

VOLVO BM 622/642



Specification Volvo BM loader 622/642

ECONOMY

The Volvo BM 622 and 642 are reliable machines, composed of time-tested and durable components. They provide a high yield from each operating hour with a minimum of service and low fuel consumption.

CAPACITY

The machines are quick and efficient, thanks to a powerful engine and a loader unit with high lifting height and long reach. Nimble and manoeuvrable, they are easy to operate.

ALLROUND

A wide range of attachments together with a hydraulically operated attachment bracket permit rapid changes between different work duties.





ENGINE

Volvo BM D42

| | |
|------------------|--|
| Flywheel rating | 52 kW at 38.4 rps DIN 70020 (70.5 hp at 2300 rpm DIN 70020) |
| Gross rating | 59 kW at 28.4 rps SAE J 270 (80 hp at 2300 rpm SAE J 270) |
| Max. torque | 250 Nm at 23.4 rps DIN 70020 (185 lbf ft at 1400 rpm DIN 70020) 270 Nm at 23.4 rps SAE J 270 (198 lbf ft at 1400 rpm SAE J 270) |
| Bore | 105.57 mm (4.156 in) |
| Stroke | 120 mm (4.724 in) |
| No. of cylinders | 4 |
| Displacement | 4.2 litres (256 in ³) |

The D42 engine is a direct-injected diesel engine with overhead valves and wet replaceable cylinder linings plus a balancing device for vibrationless operation.

The intake air is cleaned in three stages:

1. Cyclone precleaner with automatic dust ejection through the exhaust
2. Large replaceable paper filter with cab-mounted indicator
3. Replaceable catch-all filter



ELECTRICAL SYSTEM

| | |
|---------------|-----------------|
| Voltage | 24 V |
| Alternator | 25 A (700 W) |
| Batteries | 2 x 12 V, 96 Ah |
| Starter motor | 3 kW (4 hp) |



TORQUE CONVERTER

Volvo BM single-stage, single-phase torque converter.
Torque conversion ratio 3.3:1



TRANSMISSION

Volvo BM gearbox with power shift. The transmission has four gears forward and four reverse.

| Speeds: | 1 | 2 | 3 | 4 |
|---------|-------|-------|--------|--------|
| km/h | 0-7 | 0-12 | 0-19 | 0-30 |
| mph | 0-4.4 | 0-7.5 | 0-11.8 | 0-18.6 |



AXLES

| | |
|-------------------|--|
| Front axle | Volvo BM with final drives located in a central final drive housing. |
| Rear axle | Volvo BM drive axle with spherically encapsulated steering joints and hub reductions. The drive shafts are fully floating. |
| Differential lock | Volvo BM, 100 % lock-up (dog clutch). |



BRAKES

Driving brakes

Hydraulic, encapsulated disc brakes, located before the final drives.

Steering brake actuated by brake pedal via an automatic reciprocal selector valve.

Parking brake, mechanically operated.



TYRES

Alternatives

| | | | | |
|-------|------------|------|------------|---------|
| Front | 16.9-30/14 | Rear | 12.5-20/10 | 622 |
| | 16.9-30/14 | | 12.4-24/12 | 642 |
| | 23.1-26/12 | | 11.25-24/8 | 622/642 |
| | 18.4-30/12 | | 12.5-20/10 | 622 |



STEERING SYSTEM

| | |
|----------------------|--|
| Pump, type | Gear pump |
| Capacity | 32 l/min (8.5 US gal/min, 7.0 Imp gal/min) at 5 MPa and 2300 rpm, 622 32 l/min (8.5 US gal/min, 7.0 Imp gal/min) at 9 MPa and 2300 rpm, 642 |
| Working pressure | 5 MPa (725 psi), 622 9 MPa (1305 psi), 642 |
| Rear wheel steering. | Hydraulic with two double-acting hydraulic cylinders. |



HYDRAULIC SYSTEM

| | |
|------------------|--|
| Pump, type | Gear pump |
| Capacity | 145 l/min (38.3 US gal/min, 31.9 Imp gal/min) at 11.5 MPa (1668 psi) and 2300 rpm 11.5 MPa (1668 psi) |
| Working pressure | 11.5 MPa (1668 psi) |

Hydraulic cylinders:

| | |
|------------------------------|------------------------------|
| Lift cylinders - bore/stroke | 110 x 895 mm (4.3 x 35.2 in) |
| Tilt cylinders - bore/stroke | 110 x 335 mm (4.3 x 13.2 in) |
| Lifting time | 5.4 s |
| Lowering time | 3.3 s |
| Forward/backward tilt | 1.8/2.3 s |

Control valve:

Valve with three slides and built-in relief valve.

| | |
|-----------|--|
| Functions | 1. Tilt 2. Lift - float with hold 3. Attachment or external hydraulics |
|-----------|--|



SERVICE REFILL CAPACITIES

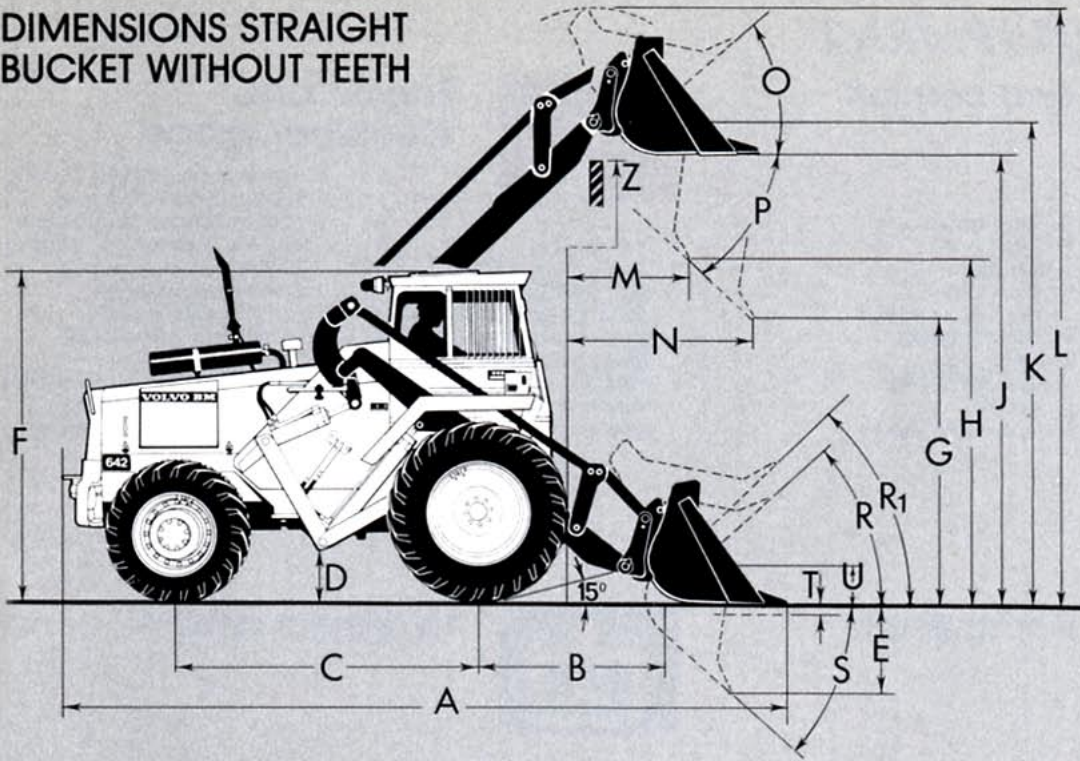
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| Cooling system | 16 | 4.2 | 3.5 |
| Engine | 10.5 | 2.8 | 2.3 |
| Transmission and torque converter | 22 | 5.8 | 4.8 |
| Transmission and torque converter at change | 16 | 4.2 | 3.5 |
| Final drive and differential housing | 50 | 13.2 | 11.0 |
| Hydraulic system | 90 | 23.8 | 19.8 |
| Hydraulic tank | 77 | 20.3 | 16.9 |
| Fuel tank | 115 | 30.3 | 25.3 |



CAB

The cab is mounted on rubber pads, insulated and weathertight and has a flat floor with a rubber mat. It has been examined and approved by the Swedish Board of Occupational Safety and Health, which includes impact testing in accordance with OECD requirements. It also fulfils SAE-ROPS requirements. The cab has three exits: door, roof hatch and rear window. Controls and pedals are located and designed for convenient and quick operation. Operator's seat with adjustable backrest and springs. Fresh-air cab heater.

DIMENSIONS STRAIGHT BUCKET WITHOUT TEETH



A See table
B 1450 mm (57.1 in)
C 2380 mm (93.7 in)
D 350 mm (13.8 in)
E 710 mm (30.0 in)
F 2640 mm (104 in)
G 2000 mm (78.7 in)

H See table
J 3600 mm (142 in)
K 3850 mm (152 in)
L See table
M See table
N See table

O 41°
P 45°
R 42°
R₁ 44° (carry pos.)
S 42°

T 100 mm (3.9 in)
U 450 mm (17.7 in)
Z 3530 mm (139 in)

The specifications pertain to a standard machine equipped with a 1.0 m³ (1.3 yd³) straight bucket without teeth and tyres 16.9-30/14 front and 12.5-20/10 rear for the 622 and 12.4-24/12 for the 642. Where applicable, the specifications conform to SAE standards J 732 c and J 742 b.

DIMENSIONS TURNED MACHINE

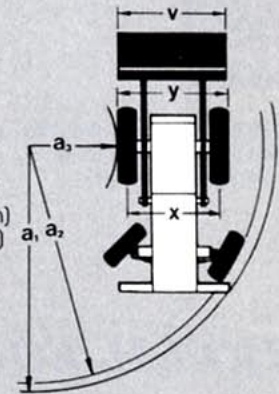
622

v = See table
x = Front 1820 mm (71.7 in)
Rear 1804 mm (71.0 in)
y = 2250 mm (88.6 in)
Swept radius, a₁ = See table
Turning radius, a₂* = 5250 mm (206.5 in)
Inner radius, a₃ = 2500 mm (98.4 in)

642

v = See table
x = Front 1820 mm (71.7 in)
Rear 1850 mm (72.8 in)
y = 2250 mm (88.6 in)
Swept radius, a₁ = See table
Turning radius, a₂* = 5600 mm (220 in)
Inner radius, a₃ = 2800 mm (110 in)

* With aid of steering brakes about 3.3 m (130 in).

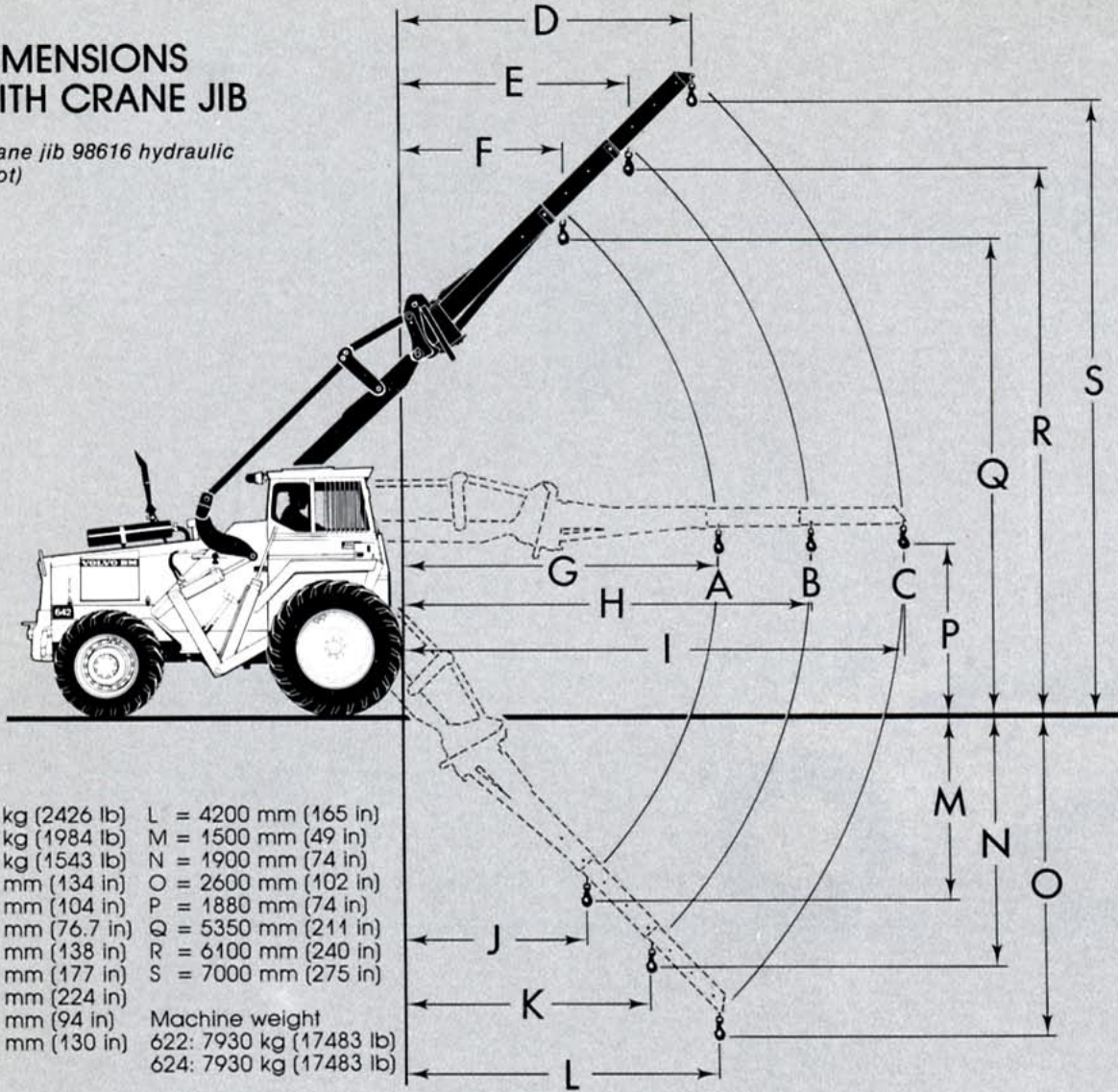


MACHINE CAPACITY

| Attachment | | Straight lip without teeth | Straight lip with teeth | Grading bucket | Light materials bucket | |
|---|---------|---|---|---|---|----------------|
| Capacity | | 1.0 m ³ (1.3 yd ³) | 1.0 m ³ (1.3 yd ³) | 1.4 m ³ (1.8 yd ³) | 2.1 m ³ (2.7 yd ³) | |
| Max. dump height under 45° forward-tilted bucket (H) | mm (in) | 2900 (114) | 2800(110) | 2530 (99.6) | 2600 (102) | |
| Reach at max. dump height under 45° forward-tilted bucket (M) | mm (in) | 750 (30) | 950 (37) | 1140 (44.9) | 1050 (41.3) | |
| Reach at 2 m dump height under 45° forward-tilted bucket (N) | mm (in) | 1400 (55) | 1400 (55) | 1550 (61.0) | 150 (5.9) | |
| Overall length (A) | mm (in) | 5550 (219) | 5680 (224) | 6050 (238) | 5950 (234) | |
| Max. height (L) | mm (in) | 4700 (185) | 4700 (185) | 4700 (185) | 5000 (197) | |
| Swept radius (a ₁) 622/642 | mm (in) | 5300/5700 (209/224) | 5300/5700 (209/224) | 5300/5700 (209/224) | 5300/5700 (209/224) | |
| Width over attachment (V) | mm | 2350 (92.5) | 2350 (92.5) | 2350 (92.5) | 2350 (92.5) | |
| Breakout force | kg (lb) | 4200 (9259) | 4200 (9259) | 2600 (5732) | 2800 (6173) | |
| Tipping load, straight | kg (lb) | 3300 (7275) | 3250 (7165) | 2950 (6503.5) | 3100 (6834) | |
| Working load | kg (lb) | 1650 (3637.5) | 1625(3582) | 1475 (3252) | 1550 (3417) | |
| Machine weight 622/642 | kg (lb) | 8000 (13227) | 8050 (17747) | 8100 (17852) | 8100 (17852) | |
| Weight distribution with bucket in carrying position | Front | kg (lb) | 4500 (9921) | 4575 (10086) | 4700 (10362) | 4670 (10295.5) |
| | Rear | kg (lb) | 3500 (7716) | 3475 (7661) | 3400 (7496) | 3430 (7562) |

DIMENSIONS WITH CRANE JIB

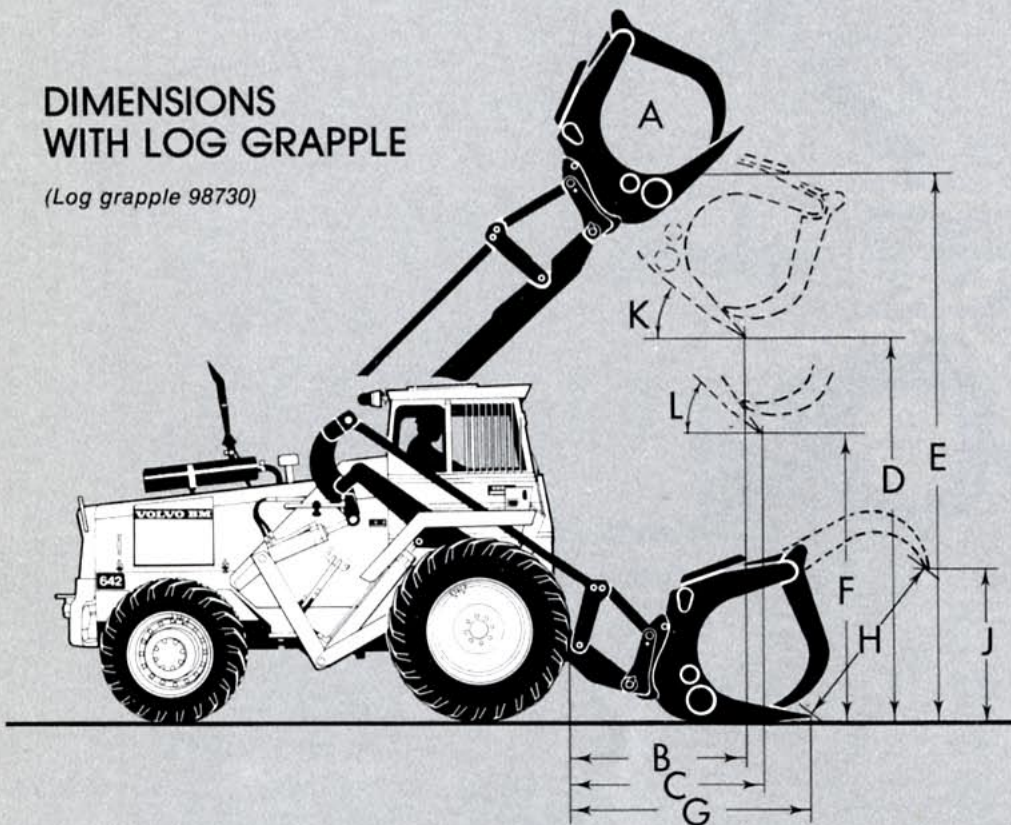
(Crane jib 98616 hydraulic pivot)



| | |
|-----------------------|-------------------------|
| A = 1100 kg (2426 lb) | L = 4200 mm (165 in) |
| B = 900 kg (1984 lb) | M = 1500 mm (49 in) |
| C = 700 kg (1543 lb) | N = 1900 mm (74 in) |
| D = 3400 mm (134 in) | O = 2600 mm (102 in) |
| E = 2650 mm (104 in) | P = 1880 mm (74 in) |
| F = 1950 mm (76.7 in) | Q = 5350 mm (211 in) |
| G = 3500 mm (138 in) | R = 6100 mm (240 in) |
| H = 4500 mm (177 in) | S = 7000 mm (275 in) |
| I = 5700 mm (224 in) | |
| J = 2400 mm (94 in) | Machine weight |
| K = 3300 mm (130 in) | 622: 7930 kg (17483 lb) |
| | 642: 7930 kg (17483 lb) |

DIMENSIONS WITH LOG GRAPPLE

(Log grapple 98730)

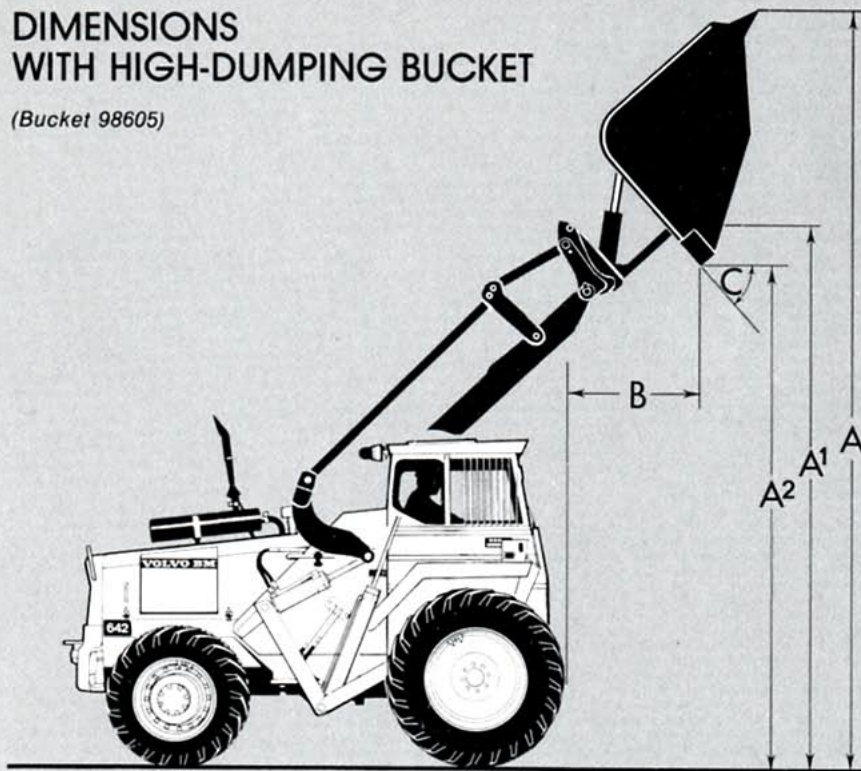


| |
|---|
| A = 0.9 m ² (9.7 ft ²) |
| B = 835 mm (32.9 in) |
| C = 1400 mm (55 in) |
| D = 2650 mm (104 in) |
| E = 4155 mm (163.5 in) |
| F = 1880 mm (74.0 in) |
| G = 1850 mm (72.8 in) |
| H = 1610 mm (63.4 in) |
| J = 1450 mm (57.1 in) |
| K = 69° |
| L = 68° |

Working load 1700 kg (3748 lb)
 Machine weight
 622: 8060 kg (17770 lb)
 642: 8060 kg (17770 lb)

DIMENSIONS WITH HIGH-DUMPING BUCKET

(Bucket 98605)



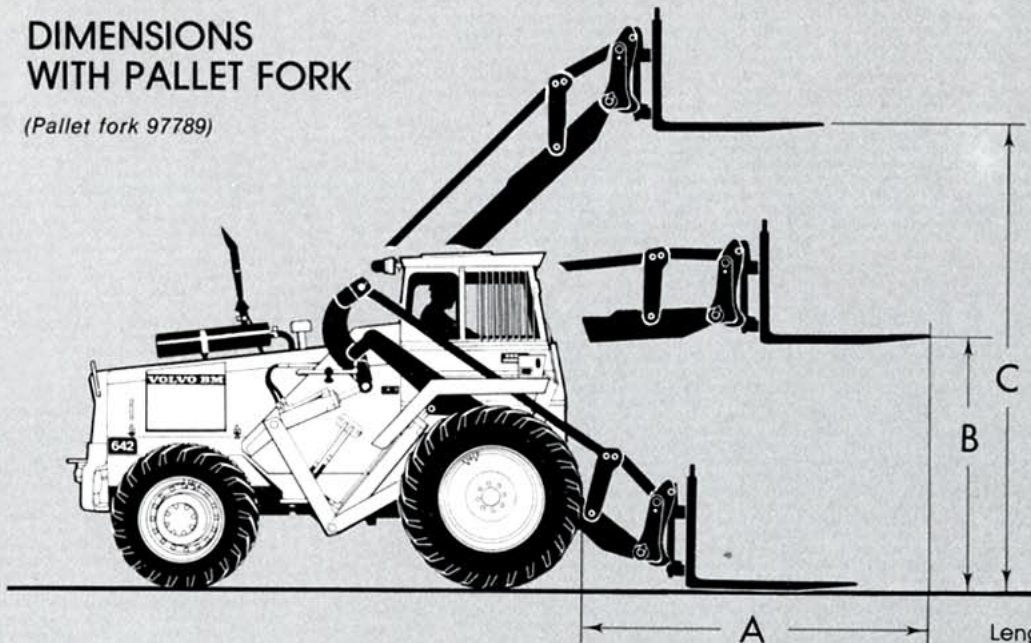
Bucket volume 2.8 m³ (3.7 yd³)
 Tipping load 3160 mm (6967 lb)
 Working load 1580 mm (3483 lb)

A = 5470 mm (215 in)
 A₁ = 4290 mm (169 in)
 A₂ = 3940 mm (155 in)
 B = 1460 mm (57.5 in)
 C = 43°

Machine weight,
 622: 8285 kg (18265 lb)
 642: 8285 kg (18265 lb)

DIMENSIONS WITH PALLET FORK

(Pallet fork 97789)



Length, pallet
 fork 97789 1225 mm (48.2 in)
 Width, fork
 carriage 97792 1500 mm (59.1 in)

A = 2675 mm (105 in)
 B = 1700 mm (66.9 in)
 C = 3400 mm (134 in)

Working load 2200 kg (4850 lb)
 Machine weight,
 622: 7900 kg (17420 lb)
 642: 7900 kg (17420 lb)

STANDARD EQUIPMENT



Safety and comfort

- Rear-view mirrors, internal, 2
- Attachments for seat belt
- Utility basket in cab
- Safety cab as per ROPS and ASS
- Cab heater with fresh air intake and defroster
- Instrument panel with symbol markings
- Turn signals
- Horn
- Sun visor
- Lever lock (door-dependent)
- Steering brake
- Safety start
- Hazard flashers
- Tool kit
- Windshield wipers



Engine and electrical system

- Fuel gauge
- Lights: Driving lights, asymmetrical bright/dim/parking lights, rear working lights, brake lights, position lights, cab lighting
- Indicator for air cleaner filter
- Master switch, electrical system
- Pilot lamps for: Rear working lights, battery charging, driving brakes, bright lights, engine oil pressure, parking brake, hydraulic transmission oil pressure
- Temperature gauge, hydraulic transmission
- Hour counter
- Temperature gauge, engine
- Air cleaner with ejector
- Alternator, encapsulated



Power transmission

Power shift transmission, counter shift type
Differential lock on front axle
Transmission cut-out valve

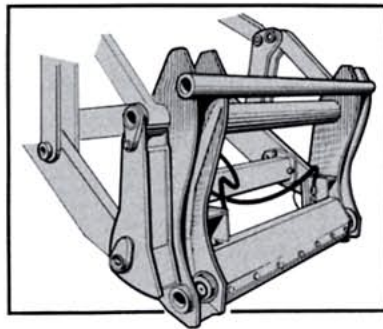


Hydraulic system

3rd hydraulic function
Attachment bracket with hydraulic lock

OPTIONAL EQUIPMENT

- Front working lights
- Extra fuel filter
- Underbody protection plates
- Tow hitch
- Single-acting hydraulic function
- 6-blade fan
- Spark-arresting muffler
- Hydraulic take-off for trailer tip
- Cab ventilator
- Seat belt
- Control lever, tubing and valve for 4th hydraulic function
- Control lever (common with 3rd hydraulic function) and tubing and valve for 4th hydraulic function
- Lifting eyes
- Engine block heater, LP gas
- Engine block heater, electrical
- Protective grilles for front headlights
- Protective roof for cab ventilator
- Trailer outlet, electrical
- Fenders, front and rear
- Compressed air equipment (compressor + tank etc.)
- Warning beacon incl. collapsible bracket



Quick-change coupling

The Volvo BM 622/642 is equipped in the standard version with a hydraulic attachment bracket. This permits efficient utilization of the wide range of attachments available.

VOLVO BM

VOLVO BM AB ESKILSTUNA SWEDEN

Under our policy of continuous 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.

Ref.No. 21 1 669 1448
ENGELSKA

Production group for basic printed matter Volvo BM
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