

Document Title: General	Function Group: 000	Information Type: Service Information	Date: 4/19/2026
Profile:			

General

The machine is an articulated four-wheel drive wheel loader.

The engine is a six-cylinder, four-stroke, direct injection, turbocharged diesel engine with the designations TD63KBE (for the L90D) and TD73KDE (for the L120D).

Hydraulic transmissions HT131 for the L90D and HT 205 for the L120D are hydromechanical and of the Power Shift type where all gear wheels are in constant mesh.

There is a single-stage hydraulic torque converter between engine and transmission.

The front and rear axles are fully floating drive axles with planetary gears in the hubs. The front axle is equipped with a dog-clutch type differential lock.

The service brake is of wet disc type, built together with each hub's planetary gear. The parking brake on the L90D is of type dry disc type and located externally on the hydraulic transmission output shaft. The parking brake on the L120D is of wet disc type and is located internally on the hydraulic transmission output shaft.

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

More detailed descriptions of functions and components are available in respective sections.



Figure 1

Document Title: Product identification plates	Function Group: 000	Information Type: Service Information	Date: 4/19/2026
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Product identification plates

The illustration and text below show which product plates should be located on the machine.

When ordering spare parts and in all telephone enquiries or correspondence, the model designation and the Product Identification Number (PIN) must always be quoted.

Where applicable, the information on the additional plate, "INCL. PARTS" must be given.

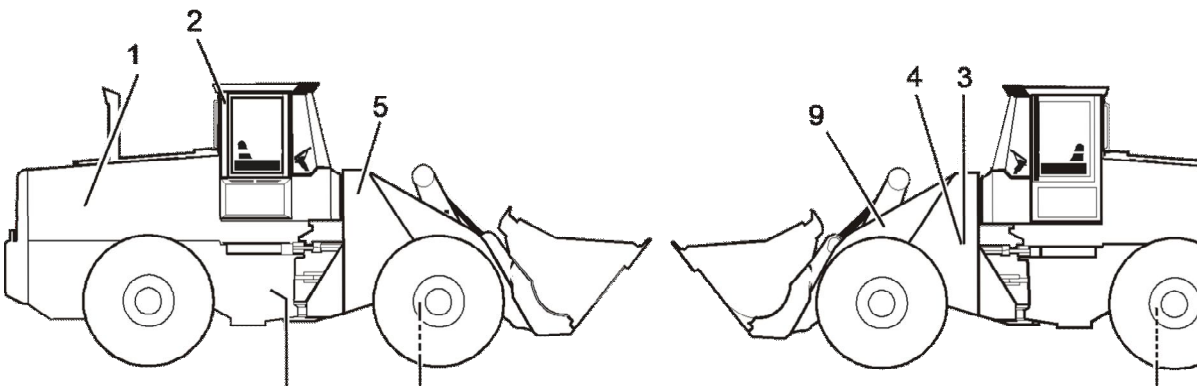


Figure 1

Product identification plates

1 Engine The engine type designation, part number and serial number are stamped into the cylinder block below the turbocharger (right-hand side of the machine).

3 Product identification plate Includes machine type, manufacturer's name and address. The PIN for the complete machine (includes model designation, engine code and serial number) is located on the left-hand side of the front frame.

5 Primary marking The PIN, model designation, engine code and serial number are stamped into the right-hand side of the front frame (shows the same PIN number as the product identification plate).

7 Transmission The transmission product identification number and serial number, as well as the manufacturer, are located on the right-hand side of the transmission.

8 Differential carrier assembly The differential carrier assembly product identification number and serial number, CIN and manufacturer are located on the differential housing.

2 Cab The serial number, machine type, manufacturer's name and address, ROPS/FOPS number and max. machine weight are located on the right-hand rear roof pillar inside the cab.

4 Additional plate Additional plate located below the product identification plate. Shows machine weight, engine output and year of manufacture as well as providing space for the CE-marking (only EU/EEA countries).

6 Rear axle The rear drive shaft component plate Component Identification Number, CIN, with product identification number and serial number, as well as the manufacturer, are located on the axle casing.

8 Front axle The front axle's component identification number (CIN), with product identification number, serial number and manufacturer is located on the axle casing.

9 Lifting frame The lifting frame's product identification number, serial number and manufacturer are located on its left-hand side.

Document Title: Capacities	Function Group: 030	Information Type: Service Information	Date: 4/19/2026
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Capacities

Engine, when changing oil incl. filter	16 l (4.2 US gal)
Fuel tank	210 l (55.4 US gal)
Cooling system, total	53 l (14.0 US gal)
Hydraulic transmission, total	33 l (8.7 US gal)
Hydraulic transmission, when changing oil incl. filter	25 l (6.6 US gal)
Dropbox when changing oil	4.7 l (1.2 US gal)
Front axle, when changing oil	33 l (8.7 US gal)
Rear axle	41 l (10.8 US gal)
Amount of refrigerant R134a	2.0 + 0.1 kg (4.4 + 0.2 lbs)
Hydraulic system, total	130 l (34.3 US gal)
Hydraulic oil tank	102 l (26.9 US gal)

Document Title: Capacities	Function Group: 030	Information Type: Service Information	Date: 4/19/2026
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Capacities

Engine, when changing oil incl. filter	24 l (6.3 US gal)
Fuel tank	255 l (67.3 US gal)
Cooling system, total	65 l (17.2 US gal)
Hydraulic transmission, total	45 l (11.9 US gal)
Hydraulic transmission, when changing oil incl. filter	35 l (9.2 US gal)
Front axle, when changing oil	33 l (8.7 US gal)
Rear axle	41 l (10.8 US gal)
Amount of refrigerant R134a	2.0 + 0.1 kg (4.4 + 0.2 lbs)
Hydraulic system, total	210 l (55.4 US gal)
Hydraulic oil tank	145 l (38.3 US gal)

Document Title: Conversion tables	Function Group: 030	Information Type: Service Information	Date: 4/19/2026
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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 m

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 mile² = 259 ha = 2.59 km²

Capacity

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 cm³ = 231 in³ = 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 tonne (metric) = 1.1023 tons (US) = 0.9842 tons (UK)					

Pressure

Unit	kgf/cm ²	bar	Pa=N/m ²	kPa	lbf/in ²	lbf/ft ²
kgf/cm ²	1	0.98067	98066.5	98.0665	14.2233	2048.16
bar	1.01972	1	100000	100	14.5037	2088.6
Pa=N/m ²	0.00001	0.001	1	0.001	0.00015	0.02086
kPa	0.01020	0.01	1000	1	0.14504	20.886
lbf/in ²	0.07032	0.0689	6894.76	6.89476	1	144
lbf/ft ²	0.00047	0.00047	47.88028	0.04788	0.00694	1
kg/cm ² = 735.56 Dry (mmHg) = 0.96784 atm						

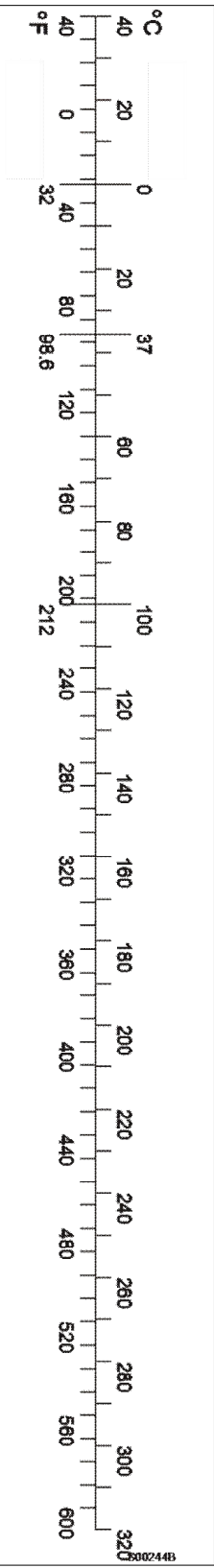
Explanation of units

Unit	abbreviation
Newtonmetre	Nm
Kilopondmetre	kgf m
Kilopascal	kPa
Megapascal	MPa
Kilowatt	kW
kilojoule	kJ
British Thermal Unit	BTU
Calorie	approx.

Approximate conversion

SI unit	Conversion factor	Non-SI	Conversion factor	SI
Torque				
N·m	x 10.2	= kg·cm	x 0.8664	= lb·in
N·m	x 0.74	= lbf·ft	x 1.36	= N·m
N·m	x 0.102	= kg·m	x 7.22	= lb·ft
Pressure (Pa = N / m²)				
kPa	x 4.0	= in.H ₂ O	x 0.249	= kPa
kPa	x 0.30	= in.Hg	x 3.38	= kPa
kPa	x 0.145	= psi	x 6.89	= kPa
bar	x 14.5	= psi	x 0.069	= bar
kgf/cm ²	x 14.22	= psi	x 0.070	= kgf/cm ²
N/mm ²	x 145.04	= psi	x 0.069	= bar
MPa	x 145	= psi	x 0.00689	= MPa
Power (W = J / s)				
kW	x 1.36	= hp (cv)	x 0.736	= kW
kW	x 1.34	= bhp	x 0.746	= kW
kW	x 0.948	= BTU/s	x 1.055	= kW
W	x 0.74	= ft·lb/s	x 1.36	= W
Energy (J = Nm)				
kJ	x 0.948	= BTU	x 1.055	= kJ

J	x 0.239	= calorie	x 4.19	= J
Speed and acceleration				
m / s ²	x 3.28	= ft / s ²	x 0.305	= m / s ²
m / s	x 3.28	= ft / s	x 0.305	= m / s
km / h	x 0.62	= mph	x 1.61	= km / h
Horsepower/ torque				
Bhp x 5252 rpm = TQ (lb-ft)		TQ x rpm 5252 = bhp		
Temperature				
°C = (°F - 32)/1.8		°F = (°C x 1.8) + 32		
Flow factor				
l / min (dm ³ / min)	x 0.264	= US gal / min x 3.785	= litres/min	



Document Title: Section 2 Engine	Function Group: 030	Information Type: Service Information	Date: 4/19/2026
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Section 2 Engine

Engine	
Type designation	TD63KBE, part no. 8188107
Flywheel output at 2100 rpm	113 kW SAE J 1349 Net 113 kW DIN 70020
Gross output at 2100 rpm	118 kW SAE J 1349 Gross
Max. torque at 1100 rpm	690 Nm SAE J 1349 Net 695 Nm SAE J 1349 Gross 690 Nm DIN 70020
Number of cylinders	6
Cylinder bore	98.43 mm (3.88 in)
Stroke	120 mm (4.72 in)
Cylinder displacement, total	5.48 dl ³
Compression ratio	18.3:1
Compression at starter motor speed, 200 rpm	2.4 MPa (348 psi)
Max. pressure difference allowed between cylinders at starter motor speed	0.3 MPa (44 psi)
Injection sequence	1-5-3-6-2-4
Idle speed, low	670 ±50 rpm
Idle speed, high	2420 ±60 rpm
Stall speed	2190 ±75 rpm
Stall speed, 3-speed + working hydraulics	1580 ±100 rpm

Valve system	
Valve clearance, (warm or cold engine)	
inlet valve	0.40 mm (0,016 in)
exhaust valve	0.55 mm (0,022 in)

Lubrication system	
Oil pressure	395–545 kPa (57–79 psi)
Oil pressure, idle min.	80 kPa (12 psi)

Fuel feed pump	
Type	Piston pump
Feed pressure	100–150 kPa (15–22 psi)

Fuel injection pump	
Type	In-line pump
Pump timing setting	13° BTDC

Injectors	
Type	Multi-hole nozzle (6 holes)

Opening pressure	25 + 0.8 MPa (3625 + 116 psi)
Setting pressure, for new spring	26 + 0.8 MPa (3770 + 116 psi)

Air cleaner	
Triple-stage air cleaning:	Pre-cleaner – primary filter – safety filter

Intercooler	
Type	Liquid/air-cooled with separate coolant pump

Cooling system	
Type	92
Header tank cap opens at	50 kPa (7 psi)

Thermostat	
Type	Piston thermostat
Number of thermostats	1
Begins to open at	82 °C (180 °F)
Fully open at	92 °C (198 °F)

Cold-start device	
Preheating coil	In induction manifold

Document Title: Section 2 Engine	Function Group: 030	Information Type: Service Information	Date: 4/19/2026
Profile:			

Section 2 Engine

Engine	
Type designation	TD73KDE, part no. 8188126
Flywheel output at 2100 rpm	148 kW SAE J 1349 Net
Gross output at 2100 rpm	153 kW SAE J 1349 Gross
Max. torque at 1100 rpm	920 Nm (678.5 lbf ft) SAE J1349 Net 925 Nm (682.2 lbf ft) SAE J1349 Gross
Number of cylinders	6
Cylinder bore	104.77 mm (4.124 in)
Stroke	130 mm (5.12 in)
Cylinder displacement, total	6.7 dm ³ (1.77 US gal)
Compression ratio	17.5:1
Compression at starter motor speed, 200 rpm	2.4 MPa (348 psi)
Max. pressure difference allowed between cylinders at starter motor speed	0.3 MPa (44 psi)
Injection sequence	1-5-3-6-2-4
Idle speed, low	670 ±50 rpm
Idle speed, high	2345 ±60 rpm
Stall speed	2120 ±75 rpm

Valve system	
Valve clearance, (warm or cold engine)	
inlet valve	0.40 mm (0.016 in)
exhaust valve	0.55 mm (0.022 in)

Lubrication system	
Oil pressure	375–527 kPa (54–76 psi)
Oil pressure, idle min.	50 kPa (7 psi)

Fuel feed pump	
Type	Piston pump
Feed pressure	100–150 kPa (15–22 psi)

Fuel injection pump	
Type	In-line pump
Pump timing setting	9° BTDC

Injectors	
Type	Multi-hole nozzle (6 holes)
Opening pressure	25 + 0.8 MPa (3625 + 116 psi)
Setting pressure, for new spring	26 + 0.8 MPa (3770 + 116 psi)

Air cleaner	
Triple-stage air cleaning:	Pre-cleaner – primary filter – safety filter

Intercooler	
Type	Liquid/air-cooled with separate coolant pump

Cooling system	
Type	Closed system
Header tank cap opens at	50 kPa (7 psi)

Thermostat	
Type	Piston thermostat
Number of thermostats	1
Begins to open at	82 °C (180 °F)
Fully open at	92 °C (198 °F)

Hydraulically driven cooling fan (optional equipment for L120D)	
Max. fan motor speed	1200 rpm with fan programme A
	1400 rpm with fan programme B
	1550 rpm with fan programme C
Base rotation speed	400 rpm
Max. pressure (for pressure check using the service display unit)	21.0 MPa (3045 psi)

Cold-start device	
Preheating coil	In induction manifold

Document Title: Section 3 Electrical system	Function Group: 030	Information Type: Service Information	Date: 4/19/2026
Profile:			

Section 3 Electrical system

System voltage	24 V
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Battery	
Number of thermostats	2 (connected in series)
Battery disconnect switch (Frame connection)	connected to negative terminal
Voltage	12 V
Capacity	105 Ah/battery
Battery electrolyte density at fully charged battery	1.275–1.285 kg/dm ³ (10.65–10.73 lbs/US gal)
The battery must be recharged at a density of	1.250 kg/dm ³ (10.44 lbs/US gal)

Alternator with regulator	
Type	Alternating current
Output (rated output)	1680 W
Voltage, at + 20 °C (68 °F)	28.5 ±0.15V
Current, max.	60 A
Resistance across rotor winding	13.5 Ω
Resistance in stator winding	0.12 Ω

Starter motor	
Output	5.4 kW

Bulbs	Watt	Base
Headlights, asymmetric	75/70	P43t - 38 (H4)
Work lights, front (halogen)	70	PK 22 s (H3)
Parking lights	4	BA 9 s
Tail lights	10	BA 15 s
Work lights, rear (halogen)	70	PK 22 s (H3)
Cab light	10	BA 15 s
Centre instrument panel	1.2	W 2x 4.6 d
Guide lights in switches	1.2	W 2x 4.6 d
Side lights	5	SV 8.5
Brake lights	21	BA 15 s
Direction indicators, rear	21	BA 15 s
Direction indicators, side	21	BA 15 s

Document Title: Section 3 Electrical system	Function Group: 030	Information Type: Service Information	Date: 4/19/2026
Profile:			

Section 3 Electrical system

System voltage	24 V
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Battery	
Number of thermostats	2 (connected in series)
Battery disconnect switch (Frame connection)	connected to negative terminal
Voltage	12 V
Capacity	140 Ah/battery
Battery electrolyte density at fully charged battery	1.275–1.285 kg/dm ³ (10.65–10.73 lbs/US gal)
The battery must be recharged at a density of	1.250 kg/dm ³ (10.44 lbs/US gal)

Alternator with regulator	
Type	Alternating current
Output (rated output)	1680 W
Voltage, at + 20 °C	28.5 ±0.15V
Current, max.	60 A
Resistance across rotor winding	13.5 Ω
Resistance in stator winding	0.12 Ω

Starter motor	
Output	5.4 kW

Bulbs	Watt	Base
Headlights, asymmetric	75/70	P43t - 38 (H4)
Work lights, front (halogen)	70	PK 22 s (H3)
Parking lights	4	BA 9 s
Tail lights	10	BA 15 s
Work lights, rear (halogen)	70	PK 22 s (H3)
Cab light	10	BA 15 s
Centre instrument panel	1.2	W 2x 4.6 d
Guide lights in switches	1.2	W 2x 4.6 d
Side lights	5	SV 8.5
Brake lights	21	BA 15 s
Direction indicators, rear	21	BA 15 s
Direction indicators, side	21	BA 15 s

Document Title: Section 4 Power transmission	Function Group: 030	Information Type: Service Information	Date: 4/19/2026
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Section 4 Power transmission

Disengagement function	
Pressure sensor (SE 501), closing pressure (located on foot brake valve)	2.0 ±0.3 MPa (290 ±44 psi)

Torque converter	
Type	Single-stage
Torque amplification, at stall	2.85:1
Torque converter safety valve	0.84 ±0.18 MPa (122 ±26 psi)

Hydraulic transmission	
Type	Hydro-mechanical
Make	Volvo
Designation	HT205
Product number	22525
Number of gears	4 forward, 4 reverse
Gearshifting system	Electro-hydraulic

Speed range (tyre equipment 20.5-25)	
1st	0–7.3 km/h (0–4.5 mph)
2nd	0–13.3 km/h (0–8.3 mph)
3rd	0–25.2 km/h (0–15.6 mph)
4th	0–35.2 km/h (0–21.8 mph)

Oil pressure, at high idle speed	
Main pressure	1.37–1.58 MPa (199–229 psi)
Clutch pressure, 1st – 4th gear, F – R	1.37–1.58 MPa (199–229 psi)
Torque converter pressure, out	0.20–0.50 MPa (29–73 psi)
Lubricating oil pressure	0.16–0.22 MPa (23–32 psi)

Drive axles	
Type	Floating axle shafts with planetary gear hub reductions
Make	Volvo
Designation	
Front	AWB31
Rear	AWB30
Gear ratio, total	
Front	18.37:1
Rear	18.37:1
Differential lock	Front axle
Differential lock, control	Electro-hydraulic

Document Title: Section 4 Power transmission	Function Group: 030	Information Type: Service Information	Date: 4/19/2026
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Section 4 Power transmission

Disengagement function	
Pressure sensor (SE 501), closing pressure (located on foot brake valve)	2.0 ±0.3 MPa (290 ±44 psi)

Torque converter	
Type	Single-stage
Torque amplification, at stall	2.66:1
Torque converter safety valve	1.0 MPa (145 psi)

Hydraulic transmission	
Type	Hydro-mechanical
Make	Volvo
Designation	HT131
Product number	22524
Number of gears	4 forward, 4 reverse
Gearshifting system	Electro-hydraulic

Speed range (tyre equipment 20.5–25)	
1st	0–7.1 km/h (0–4.4 mph)
2nd	0–13.3 km/h (0–8.3 mph)
3rd	0–27.7 km/h (0–17.2 mph)
4th	0–38.2 km/h (0–23.7 mph)

Oil pressure, at high idle speed	
Main pressure	1.45–1.68 MPa (210–244 psi)
Clutch pressure, 1st – 4th gear, F – R	1.35–1.58 MPa (196–229 psi)
Torque converter pressure, out	0.57–0.69 MPa (83–100 psi)
Lubricating oil pressure	0.35–0.45 MPa (51–65 psi)

Drive axles	
Type	Floating axle shafts with planetary gear hub reductions
Make	Volvo
Designation	
Front	AWB30
Rear	AWB30
Gear ratio, total	
Front	18.37:1
Rear	18.37:1

Differential lock	Front axle
Differential lock, control	Electro-hydraulic

Document Title: Section 5 Brakes	Function Group: 030	Information Type: Service Information	Date: 4/19/2026
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Section 5 Brakes

Wheel brake	
Type	Dual circuit, fully hydraulic wet disc brakes
Brake pad area per wheel	1290 cm ² (200 in ²)
Brake disc, min. thickness	7.2 mm (0.28 in)
Brake discs, thickness, new disc	9.6 mm (0.38 in)
Accumulator capacity	1.0 l, 2 accumulators
Precharge pressure, new accumulator	5 MPa (725 psi)
Min. allowed precharge pressure	3.5 MPa (508 psi)

Foot brake valve/unloading valve	
System pressure, unloading (cut-out) pressure	15.0–15.5 Mpa (2175–2248 psi)
System pressure, charging (cut-in) pressure	12.0–13.0 MPa (1740–1885 psi)
Max. output brake pressure	7.4–8.6 Mpa (1073–1247 psi)
Low pressure indication	8.1–9.9 Mpa (1175–1436 psi)

Brake pump (common with servo system) is included in the hydraulic system double-pump	
Type	Vane pump
Displacement	15.9 cm ³ (0.97 in ³)
Flow at 2200 rpm and 10 MPa pressure	31.0 l/min (8 US gal/min)
Servo pressure (throughout entire engine speed range)	3.0–4.0 MPa (435–580 psi)
Increased pressure, separate attachment locking (optional equipment)	15 ±0.5 MPa (2175 ±73 psi)
Accumulator 0.5 l (0.13 US gal) in servo circuit, precharge pressure	1.5 MPa (218 psi)

Parking brake	
Type	Mechanically or electrically operated disc brake, located externally on the hydraulic transmission front output shaft.
Brake pads	
thickness	10 mm (0.39 in)
thickness, min.	2 mm (0.08 in)
Brake disc	
thickness	22 mm (0.87 in)
thickness, min.	18 mm (0.71 in)
max. allowed wear	4 mm (0.16 in)

Document Title: Section 5 Brakes	Function Group: 030	Information Type: Service Information	Date: 4/19/2026
Profile:			

Section 5 Brakes

Wheel brake	
Type	Dual circuit, fully hydraulic wet disc brakes
Brake pad area per wheel	1290 cm ² (200 in ²)
Brake disc, min. thickness	7.2 mm (0.28 in)
Brake discs, thickness, new disc	9.6 mm (3.8 in)
Accumulator capacity	1.0 l, 2 accumulators
Precharge pressure, new accumulator	5 MPa (725 psi)
Min. allowed precharge pressure	3.5 MPa (508 psi)

Foot brake valve/unloading valve	
System pressure, unloading (cut-out) pressure	15.0–15.5 MPa (2175–2248 psi)
System pressure, charging (cut-in) pressure	12.0–13.0 MPa (1740–1885 psi)
Max. output brake pressure	7.4–8.6 MPa (1073–1247 psi)
Low pressure indication	8.1–9.9 MPa (1175–1436 psi)

Brake pump (common with servo system) is included in the hydraulic system double-pump	
Type	Vane pump
Displacement	15.9 cm ³ (0.97 in ³)
Flow at 2100 rpm and 10 MPa (1450 psi)	29.5 l/min (7.8 US gal/min)
Servo pressure (throughout entire engine speed range)	3.0–4.0 MPa (435–580 psi)
Increased pressure, separate attachment locking (optional equipment)	15 ±0.5 MPa (2175 ±73 psi)
Accumulator 0.5 l (0.13 US gal) in servo circuit, precharge pressure	1.5 MPa (218 psi)

Parking brake	
Type	Electrically controlled wet disc brake, located internally on the hydraulic transmission output shaft.
Brake disc thickness, min.	4.5 mm (0.18 in)
Control pressure	12.0–15.5 MPa (1740–2248 psi)

Document Title: Section 6 Steering system	Function Group: 030	Information Type: Service Information	Date: 4/19/2026
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Section 6 Steering system

Steering	
Type	Load-sensing hydrostatic
Steering angle	±40°
Number of steering wheel turns, total	3.75 revolutions
Steering time (approx.), full lock - full lock, slow idle	6.5 s
Steering time (approx.), full lock - full lock, fast idle	4 s

Oil pump	
Type	Axial piston pump, variable displacement
Displacement	45 cm ³ (2.7 in ³)
Flow at 2100 rpm and 10 MPa (1450 psi)	91 l/min (24 US gal/min)
Working pressure, high idle speed	21 ±0.35 MPa (3045 ±51 psi)
Hold (stand-by) pressure, low idle speed	2.8–3.3 MPa (406–479 psi)

Shift valve	
Cut-in pressure of steering cylinder piston rod end	17.5 ±1.0 MPa (2538 145 psi) pump pressure 16.0 MPa (2320 psi) LS-pressure

Steering valve	
Type	"Closed centre"

Shock valves	
Number of valves	2
Opening pressure at 10 l/min (2.6 US gal/min)	28 MPa (4060 psi)

Steering cylinder	
Type	Double-acting
Piston rod diameter	50 mm (2 in)
Inside diameter/stroke	80/476 mm (3.15/18.74 in)

Document Title: Section 6 Steering system	Function Group: 030	Information Type: Service Information	Date: 4/19/2026
Profile:			

Section 6 Steering system

Steering	
Type	Load-sensing hydrostatic
Steering angle	±40°
Number of steering wheel turns, total	4.15 revolutions
Steering time (approx.), full lock – full lock, slow idling speed.	6.5 s
Steering time (approx.), full lock – full lock, fast idling speed	2.5 s

Oil pump	
Type	Axial piston pump, variable displacement
Flow at 2100 rpm and 10 MPa pressure	91 l/min (24 US gal/min)
Working pressure, high idle speed	21 ±0.35 MPa (3045 ±51 psi)
Hold (stand-by) pressure, low idle speed	2.8–3.3 MPa (406–479 psi)

Steering valve	
Type	"Closed centre"

Shock valves	
Number of valves	2
Opening pressure at 10 l/min (2.6 US gal/min)	28 MPa (4060 psi)

Steering cylinder	
Type	Double-acting
Piston rod diameter	40 mm (1.6 in)
Inside diameter/stroke	70/419 mm (2.76/16.5 in)

Document Title: Section 8 Cab	Function Group: 030	Information Type: Service Information	Date: 4/19/2026
Profile:			

Section 8 Cab

Air-conditioning unit temperatures in performance tests				
	Ambient temperature			
	Air conditioning temperature values			
Relative humidity of the air	25 °C (77 °F)	30 °C (86 °F)	35 °C (95 °F)	40 °C (104 °F)
10%	7 °C (45 °F)	7 °C (45 °F)	7 °C (45 °F)	7 °C (45 °F)
20%	7 °C (45 °F)	7 °C (45 °F)	7 °C (45 °F)	7 °C (45 °F)
30%	7 °C (45 °F)	7 °C (45 °F)	7 °C (45 °F)	7 °C (45 °F)
40%	7 °C (45 °F)	7 °C (45 °F)	7 °C (45 °F)	8 °C (46 °F)
50%	7 °C (45 °F)	7 °C (45 °F)	8 °C (46 °F)	11 °C (52 °F)
60%	7 °C (45 °F)	8 °C (46 °F)	10 °C (50 °F)	14 °C (57 °F)
70%	7 °C (45 °F)	10 °C (50 °F)	13 °C (55 °F)	17 °C (63 °F)
80%	7 °C (45 °F)	11 °C (52 °F)	15 °C (59 °F)	20 °C (68 °F)
90%	7 °C (45 °F)	12 °C (54 °F)	18 °C (64 °F)	23 °C (73 °F)

Document Title: Section 8 Cab	Function Group: 030	Information Type: Service Information	Date: 4/19/2026
Profile:			

Section 8 Cab

Air-conditioning unit temperatures in performance tests				
	Ambient temperature			
	Air conditioning temperature values			
Relative humidity of the air	25 °C (77° F)	30 °C (86° F)	35 °C (95° F)	40 °C (104° F)
10%	7 °C (45°F)	7 °C (45° F)	7 °C (45° F)	7 °C (45° F)
20%	7 °C (45°F)	7 °C (45° F)	7 °C (45° F)	7 °C (45°F)
30%	7 °C (45°F)	7 °C (45° F)	7 °C (45° F)	7 °C (45°F)
40%	7 °C (45°F)	7 °C (45° F)	7 °C (45° F)	8 °C (46°F)
50%	7 °C (45°F)	7 °C (45° F)	8 °C (46° F)	11 °C (52°F)
60%	7 °C (45°F)	8 °C (46° F)	10 °C (50° F)	14 °C (57°F)
70%	7 °C (45°F)	10 °C (50° F)	13 °C (55° F)	17 °C (63°F)
80%	7 °C (45°F)	11 °C (52°F)	15 °C (59°F)	20 °C (68°F)
90%	7 °C (45°F)	12 °C (54°F)	18 °C (64°F)	23 °C (73°F)

Document Title: Section 9 Hydraulic system	Function Group: 030	Information Type: Service Information	Date: 4/19/2026
Profile:			

Section 9 Hydraulic system

Hydraulic system	
Type	Servo-assisted of "open centre" type

Control valve	
Shock valve, rear tilt (plus side)	24.5 ±0.6 MPa (3553 87 psi)
Shock valve, forward tilt (minus side)	17.5 ±0.6 MPa (2538 87 psi)
Shock valve, lift	32.0 ±0.6 MPa (4640 87 psi)
Back-up valve, forward tilt and lower	1.0–2.0 MPa (145–290 psi)

Operating times (approx.), fast idle	Seconds
Lift, with SAE work load	6
Lower, without load	3
Forward tilt, with SAE work load	2
Forward tilt, without load	3

Hydraulic oil pump (working hydraulics) included in hydraulic system double-pump	
Type	Vane pump, fixed displacement
Displacement	136 cm ³ (8.3 in ³)
Working pressure, high idle speed	22.5 MPa (225 bar) (3263 psi)
Flow at 2100 rpm and 10 MPa (1450 psi)	275 l/min (73 US gal/min)

Servo pump (common with brake system) included in hydraulic system double-pump	
Type	Vane pump
Displacement	15.9 cm ³ (0.97 in ³)
Flow at 2100 rpm and 10 MPa (1450 psi) pressure	29.5 l/min (7.8 US gal/min)
Servo pressure (throughout entire engine speed range)	3.0–4.0 MPa (435–580 psi)
Increased pressure, separate attachment locking (optional equipment)	15 ±0.5 MPa (2175 ±73 psi)
Accumulator 0.5 l (0.13 US gal) in servo circuit, precharge pressure	1.5 MPa (218 psi)

Boom Suspension System	
Accumulator, precharge pressure	3.0 MPa (435 psi)
	6.0 MPa (870 psi)

The pressures of 3.0 MPa and 6.0 MPa are minimum and maximum values for the accumulator precharging pressure. Suspension characteristics can be adapted by individually precharging the accumulator/accumulators to a pressure between the min. and max. values, i.e. 3.0 MPa and 6.0 MPa.

Lift cylinder	
Type	Double-acting
Piston rod diameter	80 mm (3.1 in)
Inside diameter/stroke	160/676 mm (6.3/26.6 in)

Tilt cylinder	
Type	Double-acting
Piston rod diameter	110 mm (4.3 in)
Inside diameter/stroke	230/412 mm (9.1/16.2 in)

Document Title: Section 9 Hydraulic system	Function Group: 030	Information Type: Service Information	Date: 4/19/2026
Profile:			

Section 9 Hydraulic system

Hydraulic system	
Type	Servo-assisted of "open centre" type

Control valve	
Shock valve, rear tilt (plus side)	24.5 ±0.6 MPa (3553 87 psi)
Shock valve, forward tilt (minus side)	17.5 ±0.6 MPa (2538 87 psi)
Shock valve, lift	32.0 ±0.6 MPa (4640 87 psi)
Back-up valve, forward tilt and lower	1.0–2.0 MPa (145–290 psi)

Operating times (approx.), fast idle	Seconds
Lift, with SAE work load	5.5
Lower, without load	2.5
Forward tilt, with SAE work load	2
Forward tilt, without load	2.5

Hydraulic oil pump (working hydraulics) included in hydraulic system double-pump	
Type	Vane pump, fixed displacement
Displacement	98.3 cm ³ (6 in ³)
Working pressure, high idle speed	22.5 ±0.4 MPa (3263 ±58 psi)
Flow at 2200 rpm and 10 MPa (1450 psi)	212 l/min (56 US gal/min)

Servo pump (common with brake system) included in hydraulic system double-pump	
Type	Vane pump
Displacement	15.9 cm ³ (0.97 in ³)
Flow at 2200 rpm and 10 MPa	31.0 l/min (8 US gal/min)
Servo pressure (throughout entire engine speed range)	3.0–4.0 MPa (435–580 psi)
Increased pressure, separate attachment locking (optional - equipment)	15 ±0.5 MPa (2175 ±73 psi)
Accumulator 0.5 l (0.13 US gal) in servo circuit, precharge pressure	1.5 MPa (218 psi)

Boom Suspension System	
Accumulator, precharge pressure, 1 pc.	3.0 MPa (435 psi)

Lift cylinder	
Type	Double-acting
Piston rod diameter	70 mm (2.76 in)
Inside diameter/stroke	130/710 mm (5.1/27.9 in)

Tilt cylinder	
Type	Double-acting
Piston rod diameter	90 mm (3.5 in)

Inside diameter/stroke

190/430 mm (7.5/16.9 in)

Document Title: Tightening torques	Function Group: 030	Information Type: Service Information	Date: 4/19/2026
Profile:			

Tightening torques



Refer to Volvo standard tightening torques for bolted joints not listed here.

Engine	
Engine – engine mount	85 ±8 Nm (63 ±6 lbf ft)
Flywheel housing – hydraulic transmission	85 ±8 Nm (63 ±6 lbf ft)
Engine mount – tapered rubber damper	220 ±22 Nm (162 ±16 lbf ft)
Tapered rubber damper – frame	45 ±4.5 Nm (33 ±3 lbf ft)

Hydraulic transmission	
Transmission mount – transmission	220 ±22 Nm (162 ±16 lbf ft)
Transmission mount – rear frame	220 ±22 Nm (162 ±16 lbf ft)
Lock bolt for rubber bushing	220 ±22 Nm (162 ±16 lbf ft)

Frame	
Counterweight – frame	430 ±43 Nm (317 ±32 lbf ft)
Hitch – frame	430 ±43 Nm (317 ±32 lbf ft)

Cab	
Cab, rear mount – frame	400–450 Nm (295–332 lbf ft)
Cab, front mount – frame	400–450 Nm (295–332 lbf ft)

Hydraulic system	
Hydraulic oil pump (working hydraulics)	220 ±22 Nm (162 ±16 lbf ft)

Lift/tilt cylinder	
Piston – piston rod	25 Nm (18 lbf ft)

Document Title: Tightening torques	Function Group: 030	Information Type: Service Information	Date: 4/19/2026
Profile:			

Tightening torques



Refer to Volvo standard tightening torques for bolted joints not listed here.

Engine	
Engine – engine mount	85 ±8 Nm (63 ±6 lbf ft)
Flywheel housing – hydraulic transmission	85 ±8 Nm (63 ±6 lbf ft)
Engine mount – tapered rubber damper	220 ±22 Nm (162 ±16 lbf ft)
Tapered rubber damper – frame	45 ±4.5 Nm (33 ±3 lbf ft)

Hydraulic transmission	Nm
Transmission mount – transmission	430 ±43 Nm (317 ±32 lbf ft)
Transmission mount – rear frame	220 ±22 Nm (162 ±16 lbf ft)
Lock bolt for rubber bushing	220 ±22 Nm (162 ±16 lbf ft)

Frame	Nm
Counterweight – frame	430 ±43 Nm (317 ±32 lbf ft)
Hitch – frame	430 ±43 Nm (317 ±32 lbf ft)

Cab	Nm
Cab, rear mount – frame	400–450 Nm (295–332 lbf ft)
Cab, front mount – frame	400–450 Nm (295–332 lbf ft)

Hydraulic system	Nm
Hydraulic oil pump (working hydraulics)	220 ±22 Nm (162 ±16 lbf ft)

Lift/tilt cylinder	Nm
Piston – piston rod	25 Nm (18 lbf ft)

Document Title: Volvo standard tightening torques	Function Group: 030	Information Type: Service Information	Date: 4/19/2026
Profile:			

Volvo standard tightening torques

The tightening torques in the following tables apply to the bolts and nuts with tensile strengths as noted below. The tables should be regarded as a general instruction for tightening torques of bolts and nuts which have no specified values indicated.

NOTE!

Torque values should be increased by 10% for flange bolt type U6FS. Bolts and nuts must be cleaned and lubricated with oil.

TENSILE STRENGTH 8.8 Metric coarse and fine threads

Threads	Nm	kgf m	lbf ft
M6	10 ±2	1.0 ±0.2	7.4 ±3.5
M8	24 ±5	2.4 ±0.5	18 ±3.5
M10	48 ±10	4.8 ±1.0	35 ±7.4
M12	85 ±18	8.5 ±1.8	63 ±13.0
M14	140 ±25	14.0 ±2.5	103 ±18.0
M16	220 ±45	22.0 ±4.5	160 ±33.0
M20	430 ±85	43.0 ±8.5	320 ±63.0
M24	740 ±150	74.0 ±15.0	550 ±110.0

TENSILE STRENGTH 10.9 Metric coarse and fine threads

Threads	Nm	kgf m	lbf ft
M6	12 ±2	1.2 ±0.2	9 ±1.5
M8	30 ±5	3.0 ±0.5	22 ±3.5
M10	60 ±10	6.0 ±1.0	44 ±7.5
M12	105 ±20	10.5 ±2.0	78 ±14.5
M14	175 ±30	17.5 ±3.0	130 ±22
M16	275 ±45	27.5 ±4.5	204 ±33
M20	540 ±90	54.0 ±9.0	400 ±66
M24	805 ±160	80.5 ±16.0	594 ±118

UNC threads. coarse pitch

Threads	Nm	kgf m	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

Product: L90D Volvo Wheel Loaders Service Manual

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7/8"	485 ±115	48.5 ±11.5	360 ±85
1"	725 ±175	72.5 ±17.5	530 ±130

Sample manual. Download All 717 pages at:

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