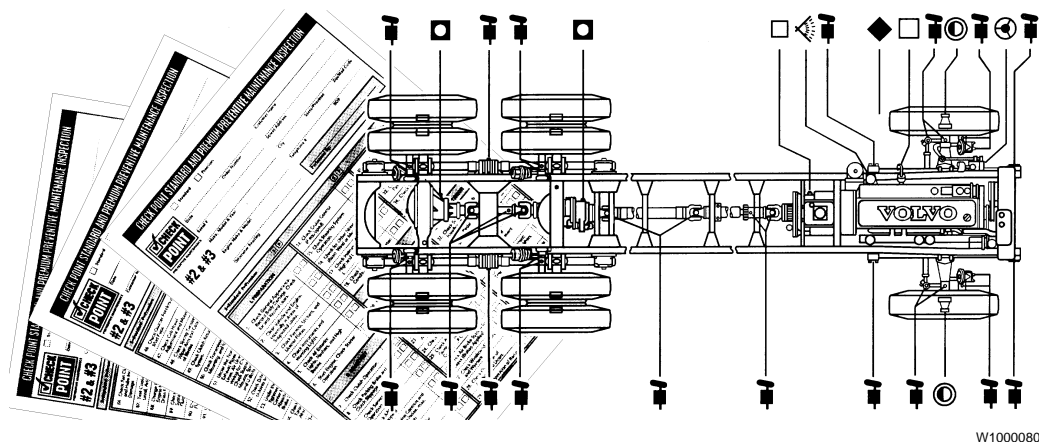


Supersedes TSI Service Bulletin 175-001, "Oil and Filter Change Intervals for Volvo Components," (12.2002), publication no. PV776-TSP183299.

Date	Group	No.	Supp.	Page
6.2003	175	001		1(23)

Oil and Filter Change Intervals for VOLVO Components All Models

Oil and Filters, Volvo Components



W1000080

(Valid from April 2003)

This information covers the list of companies that offer oil types and qualities for Volvo engines. Information regarding transmissions, rear axle, and steering oil and change intervals is also included.

The list of companies that offer oils recommended by Volvo Trucks North America has been updated. **A new list has been included listing oils to be used in engines meeting the more stringent emissions requirements according to the consent decree..**

Note: Failure to follow these recommendations may void any and all applicable engine and driveline warranties.

Contents

- ["Engine, Lubrication" page 2](#)
- ["Transmission, Lubrication" page 15](#)
- ["Rear Axle, Lubrication" page 20](#)
- ["Power Steering, Lubrication" page 23](#)

Engine, Lubrication

For bulletin information, refer to "Oil and Filters, Volvo Components" page 1. For further Engine information refer to function group 2 and appropriate vendor literature.

Engine oil lubricates, seals, cools and cleans the engine. Filtering the intake air and using a low sulfur fuel helps the oil protect the engine parts. With better engine designs and improved oils, the service intervals have steadily increased. The interval choice depends on the engine manufacturer specifications. Make sure that the correct oil type and also the correct viscosity are chosen for the mileage interval driven.

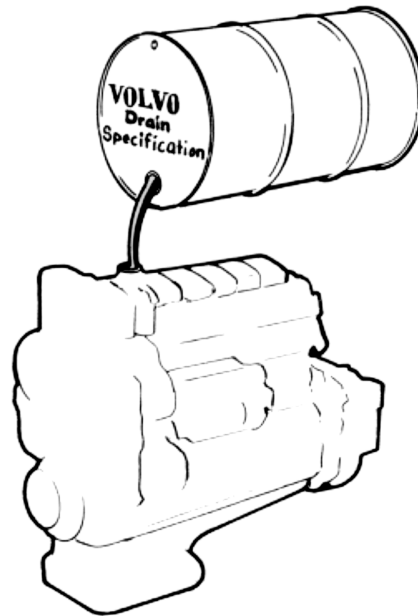
CAUTION

Please note that an extension of oil drains beyond the ones given in "Oil Change Intervals" page 10 may damage the engine, and void your warranty if in effect.

Shorter oil change intervals are required if the engine is operating in a dusty environment or if frequent stops and starts are made (see "Oil Change Intervals" page 10). If the fuel has a sulfur content exceeding 0.5% by weight, the indicated maximum mileage intervals, must be cut in half.

There are many aftermarket oil additives that claim improved performance when added to the engine oil. Do not use supplements such as aftermarket oil treatment additives. Each oil type recommended here already contains additives that have been tested by engine and oil manufacturers. Adding extra additives may put the engine at risk of failure.

Oil filters should always be changed when changing oil. Previously there were two types of oil filters; one for normal intervals and one for extended intervals. Only long-life filters are available for all intervals today. **Use only Volvo original oil filters as replacement.**



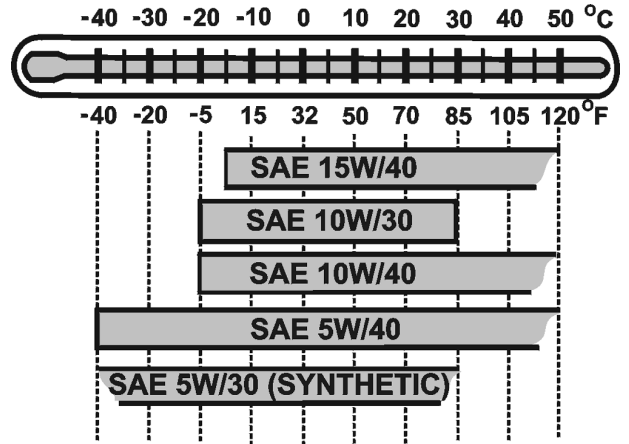
Earlier Volvo Engines

Earlier engines should follow the intervals given for them at the time of manufacturing. Oil qualities have improved in response to new emissions legislation and today's oils also work well in older engines. Older engines should remain on the original intervals, indicated for oil changes.

Oil Viscosity

Select viscosity for the ambient temperatures the vehicle will be exposed to. It is not enough to just select the right type of oil; the right oil viscosity is just as important.

The correct viscosity according to the SAE is determined by the minimum ambient temperature at cold start and the maximum ambient temperature during engine operation. Use the temperature chart below to select the best viscosity. In general, use the highest viscosity oil available that still meets the cold start-up temperature requirements.



W1000144

Select viscosity from the table above. Temperatures refer to stable ambient temperature readings.

Oil Type/Quality

See the engine types for recommended oil change intervals. The intervals will not cover all applications. In on/off highway driving, severe off-highway, continuous stop-and-go city driving and extremely high mileages, the oil change interval needs to be customized for the best protection and economy. Change all oil filters at each oil change.

Synthetic oils do not allow further extension of oil drain intervals beyond those specified in "Oil Change Intervals" page 10. It is the contamination rate, i.e., soot, and the depletion of additives, rather than base oil quality that determines the useful engine oil life and therefore the oil change intervals.

Note: Engines meeting the emissions requirements of the consent decree operate under more severe conditions than previous engines. This has lead Volvo to require an oil that meets both VDS-2 and EO-N Premium Plus quality or both VDS-2 and API CI-4 quality standards for model year 2003 and later Volvo engines. Earlier engines also work better with the above mentioned oils, but these are not required, though oils meeting VDS-2 and EO-N Premium Plus are strongly recommended.



CAUTION

Extra oil additives must never be added to any oil used.

For a list of oil qualities for a specific applications, see "Oil Change Intervals" page 10.

Note: Oil Terminology: VDS (Volvo Drain Specifications), and EO-N (Engine Oil - [Grade Level])

VDS-2 and CH-4 Approved Oils

This list is current only from April 2003 until October 2003, at which time a new list will be released.

Company	Brand Name	Vis Grade
American Agip Co.	American Agip SHP	15W-40
American Agip Co.	American Agip All-Guard Plus	15W-40
American Agip Co.	Minuteman SHP	15W-40
American Agip Co.	Minuteman All-Guard Plus	15W-40
Arkimia Mexicana	Aceite Multi-Lub	15W-40
A. Silogram Lubricants Corp	Silogram Dynapak 1	15W-40
Caterpillar	Caterpillar Diesel Engine Oil	15W-40
Lubrication Engineers, Inc.	8800 Monolec Ultra	15W-40
Mexicana de Lubricantes (MEX)	Akron Ultra	15W-40
Mexicana de Lubricantes (MEX)	Akron Custom	15W-40
Mexicana de Lubricantes (MEX)	Mexlub CH-4	15W-40
Productos Texaco (MEX)	Ursa Super Plus	15W-40
Productos Texaco (MEX)	Ursa Premium TDX	15W-40
Raloy Lubricantes (MEX)	Raloy Diesel Supreme Plus	15W-40
Shell Canada	Shell Fleet	15W-40
Shell Canada	Shell Rotella T SB Synthetic Blend	10W-40
Shell Oil Products Co.	Sheel Fleet	15W-40

VDS-2 and CI-4 Approved Oils

This list is current only from April 2003 until October 2003, at which time a new list will be released.

Company	Brand Name	Vis Grade
Aftermarket Auto Parts Alliance, Inc.	Parts Master Fleet	15W-40
American Agip Co.	All-Guard	15W-40
American Refining Group	Gulf Super Duty	15W-40
BP Lubricants North America	Vanellus MG	15W-40
BP Lubricants North America	Vanellus C Extra	15W-40
CAM2	CAM2 Super HD	15W-40
Carquest	Carquest	15W-40
Castrol Heavy Duty Lubricants	Castrol Tecton S	15W-40
Castrol Heavy Duty Lubricants	Castrol Elixion	5W-30
Champion Brands LLC	Champion All Fleet T	15W-40
Chevron Texaco Global Lubricants	Chevron Heavy Duty Motor Oil	15W-40
Comercial Importadora (MEX)	Quaker State Super Series III	15W-40
Conoco, Inc.	HD Fleet Supreme	15W-40
Dolphin Lubricantes (MEX)	Comodoro Plus Multigrado	15W-40
Exxon Branded (Exxon Mobil Corp)	XD-3	15W-40
Exxon Branded (Exxon Mobil Corp)	XD-3	10W-30
Independent Auto Parts of America (IAPA)	Auto Star	15W-40
Independent Warehouse Distributor (IWD)	Autopride	15W-40
Irving Oil	IDO Premium	15W-40
JD Streett & Company, Inc.	Streett SHD Fleet	15W-40
JD Streett & Company, Inc.	Streett SHD Fleet Plus	15W-40
Lubrication Engineers, Inc.	8888 Monolec EGR Engine Oil	15W-40
Marathon Ashland Petroleum LLC	Multipower-3	15W-40
Marathon Ashland Petroleum LLC	Multipower-3 Plus	15W-40
Mexicana de Lubricantes (MEX)	Akron Custom CI-4	15W-40
Mexicana de Lubricantes (MEX)	Akron Ultra Clear	15W-40
Mobil Branded (ExxonMobil Corp.)	Delvac 1300 Super	10W-30
NAPA	NAPA Premium Performance Universal Fleet Plus	15W-40
Parts Depot Preferred	Parts Depot	15W-40
Parts Plus	Parts Plus	15W-40
Pinnacle Oil, Inc.	Fleet Pro	15W-40
Quaker State Corp.	Quaker State HDX Universal	10W-30
Quaker State Corp.	Quaker State HDX Universal	15W-40
Raloy Lubricantes (MEX)	Raloy Diesel Supreme VDS-3	15W-40
Royal Mfg. Co., LP	Diesel Supreme Premium Plus	15W-40
Royal Purple Ltd.	Long Rider	15W-40

Company	Brand Name	Vis Grade
Royal Purple Ltd.	Royal Purple	15W-40
76 Lubricants Company	76 Firebird HD	15W-40
Shell Oil Products Co.	Rimula Premium	10W-30
Sunoco Inc.	Super C	15W-40
Ultramar Ltd.	Ultramar Super Plus	15W-40
Valvoline	All-Fleet Extra	15W-40
Valvoline	All-Fleet Plus	15W-40

VDS-2 and EO-N Premium Plus Approved Oils

Note: Volvo strongly recommends using these oils in all engines, at all times.

This list is current only from April 2003 until October 2003, at which time a new list will be released.

Company	Brand Name	Vis grade
A. Silogram Lubricants Corp.	Silogram Dynapak 2	15W-40
Amsoil Inc.	Amsoil PCO	15W-40
American Refining Group	Gulf Super Duty Plus	15W-40
Castrol	Tection Extra	15W-40
Castrol	Enduron S	15W-40
Chevron: See Chevron Texaco		
Chevron Texaco Global Lubricants	Delo 400	15W-40
Chevron Texaco Global Lubricants	Ursa Premium TDX	15W-40
Chevron Texaco Global Lubricants	Chevron RPM	15W-40
Chevron Texaco Global Lubricants	Texaco Ursa Super Plus	15W-40
Conoco	Hydroclear Power-D	15W-40
D-A Lubricants Co., Inc.	D-A Reliant	15W-40
D-A Lubricants Co., Inc.	D-A Excelon EBS	15W-40
D-A Lubricants Co., Inc.	D-A Excelon ST	15W-40
Exxon branded (Exxon Mobil Corporation)	XD-3 Extra	15W-40
Exxon branded (Exxon Mobil Corporation)	XD-3 Elite	15W-40
Imperial Oil Products Canada	Esso XD-3 Extra	15W-40
Kendall Motor Oil	Kendall SHP	15W-40
Kendall Motor Oil	Kendall Super-D 3	15W-40
Mack Trucks Inc.	Bulldog EO-N Premium Plus	15W-40
Mobil Branded (Exxon Mobil Corp)	Delvac 1	5W-40
Mobil branded (Exxon Mobil Corporation)	Delvac 1300 Super	15W-40
Northland Products Company	Superline	15W-40
Northland Products Company	HP Express Millenium	15W-40
Pennzoil Products Company	Long-Life	15W-40
Pennzoil Products Company	Long-Life EF	15W-40
Petro-Canada Lubricants	Duron	15W-40
Petro-Canada Lubricants	Duron XL	15W-40
Phillips 66 Company	Phillips Super HD II	15W-40
Phillips 66 Company	Phillips Super HD 3000	15W-40
Pinnacle Oil Inc.	FleetPro SHP	15W-40
Quaker State Corp.	Quaker State HDX Plus	15W-40
76 Lubricants Company	76 Royal Triton QLT	15W-40
76 Lubricants Company	76 Guardol QLT	15W-40

Company	Brand Name	Vis grade
76 Lubricants Company	76 T5X Heavy Duty	15W-40
Shell Canada Products Co.	Rotella T Multigrade	15W-40
Shell Oil Products Co	Rotella T Multigrade	15W-40
Shell Oil Products Co	Rimula Premium	15W-40
Texaco: See Chevron Texaco		
Ultramar Ltd.	Ultramar Odyssey XLD	15W-40
Valvoline	Premium Blue	15W-40

Oil Change Intervals

Engine D7

Note: Engines meeting the emissions requirements of the consent decree operate under more severe conditions than previous engines. This has lead Volvo to require an oil that meets both VDS-2 and EO-N Premium Plus quality or both VDS-2 and API CI-4 quality standards for model year 2003 and later Volvo engines. **Earlier engines also work better with the above mentioned oils, but these are not required, though strongly recommended.**

Note: Volvo strongly recommends to use oils meeting both VDS-2 and EO-N Premium Plus at all times.

Note: For information on the Oil Change Intervals for Non-Volvo engines refer to the appropriate vendor literature.

Type of Operation	<ul style="list-style-type: none"> Average fuel consumption is over 4.0 liters per 10 km (under 6.0 miles per gallon) Gross combined weight (GCW) is greater than 27,000 kg (60,000 lb) Idle time is 40% or higher Vehicle operates off road or in dusty areas Vehicle operates in inner city delivery 	<ul style="list-style-type: none"> Average fuel consumption is under 4.0 liters per 10 km (over 6.0 miles per gallon) Gross combined weight (GCW) is less than 27,000 kg (60,000 lb) Vehicle operates in regional distribution 	<ul style="list-style-type: none"> Average fuel consumption is under 3.5 liters per 10 km (over 7.0 miles per gallon) Gross combined weight (GCW) is less than 20,000 kg (45,000 lb) On highway operation only
Model Year 1994 to 1999 (up to serial No. 127057)			
Oil Quality	<i>CG-4, CH-4, VDS or VDS-2</i>	<i>CG-4, CH-4, VDS or VDS-2</i>	<i>Only CH-4, VDS or VDS-2</i>
Mileage*	16,000 km (10,000 miles)	19,000 km (12,000 miles)	24,000 km (15,000 miles)
Months*	4	4	4
Hours*	250	300	400
Fuel Usage*	5700 liters (1500 gallons)	6800 liters (1800 gallons)	8300 liters (2200 gallons)
Model Year 2000 (from serial No. 127058)			
Higher Oil Qualities			
Oil Quality	<i>both VDS-2 and CH-4</i>	<i>both VDS-2 and CH-4</i>	<i>both VDS-2 and CH-4</i>
Mileage*	16,000 km (10,000 miles)	19,000 km (12,000 miles)	24,000 km (15,000 miles)
Months*	4	4	4
Hours*	250	300	400
Fuel Usage*	5700 liters (1500 gallons)	6800 liters (1800 gallons)	8300 liters (2200 gallons)
Normal Oil Qualities			
Oil Quality	<i>CG-4, CH-4 or VDS</i>	<i>CG-4, CH-4 or VDS</i>	<i>CG-4, CH-4 or VDS</i>
Mileage*	8000 km (5000 miles)	10,000 km (6000 miles)	12,000 km (7500 miles)
Months*	4	4	4
Hours*	125	150	200
Fuel Usage*	2900 liters (800 gallons)	3400 liters (900 gallons)	4200 liters (1100 gallons)
* Whichever comes first			

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Engine D12

Note: Engines meeting the emissions requirements of the consent decree operate under more severe conditions than previous engines. This has lead Volvo to require an oil that meets both VDS-2 and EO-N Premium Plus quality or both VDS-2 and API CI-4 quality standards for model year 2003 and later Volvo engines. **Earlier engines also work better with the above mentioned oils, but these are not required, though strongly recommended.**

Note: Volvo strongly recommends to use oils meeting both VDS-2 and EO-N Premium Plus at all times.

Type of Operation	<ul style="list-style-type: none"> • Average fuel consumption is over 4.7 liters per 10 km (under 5.0 miles per gallon) • Gross combined weight (GCW) is greater than 45,000 kg (100,000 lb) • Idle time is 40% or higher • Vehicle operates off road or in dusty areas • Vehicle operates in inner city delivery 	<ul style="list-style-type: none"> • Average fuel consumption is between 4.7 and 3.6 liters per 10 km (between 5.0 and 6.5 miles per gallon) • Gross combined weight (GCW) is less than 45,000 kg (100,000 lb) • Vehicle operates in regional distribution 	<ul style="list-style-type: none"> • Average fuel consumption is under 3.6 liters per 10 km (over 6.5 miles per gallon) • Gross combined weight (GCW) is less than 36,000 kg (80,000 lb) • On highway operation only
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Model Year 1994 to 1999 (up to serial # 172659-D12C)

Oil Quality	<i>CG-4, CH-4, VDS or VSD-2</i>	<i>CG-4, CH-4, VDS or VDS-2</i>	<i>Only CH-4, VDS or VDS-2</i>
Mileage*	19,000 km (12,000 miles)	24,000 km (15,000 miles)	40,000 km (25,000 miles)
Months*	4	4	4
Hours*	300	400	600
Fuel Usage*	9500 liters (2500 gallons)	11,500 liters (3000 gallons)	15,000 liters (4000 gallons)

Model Year 2000 (from serial # 172660-D12C)

Higher Oil Qualities

Oil Quality	<i>both VDS-2 and CH-4</i>	<i>both VDS-2 and CH-4</i>	<i>both VDS-2 and CH-4</i>
Mileage*	19,000 km (12,000 miles)	24,000 km (15,000 miles)	40,000 km (25,000 miles)
Months*	4	4	4
Hours*	300	400	600
Fuel Usage*	9500 liters (2500 gallons)	11,500 liters (3000 gallons)	15,000 liters (4000 gallons)

Normal Oil Qualities

Oil Quality	<i>CG-4, CH-4 or VDS</i>	<i>CG-4, CH-4 or VDS</i>	<i>CG-4, CH-4 or VDS</i>
Mileage*	14,000 km (9000 miles)	18,000 km (11,000 miles)	30,000 km (19,000 miles)
Months*	4	4	4
Hours*	250	300	450
Fuel Usage*	7100 liters (1900 gallons)	8500 liters (2200 gallons)	11,500 liters (3000 gallons)

* Whichever comes first

Type of Operation	<ul style="list-style-type: none"> • Average fuel consumption is over 4.7 liters per 10 km (under 5.0 miles per gallon) • Gross combined weight (GCW) is greater than 45,000 kg (100,000 lb) • Idle time is 40% or higher • Vehicle operates off road or in dusty areas • Vehicle operates in inner city delivery 	<ul style="list-style-type: none"> • Average fuel consumption is between 4.7 and 3.6 liters per 10 km (between 5.0 and 6.5 miles per gallon) • Gross combined weight (GCW) is less than 45,000 kg (100,000 lb) • Vehicle operates in regional distribution 	<ul style="list-style-type: none"> • Average fuel consumption is under 3.6 liters per 10 km (over 6.5 miles per gallon) • Gross combined weight (GCW) is less than 36,000 kg (80,000 lb) • On highway operation only
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Model Year 2003 (from serial # 307434-D12D)

Higher Oil Qualities

Oil Quality	<i>both VDS-2 and EO-N Premium Plus</i>	<i>both VDS-2 and EO-N Premium Plus</i>	<i>both VDS-2 and EO-N Premium Plus</i>
Mileage*	19,000 km (12,000 miles)	24,000 km (15,000 miles)	40,000 km (25,000 miles)
Months*	4	4	4
Hours*	300	400	600
Fuel Usage*	9500 liters (2500 gallons)	11,500 liters (3000 gallons)	15,000 liters (4000 gallons)

Normal Oil Qualities

Oil Quality	<i>both VDS-2 and API CI-4</i>	<i>both VDS-2 and API CI-4</i>	<i>both VDS-2 and API CI-4</i>
Mileage*	14,000 km (9000 miles)	18,000 km (11,000 miles)	30,000 km (19,000 miles)
Months*	4	4	4
Hours*	250	300	450
Fuel Usage*	7100 liters (1900 gallons)	8500 liters (2200 gallons)	11,500 liters (3000 gallons)

* Whichever comes first

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Oil Capacity

Current Engines

Vehicle	Engine	Approximate oil change capacity in liters (US quarts)		
		<i>Normal oil change (incl. filter)</i>	<i>Dry capacity</i>	<i>Max. to Min. on dipstick</i>
VN	D12C, D12D	33 (35)	37 (39)	8 (8.5)
AC, WG, VHD	D12C, D12D	38 (40)	42 (44)	6 (6.5)

Older Engines

Vehicle	Engine	Approximate oil change capacity in liters (US quarts)		
		<i>Normal oil change (incl. filter)</i>	<i>Dry capacity</i>	<i>Max. to Min. on dipstick</i>
VN, WCA, WIA, AC, WG	D12, D12A, D12B	35 (37)	40 (42)	8 (8.5)
FE, WX, WG, VHD	D7, D7C	21 (22)	26 (27)	6.5 (7)
F 6	TD 60 A/B	12.5 (13)	22 (23)	3 (3)
F 6	TD 60 B ¹	16 (17)	27.5 (29)	4.5 (5)
FE 6	TD 61 (All)	17 (18)	21 (22)	4.5 (5)
F 86	TD 70 E	16.5 (17)	28.5 (30)	5 (5.5)
F 7	TD 70 F/FC	21 (22)	34 (36)	6.5 (7)
FE 7	TD 71 FA/FC	21 (22)	34 (36)	6.5 (7)
FE, WX	TD 73 EA/EB	21 (22)	34 (36)	6.5 (7)
N 10	TD 100 C	20 (21)	37 (39)	8 (8.5)
N 10	TD 101 GB	22 (23)	37 (39)	8 (8.5)
AC, WC, WG, WI	TD 102 (All)	34.5 (36.5)	39 (41)	10 (10.5)
N 12	TD 120 FA/FB ²	29 (30)	44 (46)	9 (9.5)
N 12	TD 120 FA/FB ³	36 (38)	51 (54)	12 (12.5)
N 12	TD 121 (All)	36 (38)	41 (43)	12 (12.5)
AC, WCA, WIA, WG	TD 122 (All)	36 (38)	41 (43)	12 (12.5)
AC, WCA, WIA, WG	TD 123 (All)	36 (38)	41 (43)	12 (12.5)

1 Late production from S/N 47590 with increased oil capacity.

2 For vehicles with forward front axle.

3 For vehicles with normal front axle.

Fuel Filters

Filter Change Interval

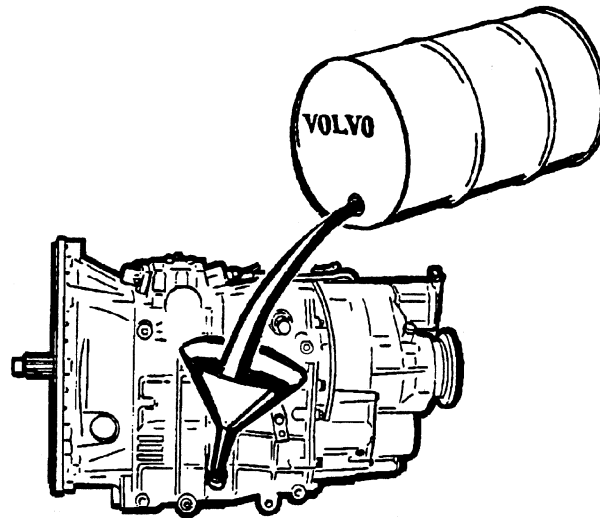
All engines At every engine oil change (maximum 40,000 km [25,000 miles])

Air Filter (Engine)

Filter Change Interval

All engines See reading on air restriction gauge or maximum every 2 years

Transmission, Lubrication



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For general information, refer to "Oil and Filters, Volvo Components" page 1 and any appropriate vendor literature. For further Transmission information refer to function group 4 and appropriate vendor literature.

Volvo transmissions are fully synchronized and need correct lubrication for the synchronizers to work properly.



CAUTION

Use only the specified type of single-weight engine oils. Do not use multi-viscosity oil or EP gear oils (for example axle lube such as GL-5 gear oils) as they may damage components. Gear oil API GL-5 will severely lessen the synchronizer braking effect, leading to unsynchronized gear engagement that damages the engagement rings.

Note: Synthetic lubricants generally have lower friction. Thus the sychromesh is damaged by not matching gear speeds. Synthetic lubrication may also cause seal degradation, therefore, synthetic lubricants are not recommended.

The transmission should not be operated consistently at temperatures above 110 °C (230 °F). If the oil temperature reaches 140 °C (285 °F), stop the vehicle to let the oil temperature decrease.

With lengthy or continuous driving at altitudes of more than 2000 m (6000 ft) above sea level, the change interval should be cut in half.

Oil Heat Exchanger (Cooler) Requirements:

If any of the following conditions apply, in any combination, an oil heat exchanger (cooler) is required:

- 1 If usually operating at low speed and/or in hilly terrain.
- 2 If the ambient temperature exceeds 32 °C (90 °F) during more than 1 month per year and/or if operating temperature of the oil exceeds 110 °C (230 °F).
- 3 If there is restricted air flow around the transmission (i.e. full air fairing; also see points 1 and 2).
- 4 If using engines with power of 297 kW (399 hp) or more and/or a GCW over 45,000 kg (100,000 lb).
- 5 If there is extensive PTO operation over 15 minutes or continuous output (e.g. bulk load operation) over 55 kW (75 hp).

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Oil Change Intervals

Old Transmission

- SR1900 (VT1414)

First oil and filter change	After 1 month or 10,000 km (6000 miles)
Normal change interval, oil and filter	Every 12 months or 120,000 km (75,000 miles)

- S5-35 and S6-36

Normal change interval, oil and filter	Every 12 months or 90,000 km (60,000 miles)
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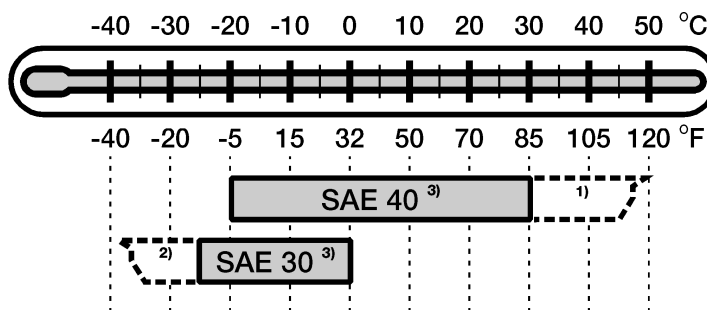
- R5 (All)
- R6, SR6 (All)
- R7, SR7 (All)
- R1000 (VT809)
- R1700 & 1700A (VT1209 & 1309), SR1700 (VT1214)

Normal change interval, oil and filter	Every 12 months or 120,000 km (75,000 miles)
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Oil Viscosity

Use only single weight engine oil. With operation in hot climates, an oil heat exchanger must be installed. The Volvo transmission oil heat exchanger works together with the engine coolant system. It acts as a cooler in the summer and as a heater in the winter.



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1) With ambient temperatures of 32 °C (90 °F) or above during more than one month per year, an oil heat exchanger (cooler) must be installed. The same viscosity of oil can then be used for the higher temperatures.

2) With ambient temperatures of -25 °C (-15 °F) or below, a heat exchanger is recommended. With the heat exchanger, the oil warm-up times are faster.

3) Multigrade engine oils must not be used.

Oil Type

Volvo transmissions are fully synchronized and need correct lubrication for the synchronizers to work properly.



CAUTION

Use only the specified type of single weight engine oils. Do not use multi-viscosity oil or EP gear oils (for example axle lube such as GL-5 gear oils) as they may damage components. Gear oil API GL-5 will severely lessen the synchronizer braking effect, leading to unsynchronized gear engagement that damages the engagement rings.

Note: Synthetic lubricants generally have lower friction. Thus the sychromesh is damaged by not matching gear speeds. Synthetic lubrication may also cause seal degradation, therefore, synthetic lubricants are not recommended.

Oil type	
Engine oil	API-CE or CF

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Oil Capacity

Old Transmissions

Vehicle	Transmission	Approximate capacity in liters (quarts)
VN, WCA, WIA, WG, ACL	SR1900 (VT1414)	13.0 (14.0)

Vehicle	Transmission	Approximate capacity in liters (quarts)
F6	S5-35 S6-65	3.5 (3.7) 9.5 (10.0)
FE6	S5-35 S6-65	3.5 (3.7) 9.5 (10.0)
F86	R51	9.0 (9.5)


F7	R52	8.8 (9.3)
FE7	R52 R1000 (VT809)	8.8 (9.3) 9.5 (10.0)
FE, WX, WG	R1000 (VT809)	9.5 (10.0)
N10	R63 SR62	13.1 (13.8) 14.7 (15.5)
N12	R70 SR70	10.0 (10.5) 10.0 (10.5)
VN, AC, WCA, WIA, WG	R1700, R1700A (VT1209, 1309)	12.0 (13.0)
WCA, AC	SR1700 (VT1214)	13.0 (14.0)

Rear Axle, Lubrication

(For general information, refer to "Oil and Filters, Volvo Components" page 1)

For further information on the Rear Axle refer to function group 4 and appropriate vendor literature.

Make sure the vehicle is parked on a level surface when checking the oil level. Fill or add oil to the lower edge of the level hole in the carrier housing. If the hubs were empty, tilt axle for one minute to each side.

	CAUTION
Do not use synthetic lubricants in the rear axle. Synthetic lubrication may cause seal degradation, therefore, synthetic lubricants are not recommended.	

Oil Change Intervals

Current Rear Axles

Tandem Axles

- CT EV 87 (VBT4018, VBT4618, VBT4818 & VBT5218)

First oil and filter change	After 1 month or 10,000 km (6000 miles)
Normal change interval, oil and filter	Every 12 months or 120,000 km (75,000 miles)

Old Rear Axles


Single Axles

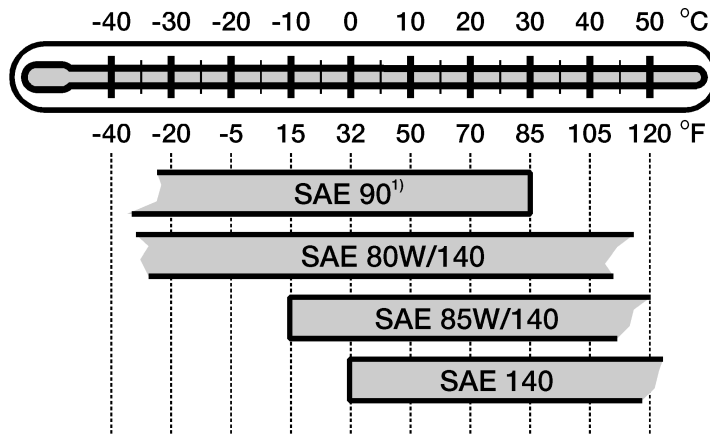
- RA EV 40 and 41
- RA EV 75 and 76
- RA EV 80 (VR2312)
- RA EV 85 (VR2314)
- RA EV 90 (VBA3814S — 6X2)

Normal change intervals	Every 12 months or 120,000 km (75,000 miles)
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Oil Viscosity

High viscosity single grade oil, SAE 140, should only be used in warm climates where no cold weather is encountered. Low viscosity single grade oil, such as SAE 75, should only be used in cold climates where no warm weather is encountered.

 CAUTION
Do not use synthetic lubricants in the rear axle. Synthetic lubrication may cause seal degradation.




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For very hard operation or continuous operation above an altitude of 2000 m (6000 ft) above sea level, a viscosity of SAE 140, SAE 80W/140 or SAE 85W/140 is recommended for use instead of SAE 90.

Oil Type

Mineral oil	API-GL-5, MIL-PRF-2105E
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 CAUTION
Do not use synthetic lubricants in the rear axle. Synthetic lubrication may cause seal degradation.

Oil Capacity

Current Rear Axles

Vehicle	Tandem Axle	Approximate capacity in liters (quarts)
VN, WX, WXLL, WG	CT EV 87 (VBT4018, VBT4618, VBT4818 or VBT5218) Front tandem EV 87 Rear tandem EV 80	20.0 (21.0) 9.0 (9.5)

Older Rear Axles

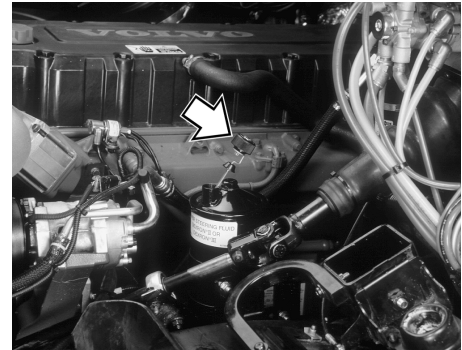
Vehicle	Rear Axles	Approximate capacity in liters (quarts)
F6	EV 41 EV 75 (F614)	9.0 (9.5) 12.0 (12.5)
FE6	EV 76	10.0 (10.5)
F86	EV 80 EV 85	9.0 (9.5) 13.0 (13.5)
F7	EV 80 EV 85 CT EV 87: Front (EV 87) Rear (EV 80)	9.0 (9.5) 13.0 (13.5) - 20.0 (21.0) 9.0 (9.5)
FE7	EV 80	9.0 (9.5)
N10	EV 85 (VR2312) CT EV 87: (VBT4018 or VBT4618) Front (EV 87) Rear (EV 80)	13.0 (13.5) - - - 20.0 (21.0) 9.0 (9.5)
N12	EV 85 (VR2312) EV 90 (VR2314) CT EV 87: (VBT4018 or VBT4618) Front (EV 87) Rear (EV 80)	13.0 (13.5) 10.0 (10.5) - - - 20.0 (21.0) 9.0 (9.5)

Power Steering, Lubrication

Power Steering Reservoir

Power Steering Reservoir The power steering fluid reservoir is filled with Automatic Transmission Fluid (ATF) Dexron® III for the power steering system. Change fluid every 240,000 km (150,000 miles). Change filter every year or more often if necessary.

If the fluid has darkened, it indicates that the power steering system is running hotter than normal and the fluid is overheating. Take the vehicle to a Volvo Truck dealer for troubleshooting the overheating and to have the fluid changed.



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