

en

Operator's manual

Wheel loader

L 507-1260

From serial number 40532

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Description	Unit	Value
Angle of articulation to each side		30°
Pendulum angle of articulation to each side		5°
Maximum operating pressure	bar	180

1.2.9 Working hydraulics

- Gear pump for supplying the working hydraulics and steering system
- Return suction filter in the hydraulic tank
- Single-lever control, hydraulic servo system

Lifting cycle:

- Lifting, neutral, lowering
- Float position using lockable control lever

Tilting cycle:

- Tilt out, neutral, tilt in

Description	Unit	Value
Maximum flow	l/min	70
Maximum operating pressure	bar	230 ±5

1.2.10 Lift arms

Powerful Z kinematics with one tilt cylinder and standard hydraulic quick coupler

Working cycle time at rated load

Description	Unit	Value
Lifting	s	4.2
Tilting out	s	1.5
Lowering (empty)	s	3.0

1.2.11 Driver's cab

Design:

- On elastic bearing on rear section, soundproof ROPS/FOPS cab
- Right door with vent opener
- Tinted windows of hardened single-pane safety glass
- Adjustable steering column is optionally available
- ROPS rollover protection in accordance with EN/ISO 3471/ EN 474-1
- FOPS stone impact protection in accordance with EN/ISO 3449/ EN 474-1

Driver's seat

6-position, shock-absorbing driver's seat, adjustable to the driver's weight.

Alternative versions:

- Driver's seat with mechanical suspension
- Driver's seat with pneumatic suspension (optional)

	Designation	Unit	Value
	Maximum payload on even terrain = 80% of the static tipping load when articulated (EN 474-3)	kg	2212
	Operating weight	kg	5400

Tab. 6: Attachment: Forklift

Cooler decal

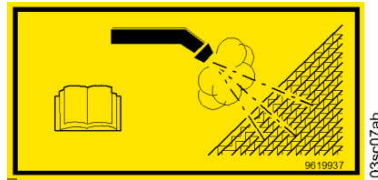


Fig. 33: Cooler decal

Indicates cleaning of the cooling system.

System voltage decal

This equipment is optional.

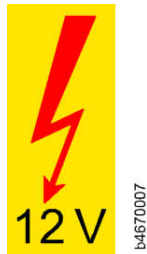


Fig. 34: System voltage decal

Indicates the electrical system's voltage.

Tightening torque decal

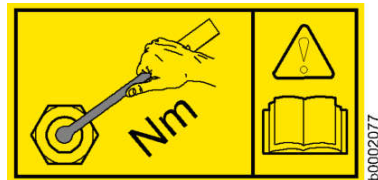


Fig. 35: Tightening torque decal

Indicates the tightening torque for the battery fastening specified in the operating manual.

10. Only work when seated and wearing a safety belt.
11. Report any malfunctions and make sure that any necessary repairs are completed immediately.
12. Check personally to ensure that no-one is endangered when the machine starts moving.
13. Before starting work, check the brake system as instructed in the **operating manual**.
14. Never get out of the driver's seat while the machine is still in motion.
15. Never leave the machine unattended with the engine running.
16. When driving the machine, lower the working attachment to the transport position and carry the load as close as possible to the ground.
17. Avoid movements which could cause the machine to tip over.
If the machine does start to tip over or slide sideways, put down the attachment immediately and point the machine downhill.
Wherever possible, work up or downhill and not sideways to the slope.
18. Drive carefully on rocky or slippery terrain and on slopes.
19. Only drive downhill within the permitted speed limit, otherwise you could lose control of the machine.
The engine must be running at the rated speed and you should only reduce the travel speed using the pedals.
Shift down to a lower gear before reaching the slope. Do not wait until you are actually on it.
20. When loading a truck, insist on the driver getting out of the cab, even if it is protected against stone impact.
21. When performing work such as demolition work, clearance and crane operation, always use the protective equipment provided for these specific tasks.
22. Have someone direct you when vision is restricted and whenever else this is necessary.
Only allow one person give you signals.
23. Only allow experienced personnel to sling loads and direct crane drivers.
The person giving directions must remain in sight of the operator or at least be in spoken contact with the operator.

2.4.7 Safety instructions for driving on slopes

1. On downward slopes, always drive carefully and never at top speed, as you could otherwise lose control over the machine.
Travel speeds:
 - Never exceed the speed limits specified in the **operating manual**.
 - Exceeding the maximum speed causes the permitted limits to be exceeded for all rotating parts, including the drive motor, the drive shaft, all gears including axles and ultimately the engine itself.
2. Therefore, before driving onto a slope, select a travel range (gear) in which you can safely negotiate the whole slope without endangering yourself, the machine and other people.
3. Also, take your foot off the accelerator pedal when driving onto a slope.

2.4.8 Parking safely

1. When possible, always park the machine on flat, firm ground.
If you have to park on a slope, use wheel wedges to prevent the machine from moving.
2. If the machine has articulated steering, engage the articulation lock.
This only applies to wheel loaders with articulated steering.
3. Lower the digging attachment so that it is lightly anchored in the ground.
4. Move all control levers to the neutral position and engage the parking brake.

3 Handling and operation

3.1 Control elements

3.1.1 Operator's cab

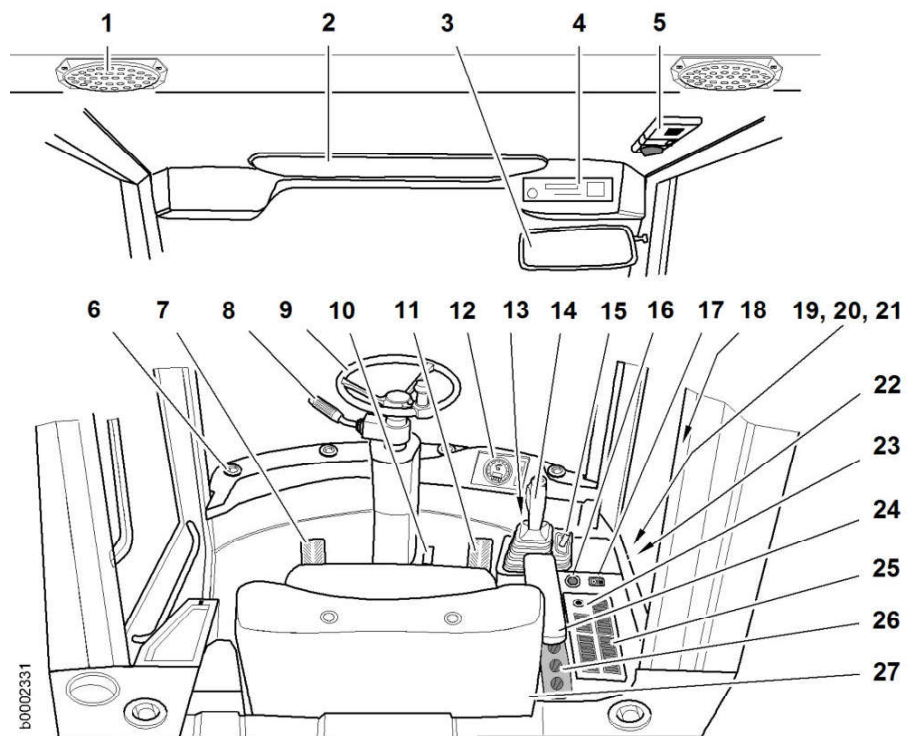


Fig. 53: Operator's cab

- | | | | |
|----|---|----|---|
| 1 | Radio speaker | 15 | Additional control lever (optional) |
| 2 | Sun visor | 16 | "Cigarette lighter socket" |
| 3 | Interior mirror | 17 | Diesel particulate filter switch/
button |
| 4 | Radio installation | 18 | Fire extinguisher (optional) |
| 5 | Interior lighting | 19 | Fuse box |
| 6 | Outlet nozzles, heater/
ventilation/air conditioning
(optional) | 20 | Control electronics |
| 7 | Inching-brakepedal | 21 | Control relay |
| 8 | Steering column switch | 22 | Diagnostic plug |
| 9 | Steering wheel | 23 | Starter switch |
| 10 | Steering wheel adjustment lever | 24 | Adjustable arm rest |
| 11 | Accelerator pedal | 25 | Switch panel |

See next page for continuation of the image legend

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**Note**

The deletion procedure deletes all programmed keys. After deletion, all the keys need to be reprogrammed.

- ▶ See the manufacturer's operating manual for a detailed description of the deletion procedure.

Security functions

If more than five keys with different codes are used in the ignition lock in the space of one minute, the immobiliser is activated for 15 minutes.

The immobiliser will not even accept valid keys during this time.

Tamper protection

The immobiliser cannot be deactivated by tampering with it.

Troubleshooting

Simple description of problems and how to solve them:

Cause:	Remedy:
Immobiliser does not work	- Use a programmed key
Keys cannot be programmed.	- No master key or wrong master key used previously - Master key left in ignition too long or not long enough - The key has no tag - Key not long enough in ignition for programming
Programmed keys cannot be deleted	- No master key or wrong master key used - Master key not long enough in ignition

Tab. 11

- ▶ See the manufacturer's operating manual for a detailed description.

Troubleshooting

If you are unable to solve the problem as described above, it must have a different cause.

- ▶ Contact Liebherr Customer Service

3.2.12 Steering column switch

The steering column switch consists of the following control elements for:

- Direction indicator lights
- High beam
- Horn and headlight flasher
- Front windscreen wiper
- Front windscreen washer system

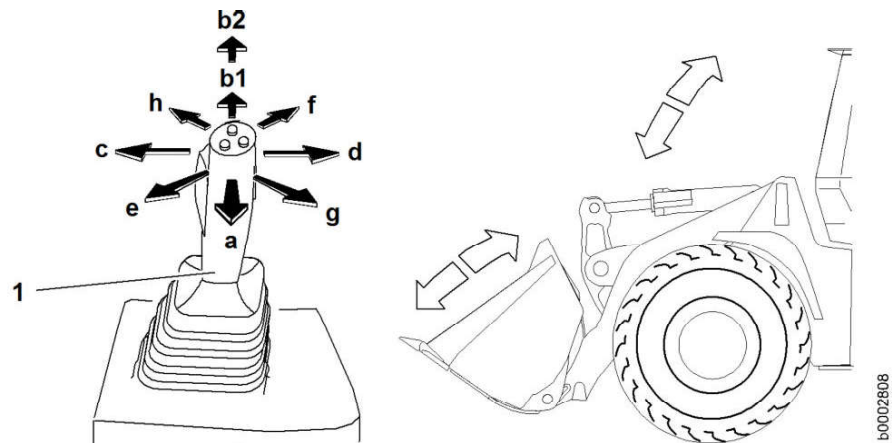


Fig. 98: Controlling the working attachment

Direction of movement of control lever		Working attachment function
a	Back	Raise the lift arms
b1	Forward to action point	Lower the lift arms
b2	Forward to limit	Lower the lift arms quickly
c	To the left	Tilt bucket in
d	To the right	Tilt bucket out
e	Diagonal	Raise the lift arms while tilting the bucket in
f	Diagonal	Lower the lift arms while tilting the bucket out
g	Diagonal	Raise the lift arms while tilting the bucket out
h	Diagonal	Lower the lift arms while tilting the bucket in

Tab. 15: Controlling the working attachment

3.2.17 Controlling a working attachment with an independent hydraulic circuit

This equipment is optional.

The following options are available for activation:

- Additional control lever (For more information see: [Additional control lever](#), page 93)
- Comfort control (For more information see: [Comfort control](#), page 94)
- Button control (For more information see: [Button control](#), page 95)



WARNING

Incorrect operation of the working attachment can lead to injuries.

- ▶ Observe the manufacturer's operating manual.
- ▶ Familiarise yourself with the working attachment in a secure area.

Using the front windscreen washer system

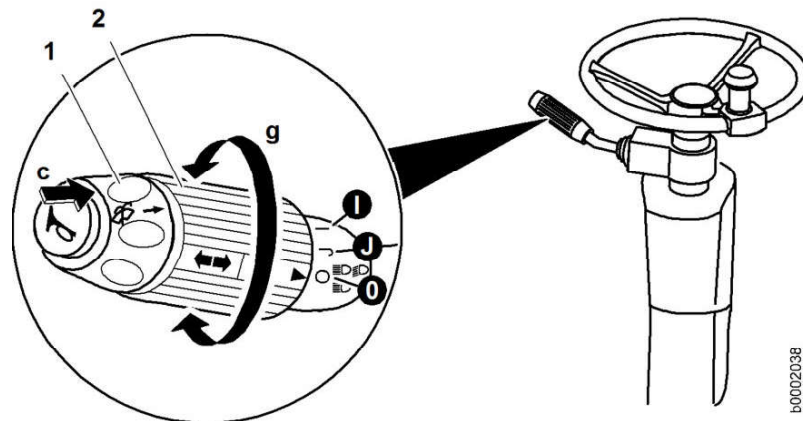


Fig. 111: Using the front windscreen washer system

- | | |
|-----------------|--|
| 1 Button | c Windscreen washer system activation |
| 2 Knob | g Windscreen wiper activation |

To wipe the window:

- ▶ Turn the switch **2** to the required position.
 - ▷ **0** - windscreen wiper off
 - ▷ **J** - intermittent wipe
 - ▷ **I** - continuous wipe

To wash and wipe the window:

- ▶ Press and hold the button **1** in the direction of the arrow.
 - ▷ Washer fluid is sprayed onto the front windscreen.
 - ▷ The wiper is switched on.

Using the rear windscreen washer system

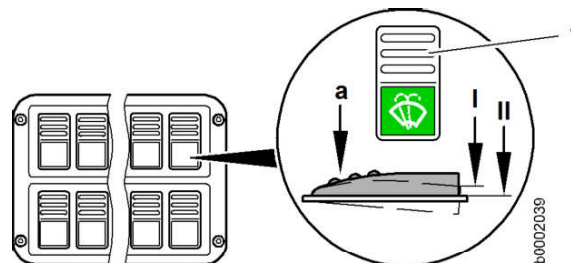


Fig. 112: Using the rear windscreen washer system

- 1** Rear window washer system switch

To wipe the rear window:

- ▶ Press the switch **1** in position **I**.
 - ▷ Continuous wiping

To wash and wipe the rear window:

- ▶ Press and hold the switch **1** in position **II**.
 - ▷ Washer fluid is sprayed onto the rear windscreen.
 - ▷ The wiper is switched on.

Selecting a fixed gear

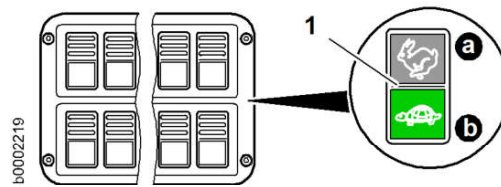


Fig. 125: Selecting a fixed gear

- 1 Fixed gear button
 a Fixed gear 2
 b Fixed gear 1

- ▶ Shift to the appropriate gear for the type of work.
- ▷ The fixed gear is shown on the display.

Releasing the parking brake

The parking brake can only be released when the engine is running.

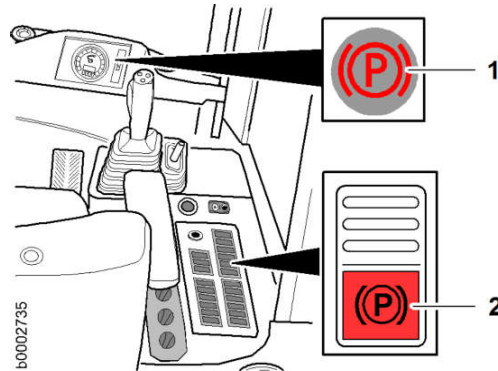


Fig. 126: Releasing the parking brake

- 1 Parking brake symbol field
 2 Parking brake button

- ▶ Press the button 2.
- ▷ The symbol field 1 in the display goes out.
- ▷ The parking brake is released.

Selecting the travel direction

The travel direction cannot be selected while the parking brake is engaged.



WARNING

Beware of accidents caused by machine pulling away unintentionally.

- ▶ When the travel direction is selected, the machine can also pull away without the accelerator pedal being pressed.

Make sure that the parking brake is deactivated.

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Raise the lift arms

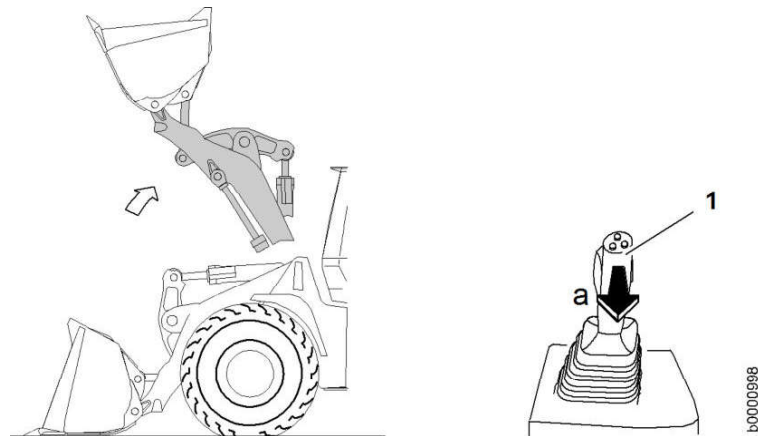


Fig. 140: Raise the lift arms

1 Control lever

- ▶ Move the control lever in direction a.
- ▷ The lift arms are raised.

Lower the lift arms

There are two ways to lower the lift arms:

- Normal lowering function
- Quick drop function

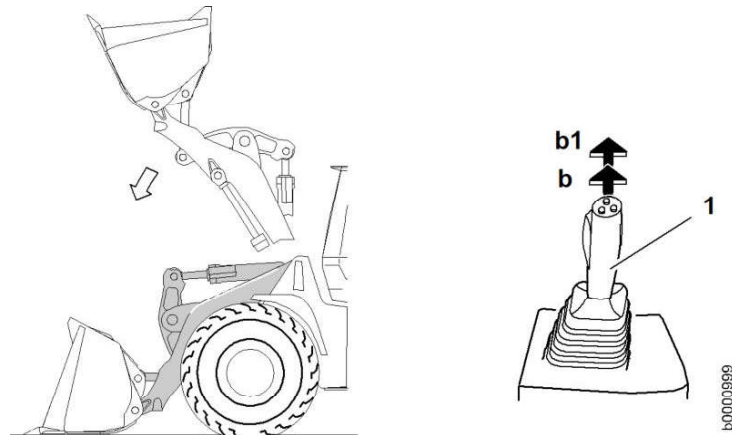


Fig. 141: Lower the lift arms

1 Control lever

Normal lowering function:

- ▶ Move the control lever in direction b but only to the action point.
- ▷ The lift arms are lowered.

Quick drop function:

- ▶ Move the control lever in direction b1 beyond the action point as far as it will go.
- ▷ The lift arms are quickly lowered.

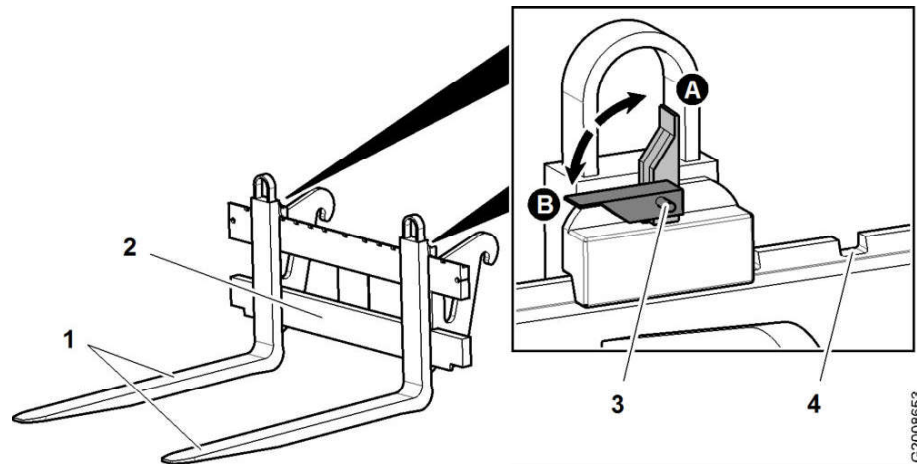


Fig. 154: Adjusting the prongs on the fork carrier

- | | | | |
|---|-----------------|---|------------------------|
| 1 | Fork prongs | 4 | Notch |
| 2 | Fork carrier | A | Fork prong lock open |
| 3 | Fork prong lock | B | Fork prong lock closed |

- ▶ Open the fork prong lock 3.
- ▶ Push the prongs 1 to the correct position.
- ▶ When closing the fork prong lock 3 let it latch in the notch 4.
 - ▷ The prongs are held tight.

Working with the forklift

- On lift arms with P kinematics or industrial lift arms, there is parallel movement of the load over the entire lifting range.
- On lift arms with Z kinematics, there is no parallel movement of the load over the entire lifting range.

Make sure that the following requirements are fulfilled:

- You have checked the forklift for cracks and damage.
- The prongs are locked on the fork carrier.



DANGER

Machine tipping!
Risk of fatal injury.

- ▶ Carry out load lifting work very carefully.



WARNING

Load slipping off the forks!
Risk of serious injury.

- ▶ Slightly tilt in the forklift.
- ▶ Carry out load lifting work very carefully.

The lever ratio of the kinematics in the topmost lifting range means that the load bearing capacity is restricted. (For more information see: [1.2 Technical data, page 18](#))

3.5 Fitting and removing the attachment

3.5.1 Removing the working attachment from the quick-change device

The quick-change device is fitted on the front of the attachment holder. It is used for changing the working attachment.



WARNING

There is a risk of injury when attaching or removing the working attachments.

- ▶ Make sure there is no one in the danger area.

Steps:

1. Depressurise the hydraulics. ¹⁵⁾
2. Disconnect the hydraulic lines. ¹⁵⁾
3. Unlock and disconnect the working attachment.

Depressurising the hydraulics

If the working attachment has an independent hydraulic circuit, the hydraulic operating circuits must be depressurised.

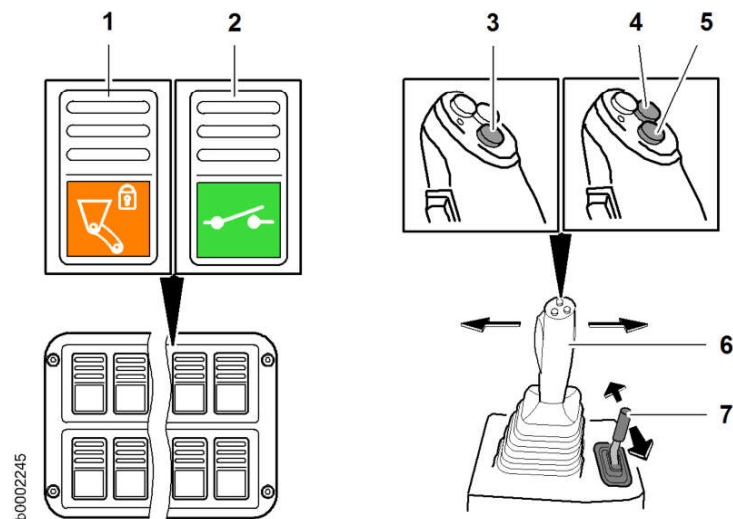


Fig. 172: Depressurising the hydraulics

- | | |
|---|--|
| 1 Working hydraulics lockout button | 5 Button control (hydraulic retraction) button |
| 2 Comfort control and switch control button | 6 Control lever |
| 3 Comfort control button | 7 Additional control lever |
| 4 Button control (hydraulic extension) button | |

- ▶ Start the engine and let it run for around 10 seconds.

¹⁵⁾ If a working attachment with its own hydraulic supply is installed.

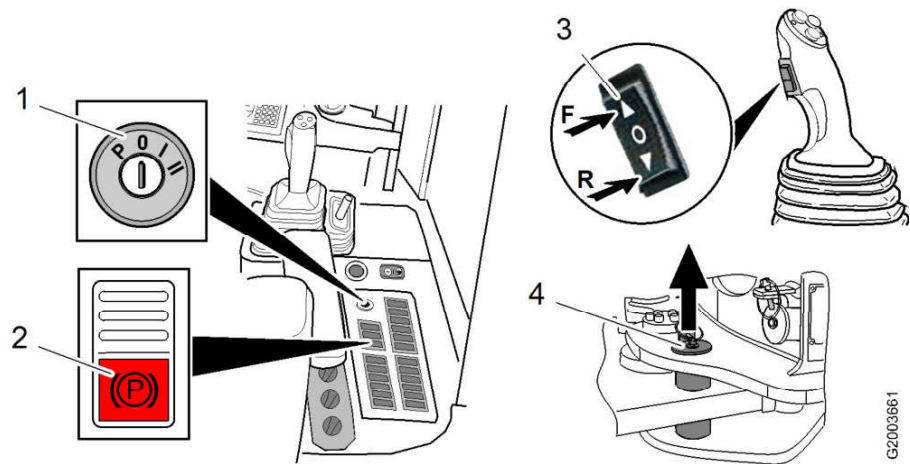


Fig. 185: Driving the machine off the loading area

- | | | | |
|---|-------------------------|---|--------------------------|
| 1 | Starter switch | 4 | Articulation lock |
| 2 | Parking brake button | F | Forward travel direction |
| 3 | Travel direction switch | R | Reverse travel direction |



WARNING

Risk of locked steering!
Risk of injury.

► Before driving off the loading area: Release the articulation lock.

- Release the articulation lock 4.
- Start the engine with the starting switch 1.
- Move the lift arms into the transport position.
- Press the button 2 to release the parking brake.
- Preselect the travel direction with the switch 3.
- Carefully drive the machine off the loading area.

3.6.2 Transport safety retainer

This only affects devices with P kinematics.

When transporting wheel loaders from the plant without installed attachments or a quick-change device transport safety retainers are installed at the lift arms and the control lever.

Removing the transport safety retainer

Make sure that the following requirements are fulfilled:

- Park the machine on level ground.
- Lower the lift arms.
- Engage the parking brake.
- Turn off the engine.

- ▶ First connect one jump lead to the positive terminal **2** of the flat battery and then to the positive terminal **4** of the external battery.
- ▶ Connect the second jump lead first to the negative terminal **3** of the external battery and then to the negative terminal **1** of the flat battery.
- ▶ Start the engine.

To disconnect the external battery:

Excess voltage can be avoided by switching on major consumers such as head-lights.



Note

Before disconnecting the jump leads:

- ▶ Make sure the engine is at the lower idling speed.
-
- ▶ First disconnect the jump lead from the negative terminal **1** of the flat battery and then from the negative terminal **3** on the external battery.
 - ▶ Then remove the second jump lead from the positive terminal **2** of the discharged battery and then from the positive terminal **4** of the external battery.

4.3 Problem remedy

4.3.1 Replacing fuses

NOTICE

Beware of damaging the electrical system.

- ▶ In order to prevent damage to the electrical system, only use fuses with the correct rating.

Make sure the following preconditions are met:

- The electrical circuit has been checked before changing the fuse.
- The battery main switch of the machine is turned off.



WARNING

Beware of electrocution!

If you touch live parts you can be electrocuted.

- ▶ Switch off the machine's electrical system before working on live components.
- ▶ Turn off the battery main switch.

Fuses in the battery compartment

If you need to access the fuses:

- ▶ Open the engine compartment hood.

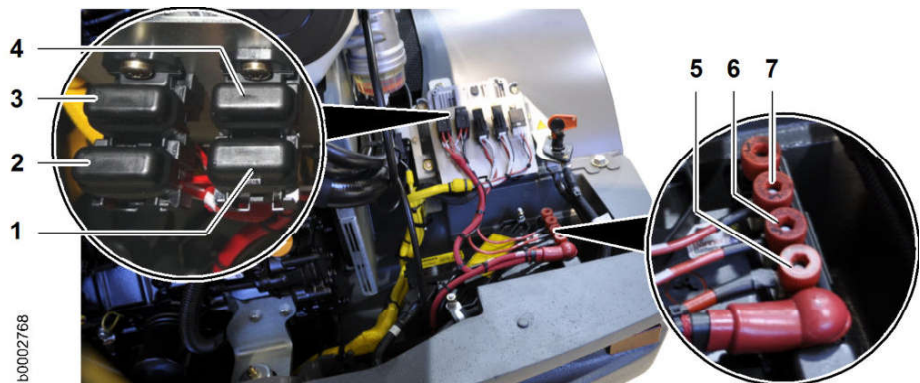






Fig. 199: Fuses in the battery compartment

	Fuse	Value	Unit	Designation/function
1	F07a	10	A	Hazard warning system
2	F200	20	A	Engine control unit
3	F201	20	A	Exhaust gas recirculation
4	F202	7.5	A	Engine start
5	F01	125	A	Main fuse
6	F02	50	A	Starter relay diesel engine

5.2.2 Recommended operating fluids

Designation	Recommended operating fluid	Symbol	Quantity
Fuel tank	Conventional diesel fuel with a sulphur content of less than or equal to 0.0015 %	 bsym0057	80 l
Fuel reserve, approx.			20 l
Engine cooling system total capacity	Liebherr Antifreeze OS Mix	 06sy04ab	11 l
Windscreen washer system	Standard windscreen washer fluid or denatured alcohol	 b0000055	1.5 l
Air conditioning system refrigerant	R134a	 bsym0029	1100 ⁺²⁰ g
Refrigerant oil for air conditioning compressor	ZXL 100 PAG (PAG Oil)		150 cm ³

Tab. 37: Recommended operating fluids

5.2.3 Lubrication chart

The lubrication chart provides an overview of the location of the maintenance points on the machine and of the maintenance intervals.

Information on:

- Performance of maintenance tasks (For more information see: [5.1 Maintenance and inspection schedule, page 175](#))
- Lubricants and fuels (For more information see: [5.3 Lubricants and fuels, page 184](#))
- Filling quantities (For more information see: [5.2 Filling quantities and lubrication chart, page 180](#))

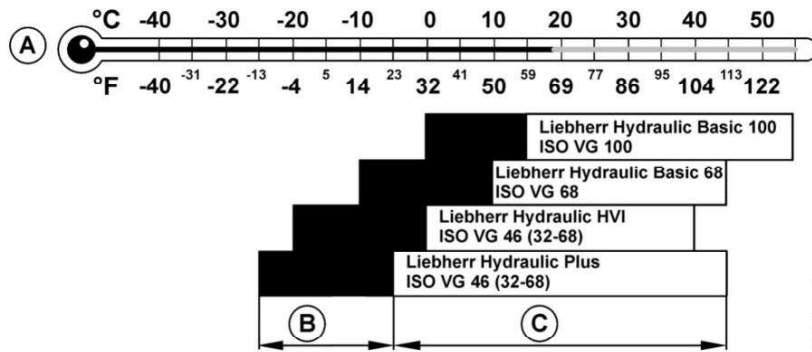


Fig. 207: Liebherr hydraulic oil, selection of viscosity class according to temperature

- A Ambient temperature
- B Cold start with warming-up procedure
- C Operating range

Liebherr Hydraulic Plus is suitable as a bio oil as well as for long-term use.

If Liebherr oils cannot be purchased locally, you must use engine oils as described in the section on using "engine oil as hydraulic oil" (after consultation with customer service).

Using engine oil as hydraulic oil

When using non-Liebherr engine oils, we recommend that the customer first ask the oil manufacturer whether the product meets the following specifications.

Engine oils to be used as hydraulic oil must be selected according to the following specifications:

Single-grade oils (1)	API - CD / ACEA - E1
	(MB 226.0 and 227.0)
Multi-grade oils (2)	API - CD, CE, CF / ACEA - E2, E3, E4
	(MB 227.5, 228.1, 228.3 and 228.5)

Tab. 46: Classification of engine oil for use as hydraulic oil

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Removing the grille

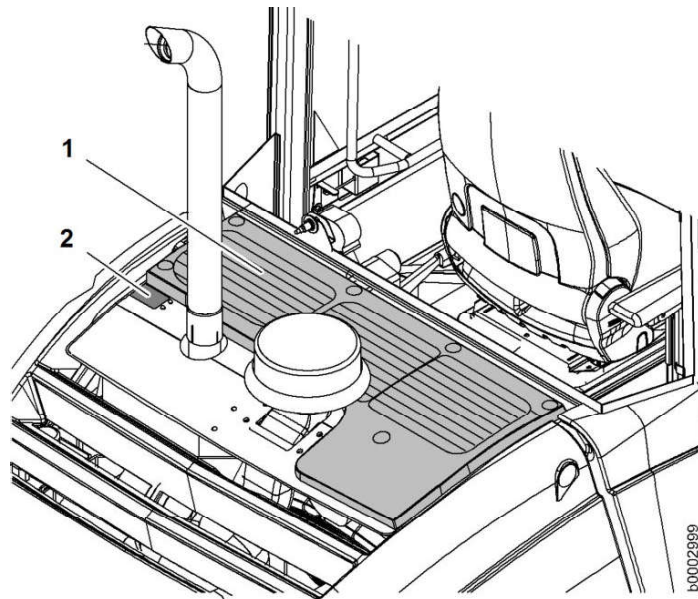


Fig. 216: Removing the grille

1 Grille

2 Cover

When the grille 1 and cover 2 have been removed, you can access the following components:

- Cooling system
- Hydraulic tank
- Brake system equalising reservoir
- Cooling system equalising reservoir



WARNING

Hot surfaces can cause injury.

- ▶ Do not open the protective grille until the engine has cooled down.

To remove or fit the grille and the cover:

- ▶ Climb onto the machine via the cab access, making sure that you have a secure footing.
- ▶ Loosen the screws and remove the grille or cover.

If access to the cooling system equalizing reservoir is necessary:

- ▶ Take off the cover 2.

5.5.3 Turning off the battery main switch

The battery main switch is located on the right side of the engine compartment.

For certain maintenance jobs, the battery main switch must first be turned off.

Find out from the descriptions of the relevant maintenance tasks whether the battery main switch must be turned on or off.

Turn on the battery main switch after completing these maintenance tasks.

Transmission

The transmission is on the rear axle.

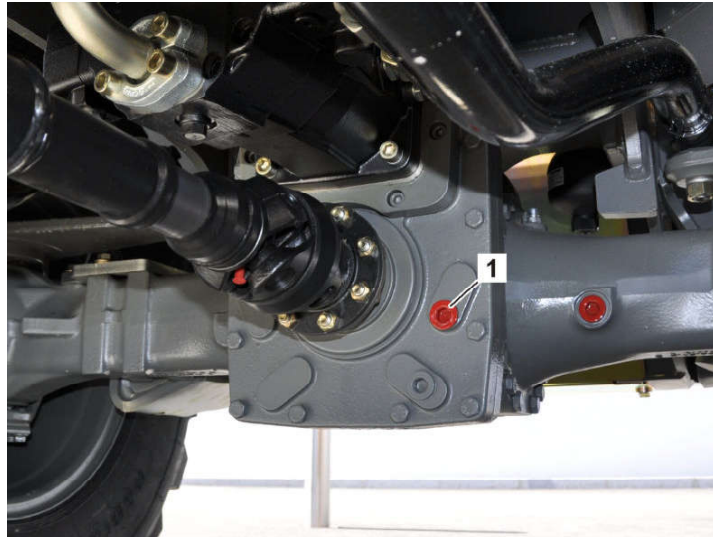


Fig. 221: Sampling point on the transmission

1 Transmission filling plug

- ▶ Start the engine and drive the machine for 2 minutes at 15 km/h.
 - ▷ The oil is circulated.
- ▶ Put the machine in maintenance position 1.



CAUTION

Beware of injury from hot, pressurised oil.

- ▶ Release excess pressure by slowly unscrewing the filling plug.
-
- ▶ Slowly open the filling plug 1.
 - ▶ Insert the sampling hose up to 3 cm below the oil level.
 - ▶ Fill the sample container using the hand pump.
 - ▶ Close the filling plug 1 again.

Axles

Use the hand pump to obtain oil samples from the main housing of the axles and from the wheel hubs.

Installing the main element

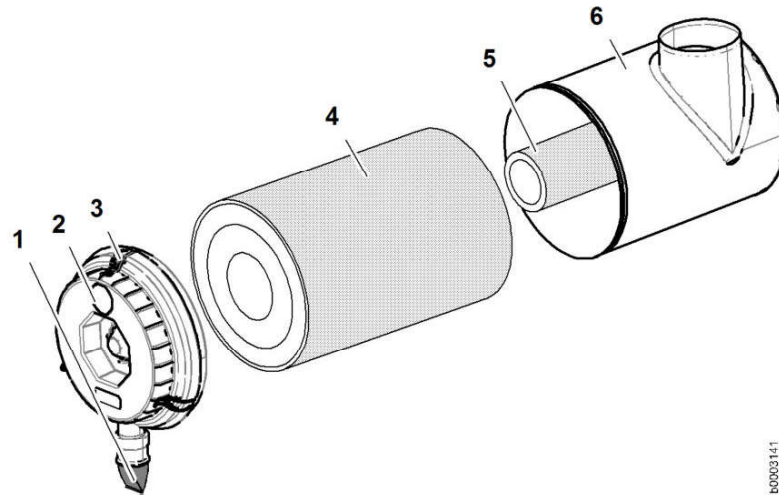


Fig. 232: Removing the main element

- | | | | |
|---|----------------------|---|----------------|
| 1 | Dust discharge valve | 4 | Main element |
| 2 | Service cover | 5 | Safety element |
| 3 | Fixing clips | 6 | Filter housing |

- ▶ Lightly oil the sealing face of the main element 4.
- ▶ Install the main element 4.
- ▶ Put the clean service cover 2, with the dust discharge valve 1 facing down, on the filter housing 6.
- ▶ Close the fixing clips 3.



Note

If the *air filter contamination* symbol field lights up again a few service hours after the main element has been cleaned:

- ▶ Change the main element.



Note

If the *air filter contamination* symbol field remains lit after the main element has been changed:

- ▶ Change the safety element.

5.7.7 Changing the air filter safety element

NOTICE

Always carry out maintenance correctly. Otherwise the engine may be damaged.

- ▶ Do not clean the safety element.
- ▶ Always replace the safety element.

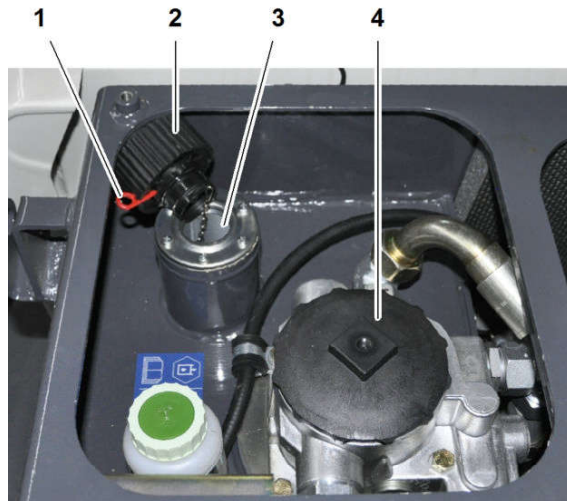


Fig. 243: Topping up with hydraulic oil

- | | | | |
|----------|-----------------|----------|-----------------------------|
| 1 | Plug | 3 | Filler strainer |
| 2 | Breather filter | 4 | Return-suction filter cover |

- ▶ Remove the grille.
- ▶ Insert the plug **1** in the breather filter.
 - ▷ The anti-twist device of the breather filter is released.
- ▶ Remove the breather filter **2** on the hydraulic tank.
 - ▷ The pressure in the tank is released.
- ▶ Top up with hydraulic oil via the filler strainer **3**.
- ▶ Screw on the breather filter **2**.
- ▶ Remove the plug **1** for protection against unauthorised opening, and keep it in a safe place.
- ▶ Fit the grille.

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