



VOLVO BM
860

The VOLVO BM 860 dumper – the machine designed for tough terrain haulage

High-capacity with economy

The VOLVO BM 860 dumper is designed for high production capacity in the performance of a variety of tasks, under poor ground conditions and variable weather conditions. 6 big wheels with individual freedom of movement and remarkable "floatability" make the 860 unique as an off-road haulage vehicle. With 4-wheel drive, articulated steering and an exclusive bogie construction as well, the VOLVO BM 860 is equipped to tackle tough tasks.

On and off the road, the VOLVO BM 860 is therefore the most economical answer to a wide variety of haulage requirements.



Reliable

The 860 is designed throughout for tough, hard service. It has a simple basic structure made of high-quality materials with well-adapted, tried-and-tested VOLVO components. The 860 is therefore very reliable, requiring a minimum of maintenance and service for optimum economy.

Performance

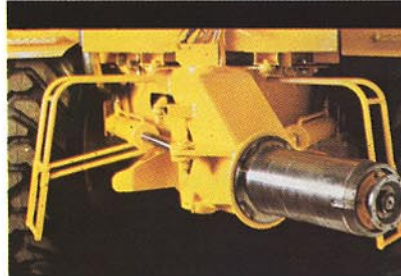
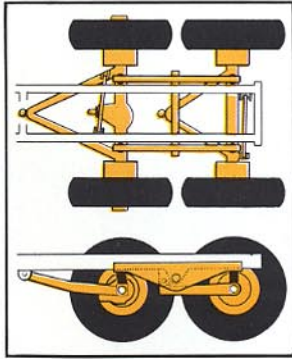
The powerful engine – 126 kW (170 hp) SAE – gives the 860 power to spare. Good acceleration and good gradeability make for high average speeds and quick haulage runs. The loading capacity of the dumper is 14.4 yd³.

Driving safety

The 860 is easy and safe to drive. It is designed to suit the needs of the driver, who sits in a first-class cab, ensuring maximum production efficiency. Conveniently laid-out, easy-to-operate controls, good visibility, easy steering and a dual-circuit brake system acting on all wheels make for added safety. The cab conforms to a high standard of driving safety, so the driver can keep up a good work rate, even over very uneven terrain.

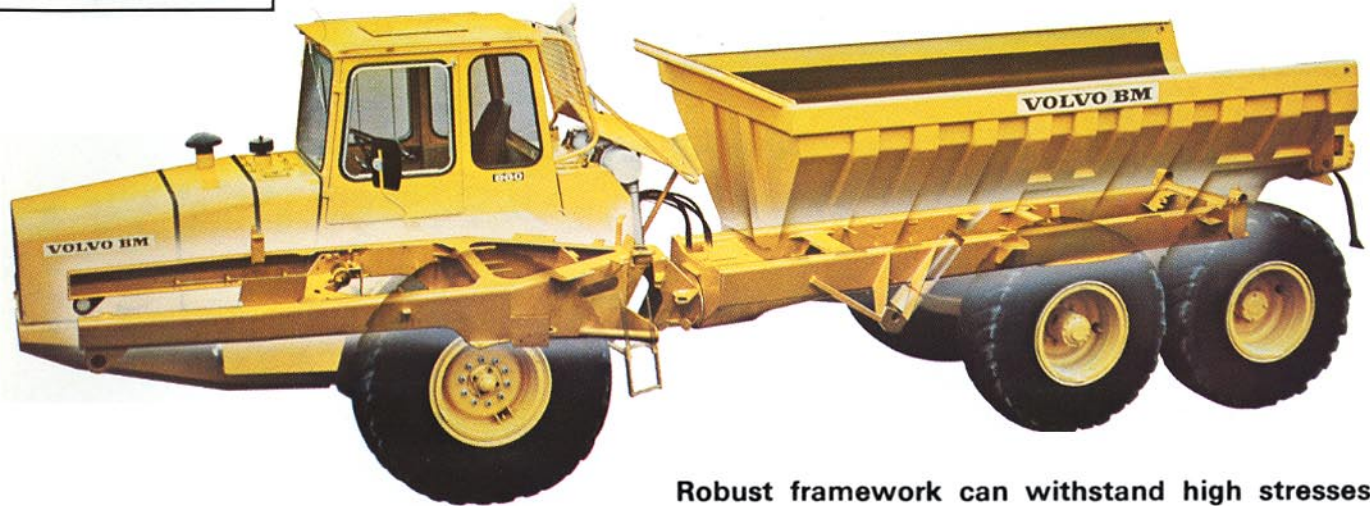
Negotiability

Fundamental to the construction of the 860 are the bogie and the articulation joint. In addition, the engine and load units are joined by a heavy-duty towing cylinder which permits infinite oscillation about its longitudinal axis. This makes the drive axles independent of each other, allowing the extra-size wheels to follow the irregularities in the terrain while retaining full ground contact. The bogie is designed with independently suspended axles. Each pair of wheels is thereby given great individual freedom of movement, so that the body almost "floats", even over large obstacles.



The towing cylinder which joins the engine and load unit permits infinite oscillation.

Minimum spillage as the body "floats" over the terrainequalizing bogie.

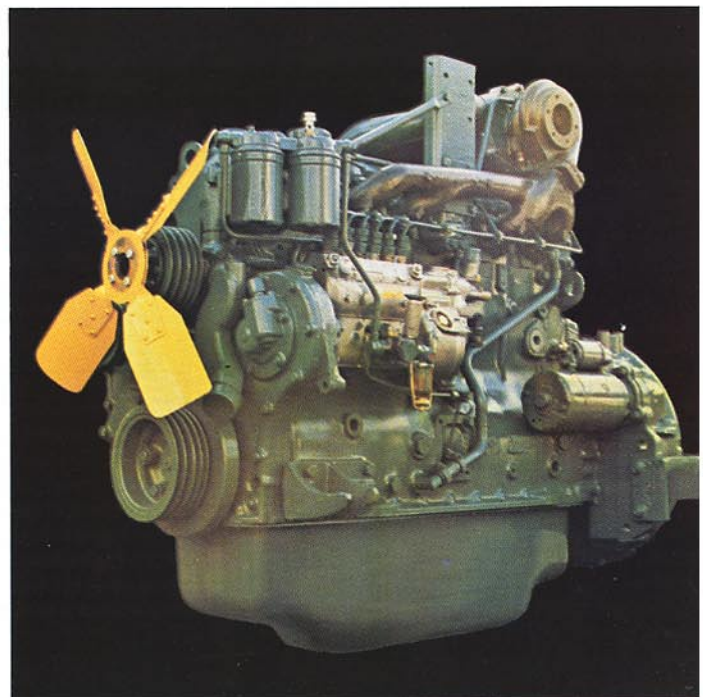
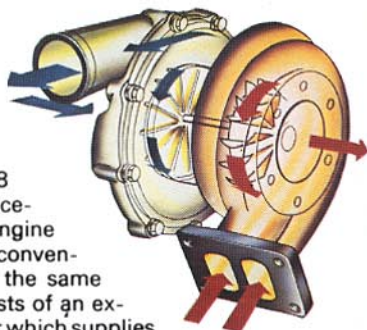


Robust framework can withstand high stresses

Since the articulation joint permits infinite oscillation about its longitudinal axis, torsional stresses are eliminated in the framework. This has permitted the construction of a rigid rear frame made of welded box sections and a front frame of welded channel sections.

170 hp VOLVO engine

The power source for the 860 is the VOLVO TD60 diesel – a 6-cylinder turbo-charged engine which is a refinement of the previous reliable, fuel-thrifty VOLVO TD50 engine. With its 5.48 cubic litres of cylinder displacement, the turbocharged engine produces more power than a conventionally aspirated engine of the same size. The turbocharger consists of an exhaust-gas-driven compressor which supplies the engine with a surplus of air to ensure complete combustion of the injected fuel. Turbocharging makes high demands on seals and gaskets, resistance to deformation and cooling. For this reason, the engine has two cylinder heads and steel gaskets, an extra-heavy-duty engine block, crank- and cam-shafts carried in 7 bearings with large bearing surfaces, and a very efficient cooling system. To simplify service and ensure reliability, the fuel, oil and air are cleaned in paper filters with large areas providing almost 100% cleaning efficiency under all operating conditions.



Hefty power pack

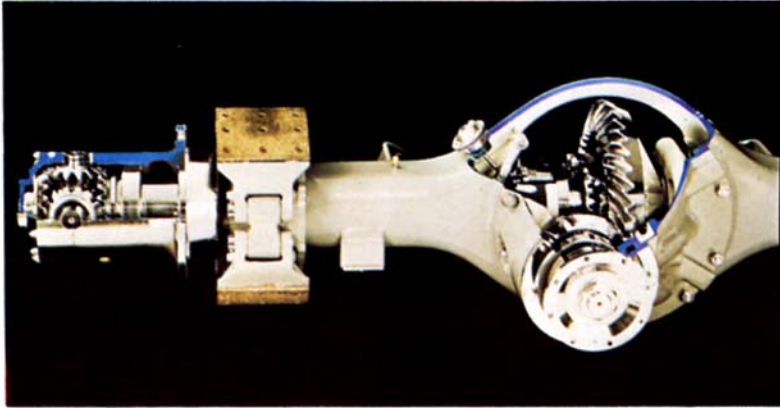
The VOLVO BM 860 is famous for its "go-anywhere" negotiability, its reliability and its power. This is mainly attributable to the machine's well-balanced construction and the use of tried-and-true VOLVO serial components in the power pack – components which are precision-made and adapted perfectly to their various functions.

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

The power-shift gearbox makes it easy for the driver to shift through the entire speed range – up or down, forward or reverse. The entire transmission is controlled by means of one lever. The high or

the low gear range and 4-wheel drive are selected by means of a rocker switch, and the gears are shifted by means of short, smooth motions – all in one and the same lever.

The torque converter continuously supplies the optimum torque for the varying resistance provided by the terrain, giving the machine a smooth ride. Both drive axles are provided with differential lock, ensuring forward mobility on slippery surfaces.



The bogie's driving axle is made for tough off-road driving. It features hub reduction and differential lock.



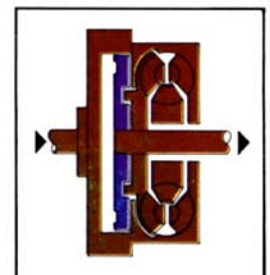
The 4-wheel drive and the differential locks can be engaged and disengaged while the machine is in motion to prevent loss of speed in tricky sections.



1. Torque converter with lock-up (direct drive)
2. Hydraulically operated gearbox
3. Final drive with differential lock
4. 4-wheel drive clutch
5. Reduction gearbox for engagement and disengagement of rear axle drive
6. Intermediate bearing for rear axle drive
7. Drive axle with differential lock
8. Réducteur planétaire.

Direct drive with lock-up clutch

The 860 is also frequently used on light terrain and on roads, where the torque converter has no function. In order to make maximum use of the engine output and to boost acceleration, the torque converter has been designed with a lock-up clutch which provides a direct link between the engine and the gearbox. The direct drive acts on 2nd gear and is automatically engaged at the optimum torque. The lock-up function can be completely disengaged if desired by means of a switch on the instrument panel.



Torque converter lockup clutch for direct drive.

Keeps up the pace...

The torque converter automatically supplies the optimum torque from the powerful engine. An even distribution of weight over the four driving wheels permits optimum utilization of the available tractive power. So the 860 possesses very good gradeability (hill-climbing capacity), resulting in shorter cycle times.

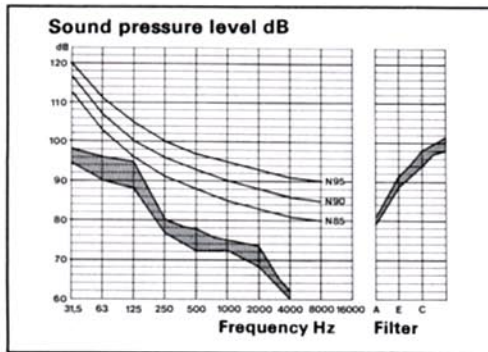
The turbocharger really comes in handy at high altitudes where it supplies a surplus of air to ensure good combustion and thereby high engine efficiency.



Comfortable and easy to drive

VOLVO BM construction machines always conform to a high standard of driver comfort, and the 860 is no exception. It is especially important on terrain vehicles that the driver should not be forced to slacken his pace because of a poor working environment.

Climb up in the VOLVO BM 860 – conveniently located hand grips and large doors make it easy to get in. Servo controls are provided for power-assisted steering, gear shifting, braking and engagement and disengagement of 4-wheel drive and differential locks. This makes the work of the driver safer and more precise.



The cab is warm and spacious. Much care has been devoted to insulation and cab suspension. The sound level is therefore unusually low – far below conventional standards.



The high cab has large glazed surfaces, providing the driver with a good view of his surroundings and contributing to safe transport.



Heating and ventilation for tropical and polar climates

The heating and ventilation system is so powerful that it can maintain a pleasant inside temperature even at sub-zero outdoor temperatures. Insulation against heat and cold is highly effective and the fan can be set to different speeds to provide the desired air flow rate.

In order to further boost air throughflow on hot days, a roof-mounted cab ventilator is available as an extra option.

Comfortable, correct driving posture

The 860 is equipped with an exclusive driver's seat for maximum comfort. The seat is adjustable fore-and-aft and the inclination of the backrest can also be varied. The cushion springs are adjustable and an indicator shows whether the springs are properly set to the weight of the driver.



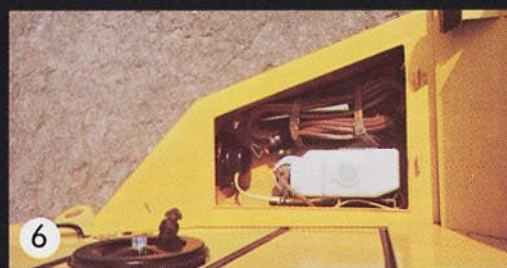
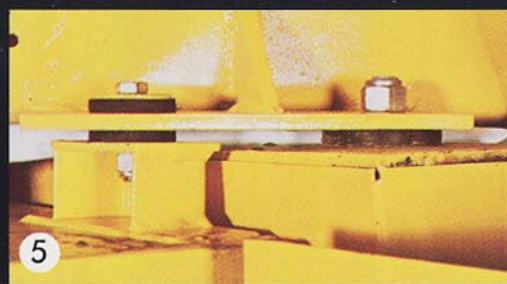


The cab on the 860 dumper is a safe, roomy and comfortable workplace.

Practical and well-built in every detail

The VOLVO BM 860 has had many years of practical experience in different countries and under different working conditions. Over the years, it has been improved in many ways for greater efficiency and convenience.

1. Rugged special body for rock haulage (extra).
2. Well-placed silencers keep radiated heat and sound away from the cab.
3. Large clearance angle under the front end.
4. Well-protected, powerful lights.
5. The cab's rubber mountings stop noise and vibrations.
6. Tool box with lock in right-hand side chest.
7. Large, anti-skid surfaces to stand safely on.
8. Big wheels – won't bog down, smooth ride.
9. Individually adjustable, exclusive driver's seat.
10. Easy to shift gears – short movements, precise positions.
11. Safe boarding from both sides.
12. Simple routine checks from ground level.
13. The battery is located for easy access in the left-hand side chest.





Rapid dumping thanks to a high angle – 70° – and an efficient hydraulic hoist system

Safe and easy to manoeuvre

Hydraulic articulated steering permits the wheels to be turned 45° to either side, resulting in a small turning radius – only 7.5 m (25 ft.) The 860 is therefore easy to manoeuvre in tight spaces. The double-acting steering cylinders are very powerful, making it easy to break the machine out of deep ruts when driving on mushy surfaces, thus improving negotiability.

Three brake systems

To ensure fail-safe operation, the 860 has three independent brake systems.

Driving brake which operates by means of compressed air on all wheels – total braking area 6 485 cm².

Parking brake which acts on the front axle and the driving bogie axle.

Exhaust brake which boosts the engine braking effect.



Articulated steering gives the 860 a small turning radius.

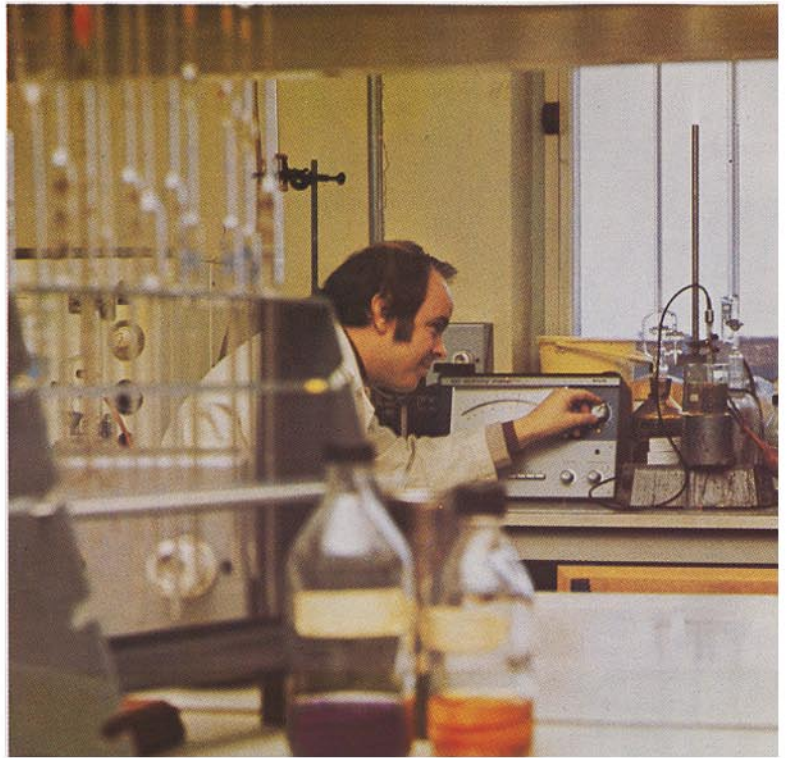


Safe brake system acting on all wheels.

Research and testing

Continuous research, detailed measurements and long-range testing precede the introduction of a new VOLVO BM product, ensuring that safety, quality and economy are systematically built in.

The cab – an important safety feature – is impact-tested and approved in accordance with prevailing standards. It has also passed the American ROPS test by a good margin (SAE J-394 A).



VOLVO BM DUMPERS – the rational transport solution



Airport construction, Switzerland



Construction of power station dam, Austria



Bridge construction, Sweden



Extraction of ceramic clay, France



Transport of river bed gravel, Italy



Road construction, Holland



Gravel transport, Sweden



Extraction of ceramic clay, England



Easy to service – easy to inspect

Thanks to its simple construction, the VOLVO BM 860 is easily accessible for both daily service and garage service. Great care has been devoted to making the routine check-points and lube points easily accessible.

Easily accessible service points facilitate daily service.

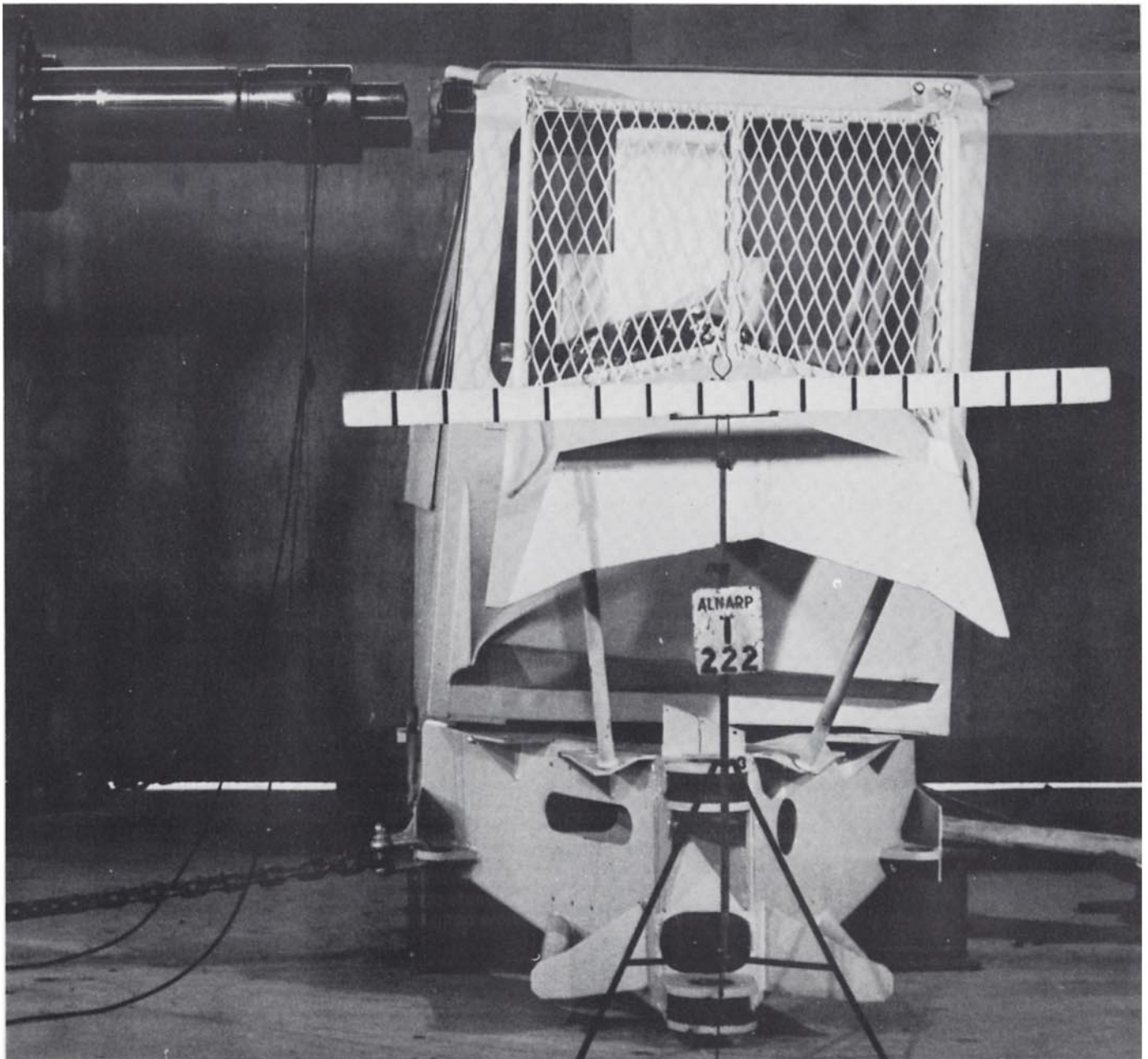


The engine bonnet can be tilted forward, rendering the engine compartment easily accessible.

All filters are located for easy cleaning or replacement. The picture shows the air filters for the cab ventilator and the engine.

Tested for maximum safety

The VOLVO BM 860 cab has undergone testing according to the American ROPS method (SAE J-394 A). In this test, the frame and the cab are mounted rigidly and then subjected to vertical and horizontal compression forces which have been calculated and determined in relation to the weight of the machine.





The VOLVO BM 860 dumper – appreciated all over the world for its high capacity and reliability in off-road transport. A result of built-in Swedish quality and many years of practical experience in the development and production of construction machines.

VOLVO BM
VOLVO BM AB ESKILSTUNA SWEDEN

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