

**V O L V O**



Volvo Wheel Loaders 18-20.7 t 260 hp

**L110H**

Volvo Construction Equipment

# L110H

With high breakout force, ultimate parallel movement and easy bucket filling, this medium sized 20-tonne wheel loader is ready to tackle a range of applications.



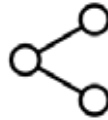
# Made to move

The second generation of Volvo L110H Wheel Loader is as versatile, fuel efficient and reliable as its forerunner but it comes with a batch of improvements that increase availability. A new Volvo engine and power strategy, plus a host of maintenance-friendly features trigger benefits for the operators, service technicians and machine owners.



## Fuel efficiency

- Second generation OptiShift with lockup (option)
- Reverse By Braking
- Rimpull control
- Eco pedal
- Dry P-brake



## Loaded for versatility

- Unique Torque Parallel linkage
- Range of matched Volvo Attachments
- Custom built attachments
- Tailored application packages



## Operator comfort

- Removed main switch, ignition key activates and powers the machine
- Choice of single or multi levers
- Choice of three hydraulic response modes
- Auto bucket leveling function
- Comfort Drive Control (option)
- Premium seat (option)



## Load Assist (option)

- On-Board Weighing
- Operator Coaching
- Tire Pressure Monitoring System
- When fitted, Radar detect system, Rear-view camera and Collision Mitigation System are integrated into the Volvo Co-Pilot display



## Uptime

- Auto engine regeneration while working
- 1 000 hr engine service interval
- Removed main switch = no risk of flat battery because left on
- Delayed engine shutdown reduces wear (option)



## Serviceability

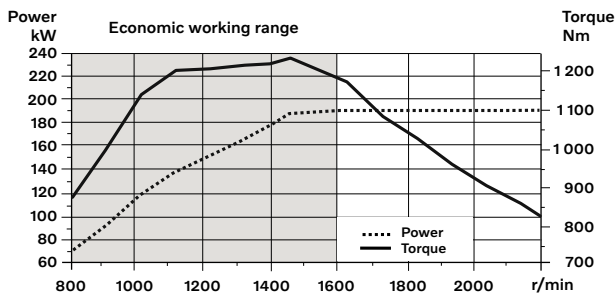
- Electric fuel priming pump
- Lockout-tagout (LOTO) on service switch
- Electrically-operated engine hood with large opening
- Slidable cooler installation
- Drain/fill connector for hydraulic oil
- Brake wear indicators

# Volvo L110H in detail

## Engine

8 litre, 6-cylinder in-line turbocharged diesel engine with an advanced common rail fuel injection system. Fuel is distributed under high pressure from a high-pressure accumulator. One camshaft-driven high pressure pump delivers the fuel to the rail and then to the electronically operated fuel injectors via high pressure pipes. The engine meets all emission requirements and comply with Stage V emission legislation by the help of the exhaust after treatment system (EATS) which contains the diesel oxy-catalyst (DOC) and diesel particulate filter (DPF) for regeneration, urea injector, mixing chamber, SCR and slipcat for reduction of NOx. The reduction of NOx is assisted by the use of cooled exhaust gas recirculation (EGR) as well.

Engine	Volvo	D8M
Max. power at	r/min	1 800
ISO 14396 gross	kW	191
	hp	260
ISO 9249, SAE J1349 net	kW	191
	hp	260
Max. torque at	r/min	1 450
ISO 9249, SAE J1349 net	Nm	1 246
Economic working range	r/min	850 - 2 100
Displacement	l	7.8



## Drivetrain

**Torque converter:** Single-stage.

**Transmission:** Volvo countershaft transmission with single lever control. Fast and smooth shifting of gears with Pulse Width Modulation (PWM) valve.

**Transmission:** Volvo Automatic Power Shift (APS) with fully automatic shifting 1-4 and mode selector with 4 different gear shifting programs, including AUTO. Also equipped with Rimpull control to avoid wheel spin and optimize bucket filling. OptiShift transmission is also available as an option (HTL 206E).

**Axles:** Volvo fully floating axle shafts with planetary hub reductions and cast steel axle housing. Fixed front axle and oscillating rear axle. 100% differential lock on the front axle. Optional: Limslip rear.

Transmission	Volvo	HTE 206F
Torque multiplication, stall ratio		2.47:1

### Maximum speed, forward/reverse

1st gear	km/h	7.3
2nd gear	km/h	13.7
3rd gear	km/h	28.4
4th gear	km/h	40

Note: 4th gear limited by ECU

Measured with tires		750/65R25
Front axle/rear axle		AWB 31/AWB 30
Rear axle oscillation	± °	13
Ground clearance at oscillation	mm	430
	°	13

## Electrical system

**Central warning system:** Contrinsic electrical system with central warning light and buzzer for following functions: - Serious engine fault - Low steering system pressure - Over speed warning engine - Interruption in communication (computer fault) Central warning light and buzzer with the gear engaged for the following functions. - Low engine oil pressure - High engine oil temperature - High charge air temperature - Low coolant level - High coolant temperature - High crank case pressure - Low transmission oil pressure - High transmission oil temperature - Low brake pressure - Engaged parking brake - Fault on brake charging - Low hydraulic oil level - High hydraulic oil temperature - Overspeeding in engaged gear - High brake cooling oil temperature front and rear axles.

Voltage	V	24
Batteries	V	2 x 12
Battery capacity	Ah	2 x 170
Cold cranking capacity, approx	A	1 000
Alternator rating	W/A	3 479/130
Starter motor output	kW	5.5

## Brake system

**Service brake:** Volvo dual-circuit system with nitrogen charged accumulators. Outboard mounted hydraulically operated, fully sealed oil circulation cooled wet disc brakes. The operator can select automatic declutch of the transmission when braking by selecting the setting in the contronics.

**Parking brake:** Dry disc brake. Applied by spring force, electro-hydraulic release with a switch on the instrument panel.

**Secondary brake:** Dual brake circuits with rechargeable accumulators. One circuit or the parking brake fulfills all safety requirements.

**Standard:** The brake system complies with the requirements of ISO 3450.

Number of brake discs per wheel		1
Accumulators	l	3 x 1.0
Accumulators for parking brake	l	1 x 1.0

## Cab

Refrigerant of the type R134a is used when this machine is equipped with air conditioning. Contains fluorinated greenhouse gas R134a, Global Warming Potential 1.430 t CO<sub>2</sub>-eq.

Emergency exit: Use emergency hammer to break window

Ventilation	m <sup>3</sup> /min	9
Heating capacity	kW	16
Air conditioning (optional)	kW	7.5

## Lift Arm System

Torque Parallel linkage (TP-linkage) with high breakout torque and parallel movement throughout the entire lifting range.

Lift cylinders		2
Cylinder bore	mm	150
Piston rod diameter	mm	80
Stroke	mm	676
Tilt cylinder		1
Cylinder bore	mm	210
Piston rod diameter	mm	110
Stroke	mm	412

## Hydraulic system

**System supply:** Two load-sensing axial piston pumps with variable displacement. The steering system always has priority.  
**Valves:** Double-acting 2-spool valve. The main valve is controlled by a 2-spool pilot valve.  
**Lift function:** The valve has four positions; raise, hold, lower and floating position. Inductive/magnetic automatic boom kickout can be switched on and off and is adjustable to any position between maximum reach and full lifting height.  
**Tilt function:** The valve has three functions including rollback, hold and dump. Inductive/magnetic automatic tilt can be adjusted to the desired bucket angle.  
**Cylinders:** Double-acting cylinders for all functions  
**Filter:** Full flow filtration through 10 micron (absolute) filter cartridge.

Working pressure maximum, pump 1 for working hydraulic system	MPa	27.0 ± 0.5
Flow	l/min	128
at	MPa	10
engine speed	r/min	1 900
Working pressure maximum, pump 2 for steering-, brake-, pilot- and working hydraulic system	MPa	29.0 ± 0.5
Flow	l/min	128
at	MPa	10
engine speed	r/min	1 900
Working pressure maximum, pump 3 for brake- and cooling fan system	MPa	21.0 ± 0.5
Flow	l/min	33
at	MPa	10
engine speed	r/min	1 900
Pilot system, working pressure	MPa	3.5 ± 0.5
<b>Cycle times</b>		
Lift	s	5.4
Tilt	s	2.1
Lower, empty	s	2.5
Total cycle time	s	10

Raise and tilt cycle times with load according to ISO 14397

## Steering System

**Steering system:** Load-sensing hydrostatic articulated steering.  
**System supply:** The steering system has priority feed from a load-sensing axial piston pump with variable displacement.  
**Steering cylinders:** Two double-acting cylinders.

Steering cylinders		2
Cylinder bore	mm	75
Rod diameter	mm	50
Stroke	mm	486
Working pressure	MPa	26.5
Maximum flow	l/min	128
Maximum articulation	± °	40

## Service Refill

**Service accessibility:** Electrically openable engine hood with large opening angle giving excellent access to the engine compartment. Fluid filters and component breather air filters promote long service intervals. A quick-fit adapter on the hydraulic tank provides faster hydraulic oil fill. Possibility to monitor, log and analyze data to facilitate troubleshooting.

Fuel tank	l	270
DEF/AdBlue® tank	l	31
Engine coolant	l	38
Hydraulic oil tank	l	140
Transmission oil	l	38
Engine oil	l	30
Axle oil front	l	36
Axle oil rear	l	41

## Sound Level

Sound pressure level in cab according to ISO 6396		
L <sub>pA</sub>	dB	68
External sound level according to ISO 6395 and EU Noise Directive 2000/14/EC		
L <sub>WA</sub>	dB	106

# Specifications

## DIMENSIONS

Tires 23.5 R25 L3		L110H	
		Standard boom	Long boom
B	mm	6 550	7 080
C	mm	3 200	3 200
D	mm	440	430
F	mm	3 380	3 380
G	mm	2 131	2 133
J	mm	3 710	4 220
K	mm	4 030	4 550
O	°	55	74
P <sub>max</sub>	°	50	47
R	°	41	41
R <sub>1</sub> *	°	43	47
S	°	66	43
T	mm	95	106
U	mm	430	560
X	mm	2 070	2 070
Y	mm	2 670	2 670
Z	mm	3 340	3 330
a <sub>2</sub>	mm	5 730	5 730
a <sub>3</sub>	mm	3 060	3 060
a <sub>4</sub>	±°	40	40
With 3.0 m <sup>3</sup> STE H T bucket			

\* Carry position SAE

Where applicable, specifications and dimensions are according to ISO 7131, SAE J732, ISO 7546, SAE J742, ISO 14397, SAE J818.

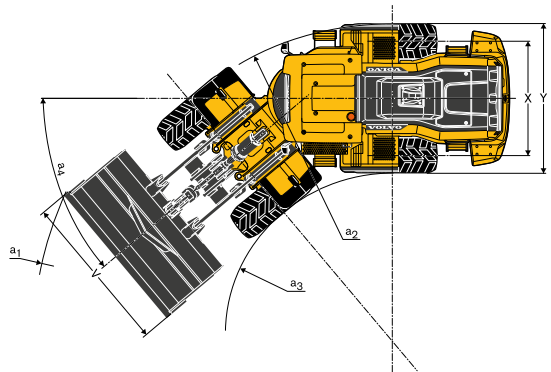
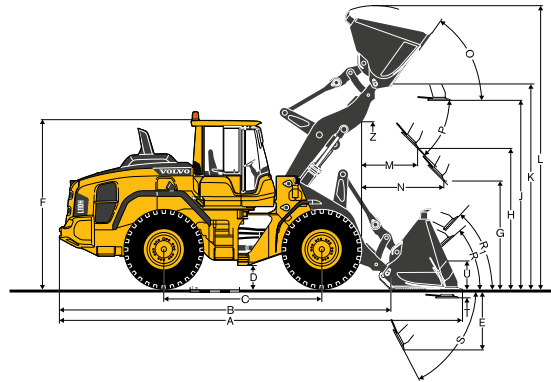
### L110H Log Loader

Grapple: WLA80832

Operating weight

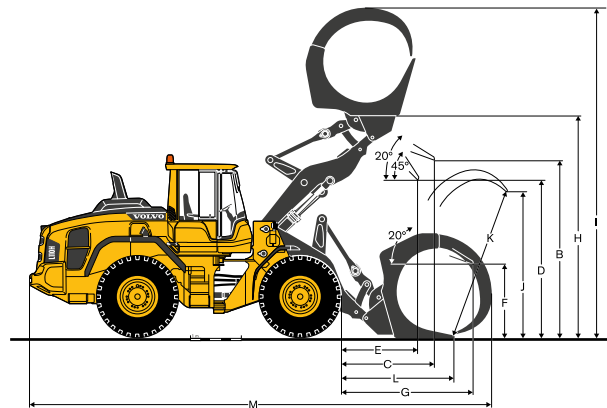
(incl. logging cw 685 kg): 20 070 kg

Operating load: 6 500 kg



## DIMENSIONS

		L110H
		Tires: 750/65 R25
A	m <sup>2</sup>	2.4
B	mm	3 480
C	mm	1 850
D	mm	2 860
E	mm	1 460
F	mm	1 530
G	mm	2 720
H	mm	4 600
I	mm	6 630
J	mm	2 790
K	mm	2 990
L	mm	2 050
M	mm	8 830



**L110H**

Tires 23.5R25 XHA2 L3		REHANDLING*		GENERAL PURPOSE				ROCK**	LIGHT MATERIAL		LONG BOOM***
		3.5 m <sup>3</sup> STE P BOE	3.5 m <sup>3</sup> STE H BOE	3.0 m <sup>3</sup> STE P T	3.0 m <sup>3</sup> STE H T	3.4 m <sup>3</sup> STE P BOE	3.4 m <sup>3</sup> STE H BOE	2.7 m <sup>3</sup> SPN P T SEG	5.5 m <sup>3</sup> LM H	9.5 m <sup>3</sup> LM H	3.0 m <sup>3</sup> STE H T
Volume, heaped ISO/SAE	m <sup>3</sup>	3.5	3.5	3.0	3.0	3.4	3.4	2.7	5.5	9.5	3.0
Volume at 110% fill factor	m <sup>3</sup>	3.9	3.9	3.3	3.3	3.7	3.7	3.0	6.1	10.5	3.3
Static tipping load, straight	kg	14 790	14 100	13 860	13 150	13 580	12 920	13 820	12 060	12 160	-530
at 35° turn	kg	13 150	12 500	12 340	11 670	12 080	11 470	12 260	10 640	10 700	-520
at full turn	kg	12 660	12 030	11 890	11 240	11 630	11 040	11 800	10 220	10270	-530
Breakout force	kN	173.1	160.0	179.7	165.5	171.5	158.5	153.0	123.1	107.3	+3
A	mm	8 040	8 150	8 110	8 220	8 060	8 160	8 390	8 580	8 880	+510
E	mm	1 220	1 320	1 280	1 380	1 230	1 330	1 520	1 700	1 960	-310
H	mm	2 820	2 750	2 780	2 710	2 810	2 740	2 600	2 420	2 210	+510
L	mm	5 580	5 650	5 430	5 490	5 500	5 570	5 540	5 840	6 010	+520
M	mm	1 170	1 250	1 220	1 300	1 180	1 260	1 400	1 520	1 730	-40
N	mm	1 720	1 760	1 740	1 780	1 720	1 760	1 810	1 800	1 810	+440
V	mm	3 000	3 000	2 880	2 880	2 880	2 880	2 880	3 000	3 400	0
a <sub>1</sub> clearance circle	mm	12 930	12 980	12 860	12 910	12 830	12 880	13 040	13 260	13 810	+480
Operating weight	kg	19 360	19 580	18 520	18 750	18 580	18 800	19 710	19 260	19 480	+250

\* Measured with additional rehandling counterweight | \*\* With MICHELIN 23,5R25 XMINE D2 Pro L5 Tire | \*\*\* Compared to GP 3.0 m<sup>3</sup> STE H T bucket

**Bucket Selection Chart**

The chosen bucket is determined by the density of the material and the expected bucket fill factor. The actual bucket volume is often larger than the rated capacity, due to the features of the TP linkage, including an open bucket design, good rollback angles in all positions and good bucket filling performance. The example represents a standard boom configuration. Example: Sand and gravel. Fill factor ~ 105%. Density 1.6 t/m<sup>3</sup>. Result: The 3.4 m<sup>3</sup> bucket carries 3.6 m<sup>3</sup>. For optimum stability always consult the bucket selection chart.

Material	Bucket fill, %		Material density, t/m <sup>3</sup>	ISO/SAE bucket volume, m <sup>3</sup>	Actual volume, m <sup>3</sup>
Earth/Clay	~ 110		1.8	3.0	3.3
			1.6	3.4	3.7
Sand/Gravel	~ 105		1.8	3.0	3.2
			1.6	3.4	3.6
Aggregate	~ 100		1.8	3.5	3.5
			1.6		
Rock	≤100		1.7	2.7	2.7

The size of rock buckets is optimized for optimal penetration and filling capability rather than the density of the material.

Type of boom	Type of bucket	ISO/SAE Bucket volume	L110H Material density (t/m <sup>3</sup> )								
			0.8	1.0	1.2	1.4	1.6	1.8	2.0		
Standard boom	Rehandling	P 3.5 m <sup>3</sup>									
		H 3.5 m <sup>3</sup>									
	General purpose	P 3.0 m <sup>3</sup>									
		H 3.0 m <sup>3</sup>									
		P 3.4 m <sup>3</sup>									
	H 3.4 m <sup>3</sup>										
Rock	P 2.7 m <sup>3</sup>										
Long boom	Light material	H 5.5 m <sup>3</sup>									
		H 9.5 m <sup>3</sup>									
	Rehandling	P 3.5 m <sup>3</sup>									
		General purpose	P 3.0 m <sup>3</sup>								
			P 3.4 m <sup>3</sup>								
Rock	P 2.7 m <sup>3</sup>										
Light material	H 5.5 m <sup>3</sup>										

How to read bucket fill factor

**Supplemental Operating Data**

Tires 23.5 R25 L3	Standard boom		Long boom
	23.5 R25 L5	750/65 R25	750/65 R25
Width over tires	mm	+30	+200
Ground clearance	mm	+50	0
Tipping load, full turn	kg	+490	+430
Operating weight	kg	+670	+640

# Equipment

## STANDARD EQUIPMENT

### Engine

Exhaust after-treatment system  
 Three stage air cleaner, pre-cleaner, primary and secondary filter  
 Indicator for coolant level  
 Preheating of induction air  
 Fuel pre-filter with water trap  
 Fuel filter  
 Electric fuel prime pump  
 Crankcase breather oil trap  
 Exterior radiator air intake protection

### Drivetrain

Automatic Power Shift  
 Fully automatic gearshifting, 1-4  
 PWM-controlled gearshifting  
 Forward and reverse switch by hydraulic lever console  
 Rimpull control  
 Indicator glass for transmission oil level  
 Differentials: Front, 100% hydraulic diff lock. Rear, conventional.

### Electrical system

24 V, pre-wired for optional accessories  
 Alternator 24 V / 130 A / 3 479 W  
 Battery disconnect (service) switch  
 Fuel gauge  
 Hour meter  
 Electric horn  
 Instrument cluster:  
 Fuel level  
 Diesel Exhaust Fluid/AdBlue level  
 Transmission temperature  
 Coolant temperature  
 Instrument lighting

### Lighting:

Twin halogen front headlights with high and low beams  
 Parking lights  
 Double brake and tail lights  
 Turn signals with flashing hazard light function  
 Halogen work lights (2 front and 2 rear)

## STANDARD EQUIPMENT

### Contronic monitoring system

Monitoring and logging of machine data  
 Contronic display  
 Fuel consumption  
 Diesel Exhaust Fluid / AdBlue consumption  
 Ambient temperature  
 Clock  
 Test function for warning and indicator lights  
 Brake test  
 Test function, sound level at max fan speed

Warning and indicator lights:  
 Battery charging  
 Parking brake

### Warning and display message:

Regeneration  
 Engine coolant temperature  
 Charge-air temperature  
 Engine oil temperature  
 Engine oil pressure  
 Transmission oil temperature  
 Transmission oil pressure  
 Hydraulic oil temperature  
 Brake pressure  
 Parking brake applied  
 Brake charging  
 Overspeed at direction change  
 Axle oil temperature  
 Steering pressure  
 Crankcase pressure  
 Attachment lock open  
 Safety Belt Warning

### Level warnings:

Fuel level  
 Diesel Exhaust Fluid/AdBlue level  
 Engine oil level  
 Engine coolant level  
 Transmission oil level  
 Hydraulic oil level  
 Washer fluid level

### Engine torque reduction in case of malfunction indication:

High engine coolant temperature  
 High engine oil temperature  
 Low engine oil pressure  
 High crankcase pressure  
 High charge-air temperature

### Engine shutdown to idle in case of malfunction indication:

High transmission oil temperature  
 Slip in transmission clutches

### Keypad, background lit

Start interlock when gear is engaged

### Hydraulic system

Main valve, double acting 2-spool with hydraulic pilots

Variable displacement axial piston pumps (3) for:

1 Working hydraulics, Pilot hydraulics and Brake system  
 2 Working hydraulics, Pilot hydraulics, Steering and Brake system  
 3 Cooling fan and Brake system

Secondary steering with automatic test function

Quick hydraulic oil fill

Electro-hydraulic servo controls

Electronic hydraulic lever lock

Automatic boom kick-out

Automatic bucket positioner

Double-acting hydraulic cylinders

Indicator glass for hydraulic oil level

Hydraulic oil cooler



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**STANDARD EQUIPMENT**

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**Brake system**

Dual brake circuits  
Dual brake pedals  
Secondary brake system  
Parking brake, electro-hydraulic  
Brake wear indicators

**Cab**

ROPS (ISO 3471), FOPS (ISO 3449)  
Harness Anchor Points  
Single key kit door/start  
Acoustic inner lining  
Cigarette lighter, 24 V power outlet  
Lockable door  
Cab heating with fresh air inlet and defroster  
Fresh air inlet with two filters  
Automatic heat control  
Floor mat  
Dual interior lights  
Interior rear-view mirrors  
Dual exterior rear-view mirrors  
Sliding window, right side  
Tinted windshield glass  
Retractable seatbelt (SAE J386)  
Adjustable steering wheel  
Storage compartment  
Document pocket  
Sun visor  
Beverage holder  
Windshield washer front and rear  
Windshield wipers front and rear  
Interval function for front and rear wipers

**Service and maintenance**

Engine oil remote drain and fill  
Transmission oil remote drain and fill  
Lubrication manifolds, ground accessible  
Pressure check connections: transmission and hydraulic, quick-connects  
Quick-fit hydraulic oil fill  
Tool box, lockable

**External equipment**

Orange hand rails  
Fenders, front and rear  
Viscous cab mounts  
Rubber engine and transmission mounts  
Frame, joint lock  
Vandalism lock prepared for  
  Engine compartment  
  Radiator grille  
Lifting eyes  
Tie-down eyes  
Fabricated counterweight  
Counterweight, pre-drilled for optional guards

# Equipment

## OPTIONAL EQUIPMENT

### Engine

Air pre-cleaner, cyclone type  
 Air pre-cleaner, oil-bath type  
 Air pre-cleaner, turbo type II  
 Air pre-cleaner, turbo type III  
 Engine auto shutdown  
 Engine delayed shutdown  
 Engine block heater  
 Fuel fill strainer  
 Fuel heater  
 Hand throttle control  
 Max. fan speed, hot climate  
 Radiator, corrosion-protected  
 Reversible cooling fan  
 Reversible cooling fan and axle oil cooler

### Wheels and tires

23.5 R25  
 750/65 R25

### Drivetrain

Oil cooler and filter front & rear axle  
 OptiShift transmission with Lock-up RBB  
 Diff lock front 100%, Limited Slip rear  
 Agri power-shift / lock-up 1-4  
 Speed limiter  
 Stainless steel, brake lines

## OPTIONAL EQUIPMENT

### Electrical system

Anti-theft device  
 Halogen Economy package  
 Halogen Feature package  
 Halogen Power package  
 Headlights, assymetric left, halogen  
 Working lights, attachments, halogen  
 LED Economy package  
 LED Feature package  
 LED Power package  
 LED Intense package  
 Alarm kit, anti-theft function in WECU  
 Battery disconnect switch, additional in cab  
 Emergency stop  
 Locking device, Tag out Lock out  
 License plate holder, lighting  
 Rear view camera, monitor  
 Rear view mirrors, el.adjusted and heated  
 Rear view mirrors, long arm right  
 Rear view mirrors, el.adjusted and heated, long arm right  
 Reduced function working lights, reverse gear activated  
 Reverse alarm, audible  
 Reverse alarm, white noise  
 Dual LED reversing strobe lights  
 Seatbelt indicator, external  
 Shortened headlight support brackets  
 Side marker lamps  
 Warning beacon LED  
 Warning beacon LED automatic  
 Electrical distribution unit 24 volt  
 Load Assist  
 Radar detect system  
 Collision Mitigation System  
 Forward camera  
 Dual forward cameras  
 Parking brake alarm, audible for air susp seats  
 Jump start connector, ISO-Type  
 Max Boom height  
 Can Bus Interface  
 Delayed Engine Shutdown  
 Co-Pilot available  
 Rearview camera in Co-Pilot  
 OnBoard Weighing  
 OnBoard Weighing Task Mode  
 Tire pressure monitoring system  
 Connected Map  
 Operator Coaching Start  
 Operator Coaching Advanced

### Hydraulic system

Boom suspension system  
 Separate attachment locking  
 Arctic kit, attachment locking hoses  
 Boom cylinder hose and tube guards  
 Hydraulic fluid, biodegradable, Volvo  
 Hydraulic fluid, fire-resistant  
 Hydraulic fluid, for hot climate  
 Hydraulic 3rd function  
 Hydraulic 3rd-4th function  
 Hydraulic constant flow control with detent for 3rd function  
 Single lever control, hydraulics 2 functions  
 Single lever control, hydraulics 3 functions  
 Single lever control, hydraulics 4 functions

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**OPTIONAL EQUIPMENT**

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**Cab**

Anchorage for Operator's manual
Automatic Climate Control, ACC
ACC control panel, with Fahrenheit scale
Asbestos dust protection filter
Ashtray
Cab air pre-cleaner, cyclone type
Carbon filter
Cover plate, under cab
Lunch box holder
Volvo Armrest, operator's seat, left
Operator's seat, Mechanical ISRI, 2pt seat belt
Operator's seat, Volvo Air Suspension, Heavy Duty, 2pt seat belt
Operator's seat, Volvo Air Suspension, 2pt seat belt
Operator's seat, Volvo Air Suspension, 3pt seat belt
Operator's seat, Comfort ISRI, 2pt seat belt
Operator's seat, Comfort ISRI, 3pt seat belt
Operator's seat, Premium ISRI, 2pt seat belt
Operator's seat, Premium ISRI, 3pt seat belt
Radio installation kit incl. 12 volt outlet, left side
Radio installation kit incl. 12 volt outlet, right side
Radio (with AUX, Bluetooth and USB connection)
DAB Radio
Subwoofer
Steering wheel knob
Sun blinds, rear windows
Sun blinds, side windows
Timer cab heating
Window, sliding, door
Universal door/ignition key
Remote door opener
Forward view mirrors
Cab heater power outlet 240 V
Cab, Hot applications. Roof, steel
Fire extinguisher cab
Outside steel protection cab
Rear view mirrors long arm, cab
Reinforced windshield, flat

**Service and maintenance**

Automatic lubrication system
Automatic lubrication system for long boom
Grease nipple guards
Oil sampling valve
Refill pump for grease to lube system
Tool kit
Wheel nut wrench kit
CareTrack, GSM, GSM/Satellite
Telematics, Subscription

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**OPTIONAL EQUIPMENT**

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**Protective equipment**

Belly guard front
Belly guard rear
Cover plate, heavy-duty, front frame
Cover plate, rear frame
Cover plate, front/rear axle
Cab roof, heavy-duty
Guards for front headlights
Guards for radiator grill
Guards for tail lights
Windows, side and rear guards
Windshield guard
Wheel/axle seal guards
Corrosion protection, painting of machine
Corrosion protection, painting of attachment bracket
Bucket Teeth protection

**External equipment**

Cab ladder, rubber-suspended
Deleted front mudguards & wideners rear
Handles on counterweight
Fire suppression system
Mudguards, full cover, rear for 80-series tires
Mudguards, full cover, rear for 65-series tires
Long boom
Tow hitch

**Other equipment**

CE-marking
Comfort Drive Control (CDC)
Counterweight, logging
Counterweight, signal painted, chevrons
Sound decal, EU
Sound decal, USA
Reflecting stickers (decals), machine contour
Reflecting stickers (stripes), machine contour Cab
Option for machines without dinitrol
Noise reduction kit, exterior
Sign, slow moving vehicle
Sign, 50 km/h
Agriculture package
Log Loader package
Rehandling package
Scrap Handler package
Waste Handler package

**Attachments**

Buckets:
Rock straight or spade nose
General purpose
Rehandling
Light material
High tip
Grading
Wear parts:
Bolt-on and weld-on bucket teeth
Segments
Cutting edge in three sections, bolt-on
Fork equipment
Material handling arm
Log grapples
Snow plows
Spreading bucket
Sweepers

**V O L V O**