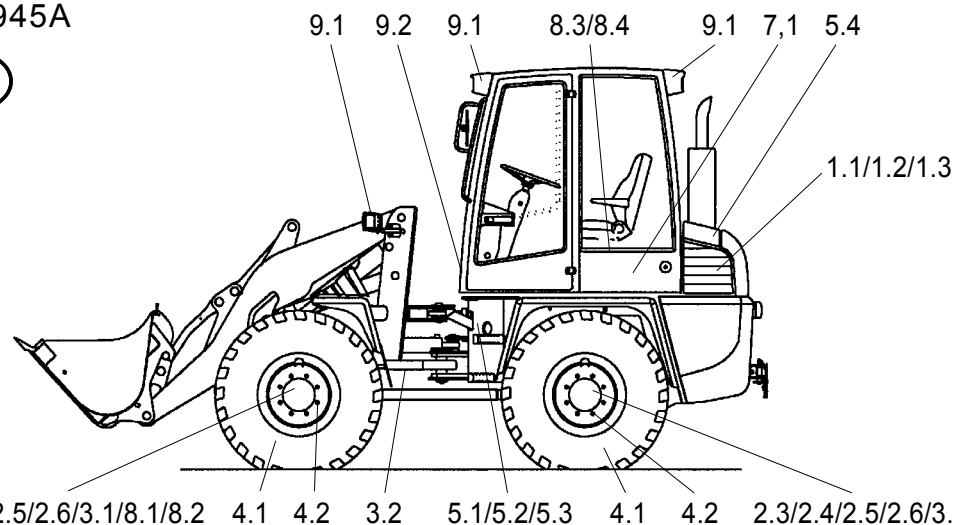


4102945A



Every x operating hours

max. permissible intervals or shorter (depending on use)

| 10 | 50 | 500 | 1500 | Item   | Maintenance points  |
|----|----|-----|------|--|---|
| ○  | △  | ○   | ○    | <b>1 Engine</b>  |   |
|    |    |     |      | 1.1  | Maintenance according to manufacturer's regulations                               |
|    |    |     |      | 1.2  | Dry air filter system<br>Activate dust removal valve<br>Check maintenance display |
|    |    |     |      | 1.3  | Replace filter element if maintenance display is red →                            |
| ○  | △  | ○   | ◇    | <b>2 Axles / power shift gear</b>                          |   |
|    |    |     |      | 2.1  | Check oil level in front axle →   |
|    |    |     |      | 2.2  | Change oil in front axle →  |
|    |    |     |      | 2.3  | Check oil level in rear axle with power shift gear →                              |
|    |    |     |      | 2.4  | Change oil in rear axle with power shift gear →                                   |
|    |    |     |      | 2.5  | Check oil level in planetary gear →   |
|    |    |     |      | 2.6  | Change oil in planetary gear →  |
| △  | ○  | △   | ○    | <b>3 Axles / cardan shaft / articulated pendulum joint</b> |   |
|    |    |     |      | 3.1  | Check fastening of axles (385 Nm)   |
|    |    |     |      | 3.2  | Check fastening of cardan shaft (49 Nm)   |
| △  | ○  | ○   |      | <b>4 Wheels and tyres</b>                                  |   |
|    |    |     |      | 4.1  | Check air pressure  |
|    |    |     |      | 4.2  | Check fastening of wheel nuts (440 Nm)  |
| ○  | △  | ○   | ◇    | <b>5 Hydraulic system</b>                                  |   |
|    |    |     |      | 5.1  | Oil level check (view glass)  |
|    |    |     |      | 5.2  | Oil change →  |
|    |    |     |      | 5.3  | Replace filter inserts, observe electr. control lamp →                            |
|    |    |     |      | 5.4  | Check and clean hydraulic oil cooler  |
|    |    |     |      | <b>6 Lubrication points (indicated in red)</b>             | →   |
|    |    | ○   |      | <b>7 Battery</b>   |   |
|    |    |     |      | 7.1  | Visual check  |
|    |    | ○   | ○    | <b>8 Brake system</b>                                      |   |
|    |    |     |      | 8.1  | Service and parking brake:<br>Take function and visual check before starting work |
|    |    |     |      | 8.2  | Service brake: check brake lining, adjust if necessary →                          |
|    |    |     |      | 8.3  | Service brake: visually check compensation tank                                   |
|    |    |     |      | 8.4  | Parking brake: check brake lining, adjust if necessary →                          |
|    |    |     |      | <b>9 Lighting system / fresh air filter</b>                |   |
|    |    |     |      | 9.1  | Take function test before starting work   |
|    |    |     |      | 9.2  | Check fresh air filter →  |

| Item  | Designation                       | Specification               | Viscosity            | Filling amount                             |
|-------|-----------------------------------|-----------------------------|----------------------|--|
| * 1   | Motor oil                         | MIL-L-2104 C = API-CD       | acc. to manufacturer | ca. 10 l with oil filter                   |
| * 2.2 | Transmission oil with LS additive | MIL-L-2105 D = API-GL5-6-LS | SAE 85 W 90-LS       | ca. 7.7 l                                  |
| * 2.4 | Transmission oil with LS additive | MIL-L-2105 D = API-GL5-6-LS | SAE 85 W 90          | ca. 8.0 l (20 km/h)<br>ca. 9.5 l (30 km/h) |
| * 2.6 | Transmission oil                  | MIL-L-2105 D = API-GL5-6    | SAE 85 W 90          | ca. 2 x 0.7 l each                         |
| * 5.2 | Hydraulic oil                     | DIN 51524 - HVLP 46         | ISO VG 46, VI > 180  | ca. 100 l                                  |
| 6     | Grease                            | DIN 51825 - KPF 1/2 N-20    |                      | as required                                |
| 7     | Distilled water                   |                             |                      | as required                                |
| * 8   | Mineral oil                       | DIN 51524 - HVLP 46         | ISO VG 46, VI > 180  | as required                                |

**Key to symbols**

- △ First oil change, first filter replacement or first check  
 ○ 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 the accident prevention regulations!

**Lubrication points (indicated in red)**

Lubricate glide points as required and always after cleaning using grease DIN 51825 - KPF 1/2 N-20.

**Oil lubrication points** → **Optional equipment: biodegradable hydraulic oil**

Ester-based synthetic hydraulic oil, viscosity class ISO VG 46 VI > 180 →



**CAUTION** Use only mineral oil for the service/parking brake

## 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 support (1-2/arrow) must be inserted,
  - the ball block valve for the working and auxiliary hydraulics (1-3/arrow) must be closed.
- For work to be carried out in the area of the articulation joint, the articulation safeguard must be inserted (1-4/arrow).
- The loader must be secured against rolling by applying the parking brake (4-12/3) and by setting the drive direction switch (4-12/6) to position "0". In addition, wheel chocks must be placed on both sides of one of the two wheels of the front axle.



#### **CAUTION**

- Change the oil when the units are luke warm.
- Check the oil level when the loader is on level ground and when the bucket arm is in its lowest position.
- Immediately replace damaged filter inserts and gaskets.
- Clean pressure lubrication fittings before lubricating.





## NOTE

- For the maintenance work required, refer to the maintenance plan (page 8-1).
- Damage caused by failure to observe the maintenance plan is not covered by the guarantee.
- 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".

## 8.2 Maintenance work

### 8.2.1 Checking the engine oil level

See the operating instructions for the engine.



## NOTE

The engine can be accessed via the engine hood.

### 8.2.2 Changing the engine oil

See the operating instructions for the engine.



## NOTE

The engine can be accessed via the engine hood.

### 8.2.3 Replacing the fuel prefilter



## NOTE

Maintenance (visual inspection) of the fuel prefilter must be carried out every **500 operating hours**. The fuel prefilter must be replaced when soiled, but at least once a year.

- (1) Open the engine hood.
- (2) Loosen the two clamps in front of and behind the prefilter (8-1/2).
- (3) Bend the fuel line (8-1/1) on one side of the prefilter to prevent the fuel from escaping, pull the line off the old prefilter and immediately push it onto the new prefilter. Then pull off the fuel line (8-1/3) on the other side of the prefilter and push it onto the new prefilter.

#### NOTE

- Collect any fuel that escapes.
- When installing the new prefilter, heed the flow direction.

- (4) Fasten both clamps.
- (5) Check for leaks.

### 8.2.4 Maintaining/ replacing the air filter

#### NOTE

Maintenance of the filter cartridge is necessary when the red range is visible in the maintenance indicator (8-2/1) or after 12 months have elapsed, whichever is sooner.

- (1) Open the engine cover.
- (2) Loosen the three retaining clamps of the air filter lid (8-2/2) and remove the air filter lid.
- (3) Pull out the filter cartridge (8-3/ arrow) by carefully turning it back and forth.
- (4) Clean the filter cartridge.

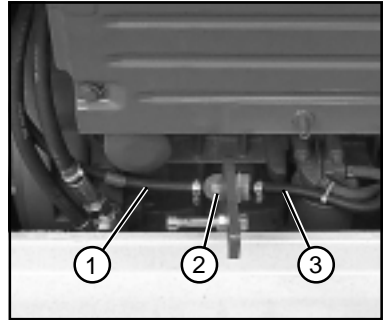


Figure 8-1

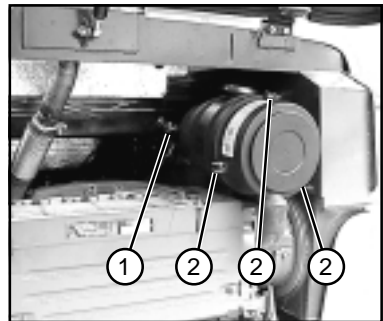


Figure 8-2

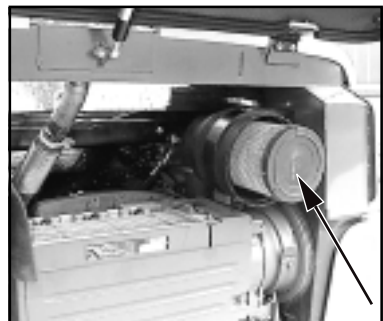


Figure 8-3



### 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**" points upwards. This ensures that the dust removal valve faces downwards.



### NOTE

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

(8) When the indicator field of the maintenance indicator (8-2/1) turns red, press the reset button. The field becomes clear.



### CAUTION

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

## 8.2.5 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 at the latest after two years.
- Make sure that no dirt or dust can enter the filter housing when replacing the safety cartridge.



(1) Remove the filter cartridge (section 8.2.4).

(2) Pull out the safety cartridge (8-4/arrow) by carefully turning it back and forth and replace the safety cartridge and the filter cartridge with new cartridges.

(3) The remaining steps of assembly are carried out as described in section 8.2.4 (6)...(8).

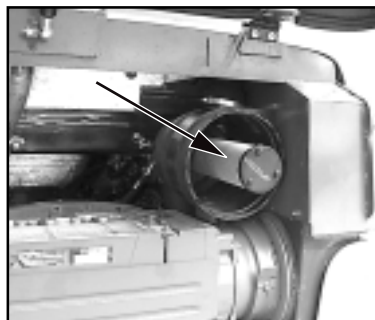


Figure 8-4

## 8.2.6 Checking the oil level in the front axle

(1) Unscrew the plug from the axle arch (8-5/arrow).

### NOTE

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

(2) Screw in the plug again.

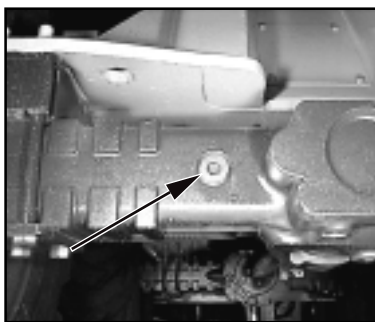


Figure 8-5

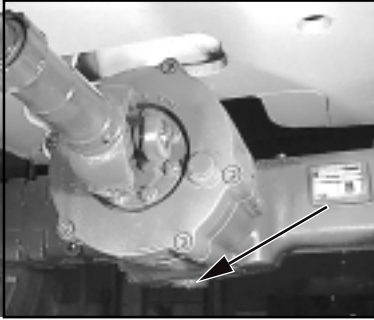


Figure 8-6

### 8.2.7 Changing the oil in the front axle

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

(2) Unscrew the plugs from the axle arch (8-6/arrow and 8-7/arrow) and drain the oil.

#### CAUTION

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

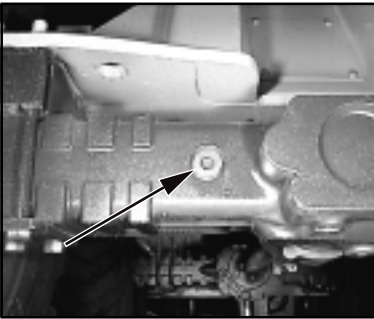


Figure 8-7

(3) Screw in the plug (8-6/arrow) again.

(4) Fill in oil via the plug bore (8-7/arrow) until the oil level reaches the opening.

#### NOTE

- The vent valve of the axle (8-8/arrow) must be free from dirt.
- Details regarding the amount of oil required are given in the maintenance plan (page 8-1).
- 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.

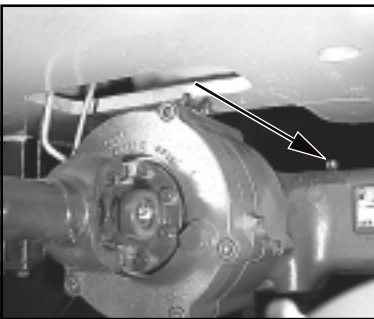


Figure 8-8

(5) Screw in the plug (8-7/arrow) again.

## 8.2.8 Checking the oil level in the rear axle

### 8.2.8.1 Slow loader

» 20 km/h «

(1) Unscrew the plug from the axle arch (8-9/arrow).

#### NOTE

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

(2) Screw in the plug again.  
(3) Unscrew the plug from the intermediate gear (8-10/arrow).

#### NOTE

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

(4) Screw in the plug again.

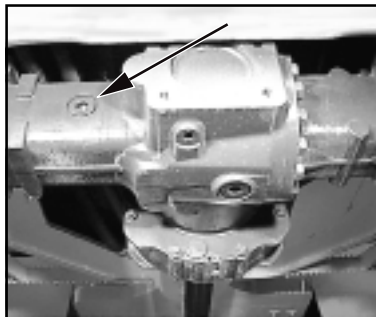


Figure 8-9

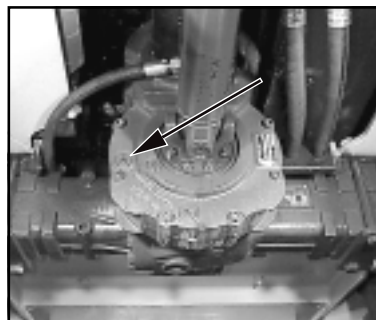


Figure 8-10

### 8.2.8.2 Fast loader

» 30 km/h «

(1) Unscrew the plug from the axle arch (8-11/arrow).

#### NOTE

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

(2) Screw in the plug again.

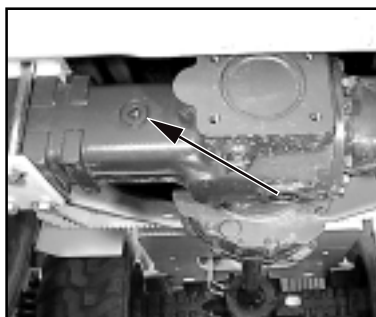


Figure 8-11



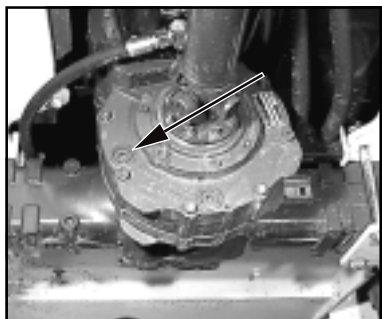


Figure 8-12

(3) Unscrew the plug from the distribution gear (8-12/arrow).

#### NOTE

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

(4) Screw in the plug again.

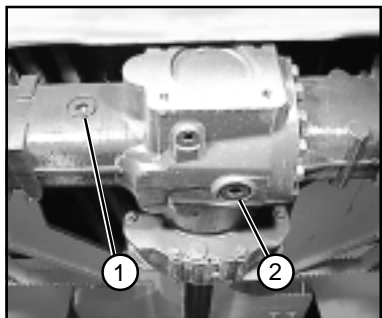


Figure 8-13

## 8.2.9 Changing the oil in the rear axle

### 8.2.9.1 Slow loader

» 20 km/h «

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

(2) Unscrew the plugs from the axle arch (8-13/1 and 8-13/2) and the intermediate gear (8-14/1 and 8-14/2) and let the oil drain out.

#### CAUTION

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

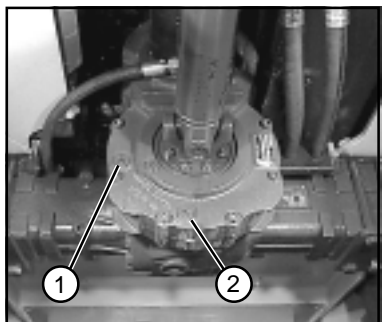


Figure 8-14

(3) Screw in the plugs for the axle arch (8-13/2) and the intermediate gear (8-14/2) again.

(4) Fill oil into the plug bore of the intermediate gear (8-14/1) until the oil level reaches the opening.

#### NOTE

- Details regarding the amount of oil required are given in the maintenance plan (page 8-1).
- 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.

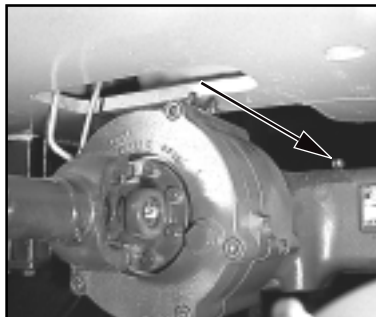


Figure 8-15

(5) Screw in the plug of the intermediate gear (8-14/1) again.

(6) Fill oil into the plug bore of the axle arch (8-13/1) until the oil level reaches the opening.

#### NOTE

- Details regarding the amount of oil required are given in the maintenance plan (page 8-1).
- 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 (8-15/ arrow) must be free from dirt.

(7) Screw in the plug of the axle arch (8-13/1) again.

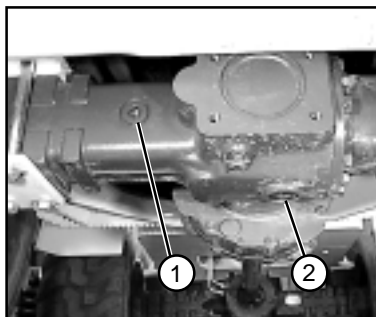


Figure 8-16

### 8.2.9.2 Rear axle of the fast loader » 30 km/h «

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

(2) Unscrew the plugs from the axle arch (8-16/1 and 8-16/2) and the distribution gear (8-17/1 and 8-17/2) and drain the oil.

#### CAUTION

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

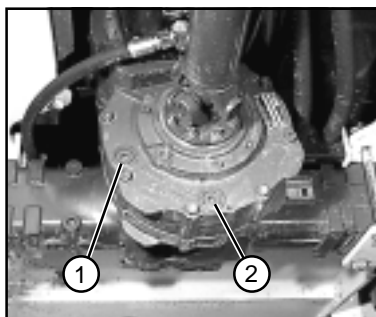


Figure 8-17

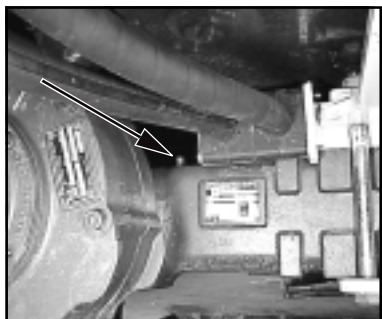


Figure 8-18

(3) Screw in the plugs for the axle arch (8-16/2) and the distribution gear (8-17/2) again.

(4) Fill in oil via the plug bore in the distribution gear (8-17/1) until the oil level reaches the opening.

#### NOTE

- Details regarding the amount of oil required are given in the maintenance plan (page 8-1).
- 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.

(5) Screw in the plug for the distribution gear (8-17/1) again.

(6) Fill in oil via the plug bore in the axle arch (8-16/1) until the oil level reaches the opening.



#### NOTE

- Details regarding the amount of oil required are given in the maintenance plan (page 8-1).
- 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 (8-18/ arrow) must be free from dirt.

(7) Screw in the plug for the axle arch (8-16/1) again.

### 8.2.10 Checking the oil level in the planetary gear

- (1) Move the loader until the marking line "OIL LEVEL/OEL-STAND" is horizontal and the plug is located to the left above this marking line (8-19/arrow).
- (2) Unscrew the plug.

#### NOTE

- The oil level must reach the plug bore.
  - Collect any oil that escapes.
- (3) Screw in the plug with a new gasket.



Figure 8-19

### 8.2.11 Changing the oil in the planetary gear

- (1) Move the loader so that the plug (8-20/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/OEL-STAND" is horizontal and the plug is located to the left above this marking line (8-19/arrow).
- (5) Fill in oil via the plug bore until the oil level reaches the opening.
- (6) Screw in the plug with a new gasket.



Figure 8-20

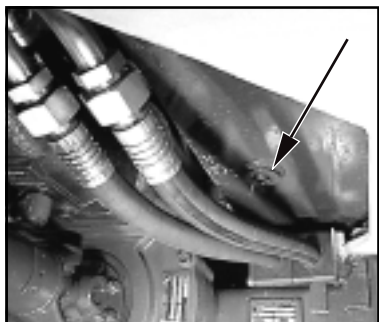


Figure 8-21

## 8.2.12 Changing the oil in the hydraulic system

- (1) Place an oil drain pan (min. capacity: 110 l) underneath the drain point.
- (2) Unscrew the oil drain plug (8-21/arrow) (size 8).
- (3) Drain the oil into the drain pan.

### CAUTION

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

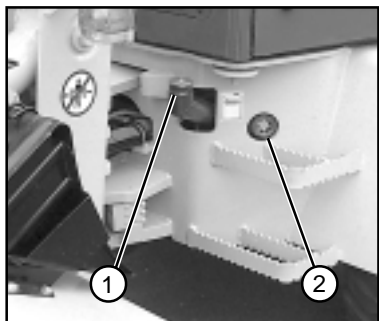


Figure 8-22

- (4) Screw in the oil drain plug again.
- (5) Replace the hydraulic oil filter insert (section 8.2.13).
- (6) Fill in oil into the filler neck (8-22/1).

### CAUTION

For those loaders which are fitted to run with biodegradable hydraulic oil (ester-based synthetic hydraulic oil of viscosity class ISO VG 46 VI > 180) - (designation can be found on the hydraulic oil reservoir and on the dashboard), only this type of oil may be used for oil changes. Mineral and biodegradable hydraulic oils must **never** be mixed! Biodegradable hydraulic oil must be changed every **1000 operating hours**.

To switch from hydraulic oil based on mineral oil to biodegradable hydraulic oil, conversion guidelines VDMA 24 569 must be observed!

### CAUTION

Use only mineral oil for the service/parking brake



- (7) Check the oil level at the sight glass (8-22/2).
- (8) Close the filling nozzle.

### 8.2.13 Replacing the hydraulic oil filter insert

#### CAUTION

Replace the filter insert according to the maintenance plan or when the clogging indicator lamp (4-13/23) lights up.

#### NOTE

The clogging indicator lamp may briefly light up after a cold start but will go out when the hydraulic oil has reached its operating temperature.

- (1) Loosen the gussets first on the right-hand side (8-23/arrows) and then on the left-hand side of the loader.
- (2) Remove the gussets and the bottom cover.
- (3) Loosen the fastening screws (8-24/arrows) (size 13) and remove the maintenance plate.
- (4) Remove the lid of the hydraulic oil filter (8-25/arrow) and replace the filter insert with a new one.

#### CAUTION

The replaced hydraulic oil filter insert must be disposed of in such a way that it does not cause pollution.

- (5) Lock the lid of the hydraulic oil filter.
- (6) Install the maintenance plate and the bottom cover.

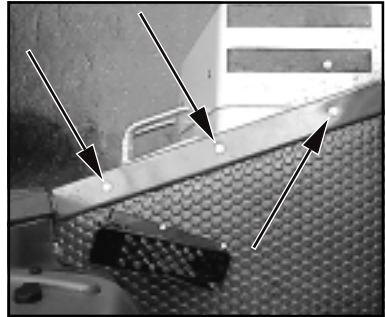


Figure 8-23

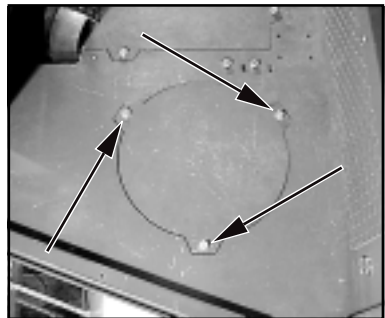


Figure 8-24



Figure 8-25

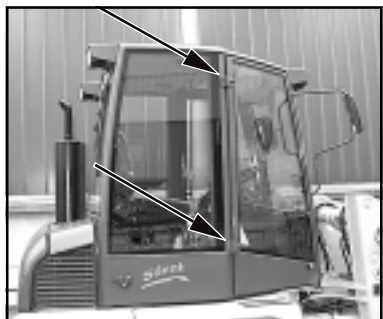


Figure 8-26

## 8.2.14 Lubrication points

### NOTE

The lubrication points are marked in red on the loader.

### 8.2.14.1 Door of the driver's cabin

#### CAUTION

The hinges of the doors of the driver's cabin (8-26/arrows) must be lubricated **every 50 operating hours**.

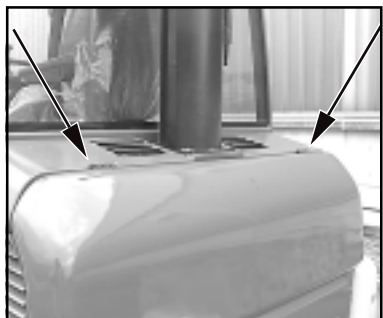


Figure 8-27

### NOTE

Lubricate the hinges on both doors of the driver's cabin.

### 8.2.14.2 Engine hood

#### CAUTION

The hinges of the engine hood (8-27/arrows) must be lubricated **every 50 operating hours**.

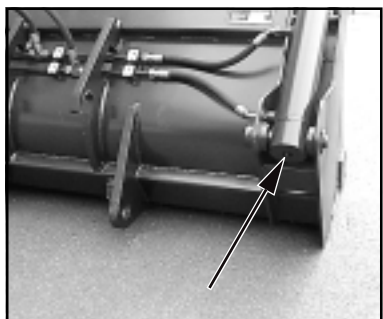


Figure 8-28

### 8.2.14.3 Multi-purpose bucket

#### CAUTION

The bearing bolts of the multi-purpose bucket (8-28/arrow) must be lubricated **every 10 operating hours**.

### NOTE

The bolts must be lubricated on both sides of the multi-purpose bucket.

### CAUTION

The bearing bolts of the multi-purpose bucket (8-29/arrows) must be lubricated **every 10 operating hours**.

### NOTE

The bolts must be lubricated on both sides of the multi-purpose bucket.

## 8.2.15 Replacing the starter battery

### NOTE

The starter battery is a maintenance-free part according to DIN 72311, section 7. It is located beneath the maintenance plate to the left of the driver's seat.

- (1) Remove the battery main switch (4-11/3).
- (2) Remove the insulation mat to the left of the driver's seat.
- (3) Loosen the fastening screws (8-30/arrows) (size 13) and remove the maintenance plate.
- (4) Loosen and remove the fastening screw (8-31/1) (size 17) of the battery holder.
- (5) Fold up the cover caps (8-31/2) and disconnect and remove the terminals from the battery (size 13).

### DANGER

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

- (6) Remove the battery and replace it.
- (7) Apply grease to the terminals before fastening them.
- (8) Installation is in the reverse order.

### DANGER

Make sure the fastenings are secure.

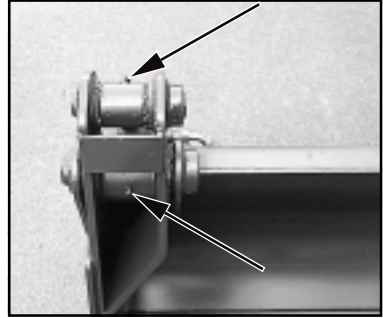


Figure 8-29

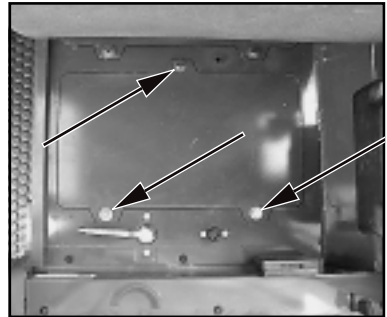


Figure 8-30

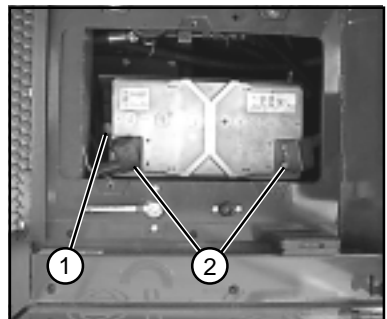


Figure 8-31





Figure 8-32

## 8.2.16 Checking/adjusting the service/parking brake

### DANGER

- The combined service/parking brake must be checked and, if necessary, adjusted every **500 operating hours**.
- All work on the brake system must only be carried out by authorised personnel.
- Oil loss (leaks) in the brake system must be immediately reported to authorised personnel.

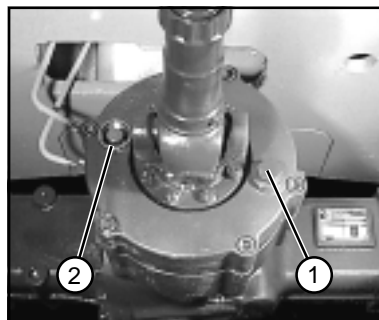


Figure 8-33

- (1) Check the brake fluid level at the equalising reservoir (8-32/ arrow); if necessary, add brake fluid.
- (2) Visually check the entire system for leaks.
- (3) Release the hand lever for the parking brake (4-12/3).
- (4) Remove both screw plugs (8-33/1 and 8-33/2) from the housing (size 24).

### NOTE

- The tools required are contained in the tool kit.
- Screw plug 8-33/2 has already been removed.
- Collect any oil that escapes.

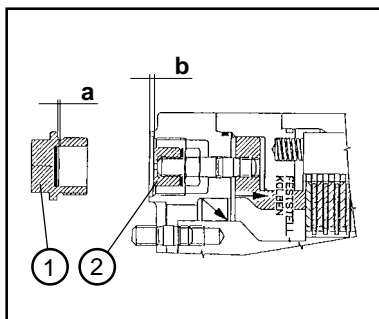


Figure 8-34

- (5) Determine the play ( $l = b - a$ ) (Figure 8-34). To do so, determine gap "a" (8-34/a) between the stop discs and the stud end of the screw plug and gap "b" (8-34/b) between the sleeve and the sunk face of the housing.

### DANGER

The brake must be readjusted if the play is larger than 2 mm.

### Readjustment:

(6) Pull off the sleeves (8-33/2 and 8-34/2).

(7) Remove the adjusting discs and insert them in the screw plugs (8-33/1 and 8-34/1), adding them to the stop discs.

### DANGER

- The two screw plugs must be readjusted synchronously to prevent the piston from getting jammed.
- For each of the screw plugs, there is only one adjusting disc beneath the sleeve. The brake cannot be adjusted any further.



(8) Push the sleeves (8-33/2 and 8-34/2) onto the setscrews again.

(9) Screw the screw plugs into the housing.

(10) Carry out a function check.

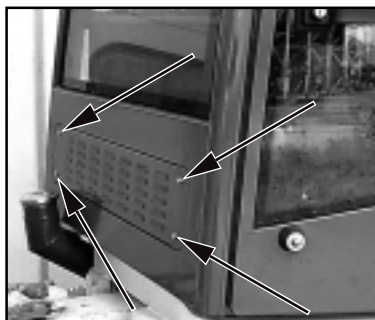


Figure 8-35

### 8.2.17 Maintaining/replacing the fresh air filter

(1) Lower the bucket arm and insert the articulation safeguard (1-4/arrow).

(2) Loosen the four fastening screws (8-35/arrows) of the heater cover and remove the cover.

(3) Remove the filter element (8-36/arrow) and clean it using compressed air.

### CAUTION

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

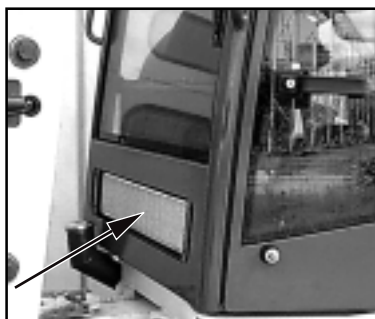


Figure 8-36

- (4) Check the filter element for damage.



**NOTE**

The filter element must be replaced when it is damaged, but at least every **1500 operating hours**.

- (5) Insert the filter element and install the heater cover.