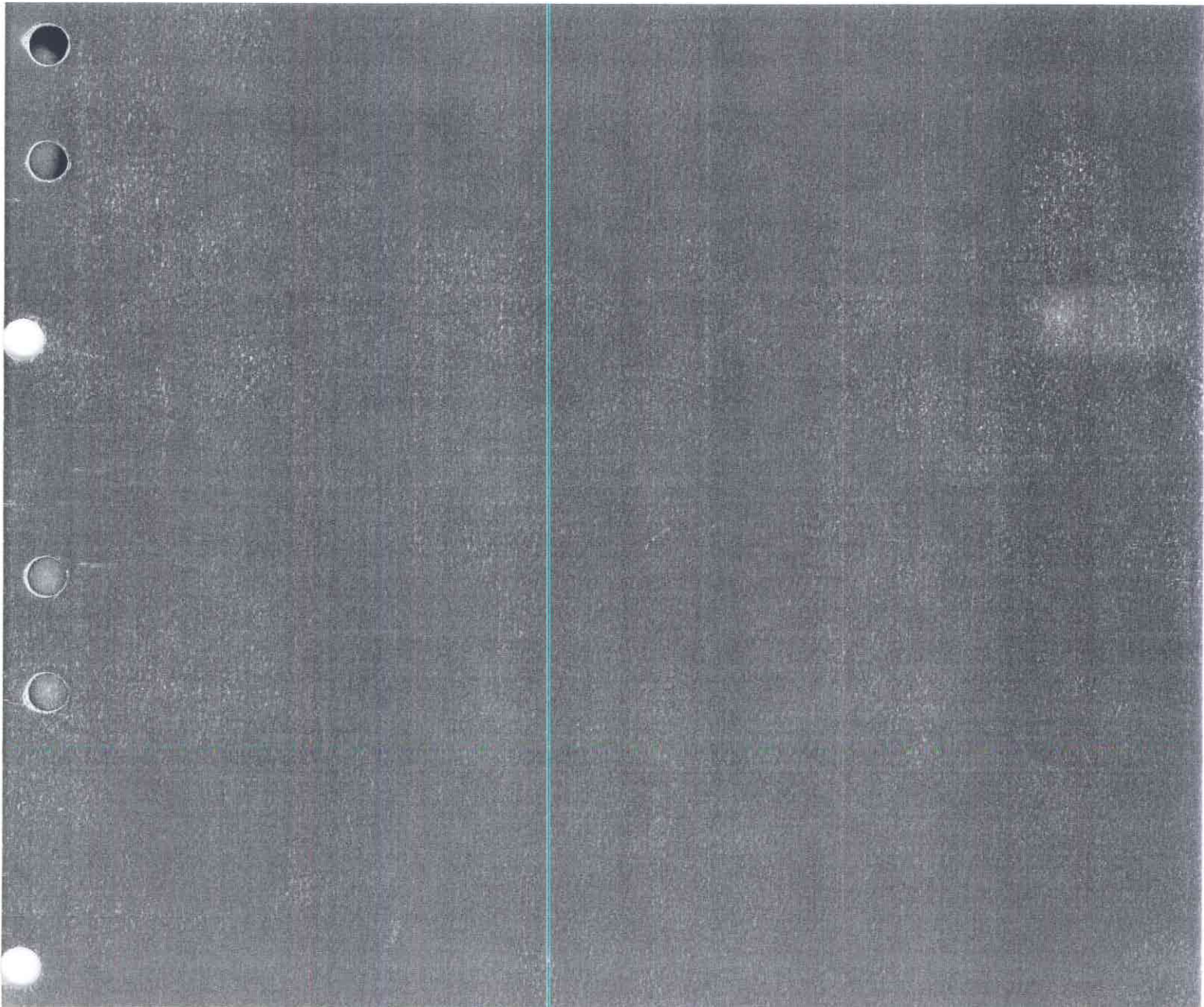


Service Manual Trucks

Group **17**
Preventive Maintenance
All truck variants



Foreword

The descriptions and service procedures contained in this manual are based on design and method studies up to September 1991.

The products are under continuous development. Vehicles and components produced after the above date may therefore have different specifications and repair methods. When this is judged to have a significant bearing on this manual, supplementary service bulletins will be issued to cover the changes.

The new edition of this manual will update the changes.

Volvo Truck Corporation

Göteborg, Sweden

Volvo Preventive Maintenance consists of:

- Driver's service – every day and when refuelling
- Basic service – every 3 months
- Annual service – every 12 months

This service manual deals with the items which are included in the basic and annual services. The items marked in grey, similar to the check list, describe the basic service. All the items apply for the annual service.

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Lubrication, oil changes, fluid checks

When changing the oil it is important that as much oil as possible be drained and changed. Drain the oil immediately after driving since it is then warm and easier to drain.

The oil filters should also be replaced in conjunction with an oil change.

Warning! Hot oil can cause burns, use protective gloves. Always check the **oil level** after topping up.

1

Chassis lubrication

Lubricate according to the lubricating chart of the respective truck.

1. Grease nipples (see lubricating chart)

Important!

Always make sure that the respective lube points are properly lubricated. Lubricate until the new grease squeezes out and can be seen at each lube point. If no grease squeezes out, something must be wrong which must be remedied immediately.

The parking brake must always be released when lubricating so that grease can thoroughly penetrate into the brake cams.

2. Release bearing

Fill the lubricator with grease and screw it down so hard that it does not loosen.

2

Body lubrication

Lubricate according to the **lubricating chart** of the respective truck.

Engine

3

Oil and filter change

1. Clean the area around the oil filter and drain plug before commencing work.
2. Remove the drain plug.
3. Loosen the oil filter (also where fitted, the by-pass filter) with filter removal tool **6672**. Complete the removal of the filter by hand.
The oil filter is of disposable type and should always be scrapped after use.
4. Moisten the rubber seal of the new filter with oil. Screw on the filter by hand until the rubber seal makes contact with the sealing surface. Turn a further $\frac{1}{2}$ to $\frac{3}{4}$ turn.
Tools must not be used.
5. Fit the drain plug and fill with new oil. Check that the oil level is within the dipstick marking for max and min.

6. Start the engine and carry out a leakage check. Dipstick position, refer to the respective Operator's Manual.

Gearbox, incl. power take-off

4

Oil level check (manual gearbox)

1. Remove the level plug and check that the oil level reaches up to the filler hole.
2. Top up if necessary, using the same type of oil already in the gearbox.

5

Oil filter change (manual gearbox)

Draining the oil

1. Clean the area around the plugs before removing them.
2. Remove the drain plug and also the level plug to facilitate oil draining. Certain gearboxes have two drain plugs.

If the gearbox is equipped with the type of power take-off that has a separate drain plug, this must also be removed.

Changing the oil filter: R1000, R/SR1400, R/SR1700, R2000

The oil filter is of disposable type and should always be scrapped after use.

1. Remove the cover for the oil filter.
2. Unscrew the old filter using filter removal tool **6671**.
3. Clean the filter sealing surface on the gearbox.
4. Moisten the rubber seal on the new filter and tighten by hand following the instructions on the filter.
5. Fit the cover. Check the cover gasket, change if necessary. Tighten down the cover.

Filling with oil

1. Fit all the drain plugs. Fill with new oil up to the lower edge of the level hole.
2. Fit the filler and level plugs.

5

Fluid and filter change (automatic transmission)

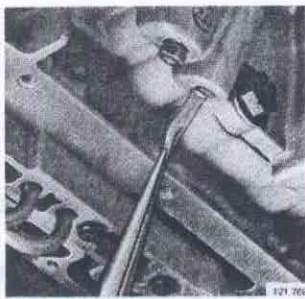
When changing the fluid and filter in transmissions with both internal and external filters **only the external filter should be changed**. The internal filter, after changing at the warranty service, need only be changed in connection with transmission overhaul.

In transmissions with only an internal fluid filter, the filter must always be changed at the same time as the fluid.

Note! Thorough cleanliness must be observed when topping up with fluid.

Automatic transmission with external filter

1. Clean round the connection for the drain plug and external fluid filter.
2. Remove the drain plug.
3. Unscrew the old fluid filter using filter removal tool 6671.
4. MT643, 653, 654
Remove the plug at the rear end and take out the strainer. Clean and re-fit the strainer and plug. Tighten the plug.



5. Clean the sealing surface for the fluid filter in the filter housing.
6. Smear the sealing ring of the new fluid filter with ATF. Tighten the filter by hand following the instructions on the filter.
7. Fit the drain plug in the sump.
8. Clean round the fluid filler pipe.
9. Place a funnel in the pipe and fill with new fluid.

4

Fluid level check (automatic transmission)

10. Clean round the fluid dipstick.
11. Tilt down the cab.
12. Apply the parking brake, start the engine. Move the gear selector lever through all the gear positions, stopping for a few seconds in each position.
13. Move the selector lever to position N with the engine at idling speed.
14. Wipe the fluid dipstick with clean paper which does not leave fluff.

15. At the first check of the fluid level, when the fluid is cold, the level mark for cold fluid, 15–50°C, applies.



16. A final check of the fluid level must always be carried out on a warm transmission, 70–90°C for the check to be correct.
17. When the transmission has reached normal working temperature, place the vehicle on flat ground. Apply the parking brake and allow the engine to idle. Slowly move the selector lever through all the gear positions, stopping for a few seconds in each position. Move the selector lever to position N (engine idling). Check the fluid level on the dipstick. **If necessary top up or drain off the fluid.**

Note!

Too much fluid causes:

- too high a fluid temperature
- foaming, resulting in reduced cooling.

Too little fluid causes:

- mechanical damage to the fluid pump, discs, bearings and gears.

Power take-off, KOBLAM

4 Oil level check

1. Remove the level plug and check that the oil level is up to the filler hole.
2. Top up if necessary using the correct quality oil.

5 Oil and filter change

1. Clean the connection for the plug before removing.
2. Remove the drain plug and drain off the oil.
3. Remove the old oil filter and fit a new filter. The filter is changed in the same way as for example the oil filter on the engine. Use filter removal tool **6671**.
4. Fit the drain plug. Remove the level plug and top up with new oil to the lower edge of the level hole.

Note! Top up with oil through the correct level hole

There are three different level plugs on KOBLAM, two on the left-hand side and one on the right-hand side. The letters **H**, **V** and **FLT** on the power take-off casing beside the respective level plug indicate the following:

H (left-hand side)

Level plug for right-hand drive F and N-trucks

V (right-hand side)

Level plug for left-hand drive F and N-trucks

FLT (left-hand side)

Level plug for FL 7 and FL 10 trucks.

Oil quantity: approx. 5 litres

Oil quality: gearbox oil API-GL-1 or
SAE 80W/90

With dragging tendencies, Volvo thermo oil (Part no. 1161243-9) or engine oil CD SAE 10W/30 is recommended.

Power take-off KOBKLO

4 Oil level check

1. Remove the level plug and check that the oil level is up to the filler hole.
2. Top up if necessary, with the correct quality oil.

5 Oil and filter change

1. Clean round the connection for the plug before removing.
2. Remove the drain plug and drain off the oil.

3. Fit the drain plug. Remove the level plug and top up with new oil to the lower edge of the level hole.

Oil quantity: approx. 5 litres

Oil quality: same as for the gearbox

Final drive, incl. hub reduction

6 Oil level check

1. Remove the level plug and check that the oil level is up to the filler hole.
2. If topping up is necessary, fill with the same type of oil already in the final drive.
Note! Also check that the rear axle venting is not blocked. This is important if oil leakage is to be avoided due to overpressure in the rear axle.
When checking the oil level on 6×2 trucks, the bogie must be in the lowered position.

7 Oil change

1. Remove the drain plug and drain off the oil. To facilitate draining also remove the level plug.
2. In final drives with hub reduction, the hub must be emptied separately. Turn the wheel so that the drain plug is at its lowest position before removing it. Also remove the level plug.
3. Check that the hose and valve for venting of the final drive is not blocked. This is important if oil leakage is to be avoided due to overpressure in the final drive.
4. Fit the drain plug and fill with new oil.
Note! Where it concerns final drives with hub reduction, first fill each hub with approx. 3 litres oil and then fill the remainder in the rear axle casing.
On 6×2 trucks, the bogie must be in the down position both when filling with oil and checking the oil level.

Power steering

8 Fluid level check

1. Clean round the cap and dipstick.
2. Check the fluid level. With the engine switched off the level should be at the max mark. Top up with fluid as necessary.

9 Filter change

1. Clean round the cap and dipstick. Remove the cap.
2. Press down, turn and loosen the locking device for the filter. Lift up the old filter and hold a finger under the centre hole of the filter so that any contamination on the inside of the filter cannot fall down into the fluid reservoir.

3. Transfer the locking device to the new filter and fit the filter into the fluid reservoir.
4. Check that the filter is positioned correctly and properly locked.
5. Check the fluid level, top up with fluid to the max mark.

Bogie lift (hydraulic)

10 Oil level check

The oil level should be checked with the bogie down and should be between the marks on the dipstick or the oil reservoir.

If necessary, top up with the recommended oil.

11 Oil and filter change

The bogie should be down.

1. Remove the drain plug, clean the strainer.
2. Replace the oil filter (if there is an oil filter fitted).
3. Fit the drain plug, fill with oil. The oil level should be between the markings on the dipstick or the oil reservoir.

Wheel bearings (oil-lubricated)

12 Oil level check

1. The oil level is checked through the hub cap sight glass. The level should be between the markings. On hub caps without a sight glass, the oil is checked by unscrewing the plug (A) in the centre of the hub cap. The level is marked on the outside of the hub cap.
2. If necessary top up with the recommended oil, engine oil SAE 30, approx. 0.3 litre/wheel.

Cap tilt pump

13 Oil level check

The oil level is checked with the cab down.

1. Remove the level/filler plug. The oil level should be visible in the hole.
2. If necessary top up with the recommended oil, Volvo Hydraulic Oil BLV.

Clutch fluid

14 Level check

The fluid level should be half-way up the reservoir.

The clutch fluid reservoir is placed behind the service panel at the front of the cab. On N and NL-trucks it is placed on the bulkhead at the rear of the engine compartment.

Use brake fluid which meets the requirements according to the standard DOT 3 or 4 (SAE J 1703).

NOTE! Observe due care when topping up and check to ensure that the reservoir cap is well tightened so that fluid does not run out and damage the paintwork.

Brake fluid

Applies to trucks fitted with disc brakes.

15 Level check

The level in the brake fluid reservoir should be between the MAX and MIN marks.

The brake fluid reservoir is placed behind the service panel at the front of the cab.

Top up if necessary, using brake fluid of the same type which is already in the reservoir. (Requirements according to standard DOT 4.)

Note! Observe care when filling with brake fluid and also check to make sure the reservoir cap is well tightened so that fluid does not run out and damage the paintwork.

Coolant

16 Protection against freezing, level check

1. Check the coolant concentration (hydrometer).
2. If necessary top up with concentrated coolant. Coolant level should be between the MIN and MAX marks on the expansion tank. When topping up use the same mixture ratio as that already in the cooling system.

The cooling system expansion tank is situated:

- FL 6 – behind the cab
- FL 7/FL 10 – on the engine, with the level pipe behind the cab
- F 10/F 12/F 16 – behind the grille
- N 10/N 12, NL 10/NL 12 – on the bulkhead

Protection against freezing and corrosion, refer to Operator's Manual.

Windscreen and headlamp washers

17 Protection against freezing, level check

Check that the washer reservoir is well filled. Wintertime with water and anti-icing fluid.

The washer reservoir is positioned as follows:

- FL6 – behind the service panel
- FL7/FL10 – behind the bumper
- F10/F12/F16 – At the footstep on the cab right-hand side
- N10/N12, NL10/NL12 – at the footstep on the cab left-hand side

Air dryer

18 Check

Check that there is no water in the compressed-air tanks.

Note! No water should be evident on trucks with air dryers. This is an indication that the air dryer is working correctly.

KOBLAM

