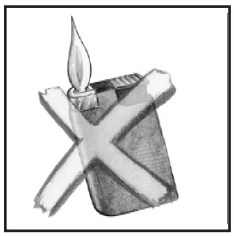
Maintenance

Maintenance precautions

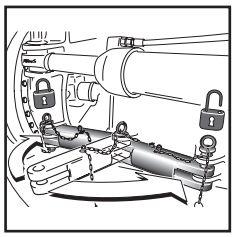
- Always prepare the dump truck before starting any maintenance adjustments or other work on the dump truck, see Service Position in the Safety Instructions chapter (Chapter 2).

- Fuel and oil are dangerous substances. Never handle fuel, oil, grease or oily clothes in places where there is any fire or flame. In case of fire, always know the location and how to use fire extinguishers and other fire fighting equipment.

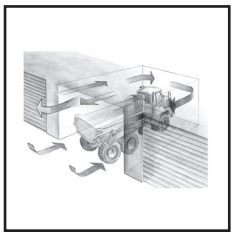
- Wear a well-fitting helmet, safety shoes and working clothes. When drilling, grinding or hammering always wear protective goggles.



- Flames should never be used instead of lamps. Never use a naked flame to check leaks or level of oil, fuel, anti-freeze or electrolyte.

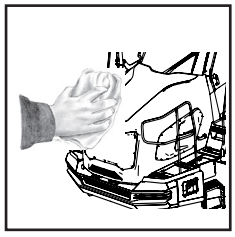


- Park the dump truck on firm, level ground. Apply the Articulation Lock.



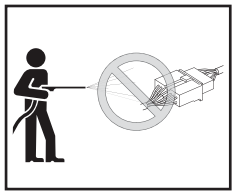
- Exhaust gas is dangerous. When working inside, be particularly careful to have good ventilation.

- When working with others, choose a group leader and follow the leader's instructions. Do not perform any maintenance beyond the agreed work.



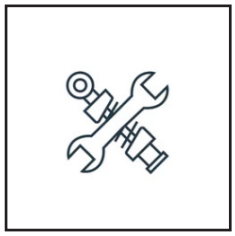
- Thoroughly wash the engine. In particular, be careful to clean the filler caps, grease fittings and the area around the dipsticks. Be careful not to let any dirt or dust into the system.

- Always stop the engine when performing maintenance near moving parts.

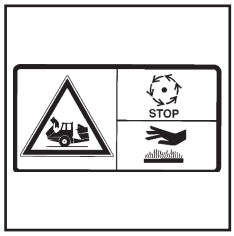


- Wash the dump truck, be careful not to wet electrical components or inside cab.

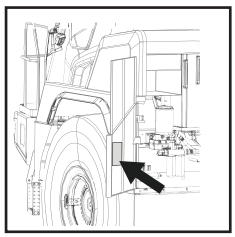
- During maintenance, do not allow any unauthorized person to stand near the dump truck.



- Always use Hyundai genuine parts for replacement.
- Contact your Hyundai dealer for 500 hour maintenance kit.

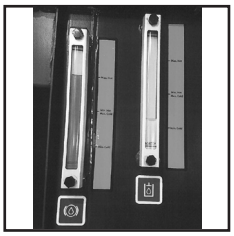


- Unless you have special instructions to the contrary, maintenance should always be carried out with engine stopped. If maintenance is carried out with the engine running, there must be two persons present: One operating the engine, and the other performing the maintenance. In such a case, never touch any moving parts.



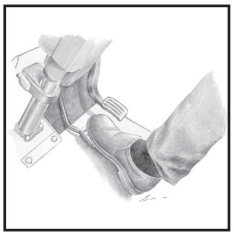
- Always use the grades of grease and oil recommended by the manufacturer. Choose the viscosity specified for the ambient temperature. See chapter 6.

* Numbers refer to positions on the lubrication schedule, chapter 6



- When adding oil check that the oil is at the correct level.
- After greasing up, always wipe off the old grease which was forced out.

- Always use pure oil or grease, and be sure to use clean containers.



For empty the hydraulic accumulators this need to be follow.

- Repeatedly press the brake pedal until pressure be equal to 0 on the main screen ACC1 and ACC2.
- Repeatedly turn ON/OFF parking brake button until pressure be equal to 0 on the main screen ACC3.
- Completely sink down the front suspension.

- When changing the oil or filter, check the drained oil and filter for any signs of excessive metal particles or other foreign materials.

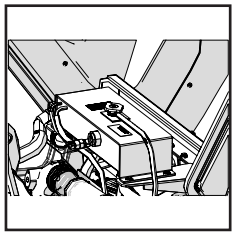
- When removing parts containing O-rings, gaskets or seals, clean the mounting surface and replace with new sealing parts.

- When checking or changing the oil, do it in a place free of dust, and prevent any dirt from getting into the oil.

- When lubricating oil or cooling water has been drained, keep an eye on the instrument panel so that the dump truck is not operated without oil or cooling water.

- Before draining the oil, warm it up to a temperature of 30° to 40° C. Be aware of possible internal pressure when opening any drain, level or filling plug. Hot oil can spurt out and inflict personal injury.

- After replacing oil, filter element or strainer, bleed the air from the circuit.



- Be particularly careful when removing the expansion tank cap. If this is done immediately after using the engine, there is a danger that hot coolant and steam may spurt out.

- When the strainer is located in the oil filler, the strainer must not be removed while adding oil.

- In case of difficult maintenance, contact your Hyundai Dealer.

- In case of difficult maintenance, refer to your Hyundai Dealer.

* Numbers refer to positions on the lubrication schedule, chapter 6

Maintenance table

Initial 100 Hours Service

Initial 500 Hours Service

8. Hours / Daily Service

40 Hours / Weekly Service

* Numbers refer to positions on the lubrication schedule, chapter 6

Maintenance table

500 Hours Service

1000 Hours Service

2000 Hours Service

* Numbers refer to positions on the lubrication schedule, chapter 6

Maintenance table

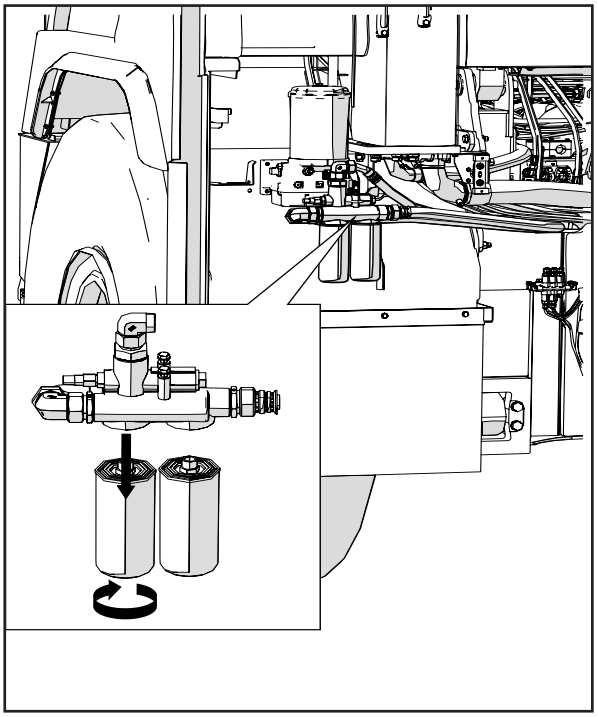
4000 Hours Service

Yearly recommended maintenance

* Numbers refer to positions on the lubrication schedule, chapter 6

Initial 100 Hours Service

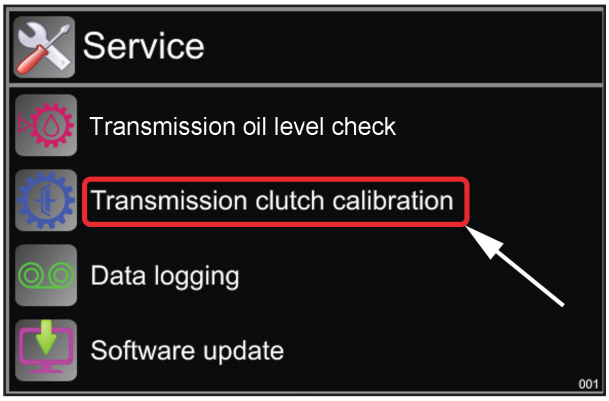
Maintenance to be performed after the first 100 hours only

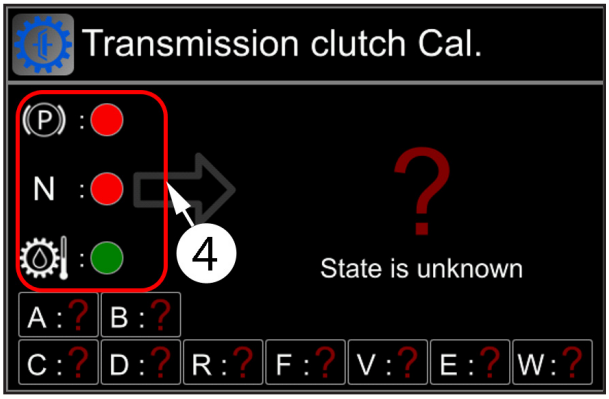


1. Transmission

1.1. Replace filter elements (located on the left hand side)

1. The dump truck must be standing on level ground.
2. The oil must be at operating temperature.
3. Open the maintenance door of the hydraulic tank.
4. Clean well around the filters.
5. Place a suitable container beneath the filters to catch spillage.
6. Unscrew the filter elements.
7. Check for wear particles in the oil.
8. Apply oil to the seals on the new elements.
9. Screw the filter elements in until contact with the sealing surface is obtained. Tighten the elements firmly by hand.
10. Warm up and check for leaks. Re-check level and adjust if necessary.





1.2. Run the Transmission Clutch Calibration (AEB) AEB = Automatic Filling Parameter Adjustment

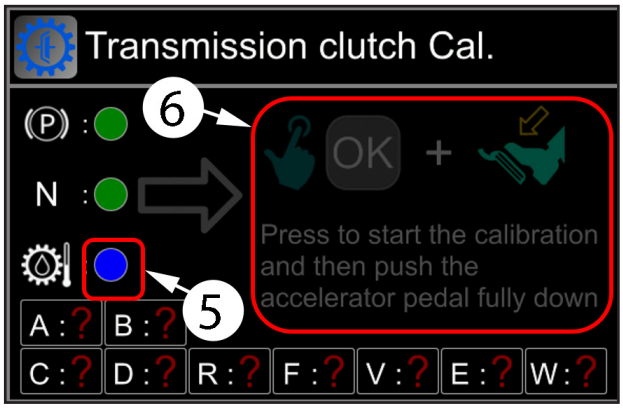
To optimize the transmission, run the AEB-Tester.

1. Push MENU on the display screen.
2. Select SERVICE
3. Select Transmission Clutch Calibration (AEB).
4. Make sure that the all requirements are fulfilled

* Numbers refer to positions on the lubrication schedule, chapter 6

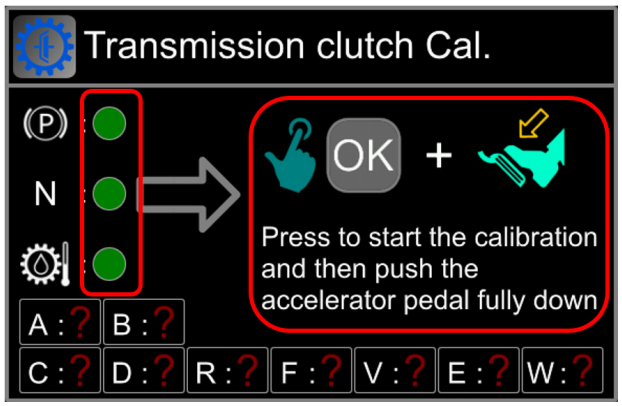
Initial 100 Hours Service

Maintenance to be performed after the first 100 hours only

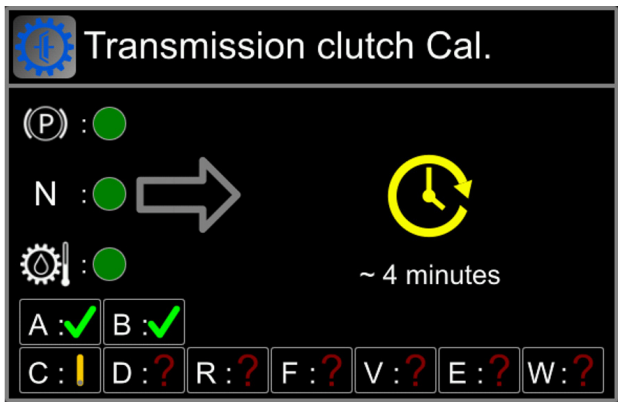


5. This means that the transmission is still too cold.

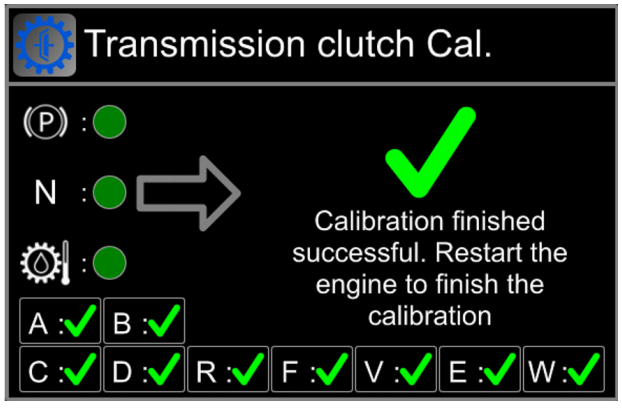
6. That is why it is not possible yet to start the calibration.



Finally when all condition are fulfilled then it is possible to start the calibration.



The yellow bar is rotating during calibration, on average it takes around 4 minutes to finish a successful calibration. Clutches A & B are calibrated successfully. Currently handling clutch C.



The calibration finished successfully. If not, a failure cause will be shown on the screen.

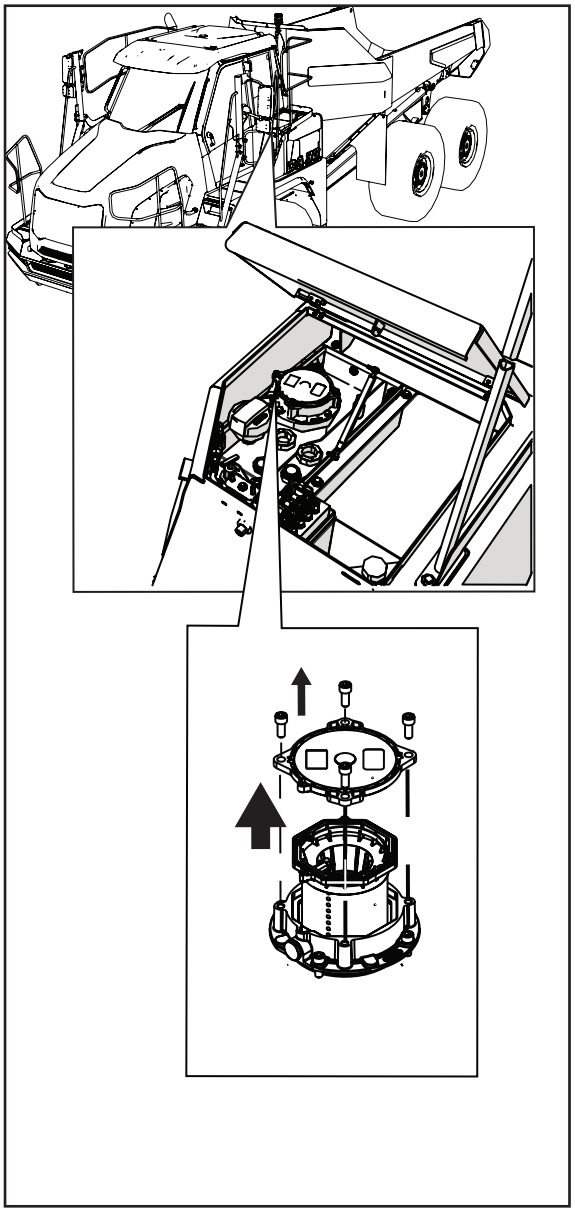
NOTE

Transmission Clutch Calibration must be performed after every oil change in transmission!

* Numbers refer to positions on the lubrication schedule, chapter 6

Initial 100 Hours Service

Maintenance to be performed after the first 100 hours only.



2. Hydraulic System

2.1. Replace hydraulic return filter element 42*.

- *Replacement of hydraulic return filter element must also be carried out every 1000 hours of operation.*
- *Replacement of the return filter can be also raised by the clogging indicator on the main screen.*

1. Accumulators contain oil under high pressure! Empty the accumulators, before unscrewing the filter. Procedure is described under Maintenance Precautions section.
2. The filter is located on the top of the hydraulic tank. Open the cover to get into the filter.
3. Clean well around the filter housing.
4. Place a suitable container beneath the draining hose to catch spillage.
5. Use allen key to unscrew 4 screws from the cover of filter (counter clockwise).
6. Remove the filter element.
7. Check for wear particles in the oil.
8. Install a new filter element and replace the 4 screws by turning it clockwise with the torque 25 + 5 Nm.
9. Clean off any oil spill.
10. Start engine and check the oil level and any leaks. The accumulators will be recharged with oil when the engine is re-started.

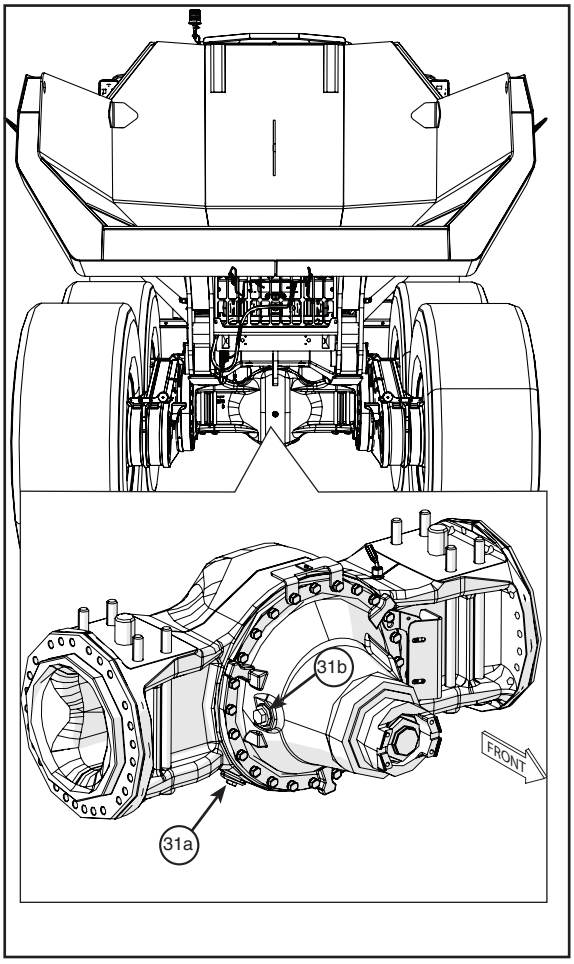
CAUTION

Pay special attention to cleanliness when working with the hydraulic system! Contamination can give steering disturbance and reduce safety.

* Numbers refer to positions on the lubrication schedule, chapter 6

Initial 100 Hours Service

Maintenance to be performed after the first 100 hours only.



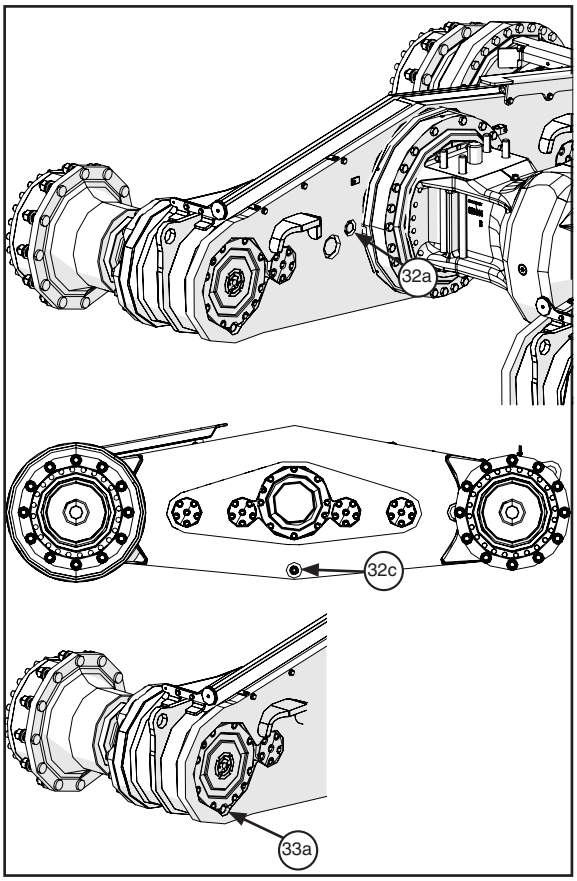
3. Drive line

3.1. Rear differential Oil change 31*

* *Replacement of rear differential oil must also be carried out every 1000 hours of operation or at least once a year.*

1. The oil should be at working temperature prior to draining. Take care, there is a risk of scalding.
2. Clean the areas around the screw plugs 31a, 31b.
3. Remove oil filler plug 31b, then open the drain plug 31a and drain the oil.
4. Clean the oil drain plug 31a magnet of debris before reinstalling the plug. Fill with new oil (refer to the lubrication table chapter 6) wait a few minutes. If the oil level falls add oil until the level remains constant on the control opening 31b.
5. Reinstall control/filling plug 31b.

	Torque
31a	140 Nm
31b	140 Nm



3.2 Tandem housing , planetary drive (hubs) Oil change 32*,33*

* *Replacement of tandem housing oil and planetary drive (hubs) must also be carried out every 1000 hours of operation or at least once a year.*

NOTE

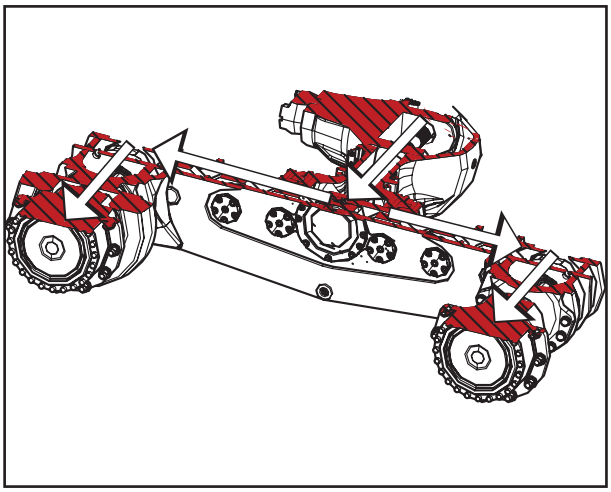
By changing the oil on the tandem you will at the same time change the oil on wheel hubs due to open oil circulation between the tandem and the wheel hubs.

1. The oil should be at working temperature prior to draining. Take care, there is a risk of scalding.
2. Ensure that the tandem housing is placed horizontally and the axle remains still for 30 minutes to allow oil contamination to rest.
3. Remove and clean the level/filling plug 32a, clean the area around it.
4. Remove the drain plug 32c and 33a, drain the oil after that clean off the magnet of any grime then reinstall the plugs.
5. Fill the tandem housing with oil (see "Chapter 6") until oil exits from the level control opening (32a).

* Numbers refer to positions on the lubrication schedule, chapter 6

Initial 100 Hours Service

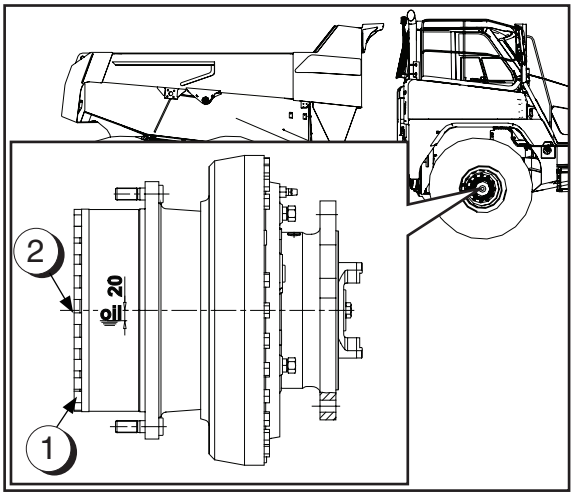
Maintenance to be performed after the first 100 hours only.



6. Reinstall the level/ filling plug (32a).
7. After test driving, check that the oil is at lower edge of the level plug.

	Torque
32a	140 Nm
32c	140 Nm
33a	140 Nm

3.3. Front reduction gears 33*



1. Clean filling point and oil filling plug (2) also the drainage point and oil drain plug(1).
2. Turn hub assembly into position.
   - The oil drain plugs has to be at the bottom.
3. Open the oil drain plug (1) and allow oil to drain.
   - Collect the oil in a suitable container.
   - Dispose of the oil in an environmentally friendly manner.
4. Clean borehole and oil drain plug.
5. Screw oil drain plug (1) back in.
6. Open the oil filling plug.(2)
7. Fill hub assembly with clean oil until the oil level reaches the filling bore (= inspection bore).
   - Overflow check
   - Oil in accordance with the specified lubricants. see "Chapter 6"
8. After a few minutes, check the oil level again at the filling bores.
   - Keep filling the hub assembly with oil until the oil level remains constant.
9. Clean borehole and oil filling plug.
10. Screw oil filling plug (2) back in.

	Torque
1	120 Nm
2	120 Nm

* Numbers refer to positions on the lubrication schedule, chapter 6

Initial 100 Hours Service

Maintenance to be performed after the first 100 hours only.

4 Engine

4.1. Check multi-groove belt condition, at least once a year

see 1000 hours service for procedure

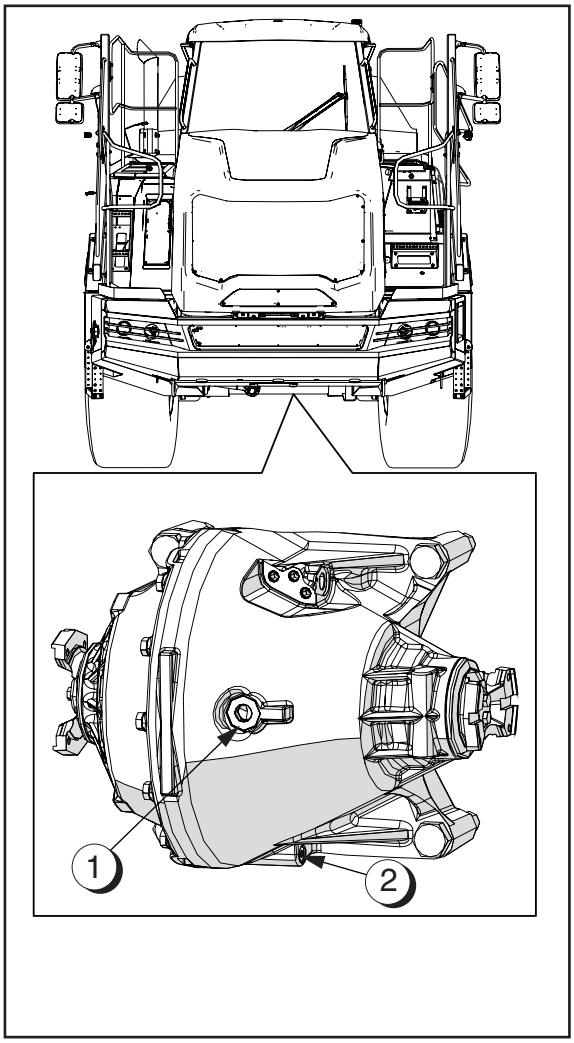
5. Wheel nuts

5.1. Check tightness

Torque setting 650 Nm.

Initial 500 Hours Service

Maintenance to be performed after the first 500 hours only.



1. Front differential

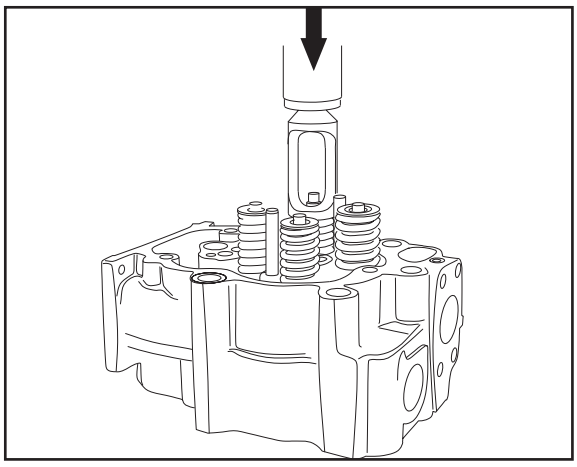
1.1. Change oil 30*

Replacement of front differential oil must also be carried out every 1000 hours of operation or at least once a year 30*

1. Access to the drain plug through transmission bottom guard.
2. Open level/filling plug (1), special spanner in tool kit.
3. Unscrew drain plug (2).
4. Drain the oil into a suitable container.
5. Clean the drain plug (2), replace seal if necessary and reinstall.
   • Tightening torque: 50 Nm.
6. Fill new oil, according to the oil specification sheet (chapter 6), through the level/filling plug, oil level must be at lower edge of hole when dump truck is horizontal.
7. Clean the plug (1), replace seal if necessary and rein-stall.
   • Tightening torque: 150 Nm.

CAUTION

Be aware of possible internal pressure when the oil is hot! Oil can spurt out when opening the drain plug.



2. Engine

2.1. Checking and adjusting the valve clearance.

- Contact Hyundai Dealer for checking/adjusting of the valve clearance. (see item 1.1. 2000 hours service)

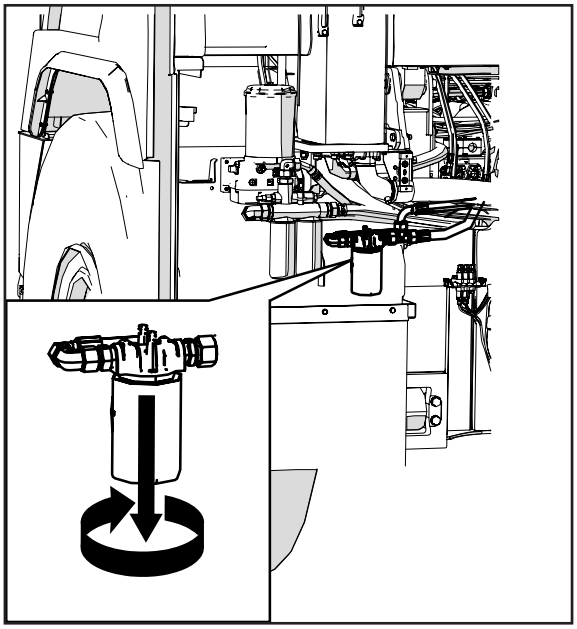
2.2. Checking and adjusting injectors. (Only T2 engine)

- Contact Hyundai Dealer for checking/adjusting of the injector. (see item 1.2. 2000 hours service)

* Numbers refer to positions on the lubrication schedule, chapter 6

Initial 500 Hours Service

Maintenance to be performed after the first 500 hours only.



3. Brake system

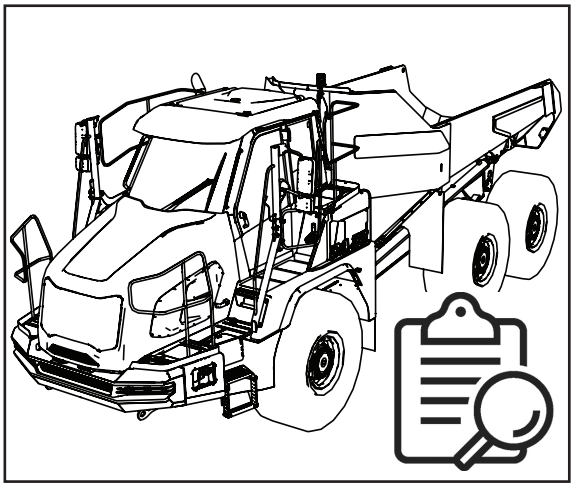
3.1. Change brake cooling oil and filter 34*,35*

- Replacement of brake cooling filter must also be carried out after 1000 hours of operation
- For brake cooling oil change please see 2000 hours of operation.

1. Open the maintenance door of the hydraulic tank.
2. Clean thoroughly around the filter.
3. Place a suitable container underneath the filter to catch spillage.
4. Unscrew the filter.
5. Check for wear particles in the oil.
6. Apply oil to the seals on the new elements.
7. Screw the filter element in until contact with the sealing surface is obtained. Tighten the element firmly by hand.
8. Check the oil level and any leaks.

8 Hours / Daily Service

To be performed every 8 hours of operation or daily.



1. General

1.1. Walk around check, before start

- Check for leaks at the engine (see also item 2.1), transmission, differentials, reduction/tandem housings, tanks, hydraulic hoses and lubrication system.
- General check for loose bolts on the driveline, specially on radiator, engine/transmission brackets and at the prop. shaft flanges.
- Check for damage, wear and other abnormalities on the visible parts of frames, body, tiers, cylinders, etc.
- Check lights. Replace burnt out bulbs.

If leakages, loose bolts, damages or other abnormalities are observed, remedy if necessary (before operation). If necessary contact your local Hyundai Dealer.

1.2. Check driver's seat, before start

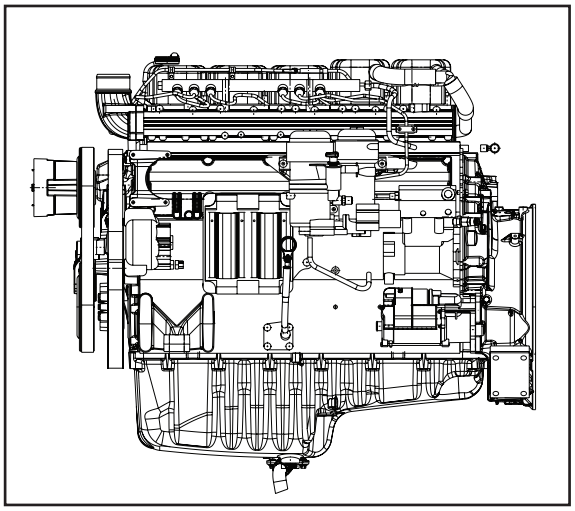
- Check function.
- Check all seat adjustments for easy operation.
- Check function of the air valve.
- Check safety belt for proper lock functions.

See chapter 3, seat adjustment, for more detailed information.

* Numbers refer to positions on the lubrication schedule, chapter 6

8 Hours / Daily Service

To be performed every 8 hours of operation or daily.

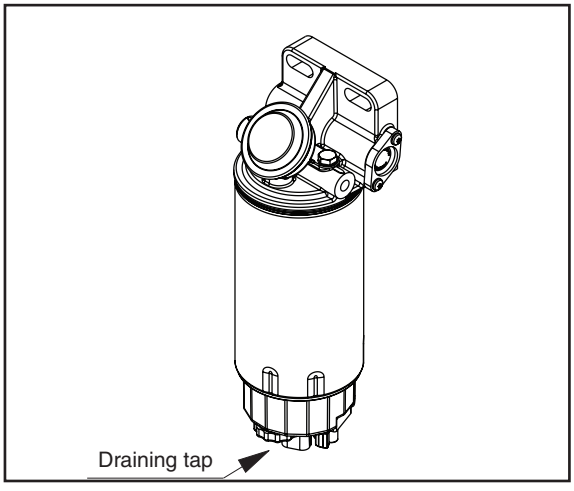


2. Engine

2.1. General condition check - look for leakages, remedy as necessary

1. Start the engine.
2. Look for leaks of oil, coolant, fuel, air and exhaust.
3. Tighten or change leaking connections. Check the overflow holes which show whether the O-rings between the cylinder liner and crankcase are leaking. Overflow holes is located on the right side of the engine, directly under inspection covers.
   a. If coolant is leaking out, the O-rings are leaking.
   b. If oil is leaking out, the liner shelf is leaking.
4. A small amount of leakage from the overflow holes during the engine's running-in period is normal. (Seals and O-rings are lubricated with soap or oil when installed). This leakage normally stops after a time.

If there is a large amount of leakage - contact your Hyundai Dealer.



2.2. Drain the water separating fuel filter 6*

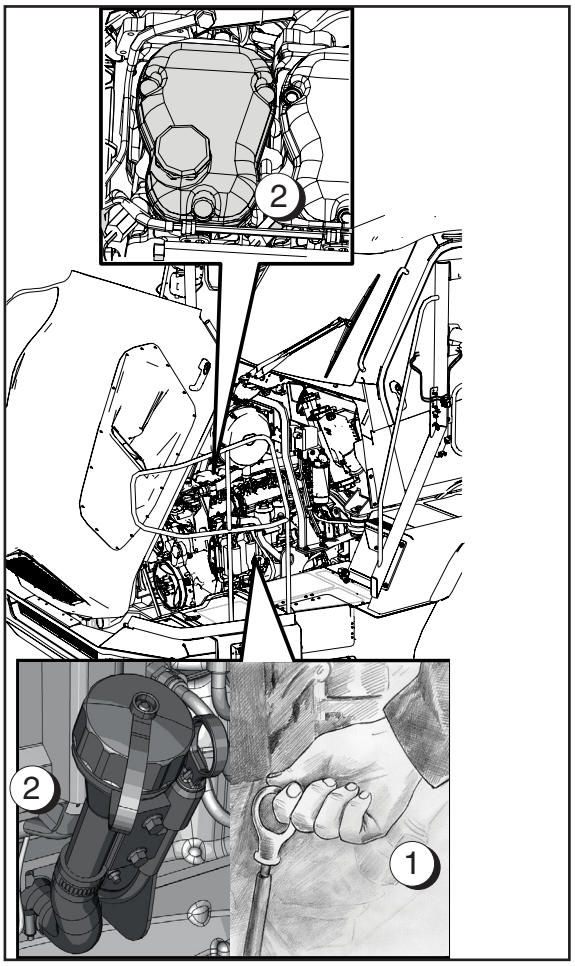
The water separating fuel filter is located on the left hand side of the engine.

Drain the filter by unscrewing the tap in the bottom of the filter.

* Numbers refer to positions on the lubrication schedule, chapter 6

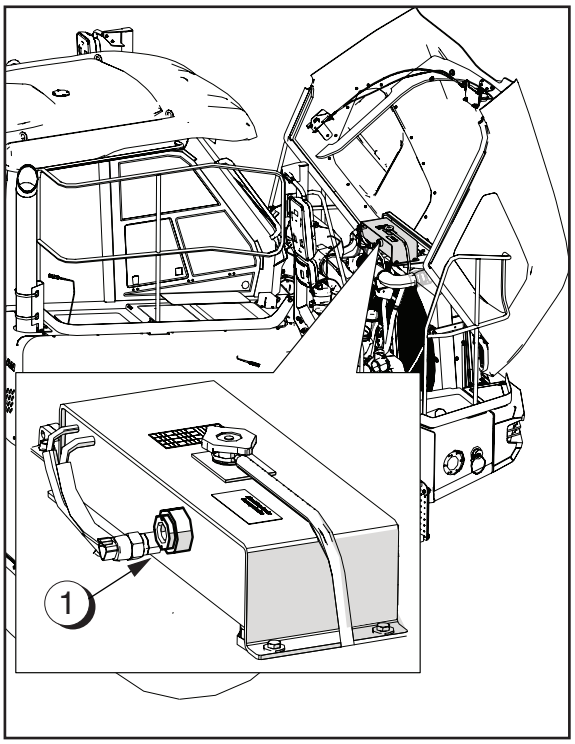
8 Hours / Daily Service

To be performed every 8 hours of operation or daily.



2.3. Check oil level, before start 1*

- If the engine has been running: Let the engine remain stationary for at least 1 minute before checking the oil level.
- The dipstick (1) is found on the left hand side of the engine.
- The correct level is between upper and lower mark on the dip stick (1) (dump truck on level ground).
- Fill up with oil (2) if level has dropped to the lower mark. *See oil specification sheet, chapter 6 for correct oil type.*
- Check level correctness.



2.4. Check coolant level, before start 5*

- The level in the expansion tank must be between minimum and maximum when the dump truck is on level ground. See level gauge on the tank (1). On later machines the level gauge has been moved to left side of the expansion tank.
  Refill with coolant of correct mixture if level is lower than minimum.
- If large quantities are required to correct the level, check and remedy the cause in such a case.

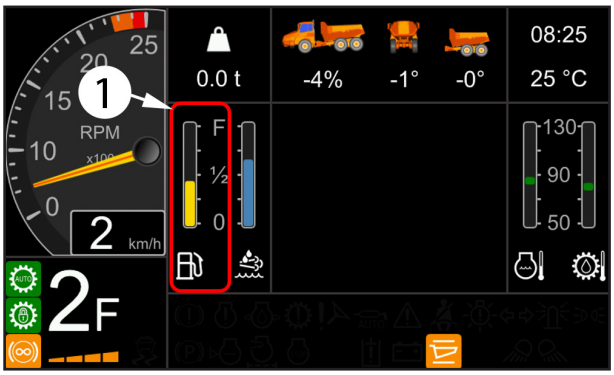
CAUTION

Be careful when removing the filler cap of a hot expansion tank . Hot coolant and steam can spurt out! Never add large amounts of cold coolant when engine is hot. The temperature difference can cause cracks in the engine. Always top up with pre-mixed coolant.

* Numbers refer to positions on the lubrication schedule, chapter 6

8 Hours / Daily Service

To be performed every 8 hours of operation or daily.

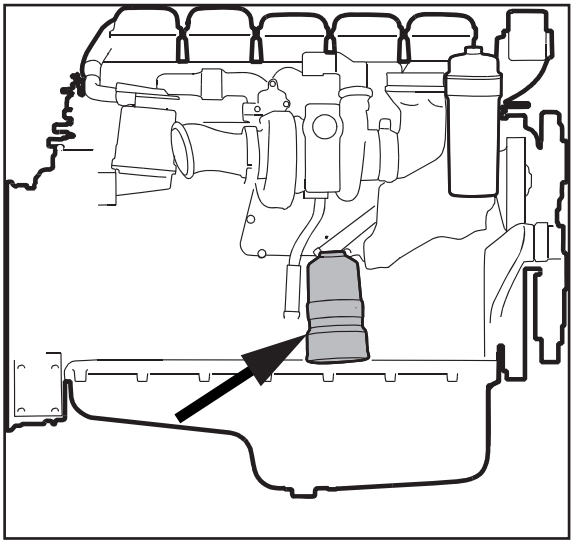


2.5. Check fuel level, before start 12*

1. Turn on the starter switch key (to pos. 1) and check on the fuel gauge (display screen) that there is enough fuel (1).
2. Fill up with fuel if necessary (2).

NOTE

Always make sure that there is enough fuel in the tank. NEVER run out of fuel, fuel injectors (T2 only) will be damaged.



2.6. Function check of the centrifugal cleaner, after operation 2*

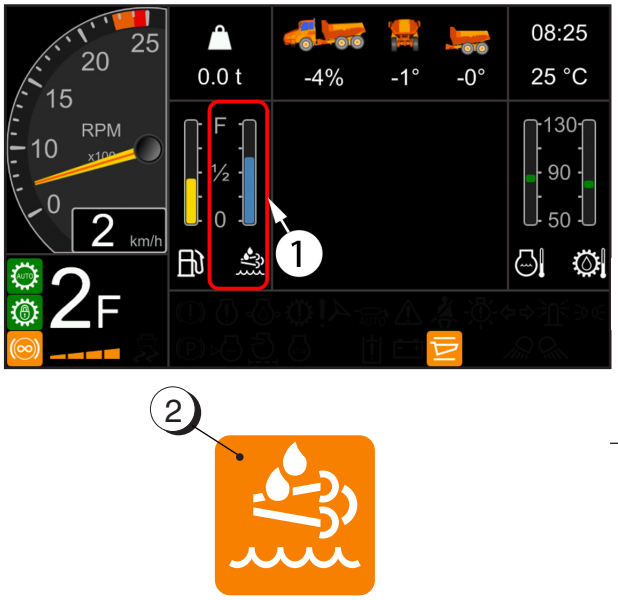
The rotor rotates very fast, and will normally carry on rotating after the engine is stopped.

1. Stop the engine when it is hot.
2. Listen for spinning sound from rotor, or feel if cleaner housing vibrates.
3. The rotor normally rotates **30 - 60 seconds** after the engine has stopped.
4. If not, dismantle and check the cleaner, see 500 hours service.

* Numbers refer to positions on the lubrication schedule, chapter 6

8 Hours / Daily Service

To be performed every 8 hours of operation or daily.

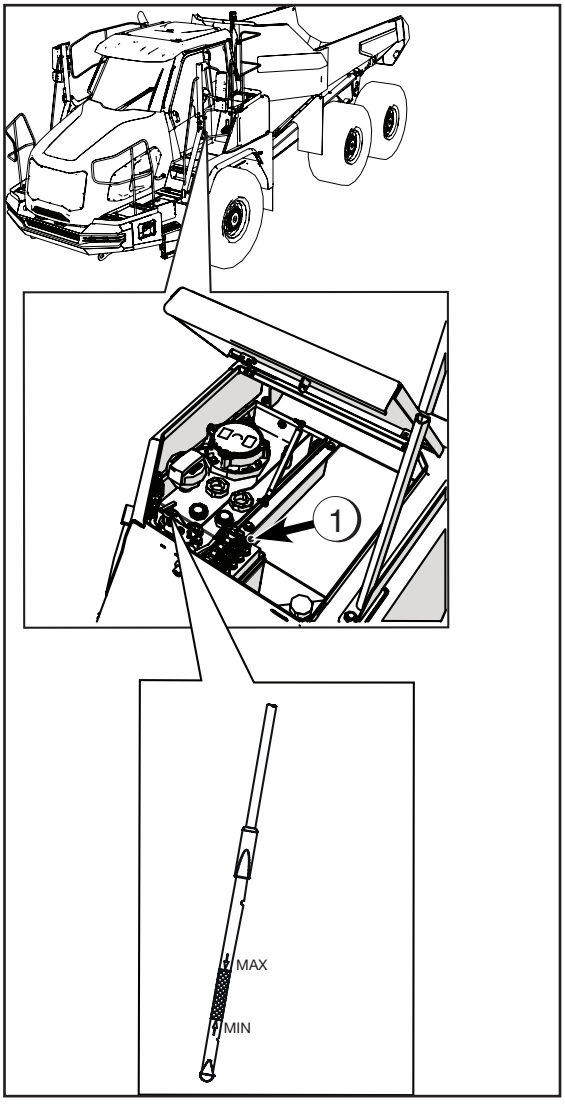


2.7. Check urea (AdBlue®) level, before start 13*(Only T4 and Stage V)

1. Turn on the starter switch key (to pos. 1) and check on the urea gauge (display screen) that there is enough urea(1).
2. Fill up with urea if necessary (2).

WARNING

Running the engine without urea AdBlue® violates emissions legislation and will damage the SCR system



3. Transmission

3.1. Check oil level, before operation 20*

1. The dump truck must be standing on level ground.
2. The gear selector must be in neutral and confirm that the parking brake is ON.
3. Run the engine at low idle.
4. To check the transmission oil level, see dipstick.
5. Check the level at oil temp 80 °C:
   - The correct level is between upper and lower mark on the dip stick.
6. If necessary, correct the level by adding oil according to the transmission oil list (chapter 6) through the filling tube (1).

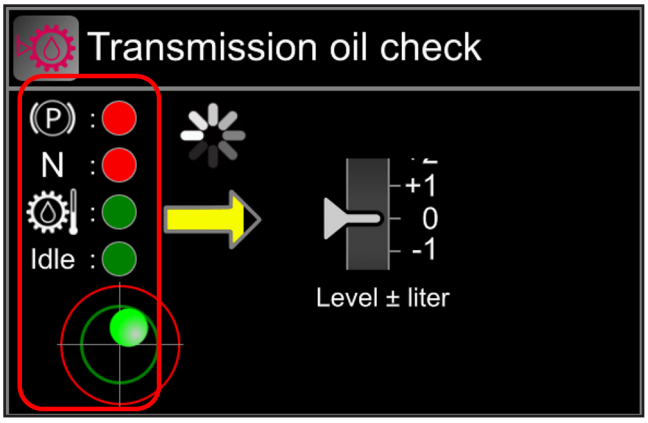
CAUTION

Do not overfill with oil! Both too high and too low of a level can cause serious internal damage!

* Numbers refer to positions on the lubrication schedule, chapter 6

8 Hours / Daily Service

To be performed every 8 hours of operation or daily.



Check transmission oil level before operating ADT. (Electronic oil level)

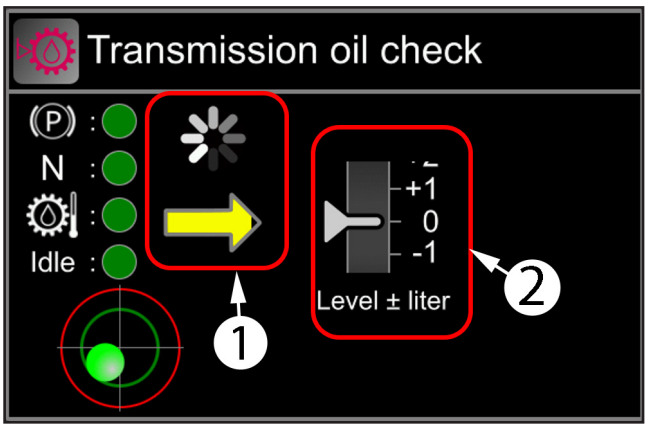
Chose the Menu - Service-

Follow the instruction from the screen and make sure that the all requirements are fulfilled

- Vehicle is not moving
- Park brake is activated
- Gear should be in neutral
- The dumper is leveled
- Engine at the low idle
- Transmission oil temperature is in range 40-90°C.

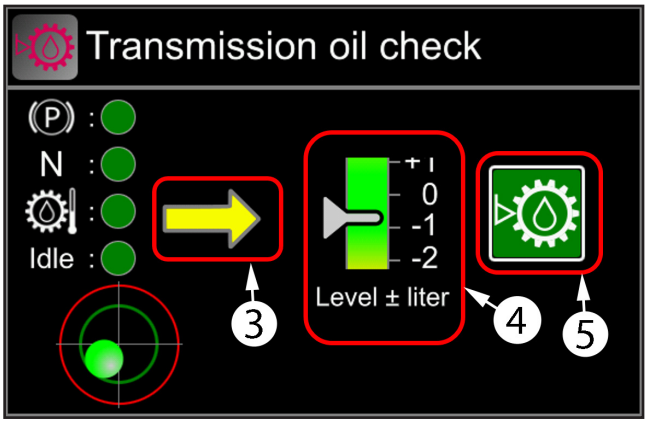
NOTE

It is recommended to use the dipstick when replacing the oil.



1 When conditions are stable it also takes some time for the oil to stabilize. Visible is a rotating bar and a yellow arrow that fills up.

2. This will show the resulting oil level. Now grayed out because the measurement hasn't finished yet



3. The measurement is finished.

4. Now it shows the resulting oil level

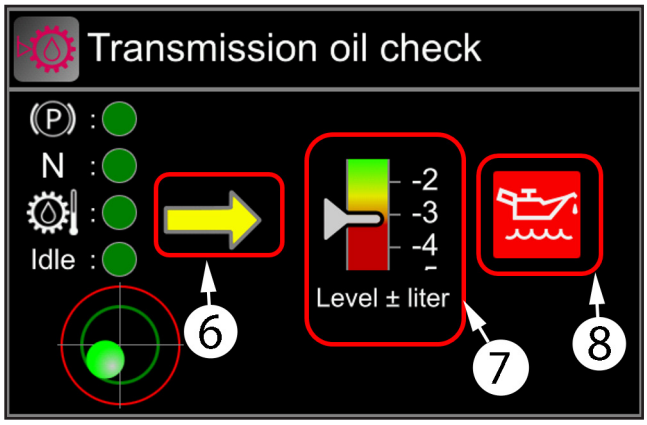
5. The green symbol indicates that the oil level is ok.

That means it is within +/- 2 liter.

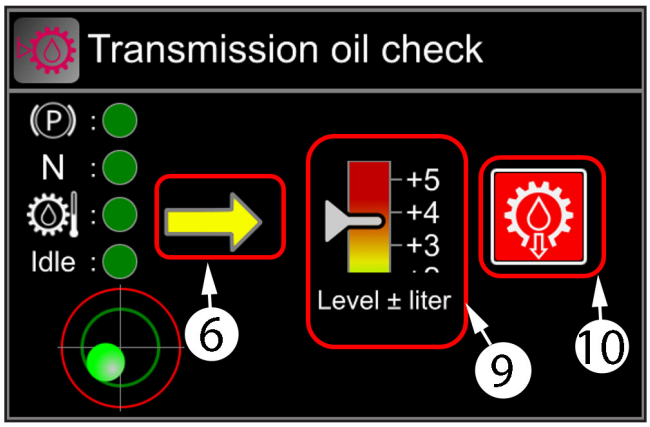
* Numbers refer to positions on the lubrication schedule, chapter 6

8 Hours / Daily Service

To be performed every 8 hours of operation or daily.



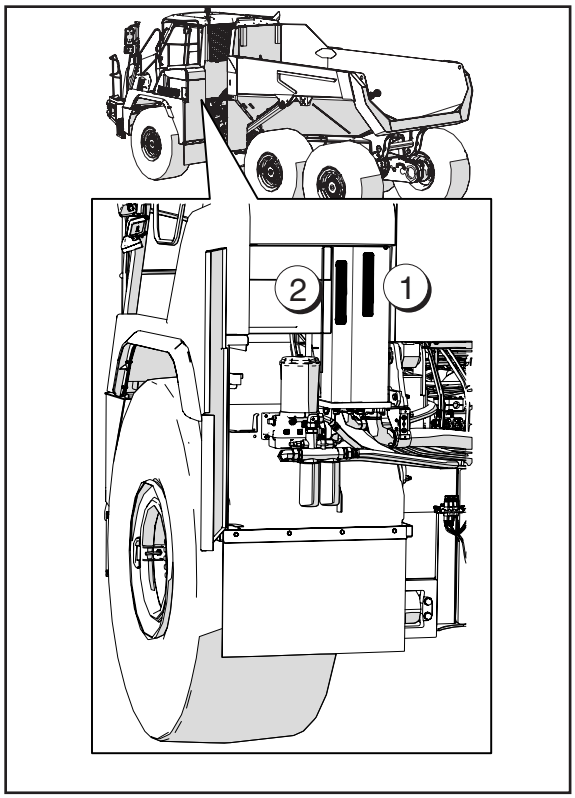
6. The measurement is finished
7. It shows a low oil level
8. Here the red symbol indicates that the oil level is too low



9. It shows a high oil level
10. Here the red symbol indicates that the oil level is too high.

CAUTION

Do not overfill with oil! Both too high and too low of a level can cause serious internal damage!



4. Hydraulic system

4.1. Check oil level at hydraulic tank 40*, Cooling brake tank 34*

1. The dump truck must be standing on level ground.
2. The gear selector must be in neutral and confirm that the parking brake is ON.
3. Run the engine at low idle.
4. Read the oil level in the oil level gauges (located on the back of the hydraulic tank).
   • *Please refer to explanation on the tank stickers.*
   Hydraulic tank (1)
   Cooling brake tank (2)
5. Fill up with oil (see oil specification sheet, chapter 6) if necessary. Oil filler located on the top of the hydraulic tank.

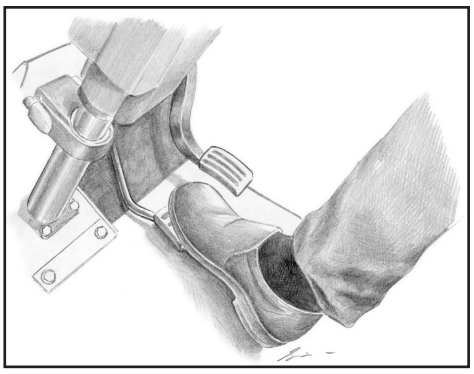
NOTE

The dump truck must be horizontal and dump body completely lowered!

* Numbers refer to positions on the lubrication schedule, chapter 6

8 Hours / Daily Service

To be performed every 8 hours of operation or daily.



5. Brake system

5.1. Parking brake
Check braking (holding) capacity, before operation

1. Park the machine on level ground and make sure the brake accumulators are fully charged and that transmission oil temp is between 80-95°C
2. Apply the parking brake (indicator light).
3. Move the gear selector to 1st gear.
4. Increase the engine speed slowly.
5. The parking brake must be able to keep the dump truck stationary at engine speeds up to 1300 rpm. If not, check parking brake system and contact your Hyundai Dealer.

5.2. Service brake
Check braking (holding) capacity, before operation

1. Park the machine on level ground and make sure the brake accumulators are fully charged and that transmission oil temp is between 80-95°C
2. Apply the parking brake (indicator light).
3. Depress the brake pedal.
4. Release the parking brake.
5. Move the gear selector to 1st gear.
6. Increase the engine speed slowly.
7. The service brake must be able to keep the dump truck stationary at engine speed up to 1300 rpm. If not, check the brake system and contact your Hyundai Dealer.

5.3. Service brake
Check function, before operation

1. Park the machine on level ground and make sure the brake accumulators are fully charged and that transmission oil temp is between 80-95°C
2. Apply the parking brake (indicator light).
3. Stop the engine.
4. Check for hydraulic oil leakage at accumulators, pipes and hoses.
5. Start the engine and release the parking brake.
6. Check that the brake system warning light (chapter 3) does not illuminate.
7. Drive the dump truck slowly on firm, level ground and depress the brake pedal firmly.
8. Check that the braking effect is good and equal.

* Numbers refer to positions on the lubrication schedule, chapter 6

8 Hours / Daily Service

To be performed every 8 hours of operation or daily.

5.4. Accumulators

Check the oil pressure, before operation

1. The dump truck must be parked on a firm, level ground.
2. Apply the parking brake.
3. Start the engine and let it run at low idle until the accumulators are fully charged (warning light off).
4. Stop the engine.
5. Release the parking brake, wait 5 sec. Apply the parking brake, wait 10 sec. Release the parking brake again, wait 5 sec. Apply the parking brake again, wait 10 sec. Continue until the brake warning light comes on.
6. Recharge the accumulators by starting the engine and let it run at low idle until the accumulators are fully charged (warning light off).
7. Stop the engine
8. With the parking brake applied, check the service brake as follows:
9. Apply the service brake pedal, hold for 10 sec. Release the brake pedal and wait 5 sec. Apply the brake pedal again and hold for 10 sec. Then release the brake pedal again and wait 5 sec. Continue until the brake warning light comes on.
10. Recharge the accumulators by starting the engine and let it run at low idle until the accumulators are fully charged (warning light off).

WARNING

Accumulators contain oil under high pressure!

- **Always empty the accumulators before working on or opening the hydraulic system.**
- **Procedure:**
- **Stop the engine.**
- **Operate the brake pedal repeatedly until the accumulators are empty. Accumulators can also be emptied through the accumulator test connectors.**
  Be aware of that the accumulators will be recharged with oil when the engine is restarted.

* Numbers refer to positions on the lubrication schedule, chapter 6

8 Hours / Daily Service

To be performed every 8 hours of operation or daily.

6. Steering

6.1. Check function, before operation

1. Turn the steering wheel at an even speed until end stop, both sides.
2. Check that the movement is uniform.

7. Retarder brake

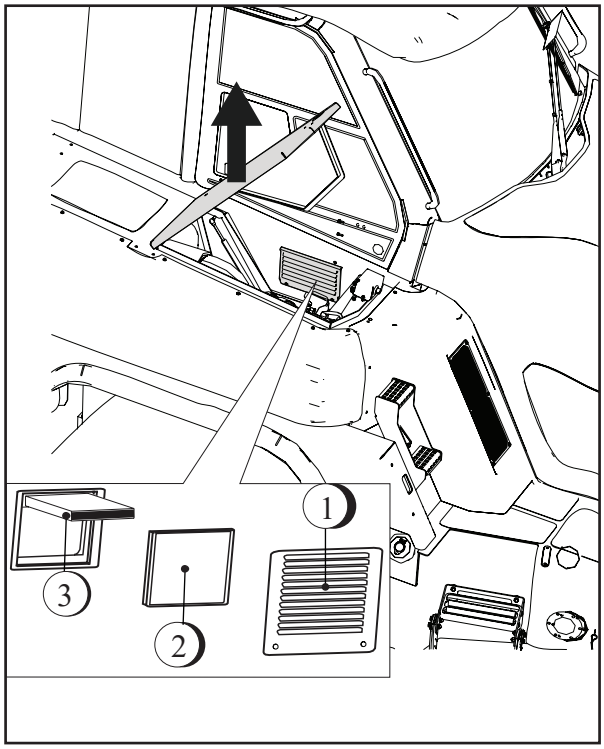
7.1. Check function, before operation

1. Drive the dump truck forwards at approx 10-15 km/h.
2. Make sure that the retarder brake is in 100% active mode use retarder lever to adjustment and release the throttle pedal.
3. Check the indicator lights for function, retarder brake and note the braking power.
4. Depress the throttle pedal again and notify that retarder brake go off (i.e no braking power and the indicator lights switch off).

* Numbers refer to positions on the lubrication schedule, chapter 6

40 Hours / Weekly Service

To be performed every 40h of operation or weekly.



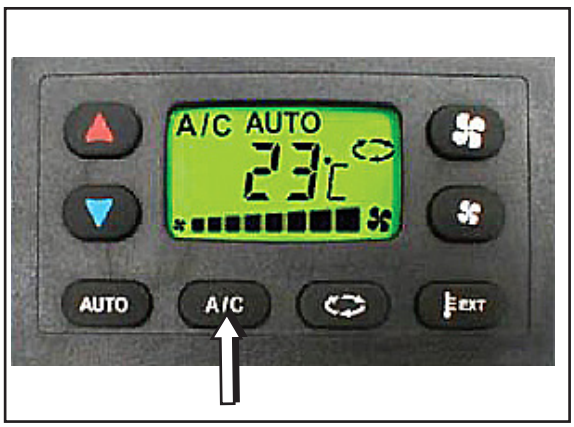
1. Cab ventilation

1.1. Clean internal filter element and prefilter 100*, 70*

1. Open cover on the RHS of the truck.
2. Open cover (1) by the removing two screws.
3. Remove the pre-filter (2), and clean it with compressed air.
   • Replace if necessary
4. Remove cab ventilation filter element (3) and clean it with compressed air.
   • Replace if necessary
5. Reassemble the opposite way.
6. Adjust the check interval if another requirement is experienced.
7. Check the condenser, clean it if necessary.

NOTE

Never start driving without prefilter. The heater could be damaged.



1.2. Air conditioner system

- The equipment must be used for at least five minutes every week, to distribute oil in the system, this prevent leaks and ensures that the seals are lubricated
  • See operating controls, chapter 3, cab ventilation, about how to use the air conditioner.
- This must also be done during cold weather operation.

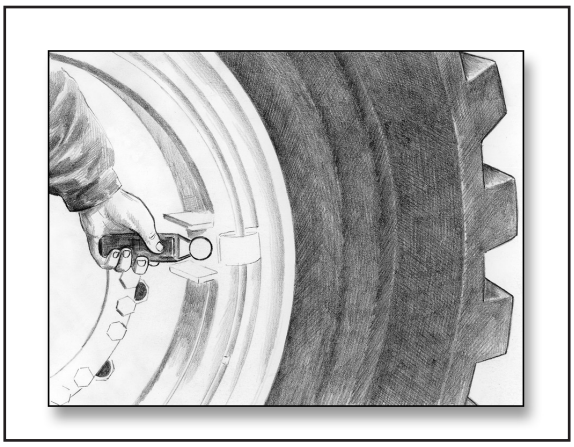
NOTE

At ambient temperatures below + 4° C the air conditioner will not engage. Warm up the cab before operating the air conditioner for 10 minutes.

* Numbers refer to positions on the lubrication schedule, chapter 6

40 Hours / Weekly Service

To be performed every 40 hours of operation or weekly.



2. Tires

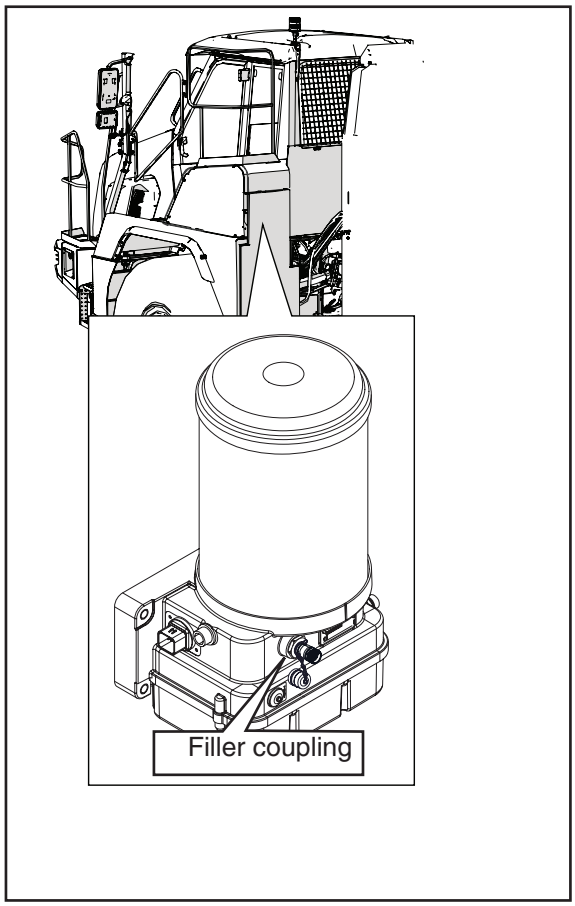
2.1. Check tire pressures, before operation

When the pressure is measured, the dump truck must be unloaded.

Measure the pressure for cold tires with a tire pressure gauge and adjust if necessary. For tire pressure recommendation, see chapter 8 - Technical data, and chapter 5 - Operating instructions.

WARNING

Stand behind the tread when checking the inflation pressure. Pressures inside tires are substantial and an explosion can cause damage and serious personal injury.



3. Automatic central lubrication

3.1. Check the lubricant level in the reservoir. Refill the reservoir if the level has dropped to a minimum

The reservoir must also be refilled if the indicator light flashes for 2 minutes (0.5s on/0.5s off) at the beginning of each cycle.

1. Remove the dust cap from the filler coupling.
2. Carefully clean the filler coupling and the coupling on the filler tube.
3. Use following grease pump located inside the hydraulic tank to fill the reservoir.
4. Connect pump to filler coupling.
5. Fill the reservoir up to the maximum level indicated on the reservoir. Use only grease as specified in chapter 6, lubricants.
6. Remove the filler connector and install the dust cap.

WARNING

- **The grease must be free from impurities and must not change consistency over time.**
- **Always switch off power when filling the reservoir tank.**
- **Risk of bursting reservoir tank if you overfill!**
- **If reservoir tank has been completely emptied, it could take up to 10 minutes for the lubrication system to achieve full output again.**

* Numbers refer to positions on the lubrication schedule, chapter 6

40 Hours / Weekly Service

To be performed every 40 hours of operation or weekly.

NOTE

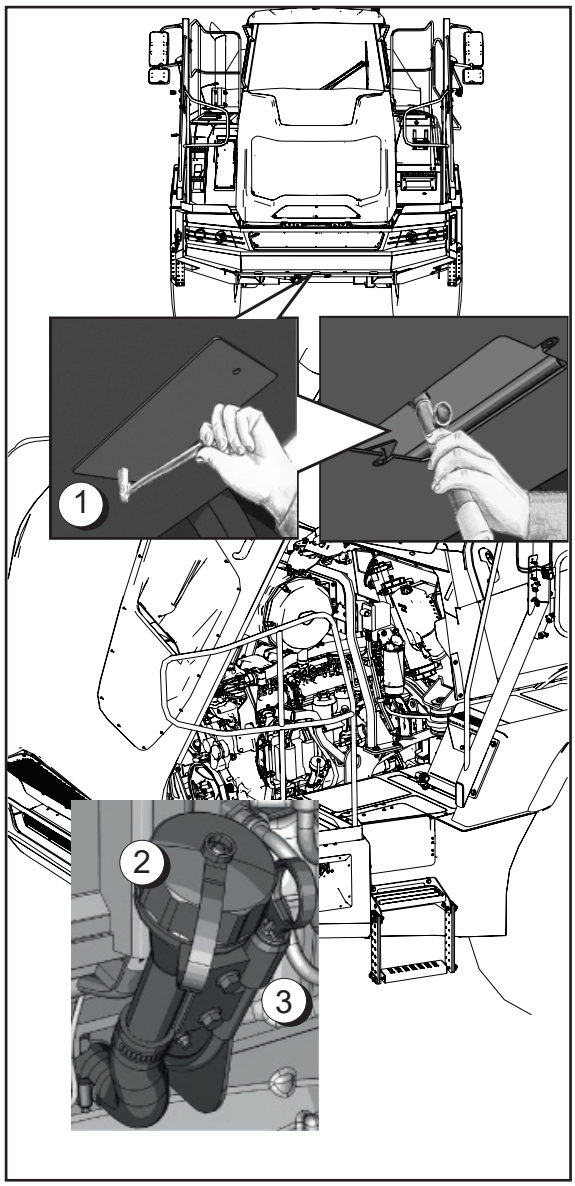
- **Do NOT use grease which contains graphite, teflon or molybdenum**
- **Even if the automatic central lubrication is installed, do not forget that there are still some greasing points that must be greased by hand, these are the door, fender hatches and the cab rear hinges.**

4. Continue with all items in 8 Hours / Daily Service.

* Numbers refer to positions on the lubrication schedule, chapter 6

500 Hours Service

Maintenance to be performed every 500 hours of operation.



1. Engine

1.1. Change oil 1*

Change oil more often if the engine is subjected to particularly demanding operation, such as a dusty environment, poor fuel quality or if deposits in the centrifugal oil cleaner are thicker than 28 mm.

1. Remove the cap on the drain plug, install the draining hose (tool kit) and drain the oil when the engine is hot. Access through the drain hole in engine bottom guard (1).
2. When all oil is drained, remove the draining hose and re-install the cap.
3. Reinstall the cover for drain hole in engine bottom guard.
4. Fill oil through filler (2). Do not overfill!
5. Check oil level on dipstick (3).

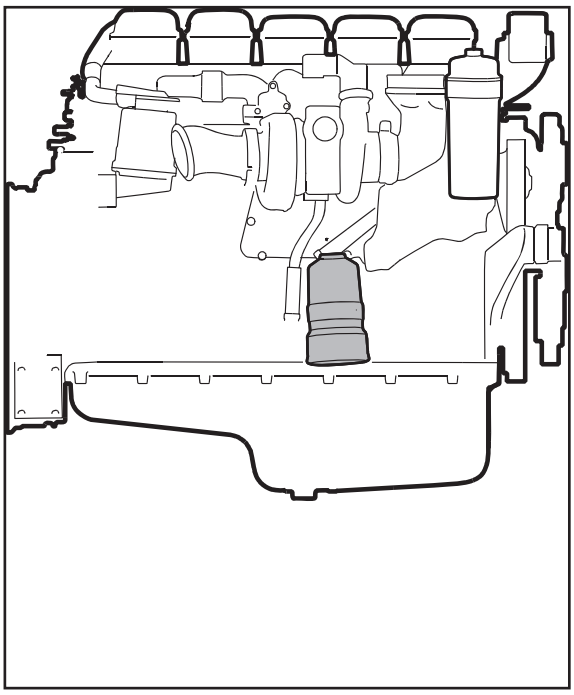
CAUTION

- **The oil may be hot! Wear protective gloves and eye protection.**
- **The oil filler cap must always be in place when starting and running the engine to prevent oil being ejected.**

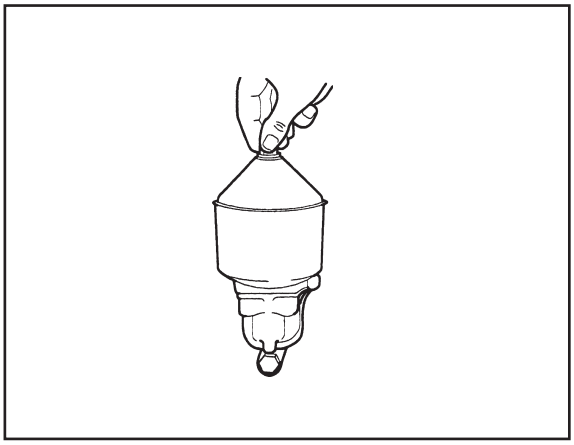
** Numbers refer to positions on the lubrication schedule, chapter 6*

500 Hours Service

Maintenance to be performed every 500 hours of operation.



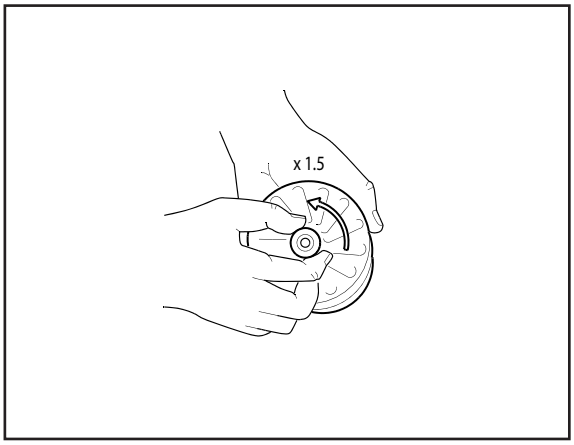
1.2. Clean centrifugal cleaner 2* (at the same time as oil change, item 1.1)



1. Clean the cover. Unscrew the nut and remove cover.

CAUTION

Open the cover with care. The oil and inner parts may be hot!

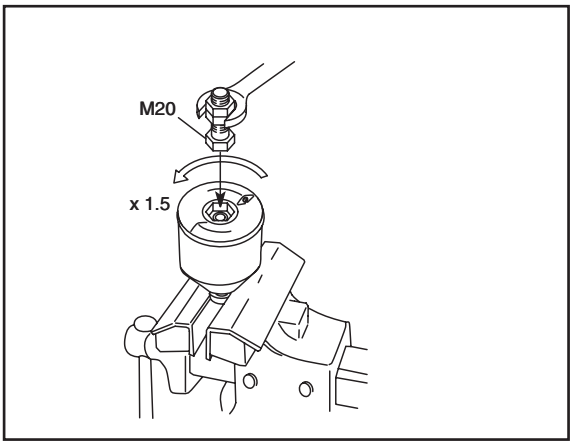


2. Let the oil run out from the rotor
3. Lift out the rotor assembly and loosen the nut for the rotor cover three turns.

** Numbers refer to positions on the lubrication schedule, chapter 6*

500 Hours Service

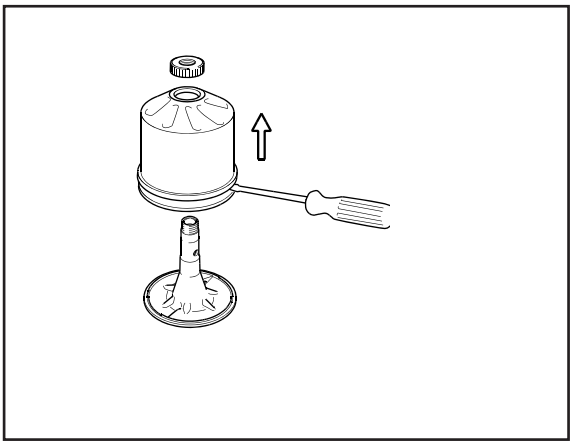
Maintenance to be performed every 500 hours of operation.



4. If the rotor nut is jammed: Turn the rotor upside down and fasten the nut in a vice. Turn the rotor approximately one and a half turns anti-clockwise by hand or use an M20 bolt as illustrated.

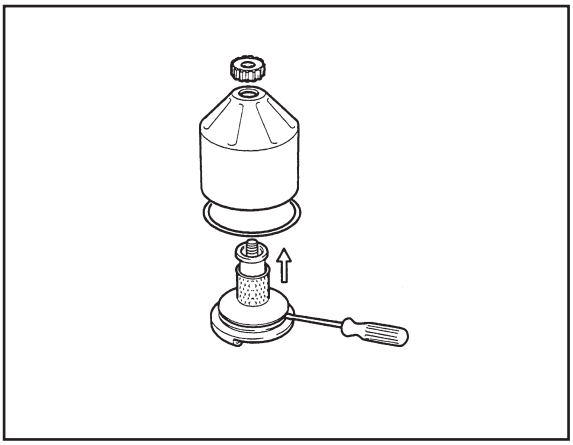
CAUTION

The rotor must not be put in a vice. Never strike the rotor cover. This may cause damage resulting in imbalance.

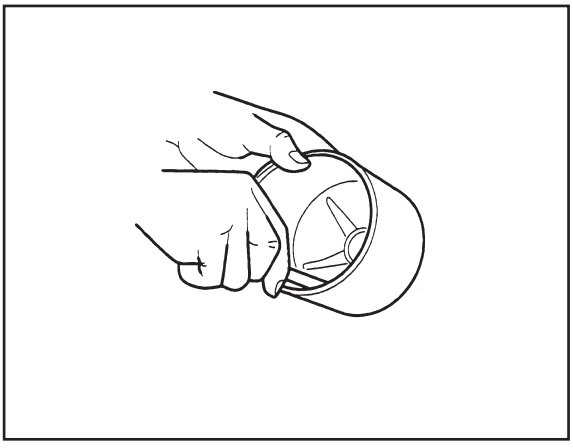


5. Gently tap the nut with hand or with a plastic hammer to separate the rotor from bottom plate.

6. Undo the nut and remove the rotor cover. by holding the rotor in both hands and tapping the rotor nut against the table. Never strike the rotor directly as this may damage its bearings.



7. Carefully pry the strainer loose from the bottom plate If the strainer is stuck, insert a screwdriver between the rotor cover and strainer and carefully prise them apart.

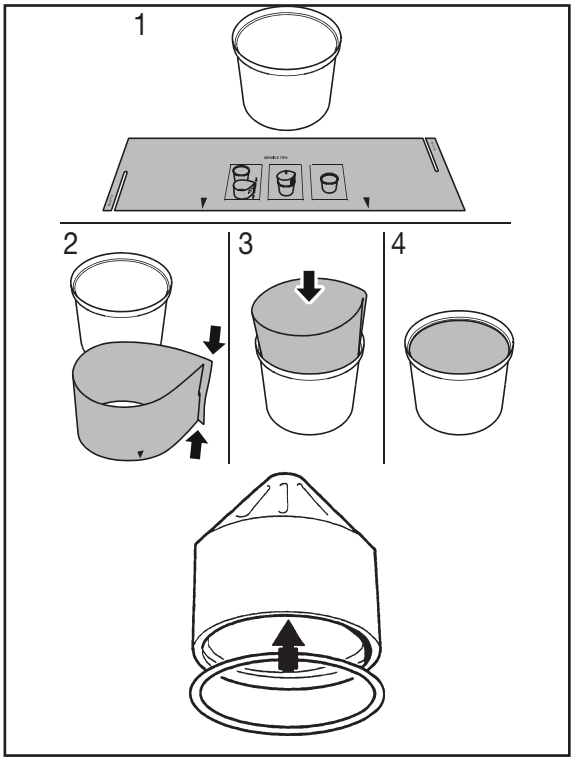


8. Remove paper insert and scrape off the deposits from the inside of rotor cover.
   - *If there are no deposits, this shows that the cleaner is not working.*
   - *Clean more frequently if deposits are thicker than 28 mm.*
9. Clean all parts in diesel fuel.

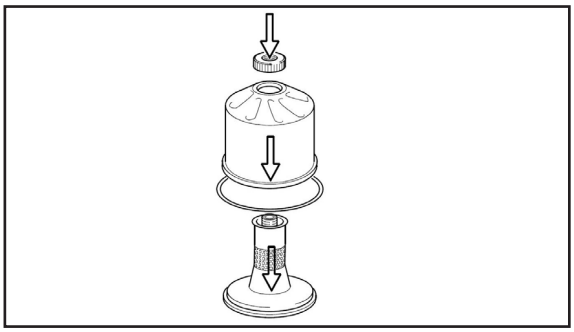
** Numbers refer to positions on the lubrication schedule, chapter 6*

500 Hours Service

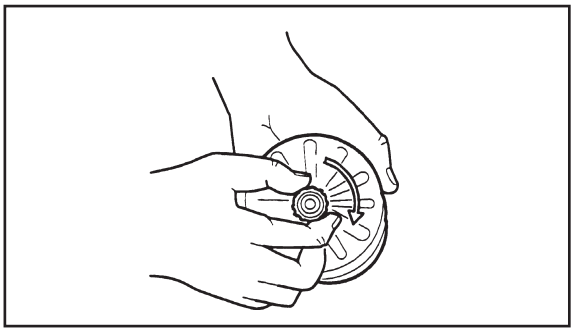
Maintenance to be performed every 500 hours of operation.



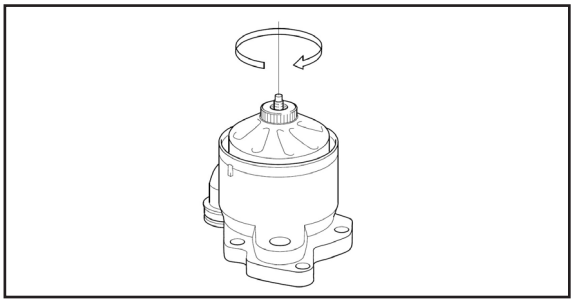
10. Place a new O-ring and paper insert in the rotor cover.
    - *The O-ring must not be damaged.* Change if necessary.



11. Assemble the rotor.



12. Tighten rotor nut firmly by hand.

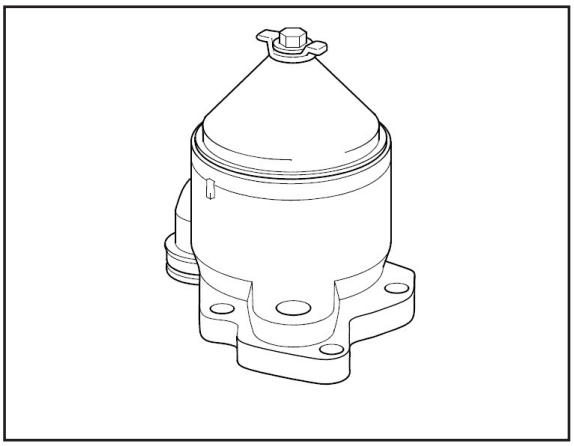


13. Reinstall the rotor.
    - *Check that it rotates easily.*

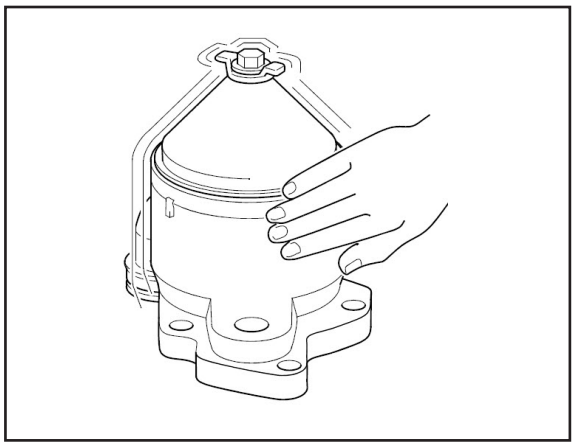
** Numbers refer to positions on the lubrication schedule, chapter 6*

500 Hours Service

Maintenance to be performed every 500 hours of operation.



14. Check that the O-ring in the cover is not damaged. Hard or damaged O-ring must be replaced.
15. Refit the cover and tighten the lock nut.
    - Tightening torque 20 Nm
16. If the nut is tightened too hard (for instance by using tools), the cover, nut or rotor shaft may be damaged!
17. Replace damaged parts!



18. Function check

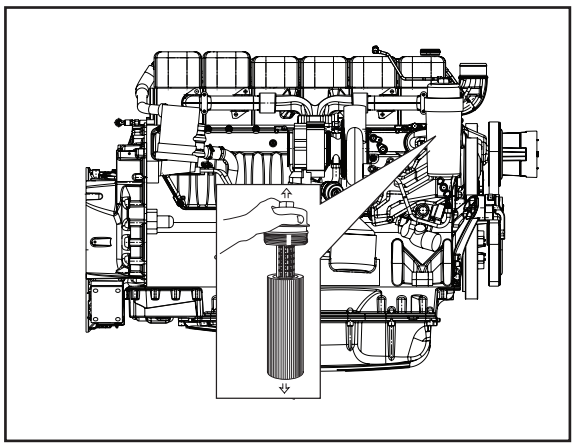
    The rotor rotates very fast, and will normally carry on rotating after the engine is stopped.

    a. Run the engine until it reaches normal operating temperature, then stop the engine.

    b. Listen for spinning sound from rotor, or feel if cleaner housing vibrates.

    c. The rotor normally rotates **30 - 60 seconds** after the engine has stopped.

    d. If not, dismantle and check the cleaner.



1.3. Replace oil filter 3* (at the same time as oil change, item 1.1)

1. Unscrew the filter cover with a closed tool with hexagon driver, e.g. 36 mm.
2. Lift out the filter housing cover with filter element. The filter housing will drain automatically once the filter has been removed.
3. Detach the old filter from the cover by holding the cover and carefully tapping the entire filter element against something hard. Remember that there will be oil splashes.
4. Install the new filter and tighten filter cover to 25 Nm.

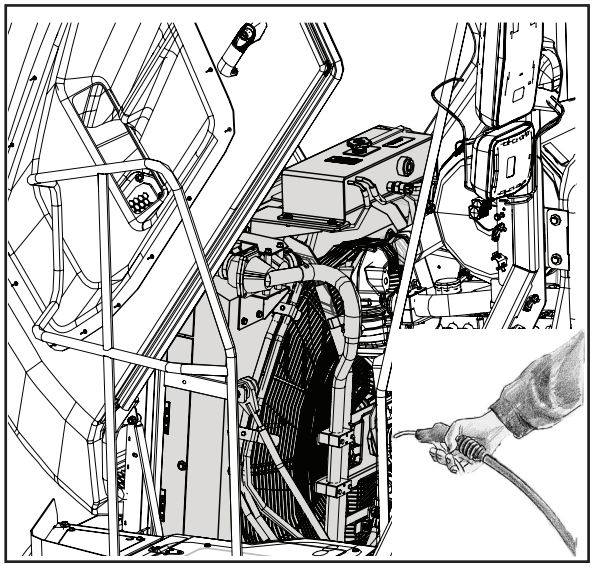
NOTE

- **Do not use an adjustable spanner or other open tool as there is risk of damaging the filter cover.**
- **Use only genuine filter!**
- **Clean the centrifugal oil cleaner when renewing the oil filter. Otherwise, the oil filter will be blocked and resistance in the filter will increase. If this happens, an overflow valve in the filter retainer opens and lets the oil pass without being filtered.**

** Numbers refer to positions on the lubrication schedule, chapter 6*

500 Hours Service

Maintenance to be performed every 500 hours of operation.



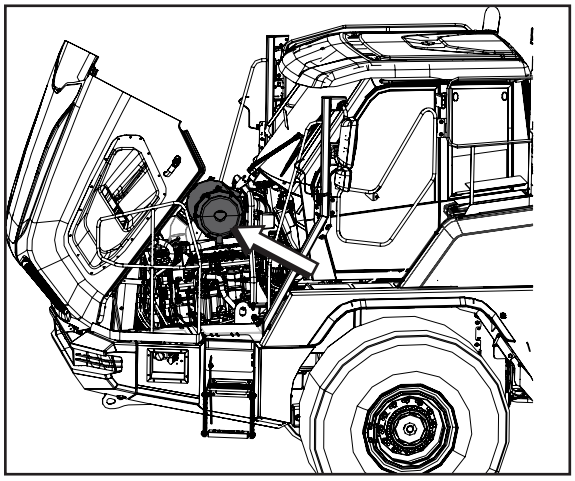
1.4. External cleaning of the radiator, at least once a year 5*. If necessary, the cooling system should be cleaned more often.

1. Clean externally the radiator fins and hoses by using a brush.
   The radiator can also be washed with water from the backside.
2. Check that the radiator is not blocked on the air side and that the fins are not damaged.
3. Carefully scrape the deposit away from the radiator fins. If necessary, a paraffin-based engine cleaner may be used.
4. Check the fins, rubber hoses, clamps and pipes for corrosion, damage and leakages.
5. Bent fins can be carefully straightened, e.g. using a steel wire brush.

CAUTION

The cooling system must not be cleaned using caustic soda. It can damage aluminium parts.

** Numbers refer to positions on the lubrication schedule, chapter 6*



500 Hours Service

Maintenance to be performed every 500 hours of operation.

1.5. Air filter 10*

The air filter is located on the top of the engine, under the bonnet.

- Always stop the engine before servicing the air filter.
- Open the bonnet and apply the bonnet catcher.
- For cleaning and replacement of outer and inner element, see this page and next page.

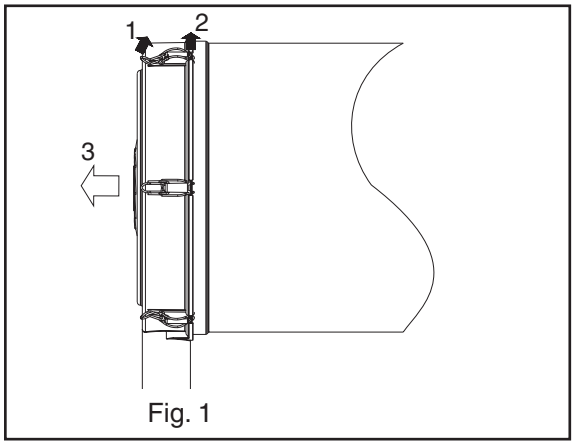


Fig. 1

Outer element:

Check element every 500 hours of operation or if the air filter warning light illuminates at full load on the engine.

- Replace the outer element if it is clogged or at the latest after 2 years.

1. Loosen all clamps and remove the cover (Fig. 1).
2. Remove outer element with a light turning movement (Fig. 2).

Because the filter fits tightly over the outlet tube there will be some initial resistance, similar to breaking the seal on a jar. Gently move the end of the filter back and forth to break the seal then rotate while pulling straight out. Avoid knocking the filter against the housing. Visually check a Vacuator™ Valve, check and physically squeeze it. (Fig. 3)

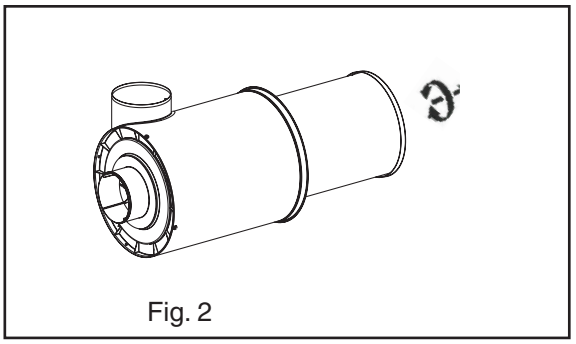


Fig. 2

NOTE

Make sure the valve is flexible and not inverted, damaged or plugged. Replace it if damaged or if it looks like any of these images. A damaged or missing vac valve will disrupt the designed flow of air through the air cleaner. (Fig.4)

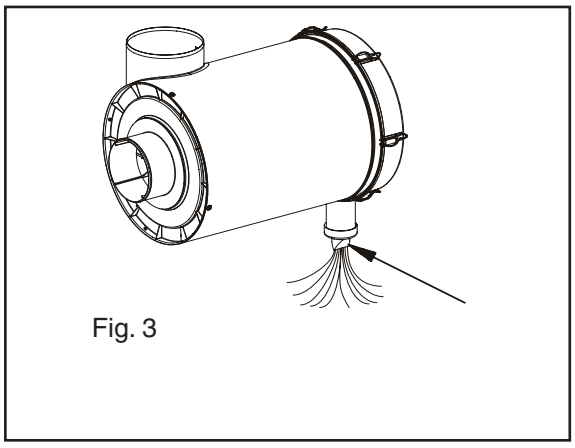


Fig. 3

Visually Check the Safety Filter and Clean Both Surfaces of the Outlet Tube.

If your air cleaner has a safety filter, visually check the safety filter in place for signs of damage. Do not remove the safety filter unless it is damaged or due for replacement. Also verify that the safety filter is properly seated in the housing.

The safety filter should be replaced every three primary filter changes. Use a clean damp cloth to wipe both the filter sealing surface and the inside of the outlet tube. Ensure that the outlet tube sealing area is undamaged.

See also precautions on next page

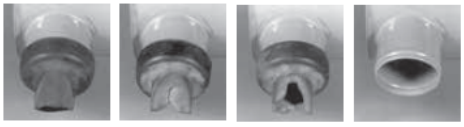
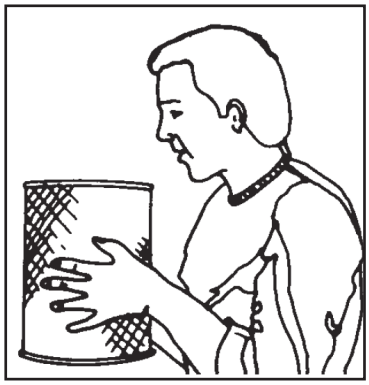


Fig. 4

** Numbers refer to positions on the lubrication schedule, chapter 6*

500 Hours Service

Maintenance to be performed every 500 hours of operation.

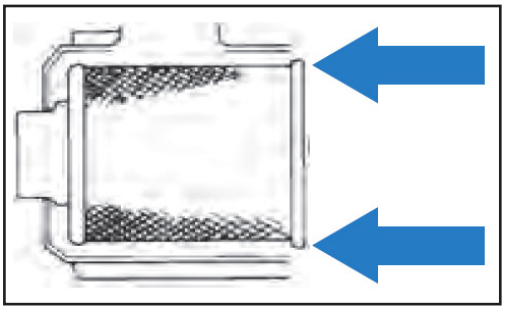


Contaminant on the sealing surface could hinder an effective seal and cause leakage. If the safety filter is to be replaced, avoid leaving the outlet tube exposed to the air.

If there is to be a delay in installing the new safety filter, cover the air cleaner outlet tube to avoid admitting any dust.

Inspect the Old Filter.

Inspect the old filter for any signs of leaks. A streak of dust on the clean side of the filter is a telltale sign. Eliminate any source of air leaks before installing the new primary filter.

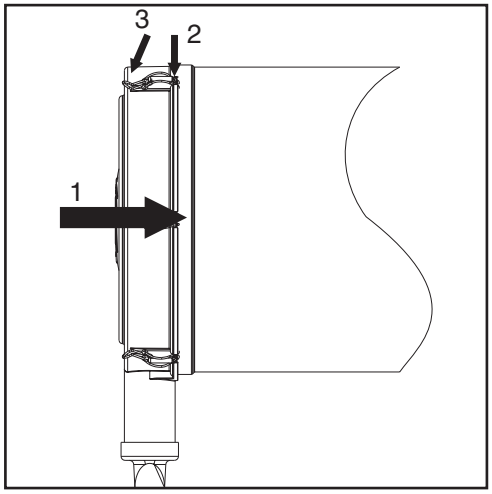


Inspect the New Filter.

Inspect the new filter for any damage that may have occurred through mishandling. NEVER install a damaged filter. Visually check the inside of the open end, which is the sealing area.

Do not wipe the filter area as the new filter may have a dry lubricant on the seal to aid installation.

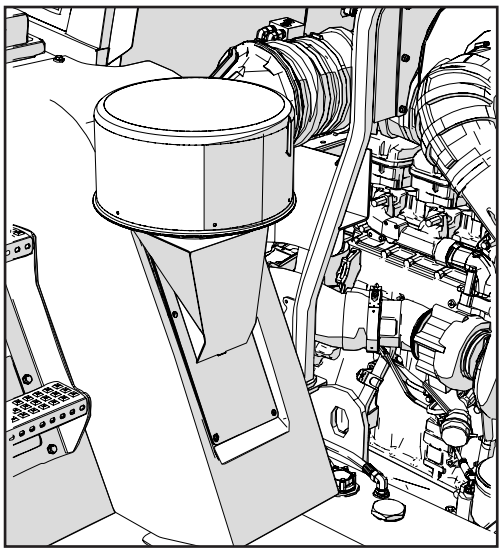
Insert the New Filter



First, if you're servicing the safety filter at this change-out, seat it properly into position before installing the primary filter. Insert new filters carefully. Seat the primary filter by hand, making certain it is inserted completely into the air cleaner housing. To complete a tight seal, apply pressure by hand at the outer rim of the filter, not the flexible center.

No cover pressure is required to hold the seal in place and one should NEVER use the service cover to apply pressure. This could damage the housing and fasteners and void the warranty. If the service cover presses against the filter before the cover is fully in place, remove the cover. With cover off, push the filter farther into the air cleaner by hand and then the cover will go on with no extra force. Once the filter is in place, secure the service cover.

Top spin pre cleaner (Option)

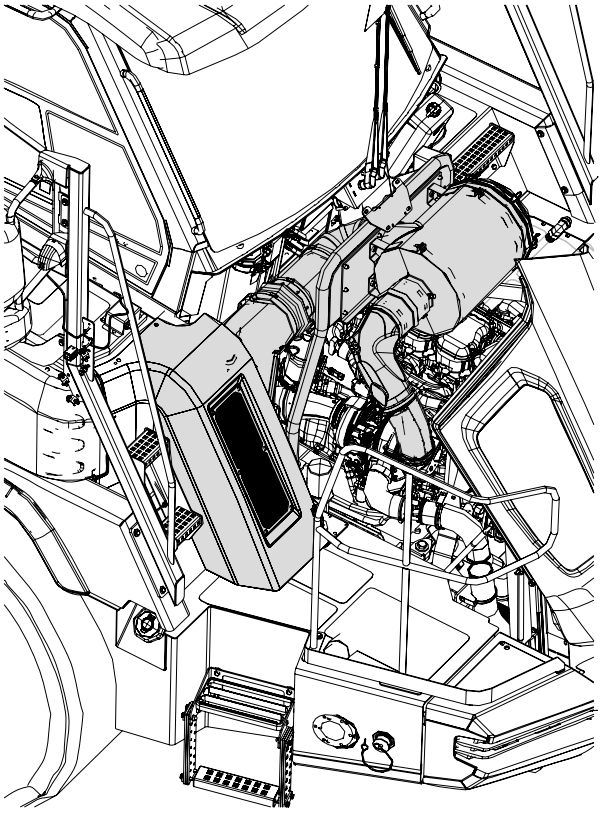


The air pre-cleaner is located on the right side of dumper on the front wagon. It's recommended for heavy dusty areas and free of the maintenance.

** Numbers refer to positions on the lubrication schedule, chapter 6*

500 Hours Service

Maintenance to be performed every 500 hours of operation.



Check Connectors for Tight Fit

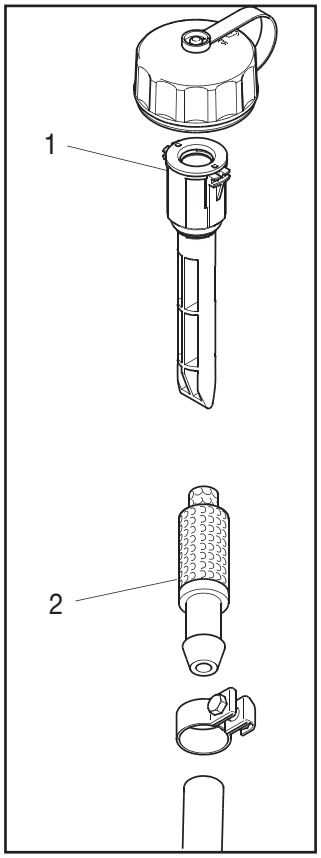
Make sure service indicators are reset and in proper working order.

Check that all mounting bands, clamps, bolts, and connections in the entire air cleaner system are tight.

Check for holes in piping, and repair or replace as needed.

Any leaks in the intake piping will admit dust directly to the engine.

- **Do not attempt to reinstall a cleaned inner element.**
- **Do not clean or replace the elements when the engine is running.**
- **Replace the outer element if small holes or thinner parts are found on the element when it is checked with an electric bulb after cleaning.**
- **Do not use an element in which folds, gasket or seal are damaged.**
- **When cleaning the element, do not hit or hammer it.**
- **Do not dismantle the inner element unnecessarily.**
- **NEVER use the service cover to push the filter into place! Using the cover to push the filter in could cause damage to the housing, cover fasteners and will void the warranty.**



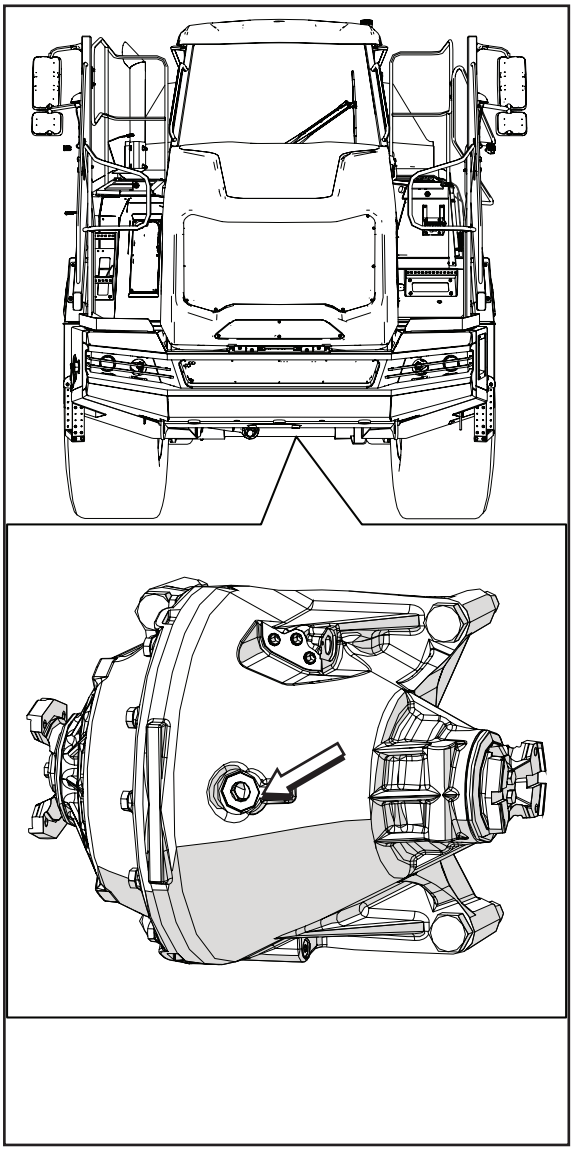
1.6. Urea filling/ventilation point 14*.

1. Cleaning the reductant tank filler filter
   - Make sure that the filler filter (1) is clean. If it is dirty: Clean the filler filter with clean water and refit it.
2. Cleaning the reductant tank ventilation filter.
   - Make sure that the ventilation filter (2) is clean. If it is dirty: Clean the ventilation filter with clean water and refit it.

** Numbers refer to positions on the lubrication schedule, chapter 6*

500 Hours Service

Maintenance to be performed every 500 hours of operation.



2. Drive line

2.1. Check oil levels

- Measurements must be carried out when dump truck is parked on a firm, level ground.
- Check that oil level is near the bottom edge of the plugs.
- Refill with oil if level is too low.
- If the dump truck tandem housing is angled, the reading will be incorrect.

CAUTION

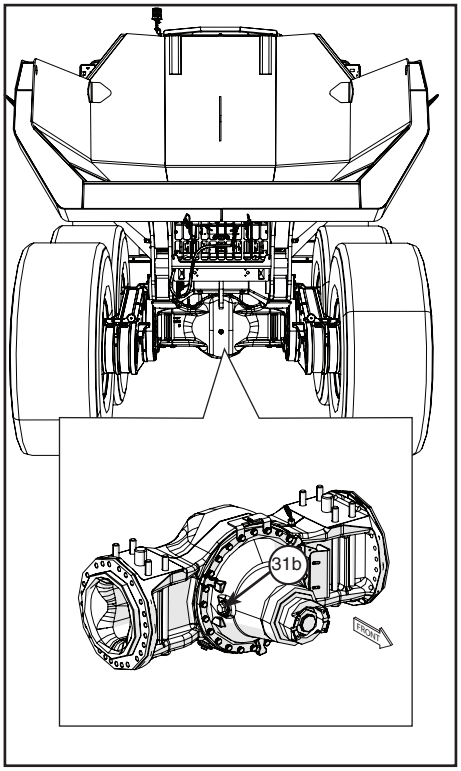
Be aware of possible internal pressure when the oil is hot!

1. Front differential 30*
   - Use a hexagonal key to unscrew the upper filling/level plug.
   - Oil level must be at lower edge of hole when dump truck is horizontal.
   - Clean the plug, replace seal if necessary and reinstall.
     >*Tightening torque: 150 Nm*

** Numbers refer to positions on the lubrication schedule, chapter 6*

500 Hours Service

Maintenance to be performed every 500 hours of operation.

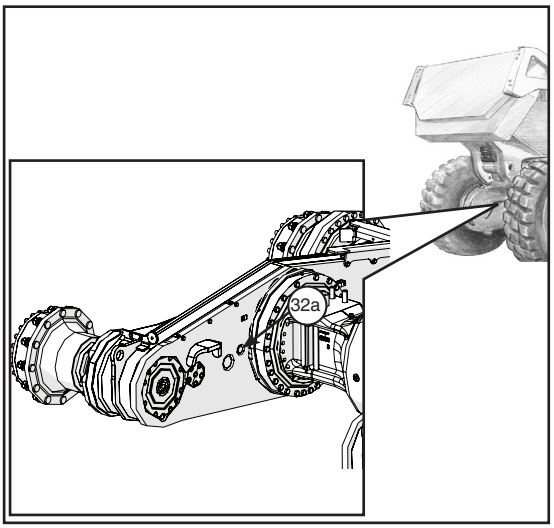


2. Rear differential 31* HA30/HA30A

Use a hexagonal key to unscrew the filling/level plug (31b) at the right side of housing.

- Oil level must be at lower edge of hole when dump truck is horizontal.
- Clean the plug, replace seal if necessary and reinstall.

	Torque
31b	140 Nm



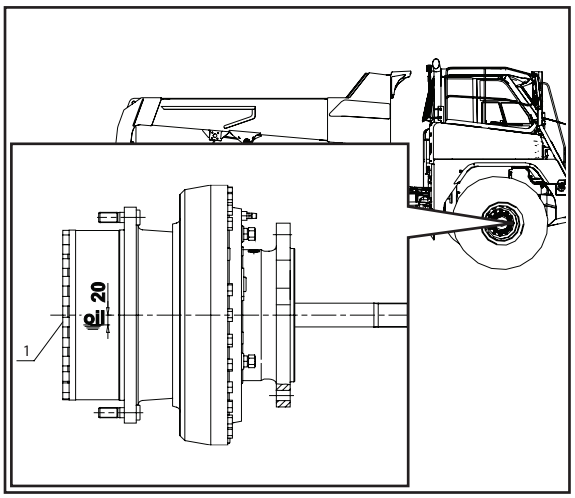
3. Tandem housings 32*, rear reduction gears 33*

Use a hexagonal key to unscrew the level plugs on the inside of the housing.

By checking the oil level on tandem you will at the same time confirm the correct oil level on wheel hubs due to open oil circulation between the tandem and the wheel hubs.

- Oil level must be at lower edge of hole when dump truck is horizontal.
- Clean the plug, replace seal if necessary and reinstall.

	Torque
32a	140 Nm



4. Front reduction gears 33*

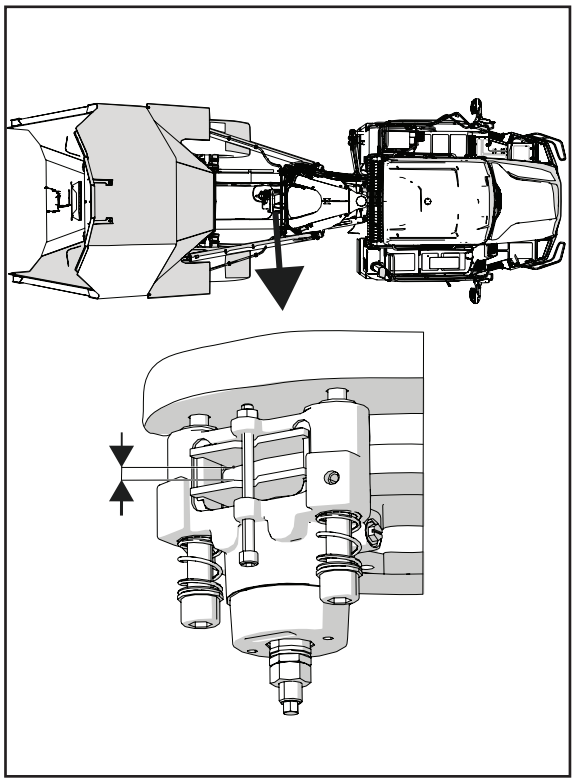
1. Clean filling point and oil filling plug.
2. Turn hub assembly into position.
   - The oil drain plug has to be at the bottom.
3. Open the oil filling plug. (1)
4. Check the oil level again at the filling bores.
6. Clean borehole and oil filling plug.
7. Screw oil filling plug back in.

	Torque
1	120 Nm

** Numbers refer to positions on the lubrication schedule, chapter 6*

500 Hours Service

Maintenance to be performed every 500 hours of operation.



3. Parking brake

3.1. Check lining thickness

- Checking of brake lining thickness must also be carried out after the first 500 hours of operation.

1. Parking brake:

   Lift body and apply the body support and check thickness of linings. Change when approaching limit.

   - In connection with replacement, perform adjustment, see next page.

   Standard lining thickness: Parking brake: 5.0 mm.

   Min. thickness: Parking brake: 0.79 mm.

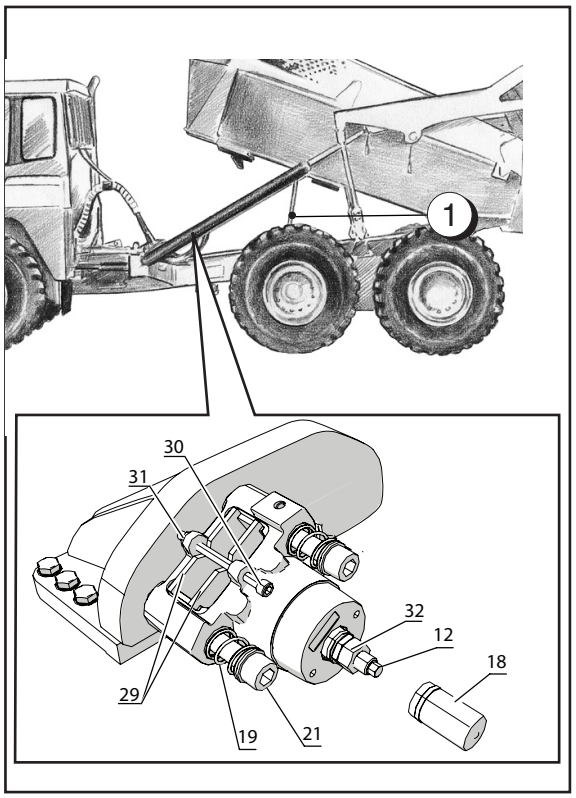
CAUTION

This applies to normal driving. For rough operating conditions with much braking and/or driving in water, the brake linings should be checked more often!

** Numbers refer to positions on the lubrication schedule, chapter 6*

500 Hours Service

Maintenance to be performed every 500 hours of operation.



3.2. How to change linings and adjust the parking brake.

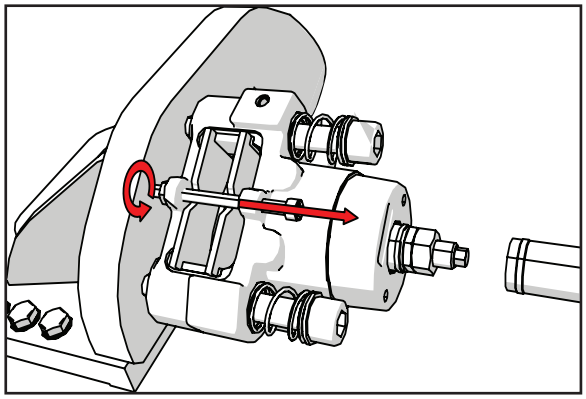
To be performed in connection with replacement of parking brake linings.

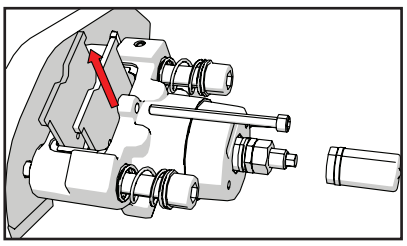
- **Before removing the parking brake linings, do as follows:**

1. Make sure that the accumulators are charged with pressure. Can start the engine if there is not enough pressure during operation (185-207 bar)
2. Apply the parking brake.
3. Lift the body.
4. Apply the body support (1) (see also safety instructions, chapter 2).
5. Stop the engine.
6. Secure the dump truck with wheel chocks (see also safety instructions, chapter 2).
7. Release the parking brake by the parking brake switch.
8. Loosen hex nut (item 31) and remove the screw (item 30)

NOTE

When the centring screw is released, the compression springs on the slider bolts should push the caliper assembly and the rear pad against the brake disc. If not, the caliper is stuck and must be repaired or replaced.

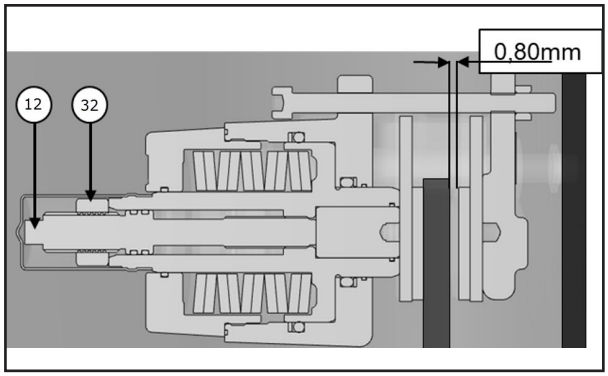




9. The parking brake linings can now be replaced. Replace the items 30 and 31.

- **After installation of new parking brake linings, do as follows:**

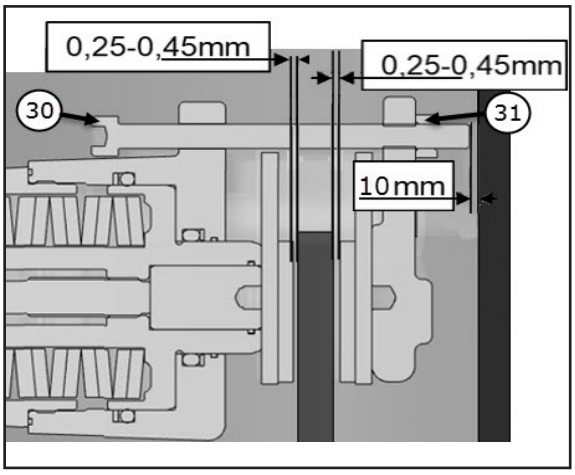
1. Remove the cap (item 18) hold 30mm hex nut (item 32) with a wrench and rotate the adjustment screw (item 12) clockwise, using the a M12 socket until both brake pads contact the disc. The brake linings (item 29) are no longer loose. Do not exceed 13.6 Nm on the screw adjustment.
2. Rotate counter-clockwise (back off) screw adjustment (item 12) approx. 1/2 turn to create a total gap between the disc and front brake pad 0.80mm.
3. Tighten adjustment screw lock nut (item 32) 60 Nm.



** Numbers refer to positions on the lubrication schedule, chapter 6*

500 Hours Service

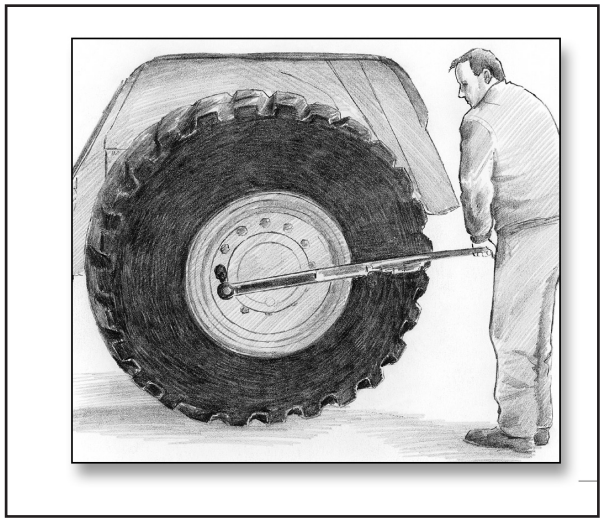
Maintenance to be performed every 500 hours of operation.



4. With the hex nut (item 31) loose, adjust the screw (item 30) until it needed clearance is reached (10 mm from bracket).
5. Using a 0.40 mm thick feeler gauge in the gap between the brake pads and the disc, adjust the screw (item 30) until the feeler is slightly tight in the gap.
6. Torque the hex nut (item 31) to 45 Nm while preventing rotation of the screw (item 30).
7. Release hydraulic pressure at least two times. Using feeler gauge, check clearance on each side of disc. Clearance should be 0.25 - 0.45mm per side. If clearances are not within specifications , repeat adjustment.
8. Replace the cap (item 18)
9. Re-adjust the brake when running clearance reaches a total 3 mm (1.5 mm on the each side of the brake disc)
10. After adjustment of the parking brake, perform a holding capacity test (See Daily Service instruction)

NOTE

HA30/HA30A is equipped with one parking brake unit.
HA45/HA45A is equipped with two parking brake units



4. Wheels

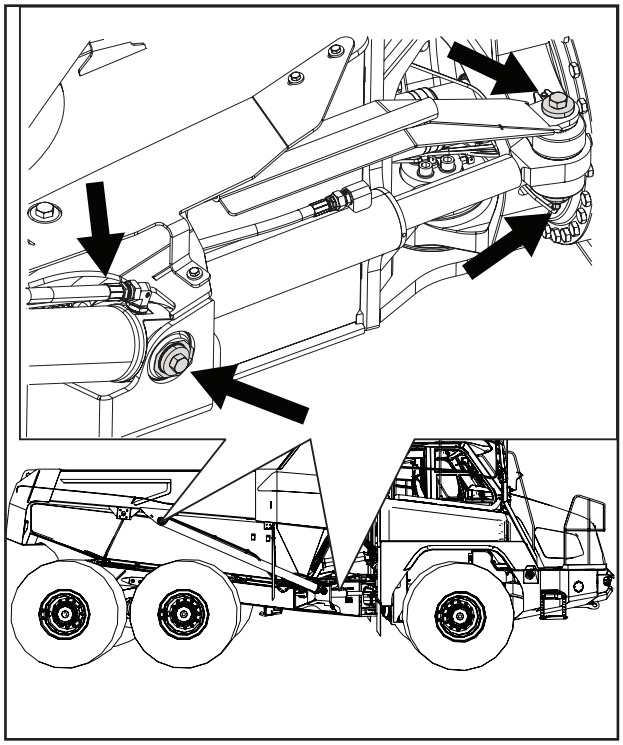
4.1. Check wheel nuts torque.

Torque setting 650 Nm.

** Numbers refer to positions on the lubrication schedule, chapter 6*

500 Hours Service

Maintenance to be performed every 500 hours of operation.



5. Tip- and steering cylinders

5.1. Check expander bolts.

- *Checking of the expander bolts torque setting must also be carried out after the first 100 hours of operation.*

Torque setting:

- Tip cylinder bolt: 350 Nm
- Steering cylinder bolt: 350 Nm
- The torque must be checked on both sides of the bolts for steering cylinders.
- The torque must be checked on both sides of the cylinders.
- *Be aware of the lubrication nipples on the bolts when checking the torque.*

6. Cab ventilation

6.1. Air conditioner system, test operation

1. Start the engine.
2. Press down the air conditioner switch (see also chapter 3) and open all nozzles.
3. Check that the temperature in the cab decreases.
   - If the temperature does not decrease:
     - Check whether the fuse is burnt out. If yes, replace the fuse.
     - If the fuse is not burnt out, there can be a failure or too little refrigerant in the system:

CONTACT YOUR LOCAL HYUNDAI DEALER

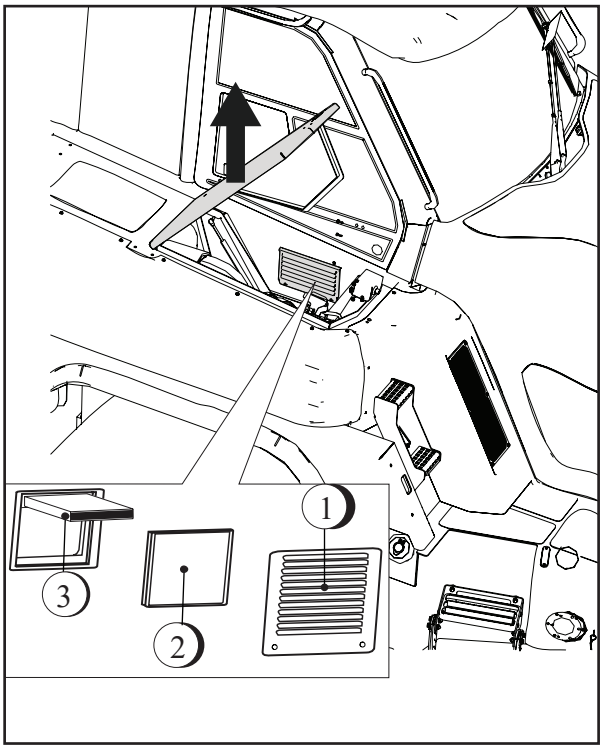
** Numbers refer to positions on the lubrication schedule, chapter 6*

500 Hours Service

Maintenance to be performed every 500 hours of operation.

WARNING

- **If the air conditioning system does not work properly, contact your Hyundai Dealer.**
- **Always use safety glasses or goggles, gloves, boiler suit and protective footwear when inspecting, servicing and repairing the air conditioning system.**
- **Refrigerant R134a has a property that can cause frostbite if it comes into contact with bare skin or eyes.**
- **Always work on the air conditioning system in well ventilated places.**
- **The system contains refrigerant R134a under pressure. Repair and refilling of the refrigerant circuit must only be done by accredited personnel.**
- **Dispose of waste oil/fluids in an environmentally friendly manner!**
- **High concentration of the refrigerant in gaseous form can cause drowsiness, headache, dizziness and at worst unconsciousness. Very high concentration of the gas can even cause cardiac insufficiency. Do not smoke when servicing the air conditioning system!**
- **Be careful with all hoses connected to the air conditioning system. There is always a certain over pressure in the system. Therefore, never undo hoses or the filler opening on the compressor except during repairs to the system.**
- **If there is any suspicion of leakage, the system must not be filled up - leave the leakage site and contact your Hyundai Dealer for repairs.**
- **Get your Hyundai Dealer to check the air conditioning system yearly and refill refrigerant, if necessary.**
- **See also chapter 2, Safety Instructions.**



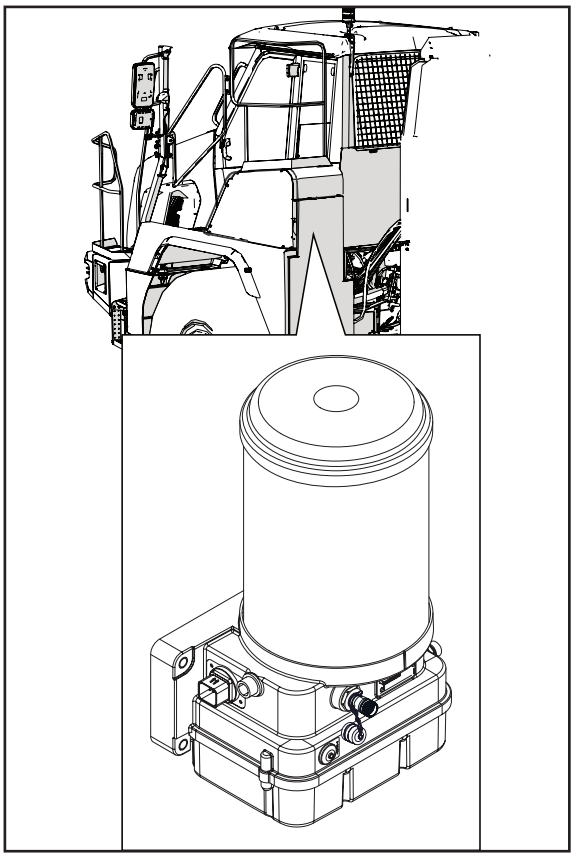
6.2. Check/replace cab ventilation filters 70*, 100*

1. Open cover on the RHS of the truck.
2. Open cover (1) by removing 2 screws.
3. Remove the pre-filter (2)
   - Replace if necessary.
4. Remove cab ventilation filter element (3) and replace.
5. Reassemble the opposite way.
6. Adjust the check interval if another requirement is experienced.

** Numbers refer to positions on the lubrication schedule, chapter 6*

500 Hours Service

Maintenance to be performed every 500 hours of operation.



7. Automatic central lubrication.

7.1. Check the system

- Check the pump for damage and leaks.
- Check the grease lines for damage and leaks.
- Check, if possible, the condition of the grease points the system serves. Sufficient fresh grease should be present.
- Check the operation of the system. Perform a cycle test (see chapter 3 for how to perform a cycle test). *Note that every time you perform a cycle test, grease is supplied to the grease points.*
- Clean the pump-unit and its surroundings.

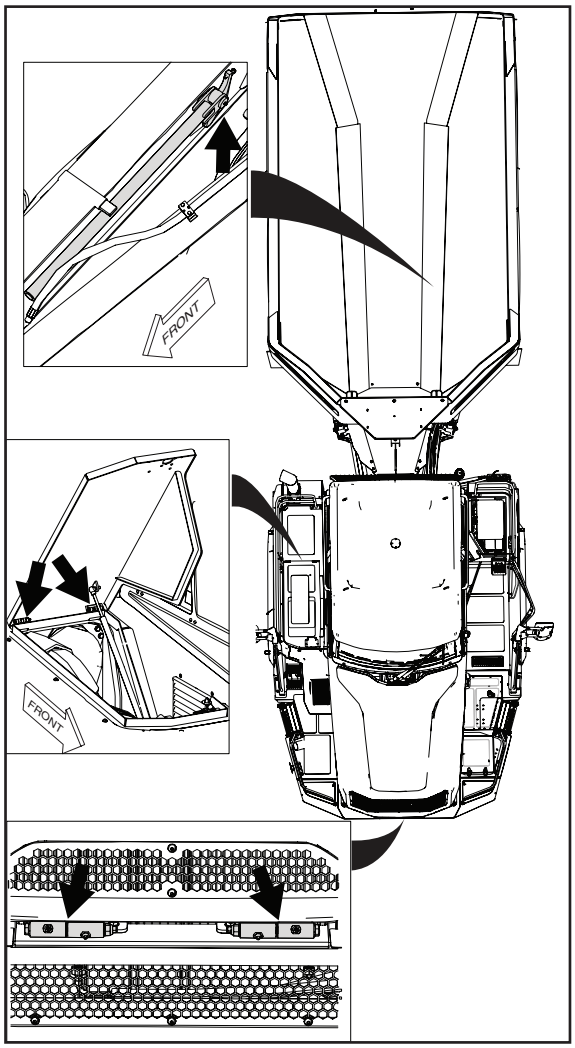
NOTE

- **If you use high-pressure air or water to clean the dump truck, do not spray directly onto the pump unit. Water or dirt might enter the pump-unit through the breather.**

** Numbers refer to positions on the lubrication schedule, chapter 6*

500 Hours Service

Maintenance to be performed every 500 hours of operation.



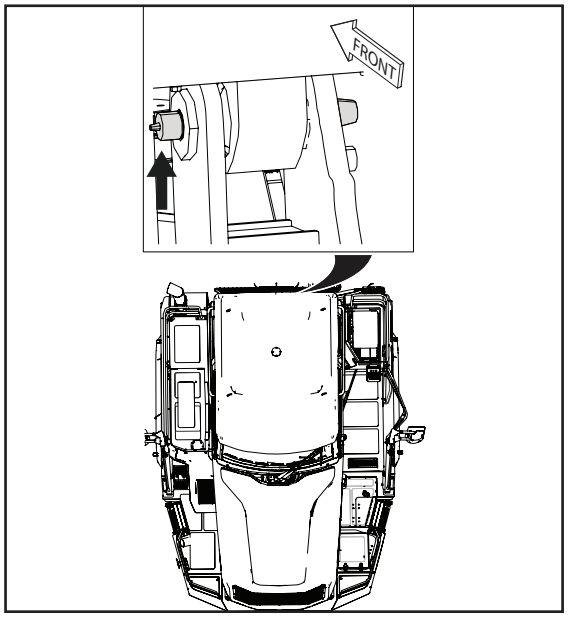
8. Lubrication

Grease lubrication points until pure grease is forced out of the components. Wipe off.

8.1. Fender hatches, bonnet 6 lubricators 50*

There are 2 lubricators on right hand side fender (one per hinge), 4 lubricators on front of the bonnet (two per hinge).

These lubricators must be manually greased, even if the automatic central lubrication is installed.



8.2. Cab rear hinges, 2 lubricators 51 *

There is 1 lubricator on each side of the cab.

These lubricators must be manually greased, even if the automatic central lubrication is installed.

9. Wheel nuts

9.1 Check tightness

10. Continue with all items in 40 Hours Service.

** Numbers refer to positions on the lubrication schedule, chapter 6*

1000 Hours Service

Maintenance to be performed every 1000 hours of operation.

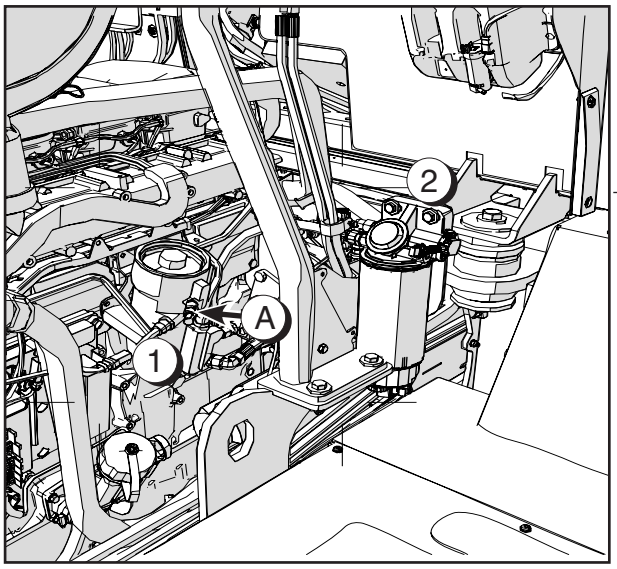
1. Driver's seat

1.1. General safety check

- Check for play in seat gliders. Max. allowed in length or sideways 1 mm. Grease the gliders.
- Check shock absorbers for oil leakages.
- Check seat mounting to the dump truck.
- Check safety belt and lock mechanism for wear and damage.
- Check that no pins are loose/worn in the seat base.
- Replace worn/damaged parts.

2. Engine

2.1. Replace fuel filter PDE 4* Replace water separating fuel filter PDE 6*



CAUTION

Observe extreme cleanliness when working with the fuel system. Otherwise operational interruption may easily occur and the injection equipment may be damaged.

2.1.1. Renewing the fuel filter, PDE

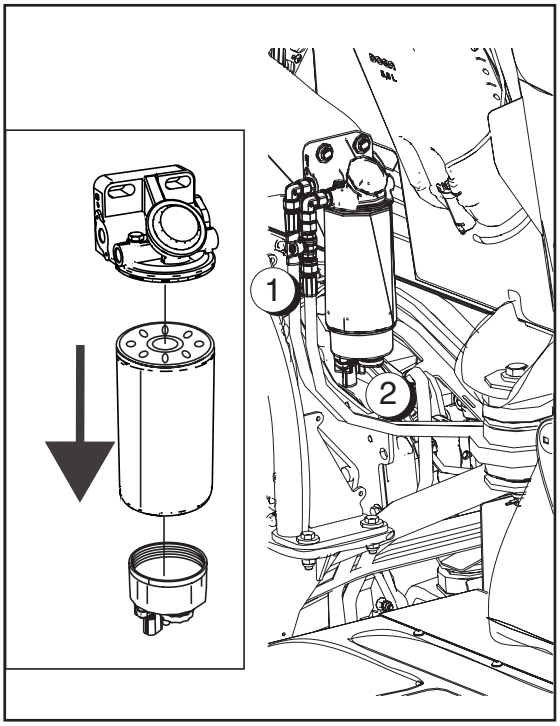
Before starting work: Close the shut-off cock on the water separator (2) and position a container under the filter.

1. Open the bleed nipple (A) on the fuel filter housing (1) to release any remaining pressure. It may be difficult to unscrew the filter cover if the system pressure has not fallen enough. Unscrew the filter cover with a closed tool with hexagon driver, e.g. socket 36 mm, so as not to damage the filter cover.
2. Lift out the filter cover and filter element. The filter housing will drain automatically. This applies only if the fuel tank is lower than the engine. Otherwise the fuel shut-off cock on the water separator (2) must be closed first.
3. Undo the removed filter element from the cover by carefully bending it to one side.
4. Renew the O-ring in the cover. Lubricate the O-ring with O-ring grease.
5. Check that the filter housing is drained of fuel. Contaminated fuel may enter the injectors if the drainage does not work.
6. Press a new filter element into the snap fastener in the cover.
7. Fit the filter element and cover in the filter housing. Tighten the cover to 25 Nm (18.4 lbf/ft).
8. Bleed the fuel system after replacing the water separating filter.

** Numbers refer to positions on the lubrication schedule, chapter 6*

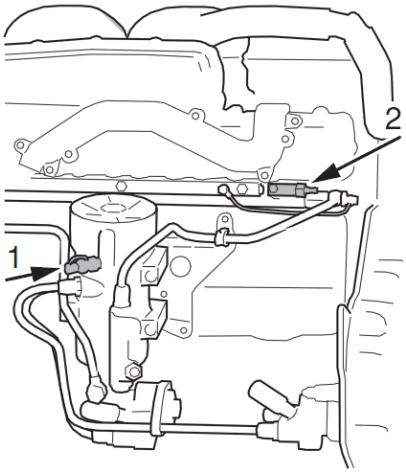
1000 Hours Service

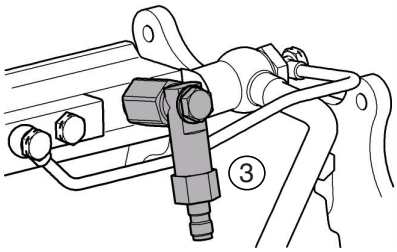
Maintenance to be performed every 1000 hours of operation.



2.1.2. Renewing the water separating filter

1. Close the shut-off cock (1) in the fuel pipe and position a container under the filter.
2. Open the drain tap (2) in the filter cover and let the fluid run down into the container.
3. Unscrew the filter from the filter head.
4. Discard the old filter and use a new filter.
5. Lubricate the O-ring in the filter cover with engine oil.
6. Screw the filter cover onto the new filter by hand. Make sure that the drain tap is fully closed.
8. Lubricate the O-ring on the filter with engine oil.
9. Fill the width of the filter with clean fuel.
10. Screw the filter into position until the O-ring rests against the filter head. Tighten the filter another 1/2-3/4 turn by hand.
11. Open the shut-off cock and check the system for leaks.
12. Bleed the fuel system after replacing the water separating filter.





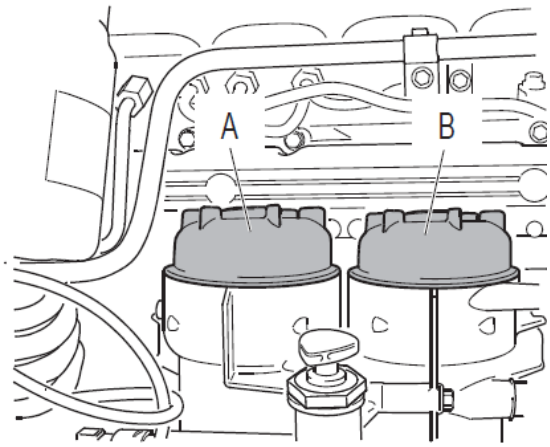
2.1.3. Bleeding the system

1. Connect a transparent plastic hose to the bleed nipple (1) on fuel filter housing. Place the end of the plastic hose in a container with a capacity of at least 3 liters (0.8 US gallons).
2. Open the bleed nipple and pump with the hand pump until fuel comes out of the hose. If the fuel system is empty, it is necessary to pump approximately 100 strokes in order to draw up the fuel. Depending on the installation, a much greater number of pump strokes may be required before fuel comes out.
3. Pump until fuel without air bubbles comes out, approximately 20 strokes.
4. Close the bleed nipple and remove the hose.
5. Transfer the plastic hose to the fuel manifold bleed nipple (2).
6. Open the fuel manifold ventilating valve (3).
7. Pump with the hand pump until fuel without air bubbles comes out, approximately 50 strokes.
8. Close the bleed nipple on the fuel manifold and remove the plastic hose.
9. Pump approximately 20 strokes with the hand pump until the overflow valve opens. A hissing sound should be heard.
10. Start the engine. The engine should be easy to start.

** Numbers refer to positions on the lubrication schedule, chapter 6*

1000 Hours Service

Maintenance to be performed every 1000 hours of operation.



A Water separating suction filter

B Pressure filter

2.2. Replace fuel filter XPI 4* Replace water separating fuel filter XPI 6*

2.2.1. Renewing the fuel filter XPI 4*

NOTE

Engines with XPI have dual fuel filters in the form of a water separating suction filter and a pressure filter.

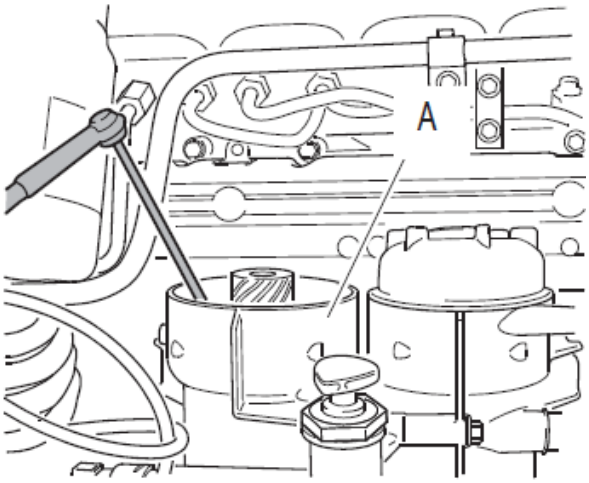
NOTE

Collect all fuel coming out when renewing the fuel filter according to environmental regulations.

To ensure that the filter housings are drained properly, the filter covers must be removed as follows:

Start with the water separating suction filter (A)! Do not open the pressure filter cover (B) until the filter housing for the water separating filter (A) is completely drained.

Do not use an adjustable spanner or other open tool to undo the filter covers, as this risks damaging the filter covers.



1. Make a mark on the water separating suction filter cover. Unscrew the cover 3 to 4 turns using a closed tool with hexagon driver, e.g. socket 36 mm.
2. Unscrew the filter cover and lift it up slowly with the filter element.
3. Make sure the suction tool is completely drained before starting work. Draw out remaining fuel and any particles using suction tool or a similar tool.
4. Keep the suction tool hose in the filter housing for the water separating suction filter.
5. Make a mark on the pressure filter cover. Unscrew the cover 3 to 4 turns using a closed tool with hexagon driver, e.g. socket 36 mm. Draw out fuel which may drain into the water separating suction filter housing when the pressure filter is detached.
6. Unscrew the pressure filter cover and lift it up slowly with the filter element.
7. Fuel from the pressure filter housing will flow into the water separating suction filter housing. Leave the suction tool in the water separating suction filter housing until it is completely drained of fuel.
8. Move the suction tool to the pressure filter housing. Draw out remaining fuel and particles.
9. Undo the old filter elements from the covers by carefully bending them to one side.

** Numbers refer to positions on the lubrication schedule, chapter 6*

1000 Hours Service

Maintenance to be performed every 1000 hours of operation.

2.2.2. Fuel filter fitting

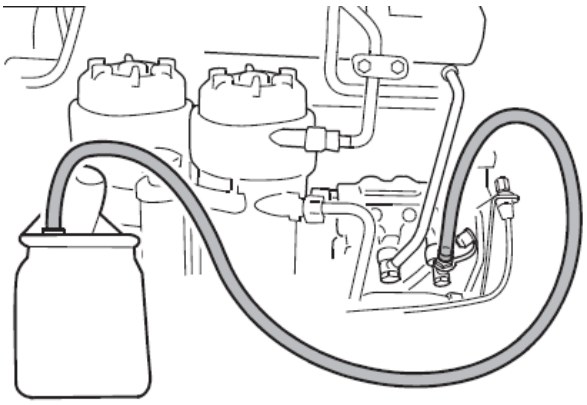
Check that there is no remaining packaging material stuck to the filters.

1. Unpack the new filter elements and the supplied O-rings.
2. Fit the new O-rings to the covers. Lubricate the O-rings with O-ring grease.
3. Press the filter elements into the snap fasteners on the covers

NOTE

Fit the filter element to the filter cover before positioning it in the fuel filter housing. The filter element can otherwise be damaged.
Open the bleed nipple to prevent back pressure in the filter housings when the filter elements are screwed on.

4. Press down the filter element with the filter cover into the fuel filter housing.
5. Screw on the filter cover. Use a closed tool with hexagon driver, e.g. socket 36 mm.
6. Check that there is no gap between the filter cover and the filter housing. If there is a gap, repeat the procedure and make sure that the bleed nipple is open.



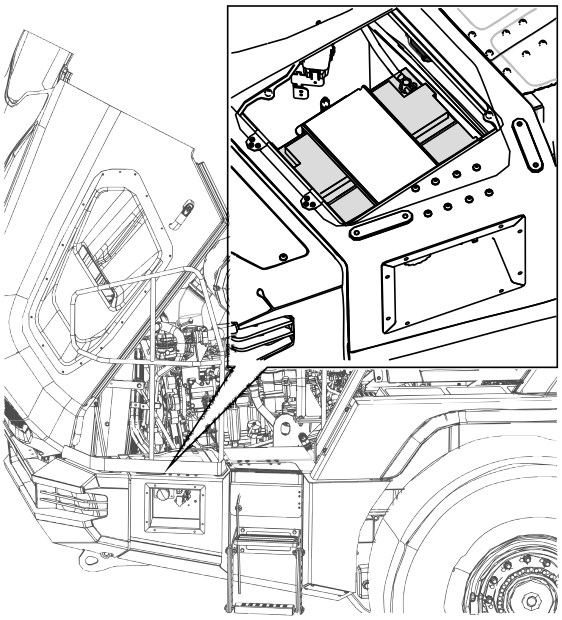
2.2.3. Bleeding the fuel system XPI

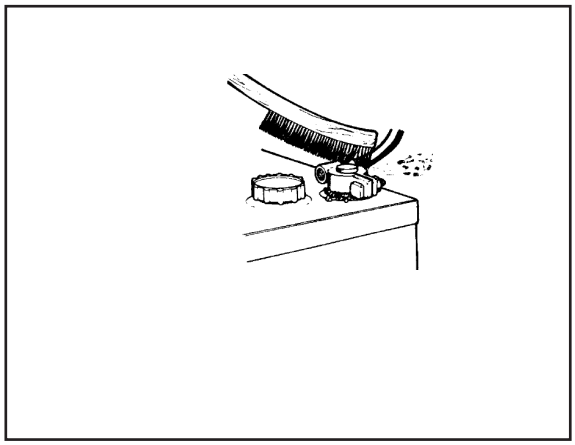
1. Open the bleed nipple at the high pressure pump and connect a clear plastic hose from suction tool or similar tool.
2. Drain the suction tool. Hold the suction tool straight and draw out a full container of fuel.
3. If the fuel coming out of the hose is free of air bubbles then bleeding is complete.
4. Close bleed nipple at the high pressure pump, remove the hose and suction tool.
5. Start the engine and check for leaks

** Numbers refer to positions on the lubrication schedule, chapter 6*

1000 Hours Service

Maintenance to be performed every 1000 hours of operation.





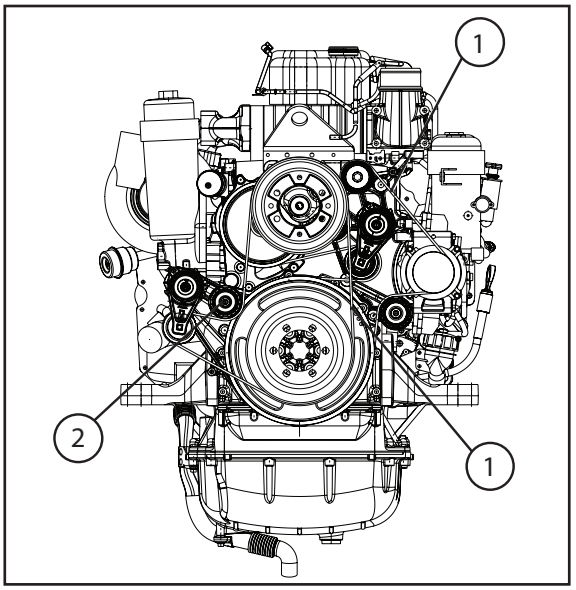
2.3. Check battery clamping and battery terminals for tightness and corrosion 11*

Clean if necessary, apply acid-free Vaseline on the terminals and re-tighten the clamps.

** Numbers refer to positions on the lubrication schedule, chapter 6*

1000 Hours Service

Maintenance to be performed every 1000 hours of operation.



2.4. Check multi-groove belt condition, at least once a year

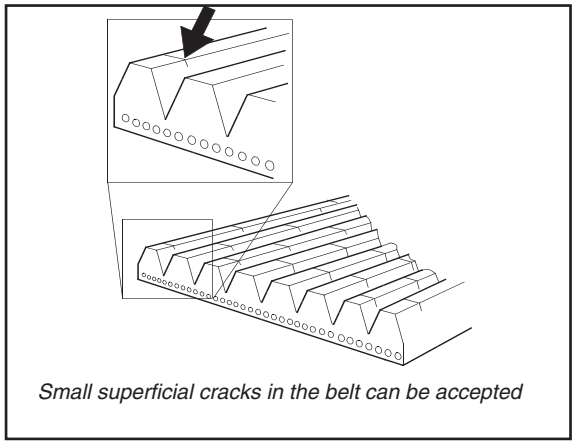
- *Checking of multi-groove belt condition must also be carried out after the first 8 and 100 hours of operation.*
- Stop the engine to inspect the multi-groove belt (1), see item 2.4.1 for procedure.
- Change the belt (1) if damaged or worn, see figures 1 to 3 below.
- Check that the automatic belt tensioner (2) is in proper working order and keeps the multi-groove belt sufficiently tightened.

2.4.1. Inspect the multi-groove belt.

- Loosen the multi-groove belt from the belt pulleys but leave it around the fan shaft so that the direction of rotation for the multi-groove belt is not changed.
- Check the multi-groove belt carefully. If the multi-groove belt has one or more cracks, as shown in Fig. 1, it should be replaced.
- Also check the wear on the multi-groove belt as shown in Fig. 2 and 3.

NOTE

Do not change the direction of rotation of the multi-groove belt if it is reinstalled.



Small superficial cracks in the belt can be accepted

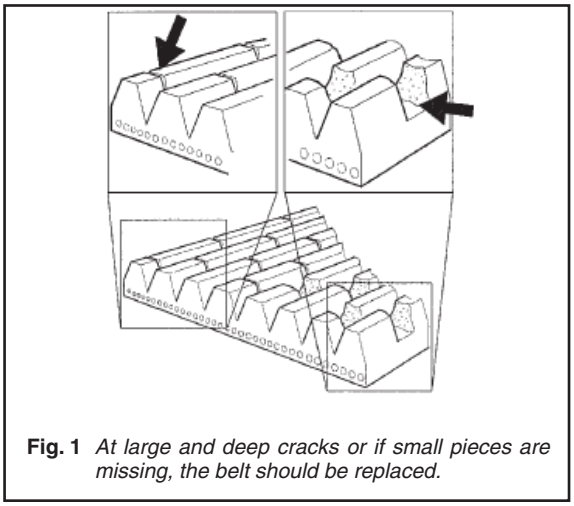


Fig. 1 *At large and deep cracks or if small pieces are missing, the belt should be replaced.*

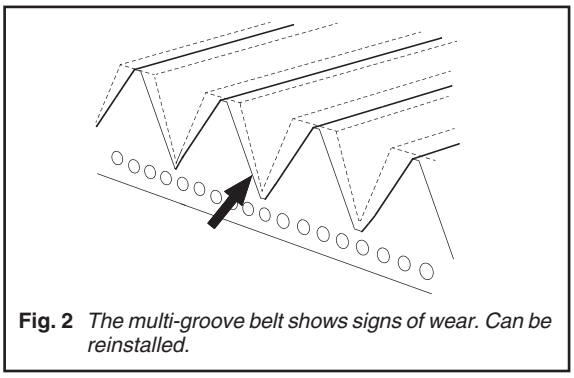


Fig. 2 *The multi-groove belt shows signs of wear. Can be reinstalled.*

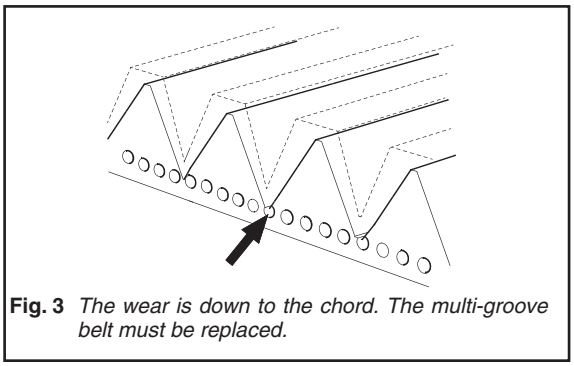
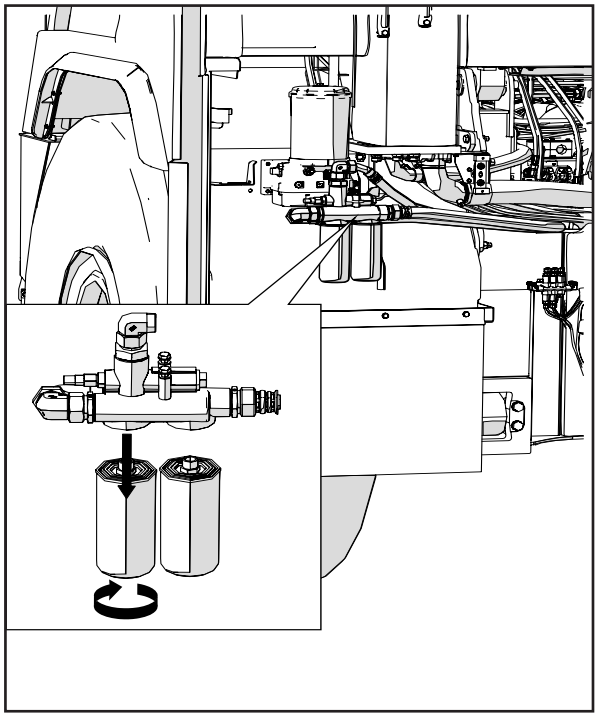


Fig. 3 *The wear is down to the chord. The multi-groove belt must be replaced.*

** Numbers refer to positions on the lubrication schedule, chapter 6*

1000 Hours Service

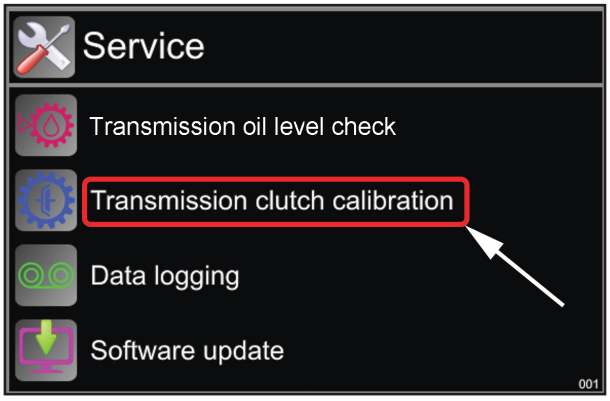
Maintenance to be performed every 1000 hours of operation.

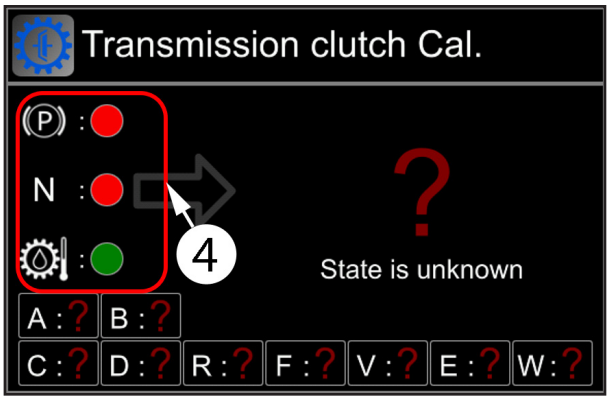


3. Transmission

3.1. Replace filter elements (located on the left hand side)

1. The dump truck must be standing on level ground.
2. The oil must be at operating temperature.
3. Open the maintenance door of the hydraulic tank.
4. Clean well around the filters.
5. Place a suitable container beneath the filters to catch spillage.
6. Unscrew the filter elements.
7. Check for wear particles in the oil.
8. Apply oil to the seals on the new elements.
9. Screw the filter elements in until contact with the sealing surface is obtained. Tighten the elements firmly by hand.





3.2. Run the Transmission Clutch Calibration (AEB) AEB = Automatic Filling Parameter Adjustment

To optimize the transmission, run the AEB-Tester.

1. Push MENU on the display screen.
2. Select SERVICE
3. Select Transmission Clutch Calibration (AEB).
4. Make sure that the all requirements are fulfilled

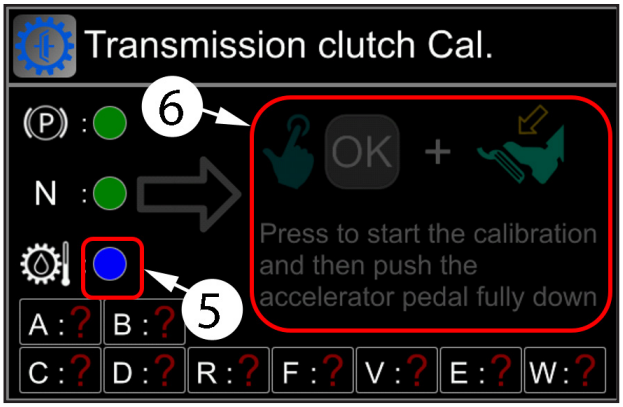
There are 3 conditions that need to be fulfilled before a calibration can be started. These are:

- parking brake on,
- gear in neutral
- the transmission temperature should be around 85 °C.

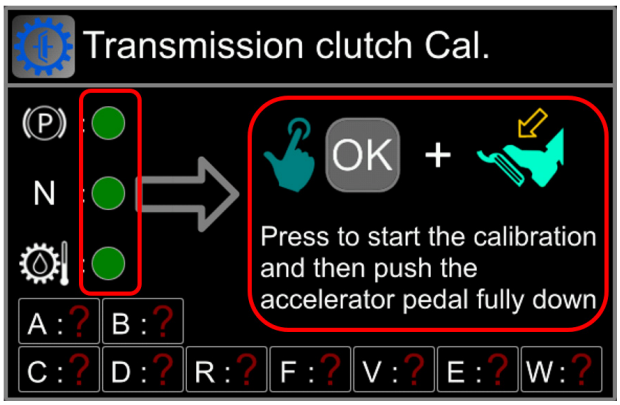
** Numbers refer to positions on the lubrication schedule, chapter 6*

1000 Hours Service

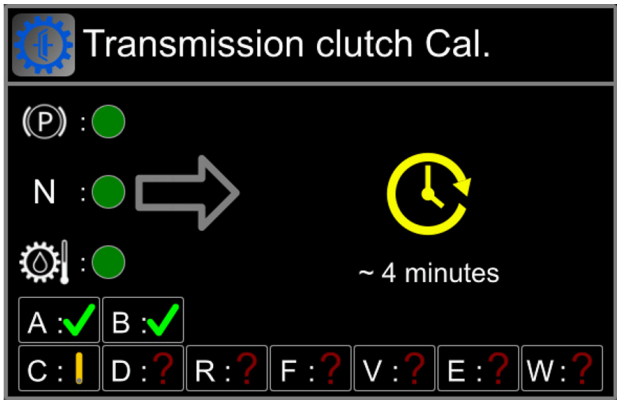
Maintenance to be performed every 1000 hours of operation.



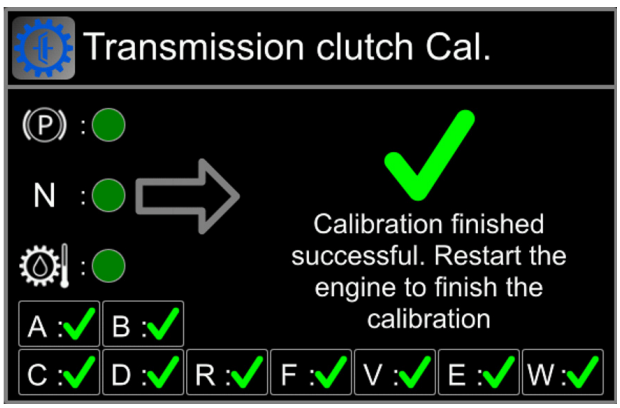
5. This means that the retarder is still too cold.
6. That is why it is not possible yet to start the calibration.



Finally when all condition are fulfilled then it is possible to start the calibration.



The yellow bar is rotating during calibration, on average it takes around 4 minutes to finish a successful calibration. Clutches A & B are calibrated successfully. Currently handling clutch C.



The calibration finished successfully. If not, a failure cause will be shown on the screen.

NOTE

Transmission Clutch Calibration must be performed after every oil change in transmission!

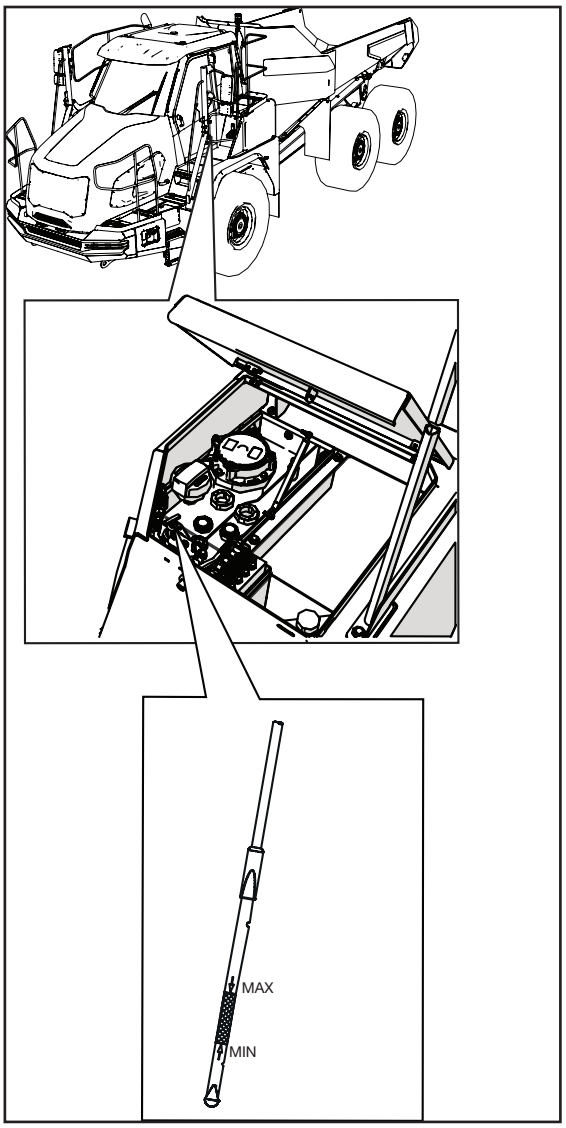
NOTE

To prevent the transmission oil temperature from falling during AEB operation, keep the transmission oil temperature about 85°C before starting AEB. (Temperature Range: 75°C - 92°C)

** Numbers refer to positions on the lubrication schedule, chapter 6*

1000 Hours Service

Maintenance to be performed every 1000 hours of operation.

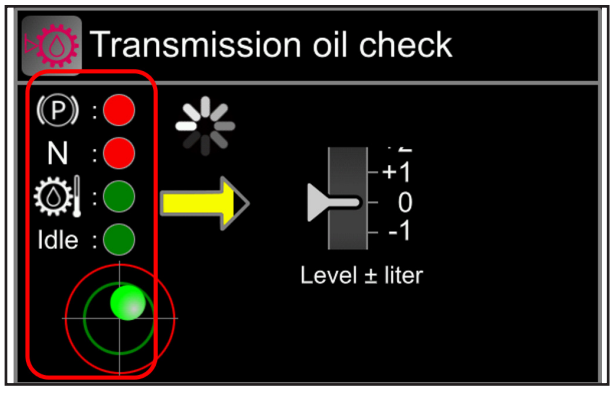


3.3. Check oil level, before operation 20*

1. The dump truck must be standing on level ground.
2. The gear selector must be in neutral and confirm that the parking brake is ON.
3. Run the engine at low idle.
4. To check the transmission oil level, see dipstick.
5. Check level: Cold oil, 40 °C: lower mark
   Hot oil, 80 °C: upper mark
6. If necessary, correct the level by adding oil according to the transmission oil list (chapter 6) through the filling tube (1).

CAUTION

Do not overfill with oil! Both too high and too low of a level can cause serious internal damage!



Check transmission oil level before operating ADT. (Electronic oil level)

Chose the Menu - Service-

Follow the instruction from the screen and make sure that the all requirements are fulfilled

- Vehicle is not moving
- Park brake is activated
- Gear should be in neutral
- The dumper is leveled
- Engine at the low idle
- Transmission oil temperature is in range 40-90°C.

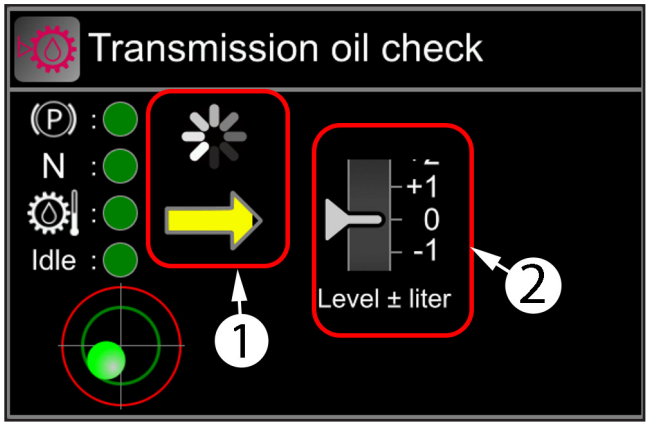
NOTE

It is recommended to use the dipstick when replacing the oil.

** Numbers refer to positions on the lubrication schedule, chapter 6*

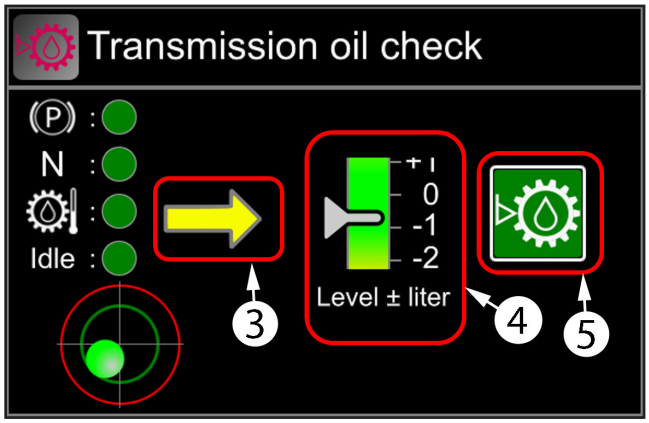
1000 Hours Service

Maintenance to be performed every 1000 hours of operation.



1 When conditions are stable it also takes some time for the oil to stabilize. Visible is a rotating bar and a yellow arrow that fills up.

2. This will show the resulting oil level. Now grayed out because the measurement hasn't finished yet

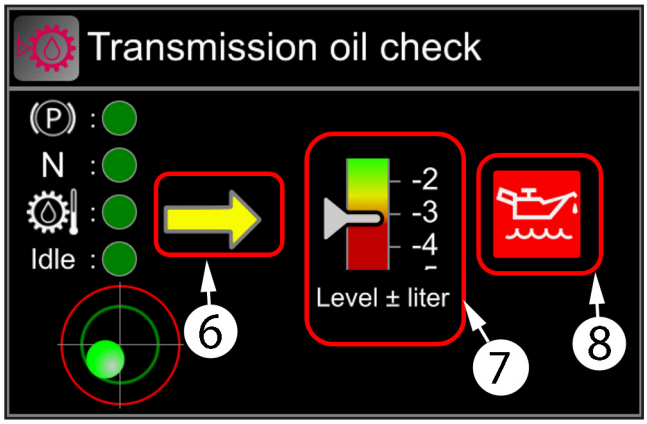


3. The measurement is finished.

4. Now it shows the resulting oil level

5. The green symbol indicates that the oil level is ok.

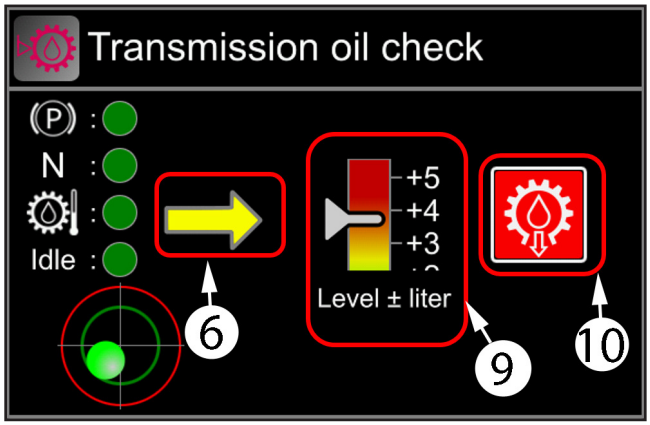
That means it is within +/- 2 liter.



6. The measurement is finished

7. It shows a low oil level

8. Here the red symbol indicates that the oil level is too low



9. It shows a high oil level

10. Here the red symbol indicates that the oil level is too high.

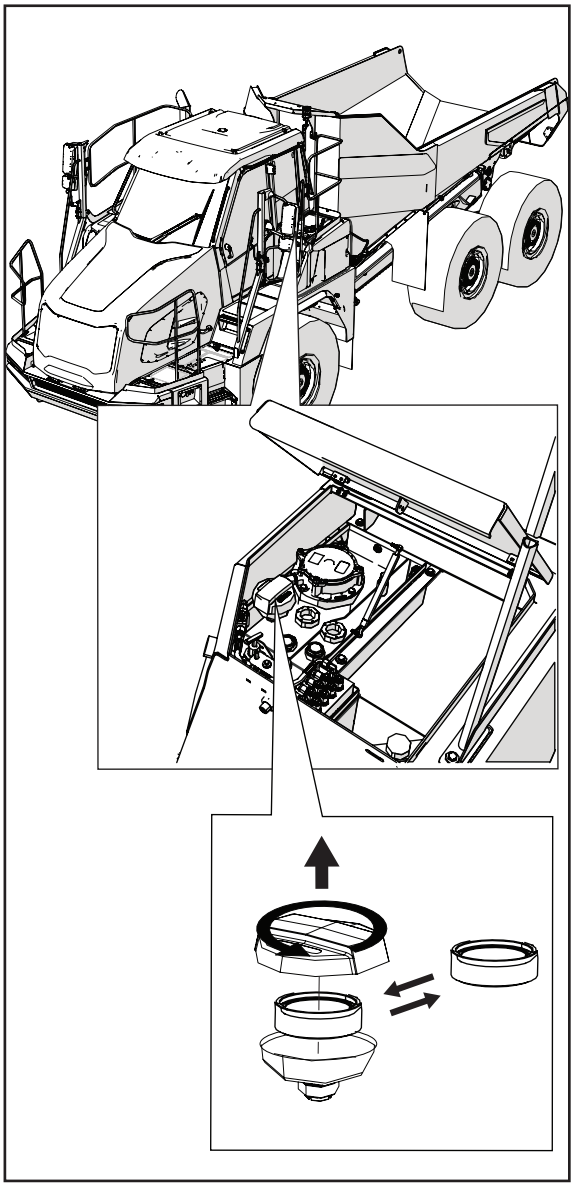
CAUTION

Do not overfill with oil! Both too high and too low of a level can cause serious internal damage!

** Numbers refer to positions on the lubrication schedule, chapter 6*

1000 Hours Service

Maintenance to be performed every 1000 hours of operation.



4. Hydraulic system

4.1. Replace breather element 41*

1. The filter is located on the top of the hydraulic tank. Open the cover to get into the filter.
2. Clean well around the filter housing.
3. Unscrew the cover of the breather filter.
4. Change the filter element on the breathier.
5. Replace the cover on the breather filter.

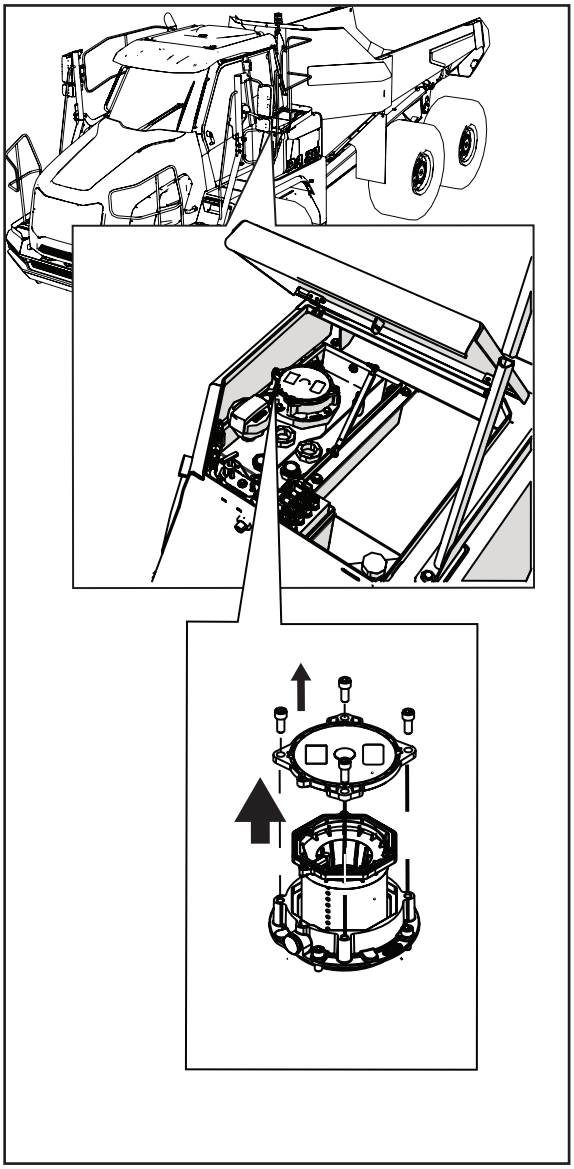
CAUTION

Pay special attention to cleanliness when working with the hydraulic system! Contamination can give steering disturbance and reduce safety.

** Numbers refer to positions on the lubrication schedule, chapter 6*

1000 Hours Service

Maintenance to be performed every 1000 hours of operation.



4.2. Replace hydraulic return filter element 42*

- *Replacement of the return filter can be also raised by the clogging indicator on the main screen.*

1. Accumulators contain oil under high pressure! Empty the accumulators, before unscrewing the filter. Procedure is described under Maintenance Precautions section.
2. The filter is located on the top of the hydraulic tank. Open the cover to get into the filter.
3. Clean well around the filter housing.
4. Place a suitable container beneath the draining hose to catch spillage.
5. Use allen key to unscrew 4 screws from the cover of filter (counter clockwise).
6. Remove the filter element.
7. Check for wear particles in the oil.
8. Install a new filter element and replace the 4 screws by turning it clockwise with the torque 25 + 5 Nm.
9. Clean off any oil spill.
10. Start engine and check the oil level and any leaks. The accumulators will be recharged with oil when the engine is re-started.

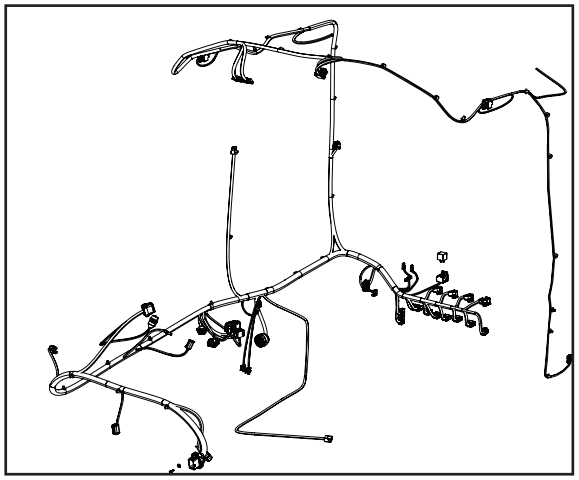
CAUTION

Pay special attention to cleanliness when working with the hydraulic system! Contamination can give steering disturbance and reduce safety.

** Numbers refer to positions on the lubrication schedule, chapter 6*

1000 Hours Service

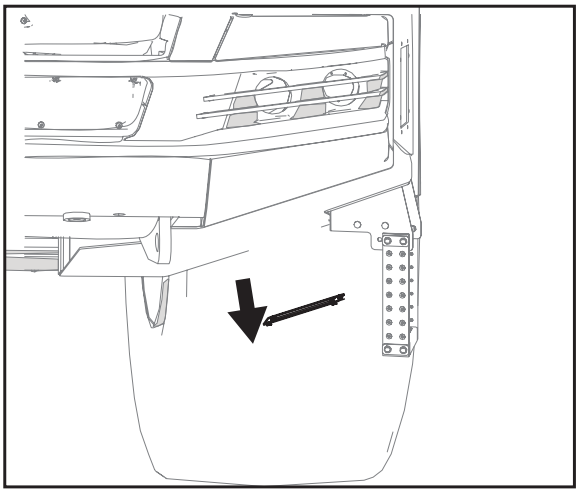
Maintenance to be performed every 1000 hours of operation.

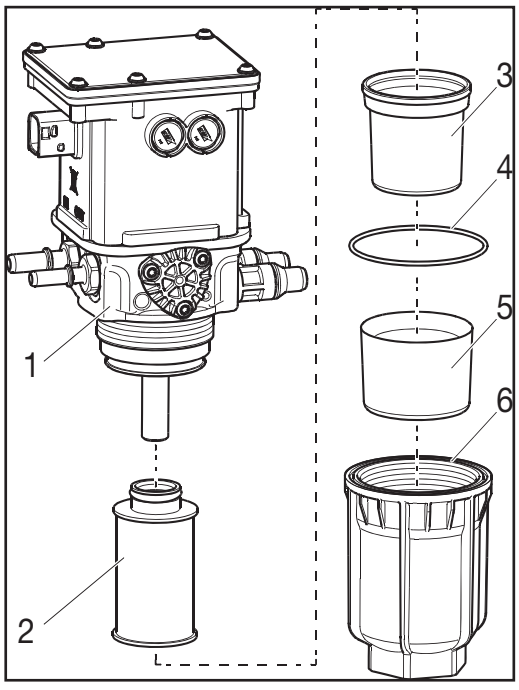


5. Electrical system

5.1. Check wiring

The wiring harness must not be damaged. Check that the cables on the articulation hinge and on the rear frame/ body are not squeezed, have sharp bends or loose/bad connections.





6. Urea filter (Only T4/Stage V)

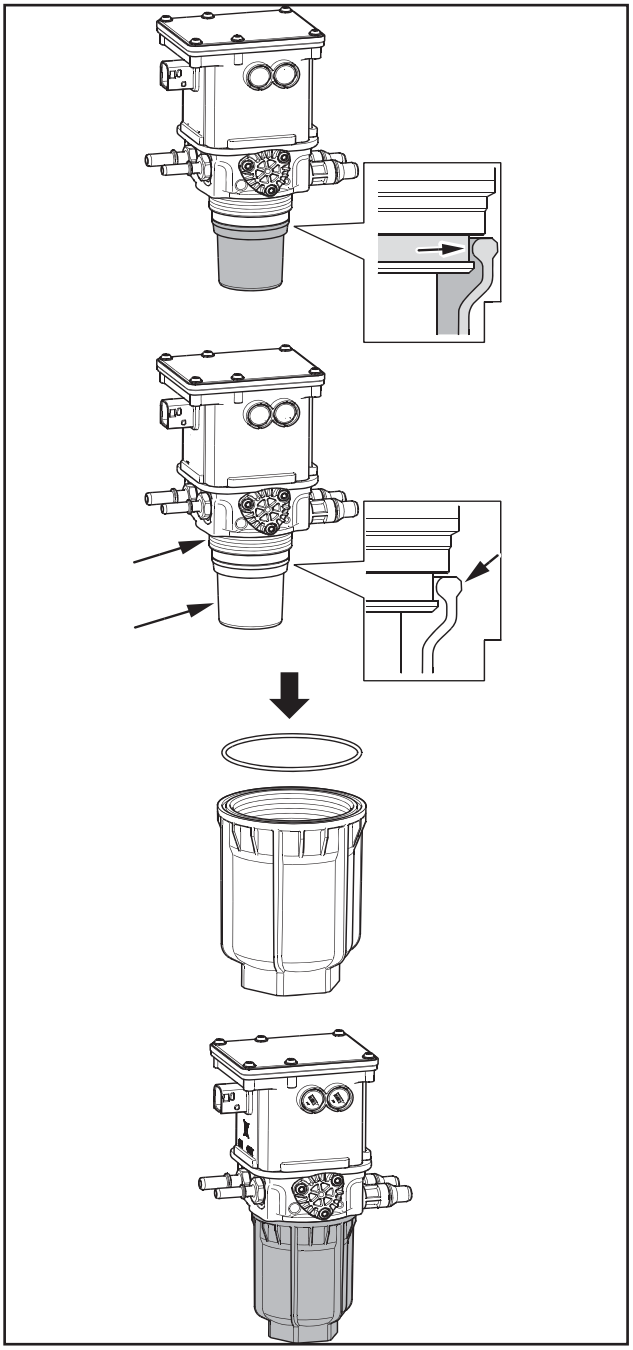
6.1. Replace the Urea filter

1. Remove the cover under the left fender.
2. Wipe clean around the filter housing to prevent impurities from penetrating it.
3. Remove the filter housing (6). Use a 46 mm socket.
4. Remove the sealing diaphragm (3).
5. Remove the old reductant filter (2) and fit a new one.
6. If the anti-freeze protection (5) in the filter housing (6) comes loose, wipe both thoroughly so that they are completely dry before they are assembled again.

** Numbers refer to positions on the lubrication schedule, chapter 6*

1000 Hours Service

Maintenance to be performed every 1000 hours of operation.



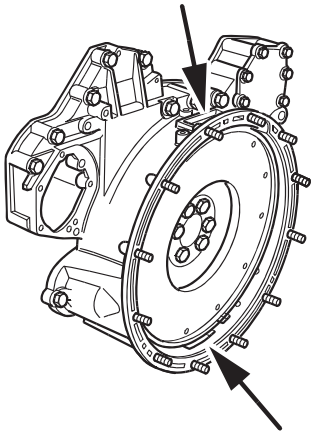
7. Wipe the sealing diaphragm and fit it over the filter. Ensure that the edge of the diaphragm is sitting in the groove.
8. Lubricate the sealing diaphragm and threads with the accompanying spray.
9. Renew the O-ring. Place the new O-ring in the filter housing.
10. Refit the filter housing. Use a 46 mm socket.
    - Tighten to 80 Nm

7. Continue with all items in 500 Hours Service

** Numbers refer to positions on the lubrication schedule, chapter 6*

2000 Hours Service

Maintenance to be performed every 2000 hours of operation



Openings for taking readings on the flywheel housing.

1. Engine

1.1. Check/adjust valve clearance (5 cylinders)

- Checking/adjusting valve clearance must also be carried out after the first 500 hours of operation.
- Contact Hyundai Dealer for checking/adjusting of the valve clearance.
- The checking/adjusting of the valve clearance must only be carried out by qualified personnel.
- The air filter and air filter bracket has to be removed before adjustment takes place.

Adjust if necessary:
- Inlet: 0,45 mm
- Exhaust: 0,70 mm
  see instruction sign on one of the rocker covers.

Valves should be adjusted when the engine is cold, at least 30 minutes after operation.

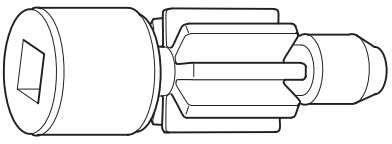
Readings can be taken from the flywheel through openings in the flywheel housing either from above or below depending on access when installing.

"TDC up" or "TDC down" is found on the flywheel. Both openings are installed with a blanking piece at delivery.

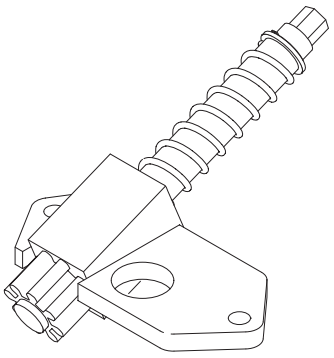
From below	Valve transition	Valve adjustment	From above
TDC down		1	TDC up
72/432	5		252/612
144/504		2	324/684
216/576	3		36/396
288/648		4	108/468
TDC down	1		TDC up
72/432		5	252/612
144/504	2		324684
216/576		3	36396
288/648	4		108/468

- Turn the flywheel in the engine's direction of rotation so that TDC up or TDC down is visible in the flywheel housing window.
- If there is valve clearance on cylinder 1, start valve adjustment as indicated in the table.
- If there is valve transition on cylinder 1, work should start at row six of the table.

Tightening torque for lock nut 35 Nm (26 lbf/ft).



Special tool is used when turning from below.



Special tool is used when turning from above.

WARNING

Remove ignition key when working on the engine! To avoid a SERIOUS RISK OF INJURY!

* Numbers refer to positions on the lubrication schedule, chapter 6

2000 Hours Service

Maintenance to be performed every 2000 hours of operation

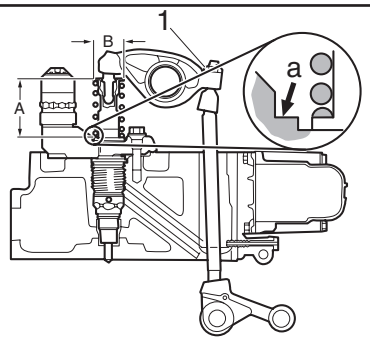
Option 2

Set cylinder 1 exactly at TDC after the compression stroke. Adjust the following valves:

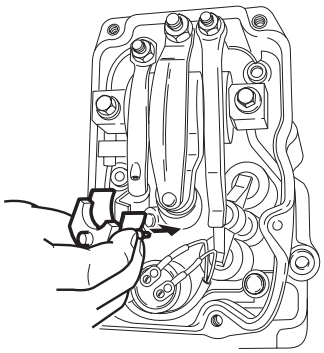
Cyl.1	Intake and exhaust
Cyl.2	Intake
Cyl.3	Exhaust
Cyl.4	Intake
Cyl.5	Exhaust

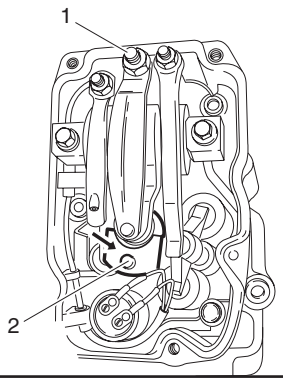
Turn the crankshaft exactly one revolution. Adjust the following valves:

Cyl.2	Exhaust
Cyl.3	Intake
Cyl.4	Exhaust
Cyl.5	Intake
Cyl.6	Intake and exhaust



Measurement A=69.9+/-0.1 (2.75 in)
Measurement B=38.8 (1.53 in)





1.2. Checking and adjusting injector (Only T2)

The unit injectors are adjusted using setting tool MX512264 or a digital sliding caliper.

1. Attach the setting tool with the metal plate around the unit injector.

WARNING

Be very careful when checking the unit injector if the measurement is outside the setting dimension. The spring is pre-tensioned and can come loose, causing personal injury.

2. When adjusting, undo the lock nut around the adjusting screw and adjust the unit injector with the adjusting screw 1.

The unit injector is correctly set when the small piston 2 is level with the flat upper surface of the tool. Use a finger to check. Setting dimension is 69.9 +/- 0.1 mm (2.75 in).

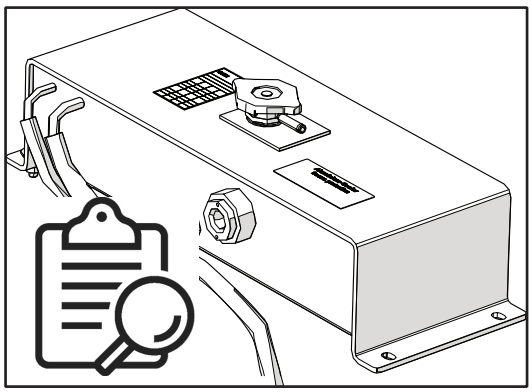
Reassemble top cover after checking and adjusting is complete.

Torque: 18±5Nm

* Numbers refer to positions on the lubrication schedule, chapter 6

2000 Hours Service

Maintenance to be performed every 2000 hours of operation



1.3. Check the coolant, at least once a year 5*

Coolant composition:

The coolant should contain 35-55% by volume antifreeze (ethylene glycol) and corrosion inhibitor. The percentage varies depending on the need for antifreeze.

A minimum of 35% by volume of antifreeze and corrosion protection is needed to provide sufficient protection against corrosion.

The antifreeze and corrosion protection used in Scania engines should be antifreeze (ethylene glycol) and corrosion inhibitor. Use a mixture of ethylene glycol and demineralized water as cooling agent.

Demineralized water quality should comply with the following parameters:

- pH=6.5-8
- suspended solids <50ppm
- chlorine concentration <100 ppm
- total hardness (expressed in CaCO3) <200ppm
- sulfates concentration <100 ppm

NOTE

Too high a dose of antifreeze and corrosion inhibitor will increase the amount of sludge and blockages accumulating in the radiator. Too low a concentration can lead to corrosion of the cooling system and ice formation at low temperatures.

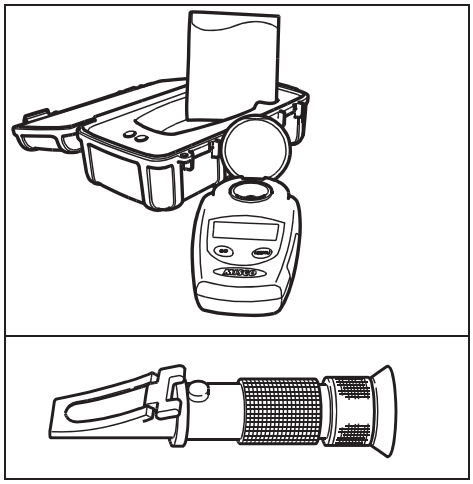
WARNING

Ethylene glycol is highly dangerous if consumed can prove fatal.
Avoid contact with the skin as this may cause irritation to the skin.
Wear protective goggles and gloves when handling coolant.

* Numbers refer to positions on the lubrication schedule, chapter 6

2000 Hours Service

Maintenance to be performed every 2000 hours of operation



1.3.1. Check the coolant's antifreeze and corrosion protection at least once a year

- Pour a small amount of coolant into a container and check that the coolant is pure and clear.
- Change the coolant if it is contaminated or cloudy.
- Measure the antifreeze and corrosion inhibitor content with the refractometer.
- The water for the coolant should be free of dirt.
- Use demineralized or distilled water with a pH of 6,5 - 8.

NOTE

The coolant should be changed when the cooling system is cleaned. Every 4000 hours or every 5 years.

1.3.2. Antifreeze and corrosion protection concentration table, liters

35% by volume of Scania antifreeze provides sufficient protection against corrosion.

Example:

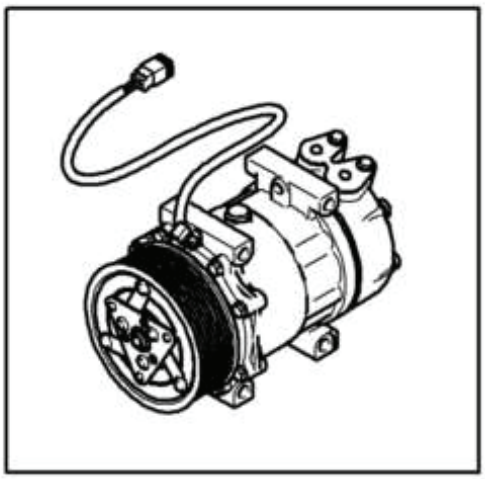
- The total volume of the cooling system is 40 litres.
- The measured concentration of ethylene glycol is 35% by volume (freezing point -21°C). According to the table, there are 14 litres of ethylene glycol in the cooling system.
- The required concentration of ethylene glycol is 45% by volume (freezing point -30°C). According to the table, 18 litres of ethylene glycol are required in the cooling system.
- Since there are already 14 litres in the cooling system, 4 litres of ethylene glycol must be added to the cooling system (18 - 14 = 4 litres).

	Adequate protection against corrosion					
Volume of ethylene glycol (%)	35	40	45	50	60	Cooling system volume
Ice slush forms (°C)	-21	-24	-30	-38	-50	
Volume of ethylene glycol (litres)	11	12	14	15	18	30
	14	16	18	20	24	40
	18	20	23	25	30	50
	21	24	27	30	36	60
	25	28	32	35	42	70
	28	32	36	40	48	80
	32	36	41	45	54	90
	35	40	45	50	60	100
	39	44	50	55	66	110
	42	48	54	60	72	120
	46	52	59	65	78	130
	49	56	63	70	84	140
	53	60	68	75	90	150
	56	64	72	80	96	160
	60	68	77	85	102	170
	63	72	81	90	108	180
	67	76	86	95	114	190
	70	80	90	100	120	200

* Numbers refer to positions on the lubrication schedule, chapter 6

2000 Hours Service

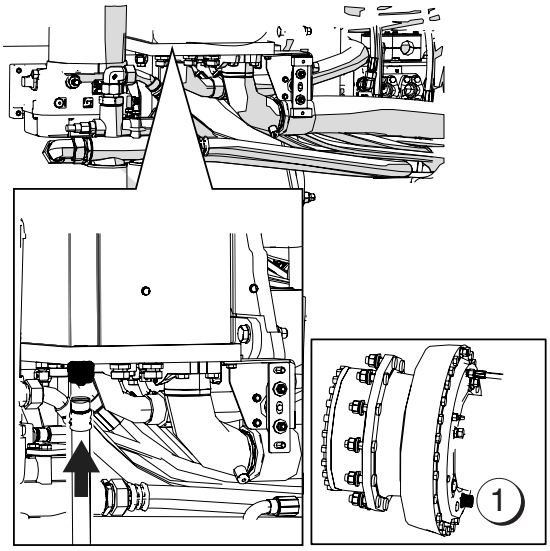
Maintenance to be performed every 2000 hours of operation



1.4. Cab ventilation

1.4.1.Air conditioner system

1. Clean evaporator coils.
2. Clean valves.
3. Recover the refrigerant and replace the filter - receiver - dryer.
4. Check the thermostat.

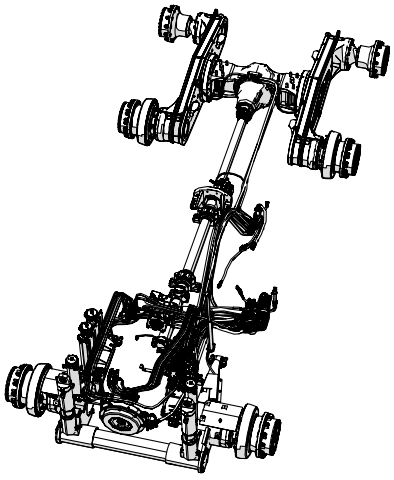


2. Brake system

2.1 Oil change brake cooling tank 34*

* Replacement of brake cooling oil shall also be carried out after first 500 hours service.

1. The dump truck must be horizontal.
2. Unscrew the filling plug located on top cover of hydraulic tank.
3. Unscrew the cap of drain plug and place the drain hose.
4. Drain the oil from tank into a suitable container.
5. Once tank is emptied remove hose and reinstall the drain cap.
6. Unscrew the plugs from the front hubs (1) on both sides of truck and two on the rear axel with the breaks.
7. Drain the oil from the hubs into suitable containers.
8. Clean the plug (1), replace O-ring if necessary and reinstall.
   - Tightening torque: 60 Nm.
9. Fill new oil, according to the oil specification sheet (chapter 6), through filling point on the tank with about 12 liters. After that, start the engine and refill to the correct level.



2.2. Inspect brake lines, at least once a year.

Replace pipes, hoses and fittings which are corroded (deep seated rust), deteriorated (aged), leaking or otherwise damaged.

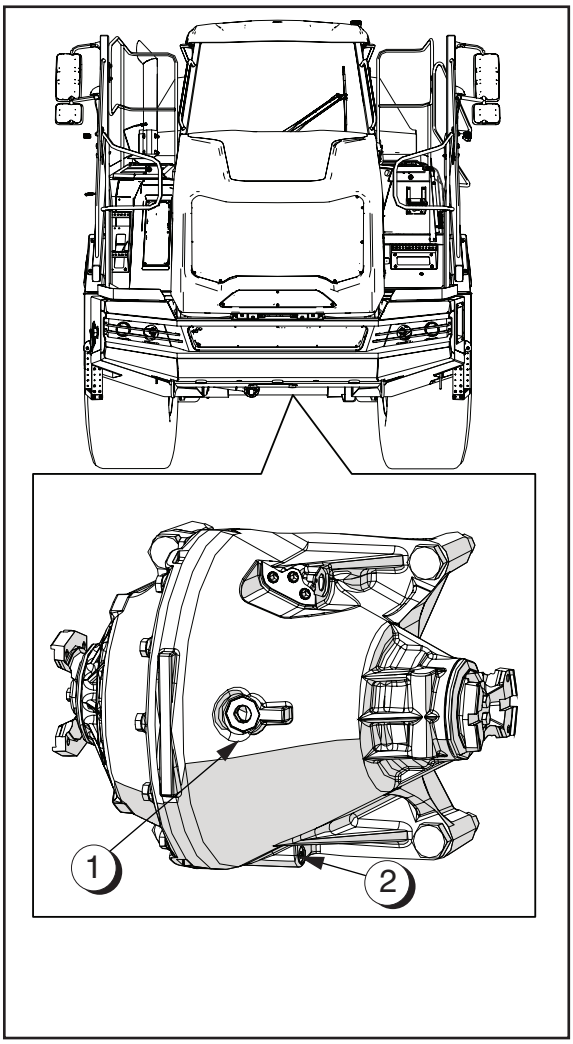
CAUTION

Check more often when operating in salty conditions or similar environment that may affect the brake system!

* Numbers refer to positions on the lubrication schedule, chapter 6

2000 Hours Service

Maintenance to be performed every 2000 hours of operation



3. Drive line

3.1. Front differential change oil, at least once a year 30*

- *Change front diff. oil must also be carried out after the first 500 hours of operation.*

1. Access to the drain plug through transmission bottom guard.
2. Open level/filling plug (1), special spanner in tool kit.
3. Unscrew drain plug (2).
4. Drain the oil into a suitable container.
5. Clean the drain plug, replace seal if necessary and reinstall.
   • Tightening torque: 50 Nm.
6. Fill with new oil, according to the oil specification sheet (chapter 6), through the level/filling plug, level must be at lower edge of hole when dump truck is horizontal.
7. Clean the plug, replace seal if necessary and reinstall.
   • Tightening torque: 150 Nm.

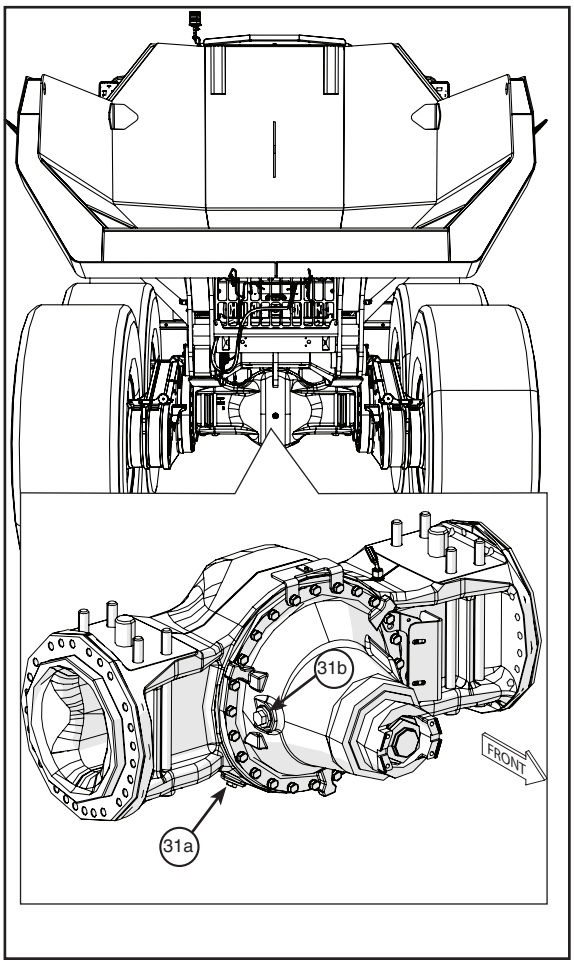
CAUTION

Be aware of possible internal pressure when the oil is hot! Oil can spurt out when opening the drain plug.

* Numbers refer to positions on the lubrication schedule, chapter 6

2000 Hours Service

Maintenance to be performed every 2000 hours of operation

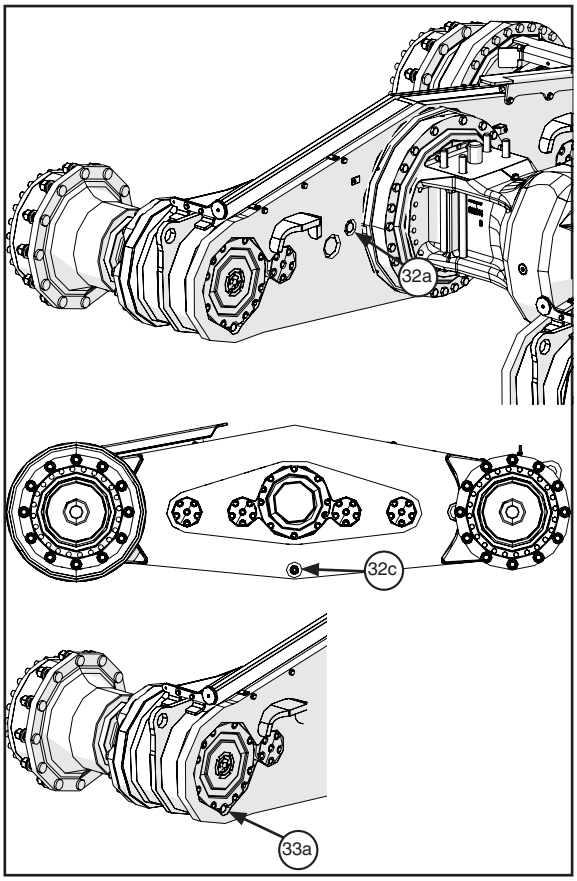


3.2 Rear differential oil change 31*

** Replacement of rear differential oil must also be carried out every 1000 hours of operation or at least once a year.*

1. Clean the areas around the screw plugs 31a, 31b.
2. Remove oil filler plug 31b, then open the drain plug 31a and drain the oil.
3. Clean the oil drain plug 31a magnet of debris before reinstalling the plug. Fill with new oil (refer to the lubrication table chapter 6) wait a few minutes. If the oil level falls add oil until the level remains constant on the control opening 31b.
4. Reinstall control/filling plug 31b.

	Torque
31a	140 Nm
31b	140 Nm



3.3 Tandem housing , planetary drive (hubs) Oil change 32*,33*

** Replacement of tandem housing oil and planetary drive (hubs) must also be carried out every 1000 hours of operation or at least once a year.*

NOTE

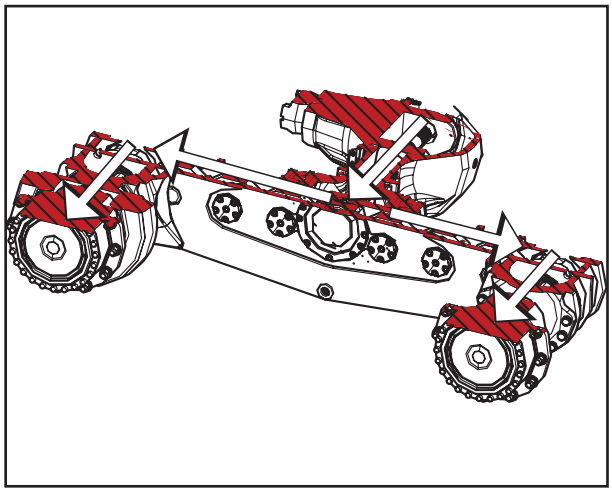
By changing the oil on the tandem you will at the same time change the oil on wheel hubs due to open oil circulation between the tandem and the wheel hubs.

1. Ensure that the tandem housing is placed horizontally and the axle remains still for 30 minutes to allow oil contamination to rest.
2. Remove and clean the level/filling plug 32a, clean the area around it.
3. Remove the drain plug 32c and 33a, drain the oil after that clean off the magnet of any grime then reinstall the plugs.
4. Fill the tandem housing with oil (see "Chapter 6") until oil exits from the level control opening (32a).

* Numbers refer to positions on the lubrication schedule, chapter 6

2000 Hours Service

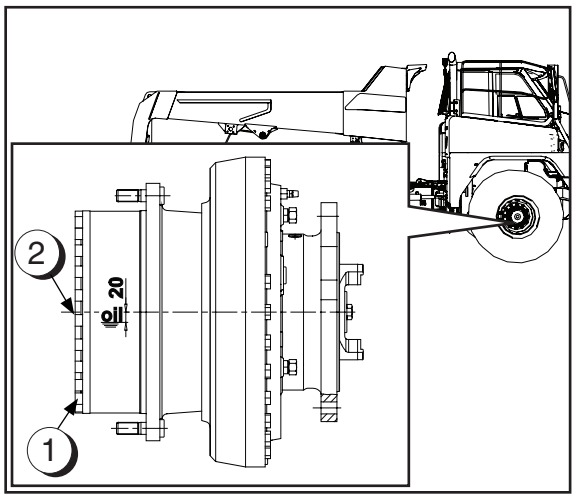
Maintenance to be performed every 2000 hours of operation



5. Reinstall the level/ filling plug (32a)
6. After test driving, check that the oil is at lower edge of the level plug.

	Torque
32a	140 Nm
32c	140 Nm
33a	140 Nm

3.4. Front reduction gears 34*



1. Clean filling point and oil filling plug (2) also the drainage point and oil drain plug(1).
2. Turn hub assembly into position.
   - The oil drain plugs has to be at the bottom.
3. Open the oil drain plug (1) and allow oil to drain.
   - Collect the oil in a suitable container.
   - Dispose of the oil in an environmentally friendly manner.
4. Clean borehole and oil drain plug.
5. Screw oil drain plug (1) back in.
6. Open the oil filling plug.(2)
7. Fill hub assembly with clean oil until the oil level reaches the filling bore (= inspection bore).
   - Overflow check
   - Oil in accordance with the specified lubricants. see "Chapter 6"
8. After a few minutes, check the oil level again at the filling bores.
   - Keep filling the hub assembly with oil until the oil level remains constant.
9. Clean borehole and oil filling plug.
10. Screw oil filling plug (2) back in.

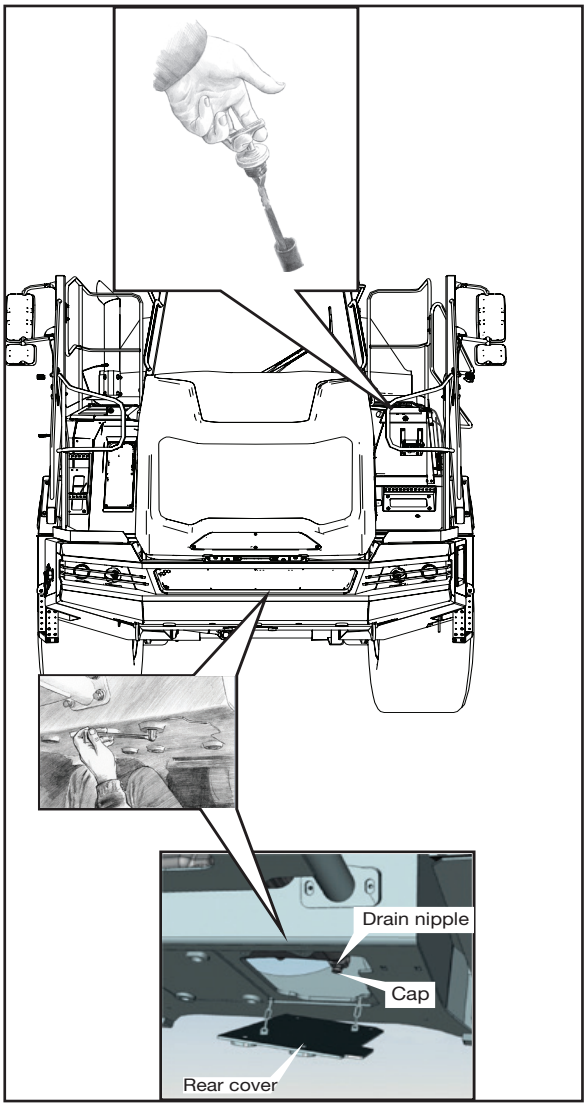
	Torque
1	120 Nm
2	120 Nm

4. Continue with all items in 1000 Hours Service

* Numbers refer to positions on the lubrication schedule, chapter 6

4000 Hours Service

Maintenance to be performed every 4000 hours of operation

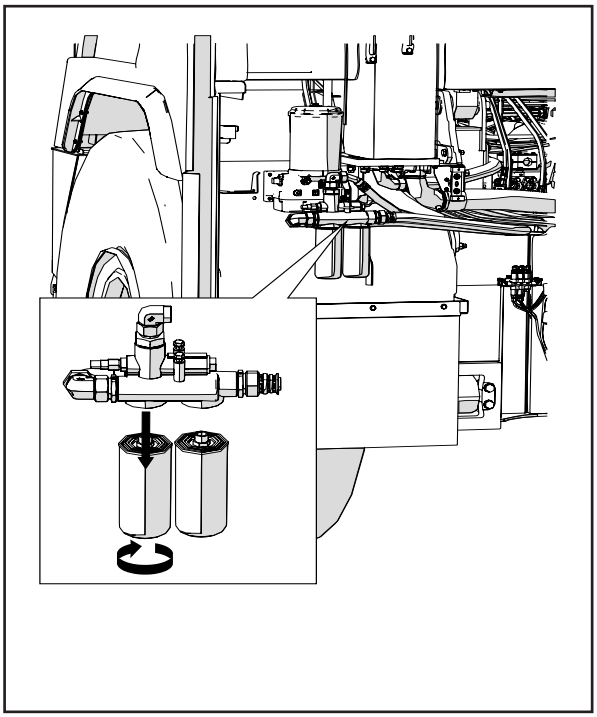


1. Transmission

1.1. Change oil 20*Replace filter element 21*.

Drain oil:

1. The dump truck must be standing on level ground.
2. The oil must be at operating temperature.
3. Unscrew the filling cover/dipstick (located under hydraulic tank cover).
4. Remove cover plate under the transmission, by removing the 4 M12 bolts.
5. Remove cap.
6. Place drain hose with connection on drain nipple.
7. Once transmission oil is emptied, remove hose and replace cap.



Replace filter elements (located on the left hand side):

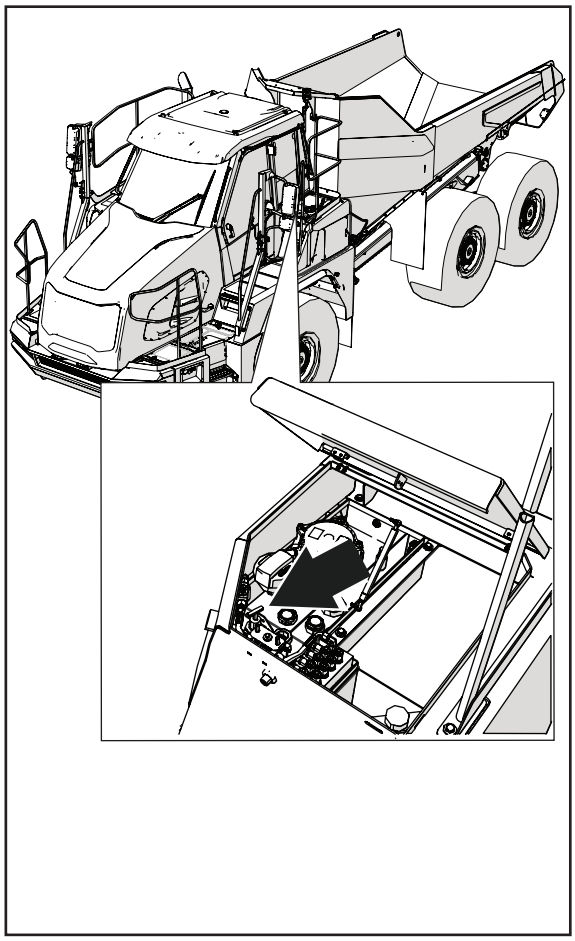
Access to the filters through the engine bottom guard

8. Open the maintenance door of the hydraulic tank.
9. Clean well around the filters.
10. Place a suitable container beneath the filters to catch spillage.
11. Unscrew the filter elements.
12. Check for wear particles in the oil.
13. Apply oil to the seals on the new elements.
14. Screw the filter elements in until contact with the sealing surface is obtained. Tighten the elements firmly by hand.

* Numbers refer to positions on the lubrication schedule, chapter 6

4000 Hours Service

Maintenance to be performed every 4000 hours of operation



Fill new oil:

22. Fill with new oil, according to the transmission oil list and oil specification sheet (chapter 6), through the filling tube.
23. Insert the filling cover/dipstick again and turn handle clockwise to tighten the sealing.

Check:

24. Start the engine and check oil level (see daily maintenance, for procedure) at low idle. Both too low and too high of a level can cause serious internal damage!
25. Warm up the oil and check for leaks. Re-check level and adjust if necessary.

NOTE

- **Do not overfill! Both too high and too low of a level can cause serious internal damage!**
- **For rough operation conditions, the oil and the filter element must be changed more often (every 500 hours).**

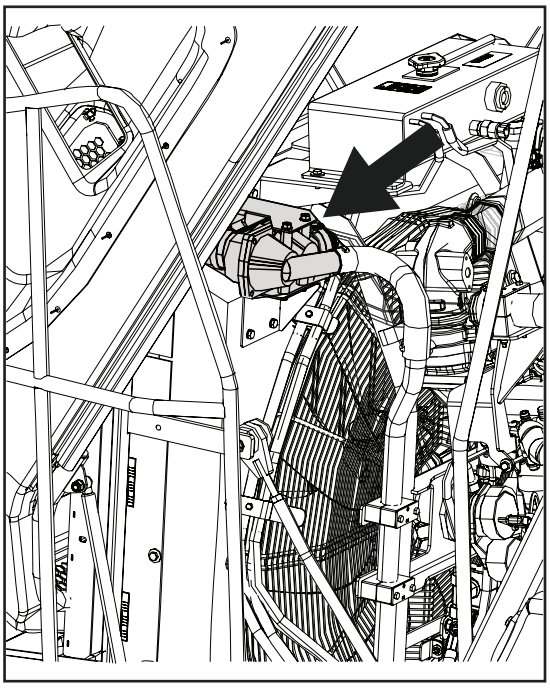
1.2. Run the Transmission Clutch Calibration (AEB) AEB = Automatic Filling Parameter Adjustment

See the 100 hours service for procedure.

* Numbers refer to positions on the lubrication schedule, chapter 6

4000 Hours Service

Maintenance to be performed every 4000 hours of operation



2. Cooling system

**2.1. Internal cleaning, every 2 years 5*
Removing deposits, oil and grease**

For internal cleaning use liquid dishwasher detergent designed for household use. Alternative BASF Glycacorr G93 or Texaco Havoline XLI can be used.

Important: *The cleaning agent must not foam.*

1. If possible, run the engine until it is warm and then drain the cooling system, see changing coolant, item 1.2.
2. Remove the thermostat housing and replace it with a hose. Plug the by-pass.
3. Fill the system with clean, hot water mixed with liquid dishwasher designed for household (use a dishwasher detergent for household dishwashers that does not foam). Concentration 1% (0.1 L by 10 L water). Alternative BASF Glycacorr G93 or Texaco Havoline XLI can be used.
4. Run the engine for about 20-30 minutes.

NOTE! Do not forget to turn cab heater on and max heat.

5. Drain the cooling system.
6. Fill the system again with hot water and run the engine for about 20-30 minutes.
7. Drain the water from the cooling system.
8. Repeat steps 3-7 if the cooling system is not clean.
8. Reinstall the thermostat (change if necessary) housing and the connections.
9. Fill the system with coolant as described in the specifications in item 1.3 at 2000 hours service.

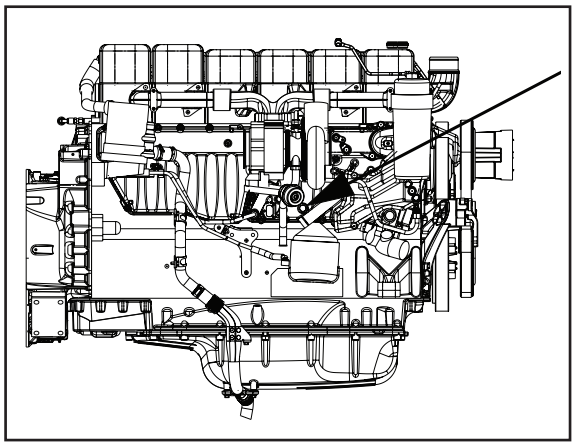
WARNING

Handling cleaning agents for the cooling system: Read the warning label on the container.

* Numbers refer to positions on the lubrication schedule, chapter 6

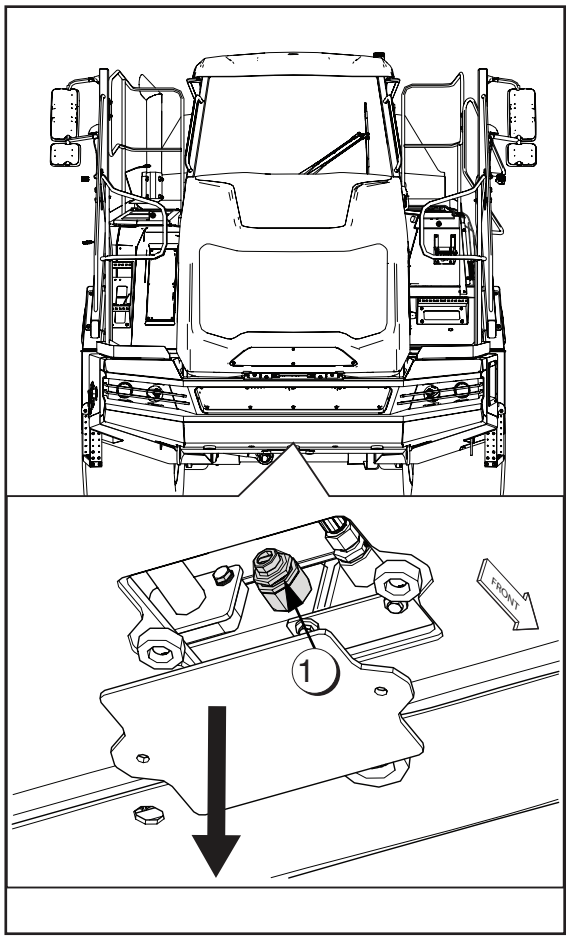
4000 Hours Service

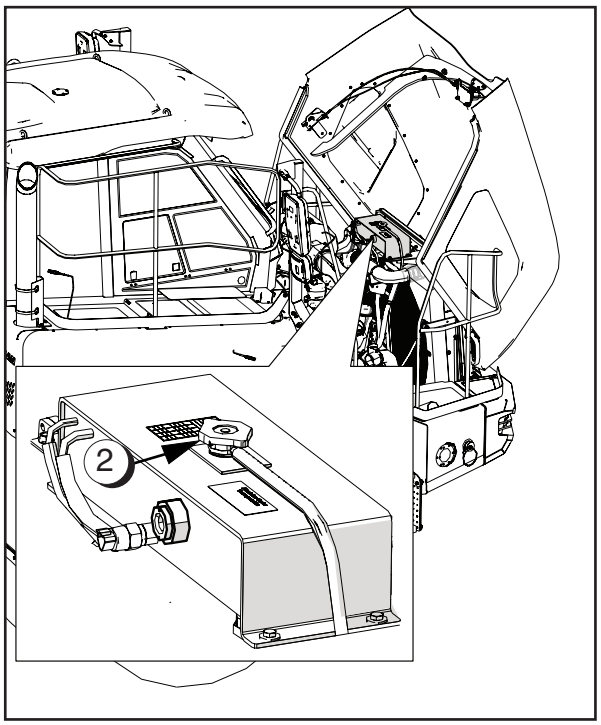
Maintenance to be performed every 4000 hours of operation



2.2. Change coolant, every 2 years 5*

1. Remove the filler cap (2) from the expansion tank.
2. Drain the coolant in two places:
   - the "lowest point" on the engine block, see illustration.
   - the "lowest point" of the cooling system (1), under the oil cooler on left hand side. Access through the engine bottom guard.
3. Close the cocks.
4. Connect the coolant trolley to the filler nipple in the cylinder block. Fill with correct mixture, pre-mixed coolant using coolant trolley to pump up to the maximum level of the expansion tank.
5. Disconnect the coolant trolley.
5. Set the heating control to maximum heating and start the engine. Idling speed must not exceed the normal rpm. Leave engine idling for 15 minutes.
6. Stop the engine and top up with coolant to the maximum level through the expansion tank.
7. A small amount of air may still be left in pockets of the cooling system which will disappear when the vehicle is back on the road. This means that it will need some topping up to start with.

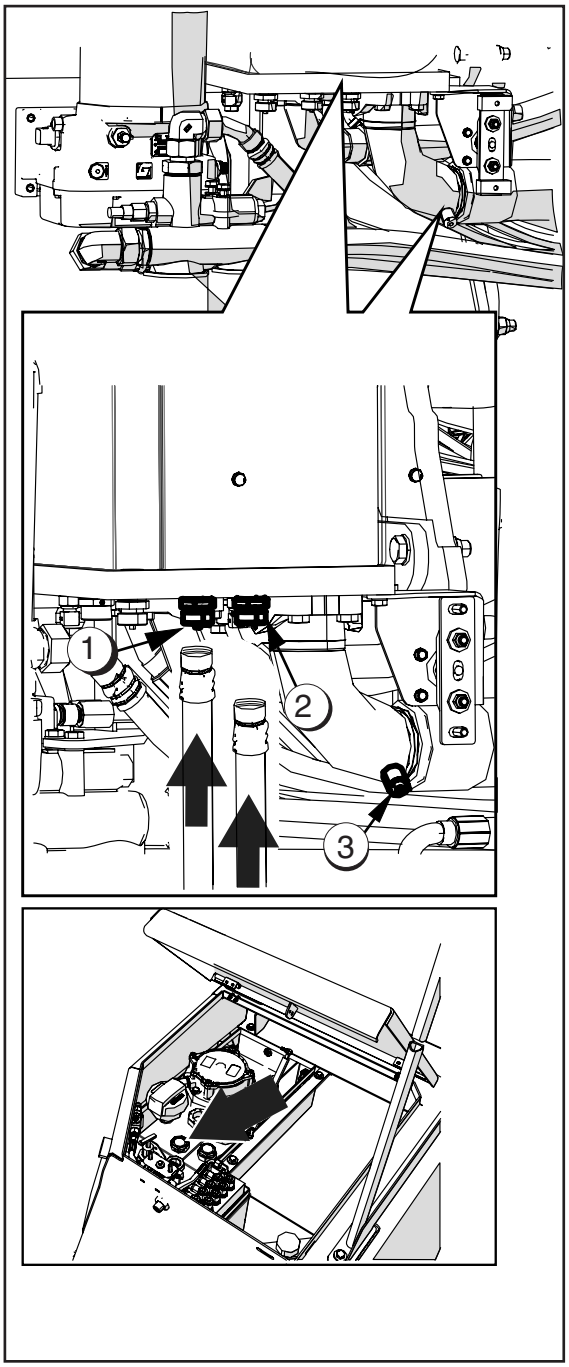




* Numbers refer to positions on the lubrication schedule, chapter 6

4000 Hours Service

Maintenance to be performed every 4000 hours of operation



3. Hydraulic system

3.1. Change oil hydraulic tank 40*

1. Accumulators contain oil under high pressure! Empty the accumulators, before draining the hydraulic oil. Procedure is described in chapter 2.
2. The both drain plugs are located on the right hand side of the hydraulic tank (on the bottom).
3. Open the maintenance door of the hydraulic tank. to get into the magnetic plugs.
4. Place a suitable container to catch spillage.
5. Remove the cap from both drain plugs.
6. Install the draining hose with nipple to the first drain plug (1) and drain the oil into the container.
6. Install the draining hose to the second drain plug(2) and drain the oil into the container.
7. Remove the draining hose and reinstall both caps.
8. Remove the plug (3) and drain the oil into the container and reinstall the plug.
9. The oil filler is located on the top of the hydraulic tank, under the cover.
9. Fill with new oil through the oil filler, according to the oil specification sheet, chapter 6.

• The accumulators will be recharged with oil when the engine is re-started.

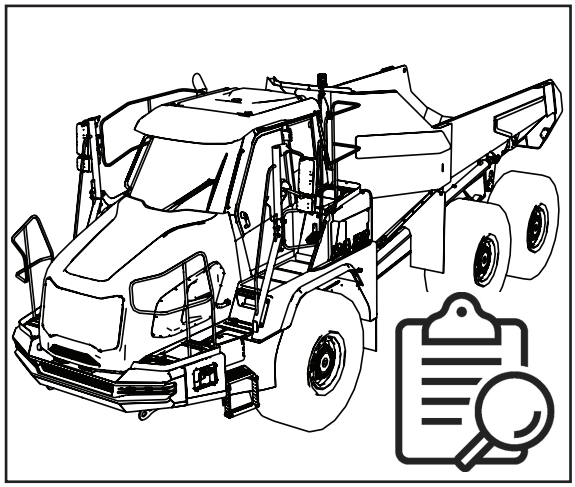
10. Warm up and check for leaks. Re-check level and adjust if necessary.

4. Continue with all items in 2000 Hours Service.

* Numbers refer to positions on the lubrication schedule, chapter 6

Yearly recommended maintenance

Maintenance recommended to be performed yearly



1. Transmission

1.1. General condition check

1. Check tightness of lubrication system when engine is running.
   • *Tighten or change defective connections.*
2. Check transmission rubber mountings and replace if necessary. Inspect the mounting bolts.

2. Drive line

2.1. General condition check

Check the general condition and mountings, joints, bearings, etc. for general deterioration, wear, damages and leakages.

• *Replace or recondition if necessary.*

1. Rear axle and tandem housing.
2. Articulation hinge and turning ring.
3. Suspension:
   • shock absorbers
   • rubber dampers
   • arms and rods
4. All prop. shafts, universal joints included.

3. Tanks

3.1. General condition check

Check the hydraulic and the diesel tank bolts/ mountings.

* Numbers refer to positions on the lubrication schedule, chapter 6

Yearly recommended maintenance

Maintenance recommended to be performed yearly

4. system

4.1. Inspect the hydraulic hoses

Replace hoses which are deteriorated, leaking or otherwise damaged.

5. Exhaust system

5.1. Safety check

- Check fastening brackets, muffler, pipes and joints for leaks, damages and insecurity.
- If body is exhaust heated, check that the channels in the body has not clogged by any means.

CAUTION

Be aware of hot parts when engine has been running!

6. Bearings

6.1. Check clearance

Contact your local Hyundai Dealer for checking of the bearing clearance:

- Tandem bearing
- Tip bearings
- Turning ring and articulation bearings
- Wheel bearings

* Numbers refer to positions on the lubrication schedule, chapter 6