en **Operator's manual**

Wheel loader

L 524-1557 (RU)

From serial number 36303

Document ID

ORIGINAL OPERATOR'S MANUAL

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1.2.14 Tyres

The tyres are one of the factors that affects the drive performance of the machine.

Note
When installing or changing the working attachment or tyres:

▶ (For more information see: 2.5.18 Attachments and accessories, page 53)

Note
Use tyres of the same size for all four wheels.
A difference of more than 3% of the dynamic or static tyre diameter at the front and rear axle will cause damage to the travel drive.
If there is a difference of more than 1.5% between the left and right wheels, this will cause damage to the travel drive.

▶ Check the tyre diameter.

The correct tyre pressure is crucial for:
– Reliable operation of the machine during use
– Tyre service life

The table below contains the following information:
– Recommended tyre sizes
– Tyre tread
– Tyre pressure

The tyre pressure specifications refer to:
– Value set when delivered from the factory
– Cold tyres
– Machine ready for operation with standard equipment and permissible load

Note
Observe the maximum tyre pressure permitted by the tyre manufacturer.
When used for industrial timber handling or similar, higher tyre pressures are required.

▶ Check and adjust the tyre pressure. (For more information see: 5.13.1 Checking the tyre pressure, page 237)

Size and tread code		Change in operating weight	Loader width across tyres	Change in height	Air pressure		
					FA [A]	RA [B]	p - max. [C]
		kg	mm	mm	bar	bar	bar
17.5-25 Firestone SRG	L3	0	2460	0	4.00	3.00	5.00
17.5R25 Michelin XHA	L3	215.2	2460	-10	3.50	2.00	4.50
17.5R25 Michelin XLD D2A	L5	+148.4	2460	+27	3.50	2.00	4.50
17.5R25 Michelin X-MINE	L5	+333.2	2480	+49	4.00	3.00	6.50

Tab. 2: Tyres for the standard machine

A) Front axle
B) Rear axle
C) Maximum tyre pressure

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The first limit value reached is decisive.

2.3.2 Storage period

For machines that were never put into operation or that were taken out of operation immediately after initial operation, a storage period applies.

The maximum storage period for the machine is 25 years under following conditions:
- Only personnel authorised by Liebherr put the machine into operation.
- The machine is transported, mounted, operated and stored properly according to operator's manual.
- For maintenance, during the entire useful life, the operator uses Liebherr original spare parts exclusively and uses lubricants and fuels which are approved by Liebherr.
- For maintenance, during the entire useful life, the operator fulfils all service, inspection and maintenance provisions and maintenance intervals according to operator's manual.
- For the maintenance, during the entire useful life, the operator ensures that all service, inspection and maintenance work is only performed by Liebherr authorised personnel according to operator's manual.

2.4 Signs on the machine

There are several types of decal attached to the machine.

Decal types:
- Safety decals
- Information decals
- Type plates

The item codes can be found in the spare parts list.

2.4.1 Safety decals

Obeying the instructions on the safety signs can prevent severe or even fatal injuries. Regularly check that the decals are complete and legible. Replace any missing or illegible safety decals immediately.

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ROPS/FOPS decal

Fig. 41: ROPS/FOPS decal

States the maximum load of the roll-over protection system.

Forklift bearing load table decal

This equipment is optional.

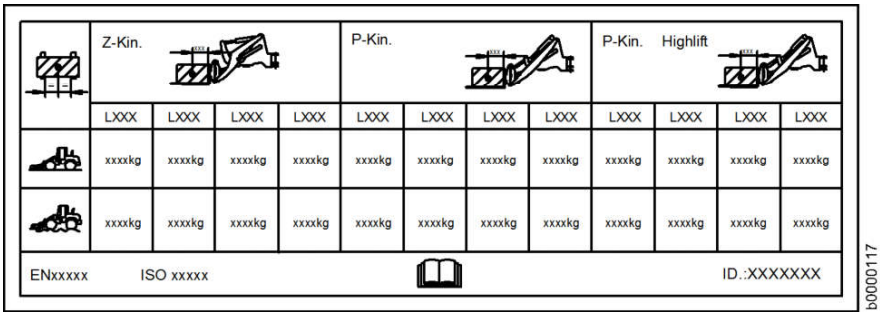

Fig. 42: Forklift bearing load table decal

Indicates the maximum permissible load in forklift operation.

The maximum permissible loads indicated on the decal refer to a machine equipped with standard tyres.

LiDAT decal

This equipment is optional.

Fig. 43: LiDAT decal

LiDAT is a data transfer and positioning system for Liebherr machines and those of other manufacturers

2in1 steering decal

This equipment is optional.

area with a red and white safety chain and a warning sign. Only use insulated tools.

41. When working on high-voltage assemblies after they have been isolated from the power supply, short the supply cable and the components, such as capacitors, with an earthing rod.
42. First, check that the isolated parts are not live, connect them to earth and then short them. Isolate any neighbouring live parts.

2.5.12 Safety instructions for maintenance work on machines with hydro accumulators

1. Only qualified staff may carry out work on the hydraulic and pneumatic connections of the membrane accumulator.
2. Serious accidents could result from inexpert fitting and operation.
3. The hydraulic system must be depressurised before work can be carried out on it.
4. Do not carry out any welding or soldering work on the membrane accumulator. **There is a risk of explosions.**
5. The accumulator may burst during machining, resulting in the loss of the operating permit.
6. Hydro accumulators may only be filled with nitrogen, not with oxygen or air - otherwise there is a **risk of explosion**.
7. The accumulator can heat up, causing burns.
8. Do not use membrane accumulators which have been damaged during transportation.
9. New membrane accumulators must be filled with nitrogen before they are used. Remove the sealing caps on the fluid side.
10. The minimum and maximum operating data are permanently marked on the membrane accumulator. The marking must remain visible.

2.5.13 Safety instructions for welding work on the machine

1. Keep to the following procedure during welding work on the machine.
   - Switch off ignition.
   - Switch off the battery main switch (if available).
   - Bring the ground of the welding machine as close as possible to the welding point.
   - Only specialized personnel may carry out welding.

2.5.14 Safety instruction for working on the working attachment

1. Do not work under the working attachment unless it is supported or resting on the ground.
2. When replacing attachment components (decals, cutting edge, teeth) . . do not let metal rest on metal.
3. Do not try to lift heavy parts. Only use suitable equipment with sufficient load capacity.
4. Always wear gloves when working with wire ropes.
5. Never release hydraulic lines or bolts before setting down the working attachment and shutting down the engine.
   Before all work on the hydraulic system, depressurise the hydraulic circuits and the hydraulic tank as described in the operating manual.
6. Ensure that all lines and threaded couplings are reconnected and re-tightened on completion of the job.

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3.2 Handling

3.2.1 Battery main switch

The battery main switch must be turned on before the machine can be started. It is located in the rear right of the battery compartment.

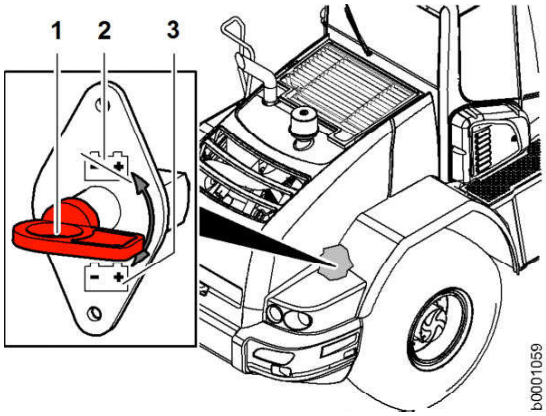

Fig. 52: Battery main switch

1 Battery main switch
2 OFF position
3 ON position

3.2.2 Articulation lock

The articulation lock creates a rigid connection between the front and rear sections. Steering is no longer possible.

WARNING
Persons can become trapped in the articulation area.

▶ Only engage or release the articulation lock when the engine is switched off.

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Adjusting the lumbar support

Standard seat / comfort seat

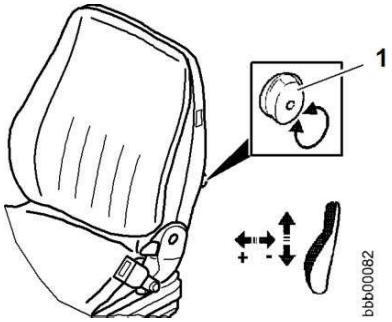

Fig. 68: Adjusting the lumbar support

1 Knob for *lumbar support*

▶ Turn the knob **1** to the left or right until the adjustment is correct.

Adjusting the back rest inclination

Standard seat / comfort seat

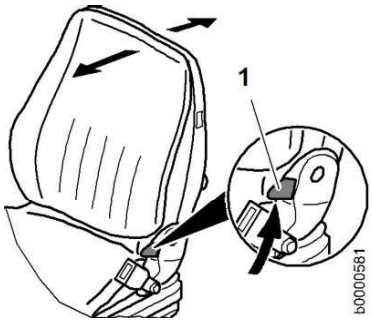

Fig. 69: Adjusting the back rest inclination

1 *Back rest inclination adjustment* lever

▶ Push up the lever **1**.

▶ Move the back rest to the angle required.

▶ Let go of the lever **1**.

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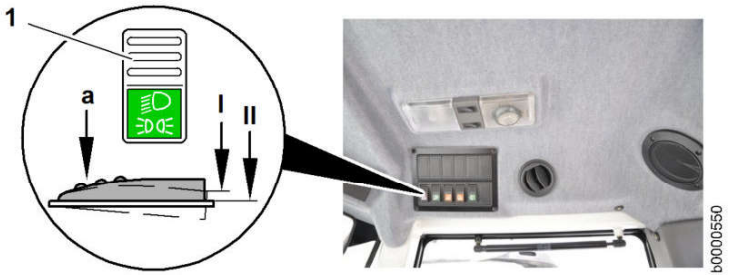

Fig. 85: Switching on the lights

1 *Marker lights and low beam* switch
I *Marker lights* position
II *Low beam* position
a Switching off the lights

▶ Press the switch **1** in position **I**.
The following lights are switched on:
▷ Marker lights
▷ Tail light
▷ License plate lights (optional)

▶ Press the switch **1** in position **II**.
The following lights are switched on:
▷ Low beam
▷ Tail light
▷ License plate lights (optional)

To switch off the lights:

▶ Press the switch **1** in position **a**.

Switching on high beam

Make sure that low beam is switched on.

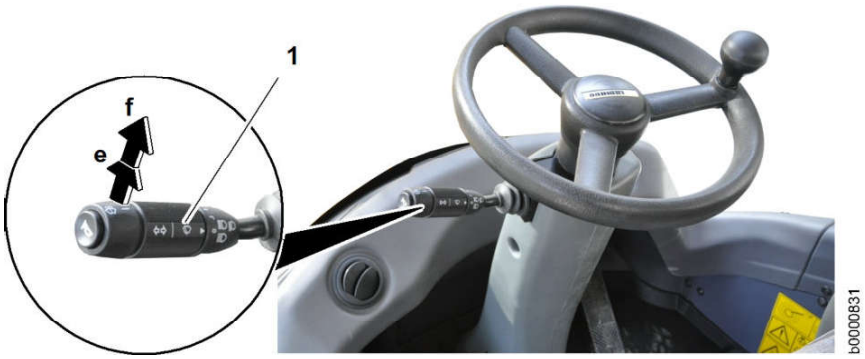

Fig. 86: Switching on high beam

1 Steering column switch
e Headlight flasher
f Switching on high beam

▶ Press the steering column switch **1** in the direction **f**.
▷ *High beam* symbol field in the display lights up.
▷ High beam lights up.

To switch back to low beam:

▶ Press the steering column switch **1** in the direction **f** again.
▷ *High beam* symbol field in the display goes out.
▷ The low beam lights up.

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To deactivate the additional hydraulic function:

▶ Release the button **3**.
  ▷ The function for tilting the working attachment in and out with the control lever is re-activated.

3.2.18 Heating, ventilation, air conditioning

The heater heats the air according to the selected temperature setting.

The air flow can be adjusted using the blower.

With the air conditioning on, the air is cooled and dried.

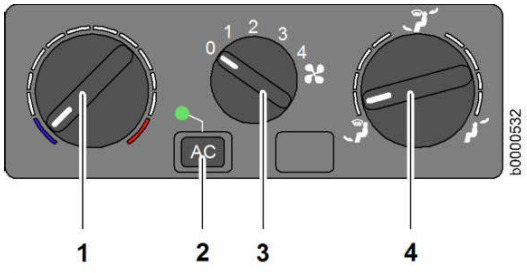

Fig. 97: Heating, air conditioning

1	Temperature knob	**3**	Blower motor knob
2	Air conditioning switch	**4**	Air distribution knob

Regulating the temperature

The temperature can be adjusted progressively.

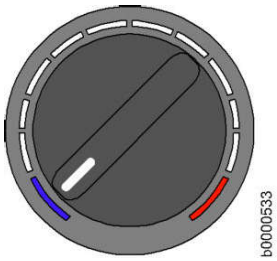

Fig. 98: Regulating the temperature

▶ Turn the temperature knob to the desired position.
  ▷ Blue range is cool.
  ▷ Red range is warm.

Adjusting the blower

Use the blower knob to switch the blower on and off.

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WARNING
There is a risk of accidents when reversing the machine due to impaired view.

- ▶ Make sure your view is unimpaired when reversing.
- ▶ Have someone direct you if necessary.

Audible back-up alarm

The back-up alarm is automatically activated when the machine is reversed.

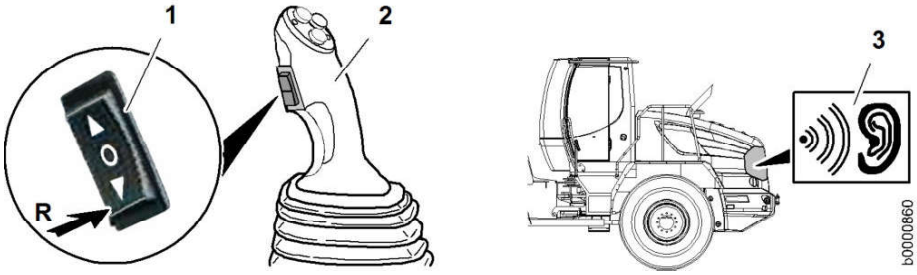

Fig. 111: Audible back-up alarm

1	*Travel direction* switch	**3**	Back-up alarm
2	Control lever	**R**	Reverse travel direction

- ▶ Move the switch **1** to reverse travel direction.
  - ▷ The back-up alarm installed in the engine compartment emits an audible warning signal (intermittent tone).

Flashing beacon on the driver's cab

This equipment is optional.

Selectable functions:
- Flashing beacon active when travelling in reverse
- Flashing beacon in continuous operation
- Flashing beacon switched off

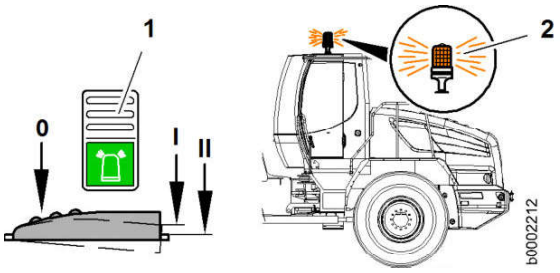

Fig. 112: Flashing beacon on the driver's cab'

1	*Flashing beacon switch*	**II**	Continuous operation
I	Flashing beacon active when travelling in reverse	**0**	Flashing beacon deactivated

Flashing beacon active when travelling in reverse

- ▶ Move the switch **1** to position **I**.
  - ▷ The indicator lamp on the switch lights up.
  - ▷ The flashing beacon is active when travelling in reverse.

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Driving with the Vmax (speed restriction) function

Note
The *Vmax (Geschwindigkeitsbegrenzung))* function is only available in automatic travel range **A1-2**.

▶ Shift to travel range **A1-2**.

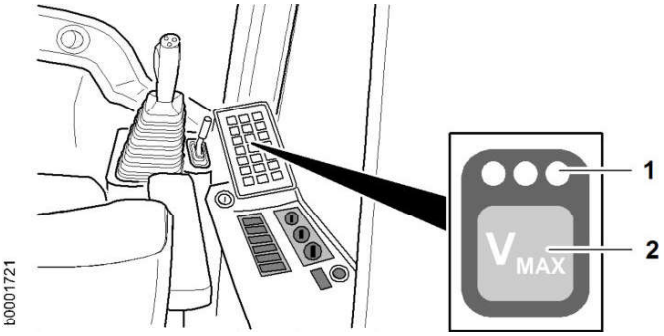

Fig. 124: Driving with the Vmax (speed restriction) function

1 LEDs **2** *Vmax* button

Activation with the machine at a standstill:

▶ Press the button **2**.
- ▷ The LEDs **1** light up.
- ▷ “Vmax” indication appears in the display.
- ▷ The speed restriction of the machine is activated.
- ▷ When the accelerator pedal is fully depressed, the machine moves at a minimum speed of approximately 2 km/h.

Activation with the machine moving:

▶ Drive at the required travel speed.

▶ Press the button **2**.
- ▷ The LEDs **1** light up.
- ▷ “Vmax” indication appears in the display.
- ▷ The speed restriction of the machine is activated.
- ▷ The machine travels at the set speed when the accelerator pedal is fully depressed.

To switch off Vmax (speed restriction):

▶ Press the button **2** again or change the travel range.
- ▷ The LEDs **1** go out.

Driving with ride control

This equipment is optional.

If you travel long distances without ride control you may experience vibrations while driving.

The ride control system improves operator comfort in nearly all situations by reducing vibrations.

Therefore, the ride control system should be activated for all applications which require significant distances to be covered.

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To tilt the bucket in:

▶ Move the control lever **1** in direction **c**.
▷ The bucket is tilted in.

To tilt the bucket out:

▶ Move the control lever **1** in direction **d**.
▷ The bucket is tilted out.

Moving the lift arms and the bucket simultaneously

The lift arms and bucket can be moved simultaneously by moving the control lever diagonally.

WARNING
Beware of accidents when raising or lowering the lift arms and bucket.

▶ Do not allow anyone into the danger area of the machine.

Raising the lift arms while tilting the bucket in or out

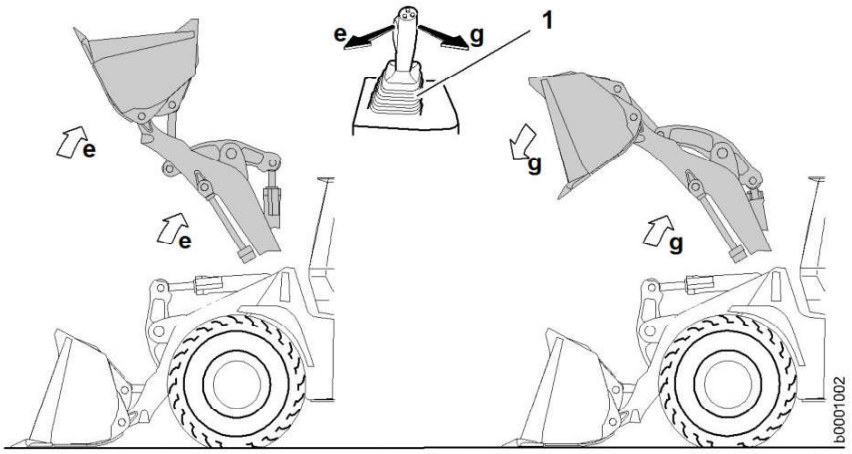

Fig. 139: Raising the lift arms and tilting the bucket in or out

1 Control lever

To raise the lift arms while tilting the bucket in:

▶ Move the control lever in direction **e**.
▷ The lift arms are raised while the bucket is tilted in.

To raise the lift arms while tilting the bucket out:

▶ Move the control lever in direction **g**.
▷ The lift arms are raised while the bucket is tilted out.

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If material adheres to the working attachment:

▶ Loosen the adherent matter manually
or

Quickly tilt the working attachment in and out, briefly jolting against the tilt-out stops of the bucket arm.

Note

Jolting against the tilt-out stops!

Jolting is only permissible when working with materials such as clay or compost.

Only use a **standard bucket** designed for a material weight greater than 1.3 t/m³ for jolting.

3.4.4 Handling materials with high dump buckets

The high dump bucket is used for loading light bulk material on trucks with high sides, wagons, silos etc. The special design achieves a greater dumping height. An appropriate working attachment must be fitted for other jobs that do not require a high dump function.

NOTICE
Unnecessary jolting of the working attachment!
Damage to the lift arms and lay the working attachment flat.

▶ Avoid unnecessary jolting.

Make sure that the following requirements are fulfilled:

- ❑ Observe the manufacturer's separate operating manual.
- ❑ The hydraulic lines of the high dump bucket are correctly connected.
- ❑ The functions have been checked.
- ❑ A high dump bucket with standard dump function has at most been tilted out until the bucket base is in a horizontal position.
- ❑ The tilt out duration for the high dump bucket is not less than 4 seconds.

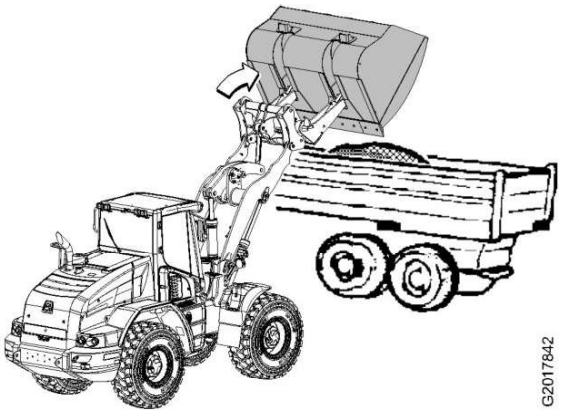

Fig. 153: Handling materials with high dump buckets

▶ Take up the bulk material with the high-dump function tilted in.

▶ Only use the high-dump function to empty the bulk material at the unloading site.

▶ If necessary, compress the material with the high-dump function tilted in.

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Unlocking and disconnecting the working attachment

Make sure that all hydraulic lines have been detached from the installed working attachment.

DANGER
Beware of the working attachment dropping.

▶ Do not press the *quick-change device* button when the working attachment is raised.

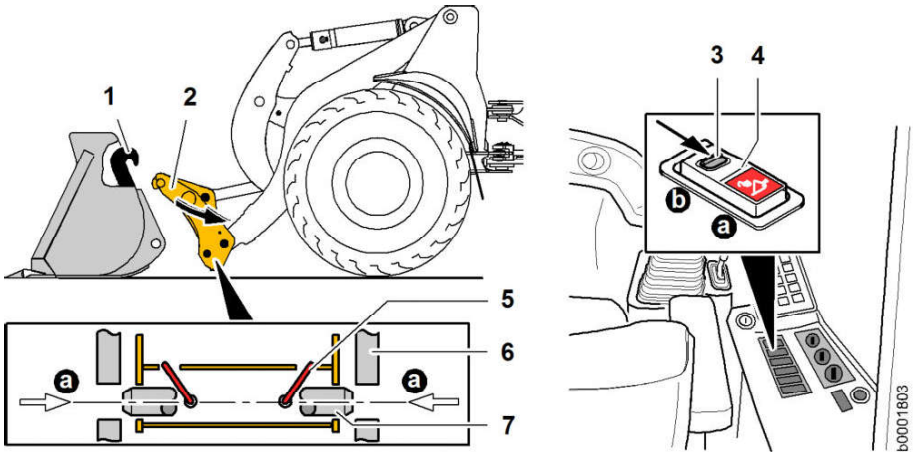

Fig. 167: Unlocking the working attachment

1	Working attachment holder	**5**	*Unlocked position* indicator
2	Quick coupler	**6**	Working attachment
3	Lockout	**7**	Locking pin
4	*Quick coupler* button		

▶ Set down the working attachment flat on firm, even ground.

▶ Secure the working attachment against falling over.

▶ Release the activation lock **3** in the direction of the arrow while pressing and holding the button **4** in position **a**.
▷ A warning tone sounds.
▷ The locking pins **7** of the quick-change device **2** are retracted.

When the locking pins are completely retracted:

▶ Release the button **4**.
▷ The working attachment is unlocked.

▶ Carefully remove the quick-change device **2** from the working attachment holder **1**.
▷ The working attachment is disconnected.

If you are not going to install a working attachment:

▶ Press the button **4** in position **b**.
▷ The locking pins **7** of the quick-change device **2** are extended.
▷ The warning tone stops.

3.5.2 Attaching working attachments to the quick-change device

This equipment is optional.

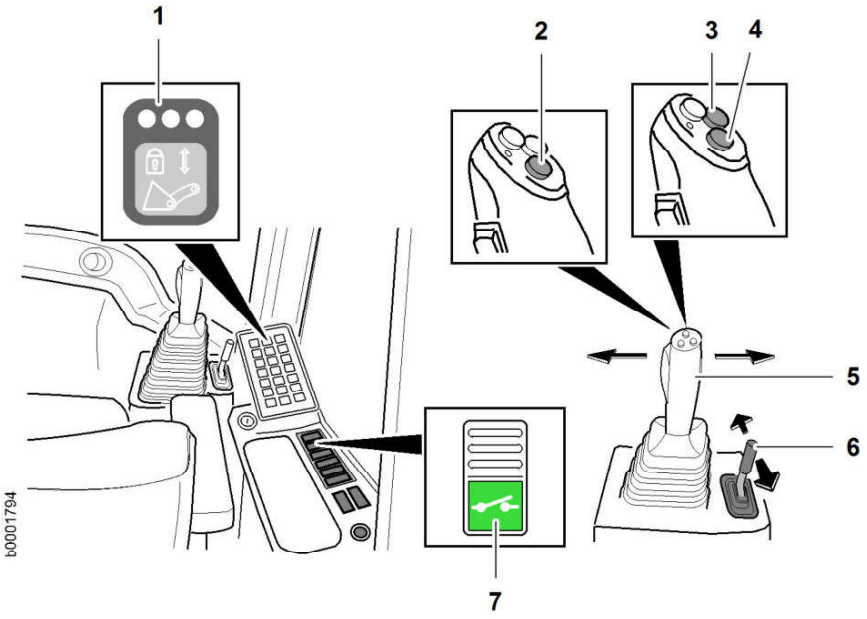

Fig. 181: Depressurising the hydraulics

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

▶ Switch on the ignition.

If the working attachment is operated with the additional control lever:

▶ Press and hold the button **1** while moving the additional control lever **6** in the direction of the arrow several times.
▷ The working attachment hydraulics have been depressurised.

If the working attachment is operated with comfort control:

▶ Press the switch **7** on the control unit.

▶ Press and hold the button **1** and, at the same time, press the button **2** and move the control lever **5** several times in the direction of the arrow.
▷ The working attachment hydraulics have been depressurised.

If the working attachment is operated with button control:

▶ Press the switch **7**.

▶ Press and hold the button **1** and while repeatedly pressing the buttons **3** and **4** on the control lever.
▷ The working attachment hydraulics have been depressurised.

3.7.2 Towing the machine

If the machine breaks down, you may have to tow it away from a danger area.

The following towing instructions only apply to exceptional situations where a machine incapable of independent movement has to be taken to a place where it can be repaired or transported.

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4 Malfunctions

Warning and error messages:
- Various faults are indicated by corresponding symbols or service codes in the display.
- 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 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 cause of the fault cannot be detected or eliminated using the service code table.

▶ Contact Liebherr customer service.

4.1 Servicecodes

4.1.1 Service code indicator in the display

The control system monitors many of the machine's functions:
- Short circuit
- Cable rupture
- External voltage
- Incorrect input and output signals

In addition, the control system continuously checks the program sequence and communication with the control modules.

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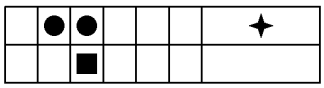
5 Maintenance

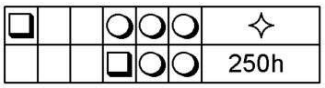
5.1 Maintenance and inspection schedule

The following abbreviations are used in this section:
– h = operating 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. Maintenance interval: on delivery, every 10 and 50 service hours (h), and at unscheduled times.

Tab. 27: Machine operator

 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. Maintenance interval: on delivery and every 500, 1000, 2000, 3000 service hours (h), and at unscheduled times.

Tab. 28: Authorised specialist staff

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

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Machines filled at the factory with environmentally harmless hydraulic fluids have a sign to that effect (NOTICE) attached to the driver's cab and hydraulic tank.

Procedure for later conversion

NOTICE
Beware of damaging the machine's hydraulic system.
Mixing environmentally harmless hydraulic fluids with mineral oils produces a vigorous reaction that can damage the hydraulic system.

▶ Never mix environmentally harmless hydraulic fluid with mineral oil.

▶ If you intend to convert the machine to environmentally harmless hydraulic fluid, you **must** first consult Liebherr CUSTOMER SERVICE.

▶ It is essential that you order the **instruction sheet** and the **conversion guidelines** from Liebherr and that you observe them.

5.3.3 Diesel fuels

Specification


06sy02ab

Diesel fuels must comply with the minimum requirements of the following specifications.

Specifications:
– DIN EN 590
– ASTM D 975-89a - 1D and 2D
– We strongly recommend using diesel fuel with a sulphur content of less than 0.1 % (1000 ppm).

High sulphur content in the diesel fuel

1. See oil change intervals according to complicating factors.
2. Diesel fuels with a sulphur content of more than 1% (10,000 mg/kg) are not permitted.
3. For engines with external exhaust gas recirculation (eEGR): use diesel fuels with a sulphur content of no more than 0.5% (5000 mg/kg).
4. If the diesel engine is operated using E6 engine oil and a standard oil change interval (500 operating hours), diesel fuels with a sulphur content of more than 0.005% (50 mg/kg) may not be used.

According to the HFRR (60) test, the maximum diesel fuel lubricity must be 460 µm (lubricity-corrected wear scar diameter [1.4] at 60 °C).

Fuel standard ASTM D 975 does not stipulate that fuels must pass a fuel-lubricity test. **Written confirmation must be provided by the fuel supplier.** Any additions should be undertaken by the supplier as he is responsible for the quality of the fuel.

The addition of secondary lubricity additives by the customer is not recommended.

Note

▶ Obtain written confirmation from the supplier.

A cetane number of at least 45 is required for fuels. A cetane number above 50 is preferable, especially at temperatures below 0 °C.

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NOTICE
Oil quality

▶ Mixing various types of oil is not permitted.

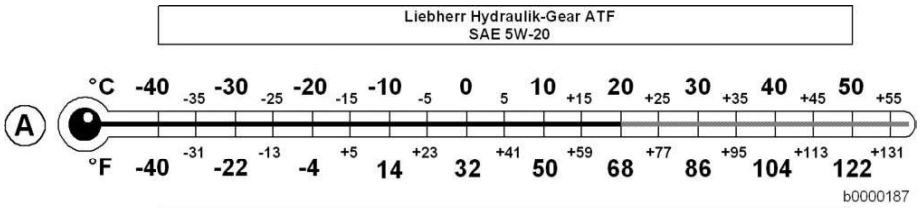

Fig. 206: Selection of the SAE class according to temperature

A Ambient temperature

The temperature ranges specified in the diagram are guidelines and can be briefly exceeded or fallen short of.

5.3.8 Lubricating oils for axles

Recommended lubricant	Specification
Liebherr Gear Basic 90 LS	API: GL-5 MIL-L: 2105 D ZF: TE-ML 05C or 05D
LS = Gear oil with limited slip additives for disc brakes and self-locking differentials.	

Tab. 45: Lubricating oil specifications

For the viscosity class SAE 90 LS, an oil of the viscosity class SAE 80 W 90 LS can also be used.

If Liebherr oils cannot be purchased locally, you must use oils according to the specifications instead (after consultation with customer service).

NOTICE
Oil quality

▶ Mixing various types of oil is not permitted.

▶ A minimum phosphorus content of 1900 mg/kg is required.

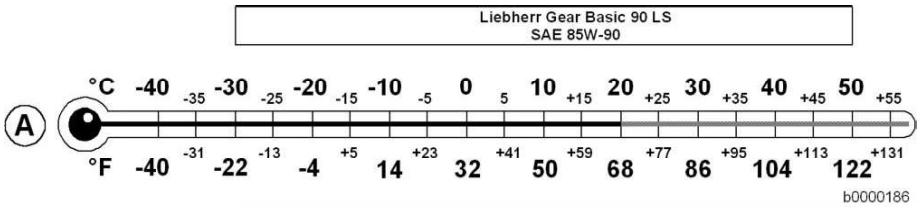

Fig. 207: Selection of the SAE class according to temperature

A Ambient temperature

The temperature ranges specified in the diagram are guidelines and can be briefly exceeded or fallen short of.

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NOTICE
There is a risk of damaging the engine and its electric components.
Moisture penetration can cause corrosion and electrical malfunctions.

▶ Do not expose devices such as the starter, alternator, sensors and engine control unit to water or steam jets.

Make sure that the following requirements are fulfilled:

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

▶ Carefully clean the engine.

5.6.4 Shutting down the machine for a lengthy period

If the machine is put out of service for a longer period without preservation, this must be put back into service at 14 day intervals (at maximum) in order to prevent, for the most part, increased corrosion and the resulting damage.

▶ All oil levels must be checked before putting into service.

▶ Carry out all daily prescribed maintenance work before putting back into service each time. Carry out all additional temporary maintenance work as per inspection plan, at the latest at the intended intervals.

▶ Put machine back into service and operate until the engine and hydraulics system have reached the prescribed operating temperature in the hydraulic tank and in the coolant circulation (see the section on operating the “display”).

▶ Activate all functions of the working and travel hydraulics and of the other hydraulic components, and alternately operate over a time-span of approx. 20 minutes. Hydraulic cylinders must each be extended and retracted over their full stroke length.

▶ When switching off the machine, retract all the hydraulic cylinders completely if possible, and fill up the fuel tank. If the surface is soft, put the machine on wooden blocks or similar, and secure against rolling.

▶ Battery main switch in the OFF position.

5.6.5 Deactivating the machine

To deactivate the machine:
▶ Contact Liebherr customer service.

5.6.6 Checking the machine for leaks

Make sure that the following requirements are fulfilled:
❑ The machine is in maintenance position 2.
❑ The service doors, hatches and hoods are open.

▶ Check the hydraulic system for leaks.

▶ Replace any damaged hydraulic seals.

▶ Tighten any loose hydraulic connections.

▶ (For more information see: 2.5.16 Safe maintenance of hydraulic hoses and hose lines, page 52)

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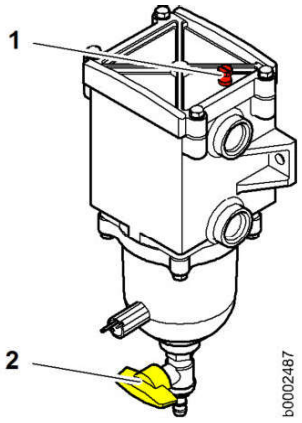


Fig. 223: Draining off condensate from the Separ fuel pre-filter

1 Bleeder screw **2** Drain valve

Note
To prevent condensate flowing back into the fuel tank:

▶ Open the bleeder screw in front of the drain valve.

▶ Place a receptacle under the Separ fuel pre-filter.

▶ Open the bleeder screw **1**.

▶ Open the drain valve **2** until clean fuel flows out.

When clean fuel flows out:

▶ Close the drain valve **2**.

▶ Close the bleeder screw **1** with a tightening torque of 6 Nm.

5.7.4 Draining off condensate from the fuel pre-filter

When the water level probe in the fuel pre-filter is activated (the service code is displayed), the water collector tank must be drained.

Make sure that the following requirements are fulfilled:

❑ The machine is in maintenance position 1.
❑ The service access is open.
❑ You have a suitable receptacle ready.
❑ The engine has cooled down.

DANGER
Beware of fire

▶ Naked flames and smoking are prohibited.

- ▶ Put the clean service cover **2**, with the dust discharge valve **1** facing down, on the filter housing **6**.
- ▶ Turn the service cover **2** clockwise until it catches.
- ▶ Close the lock **3**.

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

- ▶ Change the safety element.

5.7.11 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.

Make sure that the following requirements are fulfilled:
- ❑ The machine is in maintenance position 1.
- ❑ The service access is open.
- ❑ The engine has cooled down.
- ❑ Appropriate protective equipment is used.

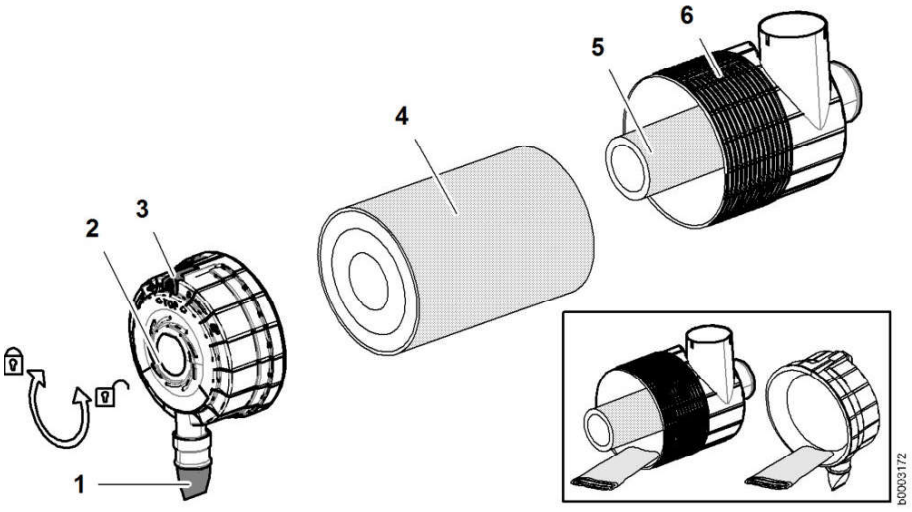
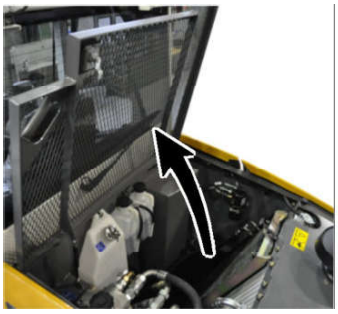


Fig. 234: Changing the air filter safety element

1	Dust discharge valve	**4**	Main element
2	Service cover	**5**	Safety element
3	Lock	**6**	Filter housing

- ▶ Release the lock **3** on the service cover **2**.
- ▶ Turn the service cover **2** anticlockwise and remove it.
- ▶ Remove the main element **2**.
- ▶ Clean the service cover **2** and the filter housing **6** with a clean cloth.



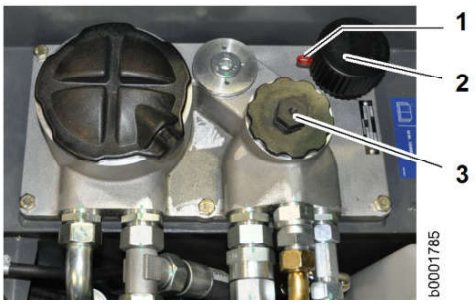


Fig. 244: Topping up with hydraulic oil

1 Plug
2 Breather filter
3 Return strainer cover

▶ Insert the plug **1** in the breather filter.
▷ The anti-twist device of the breather filter is released.

▶ Unscrew the breather filter **2** on the hydraulic tank by two turns.
▷ The pressure in the tank is released.

▶ Open the cover **3** of the return strainer.

▶ Top up with hydraulic oil.

▶ Put the cover **3** on the housing and tighten it up.

▶ Screw on the breather filter **2**.

▶ Remove the plug **1** for protection against unauthorised opening, and keep it in a safe place.

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5.15 Working attachment

5.15.1 Lubricating the lift arms and attachment

Make sure that the following requirements are fulfilled:
- ❑ The machine is in maintenance position 2.
- ❑ The lubrication point has been cleaned.

Lift arms with Z kinematics

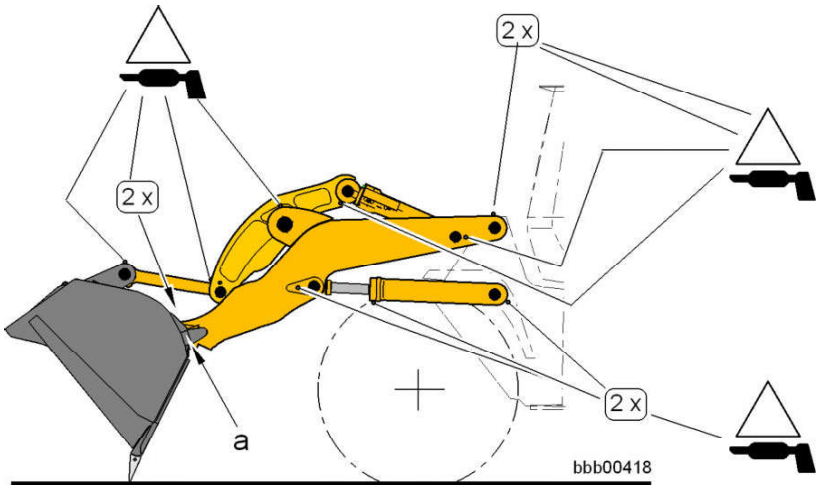

Fig. 254: Lift arms with Z kinematics

a Lower bucket bearing

▶ Take the cap off the grease fitting.

▶ Grease all the bearing and lubrication points on the lift arms.

▶ The lower bucket bearings **a** should be lubricated daily in accordance with requirements.

▶ Put the cap on the grease fitting.

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