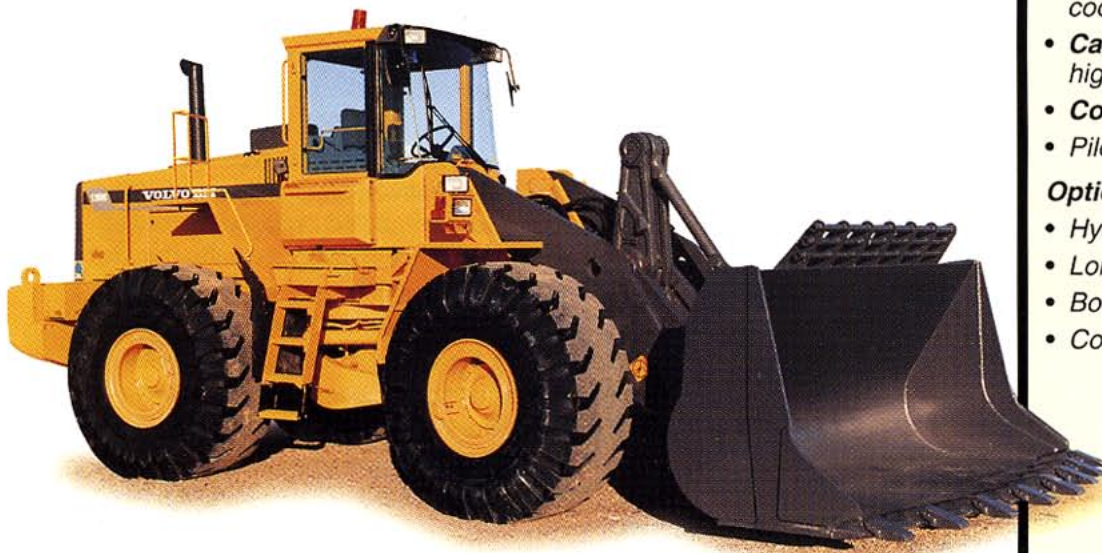


# Volvo BM L180C



- **Engine output SAE J1349:**  
gross 209 kW, (284 hp)  
net 198 kW, (269 hp).
- **Operating weight:** 24,2-27,5 t.
- **Buckets:** 4,2 – 14,0 m<sup>3</sup>.
- **Volvo Low Emission engine** with excellent low rpm. lugging performance.  
The engine meets all known regulations regarding exhaust emissions for off road machines until year 2001.
- **Volvo BM transmission with APS II**, the new generation of Automatic Power Shift with mode selector optimizes the performance.
- **Torque Parallel Linkage**
  - high breakout torque throughout the working range
  - excellent parallel lift-arm action
- Fully sealed oil-circulation cooled wet disc brakes
- **Care Cab** – pressurized cab with high comfort and safety
- **Contronic** monitoring system
- Pilot-operated working hydraulics

#### **Optional Equipment**

- Hydraulic attachment bracket
- Long Boom
- Boom Suspension
- Comfort Drive Control

**VOLVO BM**



## SERVICE REFILL CAPACITIES



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 grill and radiator.

### Capacities

Fuel tank	339 l	Transmission	35 l
Engine coolant	80 l	Engine oil	34 l
Hydraulic tank	165 l	Axle front/rear	55/54 l

## 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.

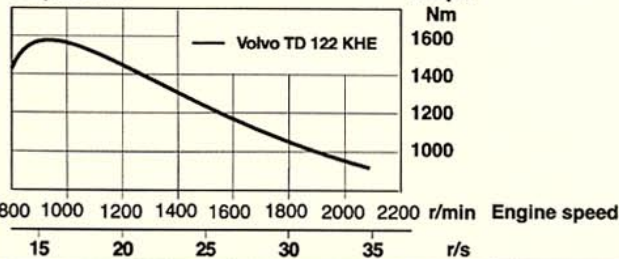
**Engine:** Volvo TD 122 KHE low emission high performance, 6-cylinder, in-line, direct-injected, turbocharged, intercooled 4-stroke diesel engine with wet replaceable cylinder liners.

**Air cleaning:** three-stage.

### Engine

Flywheel output at	35 r/s	2100 r/min
SAE J1349 gross	209 kW	284 hp
net	198 kW	269 hp
<b>Max. torque at</b>	15,0 r/s	900 r/min
SAE J1349 gross	1580 Nm	
net	1570 Nm	
<b>Displacement</b>	12,0 l	

### Torque curve



## 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 retrofitting of 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), steering pressure, high speed/gear, transmission oil filter, axle oil temperature.

Shut down to idle as standard.

<b>Voltage</b>	24 V	
<b>Batteries</b>	2x12 V	
<b>Battery capacity</b>	2x140 Ah	
Cold cranking capacity, ea	1050 A	
Reserve capacity, ea	290 min	
<b>Alternator rating</b>	1680 / 60 W/A	
<b>Starter-motor output</b>	6,6 kW	9,0 hp

## DRIVETRAIN



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

**Torque converter:** Single-stage.

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

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

**Axles:** Volvo BM, 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.

<b>Transmission</b>	Volvo BM HT 220
<b>Torque multiplication</b>	2,27:1
<b>Speeds, max forward/reverse</b>	
1	6,5 km/h
2	12,1 km/h
3	24,0 km/h
4 (forward only)	35,1 km/h
<b>Measured with tires</b>	26.5R25 L3
<b>Front axle and rear axle</b>	Volvo BM / AWB 40
Oscillation, rear axle	±15 °
<b>Ground clearance at 15° oscillation</b>	610 mm

## 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 BM, 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.

**Parking brake:** Enclosed wet multi-disc brake built into the transmission. Spring applied, electro-hydraulic released via a switch on the instrument panel. Applies automatically when the key is turned off.

**Secondary brake:** Dual - circuit system with rechargeable accumulators. One circuit or the parking brake fulfills the requirements.

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

<b>Number of discs/wheel</b>	1
<b>Accumulators, volume each</b>	3x1,0 l
<b>Accumulator, parking brake</b>	1x0,5 l



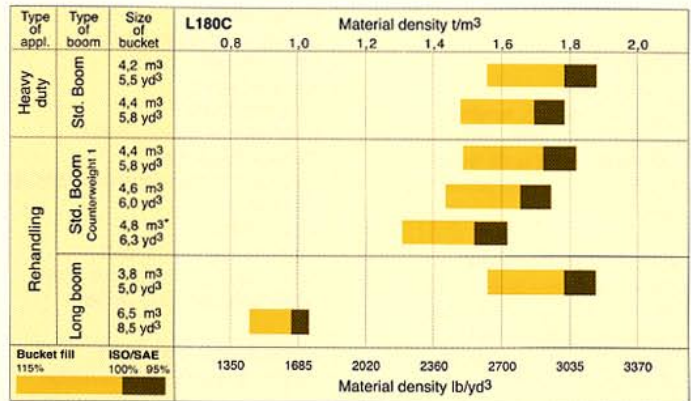
## OPERATIONAL DATA VOLVO BM L180C

Type of application	REHANDLING			HEAVY DUTY				LIGHT MTRL	LONG BOOM		
Tires 26.5-R 25 L3											
Volume, heaped	m <sup>3</sup>	4,6	4,6	4,4	4,4	4,2	4,2	4,2	7,5	3,8	6,5
incl. bolt-on cutting edge	m <sup>3</sup>	4,8	4,8	4,6	—	—	—	—	7,8	4,0	6,8
Static tipping load, straight	kg	19950	19250	20070	18760	18740	18530	18220	19160	16900	16100
at 35° turn	kg	17710	17040	17800	16620	16620	16400	16080	16960	14990	14210
at full turn	kg	17440	16780	17540	16370	16370	16160	15830	16700	14770	13990
Breakout force	kN	202,9	191,0	211,7	211,6	211,6	212,5	186,8	153,0	209,9	149,7
A	mm	8540	8630	8470	8710	8710	8710	8910	9020	8870	9420
E	mm	1330	1410	1270	1270	1270	1270	1450	1770	1240	1710
H	mm	3150	3090	3190	3030	3030	3030	2910	2780	3740	3340
L	mm	6180	6230	6170	6170	6130	6180	6130	6300	6510	6730
M	mm	1290	1350	1240	1420	1420	1420	1560	1580	1210	1560
N	mm	1950	1990	1920	2040	2040	2030	2120	2070	2290	2490
V	mm	3200	3200	3200	3200	3200	3200	3200	3400	3200	3200
a, clearance circle	mm	14920	14960	14880	15060	15060	15060	14930	15370	15210	15510
Operating weight	kg	24600	24890	24560	24180	24160	24350	24610	24820	24510	24890
Product no		92183	92182	92675	92538	91613	92799	91618	92117	92180	92032
Including counterweight 1								Including counterweight 1			

## BUCKET SELECTION CHART

The volume handled varies with the bucket fill and is often greater than indicated by the bucket's ISO/SAE volume. The table shows optimum bucket choice with regard to the material density.

Material m <sup>3</sup>	Bucket fill %	Density t/m <sup>3</sup>
Earth	100-115	1,4-1,6
Clay	110-120	1,4-1,6
Sand	100-110	1,6-1,9
Gravel	100-110	1,7-1,9
Rock	75-100	1,5-1,9



\*) Incl. edge savers

## SUPPLEMENTAL OPERATING DATA

	Standard Boom					Long Boom				
	26.5 R25 L5	30/65 R29 L3	Cw 1	Cw 2	Cw3*	26.5 R25 L5	30/65 R29 L3	Cw 2	Cw3*	
Width over tires	mm	+14	+170	—	—	—	+14	+170	—	—
Ground clearance	mm	+35	+50	—	—	—	+35	+50	—	—
Tipping load, full turn	kg	+371	+350	+985	+1430	+450	+321	+300	+1250	+410
Operating weight	kg	+552	+515	+520	+750	+260	+552	+515	+750	+260

Counterweight 1 may be used in rehandling and material handling. Counterweight 2, and combinations of counterweight 1 and 2, may be used within pallet and material arms handling for stabilizing purposes on firm and level ground. Counterweight 2 replaces hydroinflation of rear tires.

Counterweight 2 must never be combined with tire chains. \*For the purpose of stabilizing in log operations counterweight 3 may be added to counterweight 1 and 2. Counterweight 3 must never be used in combination with L5 tires.



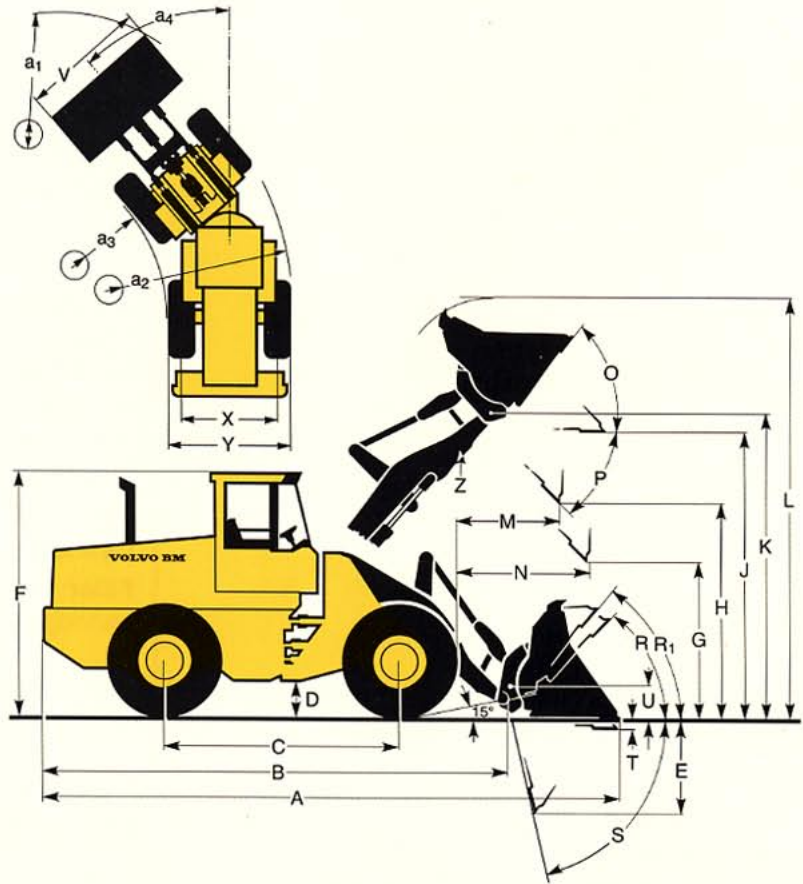
## OPERATIONAL DATA & DIMENSIONS

**Tires: 26.5 R 25 L3**

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

Standard Boom	Long Boom
B	6960 mm
C	3550 mm
D	480 mm
F	3560 mm
G	2135 mm
J	4090 mm
K	4480 mm
O	57 °
P	49 °
R	44 °
R <sub>1</sub> *	48 °
S	71 °
T	100 mm
U	520 mm
X	2280 mm
Y	2950 mm
Z	4030 mm
a <sub>2</sub>	6780 mm
a <sub>3</sub>	3830 mm
a <sub>4</sub>	±37 °

\* Carry position SAE

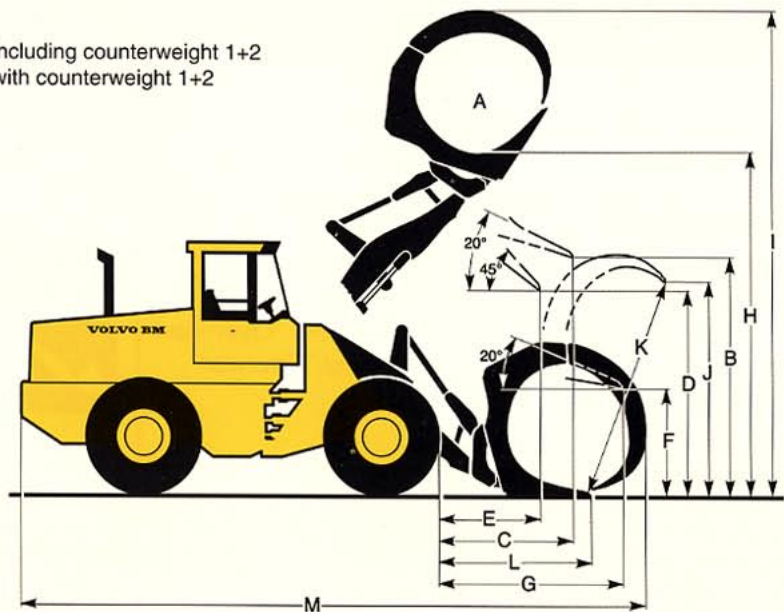


## LOG GRAPPLE (hook on)

**Tires: 26.5 R 25 L3**

Order No: 91781  
 Operating weight: 26050 kg including counterweight 1+2  
 Operating load: 8800 kg with counterweight 1+2

A	3,5 m <sup>2</sup>
B	3780 mm
C	2130 mm
D	3090 mm
E	1620 mm
F	1620 mm
G	3020 mm
H	5120 mm
I	7800 mm
J	3400 mm
K	3650 mm
L	2410 mm
M	9880 mm





## 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 with power amplification.

**System supply:** The steering system is supplied from a separate steering pump.

**Pump:** Variable-flow axial piston pump.

**Cylinders:** Two double-acting cylinders.

<b>Steering cylinder</b>	2
Bore	100 mm
Piston rod diameter	50 mm
Stroke	418 mm
<b>Relief pressure</b>	21 MPa
<b>Max. flow</b>	116 l/min.
<b>Articulation</b>	± 37 °

## 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 information important to the operator is readily visible in front of him. Cab display for Contronic monitoring system (option).

**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 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/3471, SAE J1040), FOPS (ISO 3449, SAE J231). Complies with "Overhead guards for rider lift trucks" (ISO 6055) and "Operator Restraint System" (SAE J386).

<b>Emergency exits</b>	2
<b>Sound level in cab</b>	
as per ISO 6394,	
SAE J919, max.	75 dB (A)
Fan position 2	73 dB (A)
<b>Exterior sound level</b>	
ISO 6393	LwA 110 dB (A)
<b>Ventilation</b>	10 m <sup>3</sup> /min
<b>Heating capacity</b>	11 kW 37 500 Btu/h
<b>Air conditioning (optional)</b>	8 kW 27 300 Btu/h

## HYDRAULIC SYSTEM



*Open center hydraulics with highly efficient vane pumps allows precision control and quick movements even at low rpm's thanks to the high capacity pumps.*

**Pump:** A double vane pump mounted on a power take-off on the transmission. Pump 1 works with all tilt and lift movements. Pump 2 works with tilt out and lift up to 20 MPa (2900 psi). A pilot-controlled selector valve cuts-in flow to the system.

**Valve:** Double-acting 3-spool valve actuated by a 3-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. Inductive/magnetic automatic bucket positioner, that can be switched on and off.

**Cylinders:** Double-acting

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

### Vane pump

Relief pressure, pump 1	22,5 MPa	
Flow	313 l/min	
at	10 MPa	
and engine speed	35 r/s	2100 r/min
Relief pressure, pump 2	20 MPa	
Flow	91,5 l	
at	10 MPa	
and engine speed	35 r/s	2100 r/min

### Pilot system

Relief pressure	3,0-4,5 MPa
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### Cycle times

Raise*	6,6 s
Dump*	2,5 s
Lower, empty	3,5 s
Total cycle time	12,6 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 parallel lift-arm action. These features together with 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.*

<b>Lift cylinder</b>	2
Bore	190 mm
Piston rod diameter	90 mm
Stroke	788 mm
<b>Tilt cylinder</b>	1
Bore	260 mm
Piston rod diameter	120 mm
Stroke	480 mm



## STANDARD EQUIPMENT

### Engine

Air cleaner, dry type, dual element, exhaust aspirated precleaner  
Coolant level, sight gauge  
Engine intake manifold preheater  
Muffler, spark arresting  
Dual fuel filter  
Watertrap

### Electrical System

24V – prewired for optional accessories  
Alternator, 24V, 60 A  
Battery disconnect switch  
Fuel gauge  
Engine coolant temperature  
Transmission oil temperature  
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 front, 2 rear)
- instrument lightning

### Conronic Monitoring System, ECU

*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
- engine coolant temperature
- air cleaner restriction
- alternator malfunction
- working lights
- high beam driving lights
- direction indicator, hazard

*Central warning:*

- transmission oil pressure
- transmission oil temperature
- brake system pressure
- steering pressure
- axle oil temperature
- transmission oil filter
- high speed gear
- engine oil pressure
- engine coolant temperature (buzzer)
- *Parking brake applied and transmission in forward or reverse (buzzer)*

### Drivetrain

Transmission: modulated with single lever control, automatic power shift, and operator controlled declutch  
*Differentials:*  
front 100%, hydraulic differential lock  
rear, conventional  
Tires 26.5R25

### Brake System

Wet, internal oil circulation cooled disc brakes, 4-wheel, dual circuit  
Brake system, secondary  
Parking brake alarm

### Cab

ROPS (SAE J1040CC) (ISO 3471), FOPS (SAE J 231) (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  
Mirrors rearview (2), exterior  
Openable window, right-hand side

Safety glass, tinted  
Seat belt (SAE J386)  
Seat, heated, ergonomically designed, suspension adjustable  
Storage compartment  
Sun visor  
Windshield wiper, front & rear  
Intermittent wiper, front  
Cab access steps and handrails  
Fenders, front & rear with anti-skid-tape

### Hydraulic System

Main valve, 3-spool  
Pilot valve, 3-spool  
Vane pump  
Bucket lever detent  
Bucket leveler, automatic with position indicator, adjustable  
Boom lever detents  
Boom kickout, automatic, adjustable  
Hydraulic control lever safety latch  
Hydraulic oil cooler  
Boom lowering

### External Equipment

Isolation mounts: cab, engine, gearbox  
Lifting lugs  
Side panels, engine hood  
Steering frame lock  
Vandalism lock, provision for: batteries, engine oil

## OPTIONAL EQUIPMENT *(Standard on certain markets)*

### Service and maintenance equipment

Tool box  
Tool kit  
Auto lube system  
Refill pump  
Wheel nut wrench kit

### Engine

Coolant filter  
Cold starting aid, engine coolant preheater (220V/1500 W)  
Pre-cleaner, oil bath type  
Radiator, corrosion protected  
Suction fan

### Electrical System

Reverse alarm (SAE J994)  
Attachment lights (halogen)  
Light registration plate  
Working lights front, extra  
Working lights rear, extra  
Rotating beacon, amber with collapsible mount  
Loud horn electrically  
Alternator, 100 amp.  
Head lights assym. left  
Side marking lamp

### Drivetrain

Forward and reverse switch  
Speed limiter, 3-speed version

### Cab

Installation kit for radio  
Hand throttle  
Sliding ventilation window  
Seat belt retractable  
Speedometer  
Air conditioner  
Dual service brake pedals  
Conronic display  
Cab filter for environment cont. asbestos  
Instructor seat  
Noise reduction kit, cab  
Windshield washer, front & rear  
Adjustable steering wheel

### Hydraulic System

Hydraulic control, 3rd function  
Hydraulic control, 4th function  
Boom Suspension System  
Biodegradable hydraulic fluid  
Hydraulic control 3rd, hydraulic pilot hoses  
Return line 3rd hydraulic control  
Attachment bracket with separate locking system  
Arctic kit

### External Equipment

Counterweight 1 520 kg  
Counterweight 2 750 kg  
Counterweight 3 260 kg  
Fenders, extended  
Fenders, axle mounted  
Drawbar with pin

### Other Equipment

Comfort Drive Control (CDC)  
Secondary steering  
Fuel fill strainer  
Loadtronic  
External brake oil cooling system  
Long Boom

### Protective Equipment

Protective grids for front running light  
Protection guard radiator grille  
Protective grids for rear working lights  
Window guards for side and rear window  
Windshield guard  
Fan protection  
Protective grids for rear lights  
Bellyguard front and rear  
Screen for suction fan  
Muffler guard  
Protection plates under cab

### Tires

26.5R25  
30/65R29

### Attachments

Buckets

- rock buckets straight edge
- rock buckets spade nose
- rehandling buckets
- lightmaterial buckets
- high-dump buckets
- side-dump buckets

Bucket teeth, bolt-on  
Cutting edge, 3 pc reversible, bolt-on  
Bucket spillguard  
Fork equipment  
Material handling arm  
Timber grapples

*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.*