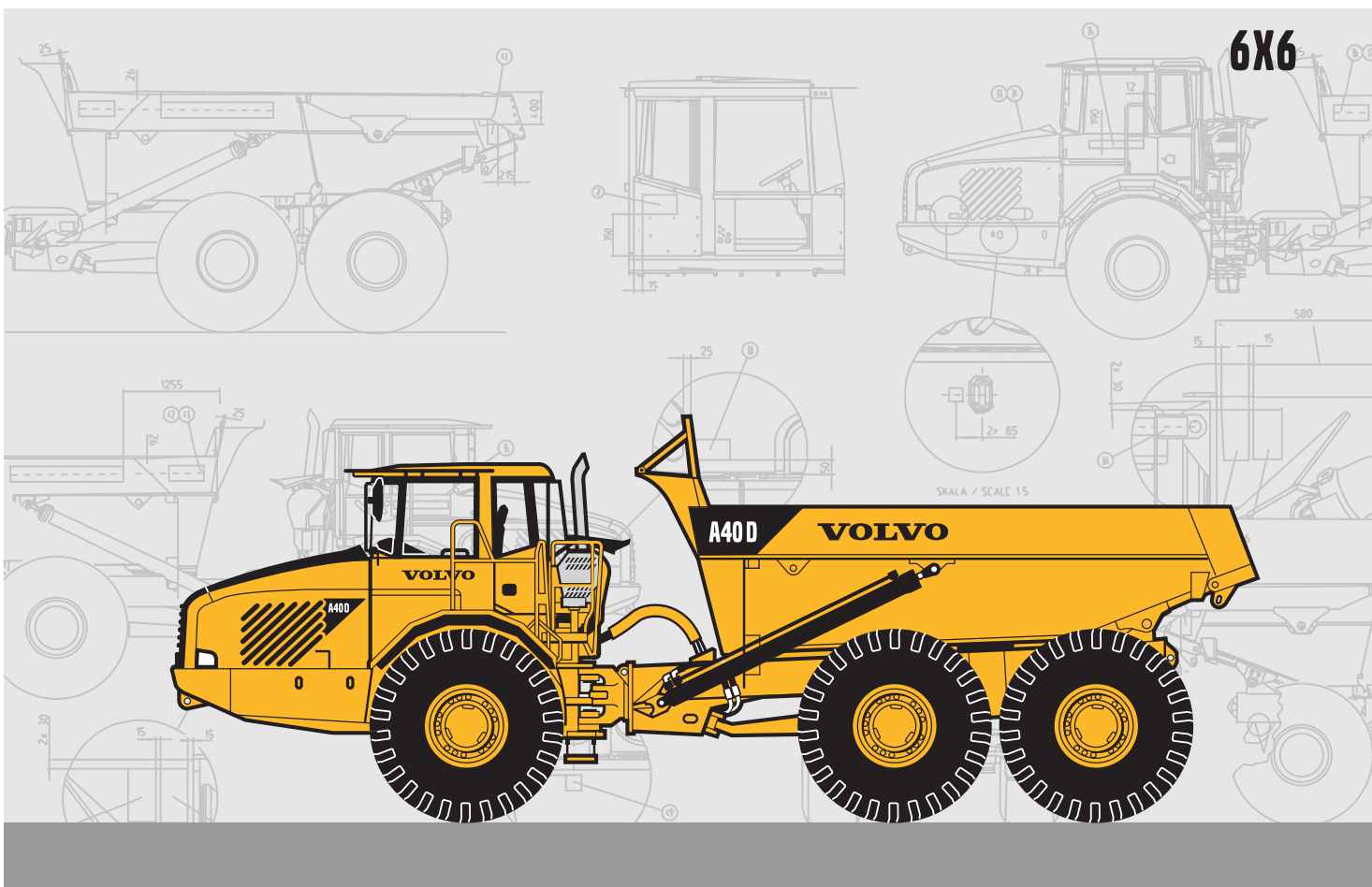


VOLVO ARTICULATED HAULER

A40D



- **Engine output SAE J1349:**
Net 309 kW 414 hp
Gross 313 kW 420 hp
- **Body volume, heaped:**
22,5 m³ 29.4 yd³
- **Load capacity:**
37 t 41 sh tn
- **Volvo cab designed** for high operator visibility, ergonomics and comfort.
- **Reduced maintenance time** with no daily or weekly grease points.
- **Electronic Operator's Communication System**
- **Volvo high performance – low emission** electronically controlled direct injected, turbocharged, intercooled diesel engine.
- **Volvo Engine Brake, VEB.**
- **Fully automatic planetary transmission**, electronically controlled.
- **Hydraulic retarder** integral in transmission.
- **Dropbox with high/low function** and longitudinal differential lock.
- **Automatic upshift** from low to high range in dropbox.
- **Wet disc brakes**, fully enclosed, forced oil-cooled multiple discs with external cooling.
- **100% lock-up differentials.** One longitudinal and three transverse differential locks.
- **Front axle with three-point suspension.**
- **Volvo terrain bogie**, individually oscillating axles and high ground clearance.
- **Volvo Load & Dump Brake.**

VOLVO



ENGINE

Volvo inline 6-cylinder, electronically controlled, direct-injected, turbocharged, intercooled 4-cycle low emission diesel engine with overhead camshaft and valves and wet replaceable cylinder liners. Meets US (EPA) step 2, California (CARB) step 2 and Europe (EU) step 2 emission regulations.

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

Engine brake: VEB (Volvo Engine Brake) includes compression and exhaust brake.

Make, model.	Volvo D12C AAE2
Max. power at	30 r/s 1800 r/min
SAE J1349 Gross.	313 kW 420 hp
Flywheel power at	30 r/s 1800 r/min
SAE J1349 Net, DIN 6271**	309 kW 414 hp
Max torque at	20 r/s 1200 r/min
SAE J1349 Gross.	2100 Nm 1549 lbf ft
SAE J1349 Net, DIN 6271**	2056 Nm 1517 lbf ft
Displacement total.	12 l 732 in³

*) the D12C engine is emission-certified as a Family Engine with the following output data:

Rated power at	31,7 r/s 1900 rpm
SAE J1349 Gross	280 kW 376 hp
Max torque at	20 r/s 1200 rpm
SAE J1349 Gross	2100 Nm 1549 lbf ft

*) with fan at normal speed. With fan operating at full speed, the flywheel power is 301 kW **404 hp** and maximum torque is 2010 Nm **1482 lbf 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	7,2 kW 9,6 hp



SERVICE

The computerized 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 grille with access ladder to remote filter bank, located in front of engine. Large, 90° opening hood for total engine access. Remote drain hoses and swing out radiator for easy cleaning.

Fuel tank	480 l	126.8 US gal
Crankcase.	50 l	13.2 US gal
Cooling system.	117 l	30.9 US gal
Transmission total.	48,5 l	12.7 US gal
Dropbox	10,5 l	2.6 US gal
Per axle	55 l	14.5 US gal
Brake cooling tank	103 l	27.2 US gal
Hydraulic tank.	250 l	66.1 US gal



DRIVETRAIN

Volvo components, specifically designed for hauler applications.

Torque converter: Single stage with free-wheeling stator and automatic lock-up in all ranges.

Transmission: Volvo design. Electronically controlled, fully automatic planetary transmission with 6 gears forward and 2 in reverse.

Dropbox: Volvo design with high and low function, power take-off and differential with 100% lock-up function. Automatic upshift low range to high range in 6th gear. Separate dropbox oil cooling.

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. All with 100% lock-up function, operator selectable on the move.

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

Torque converter	1,95:1
Transmission	Volvo PT 1860
Dropbox	Volvo FL 862
Axles.	Volvo AHW 71

Speeds

Low gear forward		
1	6 km/h	4 mph
2	9 km/h	6 mph
3	16 km/h	10 mph
4	24 km/h	15 mph
5	31 km/h	19 mph
6	41 km/h	26 mph

Automatic upshift to 6th gear, High range

High gear forward		
1	9 km/h	6 mph
2	13 km/h	8 mph
3	23 km/h	14 mph
4	33 km/h	20 mph
5	42 km/h	26 mph
6	55 km/h	34 mph

Low gear reverse

1	6 km/h	4 mph
2	10 km/h	6 mph

High gear reverse

1	8 km/h	5 mph
2	14 km/h	9 mph



SUSPENSION

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

Front axle: One rubber spring with bottoming absorption on each side. Stabilizer. Three shock absorbers on each side.

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

Fully hydraulic brakes with enclosed, forced oil-cooled multiple discs on all axles. Two circuits. Separate brake cooling for each axle. Complies with ISO 3450 and SAE J1473 at total machine weight.

Service brakes: Wet multiple disc brakes on all wheels.

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

Parking brake: Spring-applied, air-released 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.

Retarder: Hydraulic, infinitely variable, integral with transmission. Total retarding capability includes transmission retarder and VEB, see graph.

Volvo Engine Brake: Standard. Operator selectable application together with service brakes or when accelerator pedal is released. Always engaged together with retarder.

Total retarding capability including transmission retarder and engine brake, VEB, see graph on page 4.



HYDRAULIC SYSTEM

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

Pumps: 7 engine driven pumps mounted on flywheel power take-off. One ground-dependent piston pump for supplementary steering mounted on the dropbox.

Filtration: Through two glass fiber filters with magnetic cores.

Capacity per pump:		
engine-driven	143 l/min	37.8 US gpm
ground-driven	202 l/min	53.4 US gpm
at shaft speed	47,5 r/s	2850 r/min
Working pressure	25 MPa	3628 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 air suspension operator's seat with flameproof upholstery. Retractable seat belt.

Trainer seat: Standard, with seat belt and back rest.

Number of exits	2
Internal sound level, ISO 6394	72 dB (A)
and at max. speed	76 dB (A)



STEERING SYSTEM

Hydro-mechanical self-compensating articulated steering for safe and accurate high speed hauling. Fast-acting, low effort steering with 3,4 lock-to-lock turns for low speed maneuverability.

Cylinders: Two double-acting steering cylinders.

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

Steering angle: $\pm 45^\circ$



BODY & DUMP SYSTEM

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 with high impact strength.

Cylinders: Two single stage, double-acting.

Tipping angle	70°	
Tipping time with load	12 s	
Lowering time	10 s	
Body, plate thickness		
Front	8 mm	5/16 in
Sides	12 mm	1/2 in
Bottom/ Chute	16 mm	5/8 in
Yield strength	1 000 N/mm ²	145,000 psi
Tensile strength	1 250 N/mm ²	181,000 psi
Hardness min.	400 HB	



WEIGHTS

Operating weight includes all fluids and operator. Standard machine.

Operating weight with tires 29.5 R 25:

Unloaded		
Front	16 300 kg	33,935 lb
Rear	14 970 kg	33,003 lb
Total	31 270 kg	68,938 lb
Payload	37 000 kg	81,570 lb

Total weight

Front	19 170 kg	42,262 lb
Rear	49 100 kg	108,245 lb
Total	68 270 kg	150,507 lb

A40D with tires 875/65 R 29, add 300 kg **660 lb** per axle.

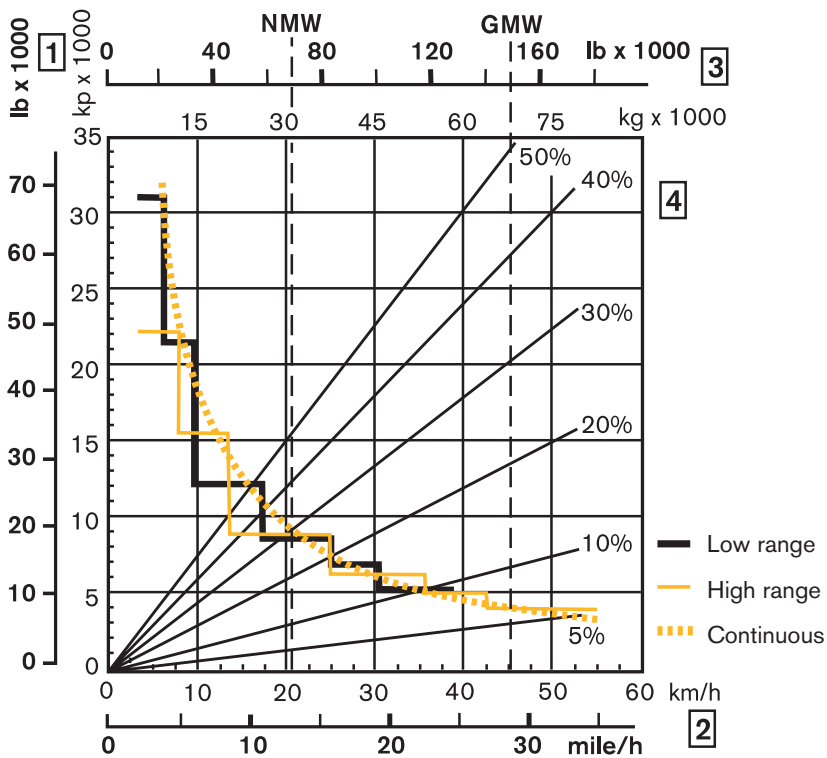
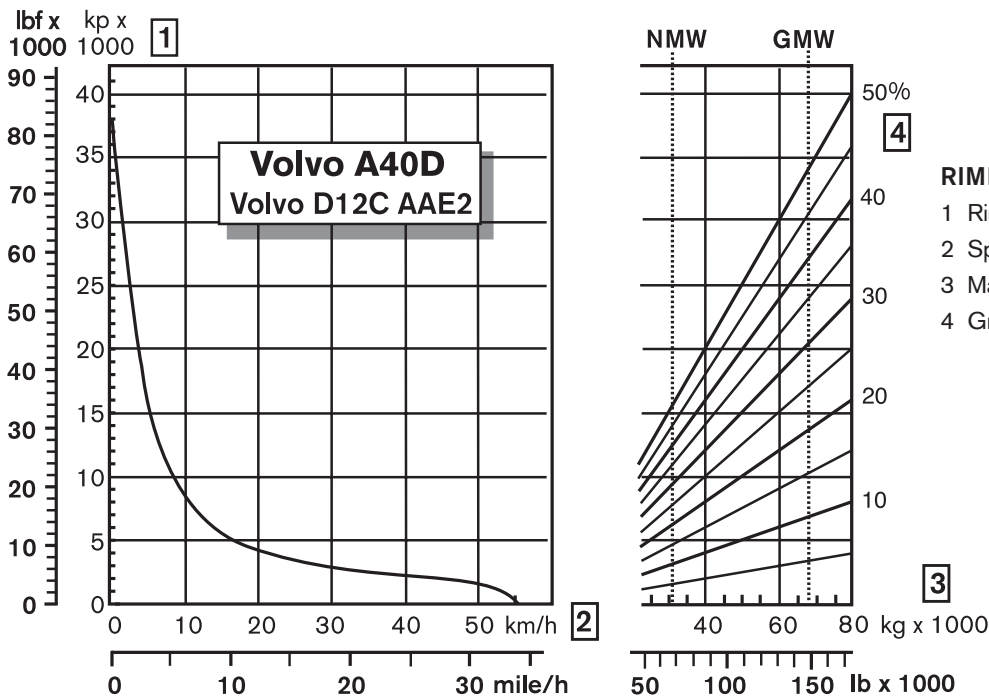


GROUND PRESSURE

At 15% sinkage of unloaded radius and specified weights.

With tires	29.5 R25		875/65 R29	
Unloaded				
Front	115 kPa	16.7 psi	100 kPa	14.5 psi
Rear	53 kPa	7.7 psi	47 kPa	6.8 psi
Loaded				
Front	135 kPa	19.6 psi	118 kPa	17.1 psi
Rear	172 kPa	24.9 psi	150 kPa	21.7 psi

RIMPULL & RETARDATION Volvo A40D 6x6



INSTRUCTIONS

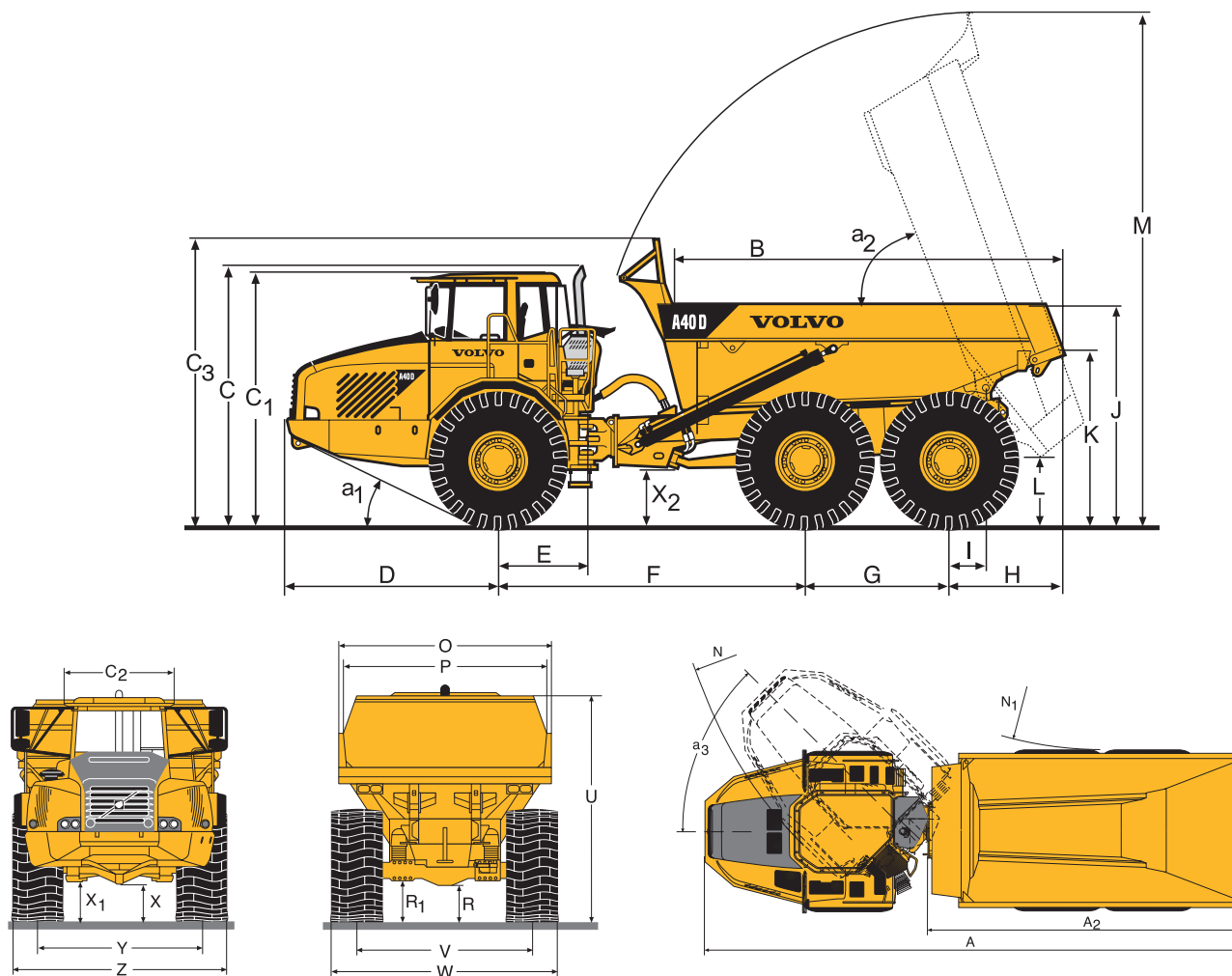
Diagonal lines represent total resistance (grade % **plus** rolling resistance %).

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

In the retardation chart, the diagonal lines represent the "total resistance" as well, which is the grade in % **minus** the rolling resistance in %.

- 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 A40D 6x6 (unloaded with 29.5R25 tires)



A	11 310 mm	37' 1"	F	4 451 mm	14' 7"	O	3 268 mm	10' 9"	X ₂	765 mm	2' 6"
A ₂	6 428 mm	21' 1"	G	1 940 mm	6' 4"	P	3 078 mm	10' 1"	Y	2 636 mm	8' 8"
B	5 730 mm	18' 10"	H	1 823 mm	6' 0"	R	654 mm	2' 2"	Z	3 432 mm	11' 3"
C	3 746 mm	12' 3"	I	646 mm	2' 1"	R ₁	751 mm	2' 6"	Z*	3 570 mm	11' 8"
C ₁	3 626 mm	11' 11"	J	3 075 mm	10' 1"	U	3 590 mm	11' 9"	a ₁	25°	
C ₂	1 768 mm	5' 10"	K	2 492 mm	8' 2"	V	2 636 mm	8' 8"	a ₂	70°	
C ₃	4 093 mm	13' 5" with foldable spillguard upright	L	906 mm	3' 0"	W	3 432 mm	11' 3"	a ₃	45°	
D	3 100 mm	10' 2"	M	7 384 mm	24' 3"	W*	3 570 mm	11' 8"			
E	1 279 mm	4' 2"	N	8 863 mm	29' 1"	X	617 mm	2'			
			N ₁	4 238 mm	13' 11"	X ₁	639 mm	2' 1"			

*) with 875/65 R 29 tires

LOAD CAPACITY (Body volumes according to SAE 2:1)

Load capacity	37 000 kg	41 sh tn
Body, struck	16,9 m ³	22.1 yd ³
heaped	22,5 m ³	29.4 yd ³

With overhung tailgate (Optional)		
Body, struck	17,2 m ³	22.5 yd ³
heaped	23,2 m ³	30.3 yd ³

STANDARD EQUIPMENT

Safety

ROPS/ FOPS cab
Anti-slip material on fenders and hood
Dump body lock
Hazard flashers
Handrails on fenders
Horn
Protective grille for rear window
Rear-view mirrors
Retractable 3 in. wide seat belt
Reverse alarm
Secondary steering
Service platform for ease of service
Steering joint locking assembly
Windshield wipers with intermittent
Windshield washers

Comfort

Air conditioning
Tilt/telescopic steering wheel
Ashtray
Cab heater with filtered fresh air and defroster
Can holder/storage tray
Cigarette lighter
Heated and air suspended fully adjustable operator's seat
Instructor seat with backrest and retractable seat belt
Overhead console for radio and storage
Space for lunch cooler
Storage box
Sun visor, front window
Tinted glass
Radio installation kit
Radio AM/FM cassette

Engine

Direct injected, electronically controlled
Volvo Engine Brake, VEB
Coolant filter
Electrical hood opening
Intercooler, air-to-air cooler
Remote oil filters for ease of access
Remote oil drainage plug and hose
Preheater for easier cold starts
Turbocharged

Electric system

Alternator
Battery disconnect switch
Electrical outlets, 24V in cab
Lights:
• Headlights, high/low
• Parking lights
• Direction indicators
• Rear lights
• Back-up lights
• Brake lights
• Cab lighting
• Instrument lighting
• Control panel lighting
Pilot lamps for all switches

Operator information interface

Gauges for:
• Brake pressure
• Fuel
• Speedometer
• Tachometer
• Transmission oil temperature
Pilot lamps for all switches
Warning lamps grouped and easy to read
Central warning, 3 levels for all vital functions
Operator's Communication System for:
• Automatic pre-start checks
• Clock
• Hour meter
• Machine settings
• Operating information:
– Drive mode
– System status, such as:
• Fluid levels
• Fluid temperatures
• Pressures
• Trouble shooting diagnostics

Drivetrain

6x4 or 6x6 operator selectable drive modes
Automatic transmission, electronically controlled
Torque converter with automatic lock-up
Variable hydraulic transmission retarder
Dropbox with high/low range
100% longitudinal differential lock
100% differential locks in all axles

Brakes

Fully hydraulic, forced oil-cooled wet disc brakes
Two circuit brake system
Parking brake on prop shaft
Volvo Engine Brake (VEB) activation in brake pedal

Body and dump system

Body prepared for exhaust heating
Extra front spillguard
Volvo Load and Dump brake

Tires

29.5R25

Other

Air drier
Tool box
Rear mudflaps

OPTIONAL EQUIPMENT

Engine

Engine coolant pre-heater (120V)
Extra long life, service free endurance air filter
Delayed engine stop
High idle speed
External emergency engine stop

Electrical

Rear vision system, monochrome or color
Rotating beacon, collapsible mount
Work lights, forward, roof-mounted
Work lights, rearward, fender-mounted
Alt. H.D. 80A

Cab

Armrests
Head restraint
Electrically heated rear-view mirrors
Radio with CD player
Cable kit for cab heater 120V
Vandalism protection

Safety

Fire-extinguisher and first aid kit

External

Mudguard wideners (for 875/65R29 tires)
Rear mudflaps (for 875/65 R 29 tires)

Body

Body exhaust heating kit
Overhung tailgate, wire operated
Wear plates

Tires

875/65 R 29

Other

Synthetic hydraulic oil (biologically degradable)
Brake guards
Artic oil kit
Fast fuel system, wiggins compatible

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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