

# **VOLVO BM**

## **DUMPER 860**



# VOLVO BM 860 dumper – big payloads over rough terrain

The VOLVO BM 860, built to solve your off-road haulage problems, performs yeoman service — day in and day out. The 860, which incorporates VOLVO quality produced components, features simple, rugged design and construction, thus ensuring top quality and operational reliability. Six large wheels,

free to move independently, and load capacity which is in a class apart make the 860 ideal as an off-road haulage vehicle. Together with the 4-wheel drive and sophisticated bogie design, these features give the VOLVO BM 860 the stamina needed to handle the most arduous work assignments.

VOLVO BM construction equipment maintains a superb standard of driver comfort, and the 860 is no exception. This is especially important in off-the-road vehicles where there is always a risk that drivers will relax their efforts because of uncomfortable work surroundings.

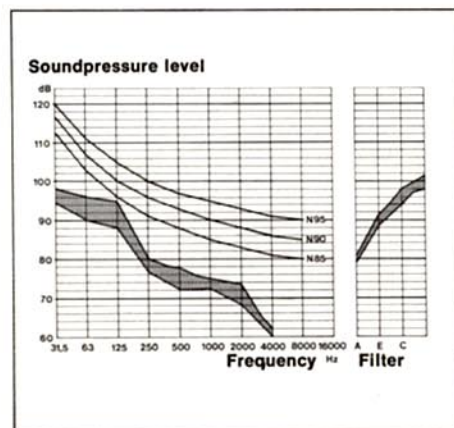
## Built to serve as your most valuable colleague

Step up onto the non-slip VOLVO BM 860

boarding step. Notice how the conveniently placed handle and large doors facilitate entry and exit on both sides. Powered controls are provided throughout — steering, gear shifting, braking, engaging/disengaging the 4-wheel drive and differential locks. Drivers can therefore do their jobs more safely and with added exactitude. A quick glance at the instrument panel provides accurate information about all vital functions.

## Correct, convenient driving position

The 860 driver's seat is unmatched with regard to comfort. Torsion bar suspension and hydraulic shock absorbers eliminate virtually all vibration and shock. Fore and aft seat positioning and backrest angle are adjustable. A ride level indicator tells when the adjustable seat springs are set correctly.



In the spacious safety cab, suspension and insulation have been given painstaking attention. The noise level is thus exceptionally low — well beneath the N 85 curve.

## Heating/ventilation for varying ambience

The heating and ventilation system, which circulates fresh air, is designed to maintain comfortable inside cab temperatures even in bitterly cold weather. Carefully installed thermal insulation keeps out both heat and cold, and the fan can be set at different speeds to provide optimum blow.

In hot climates, the cab can be provided with a ceiling-mounted cab ventilator. Moreover, the side windows can be opened and the doors can be secured ajar at positions which do not cause draughts.

## Single, easy to operate lever controls transmission

Toggle switches for high/low gear ranges and for engaging/disengaging the 4-wheel drive are mounted in the single gear-shift lever which actuates a safe, efficient compressed air system. This results in gentle, efficient gear-shifting.



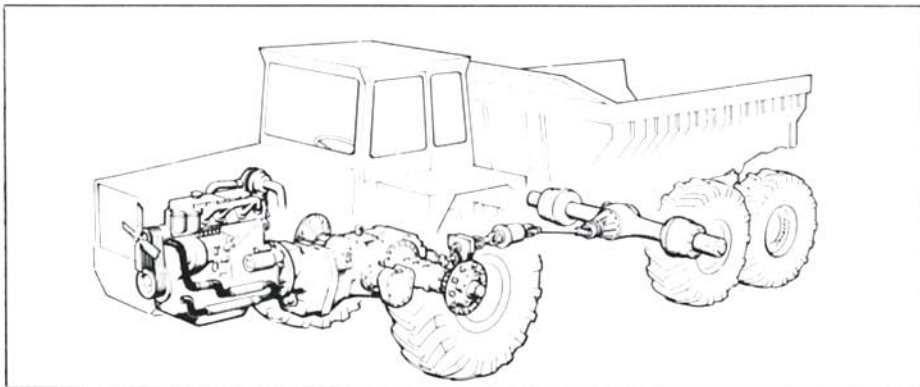
# Go anywhere mobility

## Power-packed superb stamina

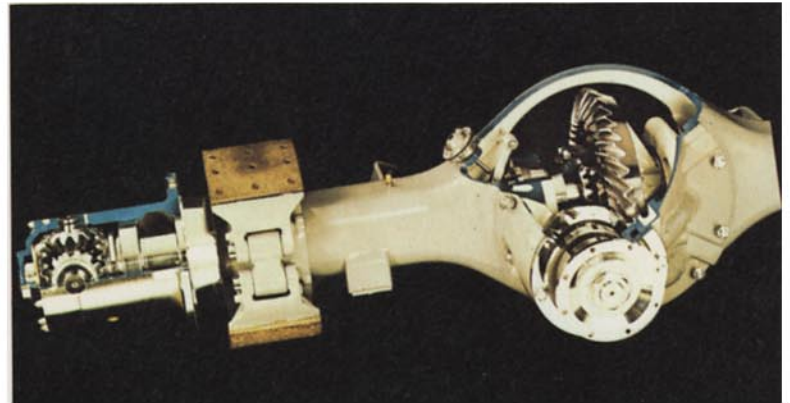
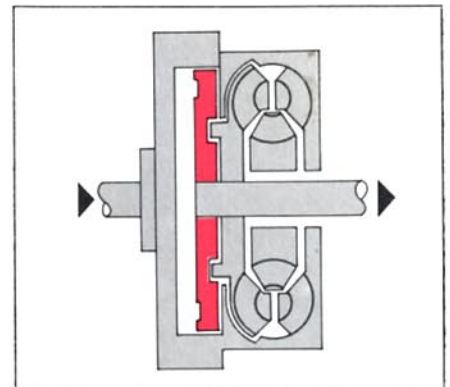
The VOLVO BM 860 has acquired a well-earned reputation for negotiability, reliability, safety and strength. This can be attributed in large part to its well balanced design and construction plus the fact that its power train incorporates time-tested VOLVO quantity produced components — manufactured to close tolerances and well adapted to their purpose.

## Power shift gearbox and torque converter with lock-up clutch

The power shift gearbox makes it easy for the driver to shift gears throughout the entire speed range up and down, forward and reverse. The torque converter continuously, adapts the torque to match the varying resistance from the terrain, thus ensuring smooth operation.



Torque converter with lock-up clutch



The bogie driving axle, designed for rugged off-road haulage, is provided with hub reductions and a differential lock.

The 860 can also be used to advantage over undulating terrain as well as on roads where the torque converter does not have to function. To utilize engine power to the maximum and increase acceleration, the torque converter has been designed with a lock-up clutch which provides direct drive from engine to gearbox. The lock-up clutch actuates the second gear and is engaged automatically at optimum torque. If desired, the lock-up

function can be disengaged entirely by means of a switch on the instrument panel.

## Agile off road bogie

Designed to enable each wheel to move individually, this unique bogie enables the hopper to "float" smoothly as the dumper moves through rough terrain. Simple, rugged bogie design features independently suspended axles. The front bogie axle,

which does the driving, is provided with a single reduction gear and hub reductions. The final reduction thus takes place in bevel planetary gearing in the wheel hubs, thereby substantially reducing the load on the axles and transmission.

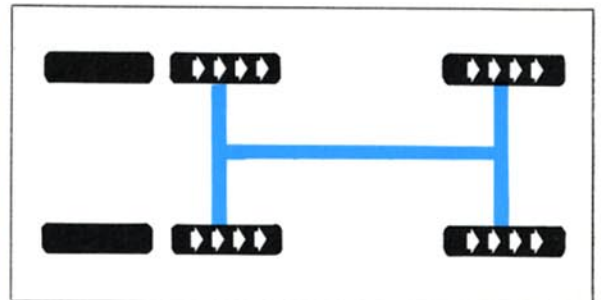


**Tractive power**

The engine unit and load unit on the 860 are joined through a rugged towing cylinder, the driving axles are independent of each other and the large wheels can follow terrain irregularities whilst maintaining full ground contact. In slippery under-wheel conditions, mobility is assured by having both driving axles equipped with differential locks (air-operated and controlled by foot switches).



Foot switches enable differential locks to be easily engaged/disengaged.



Differential locks on both driving axles ensure performance in slippery conditions.

# Power, safety and economy

Top quality and high precision production characterize all components of the 860. High payloads and lugging power guarantee high economic yield. Low operating costs and minimal maintenance requirements keep costs down throughout the service life. All of which explains why the VOLVO BM 860 is so popular at large work sites throughout the world.

## Sophisticated turbo-charged engine incorporates benefits of long-term experience

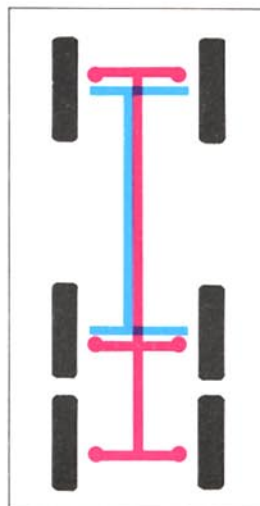
The Volvo TD 50 B diesel, which boasts many sophisticated design features, is

made in long runs for trucks, forestry machines and other types of construction equipment which impose stringent requirements. Its 5.1 litre displacement enables this turbo-charged VOLVO diesel to deliver more power than conventional, naturally-aspirated engines of the same type. Moreover, fuel consumption is low and exhaust gases are cleaner. The turbo-charger consists of an exhaust-driven compressor which provides the engine with an ample supply of air to ensure complete combustion of all fuel. Turbo-charging imposes exacting requirements for tightness, cooling and resistance to

deformation. As a result, this engine is provided with two cylinder heads, steel gaskets, an unusually sturdy engine block, a 7-bearing crankshaft and camshafts with large bearing seals, not to mention the highly efficient cooling system. To simplify service and ensure reliable operation, fuel, oil and air are cleaned in paper filters in which large filtering areas provide virtually 100 % cleaning under all operating conditions.



VOLVO TD 50 B



Safe, reliable brake system acts on all wheels.

### Three brake systems

Three independent brake systems provide maximum safety.

### Power brakes

On all wheels operated by compressed air — total friction area 6485 cm<sup>2</sup> (1000 in<sup>2</sup>)

### Parking brakes

Which operate on front axle and the driving bogie axle.

### Exhaust brake

Which boosts the braking effort.



Uninterrupted research, precise measurement and long-term testing precede the arrival of each new VOLVO BM product on the market. Safety, top quality and economy are thus built into the entire product line from the outset.



Articulation provides the 860 with a tight turning radius — only 7.5 m (25 ft).

### Easy to manoeuvre — powerful steering

Hydraulic steering provides 45° articulation to each side and a tight turning radius. Easy manoeuvrability in cramped quarters. Fast cycle times at loading/unloading depots.

The double-acting steering cylinders provide powerful steering forces which, when driving in loose underwheel conditions, permit drivers to augment mobility by switching to a new track.

## SPECIFICATION VOLVO BM 860 DUMPER

**Engine**  
Type: Volvo TD 50 B  
6 cyl. in line, direct injection, 4-stroke cycle. Turbo charged

**Output:** 150 hp (111 kw) SAE at 2,500 rev/min

**Torque:** 448 Nm (331 lbft. 45.7 kpm) at 1,900 rev/min

**Bore × stroke:** 95.25 × 120 mm (3<sup>7</sup>/<sub>16</sub> × 4<sup>7</sup>/<sub>16</sub> in)

**Cylinder volume:** 5.13 litres (313 in<sup>3</sup>)

**Specific fuel consumption:** 164 g/hph (0.36 lb/hph)

**Electrical system**  
Voltage: 12 V  
Alternator: 450 W  
Starter: 4 hp (3 kw)  
Battery capacity: 152 Ah

**Power transmission**  
Torque converter: Single stage with freewheeling stator and automatic lock-up clutch (DIRECT-DRIVE)

**Stall ratio:** 2.3:1

**Gear box:** Full power shift with 4 forward, 4 reverse gears

**Axles:** Front; integral reduction and differential lock  
Rear; hub reduction and differential lock  
4-wheel drive engaged and disengaged by pneumatic control

**Brakes**  
Air operated 6-wheel braking system  
Mechanical parking brake on 4 wheels  
Loading brake incorporated in gear lever  
Automatic emergency braking system  
Total braking area: 6485 cm<sup>2</sup> (1005 in<sup>2</sup>)  
Air pressure: 6.2—7 kp/cm<sup>2</sup> (88—100 lbf/in<sup>2</sup>)  
Exhaust brake standard

**Tyres**  
Front wheels 18.00 × 25/16 EM  
Rear wheels 16.00 × 24/16 EM

**Steering**  
Full hydraulic articulated steering with mechanical follow up.  
Steering angle (each direction): 45°  
No. of steering wheel turns from lock to lock: 3.5  
Pump capacity: 140 l/min (31 gall./min)  
Max. working pressure: 120 kp/cm<sup>2</sup> (1700 lbf/in<sup>2</sup>)  
Steering cylinders  
Bore × stroke: 100 × 500 mm

**Tipping controls**  
Single lever with 3 positions: LOWER — HOLD — DUMP  
Automatic kick-out at pre-determined dump angle 70°  
Pump capacity: 140 l/min (31 gall./min)  
Max. working pressure: 120 kp/cm<sup>2</sup> (1700 lbf/in<sup>2</sup>)  
6 stage tipping cylinders:  
Largest bore: 140 mm (5<sup>1</sup>/<sub>2</sub> in)

Operating specifications	Front axle	Tandem axle	Total weight
Weight distribution			
Unladen machine weight	kg/lb 7 000/15 400	5 500/12 100	12 500/27 500
With 13.5 ton load	kg/lb 10 000/22 000	16 000/35 250	26 000/57 300
With 16.7 ton load	kg/lb 10 000/22 000	19 200/42 200	29 200/64 100
Body volume:			
struck	8.3 m <sup>3</sup>	(10.8 yd <sup>3</sup> )	
heaped	11 m <sup>3</sup>	(14.4 yd <sup>3</sup> )	
Overall width:	2 480 mm	8 ft 2 in.	
height:	2 800 mm	9 ft 2 in.	
length:	9 190 mm	30 ft 2 in.	
Ground clearance			
Front	440 mm	1 ft 5 in	
Rear	410 mm	1 ft 4 in	
Outer turning radius:	7 500 mm	24 ft 7 in.	
Speed ranges:			
1	2	3	4
0—6 km/h	0—10 km/h	0—18 km/h	0—30 km/h
0—3.7 mph	0—6.2 mph	0—11.2 mph	0—18.6 mph
Dump time	18 seconds		
Dump angle	70°		

**Standard equipment**  
Impact tested steel safety cab.  
Cab heater with fresh-air intake and defroster  
Adjustable spring-cushioned, shock absorbing seat  
Windscreen washer/wiper  
Rear view mirrors (2)  
Full instrumentation:  
Gauges for: engine rev. counter/hour counter  
engine coolant temperature  
fuel gauge  
compressed air (brakes)

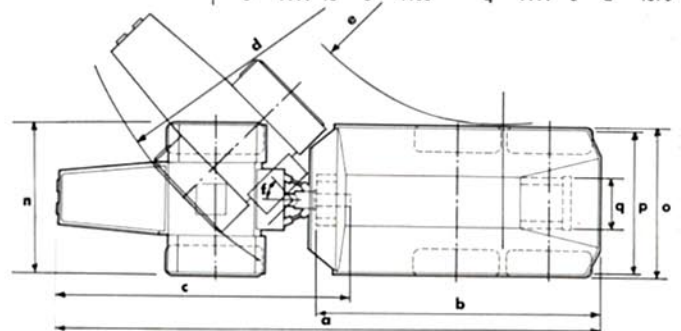
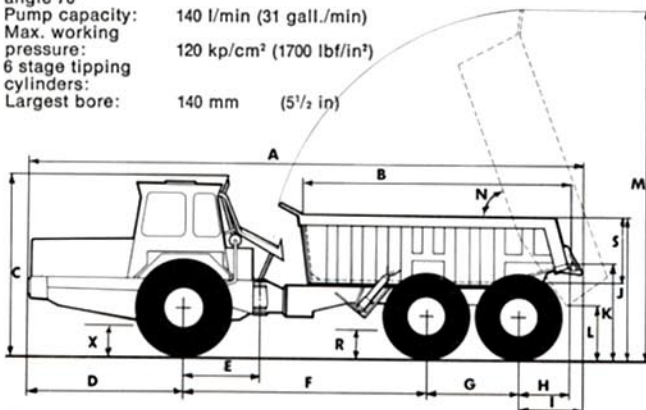
**Warning lights for:** engine oil pressure  
transmission oil temperature  
transmission oil pressure  
battery charging  
main beam  
parking brake  
direction indicators

Sun visor  
Mountings for safety belts  
Door retainers in open position  
Cigarette lighter and ashtray  
Horn  
Parking/Working lights. Headlight dimmer  
Reversing light  
Direction indicators and hazard warning system  
Interior cab light  
Air cleaner indicator  
Removeable roof panel  
Toolkit/tyre pumping hose  
Enamelled spark-arrest muffler  
Front towing eyes  
Spill guard for rear window

Service capacities:	l	Imp. gall
Coolant	23 l	(5 gall)
Engine oil	17 l	(3 <sup>3</sup> / <sub>4</sub> gall)
Fuel tank	225 l	(50 gall)
Transmission oil	22 l	(5 gall)
Hydraulic oil	135 l	(30 gall)
Compressed air tanks, front:	26 l	(5.7 gall)
rear:	40 l	(8.8 gall)

**Extra equipment**  
Extra fuel filter  
Engine heater, gas or electric  
Rotating flashing beacon  
Wear strips for standard body  
Rock version body with/without wear strips  
Rear extension to body  
Towing hitch  
Exhaust heated body  
Front wheels 18.00 × 25 XRB or HRL  
Rear wheels 14.00 × 24 XRB or HRL  
20.5 × 25 XRB

Dimensions	ft	in	mm	J	ft	in	mm
A	30	2	9190	K	7	6	2300
B	14	8	4480	L	5	1	1550
C	9	2	2800	M	2	7	800
D	8	7	2620	N	19	2	5850
E	4	2	1280	R	70°		
F	13	3	4050				
G	5	1	1540				
H	2	9	850				
I	3	2	980				
a	29	9	9060	f	45°		
b	16	5	5000	n	8	2	2490
c	16	1	4900	o	8	2	2480
d	24	7	7500	p	7	10	2380
e	13	5	4100	q	5	2	1570



We reserve the right to change specifications and design without notice.



The VOLVO BM 860 dumper — appreciated throughout the world for outstanding hauling capacity and operational reliability on off-the-road jobs.

**VOLVO BM**  
VOLVO BM AB ESKILSTUNA SWEDEN

Ref.no. 2306 AE  
ENGELSKA