

Document Title: Description	Function Group: 000	Information Type: Service Information	Date: 4/6/2026
Profile: L110E Volvo			

Description

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Valid for serial numbers			
Model	Production site	Serial number start	Serial number stop
L110E Volvo			

Wheel loaders L110E and L120E are articulated four-wheel drive machines.

The engine is a six-cylinder, four-stroke, direct-injection, turbocharged diesel engine of the D7D type.

The transmission is hydro-mechanical where all gears are in constant mesh and the designation is HTE204 for L110E and HTE205 for L120E.

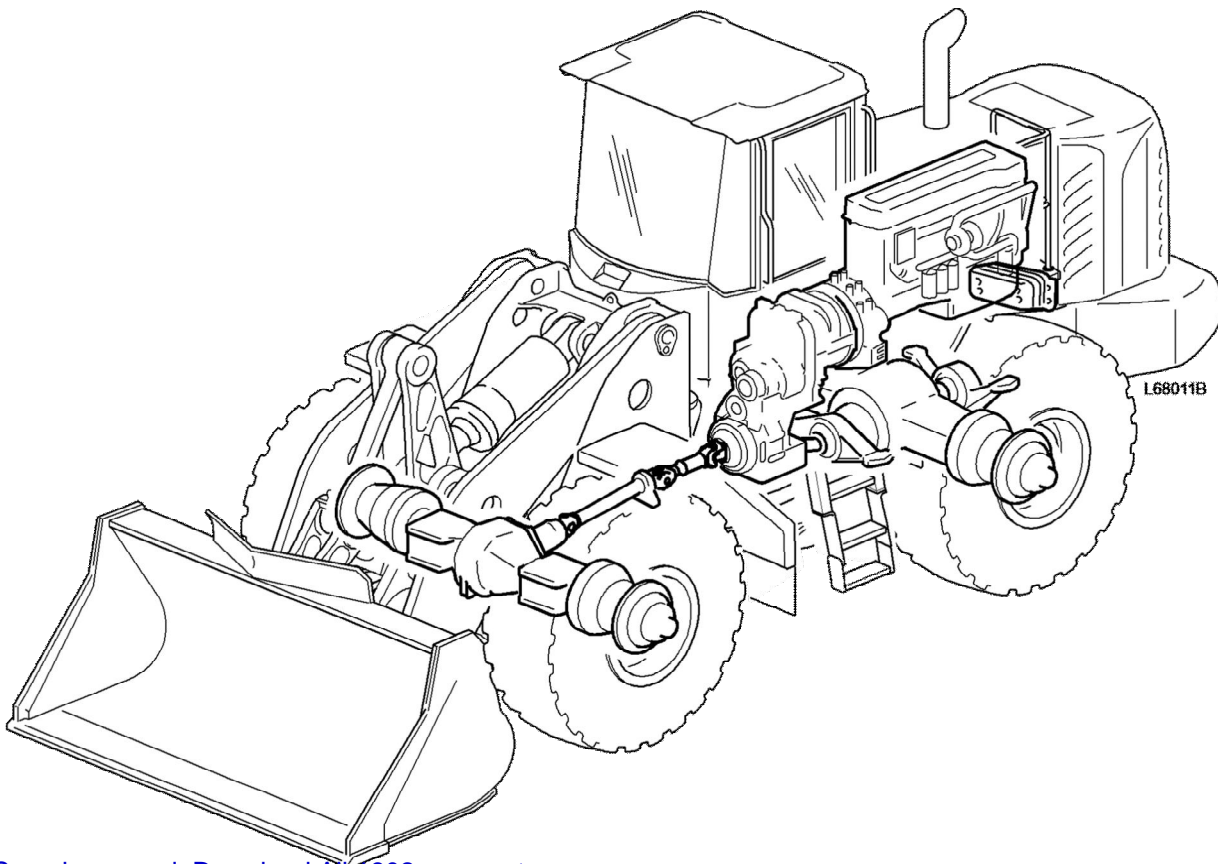
There is a single-stage hydraulic torque converter between engine and transmission.

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 service and parking brakes on the machine are wet type disc brakes.

The service brakes are integrated in the respective wheel hubs and the parking brake is located on the output shaft in the transmission.

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



Product: L110E Volvo Wheel Loaders Service Manual

Full Download: <https://www.arepairmanual.com/downloads/l110e-volvo-wheel-loaders-service-manual/>

Figure 1

Sample manual. Download All 1802 pages at:

<https://www.arepairmanual.com/downloads/l110e-volvo-wheel-loaders-service-manual/>

Document Title: Measurement conversion tables	Function Group: 030	Information Type: Service Information	Date: 4/6/2026
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Measurement conversion tables

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L110E Volvo			

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

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 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 ton (metric) = 1.1023 ton (US) = 0.9842 ton (UK)

Pressure

Unit	kp/cm ²	bar	Pa=N/m ²	kPa	lbf/in ²	lbf/ft ²
kp/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/cm² = 735.56 Dry (mmHg) = 0.96784 atm

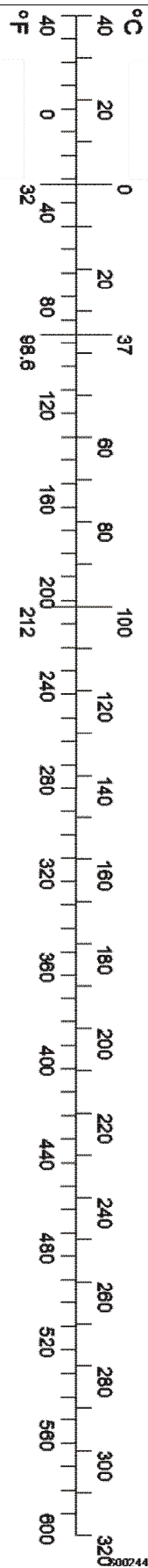
Unit explanations

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 ₂ O	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/cm ²	x14.22	=psi	x0.070	=kp/cm ²
N/mm ²	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				
°C = (°F-32)/1.8			°F = (°C x1.8) +32	
Flow factor				
l/min (dm ³ /min)	x0.264	= US gal/min	x3.785	= liter/min



Document Title: Volvo standard tightening torques	Function Group: 030	Information Type: Service Information	Date: 4/6/2026
Profile: L110E Volvo			

Volvo standard tightening torques

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Model	Production site	Serial number start	Serial number stop
L110E Volvo			

The tightening torques in the following tables apply to bolts and nuts with tensile strength. The tables should be used as a general instruction for tightening bolts and nuts without specified values. The charts contains values for course thread bolts and nuts.

Torque values should be increased with $\approx 10\%$, for flange bolts.

All standard torques for bolts are without surface treatment.

The standard torque for bolts lubricated with oil should be reduced with 20% of the given value.

Standard tightening torque charts

Bolt size Metric Coarse Threads	Tensile strength 8.8		Tensile strength 10.9	
	(Nm)	(lbf ft)	(Nm)	(lbf ft)
M5	6	4	8	6
M6	10	7	14	11
M8	25	18	35	26
M10	50	37	70	52
M12	87	64	122	90
M14	139	103	195	144
M16	213	157	299	220
M18	293	216	413	305
M20	416	307	585	432
M24	719	530	1010	745
M27	1060	782	1490	1100
M30	1140	840	2025	1493
M36	2500	1844	3600	2653

Bolt size Inch SAE Coarse Threads	Tensile strength 5		Tensile strength 8	
	(lbf ft)	(Nm)	(lbf ft)	(Nm)
1/4	10	13,6	14	19
5/16	21	28,5	29	39,3
3/8	37	50,2	52	70
7/16	59	80	84	114
1/2	90	122	128	174
9/16	130	176	184	250
5/8	180	244	254	345

3/4	320	434	451	612
7/8	515	700	728	988
1	775	1052	1091	1480
1 1/8	953	1290	1545	2100
1 1/4	1344	1823	2180	2960
1 3/8	1600	2170	2650	3600
1 1/2	2000	2714	3200	4340

Document Title: Lubrication specifications	Function Group: system, 030	Information Type: Service Information	Date: 4/6/2026
Profile: L110E Volvo			

Lubrication system, specifications

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Model	Production site	Serial number start	Serial number stop
L110E Volvo			

Lubrication system	
Oil pressure maximum warm engine, high idling speed	400-500 kPa (4-5 bar) (58-72 psi)
Oil pressure minimum warm engine, low idling speed	60 kPa (0.6 bar) (8.7 psi)

Document Title: Fuel system, tightening torques	Function Group: 030	Information Type: Service Information	Date: 4/6/2026
Profile: L110E Volvo			

Fuel system, tightening torques

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Valid for serial numbers			
Model	Production site	Serial number start	Serial number stop
L110E Volvo	Arvika	2001	3499
L110E Volvo	Asheville	61001	69999
L110E Volvo	Pederneiras	70401	79999

NOTICE

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

Fuel rail, attaching bolts	30 Nm (22 lbf ft)
Electrical cables, attaching bolts	1.4 ±0.1 Nm (1.03 lbf ft)
Fuel delivery line (between fuel rail and injector)	25 Nm (18.4 lbf ft)
Injector, yoke	
Step 1:	5 Nm (3.7 lbf ft)
Step 2:	120° ±5 °
Fuel control valve (FCV)	30 Nm (22 lbf ft)
Return line to control valve	39 Nm (28.8 lbf ft)
Fuel feed filter, attaching bolts	30 Nm (22 lbf ft)
Feed line to control valve (from fuel filter)	49 Nm (39.1 lbf ft)
Feed pipe (on control valve)	34 Nm (25.1 lbf ft)
High-pressure pump, attaching bolts	
Step 1:	10 Nm (7.4 lbf ft)
Step 2:	50 Nm (36.9 lbf ft)
Safety valve (PRV), fuel rail	100 Nm (73.8 lbf ft)
High-pressure sensor, fuel rail	70 Nm (51.6 lbf ft)

Document Title: Thermostat, specifications	Function Group: 030	Information Type: Service Information	Date: 4/6/2026
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Cooling system, specifications

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Valid for serial numbers			
Model	Production site	Serial number start	Serial number stop
L110E Volvo			

Cooling system	
Type	Closed system
	Hydraulically driven cooling fan
Radiator cap valve opens at	50 kPa (0,5 bar) (7.3 psi)

Document Title: Engine, weight	Function Group: 030	Information Type: Service Information	Date: 4/6/2026
Profile: L110E Volvo			

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Engine, weight

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Valid for serial numbers			
Model	Production site	Serial number start	Serial number stop
L110E Volvo	Arvika	1001	2165
L110E Volvo	Asheville	60001	60999
L110E Volvo	Pederneiras	70201	70399

Engine	
Engine	675 kg (1488 lb)
Engine hood	240 kg (529 lb)
Partition, engine hood	45 kg (99 lb)

Document Title: Engine, weight	Function Group: 030	Information Type: Service Information	Date: 4/6/2026
Profile: L110E Volvo			

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Engine, weight

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Valid for serial numbers			
Model	Production site	Serial number start	Serial number stop
L110E Volvo	Arvika	2201	3499
L110E Volvo	Asheville	61001	69999
L110E Volvo	Pederneiras	70401	79999

Engine	
Engine	685 kg (1510 lb)
Engine hood	240 kg (529 lb)
Partition, engine hood	45 kg (99 lb)

Document Title: Engine, specifications	Function Group: 030	Information Type: Service Information	Date: 4/6/2026
Profile: L110E Volvo			

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Engine, specifications

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Valid for serial numbers			
Model	Production site	Serial number start	Serial number stop
L110E Volvo	Arvika	2002	3499

Engine		
Designation		D7ELBE3
Flywheel output at 28.3 r/s (1700 rpm)	ISO 3046	170 kW (228 hp)
Flywheel output at 28.3 r/s (1700 rpm)	ISO 9249, SAE J1349	169 kW (227 hp)
Flywheel output at 28.3 r/s (1700 rpm)	SAE J1995, gross	170 kW (228 hp)
Flywheel output at 35.0 r/s (2100 rpm)	ISO 9249	149 kW (200 hp)
Flywheel output at 35.0 r/s (2100 rpm)	SAE J1349, net	149 kW (200 hp)
Torque at 25 r/s (1500 rpm)	ISO 3046	1065 Nm (9426 lbf ft)
Torque at 23.3 r/s (1400 rpm)	SAE J1349	1059 Nm (9373 lbf ft)
Torque at 25 r/s (1500 rpm)	SAE J1995, gross	1065 Nm (9426 lbf ft)
Number of cylinders		6
Cylinder bore		108 mm (4.251 in)
Stroke		130 mm (5.118 in)
Cylinder capacity		7150 cm ³ (436 in ³)
Compression ratio		18:1
Order of injection		1-5-3-6-2-4
Idling speed, low		780 ±50 rpm
Idling speed, high		2250 ±35 rpm
Stall speed transmission		2090 ±75 rpm
Stall speed transmission and hydraulics		2050 ±75 rpm

Document Title: Engine, specifications	Function Group: 030	Information Type: Service Information	Date: 4/6/2026
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Engine, specifications

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Valid for serial numbers			
Model	Production site	Serial number start	Serial number stop
L110E Volvo			

Engine		
Designation		D7DLBE2
Flywheel output at 28.3 r/s (1700 rpm)	ISO 9249	154 kW (206.5 hp)
Flywheel output at 28.3 r/s (1700 rpm)	SAE J1349	154 kW (206.5 hp)
Flywheel output at 28.3 r/s (1700 rpm)	SAE J1995, gross	155 kW (208 hp)
Flywheel output at 35.0 r/s (2100 rpm)	ISO 9249	149 kW (200 hp)
Flywheel output at 35.0 r/s (2100 rpm)	SAE J1349, net	149 kW (200 hp)
Torque at 23.3 r/s (1400 rpm)	ISO 9249	1014 Nm (749 lbf ft)
Torque at 23.3 r/s (1400 rpm)	SAE J1349	1014 Nm (749 lbf ft)
Torque at 23.3 r/s (1400 rpm)	SAE J1995, gross	1023 Nm (752 lbf ft)
Number of cylinders		6
Cylinder bore		108 +0.02 mm (4.251 +0.0008 in)
Cylinder bore	Maximum when checking wear	108.1 mm (4.256 in)
Stroke		130 mm (5.118 in)
Cylinder capacity		7150 cm ³ (436 in ³)
Compression ratio		19:1
Order of injection		1-5-3-6-2-4
Idling speed, low		780 ±50 rpm
Idling speed, high		2250 ±35 rpm
Stall speed transmission		2070 ±35 rpm
Stall speed transmission and hydraulics		2030 ±50 rpm

Document Title: Engine, volume	Function Group: 030	Information Type: Service Information	Date: 4/6/2026
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Engine, volume

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Valid for serial numbers			
Model	Production site	Serial number start	Serial number stop
L110E Volvo			

Engine	
Engine oil incl. filter, total	22 l (5.8 US gal)
Engine oil incl. filter, when changing	21 l (5.5 US gal)

Document Title: Fuel system, specifications	Function Group: 030	Information Type: Service Information	Date: 4/6/2026
Profile: L110E Volvo			

Injectors, specifications

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Valid for serial numbers			
Model	Production site	Serial number start	Serial number stop
L110E Volvo	Arvika	1001	2199
L110E Volvo	Asheville	60001	60999
L110E Volvo	Pederneiras	70201	70399

Injectors	
Type	Multi-hole nozzle (7 holes)
Opening pressure	25 MPa (250 bar) (3526 psi)
Order of injection	1-5-3-6-2-4

Document Title: Fuel tank, volume	Function Group: 030	Information Type: Service Information	Date: 4/6/2026
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Fuel tank, volume

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Valid for serial numbers			
Model	Production site	Serial number start	Serial number stop
L110E Volvo	Arvika	1002	2165
L110E Volvo	Asheville	60001	60999
L110E Volvo	Pederneiras	70201	70201

Fuel tank	
Capacity, total	233 l (61.6 US gal)
Volume, usable	228 l (60.2 US gal)

Document Title: Fuel tank, volume	Function Group: 030	Information Type: Service Information	Date: 4/6/2026
Profile: L110E Volvo			

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Fuel tank, volume

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Valid for serial numbers			
Model	Production site	Serial number start	Serial number stop
L110E Volvo	Arvika	2202	3499
L110E Volvo	Asheville	61001	69999
L110E Volvo	Pederneiras	70401	79999

Fuel tank	
Capacity, total	275 l (72.6 US gal)
Volume, usable	269 l (71.0 US gal)

Document Title: Fuel feed pump, specifications	Function Group: 030	Information Type: Service Information	Date: 4/6/2026
Profile: L110E Volvo			

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Fuel feed pump, specifications

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Valid for serial numbers			
Model	Production site	Serial number start	Serial number stop
L110E Volvo	Arvika	1001	2165
L110E Volvo	Asheville	60001	69999
L110E Volvo	Pederneiras	70201	79999

Fuel feed pump	
Type	Rotor pump
Feed pressure	350–500 kPa (3.5–5.0 bar) (50.7–72.5 psi)

Document Title: Fuel feed pump, specifications	Function Group: 030	Information Type: Service Information	Date: 4/6/2026
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Fuel feed pump, specifications

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Valid for serial numbers			
Model	Production site	Serial number start	Serial number stop
L110E Volvo	Arvika	2202	3499
L110E Volvo	Asheville	61001	69999
L110E Volvo	Pederneiras	70401	79999

Fuel feed pump	
Type	Rotor pump
Feed pressure	500–700 kPa (5.0–7.0 bar) (72.5–101.5 psi) at 780–max. rpm

Document Title: Lighting, specifications	Function Group: 030	Information Type: Service Information	Date: 4/6/2026
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Lighting, specifications

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Valid for serial numbers			
Model	Production site	Serial number start	Serial number stop
L110E Volvo			

Bulbs	Watt	Socket
Headlights, asymmetric	75/70	P 43t - 38 (H4)
Parking light, front	4	BA 9 s
Parking light, rear	10	BA 15 s
Tail lights	10	BA 15 s
Brake lights	21	BA 15 s
Direction indicators, rear	21	BA 15 s
Direction indicators, side	21	BA 15 s
Side running lights	5	SV 8.5
Cab lighting	10	BA 15 s
Instrument lighting	2	BA 9 s
Control light panel	1.2	W 2x 4.6 d
Switches' guide lights	1.2	W 2x 4.6 d
Work lights, front halogen, cab ^(a)	70	PK 22 s (H3)
Work lights, rear halogen, cab ^(a)	70	PK 22 s (H3)
Work lights, front halogen[T1] ⓘ	70	PK 22 s (H3)
Work lights, rear halogen ^(a)	70	PK 22 s (H3)

[T1]Optional equipment.

Document Title: Valve system specifications	Function Group: 030	Information Type: Service Information	Date: 4/6/2026
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Valve system specifications

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Valid for serial numbers			
Model	Production site	Serial number start	Serial number stop
L110E Volvo	Arvika	2201	3499
L110E Volvo	Asheville	61001	69999
L110E Volvo	Pederneiras	70401	79999

Valve mechanism	
Valve arrangement	Top valves with IEGR-rocker arm
Inlet valves	To zero clearance, then 90° counter-clockwise
Exhaust valves	To zero clearance, then 150° counter-clockwise

IEGR-unit	
Adjusting screw	To zero clearance, then 144° counter-clockwise

Document Title: Valve system specifications	Function Group: 030	Information Type: Service Information	Date: 4/6/2026
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Valve system specifications

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Valid for serial numbers			
Model	Production site	Serial number start	Serial number stop
L110E Volvo	Arvika	1001	3499
L110E Volvo	Asheville	60001	60999
L110E Volvo	Pederneiras	70201	70399

Valve mechanism	
Valve arrangement	Overhead valves
Valve clearance, warm/cold engine	
Inlet valves	0.30 mm (0.012 in)
Exhaust valves	0.50 mm (0.020 in)

Document Title: Injection specifications	Function Group: pump, 030	Information Type: Service Information	Date: 4/6/2026
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Injection pump, specifications

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Model	Production site	Serial number start	Serial number stop
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Injection pump	
Type	Unit pump
Injection timing	Software-controlled
Injection amount	Software-controlled

Document Title: Intercooler, specifications	Function Group: 030	Information Type: Service Information	Date: 4/6/2026
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Intercooler, specifications

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Intercooler	
Type	Air/air

Document Title: Thermostat, specifications	Function Group: 030	Information Type: Service Information	Date: 4/6/2026
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Cooling system, specifications

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Valid for serial numbers			
Model	Production site	Serial number start	Serial number stop
L110E Volvo			

Cooling system	
Type	Closed system
	Hydraulically driven cooling fan
Radiator cap valve opens at	50 kPa (0,5 bar) (7.3 psi)

Document Title: Cooling system, volume	Function Group: 030	Information Type: Service Information	Date: 4/6/2026
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Cooling system, volume

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Valid for serial numbers			
Model	Production site	Serial number start	Serial number stop
L110E Volvo			

Cooling system	
Coolant, total	40 l (10.6 US gal)
Coolant, when changing	38 l (10.0 US gal)

Document Title: Thermostat, specifications	Function Group: 030	Information Type: Service Information	Date: 4/6/2026
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Thermostat, specifications

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Model	Production site	Serial number start	Serial number stop
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Thermostat	
Type	Piston thermostat
Number	1
Begins to open at	83 °C (181 °F)
Fully open at	95 °C (203 °F)

Document Title: Oil-bath air cleaner, volume	Function Group: 030	Information Type: Service Information	Date: 4/6/2026
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Oil-bath air cleaner, volume

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Valid for serial numbers			
Model	Production site	Serial number start	Serial number stop
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Volume	
Oil-bath air cleaner	9.1 l (2.4 US gal)

Document Title: Cooling fan motor, specifications	Function Group: 030	Information Type: Service Information	Date: 4/6/2026
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Cooling fan motor, specifications

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Valid for serial numbers			
Model	Production site	Serial number start	Serial number stop
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Cooling fan motor	
Type	Piston motor
Rpm at stand-by pressure	approx. 500 rpm
Normal max. rpm with warm machine	Varies between approx. 400–1800 rpm depending on cooling need and equipment
Rpm at pressure test	≥ 1800 rpm.
Displacement	18 cm ³ (1.1 in ³)