Maintenance

8 Maintenance Plan

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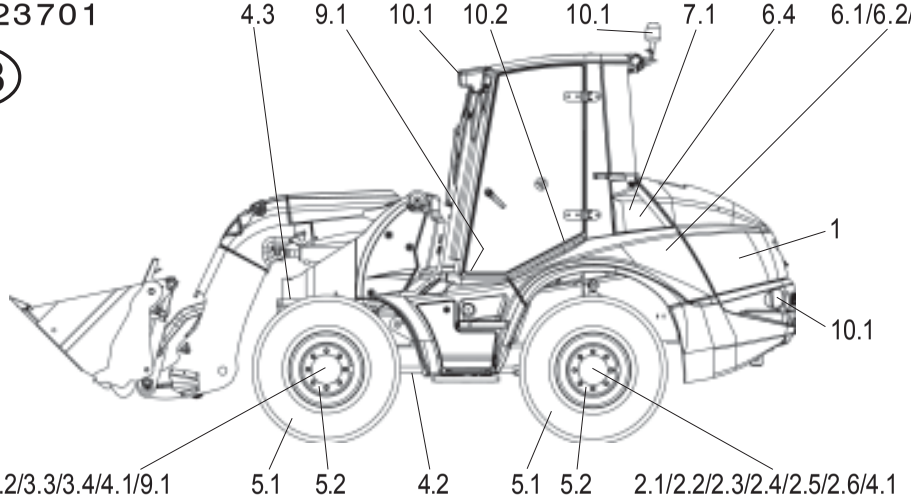

	Item	Designation	Specification	Viscosity	Filling amount
*	1	Motor oil	GlobalDHD-1=API-CH-4	SAE 15 W 40	approx. 7.5 l (suction engine)
					approx. 8.0 l (turbo engine)
*	2.2	Transmission oil	MIL-L-2105 D = API-GL5-6-LS	SAE 85 W 90-LS	approx. 5.5 l
*	2.4	Transmission oil	MIL-L-2105 D = API-GL5-6-LS	SAE 85 W 90-LS	approx. 2 x 0.8 l
*	2.6	Transmission oil	MIL-L-2105 D = API-GL5-6-LS	SAE 85 W 90-LS	ca. 1.25 l (20 km/h)
					ca. 4.0 l (30 km/h)
*	3.2	Transmission oil	MIL-L-2105 D = API-GL5-6-LS	SAE 85 W 90-LS	approx. 9.5 l
*	3.4	Transmission oil	MIL-L-2105 D = API-GL5-6-LS	SAE 85 W 90-LS	approx. 2 x 0.8 l
*	6.3	Hydraulic oil (4.)	DIN 51524 See hydraulic oil reservoir		approx. 134 l
	7	Distilled water			as required
	8	Grease	DIN 51825 - KPF 1/2 N-20		as required
*	9	Hydraulic oil (4.)	DIN 51524 - HVLP 46	ISO VG 46, VI > 180	

Key to symbols

△ First oil change, first filter replacement
▲ First check; eliminate any determined problems
○ Check; eliminate any determined problems
◇ Change
* The markings, filling and check plugs are binding
Refer to operating instructions

Caution
When carrying out maintenance work, heed accident prevention regulations!

Grease points (indicated in red)

1. Lubricate bolts every 10 operating hours/once a week with grease (DIN 51825 - KPF 1/2 N-20).
2. Lubricate glide points as required and always after cleaning using grease DIN 51825 - KPF 1/2 N-20.

Oil lubrication points

3. Use MIL-L-2104 C engine oil to lubricate the joints and deflection levers every 50 operating hours.

Option: biodegradable hydraulic oil

4. Ester-based synthetic hydraulic oil.
   Viscosity: see hydraulic oil reservoir!

Every x operating hours — max. permissible intervals or shorter (depending on use)

10	50	500	1500	Item	Maintenance points
				1	**Engine**
○	△	◇		1.1	Inspections (chapter 8.2.1) →
	△	500		1.2	Suction engine (48 kW) oil change
	△	250			Turbo engine (55 and 63 kW) oil change
				1.3	Fuel filter (chapter 8.2.4) →
○				1.4	Check air filter clogging indicator (4-14/15)
				1.5	Maintain/replace filter element / safety cartridge →
	○			1.6	Activate dust removal valve
○				1.7	Check cooler and clean if necessary
		○	◇	1.8	Check coolant level, top off if necessary
	○			1.9	Check anti-freeze, top off if necessary
				2	**Rear axle with distribution valve**
	○			2.1	Check axis transmission oil level (check plug)
		△	◇	2.2	Change axis transmission oil →
	○			2.3	Check planetary gear transmission oil level (check plug)
		△	◇	2.4	Change planetary gear oil →
	○			2.5	Check distribution gear oil level (check plug)
		△	◇	2.6	Change distribution gear oil →
				3	**Front axle**
	○			3.1	Check axis transmission oil level (check plug)
		△	◇	3.2	Change axis transmission oil →
	○			3.3	Check planetary gear transmission oil level (check plug)
		△	◇	3.4	Change planetary gear oil →
				4	**Axles/cardan shaft/ball bearing ring (swivel loaders only)**
	▲	○		4.1	Check fastening of axles (425 Nm)
	▲	○		4.2	Check fastening of cardan shaft (32 Nm)
	▲	○		4.3	Check fastening (300 Nm) of ball bearing rings (swivel loaders only)
				5	**Wheels and tyres**
	○			5.1	Check air pressure
▲		○		5.2	Check fastening of wheel nuts (500 Nm)
				6	**Hydraulic system**
	△	◇		6.1	Replace filter inserts, observe electr. indicator →
○				6.2	Oil level check (view glass)
			◇	6.3	Oil change →
○				6.4	Check and clean hydraulic oil cooler
				7	**Battery**
		○		7.1	Visual inspection
				8	**Grease points (indicated in red)** →
				9	**Brake systems**
				9.1	Function and visual test of service and parking brake before starting work
		○		9.2	Parking brake: Check brake play, adjust if necessary
				10	**Lighting system / fresh air filter**
				10.1	Function test before starting work
		○	◇	10.2	Maintaining/replacing the fresh air filter →

8 Maintenance

8.1 Notes regarding maintenance

DANGER

- The engine must be turned off.
- For work to be carried out under the bucket arm:
  - the bucket must be emptied or the attachment must be relieved,
  - the bucket arm must be mechanically propped up [e.g. by inserting the bucket arm support (option) (1-1/arrow)],
  - secure the hand lever(s) for the working and auxiliary hydraulics (actuate toggle switch 1-2/arrow "top").
- The loader must be secured against rolling by applying the parking brake (4-12/2) and by setting the drive direction switch (4-11/4) to position "0". In addition, wheel chocks (8-1/ arrow) must be placed on both sides of one of the two wheels of the front axle.

Figure 8-1

CAUTION

- Change the oil when the units are lukewarm.
- Perform maintenance work when the loader is on level ground and the bucket arm is in its lowest position.
- Replace damaged filter inserts and gaskets immediately.
- Clean force-feed lubrication nipples before lubricating.

NOTE

- For any necessary maintenance work refer to the maintenance plan.
- Damage which is traceable to non-observance of the maintenance plan is not covered by the warranty.
- The lubricants listed in the maintenance plan can be used at ambient temperatures ranging from -15°C to +40°C.

CAUTION

For ambient temperatures below 15 °C, refer to the description given in section 5.2.2, "Winter operation".

NOTE

In the event of a pipe or hose break in the hydraulic system, shut off the engine immediately (chapter 5.3.1). Seal the defective spot with a cleaning cloth or plug if possible to prevent the escape of greater hydraulic oil volumes.
Have the defective pipe or tube repaired immediately by an expert in hydraulics.

8.2 Maintenance work

8.2.1 Engine inspections

8.2.1.1 Engine oil level check

CAUTION
Check the engine oil level **every 10 operating hours**.

(1) Park the loader in a level position and shut down the engine.

(2) Wait some minutes. Open the engine hood and pull out the oil dipstick (8-2/arrow).

(3) Check the oil level.

NOTE
- The filling level must be between the two markings "**L**" (low, min.) and "**H**" (high, max.).
- If necessary, top up oil via the filler neck (8-3/arrow).

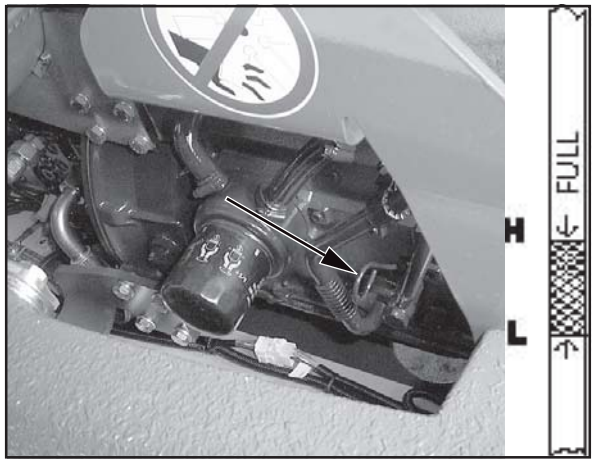

Figure 8-2

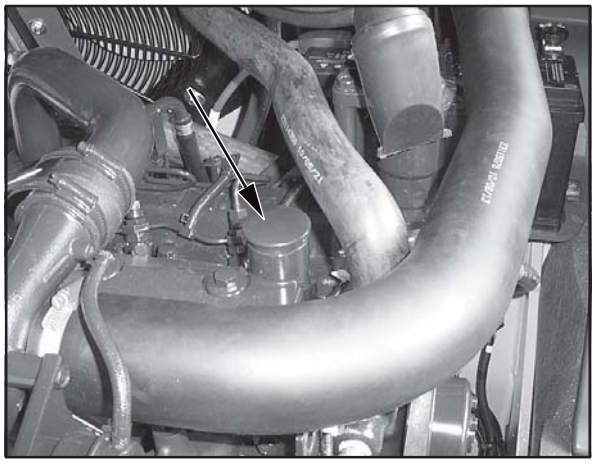
Figure 8-3

8.2.1.2 Cooling water check

CAUTION
Check the cooling water level **every 10 operating hours**.

(1) Open the lid (8-4/2) of the cooling water compensation tank (8-4/1) to relieve the system pressure.

(2) Check the filling level in the compensation tank.

NOTE
The filling level of the cooling water compensation tank (8-4/1) must lie between the two markings "**MIN**" (low) and "**MAX**" (high). If necessary, top up cooling water via the filler neck (8-4/2).

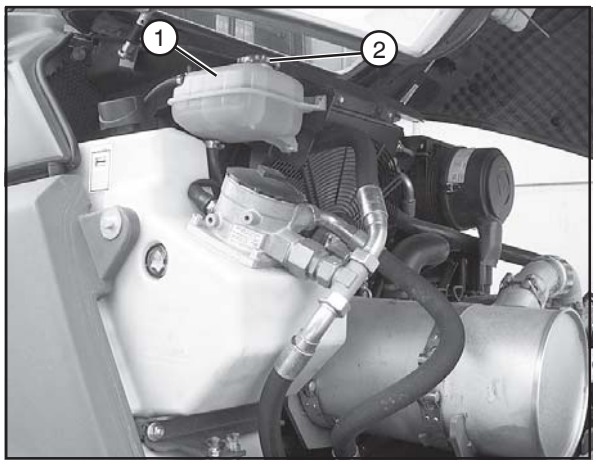

Figure 8-4

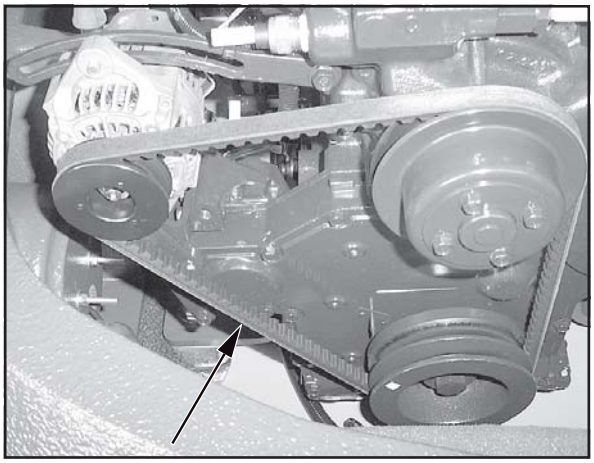

Figure 8-5

8.2.1.3 V-belt check

NOTE

Check the condition of the V-belt (8-5/arrow) **every 10 operating hours** for damages, cracks, etc. If necessary, replace the V-belt.

8.2.1.4 V-belt tension check

NOTE

Check the V-belt tension **every 1000 operating hours**. When tightened correctly, the belt may sag **no more than 5-8 mm** on its longest leg (8-5/arrow).
Correct the belt tension if necessary.

8.2.1.5 Other important engine checks

(1) Check the fastening of intake and exhaust manifolds **every 1000 operating hours**.

(2) Check the condition and function of starter and alternator **every 1500 operating hours**.

(3) Check the adjustment of the valves, first after **250 operating hours,** then **every 2000 operating hours**.
- inlet valve 0.35 mm
- outlet valve 0.50 mm

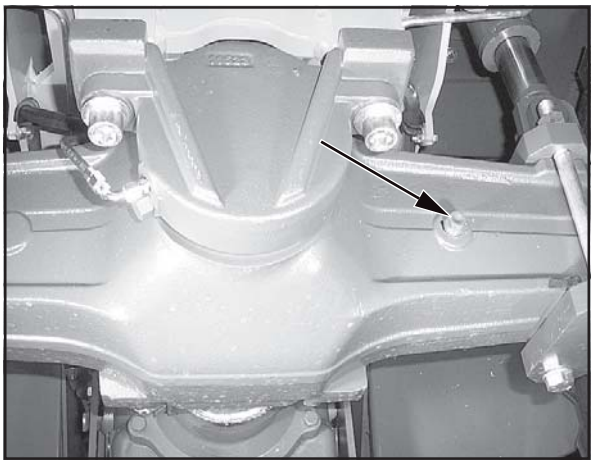

Figure 8-6

8.2.2 Oil level check for axles

8.2.2.1 Rear axle

(1) Unscrew the plug from the axle arch (8-6/arrow).

NOTE

- The axle arch and the distribution gear do not have a common oil reservoir.
- The oil level must reach the plug bore.
- Collect any oil that escapes.

(2) Screw in the plug again.

8.2.2.2 Planetary gear

(1) Move the loader until the marking line "OIL LEVEL" is horizontal and the plug is located above the top right of the marking line (8-7/arrow).

(2) Unscrew the plug.

NOTE
- The oil level must reach the plug bore.
- Collect any oil that escapes.

(3) Fit a new gasket and screw the plug back in.

Figure 8-7

8.2.2.3 Front axle

(1) Unscrew one of the plugs from the axle arch (8-8/ arrows).

NOTE
- The oil level must reach the plug bore.
- Collect any oil that escapes.

(2) Screw in the plug again.

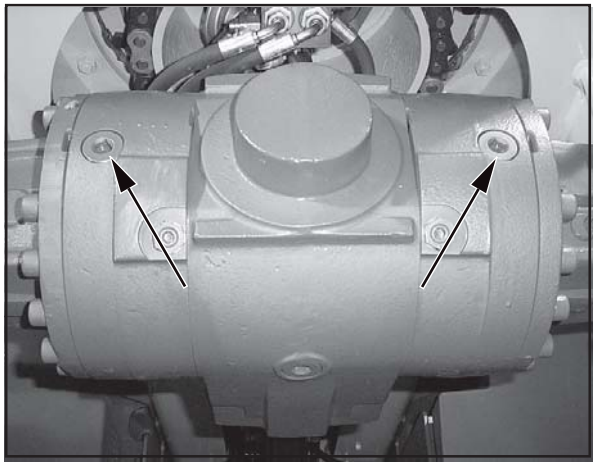

Figure 8-8

8.2.2.4 Oil level check (ancillary/distribution gear)

8.2.2.4.1 Ancillary/distribution gear of slow loaders "20 km/h"

(1) Unscrew the plug from the gear case (8-9/1).

NOTE
- Collect any oil that escapes.
- The oil level must reach the plug bore.
- If necessary, fill oil into the plug bore (8-9/1) until the oil reaches the required level.

(2) Fit a new gasket and screw the plug back in.

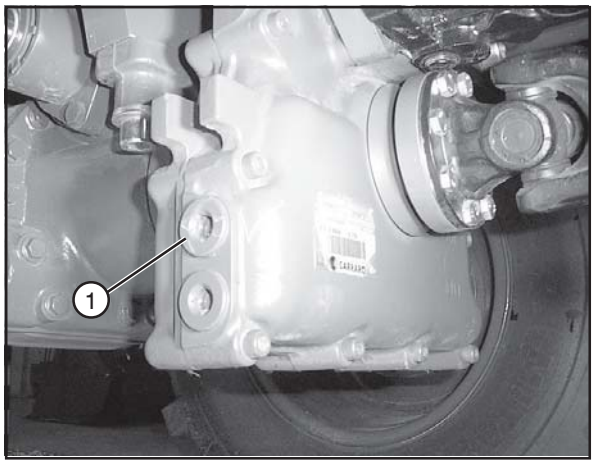

Figure 8-9

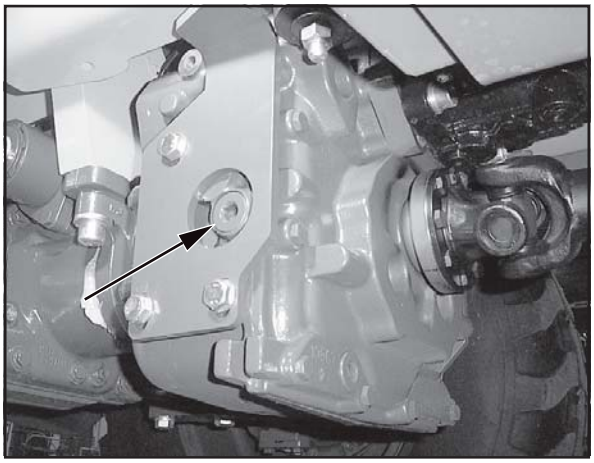

Figure 8-10

8.2.2.4.2 Ancillary/distribution gear of fast loaders “25 - 40 km/h“

(1) Unscrew the plug from the gear case (8-10/arrow).

NOTE

- Collect any oil that escapes.
- The oil level must reach the plug bore.
- If necessary, fill oil into the plug bore (8-10/1) until the oil reaches the required level.

(2) Fit a new gasket and screw the plug back in.

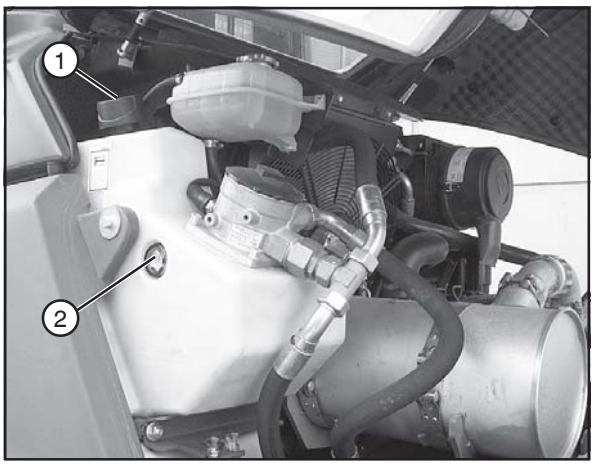

Figure 8-11

8.2.3 Oil level check , hydraulic oil reservoir

(1) Park the loader in a level position.

(2) Move the bucket to its lowest position.

(3) Tilt the quick-change device and move out the locking bolts using the pilot valve for the auxiliary hydraulics (4-11/1).

(4) Open the motor hood.

(5) Check the oil level in the sight glass.

NOTE

The oil level must be visible in the upper quarter of the sight glass (8-11/2). If necessary, fill oil into the filler neck (8-11/arrow).

8.2.4 Fuel filter

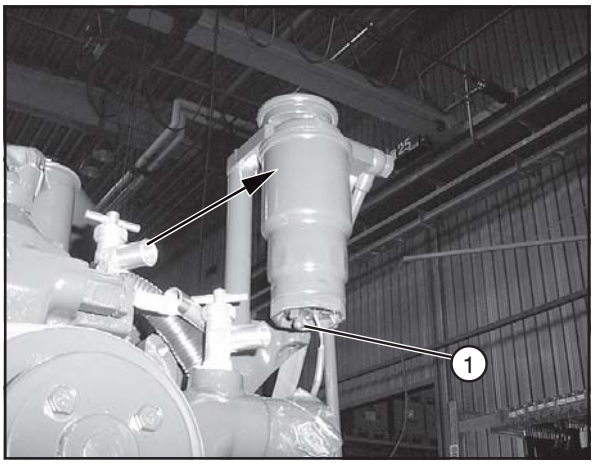

Figure 8-12

8.2.4.1 Draining the water trap of the fuel filter

CAUTION

Flush the water trap of the fuel filter **every 10 operating hours**.

(1) Place a sufficiently large drain pan underneath.

(2) Open the drain screw (8-12/1) of the water separation valve at the fuel filter (8-12/arrow) until a sufficient volume of fluid can drain off.

CAUTION

Dispose of the collected water/fuel mixture in such a way that it will not cause pollution!

NOTE
The water separator valve is sufficiently flushed when only clear fuel escapes from the drain screw.

(3) Close the drain screw (8-12/1).

CAUTION
Tighten the drain plug by hand only to prevent damage to the thread.

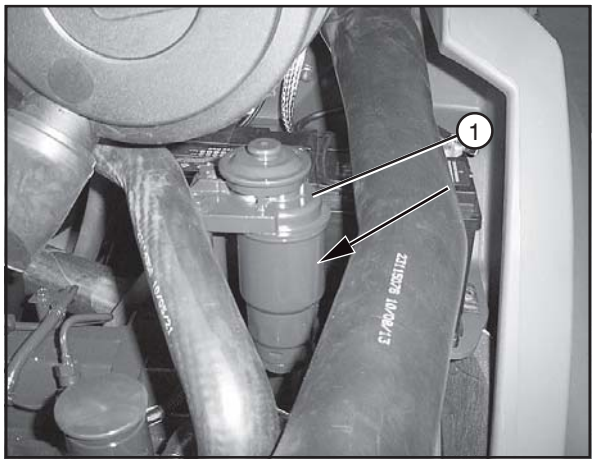

Figure 8-13

8.2.4.2 Replacing the fuel filter

CAUTION
Replace the fuel filter **every 500 operating hours** or **every 6 months**.

DANGER
Fuel is flammable!
Smoking, open flames or other ignition sources are not permitted when work is performed on the fuel system.
Ensure sufficient ventilation to prevent the risk of damage to the respiratory system or to your health.

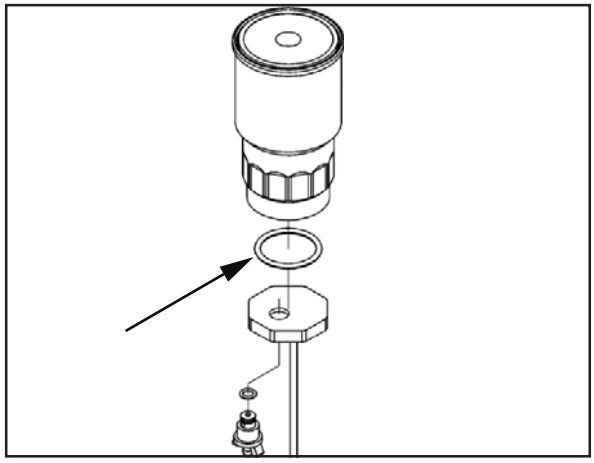
Figure 8-14

(1) Place a sufficiently large drain pan underneath.

(2) Open the motor hood.

(3) Clean the environment of filter body (8-13/1) and filter cartridge (8-13/arrow).

(4) Open the drain screw of the water separator valve and drain the filter (section 8.2.4).

CAUTION
Dispose of the collected water/fuel mixture and the filter cartridge in such a way that it will not cause pollution!

(5) Loosen the filter cartridge (8-13/arrow) with a spanner (57 mm) or with a strap filter wrench and unscrew it with your hand.

(6) Clean the sealing surfaces at the filter body.

(7) Remove the O-ring seal (8-14/arrow) and check its condition. Replace the O-ring if necessary.

(8) Fill new filter cartridge with clean fuel.

(9) Fit the O-ring seal.

(10) Screw on and tighten fuel filter with your hand (heed the notes provided by the filter manufacturer).
(11) Start the engine and check it for leaks.

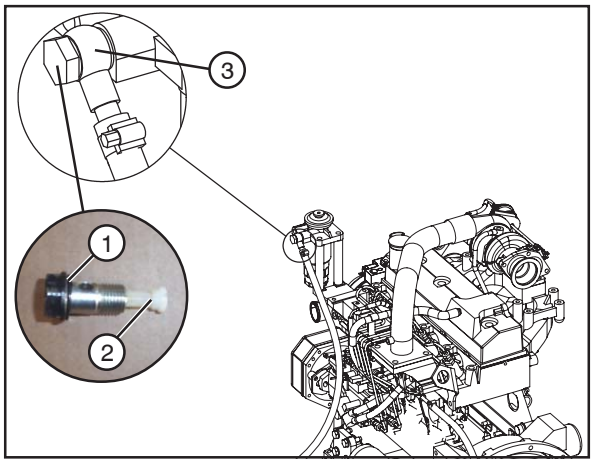

Figure 8-14a

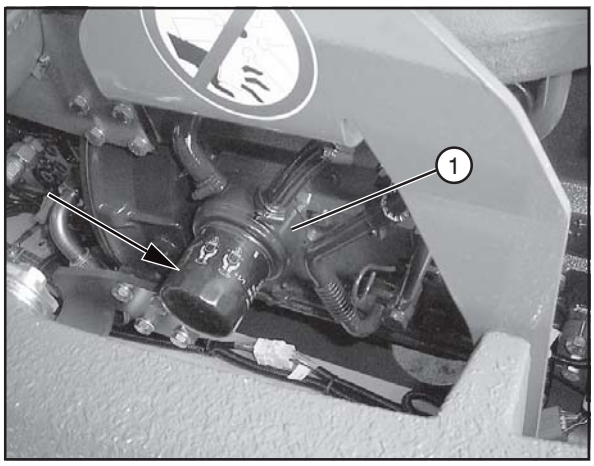

Figure 8-15

Figure 8-16

8.2.4.3 Cleaning/replacing the fuel prefilter

CAUTION

Clean the fuel prefilter when needed. Replace it along with the fuel filter **every 500 operating hours** or **every 6 months**.

DANGER

Fuel is flammable!
Smoking, open flames or other ignition sources are not permitted when work is performed on the fuel system.
Ensure sufficient ventilation to prevent the risk of damage to the respiratory system or to your health.

(1) Unscrew the hollow screw (8-14a/1) (size 19) from the fuel filter.
(2) Unscrew the fuel prefilter inside the hollow screw with a large screwdriver.
(3) Clean fuel prefilter with compressed air.
(4) Installation is in reverse order.

NOTE

Replace the gaskets on both sides of the fitting (8-14a/3) if necessary.

8.2.5 Oil change, engine

(1) Place a sufficiently large oil drain pan underneath.
(2) Open the motor hood.
(3) Unscrew the cap of the oil drain valve (Rölex safety oil drain valve) on the engine (8-12/arrow).

CAUTION

The oil will flow out of the hydraulic oil tank immediately when you open the oil drain screw if there is no safety oil drain valve with cap.

(4) Screw the drainage nozzle with hose from the tool box (4-1/12) to the oil drain valve.
(5) Remove the cover cap from the hose.
(6) Let the entire oil flow out.

CAUTION

Caution: risk of burns as long as the engine oil is hot.

(7) Close the drain hose with the cover cap and unscrew the hose.

NOTE

Screw the oil drain plug in again if there is no safety oil drain valve.

CAUTION

Check the waste oil. Black, low viscosity oil indicates thinning with fuel. Milky oil indicates blending with coolant.
Heed the stipulated oil change intervals in order to maintain the oil quality.

CAUTION

Waste oil must be disposed of in such a way that it will not cause pollution!

(8) Screw the cap onto the oil drain plug.

(9) Fill engine oil into the engine via the filler neck (8-17/arrow). The filling level must reach the upper marking "**H**".

NOTE

Information about the quantity and designation of oil as well as the change intervals is given in the maintenance plan (chapter 8.4).

(10) Close the filler neck (8-17/arrow) and start the engine.

(11) Idle the engine briefly and check for leaks at the screw plug etc.

(12) Check the engine oil level (section 8.2.1.1) and top up if applicable.

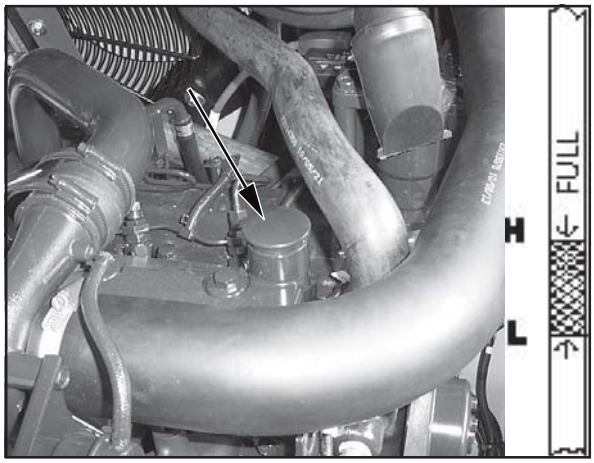

Figure 8-17

8.2.6 Changing the engine oil filter insert

(1) Clean the filter body and its environment (8-18/1).

(2) Place a sufficiently large oil drain pan underneath.

(3) Loosen the filter cartridge (8-18/arrow) with a spanner (74 mm) or with a strap filter wrench and unscrew it with your hand. Make sure the seal is not stuck in place.

CAUTION

Caution: risk of burns as long as the engine oil is hot.

(4) Clean the sealing seat of the new cartridge.

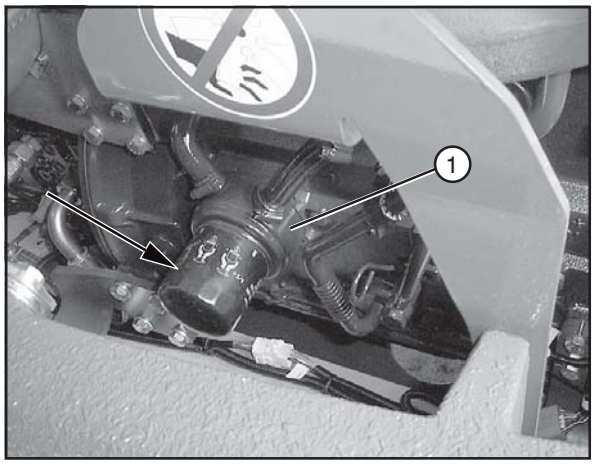

Figure 8-18

(5) Lubricate the seal of the new engine oil filter cartridge with clean engine oil.

(6) Screw the new filter cartridge in place and give it half a turn to tighten it (heed the manufacturer's notes).

CAUTION

Take care not to tighten the filter too much to prevent deformation of the thread and damage to the seal!

(7) Idle the engine briefly to fill the filter with engine oil.

CAUTION

Check the engine oil pressure: After the engine has started, the indicator for engine oil pressure must go dark within 15 seconds. When the indicator remains lit, shut off the engine immediately!

(8) Check the engine oil level as described in section 8.2.1.1 and top up if necessary.

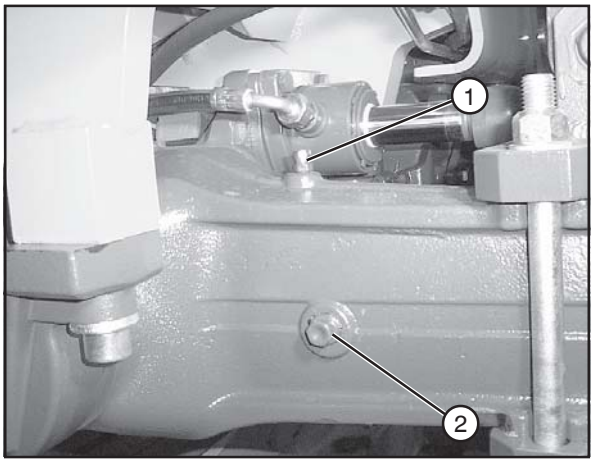

Figure 8-19

8.2.7 Oil change, axles

8.2.7.1 Rear axle

(1) Place a sufficiently large oil drain pan underneath.

(2) Unscrew the plugs from the axle arch (8-19/2 and 8-20/2) and drain the oil.

CAUTION

Waste oil must be disposed of in such a way that it will not cause pollution!

(3) Screw in the plug (8-20/1) again.

(4) Fill in oil via the plug bore (8-19/2) until the oil level reaches the opening.

NOTE

- Information about the quantity of oil is given in the maintenance plan (chapter 8.4).
- After a few minutes, when the oil level has lowered, top up the oil until the oil reaches the marked level and remains stable.
- The vent valve of the axle (8-19/1) must be free from dirt.

(5) Screw in the plug (8-19/2) again.

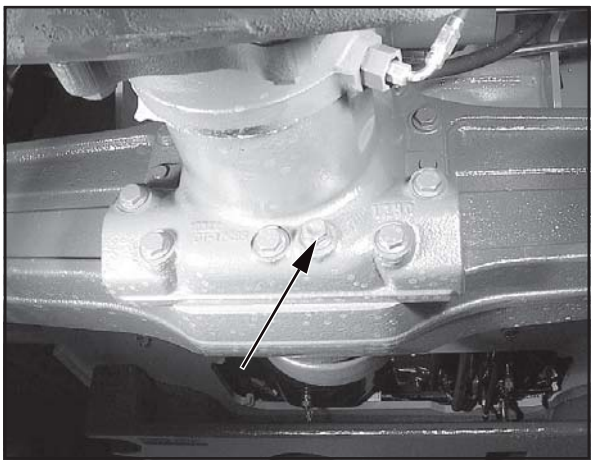

Figure 8-20

8.2.7.2 Planetary gear

(1) Move the loader so that the plug (8-21/arrow) is positioned at 6 o'clock.

(2) Place an oil drain vessel with a drain channel underneath the gear.

(3) Unscrew the drain plug and let the oil drain out.

CAUTION
Waste oil must be disposed of in such a way that it will not cause pollution!

(4) Move the loader until the marking line "OIL LEVEL" is horizontal and the plug is located above the top left of the marking line (8-22/arrow).

(5) Fill in oil via the plug bore until the oil level reaches the opening.

(6) Use a new gasket when screwing the plug back in.

Figure 8-21

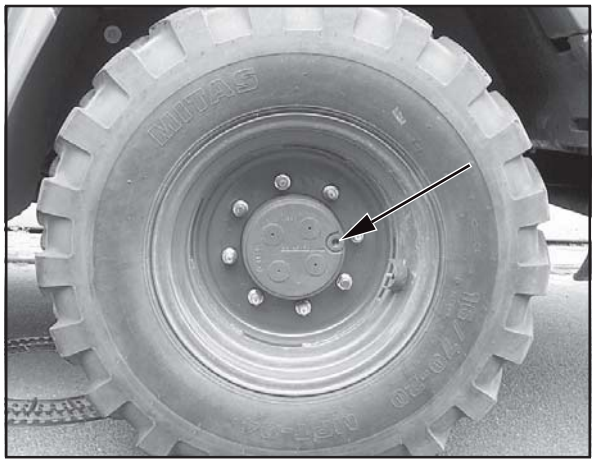

Figure 8-22

8.2.7.3 Front axle

(1) Place a sufficiently large oil drain pan underneath.

(2) Unscrew the plugs from the axle arch (8-23/arrows and 8-23/1) and drain the oil.

CAUTION
Waste oil must be disposed of in such a way that it will not cause pollution!

(3) Screw in the plug (8-23/1) again.

(4) Fill in oil via the plug bore (8-23/arrows) until the oil level reaches the opening.

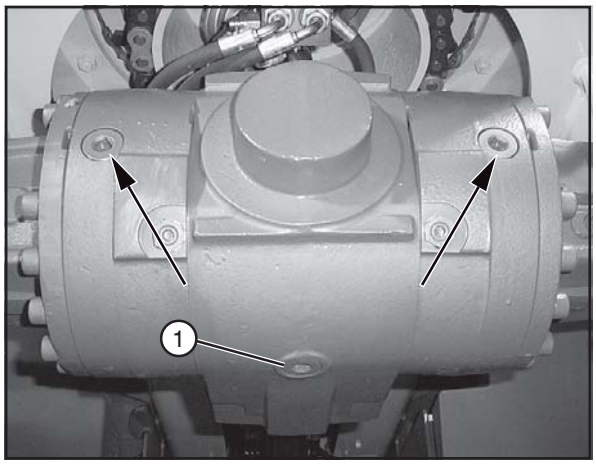

Figure 8-23

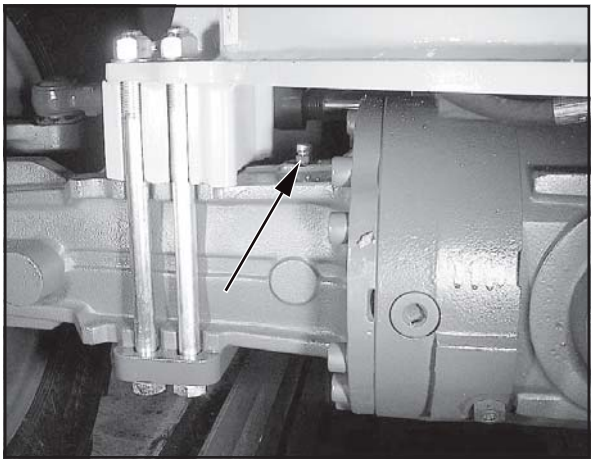

Figure 8-24

NOTE

- Information about the quantity of oil is given in the maintenance plan (chapter 8.4).
- After a few minutes, when the oil level has lowered, top up the oil until the oil level reaches the marked level and remains stable.
- The vent valve of the axle (8-24/arrow) must be free from dirt.

(5) Screw in the plug (8-23/arrows) again.

8.2.7.4 Oil change, ancillary/ distribution gear

8.2.7.4.1 Ancillary/distribution gear of slow loaders “20 km/h”

(1) Place a sufficiently large oil drain pan underneath.

(2) Unscrew the plugs from the axle arch (8-25/1 and 8-25/2) and drain the oil.

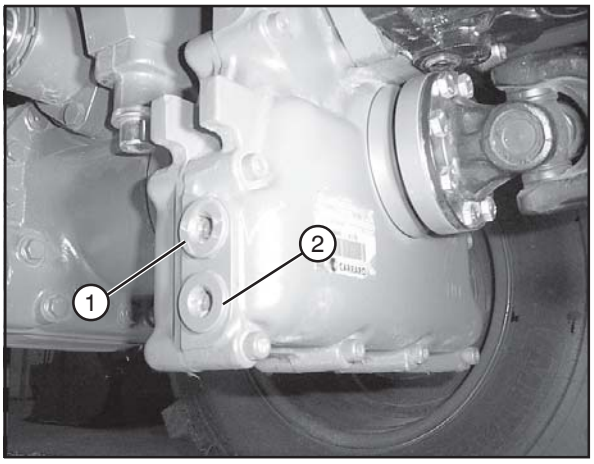

Figure 8-25

CAUTION

Waste oil must be disposed of in such a way that it will not cause pollution!

(3) Screw in the plug (8-25/2) again with a new gasket.

(4) Fill in oil via the plug bore (8-25/1) until the oil level reaches the opening.

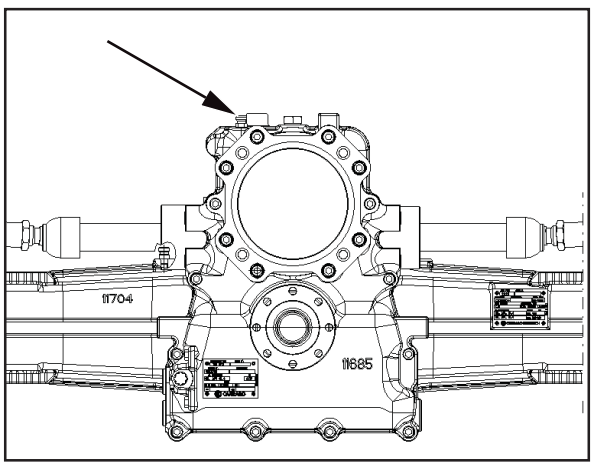

Figure 8-26

NOTE

- Information about the quantity of oil is given in the maintenance plan (chapter 8.4).
- After a few minutes, when the oil level has lowered, top up the oil until the oil level reaches the marked level and remains stable.
- The vent valve of the axle (8-26/arrow) must be free from dirt.

(5) Screw in the plug (8-25/1) again with a new gasket.

8.2.7.4.2 Ancillary/distribution gear of fast loaders “25 - 40 km/h“

(1) Place a sufficiently large oil drain pan underneath.

(2) Unscrew the plugs from the gear case (8-27/1 and 8-27/2) and drain the oil.

CAUTION
Waste oil must be disposed of in such a way that it will not cause pollution!

(3) Screw in the plug (8-27/2) again with a new gasket.

(4) Fill in oil via the plug bore (8-27/1) until the oil level reaches the opening.

NOTE
- Information about the quantity of oil is given in the maintenance plan (chapter 8.4).
- After a few minutes, when the oil level has lowered, top up the oil until the oil level reaches the marked level and remains stable.
- The vent valve of the axle (8-28/arrow) must be free from dirt.

(5) Screw in the plug (8-27/1) again with a new gasket.

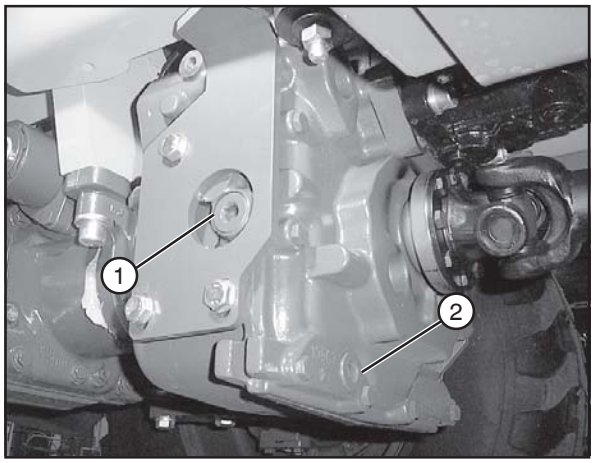

Figure 8-27

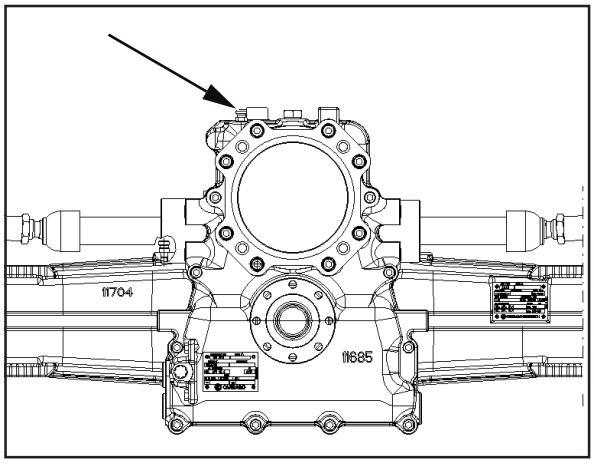

Figure 8-28

8.2.8 Oil change, hydraulic system

(1) Have an oil drain pan ready (for the minimum size, refer to section 11.1.11 or 11.2.11).

(2) Unscrew the cap of the oil drain valve (Rölex safety oil drain valve) (8-29/arrow).

CAUTION
The oil will flow out of the hydraulic oil tank immediately when you open the oil drain screw if there is no safety oil drain valve with cap.

(3) Screw the drainage nozzle with hose from the tool box (4-1/12) to the oil drain valve.

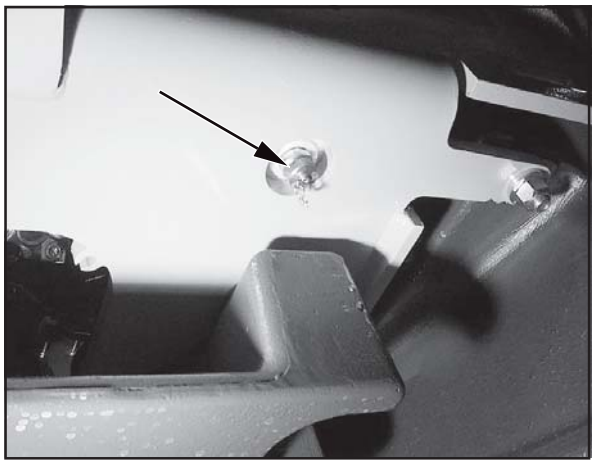
Figure 8-29

(4) Remove the cover cap from the hose.

(5) Drain the hydraulic oil into the oil pan.

CAUTION

Waste oil must be disposed of in such a way that it will not cause pollution!

(6) Remove the nozzle with the hose and replace the cover cap on the hose.

NOTE

Screw the oil drain plug in again if there is no safety oil drain valve.

(7) Screw the cap onto the oil drain plug.

(8) Change the hydraulic oil filter cartridge (section 02/08/2010).

(9) Fill oil into the filler neck (8-30/1).

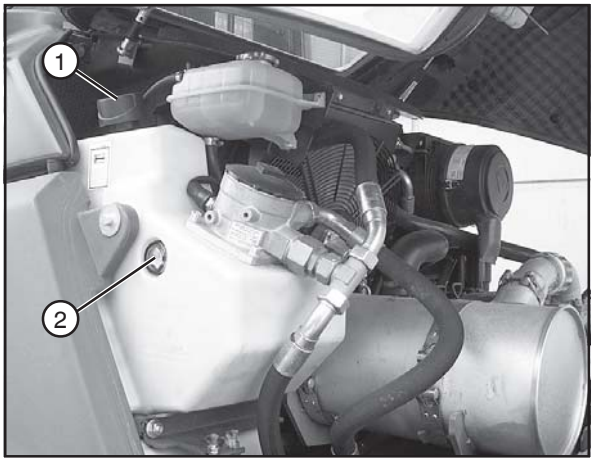

Figure 8-30

CAUTION

For loaders which are fitted to run with biodegradable hydraulic oil, only this type of oil may be used for oil changes (designation can be found on the hydraulic oil reservoir and on the dashboard).
Mineral and biodegradable hydraulic oils must **never** be mixed!
Biodegradable hydraulic oil must be changed every **1000 operating hours**.

Changing the oil type from mineral oil to biodegradable oil must be performed according to the VDMA 24 569 conversion guidelines.

(10) Check the oil level at the sight glass (8-30/2).

(11) Close the filler neck (8-30/1).

8.2.9 Changing the hydraulic oil filter insert

CAUTION

Replace the filter insert according to the maintenance plan or when the clogging indicator lamp (4-14/13) lights up.

NOTE

The clogging indicator may light up prematurely after a cold start. It will go out when the hydraulic oil warms up.

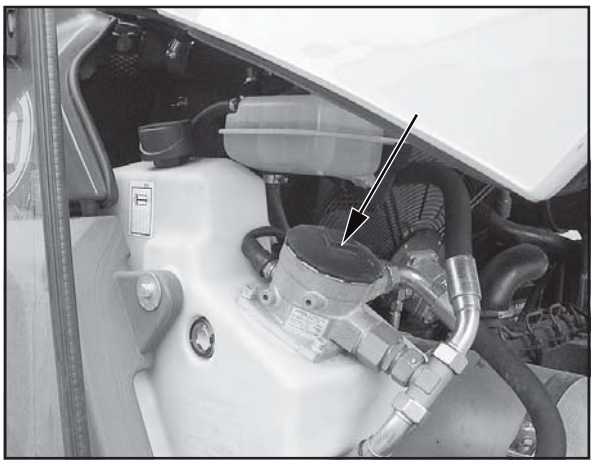

Figure 8-31

(1) Open the motor hood.

(2) Unscrew the lid of the hydraulic oil filter (8-31/arrow or 8-31/1).

(3) Pull out filter separator disc (8-32/3) with attached filter cartridge (8-32/5) and filter bowl (8-32/6) by carefully turning back and forth.

CAUTION

- Collect any hydraulic oil that drains or drips off when you lift out the separator disc and the filter cartridge.
- The used hydraulic oil filter cartridge and the O-rings must be disposed of in an environmentally compatible manner.

(4) Separate removed unit into filter separator disc , filter cartridge and filter bowl.

(5) Clean housing, filter cover, filter separator disc and strainer basket (if present).

(6) Check filter for mechanical damage, in particular sealing surfaces and threads.

(7) Apply a thin coat of clean operating fluid on sealing surfaces, threads and O-rings if necessary.

(8) Check whether the designation of the new filter matches that of the old one before installing the filter.

(9) Assemble filter separator disc, filter cartridge and filter bowl to form one unit. Replace the O-ring (8-32/4) with a new one.

(10) Install filter separator disc with filter cartridge and filter bowl by slightly turning it back and forth.

(11) Screw on the hydraulic filter lid with a new O-ring (8-32/2).

(12) Close the motor hood.

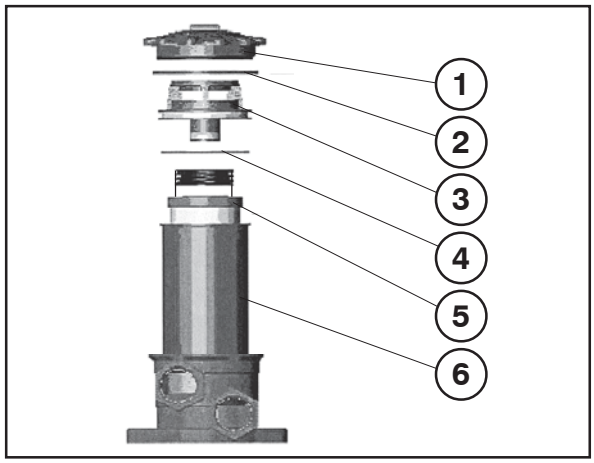

Figure 8-32

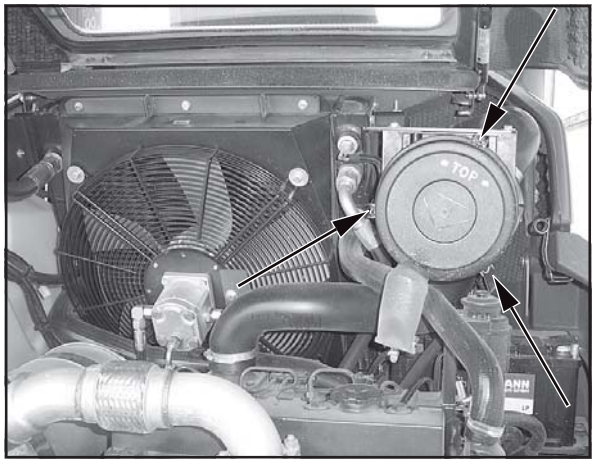

Figure 8-33

8.2.10 Maintaining/replacing the air filter

NOTE

The filter cartridge needs to be maintained when the “air filter clogging indicator” (4-14/15) lights up, but at the latest after **12 months**.

(1) Open the motor hood.

(2) Loosen the three spring-loaded catches on the air filter lid (8-33/arrows) and remove the air filter lid.

(3) Pull out the filter cartridge (8-34/arrow) by carefully turning it back and forth.

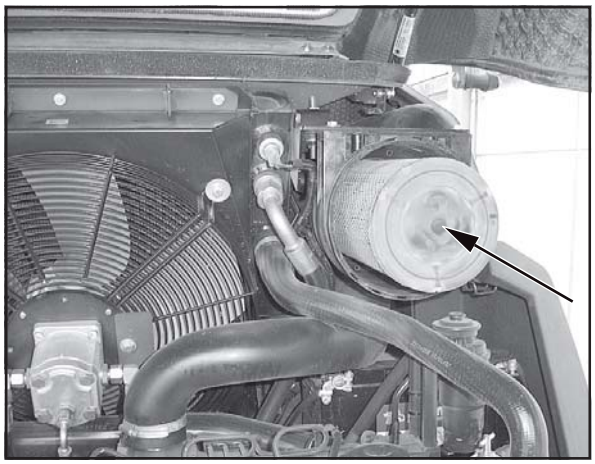

Figure 8-34

(4) Clean the filter cartridge.

CAUTION
- For cleaning, use a compressed air gun to which a pipe (angled at 90°) has been attached. The pipe must be sufficiently long to reach the bottom of the cartridge. Use dry compressed air of no more than 5 bar to blow out the cartridge by moving the pipe back and forth in the interior of the cartridge. Cleaning can be stopped when dust formation ceases.
- Do not use petrol or hot liquids for cleaning.

(5) Use a hand-held lamp to check the cartridge paper and the rubber gasket of the filter cartridge for damage.
If the cartridge or the gasket is damaged, replace the cartridge.

(6) Carefully insert the filter cartridge.

(7) Install the air filter lid on the filter housing in such a way that the direction arrow in the marking "**OBEN-TOP**" roughly points to half past one.

NOTE
The dust removal valve must be checked from time to time and cleaned if necessary.

CAUTION
Check all connection pipes and hoses of the air filter system for damage before starting the engine.

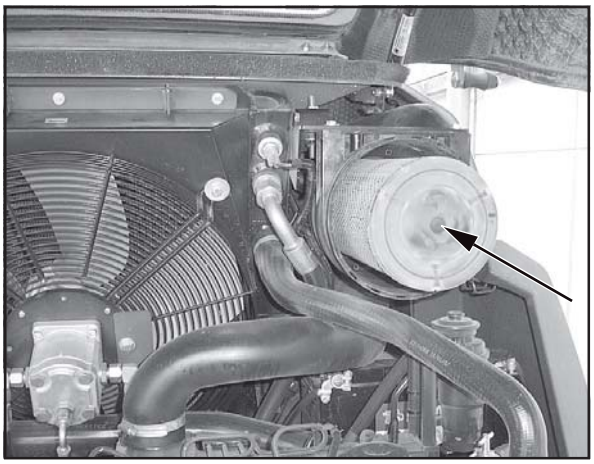

Figure 8-35

8.2.11 Replacing the safety cartridge

CAUTION
- The safety cartridge must not be cleaned.
- The safety cartridge must be replaced after the filter cartridge has been **maintained/cleaned 5 times, but no later than after two years.**
- Make sure that no dirt or dust can enter the filter housing during replacement of the safety cartridge.

(1) Remove the filter cartridge (8-35/arrow) (section 8.2.11).

(2) Pierce the seal of the safety cartridge (8-36/arrow) from the inside by using a screwdriver or similar tool and pull up both strips.

(3) Hold the safety cartridge by both strips and pull it out by carefully turning it back and forth. Replace the safety cartridge and the filter cartridge by new ones.

(4) The remaining assembly is performed as described in section 8.2.11 (6) and (7).

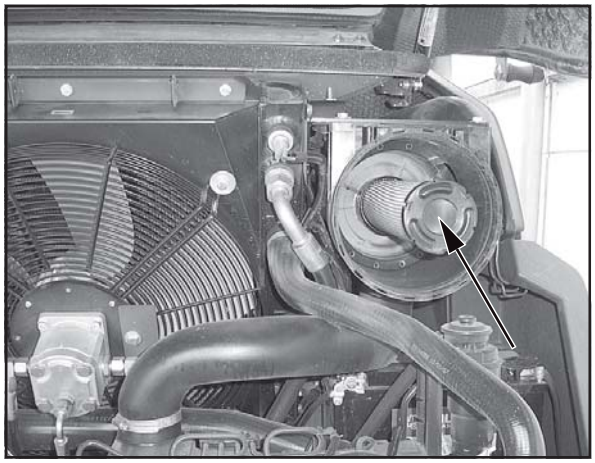

Figure 8-36

8.2.12 Maintaining/replacing the fresh air filter

NOTE

The fresh air filter is located in the driver's cabin behind the driver's seat.

(1) Tilt the backrest of the driver's seat all the way to the front.

(2) Pull the driver's seat as far as possible to the front.

(3) Undo the two screws fastening the cover plate (8-37/arrows) behind the driver's seat.

(4) Remove the filter cartridge (8-38/arrow) upwards and clean it with compressed air.

CAUTION

Do not use any petrol, hot fluids or industrial compressed air for cleaning.

(5) Check the filter cartridge for damage.

NOTE

The filter cartridge must be replaced when it is damaged (check **every 500 operating hours**), but at least **every 1500 operating hours.**

(6) Return the filter cartridge, fasten the cover plate with the two screws and adjust driver's seat as required.

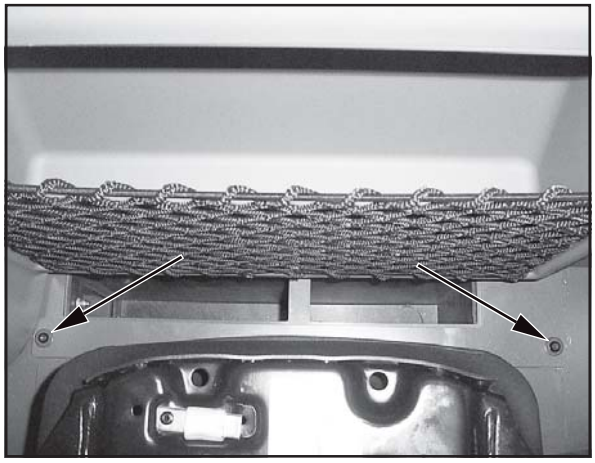

Figure 8-37

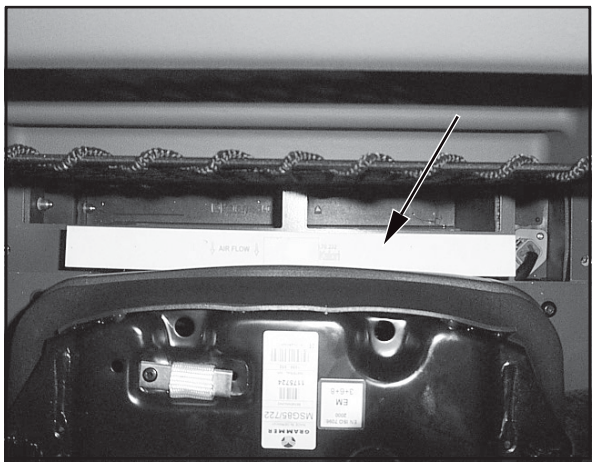

Figure 8-38

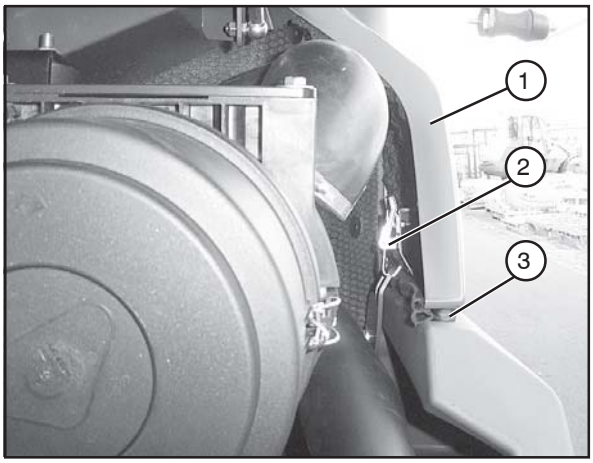

Figure 8-39

8.2.13 Replacing the starter battery

NOTE

The starter battery is a maintenance-free part according to DIN 72311, section 7. It is located to the right in the motor compartment.

(1) Open the motor hood.

(2) Remove the plastic cover at the rear right (8-39/1) by opening the spring lock (8-39/2) and lifting the over until the rubber buffers (8-39/3) are free. Then lift the cover out to the rear.

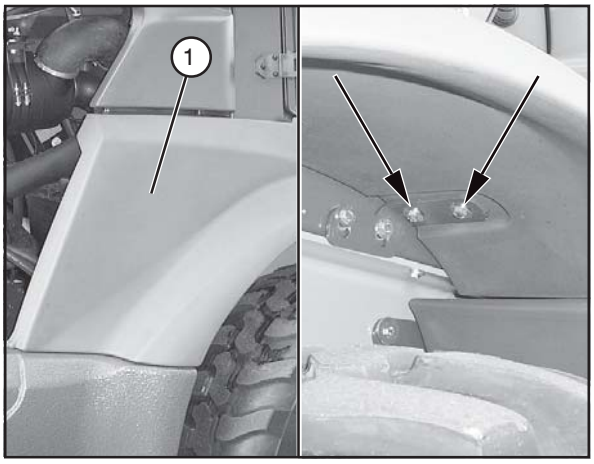

Figure 8-40

(3) Remove the right rear mudguard (8-40/1). To do so, unscrew the screws (8-40/arrow), the screw (8-41/1) and the screw (8-41/arrow).

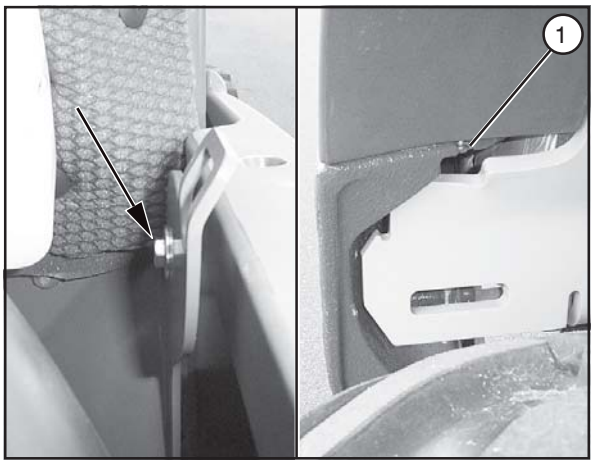

Figure 8-41

(4) Remove the main battery switch (8-42/1).

(5) Loosen and remove the fastening screw (size 13) (8-42/2) of the battery holder.

(6) Loosen and remove the battery clamps (size 13).

DANGER
Always remove the negative terminal first and then the positive terminal. Installation is in reverse order.

(7) Lift the battery out and replace it.

(8) Apply grease to the terminals before fastening them.

(9) Installation is in reverse order.

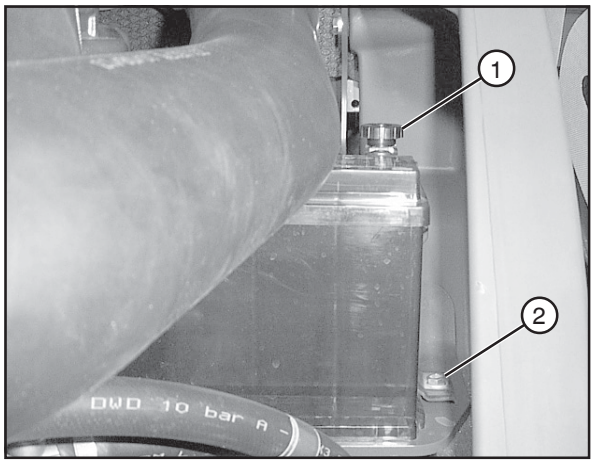

Figure 8-42

DANGER
Make sure the fastenings are secure.

(10) Reattach the right plastic cover again.

(11) Reattach the rear right mudguard.

AS 700 AS 900

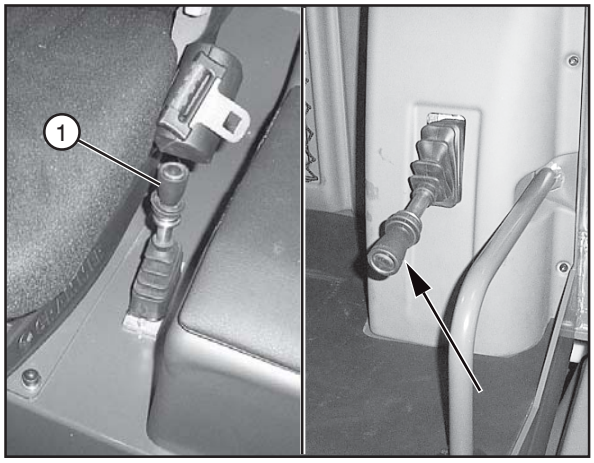

Figure 8-43

8.2.14 Checking the thickness of the disc brake pads

(1) Place a sufficiently large drain pan underneath.

(2) Apply the parking brake (8-43/1) or 8-43/arrow).

NOTE
Collect any oil that escapes.

(3) Unscrew both plugs (8-44/arrows) from the axle arch.

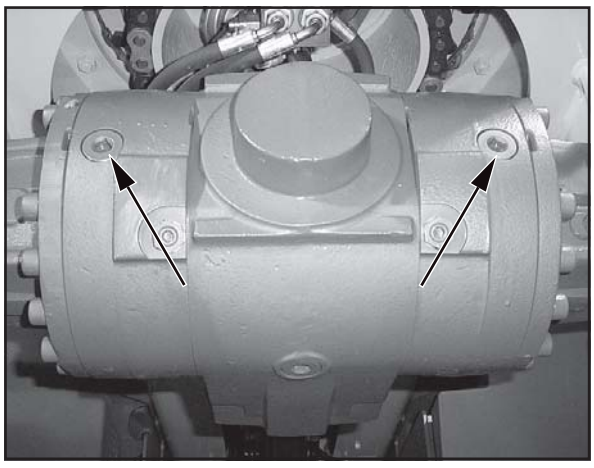
Figure 8-44

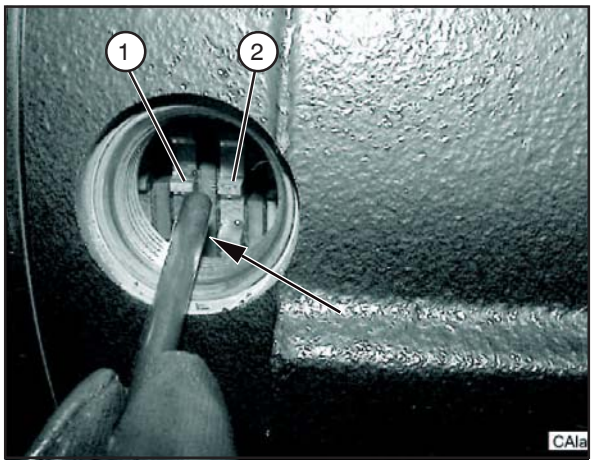

Figure 8-45

(4) Use special tools (feeler gauge or test pin) (8-45/arrow) with a dimension of **4.08 mm** to check the distance between the two opposing discs (8-45/1+2) in both inspection bores.

NOTE

When the special tool (8-45/arrow) cannot be inserted between the two discs (8-45/1+2), the brake pads are worn too far and need to be replaced.

(5) Screw in the plugs again.

8.2.15 Checking/topping up the brake fluid level

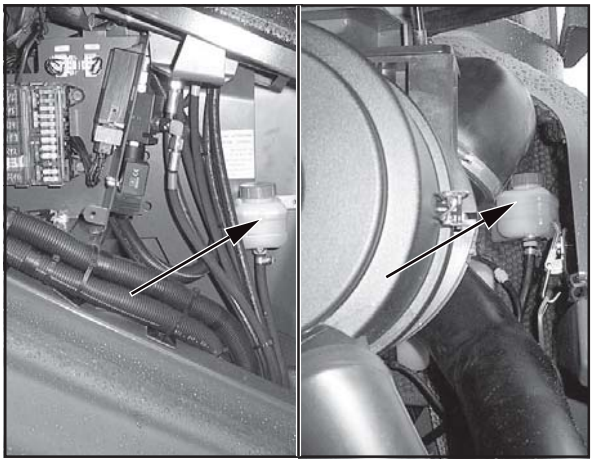
Figure 8-46

CAUTION

- The fluid level of the brake hydraulic oil must reach the “maximum line” (46/arrow) of the compensation tank.
- When topping up brake hydraulic oil, use only hydraulic oil acc. to „**DIN 51524 HVLP 46**“ of viscosity class “**ISO VG 46, VI > 180**”.

NOTE AS 700

The compensation tank for the brake hydraulic oil (46/arrow) is located behind the maintenance flap on the right side of the vehicle.

NOTE AS 900

The compensation tank for the brake hydraulic oil (46/arrow) is located in the engine compartment on the right side of the vehicle.

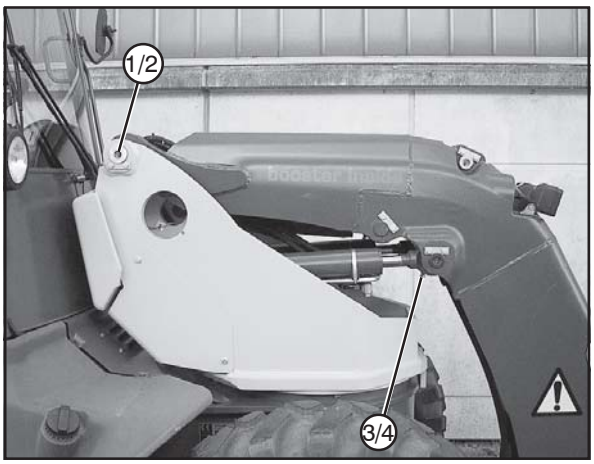

Figure 8-47

8.3 Grease lubrication points

8.3.1 Bucket assembly

CAUTION

The bearing bolts/grease nipples of the bucket assembly (8-47 thru 8-52) must be greased **every 10 operating hours**.

Items 1 + 2 Chassis/bucket assembly
Item 3 + 4 Piston side of lift cylinder

Item 1 Piston side of compensation cylinder
Item 2 + 3 Bottom of lift cylinder

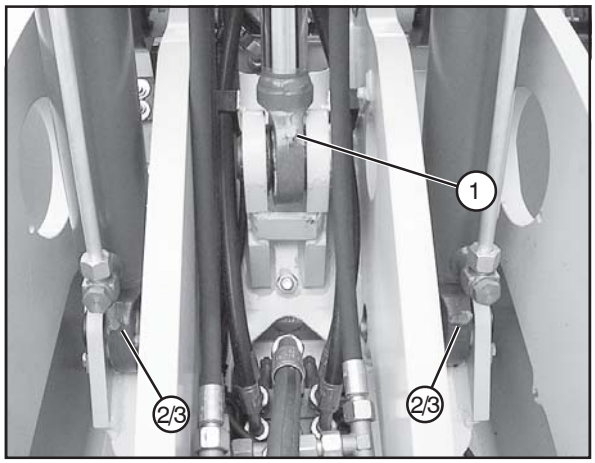

Figure 8-48

Bottom of tip cylinder

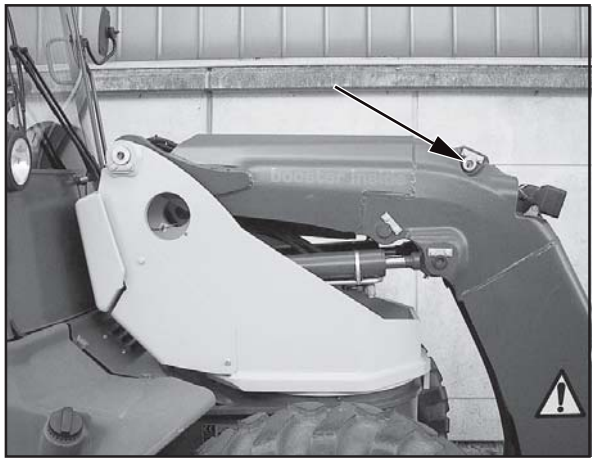

Figure 8-49

Piston side of tip cylinder

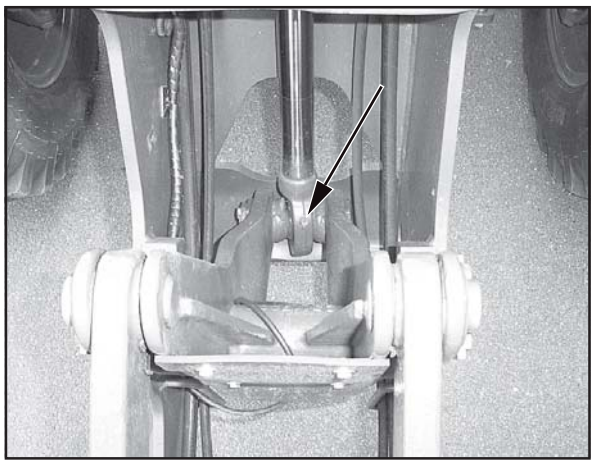

Figure 8-50

Figure 8-51

Bottom of compensation cylinder

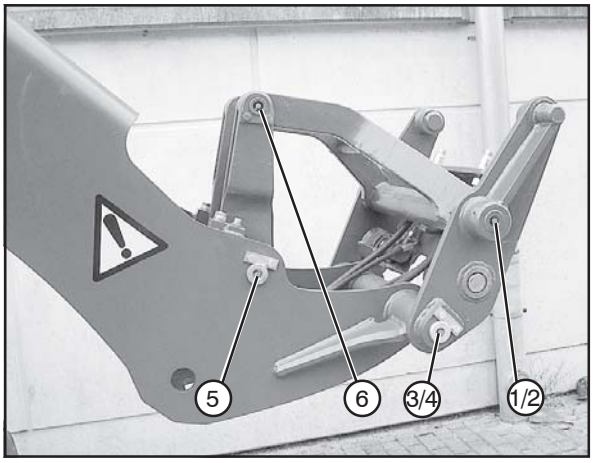

Figure 8-52

Item 1 + 2 Tip lever / quick-change device
Item 3 + 4 Quick-change device/ bucket assembly
Item 5 Bucket assembly/deflection lever
Item 6 Pivot arm/tip lever

8.3.2 Ball bearing ring (8-53/arrows)

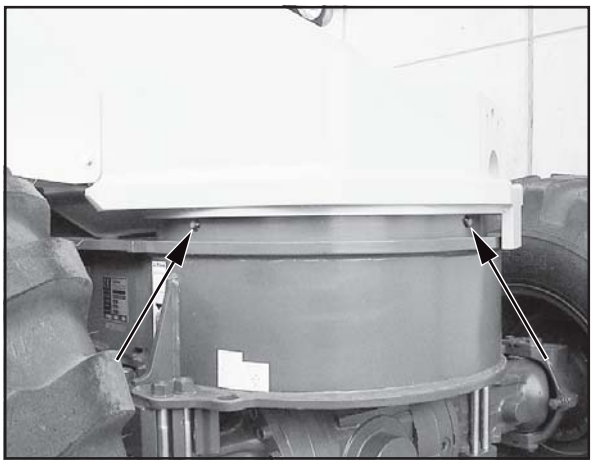

Figure 8-53

The grease filling is to avoid friction, and to provide sealing and protection against corrosion. Therefore, the bearing must be lubricated **every 10 operating hours** until grease becomes visible on the outside. When lubricating the ball bearing ring, swivel the bucket arm by 20° at a time. Grease all four grease nipples in each position. It is absolutely necessary to lubricate the machine before and after a longer period of inactivity.

STOP

DANGER

- Before you start lubricating, mechanically support the bucket arm [e.g. by inserting the bucket arm support (optional) (1-1/arrow)], apply the parking brake (4-7/4) and set the drive direction switch (4-7/3) to the “0” position.
- **During** swivelling, no-one may be present in the swivel area of the bucket arm.

8.3.3 Rear axle

CAUTION
The spindle bolts must be lubricated every **10 operating hours**.

NOTE
Lubricate the top and the bottom of the axle spindle bolts on both sides of the axle (8-54/ arrows).

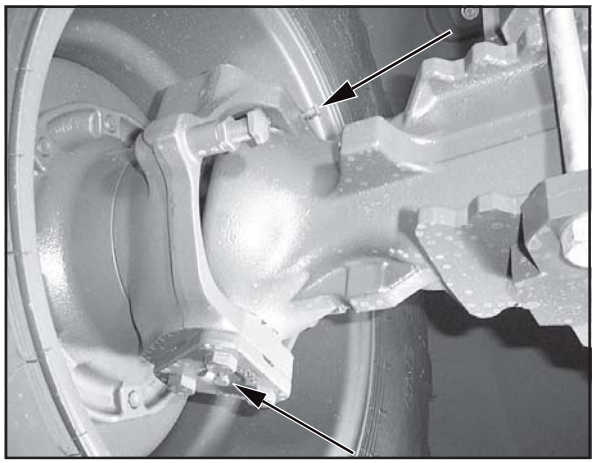

Figure 8-54

8.3.4 Rear axle pivot bolts

CAUTION
- The rear axle pivot bolt (8-55/arrows) must be lubricated **every 10 operating hours or every week**.
- Release the rear axle from load before lubricating the rear axle pivot bolts.

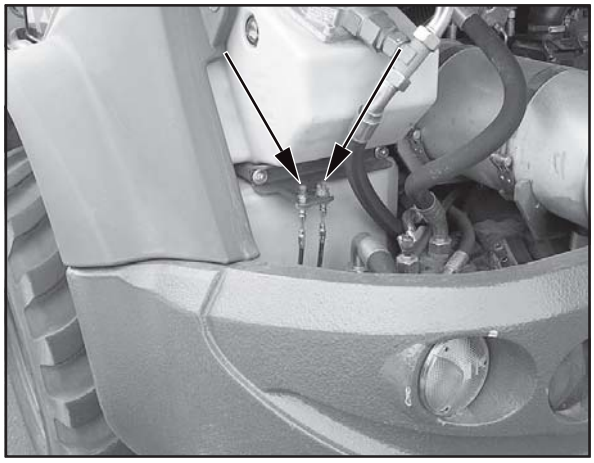

Figure 8-55

8.3.5 Front axle

CAUTION
The spindle bolts must be lubricated every **10 operating hours**.

NOTE
Lubricate the top and the bottom of the axle spindle bolts on both sides of the axle (8-56/ arrows).

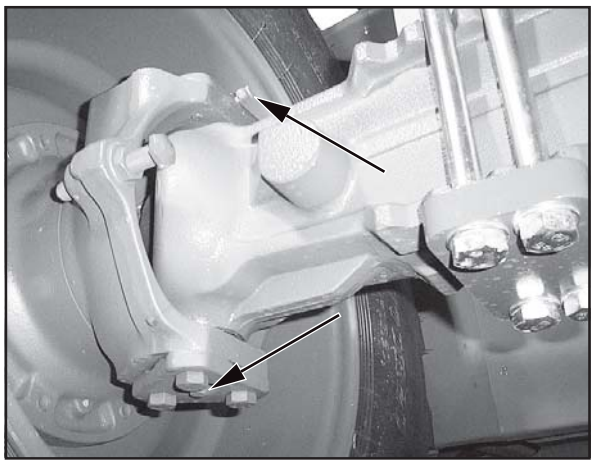

Figure 8-56

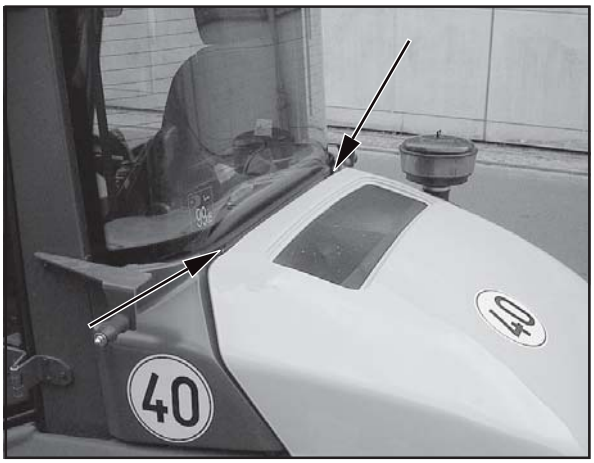

Figure 8-57

8.3.6 Engine hood

CAUTION

The hinges of the engine hood (8-57/arrows) must be lubricated **every 50 operating hours**.

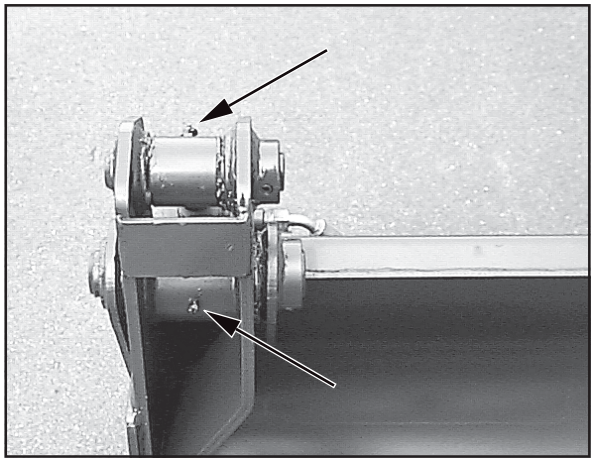

Figure 8-58

8.3.7 Multi-purpose bucket

CAUTION

The bearing bolts of the multi-purpose bucket must be lubricated every 10 operating hours.

NOTE

- The bolt (8-58/arrow) must be lubricated on both sides of the multi-purpose bucket.

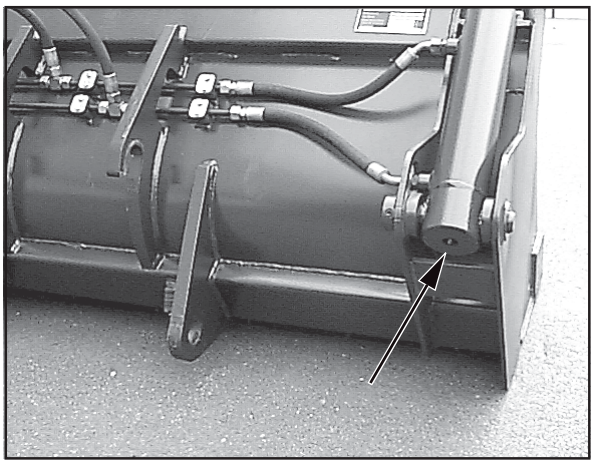

Figure 8-59

- The bolts (8-59/arrows) must be lubricated on both sides of the multi-purpose bucket.