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VOLVO
Volvo Truck Corporation
Göteborg, Sweden

# Service Bulletin Trucks

Discard previous Service Bulletin 175–09 from 8.05.
Changes are marked with a bar (I) in the margin.

| Date | Group | No. | Release | Page |
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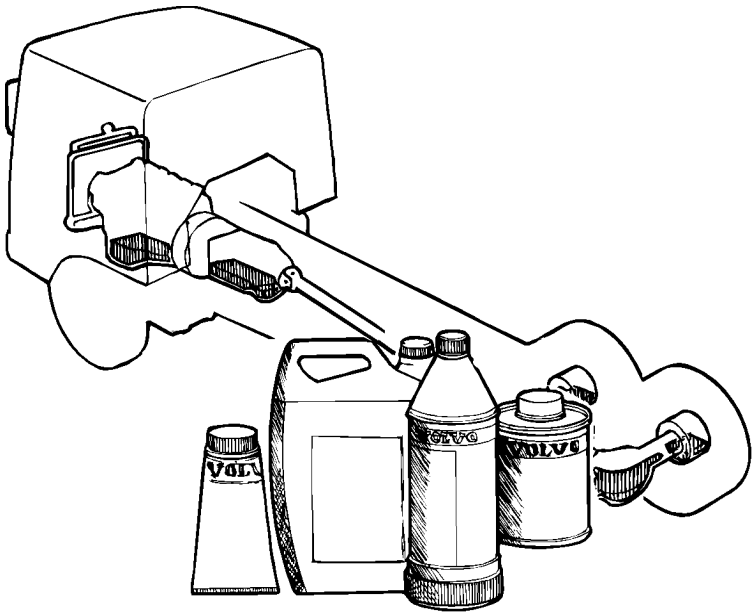
| 12.05 | **175** | **09** | **18** | 1(47) |

Lubrication service and oil changes
FM, FH, NH, FL, NL

## Lubrication service and oil changes

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## This service bulletin contains information on:

- Service intervals
- Oil and fluid volumes
- Oil grade and viscosity
- Filters and filter inserts
- Charge regulator
- Chassis lubrication, cab lubrication and grease quality
- Drive belts (multiple grooved belts)
- Air drier

**Note:** For service intervals for South America, see Service Bulletin 175 48

**Note:** For service intervals for the USA, please refer to Service Bulletins 175 001, 175 60 and 175 61.

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# Lubrication service and oil changes

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# Engine

## Definitions

English terms have been used for some of the definitions that follow. This is international. Each term has, however an explanation in the language of the document.

## Emissions classes

- Euro 1 corresponds to EC93
- Euro 2 corresponds to EC96, ECPT5 and ECPT6
- Euro 3 corresponds to EC99, EC01 and ECPT4

## Transport cycle

| Typical construction site superstructure? [1]? | | |
|---|---|---|
| Yes | No | |
| Construction sites | Average distance between loading and unloading > 50 km **and** < 20% driving in a city environment **and** annual mileage >100000 km? | |
| | No | Yes |
| | Distribution | Long distance driving |

[1] Includes timber trucks, tippers, dumpers, load exchangers, concrete mixers, waste compressors and special vehicles.

## Engine Operating Conditions (EOC)

the engine operating conditions (EOC) describe the degree of engine load.

The different load levels are:

- Light (L)
- Medium (M)
- Heavy (H)
- Severe (S)
- Very severe (VS)
- Very severe+ (VS+)

The abbreviations named above are used in the EOC table.

## Gross weight

***Gross weight =*** Technical/Legal gross weight (combination) ton

## Topography

### Flat (F)

Uphill and downhill stretches with:

- gradients >3% for up to 1% of total mileage.
- Maximum gradients 8%.

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## Predominantly flat (PF)

Uphill and downhill stretches with:

- gradients >3% for up to 20% of total mileage.
- gradients >6% for up to 1% of total mileage.
- Maximum gradients 16%.

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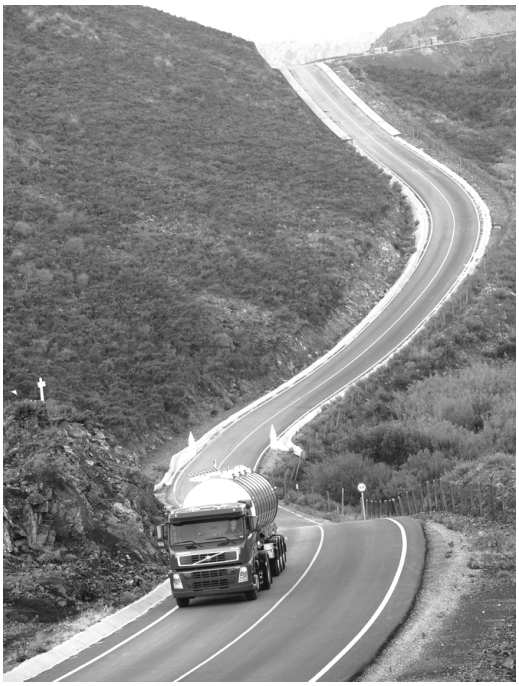
## Hilly (H)

Uphill and downhill stretches with:

- gradients >3% for up to 35% of total mileage.
- gradients >6% for up to 10% of total mileage.
- gradients >9% for up to 1% of total mileage.
- Maximum gradients 20%.



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## Very Hilly (VH)

Typically mines, building sites etc

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Abbreviations in brackets are used in the EOC table.

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## Warranty

The warranty is not valid if Volvo Truck Corporation can show that it is likely that the material defects or incorrect operation, for which the warranty has been invoked, is the result of:

- The vehicle not being driven in accordance with the applicable Volvo Truck Corporation instructions, e.g. that the stipulated warranty, basic or full servicing has not been carried out at the correct time and/or running hours interval (a service that has not been registered by Volvo Truck Corporation or recorded in this booklet is considered not to have been performed, unless absolute proof can be shown).
- Other parts than original parts from Volvo Truck Corporation have been used.
- Other oils, greases or coolant fluids than those recommended by Volvo Truck Corporation have been used.

**The above text is only an extract from the Warranty booklet. Refer to the Warranty booklet for complete warranty terms, conditions and requirements.**

## Oil grade

VDS, VDS-2, VDS-3

alternatively API CF, CF-4, CG-4, CH-4, CI-4

or ACEA E2, E3, E4, E5

Note that a combination of several of the above named qualities is required in some cases.

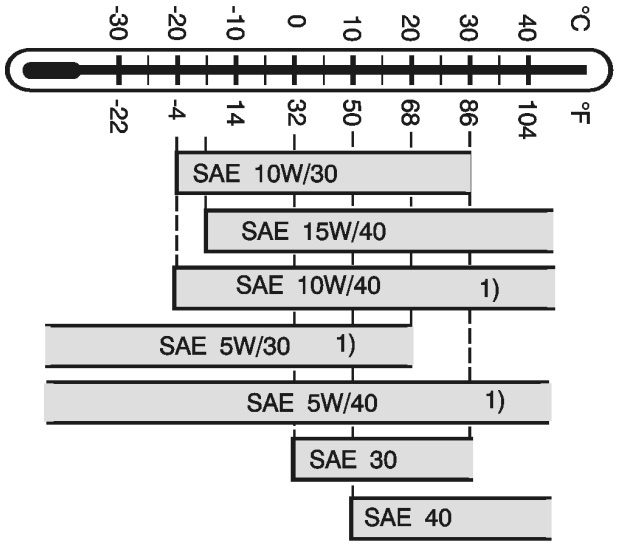
**Note:** Extra oil additives are not to be used. This includes engine and metal treatment additives added to the engine oil.

## Viscosity

The viscosity is selected in accordance with the table. Temperature values refer to constant air temperatures.

1) Only VDS-2 or VDS-3 oils.

When using 10W/30, fuel consumption can be lower than when using 15W/40. Note however the temperature interval recommended for 10W/30.

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# Oil change volumes

| Engine type | Oil change volume in litres, incl. approx. volume for oil filter. | Oil volume in litres between dipstick Max-Min |
|---|---|---|
| D4 | 12 | 3,8 |
| TD61, TD63 | 17 | 5 |
| D6A, D6B | 19,5 | 5 |
| G6A | 17 | 5 |
| G6B | 19,5 | 6,5 |
| TD71, TD73, D7A, D7B | 20,5 | 6,5 |
| D7C | 19,5 | 6,5 |
| D9A | 28 | 6 |
| D9A OILS-ST | 33 | 5 |
| TD102, TD103, D10A, D10B | 34,5 | 10 |
| TD122, TD123 | 36,5 | 12 |
| D12A | 36 | 8 |
| D12A, FL | 36 | 6 |
| D12C, D12D OILS-PL, D12F OILS-PL, D12D OILS-ST | 33 | 8 |
| D12D OILS-STR | 38 | 6 |
| D12C, D12D; construction site vehicle | 38 | 6 |
| D13A OILS-PL | 33 | 8 |
| D13A OILS-ST | 37 | 6 |
| TD162, TD163 | 47 | 15 |
| D16A D16B | 42 | 10 |
| D16C | 42 | 9 |

# Oil filter

The by-pass and full flow filter should be replaced at each oil change.

Use only Volvo original oil filters.

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# Engine oil, change intervals

Service intervals:

**First oil and filter change** is at the warranty service after 10,000 km or 4 weeks, whichever occurs first. Except all vehicles manufactured in Europe.

## *Limits to the tables on the following pages*

- Definition of “Other oil grade” on the following pages: Oils which meet at least one of the following ACEA E2, E3, E4, E5; API CF, CF-4, CG–4, CH-4, CI-4.
- **D13A engine:**
  - Oil change intervals for the D13A engine must not exceed 12 months.
  - If the sulphur content in the fuel exceeds 0.05 per cent by weight, the oil change interval should be reduced to 2/3 taking into account the distance driven, engine running hours and calendar time.
  - If the sulphur content in the fuel exceeds 0.5 per cent by weight, the oil change interval should be reduced to 1/3 taking into account the distance driven, engine running hours and calendar time.

**Note:** These sulphur level limitations and oil change intervals can also be applied for other engines, although this is not mandatory.
This applies irrespective of mileage, engine hours, calendar period or amount of fuel consumed.
Fuels with extremely low sulphur content, such as environmentally classed fuels, do **not** permit the service interval to be extended.

- **Other engines:**

  No oil change interval is allowed to exceed 6 months.

  If the sulphur content in the fuel exceeds 0.5 percentage by weight, the oil change interval should be halved.

  This applies irrespective of mileage, engine hours, calendar period or amount of fuel consumed.
  Fuels with extremely low sulphur content, such as environmentally classed fuels, do **not** permit the service interval to be extended.
- Full flow filter, longlife, with part number 478736 should be used if the oil change interval exceeds 30,000 km. All 16 litre engines must use filter 478736 irrespective of oil change interval.

## *Interval tables*

“TD61 TD63 TD71 TD73 ” page 8

“TD102, TD122, TD162” page 8

“TD103, TD123, TD163” page 8

“D4 D6A D7 D10 D12A D12C D16A D16B” page 8

“D6B Euro 2/Euro 3, D7C Euro 3” page 9

“D9A” page 12

“D12D Euro2/Euro3” page 13

“D12F EM JPN04” page 14

“D13A Euro3” page 16

“D16C Euro3” page 17

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## TD61 TD63 TD71 TD73

| Engine type | Oil grade | Max mileage in km | | | | | | Max period, months |
|---|---|---|---|---|---|---|---|---|
| | | 15 000 | 20 000 | 25 000 | 30 000 | 40 000 | 45 000 | |
| TD61, TD63, TD71, TD73 | VDS-2/3 | | | X | | | | 6 |
| | VDS | | | X | | | | |
| | Other oil grade | X | | | | | | |

## TD102, TD122, TD162

| Engine type | Oil grade | Max mileage in km | | | | | | Max period, months |
|---|---|---|---|---|---|---|---|---|
| | | 15 000 | 20 000 | 25 000 | 30 000 | 40 000 | 45 000 | |
| TD102, TD122, TD162 | VDS-2/3 | | | | | X | | 6 |
| | VDS | | | | | X | | |
| | Other oil grade | X | | | | | | |

## TD103, TD123, TD163

| Engine type | Oil grade | Max mileage in km | | | | | | Max period, months |
|---|---|---|---|---|---|---|---|---|
| | | 15 000 | 20 000 | 25 000 | 30 000 | 40 000 | 45 000 | |
| TD103, TD123, TD163 | VDS-2/3 | | | | | X | | 6 |
| | VDS | | | | X | | | |
| | Other oil grade | X | | | | | | |

## D4 D6A D7 D10 D12A D12C D16A D16B

| Engine type | | D4, D6A, D7A/B | D7C Eu2 (FM) | D10, D12 (FL) | |
|---|---|---|---|---|---|
| Transport cycle | | - | - | Long distance driving | Other |
| VDS-3/ VDS-2 | Mileage, max (km) | 25 000 | 40 000 | - | 40 000 |
| | Fuel consumed, max (litres) [1] | - | 10 000 | 20 000 | 20 000 |
| VDS | Mileage, max (km) [1] | 20 000 | 20 000 | 30 000 | 30 000 |
| | Fuel consumed, max (litres) [1] | - | 5 000 | 13 000 | 13 000 |
| Other oil grade | Mileage, max (km) [1] | 15 000 | 15 000 | 15 000 | 15 000 |
| | Fuel consumed, max (litres) [1] | - | 4 000 | 7 000 | 7 000 |

[1] Whichever occurs first

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| Engine type | | D12A Eu1 (FH) | | D12A/C Eu2/Eu3 (FM, FH, NH) | | D16A, D16B | |
|---|---|---|---|---|---|---|---|
| Transport cycle | | Long distance driving | Other | Long distance driving | Other | Long distance driving | Other |
| VDS-3/ VDS-2 | Mileage, max (km) | - | 45 000 | - | 45 000 | - | 40 000 |
| | Fuel consumed, max (litres) [1] | 20 000 | 20 000 | 20 000 [2] | 20 000 | 20 000 | 20 000 |
| VDS | Mileage, max (km) [1] | 45 000 | 45 000 | 30 000 | 30 000 | 30 000 [3] | 30 000 [3] |
| | Fuel consumed, max (litres) [1] | 13 000 | 13 000 | 13 000 | 13 000 | 13 000 | 13 000 |
| Other oil grade | Mileage, max (km) [1] | 15 000 | 15 000 | 15 000 | 15 000 | 15 000 | 15 000 |
| | Fuel consumed, max (litres) [1] | 7 000 | 7 000 | 7 000 | 7 000 | 7 000 | 7 000 |

[1] Whichever occurs first
[2] D12C Eu2 (EC96), GCW<44 t: 25,000 litres
[3] D16A Eu1 (EC93): 40,000 km

# D6B Euro 2/Euro 3, D7C Euro 3

The following is a step by step description of how to read the tables below.

1. Go to row “Gross weight, combination” and select an appropriate column.
2. Go to the next row in the selected column. This column can in turn be divided into several columns depending on the fuel consumption of the truck in question.
3. Select the column which corresponds to the average fuel consumption for the vehicle.
4. This column will contain the values for the three oil qualities. Select the grade which is to be used and read off the “Mileage” and “Fuel consumed”, select the value which occurs first.

## *D6B Euro 2/Euro 3*

| Gross weight, combination | | Less than 15 000 kg | | |
|---|---|---|---|---|
| Fuel consumption, average | | Less than or equal to 25 litres/100 km | Less than or equal to 30 litres/100 km | More than 30 litres/100 km |
| Oil grade VDS-3 | Mileage, max (km) [1] | 40 000 | 32 000 | 25 000 |
| | Fuel consumed, max (litres) [1] | - | 8 000 | 8 000 |
| Oil grade VDS-2 *or* VDS plus ACEA E3 [2] | Mileage, max (km) [1] | 30 000 | 25 000 | 20 000 |
| | Fuel consumed, max (litres) [1] | - | 6 000 | 6 000 |
| VDS *or* Other oil grade | Mileage, max (km) [1] | 15 000 | 15 000 | 15 000 |
| | Fuel consumed, max (litres) [1] | 4 000 | 4 000 | 4 000 |

[1] Whichever occurs first
[2] Note that the oil grade must comply with both VDS and ACEA E3

| Gross weight, combination | | Less than 19,000 kg | | More than 19,000 kg |
|---|---|---|---|---|
| Fuel consumption, average | | Less than or equal to 30 litres/100 km | More than 30 litres/100 km | Independent of fuel consumption |
| Oil grade VDS-3 | Mileage, max (km) [1] | 40 000 | 25 000 | 25 000 |
| | Fuel consumed, max (litres) [1] | 8 000 | 8 000 | 8 000 |

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| Gross weight, combination | | Less than 19,000 kg | | More than 19,000 kg |
|---|---|---|---|---|
| Fuel consumption, average | | Less than or equal to 30 litres/100 km | More than 30 litres/100 km | Independent of fuel consumption |
| Oil grade VDS-2 *or* VDS plus ACEA E3 [2] | Mileage, max (km) [1] | 30 000 | 20 000 | 20 000 |
| | Fuel consumed, max (litres) [1] | 6 000 | 6 000 | 6 000 |
| VDS *or* Other oil grade | Mileage, max (km) [1] | 15 000 | 15 000 | 15 000 |
| | Fuel consumed, max (litres) [1] | 4 000 | 4 000 | 4 000 |

[1] Whichever occurs first
[2] Note that the oil grade must comply with both VDS and ACEA E3

## *D7C Euro 3*

| Gross weight, combination | | Less than 18,000 kg | | |
|---|---|---|---|---|
| Fuel consumption, average | | Less than or equal to 25 litres/100 km | Less than or equal to 30 litres/100 km | More than 30 litres/100 km |
| Oil grade VDS-3 | Mileage, max (km) [1] | 40 000 | 32 000 | 25 000 |
| | Fuel consumed, max (litres) [1] | - | 8 000 | 8 000 |
| Oil grade VDS-2 *or* VDS plus ACEA E3 [2] | Mileage, max (km) [1] | 30 000 | 25 000 | 20 000 |
| | Fuel consumed, max (litres) [1] | - | 6 000 | 6 000 |
| VDS *or* Other oil grade | Mileage, max (km) [1] | 15 000 | 15 000 | 15 000 |
| | Fuel consumed, max (litres) [1] | 4 000 | 4 000 | 4 000 |

[1] Whichever occurs first
[2] Note that the oil grade must comply with both VDS and ACEA E3

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| Gross weight, combination | | Less than 26,000 kg | | More than 26,000 kg |
|---|---|---|---|---|
| Fuel consumption, average | | Less than or equal to 30 litres/100 km | More than 30 litres/100 km | Independent of fuel consumption |
| Oil grade VDS-3 | Mileage, max (km) [1] | 40 000 | 25 000 | 25 000 |
| | Fuel consumed, max (litres) [1] | 8 000 | 8 000 | 8 000 |
| Oil grade VDS-2 *or* VDS plus ACEA E3 [2] | Mileage, max (km) [1] | 30 000 | 20 000 | 20 000 |
| | Fuel consumed, max (litres) [1] | 6 000 | 6 000 | 6 000 |
| VDS *or* Other oil grade | Mileage, max (km) [1] | 15 000 | 15 000 | 15 000 |
| | Fuel consumed, max (litres) [1] | 4 000 | 4 000 | 4 000 |

[1] Whichever occurs first
[2] Note that the oil grade must comply with both VDS and ACEA E3

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# D9A

For definitions and abbreviations see “Definitions” page 3.

## *Engine Operating Conditions (EOC)*

| Trans-port cycle | Long distance driving | | | | | Distribution regional | | | Distribution town | | Construction sites [1] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GCW | ≤44 | | | 45-65 | | ≤29 | 30-44 | 45–65 | ≤29 | ≥30 | ≤44 | ≥45 | |
| To-pog-raphy | F | PF | H | F | H | | | | | | H | H | VH |
| EOC | M [2] | M [2] | H | H | S | M [2] | H | S | S | VS | S | VS | VS+ |

[1] Includes timber trucks, tippers, dumpers, load exchangers, concrete mixers, waste compressors and special vehicles.
[2] Only 4x2/6x2, without power take off, max 90 kph

## *Oil change interval*

| EOC | M | H | S | VS | VS+ |
|---|---|---|---|---|---|
| Maximum permitted fuel consumption (l/100 km) | ≤ 35 | ≤ 44 | ≤ 57 | ≤ 100 | - |
| Mileage (km) / time (hours) NB! No oil change interval is allowed to exceed 6 months. | | | | | |
| Oil grade VDS-3 | 60000/- | 45000/600 | 30000/400 | 15000/400 [1] | -/400 [1] |
| Oil grade VDS-2 | 40000/- | 30000/400 | 20000/300 | 10000/300 [2] | -/300 [2] |
| Oil grade VDS / Other oil grade | 20000/- | 15000/200 | 10000/150 | 5000/150 [3] | -/150 [3] |
| For waste collection, mine operation, airport service etc, engine hours (hours) can be used instead. | | | | | |

[1] Maximum permitted fuel consumption 15 000 litres (37.5 litres/hour).
[2] Maximum permitted fuel consumption 10 000 litres (33.3 litres/hour).
[3] Maximum permitted fuel consumption 5 000 litres (33.3 litres/hour).

## *Preventive maintenance*

| EOC | M | H | S | VS | VS+ |
|---|---|---|---|---|---|
| | km/max. months | | | | H/max. months |
| Full service | - / 12 | | | | |
| Basic service | 60000/6 [1] | 45000/6 [1] | 30000/6 [1] | 15000/6 [1] | 400/6 [1] |

[1] Whichever occurs first.

## *Valves and unit injectors, adjustment*

| EOC | M | H | S | VS | VS+ |
|---|---|---|---|---|---|
| Interval | 200,000 km or every 12 months, whichever occurs first[1] | | | 100,000 km or every 6 months, whichever occurs first | |
| [1] The service interval shall be halved in the case of frequent driving at more than 90km/h | | | | | |

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# D12D Euro2/Euro3

For definitions and abbreviations see “Definitions” page 3.

## *Engine Operating Conditions (EOC)*

| Transport cycle | Long distance driving | | | | | | Distribution, regional | | | Distribution, Town | | Construction sites [1] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GCW | ≤ 44 | | | 45 - 68 | | ≥ 69 | ≤ 44 | 45 – 68 | ≥69 | ≤ 32 | ≥ 33 | ≤ 68 | ≥ 69 | |
| Topography | F | PF | H | F | H | | | | | | | H | H | VH |
| EOC | L [2] | M [3] | H | H | S | VS | H | S | VS | S | VS | S | VS | VS+ |

[1] Includes timber trucks, tippers, dumpers, load exchangers, concrete mixers, waste compressors and special vehicles.
[2] Only 4x2/6x2, without power take off, max 90 kph, D12DEuro3, Europe
[3] Only 4x2/6x2, without power take off, max 90 kph

## *Oil change interval*

| EOC | L | M | H | S | VS | VS + |
|---|---|---|---|---|---|---|
| Maximum permitted fuel consumption (l/100 km) | ≤ 33 | ≤ 39 | ≤ 46 | ≤ 59 | ≤ 120 | - |
| Mileage (km) / time (hours) NB! No oil change interval is allowed to exceed 6 months. | | | | | | |
| Oil grade VDS-3 | 90000 [1]/- | 75000/- | 60000/750 | 45000/600 | 20000/600 [2] | -/600 [2] |
| Oil grade VDS-2 | 60000/- | 50000/- | 40000/500 | 30000/400 | 15000/400 [3] | -/400 [3] |
| Oil grade VDS / Other oil grades | 30000/- | 25000/- | 20000/250 | 15000/200 | 10000/200 [4] | -/200 [4] |
| For waste collection, mine operation, airport service etc, engine hours (hours) can be used instead. | | | | | | |

[1] Can be extended to 100,000 km if gross weight never exceeds 36 tons with other conditions unchanged and VDS-3 oil used.
[2] Maximum permitted fuel consumption 25 000 litres (41.7 litres/hour).
[3] Maximum permitted fuel consumption 16 000 litres (40 litres/hour).
[4] Maximum permitted fuel consumption 8 000 litres (40 litres/hour).

## *Preventive maintenance*

| EOC | L | M | H | S | VS | VS+ |
|---|---|---|---|---|---|---|
| | km/max. months | | | | | H/max. months |
| Full service | —/12 | | | | | |
| Basic service | 90000/6 [1] | 75000/6 [1] | 60000/6 [1] | 45000/6 [1] | 20000/6 [1] | 600/6 [1] |

[1] Whichever occurs first.

## *Valves and unit injectors, adjustment*

| EOC | M | H | S | VS | VS+ |
|---|---|---|---|---|---|
| Interval D12D 340–460 | 400,000 km or every 24 months, whichever occurs first[1] | | | 200,000 km or every 12 months, whichever occurs first | |
| Interval D12D 500 | 200,000 km or every 12 months, whichever occurs first[1] | | | 100,000 km or every 6 months, whichever occurs first | |
| [1] The service interval shall be halved in the case of frequent driving at more than 90km/h | | | | | |

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# D12F EM JPN04

For definitions and abbreviations see “Definitions” page 3.

## *Engine Operating Conditions (EOC)*

| Transport cycle | Long distance driving | | | | | Distribution, regional | | | Distribution, Town | | | Construction sites [1] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GCW | ≤ 44 | | 45 - 68 | | ≥ 69 | ≤ 32 | 32–44 | 45–68 | ≤ 32 | 32–44 | ≤ 44 | ≤ 32 | 33–44 | 45–68 | |
| Topography | PF | H | PF | H | | | | | | | | H | H | H | VH |
| EOC | M [2] | | H [3] | S [3] | VS [3] | M | H | S | S | VS | VS | H | S | VS | VS+ |

[1] Includes timber trucks, tippers, dumpers, load exchangers, concrete mixers, waste compressors and special vehicles.
[2] Only 4x2/6x2, without power take off, max 90 kph
[3] Max. 90 km/h

## *Oil change interval*

| EOC | M | H | S | VS | VS+ |
|---|---|---|---|---|---|
| Maximum permitted fuel consumption (l/100km) | ≤ 39 | ≤ 50 | ≤ 64 | ≤ 120 | - |
| Mileage (km) / time (hours) NB! No oil change interval is allowed to exceed 6 months. | | | | | |
| Oil grade VDS-3 [1] | 50000/650 | 40000/500 | 30000/400 | 15000/400 [2] | -/400 [2] |
| Oil grade VDS-2 | 35000/450 | 25000/350 | 20000/300 | 10000/300 [3] | -/300 [3] |
| Oil grade VDS / Other oil grades | 20000/300 | 15000/250 | 10000/200 | 7500/200 [4] | -/200 [4] |
| For waste collection, mine operation, airport service etc, engine hours (hours) can be used instead. | | | | | |

[1] D12 F can be fitted with DPF-filter. In this case VDS-3 LSA quality oil must be used. VDS–3 LSA is VDS-3 oil with low sulphate content, max 1.1%. The same interval as for VDS-3 oils applies, as shown in the above table.
[2] Maximum permitted fuel consumption 15 000 litres (37.5 litres/hour).
[3] Maximum permitted fuel consumption 12 000 litres (40 litres/hour).
[4] Maximum permitted fuel consumption 8 000 litres (40 litres/hour).

## *Preventive maintenance*

| EOC | M | H | S | VS | VS+ |
|---|---|---|---|---|---|
| | km/max. months | | | | H/max. months |
| Full service | - / 12 | | | | |
| Basic service | 50000/6 [1] | 40000/6 [1] | 30000/6 [1] | 15000/6 [1] | 400/6 [1] |

[1] Whichever occurs first.

## *Valves and unit injectors, adjustment*

| EOC | M | H | S | VS | VS+ |
|---|---|---|---|---|---|
| Interval D12F 390–500 | 200,000 km or every 12 months, whichever occurs first[1] | | | 100,000 km or every 6 months, whichever occurs first | |
| [1] The service interval shall be halved in the case of frequent driving at more than 90km/h | | | | | |

## *EGR pipe, clean*

| | |
|---|---|
| Service interval | 200,000 km or every 24 months, whichever occurs first |

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*Particulate filter, DPF, clean*

| | |
|---|---|
| Service interval | Every 12 months |

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# D13A Euro3

For definitions and abbreviations see “Definitions” page 3.

## *Engine Operating Conditions (EOC)*

| Transport cycle | Long distance driving | | | | | Distribution | | | | Construction sites [1] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Regional | | | Town | | | | |
| GCW | ≤ 44 | | 45 - 68 | | ≥ 69 | ≤ 32 | 33–44 | 45–68 | ≤ 32 | ≤ 32 | 33–44 | 45–68 | |
| Topography | PF | H | PF | H | | | | | | H | H | H | VH |
| EOC | L [2] | M [3] | H [3] | S [3] | VS [3] | M | H | S | S | H | S | VS | VS+ |

[1] Includes timber trucks, tippers, dumpers, load exchangers, concrete mixers, waste compressors and special vehicles.
[2] Max. 90 km/h, without power take-off.
[3] Max. 90 km/h

## *Oil change interval*

| EOC | L | M | H | S | VS | VS+ |
|---|---|---|---|---|---|---|
| Maximum permitted fuel consumption (l/100 km) | ≤ 33 | ≤ 39 | ≤ 50 | ≤ 64 | ≤ 120 | - |
| Mileage (km)/time (hours) NB! No oil change interval is allowed to exceed 12 months. | | | | | | |
| Oil grade VDS-3 | 100000/- | 75000/- | 60000/750 | 45000/600 | 20000/600 [1] | -/600 [1] |
| Oil grade VDS-2 | 60000/- | 50000/- | 40000/500 | 30000/400 | 15000/400 [2] | -/400 [2] |
| Oil grade VDS / Other oil grades | 30000/- | 25000/- | 20000/250 | 15000/200 | 10000/200 [3] | -/200 [3] |
| For waste collection, mine operation, airport service etc, engine hours (hours) can be used instead. | | | | | | |

[1] Maximum permitted fuel consumption 25 000 litres (41.7 litres/hour).
[2] Maximum permitted fuel consumption 16 000 litres (40 litres/hour).
[3] Maximum permitted fuel consumption 8 000 litres (40 litres/hour).

## *Preventive maintenance*

| EOC | L | M | H | S | VS | VS+ |
|---|---|---|---|---|---|---|
| | km/max. months | | | | | H/max. months |
| Full service | —/12 | | | | | |
| Basic service | 100000/6 [1] | 75000/6 [1] | 60000/6 [1] | 45000/6 [1] | 20000/6 [1] | 400/6 [1] |

[1] Whichever occurs first.

## *Valves and unit injectors, adjustment*

| EOC | M | H | S | VS | VS+ |
|---|---|---|---|---|---|
| Interval D13A 400–480 | 400,000 km or every 24 months, whichever occurs first[1] | | | 200,000 km or every 12 months, whichever occurs first | |
| Interval D13A 520 | 200,000 km or every 12 months, whichever occurs first[1] | | | 100,000 km or every 6 months, whichever occurs first | |
| [1] The service interval shall be halved in the case of frequent driving at more than 90km/h | | | | | |

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# D16C Euro3

For definitions and abbreviations see “Definitions” page 3.

## *Engine Operating Conditions (EOC)*

| Transport cycle | Long distance driving | | | | | | | Distribution | | | Construction sites [1] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GCW | ≤ 44 | | | 45 - 68 | | | > 68 | ≤ 44 | 45 – 68 | > 68 | ≤68 | > 68 | |
| Topography | F | PF | H | F | PF | H | | | | | H | H | VH |
| EOC | L [2] | M [2] | M [2] | M [2] | H | S | VS | H | S | VS | S | VS | VS + |

[1] Includes timber trucks, tippers, dumpers, load exchangers, concrete mixers, waste compressors and special vehicles.
[2] Without power take off, max 90 kph

## *Oil change interval*

| EOC | L | M | H | S | VS | VS+ |
|---|---|---|---|---|---|---|
| Maximum permitted fuel consumption (l/100 km) | ≤ 36 | ≤ 44 | ≤ 53 | ≤ 69 | ≤ 140 | - |
| Mileage (km) / time (hours) NB! No oil change interval is allowed to exceed 6 months. | | | | | | |
| Oil grade VDS-3 | 90000 [1]/- | 75000/- | 60000/750 | 45000/600 | 20000/600 [2] | -/600 [2] |
| Oil grade VDS-2 | 60000/- | 50000/- | 40000/500 | 30000/400 | 15000/400 [3] | -/400 [3] |
| Oil grade VDS / Other oil grade | 30000/- | 25000/- | 20000/250 | 15000/200 | 10000/200 [4] | -/200 [4] |
| For waste collection, mine operation, airport service etc, engine hours (hours) can be used instead. | | | | | | |

[1] Can be extended to 100,000 km if gross weight never exceeds 36 tons with other conditions unchanged and VDS-3 oil used.
[2] Maximum permitted fuel consumption 25 000 litres (41.7 litres/hour).
[3] Maximum permitted fuel consumption 16 000 litres (40 litres/hour).
[4] Maximum permitted fuel consumption 8 000 litres (40 litres/hour).

## *Preventive maintenance*

| EOC | L | M | H | S | VS | VS+ |
|---|---|---|---|---|---|---|
| | km/max. months | | | | | H/max. months |
| Full service | —/12 | | | | | |
| Basic service | 90000/6 [1] | 75000/6 [1] | 60000/6 [1] | 45000/6 [1] | 20000/6 [1] | 600/6 [1] |

[1] Whichever occurs first.

## *Valves and unit injectors, adjustment*

| EOC | M | H | S | VS | VS+ |
|---|---|---|---|---|---|
| Interval | 200,000 km or every 12 months, whichever occurs first[1] | | | 100,000 km or every 6 months, whichever occurs first | |
| [1] The service interval shall be halved in the case of frequent driving at more than 90km/h | | | | | |

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# Fuel filter change

| | |
|---|---|
| D4, D6B, D9A, D12D, D13A, D16C | at each oil change. |
| TD61/63, D6A, TD71/73, D7A, D7B | every 12 months. |
| Other engines | every 6 months. |
| Water separator D9A, D12D, D13A, D16C | at each oil change. |
| Water separator other engines | every 6 months. |

Under some conditions the fuel filter will need to be changed earlier, for example:

- low fuel pressure
- power reduction
- irregular fuel quality.

# Filter for fuel tank ventilation

This filter is installed on certain markets.

Change interval: every 24 months.

Under some conditions the filter will need to be changed earlier, for example:

- driving in dusty surroundings.

# Filter insert, air cleaner

| Model | Changing the primary filter | Changing the secondary filter |
|---|---|---|
| FL/ FH/ NH/ FM | When the indicator light comes on, a symbol on the display is shown or the indicator shows, but at least each 24th month. | every 3rd change of the primary filter, or no later than every 48 months. The secondary filter should also be changed if the indicator light comes on, a symbol on the display is shown or the indicator shows, regardless of primary filter change. |

# Particulate filter, CRT

| **Vehicle type** | **Cleaning interval** |
|---|---|
| FM7, FL6 | 40,000 km or every 6 months, whichever occurs first |
| FM9 | At each engine oil change |

# Mechanical compressor

| | | |
|---|---|---|
| D6A250 | Oil change volume | 100 ml |
| | Oil grade | Special oil part no. 85108974 |
| | Change interval | Oil change interval every 12 months. |

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# Coolant

## Volumes

| Engine | Coolant volume (litres) [1] |
|---|---|
| D4 | 29 |
| TD61 | 28 |
| TD63, D6 | 30 |
| G6A | 30 |
| G6B | 27 |
| TD71 | 31 |
| TD73, D7A, D7B | 32 |
| D7C | 40 |
| D9A, FM9 | 37 |

| Engine | Coolant volume (litres) [1] |
|---|---|
| TD102, TD103, D10 | 47 |
| D10 FM10 | 47 |
| TD122, TD123 | 50 |
| TD162, TD163 | 58 |
| D12 FH12, D13 FH | 44 |
| D12 FM12, D13 FM | 42 |
| D16 | 52 |

[1] Only a guideline, as this varies dependent on vehicle installation and equipment.

## Service intervals

| | Change coolant | Change coolant filter | Other |
|---|---|---|---|
| Volvo Coolant [1] **with** coolant filter. | 500,000 km or every 48 months. | 100,000 km or every 6 months | When the coolant is changed **then** the coolant filter should also be changed. |
| Volvo Coolant **without** coolant filter. | 250,000 km or every 24 months. | | |
| Volvo Coolant VCS [1], [2] | 500,000 km or every 48 months. | — | Volvo Coolant VCS shall **not** be used with coolant filters. |
| Volvo Anti-corrosion agent. [2](Recommended only where Volvo coolant is not available in that market.) | 100,000 km or every 12 months. | Every 6 months | When the oil is changed the cooling system is topped up with corrosion prevention fluid, 1 dl/10 l water. |

[1] Note that Volvo Coolant and Volvo Coolant VCS shall not be mixed.
[2] Note that Volvo Coolant VCS and anti-corrosion agent shall not be mixed.

### *Anti-freeze*

**Note:** Mixing with other types of concentrated coolant can result in inferior anti-corrosive properties resulting in damage to the engine.

When the coolant is changed, the cooling system should be carefully flushed clean.

The adjacent table shows the approximate volume of concentrated coolant required for anti-freeze protection at the given temperature.

| Protection against freezing down to: | Mixture of concentrated coolant |
|---|---|
| -25° C | 40% |
| -30° C | 46% |
| -38° C | 54% |
| -46° C | 60% |

**Note:** -46° C is the minimum temperature below which freezing cannot be prevented.
Increasing the amount of concentrated coolant beyond this decreases frost protection.

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# Drive belts

## Service intervals

| **Multi-ribbed belts** | **Change interval** |
|---|---|
| D6 with Multi-ribbed belt for the mechanical compressor (Supercharger) | 150,000 km [1] |
| D7 with Multi-ribbed belts for alternator and cooling fan | 300,000 km [1] |
| D10 with Multi-ribbed belts for alternator and cooling fan | 400,000 km [1] |
| D9A, D12, D13, D16 with multi-ribbed belts for alternator and cooling fan | 500,000 km [1] |
| PSS-DUAL, FH and FL with Multi-ribbed belt behind the gearbox to drive the servo pump for the extra power steering system (trucks with twin power steering systems) | 100,000 km [1] |

[1] However maximum 36 months. Applies to Volvo original drive belts.

## Valves and unit injectors, adjustment

| Engine type | Interval |
|---|---|
| D12C Mark 3 labelled with C3 | 200,000 km or every 12 months, whichever occurs first[1] |
| D9A, D12D 500, D12D340–460, D13A, D16C | Refer to the information concerning service intervals applying to the respective engine types and oil change intervals, pages 5–12 |
| [1] The service interval shall be halved in the case of frequent driving at more than 90km/h, or in the case of very severe engine operating conditions equivalent to EOC VS and VS+. | |

# Gas engine

| Oil and filter change | | | |
|---|---|---|---|
| Engine type | Max mileage, km [1] | Max period, months [1] | Approved oils |
| G6A | 30 000 | 12 | **Volvo part.no. 85104226**, or<br>BP Vanellus AF5<br>Castrol RX Super Gas<br>Cepsa Ecogas<br>ChevronTexaco Geotex VR multigrade<br>Elf Lubrigas 7m<br>FINA Ng motor oil<br>HRD Maxima Gaz 7<br>Mobil Delvac Super GEO<br>Mobil Pegasus 1<br>Q8 Mahler T<br>Shell Rimula NX<br>Slovnaft Madit Gas Super<br>Statoil PowerWay GE<br>Teboil Special GML<br>TOTAL Rubia gas<br>Viscosity: For all oils in this list 15W/40 |
| G6B | 40 000 | | |

[1] whichever occurs first

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## Spark plugs

| Engine type | Spark plug type | Change interval |
|---|---|---|
| G6A | Champion RN 79 G | At each oil change |
| G6B | | |

## Charge regulator

| Model | Change interval |
|---|---|
| FL/ FM/ FH/ NH | 200,000 km |

## Clutch

Oil grade . . . . . Brake fluid in accordance with the standard DOT 4 (SAE J 1703)

At extremely low temperatures, below -40°C, use brake fluid Volvo part no. 85104143. The brake fluid complies with DOT3. It has in addition been adapted to lower temperatures than DOT3 is specified for.

## Gearbox

Because of the differences between different gearbox manufacturer's **recommendations**, these recommendations are sub-divided as follows:

"1a. Volvo manufactured manual gearboxes" page 21

"1b. ZF manufactured manual gearboxes" page 25

"1c. Eaton manufactured manual gearboxes" page 26

"2a. Volvo manufactured automatic transmissions" page 27

"2b. Allison manufactured automatic transmissions" page 27

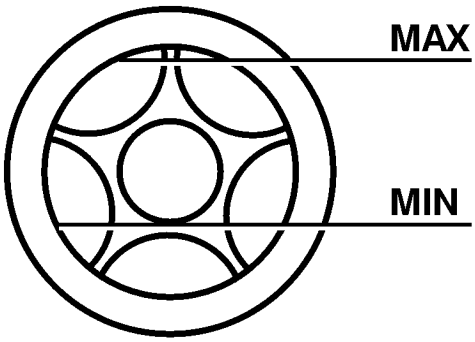
# 1a. Volvo manufactured manual gearboxes

## Oil change volumes

| **Gearbox** | **Approx. change volume in litres** | **Gearbox** | **Approx. change volume in litres** |
|---|---|---|---|
| AT2412C | 16 | SRO2000 | 11 |
| AT2512C | 16 | SRO2400 | 11 |
| ATO2512C | 16 | VT2014 | 13,5 |
| R1000 | 9,5 | VT2014OD | 13,5 |
| R1400 | 12 | VT2514 | 13,5 |
| R1500 | 11,5 | VT2514OD | 13,5 |
| R1700 | 12 | VT1708B | 11,5 |
| R1900 | 12 | VT2009B | 12 |
| SR1400 | 13 | VT2214B | 13,5 |
| SR1700 | 13 | VT2412B | 13 |
| SR1700 with Geartronic | 13,5 | VT2514B | 13,5 |
| SR1900 | 13 | VTO2214B | 13,5 |
| SR1900 with Geartronic | 13,5 | VTO2514B | 13,5 |

| **Gearbox** | **Approx. change volume in litres** | **Gearbox** | **Approx. change volume in litres** |
|---|---|---|---|
| SR2000 | 11 | VT2814B | 13,5 |
| SR2400 | 11 | VTO2814B | 13,5 |

On gearboxes with transparent level plugs, the oil is to be filled up to the **max-marking** on the level plug (because the oil level will drop when the oil filter housing has been filled). When checking the oil level, it should be between the centre and max marking on the transparent level plug.

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On gearboxes without transparent level plug, the oil is to be filled up to the edge of the level hole.

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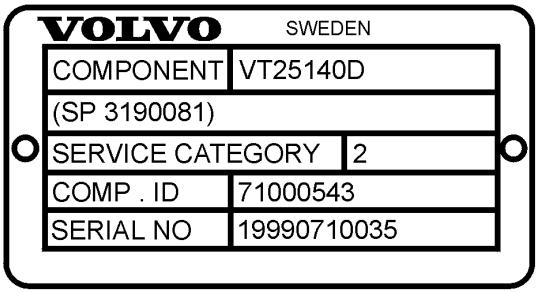
If the gearbox has a rear power take off or an oil cooler, additional oil should be filled in accordance with the following table.

| **Component** | **Additional amounts of oil in litres** |
|---|---|
| Single power take-off BKU/PTR | 0,8 |
| Double power take-off DBKU/PTRD | 0,8 |
| Oil cooler TC-MWO (Cool TW and T1, old designations) | 0,1 |
| Oil cooler TC-MWOH (Cool TWH and T1H, old designations) | 0,8 |
| Oil cooler TC-MAOH | 0,8 |
| Oil cooler TC-MWOH2 | 0,8 |
| Oil cooler TC-MAOH2 | 0,8 |

## Service categories

For a number of reasons these gearboxes cannot have the same service recommendations. They have therefore been divided up into different service categories.

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The service categories, designated by a number or a letter, are indicated on **the rating plate** located on the gearbox. The categories are G, 1, 2, 3 and 4

**Note:** If the gearbox has **no** service category marked on **the rating plate**, it belongs to **category G**.

Two different service recommendations can be applied to the gearboxes:

- **Standard service recommendation**
- **Alternative service recommendation**

The alternative service recommendation provides longer service intervals than standard service recommendation. The alternative service recommendation requires the use of special oils. The limits in the table must however be observed.

Customers can always select the service recommendation they prefer after taking into consideration the relevant restrictions described in the following table.

| **Service category** | **Restrictions** when using alternative service recommendation |
|---|---|
| G | To use the alternative service recommendation on gearboxes R1000, R/SR1400, R/SR1700, R/SR1900, SR1700+ Geartronic and SR1900+ Geartronic, certain conditions must have been fulfilled:<br>• The gearbox should be equipped with an improved oil filter guard. The improved oil filter guard was introduced into production in August 1996. The oil filter guard can be retrofitted to older gearboxes.<br>The replacement oil filter guard is available in the spare parts kit with part number 3094780 for gearboxes without retarder and 3094781 for gearboxes with retarder.<br>• It is not possible to fit the improved oil filter guard to the gearbox if the old type of oil cooler VXKYL7 (coil cooler) is used with gearboxes R1000, R/SR1400, R/SR1700, R/SR1900, SR1700+ Geartronic and SR1900+ Geartronic. In these cases, the alternative service recommendation cannot be used.<br>It is, however, possible to replace the old type VXKYL7 with the new type VXKYL7 (donut). With the new type of VXKYL7, it is possible to fit the improved oil filter guard and in this way the alternative service recommendation can be used.<br>In addition, the connection nipple in the spare part kits 3094780 or 3094781 must be replaced with part number 1671995. (The new type of VXKYL7 together with the improved oil filter guard is fitted in production on all gearboxes with oil coolers from August 1996. The new type of VXKYL7 is the same oil cooler as COOL T1.) |

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The standard service recommendation and alternative service recommendation both consist of three parts. The three parts are **oil grade**, **viscosity** and **service intervals**. These are found in the same order on the following pages.

The following procedure can be very useful when deciding which oil to use.

1 Find out which service category the component belongs to.

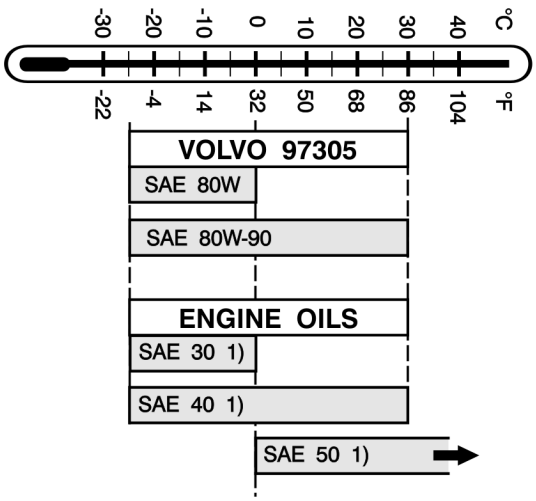
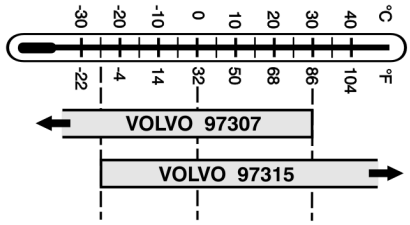
2 Use the information in the table below **Service intervals** and determine which service recommendation should be used.

3 Use the information under **Oil grade** and **Viscosity** to determine which oil should be used.

## Oil grade

| Standard service recommendation | Alternative service recommendation |
|---|---|
| Transmission oils which comply with the grade requirements for Volvo transmission oil 97305 or engine oils which comply with any of the following grade requirements<br>1 API CD, CE or CF (monograde)<br>2 ACEA E1, E2 or E3 (monograde)<br>should be used. | Transmission oils which comply with the grade requirements for Volvo transmission oil 97307 or 97315 should be used. Please refer to “Viscosity” page 23 to decide which of the two oils should be used. |

## Viscosity

| Standard service recommendation | Alternative service recommendation |
|---|---|
| Viscosity is selected in accordance with the diagram below.<br>  <br><br>T1008406<br>Temperature values refer to constant air temperatures.<br>1) Applies to engine oils: Note that multigrade oils ARE NOT to be used in manual gearboxes. Use only monograde engine oil SAE 30, SAE 40 or SAE 50.<br><br>If a TC-MAOH or TC-MAOH2 oil cooler is fitted, SAE 50 engine oil must be used.<br>**NB!** If the temperature is lower than -25° C, use the alternative service recommendation.<br>Gearboxes with TC-MWO, TC-RWO, TC-MWOH or TC-MWOH2 oil coolers can run in ambient temperatures higher than +30° C with SAE30, SAE40 or SAE80W90 engine oils. | Viscosity is selected in accordance with the diagram below.<br>  <br><br>T1008401<br>Temperature values refer to constant air temperatures.<br>If oil cooler TC-MAOH/-MAOH2 is fitted, transmission oils which comply with the grade requirements for Volvo transmission oil 97315 must be used.<br>Gearboxes with TC-MWO, TC-RWO, TC-MWOH or TC-MWOH2 oil coolers can run in ambient temperatures higher than +30° C with 97307 transmission oil. |
| For recommendations and more information on oil coolers see VTOS, Volvo Truck Online Service (http://productinfo.vtc.volvo.se/vtpi/login/Default.asp) | |

- For TRAP-HD and driving in VS and VS+ driving conditions, according to definitions for EOC “Engine Operating Conditions (EOC)” page 3, oils 97315 or SAE50 are recommended.

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- For construction site driving, under very hilly road conditions, equivalent to VS+ driving conditions, the oil should be changed after 2,000 service hours.
- When PTO or split gearboxes are used, the oil should be changed after 2000 service hours.

# Service intervals

**First oil and filter change:**

| Service category | Interval |
|---|---|
| Service categories 1 and 3 | First oil and filter change after 10,000 km or 4 weeks, whichever occurs first. |
| Service categories 2 and 4 | First oil and filter change after 400,000 km or three years, whichever occurs first. |

**Following change intervals as shown in the table below:**

| Oil grade | Service category | | |
|---|---|---|---|
| | G | 1 and 3 | 2 and 4 |
| | Oil and filter change interval (km) | | |
| Volvo Transmission oil 97305<br>Engine oil SAE30 or 40 | 120,000/12 months | 120,000/12 months | — |
| Engine oil SAE50 | 120,000/12 months | 120,000/12 months | 120,000/12 months |
| Volvo Transmission oil 97307 | 180,000/12 months [1] | 400,000/36 months | — |
| Volvo Transmission oil 97315 | 180,000/12 months [1] | 400,000/36 months | 400,000/36 months |

[1] Note the limitations for this category on page 18.

- For construction site driving, under very hilly road conditions, the oil should be changed after 2,000 hours driving

## *Replenishing oil level in gearbox*

When the gearbox oil level is too low, it must be topped up. The following then applies:

- If the same oil which already is in the gearbox is used when topping up, there is no limit on how much oil can be filled or how many times the oil level can be topped up in the gearbox.
- If a different approved oil other than the one in the gearbox is used, then no more than one litre in total may be added. This is regardless of how many times the oil level is topped up. If more oil needs to be added, carry out a complete oil change instead.

## *Oil and filter changes after a repair on the gearbox*

If a component has been repaired, renovated or opened, an extra oil and filter change must be carried out. This oil and filter change should be carried out after 10,000 km or 4 weeks, whichever occurs first, after the component has been repaired, overhauled or opened.

When the extra oil and filter change has been completed, the component's normal service recommendation applies.

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# 1b. ZF manufactured manual gearboxes

## Oil change volumes

| Gearbox | Oil change volume, approx. litres |
|---|---|
| T500A | 3,5 |
| ST500 | 10 |
| T700 | 6 |

| Gearbox | Oil change volume, approx. litres |
|---|---|
| ST700 | 9 |
| R800 | 9,5 |

## Oil grade

| Gearbox | Transmission oil | Engine oil (monograde) |
|---|---|---|
| T500A<br>ST500<br>R800 | Volvo transmission oil 97305<br>API GL-4 (only viscosity quality SAE80W) | API CD, CE, CF or ACEA E1, E2, E3 |
| T700<br>ST700 | ATF Dexron III | |

## Viscosity

Viscosity is selected in accordance with the diagram.

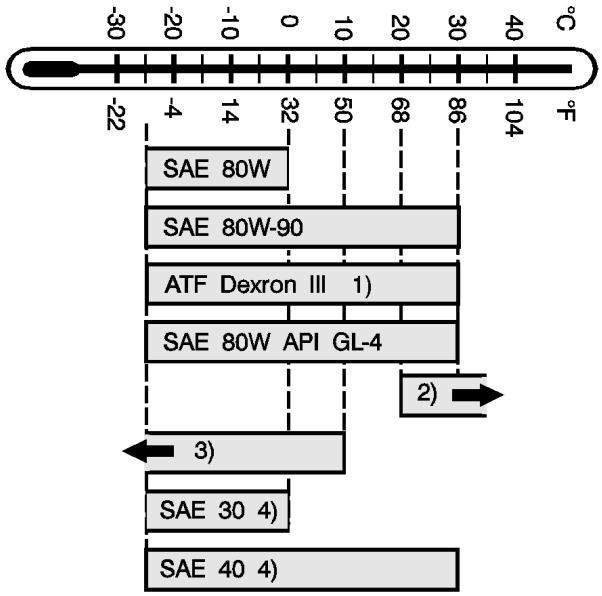
Temperature values refer to constant air temperatures.

1) Applies only to gearboxes T700 and ST700.

2) Volvo transmission oil 97305, viscosity grades SAE 85W–140 or SAE 140 is recommended for gearboxes without oil coolers at air temperatures higher than +30° C or for heavy driving or for frequent driving under hilly road conditions.

3) At temperatures below -25° C, Volvo Thermo oil is recommended (part no. 1161904).

4) Applies to engine oils: Note that multigrade oils ARE NOT to be used in manual gearboxes. Only use engine oil SAE 30 or SAE 40.

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## Service intervals

| Gearbox | Service intervals |
|---|---|
| T500A<br>ST500<br>T700<br>ST700 | First oil change after 10,000 km or 4 weeks, whichever occurs first. After the first oil change, the oil should be changed every 120,000 km or once a year, whichever occurs first. |
| R800 | Oil change every 120,000 km or once a year, whichever occurs first. |

The change interval must be halved for heavy driving or frequent driving under hilly road conditions.

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# 1c. Eaton manufactured manual gearboxes

## Oil change volumes

| Gearbox | Oil change volume, approx. litres |
|---|---|
| T600A, T600B, T600C, T700A, T700B, TO800 | 7,5 |

## Oil grade

| Gearbox | Transmission oil | Engine oil (monograde) |
|---|---|---|
| T600A<br>T600B<br>T600C<br>T700A<br>T700B | Volvo transmission oil 97305<br>API GL-4 (only in viscosity grade SAE 80W)<br>ATF Dexron III | API CD, CE, CF or ACEA E1, E2, E3 |
| TO800 | Volvo transmission oil 97305<br>API GL-4 (only in viscosity grade SAE 80W) | |

## Viscosity

Viscosity is selected in accordance with the diagram.

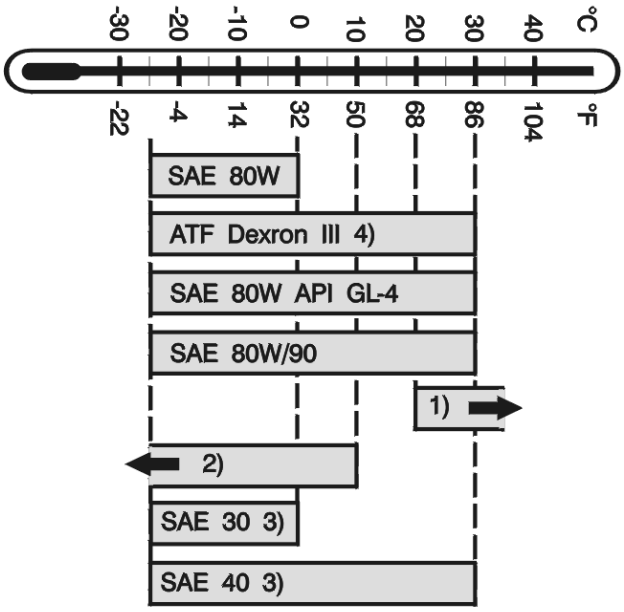
Temperature values refer to constant air temperatures.

1) Volvo transmission oil 97305, viscosity grades SAE 85W/140 or SAE 140. Recommended for gearboxes without oil coolers at air temperatures higher than +30° C, for heavy driving or for frequent driving under hilly road conditions.

2) At temperatures below -25° C, Volvo Thermo oil is recommended (part no. 1161904).

3) Applies to engine oils: Note that multigrade oils ARE NOT to be used in manual gearboxes. Only use engine oil SAE 30 or SAE 40.

4) Applies to gearboxes T600A, T600B, T600C, T700A and T700B.

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## Service intervals

*T600A, T600B, T600C, T700A, T700B, TO800*

- The oil should be changed every 120,000 km or every 12 months, whichever occurs first.
- The change interval must be halved for heavy driving or frequent driving under hilly road conditions.

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# 2a. Volvo manufactured automatic transmissions

## Oil change volumes

| Gearbox | Oil change volume, approx. litres |
|---|---|
| PT1650 | 35 |
| PT1660 | 35 |
| VT1605PT | 35 |
| VT1705PT | 35 |

| Gearbox | Oil change volume, approx. litres |
|---|---|
| VT1706PT | 35 |
| VT1906PT | 35 |
| VT2206PT | 35 |
| VT2506PT | 35 |

## Oil grade

Transmission oils which comply with the grade requirements for both Dexron III and Allison C4 should be used.

## Viscosity

Transmission oils which comply with the grade requirements for both Dexron III and Allison C4

## Service intervals

- First **filter change** after 10,000 km or 4 weeks, whichever occurs first. The oil level must be checked after changing the filter.

**Note:** No oil change should be carried out.

- After the first filter change, the oil and filter should be changed every 90,000 km or every 12 months, whichever occurs first.
- Under some gearbox operating conditions, shorter change intervals may be necessary. Examples of this are:

  - extreme heat
  - a lot of retarder use

- The change interval must be halved for heavy driving or frequent driving under hilly road conditions.
- For construction site driving, under very hilly road conditions, the oil should be changed after 400 hours driving
- All these gearbox types are equipped with a **ventilation filter**, which ensures that air pressure does not build up in the gearbox. The ventilation filter must be kept clean and open, and therefore it must **normally be changed after 24 months**. If the gearbox is being operated in very dusty or dirty conditions, it is necessary to reduce the replacement interval for the ventilation filter.

# 2b. Allison manufactured automatic transmissions

## Oil volumes

| Gearbox | Oil change volume, approx. litres |
|---|---|
| AT545 | 12 |
| MT643 | 16 |
| MT653 | 16 |
| MT654 | 16 |
| MD3060P air cooled | 20 |

| Gearbox | Oil change volume, approx. litres |
|---|---|
| MD3060P water cooled | 18 |
| MD3060PR | 28 |
| MD3560P air cooled | 20 |
| MD3560P water cooled | 18 |
| MD3560PR | 28 |

## Oil grade

Transmission oils which comply with the grade requirements for both Dexron III and Allison C4 should be used.

## Viscosity

Transmission oils which comply with the grade requirements for both Dexron III and Allison C4

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# Service intervals

| **Gearbox** | ***First* oil and filter change** | | | | ***Following* oil and filter changes** | | | |
|---|---|---|---|---|---|---|---|---|
| | **Service interval** [1] | **Changing the inner filter** | **Changing the external filter** | **Changing the regulator filter** [2] | **Service interval** | **Changing the inner filter** | **Changing the external filter** | **Changing the regulator filter** [2] |
| AT545 | 10,000 km or 4 weeks [3] | No | Yes | [4] | 40,000 km or one year [3] | Yes | Yes | [4] |
| MT643 [5]<br>MT653 [5]<br>MT654 | 10,000 km or 4 weeks [3] | No | Yes | No | 40,000 km or one year [3] | Yes | Yes | Yes |
| MT643 [6]<br>MT653 [6] | 10,000 km or 4 weeks [3] | No | Yes | No | 40,000 km or one year [3] | No | Yes | Yes |
| MD3060P<br>MD3060PR<br>MD3560P<br>MD3560PR | 10,000 km or 4 weeks [3] | Yes | [4] | [4] | 40,000 km or 18 months [3] | Yes | [4] | [4] |

[1] During warranty service.
[2] The filter is in the gearbox rear end.
[3] Whichever occurs first.
[4] The gearbox does not have this filter.
[5] MT643 with serial numbers lower than 2410547098 and MT653 with serial numbers lower than 2410545820.
[6] MT643 with serial numbers later than 2410547098, MT653 with serial numbers later than 2410545820 or MT643 or MT653 with the letters “AA” on the type plate.

- Service intervals for these gearboxes apply to normal operating conditions. Where operating conditions are hard, shorter change intervals may be necessary. Examples of this are:
  - extreme heat
  - a lot of retarder use
- The change interval must be halved for heavy driving or frequent driving under hilly road conditions.
- All these gearbox types are equipped with a **ventilation filter**, which ensures that air pressure does not build up in the gearbox. The ventilation filter must be kept clean and open. **Levels of dust and dirt determines how often** the ventilation filter must be cleaned.

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# Rear axle

Because of the differences between different rear axle manufactures **oil recommendations**, these recommendations are sub-divided as follows:

"1a. Heavy rear axles" page 29

"1b. Light rear axles." page 32

"1c. Other rear axles" page 33

# 1a. Heavy rear axles

| Rear axle | Approx. change volume in litres | | |
|---|---|---|---|
| | Final drive | Every hub | Total |
| RAEV80 | 12 | | 12 |
| RAEV85 | 12 | | 12 |
| RAEV90 | 11 | | 11 |
| RAEV91 Leaf springs | 11 | | 11 |
| RAEV91 Air suspension | 9,5 | | 9,5 |
| RS1344SV | 18,5 | | 18,5 |
| RSS1344B | 17,5 | | 17,5 |
| RS1356SV Leaf springs | 8,5 | | 8,5 |
| RS1356SV Air suspension | 9 | | 9 |
| RAN281 | 27 | 3 | 33 |
| RAN371 | 26 | 3 | 32 |
| RAN372 | 28 | 3 | 34 |
| RAN471 | 26 | 3 | 32 |
| RAN472 | 28 | 3 | 34 |
| RS1352HV [1] | 19 | 1,5 | 22 |
| RS1352HV Leaf springs | 20 | 3 | 26 |
| RS1352HV Air suspension | 16 | 3 | 22 |
| RS1365HV | 22 | 3 | 28 |
| RS1370HV [1] | 19 | 1,5 | 22 |
| RS1370HV Leaf springs | 20 | 3 | 26 |
| RS1370HV Air suspension | 16 | 3 | 22 |
| CTEV87 (front axle) Leaf springs | 20 | | 20 |
| CTEV87 (rear axle) Leaf springs | 9 | | 9 |
| CTEV87 (front axle) Air suspension | 16 | | 16 |
| CTEV87 (rear axle) Air suspension | 7,5 | | 7,5 |
| CTN372 (front axle) | 26,5 | 3 | 32,5 |

| Rear axle | Approx. change volume in litres | | |
|---|---|---|---|
| | Final drive | Every hub | Total |
| CTN372 (rear axle) | 23,5 | 3 | 29,5 |
| CTN372, BGT32TR (front axle) | 22 | 3 | 28 |
| CTN372, BGT32TR (rear axle) | 20 | 3 | 26 |
| CTN472 (front axle) | 28 | 3 | 34 |
| CTN472 (rear axle) | 25 | 3 | 31 |
| RT2610HV (front axle) Leaf springs | 23 | 3 | 30 |
| RT2610HV (rear axle) Leaf springs | 19 | 3 | 26 |
| RT2610HV (front axle) Air suspension | 23 | 3 | 29 |
| RT2610HV (rear axle) Air suspension | 19 | 3 | 25 |
| RT3210HV (front axle) [1] | 22,5 | 1,5 | 25,5 |
| RT3210HV (front axle) Leaf springs | 22,5 | 3 | 28 |
| RT3210HV (rear axle) | 18,5 | 1,5 | 21,5 |
| RT3210HV (rear axle) Leaf springs | 18,5 | 3 | 24 |
| RTH2610B (front axle) Leaf springs | 23 | 3 | 30 |
| RTH2610B (rear axle) Leaf springs | 19 | 3 | 26 |
| RTS2370A (front axle) | 20 | | 20 |
| RTS2370A (rear axle) | 14 | | 14 |

[1] The oil volume is 1.5 litres only for hub reduction covers with part numbers 1524851 or 1524852. This marking can be seen on the hub reduction covers.

On vehicles with single gears the oil is filled to the edge of level hole.

On vehicles with hub reduction, the hub is first filled with oil in accordance with the table above. The differential carrier is then filled with oil up to the edge of the level hole.

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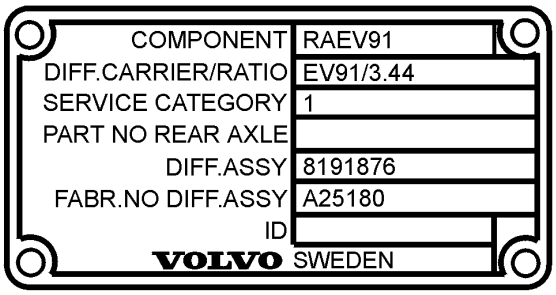
For a number of reasons not all rear axles can have the same service recommendations. They have therefore been divided up into different service categories.

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The service categories, designated by a number or a letter, are indicated on the **rating plate** located on the rear axle. The categories are G, 1 and 2.

**Note:** If the rear axle **does not have** a service category marked on the **rating plate**, it belongs to **Service category G**.

Two different service recommendations can be applied to rear axles:

- **Standard service recommendation**
- **Alternative service recommendation**

The alternative service recommendation provides longer service intervals than standard service recommendation. The alternative service recommendation requires the use of special oils. Limits in the table must however be observed.

Customers can always select the service recommendation they prefer after taking into consideration the relevant restrictions described in the following table.

| Service-category | Restrictions when using alternative service recommendation |
|---|---|
| G | The alternative service recommendation must not be used for rear axle **RAN281**. |

The standard service recommendation and alternative service recommendation both consist of three parts. The three parts are **oil grade**, **viscosity** and **service intervals**. These are found in the same order on the following pages.

The following procedure can be very useful when deciding which oil to use.

1 Find out which service category the component belongs to.

2 Use the information in the table below **Service intervals** and determine which service recommendation should be used.

3 Use the information under **Oil grade** and **Viscosity** to determine which oil should be used.

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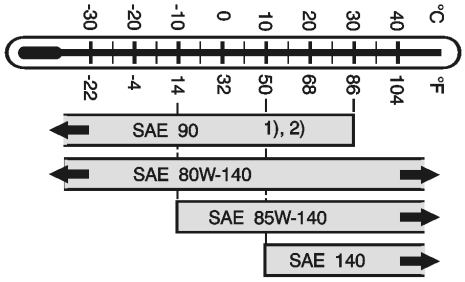
# Oil grade

| **Standard service recommendation** | **Alternative service recommendation** |
|---|---|
| Transmission oils which comply with the grade requirements for API GL-5 shall be used. | Transmission oils complying with the requirements for Volvo transmission oil 97312 shall be used. |

# Viscosity

| **Standard service recommendation** | **Alternative service recommendation** |
|---|---|
| Viscosity is selected in accordance with the diagram below.<br>  <br><br>T1008327<br>Temperature values refer to constant air temperatures.<br>1) For heavy driving or for frequent driving under hilly road conditions SAE 80W-140, SAE 85W-140 or SAE 140 is recommended (instead of normal SAE 90).<br>2) SAE 90 is not to be used in RAN281 rear axles.<br><br>**Note:** SAE 80W/90 must not be used. | Transmission oils complying with the requirements for Volvo transmission oil 97312 shall be used. Oil of the correct viscosity will then be obtained automatically. These oils must be used irrespective of ambient temperatures. |

# Service intervals

**First oil change:**

| **Service category** | **Interval** |
|---|---|
| Service categories 1 and G | First oil change after 10,000 km or 4 weeks, whichever occurs first. |
| Service category 2 | First oil and filter change after 400,000 km or three years, whichever occurs first. |

**Following change intervals as shown in the table below:**

| **Oil grade** | **Service category** | |
|---|---|---|
| | G | 1 and 2 |
| | Oil change interval (km) | |
| API GL-5 | 120,000/12 months | 120,000/12 months |
| Volvo Transmission oil 97312 | 180,000/12 months [1] | 400,000/36 months |

[1] Note: This recommendation does not apply to RAN281.

- For construction site driving, under very hilly road conditions, the oil should be changed after 2,000 hours driving

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### *Replenishing oil level in rear axle*

When a rear axle oil level is to low, it must be topped up. The following then applies:

- If the same oil as is in the rear axle is used when topping up, there is no limit to how much oil can be filled or how many times the oil level can be topped up in the rear axle.
- If a different approved oil other than the one in the rear axle is used, then no more than one litre in total may be added. This is regardless of how many times the oil level is topped up. If more oil needs to be added, carry out a complete oil change instead.

### *Oil change after repairing the rear axle*

If a component has been repaired, renovated or opened, an extra oil change must be carried out. This oil change should be carried out after 10,000 km or 4 weeks, whichever occurs first, after the component has been repaired, overhauled or opened.

When the extra oil change has been completed, the component's normal service recommendation applies.

# 1b. Light rear axles.

## Oil change volumes

| Rear axle | Oil change volume, approx. litres |
|---|---|
| RAEV76 | 10 |
| RAEV78 | 10 |
| RS0618 | 12 (not including hub) |
| RS0818 | 12 (not including hub) |

| Rear axle | Oil change volume, approx. litres |
|---|---|
| RS0818SV | 6 |
| RS1026SV | 10 |
| RS1332SV | 18,5 |
| RSS1032A | 18,5 |

## Oil grade

Transmission oil API GL-5.

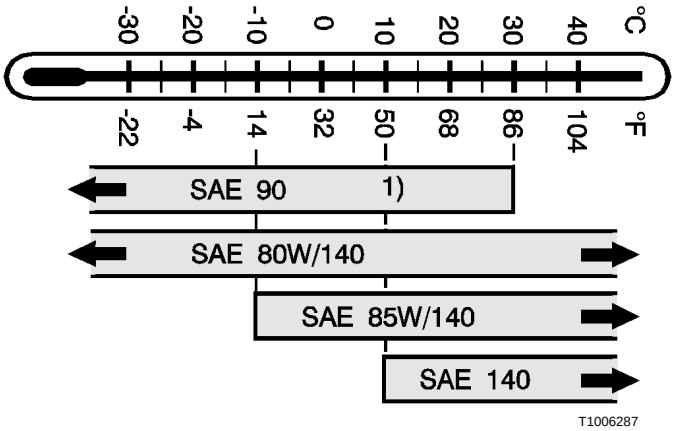
## Viscosity

Viscosity is selected in accordance with the diagram.

Temperature values refer to constant air temperatures.

1) For heavy driving or for frequent driving under hilly road conditions SAE 140, SAE 85W/140 or SAE 85W/140 is recommended (instead of normal SAE 90).

**Note:** SAE 80W/90 must not be used.



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## Service intervals

| Rear axle | Service interval |
|---|---|
| RAEV76 | • First oil change after 10,000 km or 4 weeks, whichever occurs first.<br>• After the first oil change, the oil should be changed every 120,000 km or once a year, whichever occurs first.<br>• For heavy driving or for frequent driving under hilly road conditions, the change interval is halved. |
| RAEV78 | |
| RS0618 | |
| RS0818 | |
| RS0818SV | • Oil change every 120,000 km or once a year, whichever occurs first.<br>• For heavy driving or for frequent driving under hilly road conditions, the change interval is halved. |
| RS1026SV | |
| RS1332SV | |
| RSS1032A | |

# 1c. Other rear axles

## Oil change volumes

| Rear axle | Oil change volume, approx. litres |
|---|---|
| RSS1357A | 22 |
| RTS2673A, first axle | 19 |
| RTS2673A, second axle | 18 |

## Oil grade

Transmission oil API GL-5

## Viscosity

Viscosity SAE 85W/140 should be used.

## Service intervals

| Rear axle | Service interval |
|---|---|
| RSS1357A<br>RTS2673A | • First oil change after 10,000 km or 4 weeks, whichever occurs first.<br>• After the first oil change, the oil should be changed every 120,000 km or once a year, whichever occurs first<br>• The change interval must be halved for heavy driving or frequent driving under hilly road conditions. |

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# Driving front axle

## Oil change volumes

| Driving front axle | Oil change volume, approx. litres |
|---|---|
| FAN R8 | 9,5 |
| FAN R9 | 11,5 |

| Driving front axle | Oil change volume, approx. litres |
|---|---|
| FS0910HZ | 11,5 |
| Please note that hub change volumes are not included in these figures. Each hub's change volume is around 1.5 litres. | |

## Oil grade

Transmission oil API GL-5.

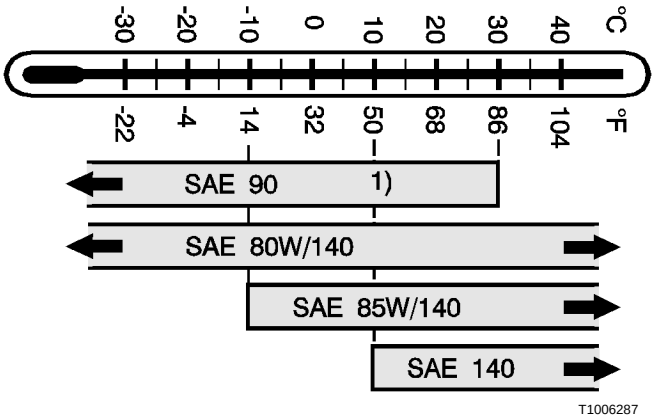
## Viscosity

Viscosity is selected in accordance with the diagram.

Temperature values refer to constant air temperatures.

1) For heavy driving or for frequent driving under hilly road conditions SAE 80W140, SAE 85W140 or SAE 140 is recommended (instead of normal SAE 90).

**Note:** SAE 80W/90 must not be used.




## Service intervals

- First oil change after 10,000 km or 4 weeks, whichever occurs first.
- After the first oil change, the oil should be changed every 120,000 km or every 12 months, whichever occurs first.

### *Replenishing oil level in a driving front axle*

When a driving front axle oil level is too low, it must be topped up. The following then applies:

- If the same oil as is in the driving front axle is used when topping up, there is no limit on how much oil can be filled or how many times the oil level can be topped up in the driving front axle.
- If a different approved oil other than the one in the driving front axle is used for topping up, then no more than one litre may be used. This is regardless of how many times the oil level is topped up. If more oil needs to be added, carry out a complete oil change instead.

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*Oil change after repair of driving front axle*

If a component has been repaired, renovated or opened, an extra oil change must be carried out. This oil change should be carried out after 10,000 km or 4 weeks, whichever occurs first, after the component has been repaired, overhauled or opened.

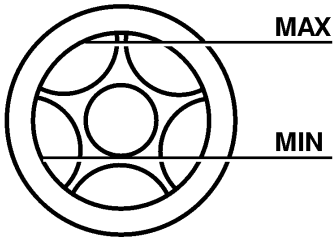
When the extra oil change has been completed, the component's normal service recommendation applies.

# Transfer case

## Oil change volumes

| Transfer case | Oil change volume, approx. litres |
|---|---|
| FD7 | 5,5 |
| VT2501TB | 5,5 |

The oil level in transfer gearboxes with transparent level plugs should lie between the centre of the level plug and the max mark.

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On transfer cases without transparent level plugs, the oil level should be up to the edge of the level hole.

## Oil grade

| Standard service recommendation | Alternative service recommendation |
|---|---|
| Transmission oils which comply with the grade requirements for Volvo transmission oil 97305 or engine oils which comply with any of the following grade requirements<br>1 API CD, CE or CF (monograde)<br>2 ACEA E1, E2 or E3 (monograde)<br>should be used. | Transmission oils complying with the requirements for Volvo transmission oil 97307 shall be used. |

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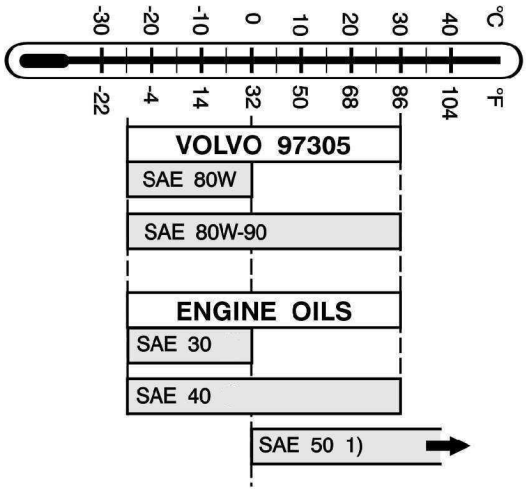
## Viscosity

| Standard service recommendation | Alternative service recommendation |
|---|---|
| Viscosity is selected in accordance with the diagram below.<br>  <br><br>T1008535<br>1) For components which are operated at stable ambient temperatures higher than +30°C.<br>Applies to engine oils: note that multigrade oils MUST NOT be used.<br>**Note!** If the temperature is lower than -25°C, use the alternative service recommendation. | Transmission oils which comply with the quality requirements for Volvo transmission oil 97307 should be used. Oil of the correct viscosity will then be obtained.<br>For ambient temperatures above 30°C, transmission fluids which comply with the quality requirements for Volvo transmission fluid 97315 should be used. |

## Service intervals

| Standard service recommendation | Alternative service recommendation |
|---|---|
| • First oil change after 10,000 km or 4 weeks, whichever occurs first.<br>• After the first oil change, the oil should be changed every 120,000 km or once a year, whichever occurs first. | • First oil change after 10,000 km or 4 weeks, whichever occurs first.<br>• After the first oil change, the oil should be changed every 180,000 km or once a year, whichever occurs first. |

### *Replenishing oil level in transfer gearbox*

When a transfer gearbox oil level is too low, it must be topped up. The following then applies:

- If the same oil as is in the transfer gearbox is used for topping up, then there is no limit to how much oil can be filled or how may times the transfer gearbox can be topped up.
- If a different approved oil other than the one in the transfer gearbox is used, then no more than a total of 0.5 litre may be added. This is regardless of how many times the oil level is topped up. If more oil needs to be added, carry out a complete oil change instead.

### *Oil change after repair of the transfer case*

If a component has been repaired, renovated or opened, an extra oil change must be carried out. This oil change should be carried out after 10,000 km or 4 weeks, whichever occurs first, of the component being repaired, overhauled or opened.

When the extra oil change has been completed, the component's normal service recommendation applies.

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# Power take off (flywheel fitted)

## Oil change volumes

| Power take off | Approx. change volume in litres |
|---|---|
| KOBLAM | 5 |
| KOBKLO | 5 |
| PTOF-DIF SAE 1 | 5 |
| PTOF-DIH SAE 1 | 5 |
| PTOF-DIF SAE 2 | 4,5 |
| PTOF-DIH SAE 2 | 4,5 |

If an oil cooler is fitted, extra oil will be required as shown in the table below:

| Component | Approximate extra oil volume in litres |
|---|---|
| COOL-PTO | 1 |

## Oil grade

**Transmission oil:**

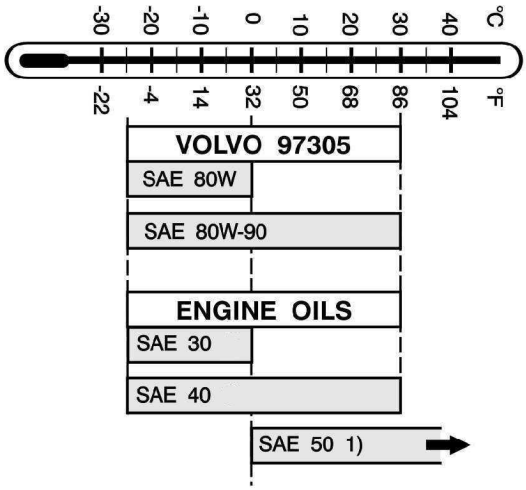
Volvo transmission oil 97305.

**Engine oil:**

API CD, CE, CF or ACEA E1, E2, E3.

## Viscosity

| Standard service recommendation | Alternative service recommendation |
|---|---|
| Viscosity is selected in accordance with the diagram below. | — |

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1) For components without oil coolers which are operated at stable ambient temperatures higher than +30°C.
Applies to engine oils: note that multigrade oils MUST NOT be used.
Components with oil coolers can be operated in ambient temperatures higher than +30° C.

## Service intervals

- First oil and filter change after 10,000 km or 4 weeks, whichever occurs first.
- After the first oil and filter change, the oil and filter should be changed every 120,000 km or every 12 months, whichever occurs first.

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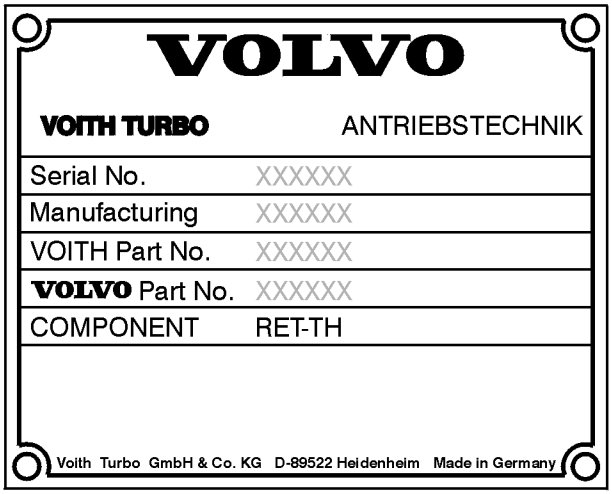
# Hydraulic retarder

## Oil change volumes

| Hydraulic retarder | Oil change volume, approx. litres |
|---|---|
| **Voith FH** | 6,0 ± 0,1 |
| **RET-TH** | |
| Only oil change | 5,4 ± 0,1 |
| Dry retarder and/ or heat exchanger replacement | 6,1 ± 0,1 |

The type of retarder must be known if a service is to be carried out in a correct way. The information can be obtained by reading the retarder's rating plate, see figure.

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**Note:** The name of the retarder is not marked on the type plate in some cases. In these cases, the retarder is a Voith FH.

## Oil grade

Select an engine oil which complies with one of the following grade requirements:

1 API CD, CE or CF

2 ACEA E1, E2 or E3.

## Viscosity

Use an **engine oil** with any of the following viscosities, independent of outdoor temperatures:

| Mineral oil | Synthetic or semi synthetic oil |
|---|---|
| SAE 10W | SAE 0W-40 |
| SAE 20W | SAE 5W-30 |
| SAE 30 | SAE 5W-40 |
| | SAE 5W-50 |
| | SAE 10W-30 |
| | SAE 10W-40 |

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## Service intervals

| Retarder type | When using mineral oil | When using synthetic oil |
|---|---|---|
| Voith FH | • First oil change after 90,000 km or 2 years, whichever occurs first.<br>• After the first oil change, the oil should be changed every 90,000 km or every second year, whichever occurs first. | • First oil change after 90,000 km or 2 years, whichever occurs first.<br>• After the first oil change, the oil should be changed every 135,000 km or every second year, whichever occurs first. |
| RET-TH | • First oil change after 120,000 km or 2 years, whichever occurs first.<br>• After the first oil change, the oil should be changed every 120,000 km or every second year, whichever occurs first. | • First oil change after 120,000 km or 2 years, whichever occurs first.<br>• After the first oil change, the oil should be changed every 135,000 km or every second year, whichever occurs first. |

When the retarder is operated frequently under specific conditions, oil change intervals should be halved. An example of such conditions are:

- use in areas with high ambient temperatures, such as in Saudi Arabia
- timber trucks and construction site vehicles
- high gross weight and low engine power (less than 8 hp/ton)
- a lot of driving under extremely hilly road conditions
- extremely short distances with very steep downgrades.

In individual cases, where the retarder is used more than 10 % of the vehicle's mileage, the service interval must be reduced. This also applies to factors not mentioned here, which can affect the ageing of the oil.

The service interval for repaired or opened components are the same as for new components.

# Propeller shaft lubrication

There are both lubricated and non-lubricated (no service required) propeller shafts. Lubricated propeller shafts are equipped with support bearings and/or universal joints fitted with grease nipples. Propeller shafts which are completely non-service required do not have lubricating nipples, neither on universal joints nor on support bearings.

Two different service recommendations can be applied to lubricated propeller shafts. (Does not applies to FLC.)

- Standard service recommendation
- Alternative service recommendation

The customer can always choose the service recommendation preferred. Both service recommendations are subdivided into **grease quality** and **service intervals**.

1 Use the information in the table below **Service intervals** and determine which service recommendation should be used.

2 Use the information under **Grease quality** to determine the grease to be used.

3 Return to the information under **Service intervals** and find the service interval.

# Lubricated components (with grease nipples)

## Grease quality

### Standard service recommendation

Requirements for lubricating grease are as follows:

- High grade wheel bearing grease should be used.
- The grease should be mineral oil based
- The grease should be lithium or lithium complex type.
- The grease should contain EP and anti-rust additives.
- The grease must have a consistency equivalent to NLGI no. 2.
- The grease should not contain any solid lubricants, such as graphite, copper or molybdenum sulphide.
- The grease must be intended for use in working temperatures of at least 80° C and be able to withstand 120° C for short periods.

Where in doubt: use grease with Volvo Part. no. 1161251-2.

### Alternative service recommendation

Requirements for lubricating grease are as follows:

- Volvo part no. 1161973-1

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## Service intervals

| Vehicles | Standard service recommendation | Alternative service recommendation |
|---|---|---|
| FLC | 25,000 km/6 mth [1] | - |
| Other | | |
| Distribution and long distance driving | 25,000 km/3 mth [1] | 30,000 km/3 mth [1] |
| Timber trucks and construction sites | 10,000 km/3 mth [1] | 15,000 km/3 mth [1] |
| Heavy construction and off-road | 2,500 km/3 mth [1] | 4,000 km/3 mth [1] |

[1] Whichever occurs first

# Opened and repaired components

After a component has been repaired or opened it needs to be re lubricated. Use grease listed in the table below.

## Grease quality

| | |
|---|---|
| **Universal joint (lubricated) with lubricating nipple** | See the Grease grade table under the section Lubricated components (with lubricating nipple) |
| **Universal joint (non-lubricated) without lubricating nipple** | Grease requirements: Volvo part no. 3091917-9 |
| **Support bearing**<br>**Sliding splines** | See the Grease grade table under the section Lubricated components (with lubricating nipple) |

The service intervals for repaired and opened components are the same as for new components.

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# Power steering, Steerable pusher axle, Bogie lift, Hub, Cab tilt pump

| | Oil and grease quality | Oil volume | Oil and grease change | Filter change |
|---|---|---|---|---|
| Power steering | ATF oil type Dexron lll | | Only when repaired. | Once a year. |
| FLC, FL6 | | approx. 4.5 litre | | |
| PSS-SING | | approx. 6.0 litre | | |
| PSS-DUAL | | approx. 9.0 litre | | |
| Control system, hydraulic steered pusher axle and hydraulic steered trailing axle | ATF oil type Dexron lll | approx. 5.0 litre | Only when repaired. | |
| Bogie lift | Hydraulic fluid BLV or equivalent complying with Standard MIL-H-5606F | 5.5 litres | Once a year. | For trucks manufac-tured up to 1990. Once a year. |
| Wheel hub, oil lubricated (single mounted wheels) | Engine oil SAE 30 | 0.3 litres per wheel | Only when working with the hub or if contaminants have entered the wheel hub. | |
| Cab tilt pump | Hydraulic oil BLV | | Only when repaired. | |
| Greased wheel hub | Lithium based grease of consistency NLGI No. 2 or 2.5 | | Only after working on the hub or if impurities have entered the wheel hub. | |
| Greased wheel hub FL6, FLC | Lithium complex based grease of consistency NLGI no. 2.5 | | | |

# Brakes

| | Grade | Change interval |
|---|---|---|
| Spring brake cylinder diaphragm (hydraulic disc brakes) FLC, FL6 | | Change interval every 12 months. |

| Desiccant for the air drier | |
|---|---|
| AIRDRY-E | Change interval was every 24 months or when the symbol on the driver's display lights.<br>When this function is not activated the change interval is every 12 months. |
| Other | Change interval was every 12 months or max 200,000 km, whichever occurred first. |

# Chassis lubrication

Lubrication points, see the lubrication chart for the relevant vehicle model.

"Grease quality" page 42

"FLC, FL6 CHID B265000-, other vehicles" page 42

"FM, FH" page 42

"Fifth wheel" page 43

"Central lubrication system" page 43

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# Grease quality

Lithium based grease with EP additives and of consistency NLGI no. 2.

# FLC, FL6 CHID B265000-, other vehicles

| Vehicles | Maximum time interval | Maximum mileage interval |
|---|---|---|
| FLC | 6 months | 25,000 km |
| FL6 Chassis number: B265000 - | 6 months | 40,000 km |
| FL equipped with A/B/T - ride | Please refer to table “FM, FH” page 42. | |
| Other vehicles | 3 months | - |

# FM, FH

For definition of Transport cycle, see “Transport cycle” page 3.

Each definition has an abbreviation that is used in the table below.

## *Road Condition (RC), definition*

### Smooth (S)

T1008231

### Rough (R)

T1008232

### Very rough (VR)

T1008233

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*Lubricate intervals FH, FM*

| Transport cycle | Long distance driving | | Distribution | | Construction sites [1] | |
|---|---|---|---|---|---|---|
| RC | S | R | S | R | S/R | VR |
| | Km / months [2] | Km / months [2] | Km / months [2] | Km / months [2] | Km / months [2] | Km / months [2] |
| Chassis lubrication | 90000 [3]/6 | 60000/4 | 60000/4 | 30000/3 | 30000/3 | 30000/3 |
| A-/B-/T-ride [4] [5] | 40000/3 | 20000/1 | 40000/3 | 20000/1 | 4500/0,5 | 1000 [6]/0,25 |

[1] Includes timber trucks, tippers, dumpers, load exchangers, concrete mixers, waste compressors and special vehicles.
[2] Whichever occurs first
[3] Within Europe and if gross weight is maximum 36 tons, the interval can be increased to 100,000 km
[4] B-ride is without lubrication on vehicles built from week 43 in 2003 onwards. T-ride is without lubrication on vehicles built from week 11 in 2005 onwards.
[5] As follows: A-ride: suspension, bogie bearing and bogie lift, B-ride and T-ride - bogie bearing.
[6] Under some conditions, more frequent lubrication may be required

# Fifth wheel

For the fifth wheel, a lithium based grease with consistency NLGI 2 is used, i.e. Volvo grease 2 EP with part number 1161960.

# Central lubrication system

## Grease quality

| Part | Part number | Note |
|---|---|---|
| Volvo Grease 00 CS | 3093926 | |
| Volvo Grease 00 CSBD | 3093927 | Bio-degradable |

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### Other approved grease grades

| Supplier | Grease |
|---|---|
| ARAL AG | Fliessfett AN 0 |
| BP Oil Deutschland GmbH | BP Energrease ZS 0 |
| DEA Mineralöl AG | DEALITH EP 0 |
| Zeller+Gmelin GmbH & Co | Divinol L 0 |
| ARAL AG | Fliessfett N |
| Autol-Werke GmbH | Autol Getriebefliessfett ZSA |
| AVIA Mineralöl AG | AVIALITH 000 EP |
| BP Oil Deutschland GmbH | Energrease ZS 00 |
| Calypsol | SF7-042 |
| Castrol Ltd., England | Castrol CLS Grease |
| DEA | Dealit EP 00 |
| Deutsche Shell AG | Shell Retinax CS |
| ELF | MULTI BT 000 |
| Esso | Grease TCL 435 |
| FINA | MARSON ZS - G 0116 |
| Fuchs Mineralölwerke GmbH | Renolit LZR 000 |
| Georg Oest Mineralölwerke | Oest Spezialfett LT 000 EP |
| Kompressol-Öl Verkaufs GmbH | Kompressol CZ 8332/N |

| Supplier | Grease |
|---|---|
| KRAFFT | KEC-Grease |
| Mobil Schmoerstoff GmbH | Mobilgrease EAL 003 |
| Mobil Schmoerstoff GmbH | Chassis Grease LBZ |
| MOL | Carrier Liton-00 |
| ÖMV - GmbH | ÖMV-Signum EP Z |
| Optimol | Olit 00 |
| Pluto | Plutoleum SHM 000 |
| Reiner Chemische Fabrik GmbH | Gearmaster ZSA |
| RHENUS Wilhelm Reiners GmbH & Co. | Rhenus Norlith FZS 000 |
| | Rhenus Norlith BZS 0 [1] |
| | Rhenus Norlith BZS 000 [1] |
| Siebert GmbH | Fliessfett EP7028 |
| Texaco | Multifak 6833 EP 00 |
| Veedol Int. Ltd., England | Veedol GFG |
| Wintershall AG | Wiolub LFK 00 |
| Zeller+Gmelin GmbH & Co | Divionol Fett Central 00 |

[1] Bio-degradable

### Top up interval

The top up interval for the central lubrication system is every six months or when the level falls to the minimum level on the container.

The volume is 2.7 kg for tractor units and 6 kg for other units.

# Cab

## Cab filter

| Model | Change interval |
|---|---|
| FL/ FM/ FH/ NH | 12 months |

## Cab lubrication

The cab is lubricated when a basic service or annual service is carried out, or when required.

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# Volvo oils and fluids

## Engine oils

| Oils which comply with VDS-3 | | |
|---|---|---|
| Viscosity | Part no. | Volume in litres |
| SAE 15W/40 | 85102465 | 208 |
| | 85102464 | 20 |
| | 85102463 | 5 |
| SAE 10W/40 semi synthetic | 85102469 | 208 |
| | 85102468 | 20 |
| | 85102467 | 5 |
| Oils which comply with VDS-2 | | |
| Viscosity | Part no. | Volume in litres |
| SAE 15W/40 | 1161976 | 208 |
| | 1161975 | 20 |
| | 1161974 | 5 |
| SAE 10W/30 | 85108287 | 208 |
| SAE 5W/30 synthetic | 85102470 | 208 |
| Oils which comply with VDS | | |
| Viscosity | Part no. | Volume in litres |
| SAE 15W/40 | 1161972 | 208 |
| | 1161971 | 20 |
| | 1161970 | 5 |
| Oil for gas engine | | |
| Viscosity | Part no. | Volume in litres |
| SAE 15W/40 synthetic | 85104226 | 208 |
| Oils for front wheel hub | | |
| Viscosity | Part no. | Volume in litres |
| SAE 30 | 1161944 | 20 |
| | 1161943 | 5 |

## Special oil

| Volvo special oil for the mechanical compressor on D6A250 | Part no. | Volume in ml |
|---|---|---|
| | 85108974 | 250 |

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# Transmission oils

| Volvo transmission oil 97305 | | |
|---|---|---|
| Viscosity | Part no. | Volume in litres |
| SAE 80W/90 | 1161280 | 208 |
| | 1161933 | 20 |
| | 1161932 | 5 |
| Volvo thermo oil | | |
| | Part no. | Volume in litres |
| | 1161904 | 20 |
| Volvo transmission oil 97307 | | |
| | Part no. | Volume in litres |
| | 85108171 | 208 |
| | 85108170 | 20 |
| Volvo transmission oil 97315. | | |
| | Part no. | Volume in litres |
| | 85107476 | 20 |
| Transmission oil API GL-5 | | |
| Viscosity | Part no. | Volume in litres |
| SAE 85W/140 | 1161279 | 208 |
| | 1161937 | 20 |
| | 1161936 | 5 |
| Volvo transmission oil 97312 | | |
| | Part no. | Volume in litres |
| | 1161949 | 208 |
| | 1161985 | 20 |
| Dexron III, Allison C4 | Part no. | Volume in litres |
| | 1161997 | 208 |
| | 1161996 | 20 |
| | 1161995 | 5 |
| | 1161521 | 1 |

# Hydraulic oils

| Volvo hydraulic oil | Part no. | Volume in litres |
|---|---|---|
| | 1161940 | 208 |
| | 1161939 | 20 |
| Volvo hydraulic oil BLV | 1161942 | 208 |
| | 1161938 | 4 |
| | 1161935 | 1 |
| Hydraulic oil, bio-degradable | 3093938 | 20 |

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# Coolants

| Volvo coolants | Part no. | Volume in litres |
|---|---|---|
| Volvo Coolant | 1089240 | 210 |
| Volvo Coolant [1] | 1161989 | 210 |
| Volvo Coolant | 1089238 | 5 |
| Volvo Coolant | 1089237 | 1 |
| Volvo Coolant VCS | 85108901 | 210 |
| Volvo Coolant VCS | 85108900 | 5 |
| Ready mixed coolant for -25°C | | |
| Volvo Coolant | 1161990 | 210 |
| Volvo Coolant | 1161994 | 5 |
| Volvo Coolant VCS | 85108914 | 210 |
| Volvo Coolant VCS | 85108913 | 5 |

[1] Only for the French market

# Brake fluid

| Brake fluid in accordance with DOT3 | Part no. | Volume in litres |
|---|---|---|
| | 85104143 | 1 |
| **Brake fluid in accordance with DOT4** | **Part no.** | **Volume in litres** |
| | 1161967 | 0,25 |
| | 1161968 | 1 |
| | 1381075 | 25 |

# Grease

| Grease | Part no. | Amount |
|---|---|---|
| Wheel bearing grease, Volvo grease Lix 2.5 EP Lithium complex NLGI 2.5 | 1161241 | 80 g |
| | 1161251 | 420 ml |
| | 1161981 | 1 kg |
| | 1161982 | 18 kg |
| | 1161983 | 50 kg |
| | 1161984 | 180 kg |
| Chassis grease Volvo grease 2 EP Lithium NLGI 2 | 1161960 | 420 ml |
| | 1161961 | 18 kg |
| | 1161315 | 50 kg |
| | 1161962 | 180 kg |

# Grease for central lubrication system

| Grease | Part no. | Amount |
|---|---|---|
| Volvo grease 00 CS NLGI 00 | 3093926 | 18 kg |
| Volvo grease 00 CSBD NLGI 00, bio-degradable | 3093927 | 18 kg |