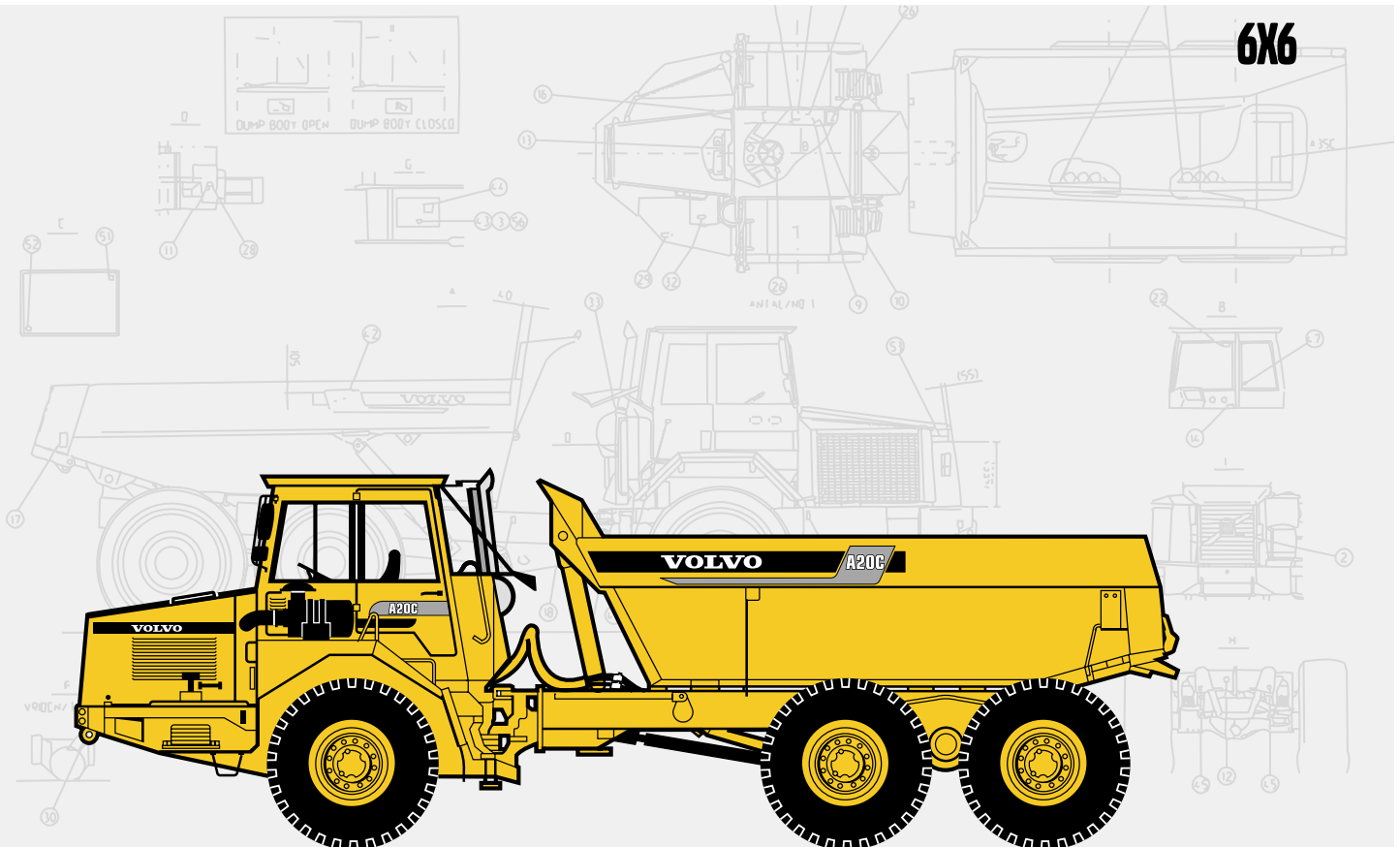


## VOLVO ARTICULATED HAULER

# A20C



- Engine output SAE J1349:  
Net 170 kW (228 hp)  
Gross 173 kW (232 hp)
- Body volume:  
12 m<sup>3</sup> (15,7 yd<sup>3</sup>)
- Load capacity:  
20 t (22 sh tn)
- Volvo low emission direct-injected, turbocharged, inter-cooled high performance diesel engine.
- Fully automatic powershift transmission, electronically controlled.
- Drop box with longitudinal differential lock.
- 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, in-line, turbocharged, direct-injected, inter-cooled, 4-cycle low emission diesel engine with overhead valves and wet replaceable cylinder linings. Meets 88/77/EEC and California off-road regulation 1996.

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

Make	Volvo
Model	TD73 KFE
Max power at	40 r/s (2400 r/min)
SAE J1349 Gross	173 kW (232 hp)
Flywheel power at	40 r/s (2400 r/min)
SAE J1349 Net	170 kW (228 hp)
DIN 6271*	170 kW (228 hp)
Max torque at	20 r/s (1200 r/min)
SAE J1349 Gross	920 Nm (677 lbf ft)
SAE J1349 Net	910 Nm (670 lbf ft)
DIN 6271 **	910 Nm (670 lbf ft)
Displacement total	6,73 l (411 in <sup>3</sup> )
Bore	105 mm (4.1 in)
Stroke	130 mm (5.1 in)
Compression ratio	17,7:1

\*) with fan at normal speed. With fan at full speed the flywheel power is 155 kW (208 hp) corresponding to DIN 70020.

\*\*) with fan at normal speed. With fan at full speed the max torque is 810 Nm (596 lbf ft) corresponding to DIN 70020.



## ELECTRICAL SYSTEM

Voltage	24 V
Battery capacity	2x135 Ah
Alternator	1,65 kW (60 A)
Starter motor	5 kW (6.7 hp)



## SERVICE CAPACITIES

Crankcase	24 l (6.3 US gal)
Fuel tank	280 l (74.0 US gal)
Cooling system	35 l (9.2 US gal)
Transmission total	16 l (4.2 US gal)
Drop box	6 l (1.6 US gal)
Front axle	27 l (7.1 US gal)
First bogie axle	28 l (7.4 US gal)
Second bogie axle	27 l (7.1 US gal)
Brake hydraulics	2 l (0.5 US gal)
Hydraulic system	180 l (47.6 US gal)
Hydraulic tank	155 l (41 US gal)



## DRIVETRAIN

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

**Transmission:** Electronically controlled, fully automatic planetary transmission with 5 gears forward and 1 in reverse.

**Drop box:** Volvo single stage design with power take-off and differential with lock-up function.

**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	2,43:1
Transmission	Volvo PT 1052 (5HP 500)
Drop box	Volvo FL 650D
Axles	Volvo AH 54

### Speeds with tires 20.5R25

Forward	
1	9 km/h (5.6 mile/h)
2	15 km/h (9.3 mile/h)
3	25 km/h (15.5 mile/h)
4	35 km/h (21.7 mile/h)
5	47 km/h (29.2 mile/h)
Reverse	
1	10 km/h (6.2 mile/h)



## SUSPENSION

*Volvo suspension system. Totally maintenance-free.*

**Front axle:** Two rubber springs with bottoming absorption on each side. Stabilizer. Two shock absorbers on each side. The front axle is suspended at three points, which results in oscillating needed in rough terrain.

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



## BRAKE SYSTEM

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

**Circuit Division:** One circuit 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.

**Exhaust brake:** Standard.

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



## HYDRAULIC SYSTEM

**Pumps:** Three engine-dependent, variable piston pumps mounted on flywheel power take-offs. One unused power take-off available.

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

**Filtration:** Through two paper filters with magnetic cores.

Pump capacity per pump at shaft speed	34 r/s (2040 r/min)
engine dependent	100 l/min (26.4 US gpm)
ground dependent	118 l/min (31.2 US gpm)
Working pressure	19,5 MPa (2830 psi)



## CAB

Volvo cab, tested and approved according to ROPS standard ISO/3471 and SAE J1040/APR88.

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 and adjustable operator's seat with flameproof upholstery. Retractable seat belt.

**Trainer seat:** Option.

Number of exits	2
Internal sound level, according to ISO 6394 and at max speed	78 dB (A)



## STEERING SYSTEM

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

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

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

**Steering angle:** ± 45°



## BODY

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

**Cylinder:** One single-acting 5-stage hoist cylinder with automatic tipping stop.

Tipping angle	63°
Tipping time with load	15 s
Lowering time	15 s
Body, plate thickness	
Sides	10 mm (0.39 in)
Bottom/chute	10 mm (0.39 in)
Front	10 mm (0.39 in)
Yield strength	1000 N/mm <sup>2</sup> (145000 psi)
Tensile strength	1250 N/mm <sup>2</sup> (181000 psi)
Hardness min.	360–440 HB



## WEIGHTS

Operating weight includes all fluids and operator. Standard machine.

### Operating weight with tires 20.5R25

Front	8700 kg (19180 lb)
Rear	7700 kg (16975 lb)
Total	16400 kg (36155 lb)
Payload	20000 kg (44092 lb)
Total weight	
Front	10900 kg (24030 lb)
Rear	25500 kg (56217 lb)
Total	36400 kg (80247 lb)

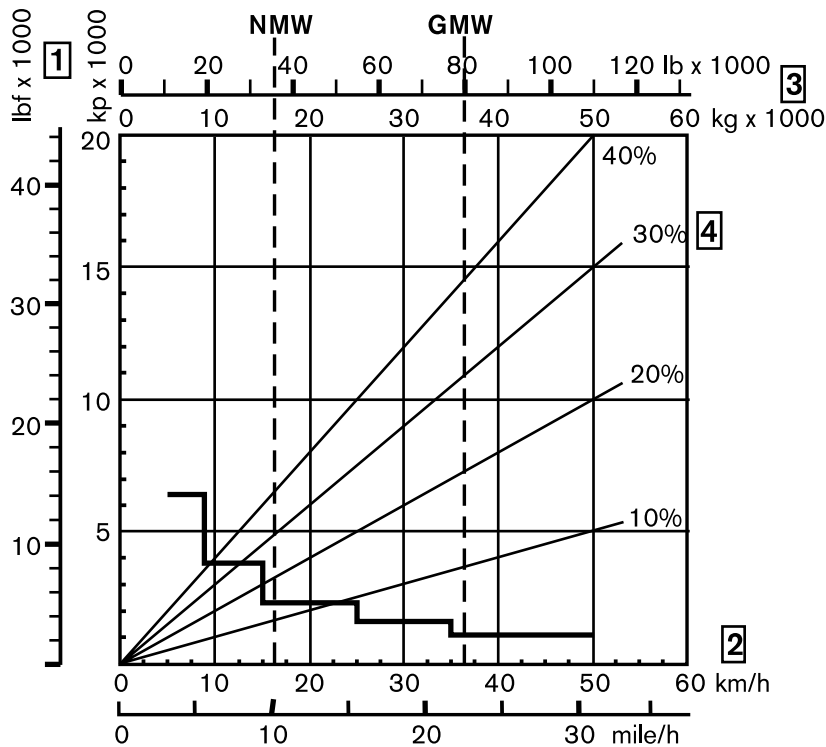
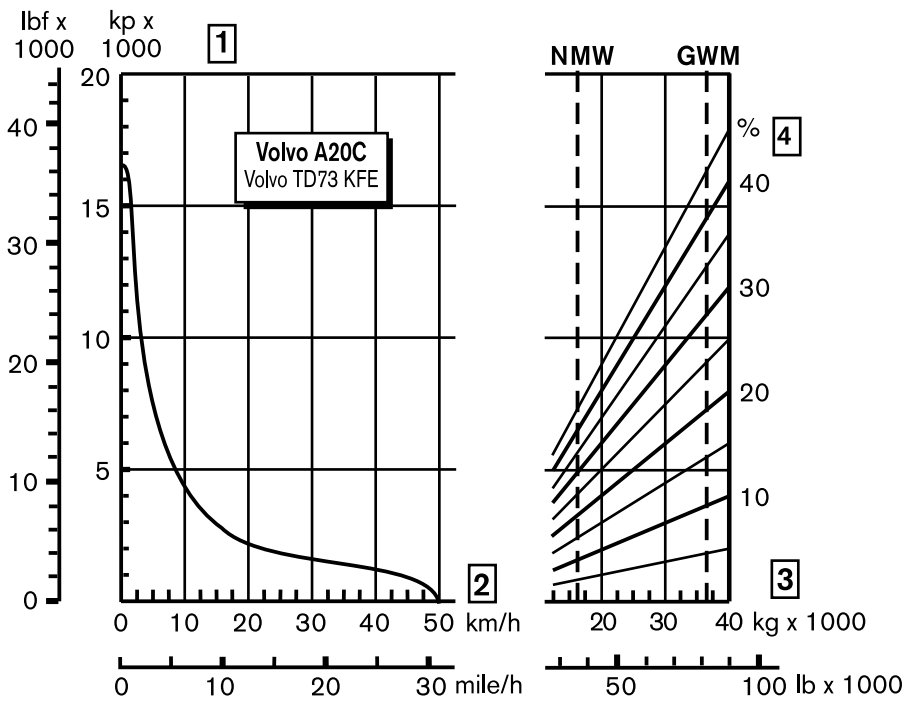
A20C equipped with 25/65R25 tires, add 200 kg (440 lb) per axle.



## GROUND PRESSURE

At 15% sinkage of unloaded radius and specified weights.

With tires	20.5R25	25/65R25
Unloaded		
Front	135 kPa (19.6 psi)	93 kPa (13,5 psi)
Rear	158 kPa (22.9 psi)	42 kPa (6,1 psi)
Loaded		
Front	135 kPa (19.6 psi)	116 kPa (16,8 psi)
Rear	158 kPa (22.9 psi)	135 kPa (19,6 psi)



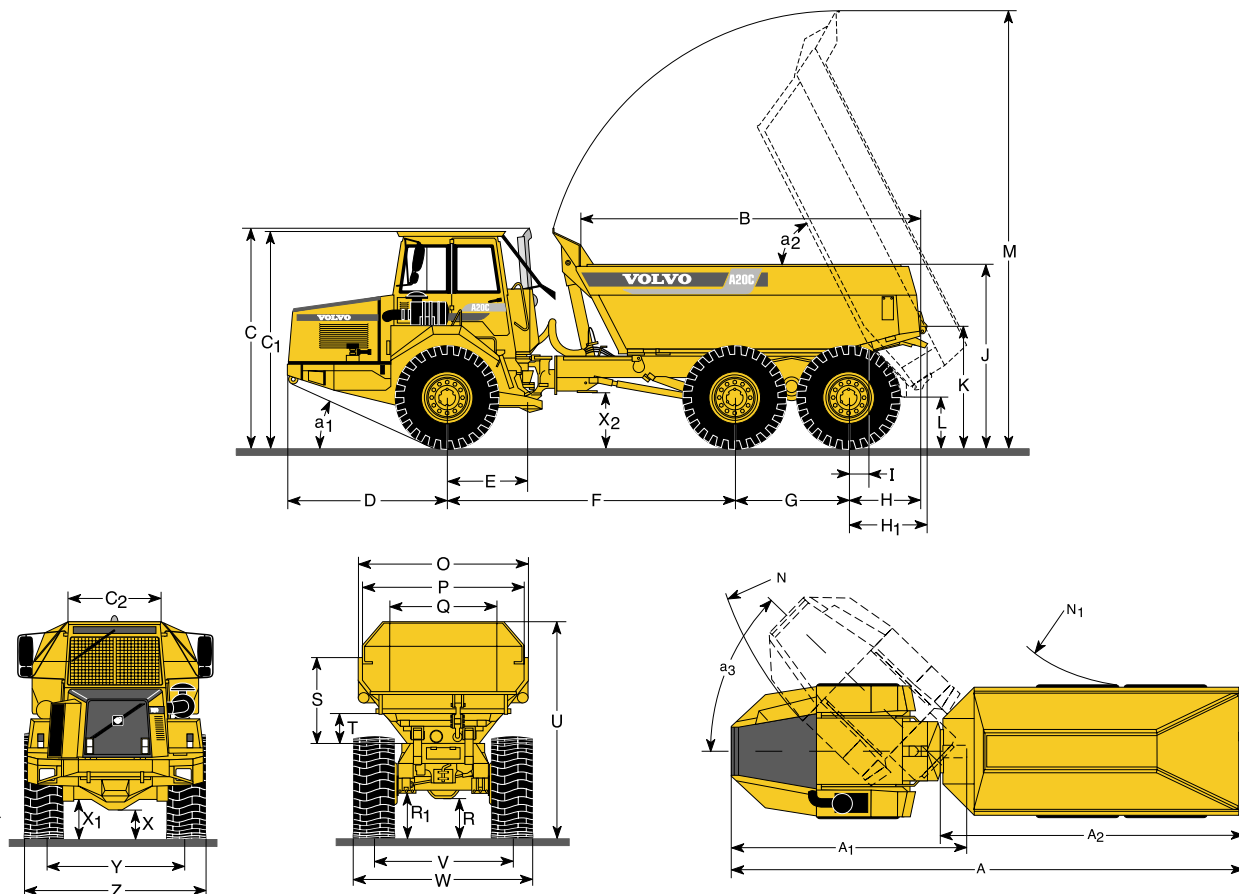
### INSTRUCTIONS

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

Charts based on 0% rolling resistance, standard tyres 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 A20C 6x6 (unloaded with 20.5R25 tires)

A	9505 mm (31'2")	H	1115 mm (3'8")	O	2480 mm (8'2")	X	420 mm (1'5")
A <sub>1</sub>	4495 mm (14'9")	H <sub>1</sub>	425 mm (1'5")	P	2320 mm (7'7")	X <sub>1</sub>	550 mm (1'10")
A <sub>2</sub>	5535 mm (18'2")	I	1290 mm (4'3")	Q	1490 mm (4'11")	X <sub>2</sub>	700 mm (2'4")
B	4955 mm (16'3")	J	2600 mm (8'6")	R	460 mm (1'6")	Y	1930 mm (6'4")
C	3225 mm (10'7")	K	1675 mm (5'6")	R <sub>1</sub>	560 mm (1'10")	Y*	2150 mm (7'1")
C <sub>1</sub>	3150 mm (10'4")	L	600 mm (2')	S	1265 mm (4'2")	Z	2490 mm (8'2")
C <sub>2</sub>	1320 mm (4'4")	M	6040 mm (19'10")	T	380 mm (1'3")	Z*	2820 mm (9'3")
D	2415 mm (7'11")	N	7850 mm (25'9")	U	3230 mm (10'7")	a <sub>1</sub>	24.5°
E	1200 mm (3'11")	N <sub>1</sub>	4250 mm (13'11")	V	1930 mm (6'4")	a <sub>2</sub>	63°
F	4200 mm (13'9")			V*	2150 mm (7'1")	a <sub>3</sub>	45°
G	1600 mm (5'3")			W	2490 mm (8'2")		
				W*	2820 mm (9'3")		

\*) with tires 25/65R25

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

Load capacity.....	20000 kg (22 sh tn)		
Body, struck.....	9,4 m <sup>3</sup> (12.3 yd <sup>3</sup> )		
heaped	12 m <sup>3</sup> (15.7 yd <sup>3</sup> )		
<b>With underhung tailgate (optional)</b>		<b>With over and underhung tailgate (optional)</b>	
Body, struck.....	9,6 m <sup>3</sup> (12.5 yd <sup>3</sup> )	Body, struck.....	9,9 m <sup>3</sup> (12.9 yd <sup>3</sup> )
heaped	12,5 m <sup>3</sup> (16.3 yd <sup>3</sup> )	heaped	13 m <sup>3</sup> (17.0 yd <sup>3</sup> )

## STANDARD EQUIPMENT

### Safety

ROPS cab  
Anti-slip material on hood and fenders  
Ergonomically designed and adjustable operator's seat with retractable seat belt.  
Hazard flashers  
Horn  
Protective grille for rear window  
Rear-view mirrors  
Secondary steering  
Speedometer  
Steering joint locking assembly  
Windshield wipers with interval  
Windshield washers

### Comfort

Adjustable steering wheel  
Ashtray  
Cab heater with filtered fresh air and defroster  
Cup holder  
Cigarette lighter  
Radio/Contronic console in ceiling  
Sun-visor  
Tinted glass

### Engine

Exhaust brake  
Intercooler  
Low emission engine  
Oil drainage hose  
Preheating  
Turbocharger

### Electrical system

Alternator  
Battery disconnect switch  
Electrical outlet  
*Gauges for:*  
• Air pressure  
• Engine temperature  
• Engine revolutions  
• Fuel  
• Hours  
• Transmission oil temperature

#### Lights:

• Headlights, main/dipped  
• Parking lights  
• Direction indicators  
• Rear lights  
• Back-up lights  
• Brake lights  
• Cab lighting  
• Instrument lighting  
• Control panel lighting

#### Pilot lamps for:

• Exhaust brake  
• Direction indicators  
• Front axle diff-lock  
• Longitudinal diff-lock  
• Lights  
• Main beam  
• Preheating

#### Warning lamps for:

• Air cleaner, engine  
• Battery charging  
• Body up  
• Brake pressure  
• Brake failure  
• Engine oil pressure  
• Engine overspeed  
• Engine-dependent steering pump  
• Ground-dependent steering pump  
• Hydraulic oil level  
• Parking brake  
• Transmission temperature

#### Central warning:

• Air cleaner, engine  
• Air pressure  
• Battery charging  
• Brake failure  
• Engine oil pressure  
• Engine overspeed  
• Engine temperature  
• Hydraulic oil level  
• Steering function

### Drivetrain

Torque converter with automatic lock-up  
Automatic transmission  
Drop box, single stage  
Longitudinal diff-lock  
Differential lock front axle  
Differential lock first bogie axle  
Differential lock second bogie axle

### Brakes

Air-hydraulic disc brakes  
Two circuits  
Parking brake on all wheels  
Load and dump brake

### Body

Body with exhaust ducts

### Tires

20.5R25

## OPTIONAL EQUIPMENT

### Service and Maintenance

Tool kit with tyre inflation unit  
Tool box  
Central lubrication

### Engine

Coolant filter  
Extra fuel filter  
Oil-bath air cleaner

### Electrical

Head lights, left hand drive  
Work lights, roof-mounted  
Rotating beacon, collapsible mount

### Cab

Air conditioning  
Airsuspended, electrically heated operator's seat  
Contronic display  
Electrically heated rear-view mirrors  
Extra seat for trainer  
Speedometer miles  
Tachograph  
Kit for radio installation  
Radio

### Safety

Overhead guard, FOPS  
Fire-extinguisher and first aid cushion

### External

Brake protection, front axle  
Mudguards on front of body

### Body

Body heating  
Overhung tailgate  
Underhung tailgate  
Wear plates, kit delivery

### Tires

25/65R25

### Other

Exhaust gas cleaning  
Towing hitch  
Synthetic hydraulic oil (biologically degradable)

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

Ref. No 21 3 669 4087  
Printed in Sweden 99.06-4  
Volvo Växjö

English  
ART