

en

Operating Manual

Wheel Loader
L507 Speeder - 787 from 12800

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Name: LIEBHERR-WERK BISCHOFSHOFEN GMBH

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1.1.10 Driver's cab



On elastic bearing on rear section, soundproof ROPS/FOPS cab.

Design:

- 2 detachable doors
- The right door is the emergency exit.
- Left door with sliding window
- Tinted windows made of hardened single-glazed safety glass
- ROPS rollover protection in accordance with DIN/ISO 13510/ EN 474-3.
- FOPS stone impact protection in accordance with DIN/ISO 13627/ EN 474-1.

Driver's seat

Alternative versions:

- Driver's seat with mechanical suspension
 - Driver's seat with pneumatic suspension.
- This equipment is optional.

1.1.11 Heating and ventilation



Driver's cab with defroster, fresh air filter, circulated air filter and warm water heating.

Name	Value	Units
Number of blower levels	3	
Heating power	11.3	kW

1.1.12 Sound emission



Sound pressure

Name	Value	Units
ISO 6396 – L _{pA} (in driver's cab)	70	dB(A)

Sound output

You can read the level on the decal on the machine.
See the section on decals on the machine in chapter 2.

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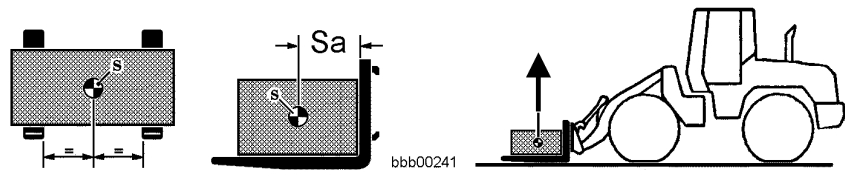
Load bearing tables for forklift operation

The loads (rated payloads) are calculated according to the EN 474-3 safety norm.

The permissible load is stated as a percentage of the tipping load as per ISO 8313 with the fork prongs in the horizontal position.

The following values may not be exceeded:

- On even and firm terrain – 80% of the tipping load with forklift
- On uneven terrain – 60% of the tipping load with forklift



The following tables specify the permitted loads on various types of terrain and at various distances to the centre of gravity **Sa**.

All calculated values refer to the original LIEBHERR equipment (fork carrier and prongs).

Lift arms with Z kinematics								
Even and firm terrain Load = 80% of the tipping load Tyres	Load values in kg at different distances from the centre of gravity - Sa in mm							
	500	600	700	800	900	1000	1100	1200
365/70R18EM Dunlop SPT9-TL ²⁾	2121	1950 ¹⁾	1730 ¹⁾	1550 ¹⁾	1410 ¹⁾	1290 ¹⁾	1190 ¹⁾	1110 ¹⁾
405/70R18EM Dunlop SPT9-TL	2138	1950 ¹⁾	1730 ¹⁾	1550 ¹⁾	1410 ¹⁾	1290 ¹⁾	1190 ¹⁾	1110 ¹⁾
335/80R20EM Dunlop SPT9-TL	2127	1950 ¹⁾	1730 ¹⁾	1550 ¹⁾	1410 ¹⁾	1290 ¹⁾	1190 ¹⁾	1110 ¹⁾
365/80R20EM Dunlop SPT9-TL	2149	1950 ¹⁾	1730 ¹⁾	1550 ¹⁾	1410 ¹⁾	1290 ¹⁾	1190 ¹⁾	1110 ¹⁾
405/70R20EM Dunlop SPT9-TL	2157	1950 ¹⁾	1730 ¹⁾	1550 ¹⁾	1410 ¹⁾	1290 ¹⁾	1190 ¹⁾	1110 ¹⁾
375/75R20EM Michelin XZSL-TL	2162	1950 ¹⁾	1730 ¹⁾	1550 ¹⁾	1410 ¹⁾	1290 ¹⁾	1190 ¹⁾	1110 ¹⁾
375/75R20EM Michelin XM27-TL	2139	1950 ¹⁾	1730 ¹⁾	1550 ¹⁾	1410 ¹⁾	1290 ¹⁾	1190 ¹⁾	1110 ¹⁾
400/70R20EM Michelin XMCL-TL	2162	1950 ¹⁾	1730 ¹⁾	1550 ¹⁾	1410 ¹⁾	1290 ¹⁾	1190 ¹⁾	1110 ¹⁾
405/70R20EM Michelin XZSL-TL	2177	1950 ¹⁾	1730 ¹⁾	1550 ¹⁾	1410 ¹⁾	1290 ¹⁾	1190 ¹⁾	1110 ¹⁾
400/70R18EM Good Year IT 520-TL	2143	1950 ¹⁾	1730 ¹⁾	1550 ¹⁾	1410 ¹⁾	1290 ¹⁾	1190 ¹⁾	1110 ¹⁾
365/80R20EM Bridgestone VUT-TL	2150	1950 ¹⁾	1730 ¹⁾	1550 ¹⁾	1410 ¹⁾	1290 ¹⁾	1190 ¹⁾	1110 ¹⁾
405/70R20EM Bridgestone VUT-TL	2168	1950 ¹⁾	1730 ¹⁾	1550 ¹⁾	1410 ¹⁾	1290 ¹⁾	1190 ¹⁾	1110 ¹⁾
365/70R18 Mitas EM-01-TL	2125	1950 ¹⁾	1730 ¹⁾	1550 ¹⁾	1410 ¹⁾	1290 ¹⁾	1190 ¹⁾	1110 ¹⁾

Payload with FEM II fork carrier and prongs (standard version) limited to 2500 kg .

¹⁾Hydraulics restricted by tilt cylinders of Z-kinematics.

²⁾Standard tyres

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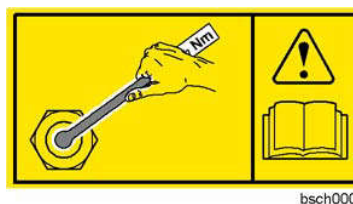
System voltage decal

This equipment is optional.



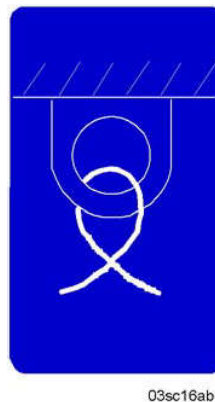
Indicates the system voltage of the electrical system.

Tightening torque decal



Indicates the tightening torque of the battery fastening.

Lashing point decal



Indicates the lashing points on the machine.

Slings and lifting point decal



Indicates the slinging and lifting points on the machine.

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2.14 Measures for ensuring safe maintenance

1. Never attempt maintenance and repair work unless you are qualified to do so.
2. Observe the prescribed periods for regular checks and inspections or those specified in the **operating manual** .
A suitably equipped workshop is absolutely necessary in order to perform repair work.
3. The table at the end of this **operating manual** states exactly who may carry out each job.
The jobs listed under **daily / weekly** in the maintenance schedule can be carried out by the driver or by service personnel.
The other jobs may only be carried out by suitably qualified specialist staff.
4. Spare parts must meet the technical requirements specified by the manufacturer. This is guaranteed if you use genuine spares.
5. Wear safety overalls for maintenance work. Certain jobs not only require a hard hat and safety boots, but also goggles and safety gloves.
6. Keep unauthorised persons away from the machine during maintenance.
7. Set up an extended cordon around the maintenance area as necessary.
8. Notify the operating personnel before starting repairs or other special jobs. Nominate a supervisor.
9. Unless otherwise specified in the **operating manual** carry out all maintenance work on the machine on firm, level ground with the engine off.
10. Afterwards always re-tighten any bolts loosened during maintenance and repair work.
11. If safety equipment has to be dismantled for rigging, maintenance and repair work, it must be re-installed and checked as soon as the job is finished.
12. When undertaking maintenance jobs, especially under the machine, attach a warning sign marked **DO NOT SWITCH ON** to the ignition where it is clearly visible. Take out the ignition key.
13. Before starting maintenance or repairs, clean any oil, fuel or service fluids from the machine, especially connections and bolted joints. Do not use abrasive cleaning agents. Use fibre-free cloths.
14. Before welding, burning and sanding, clean any dust from the machine and the area around it, and ensure adequate ventilation.
Otherwise there is a risk of **explosions** .
15. Before cleaning the machine with water, steam jet (high-pressure cleaner) or other cleaning agents, cover or tape up all openings where water, steam and cleaning agent may not penetrate for safety reasons.
Electric motors, control cabinets and battery compartments are at particular risk.
Further procedure:
 - Make sure that during cleaning work on the machine housings, the temperature sensors for the fire alarm and extinguisher systems do not come into contact with hot cleaning agent. Otherwise the fire extinguishing system could be activated.
 - After cleaning, completely remove the covers and tape.
 - After cleaning, check all fuel, engine oil and hydraulic oil lines for leaks, loose connections, abrasion and damage.
 - Repair any defects immediately.
16. Follow the safety instructions for the product in question when handling oil, grease and other chemical substances.



Warning

You risk injury if you jump or fall off the machine.

- ! Use the steps, ladders and handles provided for getting on and off.
- ! Never jump down from the machine.



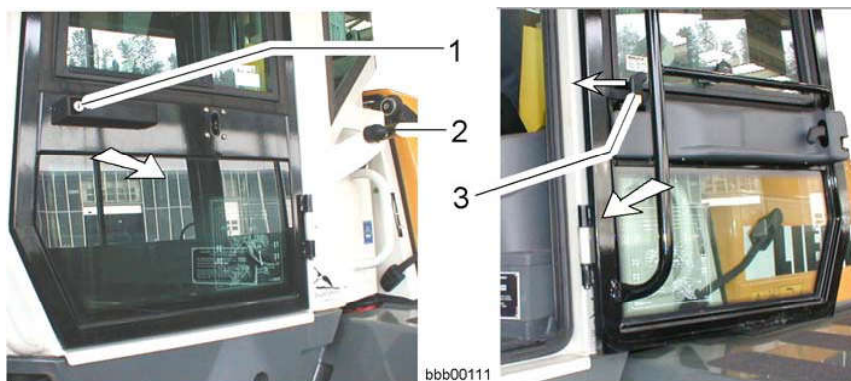
Warning

You could be injured if the machine suddenly moves.

It is dangerous if the cab door is open and the engine is running.

- ! Do not hold onto the steering column, the control panel or the control levers when getting on or off.

Entering the driver's cab



Entering the cab

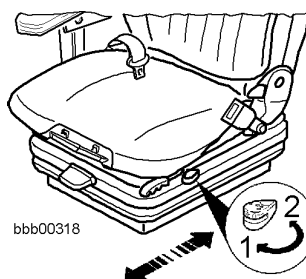
1 Handle with lock
2 Door holder

3 Door holder lever

- Open the lock of the cab door with the ignition key.
- Open the cab door with the door handle **1** until it latches in the door holder **2**.
- Enter the cab.
- Use the door holder lever **3** to lock and unlock the cab door.

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Activating and deactivating horizontal suspension on the driver's seat



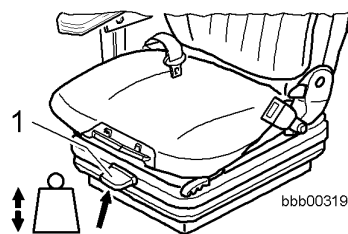
Horizontal suspension

Under certain conditions you can increase comfort by activating the horizontal suspension.

Advantage: The driver's seat can better absorb shocks in the direction of travel.

- Position 1 = on
- Position 2 = off

Adjusting the seat suspension



Weight adjustment

The seat suspension can be adjusted to the driver's individual body weight.



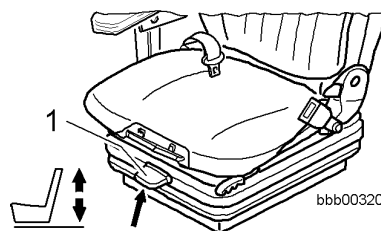
Note

For adjustment

! The driver must be sitting in the normal position.

- Set the body weight by briefly pulling the lever 1 .

Adjusting the seat height



Seat height adjustment

The seat height can be continuously adjusted using air springs.

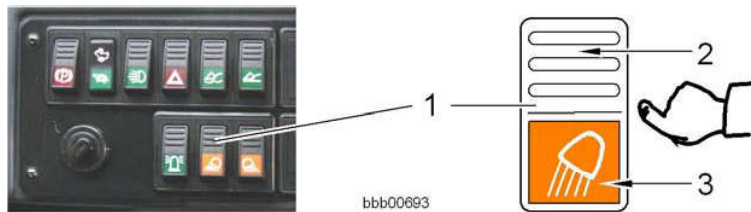
- Push or pull the lever 1 as far as it will go.

When it reaches the top or bottom limit, the height is adjusted automatically.

The minimum required suspension is ensured.

Switching the front working floodlights on and off

The switch for the working floodlights also works when the ignition key is in the 0 position or parking position.

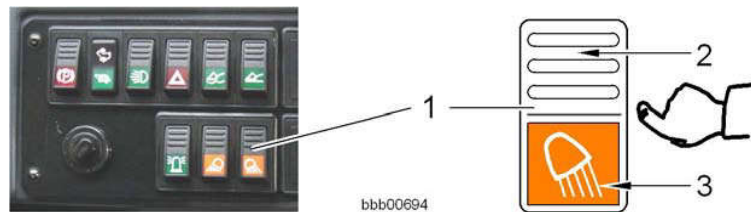


Front working floodlight switch

- Press the button 1 in position 3 .
The working floodlights are switched on.
- Press the button 1 in position 2 .
The working floodlights are switched off.

Switching the rear working floodlights on and off

The switch for the working floodlights also works when the ignition key is in the 0 position or parking position.

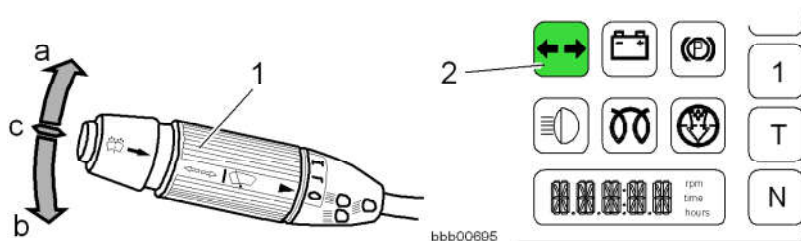


Rear working floodlights

- Press the button 1 in position 3 .
The working floodlights are switched on.
- Press the button 1 in position 2 .
The working floodlights are switched off.

Activating the indicator lights

Make sure that the electrical system is switched on.

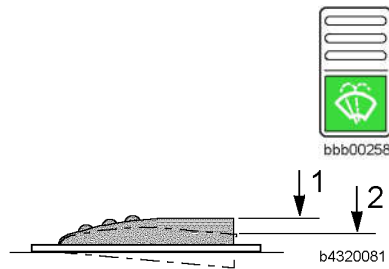


Steering column switch and display unit

- Push the steering column switch 1 in direction a .
The right indicator lights are activated.
- Push the steering column switch 1 in direction b .
The left indicator lights are activated.

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Switching the rear windshield wiper and washer system on and off



Rear windshield wiper and washer system switch

Field colour – green

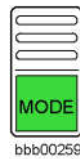
Switches the windshield wiper and washer system for the rear window on or off.

The switch has a switch function **1** and a button function **2**.

Switch functions:

- Switch to position **1** for wiping
- Press to position **2** for washing

LCD brightness setting and engine speed, service hours and clock display



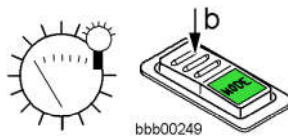
MODE button – LCD brightness setting and engine speed, service hours and clock display

Field colour – green

Adjusts the brightness and switches the LCD between the engine speed, service hours and clock.

LCD brightness setting

Press the button **b** to set one of various brightness levels for the LCD.



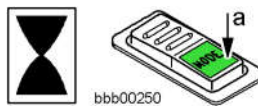
Engine speed indicator

Press the button **a** to switch the LCD to show the engine speed.



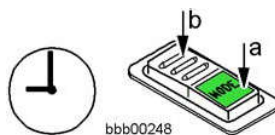
Service hours indicator

Press the button **a** to switch the LCD to show the service hours.



Clock display

Press the button **a** to switch the LCD to show the time.



Setting the clock:

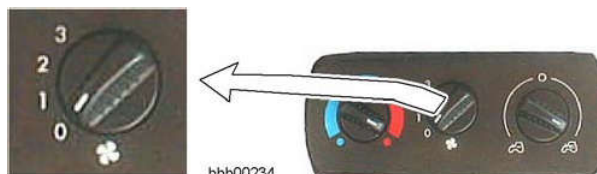
The digital display may not show an error if you want to activate clock setting mode.

Press the button **a** for longer than 5 seconds – the digital display starts to flash and the following functions are available.

- Button: **a**
Accept the numerical value shown and move to the next unit. The units are moved through as follows:
Year-month-day-hour-minute-second-apply values entered
- Button: **b**
Add up the number displayed.

Adjusting the blower

The blower motor knob switches the blower on and off.



bbb00234

Blower motor knob

Blower speeds:

Position **0** – Off

Position **1** – Weak air flow

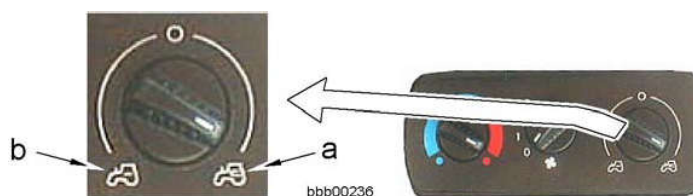
Position **2** – Medium air flow

Position **3** – Strong air flow

- Turn the blower motor knob to the required position.

The air is blown into the cab through nozzles.

Regulating the air supply



bbb00236

Air supply knob

Switch positions:

Position **a** – Circulated air

Position **b** – Fresh air

- To switch between fresh air and circulated air, turn the air supply knob to the required position.

3.2.18 Air conditioning system

This equipment is optional.

The intake air is filtered through a serviceable dry filter cartridge and directed into the cab via the evaporator, heat exchanger and adjustable outlet nozzles.



Danger

There is a risk of fires and explosions.

- ! Do not smoke. Make sure there are no naked lights when refuelling.
- ! Only refuel with the engine switched off.

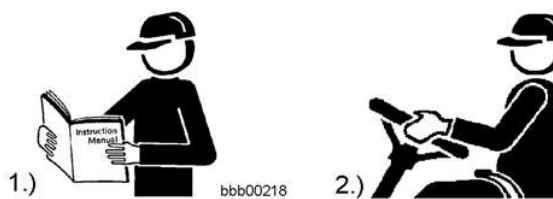


Fuel tank

- It is essential to observe the safety regulations for refuelling. See also the safety regulations in chapter 2.
- Only use clean diesel fuel.
- Carefully clean around the tank cap 1 before taking it off.
- Push off the cap 2 .
- Release the tank lock and remove the tank cap.
- Refuel with diesel fuel as necessary.
- If possible, refuel at the end of the working day to prevent condensation from accumulating in the tank.

The machine is ready for operation.

3.3.2 Starting the engine



Operating manual

- 1.) Make sure you have read and understood the operator's manual
- 2.) Then you are ready to use the machine

Only ever operate the machine once you have read and understood the operating manual.



Note

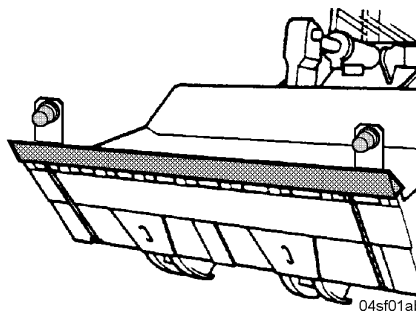
The machine is equipped with a hydrostatic travel drive.
! You cannot start the engine by bump-starting it or towing it.

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- Remove coarse dirt from the machine and clean the tyre treads.

See the section on cleaning the machine in chapter 5.

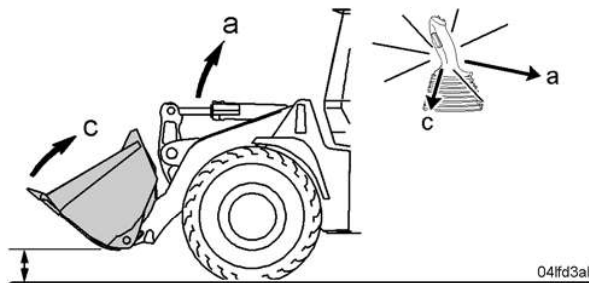
- Close all service doors, hatches, covers and hoods and where possible lock them.



Bucket tooth guard and side lamps

- Attach the tooth guard to the bucket.
- Attach the side lamps.
- Plug in the cables for the side lights.

Driving You will find descriptions of work operations, driving, transport and transferring bulk material in the section on general working methods.



Transport height

Make sure that:

- The bucket is in the transport position when driving.
The transport position means The bucket pivot point must be approximately 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.

See also the section on locking the working hydraulics.

- Always drive with due care.
- Observe the highway code.

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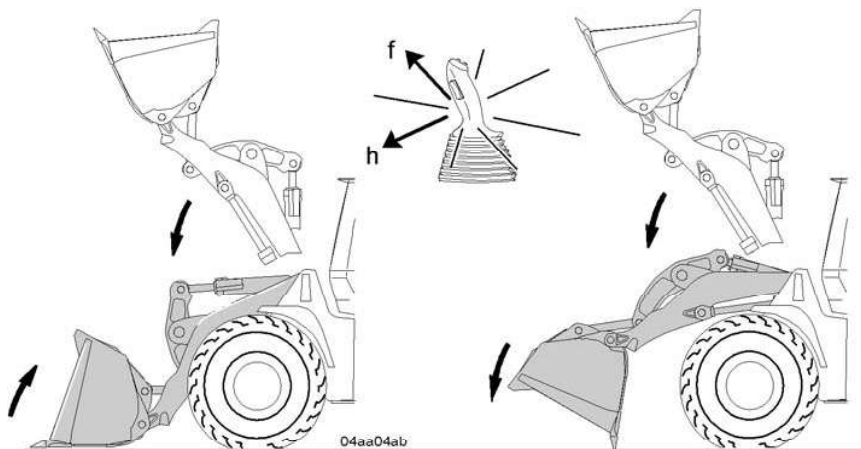
Lowering the lift arms while tilting the bucket in or out



Danger

There is a risk of accidents if the working attachment drops!
Anyone standing under the working attachment as it is being lowered will be crushed!

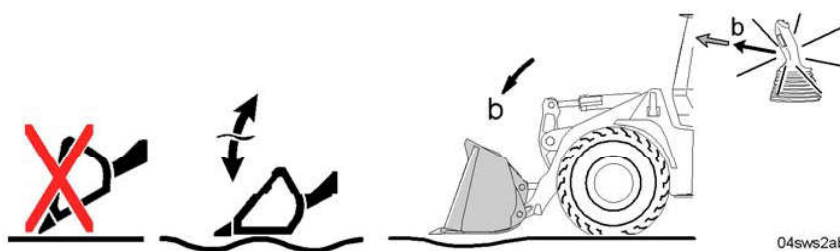
! Keep out of the danger area.



Working movements

- 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



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.

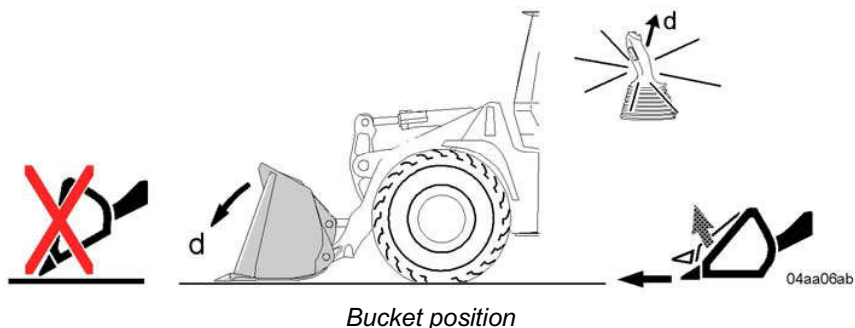


Bucket position

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Loading a heap

Picking up material



Bucket position

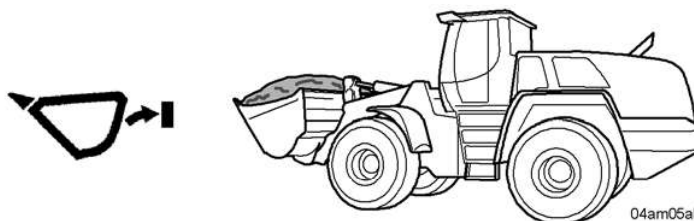
Caution

There is a risk of damage to the machine.

The lift arms may be damaged if you hit a hard obstacle at speed when clearing away bulk material in the forward travel direction with the bucket tipped down.

! When clearing away bulk material, do not drive into the pile with the bucket tipped down.

- Lower the bucket horizontally to the ground.
 - Drive into the material, slightly tipping the bucket in the process.
- If the flow of the bulk material into the bucket needs to be assisted
- When driving into the material, gently tip the bucket up and down.
 - Also press down the inch/brake pedal. See the section on picking up and moving material.



Bucket position

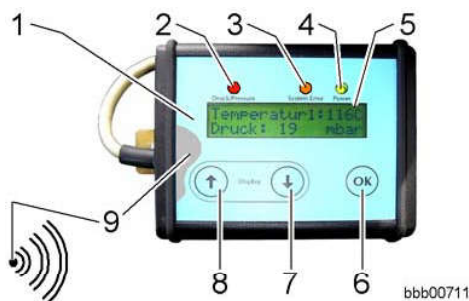
- Tilt in the loaded bucket as far as it will go and raise the lift arms.



Note

With turbocharged engines a counterpressure of 0.2 bar may not be exceeded.

! The exhaust counterpressure display and control unit indicates excessive levels with visible and audible signals.



Display and control unit

- 1 Display and control unit
- 2 Red pressure LED
- 3 Orange system error LED
- 4 Green power LED
- 5 LC display
- 6 Acknowledgement button
- 7 Menu button
- 8 No function
- 9 Buzzer (in housing)

- For activating the display:
Press the menu button **7** for 2 seconds.

Display:

- Exhaust counterpressure (mbar)
- Exhaust temperature (°C)
- Speed (rpm)

Action:	Display:
After engine start	Exhaust counterpressure
Press the menu button 7	Exhaust counterpressure Exhaust temperature 1
Press the menu button 7 again	Exhaust counterpressure Exhaust temperature 2
Press the menu button 7 again	Exhaust counterpressure Engine speed
Press the menu button 7 again	Exhaust counterpressure = engine start

If a system fault is displayed:

- The green LED **4** lights up
- The orange LED **3** lights up
- The buzzer **9** emits a continuous tone

In this case there is a system fault.

There are various instances with system faults.

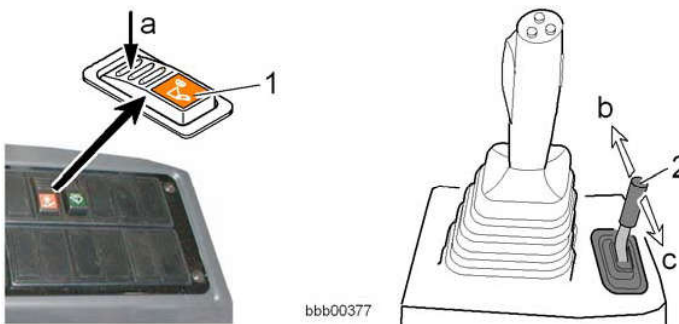
- See the manufacturer's operating manual for how to remedy the fault.

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Depressurising – standard version

This is how to depressurise the lines.

- Start the engine and let it run for 10 seconds.
- Turn off the engine.
- Switch on the ignition.



Reducing the operating pressure

- 1 Working hydraulics lockout switch
- 2 Control lever for additional working functions

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

At the same time:

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

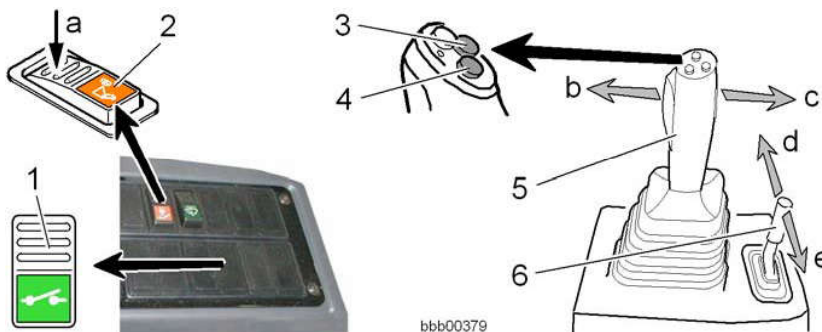
- The hydraulics of the working attachments are now depressurised.

Depressurising using comfort or button control

This equipment is optional.

This is how to depressurise the lines.

- Start the engine and let it run for 10 seconds.
- Turn off the engine.
- Switch on the ignition.

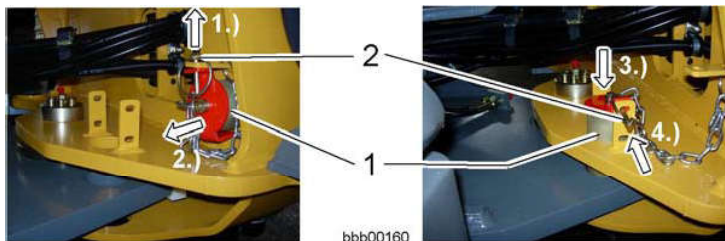


Reducing the operating pressure

- 1 Comfort control button
- 2 Working hydraulics lockout switch
- 3 Button
- 4 Button
- 5 LH control lever
- 6 Control lever for additional working functions

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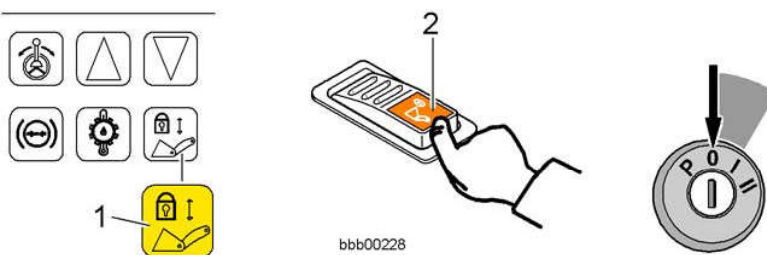
- Activate the parking brake with the button 1 .
The symbol field 2 lights up.



Engaging the articulation lock

- 1 Articulation lock pin
- 2 Spring clip

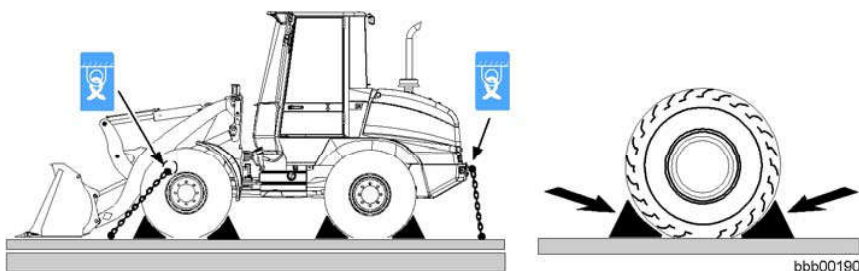
- Engage the articulation lock.
- Lower the lift arms and lay the bucket down flat on the loading area.



Working hydraulics lockout

- 1 Working hydraulics lockout symbol field
- 2 Working hydraulics lockout button

- Lock the working hydraulics.
- Turn off the engine.
- Close and lock all doors, hatches and hoods on the machine.



Lashing points

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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.
See the section on the display unit in chapter 3.
- 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 if you contact **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.



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.

Travel hydraulics / driving		
Malffunction / error	Cause	Remedy
The travel direction cannot be selected	The parking brake is engaged	Release the parking brake and select the travel direction
	Defective fuse	Check the fuse F15 and replace if necessary
	The travel direction switch is defective	Contact LIEBHERR CUSTOMER SERVICE
The parking brake is released, but the parking brake signal lamp does not go out	The parking brake switch is defective	Check and adjust the switch, replace it if necessary
The machine does not move although the engine is running, you have pressed the parking brake switch and the travel direction can be selected	The hydraulic oil is too viscous	
	a) The oil is too cold b) The oil is unsuitable for the ambient temperature	a) Let the machine warm up b) Use suitable oil
The hydraulic oil overheats	The hydraulic oil cooler is dirty	Clean the oil cooler
	The fan motor is running too slowly or not at all	Contact LIEBHERR CUSTOMER SERVICE

Working hydraulics / working attachment		
Malffunction / error	Cause	Remedy
The working attachment does not move when you operate the control lever	The working hydraulics lockout is activated	Switch off the working hydraulics lockout
	Defective fuse	Check the fuse F28 and replace if necessary

Steering system		
Malffunction / error	Cause	Remedy
Steering is not possible	Insufficient hydraulic oil	Check the oil level in the hydraulic tank and top up if necessary
	The articulation lock is engaged	Put the locking bar in the top position

Brake system		
Malffunction / error	Cause	Remedy
The service brake has insufficient effect or none at all	Insufficient brake oil in the system	– Check the brake system for leaks – Check the brake oil level in the reservoir (if necessary top up with SAE 10W brake oil)
	Air in the brake system.	Contact LIEBHERR CUSTOMER SERVICE
	The brake linings are severely worn	Contact LIEBHERR CUSTOMER SERVICE

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ERROR this kind of error is usually accompanied by a 1-second warning tone

Service Code old	Service Code new	Effect	Cause	Remedy
	E402D	Driving is not possible	Control pressure (pump 1): the measured return current at output does not match the output current	Contact LIEBHERR CUSTOMER SERVICE
E4008	E4065	Travel range 1 not possible	Travel range MV Y6 shorted to earth ($t \geq 0.1$ sec)., Short circuit in consumer or wiring	Contact LIEBHERR CUSTOMER SERVICE
E4009	E4066	Travel range 1 not possible	Travel range MV Y6 interrupted , ($t \geq 0.1$ sec)., Interruption in consumer or wiring	Contact LIEBHERR CUSTOMER SERVICE
E400C	E4067	Emergency steering check symbol field H24 lights up, emergency steering unavailable	Emergency steering pump: electrical fault at output (surge/short circuit or line interruption)	Contact LIEBHERR CUSTOMER SERVICE
	E4068	All three LEDs on the control unit switch flash, central lubrication system does not work	Central lubrication system: electrical fault at output (surge/short circuit or line interruption)	Contact LIEBHERR CUSTOMER SERVICE
E400E	E4069	Option 1 not available	Option 1: electrical fault at output (surge/short circuit)	Contact LIEBHERR CUSTOMER SERVICE
E400F	E406A	Option 1 not available	Option 1: electrical fault at output (power interrupted)	Contact LIEBHERR CUSTOMER SERVICE
E4010	E406B	Option 2 not available	Option 2: electrical fault at output (surge/short circuit)	Contact LIEBHERR CUSTOMER SERVICE
E4011	E406C	Option 2 not available	Option 2: electrical fault at output (power interrupted)	Contact LIEBHERR CUSTOMER SERVICE
E4012	E406D	Option 3 not available	Option 3: electrical fault at output (surge/short circuit)	Contact LIEBHERR CUSTOMER SERVICE
E4013	E406E	Option 3 not available	Option 3: electrical fault at output (power interrupted)	Contact LIEBHERR CUSTOMER SERVICE
	E406F	Travel range restricted	OPEN coupling: electrical fault at output (surge/short circuit)	Contact LIEBHERR CUSTOMER SERVICE
	E4070	Travel range restricted	OPEN coupling: electrical fault at output (power interrupted)	Contact LIEBHERR CUSTOMER SERVICE
	E4071	Travel range restricted	CLOSEcoupling: electrical fault at output (surge/short circuit)	Contact LIEBHERR CUSTOMER SERVICE
	E4072	Travel range restricted	CLOSEcoupling: electrical fault at output (power interrupted)	Contact LIEBHERR CUSTOMER SERVICE
	E4073	Travel range restricted	Variable displacement motor 1: electrical fault at output (fault current)	Contact LIEBHERR CUSTOMER SERVICE

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.

□		○	○	○	✦
		□	○	○	250h

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 intervals on delivery, every 500, 1000, 2000 service hours (h), and at unscheduled times.

You will find a list of the spare parts needed for maintenance and inspection work in the service package of the spare parts list.

Lubricating oil viscosity

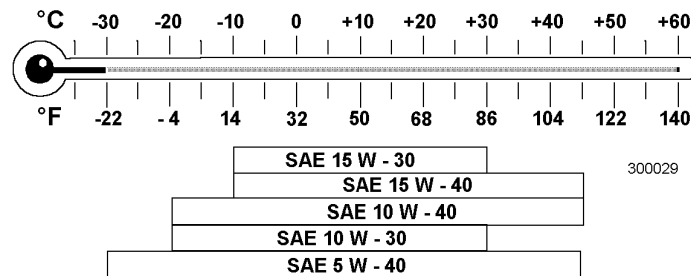
The lubricating oil viscosity is selected according to the SAE (Society of Automotive Engineers) classification.

The decisive factor for the selection of the correct SAE class is the ambient temperature.

The selection of the SAE classification does not affect the quality of a lubricant oil.

If the viscosity is too high, starting can be difficult. If it is too low, lubricant efficiency may be impaired.

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



Selection of the SAE class according to temperature

Lubricant oil changing intervals

Changing intervals:

- Change the oil according to climate zone, sulphur content in the fuel and oil quality as shown in the following table.

Even if the specified number of service hours (h) is not reached in a given year, the engine oil and filter should be replaced at least once a year.

Complicating factors

Various complicating factors or harsh operating conditions can affect the maintenance intervals.

Complicating factors or harsh operating conditions include:

- Frequent cold starts
- Sulphur content in the fuel over 0.5%
- Operating temperature below -10 °C

If working under difficult conditions, the oil change intervals defined in the maintenance and inspection schedule must be reduced by half, as shown in the table below.

Complicating factor		Oil quality	
		E3, E4, E5 CH-4, CI-4	E6
Outside temperature	Sulphur content in fuel	Interval	
Normal climate, down to -10 °C	up to 0.5%	250 h	500 h
	over 0.5%	125 h	250 h
Under -10 °C	up to 0.5%	125 h	250 h
	over 0.5%	-	125 h

Oil change intervals in service hours (h)

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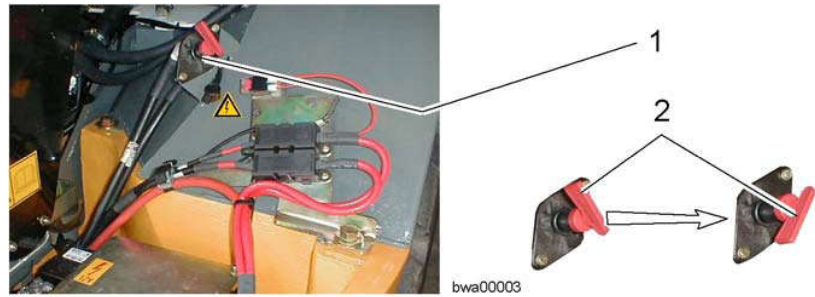
Turning off the battery main switch

The battery main switch is located at the rear right of the engine compartment.

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

Look at the relevant descriptions of maintenance tasks to find out if the battery main switch has to be turned on or off. See the section on maintenance tasks.

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



Turning off the battery main switch

1 Battery main switch

2 Key



Warning

There is a risk of accidents for maintenance personnel.

If unauthorised people are on the machine it can put the maintenance personnel in extreme danger.

! For safety reasons, it is essential that the battery main switch is turned off.

! Pull out the key for safety reasons.

- Turn the battery main switch 1 off using the key 2 .

5.4.2 Removing loose parts, dirt, ice and snow from the machine

Make sure that the machine is in maintenance position 1.

Procedure



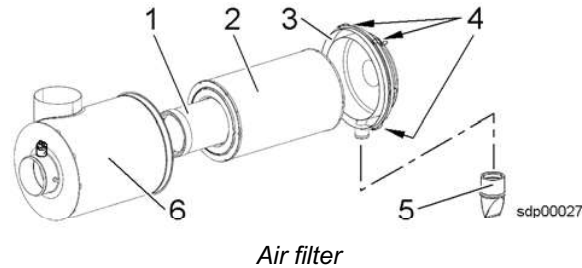
Note

To ensure safe machine transport and easy maintenance:

Clean the machine after everyday work and before starting maintenance tasks.

! Remove any loose parts, coarse dirt, mud, ice, snow etc.

- Be careful when cleaning the machine with a high-pressure cleaner. See the section on cleaning the machine.

Procedure

- | | |
|---------------------|-------------------------|
| 1 Secondary element | 4 Fixing clips |
| 2 Primary element | 5 Dust extraction valve |
| 3 Service cap | 6 Air filter housing |

- Open the fixing clips **4** on the service cap **3** and take the cap off.
- Remove the primary element **2**. To do this pull or turn the element gently upwards, downwards or to the side in order to release the seal.
- Ensure that all dirt is removed from the filter housing before inserting a new or cleaned filter element.
- The secondary element **1** should be replaced every third time the main filter element **2** is replaced.
- Before installing the filter element, lightly oil the seal surfaces.
- Re-insert the filter element and make sure that it is correctly fitted.
- Clean the service cap **3** and put it on the filter housing with the dust extraction valve **5** facing down.

Only when the lid completely covers the filter housing can you close the fixing clips without excessive force.

- Close the fixing clips **4**.

5.4.14 Changing the air filter secondary element

After replacing the primary element three times (or at least once a year) the secondary element must be replaced.

If the air filter contamination symbol field remains lit after the primary element **2** has been serviced then the secondary element **1** must also be replaced.

Make sure that:

- The machine is in maintenance position 1.
- The engine compartment hood is open.

Procedure



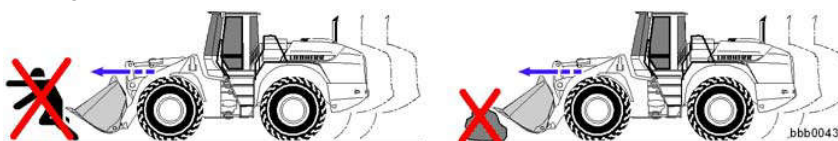
bwa00014

Steering cylinder lubrication points

- Lubricate the bearing points on the steering cylinders.

5.4.22 Testing the service brake and parking brake

Make sure that there is enough room to check the service brake and parking brake.



bbb00432

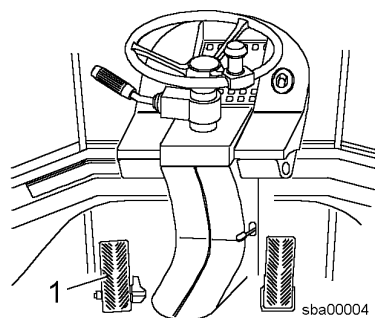


Warning

There is a danger of driving into bystanders or obstacles.

- ! Do not allow anyone into the danger area while these tests are being conducted.
- ! Perform the test on level ground with no obstacles.

Testing the service brake



sba00004

- Start the machine and drive it forward at around 8 km/h .
- While moving, push the inch/brake pedal **1** all the way down. The machine must come to an **abrupt** stop.

Troubleshooting

If the braking effect is too slight or entirely absent:

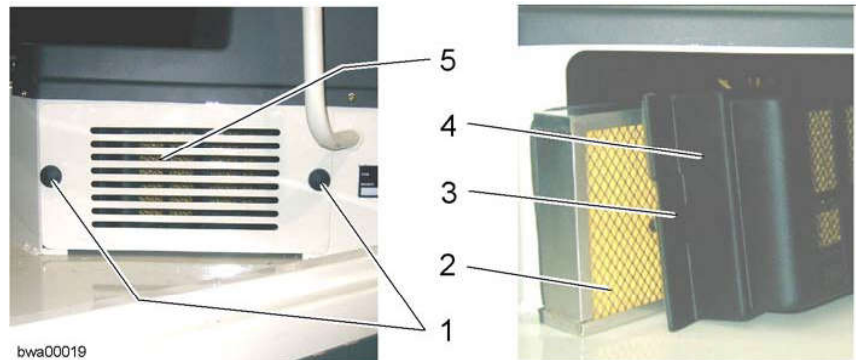
- Contact LIEBHERR CUSTOMER SERVICE.

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5.4.36 Cleaning the fresh air and recirculated air filter

The fresh air filter is on the left of the cab below the driver's seat. Make sure that the machine is in maintenance position 1.

Procedure



- Undo the screws **1** and take off the ventilation grille **5** .
- Open the filter bracket **4** using the flap **3** and turn it to the right.
- Clean the filter element **2** (blow it out or wash it).
- Carefully remove any dust which has collected in the air filter duct. (The area behind the filter must be completely clean.)
- Put in the clean filter element **2** . Make sure it is correctly fitted.
- Close the filter bracket **4** and fasten it using the flap **3** .
- Put in the ventilation grille **5** and fasten it with the screws **1** .

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