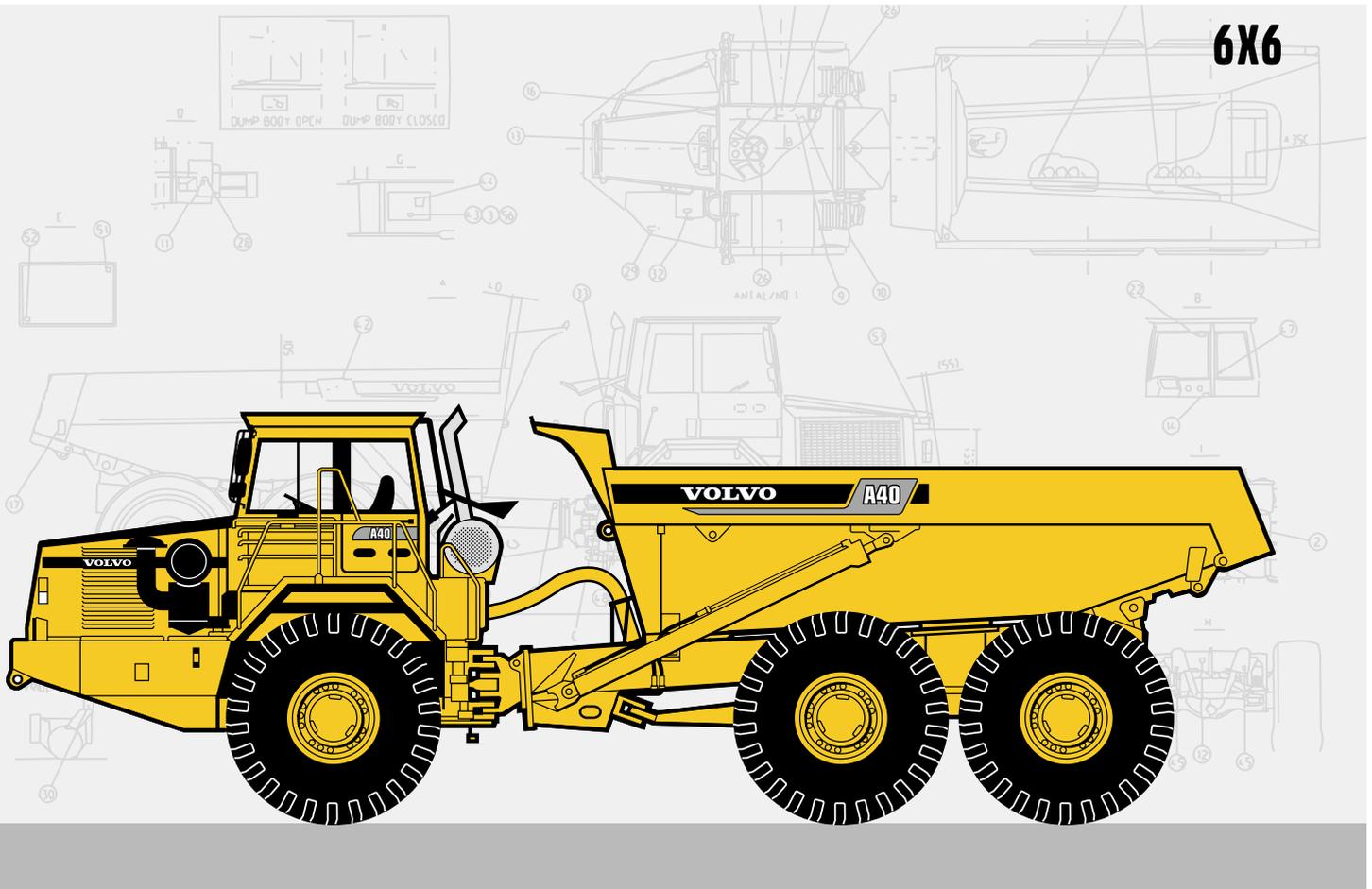


VOLVO ARTICULATED HAULER

A40



- Engine output SAE J1349:
Net 295 kW (395 hp)
Gross 297 kW (398 hp)
- Body volume:
22 m³ (28.7 yd³)
- Load capacity:
36 t (40 sh tn)
- Volvo low emission direct-injected, turbocharged, inter-cooled high performance diesel engine.
- Fully automatic powershift transmission, electronically controlled.
- Hydraulic retarder as standard.
- Drop box with longitudinal differential lock and high and low gear ranges.
- Fully enclosed, forced-oil-cooled multiple disc brakes with external cooling.
- 100% lock-up differential locks. One longitudinal and three transverse diff-locks.
- Front axle with three-point suspension and effective shock absorption.
- Volvo terrain bogie, individually oscillating axles and high ground clearance.
- Load and dump brake.
- Low interior noise level.
- Adjustable steering wheel.

VOLVO



ENGINE

Volvo 6-cylinder, inline, direct-injected, turbocharged, inter-cooled 4-cycle low emission diesel engine with overhead valves and wet replaceable cylinder linings. Meets USA (EPA) and California off-road regulation 1996.

Fan: Hydrostatic driven, thermostatically controlled radiator fan consuming power only when needed.

Make	Volvo
Model	TD122 KFE
Max power at	35 r/s (2100 r/min)
SAE J1349 Gross	297 kW (398 hp)
Flywheel power at	35 r/s (2100 r/min)
SAE J1349 Net	295 kW (395 hp)
DIN 6271*	295 kW (395 hp)
Max torque at	23 r/s (1380 r/min)
SAE J1349 Gross	1675 Nm (1235 lbf ft)
SAE J1349 Net	1665 Nm (1228 lbf ft)
DIN 6271**	1665 Nm (1228 lbf ft)
Displacement total	12 l (732 in ³)
Bore	130 mm (5.1 in)
Stroke	150 mm (5.9 in)
Compression ratio	16:1

*) with fan at normal speed. With fan operating at full speed, the flywheel power is 280 kW (375 hp) which corresponds to DIN 70020.

**) with fan at normal speed. With fan operating at full speed, the maximum torque is 1510 Nm (1114 lbf ft) which corresponds to DIN 70020.



ELECTRICAL SYSTEM

Voltage	24 V
Battery capacity	2x170 Ah
Alternator	1,65 kW (60 A)
Starter motor	6,6 kW (8.8 hp)



SERVICE CAPACITIES

Crankcase	31 l (8.2 US gal)
Fuel tank	460 l (121.5 US gal)
Cooling system	122 l (32.2 US gal)
Transmission total	40 l (10.6 US gal)
Drop box	8 l (2.1 US gal)
Front axle	46 l (12.2 US gal)
First bogie axle	47,5 l (12.5 US gal)
Second bogie axle	46 l (12.2 US gal)
Brake cooling system	135 l (35.7 US gal)
Brake cooling tank	100 l (26.4 US gal)
Hydraulic system	272 l (71.9 US gal)
Hydraulic tank	155 l (41 US gal)



DRIVETRAIN

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

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

Drop box: Volvo with 2-stage design, power take-off and differential with lock-up function and drop box oil cooling.

Axles: Volvo. 6-wheel drive. All axles have transversal diff-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.

Torque converter	2,08:1
Transmission	Volvo PT 1760
Dropbox	Volvo FL 802
Axles	Volvo AHW 70

Speeds

Low gear forward

1	5,9 km/h (3.7 mile/h)
2	8,6 km/h (5.3 mile/h)
3	15,4 km/h (9.6 mile/h)
4	22,4 km/h (13.9 mile/h)
5	28,4 km/h (17.6 mile/h)
6	37,7 km/h (23.4 mile/h)

High gear forward

1	8,3 km/h (5.2 mile/h)
2	12,0 km/h (7.4 mile/h)
3	21,6 km/h (3.4 mile/h)
4	31,2 km/h (19.4 mile/h)
5	39,7 km/h (24.7 mile/h)
6	52,6 km/h (32.7 mile/h)

Low gear reverse

1	9,5 km/h (5.9 mile/h)
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High gear reverse

1	7,7 km/h (4.8 mile/h)
2	13,3 km/h (8.3 mile/h)



SUSPENSION

Volvo suspension system. Totally maintenance-free.

Front axle: One rubber spring with bottoming absorption on each side. Stabilizer. Three shock absorbers on each side. The front axle is suspended at three points, which results in oscillation needed in rough terrain.

Bogie: Volvo's unique terrain bogie, which permits individual oscillation between the axles.



BRAKE SYSTEM

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

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.

Load and dump brake: With the engine running, the service brake on the bogie axles is applied together with the parking brake.

Compressor: Gear-driven by engine transmission.

Retarder: Hydraulic, integrated in transmission as standard. Infinitely variable with the retarder pedal or full effect applied via the service brake pedal.

Exhaust brake: Standard

For retarding capability incl. retarder, exhaust brake and engine, see graph on page 4.



HYDRAULIC SYSTEM

Pumps: Four engine-dependent, variable piston pumps mounted on flywheel power take-offs.

Ground-dependent hydraulic pump for supplementary steering mounted on the drop box.

Filtration: Through two paper filters with magnetic cores.

Pump capacity per pump . . . 110 l/min (29.0 US gpm)
at shaft speed 42 r/s (2520 r/min)
Working pressure 21 MPa (3047.9 psi)



CAB

Volvo cab, tested and approved according to ROPS standard ISO/3471 and SAE J1040/APR 88. Mounted on rubber pads which effectively reduce vibrations. Adjustable steering wheel. Radio/Contronic console in ceiling.

Heater and defroster: Filtered air and pressurized cab.

Operator's seat: Ergonomically designed and adjustable 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 acc. to
ISO 6394 and at max. speed 76 dB (A)



STEERING SYSTEM

Hydromechanical articulated steering with mechanical feedback. 3,4 lock-to-lock turns.

Cylinders: Two double-acting steering cylinders.

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

Steering angle: ± 45°



BODY

Body: Hardened and tempered steel body with high impact strength.

Cylinders: Two single stage, double-acting.

Tipping angle 71°
Tipping time with load 15 s
Lowering time 12 s
Body, plate thickness
Front 8 mm (0.31 in)
Sides 12 mm (0.47 in)
Bottom/chute 16 mm (0.63 in)
Yield strength 1000 N/mm² (145000 psi)
Tensile strength 1250 N/mm² (181000 psi)
Hardness min. 360–440 HB



WEIGHTS

Operating weight includes all fluids and operator. Standard machine.

Operating weight with tires 29.5 R 25

Unloaded
Front 15400 kg (33951 lb)
Rear 14750 kg (32518 lb)
Total 30150 kg (66469 lb)
Payload 36000 kg (79365 lb)

Total weight
Front 18300 kg (40344 lb)
Rear 47850 kg (105489 lb)
Total 66150 kg (145833 lb)

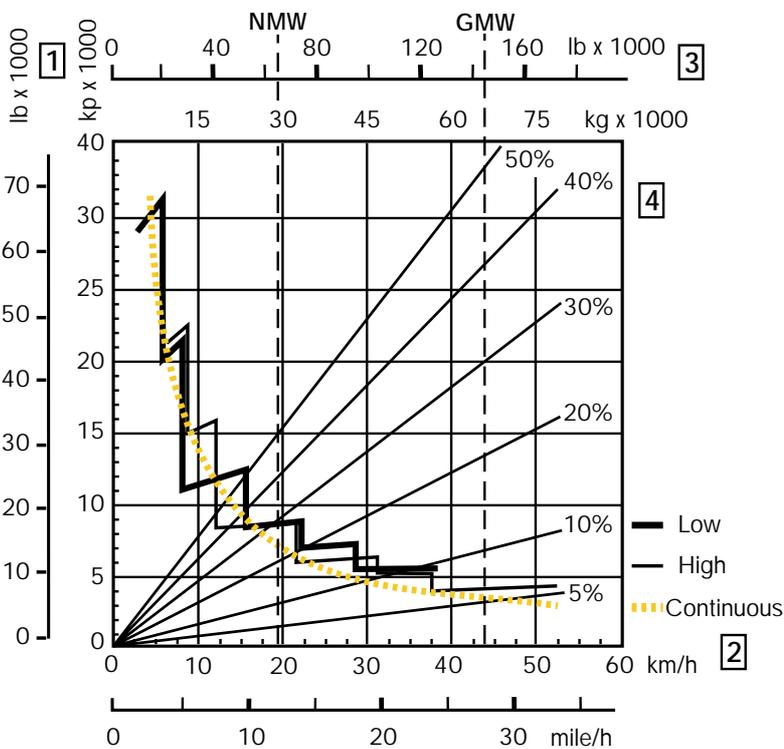
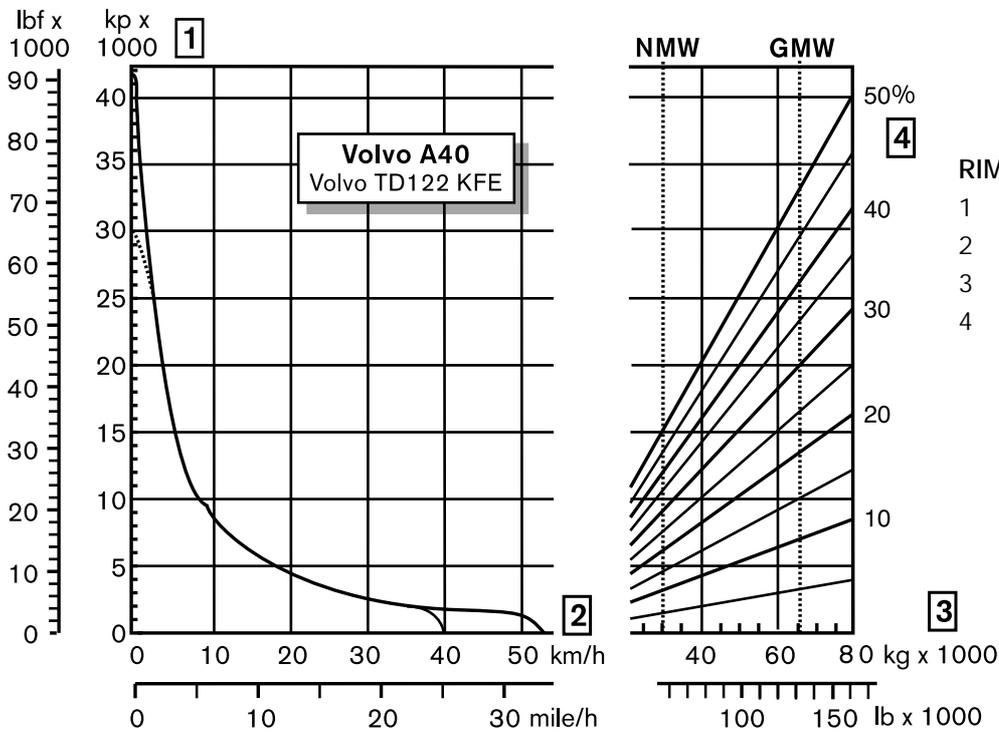
A40 with tires 875/65 R 29, add 360 kg (800 lb) per axle.



GROUND PRESSURE

At 15% sinkage of unloaded radius and specified weights.

With tires	29.5 R25	875/65 R29
Unloaded		
Front	106 kPa (15.4 psi)	95 kPa (13.8 psi)
Rear	51 kPa (7.4 psi)	47 kPa (6.8 psi)
Loaded		
Front	127 kPa (18.4 psi)	113 kPa (16.4 psi)
Rear	168 kPa (24.4 psi)	146 kPa (21.2 psi)



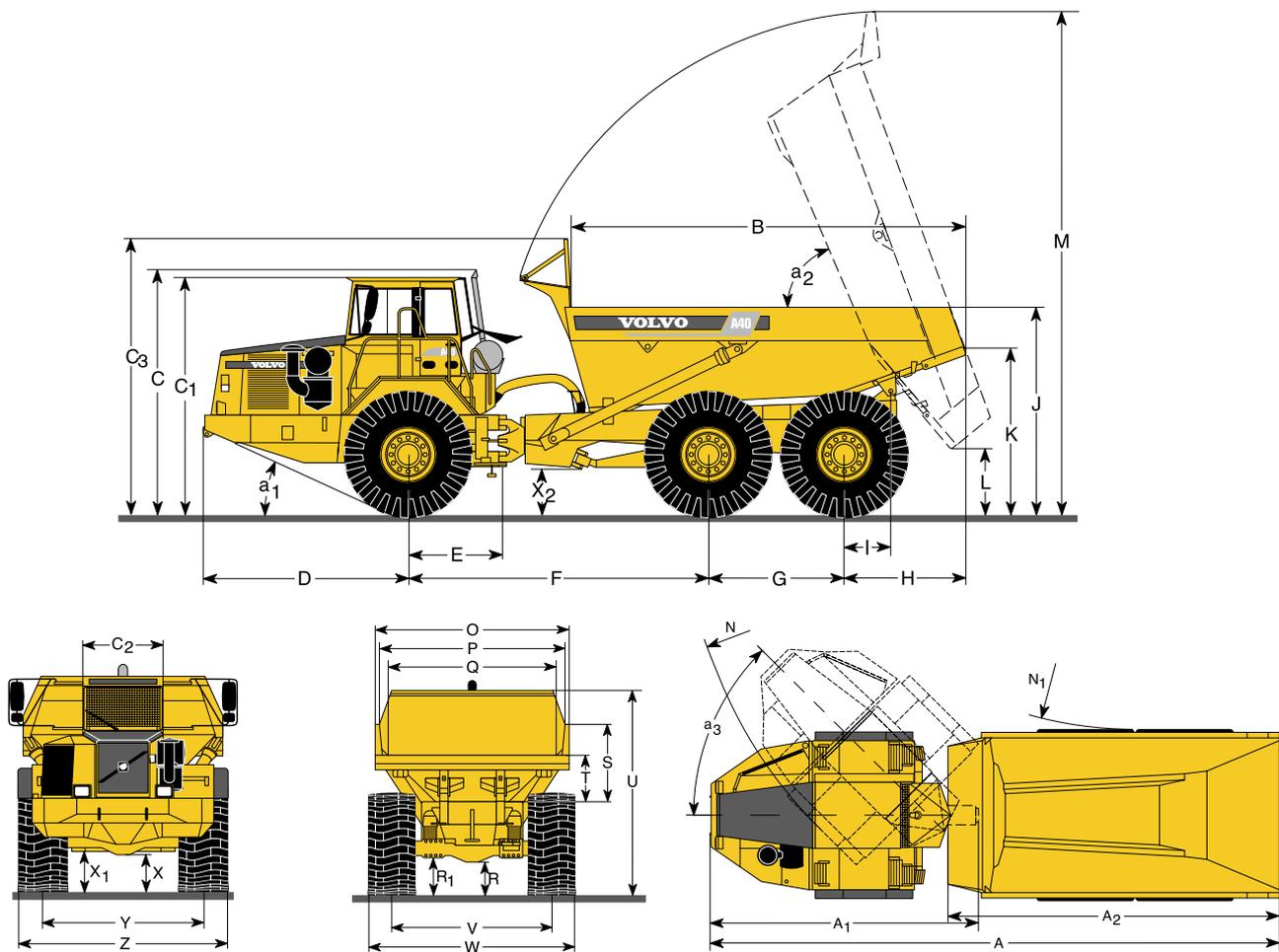
INSTRUCTIONS

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 A40 6x6 (unloaded with 29.5R25 tires)

A	11135 mm (36'6")	G	1940 mm (6'4")	O	3290 mm (10'9")	X	618 mm (2')
A ₁	5246 mm (17'3")	H	1793 mm (5'11")	P	3059 mm (10')	X ₁	645 mm (2'1")
A ₂	6525 mm (21'5")	I	643 mm (2'1")	Q	2853 mm (9'4")	X ₂	764 mm (2'6")
B	5738 mm (18'10")	J	3055 mm (10')	R	657 mm (2'2")	Y	2636 mm (8'8")
C	3701 mm (12'2")	K	2510 mm (8'3")	R ₁	754 mm (2'6")	Z	3430 mm (11'3")
C ₁	3618 mm (11'10")	L	961 mm (3'2")	S	1379 mm (4'6")	Z*	3570 mm (11'8")
C ₂	1331 mm (4'4")	M	7491 mm (24'7")	T	834 mm (2'9")	a ₁	27°
C ₃	4073 mm (13'4") with optional spillguard in upright position	N	8827 mm (28'11")	U	3498 mm (11'6")	a ₂	71°
D	2960 mm (9'9")	N ₁	4238 mm (13'11")	V	2636 mm (8'8")	a ₃	45°
E	1270 mm (4'2")			W	3430 mm (11'3")		
F	4442 mm (14'7")			W*	3570 mm (11'8")		*) with 875/65 R 29 tires

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

Load capacity..... 36000 kg (40 sh tn)
 Body, struck..... 16,3 m³ (21.3 yd³)
 heaped..... 22 m³ (28.7 yd³)

With overhung tailgate (Optional)
 Body, struck..... 16,6 m³ (21.7 yd³)
 heaped..... 22,7 m³ (29.7 yd³)

STANDARD EQUIPMENT

<p>Safety ROPS cab Anti-slip material on fenders and hood Ergonomically designed and adjustable operator's seat with retractable seat belts Hazard flashers Handrails on fenders Horn Protective grille for rear window Rear-view mirrors Seat belt Secondary steering Speedometer Steering joint locking assembly Windshield wipers with interval Windshield washers</p> <p>Comfort Adjustable steering wheel Ashtray Cab heater with filtered fresh air and defroster Cup holder Cigarette lighter Ergonomically designed and adjustable operator's seat Extra seat for trainer Radio/Contronic console in ceiling Sun visor Tinted glass</p> <p>Engine Exhaust brake Intercooler Low emission engine Oil drainage hose Preheating Turbocharger</p>	<p>Electric system Alternator Battery disconnect switch Electrical outlet</p> <p><i>Gauges for:</i></p> <ul style="list-style-type: none"> • Air pressure • Engine temperature • Engine revs • Fuel • Hours • Transmission oil temperature <p><i>Lights:</i></p> <ul style="list-style-type: none"> • Headlights, main/dipped • Parking lights • Direction indicators • Rear lights • Back-up lights • Brake lights • Cab lighting • Instrument lighting • Control panel lighting <p><i>Pilot lamps for:</i></p> <ul style="list-style-type: none"> • Direction indicators • Exhaust brake • Bogie axles diff-lock • Front axle diff-lock • Longitudinal diff-lock • Lights • Main beam • Preheating • Service brakes • Low gear 	<p><i>Warning lamps for:</i></p> <ul style="list-style-type: none"> • Air cleaner, engine • Battery charging • Body up • Brake pressure • Brake cooling, oil level • Coolant level • Drop box oil pressure • Engine oil pressure • Engine temperature • Engine-dependent pump • Ground-dependent pump • Parking brake • Radiator fan • Transmission/ drop box malfunction • Brake cooling-oil temperature, axles <p><i>Central warning:</i></p> <ul style="list-style-type: none"> • Battery charging • Brake cooling, oil level • Engine oil pressure • Engine overspeed • Steering function • Brake pressure • Body up • Transmission/ drop box malfunction 	<p>Drivetrain Torque converter with automatic lock-up Automatic transmission Hydraulic, variable retarder Drop box with high/low range Longitudinal diff-lock Differential lock front axle Differential lock first bogie axle Differential lock second bogie axle</p> <p>Brakes Fully hydraulic wet disc brakes Separate forced-oil brake cooling for each axle. Two circuits. Parking brake on all wheels Retarder activation in brake pedal Load and dump brake</p> <p>Body Body with exhaust ducts</p> <p>Tires 29.5R25</p>
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OPTIONAL EQUIPMENT

<p>Service and Maintenance Tool kit with tire inflation unit Tool box Central lubrication</p> <p>Engine Coolant filter Engine coolant and cooling brake oil pre-heater Oil-bath aircleaner</p> <p>Electrical Work lights, roof-mounted Rotating beacon, collapsible mount Head lights for left hand traffic</p>	<p>Cab Air conditioning Airsuspended, electrically heated operator's seat Contronic display Electrically heated rear-view mirrors Kit for radio installation Radio</p>	<p>Safety Overhead guards, FOPS Fire-extinguisher and first aid cushion</p> <p>External Rear mudflaps</p>	<p>Body Extra front spillguard Body heating Overhung tailgate, wire Wear plates, kit delivery Upper side extension, 200 mm</p> <p>Tires 875/65 R 29</p> <p>Other Synthetic hydraulic oil (biologically degradable)</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

Volvo Construction
Equipment Group

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