



Volvo BM L70B



- **Engine output gross:**
SAE J1349 93 kW (126 hp)
- **Operating weight:** 9,8 – 11,2 t
(21,600 – 24,700 lb)
- **Buckets:** 1,6 – 5,0m³
(2.1 – 6.5 yd³)
- **Torque Parallel Linkage**
 - high breakout torque throughout the working range
 - excellent parallel lift-arm action
- **6-cylinder Volvo engine**
 - good low rpm lugging performance
- Volvo BM transmission with Automatic Power Shift
- Enclosed wet oil circulation-cooled brakes, outboard mounted
- **Care Cab** – pressurized cab with high comfort and safety
- **Contronic** monitoring system
- **Load-sensing hydraulic system**
 - Working and steering hydraulics
- Pilot-operated working hydraulics
- Hydraulic attachment bracket
- Power take off for hydraulically powered attachments (option)

VOLVO BM



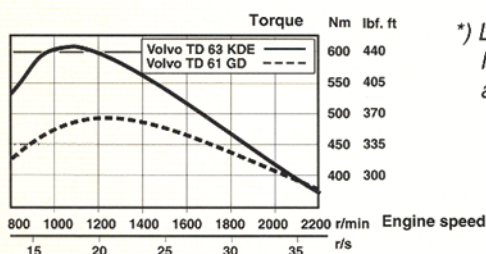
ENGINE

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 61 GD or Volvo TD 63 KDE, 6-cylinder, in line, direct-injected, turbocharged 4-stroke diesel engine with wet replaceable cylinder liners.

Air cleaning: three-stage.

Engine			TD 61GD	TD 63KDE*)
Flywheel output at	rps	rpm	36,7	2200
SAE J1349 gross	kW	hp	93	126
net	kW	hp	87	118
Max. torque at	rps	rpm	20	1200
SAE J1349 gross	Nm	lbf ft	500	369
net	Nm	lbf ft	495	365
Displacement	l	in ³	5,48	334



*) Low-emission high-performance engine



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), hydraulic oil pressure in transmission, transmission oil temperature, brake pressure, parking brake (buzzer).

Voltage	V	24
Batteries	V	2x12
Battery capacity	Ah	2x105
Cranking capacity, ea	A	560
Reserve capacity, ea	min	170
Alternator rating	W/A	1680 / 60
Starter-motor output	kW	5,4
	hp	7.3



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 grill and radiator.

Fuel tank	l	US gal	190	50
Hydraulic tank	l	US gal	65	17



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

Shifting system: Volvo BM Automatic Power Shift (APS).

Axes: 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.

Transmission	VME HT90			
Torque multiplication	2,85:1			
Speeds, max forward/reverse		High	Low (option)	
1	km/h	mph	6,3	3.9
2	km/h	mph	12,3	7.6
3	km/h	mph	23,5	14.6
4 (forward only)	km/h	mph	41,5	25.8
Measured with tires	17.5 R 25* L2			
Front and rear axle	Volvo BM / AWB 15			
Oscillation, rear axle	±13 °			
Ground clearance at 13° oscillation	mm	in	420	16.5



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 disc brakes. Transmission declutch during braking can be preselected by a switch on the instrument panel.

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.

Number of discs/wheel	1
Number of accumulators	3
Volume, each	l US gal 0.5 0.13

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



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 pump.

Cylinders: Two double-acting cylinders.

Steering cylinders			2	
Bore	mm	in	63	2.48
Piston rod diameter	mm	in	40	1.57
Stroke	mm	in	370	14.57
Relief pressure	MPa	psi	21	3046
Max. flow	l/min	US gpm	80	21.13
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 information important to the operator is readily visible in front of him. 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 belt. The seat is mounted on a bracket on the rear wall. The force from the belt is absorbed by the seat rails.

Emergency exits			3	
Sound level in cab				
as per ISO 6394,	dB (A)		73	
SAE J919, max.	m ³ /min	cfm	10	350
Ventilation	kW	Btu/h	11	37,500
Heating capacity	kW	Btu/h	7	24,000
Air conditioning (optional)				

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).



HYDRAULIC SYSTEM

Load-sensing (LS) 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 the oil requirements of the function used via indication through a LS 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 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 micron (absolute) filter cartridge.

Axial piston pump

Relief pressure	MPa	psi	26,0	3771
Flow	l/min	US gpm	160	42.3
at	MPa	psi	10	1450
and engine speed	rps	rpm	36,7	2200

Pilot system

Relief pressure	MPa	psi	3,5	508
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Cycle times

Raise *	s	5,1
Dump *	s	1,3
Lower, empty	s	3,0
Total cycle time	s	9,4

* with load as per ISO 5998 and SAE J818

LIFT-ARM SYSTEM

TP Linkage combines high break-out torque throughout the working range with nearly exact 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.

Lift cylinder

Bore	mm	in	100	3.9
Piston rod diameter	mm	in	70	2.8
Stroke	mm	in	734	28.9

Tilt cylinder

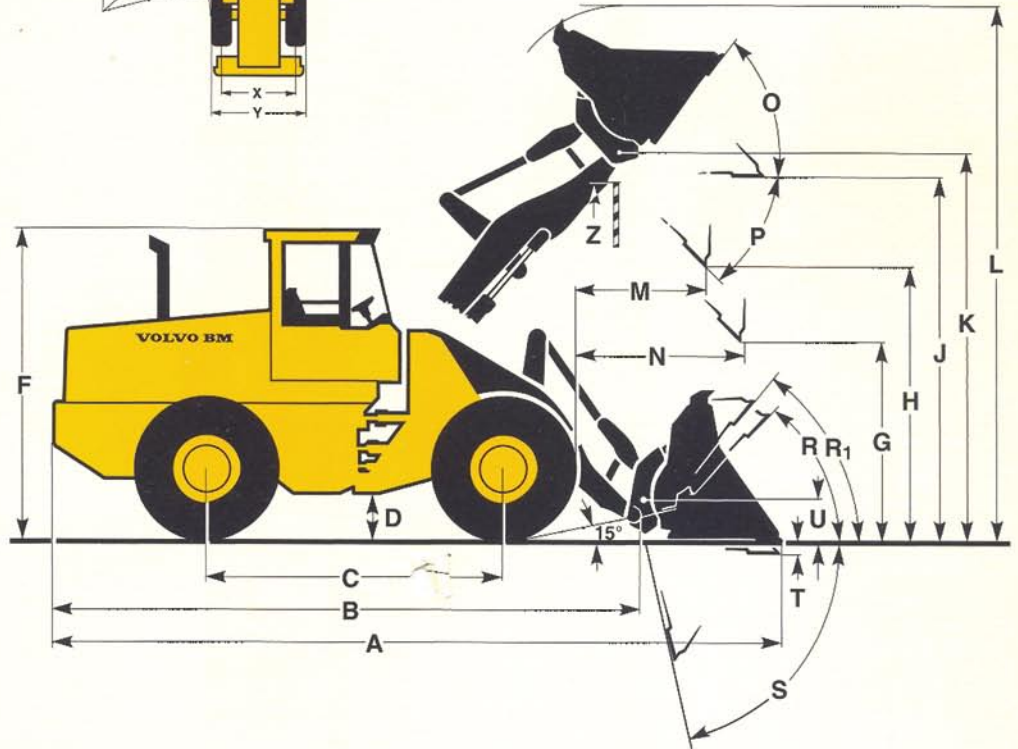
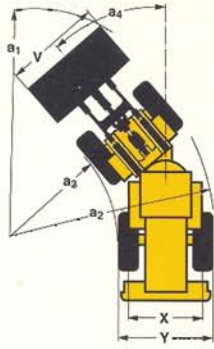
Bore	mm	in	150	5.9
Piston rod diameter	mm	in	80	3.1
Stroke	mm	in	440	17.3

DIMENSIONAL DATA VOLVO BM L70B

Tires: 17.5R25* L2

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

B	mm	ft in	5704	18'9"
C	mm	ft in	2840	9'4"
D	mm	ft in	390	1'3"
F	mm	ft in	3120	10'3"
G	mm	ft in	2140	7'0"
J	mm	ft in	3550	11'8"
K	mm	ft in	3810	12'6"
O	°		56	
P	°		45	
R	°		44	
R ₁ *	°		48	
S	°		78	
T	mm	ft in	90	3,5"
U	mm	ft in	360	1'2"
X	mm	ft in	1860	6'1"
Y	mm	ft in	2310	7'7"
Z	mm	ft in	3570	11'9"
a ₂	mm	ft in	5050	16'7"
a ₃	mm	ft in	2750	9'0"
a ₄	± °		40	



* Carry position SAE

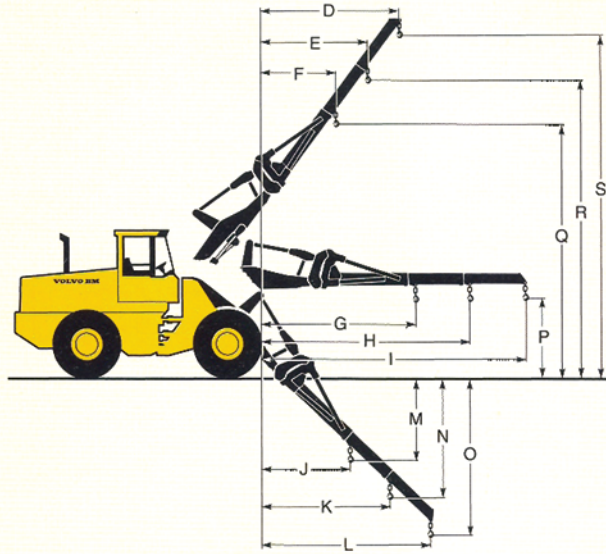
† Bucket capacity includes	Standard buckets								Coal/snow	Wood chips	
	Hook-on		Pin-on		Hook-on		Pin-on		Hook-on	Hook-on	
Volume, heaped	m ³	1,9	1,8	1,9	1,8	1,7	1,6	1,7	1,6	3,0	5,0
	yd ³	2.5	2.35	2.5	2.35	2.2	2.1	2.2	2.1	3.9	6.5
Static tipping load, straight	kg	6930	7120	7350	7550	7000	7190	7440	7630	6520	6380
at 35° turn	kg	6140	6330	6540	6740	6210	6390	6630	6820	5760	5610
	lb	13,540	13,950	14,420	14,860	13,690	14,090	14,620	15,040	12,700	12,370
at full turn	kg	5900	6090	6300	6500	5970	6150	6380	6570	5340	5370
	lb	13,010	13,420	13,890	14,330	13,160	13,560	14,070	14,490	11,770	11,840
Breakout force	kN	83	86	90	94	88	92	96	101	65	55
	lbf	18,660	19,340	20,230	21,130	19,780	20,680	21,580	22,710	14,610	12,370
A	mm	7020	6940	6920	6850	6950	6870	6850	6770	7300	7610
	ft in	23'0"	22'9"	22'8"	22'6"	22'10"	22'7"	22'6"	22'3"	23'11"	24'11"
L	mm	5060	5060	5010	5010	4880	4880	4950	4950	5220	5500
	ft in	16'7"	16'7"	16'5"	16'5"	16'0"	16'0"	16'3"	16'3"	17'1"	18'1"
H	mm	2750	2810	2820	2870	2800	2850	2870	2920	2570	2370
	ft in	9'0"	9'3"	9'3"	9'5"	9'2"	9'4"	9'5"	9'7"	8'5"	7'10"
M	mm	1100	1070	1040	1010	1050	1020	990	960	1350	1560
	ft in	3'7"	3'6"	3'5"	3'4"	3'5"	3'4"	3'3"	3'2"	4'5"	5'1"
N	mm	1620	1620	1590	1590	1600	1600	1600	1570	1670	1700
	ft in	5'4"	5'4"	5'3"	5'3"	5'3"	5'3"	5'3"	5'2"	5'6"	5'7"
V	mm	2500	2500	2500	2500	2500	2500	2500	2500	2550	2650
	ft in	8'2"	8'2"	8'2"	8'2"	8'2"	8'2"	8'2"	8'2"	8'4"	8'8"
a ₂ clearance circle	mm	11340	11300	11300	11260	11300	11260	11260	11220	11560	11840
	ft in	37'3"	37'1"	37'1"	36'11"	37'1"	36'11"	36'11"	36'10"	37'11"	38'10"
Operating weight	kg	10340	10240	10130	10020	10300	10200	10100	10000	10380	10750
	lb	22,796	22,575	22,333	22,112	22,708	22,487	22,267	22,046	22,884	23,700

Counterweight 1: 190 kg (420 lb) is included in the specifications

MATERIAL HANDLING ARM (Hook on)

Tires: 17.5R25* L2

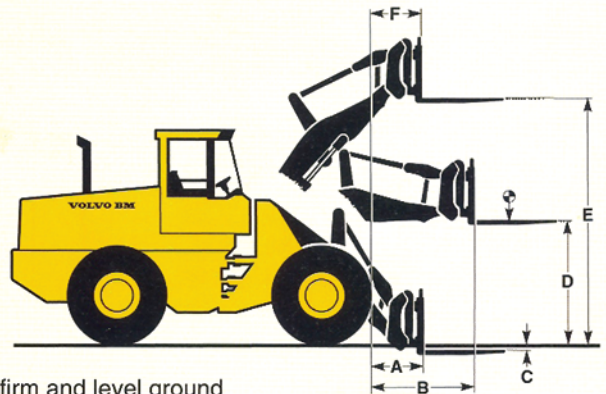
Order no.	92007		
Operating weight kg lb	9990	22,020	
A kg lb	1600	3540	
B kg lb	1270	2790	
C kg lb	1030	2270	
D mm ft in	2630	8'8"	
E mm ft in	2050	6'9"	
F mm ft in	1520	5'0"	
G mm ft in	3340	11'0"	
H mm ft in	4370	14'4"	
I mm ft in	5500	18'1"	
J mm ft in	1900	6'3"	
K mm ft in	2630	8'7"	
L mm ft in	3430	11'3"	
M mm ft in	1790	5'11"	
N mm ft in	2530	8'3"	
O mm ft in	3320	10'11"	
P mm ft in	1460	4'9"	
Q mm ft in	5250	17'3"	
R mm ft in	6140	20'2"	
S mm ft in	7110	23'4"	



PALLET FORK (Hook On)

Tires: 17.5R25* L2

Fork tine order no. one tine	97789		
Length	mm ft in	1225	4'0"
Fork frame order no.	9117		
Width	mm ft in	1500	4' 11"
Rated operating load* at load center distance	kg lb	3425	7544
	mm ft	600	2'0"
Operating weight	kg lb	10140	22,350
A mm ft in	940	3'1"	
B mm ft in	1660	5'6"	
C mm ft in	40	1.6"	
D mm ft in	1720	5'8"	
E mm ft in	3600	11'10"	
F mm ft in	800	2'8"	



* acc. std EN 474-3, firm and level ground

Bucket type	Material Density t/m ³ lb/yd ³							
	1.19	1.31	1.42	1.54	1.66	1.78	1.90	2.02
m ³ yd ³	2000	2200	2400	2600	2800	3000	3200	3400
1.6 2.1 Hook on					1.8	1.5		
					2.35	2.0		
1.8 2.4 Pin on				2.1	1.7			
				2.75	2.3			
1.8 2.4 Hook on			2.1	1.7				
			2.75	2.3				
1.9* 2.5* Hook on		2.2	1.8					
		2.9	2.35					

* Including bolt-on cutting edge

Bucket fill	115%	100%	95%
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ISO/SAE

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. The table also shows the volume handled depending on the bucket fill

Counterweight 1 may be used in all handling.

Counterweight 2 may only be used for stabilizing purposes within timber and pallet handling on flat surface. Counterweight 2 replaces hydroinflation of rear tires and may not be combined with tires 20.5-25.

Combination of Counterweight 1 + 2 may only be used in extreme cases for stabilizing purposes within timber and pallet handling with fork attachments. Only when working on firm and flat surface.

Material	Earth	Clay	Sand	Gravel	Rock
Bucket fill %	100-115	110-120	100-110	100-110	75-100
Density t/m ³	1.4-1.6	1.4-1.6	1.6-1.9	1.7-1.9	1.5-1.9
Density lb/yd ³	2360-2700	2360-2700	2700-3200	2870-3200	2530-3200

CHANGE IN DIMENSIONAL DATA

Tires		20.5 R 25* L2	17.5-25/12 L2	Counterweight 2	Excl counterweight 1
Width over tires	mm in	+80 +3.1"	+10 +0.4"	- -	- -
Ground clearance	mm in	+56 +2.2"	-10 -0.4"	- -	- -
Tipping load, full turn	kg lb	+250 +550	-120 -265	+570 +1255	-330 -730
Operating weight	kg lb	+440 +970	-180 -395	+360 +795	-190 -420

STANDARD EQUIPMENT

Safety & comfort

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
 Steering Wheel, Adjustable Tilt,
 Telescopic
 Storage Compartment
 Sun Visor
 Windshield Washer, Front & Rear
 Windshield Wiper, Front & Rear
 Intermittent Wiper, Front
 Cab Access Steps and Handrails
 Fenders, Front & Rear with
 Anti-Skid-Tape

Engine & electrical system

Air Cleaner, Dry Type, Dual
 Element, Exhaust Aspirated
 Precleaner
 Coolant filter
 Coolant Level, Sight Gauge

Engine Intake Manifold Preheater
 Muffler, Spark Arresting
 Electrical System 24V
 Pre-wired for Optional
 Accessories
 Alternator, 24V, 60 AMP
 Battery Disconnect Switch
 Fuel Gauge
 Hourmeter
 Horn, Electric
 Reverse Alarm (SAE J994)
 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
 Contronic Monitoring System, ECU
 Contronic Display
 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
 Warning Flasher
 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
 Parking Brake Applied and
 Transmission in Forward or
 Reverse (buzzer)
 Hydraulic Oil Level

Drivetrain

Transmission: modulated
 with single lever
 control, automatic
 power shift, and operator
 controlled declutch
 Differentials:
 front 100%, hydraulic
 differential lock
 rear, conventional
 Tires 17.5-25* L2 Goodyear

Brake System

Wet, internal Oil Circulation
 Cooled Disc Brakes, 4-wheel,
 Dual Circuit
 Brake System, Secondary
 Parking Brake Alarm

Hydraulic system

Main Valve, 2-Spool, Pilot
 Operated
 Pilot Valve, 2-spool
 Dual Axial Piston Pump
 Attachment Bracket with Separate
 Locking System
 Bucket Lever Detent
 Bucket Leveler, Automatic with
 Position Indicator, Adjustable
 Boom Lever Detents
 Boom Kickout, Automatic,
 Adjustable
 Hydraulic Control Lever Safety
 Latch
 Boom Lowering System
 Hydraulic Pressure Test Ports,
 Quick Connect
 Hydraulic Fluid Level, Sight Gauge
 Hydraulic Oil Cooler

External Equipment

Drawbar with Pin
 Isolation Mounts:
 Cab, Engine, Gearbox
 Lifting Lugs
 Side Panels, Engine Hood
 Steering Frame Lock
 Vandalism Lock, Provision for:
 Batteries
 Engine Oil

OPTIONAL EQUIPMENT

Service and maintenance equipment

Tool box
 Tool kit

Engine equipment

Low Emission Version
 Cold Starting Aid, Engine Coolant
 Preheater (120V/1500 W) or
 (240V/ 1500 W)

Electrical equipment

Working Lights Front, extra
 Working Lights Rear, extra
 Rotating Beacon, Amber with
 Collapsible Mount

Transmission equipment

Forward and Reverse Switch
 Transmission, 8-speed

Cab equipment

Installation Kit for Radio
 Hand Throttle
 Sliding Ventilation Window
 Speedometer
 Air suspended Operator's seat
 Retractable Seat Belt
 Air Conditioner 7 kW,
 24000 Btu/h
 Dual Service Brake Pedals
Hydraulic equipment
 Hydraulic Control, 3rd Function
 Hydraulic Control, 4th Function
 Hydraulic Controls, 5th/6th Funct.
 Hydraulic Power Take Off
 – Load Sensing
 Hydraulic Power Take Off
 – Heavy Duty
 Hyd. Single Acting Lifting Function

Boom Suspension System

External equipment

Fenders, extended
 Counterweight 1
 Counterweight 2

Other equipment

Comfort Drive Control (CDC)
 Slow Moving Vehicle Emblem
 Secondary Steering

Tires

17.5–25 20.5–25
 17.5 R 25* 20.5 R 25*

Protective equipment

Protective grids for front running
 light

Protective grids for rear working
 lights

Protective grids for rear lights
 Anti-Vandalism equipment

Attachments

Buckets
 Fork Equipment
 Material Handling Arm
 Timber Grapples
 Diagonal Snow Blade
 Broom
 Cutting Edge, 3 pc Reversible
 Bolt-On
 Bucket Teeth, Bolt-On
 Bucket Spillguard
 Bale Clamp
 Drum Rotator
 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.

Specifications and dimensions conform in applicable parts to ISO 7131, SAE J732, ISO 7546, SAE J742, ISO 5998, SAE J818.

VME North America

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