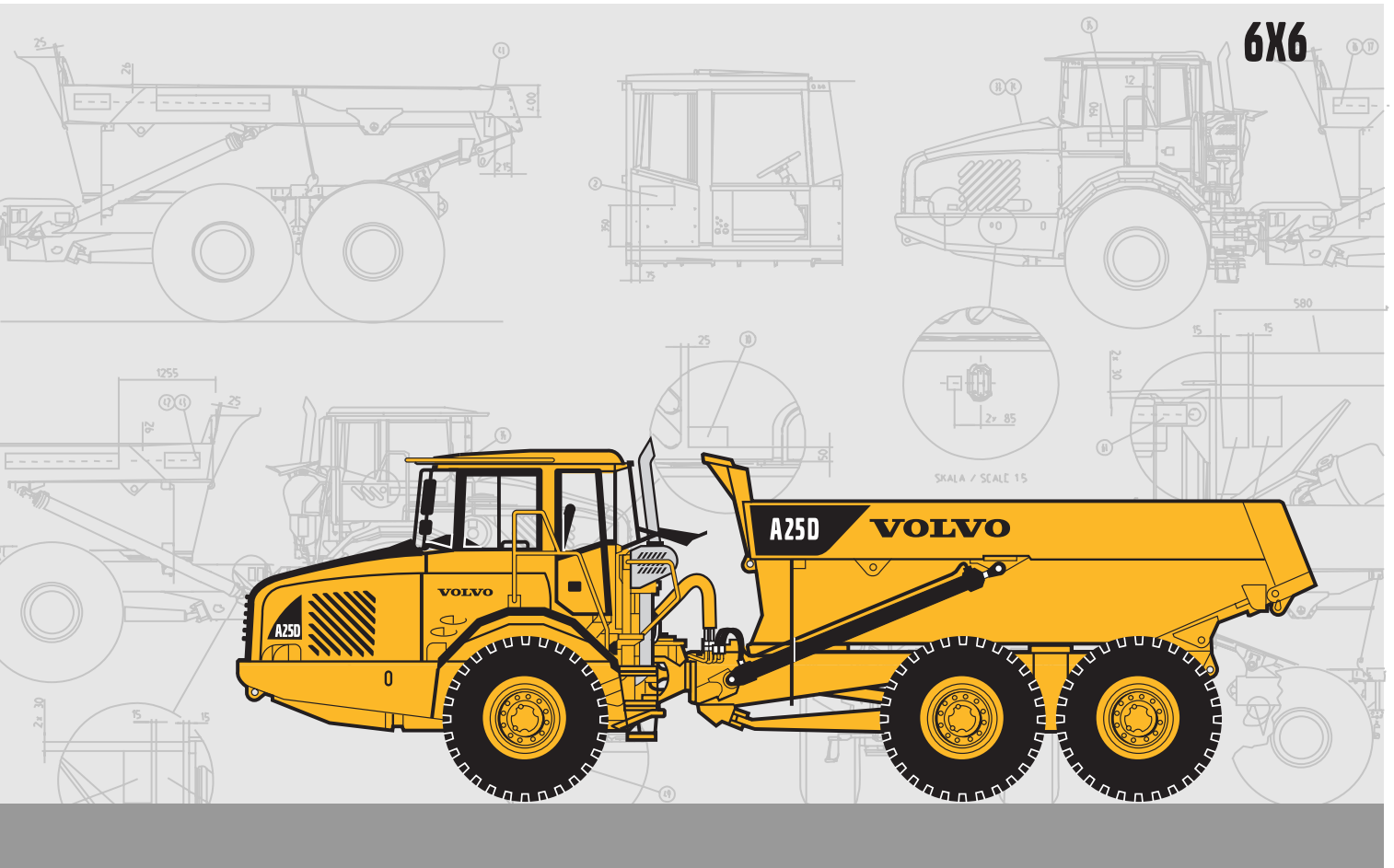


## VOLVO ARTICULATED HAULER

# A250



- **Engine output:**  
**SAE J1995, Gross 228 kW (306 hp)**  
**SAE J1349, Net 227 kW (304 hp)**
- **Body volume, heaped:**  
**15.0 m<sup>3</sup> (19.6 yd<sup>3</sup>)**
- **Load capacity:**  
**24.0 t (26.5 sh tn)**
- **Volvo cab designed** for high operator visibility, ergonomics and comfort.
- **Reduced maintenance.**  
No daily or weekly greasing, 10-250 hour grease points, 500 hr engine/1000 hr transmission oil change interval.
- **Electronic Operator's Communication System.**
- **Volvo high performance – low emission** electronically controlled direct injected, turbocharged, intercooled diesel engine.
- **Fully automatic planetary transmission,** electronically controlled.
- **Hydraulic transmission retarder.**
- **Dropbox with longitudinal differential lock.**
- **100% lock-up differentials.**  
One longitudinal and three transverse differential locks.
- **Front axle with maintenance free, three-point suspension.**
- **Volvo terrain bogie,** individually oscillating axles and high ground clearance.
- **Volvo Load & Dump brake.**

# VOLVO



## ENGINE

Volvo inline 6-cylinder, direct injected electronic controlled, turbocharged, intercooled 4-cycle low emission diesel engine with wet replaceable cylinder linings.

**Fan:** Hydrostatically driven, thermostatically controlled, variable speed radiator fan consuming power only when needed.

**Engine brake:** Exhaust retarder.

Make, model . . . . .	Volvo D10BACE2*
Max power at . . . . .	33.3 r/s (2000 r/min)
SAE J1995 Gross . . . . .	228 kW (306 hp)
Flywheel power at . . . . .	33.3 r/s (2000 r/min)
SAE J1349 Net, DIN 6271*** . . . . .	227 kW (304 hp)
Max torque at . . . . .	22.5 r/s (1350 r/min)
SAE J1995 Gross . . . . .	1375 Nm (1014 lb ft)
SAE J1349 Net, DIN 6271*** . . . . .	1365 Nm (1007 lb ft)
Displacement total . . . . .	9.6 l (586 in <sup>3</sup> )
Bore . . . . .	120 mm (4.7 in)
Stroke . . . . .	140 mm (5.5 in)

\*) Meets US (EPA) step 2, California (CARB) step 2 and Europe (EU) step 2.

\*\*\*) with fan at normal speed. With fan operating at full speed, the flywheel power is 214 kW (287 hp) and maximum torque is 1276 Nm (941 lb ft) which corresponds to DIN 70020.



## ELECTRICAL SYSTEM

All cables, sockets and pins are identified. Cables are enclosed in plastic conduit and secured to main frame. Halogen lights. Prewired for options. Connectors meet IP67 standard for watertightness as necessary.

Voltage . . . . .	24 V
Battery capacity . . . . .	2x170 Ah
Alternator . . . . .	1.54 kW (55 A)
Starter motor . . . . .	6.6 kW (8.8 hp)



## SERVICE

The Contronic information system monitors all fluid levels, minimizing daily and weekly service times. Time to next service and the status of vital vehicle systems is shown to the operator on a display in the instrument panel.

**Service accessibility:** Fold down front grill with access ladder to remote filter bank, located in front of engine. Large, 90° opening hood for total engine access. Remote drains and drain hose and swing out radiator for easy cleaning.

### Fill capacities

Crankcase . . . . .	38 l (10 US gal)
Fuel tank . . . . .	400 l (105.7 US gal)
Cooling system . . . . .	80 l (21.1 US gal)
Transmission total . . . . .	48 l (12.7 US gal)
Dropbox . . . . .	8.5 l (2.1 US gal)
Hub . . . . .	3 l (0.8 US gal)
Front axle . . . . .	32 l (8.5 US gal)
First bogie axle . . . . .	36 l (9.5 US gal)
Second bogie axle . . . . .	32 l (8.5 US gal)
Brake hydraulics . . . . .	2 l (0.53 US gal)
Hydraulics system . . . . .	260 l (68.7 US gal)
Hydraulics tank . . . . .	180 l (47.6 US gal)



## DRIVETRAIN

Volvo components, specifically designed for hauler applications.

**Torque converter:** Single stage with free wheeling stator and automatic lock up on all gears.

**Transmission:** Fully automatic planetary transmission with six forward gears and two reverse gears, with a variable hydraulic retarder.

**Dropbox:** Volvo design, single stage. Power take-off and differential with 100% lock-up function.

**Axles:** Volvo design. All axles have transversal differential locks with 100% lock-up and fully floating axle shafts with planetary type hub reductions.

**Differential locks:** One longitudinal and three transverse with 100% lock-up function, operator selectable on the move.

**Configuration:** 6x4 or 6x6 drive, operator selectable on the move.

Torque converter . . . . .	2.37:1
Transmission . . . . .	Volvo PT 1560
Dropbox . . . . .	Volvo IL 1
Axles . . . . .	Volvo AH 56

### Speed

Forward	
1	8 km/h (5 mph)
2	12 km/h (7.5 mph)
3	22 km/h (13.7 mph)
4	31 km/h (19.3 mph)
5	40 km/h (24.8 mph)
6	53 km/h (32.9 mph)
Reverse	
1	8 km/h (5 mph)
2	13 km/h (8.1 mph)



## SUSPENSION

Volvo's unique maintenance free 3-point suspension system. The axles are suspended at three points, which results in independent movement needed in rough terrain.

**Front axle:** One rubber spring per side. Two hydraulic shock absorbers on each side. Requires no regular maintenance.

**Bogie:** Volvo's unique terrain bogie, which permits individual oscillation between the axles. High axle displacement keeps the body level retaining the load.



## BRAKE SYSTEM

Dual circuit system with air-hydraulic disc brakes. Complies with ISO 3450 and SAE J1473 at total machine weight.

**Service brakes:** Dry discs on all wheels.

**Circuit division:** One circuit for front axle and one for bogie axles.

**Parking brake:** Spring-applied disc brake on the propeller shaft, designed to hold a loaded machine on a grade up to 18%. When the parking brake is applied, the longitudinal differential is locked.

**Compressor:** Gear driven by engine transmission.

**Retarder:** Hydraulic transmission retarder, infinitely variable.

**Total retarding capability including transmission retarder and exhaust retarder, see graph.**



## HYDRAULIC SYSTEM

Load-sensing variable displacement piston pumps that consume power only when needed.

**Pumps:** Five engine driven pumps mounted on flywheel power take-off. One ground-dependent piston pump for supplementary steering mounted on the dropbox.

**Filter:** One fiber glass filter with magnetic core.

**Pump capacity per pump:**

Engine dependent . . . . .	105 l/min (27.7 US gpm)
Ground dependent . . . . .	142 l/min (37.5 US gpm)
At shaft speed . . . . .	52.5 r/s (3150 r/min)
Working pressure . . . . .	25 MPa (3628.4 psi)



## CAB

Volvo cab, designed for high operator visibility, ergonomics and comfort. Wide threshold-free door opening and ergonomic instep. Isolation rubber pads to reduce vibrations. Tilt/ telescopic steering wheel. Overhead console for radio and storage. Dash-mounted Operator's Communication System. Storage bins.

**Standard:** ROPS/FOPS tested and approved. (ISO 3471, SAE J1040)/(ISO 3449, SAE J231) standards.

**Heater and defroster:** Filtered fresh air, four speed fan and pressurized cab to maintain a clean operating environment. Multi-level air outlets and separate defroster vents for all windows.

**Operator's seat:** Adjustable operator's seat with flameproof upholstery. Retractable seat belt.

Internal sound level, ISO 6396 74 dB (A)



## STEERING SYSTEM

Hydromechanical self-compensating articulated steering for safe and accurate high speed hauling. Fast acting, low effort steering with 3.4 turns lock-to-lock for slow speed maneuverability.

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

**Supplementary steering:** Complies with ISO 5010 at total machine weight.

**Steering angle:** ± 45°



## BODY

**Load and dump brake:** With the engine running, the service brakes on bogie axles are applied and transmission shifted to neutral.

**Body:** Hardened and tempered steel body, flat plate design fabricated from Hardox 400.

**Cylinders:** Two single stage double acting cylinders.

Tipping angle . . . . .	74°
Tipping time with load . . . . .	12 s
Lowering time . . . . .	9 s
Body, plate thickness	
Front	8 mm (0.31 in)
Sides	12 mm (0.47 in)
Bottom	14 mm (0.55 in)
Chute	14 mm (0.55 in)
Yield strength . . . . .	900 N/mm <sup>2</sup> (130000 psi)
Tensile strength . . . . .	1250 N/mm <sup>2</sup> (181000 psi)
Hardness min. . . . .	360 HB



## WEIGHTS

Operating weight includes all fluids and operator.

**Type of tires:** 23.5R25.

**Operating weight:**

Unloaded	
Front	12 160 kg ( 26 808 lb)
Rear	9 400 kg ( 20 723 lb)
Total	21 560 kg ( 47 531 lb)
Payload . . . . .	24 000 kg ( 52 910 lb)

**Total weight:**

Front	14 140 kg ( 31 173 lb)
Rear	31 420 kg ( 69 268 lb)
Total	45 560 kg (100 441 lb)



## GROUND PRESSURE

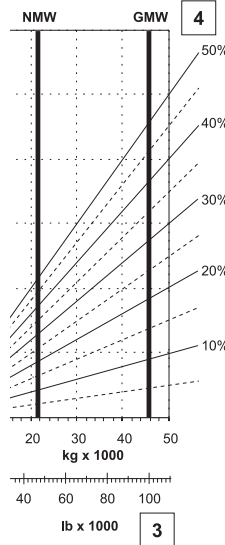
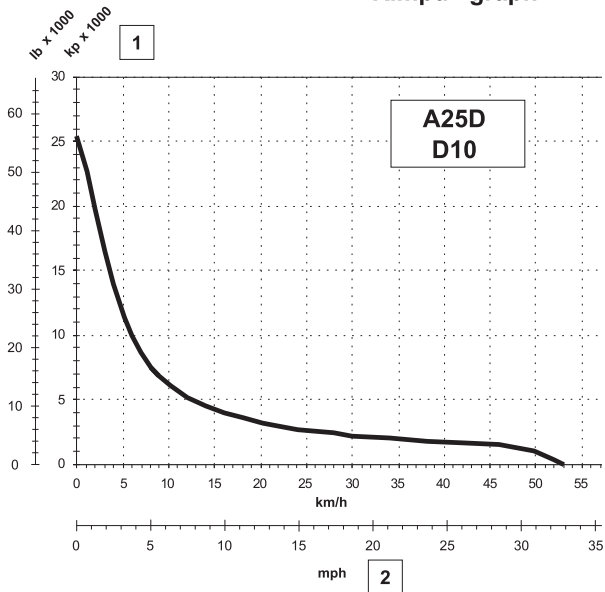
At 15% sinkage of unloaded radius and specified weights.

**With tires 23.5 R25**

Unloaded	
Front	123 kPa (17.8 psi)
Rear	48 kPa (7.0 psi)
Loaded	
Front	144 kPa (20.9 psi)
Rear	159 kPa (23.1 psi)

# RIMPULL & RETARDATION Volvo A25D 6x6

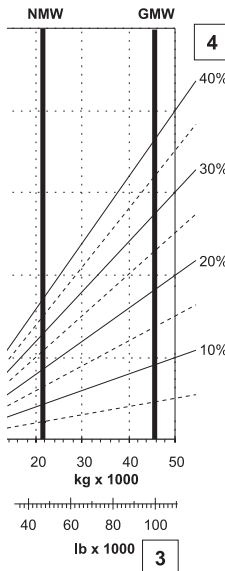
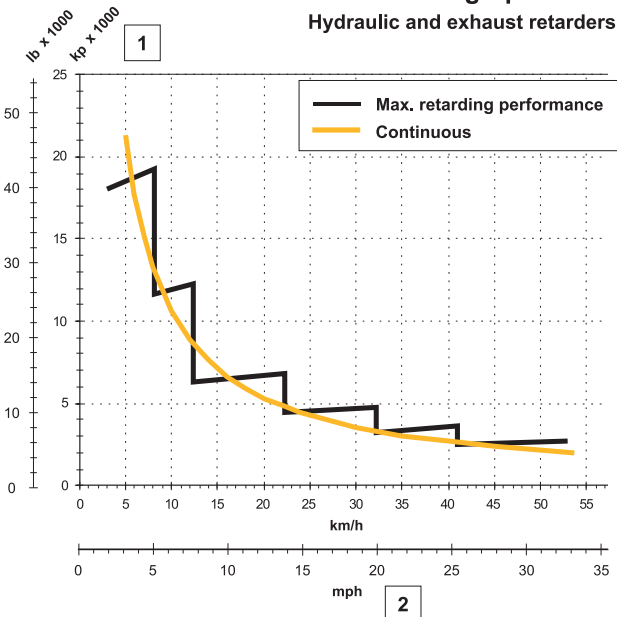
Rimpull graph



## RIMPULL

1. Rimpull kp (lbf).
2. Speed in km/h (mph).
3. Machine weight in kg (lb).
4. Grade in % + rolling resistance in %.

Retardation graph A25D  
Hydraulic and exhaust retarders



## RETARDATION PERFORMANCE (Transmission and exhaust retarders)

1. Braking effort in kp (lbf).
2. Speed in km/h (mph).
3. Machine weight kg (lb).
4. Grade in % - rolling resistance in %.

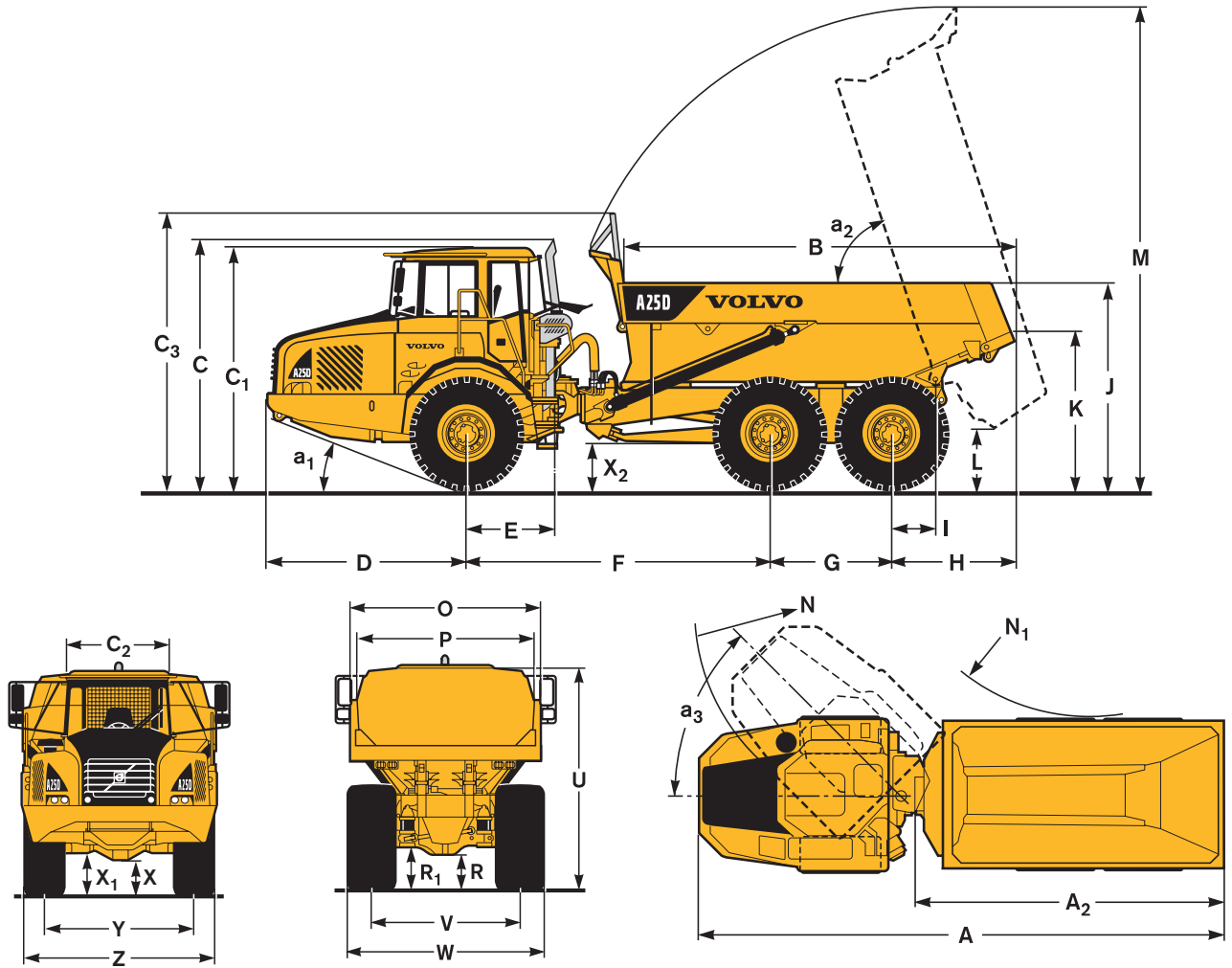
## INSTRUCTIONS

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

Charts based on 0% rolling resistance, standard tires and gearing, unless otherwise stated.

- Find the diagonal line with the appropriate total resistance on the right-hand edge of the chart.
- Follow the diagonal line downward until it intersects the actual machine weight line, NMW or GMW.
- Draw a new line horizontally to the left from the point of intersection until the new line intersects the rimpull or retardation curve.
- Read down for vehicle speed.

## DIMENSIONS Volvo A25D 6x6 (unloaded with 23.5R25 tires)



A	10220 mm (33'6")	F	4175 mm (13'8")	O	2700 mm (8'10")	a <sub>1</sub>	23.5°
A <sub>2</sub>	5764 mm (18'11")	G	1670 mm (5'6")	P	2490 mm (8'2")	a <sub>2</sub>	74°
B	5152 mm (16'11")	H	1610 mm (5'3")	R	512 mm (1'8")	a <sub>3</sub>	45°
C	3428 mm (11'3")	I	608 mm (2'0")	R <sub>1</sub>	634 mm (2'1")		
C <sub>1</sub>	3318 mm (10'11")	J	2778 mm (9'1")	U	3257 mm (10'8")		
C <sub>2</sub>	1768 mm (5'10")	K	2102 mm (6'11")	V	2258 mm (7'5")		
C <sub>3</sub>	3760 mm (12'4")	L	677 mm (2'3")	W	2859 mm (9'5")		
D	2764 mm (9'1")	M	6559 mm (21'6")	X	456 mm (1'6")		
E	1210 mm (4'0")	N	8105 mm (26'7")	X <sub>1</sub>	581 mm (1'11")		
		N <sub>1</sub>	4079 mm (13'5")	X <sub>2</sub>	659 mm (2'2")		
				Y	2258 mm (7'5")		
				Z	2859 mm (9'5")		

## LOAD CAPACITY (body volume according to SAE 2:1)

Load capacity..... 24 000 kg (26.5 sh tn)  
 Body, struck..... 11.7 m<sup>3</sup> (15.3 yd<sup>3</sup>)  
 Body, heaped..... 15 m<sup>3</sup> (19.6 yd<sup>3</sup>)

### With overhung tailgate

Body, struck..... 12.1 m<sup>3</sup> (15.8 yd<sup>3</sup>)  
 Body, heaped..... 15.6 m<sup>3</sup> (20.4 yd<sup>3</sup>)

## STANDARD EQUIPMENT

<p><b>Safety</b> ROPS/ FOPS protected cab Service platform for ease of service Anti-slip material on hood and fenders Hazard lights Horn Protective grille for rear window Rearview mirrors Retractable 3 inch safety belt Secondary steering Steering joint locking Dump body lock Windshield wipers with intermittent Windshield washers Reverse alarm</p> <p><b>Comfort</b> Tilt/telescopic steering wheel Cab heater with filtered fresh air and defroster Overhead console for radio and storage Sun visor Tinted glass Can holder/storage tray Cigarette lighter Ashtray Space for lunch cooler Storage box Air suspended, electrically heated operator's seat</p>	<p>Instructor seat with safety belt Electrically heated rearview mirrors Air conditioning Radio installation kit Radio AM/FM cassette</p> <p><b>Engine</b> Direct injected, electronically controlled Turbocharged, intercooled Remote oil drainage plug Remote oil filters ease of access Preheater for easier cold starts</p> <p><b>Electric system</b> 55 A alternator Battery disconnect switch Extra 24 V socket for lunch cooler</p> <p>Lights: • Headlights • Parking lights • Direction indicators • Rear lights • Reverse lights • Brake lights • Cab lighting • Instrument lighting</p>	<p><b>Operator information interface</b> Gauges: • Speedometer • Tachometer • Brake pressure • Fuel • Transmission oil temperature Pilot lamps for all switches Warning lamps grouped and easy to read Central warning (3 levels) for all vital functions Central positioned information display: • Automatic pre-start checks • Operation information, easy-to-find menu • Troubleshooting diagnostics • Hour meter • Clock • Machine settings</p>	<p><b>Drivetrain</b> Automatic transmission Torque converter with automatic lock-up Dropbox, single stage Hydraulic variable retarder 6x4 or 6x6 operator selectable drive modes 100% longitudinal differential lock 100% differential locks in all axles</p> <p><b>Brakes</b> Air-hydraulic disc brakes Two circuit brake system Parking brake on prop shaft</p> <p><b>Body</b> Body prepared for exhaust heating Load and Dump brake</p> <p><b>Tires</b> 23.5R25</p> <p><b>Other</b> Air drier Electrical hood opening Toolbox</p>
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## OPTIONAL EQUIPMENT

<p><b>Service and Maintenance</b> Tool kit with tire inflation unit</p> <p><b>Engine</b> Engine coolant pre-heater (120V or 240V) Extra long life, service free, endurance air filter External emergency engine stop Delayed engine stop High idle speed</p> <p><b>Electrical</b> Work lights, roof-mounted Work lights, reverse, fender-mounted Rotating beacon, collapsible mount Rear vision system – monochrome or color display Anti-theft system (prevents engine start) Alternator, heavy duty 80 A</p>	<p><b>Cab</b> • Cable kit for cab heater (120V) • Radio w/CD player • Electrically heated mirrors • Vandalism protection</p>	<p><b>External</b> Rear mudflaps</p>	<p><b>Body</b> Body exhaust heating kit Exhaust body heating, front exit Lifting tools Overhung tailgate, wire operated Wear plates Extra front spillguard</p> <p><b>Other</b> Synthetic hydraulic oil (biologically degradable) Arctic oil kit Towing hitch Brakeguards</p>
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*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.*

# VOLVO

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Ref. No. 22 2 669 4152 English  
Printed in USA 02/03 – 5,0  
Volvo, Asheville