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WHY THIS HANDBOOK IS SO IMPORTANT!

This handbook contains the information which you, the driver, will need for optimum efficiency, safety and comfort when operating this vehicle.

Besides giving instructions about operation and use, it also pays attention to maintenance and minor repairs which you may be able to carry out yourself.

Note:

This handbook is based on the chassis with its fittings as it originally left the factory.

Depending upon the required body and equipment, the bodybuilder may have made fundamental changes to various parts or systems, such as the instrument panel, the lighting or the electric wiring.

The vehicles covered by this handbook consist of various types and models. Individual vehicles are furthermore constructed in accordance with the legal regulations in the country concerned and in accordance with the expected operating conditions. Certain descriptions or illustrations in this handbook may therefore not correspond entirely to the situation on your own vehicle. However, this has practically no influence on its operation or maintenance.

Important

Make sure this handbook is in the vehicle at all times.

Read it carefully **before making your first journey**, especially the **"Warnings and safety precautions"**, **"Cab, instruments and controls"**, **"Inspections and maintenance"** and **"Driving"** sections.

Warnings and Safety Regulations

Warnings and Safety Regulations



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WARNING SYMBOLS

To ensure the highest level of safety in the operation of your vehicle, various warnings are included in this handbook. Each warning is indicated by a special warning symbol.

When text is accompanied by the adjacent warning symbol, this indicates that the information in question is very important for the health and/or safety of those concerned.

Disregarding this information may result in serious damage, injury or even death.



D000501

When text is accompanied by the adjacent warning symbol, this indicates that the information in question is very important for the operating safety of the vehicle.

Disregarding this information may result in the loss of directional stability, steering problems or the vehicle otherwise getting out of control, causing serious damage, injury and other life-threatening situations.

Warnings and Safety Regulations

WARNINGS AND SAFETY REGULATIONS



To prevent damage to the vehicle and in order not to jeopardise your health and/or safety, or that of other people, the following warning and safety regulations must be strictly observed.

First read the instructions and warnings on the labels and stickers on the various components and comply with them!

They have been put there for your health and safety, so do not ignore them!

Modifications to the vehicle

Modifications to the vehicle or the vehicle configuration may require the reprogramming of electronic units by an approved and authorized dealer.

Engine

Do not run the engine in an enclosed or unventilated area.

Make sure exhaust gases are properly extracted.

Components

Remain at a safe distance from rotating and/or moving components.

Cooling system filler cap

Do not remove the filler cap of the cooling system when the engine is at operating temperature. Do not loosen the filler cap of the cooling system when the cab is tilted.

Warnings and Safety Regulations

Warning triangle

Ensure that you are always in possession of a hazard warning triangle (obligatory in certain countries), possibly in combination with other marking equipment.

In the event of a breakdown en route, wear reflective clothing when outside the vehicle.

Fire extinguisher

Ensure that you are always in possession of a fire extinguisher (obligatory in certain countries). It should be well secured under the seat, within the driver's reach and easily accessible, also for rescue workers and others providing assistance. Have the fire extinguisher checked for operational readiness each year. If it has been used, have it refilled at the earliest opportunity.

In the event of fire:

In the event of a fire, certain plastic seals can produce gases which together with water form a corrosive acid. Therefore do not touch any fire extinguisher fluid on the vehicle without protective gloves.

Cab

Make sure there are no loose objects on the floor on the driver's side. Bottles, cans etc. may get stuck under the brake pedal while driving, giving rise to extremely dangerous situations.

While driving, do not use the clutch pedal as a footrest since this may cause excessive wear of the clutch.

First aid kit

Ensure that you are always in possession of a first aid kit (obligatory in certain countries). Replace first aid items as soon as possible after use to make the kit complete again.

Warnings and Safety Regulations

Winter conditions

When winter driving conditions are expected (especially if the vehicle is operated in mountainous areas), make sure that your vehicle is fitted with winter tires or that you have snow chains with you. Also refer to "Maintenance operations before the winter season" in "Inspections and maintenance".

Load

The load should always be properly secured so that it cannot move, not even during an emergency stop. Remember that sidewalls, partitions, etc. are often not designed to withstand high forces.

Loads must not project more than is permitted by local regulations.

Bear in mind that the stability of the vehicle may be impaired by the load and that you may also need a larger turning circle.

Make sure when loading that the following values are not exceeded:

- maximum permissible axle load

Oils and lubricants

Various kinds of oil and other lubricants used on the vehicle may constitute a health hazard if they come into contact with the skin.

This also applies to engine coolant, windscreen washer fluid, refrigerant in air conditioning systems, battery acid and diesel fuel.

So avoid direct contact as much as possible.

The engine and the surrounding area must be free of inflammable materials to avoid the risk of fire.

Exercise caution when changing hot oil; it can cause serious bodily injury.

Maintenance activities

When carrying out maintenance work under the cab, make sure the cab is fully tilted and locked to prevent it from falling back accidentally.

Warnings and Safety Regulations

If a cooler box/refrigerator has been fitted, it should be switched off and if necessary unplugged before tilting (depending on the type).
The cooler box/refrigerator should remain switched off at least 30 minutes after the cab has been tilted back.

Following a collision, only tilt the cab in an **emergency situation**.
The tilting mechanism may be damaged.
(The end stop may no longer be on the lifting cylinder.)

Always use stands to support the chassis when carrying out work under a vehicle which is resting on a jack.

Warnings and Safety Regulations

Maintenance of air conditioning system

The air conditioning system contains coolant under high pressure. Removal of any parts of the air conditioning system is not permitted. Work on the air conditioning system may only be carried out by qualified personnel.

If the air conditioning fails to work, it must be repaired by a dealer as soon as possible, to avoid further damage to the system.

Environment

Pollution constitutes a serious threat to the environment. To keep pollution to a minimum, the following rules should be observed:

- Do not dump used oil, fuel, lubricants, hydraulic fluid or coolants in drains, sewers, in landfills or on the ground. This is illegal. These fluids should be returned to the designated authority or appropriate chemical waste collection company for recycling or destruction. All used fluids should be stored separately.
- Make sure that the vehicle is serviced regularly according to the instructions and recommendations. A properly serviced vehicle helps to optimise fuel economy and reduce the level of harmful constituents in the exhaust gases.

Warnings and Safety Regulations

TECHNICAL ITEMS OF SPECIAL IMPORTANCE

To prevent damage to the vehicle, the following instructions must be strictly observed.

Running-in

During the running-in period it is best not to subject the new vehicle to excessive loads. This also applies when an overhauled engine, gearbox or differential has been installed. Therefore, for the first 1,500 km (932 miles): drive carefully and avoid accelerating sharply.

The following technical items of special importance apply to both the running-in period and to the period thereafter.

After a cold start continue to drive in a low gear and at a moderate engine speed until the engine coolant temperature is out of the blue zone.

While driving, check **the instrument panel** regularly and take appropriate action if you notice anything unusual, such as strange engine and transmission noises, smoke, or poor performance.

Do not let the engine **idle for longer than necessary**. This is harmful to the engine and also causes unnecessary pollution of the environment.

Be aware that **engine stalling** while driving will lead to power steering failure. Consequently, the vehicle will be more difficult to steer.

The engine cooling system is thermostatically controlled.

Removing the thermostat when the coolant temperature is (too) high serves no useful purpose and is strongly advised against, since this will only cause the engine temperature to rise to an even higher level.

The **turbocharger** is a precision component. You should therefore immediately report any abnormal noise that seems to be coming from this component.

Warnings and Safety Regulations

Air leakage

If the **pressure in the air reservoirs** drops rapidly with the engine switched off, this indicates a leak. Since this affects the safety of the brake system, the leak must be traced and repaired as quickly as possible.

System voltage

The cab system of this vehicle are on **24-Volt** while other areas remain 12-Volt. When replacing or fitting electrical or electronic components, always verify that they are suitable for this system voltage.

Batteries



Never disconnect the battery leads while the engine is running!



Always charge batteries in a properly ventilated area and avoid sparking and naked flames due to the danger of explosion.

Always disconnect the battery earth lead before carrying out repairs or service on the electrical system.

Never place tools on a battery. This may cause a short circuit and may even cause the battery to explode.

Charging



Thaw out frozen batteries before charging them. Remove all the filler caps before charging.

Warnings and Safety Regulations

Connect the positive lead (+) of the battery charger to the positive terminal (+) of the battery first and then the negative lead (-) to the negative terminal (-).

After charging, switch off the battery charger and then disconnect the negative terminal (-) and subsequently the positive terminal (+).

For normal charging, the battery leads may remain in place.

Fast charging should only be used in an emergency. For "fast charging" **both** battery leads must be disconnected, otherwise the electronics may become defective.

Battery capacity

Using electrical components, such as the cab heater or refrigerator when the engine is not running, power will be drawn from the batteries.

Approximately half the battery capacity is required to start the engine.

If this is the case over a protracted period, particularly during low temperatures, the result may be that the electrics have used so much power that there is not enough to start the engine.

If the larger consumers, such as the cab heater, refrigerator, coffee percolator, microwave oven or tail-lift are used, it is recommended that you obtain batteries of a higher capacity in consultation with your dealer.

Warnings and Safety Regulations

Welding

For welding on the vehicle and/or superstructure, see the "Workshop manual" and "Bodybuilders Guidelines".

Not following the welding instructions can cause damage to the electronic components.

Starting with auxiliary batteries

The engine may be started with the aid of jump leads using the power from separate auxiliary batteries (approx. 24 V) or from another vehicle with the engine running (approx. 28 V). **When this starting procedure is followed, the battery leads must not be disconnected.** Connect the jump leads first to the positive terminal (+) and then to the negative terminal (-). To disconnect, first release the negative terminal (-) and then the positive terminal (+).

In the event that the batteries are **fully** discharged and the engine is running, it is important that the jump leads are **not immediately** disconnected. The engine must be allowed to run for at least 2 to 3 minutes before the jump leads are disconnected to prevent damage to the electrical system (peak voltage!).

Proceed as follows as soon as the engine starts running:

- switch on as many power consumers as possible (for example: headlights, fog lamps, heater fan, etc.);
- remove the jump leads after the engine has run for 2 to 3 minutes;
- switch off the consumers again.

Never start the engine using a fast charger!

Warnings and Safety Regulations

Mobile telephones and transmitters

If mobile telephones and transmitting equipment are used, the following points must be taken into account:

- Mobile telephones or transmitters must not be used in the vehicle without a separate outside aerial!



The use of mobile telephones or transmitters without a separate outside aerial may cause excessively high electromagnetic fields in the cab interior (resonance effect). In this case, there may be interference to the operation of the vehicle electronics.

- Moreover, an outside aerial is necessary in order to achieve the maximum range of the equipment.

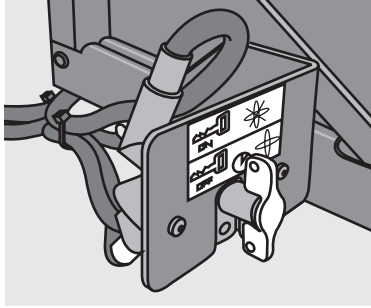
Note:

It is important to observe the instructions for use of mobile telephones and transmitters!

Original components

In order to meet the warranty conditions and guarantee the service life, safety and reliability, the use of **non** original components, sensors and engine management units/software is not permitted. The application of engine management software that has not been approved will adversely affect critical systems in terms of the safety of the vehicle, the braking system for instance.

Warnings and Safety Regulations



D0 02 000

Disconnect Switch

This vehicle has a disconnect switch. Ensure that your vehicle ignition has been turned off for at least 40 seconds before switching the disconnect switch to the OFF position

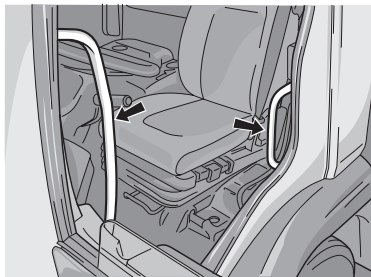
Warnings and Safety Regulations

Cab, Instruments and Controls

Cab, Instruments and Controls

ENTERING AND LEAVING THE VEHICLE

To get into and out of the cab, use the grab handles on the left and right-hand door pillars and not the steering wheel. Also use all the steps and always face the cab when getting in or out.



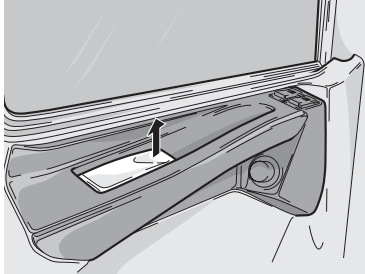
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Cab, Instruments and Controls

DOORS



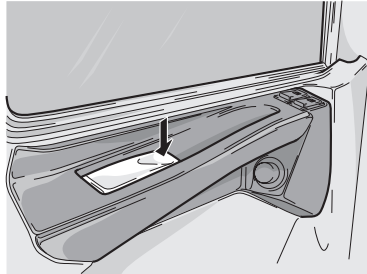
Do not drive the vehicle if the doors are not properly closed and locked!



D0 00 604

Opening the door

Pull the handle to open the door from the inside.



D0 00 611

Locking the door from the inside

Press the door handle downwards.

Standard version

Both doors can be locked and unlocked from the outside using the key.

Cab, Instruments and Controls

Central door locking

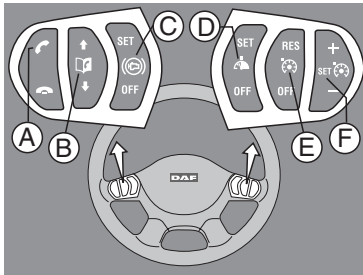
Unlocking

To open the doors of a vehicle with central door locking, use the same procedure as described above.

The door on the co-driver's side can be locked/unlocked using the switch on the centre console.

Locking

- Both doors are locked when one of the doors is closed with the key.
- To lock the doors from the inside, press button (B).
- If an alarm system has been installed, it will be activated if the doors are locked using the hand-held transmitter.
- Avoid locking yourself out!



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ELECTRICALLY OPERATED WINDOWS

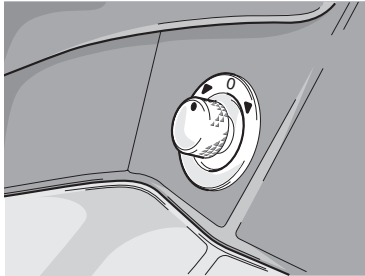
The switches only work when the ignition is switched on.

The driver's and co-driver's windows can be opened and closed with the switches in the driver's door. The switch in the co-driver's door can only open and close the co-driver's window.

Cab, Instruments and Controls

MIRRORS

The mirror housing and mounting bracket is fixed to the cab. Only the face of the mirror is adjustable within the mirror housing. The mirror bracket can be folded back against the cab and will return to its original position once the bracket is swung out again. On some models there is an extra wide angle mirror on the co-driver's side, in addition to the kerb view mirror, which gives the driver a better view of the drawn vehicle.



D0 00 612

ELECTRICAL MIRROR ADJUSTMENT

The electric mirrors can be adjusted by means of the switch in the driver's door.

Select the right or left mirror by turning the button either to the right or left position.

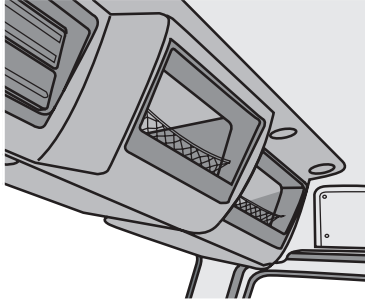
Move the switch forwards, backwards, left or right, to adjust the mirror.

WINDSHIELD WIPER BLADES

To prevent damage to the wiper blades during operation in winter conditions, always check that the blades are not frozen to the windshield. This can be prevented by placing something between wiper blades and windshield. Switch off the windshield wipers before turning off the ignition.

Clean the wiper blades regularly with water and dry them with a soft cloth.

Cab, Instruments and Controls



D0 02 001

ROOF CONSOLE

In the roof console there are two shelves, which are protected by a half-high safety net. Do not place any heavy objects in the shelves and ensure that any objects are constrained and unable to move freely.

SUN VISORS

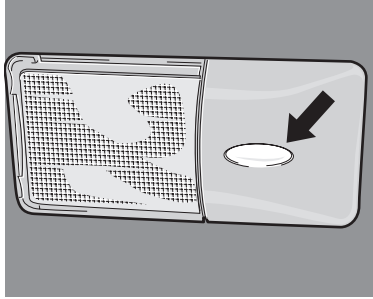
As a protection against sun glare, the sun visors can be folded down. The sun visor on the driver's side can also serve as a side window shade.

STEPWELL LIGHTING

In both doors, a lamp is fitted at the bottom to light the stepwell. This will light up as soon as the door is opened.

Cab, Instruments and Controls

INTERIOR LIGHTING

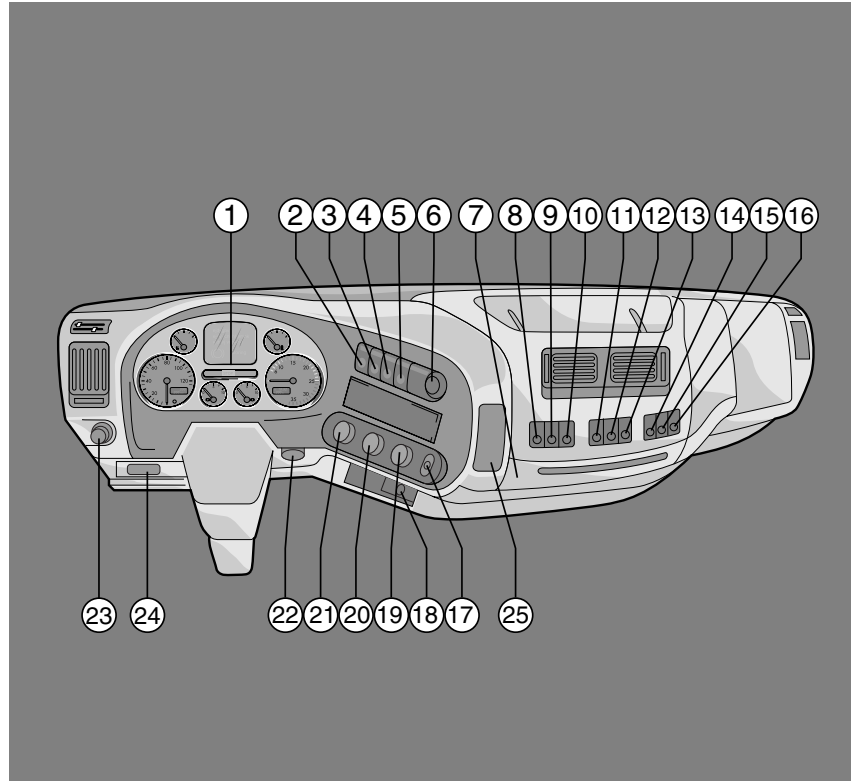


DC

The interior lighting operates independently of the position of the contact key. The interior light comes on when the door is opened. When the doors are open for more than 15 minutes, the interior lamps will be extinguished. The lamp stays lit by operating the switch on the lamp.

Cab, Instruments and Controls

DASHBOARD



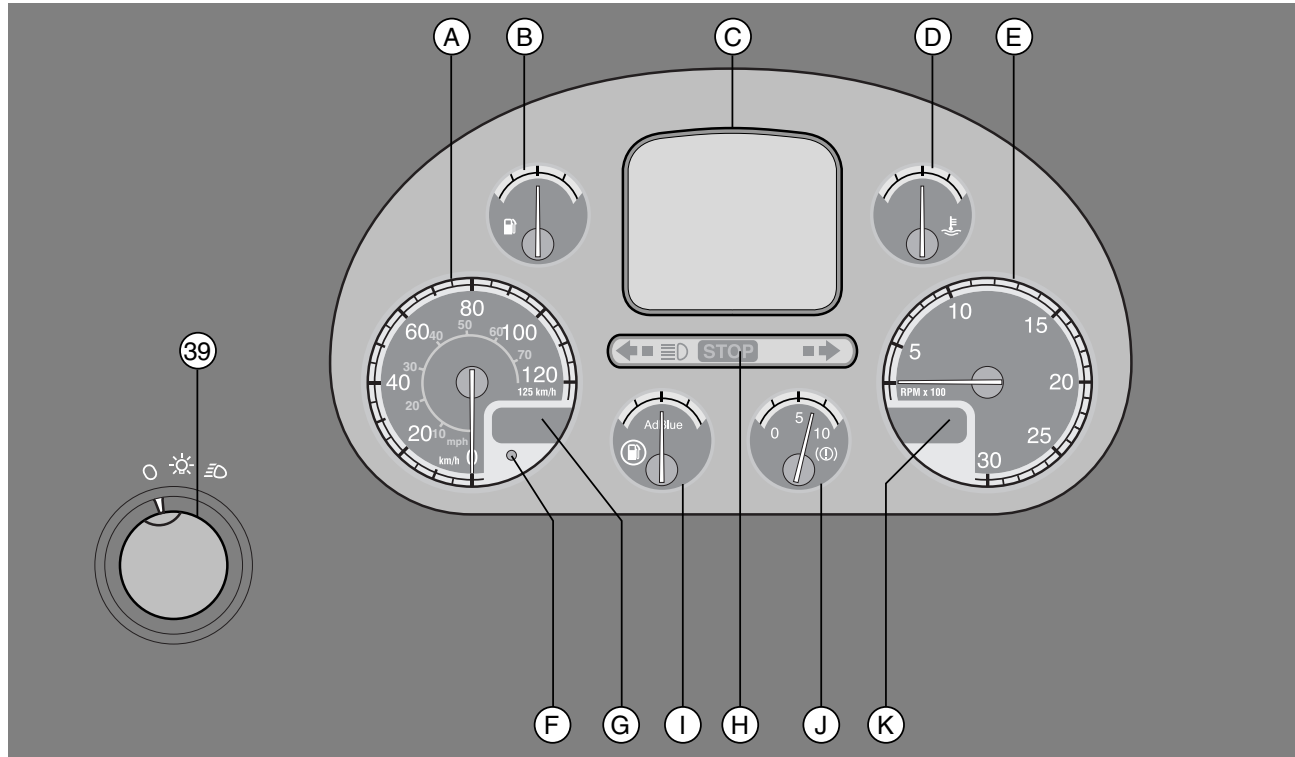
D001183

Cab, Instruments and Controls

- 1 Instrument panel
- 2 Dimmer, dashboard lighting
- 3 Differential lock
- 4 Vehicle speed limiter
- 5 (unused)
- 6 Menu selection switch
- 7 Ashtray with 12V auxiliary socket
- 8 Hazard warning lights
- 9 Work lamp/loadspace lighting
- 10 Mirror/windshield heating
- 11 Suppression switch, reversing alarm
- 12 Electrical master switch, transport of hazardous materials
- 13 Door lock, co-driver's side
- 14 Not in use
- 15 PTO operation
- 16 Switching off loadspace detection, superstructure/trailer
- 17 Air conditioning
- 18 (unused)
- 19 Heater, fan speed selector switch in fresh air position or re-circulation position
- 20 Heater, temperature control
- 21 Heater, air distribution selector switch
- 22 (unused)
- 23 (unused)
- 24 OBD diagnostic connection
- 25 Position of telephone cradle

Cab, Instruments and Controls

INSTRUMENT PANEL



D001198

Cab, Instruments and Controls

- A Speedometer
- B Fuel gauge
- C Master display
- D Coolant temperature gauge
- E Rev counter
- F Reset button, trip odometer
- G Odometer and trip meter
- H Warning indicators
- I Air pressure gauge, circuit 1
- J Air pressure gauge, circuit 2
- K Outside temperature and clock

Cab, Instruments and Controls

KM/H
mph

A. SPEEDOMETER

This vehicle's speedometer is equipped with double scale divisions, either major divisions with mph and minor divisions in kph or major divisions in kph and minor divisions in mph.



B. FUEL GAUGE

The fuel gauge only operates when the contact is on. Factor in the delay on the gauge when the contact is turned on.

C. MASTER DISPLAY

See "MASTER DISPLAY".



D. COOLANT TEMPERATURE GAUGE

The engine should not be operated under full load if the temperature is in the blue field.

The engine is at operating temperature when the temperature gauge is vertical, or slightly further.

If the coolant temperature suddenly rises and/or the pointer is in the red field, the following points should be checked:

- the coolant level (caution – danger of scalding; see "Topping up coolant" in "INSPECTIONS AND MAINTENANCE");
- the poly V-belt and water hoses;
- the fan clutch.

E. REV COUNTER

Green area: economical

White: less economical

Blue area: only permitted when driving downhill and for optimal use of the engine brake

Red area: not permitted



Cab, Instruments and Controls

F. TRIP METER RESET BUTTON

The trip meter is set to zero with the reset button.

G. ODOMETER AND TRIP METER

The total distance is displayed in "km" or "mils" in the top section of the display.

H. WARNING INDICATORS

See section concerned.

I. and J. AIR PRESSURE GAUGE, CIRCUITS 1 AND 2

Each gauge indicates the air pressure in the reservoirs of one of the service brake circuits. If the pressure in one of the circuits drops below approx. 60 psi (450 kPa), an acoustic signal is generated and the warning symbol "Air system pressure too low" will illuminate in the master display. When the pressure is higher than 100 psi (700 kPa), the brakes can be released with the parking brake lever. The acoustic signal and warning symbol are only generated when the contact is on. The gauges also operate when the contact is off.

The vehicle must not be driven when the acoustic signal sounds or when the pressure in one of the circuits is lower than approx. 60 psi (450 kPa).

K. OUTSIDE TEMPERATURE AND CLOCK

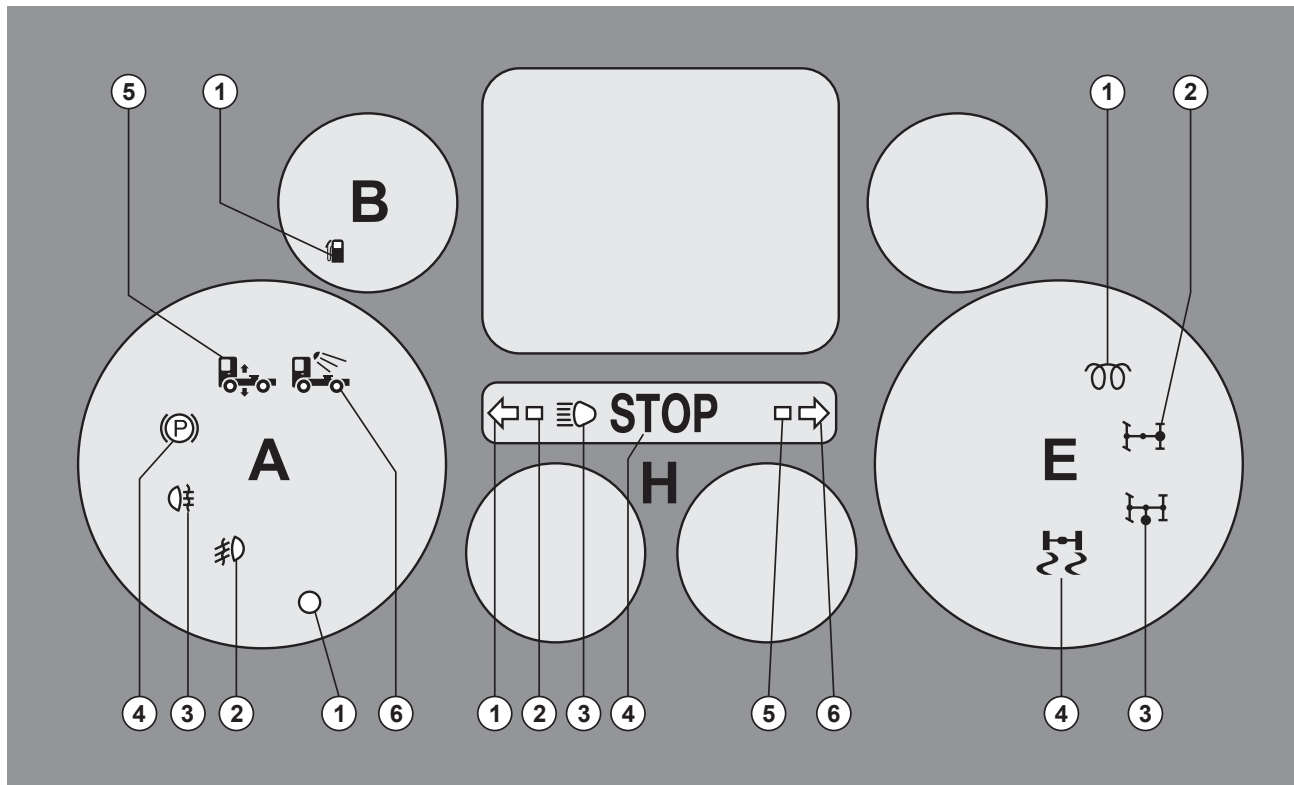
The display is activated when the contact is on.

The clock is shown in the top section of the display.

The outside temperature is displayed in the bottom section in δC or δF .

Cab, Instruments and Controls

WARNING INDICATORS



Cab, Instruments and Controls

A1	(unused)
A2	(unused)
A3	Rear fog light
A4	Parking brake
A5	Chassis not at normal driving level
A6	Work lamp/loadspace lighting
B1	Fuel level low
E1	Glow system
E2	Differential lock
E3	PTO
E4	(unused)
H1	Left direction indicator, prime mover
H2	Left direction indicator, trailer
H3	Main beam
H4	Central "STOP" warning indicator
H5	Right direction indicator, trailer
H6	Right direction indicator, prime mover

Cab, Instruments and Controls



A3. Rear fog light

This warning indicator lights up if the rear fog lights are switched on.



A4. Parking brake

This warning indicator lights up if the parking brake is applied, or when the pressure in the air system is too low to enable the parking brake to be released.



A5. Chassis not at normal driving level

This warning indicator stays on continuously if the chassis is not at normal driving height or when traction control is in operation.



A6. Work lamp/loadspace lighting

The warning indicator lights up when the work lamp/loadspace lighting is switched on.



B1. Fuel level low

This warning indicator lights up when the reserve fuel level is reached. The fuel reserve then is about 10% of the tank capacity. Refuel as soon as possible.



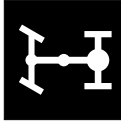
E1. Glow system operating

If the contact is on, the electronic unit automatically determines the necessary preglowing and afterglowing times.

The necessary preglowing and afterglowing times depend on the temperature that is measured by the electronic unit of the engine management system.

If the preglowing or afterglowing function is activated by the electronic unit, this warning indicator lights up.

Cab, Instruments and Controls



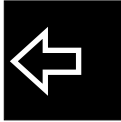
E2. Differential lock switched on

This warning indicator lights up when the differential lock is switched on.



E3. PTO engaged

This warning indicator lights up when the PTO is switched on.



H1. Left direction indicator, prime mover

This warning indicator flashes together with the direction indicators on the prime mover.



H2. Left direction indicator, trailer

On a truck/trailer or truck/semi-trailer combination, this warning indicator starts flashing as soon as the direction indicators are switched on.



H3. Main beam

This warning indicator lights up if the main beam is switched on or the headlight flash is operated.



H4. Central "STOP" warning indicator

The central "STOP" warning light lights up when there is a serious fault in one of the vehicle functions. The master display shows which vehicle function has triggered the warning.

Cab, Instruments and Controls

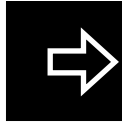


If the "STOP" warning indicator lights up and/or the buzzer is audible while driving, the vehicle must be stopped as soon as possible, parked in a safe place and the engine switched off. Have an authorized Service dealer correct the problem as soon as possible.



H5. Right direction indicator, trailer

On a truck/trailer or truck/semi-trailer combination, this warning indicator starts flashing as soon as the direction indicators are switched on.

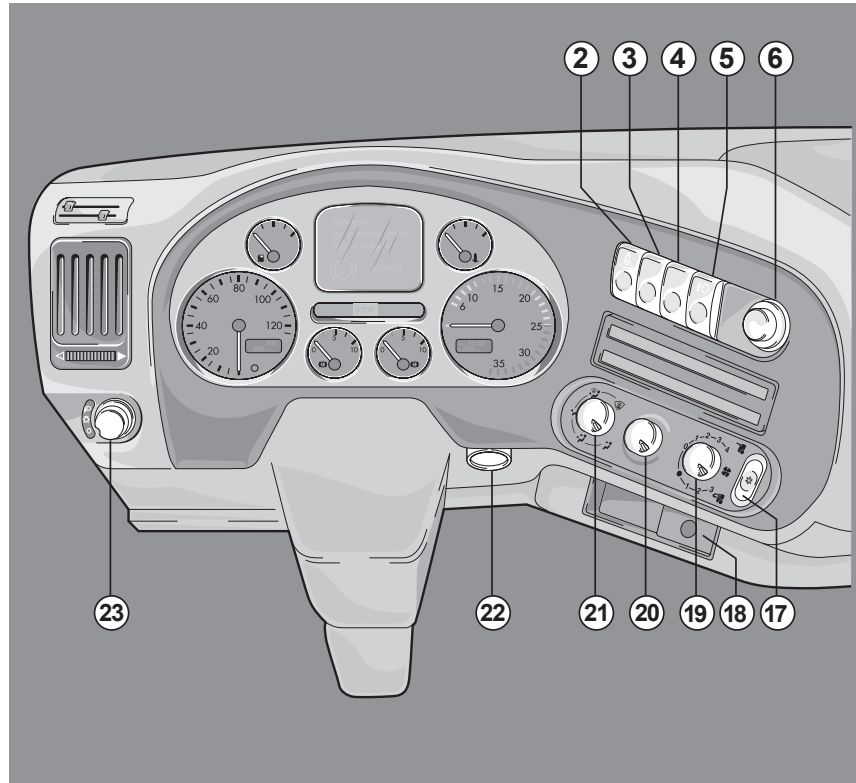


H6. Right direction indicator, prime mover

This warning indicator flashes together with the direction indicators on the prime mover.

Cab, Instruments and Controls

CONTROL PANEL



D0 00 705

Cab, Instruments and Controls

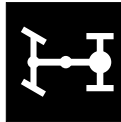
- 2 Dimmer, dashboard lighting
- 3 Differential lock
- 4 Not in use
- 5 Depending on the version:
 - rear fog light
 - front and rear fog lights
- 6 Master display menu selection switch
- 17 Air conditioning
- 18 12-V connection
- 19 Heater, fan speed selector switch in fresh air position or re-circulation position
- 20 Heater, temperature control
- 21 Heater, air distribution selector switch
- 22 (unused)
- 23 Lighting switch
- 24 HD-OBD connector (diagnosis)
- 25 Position for telephone cradle

Cab, Instruments and Controls



2. DIMMER, DASHBOARD LIGHTING

When the lighting is switched on, the dashboard lighting will also illuminate. The setting wheel enables dimming of the lighting.



3. SWITCH FOR CROSS-AXLE DIFFERENTIAL LOCK

The cross-axle differential lock can be activated with this switch.

Note:

This switch has a lock.

The differential lock should be engaged:

- with the vehicle stationary or moving very slowly;
- with the clutch pedal depressed.

Note:

For vehicles with automatic gearbox, the vehicle must be stationary and the gearbox in Neutral (N).

See also "DRIVING"



5. FOG LAMPS, REAR

The switch is a two position switch to operate the rear fog lamps.

6. MASTER DISPLAY MENU SELECTION SWITCH

See "MASTER DISPLAY".

Cab, Instruments and Controls



17. AIR CONDITIONING

See "CONTROL PANEL OF HEATING/VENTILATION SYSTEM"

18. 12V CONNECTION

There are two auxiliary connections for a 12-V accessory. Accessories connecting to these auxiliary connections should not exceed a combined load of 180 Watts.

19, 20, 21. HEATER CONTROLS

See "CONTROL PANEL OF HEATING/VENTILATION SYSTEM"



23. LIGHTING SWITCH

The vehicle lighting switch is a rotary switch with three positions:
position "0": lighting switched off



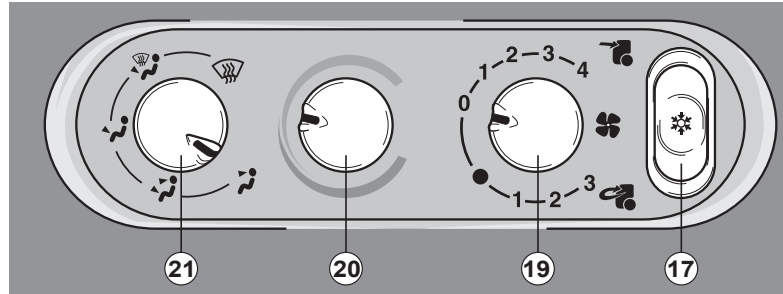
position "1": parking and marker lights on



position "2": headlamps, parking and marker lights on

Cab, Instruments and Controls

CONTROL PANEL OF HEATING/VENTILATION SYSTEM



- 17 Air conditioning
- 19 Fan speed selector switch in fresh air or re-circulation position
- 20 Temperature adjustment
- 21 Air distribution

17. AIR CONDITIONING

See "AIR CONDITIONING SWITCH"

19. FAN SPEED

See "FAN SPEED SELECTOR SWITCH"

20. TEMPERATURE CONTROL

See "TEMPERATURE CONTROL"

21. AIR DISTRIBUTION

SEE "AIR DISTRIBUTION SELECTOR SWITCH"

Cab, Instruments and Controls



DO 00 566

AIR CONDITIONING SWITCH

The cab air can be heated, cooled or dehumidified using the air conditioning unit.

The air conditioning unit only functions if:

- the engine is running
- the fan is running.

Use of the air conditioning

1. When the air conditioning is in use, the windows must remain closed.
2. To reduce the temperature quickly, first use maximum air speed. Later, the air speed can be reduced.
3. Avoid direct cold or draught on your body. Do not aim the air vents directly at your body.
4. Make sure that the temperature difference between the inside and outside of the cab does not exceed 5 °C when you leave the cab. You are therefore advised to switch off the air conditioning towards the end of your journey.
5. Air conditioning consumes extra power and increases the fuel consumption.
6. On extreme angles (slopes, ruts and difficult terrain) switch off the air conditioning, to protect the compressor pump against unlubricated operation.
7. Regularly (once a month) switch on the air conditioning briefly, even if cooling is not required (e.g. in winter). This will prevent serious damage being caused to the system (including compressor blockage).

Cooling

1. Switch the air conditioning on.
2. Switch the recirculation to position 1, 2 or 3.
3. Turn the temperature control switch to the desired position. For maximum cooling set the knob to the far left position in the blue area.
4. Open the side and centre vents.

Cab, Instruments and Controls

While heating, it is possible to use the air conditioning to remove moisture from the air in the cab. This has the advantage that demisting of the window glass will be quicker.

Dehumidification

1. Switch the air conditioning on.
2. Switch off the recirculation.
3. Open the vents on the centre console and at the side windows and set them as desired.
4. Control the temperature as desired.
5. Adjust the volume of air using the fan speed selector switch.

Note:

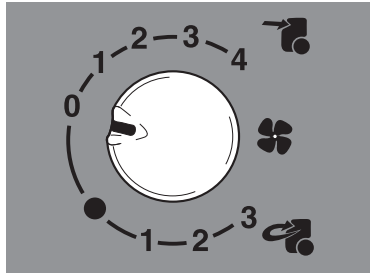
The air conditioning system is switched off when the engine coolant temperature becomes too high. This will protect the engine.



The air conditioning system contains coolant under high pressure. Removal of any parts of the air conditioning system is not permitted. Work on the air conditioning system may only be carried out by qualified personnel.

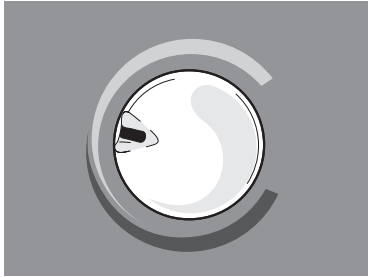
Note:

If the air conditioning system fails to work properly, it must be repaired by qualified personnel as soon as possible, to avoid further damage to the system.



DD 00 644

Cab, Instruments and Controls



D0 00 614

FAN SPEED SELECTOR SWITCH

FRESH AIR POSITION OR RE-CIRCULATION POSITION

The fan has two speeds: one applies to re-circulation the other to fresh air. The re-circulation position is suited to quickly de-mist or cool the cab with the air conditioning, quickly heat the cab, de-frost the windows with the heater and keep out undesirable odours.

Note:

You are advised to switch on the re-circulation without air conditioning for short periods only to prevent the air quality inside the cab degrading and moisture increasing.



Fan speeds with fresh outside air ventilation valve open



Fan speeds with re-circulation valve closed, hardly any supply of fresh outside air

TEMPERATURE ADJUSTMENT

The supply of heat can be smoothly set from 0% (blue) to 100% (red).

To achieve faster heating when the temperature outside is low, switch on the re-circulation. In damp weather conditions it is recommended to reopen the re-circulation flap after heating to prevent the windows from misting.

Cab, Instruments and Controls

AIR DISTRIBUTION SELECTOR SWITCH



D0 00 643



Dashboard



Dashboard vents and footwell



Footwell vent



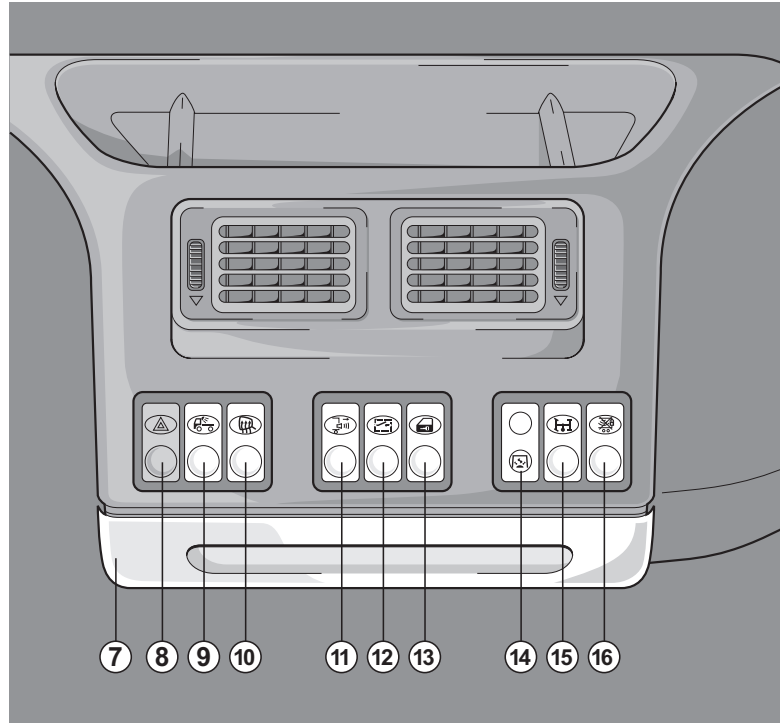
Footwell and windshield vents



Defrost

Cab, Instruments and Controls

CENTRE CONSOLE



D000706-2

Cab, Instruments and Controls

- 7 Ashtray with 12V auxiliary connection
- 8 Hazard warning lights
- 9 Work lamp/loadspace lighting
- 10 (unused)
- 11 Suppression switch, reversing alarm
- 12 (unused)
- 13 Door locking, co-driver's side.
- 14 (unused)
- 15 PTO operation
- 16 (unused)

Cab, Instruments and Controls

7. ASHTRAY

In the centre console is an ashtray with auxiliary connection for the driver and co-driver.

Do not connect any accessory above 180 Watt or any combination of accessories that would require a combined amount greater than 180 Watts.

To remove the ashtray, there are two springs on the top of the tray which should be pressed in, after which the tray can be removed.



8. HAZARD WARNING LIGHTS

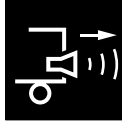
When this switch is pressed, all the direction indicator lights flash simultaneously. The hazard warning lights are switched off by depressing the switch again. The warning light in the switch indicates that the hazard warning is switched on.



9. WORK LAMP/LOADSPACE LIGHTING

This switch operates the lighting at the rear of the cab or in the loadspace.

Cab, Instruments and Controls



11. SUPPRESSION SWITCH, REVERSING ALARM

With this switch, the reversing alarm can be switched off when reversing. The following time you engage reverse, the alarm will sound again.



Take care not to deactivate the vehicle's electrical system with this switch during NORMAL DRIVING!

Note:

The master switch can be switched on and off with this switch.

The engine must be switched off when the main switch is operated. Avoid inappropriate use.

The master switch outside the cab can always be operated manually to deactivate the vehicle's electrical system. Read the instructions on or near the master switch. Always deactivate the vehicle's electrical system when the vehicle is parked.



13. DOOR LOCKING AT CO-DRIVER'S SIDE

See "DOORS".

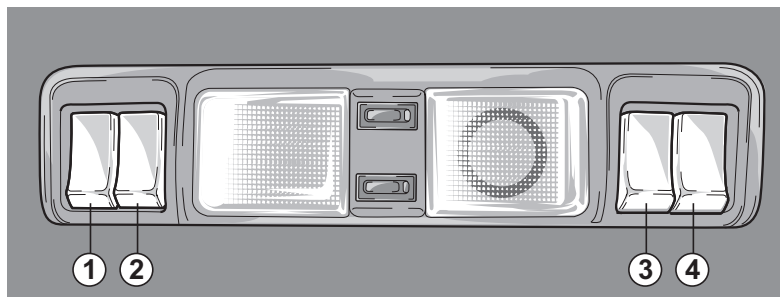


15. PTO OPERATION

With this switch, the Power Take Off can be engaged, if necessary in combination with the variable speed engine control. Engage the PTO only when the programmed engaging conditions are met.

Cab, Instruments and Controls

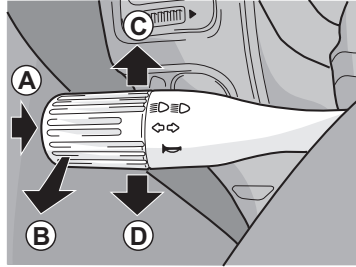
ROOF CONSOLE



D0 00 589

- 1 Electric roof hatch
- 2 Rotating beacon
- 3 Switch "switch off cab interior detection"
- 4 Alarm system LED

Cab, Instruments and Controls



D0 00 600

LEFT-HAND STEERING COLUMN SWITCH

- A Horn
- B Main beam
- C Direction indicator, right
- D Direction indicator, left

A. HORN

The horn is operated with button A.

B. MAIN BEAM

Position B: The main beam is activated when the lights are on. The main beam indicator on the instrument panel will also light up. To switch off the main beam, the switch must be turned back through the "click" position towards the steering wheel. If the lights are off, or if the switch has not been pushed through the "click" position, it can be used to give signals.

C. DIRECTION INDICATOR, RIGHT

Position C: Right turn signal: on the instrument panel, the right direction indicator will flash and there will also be an audible signal. To briefly operate the direction indicators (changing lanes, etc.), the switch can be pushed slightly against the spring pressure. It will spring back when released.

D. DIRECTION INDICATOR, LEFT

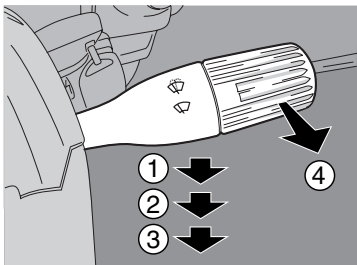
Position D: Left turn signal: on the instrument panel, the left direction indicator will flash and there will also be an audible signal. To briefly operate the direction indicators (changing lanes, etc.), the switch can be pushed slightly against the spring pressure. It will spring back when released.

Cab, Instruments and Controls

RIGHT-HAND STEERING COLUMN SWITCH

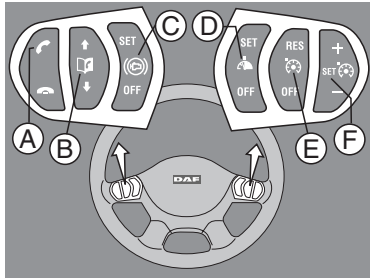
The right-hand steering column switch has the following functions:

- 1 Position 1: Intermittent wipe.
- 2 Position 2: Wipe speed (low).
- 3 Position 3: Wipe speed (high).
- 4 Position A: Wipe/wash.



D001199

Cab, Instruments and Controls



D001190-2

STEERING WHEEL SWITCHES

Depending on the vehicle version, the steering wheel either or not has steering wheel switches.

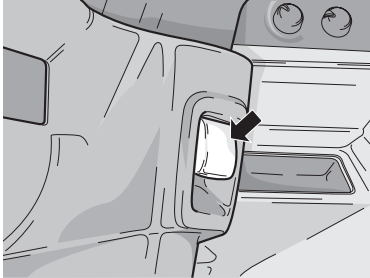
Left-hand switches

- A** Answer telephone, end call and reject call
- B** Telephone directory scroll button
- C** Engine brake

Right-hand switches

- D** Variable speed limiter
- E** Cruise control, resume, off
- F** Cruise control setting/engine speed control

Cab, Instruments and Controls



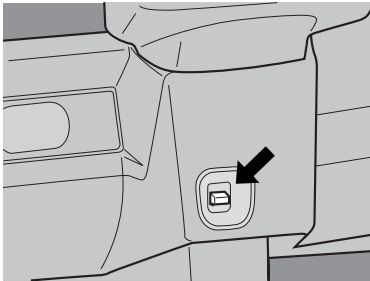
D0 00 616

ADJUSTABLE STEERING COLUMN

The position of the steering column is adjustable. To adjust, pull the handle towards you and simultaneously move the steering column to the desired position. The steering column is locked by releasing the handle. A pneumatically adjustable steering column is available as an option.



The steering column may only be adjusted while the vehicle is stationary.



D001191

PNEUMATICALLY ADJUSTABLE STEERING COLUMN

Adjusting

Push the two-position switch up. The steering column is unlocked temporarily. The height and angle of the steering wheel can now be adjusted.

Locking

Push the two-position switch down. The steering column is locked.

A light hissing noise is audible while the steering column is being adjusted. This noise is caused by the two-position switch. If the steering column has not been locked, this switch locks it automatically after 20 - 30 seconds.

Seats

Seats

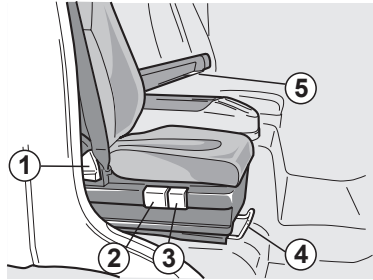
IMPORTANT POINTS



The driver's seat must only be adjusted when the vehicle is stationary. All adjustments may only be carried out when the seat is occupied. The seat belt must audibly click shut.

- You must read this section thoroughly and acquaint yourself with the seat controls.
- The vehicle air pressure must be a minimum of 7 bar.
- Never operate several controls at once.
- The armrest should be folded away before entering/leaving the vehicle.
- The co-driver's seat is not suitable for a child's seat.
- The seat fixings and component parts must be checked for wear from time to time.
- The seat may only be repaired and fitted by trained personnel.

Seats



DO 00 693

SEAT SETTINGS

Note:

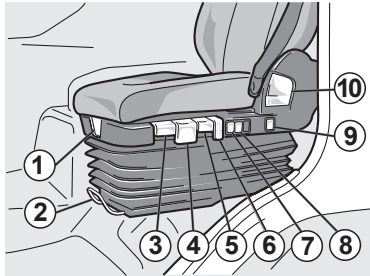
In case of an air-spring seat, ensure that the seat does not rub against the rear cab wall when it has been set.

Co-driver's seat

Operation:

- 1 Backrest angle adjustment
- 2 Seat height adjustment
- 3 Seat squab adjustment
- 4 Seat fore/aft adjustment
- 5 Armrest adjustment (rotary knob at front, at bottom of armrest).

Seats



DO 00 694

Driver's seat

Operation:

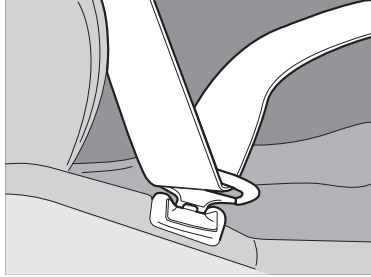
- 1 Seat squab adjustment
- 2 Seat fore/aft adjustment
- 3 Shock absorber setting: The suspension characteristics of the seat (in terms of comfort) can be optimised by means of the infinitely adjustable shock absorber (from "hard" to "soft") for each driving situation.
 - Position switch up: minimum damping ("soft" comfort)
 - Position switch down: maximum damping ("hard" comfort)

Note:

The shock absorber must always be set tight enough to withstand conditions on a poor road surface.

- 4 Seat squab angle adjustment
- 5 Seat height adjustment
- 6 Entry/exit aid
 - Knob down (seat in driving position): seat drops to its lowest position (= entry/exit aid)
 - Knob up (with lowered seat): seat returns to the last set height
- 7 Backrest lumbar setting low (+/-)
- 8 Backrest lumbar setting high (+/-)
- 9 Seat heating
- 10 Backrest angle adjustment

Seats



D000534

SEAT BELTS



The seats are equipped with seat belts; use them. (Mandatory in some countries.) More persons using a single seat belt is not permitted.



Seat belts only work properly when correctly tensioned. For this reason, never use a clip or other device to reduce the seat belt tension.



Always keep seat belts clean and dry. Clean the belts with an all-purpose cleaner, not with caustic substances.



If the seat belts have been subjected to high loading during a collision, the complete assembly must be renewed, even if there is no visible evidence of damage. Have repairs to the seat belts carried out by qualified personnel only. Never modify seat belts yourself.

Seats

Wearing seat belts

- The belt must be tight against the body and not be distorted.
- With a three-point type belt, the shoulder section must be across centre of the shoulder, not against the neck. The pelvis section should be as low as possible across the pelvis, not across the abdomen.
- Do not put any hard, sharp or fragile objects such as pens, glasses or phones between your body and the seat belt.

Checking the seat belts

- Give a short pull on the seat-belt to test the locking mechanism.
- Repeat this check regularly, for example when putting on the seat belt, in order to check the mechanism.
During this test, the belt must lock. This means that it must not be possible to pull the seat belt out of the retracting unit after locking.
The locking mechanism should be immediately replaced and/or repaired if it is defective.
- Inspect the belts regularly for wear. Have the complete assembly replaced at once if the belt is worn or damaged.

Master Display

Master Display

GENERAL

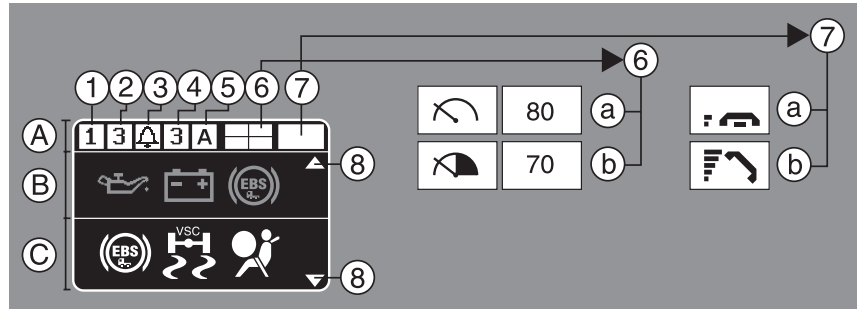
In the master display a menu can be displayed to show the driver all the information regarding the function and operation of the various systems in as useful a way possible.

The master display is a part of the Central Warning System. In addition, the system contains a menu selection switch, a buzzer and a central "STOP" warning lamp under the master display.

The master display consists of three different fields; an indication bar, an information screen (yellow or red) and an information screen (yellow).

Master Display

LAYOUT OF MASTER DISPLAY



D001192-2

- A Indication bar
- B Information screen (yellow and red)
- C Information screen (yellow)
- 1 Number of active red warnings
- 2 Number of active yellow warnings
- 3 Alarm function engaged
- 4 Gear engaged, AS Tronic Lite or automatic gearbox (AGC-A)
- 5 Automatic, manual or manoeuvring mode (turtle symbol) of the AS Tronic Lite
- 6 Vehicle speed setting functions
- 7 Telephone functions
- 8 Scrolling function active

Master Display

START-UP PHASE

If the ignition has been switched on and the engine is not yet running, the start-up screen is shown in the master display.

The following warning symbols, if present, are then displayed:

- Oil pressure (red)
- Alternator voltage (red)
- Steering circuit 1 output (red)
- ABS of prime mover (yellow)
- (unused)
- Airbag (yellow)

Note:

When starting a vehicle equipped with an Allison automatic gearbox, the transmission fault warning symbol appears in the main display; this symbol disappears once the engine is started.

During the start-up phase, the "STOP" warning lamp and the acoustic signal are inactive.

Approximately 3 seconds after switching on the ignition, the yellow warning symbols will disappear. During these 3 seconds, no other warnings can be displayed.

The red warning symbols should disappear from the screen approximately 2.5 seconds after the engine has been started.

If the oil pressure, charging voltage or steering circuit 1 output is still too low after these 2.5 seconds, the warning screen will become active, in which the relevant red warning symbol appears with the accompanying text. The "STOP" warning lamp and acoustic signal will also be activated.

If there is a less serious fault, the respective yellow symbol with the accompanying text will appear on the screen and an acoustic signal will be heard for a certain time.

Master Display

If the indication bar mentions several red and/or yellow warnings, the other warnings can be called up by turning the menu selector switch one step further each time. This takes place in order of priority. This means that the most important warning will be displayed first.

A red warning cannot be removed from the screen when the engine is running. The red warning symbol can be turned off when the engine is not running. This is so that it is possible to use other menu options (if you return to the main screen, the warnings will re-appear).

Yellow warnings can be switched off at any time.

The message detailing the number of warnings present remains active at all times.

A continuous acoustic signal accompanies a red warning.

A pulsating acoustic signal accompanies a yellow warning and sounds four times.

Master Display

MENU SELECTOR SWITCH

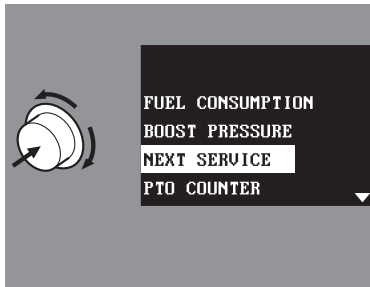


D000711

By pressing the menu selector switch, the main menu will be selected and the selector bar will become visible.

Turning the menu selector switch will switch between screens in the main menu. The triangle on the right-hand side of the display shows the direction in which you can proceed.

By pressing the menu selector switch, the function/information chosen will be selected, after which sub-menu 1 will appear, if present. If there is no sub-menu 1, the menu function will be turned off.



D000555

By turning the menu selector switch you will browse through sub-menu 1.

The triangle on the right-hand side of the display shows the direction in which you can proceed.

By pressing in the menu selector switch, the function/information chosen will be selected, after which sub-menu 2 will appear, if present. If there is no sub-menu 2, the menu function will be switched off.

Master Display



D000556

By turning the menu selector switch, sub-menu 2 can be accessed.

The triangle on the right-hand side of the display shows the direction in which you can proceed.

By pressing the menu selector switch, the menu function will be switched off.

Master Display

MENU OVERVIEW

Main menu	Sub-menu 1	Sub-menu 2
Vehicle information	Fuel consumption	- Current - Average - Average trip
	Turbocharger pressure	
	Oil level	
	Service inspection	- Date - Distance
	PTO counter	- PTO 1 counter - PTO consumption
	Chassis number	
	Back	
	Faults	All faults
	Back	

Master Display

Main menu	Sub-menu 1	Sub-menu 2
Trip info	Trip info	<ul style="list-style-type: none"> - Distance - Time - Average speed - Average consumption - Fuel consumption
	Trip reset	
	Close	
Settings	Language 1 or 2	
	Alarm on/off	
	Setting alarm	<ul style="list-style-type: none"> - Setting alarm: hours - Setting alarm: minutes - Alarm time
	Time, local/home	
	Set local time	
	Clock AM/PM/24H	
	Display miles/km	
	Close	
Close		

Master Display

FAULTS

Serious fault

A red warning symbol is activated when there is a serious fault.

When a red warning symbol is activated, the "STOP" warning lamp and an acoustic signal are activated at the same time.



If the "STOP" warning lamp lights up and/or the buzzer is audible while driving, the vehicle must immediately be stopped with extra caution, parked in a safe place and the engine switched off. Have an authorized Service dealer correct the problem as soon as possible.

Less serious fault

A yellow warning symbol is activated if there is a less serious fault.

When yellow warnings appear you may continue driving but action must be taken at the first opportunity to remedy the fault. Have an authorized Service dealer correct the problem as soon as possible.



As the vehicle may behave differently from normal, the vehicle must be driven with extra caution.

Master Display

WARNING SYMBOLS

Red warnings



Oil pressure low

Switch the engine off straight away.

Check the engine oil level See also "Daily inspections" in "INSPECTIONS AND MAINTENANCE".



Cab lock open

See "Cab tilting" in "EMERGENCY REPAIRS".



Air pressure low

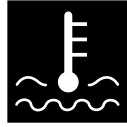
This warning symbol is active when the pressure in one of the service brake circuits is lower than 5 bar.



Coolant Level Low

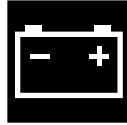
This warning symbol will come on when the coolant level is below the minimum permissible level. Check the coolant level (caution – danger of scalding; see "Topping up coolant" in "INSPECTIONS AND MAINTENANCE")

Master Display



Coolant temperature high

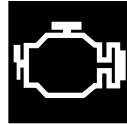
This warning symbol will come on when the coolant temperature exceeds the maximum permissible value. Check the following points:
the coolant level (caution – danger of scalding; see "Topping up coolant" in "INSPECTIONS AND MAINTENANCE");
the poly V-belt and water hoses; the fan clutch.



Alternator voltage high

If the charging voltage of the alternator rises above 30 V, this symbol will light up. The battery voltage is then too high and the battery may start to boil. In that case, switch on as many electrical consumers as possible.

If the symbol is still not extinguished, under no circumstance continue driving!



Engine fault

Serious fault in the electronic unit.

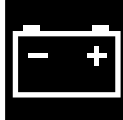


Transmission fault

If the vehicle is equipped with an automatic gearbox, see "Faults" in "AUTOMATIC GEARBOX".

Master Display

Yellow warnings



Alternator fault

Alternator charge voltage not correct



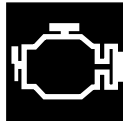
Transmission fault

If the vehicle is equipped with an automatic gearbox, see "Faults" in "AUTOMATIC GEARBOX".



Truck ABS fault

This symbol is activated when:
there is a fault in the ABS of the prime mover;



Engine fault

Depending on the fault, the engine can switch over to emergency control.



Air suspension fault

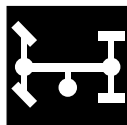
Defect or fault on the electronic chassis height control (ECAS). Depending on the type of fault the vehicle may not be driven further. See also "AIR SUSPENSION".



Central vehicle control unit fault

Fault in the (VIC) electronic unit that collects information and controls vehicle functions.

Master Display



PTO fault

Engine speed control does not meet the conditions. See "Engine speed control" in "DRIVING".



Oil pressure low

Check the engine oil level. See also "Daily inspections" in "INSPECTIONS AND MAINTENANCE".



Water separator fuel filter

Check the fuel prefilter/water separator. See "Weekly inspections" in "INSPECTIONS AND MAINTENANCE".



Truck brake lining

This symbol will light up if the brake lining on one or more wheels is worn.



No warning



Coolant level sensor

This symbol will light up if the coolant level sensor is not latched into its proper position. The sensor is part of the filler cap.

Master Display

Key to abbreviations

ABS	Anti-lock Braking System
ECAS	Electronically Controlled Air Suspension
PTO	Power Take Off
VIC	Vehicle Intelligence Centre

Master Display

Inspections and Maintenance

Inspections and Maintenance

OVERVIEW OF DAILY CHECKS

Overview of the driver's daily checks:

- engine oil level
- coolant level, fill cap secure
- fluid level in windshield washer reservoir
- air filter indicator
- tires and rims
- lighting and instruments
- driver's seat and mirrors
- trailer

Visual check before starting the trip:

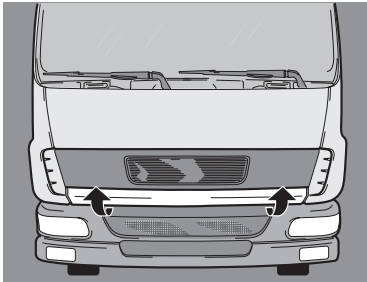
- check that no situation can occur (such as loose objects, improperly attached load etc.) that may put other road users at risk.

Note:

Cleaning rags, flammable materials, accumulated dirt etc. in the vicinity of the exhaust system must be removed as these create a fire hazard.

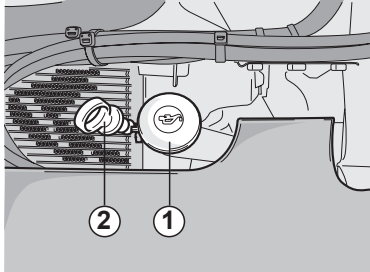
OPENING THE FRONT PANEL

Open the front panel by gripping it at the bottom and lifting it up. The front panel will tilt upwards and is held in place by two gas struts.



D000695

Inspections and Maintenance



D0 00 721

ENGINE OIL LEVEL

1. Ensure that the vehicle is standing on a flat and level surface.
2. Open the front panel.
3. Pull the dipstick (2) out of the holder.
4. Wipe the dipstick clean with a lint-free cloth.
5. Re-place the dipstick in its holder. Withdraw the dipstick again and check the oil level.

Note:

It takes approx. 20 minutes for all the oil to run into the sump when the engine is "warm". If the dipstick is checked immediately after switching the engine off or immediately after oil has been added, the level shown on the dipstick will be too low.

6. Fill oil through the filler opening (1) until the oil level reaches the maximum mark. Only use engine oil that meets specifications. See "TECHNICAL DATA".

Note:

For the difference between the minimum and maximum engine oil level, see "TECHNICAL DATA".

Inspections and Maintenance

TOPPING UP COOLANT



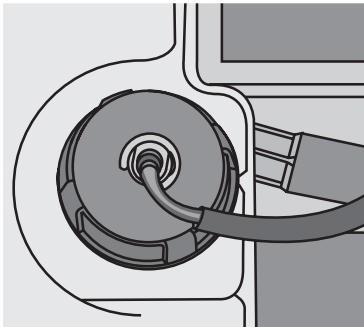
When the coolant is hot, there is an overpressure in the cooling system. If circumstances dictate that it is necessary to top up the coolant when the engine is warm, unscrew the filler cap carefully one turn to relieve the overpressure. Take adequate precautions against burning by, for example, placing a cloth over the cap. Coolant is a toxic fluid. Contact with the skin should therefore be avoided. Also see "Lubricant, engine coolant and fuel specifications" in "TECHNICAL DATA"



To prevent damage to the engine block, topping up with cold coolant when the engine is hot must be done slowly and with the engine running.



Do not loosen the filler cap of the cooling system when the cab is tilted. The filler cap houses the coolant level sensor. Take necessary precautions to protect the sensor from damage when removing it.



DO 02 003

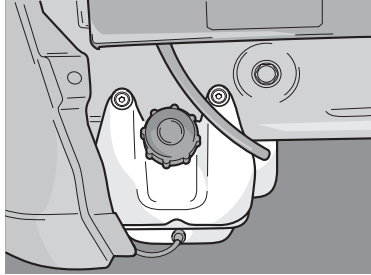
1. Turn the rotary knob for the heating temperature control to "maximum hot".
2. Open the front panel.
3. Remove the black filler cap from the cooling system reservoir.
4. Run the engine for several minutes.
5. Stop the engine and check the coolant level.
6. If necessary, top up to the bottom of the filler opening.

Always use **coolants** which meet specifications. See "TECHNICAL DATA".

Note:

Take care not to damage the coolant level sensor when removing and replacing the reservoir filler cap.

Inspections and Maintenance



D0 00 608

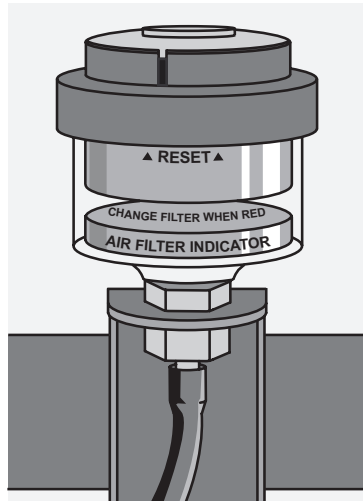
WINDSHIELD WASHER RESERVOIR FLUID LEVEL

1. Open the front panel.
2. Check the fluid level in the screen washer reservoir.
3. Top up, if necessary, via the filler opening.

Note:

When topping up, it is recommended to add a windshield cleaner to the water in the windshield washer reservoir.

During the winter period, add windshield wash antifreeze.



D0 02 004

AIR FILTER INDICATOR

The air filter indicator is behind the grille at the front of the cab. If the indicator is in the red area (showing the text "service"), the air filter is seriously fouled and must be replaced. Consult an authorized Service dealer. Clogged air filters lead to increased fuel consumption and loss of power.

Inspections and Maintenance

WHEELS AND TIRES

- Remove any stones, etc. from the tread and from between the tires (if twin wheels are fitted).
- Check for evidence of wear and damage and for nails or other foreign objects caught in the tires.
- Check the attachment of the wheels.
- Check the tire pressures (do not forget the spare wheel). The tire pressures should be checked and corrected while the tires are cold. See chapter on "Technical data" or the back page of this book for the correct tire pressures.

Note:

If a worn tire is underinflated by 30 psi, the ABS control will be inoperative under extreme conditions! Also see "Changing the wheel" in the "EMERGENCY REPAIRS" section of this manual.

LIGHTING AND INSTRUMENTS

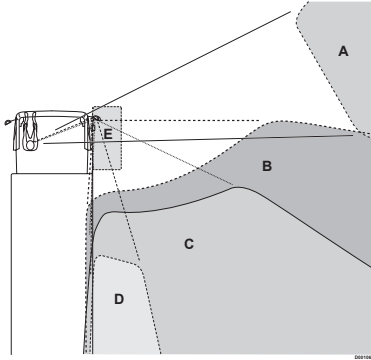
- Check the vehicle lighting, brake lights and instruments for correct operation.
- Also check the operation of the horn, windshield wipers and washers.

Inspections and Maintenance

DRIVER'S SEAT AND MIRRORS

Set the seat and mirrors to the correct positions.

Mirrors with field of vision projected on the ground



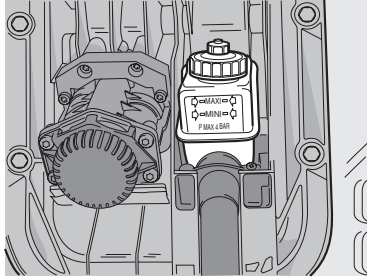
- A Side window
- B Dead angle mirror
- C Wide view mirror
- D Main mirror
- E Pavement mirror

OVERVIEW OF WEEKLY CHECKS

Overview of the driver's weekly checks:

- clutch fluid level
- Power steering fluid level
- Brake system air drier
- Draining the fuel system water separator
- Batteries

Inspections and Maintenance



DO 00 595

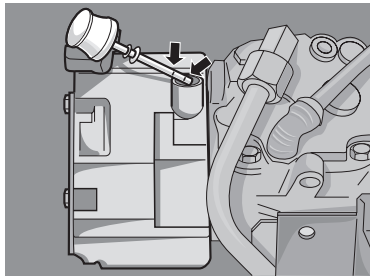
CLUTCH FLUID LEVEL

1. Open the front panel.
2. Check the fluid level in the reservoir. The fluid level must be between the two markings.
3. If necessary, top up brake fluid via the filler opening, brake fluid specification: see "TECHNICAL DATA".

Note:

Brake fluid is highly corrosive. Take appropriate measures to protect yourself and remove any spilt fluid immediately with plenty of water.

4. If the level is below the minimum mark, this is a sign of leakage. Contact an authorized Service dealer as soon as possible.

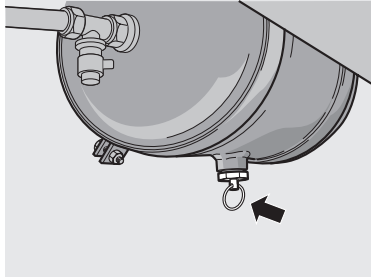


DO 00 581

POWER STEERING FLUID LEVEL

1. Tilt the cab.
2. Clean the dipstick and its immediate surroundings to prevent any dirt from entering the reservoir.
3. Check the fluid level in the reservoir using the dipstick.
4. The fluid level must be between the two marks.
5. Top up oil, if necessary, via the filler opening. Oil type: see "TECHNICAL DATA".
6. If the level is below the minimum mark, this is a sign of leakage. Contact an authorized Service dealer as soon as possible.

Inspections and Maintenance

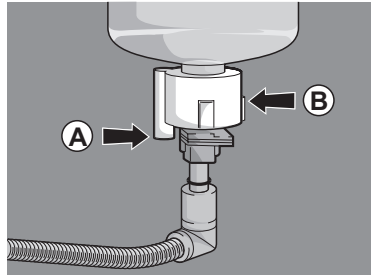


DO 00 592

BRAKE SYSTEM AIR DRIER

The air drier can be checked for correct operation by inspecting the air reservoirs for condensed water.

1. Check the air reservoirs for condensed water by pulling on the rings of the drain valves.
2. If repeatedly more than the normal amount of water is drained off, the air drier element will have to be replaced. Consult your Service dealer.



DO 00 620

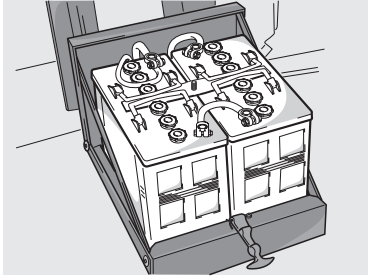
DRAINING THE WATER SEPARATOR



When draining the water separator, an amount of fuel will escape. Collect the fuel and avoid the risk of fire. Water in the fuel system may lead to significant damage.

1. Place a container beneath the water separator.
2. Remove the connector.
3. Unscrew the ring-shaped drain cock (B) on the bottom of the water separator in anti-clockwise direction.
4. Drain the filter until pure diesel fuel comes out of the drain cock (A).
5. Turn the drain cock (B) if it abuts, another 1/8 - 1/4 turn.
6. Check the drain cock (B) for leakage.
7. To prevent pollution, the drained water/diesel fuel mixture should be passed to the relevant authorities for reprocessing.

Inspections and Maintenance



D0 00 627

BATTERIES



Avoid sparks and open flames in the vicinity of batteries.

Battery acid is an aggressive fluid.

In the event of contact with the skin: rinse the skin profusely with plenty of water.

Consult a doctor in the event of persistent redness or pain.

Remove polluted clothing and rinse in water.

In the event of contact with the eyes: rinse with plenty of water for at least 15 minutes and consult a doctor.

If swallowed: do NOT induce vomiting. Rinse the mouth, drink two glasses of water and consult a doctor.

In the event of inhalation: get fresh air, rest and consult a doctor.

- Check the electrolyte level; this should be approx. 10 mm above the plates or up to the level indicator, if present. If necessary, top up the batteries with distilled water.
- Check that the battery poles and terminals are clean and greased. If necessary, coat the posts with an acid-free petroleum jelly.

GENERAL MAINTENANCE

The durability, safety, trade-in value and reliability of your vehicle largely depend on the care you give it. This includes regular service in accordance with the maintenance schedules specified.

The driving style of the person at the wheel and the care given to the vehicle will have a direct influence on the condition of the vehicle. The driver can often provide the dealer with information which is very important for correct maintenance.

Prior to the service intervals and the related activities, contact your authorized Service dealer.

Inspections and Maintenance

CAB MAINTENANCE

In order to keep this quality as high as possible, during vehicle use, regular maintenance should be carried out on the cab surfaces.

To prevent the formation of rust in box sections and other cavities, the cab is protected with corrosion-inhibiting products (ML) in production.

Due to the setting of the structure, minor bare spots may develop in this additional protective coating. For this reason, the manufacturer considers it necessary to have further treatment carried out within a specific period (consult the warranty manual) after the vehicle has been taken into service.

**If this does not happen, the warranty will become invalid.
The relevant warranty conditions are listed in the warranty manual.**

CLEANING

Cleaning the vehicle

Before the vehicle is cleaned, check for leaks in the engine, axles, gearbox, etc. This is no longer possible after cleaning the vehicle and carrying out maintenance work.

When a high-pressure cleaner is used, take special note of the following points:

- Make sure that the doors, windows and roof hatch are properly closed.
- Never spray directly on seals. There is a danger of them being forced open so that water can penetrate or grease packed behind them is flushed away. This may happen, for example, with the universal joint on the steering box. As a result, the spider may seize so that the steering will jam.

Inspections and Maintenance

- Do not spray directly onto steering ball joints.
- The power steering fluid reservoir is fitted with a vent. Water may enter the reservoir via this vent, which will cause damage to the steering gear.
- When cleaning the radiator/intercooler, take care not to damage the fins.
- Do not direct the high-pressure cleaner/steam cleaner jet too long at the air-conditioning system condenser. As a result of the high temperature, the pressure in the system will rise too high, which may cause damage to the system. Parts of the air-conditioning must not be cleaned with the aid of a high-pressure/steam cleaner as this can cause damage to the seals.
- Make sure that no water can enter the differential and gearbox via the vents.
- Make sure that no water can enter via the reservoir bleed screws of the clutch, brakes, trailing axle, etc.
- The engine and engine compartments can be cleaned with a high-pressure/steam cleaner. Avoid spraying directly onto electrical components such as the fuel system pump units, electronic units the starter motor, alternator, air-conditioning compressor, headlights, etc.
- Carefully clean the engine encapsulation and its fittings. Remove any spilled oil and diesel oil to avoid the risk of fire.
- Do not aim the jet of water directly at electrical connections such as connectors, cable plugs in the vehicle lighting system, etc. Also do not aim the jet at the gear lever unit.
- When cleaning the vehicle, make sure that no water can enter the air inlet system via the air intake or its flexible seals.
- When the vehicle has been cleaned, it must be lubricated again with a grease gun or via the automatic lubrication system. This is important because it prevents the penetration of moisture and dirt at the various pivot points.

Inspections and Maintenance

Cleaning the cab

Depending on the vehicle's operating conditions, the external paintwork of the cab is subject to attack by corrosive substances, for example road salt, grit and polluted air. For instance, road salt and air pollution.

The paintwork must therefore be cleaned regularly.

When cleaning the cab, make sure that:

- no caustic cleaners are used
- no hard brushes are used
- all seams, gaps and door shut-lines are thoroughly cleaned.

Waxing the cab

The paintwork of new vehicles is waxed to protect it against the elements.

After a time this wax coating will gradually wear away as a result of cleaning and other external influences.

To give corrosive substances less chance of attacking the paint, it is advisable to protect the paintwork with a new wax coating at least twice a year.

It is advisable to use wax for this.

Your authorized Service dealer can advise you about additional anti-rust treatment and maintenance of the paintwork when the vehicle is in service.

Inspections and Maintenance

Cleaning the interior

The day cab can be fitted with fabric or plastic trimming.

The sleeper cab is only available with fabric trimming.

The plastic can be cleaned with a household cleaning agent and warm water.

The fabric trimming should be cleaned with a non-aggressive dry-cleaning agent, or an equivalent product.

Note:

The appearance of your vehicle is your company's face to the world!

PREVENTATIVE MAINTENANCE BEFORE THE WINTER SEASON

Your authorized Service dealer can always give you good advice to prepare your vehicle for winter.

DIESEL FUEL

If outside temperatures are persistently low, only fill up with winter diesel oil produced by a reputable oil company.

During the winter months the oil companies often use additives, to prevent blockages caused by the precipitation of paraffin crystals (wax deposits).

It is **not** permitted to use **your own** fuel additives.

Inspections and Maintenance

Note:

Additives which are used to prevent precipitation of paraffin crystals have a **purely preventative** effect. They can **not** dissolve the paraffin crystals once they have been precipitated.

Always carry a spare fuel fine filter in the vehicle so that you can replace it quickly if it becomes blocked in any way (for example, by paraffin crystals).

Always preferably fill up in the evenings to prevent condensation (especially in winter).

CAB HEATER

If necessary, install a separate fuel tank for the cab heater.

If the tank has been filled up with winter diesel oil because of a cold weather period or a trip to a colder country, allow the cab heater to run on the new fuel for half an hour to ensure that all the old fuel has been used up.

The above recommendations apply for both air and water heating and for all vehicle types.

WINDSHIELD WASHER RESERVOIR

- When topping-up, it is advisable to add a cleaner to the water in the windshield washer reservoir.
- During the winter period, add windshield wash antifreeze.

Inspections and Maintenance

MAINTENANCE AFTER THE WINTER SEASON

Your authorized Service dealer can always give you good advice to prepare your vehicle for summer.

COOLING SYSTEM

The coolant may be left in the cooling system during the summer.

Driving

Driving

GENERAL

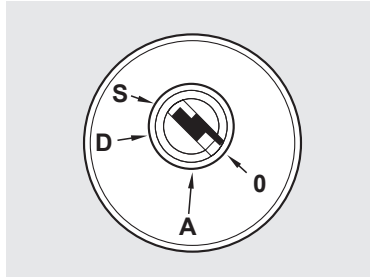
Before setting out on a journey, always check:

- the vehicle for possible water or oil leaks
- the engine oil level
- the fluid level in the screen washer reservoir
- the air filter indicator
- the coolant level
- the drawn vehicle coupling for correct attachment and correct operation
- the connection and operation of the drawn vehicle lighting and brakes
- the wheel attachment and tire pressures
- the tread depth of tires
- the tread of each tire for even distribution of wear pattern
- the correct setting of seat and mirrors
- the correct operation of lights and instruments
- the fuel level

After each journey check that:

- the doors of the vehicle are locked
- the load is still properly secured

Driving



D000970

STEERING LOCK/CONTACT/STARTER SWITCH



NEVER turn the ignition key to the rest position (0) or remove it while the vehicle is in motion. This may cause the steering wheel lock to engage.

Position 0: rest position

When the key is removed in this position the steering wheel can be locked. If the steering wheel is turned slightly the steering wheel will lock.

Position A: accessories position

Steering wheel unlocked. The key cannot be removed. Accessories, such as a radio, can be switched on.

Position D: ignition turned on

All power consumers can be switched on.

Position S: starting

When the key is released, it automatically returns to position D. If the engine is running, the start lock is switched on.

GLOW SYSTEM

If the ignition is on, the electronic unit determines the necessary pre and after glow time.

The necessary pre- and after glow time depends on the temperature that is measured by the electronic unit of the engine management system.

If the pre- or after glow time is activated by the electronic unit, a warning lamp on the instrument panel lights up.

Driving

STARTING PROCEDURE



If you start the engine inside a building, open the doors fully to ensure adequate ventilation. Exhaust gases contain carbon monoxide, an invisible, odorless, but highly toxic gas. Inhalation of these gases may cause unconsciousness and death.

1. Check that the parking brake is engaged.
2. Depress the clutch pedal and put the gear lever in neutral.
3. Switch the ignition to position D.
4. Check that the warning indicator of the parking brake lights up.
5. Check that the oil pressure warning symbol in the master display is lit.
6. Check the operation of the fuel gauge and the coolant temperature gauge.
7. Check that the glow system warning lamp is off.
8. Without pressing the accelerator pedal down, turn the ignition to position S. If the engine does not start; the key must be released after 10 seconds. Then wait 10 seconds and try again.

Note:

The vehicle is equipped with start protection. The gear lever must be in neutral otherwise the start protection device will not allow the starter motor to activate.

If the engine is running, the engine speed may not be increased before the oil pressure warning symbol has extinguished.

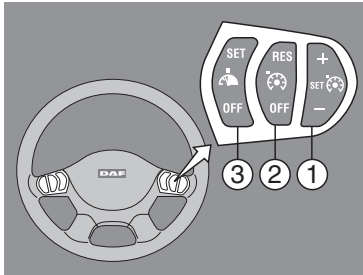
Note:

Depending on the coolant temperature measured by the electronic unit, it is possible that, in extremely cold conditions, the maximum engine speed is limited for a specific period of time.

Driving

In case of an optional engine speed control, one of various engine speeds can be selected with the right-hand steering column switch, if so desired.

Before driving away, check that the central "STOP" warning light is not illuminated.



D001135-3

ENGINE SPEED CONTROL

The minimum and maximum engine speeds that can be set are limited by a programmed value in the electronic unit. This value may be below the idling speed. In this case it will, however, not fall below idling speed.

The programmed engine speeds and conditions for activation or deactivation of the engine speed control can be modified by a Authorized Dealership on request.

Activating the engine speed control

Press the 'SET+' or 'SET-' button (1) to immediately increase the engine speed to the set speed value. This value may have been or can be changed within specific limits by a Authorized Dealership to meet the customer's requirements.

Hold down the 'SET+' or 'SET-' button on the steering wheel switch (1) to gradually increase or decrease the engine speed.

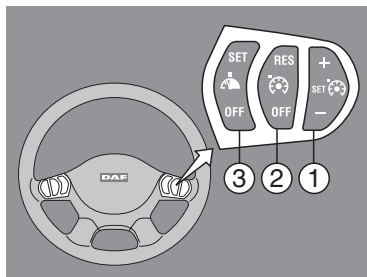
NOTE:

If the engine speed control is active, the engine brake is deactivated.

NOTE:

Depending on how the electronic unit is programmed, the accelerator pedal is active or not. When speed is increased via the accelerator pedal, the speed reduces to the set speed value once the accelerator pedal is released.

Driving



D001135-3

Deactivating the engine speed control

Press the RES/OFF switch (2) to the 'OFF' position.

Interruption of engine speed control

- When the vehicle brake is operated.
- When the parking brake is disengaged.
- When the clutch is operated.
- When the RES/OFF switch (2) is pressed to the 'OFF' position.
- When the engine speed control is active via the superstructure.



Check whether the stated conditions for deactivation of the engine speed control apply to the vehicle.

CRUISE CONTROL

Cruise control is a facility that can be used to have the vehicle maintain a constant vehicle speed. The desired driving speed is set, and the electronics maintain this speed. The driver can overrule the cruise control at any time by pushing the accelerator pedal.

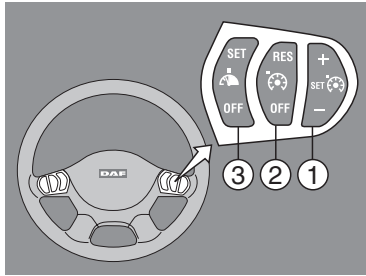
The cruise control can be activated at a programmed minimum vehicle speed. This speed is 35 km/h as standard.

The programmed standard speed and the conditions for activation and deactivation of the cruise control can be modified by an authorized dealer on request.



Check whether the stated conditions for activation and deactivation of the cruise control apply to the vehicle.

Driving



D001135-3

Engaging Conditions

Cruise control can be activated when:

- The vehicle speed exceeds 36 km/h.
- no braking functions are active.
- there is no current engine management fault.
- the clutch is not operated.
- adjustable vehicle speed limiting is not active.
- vehicle speed limiting for special applications below 35 km/h is not active.

Disengaging conditions

When the cruise control has been engaged, there are various conditions on which it disengages. Cruise control is deactivated when:

- the vehicle speed is outside the programmed limit values.
- the parking brake is operated.
- the clutch is operated.
- the foot brake is operated.
- position 'OFF' on the steering wheel switch (2) is operated or the adjustable vehicle speed limiting 'SET' is activated using the steering wheel switch (3).
- the ABS/ASR system is activated.

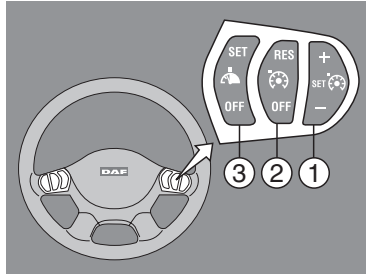
Engaging cruise control

Activate cruise control by toggling the steering wheel switch (1) once briefly to the 'SET+' position or to the 'SET-' position when the required control speed is reached. Cruise control can be activated when the vehicle speed is 36 km/h or more (or another value programmed by the Authorized Dealership).

Modifying cruise control speed

When cruise control is activated, the speed can be increased by pressing 'SET+' or be decreased by pressing 'SET-' on the steering wheel switch (1). Briefly operate the switch to increase or decrease speed in small increments of 0.5 km/h. Keep the switch down to gradually increase or decrease speed.

Driving



D001135-3

This limits the minimum and maximum adjustable speeds by values programmed in the electronic unit. These values can be modified within specific limits by an authorized Service dealer.

Accelerator pedal function during cruise control

When cruise control is active, the vehicle speed can be increased above the control speed using the accelerator pedal. When the accelerator pedal is released, the vehicle speed will return to the last valid control speed.

Disengaging cruise control

Press the 'OFF' switch (2) on the steering wheel to deactivate cruise control.

Re-engaging cruise control (Resume)

When it has been deactivated, cruise control can be resumed, provided the above conditions are met, by pressing the 'RES' button (2) on the steering wheel. This re-engages cruise control at the last set speed. If the current vehicle speed is lower than this speed, cruise control accelerates to the programmed speed.

Driving

VEHICLE SPEED LIMITATION FOR SPECIAL APPLICATIONS

Speed limitation for special applications consists of a switch which is fitted on the vehicle superstructure. With this switch, the vehicle speed can be limited to a pre-programmed value. The programmed value can be modified by an authorized Service dealer on request.

DRIVING STYLE

The following recommendations result in improved economy without adversely affecting the vehicle speed (i.e. slowing down). In other words: an efficient driving style. Anticipate traffic and other conditions; release the accelerator pedal in time (zero fuel consumption) and **do not** press down on the accelerator when it is **not necessary**

Note:

In the event of extreme acceleration to 30 to 40 km/h (19 to 25 mph) , and depending on the vehicle and engine type, the engine management system will intervene in the control of the engine to prevent excessive engine noise at high revs and low speeds.

Driving

DIFFERENTIAL LOCK

The rear axle can optionally be equipped with a differential lock which can be activated from the cab.

Directions for use

The differential lock may only be used when driving on soft ground or on a slippery road surface, and never on firm ground.

The differential lock should be engaged:

- with the vehicle stationary or moving very slowly
- with the clutch pedal depressed.



The differential lock must never be engaged if one of the wheels is spinning; always wait until the wheel has stopped spinning before engaging the differential lock. Disengage the differential lock as soon as you reach firm ground. If the warning indicator on the instrument panel stays on, drive forwards and then reverse a short distance in order to release the locking mechanism.



Failure to follow the above directions may cause damage to the differential lock and/or the differential.

Driving

STEERING

The steering gear is hydraulically assisted. As excessive pressure may damage the hydraulic pump, stop turning the steering wheel when the wheels are at full lock or are blocked by an obstacle. The steering gear may be damaged, if this is ignored.

ABS BRAKES

The ABS system is an Anti-lock Braking System.

The ABS ensures good brake stability and good steering in a critical braking situation.

By preventing the wheels from locking, the steering characteristics of the vehicle are retained.

Bear in mind that when the prime mover is equipped with ABS but not the drawn vehicle, or vice versa, the directional stability and steering characteristics will not be as good as when both units are equipped with ABS.



The ABS does not release the driver from his obligation to adapt his driving style to the traffic and road surface conditions.

The anti-lock protection cannot offset the results of driving too close to the vehicle in front or taking a bend at too high a speed.



Do not adapt your driving style to the ABS system!

Above all, do not brake later and then harder.

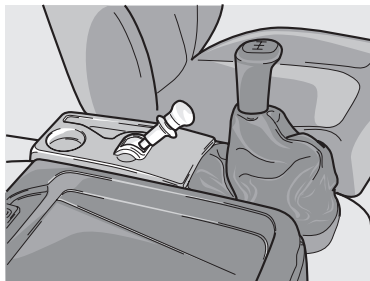
This only causes unnecessary tire wear. It may also be hazardous for other road users.

Note: occasionally, but not always, your braking distance will be shorter with ABS.

Driving



If the yellow warning symbol "ABS truck fault" is activated, there is a fault in the ABS system of the prime mover.



DO 00 587

ABS warning symbol in master display

If the ABS warning symbol in the master display remains illuminated while driving, the ABS system is partly or completely deactivated and the brake system will work as if no ABS is present. The wheels may then lock upon braking.

PARKING BRAKE AND SERVICE BRAKE



Always apply the parking brake when parking the vehicle. Do not release the parking brake while the steering lock is still engaged. The vehicle cannot be steered if the steering lock is still engaged.

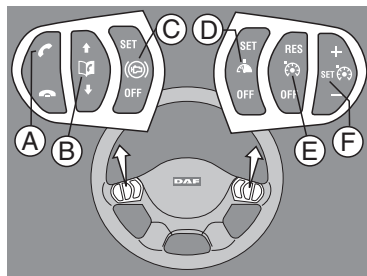
The service brake is operated by the foot pedal. If the service brake fails to operate owing to insufficient air pressure, the parking brake can be used as an emergency brake. Moving the parking brake lever slowly backwards as far as the stop will gradually brake the vehicle or combination in a controlled manner. The parking brake is engaged by moving the parking lever back past the locking cam. On a vehicle with a drawn vehicle connection, the parking brake has a test position. See "Stopping". The parking brake is disengaged by lifting the locking ring up against the spring pressure and letting the parking brake lever move forwards.

Driving

ENGINE BRAKE

The engine brake is primarily intended for prolonged braking, for example when decelerating from high speed on a level road or when driving downhill. This reduces service brake wear.

The engine brake is activated by operating steering wheel switch (C).



D001190-2

Note:

- The engine cannot be switched off with the engine brake.
- To save the service brakes and to prevent the engine brake valve from becoming stuck, it is wise to regularly use the engine brake.

The braking effect decreases as the engine speed falls.

The most appropriate area of use for the engine brake is in the blue area of the revolution counter. The engine brake delivers the highest braking effect in this area.

When using the engine brake, adjust the gear selection so that the engine speed remains in the most favourable range. In case of an AS Tronic Lite gearbox, gear selection is automatic.

The engine brake is automatically switched off.

- when the engine speed drops below 1000 rpm.
- when the ABS/ASR system has established a tendency for the wheels to lock.
- when the accelerator pedal is depressed.
- when the vehicle speed control or engine speed control has been activated.

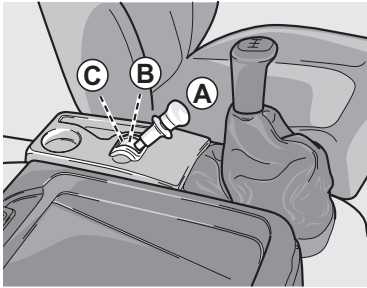


If the ABS/ASR control is activated, the engine brake will be switched off as long as the control is in operation. On vehicles where the ABS/ASR control fails to function or on vehicles not equipped with ABS/ASR, use of the engine brake may lead to the risk of skidding on slippery surfaces.

Driving

STOPPING

Parking



- Move the parking brake lever (from position A) backwards past the locking cam (position B). The parking brake is now engaged.
- When driving a tractor-trailer, check whether the parking brake lever can be moved even further backwards from position B against the pressure of the spring. Press in the parking brake lever and pull it further back (to position C). This is the test position, the drawn vehicle's brakes are not applied in this position. Check that the tractor-trailer remains in place.
- Let the parking brake spring back to position B.
- Place chocks in front of and behind the wheels.
- Angle the front wheels so that the vehicle will not move into the traffic stream if it is accidentally set in motion.

If the tractor-trailer does not remain in place in the test position, find a flatter place to park the vehicle. Always carry out this test if the vehicle is parked in unfavourable circumstances (gradient, slippery road surface, etc.). In this way, the tractor-trailer will remain safely parked, even if air leakage should make the drawn vehicle brakes ineffective.

Switch off the engine.

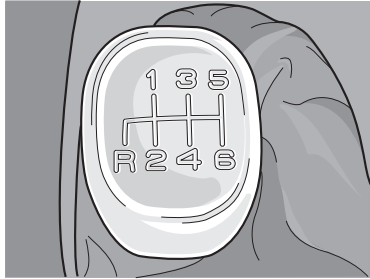
Put the gear lever in neutral when the vehicle is stationary.

Before switching off the engine after a long trip or when the engine has been subjected to high loading, let it idle for at least 5 minutes. It is important to let the engine run for a while in order to prevent the coolant temperature becoming too high and to allow the turbocharger to cool down.

Switch the engine off by turning the ignition key to 0 position (rest position).

Manual Gearbox

Manual Gearbox



ZF GEARBOX

ZF 6S-800 and 6S-1000

The ZF 6S-800 and 6S-1000 has six fully synchronised forward gears and one non-synchronised reverse gear.

Shifting gears

- To avoid excessive and unnecessary clutch wear, always engage the first gear when driving away. This applies to both laden and unladen vehicles.
- Always depress the clutch fully when shifting gears.
- Push the gear lever smoothly when shifting until the gear is engaged.
- Wait until the vehicle is at a standstill before engaging reverse. Failure to do so may result in serious damage to the clutch, gearbox and engine.

Driving

- Select the highest possible gear while at the same time keeping the engine speed in the green zone of the rev counter.
- When speeding up, keep the engine speed within the green area of the rev counter as much as possible.



The reverse gear may only be selected 5 seconds after the vehicle has come to a stop. When shifting down, you must always ensure that the speed is not too high for the gear you are selecting.

AS Tronic Lite Gearbox

AS Tronic Lite Gearbox

INTRODUCTION

The AS Tronic Lite gearbox is a fully automatic gearbox based on a conventional mechanical system combined with an electrohydraulic gear and clutch control system.

In the fully automatic position, clutch and gear controls are operated electronically. With manual operation, each intended gear change is checked by the electronics and, if necessary, ignored to prevent overloading of the engine and the transmission.

The master display shows the driver all important system information, such as neutral position, current gear, maneuvering position, clutch overload and any faults in the system.



When the engine is running and a gear is engaged, leaving the vehicle is not permitted

If the driver opens the door of the vehicle, an acoustic warning signal is heard and a message appears on the master display.

AS Tronic Lite Gearbox

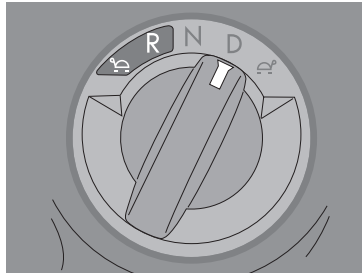
STARTING

- See 'Starting procedure' in chapter 'Driving'.
- Move the rotary knob to position **N** (Neutral).
- Apply the parking brake.
- When the ignition is on, the letter **N** appears in the master display.
- Start the engine.

A flashing **N** appears in the master display and an acoustic signal is audible when the rotary knob is not in position **N** when starting



If the vehicle rolls and a gear is not engaged (selector switch in N), engine braking is not possible. Make sure that the vehicle cannot roll off in the opposite direction to that of the engaged gear.



D001193

PULLING OFF ON A FLAT SURFACE

- Foot on brake.
- Rotary knob in position **D** (Drive; automatic or manual forward drive) or **R** (Reverse).
- The gear that has been engaged appears in the master display.
- Release the parking brake.
- Release the foot brake and accelerate.

Note:

All gear control functions are taken over by the automatic gearbox. Only accelerate as much as is required.

AS Tronic Lite Gearbox

Do not change accelerator pedal position while changing gears.



If the accelerator pedal is not operated, the vehicle may start to roll. Never press accelerator and brake pedal at the same time.

Rolling vehicle in neutral Position

Rolling vehicle in **N**:

- Turn the rotary knob to position **D**.
- The vehicle selects gear for pulling away and pulls off.

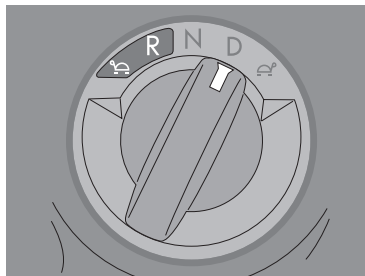


Never use the maneuvering position when driving on a level road as the continuously slipping clutch may lead to clutch overload in this position.



If the vehicle rolls and a gear is not engaged (selector switch in N), engine braking is not possible. Make sure that the vehicle cannot roll off in the opposite direction to that of the engaged gear. If the vehicle rolls back, forward gear cannot be selected. Stop the vehicle immediately.

AS Tronic Lite Gearbox



D001193

PULLING OFF ON A GRADIENT

- Parking brake is engaged.
- Rotary knob in position **D** (or **R**).
- Accelerate (fully).
- Release parking brake when the vehicle is ready to pull off.

Note:

All gear control functions are taken over by the automatic function.

Only accelerate as much as is required.

Do not change accelerator pedal position while changing gears.

When pulling off on a gradient in too high a gear, AS Tronic Lite does not down shift automatically.

Down shifting is only possible by either manually selecting a lower gear or releasing the accelerator pedal and directly operating it again. The automatic function shifts down to a lower gear.



If the vehicle rolls and a gear is not engaged (selector switch in N), engine braking is not possible. Make sure that the vehicle cannot roll off in the opposite direction to that of the engaged gear.

If the vehicle rolls back, forward gear cannot be selected. Stop the vehicle immediately.



Never use the maneuvering position when driving on a level road as the continuously slipping clutch may lead to clutch overload in this position.

AS Tronic Lite Gearbox

AUTOMATIC GEARBOX

The automated gearbox always starts in fully automatic mode.

The AS Tronic Lite calculates the shifting times for any situation, taking into account the current driving conditions.

If another gear is desired while driving, use the selector switch to temporarily (10 seconds) shift up or down within a zone defined by the AS Tronic Lite gearbox.

The automatic function remains active; the 'A' remains on the display.

When these 10 seconds have elapsed, shifting is governed by the AS Tronic Lite gearbox.



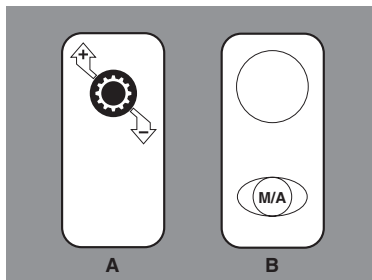
The vehicle speed may increase when travelling downhill. In fully automatic mode, the gearbox automatically selects a higher gear to protect the engine against excessive engine speed. If the gearbox is in manual mode, the driver must see to this gear change.

AS Tronic Lite Gearbox

MANUAL GEAR CONTROL

Manual gear control always remains possible using switch (A):

- shift up.
Move switch (A) towards +.
- shift down.
Move switch (A) towards -.



D001282



**It is possible to shift the gearbox to neutral while driving.
Remember that the engine brake will not decrease vehicle speed
when the gearbox is in neutral.**

Note:

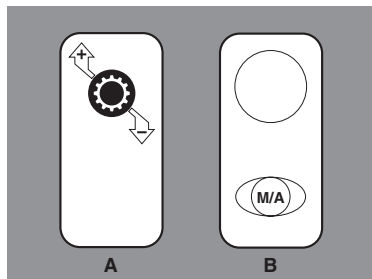
When switch (A) has been operated, the gearbox is in manual control. Indication in master display: **M** (Manual)

Revert to automatic:

- press switch (B).

In particular situations, for instance, when braking before a turn, it is difficult to judge in manual mode which gear should be engaged:

- By pressing switch (B), the automatic function selects the proper gear and activates it.
- By pressing switch (B) again, the automatic function is deactivated.

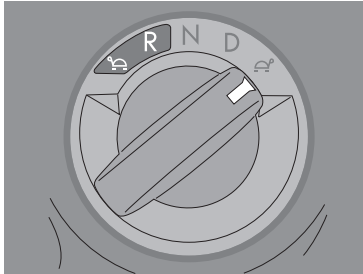


D001282

AS Tronic Lite Gearbox

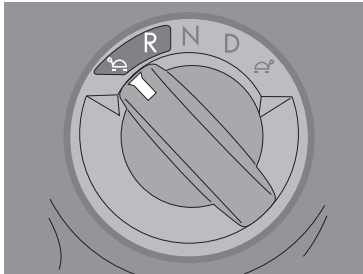
MANEUVERING

Forward maneuvering position



D001194

Reverse maneuvering position



D001195

Note:

In the maneuvering positions (for example, when coupling or uncoupling trailers) the vehicle speed and pulling force are very easy to control with the accelerator pedal. When the accelerator is released, the vehicle stops.

When driving in maneuvering position there is continuous slip in the clutch. Therefore only use the maneuvering position for actual manoeuvring.

The lowest gear is always selected for the maneuvering position, forward and reverse, and the maximum engine speed, with the accelerator pedal fully down, is 1200 rpm.



Never use the maneuvering position when driving on a level road as the continuously slipping clutch may lead to clutch overload in this position.



Never press accelerator and brake pedal at the same time. If the accelerator pedal is not operated, the vehicle may start to roll.

AS Tronic Lite Gearbox

BRAKES

During braking, the vehicle speed decreases and the AS Tronic Lite shifts down.



The vehicle speed may increase when travelling downhill. In the automatic mode, the gearbox automatically selects a higher gear to protect the engine against excessive engine speed. If the gearbox is in manual mode, the driver must see to this gear change.

ENGINE BRAKE

This operates in the usual way.

In automatic position, AS Tronic Lite automatically changes down to the ideal speed when the engine brake is operated in combination with the service brake.

Depending on the driving conditions, the AS Tronic Lite aims to achieve the most effective engine speed when using the engine brake in combination with the service brake.

In the manual position, AS Tronic Lite does not shift down automatically to the ideal speed range for the engine brake when the engine brake is operated.



The engine brake does not function when the gearbox changes gears. The vehicle may accelerate when driving downhill.



The vehicle speed may increase when travelling downhill. In the automatic mode, the gearbox automatically selects a higher gear to protect the engine against excessive engine speed. If the gearbox is in manual mode, the driver must see to this gear change.

AS Tronic Lite Gearbox

STOPPING

In contrast to conventional automatic gearboxes, the AS Tronic Lite does not show any tendency to creep (disengaged when stationary, engaged when driving off).



When stationary for long periods, use the parking brake and release the gearbox by turning rotary knob to position N.

Note:

If the door is open in the driving position, an acoustic signal is audible and a flashing warning is shown on the master display.



When the engine is running and a gear is engaged (selector switch set to D or R, or one of the forward or reverse maneuvering functions), leaving the vehicle is not permitted.

When the vehicle is stationary with the engine running and the gearbox engaged, pressing the accelerator pedal is sufficient to set the vehicle in motion.

Before leaving the vehicle, engage the parking brake and switch the selector to N.

Engaging the parking brake when driving on a slippery road surface may cause the engine to stall. Any emergency steering mechanism can then no longer be used.

AS Tronic Lite Gearbox

PARKING

- Stop the vehicle
- Engage the parking brake.
- Turn rotary switch to position **N**.
- Angle the front wheels so that the vehicle does not move into the traffic stream if it is accidentally set in motion.
- Switch off the engine.
- When parking on a slope, place chocks in front of and behind the wheels of the rigid axle.
- See 'Stopping' in chapter 'Driving'.



When the engine is running and a gear is engaged (selector switch set to D or R, or one of the forward or reverse manoeuvring functions), leaving the vehicle is not permitted.

When the engine is switched off, the gearbox automatically shifts to neutral. If the service brake or parking brake is not engaged, the vehicle can roll away.

AS Tronic Lite Gearbox

CLUTCH PROTECTION

When the clutch is overloaded a yellow warning 'Clutch overload' appears in the master display.

Relieve the clutch by:

- Increasing the vehicle speed (drive train is closed) by further pressing in the accelerator pedal.
- stopping the vehicle by releasing the accelerator pedal.
- manually selecting a lower gear.



If the driver ignores the warning message, the clutch is closed when the accelerator pedal is operated. This prevents further clutch overloading. This may cause the engine to stall and, as a result, the vehicle on a slope may start to roll. When the accelerator pedal is released, the clutch opens again.

When the clutch is overloaded, in manoeuvring position it engages quickly to prevent a further overload; this will, however, cause the vehicle to drive away roughly.

Automatic Gearbox

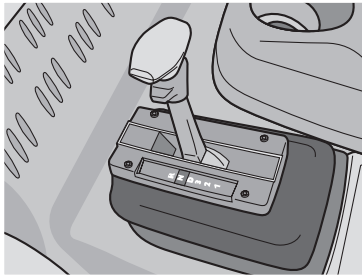
Automatic Gearbox

ALLISON 2100 SERIES

General

The automatic gearbox is fully electronically controlled. The automatic gearbox has 5 forward gears and 1 reverse gear.

The automatic gearbox is operated by a selector lever. The selector lever is located next to the driver's seat.



DO 00 789

Shifting gears

The various gears are selected with the selector lever.

Neutral position

No gears are activated in the "N" position. The vehicle is **not** locked in this position and can therefore roll.

Use the parking brake to lock the vehicle.

Automatic forward drive

If the "D" position is selected, the vehicle will immediately begin to move (if the brake system is pressurised and the vehicle is not on the parking brake). It is therefore advisable to depress the brake pedal before selecting position "D". In this position the gearbox will automatically shift up and down in all forward gears. In the "1", "2" and "3" positions the gearbox shifts up to the selected gear. These positions are used to keep the engine within the proper speed range or to obtain the maximum engine brake performance.

Reverse

If position "R" is chosen the vehicle will also be immediately set in motion. In this case, too, first depress the brake pedal and then select "R" position.

Automatic Gearbox



Faults

If the transmission fault warning symbol lights up in the master display, a fault has been detected in the gearbox.

Read the following recommendations first or consult an authorized dealer if necessary.

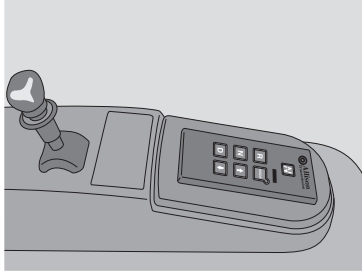
Gearbox

The ECU will block the functions of the selector lever and ensure that the gearbox will select a "safe gear". It is important to drive the vehicle to a safe place as soon as possible and switch the ignition off. It will no longer be possible to shift the gearbox to neutral. The ECU will prevent this.

After approximately 30 seconds, try starting the engine again and engaging a gear. If the fault is one whereby the gearbox must in no circumstances be shifted, the ECU will no longer shift the gearbox. **Driving is therefore no longer possible!**

Automatic Gearbox

ALLISON 3000 SERIES



DO 00 790

General

The automatic transmission is electronically controlled and has a diagnostics system that saves possible errors in the memory of the ECU (Electronic Control Unit). They can be read out later. The operation and display take place via the selector keypad.

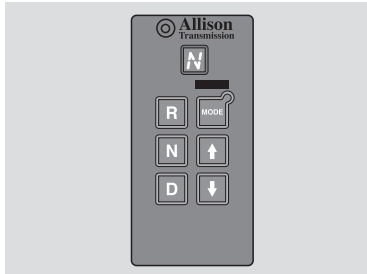
The selector keypad has a display located next to the driver's seat and replaces the gear lever on manual gearboxes.

The selector has the following functions:

- engaging and disengaging the gearbox
- choosing a shift program
- reading the oil level
- reading and deleting fault codes

The selector has the following six keys:

Neutral	Neutral position
Drive	Automatic forward drive
Reverse	Reverse
MODE	Shift program selection
↑	Shifting up
↓	Shifting down



DO 00 791

Automatic Gearbox

Shifting gears

Neutral position

No gear is engaged in the "N" position. The vehicle is **not** locked in this position and can therefore roll.

Use the parking brake to lock the vehicle.

The letter "**N**" appears in the display.

Automatic forward drive

If position "D" is chosen, the vehicle will be immediately set in motion. (If the air system is pressurised and if the parking brake is not on.) It is therefore advisable to depress the brake pedal before selecting position "D". In this position the gearbox automatically shifts up to the higher gear.

In the display, the figure of the highest gear to which the gearbox can be shifted appears.

Reverse

If position "R" is chosen the vehicle will also be immediately set in motion. In this case, too, first depress the brake pedal and then select "R" position.

The letter "**R**" appears in the display.

Shift program selection

By pressing the "MODE" key briefly once, another shift program can be selected from stationary and driving position. Two selections are possible:

Automatic Gearbox

Normal program

This program is chosen automatically when the vehicle contact has been turned off. The warning lamp at the "MODE" key is not on.

This program allows the gearbox to shift gears as and when necessary so that driving at higher speeds is possible. This may be advisable on unpaved terrain.

Economy program

The warning lamp at the "MODE" key is on.

This program will, in general, shift gears at somewhat lower engine speeds. This results in more economical fuel consumption.

↓ **Shifting down**

After selecting the "D" key and when the vehicle is driving, this key can be used to keep the gearbox in a lower gear. The selected gear is shown in the display. The gearbox will not shift up further until the "↑" or "D" key is pressed. The number of gears that can be used will appear in the display.

↑ **Shifting up**

This key is used to allow the gearbox to shift to a higher gear. This is however only possible after having previously selected to stay in a low gear.

Automatic Gearbox

Use of the engine brake

When the engine brake is operated in third or higher gear, the ECU will shift down to second gear as soon as the engine speed permits to do so.

This is in order to allow the engine brake to deliver maximum braking force.

The selector display shows the second gear selected by the ECU.

Using the PTO

If the vehicle is fitted with a PTO, this can be switched on in both neutral and first gear (depending on the version).

PTO operation is, however, not permitted in Drive when the vehicle is being held stationary by the service brake or parking brake. In this case, shift to neutral in order to prevent overheating. Depending on the version, the electronic unit will shift the gearbox to neutral if a command is given to do so.



Faults

If the transmission fault warning symbol in the master display lights up, there is a fault in the gearbox (shifting gears), **or** the temperature of the gearbox oil is too high.

The accompanying fault code can be read in the selector display function.

Read the following recommendations first or consult an authorized dealer if necessary.

Automatic Gearbox

Gearbox

The ECU will block the functions of the selector and the gearbox will select a "safe gear" for the gearbox. It is important to drive the vehicle to a safe place as soon as possible and turn the contact off. It will no longer be possible to shift the gearbox to neutral. The ECU will prevent this.

After approximately 30 seconds, try starting the engine again and engaging a gear. If the fault is one whereby the gearbox must in no circumstances be shifted, the ECU will no longer shift the gearbox. **Driving is therefore no longer possible!**

If the fault is one whereby the gearbox may still be shifted, the warning in the main display will disappear. The ECU will have recorded the fault as an inactive fault. It is now possible to drive the vehicle again, though the fault will still need to be remedied.

In this situation, however, it is no longer possible to shift gears.

Gearbox oil temperature

If the transmission fault warning symbol in the master display comes on during driving, this could be an indication that the gearbox oil has reached its maximum temperature.

In this situation, the ECU limits gearbox shifting to the first four gears.

It is important to drive to a safe place as soon as possible and let the engine idle in neutral at an increased idling speed.

As a result, the cooling system of the engine will try to cool the gearbox oil.

If after approximately two minutes the warning in the master display has not disappeared, the engine must be turned off and contact made with the nearest authorized Service dealer.

Air suspension

Air suspension

GENERAL

The remote control unit is used to operate the vehicle height on vehicles equipped with electronically controlled air suspension (ECAS).

The remote control unit is located against the console of the driver's seat and can only be operated with the ignition switched on and when the vehicle speed is lower than 9 km/h (5 mph).

The electronically controlled air suspension system (ECAS) is controlled by a microprocessor. Chassis height parameters are stored in the memory. If the actual chassis height is not in conformity with the set parameters, it will automatically be adjusted. The remote control unit can be used to set the chassis to the most suitable height for coupling/uncoupling a trailer or for loading/unloading the vehicle.

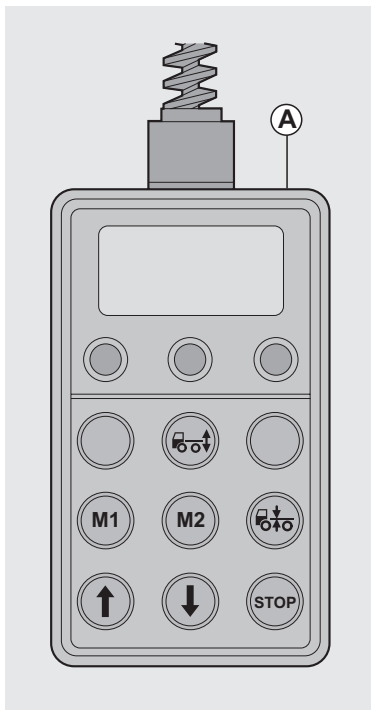


Driving a vehicle that is not at normal driving height, other than for coupling and uncoupling a semi-trailer is not permitted. The driving properties of the vehicle will be adversely affected and the legally permitted driving height could be exceeded.

Air suspension

REMOTE CONTROL

Remote control A



D000427



vehicle rear end selected



automatic setting of normal driving height

M1 lifting of chassis to pre-set height

M2 as M1, but for a different, pre-set chassis height



lifting of selected chassis end(s) until key is released



lowering of selected chassis end(s) until key is released

Stop all adjustments are stopped

Air suspension

ENGAGING AIR SUSPENSION

- Press the "Vehicle rear" key; the relevant warning lamp on the remote control will come on.

The choice can be cancelled by pressing the same key once again.

If the air suspension continues to regulate during loading/unloading, press the stop button. The vehicle will stop readjusting.

SETTING MEMORY KEYS (M-KEYS)

- Bring the chassis to the required height using the "lower chassis" or "lift chassis" keys.
- Then press the "**stop**" key and keep it depressed. Then press either of the **M**keys briefly. The chassis height at that moment will then be programmed in the ECAS unit.

If this M key is again pressed some time later, the vehicle will adjust itself to this programmed chassis height.

A different chassis height can be programmed with the other M-key in the same way.

Air suspension

STOP BUTTON

When the "Stop" button on the remote control unit is pressed, the system responds as follows, irrespective of the vehicle speed:

- When the chassis height is being changed, the electropneumatic valves are cut out immediately. The current height will now become the desired height.
- If the "stop" key is pressed while switching off the ignition, the delay setting is activated. When this setting is activated, the height adjustment remains active for 60 minutes when the ignition is switched off or until the air supply has become insufficient.

Unless stated otherwise, the buttons only need to be pressed once briefly.

Air suspension

Emergency repairs

Emergency repairs

VEHICLE TOOL KIT

All vehicles are fitted with a tool bag in the cab and a jack in the storage compartment to the left of the wheel winch.



It is essential that the jack is always carefully stowed after use in the storage space to the left of the wheel winch. If this safety precaution is not observed, this may cause injuries or material damage.

TILTING THE CAB

General



Make sure that the filler caps of the cooling system, the hydraulic clutch and the windshield washer reservoir are tightened. Do not loosen the filler caps when the cab is tilted.



Only tilt the cab when the engine has stopped.



Make sure there is sufficient clearance around the cab.



You can stop tilting the cab forward at any time by turning the valve to position ↓.

Emergency repairs



If the vehicle has been involved in a collision, the cab must under no circumstances be tilted without due precautions. The internal mechanism of the lifting cylinder may have been damaged to such an extent that the cylinder is no longer locked by the internal stop washer. In that case there is a danger of the cab no longer being held back and falling forward to the ground. Have your authorized Service dealer check the tilting mechanism.



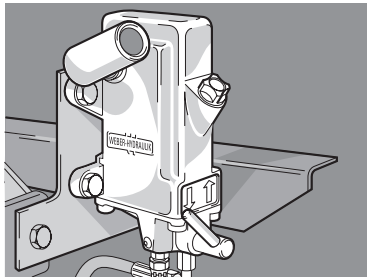
Make sure that there is no one in the cab. Also make sure there are no loose objects inside the cab; this includes objects in the refrigerator. Make sure there are no people immediately in front of the cab.



Never work under the cab if the cab has not been tilted fully forward.

Note:

If a cooler box/refrigerator has been fitted, it should be switched off and if necessary unplugged before tilting (depending on the type). The cooler box/refrigerator should remain switched off at least 30 minutes after the cab has been tilted back.



D0 00 623

The cab is tilted hydraulically using a hand pump. This pump is located at the co-driver's side, behind the cab. The pump has a cock which can be moved to two positions:

position ↑ to tilt the cab forwards.

position ↓ to tilt the cab backwards; this is also the driving position.

Emergency repairs

Tilting forward

- Apply the parking brake.
- Put the gear lever in "neutral" position.
- Close the doors.
- Turn the lever fully to the right, against the spring pressure, until it is locked in position ↑↑; use the jack rod.
- Operate the pump so that the cab tilts forward. The cab locking mechanism automatically releases. As soon as the cab passes its natural point of balance, the force of gravity will gradually tilt the cab further forward without additional pumping.

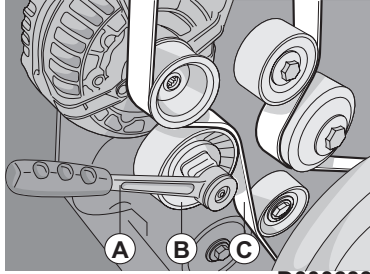
Tilting back

- Turn the lever to position ↓↓.
- Tilt the cab back by operating the pump with the jack rod. The last part of tilting-back is effected by the cab's own weight. When the catch engages, the cab is automatically locked.
- Leave the lever in position ↓↓.
- Push the gear lever in 1st gear to lock the gearbox control.
- Put the gear lever in neutral.

Checking the cab locking

When the cab is back in its normal position, the cab lock warning lamp in the master display should be extinguished.

Emergency repairs



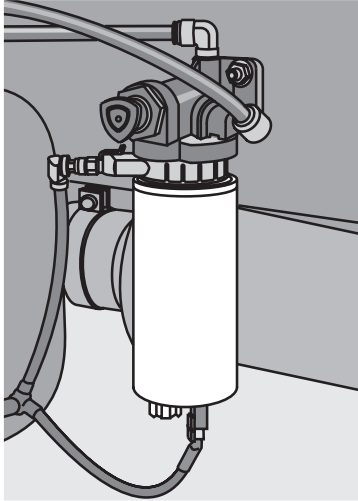
REPLACING THE POLY-V BELT

Important

Always fit the same type of poly-V-belt as the one being replaced.

1. Disconnect the earth lead from the battery.
2. Place a ratchet (A) with a 3/8" socket in the arm of the automatic belt tensioner (B).
3. Slacken the poly-V-belt (C) (see arrow in illustration), so that it can be removed from the pulleys.
4. Carefully allow the automatic belt tensioner to spring back to the stop.
5. Push the poly-V-belt between the fan and the wind tunnel collar and remove the poly-V-belt.
6. Check all pulleys over which the poly-V-belt runs for dirt, rust and damage.
7. Fit a new poly-V-belt between the fan and wind tunnel collar. Place the poly-V-belt over as many pulleys as possible.
8. Tension the automatic belt tensioner and place the poly-V-belt over the remaining pulleys. Carefully allow the automatic belt tensioner to spring back against the new poly-V-belt.
9. Check that the poly-V-belt is in all pulley grooves.
10. Connect the earth lead to the battery.

Emergency repairs



DO 02 002

REPLACING THE FUEL FINE FILTER



When removing the fuel fine filter, a quantity of fuel will escape. Collect the fuel and avoid the risk of fire.

Dirt in the fuel system can lead to significant damage to the fuel system.

Diesel fuel is toxic and can therefore have a damaging effect on your health. Any direct or indirect physical contact should therefore be avoided.

In the event of contact with the skin: remove with paper or a cloth, wash with soap and water. If irritation persists, consult a doctor.

If swallowed: do NOT induce vomiting. Rinse the mouth, drink two glasses of water and see a doctor.

In the event of inhalation: get some fresh air and rest.

Removing the fuel filter

1. Place a receptacle under the filter.
2. Remove the filter by turning it anti-clockwise.

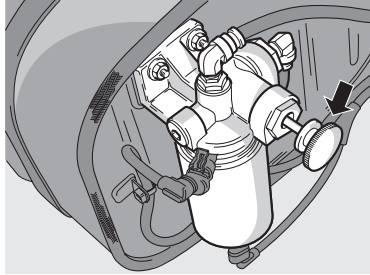
Note:

The fuel fine filter is a disposable filter and, therefore, may not be cleaned and reused.

Fitting the fuel filter

1. Lightly lubricate the sealing ring (see arrow in illustration) with clean engine oil (not diesel fuel).
2. Fit the filter unfilled until the sealing ring abuts and manually rotate it a $\frac{1}{2}$ to $\frac{3}{4}$ turn further.
3. Bleed the fuel system. See "BLEEDING THE FUEL SYSTEM".
4. Start the engine and check for leaks. If necessary, retighten the filter by hand.

Emergency repairs



DO 00 583

BLEEDING THE FUEL SYSTEM

Note:

When the hand pump is used, the fuel system will be automatically bled. The hand pump is fitted against the back of the fuel tank on the water separator.

Bleeding

1. Loosen the hand pump knob anti-clockwise.
2. Use the hand pump until a clearly higher resistance is felt.

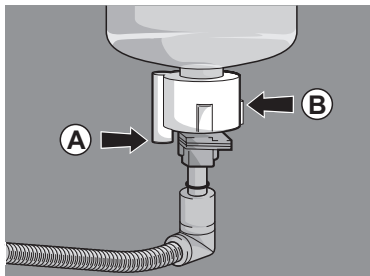
Note:

Stop pumping as soon as the higher resistance is felt. If you continue pumping, the fuel system may become internally damaged.

3. Secure the hand pump knob by turning it clockwise.

Emergency repairs

DRAINING THE WATER SEPARATOR



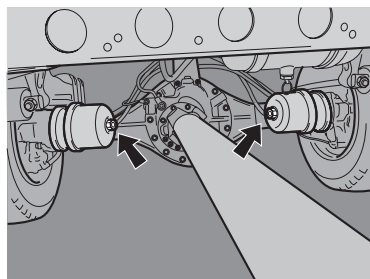
DO 00 620



When draining the water separator, an amount of fuel will escape. Collect the fuel and avoid the risk of fire.

Water in the fuel system may lead to significant damage.

1. Place a container beneath the water separator.
2. Remove the connector.
3. Unscrew the ring-shaped drain cock (B) on the bottom of the water separator in anti-clockwise direction.
4. Drain the filter until pure diesel fuel comes out of the drain cock (A).
5. Turn the drain cock (B) if it abuts, another 1/8 - 1/4 turn.
6. Check the drain cock (B) for leakage.
7. To prevent pollution, the drained water/diesel fuel mixture should be passed to the relevant authorities for reprocessing.



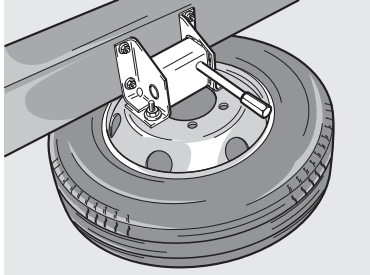
DO 00 606



Never release the parking brake on an incline.

1. Place wheel chocks in front of and behind the wheels.
2. Turn the release bolt counter-clockwise as far as the stop using a ring spanner.
3. This operation should be carried out for each spring brake cylinder.
4. Bring the parking brake back in operating order as soon as possible by turning the bolts clockwise as far as possible and tightening them to a torque of 70 Nm (51.6 lb-ft).

Emergency repairs



D0 00 569

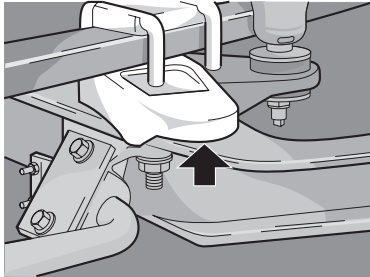
WHEEL WINCH

Self-braking wheel winch

1. Remove the wheel nut covers.
2. Unscrew the spare wheel nuts.
3. Lower the spare wheel.

Note:

Always fit the wheel on the spare wheel bracket with the valve facing outwards.



D0 00 626

JACKING UP THE FRONT AXLE

When jacking up the front axle, the jack must be positioned under the jacking point near the shock absorber.

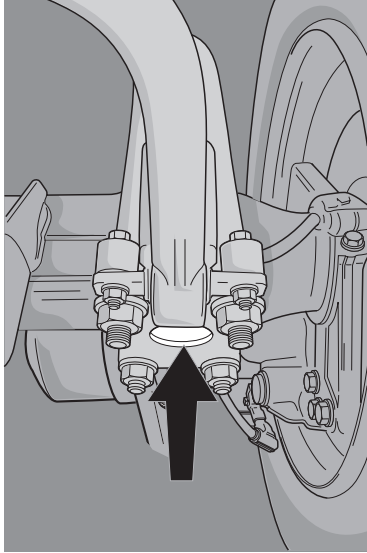


Always use stands to support the chassis when carrying out repairs or service under a vehicle which is resting on a jack.

Emergency repairs

JACKING UP THE REAR AXLE

When jacking up the rear axle, the jack should always be positioned under the jacking point at the bottom of the spring bracket.



D0 00 719



Always use stands to support the chassis when carrying out repairs or service under a vehicle which is resting on a jack.

To prevent deformation of the axle housing, the jack must under no circumstances be located directly under the axle housing or the differential casing.

Emergency repairs

CHANGING THE WHEEL

Note:

After changing a wheel/tire, the difference between the diameters of the various tires on the vehicle may have become too large (for example, as a result of differences in tread depth and/or tire pressure).



The ABS system cannot cope with too great a difference in tire diameter and the system will automatically be disengaged. Consequently, the ABS warning symbol will be shown in the master display.

Depending on the tire types on the front and rear axle, this phenomenon may already with a worn tire that is underinflated by 2 bar. So first check the tire pressure if the warning indicator is on after a tire has been replaced.



Hence, there will be no ABS control under extreme conditions!

This is the reason why the maximum permitted difference in tire diameter for new tires is 14%.
(This may occur when different tire sizes are fitted on the front or rear axles.)



When removing a wheel with a cracked or damaged wheel rim, always deflate the tire (remove the tire valve) in view of possible tensions in the wheel rim.

Emergency repairs

General

- Only use the original tire wheel rims specified for the vehicle concerned.
- Make sure that tires of the same type are fitted on both sides of the axle.
- Insufficient cleaning of the mating surfaces and/or uneven tightening of the wheel nuts may cause vibrations during driving or braking.

Note:

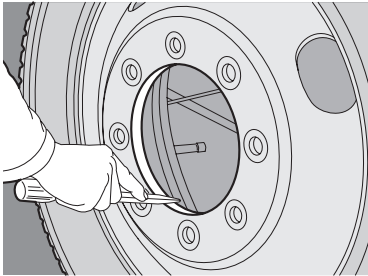
If a wheel stud is renewed, the other wheel studs on the relevant wheel must also be renewed.

Removing the wheel

1. Chock the wheels to prevent the vehicle moving off.
2. Clean the screw thread of the wheel studs using a wire brush.
3. Oil the wheel studs sparingly.
4. Unscrew the wheel nuts.
5. Fit a jack under the jacking point at the wheel to be replaced.
6. Jack up the vehicle and place a support under the axle.
7. Remove the wheel nuts and take the wheel off the hub.

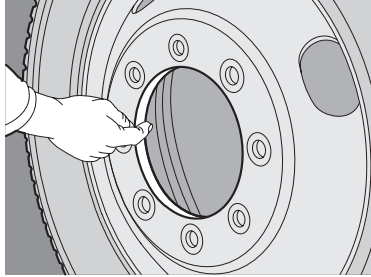
Installing the wheel

1. Clean the fitting edge of the wheel hub by scraping off dirt and corrosion with a scraper.

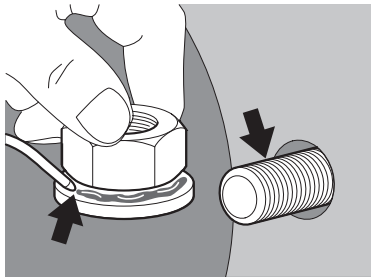


D000495

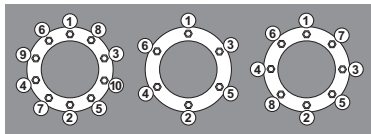
Emergency repairs



D000496



D000520



08 09 915

2. Apply a **thin** layer of grease to the fitting edge of the wheel hub.
3. Also apply a **thin** layer of grease to the fitting edge of the wheel rim. This grease layer should prevent the wheel rim and the wheel hub from becoming "rust-bound".
4. Check whether the contact surfaces of the wheel rim and the drum brake are clean. Clean if necessary.
5. Clean the wheel nuts and then apply a drop of oil between the thrust washer and the nut.
6. Also apply a drop of oil to the first turn of the wheel-stud screw threads.
7. Fit the wheel nuts and tighten them evenly according to the sequence in the illustration.
For the specified tightening torque, see "TECHNICAL DATA".

Note:

Wheel nuts should always be tightened and retightened in cold condition. However, tightening wheel studs in extreme cold should be avoided.

8. Check the tire pressure.

Emergency repairs

9. Retorque the wheel nuts after 100 km (62 miles).
If new wheel studs are fitted, they need additional retorquing after 500 km (31 miles).

Note:

When a wheel had to be replaced, have the wheel nuts torqued to the correct tightening torque by a dealer.

TIRE INFLATING CONNECTION

Next to the brake system air dryer to the left rear of the cab there is a tire inflating connection.

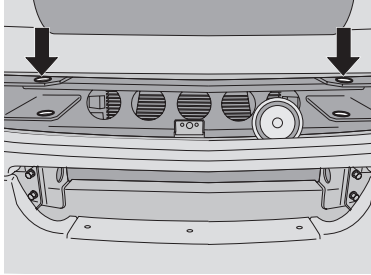
1. Remove the rubber protective cap from the tire inflating connection.
2. Connect the tire inflating hose.
3. Pump up the tire. Inflate the tires while the engine is running and with maximum pressure in the air reservoirs.
4. Refit the protective rubber cap to the tire inflating connection after the tire has been inflated and store the hose.

Check as soon as possible that the tires have the correct pressure using a pressure gauge. See the tire pressure table under "TECHNICAL DATA".

Note:

The entire air pressure system of the vehicle can be filled with air from an outside source using the tire inflating connection. When doing this, check that the system pressure is correct using the air pressure gauge.

Emergency repairs



DO 00 723

TOWING

It is possible to install a towing eye behind the grille.

Always use a towing bar when towing. Departure from this rule is only allowed in emergencies.

When towing, the fault message "Engine management fault" may appear in the master display when the ignition is turned on.

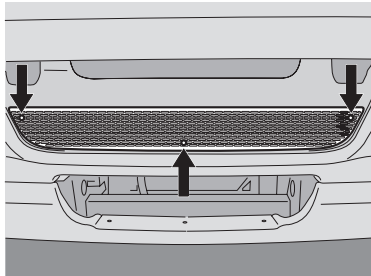
Note:

The maximum permissible vehicle speed, weight and distance vary per country.

Tractors may be fitted with a small towing hook at the rear end of the chassis. This towing hook must only be used for light shunting work.



Do not tow the vehicle when fully loaded or with a drawn vehicle attached.



DO 00 722

Being towed by another vehicle



When the engine is not running, there is no power steering and no air is supplied to the braking system.

If the service brake is applied or in the case of air leakage, the parking brake might be applied.



The towed vehicle can be located asymmetrically (left or right) behind the tractor. Towing may not take place at an angle larger than 20° with the vehicle centreline.

Emergency repairs

- To clear the towing eyes, the black grid must be removed from the lower grille by turning the attachment screws a quarter turn.
- Always fix the tow rod with its original attachment pin (part of the vehicle tool kit) in the towing eyes.
- Turn the ignition key so that the steering wheel is released (unless the vehicle is in a hoist, see below).
- To prevent damage to the gearbox, the propeller shaft must **always** be disconnected from the differential.
- If there is insufficient pressure in the air reservoirs, release the parking brake. See "Releasing the parking brake".

If the differential is damaged:

- Hoist the vehicle at the rear and **lock the steering wheel in the straight-ahead position.**

Tow starting

If the vehicle has to be towed to start the engine, the ignition key must first be turned clockwise to position D of the starter/ignition switch (ignition on).

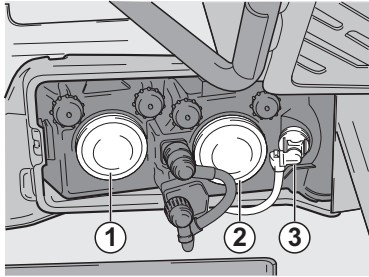
Long-distance towing

If the vehicle is to be moved over a larger distance, this must be done by a recovery vehicle that lifts the vehicle to be towed under its front axle.

Emergency repairs

REPLACING BULBS

- Do not touch the glass of the halogen lamps with bare fingers. If necessary, this glass can be cleaned with a cloth, which has been dampened with industrial alcohol (methylated spirits).
- When fitting a new bulb, make sure that the lugs on the bulb holder engage in the slots of the reflector.



Dipped beam

1. Tilt the cab forwards.
2. Detach the rubber cover (2) from the rear of the headlamp unit.
3. Detach the spring clamp and pull the bulb away from the reflector.
4. Detach the double plug from the rear of the bulb.

Parking light

1. Tilt the cab forwards.
2. Detach the rubber cover (2) from the rear of the headlamp unit.
3. Pull the holder of the parking light from the headlamp unit.
4. Pull the bulb out of the bulb holder.

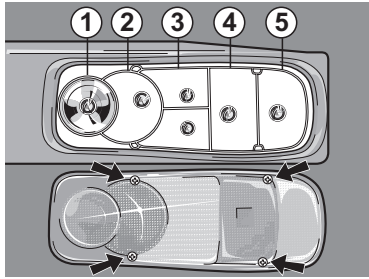
Main beam

1. Tilt the cab forwards.
2. Detach the rubber cover (1) from the rear of the headlamp unit.
3. Detach the spring clamp and pull the bulb away from the reflector.
4. Detach the spring clamp and pull the bulb away from the reflector.

Direction indicator

1. Tilt the cab forwards.
2. Detach the plug from the rear of the bulb holder (3).
3. Screw the bulb holder anti-clockwise out of the headlamp unit.
4. Pull the bulb carefully out of the bulb holder.

Emergency repairs



D0 00 628

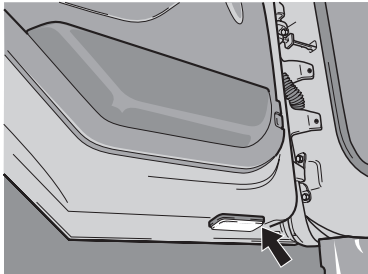
Rear lights

1. Unscrew the four Philips screws and remove the lens cap.

1. Fog light
2. Reversing light
3. Rear light
4. Stop light
5. Direction indicator

Direction indicators

1. Detach the plug on the inside bumperend cap/step moulding.
2. Remove the two screws and detach the lamp unit of the direction indicator.
3. Unscrew the bulb holder anti-clockwise out of the indicator lamp unit.
4. Pull the bulb carefully out of the bulb holder.

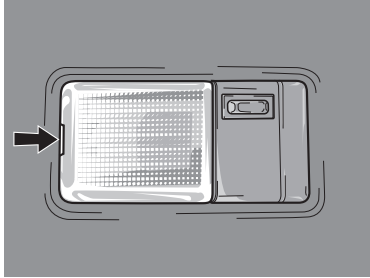


D0 00 590

Stepwell lighting

1. Remove the stepwell lighting housing from the bottom of the door by inserting a screwdriver in the notch.
2. If necessary, remove the plug.
3. Unscrew the bulb holder anti-clockwise out of the stepwell lighting housing.
4. Pull the bulb carefully out of the bulb holder.

Emergency repairs

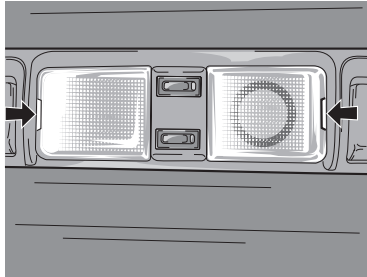


D0 00 571

Roof light

The transparent covers of the roof lights have a slot allowing the lens to be tilted out of the housing using a screwdriver.

1. Remove the transparent cover of the roof light carefully from the roof upholstery.
2. Pull the bulb carefully out of the bulb holder.



D0 00 591

Interior lighting/reading lamp

The transparent covers of the interior lighting/reading lamp have a slot allowing the cover to be tilted out of the housing using a screw driver.

1. Insert a screwdriver into the groove of the correct lens. Press in the internal attachment slightly. Then pull the lens carefully down and out of the lighting unit.
2. Remove the bulb(s) carefully from the bulb holder.

Emergency repairs

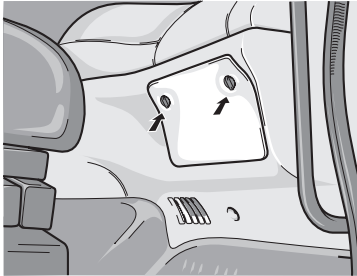
FUSES AND RELAYS



To prevent overload and the risk of fire you must **NEVER** replace a burnt-out fuse with a fuse with a higher rating than specified. If a specific fuse repeatedly blows, this means there is a fault in the circuit, which **MUST** be inspected and remedied.

NEVER replace or remove a fuse if:

- the contact is on.
- the engine is running.
- a consumer is switched on.



DD 00 617

The fuses are behind a cover in the dashboard on the co-driver's side. Attached to the inside of the cover is a sticker with an overview of the fuses. For replacing fuses there is a special fuse clamp on the fuse board. Each fuse is colour-coded to show the rating:

Orange	5 A
Red	10 A
Blue	15 A
Yellow	20 A
Transparent	25 A
Green	30 A

Emergency repairs

Fuses

E004	Fuse, driver's side dipped beam
E005	Fuse, co-driver's side dipped beam
E006	Fuse, driver's side main beam
E009	Fuse, front fog lights
E013	Fuse, brake lights
E016	Fuse, reversing lights and cross-axle lock control
E018	Fuse, windscreen wiper motor
E019	Fuse, horn
E023	Fuse, tachograph timer
E025	Fuse, windscreen wiper motor/windscreen washer motor
E026	Fuse, cigar lighter/door switches/electronic unit, converter 24/12 V with power supply for radio memory
E027	Fuse, electronic unit, 24/12 V converter, with power supply for radio memory
E028	Fuse, interior lighting/central door locking
E031	Fuse, heater fan
E035	Fuse, ECS-DC4 voltage (engine management)
E039	Fuse, seat heating
E044	Fuse, mirror heating/electrical mirror adjustment/electrical window operation
E051	Fuse, ECAS
E052	Fuse, work lamp

Emergency repairs

Fuses

E053	Fuse, diagnostic connector/ECAS
E058	Fuse, auxiliary
E062	Fuse, ECAS
E091	Fuse, heating element, air dryer/water separator/engine speed control application connector
E108	Fuse, VIC
E114	Fuse, cab heater/warning lamps
E142	Fuse, accessories before contact
E143	Fuse, tachograph/immobiliser/ABS-E
E144	Fuse, automatic gearbox AGC
E145	Fuse, AGC-A
E153	Fuse, main switch power supply
E156	Fuse, accessories
E160	Fuse, ECS-DC4
E163	Fuse, rotating beams/roof hatch
E164	Fuse, fuel heater
E165	Fuse, fuel heater FPH-E, after contact
E190	Fuse, ABS-E
E198	Fuse, central door lock
E277	Fuse, VIC
E279	Fuse, voltage regulation generator

Emergency repairs

Fuses

E280	Fuse, VIC
E282	Fuse, engine brake switch/brake light switch
E283	Fuse, headlamp height adjustment/width marker light, 1st, left and right/ tail light, right
E284	Width marker light, 2nd, left and right/tail light, left/search lights
E285	Fuse, VIC/fog lights switch
E286	Main fuse
E290	Fuse, RAS-EC
E297	Fuse, airbag and seat belt tensioner system
E299	Fuse, windscreen heating
E310	Fuse, instrument panel, DIP-4
E330	Fuse, main switch, 'sens' wire
E349	Main fuse, cab
E350	Fuse, electrical systems
E354	Fuse, automatic gearbox, AGC fan
E357	Fuse, EAS
E390	Fuse, body builder module
E409	Fuse, dosing module

Emergency repairs

Technical Data and Identification

Technical Data and Identification

ENGINE

	Type	
Types	Model 210 or 260	Model 220 or 360
	BE 99 C	BE 123 C
	BE 110 C	CE 136 C
	BE 123 C	CE 162 C
	CE 136 C	CE 185 C
	CE 162 C	
	Engine	
Engine type	BE ... C ENGINE	CE ... C ENGINE
Model	Euro 3, water-cooled, four-stroke diesel engine with electronically controlled fuel injection system, 4 valves per cylinder and turbo-intercooling.	Euro 3, water-cooled, four-stroke diesel engine with electronically controlled fuel injection system, 4 valves per cylinder and turbo-intercooling.
Number of cylinders	4	6
Bore x stroke	102 x 120 mm	102 x 120 mm
Total capacity	3.9 litres	5.9 litres
Capacity of lubrication system, including filter and oil cooler	13.5 litres	19.5 litres
Sump capacity, maximum level	11.5 litres	17.5 litres
Sump capacity, minimum level	9.5 litres	15.5 litres
Capacity of cooling system, including heater	20 litres	22 litres

Technical Data and Identification

Output and torque

Type	Maximum output P (kW/hp)	Engine speed at max. output n_p (rpm)	Maximum torque M (Nm)/(lb ft)	Engine speed at max. torque n_m (rpm)
BE 99 C	99/135	2500	500 / 368.7	1200-1600
BE 110 C	110/150	2500	550 / 405.6	1200-1600
BE 123 C	123/170	2500	600 / 442.5	1200-1600
CE 136 C	136/185	2500	700 / 516.3	1200-1700
CE 162 C	162/220	2500	820 / 604.8	1200-1700
CE 185 C	185/250	2500	950 / 700.7	1200-1700

Technical Data and Identification

ELECTRICAL SYSTEM

Voltage	24 V
Alternator	80 A / 29 V (extra: 100 A / 29 V)
Batteries	2 x 12 V / 125 Ah (extra: 2 x 12 V / 170 Ah)
Starter motor	4 kW / 24 V

Bulbs

Dipped beam	H7 70 W
Main beam	H1 70 W
Parking light	5 W
Tail light	10 W
Rear fog light	21 W
Reversing light	21 W
Stop light	21 W
Direction indicator	21 W
Registration plate	10 W
Cab interior lighting	10 and 21 W
Bunk light	21 W
Stepwell lighting	5 W
Marker light	5 W
Spotlight	H 70 W
Work light, white	H 70 W
Work light, yellow	35 W

Technical Data and Identification

WHEELS

Whenever the wheel nuts have been slackened or removed, they must be retorqued with a torque wrench after 100 km (62 miles).



If a wheel stud is renewed, the other wheel studs on the relevant wheel must also be renewed. If new wheel studs are fitted, the nuts must be retorqued after 500 km (310 miles).

Wheel nut tightening torques

Model 210/260

Version with 6 M18 wheel nuts 370 Nm (272.9 lb ft)

Version with 8 M18 wheel nuts 370 Nm (272.9 lb ft)

Model 220/360

Version with 8 M20 wheel nuts 485 Nm (357.7 lb ft)

Technical Data and Identification

TIRE PRESSURE TABLE (METRIC)

Recommended pressure (bar) at various loads (kg) E= single fitting D= twin fitting																						
Tires size		2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500	9000	10000	11000	12000	13000	Max. axle load (kg)	Pressure at maximum axle load
10 R17.5	E		4.1	5.1	6.1	7.0															4240	7.5
	D							4.9	5.4	6.0	6.5	7.0	7.5									8000
10 R22.5	E				5.5	6.2	7.0														5000	8
	D										5.7	6.0	6.5	7.0								9200
12 R22.5	E							6.0	6.5	7.2	7.7	8.5									7100	8.5
	D													5.6	6.0	6.7	7.5	8.2			12600	8.5
205/75 R17.5	E	4.4	5.6	6.7																	2900	6.8
	D				4.2	5.0	5.5	6.2														5600
215/75 R17.5	E	4.2	5.2	6.3																	3200	6.8
	D							4.9	5.4	6.0											6200	6.3
225/75 R17.5	E	4.0	5.1	6.2	7.5																3600	7.5
	D							4.7	5.3	5.8	6.4										6600	6.5
235/75 R17.5	E		4.7	5.7	6.5																3800	7.3
	D							5.2	5.5	6.2	6.5										7200	6.8
245/75 R17.5	E	3.3	4.4	5.4	6.4	7.5															4480	8.3
	D							4.4	4.9	5.4	5.8	6.2	6.8	7.3							8000	7.5
245/70 R19.5	E	3.3	4.4	5.5	6.5	7.5															4360	8.3
	D							4.2	4.7	5.2	5.7	6.2	6.7	7.2							8240	7.5
265/70 R19.5	E		3.9	4.7	5.5	6.2															4480	7
	D							3.9	4.6	5.1	5.7	6.2	6.7								8480	7
285/70 R19.5	E		3.5	4.3	5.1	6.1	6.9	7.7	8.6												5600	7
	D									4.6	5.2	5.6	6.0	6.5	7.3						9200	7
275/70 R22.5	E				5.3	6.2	7.0	7.7	8.5												6300	9
	D													5.5	6.0	6.5	7.2	8.2			11600	8.5
275/80 R22.5	E					6.0	6.7	7.5	8.2												6300	8.5
	D													5.7	6.2	7.0	7.7				11600	8
295/80 R22.5	E			3.8	4.5	5.5	6.0	6.5	7.2	7.7	8.5										7100	8.5
	D										4.4	4.7	5.1	5.6	6.0	6.7	7.5	8.2			12600	8.5
305/70 R22.5	E						6.0	6.7	7.4	8.2	8.9										7100	9
	D													5.3	5.7	6.5	7.2	8.0			12600	8.5
315/80 R22.5	E							5.8	6.3	7.0	7.5	8.0	8.5								8000	8.5
	D															6.0	6.5	7.2	7.7	13400	8	

Technical Data and Identification

TIRE PRESSURE TABLE (US)

Recommended pressure (psi) at various loads (lb) E= single fitting D= twin fitting																						
Tire size		4400	5500	6600	7700	8800	9900	11000	12100	13200	14300	15400	16500	17600	18700	19800	22000	24200	26400	28600	Max. axle load (lb)	Pressure at maximum axle load
10 R17.5	E		59.45	73.95	88.45	101.5															9328	108.75
	D								71.05	78.3	87	94.25	101.5	108.75								9328
10 R22.5	E				79.75	89.9	101.5														17600	108.75
	D											82.65	87	94.25	101.5							11000
12 R22.5	E							87	94.25	104.4	111.65	123.25									20240	116
	D														81.2	87	97.15	108.75	118.9		15620	123.25
205/75 R17.5	E	63.8	81.2	97.15																	27720	123.25
	D					60.9	72.5	79.75	89.9													6380
215/75 R17.5	E	60.9	75.4	91.35																	12320	91.35
	D							71.05	78.3	87											7040	98.6
225/75 R17.5	E	58	73.95	89.9	108.75																13640	91.35
	D							68.15	76.85	84.1	92.8										7920	108.75
235/75 R17.5	E		68.15	82.65	94.25																14520	94.25
	D								75.4	79.75	89.9	94.25									8360	105.85
245/75 R17.5	E	47.85	63.8	78.3	92.8	108.75															15840	98.6
	D							63.8	71.05	78.3	84.1	89.9	98.6	105.85							9856	120.35
245/70 R19.5	E	47.85	63.8	79.75	94.25	108.75															17600	108.75
	D							60.9	68.15	75.4	82.65	89.9	97.15	104.4							9592	120.35
265/70 R19.5	E		56.55	68.15	79.75	89.9															18128	108.75
	D								56.55	66.7	73.95	82.65	89.9	97.15							9856	101.5
285/70 R19.5	E		50.75	62.35	73.95	88.45	100.05	111.65	124.7												18656	101.5
	D														66.7	75.4	81.2	87	94.25	105.85	12320	101.5
275/70 R22.5	E					76.85	89.9	101.5	111.65	123.25											20240	101.5
	D																				13860	130.5
275/80 R22.5	E							87	97.15	108.75	118.9										25520	123.25
	D														82.65	89.9	101.5	111.65			13860	123.25
295/80 R22.5	E				55.1	65.25	79.75	87	94.25	104.4	111.65	123.25									25520	116
	D											63.8	68.15	73.95	81.2	87	97.15	108.75	118.9		15620	123.25
305/70 R22.5	E							87	97.15	107.3	118.9	129.05									27720	123.25
	D														76.85	82.65	94.25	104.4	116		15620	130.5
315/80 R22.5	E								84.1	91.35	101.5	108.75	116	123.25							27720	123.25
	D																87	94.25	104.4	111.65	17600	123.25

Technical Data and Identification

Checking the tire pressures

Tire pressures depend on axle load and tire size.

Tire pressure table*

- The tire pressures shown in the table apply to cold tires.
- Unnecessary tire wear is frequently caused by vehicle operation with tire pressures which do not match the axle load.
- When twin wheels are fitted:
 - both tires must be inflated to the same pressure;
 - the tread depth must be practically the same on both tires.

* The axle loads and corresponding tire pressures shown in the table apply to normal operating conditions. For all other cases, refer to the specifications of the tire manufacturer.

LUBRICANT-, ENGINE COOLANT- AND FUEL SPECIFICATIONS

To comply with the warranty terms and to guarantee the durability of the manufacturers products, it is essential that the correct lubricants, engine coolant and fuel are used and that the oil change intervals are adhered to.

Additives to lubricants, engine coolant and fuel - of whatever type - must not be used except in those circumstances prescribed by the manufacturer.

Always follow the safety instructions below and the instructions that are supplied with the product.

Use Ultra Low Sulfur Diesel Fuel only. Failure to do so may cause exhaust equipment damage.

Technical Data and Identification

Ask your lubricant and fuel suppliers whether their products comply with specifications.

The manufacturer is not liable for damage or problems in the following instances:

- If oil has been used of a lower grade than specified.
- If oil has been used of a different viscosity than specified.
- If the specified oil change interval has been exceeded.
- if fuel, lubricants or coolants have been used which do not meet the requirements specified.



Avoid physical contact with:

- lubricants
- coolants
- Fuel
- battery acid

In the event of skin contact: remove substance with paper or cloth, wash with soap and water.

Consult a doctor in the event of persistent irritation.

In the event of contact with the eyes: remove substance with soft cloth and rinse with water.

Consult a doctor in the event of persistent irritation.

If any is swallowed: DO NOT induce vomiting. Rinse mouth, drink two glasses of water and consult a doctor.

In the event of inhalation: get some fresh air and rest.

Technical Data and Identification

Battery acid:

In the event of skin contact: rinse the skin profusely with plenty of water.

Consult a doctor in the event of persistent redness or pain. Remove polluted clothing and rinse in water.

In the event of contact with the eyes: rinse with plenty of water for at least 15 minutes and see a doctor.

If any is swallowed: do NOT induce vomiting. Rinse the mouth, drink two glasses of water and see a doctor.

In the event of inhalation: get some fresh air, rest and consult a doctor.

ENGINE OIL

Specification lists refer to international standards, such as ACEA and API. Viscosity is also subject to specific requirements.

Additional information:

ACEA E3: mineral oil

ACEA E5: further developed ACEA E3 mineral oil, geared to possible higher requirements on Euro 3 engines.

ACEA E4: partially or completely synthetic oil, specially developed for extended oil change interval and/or highly loaded engines.

Explanation of overview:

V = may be used

Technical Data and Identification

Engine type	ACEA E3 ..W-40	ACEA E4 ..W-40	ACEA E4 ..W-30	ACEA E5 ..W-40	ACEA E5 ..W-30
BE				V	
CE				V	

COOLANTS



Coolant is a toxic fluid. Protect skin and eyes. In case of accidental contact with skin and/or eyes, see "Lubricant, engine coolant and fuel specifications".

Coolant is harmful to the environment; after use, it should be processed as industrial chemical waste.

The cooling system should preferably be filled with a ready-mixed coolant containing antifreeze and corrosion inhibiting additives.

The coolant present in the cooling system from the factory consists of an ethylene glycol base: Texaco Havoline XLC.

Coolant identification

A sticker behind the grille states the information on the coolant used.



D001055

Technical Data and Identification

Coolant according to specification 74002

The below table lists the current suppliers that meet specification 74002. It is not allowed to fill the cooling system with another product than the one specified in this overview.

Brand name	Supplier
Long Life Coolant	N.V.
Havoline XLC/Havoline Extended Life Antifreeze Coolant	ChevronTexaco
Caltex Extended Life Coolant	Caltex
Total Organifreeze	Total
Maxigel Plus/Ultracooling Plus	Renault Truck Oils
Bevercool Organic	Beverol
BP Procool	BP
Castrol Antifreeze SF Premix	Castrol
Inugel Optimal/Inugel Optimal Ultra	Motul
Yacco LR Organique	Yacco
Valvoline Antifreeze Extreme	Valvoline
Petrol Antifriz Koncentrat	Petrol
Orvema Protex Long Life/Coolmix LL	Orvema
SB-G12	Sotragel

Technical Data and Identification

STEERING GEAR

Hydraulic power steering

ATF DEXRON III with valid approval number

CAB TILTING MECHANISM

Cab tilting pump
The following may be used:

Oil must meet MIL-H-5606C
ESSO Univis J13
FINA Hydran B5219B
TEXACO Aircraft Hydraulic Oil 5606G
TOTAL Aerohydraulic 520

CLUTCH

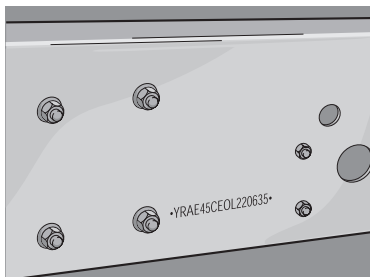
Hydraulic clutch

Brake fluid DOT 3 or DOT 4

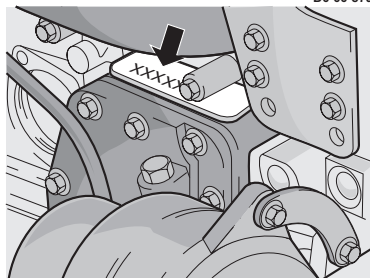
Technical Data and Identification

CHASSIS NUMBER

The chassis number is the last 6 digits of the VIN number. It is stamped on the right chassis side member close to the front axle.




DO 00 579



DO 00 597

A photograph of an engine data plate. The plate contains various technical specifications and identification numbers for the engine.

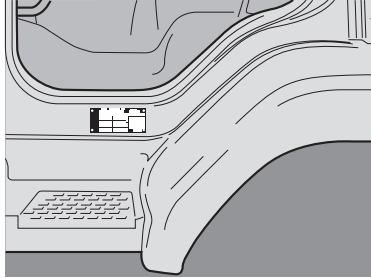
 Cummins Engine Company Inc. 2001 N. 48th St. Columbus, Indiana 47306	Model No.	4500L	4500L	Engine Model No.
	Family			Chassis spec.
* This plate is for identification only. It does not contain information for the vehicle and application.	Year with RPM			Engine model
	Year with Code	800	800	Plant code or rated HP
Serial No.	Production			Rating/HP
Make & Grade Model by Cummins Engine Co. Ltd.	Production			HP

DO 00 599

ENGINE NUMBER

The engine number is located on the data plate located on the top cover of the engine.

Technical Data and Identification



D000667

PAINT IDENTIFICATION PLATE

The paint identification plate is attached to the bulkhead behind the front panel.

VEHICLE IDENTIFICATION LABEL

The vehicle identification plate is located on the door jamb.

Each vehicle uses a Vehicle Identification Number (VIN) that contains the model year designation of your vehicle. The practice is in compliance with 49 CFR 565, Code of Federal Regulations. The VIN contains 17 digits. The 10th digit is the code for the model year of your vehicle. The example VIN below from a 1999 model shows how this code works:

EXAMPLE VIN: 1XP 9D2X9 6 X D 345678

Model Year _____ Serial Number

Consumer Information

Consumer Information

FEDERAL SAFETY STANDARD CERTIFICATION LABEL

The National Highway Traffic Safety Administration regulations require a label certifying compliance with Federal Safety Standards, for United States and U.S. Territories, be affixed to each motor vehicle and prescribe where such label may be located. This certification label, which indicates the date of manufacture and other pertinent information, is located on the left hand cab door post.

MANUFACTURED BY		SUITABLE TIRE-RIM CHOICE			THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE
PETERBILT MOTORS CO. FR. OWNER	TIRE SIZE	RIM SIZE	PSI GOLD		
DIVISION OF FACCAR Inc. 2ND OWNER					
DATE MFD	3RD OWNER				VIN
GVWR	4TH OWNER				TYPE
					TRUCK DESIGNATOR
					LAB. NO. 92-9399-01-2

How To Order Parts

When you need replacement parts for your Peterbilt vehicles, contact your nearest authorized Peterbilt dealer, who may be located from the “Peterbilt Authorized U.S. and Canadian Dealers” listing (Cat. No. 5212).

When you order, it is **IMPORTANT** that you have the following information ready:

Your name and address.

Serial number of the truck.

The name of the part you need.

The name and number of the component for which the part is required.

The quantity of parts you need.

How you want your order shipped.

NHTSA Consumer Information

The National Highway Traffic Safety Administration requires that the following information be included in the owner’s manual of motor vehicles manufactured after September 1, 1990:

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Peterbilt Motors Company. If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy

Consumer Information

campaign. However, NHTSA cannot get involved in individual problems between you, your dealer, and Peterbilt Motors Company.

To contact NHTSA, you may either call the Auto Safety Hotline toll-free at 1-800-327-4236 (TTY 1-800-424-9153), email to nhtsa.webmaster@dot.gov or write to: Office of Defects Investigations, CRD NVS-216, 1200 New Jersey Ave SE, Washington, D.C. 20590. You can also get other information about auto safety from the Hotline.

For additional road safety information, please visit the NHTSA website at <http://www.safercar.gov>

Canadian Consumer Information

Canadian customers who wish to report a safety-related defect to Transport Canada, Defect Investigations and Recalls, may telephone the toll free hotline 1-800-333-0510, or contact Transport Canada by mail at

Transport Canada, ASFAD
Place de Ville Tower C
330 Sparks Street
Ottawa ON K1A 0N5.

For additional road safety information, please visit the Road Safety website at <http://www.tc.gc.ca/roadsafety/menu.htm>

Environmental Protection



Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm. Other chemicals in this vehicle are also known to the State of California to cause cancer, birth defects or other reproductive harm. This warning requirement is mandated by California law (Proposition 65) and does not result from any change in the manner in which Peterbilt trucks are manufactured.

Some of the ingredients in engine oil, hydraulic oil, transmission and axle oil, engine coolant, diesel fuel, air conditioning refrigerant (R12, R134a, and PAG oil), batteries, etc., may contaminate the environment if spilled or not disposed of

Consumer Information

properly. Contact your local government agency for information concerning proper disposal.

State of California

California Vehicle Code, Section 9951 - Disclosure of Recording Device

Your vehicle may be equipped with one or more recording devices commonly referred to as “event data recorders (EDR)” or “sensing and diagnostic modules (SDM)”. If you are involved in an accident, the device(s) may have the ability to record vehicle data that occurred just prior to and/or during the accident.

For additional information on your rights associated with the use of this data, contact the California Department of Motor Vehicles - Licensing Operations Division or

http://www.dmv.ca.gov/pubs/vctop/d03_6/vc9951.htm

California Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

Other chemicals in this vehicle are also known to the State of California to cause cancer, birth defects or other reproductive harm.

Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm.

Wash hands after handling.

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