Document Title: **Description**	Function Group: **000**	Information Type: **Service Information**	Date: **4/12/2026**
Profile:			

Description

The L220D is a four-wheel drive loader with articulated frame steering.

The engine is a six cylinder, four-stroke, direct-injected and turbocharged low-emission diesel engine of the type TD122KLE.

The hydraulic transmission is hydromechanical, where all gears are in constant mesh, with the designation HTE300.
There is a single-stage hydraulic torque converter between engine and transmission.

Front and rear axles have fully floating axle shafts with planetary gears in the hubs. The front axle is equipped with a differential lock.

The machine's service brake and parking brake are of wet disc type. The service brake is built together with each wheel hub, the parking brake is located on the hydraulic transmission output shaft.

The steering system is hydrostatic with a variable load-sensing axial piston pump and two hydraulic cylinders (steering cylinders).

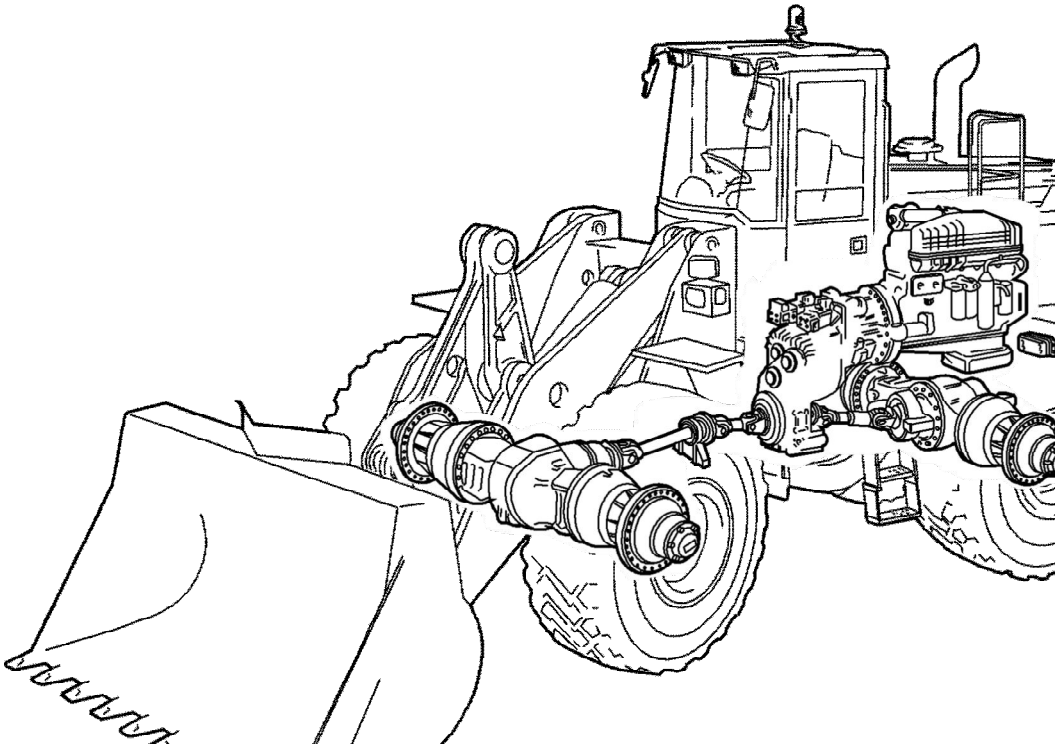

Figure 1

Document Title: **Capacities**	Function Group: **030**	Information Type: **Service Information**	Date: **4/12/2026**
Profile:			

Capacities

⚠ CAUTION

Stated capacity applies when changing, unless otherwise stated.

Engine incl. filter	52 litres (13.7 US gal)
Cooling system	83 litres (21.9 US gal)
Fuel tank	331 litres (87.4 US gal)

Transmission	43 litres (11. 4 US gal)

Front axle incl. hub gears	77 litres (20.3 US gal)

Rear axle incl. hub gears	71 litres (18.7 US gal)
Rear axle suspension	3 litres (0.8 US gal)

Document Title: **Conversion tables**	Function Group: **030**	Information Type: **Service Information**	Date: **4/12/2026**
Profile:			

Conversion tables

Length

Unit	**cm**	**m**	**km**	**in**	**ft**	**yd**	**mile**
cm	1	0.01	0.00001	0.3937	0.03281	0.01094	0.000006
m	100	1	0.001	39.37	3.2808	1.0936	0.00062
km	100000	1000	1	39370.7	3280.8	1093.6	0.62137
in	2.54	0.0254	0.000025	1	0.08333	0.02777	0.000015
ft	30.48	0.3048	0.000304	12	1	0.3333	0.000189
yd	91.44	0.9144	0.000914	36	3	1	0.000568
mile	160930	1609.3	1.6093	63360	5280	1760	1
1 mm = 0.1 cm - 1 mm = 0.001 mm							

Area

Unit	**cm^2**	**m^2**	**km^2**	**a**	**ft^2**	**yd^2**	**in^2**
cm^2	1	0.0001	-	0.000001	0.001076	0.000012	0.155000
m^2	10000	1	0.000001	0.01	10.764	1.1958	1550.000
km^2	-	1000000	1	10000	1076400	1195800	-
a	0.01	100	0.0001	1	1076.4	119.58	-
ft^2	-	0.092903	-	0.000929	1	0.1111	144.000
yd^2	-	0.83613	-	0.008361	9	1	1296.00
in^2	6.4516	0.000645	-	-	0.006943	0.000771	1
1 ha = 100 a - 1 $mile^2$ = 259 ha = 2.59 km^2							

Volume

Unit	**cm^3 = cc**	**m^3**	**l**	**in^3**	**ft^3**	**yd^3**
cm^3 = ml	1	0.000001	0.001	0.061024	0.000035	0.000001
m^3	1000000	1	1000	61024	35.315	1.30796
dm^3(l)	1000	0.001	1	61.024	0.035315	0.001308
in^3	16.387	0.000016	0.01638	1	0.000578	0.000021
ft^3	28316.8	0.028317	28.317	1728	1	0.03704
yd^3	764529.8	0.76453	764.53	46656	27	1
1 gal (US) = 3785.41 cm^3 = 231 in^3 = 0.83267 gal (UK)						

Weight

Unit	**g**	**kg**	**t**	**oz**	**lb**
g	1	0.001	0.000001	0.03527	0.0022
kg	1000	1	0.001	35.273	2.20459
t	1000000	1000	1	35273	2204.59
oz	28.3495	0.02835	0.000028	1	0.0625

lb	453.592	0.45359	0.000454	16	1
1 ton (metric) = 1.1023 ton (US) = 0.9842 ton (UK)					

Pressure

Unit	**kp/cm²**	**bar**	**Pa=N/m²**	**kPa**	**lbf/in²**	**lbf/ft²**
kp/cm²	1	0.98067	98066.5	98.0665	14.2233	2048.16
bar	1.01972	1	100000	100	14.5037	2088.6
Pa=N/m²	0.00001	0.001	1	0.001	0.00015	0.02086
kPa	0.01020	0.01	1000	1	0.14504	20.886
lbf/in²	0.07032	0.0689	6894.76	6.89476	1	144
lbf/ft²	0.00047	0.00047	47.88028	0.04788	0.00694	1
kg/cm² = 735.56 Dry (mmHg) = 0.96784 atm						

Unit explanations

Unit	**abbreviation**
Newton meter	Nm
Kilopoundmeter	kpm
Kilopascal	kPa
Megapascal	MPa
Kilowatt	kW
kilojoule	kJ
British thermal unit	Btu
Calorie	ca

Approx. conversion

SI unit	Conversion factor	Non SI	Conversion factor	SI
Torque				
Nm	x10.2	=kg/cm	x0.8664	=lb in
Nm	x0.74	=lbf·ft	x1.36	=Nm
Nm	x0.102	=kg/m	x7.22	=lbft
Pressure (Pa = N/m²)				
kPa	x4.0	=in.H_2O	x0.249	=kPa
kPa	x0.30	=in.Hg	x3.38	=kPa
kPa	x0.145	=psi	x6.89	=kPa
bar	x14.5	=psi	x0.069	=bar
kp/cm²	x14.22	=psi	x0.070	=kp/cm²
N/mm²	x145.04	=psi	x0.069	=bar
MPa	x145	=psi	x0.00689	=MPa
Power (W = J/s)				
kW	x1.36	=hp(cv)	x0.736	=kW
kW	x1.34	=bhp	x0.746	=kW
kW	x0.948	=Btu/s	x1.055	=kW
W	x0.74	=ft·lb/s	x1.36	=W
Energy (J = Nm)				
kJ	x0.948	=Btu	x1.055	=kJ

J	x0.239	=calorie	x4.19	=J
Speed and acceleration				
m/s^2	x3.28	=ft/s^2	x0.305	=m/s^2
m/s	x3.28	=ft/s	x0.305	=m/s
km/h	x0.62	=mph	x1.61	=km/h
Horsepower/torque				
Bhp x5252 rpm= TQ (lb·ft)			TQ x rpm 5252=bhp	
Temperature				
^oC =(^oF-32)/1.8			^oF =(^oC x1.8) +32	
Flow factor				
l/min (dm^3/min)	x0.264	= US gal/min x3.785		=liter/min

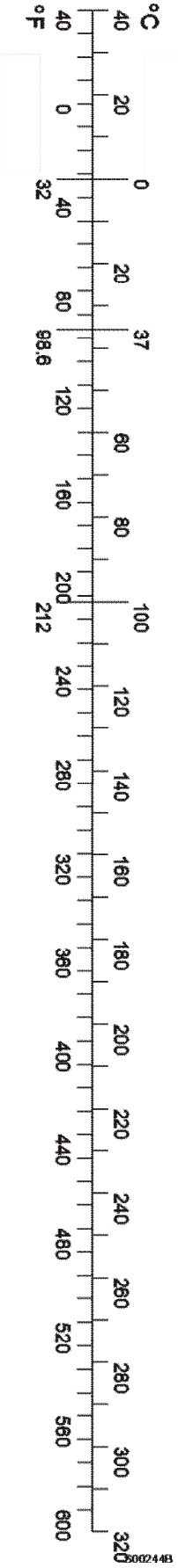

Figure 1

VOLVO

Service Information

Document Title: **Tightening torques**	Function Group: **030**	Information Type: **Service Information**	Date: **4/12/2026**
Profile:			

Tightening torques

⚠ CAUTION

Regarding bolted joints which are not listed here, see “Volvo standard tightening torques”

Engine	
Engine – engine mounting	120 12 N m, 12 1.2 kgf m (89 9 lbf ft)
Flywheel housing – transmission	54 5 N m, 5.4 0.5 kgf m (40 3.7 lbf ft)
Engine mounting – tapered rubber damper	804 N m, 80.4 kgf m (593 lbf ft)
Tapered rubber damper – frame	220 22 N m, 22 2.2 kgf m (162 16 lbf ft).

Torque converter	
Torque converter – turbine shaft	40 N m, 4 kgf m (30 lbf ft)

Transmission	
Transmission mounting, M16 bolts	220 N m, 22 kgf m (162 lbf ft)
Transmission mounting, M20 bolts	430 N m, 43 kgf m (317 lbf ft)
Transmission – flywheel housing	54 N m, 5.4 kgf m (40 lbf ft)

Front axle	
Bolts at end of half shaft	470 N m, 47 kgf m (347 lbf ft)
Bolts for centre cover	50 N m, 5 kgf m (37 lbf ft)

Rear axle	
Inner hub nut	2750 N m, 275 kgf m (2029 lbf ft)
Outer hub nut	450 N m, 45 kgf m (332 lbf ft)
Centre cover	50 N m, 5 kgf m (37 lbf ft)
Rear axle suspension – frame	850 N m, 85 kgf m (627 lbf ft)

Front wheel brake	
Impeller – brake disc	12 N m, 1.2 kgf m (8.9 lbf ft)
Hub reduction gear – axle housing	310 N m, 31 kgf m (229 lbf ft)
Plug in hub reduction gear	38 N m, 3.8 kgf m (28 lbf ft)
Bolts for brake piston	50 N m, 5.0 kgf m (37 lbf ft)

Rear wheel brake	
Impeller – brake disc	12 N m, 1.2 kgf m (8.9 lbf ft)
Hub reduction gear – axle housing	310 N m, 31 kgf m (229 lbf ft)

Frame	
Counterweight – frame	690 69 N m, 69 6.9 kgf m (509 51 lbf ft)
Towing device – frame	690 69 N m, 69 6.9 kgf m (509 51 lbf ft)

Cab, mounting element	
Cab, rear bracket – frame	580 N m, 58 kgf m (428 lbf ft)
Cab, front bracket – frame	400 N m, 40 kgf m (295 lbf ft)

Boom Suspension System (BSS400)	
Hexagon socket head bolt in gas valve	25 N m, 2.5 kgf m (18 lbf ft)

Document Title: **Volvo standard tightening torques**	Function Group: **030**	Information Type: **Service Information**	Date: **4/12/2026**
Profile:			

Volvo standard tightening torques

The tightening torques in the following tables refer to bolted joints with tensile strength as indicated. The tables should be regarded as a general guideline for tightening of bolted joints where nothing else is specified.

NOTE!

For flange bolt of type U6FS, values should be increased by 10%. Bolts and nuts should be clean and lubricated with oil.

Tensile strength class 8.8 Metric coarse and fine threads

Thread	Nm	kpm	lbf ft
M 6	10 ±2	1.0 ±0.2	7.4 ±3.5
M 8	24 ±5	2.4 ±0.5	18 ±3.5
M 10	48 ±10	4.8 ±1.0	35 ±7.4
M 12	85 ±18	8.5 ±1.8	63 ±13.0
M 14	140 ±25	14.0 ±2.5	103 ±18.0
M 16	220 ±45	22.0 ±4.5	160 ±33.0
M 20	430 ±85	43.0 ±8.5	320 ±63.0
M 24	740 ±150	74.0 ±15.0	550 ±110.0

Tensile strength class 10.9 Metric coarse and fine threads

Thread	Nm	kpm	lbf ft
M 6	12 ±2	1.2 ±0.2	9 ±1.5
M 8	30 ±5	3.0 ±0.5	22 ±3.5
M 10	60 ±10	6.0 ±1.0	44 ±7.5
M 12	105 ±20	10.5 ±2.0	78 ±14.5
M 14	175 ±30	17.5 ±3.0	130 ±22
M 16	275 ±45	27.5 ±4.5	204 ±33
M 20	540 ±90	54.0 ±9.0	400 ±66
M 24	805 ±160	80.5 ±16.0	594 ±118

UNC threads, coarse pitch

Thread	Nm	kpm	lbf ft
1/4"	9 ±2	0.9 ±0.2	6.6 ±1.5
5/16"	18 ±4	1.8 ±0.4	13 ±3.0
3/8"	33 ±8	3.3 ±0.8	24 ±5.9
7/16"	54 ±14	5.4 ±1.4	40 ±10
1/2"	80 ±20	8.0 ±2.0	59 ±15
9/16"	120 ±30	12.0 ±3.0	89 ±22
5/8"	170 ±40	17.0 ±4.0	130 ±30
3/4"	300 ±70	30.0 ±7.0	220 ±52
7/8"	485 ±115	48.5 ±11.5	360 ±85

1"	725 ±175	72.5 ±17.5	530 ±130

Document Title: **Weights**	Function Group: **030**	Information Type: **Service Information**	Date: **4/12/2026**
Profile:			

Weights

Engine	1100 kg (2425 lb) (approx.)
Torque converter	50 kg (110 lb) (approx.)
Transmission	1000 kg (2205 lb) (approx.)
Front axle, complete	2100 kg (4630 lb) (approx.)
Wheel hub, front axle	140 kg (309 lb) (approx.)
Hub reduction gear, front axle	560 kg (1235 lb)
Brake piston, front axle	32 kg (71 lb) (approx.)
Half shaft, front axle	20 kg (44 lb) (approx.)
Rear axle, complete	2015 kg (4442 lb) (approx.)
Wheel hub, rear axle	115 kg (253 lb) (approx.)
Hub reduction gear, rear axle	350 kg (772 lb) (approx.)
Brake piston, rear axle	17 kg (37 lb) (approx.)
Cab	800 kg (1764 lb) (approx.)
Operator seat	45 kg (99 lb) (approx.)
Amount of refrigerant R134a	2.2 0.1 kg

Document Title: **Time Guide**	Function Group: **070**	Information Type: **Service Information**	Date: **4/12/2026**
Profile:			

Time Guide

Regarding: L220D

16 Lubricants, fuels and other liquids

Op.no.	Time (h)	Operation
16234	1,75	Hydraulic oil tank, changing oil and filter excl. cleaning tank
16236	2,5	Hydraulic oil tank, changing oil and filter incl.cleaning tank
16238	1,5	Transmission, changing oil and filter
16259	2	Axles, changing oil

17 General

17101	0,5	Arrival inspection, according to programme
17102	1,5	Delivery inspection, according to programme
17202	5	Warranty inspection 100 hours, according to service programme
17204	12	Warranty inspection 1000 hours, according to service programme
17307	1,75	Maintenance service, every 250 hours
17310	3,5	Maintenance service, every 500 hours
17312	9	Maintenance service, every 1000 hours
17314	12	Maintenance service, every 2000 hours

21 Engine, general

21002	1,75	Compression test, engine at operating temperature
21070	10	Engine, removing
21071	48	Engine removed, general overhaul
21072	10	Engine, fitting
21102	7	Cylinder head, replacing gasket
21118	13	Cylinder heads all, replacing gaskets
21168	4	Cylinder heads all removed, decarbonizing and grinding in valves
21171	0,5	Cylinder head removed, pressure testing each
21207	4	Cylinder block, liners removed, milling of all liner locations
21211	0,5	Cylinder, cylinder heads removed, measuring wear in all cylinders
21310	16	Cylinder liner and piston, replacing one

21318	26	Cylinder liners and pistons, replacing all
21412	1,5	Valves, adjusting
21427	0,5	Inspection cover, fitting new gasket
21430	16	Valves, decarbonizing and grinding
21436	1	Valve covers, fitting new gasket
21502	6	Timing gear cover, fitting new gasket in machine
21530	7	Timing gear, replacing in machine
21532	8	Timing gear case, fitting new gasket in machine
21603	3	Main bearing shells, replacing, removed sump
21614	3,5	Crankshaft, replacing front oil seal
21615	7,5	Crankshaft engine removed, replacing
21618	21	Crankshaft, replacing rear oil seal
21702	9	Sump gasket, replacing incl cleaning oil strainer

22 Lubrication and oil system

22106	1	Oil pressure relief valve, replacing
22114	10	Oil pump, replacing
22306	2	Oil cooler, replacing

23 Fuel system, general

23301	0,5	Fuel system, bleeding
23302	0,75	Feed pump, replacing
23304	0,5	Feed pump, checking feed pressure
23314	0,5	Fuel filters all, replacing
23397	0,25	Feed pump removed, reconditioning
23410	5	Fuel tank, replacing
23601	0,5	Idling speed, checking and adjusting
23602	0,25	Stall speed, checking
23630	2	Injection timing, checking and adjusting
23644	1	Injection timing, checking
23673	3,5	Injection pump, replacing incl setting injection timing
23702	2	Injectors, replacing all
23704	0,75	Injector, replacing one
23707	0,25	Overflow valve, replacing
23716	2	Injectors, replacing copper sleeve in machine
23718	0,75	Delivery pipe, replacing one
23780	2	Injectors removed, reconditioning all

25 Inlet and exhaust systems

25102	1	Induction manifold, replacing gasket
25104	2	Exhaust manifold, replacing gasket
25220	1,5	Silencer, replacing
25221	0,75	Exhaust pipe, flexible tube, replacing

25571	1,5	Turbo charger, replacing
25573	2	Turbo charger removed, reconditioning
25601	0,5	Air cleaner, cleaning filter element
25602	0,25	Air cleaner, checking prssure drop indicator
25603	0,25	Air cleaner, primary filter replacing
25604	0,25	Air cleaner, secondary filter replacing
25606	0,75	Pre-heating coil, replacing
25802	5	Intercooler, replacing

26 Cooling system

26104	1	Coolant, changing
26108	3,5	Radiator, replacing
26112	1,5	Radiator hose upper, replacing
26114	2,5	Radiator hoses lower, replacing
26202	1,5	Coolant pump, replacing
26271	1,5	Coolant pump removed, reconditioning
26298	1,5	Thermostat, replacing
26304	0,75	Fan motor, checking working pressure
26306	1,5	Fan hydraulically driven, removing pump
26307	1,5	Fan hydraulically driven, fitting pump
26310	0,5	Fan hydraulically driven, checking standby pressure
26311	1,25	Fan hydraulically driven, adjusting standby pressure
26312	0,5	Fan belt and/or alternator belt, replacing
26322	1	Fan belt and/or alternator-, compressor belt, replacing all belts

27 Engine control

27321	0,75	Stop magnet, replacing
27323	0,5	Electrical engine shut down, check and adjusting

31 Battery and mounting parts

31101	0,5	Batteries, checking charging capacity
31102	1	Batteries, replacing
31103	0,5	Main switch, replacing

32 Alternator and charge regulator

32102	1	Alternator, replacing incl function check
32125	0,5	Alternator, replacing carbon brush kit in machine
32205	0,5	Charging regulator, replacing

33 Starting system, general

33118	1	Starter motor, replacing
33401	0,25	Starter lock, replacing

35 Lighting

35202	0,5	Headlights, adjusting against wall or screen
35224	0,5	Head lamp assy, replacing one incl adjusting
35316	0,25	Rear lamp, replacing one
35318	0,25	Rear lamp, replacing glass or bulb
35656	0,5	Work lighting, replacing one head lamp assy

36 Other electrical equipment, general

36102	0,25	Flasher unit, replacing relay
36110	0,75	Flasher switch, replacing
36117	0,25	Flasher lamp, replacing glass or bulb
36202	0,25	Horn, replacing
36203	0,5	Reverse alarm, replacing
36301	0,5	Windscreen wiper rear, replacing motor
36302	0,75	Windscreen wiper front, replacing motor
36304	0,25	Windscreen flusher pump, replacing
36404	0,25	Switch, replacing
36408	0,25	Brake light switch, replacing
36652	1	V-ECU, replacing

38 Instruments, sender units, warning systems

38603	0,5	Transmission oil pressure sensor, replacing
38604	0,5	Transmission temperature sensor, replacing
38605	0,5	Transmission, revolution sensor, replacing
38606	0,5	Engine temperature sensor, replacing
38607	0,5	Engine oil pressure sensor, replacing
38611	0,75	Fuel level sender, replacing
38705	0,5	Information display, replacing

39 Other equipment, e.g. radio and voltage conv.

39301	0,5	Voltage converter, replacing

41 Clutch/Torque converter

41403	2	Converter, replacing (engine removed)

42 Transmission, general

42102	1	Hydraulic transmission, check oil pressure

42106	3	Oil cooler, replacing
42108	3	Gear selector valve, replacing
42109	1	Gear selector valve removed, reconditioning
42118	22	Converter, replacing
42124	1,5	Lubrication oil valve, replacing
42147	0,75	Gear selector, replacing
42148	1,5	Gear selector valve, replacing one solenoid
42152	3	Seal for front output shaft, replacing
42154	3	Seal for rear output shaft, replacing
42168	13	Transmission, removing (upwards)
42169	14	Transmission, fitting (from above)
42171	32	Transmission removed, reconditioning

45 Propeller shaft incl. bearings and mounting

45101	0,25	Propeller shaft and intermediate bearing, checking radial clearance
45102	2	Support or intermediate bearing, replacing
45104	1,5	Propeller shaft, rear, replacing
45107	1,5	Propeller shaft, in frame joint, replacing
45110	2	Propeller shaft, front, replacing
45113	1,5	Propeller shaft, removed reconditioning

46 Drive axles, general

46001	0,75	Axle suspension, measuring axial and radial clearanse
46003	11	Axle suspension, replacing bushes/ bearings and seals
461	Null	Front axle
46101	7	Axle, replacing
46111	10	Centre gear , removing and fitting
46112	10	Centre gear removed, reconditioning
46113	11	Centre gear, axle removed, reconditioning
46114	1,5	Pinion front, fitting new gasket
46140	3	Hub retainer, replacing
46141	11	Hub retainer removed, reconditioning
46143	4,5	Hub, replacing seal
46152	0,25	Differential lock front, repacking excl adjusting
46153	0,75	Differential lock, adjusting engagement
463	Null	Rear axle
46301	8	Axle, replacing
46302	4,5	Axle, removing
46303	4,5	Axle, fitting
46311	11	Centre gear, removing and fitting
46312	10	Centre gear removed, reconditioning

46313	13	Centre gear, axle removed, reconditioning
46314	1,5	Pinion rear, fitting new gasket
46340	3	Hub retainer, replacing
46341	6,5	Hub retainer removed, reconditioning
46343	4,5	Hub, replacing seal

51 Wheel brake, all

51601	0,5	Brake linings, checking wear
51604	4,5	Brake discs, replacing on both sides
51650	3,5	Brake piston, replacing seals
51701	0,5	Brake linings, checking wear
51704	4,5	Brake disc, replacing both sides
51750	3,5	Brake piston, replacing seals

52 Hydraulic brake system

52001	0,5	Brake system, checking function, hydraulic
52002	0,5	Brake system, checking function, retardation
52005	0,5	Brake system, check and adjusting pressure in circuit
52037	1	Brake system, bleeding
52508	2	Foot brake valve, replacing
52509	2,5	Foot brake valve removed, reconditioning
52701	0,5	Accumulator removed, checking charging pressure
52702	0,5	Accumulator, replacing
52704	2,5	Hydraulic pump, replacing

55 Parking brake incl.control system

55006	3,5	Parking brake, replacing discs and seals
55008	1	Parking brake, replacing control valve

64 Steering

64121	1,5	Adjustable steering column, replacing
64506	1,75	Steering cylinder, replacing
64510	6	Hydraulic pump, replacing
64521	1,5	Valve block, replacing
64528	0,5	Steering system, checking and adjusting working pressure
64554	2	Steering cylinder, replacing link bearings
64560	2,5	Steering cylinder, repacking in machine
64577	1,75	Steering cylinder removed, reconditioning incl replacing bearings
64579	2,5	Shift valve, replacing
64581	1,5	Steering valve removed, reconditioning

64582	2	Steering valve, replacing
64793	1	Auxiliary steering, replacing hydraulic pump

66 CDC and other electrical operated systems

66003	0,5	Lever stering (CDC) adjusting steering speed

74 Frame joint, general

74105	0,5	Frame joint, checking clearance
74136	19	Frame joint, replacing bearings

77 Wheel, Tyre, Hub, Crawler/Track

77101	1	Wheel, removing and fitting one

81 Cab, general

81001	3	Cab, removing
81002	3,5	Cab, fitting
81815	1,75	Cab suspension, rubber element replacing

83 Doors and Covers

83104	1,75	Door, replacing
83106	0,75	Door lock, replacing
83114	0,5	Door, replacing sealing strip

84 Outside trim parts, Glass, Sealing, Mouldings

84302	5	Windscreen, replacing
84312	5	Rear window, replacing
84313	5	Side window, replacing
84348	5	Door window, replacing

87 Air Conditioning unit

87201	0,25	Cab filter, replacing
87304	1	Radiator, replacing
87306	1	Fan motor, replacing
87308	0,75	Heat control valve, replacing
87309	0,75	Heat control, replacing
87402	1	Refrigerant, draining
87403	0,75	Cooling unit, performance test
87405	1	Refrigerant, filling excl vacuum pumping
87406	4	Compressor, replacing incl draining and filling
87411	3	Receiver, replacing incl draining and filling
87412	4	Evaporator, replacing incl draining and

		filling
87413	3,5	Expansion valve, replacing incl draining and filling
87414	0,75	Thermostat, replacing
87415	1,5	Compressor, replacing shaft seal (compressor removed)
87416	0,75	Compressor, replacing magnetic clutch (compressor removed)
87419	0,5	Compressor, replacing valve plate (compressor removed)
87420	5	Condenser, replacing incl draining and filling
87459	1,25	Evaporator, cleaning

91 Working hydraulic and servo system

91101	0,75	Oil return filter, replacing incl cleaning magnetic core
91105	2	Hydraulic tank, replacing inlet hose for pump
91111	3,5	Oil cooler, replacing
91138	5	Hydraulic oil tank, replacing
91201	6	Control valve, replacing
91202	4	Control valve removed, reconditioning
91204	0,75	Control valve, low pressure valve, replacing
91209	0,5	Shock valve, tilt function, checking and adjusting
91303	0,75	Hydraulic pump, checking and adjusting standby pressure
91304	0,5	Hydraulic pump, checking and adjusting working pressure
91310	4,5	Hydraulic pump, replacing
91311	2	Hydraulic pump removed, reconditioning
91454	1,75	Servo valve, adjusting control
91455	0,75	Servo pressure, checking and adjusting
91457	0,5	Servo pressure, check
91458	3	Servo valve, replacing
91475	2	Servo valve removed, reconditioning
91601	0,5	Boom suspension system, checking function
91602	1,75	Accumulator, check and adjusting
91603	1	Accumulator, reconditioning
91606	0,5	Boom suspension system, pressure reduction, safety valve, checking and adjusting
91619	0,5	3:rd/4:th hydraulic function, pressure check

94 Unit for load handling

94502	4,5	Lift frame, replacing bearing in lower

		bucket- or implement attachment
94503	0,25	Implement attachment, measuring clearence of lower bearing
94504	4	Lift cylinder, replacing
94505	5,5	Lift cylinder, repacking in machine
94506	3	Lift cylinder removed, repacking
94507	0,75	Tilt cylinder removed, replacing bearings "E-F"
94508	5	Tilt cylinder, replacing
94509	8	Tilt cylinder, repacking in machine
94510	4	Tilt cylinder removed, repacking
94512	1	Lift cylinder removed, replacing bearings "C-P"
94513	3	Lift cylinder, rear bearing replacing
94514	4	Lift cylinder, front bearing replacing
94516	6	Lift frame, replacing bearing in upper mounting "O"
94524	4	Tilt cylinder, replacing bearing in machine "E-F"
94544	28	Lift frame, replacing
94554	3	Implement attachment, replacing
94562	2	T-link upper, replacing "HIJ"
94563	0,75	T-link upper removed, replacing bearings "HIJ"
94564	3	T-link, lower, replacing "IB"
94565	2	T-link lower removed, replacing bearing "IB"
94566	2	Tilt link, replacing "GH"
94567	0,75	Tilt link removed, replacing bearings "GH"
94568	3,5	Tilt arm, replacing bearing "GDF"
94569	4	Tilt arm, replacing "GDF"
94570	1,75	Tilt arm removed, replacing bearing "GDF"

Document Title: **Recommended lubricants, oils**	Function Group: **160**	Information Type: **Service Information**	Date: **4/12/2026**
Profile:			

Recommended lubricants, oils

	Oil grade	Recommended viscosity at varying ambient temperatures
		°C -30 -20 -10 0 +10 +20 +30 +40 +50 °F -22 -4 +14 +32 +50 +68 +86 +104 +122
Engine *) For severe operations ACEA E3-96 (CCMC-D5) is recommended to give optimum service life.	**Engine oil** Volvo VDS API CE ACEA E1-96 (CCMC D4) and ACEA E3-96 (CCMC D5)	**SAE 5W/30** **SAE 10W/30** **SAE 15W/40** **SAE 30** **SAE 40**
Axles **Hub reduction gears**	**Volvo WB 101** For trade names and oil requirements, see Specifications, Axles in the Operator"s Manual for the respective machine.	
Transmission **Dropbox**	**DEXRON** Dexron IID or Dexron III.	
Hydraulic system Steering system Brake system Working hydraulics	**Hydraulic oil** Swedish norm	**SHS 32** **SHS 46** **SH 68**
	or **Engine oil** Min. requirement API SE/CD NOTE: As an alternative there is also a biologically degradable hydraulic oil (PANOLIN) as an additional choice.	**SAE 5W/30** **SAE 10W/30** **SAE 15W/40** **SAE 30** **SAE 40**
		°C -30 -20 -10 0 +10 +20 +30 +40 +50 °F -22 -4 +14 +32 +50 +68 +86 +104 +122

Document Title:	Function Group:	Information Type:	Date:
Cleanliness, brake and hydraulic systems	**170**	**Service Information**	**4/12/2026**
Profile:			

Cleanliness, brake and hydraulic systems

Maintain the greatest possible cleanliness when working on these systems. Wipe off all pipe and hose connections before disconnecting them and remove flakes of paint, etc. Plug all pipes, hoses, cylinders, etc. immediately after they have been disconnected. Never install an unplugged hydraulic hose until it has been thoroughly cleaned.

Document Title:	Function Group:	Information Type:	Date:
Electric welding	**170**	**Service Information**	**4/12/2026**
Profile:			

Electric welding

For electric welding on the machine or on attachments on machine:

- ground connection turned off with battery disconnect switch.
- fuse FH4 must be removed, located next to the battery disconnect switch.
- connectors for all control units (ECUs) must be unplugged.

NOTE!
Ground the welding unit as close as possible to the welding point.

Document Title:	Function Group:	Information Type:	Date:
Repairing hydraulic system	**170**	**Service Information**	**4/12/2026**
Profile:			

Repairing hydraulic system

When replacing a pump or after other repair work to the hydraulic system, where air may have entered the system, the points below should be followed:

1. The pumps must be filled with oil.
2. Start the engine and run it at**low idling**for approx. 10 minutes without actuating any hydraulic functions.
3. Actuate all hydraulic functions a few times with the engine running at **low idling**.

   ⚠ CAUTION

   The hydraulic cylinders must not go against their end-of-stroke positions.

4. Operate all hydraulic functions (the hydraulic cylinders against their end-of-stroke positions) a few times without causing overflow at a raised engine speed, approx. 20–25 r/s (1200–1500 rpm).

VOLVO

Service Information

Document Title:	Function Group:	Information Type:	Date:
Working on the electrical system of the machine	**170**	**Service Information**	**4/12/2026**
Profile:			

Working on the electrical system of the machine

- Only use test instruments with a light-emitting diode, never a test light with a light bulb, for example, during trouble-shooting of the electrical system!
  The high firing voltage of the bulb can destroy expensive electronic components.
- When installing a two-way radio, mobile phone, etc., installation must be performed according to manufacturer's instructions in order to eliminate interference with electronic systems and components intended for the function of the machine.

Document Title: **Axles, changing oil**	Function Group: **173**	Information Type: **Service Information**	Date: **4/12/2026**
Profile:			

Axles, changing oil

Op nbr 17370-2

Change the oil every 1000 hours.

Change oil every 2000 hours if the machine is equipped with axle oil cooling.

WARNING

Work carefully when changing oil as hot oil can cause severe burn injuries to unprotected skin.

Op nbr

1. Screw off the drain plugs and drain the oil from the axle and hub reductions. Use collection containers.

   Oil volume front axle: **77 dm³ (20.3 US gal).**
   Oil volume rear axle: **71 dm³ (19 US gal).**

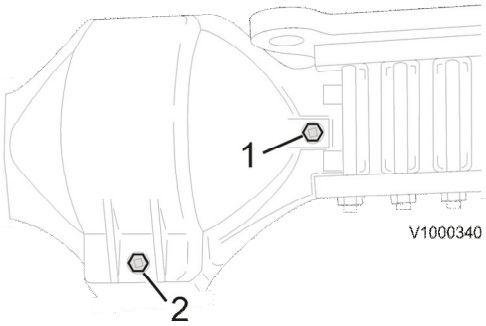

Figure 1

1. Level check and filling
2. Draining

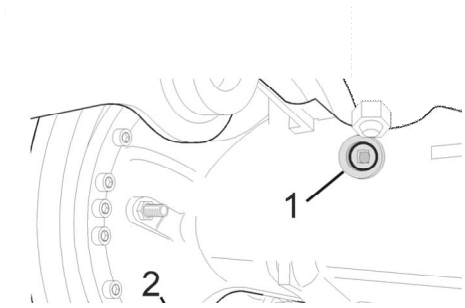

Figure 2
Rear axle

1. Level check and filling

2. Drain plug, hub reduction

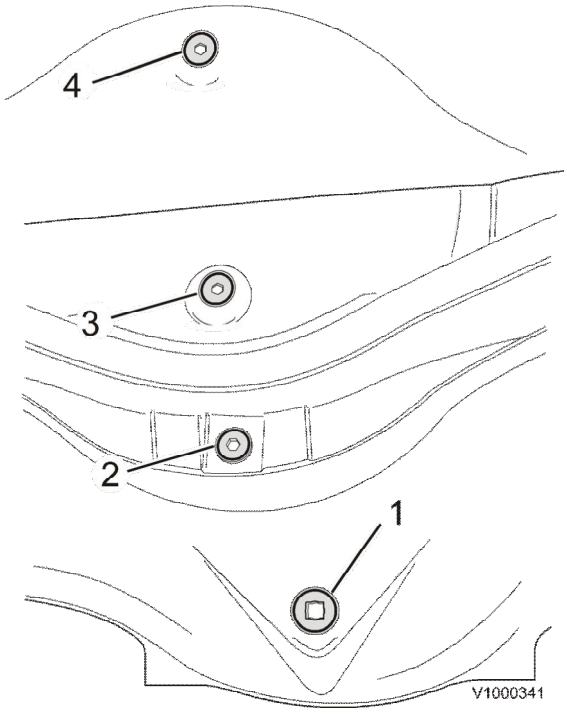

Figure 3

1. Drain, rear axle
2. Drain, rear axle cradle (1)
3. Drain, rear axle cradle (2)
4. Level check and filling, rear axle cradle. Volume: **approx. 3 litres (0.8 US gal)**

2. Fill oil. The oil level must be level with the lower edge of the filler hole. Oil grade, see *L220E, 160, Recommended lubricants, oils*.

3. Run the machine a few minutes and check the level again. It may need to be topped up.

NOTE!
Dispose of waste oil and fluids in an environmentally safe and sound manner.

Document Title:	Function Group:	Information Type:	Date:
Charging batteries	**173**	**Service Information**	**4/12/2026**
Profile:			

Charging batteries

Explosion hazard

Charging produces hydrogen in the battery, which mixes with oxygen to produce an explosive mixture. A short circuit, naked flame or spark near a battery can cause a powerful explosion. Always switch off the charging current before removing the charger clamps. Ensure appropriate ventilation, especially if the battery is charged in a confined area.

Corrosive sulphuric acid

The battery electrolyte contains corrosive sulphuric acid. Electrolyte spilled on bare skin must be removed immediately. Wash with soap and plenty of water. If electrolyte gets into your eyes or onto any other sensitive part of the body, rinse immediately with plenty of water and seek immediate medical attention.

Document Title: **Engine oil and engine oil filter, changing**	Function Group: **173**	Information Type: **Service Information**	Date: **4/12/2026**
Profile:			

Engine oil and engine oil filter, changing

NOTE!
Change oil every 500 hours.

Oil volume when changing, approx. 52 litres including filters.

See the Operator's Manual for requirements regarding a 500 hour change interval.

Draining

NOTE!
Drain the oil when the engine is warm.

WARNING

Work carefully when changing oil as hot oil can cause severe burn injuries to unprotected skin.

Op nbr

1. Loosen the cover inside of the rear wheel, on the machine's right side, and move it aside.
2. Screw off the plug for draining engine oil (the lower plug).

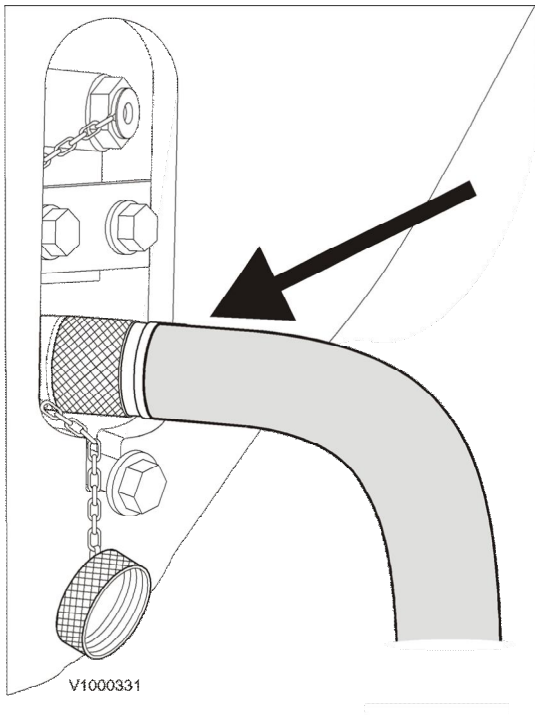

Figure 1
Draining engine oil

3. Use the supplied drain hose located in the machine's tool box.
4. Place one end of the hose in the drain container and screw on the hose to the drain.

5. Change the oil filters at every oil change. Filters are of the disposable type and shall always be changed.

   RemovingUse oil filter tool when removing.

   Installing

   - Fill the filters with engine oil and apply oil on the gaskets
   - Screw on the filters until the gasket just touches the sealing surface. Then tighten the filter another full turn.

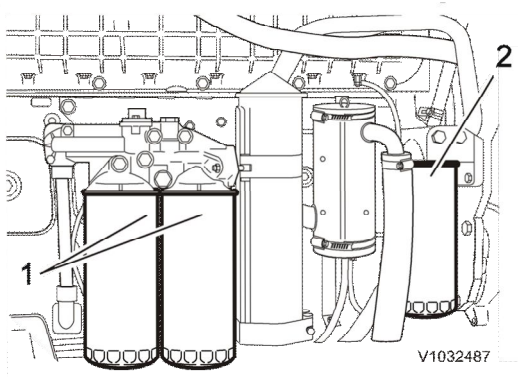

Figure 2
Engine oil filter

1. Part-flow filter
2. Full-flow filter

NOTE!
Handle waste oils/fluids in an environmentally safe manner.

Filling

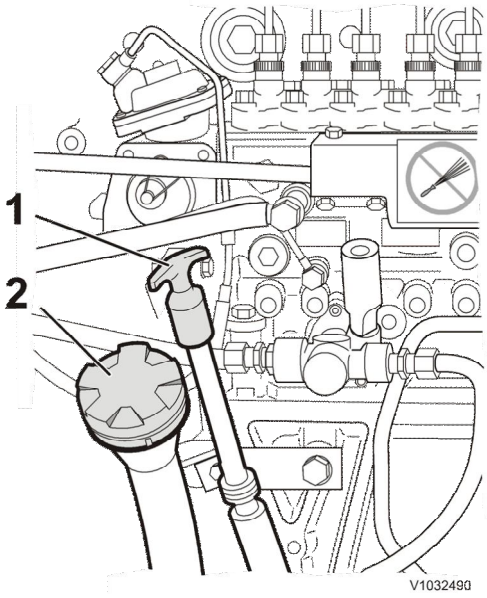

Figure 3

1. Oil dipstick
2. Filler pipe

Oil is refilled via the oil filler pipe.

Start the engine and check that the gaskets seal. If this is not the case, remove the filters and check the sealing surface. Normally it does not help to tighten more.

Oil grade, see [Invalid linktarget]