VOLVO BM

L 90

Compactor

- ***Engine output:***
  SAE J1349 Net 107 kW (145 hp)
- ***Operating weight: 15,9 t (35 000 lb)***
- ***Buckets: 1,9-2,5 m^3 (2,5-3,25 yd^3)***

- *Direct-injected, turbocharged Volvo diesel*
- *Servo-assisted hydraulic system*

For levelling and compacting of waste - built for tough duty

- *Breaks up, moves and compacts the waste*
- *Digs, carries and spreads the cover material*
- *Trapezoidal or knife-shaped pads*
- *Large compactor wheels*

ENGINE

The Volvo TD 61 G is a 6-cylinder, direct-injection, 4-stroke, turbocharged diesel engine with wet, replaceable cylinder liners.

Air cleaning: air cleaning in three stages.
1. Cyclone cleaner with automatic exhaust ejector
2. Replaceable paper filter with indicator in cab.
3. Replaceable safety filter

Make		Volvo	
Model		TD 61 G	
Output, gross, at	r/s (r/min)	36,7	(2200)
SAE J1349	kW (hp)	115	(156)
Flywheel output at	r/s (r/min)	36,7	(2200)
SAE J1349	kW (hp)	107	(145)
DIN 70020/6271	kW (hp)	107	(145)
Max. torque at	r/s (r/min)	23,3	(1400)
SAE J1349 Gross	Nm (lbf ft)	570	(420)
SAE J1349 Net	Nm (lbf ft)	550	(405)
DIN 70020/6271	Nm (lbf ft)	550	(405)
No. of cylinders		6	
Displacement, total	l (in^3)	5,48	(334)
Bore	mm (in)	98,43	(3,875)
Stroke	mm (in)	120	(4,724)
Compression ratio		16:1	

ELECTRICAL SYSTEM

The electrical system is well protected with fuses. Prewired for extra equipment.

Central warning: *(Standard on certain markets) Central warning lamp for following functions: engine oil pressure, brake pressure, parking brake, engine temperature, transmission temperature .*

Voltage	V	24	
Batteries	V	2x12	
Battery capacity ea.	Ah	105	
Cranking capacity ea.	A	575	
Reserve capacity ea	min	170	
Alternator rating	W/A	1540 / 55	
Starter motor output	kW (hp)	5,4	(7,3)

STEERING SYSTEM

Load-sensing hydrostatic articulated steering.

Pump: variable flow axial piston pump fitted to a power take-off on transmission.

System supply: steering system supplied from separate steering pump.

Cylinders: two double-acting cylinders with chromed piston rods.

Steering cylinders		2	
Bore	mm (in)	80	(3.15)
Piston rod diameter	mm (in)	50	(1,96)
Stroke	mm (in)	410	(16,1)
Working pressure	MPa (psi)	16,5	(2393)
Flow volume	l/min	97	
	(US gal/min)		(25,6)
at	MPa (psi)	10	(1450)
and engine speed	r/s (r/min)	36,7	(2200)

DRIVE TRAIN

Torque converter: single-stage, single-phase.

Transmission: Volvo BM power shift transmission of countershaft type with directional clutch modulation. Single lever control.

* Compaction will normally be done operating in 1:st or 2:nd gear at average speeds 7-8 km/h (4 to 5 mile/h). Machine travel speeds are theoretical and based on a rolling resistance of 4%. Travel speeds will vary depending on ground conditions and type of compactor wheels.

Axles: fully floating half-shafts with planetary type hub reduction gears. One-piece axle housing of ductile iron. Rigid front axle and oscillating rear axle.

Differential: 100% differential lock on front axle. Engagement and disengagement by means of switch on cab floor. Gearing is conventional, hypoid gears.

Hub reduction: Volvo BM manufacture with low-friction roller bearings on each planetary gear. The hub reduction gears can be removed without having to remove wheels and brakes.

Torque multiplication		2,7 : 1	
Transmission, make		Volvo BM	
Model		HT 131	
Running speeds*			
forward/reverse			
1	km/h(mile/h)	5,5	(3,4)
2	km/h(mile/h)	10,5	(6,5)
3	km/h(mile/h)	22,0	(13,7)
With tires		20.5 R 25*	
Front axle, make		Volvo BM	
Model		AH 55 D	
Rear axle, make		Volvo BM	
Model		AH 53 E	
Oscillating movement			
total	± °	15	
Vertical wheel travel	mm (in)	525	(20,70)

WHEELS

Chopper wheels, Order No		90937	
Drum width	mm (ft in)	640	(2'1")
Drum diameter	mm (ft in)	1200	(3'1")
Pad height	mm (ft in)	140	(5,5")
Number of pads		20	
Trapezoidal pads, Order No		90938	
Drum width	mm (ft in)	640	(2'1")
Drum diameter	mm (ft in)	1200	(3'1")
Pad height	mm (ft in)	140	(5,5")
Number of pads		45	

BRAKE SYSTEM

The brake system meets requirements according to SAE J1152.

Service brakes: fully hydraulically operated power disc brakes on the front axle. Transmission disengagement when braking pre-selected with a switch on the instrument panel.

Secondary system: Parking brake.

Parking brake: disc brake on front output shaft of transmission. A warning lamp indicates when the parking brake is applied and gear lever is in forward or reverse.

Brake friction area				
front/wheel ea.	cm^2	(in^2)	405	(62,8)
Accumulators			2	
volume, total	l	(in^3)	1,0	(61)
Parking brake area, total	cm^2	(in^2)	100	(15,5)

CAB

Tested and approved as safety cab according to the Swedish Working Environment Act section 3, subsection 8, and meets standards according to ISO 3471-1980, ROPS (SAE J1040C), ISO 3449-1980 FOPS (SAE J231), SS/ISO 6055 "Overhead guards for fork lift trucks" and SAE J386 Operator Restraint System.
The cab is mounted on four rubber pads and is well insulated.
The windshield is of laminated safety glass, all other windows being of tempered safety glass.

Heater and defroster: heating element with filtered fresh air and 3-speed fan with defroster outlets for all windows.

Operator's seat: spring suspended, fully adjustable operator's seat. Sideways planedamper mounted under operator's seat.

Emergency exits			3	
Ventilation	m^3/min	(cfm)	9,5	(335)
Heating capacity	kW	(Btu/h)	11,6	(39600)
Operator's seat			ISRI 6000/575	

SERVICE REFILL CAPACITIES

Crankcase	l	(US gal)	17	(4,5)
Fuel tank	l	(US gal)	185	(49)
Cooling system	l	(US gal)	53	(14)
Transmission, total	l	(US gal)	33	(8,7)
Drop-box	l	(US gal)	4,7	(1,2)
Front axle, total	l	(US gal)	32,5	(8,6)
Rear axle, total	l	(US gal)	38	(10,0)
Brake oil tank	l	(US gal)	10	(2,6)
Hydraulic system	l	(US gal)	140	(37,0)
Hydraulic tank	l	(US gal)	105	(27,7)

HYDRAULIC SYSTEM

Open center system, pilot operated and filtered breather on reservoir.

Pump: two vane pumps fitted to a power take-off on transmission.

System supply: working system and pilot system supplied from separate pumps.

Valve: double-acting 3 section valve. The control valve is governed by a 3-section servo valve.

Lifting function: the valve has four positions: lifting, neutral, lowering and floating. Disengageable electro-magnetic boom kick-out. Adjustable for all positions between maximum reach and full lifting height.

Tilting function: the valve has three positions: rollback, neutral and forward tilting. Disengageable electro-magnetic bucket positioner adjustable for all desired loading angles.

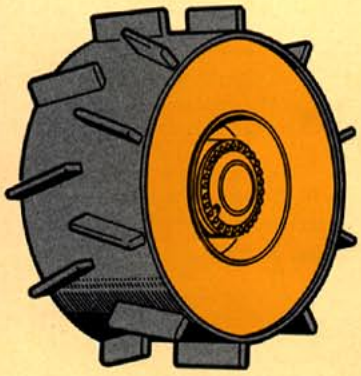
Cylinders: double-acting. Boom-tilt cylinders are slightly shorter than the standard L90 loader cylinders for improved protection. Dump height is also reduced from the standard L90 loader.

Filter: full-flow filtering through 10 µm filter cartridge in combination with magnetic core.

Load unit: lift and tilt cylinders fitted in line with lifting arms.

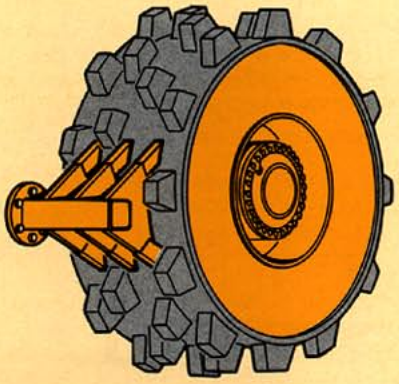
Main pump				
Working pressure	MPa	(psi)	19,0	(2755)
Flow volume	l/min		168	
	(US gal/min)			(44,4)
at	MPa	(psi)	10	(1450)
and engine speed	r/s	(r/min)	36,7	(2200)
Servo pump				
Working pressure	MPa	(psi)	3,5	(510)
Flow volume	l/min		20	
	(US gal/min)			(5,3)
at	MPa	(psi)	3,5	(510)
and engine speed	r/s	(r/min)	36,7	(2200)
Lifting cylinder			2	
Bore	mm	(in)	120	(4,72)
Piston rod diameter	mm	(in)	60	(2,36)
Stroke	mm	(in)	830	(32,68)
Tilting cylinder			2	
Bore	mm	(in)	110	(4,33)
Piston rod diameter	mm	(in)	60	(2,36)
Stroke	mm	(in)	830	(32,68)
Lifting time (with load, SAE)	s		5,6	
Tipping time (with load,SAE)	s		1,5	
Lowering time (empty)	s		2,4	
Total cycle time	s		9	

GROUND PRESSURE



Chopper wheel

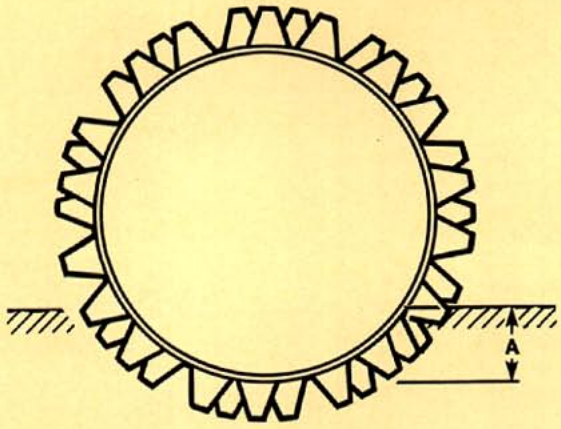
Trapezoidal pads



Cleaners for trapezoidal pads

		Chopper wheels	
		General purpose bucket	Multi-purpose bucket
Contact area	cm^2 (in^2)	4240 (657)	4240 (657)
Ground pressure			
Front *	kp/cm^2 (psi)	0,83 (12,0)	0,86 (12,3)
Rear *	kp/cm^2 (psi)	1,05 (15,2)	1,03 (14,6)
Pounds per linear inch	PLI	347	350

* Wheels sinking into surface. A = 100 mm (4")



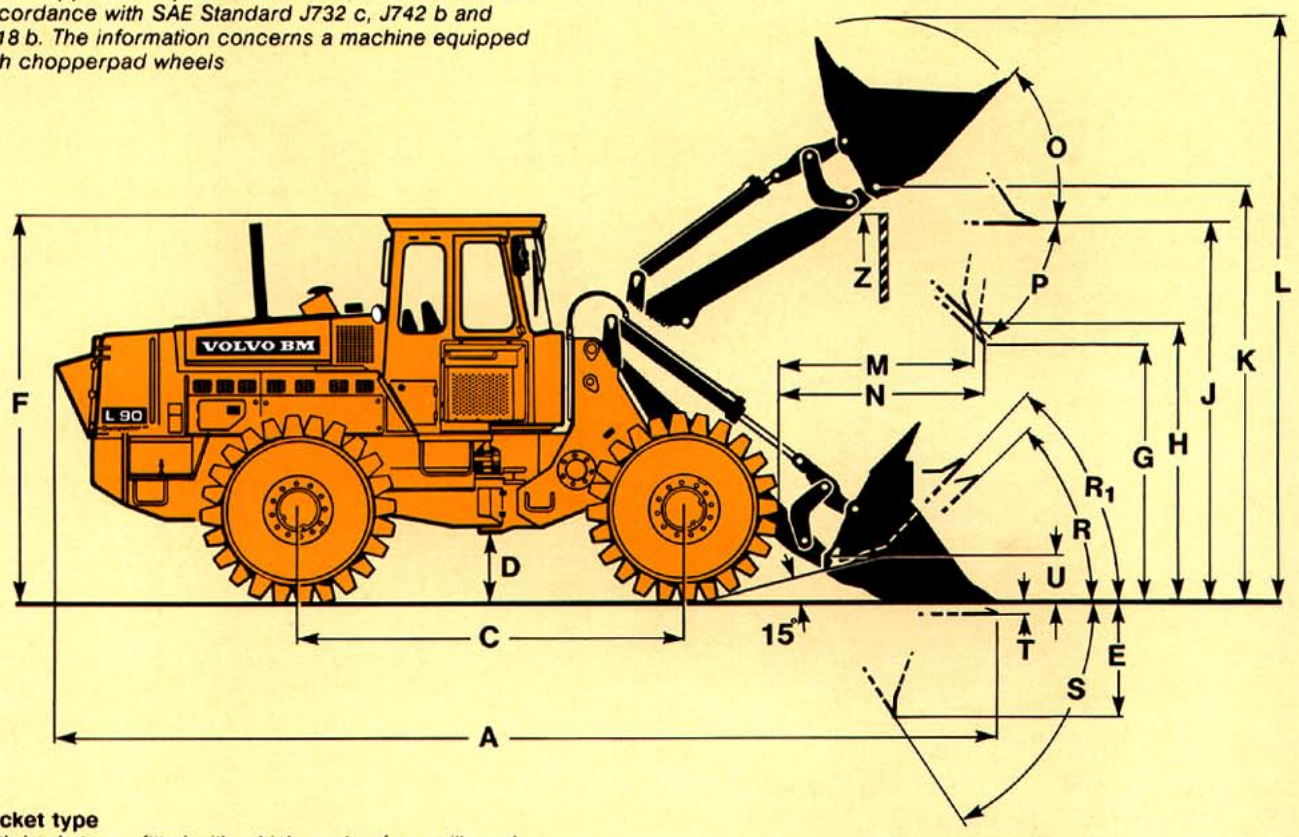
The Volvo BM method of calculating the ground pressure of a compactor in this case involves deducing the projected wheel drum area against the ground at various depths of penetration into the surface, and relating the result to the axle loading of that wheel.

ALTERATION OF DIMENSIONAL DATA

		Trapezoidal wheels and cleaners
		90938
Width over wheels	mm (in)	-
Ground clearance	mm (in)	-
Operating weight	kg (lb)	- 80 (-176)

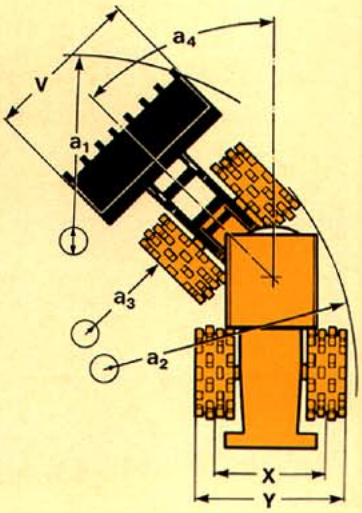
DIMENSIONAL DATA VOLVO BM L90 Compactor

Where applicable specifications and dimensions are in accordance with SAE Standard J732 c, J742 b and J818 b. The information concerns a machine equipped with chopperpad wheels



Bucket type
Both buckets are fitted with a high mesh refuse spillguard.
1 = General purpose bucket with teeth
2 = Multi-purpose bucket with teeth
D = Pin-On

Order No.			91031		SP2-35MK5*	
Mounting / Bucket type			D / 1		D / 2	
Volume, heaped	m^3	(yd^3)	2,5	(3,25)	1,9	(2,5)
Breakout force	kN	(lbf)	101,0	(22710)	125,6	(28230)
A	mm	(ft in)	7540	(24'9")	7320	(24')
C	mm	(ft in)	3000	(9'10")	3000	(9'10")
D	mm	(ft in)	440	(1'5")	440	(1'5")
E	mm	(ft in)	940	(3'1")	770	(2'6")
F	mm	(ft in)	3070	(10'1")	3070	(10'1")
F**	mm	(ft in)	3250	(10'8")	3250	(10'8")
G	mm	(ft in)	2000	(6'7")	2000	(6'7")
H	mm	(ft in)	2050	(6'9")	2200	(7'3")
J	mm	(ft in)	3060	(10'1")	3020	(9'11")
K	mm	(ft in)	3280	(10'9")	3280	(10'9")
L	mm	(ft in)	4750	(15'7")	4300	(14'1")
M	mm	(ft in)	1540	(5'1")	1340	(4'5")
N	mm	(ft in)	1660	(5'5")	1520	(5'0")
O	°		50		42	
P	°		45		45	
R	°		43		35	
R_1***	°		49		40	
S	°		58		62	
T	mm	(ft in)	16	(0,6")	19	(0,7")
U	mm	(ft in)	450	(1'6")	450	(1'6")
V	mm	(ft in)	2850	(9'4")	2850	(9'4")
X	mm	(ft in)	2090	(6'10")	2090	(6'10")
Y	mm	(ft in)	2730	(9')	2730	(9')
Z	mm	(ft in)	3040	(10')	3040	(10')
a_1 clearance circle over bucket	mm	(ft in)	12200	(40')	12000	(39'4")
a_2	mm	(ft in)	5490	(18')	5490	(18')
a_3	mm	(ft in)	2760	(9'1")	2760	(9'1")
a_4	± °		40		40	
Weight distribution						
front	kg	(lb)	7000	(15400)	7300	(16100)
rear	kg	(lb)	8900	(19600)	8700	(19200)
Operating weight	kg	(lb)	15900	(35000)	16000	(35300)



* Also available as hook on bucket
** Equipped with aircondition
*** Carrying position SAE

STANDARD EQUIPMENT

Safety & comfort
ROPS and FOPS cab
Cab heating with filtered fresh air intake and defroster
Tinted glass
Ergonomically designed and adjustable operator's seat with seat belt
Sideways planedamper
Rear-view mirrors, external, two
Rear-view mirror, internal, one
Lighting:
- main headlamps, full-dipped beam/asym. (halogen)
- working lights, front (two, halogen)
- working lights, rear (two, halogen)
- brake lights
- tail lights
- cab lighting
- instrument lighting
- direction indicators (rear)

Attachment light

Instrument panel with symbols
Sun visor
Safety start
Windscreen wipers, front and rear
Horn
Ashtray
Cigarette lighter
Lifting lugs
Pressure gauge, brake system
Opening window
Underbody protection plates
Protection guards for tail lights
Fuel fill protection

Engine & electrical system
Fuel gauge
Electric socket 24 V
Battery disconnection switch
Hour recorder
Alternator
Suction fan
Air cleaner with ejector emptying
Engine temperature gauge
Hydraulic transmission temperature gauge
Control and warning lamps for:
- working lights, front/rear
- charging
- full-beam headlights
- direction indicators
- engine oil pressure
- hydraulic transmission oil pressure
- differential lock
- parking brake
- brake pressure
- hazard warning flashers
- air cleaner

For certain markets only
Central warning lamp for following functions: engine oil pressure, brake pressure, parking brake, engine temperature, transmission temperature.

Drivetrain
Power Shift transmission (3F/3R)
Differential lock (front axle)
Single-lever gear control
Interlock for 4th speed

Hydraulic system
Control valve (3 sections)
Pilot valve (3 sections)
Automatic bucket positioner and boom kick-out
Bucket position indicator
Vane pump

OPTIONAL EQUIPMENT *(Standard equipment on certain markets)*

Service and maintenance equipment
Tool kit
Wheel nut wrench kit

Engine equipment
Cyclone pre-cleaner
Extra fuel filter
Preheating coil
Engine block heater
Rain cap
Coolant filter

Electrical equipment
Rotating beacon
Extra working lights, rear, (two, halogen)
Back-up alarm

Cab equipment
File pocket
Heated seat
Air conditioner
Tiltable steering column
Dual brake pedals
Windscreen washer, front/rear
Intermittent wiper, front
Radio panel without radio
Speedometer and tachometer
Lever lock for hydraulic levers
Sliding window
Instructor's seat
Parking-brake alarm, acoustic (ASS 94)
Pressure gauge, engine oil
Voltmeter

Hydraulic equipment
3rd hydraulic control
3rd and 4th hydraulic control
Single-acting lifting function
Boom lowering system
Hydraulic attachment bracket

Protective equipment
Protection guard for suction fan
Guard for silencer

Other equipment
High tone horn

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