

4500

**VOLVO BM**



# **FAST, POWERFUL AND WELL BALANCED — THE NEW VOLVO**

Loading haulage vehicles. Feeding crushing and sorting plants. Loading and carrying over long distances. Dozing and grading. These are tasks where the Volvo BM 4500 has a rightful place as a fast and reliable link in an efficient production chain.

The operating weight of the machine is about 15 tonnes, the engine develops 131 kW (178 hp) DIN, and buckets are available with capacities from 2.4 to 9 m<sup>3</sup> (3.1—11.8 yd<sup>3</sup>). But capacity is not dependent upon power and bucket size alone. The 4500 is also a very well balanced machine. The engine, transmission and working hydraulics are very well matched. Seated in his comfortable cab, the operator can fully utilize the machine's resources to achieve a very high work capacity in relation to the machine's size. This makes the new Volvo BM 4500 a very sound investment — built to meet the highest demands on economy and productivity.



# **UL ANCED VO BM 4500**



# RELIABLE POWER PACK

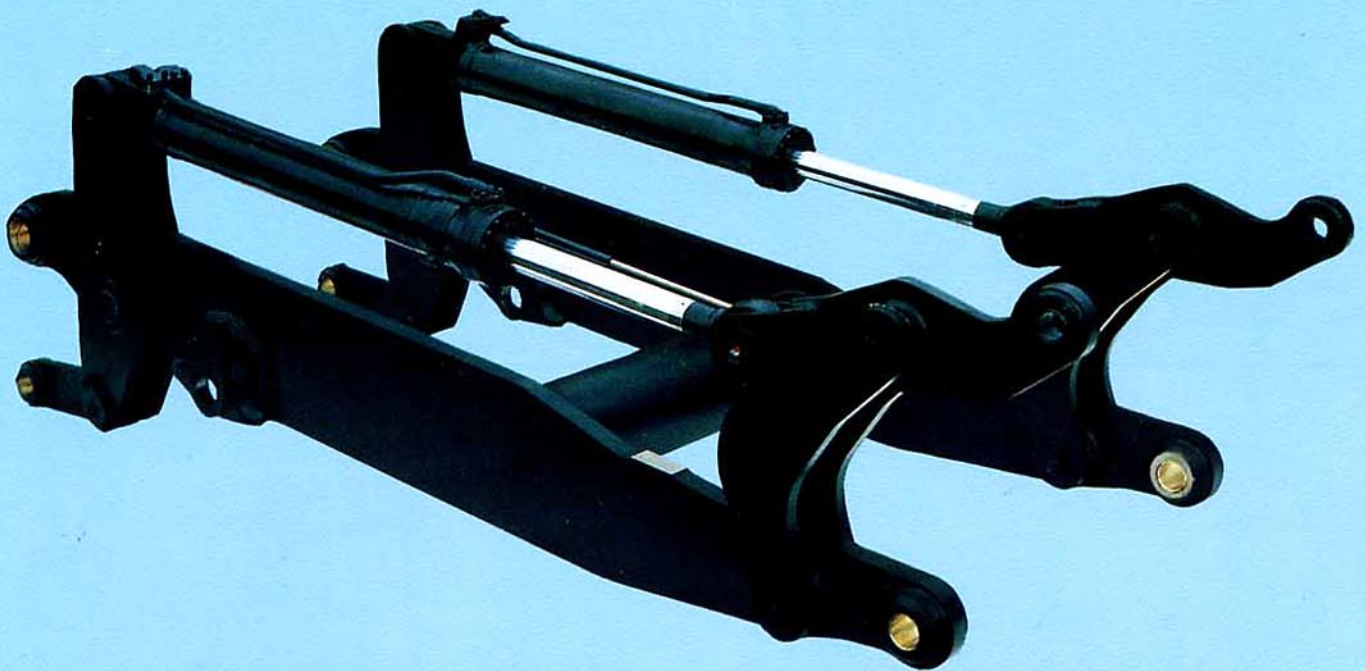
Vital components such as engine, transmission and axles are manufactured by Volvo BM. This enables us to ensure a consistently high level of quality and a well balanced interaction of major components. A great deal of effort has been devoted to component co-ordination and design solutions to ensure long service intervals. All of this gives you an economical machine, reliable in every detail.

## **Automatic Power Shift**

The Volvo BM 4500 is available with automatic shift (optional equipment). A specially programmed computer will then select the correct gear for every situation. Result: higher capacity and better fuel economy.



# LOADER UNIT



The Volvo BM 4500 has a rugged loader unit designed for tough production work. Generous reach and lifting height make it easy to manoeuvre the load over high bins, vehicles etc. For a production loader, high breakout forces are important throughout the full lift radius. A weak point can ruin productivity in a work cycle. The 4500 has a linkage geometry that provides good breakout moment. Another refinement is accelerated bucket rollback against the mechanical stop. This ensures that the weight of a well filled bucket is moved to the back, increasing machine stability.

## **Right attachment**

Volvo BM has always offered a wide range of attachments. The right attachment for the right material and handling work boosts capacity and increases profitability. That's why the Volvo BM 4500 has been equipped with a wide variety of quality attachments, well matched to the machine and their tasks. If desired, the machine can be equipped with a hydraulic attachment bracket to facilitate quick changes.

# SAFETY AND COMFORT

You have effective control over the work from a very comfortable and safe cab. Noise level is pleasantly low and an effective heating and ventilation system adds to the high standard of comfort. Ergonomics engineers have designed the cab's control arrangements. That's why the Volvo BM loader is so easy to operate. Instrumentation and controls are all logically positioned within easy sight and reach of the operator. As for safety — the cab is tested and approved according to ROPS and FOPS standards.



# PRODUCTIVE



*The 4500's capacity for hard work, combined with agile manoeuvrability, excellent lifting height and reach, make it an ideal machine for fast loading and unloading.*

*The Volvo BM loader unit offers good breakout moment in all positions — even at the top. This is a vital feature for working in timber and pulpwood stockyards for example.*

*The Volvo 4500 also has a high carrying capacity over long distances. The machine's long wheelbase and good weight distribution provide a stable ride at high average speeds.*





## ENGINE

Volvo TD 70G: 6-cylinder, in-line, direct-injected, turbocharged 4-stroke diesel engine with overhead valves and wet replaceable cylinder linings.

Flywheel rating	131 kW at 36.7 rps DIN 70020 (178 hp at 2200 rpm DIN)
Gross rating	137 kW at 36.7 rps SAE J1349 Dec 80 (186 hp at 2200 rpm SAE)
Max. torque	637 Nm at 26.7 rps DIN 70020 (470 lbf ft at 1600 rpm DIN) 657 Nm at 26.7 rps SAE J1349 Dec 80 (485 lbf ft at 1600 rpm SAE)
No. of cylinders	6
Bore	104.77 mm (4.125 in)
Stroke	130 mm (5.1 in)
Displacement	6.73 litres (411 in <sup>3</sup> )
Compression ratio	14.5:1
Air cleaning in three stages	1. Cyclone precleaner with automatic ejection through the exhaust 2. Paper filter with cab-mounted indicator 3. Replaceable catch-all safety filter



## ELECTRICAL SYSTEM

Batteries	2 × 12 V (connected in series)
Voltage	24 V
Battery capacity	125 Ah
Alternator	1540 W (55 A)
Starter motor	5.4 kW (7.3 hp)
Central warning lamp for following functions:	<i>(For certain markets only)</i> Engine oil pressure. Brake pressure. Parking brake. Engine temperature. Transmission temperature.



## TORQUE CONVERTER

Type	Single-stage
Torque	2.67:1



## TRANSMISSION

Type: Power-shift	
Designation: Volvo BM HT 130	
Number of gears forward/reverse	4/4

Speeds: (tyres 23.5—25)	1. 0— 7.6 km/h 0— 2.1 m/s (0— 4.7 mph)
	2. 0—13.5 km/h 0— 3.8 m/s (0— 8.4 mph)
	3. 0—28.0 km/h 0— 7.8 m/s (0—17.4 mph)
	4. 0—38.0 km/h 0—10.8 m/s (0—24.0 mph)



## AXLES

Fully floating drive shafts with planetary hub reductions.

Front axle:	Designation	Volvo BM AH 60 D
	Differential lock	100 % lock-up (dog clutch)
Rear axle:	Designation	Volvo BM AH 53
	Oscillation	± 13° (450 mm = 18 in)



## BRAKES

Service brakes: Air over hydraulic operated disc brakes, dual system.

Brake area: Front	396 cm <sup>2</sup> (61 in <sup>2</sup> )/wheel
Rear	396 cm <sup>2</sup> (61 in <sup>2</sup> )/wheel
Air reservoir, volume	3 × 10 litres (3 × 2.2 UK gal)
Parking brake	Mechanically operated disc brake on output shaft to front axle
Parking brake, area:	100 cm <sup>2</sup> (15.5 in <sup>2</sup> )



## TYRES

23.5—25

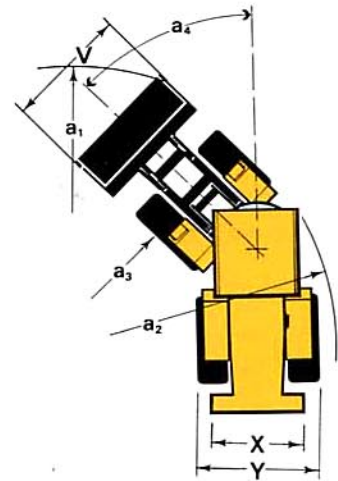
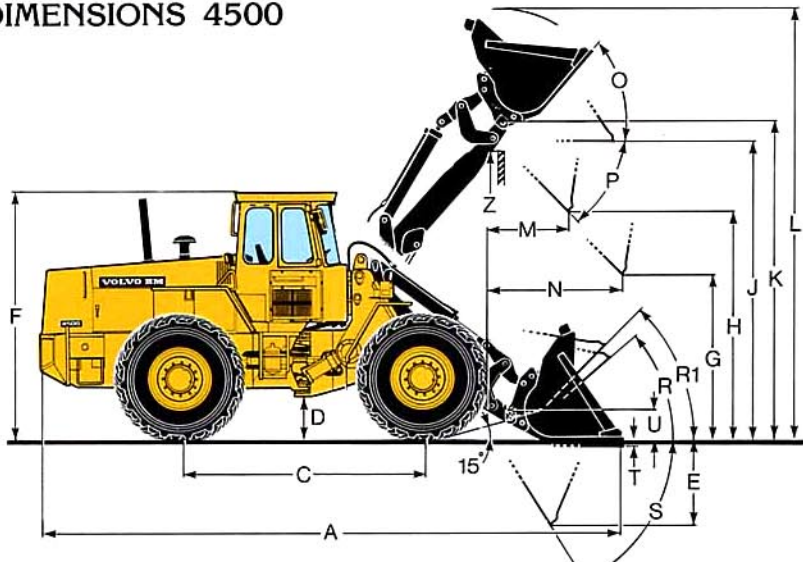


## STEERING

Load-sensing hydrostatic steering

Steering angle	± 40°
Lock-to-lock turns of wheel	4.1
Steering possible without engine	Yes
Steering cylinder, bore/stroke	80/402 mm (3.3/15.8 in)
Piston rod diameter	50 mm (2.0 in)
Oil pump, type	Variable flow piston pump
Output at 10 MPa (1450 psi) and 36.7 rps (2200 rpm)	97 l/min (21.3 UK gal/min)
Relief pressure	17.5 MPa (2538 psi)

# DIMENSIONS 4500



- |   |                      |                                     |  |
|---|----------------------|-------------------------------------|--|
| A = See table below                     | J = 3760 mm (12' 4") | R <sub>1</sub> = 45° carry position | a <sub>1</sub> = clearance circle, see table below |
| A = 6230 mm (20' 5") without attachment | K = 3980 mm (13' 1") | S = 58°                             | a <sub>2</sub> = turning radius 5520 mm (18' 1")   |
| C = 3000 mm (9' 10")                    | L = See table below  | T = 30 mm (1.2")                    | a <sub>3</sub> = inner radius 2790 mm (9' 2")      |
| D = 450 mm (1' 5")                      | M = See table below  | U = 330 mm (1' 1")                  | a <sub>4</sub> = steering angle ± 40°              |
| E = 950 mm (3' 1")                      | N = See table below  | V = See table below                 |  |
| F = 3150 mm (10' 4")                    | O = 50°              | X = 2065 mm (6' 9")                 |  |
| G = 2000 mm (6' 6")                     | P = 45°              | Y = 2680 mm (8' 9")                 |  |
| H = See table below                     | R = 40°              | Z = 3690 mm (12' 1")                |  |

Attachment		Bucket pin on	Bucket hook on	Bucket pin on	Bucket pin on	Bucket hook on
Capacity	m <sup>3</sup> (yd <sup>3</sup> )	2.4 (3.1)	2.4 (3.1)	2.6 (3.4)	2.9 (3.8)	2.9 (3.8)
Density	kg/m <sup>3</sup> (lb/yd <sup>3</sup> )	1800 (3033)	1800 (3033)	1600 (2596)	1500 (2528)	1500 (2528)
(H) Dump clearance at full lift and 45° discharge	mm (ft in)	2985 (9' 10")	2915 (9' 7")	2985 (9' 10")	2875 (9' 5")	2805 (9' 2")
(M) Reach at full lift and 45° discharge	mm (ft in)	1000 (3' 3")	1070 (3' 6")	1000 (3' 3")	1105 (3' 8")	1175 (3' 10")
(N) Reach at 45° discharge and 7 ft high	mm (ft in)	1640 (5' 5")	1675 (5' 6")	1640 (5' 5")	1695 (5' 9")	1730 (5' 8")
(A) Overall length	mm (ft in)	7210 (23' 8")	7310 (24')	7210 (23' 8")	7360 (24' 2")	7460 (24' 6")
(L) Overall height with attachment	mm (ft in)	5240 (17' 2")	5290 (17' 4")	5340 (17' 6")	5385 (17' 8")	5440 (17' 10")
a <sub>1</sub> ) Clearance circle	mm (ft in)	5960 (19' 6")	5990 (19' 8")	5960 (19' 6")	6000 (19' 8")	6030 (19' 9")
(V) Width (over bucket)	mm (ft in)	2750 (9')	2750 (9')	2750 (9')	2750 (9')	2750 (9')
Breakout force	kgf (lbf)	11000 (24250)	10000 (22046)	11000 (24250)	9700 (21385)	8900 (19621)
Static tipping load, straight	kg (lb)	10700 (23594)	10200 (22491)	10700 (23594)	10600 (23373)	10000 (22050)
Static tipping load, 35° turn	kg (lb)	9600 (21168)	9150 (20175)	9600 (21168)	9500 (20948)	9000 (19845)
Tipping load at full turn	kg (lb)	9300 (20505)	8850 (19514)	9300 (20505)	9150 (20175)	8700 (19183)
Operating load	kg (lb)	4600 (10141)	4300 (9480)	4600 (10141)	4450 (9810)	4250 (9370)
Hydraulic lifting force at ground level	kgf (lbf)	15000 (33069)	14600 (32187)	15000 (33069)	14800 (32628)	14400 (31746)
Hydraulic lifting force at max. height	kgf (lbf)	6300 (13889)	6100 (13448)	6300 (13889)	6200 (13669)	6000 (13228)
Operating weight	kg (lb)	14600 (32187)	14850 (32739)	14650 (32298)	14700 (32408)	14950 (32960)
Weight distribution, front	kg (lb)	5800 (12787)	6150 (13558)	5850 (12897)	5950 (13117)	6300 (13889)
Weight distribution, rear	kg (lb)	8800 (19400)	8700 (19180)	8800 (19400)	8750 (19290)	8650 (19070)

Specifications are based on a machine equipped with a 2.4 m<sup>3</sup> (3.1 cu yd) pin-on bucket without teeth and Michelin XRA 23.5R25" tyres. Wherever applicable, specifications are in accordance with SAE Standard J 732 c, J 742 b and J 818 b.

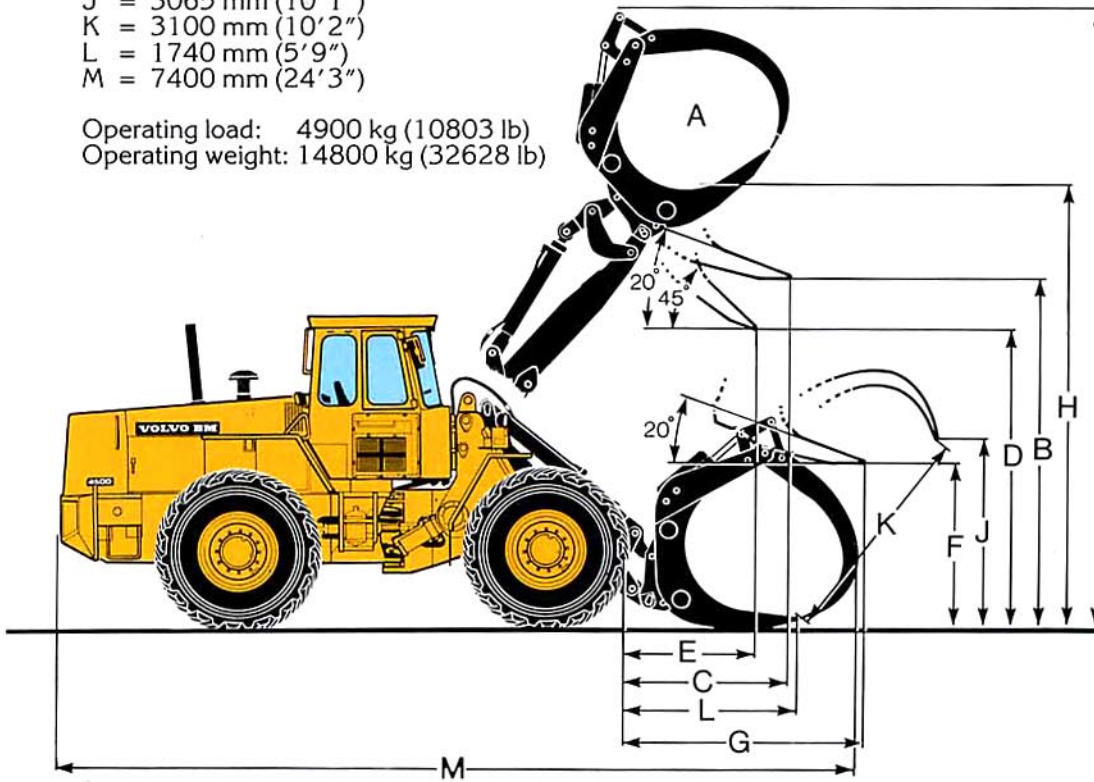
1) CaCl<sub>2</sub> in rear tyres is only recommended for stabilizing purposes in log grapple and pallet fork handling on hard and flat ground.

Optional tyres	Change in basic data		Change in static tipping load, kg (lb)	
	Operating weight, kg (lb)		Pin on	Hook on
75 % CaCl <sub>2</sub> in rear tyres <sup>1)</sup> 23.5—25/16	+ 1244 (+ 2743)		+ 1230 (+ 2712)	+ 1140 (2513)

**SORTING GRAPPLE**  
**98420**

- A = 1.7 m<sup>2</sup> (18.3 ft<sup>2</sup>)
- B = 3580 mm (11'9")
- C = 1750 mm (5'9")
- D = 2985 mm (9'10")
- E = 1470 mm (4'10")
- F = 1680 mm (5'6")
- G = 2520 mm (8'3")
- H = 4385 mm (15'10")
- I = 6100 mm (20')
- J = 3065 mm (10'1")
- K = 3100 mm (10'2")
- L = 1740 mm (5'9")
- M = 7400 mm (24'3")

Operating load: 4900 kg (10803 lb)  
 Operating weight: 14800 kg (32628 lb)







## HYDRAULIC SYSTEM

Pump, type (working hydraulics):  
Vane pump

Output at 10 MPa (1450 psi) and 36.7 rps (2200 rpm)	265 l/min (58.3 UK gal/min)
Relief pressure	16 MPa (2285 psi)

### Oil filter:

Full-flow filtration through 10 µm filter cartridge with magnetic core.

### Hydraulic cylinders:

Type	Double-acting
Lift — bore /stroke Piston rod diameter	140/980 mm (5.5/38.6 in) 70 mm (2.8 in)
Tilt — bore/stroke Piston rod diameter	125/830 mm (5/32.5 in) 70 mm (2.8 in)

### Loader unit:

Control valve: Servo-operated 3-section valve.

Hold with automatic disengagement for lift and float positions and for tilt cylinder's level position.

Raise, with SAE work load	6.5 s
Lower, without load	4.5 s
Lower, without load float position	4.9 s
Dump, high/low speed	2.1s/4.2 s



## SERVICE REFILL CAPACITIES

	Litres	UK gal	US gal
Crankcase incl.	20	4.4	5.3
Fuel tank	230	50.6	60.8
Cooling system	37	9.1	9.8
Hydraulic system, total	265	58.3	69.2
Hydraulic tank	190	41.8	50.2
Transmission and torque converter	30	6.6	7.4
Front axle differential and hubs	37	8.1	9.8
Rear axle differential and hubs	34.6	7.7	9.0
Dropbox	4.7	1.0	1.2



## CAB

Tested and approved as a safety cab in accordance with Article 3 section 8 of the Swedish Environment Protection Act and meets ISO 3471-1980, ROPS (SS783), ISO 3449-1980 FOPS (SS782) and SS/ISO 6055 "Overhead guards for lift-truck". The cab is mounted on four rubber pads and is well insulated and weathertight. All windows have bronze-tinted glass. The windshield is laminated and other windows have tempered safety glass.

Heater and defroster: Heating element with filtered fresh air and 3-speed fan plus defroster for windshield and side windows.

Operator's seat	ISRI GI 6000/575
Mountings for seat belt	Yes

## OPTIONAL EQUIPMENT

(Standard equipment on certain markets)

- 24 V inspection lamp
- Electrical equipment Norway
- Protective grilles for front service lights
- Protective grilles for rear working lights
- Protective grilles for tail lights
- Radio panel without radio
- Speedometer/tachometer
- Tropical version
- Hand brake alarm
- Front working lights (2) halogen
- Rear working lights (2) halogen
- Working light for attachment (1) halogen
- Service lights, symmetric
- Vent, left side, bronze-tinted
- Third hydraulic control
- Third and fourth hydraulic controls
- Fifth hydraulic control
- Hydraulic oil cooler
- Single-acting lifting function
- Lever interlock
- Rotating beacon with fixed mount
- Underbody protection plates
- Wheel nut wrench set
- Rotating beacon with collapsible mount
- Air conditioning
- Heated operator's seat
- LGF plate
- Dual brake pedals
- Extra fuel filter
- Tyre inflation kit
- Hydraulic attachment bracket
- Reversing alarm
- Air-operated parking brake
- Road-dependent safety steering
- High altitude version
- Low emission version
- Precleaner, oil immersion type
- Extra precleaner, cyclone type
- Air horn
- Electric engine block heater
- Rain guard for exhaust pipe
- Heating flange
- Automatic Power Shift (APS)
- Anticlogging protection for lift cylinders
- Extractor fan
- Screen for extractor fan
- Screen for blower fan
- Decorative stripes
- Number plate light
- Muffler guard
- Passenger seat
- Intermittent wiper
- Washers for front and rear windows
- Full-coverage fenders

# STANDARD EQUIPMENT



## SAFETY & COMFORT

- ROPS and FOPS approved cab
  - Cab heating with filtered fresh air intake and defroster
  - Safety glass, windshield
  - Tinted glass
  - Ergonomically designed and adjustable operator's seat
  - Rear-view mirrors, external, 2
  - Rear-view mirror, internal, 1
  - Lights:
    - Headlights
    - High/low/asym. halogen
    - Parking lights
    - Working lights forward (2) halogen
    - Working lights rear (2) halogen
  - Side marker lights
  - Brake lights
  - Tail lights
  - Cab lighting
  - Instrument lighting
- Mounting for seat belt
  - Seat belt
  - Utility box in cab
  - Utility box and compartment in cab
  - Pressure gauge for air brake system
  - Instrument panel with symbols
  - Direction indicators
  - Sun visor
  - Safety start
  - Fenders
  - Hazard flashers
  - Windshield wipers, front and rear
  - Horn
  - Tyre inflation outlet
  - Ashtray
  - Cigarette lighter
  - Industrial hitch
  - Lifting lugs



## ENGINE & ELECTRICAL SYSTEM

- Fuel gauge
  - Temperature gauge, engine
  - Temperature gauge, hydraulic transmission
  - Hour meter
  - Electrical outlet 24V
  - Spark-arresting muffler
  - Battery disconnect switch
  - Alternator
  - Air cleaner with ejector
- Pilot lamps for:
    - working lights front and rear, battery charging, high beam, direction indicators, engine oil pressure, transmission oil pressure, differential lock, parking brake, air brakes, hazard flashers, cold start (heating flange), air cleaner, high-speed tilting

### For certain markets only

- Central warning light:
  - Brake pressure, engine oil pressure, engine temperature, transmission temperature, parking brake



## HYDRAULIC SYSTEM

- Control valve (3 sections). Servo-operated
- High and low forward bucket tilt speeds
- Bucket position indicator
- Bucket positioner and boom kick-out
- Vane pump (working hydraulics)



## POWER TRANSMISSION

- Full Power Shift transmission
- Differential lock (front axle only)
- Transmission cut-out switch
- Single-lever gear control
- Tyres 23.5—25/16

# VOLVO BM

VOLVO BM AB ESKILSTUNA SWEDEN

*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.*

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ENGELSKA

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