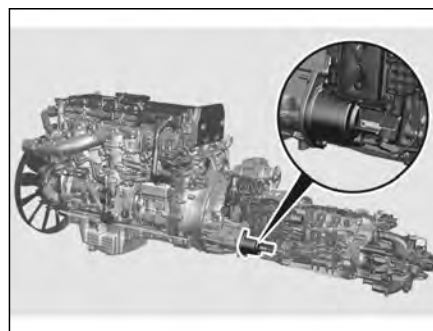
Perform emergency shifting of the live power take-off only when the vehicle is stationary, the parking brake is applied and the engine is off.

If the live power take-off fails, you can make or release a rigid connection for power transmission in the power take-off. When switching off manually, make sure that the power take-off is not under load. Switch pumps to zero delivery, for example.

Power take-off variants A and B

You can identify vehicles with power take-off variant B (N4W or N4X) by the external clutch actuator.

External clutch actuator on vehicles with power take-off N4W or N4X



W26.45-A153-71

Heavy duty tractor unit:

Depending on the vehicle equipment installed, the hydraulic pumps are driven via the transmission power take-off using a propeller shaft for the following systems:

- Semitrailer/trailer hydraulic systems
- Rear fan
- Coolant pump
- Leading axle steering

If the propeller shaft fails, the malfunctions described below will occur.



If the steering of the leading axle fails, the rear wheels may steer the wrong way when reversing. Reverse travel with the wheels steered the wrong way can lead to damage.

- Activate the starting-off aid (special equipment) to unload the leading axle.

Semitrailer or trailer: Failure of the raising, lowering and self-steering functions etc.

If rear fan and coolant pump fail:

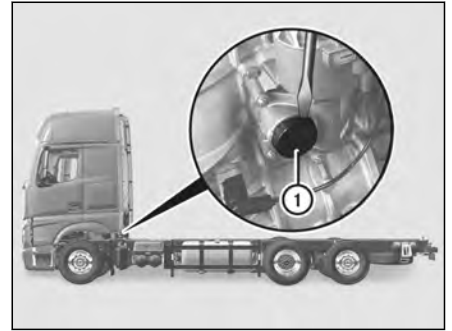
- Note coolant temperature, particularly when starting off and braking with fluid coupling.

Failure of the rear cooling system:

- Detach all plug contacts at the control unit of the rear cooling system. The control unit is underneath the trim in the right stowage compartment on the rear panel. This activates the rear fan at full power.

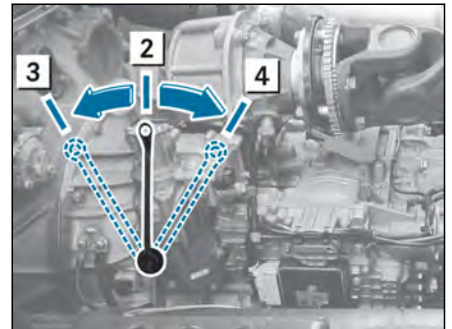
Manually shift power take-off

Live power take-off



W23.20-A002-71

Live power take-off



W26.45-A152-71

- Apply parking brake.
- Shift transmission to neutral.
- Switch electronic ignition lock to position 0.
- Take adapter, wrench, screwdriver and hammer from vehicle tool kit.
- Remove cover cap (1).
- Fit adapter with wrench at position (2) on shaft.
- Turn wrench to position (4) in variant A or turn to position (3) in variant B.
- Take off wrench and adapter.
- Attach cover cap (1).

- Start engine.
- Press top of power take-off switch.

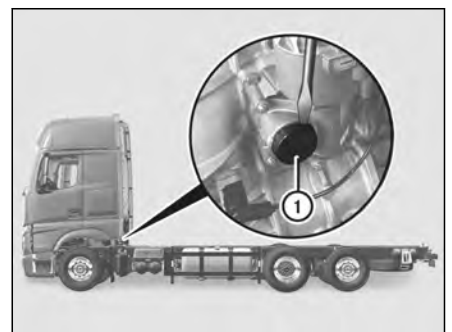
When the power take-off is switched on, the display of the on-board computer shows the switch position. The indicator lamp in the switch comes on.



The control unit only recognizes that the power take-off is switched on once the switch has been pressed.

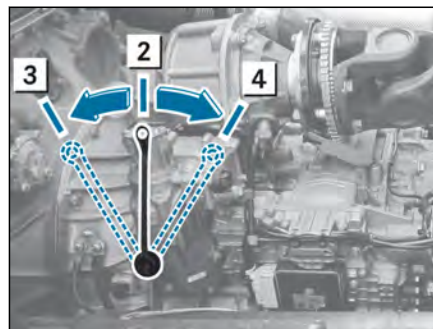
Manually switch off power take-off

Live power take-off



W23.20-A002-71

Live power take-off



W26.45-A152-71

- Apply parking brake.
- Shift transmission to neutral.
- Start engine.
- Press bottom of power take-off switch.
- Switch electronic ignition lock to position 0.
- Take adapter, wrench, screwdriver and hammer from vehicle tool kit.
- Remove cover cap (1) using a screwdriver and a hammer.
- Fit adapter with wrench at position (2) on shaft.

You can identify vehicles with power take-off N4W or N4X by the external clutch actuator. If there is a cover panel at this position, the vehicle is equipped with power take-off N4Y or N4Z.

- **Vehicles with power take-off variant A (N4Y or N4Z):** Turn the wrench to position (3).

- **If the power take-off was previously automatically engaged via the switch in vehicles with power take-off variant B (N4W or N4X):** Turn the wrench to position (4).

or

- **If the power take-off was previously manually engaged in vehicles with power take-off variant B (N4W or N4X):** Turn the wrench to position (3).
- Take off wrench and adapter.
- Attach cover cap (1).
- Start engine.

If the power take-off is switched off, the display in the instrument cluster displays the switch position. The indicator lamp in the switch goes out.

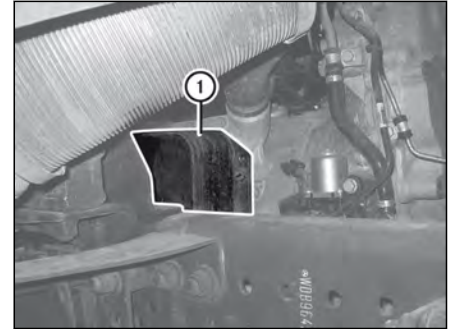
Notes on turbo-retarder clutch

Fluid coupling

Vehicles with fluid coupling can be identified by the heat exchanger (1) on the right side in the wheel well. The fluid coupling enables the vehicle to start off with the

clutch open without causing wear. After moving off, the clutch is closed automatically. The indicator lamp in the instrument cluster is on when the fluid coupling is active.

Heat exchanger (1)



W25.50-A019-71

The oil temperature increases if you drive with the fluid coupling in clutch mode. If the oil temperature is excessively high, an event message is displayed and a warning tone sounds.

- Shift to a lower gear so that the oil temperature drops.

If the event message and warning tone do not go out:

- Apply parking brake.
- Shift transmission to neutral.
- Let engine run at approx. 1200 rpm for around 1 minute.

Moving off with the clutch

In the event of electric or pneumatic faults in the fluid coupling, the vehicle can also be moved with the friction clutch using rocking mode.

Vehicle rocking button

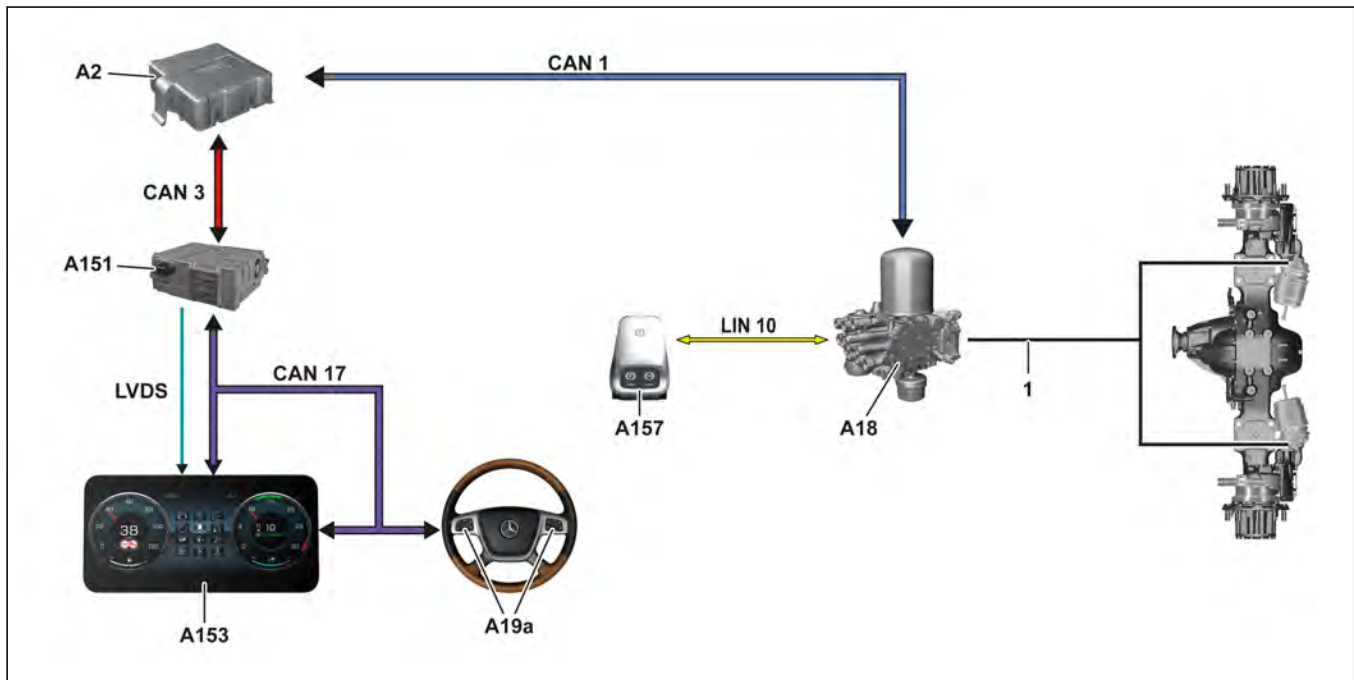


W54.25-A089-71

- Select the lowest gear.
- **Activate rocking mode:** Press top button. When the indicator lamp in the button lights up, the rocking function is switched on.

Driving time is restricted to five minutes because, depending on the fluid coupling fault, optimum lubrication may not be guaranteed.

Electric parking brake (EFB)



W42.20-A007-79

Actuation of electric parking brake (schematic)

1	Compressed-air line	A157	Parking brake lever control unit
A2	Central gateway control unit (CGW)	CAN 1	Exterior-CAN
A18	Electronic Air Processing Unit (EAPU) control unit	CAN 3	Frame CAN
A19a	Finger navigation pad (FNPd)	CAN 17	User interface CAN
A151	Instrument cluster (IC) control unit	LIN 10	EAPU-LIN
A153	Instrument cluster screen (ICS) control unit	LVDS	Low voltage differential signal

The electric parking brake replaces the previous parking brake and is integrated into electronic air-processing unit control unit. The electronic air-processing unit control unit receives the driver's request to actuate/release the parking brake via the parking brake lever control unit in the instrument panel.

For the electric parking brake, the actuator (relay valve) and the control of the parking brake (solenoid valves/pneumatic valves) have been integrated in the electronic

air-processing unit control unit. The previous pneumatic connection for the operating lever of the parking brake is thus omitted. The software of the electronic air-processing unit control unit has been expanded to include the parking brake control scopes.

An additional pneumatic connection for the trailer control valve facilitates the activation of the trailer service brake where the parking brake is engaged in the towing vehicle.

Parking brake lever control unit (A157)

Compressed-air system external filling



W42.20-A006-79

Location of parking brake lever control unit

A157 Parking brake lever control unit

The electronic parking brake lever is located on the right in the instrument panel.

The electronic parking brake is activated by pressing the "P" button or pulling the parking brake lever beyond the locking point. A red indicator lamp in the instrument cluster indicates that the parking brake has been engaged. The electronic parking brake is released by pressing the "P" button with depressed brake pedal.

Via the "TSA" button on the parking brake lever, the Trailer Stability Assist can be activated in vehicles with code B5D (Trailer Stability Assist (TSA)).

For greater comfort and safety, an automatic release or engagement takes place in certain situations:

- The electronic parking brake is automatically released during pulling away.
- The electronic parking brake is automatically engaged if the engine or ignition is switched off.
- The electronic parking brake is engaged automatically when the driver's door is opened.

The electronic parking brake also facilitates manual braking, e.g. as an auxiliary brake in the case of the partial failure of the service brake system. The manual braking is realized by pulling/releasing the parking brake lever; the braking effect is, in this connection, proportional to the position of the parking brake lever.

Workshop mode

The system can be switched into a special workshop mode. All automatic systems are deactivated in this mode. The automatic systems cannot be activated in this mode. The workshop mode is used during maintenance or repair work.

The workshop mode is activated when the "P" button on the parking brake lever control unit is pressed and the

ignition is switched off at the same time. The workshop mode is now activated and the next time the ignition is switched on, it is shown as a message in the instrument cluster control unit or in the instrument cluster control unit screen.

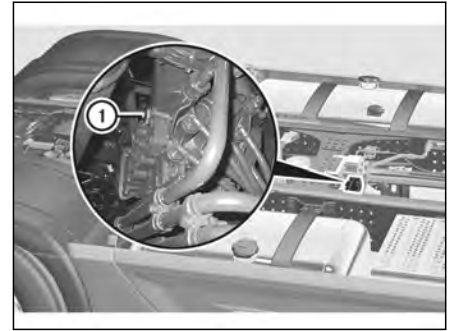
The workshop mode is deactivated either through XENTRY Diagnosis or automatically when the vehicle is driven at a speed of more than 30 km/h.

Fill compressed air system from a remote source

When you fill the compressed air system via test connection 12 on the EAPU (Electronic Air-Processing Unit), 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

EAPU test connection screw plug (Actros)

W43.00-A008-71

- Secure vehicle with chocks to prevent it from rolling.
- Remove screw plug (1).
- Screw in adapter for test connection.
- Connect external pressure source and fill system.

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

The adapters for the test connection are available in each Mercedes-Benz service center, see chapter "Tools and Accessories".

Emergency filling of the compressed air system**General notes**

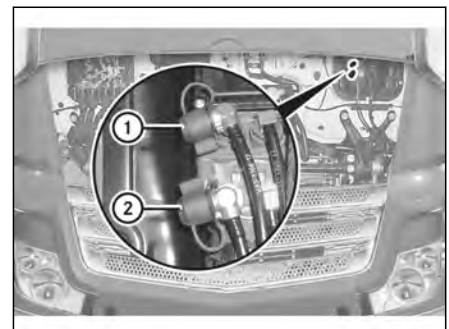
If the supply pressure of the external compressed-air source is below 11 bar, you may not be able to fill all of the pressure circuits.

Please note that the compressed air is not guided through the compressed-air drier under the following conditions:

- If you route the compressed air system via the test connections on the brake value sensor behind the maintenance flap.
- If you fill the compressed air system via the test connection 28 on the EAPU.



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

At the test connections on the brake value sensor**Brake value sensor test connections (Actros)**

W43.00-A010-71

If you cannot start the engine, fill the compressed-air system via the front test connections (1) and (2) on the brake value sensor.

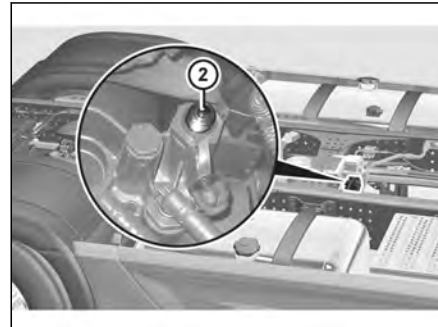
If you fill the compressed-air system via a test connection, the air suspension may also be filled at the

same time, depending on the vehicle equipment and residual pressure.

Compressed-air system external filling

On the EAPU

Tractor/semitrailer combination (Actros)



W43.00-A007-71

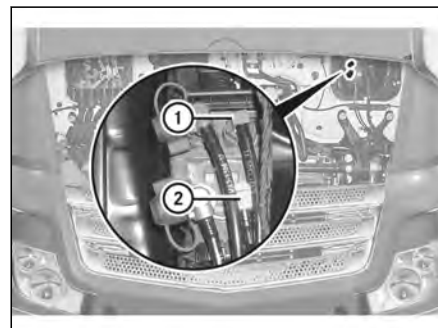
If you fill the compressed-air system via test connection 28 (2) on the EAPU, the pressure circuit of air suspension is also filled.

When the compressed air system is full, you can activate the brakes via the compressed air lines : at test connections 21 and 22 on the brake value sensor. This actuates the service brake of the vehicle to be towed.



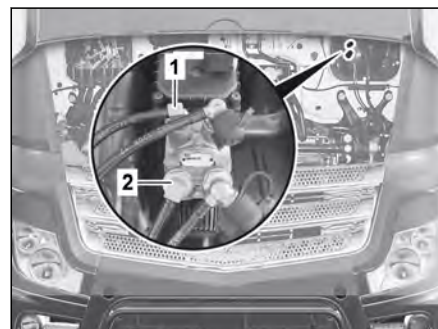
Depending on the brake value sensor installed, the test connections may be located on either the left or the right side of the brake value sensor.

L cab (Actros)



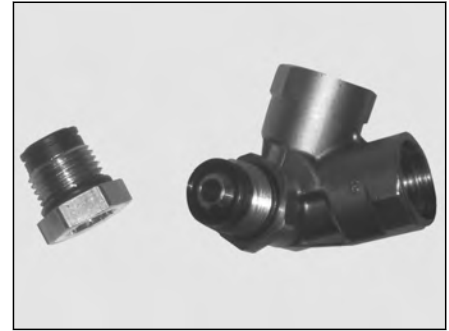
W43.00-A009-71

L cab (Actros)



W43.00-A016-71

Y-shaped adapter for brake value sensor



W58.20-A000-71

- Remove line at test connection 22 (1).
- Remove line at test connection 21 (2).
- Connect Y-shaped adapter to the two lines.
- Connect Y-shaped adapter with compressed air line to brake coupling head of towing vehicle.

For further information on the adapter for the test connection, see chapter "Tools and Accessories".

You need an adjustable pressure reducing valve (pressure regulator) for unladen or partially laden

vehicles. With this, the rear axle brakes can be actuated according to the load condition.

- Ensure power supply for lighting system and for ABS from towing vehicle to trailer/semitrailer of vehicle to be towed.
- Switch the electronic ignition lock in the towed vehicle to position **0**.
- **After towing:** Have the fault memory in the EBS/ EAPU control unit read out and erased at a qualified workshop.

Detach combination brake cylinder mechanically

General safety information

Note

Before releasing spring-loaded parking brake, secure vehicle against rolling away using chocks. Attach a clearly visible sign onto mechanically released spring-loaded parking brake in vehicle interior.

Before operating the vehicle again, the spring brake cylinders must be returned to the driving position.

If the compressed-air supply is insufficient, the spring-loaded parking brake can be released pneumatically using an external compressed-air source or mechanically.

Release spring-loaded parking brake pneumatically

The towing vehicle's spring-loaded parking brake can be released using the test connections at the brake value sensor, see chapter "External filling of compressed-air system".



The reservoir pressure must not exceed 12.5 bar.

Releasing the spring brake cylinder mechanically

Note

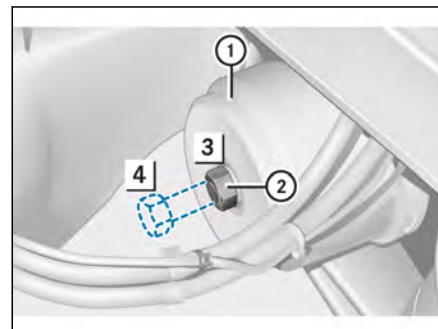
Shortly after starting a journey, check release screws (2) of all spring-loaded brake cylinders (1) for drive position (3).

Check spring-loaded parking brake for proper operation.



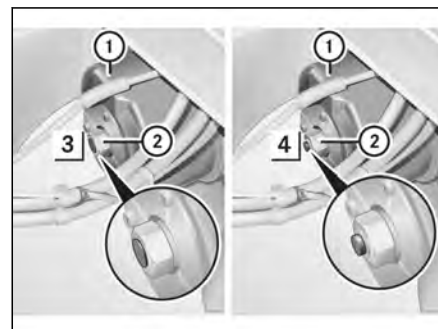
Loosen release screw (2) with a maximum of 70 Nm. Do not use an impact wrench. Otherwise the spring brake cylinder could be damaged.

- 1 Spring brake cylinder
- 2 Release bolt
- 3 Drive position
- 4 Release position



W42.20-A018-71

- 1 Spring brake cylinder
- 2 Release bolt
- 3 Drive position
- 4 Release position



W42.20-A019-71

Detach combination brake cylinder mechanically

In an emergency, you can release the spring-loaded brake cylinders (1) mechanically if the supply pressure is insufficient to release the parking brake.

The vehicles can be equipped with different spring-loaded brake cylinders on each axle, e.g. spring-loaded brake cylinders (1) with an unscrewing release screw (2) or with a release indicator.

Release all spring-loaded brake cylinders (1) on vehicle.

Tighten release screws (2) with a maximum of 35 Nm. Do not use an impact wrench. Otherwise, the spring-loaded brake cylinders (1) may be damaged.

- Secure vehicle with chocks to prevent it from rolling.
- Turn release screw (2) of spring-loaded brake cylinder (1) left up to end stop in release position (4).

Restoring spring brake cylinders to driving position



Do not use an impact wrench. Otherwise, the spring-loaded brake cylinder (1) may be damaged.

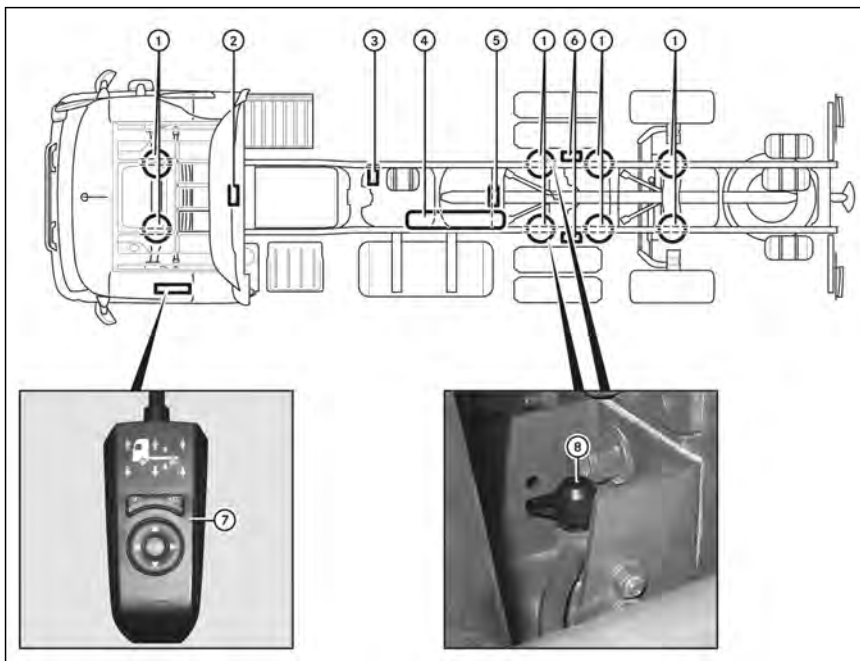
- Secure vehicle with chocks to prevent it from rolling.
- Swing lever of parking brake up to end stop in release position (4).
- Turn release screw (2) of spring-loaded brake cylinder (1) right to drive position (3).
- Tighten release screw (2) up to end stop with a maximum of 35 Nm.

- Fill compressed air system up to shutoff pressure.

Level control system

6x2 ENA (Actros)

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



W32.30-A002-76

Raising and lowering with operating unit (7)

- If possible, fill via test connection 28 on EAPU and adjust level via operating unit (7).

Raising and lowering without operating unit (7)

If the air suspension system operating unit (7) fails, you can use the test connections (8) to raise/lower the chassis.

In a laden vehicle, pressures up to 8.5 bar are permissible. In an unladen vehicle, pressures of up to 8.5 bar on the front axle and up to 3.5 bar on the rear axle are permissible.



When you reach the end stop, cease filling immediately.

- Fill or bleed air suspension bellows via test connections (8).

Save constant vehicle frame height:

- Raise/lower vehicle frame to required height.
- Press and hold **STOP** button.
- Remove key from ignition lock or key slot.
- Release **STOP** button.

If supply pressure in compressed-air system is sufficient, the height of the vehicle frame is maintained for around 4 to 5 hours.

General safety information

Note

There is an inadequate braking effect if the supply pressure in the compressed-air system is missing or too low (warning lamp goes on below 6.8 bar). The clutch and transmission control systems may be inoperative depending on the pressure level. Tow-starting is not possible.

Fill compressed-air system with external source before towing.

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.

Only tow-start the vehicle in the forward direction of travel with a forward gear engaged.

If spring brake cylinders have been mechanically released, the parking brake is inoperative.

Do not tow-start if there is damage to the engine, transmission, transfer case, axle or steering.

Only tow-start the vehicle with the batteries connected.

Note

When tow-starting, the permanent brake (engine brake/retarder) 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.

Note

If Active Brake Assist is switched on whilst you are using or towing your vehicle as a working machine, for example, the vehicle may brake by itself. The wheels could lose their grip. There is a risk of accident!

Always switch off Active Brake Assist in these or similar situations.



If the maximum permissible engine speed is exceeded, the warning buzzer sounds. Select a higher start-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).
- On vehicles with ADR classification, check whether the battery disconnect switch is deactivated, see chapter "Battery disconnect switch".
- Secure tow bar to A-frame towbar or coupling jaw, see chapter "Towing with tow bar".

Vehicles with manual transmission

- Depress clutch pedal.
- Shift to 5th or 6th gear.
- Tow-start vehicle.

- Slowly release clutch pedal at around 10 km/h and slowly depress accelerator pedal.
- **Immediately after engine starts:** Fully depress clutch pedal and shift transmission to neutral.

Vehicles with Mercedes PowerShift

- **8-speed transmission:** Shift to 4th gear.

The engaged gear must be shown in the display of the onboard computer.

- **12-speed transmission:** Shift to 6th gear.

The engaged gear must be shown in the display of the onboard computer.

- **16-speed transmission:** Shift to 8th gear.

The engaged gear must be shown in the display of the onboard computer.

- Tow-start vehicle.
- Slowly depress accelerator pedal at around 10 km/h. The electronic system engages the clutch automatically.
- **Immediately after 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.

Towing the vehicle

Vehicles with electric power steering (two front axles)

Only tow-start vehicles with electric power steering on straight routes and only steer in an emergency. If you are steering whilst towing, a red event message will be

displayed in the on-board computer display. Abort the tow-starting procedure and stop the vehicle. Switch the electronic ignition lock to position **0** and then back on. Tow-start the vehicle again.

General safety information

Note

When recovering the vehicle with a gear engaged and the ignition switched on, 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.

Force application points



The force application points referred to below 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.

In order to minimize bending stress and frame load, the areas of the connections between the longitudinal frame member and crossmember are most suitable. Use lashing straps that are as wide as possible for this and ensure that no detachable frame parts, lines, cables or hoses are damaged.

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.

Use load-compensating rollers 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.

Safety components

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

Frame

- Longitudinal members and crossmembers.

Cab

- Cab mounting including lock.

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.

Straightening the vehicle

- Apply parking brake.
- Select as many points of load application as possible or apply forces in area of crossmembers; use tension flanges.
- 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 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 and/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

Check all safety components after recovery.

Vehicles with air suspension: Check air bellows for damage, whether they operate correctly and whether they are in the guide. To do this, set highest and lowest setting on operating unit and check roll behavior of air bellows. The air bellows must roll up and down evenly.

Steering

- Steering shaft, steering wheel, steering gear, pitman arm, steering arm, steering knuckle arm, steering cylinder, drag links, tie rods and joints. Mounting of the steering gear on the frame.

Front axle(s)

Recovery, general

- 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 suspension

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

Wheels

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

Brake

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

Propeller shafts

Vehicle connecting parts

- Fifth wheel couplings and ball studs, trailer hitches and towing couplings at front and rear with installations, drawbars.

Electrical components

- Wiring harnesses or electric lines and sensors.



Recovery by both towing eyes and with suitable towing crossmember
40 t tractive force with maximum 0° towing angle
20 t tractive force with maximum 15° towing angle



Recovering by one towing eye using a suitable tow bar or a suitable tow rope
20 t tractive force with maximum 15° towing angle



Recovering by the coupling jaw using a suitable tow bar or a suitable tow rope
20 t tractive force with maximum 15° towing angle



It is not permissible to apply force to the crossmember in semitrailer trucks with a weight-optimized crossmember. Weight-optimized crossmembers do not have a hole pattern for a trailer coupling, are 3.5 mm thick and have a stamped-in part number A 960 312 29 35.



Recovery using the trailer hitch
Pin diameter 38 mm: Maximum of 12 t tractive force
Pin diameter 48 mm: Maximum of 20 t tractive force
Towing angle max. 15°

Towing, general

Important safety information

Note

The permissible vehicle height may be exceeded if it is necessary to transport the vehicle on a low loader (for example, following an accident). Drive with particular care and attention. Observe the maximum headroom of bridges and underpasses. Otherwise you could cause an accident.

Note

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.

If the oil pump in the transmission is inoperative, transmission damage will occur when the vehicle is towed.

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.

Note

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 off and disconnect the battery before towing the vehicle.

Note

Trailer/semitrailer with ABS:

When towing entire tractor/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.

Therefore connect the towing vehicle and the trailer/semitrailer with an ABS cable (5-pin or 7-pin).



When towing air-sprung vehicles, check the driving level and correct it if necessary. If the compressed-air system cannot be filled, then release the combination brake cylinders mechanically, see chapter "Releasing combination brake cylinders mechanically". The steering wheel must be secured if the vehicle is raised at the rear for towing and towed backward, see chapter "Towing raised". Maximum permissible speed: See towing load table for towing/recovery vehicle.



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

Vehicles with hydraulic auxiliary drive



When towing vehicles with hydraulic auxiliary drive, observe the following:

If the hydraulic auxiliary drive is leaking:

- Remove propeller shaft.
- Tow the vehicle with the front axle raised.

Vehicles with steered leading/trailing axle



Vehicles with steered leading/ trailing axles should only be pushed backwards when the trailing axle is raised and not touching the ground. Otherwise, you may damage the vehicle frame.

Vehicles with electrohydraulic dual-circuit power steering

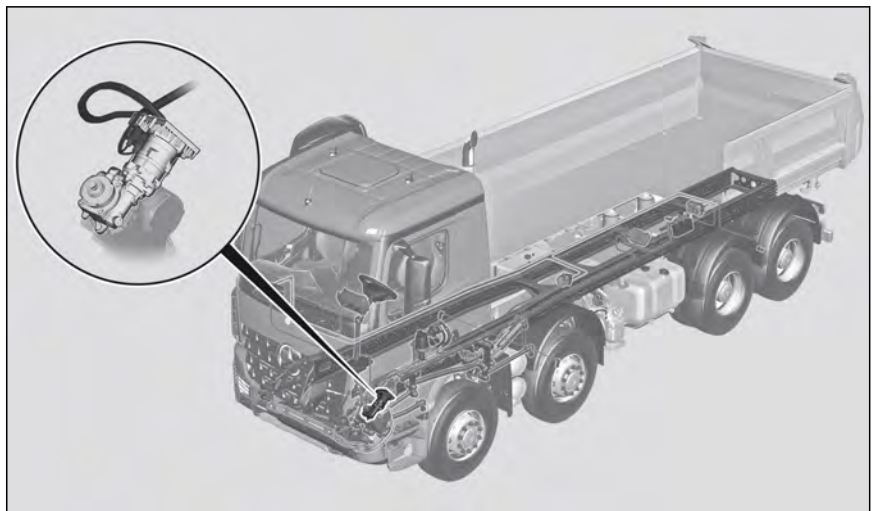
The electrohydraulic dual-circuit power steering consists of an electrical steering circuit and a hydraulic steering circuit.

Note

The electric power steering is switched on at a speed of 9 km/h when towing with the tow bar. The electric power steering is switched off at speeds below 9 km/h.



Vehicles with electric power steering should be towed with raised front axles where possible. Otherwise you could damage the steering.



W46.25-A044-75



Further information on "Towing raised" section in chapter "Towing raised".

Vehicle with electric power steering

Rules for towing

- Remove propeller shaft to avoid damaging transmission, see chapter "Propeller shaft removal".
- ASR, ESP® and ABA must be switched off, see chapter "Safety systems".
- There must be sufficient pressure in the compressed-air system, see "Filling compressed-air system from an external source".
- Disengage the activated front axle.
- Disengage the off-road gear.
- Disengage the differential locks.
- Wind deflectors, mirrors and bodies may protrude above and to either side of the vehicle.
- Connect 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 deflectors.

Towing, general

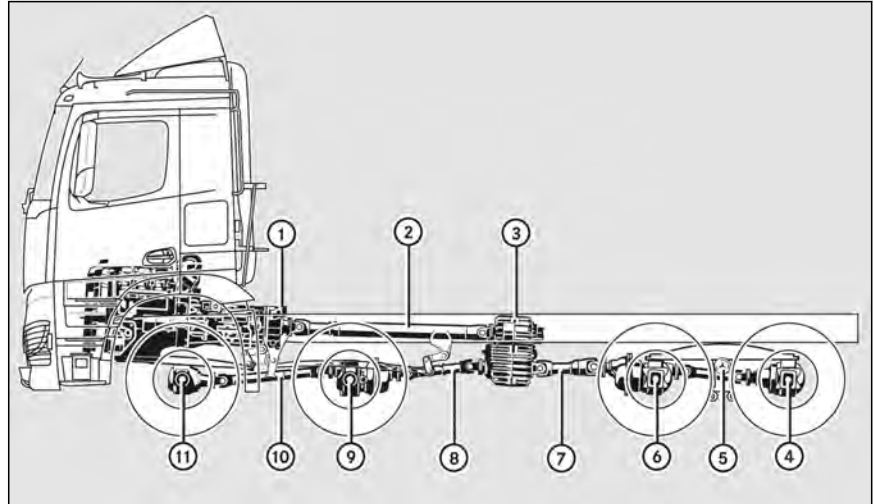
Towing vehicles away from hazard areas

Only tow vehicle with installed propeller shaft in exceptional circumstances, e.g. when leaving danger zones.

Vehicles with Mercedes PowerShift: Switch on towing mode for this purpose, see chapter "Emergency operation Mercedes PowerShift".

- Secure vehicle to prevent it moving away.
- Start the engine (not if the front axle is raised).
- Charge the compressed air system up to shutoff pressure.
- Release parking brake.
- Engage a gear if possible.

8x8/4 (Actros)



W00.00-A048-75

Symptom

Diagnosis

The engine stalls without propeller shaft (2) moving.

Transmission damage (1)

The engine/transmission block twists in the frame.
Propeller shaft (2) moves. The propeller shafts (7, 8) do not move.

Transfer case damage (3)

The engine/transmission block twists in the frame. The propeller shafts (2, 8 and 10) do also move slightly on vehicles with transfer case.

Rear axle damage (4, 6)

The propeller shafts (2, 5 and 7) move. The propeller shafts (8, 10) do not move.

Front axle damage (9, 11)

Engine, transmission and/or axle damage

Important safety information

Note

A propeller shaft may fall down and injure you when being removed.

Secure propeller shaft against falling down before removal, e.g. by tying up propeller shaft with help of a second person.



Remove the propeller shafts completely if possible. If this is not possible, affix a notice in the cab to prevent anyone from starting the engine.



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.



Make sure that the transmission or the transfer case does not turn when driving, otherwise the transmission or the transfer case could be damaged.

Engine damage

- Remove propeller shafts to drive axles, see chapter "Propeller shafts removal".

Transmission damage

- Remove propeller shafts to drive axles, chapter "Propeller shafts removal".

Damage to front axle transmission

- Raise vehicle at front axle.

- Remove propeller shaft between rear axle and transfer case.

Damage to rear axle differential

- Lock differential with screw, see chapter "Drive shafts removal".
- Remove drive shafts of rear axles, see chapter "Drive shafts removal".

- Remove propeller shaft between front axle and transfer case.

Damage to the planetary gear system or the wheel bearings

- Raise the damaged axle.

- Remove propeller shafts of the axles not raised.

Propeller shafts to be removed

Model	Raised at front	Raised at rear	Not raised (towing with a tow bar)
4x2	Transmission - Rear axle	-	Transmission - Rear axle
6x2	Transmission - Rear axle	-	Transmission - Rear axle
8x2	Transmission - Rear axle	-	Transmission - Rear axle
4x4	Transfer case - Rear axle	Transfer case - Front axle	Transfer case - Front axle Transfer case - Rear axle
6x4	Transmission - 1st rear axle	-	Transmission - 1st rear axle
8x4	Transmission - 1st rear axle	-	Transmission - 1st rear axle
6x6	Transfer case - 1st rear axle	Transfer case - Front axle	Transfer case - Front axle Transfer case - 1st rear axle
8x6	Transfer case - 1st rear axle	Transmission - 2nd front axle ¹ or: 1st front axle - 2nd front axle ¹	Transfer case - 1st rear axle Transmission - 2nd front axle ¹ or: 1st front axle - 2nd front axle ¹
8x8	Transfer case - 1st rear axle Transfer case - 2nd front axle ² 1st front axle - 2nd front axle	1st front axle - 2nd front axle ¹	Transfer case - 2nd front axle Transfer case - 1st rear axle

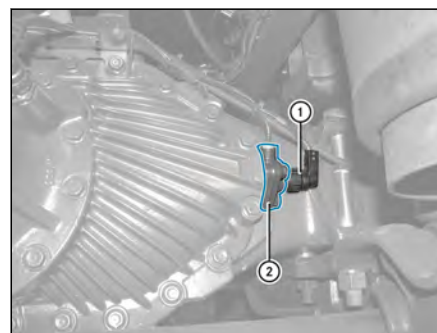
¹ Unladen vehicle, 2nd front axle tied up² Additionally remove if 2nd front axle is rolling and bearing load

Removing the rear axle drive shafts



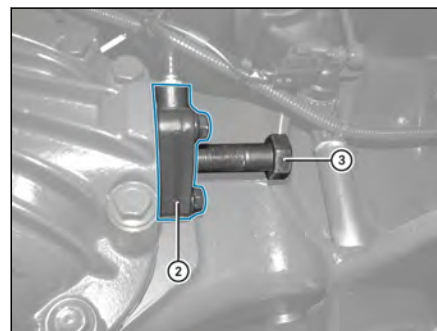
Lock differential with screws to secure sliding sleeve before removing drive shafts of rear axle. Problems could otherwise arise when the drive shaft is reinstalled.

Lock differential with screw:



W35.40-A006-71

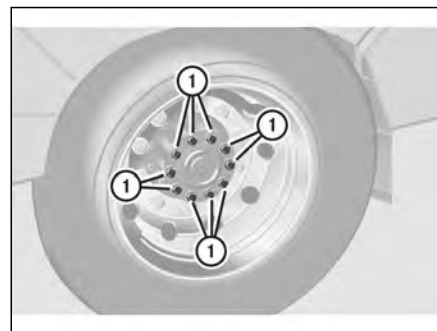
- Remove electrical connector (1) from shift cylinder cover (2).
- Unscrew sensor with box wrench (SW 27 mm).
- Carefully screw screw (3) all the way into shift cylinder housing.
M18x1.5x80
For special tools, see chapter "Tools and Accessories".
- **If the screw (3) cannot be completely screwed in:** Pull drive shaft out approx. 100 mm and turn until screw (3) can be completely screwed in.



W35.40-A005-71

Removing the rear axle drive shafts:

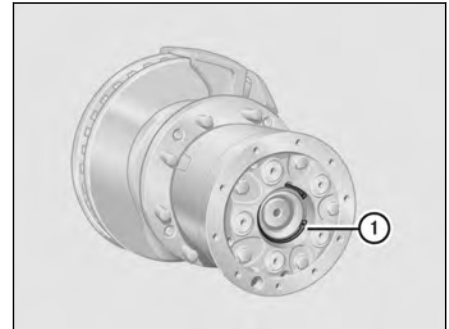
- Pull ignition key out of key slot.
- Lock the differential with a bolt.
- Unscrew screws (1) on wheel hubs.
- Place oil pan under wheel hub.
- Collect escaping oil in a suitable container.
- Pull out both drive shafts.
- Protect wheel hub against soiling by using a cap, see chapter "Tools and Accessories".
- Refill with oil.



W35.30-A024-71

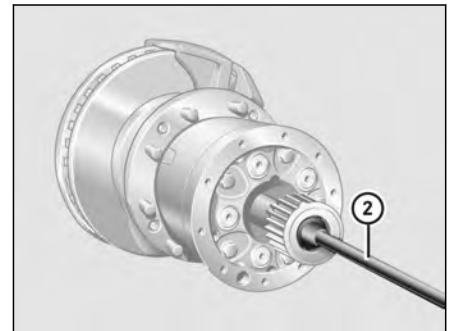
Removing the drive shafts of the planetary hub reduction axle

When removing, note the installation sequence of the shims.



W35.30-A023-71

- Pull ignition key out of key slot.
- Lock the differential with a bolt.
- Unscrew drain screw from planetary hub reduction axles.
- Collect escaping oil in a suitable container.
- Remove end cover (3) of planetary hub reduction axle.
- Remove circlips (1) with pliers.
- Remove both drive shafts together with sun gear.
To do so, use special tool (2) or an M8 screw 120 mm long.
- Detach sun gear from drive shaft and reinstall.
- Attach end covers (3).



W35.30-A025-71

Filling the planetary hub reduction axle with oil

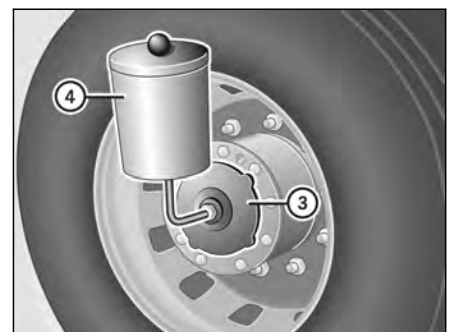


Add oil to planetary hub reduction drive if towing distance exceeds 100 km.

- Unscrew oil filler screw from center of end cover (3).
- Screw oil filler can (4) into end cover (3).
- Add oil (3.25 L on each side of wheel) to planetary hub reduction drive.
Only use clean transmission oil.
- Unscrew oil replenishment tank (4).
- Screw in and tighten oil filler screw.

You can find information on approved operating fluids at every Mercedes-Benz service center or online at:

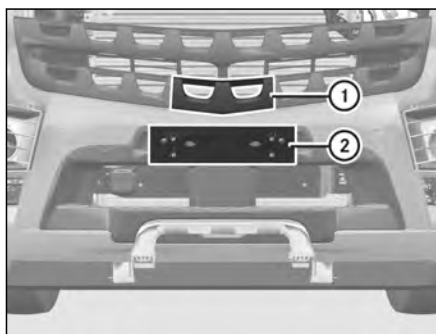
<http://bevo.mercedes-benz.com/bevolisten/bevo-blaetter-sort1.html>



W35.10-A030-71

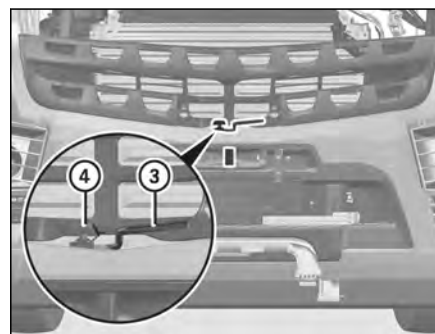
Towing with the tow bar

Coupling jaw



W88.20-A001-71

Coupling jaw (Arocs)



W88.20-A002-71

Coupling jaw (Arocs)

Use the front coupling jaw for maneuvering, towing and tow-starting the vehicle.

The coupling pin (3) is secured against twisting (e.g. when towing with a steel cable) by means of a CAMLOCK bolt (4).

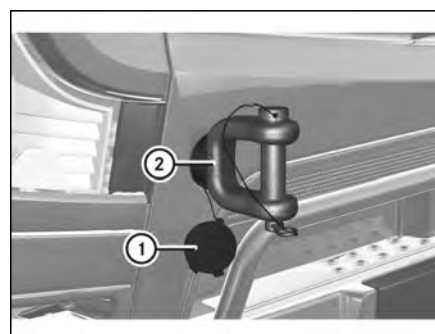
- **Vehicles with large angle of approach/departure:** Fold down step.
- Remove coupling pin cover (1) toward front.
- Grip license plate bracket (2) at side and swivel downward.
- Turn CAMLOCK bolt (4) 90° to left and remove.
- Swivel coupling pin (3) approx. 90° forward and pull out upward.
- Insert tow bar.
- Press coupling pin (3) downward through eyelet of tow bar.
- Swivel coupling pin (3) approx. 90° to rear.
- Insert CAMLOCK bolt (4) and turn 90° to right. The CAMLOCK bolt (4) noticeably engages.
- Mount coupling bolt cover (1) and clip in.
- **Vehicles with large angle of approach/departure:** Fold up step.

Towing eye



W60.80-A010-71

L cab (Actros)



W60.80-A011-71

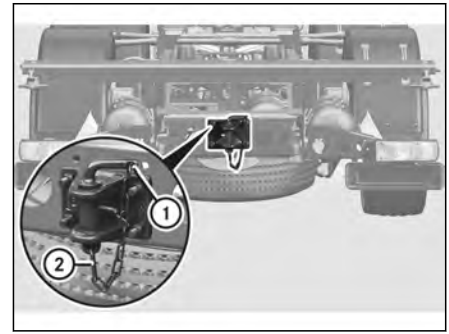
L cab (Actros)

The towing eye (2) is part of the vehicle tool kit and is screwed in behind the cover (1) into the front end of frame. Ensure that towing eye (2) is completely screwed in. If the thread is dirty, clean it before screwing in the towing eye (2). If necessary, recut thread using a M45x3 tap.

- Remove cover cap (1) from front crossmember.
- Screw towing eye (2) into front crossmember completely and turn to vertical position.
- Pull out locking pin and take out pin upwards.
- Connect tow bar with towing eye (2) and towing vehicle.
- Insert pin and secure with locking pin.
- Remove propeller shaft(s).

Towing coupling

- Unhook retainer (2) from coupling pin (1).
- Pull out coupling pin (1).
- Insert tow bar.
- Press coupling pin (1) downward through eyelet of tow bar.
- Hook retainer (2) into coupling pin (1) again.



W31.10-A022-71

Towing in raised position

Important safety information

Note

Do not switch the electronic ignition lock to the drive position when the front axle is raised.

Otherwise the automatic ASR function may cause uncontrolled braking of the rear wheels 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 with air suspension: When the vehicle is being lowered, ensure that the air bellows, which may have lifted out, unroll correctly and that the pistons are threaded into the guides.

Vehicles involved in an accident

- **In vehicles with hydraulic auxiliary drive:** Tow the vehicle raised at the front axle if the hydraulic auxiliary drive is leaky.
- Before raising the vehicle, check the connections between the frame sections and between the frame and the axles for damage and tight seating.
- If the air bellows on the rolling axle are defective, ensure sufficient clearance and tow at a max. of 10 km/h.
- Fold up or detach the underride guard if necessary.

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.

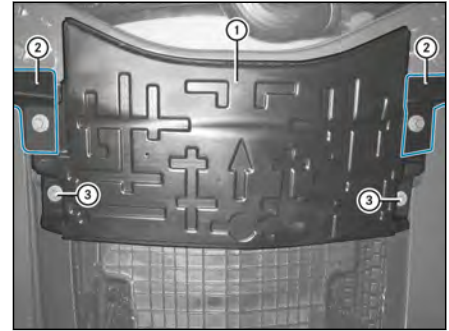
Towing



On lowliners and low-frame vehicles, it is recommended that the noise capsule is removed. Otherwise damage can occur.

- Only lift the vehicle at the specified points.
- Do not raise the vehicle by the frame on one side only.
- Secure vehicle to 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.
- Switch off ASR (Anti-Slip Control), Stability Control Assist/ESP® (Electronic Stability Program) and ABA (Active Brake Assist), see chapter "Safety systems".
- Remove the propeller shaft to the rolling axle.
- When towing entire combinations, route an ABS cable from the towing vehicle and connect to the trailer/semitrailer (5-pin or 7-pin).
- Set the air suspension to a height at which there is adequate clearance between the wheels and vehicle components, and between vehicle components and the road surface.
- Switch electronic ignition lock to position 0.

Remove soundproofing

Noise capsule (1)

W94.30-A000-71

- Turn both screws (3) to left by a quarter turn.
- Remove cover (1) from guides (2) toward rear.

Overview of raising and towing options at the front

Lifting option for front axle variant	By towing eyes ¹	By the wheels	At front axle
Steel-sprung front axle	X	X	X
Air-sprung front axle, lowered	X	X ²	X
Air-sprung front axle, lowliner, lowered	X	X ³	X

¹ The front axle may need to be tied up when raising by the towing eyes. When cornering, the angle of the telescopic arm must be taken into account due to the roll angle of the lifting yoke. Laden vehicles which are raised at the towing eyes may only be towed at low speed and without dynamic shock loads.

² Depending on factors such as overall height of telescopic arm.

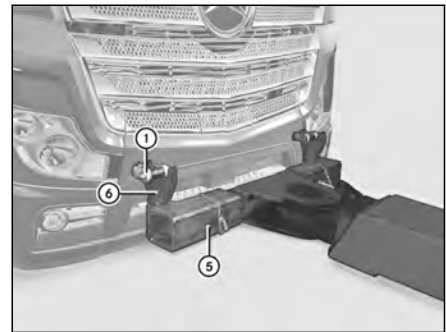
³ The noise capsule may need to be removed.

The distance between the two A-frame towbars 1170 mm. A yoke width extension may be necessary to accommodate the A-frame towbars, depending on the width of the yoke.



Only use A-frame towbars approved by Mercedes-Benz. The drawbars could otherwise be damaged.

Raising by the towing eyes or the front axle

Towing eye (Actros)

W00.60-A000-71

Raising and towing at towing eyes.

- Adjust yoke to vehicle with yoke width extension (5).
- Screw towing eyes (1) completely into front crossmember and turn to horizontal position.
- Mount towing eyes (1) with mounting forks (6).



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

The towing eye (1) consists of a special material with exceptionally high strength values. For this reason only genuine towing eyes should be used. For maximum permissible tractive forces, see chapter "Maximum permissible tractive forces".

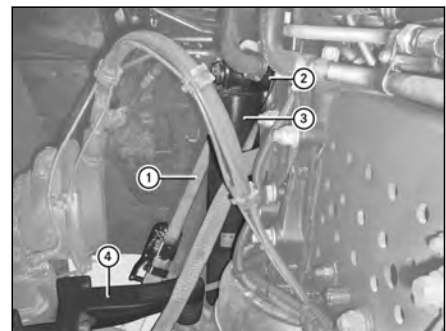
A second towing eye is required if you wish to raise the vehicle at the front. These can be purchased from a Mercedes-Benz Service Center, see page 68. You can tow a fully laden vehicle raised at the front using the second towing eye.



Vehicles with air suspension: When the vehicle is being lowered, ensure that the air bellows, which may have lifted out, unroll correctly and that the pistons are threaded into the guides.

Air-sprung front axle

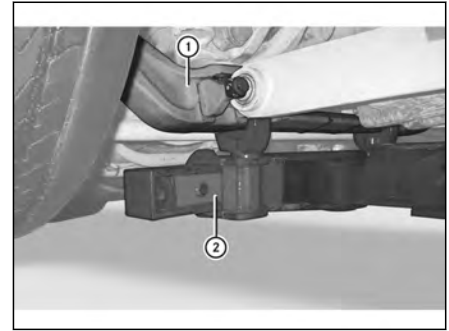
- 1 Tensioning strap
- 2 Shock absorber bracket
- 3 Shock absorber
- 4 Steering arm



W00.60-A001-71

- Depressurize the air suspension bellows.
- Tie up front axle housing on damper holder (2) using chains or tensioning straps (1).

Raising by the front axle

Air-sprung front axle

W00.60-A002-71

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

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



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

Raising and towing by the wheels**Air-sprung front axle**

W00.60-A008-71

- Secure vehicle with chocks to prevent it from rolling.
- Raise the vehicle with the aid of inflatable jacks or the drawbars if necessary (intermediate position).
Note tie rods, noise capsules and level control.
- Set the lift fork to the track width of the vehicle.
- Push the lift fork under the vehicle.
- Raise vehicle.



It is recommended that the noise capsules be removed. Otherwise damage can occur.



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

Actros on lift fork

W00.60-A003-71

- Secure vehicle to wheels with tensioning straps and to axles and transfer bars with chains.

Vehicles with two front axles**8x8/4 (Arocs)**

W00.60-A004-71

- Unload a laden vehicle where possible.
- Raise front axle.
- Secure front axle on lifting device.
- Remove wheels from second front axle and secure brake drums with wheel bolts.



The wheels of the second front axle may not touch the ground in any driving situation.



If vehicle cannot be unloaded: Tow vehicle to next unloading opportunity at max. 10 km/h.

or

If lifting force of towing vehicle is insufficient to lift both front axles, tow vehicle to next unloading opportunity as follows:

- Raise vehicle at first front axle.
- Remove wheels of first front axle.
- **Vehicles with drum brake on front axle:**
Secure drum brake with wheel nuts.
- Remove drag link from second front axle.
- Lower vehicle until the wheel hubs of the first and second front axle are at the same height.
- Tow vehicle to next unloading opportunity or workshop at max. 10 km/h.



Pay attention to the steering when reversing. Otherwise you can damage the frame.

- When reversing, note steering movement of second front axle. If necessary, reinstall drag link and turn steering wheel by hand to minimize lateral forces.

Overview of raising and towing options at the rear

	By the crossmember ²	By the wheels	At the rear axle
Semitrailer tractor	X	X ¹	Not permissible
Semitrailer tractor, Lowliner	X	X ¹	Not permissible

¹ When the rear axle is lowered, it may be necessary to remove the fender to support at the wheels.

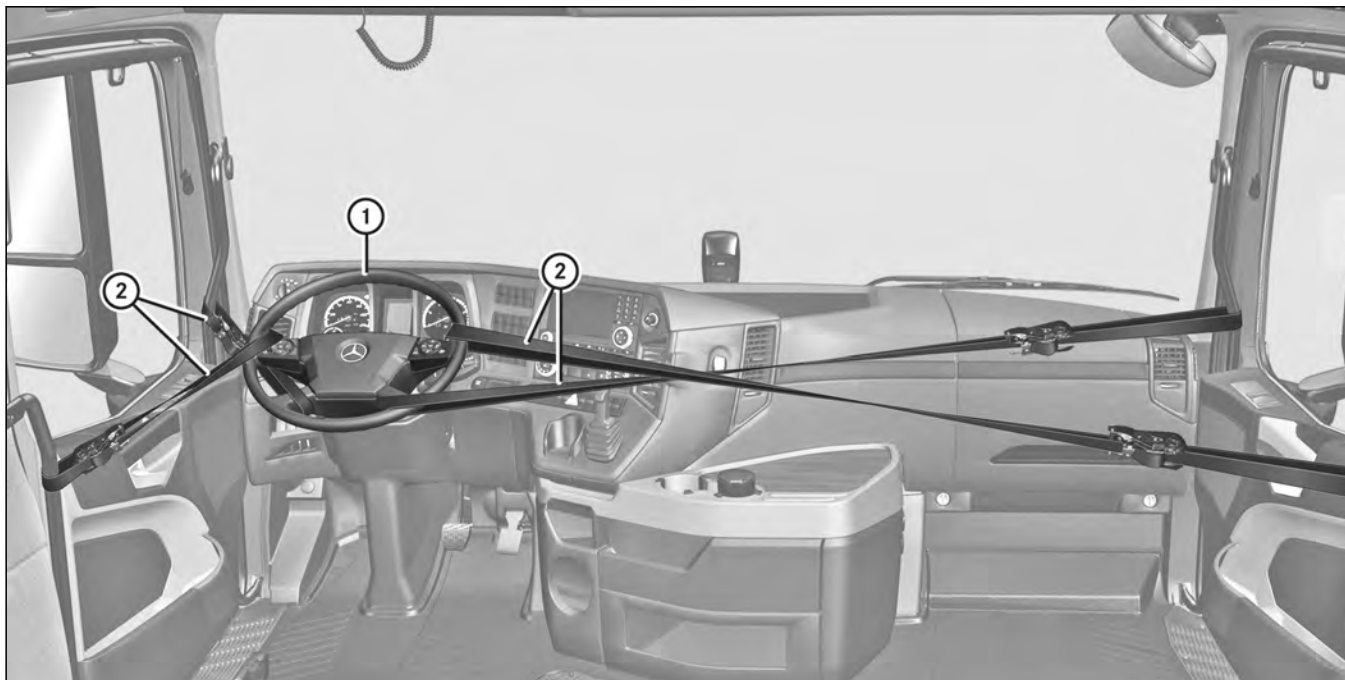
² Alternatively, the semitrailer truck (uncoupled) can be raised at the joints of the rear axle control arm and lowered onto wooden blocks so that it can be picked up again.



It is not permissible to apply force to the crossmember in semitrailer trucks with a weight-optimized crossmember. Weight-optimized crossmember do not have a hole pattern for a trailer coupling, are 3.5 mm thick and have a stamped-in item number of A 960 312 29 35.

If you are towing the vehicle with the rear axle raised, note the clearance of the front apron and underride guard. If the clearance is not adequate, remove the front skirt and/or the underride guard.

Immobilizing the steering wheel



W46.10-A008-79

L cab (Actros)

- Move the steering column to the vertical position.
- Secure steering wheel (1) to entrance handles tangentially with 4 tensioning straps (2).



Fit tensioning straps tightly, do not pretension.



Ensure that the switch panels and monitor of the fleetboard are not damaged.



Maximum permissible speed with steering wheel fixed in place: 60 km/h.

Raising by the rear wheels

- Fix steering wheel in place.
- 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 vehicle and secure at wheels with tensioning strap and at the axle with chains.

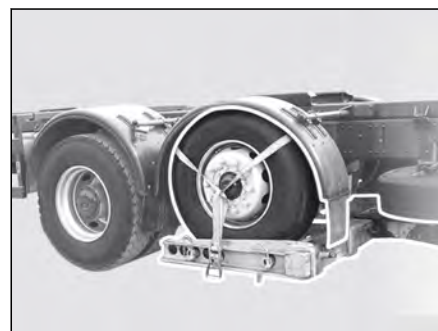


W00.60-A005-71

Raise vehicle at additional axle

Raising the vehicle at the additional axle is only permissible without a square wooden block if the vehicle is not loaded, meaning without body or fully-enclosed

swap body. If the vehicle is partially laden, place a square wooden block between the longitudinal frame member and additional axle.



W00.60-A011-71

- 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 three-axle or four-axle vehicles are raised at the last axle.

Raising the vehicle at the second driven rear axle

- Unload vehicle.
- Place 100 mm x 100 mm x 500 mm square wooden block between front axle housing and frame at left and right, and secure against slipping.
- Raise rear axle with lift fork.
- Secure rear axle on lifting device.
- **Four-axle vehicles:** Detach wheels from second front axle and secure brake drums with wheel bolts.



W00.60-A007-71

Mercedes-Benz special tools

The following special tools/aids can be acquired from a Mercedes-Benz service center:

Special tools, general**Towing eye M45x3**

Part number A 000 583 13 20



Only use towing eyes approved by Mercedes-Benz. The towing eyes could otherwise be damaged.

Special tools, drive shafts

For pulling out drive shafts for axles with planetary hub reduction drive, see chapter "Drive shafts removal".

Bolts**Screw M8x120**

For pulling out drive shafts for axles with planetary hub reduction drive, see chapter "Drive shafts removal".

Screw M18x1.5x80

For locking differential on rear axle, see chapter "Drive shafts removal".

Y-shaped adapter for brake value sensor

Part number A 004 997 42 89

1x external thread M16x1.5

2x internal thread M16x1.5 with Voss stepped bore



W58.20-A000-71

Adapter for test connection M16x1.5 (external and internal thread)

2x M16x1.5 part number A 007 997 35 72



W58.20-A001-71

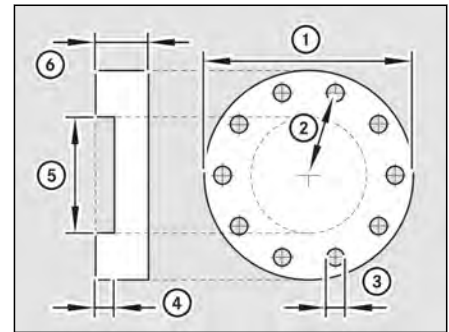
Adapter for test connection (female thread)

M16x1.5 part number A 000 431 96 31 or part number A 000 431 29 31

Adapter for EAPU (test connection 12)

Part number A 001 431 36 31

Shop-made special tools**Wheel hub cover (for HL6, HL8)**



W40.10-A004-71

Item	Designation	Dimension
(1)	Diameter	230 mm
(2)	Hole circle radius	95 mm
(3)	Bore diameter	19 mm
(4)	Undercut depth ¹	5 mm
(5)	Undercut diameter	150 mm
(6)	Total thickness	14 mm

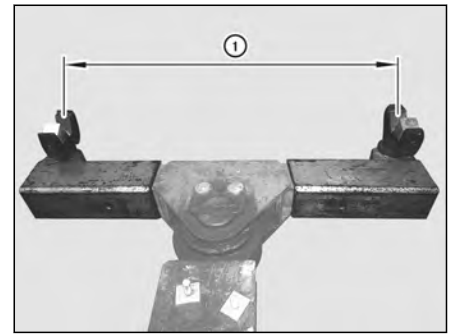
¹ An undercut is necessary because of the protruding axle tube; otherwise the cover will not lie flat.

Other wheel hub covers available from specialist dealers

Model	Axle load	Hole circle diameter	Bolts	Quantity	Undercut ¹
HL2	6.2 t	156 mm	M14x1.5	8	27 mm
HL2	8.5 t	164 mm	M14x1.5	8	27 mm
HL4	11 t	156 mm	M16x1.5	8	5 mm
HL6	13 t	150 mm	M18x1.5	10	5 mm
HL8	13 t	150 mm	M18x1.5	10	5 mm

¹ An undercut is necessary because of the protruding axle tube; otherwise the cover will not lie flat.

Yoke width extension

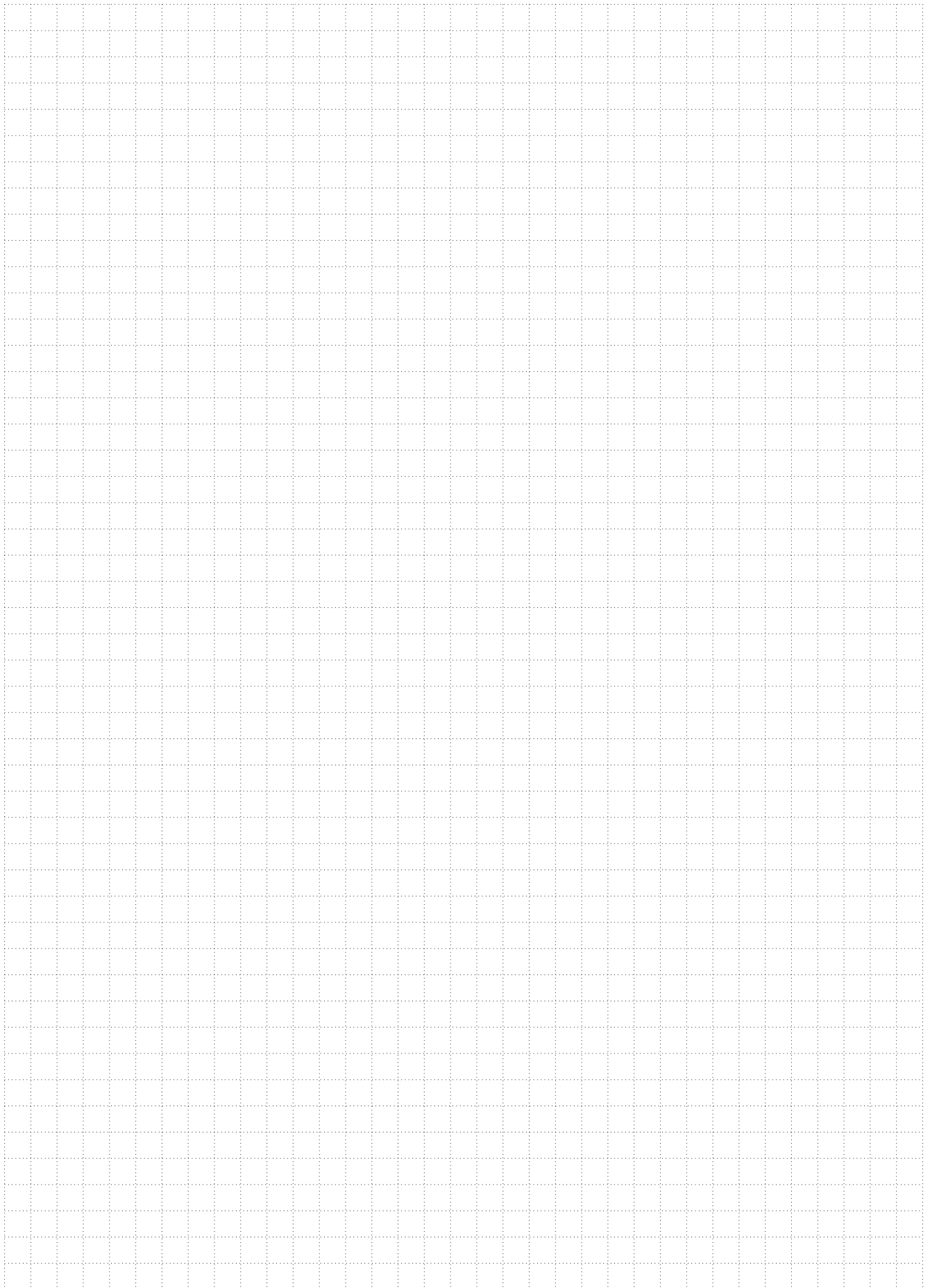


W58.50-A002-71

Item	Designation	Dimension
(1)	Spacing of drawbars	1170 mm

- **ABA**
Active Brake Assist
- **ABS**
Antilock brake system
- **ADR**
Accord européen relatif au transport international des marchandises Dangereuses par Route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
- **ASR**
Acceleration slip regulation
- **EAPU**
Electronic Air-Processing Unit
- **ESP®**
Electronic Stability Program

Area for notes

A large rectangular area filled with a grid of small, evenly spaced dotted lines, intended for handwritten notes.

