en **Operating manual**

Wheel loader

L 506-1108

From serial number 26361

Document ID

ORIGINAL OPERATING MANUAL

Order number: 11081942
Issued: 06-2013
Version: 14
Author: LBH / Technical Documentation Department

Product ID

Manufacturer: Liebherr-Werk Bischofshofen GmbH
Type: L 506
Type no.: 1108
Serial no. from: 26361

Conformity: CE

Contact

Address: Liebherr-Werk Bischofshofen GmbH
Dr. Hans Liebherr-Straße 4
A – 5500 Bischofshofen

Contents

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1.2.2 Sound emission

The sound pressure level (Lpa) is determined according to ISO 6396. The measuring uncertainty is defined in this standard.

The sound output level (Lwa) is determined according to the directive 2000/14/EC. The measuring uncertainty is determined according to the ISO 4871 standard.

Sound pressure

Description	Unit	Value
ISO 6396 - L_{pA} (in driver's cab)	dB(A)	70

Sound output

You can read the level on the sign on the machine. (For more information see: 2.3.2 Information signs, page 38)

1.2.3 Engine

Water-cooled suction engine with external exhaust gas recirculation.

The exhaust emissions are below the threshold levels in EU directive 97/68/EC - Tier III A and Tier 3.

Description	Unit	Value
Engine		D 2011 L04 W
Number of cylinders	pc.	4
Combustion method		Pump-line direct injection system (PLD)
Rated power according to ISO 9249 at 2,600 rpm	kW	46
Maximum torque at 1,700 rpm	Nm	200
Capacity	litre	3.62
Idle speed	rpm	min. $950^{\pm 50}$ max. $3070^{\pm 50}$
Longitudinal/traverse inclinability	°	30

1.2.4 Electrical system

Description	Unit	Value
Battery voltage	V	12
Battery capacity	Ah	100

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	Description	Unit	Value
	Specific material weight	t/m³	1.8
A	Dump height at maximum lifting height and 42° tilt-out angle	mm	2577
A1	Max. dumping height with open bucket	mm	3203
C	Maximum bucket base height	mm	2946
E	Maximum bucket top height	mm	4215
F	Reach at maximum lifting height and 42° tilt-out angle	mm	824
L	Overall length	mm	5310
W	Max. bucket opening	mm	1008
	Turning radius over bucket outer edge	mm	3870
	Tipping load when straight	kg	3145
	Articulated tipping load	kg	2871
	Operating weight	kg	5373

Tab. 7: Attachment – 4 in 1 bucket

1.2.21 Forklift attachment

The values stated refer to the machine:

- Including Michelin tyres 365/70R18
- Including all lubricants
- With a full tank
- With ROPS/FOPS cab and driver

Tyre sizes and additional attachments affect the operating weight and tipping load.

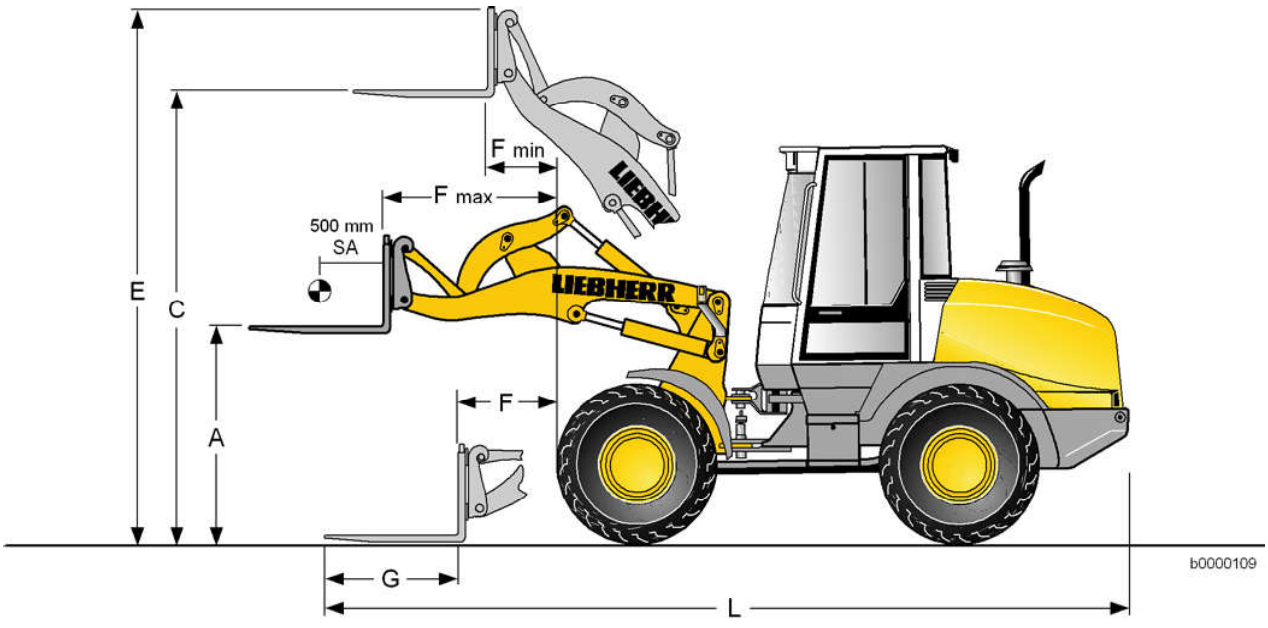

Fig. 23: Forklift attachment

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Hydraulic fluid sign

Fig. 43: Hydraulic fluid sign

Indicates the oil with which the hydraulic system is filled.

Cooler sign

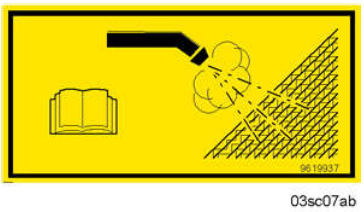

Fig. 44: Cooler sign

Indicates cleaning of the cooling system.

System voltage sign

This equipment is optional.

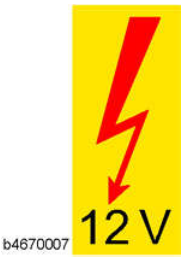

Fig. 45: System voltage sign

Indicates the electrical system's voltage.

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Never use ether starting agent near head sources, naked lights (such as cigarettes) or in poorly ventilated spaces.

10. Do not use starting agents containing ethers to start diesel engines with preglow or flame glow systems.
    Otherwise there is a risk of **"Explosion"** !
11. Familiarise yourself with the location and use of fire extinguishers and find out about fire alarm and firefighting facilities on site.

2.4.4 Safety instructions for start-up

1. Each time you start up the machine, make a thorough tour of inspection.
2. Check the machine for loose bolts, cracks, wear, leaks and deliberate damage.
3. Never start up a damaged machine.
4. Make sure the damage is rectified immediately.
5. Ensure that all hoods and covers are closed and locked. Check that all the warning and instruction signs are in place.
6. Clean the windows and interior and exterior mirrors, and secure the doors and windows against inadvertent movement.
7. Make sure no-one is working on or underneath the machine. Warn any bystanders before you start up the machine.
8. After getting into the driver's cab, adjust the seat, the inside and outside mirrors, the control lever and the seat belt so that you can work comfortably.
9. Sound insulation equipment on the machine must be in place during operation.

2.4.5 Safety precautions during start-up

1. Before starting, check that all control lamps and instruments are working properly.
2. Move all control levers to neutral.
3. Before starting the engine, briefly sound the horn to warn anyone else in the vicinity of the machine.
4. Only start the machine when sitting in the driver's seat.
5. Unless otherwise instructed, start the engine in accordance with the instructions in the **"operating manual"** .
6. Start the engine and then check all display and monitoring equipment.
7. Only run the engine in enclosed spaces when there is sufficient ventilation.
   If necessary, open the windows and doors to ensure adequate fresh air.
8. Run the engine until both it and the hydraulic oil are at operating temperature.
   Low oil temperatures lead to sluggish performance.
9. Check that the attachment controls are working properly.
10. Carefully drive the machine to open ground and check the service brake, the steering, the signals and lighting.

2.4.6 Instructions for safe working

1. Before starting work, familiarise yourself with the features of the site, as well as any special regulations and warning signals.
   The working environment includes obstacles in the working area and on access roads, the firmness of the terrain and any protective barriers to prevent the public from entering the site.
2. Always keep a safe distance from overhangs, drops, slopes and unsafe terrain.
3. Be especially careful with variable terrain conditions, poor visibility and changeable weather.

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2.4.20 See and be seen

Field of view

As a machine driver, you gain most of your information visually when working. To minimise risks to yourself and others while travelling and working, you must have adequate vision. Use the visual aids attached to the machine, such as mirrors and cameras. Take account of restrictions to your field of vision or blind spots.

You must follow national regulations relating to vision from the cab. For countries in the European Economic Area, standard ISO 5006:2006 describes the methods for measuring and evaluating the machine driver's field of vision. The field of vision is tested using standard equipment. Changes to the machine, e.g. from attaching or converting components, must not impair the driver's vision. If changes worsen the field of view, a test according to ISO 5006:2006, or the regulations applicable to the place of work, must be performed. Depending on the test result, appropriate measures must be taken. The machine driver must be informed of these changes.

Measures before and during operation

- Ensure that persons establish contact with the machine driver before approaching the machine.
- Check that the visual aids function properly, are clean and adjusted correctly.
- Visual aids must be adjusted to ensure the best possible all round vision.
- Clean the visual aids and the cab windows immediately if dirt affects vision.
- Have faulty visual aids repaired or replaced straightaway.
- Do not use sun visors if they restrict vision.
- Observe your surroundings continuously to spot potential hazards in good time.
- Avoid reverse travel where at all possible.
- Try to maintain direct vision: plan work so that your view of the working area is not blocked.
- Where visibility is restricted or if the visual aids are faulty, always have someone direct you. Agree hand signals and, with difficult tasks, also keep in voice contact (e.g. via radio).
- Use lighting when visibility is poor and as required by regulations.

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Fig. 76: Opening the emergency exit

1 Door opener lever **2** Door holder

▶ Open the right-hand cab door with the lever **1** and let it latch into the door holder **2**.

▶ Get out of the cab.

Opening the emergency exit from the outside

Opening is only possible if the cab door is not locked from the inside.

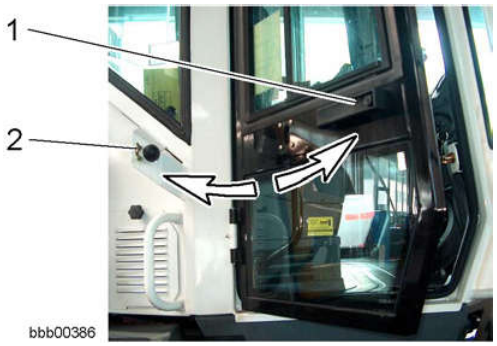

Fig. 77: Opening the emergency exit from the outside

1 Door handle **2** Door holder

▶ Open the right-hand cab door with the door handle **1** and let it latch into the door holder **2**.

3.2.6 Driver's seat with mechanical suspension

The ergonomically designed driver's seat offers a high degree of comfort.

The adjustable seat surface, back rest, suspension and arm rest mean that the driver can adjust the seat for maximum individual comfort.

Shock absorption:
- The seat installed in the machine complies with ISO 7096.
- When the machine is used correctly, the vibrations transmitted by the driver's seat are less than or equal to the vibrations simulated in test conditions for the corresponding machine class in accordance with ISO 7096 class EM3.

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3.2.8 Seat belt

Safety aspects of the seat belt

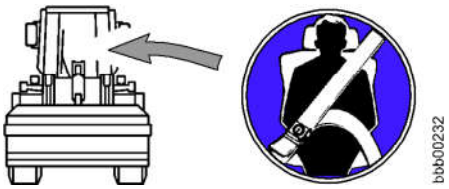

Fig. 97: Always wear a seat belt

The driver's cab is equipped with roll-over protection (**ROPS**).

The ROPS roll-over protection system can only protect the driver if the seat belt has been fastened.

This section describes the safety considerations for wearing the seat belt.

WARNING
There is a risk of injuries if the seat belt is not fastened.
If the machine tips or rolls over, the driver could suffer fatal injuries if he is not wearing a safety belt.
If the machine is braked or stops abruptly, the driver may suffer severe injuries if he is not wearing a safety belt.

▶ It is essential that you fasten your seat belt before starting up the machine.

To guarantee your safety,

▶ Regularly check the condition, function and fastening of the seat belt.

▶ Immediately replace damaged parts.

▶ Do not twist the seat belt.

Fastening the seat belt

The seat belt is an automatic belt.

You do not need to adjust the belt length.

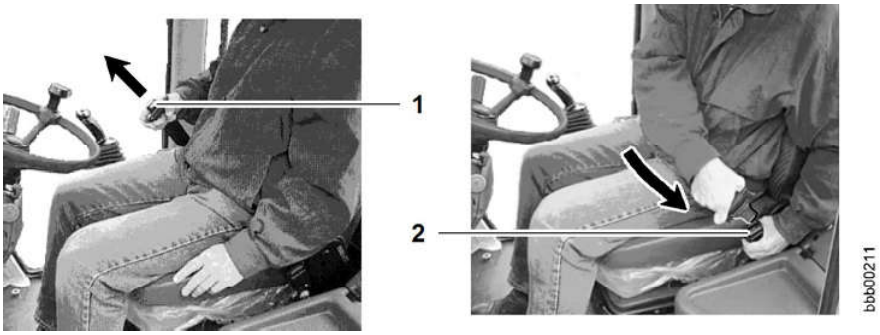

Fig. 98: Fastening the seat belt

1 Belt buckle

2 Snap lock

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3.2.14 Interior cab lighting

The interior lighting is mounted in the cab above the right-hand cab door.

Switching the interior lighting on and off

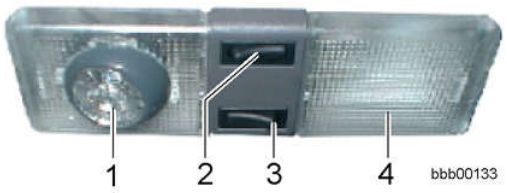


Fig. 112: Interior lighting

1 Swivel reading lamp
2 Reading lamp switch
3 Interior lighting switch
4 Interior lighting

▶ Press the switch **3**.
▷ The interior lighting is switched on or off:

▶ Press the switch **2**.
▷ The reading lamp is switched on or off.

3.2.15 Display unit

The layout and function of the display units are described in this section.

The display unit is integrated into the front right of the instrument panel.

It consists of the display (LCD symbol) and the backlighting.

Each symbol field is assigned a colour (red, yellow, green or blue).

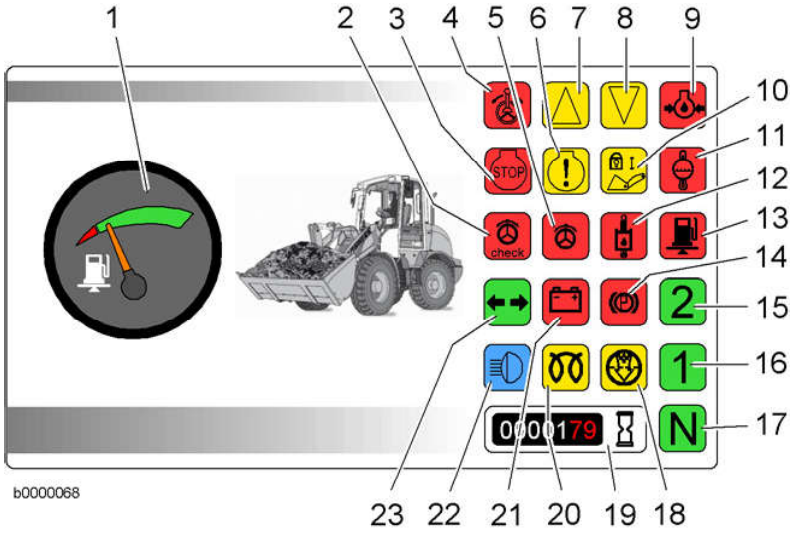


Fig. 113: Display unit

1 Fuel supply indicator
2 Emergency steering “check” symbol field (not activated)
13 Fuel level symbol field
14 Parking brake symbol field

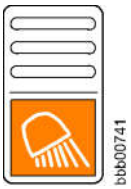
See next page for continuation of the image legend

When you press the switch:

- A solenoid valve is activated.
- A warning signal in the side console also sounds.
- Activating the working hydraulics in addition causes the locking mechanism of the quick-change device to retract.

Switching on the rear working floodlights

This equipment is optional.



Rear working floodlights switch

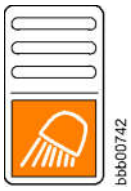
Field colour - orange

Switches the rear working floodlights on and off.

When you press the button, the rear working floodlights light up or go out.

The switch is also functional when the ignition key is in the 0 position or parking position.

Switching on the front working floodlights



Field colour - orange

Switches the front working floodlights on and off.

When you press the button, the front working floodlights light up or go out.

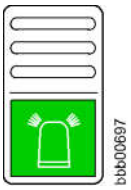
The switch is also functional when the ignition key is in the 0 position or parking position.

Flashing beacon / visible back-up alarm

This equipment is optional.

Versions:
- Flashing beacon (single-position switch)
- Flashing beacon / visible back-up alarm (two-position switch)

Flashing beacon

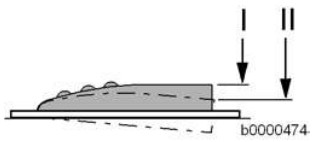


Field colour - green

Switches the flashing beacon on or off.

The function can also be activated when the ignition key is in the 0 position or parking position.

Flashing beacon / visible back-up alarm



Field colour - green

Switches the visible back-up alarm on or off.

Switch functions:
- Position **I** - visible back-up alarm. (For more information see: Visible back-up alarm, page 114)
- Position **II** - flashing beacon (permanently on). The function can also be activated when the ignition key is in the 0 position or parking position.

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Note
Adjust the mirrors.

▶ Mirrors and other visual aids (such as the reversing camera) must always be adjusted to ensure the best possible all round vision. (For more information see: 2.4.20 See and be seen, page 61)

▶ All mirrors can be adjusted individually.

3.2.22 Sun visor

The driver's cab is equipped with a sun visor.

Adjusting the sun visor

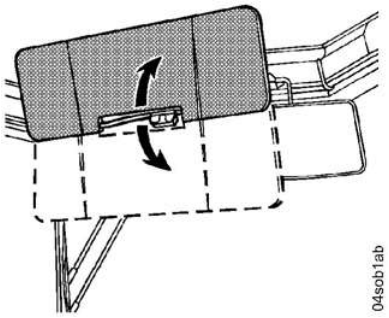

Fig. 180: Adjusting the sun visor

▶ Adjust the sun visor according to your individual requirements by pulling it up or down.

3.2.23 Radio

This equipment is optional.

Switching on and using the radio

The radio also works when the ignition is switched off.

Fig. 181: Using the radio

1 Radio

▶ See the included manufacturer's operating manual.

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Note
The machine is equipped with a hydrostatic travel drive.

▶ You cannot start the engine by bump-starting it or towing it.

Starting precautions

Note
If the machine has an electronic immobiliser:

▶ Switch off the electronic immobiliser: (For more information see: 3.2.11 Electronic immobiliser, page 84)

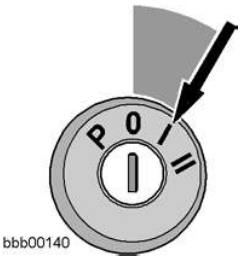
Starting procedure

Make sure that the following requirements are fulfilled:
❑ The machine is in the operating position. (For more information see: Operating position, page 118)
❑ You have fastened your safety belt.

Lamp check

During the lamp check, all the symbol fields are checked by the control electronics.

▶ Switch on the electrical system by turning the ignition key to position **I**.



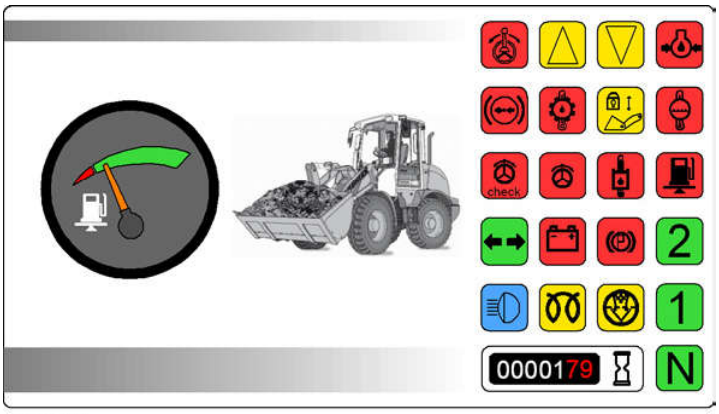


Fig. 200: Display unit lamp check

▷ All symbol fields light up for approximately 3 seconds:
▷ After the check has been completed, the following symbol fields must remain lit with the key in position **I**:

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Driving

You will find descriptions of work operations, driving, transport and transferring bulk material in the section, “General working methods”.

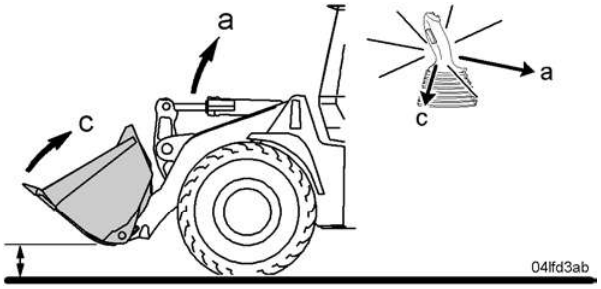

Fig. 219: Transport height

Make sure that:
- ❑ The bucket is in the transport position when “driving”.
  The transport position means that the bucket pivot point is about 40 cm above the ground.
- ❑ The bucket is tipped up as far as it will go.

Make sure that the working hydraulics are locked so that the working attachment cannot be moved inadvertently. (For more information see: Activating and deactivating the working hydraulics lockout, page 97)

▶ Always drive with due care.

▶ Observe the highway code.

Braking

There are two ways to brake the machine:
- – With the hydrostatic circuit only.
- – With the hydrostatic circuit and the service brake.

Hydrostatic braking

You can brake the machine hydrostatically by reducing the engine speed.

The hydrostatic travel drive system of the machine also acts as a service brake in the deceleration phase.

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▶ Move the LH control lever in direction **h**.
▷ The lift arms are lowered while the bucket is tilted in.

▶ Move the LH control lever in direction **f**.
▷ The lift arms are lowered while the bucket is tilted out.

Float position

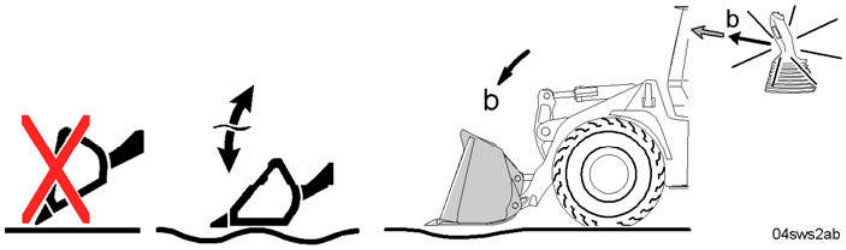

Fig. 238: Bucket in float position

The float position allows the bucket to lie on the ground under its own weight and to move freely on uneven ground.

Activating float position

This is how to activate the float position.

Make sure the lift arms are lowered and the bucket is lying flat on the ground.

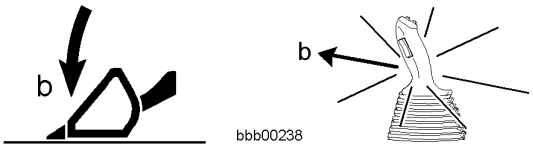

Fig. 239: Bucket position

▶ Lower the lift arm and lay the bucket down flat on the ground.

DANGER
Beware when the working attachment is lowered.
The working attachment is lowered quickly when the float position is activated.
Anyone standing under the working attachment as it is being lowered will be crushed.

▶ Do not activate the float position function when the working attachment is raised.

Fig. 240: Switches on the side console

1 Float position switch

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Fig. 253: Diesel particulate filter control unit in the driver's cab:

E *OK (confirmation)* button

To switch off the warning tone:

▶ Press button **E** (about 1 second).
  ▷ The buzzer is switched off.
  ▷ The error notification continues to be displayed.

Regenerating the particulate filter

At a sufficiently high exhaust temperature the particulate filter rapidly and efficiently burns up the accumulated combustion residues and regenerates itself. The process is accelerated when the engine runs at full load.

▶ Run the engine at high speed.
  or

  Run the machine at full load, for example carrying out high-powered work with the attachments.

If the exhaust counterpressure does not decrease:

▶ Switch off the machine, wait about 30 minutes and repeat the process.

If regeneration is not successful the second time:

▶ Contact Liebherr customer service.

3.3.8 4in1 bucket

This equipment is optional.

The 4in1 bucket consists of the following components:

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3.4 Working methods

This section describes the routine working methods.

3.4.1 Picking up and moving material

The following procedure is recommended to avoid any possible loss of traction.

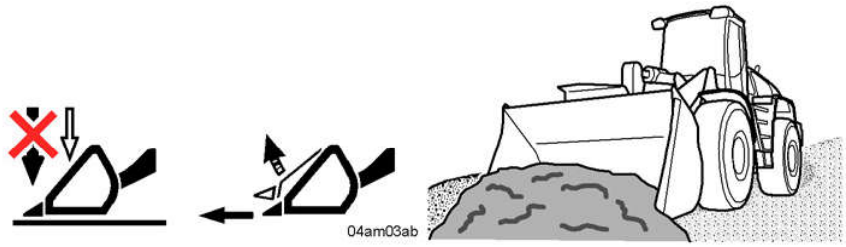

Fig. 266: Picking up and moving material

▶ Do not work with a strong downwards pressure on the bucket.

If you need to help the bucket penetrate the material:

▶ Gently tip the bucket up and down while driving into the material.

Pressing the inch/brake pedal reduces tractive force, which makes loading easier.

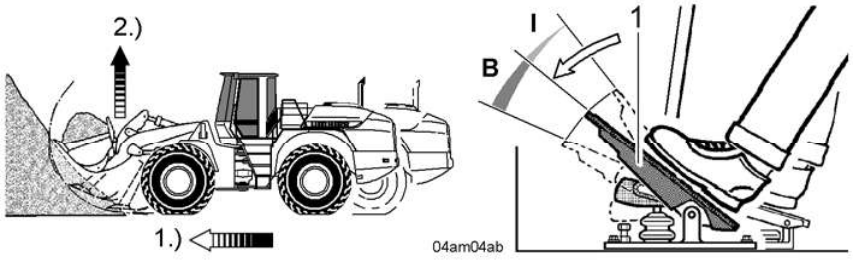

Fig. 267: Power distribution by inching

1 Inch/brake pedal
I Inching range
B Braking range

▶ Also press down the inch/brake pedal **1** in range **I** with the required force.
The power is adjusted:
▷ 1.) The power of the travel hydraulics is reduced.
▷ 2.) The power of the working attachment is reduced.
Power adjustment has the following advantages:
▷ The wheels no longer spin
▷ The fuel consumption is reduced.

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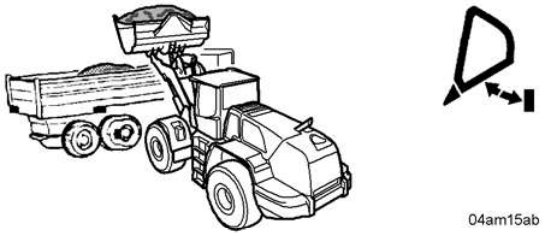

Fig. 286: Dumping

▶ Tip out the bucket.

NOTICE
There is a risk of damage to the machine.
Unnecessary jolting when tipping up and down against the bucket arm stops can increase wear on the bolts and bushings on the lift arms.

▶ Avoid unnecessary jolting.

To loosen material adhering to the bucket:

▶ Quickly tilt the bucket in and out, briefly jolting against the bucket arm stops.

Moving the machine back

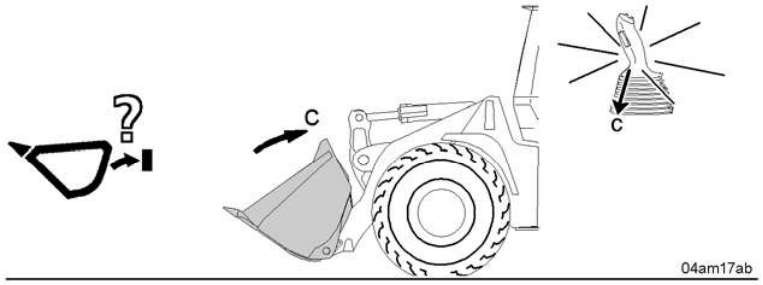

Fig. 287: Bucket position

NOTICE
There is a risk of damage to the machine.
Unnecessary jolting when tipping up and down against the bucket arm stops can increase wear on the bolts and bushings on the lift arms.

▶ Avoid unnecessary jolting.

▶ Tilt the bucket in.

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– Clean the line couplings before connecting.
– Do not connect the wrong ends of the hydraulic lines.
– Lay the hydraulic lines so that they cannot become caught in the working attachment during operation.
– Use any hose retainers provided when laying the lines.

▶ Check the hydraulic lines for leaks after connecting them.

Depressurising the operating circuits

The hydraulic lines/couplings of working attachments with integrated hydraulics can be pressurised.

WARNING
There is a risk of accidents from pressurised hydraulic lines.

▶ Depressurise the hydraulic circuits before connecting or disconnecting hydraulic lines and couplings.

Reducing hydraulic pressures - standard version

To reduce pressure, proceed as follows.

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

▶ Turn off the diesel engine.

▶ Switch on the ignition.

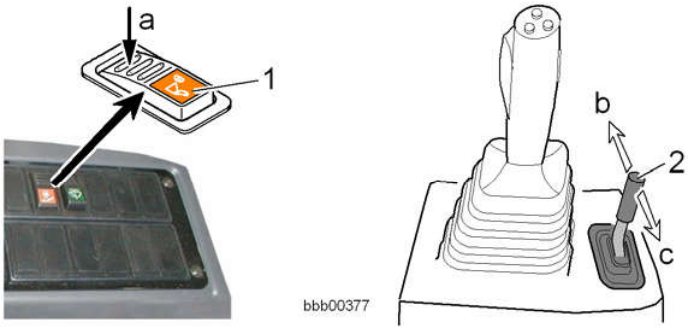

Fig. 307: Reducing the operating pressure

1 Working hydraulics lockout switch

2 Control lever for additional working functions

▶ Press and hold down the working hydraulics lockout button **-a-**.

At the same time, perform the following:

– Move the control lever for additional functions in directions **b** and **c** several times.

▶ This reduces the hydraulic pressure of the working attachment.

Reducing hydraulic pressures - comfort/button control function

This equipment is optional.

To reduce pressure, proceed as follows.

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

▶ Turn off the diesel engine.

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NOTICE
There is a risk of damage to the turbocharger.
If air blows into the exhaust pipe opening, it causes the turbocharger of the engine to rotate.
The turbocharger is not lubricated when the engine is not running.
The turbocharger can be damaged if it is not lubricated.

▶ Prevent the air stream produced during transport from entering the exhaust.

▶ To block off the exhaust pipe opening, climb onto the machine via the cab access, making sure that you have secure footing.

Fig. 322: Blocking off the exhaust pipe opening

▶ Block off the exhaust pipe opening using airtight material which cannot slip.

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.

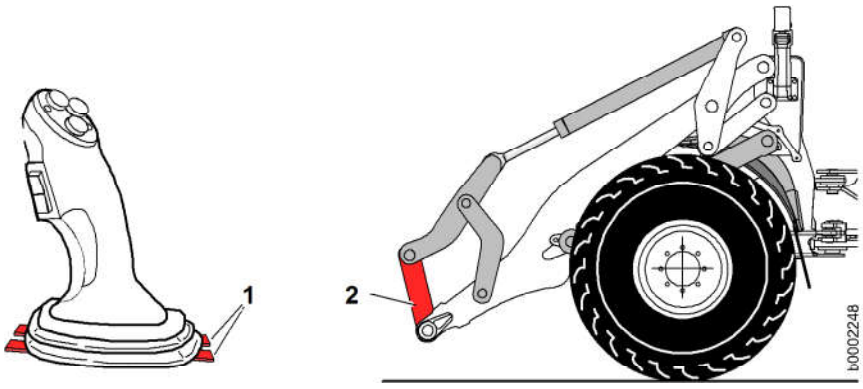

Fig. 323: Removing the transport safety retainer

1 Transport safety retainer **2** Transport safety retainer

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4 Malfunctions

Warning and error messages
- Various faults are indicated by the corresponding symbol fields (visually) or by display instruments on the instrument panel.
- Some warning functions are accompanied by audible warning signals.

Finding and eliminating errors and malfunctions
- Faults can often be traced back to incorrect operation or servicing of the machine.
  Therefore, carefully read the appropriate section of the operating manual each time a fault occurs.
- **Analyse the cause of the fault and correct it immediately.**
- Describe the fault and all related circumstances as accurately as possible when contacting **Liebherr customer service**.
  Precise information helps to locate and eliminate the cause of the fault. This means that the exact type and serial number of the machine need to be stated.
- Never perform any work for which you have not been trained or instructed.

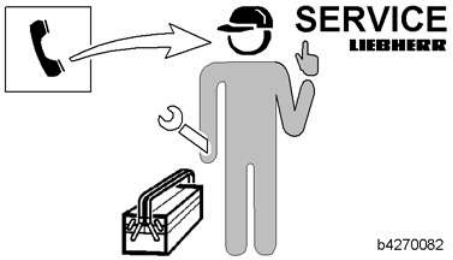

Fig. 334

Note
If you cannot recognise the cause of the fault using the service code table(s) or cannot rectify the fault:

▶ Contact Liebherr customer service.

4.1 Problems - Cause - Remedy

4.1.1 Visible and audible warning signals

The following table contains the warning signals which have an additional audible tone or which are only displayed visually, along with their causes and remedies.

There are four different audible warning signals:
- Continuous tone
- Intermittent tone - 1/10 (tone sounds for 1 sec, tone pauses for 10 sec)

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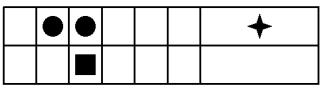
5 Maintenance

5.1 Maintenance and inspection schedule

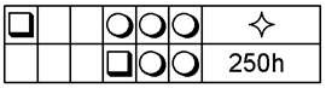
The following abbreviations are used in this section:
- h = service hours

Various symbols (solid or empty circles, boxes and stars) are used to indicate the maintenance tasks, which fall into two main types.



bsym0039

The symbols have the following meanings:
Table with solid circle, box or star
- Responsibility for carrying out the maintenance work lies with the machine operator or his maintenance personnel.
  This affects the maintenance intervals every 10 and 50 service hours (h) and non-scheduled intervals.



bsym0040

The symbols have the following meanings:
Table with empty circle, box or star, or service hours (h)
- The maintenance and inspection work must be performed or supervised by authorised engineers from Liebherr or its authorised dealers.
  This affects the maintenance interval: on delivery and every 500, 1000, 2000, 3000 service hours (h), and at unscheduled times.

A list of the spare parts needed for maintenance and inspection work is contained in the service package of the spare parts list.

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Diesel fuel at low temperatures (winter operation)

Paraffin crystals form in diesel fuel as the temperature falls; these increase the flow resistance in the fuel filter to such an extent that the fuel supply to the engine is no longer guaranteed.

NOTICE
Danger of damage to the injection system if incorrect fuel is used.
Adding petroleum or normal petrol will damage the injection system.

▶ Do not add petroleum, normal petrol or any additives to the diesel fuel.

If the outside temperature falls below -20 °C:
▶ Use an ignition-starting device such as a fuel filter heater.

When using the machine in arctic climates:
▶ Use special diesel fuels with suitable flow characteristics.

5.3.4 Lubricating oils for diesel engines

Lubricating oil quality

Only high-alloy lubricating oils are used in modern diesel engines.

They are comprised of base oils which feature combined admixtures (additives).

The lubricating oil regulation for Liebherr diesel engines is based on the following specifications and regulations.

Description	Specification
ACEA classification (Association des Constructeurs Européens de l'Automobile)	E4, E6, E7 Notice: only E6 particle filter operation is permitted
API classification (American Petroleum Institute)	CH-4, CI-4 Notice: observe the reduced oil-change intervals

Tab. 28: Lubricating oil specifications

Lubricating oil viscosity

Select the lubricating oil viscosity in accordance with the SAE classification (Society of Automotive Engineers).

The ambient temperature determines the right choice of SAE class.

The selection of the SAE classification gives no indication of the quality of a lubricating oil.

Oil that is too viscous can cause starting problems, while insufficient viscosity impairs lubricating efficiency.

The temperature ranges detailed in the following diagram are guidelines; short-term deviations are permissible.

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Minimum quality requirements

Lubrication greases must fulfil the following minimum quality requirements.

Application	Specification	Designation
Standard	Soap-based (lithium complex)	KP 2 K (DIN 51502)
		NLGI grade: 2 (DIN 51818)
		VKA weld load: ≥ 6000 N (DIN 51350 / 4 – ASTM D 2596)
Cryogenic temperature	Soap-based (lithium complex)	KP 1 K (DIN 51502)
		NLGI grade: 1 (DIN 51818 / ASTM D 2596)
		VKA weld load: ≥ 5500 N (DIN 51350 / 4 – ASTM D 2596)

Tab. 41

Liebherr lubrication grease

Liebherr recommends the following lubrication greases to achieve optimum lubrication results and for additional corrosion protection.

Application	Recommended lubricant	Specification	Designation
Standard	Liebherr Universalfett 9900	Soap-based (lithium complex)	KPF 2 N - 25 (DIN 51502)
			NLGI grade: 2 (DIN 51818)
			VKA weld load: ≥ 6000 N (DIN 51350 / 4)
			with vapour phase anti-corrosion agent
Cryogenic temperature	Liebherr Universalfett Arctic	Soap-based (lithium complex)	KPFHC 1 N - 60 (DIN 51502)
			NLGI grade: 1 (DIN 51818)
			VKA weld load: ≥ 5500 N (DIN 51350 / 4)

Tab. 42

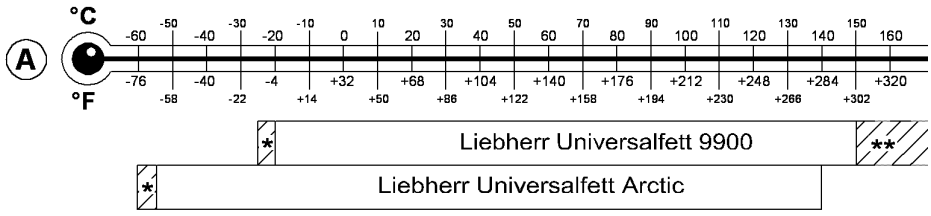

Fig. 351: Operating temperature of Liebherr lubrication greases

A Temperature of the lubrication grease

* Not when used in central lubrication systems

** Brief temperature peaks up to a maximum of 200 °C may occur.

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5.6.5 Changing the fuel fine filter

Make sure that:
- ❑ The machine is in maintenance position 1.
- ❑ The engine compartment hood is open.
- ❑ You have a fuel filter cartridge at hand.
- ❑ A suitable receptacle is available.

DANGER
There is a risk of fire and explosions.

- ▶ Do not smoke.
- ▶ Avoid naked flames.
- ▶ Only work with the engine switched off and cooled down.

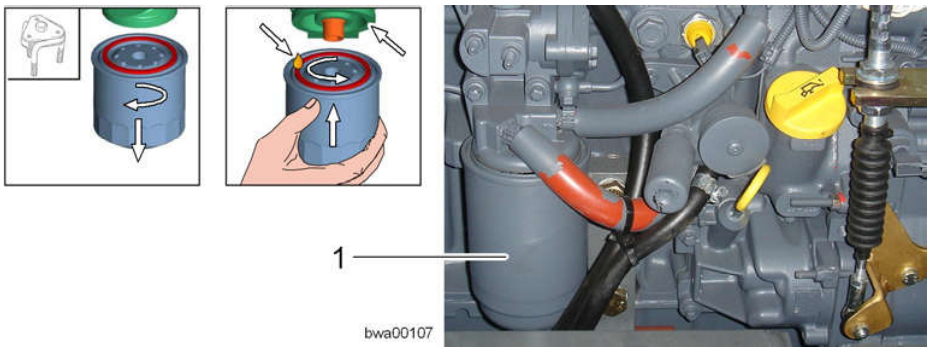

Fig. 362

- ▶ Loosen and unscrew the fuel filter cartridge **1** using commercially available tools.
- ▶ Collect draining fuel in the receptacle.
- ▶ Clean any dirt off the filter bracket's sealing face.
- ▶ Lightly oil the new fuel filter cartridge or moisten it with diesel fuel.
- ▶ Screw in the new fuel filter cartridge by hand until the seal makes contact.
- ▶ Tighten the fuel filter cartridge by turning it through a further 180 degrees.
- ▶ Bleed the fuel system. (For more information see: 5.6.7 Bleeding the fuel system, page 242)
- ▶ Replace the fuel fine filter, see also Deutz operating manual.

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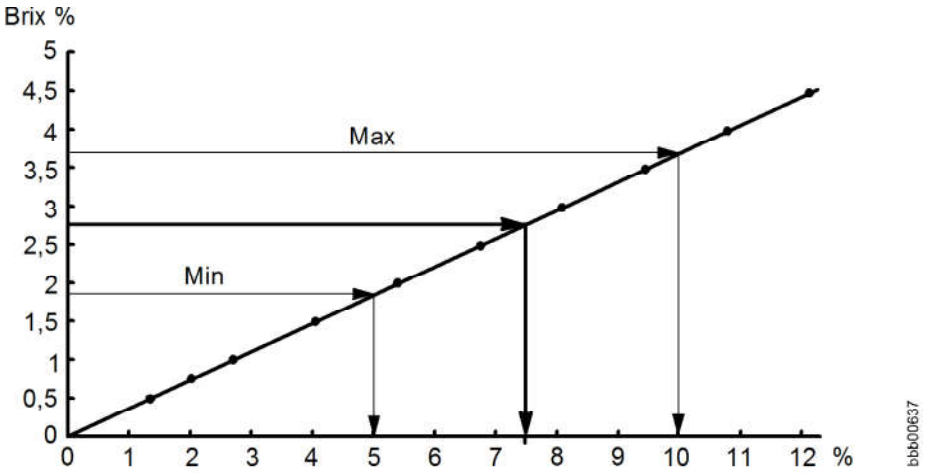

Fig. 373: Conversion diagram from Brix to corrosion inhibitor concentration (%vol)

▶ Convert the value you read using the conversion diagram to find the actual corrosion inhibitor concentration.

5.8.3 Cleaning the cooling system

Clean the coolers whenever necessary in order to ensure proper cooling. In dusty environments, check the coolers every day and clean if necessary.

Dust and other contaminants can be removed from the cooling fins with water jets, steam or compressed air. Compressed air is preferable.

Make sure that:
❑ The machine is in maintenance position 1.
❑ The cooling system grille has been removed.

Procedure

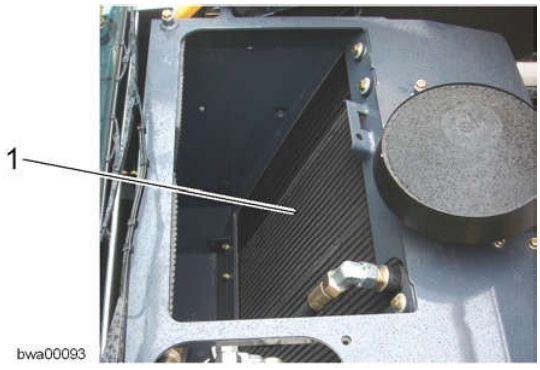

Fig. 374: Cleaning the cooler units

NOTICE
Risk of damage to the cooling system
Careless handling can damage the cooler fins.

▶ Do not use hard objects or excessive water pressure for cleaning.

▶ Clean the cooler units **1** with compressed air, steam or water.

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If the tyre pressure is not correct:

▶ Correct the tyre pressure.

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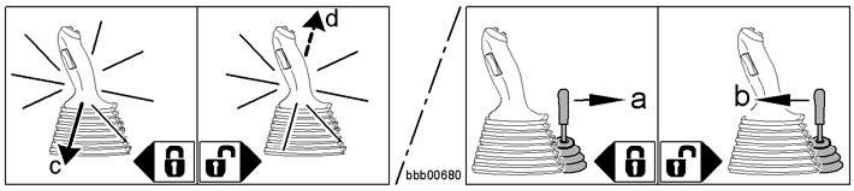

Fig. 405

The operation of the quick-change device can vary according to the version or the type of machine.

WARNING
Failure to use the quick-change device properly can cause accidents.

▶ Pay attention to the safety instructions in the operating manual.

▶ Unlock the quick-change device and lock it again.
▷ This prevents the locking pins from jamming and preventing the quick-change device from being released.

▶ For safety reasons, check that the quick-change device is locked again.

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