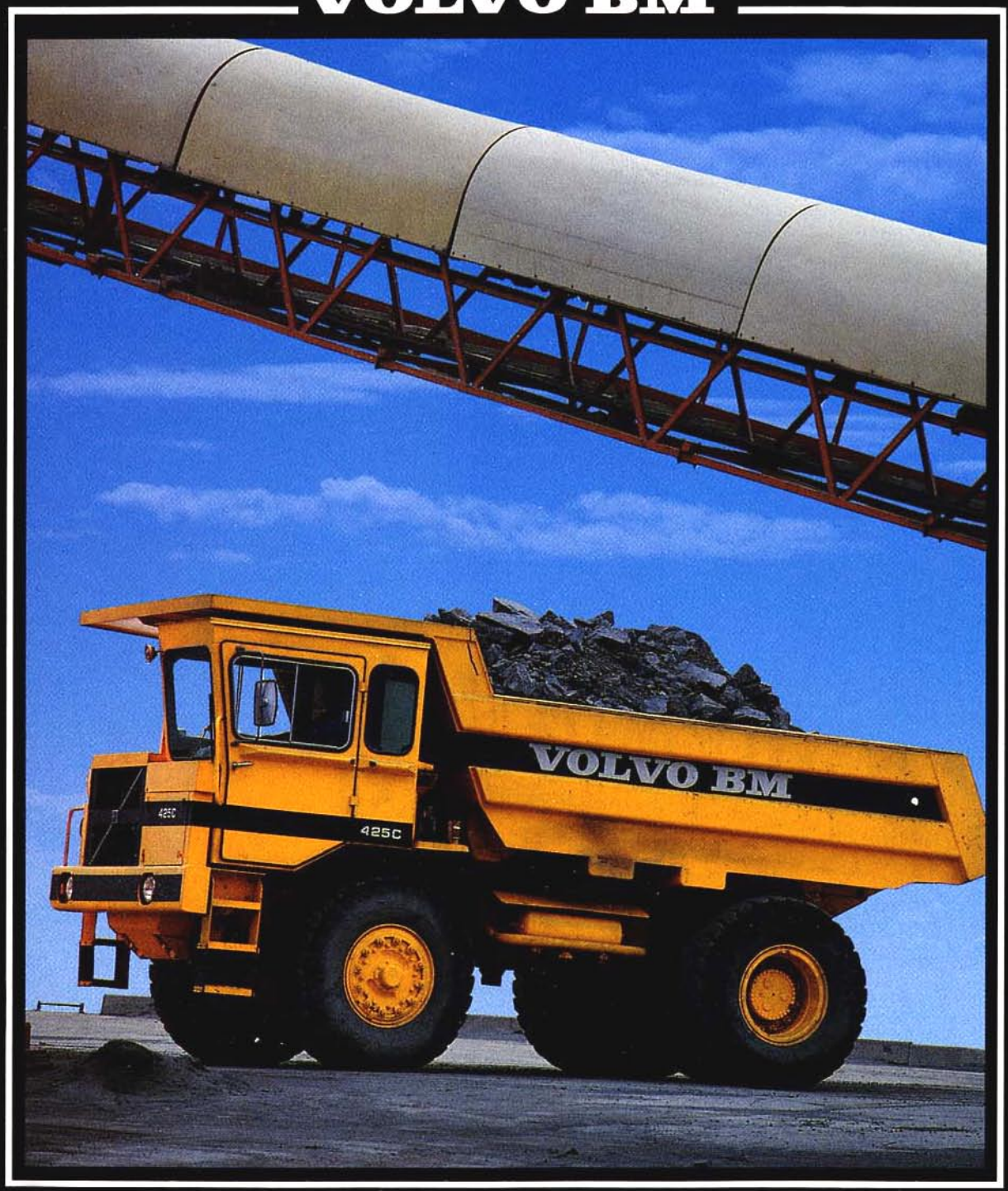
425 C

VOLVO BM

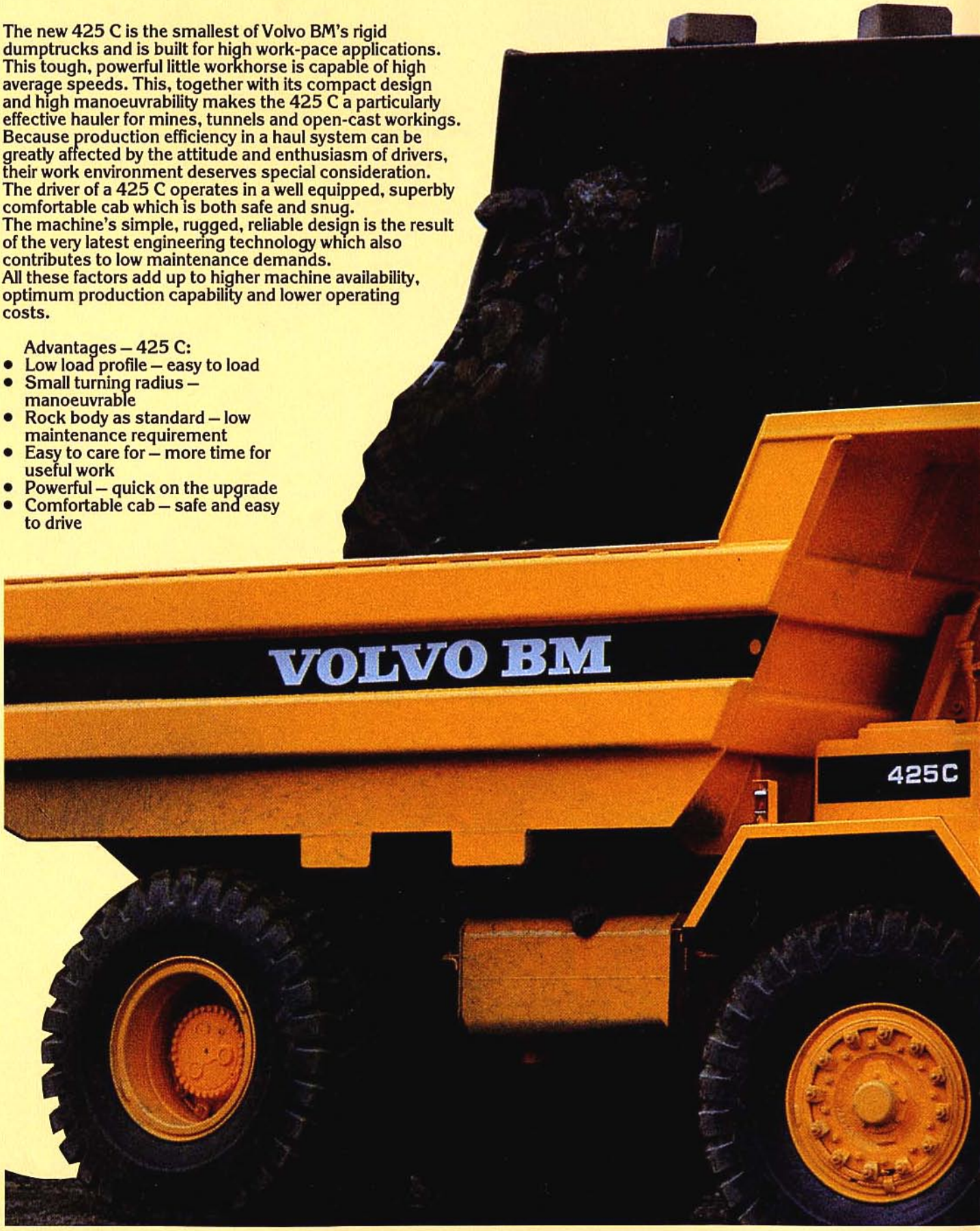


425 C, A FAST, POW

The new 425 C is the smallest of Volvo BM's rigid dumptrucks and is built for high work-pace applications. This tough, powerful little workhorse is capable of high average speeds. This, together with its compact design and high manoeuvrability makes the 425 C a particularly effective hauler for mines, tunnels and open-cast workings.
Because production efficiency in a haul system can be greatly affected by the attitude and enthusiasm of drivers, their work environment deserves special consideration.
The driver of a 425 C operates in a well equipped, superbly comfortable cab which is both safe and snug.
The machine's simple, rugged, reliable design is the result of the very latest engineering technology which also contributes to low maintenance demands.
All these factors add up to higher machine availability, optimum production capability and lower operating costs.

Advantages – 425 C:

- Low load profile – easy to load
- Small turning radius – manoeuvrable
- Rock body as standard – low maintenance requirement
- Easy to care for – more time for useful work
- Powerful – quick on the upgrade
- Comfortable cab – safe and easy to drive



VERFUL AND AGILE HAULAGE MACHINE

POWER – THE BASIS OF HIGH PRODUCTIVITY

The powerful Volvo TD 121 G diesel, with its 213 kW (290 hp) SAE, gives the 425 C ample speed and lugging resources. This is particularly important in tunneling, where much of the fully laden haulwork is on long uphill grades.
The secret of the 425 C's light weight and strength is a combination of clever fabrication design, high strength materials and high quality workmanship. This enables the 425 C to carry larger payloads because it's not lugging around unnecessary machine weight.
Power is transmitted from the engine via a torque converter with "lock-up" (direct drive), on through a fully automatic gearbox leaving the driver free to concentrate on driving, without having to think about gear changing.

EASY-TO-LOAD ROCK BODY

The new body takes 15 m^3 (19.6 yd^3), heaped as per ISO. Minimum tare weight was our prime objective, achieved through the use of high grade steel and the sparing use of metal in the new design concept. The result – a strong, lightweight standard body with a low profile for easy loading. A good dump angle gives fast discharge and exhaust gas heating prevents difficult materials from sticking.

SAFE AND COMFORTABLE

A snug work station

A dumptruck driver hauling bulk materials has a very responsible task, which all too often can become tedious. In order to keep a Volvo BM driver fresh and alert throughout a long shift, we give him a safe, comfortable cab with good visibility and easy to operate controls. This snug working environment is also quiet due to highly effective insulation.

Safe to Drive

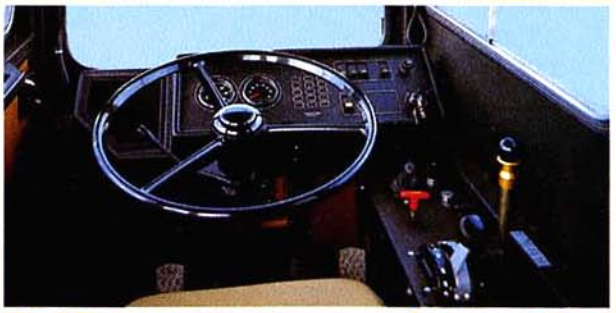
With its small turning radius to make it highly manoeuvrable and its sure-footed performance on poor surfaces and steep grades, the 425 C is safe and easy to drive.

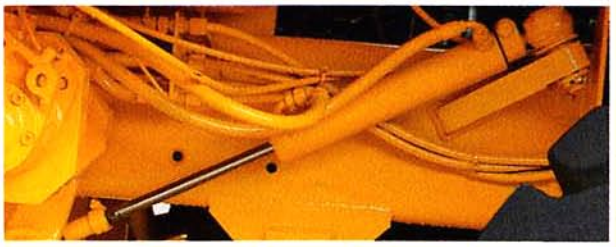
Braking System

A dual circuit brake system and a retarder installed between the torque converter and the gearbox provides double braking power. Safe, proven and effective.

Steering System

Hydraulically actuated full power steering with mechanical coupling between the steering wheel and road wheels. This system provides a light sensitive action with a good "feel-for-the-road" and sure manoeuvring.



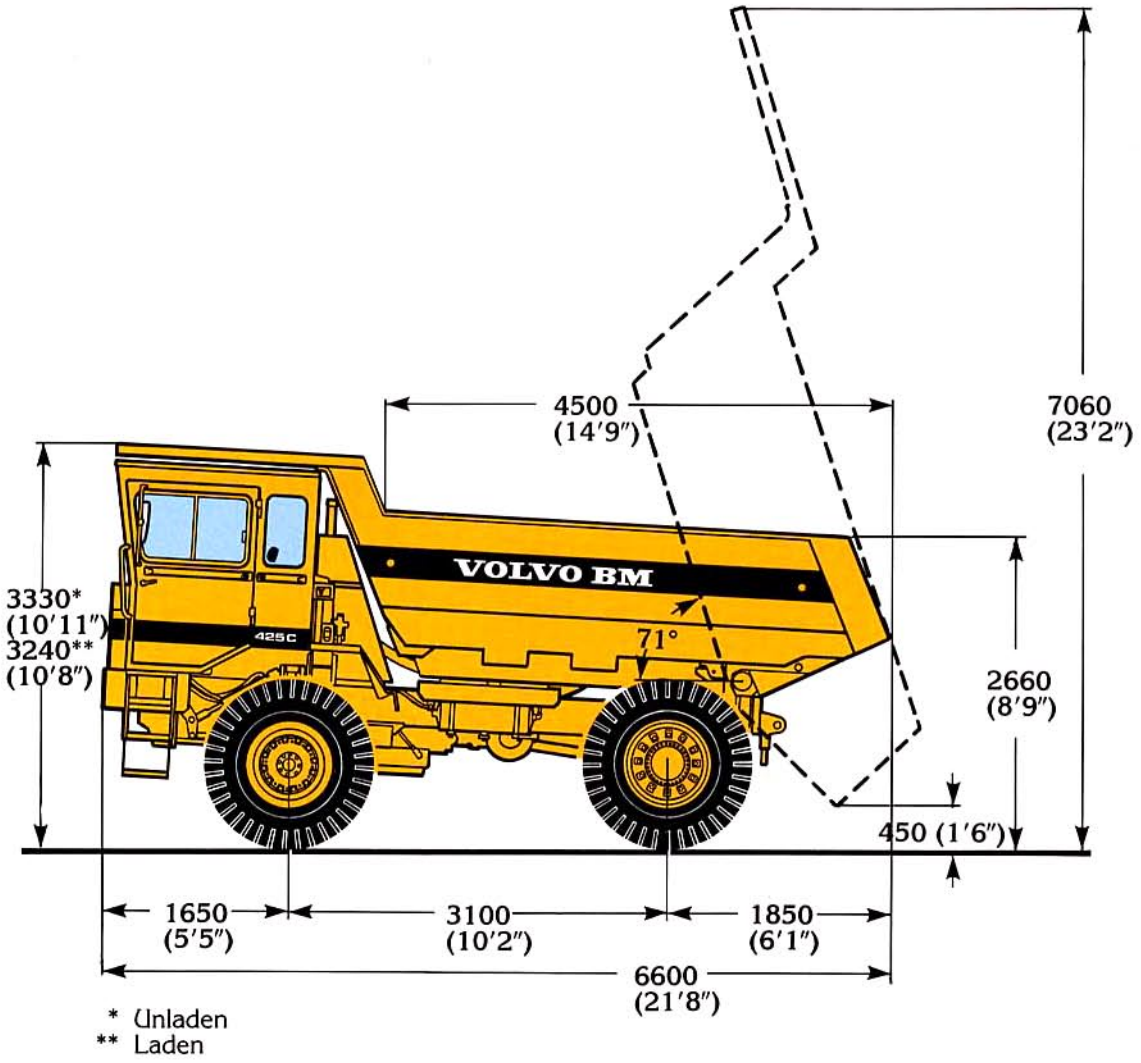


EASY TO SERVICE

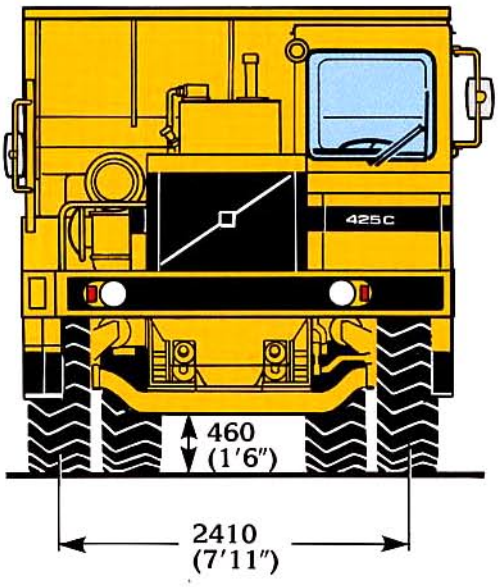
Easily accessible
The engine and gearbox are easily accessible, and extensive standardization means that very few tools are needed for maintenance. Safe handrails and non-slip footplates further facilitate daily inspections.

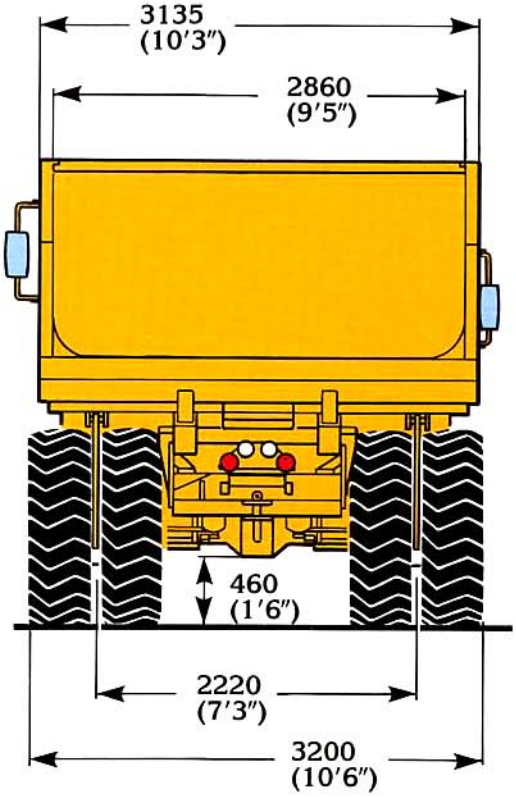
Tightly grouped electrical system
The electrical system, based on printed circuit boards, is concentrated at one point in the cab. This means fewer contact points, easy fault-tracing and greater reliability.

DIMENSIONS IN mm (ft. in)



* Unladen
** Laden





ENGINE

Volvo TD 121 G, a 6-cylinder, in-line, direct-injected turbocharged 4-stroke diesel engine with wet, replaceable cylinder linings.

Gross rating	213 kW at 35 rps SAE J 270 (290 hp at 2,100 rpm SAE)
Flywheel rating	200 kW at 35 rps DIN 70020 (272 hp at 2,100 rpm DIN)
Max. torque	1,130 Nm at 23.3 rps SAE J270 (834 lbf ft at 1,400 rpm SAE) 1,060 Nm at 23.3 rps DIN 70020 (782 lbf ft at 1,400 rpm DIN)
No. of cylinders	6
Bore	130 mm (5.1 in)
Stroke	150 mm (5.9 in)
Displacement	12.0 litres (732 in^3)
Compression ratio	14.2:1
Cold starter	Cold starter boosts fuel injection and incorporates starting element to preheat intake air
Air filter	Cyclone cleaner, main filter of paper type and catch-all safety filter
Radiator fan	Suction fan mounted on engine

ELECTRICAL SYSTEM

Voltage	24 V
Battery capacity	160 Ah
Alternator	1,260 W
Starter motor	4.8 kW (6.5 hp)

TRANSMISSION

Torque converter, type	Allison TC 490 with lock-up
Torque multiplication ratio	Max. 2.46:1
Gearbox	Allison CLBT 754 Automatic planetary-type gearbox with built-in retarder: braking effort 360 hp at 2100 rpm

Gear Top speed	km/h	mph	Ratio
1 st	11.2	7.0	5.18:1
2nd	18.2	11.3	3.19:1
3rd	28.7	17.8	2.02:1
4th	42.0	26.1	1.38:1
5th	58.0	36.0	1.00:1
Reverse	12.3	7.6	4.72:1

BRAKE SYSTEM

Retarder incorporated in transmission and air-operated drum brakes in wheels.

Service brake 1	Retarder incorporated in gearbox
Service brake 2	2-circuit air-operated drum brakes
Circuit division	Circuit 1 supplies the front brakes Circuit 2 supplies the rear brakes
Parking brake	Spring application of drum brakes on rear wheels

WHEELS

Rims	11.25–25
Tyres	16.00–25/28 E3

AXLES

Fully floating drive axle with planetary hub reduction.

Front axle	Forged in one piece, carried on leaf spring assembly.
Rear axle	Bolted directly to the truck frame.
Reduction ratio, total in rear axle	9.78:1
Optional ratio, total in rear axle	11.42:1
Differential lock	Fully automatic of slip clutch type, transmits up to 40 % of the torque.

HYDRAULIC SYSTEM

Hydraulic pump, converter-dependent

Type	Gear pump, driven directly from gearbox
Number	1
Capacity	2.8 l/s (0.6 UK gal/s, 0.7 US gal/s) at 35 rps = 167 l/min (36.7 UK gal/min. 44.1 US gal/min) at 2,100 rpm
Working pressure	20 MPa (2,900 psi)

Drive system

Type	Gear-driven PTO
Number of pump take-offs	1
Filter	1 paper filter with magnetic core

STEERING SYSTEM

Hydraulic power steering with mechanical return

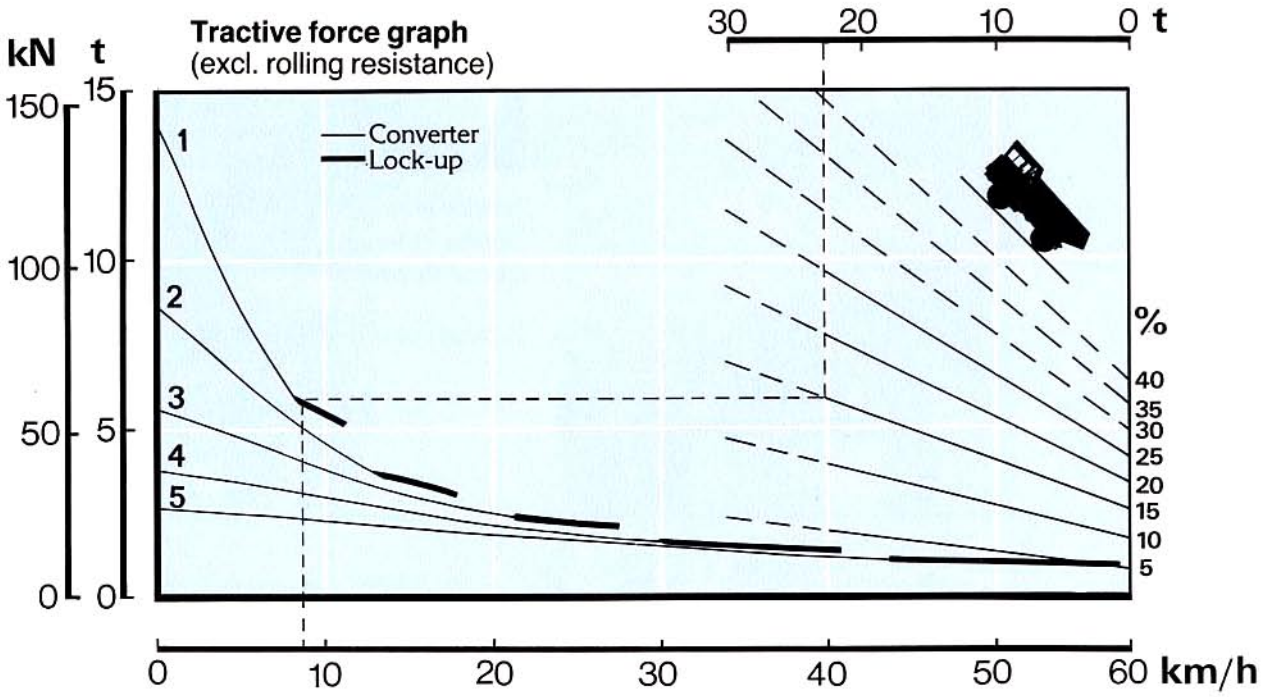
Make	ZF
Lock-to-lock turns	6
Steering cylinder, type	1 double-acting
Hydraulic pump	Direct-driven gear pump mounted on gearbox.
Filter	1 paper filter with magnetic core

Manoeuvring data

Minimum turning radius	7250 mm (23'9")
Minimum sweep radius left turn	7900 mm (25'11")
right turn	8250 mm (27'1")

TIPPING MECHANISM

Tipping cylinder:	One 3-stage telescopic cylinder, 2 stages are double-acting
Tipping time with load	11 s
Lowering time	11 s
Tipping angle	71°
Tipping stop	Rubber buffers



PNEUMATIC SYSTEM

Compressor: Capacity	8.4 l/s (1.8 UK gal/s, 2.2 US gal/s) at 35 rps = 508 l/min (112 UK gal/min, 134 US gal/min) at 2,100 rpm
Drive	Driven directly from engine
Automatic frost protection pump	
Pressure regulator: Relief pressure	Actuate 6.6 bar (96 psi) Relief 7.6 bar (110 psi)
Compressed air reservoir: Volume	60 + 60 = 120 litres (26.4 UK gal, 31.7 US gal)

FRAME

All-welded frame of fully extruded channel beams with cross ties.

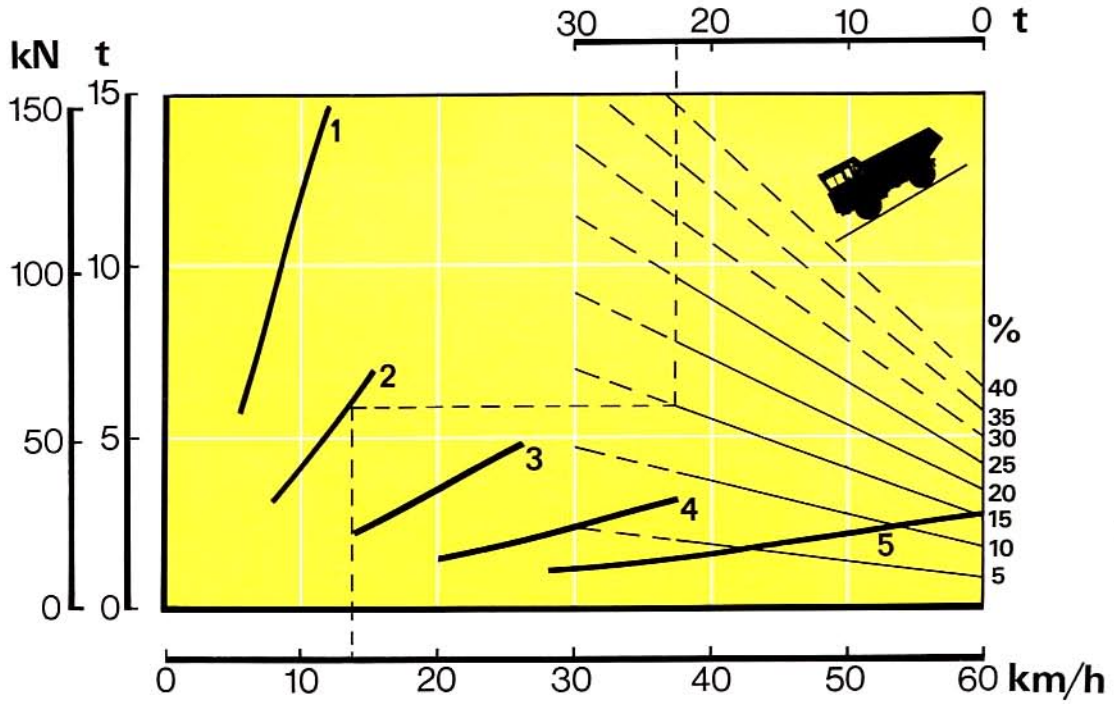
SUSPENSION

Front axle: Leaf springs and hydraulic shock absorbers

SERVICE REFILL CAPACITIES

	litres	UK gal	US gal
Engine oil incl. filter,	32.5	7.2	8.6
total at change	28	6.2	7.4
Cooling system	61	13.4	16.1
Fuel tank	250	55.0	66.0
Gearbox	42	9.2	11.1
total at change	30	6.6	7.9
Drive axle	28	6.2	7.4
Hydraulic system	105	23.1	27.7

Braking effort graph
(excl. rolling resistance, incl. engine brake)



CAB

Steel cab, mounted on rubber pads. Heat and sound insulated. Heating and defroster system.

Number of exits	One door and emergency exit via window
Driver's seat	Seat adjustable to driver's weight with armrests and lap belt
Internal sound level	Max. 80 dB (A)

WEIGHTS

Working weight (driver, oils, coolant, full fuel tank and rock body)

	Front axle	Rear axle	Total
Unladen weight, kg (lb)	8,900 (19,621)	8,200 (18,077)	17,100 (37,698)
Payload, kg (lb)	5,100 (11,244)	17,400 (38,360)	22,500 (49,604)
sh. tons			25.0
Total weight, kg (lb)	14,000 (30,865)	25,600 (56,438)	39,600 (87,303)

Load factor = $\frac{\text{payload}}{\text{unladen weight}} = \frac{22500}{17100} = 1.32$

DUMPER BODY

Basic body

Body volumes (ISO 2:1*)	
Volume struck, m^3 (yd^3)	11.5 (15.0)
Volume heaped, m^3 (yd^3)	15.0 (19.6)

Material

Hardened and tempered abrasion-resistant steel plate with yield strength of 110 kg/mm^2 (7.0 tons/in^2) Hardness min. 360 HB

Plate thickness,	bottom	20 mm (0.8 in)
	sides	10 mm (0.4 in)
	front	10 mm (0.4 in)
Weight		5300 kg (11 685 lb)

*) *Volumes below 10 m^3 are given to one decimal place. Volumes of 10 m^3 or more are rounded off to the nearest 0.5 m^3.*

OVERHUNG TAILBOARD

Machines both with and without elevated body can be fitted with an overhung tailboard. This extra tailboard is kept closed under its own weight and opens when the load is dumped.
The design of the overhung tailboard does not permit stones and boulders to be carried. For such materials, the tailboard should be removed.
The overhung tailboard increases the weight of the body by 250 kg (550 lb).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STANDARD EQUIPMENT

SAFETY & COMFORT

- Cab heating with filtered fresh air intake and defroster.
- Ergonomically designed, adjustable driver's seat.
- Windshield wipers
- Windshield washers
- Rear-view mirrors
- Sun visor
- Lap belt
- Cigarette lighter and ashtray
- Tinted glass
- Horn
- Lights:
  Headlights, bright/dim/ asymmetric
  Parking lights
  Reversing lights
  Direction indicators
  Brake lights
  Tail lights
  Cab lighting
  Instrument lighting
- Indicator for air cleaner
- Complete tyre inflation kit
- Speedometer
- Tachometer
- Anti-theft lock
- Hazard flashers
- Rock ejectors
- Compressed air outlet
- Buzzer for pneumatic system
- Hand throttle
- Silencer

ENGINE & ELECTRICAL SYSTEM

- Alternator
- Pilot lamps for:
  parking brake
  bright lights
  flashers
  charging
  engine oil pressure
  body up
  lock-up
  engine pre-heater
  LED lights, switches
- Instruments:
  hour counter
  air pressure gauge (two circuits)
  engine oil pressure gauge
  coolant temperature gauge
  gearbox oil pressure gauge
  gearbox oil temperature gauge
  tachometer
  speedometer

BODY EQUIPMENT

- Body heating (exhaust gas)
- Rock body
- Lock in tipped position

TRANSMISSION

- Torque converter
- Automatic gearbox
- Automatic lock-up

OPTIONAL EQUIPMENT

(Standard equipment on certain markets)

- Heated rear-view mirrors
- Heated driver's seat
- Air conditioning
- Tachograph
- Electric engine preheater
- Guards around fuel and air tanks
- Electric transmission heater
- High-sided body for light material
- Raised air cleaner intake
- Alternative rear axle reduction ratio
- Rubber-lined body
- Emergency steering
- Spare wheel/rim
- Reversing alarm
- Overhung tailboard, self-opening
- Exhaust gas system without body heating
- Tyre alternative V4
- Passenger compartment heater
- Radio/cassette player
- Guard ring, front wheel

VOLVO BM

VOLVO BM AB ESKILSTUNA SWEDEN

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

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