



Volvo Construction Equipment

L150H

Volvo Wheel Loaders 24.4t 299hp





OptiShift

Volvo's OptiShift technology combines the company's patented Reverse By Braking (RBB) technology, with lock-up available from first to fourth gear, to boost productivity and efficiency in all applications. Lock-up creates a direct drive between the engine and transmission – eliminating power losses in the torque converter and reducing fuel consumption by up to 18%.



Volvo L150H

Engine

V-ACT Stage II, 13 liter, 6-cylinder straight turbocharged diesel engine with 4 valves per cylinder, overhead camshaft and electronically controlled unit injectors. The engine has wet replacable cylinder liners and replacable valve guides and valve seats. The throttle applications are transmitted electrically from the throttle pedal or the optional hand throttle .

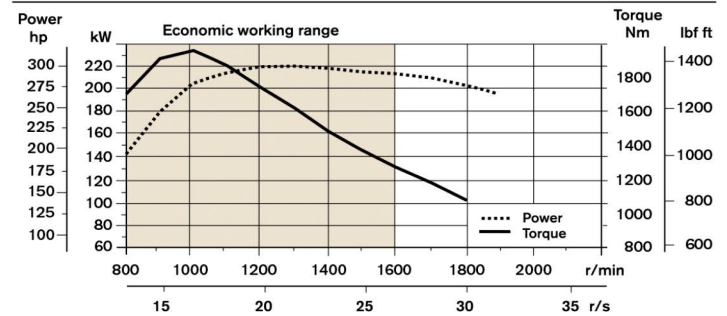
Air Cleaning: 2 stages.

Cooling system: Hydrostatic, electronically controlled fan and intercooler of the air-to-air type.

L150H

Engine		D13F
Max power at	r/s (r/min)	21.7 (1 300)
SAE J1995 gross	kW / hp	220 / 299
ISO 9249, SAE J1349 net	kW / hp	220 / 299
Max torque at	r/s (r/min)	16.7 (1 000)
SAE J1995 gross	Nm	1 960
ISO 9249, SAE J1349	Nm	1 957
Economic working range	r/min	800-1 600
Displacement	l	12.8

L150H





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. Torque converter with lockup.
Transmission: Volvo Automatic Power Shift (APS) with fully automatic shifting 1-4 and mode selector with 4 different gear shifting programs, including AUTO.
Axles: Volvo fully floating drive shafts with planetary hub reductions and nodular iron axle housing. Fixed front axle and oscillating rear axle. 100% differential lock on the front axle. Optional: Limslip rear

L150H

Transmission	Volvo HTL 222C		
	1st gear	km/h	6.5
Maximum speed, forward/reverse	2nd gear	km/h	12.5
	3rd gear	km/h	26
	4th gear	km/h	38
Measured with tires	26.5 R25 L3		
Front axle/rear axle	Volvo/AWB 40B/40C		
Rear axle oscillation ±	°		15
Ground clearance at 15° osc.	mm		610

Electrical system

Central warning system: Contronic 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
Batteries	connected to postiv terminal	
Alternator rating	W/A	2 280/80
Starter motor output	kW	7

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 disengagement of the transmission when braking using Contronic.
Parking brake: Fully sealed, wet multi-disc brake built into the transmission. Applied by spring force and electro-hydraulically release dwith 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.

L150H

Number of brake discs per wheel front/rear		1/1
Accumulators	1	2x1.0 3x0.5

Cab

Instrumentation: All important information is centrally located in the operator's field of vision. Display for Contronic monitoring system.
Heater and defroster: Heater coil with filtered fresh air and fan with auto and 11 speeds. Defroster vents for all window areas.
Operator's seat: Operator's seat with adjustable suspension and retractable seatbelt. The seat is mounted on a bracket on the rear cab wall and floor. The forces from the retractable seatbelt are absorbed by the seat rails.
Standard: The cab is tested and approved according to ROPS (ISO 3471), FOPS (ISO 3449). The cab meets with requirements according to ISO 6055 (Operator overhead protection - Industrial trucks) and SAE J386 ("Operator Restraint System").

L150H

Emergency exit:	Use emergency hammer to break window	
Sound level in cab according to ISO 6396/SAE J2105		
LpA	dB(A)	69
External sound level according to ISO 6395/SAE J2104		
LwA	dB(A)	108
Ventilation	m ³ /min	9
Heating capacity	kW	16
Air conditioning (optional)	kW	7.5



Volvo L150H in detail.

Lift arm system

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

	L150H	
Lift cylinders		2
Cylinder bore	mm	160
Piston rod diameter	mm	90
Stroke	mm	784
Tilt cylinder		1
Cylinder bore	mm	220
Piston rod diameter	mm	110
Stroke	mm	452

Hydraulic system

System supply: Two load-sensing axial piston pumps with variable displacement. The steering function always has priority.

Valves: Double-acting 2-spool valve. The main valve is electro operated.

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.

	L150H	
Working pressure maximum, pump 1	MPa	29
Flow at engine speed	l/min	180
Working pressure maximum, pump 2	MPa	10
Flow at engine speed	l/min	32(1 900)
Working pressure maximum, pump 3	MPa	31
Flow at engine speed	l/min	202
Working pressure maximum, pump 3	MPa	10
Flow at engine speed	l/min	32(1 900)
Working pressure maximum, pump 3	MPa	25
Flow at engine speed	l/min	77
Working pressure maximum, pump 3	MPa	10
Flow at engine speed	l/min	32(1 900)
Pilot system, working pressure	MPa	3.5
Cycle times		
Lift	s	5.9
Tilt	s	2
Lower, empty	s	3.7
Total cycle time	s	11.6

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.

	L150H	
Steering cylinders		2
Cylinder bore	mm	100
Rod diameter	mm	60
Stroke	mm	390
Working pressure	MPa	21
Maximum flow	l/min	188
Maximum articulation	± °	37
Stroke	mm	452

Service

Service accessibility: Large, easy-to-open hood covering whole engine department, electrically operated. Fluid filters and component breather air filters promote long service intervals. Possibility to monitor, log and analyze data to facilitate troubleshooting.

	L150H	
Fuel Tank	l	366
Engine coolant	l	55
Hydraulic oil tank	l	156
Transmission oil	l	48
Engine oil	l	50
Hydraulic oil front/rear	l	46/55



Specifications.

Tires L150H, L180H: 26.5 R25 L3. Tires L220H: 29.5 R25 L3

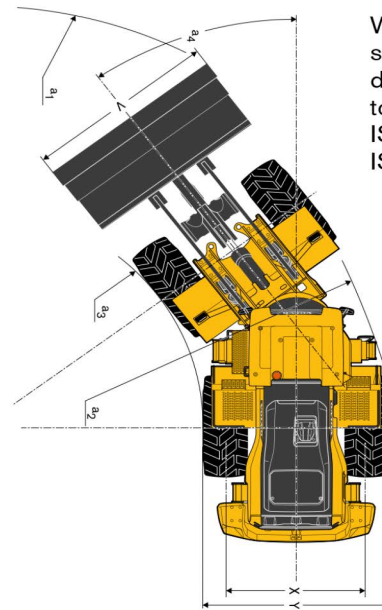
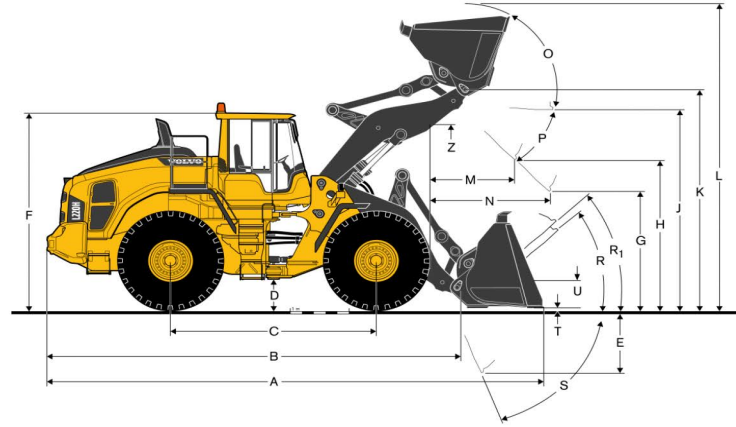
Standard boom

	L150H	
B	mm	7 070
C	mm	3 550
D	mm	480
F	mm	3 580
G	mm	2 134
J	mm	3 920
K	mm	4 340
O	°	58
P _{max}	°	50
R	°	45
R ₁ *	°	48
S	°	66
T	mm	93
U	mm	520
X	mm	2 280
Y	mm	2 960
Z	mm	3 510
a ₂	mm	6 790
a ₃	mm	3 820
a ₄	±°	37

* Carry position SAE

Bucket: L150H: 4.0 m³ GP STE P T SEG
L180H: 4.6 m³ GP STE P T SEG
L220H: 5.2 m³ GP STE P T SEG

L150H Sales code: WLA80713
Operating weight (incl. logging cw 1 140 kg): 25 660 kg
Operating load: 7 700 kg



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



Specifications.

L150H

Tires 26.5 R25 L3

GENERAL PURPOSE



**4.0 m³
STEP
T SEG**

Volume, heaped ISO/SAE	m ³	4.0
Volume at 110% fill factor	m ³	4.4
Static tipping load, straight	kg	18 100
at 35° turn	kg	16 190
at full turn	kg	15 970
Breakout force	kN	202
A	mm	8 790
E	mm	1 400
H ^{**})	mm	2 890
L	mm	5 880
M ^{**})	mm	1 360
N ^{**})	mm	1 880
V	mm	3 230
a ₁ clearance circle	mm	14 750
Operating weight	kg	24 090



Equipment.

STANDARD EQUIPMENT

	L150H
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	•
Tool box, lockable	•
Engine	
Three stage air cleaner, pre-cleaner, primary and secondary filter	
Two 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	•
Crankcase breather oil trap	•
Exterior radiator air intake protection	•
Electrical system	
24 V, pre-wired for optional accessories	•
Alternator 24V/80A/2280W	•
Battery disconnect 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)	
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	•

	L150H
Drivetrain	
Automatic Power Shift	•
Fully automatic gearshifting, 1-4	•
PWM-controlled gearshifting	•
Forward and reverse switch by hydraulic lever console	•
Indicator glass for transmission oil level	•
Differentials: Front, 100% hydraulic diff lock. Rear, conventional.	•
OptiShift	•
Lock-up first gear	•
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)	•
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	•
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	•
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	•
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	•