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**VOLVO BM  
SYSTEM  
4200**

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**THE VOLVO BM  
-A RADICAL NEW  
FOR MORE EFFIC**





**M 4200 SYSTEM  
NEW APPROACH  
EFFICIENT MACHINE  
UTILIZATION...**









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he Volvo BM 4200 system is designed for those who switch between different jobs frequently or seasonally and require in every case good capacity and a good working environment for the person doing the job. The cassette system is a logical extension of Volvo BM's established all-rounder philosophy with snap-on coupling of the loader unit's attachments. Here, yet another step forward has been taken. The entire unit can now be quick-coupled to the basic machine, and changing between different units can be done in less than 10 minutes. You therefore have a machine that can perform entirely different functions while retaining the good characteristics of the articulated basic machine. Manoeuvrability and comfort. The following standard units are available:

- Loader unit
- Fork carriage
- Crane unit
- Sweeper
- Sand spreader
- Brush saw
- Excavator

It is also possible to attach other items of equipment to the system by the use of an add-on frame that can be delivered with the machine.

This enables you to put together your own constellations in order to deal with special situations.

Study the Volvo BM 4200 system more closely. It may be the beginning of new and efficient work methods in your business.







# BASIC MACHINE

Articulated steering for smooth manoeuvrability. Direct-injection diesel engine and power shift transmission. High standard of driver comfort.



## ENGINE

D39L

Flywheel rating	49 kW at 36.7 rps DIN 70020 (67 hp at 2200 rpm)
Gross rating	51 kW at 36.7 rps, SAE J 270 (70 hp at 2200 rpm)
Max. torque	254 Nm at 23.3 rps, DIN 70020 (188 lbf ft at 1400 rpm) 261 Nm at 23.3 rps, SAE J 270 (191 lbf ft at 1400 rpm)
Bore	98.4 mm (3.8 in)
Stroke	127 mm (5 in)
Number of cylinders	4
Displacement	3.86 litres (235 cu in)

The D 39L engine is a direct-injection diesel engine with replaceable cylinder linings, light alloy pistons and a five-bearing crankshaft. The intake air is cleaned in two stages:

1. Large replaceable paper filter with cab-mounted indicator.
2. Replaceable catch-all filter.



## ELECTRICAL SYSTEM

Voltage	24 V
Alternator	45 A (1250 W)
Batteries	2 x 12 V, 96 Ah
Starter motor	3 kW (4 hp)

The alternator ensures that the battery is sufficiently charged even at low engine speed. The powerful starter motor facilitates starting at low temperatures. The driving and working lights permit safe and efficient work in the dark. The fuses are well protected and easily accessible inside the cab.

Central warning lamp for: Engine oil pressure  
Transmission oil pressure  
Brake pressure and parking brake



## TORQUE CONVERTER

Single-stage, single-phase torque converter  
Torque conversion ratio 2.85:1.



## TRANSMISSION

Type: HT 50

Full power shift transmission with three speeds and torque converter.

Max. speeds	1. 7 km/h (4.3 mph)
forward-reverse	2. 11 km/h (6.8 mph)
with 15.5—25 or 14.9—24 tyres	3. 30 km/h (18.6 mph)
Max speed for travel without load:	3 km/h (1.8 mph)



## AXLES

Fully-floating drive shafts transmit the torque only and do not support the weight of the machine. They are fitted with planetary gears in the hubs. The long wheelbase and large wheels contribute to the 4200's excellent stability and forward mobility.



## BRAKES

Driving brakes

All wheels have air-hydraulically operated, self-adjusting drum brakes. For maximum safety the brakes are split into independent circuits for front and rear wheels respectively.

Parking brakes: mechanically operated on the output shaft of the transmission.



## TYRES

Alternatives: 14.9—24/12  
15.5—25/12



## STEERING SYSTEM

Articulated steering

Steering angle  $\pm 45^\circ$   
Outer turning radius (a<sub>2</sub>) 4260 mm (13' 11")  
Gear pump  
Capacity 49 l/min (10.8 Imp.gal/min) at 10 MPa (100 bar) (1420 PSI) and 2200 rpm.

Working pressure 10 MPa (100 bar) (1420 PSI)

The design ensures simple, smooth steering without bumps and jolts being felt through the steering wheel. The system has built-in emergency steering.



## HYDRAULIC SYSTEM

Pump type: Gear pump

Capacity 103 l/min (22.6 Imp.gal/min) at 10 MPa (100 bar) (1420 PSI) and 2200 rpm.

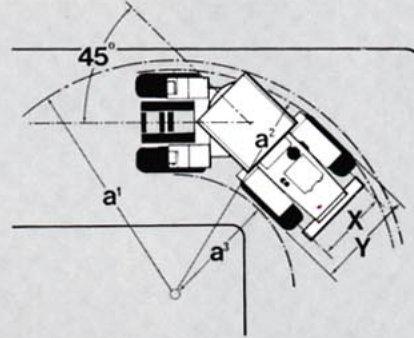
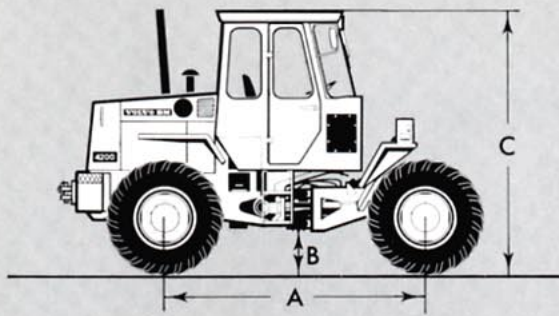
Working pressure 15 MPa (150 bar) (2130 PSI)

The hydraulic system is equipped with a third hydraulic function as standard and can easily be supplemented with a fourth hydraulic function. The reliable lever system operates at the touch of a finger. The hydraulic tank is extra large to provide maximum cooling of the oil. The vent air from the tank passes through the engine's air cleaner.



## CAPACITIES

Cooling system	18	litres ( 4 Imp.gal.)
Crankcase	7.5	.. ( 1.6 .. )
Transmission and torque converter	18	.. ( 4 .. )
Front axle differential and hub	7.5	.. ( 1.6 .. )
Rear axle differential and hub	7.5	.. ( 1.6 .. )
Hydraulic system	105	.. (23 .. )
Hydraulic tank	67	.. (14.7 .. )
Fuel tank	95	.. (20.8 .. )



## DIMENSIONS

A	2725 mm ( 8'11" )
B	380 mm ( 1'2" )
C	2750 mm ( 9' )
a <sup>1</sup>	4310 mm (14'2" )
a <sup>2</sup>	4260 mm (14' )
a <sup>3</sup>	2280 mm ( 7'6" )
x	1600 mm ( 5'3" )
y	1990 mm ( 6'6" )

Machine weight: 4300 kg. (9477 lb)



## CAB

The all-welded ROPS cab, which not only meets the requirements of ISO 3471 but also the more stringent requirements of SS 783, has two lockable doors and a roof hatch. The cab is approved in conformity with the standards of the Swedish Board of Occupational Safety and Health. The operator's station is ergonomically designed for optimum comfort and efficiency. All controls and pedals are located and designed for quick and convenient operation. Fully adjustable operator's seat as standard. The cab is equipped with an efficient heating and ventilation system with defroster for the front and side windows. Air conditioning is standard on the Swedish market. The cab is mounted on the chassis by means of rubber elements which are partly responsible for the low noise level.



## POWER TRANSMISSION

Full power-shift transmission  
Single-lever control  
Disengagement valve for transmission



## HYDRAULIC SYSTEM

Control valve (3 sections)  
3rd hydraulic function  
Attachment bracket with snap-on coupling and hydraulic locking

## Standard equipment



## SAFETY & COMFORT

- Rear-view mirrors, 2 external
- Rear-view mirror, 1 internal
- Cigarette lighter, ashtray
- Attachments for seat belts
- Utility box, storage compartment in cab
- ROPS — safety cab as per ISO 3471 and SS 783
- Cab heater with defroster, fresh-air intake with filter
- Instrument panel with symbol markings
- Direction-indicator flashers
- Lifting eye bolts for shipping
- Tyre inflation connection
- Horn
- Sun visor
- Safety start
- Mudguards
- Roof hatch
- Hazard flashers
- Tool kit
- Windscreen wipers, front and rear



## ENGINE AND ELECTRICAL SYSTEM

- Brake pressure gauge
- Fuel gauge
- Lighting: driving lights, asymmetrical high/low/parking lights, working lights front and rear, side marker lights, brake lights, cab lighting, instrument lighting
- Master switch, electrical system
- Pilot lamps for: working lights front and rear, battery charging, direction indicator flashers, hazard flashers, central warning lamp, driving brakes, high beam, cold start, air cleaner filter, engine oil pressure, parking brakes, hydraulic transmission oil pressure
- Engine temperature gauge
- Air cleaner
- Socket for inspection lamp
- Alternator
- 7-pole trailer connector

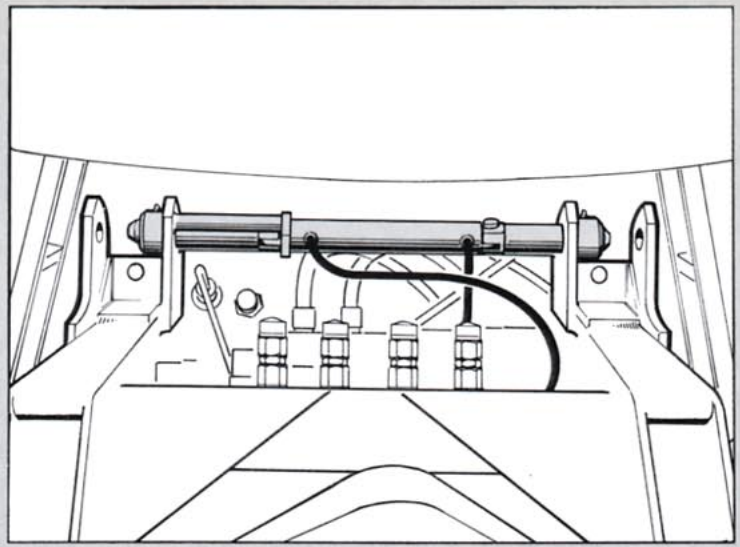
## Optional equipment

- Safety roof
- Working lights, front
- Tow hitch
- Toughened windscreen with clear-view zone
- Inspection lamp
- Speedometer/odometer
- 15.5—25/12 tyres
- Main headlamps, symmetrical
- Air conditioning
- Electric engine block heater
- LP gas or blowlamp engine heater
- Hose for tyre inflation
- Protective grilles for working lights
- Seat belt
- Rotating warning beacon, retractable
- Windscreen washer
- Toolbox



# QUICK COUPLING

The basic machine and working unit are joined together by a sturdy bracket. It is easy to steer the machine up to the parked unit. Locking takes place hydraulically and in less than 10 minutes you have a machine with the capacity for an entirely different range of jobs.



You work efficiently with every attachment – you become a specialist with a high capacity but you can adapt to new jobs quickly.



It's easy to effect detachment. The hydraulic lock is controlled from the cab. Snap-on coupling of the hydraulic funktion.



The detached attachment will stand firmly on its own thanks to fold down supports.



You have excellent visibility of all attachment points and it's easy to direct the machine towards the new attachment.



The new attachment is locked into place hydraulically. All hydraulic functions incorporate snap-on coupling.



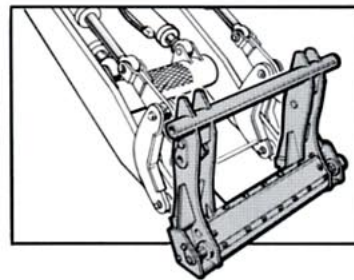
In less than ten minutes you have a machine designed for an entirely new job. You get capacity and machine utilization.





## LOADER UNIT

The loader unit has a long outreach and generous lifting height. Parallel side-arm action and good breakout-force for versatility and efficiency.



### SNAP-ON COUPLING

The Volvo BM 4200 features a snap-on coupling and hydraulic locking. This facilitates using the numerous attachments that are available.

### TECHNICAL DATA

Lift cylinders bore/stroke	100 × 650 mm (4 × 26 in)
Tilt cylinders bore/stroke	80 × 65 mm (3 × 2.5 in)
Raise	5.2 s
Lower	2.9 s
Forward tilt	1.0/1.7 s
Control valve:	
Three spool valve with built-in pressure relief valve	
Functions	<ol style="list-style-type: none"> <li>1. Tilt</li> <li>2. Lift — float position with hold lock</li> <li>3. Attachment or external hydraulic</li> </ol>

### Standard equipment

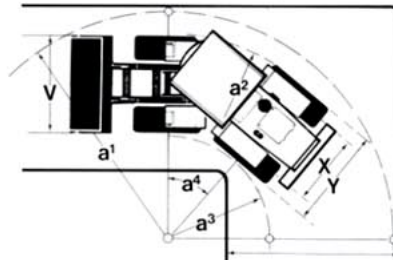
- Snap-on coupling for hydraulic connection
- Two separate speeds for forward tilting
- Hydraulic attachment bracket

### Optional equipment

- Single-action lifting function
- 4th hydraulic function
- Automatic function for bucket and lift position

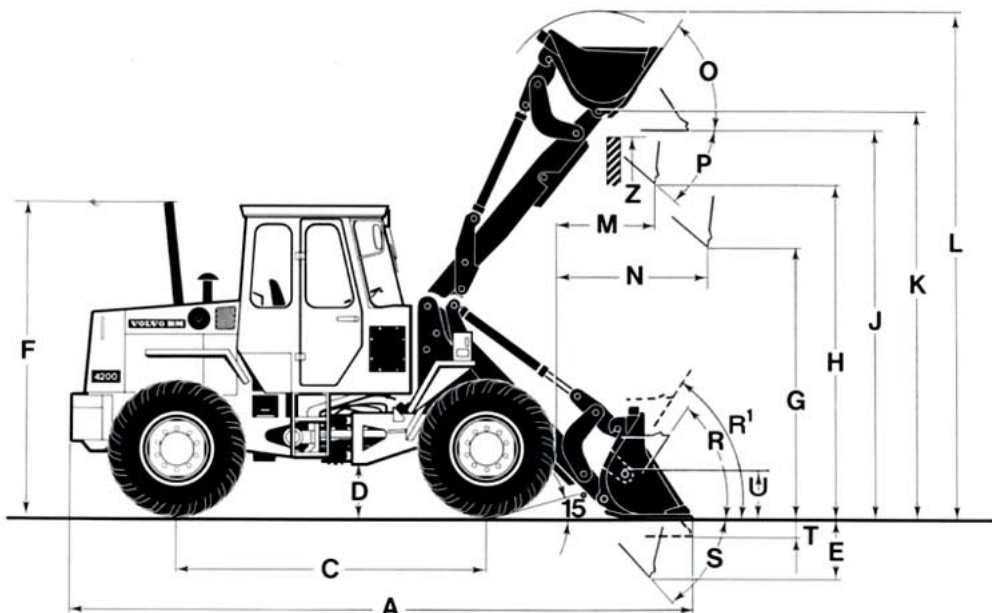
### DIMENSIONS TURNED MACHINE

SAE standard J 695	
V = 2050 mm (6' 8")	
X = 1600 mm (5' 3")	
Y = 1990 mm (6' 6")	
Swept radius $a_1$	= 4650 mm (15' 3")
Turning radius $a_2$	= 4260 mm (13' 11")
Inner radius $a_3$	= 2280 mm (7' 6")
Steering angle $a_4$	= ±45°

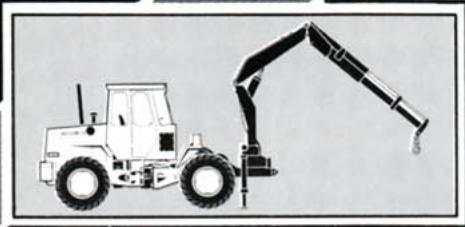


### DIMENSIONS STRAIGHT BUCKET WITHOUT TEETH

SAE standard J 695	
A = 5650 mm (18' 5")	
= 4950 mm (16' 3")	(without attachment)
C = 2725 mm (9')	
D = 380 mm (1' 3")	
E = 580 mm (1' 11")	
F = 2750 mm (9')	
G = 2000 mm (6' 7")	
H = 2800 mm (9' 7")	
J = 3350 mm (11')	
K = 3570 mm (11' 9")	
L = 4440 mm (14' 6")	
M = 720 mm (2' 4")	
N = 1320 mm (4' 4")	
O = 51°	
P = 45°	
R = 40°	
R <sub>1</sub> = 44° (carrying position)	
S = 53°	
T = 100 mm (4")	
U = 300 mm (1')	
Z = 3200 mm (10' 6")	(with supporting legs)
Z <sub>1</sub> = 3350 mm (11')	(without supporting legs)

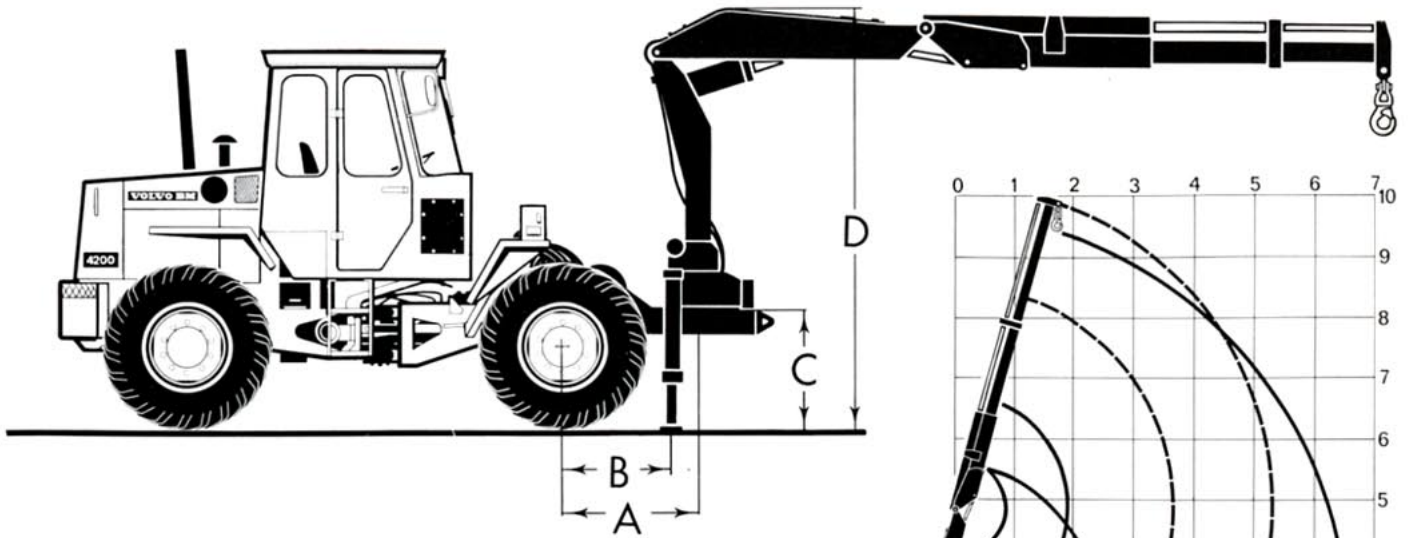






## CRANE UNIT

An agile materials handler. Hydraulically articulated with telescopic extension.



### Standard equipment

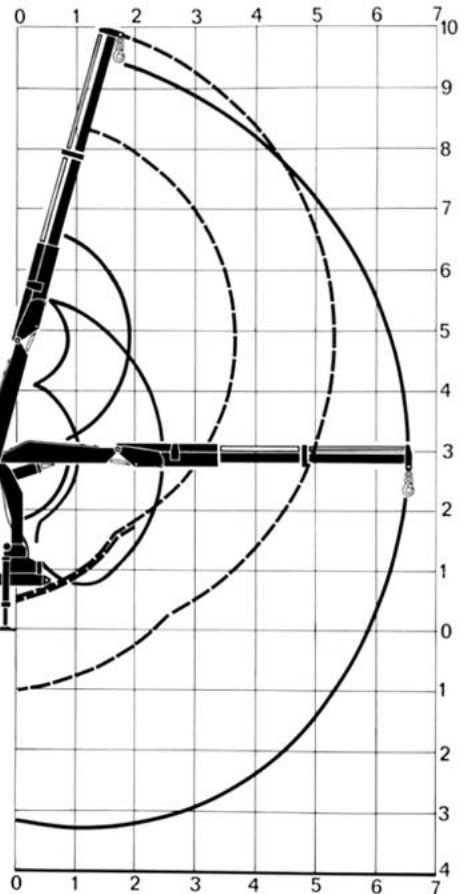
- Hiab Foco 650/1 AW crane
- Snap-on couplings for hydraulic and electric connections
- Pilot-controlled operating valves for supporting legs
- Line rupture valves for supporting legs, lifting jib and articulated jib
- Pressure limiter, extension cylinder
- Adjustable flow-rate regulator for slewing function
- Retractable and lockable supporting legs
- Extra support plates for the supporting legs
- Locking of crane in transit position
- Inclinometer

### Optional equipment

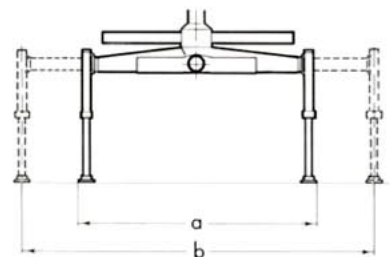
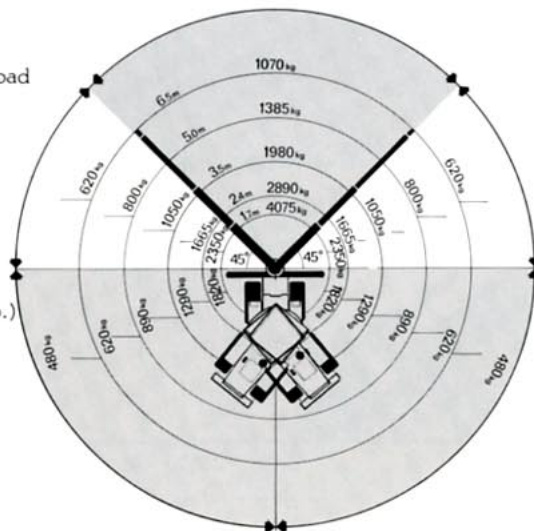
- Rapid lashing device
- Load torque indication
- Rubber buffer for protection of load

### TECHNICAL DATA

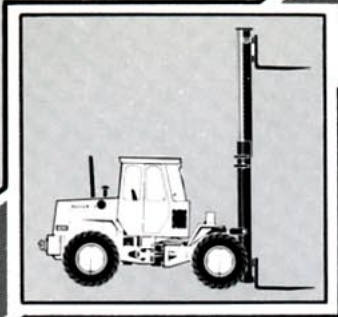
- A 970 mm (3'2")  
 B 870 mm (2'10")  
 C 900 mm (2'11")  
 D 3100 mm (10'2")  
 a 3240 mm (10'7")  
 b 2210 mm (7'3")  
 Machine weight 5770 kg (12 717 lb.)



### MOVEMENT DIAGRAM







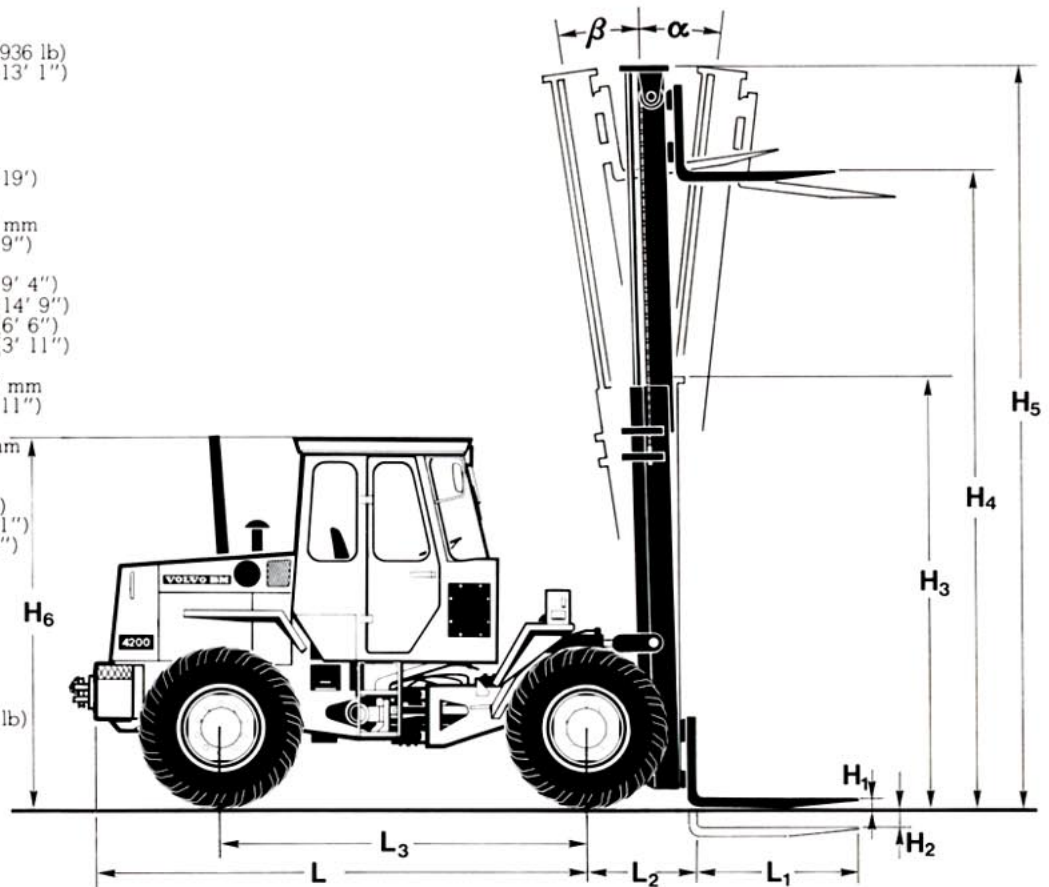
## FORK CARRIAGE

An effective combination which combines the lifting ability of a fork lift truck with the mobility and comfort of the basic machine.



### TECHNICAL DATA

Rated lift capacity	3600 kg (7936 lb)
Max. lift height ( $H_4$ )	4000 mm (13' 1")
Fork carriage tilt, forward ( $\alpha$ ) — back ( $\beta$ )	$8^\circ - 12^\circ$
Lower speed	0.5 m/s
Min. aisle for right angle stacking ( $A_1$ )	5795 mm (19')
Fork carriage dimensions, min ( $H_3$ ) max. ( $H_5$ )	2820/4810 mm (9' 3"/15' 9")
Height incl. safety roof ( $H_6$ )	2850 mm (9' 4")
Machine length ( $L$ )	4505 mm (14' 9")
Machine width ( $B$ )	1980 mm (6' 6")
Fork length ( $L_1$ )	1200 mm (3' 11")
Width over Fork shanks, max. — min. ( $V$ )	250—1500 mm (10' — 4' 11")
Forks, Width ( $B_1$ ) × Thickness ( $H_2$ )	150 × 50 mm (6" × 2")
Front axle centreline to carriage face ( $L_2$ )	760 (2' 6")
Wheel base ( $L_3$ )	2725 (8' 11")
Wheel track	1600 (5' 3")
Clearance circle $a_1$	4310 mm (14' 2")
Turning radius $a_2$	4260 mm (14')
Inner radius $a_3$	2280 mm (2' 6")
Machine weight	5160 kg (11 372.5 lb)

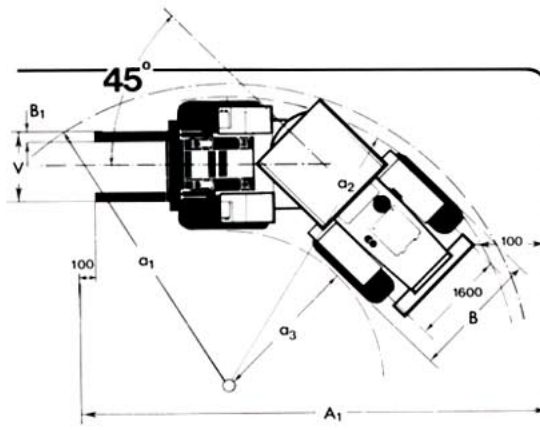


### Standard equipment

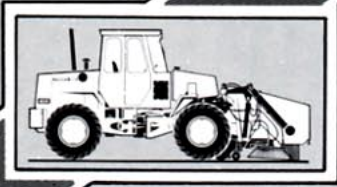
- Snap-on coupling for hydraulic connection
- Hose fracture valve
- Safety roof as per lift truck regulations
- Lift truck accessories

### Optional equipment

- Fork spread, side-shift
- Full free lift
- Optional lifting heights, 3000—5500 mm (9' 10"—18')

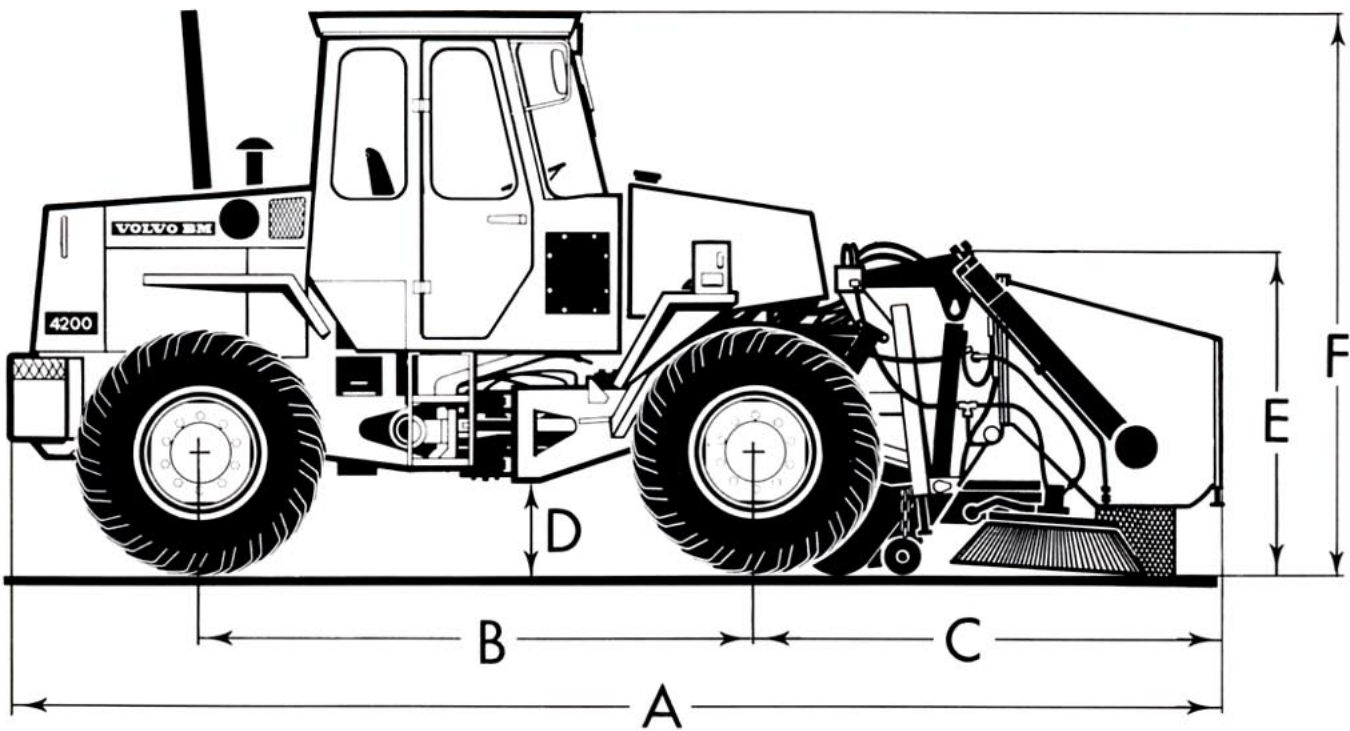






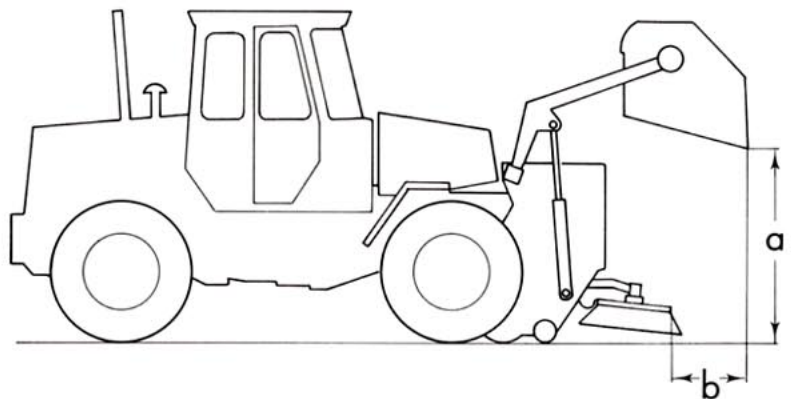
# SWEeper

Efficient road sweeper with a high capacity. Easy and accurate operation with a sweeping width of 2.2 metres (7' 2'').



### TECHNICAL DATA

Hopper, capacity	1000 litres (220 Imp.gal)
Working width	2200 mm (7' 2'')
Water tank, capacity	450 litres (99 Imp.gal)
High-pressure watering with atomized spray mist	10 bar
<b>Brushes</b>	
Quantity	2
Diameter	1000 mm (3' 3'')
Brush material	Steel
Speed	max. 150 rpm
<b>Elevator</b>	
Number of brushes	24
Brush material	Polypropylene
Speed	max. 200 rpm
Machine weight	5700 kg (12 563 lb)



### Standard equipment

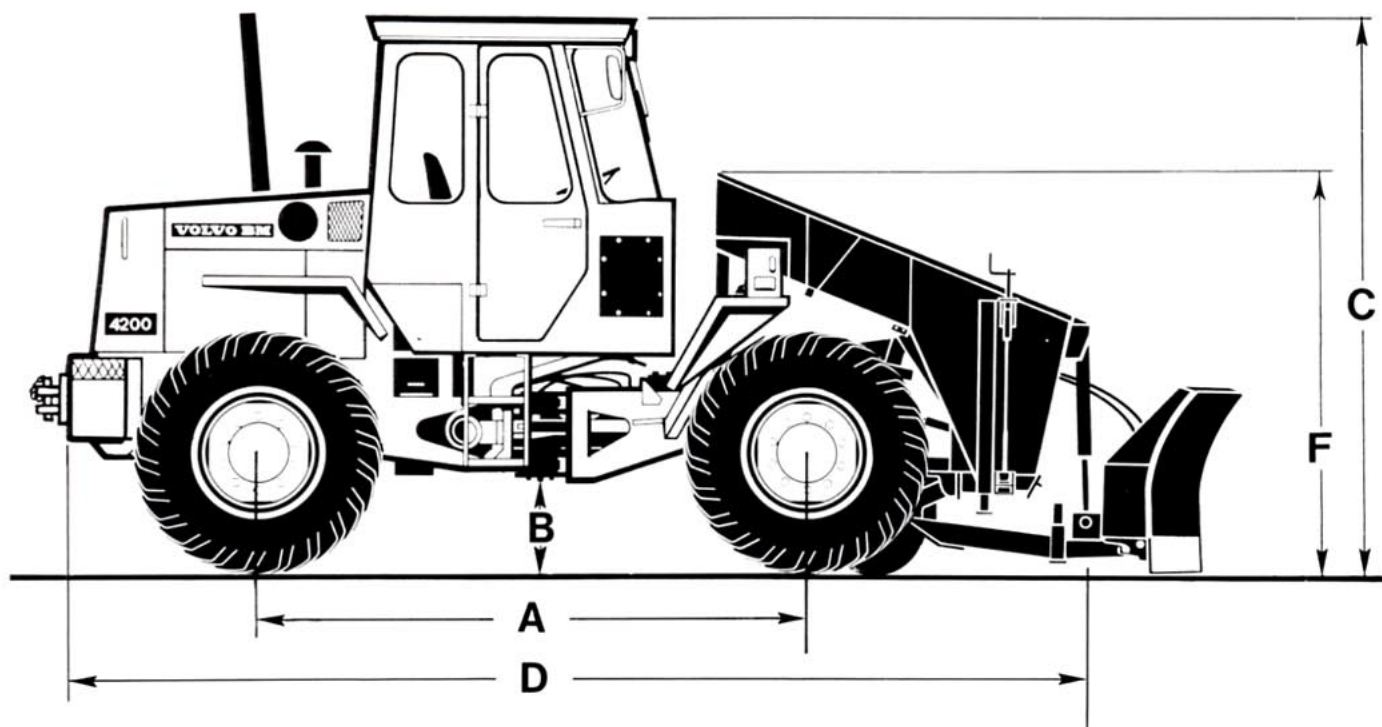
- Snap-on couplings for hydraulic connections
- Hydraulic motors for elevator, brushes and water pump
- Lifting cylinders for height adjustment
- Lifting cylinders and hydraulic motor for discharging the hopper
- Automatic water pump switch-off when tank empty





# SAND SPREADER

The sand spreader has a working width of 2 metres (6' 6"). Automatic discharge control ensures uniform spreading. Blade also available.



## TECHNICAL DATA

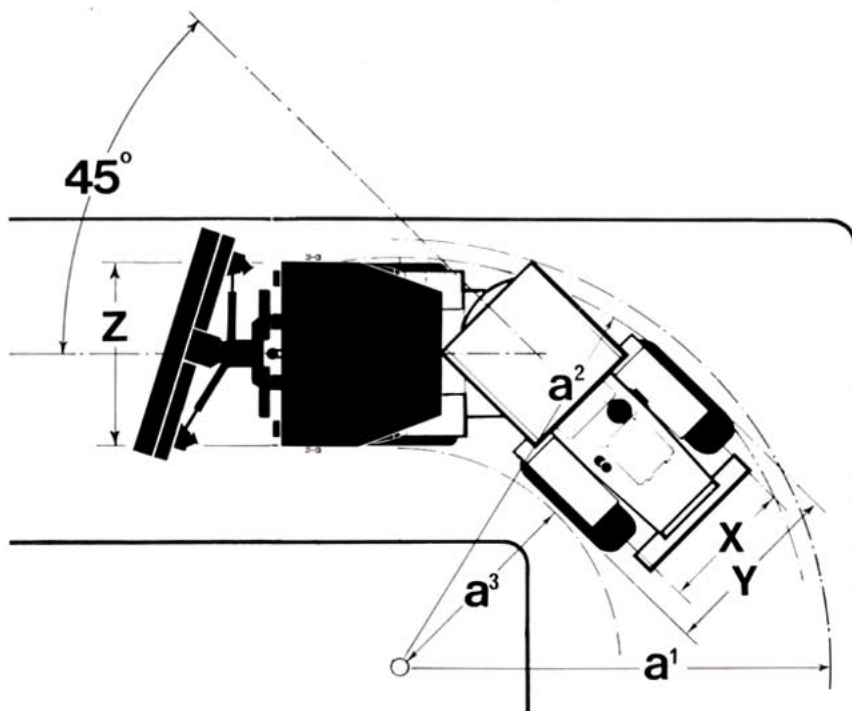
Spreading width	2000 mm (6' 6")
Overall width without blade	2120 mm (7')
Capacity	1.23 m <sup>3</sup> (1.6 cuyd)
Weight without blade	5120 kg (11 284 lb)
A	2725 mm (9')
B	380 mm (1' 3")
C	2750 mm (9')
D	6505 mm (21' 4")
E	1200 mm (3' 11")
Clearance circle a <sub>1</sub>	4310 mm (14' 2")
Turning radius a <sub>2</sub>	4260 mm (14')
Inner radius a <sub>3</sub>	2280 mm (7' 6")
X	1600 mm (5' 3")
Y	1980 mm (6' 6")
Z	2120 mm (6' 11")

## Standard equipment

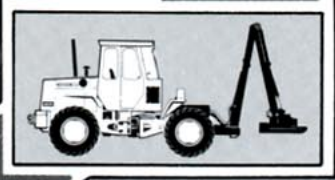
- Snap-on coupling for hydraulic connection
- Lubricating hoses for central lubrication

## Optional equipment

Dozer blade	2.4 m (94 1/2")
Dozer blade	3.2 m (126")
Rotary sweeper	2.2 m (86 1/2")
Rotary sweeper	2.5 m (98")

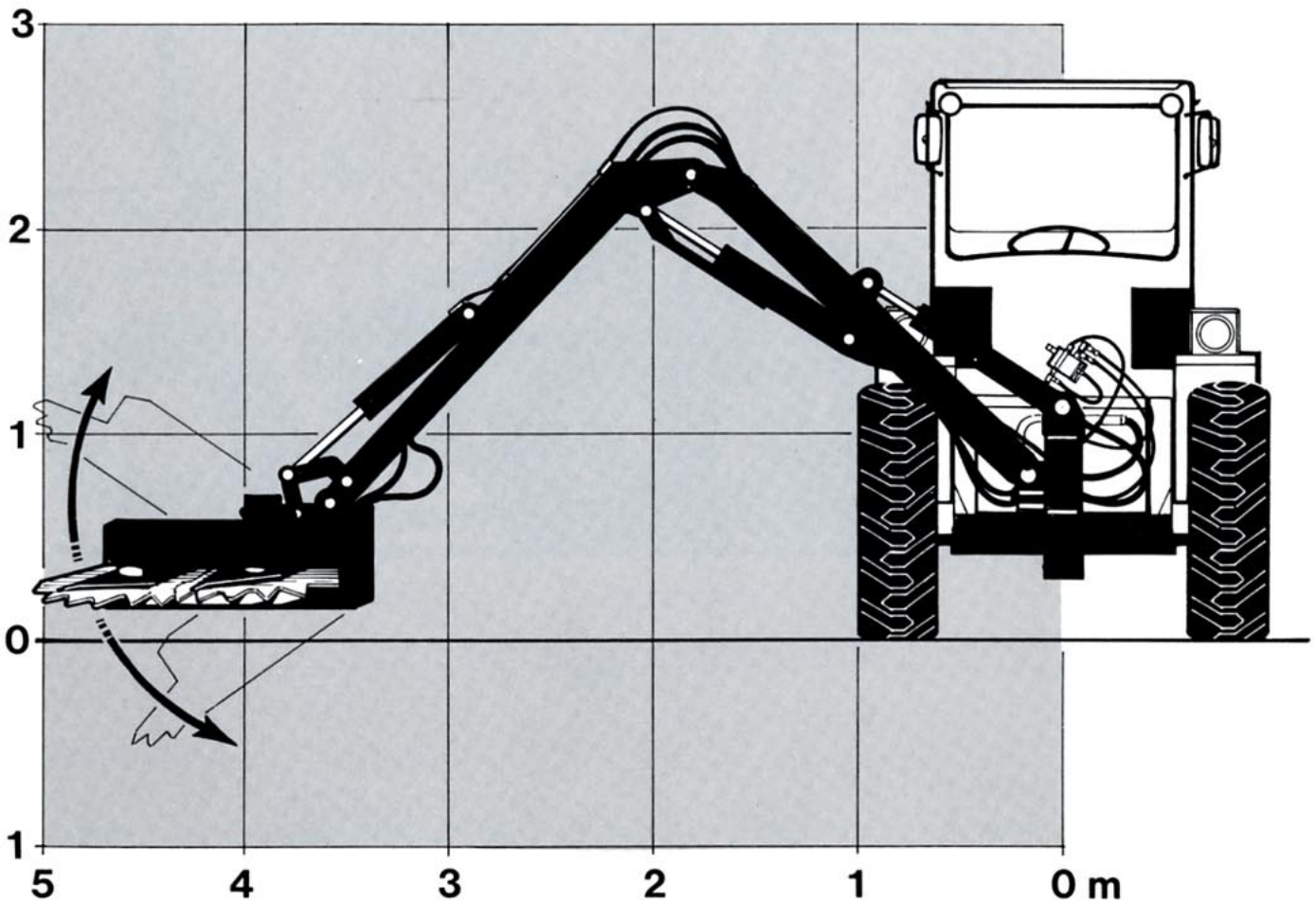






# BRUSH SAW

Robust cutting unit designed for grass and bushes or trees up to a diameter of 8 cm (3"). Easy-to-use hydraulics.



### TECHNICAL DATA

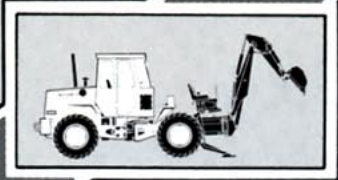
Machine weight	5280 kg (11 637 lb)
Reach	4100 mm (13' 5")
Working width	1400 mm (4' 7")
Machine width	1980 mm (6' 6")
Power requirement	max. 15 kW (20 hp)
Hydraulic flowrate	approx. 60 l/min (13 Imp.gal)
Cutting speed	5–20 km/h (3–12.5 mph)
Ideal speed	8–10 km/h (5–6.2 mph)

The unit cuts everything from grass to trees up to a diameter of 80 mm (3").

### Standard equipment

- Snap-on coupling for hydraulic connection
- Blades driven by hydraulic motor
- Two-vane blade with fan effect
- Automatic collision protection
- Operation by 2-lever electric manipulator





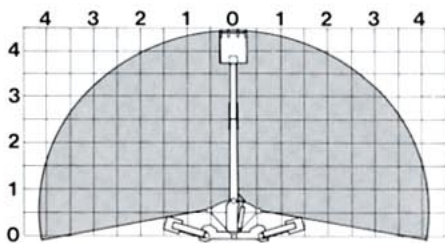
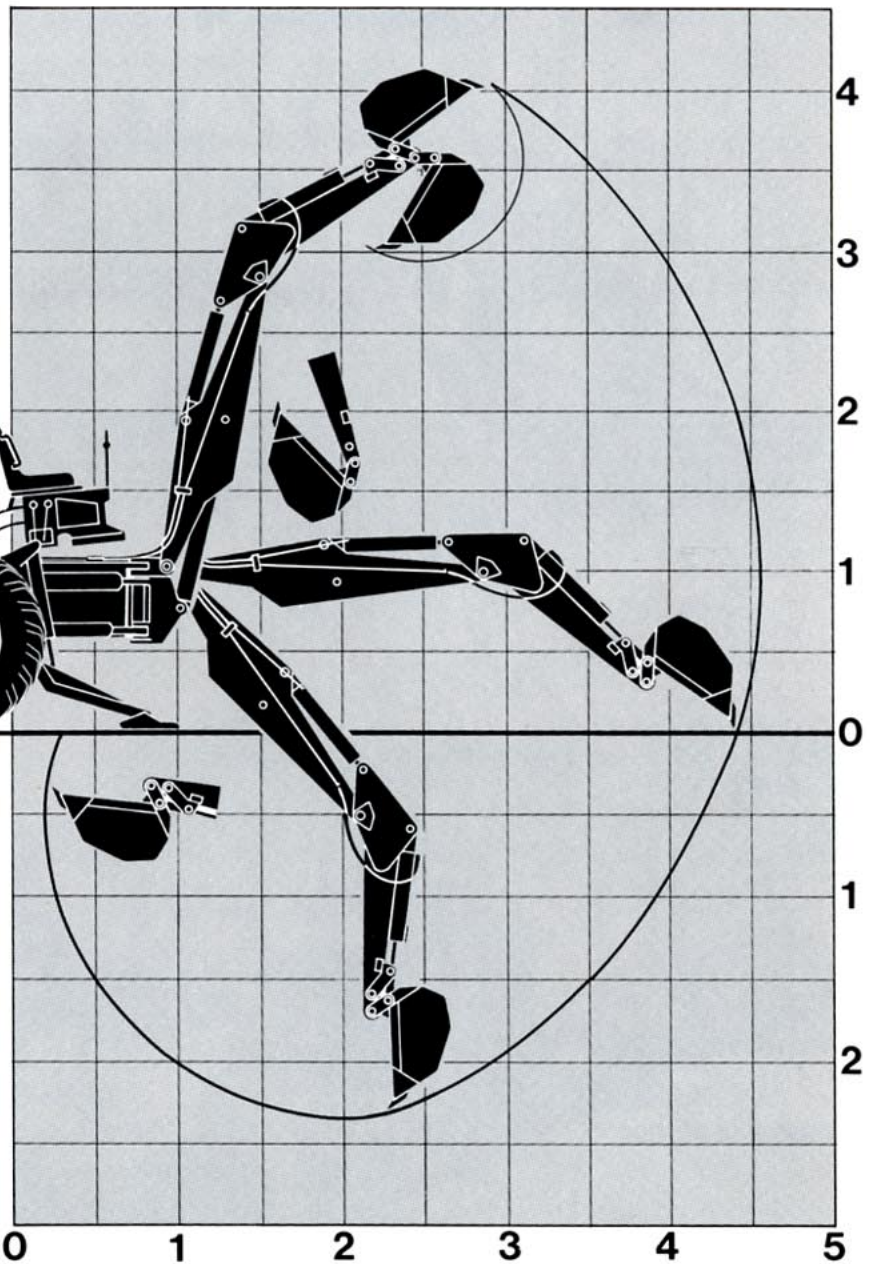
# EXCAVATOR

Small and handy excavator for digging service trenches, etc. Lateral angulation for working along the walls of buildings, etc.



## ATTACHMENTS

	Width	Capacity	
	mm	m <sup>3</sup>	cu.yd.
Bucket	280 (11")	0.05	(.065)
Bucket	450 (1'6")	0.07	(.09)
Bucket	600		
	(1' 11")	0.1	(.13)
Ditch bucket	1200		
	(3' 11")	—	
Grab bucket	—	0.1	(.13)



## TECHNICAL DATA

Manufacturer	Shaeff HT6
Machine weight	5200 kg (11 460 lb)
Excavation depth	2350 mm (7' 8")
Max. reach	4550 mm (14' 11")
Discharge height	2950 mm (9' 8")
Break-out force	5600 kgf
Slew angle	200°
Bucket tilt	177°
Lateral angulation of unit	550 mm (1' 9") right/left
Width	1410 mm (4' 7")
Working pressure	160 bar
Hydraulic flowrate	30—35 l/min (6.6—7.6 imp.gal/min)

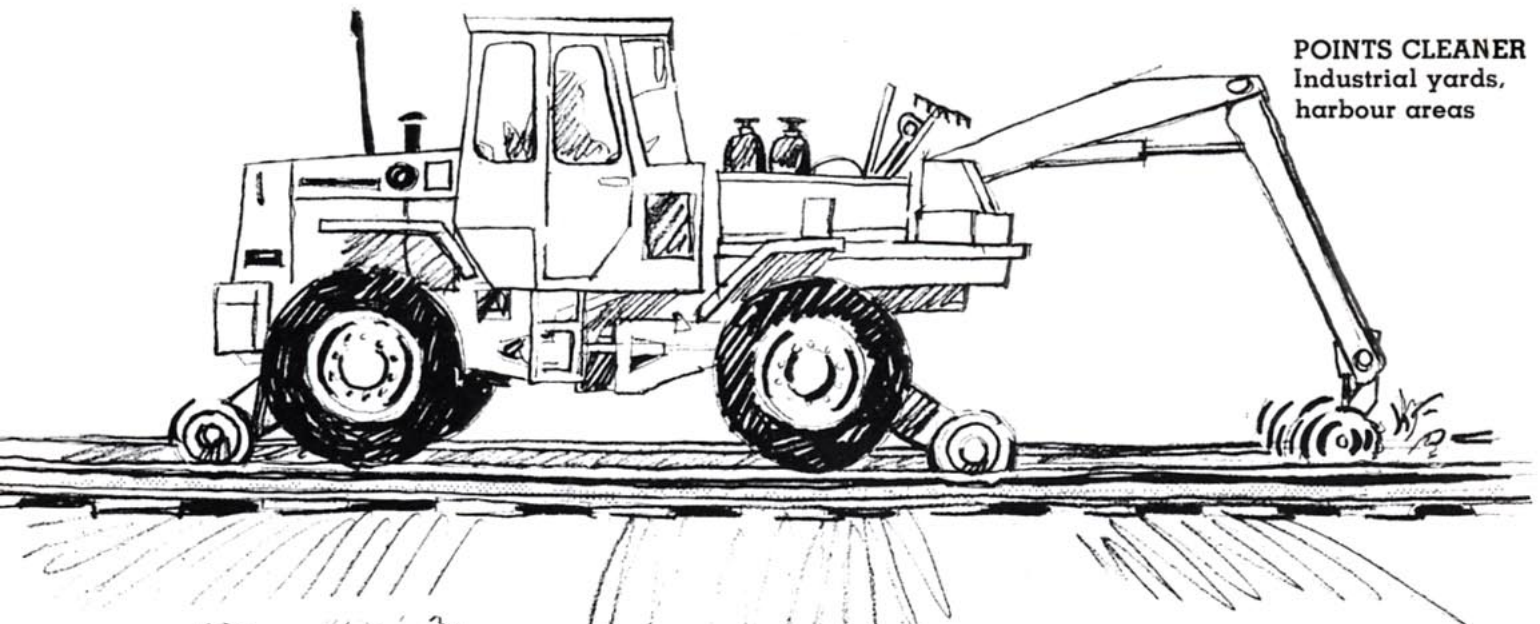
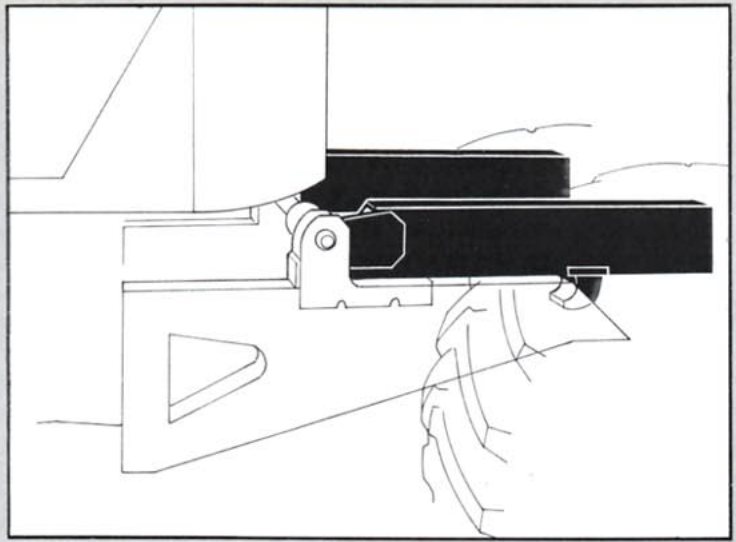
## Standard equipment

- Snap-on coupling for hydraulic connection
- Lateral angulation of the unit
- Hydraulically operated supporting legs
- Supporting legs adjustable in 3 fixed positions



# BUILD YOUR OWN UNIT

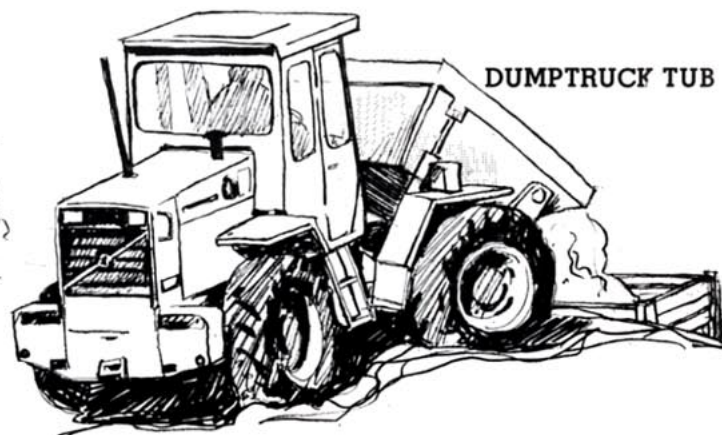
The Volvo BM 4200 concept can be fitted with an add-on frame. You can then put together your own machine configurations for various special jobs. On the following pages we show you some realistic possibilities.



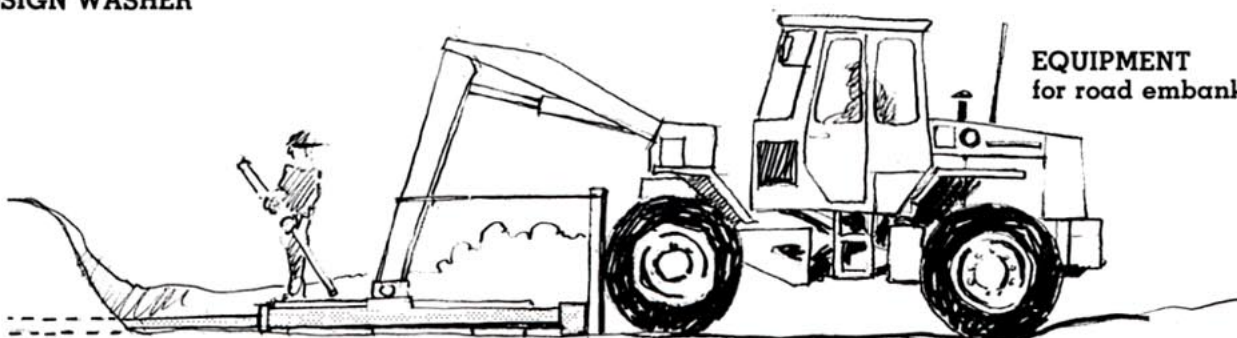
**POINTS CLEANER**  
Industrial yards,  
harbour areas



**ROADSIGN WASHER**



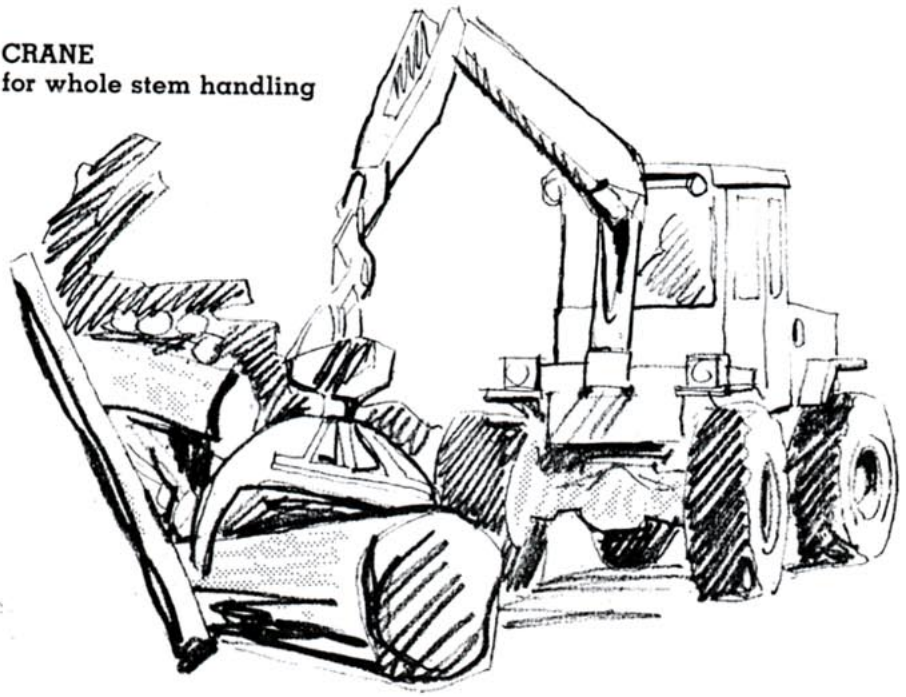
**DUMPTRUCK TUB**



**EQUIPMENT**  
for road embankments



**CRANE**  
for whole stem handling

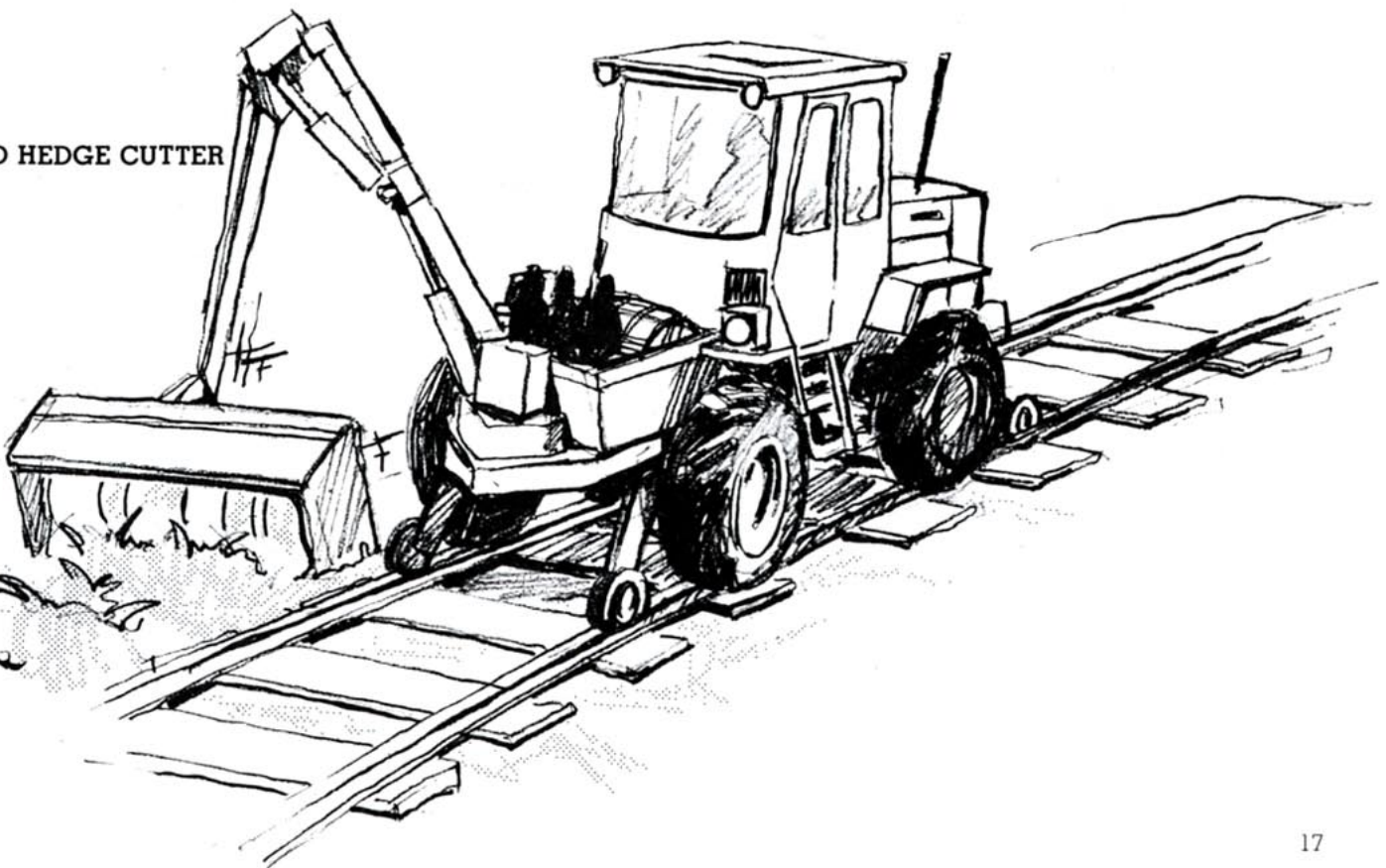


**CONCRETE SPRAYER**  
for tunnels, etc.

**TYRE HANDLER**

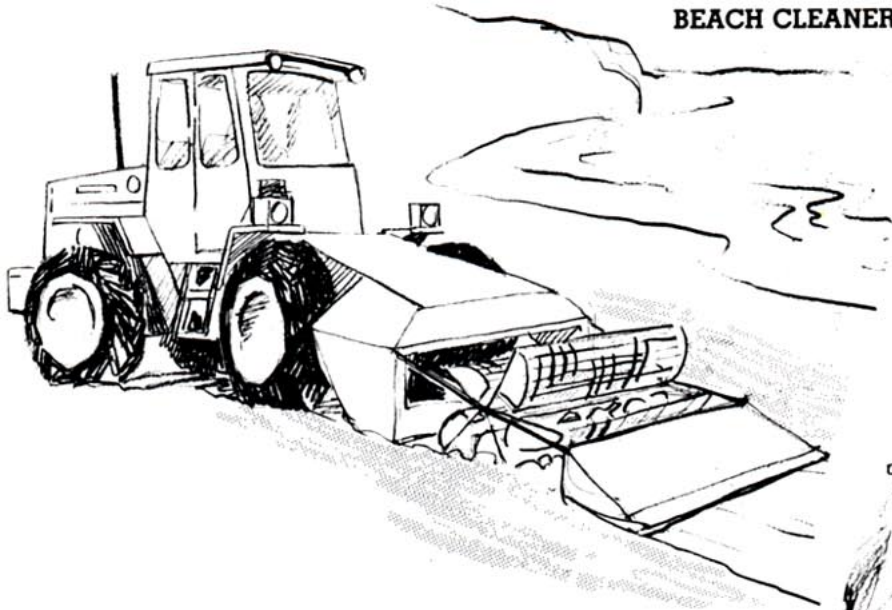


**GRASS AND HEDGE CUTTER**





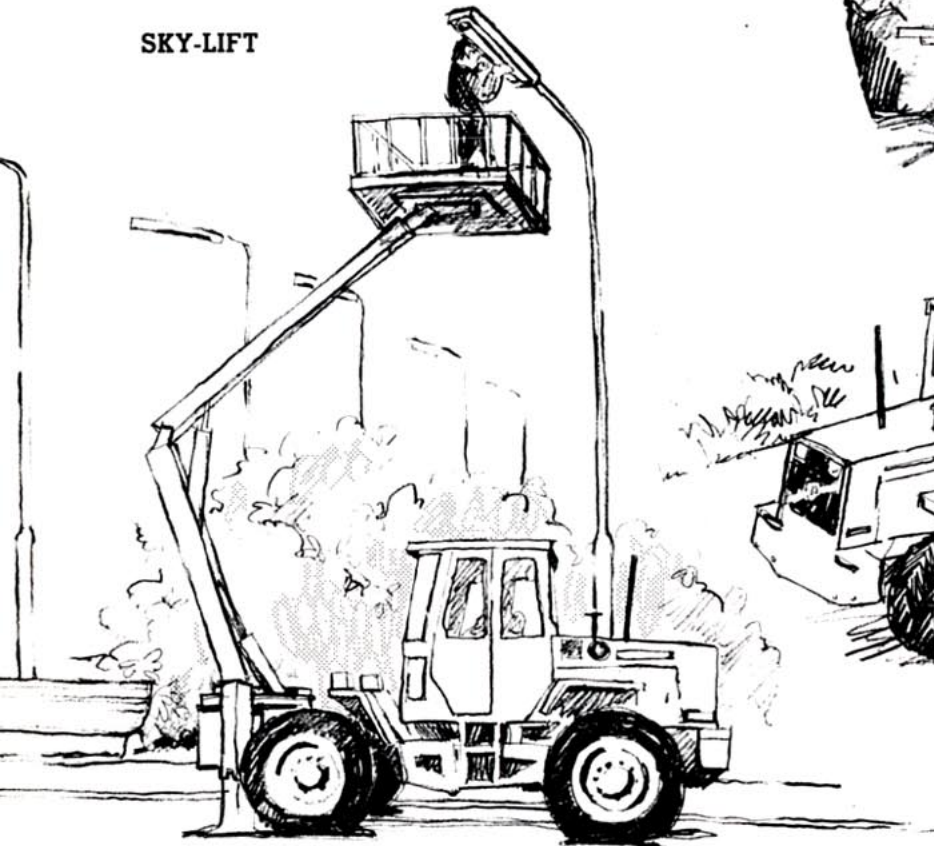
BEACH CLEANER



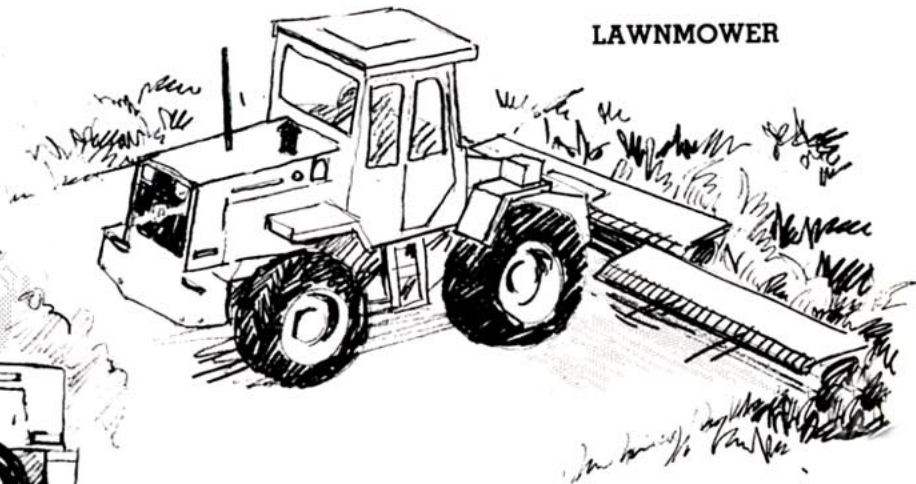
"LAZY TONGS" LIFT



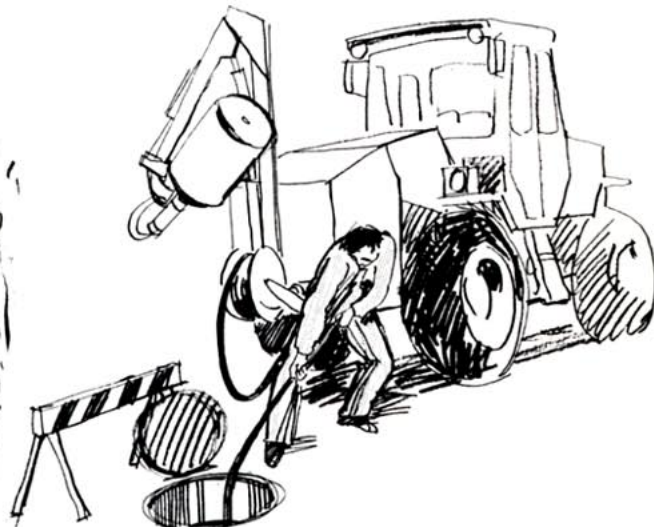
SKY-LIFT



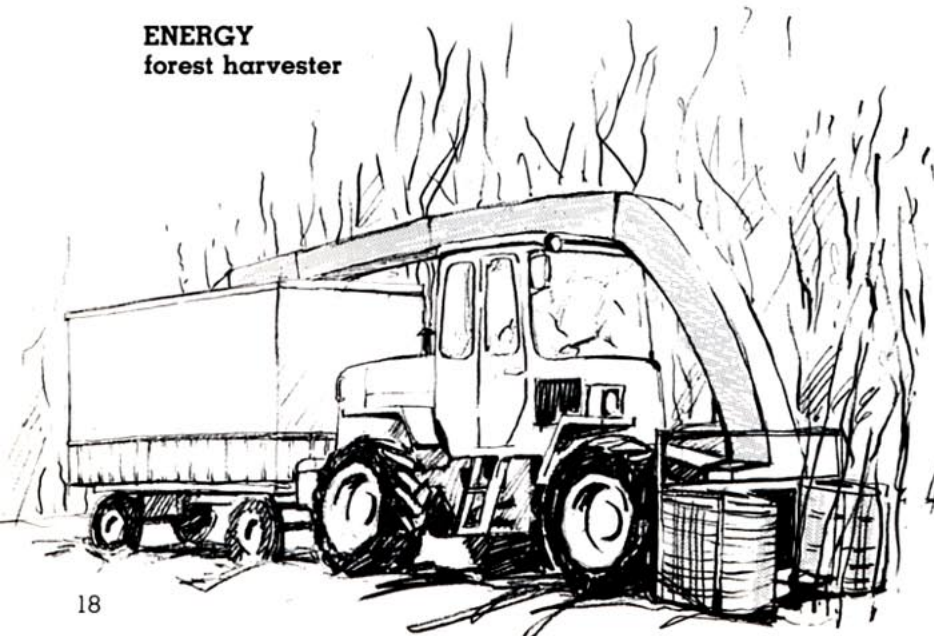
LAWNMOWER



CLEANING  
sewage lines



ENERGY  
forest harvester

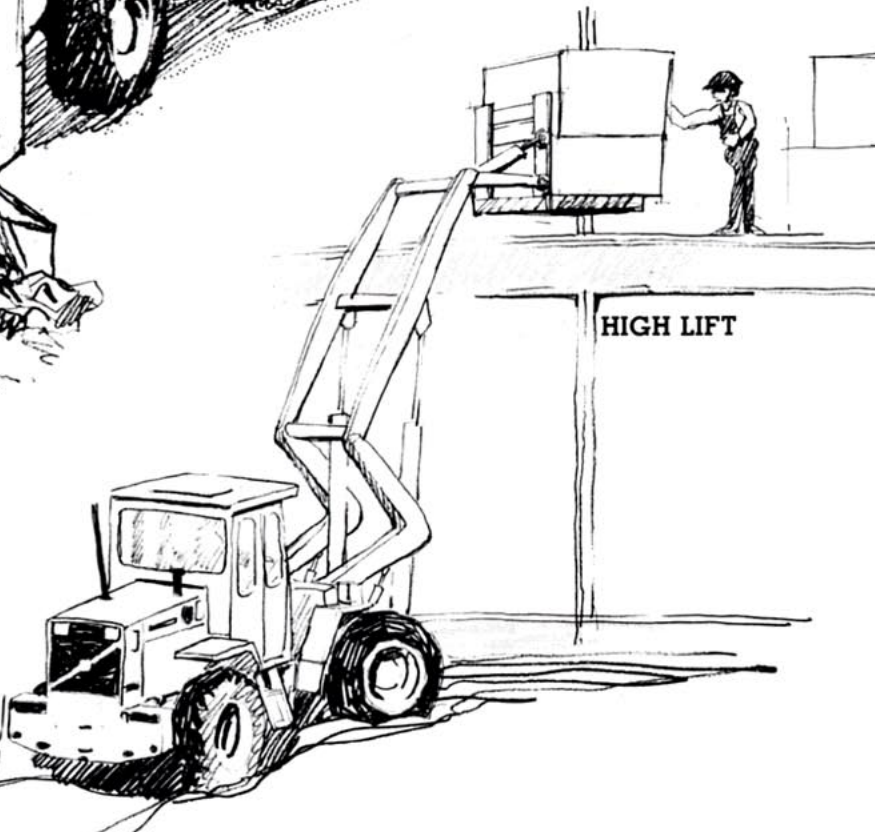




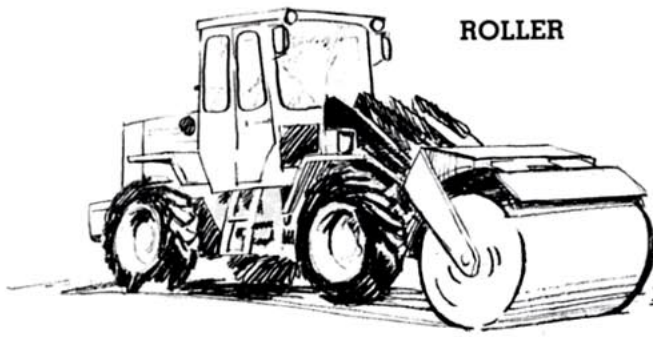
**COAL LOADER**



**HIGH LIFT**



**ROLLER**



**SPLITTING BOULDERS with water**



**UNDERDRAINING or CABLE LAYING**



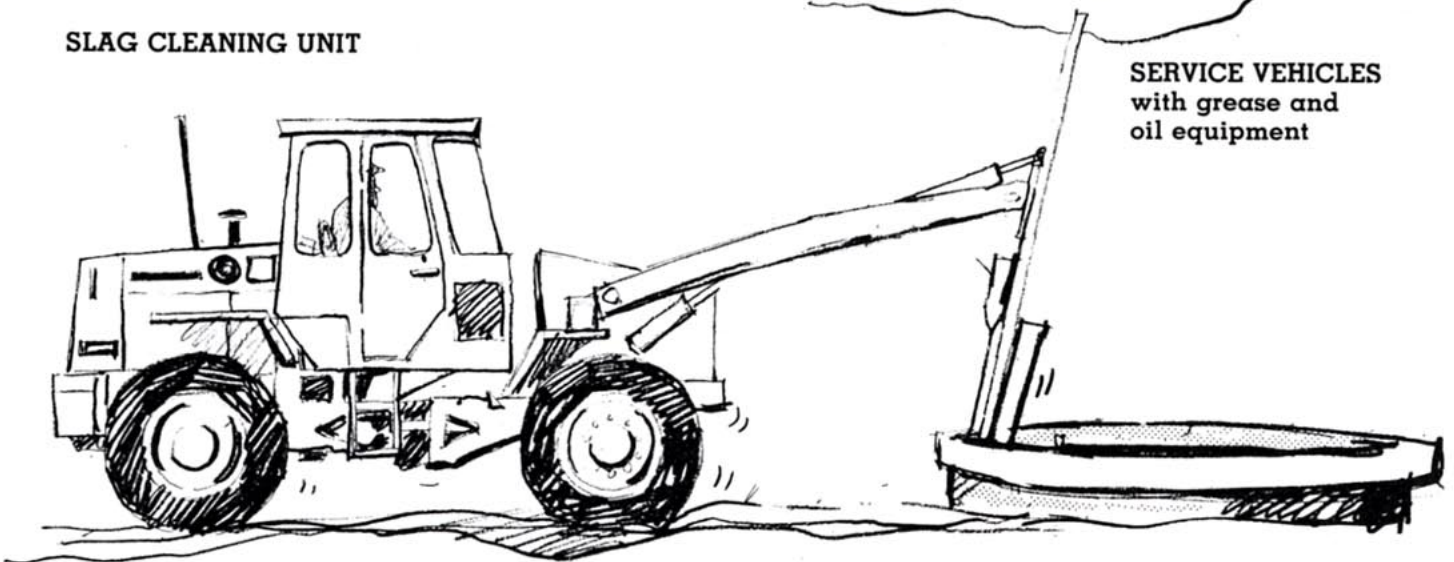




LEAF COLLECTOR



SLAG CLEANING UNIT



SERVICE VEHICLES  
with grease and  
oil equipment

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# **VOLVO BM**

VOLVO BM AB ESKILSTUNA SWEDEN

Ref. No. 21 1 669 1528  
**ENGELSKA**

Production group for basic printed matter Volvo BM

10. 08.80 Printed in Sweden Kurir-tryck Katrineholm 57325