

# **VOLVO ARTICULATED HAULERS**

**A35 D A40 D**



**VOLVO**



# A new day dawns – a new Volvo begins its working day

The first thing you notice in the morning twilight is that Volvo's articulated haulers have a new look, a new design. But as you come closer you discover that it is not just a question of form. Under the surface, the engineering that goes into Volvo's articulated haulers has continued to develop. The result is a series of new solutions that contribute to increased productivity, lower operating costs, improved safety and lower environmental impact.

With their new operator environment, greatly reduced service needs, more efficient drivetrain and improved retardation system, the A35D and A40D models are built to run. The high reliability resulting from all these improvements permits outstanding productivity. This means that the A35D and A40D certainly live up to today's demands for short project schedules.

At the same time you will feel right at home in the new A35D and A40D. This is a further

development of the articulated hauler that has been used all over the world for transportation jobs under all conceivable conditions.

When Volvo introduced the articulated hauler in the 1960s it was an entirely new concept. Because of the hauler's ability to move through practically any terrain and its superior maneuverability for loading and unloading, it changed the way many companies work and made them much more efficient.

Ever since the start, Volvo has been the market leader and the pacesetter in the development of the articulated hauler. The new A35D and A40D models are good examples of this tradition. Technical improvements have been made on the basis of thorough knowledge of the actual conditions under which articulated haulers work and the focus is on making an articulated hauler from Volvo deliver the lowest cost per ton moved.



*Big projects, short project schedules – here Volvo A35D and A40D show their excellence.*



# Optimum operator environment means high productivity

The operator has always played a central role in Volvo's articulated hauler design. This is the literal truth because the operator's cab is located directly above the front axle and centered between the wheels, reducing operator movement. Thanks to this placement the operator enjoys a working environment that contributes significantly to productivity.

The A35D and A40D models are equipped with an entirely new operator's cab whose design is determined by modern ergonomic research. This means that the noise level has dropped and the cab has been made roomier and easier to

get in and out of, with wide and angled steps and a door opening that is flush with the floor. The steering wheel is adjustable for height and angle and the pedals have been located in ergonomically optimal positions. The fully adjustable air suspension operator's seat can be adapted to any individual. The improved climate control system gives good working conditions in both heat and cold. The roomy cab provides ample space for an instructor's seat. The operator's comfort is further improved by a number of small, but important details such as space for cooled/heated storage box, 24-volt outlet, cup holders and sun shades. There is also a space for a fire extinguisher. The instrument panel is newly designed and all operating controls are ergonomically shaped and located.



*A radio is just one of the details that contributes to a good working environment.*



*The instrument panel provides vital information.*



*An air suspension operator's seat improves comfort.*

# New design gives both increased safety and productivity

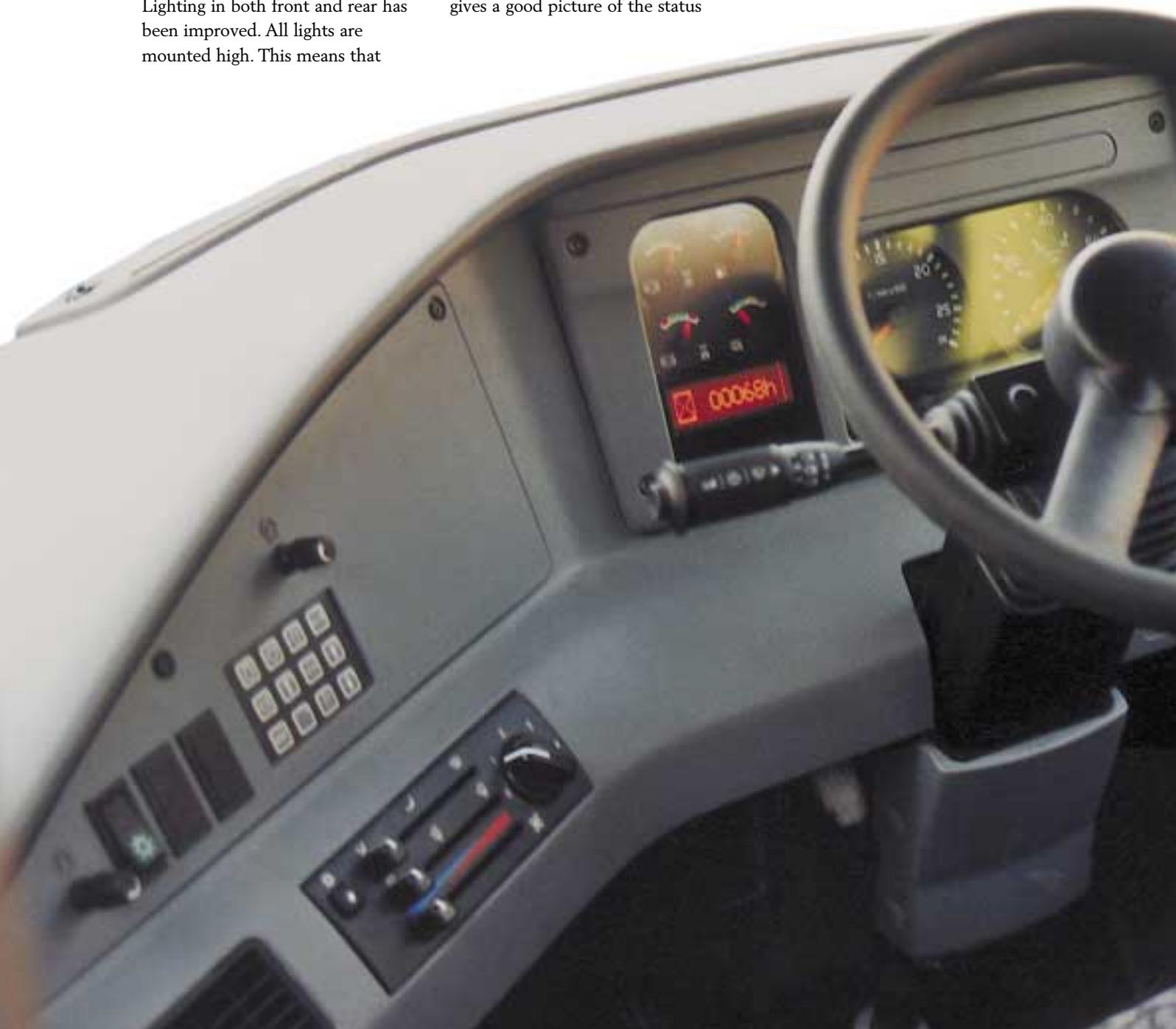
The new design of the tractor unit not only furnishes a better working environment for the operator, it also contributes to increased productivity and safety. The new design has considerably improved the operator's close-up visibility. Vision to the rear is very good, due to large, symmetrically placed rearview mirrors.

Lighting in both front and rear has been improved. All lights are mounted high. This means that

the lights are easy to keep clean and durability is improved due to their protected location. The rear lights are light-emitting diodes for even better service life.

The instrument panel is newly designed and provides a rapid overview of all important information. Information that the operator receives via the instrument panel gives a good picture of the status

of the hauler's various engineering systems. At the same time the operator can plan his work thanks to information presented, such as number of work cycles, distances, etc. The system also provides data on fuel consumption and speed.





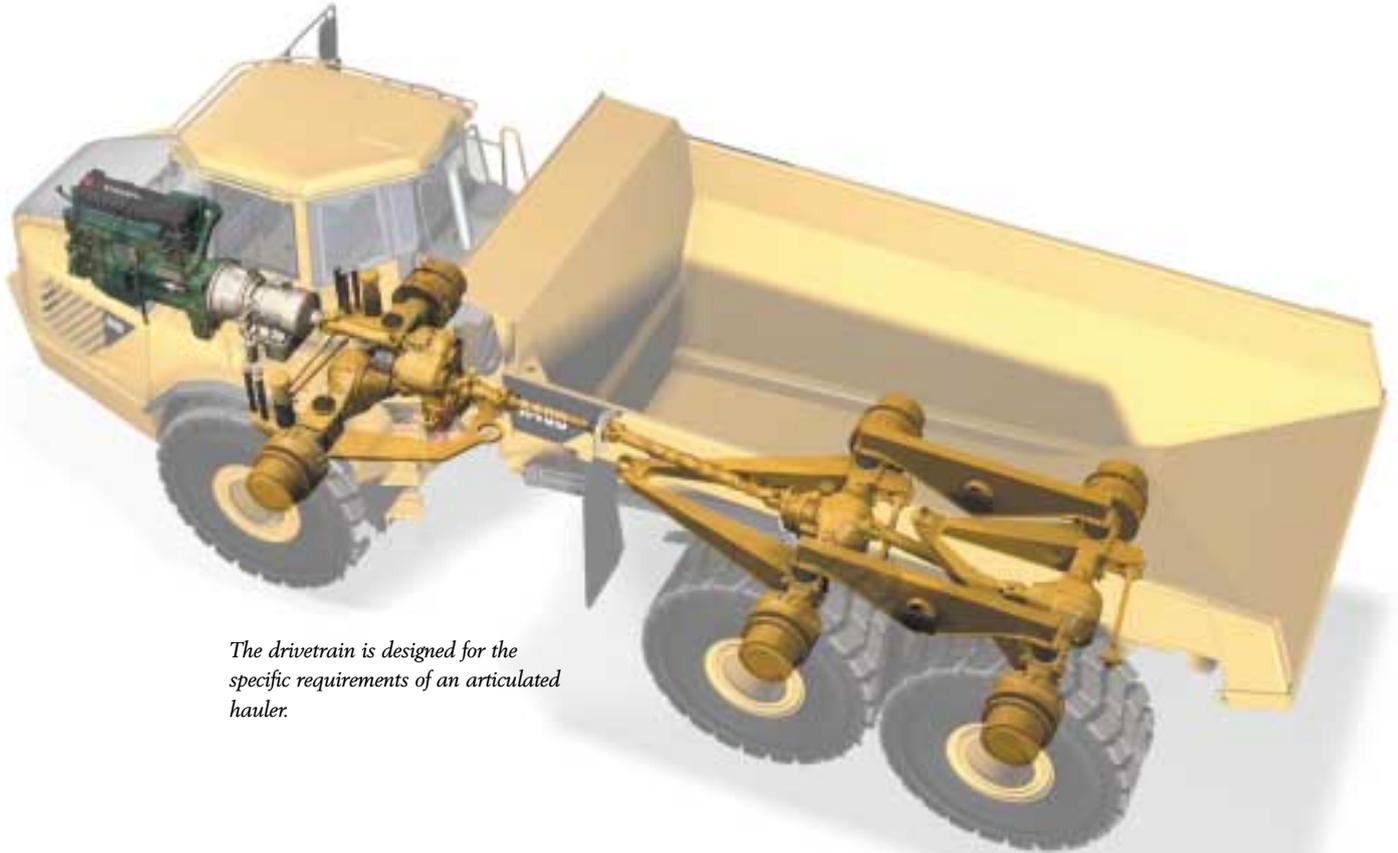
*The new design improves the already excellence close-up visibility.*



*Very good visibility to the rear due to the large mirrors.*



# Fine-tuned and optimized, the Volvo drivetrain means efficiency



*The drivetrain is designed for the specific requirements of an articulated hauler.*

The reason that the articulated hauler is so successful is that the drivetrain is fine-tuned and optimized for its job. Volvo's articulated haulers have always been characterized by a drivetrain that is designed for the specific requirements of an articulated hauler.

The A35D and A40D models are equipped with Volvo's new electronically controlled 12-liter diesel engine adapted for the demands of an articulated hauler. The engine gives high torque at low RPM, which is important in starting, and also reacts quickly to the accelerator, which facilitates driving in difficult terrain. At the same time, the engine has high peak power, which means that it is well suited for driving at higher speeds. The engine is very efficient and delivers a lot of power for its fuel consumption.

Its efficient combustion also means lower emissions. The engine has two separate cooling systems, both equipped with thermostatically controlled hydraulically powered fans. The fan system is efficient using power only when cooling is needed.

The engine's electronic control unit works efficiently with the electronics in the transmission to provide an intelligent system that adapts automatically to driving conditions. The operator controls the desired speed with the accelerator and the automatic transmission takes care of the rest. As much of the driving as possible is done in lock-up mode to save energy.

When Volvo first developed the articulated hauler, it was built with the basic idea that it would take care of transportation under tough driving conditions.

Volvo's articulated haulers have the capability for all-wheel drive. All differentials are 100-percent lockable. This gives the operator many driving options to choose from and facilitates economical and efficient operation under all conditions. Under good conditions, the vehicle operates with as few driving wheels as possible and with open differentials. In all-wheel drive with both longitudinal and transverse differentials locked, the hauler can go practically anywhere.

Volvo's solution with three-point suspension, a fully sprung front axle and all-terrain bogie in which each bogie axle has three-point suspension provides comfort, safety and traction even in rough terrain.



The front axle's sturdy rubber suspension with shock absorbers means the hauler can maintain high average speeds while maintaining operator comfort and minimizing mechanical wear. The bogie design means that each pair of wheels can move independently to maintain ground contact. This lets the body stay practically level over rough ground while the frame undergoes less stress.

**Precise steering means more efficient driving**

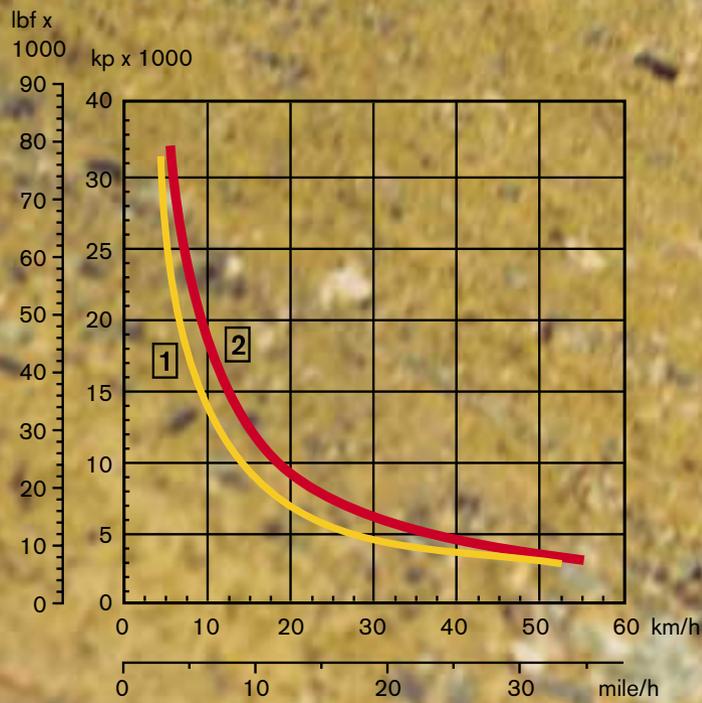
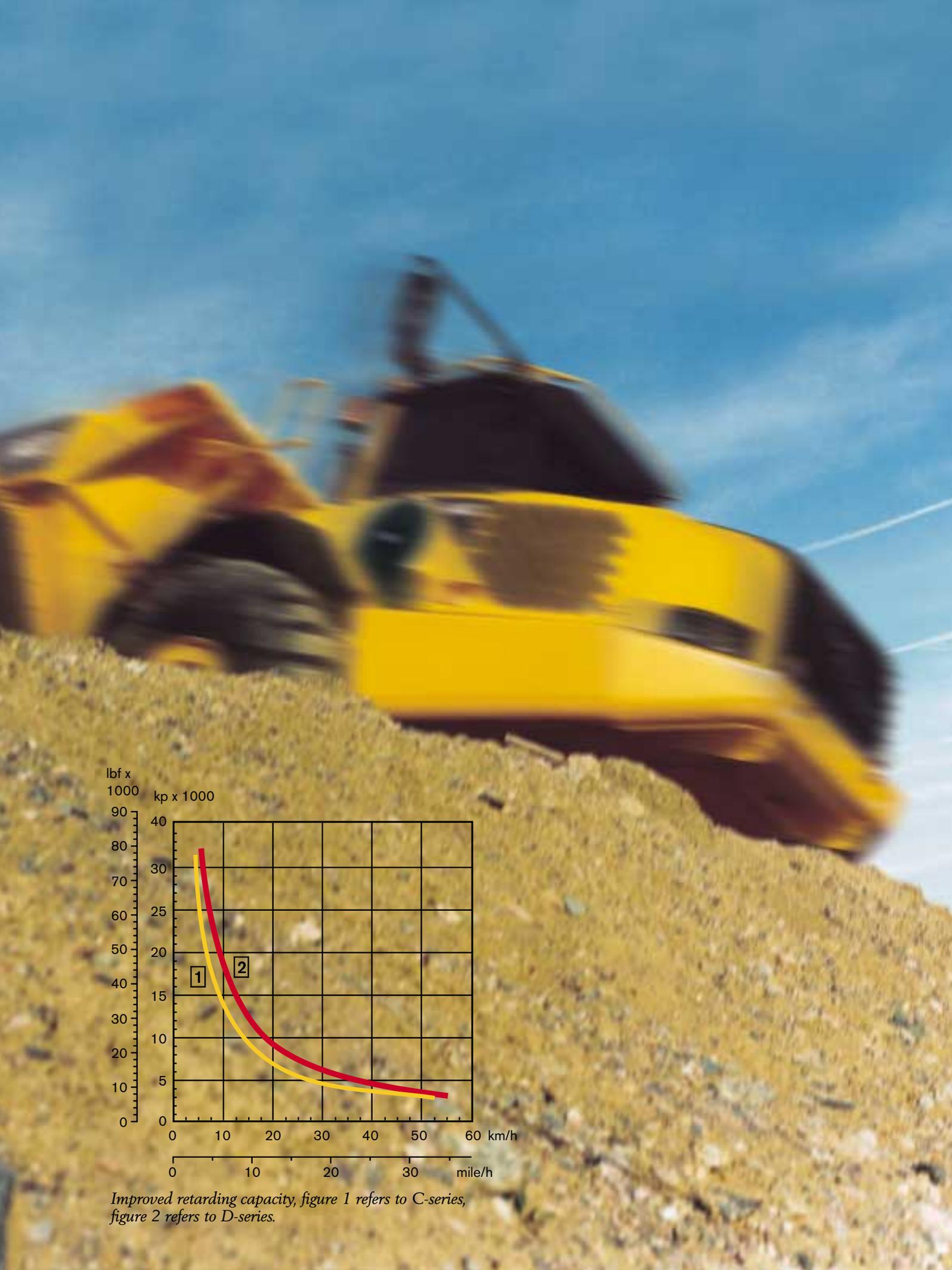
In order to match the excellent drivetrain and provide capability for fast cycles in various types of terrain, Volvo articulated haulers are equipped with self-compensating hydro-mechanical steering. A feedback rod compensates for external forces, giving good steering stability.

*The self-compensating hydro-mechanical steering gives steering comparable to a passenger car.*

The system automatically senses when the vehicle is at correct angle commanded by the steering wheel position. This gives a good steering feel, comparable to that of a passenger car, where the steering

angle is always the same for a given steering wheel position. Therefore it is easy to operate.





Improved retarding capacity, figure 1 refers to C-series, figure 2 refers to D-series.

# Improved braking gives greater efficiency

An articulated hauler from Volvo is characterized by great attention to safety. This is demonstrated in the A35D and A40D models by their very functional braking systems. The A35D is equipped with dry disc brakes, while the A40D has oil-cooled wet disc brakes.

Both haulers have two synergistic retardation systems.

The Volvo Engine Brake (VEB) is a compression- and exhaust-brake integrated into the new engine. This is activated as soon as the operator releases the accelerator, and exerts full power when the operator activates the first stage of the brake pedal.

The hydraulic retarder is integrated into the transmission and operates together with the VEB to decrease speed and maintain a constant pace on downhill grades. The retarder provides a strong, smoothly applied, continuous braking effect.

The VEB requires less cooling power relative to its braking power than previous designs. This makes it possible for the hauler to be operated downhill at higher speeds.

The VEB and the hydraulic transmission retarder work together when the operator depresses a special retarder pedal. The VEB is activated first, followed by the retarder. This takes place smoothly and gives a very good, safe retarding effect. At the same time, wear on the service brakes is reduced to a minimum. During operation, service brakes are only needed in exceptional cases and to control speed in emergency situations.



*The Volvo Engine Brake and the hydraulic retarder give excellent retarding effect.*



# Larger load capacity and faster dumping improve productivity

The articulated hauler's strong market position is based on its ability to optimize the equation between load carrying and transport speed under various terrain conditions. An articulated hauler has great load-carrying ability for its weight, and compared to previous models, the A35D and A40D have even better load-carrying and transport capacity.

An articulated hauler standing still is an inefficient machine. The design of the body is based on the principle that loading and dumping should take place in the shortest possible time.

The body is wide and open and optimal for loading with excavators and wheel loaders. Because of their high maneuverability, articulated haulers are also well suited for loading from fixed loading facilities.

The articulated hauler has a low center of gravity and the bogie design means that all wheels are in contact with the ground, even over very bumpy terrain. The angle of the rear chute keeps spillage to a minimum.

Both the A35D and A40D models are equipped with a new hydraulic system that permits faster dumping. The load sensing hydraulic system features variable displacement piston pumps for maximum efficiency, speed and power.

The A35D is now equipped with new single-stage double-acting dump cylinders.



*The body is optimized for efficient loading.*

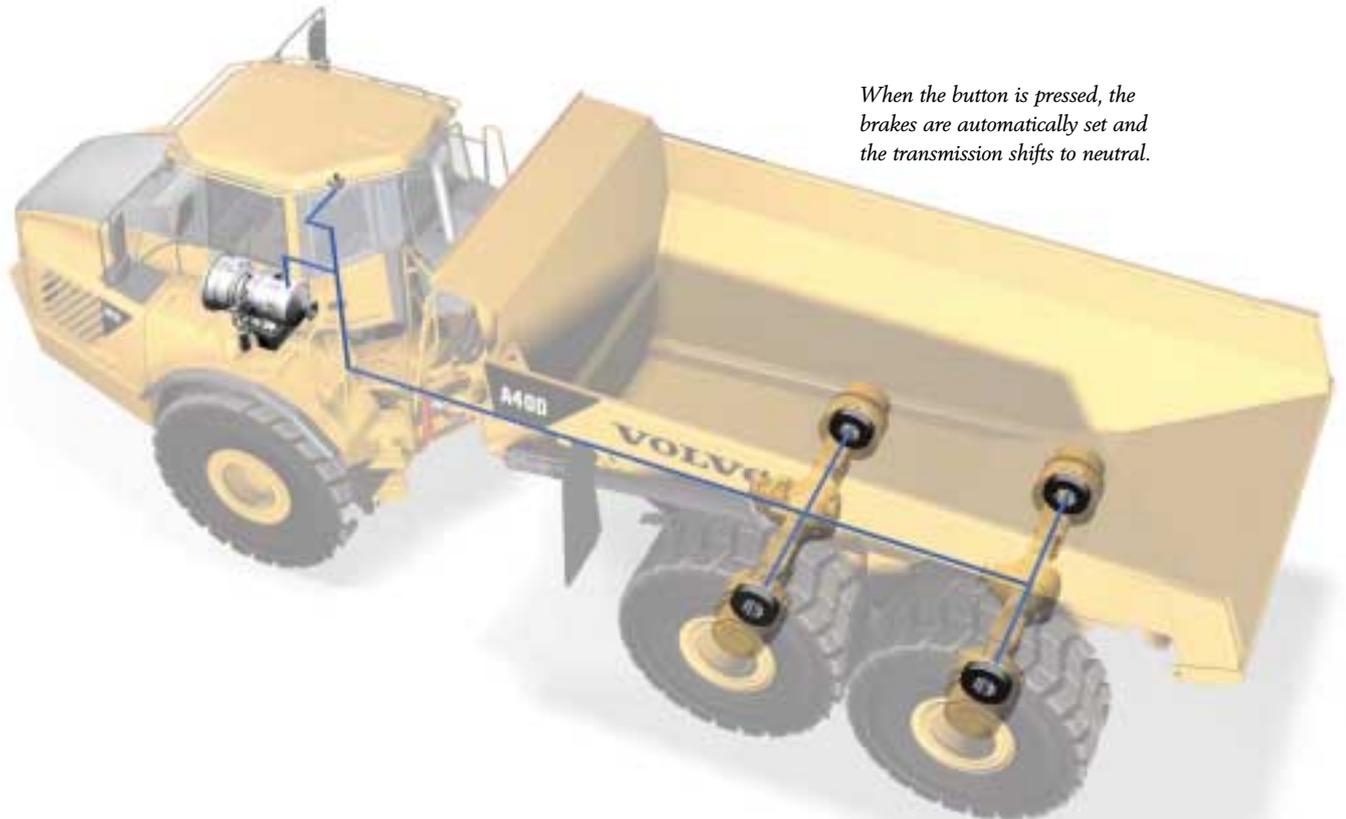
# Load & Dump Brake for efficient and safe loading and dumping

The A35D and A40D models both have Volvo's newly developed, patented Load & Dump Brake. When the hauler is in position for loading or unloading, the operator presses a button and the brakes are automatically set and the transmission shifts to neutral. This improves efficiency and safety while giving the operator better working conditions. Wear on the brakes and drivetrain is also minimized. After the hauler is loaded or unloaded, the operator places it in gear and the Load & Dump Brake system releases.

The shape of the body, the high dumping angle and the all-terrain bogie make it possible for the operator to back up to exactly the right dump spot, even when dumping over an edge. These are qualities that contribute to the Volvo articulated hauler's ability to put its load in precisely the right place.



*Volvo's Load & Dump Brake improves both efficiency and safety.*



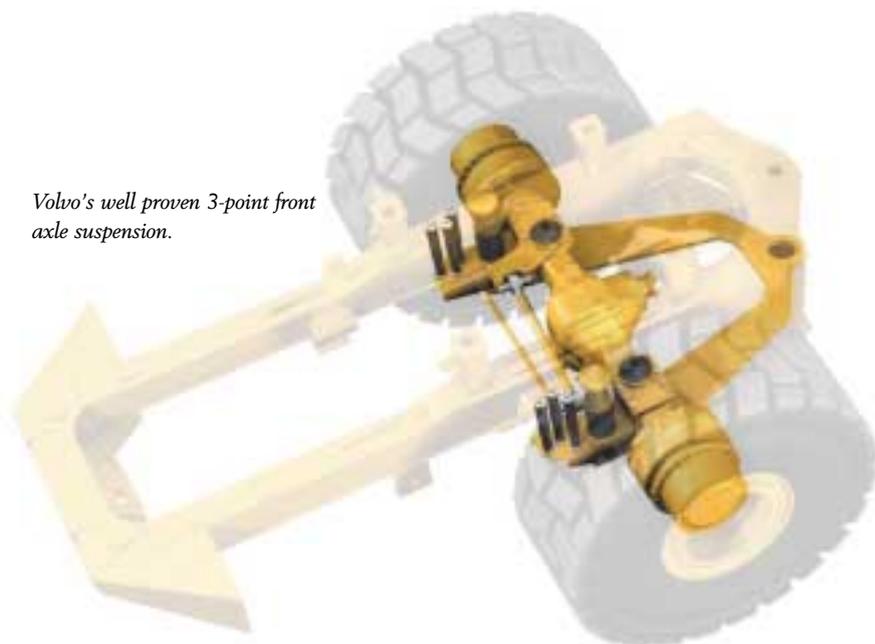
*When the button is pressed, the brakes are automatically set and the transmission shifts to neutral.*



# High durability gives high reliability

A basic condition for obtaining high productivity from an articulated hauler is that it must be reliable. That is it must withstand working under the toughest of conditions. Volvo's well-earned reputation for high quality and durability also applies to the articulated haulers.

The A35D and A40D models, like other articulated haulers from Volvo, are designed for tough reality. Their well-proven drivetrain and excellent braking, their frame and bogie design, fine-tuned to all driving conditions, and their robust frames and steering system all contribute to durability. On the A35D and A40D models, durability – and thereby reliability – have been improved by the electronically controlled engine that gives optimum power and maximum life. The improved braking function from the VEB and the retarder decreases wear on the service brakes.



*Volvo's well proven 3-point front axle suspension.*

# Less service increases productivity and decreases costs

Volvo's new haulers are built to run; providing the highest reliability possible. For this reason, great emphasis has been placed on reducing the need for service. Permanently lubricated bearings and automatic monitoring of lubricant levels with the information reported to the operator are two examples of this. The A35D and A40D models do not require any daily or weekly maintenance at all, and the service intervals have been doubled in

many cases. The number of service points has also been decreased and service has been simplified in order to cut downtime even further. The new front grille makes it easier to access the various service points on the engine. The new engine hood itself is also very easy to open, and provides almost uninhibited access to the engine and other components. Many different Volvo vehicles also share common spare parts, which further contributes to good service and maintenance economy.

Measurements show that these improvements mean that the A35D and A40D models require less service than comparable machines.



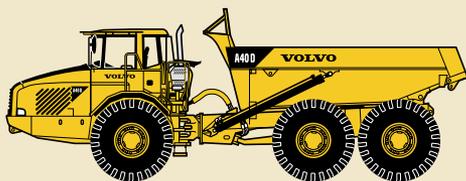
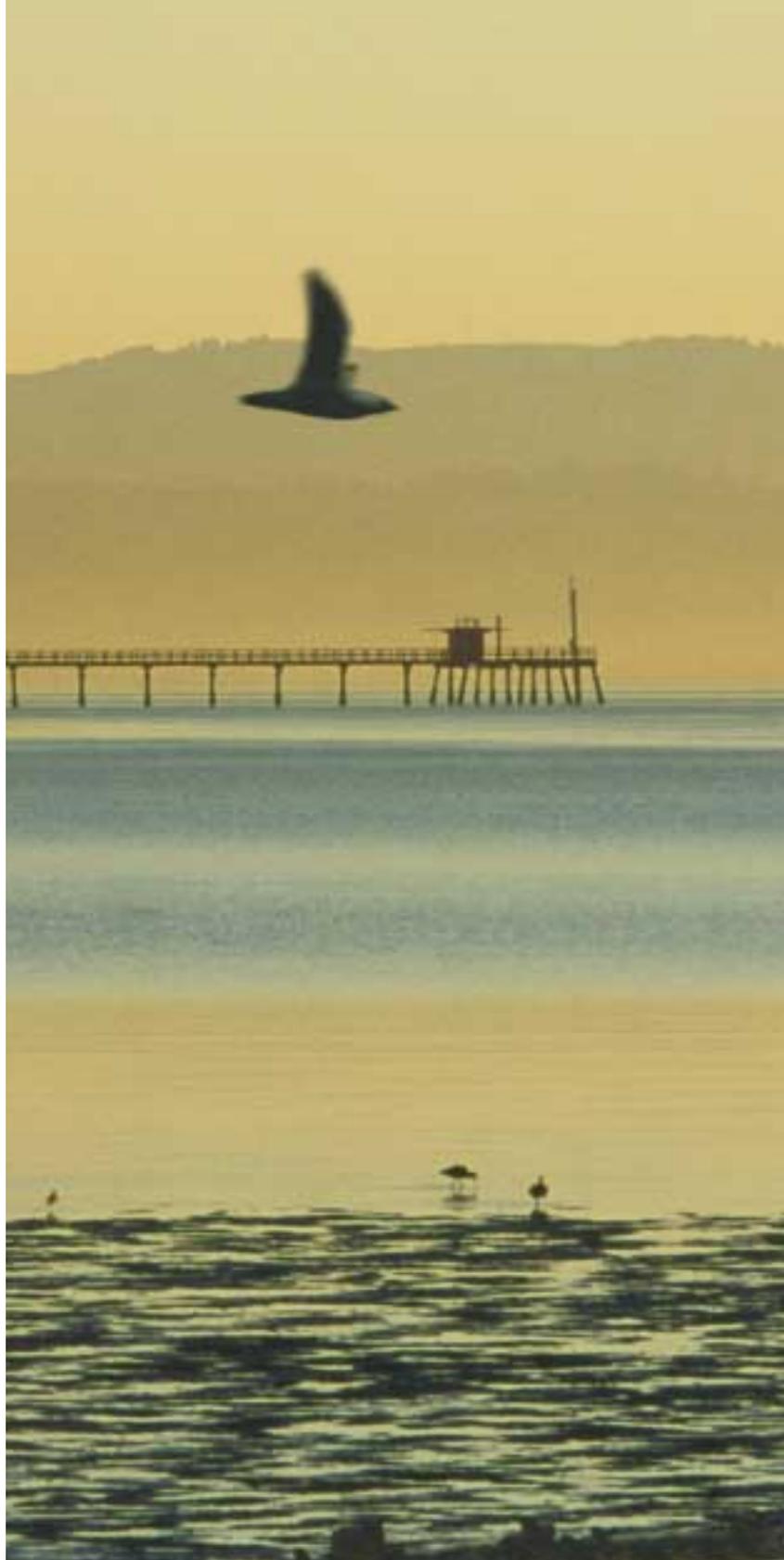
*The batteries are easily accessed outside the cab.*



*Access to the whole engine compartment is superb thanks to the new engine hood. An access ladder incorporated in the front grille makes it very easy to reach the various service points.*

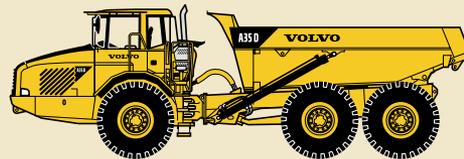
# Built To Run

The sun is starting to sink below the horizon and the workday draws to its close, well, for the operator at any rate. The new Articulated Haulers from Volvo are built to run – built to do their job around the clock. The A35D and A40D are two vehicles that live up to the demand for high reliability that yields high productivity and contributes to short project schedules.



**A40D 6x6**

<b>Payload</b>	37.0 tonnes	<b>41 sh tn</b>
<b>Load capacity heaped</b>	22.5 m <sup>3</sup>	<b>29.4 yd<sup>3</sup></b>
<b>Gross weight</b>	68.2 tonnes	<b>150507 lb</b>
<b>Max speed</b>	55 km/h	<b>34 mph</b>



**A35D 6x6**

<b>Payload</b>	32.5 tonnes	<b>36 sh tn</b>
<b>Load capacity heaped</b>	20 m <sup>3</sup>	<b>26 yd<sup>3</sup></b>
<b>Gross weight</b>	60.8 tonnes	<b>134038 lb</b>
<b>Max speed</b>	56 km/h	<b>35 mph</b>

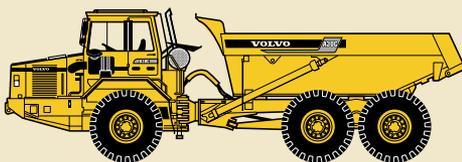
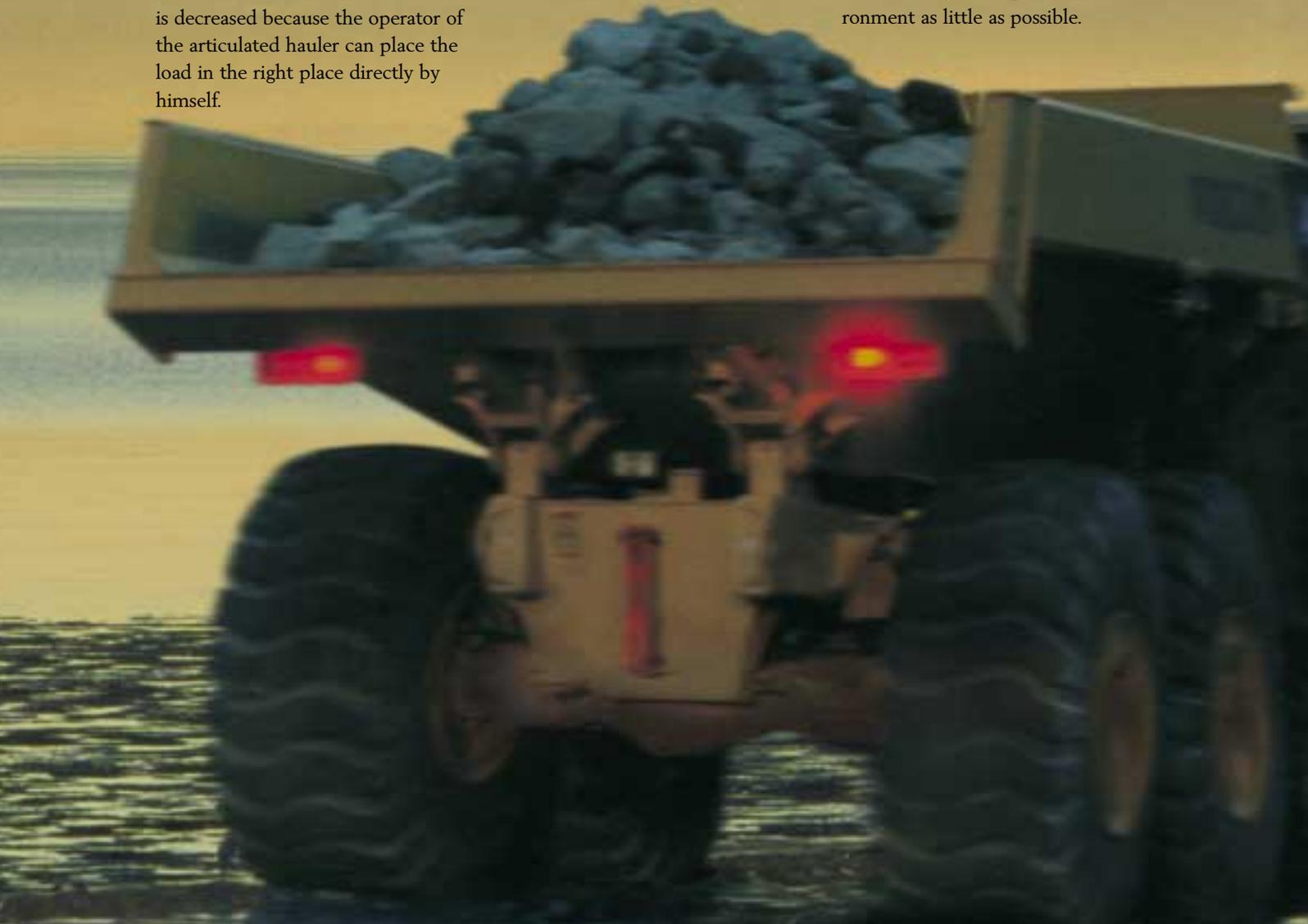
# Low environmental impact holds down total costs

The articulated hauler is designed to make less of an impact on the environment than comparable designs. It has low fuel consumption per tonnage transported; it requires no specially prepared roads and the number of machines at the worksite is decreased because the operator of the articulated hauler can place the load in the right place directly by himself.

When an articulated hauler is driven cross-country, it also causes less damage, thanks to its large wheels with low ground pressure.

With the A35D and A40D, Volvo proves that the focus is on

environment and safety. The new machines are quieter. This means that they can work in populated areas that demand low decibel levels. Lower frequency of service means less waste and the new low-emission engines impact the environment as little as possible.



**A30C 6x6**

<b>Payload</b>	27.0 tonnes	<b>30 sh tn</b>
<b>Load capacity heaped</b>	16.5 m <sup>3</sup>	<b>21.6 yd<sup>3</sup></b>
<b>Gross weight</b>	48.5 tonnes	<b>106923 lb</b>
<b>Max speed</b>	52 km/h	<b>32 mph</b>



**A25C 6x6**

<b>Payload</b>	22.5 tonnes	<b>25 sh tn</b>
<b>Load capacity heaped</b>	13.5 m <sup>3</sup>	<b>17.7 yd<sup>3</sup></b>
<b>Gross weight</b>	40.3 tonnes	<b>88779 lb</b>
<b>Max speed</b>	52 km/h	<b>32 mph</b>



**A25C 4x4**

<b>Payload</b>	22.5 tonnes	<b>25 sh tn</b>
<b>Load capacity heaped</b>	13 m <sup>3</sup>	<b>17.0 yd<sup>3</sup></b>
<b>Gross weight</b>	38.3 tonnes	<b>84370 lb</b>
<b>Max speed</b>	52 km/h	<b>32 mph</b>



## Technology on Human Terms

The Volvo Construction Equipment Group is one of the world's leading manufacturers of construction machines, with a product range encompassing wheel loaders, excavators, articulated haulers, motor graders and more.

The tasks they face vary considerably, but they all share one vital feature: technology which helps man to perform better: safely, efficiently and with care of the environment. We refer to it as Technology on Human Terms.

The sheer width of the product range means it is always possible to choose exactly the right machine and attachment for the job. Each machine also comes with the quality, continuity and security which is represented by the

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*The Volvo Construction Equipment Group develops, manufactures and markets Volvo and Champion construction equipment. We are a Volvo company with production facilities on four continents and a market presence in over 100 countries.*

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# **VOLVO**

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