

# Volvo BM A30

6×6



- **Engine output:**  
SAE J1349 Net  
213 kW (285 hp)
- **Body volume:**  
16,5 m<sup>3</sup> (21,6 yd<sup>3</sup>)
- **Load capacity:**  
27 t (30 sh tn)
- Direct-injected, turbo-charged, intercooled Volvo diesel engine. Low emission engine as option.
- Fully automatic power-shift transmission.
- Hydraulic retarder as standard.
- Wide base tyres 30/65R25 as standard.
- One longitudinal and three transverse diff locks. All with 100% lock-up.
- Front axle with three-point suspension and effective shock absorption.
- Volvo BM terrain bogie, individually oscillating axles and high ground clearance.
- Low interior noise level.
- Adjustable steering wheel.

**VOLVO BM**

## ENGINE



Volvo 6-cylinder, in-line, direct-injected, turbocharged, intercooled 4-cycle diesel engine with overhead valves and wet replaceable cylinder linings.

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

Make Model			Volvo TD 102 KH	
Max power at	r/s	(r/min)	36.7	(2200)
SAE J1349 Gross	kW	(hp)	214	(287)
Flywheel power at	r/s	(r/min)	36.7	(2200)
SAE J1349 Net	kW	(hp)	213	(285)
DIN 6271*	kW	(hp)	213	(285)
Max torque	r/s	(r/min)	23.3	(1400)
SAE J1349 Gross	Nm	(lbf ft)	1150	(848)
SAE J1349 Net	Nm	(lbf ft)	1140	(840)
DIN 6271**	Nm	(lbf ft)	1140	(840)
Displacement total	l	(in <sup>3</sup> )	9.6	(585)
Bore	mm	(in)	120	(4.7)
Stroke	mm	(in)	140	(5.5)
Compression ratio			15.0:1	

\* ) with fan at normal speed. With fan operating at full speed, the flywheel power is 197 kW (264 hp) which corresponds to DIN 70020.

\*\* ) with fan at normal speed. With fan operating at full speed, the maximum torque is 1070 Nm (789 lbf ft) which corresponds to DIN 70020.

## DRIVETRAIN



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

**Transmission:** Fully automatic planetary transmission with 6 gears forward and 2 reverse.

**Dropbox:** Volvo BM single-stage drop-box with power take-off and differential with lock-up function.

**Axles:** Volvo BM. 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	2.42:1	
Transmission	Volvo	PT 1661
Dropbox	Volvo BM	FL 650B
Axles	Volvo BM	AH 63

### Speeds with tyres 30/65R25 and 23.5R25

Forward	1	km/h (mile/h)	8.2	(5.1)
	2	km/h (mile/h)	11.9	(7.4)
	3	km/h (mile/h)	21.5	(13.4)
	4	km/h (mile/h)	31.1	(19.3)
	5	km/h (mile/h)	39.5	(24.5)
	6	km/h (mile/h)	52.3	(32.7)
Reverse	1	km/h (mile/h)	7.6	(4.7)
	2	km/h (mile/h)	13.1	(8.1)

## ELECTRICAL SYSTEM



Voltage	V		24	
Battery capacity	Ah		2x170	
Alternator	kW		1.68	
Starter motor	kW	(hp)	6.6	(8.8)

## SERVICE REFILL CAPACITIES



Crankcase	l	(US gal)	23	(6.1)
Fuel tank	l	(US gal)	360	(95.1)
Cooling system	l	(US gal)	52	(13.7)
Transmission total	l	(US gal)	35	(9.2)
Dropbox	l	(US gal)	5	(1.3)
Hub	l	(US gal)	3	(0.8)
Front axle	l	(US gal)	33	(8.7)
First bogie axle	l	(US gal)	31	(8.2)
Second bogie axle	l	(US gal)	33	(8.7)
Brake hydraulics	l	(US gal)	4x0.5	(4x0.1)
Hydraulic system	l	(US gal)	194	(51.2)
Hydraulic tank	l	(US gal)	175	(46.2)

## SUSPENSION



### VOLVO BM SUSPENSION SYSTEM

**Front axle:** One rubber spring 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 BM'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 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.

**Compressor:** Gear driven by engine transmission.

**Retarder:** Standard, hydraulic, infinitely variable, integrated in transmission.

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

## HYDRAULIC SYSTEM



**Pumps:** Four engine-dependent, variable piston pumps mounted on flywheel power take-offs. One ground-dependent hydraulic pump for supplementary steering mounted on the dropbox.

**Filter:** Filtration of oil through two paper filters with magnetic cores.

Pump capacity per pump	l/min	(US gal/min)	109	(28.8)
at shaft speed	r/s	(r/min)	36	(2200)
Working pressure	MPa	(psi)	19	(2710)

## CAB



**Volvo BM cab,** tested and approved according to ROPS standard ISO/3471 and SAE J1040/APR88. Mounted on rubber pads which effectively reduces vibrations. Adjustable steering wheel. Radio/Contronic console in ceiling.

**Heater and defroster:** Filtered air and pressurized cab.

**Operator's seat:** Flameproof upholstery. Extra seat for trainer.

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

## STEERING SYSTEM



Hydromechanical articulated steering. 3.4 lock-to-lock turns.

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

**Supplementary steering:** Complies with ISO 5010 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	°	70
Tipping time with load	s	14
Lowering time	s	13
Body, plate thickness		
Front	mm (in)	8 (0.31)
Side	mm (in)	12 (0.47)
Bottom/chute	mm (in)	14 (0.55)
Yield strength	N/mm <sup>2</sup> (psi)	1000 (145000)
Tensile strength	N/mm <sup>2</sup> (psi)	1250 (181000)
Hardness min.	HB	360-440

## WEIGHTS



Operating weight includes all fluids and operator.

### Operating weight with 30/65R25 tyres

Front	kg	(lb)	11300	(24916)
Rear	kg	(lb)	9600	(21168)
Total	kg	(lb)	20900	(46085)
Payload	kg	(lb)	27000	(59535)
Total weight				
Front	kg	(lb)	15050	(33185)
Rear	kg	(lb)	32850	(72434)
Total	kg	(lb)	47900	(105620)

A30 equipped with 23.5R25 tyres, subtract 200 kg (440 lb) per axle.

## GROUND PRESSURE



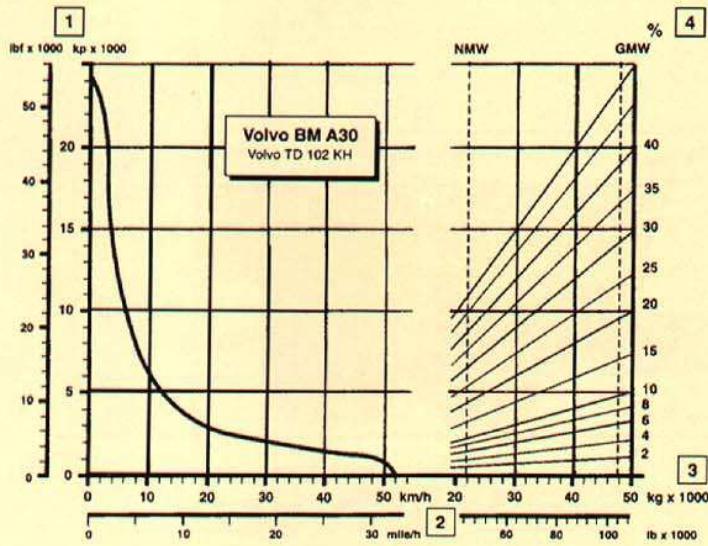
At 15% sinkage of unloaded radius and specified weights.

With 30/65R25 tyres:

Unloaded				
Front	kPa	(psi)	92	(13.3)
Rear	kPa	(psi)	39	(5.6)
Loaded				
Front	kPa	(psi)	123	(17.8)
Rear	kPa	(psi)	135	(19.6)

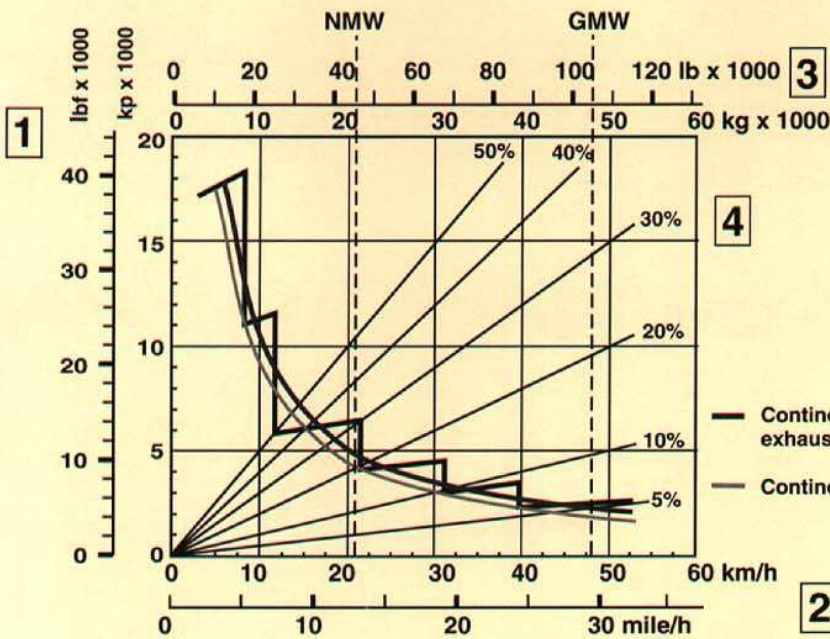
With 23.5R25 tyres:

Unloaded				
Front	kPa	(psi)	112	(16.2)
Rear	kPa	(psi)	46	(6.7)
Loaded				
Front	kPa	(psi)	150	(21.7)
Rear	kPa	(psi)	164	(23.8)



**RIMPULL**

- 1 Rimpull in kP (lbf)
- 2 Speed in km/h (mile/h)
- 3 Machine weight in kg (lb)
- 4 Grade in % + rolling resistance in %



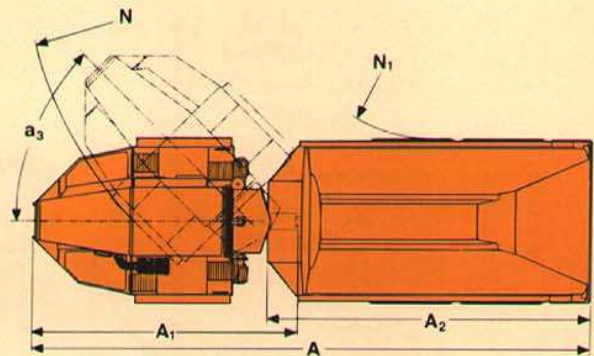
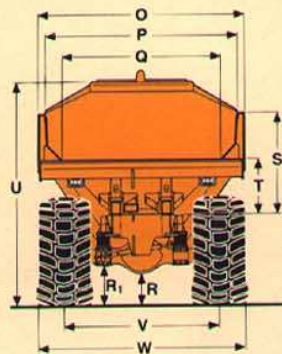
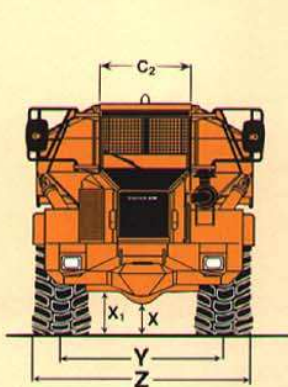
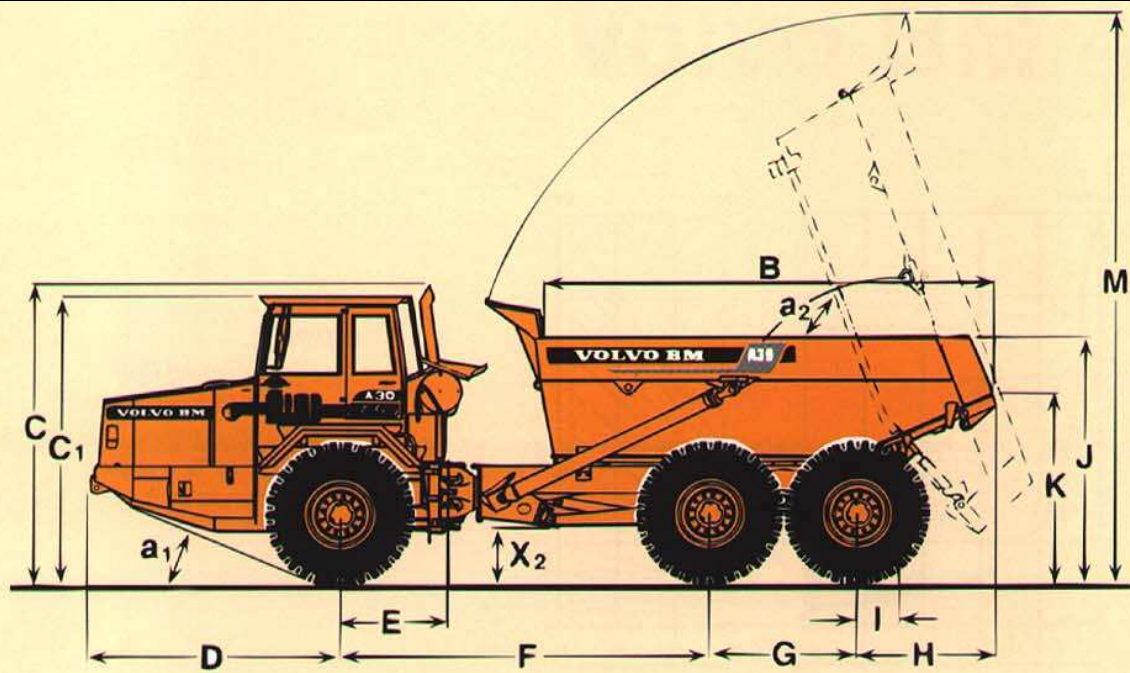
**RETARDATION PERFORMANCE**

- 1 Braking effort in kP (lbf)
- 2 Speed in km/h (mile/h)
- 3 Machine weight in kg (lb)
- 4 Grade in % - rolling resistance in %.

**INSTRUCTIONS**

Diagonal lines represent total resistance (grade % plus rolling resistance %).  
 Charts based on 0 % rolling resistance, standard tyres and gearing, unless otherwise stated.

- A. Find the diagonal line with the appropriate total resistance on the right hand edge of the chart.
- B. Follow the diagonal line downward until it intersects the actual machine weight line, NMW or GMW
- C. Draw a new line horizontally to the left from the point of the intersection until the new line intersects the rimpull or retardation curve.
- D. Read down for vehicle speed.



### DIMENSIONS Volvo BM A30 6x6 (unloaded with 30/65-25 tyres)

A	mm (ft in)	10200 (33'5")	F	mm (ft in)	4173 (13'8")	N <sub>1</sub>	mm (ft in)	4021 (13'2")	W	mm (ft in)	2980 (9'9")
A <sub>1</sub>	mm (ft in)	4862 (15'11")	G	mm (ft in)	1670 (5'6")	O	mm (ft in)	2932 (9'7")	W*	mm (ft in)	2820 (9'3")
A <sub>2</sub>	mm (ft in)	5856 (19'2")	H	mm (ft in)	1587 (5'3")	P	mm (ft in)	2720 (8'11")	X	mm (ft in)	485 (1'7")
B	mm (ft in)	5167 (16'11")	I	mm (ft in)	439 (1'5")	Q	mm (ft in)	2286 (7'6")	X <sub>1</sub>	mm (ft in)	522 (1'8")
C	mm (ft in)	3410 (11'2")	J	mm (ft in)	2834 (9'3")	R	mm (ft in)	530 (1'9")	X <sub>2</sub>	mm (ft in)	670 (2'2")
C <sub>1</sub>	mm (ft in)	3260 (10'8")	K	mm (ft in)	2180 (7'2")	R <sub>1</sub>	mm (ft in)	567 (1'10")	Y	mm (ft in)	2216 (7'3")
C <sub>2</sub>	mm (ft in)	1331 (4'4")	L	mm (ft in)	594 (1'11")	S	mm (ft in)	1464 (4'10")	Z	mm (ft in)	2980 (9'9")
D	mm (ft in)	2770 (9'1")	M	mm (ft in)	6494 (21'3")	T	mm (ft in)	810 (2'8")	Z*	mm (ft in)	2820 (9'3")
D <sub>1</sub>	mm (ft in)	2730 (8'11")	N	mm (ft in)	8074 (26'6")	U	mm (ft in)	3270 (10'9")	a <sub>1</sub>	°	24.5
E	mm (ft in)	1210 (3'11")				V	mm (ft in)	2216 (7'3")	a <sub>2</sub>	°	70
									a <sub>3</sub>	°	45

\*with 23.5R25 tyres

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

Load capacity	kg	(sh tn)	27000	(30)
Body, struck	m <sup>3</sup>	(yd <sup>3</sup> )	12.9	(16.8)
heaped	m <sup>3</sup>	(yd <sup>3</sup> )	16.5	(21.5)
With overhung tailgate (optional)				
Body, struck	m <sup>3</sup>	(yd <sup>3</sup> )	13.2	(17.3)
heaped	m <sup>3</sup>	(yd <sup>3</sup> )	17.1	(22.4)

## STANDARD EQUIPMENT

<p><b>Safety and comfort</b></p> <p>ROPS cab Cab heater with filtered fresh air and defroster Ergonomically designed and adjustable operator's seat Windshield wipers Windshield washers Rear view mirrors Sun-visor Seatbelt Anti-slip material on fenders and hood Cigarette lighter Ashtray Horn Protective grille for rear window Hazard flashers Tinted glass Lights:   headlights     main/dipped   parking lights   direction indicators   rear lights   back-up lights   brake lights   cab lighting   instrument lighting</p>	<p>Adjustable steering wheel Steering joint locking assembly Radio/Contronic console in ceiling Speedometer Secondary steering</p> <p><b>Engine and electrical system</b></p> <p>Turbocharger Oil drainage hose Alternator Preheating Battery disconnect switch Electrical outlet Gauges for:   air pressure   engine temperature   engine revs   fuel   hours   transmission oil temperature Pilot lamps for:   bogie axles diff-lock   direction indicators   front axle diff-lock   longitudinal diff-lock   lights   main beam   preheating</p>	<p>Warning lamps for:   air filter   battery charging   body up   brake pressure   brake fluid level   coolant level   engine oil pressure   engine temperature   engine-dependent steering pump   ground-dependent steering pump   parking brake   transmission temperature Central warning for:   air pressure   battery charging   brake fluid level   engine oil pressure   engine overspeed   engine temperature   steering function   transmission temperature</p> <p><b>Cab</b></p> <p>Extra seat for trainer</p>	<p><b>Drive train</b></p> <p>Torque converter Automatic transmission Drop box, single stage Automatic lock-up Longitudinal diff-lock Hydraulic retarder, variable Differential lock front axle Differential lock first bogie axle Differential lock second bogie axle</p> <p><b>Body</b></p> <p>Body with exhaust ducts</p> <p><b>Tyres</b></p> <p>30/65-25</p>
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## OPTIONAL EQUIPMENT

<p><b>Service and Maintenance</b></p> <p>Tool kit with tyre inflation unit</p> <p><b>Engine</b></p> <p>Exhaust brake Volvo <b>low emission engine TD 102KFE</b>. Meets 88/77/EEC in production and California off-road regulation 1996.</p> <p>Max power at   SAE J1349 Gross Flywheel power at   SAE J1349 Net   DIN 6271* Max torque   SAE J1349 Gross   SAE J1349 Net   DIN 6271** Displacement total Bore Stroke Compression ratio</p> <p>* with fan at normal speed. With fan operating at full speed, the flywheel power is 197 kW (264 hp) which corresponds to DIN 70020. ** with fan at normal speed. With fan operating at full speed the maximum torque is 1970 Nm (798 lbf ft) which corresponds to DIN 70020.</p>	<p><b>Electrical</b></p> <p>Work lights, roof mounted Rotating beacon with collapsible mount Headlights for left-hand traffic</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;"></td> <td style="width: 10%;">r/s</td> <td style="width: 10%;">(r/min)</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td></td> <td>kW</td> <td>(hp)</td> <td>36.7</td> <td>(2200)</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>214</td> <td>(287)</td> <td></td> </tr> <tr> <td></td> <td>r/s</td> <td>(r/min)</td> <td>36.7</td> <td>(2200)</td> <td></td> </tr> <tr> <td></td> <td>kW</td> <td>(hp)</td> <td>213</td> <td>(285)</td> <td></td> </tr> <tr> <td></td> <td>kW</td> <td>(hp)</td> <td>213</td> <td>(285)</td> <td></td> </tr> <tr> <td></td> <td>r/s</td> <td>(r/min)</td> <td>25.0</td> <td>(1500)</td> <td></td> </tr> <tr> <td></td> <td>Nm</td> <td>(lbf f)</td> <td>1180</td> <td>(870)</td> <td></td> </tr> <tr> <td></td> <td>Nm</td> <td>(lbf ft)</td> <td>1170</td> <td>(863)</td> <td></td> </tr> <tr> <td></td> <td>Nm</td> <td>(lbf ft)</td> <td>1170</td> <td>(863)</td> <td></td> </tr> <tr> <td></td> <td>l</td> <td>(in<sup>3</sup>)</td> <td>9.6</td> <td>(585)</td> <td></td> </tr> <tr> <td></td> <td>mm</td> <td>(in)</td> <td>120</td> <td>(4.7)</td> <td></td> </tr> <tr> <td></td> <td>mm</td> <td>(in)</td> <td>140</td> <td>(5.5)</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>16.0:1</td> <td></td> <td></td> </tr> </table>		r/s	(r/min)					kW	(hp)	36.7	(2200)					214	(287)			r/s	(r/min)	36.7	(2200)			kW	(hp)	213	(285)			kW	(hp)	213	(285)			r/s	(r/min)	25.0	(1500)			Nm	(lbf f)	1180	(870)			Nm	(lbf ft)	1170	(863)			Nm	(lbf ft)	1170	(863)			l	(in <sup>3</sup> )	9.6	(585)			mm	(in)	120	(4.7)			mm	(in)	140	(5.5)					16.0:1			<p><b>Cab</b></p> <p>Electrically heated rear-view mirrors Air conditioning Air suspended electrically heated operator's seat Contronic display</p> <p><b>Protection</b></p> <p>Overhead guard, FOPS Rear mudflaps Mudguard wideners, front 2.98 m</p>	<p><b>Body</b></p> <p>Body heating Overhung tailgate, wire Overhung tailgate, link Underhung tailgate Wear plates, separate delivery Upper side extensions, 200 mm</p> <p><b>Tyres</b></p> <p>23,5R25</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.

**VME Articulated Haulers AB**  
S-351 83 VÄXJÖ SWEDEN

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