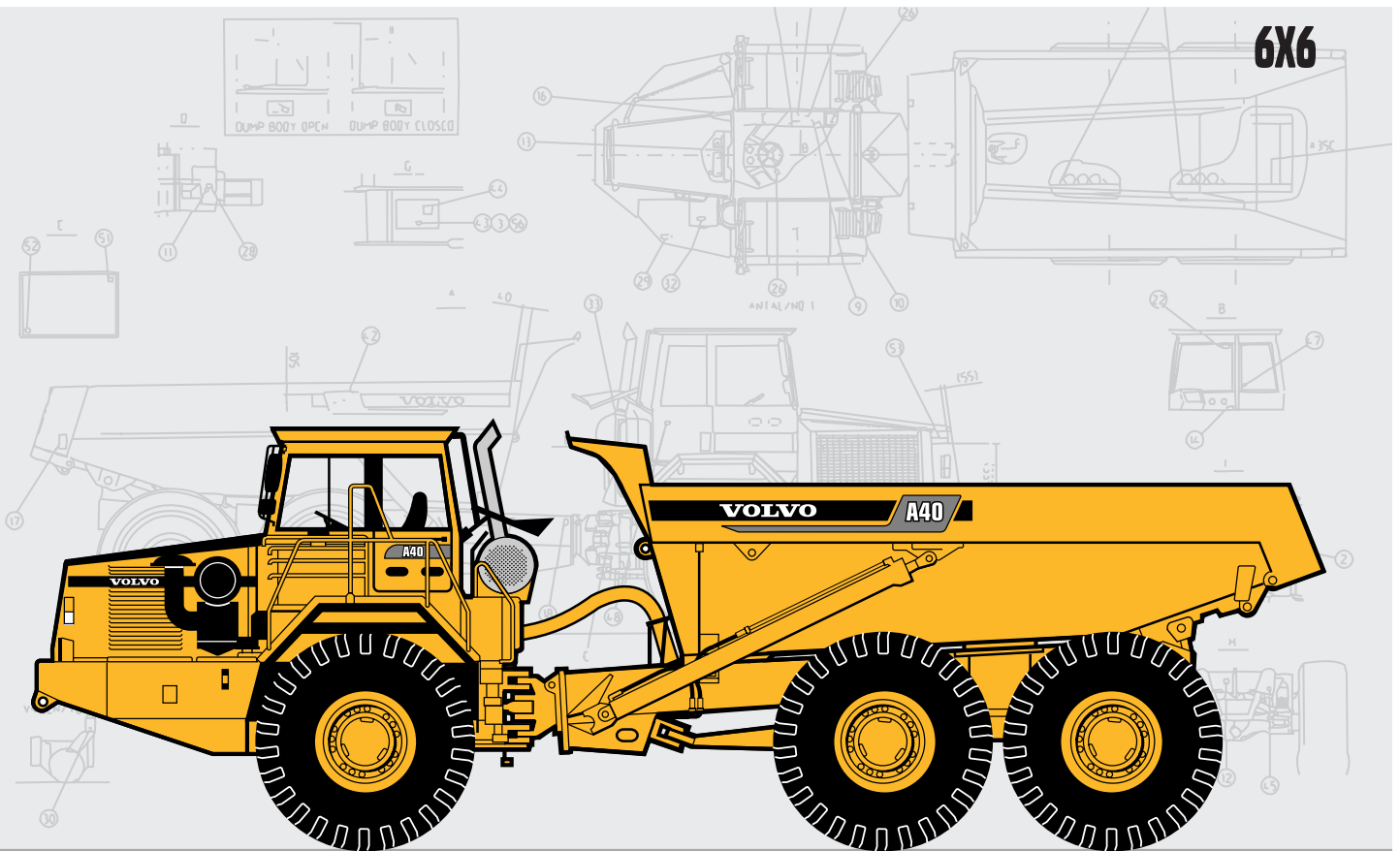


VOLVO ARTICULATED HAULER

A40



- **Engine output SAE J1349:**
Net 295 kW 395 hp
Gross 297 kW 398 hp
- **Body volume:**
22 m³ 29.0 yd³
- **Load capacity:**
36 t 40 sh ton
- **Volvo High-performance, low-emission** direct-injected, turbocharged, intercooled diesel engine as standard.
- **Electronically controlled fully automatic powershift transmission.**
- **Variable hydraulic retarder as standard.**
- **Dropbox with longitudinal diff. lock** and high and low gear ranges.
- **Fully enclosed, forced oil-cooled multiple wet disc brakes** with external cooling.
- **100% lock-up differential locks.** One longitudinal and three transverse diff. locks.
- **Volvo rough terrain suspension,** high ground clearance and individually oscillating bogie and front axles.
- **Load and dump brake.**
- **Low interior noise level.**
- **Adjustable steering wheel.**

VOLVO



ENGINE

Volvo 6-cylinder, inline, direct-injected, turbocharged, intercooled 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 rpm
SAE J1349 Gross	297 kW	398 hp
Flywheel power at	35 r/s	2100 rpm
SAE J1349 Net	295 kW	395 hp
DIN 6271*	295 kW	395 hp
Max. torque at	23 r/s	1400 rpm
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 in³
Bore	130 mm	5.13 in
Stroke	150 mm	5.9 in
Compression ratio	15:1	

* 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.



DRIVETRAIN

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

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

Dropbox: Volvo with 2-stage design, power takeoff and 100% differential locking.

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 mph
2	8,6 km/h	5.3 mph
3	15,4 km/h	9.6 mph
4	22,4 km/h	13.9 mph
5	28,4 km/h	17.6 mph
6	37,7 km/h	23.4 mph

High gear forward

1	8,3 km/h	5.2 mph
2	12,0 km/h	7.4 mph
3	21,6 km/h	13.4 mph
4	31,2 km/h	19.4 mph
5	39,7 km/h	24.7 mph
6	52,6 km/h	32.7 mph

Low gear reverse

1	9,5 km/h	5.9 mph
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High gear reverse

1	7,7 km/h	4.8 mph
2	13,3 km/h	8.3 mph



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
Cooling system, exchange	122 l	32.2 US gal
Cooling system, total	140 l	37 US ga
Transmission	40	10.6 US gal
Dropbox	8	2.1 US gal
Front axle	46 l	12.2 US gal
First bogie axle	47 l	12.4 US gal
Second bogie axle	46 l	12.2 US gal
Brake cooling tank	100 l	26.4 US gal
Brake cooling system, total	135 l	35.7 US gal
Hydraulic tank	155 l	41 US gal
Hydraulic system, total	272 l	71.9 US gal
Fuel tank	460 l	121.5 US gal



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, allowing oscillation in rough terrain.

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



BRAKE SYSTEM

Fully hydraulic brakes with enclosed, oil-emerged multiple wet discs on all axles. Two circuits. Separate cooling for each axle. Designed to comply with ISO 3450 and SAE J1473 at gross 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.

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

Exhaust retarder: Standard.

For retarding capability, including hydraulic transmission retarder, engine and exhaust retarder.

See graph on page 4.



HYDRAULIC SYSTEM

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

One ground-dependent piston pump for supplementary steering mounted on the dropbox.

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	2550 rpm
Working pressure	21 MPa	3040 psi



CAB

Volvo cab, tested and approved according to ROPS standard ISO 3471 and SAE J1040/APR 88, FOPS standard ISO 3449 and SAE J231.

Mounted on rubber pads which effectively reduce vibrations. Adjustable steering wheel.

Radio/Contronic console in ceiling.

Heater and defroster: Filtered air and pressurized cab. Three-speed fan.

Operator's seat: Ergonomically designed adjustable seat with air suspension, electric heating, flameproof upholstery and retractable seat belt.

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

Number of exits	2
Internal sound level acc. to ISO 6394 at max. speed . . .	76 dB (A)



STEERING SYSTEM

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

Cylinders: Two double-acting steering cylinders.

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

Steering angle: ± 45°



BODY

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

Cylinders: Two single-stage, double-acting hoist cylinders.

Tipping angle	71°
Tipping time with load	15 s
Lowering time	12 s
Body, plate thickness	
Sides	12 mm 1/2 in
Bottom/chute	16 mm 5/8 in
Headboard	8 mm 5/16 in
Beams	10 mm 3/8 in
Yield strength	1000 N/mm ² 145,000 psi
Tensile strength	1250 N/mm ² 181,000 psi
Hardness min.	360 – 440 HB



WEIGHTS

Operating weight includes all fluids and operator. Standard machine.

Operating weight

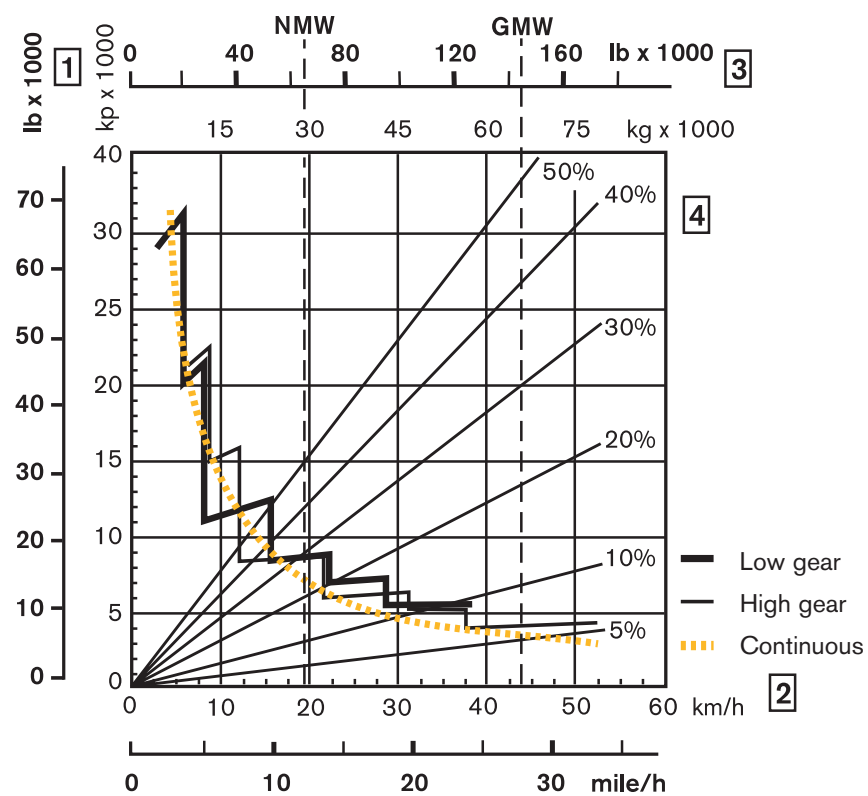
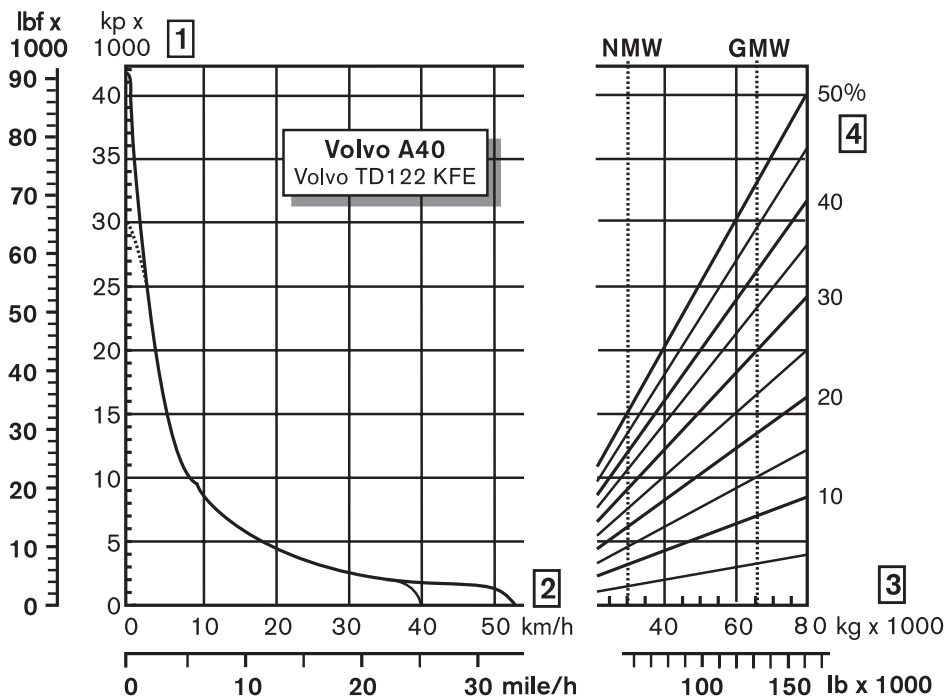
Front	15400 kg	33,951 lb
Rear	14750 kg	32,518 lb
Total	30150 kg	66,469 lb
Payload	36000 kg	79,365 lb
Total weight		
Front	18300 kg	40,344 lb
Rear	47850 kg	105,489 lb
Total	66150 kg	145,833 lb



GROUND PRESSURE

At 15% sinkage of unloaded radius and specified weights.

Unloaded		
Front	106 kPa	15.4 psi
Rear	51 kPa	7.4 psi
Loaded		
Front	127 kPa	18.4 psi
Rear	168 kPa	24.4 psi



INSTRUCTIONS

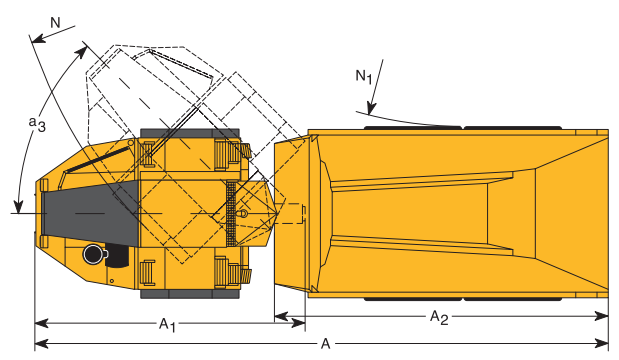
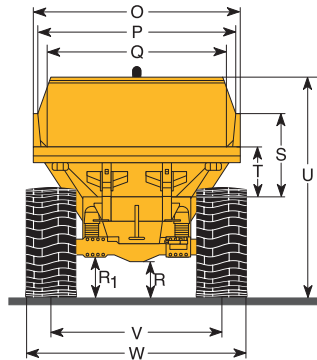
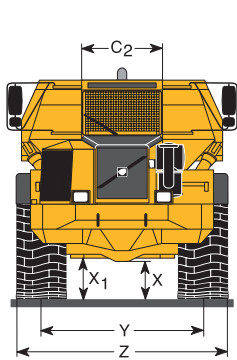
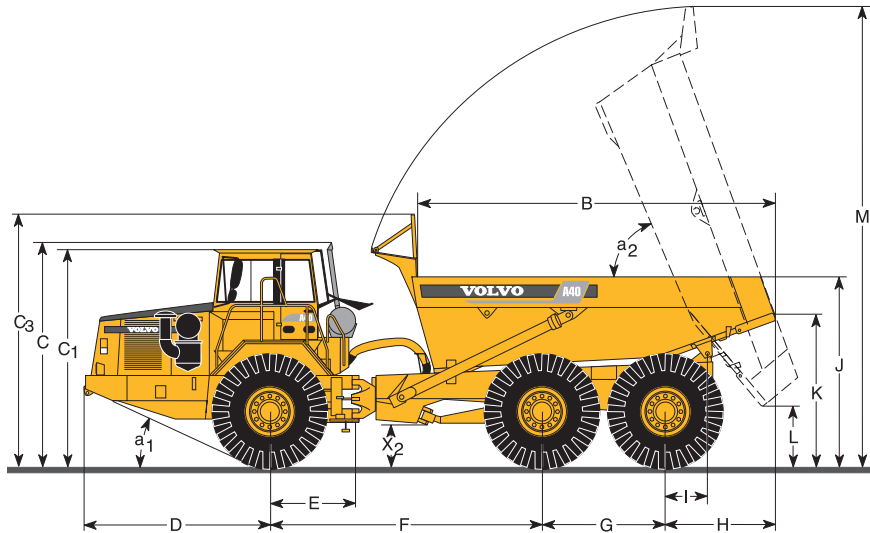
Diagonal lines represent total resistance (grade % **plus** rolling resistance %).

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 (here in downhill grades it is the total extra pushing force), 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)



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

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

Load capacity.....	36 000 kg	40 sh tn
Body, struck.....	16,3 m ³	21.3 yd ³
heaped	22,2 m ³	29.0 yd ³

STANDARD EQUIPMENT

<p>Safety ROPS/FOPS cab Anti-slip material on hood and fenders Hazard flashers Horn Protective grille for rear window Rearview mirrors Reverse alarm Secondary steering Speedometer, electric Steering joint locking assembly Trainer's seat with seat belt and back rest Windshield wipers with interval Windshield washers</p> <p>Comfort Adjustable steering wheel Ashtray Cab heater with filtered fresh air and defroster Cigarette lighter Cup holder Contronic information display Ergonomically designed and adjustable operator's seat with air suspension, electric heating and retractable seat belt Radio/Contronic console in ceiling Sun visor Tinted glass</p> <p>Engine Exhaust retarder Intercooler Low-emission engine Oil drainage hose Preheating coil Turbocharger</p>	<p>Electric system Alternator Battery disconnect switch Electrical outlet 24V</p> <p><i>Lights:</i></p> <ul style="list-style-type: none"> • Headlights, high/low beam • Parking lights • Turn signals • Rear lights • Brake lights • Reverse lights • Cab lighting • Instrument lighting • Control panel lighting <p><i>Gauges for:</i></p> <ul style="list-style-type: none"> • Air pressure • Engine temperature • Engine rpm • Fuel • Hours • Transmission oil temperature <p><i>Pilot lamps for:</i></p> <ul style="list-style-type: none"> • Bogie axles diff. lock • Front axle diff. lock • Longitudinal diff. lock • Lights • Main beam • Preheating coil • Service brake • Turn signals 	<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 • Brake cooling oil temperature • Coolant level • Dropbox oil pressure • Engine oil pressure • Engine temperature • Engine-dependent steering pump • Ground-dependent steering pump • Parking brake • Radiator fan • Transmission/dropbox malfunction <p><i>Central warning for:</i></p> <ul style="list-style-type: none"> • Battery charging • Brake cooling oil level • Brake pressure • Body up • Engine oil pressure • Engine overspeed • Steering function • Transmission/dropbox malfunction 	<p>Drivetrain Torque converter with automatic lock-up Fully automatic transmission Hydraulic, variable transmission retarder Dropbox with high/low range Longitudinal differential lock Differential lock front axle Differential lock first bogie axle Differential lock second bogie axle</p> <p>Brakes Fully hydraulic brakes with enclosed, oil-emerged multiple wet discs on all axles Separate cooling for each axle Two circuits Load and dump brake Parking brake Retarder activation in brake pedal</p> <p>Body Body with exhaust ducts</p> <p>Protection Mudguards on front of body Overhead guard, FOPS Extra body spill guard</p> <p>Tires 29.5R25</p>
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OPTIONAL EQUIPMENT

<p>Service and maintenance Toolbox Central lubrication</p> <p>Engine Oil-bath air cleaner Coolant filter Engine coolant and service brake oil pre-heater, 120V/240V</p>	<p>Electrical Work lights, roof-mounted</p>	<p>Cab Air-conditioning Electrically heated rearview mirrors Radio installation kit</p>	<p>Body Body heating Overhung tailgate, wire-operated Rock liner Upper side extensions, 100 mm 4"</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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 Equipment Group**
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Ref. No 22 2 669 4092
 Printed in USA 5/98 - 10
 Biltmore Press, Asheville

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