

VOLVO BM

A 20

6x4



- **Engine output:**
SAE J1349 Net 137 kW (186 hp)
- **Body volume:**
11,5 t (15 yd³)
- **Load capacity:**
18,5 t (20 sh ton)
- *Direct-injected, turbocharged Volvo engine*
- *Automatic Power Shift transmission*
- *One longitudinal and two transverse diff locks. All with 100% lock-up*
- *Volvo BM terrain bogie. Separate axle suspension and high ground clearance*

ENGINE



The engine is a 6-cylinder-in-line direct-injected turbocharged 4-cycle diesel with overhead valves and wet replaceable cylinder linings.

Make			Volvo	
Model			TD 71G	
Max. power at	r/s (r/min)		36 (2200)	
SAE J1349 Gross	kW (hp)		148 (201)	
Flywheel power at	r/s (r/min)		36 (2200)	
SAE J1349 Net	kW (hp)		137 (186)	
DIN 70020/6271	kW (hp)		137 (186)	
Max. torque at	r/s (r/min)		28 (1700)	
SAE J1349 Gross	Nm (lbf ft)		680 (501)	
SAE J1349 Net	Nm (lbf ft)		640 (472)	
DIN 70020/6271	Nm (lbf ft)		640 (472)	
Displacement, total	l (in ³)		6,73 (411)	
Bore	mm (in)		104,77 (4,125)	
Stroke	mm (in)		130 (5,12)	
Compression ratio			15,5:1	

ELECTRICAL SYSTEM



Voltage	V		24	
Battery capacity	Ah		2x140	
Generator rating	W		1540	
Starter motor power	kW (hp)		5,4 (7,3)	

SERVICE REFILL CAPACITIES



Crankcase volume	l (US gal)		24 (6,3)	
Fuel tank	l (US gal)		295 (80)	
Cooling system	l (US gal)		24 (6,3)	
Transmission	l (US gal)		21 (5,5)	
Front axle with dropbox	l (US gal)		42 (11)	
First bogie axle	l (US gal)		32 (8,5)	
Hydraulic system	l (US gal)		170 (44,9)	
Hydraulic tank	l (US gal)		145 (38,3)	

DRIVETRAIN



Torque converter: Single stage.

Transmission: Automatic power-shift.

Dropbox: Volvo BM dropbox with longitudinal differential.

Differential locks: One longitudinal and two transversal differential locks. All with 100% lock-up.

Axles: Volvo BM design. The drive axles have fully floating axle shafts with planetary gear type hub reduction.

Torque converter			2,19:1
Transmission make			Volvo BM
Model			HT 132
Speeds			
Forward	1	km/h (mile/h)	6 (3,7)
	2	km/h (mile/h)	12 (7,5)
	3	km/h (mile/h)	24 (15)
	4	km/h (mile/h)	34 (21,2)
Reverse	1	km/h (mile/h)	6,5 (4,0)
	2	km/h (mile/h)	13,5 (8,4)
	3	km/h (mile/h)	27 (16,8)
Front axle, type			AH 54
First bogie axle, type			AH 54
Second bogie axle, type			TA 54

Tires

front	18.00 R 25"
	18.00-25/16
	23.5 R 25"
rear	20.5 R 25"
	20.5-25/16

BRAKE SYSTEM



Dual-circuit system with air-hydraulic disc-brakes, designed to comply with ISO 3450 and SAE J1473 at total weight of 33 350 kg (73 520 lb).

Circuit division: one circuit for front axle and one for bogie.

Parking brake: The parking brake is a spring actuated brake on the propeller shaft, designed to hold a loaded machine on a grade up to 18%.

Compressor: The pneumatic system is fed by a gear driven compressor.

Exhaust brake retarder: Exhaust brake as standard.

STEERING SYSTEM



Hydromechanical articulated steering.
3,6 lock-to-lock turns.

Cylinders: Two double-acting cylinders.

Steering angle: $\pm 45^\circ$

Supplementary steering: Supplementary steering function is standard. Complies with ISO 5010 at a total weight of 33 350 kg (73 520 lb).

BODY



Tipping cylinder: One single-acting, 6-stagehoist cylinder with automatic tipping stop.

Body: Made of hardened-and-tempered steel with particularly high impact strength. Wear plates as standard.

Tipping angle	°	63	
Tipping time with load	s	16	
Lowering time	s	16	
Body, plate thickness			
front	mm (in)	6	(0,24)
sides	mm (in)	8	(0,31)
bottom	mm (in)	10	(0,39)
chute	mm (in)	10	(0,39)
wear plates, bottom/sides	mm (in)	8/6	(0,31)/(0,24)
Body			
Yield strength	N/mm ² (psi)	640	(92960)
Tensile strength	N/mm ² (psi)	680-900	(96800-130700)
Wear plates			
Yield strength	N/mm ² (psi)	880	(128 000)
Tensil strength	N/mm ² (psi)	1225	(178 000)

HYDRAULIC SYSTEM



Vane pump: For steering and tipping mounted on transmission power take-off.

Filtration: Suction line: strainer. Return line: Replaceable paper filter with magnetic core. Refill: paper filter.

Pump capacity	l/min	145	
	(US gal/min)		(37)
at	r/s (r/min)	41,7	(2500)
Working pressure	MPa (psi)	17	(2465)

WEIGHTS



Service weights include body with wear plates, oil, fuel and water.

Service weight			
Front	kg (lb)	7800	(17200)
Rear	kg (lb)	7050	(15550)
Total	kg (lb)	14850	(32750)
Payload			
Total	kg (lb)	18500	(40790)
Total weight			
Front	kg (lb)	10500	(23150)
Rear	kg (lb)	22850	(50380)
Total	kg (lb)	33350	(73540)

CAB



Volvo BM cab, tested and approved in accordance with ROPS standard ISO 3471/SAE J1040 C.

The cab is mounted on rubber pads, which reduces vibrations at the operator's station.

Heater and defroster: Filtered air and pressurized cab.

Operator's seat: Operator's seat with flameproof upholstery.

Number of exits (includes door)		2
Internal noise level	dB (A)	80

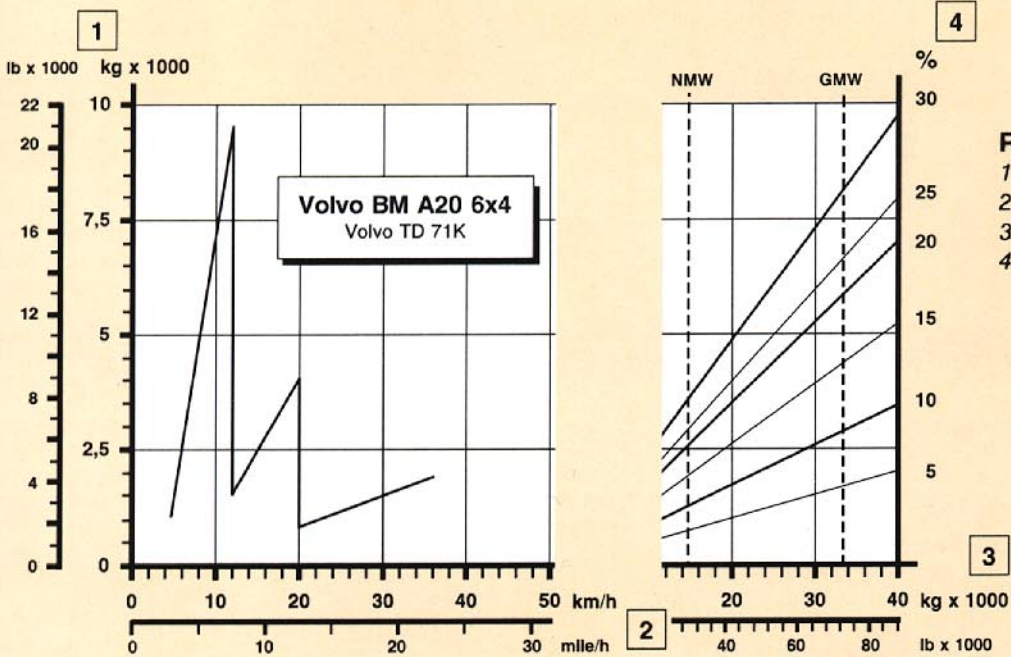
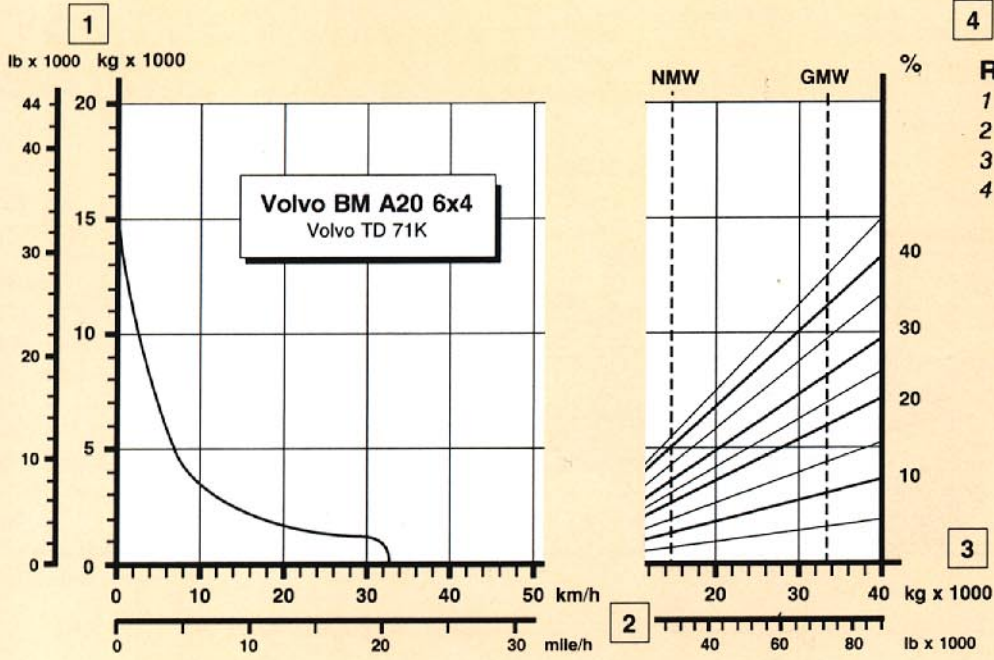
GROUND PRESSURE



At 15% slump of unloaded diameter and specified weights.

Cone penetrometer value at depth of 250 mm (9,8 in).

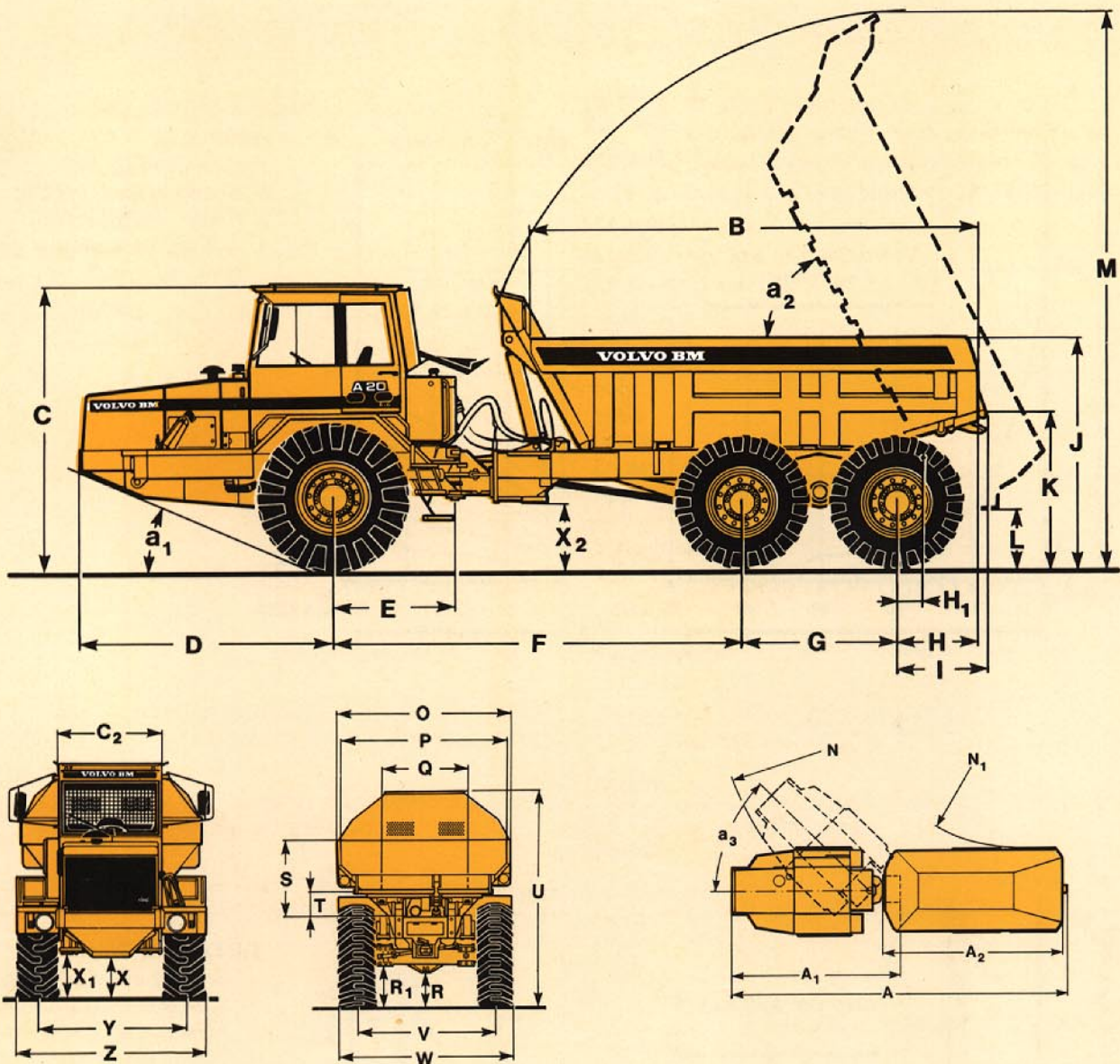
Unloaded			
Front	kPa (psi)	97	(14,0)
Rear	kPa (psi)	47	(6,8)
Loaded			
Front	kPa (psi)	130	(18,8)
Rear	kPa (psi)	153	(22,2)
Cone penetrometer value		67	



INSTRUCTIONS

Diagonal lines represent total resistance (Grade % plus rolling resistance %).

- Find the total resistance on diagonal lines on righthand border of performance or retarder chart.
- Follow the diagonal line downward and intersect the NMW or GMW weight line.
- From intersection, read horizontally left to intersect the performance or retarder curve.
- Read down for vehicle speed.



OPERATING DATA VOLVO BM A20 6x4

A	mm (ft in)	10044 (32'11")	H	mm (ft in)	1126 (3'8")	O	mm (ft in)	2480 (8'1")	W	mm (ft in)	2490 (8'2")
A ₁	mm (ft in)	5066 (16'7")	H ₁	mm (ft in)	425 (1'5")	P	mm (ft in)	2320 (7'7")	X	mm (ft in)	475 (1'7")
A ₂	mm (ft in)	5537 (18'2")	I	mm (ft in)	1265 (4'2")	Q	mm (ft in)	1500 (4'11")	X*	mm (ft in)	500 (1'8")
B	mm (ft in)	4955 (16'3")	J	mm (ft in)	2394 (7'10")	R	mm (ft in)	397 (1'3")	X ₁	mm (ft in)	627 (2'1")
C	mm (ft in)	3098 (10'2")	J*	mm (ft in)	2450 (8'1")	R*	mm (ft in)	447 (1'5")	X ₂	mm (ft in)	645 (2'1")
C*	mm (ft in)	3123 (10'3")	K	mm (ft in)	1620 (5'3")	R ₁	mm (ft in)	567 (1'2")	Y	mm (ft in)	1954 (6'4")
C ₂	mm (ft in)	1500 (4'11")	K*	mm (ft in)	1676 (5'5")	S	mm (ft in)	1155 (3'9")	Z	mm (ft in)	2492 (8'2")
D	mm (ft in)	2809 (9'2")	L	mm (ft in)	600 (1'11")	T	mm (ft in)	396 (1'3")	a ₁	°	21
E	mm (ft in)	1280 (4'2")	M	mm (ft in)	6350 (20'10")	U	mm (ft in)	3059 (10')	a ₂	°	63
F	mm (ft in)	4322 (14'2")	N	mm (ft in)	7500 (24'7")	U*	mm (ft in)	3115 (10'2")	a ₃	°	45
G	mm (ft in)	1650 (5'4")	N ₁	mm (ft in)	4100 (13'5")	V	mm (ft in)	1928 (6'4")			

* = unloaded machine

LOAD CAPACITY Body volumes according to SAE 2:1.

Load capacity	kg (sh ton)	18500 (20)
Body, struck	m ³ (yd ³)	8,7 (11,4)
heaped	m ³ (yd ³)	11,0 (14,4)
With underhung tailgate		
body, struck	m ³ (yd ³)	9,0 (11,8)
heaped	m ³ (yd ³)	11,5 (15,0)

STANDARD EQUIPMENT

Safety and comfort

ROPS cab
 Cab heater with filtered fresh air and defroster
 Ergonomically designed and adjustable operator's seat
 Windshield wipers
 Windshield washers
 Rear-view mirrors
 Sun visor
 Seat belt
 Cigarette lighter
 Ashtray
 Horn
 Protective grille for rear window
 Hazard flashers
 Tinted glass
 Lights:
 headlights
 full- and dipped beam
 parking lights
 reverse lights

direction indicators
 brake lights
 cab lighting
 instrument lighting
 Tool box
 Steering joint locking assembly

Engine and electrical system

Turbocharger
 Alternator
 Preheating
 Battery disconnect switch
 Gauges for:
 brake pressure
 fuel
 engine temperature
 Tachometer
 Hour recorder
 Pilot lamps for:
 main beam
 direction indicators

Control lamps for:
 full beam
 direction indicators
 Warning lamps for:
 battery charging
 brake fluid level
 low brake pressure
 parking brake
 engine oil pressure
 transmission temperature
 air filter
 Central warning:
 brake pressure
 engine oil pressure
 transmission temperature
 brake fluid level

Drivetrain

Torque converter
 Automatic gear-shifting
 Longitudinal differential lock
 Differential lock, front axle
 Differential lock, first bogie axle
 Exhaust brake

Body

Body with wear plates and exhaust gas ducts

Tires

Front: 18.00x25
 18.00-25/16
 Rear: 20.5x25
 20.5-25/16

OPTIONAL EQUIPMENT

Service and maintenance

Tool kit with tire inflation unit

Engine

Oil-bath air cleaner
 Engine block heater *
 Low emission version
 Exhaust gas cooling with water

Electrical equipment

Work lights *
 Rotating beacon with collapsible mount *
 Speedometer*

Cab equipment

Air-conditioning
 Radio panel *
 El. heated seat
 Head restraint for operator's seat
 El. heated rear mirrors *
 High tone horn

External equipment

Towing hitch *
 Collision guard

Protection equipment

Overhead guard, FOPS
 Anti slip
 Mudflaps in front of bogie
 Headlamp protector

Body equipment

Body heating
 Overhung tailgate
 Underhung tailgate
 Exhaust outlet for body heating, front*
 Body extension kit*

Other equipment

Supplementary steering

Tires

Front: 23.5 R 25*
 Rear: 20.5 R 25*

* = these items are delivered separately

Under our policy of continual 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.

VME Articulated Haulers AB

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