

VOLVO WHEEL LOADER

L70C



- **Engine output SAE J1349:**
gross 96 kW (130 hp)
net 90 kW (122 hp)
- **Operating weight:** 10,5–11,8 t
23,150 lb–26,010 lb
- **Bucket volume:** 1,6–5,0 m³
2.1–6.5 yd³
- **Volvo High-Performance Low-Emission engine** with excellent low rpm performance. The engine meets all known regulations regarding exhaust emissions for off-road machines until year 2001

- **Volvo transmission with APS II**, 2nd generation Automatic Power Shift with mode (shift pattern) selector for optimum performance and fuel consumption
- **Wet disc brakes**
– fully sealed oil circulation-cooled wet disc brakes, outboard-mounted
- **Torque Parallel Linkage**
– high breakout torque throughout the working range
– excellent parallel lift-arm action
– hydraulic attachment bracket

- **Care Cab**
– pressurized cab with high comfort and safety
- **Contronic monitoring system**
- **Load-sensing hydraulic system**
– working and steering hydraulics
- **Pilot-operated working hydraulics**

Optional equipment

- Power take-off for hydraulically powered attachments
- Boom Suspension System
- Comfort Drive Control

Other options, see back page

VOLVO



SERVICE

Contronic monitoring system provides information on machine condition, routine maintenance schedules and minimizes time required for troubleshooting.

Service accessibility: Large, easy-to-open engine access doors with gas struts. Hinged radiator grille and swing-out radiator.

Refill capacities	l	US gal.
Fuel tank	190	50.2
Engine coolant	40	10.6
Hydraulic tank	65	17.2
Gearbox	17	4.5
Engine oil	16	4.2
Axle front/rear	24/24	6.3/6.3



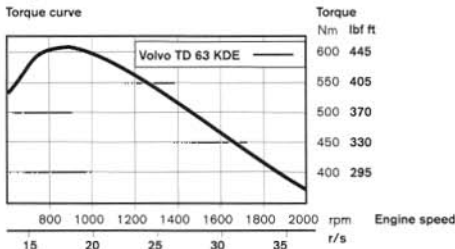
ENGINE

Engine delivers high torque and quick response at low rpm even under full load. The machine can work at low engine speeds, which contributes to good fuel economy, less noise, less wear and longer life.

Engine: High performance, low emission 6-cylinder, in-line, direct-injected, turbocharged, intercooled 4-stroke diesel engine with wet, replaceable cylinder liners.

Air cleaning: three-stage.

Engine TD 63 KDE		
Power output at	35 r/s	2 100 rpm
SAE J1349 gross	96 kW	130 hp
SAE J1349 net	90 kW	122 hp
Max. torque at	18,3 r/s	1 100 rpm
SAE J1349 gross	615 Nm	454 lbf ft
SAE J1349 net	610 Nm	450 lbf ft
Displacement	5,48 l	334 in ³



ELECTRICAL SYSTEM

Contronic monitoring system with complete information on the status of the machine's various systems is standard. Electrical system with circuit board is well protected by fuses. Prepared for optional equipment.

Central warning: Central warning lamp for the following functions: engine oil pressure, engine coolant temperature (with buzzer), transmission oil pressure, transmission oil temperature, brake pressure, parking brake (buzzer), high speed/gear, low hydraulic oil level. Shut down to idle is standard.

Voltage	24 V
Batteries	2x12 V
Battery capacity	2x105 Ah
Cold-cranking capacity, ea	690 A
Reserve capacity, ea	185 min
Alternator rating	1 680 W / 60 A
Starter-motor output	5,4 kW 7.3 hp



DRIVETRAIN

Drivetrain and working hydraulics are well-matched to each other. Dependable design. Quick acceleration boosts productivity. Volvo system-compatible design facilitates servicing.

Torque converter: Single-stage

Transmission: Volvo Automatic Power Shift transmission of countershaft type with single-lever control. Fast and smooth forward/reverse shifting.

Shifting system: Volvo Automatic Power Shift (APS II) with mode selector.

Axles: Volvo fully floating axle shafts with planetary-type hub reductions. Cast-steel axle housing. Fixed front axle and oscillating rear axle. 100 % differential lock on front axle.

Transmission	Volvo HT 90
Torque multiplication	2,85:1
Speeds	
max forward/reverse	High range Low range (Opt.)
	km/h mph km/h mph
1	7,0 4.3 1,9 1.2
2	14,0 8.7 3,7 2.3
3	26,0 16.2 7,3 4.5
4 (forward only)	44,0 27.3 13,6 8.5
Measured with tires	20.5 R25*L2
Front and rear axle	Volvo/AWB15
Oscillation, rear axle ...	±13°
Ground clearance at	
12° oscillation	420 mm 16.5 in



BRAKE SYSTEM

Simple, reliable system with few parts ensures high availability and safety. Self-adjusting internal oil circulation-cooled disc brakes give long service intervals.

Service brakes: Volvo, dual-circuit system with nitrogen-charged accumulators. Fully hydraulically operated, enclosed internal oil circulation-cooled outboard mounted disc brakes. Transmission declutch during braking can be preselected by a switch on the instrument panel. Brake performance test included in the Contronic system.

Parking brake: Mechanically operated drum brake on front axle input shaft.

Secondary brake: Either of the service brake circuits or the parking brake fulfills the safety requirements.

Standards: The brake system complies with the requirements of ISO 3450, SAE J1473

Number of discs/wheel	1
Number of accumulators	3
Volume, each	0,5 l 30.5 in ³



STEERING SYSTEM

Low-effort steering gives short work-cycle times. Power-efficient system provides good fuel economy, good directional stability and smooth ride.

Steering system: Load-sensing hydrostatic articulated steering.

System supply: The steering system has prioritized feed from the machine's load-sensing axial piston pump.

Pump: Double variable-flow axial piston type.

Cylinders: Two double-acting cylinders.

Steering cylinders	2	
Bore	63 mm	2.48 in
Piston rod diameter	40 mm	1.57 in
Stroke	370 mm	14.57 in
Relief pressure	21 MPa	3046 psi
Max. flow	80 l/min	21.13 US gpm
Articulation	±40°	



CAB

Care Cab with easy entry and wide door opening. Lined with sound-absorbent material. Sound- and vibration-suppressing suspension. Good all-round visibility, large glass areas. Curved windshield of laminated, green-tinted glass. Ergonomically located controls and instruments permit a comfortable operating position.

Instrumentation: All important information is readily visible to the operator. Cab display for Contronic monitoring system.

Heater and defroster: Heating element with filtered fresh air and four-speed fan. Defroster outlets for all windows.

Operator's seat: Spring suspended, adjustable operator's seat with retractable belt. The seat is mounted on a bracket on the rear wall. The force from the belt is absorbed by the seat rails.

Standards: Tested and approved according to the following standards: ROPS (ISO/CD 3471, SAE J1040), FOPS (ISO 3449, SAE J231). Complies with "Overhead guards for rider lift trucks" (ISO 6055) and "Operator Restraint System" (SAE J386).

Emergency exits	2	
Sound level in cab as per ISO 6396, max fan position	72 dB (A)	
fan position 2	68 dB (A)	
Exterior sound level ISO 6393 LwA	106 dB (A)	
Ventilation	10 m ³ /min	353 ft ³ /min
Heating capacity	11 kW	37,500 Btu/h
Air conditioning (optional)	8 kW	27,300 Btu/h



HYDRAULIC SYSTEM

Load-sensing hydraulics distribute exactly the quantity of oil required for the function used. Load-sensing gives precise control of the hydraulics throughout the lifting range. High pump capacity provides quick movements.

Pump: The load-sensing double axial piston pump adjusts to the oil requirements of the function used by means of a load-sensing line. The flow is directed to the function used via a central valve block. Steering function always has priority.

Valve: Double-acting 2-spool valve. The control valve is actuated by a 2-spool pilot valve.

Lift function: The valve has four functions: raise, hold, lower and float. Inductive/magnetic automatic boom kickout can be switched on and off and is adjustable to any position between maximum reach and full lift height.

Tilt function: The valve has three functions: rollback, hold and dump. Adjustable inductive/magnetic automatic bucket positioner, that can be switched on and off.

Cylinders: Double-acting

Filter: Full-flow filtration through 20 micron (absolute) filter cartridge.

Axial piston pump		
Relief pressure	26,0 MPa	3771 psi
Flow	160 l/min	42.3 US gpm
at	10 MPa	1450 psi
and engine speed	36,7 r/s	2 200 rpm
Pilot system		
Relief pressure	3,0 MPa	435 psi
Cycle times		
Raise*	5,1 s	
Dump*	1,3 s	
Lower, empty	3,0 s	
Total cycle time	9,4 s	

* with load as per ISO 5998 and SAE J818



LIFT-ARM SYSTEM

TP Linkage combines high break-out torque throughout the working range with precise parallel lift-arm action. These features, together with good visibility, high lift height and long reach, make the lift-arm system equally as good in bucket loading as in work with fork attachments and material handling arms.

Lift cylinder	2	
Bore	100 mm	3.9 in
Piston rod diameter	70 mm	2.8 in
Stroke	734 mm	28.9 in
Tilt cylinder	1	
Bore	150 mm	5.9 in
Piston rod diameter	80 mm	3.1 in
Stroke	440 mm	17.3 in

OPERATIONAL DATA, VOLVO L70C

	GENERAL PURPOSE						GRADING	LIGHT MATERIAL			
Tires 20.5 R25	Bolt-on edges	Bolt-on edges	Bolt-on edges	Teeth	Teeth	Teeth		Bolt-on edges	Bolt-on edges	Bolt-on edges	
Volume, heaped ISO/SAE	m ³ yd ³	1,9 2.5	1,9 2.5	1,7 2.2	1,6 2.1	1,8 2.3	1,8 2.3	1,6 2.1	3,1 4.0	3,1 4.0	5,0 6.5
Volume at 110% fill factor	m ³ yd ³	2,1 2.7	2,1 2.7	1,9 2.5	1,8 2.3	2,0 2.6	2,0 2.6	- -	3,4 4.4	3,4 4.4	5,5 7.2
Static tipping load, straight	kg lb	7640 16840	7180 15830	7730 17040	7390 16290	7770 17130	7310 16120	6470 14260	7330 16160	6870 15150	6960 15340
at 35° turn	kg lb	6820 15040	6380 14070	6900 15210	6580 14510	6940 15300	6500 14330	5780 12740	6520 14370	6080 13400	6140 13540
at full turn	kg lb	6570 14480	6130 13510	6650 14660	6330 13960	6690 14750	6250 13780	5580 12300	6270 13820	5830 12850	5890 12990
Breakout force	kN lbf	87,9 19,760	80,3 18,050	93,6 21,040	89,5 20,120	92,8 20,860	84,3 18,950	62,6 14,070	66,2 14,880	62,0 13,940	53,9 12,120
A	mm ft in	6890 22'7"	6980 22'11"	6810 22'4"	7020 23'0"	7000 23'0"	7090 23'3"	7220 23'8"	7230 23'9"	7330 24'1"	7550 24'9"
E	mm ft in	1000 3'3"	1100 3'7"	940 3'1"	970 3'2"	940 3'1"	1030 3'5"	1310 4'4"	1340 4'5"	1430 4'8"	1650 5'5"
H*)	mm ft in	2860 9'5"	2800 9'2"	2910 9'7"	2780 9'1"	2800 9'2"	2730 8'11"	2570 8'5"	2640 8'8"	2570 8'5"	2430 8'0"
L	mm ft in	5050 16'7"	5110 16'9"	4990 16'4"	5050 16'7"	5050 16'7"	5110 16'9"	4070 13'4"	5230 17'2"	5280 17'4"	5560 18'3"
M*)	mm ft in	970 3'2"	1050 3'5"	920 3'0"	1110 3'8"	1080 3'7"	1160 3'10"	1110 3'8"	1250 4'1"	1310 4'4"	1500 4'11"
N*)	mm ft in	1550 5'1"	1590 5'3"	1530 5'0"	1640 5'5"	1630 5'4"	1660 5'5"	1510 4'11"	1620 5'4"	1630 5'4"	1680 5'6"
V	mm ft in	2500 8'2"	2500 8'2"	2500 8'2"	2500 8'2"	2500 8'2"	2500 8'2"	2500 8'2"	2550 8'4"	2550 8'4"	2650 8'8"
a, clearance circle	mm ft in	11270 37'0"	11320 37'2"	11230 36'10"	11390 37'4"	11380 37'4"	11440 37'6"	11610 38'1"	11510 37'9"	11580 38'0"	11810 38'9"
Operating weight	kg lb	10880 23,990	11130 24,540	10830 23,880	11040 24,340	10820 23,850	11080 24,430	11010 24,270	10980 24,210	11240 24,780	11500 25,350

*) at 45° dump angle

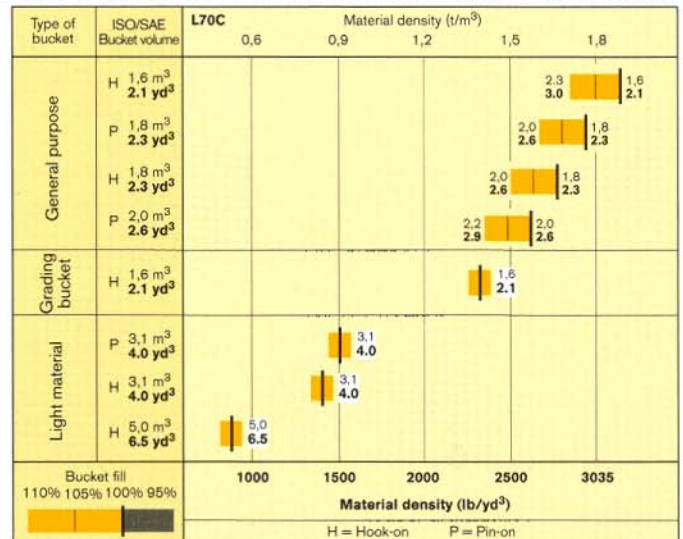
Including counterweight 1

BUCKET SELECTION CHART

The choice of 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 TP Linkage features: • Open bucket design. • Very good roll back in all positions. • Good bucket fill performance.
Example: Sand and gravel. Fill factor ~ 105%. Density 2865 lb/yd³. Result: The 2.3 yd³ bucket carries 2.4 yd³. For optimum stability always consult the bucket selection chart.

Material	Bucket fill, %		Material density		ISO/SAE bucket volume		Actual volume	
			t/m ³	lb/yd ³	m ³	yd ³	m ³	yd ³
Earth/Clay	~ 110		~ 1,8	~ 3035	1,6	2.1	~ 1,8	~ 2.3
			~ 1,6	~ 2695	1,8	2.3	~ 2,0	~ 2.6
			~ 1,4	~ 2360	2,0	2.6	~ 2,2	~ 2.9
Sand/Gravel	~ 105		~ 1,9	~ 3200	1,6	2.1	~ 1,7	~ 2.2
			~ 1,7	~ 2865	1,8	2.3	~ 1,9	~ 2.5
			~ 1,5	~ 2530	2,0	2.6	~ 2,1	~ 2.7
Aggregate	~ 100		~ 1,9	~ 3200	1,6	2.1	~ 1,6	~ 2.1
			~ 1,7	~ 2865	1,8	2.3	~ 1,8	~ 2.3
			~ 1,6	~ 2695	2,0	2.6	~ 2,0	~ 2.6
Rock	≤ 100		~ 1,7	~ 2865	1,6	2.1	~ 1,6	~ 2.1

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



SUPPLEMENTAL OPERATING DATA

	Tires		17.5 R25* L2		17.5-25* L3		Add counterweight 2		Delete counterweight 1		Add extended fenders	
			mm	in	mm	in	mm	in	mm	in	mm	in
Width over tires	mm	in	-90	3.5	+60	2.4	-	-	-	-	-	-
Ground clearance	mm	in	-60	2.4	+25	1.0	-	-	-	-	-	-
Operating weight	kg	lb	-330	730	+160	355	+360	795	-190	420	+200	440
Tipping Load, full turn	kg	lb	-190	420	+80	175	+570	1,265	-330	730	+245	540

Counterweight 1 may be used in rehandling, pallet and material arms operations.

Counterweight 2 replaces hydroinflation of rear tires and must never be combined with tire chains. Counterweight 2 is not allowed in combination with 20.5-25 tires.

Counterweight 2, and combinations of counterweight 1 and 2, may be used within pallet and material arms handling arms operations for stabilizing purposes on firm and level ground.

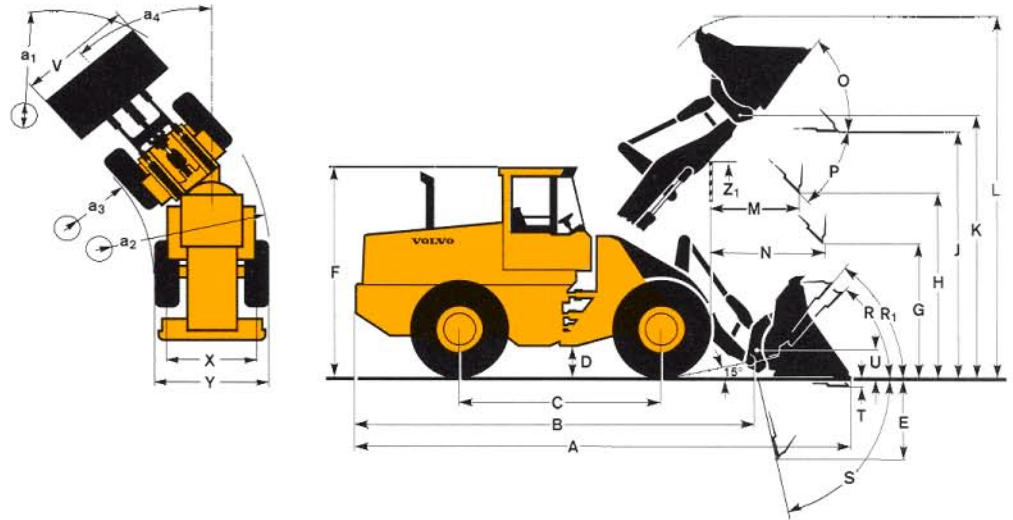
OPERATIONAL DATA & DIMENSIONS

Tires: 20.5 R25* L2

B	5 700 mm	18'8"
C	2 840 mm	9'4"
D	450 mm	1'6"
F	3 180 mm	10'5"
G	2 135 mm	7'0"
J	3 610 mm	11'10"
K	3 860 mm	12'8"
O	56°	
P	45°	
R	44°	
R ₁ *	48°	
S	78°	
T	30 mm	1.2"
U	450 mm	1'6"
X	1 860 mm	6'1"
Y	2 390 mm	7'10"
Z	3 150 mm	10'4"
a ₂	5 100 mm	16'9"
a ₃	2 710 mm	8'11"
a ₄	±40°	

* Carry position SAE

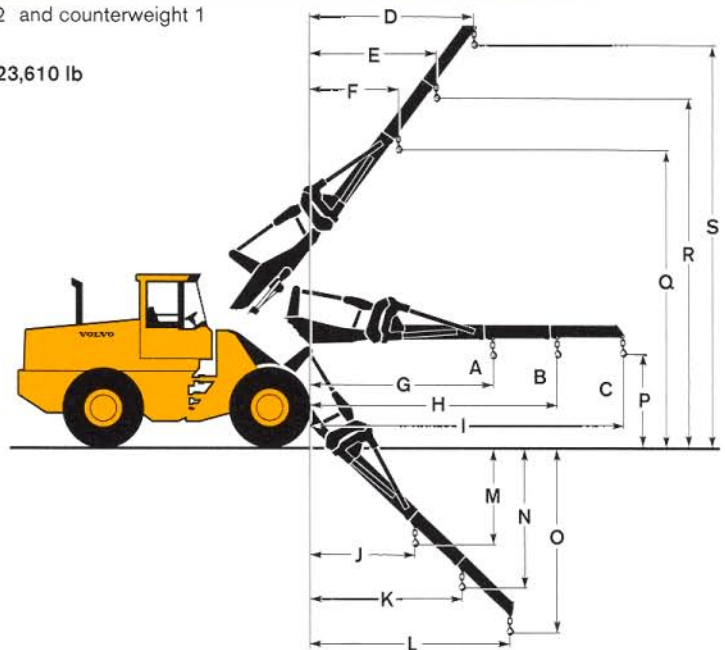
Where applicable, specifications and dimensions are in accordance with ISO 7131, SAE J732, ISO 7546, SAE J742, ISO 5998, SAE J818, ISO 8313.



MATERIAL HANDLING ARM (Hook on)

A	1 620 kg	3570 lb
B	1 280 kg	2820 lb
C	1 050 kg	2310 lb
D	2 560 mm	8'5"
E	1 990 mm	6'6"
F	1 460 mm	4'9"
G	3 280 mm	10'9"
H	4 310 mm	14'2"
I	5 440 mm	17'10"
J	1 830 mm	6'0"
K	2 560 mm	8'5"
L	3 360 mm	11'0"
M	1 740 mm	5'9"
N	2 470 mm	8'1"
O	3 270 mm	10'9"
P	1 510 mm	4'11"
Q	5 310 mm	17'5"
R	6 190 mm	20'4"
S	7 160 mm	23'6"

Tires: 20.5 R25* L2 and counterweight 1
 Order No: 92 007
 Operating weight: 10 710 kg 23,610 lb

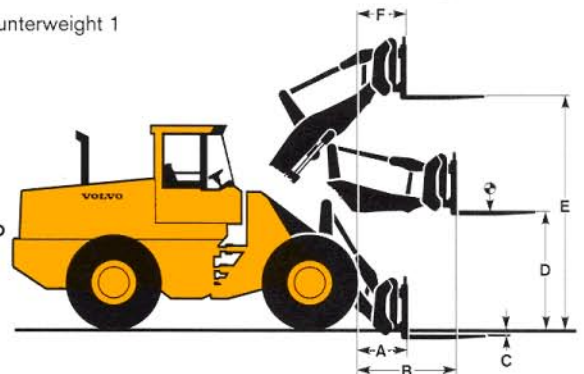


PALLET FORK (Hook on)

A	810 mm	2'8"
B	1 540 mm	5'1"
C	-70 mm	-2.8"
D	1 830 mm	6'0"
E	3 700 mm	12'2"
F	680 mm	2'3"

Tires: 20.5 R25* L2 and counterweight 1
 Fork tine order no. (per tine): 97 789
 Length: 1 225 mm 4'0"
 Fork frame order no: 91 177
 Width: 1 500 mm 4'11"
 Rated operating load*: 3 775 kg 8320 lb
 at load center distance: 600 mm 2'0"
 Operating weight: 10 700 kg 23,590 lb

* acc. std EN 474-3, firm and level ground, 80% of full turn tipping load



STANDARD EQUIPMENT

Engine

High performance, low emission
Volvo TD 63 KDE
Dual fuel filters
Cold starting aid
Air cleaner, dry type, dual element, exhaust-aspirated precleaner
Coolant level, sight gauge
Muffler, spark arresting
Coolant filter
Fan guard
Water trap

Electrical System

24 V – prewired for optional accessories
Alternator, 24 V, 60 A
Battery disconnect switch
Fuel gauge
Engine coolant temperature gauge
Transmission oil temperature gauge
Hourmeter
Horn, electric
Instrument panel with symbols
Lights:
• driving (2-front), halogen with high/low beam
• parking lights
• stop/tail combination (2 rear)
• turn signals with hazard warning switch
• working lights, halogen (2 rear)
• Instrument lighting
Reverse alarm (SAE J994)

Contronic monitoring system

Contronic display
Brake test
Shut down to idle at:
• high engine coolant temp
• low engine oil pressure
• high transm. oil temp
Neutral start feature
Test function for warning & monitoring lights
Warning & monitoring lights:
• engine oil pressure
• preheating element, on
• engine coolant temperature
• air cleaner restriction
• alternator malfunction
• working lights
• high beam driving lights
• direction indicator, hazard
• transmission oil pressure
• transmission oil temperature
• brake system pressure
• parking brake applied
• hydraulic oil level
Central warning (with buzzer):
• engine oil pressure
• engine coolant temperature (buzzer)
• transmission oil pressure
• transmission oil temperature
• brake system pressure (buzzer)
• parking brake applied and transmission in forward or reverse (buzzer)
• hydraulic oil level
• high speed/gear

Drivetrain

Transmission: modulated with single lever control, Automatic Power Shift (APS II) with mode selector and operator-controlled declutch
Forward and reverse switch on hydraulic control console
Tires 17.5-25 (12PR) L2
100% differential lock, front axle

Brake System

Wet, internal oil circulation-cooled, outboard-mounted disc brakes, 4-wheel, dual circuit brake system
Secondary brake system, accumulator supplied

Cab

ROPS (SAE J1040) (ISO 3471), FOPS (SAE J231) (ISO 3449).
Acoustical lining
Ashtray
Cigarette lighter
Door lockable (left side access)
Heater/defroster/pressurizer 11 kW, 37500 Btu/h with four speed blower fan
Filtered air
Floor mat
Interior light
Interior rearview mirror
Exterior rearview mirrors, (2)
Openable window, right-hand side
Steering wheel, adjustable tilt, telescopic
Safety glass, tinted
Retractable seat belt (SAE J386)

Storage compartment
Sun visor
Windshield wiper, front and rear
Intermittent wiper, front
Windshield washer, front and rear
Cab access steps and handrails
Dual service brake pedals

Hydraulic System

Main valve, 2-spool, pilot-operated
Pilot valve, 2-spool
Dual axial piston pump
Bucket lever detent
Hydraulic control lever safety latch
Hydraulic pressure test ports, quick-connect
Hydraulic fluid level, sight gauge
Hydraulic oil cooler
Boom-lowering, stopped engine
Bucket leveler, automatic with position indicator, adjustable
Boom lever detents
Boom kickout, automatic, adjustable

External Equipment

Attachment bracket, hydraulic, with separate locking system
Isolation mounts: cab, engine, transmission, radiator
Lifting lugs
Side panels, engine hood
Steering frame lock
Vandalism lock, provision for: batteries, engine oil
Tie-down points
Drawbar hitch
Fenders front/rear
Fuel fill strainer

OPTIONAL EQUIPMENT *(Standard in certain markets)*

Service and maintenance

Tool box
Automatic lube system

Engine

Coolant pre-heater (120 V/750 W) or (240 V/750 W)
Pre-cleaner, oil bath type

Electrical system

Alternator, 100 A
Working lights front, on cab
Working lights front, extra
Working lights rear, extra
Rotating beacon, amber with collapsible mount

Drivetrain

Transmission, 8-speed
Limited slip differential, rear

Cab

Installation kit for radio
Heated operator seat
Armrest, left side
Seat belt, 3 in
Sliding window, right side
Hand throttle
Speedometer
Air suspended operator's seat
Air conditioner 8 kW, 27 300 Btu/h
Noise reduction kit, cab
Parking brake alarm
Open ROPS version

Hydraulic system

Hydraulic control, 3rd function
Hydraulic control, 4th function
Hydraulic controls, 5th/6th function
Hydraulic power take off, heavy duty
Hydraulic single-acting lifting function

Boom Suspension System
Biodegradeable hydraulic fluid
Lever detent 3rd function
Arctic kit
Single lever control

External equipment

Fenders, axle-mounted rear
Fender wideners
Counterweight 1, 190 kg (420 lb)
Counterweight 2, 360 kg (790 lb)

Other equipment

Comfort Drive Control (CDC)
Slow-moving vehicle sign
Secondary steering

Tires

20.5-25, 20.5R25*, 17.5R25*

Protective equipment

Guards for:
headlights
rear working lights
rear lights
windshield
Cover plate under cab
Belly guards, front and rear

Attachments

Buckets
Cutting edge, 3 pc reversible, bolt-on
Bucket teeth, bolt-on
Fork equipment
Material-handling arm
Log grapples
Diagonal snow blade
Broom
Attachment rib kit

Under our policy of continuous product improvement, we reserve the right to change specifications and design without prior notice. The illustrations do not necessarily show the standard version of the machine.

VOLVO

Volvo Construction Equipment Group

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