



**WACKER
NEUSON**
all it takes!

Operator's Manual

Wheel Dumper

DW60

DW90



Vehicle Model	D26
Material Number	1000459136
Version	1.1
Date	02/2021
Language	[en]



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Original operator's manual

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 WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

 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.

 WARNING

Cancer and Reproductive Harm -
www.P65Warnings.ca.gov.

 WARNING

Batteries, battery posts, terminals and related accessories contain lead and lead compounds, and other chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.
WASH HANDS AFTER HANDLING.



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EC Declaration of conformity

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WACKER NEUSON

EC Declaration of conformity

Manufacturer

Wacker Neuson Linz GmbH, Flughafenstraße 7, 4063 Hörsching, Österreich

Product

Vehicle type	Compact Dumper
Type/design	D26-01 / D26-02
Trade name	DW60-2 / DW90-2
Chassis number	Vorlage
Engine / output in kW	TD2.2 L3 / 44,5, TD2.9 LR /55,4
Measured sound power level dB(A)	101
Guaranteed sound power level dB(A)	101

Conformity assessment procedures

Notified Body according to Directive 2006/42/EC, Annex XI:

DGUV Test, Testing and Certification Body

Department of Civil Engineering, Am Knie 6, 81241 Munich, Germany

Notified Body of the EU, identification number: 0515

Applied directives and standards

We hereby declare that this product complies with the relevant provisions of these directives and standards:

2006/42/EC, 2005/88/EC, 2000/14/EC - Annex VIII, 2014/30/EU, 2014/53/EU (if telematics are installed); DIN EN ISO 12100:2010, DIN EN 474-1:2006+A4:2013, DIN EN 474-6:2010, DIN EN ISO 3471:2010, EN ISO 3744:1995

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Hörsching, 15-07-2020

Robert Finzel,

Managing Director

1 Foreword

1.1 Operator's manual

1.1.1 Information about this operator's manual

This operator's manual provides important information on how to operate the vehicle safely, properly and economically.

This operator's manual is intended for operating personnel and the vehicle operator.

The operator's manual and any supplements must be available in the vehicle at all times.

The operator's manual contains all options. These options are not specifically marked. The vehicle does not necessarily have to have all options.

The equipment of the vehicle may also be based on national or regional regulations.

Before starting work for the first time, the operator must read and understand the operator's manual completely.

QR codes are not described in this document.

For further questions about the vehicle or the operator's manual, please contact your sales partner.

1.1.2 Storing the operator's manual

The operator's manual is located in the document box behind the driver's seat (vehicle with roll bar) or below the driver's seat (vehicle with cab).

1.1.3 Understanding the operator's manual

1.1.3.1 Target group

This operator's manual is intended for professional construction site personnel.

A dealer or vehicle rental company must provide instruction to the operator and have this confirmed in writing.

1.1.3.2 Requirements for safe operation

Safe operation of a vehicle depends on the following criteria, among others:

- Vehicle model and equipment
- Maintenance
- Working and driving speed
- Condition of the ground or working environment

Most important are the operator's qualifications and judgment. A well-trained operator who follows the operator's manual and maintenance plan has the greatest impact on the life and durability of the vehicle.

The operator acquires the following skills, among others, through proper training:

- Correct assessment of work situations
- Feel for the vehicle
- Assessment of potential hazardous situations
- Safe work processes because correct decisions are made for people, the vehicle and the environment.

The operator is at risk if the vehicle is operated improperly.

Follow the operating procedures and operating instructions described for the vehicle.

Access to the vehicle and operation of the vehicle by children and persons under the influence of alcohol, drugs or medication is prohibited.

1.1.4 Abbreviations and explanations

1.1.4.1 Key to the symbols

Symbol	Explanation
1., 2., 3...	Indicates an activity. The sequence of the action steps must be maintained.
⇒	Indicates a result or an intermediate result of an action.
✓	Indicates prerequisites that must be created for the activity.
•	Indicates an enumeration, for example if several components are named one after the other.
-	Indicates a sub-enumeration, for example if components consist of further components.
①	Indicates a position, usually a component or control element, in a graphic. The numbering can be consecutive or in Roman numerals.
1; A	Indicates the naming of components in explanatory texts. It is identical to the adjacent positions in graphics.
▶	Indicates the avoidance of hazards in warning notices.
 	Indicates a direction of movement or different positions of switches.
[▶52]	Indicates a cross-reference in tables. Here, for example, reference to page 52.



Environment

Labeling of instructions, the non-observance of which may endanger the environment.



Information

Identifies information, compliance with which results in more efficient and economical use of the vehicle.

1.1.4.2 Abbreviations

Symbol	Explanation
Fig.	Figure
B	Width
o/h	Operating hours
DPF	Diesel particulate filter
FOPS	Falling Objects Protective Structure
max.	maximal
min.	minimal
Item	Position
ROPS	Roll Over Protective Structure
TOPS	Tip Over Protective Structure

1.1.4.3 Units of measurement

Volume	
1 cm ³	(0.061 in ³)
1 m ³	(35.31 ft ³)
1 cm ³	(0.034 US fl.oz.)
1 l	(0.26 gal)
1 l/min	(0.26 gal/min)

Length	
1 mm	(0.039 in)
1 m	(3.28 ft)

Weight	
1 kg	(2.2 lbs)
1 kg	(0.035 oz)

Pressure	
1 bar	(14.5 psi)
1 kg / cm ²	(14.22 lbs/in ²)

Power/Output	
1 kN	(224.81 lbf)
1 kW	(1.34 hp)
1 PS	(0.986 hp)

Torque	
1 Nm	(0.74 ft.lbs.)

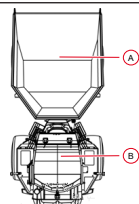
Velocity	
1 km/h	(0.62 mph)

Acceleration	
1 m/s ²	(3.28 ft/s ²)

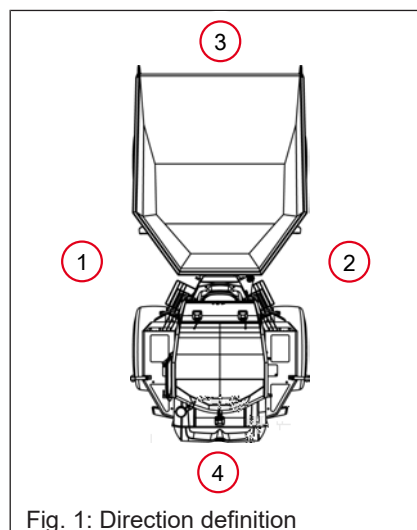
1.1.4.4 Glossary

Not all glossary entries necessarily apply to the vehicles described in the operator's manual.

Towing	On public roads, the dumper is towing another vehicle or is being towed itself.
Starting rotational speed	The starting speed is the lowest engine speed at which the vehicle starts on level ground.
Trailer operation	Pulling a trailer on public roads
Work light	Work lights illuminate the work area of the vehicle.
Basic vehicle	Vehicle without options
Operator	A person who drives or works with the vehicle.
Operating personnel	Persons responsible for the installation, operation, set-up, maintenance, cleaning, repair or transport of vehicles.
Recovery	The dumper is pulled out of the immediate risk zone (e.g. level crossing or construction site area).
Bystander	Persons assisting with lifting gear applications or signaling
Vehicle	Unless otherwise stated, the term vehicle refers to the earth-moving machine described in this operator's manual. The vehicle may also be referred to as an excavator or dumper , for example, to avoid confusion with other vehicles.
Vehicle operator	A company that operates a vehicle. A person who operates a vehicle.
Vehicle operation	All work (e.g., transporting material, maintenance work) that may or must be carried out by an operator.
Basic position	- Front tipping skip: The skip is completely lowered. - Swivel tipping skip: The skip is aligned straight in the middle position, completely lowered and locked.
Cab	Closed safety component for the operator. In this operator's manual, the term cab is used as an example for canopy and cab. If necessary, these two safety components are described separately.
Creep	Driving as slowly as possible and without jerking.
Shunting operation	Pulling a trailer on a construction site

Hose breakage	Hydraulic oil exits a hydraulic hose at high pressure.
Check screw connections for tightness	Check screw connections and associated components for tightness by visual check or manually (without using a tool). In case of loose screw connections, contact authorized service center.
Visual aids	Examples of visual aids are rearview mirrors, camera monitors, but also persons who support the operator during vehicle operation.
Road package	Accessory package for driving on public roads.
EU Stage V/Tier 4	The vehicles meet different emission standards depending on their equipment. If necessary (e.g. during operation), engine variants are described separately. EU Stage V and Tier 4 are examples. Other emission standards may also be specified in this operator's manual.
Loading weight	The actual weight a vehicle has at the time of an upcoming transportation. The loading weight refers to vehicles equipped with options approved by Wacker Neuson.
	- Load unit A - Drive unit B

1.1.4.5 Direction indications



These terms are used from the perspective of an operator on the seat.

- **1:** Left
- **2:** Right
- **3:** Front
- **4:** Rear

1.2 Warranty and liability

1.2.1 Warranty

Warranty

Warranty claims can only be asserted if the warranty conditions in accordance with the **General Terms and Conditions** and the **Warranty Conditions** of the sales partners of the Wacker Neuson Linz GmbH are observed.

In addition, all the following points must be fulfilled:

- All instructions in this operator's manual must be observed.
- All maintenance work involving an operator must be carried out.
- All maintenance work involving an authorized service center must be carried out. This also includes, for example, the handover inspection or the entry of the maintenance work in the service book.

1.2.2 Disclaimer

The warranty and product liability of Wacker Neuson Linz GmbH shall expire in the following cases in the event of personal injury or damage to property:

- Failure to comply with the safety and warning instructions on the vehicle and in all documents supplied with the vehicle.
- Non-compliance with the intended use of the vehicle.
- Violation of the duty of care during operation, handling, care and maintenance and repair – even if no specific reference is made to this duty of care.
- Unauthorized modifications to the vehicle or the use of spare parts, accessories, attachments and special equipment not approved by Wacker Neuson Linz GmbH. Conformity and registration of the vehicle will be rendered invalid.
- Changes and modifications to the vehicle that result in restricted visibility. Conformity and registration of the vehicle will be rendered invalid.
- Read the operator's manual before commissioning, maintenance or repair of the vehicle.

Observe all safety instructions and warnings.

2 Usage

2.1 Use of the vehicle

- The vehicle is used for transporting earth, gravel, rubble, etc.
- Intended use also involves observing the instructions in the operator's manual and complying with the maintenance and servicing conditions.
- Comply with the relevant national and regional regulations.

2.2 Limits of the vehicle

2.2.1 Risk zone

- The danger zone is the area in which persons are at risk by the movements of the vehicle or by loads. .
- The danger zone also includes the area that can be reached by falling loads, a falling device or ejected parts.
- The danger zone on slopes is different from the level (securing the load) [see Slope drive on page 104](#).
- Stop work immediately if persons are in the danger zone.
- Block off the danger zone if an adequate safety distance cannot be maintained.
- Extend the danger zone sufficiently in the immediate vicinity of buildings, scaffolds or other elements of construction.

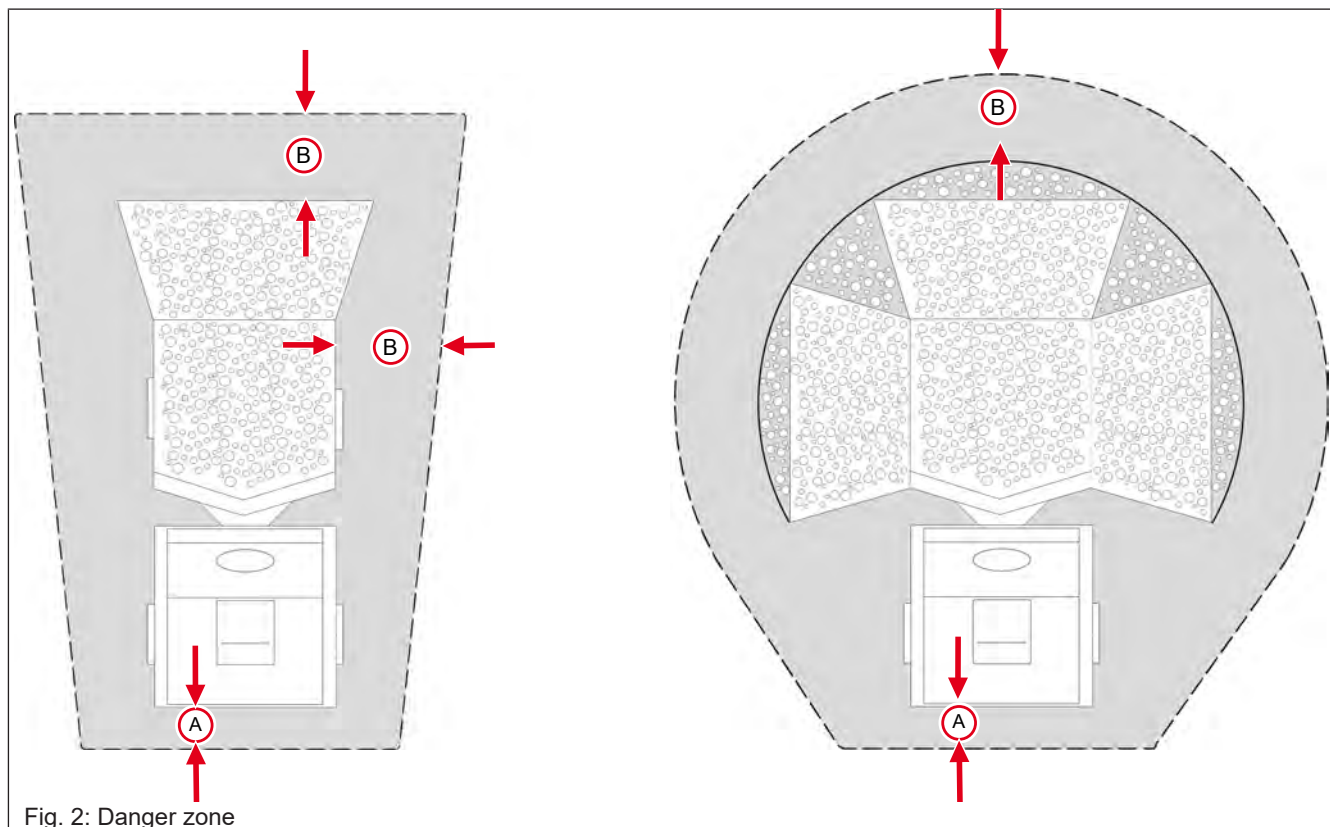


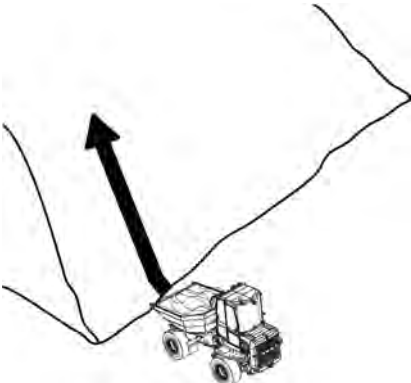
Fig. 2: Danger zone

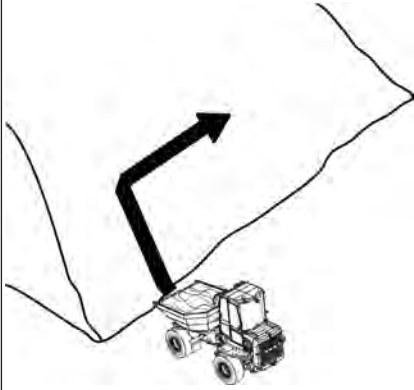
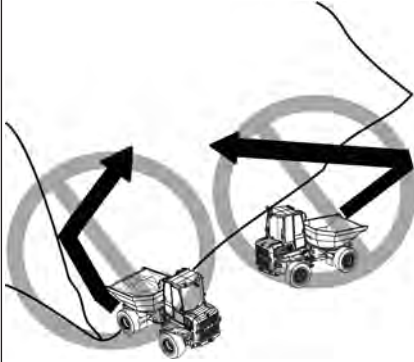
Symbol	Description
---	Danger zone
A	Safety distance of 1.5 m (59 in)
B	Safety distance of 2.5 m (98 in)

- Do not approach the edge of an unsecured excavation – risk of collapse.
- Do not drive or work under earthen projections. The stones or protruding earth could fall on the machine.
- Before working on the roof of buildings or other structures, check the strength and the structure itself before starting work. The building could collapse, causing serious injury and damage.
- The hydraulic system of the vehicle is under pressure even when the engine is not running. Depressurize the hydraulic system before starting repair work.
- Before tipping out the skip at an excavation, secure the vehicle with suitable chocks or other aids.
- Check the dumping material when tipping out the skip. Sticking material in the skip can cause a tipping hazard. Do not tilt out the skip if material is stuck in the skip. Remove the material from the skip using a suitable tool.
- Do not unload the load on sloping ground.
- Do not transport persons or animals in the skip.

2.3 Operating limits

Limits of use of the vehicle

Application	Description
	Driving uphill and downhill Permits up to a slope inclination of 14° (25%).

Application	Description
	Lateral slope drive Permits up to a slope inclination of 14° (25%).
	Diagonal drive Prohibited

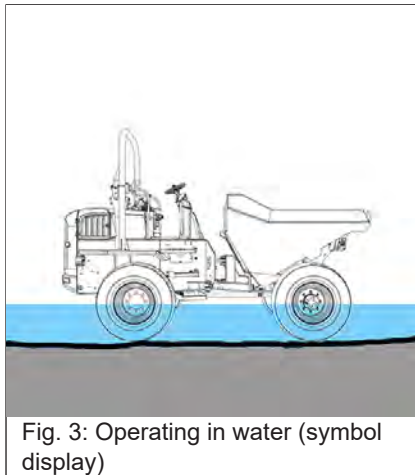
Application limits for tipping out

Application		Description
 		Only tilt out the skip on horizontal, stable and level ground.
 		Only tilt out the skip uphill on slopes.
 		Do not tilt out the skip downhill.
 		Dump only when the vehicle is not tipped out.
 		Do not tilt out the skip if material can stick in the skip.

2.4 Operating temperature range

Operate the vehicle only at outside temperatures between -15 °C (5 °F) and +45 °C (+113 °F).

2.5 Operation in water



The vehicle must not be submerged in water up to the middle of the axle. When moving out, make sure that the rear of the vehicle, especially the exhaust system, is not submerged in water.

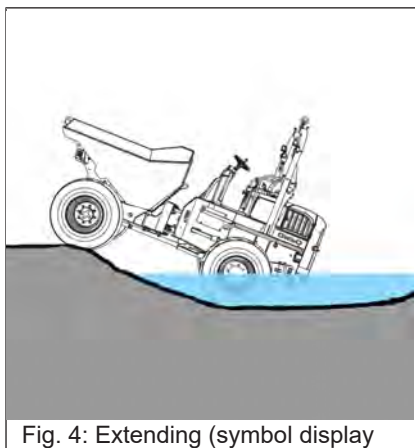
Lubricate lubrication points which have been under water for longer periods of time until only new grease is left in the lubrication points

After operating the vehicle in water, have the axles checked by an authorized specialist service center.

Operation near to the coast

Clean the vehicle regularly when used in a salty environment [see Cleaning and care on page 166](#).

Operation in salt water is prohibited.



3 Safety

3.1 Safety symbols and signal words

The following symbol identifies safety instructions. It is used for warning against potential personal risk or danger.



DANGER

DANGER identifies a situation causing death or serious injury if it is not avoided.

Consequences in case of non-observance.

- Avoidance of injury or death.



WARNING

WARNING identifies a situation that can cause death or serious injury if it is not avoided.

Consequences in case of non-observance.

- Avoidance of injury or death.



CAUTION

CAUTION identifies a situation that can cause injury if it is not avoided.

Consequences in case of non-observance.

- Avoidance of injury.



NOTICE

INFORMATION identifies a situation that causes damage if it is not observed.

Consequences in case of non-observance.

- Avoidance of damage to property.

3.2 Qualification of operating personnel

3.2.1 Owner's duties

- Only allow specifically authorized, trained and experienced persons to operate, drive and perform maintenance on the vehicle.
- Do not allow persons to be trained or instructed by anyone other than an authorized and experienced person.
- Have persons to be trained or instructed practice under supervision until they are familiar with the vehicle and its behavior (for example with the steering and braking behavior).
- Access to the vehicle or vehicle operation is prohibited for children and persons under the influence of alcohol, drugs or medicine.
- Clearly and unequivocally define the responsibilities of the operating and maintenance personnel.
- Clearly and unequivocally define the responsibilities on the work area, also in view of traffic regulations.
- Give the operator the authority to refuse safety instructions from third parties.
- Have the vehicle serviced and repaired only by an authorized service center.

3.2.2 Required knowledge of the operator

- The operator is responsible towards third parties.
- Avoid any operational mode that might pose a risk to safety.
- The specific national driving license is required.
- The vehicle may only be operated by authorized and safety-conscious operators who are fully aware of the risks involved in operating the vehicle.
- The operator and owner are obligated to operate the vehicle only in a safe and working condition.
- All persons working on or with the vehicle must have read and understood the safety instructions in this operator's manual before starting work.
- Follow, and instruct the operator in, legal and other mandatory regulations relevant to accident prevention.
- Observe and instruct the operator in regulations regarding road traffic and environmental protection.
- Use only the defined accesses for getting on and off the vehicle.
- Be familiar with the emergency exit of the vehicle.

3.2.3 Preparatory measures for the operator

- Before starting, check the vehicle whether it can be driven and operated safely.
- Increased caution if the driver has untied, long hair or wears jewelry.
- Wear close-fitting work clothes that do not hinder movement.

3.3 Conduct

Prerequisites for operation

- The vehicle has been designed and built in accordance with state-of-the-art standards and the recognized safety regulations. Nevertheless its use can cause danger to the operator or third parties, or damage to the vehicle.
- Store this operator's manual in the place provided for this in or on the vehicle. Immediately replace a damaged or illegible operator's manual and any supplements to it.
- The vehicle must only be operated in accordance with its designated use and the instructions set forth in this operator's manual.
- The operator and owner are obligated to operate the vehicle only in a safe and working condition.
 - If a damage or malfunction occurs during operation, put the vehicle out of operation immediately and secure it against restart.
 - Have all malfunctions jeopardizing the safety of the operator or third parties immediately repaired by an authorized service center.
- Do not put the vehicle into operation or operate it after an accident; have it inspected for damage by an authorized service center.
 - Pay particular attention to damage to the cab and protective structures.
- Keep climbing aids (handholds and footholds) free from dirt, snow and ice.
- The owner is responsible for requiring the operating and maintenance personnel to wear protective equipment as required by the circumstances.

3.4 Operating

3.4.1 Preparative measures

- Operation is only allowed with correctly installed and intact protective structures.
- Keep the vehicle clean. This reduces injury, accident and fire hazards.
- Safely store objects you carry with you in the places provided for this (for example in the storage compartment, drinks holder).
- Do not carry objects with you that protrude into the operator's work space. They can create another danger in case of an accident.
- Observe all safety and information labels.
- Ensure that all safety devices are properly installed and functional before starting work.
- Before starting work or after interrupting work, ensure that the brake, steering, signaling and light systems are functional.
- Before commissioning the vehicle, ensure that nobody is in the danger zone.

3.4.2 Job site

- The operator is responsible for third parties.
- Before starting work, familiarize yourself with the job site. This applies to, for example:
 - Obstacles in the work area and vehicle travel area.
 - Any barriers separating the job site from public roads.
 - Load-bearing capacity of the soil.
 - Existing overhead and underground lines.
 - Special operating conditions (e.g. dust, steam, smoke, asbestos).
- The operator must know the maximum dimensions of the vehicle and the attachment.
- Maintain a safe distance (e.g. from buildings, edges of building pits).
- When working in buildings or in enclosed areas, pay attention to:
 - Ceiling heights and passage heights.
 - Width of the entrances and passages.
 - Maximum ceiling load and maximum ground load.
 - Sufficient room ventilation (e.g. danger of carbon monoxide poisoning).
- Use existing visual aids to stay aware of the danger zone.
- In conditions of darkness and poor visibility, switch on existing work lights and ensure that motorists are not blinded by these lights.
- If the existing lights of the vehicle are not sufficient for performing work safely, ensure additional lighting of the job site.
- Hot vehicle parts and exhaust gases increase the risk of fire.

3.4.3 Danger zone

- The danger zone is the area in which persons are at risk by the movements of the vehicle, the attachment or the load.
- The danger zone also includes the area that can be reached by falling load, a falling device or ejected parts.
- Extend the danger zone sufficiently in the immediate vicinity of buildings, scaffolds or other elements of construction.
- Seal off the danger zone should it not be possible to keep a sufficient safety distance.
- When persons are in the danger zone, stop work immediately.

3.4.4 Transporting passengers

- Transporting passengers with the vehicle is not allowed.
- Transporting persons on and in attachments is not permitted.
- Transporting persons on and in trailers is not permitted.

3.4.5 Mechanical integrity

- The operator and owner are obligated to operate the vehicle only in a safe and working condition.
- Only operate the vehicle if all protective and safety-related equipment (e.g. protective structures such as cab or roll bar, detachable protective devices) are installed and functional.
- Check the vehicle for visible damage and defects.
- If a damage or malfunction occurs during operation, put the vehicle out of operation immediately and secure it against restart.
- Have all malfunctions jeopardizing the safety of the operator or third parties immediately repaired by an authorized service center.

3.4.6 Starting the engine of the vehicle

- Start the engine only according to the operator's manual.
- Observe all warning lights and control lights.
- Do not use any liquid or gaseous starting aids (e.g. ether or starting fuel).

3.4.7 Vehicle operation

- Start and operate the vehicle only with the seat belt fastened and only from the place provided for this.
- Put the vehicle into operation only if visibility is sufficient (have another person guide you if necessary).
- When parking on slopes:
 - Travel or work only uphill or downhill.
 - Avoid vehicle travel across a slope, observe the vehicle's permissible inclination (and of the trailer if necessary).
 - Keep loads on the uphill side of the vehicle and as close as possible to it.
 - Keep attachments close to the ground.
- Adapt the travel speed to the circumstances (e.g. the ground conditions, weather conditions).
- There is increased danger during backward vehicle travel. Persons in the blind spot of the vehicle cannot be seen by the operator.
 - Ensure that nobody is in the danger zone when you change the travel direction.
- Never get on a moving vehicle and never jump off the vehicle.

3.4.8 Vehicle travel on public roads and sites

- The specific national driving license is required.
- When driving on public roads or sites, observe the national regulations (e.g. road traffic regulations).
- Ensure that the vehicle is in compliance with the national regulations.
- In order not to blind other motorists, using the existing work lights during vehicle travel on public roads or sites is prohibited.
- When crossing underpasses, bridges, tunnels, e.g. ensure that the clearance height and width is sufficient.
- The mounted attachment must be approved for driving on public roads or sites (see the registration papers).
- When transferring the vehicle on public roads, the attachment must be brought into transport position and emptied if necessary.
- The attachment fitted onto the vehicle must be equipped with the mandatory lights and protective equipment.
- Take measures against unintentional operation of the working hydraulics.
- If the vehicle has different steering modes, ensure that the mandatory steering mode is selected.

3.4.9 Parking the vehicle

Stopping the engine of the vehicle

- Stop the engine only according to the operator's manual.
- Before stopping the engine, lower the attachment to the ground.

3.4.10 Securing the vehicle

- Unbuckle the seat belt only after stopping the engine.
- Secure the vehicle from rolling away before leaving the vehicle (e.g. parking brake, suitable chocks).
- Remove the starting key and secure the vehicle against unauthorized operation.

3.5 Lifting gear applications

3.5.1 Requirements

- Have loads fastened and the operator guided by a qualified person who has specific knowledge of lifting gear applications and the usual hand signals.
- The person giving instructions to the operator must stay in visual contact with the operator when fastening, guiding or removing the load (maintain visual contact).
- If this not be possible, ask one more person with the same qualifications to guide.

3.5.2 Fastening, guiding and removing loads

- Follow the applicable specific regulations for fastening, guiding and removing a load.
- Wear protective equipment when fastening, guiding and removing loads (e.g. a hard hat, safety glasses, protective gloves, safety shoes).
- Do not place lifting and fastening gear over sharp edges or rotating parts. Loads must be fastened so as to prevent them from slipping or falling.
- Move loads only on horizontal, level and firm ground.
- Move loads close to the ground.
- In order to avoid oscillating movements of loads:
 - Perform smooth, slow movements with the vehicle.
 - Use cables to guide the load (do not use hands to guide).
 - Bear in mind the weather conditions (for example the wind force).
 - Keep a minimum safety distance from objects.
- The operator may allow the load to be fastened and removed only if the vehicle and its attachment are not being moved.
- Danger zones must not overlap with the work zones of other vehicles.

3.5.3 Lifting gear applications

- The vehicle and the attachment must be certified for lifting gear applications.
- Observe the national regulations for lifting gear applications.
- Lifting gear applications are procedures involving raising, transporting and lowering loads with the help of lifting and fastening gear.
- The help of an accompanying person is necessary for fastening, guiding and removing the load.
- There must be nobody under the load.
- Stop the vehicle immediately and stop the engine if persons enter the danger zone.
- Only operate the vehicle in lifting gear applications if the prescribed lifting gear (e.g. joint rod linkage and load hook) and safety equipment are present and functional (e.g. visual and audible warning equipment, line break protection, stability table).
- Use only lifting and fastening gear certified by a test or certification body, observe the inspection intervals. Adhere to the inspection intervals.
- Only use undamaged attachments and shackles. No belts, slings or cables.
- Do not use any lifting and fastening gear that is dirty, damaged or not of sufficient size.
- Do not interrupt the work process with a load attached.

3.6 Operation of attachments

3.6.1 Attachments

- Only use attachments that are certified for the vehicle or its protective equipment (for example splinter protection).
- All other attachments require the vehicle manufacturer's release.
- The danger zone and the work area depend on the attachment used.
 - See charger operator's manual.
- Secure the load.
- Do not overload attachment.
- Check the correct position of the lock.

3.6.2 Operating

- Transporting persons on/in an attachment is prohibited.
- Installing a work platform is prohibited.
 - Exception: The vehicle is certified and equipped with the necessary safety equipment.
- Attachments and counterweights modify handling, as well as the steering behavior and brake capability of the vehicle.
- The operator must be familiar with these modifications and act accordingly.
- Before starting work, operate the attachment to check that it works correctly.
- Before putting the attachment into operation, ensure that nobody is at risk

3.6.3 Removing and fitting attachments

- Before coupling or uncoupling hydraulic connections:
 - Stop the engine.
 - Releasing the pressure from the working hydraulics.
- Picking up and lowering attachments to the ground requires special care:
 - Pick up and safely lock the attachment in accordance with the operator's manual,
 - Lower the attachment only to firm, level ground and secure it to prevent it from tipping over or rolling away.
- Put the vehicle and the attachment into operation only if:
 - The protective equipment has been installed and is functional.
 - The connections for the lights and the hydraulic system have been established and are functional.
- Perform a visual check of the lock after locking the attachment.
- There must be nobody between the vehicle and the equipment when picking up or lowering an attachment to the ground.

3.7 Towing, recovery, loading and transporting

3.7.1 Recovery

- Seal off the danger zone.
- For recovery, hire a towing service or an authorized service center.
- No persons are allowed to be in the area of the recovery equipment. The safety distance is 1.5 times the length of the recovery equipment.
- Do not use the towing device to recover the vehicle.
- Check the recovery equipment for damage before recovery.
- Only use recovery equipment approved by a testing laboratory or certification body. Adhere to the inspection intervals .
- Fasten recovery equipment only at the defined points.
- A vehicle of at least the same weight category must be used as the tractor vehicle. Furthermore, the tractor vehicle must be equipped with a safe braking system and sufficient tractive power.
- After recovery, tow the vehicle only in accordance with this operator's manual in order to avoid damage to the vehicle.

3.7.2 Crane-lifting

- Seal off the danger zone.
- The crane and the lifting gear must have suitable dimensions.
- Take into account the vehicle's overall weight.
- Wear protective clothing and equipment when fastening, guiding and removing the vehicle (for example a hard hat, safety glasses, safety boots).
- Use only lifting and fastening gear certified by a test or certification body, observe the inspection intervals.
- Do not use any lifting and fastening gear that is dirty, damaged or not of sufficient size.
- Visually inspect to ensure that all attachment points are not damaged or worn (e.g. no widening, no sharp edges, no cracks).
- Have loads fastened and crane operators only guided by experienced persons.
- The person guiding the crane operator must be within sight or sound of him.
- Observe all movements of the vehicle and lifting gear.
- Secure the vehicle against unintentional movement.
- Raise the vehicle only after it is safely attached and the signalman has given his approval.
- Use only the slinging points provided for fastening the lifting gear (for example cables, belts).
- Do not attach the vehicle by twining the lifting gear (for example cables, belts) around it.
- Ensure an even load distribution when fastening the lifting gear.
- Ensure that no one is in, on or under the vehicle when loading the vehicle.
- Observe the national regulations.
- Load the vehicle only in accordance with this operator's manual to avoid damage to the vehicle.
- Do not raise a vehicle that is stuck or frozen onto the ground, for example.
- Bear in mind the weather conditions (for example the wind force).

3.7.3 Transporting

- For the safe transportation of the vehicle:
 - The transport vehicle must have a sufficient bearing load and loading surface.
 - The maximum weight rating of the transport vehicle must not be exceeded.
- Use only lifting and fastening gear certified by a test or certification body, observe the inspection intervals. Adhere to the inspection intervals .
- Do not use any lifting and fastening gear that is dirty, damaged or not of sufficient size.
- In order to secure the vehicle on the loading surface, use only the fastening points provided for this purpose.
- Ensure that nobody is in or on the vehicle during transporting.
- Observe the national regulations.
- Bear in mind the weather conditions (e.g. ice, snow).
- Ensure the minimum load on the steering axle(s) of the transport vehicle, and ensure an even load distribution.

3.8 Maintenance

3.8.1 Maintenance

- Observe the intervals prescribed by law and those specified in this operator's manual for routine checks/inspections and maintenance.
- For maintenance activities, ensure that all tools and service center equipment are adapted to the performance of the task described in this operator's manual.
- Do not use any damaged or malfunctioning tools.
- The vehicle and the engine must be stopped during maintenance.
- Once maintenance is over, correctly install safety equipment again that has been removed.
- Wait for the vehicle to cool down before touching components.

3.8.2 Personal safety measures

- Avoid any operational mode that might pose a risk to safety.
- Wear protective equipment (for example hard hat, protective gloves, safety shoes).
- Tie back long hair and remove all jewelry.
- If maintenance on a running engine cannot be avoided:
 - only work in groups of two.
 - Both persons must be authorized and trained for the operation of the vehicle.
 - Keep a safe distance from rotating parts (e.g. from fan blades, belts).
 - Keep a sufficient distance to hot parts (e.g. exhaust system).
 - Perform maintenance only in well-ventilated rooms or rooms with an exhaust-gas suction system.
- Safely lock or support vehicle components before starting work.
- Take special care when working on the fuel system due to the increased risk of fire.

3.8.3 Preparative measures

- Attach a warning label to the control elements (e.g. "Vehicle being serviced, do not start").
- Before performing assembly work on the vehicle, support the areas to be serviced and use suitable lifting and supporting equipment for the replacement of parts over 9 kg.
- Perform maintenance only if:
 - the vehicle is positioned on firm and level ground.
 - the vehicle is secured against rolling away (e.g. parking brake, chocks) and the attachment is placed on the ground.
 - The engine is stopped.
 - the starting key has been removed.
 - the pressure in the working hydraulics has been released.
- If maintenance has to be performed under a raised vehicle or attachment, support the vehicle or attachment (e.g. with a lift platform, trestles) to ensure safety and stability.
- Hydraulic cylinders or jacks alone do not sufficiently secure a raised vehicle or attachment.

3.8.4 Measures for performing maintenance

- Perform only the maintenance described in this operator's manual.
- All work that is not described in this operator's manual must be performed by qualified and authorized technically trained personnel.
- Follow the maintenance plan.
- Always use specially designed or otherwise safety-oriented ladders and working platforms to perform overhead maintenance. Do not use vehicle parts or attachments as a climbing aid.
- Do not use attachments as a lift platform for persons.
- Keep climbing aids (handholds and footholds) free from dirt, snow and ice.
- Disconnect the negative terminal of the battery before working on the electrical system.

3.8.5 Modifications and spare parts

- Do not modify the vehicle and the attachment (e.g. the safety devices, lighting, tires, straightening and welding work).
- Modifications must be approved by the manufacturer and performed by an authorized service center.
- Use only original spare parts.

3.8.6 Protective structures

- The cab, roll bar and protective screen are tested protective structures and may not be changed (e.g. no drilling, bending, welding).
- Perform a visual check according to the maintenance plan (for example check fastenings for damage).
- If damage or defects are detected, have them immediately checked and repaired by an authorized service center.
- Have retrofitting work only performed by an authorized service center.
- Replace self-locking fasteners (for example self-locking nuts) by new ones after removing them.

3.9 Measures for avoiding risks**3.9.1 Tires**

- Have repair work on the tires only performed by trained technical personnel.
- Check the tires for correct pressure and visible damage (for example cracks, cuts).
- Check the wheel nuts for tightness.
- Use only approved tires.
- The vehicle must have identical tires (for example profile, revolutions per mile).

3.9.2 Hydraulic and compressed-air system

- Check all lines, hoses and screw connections regularly for leaks and visible damage.
- Splashed oil can cause injury and fire.
- Leaking hydraulic and compressed-air lines can cause the full loss of the braking effect.
- Have damage and leaks immediately repaired by an authorized service center.
- Check the hydraulic hoses at the recommended intervals and have them replaced.

3.9.3 Electrical system

- Use only fuses with the specified current rating.
- In case of damage or malfunction in the electrical system:
 - Put the vehicle out of operation immediately and secure it against restart.
 - Actuate the battery master switch.
 - Disconnect the battery.
 - Have the malfunction repaired.
- Ensure that work on the electrical system is only performed by technically trained personnel.
- Regularly check the electrical system. Have malfunctions repaired immediately (for example loose connections, scorched cables).

3.9.4 Battery



⚠ WARNING

CALIFORNIA: Proposition 65 (Law of 1986 on toxic substances and safe drinking water) Warning!

Battery terminals, clamps and similar parts contain lead and lead compounds. These chemicals are considered by the State of California to be the cause of cancer and reproductive harm.

► Wash hands after working on the battery.

- Batteries contain caustic substances (for example sulfuric acid). When handling the battery observe the specific safety instructions and regulations relevant to accident prevention.
- A volatile oxyhydrogen mixture forms in batteries during normal operation and especially during charging. Always wear gloves and eye protection when working with batteries.
- Do not perform battery maintenance near open flames.
- Perform battery maintenance only in well-ventilated areas (e.g. due to vapors harmful to health, explosion hazard).
- Starting the vehicle with battery jumper cables is dangerous if performed improperly. Observe the safety instructions regarding the battery.

3.9.5 Safety instructions regarding internal combustion engines



⚠ WARNING

CALIFORNIA: Proposition 65 (Law of 1986 on toxic substances and safe drinking water) Warning!

Engine exhaust, some of its components and certain components contain or release chemicals that are classified by the State of California to cause cancer, birth defects or reproductive harm.

- Internal combustion engines present special hazards during operation and fueling.
- Failure to follow the warnings and safety instructions can cause serious injury or death.
- Keep the area around the exhaust system free of flammable materials.
- Check the engine and fuel system for leaks (e.g. loose fuel lines). Don't start or let the engine run in case of leaks.
- Breathing the exhaust fumes causes death very quickly.
- Engine exhaust fumes contain invisible and odorless gases (e.g. carbon monoxide and carbon dioxide).
 - Operate the vehicle only on appropriately ventilated areas.
- The respective safety instructions must be observed when using the vehicle in areas where there may be explosion hazards.
- Do not touch the engine, exhaust system and cooling system as long as the engine is still running or has not cooled down yet.
- Do not remove the filler cap of the radiator when the engine is running or hot.
- The coolant is hot, under pressure and can cause serious burns.

3.9.6 Fire hazard

- Fuel, lubricants, grease and coolants are flammable.
- Do not use flammable detergents.
- Keep the area around the exhaust system free of flammable materials.
- Hot vehicle parts and exhaust gases increase the risk of fire.
 - Stop and park the vehicle only in safe areas.
- If the vehicle is equipped with a fire extinguisher, have it installed in its specific location.
- Keep the vehicle clean. This reduces fire hazards.

3.9.7 Working near electric supply lines

- Before performing any work, the operator must check whether there are any electrical supply lines in the designated work area.
- If there are electrical supply lines, only a vehicle with cab may be used (Faraday cage).
- Keep a safe distance from existing electric supply lines.
- If this is not possible, the operator must initiate other safety measures in agreement with the owner or operating company of the supply lines (e.g. shutdown the power).
- If supply lines are exposed, they must be fastened, supported and secured accordingly.
- If live supply lines are touched nevertheless:
 - do not leave or touch the cab (Faraday cage).
 - If possible, drive the vehicle out of the danger zone.
 - Warn others against approaching and touching the vehicle.
 - Have the live wire de-energized.
 - Do not leave the vehicle until the supply lines that have been touched or damaged have been safely de-energized.

3.9.8 Working near non-electric supply lines

- Before performing any work, the operator must check whether there are any non-electrical supply lines in the designated work area.
- If non-electrical supply lines exist, the operator must initiate safety measures in agreement with the owner or operating company of the supply lines (e.g. shutdown the supply line).
- If supply lines are exposed, they must be fastened, supported and secured accordingly.

3.9.9 Behavior during thunderstorms

- Stop vehicle operation if a thunderstorm is gathering.
 - Stop the vehicle, secure and leave it, and avoid being near it.

3.9.10 Noise

- Observe the noise regulations (for example during applications in enclosed premises).
- Bear in mind external sources of noise (compressed-air hammer, concrete saw).
- Do not remove the sound baffles of the vehicle and attachment.
- Have damaged sound baffles immediately replaced (e.g. an insulating mat, muffler).
- Before starting work, get informed on the noise level of the Vehicle/attachment (e.g. on the label).
 - Wear ear protectors.
- Do not wear ear protectors during vehicle travel on public roads or sites.

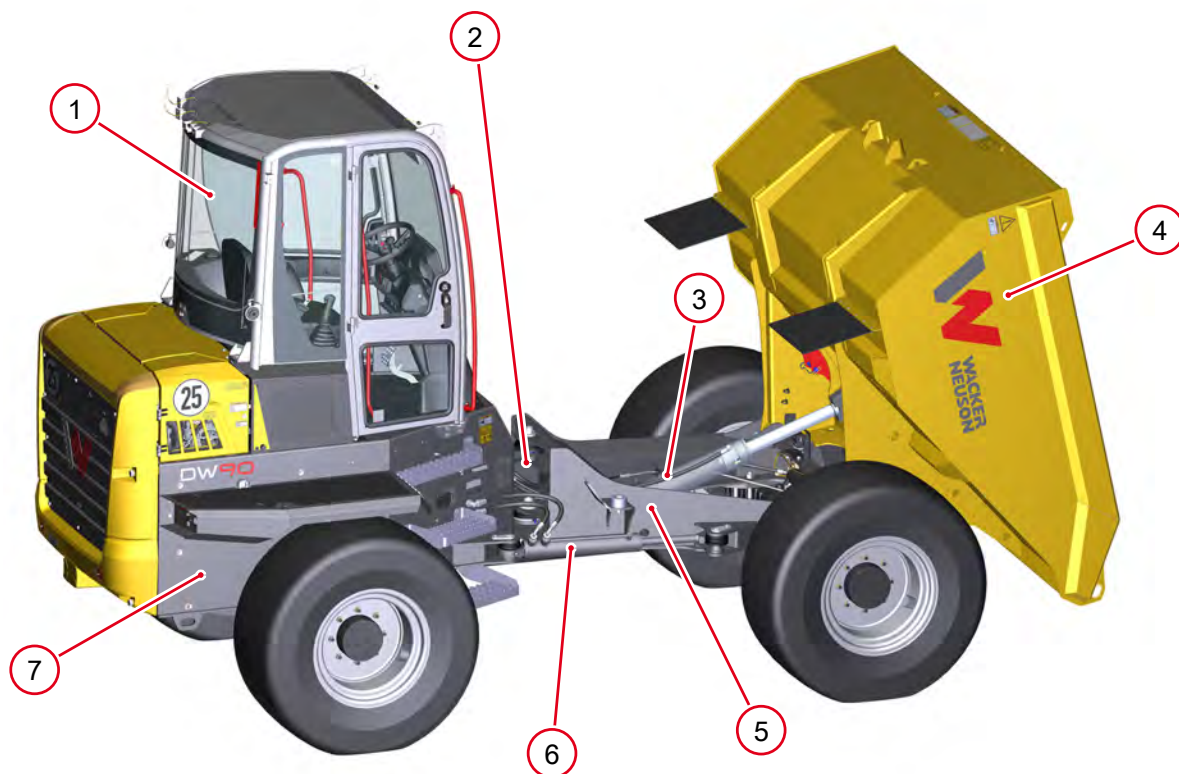
3.9.11 Cleaning

- Risk of injury from compressed air and high-pressure cleaners.
 - Wear appropriate protective equipment.
- Do not use any dangerous and aggressive detergents.
 - Wear appropriate protective equipment.
- Operate the vehicle only in a clean condition.
 - Keep climbing aids (handholds and footholds) free from dirt, snow and ice.
 - Keep the cab windscreens and visual aids clean.
 - Keep the headlights and work lights clean.
 - Keep the control elements and control lights clean.
 - Keep the safety and information labels clean, and replace damaged and missing labels by new ones.
- Perform cleaning work only if the engine is stopped and cooled down.
- Bear in mind sensitive components and protect them accordingly (e.g. electronic control units, relays).

4 Vehicle Description

4.1 Vehicle view

Front tipping skip



4

Fig. 5: Front tipping skip with cab

Item	Designation
1	Cab
2	Articulated joint
3	Tipping cylinder
4	Skip
5	Load unit
6	Steering cylinder
7	Drive unit

Swivel tipping skip

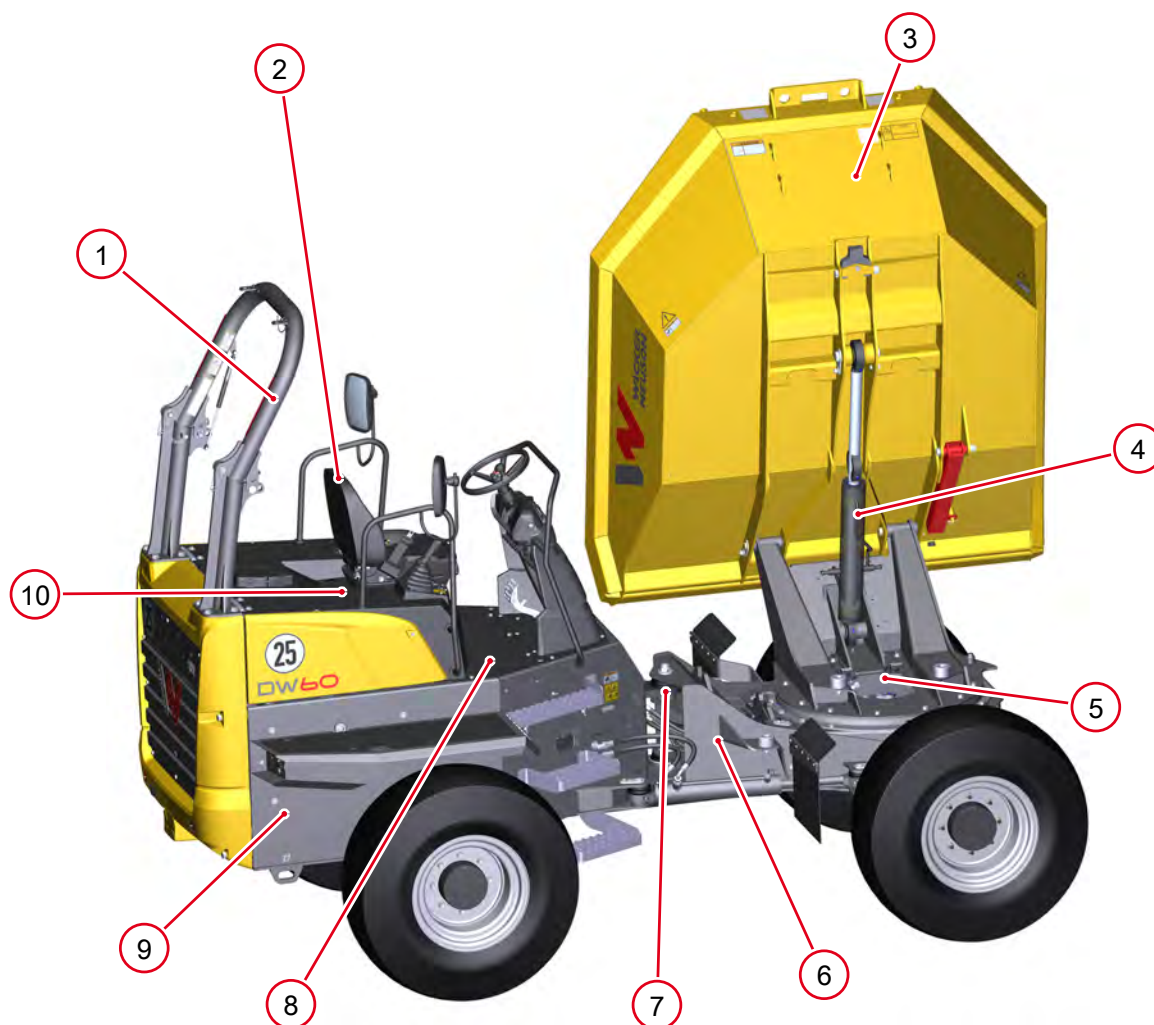


Fig. 6: Swivel tipping skip with roll bar

Item	Designation
1	Roll bar
2	Seat
3	Skip
4	Tipping cylinder
5	Swivel console
6	Load unit
7	Articulated joint
8	Base plate
9	Drive unit
10	Engine hood

4.2 Short description

Wacker Neuson dumpers are powerful, highly flexible, efficient and environmentally friendly construction machines. Their main area of application is the transport of earth, gravel, rubble, etc.



Information

The vehicle can be equipped with the **Telematic** option for transmitting operating data, location, etc. via satellite.

4.2.1 Types and trade names

Vehicle type	Trade name	Engine
D26-01	DW60	Deutz TD 2.2 L3
		Deutz TD 2.9 L4
D26-02	DW90	Deutz TD 2.9 L4

Skip	DW60	DW90
Short swivel tipping skip	x	--
Long swivel tipping skip	x	--
Front tipping skip	x	x

4.2.2 Safety components

Safety component	Certificate	Availability
Roll bar	TOPS	Series
	ROPS	Series
Cab	TOPS	Series
	ROPS	Series
	FOPS (Category II)	Series

4.2.3 Definition of FOPS/front guard level

4.2.3.1 Level I

Penetration resistance to protect against falling (FOPS) or frontal penetration in the cab (Front Guard) of small objects (e.g. bricks, small pieces of concrete, hand tools) for vehicles used, for example, in road maintenance, landscaping and other construction site work.

4.2.3.2 Level II

Penetration resistance to protect against heavy objects (e.g. trees, rocks) falling (FOPS) or entering the cab from the front (Front Guard) for vehicles used e.g. for clearing, demolition and forestry work.

4.3 Control elements at the operator station

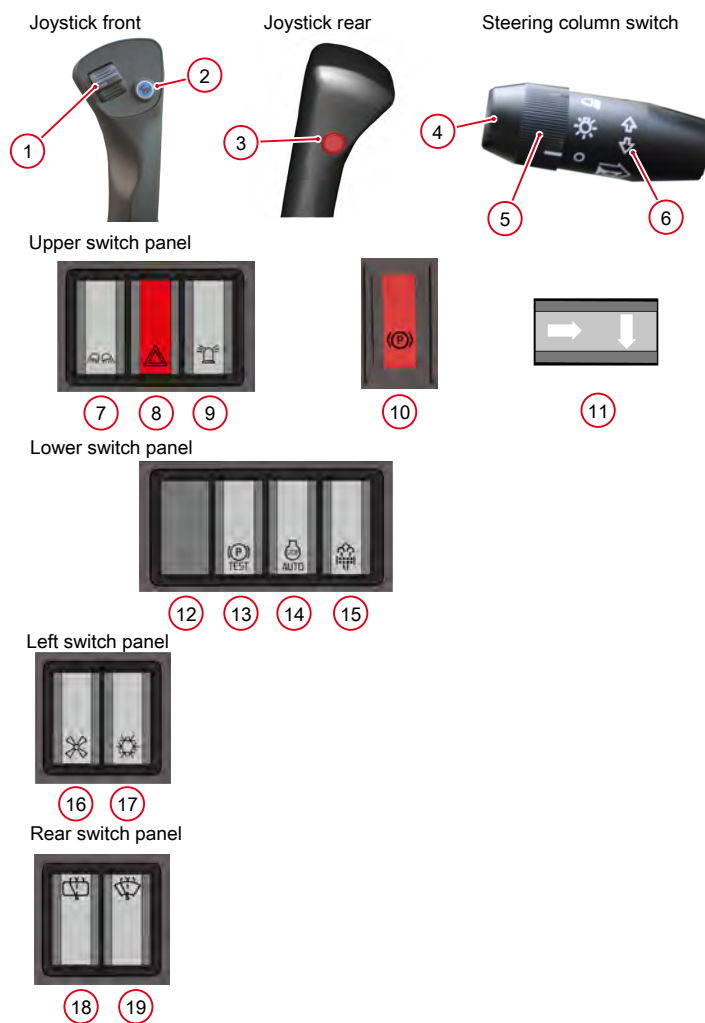


Fig. 7: Control elements and switches

Item	Designation	see page
1	Drive selection	▶ 102
2	Speed ranges	▶ 101
3	Horn	--
4	Horn (with road package)	▶ 102

Item	Designation	see page
5	Lighting system (with road package)	▶ 111
6	Turn signal	▶ 113
7	Work lights	▶ 109
8	Hazard warning system	▶ 113
9	Rotating beacon	▶ 114
10	Parking brake	▶ 99
11	Display controls	▶ 77
12	not assigned	--
13	Parking brake test	▶ 88
14	Autostop	▶ 95
15	Regeneration diesel particulate filter	▶ 176
16	Ventilation	▶ 117
17	Air conditioning system	▶ 117
18	Rear window washer system	▶ 116
19	Washer system front	

4.3.1 Overview Vehicle with roll bar

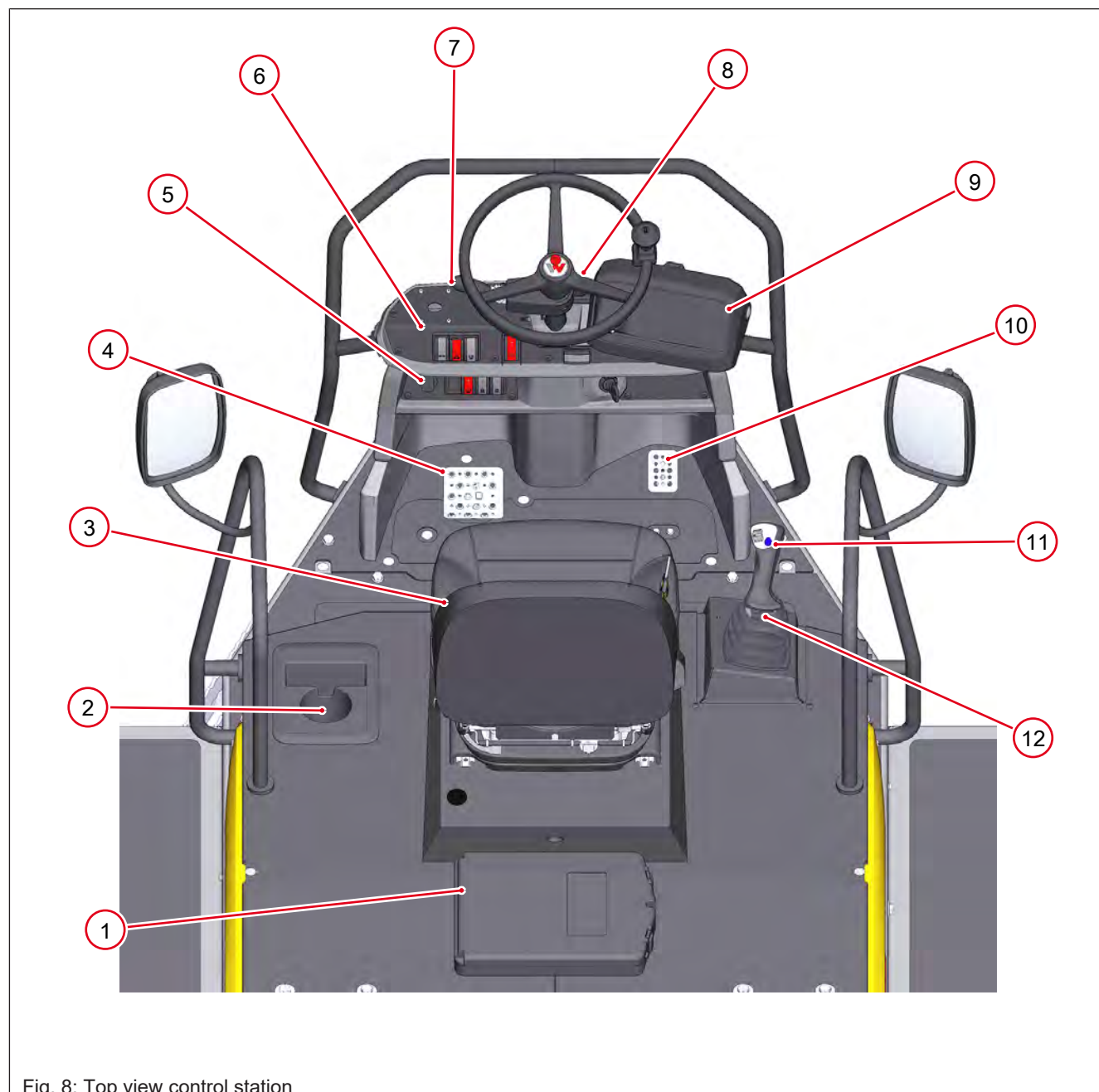


Fig. 8: Top view control station

Item	Designation	see page	Item	Designation	see page
1	Document box	[▶ 8]	7	Steering column switch	[▶ 38]
2	Beverage holder	--	8	Mobile phone holder	--
3	Seat with seat belt	[▶ 65]	9	Display cover	[▶ 72]
4	Foot brake	[▶ 99]	10	Accelerator pedal	[▶ 100]
5	Lower switch panel	[▶ 38]	11	Joystick	[▶ 100]
6	Upper switch panel	[▶ 38]	12	Working hydraulics lock lever	[▶ 103]

4.3.2 Overview Vehicle with cab

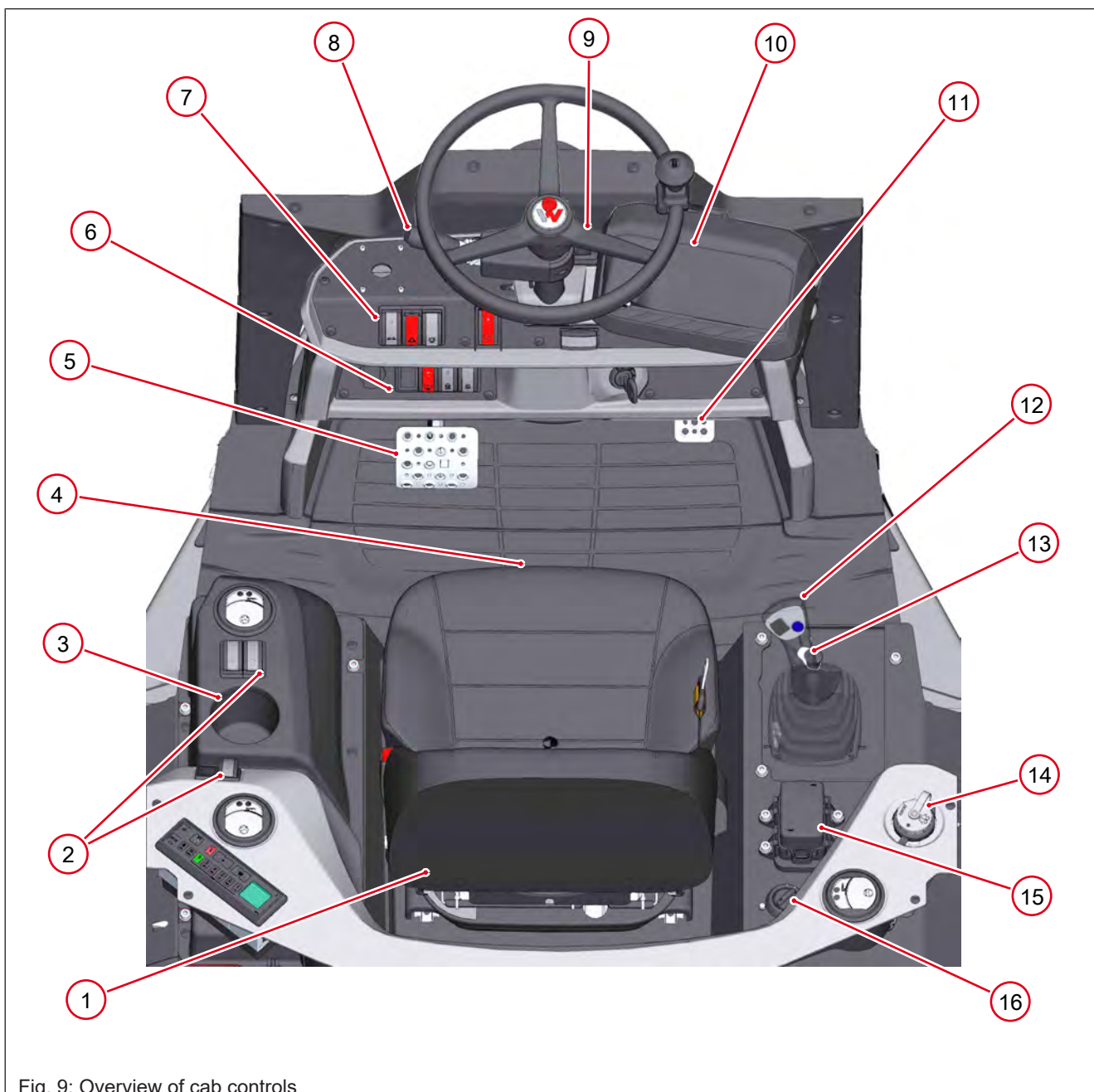


Fig. 9: Overview of cab controls

Item	Designation	see page	Item	Designation	see page
1	Seat with seat belt	[65]	9	Mobile phone holder	--
2	Left switch panels	[38]	10	Display cover	[72]
3	Beverage holder	--	11	Accelerator pedal	[100]
4	Document box	[8]	12	Joystick	[100]
5	Foot brake	[99]	13	Working hydraulics lock lever	[103]
6	Lower switch panel	[38]	14	Washer system	[116]
7	Upper switch panel	[38]	15	Cab fuse box	[143]
8	Steering column switch	[38]	16	Temperature controller	[116]

4.4 Type plates and stickers

4.4.1 Type labels



⚠ WARNING

Risk of injury due to missing or damaged labels!

Inadequate warning of hazards can lead to accidents with serious injuries or death.

- ▶ Do not operate the vehicle with missing or damaged warning and information labels.
- ▶ Replace missing or damaged warning and information labels immediately.



Information

The labels may differ in design, number and arrangement from the illustration in these operator's manual. Differences may result, for example, from the country of destination, the engine and legal requirements.



Fig. 10: Vehicle type label

The vehicle type label is located on the right side of the vehicle frame.



Fig. 11: Vehicle rear

The vehicle serial number is also stamped into the vehicle frame at the marked locations.



Fig. 12: Right side of vehicle

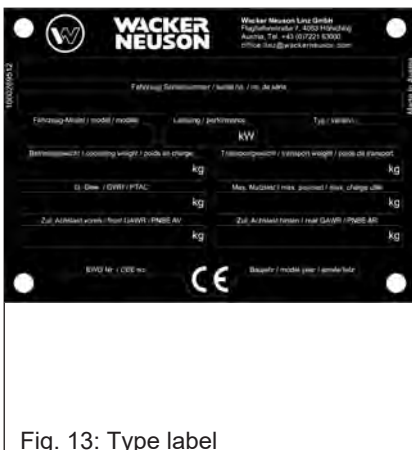
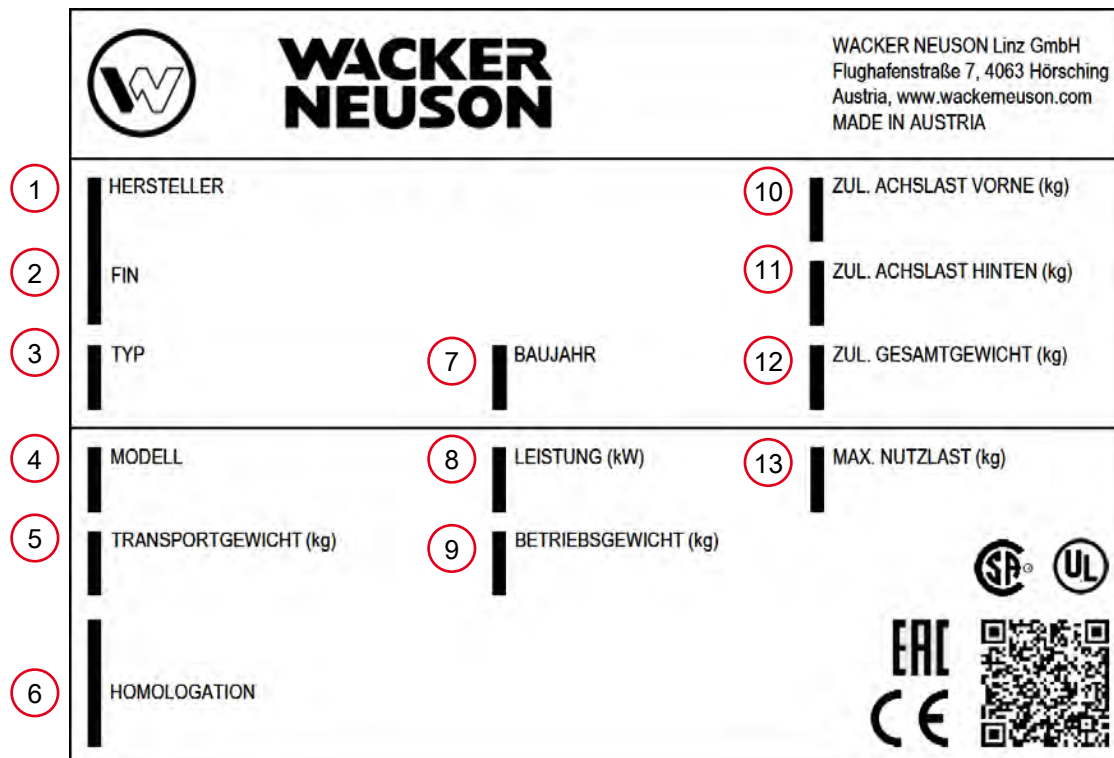


Fig. 13: Type label

Type label until 2020

The vehicle type label contains the following information:

Type label from 2020



The diagram shows a rectangular label with the Wacker Neuson logo and company name at the top. Below this, the label is divided into sections for various technical specifications. Numbered callouts (1-13) point to the following fields:

- 1: HERSTELLER (Manufacturer)
- 2: FIN (Vehicle serial number)
- 3: TYP (Internal type designation)
- 4: MODELL (Trade name)
- 5: TRANSPORTGEWICHT (kg) (Transport weight)
- 6: HOMOLOGATION
- 7: BAUJAHR (Year of construction)
- 8: LEISTUNG (kW) (Power)
- 9: BETRIEBSGEWICHT (kg) (Operating weight)
- 10: ZUL. ACHSLAST VORNE (kg) (Permissible front axle load)
- 11: ZUL. ACHSLAST HINTEN (kg) (Permissible rear axle load)
- 12: ZUL. GESAMTGEWICHT (kg) (Permissible total weight)
- 13: MAX. NUTZLAST (kg) (Maximum payload)

Additional elements on the label include the company address: WACKER NEUSON Linz GmbH, Flughafenstraße 7, 4063 Horsching, Austria, www.wackemeuson.com, MADE IN AUSTRIA. At the bottom right, there are certification marks (SA, UL, EAC, CE) and a QR code.

Fig. 14: Vehicle type label

The vehicle type label contains the following information:

Number	Description
1	Manufacturer
2	Vehicle serial number
3	Internal type designation
4	Trade name
5	Transport weight
6	Homologation
7	Year of construction
8	Power
9	Operating weight
10	Permissible front axle load
11	Permissible rear axle load
12	Permissible total weight
13	Maximum payload



Information

For better legibility, the type label is depicted in a bright color. The language on the type label may differ.

17-Digit serial number

The 17-digit serial number contains additional information to facilitate vehicle identification.

Manufacturer code	Vehicle type	Internal type designation	Check letter	Serial number
WNC (Austria)	E (Excavator)	1301	K	00012345
WNP (China)	D (Dumper)			
	A (Aggregate)			



Fig. 15: Type label Rollbar

Type label Rollbar

The vehicle type label is located on the right side of the rollbar.



Fig. 16: Cab number

Cab number

The type label is located on the left-hand B-pillar.



Information

Wacker Neuson components (e.g. Easy Lock, swivel buckets, roll bars) have numerical serial numbers.

4.4.2 Safety labels

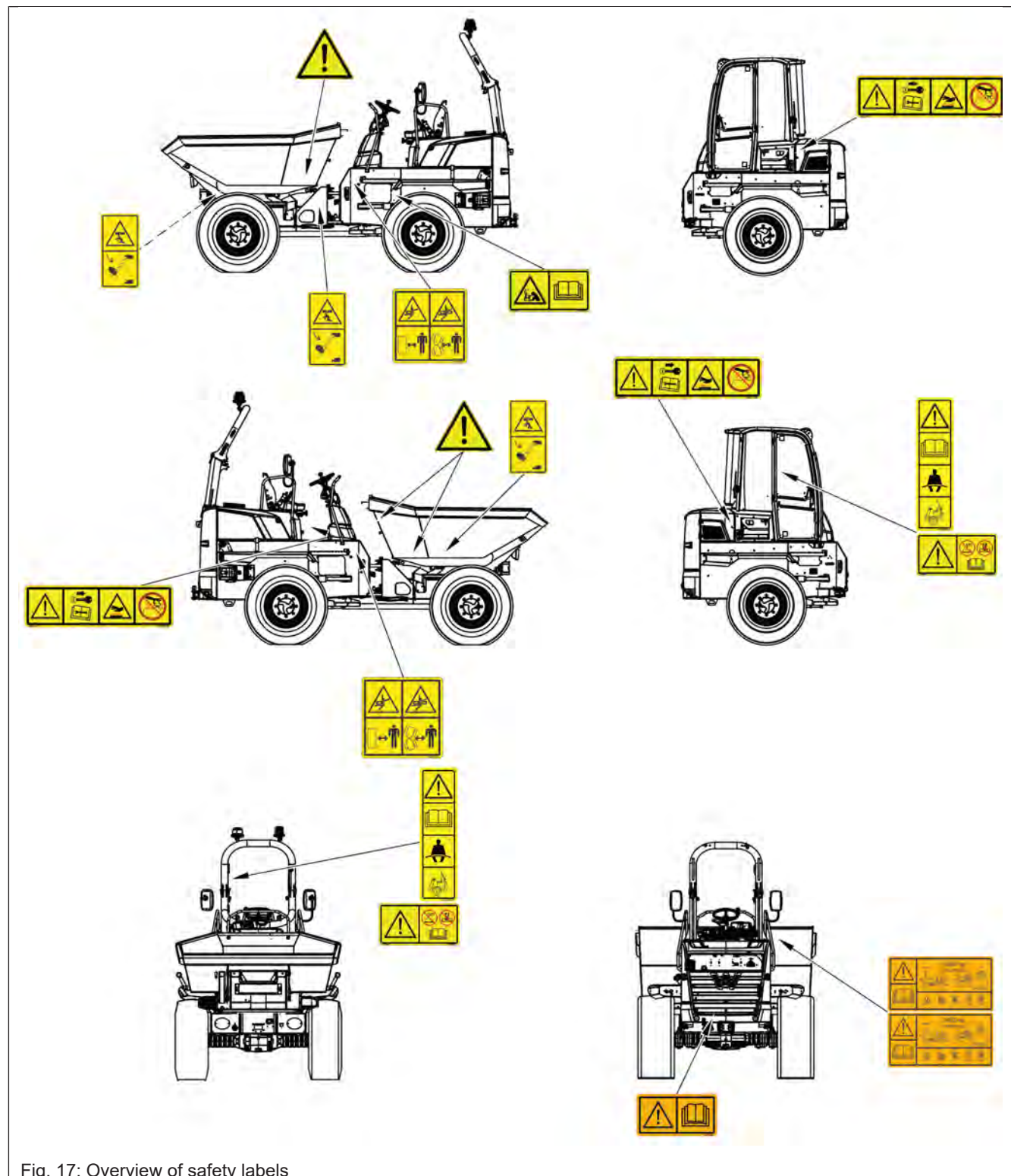


Fig. 17: Overview of safety labels



Fig. 18: Articulation area

Meaning

Distance/articulation area

Keep the distance to the vehicle.

Position

On the drive unit on the left and right



Fig. 19: Risk of injury

Meaning

Risk of injury due to skip movement

Position

On the skip left and right



Fig. 20: Safe operation

Meaning

- Payload
- Slope drive
- Skip actuation

Position

On the back of the skip



Fig. 21: Explosion hazard Battery

Meaning

Explosion hazard due to improper starting aid.

Position

On the drive unit on the left



Fig. 22: Engine hood

Meaning

Read the operator's manual before putting the vehicle into operation.

Remove the starting key and store it in a safe place.

Risk of injury from rotating parts

- Only open the engine hood when the engine is switched off.

Burning hazard from hot surfaces

- Let the engine cool down.

Scalding hazard from hot liquids

Risk of injury due to fluid leakage under pressure

- Let the engine cool down.
- Release the pressure from the hydraulic system, then carefully open the closures.

Position

On the engine hood

On the left Maintenance cover (cab)



Fig. 23: Maneuvering coupling

Meaning

Maneuvering coupling

Position

On the rear of the vehicle

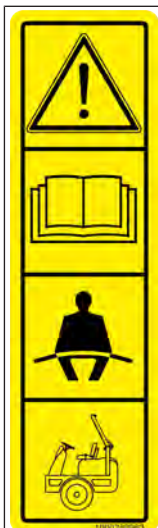


Fig. 24: Roll bar

Meaning

The vehicle may only be operated with the roll bar folded up and locked and the seat belt fastened.

Position

On the right B-pillar (cab)

On the right roll bar



Meaning

Changes to the structure (e.g. drilling), and improper repairs impair the protective function of the roll bar and the cab and can cause serious injury or death.

Position

On the right roll bar
On the right B-pillar (cab)



Meaning

Maintenance support/buckling support

Secure skip before maintenance work or install buckling support before crane-lifting.

Position

In the area of the skip maintenance support on the right side of the skip and at the buckling support (rotary tipping skip)
In the area of the skip maintenance support on the left side of the skip and at the buckling support (front tipping skip)



Information

The type, number and arrangement of the labels may vary depending on options and countries, but may also be vehicle-specific.

4.4.3 Information labels

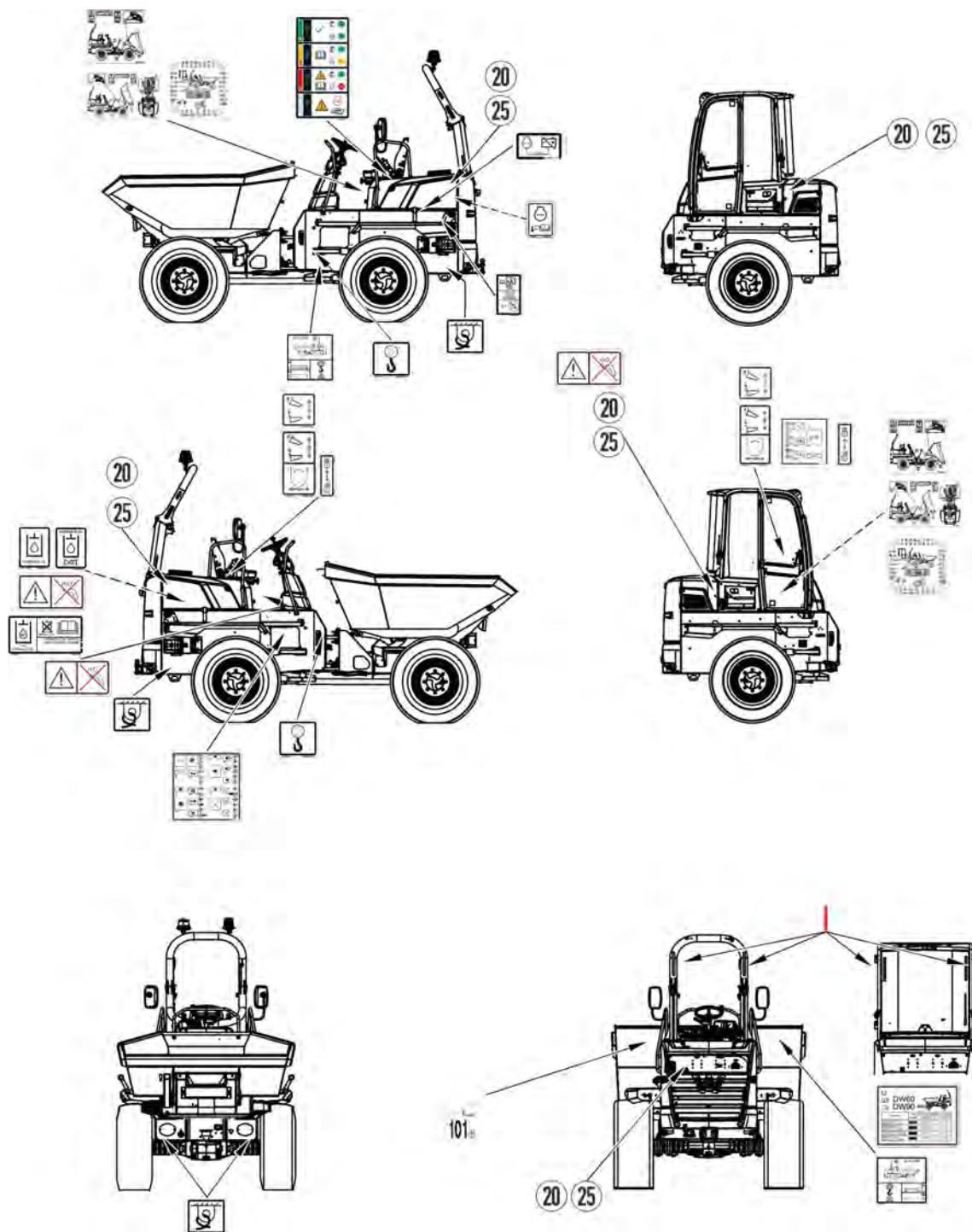


Fig. 27: Overview of the information labels

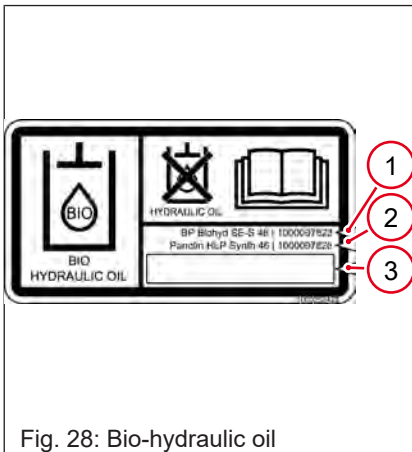


Fig. 28: Bio-hydraulic oil

Meaning

There is bio-hydraulic oil in the tank.

Depending on the bio-hydraulic oil used, the triangle is cut out on the side.

- 1) BP Biohyd SE-S 46
- 2) Panolin HLP Synth 46
- 3) Other bio-hydraulic oil

Position

Near the hydraulic oil tank fill opening

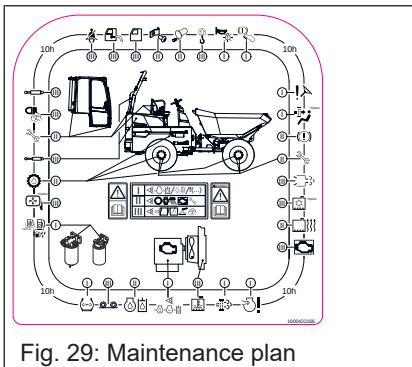


Fig. 29: Maintenance plan

Meaning

Maintenance intervals

Position

On the left front engine hood (vehicle with roll bar)

On seat console, right front (vehicle with cab)



Fig. 30: Load conditions

Meaning

DPF load condition

Position

To the left of the driver's seat

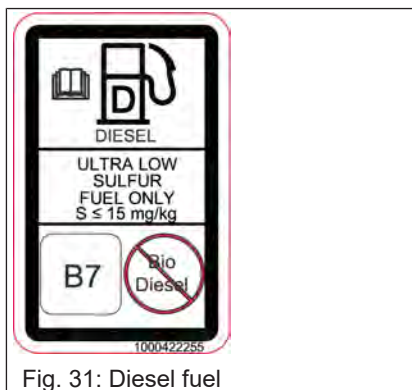


Fig. 31: Diesel fuel

Meaning

The diesel fuel may contain a maximum of 15 mg/kg (= 0.0015%) sulfur content. Do not fill up with biodiesel.

Position

At the fuel tank fill opening



Fig. 32: Sound power level

Meaning

Indication of the sound power level generated by the vehicle
L_{WA} = Sound power level

The sound power level depends on the vehicle.

Position

On the back of the skip

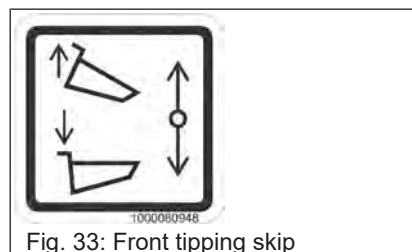


Fig. 33: Front tipping skip

Meaning

Tipping (front tipping skip).

Position

To the right of the seat.

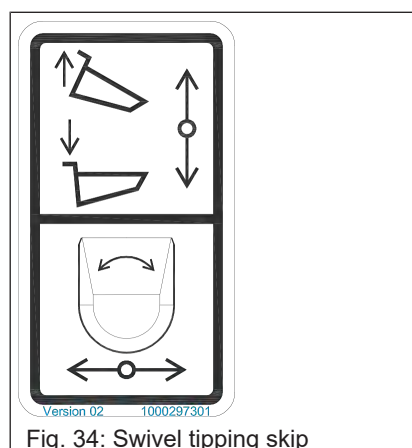


Fig. 34: Swivel tipping skip

Meaning

Tipping and swiveling (front tipping body).

Position

To the right of the seat.

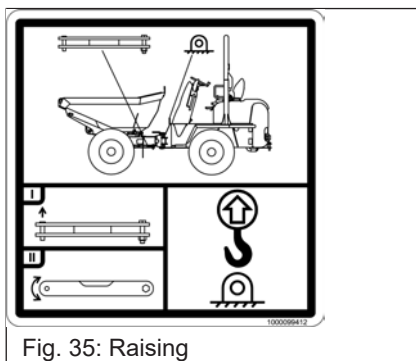


Fig. 35: Raising

Meaning

This label describes the lifting procedure of the vehicle.

Position

On the back of the skip.

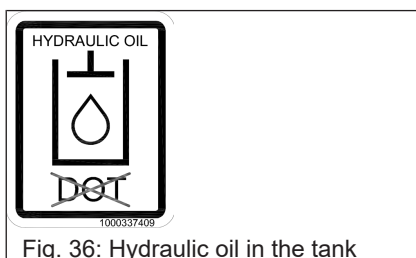


Fig. 36: Hydraulic oil in the tank

Meaning

There is hydraulic oil in the container. Do not fill brake fluid.

Position

At the brake fluid reservoir

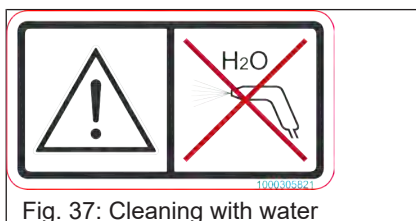


Fig. 37: Cleaning with water

Meaning

Do not direct the water jet directly at covers and sensitive components.

Position

On the right and left maintenance cover and on the air filter

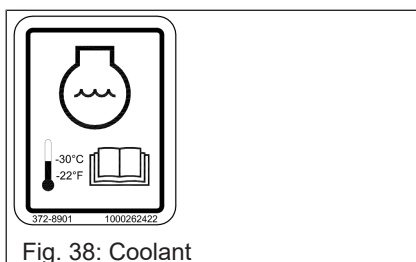


Fig. 38: Coolant

Meaning

Temperature resistance of the coolant

Position

In the engine compartment on the radiator

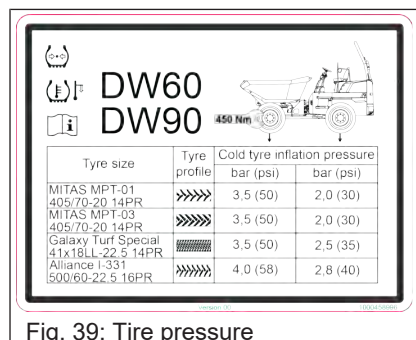


Fig. 39: Tire pressure

Meaning

Tire pressure

Position

On the back of the skip



Fig. 40: Velocity

Meaning

Indicates the design-specific speed of the vehicle

Position

On the right and left maintenance cover

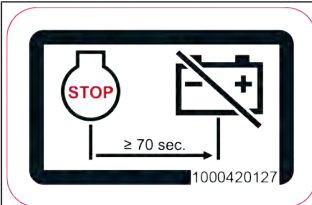


Fig. 41: Battery master switch

Meaning

Battery master switch

Position

Next to the battery

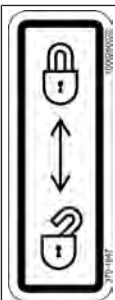


Fig. 42: Hydraulic functions active or blocked

Meaning

Hydraulic functions active or blocked

Position

To the right of the seat

Position

At the fuel tank fill opening



Fig. 43: Lifting eye

Meaning

Lifting eye

Position

On the drive unit, left and right front



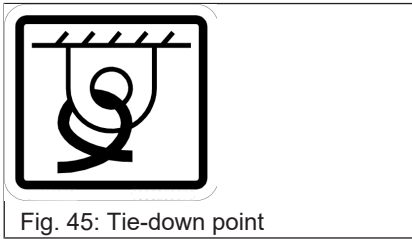
Fig. 44: Hydraulic oil

Meaning

There is hydraulic oil in the tank.

Position

Near the hydraulic oil tank fill opening

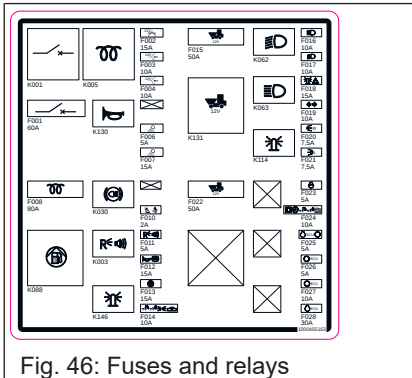


Meaning

Tie-down point

Position

At the tie-down points

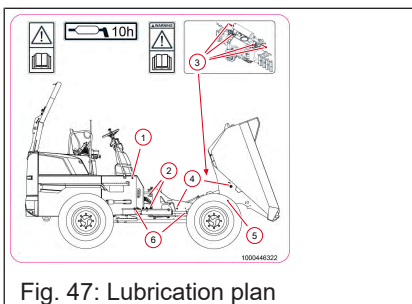


Meaning

Fuses and relays

Position

On the inner side of the fuse cover



Meaning

Lubrication plan

Position

On the engine hood (roll bar)

On the seat console (cab)



Information

The type, number and arrangement of the labels may vary depending on options and countries, but may also be vehicle-specific.

4.4.4 ANSI label

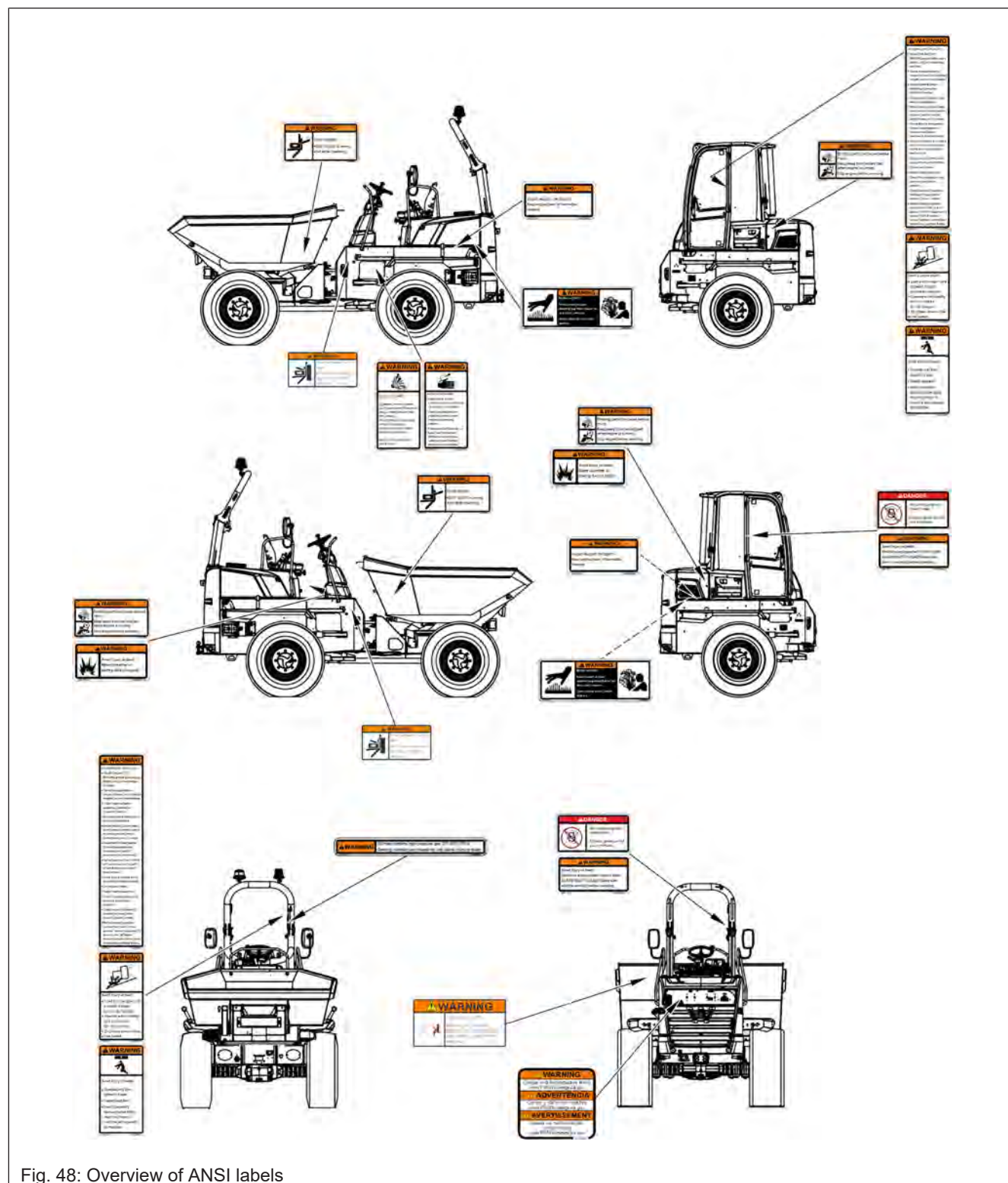


Fig. 48: Overview of ANSI labels

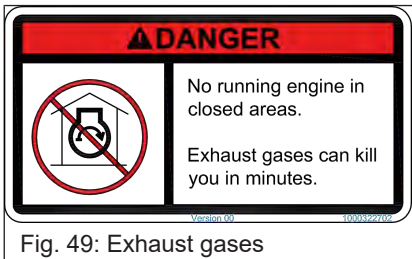


Fig. 49: Exhaust gases

Position

On the right roll bar
 On right B-pillar (cab)

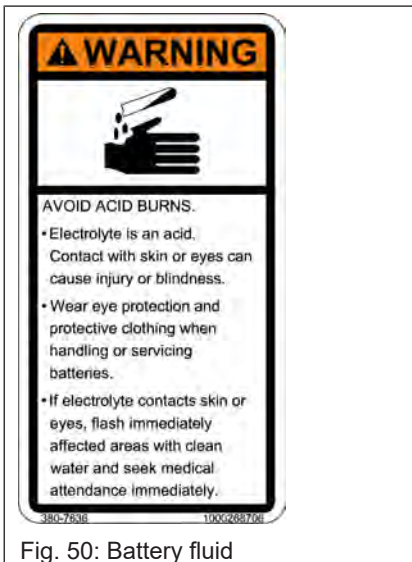


Fig. 50: Battery fluid

Position

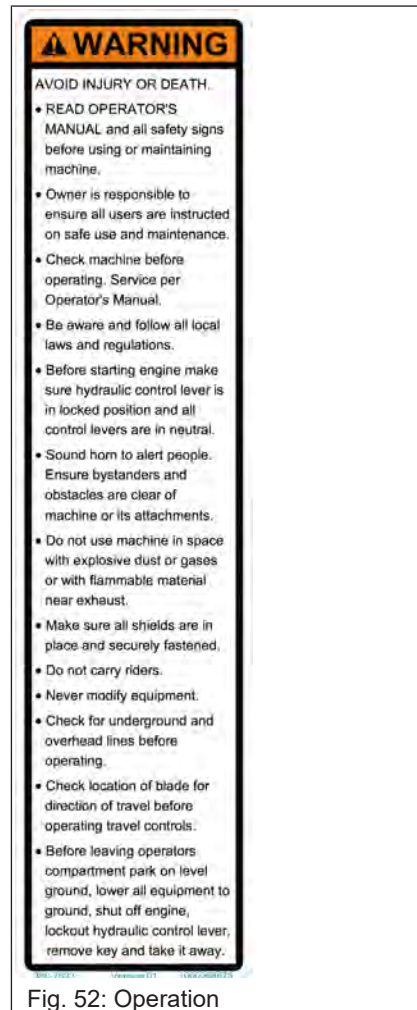
On battery cover



Fig. 51: Battery gases

Position

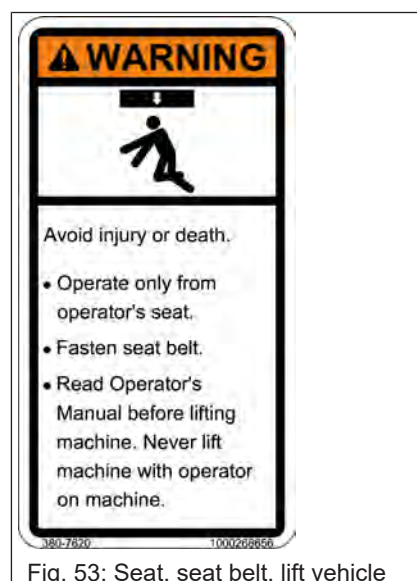
On the radiator



Position

On the left roll bar

On the left B-pillar (cab)



Position

On the left roll bar

On right B-pillar (cab)

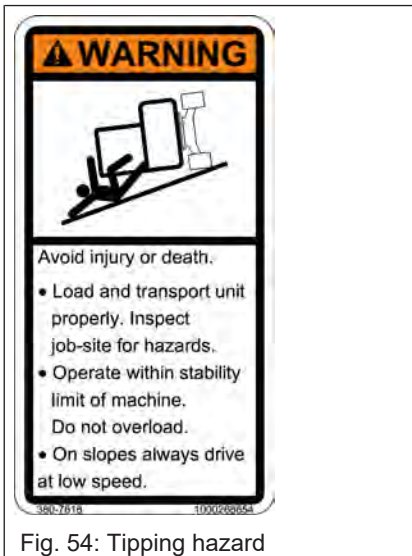


Fig. 54: Tipping hazard

Position

On the left roll bar

On the left B-pillar (cab)



Fig. 55: Tank under pressure/hot surfaces

Position

At the tank fill opening and the hydraulic oil filler opening

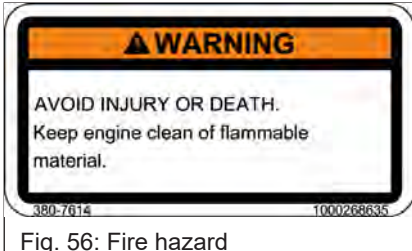


Fig. 56: Fire hazard

Position

At the tank fill opening and the hydraulic oil filler opening



Fig. 57: P65

Position

Above the ventilation grid on the left



Fig. 58: Starting aid

Position

On the front engine hood (vehicle with roll bar)
On the right maintenance cover (vehicle with cab)

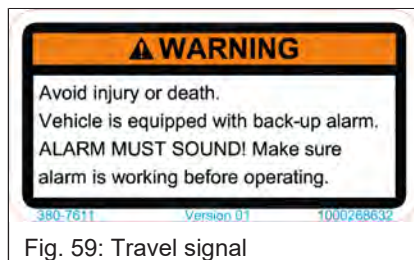


Fig. 59: Travel signal

Position

On the right roll bar
On right B-pillar (cab)

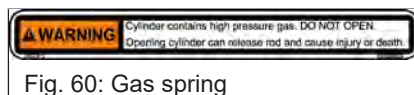


Fig. 60: Gas spring

Position

On the gas spring of the roll bar and the engine hood



Fig. 61: Articulation area

Position

On the drive unit front left and right

Position

On the right front engine hood
On the left maintenance cover (cab)



Fig. 62: Swivel range

Position

On the left and right rear rotating tipping skip
On the right front tipping skip

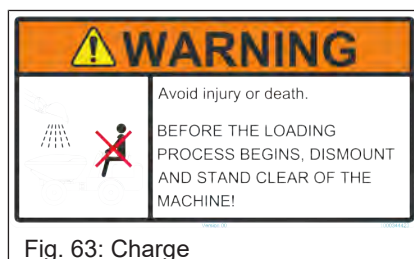


Fig. 63: Charge

Position

On the rear left tipping skip
On the front tipping skip at the rear center

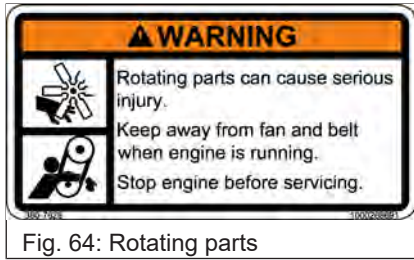


Fig. 64: Rotating parts

Position

On the right front engine hood
On the left maintenance cover (cab)

5 Putting into operation

5.1 Entry and exit



⚠ CAUTION

Risk of injury during entry and exit!

Improper entry and exit can lead to injuries.

- ▶ Only use the prescribed steps and handholds for entry and exit.
- ▶ Steps and handholds must be clean and functional.
- ▶ Have damaged steps and handholds replaced. Do not operate the vehicle.
- ▶ Two hands and one foot must always be in contact with the vehicle for entry and exit.
- ▶ Enter and exit facing the vehicle.



⚠ CAUTION

Crushing hazard due to unlocked cab doors!

Unlocked cab doors can cause crushing.

- ▶ The door must be locked in place on the parking brake before climbing up and down.
- ▶ Use the prescribed handles for closing.

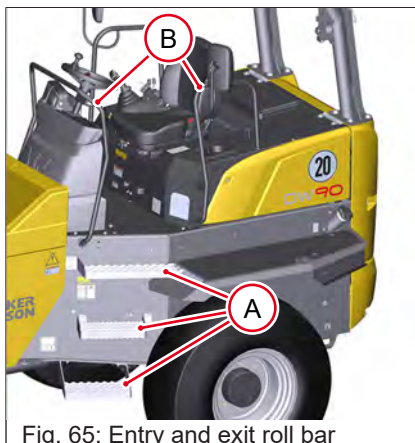


Fig. 65: Entry and exit roll bar

Use steps **A** and handholds **B** during entry and exit. Do not hold on to the operating elements.

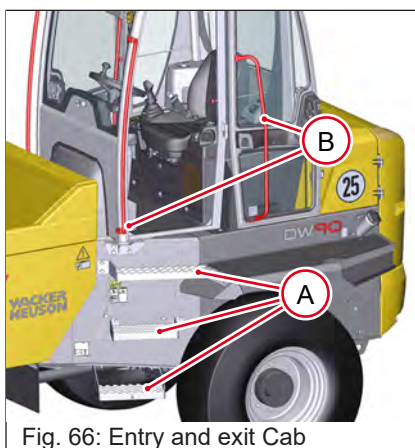


Fig. 66: Entry and exit Cab

5.1.1 Unlocking and locking the door

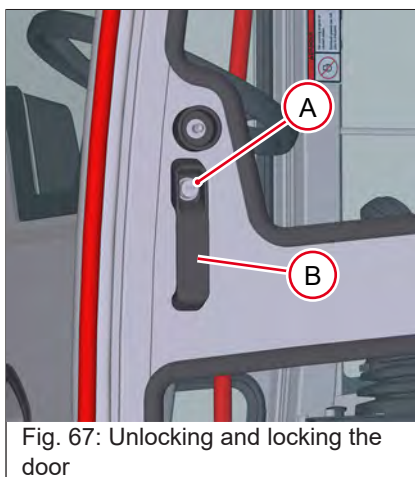


Fig. 67: Unlocking and locking the door

Unlocking:

Turn key in lock **A** counterclockwise.

Locking:

Turn key in lock **A** clockwise.

5.1.2 Opening and closing the door

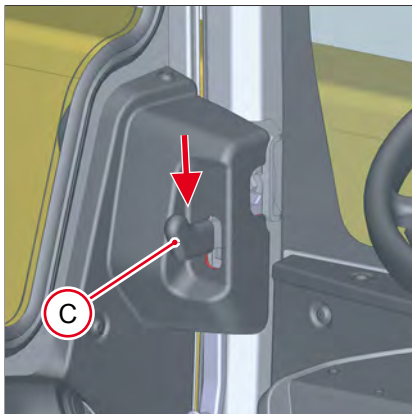


Fig. 68: Opening the door from the inside

Opening:

Pull door handle **B**.

Closing:

Close door with firm pressure.

Opening the door from the inside:

Push down lever **C** on the door lock.

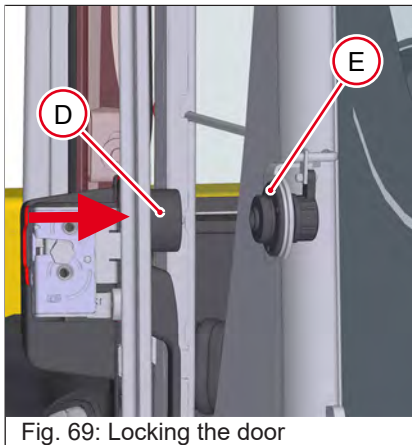


Fig. 69: Locking the door

Locking the door

Press holder **D** firmly against door-stay **E**.

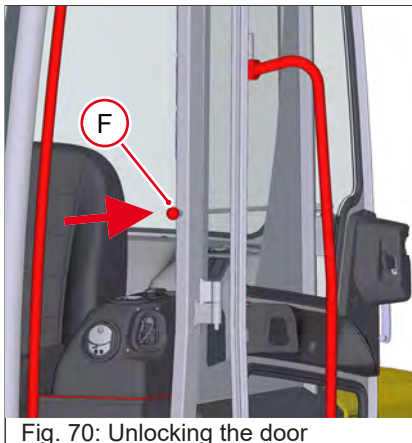


Fig. 70: Unlocking the door

Unlocking the door

Press button **F**.

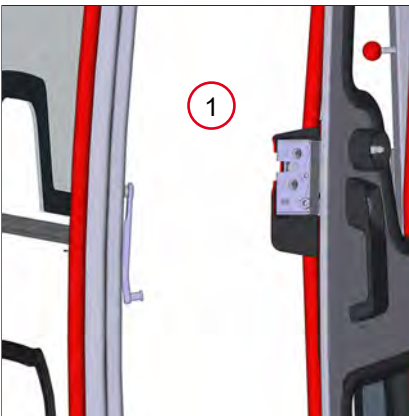


Fig. 71: Door not opened

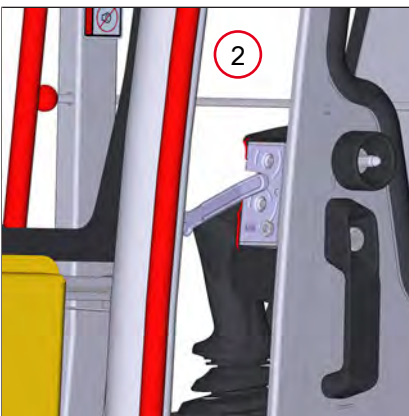


Fig. 72: Door opened

Open door

Position	Function
1	Door not opened
2	Door is opened

5

5.1.3 Emergency exit

The driver's cab has a cab door on the left and right. In the event of an emergency, one side is always suitable as an exit.

5.2 Setting up the operator station

5.2.1 Seat



⚠ WARNING

Accident hazard by adjusting the seat during operation!

Adjusting the seat during operation can lead to serious injury or death.

- ▶ Adjust the seat before starting the engine.
- ▶ Make sure that the control elements are engaged.



⚠ WARNING

Spinal injury due to an incorrectly adjusted seat!

Spinal injuries can occur due to incorrect weight adjustment.

- ▶ Adjust the weight before operating the vehicle.
- ▶ Vehicle operation is prohibited for drivers with a weight outside the adjustable weight range.



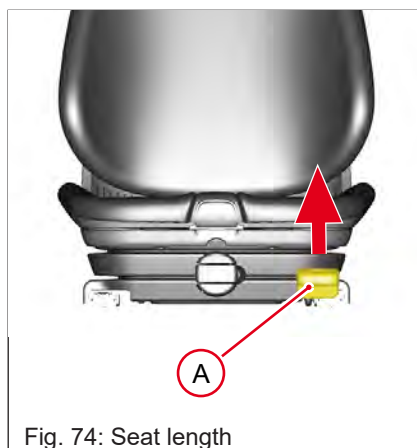
Information

The seat is optionally equipped with a seat switch. As soon as the seat is unoccupied for a few seconds, the drive system is switched to **Neutral**.



The seat offers the following adjustment options:

- A:** Length
- B:** Backrest
- C:** Weight



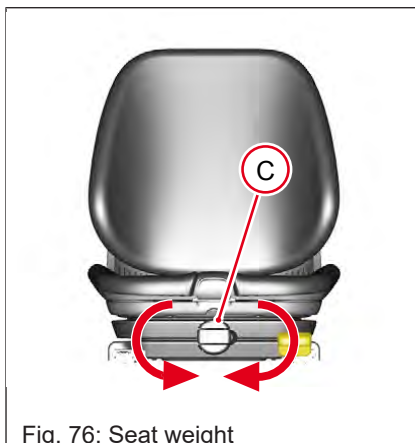
Length

1. Sit down on the operator seat.
2. Pull lever **A** up and lock seat in desired position.
3. Release lever **A**



Backrest

1. Sit down on the operator seat.
2. Operate handle **B** and move backrest to desired position.
3. Release handle **B**.



Weight

1. Sit down on the operator seat.
2. Fold out crank **C**
3. Turn crank **C**.

5.2.2 Seat belt



! WARNING

Risk of injury as a result of not wearing a seat belt or fastening it incorrectly!

Not wearing a seat belt or fastening it incorrectly can lead to serious injury or death.

- ▶ Fasten the seat belt firmly over the pelvis before starting the engine.
- ▶ Do not unfasten the seat belt while the engine is running. This also applies when stopping work.
- ▶ Do not twist the seat belt or wear it over hard, sharp or fragile objects in clothing.
- ▶ Make sure that the seat belt buckle is engaged.



! WARNING

Risk of injury due to a damaged or soiled seat belt!

A damaged or soiled seat belt can lead to serious injury or death.

- ▶ Keep the belt and belt buckle clean and check for damage.
- ▶ Have the belt replaced immediately after an accident by an authorized service center. Have the anchorage points and seat attachment checked.
- ▶ Have the belt and belt buckle replaced immediately by an authorized service center in the event of damage.

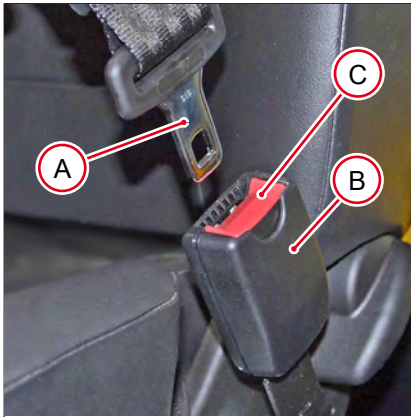


Fig. 77: Seat belt

Fastening seat belt

Engage lock tongue **A** in buckle **B**.

Unfasten seat belt

Press button **C** on buckle **B** until the buckle tongue pops out.

5.2.3 Visual aids



⚠ WARNING

Risk of injury to persons in the risk zone!

When reversing, persons in the risk zone may be overlooked and accidents with serious injuries or death may occur.

- ▶ Adjust available visual aids correctly.
- ▶ Interrupt work if persons enter the risk zone.
- ▶ Observe position changes and movements of mounted attachments and persons.



⚠ WARNING

Accident hazard due to a restricted field of vision in the work area!

A restricted field of vision can lead to accidents with serious injuries or death.

- ▶ No one may be in the risk zone.
- ▶ If necessary, use suitable visual aids.
- ▶ Attachments must not impermissibly restrict the field of vision.



⚠ WARNING

Accident hazard due to incorrectly adjusted visual aids!

Incorrectly adjusted visual aids can lead to serious injuries or death.

- ▶ Before starting work, always ensure that the visual aids are functional and correctly adjusted.
- ▶ Replace damaged visual aids immediately.
- ▶ Observe national and regional regulations.



Information

Curved mirrors enlarge, reduce or distort the field of vision.



Information

Wacker Neuson recommends adjusting the mirrors with the help of a second person.

- Move the skip to base position before adjusting mirrors.

5.2.3.1 Outside rearview mirrors

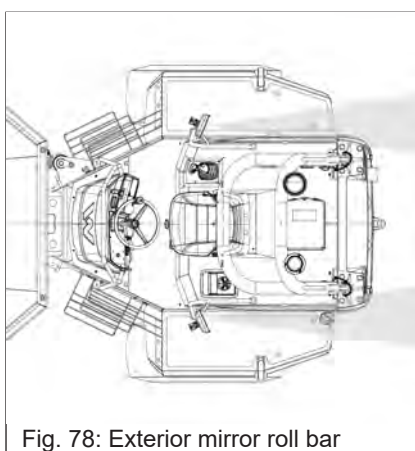


Fig. 78: Exterior mirror roll bar

- The driving and work area must be visible from the seat.
- The field of vision must extend as far back as possible.
- The rear left edge of the vehicle must be visible in the left-hand mirror.
- The right rear edge of the vehicle must be visible in the right-hand mirror.

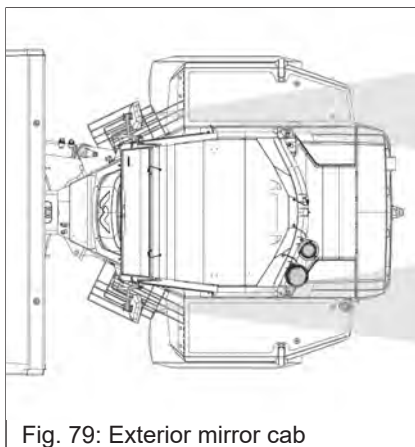


Fig. 79: Exterior mirror cab

5.2.3.2 Camera 1

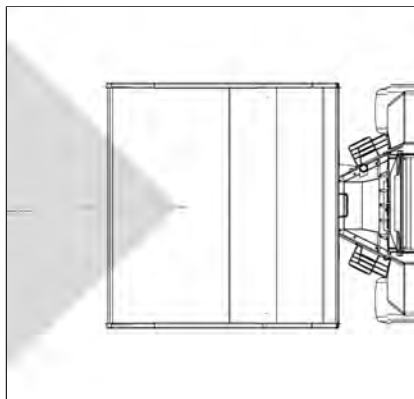


Fig. 80: Camera 1 horizontal field of vision

The horizontal field of vision of the camera is 115°.

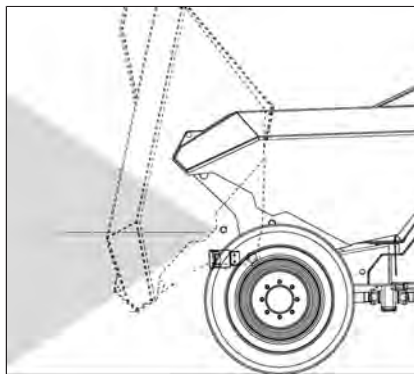


Fig. 81: Camera 1 vertical field of vision

The vertical field of vision of the camera is 83°.



Information

When the skip is tilted, the field of vision of the camera is restricted.

5.2.3.3 Camera 2

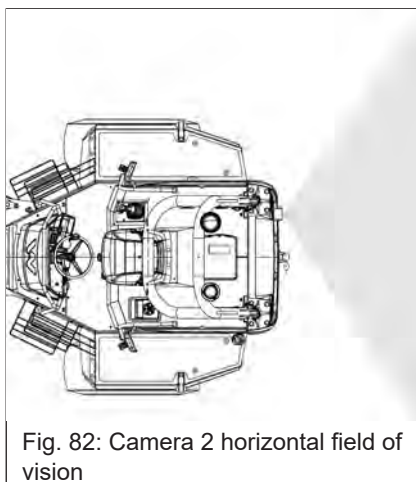


Fig. 82: Camera 2 horizontal field of vision

The horizontal field of vision of the camera is 115°.

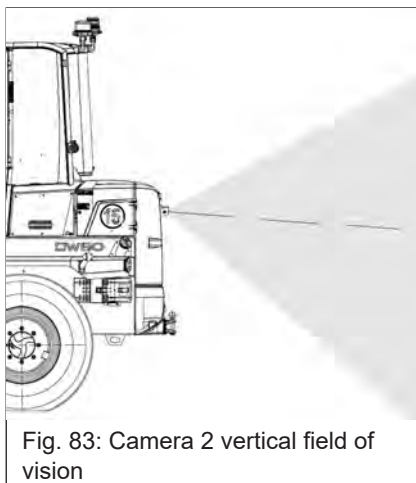


Fig. 83: Camera 2 vertical field of vision

The vertical field of vision of the camera is 83°.

5.2.4 Control elements

5.2.4.1 Display cover



Before putting the vehicle into operation, unlock lock **A** with the starting key and push back the display cover until it engages.

Leave the display cover open during operation.



5.2.4.2 Cover tarpaulin



A cover tarpaulin is available to protect the control station.

5.2.5 Safety components



⚠ WARNING

Risk of injury from modified protective structures!

A modification weakens the structure and can lead to serious injury or death.

- ▶ Do not modify protective structures (e.g. drilling, welding, cutting).
- ▶ Do not retrofit components that have to be mounted on a protective structure.
- ▶ Replace a damaged protective structure completely.
- ▶ In case of doubt, contact an authorized service center.
- ▶ Only an authorized service center may repair a protective structure.
- ▶ Replace self-locking fastening elements.



Information

Operation of the vehicle is only permitted with a properly mounted and intact roll bar or cab. For additional protection, only use properly mounted and intact Wacker Neuson protective structures that are approved for the vehicle.

Protective structures

Protective structures are safety components that protect the operator from danger. These elements can be standard or retrofitted.

Responsibility for fitting protective structures

The decision as to whether and which protective structures (type or level I or II) are necessary must be made by the vehicle operator and depends on the respective work situation.

The vehicle operator must comply with national and regional regulations and inform the operator which protective structures must be used in the respective work situation.

5.2.5.1 Roll bar



⚠ WARNING

Risk of injury from falling parts!

Can lead to serious injury or death.

- ▶ The vehicle may only be operated with the roll bar folded up and locked and the seat belt fastened.
- ▶ Wear protective equipment (e.g. protective clothing, safety goggles).
- ▶ Operation in environments where parts may fall down is prohibited.
- ▶ Operation in environments with flying fragments is prohibited.



⚠ WARNING

Risk of injury when operating with roll bar folded down!

Can lead to serious injury or death.

- ▶ Only drive on level and load-bearing ground.
- ▶ Only drive on level and load-bearing ground.
- ▶ Lock the roll bar after folding it down.
- ▶ Only drive at walking speed.
- ▶ Do not fasten the seat belt in order to be able to leave the vehicle immediately in an emergency.
- ▶ Wear protective equipment (e.g. protective clothing, safety goggles).



⚠ WARNING

Risk of injury from a defective gas spring!

Defective gas springs do not support the operator and can lead to severe injuries or death.

- ▶ Check the gas springs according to the maintenance plan.
- ▶ In the event of a defective gas spring, contact an authorized service center. Do not put the vehicle into operation.

Driving with roll bar folded down

If the clearance height is too low, it is possible to fold down the roll bar for the duration of a short drive-through.

Working with the roll bar folded down is prohibited.

Permission must be obtained from the responsible national or regional authority.

Avoid anything that could cause the vehicle to tip over.

Folding up the roll bar

1. Park the vehicle on level ground [see Switch off the engine on page 94](#)
2. Disassemble splint **B** and securing pin **C**.
3. Fold up the roll bar **A**.
4. Assemble splint **B** and securing pin **C**.



Fig. 87: Roll bar folded down

5.2.5.2 Skip grid



Fig. 88: Skip grid

The skip grid **A** protects the operator against falling material or against penetration of the excavator bucket during loading.

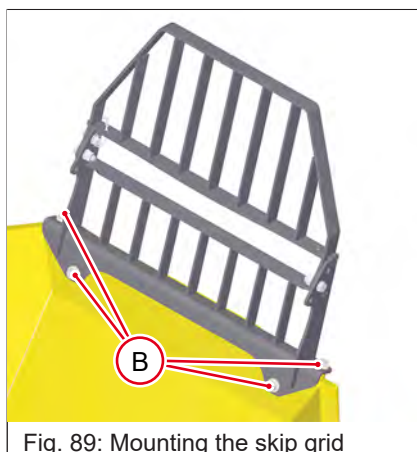


Fig. 89: Mounting the skip grid

Assembly

1. Park the vehicle. Stop the engine. [see Lubricate vehicle and attachments on page 162.](#)
2. Place the skip grid **A** on the mounting points by at least two persons. Use suitable external climbing aids.
3. Tighten screws **B** to 590 Nm (435 ft.lbs).

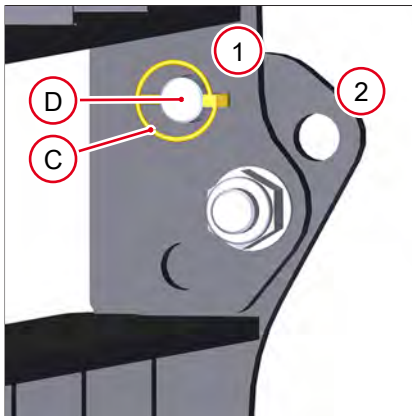


Fig. 90: Skip grid Front tipping skip

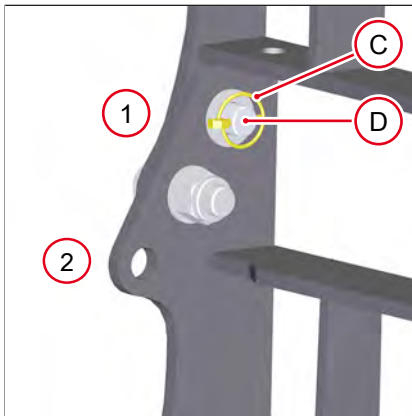


Fig. 91: Skip grid Swivel tipping skip



Fig. 92: Skip grid folded down

Lowering and raising the skip grid

The skip grid must be folded down for travel on public roads.

Folding down

1. Remove split **C** and securing pin **D** at mounting point **1**.
2. Fold down the skip grid.
3. Install splint **C** and securing pin **D** at mounting point **2**.

Folding up

1. Remove split **C** and securing pin **D** at mounting point **2**.
2. Fold up the skip grid.
3. Mount split **C** securing pin **D** at mounting point **1**.

5.2.5.3 FOPS Level II



Information

The cab complies with FOPS level II according to EN ISO 3449:2008.

- ▶ The vehicle owner must ensure appropriate assessment of the hazardous situation and compliance with national regulations.
- ▶ The vehicle operator must ensure that only work which does not require higher protection is carried out.
- ▶ Despite fitting with protective structures, accidents cannot be completely ruled out.

5.2.5.4 Fire extinguisher

Wacker Neuson does not offer a fire extinguisher.

Please contact an authorized service center regarding the installation of a fire extinguisher.

Wacker Neuson recommends fire extinguishers of class ABC, e.g. in accordance with DIN EN 3, NFPA. Observe national and regional regulations.



⚠ CAUTION

Risk of injury from unsecured fire extinguishers!

May lead to injuries.

- ▶ Check fastening gear and fire extinguisher daily.
- ▶ Observe manufacturer's instructions and inspection intervals.

5.2.6 Weather protection

5.2.6.1 Sun visor



Fig. 93: Sun visor

Sun visor

The sun visor can increase safety in traffic. If necessary, fold it down and adjust it so that the driving and work area is not obscured.

5.3 Display

The display informs the operator about operating conditions, maintenance measures or possible faults.

5.3.1 Control lights

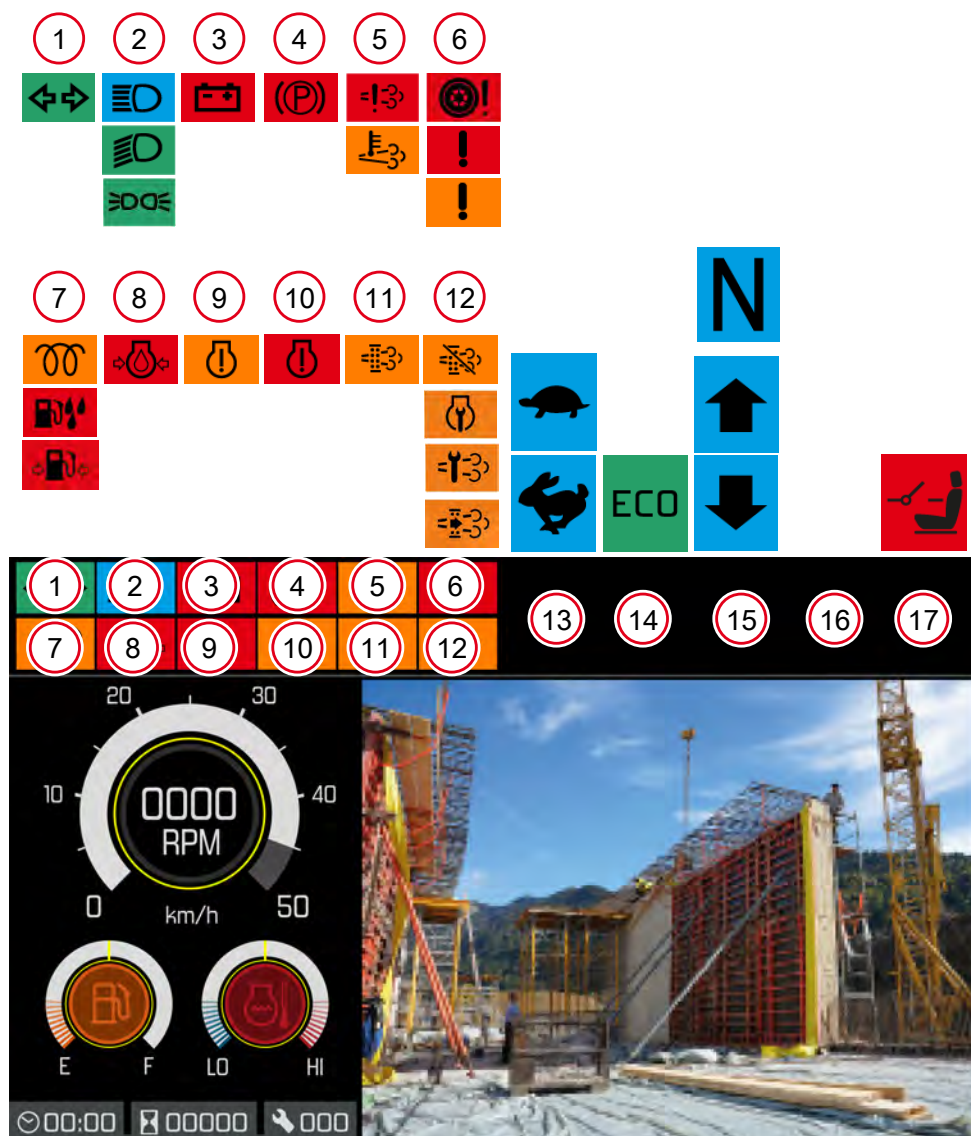


Fig. 94: Display and control lights

**Information**

The control lights light up for a few seconds when the ignition is switched on.

**Information**

The graphic symbols shown may differ.



Information

The control lights shown are only a selection. All possible display variants are shown on the following pages.

No.	Symbol	Color	Designation	see
1		green	Turn signal	▶ 113
2		blue	High beam	▶ 112
		green	Low beam	▶ 111
		green	Parking light	▶ 112
3		red	Charge indicator light	--
4		red	Parking brake	▶ 99
5		red	Error exhaust gas aftertreatment	▶ 176
		yellow	High exhaust gas temperature	▶ 176
6		red	Error drive system	▶ 186
		red	Collective fault	--
		yellow	Collective warning	--
7		yellow	Preheating	▶ 92
		red	Fuel pressure not reached	--
		red	Water in fuel tank	▶ 157
8		red	Engine oil pressure high	--
9		yellow	Engine warning	--
10		red	Engine stop	--

No.	Symbol	Color	Designation	see
11		yellow	Regeneration necessary	
12		yellow	Regeneration deactivated/interrupted	▶ 176
		yellow	Engine oil change necessary	
		yellow	DPF service required	
		yellow	Regeneration active	
13		blue	Speed range 1	▶ 101
		blue	Speed range 2	
14		green	Engine operating mode	--
15		blue	Drive direction	▶ 102
				
				
16		--	Not assigned	--
17		red	Seat not occupied	--

Error messages

The following symbols appear on the display for a few seconds when a malfunction occurs. The symbols shown are ranked according to display priority.

Symbol	Meaning	Symbol	Meaning
	Dirty air filter		Overspeed
	Error hydraulic pump/drive system		Engine oil pressure

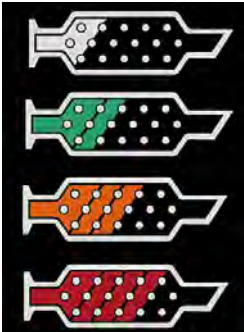
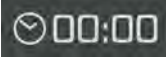
Symbol	Meaning	Symbol	Meaning
	Hydraulic oil temperature		Charge indicator light
	CAN bus	--	--

Status messages

Symbol	Meaning	Symbol	Meaning
	Direction of travel Forward		Parking brake
	Drive direction Neutral		Seat not occupied
	Reverse direction		Temperature warning
	Speed range 1		Speed increase
	Speed range 2		Coolant temperature too low
	Apply foot brake (start engine)		Autostop function activated
	Apply foot brake (speed too high)		Autostop function prevented
	Maintenance		Engine start interruption
	Regeneration active		ECO operating mode
	DPF service required		Exhaust gas recirculation error
	Engine error		Engine oil change required due to too frequent regeneration
	Charge indicator light	--	--

5.3.2 Status displays

Symbols Main screen

Symbol	Description
	Engine operating mode
	Coolant temperature 1. If the coolant temperature is too high, the adjacent display appears and the warning buzzer sounds. 2. Run the engine without load at high idling speed. 3. Wait until the temperature has dropped and the control light has gone out. 4. Stop the engine. 5. Check the coolant level.
	Fuel tank capacity If the adjacent display appears, refill fuel.
	DPF loading condition White: No loading condition Green: Low loading condition Yellow: Medium loading condition Red: Highest loading condition [► 179]
	Time
	Operating hours
	Maintenance meter Counts the remaining engine operating hours until the next maintenance.

Vehicle status

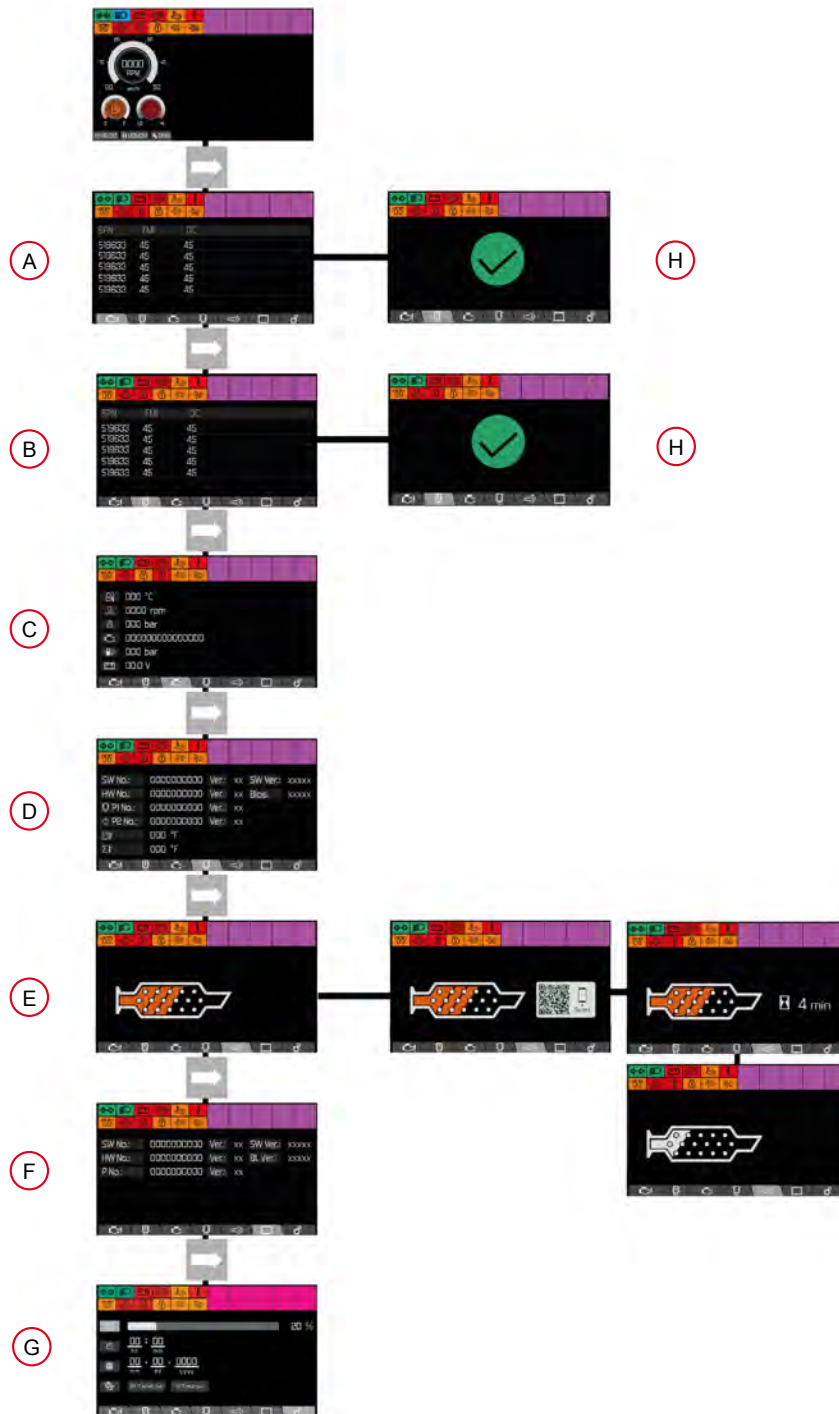


Fig. 95: Display pages

Display page	Naming
A	Engine error
B	Vehicle error
C	Engine data
D	Vehicle data

Display page	Naming
E	Diesel particulate filter data
F	Display data
G	Display settings
H	No error

Display settings

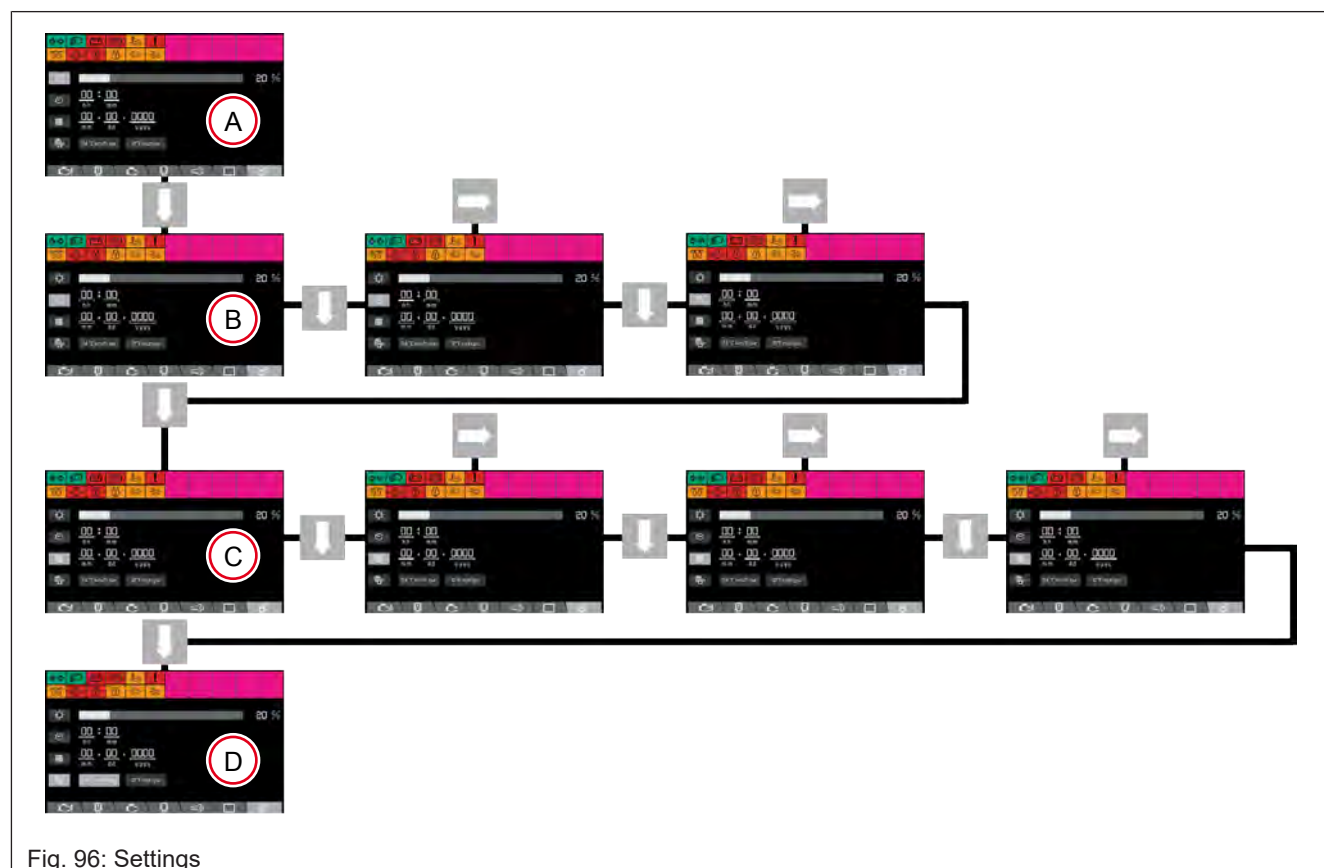


Fig. 96: Settings

Display page	Naming
A	Brightness
B	Clock
C	Date
D	12h/24h

Zoom in camera image

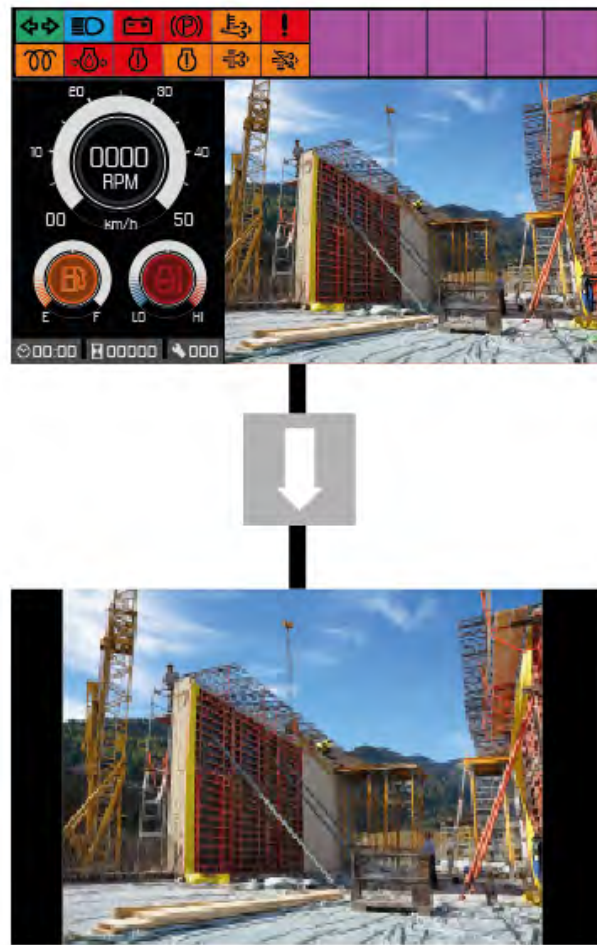


Fig. 97: Camera image

5

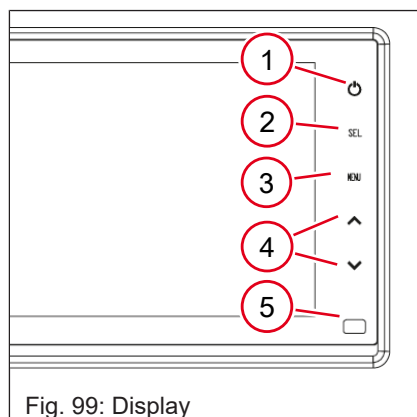
5.3.3 Camera display

Camera monitor



Fig. 98: Monitor

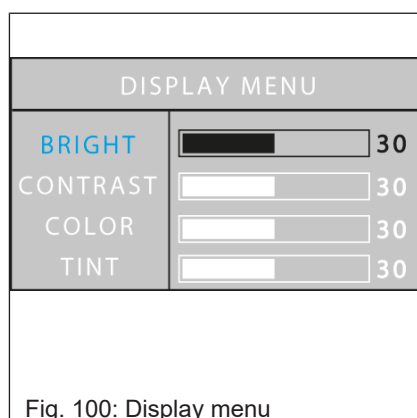
The display is protected with a transparent cover. To operate the display, push up the cover.



Control elements

Item	Designation	Function
1	On/off switch	
2	SEL	is used to select the desired pages in the menu
3	Menu	is used to activate the menu
4	Operating keys	used to change a value
5	Day/night sensor	

Display settings



- 1) Press the **Menu** button.
- 2) Use the operating keys to select the desired setting:
 - Brightness
 - Contrast
 - Color
 - Color
- 3) Press the SEL button.
- 4) Use the operating keys to select the desired setting.
- 5) Confirm with SEL .
- 6) Press the **Menu** button to exit the setup menu.

Setup menu - Setting the camera

The camera is set at the factory. For detailed information, contact an authorized service center.

5.4 Putting the vehicle into operation

5.4.1 Before putting into operation



NOTICE

Possible damage to the motor due to low-load operation.

- Run the engine at idle or in the high speed range above 20% engine load.

Low-load operation

Possible consequences of low load operation are :

- Increased engine oil consumption
- Engine contamination by engine oil in the exhaust system
- Blue smoke in exhaust gas
- Shorter diesel particulate filter regeneration cycles
- Reduced engine oil change intervals

Perform a visual check before starting work:

- There must be no leaks.
- Parts must not be damaged or loose.
- No one may be in the danger zone.

The operator must be familiar with the position of the various controls and instruments before putting the vehicle into operation.

Only operate the vehicle from the seat with the seat belt fastened.

Wacker Neuson recommends that the first operating attempts be performed on a large area of land free of obstacles before the first work operation.

When using the vehicle, constantly check the surrounding area to identify potential hazards in good time.

Before each start of work or when changing operators, ensure that all visual aids are clean, functional and set according to the instructions in this operator's manual.

The operator must comply with national and regional regulations.

Do not carry out any changes or modifications that lead to restricted visibility. This will invalidate the conformity and approval of the vehicle.

Observe the safety instructions [see Preparative measures on page 20](#).

Requirements and instructions for the operating personnel

These and all operator's manuals supplied with the vehicle must be read, understood and followed.

The vehicle may only be operated by instructed and authorized persons [see Conduct on page 20](#).

The operator must know and take into account the requirements and risks at the workplace.

Carry out daily maintenance according to the lubrication and maintenance plan [see Maintenance label on page 145](#).

Get in and out of the vehicle facing the vehicle and use only the prescribed entry and climbing aids.

Keep steps and handholds in a safe condition to step on and grip. Remove dirt, oil, snow etc. immediately.

Do not get into or jump off the moving vehicle.

Do not operate the vehicle with dismantled, standard protective equipment (e.g. cab).

During operation, neither parts of the body nor clothing may protrude from the vehicle.

5.4.2 Daily functional checks

5.4.2.1 Brakes



⚠ WARNING

Accident hazard due to improper brake test!

Can lead to serious injury or death.

- ▶ There must be neither persons nor obstacles on the test track.
- ▶ Ensure sufficient run-out distance.
- ▶ Perform a brake test daily before starting work.
- ▶ First, perform the test for the foot brake, then the test for the parking brake.



Information

If a brake test has a negative result or if there are doubts about the functionality of a brake, do not put the vehicle into operation.

- ▶ Contact an authorized service center and have the fault rectified.

Requirements

- The test track must be horizontal, load-bearing and level.
- The ground must consist of dry asphalt.
- The skip must be empty and completely lowered.



Information

If a brake test has a negative result or if there are doubts about the functionality of a brake, do not put the vehicle into operation.

- ▶ Contact an authorized service center and have the fault rectified.



Fig. 101: Control for drive direction

Test pressure build-up and tightness of foot brake

1. Start the vehicle.
2. Release parking brake.
3. Apply a load of at least 40 kg to the brake pedal and hold it for at least ten seconds. There must be a noticeable hydraulic pressure build-up and the resistance must not decrease.
 - ⇒ If the pedal gives way, the system may be leaking. Stop operating the vehicle immediately and have the braking system checked at an authorized service center.
4. Continue to apply the brake pedal and at the same time set the direction knob to **Forward (1)**.
5. Fully press the accelerator pedal for two seconds.
 - ⇒ The engine speed must increase rapidly.
 - ⇒ The vehicle must not move.
6. First release the accelerator pedal and then the brake pedal.



Information

If the brake pedal is pressed several times, the pressure point may change. This is not a fault of the braking system. If the brake pedal hits the floor panel when pressed, stop operating the vehicle immediately.

- Have the braking system checked in an authorized service center.

5

Parking brake

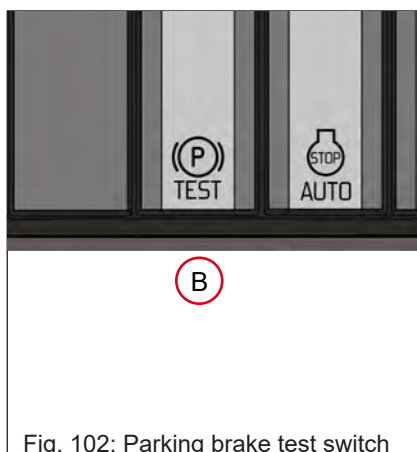


Fig. 102: Parking brake test switch

1. Start the vehicle.
2. Set control **A** for the direction of travel to **Forward (1)**.
 - ⇒ The display shows the selected direction of travel.
3. Activate parking brake, do not apply foot brake.
4. Keep push button **B** pressed.
5. Press the accelerator pedal and increase the engine speed to starting speed + 100 revolutions.
 - ⇒ Tires must not rotate.
6. Release the accelerator pedal.
7. Release push button **B**.
8. Set control **A** to **Neutral**.



Information

When the parking brake is activated, the vehicle automatically deactivates the drive system.



Information

The parking brake test must be carried out within 30 seconds of the vehicle starting. To prevent damage to the vehicle, the drive system is switched to **neutral** after this time.

The display shows **N**.



Information

If the engine speed is increased by more than 100 revolutions above starting speed, the vehicle may move – this is not a defect of the brake.

5.4.2.2 Steering system



⚠ WARNING

Accident hazard due to incorrectly functioning steering system!

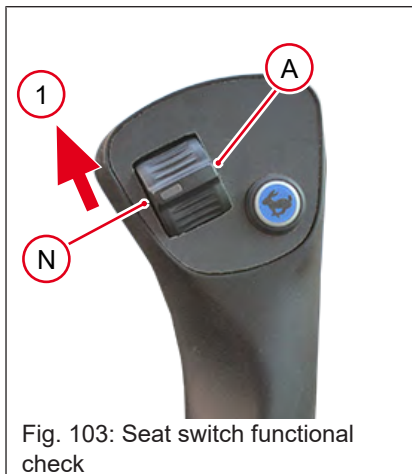
Can lead to accidents and serious injury or death.

- ▶ Check the function of the steering system before starting to drive.
- ▶ Do not drive with the vehicle if the steering system is defective.
- ▶ Carry out a functional test daily before starting work.
- ▶ No one may be in the danger zone.
- ▶ Have a defective steering system repaired by an authorized service center.

Check the steering system for proper function daily before starting to drive.

1. Start the vehicle.
2. With the vehicle stationary, turn the steering wheel to the left and right until it stops.
3. If the steering system does not move smoothly or jerkily or if abnormalities occur, have the vehicle checked by an authorized service center.

5.4.2.3 Seat switch



Seat switch

Perform the functional check daily.

1. Sit down on the seat.
2. Apply the foot brake.
3. Start the vehicle.
4. Set control **A** for the direction of travel to **Forward (1)**. Press the accelerator pedal and check whether the vehicle starts.
5. Set control **A** to **Neutral (N)**.
6. Do not put any load on the seat for at least five seconds.
7. Carefully move control **A** to **Forward** and press the accelerator pedal.
 - The vehicle does not start to move:
 - The vehicle is ready for operation.
 - The vehicle starts:
 - Stop operation immediately.
 - Contact an authorized service center and have the fault rectified.

5

5.4.3 Initial putting into operation and running-in time

Before starting work for the first time, check the vehicle for completeness of the equipment supplied.

- Check liquid levels according to the **Maintenance** chapter.

Each vehicle is carefully adjusted and checked before delivery.

Check the wheel nuts for tightness after ten operating hours.

During the first 50 hours of operation, drive and work gently with the vehicle.

- Do not load the engine in cold operating condition.
- Warm up the vehicle at low engine speed and low load, do not warm up when stationary.
- Do not change the speed abruptly.
- Avoid using the vehicle under heavy load or at high speeds.
- Avoid sudden acceleration, abrupt braking and changes in direction of travel.
- Do not run the engine continuously at maximum rotational speed.
- Observe the maintenance plans [see Maintenance plan on page 145](#).

5.4.4 Starting the engine



⚠ WARNING

Accident hazard due to unintentional operation of the vehicle!

Unintentional operation can lead to serious injury or death.

- ▶ Only operate the vehicle from the seat with the seat belt fastened.



⚠ WARNING

Risk of crushing when operating with cold hydraulic oil!

With cold hydraulic oil, uncontrolled movements of the vehicle can occur. This can lead to serious injuries or death.

- ▶ Even if the engine has reached its operating temperature, the hydraulic oil is still cold.
- ▶ If possible, warm up the vehicle in a sufficiently large area.
- ▶ Operate the joystick with particular care when the hydraulic oil is cold.



Information

Ventilate sufficiently when operating in closed rooms.

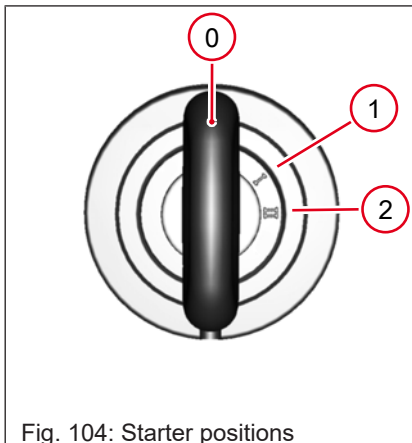


Fig. 104: Starter positions

1. Sit down on the operator seat.
2. Switch off all electrical consumers.
3. Apply the foot brake.
4. Activate parking brake.
5. Insert the starting key.
6. Turn the starting key to position 1.
⇒ All indicator lamps light up.
7. Turn the starting key to position 2.
⇒ The engine starts.
⇒ All control lights go out.
8. Release the starting key.

If the engine does not start after 30 seconds:

Stop the starting procedure and repeat after two minutes.

If the engine does not start after several attempts, contact an authorized service center.



Information

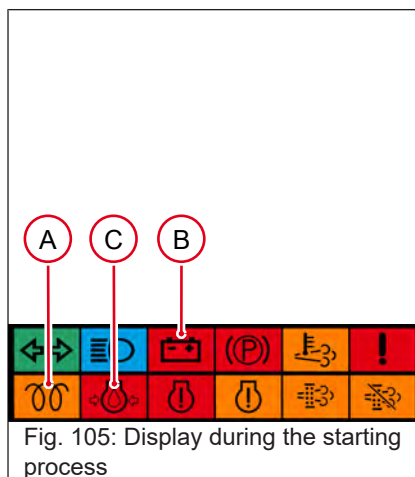
The preheating display may appear on the display.



NOTICE

Possible damage caused by starting the engine too early after switching it off.

- Wait at least two minutes before attempting a new start.



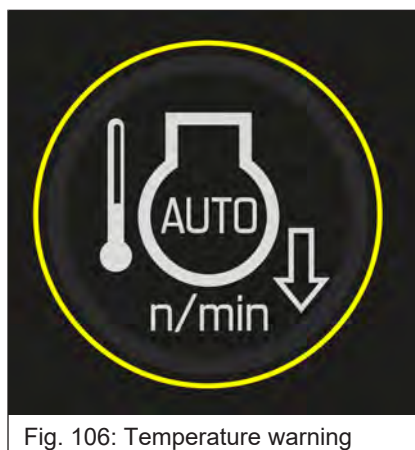
Warm-up phase

After starting, warm up the engine at low speed and load until it has reached its operating temperature [see Initial putting into operation and running-in time on page 91](#).

Listen for unusual noises, exhaust discoloration, leaks, malfunctions, or damage.

In the event of malfunctions, damage or leaks:

Secure vehicle, park and determine cause of malfunction or have damage repaired.



Starting the engine at low outside temperatures

- Allow the engine to warm up at idle until the cooling water has reached its operating temperature.
- Avoid rapid movements of the working hydraulics.
- Listen for unusual noises, exhaust discoloration, leaks, malfunctions, or damage.

In the event of malfunctions, damage or leaks:

Secure vehicle, park and determine cause of malfunction or have damage repaired.

Information on warm-up phase

- Until the required operating temperature is reached, the adjacent symbol may appear in the display.
- Once the operating temperature has been reached, the engine can be fully loaded.
- The engine reaches its operating temperature faster at low speed and load. This is more efficient than running at low speed without load.
- Avoid running in idle for too long. This causes, for example, carbon deposits or increased diesel particulate filter soot load.



Information

Observe national and regional regulations.

5.4.5 Switch off the engine



NOTICE

Possible damage to the engine due to shutdown under high engine load.

- ▶ Run the engine in idle for 60 seconds. This avoids engine damage and increases the service life.



NOTICE

Possible damage to electronics due to improper operation of the battery master switch.

- ▶ Do not operate the battery master switch while the engine is running.
- ▶ After switching off the engine, activate the battery master switch after 70 seconds at the earliest.

1. Run engine at idle for 60 seconds without load.
2. Set driving direction control to **Neutral**.
3. Activate parking brake.
4. Switch off the starter and remove the starting key.

5.4.6 Autostop

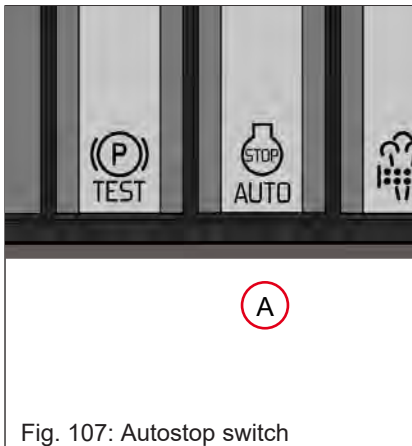


Fig. 107: Autostop switch

To reduce emissions and save fuel, the auto-stop function switches off the engine under certain conditions. The engine must then be started manually.

Function	Position
Switching on autostop	Press switch A down
Switching off autostop	Press switch A upwards

When the autostop function activates, the **B** icon appears. Under certain operating conditions, the autostop function is inhibited. Symbol **C** appears.

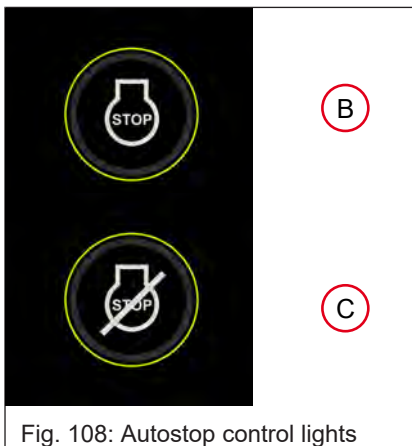


Fig. 108: Autostop control lights

5.4.7 Starting aid



⚠ WARNING

Explosion hazard due to improper handling of the battery!

Improper handling of the battery can lead to serious injury or death.

- ▶ Wear protective equipment.
- ▶ Fire, open flame and smoking are prohibited.
- ▶ Do not jump start the engine if the battery is defective, frozen or if the battery fluid level is too low.



⚠ WARNING

Risk of injury from rotating parts!

Rotating parts can lead to serious injury or death.

- ▶ Remove the starting key and store it in a safe place.
- ▶ Only open the maintenance covers when the engine is switched off.



⚠ CAUTION

Burning hazard from hot surfaces!

May lead to injuries.

- ▶ Switch off the engine and let hot surfaces cool down.
- ▶ Wear protective equipment.



NOTICE

Possible damage due to short circuit or overvoltage.

- ▶ The positive terminal of the live battery must not touch any electrically conductive vehicle components.
- ▶ The vehicles must not touch each other while using starting aids.
- ▶ If the engine does not start despite starting aid, contact an authorized service center.



NOTICE

Possible damage due to incorrect battery voltage.

- ▶ Only use 12V batteries.



NOTICE

Possible damage to the vehicle with the empty battery due to voltage peaks.



NOTICE

Possible damage to the jumper cables by laying them in the area of rotating parts.

- ▶ Do not lay the jumper cables in the area of rotating parts.



Information

Only use jumper cables that comply with national and regional regulations.



Fig. 109: Vehicle with roll bar

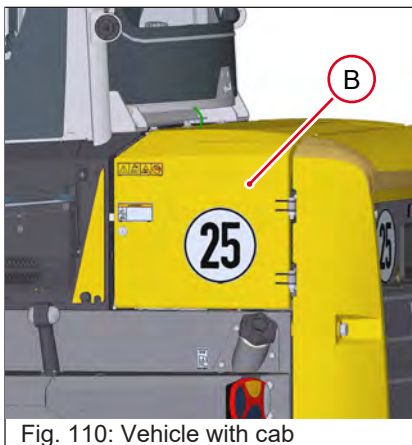


Fig. 110: Vehicle with cab

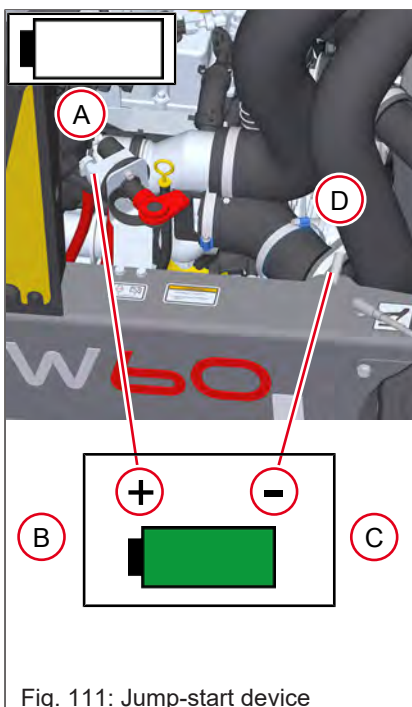


Fig. 111: Jump-start device

The jump-start device is located on the left side of the vehicle under the engine hood **A** or behind the left maintenance cover **B**.

Designations/ symbols	Meaning
X	Vehicle with empty battery
Y	Vehicle with full battery
A	Plus/vehicle X
B	Plus/vehicle Y
C	Minus/vehicle Y
D	Minus/vehicle X
	Full battery
	Empty battery

1. Drive vehicle **Y** towards vehicle **X** in such a way that the length of the jumper cables is sufficient.
2. Run the engine of vehicle **Y**.
3. Connect the jumper cables in the following order: **A-B/C-D**.
4. Wait five minutes to allow the discharged battery to charge a little.
5. Start the engine of vehicle **X**.
6. Disconnect the jumper cables in the following order: **D-C/B-A**.

5.4.8 Battery master switch



NOTICE

Possible damage to electronics due to improper operation of the battery master switch.

- ▶ Do not operate the battery master switch while the engine is running.
- ▶ After switching off the engine, activate the battery master switch after 70 seconds at the earliest.

Operate the battery master switch:

- When the vehicle is parked for a long period of time (e.g. weekend).
- If the vehicle is to be protected against unintentional start-up.
- If required by national and regional regulations.

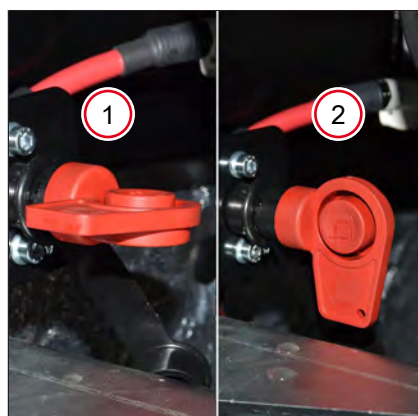


Fig. 112: Battery master switch

The battery master switch is located in the engine compartment.

Power supply	Key position
Established	1
Interrupted	2 (key vertical or removed)

6 Operation

6.1 Brakes

6.1.1 Hydraulic brake

The vehicle brakes when the accelerator pedal is released.

6.1.2 Foot brake



Information

Reduce the driving speed with the foot brake.



NOTICE

Possible damage to the foot brake.

- Do not allow the foot brake to drag.
- Do not apply the foot brake unnecessarily.

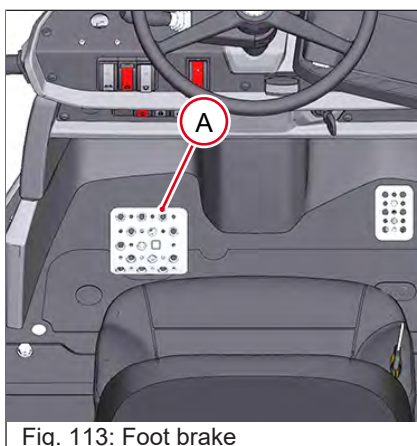


Fig. 113: Foot brake

The driving speed is reduced continuously with the foot brake **A**.

6.1.3 Parking brake

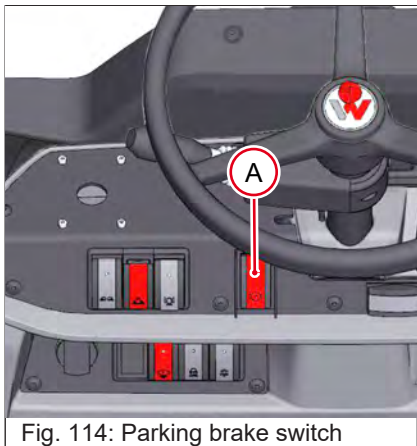


⚠ WARNING

Accident hazard! Do not activate the parking brake while driving!

Can lead to serious injury or death.

- Only activate the parking brake when the vehicle is at a standstill.



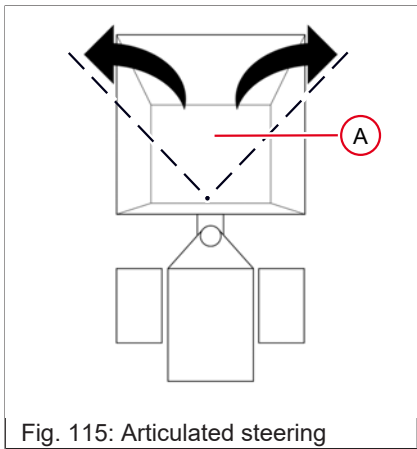
Switch **A** is located in the upper switch panel.

Activate:

Press switch **A** down.

The parking brake is activated automatically when the vehicle is stationary for two seconds and the direction control is in the neutral position.

6.2 Steering

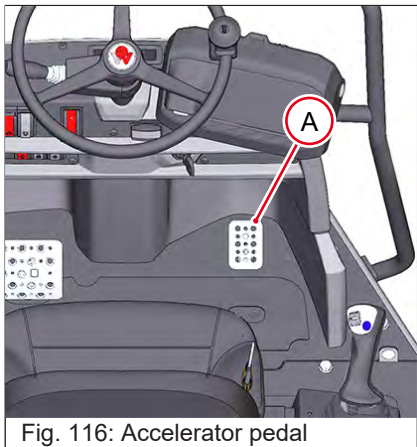


The vehicle is equipped with articulated steering. The steering wheel actuates a hydraulic cylinder that swivels the skip unit **A**.

Steering wheel	Movement
Counterclockwise	Skip unit swivels to the left
Clockwise	Skip unit swivels to the right

6.3 Regulating rotational speed

6.3.1 Accelerator pedal



The speed is controlled continuously with the accelerator pedal **A**.

6.4 Drive



⚠ WARNING

Risk of injury due to incorrectly set drive direction!

Can lead to serious injury or death.

- ▶ Ensure that the area around the vehicle is free.
- ▶ Set the control for the direction of travel to the desired position before starting up.



⚠ WARNING

Risk of accident due to rolling vehicle!

Can lead to serious injury or death.

- ▶ Only change the drive direction when the vehicle is stationary and the foot brake is applied.



⚠ WARNING

Risk of injury from changing the drive direction while driving.!

Can lead to serious injury or death.

- ▶ Only change the drive direction when the vehicle is stationary and the foot brake is applied.

6

6.4.1 Selecting speed range



Fig. 117: Selecting speed range

The push button **A** for the speed ranges is located on the joystick.

Speed range selection	Display
Speed range 1	
Speed range 2	

6.4.2 Starting to drive

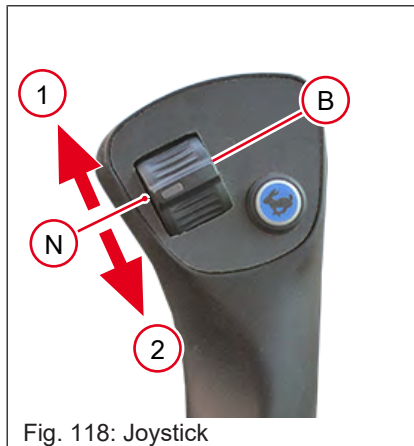


Fig. 118: Joystick

Selecting the direction of travel

The control **B** for the driving direction is located on the joystick.

Drive direction	Position
Forward	1
Neutral	N
Reverse	2

1. Start the engine [see Starting the engine on page 92](#).
2. Release parking brake.
3. Set the control for the direction of travel to **Forward (1)**.
4. Release brake pedal.
5. Apply the accelerator pedal.
⇒ The vehicle starts driving.

6.4.3 Road package

Scope of delivery:

- Headlights and taillights
- Reversing signal
- Turn signal
- Horn on steering column switch
- Exterior mirrors left and right (for vehicle with cab)
- License plate holder and lighting system
- Switch for hazard warning system
- Wheel chock



Information

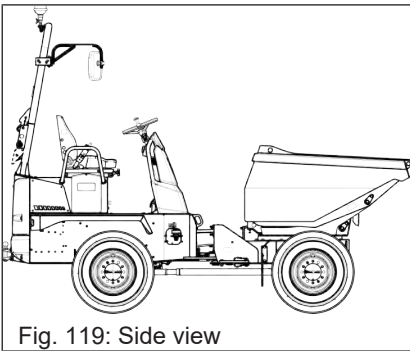
On some engine models, parts of the road package may be standard.



Information

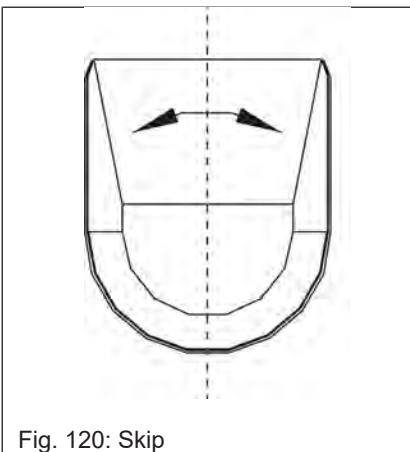
Observe national and regional regulations.

6.4.4 Preparations for driving on public roads

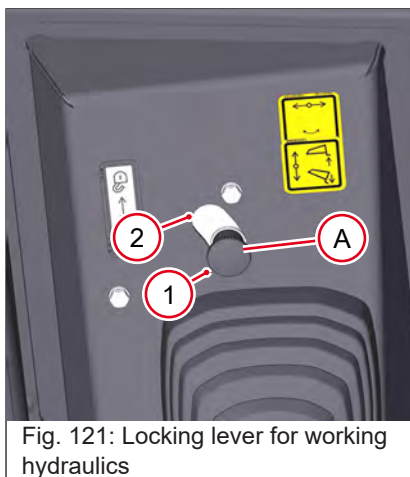


The vehicle may only be driven on public roads if it complies with the respective national traffic laws and the Wacker Neuson road package is mounted on the vehicle.

Ensure that all legal conditions for driving on public roads are met. This applies to both the vehicle and the operator (e.g. appropriate driver's license).



Move the skip to the base position.



Selecting road mode

Activate/deactivate working hydraulics

Function	Position
Activate road mode	Move lock lever A to position 1
Activate operating mode	Move lock lever A to position 2

6.4.5 Slope drive



⚠ WARNING

Crushing hazard due to the vehicle tipping over!

A tipping vehicle can lead to serious injury or death.

- ▶ Move the skip to the base position.
- ▶ Drive on slopes only on stable ground.
- ▶ Adjust the travel speed to the specific conditions.
- ▶ Avoid abrupt movements.
- ▶ Pay attention to persons and obstacles.
- ▶ Adhere to the operating limits of the vehicle (maximum slope angle 14° (25%), maximum lateral slope angle 14° (25%).
- ▶ Drive uphill and downhill in speed range **1** only.
- ▶ Body parts must not protrude from the vehicle.
- ▶ Do not exceed approved payloads.
- ▶ Do not turn or tilt the loaded skip when traveling uphill or downhill.
- ▶ Only tilt out the skip uphill on slopes.
- ▶ Diagonal driving is prohibited.

Observe the maximum permissible gradient and inclination angles for driving on slopes and the prohibition of diagonal driving [see Operating limits on page 15](#).

The vehicle may lose traction even on slight inclines if it is driving on a slippery surface (e.g. grass, damp metal surfaces, frozen ground).

On stony or uneven surfaces the vehicle may slip or tip over.

On soft surfaces, the vehicle may sink and the wheels may dig in. This increases the inclination of the vehicle and the vehicle may tip over.

If the engine stalls uphill or downhill, immediately apply and hold the foot brake. Start the engine.

6.4.5.1 Preparations for driving on a slope



Information

When driving downhill, the engine brake no longer has sufficient effect above a certain speed. Reduce the engine speed or speed with the foot brake.

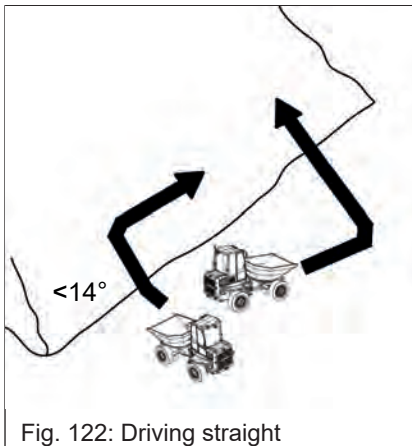


Fig. 122: Driving straight

Drive straight uphill or downhill.

Change position on level ground and then drive straight into the slope. When changing position, the maximum gradient angle of 14° (25%) and the maximum lateral gradient angle of 14° (25%) must not be exceeded.

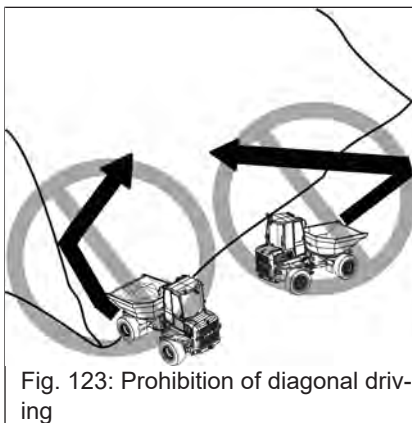


Fig. 123: Prohibition of diagonal driving

6.4.5.2 Driving uphill and downhill

Driving on slopes with a loaded skip

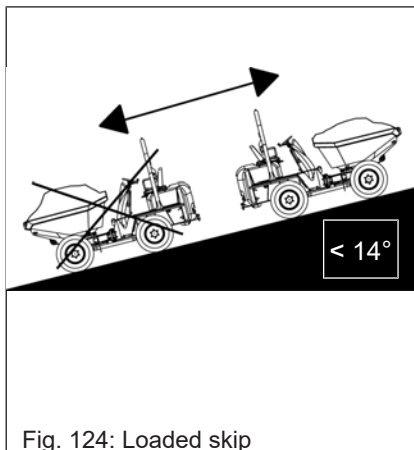


Fig. 124: Loaded skip

The loading unit must face the slope, regardless of the direction of travel. Do not exceed the maximum angle of inclination of 14° (25%).

Driving on slopes with unloaded skip

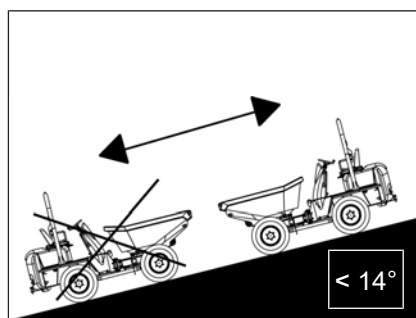


Fig. 125: Unloaded skip

The loading unit must face the downward, regardless of the direction of travel. Do not exceed the maximum angle of inclination of 14° (25%).

Travels across slopes

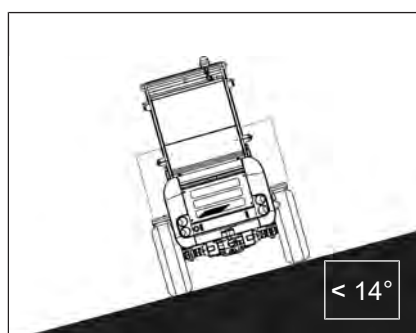


Fig. 126: Travel across slopes

Do not exceed the maximum lateral angle of inclination of 14° (25%).

6.4.6 Park



⚠ WARNING

Crushing hazard due to the vehicle rolling away after parking!

An unsecured vehicle can lead to serious injury or death.

- ▶ Secure the vehicle with wheel chocks.

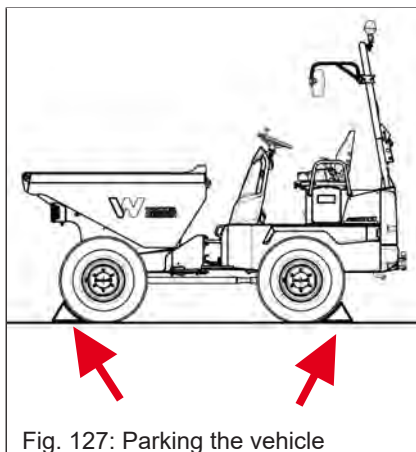


Fig. 127: Parking the vehicle

- 1) Park the vehicle on firm, level, and horizontal ground.
- 2) Move the skip to the base position.
- 3) Set the controller for the direction of travel to **Neutral** and activate the parking brake.
- 4) Stop the engine.
- 5) Remove the starting key and store it in a safe place.
- 6) Close the windows and doors.
- 7) Close and lock covers and doors .
- 8) Secure the vehicle with wheel chocks.



Information

Fill up the tank after each working day. This prevents condensation from forming in the fuel tank.



⚠ WARNING

Crushing hazard due to the vehicle tipping over!

A tipping vehicle can lead to serious injury or death.

- ▶ Lower the skip. At temperatures close to the freezing limit, park the vehicle with the skip tilted to prevent material from freezing or ice from forming in the skip. Secure the skip with the maintenance support.
- ▶ Only park the vehicle with an empty skip for longer periods of time.
- ▶ The ground must be horizontal, stable and level. Drive on slopes only on stable ground.

6.5 Driving with a trailer

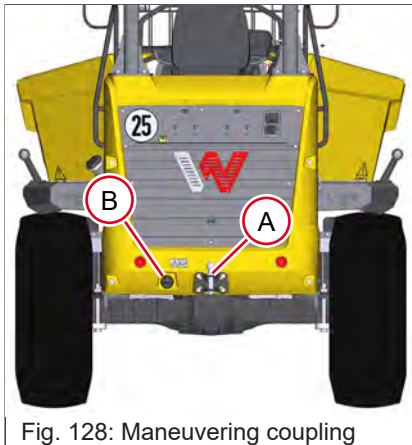


Fig. 128: Maneuvering coupling

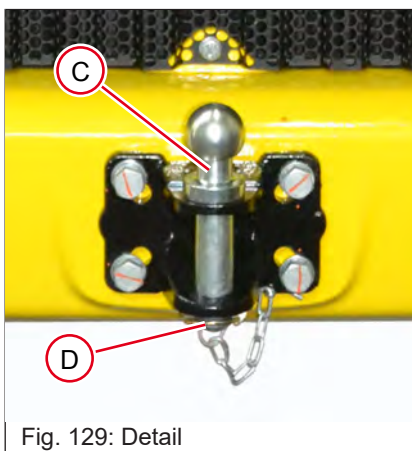


Fig. 129: Detail

Shunting operation

The vehicle has a maneuvering coupling **A** for towing trailers in the construction site area.

- 1) In maneuvering mode, the skip must be filled with 25% of the vehicle's possible payload. The total weight of the trailer and the contents of the skip must not exceed the payload of the vehicle.
- 2) For the loading of the skip and the permissible total weight, observe the table [see Maneuvering coupling on page 201](#).
- 3) Secure the pin **C** of the maneuvering coupling with splint **D**.
- 4) Secure trailer against rolling away (e.g. with wheel chocks, blocks).
- 5) Ensure that all lights and associated control lights are functional. The plug receptacle **B** for the electrical supply of additional equipment is located at the rear of the vehicle.



NOTICE

Possible damage due to improper maneuvering.

- The trailer towing device may only be mounted on the maneuvering coupling.



Information

Observe national and regional regulations.

6.6 Lighting and signaling system

6.6.1 Work light



⚠ WARNING

Accident hazard due to blinded road users!

Road users on public roads may be blinded by switched on work lights. This can lead to serious injuries or death.

- ▶ If road users are blinded, stop work.
- ▶ Only work when the work area is adequately illuminated and no road users are blinded.



Information

Only work when the work area is adequately illuminated.

If the work area is still insufficiently lit despite work lights and external illumination, stop work.

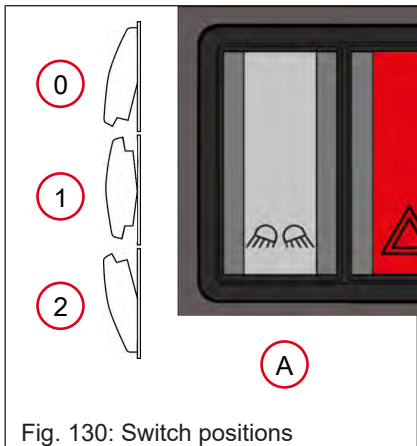


Fig. 130: Switch positions

The switch is located in the upper switch panel.

Function	Position
Switch off the work light	Set switch A in position 0
Switch on work light B	Set switch A in position 1
Switch on work light front B and rear C	Set switch A in position 2

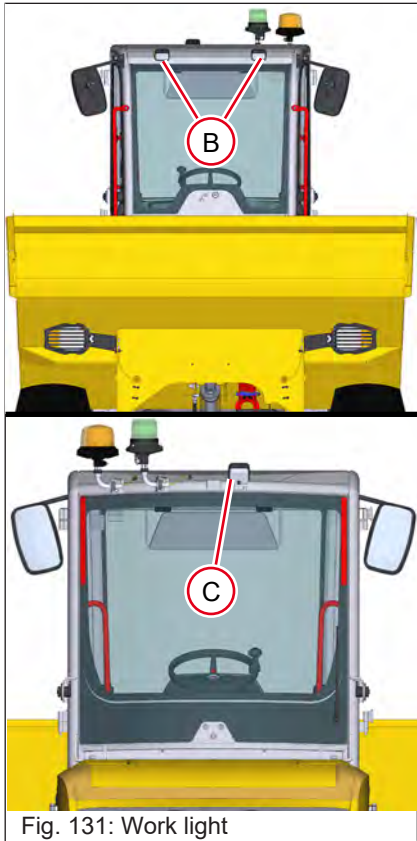


Fig. 131: Work light

6.6.2 Side position lights



Fig. 132: Side position lights

6.6.3 Road package lighting system

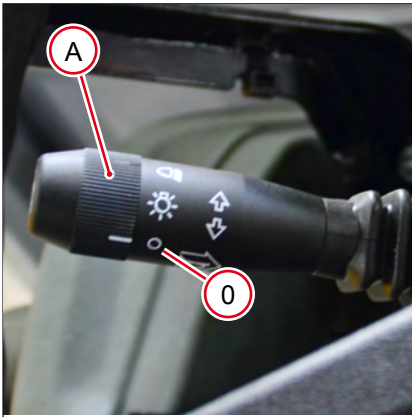


Fig. 133: Steering column switch

The rotating ring **A** is located on the steering column switch. When the rotating ring is set to position **0**, the lighting is switched off.

Headlight

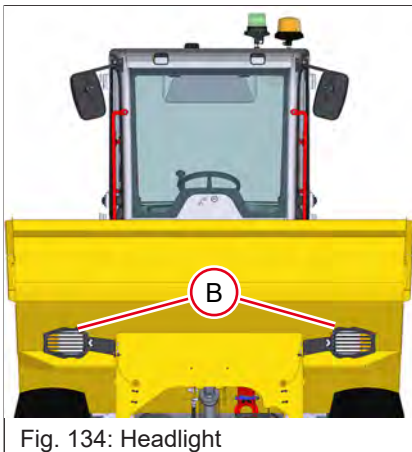


Fig. 134: Headlight

Headlights **B** are located at the front under the skip.

6.6.3.1 Low beam

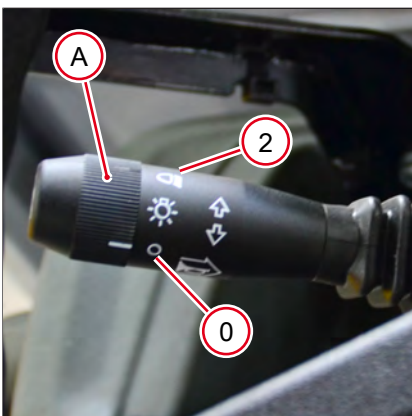


Fig. 135: Low beam

Function	Position
Switch on low beam	Set rotating ring A to position 2

6.6.3.2 High beam

Function	Position
Switch on high beam	Push steering column switch forward
Switch off high beams	Pull steering column switch to the rear

6.6.3.3 Parking light

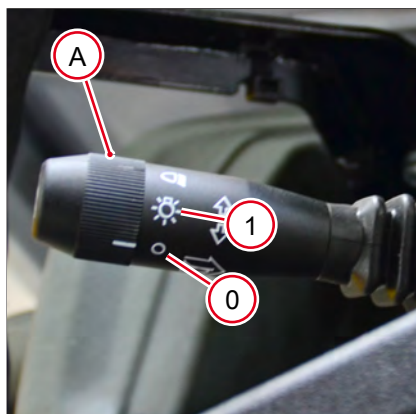


Fig. 136: Parking light

Function	Position
Switch on parking light	Set rotating ring A to position 1

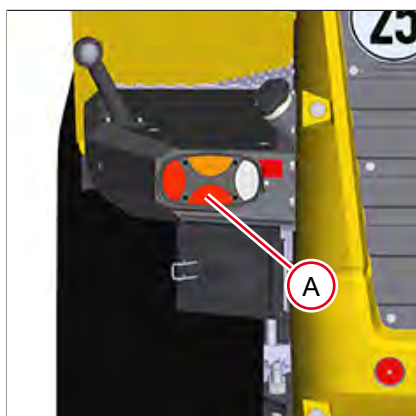


Fig. 137: Location

6.6.3.4 Brake lights



Fig. 138: Brake light left

Brake light **A** is located on the outside of the taillight, on the right side of the vehicle in the same position as the mirror.

6.6.3.5 Reversing light

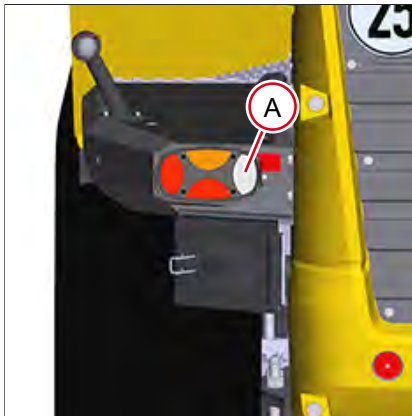


Fig. 139: Reversing light left

Reversing light **A** is located on the side of the ventilation grid, on the right side of the vehicle in mirror-like position.

6.6.3.6 Turn signal

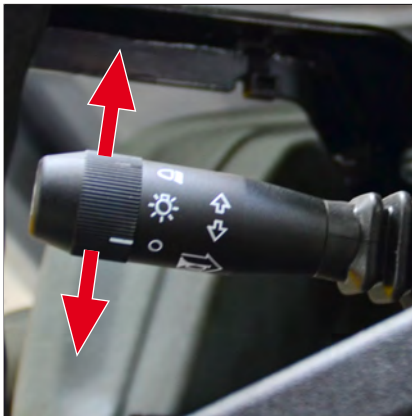


Fig. 140: Steering column switch

Function	Position
Use the left turn signal	Push the steering column switch down
Use the right turn signal	Push steering column switch up

6

6.6.3.7 Hazard warning system



A

Fig. 141: Hazard warning system

Switch **A** is located in the upper switch panel.

Function	Position
Switching off the hazard warning system	Press switch A upwards
Switching on hazard warning system	Press switch A down

6.6.4 Rotating beacon



A

Fig. 142: Switch for rotating beacon orange

Rotating beacon orange

Switch **A** is located in the upper switch panel.

Function	Position
Switch off rotating beacon B	Press switch A upwards
Switch on rotating beacon B	Press switch A down

Rotating beacon green

The green rotating beacon **C** lights up when the buckle tongue is engaged [see Seat belt on page 67](#).



Fig. 143: Rotating beacons



Information

Observe national and regional regulations.

6.6.5 Interior light

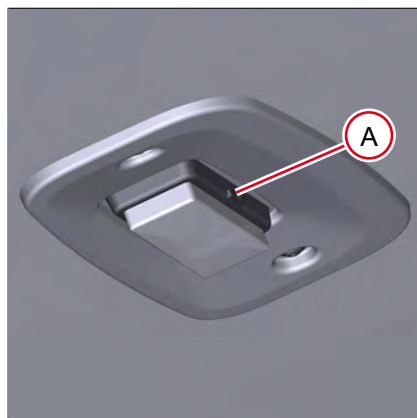
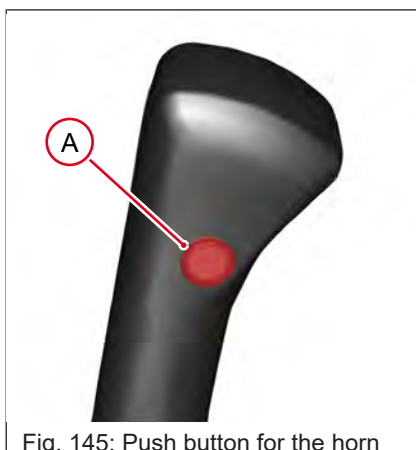


Fig. 144: Interior light

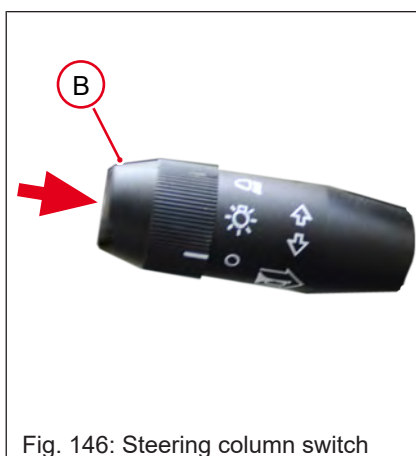
Switch **A** is located on the interior light.

Function	Position
Switch on interior light	Press switch A to the right
Switch off interior light	Press switch A to the left or to the middle position

6.6.6 Horn



Press button **A** on the back of the joystick.



Press button **B** on the steering column switch.

6.6.7 Reversing signal



⚠ WARNING

Accident hazard when driving forwards and backwards!

Crushing hazard that can lead to serious injury or death.

- ▶ No one may be in the risk zone.
- ▶ Despite the travel signal, the risk zone must also be visually monitored.
- ▶ If no travel signal sounds, stop work immediately and contact an authorized service center. Observe national and regional regulations.

The reversing signal sounds when the control for the direction of travel is set to **reverse**.

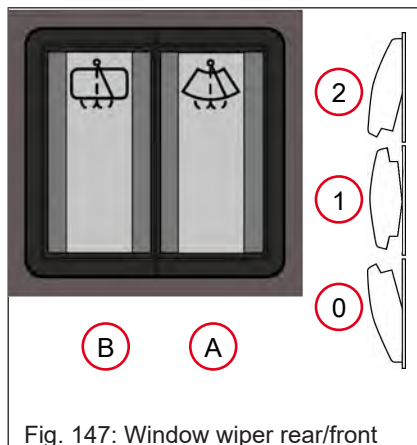
6.7 Washer system



NOTICE

Possible damage to the pump if the tank is empty.

- ▶ Do not operate the washer system if the tank is empty.
- ▶ Refill with windshield cleaner if necessary.



The switches are located in the left switch panel.

Switch **A**: Window wiper front

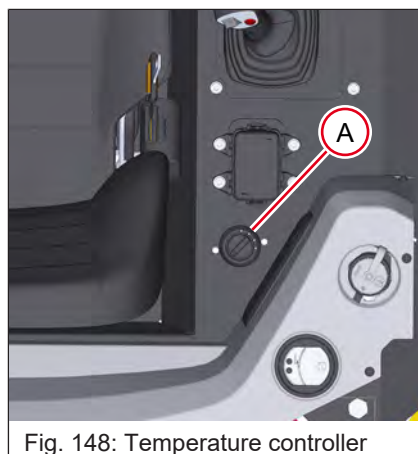
Switch **B**: Window wiper, rear

Function	Position
Washer on	Set switch in position 1
Washer off	Set switch in position 0
Spraying on	Set and hold switch A in position 2
Spraying off	Release switch

The container for the window cleaner is located on the right rear side of the cab [see Washer system on page 144](#).

6.8 Heating, ventilation and air conditioning system

6.8.1 Heating



Controller **A** is located on the right side of the cab.

Temperature	Operation
Higher	Turn lever counterclockwise
Lower	Turn lever clockwise

6.8.2 Ventilation

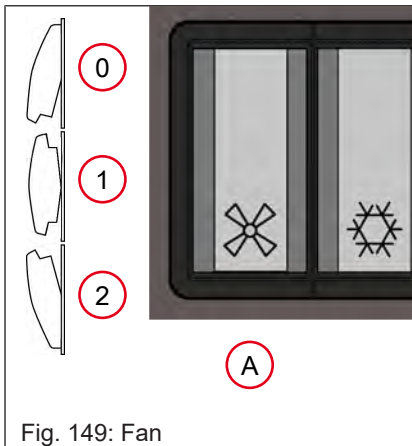


Fig. 149: Fan

Switch **A** is located in the left switch panel.

Fan	Operation
Off	Set switch A in position 0
Mode 1	Set switch A in position 1
Mode 2	Set switch A in position 2

6.8.3 Air conditioning system



⚠ CAUTION

Damage to health due to incorrect operation of the air conditioning system!

Can lead to health impairments.

- Do not point the air vents directly at the face when the air conditioning system is switched on.

6

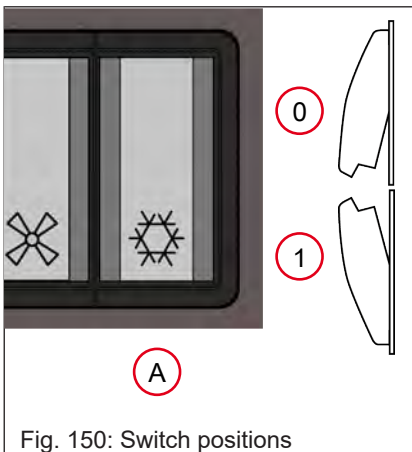


Fig. 150: Switch positions

Switch **A** is located in the front switch panel.

Function	Position
Switch on air conditioning system	Set switch in position 1
Switch off air conditioning system	Set switch in position 0



Information

Run the air conditioning system for several minutes several times a month to prevent damage to the air conditioning compressor.



Information

Cool down the interior quickly:

- ▶ Open windows and door.
- ▶ Set fan to maximum power to allow hot air to escape.
- ▶ Close window and door .
- ▶ Set air conditioning system to maximum cooling.

6.9 Working with the vehicle



⚠ WARNING

Danger of accident when driving with tilted skip!

Can lead to serious injury or death.

- ▶ Driving with a tilted skip is prohibited on public roads.
- ▶ In construction site areas, driving with a tilted skip at walking speed is only permitted if the operator is supported by a bystander.
- ▶ Do not tilt out the skip if material is stuck in the skip. Remove the material from the skip using a suitable tool.
- ▶ Maintain sufficient distance (e.g. to buildings, to the edge of the excavation pit) when tipping out.
- ▶ Only drive on solid ground.



⚠ WARNING

Danger of crushing by a vehicle tipping over!

Tipping out the skip very quickly can cause the vehicle to tip over. A turned-over vehicle can cause serious injury or death.

- ▶ Operate the skip slowly.

Observe the operating limits for tipping out - [see Operating limits on page 15](#).

6.9.1 Tip out skip

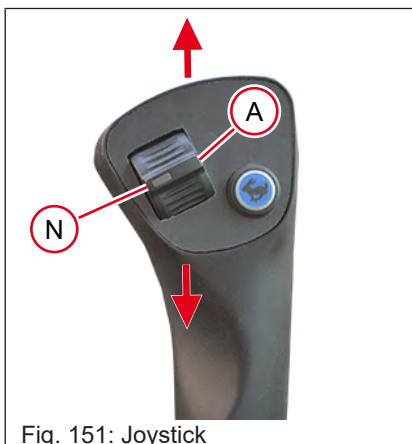


Fig. 151: Joystick

Set the control **A** for the driving direction to **Neutral (N)**.

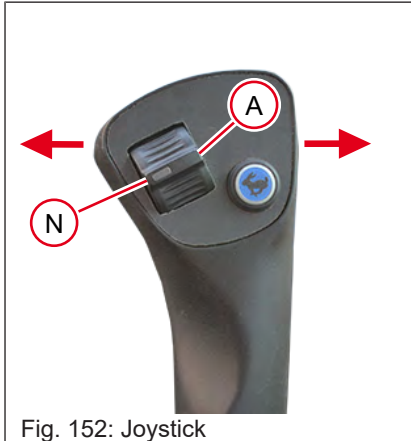
Function	Operation
Raise	Press joystick forward
Lower	Pull joystick to the rear



NOTICE

Lower the swivel tipping skip only in straight aligned position to avoid damage to the lock.

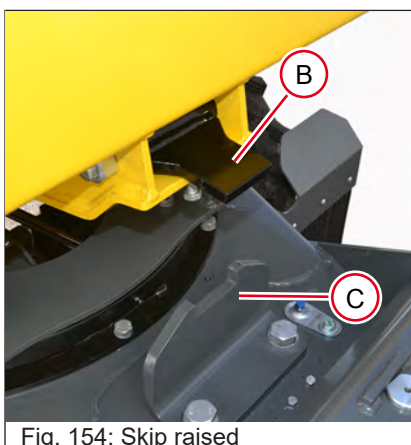
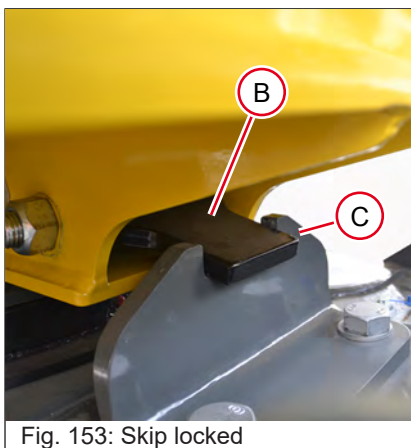
6.9.2 Rotate skip



Set the control **A** for the driving direction to **Neutral (N)**.

Before turning, lift the lock **B** completely out of the guide **C**. Push the joystick forward until the lock is sufficiently raised.

Function	Operation
Turn the skip to the left	Press the joystick to the left
Turn the skip to the right	Press joystick to the right



6.9.3 Loading the vehicle



NOTICE

Incorrect loading of the vehicle causes severe damage to the vehicle.

- ▶ Do not exceed the payload.
- ▶ The operator's view must not be restricted.



Information

The risk assessment must consider the following in particular:
Are the dump truck safety features adequately sized for the excavator that will be loading the dump truck?

Loading (vehicle with roll bar)

The operator must leave the dumper and the danger zone before loading. Observe national and regional regulations.

Loading (vehicle with cab)

If the dumper is equipped with a cab and skip grid, the operating company can carry out a risk assessment and decide whether the operator must leave the cab before loading the dumper.

Observe national and regional regulations.

Vehicle equipment	Measures to be taken during loading
Cab	The operator must leave the dumper and the danger zone before loading.
Cab and skip grid	Risk assessment can be carried out.

Preparation

1. Lower the skip.
2. Move the joystick to neutral position.
3. Activate parking brake.
4. Stop the engine.

After loading

1. Remove dirt from the control elements.
2. Scrape off loose loading material.

6.10 Emergency lowering



⚠ WARNING

Crushing hazard when lowering the skip!

Can lead to serious injury or death!

- ▶ No one may be in the danger zone.
- ▶ Stop working immediately if anyone enters the danger zone.



Information

Lower the skip immediately after engine standstill.

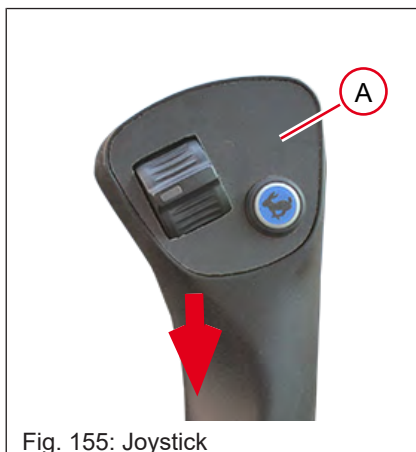


Fig. 155: Joystick

In case of engine and hydraulic failure, lower the skip.

The skip can also be lowered with the ignition switched off. Pull the joystick **A** to the rear.

7 Transportation

7.1 Recovery



⚠ WARNING

Accident hazard due to improper recovery procedure!

An improper recovery operation can lead to accidents with serious injuries or death.

- ▶ Only recover the vehicle from the immediate risk zone until it can be loaded.
- ▶ Do not drive downhill.
- ▶ Only recover the vehicle using suitable towing equipment in conjunction with suitable recovery devices such as hooks, lugs, etc.
- ▶ When recovering, no persons may be between the vehicles. The lateral safety distance is 1.5 times the length of the towing equipment.
- ▶ Do not tow a vehicle that is on a slope or is stuck. Load the vehicle.
- ▶ Wear protective equipment.
- ▶ Slowly drive off and recover.



⚠ WARNING

Crushing hazard due to the vehicle rolling away after parking!

An unsecured vehicle can lead to serious injury or death.

- ▶ Secure the vehicle with wheel chocks.



⚠ CAUTION

Burning hazard from hot surfaces!

Too high a towing speed and too great a towing distance lead to strong heat generation. This can lead to serious injuries.

- ▶ Recover the vehicle at a maximum speed of 40 cm (16 in)/second.
- ▶ Wear protective equipment.



NOTICE

Possible vehicle damage during recovery.

- ▶ Only recover the vehicle from the immediate risk zone until it can be loaded.
- ▶ Do not tow a vehicle that is on a slope or is stuck. Load the vehicle.
- ▶ Only recover the vehicle using suitable towing equipment in conjunction with suitable recovery devices such as hooks, lugs, etc.
- ▶ A vehicle of at least the same weight category must be used as the tractor vehicle.
The tractor vehicle must have a safe braking system and sufficient tractive power.



Information

The manufacturer's warranty does not cover damage or accidents during recovery, loading or transport.



Information

After recovery, have the vehicle repaired only by an authorized service center.



Information

The vehicle is more difficult to steer in the following cases:

- ▶ Failure of the diesel engine
- ▶ Failure of the hydraulic oil pump
- ▶ Empty hydraulic oil tank

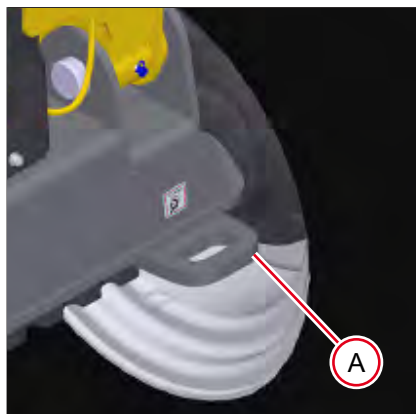


Fig. 156: Load unit

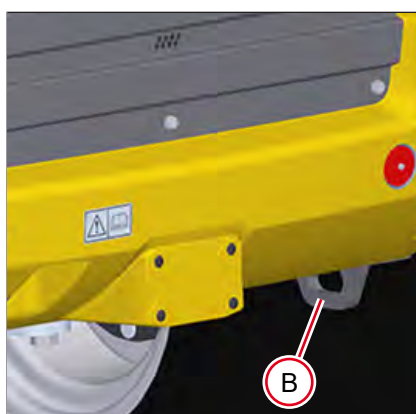


Fig. 157: Drive unit

Tie-down points

Position		Quantity
A	Preparations for recovery	2
B	Rear drive unit	2

Preparations

1. Ensure that the vehicle can be safely recovered.
2. Secure the vehicle against rolling away with wheel chocks.
3. Attach slings to the tie-down points **A** or **B**. Mount the towing equipment on the recovery vehicle using suitable slings and tension the towing equipment so that the vehicle cannot move.

7.1.1 Variant 1

Engine can be started, parking brake can be released

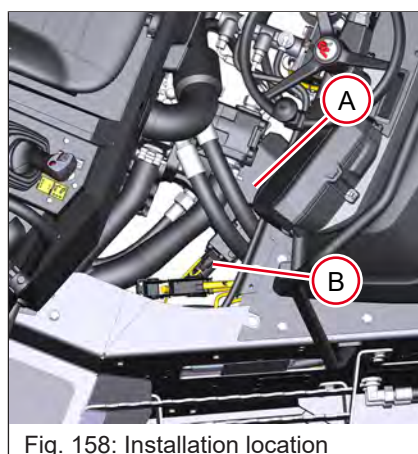


Fig. 158: Installation location

1. Pull out plug **B** on drive engine **A** to reduce the hydraulic flow rate. The drive engine **A** is located under the floor plate **C**.

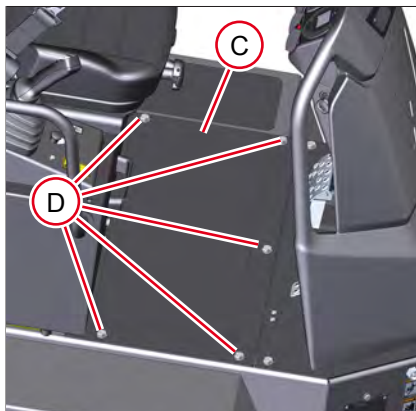


Fig. 159: Bottom plate (symbol illustration)

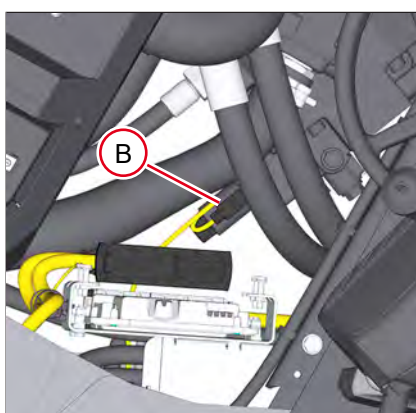


Fig. 160: Detail

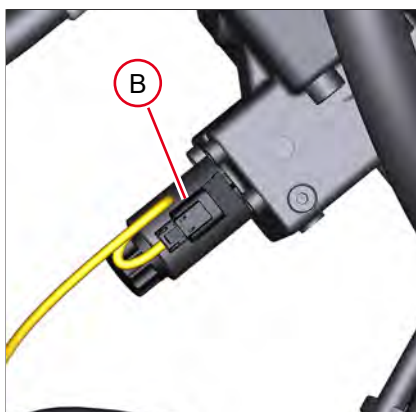


Fig. 161: Detail

2. Loosen screws **D** and remove bottom plate **C**. On vehicles with cabs, remove the floor mats beforehand.

3. Pull out plug **B**.
4. Remove the wheel chocks.
5. Start the engine.
6. Release parking brake.
 - ⇒ If the wheels lock despite the parking brake being released, stop the engine. Secure the vehicle against rolling away with wheel chocks and proceed to recovery option 2.
7. The operator must be in the vehicle to steer. The vehicle can be recovered.
8. Slowly start to drive.
9. Recover from the immediate risk zone at max. 0.5 m (20 in)/second until loading is possible.
10. Slowly recover from the immediate risk zone until loading is possible.

7.1.2 Variant 2

Engine cannot be started, parking brake cannot be released

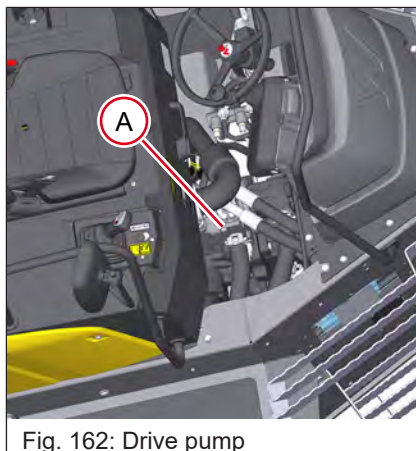


Fig. 162: Drive pump

For recovery, the pressure relief valves of the drive pump must be deactivated and the parking brake released manually. Travel pump **A** is located under the floor plate. The parking brake cylinder is located on the front axle.

1. Remove bottom plate [see Variant 1 on page 124](#).

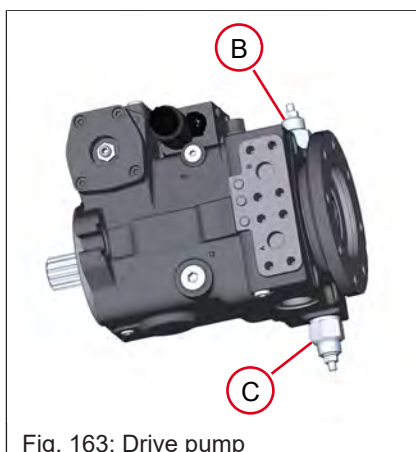


Fig. 163: Drive pump

2. Pressure relief valves **B** and **C** are located on the left and right of the travel pump.

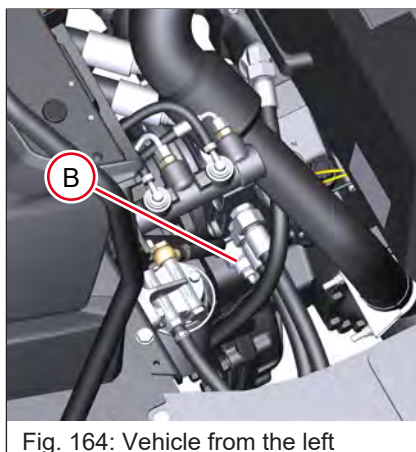


Fig. 164: Vehicle from the left

3. Clean the area around the left pressure relief valve **B**.

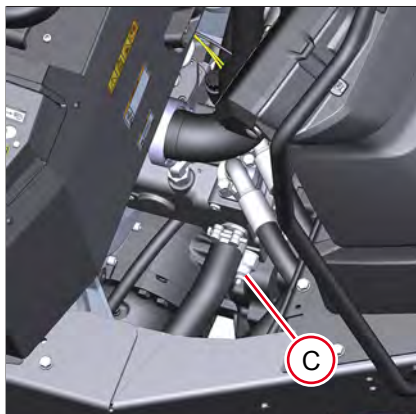


Fig. 165: Vehicle from the right

4. Clean the area around the right pressure relief valve **C**.

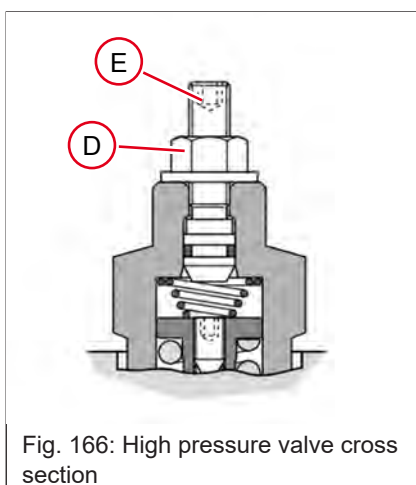


Fig. 166: High pressure valve cross section

5. Loosen lock nuts **D** by half a turn counterclockwise.
6. Screw in screws **E** clockwise until an increased resistance is felt.
7. Screw in screws **E** clockwise another half turn.
8. Tighten lock nuts **D** clockwise with a torque of 22 Nm.

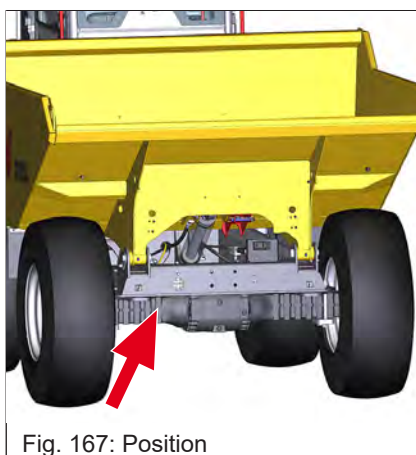


Fig. 167: Position

9. The parking brake is located on the front axle.

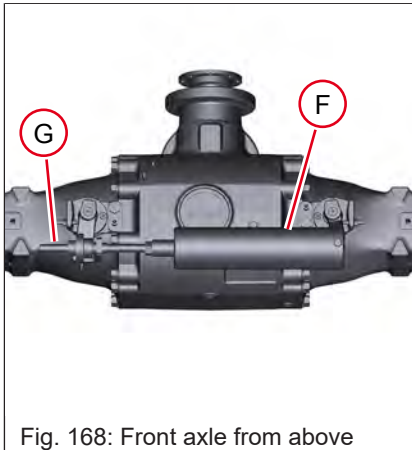


Fig. 168: Front axle from above

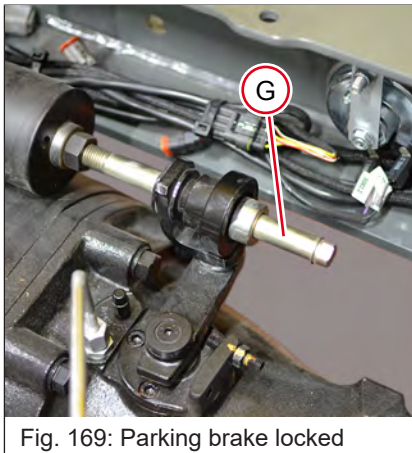


Fig. 169: Parking brake locked

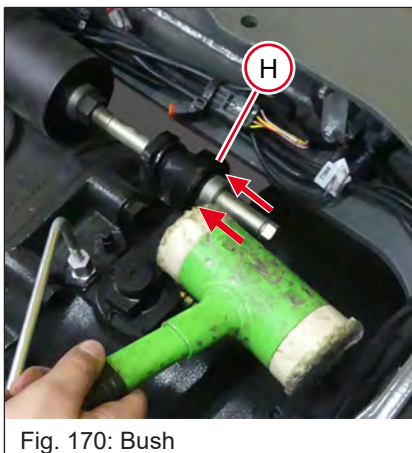


Fig. 170: Bush

10. Deactivate parking brake **F** manually. Unlock rod **G** by hitting bush **H** with a hammer.
⇒ Rod **G** is unlocked.

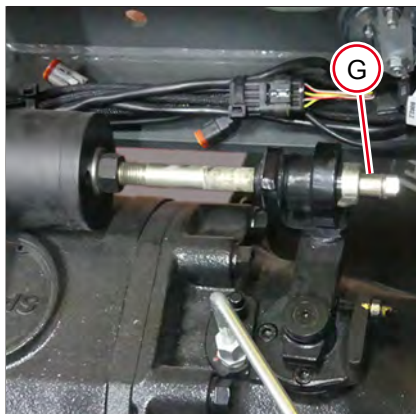


Fig. 171: Parking brake deactivated

11. Parking brake and foot brake are deactivated.
12. Perform the recovery procedure. The operator must be in the vehicle to steer.
13. Slowly start to drive.
14. Recover from the immediate risk zone at max. 0.5 m (20 in)/second until loading is possible.
15. Slowly recover from the immediate risk zone until loading is possible.

7.2 Loading



⚠ WARNING

Accident hazard due to improper loading!

Improper loading can lead to accidents with serious injuries or death.

- ▶ No one may be in the risk zone.
- ▶ Observe the transport weight on the vehicle type label.
- ▶ Only lash the vehicle to the described tie-down points.
- ▶ Observe the loading weight. Add the weight of retrofitted accessories to the vehicle weight.

7

Driving onto a transport vehicle

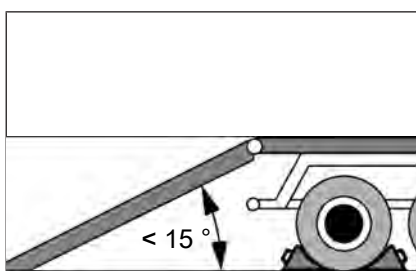


Fig. 172: Ramp (symbol illustration)

1. Observe the specifications for safe transport [see Transporting on page 28](#).
2. Secure the transport vehicle against rolling away with wheel chocks.
3. Use non-slip drive-on ramps with a maximum angle of inclination of 15° (27%).

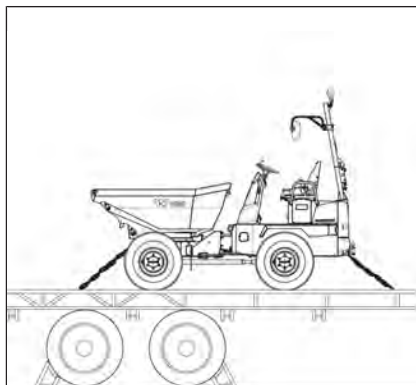


Fig. 173: (symbol display)

4. Ensure that there are no obstacles on the loading area and access road.
5. Start the engine.
6. Lower the skip. Fold down skip grid and fix in place [see Skip grid on page 75](#)
7. Carefully move the vehicle backwards onto the center of the transport vehicle.
8. Move the vehicle to the transport position: Fold down the roll bar and secure it [see Roll bar on page 73](#)
9. Activate parking brake.
10. Stop the engine.
11. Stow all loose objects safely.
12. Remove the starting key and store it in a safe place.
13. Exit the vehicle. Close and lock doors, windows and covers.

Buckling support

Buckling support **B** prevents the vehicle from buckling.

1. Remove bolt **A** and cotter pin **C**.
2. Slew buckling support **B** to drive unit **D** and secure with bolt **A** and cotter pin **C**.

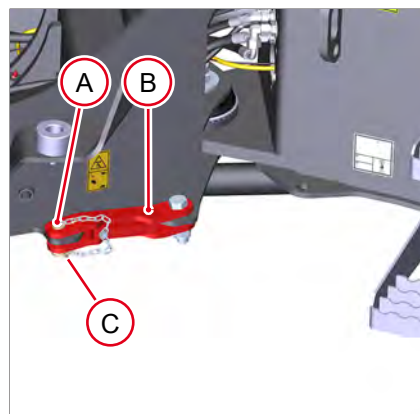


Fig. 174: Buckling support not inserted

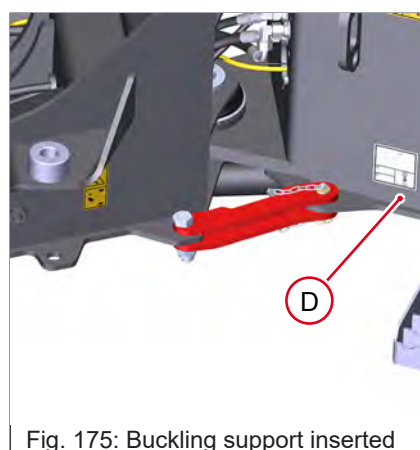


Fig. 175: Buckling support inserted



Information

Reattach the buckling support to the loading unit before putting it back into operation.

7.2.1 Tie-down points



⚠ WARNING

Danger of crushing due to buckling vehicle!

Can lead to serious injury or death.

► Before crane-lifting, install the buckling support on the drive unit.

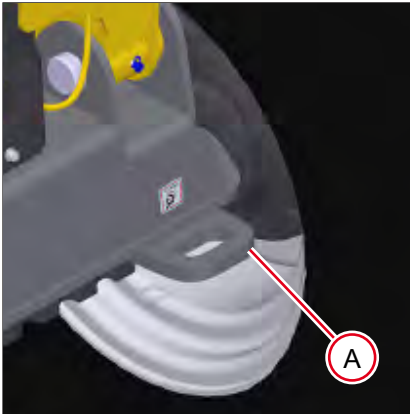


Fig. 176: Front

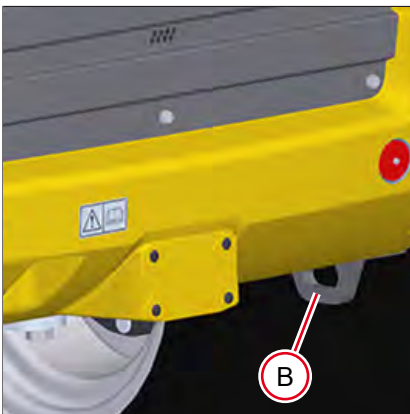


Fig. 177: Rear

Tie down points front/rear

Position	Designation	Quantity
A	Loading unit at front left and right	2
B	Drive unit at rear left and right	2

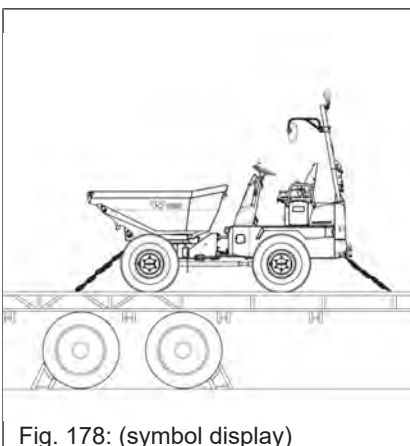


Fig. 178: (symbol display)

Specifications for lashing

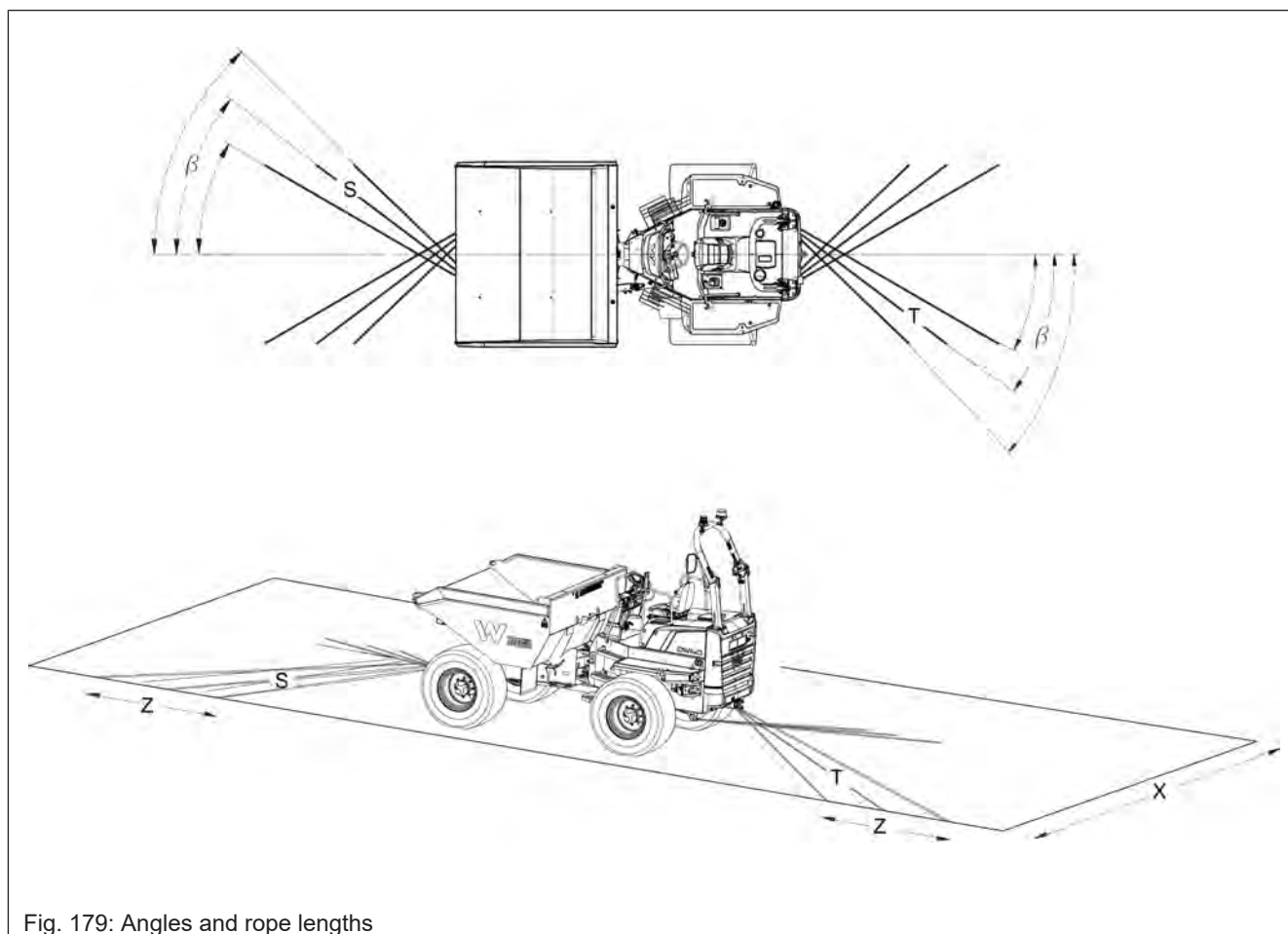


Fig. 179: Angles and rope lengths

The two lashing means **S** at the rear and the two lashing means **T** at the front of the vehicle must cross each other. The length dimensions of the lashing equipment **S** and **T** resulting from the angle β are given in the following table.

Vehicle	Angle β ¹⁾		X ²⁾	Z ³⁾		S		T	
	min.	max.				min.	max.	min.	max.
DW60	30°	44°	2400 mm (95 in)	1200 mm (47 in)	Swivel tipping skip	2521 mm (99 in)	3482 mm (11'-5")	2528 m m (100 in)	3490 m m (11'-5")
					Front tipping skip	2441 mm (96 in)	3402 mm (11'-2")		
DW90					Front tipping skip	2544 mm (8'-4")	3506 mm (11'-6")		

1) Angle between lashing equipment and direction of travel

2) Maximum lateral distance between lashing points on the loading area

3) Z Distance between the lashing points on the loading area

7.2.2 Lifting eyes

The vehicle may only be lifted by the lifting eyes described:

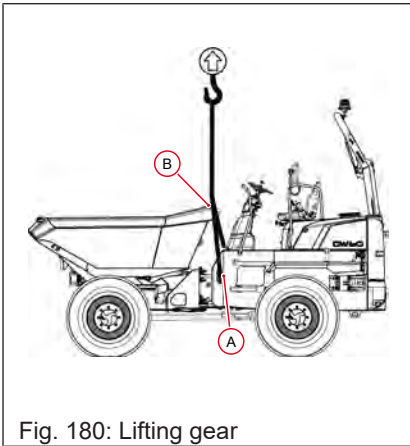


Fig. 180: Lifting gear

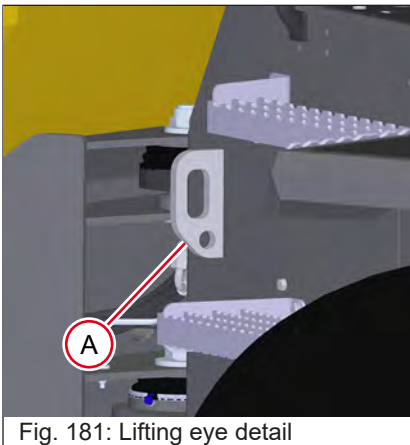


Fig. 181: Lifting eye detail

Position	Designation	Quantity
A	Drive unit front left and right	2

7.2.3 Crane-lifting

7



⚠ WARNING

Accident hazard due to improper loading!

Improper loading can lead to accidents with serious injuries or death.

- ▶ No one may be in the risk zone.
- ▶ Observe the transport weight on the vehicle type label.
- ▶ Lift the vehicle only with suitable slings.
- ▶ Observe the loading weight. Add the weight of retrofitted accessories to the vehicle weight.



⚠ WARNING

Danger of crushing due to buckling vehicle!

Can lead to serious injury or death.

- ▶ Before crane-lifting, install the buckling support on the drive unit.



NOTICE

Possible damage to the vehicle due to improper loading.

- ▶ Observe the transport weight on the vehicle type label.
- ▶ Lift the vehicle only with suitable slings.
- ▶ Observe the loading weight. Add the weight of retrofitted accessories to the vehicle weight.

Loading procedure

1. Empty the skip and bring it into the base position.
2. Remove all contamination from the vehicle.
3. Park the vehicle on horizontal, stable and level ground.
4. Activate the working hydraulics lock lever [see Preparations for driving on public roads on page 103](#)
5. Stop the engine.
6. Remove the starting key and keep it in a safe place.
7. If the total height (transport vehicle and dumper) is exceeded, the roll bar and skip grid can be folded down [see Roll bar on page 73](#), [see Skip grid on page 75](#).
8. Install buckling support Buckling support.
9. Use suitable lifting equipment.
10. Stow all loose objects safely.
11. Leave cab, close and lock vehicle doors, windows and all covers.
12. Guide the lifting equipment through the bar **B** on the edge of the skip and attach it to the frame at the lifting eyes **A** on the left and right using suitable sling.
13. Slowly raise the vehicle until it is no longer in contact with the ground.
14. Allow vehicle to swing out.
15. If the balance of the vehicle and the condition and position of the slings are satisfactory, lift the vehicle slowly to the required height and load it.



Information

The manufacturer's warranty does not cover damage or accidents during recovery, loading or transport.

7.3 Transport

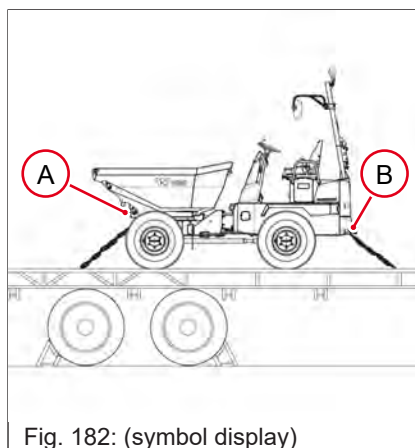


Fig. 182: (symbol display)

1. Install the buckling support [see Loading on page 130](#)(see Fig. 174 on page 130).
 2. Securely lash the vehicle to the loading area at lashing points **A** and **B** using adequately dimensioned slings. Observe the specified angles and lengths according to the specifications [see Tie-down points on page 132](#)(see Fig. 179 on page 132). Cross over the lashing equipment at the front and rear. Observe national and regional regulations.
- 1) The driver of the transport vehicle must know the following information before departure:
 - Permissible total height, total width and total weight of the transport vehicle including dumper.
 - The legal requirements of the countries in which the transportation takes place.
 - 2) Close the exhaust tailpipe before transporting the vehicle in wet weather.

8 Maintenance

8.1 Information on maintenance

Responsibilities and requirements

The functional efficiency and service life of vehicles is influenced to a large extent by care and maintenance.

Daily and weekly maintenance and care work must be carried out by personnel trained for this purpose.

For the recognition of warranty claims, the maintenance work, handover inspection and entries in the service book must be carried out by an authorized service center. Therefore, compliance with the prescribed maintenance work is in the interest of the vehicle owner. This ensures optimum functionality.

If parts show faults even before the time scheduled for replacement, repair or replace them immediately.

Only have safety-relevant parts repaired or replaced by an authorized service center.

Only use original spare parts for repairs.

The manufacturer accepts no liability for damage to the vehicle or injury to persons resulting from non-compliance with the relevant instructions and descriptions.

Important safety instructions for care and maintenance work

- Observe all safety instructions in this operator's manual.
- Follow the chapter **Safety, safety instructions for maintenance and qualification of operating and maintenance personnel** in this operator's manual.
- Wear protective equipment, e.g. hard hat, safety glasses, safety gloves, safety shoes.
- Observe hazard and safety instructions during the respective maintenance work.
- To avoid any risk of injury, do not carry out any work on the hot and running engine.
- Collect leaking vehicle fluids with a suitable container and dispose of them in an environmentally friendly manner.
- Attach a warning sign to the controls (e.g. **Vehicle is being serviced, do not start**).
- Parking the vehicle. Stop the engine [see Park on page 106](#).
- Do not perform welding work on the vehicle to avoid damage to electronic components. Contact an authorized service center.
- A high engine load may result in shorter engine oil maintenance intervals. Contact an authorized service center.

8.2 Maintenance accesses



⚠ WARNING

Risk of injury from rotating parts!

Rotating parts can lead to serious injury or death.

- ▶ Remove the starting key and store it in a safe place.
- ▶ Only open the maintenance covers when the engine is switched off.



⚠ CAUTION

Burning hazard from hot surfaces!

May lead to injuries.

- ▶ Switch off the engine and let hot surfaces cool down.
- ▶ Wear protective equipment.



⚠ CAUTION

Risk of injury due to an open maintenance access!

May lead to injuries.

- ▶ Pay attention to injuries when the maintenance accesses are open.

Vehicle with roll bar

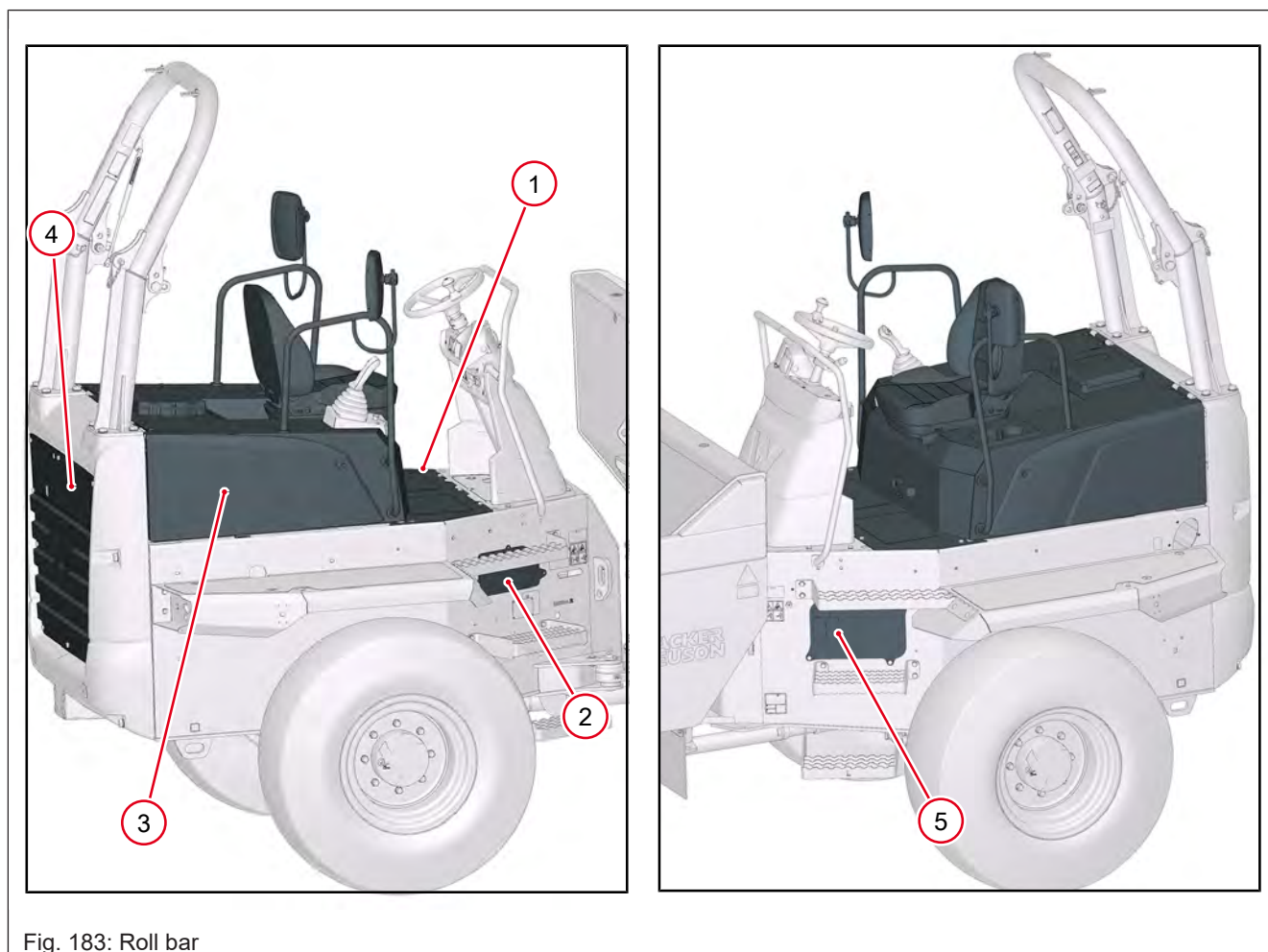


Fig. 183: Roll bar

Item	Designation	Activity	Side
1	Base plate	Empty water separator	▶ 157
2	Fuse box	Change fuses	▶ 197
3	Engine hood	Check engine hood lock Check function of gas spring Check hydraulic oil level Check engine oil level Check and refill coolant Check brake fluid level Check air intake	▶ 140 -- ▶ 152 ▶ 158 ▶ 160 ▶ 161 ▶ 172
4	Ventilation grid	Cleaning the radiator	▶ 141
5	Battery	--	--

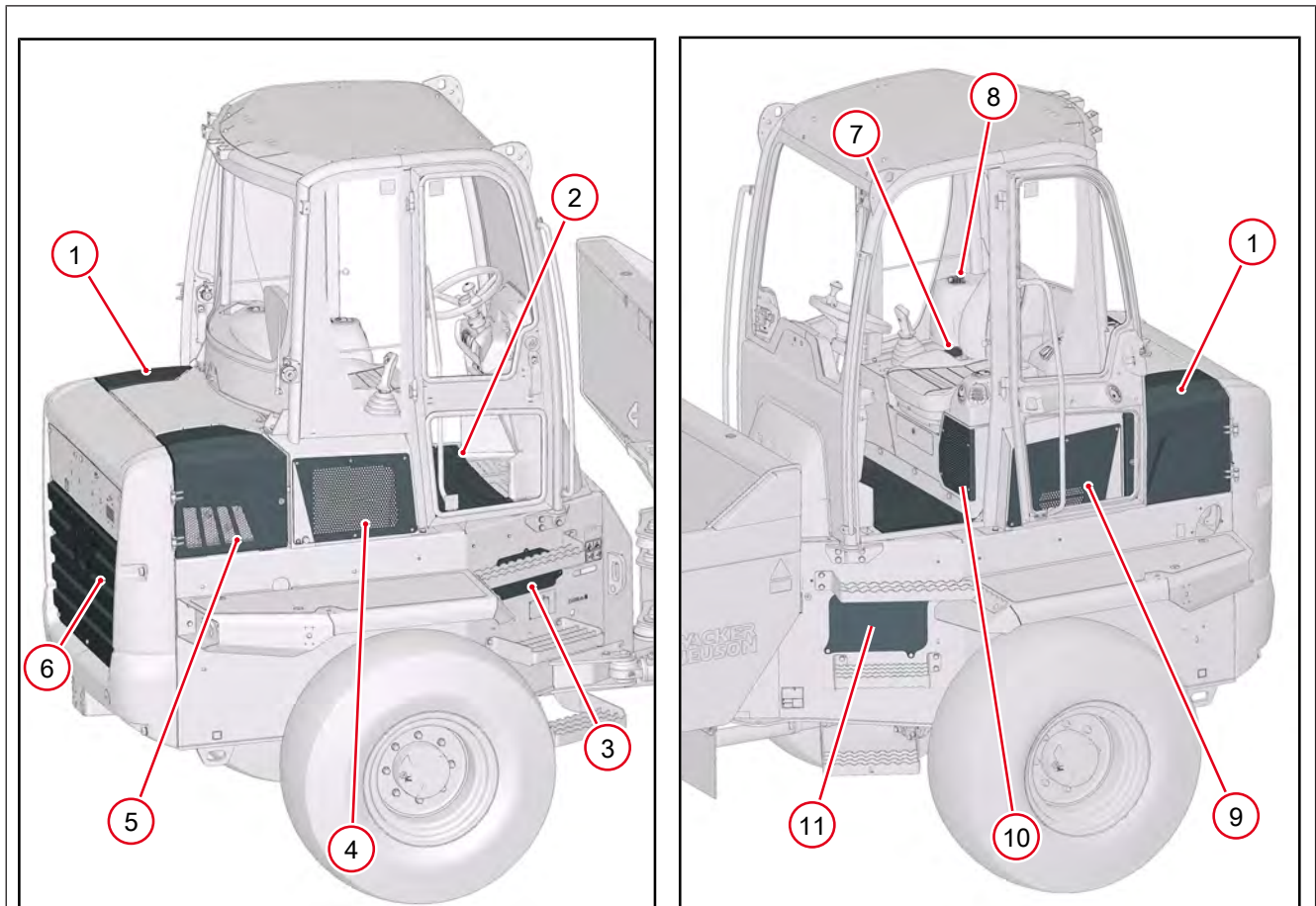


Fig. 184: Cab

Vehicle with cab

8

Item	Designation	Activity	Side
1	Left maintenance cover	Check and refill coolant	▶ 160
2	Base plate	Empty water separator	▶ 157
3	Main fuse box	Change fuses	▶ 170
4	Air-conditioning condenser	Clean climate condenser	▶ 174
5	Right maintenance cover	Check air intake	▶ 172
6	Ventilation grid	Cleaning the radiator	▶ 141
7	Cab fuse box	Change fuses	▶ 197
8	Container of window cleaner	Refill windshield washer water	▶ 116
9	Fresh air filter	Clean fresh air filter	▶ 181
10	Recirculation filter	Cleaning the recirculation filter	▶ 181
11	Battery	--	--

8.2.1 Engine hood



⚠ WARNING

Risk of injury due to an incorrectly locked engine hood!

An incorrectly locked engine hood can open while driving and cause serious injury or death.

- The engine hood must not move when the handle is pulled up.

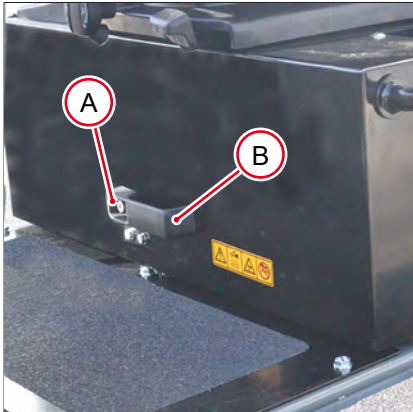


Fig. 185: Engine hood (symbol display)

Opening the engine hood

1. Parking the vehicle. Stop the engine.
2. Turn starting key in lock **A** counterclockwise.
3. Press lock **A** and tighten on handle **B**.

The engine hood is held in place by two gas springs.

Closing the engine cover

1. Pull hood down firmly at handle **B** until engine hood engages.
2. Turn starting key in lock **A** clockwise.



⚠ WARNING

Risk of injury from a defective gas spring!

Defective gas springs do not support the operator and can lead to severe injuries or death.

- Check the gas springs according to the maintenance plan.
- In the event of a defective gas spring, contact an authorized service center. Do not put the vehicle into operation.

8.2.1.1 Checking the engine hood lock

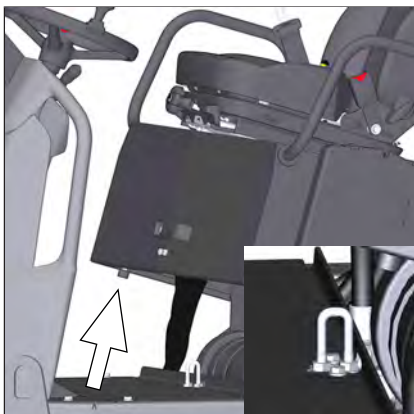


Fig. 186: Open engine hood (symbol illustration)

The engine hood lock inside the hood latches into the bracket on the floor panel. The illustrations opposite show the correct lock.

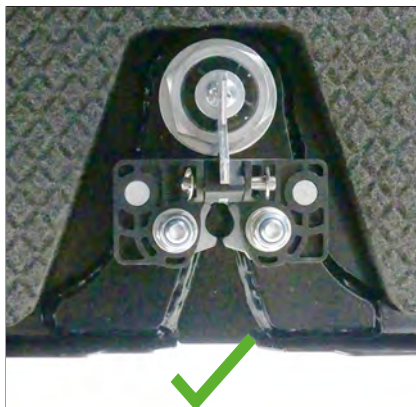


Fig. 187: Checking the engine hood lock (symbol illustration)

1. Close the engine cover.
2. Do not press handle lock and pull handle upwards.
 - ⇒ The engine hood cannot be moved: The vehicle is ready for operation.
 - ⇒ The engine hood can be moved: Repeat procedure.
 - ⇒ The engine hood can still be moved: Contact an authorized service center.

8.2.2 Radiator cover

Ventilation grid

The radiator is located behind the ventilation grid.



Fig. 188: Radiator cover

8.2.3 Left maintenance cover

Open maintenance cover

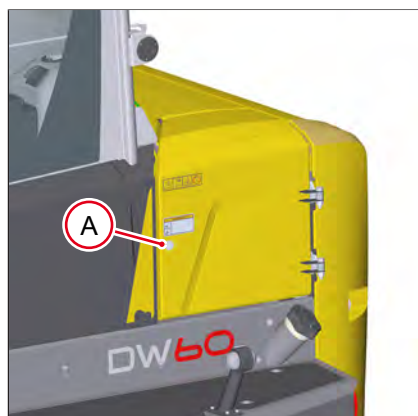


Fig. 189: Left maintenance cover

1. Parking the vehicle. Stop the engine.
2. Turn starting key in lock **A** counterclockwise.
3. Open the maintenance cover.

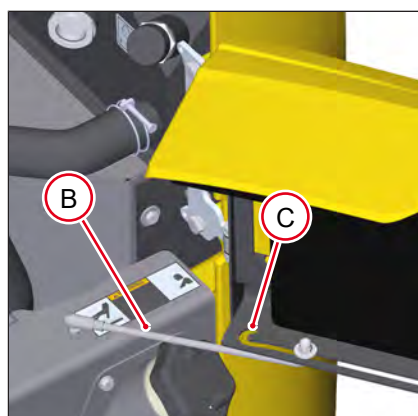


Fig. 190: Not fixed

4. Fix the lock **B** at the attachment point **C**.

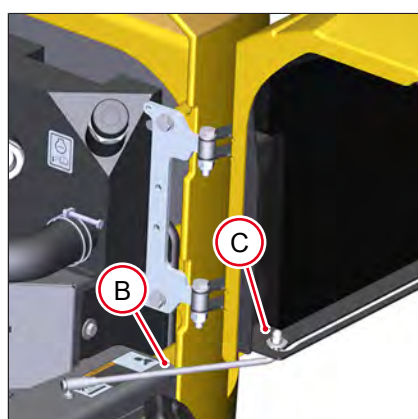


Fig. 191: Fixed

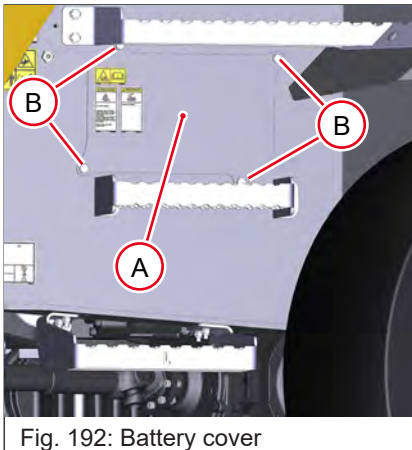
Closing the maintenance cover

1. Release the lock **B** from the attachment point **C**.
2. Close the maintenance cover and turn the starting key clockwise.

8.2.4 Right maintenance cover

The above instructions apply, viewed in reverse.

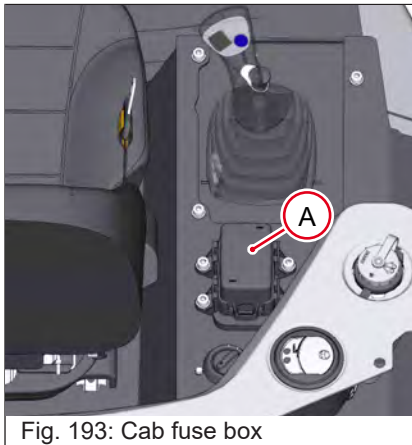
8.2.5 Battery cover



The battery is located under cover **A** between the steps to the left of the vehicle.

Function	Operation
Remove the cover	Loosen screws B
Install the cover	Tighten screws B

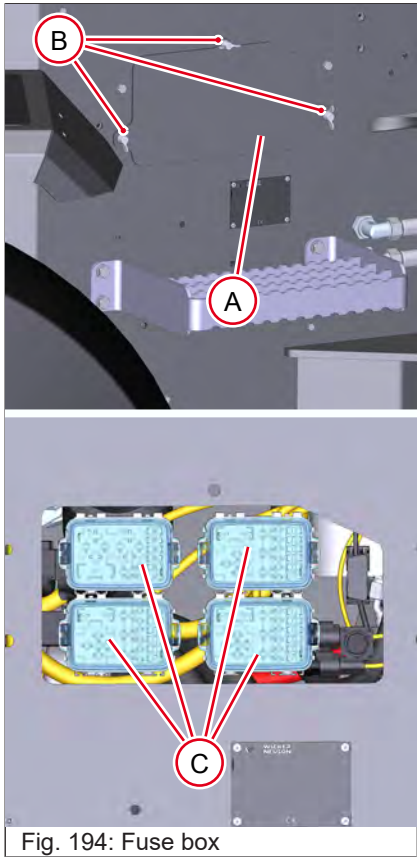
8.2.6 Cab fuse box



Fuse box **A** is located to the right of the driver's seat.

8.2 Maintenance accesses

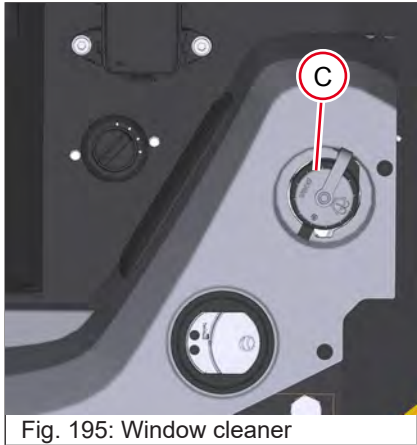
8.2.7 Main fuse box



The fuse box is located on the right side of the vehicle behind maintenance cover **A**.

Function	Operation
Dismantle cover A	Loosen screws B
Remove cover C	--
Put on cover C	--
Mount cover A	Tighten screws B

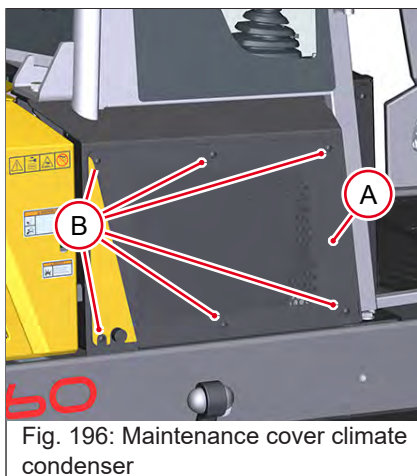
8.2.8 Washer system



The container **C** for the window cleaner is located on the right rear side of the cab.

8.2.9 Fresh air filter

8.2.10 Climate condenser



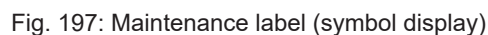
The climate condenser is located on the right side of the vehicle behind maintenance cover **A**.

Function	Operation
Remove the cover	Loosen screws B
Install the cover	Tighten screws B

8.3 Maintenance plan

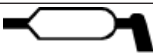
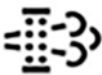
8.3.1 Maintenance label

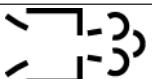
Maintenance work that must be carried out by the operator is indicated on the maintenance label.



Superscript numbers, e.g. ²: Number of lubrication points

8.3.2 Daily maintenance

Daily maintenance (operator)		
Symbol	Control and inspection work	Side
	Check operating fluids (engine oil, engine coolant, hydraulic oil)	▶ 158 ▶ 160 ▶ 152
	Check radiator for contamination, clean if necessary	▶ 174
	Lubricate vehicle according to lubrication plan	▶ 162
	Drain water from the water separator when the control light is on	▶ 157
	Check tires (damage, air pressure, tread depth)	
	Check engine air intake	▶ 172
	Carry out standstill regeneration when control light Re-generation necessary lights up	▶ 178
	Check bolt safety devices	--
	Check cable fastenings	--
	Check control lights and acoustic warning devices	▶ 78
	Check foot and parking brake for function	▶ 88
	Check steering system for function	▶ 90
	Check screw connections of the protective structures for tightness	--
	Checking the engine hood lock	▶ 140
	Clean the lighting system and signaling equipment	--
	Adjust mirrors and camera system correctly, clean and check for damage, check fastening screws and tighten if necessary	▶ 68
	Check air-conditioning condenser for dirt and clean if necessary	▶ 175
	Clean cab air filter	Cab air filter

Daily maintenance (operator)		
Symbol	Control and inspection work	Side
	Overload valve: check acoustic warning device	--
Leakage check		
Check pipes, hoses and screwed connections of the following assemblies for tightness, leaks and chafing; re-pair if necessary		
	Engine and hydraulic system	--
	Drive system, axles and transfer case	--
	Braking system	--
	Cooling systems, heating and hoses (visual check)	--
Visual check		
Functionality, deformations, damages, surface cracks, wear and corrosion		
	Check exhaust system for damage	--
	Check insulation mats in the engine compartment for damage	--
	Check cab and protective structures for damage (e.g. roll bar)	--
	Check ascent and descent for contamination	
	Check the piston rods of the cylinders for damage	--
	Check belt for damage	[► 67]
	Check the gas springs of the engine hood and the roll bar for function	--
	Check lifting eyes	--

8.3.3 Further maintenance intervals

Once after the first 50 hours of operation (Authorized service center)	
Change hydraulic oil filter	--
Change transmission oil drive system, axles, transfer case	--
Check screw connections for tightness	--
Check label and operator's manual for completeness and condition	--
Check the pressure of the primary pressure relief valves	--

Once after the first 50 hours of operation (Authorized service center)	
Retighten wheel nuts	--
Reset maintenance counter	--
Check and adjust parking brake and foot brake	--
All points from the daily and weekly maintenance intervals	--

Further service intervals (Authorized service center):

- Every 500 operating hours
- Every 1000 operating hours or annually
- Every 2000 operating hours
- Every 3000 operating hours

For detailed information, contact an authorized service center.

8.4 Vehicle fluids

Overview of vehicle fluids and filling quantities

Engine TD 2.2

Application	Vehicle fluid	Specification	Season/ temperature	Fill quantities ¹⁾
Engine	Diesel ²⁾	ASTM D975 - 94: 2D S15 (USA) ³⁾	Summer or winter diesel de- pending on the outside temper- ature	74 liters (19.5 gal)
		EN 590 (EU) ⁴⁾		
		BS 2869 - A1, A2 (GB) ⁴⁾		
	Coolant ⁵⁾	Distilled water and antifreeze ASTM D3306 ASTM D4985 Deutz DQC CA-14	all year round	13.5 liters (3.6 gal)
	Engine oil	API: CJ-4 ACEA: E9 ECF-3	See engine oil type on page ▶ 151	6.5-8 liters (1.7-2.1 gal)
Hydraulic oil tank	Hydraulic oil	Eurolub HVLP 46 ⁶⁾	See hydraulic oil types on page ▶ 151	64 liters (16.9 gal)
	Bio-oil ⁷⁾	Panolin HLP Synth 46		
Braking system	Hydraulic oil	Eurolub HVLP 46 ⁶⁾	See hydraulic oil types on page ▶ 151	0.7 liters (42.7 in ³)
Grease nipples	Grease	KPF 2 K-20 ⁸⁾ ISO- L-X-BCEB 2 ⁹⁾	all year round	as needed
Battery terminals	Acid protective grease ¹⁰⁾	FINA Marson L2	all year round	as needed

1) The indicated filling quantities are approximate values, the oil level check is always decisive for the correct oil level. The specified fill quantities are not system fillings

2) The use of bio diesel is prohibited.

3) Sulfur content up to 15 ppm (0.0015%).

4) Sulfur content up to 10 ppm (0.001%).

5) Factory filling; do not mix coolant - Follow coolant mixing table

6) In accordance with DIN 51524 Part 3, ISO-VG 46.

7) Biodegradable hydraulic oil based on saturated synthetic esters with an iodine value <10, according to DIN 51524, Part 3, HVLP, HEES.

8) According to DIN 51502, lithium-saponified grease.

9) According to DIN ISO 6743-9, lithium-saponified grease.

10) Standard acid protective grease NGLI class 2.

Engine TD 2.9

Application	Vehicle fluid	Specification	Season/ temperature	Fill quantities ¹⁾
Engine	Diesel ²⁾	ASTM D975 - 94: 2D S15 (USA) ³⁾	Summer or winter diesel de- pending on the outside temper- ature	74 liters (19.5 gal)
		EN 590 (EU) ⁴⁾		
		BS 2869 - A1, A2 (GB) ⁴⁾		
	Coolant ⁵⁾	Distilled water and antifreeze ASTM D3306 ASTM D4985 Deutz DQC CA-14	all year round	17.7 liters (4.7 gal)
	Engine oil	API: CJ-4 ACEA: E9 ECF-3	See engine oil type on page ▶ 151	7.5-9 liters (2-2.4 gal)
Hydraulic oil tank	Hydraulic oil	Eurolub HVLP 46 ⁶⁾	See hydraulic oil types on page ▶ 151	64 liters (16.9 gal)
	Bio-oil ⁷⁾	Panolin HLP Synth 46		
Braking system	Hydraulic oil	Eurolub HVLP 46 ⁶⁾	See hydraulic oil types on page ▶ 151	0.7 liters (42.7 in ³)
Grease nipples	Grease	KPF 2 K-20 ⁸⁾ ISO- L-X-BCEB 2 ⁹⁾	all year round	as needed
Battery terminals	Acid protective grease ¹⁰⁾	FINA Marson L2	all year round	as needed
Washer system	Cleaning solution	Window cleaner and antifreeze compound	all year round	1.2 liters (73 in ³)

1) The indicated filling quantities are approximate values, the oil level check is always decisive for the correct oil level. The specified fill quantities are not system fillings

2) The use of bio diesel is prohibited.

3) Sulfur content up to 15 ppm (0.0015%).

4) Sulfur content up to 10 ppm (0.001%).

5) Factory filling; do not mix coolant - Follow coolant mixing table

6) In accordance with DIN 51524 Part 3, ISO-VG 46.

7) Biodegradable hydraulic oil based on saturated synthetic esters with an iodine value <10, according to DIN 51524, Part 3, HVLP, HEES.

8) According to DIN 51502, lithium-saponified grease.

9) According to DIN ISO 6743-9, lithium-saponified grease.

10) Standard acid protective grease NGLI class 2.

8.4.1 Hydraulic oil types

Viscosity class	Ambient temperature			
	min. °C	min. °F	min. °C	min. °F
ISO VG32	-20	-4	30	86
ISO VG46	-5	23	40	104
ISO VG68	5	41	50	122

8.4.1.1 Operation with organic hydraulic oil

- Only use organic oils approved by Wacker Neuson.
- Only top up with the same organic oil. Place a clear notice on the hydraulic oil fill opening indicating the oil type currently used.
- If two different types of oil are mixed, the properties of one type may deteriorate.
- When changing the oil, ensure that the remaining amount complies with national and regional regulations. Observe the manufacturer's instructions.
- Do not top up with mineral oil. A mineral oil content of more than 2% of the system filling causes foaming problems and affects the biodegradability of the oil.
- The same change intervals for oil and filter apply for bio-oils as for mineral oils.
- The condensation water in the hydraulic oil tank must be drained off by an authorized service center before the cold season. The water content must not exceed 0.1 percent by weight.
- Also for bio-oils, all environmental protection instructions in this operator's manual apply.
- The change from mineral oil to bio-oil may only be carried out by an authorized service center.

8.4.2 Engine oil types

Viscosity class	Ambient temperature			
	min. °C	min. °F	max. °C	max. °F
SAE 0W30	-35	-31	30	86
SAE 0W40	-35	-31	40	104
SAE 5W30	-30	-22	30	86
SAE 5W40	-30	-22	40	104
SAE 10W30	-15	-5	30	86
SAE 10W40	-15	-5	40	104
SAE 15W40	-15	-5	40	104
SAE 20W50	-5	23	>40	>104

8.5 Levels



Environment

Collect leaking vehicle fluids with a suitable container and dispose of them in an environmentally friendly manner.

8.5.1 Check hydraulic oil level



⚠ WARNING

Burning hazard from hot hydraulic oil!

Hot hydraulic oil can cause scalding to the skin and serious injury or death.

- ▶ Release pressure from the hydraulic system.
- ▶ Let the engine cool down.
- ▶ Wear protective equipment.



⚠ WARNING

Risk of injury due to fluid leakage under pressure!

Hydraulic oil escaping under pressure can penetrate the skin and cause serious injury or death.

- ▶ Do not operate the vehicle with leaking or damaged components of the hydraulic system.
- ▶ Open the hydraulic oil tank carefully so that the pressure in the tank is released.
- ▶ Wear protective equipment. In case of contact with hydraulic oil, immediately rinse eyes with clean water and contact a doctor.
- ▶ Defective or leaking hydraulic lines and screw joints must be repaired immediately by an authorized service center. Locate hydraulic leaks with a piece of cardboard.
- ▶ Contact a doctor immediately, even with the smallest wounds. Hydraulic oil causes blood poisoning.



NOTICE

Possible damage due to incorrect hydraulic oil.

- ▶ Only use hydraulic oil according to the list of **vehicle fluids**.
- ▶ The hydraulic oil may only be changed by an authorized service center.



NOTICE

Damage to the hydraulic system due to an incorrect hydraulic oil level.

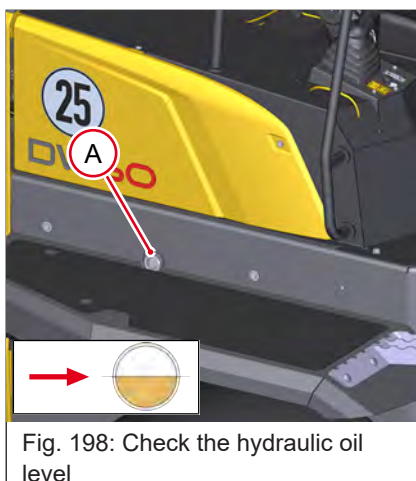
- ▶ The hydraulic oil must be visible approximately in the center of the oil sight glass when the engine is at operating temperature.
- ▶ Check the hydraulic oil level daily.



NOTICE

Possible damage to the hydraulic system due to unreleased or contaminated hydraulic oil.

- ▶ Fill hydraulic oil through a sieve.
- ▶ Cloudy hydraulic oil in the oil sight glass indicates water or air in the hydraulic system. Contact an authorized service center.
- ▶ Have contaminated hydraulic oil filters replaced by an authorized service center.



1. Parking the vehicle. Stop the engine [see Park on page 106](#).
2. Lower the skip.
3. Depressurize hydraulic system by actuating joystick several times.
4. Remove the starting key and store it in a safe place.
5. The oil sight glass **A** is located on the right side of the vehicle.
6. Check the oil level at oil sight glass **A**.
7. When the engine is warm from operation, the oil level must be approximately in the middle of the oil sight glass **A**.
8. If the oil level is below the described mark, top up hydraulic oil [see Refill hydraulic oil on page 153](#).

8.5.2 Refill hydraulic oil



⚠ WARNING

Danger of falling when refilling vehicle fluids!

Can lead to serious injury or death.

- ▶ When refilling hydraulic oil, use safe climbing aids.
- ▶ Do not use vehicle components or attachments as climbing aids.

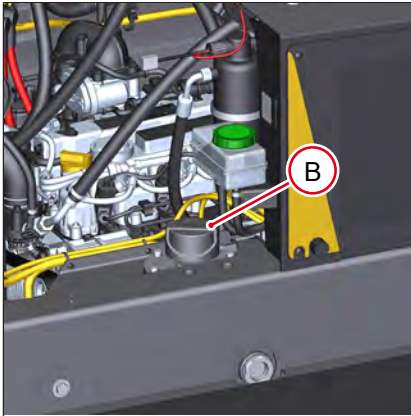


Fig. 199: Refill hydraulic oil

1. Parking the vehicle. Stop the engine [see Park on page 106](#).
2. Let the engine cool down
3. Depressurize the hydraulic system by actuating the joystick several times.
4. Open the engine hood or the right maintenance cover.
5. Open breather filter **B** slightly to release pressure.
6. Remove breather filter **B**.
⇒ Check hydraulic oil tank for contamination and clean if necessary.
7. Refill hydraulic oil until the oil level is approximately in the middle of the oil sight glass.
8. Replace breather filter **B** and screw tight.
9. Start engine and carry out all hydraulic functions.
10. Stop the engine.
11. Check hydraulic oil level at oil sight glass **A** [see Check hydraulic oil level on page 152](#).
⇒ If necessary, refill hydraulic oil.
12. Remove spilled hydraulic oil.
13. Close the engine hood or the right maintenance cover and lock it.



Environment

Collect leaking vehicle fluids with a suitable container and dispose of them in an environmentally friendly manner.

8.5.3 Refuel

8.5.3.1 Information on the fuel system



⚠ WARNING

Explosion hazard due to fuel-air mixtures!

Fuels develop explosive and flammable fuel-air mixtures which can lead to severe burns or death.

- ▶ Fire, open flame and smoking are prohibited.
- ▶ Keep the maintenance area clean.
- ▶ Do not refuel in enclosed spaces.
- ▶ Do not mix gasoline with diesel fuel.
- ▶ Let the engine cool down.



⚠ CAUTION

Health hazard due to diesel!

Diesel and its vapors are harmful to health.

- ▶ Avoid contact with the skin, eyes and mouth.
- ▶ In case of accidents with diesel, contact a doctor immediately.
- ▶ Wear protective equipment.



⚠ CAUTION

Risk of injury when refueling!

Improper refueling can lead to injuries.

- ▶ Use safe climbing aids to refuel the vehicle.
- ▶ Do not use vehicle parts or attachments as climbing aids.



NOTICE

Damage to the engine due to incorrect or contaminated diesel.

- ▶ Use only clean diesel according to the list of **vehicle fluids**.
- ▶ Do not use any types of diesel with additives not approved by Wacker Neuson.
- ▶ To avoid contamination of the diesel, do not refuel with canisters.



Information

Fill up the tank after each working day. This prevents condensation from forming in the fuel tank.



Information

The fuel tank must not be completely emptied, as in this case air is sucked into the fuel system, which makes it necessary to vent the fuel system.



Environment

Collect leaking vehicle fluids with a suitable container and dispose of them in an environmentally friendly manner.

Fuel specification

Observe the information in the specification [see Vehicle fluids on page 149](#).

8.5.3.2 Refuel



NOTICE

Contamination of the fuel system.

Even the smallest particles of dirt cause increased engine wear, malfunctions in the fuel system and reduced effectiveness of the fuel filters.

- ▶ Do not refuel from canisters.
- ▶ Immerse pump suction tubes to a maximum of 15 cm (6 in) above the bottom of the barrel.
- ▶ If possible, use fine filters.

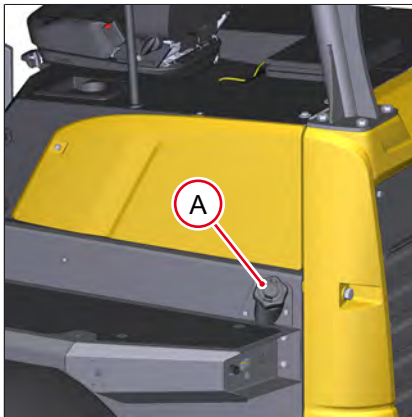


Fig. 200: Fill opening

The fill opening of the fuel tank is located on the left side of the vehicle.

1. Parking the vehicle. Stop the engine [see Park on page 106](#).
2. Open fuel filler cap **A** slowly to allow the pressure in the fuel tank to escape.
3. Refuel the vehicle.
4. Close fuel filler cap **A**.

8.5.3.3 Refueling from barrels

If refueling from barrels is unavoidable, observe the following:

- Do not roll or tip barrels before refueling.
- Protect the suction pipe opening of the barrel pump with a fine-mesh screen.
- Immerse the suction tube opening of the barrel pump up to max. 15 cm (6 in) towards the bottom of the barrel.
- Fill the tank only with filling aids (funnel or filling tube) with a built-in fine filter.
- Keep all containers clean for refueling.

8.5.4 Fuel filter

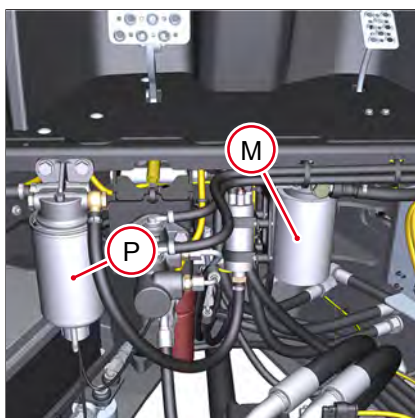


Fig. 201: Fuel filter

The fuel prefilter **P** and the fuel main filter **M** are located under the floor panel.

8.5.5 Empty water separator

8.5.5.1 Empty prefilter



Fig. 202: Empty water separator

Drain the fuel/water mixture as soon as the adjacent control light appears on the display.

1. Parking the vehicle. Stop the engine [see Park on page 106](#).
2. Dismantle the base plate.
3. Prepare a suitable container to collect the fuel/water mixture.
4. Connect a suitable hose to connection **A**.
5. Loosen vent screw **D**.
6. Open drain valve **B**.
7. Drain the fuel/water mixture into the tank.
8. Close drain valve **B** when only more fuel flows into the tank.
9. Tighten vent screw **D**.
10. Remove the hose.
11. Install the bottom plate.

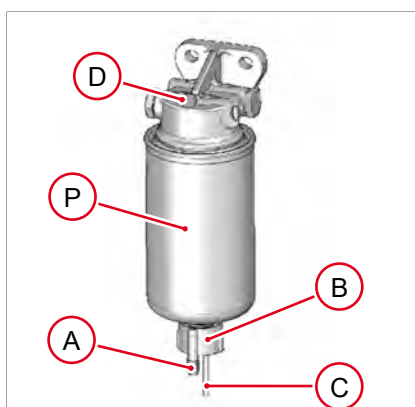


Fig. 203: Water separator prefilter



Environment

Collect leaking vehicle fluids with a suitable container and dispose of them in an environmentally friendly manner.

8.5.6 Checking the engine oil level

Notes on the engine lubrication system



⚠ WARNING

Burning hazard from hot engine oil!

Hot engine oil can cause severe burns to the skin.

- ▶ Wear protective equipment.
- ▶ Let the engine cool down.
- ▶ Use suitable tools.
- ▶ Fire, open flame and smoking are prohibited.



NOTICE

Possible damage due to an incorrect engine oil level.

- ▶ The oil level must be between the MIN and MAX mark.



NOTICE

Damage due to incorrect engine oil.

- ▶ Use **engine oil** according to the list of vehicle fluids.
- ▶ The engine oil may only be changed by an authorized service center.



NOTICE

Possible damage caused by filling the engine oil too quickly.

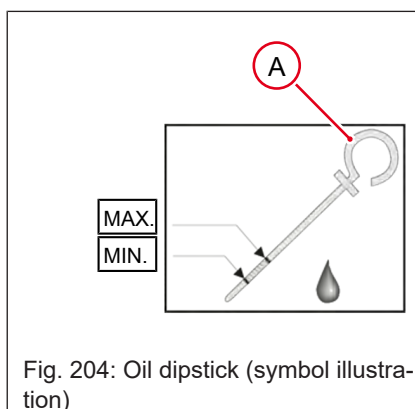
- ▶ Fill in engine oil slowly so that it can drain off and does not enter the intake system.



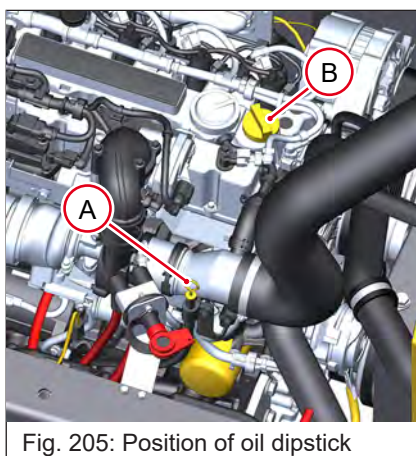
Information

Check the oil level daily. Wacker Neuson recommends checking the oil level before starting the engine. Check the oil level at the earliest five minutes after switching off the engine.

Checking the engine oil level

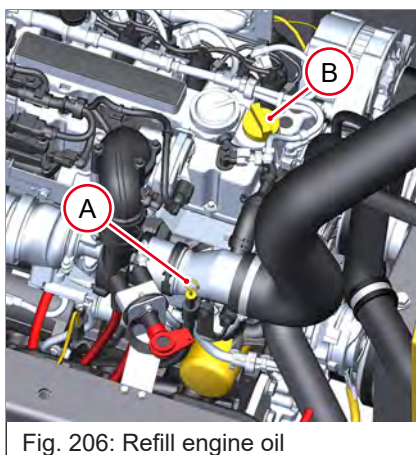


1. Park the vehicle. Stop the engine [see Park on page 106](#).
2. Open the engine hood or the left maintenance cover.
3. Wipe the area around the oil dipstick **A** with a lint-free cloth.



4. Pull out oil dipstick **A** and wipe with a lint-free cloth.
5. Push in oil dipstick **A** completely, then pull it out and read off the oil level.
 - ⇒ The oil level must be between the **MIN** and **MAX** mark.
 - ⇒ If necessary, top up engine oil and check oil level again.
6. Push in oil dipstick **A** completely.
7. Close the engine hood or the left maintenance cover and lock it.

8.5.7 Refill engine oil



1. Park the vehicle. Stop the engine [see Park on page 106](#).
2. Open the engine hood or left maintenance cover.
3. Wipe the area around cover **B** with a lint-free cloth.
4. Remove cover **B**.
5. Pull out oil dipstick **A** slightly so that any trapped air can escape.
6. Fill in engine oil.
7. Wait at least ten minutes until the oil has completely drained into the oil pan.
8. Check the oil level [see Checking the engine oil level on page 158](#).
 - ⇒ Refill if necessary and check the oil level again.
9. Close cover **B**.
10. Push in oil dipstick **A** completely.
11. Close and lock the engine cover.



Environment

Collect leaking vehicle fluids with a suitable container and dispose of them in an environmentally friendly manner.

8.5.8 Checking and refilling coolant

Information on the cooling system



⚠ WARNING

Risk of poisoning by hazardous substances!

Contact with hazardous substances can lead to serious injury or death.

- ▶ Wear protective equipment.
- ▶ Do not inhale or swallow coolant.
- ▶ Avoid contact of coolant or antifreeze compound with skin and eyes.



⚠ WARNING

Risk of burns from coolant or antifreeze compound!

Coolant and antifreeze compound are highly flammable liquids that can cause severe burns or death if they come into contact with fire or open light.

- ▶ Wear protective equipment.
- ▶ Only carry out maintenance work when the engine has cooled down.
- ▶ Fire, open flame and smoking are prohibited.



⚠ WARNING

Risk of burns due to hot coolant!

The cooling system is pressurized at high temperature and may cause burns or death on skin contact.

- ▶ Wear protective equipment.
- ▶ Let the engine cool down.
- ▶ Open the radiator carefully.



NOTICE

Possible engine damage due to incorrect coolant or coolant level too low.

- ▶ Only use approved coolant.
- ▶ Check coolant level daily before starting engine.

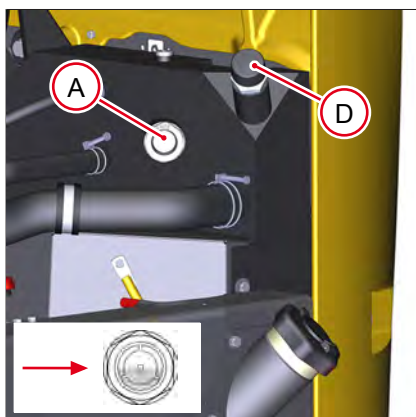


Fig. 207: Check and refill coolant

1. Parking the vehicle. Stop the engine [see Park on page 106](#).
2. Let the engine and coolant cool down.
3. Open the engine hood or the left maintenance cover.
4. Check the coolant level at oil sight glass **A**.
⇒ The coolant level should be in the middle of the oil sight glass.
5. Carefully unscrew the filler cap **D** and let the pressure escape.
6. Open the filler cap **D**.
7. Top up coolant to the middle of the oil sight glass.
8. Close the filler cap **D**.
9. Start the engine and let it warm up for approx. 5-10 minutes.
10. Stop the engine.
11. Let the engine and coolant cool down.
12. Check the coolant level at oil sight glass **A**.
13. Close the engine hood or the left maintenance cover and lock it.

8.5.9 Washer system



⚠ CAUTION

Burning hazard from hot surfaces!

May lead to injuries.

- ▶ Switch off the engine and let hot surfaces cool down.
- ▶ Wear protective equipment.

Only use windshield cleaner (with antifreeze if necessary) for refilling.

8

8.5.10 Checking and refilling the brake fluid level

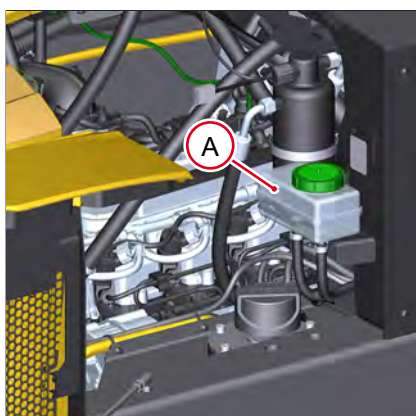


Fig. 208: Brake fluid reservoir position

The brake fluid reservoir **A** is located on the right side of the vehicle under the engine hood or behind the right maintenance cover.

1. Parking the vehicle. Stop the engine [see Park on page 106](#).
2. Open engine hood or right maintenance cover.
3. Check fluid level at brake fluid reservoir **A**.

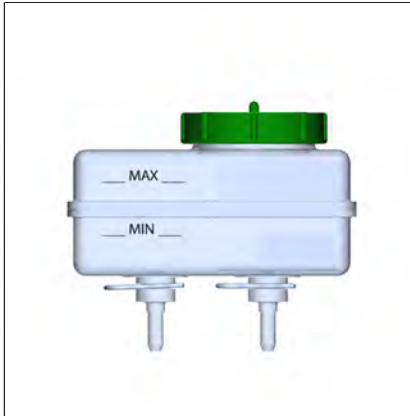


Fig. 209: Brake fluid reservoir (symbol display)

4. The fluid level must be between the **MIN** and **MAX** marks.
5. If the oil level is too low, top up with oil.
6. Close engine hood or right maintenance cover.

8.6 Lubricate vehicle and attachments



Information

Keep all lubrication points clean and remove any grease that has leaked.

Preparation for lubrication

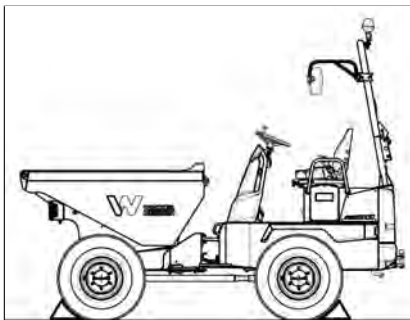


Fig. 210: Parking

1. Park the vehicle on horizontal, stable and level ground.
2. Activate parking brake and secure vehicle with wheel chocks.
3. Lift the skip and secure it with the maintenance support.
4. Turn off the engine.
5. Remove the starting key and store it in a safe place.
6. Stow loose objects.
7. Close the windows and doors.
8. Close and lock covers.
9. Attach a warning sign to the control elements (e.g. **vehicle is being serviced, do not start**).

Wait at least 10 minutes after switching off the engine.

8.6.1 Lubrication plan

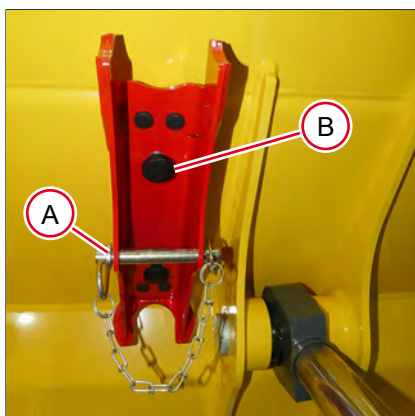


Fig. 211: Attachment to the skip

Vehicle with front tipping skip

Maintenance support

The maintenance support is attached to the underside of the skip. Remove cotter pin and bolt **A** and loosen bolt **B**.

Place the maintenance support over the rod of the tipping cylinder and fix it with bolt **A**.

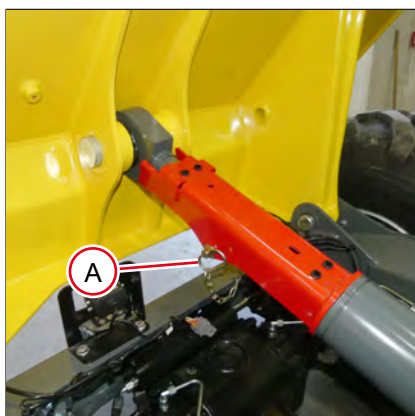


Fig. 212: Maintenance support active

Vehicle with front tipping skip

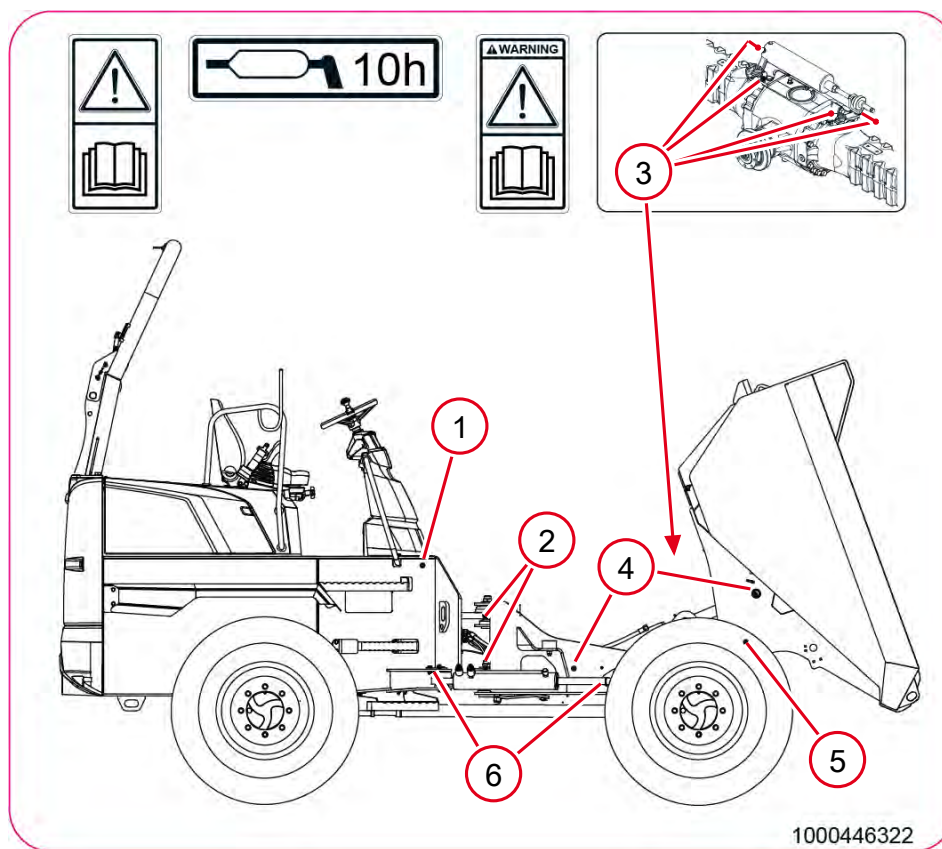


Fig. 213: Lubrication plan front tipping skip

Item	Lubrication point ¹⁾	Quantity
1	Rear articulated joint lubrication	1
2	Front articulated joint lubrication and main joint	2
3	Parking brake cylinder of front axle	4
4	Tipping cylinder	2
5	Skip pivot point	2
6	Steering cylinder	2

1) Lubrication on the bolts or directly on the cylinders

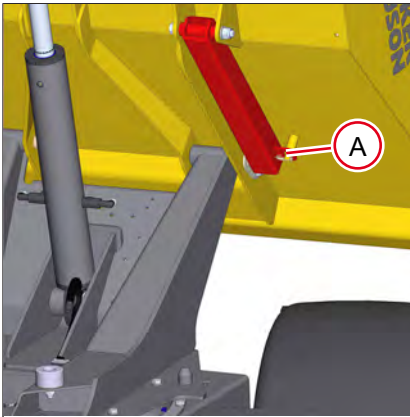


Fig. 214: Attachment to the skip

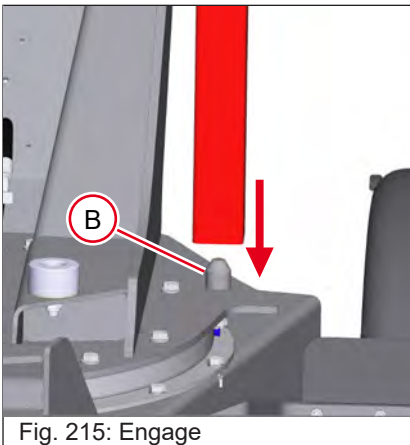


Fig. 215: Engage

Vehicle with swivel tipping skip

Maintenance support

The maintenance support is attached to the underside of the skip. Remove splint and bolt **A**.

Slowly lower the skip until the maintenance support is fixed to the holder **B**.

Vehicle with swivel tipping skip

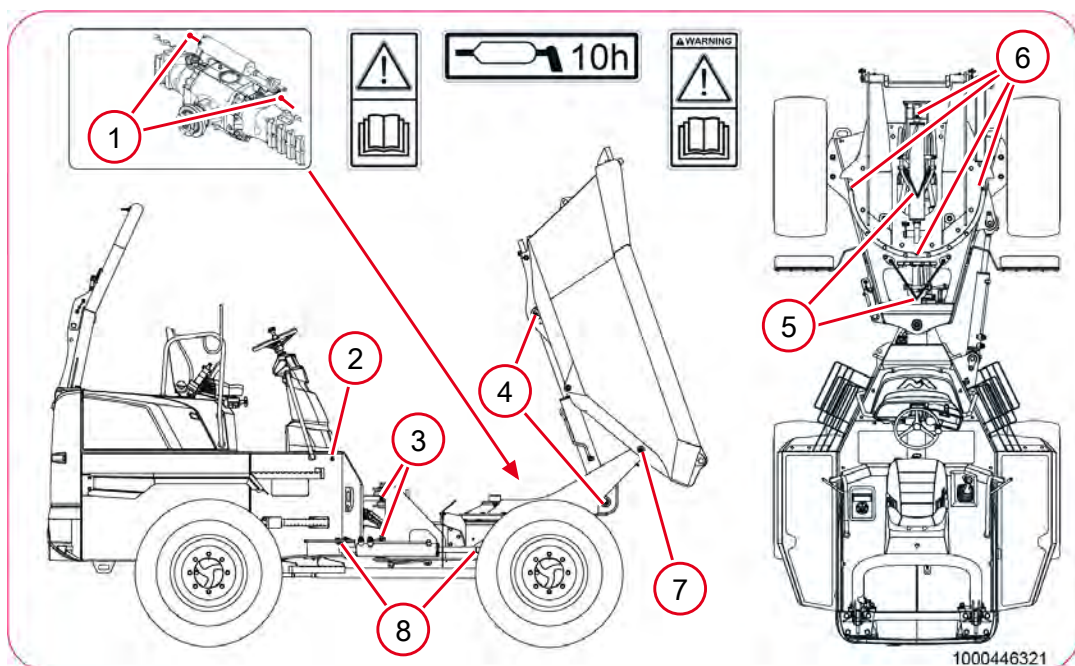


Fig. 216: Lubrication plan swivel tipping skip

Item	Lubrication point ¹⁾	Quantity
1	Parking brake cylinder of the front axle	2
2	Rear articulated joint	1
3	Front articulated joint and main joint	2
4	Tipping cylinder	2
5	Swivel cylinder	4
6	Slewing ring	4
7	Skip pivot point	2
8	Steering cylinder	2

1) Lubrication on the bolts or directly on the cylinders.

8.7 Cleaning and care

Information on cleaning and care



⚠ WARNING

Risk of injury from rotating parts!

Rotating parts can lead to serious injury or death.

- ▶ Remove the starting key and store it in a safe place.
- ▶ Only open the maintenance covers when the engine is switched off.



⚠ CAUTION

Danger to health from cleaning agents!

Cleaning agents can be harmful to health.

- ▶ Only use suitable cleaning agents.
- ▶ Ventilate closed rooms well.



⚠ CAUTION

Burning hazard from hot surfaces!

May lead to injuries.

- ▶ Switch off the engine and let hot surfaces cool down.
- ▶ Wear protective equipment.



NOTICE

Damage to rubber and electrical components due to the use of solvents.

- ▶ Do not use solvents, gasoline or other aggressive chemicals.



NOTICE

Damage to electrical components due to water.

- ▶ Clean the vehicle only when the engine is switched off.
- ▶ Electronic components (e.g. relays, displays) must not be cleaned with a high-pressure cleaner.
- ▶ A distance of at least 50 cm (20 in) to the nozzle of the high-pressure cleaner must be maintained from electrical components (e.g. headlights, rotating beacons).
- ▶ Carefully dry electrical components with compressed air and spray with contact spray.



Environment

To avoid environmental damage, only clean the vehicle at an approved washing area or in a wash hall.

A differentiation is made between three areas of vehicle cleaning:

- Vehicle interior
- Vehicle exterior
- Engine compartment

Washing solutions

- Ventilate closed rooms well.
- Wear suitable protective clothing.
- Do not use flammable liquids such as gasoline or diesel.

Compressed air

- Work carefully.
- Wear eye protection and protective clothing.
- Do not point compressed air at the skin or other persons.
- Do not clean clothing with compressed air.

High-pressure cleaner

- Clean the vehicle only when the engine is switched off.
- Cover electrical components.
- Cover tank caps and filters.
- Do not direct the water jet under covers.
- Keep sufficient distance from labels.
- Protect sensitive components from moisture and do not clean with a high-pressure cleaner (examples):
 - Engine compartment, engine components, insulating material
 - Electrical components (e.g. alternator, control units, connector plugs on the wiring harness)
 - Covers and seals
 - Air filter, exhaust

Highly volatile and highly flammable rust preventives and sprays:

- Ventilate rooms well.
- Fire, open flame and smoking are prohibited.

8.7.1 Vehicle interior

Recommended aids:

- Vacuum cleaner, broom
- Moist cloths
- Brush
- Water with mild soapy water

Seat belt

- Keep the seat belt clean, as coarse dirt can impair the function of the seat belt buckle.
- Clean the seat belt with a mild detergent solution. Do not clean chemically, as the fabric may be destroyed.

8.7.2 Vehicle exterior

- Recommended aids:
- High-pressure cleaner
- Steam jet

Cleaning in a salty environment

- 1) Only park the vehicle in a specially approved washing area or wash hall. .
- 2) Check the vehicle for salt deposits or rust spots. Have rust spots repaired by an authorized service center.
- 3) Clean the vehicle with a high-pressure cleaner. Salt deposits must be removed completely.
- 4) Follow the instructions for cleaning and care.
- 5) Lubricate the vehicle according to the lubrication plan.
- 6) Let the vehicle dry and check again for salt deposits.

Loose screw connections and fastening gear**Loose screw connections and fastening gear**

Contact an authorized service center.

8.7.3 Engine compartment

- Only park the vehicle in a specially approved washing area or wash hall.
- Stop the engine. .
- Clean the vehicle.
- Only park the vehicle in a specially approved washing area or wash hall.
- Stop the engine [see Park on page 106](#).
- Clean the vehicle.

Vehicle preservation

Each vehicle is given a partial preservation ex works (e.g. in the engine compartment). Operation in the vicinity of aggressive media (e.g. salt deposits) is prohibited.

8.8 Braking system

Maintenance may only be carried out by an authorized service center.

8.9 Electrical system

Important information on the electrical system

Maintenance and repair work on the electrical system may only be carried out by an authorized service center.

- Defective parts of the electrical system must be replaced by an authorized service center.
- Light bulbs and fuses may be changed by the operator.

Alternator

- If the charge indicator light is defective, contact an authorized service center.



⚠ WARNING

Risk of injury due to a defective battery!

Batteries emit flammable gases. These gases ignite easily and can cause fires or explosions. Serious injury or death may result.

- ▶ Wear protective equipment.
- ▶ Fire, open flame and smoking are prohibited.
- ▶ Do not jump start the engine if the battery is defective, frozen or if the acid level is too low.
- ▶ Do not place electrically conductive objects on the battery – short circuit hazard.



NOTICE

Possible damage to electrical components or the engine electronics.

- ▶ Do not place electrically conductive objects on the battery – short circuit hazard.
- ▶ Do not disconnect live circuits at battery terminals – possible sparking.
- ▶ Do not disconnect the battery while the engine is running.



Environment

Dispose of used batteries in an environmentally friendly manner.

Fuse and relays

- Blown fuses indicate an overload or short circuit. Have the electrical system checked by an authorized service center.
- Only use fuses with specified amperage.

Battery

The battery may only be checked, disconnected, charged and replaced by an authorized service center.

8.10 Working hydraulics

Check hydraulic system and hydraulic hoses

Check the hydraulic system and hydraulic lines daily for leaks and general condition.

Hydraulic hoses are subject to natural aging. Therefore, they must be checked regularly, even if there is no visible damage which prevents safe operation.

Wacker Neuson recommends the following inspection intervals:

Normal wear	12 months
Increased wear (longer operating times, multi-shift operation, high outside temperatures, aggressive environmental conditions, etc.)	6 months

Responsibility for checking the hydraulic hoses

The decision regarding the intervals at which the hydraulic hoses are checked must be made by the vehicle operator and depends on the actual working situation.

The vehicle operator must appoint a qualified person to check the hydraulic hoses. In the case of visible damage, a hydraulic hose must be replaced immediately. Do not put the vehicle into operation. The results of this check must be kept in written form by the vehicle operator until the next inspection.

Wacker Neuson recommends replacing hydraulic hoses every six years from the date of manufacture.

The date of manufacture is located on the hydraulic hose.

- Only tighten leaking fittings and hose connections when the pressure is off. Reduce the pressure in the hydraulic system before working on pressurized lines.
- Do not weld or solder defective or leaking pressure lines and screw joints, but have them replaced.
- Wear protective equipment.

If one of the following problems is detected, have the respective line replaced immediately:

- Damaged or leaking hydraulic seals.
- Worn or torn sheaths or uncovered reinforcing strands.
- Sheaths stretched in several places.
- Tangled or crushed moving parts.
- Foreign bodies jammed in the covers.

8.11 Engine

8.11.1 Air filter

Maintenance may only be carried out by an authorized service center.

8.11.2 Checking the air intake



NOTICE

Possible motor damage due to contaminated air intake.

- ▶ Check contamination indicator and air intake daily before starting work.
- ▶ The air filter may only be cleaned by an authorized specialist service center.

1. Park the vehicle. Stop the engine [see Park on page 106](#).

2. Remove the starting key and store it in a safe place.

3. Check air intake grid **A** and clean if necessary (vehicle with cab).

4. Open engine hood or right maintenance cover.



Fig. 217: Vehicle with cab

5. Check air intake **B** on air filter **C** and clean if necessary.

6. Check whether the cables and plugs of the contamination indicator **D** are undamaged.

⇒ In the event of faults, contact authorized specialist service center.

7. Close the engine hood or the right maintenance cover and lock it.

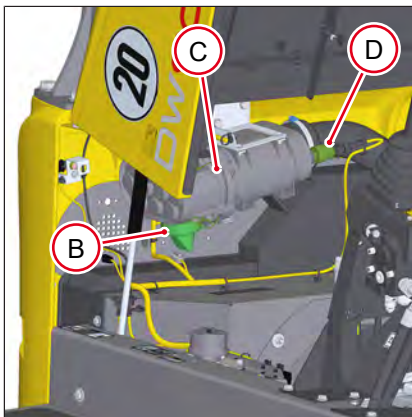


Fig. 218: Vehicle with roll bar

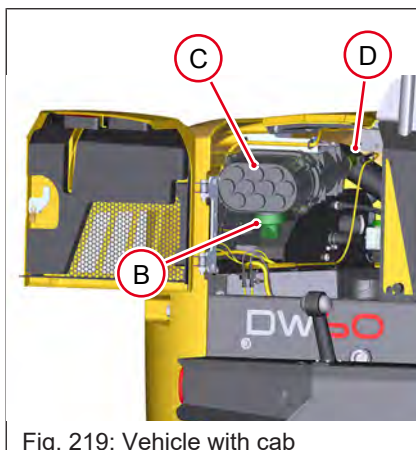


Fig. 219: Vehicle with cab

8.11.3 Bleed the fuel system

Bleed the fuel system in the following cases:

- After the fuel filters (pre-filter or main filter) and fuel lines have been removed and reinstalled
- After the vehicle is put back into operation after a period of disuse of more than 30 days
- After the tank has been emptied

Venting

1. Parking the vehicle. Switch off the engine [see Park on page 106](#)
2. Fill the fuel tank [see Refuel on page 154](#).
3. Turn the starting key to position 1.
 - ⇒ The electronic fuel feed pump switches on to vent the fuel system and build up the necessary fuel pressure.
4. Switch off ignition after 20 seconds.
5. Repeat the process at least four times.
6. Start the engine and let it idle for 5 minutes.

If the engine runs smoothly for a short time, but then stops or runs roughly:

1. Stop the engine.
2. Vent fuel system again as described above.
3. After starting the engine, check for leaks.
4. If the problem persists, contact an authorized service center.



⚠ CAUTION

Burning hazard from hot surfaces!

May lead to injuries.

- ▶ Switch off the engine and let hot surfaces cool down.
- ▶ Wear protective equipment.

**NOTICE**

Possible damage due to improper bleeding of the fuel system.

- ▶ Do not start the engine while the fuel system is being bled.

**NOTICE**

Bleeding of the fuel system can also be performed when the engine is at operating temperature.

8.11.4 Clean the radiator

**NOTICE**

Possible damage to the engine, hydraulic system and radiator fins.

- ▶ Check the radiator daily and clean it if necessary.
- ▶ If the working situation requires it, clean the radiator several times a day.
- ▶ Use compressed air to keep sufficient distance to the radiator fins.

**⚠ CAUTION**

Burning hazard from hot surfaces!

May lead to injuries.

- ▶ Switch off the engine and let hot surfaces cool down.
- ▶ Wear protective equipment.

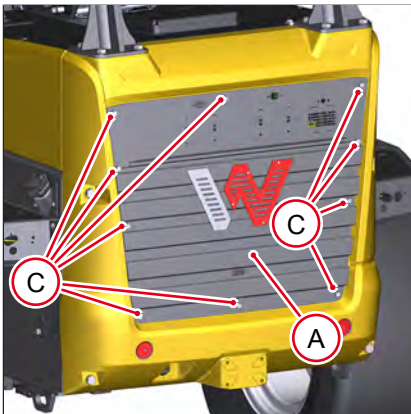


Fig. 220: Ventilation grid

The radiator is located behind the ventilation grid **A**.

1. Park the vehicle. Stop the engine [see Park on page 106](#).
2. Remove the starting key and store it in a safe place.
3. Open the engine hood or the left maintenance cover.
4. On the inside of the ventilation grid, first remove foreign objects by hand and then remove the dust with compressed air.
5. Carefully clean the radiator with unlubricated compressed air at max. 2 bar (29 psi).

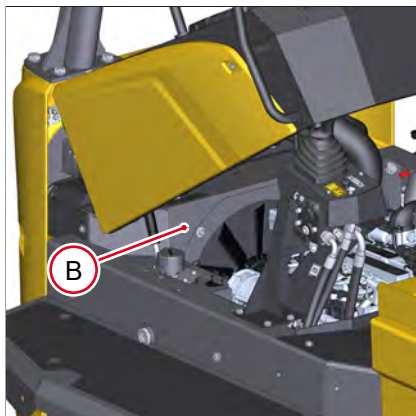


Fig. 221: Fan housing

6. Also check the inside of the fan housing **B**.
7. In case of heavier contamination, loosen the screws **C** and remove the ventilation grid **A**.
8. Close the engine hood or the left maintenance cover and lock it.

8.11.4.1 Clean climate condenser

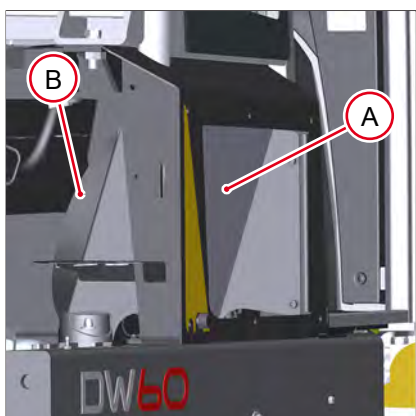


Fig. 222: Climate condenser and fan

1. Dismantle the cover of the air-conditioning condenser [see Climate condenser on page 145](#).

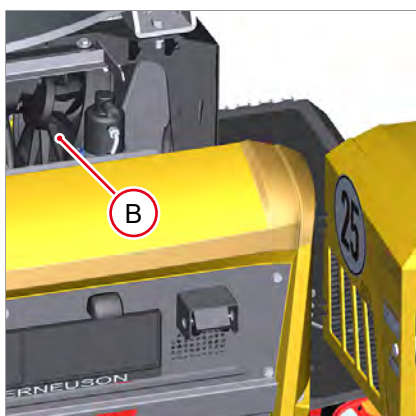


Fig. 223: Fan

2. Carefully remove dust and other foreign objects from the fins of the climate condenser **A** using unlubricated compressed air at max. 2 bar (29 psi).
3. Open the right maintenance cover.
4. From the inside of the motor, clean the fan **B**.
5. Close the right maintenance cover and install the climate condenser cover.

8.12 Exhaust gas aftertreatment

The TD 2.9 and TD 2.2 engines are equipped with a diesel particulate filter.

The soot produced during the combustion of diesel fuel is collected in the diesel particulate filter, where it is periodically burned off. This process is called regeneration.

Regeneration takes about 40 minutes.

If the contamination of the diesel particulate filter reaches a critical level, engine performance is reduced and vehicle operation must be stopped.

Regeneration is only carried out when the engine is at operating temperature.



⚠ WARNING

Risk of burns at the exhaust system!

During regeneration, exhaust gas outlet temperatures of up to 600 °C (1,112 °F) can occur at the exhaust system even when the engine is idling, which can lead to severe burns or death.

- ▶ Keep a safe distance from the exhaust system.



⚠ WARNING

Health hazard due to exhaust fumes!

May cause serious damage to health or death.

- ▶ Do not inhale exhaust gases.
- ▶ Exhaust gas outlet temperatures of up to 600 °C (1,112 °F) occur under load. Only use exhaust gas extraction systems suitable for this purpose.
- ▶ Ventilate sufficiently when operating in closed rooms.



⚠ WARNING

Fire hazard during regeneration!

Hot exhaust gases in highly flammable environments can cause severe injuries and death.

- ▶ Do not perform standstill regeneration in environments with highly flammable materials.
- ▶ Exhaust gas outlet temperatures of up to 600 °C (1,112 °F) occur under load. Only use exhaust gas extraction systems suitable for this purpose.
- ▶ Ventilate sufficiently when operating in closed rooms.



NOTICE

Possible damage to the engine and irreparable damage to the diesel particulate filter.

- ▶ Use only clean fuel according to the list of **vehicle fluids**. Do not use biodiesel.
- ▶ Avoid regular operation with cold engine.
- ▶ Do not ignore control lights.
- ▶ Do not interrupt regeneration.



NOTICE

Information Fire hazard at the exhaust system.

- ▶ There must be no highly flammable materials in the immediate vicinity of the exhaust system - especially near the tailpipe.



Information

The soot load is the amount of soot stored in the diesel particulate filter. This depends, among other things, on the load on the engine.



Information

Do not release the parking brake during regeneration. This will abort the regeneration. After a successful regeneration, the indicator lights go out and the engine switches to idle.



Information

Wacker Neuson recommends not interfering with the automatic regeneration system if possible. This avoids unscheduled service center visits.



Information

If regeneration is aborted, the soot load of the diesel particulate filter increases. It may cause the vehicle to be shut down and a service regeneration to be performed at an authorized service center.

8.12.1 Regeneration intervals

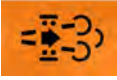
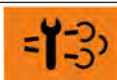
Measures for extending the regeneration intervals

- Bring engine up to operating temperature.
- Avoid low-load operation.
- As soon as the **Regeneration required** control light is displayed, the system is no longer in normal condition. Perform standstill regeneration.
- Only use fuel or engine oil according to the list of **vehicle fluids**.

8.12.2 Regeneration types

Type	Description
Automatic regeneration (Escalation level 1)	The system has no error The system performs the automatic regeneration in the background.
Standstill regeneration (Escalation level 2/3)	The system has an error Action on the part of the operator is required: Perform standstill regeneration
Service regeneration	Can only be performed by an authorized service center.

8.12.3 Control lights

Display	Description
	Regeneration necessary Lights up as soon as the system has a fault.
	Regeneration active
	Increased exhaust gas temperature Lights up during a regeneration or after a regeneration as long as the exhaust gas temperature is elevated.
	Engine oil change necessary Lights up when an engine oil change is required due to frequent regeneration. Contact an authorized service center.
	DPF service required Contact an authorized service center.
	Engine warning Lights up as soon as the system has a serious error.
	Engine stop Lights up as soon as the system has an irreversible error.

8.12.4 Load status

Display of the load status

Symbol	Description
	DPF loading condition A (white): No loading condition B (green): Low loading condition C (yellow): Medium loading condition D (red): Highest loading condition



Information

The soot load status is only shown on the **DPF data** display page. Control lights appear automatically.

Escalation levels

Symbol	Description	
		The system is working error-free Automatic regeneration is performed by the system in the background if necessary. No control lights are displayed during this process. Measures for the operator: none
		The system has an error If necessary, drive the vehicle out of a danger zone. Measures for the operator: Apply parking brake and perform standstill regeneration.
		The system has a serious error Level 3 is the last possibility to prevent a service regeneration. Torque is reduced after the engine is started. If necessary, drive the vehicle out of a danger zone. Measures for the operator: Apply parking brake and perform standstill regeneration.
		The system has an irreversible error A service regeneration must be performed or the diesel particulate filter must be replaced. Emergency mode is activated after starting the engine. Driving is no longer possible. Measures for the operator: Contact an authorized service center.



Information

The control lights may be positioned differently depending on the vehicle equipment and display.

The control lights may light up or flash at different rates.

The **engine warning** and **engine stop** control lights may also light up if another fault occurs. This is independent of the current load status.

8.12.5 Standstill regeneration

Start standstill regeneration

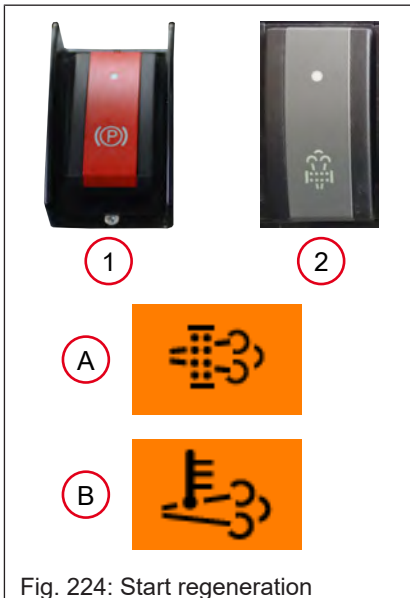


Fig. 224: Start regeneration

1. Move the vehicle out of the danger zone into a safe area.
2. Apply parking brake **1**.
⇒ The engine must be in idle.
3. Press and hold switch **2** until the engine speed increases to approx. 2000 min⁻¹ (rpm).
⇒ During regeneration, control lights **A** and **B** light up.

Remaining time display

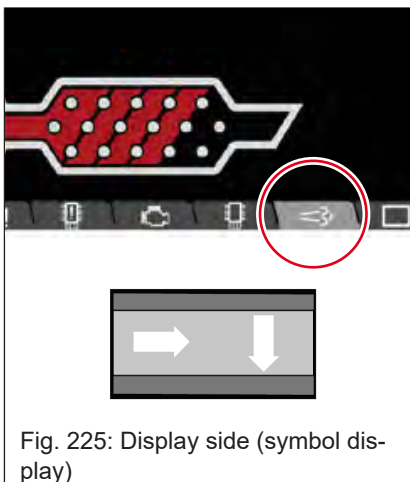
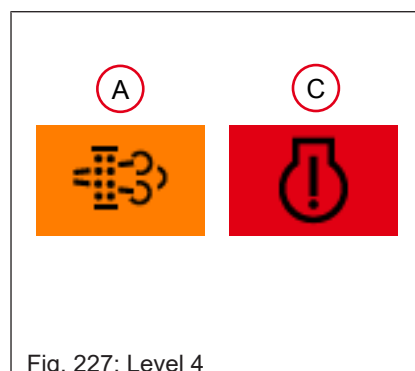
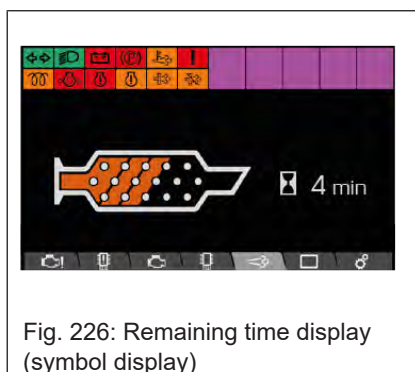


Fig. 225: Display side (symbol display)

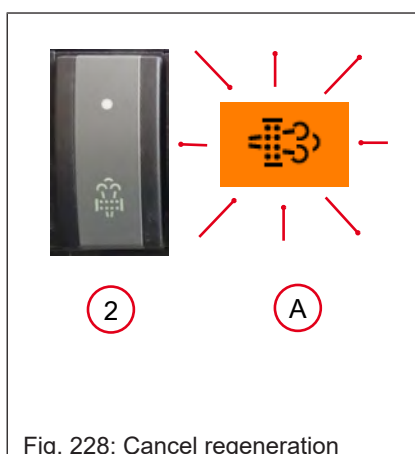
Select the **diesel particulate filter data** display page with the **Display operation** switch.



Escalation level 4 – Switch off vehicle

Control light **A** flashes and control light **C** lights up. Switch off engine immediately and contact authorized service center.

Canceling standstill regeneration



Keep switch **2** pressed until the engine speed is reduced to idle. The control light **A** flashes.

8.13 Cab

8.13.1 Clean cab air filter

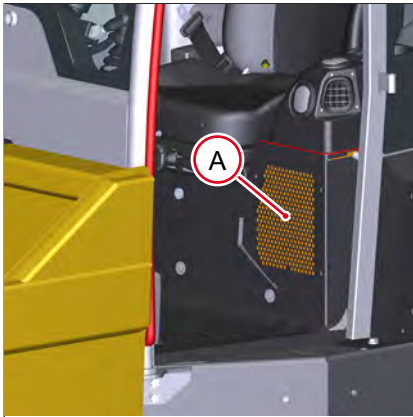


Fig. 229: Recirculation filter



Fig. 230: Fresh air filter

Clean the covers of the recirculation air filter **A** and fresh air filter **B** outside.

8.14 Servicing tires



⚠ WARNING

Risk of injury due to improper maintenance work!

Can lead to serious injury or death.

- ▶ Carry out maintenance work on wheels, tires, etc.
- ▶ Use suitable mounting aids, e.g. wheel bolt cover sleeves, jack.
- ▶ Only use compressors with calibrated pressure gauges.
- ▶ No one may be in the risk zone.
- ▶ Observe tire pressure table.



Information

Tires can wear differently depending on the load, working conditions and ground conditions. Therefore, replace tires regularly to ensure equal rolling characteristics.



Information

If a tire must be replaced due to damage, also replace the tire on the same axle.

8.14.1 Tire types



Information

Use only approved tires and rims [see Tires on page 205](#).



Fig. 231: Tire types (symbol display)

- A: Tractor tread
- B: Universal tread
- C: Turf tread

8.14.2 Inspection work

Daily inspection of the wheels increases the operational safety of the vehicle and reduces unscheduled downtime.

- Check wheels for damage and wear. If the tread heights differ greatly, change the tires on the front and rear axles.
- Check or reduce tire pressure only when tires are cold.
- Keep wheels and tire treads clean.

8.14.3 Inflate tires



Information

Inflate tires only when cold. The vehicle must have been stationary for several hours and must not have been exposed to strong sunlight.

1. Park the vehicle on horizontal, stable and level ground.
2. Activate parking brake.
3. Unscrew valve caps.
4. Inflate tires.
5. Screw on valve caps.

8.14.4 Changing the wheel



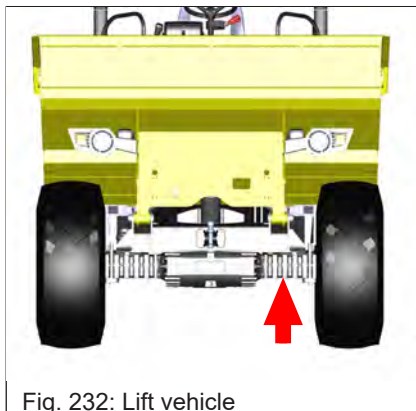
NOTICE

Support and lift vehicle so that it is not damaged.



Information

Observe the running direction of the tires.



1. If possible, empty the skip before changing the wheel.
2. Park the vehicle on horizontal, stable and level ground.
3. Activate parking brake.
4. Use wheel chocks to prevent the vehicle from rolling away.
5. Loosen the wheel nuts of the corresponding wheel.
6. Place a jack with a lift capacity of 5,000 kg (11.023 lbs) securely in the area of the axle mounting.
7. Raise the corresponding side of the vehicle.
8. Check that the vehicle is stable.
9. Secure the vehicle at suitable points using support blocks.
10. Loosen and remove wheel nuts.
11. Remove the wheel.
12. Place the new wheel on the wheel bolts.
13. Tighten the opposite wheel nuts alternately.
14. Remove the support blocks.
15. Lower the raised side of the vehicle.
16. Alternately tighten the opposite wheel nuts to 450 Nm (332 ft.lbs) torque.

After a wheel change, check wheel nuts for tightness after ten operating hours. If necessary, retighten wheel nuts.

9 Troubleshooting

9.1 Fault indications

9.1.1 Faults, causes and remedies



NOTICE

In the event of faults or symptoms not listed in the following tables or which persist after properly performed maintenance work, contact an authorized service center.

Engine warning lights

Engine warning	Engine stop	Description
Yellow	Red	
		
Off	Off	No errors.
On	Off	Error. Work may continue for the time being. Contact service center to prevent a serious fault from occurring.
Off	On	Serious error. Stop the vehicle immediately and contact an authorized service center.

Engine and engine oil control lights

Engine warning	Engine stop	Oil pressure	Description
Yellow	Red		
			
On	On	On	All warning and control lights light up for a few seconds when the starting key is turned to position 1. If the engine stop or oil pressure light does not illuminate, stop work immediately and contact authorized service center.
Off	Off	Off	No errors.
On	On	On	Low oil pressure (if the oil pressure control light is on during operation). Check oil level and refill oil if necessary ▶ 159 . If the error display persists, switch off the engine and contact an authorized service center.

General faults

Fault/Symptom	Possible cause	Remedy	See
Engine does not start or starts badly	Empty fuel tank	Refuel	▶ 154
	Battery defective or discharged	Contact an authorized service center	--
	Fuse defective	Check fuse	▶ 170
	Electric feed pump not running	Contact an authorized service center	--
	Direction of travel selected	Select driving direction Neutral	▶ 102
	Foot brake not applied	Apply the foot brake	▶ 99
Engine starts but runs irregularly or stops	Air in the fuel system	Bleed the fuel system	▶ 173
Vehicle does not start	Parking brake activated	Release parking brake	▶ 99
	No driving direction selected	Selecting the direction of travel	▶ 102
	Engine speed too low	Accelerator pedal activated	▶ 100
	Operator is not seated and seat switch is active	Sit down on the seat	▶ 65
	Seat switch is faulty	Contact an authorized service center	--
	Temperature of drive system too low	Let vehicle warm up	▶ 92
Torque is reduced	The diesel particulate filter is in escalation level 3	Chapter Observe exhaust gas aftertreatment	▶ 176
Torque and speed are reduced	The diesel particulate filter is in escalation level 4		
	Regular operation with cold engine	Avoid operation with cold engine	
	Regeneration aborted	Perform regeneration	
Shortened DPF regeneration intervals	Dirty air filter	Chapter Observe exhaust gas aftertreatment	▶ 149
	Vehicle is operated at high altitudes		
	Incorrect engine oil	Observe list of vehicle fluids	
	Wrong fuel		
Reduced mileage	Technical defect	Contact an authorized service center	--
	Oil temperature too low	Run engine warm	--
	Operating temperature too high	Allow engine to cool down in idle and then contact authorized service center	--
	Service not performed	Perform service	--
	Running-in phase, new vehicle with few operating hours	Driving performance improves increasingly after the running-in phase	▶ 91

Fault/Symptom	Possible cause	Remedy	See
Maximum speed is not reached	Speed range 1 selected	Select speed range 2	▶ 101
	Temperature warning (overheating)	Load engine less, cool down	--
	Axles not yet run in	Driving performance improves increasingly after the running-in phase	▶ 91
Engine becomes too hot	Engine oil level too low	Refill engine oil	▶ 159
	Air filter soiled	Contact an authorized service center	--
	Cooling fins soiled	Clean the radiator	▶ 174
	Coolant level too low	Refill coolant	▶ 160
Engine has too little power	Air filter soiled	Contact an authorized service center	--
Engine has no or too low oil pressure	Engine oil level too low	Refill engine oil	▶ 159
Exhaust emits black smoke	Air filter soiled	Contact an authorized service center	--
Exhaust emits blue smokes	Engine oil level too high	Contact an authorized service center	--
Vehicle pulls to the left or right	Steering cylinder damaged	Contact an authorized service center	--
	Uneven tire wear	Contact an authorized service center	--
	Uneven tire pressure	Check tire pressure	▶ 182
Hydraulic functions cannot be operated	Working hydraulics locking lever actuated	Release working hydraulics locking lever	▶ 103
	Error in control valve	Contact an authorized service center	--
Electrical components do not function	Fuse defective	Check fuses	▶ 170
Coolant leakage	Hose connection loosened	Contact an authorized service center	--
	Leakage in system		
	Radiator filler cap defective		

10 Shutdown

10.1 Temporary shutdown

Shutdown

The specified measures relate to the shutdown and putting the vehicle into operation again after more than 30 days.

The vehicle should be stored in a closed room.

Outdoors, the vehicle should be parked on a solid floor (e.g. concrete) and covered with a waterproof tarpaulin to protect it from moisture.

1. Park the vehicle [see Park on page 106](#).
2. Clean the engine at an approved washing area or in a wash hall Information on cleaning and care.
3. Check the vehicle for leaking liquids.
4. Check screw connections for tightness.
5. Clean and dry the entire vehicle.
6. Treat bare metal parts (e.g. piston rods of hydraulic cylinders) with anti-corrosion agent.
7. Lubricate vehicle according to lubrication plan [see Lubricate vehicle and attachments on page 162](#)
8. Fill up the vehicle with fuel.
9. Check hydraulic oil and coolant and top up if necessary.
10. Remove the battery and store it in a protected place.
11. Close the air intake openings and exhaust.

Start the engine once a month to lubricate it. Carry out all necessary measures beforehand, e.g:

- Service, charge and install the battery.
- Check operating fluids and refill if necessary.
- Clear the air intake openings and exhaust.

After starting the engine, carry out the points according to **Temporary shutdown**.

Putting back into operation



Information

If the vehicle has been stationary for a longer period of time without the above steps having been carried out, contact an authorized service center before putting it back into operation.

1. Carry out a general visual inspection for damage to electrical cables, plugs, fuel lines, etc. on the engine.
2. Charge, install and connect the battery.
3. Remove anti-corrosion agent from bare metal parts.
4. Clear the air intake openings and exhaust tailpipe.
5. Check the air filter and have it replaced by an authorized service center if necessary.
6. Check dust valve.
7. Bleed the fuel system [see Bleed the fuel system on page 173](#).
8. Check the vehicle for leaking liquids.
9. Lubricate the vehicle according to the lubrication plan.
10. Check the vehicle fluids and top up if necessary.
11. After a standing period of more than six months with units such as the engine, transmission, hydraulic oil tank etc., have the oil changed by an authorized service center.
12. Have the hydraulic oil filter (pressure filter, return flow filter and breather filter), engine oil filter and fuel filter (prefilter and main filter) changed by an authorized service center after a standing period of six months.
13. Switch on the ignition and check whether there are any faults. Faults, causes and remedies. Error Contact an authorized service center and have the fault rectified.
14. Start the engine.
15. Run the engine at idling speed without load for at least 15 minutes.
16. Stop the engine.
17. Check all oil levels in the units and top up if necessary.
18. Check the vehicle for leaking liquids.
19. Start the engine and ensure that all functions and warning devices are working properly.

Do not operate the vehicle at maximum speed or maximum load for at least one hour.

10.2 Permanent shutdown

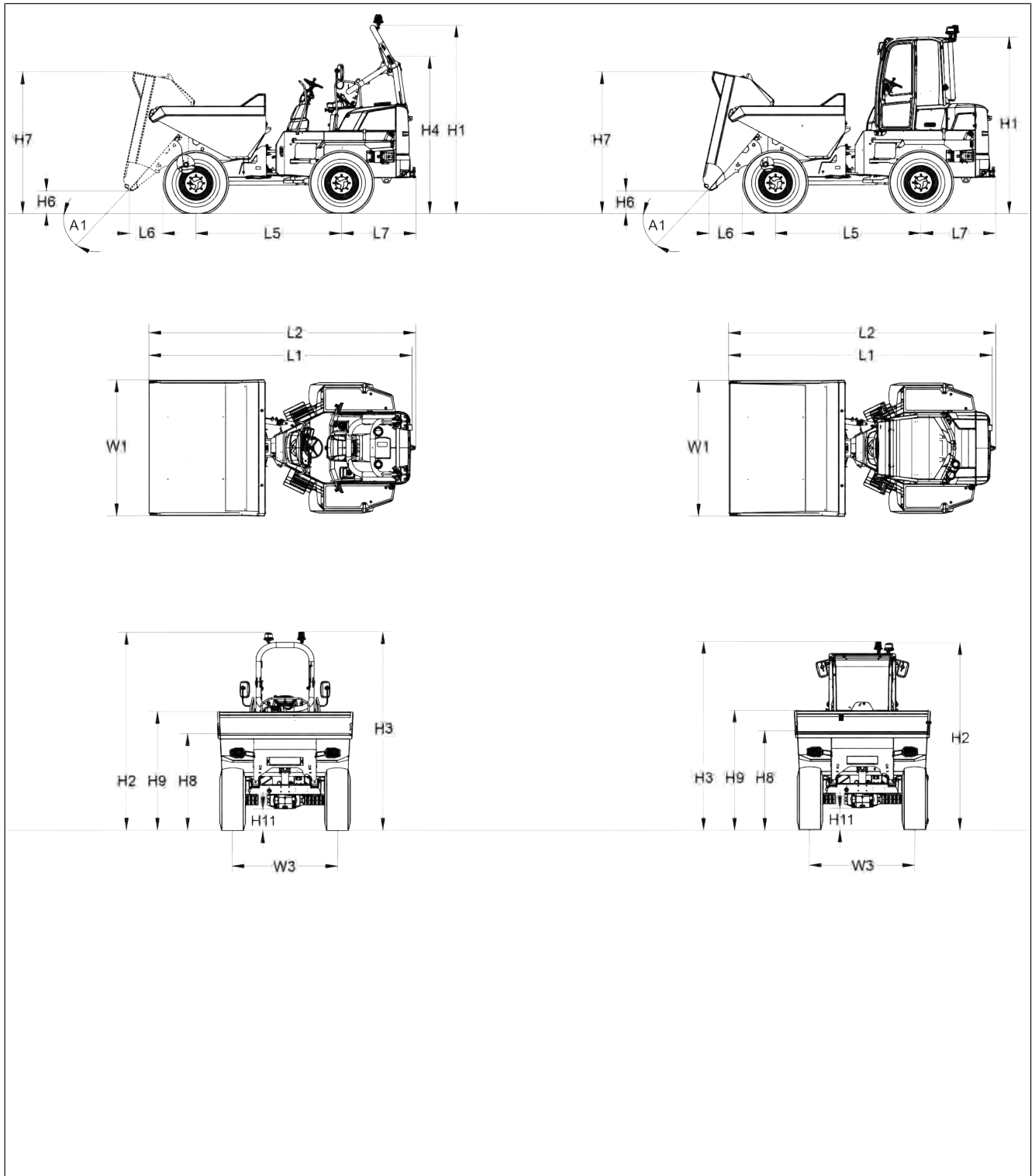
Disposal

The vehicle may only be disposed of by an authorized service center.

11 Technical Data

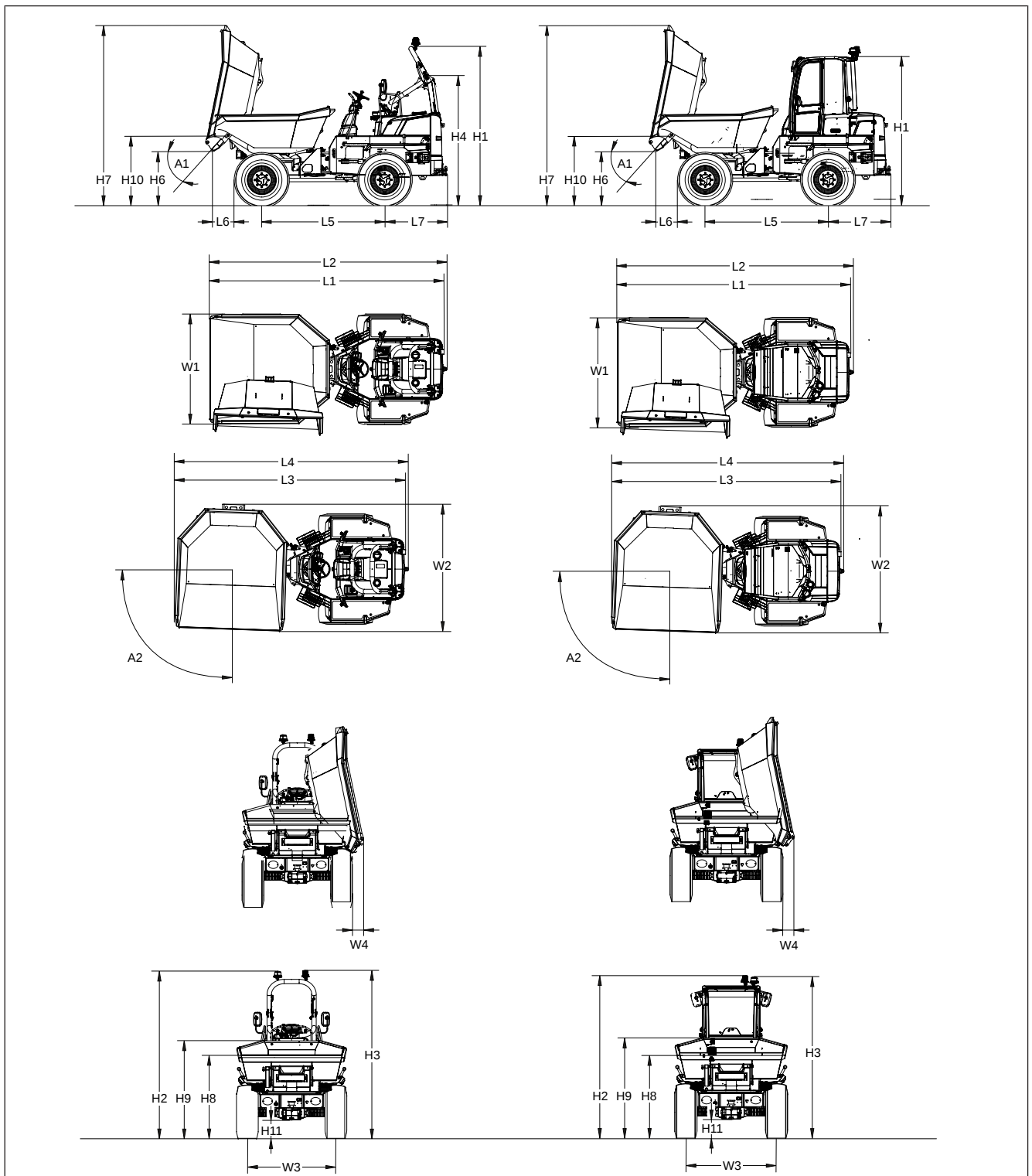
11.1 Dimensions

Front tipping skip



	Front tipping skip			
	Roll bar		Cab	
	DW60 mm (in/ft-in)	DW90 mm (in/ft-in)	DW60 mm (in/ft-in)	DW90 mm (in/ft-in)
L1	4496 (14'-9")	4670 (15'-4")	4496 (14'-9")	4670 (15'-4")
L2	4554 (15'-0")	4729 (15'-7")	4554 (15'-0")	4729 (15'-7")
L3	--	--	--	--
L4	--	--	--	--
L5	2485 (98)	2700 (8'-11")	2485 (98)	2700 (8'-11")
L6	565 (23)	514 (21)	565 (23)	514 (21)
L7	1263 (50)	1263 (50)	1263 (50)	1263 (50)
H1	3240 (10'-8")	3280 (10'-9")	3044 (10'-0")	3066 (10'-1")
H2	3379 (11'-1")	3416 (11'-3")	3184 (10'-6")	3221 (10'-7")
H3	3391 (11'-2")	3428 (11'-3")	3208 (10'-7")	3245 (10'-8")
H4	2591 (8'-6")	2618 (8'-7")	--	--
H5	--	--	--	--
H6	384 (15)	374 (15)	384 (15)	374 (16)
H7	2418 (96)	2581 (8'-6")	2418 (96)	2581 (8'-6")
H8	1828 (72)	2003 (79)	1828 (72)	2003 (79)
H9	2036 (81)	2099 (83)	2036 (81)	2099 (83)
H10		--	--	--
H11	396 (16)	396 (16)	369 (16)	396 (16)
W1	2328 (92)	2486 (98)	2328 (92)	2486 (98)
W2		--	--	--
W3	1790 (71)	1920 (76)	1790 (71)	1920 (76)
W4		--	--	--
	Degree (°)	Degree (°)	Degree (°)	Degree (°)
A1	50°	49°	50°	49°
A2	--	--	--	--

Swivel tipping skip



	Swivel tipping skip		Short swivel tipping skip	
	Roll bar	Cab	Roll bar	Cab
	DW 60 mm (in/ft-in)			
L1	4747 (15'-7")	4747 (15'-7")	4685 (15'-5")	4685 (15'-5")
L2	4807 (16'-0")	4807 (16'-0")	4744 (15'-7")	4744 (15'-7")

	Swivel tipping skip		Short swivel tipping skip	
	Roll bar	Cab	Roll bar	Cab
	DW 60 mm (in/ft-in)			
L3	4661 (15'-4")	4661 (15'-4")	4661 (15'-4")	4661 (15'-4")
L4	4720 (15'-6")	4720 (15'-6")	4720 (15'-6")	4720 (15'-6")
L5	2485 (98)	2485 (98)	2485 (98)	2485 (98)
L6	456 (18)	456 (18)	446 (18)	446 (18)
L7	1263 (50)	1263 (50)	1263 (50)	1263 (50)
H1	3240 (10'-8")	3044 (10'-0")	3240 (10'-8")	3044 (10'-0")
H2	3379 (11'-1")	3184 (10'-6")	3379 (11'-1")	3184 (10'-6")
H3	3391 (11'-2")	3208 (10'-7")	3391 (11'-2")	3208 (10'-7")
H4	2591 (8'-6")	--	2591 (8'-6")	--
H5	--	--	--	--
H6	1106 (44)	1106 (44)	1153 (46)	1153 (46)
H7	3639 (12'-0")	3639 (12'-0")	3639 (12'-0")	3639 (12'-0")
H8	1689 (97)	1689 (97)	1689 (97)	1689 (97)
H9	2005 (79)	2005 (79)	2005 (79)	2005 (79)
H10	1350 (54)	1350 (54)	1350 (54)	1350 (54)
H11	369 (15)	378 (15)	369 (15)	378 (15)
W1	2218 (88)	2218 (88)	2218 (88)	2218 (88)
W2	2574 (8'-6")	2574 (8'-6")	2511 (99)	2511 (99)
W3	1790 (71)	1790 (71)	1790 (71)	1790 (71)
W4	228 (9)	228 (9)	228 (9)	228 (9)
	Degree (°)	Degree (°)	Degree (°)	Degree (°)
A1	48°	48°	48°	48°
A2	88°	88°	88°	88°

11.2 Weights

11.2.1 Vehicle weights

Vehicle type Engine	DW60 TD 2.2	DW60 TD 2.9	DW90 TD 2.9
	kg (lbs)		
Front tipping skip/roll bar			
Transport weight ¹⁾	3874 (8.541)	3919 (8.639)	4478 (9.827)
Operating weight ²⁾	4018 (8.858)	4064 (8.960)	4623 (10.192)
Front tipping skip/cab			
Transport weight	--	4222 (9.308)	4800 (10.582)
Operating weight	--	4367 (9.628)	4944 (10.900)
Swivel tipping skip/roll bar			
Transport weight	4118 (9.079)	4164 (9.180)	--

Vehicle type Engine	DW60 TD 2.2	DW60 TD 2.9	DW90 TD 2.9
Operating weight	4263 (9.398)	4309 (9.500)	--
Swivel tipping skip/cab			
Transport weight	--	4467 (9.848)	--
Operating weight	--	4611 (10.166)	--

1) Transport weight: Vehicle + 10% fuel tank capacity

2) Operating weight: Vehicle + full fuel tank + operator (75 kg/165 lbs)



Information

The weight specifications can deviate by +/- 2%.

11.2.2 Determine loading weight

The basis for calculating the loading weight is the transport weight on the vehicle type label. Add subsequently installed options to the transport weight, fuel depending on tank volume.

Option ¹⁾	kg (lbs)
Full fuel tank	77 (170)
Skip grid Front tipping skip	53 (117)
Skip grid Swivel tipping skip	48 (106)

1) The weight specifications for options refer to Wacker Neuson original accessories.



Information

The weights indicated are exemplary. To determine the actual weight, the vehicle must be weighed before transportation

Ground clearance	DW60	DW90
	369 mm (14.5 in)	396 mm (15.6 in)

11.3 Payload



NOTICE

If the weight is exceeded, there is a risk of material damage due to the vehicle tipping over.

► Do not exceed the weights indicated in the chart.

Skip	DW60	DW90
	Liters (gal)	
Front tipping skip		
Water measure	1900 (502)	2350 (621)
Skip content spread	2700 (713)	3600 (951)

Skip	DW60	DW90
Skip content heaped	3600 (951)	4500 (1.189)
Swivel tipping skip		
Water measure	1600 (423)	--
Skip content spread	2350 (621)	--
Skip content heaped	3150 (832)	--
Swivel tipping skip 3m		
Water measure	1600 (423)	--
Skip content spread	2300 (608)	--
Skip content heaped	3100 (819)	--
	Kg (lbs)	
Payload	6000 (13.230)	9000 (19.850)

11.4 Electrical system



⚠ WARNING

Fire hazard due to improper handling of electrical components!

Can lead to serious injury or death.

- ▶ Only use prescribed fuses.
- ▶ Do not repair or bypass fuses.
- ▶ If a fuse that has just been replaced blows again, do not operate the vehicle and contact an authorized service center.



NOTICE

Material damage due to improper handling of fuses.

- ▶ Only use prescribed fuses.
- ▶ Do not repair or bypass fuses.
- ▶ If a fuse that has just been replaced blows again, do not operate the vehicle and contact an authorized service center.

11.4.1 Electrical components

Electrical components	DW60 TD2.2	DW60/DW90 TD2.9
Alternator	14V/95A	14V/120A
Starting motor	12V/2.6 kW (3.5 hp)	12V/3.2 kW (4.3 hp)
Battery	12V/100 Ah	
12 V plug receptacle	15A	

11.4.2 Fuse box

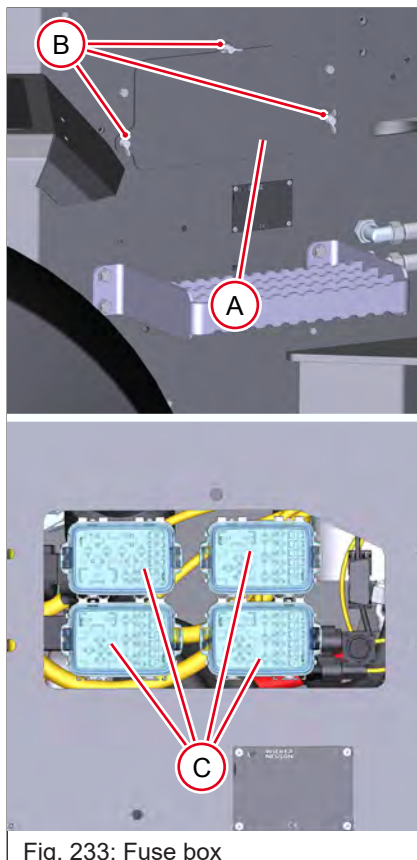


Fig. 233: Fuse box

The fuse box **A** is located on the right above the steps.

Opening:

1. Park the vehicle. Stop the engine.
2. Remove screws **B** and cover **A**.
3. Dismantle cover **C**.

Closing:

1. Install cover **C**.
2. Install bolts **B** and cover **A**.

11.4.3 Fuses/relays

Assignment of main fuse box

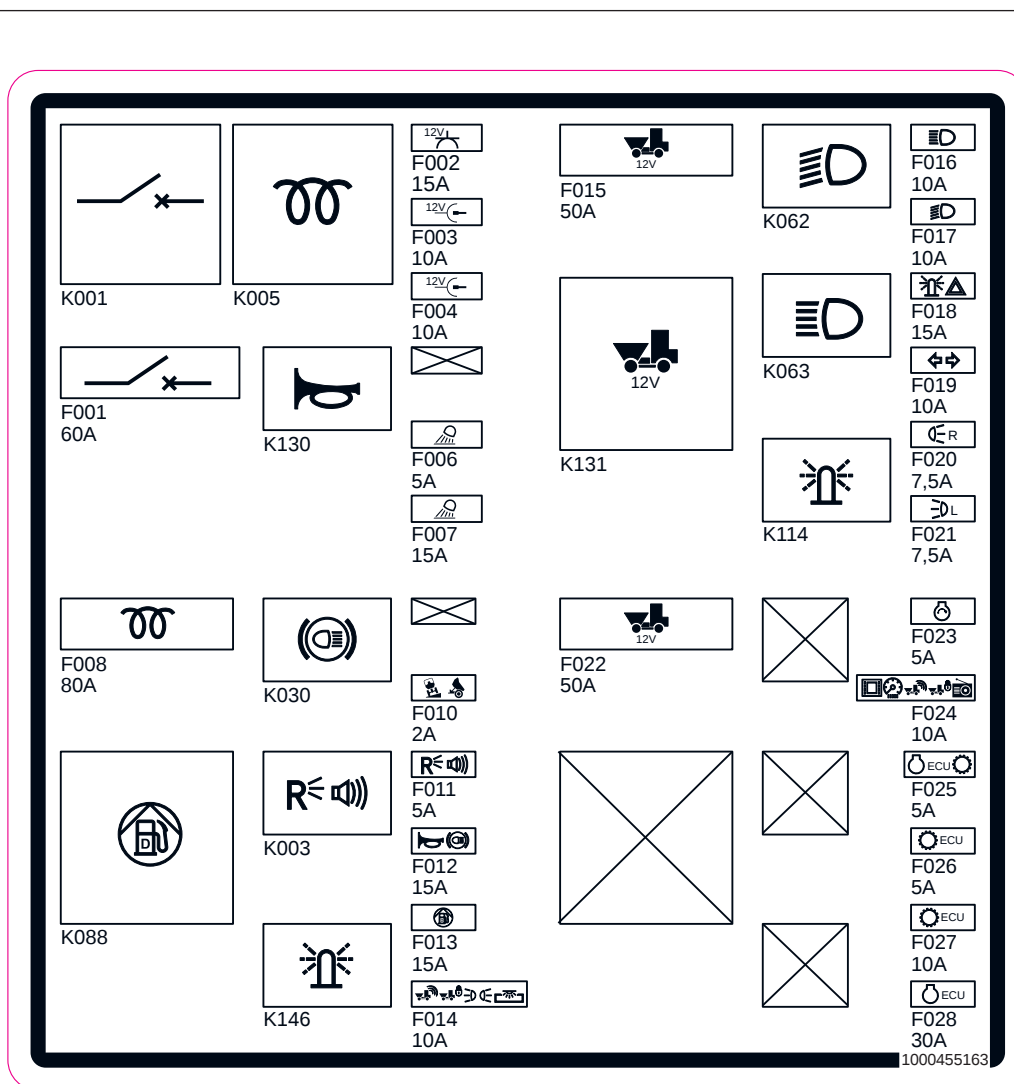


Fig. 234: Fuse box label

Fuses	
F001	Power consumer Shutdown
F002	Plug receptacle
F003	Option 12V30
F004	Option 12V15
F006	Work lights
F007	Work lights
F008	Preheating
F010	Tilt warning
F011	Reversing light, reversing signal
F012	Brake light, horn
F013	Diesel pump
F014	Telematic, drive interlock, parking light, diagnosis plug
F015	Main fuse

Fuses	
F016	High beam
F017	Low beam
F018	Rotating beacon, hazard warning lights
F019	Turn signal
F020	Clearance light right
F021	Clearance light left
F022	Main fuse
F023	Start signal
F024	Display element, camera, switch lights, relay coils, telematic, drive interlock, radio
F025	Engine ECU, traction drive controller UB+ (supply voltage from control unit)
F026	Traction drive controller UB CPU
F027	UB+ traction drive controller (supply voltage from control unit)
F028	Engine control unit, controller, ECU

Relays	
K001	Power consumer Shutdown
K003	Switching relay drive reverse for reversing light and reversing signal
K005	Preheating
K030	Brake lights
K062	Low beam
K063	High beam
K088	Diesel pump
K114	Rotating beacon
K130	Horn
K131	Relay ignition
K146	green rotating beacon

Assignment of cab fuse box

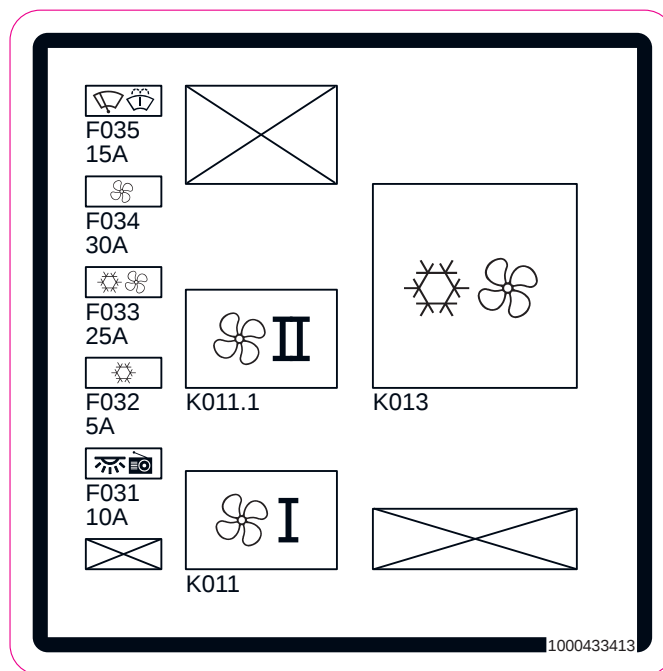


Fig. 235: Label fuse box cab

Fuses	
F031	Radio, interior light
F032	Magnetic coupling climate compressor
F033	Fan condenser
F034	Fan
F035	Window wiper, washer pump

Relays	
K011	Fan mode 1
K011.1	Fan mode 2
K013	Fan condenser

11.4.4 Lamps

Lamps		
Work light/roof light	LED ¹⁾	12V/15W
Interior light	C5W	12V/5W
Rotating beacon	LED ¹⁾	12V/10W
Green rotating beacon	LED ¹⁾	12V/27W
Turn signal	Front	PY21W 12V/21W
	Rear	P21W 12V/21W
Side position light	R5W	12V/5W
Parking light	W5W	12V/5W

Lamps		
Low beam	H4	12V/55W
High beam	H4	12V/60W
Tail light	R10W	12V/10W
Reversing light	P21W	12V/21W
Brake light	P21W	12V/21W

1) LED lamps can not be changed.

11.4.5 12 V plug receptacles

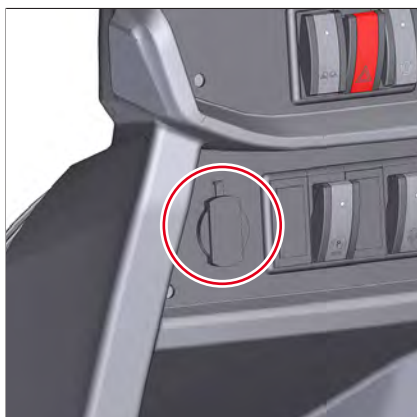


Fig. 236: Plug receptacle

A 12V plug receptacle is located on the front left side of the cab or at the control station.

11.5 Maneuvering coupling

	DIN towing eye kg (lbs)	Ball head coupling kg (lbs)
Drawbar load	200 (441)	150 (331)

Maximum permissible total weight of the trailer

	Payload kg (lbs)	Weight skip content kg (lbs) ¹⁾
DW60	6000 (13.230)	1500 (3.310)
DW90	9000 (19.850)	2250 (4.970)

1) The skip must be filled with 25% of the possible payload

		DIN towing eye kg (lbs)	Ball head coupling kg (lbs)
DW60			
Total weight	Trailer braked	3500 (7.720)	1500 (3.310)
	Trailer unbraked	750 (1.650)	
DW90			
Total weight	Trailer braked	3500 (7.720)	1500 (3.310)
	Trailer unbraked	750 (1.650)	



NOTICE

The total towing mass must not exceed the maximum permissible weight of the towing vehicle.

11.6 Engine

11.6.1 Engine data

Engine TD 2.2

Engine ¹⁾	DW60
Manufacturer	Deutz
Type	TD 2.2 L3
Design	Water-cooled 3-cylinder diesel engine
Air intake system	Turbocharger
Fuel injection system	Direct injection
Engine control unit	electronic
Displacement	2194 cm ³ (134 in ³)
Bore and stroke	92x110 mm (3.6x4.3 in)
Rated power at rated speed	44.5 kW at 2300 min ⁻¹ 59.7 hp at 2300 rpm)
Power at set maximum speed (operating mode + ECO) xxx	44.5 kW at 2200 min ⁻¹ (59.7 hp at 2200 rpm)
max. torque xxx	200 Nm at 1600 min ⁻¹ (147 ft.lbs at 1600 rpm)
max. speed without load xxx ²⁾	1850–2200 min ⁻¹ (rpm)
Idling speed	1200 min ⁻¹ (rpm)
Exhaust gas aftertreatment	Exhaust gas recirculation + diesel oxidation catalyst + diesel particulate filter
Exhaust gas values in compliance	EU level V EPA Tier 4

1) performance data may vary by +/- 5%. Specified values valid at an ambient temperature of 25° C and 500 m above sea level.

2) The ECO function controls the diesel engine speed according to the power requirement.

Engine TD 2.9

Engine ¹⁾	DW60	DW90
Manufacturer	Deutz	
Type	TD 2.9 L4	
Design	Water-cooled 4-cylinder diesel engine	
Air intake system	Turbocharger	
Fuel injection system	Direct injection	
Engine control unit	Electronic	
Displacement	2924 cm ³ (178.4 in ³)	
Bore and stroke	92x110 mm (3.6-4.3 in)	
Rated power at rated speed	55.4 kW at 2300 min ⁻¹ 74.3 hp at 2300 rpm)	
Power at set maximum speed (operating mode + ECO) xxx	55.4 kW at 2200 min ⁻¹ (74.3 hp at 2200 rpm)	

Engine ¹⁾	DW60	DW90
max. torque xxx	260 Nm at 1600 min ⁻¹ (191 ft.lbs at 1600 rpm)	
max. speed without load xxx ²⁾	1850-2200 min ⁻¹ (1850- 2200 rpm)	
Idling speed	900-1200 min ⁻¹ (900-1200 rpm)	
Exhaust gas aftertreatment	Exhaust gas recirculation + diesel oxidation catalyst + diesel particulate filter	
Exhaust gas values in compliance	EU level V EPA Tier 4	

1) performance data may vary by +/- 5%. Specified values valid at an ambient temperature of 25° C and 500 m above sea level.

2) The ECO function controls the diesel engine speed according to the power requirement.

11.6.2 Mixing table

Outdoor temperature ¹⁾	Distilled water	Coolant ²⁾
up to °C (°F)	Vol. %	Vol. %
-30 (-22)	50	50

1) Even at warmer outside temperatures, the mixing ratio of 1:1 should be selected to ensure protection against corrosion, cavitation and deposits.

2) The coolant must not be mixed with other coolants.

11.7 Drive system

TD 2.2

Drive pump	
Design	Axial piston pump, infinitely variable, electronic control
Oil flow	123.2 l/min (32.6 gal/min)
max. operating pressure	500 bar (7.252 psi)

Feed pump	
Design	Gear pump
Flow rate	11.6 cm ³ (0.7 in ³)
Oil flow	25.5 l/min (6.7 gal/min)
min. operating pressure	25 bar (363 psi)
max. operating pressure	29 bar (421 psi)

Drive engine	
Design	Swash plate motor with variable displacement, electronic control
max. displacement	126.4 cm ³ (7.7 in ³)

TD 2.9

Drive pump	
Design	Axial piston pump, infinitely variable, electronic control
Oil flow	123.2 l/min (32.6 gal/min)
max. operating pressure	500 bar (7.252 psi)

Feed pump	
Design	Gear pump
Flow rate	11.6 cm ³ (0.7 in ³)
Oil flow	25.5 l/min (6.7 gal/min)
min. operating pressure	25 bar (363 psi)
max. operating pressure	29 bar (421 psi)

Drive engine	
Design	Swash plate motor with variable displacement, electronic control
max. displacement	126.4 cm ³ (7.7 in ³)

11.8 Brakes

DW60 (TD2.2)

Foot brake		
Design		Multi-disc brake running in oil bath, acting on front axle
Installation location		Center housing of the front axle
Mode of operation	Rear wheels	indirectly via drive shaft
	Front wheels	direct
Actuation		Positive brake, mechanical
Auxiliary brake		intact circuit of dual-circuit service brake

Parking brake		
Design		Multi-disc brake running in oil bath acting on front axle
Installation location		Center housing of the front axle
Mode of operation	Rear wheels	indirectly via drive shaft
	Front wheels	direct
Actuation		Negative brake by spring force, electrohydraulic

DW60/DW90 (TD2.9)

Foot brake		
Design		Multi-disc brake running in oil bath, acting on front axle
Installation location		Center housing of the front axle
Mode of operation	Rear wheels	indirectly via drive shaft
	Front wheels	direct
Actuation		Positive brake, mechanical

Foot brake		
Auxiliary brake		intact circuit of dual-circuit service brake

Parking brake		
Design		Multi-disc brake running in oil bath acting on front axle
Installation location		Center housing of the front axle
Mode of operation	Rear wheels	indirectly via drive shaft
	Front wheels	direct
Actuation		Negative brake by spring force, electrohydraulic

11.9 Tires

Tire type		DW60			DW90
Manufacturer/brand		Mitas	Mitas	ATG Galaxy	ATG
Designation		Mitas MPT-03 14PR 145G	Mitas MPT-01 14PR 149B	Galaxy Turf Special 41x18LL-22.5/14PR	ATG 331
Tire size		405/70-20			500/60-22.5
Tread		Universal tread	Tractor tread	Turf tread	Tractor tread
Tire pressure	Rear axle	2±0,1 bar (29±1.5 psi)			2.8±0.1 bar (40.6±1.5 psi) ¹⁾
	Front axle	3.5±0,1 bar (50.8±0.1 psi)			4±0,1 bar (58±1.5 psi)
Load-bearing capacity	LI/PR	145G/14PR	149B/14PR	14PR	16PR-163/151A8

1) Pressure can be reduced to 1.8 bar (26.1 psi)

11.10 Steering system

	DW60	DW90
Design	hydraulic 2-level	
Steering type	hydraulic	
Supply	via gear pump	

Turning radius	DW60	DW90
Front tipping skip	5125 mm (17'-10")	5750 mm (18'-10")
Swivel tipping skip	5125 mm (17'-10")	--

11.11 Maximum speed

Maximum speed	Forward	Reverse	
	DW60/DW90	DW60 TD2.2/ TD2.9	DW90 TD2.9
Speed range 1	15 km/h (9.3 mph)	15 km/h (9.3 mph)	10 km/h (6.2 mph)
Speed range 2	25 km/h (15.5 mph)		



Information

The listed speeds are the maximum speeds. The actual attainable speed may be lower depending on the vehicle load, driving mode and environmental conditions.



Information

Observe national and regional regulations.

11.12 Hydraulics

11.12.1 Working hydraulics

TD2.2

Vehicle type	DW60
Gear pump	1
Oil flow	59 l/min (15.6 gal/min)
Operating pressure (working hydraulics)	240 bar (3.481 psi)
Hydraulic oil cooler	yes
Hydraulic tank content system filling	48 liters (12.7 gal)
Hydraulic tank capacity	64 liters (16.9 gal)

TD2.9

Vehicle type	DW60/DW90
Gear pump	1
Oil flow	59 l/min (15.6 gal/min)
Operating pressure (working hydraulics)	240 bar (3.481 psi)
Hydraulic oil cooler	yes
Hydraulic tank content system filling	48 liters (12.7 gal)
Hydraulic tank capacity	64 liters (16.9 gal)

11.13 Emissions

11.13.1 Exhaust emissions

DW60/DW90	
Exhaust gas aftertreatment	Exhaust gas recirculation + diesel oxidation catalyst + diesel particulate filter
Exhaust gas values in compliance	EU level V EPA Tier 4

11.13.2 Noise emissions

Sound power level	
Measured LwA ¹⁾	101 dB(A)
Guaranteed sound power level ¹⁾	101 dB(A)

1) Nach ISO 6395 (EC Directives 2000/14/EC and 2005/88/EC)



Information

The surface of the measuring site was asphalted.

11.13.3 Vibrations

Vibrations ¹⁾	
Effective acceleration value of the upper body limbs (hand-arm vibrations)	Trigger value < 2.5 m/s ²
Effective acceleration value for the body (whole body vibrations)	Trigger value < 0.5 m/s ²

1) Measurement uncertainty according to DIN EN 474-1:2014-03

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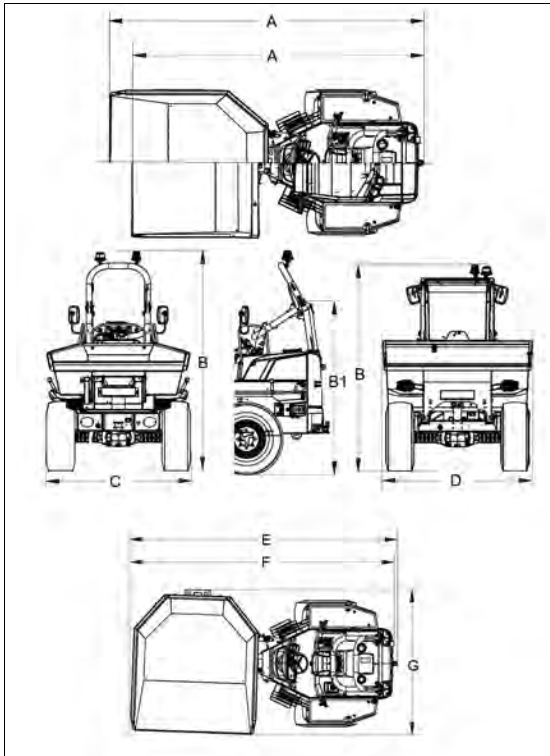
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Information

The loading document describes some basic settings and functions of the vehicle. The vehicle operating instructions contain further important safety information. The operating company must familiarize itself with and comply with all instructions and notes before commissioning the vehicle. The vehicle operating instructions must be read in full before the vehicle is started up.


Weight (kg/lbs)

Vehicle with front tipping skip, ROPS	DW60 TD 2.2	DW60 TD 2.9	DW90 TD 2.9
Transport weight ¹	3874 (8.541)	3919 (8.639)	4478 (9.827)
Operating weight ²	4018 (8.858)	4064 (8.960)	4623 (10.192)
Vehicle with Front tipping skip, cab	DW60 TD 2.2	DW60 TD 2.9	DW90 TD 2.9
Transport weight ¹	--	4222 (9.308)	4800 (10.582)
Operating weight ²	--	4367 (9.628)	4944 (10.900)
Vehicle with Swivel tipping skip³, ROPS	DW60 TD 2.2	DW60 TD 2.9	DW90 TD 2.9
Transport weight ¹	4118 (9.079)	4164 (9.180)	--
Operating weight ²	4263 (9.398)	4309 (9.500)	--
Vehicle with Swivel tipping skip³, cab	DW60 TD 2.2	DW60 TD 2.9	DW90 TD 2.9
Transport weight ¹	--	4467 (9.848)	--
Operating weight ²	--	4611 (10.166)	--

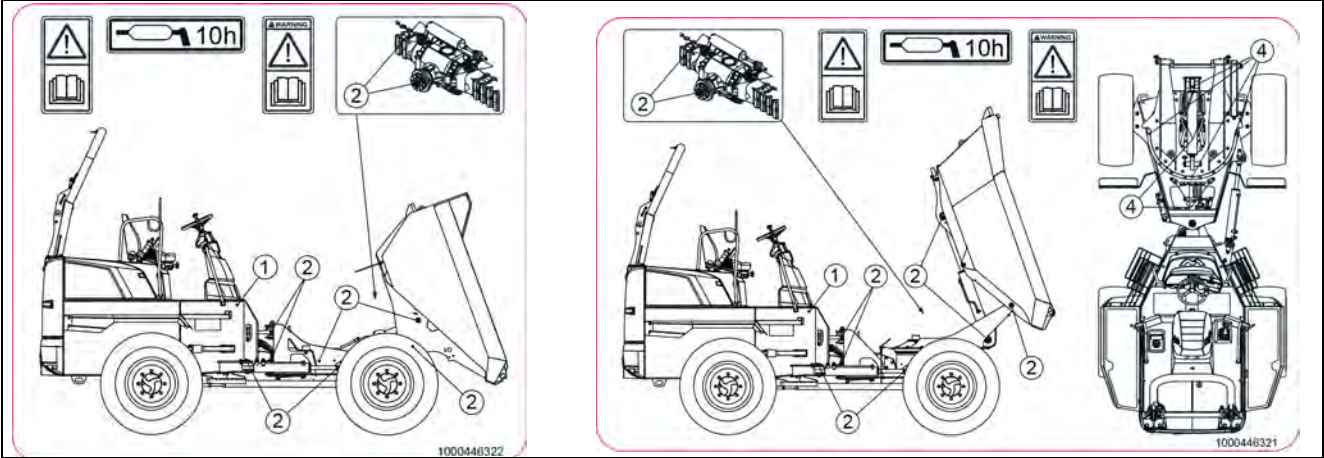
1. Transport weight: Vehicle + 10 % fuel tank capacity
2. Operating weight: Vehicle + full fuel tank + operator (75 kg/165 lbs).
3. The specifications apply to the swivel tipping skip and the short swivel tipping skip.

Dimensions mm(in/ft-in)

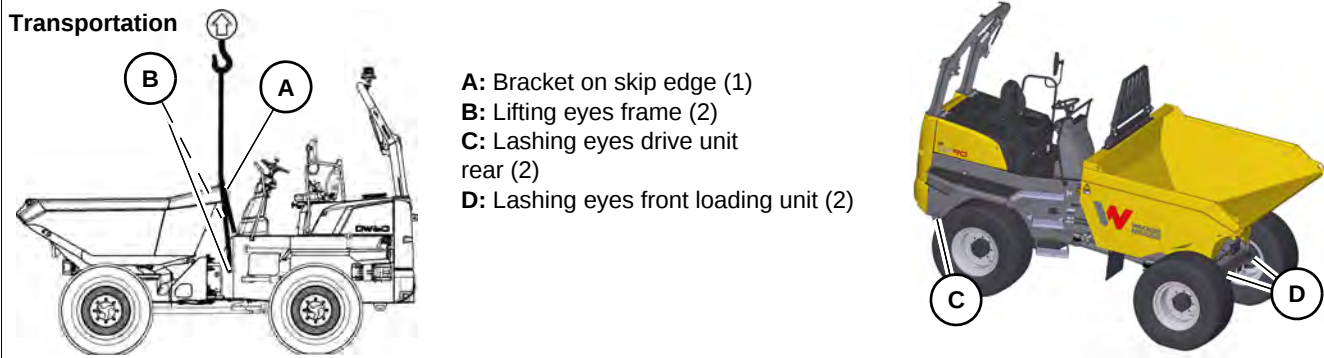
	DW60		DW90		DW60		DW60	
	Front tipping skip		Front tipping skip		Swivel tipping skip		Short swivel tipping skip	
	Cab	Rops	Cab	Rops	Cab	Rops	Cab	Rops
A	4554 (15'-0")		4729 (15'-7")		4807 (16'-0")		4744 (15'-7")	
B	3203 (10'-6")	3386 (11'-2")	3230 (10'-7")	3413 (11'-2")	3203 (10'-6")	3386 (11'-2")	3203(10'-6")	3386 (11'-2")
B1	--	2591 (8'-6")	--	2618 (8'-7")	--	2591 (8'-6")	--	2591 (8'-6")
C	2195 (86) ¹ 2230 (88) ² 2335 (92) ³		2420 (95)		2195 (86) ¹ 2230 (88) ² 2335 (92) ³		2195 (86) ¹ 2230 (88) ² 2335 (92) ³	
D	2328 (92)		2486 (98)		2218 (87)		2218 (87)	
E	--	--	--	--	4720 (15'-6")		4720 (15'-6")	
F	--	--	--	--	4661 (15'-4")		4661 (15'-4")	
G	--	--	--	--	2574 (8'-6")		2511 (99)	

1. Tires: Mitas MPT-03
2. Tires: Mitas MPT-01
3. Tires: ATG Galaxy Turf Special

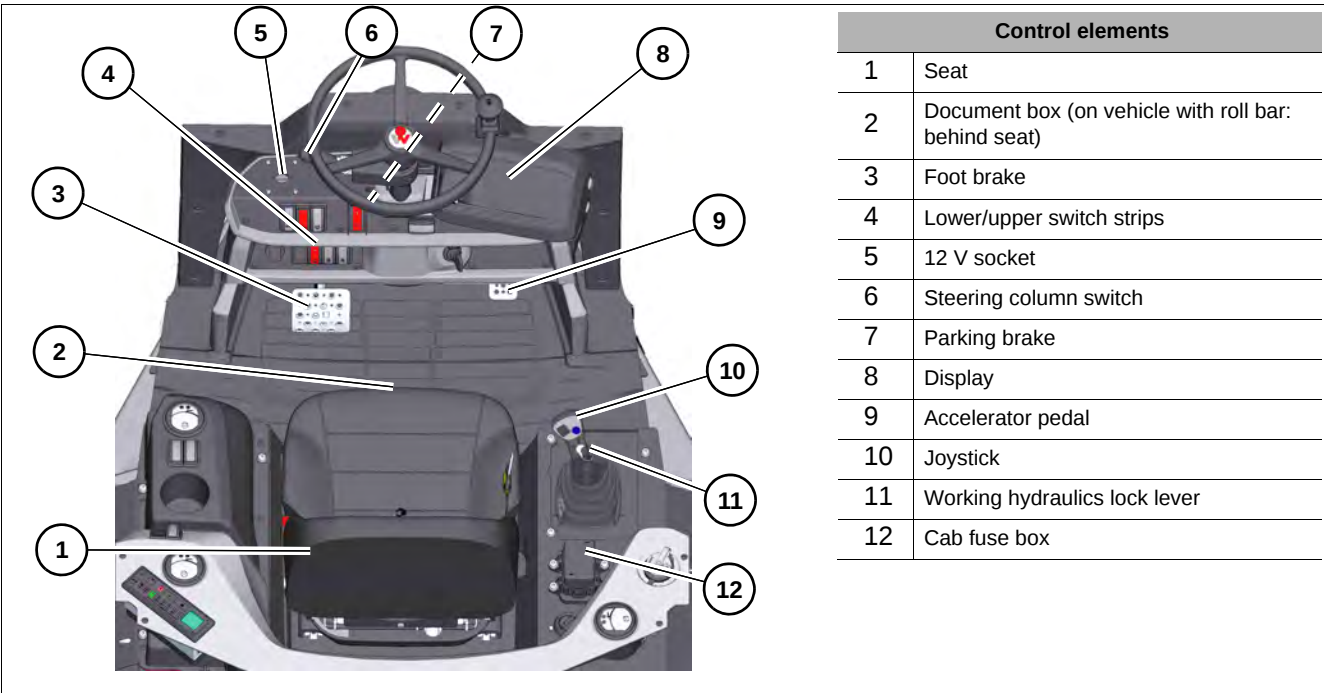
Lubrication points lubricate daily



Transportation



Brief overview of operation



Information

Start the engine only with the foot brake applied.



**WACKER
NEUSON**
all it takes!



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