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Operating instructions

Crawler loader
LR 624 with steering pedal

from S/N: 13743

Document identification

ORIGINAL OPERATING MANUAL

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Author: LWT / Technical Documentation Dept.

Product identification

Manufacturer: Liebherr Werk Telfs GMBH

Type: LR 624

Type No.: 997

Conformity: CE

Address

Address: LIEBHERR Werk Telfs GMBH

Hans Liebherr Straße 35,
A - 6410 TELFS

Performance

Generation 4 Liebherr crawler loaders provide exceptional handling performance even in difficult terrain. Fast work cycles, an optimum bucket capacity and outstanding machine handling under load give them optimum operating properties.

Excellent handling performance

Outstanding break-out forces

The excellent penetration characteristics of the bucket and the powerful Z-bar linkage ensure optimum loading performance.

Optimal bucket filling and high tipping load

The large tipping angle of the bucket and high stability ensure optimum filling capacity in every work cycle, especially when loading trucks.

Rapid work cycles

Rapid acceleration, short cycle times and semi-automatic operation result in a measurable productivity advantage.

Precision earthmoving

Optimal dozing properties

Excellent precision control of the load-sensing power hydraulics and the machine's smooth operation enable precise dozing work.

Good climbing ability

An extremely low centre of gravity means that steep inclines and travel on slopes, for instance when constructing embankments, do not pose a problem.

Impressive manoeuvrability

Even under the most confined conditions, the machine can be steered and positioned with precision, including counter-rotation.

Excellent dozing performance

High performance without interruption

The high power reserves of the diesel engine and hydrostatic travel drive offer maximum power in every situation. This is important during dumping tasks, backfilling and earthmoving.

High traction

The combination of a long track frame and continuously variable speed control afford high drawbar pull transmission and pushing power.

High bucket filling level

The high bucket filling level enables optimal topsoil removal and dozing of different material layers at all times.

A diversity of applications

- Numerous equipment options: 4in1 bucket, heavy-duty bucket, light materials bucket or standard bucket, towing hitch, winch, ripper, and more.
- Optional quick-release coupling: A wide range of attachments can be swapped easily and conveniently, making crawler loaders the ideal all-round machine.

Liebherr hydrostatic drive

- Hydraulic variable-displacement pumps and motors are connected independently in two closed circuits and efficiently transfer diesel engine power to both final drives.
- Steering behaviour is adapted to the travel speed. This ensures maximum machine productivity with a full bucket, even on turns.

Basic machine

Loader cycle times

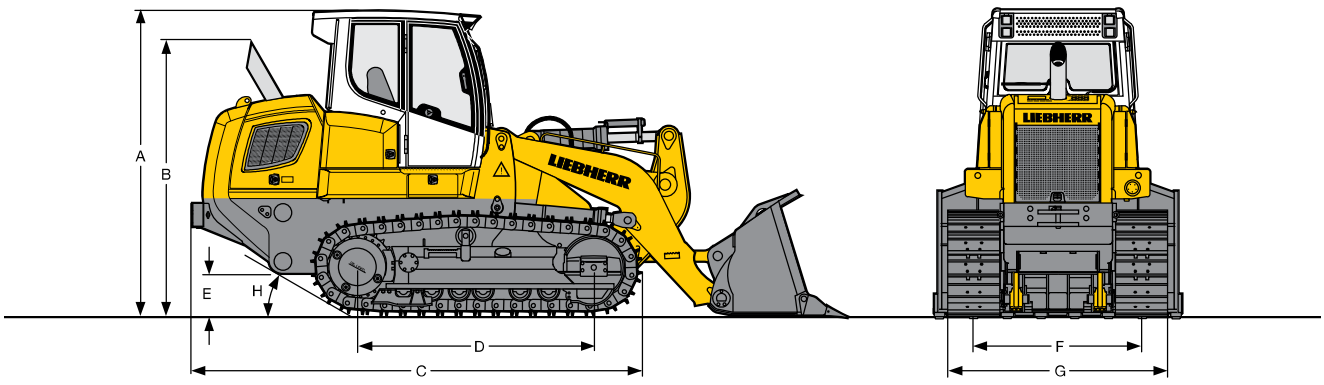
	LR 624	LR 634
Lifting	6.3 s	6.4 s
Bucket dumping	1.3 s	2.2 s
Lowering[1]	2.7 s	2.8 s
Total cycle time[2]	8.5 s	8.1 s

[1] Float position and empty bucket, [2] lifting and dumping together

Refill capacities

	LR 624	LR 634
Fuel tank	279 l / 61.4 Imp. gal	360 l / 79.2 Imp. gal
Cooling system	36 l / 7.9 Imp. gal	36 l / 7.9 Imp. gal
Engine oil (with filter)	30 l / 6.6 Imp. gal	30 l / 6.6 Imp. gal
Splitter box	2.5 l / 0.5 Imp. gal	3.1 l / 0.7 Imp. gal
Hydraulic tank	76 l / 16.7 Imp. gal	83 l / 18.3 Imp. gal
Pivot shaft, each	5 l / 1.1 Imp. gal	5 l / 1.1 Imp. gal
Final drive, each	15 l / 3.3 Imp. gal	20 l / 4.4 Imp. gal
Duo cone seal, each	3.5 l / 0.8 Imp. gal	3.3 l / 0.7 Imp. gal

Dimensions



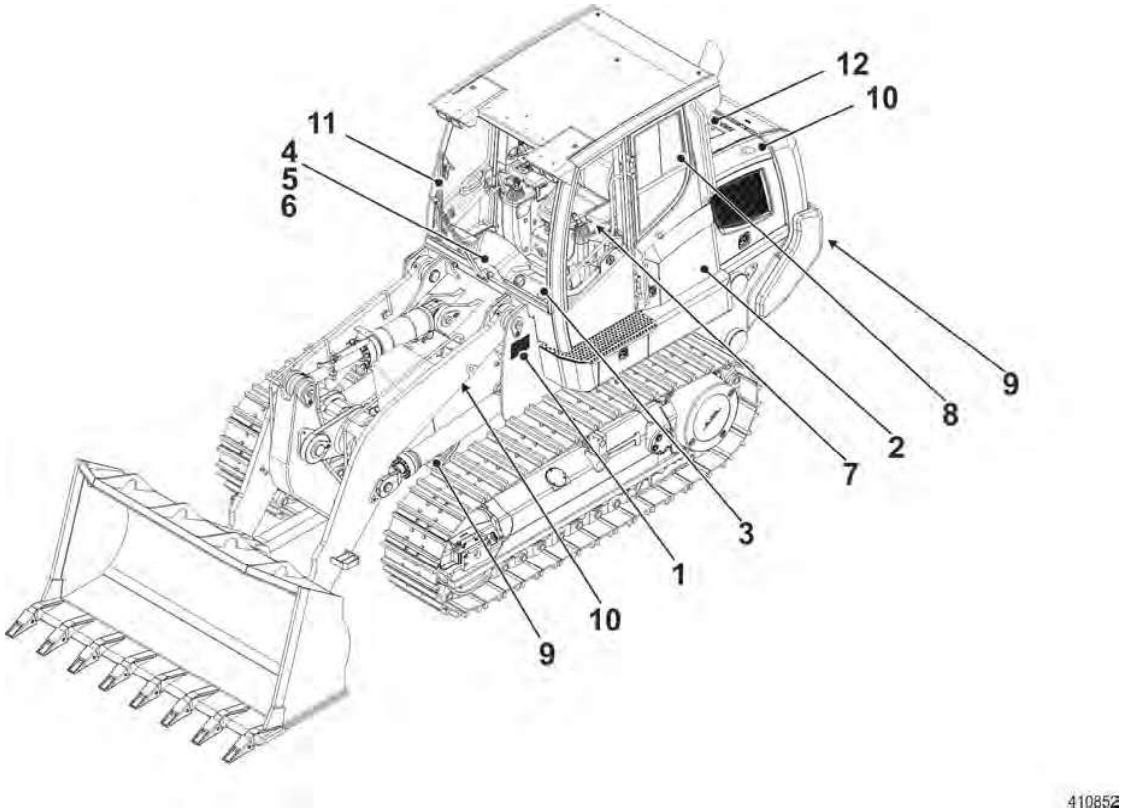
Dimensions		LR 624	LR 634
A Height over cab	mm	3,150	3,310
	ft in	10’4”	10’10”
B Height over exhaust pipe	mm	2,806	2,952
	ft in	9’2”	9’8”
C Length to front of track	mm	4,600	4,867
	ft in	15’1”	16’
D Distance idler/sprocket center	mm	2,483	2,564
	ft in	8’2”	8’5”
E Ground clearance	mm	430	458
	ft in	1’5”	1’6”
F Track gauge	mm	1,740	1,800
	ft in	5’9”	5’11”
G Machine width,	mm	2,248	2,308
with track shoes 508 mm / 20”	ft in	7’5”	7’7”
Machine width,	mm	2,300	2,360
with track shoes 560 mm / 22”	ft in	7’7”	7’9”
Machine width,	mm	–	2,410
with track shoes 610 mm / 24”	ft in		7’11”
H Approach angle		30°	30°

1.2.2 Preload and tightening torques for screws with fine metric thread according to factory standard WN 4037 I

Fine metric thread	Preload value F_M based on grades in N			Tightening torques M_A based on grades in Nm			Wrench size for hex head screws		Wrench size for socket head screws	
	8.8	**10.9**	**12.9**	**8.8**	**10.9**	**12.9**	**mm**	**inch**	**mm**	**inch**
M 8 x 1	18 800	27 500	32 500	24,5	36	43	13	1/2	6	--
M 9 x 1	24 800	36 500	42 500	36	53	62	--	--	--	--
M 10 x 1	31 500	46 500	54 000	52	76	89	17	11/16	8	5/16
M 10 x 1,25	29 500	43 000	51 000	49	72	84	17	11/16	8	5/16
M 12 x 1,25	45 000	66 000	77 000	87	125	150	19	3/4	10	--
M 12 x 1,5	42 500	62 000	73 000	83	122	145	19	3/4	10	--
M 14 x 1,5	61 000	89 000	104 000	135	200	235	22	7/8	12	--
M 16 x 1,5	82 000	121 000	141 000	205	300	360	24	--	14	9/16
M 18 x 1,5	110 000	157 000	184 000	310	440	520	27	1 - 1/16	14	9/16
M 18 x 2	102 000	146 000	170 000	290	420	490	27	1 - 1/16	14	9/16
M 20 x 1,5	139 000	199 000	232 000	430	620	720	30	1 - 3/16	17	--
M 22 x 1,5	171 000	245 000	285 000	580	820	960	32	--	17	--
M 24 x 1,5	207 000	295 000	346 000	760	1 090	1 270	36	1 - 7/16	19	3/4
M 24 x 2	196 000	280 000	325 000	730	1 040	1 220	36	1 - 7/16	19	3/4
M 27 x 1,5	267 000	381 000	445 000	1 110	1 580	1 850	41	1 - 5/8	19	3/4
M 27 x 2	255 000	365 000	425 000	1 070	1 500	1 800	41	1 - 5/8	19	3/4
M 30 x 1,5	335 000	477 000	558 000	1 540	2 190	2 560	46	1 - 13/16	22	7/8
M 30 x 2	321 000	457 000	534 000	1 490	2 120	2 480	46	1 - 13/16	22	7/8
M 33 x 1,5	410 000	584 000	683 000	2 050	2 920	3 420	50	2	24	--
M 33 x 2	395 000	560 000	660 000	2 000	2 800	3 300	50	2	24	--
M 36 x 1,5	492 000	701 000	820 000	2 680	3 820	4 470	55	2 - 3/16	27	1 - 1/16
M 36 x 3	440 000	630 000	740 000	2 500	3 500	4 100	55	2 - 3/16	27	1 - 1/16
M 39 x 1,5	582 000	830 000	971 000	3 430	4 890	5 720	60	2 - 3/8	27	1 - 1/16
M 39 x 3	530 000	750 000	880 000	3 200	4 600	5 300	60	2 - 3/8	27	1 - 1/16

1.2.3 Tightening torques for cutting edges, end bits, bolt-on

Tightening torque / ft. lbs.	Tightening torque / Nm	inch	mm
200 +/- 30 ft. lbs.	270 +/- 40 Nm	5/8"	16 mm
350 +/- 45 ft. lbs.	475 +/- 60 Nm	3/4"	19 mm
550 +/- 65 ft. lbs.	750 +/- 90 Nm	7/8"	22 mm
825 +/- 110 ft. lbs.	1125 +/- 150 Nm	1"	25 mm
1350 +/- 220 ft. lbs.	1850 +/- 300 Nm	1-1/4"	32 mm



Location of reference signs

1 Data tag / CE label
2 Lubrication chart
3 Sign Travel hydraulic
4 Sign Working hydraulic
5 Sign 4 in 1 bucket
6 Sign Ripper
7 Sign Rops / Fops
8 Sign Sound protection
9 Sign Rigging point
10 Sign Lifting point
11 Sign Emergency exit
12 Sign Coolant

CE label

Sign Conformity mark - CE

The sign is included in the data tag on the left hand side on the main frame.
Shows the conformity to EU machine regulations.

27. Danger of accidents due to restriction of vision for large machines!
Take suitable measures to ensure a safe working application of the machine on the construction site.

28. Utilize only experienced personnel to attach loads and direct crane operators. The person giving signals must be visible to the operator or be in direct voice contact with the operator.

2.4.7 Machine parking safety

1. Park the machine only on firm and level ground. If it becomes necessary to park the machine on a grade, it must be properly blocked with wedges to secure it and prevent any unintentional movement.
2. Lower the attachment to the ground and lightly anchor it in the ground.
3. Bring all operating levers and controls into neutral position, place the safety lever up and turn the engine off, as outlined in the Operating Manual, before you leave the operator's seat.
4. Lock the machine, remove all keys and secure the machine against vandalism and unauthorized use.
5. Never park the machine in such a way as to block access to entrances, exits, ramps, fire hydrants, etc.

2.4.8 Machine transporting safety

1. Use only safe transportation and lifting devices with adequate carrying load capacity.
2. Park the machine on level ground and use wedges to hold chains or wheels.
3. If necessary, remove part of the attachment of the machine for transport.
4. Never use a ramp that is steeper than 30° to move the machine onto the transporting vehicle, the ramp should be covered with wooden planks to prevent slipping.
5. Before moving onto the ramp, remove any snow, ice and / or mud from chains or wheels.
6. Align the machine with the ramp.
7. Use another person as a guide to signal you, the operator. Move very slowly and carefully towards the ramp and the transporting vehicle.
8. Raise the attachment and move onto the ramp. Hold the attachment as close as possible to the loading platform.
9. After the loading procedure, lower the attachment onto the trailer platform.
10. Secure the machine and all remaining parts with chains and wedges to prevent any slipping or movement during transport.
11. Relieve pressures from hydraulic liens and hoses, remove the ignition key, lock the operator's cab and covers before leaving the machine.
12. Carefully check out the transporting route beforehand, check any regulations regarding width, height and weight.
13. Make sure that there is enough clearance underneath all bridges and underpasses, utility lines and tunnels.
14. During off loading, use the same care and caution as during the loading procedure.
Proceed as follows:

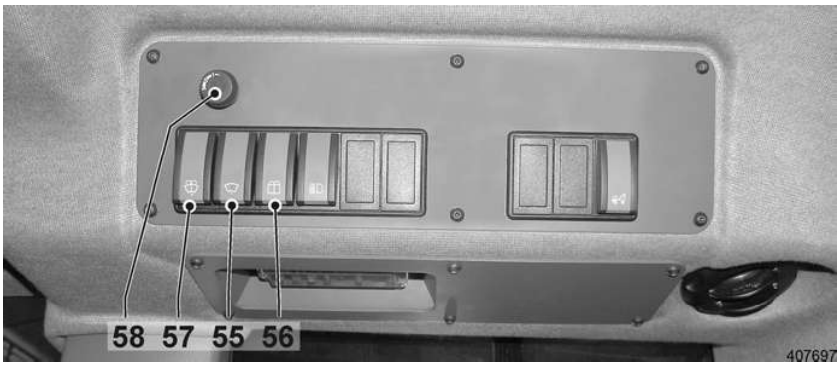
3. Control, instrumentation

3.1 Location of controls and instrumentation

Englisch LWT - TD 3/4/2014

53 Scroll key

– The service codes can be called up by pressing the scroll key, with the starter key in contact position. The Service codes are shown in the LC display. Maximum 10 service codes are shown in the display. The current service code moves the previous one back by one place. After 30 seconds, the display changes automatically to standard display (speed stage / RPM) or it can be switched manually to the standard display by pressing the scroll key for 3 seconds.



Roof console, right

55 Switch windshield wiper, front

Turn on / off

56 Switch windshield wiper, rear

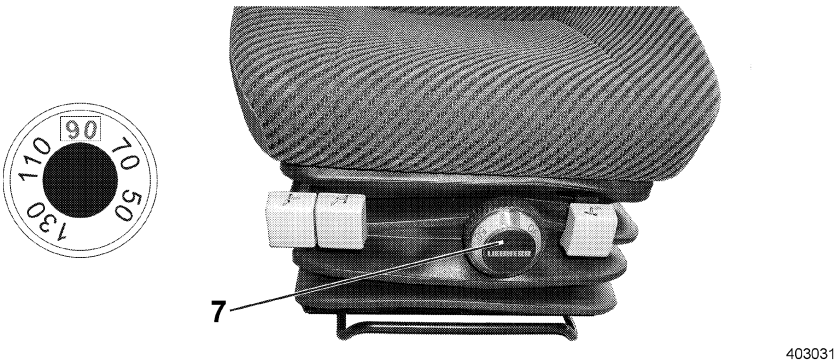
Turn on / off

57 Switch - windshield wiper intermittent / washer system

Stage 1: Continuous wipe
– The windshield wiper turned on with switches 55 and 56 is changed from intermittent wipe to continuous wipe.
Stage 2: Button – windshield washer system and dry wipe

58 Knob – windshield wiper intermittent control

– With the knob, the timing for intermittent wipe can be regulated (3 stage control).



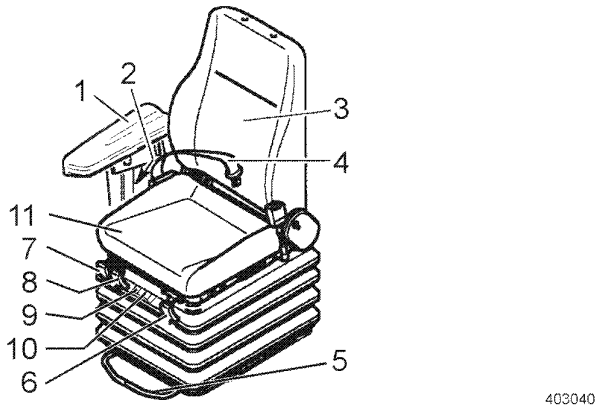
Adjustment - seat suspension

7 Knob - Seat suspension

- Set the body weight of the operator with knob 7.

3.2.5 Operator's seat - air cushioned

(Optional equipment)



Operator's seat - main components and control elements

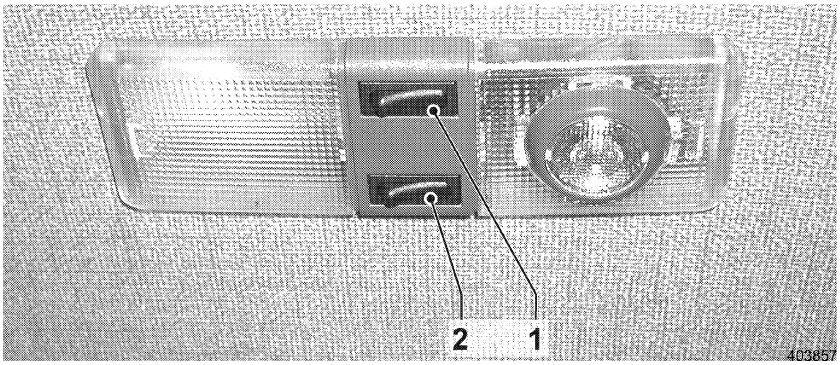
1 Armrest
2 Adjustment - armrest
3 Backrest
4 Seatbelt
5 Lever - horizontal adjustment
6 Lever - adjustment - backrest
7 Lever - incline position - front
8 Lever - incline position- rear
9 Button - seat suspension
10 Button - back support
11 Seat surface

Individual adjustment for ergonomic seat position

The operator's seat can be adjusted for optimum operator comfort.

Horizontal adjustment

The seat can be moved forward or backward with the lever 5 on the front of the operator's seat.



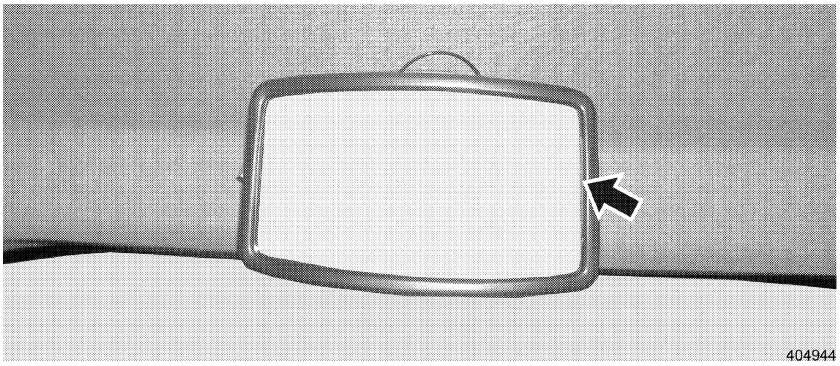
Interior light - reading lamp

- Interior light: Turn on / off with switch 1.
- Reading lamp: Turn on / off with switch 2.

3.2.12 Rear view mirror

Adjustment of mirror

The operator's cab is equipped with a rear view mirror.



Adjustment - mirror

- Adjust the mirror before operating the machine.

3.2.13 Electrical windshield wipe and washer system

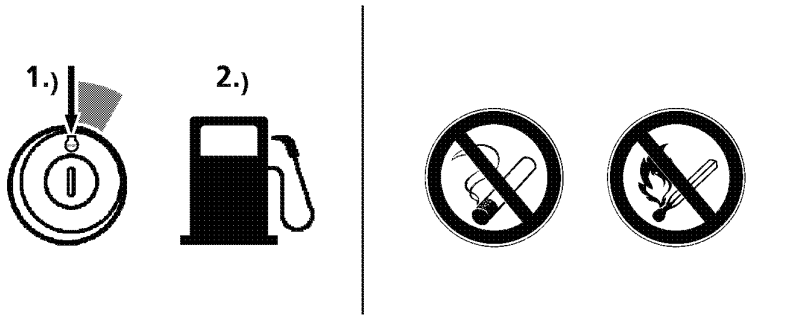
The machine is equipped with an electrical windshield washer system for the front window and the rear window as well as for the doors.
It consists primarily of the control elements, the windshield wipers, the reservoir and the nozzles for the windshield washer fluid.
Make sure that the electrical system of the machine is turned on before actuating the windshield wiper and washer system.

In case of freezing temperatures, before turning the windshield wipers on for the first time, check if the windshield wiper blades are not frozen onto the windshield.

To avoid condensation in the fuel tank, always refuel after work or after a shift change.

Add Diesel fuel with the refueling pump

Special equipment

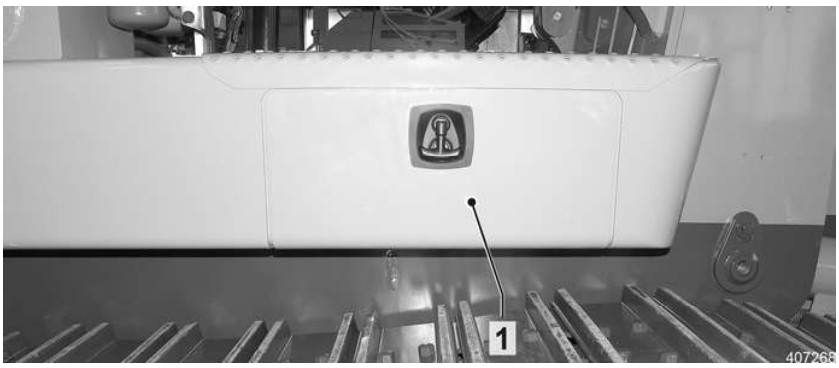


Refueling safety

Danger

During refueling, there is a danger of fire and explosion.
! Do not smoke and avoid open flames when refueling.
! Add fuel only when the Diesel engine is turned off.

- Make sure to observe all safety guidelines for refueling. See also: Chapter Safety guidelines.

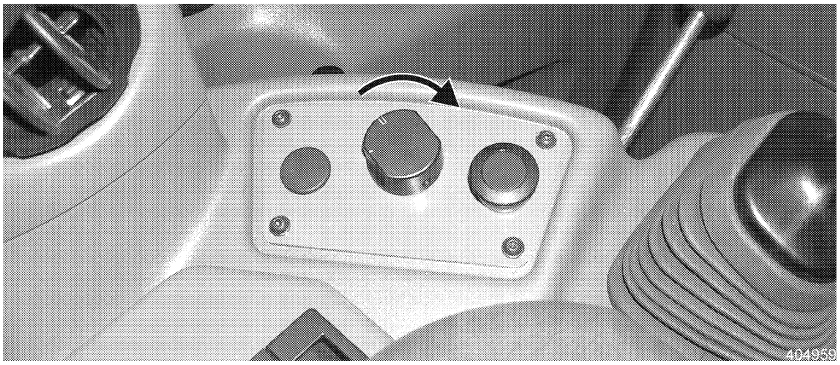


Access – refueling pump

Refueling procedure

The refueling pump is located on the right hand side in the step.

- Open the right step door 1.



Throttle control – full load

- Set the throttle control to full load.

– Turn the throttle control to the stop to the right.
– Work with the machine always at full engine RPM. Only in some cases should the machine be operated at reduced engine RPM.

The machine has now ready to travel.

Caution

If the Diesel engine is operated without a load, then it will not reach the required operating temperature and the piston rings and cylinder bushings will not run in optimally.

! Turn the Diesel engine off when the machine is not operated.

Preselection of speed ranges

The machine is equipped with a rocker switch on the travel joystick to preselect the travel speed. By changing to position "I", the maximum possible travel speed can be reduced. The maximum travel speed, which can be obtained, is shown in the LC display.

– With the travel joystick in off position or forward position, the display shows the maximum obtainable speed for forward travel shown.
– With the travel joystick in reverse position, the display shows the maximum obtainable speed for reverse travel.

The speed can also be selected while driving.
When shifting back from full travel speed, the machine is hydrostatically slowed down.

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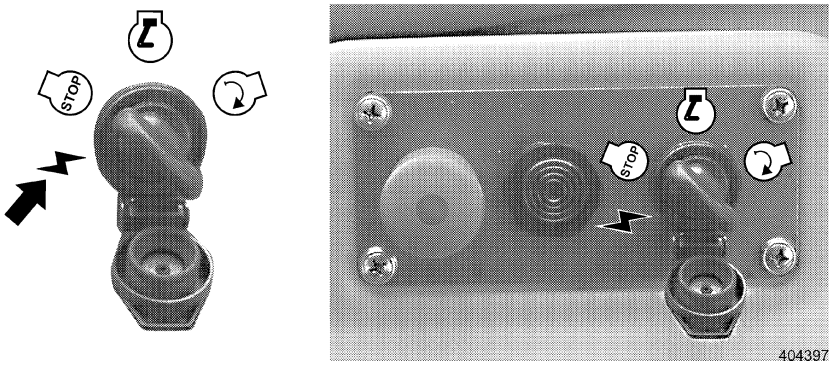
Low speed range

Caution

In constantly heavy push application and when working on slopes, switch to the low speed range "Position I".

! Drive on slopes at no more than 4 km/hr.



Starter switch – Parking position

- Turn the starter switch to parking position.

The following users are operational:
– Interior light

Danger

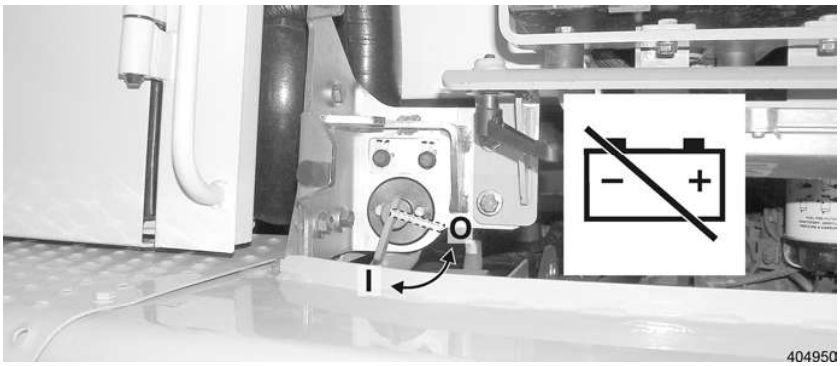
Do not allow another person to work on the machine, as this can endanger the maintenance personnel, and a serious accident can occur!
! Secure the machine to prevent access to other persons!

When you leave the machine:

- Turn the starter switch to "STOP"- position and pull it off.

Turn the battery master switch off.

The battery master switch is in the battery compartment.
Whenever you leave the machine and leave it unsupervised, the battery master switch must be turned off.



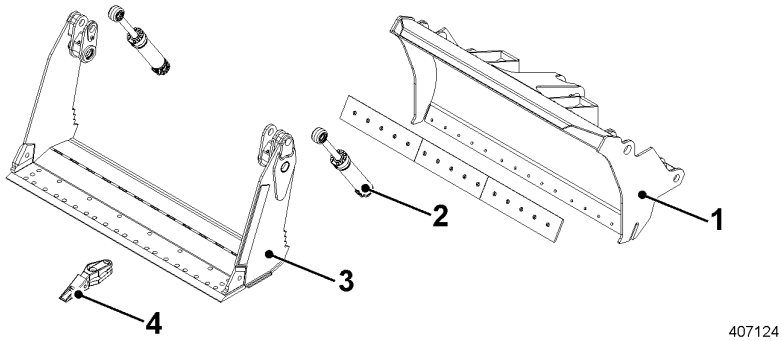
Battery master switch

Turn the battery master switch off

- Turn the battery master switch off

– Set the switch to position " O ".

Emergency off button



4 in 1 bucket

1 Bucket back
2 Bucket flap cylinder
3 Bucket flap
4 Teeth

The bucket can be opened / closed with the button on the bucket control lever.

Open the bucket

Open the bucket

- Push the button on the bucket control lever on top

– The bucket is opened.

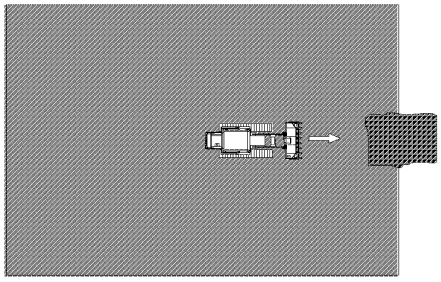
Close the bucket

Close the bucket

- Push the button on the bucket control lever on the bottom

– The bucket is closed.

Variations of 4 in 1 bucket
The 4 in 1 bucket may only be used for the following tasks:
– to push, grade and load material



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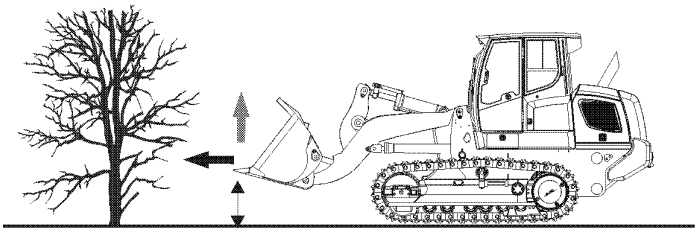
Exit ramp

- Excavate the center of the ramp and provide an exit for the machine.

3.4.8 Land clearing operation

Removal of shrubs to medium sized trees

- Pull hedges from the ground by lowering the bucket about 5 to 10 cm under the ground level while driving forward.
- Curl the bucket out to let the soil fall from the roots.



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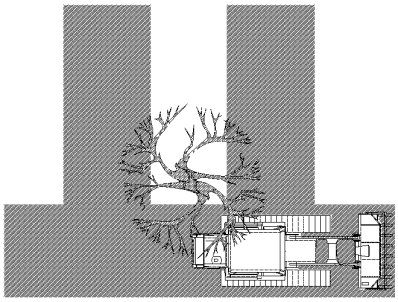
Push over trees

Tall shrubs and medium sized trees

- Approach the tree with the bucket about 30 to 40 cm above the ground and push it over. Continue to raise the bucket while driving forward.



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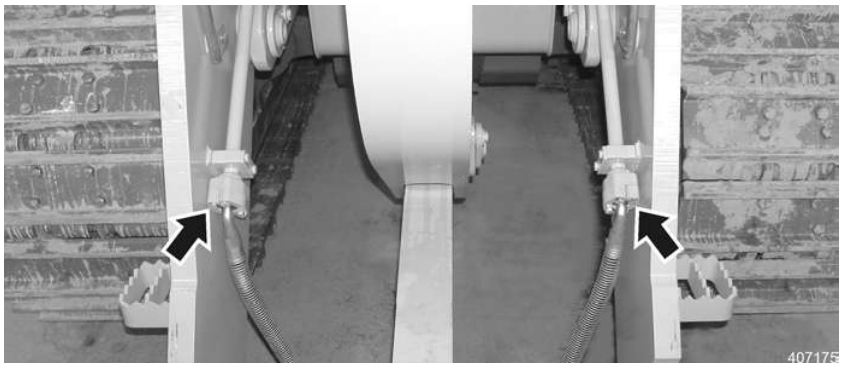
Cut roots

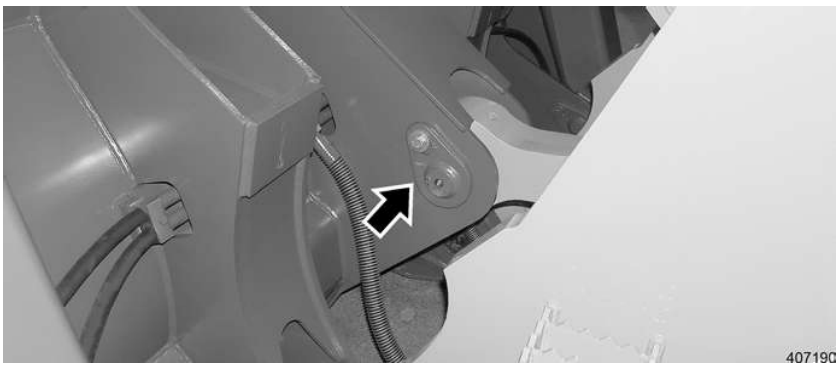


Hydraulic lines

- Remove the hydraulic lines for the flap cylinder on the bucket arm.

– Catch any emerging hydraulic oil in a suitable container.

- Close off the hydraulic lines and connections of the distributor block with temporary covers.



Retaining screw – bearing pin

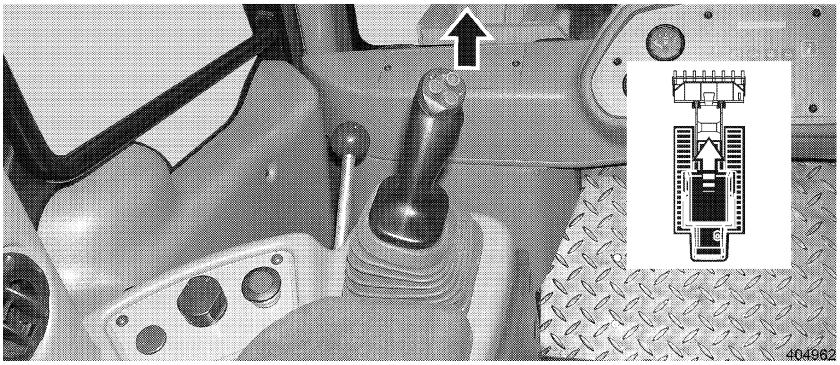
- Remove the retaining screw of the bearing pin on the connector bracket of the bucket. Knock out the pin with a suitable tool.

Caution

Danger of injury if the connector bracket falls down.
– Support the connector bracket from below.

Retaining plate - bucket

- Remove the retaining plates of the bearing pins on the left and right hand side on the bucket arm .



Forward travel

- Deflect the travel joystick to the front.

– By deflecting the travel joystick, the parking brake is released.
– Indicator light – travel brake turns off.

Danger

The machine has no brakes.
– Carry out the towing procedure by observing all safety guidelines.

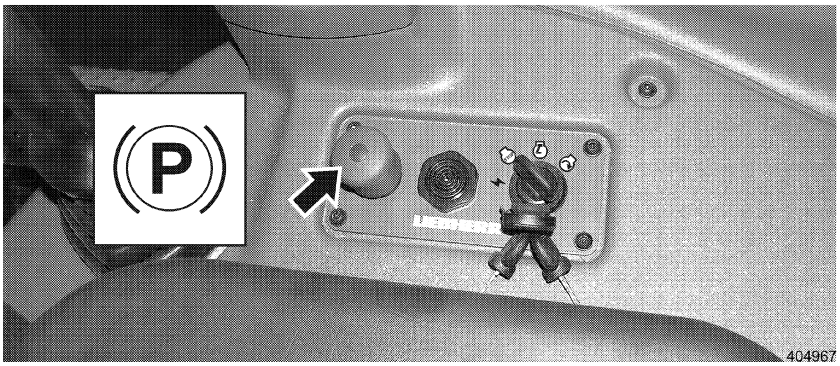
Stop the machine

To be able to stop the machine, you can:

- move the travel joystick to neutral position.
- press the emergency off button.
- turn the ignition off.

Caution

In dangerous or unclear situations, the machine can be stopped by pressing the emergency off button.



Press the emergency off button

- Press the emergency off button.

– The parking brake is applied.

To continue towing, raise the emergency off button and repeat the towing procedure from pressing the scroll key and the towing mode button.
If the indicator light – travel brake does not turn off, then the towing procedure must be repeated from the point where the air pressure cartridge was inserted.
– The pressure in the system is not sufficient to vent the brake.

Working attachment

Problem / error	Cause	Remedy
Cylinder gives way under load	Piston seal in cylinder defective	Overhaul cylinder
PR-chain scrapes on push frame	Blade adjustment imperfect	adjust correctly
Excessive bearing play on attachment	Bearing points worn	Replace bearing parts

Maintenance / inspection at operating hours							Work to be carried out	Performance guideline
at delivery	every 8 - 10	every 50	every 250	every 500	every 1000	every 2000	**by maintenance personnel** ■ first and only interval ● Repeat interval **by authorized expert personnel** ❑ first and only interval ❍ Repeat interval **OI - Operating instructions** **SM - Service Manual** **hrs. - Operating hours**	
Working attachment								
❑	●	●	●	❍	❍	❍	Check cutting edges, end bits and ripper teeth for wear - make sure attachments are suited to application	OI
				❍	❍	❍	Check all bearing points for play / wear	OI
		■		❍	❍	❍	Check screws, nuts and pin retainers for tight seating	OI
				❍	❍	❍	Check attachment for intentional damage	OI
General								
❑		●	●	❍	❍	❍	Lubricate all lube points according to the lubrication chart - Shorten interval as necessary	OI
❑				❍	❍	❍	Check the entire machine for correct maintenance and proper condition	OI
❑							Explain machine documentation, especially operating instructions / safety guidelines to operating personnel	OI

1) For oil specification and viscosity, refer to chapter "Lubricants and service items".

Caution

Improper mixing of various products can impair the properties of the coolant and damage the cooling system.
- Use only approved products, do not mix different products.
- Never mix silicate containing and silicate free products.
- If the Liebherr product is not available locally:
  Consult with Liebherr Service; use products according to the "Coolant specification for Liebherr Diesel engines".

Approved corrosion inhibitors without antifreeze protection

In **exceptional cases** and **in constant ambient temperatures above freezing,** such as in tropical regions, where no approved corrosion inhibitor / antifreeze fluids are available, the water must be mixed with the following inhibitors for coolant:
- Product DCA 4 (Diesel Coolant Additives 4)
- Product Caltex / Chevron / Havoline / Total

In this case, the coolant must be changed annually.
Check the concentration during maintenance work and correct, if necessary.

Caution

Improper mixing of various products can impair the properties of the coolant and damage the cooling system.
- Use only approved products, do not mix different products.
- Never mix silicate containing and silicate free products.
- If the Liebherr product is not available locally:
  Consult with Liebherr Service; use products according to the "Coolant specification for Liebherr Diesel engines".
- Drain the entire coolant before changing from corrosion inhibitor antifreeze to corrosion inhibitor or vice versa.

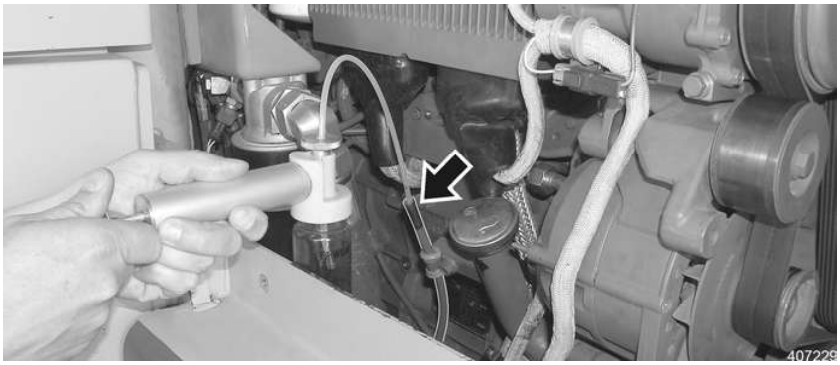
Product description	Manufacturer
DCA 4 Diesel Coolant Additives	Fleetguard / Cummins Filtration
Caltex XL Corrosion Inhibitor Concentrate	Chevron Texaco
Chevron Heavy Duty Extended Life Corrosion Inhibitor Nitrite Free (ELC)	Chevron Texaco
Havoline Extended Life Corrosion Inhibitor (XLI)	Chevron Texaco
Total WT Supra	Total WT Supra

5.3.5 Hydraulic oil

According to the following data, the following oils can be used as hydraulic oil.
Maximum water content of hydraulic oil: less than 0.1 %

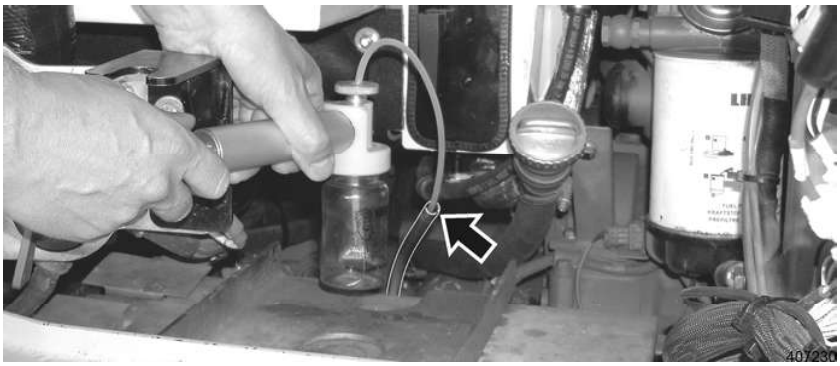
Liebherr Hydraulic oil

recommends the following hydraulic oils for the machines, depending on the temperature range:



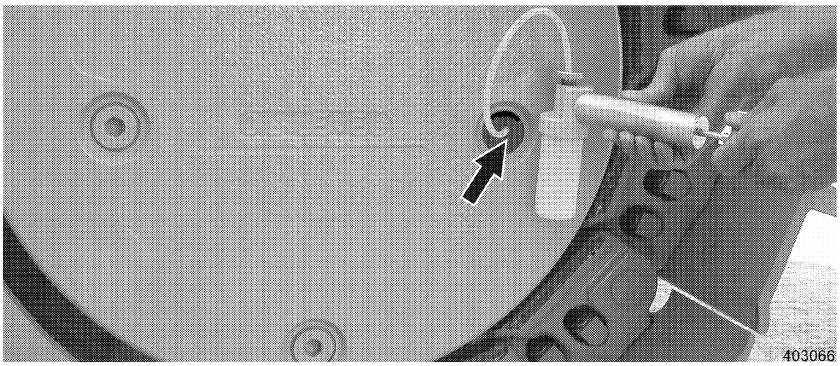
Diesel engine oil dipstick tube

a) with manual suction pump via dipstick tube or
b) take oil sample during oil change from discharging oil flow.



Splitterbox - dipstick tube

Splitterbox a) With manual suction pump via dipstick tube or
b) take oil sample during oil change from discharging oil flow.

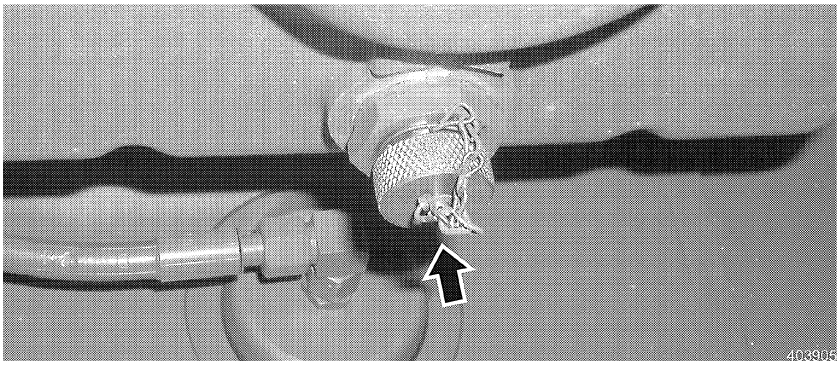


Oil filler port

Travel gear With manual suction pump via oil filler port

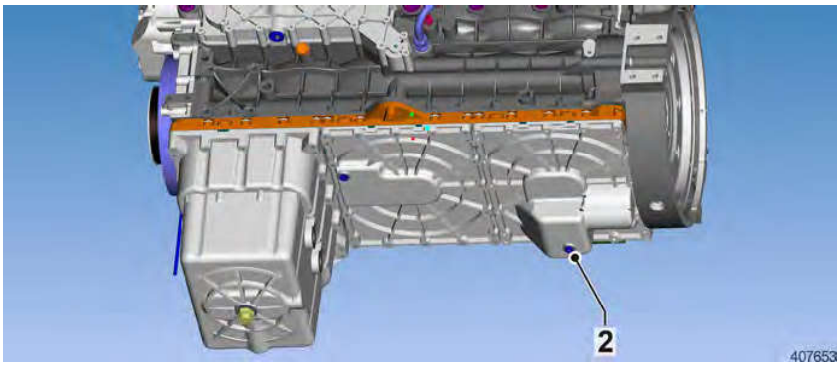
Oil analysis

An oil analysis should include at least the following data:



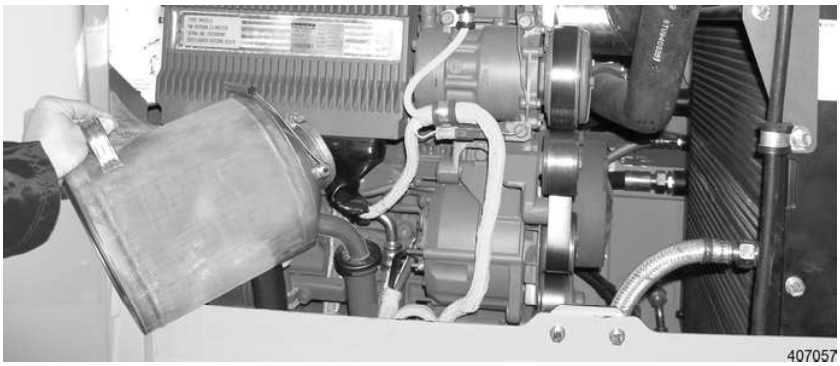
Oil drain valve

- Install the oil drain hose to the oil drain valve and drain the oil into the container.
- Remove the oil drain hose and reinstall the cap on the oil drain valve.
- To be able to drain the used engine oil completely from the Diesel engine, the oil must also be drained from the oil pan (small sump).



Plug

- Remove plug 2.
- Allow the oil (approx. 3 liter) to drain into the prepositioned container.
- Reinstall plug 2.
- Reinstall the belly pan cover.



Add oil

- Add clean oil via the filler neck 1 to the MAX mark on the dipstick.
- Clean the oil filler cap, place it on the oil filler neck 1 and tighten.

Check the fan

- Check the fan for damage.

5.6.4 Check the corrosion inhibitor / antifreeze fluid concentration in the coolant

The coolant must contain all year round at least 50 % but not more than 60 % of antifreeze concentration. This corresponds to an antifreeze protection to approx. -37°C.
Make sure that:
– the machine is in maintenance position,
– the engine compartment door is open,
– the testing tool is available,

Procedure to check the antifreeze

Caution

Danger of scalding due to splashing coolant!
! Open the cap of the expansion tank only when the Diesel engine has cooled off - the coolant temperature display on the segment field of the display unit should be in the lower third of the segment field.

- Carefully open the cap on the expansion tank.
- Take a coolant sample and check the antifreeze concentration with the testing tool.
- If the antifreeze concentration is not reached:
  correct the mixing ratio of the antifreeze in the coolant.

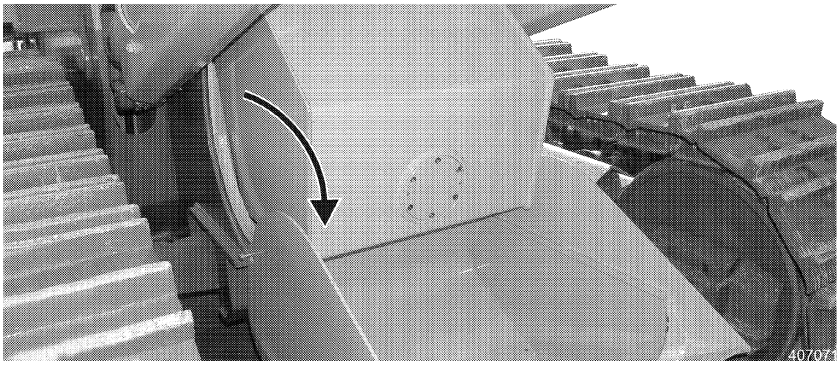
Procedure to correct the antifreeze concentration

– For coolant fill quantity – see quantities in the chart.

- If the antifreeze concentration is too low:
  Drain the coolant and refill clean antifreeze according to the diagram shown.

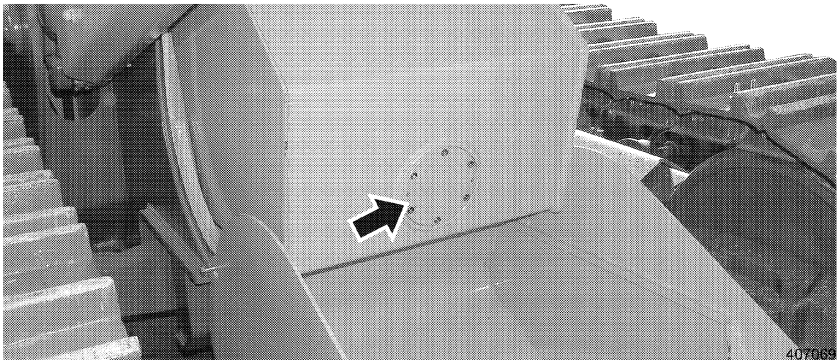
Caution

Danger of damage to the Diesel engine!
If the corrosion inhibitor / antifreeze fluid concentration is too high, then the cooling action is reduced. This in turn can cause damage to the Diesel engine!
! Never use more than 60% corrosion inhibitor / antifreeze fluid.



Front cover

- Fold the front cover forward very carefully.



Cleaning cover

- Remove the cleaning cover.

– Check the O - ring on the cleaning cover and replace it, if necessary.

- Clean the fuel tank.
- Install the cleaning cover with O - ring.
- Fold the front cover up and attach with hex head screws.
- Fill the fuel tank.

5.7.4 Change the fuel filter cartridges

The fuel primary filter with water separator, water level sensor and integrated manual refueling pump is on the right hand side of the Diesel engine.
Depending on the Diesel engine assembly, the fuel primary filter is equipped with a fuel preheating system.

Make sure that:
– the machine is in maintenance position,
– the left engine compartment door is open,
– an original LIEBHERR filter cartridge is available.

- If the dust discharge valve is damaged or remains open: Replace the dust discharge valve.

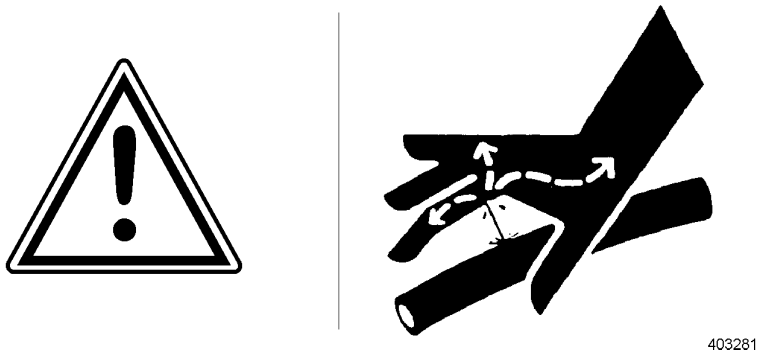
Clean the Service cover

- Open the mounting clamps 1 on the service cover 4 and remove the cover.
- Clean the Service cover.
- Set the service cover again on the filter housing. The dust discharge valve 5 must point down.

Only when the cover is placed around the full circumference on the filter housing, can be mounting clamps be closed easily without much effort.

- Close the mounting clamps.

5.9 Hydraulic system



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Hydraulic pressure

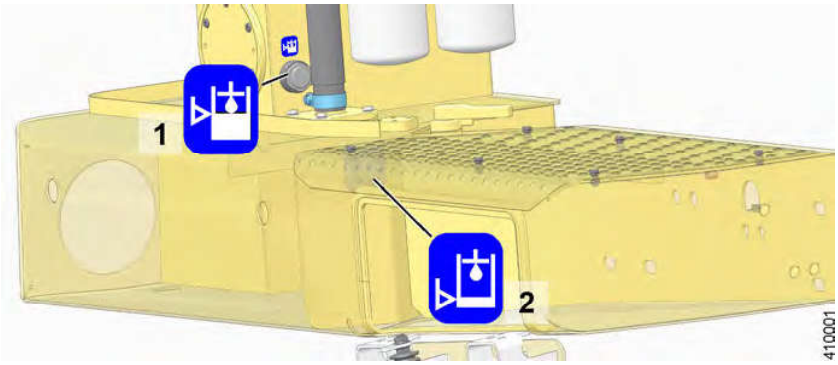
Caution

! Do not remove any hydraulic lines, hoses, connectors as long as the hydraulic system is under pressure.

Turn the engine off and actuate all functions again to release pressure in all hydraulic lines.

5.9.1 Oil level in hydraulic tank

Make sure that:
– the hydraulic oil is cold.

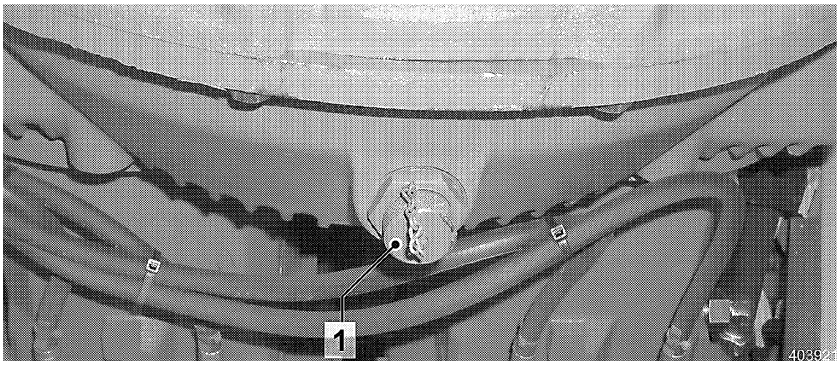


Sight gauges

Danger

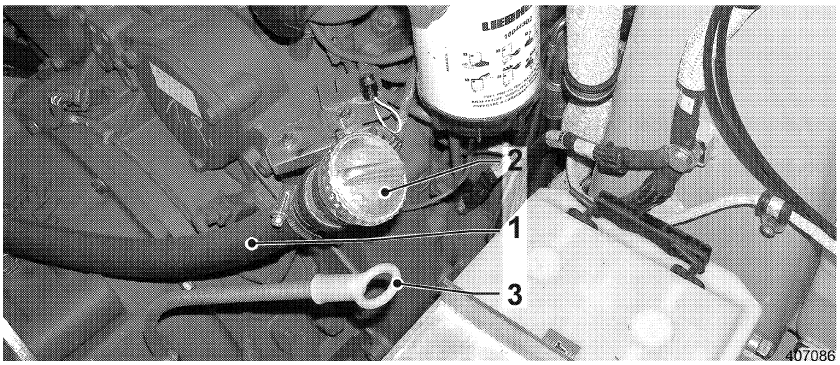
! Danger of injury when removing the belly pans.
Due to the restricted space and the great weight of the belly pans, removal is very difficult.
A suitable lifting device is required to remove the belly pans.

- Remove the oil filler cap 2 on the oil filler neck.
- Unscrew the cap on the oil drain valve on the oil pan.



Oil drain valve

- Install the oil drain hose to the oil drain valve 1 and drain the oil into the container.
- Remove the oil drain hose and reinstall the cap on the oil drain valve.
- Reinstall the belly pan cover.



Oil filler neck - dipstick

- Add clean oil via the filler neck to the MAX mark on the dipstick.
- Clean the oil filler cap, place it on the filler neck and tighten.
- Fold the central electric back and affix.

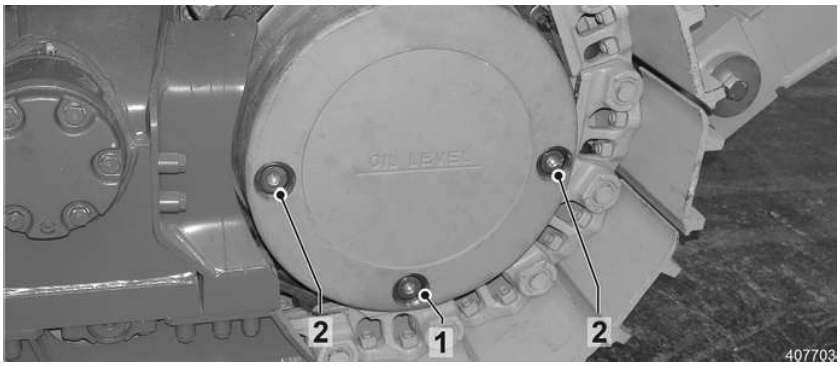
5.11 Electrical system

When working on the electrical system of the machine and for all welding work, the battery must be disconnected.

- Turn the battery master switch off.
- Disconnect the negative terminal (-) first and reconnect it last.

5.13.2 Check the oil level

Make sure that:
– the machine is in maintenance position,
– the machine is parked in such a way that the oil drain plug 1 is at the lowest point on the gear,
– a torque wrench is available.



Travel gear

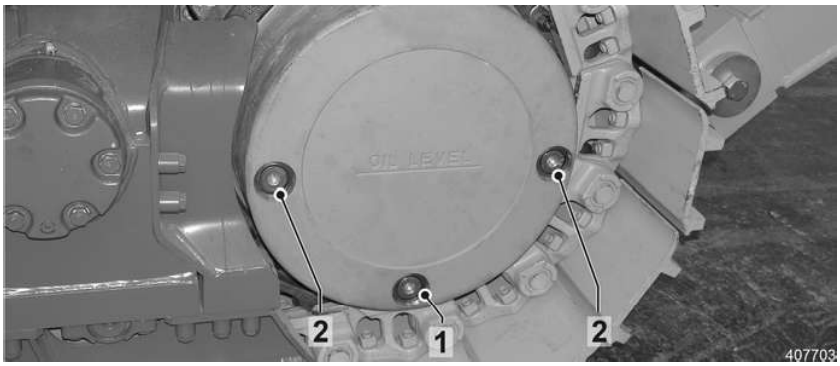
- Clean the area around the oil filler plug 2.
- Remove both oil filler plugs 2 with a socket wrench.

The oil level must be at the level of the oil filler port.
If the oil level is too low:

- Add oil via the oil filler port 2.
  – For oil specification, see "Lubricants and Service fluids ".
- Turn in the oil filler plug and torque to 120 Nm.

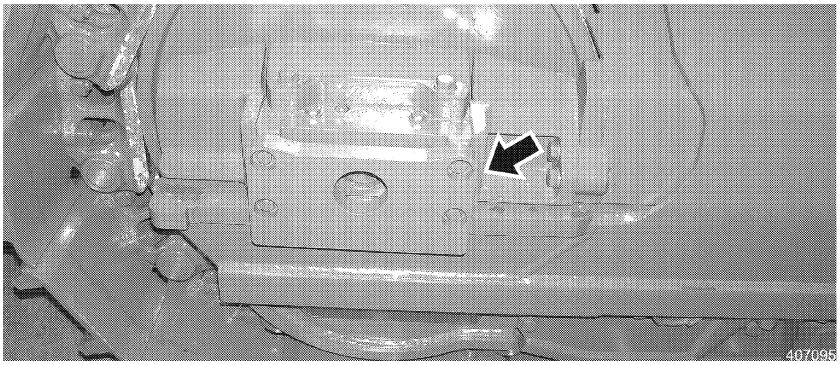
5.13.3 Change the gear oil

Make sure that:
– the machine is in maintenance position,
– the machine is parked in such a way that the oil drain plug is at the lowest point of the gear,
– a torque wrench is available,
– a suitable container is available,
– oil with the correct specification and quantity according to "Lubricants and Service fluids" is available.



Travel gear

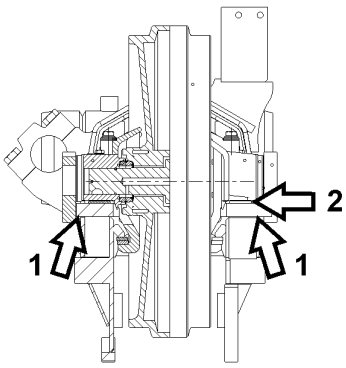
- Clean the area of the oil filler and drain plug.



Idler guide

Check / adjust the idler guide

The normal play between the track roller frame and the side guide is 1 - 2 mm, the height clearance of the rubber springs is approx. 3 mm.
The play increases due to wear of the wear strips, guide rails and guide plates.
When the maximum permissible value is reached, the play must be readjusted or the worn guide parts must be replaced.



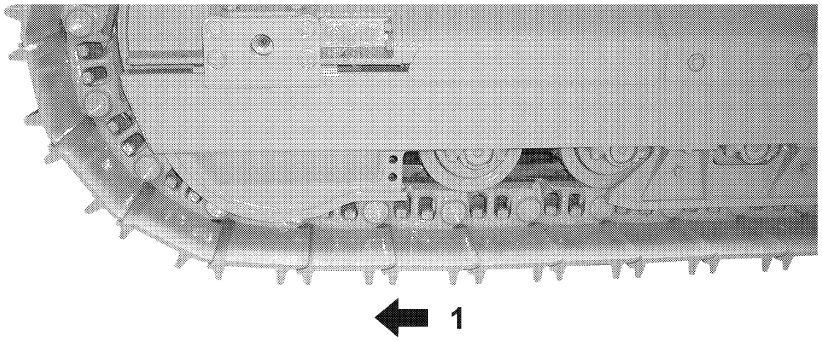
Side play - vertical play

New / repair dimension
- Side play 1 = min. 1 - 2 mm
- Vertical play 2 = min. 3 mm

Maximum permissible play
- Side play 1 = 5 mm
- Vertical play 2 = 6 mm

Check / adjust the side play

- Move the inner guide plate until it touches the track roller frame.
- This can be done by "counterrotation", see "Control", "Operation".



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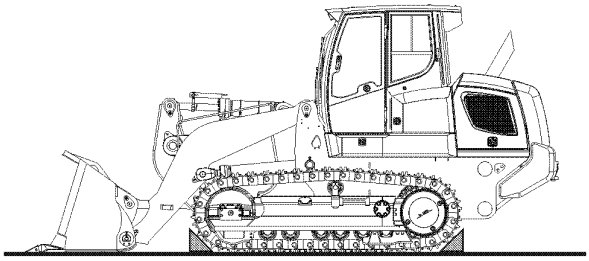
Travel direction forward

Make certain that the chain is installed correctly with the track pads on the correct side (1 = travel direction forward).

- Place the new chain on the ground and connect it with the old chain with a wire.
- Align the chain to the track roller frame and carefully move the machine forward to the end of the new chain.
- Loosen the new chain from the old one and attach the new chain with the wire to the sprocket.
- Carefully move the machine forward until the chain is on top of the sprocket.
- Release the wire from the chain and the sprocket and continue to drive forward to bring the chain over the carrier rollers and the idler. Stop the machine when the master link is at the same height as the center of the idler.



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Place a wooden block

- Secure the chain in front of the idler and behind the sprocket with a wooden block.
- Connect the chain links.

– DO NOT hit the mating surfaces with a hammer.

Place the track pad, insert the bolts and torque correctly.

- Tension the chain. See "Chain tension".