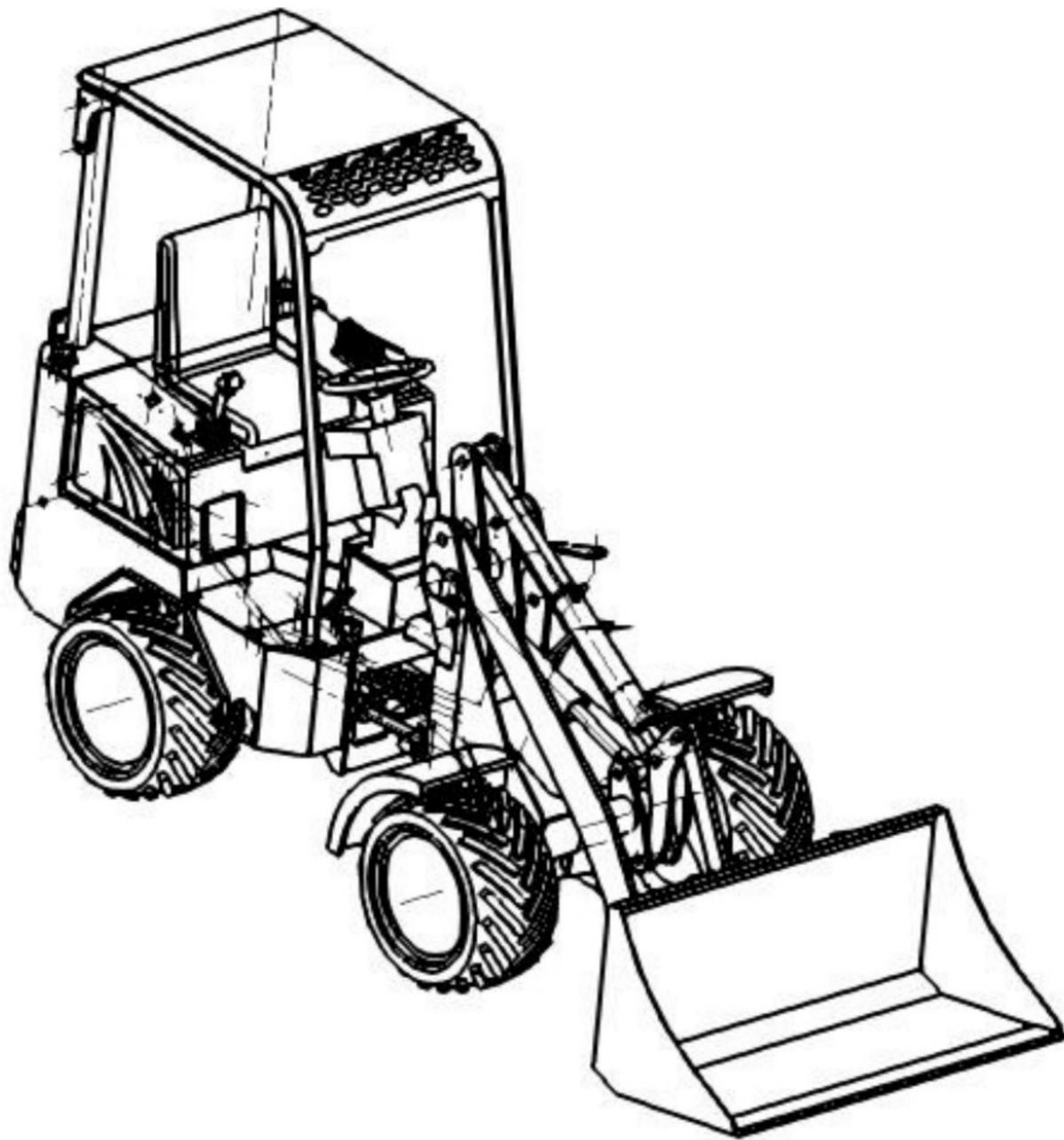




User Manual

MAMMUT Wheel Loaders



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Preface

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operator manual

This operator manual provides detailed operating procedures for safe, effective and proper machine use. The manual includes chapters about safe operation, machine specification, maintenance and troubleshooting information.

Improper operation, inspection and maintenance of the machine can result in injury or death. Read and understand the contents of this manual completely and become familiar with the machine before operation. Contact your authorized dealer with any questions about information in this manual or if you need extra manuals or manuals in other languages.

This manual is considered a permanent part of the machine and should be with the machine at all times. Replace this manual promptly if it becomes damaged, lost, or stolen.

Change of ownership

If the machine is resold, include this operator manual as part of the sale.

Please provide your dealer or mammutequip.com with the name of the current owner and any new address, along with the machine model and serial numbers. This makes sure that the registered owner receives any updated information and can be notified directly in case of an important product issue, such as a safety update program.



Warning: Do not remove this operator manual from this machine.

Failure to obey safety, operating and maintenance instructions can result in serious injury to the operator or bystanders, poor operation and costly breakdowns of the machine.

If you have any questions on proper operation, adjustment or maintenance of this machine, contact your dealer before starting or continuing operation.

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1 Introduction

1.1 About this manual

The MAMMUT wheel loader is referred to in the rest of this manual by the term "machine".

This manual is intended for the following target groups:

- Machine operator
- Personnel that carry out daily maintenance on the machine

The manual is applicable for these machine types:

- WL10

This manual was originally written in Dutch. All other language versions are translations. If there is any doubt about the correctness of a translation, the Dutch version takes precedence.

It is not always possible to show a detailed image of each individual part of the machine. Therefore, the images in this document can only show a standard layout. The images are for instruction purposes only.

1.2 Revision history

Date	Revision	Note
JAN, 2019	001	First version
JUN ,2019	002	Adjustment of the hours for maintenance Adjustment of contact details naar

1.3 Safety symbols in the document

Safety symbol	Purpose	Description
	Warning	"Warning" means that injury or death is possible if you do not obey the instructions.
	Caution	"Caution" means that damage to the equipment is possible if you do not obey the instructions.
	Note	"Note" is used to provide additional information.

1.4 Contact details for china

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SHANDONG QINGZHOU CATERPILLAR INDUSTRIAL PARK

2 Safety

2.1 Intended use

The machine is made for carrying out excavation and transport work in road construction, landscaping and related sectors. By connecting and disconnecting interchangeable accessories, the machine can be used for different applications.

Use only interchangeable accessories intended for your machine and that have been approved by the manufacturer.

2.2 Safety instructions

2.2.1 Using the machine

- Read the manual carefully before using the machine.
- Carry out the procedures in the order shown and complete the procedures.
- Keep this manual with the machine. If there is no manual, report it to your employer.
- Replace a damaged safety cabin immediately.
- If there is a fault or damage to the machine, stop the machine and report it to your employer. Make sure that the fault is resolved immediately.
- Do not modify the machine unless approved in writing by the manufacturer in advance.
- If the machine is fitted with an interchangeable accessory for which a periodic inspection is required, proof of this inspection must accompany the machine at all times.
- Use only interchangeable accessories from the manufacturer.

If using other interchangeable accessories, the manufacturer accepts no responsibility for the use of the entire combination.

- When using an interchangeable accessory, subtract the weight of the interchangeable accessory from the load values.
- Use the machine and the interchangeable accessory only as intended. If you want to use the machine for another application, please contact the manufacturer.
- The manufacturer is not responsible for damage caused by improper use of the machine or the interchangeable accessory.
- When replacing parts: always contact the manufacturer and only use parts that have been approved by the manufacturer.
- Use personal protective equipment: safety clothing, safety footwear.
- Use hearing protection. The noise level is more than 93 dB(A).

- Keep the driver's seat, pedals and steps clean.
- Store materials and tools when you are not using them.
- Loads:
 - Position loads only as indicated in this document.
 - Do not exceed the maximum loading. For the specifications, see chapter #.

- **Avoid asymmetrical distributions of the load.**
- **Counterweights:**
 - **Only counterweights and the counterweight frame from the manufacturer may be placed on the rear of the machine.**
 - **Persons on the back of the machine are not allowed as counterweight.**
- **Ensure that the interchangeable accessory parts are properly secured at all times.**
- **Driving on a slope:**
 - **Driving parallel to the slope is only permitted if the following conditions are met:**
 - **Maximum slope 10°**
 - **Boom retracted and as low as possible close to the ground**
 - **Maximum speed 3 km/h**
 - **Driving on slopes greater than 10° is only permitted if you drive straight up or straight down, i.e. at right angles to the slope.**
 - **Driving with loads on a slope is only permitted if the following conditions are met:**
 - **Maximum slope 10°**
 - **Load as low as possible close to the ground**
 - **Maximum speed 3 km/h**
- **If the machine overturns:**
 - **Keep your seat belt on.**
 - **Stay on the machine.**
 - **Turn off the machine completely.**
- **Always use the locking pin or locking pins to lock interchangeable accessories and also follow the instructions of the interchangeable accessory.**
- **Obey the local labor and safety laws and environmental regulations.**
-

2.2.2 Personnel

- **The machine may only be used, maintained and repaired by personnel trained by the manufacturer or by the importer.**
- **The personnel must:**
 - **be 18 or older.**
 - **be physically and mentally healthy.**
 - **have the relevant knowledge and skills.**
- **Personnel in training may only use the machine under the supervision of trained personnel.**

2.2.3 Organizational measures

- **Do not wear loose clothing or jewelry. Tie up long hair.**
- **Ensure that all warning symbols on the machine are legible. Replace unreadable warning symbols immediately.**
- **Hoisting and lifting tools such as chains, plastic hoisting belts and steel straps must meet these requirements:**
 - **Be sufficiently strong, correctly dimensioned and in good condition**
 - **Comply with local labor and safety laws**
- **Workplace environment:**
 - **The machine is suitable for driving on the public highway, provided it has the correct registration documents, the correct traffic lighting and permits.**

- **The workplace must be sufficiently lit at all times.**
- **It is the responsibility of the operator to ensure that bystanders (people who are not the operator) cannot get into the path of the machine, the interchangeable accessories or the loads.**

2.2.4 Safety instructions during certain activities

- **Make sure that no one is at risk.**
- **If there is danger, give a warning signal and stop the machine if necessary.**
- **Before using the machine, allow the machine to warm up in a well-ventilated area.**
- **If you do not have sufficient visibility, make sure you are assisted by trained personnel. This personnel must be recognizable and stay within your field of vision at all times.**
- **The machine must not be used in landfills where there is a risk of the machine falling, unless there are provisions that prevent rolling or crashing.**
- **When you are no longer using the machine, stop the machine.**
- **Before stopping the machine, remove the interchangeable accessory according to the instructions in this manual and place the interchangeable accessory in a safe location.**
- **If the hydraulic steering cylinder fails, fit the jib lock rod. See section [4.10](#).**
- **At all times prevent persons going under the load.**
- **People must remain at a distance of 5 meters from the working machine.**
- **Explore the surrounding area and remove any obstacles.**

2.2.5 Instructions concerning certain risks

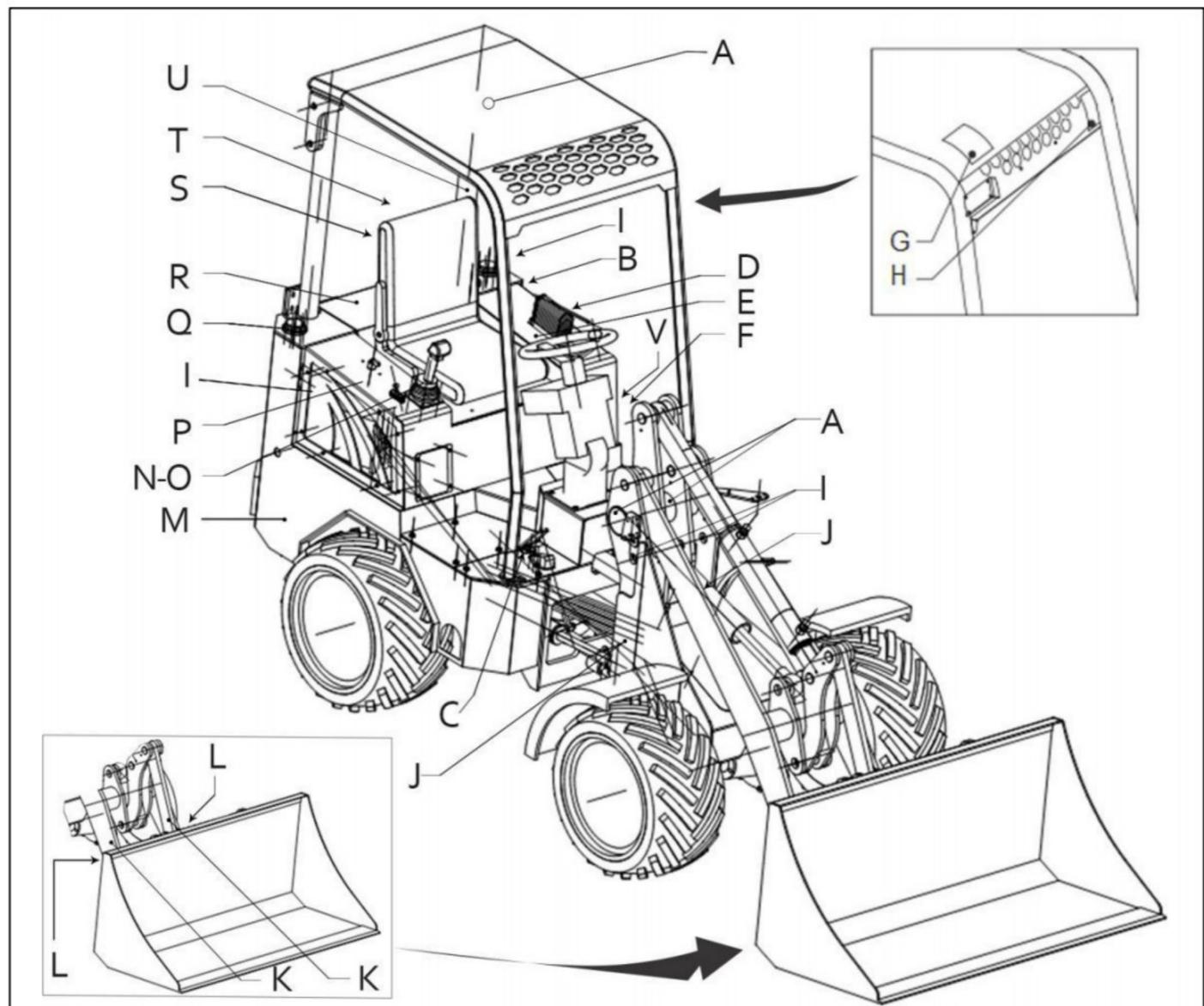
- **Make sure you know where the fire extinguishers are.**
- **In the event of fire: keep a sufficient distance away from the machine. If the hydraulic fluid lines overheat, they can break and cause flash fires of burning hydraulic fluid.**
- **Use only fuses from the manufacturer.**
- **Avoid prolonged overloading of the hydraulics. This causes overheating of the machine. Always ensure that the hydraulic control is in the neutral position when starting the machine.**
- **Check the hydraulic fluid level daily and top up if necessary.**
- **Replace the hydraulic fluid filters and the hydraulic fluid at least once a year.**
- **Be careful when using hydraulic fluid and battery acid.**
- **Avoid high speeds with a low oil temperature: drive for the first 5 minutes at an increased engine speed (1500 rpm), without a load.**
- **Refueling:**
 - **Before refueling:**
 - **Switch off all electrical systems.**
 - **Switch off the engine and allow the engine and exhaust to cool down to a hand-warm temperature.**
 - **Refuel in a well-ventilated area.**
 - **Do not refuel near open flames or sparks.**
 - **Do not smoke while refueling.**
- **Make sure that no fuel, oil or grease gets on the machine.**
- **Only use the machine in well-ventilated areas.**
- **Only use original parts from the manufacturer.**
- **Avoid shocks and vibrations.**
- **Do not use the machine as an anchor point.**

2.2.6 Instructions concerning hydraulic parts

The machine and its attachments contain hydraulic components. These involve specific dangers:

- **The hydraulic oil heats up during use. Contact with hot hydraulic oil can lead to burns.**
- **The hydraulic oil is under high pressure. Hydraulic oil that sprays out of the system under pressure can penetrate the skin and cause serious injuries. Therefore, never look for leaks by feeling with your bare hand and use the necessary personal protective equipment.**

2.3 Safety symbols on the machine



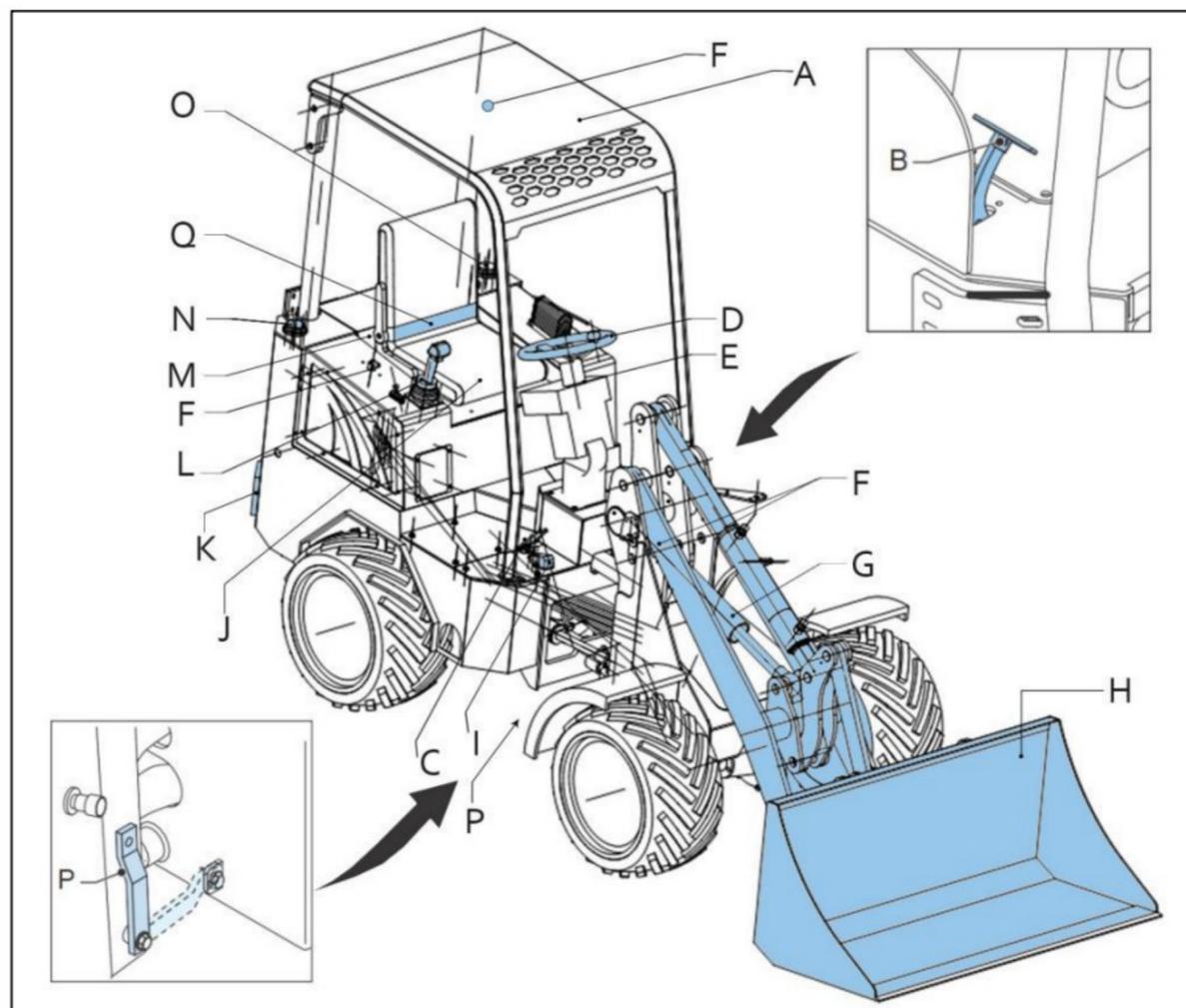
	Symbol	Meaning
A		<p>Only attach the lifting hooks to these locations for transport.</p>

	Symbol	Meaning
B		<p>WARNING: Prevent personal injury or risk of death.</p> <ul style="list-style-type: none"> • Ensure that safety devices are active. • Work according to the procedures in the user manual. • Keep safety guards in place. • It is forbidden to smoke during maintenance of the machine or refueling. • Remove all dirt from the engine compartment every day to prevent fire. Keep a fire extinguisher nearby. • Look for hydraulic leaks without using your hands. • Escaping oil under pressure can be invisible and penetrate the skin. • Allow the engine heating to cool down before opening the engine cap. Open the engine cap slowly to prevent burns.
C		<p>WARNING: Prevent personal injury or risk of death.</p> <ul style="list-style-type: none"> • Read the manual and all safety stickers before using the machine. • The owner is responsible for ensuring that all users of the machine have been instructed about safe use and maintenance. • Check the machine before every use. Use the operator manual for this. • Contact the supplier or manufacturer for information and spare parts.
D		<p>The operator is advised to use hearing protection.</p>
E		<p>WARNING: Prevent physical injuries while getting in and out of the machine:</p> <ul style="list-style-type: none"> • Keep some distance from the machine. • Ensure you have a 3-point contact with the machine while getting in or out. • Do not hold the steering wheel.
F		<p>Read the safety instructions before starting the machine. Obey these safety instructions.</p>
G		<p>WARNING: It is forbidden to remove the FOPS.</p>
H		<p>During transport, attach the straps only to these locations.</p>

	Symbol	Meaning
I		<p>WARNING:</p> <ul style="list-style-type: none"> • Personnel not controlling the machine must remain at a safe distance from the machine. • Fit the jib lock for maintenance or transport.
J		<p>WARNING:</p> <ul style="list-style-type: none"> • Before starting the machine, ensure that the interchangeable accessory is secured with both locking pins.
K	<p>FORBIDDEN to stand underneath the LOAD</p>	<p>It is forbidden to stand under the load.</p>
L		<p>CAUTION: high temperatures.</p>
M		<p>WARNING: Prevent personal injury or risk of death.</p> <ul style="list-style-type: none"> • Keep hold of the steering wheel if the machine tilts. • Never jump out of the machine.
N		<p>WARNING: Prevent the machine from tipping over.</p> <ul style="list-style-type: none"> • Keep the load low. • Stay within the prescribed capacity. • Avoid steep slopes and sharp turns.
O		<p>IMPORTANT: Only use hydraulic oil.</p>
P		<p>WARNING:</p> <ul style="list-style-type: none"> • Do not put your hands into the machine when the engine is running. • Leave the engine cover closed when the machine is running. • Risk of burns: hot machine parts under the cover.
Q		<p>DANGER: Stay at a safe distance. The machine swings out.</p>
R		<p>IMPORTANT: Only use diesel that meets the stated specifications.</p>
S		<p>WARNING:</p> <ul style="list-style-type: none"> • Have the ROPS replaced immediately after the machine has been tilted. • Wear seat belts while using the machine.

3 Description

3.1 Overview



- | | | | |
|---|---|---|----------------------------------|
| A | Safety cabin | J | Driver's seat |
| B | Inching pedal | K | Counterweights (optional) |
| C | Parking brake | L | Hydraulic control |
| D | Steering wheel | M | Engine compartment |
| E | Dashboard | N | Fuel tank |
| F | Lifting eyes and tie-down points | O | Hydraulic fluid tank |
| G | Boom | P | Jib locking pin |
| H | Mounting plate | Q | Seatbelt |
| I | Gas pedal | | |

3.2 Type plate



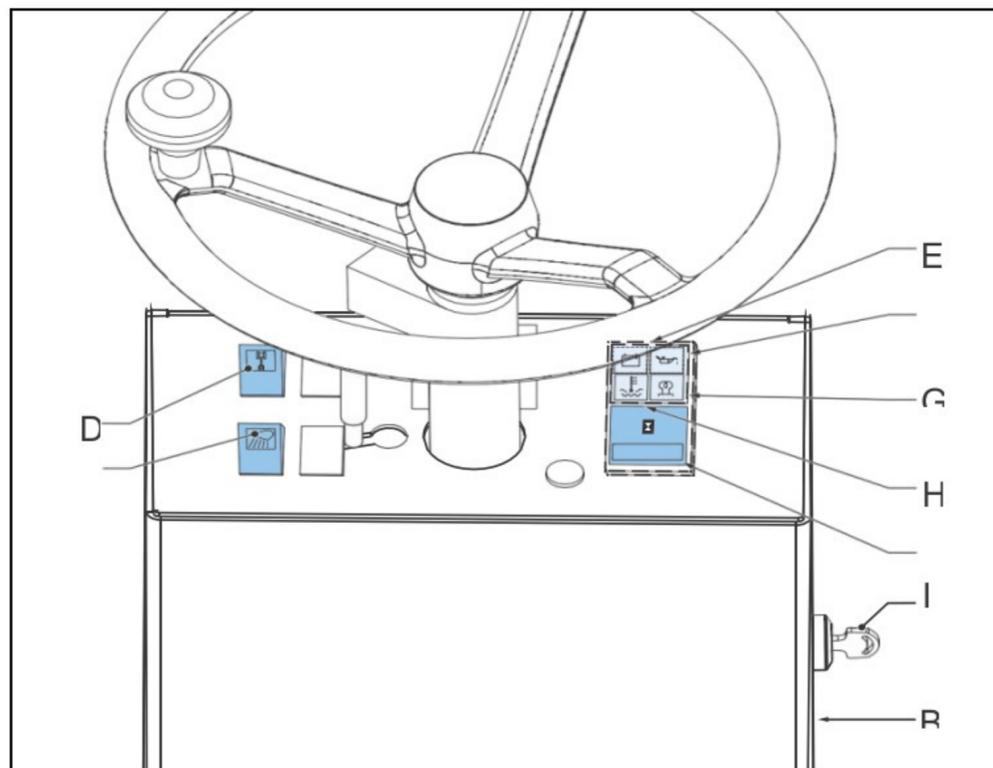
The illustration shows an example of the layout of the type plate on the machine. The actual type plate on the machine shows the correct data depending on the type of machine.

3.3 Dashboard

3.3.1 Dashboard types

Depending on the type of machine, there are different types of dashboard. All dashboards contain the necessary control instruments.

3.3.2 Dashboard type 1



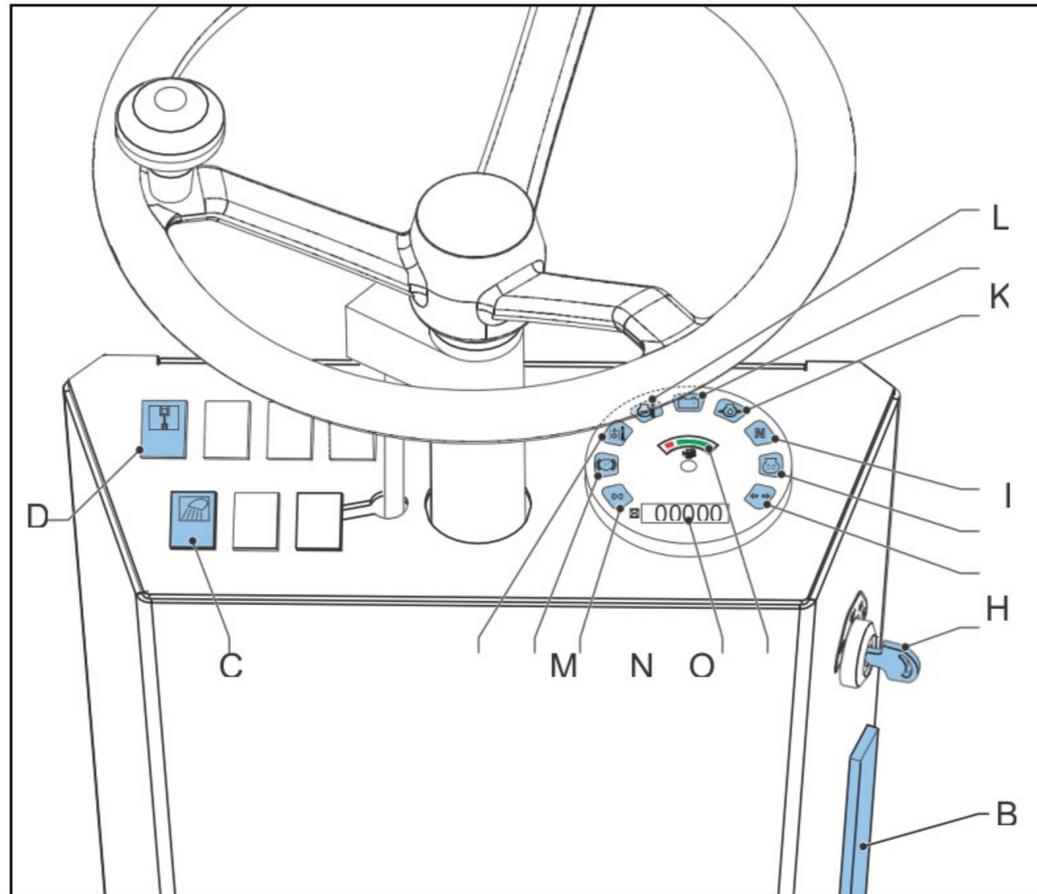
A Ignition key

F Oil pressure lamp

- | | |
|-------------------------------|--|
| B Fuse box | G Pre-heater lamp for the diesel engine |
| C Light switch | H Motor temperature lamp |
| D Differential switch | I Operating hours counter |
| E Battery voltage lamp | |

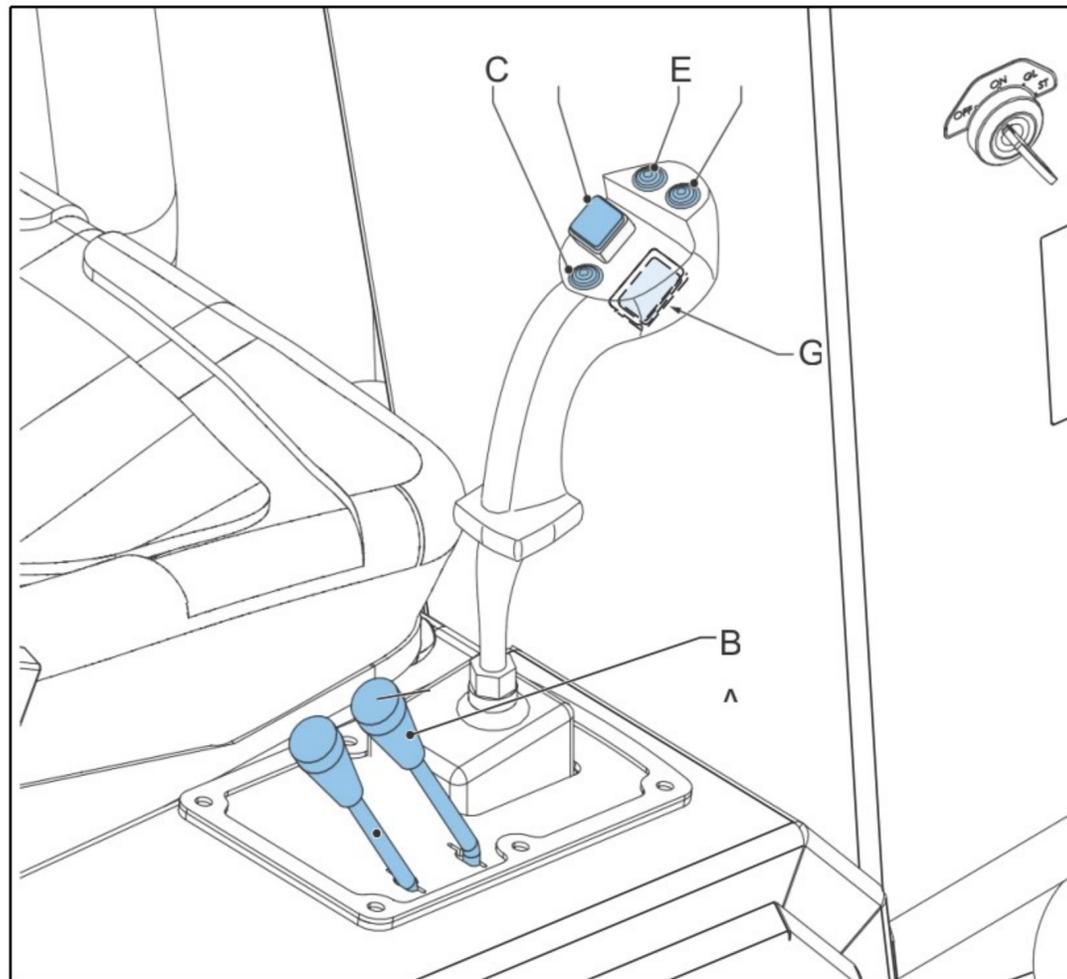
3.3.3

Dashboard type 2



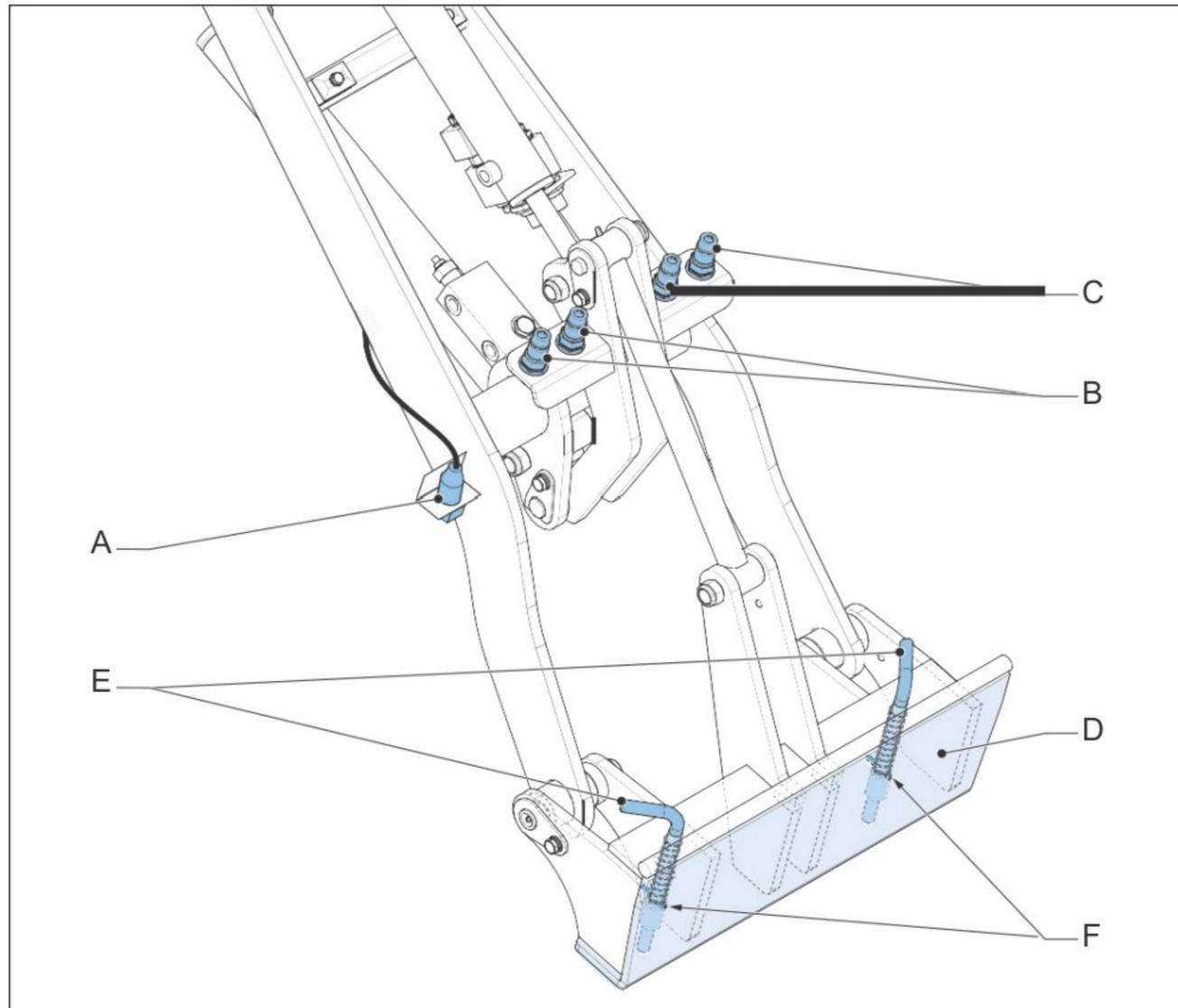
- | | |
|--|--------------------------------------|
| A Ignition key | I Neutral position indicator |
| B Fuse box | J Engine oil pressure |
| C Light switch | K Battery voltage |
| D Differential switch | L Engine coolant temperature |
| E Operating hours counter | M Hydraulic fluid temperature |
| F Fuel indicator | N Parking brake |
| G Turn signal (optional) | O Position lights (optional) |
| H Pre-heater lamp for the diesel engine | |

3.4 Hydraulic control



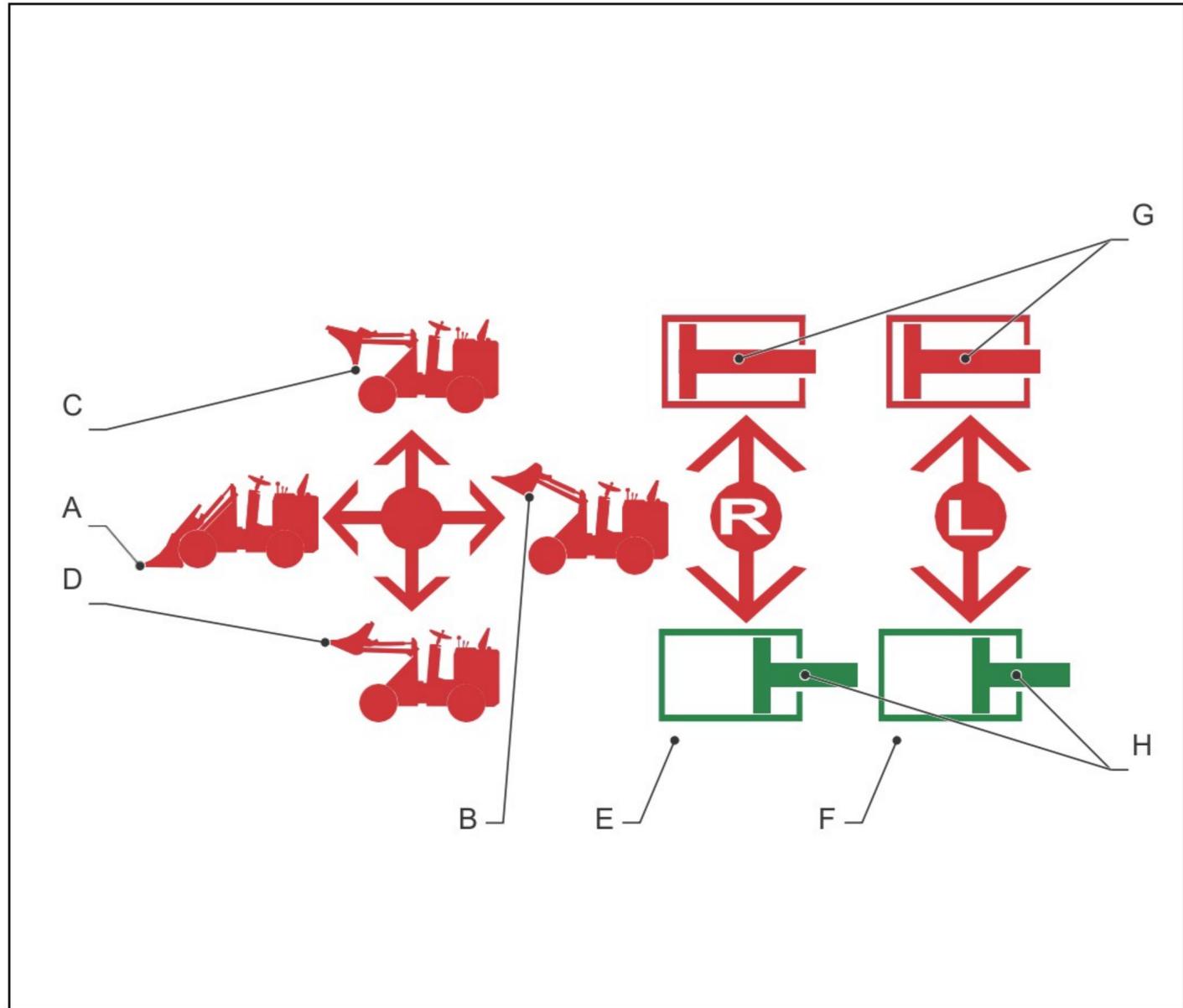
- | | |
|--|---|
| A Lever for auxiliary hydraulic function left. See also section 4.4. | E Telescope button (extend) (only for TE versions) |
| B Lever for auxiliary hydraulic function right. See also section 4.4. | F Moving the joystick left and right takes over the function of B. |
| C Horn | G Button to switch the electrical function of the attachment on and off. |
| D Travel direction button | |

3.5 Mounting plate



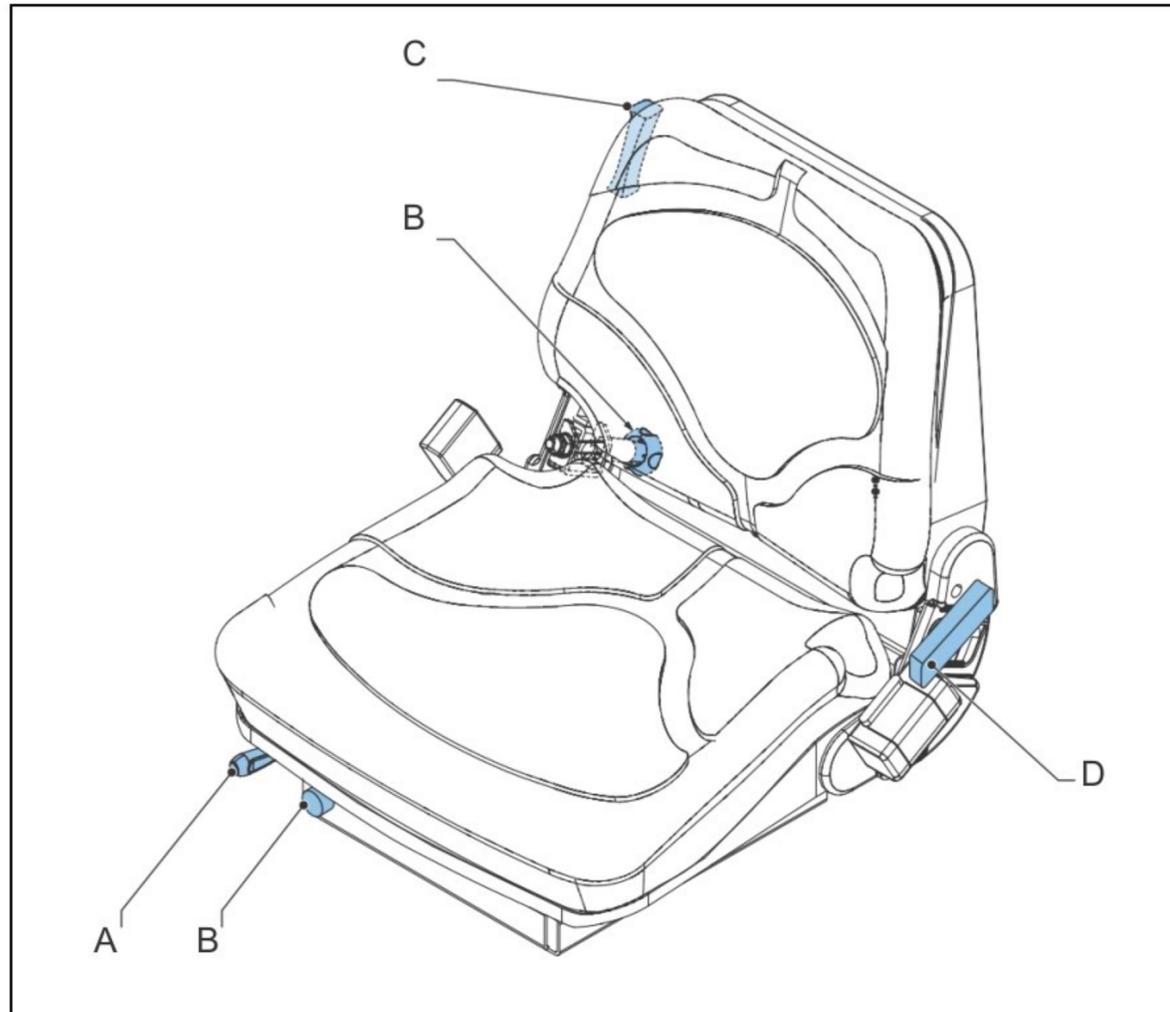
- | | | | |
|----------|---|----------|------------------------|
| A | Electrical connection for electrical function. | D | Mounting plate |
| B | Connection for auxiliary hydraulic function right. | E | Locking handles |
| C | Connection for auxiliary hydraulic function left. | F | Locking pins |

3.6 Sticker for hydraulic control and boom level functions.



- | | |
|-----------------------------------|--|
| A LOWER BOOM | E Auxiliary hydraulic function right |
| B RAISE BOOM | F Auxiliary hydraulic function left |
| C MOUNTING PLATE FORWARDS | G Hydraulic pressure on side hydraulic connection with red dust cap |
| D MOUNTING PLATE BACKWARDS | H Hydraulic pressure on side hydraulic connection with green dust cap |

3.7 Driver' s seat



- | | |
|---|--|
| A Lever for adjusting the driver's seat forwards and backwards | C Knob for adjusting the backrest |
| B Knob for driver weight adjustment | D Handle for adjusting the backrest angle |

Depending on the type of machine, the adjustments of the driver's seat may differ.

3.8 Operating principle: driving the wheels

Hydraulic wheel motors drive the wheels of the machine, one motor per wheel. The hydraulic pressure comes from a hydraulic pump that is driven in turn by a diesel engine.

The gas pedal of the machine controls the speed of the diesel engine and thus indirectly the power and the speed of the hydraulics. The inching pedal can be used as a brake pedal.

Example

You can use the inching pedal simultaneously with the gas pedal, for example to drive slowly across rough terrain or to lift heavy loads slowly. Simultaneously operate the gas pedal (for the power) and the inching pedal (to limit the speed). When you press the inching pedal all the way in, the machine stops.

4 Daily use

4.1 Starting

Safety



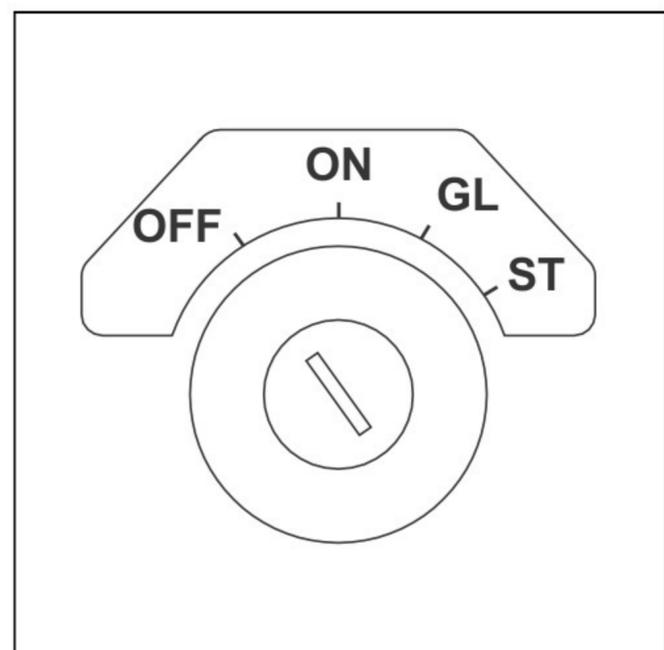
Warning: Do not exceed the maximum loading. For the specifications, see chapter #.

Preparation

1. **Make sure that the daily maintenance has been carried out. See section 5.1.**
2. **Check the fuel level and the hydraulic fluid level. Top up the relevant tank if necessary.**
 - **Topping up the fuel: see section 4.7.**
 - **Check and top up the hydraulic fluid: see section 5.11.**
3. **If you are going to drive in a dusty environment, make sure the pre-filter is usable. If necessary, clean or replace the pre-filter. See section 5.2.**
4. **Make sure that the following controls are in the neutral position:**
 - **Driving direction lever**
 - **Boom lever**
 - **Both levers for the auxiliary hydraulic functions**
5. **Sit on the driver's seat before starting the machine.**
6. **Adjust the driver's seat if necessary.**
7. **Put on the seatbelt and click it tight.**

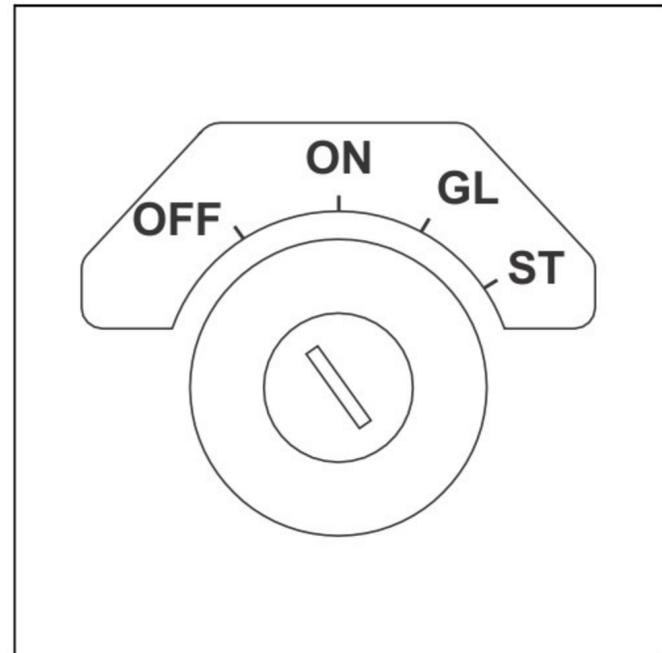
Start the machine

1. **Insert the ignition key into the ignition.**
2. **Turn the ignition key to the 'ON' position. Check that the following lamps are lit:**
 - a) **Battery voltage lamp**
 - b) **Oil pressure lamp**
3. **Turn the ignition key to the 'GL' position. Wait until the pre-heat lamp goes out.**
4. **Turn the key to the 'ST' position and release the key as soon as the engine is running.**



4.2 Stop

1. Stop the machine on flat ground if possible.
2. Place the boom on the ground, if no load is present, or place the load on the ground.
3. Pull the parking brake fully up.
4. Put the following controls in the neutral position:
 - a) Driving direction lever
 - b) Boom lever
 - c) Both levers for the auxiliary hydraulic functions
5. Turn the key to the 'OFF' position.
6. Remove and retain the key.



4.3 Driving

4.3.1 Driving: safety instructions



Warning:

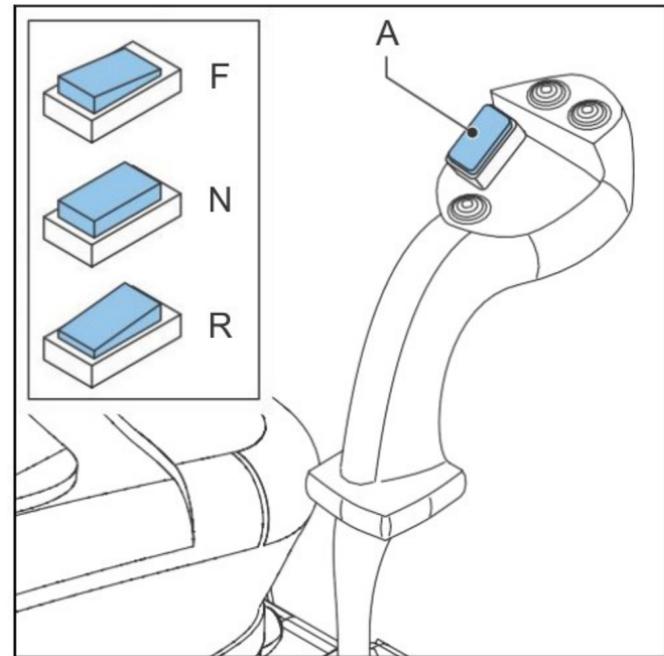
- Try to avoid slopes and obstacles as much as possible. The machine can become unstable.
- Driving on a slope:
 - Driving parallel to the slope is only permitted if the following conditions are met:
 - Maximum slope 10°
 - Boom retracted and as low as possible close to the ground
 - Maximum speed 3 km/h
 - Driving on slopes greater than 10° is only permitted if you drive straight up or straight down, i.e. at right angles to the slope.
 - Driving with loads on a slope is only permitted if the following conditions are met:
 - Maximum slope 10°
 - Load as low as possible close to the ground
 - Maximum speed 3 km/h
- Always drive with the boom retracted.
- Do not transport people with the machine.
- Do not make sharp turns at high speeds.
- Do not take off your seatbelt.
- Avoid high speeds with a low oil temperature: drive for the first 5 minutes at an increased engine speed (1500 rpm), without a load.
- Do not exceed the maximum loading. For the specifications, see chapter 7.

4.3.2 Driving

1. Press the parking brake button and fully lower the parking brake.
2. Choose a driving direction:
 - a) If you want to drive forwards, set the direction button (A) to the 'FORWARD' position (F).
 - b) If you want to drive in reverse, set the direction button (A) to the 'REVERSE' position (R).

When the drive direction knob is in the 'NEUTRAL' position (N), the machine will not move.

3. When you want to drive, press the gas pedal.
4. When you want to brake, release the gas pedal and press the inching pedal.



Advantage

Automotive drive system is a good choice for those looking to get the most from a loader. This system grants the operator total control over the engine's PRM and transmission when driving forward/backward.

The direction of travel is selected by a button on the loader's control stick.

The loader's driving speed and the engine's RPM are regulated by a gas pedal operated with the right foot.

At your left foot, there is a combined brake and clutch that allows you manually to reduce the driving speed, even at a high RPM, e.g., during loading work or when using equipment requiring a high engine RPM.

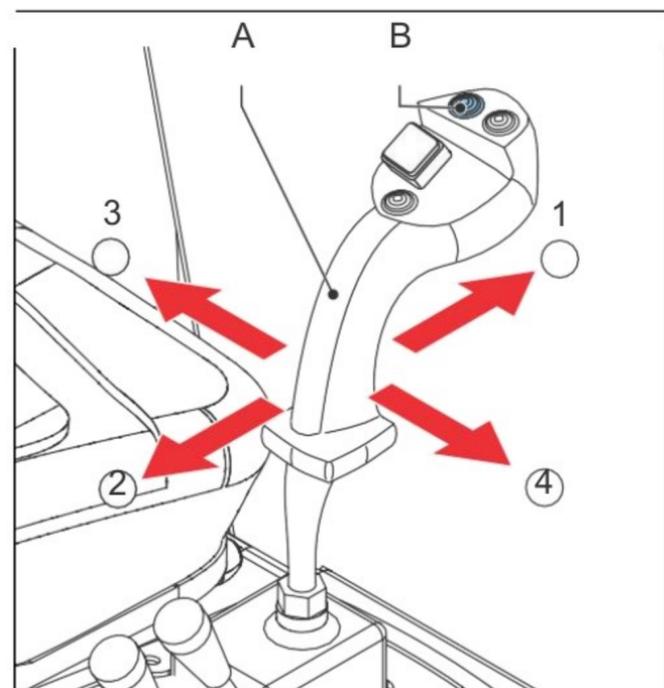
The drive system is easy to run and is excellent for loading, as well as for more continuous driving along roads and streets. Operating the system can be likened to driving a car with an automatic transmission.

Articulation and frame oscillation

For greater stability and more comfort when operating on rough terrain, a unique center-type joint allows for 8° of frame oscillation and 40° of articulation in either direction. Plus, the heavy-duty components ensure long life operation.

4.4 Operating the boom

1. If you want to lower the boom, hold the boom level (A) in the 'LOWER BOOM' position (1).
2. If you want to raise the boom, hold the boom level (A) in the 'RAISE BOOM' position (2).
3. If you want to tilt the mounting plate backwards, hold the boom lever in the 'MOUNTING PLATE BACKWARD' position (3).
4. If you want to tilt the mounting plate forwards, hold the boom lever in the 'MOUNTING PLATE FORWARD' position (4).
5. If you want to extend the boom (only for TE versions):



- a) Press and hold the telescope button (B).
- b) Put the boom lever in the 'RAISE BOOM' position (2).
6. If you want to retract the boom (only for TE versions):
 - a) Press and hold the telescope button (B).
 - b) Put the boom lever in the 'LOWER BOOM' position (1).

4.5 Attaching an interchangeable accessory

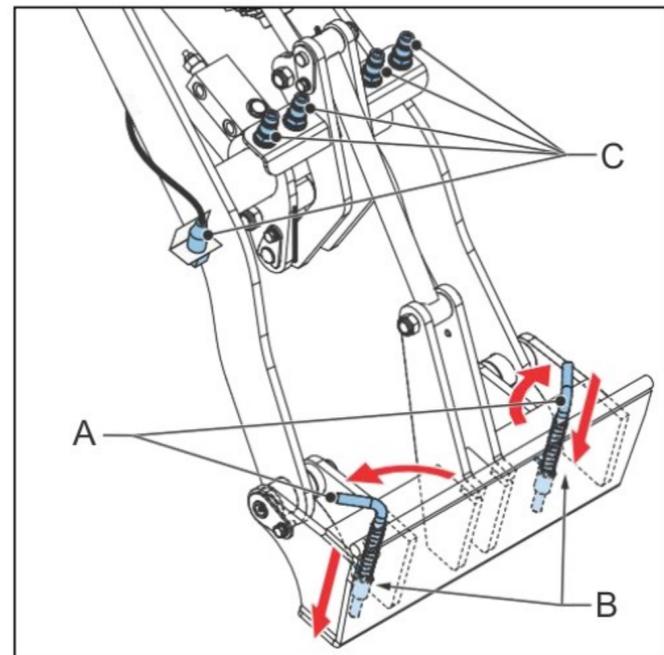
About this task
Procedure

Release the pressure in the hydraulic system for the auxiliary functions

1. Turn the ignition key to the 'OFF' position to switch off the engine.
2. Move the levers for the auxiliary hydraulic functions back and forth several times to remove the hydraulic pressure.

Attaching

1. Position the machine just in front of the interchangeable accessory that you want to attach.
2. Place the boom in the lowest possible position.
3. Tilt the mounting plate forward.
4. Move the machine forward until the mounting plate makes contact with the interchangeable accessory.
5. Raise the mounting plate until the interchangeable accessory is completely against the face of the mounting plate. If necessary, tilt the mounting plate backwards a little.
6. Put the locking pin levers (A) in the locking position.
7. Check that the locking pins (B) have come out and secure the coupling of the interchangeable accessory.
8. If necessary, connect the hydraulic hoses and electrical cables of the interchangeable accessory to the connections for the auxiliary functions (C).
 - Make sure the hydraulic quick release couplings are clean.
 - Make sure the auxiliary functions are connected correctly. See also section 3.5.



4.6 Detaching an interchangeable accessory

About this task

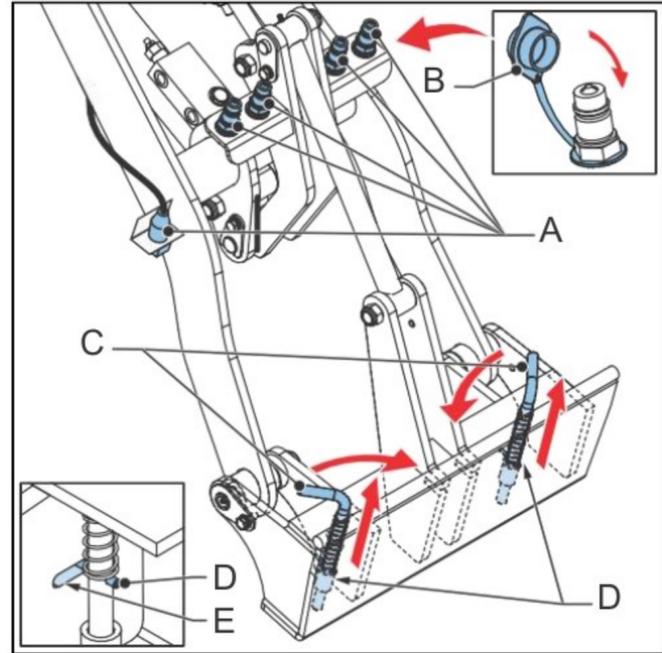


Caution:

When the interchangeable accessory is connected to the hydraulic quick release couplings, first disconnect the auxiliary function connections before disconnecting the interchangeable accessory from the machine.

Procedure

1. Place the interchangeable accessory on the ground.
2. If auxiliary hydraulic functions are connected:
 - a) Turn off the machine completely.
 - b) Move the lever for operating the auxiliary hydraulic function that you want to disconnect to and fro to release the pressure in the hydraulic system for the auxiliary functions.
 - c) Disconnect the hydraulic hoses of the interchangeable accessory from the connections for auxiliary functions (A).
 - d) Fit the dust covers (B) to the connections for the auxiliary functions.
3. Pull the lock pin levers (C) up and turn them a quarter turn until the lever pins (D) are in the grooves (E).
The locking pins (F) are now pushed in and the interchangeable accessory is unlocked.
4. Tilt the mounting plate forwards until the interchangeable attachment comes off the mounting plate.



4.7

Refueling

Before you begin

The fuel is flammable and can be dangerous. Be careful when handling fuel.

Warning:



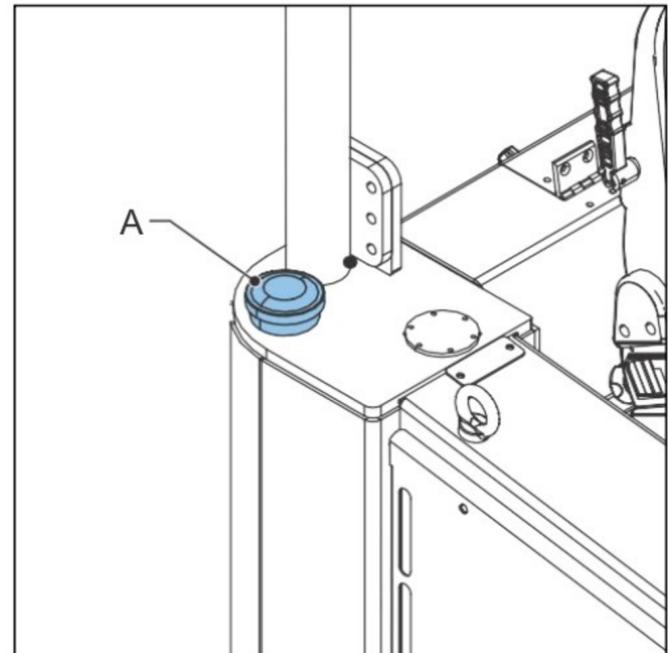
- Use only the right fuel and do not mix it with petrol or alcohol. Such a mixture can damage the engine or cause an explosion.
- Do not spill fuel. If you do spill, remove spilled fuel immediately.
- Ensure that no open flames or sparks can occur when refueling.
- Only refuel in a well-ventilated area.



Caution: Make sure that the fuel tank is never emptied. If this happens, air can get into the fuel system. In this case, the air must be removed from the fuel system by a qualified service technician.

Procedure

1. **Stop the machine.**
2. **Remove the fuel cap (A).**
3. **Fill up with fuel.**
For the correct type of fuel, see section 7.1.
4. **Fit the fuel cap.**



4.8 Engaging and disengaging the differential

About this task

Caution: In the event of improper use, the tires will show extra wear and the machine will be difficult to steer.

Procedure

1. **To engage or disengage the differential: press the differential switch.**

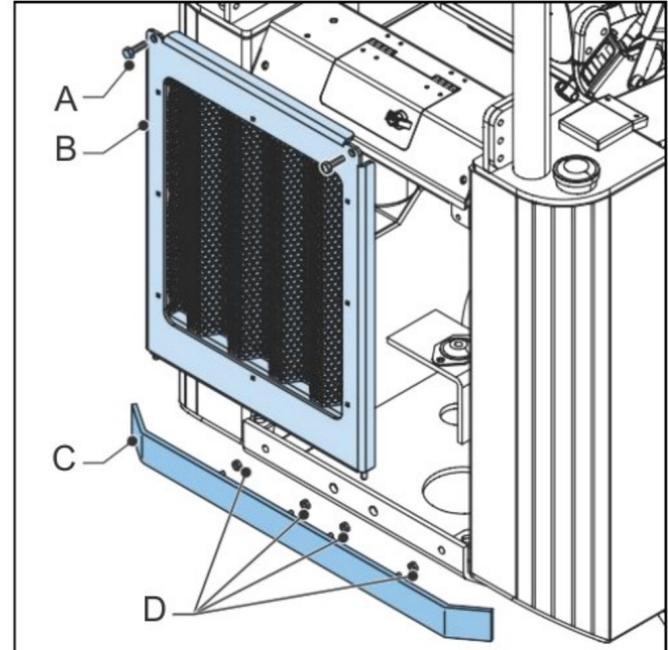
4.9 Positioning counterweights

Safety

Warning: A minimum of two people are needed for lifting the counterweights. Each counterweight weighs more than 30 kg.

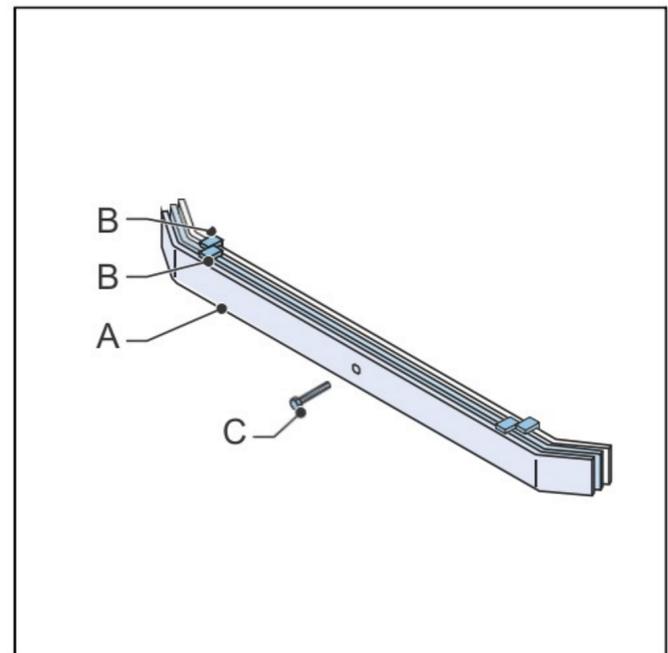
Positioning the first counterweight

1. Remove the bolts (A).
2. Remove the panel (B).
3. Position the counterweight (C).
4. Secure the counterweight with the washers and the nuts (D).
5. Fit the panel.
6. Secure the panel with the bolts.



Positioning the second and third counterweight

1. Hang the counterweight (A) on the previous counterweight with the hooks (B)
2. Fit the locking bolt (C).



4.10 Mounting and removing the jib lock

The jib lock is intended to prevent the machine from bending in the event of a failure of the control mechanism.

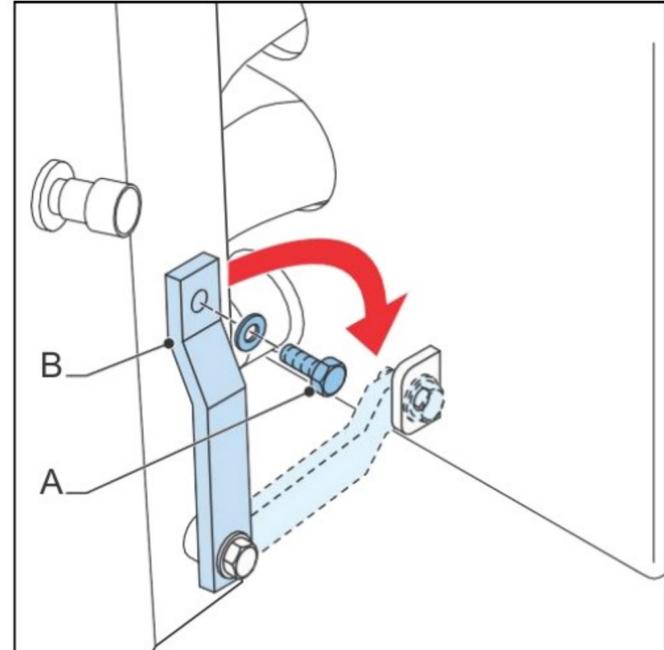
Safety



Warning: Make sure the engine is switched off before you perform any actions on the jib lock. If the engine is switched on, there is a risk of becoming trapped.

Mounting

1. **Switch the machine's engine off.**
2. **Remove the bolt (A).**
3. **Turn the jib lock (B) towards the tab on the rear part of the machine.**
4. **Use the bolt (A) to secure the jib lock to the tab.**



Removal

1. **Put the jib lock back on the front part of the machine.**

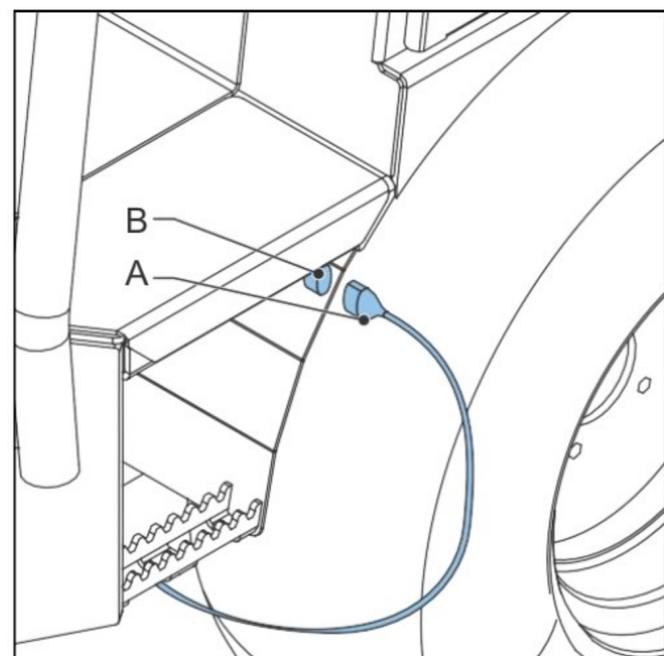
4.11

Preheating

The machine has a built-in heating element.

Charging

1. **Connect the machine to the wall socket and the connection point (B) on the machine using the cable supplied (A).**
2. **Start the preheating at least 1.5 hours before starting the machine.**
3. **At extremely low temperatures (lower than -10°C / 14°F), a longer preheat time may be needed.**



4.12

Transport and storage

4.12.1 Transport: safety instructions

About this task



Caution:

- **Do not tow the machine.**
- **Makesure that the machine is not exposed to external shocks, vibrations and collisions.**
- **Protect the machine against external influences such as rain, splashing (salt) water, dirt and dust.**
- **Use a means of transport, such as a trailer, with sufficient capacity for the weight of the machine and the interchangeable accessory.**

4.12.2 Driving on the means of transport

1. **Drive the machine backwards onto the transport.**
2. **Position the boom as close as possible to the floor of the transport.**
3. **Stop the machine.**
4. **Make sure the machine is stable.**
5. **Place blocks to block the front and rear wheels.**
6. **Secure the machine with straps that meet the legal requirements.**
7. **Use the tie-down points of the machine, indicated with stickers.**

4.12.3 Hoisting the machine

1. **Make sure that the machine is straight, so that it is not bent.**
2. **Turn off the machine completely.**
3. **If there is a problem with the steering, fit the jib lock, see section [4.10](#).**
4. **Only use the lifting eyes, which are marked with stickers on the machine. Use the two lifting eyes at the top or the four lifting eyes at the base of the machine.**
5. **Attach the lifting equipment to the lifting eyes and take care of the following items:**
 - **The lifting equipment do not come into contact with the hydraulic control.**
 - **The lifting chains or belts are all equally long so that the machine stays horizontal during lifting.**
6. **Lift the machine vertically.**
7. **Place the machine on a stable surface.**
8. **Remove the lifting equipment.**
9. **Remove the attachment tools.**
10. **Remove the jib lock, see section [4.10](#).**

4.12.4 Storage

1. **Place the machine if it is temporarily out of use in an area that is protected from all weather conditions.**

5 Maintenance

5.1 Daily maintenance

Before you begin



Warning: Do not touch hot parts of the machine: engine, exhaust and hydraulics.

About this task

The daily maintenance may be carried out by the machine operator or by someone with an equivalent level of training.

Procedure

1. Lubricate the hinge points. See section 5.8.1.
2. Ensure that the other periodic maintenance is carried out by a qualified service technician. See section 5.4.
3. Check the machine while it is switched off for the parts in section 5.2.
4. Start the machine and check the machine for the parts in section 5.3.
5. If a part is not in order, make sure that the problem is resolved. Where indicated, the problem may be corrected by the operator. For resolving other problems, contact a qualified service technician.

5.2 Maintenance table: maintenance with the machine switched off

Machine part	Procedure	Rejection criterion	Action on rejection
Complete machine	Visually check for damage.	Visible damage.	Contact a qualified service technician.
	Visually check for liquid leakage. WARNING: obey the safety instructions concerning hydraulic parts. See section 2.2.6.	Leakage of hydraulic fluid, fuel, coolant or battery acid.	Contact a qualified service technician.
Tires	Visually check for damage or sharp objects near or in the tires.	Damage or sharp objects near or in the tires.	Contact a qualified service technician.
	Check the tire pressure.	Tire pressure is outside the specification as indicated on the tires.	Adjust the tire pressure.
Fan belt	Check the tension. See section 5.7.	Movement of the belt of more than 9 or less than 7 mm.	Contact a qualified service technician.
Engine oil	Check the level. See section 5.9.	Engine oil level not correct.	Adjust the engine oil level. Procedure: see section 5.9.

Machine part	Procedure	Rejection criterion	Action on rejection
Coolant	Check the level. See section 5.10.	Coolant level not correct.	Adjust the coolant level. Procedure: see section 5.10.
Hydraulic fluid	Check the level. See section 5.11.	Hydraulic fluid level not correct.	Adjust the hydraulic fluid level. Procedure: see section 5.11.
Parking brake	Check the operation. See section 5.8.	Incorrect operation.	Contact a qualified service technician.
Air pre-filter (if present)	Check for contamination. See section 5.6.	Contamination on the inside.	Remove the contamination on the inside. See section 5.6. Replace the pre-filter if necessary.

5.3 Maintenance table: maintenance with the machine switched on

Machine part	Procedure	Rejection criterion	Action on rejection
Lamps on the dashboard	Start the machine. All lamps on the dashboard must light up briefly, with the exception of the engine temperature.	Not all lights on the dashboard light, they do not go out again afterwards.	Contact a qualified service technician.
Lighting (if present)	Switch the lighting on.	The lighting does not light.	Contact a qualified service technician.
Controls	Test the operation of all controls: levers, steering wheel, pedals.	Not all controls (levers, steering wheel, pedals) work correctly.	Contact a qualified service technician.
Boom (TE models)	Slide the boom in and out.	The boom does not slide out or in properly.	Contact a qualified service technician.
Interchangeable accessory	Test the operation of the interchangeable accessory.	The interchangeable accessory does not work correctly.	Contact a qualified service technician.

5.4 Periodic maintenance (qualified service technician)



Warning: Never stand under the boom during maintenance. This can unintentionally lower during maintenance.

The periodic maintenance of the machine must be carried out by a qualified service technician. The table below indicates the frequency with which certain maintenance tasks must be performed.

Machine part	Task	Frequency	Procedure
Mounting plate pins	Lubricate	Daily	See section 5.8.1.
Engine oil	Replace	After the first 50 hours	See the diesel engine user manual.

Machine part	Task	Frequency	Procedure
		Every 150 hours	See the diesel engine user manual.
Engine oil filter	Replace	Every 150 hours	See the diesel engine user manual.
Engine cooling system	Check for leaks	Daily	See the diesel engine user manual.
Other lubrication points (not the hinges)	Lubricate	Every 150 hours	See section 5.13.3.
Air filter	Replace	Every 150 hours	See section 5.12.
Engine oil cooler	Clean	Every 150 hours	See the diesel engine user manual.
Fuel filter	Check for water (and remove if present)	Every 150 hours	See the diesel engine user manual.
	Replace	Every 300 hours	See the diesel engine user manual.
Hydraulic fluid filters	Replace	Every 300 hours	See section 5.13.
Safety stickers	Replace if illegible	First time after 600 hours, then every 1200 hours	
Hydraulic fluid	Replace	Every 1200 hours	See section 5.13.
Fuel tank	Check for rust formation and damage (inside and outside)	Every 150 hours	

5.5 Opening the engine compartment

Safety



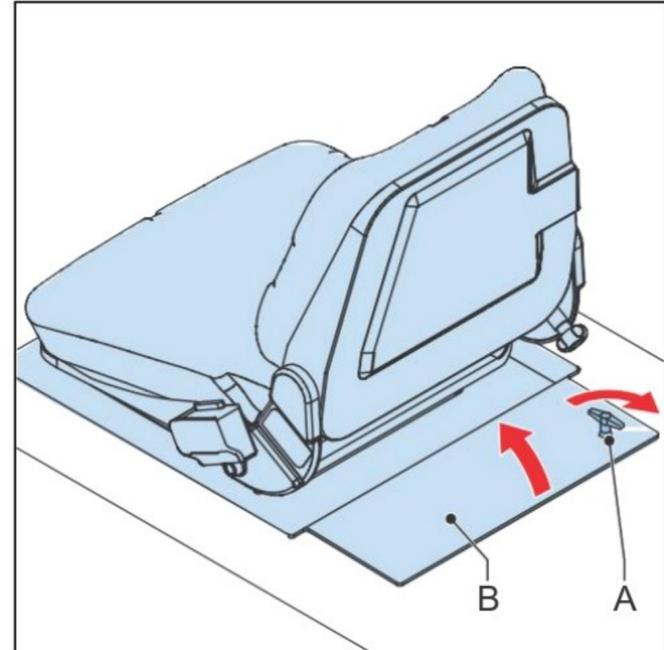
Warning: **Do not touch hot engine parts.**



Note: **The procedure for opening the engine compartment depends on the type of machine. Look at your machine and choose the right procedure.**

Opening the engine compartment: type 1 (WL10 to KM100)

1. **Align the lever (A) with the machine.**
2. **Open the cover, including the driver's seat (B).**



5.6 Clean the pre-filter

The pre-filter is at the back of the machine and is used to filter very coarse dust from the air before it goes to the air filter.

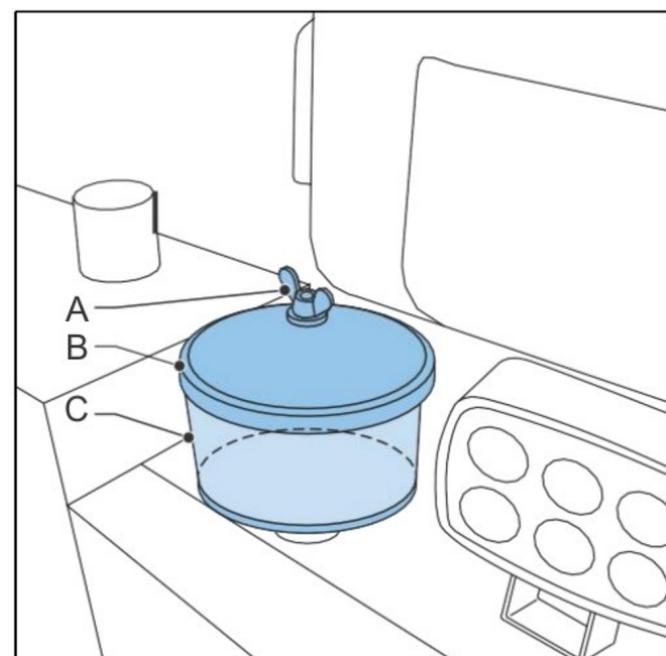
Before you begin



Note: The pre-filter is not present on all types of machine.

Procedure

1. **Loosen the wing nut (A) on the cover.**
2. **Remove these parts:**
 - Wing nut
 - Cover (B)
 - Filter housing (C)
3. **Clean the filter housing. This can be done in various ways:**
 - With compressed air.
 - With water. Then make sure that the filter housing is dry again.
4. **Fit these parts:**
 - Filter housing
 - Cover
 - Wing nut
5. **Tighten the wing nut.**



5.7 Check the fan belt tension.

Before you begin

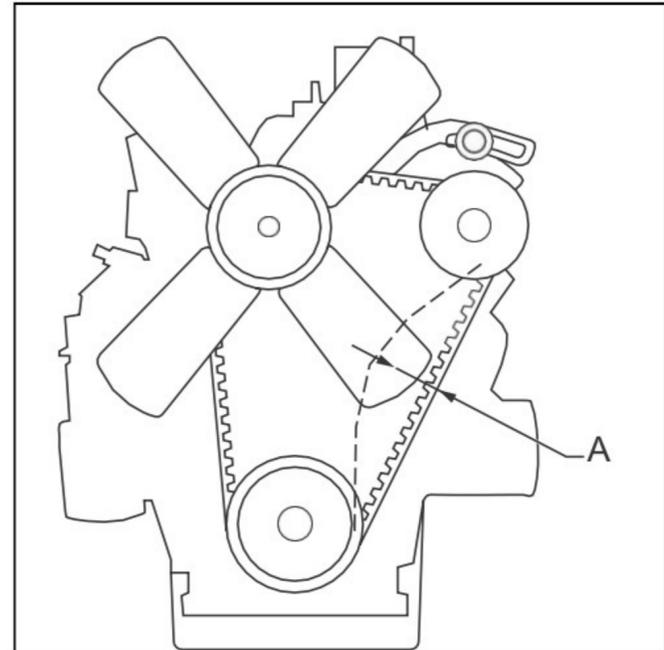


Warning:

- **Switch off the engine. Check that the engine really is off.**
- **Make sure the engine has cooled down sufficiently before carrying out this procedure.**

Procedure

1. **Open the engine compartment. See section 5.5.**
2. **Push the belt (A) with your thumb, at the largest span. The belt must have a play of between 7 and 9 mm.**
3. **If the belt can move more or less than allowed, contact a qualified service technician.**
4. **Close and lock the engine compartment.**



5.8 Checking the parking brake

1. **Pull the parking brake fully up.**
2. **Try to drive the machine forwards and backwards.**
3. **If the machine moves forwards or backwards, contact a qualified service technician.**

5.8.1 Lubricate the hinge points

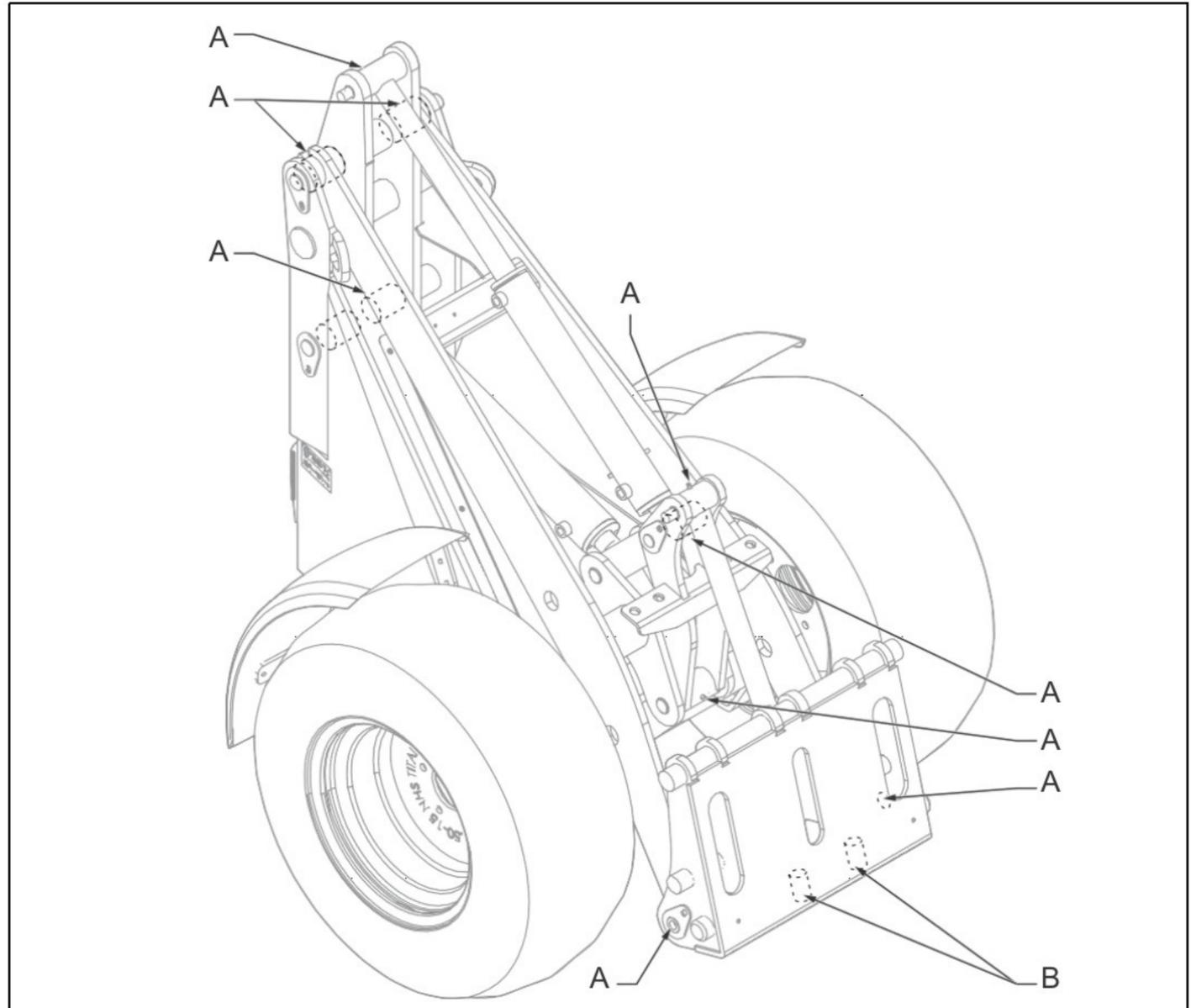
5.8.2 Procedure: lubrication via grease nipples

1. **Add grease through the grease nipples (see following sections) until grease comes out of the bearing. Use a grease gun. For the correct type of grease, see section 7.1.**
2. **Remove excess grease.**



Note: It is possible that grease is still released for a longer period of time after lubrication. This is a normal phenomenon.

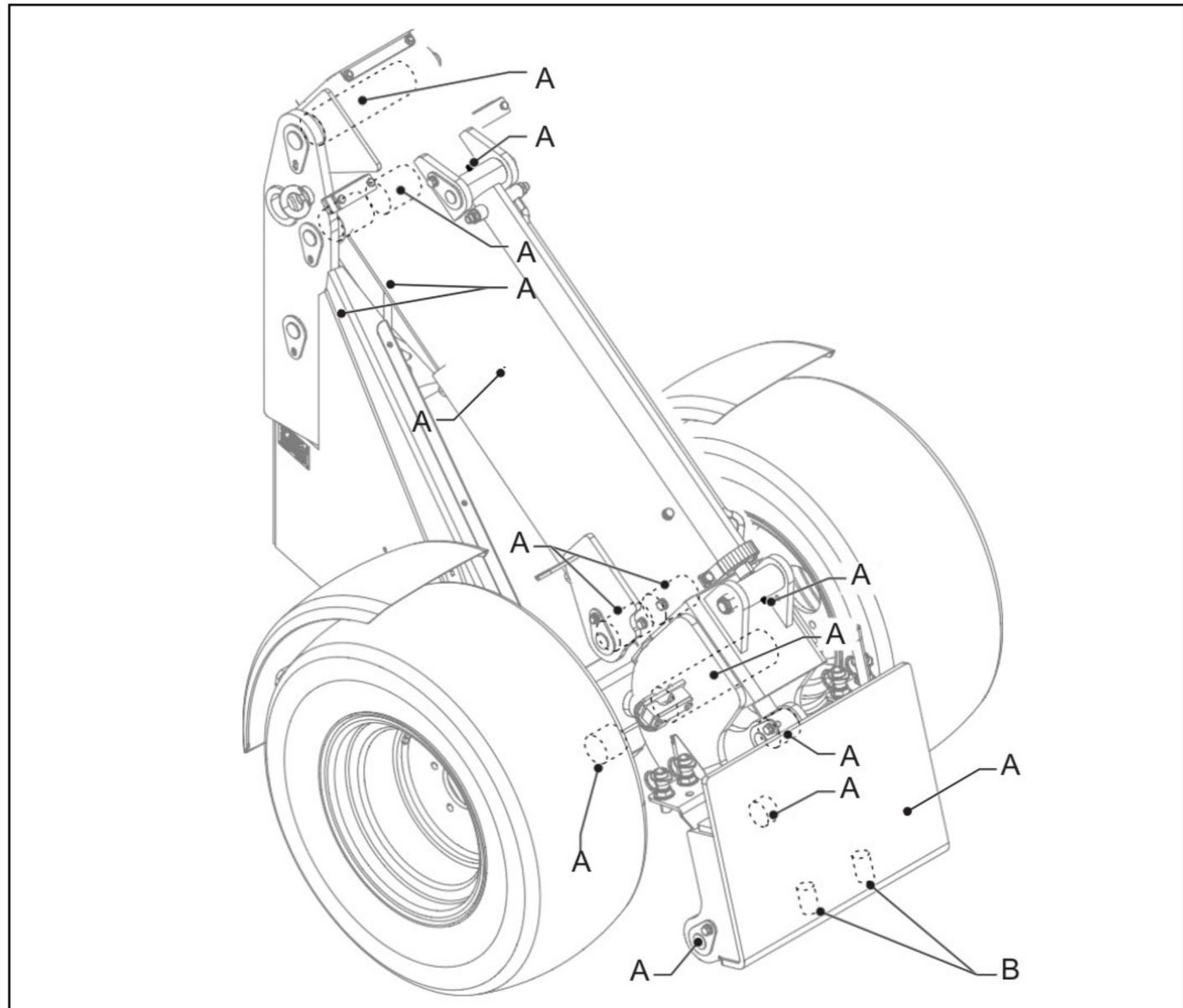
5.8.3 Grease nipples standard versions



A Greasenipple

B Grease nipple (only with vertical locking pin)

5.8.4 Grease nipples TE versions

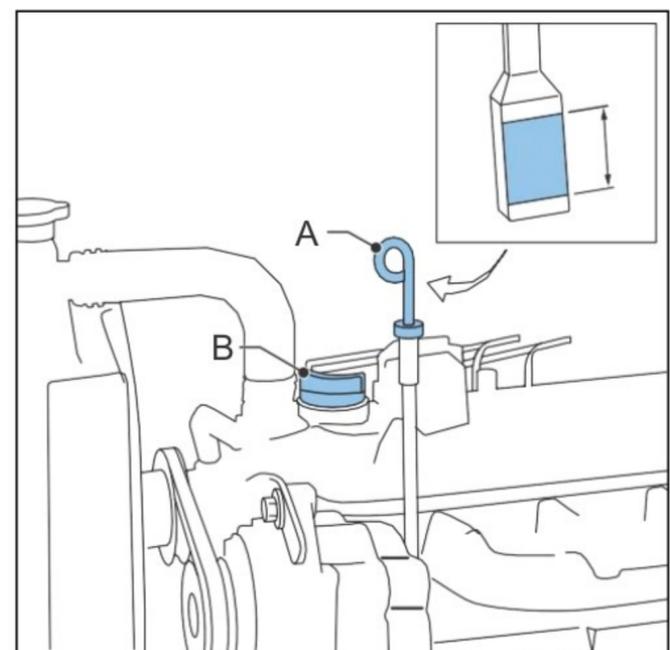


A Grease nipple

B Grease nipple (only with vertical locking pin)

5.9 Check/top up the engine oil level

1. **Open the engine compartment. See section 5.5.**
2. **Remove the engine oil dipstick (A) from the holder, clean the engine oil dipstick and replace it.**
3. **Remove the engine oil dipstick from the holder again and check that the engine oil level is between the MIN and MAX marks. Then replace the engine oil dipstick.**
4. **If the engine oil level is too low:**
 - a) **Remove the engine oil cap (B).**
 - b) **Fill up the oil tank.****For the correct type of engine oil, see section 7.1.**



- c) Wait 5 minutes and repeat steps 2 and 3 to check if the oil level is correct.
- d) Replace the engine oil cap.
- 5. Close and lock the engine compartment.

5.10 Check/top up the coolant fluid level

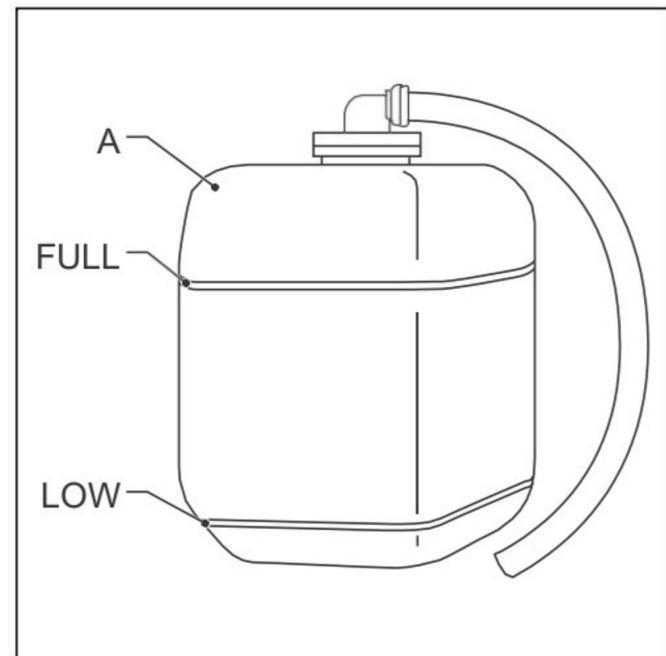
Safety



Warning: Make sure the engine has cooled down sufficiently before carrying out this procedure. Hot coolant fluid can spray out of the radiator.

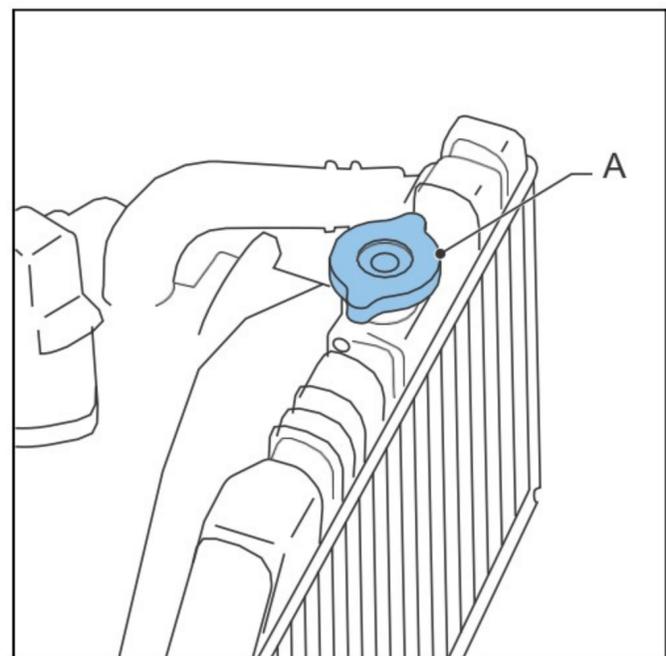
Check

1. Open the engine compartment. See section 5.5.
2. Check whether the reservoir (A) contains sufficient coolant fluid. The fluid level must be between the "FULL" and "LOW" marks.
3. If the reservoir is not properly filled, top up the coolant fluid. See the procedure below.
4. Close and lock the engine compartment.



Topping up

1. Remove the cap (A) from the radiator. First unscrew it 1 turn and allow any overpressure to escape before you completely remove the cap.
2. Fill coolant fluid up to the 'FULL' mark on the reservoir.
For the correct type of coolant fluid, see section 7.1.
3. Refit the radiator cap.
4. Close and lock the engine compartment.



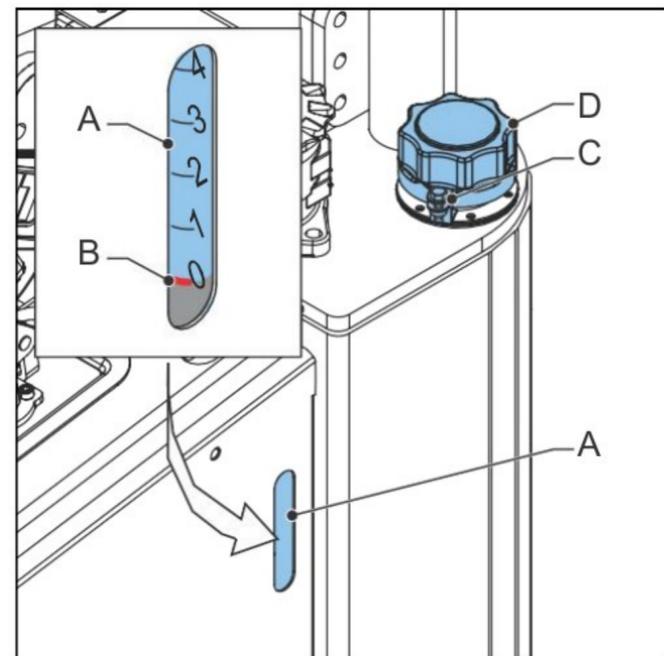
5.11 Check and top up the hydraulic fluid level

Before you begin

Condition: the temperature of the hydraulic fluid must be approximately 20° C.

Procedure

1. Check the liquid level in the sight glass (A).
The fluid level must be as far as the bottom red mark (B).
2. If the fluid level is too low:
 - a) Remove the bolt and the nut (C).
 - b) Remove the filler cap (D).
 - c) Fill up the tank.
For the correct type of hydraulic fluid, see section 7.1.
 - d) Refit the filler cap and secure the filler cap with the bolt and nut.
3. If the fluid level is too high, contact a qualified service technician.



5.12 Replace the air filter

Spares

- For the correct replacement parts, contact the manufacturer.

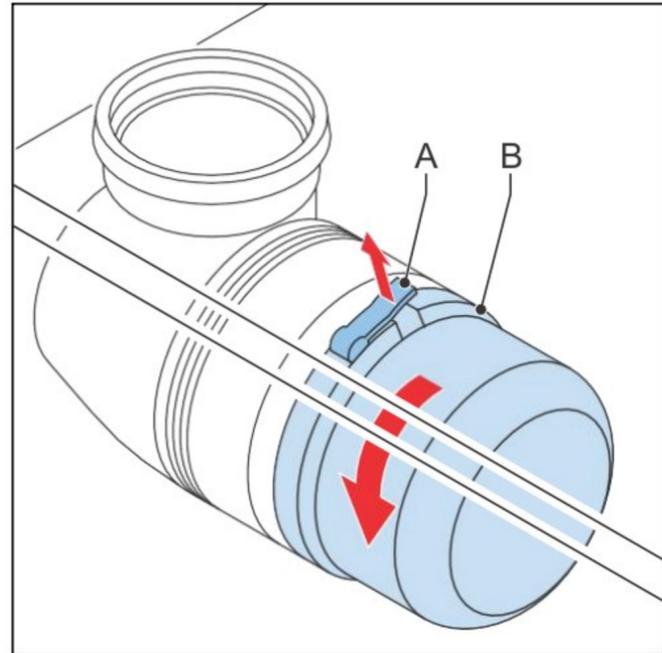
Safety



Note: This procedure may only be carried out by a qualified service technician.

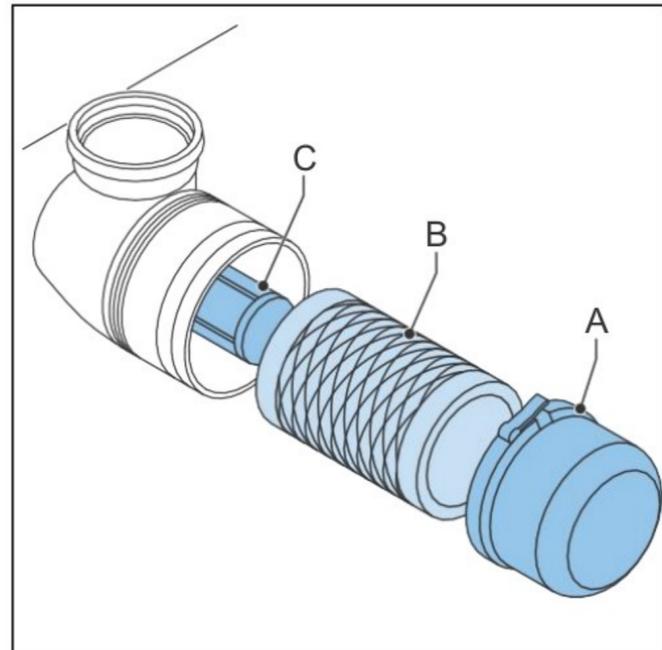
Remove the cover.

1. **Open the engine compartment. See section 5.5.**
2. **Remove the cover from the air filter.**
 - a) **Press the locking tab (A) upwards.**
 - b) **Unscrew the cover (B) counterclockwise.**



Replace the filter.

1. **Remove the old air filter (B).**
2. **Remove the old fine filter (C).**
3. **Fit the new filters.**
4. **Replace the cover (A) and turn it clockwise until the locking tab engages.**
5. **Close the engine compartment.**



5.13 Replacing the hydraulic fluid filters

Spares

- **For the correct replacement parts, contact the manufacturer.**

Safety

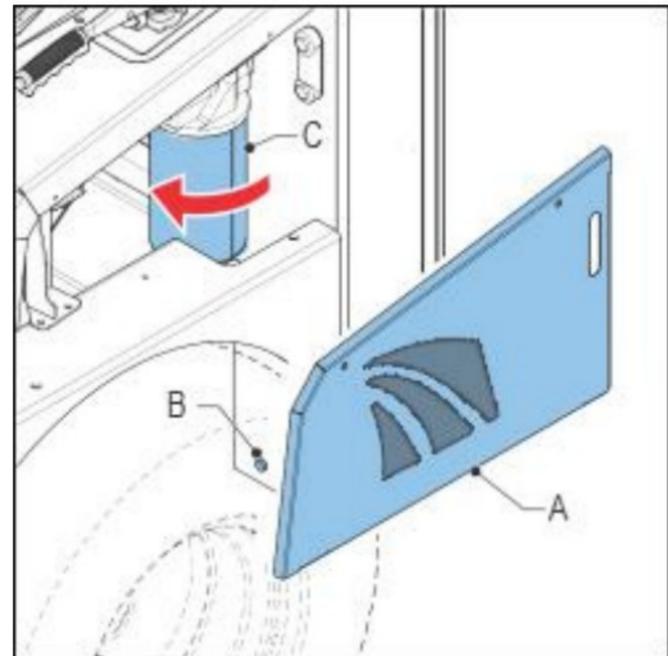


Note: This procedure may only be carried out by a qualified service technician.

Replace the intake filter.

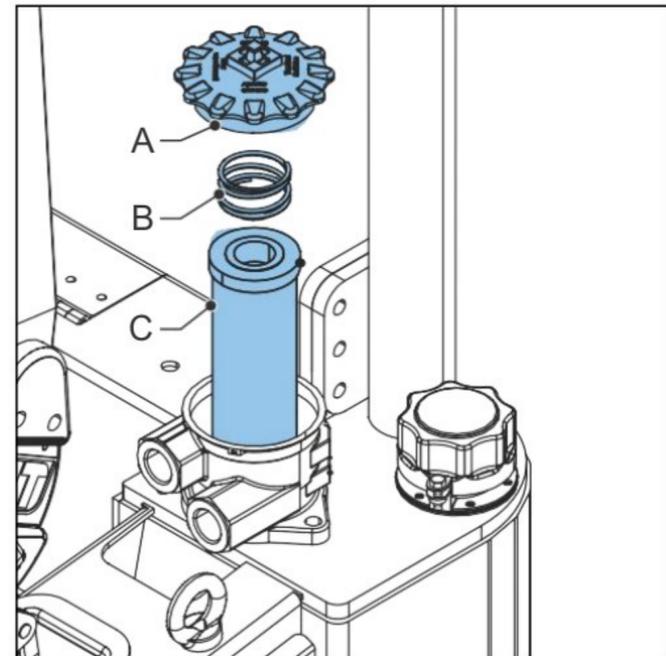
1. Remove the side panel (A).
2. Place a container under the drain cap (B).
3. Remove the drain cap.
Hydraulic fluid comes out of the drain opening.
4. Remove the intake filter (C).
5. Fit the new intake filter.
6. Refit the side panel.
7. Top up the hydraulic fluid. See section 5.11.

When the hydraulic fluid needs to be replaced, use new hydraulic fluid.



Replacing the return filter (only present on certain machine types)

1. Remove these parts:
 - Cover (A)
 - Coil spring (B)
 - Filter element (C)
2. Remove the old filter element.
3. Fit the new filter element.
4. Replace the coil spring and the cover.



5.13.1 Other lubrication points

5.13.2 Procedure: lubrication via grease nipples

Before you begin



Note: This procedure may only be carried out by a qualified service technician.

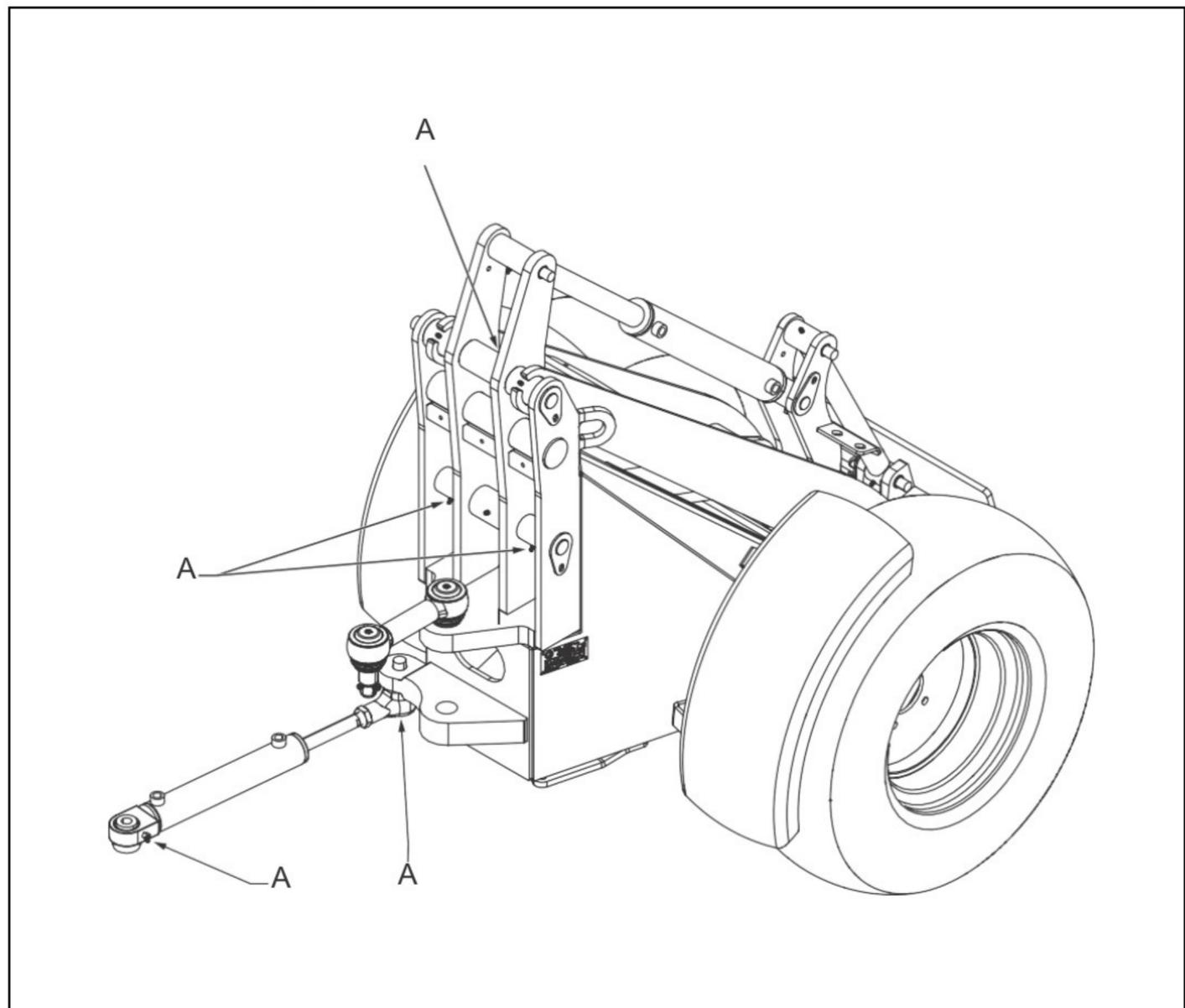
Procedure

1. **Add grease through the grease nipples (see the next section) until grease comes out of the bearing. Use a grease gun. Use the right grease. See section 7.1.**
2. **Remove excess grease.**



Note: It is possible that grease is still released for a longer period of time after lubrication. This is a normal phenomenon.

5.13.3

Other lubrication points

A Grease nipple

6 Resolving problems

6.1 Daily maintenance

1. Try to resolve the problem using the table to find a resolution for the problem.
2. If you cannot find a solution to the problem, contact a qualified service technician or the manufacturer.

Describe the problem in as much detail as possible and clearly indicate what steps you have already taken before contacting the qualified service technician or the manufacturer.

6.2 Troubleshooting table

Problem	Possible cause	Possible resolution
The engine does not start and the start motor does not turn.	The start motor is defective.	Contact a qualified service technician or the manufacturer.
	The battery is flat.	Contact a qualified service technician or the manufacturer.
The engine does not start but the start motor does turn.	Not enough fuel.	Fill up with fuel.
	The engine has not pre-heated long enough.	Hold the ignition key in the "GL" position longer when you are starting.
	There is another hydraulic function enabled.	Set all the levers for the auxiliary hydraulic functions to the neutral position. See section 3.4.
The engine does not have enough power.	The pre-filter is blocked.	Clean the pre-filter.
	The fuel filter is blocked.	Replace the fuel filter.
	The air filter is blocked.	Replace the air filter.
	There is another hydraulic function enabled.	Set all the levers for the auxiliary hydraulic functions to the neutral position. See section 3.4.
	Wrong fuel used.	Contact a qualified service technician or the manufacturer.
The machine does not drive.	Too little hydraulic fluid.	Top up the hydraulic fluid.

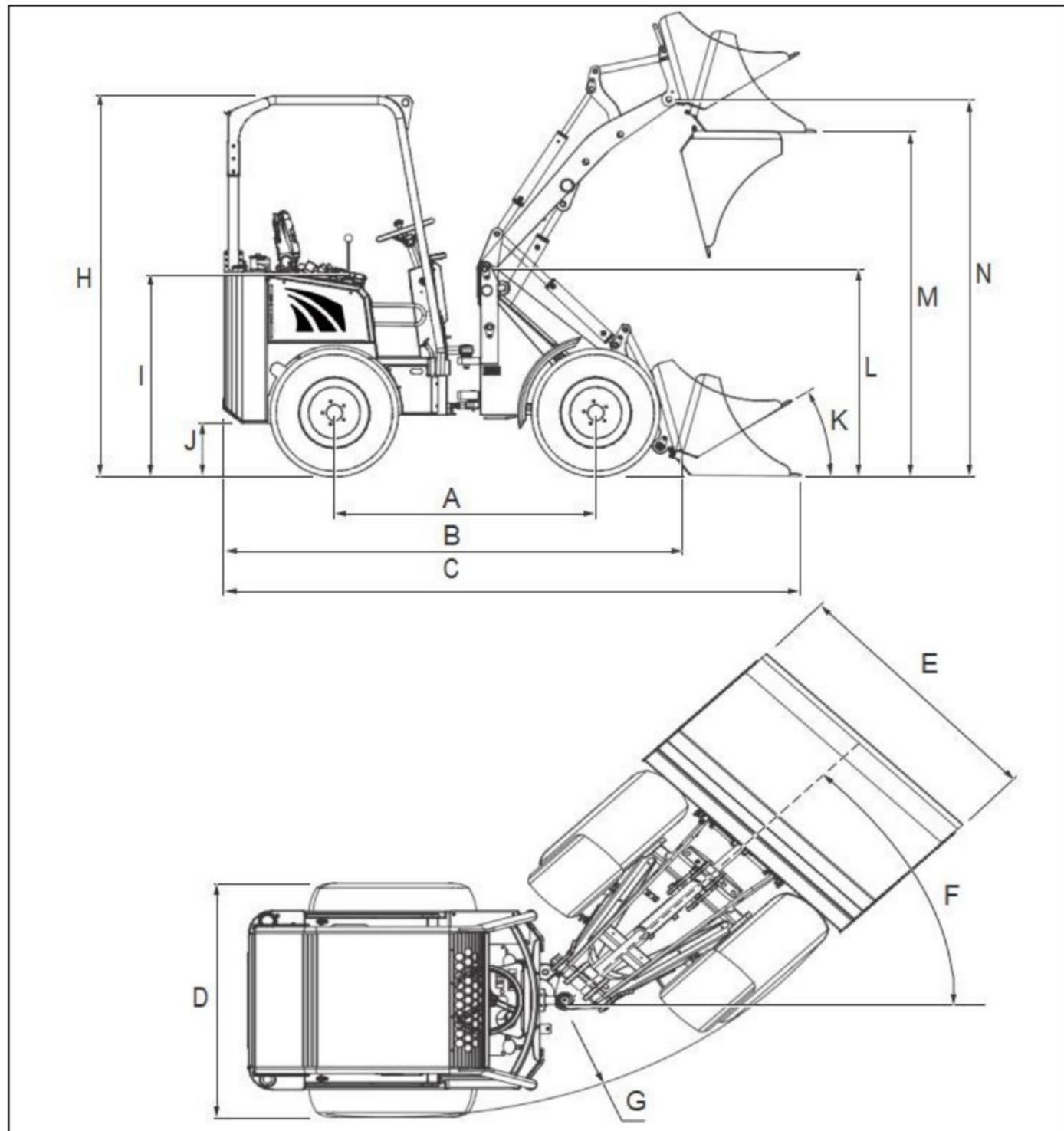


Problem	Possible cause	Possible resolution
The machine has fallen over	-	<ol style="list-style-type: none"> 1. Keep your seat belt on. 2. Stay on the machine. 3. Turn the ignition key to the 'OFF' position to switch off the engine. 4. Do not start the machine again. Oil on top of the piston can damage the engine. 5. Contact a qualified service technician or the manufacturer.
It is not possible to connect the hydraulic connection of the interchangeable accessory.	The machine is still under pressure.	<ol style="list-style-type: none"> 1. Turn the ignition key to the 'OFF' position to switch off the engine. 2. Move the levers for the auxiliary hydraulic functions back and forth several times to remove the hydraulic pressure.
	The interchangeable accessory is still under pressure.	Remove the hydraulic pressure from the interchangeable accessory by unscrewing the hose. Beware of escaping hydraulic fluid.

7 Technical data

7.1 Consumables

Article	Specification
Fuel	<p>Diesel class EN 590. If in doubt, consult the diesel engine user manual.</p> <p>Check and follow the regulations of the country where you are located. The use of 'red diesel' is not allowed in certain countries.</p>
Engine oil	Oil API class CD grade or higher (for temperatures higher than -10° C SAE10W-30 or SAE15W-40, other temperatures: consult the diesel engine user manual).
Hydraulic fluid	AZOLLA ZS 46 (TOTAL)
Coolant	COOLELF -40 °C (TOTAL)
Grease	General grease classification NLGI 2

7.2 Reference figure: dimensions


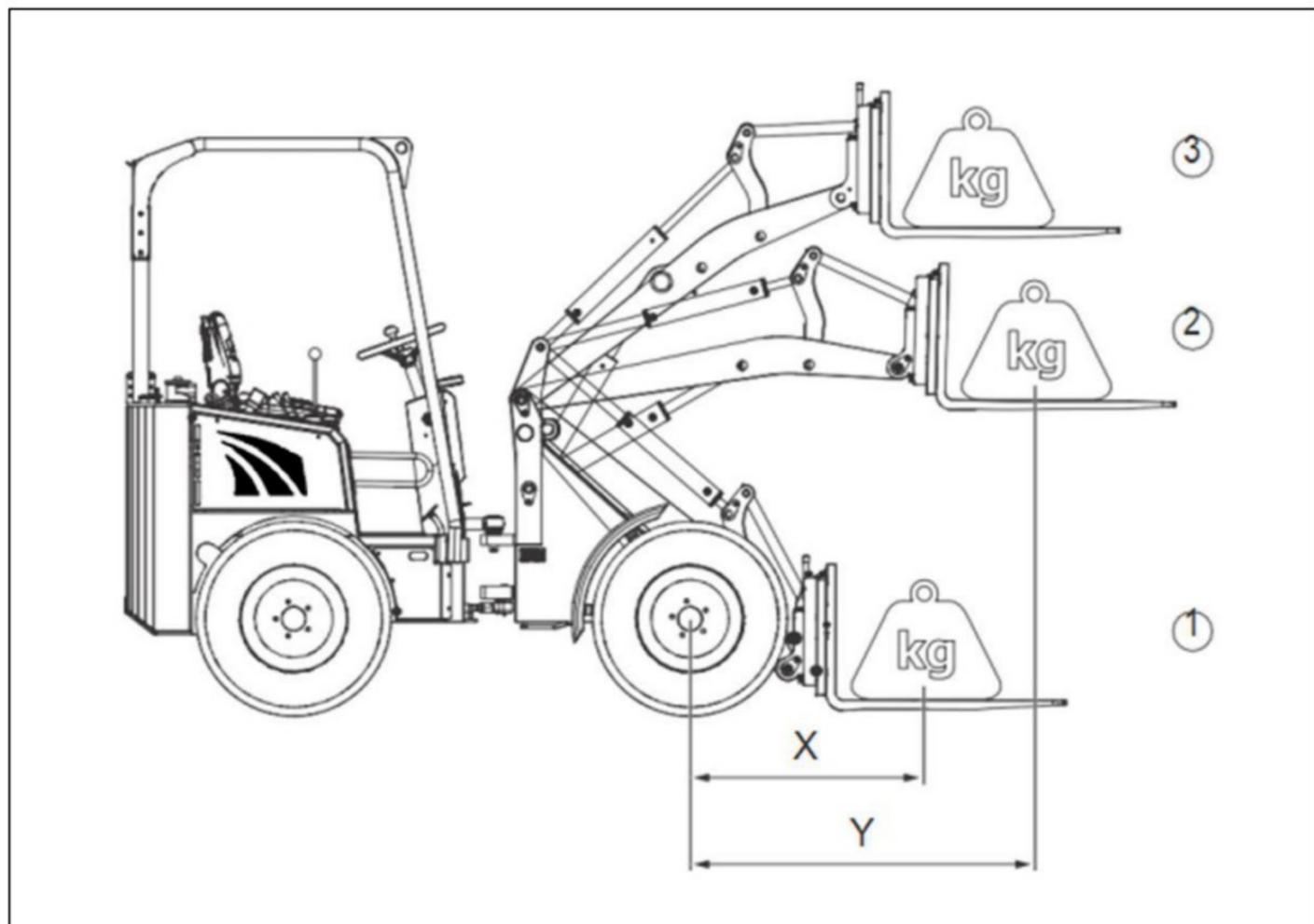
- | | | | |
|----------|------------------------------------|----------|---|
| A | Wheelbase | H | Roll bar height / ROPS-FOPS height |
| B | Total length without bucket | I | Seat height |
| C | Total length with bucket | J | Ground clearance |
| D | Total width | K | Tipping-in angle from ground surface |
| E | Width | L | Jib hinge height |
| F | Maximum turning angle | M | Transfer height |
| G | Outside turning circle | N | Shovel bucket rotation point, maximum height |

7.3 Reference figure: maximum load

X Fully retracted boom (smallest torque) Y Fully extended boom (greatest torque)

7.4 WL10

Table 1: Dimensions



Position	Parameter	Unit	Value
A	Wheelbase	[mm / in]	1521/49.9
B	Total length without bucket	[mm / in]	3231 / 106
C	Total length with bucket	[mm / in]	3969 /130.22
D	Total width	[mm / in]	1251/41.04
E	Bucket width	[mm / in]	1400/45.93
F	Max. turning angle	[°]	51
G	Outside turning circle	[mm / in]	2315/75.95
H	Roll bar height / ROPS-FOPS height	[mm / in]	2311/75.82
I	Seat height	[mm / in]	1252/41.08
J	Ground clearance	[mm / in]	345/11.32
K	Tipping-in angle from ground surface	[°]	44
L	Jib hinge height	[mm / in]	1236/40.55

Position	Parameter	Unit	Value
M	Transfer height	[mm / in]	2371/77.79
N	Shovel bucket rotation point, maximum	[mm / in]	2623/86.06

Table 2: Maximum load

Position	Status		
1 (X = 830 mm)	Not bent	[kg / lbs]	700 / 1543
2 (Y = 1205 mm)	Not bent	[kg / lbs]	460 / 1014
3	Not bent	[kg / lbs]	550 / 1212

Table 3: Technical data

Parameter	Unit	Value
Fuel tank capacity	[l / US gallons]	20 / 5.3
Diesel engine type		Kubota 1505
Engine power	[kW]	18.2KW
Number of cylinders		4
Work hydraulics flow	[l/min / gpm]	28 / 6.2
Hydraulic operating pressure	[bar / psi]	180 / 2610
Total weight without exchangeable accessory	[kg / lbs]	1810
Lifting power	[kg / lbs]	450 / 992
Breakout force	[kg / lbs]	550 / 1220
Speed	[km/h / mph]	13 / 8.1