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Introduction

The user information documents supplied with each bus are intended for use only by those persons who are qualified to operate the bus. The user information is divided into the following parts:

- The Operating Instructions are designed to answer all important questions concerning the operation of chassis components.
- The Maintenance Record is our guide to the technical care of chassis components. It contains all the information on maintenance intervals and maintenance tasks as well as pages for confirming that the maintenance work has been carried out.

Please make sure that you read the “Safety” section before you operate the vehicle for the first time. Before the bus is driven, please make sure that you

have read and understood the contents of these Operating Instructions.

Our user information describes items of chassis equipment that form part of the standard specification. Items of optional equipment are also described, if their operation needs explanation. The vehicle delivered to you has been customised in accordance with your order. As a result, some of your vehicle's equipment may differ from the descriptions and illustrations in the user information documents. If the body manufacturer has modified any part of the chassis, the body manufacturer is responsible for providing the description of these modifications.

The Operating Instructions and the Maintenance Record are important documents and must always be carried in the bus.

Our buses are the subject of ongoing development. You are therefore asked to appreciate that we reserve the right to make modifications to the design, equipment and technical features. For

these reasons, no claims can be made based upon the contents of this user information.

Environmental protection:

The declared policy of EvoBus GmbH is one of integrated environmental protection. This policy starts at the root causes and encompasses in its management decisions all the consequences for the environment which could arise from production processes or the products themselves.

The objectives are for the natural resources which form the basis of our existence on this planet to be used sparingly and in a manner which takes the requirements of both nature and humanity into account. You, too, can help to protect the environment by operating the bus in an environmentally friendly manner. Fuel consumption and wear in the drive train (engine, clutch, transmission, axles, brakes, tyres) are extremely dependent on your driving style.

We hope you enjoy driving your bus.

EvoBus GmbH

Mercedes-Benz Omnibusse

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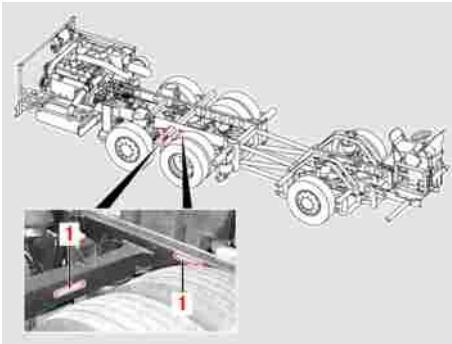
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Vehicle identification number (1) is stamped on the longitudinal frame member in the rear right wheel arch and on the cross member to the rear of the driven axle.



Note:

It is very important to identify the bus exactly so that the correct technical data can be applied.



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The use of symbols and their meanings

The use of symbols and their meanings

Safety precautions and other important instructions are highlighted by symbols.

In addition to the instructions listed in the contents, the safety and accident prevention regulations issued by German Employers' Liability Insurance Associations must be observed.

Instructions and information printed on the packaging for components, tools and service products must also be observed.

Where information and instructions are to be observed, it is assumed that the user information is intended for persons who are suitably qualified to carry out the tasks by nature of their education, training and experience.

These persons should, at the same time, be able to identify risks that may arise in the undertaking of their tasks and take the necessary measures to avoid them.

Meaning of symbols:



Note:

Notes about important additional information



Caution:

Warning notes about damage that may occur in the event of non-compliance



Danger.

Warning notes for risks to persons



Environmental protection

Notes about environmental protection measures

▷ Reference to more detailed and additional user information

Notes on vehicle safety

We recommend that you:

- Use only genuine parts that are OM-NIplus quality tested and conversion parts and accessories that have been expressly approved by EvoBus for the bus model concerned in order to rule out the possibility of jeopardising road safety and invalidating the warranty and general operating permit. These parts have been specially tested for their safety, reliability and suitability.

You can obtain further information from any EvoBus Service Partner.

Operating safety

- Any work or modifications that have been carried out on the chassis incorrectly may result in malfunctions.
- Tampering with electronic components and their software may cause malfunctions. As electronic components are networked, these malfunctions may also cause other, indirectly related systems to malfunction. These malfunctions may jeopardise the operating safety and reliability of the bus.
- Retrofitted electrical or electronic devices must possess type-approval complying with Directive 95/54/EC or ECE Directive 10/02.
- Materials that are fitted in the bus during the course of installation, conversion or modification work and that are subject to mandatory fire-testing requirements must also satisfy the conditions of EU Directive 95/28/EC.
- Materials and components in seats and seat fixtures that are also fitted in the bus during the course of installation, conversion or modification must also satisfy the following directives: 76/115/EEC as amended by 96/38/EC, 74/408/EEC as amended by 96/37/EC, 77/541/EEC as amended by 96/36/EC
- When such materials and components are purchased or installed, care shall be taken to ensure that they are appropriately certified. Use of materials and components that do not possess the certificate referred to above can result in the operating permit being invalidated.
- We recommend that you have any work or modifications carried out by an EvoBus Service Partner.

EU Directive 2001/85

Registration as class 1: city public service bus

- Vehicles constructed with areas for standing passengers, to allow frequent passenger movement

Registration as class 2: long-distance public service bus

- Principally for the carriage of seated passengers. Designed to allow the carriage of standing passengers in the gangway and/or in an area which does not exceed the space provided for two double seats.

Registration as class 3: tourist coach

- Exclusively for the carriage of seated passengers.

Important information for buses classified in accordance with EU Directive 2001/85 into class 2 and 3 (mixed approval):

- The operator of the bus is responsible for ensuring that the bus is restored to the condition consistent

Stickers

with the permissible type of operation of the class concerned.

- For instance, this means that, in the case of a bus being used in accordance with class 2, it is necessary to ensure that the bus is operated with seating having no aisle-side sideways adjustment.

Stickers

There are various warning stickers affixed to your bus. These are intended to make you and others aware of various dangers. Therefore, do not remove any warning stickers unless it is expressly stated on the sticker that you may do so.



Danger.

If you remove warning stickers, this could result in you or other persons failing to recognise dangers. You or others could be injured as a result.

Navigation and global positioning system

If your bus is equipped with a navigation system, please observe the following instructions and information:

- Please devote your attention primarily to road and traffic conditions.
- Do not operate the navigation and positioning system unless the bus is stationary. Please bear in mind that your bus will cover a distance of 14 metres every second at a speed of only 30 mph (50 km/h).
- The navigation system is unable to provide information about the maximum load-bearing capacity for bridges or the maximum permissible height for driving through underpasses. The driver is responsible for checking the load-bearing capacity of bridges and headroom clearances encountered en route.

Operation of the radio and mobile communications equipment

Operation of the radio and mobile communications equipment

(e.g. telephone, radio, fax machine, etc.)



Danger.

Risk of accident.

- Please devote your attention primarily to road and traffic conditions.
- Do not operate the display unit, radio or mobile communications equipment unless the traffic situation permits this to be done safely. Please bear in mind that your bus will cover a distance of 14 metres every second at a speed of only 30 mph (50 km/h).
- In the Federal Republic of Germany, section 23, paragraph 1a of the German road traffic regulations (StVO) prohibit a vehicle driver from using a mobile phone or an on-board telephone/intercom if this use involves lifting up or holding the mobile phone or the telephone/intercom handset.



Danger.

Please observe local legal requirements governing the use of mobile phones or on-board telephones/intercoms in force in the country of vehicle operation.

Operation of mobile phones and radio equipment without an exterior aerial

We advise against making or receiving telephone calls in buses not equipped with an exterior aerial as the operation of radio transmitters, which include but are not limited to radio telephones (mobile phones), may cause inadequately shielded equipment (cardiac pacemakers included) to malfunction.



Note:

If a mobile phone, radio system or fax machine is retrofitted in the bus in a manner that does not comply with EvoBus installation specifications, the operating permit for the bus could be invalidated (EU Directive 95/54/EC).

Definition of the sales designation



Note:

Older peripherals (e.g. ticket-printing machines, ticket-cancelling machines, destination displays, etc.) that are still used in new buses must comply with the technical requirements of EC Directive 72/245 EEC.



Danger.

Please observe local legal requirements governing the use of mobile phones or on-board telephones/intercoms in force in the country of vehicle operation.

Definition of the sales designation

e.g. OC 500 RF 1836

OC

- Abbreviation for Omnibus Chassis

500

- Series designation = 500

RF

- Abbreviation for Raised Floor (high decker)

18

- Rated gross weight in tons = 18 tons

36

- Approximate engine output in bhp/10, equates to approximately 360 bhp

Operation of auxiliary heating



Danger.

Risk of fire and burns. There is a risk of fires and burns due to the high exhaust temperatures and the hot exhaust pipe for the auxiliary heating. For this reason, do not stop or park the bus over ignitable materials (e.g. grass) when the auxiliary heating is in operation, has recently been in operation or has been operated by the instant heating button/preset timer.



Danger.

Risk of poisoning and asphyxiation. The auxiliary heating must not be used in enclosed spaces such as garages or workshops due to the risk of poisoning and asphyxiation. Timer and preselection mode are similarly prohibited.

**Danger.**

Risk of explosion. The auxiliary heating must be switched off at filling stations and fuel dispensing systems due to the risk of explosion.

**Danger.**

Risk of fire. The auxiliary heating must remain switched off in places where ignitable vapours or dust can accumulate (e.g. in the vicinity of filling stations, fuel depots, or coal, sawdust or grain stores or similar).

**Caution:**

The heater must be operated for 10 minutes at least once a month (also during the warm season) when the engine is cold.

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Preparation for the journey - daily tasks

Preparation for the journey - daily tasks

- ▶ Check the fuel level for the engine and auxiliary heating.



Danger.

Switch off the engine and auxiliary heating before refuelling.

- ▶ Check the AdBlue additive level in the BlueTec exhaust gas cleaning system.
- ▶ Insert the tachograph recording disc or the driver card.



Note:

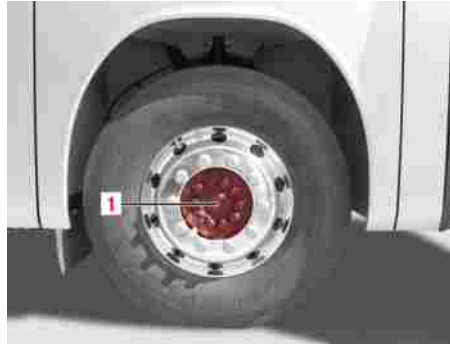
If the indicator lamp in the tachograph is lit, no disc or driver card has been inserted.

- ▶ Check tyre pressures and tyre condition (including the spare wheel). Check that the wheel nuts are firmly seated.



Note:

Refer to the “Practical advice” section.



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- ▶ Check wheel hubs (1) on all wheels for leaks inside and out (visual check).



Note:

If the wheel hubs are leaking, there may be grease or oil residue on the tyres themselves or deposits on the parking area on which the bus is standing. Consult an EvoBus Service Partner in the event of a leak.

Preparation for the journey - weekly tasks

Preparation for the journey - weekly tasks

- ▶ Check the coolant level in the cooling system and top it up if necessary. Check the corrosion inhibitor/anti-freeze concentration each time the coolant has been topped up and correct if necessary.

**Note:**

Refer to the “Practical advice” section.

- ▶ Check the oil level in the hydraulic steering system and top it up if necessary.

**Note:**

Refer to the “Practical advice” section.

- ▶ Check tyre pressures and tyre condition (including the spare wheel). Check that the wheel nuts are firmly seated.

**Note:**

Refer to the “Practical advice” section.

- ▶ Check the condition of all drive belts.
- ▶ Carry out a visual check to ensure there are no leaks in the engine, transmission, driven axle, steering or cooling system.
- ▶ Drain the fuel prefilter in the engine compartment.

**Note:**

Refer to the “Practical advice” section.

- ▶ Check the acid level in the starter batteries.

**Danger.**

Observe the safety precautions in the “Practical advice” section.

Scheduled maintenance tasks

Scheduled maintenance tasks

- ▶ Carry out the work specified in the Maintenance Record.



Caution:

Regular maintenance of the chassis and drive train is essential to maintaining the operating safety and roadworthiness of the bus. The time intervals and the scope of work required are specified in the Maintenance Record supplied with the bus.



Note:

Warranty claims based on our terms and conditions of sale and delivery may be rejected if the periodic maintenance tasks have not been carried out at the specified distances or times. Have confirmation of the completion of the work specified in the Maintenance Record recorded by an EvoBus Service Partner.

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Running in

- ▶ In order for the vehicle's expected service life, operating safety and reliability and economy of operation to be achieved and maintained, it is essential that the engine not be placed under full load during its running-in period.



Caution:

Running-in guideline: up to 1,200 miles (2,000 km) – run in with care. No higher than 3/4 of the maximum rpm for each gear. After 1,200 miles (2,000 km) – slowly increase to full speed.

Starting the engine



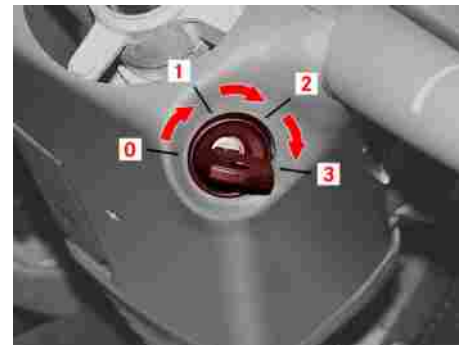
Note:

The parking brake must be applied. Transmission in neutral.



Caution:

Do not depress the clutch pedal while starting the engine.



M54_00-0083-01

- ▶ Turn the ignition starter switch to position 2.
During the display check, a warning buzzer sounds for approximately 1 second. The status indicator lights up yellow. All indicator lamps assigned to items of bus equipment light up for approximately 2 seconds in the instrument panel.
- ▶ Then turn the ignition starter switch to position 3 without depressing the accelerator pedal. If necessary, cancel the starting procedure after a maximum of 15 seconds and wait for

Starting the engine

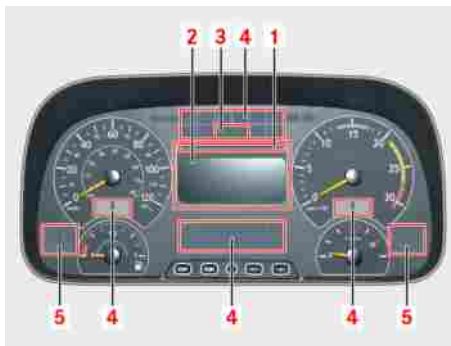
about 1 minute before repeating the starting procedure. Turn the key fully back before making a further attempt to start the engine.



Note:

After a maximum of 3 starting attempts, wait (about 15 minutes) before trying again.

- ▶ Release the key when the engine starts.



M54.00-1859-71

- ▶ Observe the instrument display panel: STOP lamp (3) must go out. The STOP lamp lights up if the engine oil pressure, the engine oil level or the compressed air in the supply system is too low or the engine temperature is too high.



Caution:

The operating safety of the engine is at risk if the STOP lamp does not go out. Switch off the engine immediately and determine the cause.



Danger.

If there is insufficient pressure in the compressed-air supply system, a warning signal sounds for 5 seconds and the STOP warning lamp does not go out until the required pressure has been reached. Do not release the parking brake until there is sufficient operating pressure.

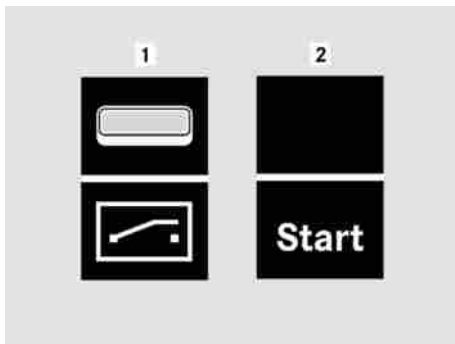
Starting the engine using the pushbutton (option)

Starting the engine using the pushbutton (option)



Note:

The parking brake must be applied.
Transmission in neutral.



M01_00-0100-01

- ▶ Press rocker switch (1) on the instrument panel.

During the display check, a warning buzzer sounds for approximately 1 second. The status indicator lights up yellow. All indicator lamps assigned to items of bus equipment

light up for approximately 2 seconds in the instrument panel.



Note:

All controls and display elements are supplied with power after the switch has been activated.

- ▶ Then press pushbutton (2) on the instrument panel. If necessary, cancel the starting procedure after a maximum of 15 seconds and wait for about 1 minute before repeating the starting procedure.



Note:

After a maximum of 3 starting attempts, wait (about 15 minutes) before trying again.

- ▶ Release pushbutton (2) when the engine starts.



M54.00-1859-71

- ▶ Observe the instrument panel: STOP lamp (3) must go out. The STOP lamp lights up if the engine oil pressure, the engine oil level or the compressed air in the supply system is too low or the engine temperature is too high.



Caution:

The operating safety of the engine is at risk if the STOP lamp does not go out. Switch off the engine immediately and determine the cause.



Danger.

If there is insufficient pressure in the compressed-air supply system, a warning signal sounds for 5 seconds and the STOP warning lamp does not go out until the required pressure has been reached. Do not release the parking brake until there is sufficient operating pressure.

Driving



Environmental protection

Never leave the engine to warm up with the bus stationary. Instead, drive off and operate the engine at moderate engine speeds.



Note:

The engine should not be placed under full load until it has reached normal operating temperature (75 - 90 °C, depending on operating conditions and the outside temperature).



Danger.

The freedom of movement of the pedals must not be restricted. The operating safety and roadworthiness of the bus would otherwise be at risk. Objects could fall and get caught between the pedals if you were to accelerate or brake suddenly, with the result that you would no longer be able to brake, depress the clutch ped-

al or accelerate. You could cause an accident and endanger yourself and others.

▷ For buses with automatic transmission (option), refer to the “Transmission shift systems” section.

▶ Check the freedom of movement of the pedals



Danger.

Where floor mats and carpets are fitted, make sure that these are safely secured against slipping and that the pedals have sufficient clearance.



Danger.

Do not stow any objects in the driver's footwell.



Danger.

Stow and secure all loose objects in such a way that they cannot get into the driver's footwell when the bus is in motion.

- ▶ Always pull away in 1st gear at 600 - 800 rpm.



Danger.

Test the service brake immediately after pulling away.

- ▶ Keep an eye on the rev counter while driving.



Note:

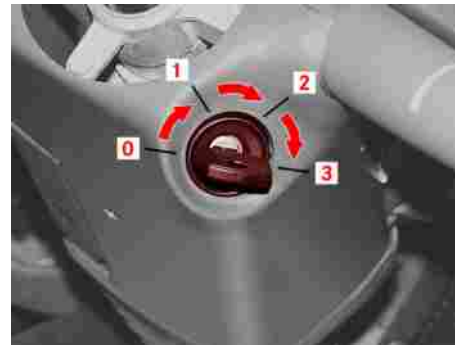
Keep within the economical range (green zone). Make sure that the engine speed does not enter the danger zone (red zone).



Danger.

Buses with manual transmission: If a warning buzzer sounds during a gearshift, the gear that you have attempted to engage is too low. In this event, be sure to keep the clutch pedal depressed and select a suitable gear for the current road speed.

Stopping the engine



M54_00-0083-01

- ▶ Stop the bus, select transmission neutral, apply the parking brake, turn the ignition starter switch from position 2 (drive position) back to position 1

Stopping the engine



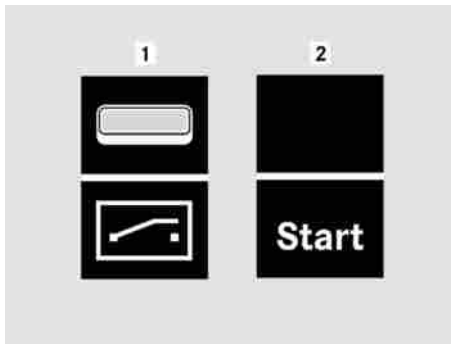
Caution:

Before you switch off the engine, allow it to continue running at idling speed for approximately 1-2 minutes (to allow the exhaust turbochargers to cool down if the coolant temperature is high or if you have been driving at full engine output (e.g. on hilly roads)).



Note:

Never park the bus with a gear engaged. If a gear is engaged and there is a loss of compressed air, it would no longer be possible to shift the transmission to neutral and, therefore, start the bus.



M01_00-0100-01

- ▶ If the bus is not equipped with a key switch (option), switch rocker switch (1) on the instrument panel to OFF.



Note:

The location of the switches is determined by the body manufacturer.



Note:

Whenever the switch is switched to OFF, all consumers and the engine are switched off.



Note:

To switch off, the driver has to slide the safety catch downwards and press the upper section of the switch at the same time.



Caution:

Before you switch off the engine, allow it to continue running at idling speed for approximately 1-2 minutes (to allow the exhaust turbochargers to cool down if the coolant temperature is high or if you have been driving at full engine output (e.g. on hilly roads)).

Towing the bus

**Danger.**

Observe the instructions and guidelines issued by the body manufacturer.

**Danger.**

Only authorised specialists (recovery service) are permitted to tow away broken-down buses. The rules and regulations in the country concerned must be observed.

**Danger.**

The ignition starter switch of the vehicle being towed must always remain in position 1 during the towing procedure. The steering lock must not be allowed to engage. Failure to comply with this guideline could result in the steering locking.

**Danger.**

In buses with the Electronic Stability Program (ESP), this function must be deactivated without exception

**Danger.**

During towing, it is prohibited to press the “Engine start pushbutton” (option) on the bus being towed.

**Danger.**

The ignition starter switch must not be switched to position 2 while the front axle is raised. The wheels on the driven axle may lock. Failure to comply could result in brake intervention by the ABS/ASR system, which could cause the rear axle to skid.

**Caution:**

Special measures are required in order to protect the transmission if the bus is to be towed: In the interests of safety, the propeller shaft must always be removed. The propeller shaft securing screws at the axle flange must be removed and those at the transmission flange secured against displacement. Failure to comply could result in irreparable damage to the transmission.

**Note:**

Before removal, secure the propeller shaft against dropping.

Tow-starting the bus

Tow-starting the bus



Danger.

Observe the instructions and guidelines issued by the body manufacturer.

- Tow-starting: only possible with manual transmission; vehicles with automatic transmission (option) cannot be tow-started.



Note:

The bus cannot be tow-started unless the batteries are fully charged (at least 21 V).



Caution:

Always tow-start the bus with the batteries connected. Turn the ignition starter switch to the drive position. Depress the clutch pedal fully. Select 2nd or 3rd gear. Have the towing vehicle pull away and then release the clutch pedal and depress the accelerator pedal until the engine starts.



Note:

Jump-starting - refer to the “Practical advice” section.

Refuelling (diesel fuel)

The bus has a two-tank system fitted between and to the front of the wheels on the front axle. The fuel tanks are interconnected by a fuel line. It may be possible (option) to refuel from either side of the bus. If the fuel tanks on your bus are interconnected, it is necessary to remove the fuel cap from each of the fuel tanks.

Use only diesel fuels compliant with EN 590 (refer to the Specifications for Service Products). Engines with BlueTec exhaust gas aftertreatment system must be run only on fuels having a fuel sulphur content of less than 50 ppm. In the cold season, use winter-grade diesel fuel (effective down to approximately -20 °C). If outside temperatures fall even further, the flow properties of the diesel fuel could deteriorate to an unusable level due to paraffin separation. As a preventive measure for this situation, it is permissible to add a specific amount of an approved flow improver proportionate to the outside temperature. Engine

output may be degraded in line with the amount of additive. The amount of additive should therefore be kept as low as possible under consideration of expected outside temperatures. Observe all relevant safety regulations.

Flow improvers are fuel additives that improve the flow characteristics of the fuel. Do not add flow improvers to winter diesel fuel rated as effective down to -22 °C. Flow improvers could have a negative impact on the cold flow characteristics of this fuel. In the case of summer diesel fuels or less cold-resistant winter diesel fuels, add an amount of flow improver appropriate to the expected outside temperature. Add the fuel additive to the diesel fuel well before the flow characteristics of the diesel fuel have been degraded as a result of paraffin separation. The only way to eliminate malfunctions that arise as a direct result of paraffin separation is to raise the temperature across the entire fuel system.

Switch off the engine and auxiliary heating before refuelling. Park the bus on a level surface.

Cleanliness is of utmost importance when refuelling. Do not leave cotton rags or cloths in the vicinity of the open filler neck.

**Danger.**

Risk of injury and explosion. Fuel is highly flammable. Fire, naked flames and smoking are therefore prohibited when fuel is being handled.

**Danger.**

Before refuelling, switch off the auxiliary heating to prevent fuel vapours from igniting on the auxiliary heating exhaust system.

**Danger.**

Fuel is toxic and harmful to health. For this reason, make sure that the fuel does not come into contact with skin, eyes or clothing, that you do not inhale fuel vapours and that children are kept away from the fuel.

**Danger.**

If you or others have come into contact with fuel: In case of contact with the eyes, rinse them immediately and copiously with clean water and seek medical attention. Clean affected areas of skin immediately with soap and water. Immediately change out of clothing that has come into contact with fuel. If fuel has been swallowed, seek medical attention immediately.

BlueTec exhaust gas cleaning system



Environmental protection

If handled improperly, fuels constitute a hazard to health and the environment. Fuels must not be allowed to enter the sewerage system, surface water, ground-water or soil.



Caution:

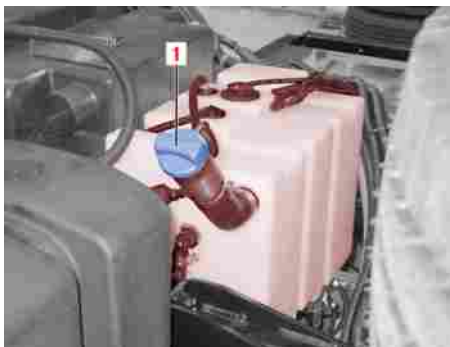
Biodiesel (FAME) may be used as an alternative to diesel fuel only in buses that have been approved for operation with biodiesel (FAME) ex works (custom requirement/code) or as a result of a conversion measure.



Caution:

The biodiesel (FAME) used must comply with EN 14214. The use of pure vegetable oils is not permitted.

BlueTec exhaust gas cleaning system



M47_00-0070-71

The BlueTec exhaust gas cleaning system essentially comprises a supply tank, a catalytic converter and an AdBlue metering system. It is monitored and controlled electronically. Pollutants in the exhaust gas are converted into environmentally friendly substances through a combination of the addition of AdBlue and the effect of the catalytic converter in the exhaust silencer.

The illustration shows filler opening (1) of the AdBlue supply tank.



Note:

AdBlue is consumed at a rate of approximately 5 % of the rate of diesel fuel consumption. For this reason, it is recommended that the AdBlue supply tank also be refilled at every regular refuelling stop.

To function correctly, the BlueTec exhaust gas cleaning system requires the addition of a reducing agent (AdBlue). The addition of AdBlue does not form part of the routine scope of bus maintenance – it is the responsibility of the vehicle operators to ensure that the AdBlue supply tank is regularly replenished. Filling and operating the bus with AdBlue is mandatory for compliance with emission regulations and is thus one of the conditions for the road traffic approval of the bus. The road traffic approval of the bus will be invalidated if the bus is operated without AdBlue. It would then be against the law to operate the bus on public roads. In some countries, operation of the bus without AdBlue may be considered to be a criminal offence or a

violation of administrative law punishable by fine. Support in the purchase or operation of the bus, e.g. tax relief, road tax, may also be invalidated retrospectively. This may be the case both in the country in which the vehicle is registered and in other countries in which the vehicle is operated.

**Danger.**

It is essential that work relevant to safety or work on safety-related systems be carried out at a qualified specialist workshop.

**Danger.**

Always have maintenance work carried out at a qualified specialist workshop which has the necessary knowledge and tools.

**Note:**

AdBlue freezes at a temperature of approximately $-11\text{ }^{\circ}\text{C}$. The bus is equipped with an AdBlue preheating system as standard. Winter operation is therefore guaranteed, even at temperatures of below $-11\text{ }^{\circ}\text{C}$.

**Environmental protection**

AdBlue is biologically degradable. Unless it is handled properly, however, AdBlue constitutes an environmental hazard. Do not allow AdBlue to enter the sewerage system, surface water, groundwater or soil in significant volumes.

**Danger. Risk of poisoning and injury.**

AdBlue is not considered a hazardous substance according to German regulations governing hazardous substances. Nevertheless, certain points should be observed when handling AdBlue.

The AdBlue line system and the related system components are pressurised while

the engine is warm. There is a risk of scalding from hot AdBlue spraying out if the line system is suddenly opened. There is also the risk of skin irritation or damage to the eyes if AdBlue comes into contact with the skin or eyes.

- Wear protective gloves
- Wear protective clothing
- Wear eye protection
- Work on the exhaust gas aftertreatment system should not be commenced until approximately 4 minutes have passed as individual lines continue to be flushed with compressed air even after the engine has been switched off.
- Turn the ignition switch to the OFF position and remove the key before work is carried out on the SCR system.
- Allow the AdBlue line system to cool down
- Open line connections and system component covers/caps slowly.
- Capture any AdBlue that escapes in a suitable container and dispose of

BlueTec exhaust gas cleaning system

it in an environmentally responsible manner.

- Do not pour AdBlue into drinks containers.
- Wipe up any spilled AdBlue, especially as there is a risk of slipping.
- AdBlue collected in this way must not be poured back into the AdBlue supply tank.
- If AdBlue comes into contact with the skin, rinse affected areas of skin copiously with clean water.
- Quickly change out of clothing that has come into contact with the substance.
- In case of contact with the eyes, rinse them immediately and copiously with clean water and seek medical attention if necessary.
- In cases where AdBlue enters the mouth or is swallowed, rinse the mouth with clean water then drink copious amounts of water.
- Seek medical attention if symptoms persist.



M54.00-1860-71

If the AdBlue service product reaches the reserve level, icon (1) appears on the display screen in conjunction with a yellow alert (2) to remind the driver that an AdBlue top-up is due. The AdBlue fill level can be seen on fuel gauge (3).

The driver is informed by an icon on the display screen (see illustration) in conjunction with a yellow level warning message if the AdBlue supply tank runs empty or if there is a malfunction in the BlueTec exhaust gas cleaning system. In addition, the exhaust gas cleaning system (SCR system) malfunction display flashes or lights up in the indicator lamp

panel. In this event, it is necessary to top up the AdBlue level immediately or remedy the fault.

AdBlue service product

AdBlue is a non-flammable, non-toxic, colourless, odourless, water-soluble liquid.

**Caution:**

Use only AdBlue compliant with DIN 70 070. Special additives are not permitted.

**Caution:**

If, during refilling, AdBlue is spilled on painted surfaces or aluminium surfaces, rinse down the surfaces concerned without delay.

AdBlue and high temperatures

**Note:**

Ammonia vapours may be released as a product of the decomposition of AdBlue if the content of the AdBlue tank is heated to over 50 °C for a lengthy period (e.g. as a consequence of direct sunlight).

**Note:**

Ammonia vapours have an acrid odour. For this reason, you should avoid inhaling any ammonia vapours that may escape when you remove the AdBlue filler cap. Ammonia vapours are neither toxic nor hazardous to health in this concentration.

AdBlue and low temperatures

**Note:**

AdBlue freezes at a temperature of approximately -11 °C. The bus is equipped with an AdBlue preheating system as standard. Winter operation is thus ensured, even at temperatures below -11 °C.

AdBlue additives

**Caution:**

Do not add any additives to AdBlue. Do not dilute AdBlue with tap water. Doing so could destroy the exhaust gas cleaning system. Damage to the exhaust gas cleaning system caused by additives/tap water will invalidate the warranty.

Storage

**Caution:**

Use only containers made from high-alloy CrNi steels or MoCrNi steels complying with EN10088-1/2/3 for the storage of AdBlue. Containers made of aluminium, copper, alloys containing copper and non-alloy or galvanised steels are not suitable for the storage of AdBlue. If stored in such containers, AdBlue could dissolve out constituents of these metals and destroy the exhaust gas cleaning system. The vehicle warranty will be invalidated if damage to the exhaust gas cleaning system is found to have been caused by constituents dissolved out of non-approved storage containers.

Filling with AdBlue

Disposal of AdBlue



Note:

Observe country-specific legislation and requirements governing the disposal of AdBlue.

AdBlue purity



Note:

It is prohibited to return to the tank any AdBlue that has been pumped out, e.g. during a repair, because the purity of the liquid would no longer be guaranteed.

Filling with AdBlue



Note:

An accidental filling of the AdBlue supply tank with diesel fuel and vice versa is prevented by various technical precautionary measures.



Note:

AdBlue is consumed at a rate of approximately 5 % of the rate of diesel fuel consumption. It is recommended that the AdBlue supply tank also be refilled at every regular refuelling stop.



Caution:

Use only AdBlue compliant with DIN 70 070. Special additives are not permitted.



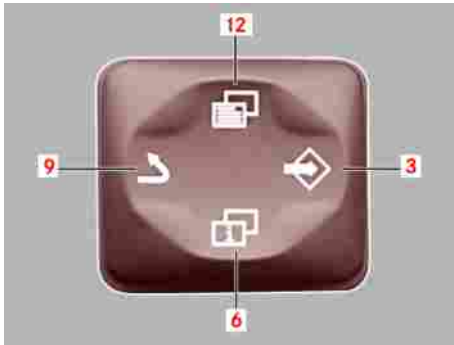
Caution:

If, during refilling, AdBlue is spilled on painted surfaces or aluminium surfaces, rinse down the surfaces concerned without delay.



Note:

AdBlue freezes at a temperature of approximately -11 °C. The bus is equipped with an AdBlue preheating system as standard. Winter operation is thus ensured, even at temperatures below -11 °C.



M54_30-0105-71

- ▶ Press button (12) of the control rocker switch repeatedly until the AdBlue display appears on the display screen.



M47_00-0073-71

- ▶ The AdBlue level is displayed as a percentage.



M47_00-0068-71

- ▶ If the AdBlue service product has reached the reserve level, this icon appears on the display screen in conjunction with the “RES and %” message to remind the driver to top up the AdBlue in the near future. “RES and %” flash alternately.



Note:

The driver has previously received a yellow alert.

Filling with AdBlue



M47_00-0069-71

- ▶ If the AdBlue supply tank runs empty, the driver is notified by an icon on the display screen (see illustration). In addition, the exhaust gas cleaning system (SCR system) malfunction display in the indicator lamp panel begins to flash. In this event, it is necessary to top up the AdBlue level immediately.



Note:

The driver has previously received a yellow alert.



Note:

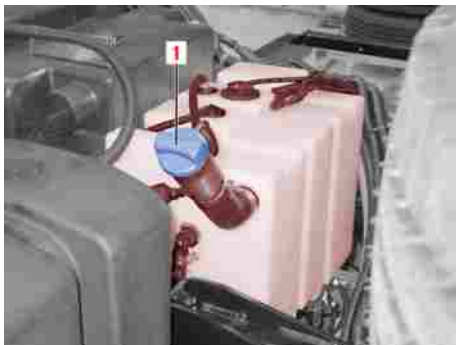
The exhaust gas cleaning system (SCR system) malfunction display in the indicator lamp panel lights up in the event of a malfunction in the BlueTec exhaust gas cleaning system.



M47_00-0071-71

- ▶ If no signal from the AdBlue supply tank is received, this icon is displayed with the “---%” message.

Operating/malfunction displays: fuel system



M47_00-0070-71

- ▶ Add AdBlue to supply tank (1).

i Note:

The AdBlue supply tank is located either on the right-hand side to the front of the front axle, in the centre to the front of the front axle, or above the trailing axle (in the centre above the transmission).

i Note:

An accidental filling of the AdBlue supply tank with diesel fuel and vice versa is prevented by various technical precautionary measures.

Operating/malfunction displays:
fuel system

Fuel reserve



Fuel level below approximately 14% of tank capacity

AdBlue level



If the AdBlue service product reaches the reserve level, this icon appears on the display screen in conjunction with a yellow alert to remind the driver that an AdBlue top-up is due.

Operating/malfunction displays: fuel system



Note:

The AdBlue level can be called up using the OBD (on-board diagnostics).

Exhaust gas cleaning malfunction



The malfunction indicator lamp lights up in the event of a malfunction in the exhaust gas cleaning system (SCR system).



Note:

The indicator lamp is located in the indicator lamp panel on the instrument display panel.



Danger.

Have the malfunction rectified by an EvoBus Service Partner immediately.

Fault in the exhaust gas cleaning system



The malfunction indicator lamp flashes in the event of a fault in the exhaust gas cleaning system (display if permissible NOx values exceeded, if NOx sensor fitted) or if the AdBlue supply tank runs empty. If the malfunction message was triggered by the AdBlue supply tank running empty, it is necessary to top up the AdBlue level immediately. If the AdBlue supply tank has run empty, the driver must have actively acknowledged the AdBlue level operating display (see above) at some time previously.



Note:

The indicator lamp is located in the indicator lamp panel on the instrument display panel.



Danger.

Have NOx faults rectified immediately by an EvoBus Service Partner.

Brake system safety precautions

Engine torque reduction (applicable only to buses with NOx sensor)



M54_30-0143-71

Engine torque is reduced to approximately 60 % in the event of a NOx fault (display if permissible NOx values exceeded). In this situation, a fault is also present in the exhaust gas cleaning system, i.e. the malfunction indicator lamp flashes and the red status indicator lights up. If the fault was caused by the AdBlue supply tank running empty, the AdBlue level operating display (see above) is also displayed. The AdBlue supply tank must be filled immediately.



Danger.

Have NOx faults rectified immediately by an EvoBus Service Partner.

Brake system safety precautions



Caution:

The braking characteristics of the bus may change if a yellow warning level malfunction in the brake system is displayed on the screen in the instrument cluster. Adopt a particularly cautious driving style. Have the malfunction rectified as soon as possible by an EvoBus Service Partner.



Danger.

The braking characteristics of the bus have changed if a red warning level malfunction in the brake system is displayed. Pedal travel may increase under braking. ABS has been disabled. Stop the bus immediately and disable it (traffic conditions permitting). Have the malfunction rectified by an EvoBus Service Partner immediately.

Braking and stopping

Braking and stopping

- ▶ Whenever the bus is driven over long downhill stretches, you should make use of the braking effect of the engine by shifting into a lower gear. Use the continuous brakes to relieve the load on the service brake.



Note:

Except for emergencies, the service brake does not usually need to be applied sharply.



Danger.

Always apply the parking brake before you disembark. On uphill and downhill gradients, you must also chock the wheels and turn the steering towards the kerb.

- ▶ Switch off the engine using the ignition starter switch

Brakes with anti-locking protection

- ▶ In the event of danger, the brake pedal should be fully depressed. This guarantees that all wheels are regulated and the bus decelerates optimally.
- ▶ On a slippery road surface, you should also declutch so that the braking effect of the engine cannot affect the ABS control intervention.



Note:

The retarder is deactivated automatically for the duration of an ABS control intervention.



Danger.

The anti-locking protection of ABS does not relieve the driver of the responsibility for adopting a driving style which takes traffic and road conditions into account. While the directional stability and steerability of the bus are improved under braking, ABS is not able to avert the consequences of, for example, driving at an

unsafe distance behind a vehicle in front or driving too fast through bends.



Danger.

If the bus is towing a trailer that does not have ABS, this trailer could be overbraked if the brakes were applied with maximum force. In this event, the driver must keep the trailer in view by checking the rear-view mirror. The bus equipped with ABS remains steerable, thereby enabling the driver to keep the entire vehicle combination stable.

Applying/releasing the parking brake

Applying/releasing the parking brake



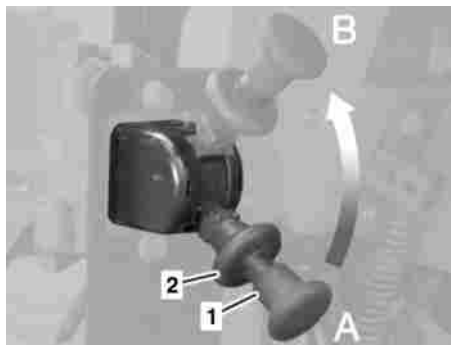
Note:

Precondition: operating pressure at least 5.8 bar to 6.4 bar



Danger.

Do not apply the parking brake unless the bus is stationary. Always apply the parking brake before you leave the driver's area. On uphill and downhill gradients, you must also chock the wheels and turn the steering towards the kerb.



M42_20-0003-01

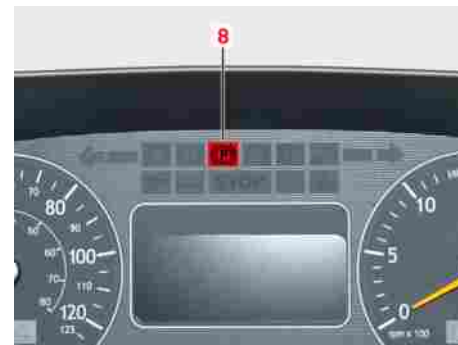
- Move parking brake lever (1) down into position A and engage it.



Danger.

Check the hand lever for full engagement. To do so, attempt to press the hand lever in direction "B" without pulling release ring (2) out of the detent position. The lever must not move.

The parking brake is applied (air venting noise can heard when it is operated).



M54.00-1862-71

- Indicator lamp (8) lights up.
 - Raise locking ring (2) and pull parking brake lever (1) upwards into position "B".
- The parking brake is released (air charging noise can be heard).

Emergency braking in the event of failure of both brake circuits



M54.00-1862-71

Indicator lamp (8) goes out.



Caution:

The supply pressure must be at least 6.4 bar to guarantee a faultless release of the parking brake. If parking brake indicator lamp (8) does not go out despite there being sufficient supply pressure, there is a fault in the spring actuator or the emergency release circuit. Have an EvoBus Service Partner inspect the brake system.



Note:

A continuous warning tone sounds if the ignition starter switch is switched to OFF while the parking brake is released.

Emergency braking in the event of failure of both brake circuits



Danger.

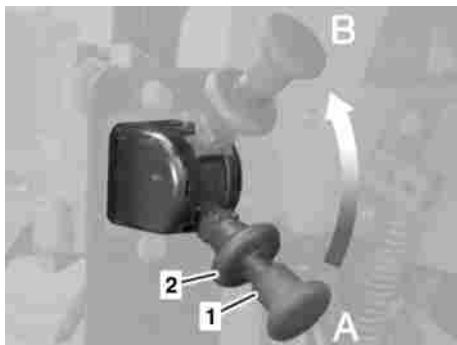
A failure in brake circuits 1 and 2 will jeopardise the operating safety and road-worthiness of the bus. Stop the vehicle immediately (traffic conditions permitting). Have the brake system checked by an EvoBus Service Partner immediately.



Note:

In the event of a failure in brake circuits 1 and 2, it is possible to initiate emergency braking using the parking brake lever.

Deactivating the Electronic Stability Program (ESP)



M42_20-0003-01

- ▶ Pull the hand lever gradually towards “A” and hold it in the desired position to prevent it from automatically returning to released position “B”.



Danger.

When performing emergency braking using the parking brake, make sure that the parking brake lever does not engage in the parking position. Hold the release ring (1.1) in the applied position.

The bus is braked at the rear wheels only.



Note:

Parking brake lever (1) can be moved rearwards to any position to enable the driver to prevent the rear wheels from locking and to moderate the braking effect.



Danger.

Risk of accident. Applying the parking brake deactivates the anti-lock braking system (ABS). You should exercise even more caution when driving on slippery roads because there is a risk that the rear wheels could lock.

Deactivating the Electronic Stability Program (ESP)



M42.00-0814-71

- ▶ Press ESP OFF pushbutton (1).



Note:

Pressing “ESP OFF” pushbutton (1) again or switching the ignition starter switch to OFF and back to ON reactivates the Electronic Stability Program (ESP).

Brake system (BS)



Danger.

Risk of accident. The bus may skid out of control if the Electronic Stability Program (ESP) has been deactivated and the drive wheels start to spin.



Note:

It is recommended that the Electronic Stability Program (ESP) be deactivated using ESP OFF pushbutton (1) in the event of traction problems when driving with snow chains fitted or over loose surfaces (e.g. sand or gravel).



The control functions of the dynamic drive control (FDR) and acceleration skid control (ASR) are disabled. The yellow ESP indicator lamp lights up.

Brake system (BS)



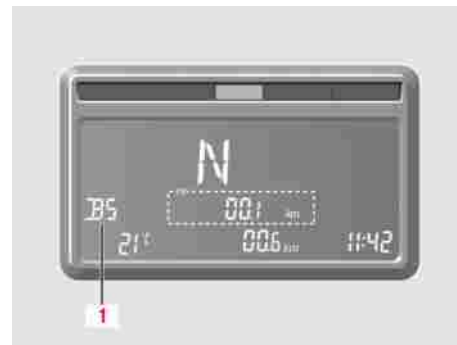
Note:

The electronic brake system (BS) manages the braking of the bus. The brake system (BS) combines the following integral functions: anti-lock braking system (ABS), acceleration skid control (ASR), Electronic Stability Program (ESP), drive-off lock and bus stop brake. The BS is designed to provide a faster braking effect at the wheel brakes, and optimum distribution of braking force to individual axles. It is possible to have the continuous brakes (engine brakes/retarder) activated automatically whenever the brake pedal is depressed (continuous brake integration).



Note:

ASR, ESP, drive-off lock, bus stop brake and continuous brake integration are optional functions.



M54_30-0120-71

- ▶ **Malfunction display:** A malfunction in the electronic brake system is indicated on the display screen by “BS” (1).



Danger.

The driving and braking characteristics of the bus may change. For yellow alert: Adopt a cautious driving style. Have the malfunction rectified by an EvoBus Service Partner. For red alert: Stop the bus at the earliest opportunity (traffic conditions permitting), notify an EvoBus Service Partner.

Anti-lock braking system (ABS)



Note:

The status lamp and, if applicable, the “ABS” indicator lamp in the indicator lamp panel light up red or yellow, depending on the fault severity.

- ▶ Each wheel is equipped with sensors that continuously record the rate of brake pad wear.



An overly worn brake pad is indicated on the display screen (refer to the “Operation” section).



Danger.

The driving and braking characteristics of the bus may change. Adopt a cautious driving style. Have the malfunction rectified by an EvoBus Service Partner.

Anti-lock braking system (ABS)



Note:

The anti-lock braking system (ABS) prevents the wheels from locking above a speed equivalent to walking pace, regardless of the road conditions.



Danger.

In the event of danger, the brake pedal should therefore be fully depressed. This ensures that all wheels are braked with ABS assistance and optimum deceleration is achieved. On a slippery road surface, you should also declutch so that the braking effect of the engine cannot affect the ABS control intervention.



Danger.

The anti-locking protection of ABS does not relieve the driver of the responsibility for adopting a driving style which takes traffic and road conditions into account. While the directional stability and steerability of the bus are improved un-

der braking, ABS is not able to avert the consequences of driving at an unsafe distance from the vehicle in front or driving too fast through corners.

- ▶ Function check: Switch the ignition starter switch to ON.



M54.00-1864-71

ABS indicator (3) lights up on the display screen for approximately 2 seconds.

Acceleration skid control (ASR) (option)



Danger.

The indicator must light up and go out after 2 seconds or immediately as soon as the bus pulls away. If the indicator does not go out, or if it lights up while the bus is in motion, neither ABS nor ASR are guaranteed to function correctly. Adopt a cautious driving style. Have the malfunction rectified by an EvoBus Service Partner.



M54.00-1865-71

- ▶ If the continuous brakes are active and one or both of the wheels on the rear axle threaten to lock, the continuous brakes will be deactivated automatically by ABS. However, “Continuous brake” indicator lamp (10) will remain lit if the continuous brake switch remains pressed in.

Acceleration skid control (ASR) (option)



Note:

Acceleration skid control (ASR) prevents the drive wheels from spinning when the bus pulls away or accelerates, regardless of the road conditions.



Danger.

Risk of accident. – Acceleration skid control (ASR) does not relieve the driver of the responsibility for adopting a driving style which takes traffic and road conditions into account. – The bus could skid if ASR has been switched off and the drive wheels start to spin.

Acceleration skid control (ASR) (option)



M54.00-1861-71

- ▶ Indicator lamp check: Switch the ignition starter switch to ON.
“ASR” indicator lamp (9) lights up and must go out after approximately 2 seconds.
- ▶ “ASR” is activated automatically if the drive wheels on one or both sides start to spin.
“ASR” indicator lamp (9) lights up.

- ▶ If the drive wheels on one side start to spin, they will be braked automatically.
- ▶ If the drive wheels on both sides start to spin, engine power output will be reduced automatically.



Note:

Drive/brake cruise control cannot be activated (or switched on). If cruise control was active at the time of the “ASR” intervention, it will be deactivated automatically and then reactivated as soon as the “ASR” intervention has taken place.

- ▶ ASR can be switched off manually: Press the “ASR” pushbutton.



Danger.

The bus could skid if “ASR” has been switched off and the drive wheels start to spin.



“ASR” indicator lamp (9) flashes.



M54.00-1861-71

- ▶ Press the “ASR” pushbutton again.
Driving with “ASR”, “ASR” indicator lamp (9) must go out.

Bus stop brake (option)



Note:

Acceleration skid control is reactivated automatically if the engine is switched off and on again.

Bus stop brake (option)

- ▶ The bus stop brake is activated when the relevant switch on the instrument panel is pressed.



Note:

The bus stop brake requires less compressed air than the parking brake. At bus stops, therefore, you should give priority to the use of the bus stop brake where possible.



Caution:

Do not operate unless the bus is stationary.



Danger.

Always apply the parking brake correctly before you leave the driver's area. Risk of accident. To park the bus, always apply the parking brake. If necessary (e.g. on steep uphill or downhill gradients), chock the wheels as an additional measure to prevent the bus from rolling away.



M54.00-1867-71

- ▶ Response on the bus when the bus stop brake is active:

Indicator lamp (14) lights up in the instrument display panel.

All wheel brakes are automatically braked with 2.0 bar compressed air.

Bus stop brake with drive-off lock (option)

Bus stop brake with drive-off lock (option)



Danger.

If the drive-off lock is not used as intended, the vehicle could roll away. This could result in an accident with serious or fatal injuries. Therefore: - Always apply the parking brake before you start/stop the engine or leave the driver's area. - Do not, under any circumstances, use the drive-off lock to park the bus or to secure the bus against rolling away. - Apply the parking brake whenever you come to a stop on a steep uphill or downhill gradient of more than 15 % or pull into a bus stop on a steep uphill or downhill gradient of more than 15 %.



Note:

The only difference between the “bus stop brake with drive-off lock” and the standalone “bus stop brake” is in the function range that each system has to offer. With the switch pressed in, the “bus stop brake with drive-off lock” system not only applies all wheel brakes but also inhibits idling speed increases associated with accelerator pedal operation.



Note:

The “bus stop brake with drive-off lock” may (depending on the body manufacturer) also be controlled by other components (e.g. doors or luggage compartment flaps).



Note:

Buses with a drive-off lock have an emergency release switch.



M54.00-1867-71

- ▶ The automatic bus stop brake is not deactivated until all activation conditions are no longer in effect (e.g. passenger doors no longer open) and the accelerator pedal is subsequently depressed.

Indicator lamp (14) must go out.

- ▶ “Emergency off” switch in conjunction with “automatic bus stop brake”.
- ▶ In emergencies (e.g. technical defect - bus stop brake cannot be deactivated), it is possible to deactivate the automatic bus stop brake using the emergency release switch. This

Brake system supply pressures

makes it possible to continue the journey but with certain function limitations.



Danger.

Make sure that the doors and all luggage compartment flaps are securely closed before you operate the emergency switch. Adopt a cautious driving style, and always apply the parking brake when the bus is stationary because it is no longer possible to activate the bus stop brake using the switch on the instrument panel. Have the fault rectified by an EvoBus Service Partner as soon as possible.



Operation: Raise the switch cover and pull up the yellow pin. To reset the switch: Press the yellow pin in. Close the switch cover.

Brake system supply pressures



Note:

To ensure maximum operating safety and reliability, the supply pressures in the individual compressed-air circuits for the brake system (10 bar) and auxiliary consumers (8.5 bar) must be charged to an appropriate level. The auxiliary consumers circuit will not be charged until brake circuits 1 and 2 have been charged. The supply pressure required for the service brake is 10 bar.



M54.00-1863-71

- ▶ The brake circuit with the lower supply pressure is automatically indicated by indicator lamp (1) or (2). Display (3) is the pressure reading for this brake circuit.

Brake system supply pressures



M54.00-1866-71

If the supply pressure in brake circuit 1 or 2 drops below 6.8 bar or if the pressure in the parking brake circuit drops below 5.5 bar, a red alert appears and the STOP lamp and brake failure indicator lamp (5) light up.



Danger.

Stop the vehicle immediately (traffic conditions permitting). Have the brake system inspected by an EvoBus Service Partner.



Danger.

There is a sensor fault if no warning is displayed on the display screen and there is no pressure reading on the pressure gauge. Stop the vehicle immediately (traffic conditions permitting). Have the brake system inspected by an EvoBus Service Partner.

- ▶ In the event of high compressed-air consumption (e.g. raising/lowering system in effect and bus manoeuvring), stop driving until the indicator lamp has gone out. The malfunction warning is not cleared until the pressure has risen back above 7.2 bar.
- ▶ Indicator lamp (5) lights up if the supply pressure in the auxiliary consumers circuit (option) drops below 5.5 bar.



Danger.

Malfunctions may occur in the air suspension system, door system or clutch mechanism. Adopt a cautious driving style. Have the compressed-air system checked immediately by an EvoBus Service Partner.



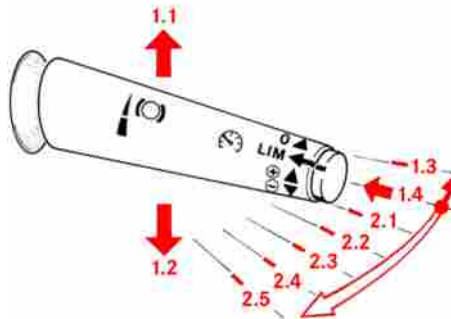
Continuous brakes operating information

Continuous brakes operating information



Note:

Continuous brakes: The bus is equipped with engine brakes (wear-free auxiliary brakes) and a retarder (option). The continuous brakes are activated on demand using the “combination switch for continuous brakes and cruise control” (refer to the “Driver’s area controls” section). It is also possible to have the continuous brakes activated automatically whenever the brake pedal is depressed (continuous brake integration) (option).



M54_00-0082-01

- ▶ The continuous brakes are activated with the combination switch in position 2.1 - 2.2 (2.1 - 2.5) (depending on the version).



M54.00-1865-71

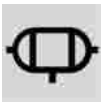
- ▶ “Continuous brake” indicator lamp (10) lights up when the continuous brakes are activated.



Caution:

Do not activate the retarder if the “continuous brake” indicator lamp lights up with the lever in position “0”. Have the malfunction checked by an EvoBus Service Partner.

Continuous brakes operating information



This display symbol may also be shown.

- ▶ Two different engine braking stages are available. (Exhaust flap and constantly open throttle.) The effect of the engine brake is dependent on the engine speed (high engine speed = high engine braking output). The engine brake is effective only at engine speeds above 900 rpm and is available up to an engine speed of approximately 2,300 rpm. Keep an eye on the optimum operating range for the engine brakes (yellow zone) in the rev counter.

i Note:

How the engine braking stages are controlled (from lever position 1) is determined by the drive control system under consideration of various factors.



M54.00-1865-71

- ▶ Retarder (option) with manual transmission: 4 braking stages are available (from switch position 2.2).



Caution:

Only ever move the combination switch through one stage at a time when attempting to achieve the necessary braking torque (do not jerk it directly to the required position). Except in an emergency, it is prohibited to force the combination switch directly to the required position in one action. However, it is acceptable to skip several stages at once if you are reducing the braking torque.



Note:

Preconditions for retarder operation: - accelerator pedal fully released; - bus travelling faster than 10 mph (15 km/h).



Note:

For the optimum braking torque to be achieved, the engine should be turning within its upper speed range so that the coolant does not overheat.

- ▶ Retarder protection function: The braking effect of the retarder is automatically reduced in line with a specified coolant temperature characteristic curve and is reduced to zero at a coolant temperature of over 115 °C.



The “Retarder temperature” display appears on the display screen and

Continuous brakes operating information

“Continuous brake” indicator lamp (10) flashes.



Danger.

The retarder's braking effect is reduced or may even be deactivated. Reduce bus speed, shift down and keep the speed of the bus constant by making use of the braking effect of the engine.

- ▶ The retarder is automatically deactivated in response to: - accelerator pedal depressed; - ABS control intervention.



Danger.

Retarder braking torque is reduced to zero.



Danger.

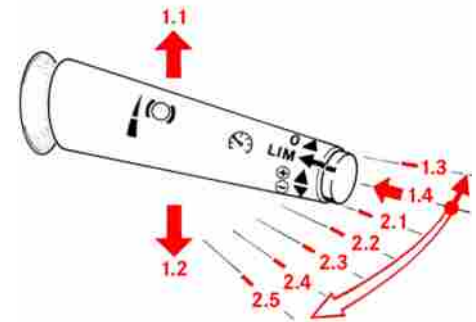
If an ABS fault alert is displayed, the retarder will not be deactivated in the event of an ABS control intervention - risk of skidding.

- ▶ The “Retarder cannot be deactivated” display appears on the display screen if the retarder can no longer be deactivated.



Danger.

Risk of accident. Adopt a particularly cautious driving style. Do not continue to use the retarder. Have the malfunction rectified by an EvoBus Service Partner.



M54_00-0082-01

- ▶ Retarder (option) with automatic transmission: 3 braking stages are available (from switch position 2.3).



Note:

Preconditions for retarder operation: - accelerator pedal fully released; - forward drive range (1-D) selected; - bus travelling faster than 2 mph (3 km/h).

Displaying the engine operating hours



Note:

Whenever the retarder is active, the transmission is prevented from shifting into the next gear up (upshift inhibitor).



Danger.

If the accelerator pedal is depressed while the continuous brakes are active, the continuous brakes are deactivated and the upshift inhibitor is cancelled.



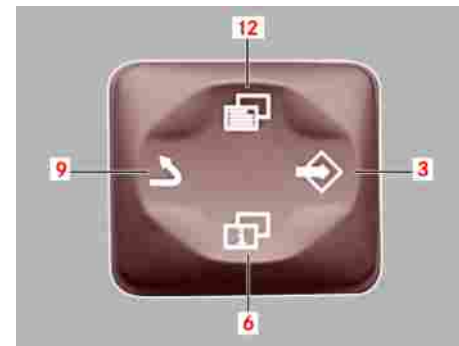
The braking effect of the retarder is automatically reduced in line with a specified oil temperature characteristic curve.



Danger.

The braking output is reduced.

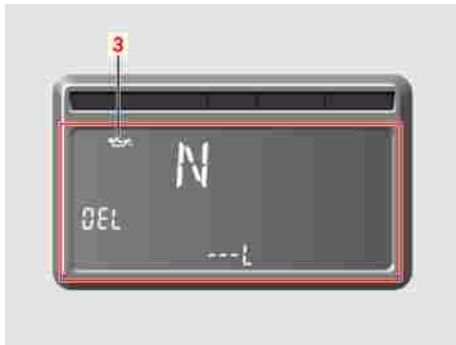
Displaying the engine operating hours



M54_30-0105-71

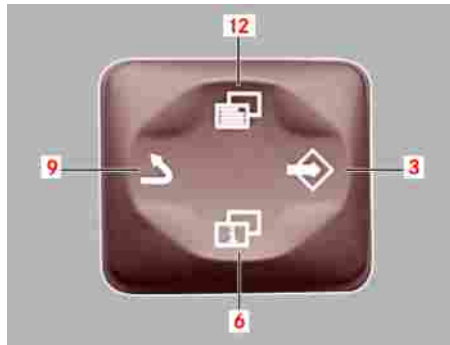
- ▶ Press button (12) of the control rocker switch repeatedly until the “OEL” (OIL) oil level menu appears on the display screen.

Displaying the engine operating hours



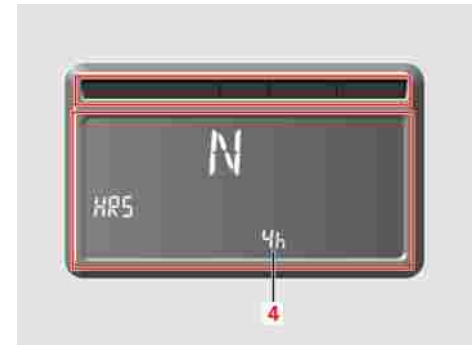
M54_30-0170-71

- ▶ Oil level menu with oil level symbol (3).



M54_30-0105-71

- ▶ Press button (6) of the control rocker switch



M54_30-0171-71

- ▶ Engine operating hours (4) are displayed.



Note:

For more details about the control rocker switch, refer to the “On-board computer control rocker switch” section.

Care and cleaning

**Note:**

Observe the laws and regulations in all countries concerned.

**Danger.**

Risk of injury. Observe the safety regulations when working on the bus (e.g. operational instructions, environmental laws and regulations, work safety and accident prevention regulations, etc.).

**Danger.**

Risk of poisoning. Observe the instructions for use of the care and cleaning products.

**Danger.**

Risk of poisoning. Always keep care and cleaning products sealed and out of the reach of children.

**Danger.**

Risk of poisoning. Diesel, regular and premium-grade fuels are harmful to health. They should not be used as a cleaning product.

**Danger.**

Risk of fire. Diesel, regular and premium-grade fuels are highly flammable. They should not be used as a cleaning product.

**Danger.**

Do not use round-spray jets to clean tyres or suspension air bags. The pulsating jet of water could cause concealed damage to the tyre substructure or suspension air bags. This damage would not become

apparent until much later and could cause the tyre or suspension air bag to burst. This could result in you losing control of your bus and causing an accident, thereby injuring yourself and other people.

**Caution:**

We recommend that only tested and approved care products should be used. Information about acceptable care products can be obtained from your EvoBus Service Partner.

**Caution:**

For cleaning work in the engine compartment, the use of cleaning agents containing acetone or chloroethylene is prohibited.

Care/cleaning of light-alloy wheels



Caution:

Stone chips and areas of soiling, especially insect remains, bird droppings, tree resins, oils and greases, fuels or tar stains should be removed immediately using approved care products.



Caution:

The bus must be cleaned more frequently in winter to remove salt residues from road gritting.



Environmental protection

Dispose of empty containers, cleaning cloths and polishing wads in an environmentally responsible manner.

Care/cleaning of light-alloy wheels



Danger.

Observe the general information/safety precautions in this section.



Note:

It is advisable to clean the light-alloy wheels regularly to maintain their value. Carry out basic cleaning more regularly if necessary, depending on use and the level of dirt.

- ▶ Clean the light-alloy wheels regularly with warm water (preferably with a high-pressure cleaner) and a soft sponge.



Danger.

Do not use round-spray jets for cleaning tyres. The pulsating jet of water could cause concealed damage to the tyre substructure. Damage to the tyre substructure would not become apparent until much later and could cause the tyre to burst. This could result in you losing control of your bus and causing an accident, thereby injuring yourself and other people.

- ▶ For heavy soiling, use a cleaner for light-alloy wheels.



Note:

Alcoa Dura-Bright® wheels need only soap and water to retain their sheen. These wheels should not be polished using a standard polish such as ALpolish.

**Caution:**

We recommend that only tested and approved care products should be used. Information about acceptable care products can be obtained from your EvoBus Service Partner.

**Caution:**

Do not use acidic or alkaline cleaners. They can cause corrosion to the wheel bolts (wheel nuts) or the retaining springs of the balance weights.

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MTCO tachograph	72
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Instrument display panel

Instrument display panel



Caution:

A warning buzzer sounds if the maximum permissible engine speed is exceeded. The engine quietens after the maximum permissible engine speed has been exceeded. For this reason, you should not judge how to drive or change gear by ear but by the display in rev counter (5). Avoid overrevving in the red danger zone. There is a risk of engine damage.

Instrument display panel

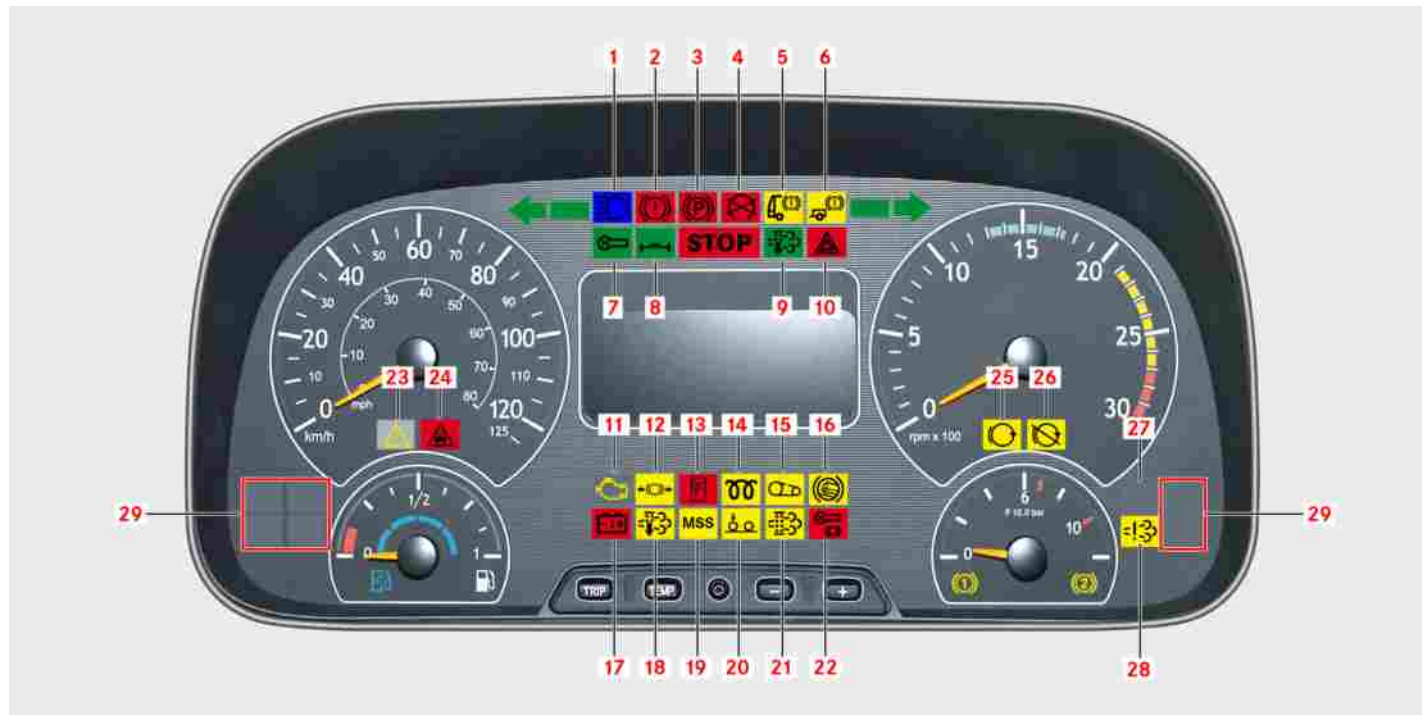


No.	Description	Page
1	Red/yellow malfunction lamp	
2	Display screen	
3	Turn signals/hazard warning lamps	
4	Brake circuit 1 and 2 supply pressure	
5	Engine speed display	
6	Supply pressure gauge for brake circuit 1 or brake circuit 2	
7	Red STOP warning lamp	
8	Fuel level and Ad-Blue gauge	
9	Speedometer	
10	Instrument lighting dimmer	

No.	Description	Page
11	Reset button	
12	Outside temperature/coolant temperature toggle button	
13	Reset trip meter to "0"	
14	Indicator lamp panel	

Warning and indicator lamps

Warning and indicator lamps



Warning and indicator lamps

No.	Description	Page
1	Main-beam indicator lamp	
2	Brake failure indicator lamp	
3	Parking brake indicator lamp	
4	Engine protection indicator lamp	
5	ABS indicator lamp	
6	Trailer ABS indicator lamp (option)	
7	Stop request indication display	
8	Indicator lamp for centring of the auxiliary steering (3-axle buses only)	

No.	Description	Page
9	DPF cleaning indicator lamp (diesel particulate filter)	
10	Hazard warning lamps indicator lamp	
11		
12	ESP indicator lamp	
13	Indicator lamp for fire in engine compartment (option)	
14	Flame-start system indicator lamp (option)	
15	Indicator lamp for V-belt break (option)	
16	Hillholder indicator lamp	

No.	Description	Page
17	Alternator 1 indicator lamp	
18	DPF cleaning indicator lamp (diesel particulate filter)	
19	MSS function (automatic engine start-stop) indicator lamp (option)	
20	Pull-away aid indicator lamp (option)	
21	DPF status lamp (diesel particulate filter)	
22	Bus stop brake indicator lamp	
23	ESP indicator lamp	

On-board computer

No.	Description	Page
24	Distance warning indicator lamp	
25	Continuous brake indicator lamp	
26	Continuous brake malfunction	
27	Not assigned	
28	Diesel particulate filter indicator lamp (DPF): manual regeneration	
29	Additional indicator lamps (option)	

On-board computer



Note:

Using control rocker switch (2) and the button console on instrument panel (4), it is possible to call up and view displays and bus information on on-board computer display screen (1) and make changes to settings.



Danger.

Operating the on-board computer while the bus is in motion distracts your attention from the situation on the road. You could lose control of the bus and thereby cause an accident. For this reason, do not operate the on-board computer unless the bus is stationary and the parking brake is applied.



Note:

The on-board computer is active whenever the key is in the drive position in the ignition lock.

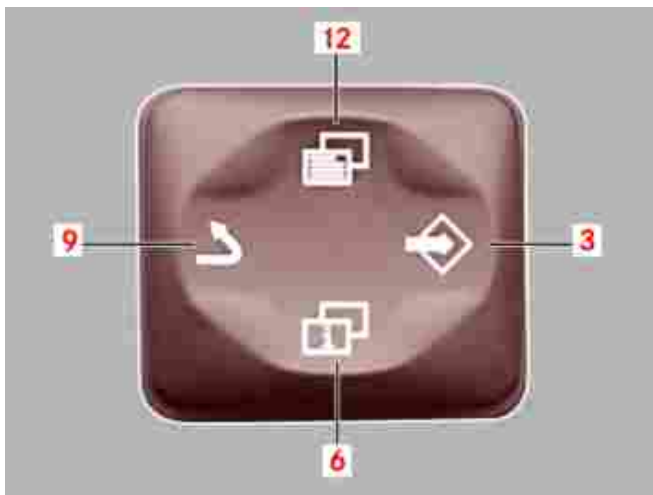
On-board computer



No.	Description	Page
1	Display screen	
2	On-board computer control rocker switch	68
4	Button console	

On-board computer control rocker switch

On-board computer control rocker switch

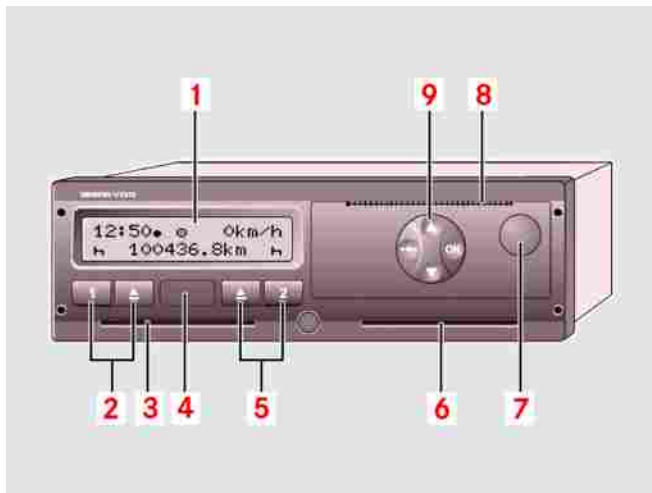


This control rocker switch is used to control the on-board computer, e.g. to call up displays or change settings.

- 12 Scroll
- 3 Adjustment
- 6 Info
- 9 Back

DTCO tachograph

DTCO tachograph



1 Display screen: Screen displays vary according to the operating state of the bus.

▷ refer to “Display variants” in the manufacturer's operating instructions.

2 Key panel, driver 1



Note:

Activity button, driver 1/card slot ejector button, driver 1

3 Card slot, driver 1: Driver 1, the current driver of the bus, inserts his driver card into card slot 1.

4 Download/calibration interface: There is an interface under the cover. This interface cannot be enabled without an inserted company card, control card or workshop card.

▷ For details, refer to “Access rights for tachograph cards” in the manufacturer's operating instructions.

5 Key panel, driver 2



Note:

Activity button, driver 2/card slot ejector button, driver 2

6 Card slot, driver 2: Driver 2, who is not currently driving the bus, inserts his driver card into card slot 2.

7 Printer drawer release button: This button is used to release the printer drawer, for example, for inserting a new roll of paper.

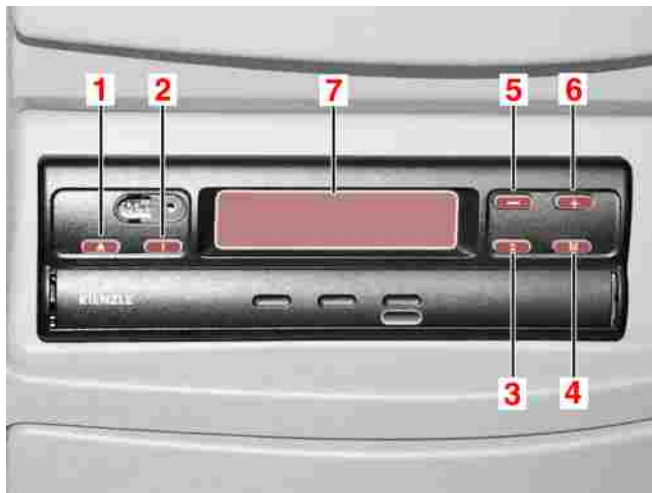
8 Tear-off edge

9 Menu buttons: Buttons for entering, displaying or printing data.

▷ Refer to “Calling up menu functions” in the manufacturer's operating instructions.

MTCO tachograph

MTCO tachograph



- 1 Button for opening the recording sheet tray: Driver 1 inserts his labelled recording sheet into the recording sheet tray and on top of the partition plate with the front side of the sheet facing upwards. Driver 2 inserts his labelled recording sheet into the recording sheet tray and underneath the partition plate with the front side of the sheet facing upwards. The recording sheets must be swapped over whenever the drivers change over.
- 2 Button for setting the required time group for driver 1: Press and hold the button until the required time group appears on the display screen.
- 3 Button for setting the required time group for driver 2: Press and hold the button until the required time group appears on the display screen.
- 4 Menu selection button: Various selection menus are available (refer to the manufacturer's operating instructions).
- 5 Button (-): : Move back within the menu
- 6 Button (+): : Move forward within the menu
- 7 Display screen (illuminated when ignition starter switch ON): The basic display (date, time and total distance) appears if there are no fault alerts. If the tachograph detects a fault, this is indicated on the display screen by a flashing 4-digit fault code. The function check in the tachograph lights up simultaneously. The faults below can be corrected by the operator:
 - ▷ If other fault codes are displayed: Visit your nearest Mercedes-Benz service partner and have the fault rectified.

**Note:**

Always use the appropriate recording sheets (refer to the manufacturer's operating instructions).

**Note:**

8000 = driving without a recording sheet

Vehicle tool kit and emergency equipment (option)



Note:

8100 = recording sheet for driver 1 not inserted



Note:

8200 = recording sheet for driver 2 not inserted



Note:

8300 = the time on the recording sheet tray does not correspond to the time on the display screen (e.g. after a power interruption or time adjustment). Fault elimination: - remove both recording sheets; close the recording sheet tray minus the recording sheets; the time on the display screen and the recording sheet tray are (audibly) synchronised; - open the recording sheet tray and reinsert the recording sheets.

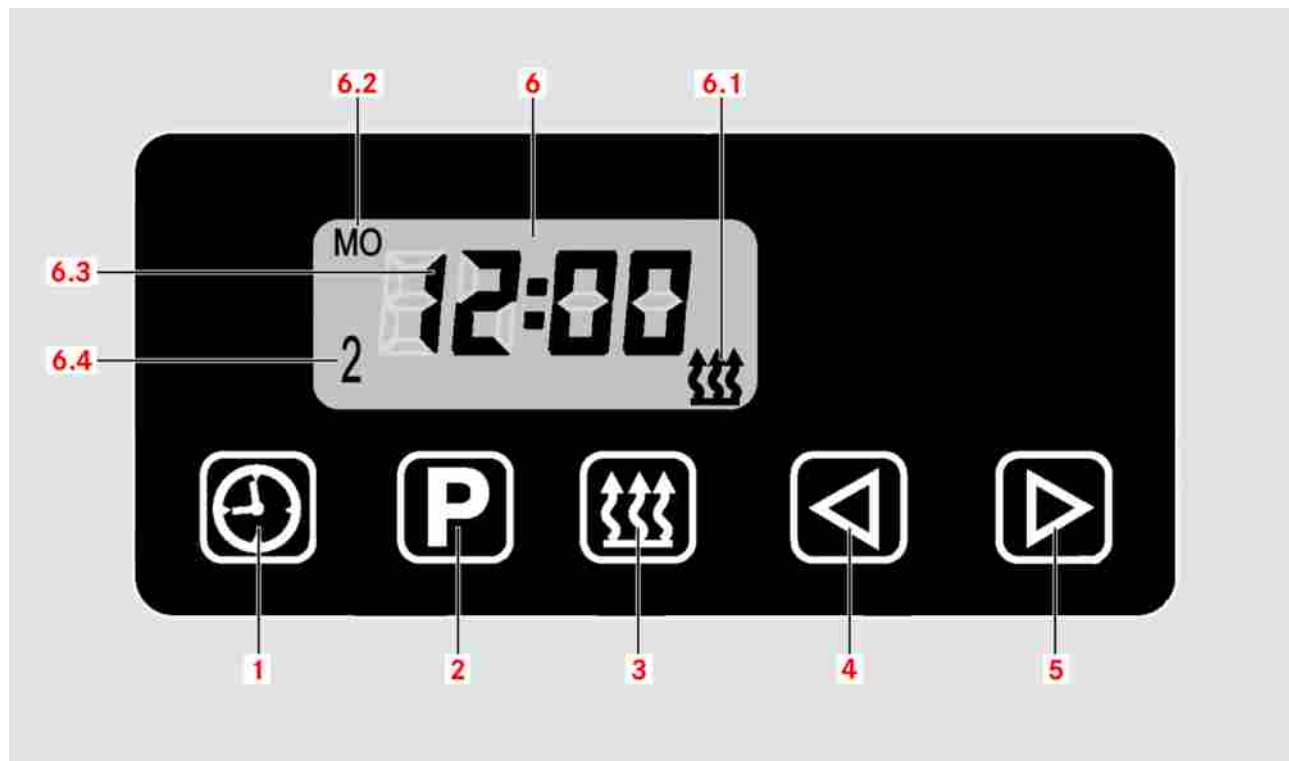
Vehicle tool kit and emergency equipment (option)

Scope of tools and emergency equipment:

- Warning triangle
- Ramp
- Hydraulic jack 10 t maximal load with base board and pump lever, including manufacturer's instructions (which must be observed during use).
- Wheel chock
- WAF 32 socket spanner; spanner and extension
- Retainer for towing pin
- Tool box (with tyre inflation hose, torch, open-ended spanner set, screwdriver set, pliers)

Auxiliary heating preset timer (option)

Auxiliary heating preset timer
(option)



▷ For notes on safety and operation, refer to the “Heating/ventilation/air-conditioning” section

- 1 Time button
- 2 Program selection
- 3 Instant heating
- 4 Back
- 5 Forward
- 6 Screen display
- 6.1 Operating display
- 6.2 Weekday
- 6.3 Time display
- 6.4 Storage location

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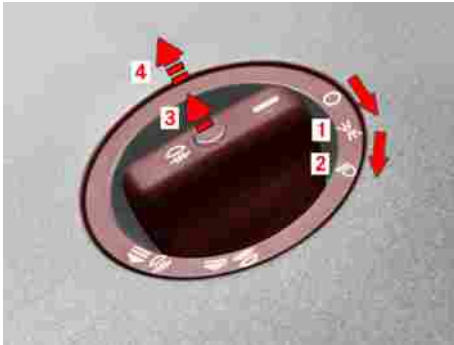
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Rotary light switch

Rotary light switch

combines the following functions:



M54_00-0068-01

- 0 Switched off
- 1 Side lamps
- 2 Headlamps Dipped-beam headlamps/main-beam headlamps (depending on combination switch position) with the ignition starter switch in position 2 (drive position)

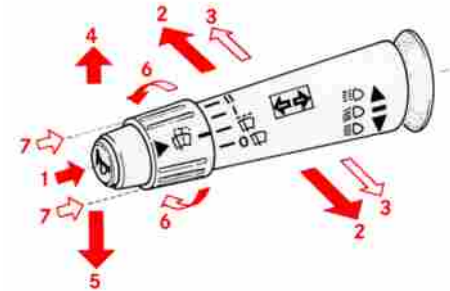


Note:

In countries where traffic drives on the other side of the road to that in the country where the vehicle was registered, there is a risk of oncoming traffic being dazzled by the asymmetrical dipped-beam headlamps. When driving in these countries, observe country-specific regulations (mask headlamps if necessary).

- 3 Front foglamps (pull switch to 1st detent). In addition to the side lamps, dipped-beam headlamps or main-beam headlamps if the ignition starter switch has been switched to ON
- 4 Rear foglamp (pull switch to 2nd detent). In addition to the front foglamps. The indicator lamp in the rotary light switch lights up.

Combination switch for lights and wiper functions



M54_00-0081-01

- 1 Horn: Press button
- 2 Indicate left and right with automatic reset: Press the switch stalk beyond the pressure point until it engages in position
- 3 Lane change: Push the switch stalk to the stop, hold it there and release it - the stalk returns to the centre position
- 4 Headlamp flasher: Pull the stalk upwards

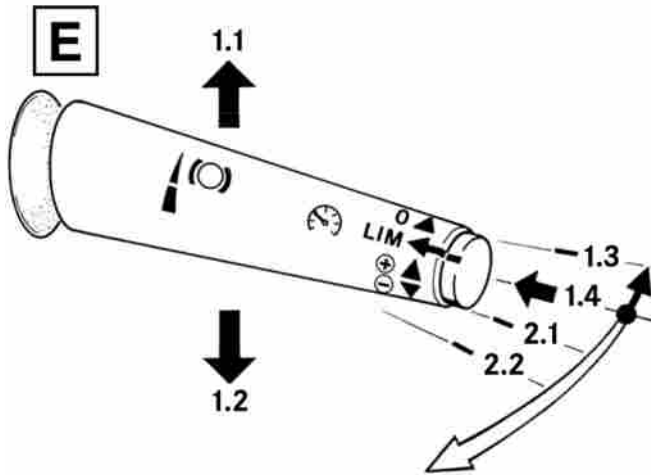
Combination switch for lights and wiper functions

- 5 Main-beam and dipped-beam headlamps: Lever up = dipped-beam, lever down = main-beam headlamps in both positions until engagement
- 6 Windscreen wipers: Turn the sleeve on the switch stalk: speed 0 = off, speed INT = intermittent, speed I = normal, speed II = rapid
- 7 Wipe and wash: Press the sleeve on the switch stalk inwards towards the steering column. With windscreen wipers switched off = windscreen wipe and wash

Driver's area controls

2-stage combination switch for continuous brakes and cruise control in buses with manual transmission ...

2-stage combination switch for continuous brakes and cruise control in buses with manual transmission but without retarder



2-stage combination switch for continuous brakes and cruise control in buses with manual transmission ...



Note:

The following functions can be activated using the combination switch:



Note:

Operation of continuous brakes (exhaust flap, constantly open throttle)



Note:

Drive cruise control (constant speed by means of engine control) (option)



Note:

Variable speed limiter (Temposet - limitation of maximum speed) (option)

Continuous brakes

To activate the continuous brakes: The continuous brakes cannot be activated unless: - the accelerator pedal is fully released and the bus is travelling faster than 10 mph (15 km/h).

2.1 Engine brake flap active or engine brake flap and constantly open throttle active.



Note:

In this switch position, either the engine brake flap alone is active, or both the engine brake flap and the constantly open throttle are active, depending on various factors (e.g. road speed, engine speed).

2.2 Engine brake flap and constantly open throttle active.



Danger.

As long as ABS is fully functional, an activated continuous brake is deactivated automatically if one or both of the wheels on the driven axle threatens to lock. Do not operate the continuous brakes if an ABS fault alert appears on the display screen. Risk of skidding. There would be no automatic deactivation of the continuous brakes.



Note:

It is also possible to have the continuous brakes activated automatically by the "continuous brake integration" function whenever the brake pedal is depressed (refer to the "Driver's area controls" section).

2-stage combination switch for continuous brakes and cruise control in buses with manual transmission ...



Note:

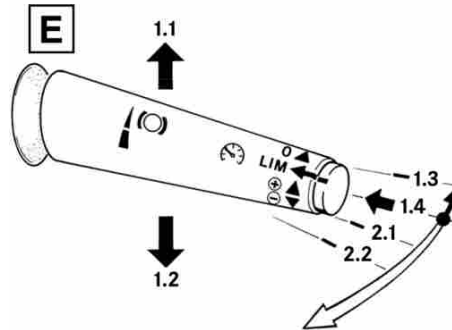
The engine speed should be in the yellow range of the rev counter if optimum braking torque is to be achieved.



Danger.

If the accelerator pedal is operated while the continuous brakes are active, the continuous brakes are deactivated and braking output is reduced to zero.

Drive cruise control (option)



M54_00-0757-01

To activate drive cruise control: Precondition: bus travelling faster than 10 mph (15 km/h). The clutch and service brake pedals must be fully released and the continuous brakes must not be active.

1.1 Tap briefly (< 0.5 seconds) = current speed is set and shown on the display screen. Tap briefly again (< 0.5 seconds) = set speed increased by 0.3 mph (0.5 km/h). Press and hold (> 0.5 seconds) = bus speed increased until switch released. When the combination switch is released, the current speed is set as the new value.

1.2 Tap briefly (< 0.5 seconds) = current speed is set and shown on the display screen, or resumption of last stored speed (memory). Tap briefly again (< 0.5 seconds) = set speed reduced by 0.3 mph (0.5 km/h). Press and hold (> 0.5 seconds) = bus speed reduced until switch released. When the combination switch is released, the current speed is set as the new value.

2-stage combination switch for continuous brakes and cruise control in buses with manual transmission ...

1.3 Cruise control is deactivated and the last stored speed is retained by the control unit.

**Note:**

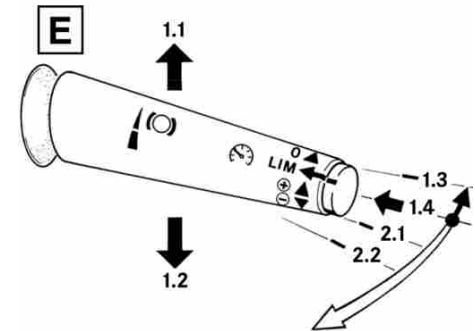
Drive cruise control is deactivated automatically as soon as the service brake is applied or the continuous brakes are activated.

**Note:**

If the clutch pedal is depressed, cruise control will remain active when the clutch pedal is subsequently released. However, cruise control will be deactivated if the clutch is depressed for longer than 5 seconds.

**Danger.**

Do not use cruise control on a slippery road surface - there is a risk of skidding. Do not use cruise control unless road and traffic conditions permit a constant speed to be maintained. On steep uphill or downhill gradients, it may not be possible for the set speed to be maintained. Take your foot off the accelerator pedal when cruise control is active.

Variable speed limiter (option)

M54_00-0757-01

2-stage combination switch for continuous brakes and cruise control in buses with manual transmission ...

1.4 Press button briefly = speed limiter (LIM): the current speed is set as the maximum speed. The set value is shown on the display screen. The driver has to continue to use the accelerator pedal. Keep button pressed: the set limit speed will continue to be increased until the control is released. To deactivate: move combination switch to position 1.3 or activate cruise control.



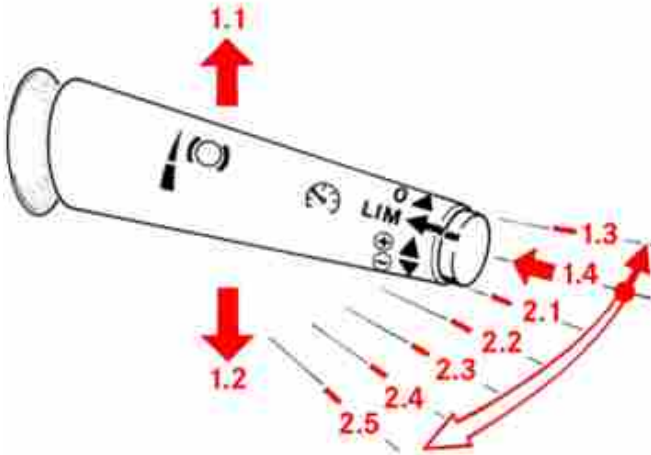
Note:

The speed limiter can be activated at speeds above 6 mph (10 km/h); between 6 mph (10 km/h) and 10 mph (15 km/h) it is always limited to 10 mph (15 km/h). It is possible to exceed the set speed temporarily by depressing the accelerator pedal beyond the stop (kickdown).

Driver's area controls

5-stage combination switch for continuous brakes and cruise control (option)

5-stage combination switch for continuous brakes and cruise control (option)



5-stage combination switch for continuous brakes and cruise control (option)

**Note:**

The following functions can be activated using the combination switch:

**Note:**

Operation of the continuous brakes (retarder, engine brake, constantly open throttle)

**Note:**

Brake cruise control (constant speed by means of retarder control)

**Note:**

Drive cruise control (constant speed by means of engine control)

**Note:**

Combined cruise control (constant speed by means of engine and retarder control)

**Note:**

Variable speed limiter (Temposet - limitation of maximum speed)

**Note:**

Engine idling speed increase (refer to the "Driving systems" section)

Continuous brakes

To activate the continuous brakes: The continuous brakes cannot be activated unless: - the accelerator pedal is fully released and the bus is travelling faster than 10 mph (15 km/h).

2.1 Engine brake flap active or engine brake flap and constantly open throttle active.

**Note:**

In this switch position, either the engine brake alone is active, or both the engine brake flap and the constantly open throttle are active, depending on various factors (e.g. road speed, engine speed).

2.2 Engine brake, constantly open throttle and retarder stage 1 active.

2.3 Engine brake, constantly open throttle and retarder stage 2 active.

2.4 Engine brake, constantly open throttle and retarder stage 3 active.

2.5 Engine brake, constantly open throttle and retarder stage 4 active.

5-stage combination switch for continuous brakes and cruise control (option)



Danger.

Do not activate the continuous brake (retarder) on a slippery road surface. The wheels could lock - risk of skidding.



Danger.

If the accelerator pedal is operated while the continuous brakes are active, the continuous brakes are deactivated and braking output is reduced to zero.



Caution:

Only ever move the combination switch through one stage at a time when attempting to achieve the necessary braking torque (do not jerk it directly to the required position). Except in an emergency, it is prohibited to force the combination switch directly to the required position in one action. However, it is acceptable to skip several stages at once if you are reducing the braking torque.



Note:

For the optimum braking torque to be achieved, the engine should be turning within its upper speed range so that the coolant does not overheat.



Danger.

The braking effect of the retarder is automatically reduced in line with a specified coolant temperature characteristic curve and is reduced to zero at a coolant temperature of 115 °C. The retarder's braking effect is reduced or may even be deactivated.



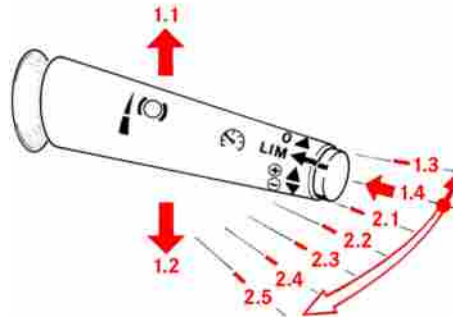
Note:

It is also possible to have the continuous brakes activated automatically by the "continuous brake integration" function whenever the brake pedal is depressed (refer to the "Driver's area controls" section).

5-stage combination switch for continuous brakes and cruise control (option)

**Danger.**

As long as ABS is fully functional, an activated continuous brake is deactivated automatically if one or both of the wheels on the driven axle threatens to lock. Do not operate the continuous brakes if an ABS fault alert appears on the display screen. Risk of skidding. There would be no automatic deactivation of the continuous brakes.

Brake cruise control (option)

M54_00-0082-01

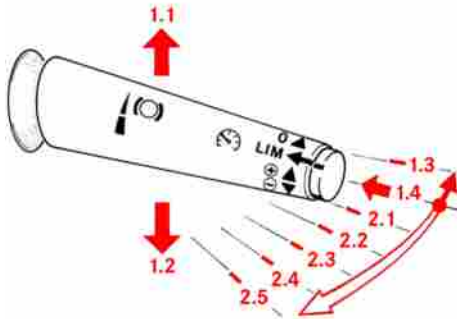
The retarder maintains the speed of the bus at the set cruising speed to the extent that the retarder's maximum braking torque is sufficient for this to remain possible. To activate brake cruise control: Precondition: continuous braking stage 1-5 (position 2.1 - 2.5) activated. Accelerator pedal and brake pedal fully released.

1.1 Tap briefly (< 0.5 seconds) = current speed is set and shown on the display screen. Tap briefly again (< 0.5 seconds) = set speed increased by 0.3 mph (0.5 km/h). Press and hold (> 0.5 seconds) = set speed increased until switch released. When the combination switch is released, the current speed is set as the new value.

1.2 Tap briefly (< 0.5 seconds) = current speed is set and shown on the display screen. Tap briefly again (< 0.5 seconds) = set speed reduced by 0.3 mph (0.5 km/h). Press and hold (> 0.5 seconds) = set speed reduced until switch released. When the combination switch is released, the current speed is set as the new value.

5-stage combination switch for continuous brakes and cruise control (option)

Drive cruise control (option)



M54_00-0082-01

To activate drive cruise control: Precondition: bus travelling faster than 10 mph (15 km/h). The clutch and service brake pedals must be fully released and the continuous brakes must not be active.

1.1 Tap briefly (< 0.5 seconds) = current speed is set and shown on the display screen. Tap briefly again (< 0.5 seconds) = set speed increased by 0.3 mph (0.5 km/h). Press and hold (> 0.5 seconds) = bus speed increased until switch released. When the combination switch is released, the current speed is set as the new value.

1.2 Tap briefly (< 0.5 seconds) = current speed is set and shown on the display screen, or resumption of last stored speed (memory). Tap briefly again (< 0.5 seconds) = set speed reduced by 0.3 mph (0.5 km/h). Press and hold (> 0.5 seconds) = bus speed reduced until switch released. When the combination switch is released, the current speed is set as the new value.

1.3 Cruise control is deactivated and the last stored speed is retained by the control unit.



Note:

Drive cruise control is deactivated automatically as soon as the service brake is applied or the continuous brakes are activated.



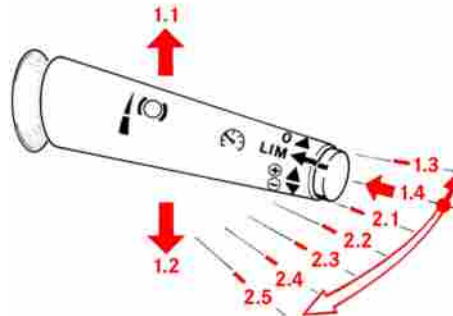
Note:

If the clutch pedal is depressed, cruise control will remain active when the clutch pedal is subsequently released. However, cruise control will be deactivated if the clutch is depressed for longer than 5 seconds.

5-stage combination switch for continuous brakes and cruise control (option)

**Danger.**

Do not use cruise control on a slippery road surface - there is a risk of skidding. Do not use cruise control unless road and traffic conditions permit a constant speed to be maintained. On steep uphill or downhill gradients, it may not be possible for the set speed to be maintained. Take your foot off the accelerator pedal when cruise control is active.

Combined cruise control (option)

M54_00-0082-01

To activate combined cruise control: Set drive cruise control and press knob 1.4 on the combination switch in at the same time: The current speed (e.g. 88 km/h) is set as the cruising speed and shown on the display screen, and brake cruise control is automatically set to a value that is 4 km/h higher than the cruising speed (i.e. 92 km/h). The system switches between modes of operation automatically depending on requirements. The display on the display screen changes to one value or the other

depending on the mode of operation. Alternatively: Set brake cruise control and press knob 1.4 on the combination switch in at the same time: The current speed (e.g. 100 km/h) is set as the limit speed and shown on the display screen, and drive cruise control is automatically set to a value that is 4 km/h lower than the limit speed (i.e. 96 km/h). The system switches between modes of operation automatically depending on requirements. The display on the display screen changes to one value or the other depending on the mode of operation.

**Note:**

Combined cruise control is deactivated automatically as soon as the service brake is applied or the continuous brakes are activated.

5-stage combination switch for continuous brakes and cruise control (option)



Note:

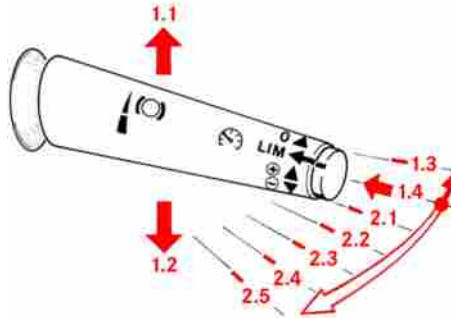
If the clutch pedal is depressed, cruise control will remain active when the clutch pedal is subsequently released. However, cruise control will be deactivated if the clutch is depressed for longer than 5 seconds.



Danger.

Do not use cruise control on a slippery road surface - there is a risk of skidding. Do not use cruise control unless road and traffic conditions permit a constant speed to be maintained. On steep uphill or downhill gradients, it may not be possible for the set speed to be maintained. Take your foot off the accelerator pedal when cruise control is active.

Variable speed limiter (option)



M54_00-0082-01

1.4 Press button briefly = speed limiter (LIM): the current speed is set as the maximum speed. The set value is shown on the display screen. The driver has to continue to use the accelerator pedal. Keep button pressed: the set limit speed will continue to be increased until the control is released. To deactivate: move combination switch to position 1.3 or activate cruise control.



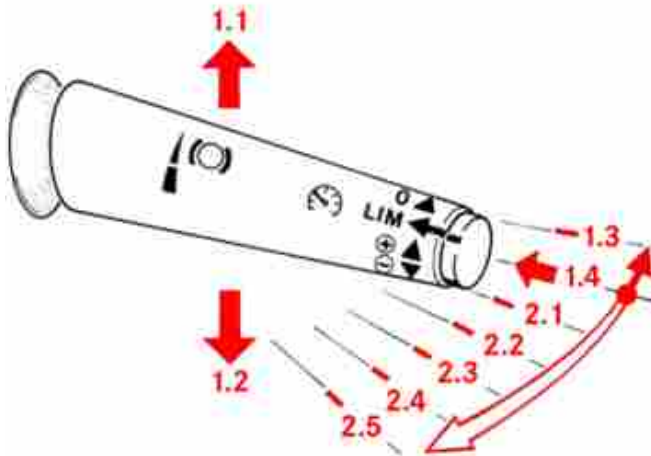
Note:

The speed limiter can be activated at speeds above 6 mph (10 km/h); between 6 mph (10 km/h) and 10 mph (15 km/h) it is always limited to 10 mph (15 km/h). It is possible to exceed the set speed temporarily by depressing the accelerator pedal beyond the stop (kickdown).

Driver's area controls

5-stage combination switch for continuous brakes and cruise control in buses with automatic transmission ...

5-stage combination switch for continuous brakes and cruise control in buses with automatic transmission (option)



5-stage combination switch for continuous brakes and cruise control in buses with automatic transmission ...

**Note:**

The following functions can be activated using the combination switch:

**Note:**

Operation of the continuous brakes (retarder, engine brake, constantly open throttle)

**Note:**

Drive cruise control (constant speed by means of engine control)

**Note:**

Variable speed limiter (Temposet - limitation of maximum speed)

**Note:**

Engine idling speed increase

Continuous brakes

To activate the continuous brakes: The continuous brakes cannot be activated unless: - accelerator pedal fully released; - forward drive range selected; - bus travelling faster than 2 mph (3 km/h). Whenever the continuous brakes are active, the transmission is prevented from shifting into the next gear up (upshift inhibitor).

2.1 - 2.2 Engine brake flap active or engine brake flap and constantly open throttle active.

**Note:**

In these switch positions, either the engine brake flap alone is active, or both the engine brake flap and the constantly open throttle are active, depending on various factors (e.g. road speed, engine speed).

2.3 Engine brake, constantly open throttle and retarder stage 1 active.

2.4 Engine brake, constantly open throttle and retarder stage 2 active.

2.5 Engine brake, constantly open throttle and retarder stage 3 active.

**Danger.**

If the accelerator pedal is depressed while the continuous brakes are active, the continuous brakes are deactivated and the upshift inhibitor is cancelled.



Danger.

The braking effect of the retarder is automatically reduced in line with a specified oil temperature characteristic curve. The braking output is reduced.



Danger.

As long as ABS is fully functional, an activated continuous brake is deactivated automatically if one or both of the wheels on the driven axle threatens to lock. Do not operate the continuous brakes if an ABS fault alert appears on the display screen. Risk of skidding. There would be no automatic deactivation of the continuous brakes.



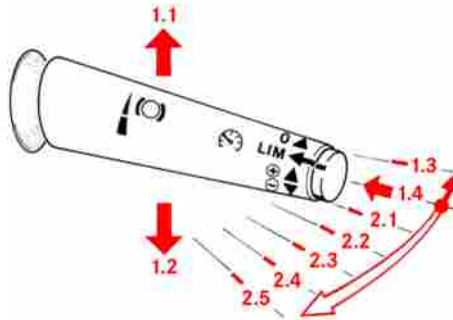
Note:

It is also possible to have the continuous brakes activated automatically by the “continuous brake integration” function (option) whenever the brake pedal is depressed (refer to the “Driver's area controls” section).

must be fully released and the continuous brakes must not be active.

1.1 Tap briefly (< 0.5 seconds) = current speed is set and shown on the display screen. Tap briefly again (< 0.5 seconds) = set speed increased by 0.3 mph (0.5 km/h). Press and hold (> 0.5 seconds) = bus speed increased until switch released. When the combination switch is released, the current speed is set as the new value.

Drive cruise control (option)



M54_00-0082-01

To activate drive cruise control: Pre-condition: bus travelling faster than 10 mph (15 km/h). The service brake pedal

5-stage combination switch for continuous brakes and cruise control in buses with automatic transmission ...

1.2 Tap briefly (< 0.5 seconds) = current speed is set and shown on the display screen, or resumption of last stored speed (memory). Tap briefly again (< 0.5 seconds) = set speed reduced by 0.3 mph (0.5 km/h). Press and hold (> 0.5 seconds) = bus speed reduced until switch released. When the combination switch is released, the current speed is set as the new value.

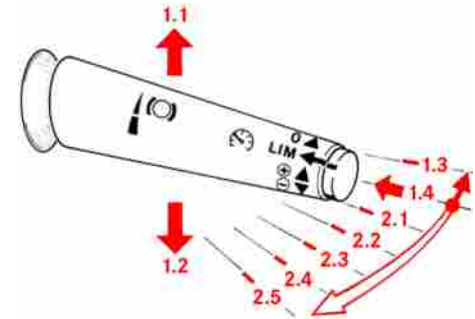
1.3 Cruise control is deactivated and the last stored speed is retained by the control unit.

**Note:**

Drive cruise control is deactivated automatically as soon as the service brake is applied or the continuous brakes are activated.

**Danger.**

Do not use cruise control on a slippery road surface - there is a risk of skidding. Do not use cruise control unless road and traffic conditions permit a constant speed to be maintained. On steep uphill or downhill gradients, it may not be possible for the set speed to be maintained. Take your foot off the accelerator pedal when cruise control is active.

Variable speed limiter (option)

M54_00-0082-01

Adjustable steering column

1.4 Press button briefly = speed limiter (LIM): the current speed is set as the maximum speed. The set value is shown on the display screen. The driver has to continue to use the accelerator pedal. Keep button pressed: the set limit speed will continue to be increased until the control is released. To deactivate: move combination switch to position 1.3 or activate cruise control.



Note:

The speed limiter can be activated at speeds above 6 mph (10 km/h); between 6 mph (10 km/h) and 10 mph (15 km/h) it is always limited to 10 mph (15 km/h). It is possible to exceed the set speed temporarily by depressing the accelerator pedal beyond the stop (kickdown).

Adjustable steering column

Pushbutton for adjusting the height and angle of the steering wheel. Set the steering column to the release position by pressing the lower section of pushbutton (1).



Danger.

Do not make adjustments unless the bus is stationary. Re-engage the steering column after you have adjusted the steering wheel to a suitable position. To do this, press the upper section of pushbutton (1).



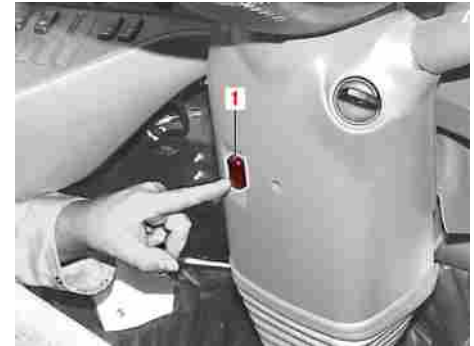
Danger.

After the adjustable steering column has been adjusted, the driver must check that all instruments and indicator lamps are still visible.



Note:

The steering column is re-engaged automatically if pushbutton (1) is not pressed again within approximately 12 (+/- 5) seconds.



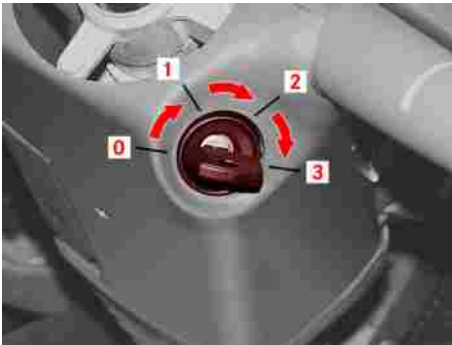
M46_00-0030-01

▷ For notes on safety and operation, refer to the “Driver's area controls” section of the Operating Instructions.

Ignition starter switch

**Danger.**

Never lock the steering while the bus is in motion. Remove the key whenever you disembark, even if only for a short time.



M54_00-0083-01

- 0 Parked position Insert or take out the key in this position; the side lamps can be switched on.
- 1 Steering unlocked All consumers can be switched on.
- 2 Drive position

3 Starting position

Parking brake valve

**Danger.**

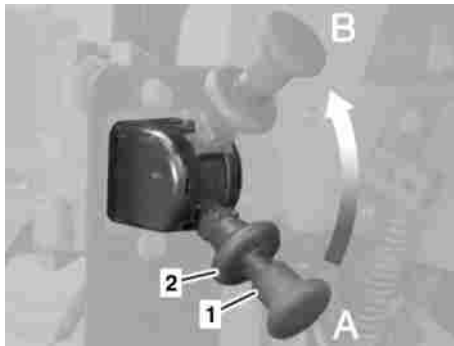
The parking brake spring actuators require a release pressure of 5.8 to 6.4 bar. At low supply pressures, there is a risk that the brake may not be fully released, that the friction pads may make slight contact while the bus is in motion and that the brake may be subjected to unnecessarily high thermal loads. The indicator lamp in the instrument display panel must go out when the parking brake is released. The emergency release device is combined with the parking brake valve and is operated in exactly the same way as the normal parking brake. The valve automatically switches over to the air reserve for the emergency release device and the spring actuators are released.

Rotary knob for raising/lowering system (option)



Danger.

Risk of skidding. The braking effect of ABS is cancelled if you apply the parking brake while the vehicle is in motion.



M42_20-0003-01

A Parking brake applied



Danger.

Check hand lever (1) for full engagement. To do so, attempt to press the hand lever in the “release” direction (B) without pulling release ring (2) out of the detent position. The lever must not move.

B Parking brake released

▷ For notes on safety and operation, refer to the “Operation” section.

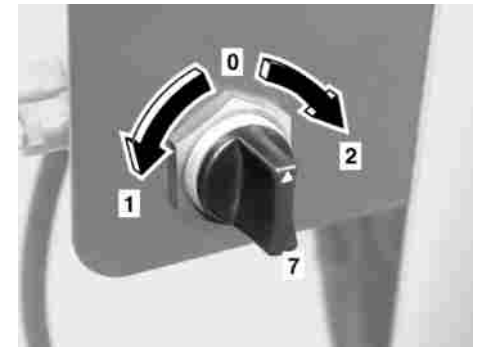
Rotary knob for raising/lowering system (option)

Using rotary knob (7), it is possible to raise or lower the body of the bus by a maximum of approximately 70 mm from the normal level.



Danger.

The bus must not be driven faster than walking pace while the raising/lowering system is in effect. Do not operate the rotary knob while the vehicle is in motion.



M32_00-0042-01

0 = Normal level

Rotary knob for raising/lowering system (option)

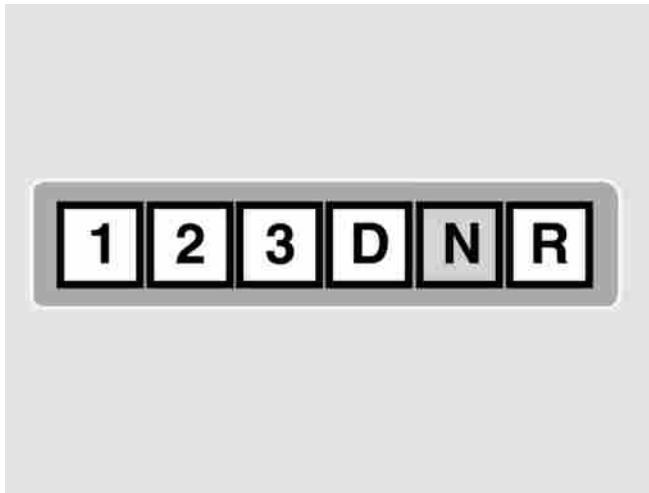
1 = Lower

2 = Raise

Driver's area controls

6-button automatic transmission gearshift unit (option)

6-button automatic transmission gearshift unit (option)



- 1 Drive range 1: Only 1st gear is selected.
- 2 Drive range 2: The transmission shifts between gears 1 and 2 automatically.
- 3 Drive range 3: The transmission shifts between gears 1 and 3 automatically.
- D Drive range D: The transmission shifts between gears 1 and 5 automatically.
- N Drive position N: Transmission in neutral. No gear is selected.
- R Drive position R: Reverse gear is selected.

Instrument display panel

Instrument display panel (INS20 10)

Detailed description

Indicator lamp for alternator 1 (1)



M54.00-1871-71

Lights up if there is a problem with the charging voltage from alternator 1.



Danger.

If the indicator lamp does not go out or if it lights up while the engine is running: Stop the bus (traffic conditions permitting) and switch off the engine. Determine and rectify the cause (e.g. check V-belt and replace if necessary; refer to the "Practical advice" section).

Instrument display panel

Indicator lamp for hazard warning lamps/school bus warning lamps (2)



M54.00-1872-71

Lights up whenever the hazard warning lamps/school bus warning lamps are switched on.

ABS indicator lamp (3)



M54.00-1864-71

Lights up after the ignition starter switch has been switched to ON. If the display does not go out at the latest once the bus has pulled away or if it lights up while the bus is in motion, this indicates that the anti-lock braking system (ABS) and acceleration skid control (ASR) are fully or partly inoperational.



Danger.

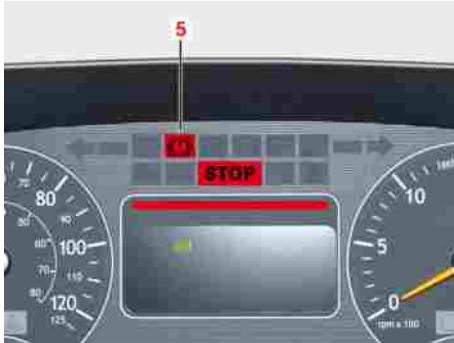
The driving and braking characteristics of the bus may change. Adopt a cautious driving style. Have the malfunction rectified by an EvoBus Service Partner.



Note:

The status indicator lights up red or yellow, depending on the fault severity.

Brake failure indicator lamp (5)



M54.00-1866-71

Insufficient supply pressure in brake circuits 1, 2 (under 6.8 bar) or 3 (under 5.5 bar).



Danger.

Stop the vehicle immediately (traffic conditions permitting). Have the brake system inspected by an EvoBus Service Partner. In the event of high compressed-air consumption (e.g. raising/lowering system in effect and bus manoeuvring), stop driving until the indicator lamp has gone out. The malfunction warning is not

cleared until the pressure has risen back above 7.2 bar.

Brake failure indicator lamp

Insufficient supply pressure in brake circuits 1, 2 (under 6.8 bar) or 3 (under 5.5 bar).

Exhaust gas cleaning system (SCR system) malfunction display (6)



M54.00-1874-71

Malfunction indicator lamp (6) lights up in the event of a malfunction in the exhaust gas cleaning system (SCR system). Malfunction indicator lamp (6) flashes in the event of a fault in the exhaust gas

cleaning system (display if concentration exceeded by more than 1.5 g/kWh NOx) or if the AdBlue supply tank runs empty.

Parking brake indicator lamp (8)



M54.00-1862-71

“Parking brake” indicator lamp (8) lights up when the parking brake is applied.

Instrument display panel

“ASR active” indicator lamp (9)



M54.00-1861-71

Acceleration skid control (ASR) (option) prevents the drive wheels from spinning when the bus pulls away or accelerates, regardless of the road conditions. “ASR” indicator lamp (9) lights up whenever ASR is intervening and also during the display check.



Danger.

Risk of accident. – ASR does not relieve the driver of the responsibility for adopting a driving style which takes traffic and road conditions into account. – The bus could skid if ASR has been switched off and the drive wheels start to spin.

Continuous brake indicator lamp (10)



M54.00-1865-71

“Continuous brake” indicator lamp (10) lights up when the continuous brakes are active.



Caution:

If the indicator lamp does not go out when the continuous brakes are deactivated: Do not continue to use the continuous brakes, have the malfunction rectified by an EvoBus Service Partner.

Indicator lamp for V-belt break (11) (option)



M54.00-1878-71

Lights up if a V-belt break is detected.



Danger.

Stop the bus (traffic conditions permitting) and switch off the engine. Determine the cause and rectify it.

Indicator lamp for fire in engine compartment (12) (option)



M54.00-1879-71

“Engine compartment fire” indicator lamp (12) lights up if a fire is detected in the engine compartment.



Note:

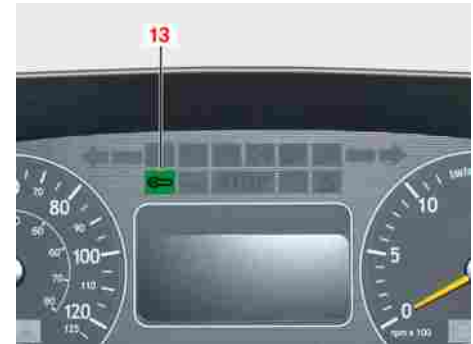
In addition to indicator lamp (12), the event is indicated by the red status lamp, the STOP warning lamp and a warning buzzer.



Danger.

Stop the bus immediately, road and traffic conditions permitting. Urge passengers to disembark. Initiate fire-fighting measures.

“Stop request” indicator lamp (13)



M54.00-1880-71

Lights up whenever a passenger makes a stop request.

Instrument display panel

Bus stop brake/drive-off lock indicator lamp (14)



M54.00-1867-71

“Bus stop brake/drive-off lock” indicator lamp (14) lights up when the bus stop brake or drive-off lock (option) is active.



Note:

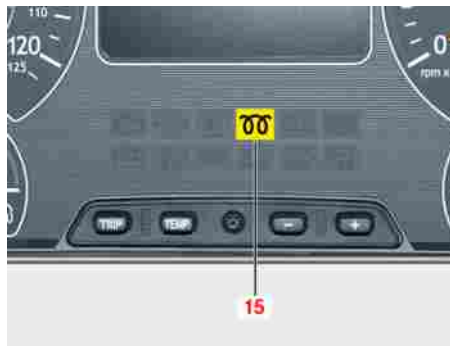
The bus stop brake is activated whenever the switch in the instrument panel is pressed.



Note:

The drive-off lock is activated when doors are opened, for example.

Flame-start system indicator lamp (15)



M54.00-1882-71

The flame-start system (option) is a cold-start aid for very cold outside temperatures (below $-20\text{ }^{\circ}\text{C}$) and is activated at outside temperatures of below approximately $-4\text{ }^{\circ}\text{C}$. Switch on the driving switch. “Flame-start system” indicator lamp (15) must light up. Wait until the

indicator lamp has gone out and start the engine within 30 seconds.



Environmental protection

The flame-start system reduces pollutant emissions (after the engine start) at outside temperatures of below $-4\text{ }^{\circ}\text{C}$. In addition, the starter motor and the batteries are spared and the starting time is reduced.

Continuous brake indicator lamp (10)



M54.00-1883-71

Indicator lamp (10) lights up in the event of a retarder malfunction.

**Danger.**

Risk of accident. The retarder must no longer be used if the indicator lamp lights up in conjunction with a red warning level malfunction. Red warning level malfunctions indicate that the operating safety or roadworthiness of the bus is at risk. The driving and braking characteristics of the bus may change. The bus must be stopped immediately (traffic conditions permitting) and an EvoBus Service Partner must be notified.

**Caution:**

The retarder must no longer be used if the indicator lamp lights up in conjunction with a yellow warning level malfunction. While it is permitted to drive on carefully, you should have the bus inspected by an EvoBus Service Partner at the earliest opportunity.

Indicator lamp for centring of the auxiliary steering (13) (3-axle buses only)



M54.00-1884-71

Indicator lamp (13) flashes whenever centring is in progress and lights up constantly while the trailing axle is centred and locked in the centre position.

Indicator lamp for centring of the auxiliary steering (3-axle buses only)

The indicator lamp flashes whenever centring is in progress and lights up constantly while the trailing axle is centred and locked in the centre position.

MSS (automatic engine start-stop) indicator lamp (18) (option)



M54.00-1885-71

MSS indicator lamp (18) lights up while the automatic engine start-stop function is active.

Screen sequence at start-up

Red indicator lamp for alternator 2 malfunction (option) (19)



M54.00-1886-71

Lights up whenever the ignition starter switch is switched to ON and must go out when the engine is started.



Danger.

If the indicator lamp does not go out or if it lights up while the engine is running: Stop the bus (traffic conditions permitting) and switch off the engine. Determine and rectify the cause (e.g. check V-belt and replace if necessary; refer to “Practical advice”).

Red indicator lamp for alternator 3 malfunction (option) (20)



M54.00-1886-71

Lights up whenever the ignition starter switch is switched to ON and must go out when the engine is started.

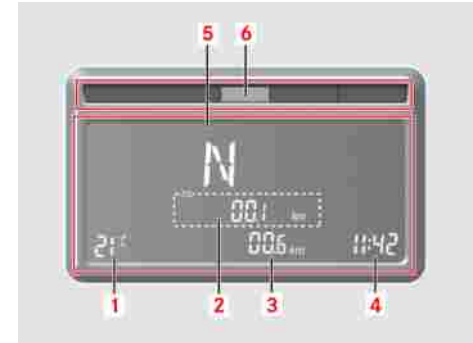


Danger.

If the indicator lamp does not go out or if it lights up while the engine is running: Stop the bus (traffic conditions permitting) and switch off the engine. Determine and rectify the cause (e.g. check V-belt and replace if necessary; refer to “Practical advice”).

Screen sequence at start-up

Screen sequence at start-up



M54_30-0106-71

A warning buzzer sounds for approximately 1 second after the ignition starter switch has been switched to ON. Status indicator (6) lights up yellow. All indicator lamps in the instrument panel light up for approximately 2 seconds. Once the display check is complete, outside temperature/coolant temperature display (1), trip meter (2), total distance recorder (3), time (4) and gear/drive range indicator (5) appear on the display screen.

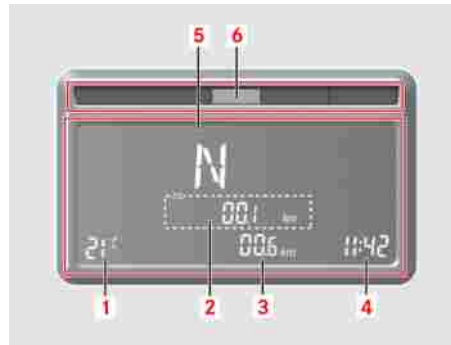
Display fields on the on-board computer display screen



Note:

If the on-board computer detects malfunctions in the system, the alerts are displayed in succession on the display screen and status indicator (6) lights up red or yellow.

Display fields on the on-board computer display screen



M54_30-0106-71

Outside temperature/coolant temperature display (1), trip meter (2), total distance recorder (3), time (4), gear/drive range indicator (5) and status indicator (6) appear on the display screen.



Note:

In buses with an MB GO transmission variant, only N (neutral) or R (reverse gear) is displayed on the display screen.

Toggle outside temperature/coolant temperature

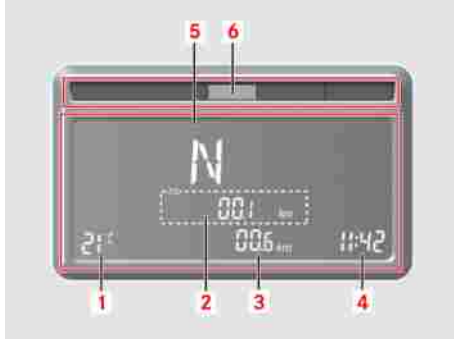


M54.00-1887-71

Press button (1) to toggle the outside temperature/coolant temperature.

Display fields on the on-board computer display screen

Outside temperature



M54_30-0106-71

A minus symbol (-) before temperature reading (1) indicates that the temperature is below 0 °C.



Danger.

The road may still be icy even if the outside temperature display shows a temperature of just above the freezing point. This is especially the case in wooded areas or on bridges. Extreme changes in the outside temperature are not displayed until a delay has elapsed.

Reset trip meter to "0"



M54.00-1888-71

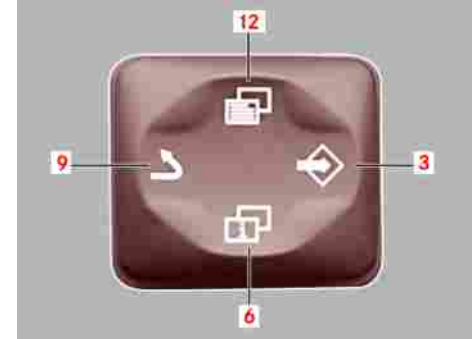
Press and hold button (1) to reset the trip meter to "0".



Note:

The ignition starter switch must be ON.

Setting the time



M54_30-0105-71

Press button (12) of the control rocker switch repeatedly until the time value appears on the display screen. Press button (6). The hour figures flash. To set the hours, press button (3). Press button (6). The minute figures flash. To set the minutes, press button (3). To store the set time, press button (6). Press button (9) to return to the basic display.

Adjusting the instrument lighting



Note:

If the control rocker switch is not pressed for a period of 20 seconds, the display returns to the first item in the menu and the set values are not stored.

Adjusting the instrument lighting



M54.00-1889-71

Press and hold button (1) = instrument lighting dimmer, press and hold button (2) = instrument lighting brighter



Note:

The ignition starter switch must be ON.



Note:

The brightness of the instrument lighting cannot be adjusted unless the side lamps or dipped/main-beam headlamps are switched on.



Note:

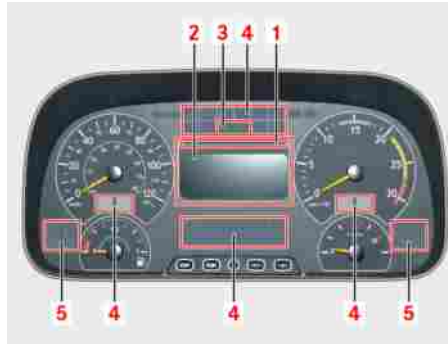
The Stop warning lamp, the indicator lamp for turn signals/hazard warning lamps and the parking brake indicator lamp cannot be dimmed and always light up at maximum brightness. Malfunction symbols appear for approximately 10 seconds at maximum brightness and then fade to the brightness level set. The brightness of all other elements is infinitely variable.



Note:

The brightness level remains stored whenever the ignition starter switch is switched to position 0.

Malfunction displays: description



M54.00-1859-71

Display messages are operating information, malfunction alerts or warnings that are automatically displayed on display screen (2). Status indicator (1) lights up yellow or red, depending on the significance of the event. An indicator lamp (4) in the instrument panel may light up in addition to the display message being shown. Display messages can be cleared and called up at a later time. If an indicator lamp (4) lights up in addition to the display message, this will not go out even after the display message has been acknowledged. In the event of highly

significant malfunctions, the display message is accompanied by a warning tone and STOP lamp (3).



Danger.

Risk of accident. If the STOP lamp does not go out, or if it lights up while the bus is in motion, the operating safety or roadworthiness of the bus is at risk. The driving and braking characteristics of the bus may change. The bus must be stopped immediately (traffic conditions permitting) and an EvoBus Service Partner must be notified.



Danger.

Risk of accident. Red warning level malfunctions indicate that the operating safety or roadworthiness of the bus is at risk. The driving and braking characteristics of the bus may change. The bus must be stopped immediately (traffic conditions permitting) and an EvoBus Service Partner must be notified.

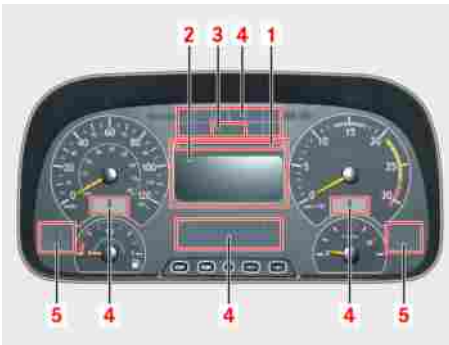
Malfunction displays: red warning level - description



Caution:

In the event of a yellow warning level malfunction, it is permissible to drive on carefully but the bus should be checked by an EvoBus Service Partner at the earliest opportunity.

Red/yellow status indicator



M54.00-1859-71

To distinguish alerts on the display screen by their significance, the segment in status indicator (1) of the on-board computer lights up yellow or red. The yellow status indicator may appear in response to a particular operating state

or malfunction. Malfunctions of a high priority are indicated by a red status indicator.

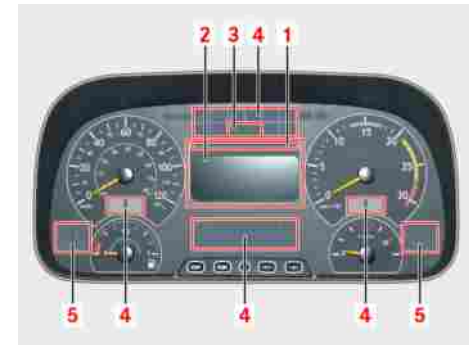
STOP warning lamp



M54.00-1859-71

Severe malfunctions are accompanied by STOP lamp (3) lighting up.

Malfunction displays: red warning level - description



M54.00-1859-71

Red status lamp (1) lights up in the event of a high-priority malfunction.

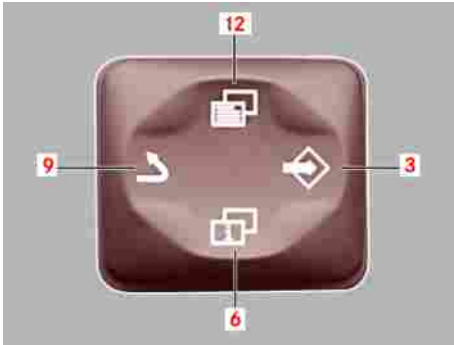


Danger.

Risk of accident. Red warning level malfunctions (1) indicate that the operating safety or roadworthiness of the bus is at risk. The driving and braking characteristics of the bus may change. The bus must be stopped immediately (traffic conditions permitting) and an EvoBus Service Partner must be notified.

Malfunction displays: red warning level - description

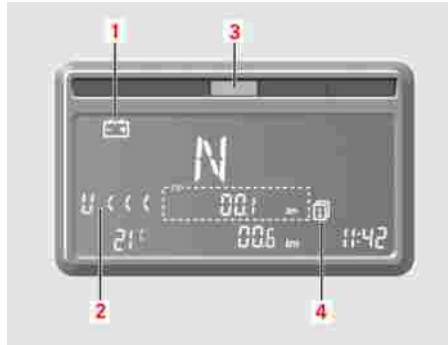
Acknowledging red warning level display messages



M54_30-0105-71

The driver can acknowledge display messages using pushbutton (9) of the on-board computer's control rocker switch.

Viewing red warning level display messages



M54_30-0141-71

Whenever the driver acknowledges a display message, red warning lamp (3) goes out and malfunction symbol (1) and, if applicable, system abbreviation (2) are cleared. After the display message has been acknowledged, it is stored in the diagnostics memory, i.e. the Fault info menu, and can be called up at any time using control rocker switch button (6). Info symbol (4) on the display screen indicates the presence of a stored display message.

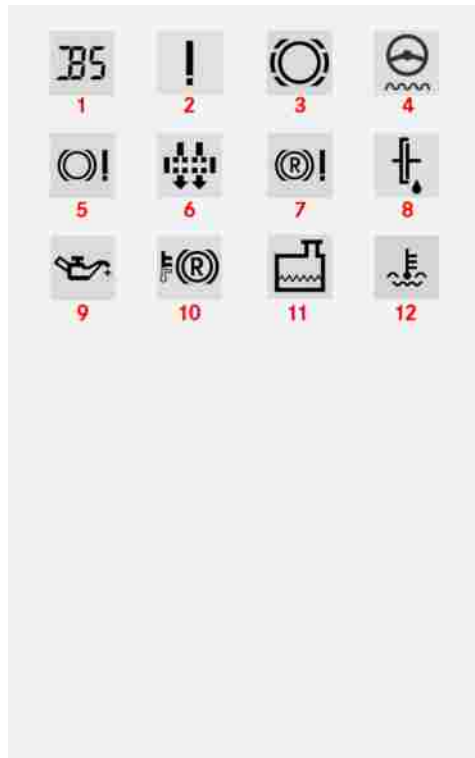


Note:

The red warning lamp may light up and a warning buzzer may sound, depending on the priority.

Malfunction displays on the on-board computer display screen with red status indicator - overview

Malfunction displays on the on-board computer display screen with red status indicator - overview



Malfunction displays: yellow warning level - description



Caution:

The brightness of the segments on the on-board computer display screen depends on the instrument lighting brightness setting. Malfunctions, however, are displayed at maximum brightness for a brief time even if the instrument lighting has been dimmed.



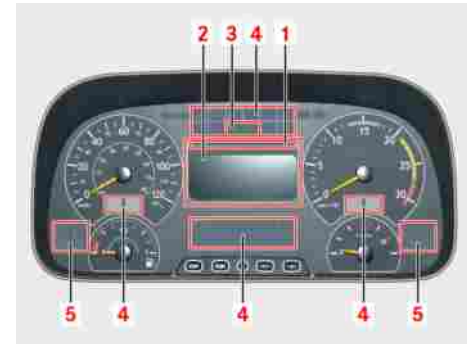
Note:

A system abbreviation may accompany the malfunction on the display screen, as shown in the example (1).

- 1 Brake system malfunction (example)
- 2 CAN bus malfunction
- 3 Brake pad wear
- 4 Steering oil level too low
- 5 Brake supply pressure too low

- 6 Engine air cleaner contaminated
- 7 Retarder cannot be deactivated
- 8 Oil level in the clutch fluid reservoir too low
- 9 Engine oil pressure too low
- 10 Retarder overheated
- 11 Engine coolant level too low
- 12 Engine coolant too hot (with temperature reading in °C)

Malfunction displays: yellow warning level - description



M54.00-1859-71

Yellow status lamp (1) lights up in the event of malfunctions of lower priority.

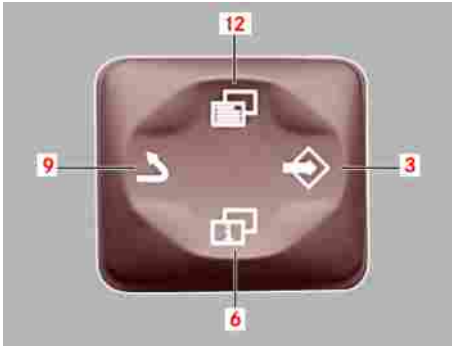


Caution:

In the event of a yellow warning level malfunction, it is permissible to drive on carefully but the bus should be checked by an EvoBus Service Partner at the earliest opportunity.

Malfunction displays: yellow warning level - description

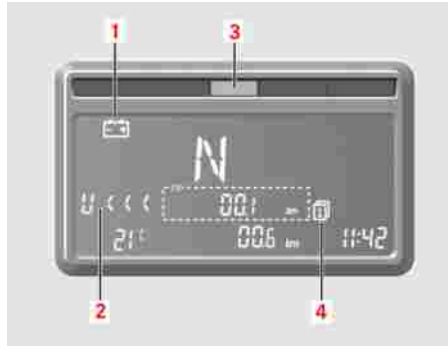
Acknowledging yellow warning level display messages



M54_30-0105-71

The driver can acknowledge display messages using pushbutton (9) of the on-board computer's control rocker switch.

Viewing yellow warning level display messages



M54_30-0141-71

Whenever the driver acknowledges a display message, yellow warning lamp (3) goes out and malfunction symbol (1) and, if applicable, system abbreviation (2) are cleared. After the display message has been acknowledged, it is stored in the diagnostics memory, i.e. the Fault info menu, and can be called up at any time using control rocker switch button (6). Info symbol (4) on the display screen indicates the presence of a stored display message.

Driver's area controls

Malfunction displays on the on-board computer display screen with yellow status indicator - overview

Malfunction displays on the on-board computer display screen with yellow status indicator - overview



Malfunction displays on the on-board computer display screen with yellow status indicator - overview



Caution:

The brightness of the segments on the on-board computer display screen depends on the instrument lighting brightness setting. Malfunctions, however, are displayed at maximum brightness for a brief time even if the instrument lighting has been dimmed.



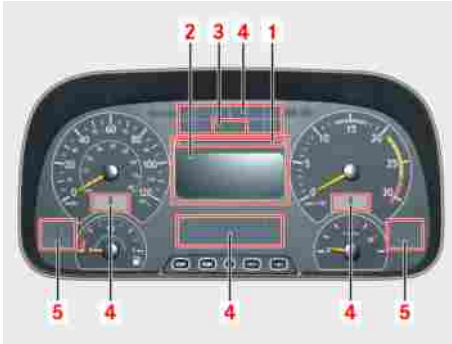
Note:

A system abbreviation may accompany the malfunction on the display screen, as shown in the example (1).

1	Brake system malfunction (example)	5	Auxiliary heating active	19	Engine oil level too low
2	Driver's door open (option)	6	Auxiliary steering oil filter dirty (option) (3-axle buses only)	20	AdBlue reserve reached
3	Luggage compartment flap open (option)	7	Auxiliary steering oil level too low (option) (3-axle buses only)	21	Fuel reserve reached
4	Windscreen washer fluid level too low	8	Kneeling second level (option)	22	Engine protection function active
		9	Bus not at normal level (option)	23	Engine coolant too hot
		10	Raise bus (option)	24	Transmission air supply too low
		11	Lower bus (option)	25	Clutch overheated
		12	Lower target level reached (option)	26	Transmission malfunction
		13	Protection against entrapment active - kneeling process obstructed (option) (arrow flashes)	27	Auxiliary consumers supply pressure (option)
		14	Auxiliary consumers supply pressure too low (option) (arrow and encircled area flash)	28	Power take-off (option)
		15	Battery undervoltage		
		16	Cruise control active		
		17	Speed limiter active		
		18	Engine oil pressure too low		

Malfunction displays: STOP lamp - description

Malfunction displays: STOP lamp - description



M54.00-1859-71

In the event of highly significant malfunctions, the display message is accompanied by a warning tone and STOP lamp (3)



Note:

It is not possible to acknowledge (switch off) the STOP lamp.

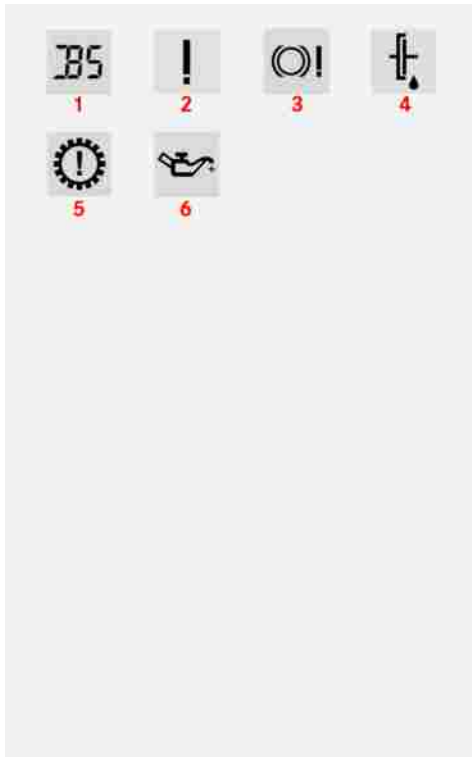


Danger.

Risk of accident. If the STOP lamp does not go out, or if it lights up while the bus is in motion, the operating safety or road-worthiness of the bus is at risk. The driving and braking characteristics of the bus may change. The bus must be stopped immediately (traffic conditions permitting) and an EvoBus Service Partner must be notified.

Malfunction displays on the on-board computer display screen with red STOP warning lamp - overview

Malfunction displays on the on-board computer display screen with red STOP warning lamp - overview



**Note:**

A system abbreviation may accompany the malfunction on the display screen, as shown in the example (1).

- 1 Brake system malfunction (example)
- 2 CAN bus malfunction
- 3 Brake supply pressure too low
- 4 Oil level in the clutch fluid reservoir too low
- 5 Transmission malfunction
- 6 Engine oil pressure too low

Display screen symbols

The following symbols may appear on the display screen:

Display screen symbols**Oil pressure**

The “Engine oil pressure” warning is shown on the display screen if the oil pressure in the engine is too low.

**Danger.**

Stop the bus immediately (traffic conditions permitting), switch off the engine and then determine and rectify the cause. Insufficient oil pressure can result in significant damage to the engine.

Wheel speed sensor fault

Displayed if the brake control system detects a faulty wheel speed sensor.

**Danger.**

The driving and braking characteristics of the bus may change. Adopt a cautious driving style. Have the malfunction rectified by an EvoBus Service Partner.

**Note:**

For notes on safety and operation, refer to the “Operation” section.

Brake pad wear

Displayed in the event of excessive brake pad wear on one or more axles.

Display screen symbols



Danger.

The driving and braking characteristics of the bus may change. Adopt a cautious driving style. Have the malfunction rectified by an EvoBus Service Partner.



Note:

For notes on safety and operation, refer to the "Operation" section.

Power steering oil level



Displayed if the oil level in the reservoir for the power steering pump has dropped to the minimum level.



Danger.

Risk of accident. Have the steering system checked for leaks by an EvoBus Service Partner. A continued loss of oil results in a risk of accident because the steering may stiffen.



Note:

For notes on safety and operation, refer to the "Practical advice" section.

Display failure



Displayed if important operating information, warnings or events can no longer be shown on the display screen.



Danger.

Risk of accident. The driving and braking characteristics of the bus may change. Stop the bus (traffic conditions permitting) and switch off the engine. Malfunctions that alter the driving and braking characteristics of the bus can no longer be displayed. Have the malfunction rectified by an EvoBus Service Partner.

Engine protection function information



The "Engine protection" operating information is displayed if the coolant temperature exceeds the maximum permissible temperature while the bus is in motion.

**Note:**

A warning buzzer may sound in addition to the malfunction lamp lighting up.

**Caution:**

Engine power output is reduced automatically. Determine the cause and have it corrected if necessary by an EvoBus Service Partner.

**Note:**

The reason why the coolant temperature is too high could be, for example, that the coolant level is too low (refer to the "Practical advice" section), the drive belt is defective or poorly tensioned (refer to the "Practical advice" section) or the fan clutch is defective (refer to the "Practical advice" section).

Oil level in the clutch fluid reservoir too low



The display symbol lights up if the fluid level drops below the minimum level.

**Note:**

For notes on safety and operation, refer to the "Practical advice" section.

Clutch overheated



The display symbol appears if the transmission's clutch overheats. The permissible operating temperature of the clutch has been exceeded.

**Caution:**

There is a risk of clutch damage.

**Caution:**

Shift into a lower gear to manoeuvre or pull away.

**Caution:**

Complete the pulling away or manoeuvring process as soon as possible.

Brake circuits 1-3 supply pressure



Insufficient supply pressure in brake circuits 1, 2 (under 6.8 bar) or 3 (under 5.5 bar).

Display screen symbols



Danger.

Stop the vehicle immediately (traffic conditions permitting). Have the brake system inspected by an EvoBus Service Partner. In the event of high compressed-air consumption (e.g. raising/lowering system in effect and bus manoeuvring), stop driving until the indicator lamp has gone out. The malfunction warning is not cleared until the pressure has risen back above 7.2 bar.



Note:

The "Brake failure" indicator lamp in the indicator lamp panel also lights up.

Retarder temperature (option)



Displayed if the temperature of the retarder is too high.



Danger.

If the retarder overheats (e.g. on a long downhill road), the retarder's braking effect will diminish: Reduce bus speed, shift down and keep the speed of the bus constant by making use of the braking effect of the engine.



Note:

For notes on safety and operation, refer to the "Driver's area controls" section.

Retarder malfunction (option)



Displayed if the retarder cannot be deactivated during an ABS control intervention or when the accelerator pedal is depressed.



Note:

The "Continuous brake" malfunction in the indicator lamp panel may also light up.



Danger.

Risk of accident. Adopt a particularly cautious driving style. Do not continue to use the retarder. Have the malfunction rectified by an EvoBus Service Partner.

Cruise control (option)



Displayed in cruise control mode. The speed value selected is also displayed.

**Note:**

Cruise control mode: refer to “Combination switch for continuous brakes and cruise control”

Speed limiter (option)

Displayed when the variable speed limiter is activated. The speed value selected is also displayed.

**Note:**

Activation of the speed limiter: refer to “Combination switch for continuous brakes and cruise control”

AdBlue reserve level

Displayed when the AdBlue level drops to the reserve level.

**Note:**

For notes on safety and operation, refer to the “Operation” section.

Fuel reserve

Displayed if the fuel level has dropped to approximately 14 % of tank capacity.

**Note:**

For notes on safety and operation, refer to the “Operation” section

Auxiliary consumers supply pressure (option)

Displayed if the supply pressure in the auxiliary consumers circuit drops below 5.5 bar.

**Danger.**

If the “Auxiliary consumers supply pressure” warning is displayed on the display screen, there is a possibility of malfunctions occurring in the air suspension system, door system or clutch mechanism. Adopt a cautious driving style. Have the compressed-air system inspected by an EvoBus Service Partner. –In the event of high compressed-air consumption (e.g. raising/lowering system in effect and bus

Display screen symbols

manoeuvring), stop driving until the indicator lamp has gone out.



Note:

For notes on safety and operation, refer to the "Operation" section.

Transmission malfunction (high priority)



This icon appears on the screen in conjunction with a red STOP warning lamp malfunction alert if a malfunction is present in the transmission system.



Danger.

In the event of a red STOP warning lamp malfunction, the bus must be stopped immediately (traffic conditions permitting) and an EvoBus Service Partner must be notified.

Transmission malfunction (low priority)



This icon appears on the screen in conjunction with a yellow warning level malfunction alert if a malfunction is present in the transmission system.



Note:

It is possible to continue driving but only with certain function limitations. Have the transmission system checked as soon as possible by an EvoBus Service Partner.



Caution:

In the event of a yellow warning level malfunction, it is permissible to drive on carefully but the bus should be checked by an EvoBus Service Partner at the earliest opportunity.

Door open (only if connected by the body manufacturer)



Displayed if one or more doors are open.



Danger.

For notes on safety and operation, refer to the operating instructions issued by the body manufacturer.

Kneeling second level (option)



The display symbol is shown when the bus is at second level.

Bus not at normal level (option)



The display symbol is shown whenever the bus is not at normal level.



For notes on safety and operation, refer to the "Driver's area controls" section.

Raise bus (option)



The display symbol is shown when the bus is at raised level.



For notes on safety and operation, refer to the "Driver's area controls" section.

Lower bus (option)



The display symbol is shown during the kneeling process.



For notes on safety and operation, refer to the "Driver's area controls" section.

Lower target level reached (option)



The display symbol is shown when the bus has reached the final kneeling position.



For notes on safety and operation, refer to the "Driver's area controls" section.

Protection against entrapment active - kneeling process obstructed (option)



The symbol is shown on the display screen with a flashing arrow if the bus meets an obstacle during the kneeling process. The kneeling process is being obstructed.

Auxiliary consumers supply pressure too low (option)



The symbol is shown on the display screen with a flashing arrow and circle if the supply pressure in the level control system (NR) is too low.

Display screen symbols



Note:

Faultless operation of the level control system (NR) is not guaranteed.

Engine coolant level



Displayed if the coolant level in the expansion tank has dropped below the minimum level.



Caution:

At the next stop, trace the cause and correct the coolant level. There is a risk of considerable damage to the engine if the coolant level is too low.



Danger.

If the status indicator lights up red at the same time, the coolant must be topped up immediately.



Note:

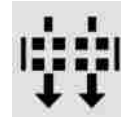
For notes on safety and operation, refer to the "Practical advice" section.

Windscreen washer fluid level too low



The display symbol is shown if the windscreen washer fluid level is too low.

Engine air cleaner contamination (option)



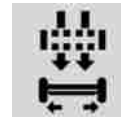
Displayed if the air cleaner is overly contaminated.



Caution:

Service the air cleaner at the next opportunity.

Trailing axle steering oil filter contamination (only model 2542 with steered trailing axle)



Displayed if the oil filter for the oil circuit of the trailing axle steering is overly contaminated.

**Caution:**

Replace the oil filter and renew the oil at the next opportunity.

Trailing axle steering oil level (only model 2542 with steered trailing axle)



Displayed if the oil level in the oil circuit for the trailing axle steering has dropped to the minimum level.

**Danger.**

In conjunction with a red alert: The driving characteristics of the bus may change. Stop the bus (traffic conditions permitting). Have the malfunction rectified by an EvoBus Service Partner.

**Danger.**

In conjunction with a yellow alert: Adopt a cautious driving style. Avoid reversing.

Auxiliary heating



The display symbol is shown when the auxiliary heating is active.

Luggage compartment flap open (only if connected by the body manufacturer)

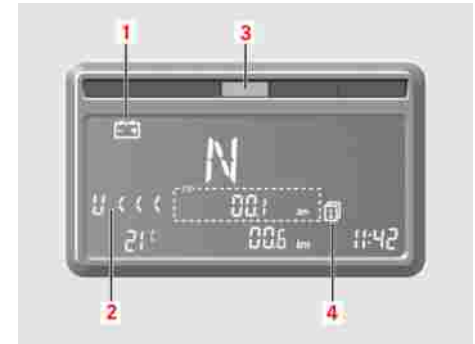


Displayed if one or more luggage compartment flaps are open.

**Danger.**

For notes on safety and operation, refer to the operating instructions issued by the body manufacturer.

Battery undervoltage



M54_30-0141-71

“Undervoltage” warning (2) is displayed on the display screen if the voltage drops below approximately 22 volts while the bus is in motion.

Vehicle manoeuvrability when the air suspension is depressurised



Danger.

The driving and braking characteristics of the bus may change. Stop the bus (traffic conditions permitting) and switch off the engine. Have the malfunction rectified by an EvoBus Service Partner.

Vehicle manoeuvrability when the air suspension is depressurised

The forward section of the chassis and the guidance of the driven axle have been structurally designed in such a way as to ensure that the bus remains manoeuvrable when the suspension air bags have been depressurised.

In this condition, the whole weight of the bus rests on the stop buffers installed in the forward section of the chassis and in the rear axle. These stop buffers are not used when the suspension is operating normally and are designed to prevent the body of the bus from striking the axle only when suspension compression is at its most extreme. The stop buffers are not designed for permanent loading and cannot be used as a replacement for the normal suspension under any circumstances. The bodywork could otherwise suffer damage (cracks, etc.).



Danger.

Although the bus remains manoeuvrable while the suspension is depressurised, it must be driven no faster than walking pace to the nearest lay-by. Notify an EvoBus Service Partner. Whenever work is carried out on the air suspension system, the body must always be supported by jacks and stands positioned at the designated points because the body of the bus could drop relatively quickly in the event of a loss of air.

Operating the pneumatic raising/lowering system (option)

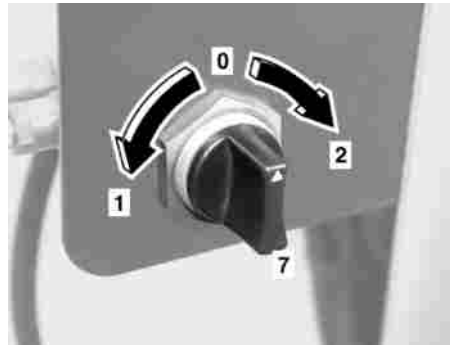
Operating the pneumatic raising/lowering system (option)

**Danger.**

The bus must not be driven faster than walking pace while the raising/lowering system is in effect. An indicator lamp in the instrument panel indicates when the bus has been raised or lowered.

**Note:**

Since this system operates purely pneumatically, the bus can be raised or lowered even with the ignition starter switch OFF. The indicator lamp does not light up in this case.



M32_00-0042-01

- ▶ Rotary knob (7) in centre position (0)

**Note:**

Bus normal level (driving position).

**Note:**

1 = Lower

**Note:**

2 = Raise

- ▶ To raise the bus, turn the rotary knob through 60° away from position (0) and into position (1). To lower, turn raising/lowering system rotary knob through 60° away from position (0) and into position (2).

**Note:**

The suspension air bags are inflated or deflated and the superstructure is raised or lowered by approximately 70 mm respectively.



Three different display symbols may be displayed, depending on the bus' equipment.

Trailing axle auxiliary steering



Trailing axle auxiliary steering

The auxiliary steering at the trailing axle reduces the turning circle, which serves to increase the manoeuvrability of the bus at low speeds by making it easier to turn. An additional benefit is that tyre wear at the trailing axle is reduced. The control principle for the auxiliary steering is based on a combination of hydraulics and electronics.

At speeds of up to 12 mph (20 km/h), the auxiliary steering is steered in proportion to the front axle up to the maximum steering lock available to the trailing axle. At speeds of 12 - 20 mph (20 - 35 km/h), the steering angle at the trailing axle is reduced. Above a speed of 20 mph (35 km/h), the trailing axle is automatically centred (locked in the centre position). This improves driving stability when the bus is driven straight ahead at high speeds.



Note:

In certain situations, it may not be desirable to have the trailing axle steered in proportion to the front axle (e.g. to reduce the extent to which the rear end swings out). For this reason, it is possible to centre the trailing axle manually (locked in centre position) using the push-button on the instrument panel. For description, please refer to the pages that follow.

Manual centring of the trailing axle (engagement in centre position) and cancellation of the centring process.

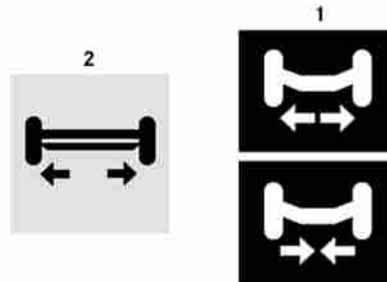
Manual centring of the trailing axle (engagement in centre position) and cancellation of the centring process.

**Note:**

The ignition starter switch must be ON and the bus must not be travelling faster than 12 mph (20 km/h).

**Danger.**

Manual centring or the cancellation of the centring process while the bus is in motion affects the driving characteristics of the bus.



M46_00-0095-01

- ▶ Press and hold the upper section of pushbutton (1) until indicator lamp (2) lights up permanently.

The trailing axle is steered into the centre position and locked in this position.

**Note:**

Indicator lamp (2) flashes while centring is in progress (while pushbutton (1) is being pressed).

**Note:**

The trailing axle is no longer steered with the front axle.

**Note:**

At a road speed of over 25 mph (40 km/h), the manual centring of the trailing axle is cancelled automatically. The trailing axle is steered with the front axle again at speeds of below 20 mph (35 km/h).

- ▶ To cancel centring manually: press and hold the lower section of pushbutton (1) until indicator lamp (2) goes out.

Centring is cancelled. The trailing axle steers into the position specified by the front axle.

Pull-away aid on 3-axle buses



Note:

Indicator lamp (2) flashes while steering is in progress (while pushbutton (1) is being pressed).



Note:

The trailing axle is then steered with the front axle again at speeds of below 20 mph (35 km/h).

Pull-away aid on 3-axle buses

Buses with 3 axles can suffer traction problems in wintry conditions if only one of these axles is a driven axle. In normal driving mode, the suspension air bags of the driven axle and trailing axle are directly linked pneumatically. The dimensions and quantity of the suspension air bags have been purposefully designed to ensure that the axle load is distributed proportionately between the driven axle and trailing axle. The proportion of load borne by the trailing axle has no effect on traction.

When the “pull-away aid” is activated, the pneumatic link between the axles is shut off. At the same time, the suspension air bags on the trailing axle are vented of air, which reduces the load on the trailing axle. The load on the driven axle is consequently increased, which helps to improve traction and cornering forces at the wheels on this axle.



Note:

The pull-away aid cannot be activated unless the bus is travelling at a speed of below 12 mph (20 km/h). For description, please refer to the pages that follow.

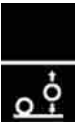
Activating the pull-away aid (axle load transfer)

Activating the pull-away aid (axle load transfer)

**Note:**

The pull-away aid cannot be activated unless the bus is travelling at a speed of below 12 mph (20 km/h).

- ▶ Press pushbutton (1).



The suspension air bags of the trailing axle are vented of air. The load on the driven axle is consequently increased, which helps to improve traction and cornering forces at the wheels on this axle.

An illuminated LED in the pushbutton indicates that the pull-away aid has been activated.

- ▶ The pull-away aid is deactivated if: - pushbutton (1) is pressed again; - the bus travels faster than 18 mph (30 km/h); - the ignition starter switch is switched to OFF.

Important information on the steering system

The dimensions of the steering system and the mechanical steering transmission ratio were designed such that, in the event of a malfunction in the hydraulic power steering system, the effort required to turn the steering wheel would not exceed a specific value deemed by legislators to be the maximum reasonable force.

For vehicles weighing over 12 t, this maximum operating force is 450 N (400 N for vehicles between 3.5 t and 12 t) applied to the steering wheel rim in the straight-ahead position. This force must be sufficient to achieve a turning circle with a radius of 20 m at a road speed of approximately 10 km/h. The 20 m radius turning circle must be achieved within 6 seconds.

The driver must be aware that, in the event of a sudden failure in the power steering (e.g. due to a pump drive malfunction), the bus will remain steerable

Turning the steering wheel when the bus is stationary

but considerably more effort will be required.

Since there is an extremely low probability of this situation occurring - but if it does occur, it often does so completely unexpectedly - the driver could wrongly assume that the steering system has been blocked. However, the bus does remain steerable provided the driver applies the necessary force.

This important information is intended to clarify the scenario described and prevent the driver from possibly misjudging the situation.



Danger.

In the event of a power steering failure, the bus becomes very difficult to steer. Have the malfunction rectified immediately at an EvoBus Service Partner.

Turning the steering wheel when the bus is stationary

- ▶ Adhere to the instructions.



Note:

To prevent damage to the steering column, the following points must be observed when turning the steering wheel with the bus stationary, without hydraulic support (engine switched off) and without a turntable under the front wheels (tyres in direct contact with the ground):

- ▶ Slacken the steering wheel adjuster and push the steering wheel forward and down as far as it can go. Lock the steering wheel adjuster in place. Turn the steering wheel using both hands at an angle of 90° to 180° to one another.



Caution:

Never have more than one person turn the steering wheel. Do not pull the steering wheel on one side only.



Note:

We ask the workshop in particular to note this.

Instrument panel switches and pushbuttons	148
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Instrument panel switches and pushbuttons

Instrument panel switches and pushbuttons



Note:

The illustrations below show the symbols found on the switches and pushbuttons. The layout of the switches and pushbuttons in the bus is determined by the body manufacturer.

- ▷ Observe the operating instructions issued by the body manufacturer.

Hazard warning lamps switch



All the turn signals on the left and right are switched on irrespective of the ignition starter switch position. The indicator lamps in the hazard warning lamps switch and the instrument display panel flash.

Ignition starter switch (option)



All controls and display elements are supplied with power after the switch has been activated. All consumers can be switched on. Whenever the switch is switched to OFF, all consumers and the engine are switched off.



Note:

To switch off, the driver has to slide the safety catch downwards and press the upper section of the switch at the same time.



Note:

Only fitted in buses that are not equipped with a key switch on the steering column.

Engine start pushbutton (option)



Starts the engine when pressed with the ignition starter switch ON and the transmission in neutral position.



Note:

Only fitted in buses that are not equipped with a key switch on the steering column.

ASR OFF pushbutton (acceleration skid control) (option)



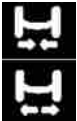
This pushbutton deactivates the ASR function. Pressing the pushbutton again or switching the ignition starter switch to OFF and back ON reactivates the function. The indicator lamp in the indicator lamp panel flashes while ASR is switched off.

**Danger.**

Risk of accident. – Acceleration skid control does not relieve the driver of the responsibility for adopting a driving style which takes traffic and road conditions into account. – The bus could skid if ASR has been switched off and the drive wheels start to spin.

▷ For notes on safety and operation, refer to the “Operation” section of the Operating Instructions.

Pushbutton for centring the trailing axle steering (locking in centre position) (only model 2542 with steered trailing axle)



At speeds of below 12 mph (20 km/h), the auxiliary steering of the trailing axle can be steered to and locked in centre position. The indicator lamp in the instrument panel flashes while centring

is in process. The indicator lamp in the instrument panel is lit whenever the trailing axle is locked in centre position.

**Danger.**

Risk of skidding. Manual centring or the cancellation of the centring process while the bus is in motion affects the driving characteristics of the bus.

▷ For notes on operation and safety, refer to the “Driver's area controls” section of the Operating Instructions.

Pull-away aid pushbutton (model 2542 only)



Pressing the pushbutton on the instrument panel activates the pull-away aid if the bus is travelling at a speed of below 12 mph (20 km/h). If the pull-away aid is already active, pressing the pushbutton deactivates the function. If active, the pull-away aid will be deactivated

automatically as soon as the bus exceeds 18 mph (30 km/h). The LED in the pushbutton is lit while the pull-away aid is active.

**Note:**

Whenever the pull-away aid is activated, the pressure in the suspension air bags of the trailing axle is reduced, thereby increasing the load on the driven axle. This increases traction and makes it easier to pull away on slippery road surfaces.

Horn changeover switch (option)



Lower section of switch pressed: electric horn. Upper section of switch pressed: air horn.

▷ See “Combination switch for light and wiper functions” for horn operation.

Instrument panel switches and pushbuttons

MSS function switch (automatic engine start-stop) (option)

MSS

The automatic engine start-stop (MSS) function enables the engine to be stopped and restarted automatically on journeys involving relatively long waiting times, e.g. in city traffic or journeys with frequent pick-ups and drop-offs.



Environmental protection

The use of the automatic engine start-stop function reduces fuel consumption and is more environmentally friendly.

Auxiliary heating unit ON switch (option)



Switches on the auxiliary heating.



Danger.

Risk of fire and poisoning. – Do not operate the auxiliary heating at filling stations and in enclosed spaces without an extraction system (e.g. in garages).

▷ For notes on safety and operation, refer to the “Heating/ventilation/air-conditioning” section of the Operating Instructions.

Bus stop brake/drive-off lock switch (option)



Two different versions are in use: - bus stop brake only or - bus stop brake combined with drive-off lock. Bus stop brake only: if the switch is pressed, all brakes are applied with a pressure of 2.0 bar. Bus stop brake with drive-off lock: if the switch is pressed, all brakes are applied with a pressure of 2.0 bar and it is no longer possible to increase engine speed

using the accelerator pedal. The drive-off lock may be activated by an opened door, for example. The functions that activate the drive-off lock are determined by the body manufacturer.



Note:

The drive-off lock is active when doors are open, for example (depending on the body manufacturer)



Note:

Precondition: ignition starter switch ON, bus stationary.



Note:

The bus stop brake requires less compressed air than the parking brake. At bus stops, therefore, you should make as much use of the bus stop brake as possible. Do not operate unless the bus is stationary. The indicator lamp in the indicator lamp panel is lit while the bus stop brake is active.

Master safety switch (country-specific)

**Danger.**

Always apply the parking brake correctly before you leave the driver's area (refer to the "Driver's area controls" section of the Operating Instructions). Risk of accident. To park the bus, always apply the parking brake. If necessary (e.g. on steep uphill or downhill gradients), chock the wheels as an additional measure to prevent the bus from rolling away.

▷ For notes on safety and operation, refer to both the "Operation" section of the Operating Instructions and to the instructions issued by the body manufacturer.

Drive-off lock emergency release switch (option)



In emergencies (e.g. technical defect - bus stop brake cannot be deactivated), it is possible to deactivate an active bus

stop brake using the emergency release switch. This makes it possible to continue the journey.

**Note:**

Operation: raise the switch cover and pull up the yellow pin. To reset the switch: press the yellow pin in. Close the switch cover.

**Danger.**

Ensure that the doors and all luggage compartment flaps are securely closed before operating the emergency switch. Adopt a cautious driving style, and always apply the parking brake when the bus is stationary because it is no longer possible to activate the bus stop brake using the switch on the instrument panel. Have the fault rectified by an EvoBus Service Partner as soon as possible.

▷ For notes on safety and operation, refer to the "Operation" section.

Master safety switch (country-specific)

Operation of the master safety switch isolates the bus electrical system from the batteries.

**Danger.**

The switch is for emergency use only (e.g. accident, fire hazard due to short circuit). As the driving and braking characteristics of the bus would be affected, never operate the switch while the bus is in motion.

**Note:**

Operate the emergency-off switch by pressing the red knob. Unlock the switch by turning the red knob anti-clockwise.

Master safety switch (country-specific)

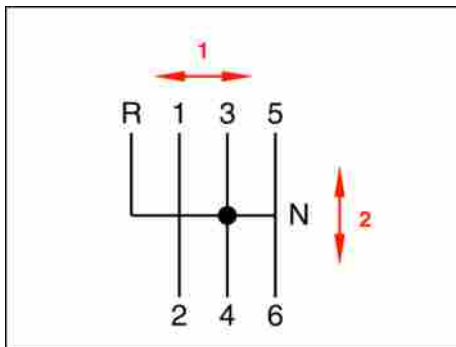


M68_00-0234-71

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Operating the PSH transmission shift system

Operating the PSH transmission shift system



M26_00-0004-01

- ▶ PSH, the pneumatic shift aid, is designed to improve shift comfort. Its pressure is limited to 2.4 bar. If PSH fails, it is still possible to select any of the gears while the bus is in motion, but increased effort will be required. The gearshift duration (shift lever pressed to gear engaged) will be longer because synchronisation will not be as fast.



Note:

This transmission shift system works mechanically/pneumatically. At approximately 90 mm, the shift throws are only half as long as those of conventional shift systems. However, the time that is needed for a gear change in the transmission while synchronisation takes place is almost the same in physical terms. This means that, to engage the next gear, the driver has to move the shift lever handle much more slowly, i.e. only half as fast as before. Disengagement of a gear is just as fast as normal. The best gearshifts are achieved by moving the gear selector lever with gentle force and “waiting” for the PSH gearshift. Nevertheless, faster gear changes are possible in difficult situations.

Operating the automatic transmission



Danger.

Risk of accident. Do not shift down on a slippery road surface (risk of skidding). Press pushbutton “N” when there is a risk of sliding and skidding.



Danger.

Risk of accident. With the transmission in neutral “N” and the brakes released, the bus is free to move. Apply the parking brake and press pushbutton “N” whenever the bus is parked or work is to be carried out on the bus with the engine running. Secure the bus against unauthorised operation.

**Danger.**

Buttons on the gearshift unit are illuminated when pressed down. Risk of accident. If the pressed button begins to flash, this is a warning that there is a severe risk of transmission damage (limited system monitoring). In this event, it is permitted to drive on to the nearest workshop but only with the engine under partial load.



M68_00-0070-01

- ▶ To start the engine: shift the gearshift unit into neutral position (N).

**Note:**

The engine cannot be started unless the transmission is in neutral (starter inhibitor).

- ▶ To engage a gear: select the desired drive range or direction of travel on the gearshift unit.

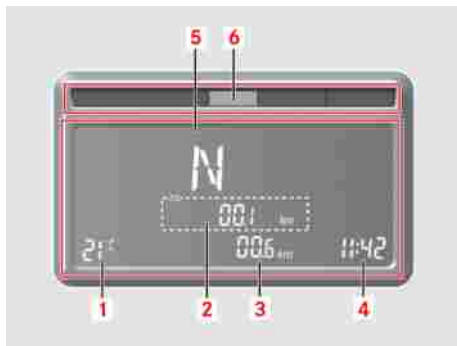
**Note:**

Conditions: bus stationary, service brake applied, accelerator pedal in idle position and engine speed below 900 rpm.

**Caution:**

Never operate the gearshift unit and apply throttle at the same time.

Operating the automatic transmission



M54_30-0106-71

- ▶ The gear engaged (5) is displayed on the display screen.
- ▶ To pull away: wait for 1-2 seconds after having selected the desired drive range.
- ▶ Release the parking brake.
- ▶ Release the service brake and accelerate.



Danger.

Do not release the brake until the bus begins to pull away. There is otherwise a risk of the bus pulling away too soon (bus creep).



Danger.

Risk of accident. On uphill gradients, release the brake and accelerate immediately to prevent the bus from rolling back.



Caution:

At temperatures of below -15 °C, do not pull away immediately. Allow the engine to run and warm up for approximately 5 minutes. Gearshift unit in neutral position.



M68_00-0070-01

- ▶ Driving: the transmission shifts through the individual gears automatically. Which gear is selected depends on: - position of the gearshift unit; - road speed; - accelerator pedal position.



Note:

The engine speed at which the transmission changes gear is highly dependent on the accelerator pedal position.

Accelerator pedal depressed slightly (low throttle) = early upshift

Accelerator pedal depressed far (high throttle) = late upshift

Accelerator pedal depressed beyond the full throttle position as far as the stop (kickdown) = at low engine speeds, the transmission shifts down automatically and upshifts take place at the rated engine speed.



Danger.

Risk of accident. On long downhill gradients, shift down manually into gearshift position 1, 2 or 3 in good time. This limits the range of upshifts. The smaller the drive range selected, the better the braking effect of the engine. However, never allow the engine speed to increase into the red zone on the rev counter. In extreme situations (to protect the engine), the upshift inhibitor is cancelled and the transmission shifts up; apply the service brake if necessary.



Danger.

Risk of accident. Shifting the transmission to “N” while the bus is in motion interrupts the flow of power between the engine and transmission output. This would mean a loss of engine and retarder braking effect; be prepared to apply the service brake.

- ▶ To reverse the direction of travel: before shifting from a forward gear (1 - D) to reverse gear (R) or vice versa:
 - bus stationary;
 - engine running at idling speed;
 - gearshift unit in neutral position (N).



Danger.

Failure to observe this guideline could result in the wheels locking, which could consequently cause the bus to skid.

- ▶ Then select the desired drive range/ direction of travel (refer to “Engaging a gear”).

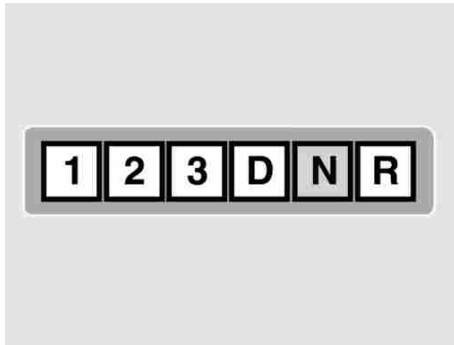
- ▶ Stopping: Temporary stop: leave the gearshift unit in its current position and hold the bus stationary using the service brake or bus stop brake.
- ▶ Long stops and parking: always shift the gearshift unit to neutral position “N”.



Danger.

There is no direct link between axle and engine: secure the bus against rolling away; always apply the parking brake.

Operating the automatic transmission



M68_00-0070-01

- ▶ Selector positions for forward travel:
- ▶ Selector position “D”

The transmission shifts through gears 1 to 5 automatically.

i **Note:**

Drive position “D” provides ideal driving characteristics in almost all operating situations.

- ▶ Selector position 3
The transmission shifts through gears 1 to 3 automatically.

i **Note:**

For driving on slight to moderate uphill gradients, avoids transmission hunting (shifting back and forth) between 3rd and 4th gear.

On a downhill gradient, this selector position makes use of the engine braking effect up to the maximum permissible engine speed in 3rd gear.

- ▶ Selector position 2
The transmission shifts between gears 1 and 2 automatically.

i **Note:**

For driving on moderate uphill gradients, avoids transmission hunting (shifting back and forth) between 2nd and 3rd gear.

On a downhill gradient, this selector position makes use of the engine braking effect up to the maximum

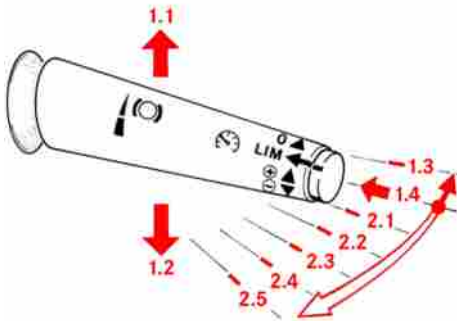
permissible engine speed in 2nd gear.

- ▶ Selector position 1
Only 1st gear is selected.

i **Note:**

For manoeuvring the bus.

On a downhill gradient, this selector position makes use of the engine braking effect up to the maximum permissible engine speed in 1st gear.



M54_00-0082-01

- ▶ The automatic transmission has an integral retarder (wear-resistant auxiliary brake). The retarder is activated on demand using the “combination switch for continuous brakes and cruise control” (refer to the “Driver's area controls” section). It is also possible to have the retarder activated automatically whenever the brake pedal is depressed (continuous brake integration) (option).

**Note:**

Preconditions for retarder operation: - accelerator pedal fully released; - forward drive range (1-D) selected; - bus travelling faster than 2 mph (3 km/h).

**Note:**

Whenever the retarder is active, the transmission is prevented from shifting into the next gear up (upshift inhibitor).

**Danger.**

If the accelerator pedal is depressed while the retarder is active, the retarder is deactivated and the upshift inhibitor is cancelled.

**Danger.**

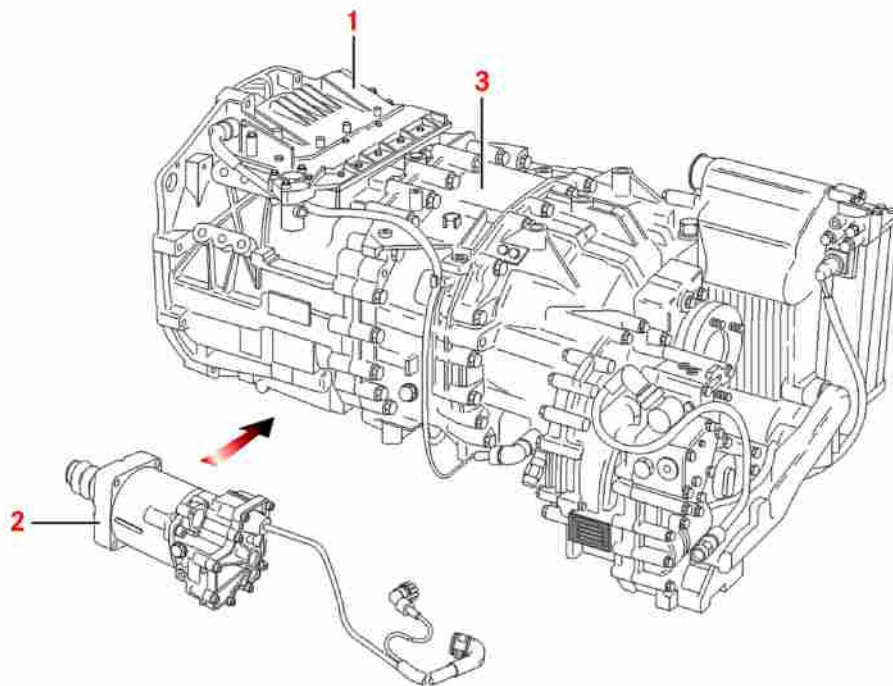
The braking effect of the retarder is automatically reduced in line with a specified oil temperature characteristic curve. The braking output is reduced.

**Danger.**

Risk of accident. Do not use the retarder on slippery roads.

Overview of the ZF-AS TRONIC transmission shift system (option)

Overview of the ZF-AS TRONIC transmission shift system (option)



ZF-AS TRONIC transmission shift system (option) (system description)

- 1 Transmission actuator with integrated electronic transmission control
- 2 Clutch actuator
- 3 ZF-AS TRONIC transmission

ZF-AS TRONIC transmission shift system (option) (system description)

The ZF-AS TRONIC automated manual transmission is adapted to the engine by a dry clutch as standard. As the clutch is controlled automatically by the transmission system, there is no need for a clutch pedal.

The ZF-AS TRONIC consists of a basic transmission with integral splitter and planetary units. The basic transmission is claw-shifted; the splitter and planetary units are synchronised. Gearshifts are carried out automatically by the transmission system.

The screen in the instrument panel shows the driver all the essential system information (e.g. gear, malfunction, etc.). The transmission actuator (shift module) and the clutch control unit (clutch actuator) are the most important components for a fully automated transmission. The transmission actuator comprises the transmission electronics, shift valves, shift cylinders and sensors. The trans-

mission electronics process all incoming signals and initiate the gearshift by means of the solenoid valves and shift cylinders. The clutch actuator is regulated electropneumatically and is entirely responsible for clutch operation.

It is not necessary to alter the position of the accelerator pedal at any time during the gearshift. Clutch operation is regulated by the electronic transmission control in relation to accelerator pedal operation. During the gearshift, the engine control is regulated by the electronic transmission control.

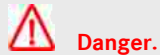
In automatic drive mode, the transmission system selects the optimum starting gear automatically. As soon as the accelerator pedal is depressed, the clutch closes automatically and the bus starts to move. The transmission system shifts up and down automatically while the bus is in motion. In automatic mode, the transmission system avoids gearshifts that would result in the engine overrevving or stalling. The driver can use the selector lever to intervene manually at any time – in difficult road situations, for

Operating the ZF-AS TRONIC transmission shift system (option)

example – without easing off the accelerator pedal. In the process, automatic mode is inhibited for a maximum of 10 seconds.

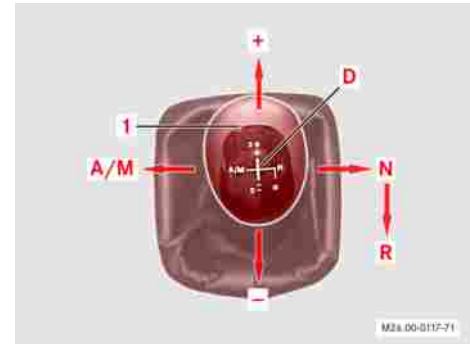
Using the selector lever, the driver is also able to select an alternative starting gear to the gear proposed by the system. As soon as the accelerator pedal is depressed, the clutch closes automatically and the bus starts to move. The driver selects the desired gears using the selector lever. The driver should avoid uneconomical driving styles characterised by long distances driven at unnecessarily high engine speeds. The engine may stall if the accelerator pedal is depressed in a gear that is too high.

Operating the ZF-AS TRONIC transmission shift system (option)



Danger.

Never leave the driver's area with the engine running and a gear engaged. The bus could roll away inadvertently. Risk of accident.



M26_00-0117-71

- ▶ Before the engine is started, the parking brake must be engaged and selector lever (1) must be in position “N”.

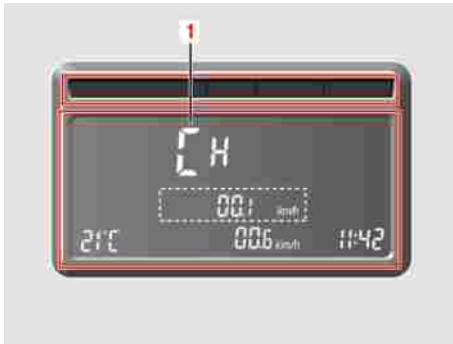


Note:

Press the selector lever to the right as far as the stop.

- ▶ Switch on the ignition (ignition starter switch)

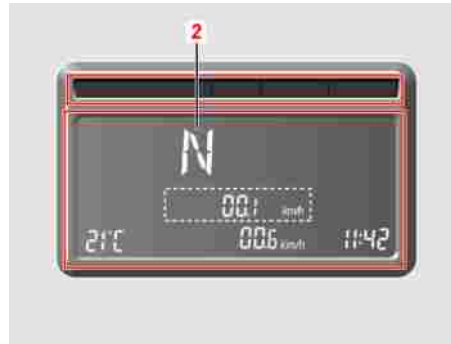
Operating the ZF-AS TRONIC transmission shift system (option)



M54_30-0159-71

The shift system now carries out a self-check and the message “CH” (1) appears on the screen.

- ▶ Start the engine



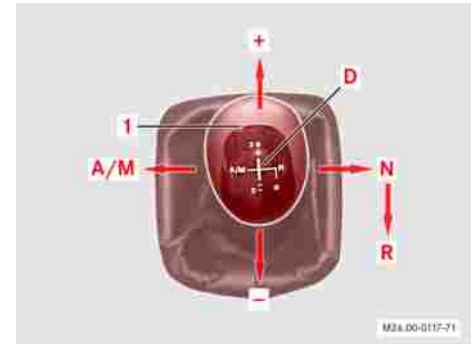
M54_30-0160-71

The self-check is completed, the screen display changes from “CH” to “N” (2) and the transmission is in the neutral position.



Note:

It is not possible to change gear with the engine switched off.



M26_00-0117-71

- ▶ Depress the brake pedal and press selector lever (1) to the left into centre position (“D”).



Note:

The driver has to depress the brake pedal in order for the system to be able to engage a preselected gear (“D” or “R”).

Operating the ZF-AS TRONIC transmission shift system (option)



M54_30-0161-71

The automatic drive mode is now enabled and the screen shows engaged starting gear (1) (the starting gear is selected by the system itself, the clutch remains disengaged).



Note:

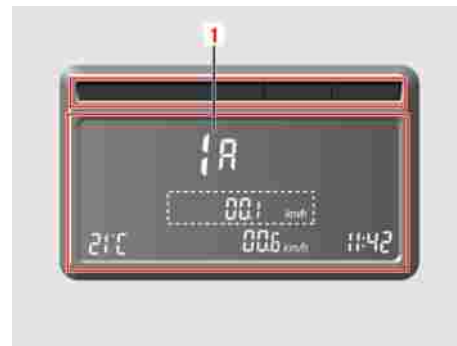
Automatic mode is indicated by the "A" on the display screen.



Note:

After an engine start, 3rd gear is selected as the starting gear by default. However, the system automatically preselects a lower gear if the bus is on an uphill gradient and the selected starting gear is too high.

- ▶ The starting gear proposed by the system can also be corrected by the driver in the range from the minimum starting gear (1st gear) to the maximum starting gear (4th gear). The correction is made by moving selector lever (1) forwards (up one or two gears) or to the rear (down one or two gears).



M54_30-0162-71

Current starting gear (1) is displayed on the screen.

Operating the ZF-AS TRONIC transmission shift system (option)



M26_00-0023-01

- ▶ Depress accelerator pedal (5) and simultaneously release parking brake (4).



Danger.

The bus may roll away if you do not depress accelerator pedal (5).



Danger.

There will be no engine braking effect if the bus starts to move without a gear engaged (selector lever at “N”). Do not allow the bus to roll against the direction of travel of the gear that is currently engaged.



Note:

The location of parking brake valve (4) may differ, depending on the body manufacturer.

- ▶ The bus starts to move (clutch closes automatically).
- ▶ Manoeuvring the bus



Note:

1st, 2nd and reverse gear are manoeuvring gears intended to support extremely slow driving. Manoeuvring mode is not supported in other gears. Select a suitable gear by briefly pressing the selector lever towards “-”. The system interprets the driver's manoeuvring intention from

the position of the accelerator pedal and the low driving speed. In manoeuvring mode, the bus (accelerator pedal) is more sensitive and clutch control characteristics differ from those of normal mode.



Danger.

Risk of accident. Depending on the position of the accelerator pedal and the speed of the bus, the system may quit manoeuvring mode and return to pulling-away mode. The bus may accelerate unexpectedly.



Note:

There is no time limit for manoeuvring mode.



The icon above appears on the display screen in the event of clutch overload.

Operating the ZF-AS TRONIC transmission shift system (option)



Caution:

The overload could result in damage to the clutch if the driver fails to react accordingly to this screen display.



Danger.

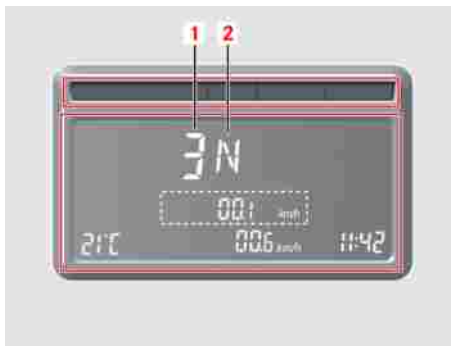
If the driver does not react accordingly to this screen display, the system quits manoeuvring mode and returns to pulling-away mode. The bus may accelerate. Risk of accident.



Note:

If this icon is displayed, the transmission will, in automatic drive mode, shift into a lower starting gear (e.g. from 3rd to 2nd gear) the next time the driver pulls away.

- Forced neutral



M54_30-0173-71

If the vehicle remains stationary for a specified length of time with a gear engaged, “forced neutral” symbol (2) begins to flash on the display screen.

After a defined period, the flashing symbol (2) on the display screen goes out and the transmission automatically selects neutral.



Note:

When this happens, the selector lever remains in the drive mode selected by the driver. To be able to pull away, the driver has to return the selector lever to the neutral position and then move it back to the desired drive mode.



Note:

The event is additionally signalled by a warning buzzer



Note:

To hold the bus stationary, always apply the service brake or parking brake.

Operating the ZF-AS TRONIC transmission shift system (option)



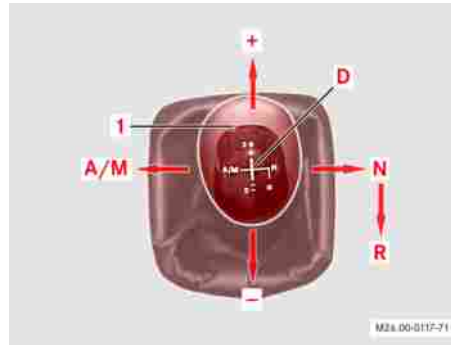
M26_00-0023-01

► Hill start



Danger.

For a hill start, the parking brake must be engaged and a gear selected (selector lever in “D” or “R”). Parking brake (4) must not be released until accelerator pedal (5) has been depressed, otherwise the bus will roll backwards. Risk of accident.



M26_00-0117-71

► To change mode of operation: manual/automatic



Note:

It is possible to change between automatic drive mode and manual mode at any time.



Note:

To change between manual and automatic mode and vice versa, press selector lever (1) to the left.



Note:

In automatic drive mode, the driver is able to intervene manually at any time by moving selector lever (1) forwards or backwards.

► Gearshifts in automatic drive mode



Note:

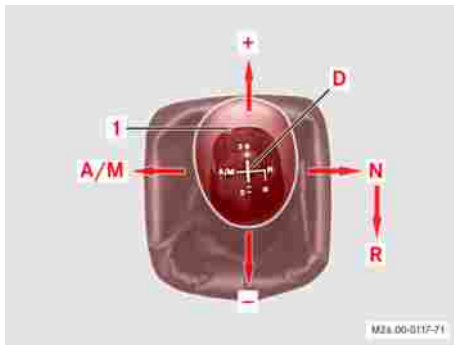
All upshifts and downshifts are carried out automatically. These take place in response to the driving situation, engine load, accelerator pedal position, road speed and engine speed.

Operating the ZF-AS TRONIC transmission shift system (option)



M54_30-0161-71

Screen display in automatic drive mode (gear indicator 1-12 with “A”).



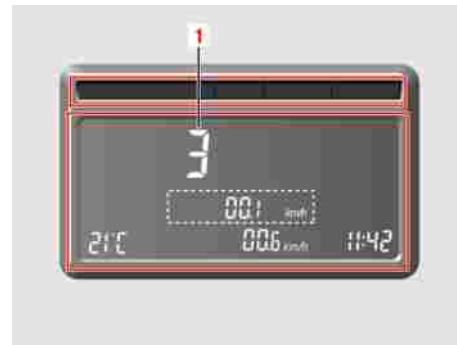
M26_00-0117-71

► Gearshifts in manual mode



Note:

Move selector lever forwards (up one or two gears) or to the rear (down one or two gears).



M54_30-0163-71

Screen display in manual mode (gear indicator 1-12 without “A”).

► Skipping gears in manual mode



Note:

To skip one gear: press selector lever (1) through two detents in the desired direction (forwards or to the rear).

Operating the ZF-AS TRONIC transmission shift system (option)

**Note:**

To skip two gears: in quick succession, press selector lever (1) up to the first spring point once and then press it in the desired direction once as far as the stop.

**Note:**

It is possible to shift from any gear to neutral at any time using selector lever (1). This gearshift has priority.

**Danger.**

It is even possible to shift into neutral while the bus is in motion. If neutral is selected, the drive train will be disconnected. There would no longer be any engine braking effect.

**Note:**

It is not necessary to alter the position of the accelerator pedal during a gearshift because the transmission control regulates the engine control automatically.

**Note:**

A shift command is not executed if the gearshift would result in the maximum engine speed (cut-off speed) being exceeded.

- Engine braking effect during a gearshift

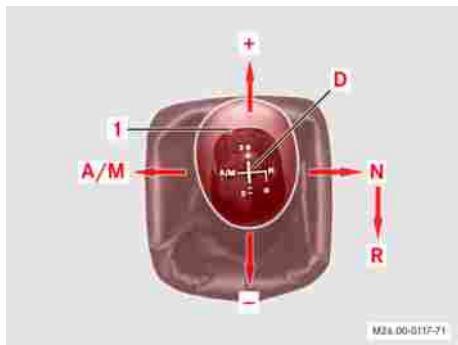
**Note:**

The braking effect of the engine is temporarily interrupted for the duration of a gearshift (drive train disconnected by the transmission system). Once the shift has been completed, the engine braking effect is automatically restored.

**Danger.**

The engine braking effect is interrupted for the duration of the gearshift. The bus may accelerate if you are driving downhill at this time.

Operating the ZF-AS TRONIC transmission shift system (option)



M26_00-0117-71

▶ Selecting reverse gear



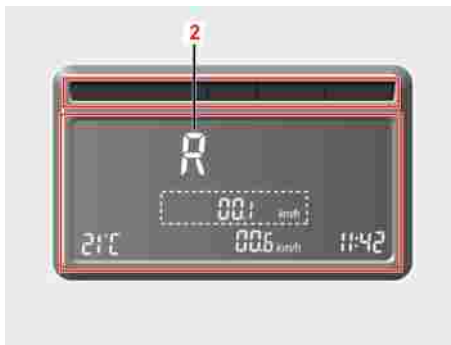
Note:

The bus must be stationary



Note:

Depress the brake pedal and move selector lever (1) to “R”.



M54_30-0172-71

“R” (2) is displayed on the screen (the clutch remains disengaged).



Note:

Depress the accelerator pedal and simultaneously release the parking brake (clutch closes automatically). The bus reverses.



Danger.

The transmission does not shift into reverse gear if the bus is already in motion. Stop the bus immediately.

▶ Changing the direction of travel



Note:

Depress the brake pedal. Move selector lever (1) from centre position “D” (forward travel) through “N” (neutral) to “R” (reverse travel).



Danger.

To change the direction of travel (selector lever from “R” to centre position “D” or vice versa), the bus must be stationary, otherwise the transmission will shift into neutral. Only the screen display provides a reliable indication of which direction of travel is selected inside the transmission.

Operating the ZF-AS TRONIC transmission shift system (option)

► Stopping the bus

Note:

With the accelerator pedal released, bring the bus to a halt by applying the service brake.

To prevent the engine from stalling, the clutch disengages automatically before the bus comes to a halt.

Note:

To hold the bus stationary, always apply the service brake or parking brake.

Note:

For lengthy stationary periods, shift the transmission into neutral.

Danger.

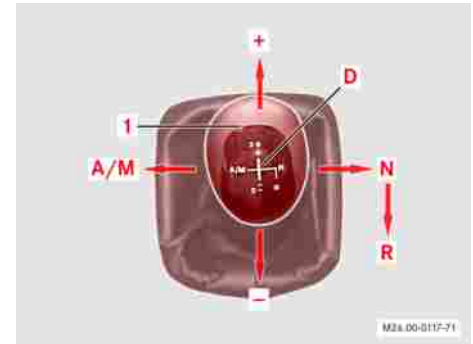
When the bus is stationary with the engine running and a gear selected, the slightest depression of the accelerator pedal is enough to set the bus in motion.

Danger.

Before you leave the driver's area, always shift the transmission into neutral and apply the parking brake.

Danger.

Operation of the parking brake while the bus is in motion over a slippery surface may cause the engine to stall. The bus could skid and the power steering would no longer be available.



M26_00-0117-71

► Parking the bus and switching off the engine

Note:

Bring the bus to a halt, engage the parking brake and move selector lever (1) to "N" (neutral). Switch off the engine using the ignition starter switch.

Operating the ZF-AS TRONIC transmission shift system (option)



Note:

If you did not shift the transmission into neutral before you switched off the engine, neutral will be selected automatically when you switch the ignition starter switch to OFF.



Danger.

If the engine is switched off with a gear engaged and then switched on again, it will be necessary to move selector lever (1) to "N" first and then back to centre position "D" again.



Danger.

It is not possible to switch off (park) the bus with a gear engaged. The parking brake must be applied before the driver's area is vacated. The bus could roll away if no brake has been applied. Chock the wheels as an additional safeguard.

- ▶ Engine overspeed protection in manual and automatic drive modes



Note:

For the protection of the engine and transmission, the electronics system prevents gearshifts from taking place if they would cause the engine to rev at a speed outside the specified engine speed range.



Note:

In manual drive mode, care must be taken to ensure that the speed of the engine does not exceed the permissible speed range. There would be no automatic upshift if the bus were to accelerate when driving downhill.



Caution:

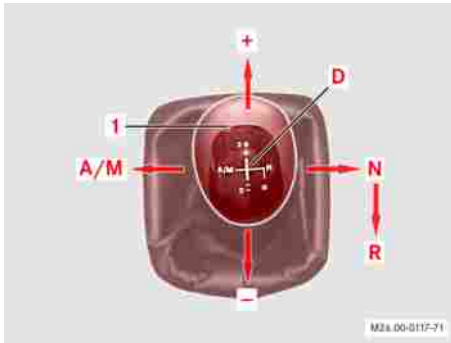
The engine could be damaged if the bus were to accelerate on a downhill stretch and the speed of the engine were allowed to enter the overspeed range.



Danger.

In automatic drive mode, the bus may accelerate when driving downhill. The transmission system shifts up to prevent damage to the engine in the overspeed range (red range).

Operating the ZF-AS TRONIC transmission shift system (option)



M26_00-0117-71

► Notes on roller dynamometers

i Note:

When the bus has been driven into position on the roller dynamometer (brake test stand), move selector lever (1) to "N".

As soon as the roller begins to turn, the system interprets that the bus is being driven. If only the driven axle is on the roller, the system interprets that an ABS/ASR fault has occurred because the front wheels do not turn.

i Note:

It is not possible to shift to reverse gear when the roller is turning. The clutch will close if a gear is engaged.

! Danger.

The bus may drive off the roller even if the accelerator pedal is not depressed.

► Starting the bus at low temperatures

i Note:

The transmission has been filled in accordance with EvoBus Specifications for Service Products. This means that it can be used at outside temperatures down to -20 °C without any effect on functionality.

! Caution:

At outside temperatures of between -20 °C and -35 °C, the transmission requires a warm-up phase after the engine has started. To warm up the transmission oil, the engine must be allowed to run for at least 10 minutes with the bus stationary (at an elevated idling speed of approximately 1,500 rpm).

! Caution:

At outside temperatures of below -35 °C, it is necessary to warm the transmission up to a temperature of over -30 °C using hot air before the engine is started. The transmission must not be subjected to a heat of over +130 °C. Do not direct the heat at the transmission actuator or clutch actuator.

Operating the ZF-AS TRONIC transmission shift system (option)

- ▶ Bus operation at permanent outside temperatures of between 0 °C and -40 °C



Note:

Special guidelines apply if the bus is to be operated at permanently low temperatures. These guidelines must be requested from an EvoBus Service Partner.

- ▶ Parking the bus at low temperatures



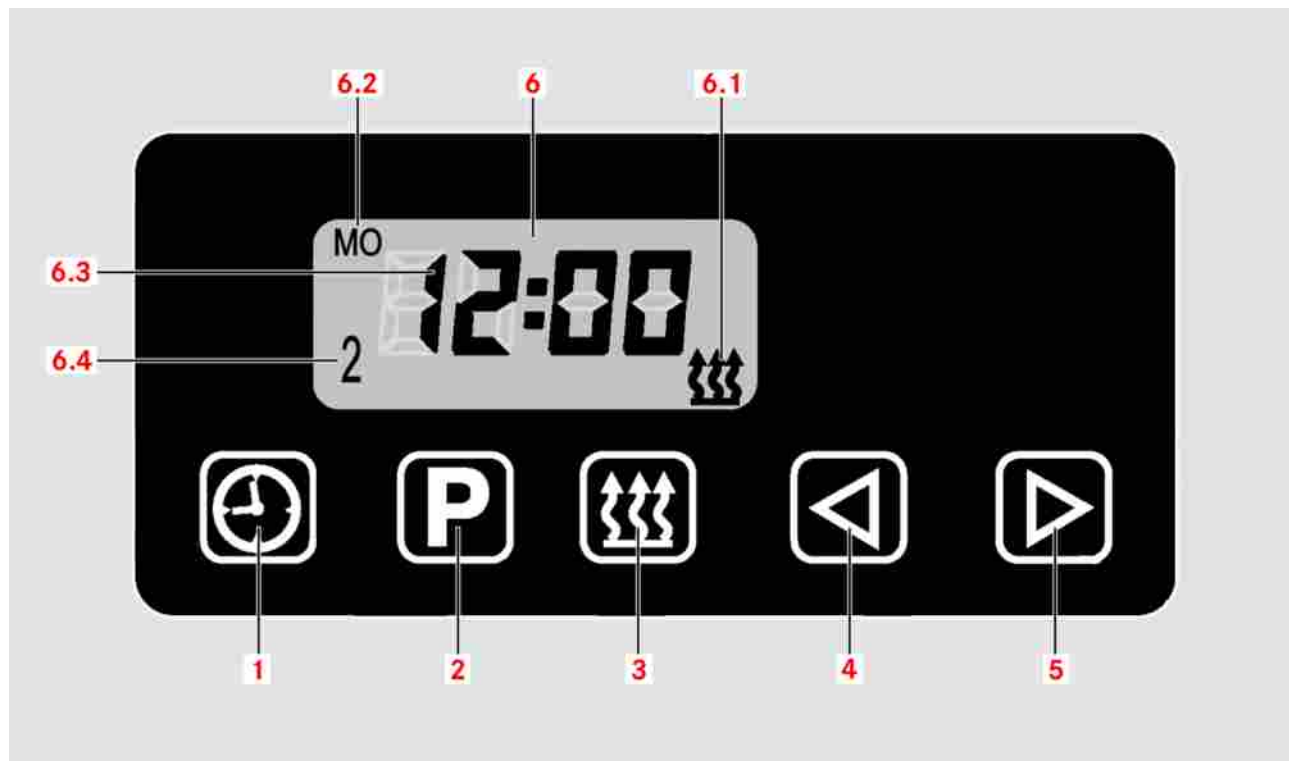
Note:

The bus may be parked for long periods at outside temperatures down to -40 °C.

Auxiliary heating preset timer (option)	176
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Auxiliary heating preset timer (option)

Auxiliary heating preset timer
(option)



- 1 Time button: Display time/set time (press for longer than 2 seconds)
- 2 Program selection: Heating start preset time: display, set, delete
- 3 Instant heating: Switch auxiliary heating on and off manually
- 4 Back: All symbols flashing on the display screen can be adjusted using this button. Pressing this button for longer than 2 seconds activates rapid scroll.
- 5 Forward: All symbols flashing on the display screen can be adjusted using this button. Pressing this button for longer than 2 seconds activates rapid scroll.
- 6 Screen display
 - 6.1 Operating display
 - 6.2 Weekday
 - 6.3 Time display
 - 6.4 Storage location

Operating the auxiliary heater (option)



Danger.

Risk of explosion and asphyxiation. Heater operation is prohibited: - at filling stations or fuel depots. - in places where ignitable vapours or dust can accumulate (e.g. fuel, coal, saw dust or grain stores). - in enclosed spaces (e.g. bus depot).



Caution:

The heater must be operated at least once a month, with the engine cold, for at least 10 minutes



Note:

The preset timer can be used to preselect the heating start time for a period of up to seven days. It is possible to program three switch-on times, although only one of these can be selected for activation. With the ignition starter switch ON, the clock displays the current time and the day of the week. The display screen and

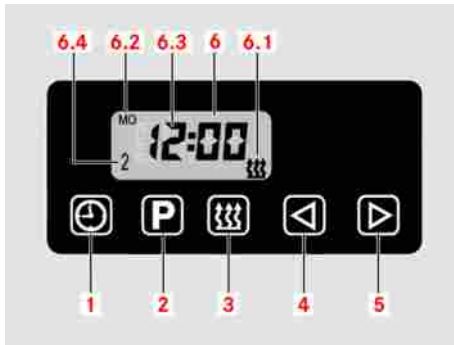
buttons are illuminated while the heater is in operation. Following reconnection to the power supply, all symbols on the display begin to flash. It is necessary to reprogram the time and the weekday.



Note:

If the ignition starter switch is switched to OFF with the heater operating in continuous heating mode, a countdown time of 15 minutes will appear in the display and the heater will continue to operate until this time has elapsed.

Operating the auxiliary heater (option)



M83_00-0730-71

- ▶ All flashing symbols can be set using buttons (4 and 5). The displayed time is stored automatically if 5 seconds elapse with no button being pressed. Pressing button (4) or (5) for longer than 2 seconds activates rapid scroll.
- ▶ To switch on the auxiliary heater with preset timer: press button (3).
The auxiliary heating is switched on manually.

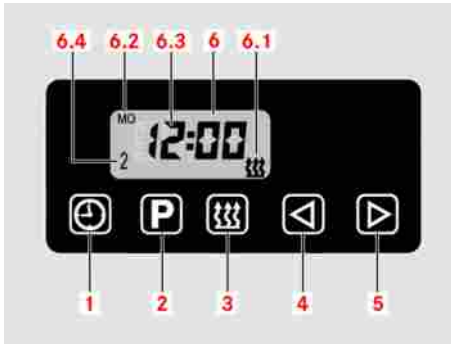
- ▶ To switch off the auxiliary heater: press button (3) again.
The auxiliary heating is switched off manually.
- ▶ To view the time with the ignition starter switch OFF: press button (1).
- ▶ To set the time/day: press and hold button (1) for longer than 2 seconds
Time (6.3) flashes.
- ▶ Set the time using buttons (4) and (5).
Now the weekday (6.2) flashes and can be set using buttons (4) and (5).
- ▶ To program the start of heating: press button (2).
Preset 1 (6.4) flashes.
- ▶ Set the time using buttons (4) and (5).
Weekday (6.2) flashes.

- ▶ Set the weekday using buttons (4) and (5).
Time (6.3) flashes.



Note:

To set presets 2 and 3 (6.4), press button (2) repeatedly to display the preset concerned and then proceed as described above.



M83_00-0730-71

- ▶ To view the preset times: press button (2) repeatedly until the desired preset is displayed.
- ▶ To clear the preset time: press button (2) repeatedly until the time but no preset is displayed.
- ▶ To program the switch-on duration: the heater must be OFF. Press and hold button (4) for longer than 3 seconds.

Switch-on duration flashes

- ▶ Set the desired switch-on duration using buttons (4) and (5).

i **Note:**

The switch-on duration can be set to any value between 10 and 120 minutes.

- ▶ To set the countdown time: set the desired countdown time using buttons (4) and (5).

i **Note:**

The countdown time is the time for which the heater will remain in operation. The countdown time cannot be adjusted unless the heater is currently in operation and the ignition starter switch is OFF.

i **Note:**

The countdown time can be set to any value between 10 and 120 minutes.

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Driving systems (overview)

Driving systems (overview)

The bus may be equipped with the following driving systems:

- Variable speed limiter (TempoSet)
- Cruise control (combined drive/brake cruise control)



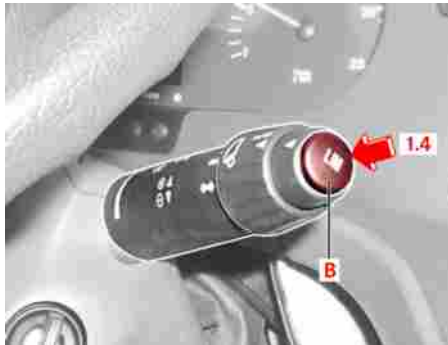
Danger.

The driving systems listed are only an aid to assist the driver, e.g. to drive at a preselected road speed. The driver is responsible at all times for the actual speed of the bus and for maintaining an adequate distance from the vehicle in front.



Caution:

In the case of buses with manual transmission, the driver must be prepared to change gear in order to regulate engine speed whenever the bus is being accelerated or decelerated by cruise control.



M54_00-1002-01

It is possible to switch between the variable speed limiter (TempoSet) and drive/brake cruise control driving systems at any time while the bus is in motion. The symbol for the selected driving system is shown on the display screen.



Note:

Press button (B) to switch between combined drive/brake cruise control and the variable speed limiter (TempoSet).

cruise control” in the “Driver's area controls” section.

▷ For further notes on operation, refer to “Combination switch for retarder and

Variable speed limiter (TempoSet)

Variable speed limiter (TempoSet)

The speed limiter enables the driver to set any speed above 15 km/h as a limit speed. Using the accelerator pedal, it is no longer possible to exceed the limit speed set.



Danger.

The speed limiter regulates the speed of the bus automatically in order to prevent it from exceeding the set limit speed. The speed limiter is unable to interpret road and traffic conditions itself.



Note:

The retarder is activated automatically if the set limit speed is exceeded by more than 4 km/h in overrun mode.



Danger.

The speed limiter is only an aid designed to assist driving. You are responsible at all times for the speed of the bus and for maintaining an adequate distance to the vehicle in front. Do not use the speed limiter unless traffic conditions permit a constant speed to be maintained.

Activating the variable speed limiter (TempoSet)



Note:

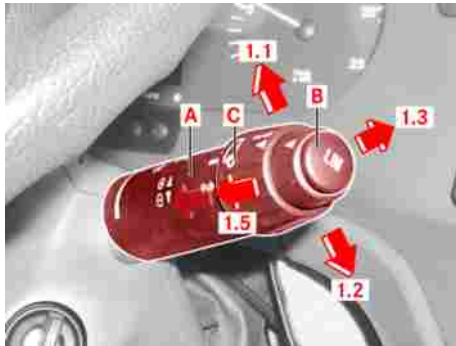
It is possible to exceed the stored limit speed, e.g. when overtaking. To do this, depress the accelerator pedal briefly beyond the full-throttle position as far as the stop. As soon as the overtaking manoeuvre is over, release the accelerator pedal briefly and depress it again. This will reactivate the set limit speed.



Note:

If the bus is travelling faster than the stored limit speed at this time, the bus will be decelerated automatically by the retarder.

Activating the variable speed limiter (TempoSet)



M54_00-0993-01

- ▶ Press function toggle button (B) repeatedly until LIM appears on the display screen



Note:

The variable speed limiter (TempoSet) is now selected.

- ▶ Move steering column switch (A) to position (1.1).



Note:

The variable speed limiter (TempoSet) is now activated.

- ▶ Use the accelerator pedal to accelerate the bus up to the desired speed.
- ▶ Briefly move steering column switch (A) to position (1.1).



M54_30-0121-71

The “LIM” icon and the stored maximum speed are shown on the dis-

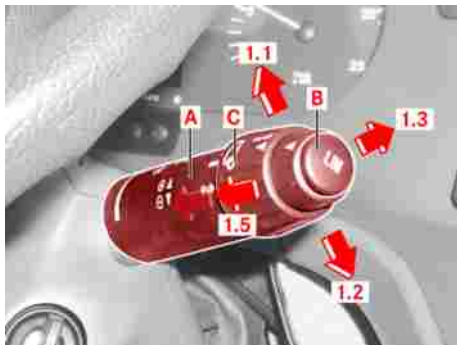
play screen whenever the variable speed limiter (TempoSet) is active.



Note:

Briefly pressing the steering column switch to position (1.1) or position (1.2) now increases or reduces the stored limit speed in increments of 0.5 km/h respectively.

Combined drive/brake cruise control



M54_00-0993-01

- ▶ Hold steering column switch (A) in position (1.1) for some time.

i **Note:**

The maximum speed is increased in increments of 5 km/h.

- ▶ Hold steering column switch (A) in position (1.2) for some time.

i **Note:**

The maximum speed is reduced in increments of 5 km/h.

- ▶ Release the steering column switch.

i **Note:**

The selected limit speed is stored.

Combined drive/brake cruise control

Combined drive/brake cruise control is able to control both the engine and the retarder. The system maintains a stored cruising speed provided there is sufficient engine power output or retarder braking torque available (with a tolerance of +4 km/h on downhill gradients). On level surfaces and on uphill gradients, the speed is regulated by the engine (drive cruise control). On downhill gradients, the speed is regulated by the retarder (brake cruise control). The speed is maintained constant only for as long as the braking performance of the retarder remains sufficient for this to be possible. If necessary, shift down and reduce speed.

Activating combined drive/brake cruise control



Danger.

To maintain the stored speed, combined drive/brake cruise control automatically operates either the engine control in order to accelerate the bus (drive cruise control) or the engine brake and retarder to decelerate the bus (brake cruise control). Combined drive/brake cruise control is unable to interpret road and traffic conditions itself. For this reason, do not activate combined drive/brake cruise control on slippery road surfaces, in fog or in difficult road and traffic conditions. You could fail to recognise dangers in good time, and endanger yourself and others. When driving on a slippery road surface, the wheels could lock and the bus could skid.



Danger.

The cruise control function is only an aid designed to assist driving. The driver is responsible at all times for the speed of the bus and for maintaining an adequate distance to the vehicle in front. Do not use cruise control unless traffic

conditions permit a constant speed to be maintained. On steep uphill or downhill gradients, it may not be possible for a constant speed to be maintained. Take your foot off the accelerator pedal when cruise control is active.



Note:

The retarder may be activated for additional braking force. The cruise control system will remain active. The service brake may also be applied while the bus is being braked by the retarder. The cruise control system will remain active. If cruise control is braking the bus using the retarder, the retarder will not be deactivated if the service brake is then applied. As soon as the retarder is deactivated, the bus will accelerate to the previously stored speed.

Activating combined drive/brake cruise control



Note:

Precondition: bus travelling faster than 10 mph (15 km/h). The clutch and service brake pedals must be fully released and the continuous brakes must not be active.



Note:

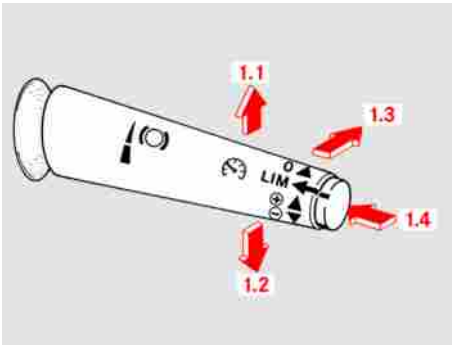
The speed is maintained constant only for as long as the braking performance of the retarder remains sufficient for this to be possible. If necessary, shift down and reduce speed.



Note:

It is possible to exceed the stored speed, e.g. when overtaking. To do this, depress the accelerator pedal. When the overtaking manoeuvre is over, release the accelerator pedal again. Cruise control will regulate the speed of the bus to the stored cruising speed.

Activating combined drive/brake cruise control



M54_00-1003-01

- ▶ Briefly move the steering column switch to position (1.1) or (1.2) (< 0.5 seconds).

i **Note:**

Moving the steering column switch to position (1.2) enables you to call up a previously stored speed.



M54_30-0122-71

The cruising speed set is shown in the display.

i **Note:**

Repeated and brief movement to position (1.1) (< 0.5 seconds) = set speed increased in increments of 0.5 km/h. Repeated and brief movement to position (1.2) (< 0.5 seconds) = set speed reduced in increments of 0.5 km/h.

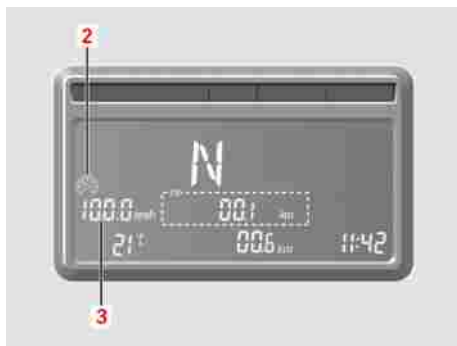
i **Note:**

Holding the steering column switch (> 0.5 seconds) in position (1.1) accelerates the bus. When the combination switch is released, the current speed is set as the new value.

i **Note:**

Holding the steering column switch (> 0.5 seconds) in position (1.2) decelerates the bus. When the combination switch is released, the current speed is set as the new value.

Operating/malfunction displays: driving systems



M54_30-0123-71

After a brief delay, the cruising speed set (3) appears on the display screen along with “cruise control” icon (2) (see illustration).

- ▶ Move the steering column switch to position (1.3).

Combined drive/brake cruise control is deactivated. Cruise control is deactivated automatically:



Note:

- if the bus is braked using the service brake and cruise control is currently in operation. The speed set remains stored.



Note:

- if the speed of the bus drops below 10 mph (15 km/h); a short warning signal will sound. The speed set remains stored.



Note:

- if the clutch pedal is depressed for longer than 5 seconds, e.g. during gear selection. A short warning signal will sound.

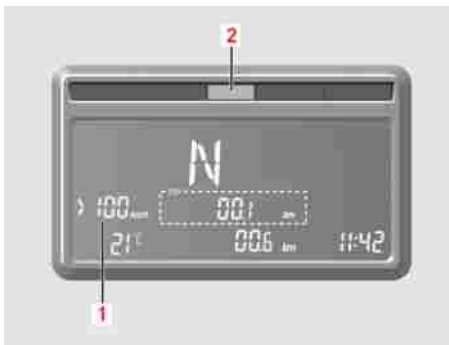


Note:

- if the transmission is shifted to the neutral position for longer than 5 seconds. A short warning signal will sound.

Operating/malfunction displays: driving systems

Overspeeding warning message (option)



M54_30-0130-71

Depending on the customer's specification, warning message (1) may be displayed on the instrument cluster display screen together with a red warning level malfunction (2) if a permanently defined speed (100 km/h in the example) is exceeded. A warning tone also sounds.



Danger.

To avoid the risk of endangering passengers and other road users, it will be necessary to brake the bus using the service brake.



Note:

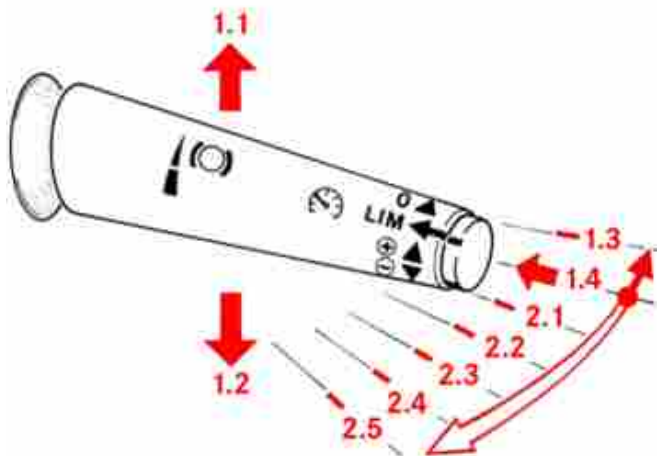
The menu that was displayed at the time of the warning returns to the display screen as soon as the speed of the bus drops back below the defined maximum speed.



Note:

The driver is not able to change the permanently defined speed.

Engine speed increase



Engine speed increase (option)

Precondition: bus stationary, engine running.

i Note:

This symbol is displayed together with a yellow alert in the event of an engine speed increase.

- 1.1 The engine speed is infinitely variable up to a maximum of 750 rpm.
- 1.3 Engine speed increase off, normal idling speed

i Note:

Combination switch, illustration similar

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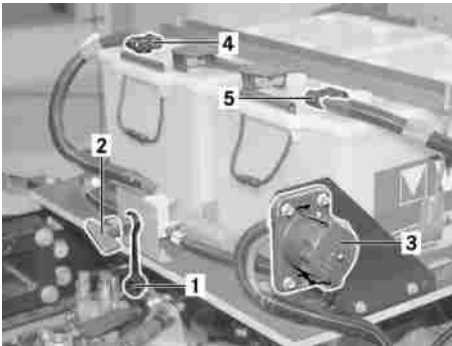
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Safety precautions for work carried out in the engine compartment

Safety precautions for work carried out in the engine compartment



M54_00-0806-01

 **Danger.**

Risk of fatal injury. Freely rotating parts in the area of the running engine and the drive train can cause serious injuries. Never leave the engine running when work is carried out in the engine compartment. Prevent the engine from being switched on without authorisation. To do this, switch off and pull out the battery isolating switch (2).

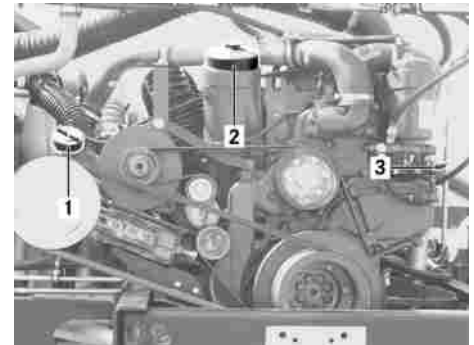
 **Danger.**

Risk of burns. Hot components in the engine compartment may cause burns. If the engine is at operating temperature, leave it to cool down.

Checking the engine oil level

 **Danger.**

For work in the engine compartment: secure the bus against starting. Remove the key from the ignition starter switch.



M18_00-0024-01

- ▶ Pull out dipstick (3) with the engine switched off and at normal operating temperature.

Emergency operation of the engine cooling system fan drive



Note:

The oil level must be visible between the 2 arrows on dipstick (3).



Note:

The oil level must be checked with the bus standing horizontal.



Note:

After you have switched off the engine, wait approximately 10 minutes to allow the oil to collect in the oil sump.

- ▶ At filler opening (1), add the top-up volume required in accordance with the Specifications for Service Products. Then make sure that you fit the filler cap firmly and correctly.



Note:

We recommend that you top up the engine oil level only if it has dropped to the “min” mark. In this case, top up the engine oil to the “MAX” mark (approximately 6 litres). Do not overfill under any circumstances.



Note:

The new engine oil level will not appear on the display screen immediately (only after a driving time of approximately 15 minutes).

Emergency operation of the engine cooling system fan drive



Note:

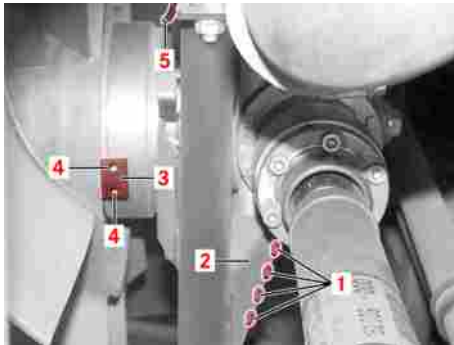
Required in the event of faulty electrical control or defective electromagnetic coupling.



Danger.

Risk of injury. Take particular care in the proximity of hot parts. Prevent the engine from being switched on accidentally. Remove the key from the ignition starter switch.

Checking the coolant level of the engine and heating system



M20_00-0036-01

- Switch the ignition starter switch to OFF and remove the key. Open the engine compartment flap. Disconnect electrical connection (5) to the electromagnetic coupling. Unscrew and remove the 4 emergency screws (1) on fan spider (2). Turn the fan blades so that the 2 angle plates (3) are positioned with the bore holes over tapped holes (4) in the fan coupling. Screw in the emergency screws and tighten them. Close the engine compartment flap. Start the engine briefly to gain access to the second angle plate (3). Switch the

ignition starter switch to OFF and remove the key. Open the engine compartment flap again to screw in and tighten the remaining two emergency screws (1).



Caution:

Always screw in and tighten all four of the screws. The angle plates could otherwise break away.

The fan is now rigidly connected to the drive, runs continuously with it and is no longer able to regulate coolant temperature.



Caution:

Have the electrical control and regulation of the electromagnetic coupling checked and repaired as soon as possible.

Checking the coolant level of the engine and heating system



M20_00-0037-01

- Read off the coolant level



Danger.

Risk of scalding to skin and eyes from hot coolant spraying out. Wear protective clothing (gloves/safety goggles). Do not open screw cap (2) on the coolant expansion tank unless the coolant temperature is below 90 °C. Open screw cap (2) slowly to the first detent in order to relieve the excess pressure. Turn the valve cap to the second detent and remove it. Risk of poisoning if coolant is swallowed.

Note regarding handling of clutch fluid (=brake fluid)



Note:

The coolant level must be between the upper and lower marks (minimum (1.1) and maximum (1.2)) at expansion tank inspection glass (1) when the engine is cold (below 50 °C).

► Add coolant



Caution:

Do not top up unless the engine is cold.



Note:

Use clean and well filtered water with as low a lime content as possible (drinking water quality) mixed with corrosion inhibitor/antifreeze (comply with the Specifications for Service Products).

Note regarding handling of clutch fluid (=brake fluid)



Danger. Risk of poisoning.

Brake fluid is highly toxic.

- Do not allow brake fluid to come into contact with skin, clothing or eyes.
- Do not swallow brake fluid.
- Always wear gloves and eye protection when topping up with brake fluid.
- Always store brake fluid in its original, sealed container and make it inaccessible to children. Observe safety regulations when handling brake fluid.
- Rinse affected areas copiously with clean water and seek medical attention if necessary.
- Seek immediate medical attention if you have swallowed brake fluid.

Notes on proper operation of the clutch

By operating it correctly, the driver can significantly prolong the service life of the clutch.



Caution:

Always use 1st gear to pull away. The engine speed for pulling away should be between 600 rpm and 800 rpm. Do not allow the clutch to slip when pulling away.



Caution:

Never keep the bus stationary on an uphill gradient by using the bite of the clutch.



Caution:

Never “regulate” road speed through turns or roundabouts by slipping the clutch. Instead, select the appropriate gear (shift down).

Checking the brake fluid level for the clutch, topping up if necessary



Caution:

When changing down a gear, do not use the action of the clutch as a means of braking the bus.



Note:

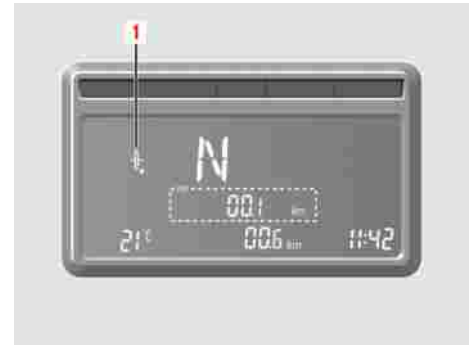
Avoid driving at low revs (engine speed below 900 rpm) for any longer than is necessary.

Checking the brake fluid level for the clutch, topping up if necessary



Danger.

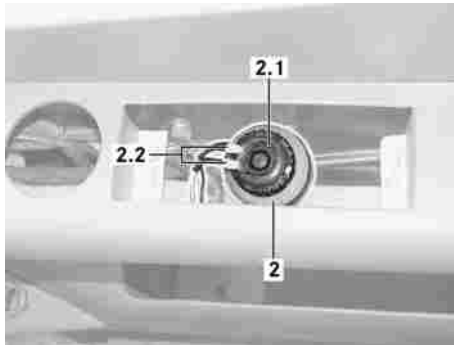
Risk of fatal injury. Brake fluid is harmful to health. Observe all safety precautions for the handling of brake fluid. Risk of poisoning from swallowing brake fluid, lethal dose 100 cm³. Risk of injury from brake fluid coming into contact with skin and eyes. Add brake fluid only to suitable and appropriately labelled containers. Wear protective clothing and safety goggles when handling brake fluid.



M54_30-0150-71

- The brake fluid level is monitored electronically. Display symbol (1) lights up if the fluid level drops below the minimum level.

Tyres - operating safety and roadworthiness



M25_00-0042-01

- ▶ The brake fluid level in expansion tank (2) must be between the “Min” and “Max” marks.



Note:

The installation location of the expansion tank is determined by the body manufacturer. The illustration shows a possible example.



Note:

If the fluid level has dropped below the “Min” mark, top up the brake fluid in accordance with the Specifications for Service Products. Do not overfill.



Caution:

Normally, the brake fluid would not need to be topped up between routine maintenance services. If the brake fluid does need to be topped up, have the hydraulic system checked for leaks.

Tyres - operating safety and roadworthiness

Tyres are particularly important for the operating safety and roadworthiness of the bus.



Note:

The pressure, tread and condition of the tyres should therefore be checked on a regular basis.



Caution:

The use of wheel balancing agents, such as balancing powder, beads or gel, is not permitted as these may lead to undesirable pulsations and/or vibrations.

Tyre pressure

Check the specified tyre pressure regularly – at least once a week and before longer journeys – when the tyres are cold.



Danger.

Always observe the specified tyre pressures for your bus. The temperature and pressure of the tyres increase when the bus is in motion. For this reason, you should never reduce the pressure of warm tyres. The tyre pressures would then be too low once the tyres had cooled. If the tyre air pressure is too low, the tyre is liable to burst, particularly with increasing numbers of passengers/load and speed. This could result in you losing control of your bus and causing an accident, thereby injuring yourself and other people.



Note:

If the tyre pressure is too low, this leads to intensive heating of the tyres, increased tyre wear, changes in directional stability and increased fuel consumption.



Note:

If the tyre pressure is too high, this results in a longer braking distance, poorer tyre grip and increased tyre wear.



Caution:

Caps on the tyre inflation valves protect the valve inserts from moisture and dirt. The caps on the tyre inflation valves should therefore always be screwed on tightly.

Tyre tread

A minimum tyre tread depth is specified by law. Comply with the legal specifications for the relevant country.

As the remaining tread depth reduces, the less effective the road grip and handling characteristics of the bus become, particularly on wet or snowy roads.

In the interest of safety, have the tyres replaced before the legally-specified minimum tread depth is reached.



Danger.

Always ensure that there is sufficient tyre tread. Insufficient tyre tread depth increases the risk of aquaplaning if the bus is driven at high speed during heavy rain or in slush. The tyre tread can no longer deflect the water away. This could result in you losing control of your bus and causing an accident, thereby injuring yourself and other people.

Tyre condition

Tyre condition

Before setting off, check the tyres on the bus for:

- external signs of damage
- foreign objects in the tyre tread
- foreign objects between twin tyres
- cracks, bulges



Note:

Please note that cracks, bulges or external damage can cause a tyre to burst. This could result in you losing control of the bus and causing an accident, thereby injuring yourself and other people. Have damaged tyres replaced immediately.

Tyre age

Have the tyres changed at least every six years, irrespective of wear. This also applies for the spare wheel.



Danger.

The sun's rays and environmental factors cause tyres to age. The rubber from which the tyre is made loses elasticity. Tyres harden and become brittle, cracks appear due to ageing. Tyres which are more than six years old are no longer reliable.

Invisible tyre damage

Avoid crushing tyres against the kerb or switching off the bus when a part of the tyre tread is up on the kerb.



Danger.

Driving over the edge of the kerb or sharp edged objects can cause damage to the tyre substructure which is not visible externally. Damage to the tyre substructure only becomes noticeable much later and could cause the tyre to burst. This could result in you losing control of your bus and causing an accident, thereby injuring yourself and other people.

Tyre load capacity, top speed of tyres and types of tyres

Tyre load capacity, top speed of tyres and types of tyres

**Danger.**

Exceeding the specified tyre load capacity or the approved maximum tyre speed could lead to tyre damage or tyre failure. This could result in you losing control of your bus and causing an accident, thereby injuring yourself and other people. For this reason, only use the approved tyre types and sizes for your bus model and note the required tyre load capacity and speed index for your bus. Pay particular attention to country-specific tyre approval regulations. These regulations may specify a particular type of tyre for your bus or prohibit the use of particular tyre types that may be approved in other countries. In addition, it may be advisable to use a specific type of tyre in certain regions or areas of use. You can obtain information on tyres from any EvoBus Service Partner.

Where twin tyres are fitted, the twin tyres must have the same external diameter, otherwise the tyre that has the

largest diameter will be overloaded. Tip: the simplest and most reliable measurement method is to check circumferences using a circumference tape.

**Note:**

The maximum tolerance for twin tyres is 0.5% of the tyre diameter. The larger tyre must always be fitted in the outboard position.

Retreaded tyres

EvoBus recommends the use of tyres and wheels that have been tested and approved specifically for your vehicle.

Tyre pressures table 295/80 R 22.5

Tyre pressures table 295/80 R 22.5

		[bar]	6,0	6,5	6,75	7,0	7,25	7,5	7,75	8,0	8,25	8,5	8,75	9,0
295 / 80 R 22.5	Michelin		5180	5560	5760	5950	6140	6330	6520	6720	6910	7100	--	--
			9190	9880	10220	10560	10900	11240	11580	11920	12260	12600	--	--
	Continental		5370	5725	--	6075	--	6420	--	6760	--	7100	--	--
			9535	10165	--	10785	--	11395	--	12000	--	12600	--	--
	Dunlop		5380	5730	5910	6080	6260	6430	6600	6770	6940	7100	--	--
			9540	10170	10480	10790	11100	11400	11710	12010	12310	12600	--	--
	Goodyear		5380	5730	5910	6080	6260	6430	6600	6770	6940	7100	--	--
			9540	10170	10480	10790	11100	11400	11710	12010	12310	12600	--	--
	Bridgestone		5370	5720	5900	6070	6250	6420	6590	6760	6930	7100	--	--
			9530	10160	10470	10780	11090	11390	11700	12000	12300	12600	--	--
	Firestone		5370	5720	5900	6070	6250	6420	6590	6760	6930	7100	--	--
			9530	10160	10470	10780	11090	11390	11700	12000	12300	12600	--	--
	Pirelli		--	5730	5900	6080	6250	6420	6590	6760	6930	7100	--	--
			--	10170	10480	10790	11090	11400	11700	12000	12300	12600	--	--

M40.00-0122-01

The numbers in the table show the respective axle load in kg. The table's first line gives the tyre pressure that is to be set in bar.

















* For Michelin tyres, also note: the tyre pressures at the front axle must be adjusted in accordance with the table value plus 1 bar, but to no more than a maximum of 8.5 bar.

**Note:**

The tyre pressures table shown here cannot be considered complete and is primarily provided for guidance only. The tyre catalogue of the manufacturer concerned is the decisive point of reference for the precise tyre pressures to be set in accordance with the current axle load.

Tyre pressures table 11 R 22.5

Tyre pressures table 11 R 22.5

		[bar]	6,0	6,5	6,75	7,0	7,25	7,5	7,75	8,0	8,25	8,5	8,75	9,0
11 R 22,5 148 / 145	Continental		--	5335	--	5660	--	5985	--	6300	--	--	--	--
			--	9825	--	10425	--	11015	--	11600	--	--	--	--
	Michelin*		--	5220	--	5580	--	5940	6120	6300	--	--	--	--
			--	9610	--	10270	--	10940	11270	11600	--	--	--	--
	Fulda		--	5080	5240	5390	5550	5700	5850	6000	6150	6300	--	--
			--	9360	9650	9930	10210	10450	10770	11050	11330	11600	--	--
	Goodyear		--	5080	5240	5390	5550	5700	5850	6000	6150	6300	--	--
			--	9360	9650	9930	10210	10450	10770	11050	11330	11600	--	--
	Dunlop		--	5080	5240	5390	5550	5700	5850	6000	6150	6300	--	--
			--	9360	9640	9940	10220	10500	10780	11060	11320	11600	--	--
	Bridgestone		--	5080	5230	5390	5540	5700	5850	6000	6150	6300	--	--
			--	9510	9780	10040	10300	10540	10800	11080	11340	11600	--	--
														
														
														
														

* For Michelin tyres, also note: the tyre pressures at the front axle must be adjusted in accordance with the table value plus 1 bar, but to no more than a maximum of 8.5 bar.

**Note:**

















The numbers in the table show the respective axle load in kg. The table's first line gives the tyre pressure that is to be set in bar.

**Note:**

The tyre pressures table shown here cannot be considered complete and is primarily provided for guidance only. The tyre catalogue of the manufacturer concerned is the decisive point of reference for the precise tyre pressures to be set in accordance with the current axle load.

Tyre pressures table 12 R 22.5

Tyre pressures table 12 R 22.5

		[bar]	6,0	6,5	6,75	7,0	7,25	7,5	7,75	8,0	8,25	8,5	8,75	9,0
12 R 22,5 152 / 148	Continental		--	5730	--	6020	--	6365	--	6700	--	7100	--	--
			--	10165	--	10785	--	11400	--	12000	--	12600	--	--
	Michelin*		--	5560	--	5950	--	6330	6525	6720	6910	7100	--	--
			--	9880	--	10560	--	11240	11580	11920	12260	12600	--	--
	Fulda		--	5730	5900	6080	6250	6420	6590	6760	6930	7100	--	--
			--	10170	10480	10790	11090	11400	11700	12000	12300	12600	--	--
	Goodyear		--	--	5900	6080	6250	6420	6590	6760	6930	7100	--	--
			--	--	10480	10790	11090	11400	11700	12000	12300	12600	--	--
	Dunlop		--	5730	5900	6080	6260	6420	6590	6760	6930	7100	--	--
			--	10160	10480	10780	11110	11400	11700	12000	12300	12600	--	--
	Bridgestone		--	5850	6030	6210	6390	6570	6750	6930	7100	--	--	--
			--	10160	10480	10790	11080	11400	11700	12300	12600	--	--	--
														
														
														
														

Safety measures to be taken in the event of a flat tyre or a wheel change

*

For Michelin tyres, also note: the tyre pressures at the front axle must be adjusted in accordance with the table value plus 1 bar, but to no more than a maximum of 8.5 bar.



Note:

The figures in the table show the respective axle load in kg. The first row of the table shows the tyre pressure to be set (in bar).



Note:

The tyre pressures table shown here cannot be considered complete and is primarily provided for guidance only. The tyre catalogue of the manufacturer concerned is the decisive point of reference for the precise tyre pressures to be set in accordance with the current axle load.

Safety measures to be taken in the event of a flat tyre or a wheel change



Danger.

Park the bus on firm ground as far as possible from moving traffic. Switch on the hazard warning lamps. Urge all passengers to disembark and direct them to a place of safety (e.g. behind the crash barrier). Position a warning triangle or hazard warning light at a suitable distance. Observe the legal requirements of the country concerned.

- ▶ Carry out the wheel change only on a level, firm and non-slip surface. The bus or jack may slip out to the side on a soft or slippery surface (snow, ice, smooth surface, etc.).



Danger.

Never lie under the bus if it has been raised without the additional support of axle stands. Do not start the engine as there is a risk of fatal injury. Prevent the engine from being switched on without authorisation. Remove the key from the ignition starter switch.

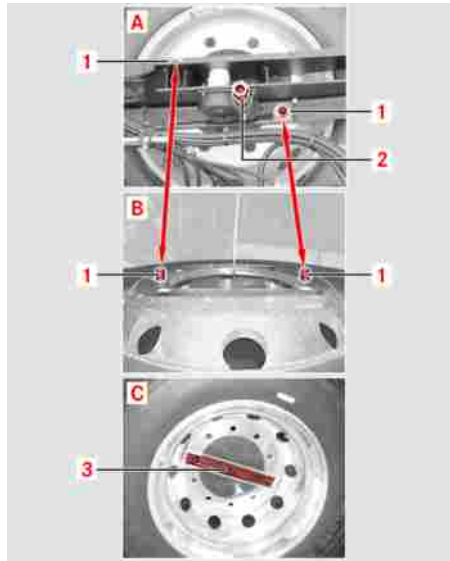
Removing the spare wheel (option)

Removing the spare wheel (option)



Note:

The work described here relates to the Mercedes-Benz spare wheel bracket available as an option. The removal procedure describes one possible installation situation as an example. The body manufacturer is responsible for the installation location of, and accessibility to, the spare wheel.



M40_00-0085-72

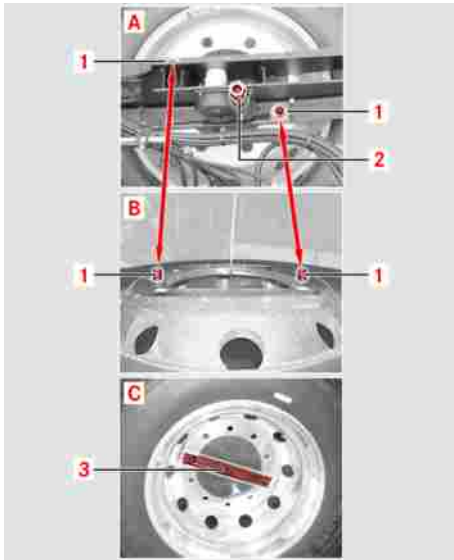
- ▶ Unscrew the nuts on securing bolts (1) of the spare wheel.
- ▶ Turn hexagon head (2) anti-clockwise until the spare wheel rests on the ground and the retaining cable is free of tension.
- ▶ Detach bracket (3) from the spare wheel and remove the spare wheel.

Fitting the spare wheel (option)



Note:

The work described here relates to the Mercedes-Benz spare wheel bracket available as an option. The removal procedure describes one possible installation situation as an example. The body manufacturer is responsible for the installation location of, and accessibility to, the spare wheel.



M40_00-0085-72

- ▶ Attach bracket (3) to the spare wheel.
- ▶ Turn hexagon head (2) clockwise as far as the upper stop.

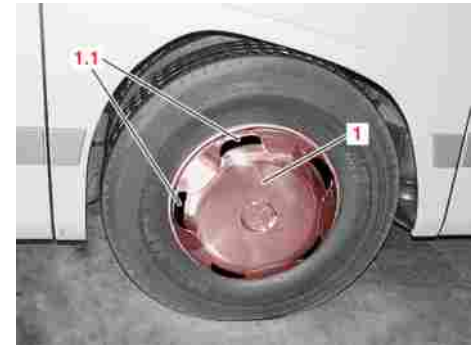


Note:

The spare wheel is raised. Shortly before the upper stop is reached, turn the spare wheel to align securing bolts (1) with the locating bores. Tension the retaining cable slightly.

- ▶ Fit the nuts to securing bolts (1) and tighten.

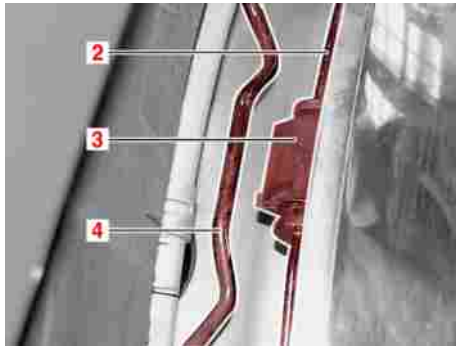
Removing the wheel trims



M40_00-0007-01

- ▶ Insert both hands into the ventilation slots (1.1) and grip the wheel trims (1).

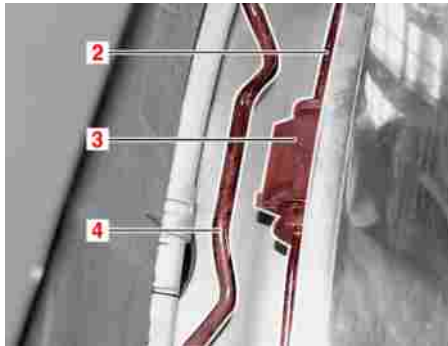
Fitting a wheel nut cover cap



M40_00-0008-01

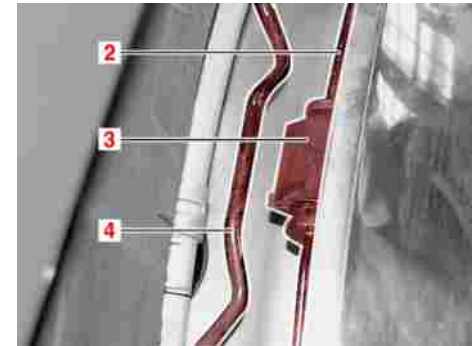
- ▶ Firstly detach the clamp ring (2) from the retaining clip (3). This reduces the compression force on clamp ring (4) and the wheel trim can be removed more easily.

Fitting a wheel nut cover cap



M40_00-0008-01

- ▶ Place the wheel trim on clamp ring (4). At the same time, insert the tabs of retaining clips (3) on the wheel trim into the cut-out in clamp ring (4). Attach the lower retaining clips and press on. Then press the wheel trim into the other retaining clips.



M40_00-0008-01

- ▶ Press last of upper retaining clips (3) in with clamp ring (2) detached. This greatly reduces the amount of effort required and you also avoid the risk of causing damage to the wheel trim. After you have fitted the wheel trim, reach into the ventilation openings and hook clamp ring (2) into retaining clip (3) again. The retaining clips must not rest on a balance weight.

Positioning the jack

 **Danger.**

Follow the jack manufacturer's instructions.

 **Danger.**

Secure the bus against rolling away (apply the parking brake). Also chock at least one front wheel if there is a defective wheel on the rear axle.

 **Danger.**

Make sure that the wheel trim is seated correctly. All retaining clips (3) must be fastened behind clamp ring (4).

 **Note:**

Where necessary, remove rust and dirt from the contact surfaces on the wheel nut cover, disc wheel and wheel nuts before the wheel nut cover is fitted.

 **Caution:**

To fit the wheel nut cover correctly, 4 wheel nuts must be fastened by hand to centre the wheel nut cover and bring it into full contact with the disc wheel.

- ▶ Tighten the wheel nuts to the specified torque in a crosswise pattern and in several stages.

Tightening torque

Wheel nuts for aluminium wheels:
600 Nm



M40_00-0131-01

- ▶ Slot wheel nut cover (1) onto the wheel bolts.

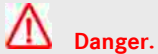
Positioning the jack

Front axle



M40_00-0011-01

- ▶ Place the jack (10t) on a laminated wood base and jack up the bus at the transverse link jacking point (arrowed).



Danger.

Risk of entrapment. If axle stands are not available, the spare wheel or the defective wheel must be positioned at a suitable position under the body for the duration of the tyre change to provide protection in case the jack should fail.

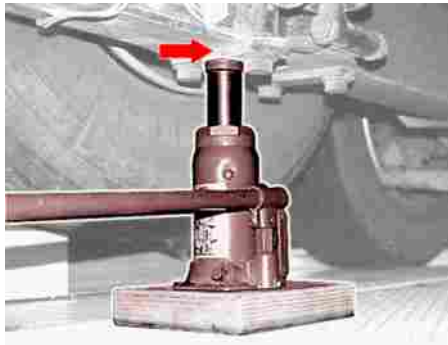
Driven axle

- ▶ Place a ramp at the good wheel of the twin tyres and drive the bus onto it.



Note:

If the ground is very slippery and hard, the ramp may slide out from under the wheel when the bus is driven onto it. Make sure you follow the instructions on the ramp instruction plate.



M40_00-0013-01

- ▶ Place the jack (10t) on a laminated wood base and jack up the bus at the jacking point (arrowed).



Danger.

Risk of entrapment. If axle stands are not available, the spare wheel or the defective wheel must be positioned at a suitable position under the body for the duration of the tyre change to provide protection in case the jack should fail.



M40_00-0014-01

- ▶ Drive the defective wheel onto ramp (1)

Removing the wheel

Preparatory jobs

- ▶ Removing the wheel trims
(▷ Page 213)
- ▶ Undo all wheel nuts
- ▶ Raising the bus

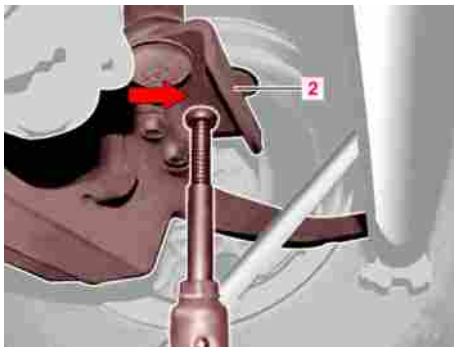
Danger.

Risk of accident. Due to rolling away, slipping, dropping or tilting of the bus. Do not raise the bus unless it is parked on even and stable ground. Before raising the bus, chock the wheels to prevent the bus from rolling away. Once the bus has been raised, it is necessary to provide support for the axles or body. To raise and secure the bus, use only equipment and tools that meet legal requirements (observe country-specific regulations) and have an appropriate load-bearing capacity for the axle or bus weights concerned.



Note:

If the ground is very slippery and hard, the ramp may slide out from under the wheel when the bus is driven onto it. Make sure you follow the instructions on the ramp instruction plate.



M40_00-0015-01

- ▶ Raise the jack (10t) until the defective wheel is relieved of load.



Danger.

If axle stands are not available, the spare wheel or the defective wheel must be positioned at a suitable position under the body for the duration of the tyre change to provide protection in case the jack should fail.



Danger.

The trailing axle must not be laden with the weight of the bus.

Fitting wheels



Danger.

If the complete bus is to be raised using wheel grippers, multi-post lifts, etc., all axles must be raised simultaneously.



Caution:

When the bus is being lowered, make sure that the suspension air bags are seated correctly and that there is sufficient supply pressure to fill the suspension air bags again.

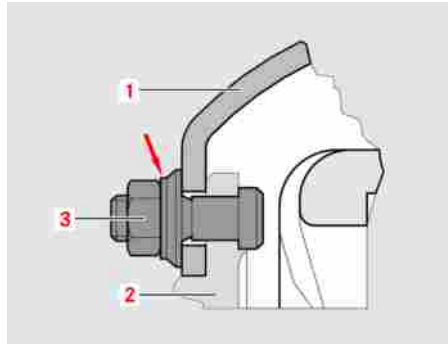
- ▶ Unscrew all the wheel nuts and remove the wheel(s).



Caution:

Slightly raise the wheel from the wheel hub as you remove it to prevent damage to the wheel stud threads. Damaged threads on the wheel studs make it difficult to screw on the wheel nuts when fitting the wheels and can lead to the wheel nuts seizing on if the damage is significant.

Fitting wheels



M40_00-0016-01

- ▶ Coat the outer circumference of the centring lugs on hub (2) with Plastilube anticorrosion paste to prevent the disc wheels (rims) from rusting.



Danger.

The thread of the wheel bolts and wheel nuts must be free of oil and grease. Degrease the thread if necessary.

- ▶ Fit the spare wheel



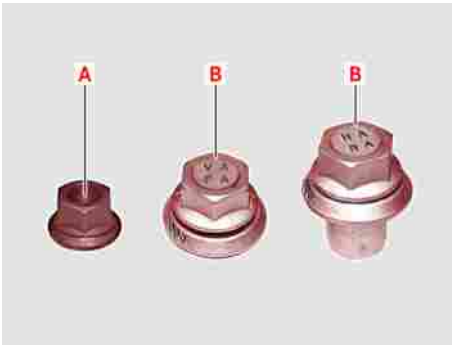
Danger.

If aluminium wheels are to replace pressed-steel wheels, be sure to use the correct wheel nuts. In the case of older buses equipped with aluminium wheels (wheel nuts bearing the marking: "Für Alu-Räder" for aluminium wheels), only aluminium disc wheels having a wheel bolt hole diameter of 28 mm are permitted in the event of a wheel change.



Note:

Disc wheels (1) are centred by the centring lugs on hub (2).



M40_00-0053-01

- Fit the wheel nuts and screw them into contact with the wheel.

Danger.

Note the different flat collar nuts. A: Wheel nuts for pressed-steel wheels (steel rims) do not have any marking, B: Wheel nuts for aluminium wheels (aluminium rims) bear the inscription “VA FA” for single tyres, “HA RA” for twin tyres and a marking with 3 rings on the integral flat washer (see illustration).

Danger.

Always select the correct nuts for the type of wheel concerned.



M40_00-0061-01

- For vehicles with light-alloy wheels (aluminium rims), slide the assembly sleeves (vehicle tool kit) over 2 opposing wheel bolts to avoid damage during removal and refitting.
- Place the ramp back under the wheel, lower the bus and take the jack away.



Note:

If you do not push the ramp under the wheel, it will not be possible to remove the jack.

- Tighten the wheel nuts in a crosswise pattern

Tightening torque

Wheel nuts: 600 Nm



Danger.

Tighten the wheel nuts using the available tool and drive cautiously to the nearest EvoBus Service Partner. Have the wheel nuts tightened to the specified torque.



Danger.

If you use an impact wrench, tighten the wheel nuts only slightly in a crosswise pattern first and then tighten the nuts to the specified torque using a torque wrench.

- Drive the bus off the ramp

Inflating tyres using the tyre inflator connection



Danger.

The wheel nuts must be retightened after the bus has covered 30 miles (50 km).



Danger.

If a new or newly painted wheel has been fitted, retighten the wheel nuts again after the bus has covered a distance of approximately 600 to 3,000 miles (1,000 to 5,000 km).

Inflating tyres using the tyre inflator connection



Note:

While the engine is running, a pressure of up to 12 bar (cut-out pressure of the pressure regulator) can be drawn off. Compressed air cannot be drawn off unless the pressure regulator is in the fill position. If the pressure regulator has cut out (idle position - blows into the open air), it will be necessary to reduce the pressure using the pedal-operated brake valve until the pressure regulator cuts in again.



Caution:

Since the pressure in the system may be too high for inflating a tyre, the inflation procedure should be monitored by observing the pressure readings on the instrument display panel.



M42_00-0609-71

- ▶ Remove the protective cap from the tyre inflator connection (arrowed) on the air drier unit and connect the tyre inflation hose.



Note:

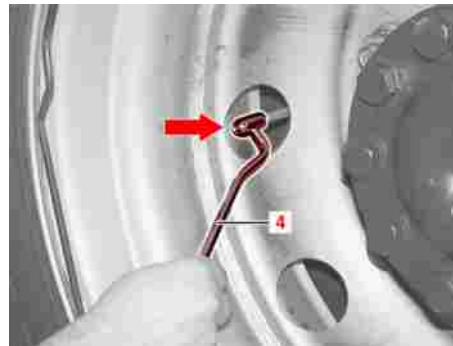
The tyre inflation hose is in the vehicle tool kit.

Inflating tyres using the tyre inflator connection



M54.00-1863-71

- ▶ Reduce the pressure in the compressed-air system (by pumping the brake pedal) until the supply pressure reading for circuits 1 (1) and 2 (2) shown on pressure gauge (3) drops below 6.5 - 7 bar.



M40_00-0020-01

- ▶ Unscrew the protective cap from the tyre valve and connect valve connector (4).



M54.00-1863-71

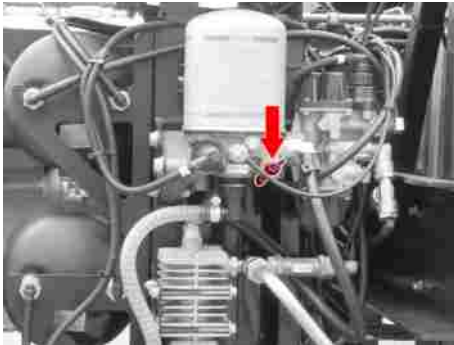
- ▶ Start the engine and inflate the tyres to the specified pressure (approximately 8.5 bar). First remove valve connector (4) from the tyre valve, then switch off the engine.



Note:

Monitor the operating display for the supply pressure in circuits 1 (1) and 2 (2).

Inflating tyres using the tyre inflator connection



M42_00-0609-71

- ▶ After you have finished inflating the tyres, remove the tyre inflation hose and seal the tyre inflator connection (arrowed) with the protective cap.



Danger.

Never drive the bus with the tyre inflation hose still connected.



Danger.

Inflate the tyres to the specified pressure at the earliest opportunity.

Pneumatic test ports

Pneumatic test ports



Charging the compressed-air system (option)

The pneumatic test ports for the brake system are normally located on the left-hand side to the front of the front axle (on the right-hand side on right-hand-drive vehicles). The body manufacturer is responsible for the exact location of, and access to, the test ports.

- 1 Pressure regulator switching pressure
- 2 Driven axle supply pressure circuit 1
- 3 Front axle (trailing axle) supply pressure circuit 2
- 4 Auxiliary consumers reservoir
- 5 Brake pressure on driven axle, downstream of ABS
- 6 Brake pressure on right-hand side of front axle, downstream of ABS
- 7 Brake pressure on left-hand side of front axle, downstream of ABS
- 8 Spring actuator reservoir

- 9 Spring actuator emergency release pressure
- 10 Spring actuator cylinder pressure/release pressure
- 11 Brake pressure on trailing axle, downstream of ABS
- 12 Not assigned
- 13 Pressure switch for raising/lowering system (option)
- 14 Pressure switch for raising/lowering system (option)

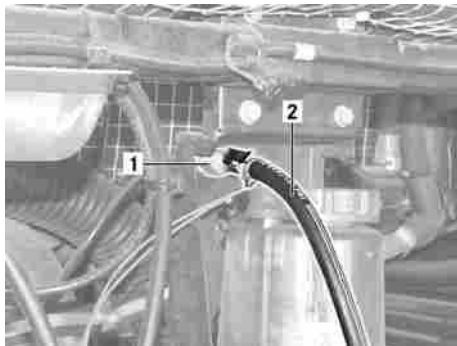
Charging the compressed-air system (option)



M40_00-0041-01

- ▶ Front port: the bus can be charged with compressed air.

Checking the oil level in the steering hydraulics expansion tank



M40_00-0034-01

- ▶ Rear port: the bus can be charged with compressed air.

Checking the oil level in the steering hydraulics expansion tank



M46_00-0032-01

- ▶ Read the oil level.



Note:

The oil level must be seen to be between the minimum and maximum mark (2) on expansion tank (1) when the engine is running.



Danger.

Power-steering oil must be topped up only by an authorised specialist and in accordance with the Specifications for Service Products.

Draining the fuel prefilter



Danger. Risk of explosion, poisoning and injury.

Fuels are highly flammable and toxic if ingested. Fuel may also cause damage to skin. For example, petrol has a de-greasing effect on the skin. Fuel vapours are explosive, invisible and spread along the ground. They are toxic if inhaled and have a narcotic effect in high concentrations.

Fuel can explode and is harmful to health.

- Before refuelling, the auxiliary heating must be switched off to prevent fuel vapours from igniting on the auxiliary heating exhaust system.
- Fire, sparks, naked flames and smoking are prohibited when handling fuel.
- Take care to prevent fuel from coming into contact with the skin, eyes or clothing.
- Avoid inhaling fuel vapours.
- Keep children away from fuel.
- Add fuels only to suitable and appropriately labelled containers.

- Protective clothing must be worn for the handling of fuel.
- The work area must be adequately ventilated.
- Clean up spilled fuel immediately.
- Never drain or add fuel above workshop pits.
- Store drained fuel only in appropriate, sealable containers.
- The safety requirements and rules and regulations of the country concerned must be observed.
- Work on the vehicle involving naked flames (e.g. welding): Before this type of work is carried out, remove the relevant parts of the fuel system and seal open fuel lines with plugs.
- In case of eye contact, wash the eyes out immediately with water and seek medical attention if necessary.
- Clean affected areas of skin immediately with soap and water.
- Immediately change out of clothing that has come into contact with fuel.
- If fuel has been swallowed, seek medical attention immediately.



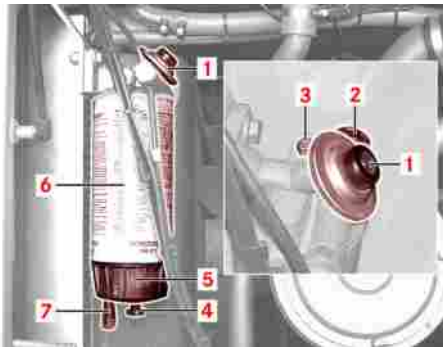
Danger. Risk of accident.

Danger from unauthorised starting of the engine or movement of the vehicle.

Persons in areas of the bus that are hidden from view (underbody, rear, roof, etc.) are at risk of injury if the engine is started or the vehicle is moved by other or unauthorised persons.

- Secure the bus in stationary position and apply the parking brake.
- Chock the wheels as an additional measure if work is to be carried out on the vehicle that requires the parking brake to be released or rendered inoperational or if the functions of the parking brake are limited in any way.
- Turn the ignition switch to the OFF position and remove the key.
- Switch off and disconnect the battery isolating switch.

Replacing the fuel prefilter



M47_00-0011-01

- ▶ Place a container underneath.
- ▶ Screw drain plug (4) on the bottom of the filter in towards the filter.



Caution:

The drain plug has a left-hand thread.

- ▶ Pump out the water/fuel mixture using fuel feed pump (1).



Environmental protection

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

- ▶ Gently turn drain plug (4) back as far as the stop by hand.



Caution:

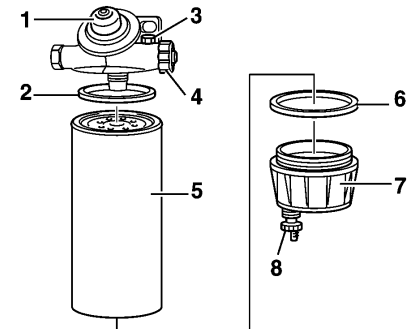
The drain plug must not be overtightened under any circumstances. Doing so could result in damage to the seal.

Replacing the fuel prefilter



Danger.

Risk of explosion from ignition of fuel, risk of poisoning from inhalation and swallowing of fuel as well as risk of injury if fuel comes into contact with skin and eyes.



M47_00-0015-01

- ▶ Place a container underneath.



Danger.

Prevent the engine from being switched on. Switch the ignition starter switch to OFF and remove the key.

- ▶ Close the fuel supply using shut-off valve (4) (Fuel Off position).
- ▶ Loosen drain plug (8) and bleed screw (3) and let the filter element run empty.



Environmental protection

Dispose of fuel in an environmentally responsible manner.

- ▶ Remove filter element (5) from the filter head and disconnect separator container (7) from the filter element.



Note:

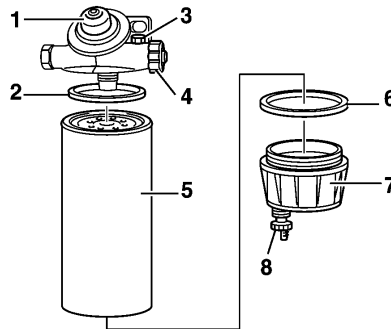
Separator container (7) can be reused so take care not to damage it.



Environmental protection

Dispose of old filter element (5) in an environmentally responsible manner.

- ▶ Clean separator container (7) and the sealing ring groove.



M47_00-0015-01

- ▶ Smear a new square ring (6) with clean diesel oil or engine oil and fit

it into the groove in the separator container.

- ▶ Screw separator container (7) firmly onto new filter element (5) finger-tight.



Note:

To tighten, do not use any form of tool.

- ▶ Smear new sealing ring (2) with clean diesel oil or engine oil and fit it into filter element groove (5).
- ▶ Screw filter element (5) firmly onto a new filter head finger-tight.
- ▶ Tighten drain plug (8).
- ▶ Open the fuel supply using shut-off valve (4) (Fuel ON position).
- ▶ Fill the filter using fuel feed pump (1) until the fuel flowing out of opened bleed screw (3) no longer contains bubbles.
- ▶ Tighten bleed screw (3).
- ▶ Start the engine and check the system for leaks.

Changing the main fuel filter (OM 457 LA)



Danger.

Risk of injury. Any necessary retightening must be carried out with the engine switched off.

Changing the main fuel filter (OM 457 LA)



Danger.

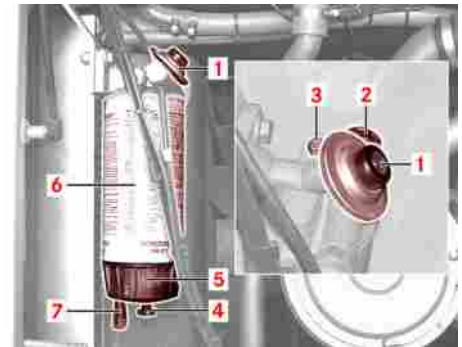
Risk of explosion from ignition of fuel, risk of poisoning from inhalation and swallowing of fuel as well as risk of injury if fuel comes into contact with skin and eyes.

- ▶ Prevent the engine from being switched on. Switch off the driving switch and take out the key.
- ▶ Open the cap on the fuel tank.



Note:

This is necessary to release the excess pressure.



M47_00-0011-01

- ▶ Close the fuel supply using shut-off valve (2) on the fuel prefilter (Fuel Off position).

Changing the main fuel filter (OM 457 LA)



M47_20-0008-01

- ▶ Place a container underneath



Caution:

Fuel must not come into contact with drive belts or other parts that are not fuel-resistant.

- ▶ Unscrew cap (1) from the filter housing and remove with the sealing cone.



Note:

The fuel return line runs empty (approximately 0.5 l fuel).



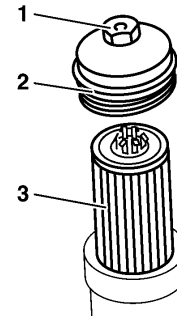
Caution:

Dirty fuel will enter the engine circuit if you do not do this.



Environmental protection

Dispose of the drained fuel in an environmentally responsible manner.



M47_00-0010-01

- ▶ Unscrew filter cover (1)
- ▶ Remove filter element (3) and fit a new filter element.



Environmental protection

Dispose of the old filter element in an environmentally responsible manner.

- ▶ Replace O-ring (2) with a new one and screw filter cover (1) back on.

Replacing the fuel filter for the auxiliary heater (option)

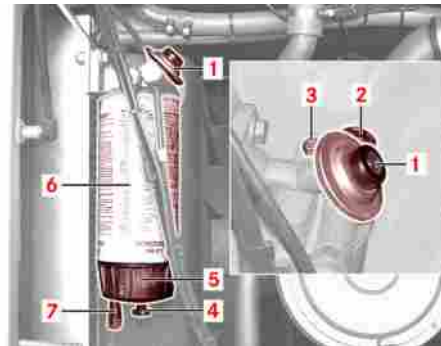
Tightening torque

Cap: 25 Nm



M47_20-0008-01

- ▶ Fit cap (1) with sealing cone.



M47_00-0011-01

- ▶ Open the fuel supply using shut-off valve (2) on the fuel prefilter (Fuel On position).
- ▶ Start the engine and check the system for leaks.



Note:

The engine fuel system is self-bleeding. The hand primer at the fuel prefilter can be used to support bleeding in order to spare the battery and starter.

Replacing the fuel filter for the auxiliary heater (option)



Danger.

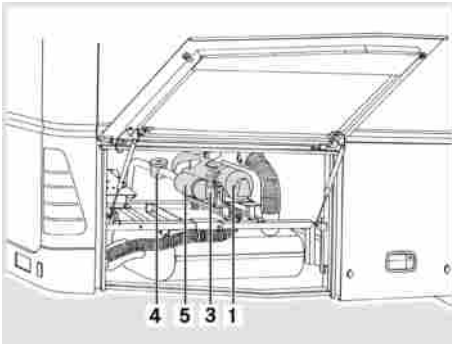
Risk of explosion from ignition of fuel, risk of poisoning from inhalation and swallowing of fuel as well as risk of injury if fuel comes into contact with skin and eyes.



Danger.

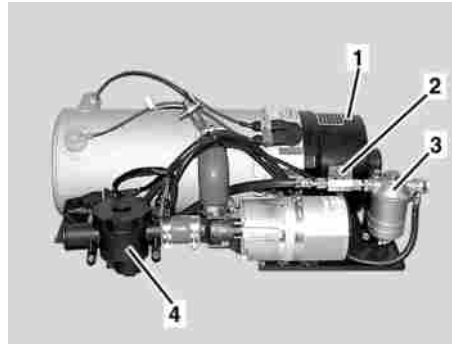
Make sure that the auxiliary heater cannot be switched on.

Replacing the fuel filter for the auxiliary heater (option)



M83_00-0242-01

- ▶ Fuel filter (3) is located in the engine compartment at the rear right.



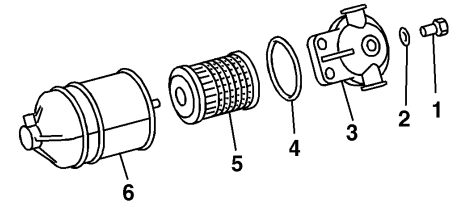
M83_00-0142-01

- ▶ Close fuel feed shut-off valve (2).

i Note:

This prevents fuel from running out of the tank when the fuel filter is open.

- ▶ Place a suitable receptacle under the fuel filter.



M83_00-0023-01

- ▶ Unscrew screw (1) with seal (2) from filter head (3) and remove filter housing (6) along with filter element (5).
- ▶ Pull filter element (5) out of filter housing (6).



Environmental protection

Dispose of drained fuel and old filter element (5) in accordance with the rules and regulations in force in the area of vehicle operation.

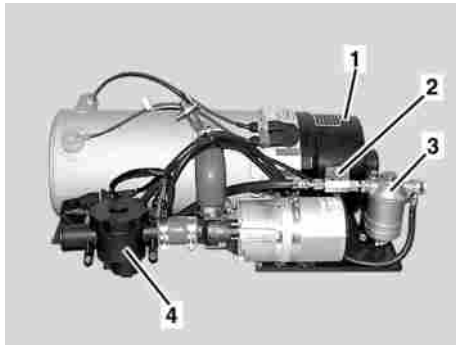
- ▶ Drain and clean filter housing (6).

Bleeding the fuel system

- ▶ Replace sealing ring (4) on filter housing (3) with a new one.
- ▶ Insert new filter element (5) into filter housing (6) and fill the filter housing with diesel fuel.
- ▶ Secure filter housing (6) and new sealing ring (2) to filter head (3) using screw (1).

Tightening torque

Auxiliary heater: filter housing to filter head: 10 Nm



M83_00-0142-01

- ▶ Open shut-off valve (2).

- ▶ Start the auxiliary heater and check the fuel filter for leaks.



Note:

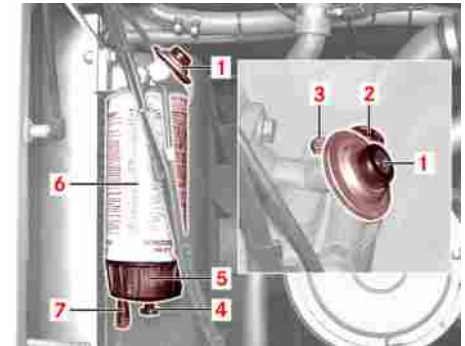
For notes on safety and operation, refer to the "Safety" section



Danger.

Risk of injury. Any necessary retightening must be carried out with the engine switched off.

Bleeding the fuel system



M47_00-0011-01

- ▶ Open bleed screw (3).
- ▶ Operate fuel feed pump (1) until fuel flows out of the bleed opening without bubbles.
- ▶ Tighten bleed screw (3).

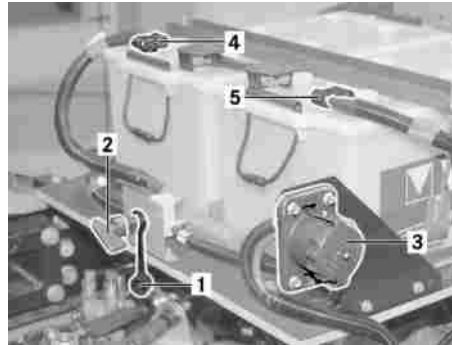
**Note:**

It is essential that the vehicle circuit (from the tank to the prefilter) be bled. The engine circuit (from the prefilter to the main filter) is self-bleeding. To spare the battery and starter, however, the bleeding process should be supported by operating hand primer (1) on the fuel prefilter.

- ▶ Start the engine and check the fuel system for any leaks that may still be present.

**Note:**

If necessary, cancel the starting procedure after a maximum of 15 seconds and wait for about 1 minute before repeating the starting procedure. After a maximum of 3 starting attempts, wait (about 15 minutes) before trying again.

Electrical system safety precautions

M54_00-0806-01

The control panels and batteries are delivered preassembled and precabled, but without a precisely defined installation location on the chassis. The body manufacturer is responsible for the exact installation location and for providing access to it.

For safety reasons, observe the following safety precautions before work is carried out on the electrical system or the batteries are disconnected/reconnected: Always switch off battery isolating switch (2).

Do not connect or disconnect wiring harness connectors to/from electronic control units unless the ignition starter switch is OFF.

During engine washes, always protect the starter, alternator and electrical plug connections from moisture.

Never attempt to bridge or repair fuses.

Use only fuses of the specified amperage. Never replace fuses with those of a higher ampere rating as this could lead to damage to the electrical system.

Safety precautions for handling batteries

Safety precautions for handling batteries



M54_10-0004-01

- (1) - Fire, sparks, naked flames and smoking are prohibited. Prevent sparking.
- (2) - Risk of explosion.
- (3) - Observe the operating instructions.
- (4) - Risk of acid burns. Battery acid is corrosive. Always observe the safety instructions and safety precautions when handling batteries or battery acid. Battery acid must never come into contact with skin, eyes or clothing. Rinse off all acid splashes immediately with copious

amounts of clean water. Seek medical attention if necessary.

- (5) - Wear safety goggles.
- (6) - Keep children away.



Naked flames and smoking are strictly prohibited whenever work is being carried out on the vehicle batteries. Avoid the creation of sparks. Wear safety goggles. Keep children away. There is a risk of acid burns. The Operating Instructions must be observed. There may be a risk of explosion.



Only lead-acid batteries are permitted to be fitted, never gel batteries. All cells of the batteries must be fitted with special caps that are interlinked by vent hoses, thereby allowing any gases produced to be directed into the open air.



Risk of short circuit. Do not place any metal objects on batteries.



Do not loosen or disconnect the terminal clamps while the engine is running and electrical consumers are switched on.



Dispose of defective batteries in an environmentally responsible manner. Observe legal requirements.

Measures required for the prevention of damage to buses or components during electric welding work

Measures required for the prevention of damage to buses or components during electric welding work

To prevent damage to various components of the bus, the following measures must be taken before undertaking welding work:

- Have a fire extinguisher on standby.
- The clamp on the negative terminal of the battery must be disconnected and the negative terminal covered. (Observe the notes on disconnecting the vehicle batteries.)
- The pieces of foam fitted in some of the cavities in the body as sound-proofing must be removed before the commencement of panel work, welding and tin-plating.
- Connect the earth connection of the electric welder directly to the part to be welded. When doing so, make sure that there are no electrically insulating parts between the earth connection and the weld point.
- Heat-sensitive parts, such as plastic tubes, are to be protected or removed.
- Lines routed in cavities, and containers or electronic components that have been fitted concealed, must be removed from the danger area before the start of welding.
- The passenger compartment and glazing must be covered with protective mats to protect them from weld splatter and flying sparks.
- Shield off areas at risk of damage caused by flying sparks and radiant heat.
- Do not allow electronics housings or electrical lines to come into contact with the welding electrode or the earth connection of the welder.
- If two parts are to be welded together, both parts must be connected to the negative clip of the welder.
- The seam points of the part on the bus to be welded and of the earth terminal on the electric welder must be as bare as possible – paint, corrosion, oil, grease and dirt should therefore be thoroughly removed.
- The earth terminal of the welder must not be connected to the transmission. The welding current may cause sparking at the bearing points inside the transmission. The resultant changes in crystalline structure would lead to premature failure of the assembly.

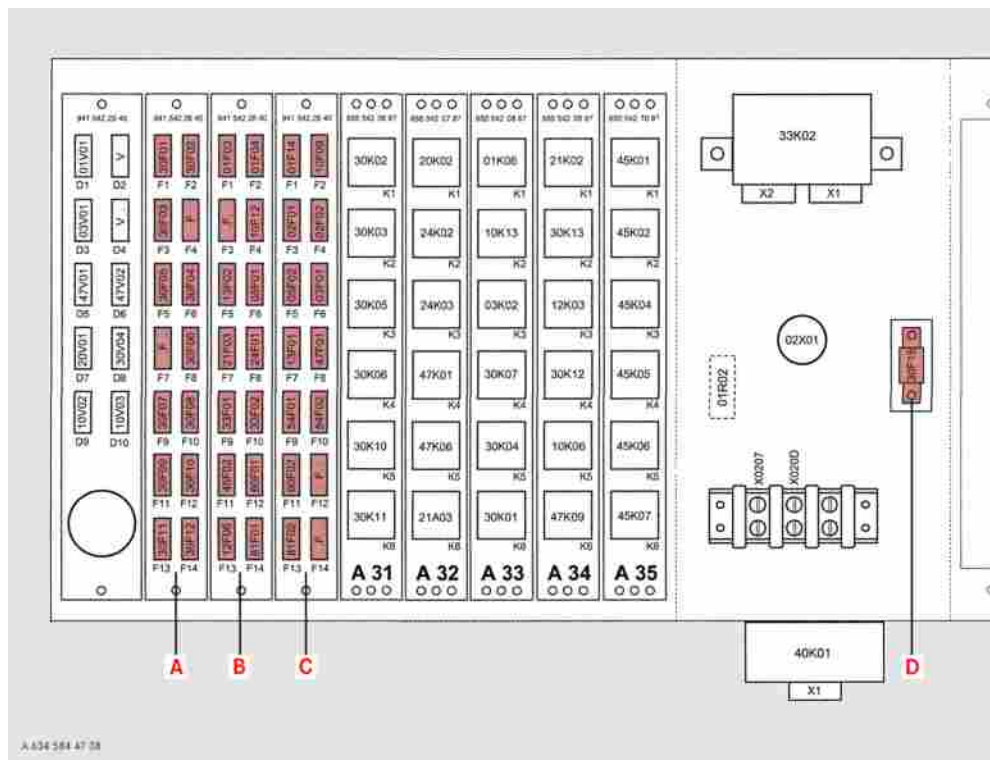


Danger.

The heating effects may cause dense smoke or fires.

Fuse assignment for driver's area switch panel

Fuse assignment for driver's area switch panel



Fuse assignment for driver's area switch panel



Note:

The body manufacturer is responsible for the installation locations of the switch panels.

Fuse block A

- F1 10 A - Hazard warning lamps terminal 15 (30F01)
- F2 10 A - Hazard warning lamps terminal 30 (30F02)
- F3 10 A - Front foglamps (30F03)
- F4 Not assigned
- F5 5 A - Clearance lamp, left (30F05)
- F6 5 A - Clearance lamp, right (30F04)
- F7 Not assigned
- F8 5 A - Fuse terminal 58 (30F06)
- F9 5 A - Dipped-beam headlamp, left (30F07)
- F10 5 A - Dipped-beam headlamp, right (30F08)

- F11 7.5 A - Main-beam headlamp, left (30F09)
 - F12 7.5 A - Main-beam headlamp, right (30F10)
 - F13 7.5 A - Brake lamps (30F11)
 - F14 5 A - Reversing lamps (30F12)
- Fuse block B
- F1 7.5 A - Alternator 2 preexcitation (01F03)
 - F2 7.5 A - Fuse terminal D+ (01F04)
 - F3 Not assigned
 - F4 7.5 A - Gas shut-off valves (10F12)
 - F5 7.5 A - DNR pushbutton (13F02)
 - F6 7.5 A - Diagnostic socket terminal 15 (05F01)
 - F7 7.5 A - Pull-away aid (21F03)
 - F8 15 A - Compressed-air supply (24F01)
 - F9 5 A - Horn (33F01)
 - F10 20 A - Wiper (33F02)
 - F11 7.5 A - Ramp (45F02)

- F12 7.5 A - Tachograph/instrument panel terminal 15 (60F01)
 - F13 7.5 A - Transmission shift aid (12F06)
 - F14 15 A - Driver's seat terminal 15 (81F01)
- Fuse block C
- F1 15 A - Ignition lock (01F14)
 - F2 25 A - Ignition modules (10F09)
 - F3 7.5 A - Engine compartment socket (02F01)
 - F4 7.5 A - Main switch panel socket (02F02)
 - F5 7.5 A - Diagnostic socket terminal 30 (05F02)
 - F6 15 A - Master safety switch (03F01)
 - F7 7.5 A - Automatic transmission (13F01)
 - F8 5 A - Bus stop brake (47F01)
 - F9 20 A - Auxiliary heating (54F01)
 - F10 20 A - Auxiliary heating (54F02)

Fuse assignment for driver's area switch panel

F11 7.5 A - Instrument panel terminal 30 (60F02)

F12 Not assigned

F13 7.5 A - Driver's seat terminal 30 (81F02)

F14 Not assigned

Fuse block D



Note:

This description is based on the standard assignment of fuses in the bus. Bus-specific assignment may differ from bus to bus. Not all fuse slots necessarily have to be assigned on every bus. Furthermore, fuses may occupy unassigned slots because they are protecting special customer options or retrofitted equipment, for example.



Note:

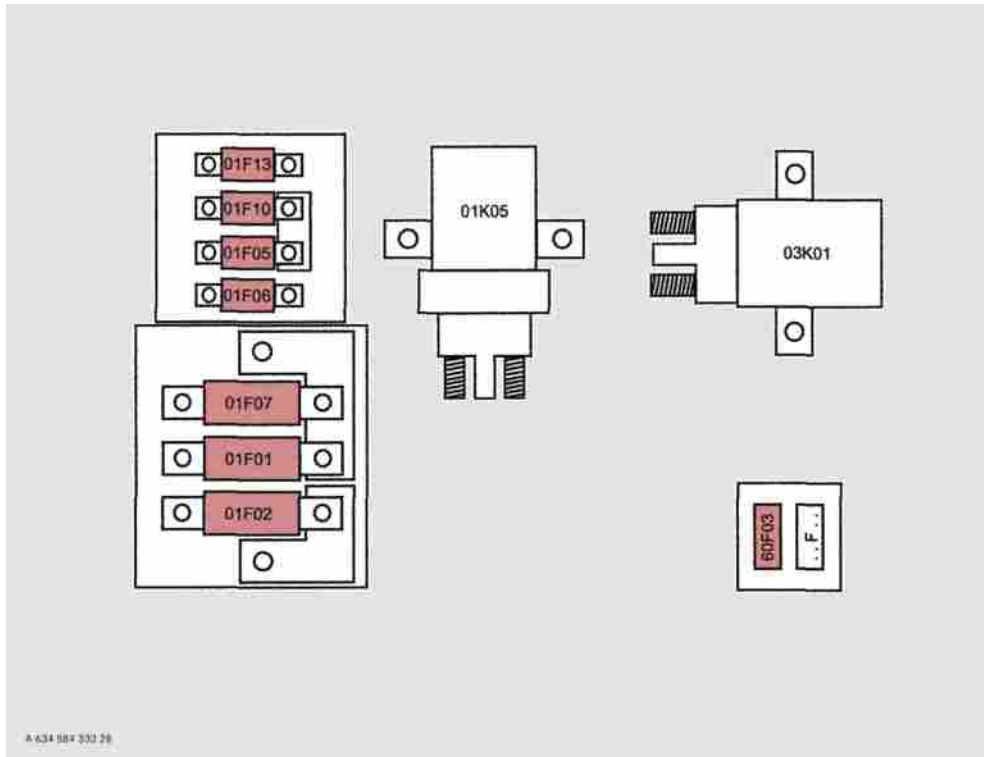
The bus-specific fuse assignment and fuse ratings can be found on the vehicle data CD located in the driver's area switch panel.

30F15 30 A - Light switch

Practical advice

Fuse assignment (main fuses) for auxiliary switch panel

Fuse assignment (main fuses) for auxiliary switch panel



01F13	50 A - Main fuse terminal 30
01F10	30 A - Engine control MR main fuse
01F05	30 A - IES terminal 30
01F06	30 A - IES terminal 15
01F07	100 A - Main fuse terminal 30
01F01	400 A - Starter terminal 30
01F02	100 A - Main fuse terminal 15
60F03	7.5 A - Tachograph



Note:

This description is based on the standard assignment of fuses in the bus. Bus-specific assignment may differ from bus to bus. Not all fuse slots necessarily have to be assigned on every bus. Furthermore, fuses may occupy unassigned slots because they are protecting special customer options or retrofitted equipment, for example.



Note:

The bus-specific fuse assignment and fuse ratings can be found on the vehicle data CD located in the driver's area switch panel.

Handling fuses

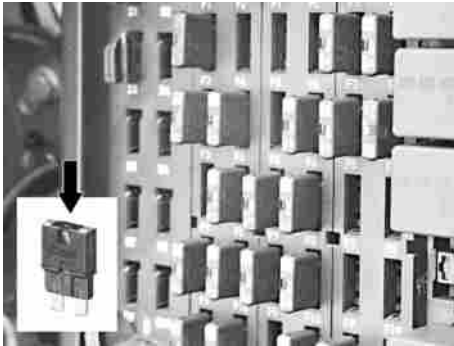
- ▶ Always carry some spare fuses in the bus for emergencies.



Caution:

Fuses provide protection against excessive current loads (impermissible heating of the wires) in the electrical system. The body manufacturer is responsible for the installation locations of the switch panels. The fuse assignment (chassis components) is bus-specific. The legend is printed on the adhesive label affixed near the switch panels (only if fitted by the body manufacturer).

Disconnecting vehicle batteries



M54_00-0878-01

- ▶ Miniature circuit breakers (option) can be reset by pressing the contact pin in (arrowed).
- ▶ The following instructions and information must be observed.



Danger.

Make sure that you correct the cause of the short circuit before you change a blown fuse. Check that the connections have a good contact.



Danger.

Never attempt to bridge or repair fuses.



Danger.

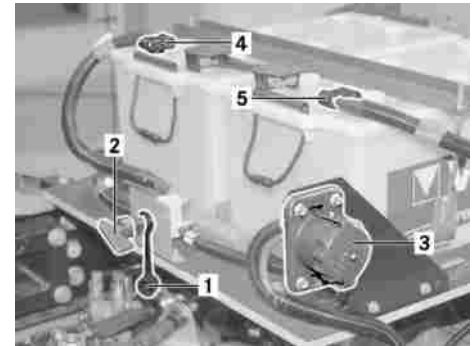
Use only fuses of the specified amperage. Never replace fuses with those of a higher ampere rating as this could lead to damage to the electrical system.



Danger.

Always switch off the battery isolating switch before work is carried out on the electrical system.

Disconnecting vehicle batteries



M54_00-0806-01

- ▶ Switch off the engine.



Note:

The body manufacturer is responsible for the installation location of the batteries and for providing access to them.

- ▶ Switch off the battery isolating switch (2).



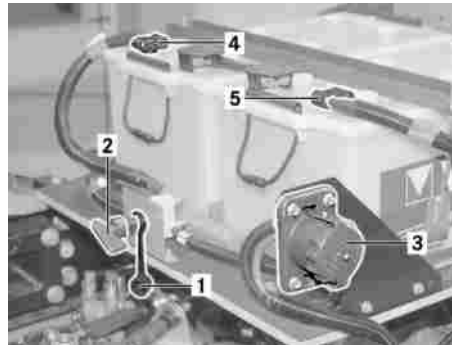
Danger.

There is a risk of explosion from the ignition of oxyhydrogen gas by separation sparks at the time of battery disconnection. Battery isolating switch (2) is fitted to rule out this risk of injury.



Danger.

Switch battery isolating switch (2) to the OFF position (key can be removed) before working on parts of the vehicle electrical system, especially the batteries. The battery isolating switch interrupts the main line from the positive terminal of the battery to the entire vehicle electrical system; for this reason, it must not be switched off until the ignition starter switch has been switched to OFF and the auxiliary heater's run-on period has ended (risk of overheating).



M54_00-0806-01

- ▶ Disconnect the battery negative terminal clamp (5).



Note:

The illustration shows a possible example. The body manufacturer is responsible for the installation location of the batteries.

- ▶ Disconnect the battery positive terminal clamp (4).
- ▶ Reconnect the batteries in reverse order.

Recharging vehicle batteries



Note:

Recharge out-of-service batteries once a month.

- ▶ Connect the charger.



Danger.

Risk of explosion from oxyhydrogen gas formation. Make sure that the area is well-ventilated when you are recharging the vehicle batteries.



Note:

Check that the charging voltage (24 or 12 V) and charging current (approximately 1/10 of the rated capacity, e.g. 200 Ah battery with 20 A charging current) are correct.

Notes on jump-starting

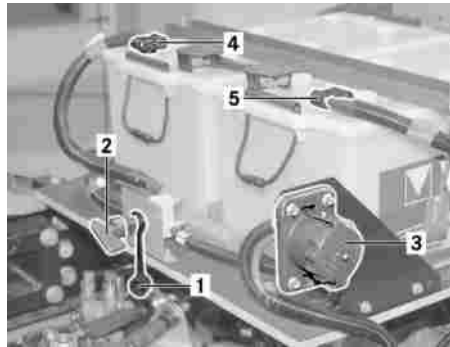
- ▶ Switch off the charger after charging has finished.



Danger.

Do not disconnect the connection terminals until the gases have stopped escaping from the battery (wait a few minutes).

Notes on jump-starting



M54_00-0806-01

- ▶ Where possible, use jump-start connection (3) for the jump-starting procedure.
- ▶ If the jump-start procedure is not carried out using the jump-start connection: the following instructions and information must be observed.



Caution:

Before you connect the jump leads, check that the operating voltage (24 V) and polarity are the same.



Caution:

Only jump leads (cable cross-section approximately 70 mm²) are permitted to be used as a starting aid – never use a rapid charger. Comply with the safety regulations.



Caution:

Use only jump leads that have insulated terminal clips.



Note:

A discharged battery may freeze at temperatures of below -10 °C. A frozen battery must be thawed out before the jump-start operation.

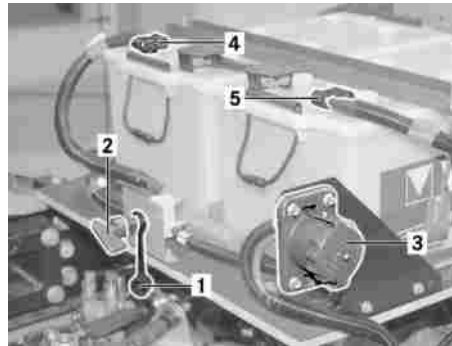


Danger.

Risk of acid burns. Do not lean over the battery during the jump-start procedure.

Jump-start procedure

- ▶ Turn the key back to the stop in the ignition starter switch.



M54_00-0806-01

- ▶ Connect one end of the positive cable to the (+) terminal of the discharged battery first, then connect the other end of the positive cable to the (+) terminal of the donor battery.

- ▶ Connect the negative cable to the (-) terminal on the charged battery and then the other end to an earthed metal part that is bolted to the engine block.



Note:

Keep as far as possible from the discharged battery.

- ▶ Run the engine of the donor vehicle at an elevated speed.
- ▶ Start the engine of the bus to be jump-started in the normal way and let it run at idling speed.
- ▶ Switch off the engine of the donor vehicle.

Activating the on-board diagnostics

- ▶ Fully disconnect the earth connection of the jump leads then disconnect the positive cable.



Note:

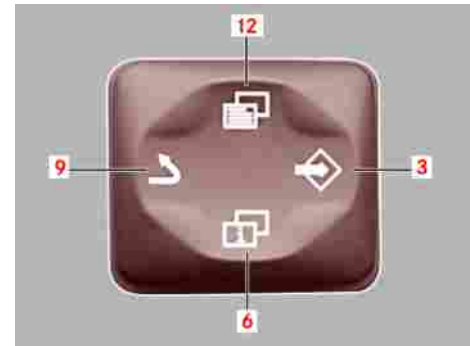
To prevent voltage peaks, switch on the more powerful consumers of the jump-started bus, such as the lighting, heated windows or ventilation, before you disconnect the jump leads.

Activating the on-board diagnostics



Note:

On-board diagnostics cannot be regarded as a substitute for off-board diagnostics (STAR Diagnosis) because off-board diagnostics is the only means by which some functions can be monitored and tested (e.g. the channel assignment for the sensor system and actuators of the EBS or ABS/ASR system).



M54_30-0105-71

- ▶ Press button (12) of the control rocker switch repeatedly until the relevant system appears on the display screen.



Note:

The on-board diagnostics cannot be operated unless: - bus stationary - parking brake applied - ignition starter switch ON

Interpreting the on-board diagnostics screen display



Danger.

All work carried out on the bus in order to rectify displayed faults must be performed by authorised personnel only.

AGN Automatic transmission (option)

BS Brake control

FR Drive control or CPC (common powertrain controller)

GS Transmission control

INS Driver's station instrument panel

MR Engine control

NR Level control

RS Retarder control

TCO Tachograph

ZL Auxiliary steering

ZHE Auxiliary heating



M54_30-0128-71

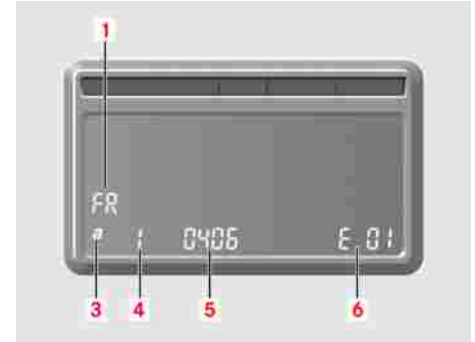
- ▶ The system concerned (1) and the Mercedes-Benz item number (control unit) (2) are displayed. To call up further information, press button (6) on the control rocker switch.



Note:

The following information can be displayed: MB item number, events, measured values, binary values, clear events.

Interpreting the on-board diagnostics screen display



M54_30-0129-71

- ▶ Example:



Note:

FR (1) or CPC (common powertrain controller)

Clearing the fault memory of the selected system



Note:

Current faults (3)



Note:

Fault severity 1 (4)



Note:

Fault code 0406 (5)



Note:

Fault (counter) E 01 (6)



Note:

Only current faults can be displayed on the on-board computer.

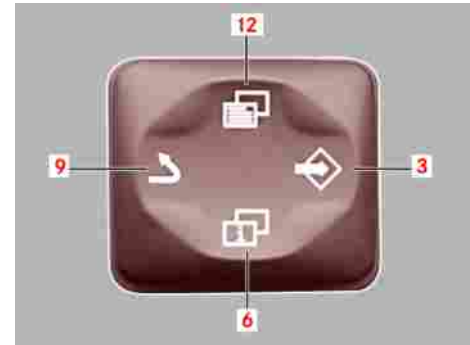
Clearing the fault memory of the selected system



M54.00-1917-71

- ▶ After the last display message, it is possible to clear the fault memory using reset button (1).

Ending on-board diagnostics



M54_30-0105-71

- ▶ Press button (9) to return to the basic display.

Chassis technical data **252**

Chassis technical data

Chassis technical data	
Designation	Value
Permissible gross weight for two-axle buses Country-specific	18,000 kg
Permissible gross weight for three-axle buses Country-specific	25,000 kg
Maximum permissible front axle load (depending on the tyres) Country-specific	7,100 kg
Maximum permissible rear axle load (depending on the tyres) Country-specific	11,500 kg

Designation	Value
Maximum permissible trailing axle load (depending on the tyres) Country-specific	7,100 kg
Track width, front axle	2,082 mm
Track width, driven axle	1,802 mm
Track width, trailing axle	2,055 mm
Tyre size	295/80 R 22.5
Tyre size (option)	11 R 22.5
Tyre size (option)	12 R 22.5

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