



Volvo Buses

A corporate presentation

VOLVO





I roll *for everyone*

Volvo Omnibus -

"I roll for everyone".

**This Latin phrase is
equally applicable as an
accurate description
of our operations.**

Buses from Volvo roll on roads virtually all over the world. They form the backbone of the public-transport systems of cities strung out on different continents. They carry people between countries and cities, from home to workplace. And they are a vital link in one of the world's fastest-growing industries - tourism.

Development and transportation have always gone hand in hand. Without travel, there are no meetings, no trade and commerce, no meeting of cultures and no technological exchange.

In many places, however, overcrowding and air pollution from traffic have reached the limits of the socially acceptable. The question is whether things must get worse before they get better. We don't think so. If politicians, commercial and industrial interests and other concerned parties cooperate, there is excellent potential for reversing the trend and promoting a positive development.

We are convinced that the bus will play an increasingly important role in meeting the increasing need for rational transportation. Not least in countries experiencing a rapid growth in population and a swift pace of urbanisation. The bus offers greater flexibility than any other public-transport alternative. It can be modified to meet the most stringent environmental norms, and it offers extremely high capacity in a cost-effective transport system.

Here at Volvo Buses, we put all our faith in the future of buses.





Competitiveness *keeps us rolling*

A company with a limited domestic market which is subject to considerable competition can never afford to relax.

We must always improve, and we must succeed abroad if we are to expand.



B10M,
China



B10L,
France



B10M,
Australia



High quality in products and services, a broad product range and a global organisation are some of the keys to Volvo Buses's international success. Our own specialised operational area is complemented with close interaction with the other members of the Volvo family. Together, we offer an extremely strong global service network and field all the resources needed for continuous development of effective, environmentally optimised engines and other technically advanced components.

Success breeds success

The trend since the early 1990s has no parallel in Volvo Buses's history. Sales curves point constantly upwards. We have established a presence on many new markets and our buses now roll across six continents.

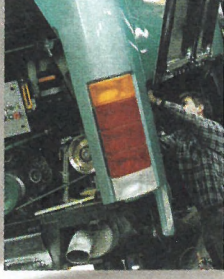
We're not yet represented in every tiny corner of the globe. But we're well on our way.

Olympian,
Singapore



B7,
Peru





Global presence.
 Volvo buses are sold on more than 50 markets the world over.
 There are bus production plants in 15 countries.

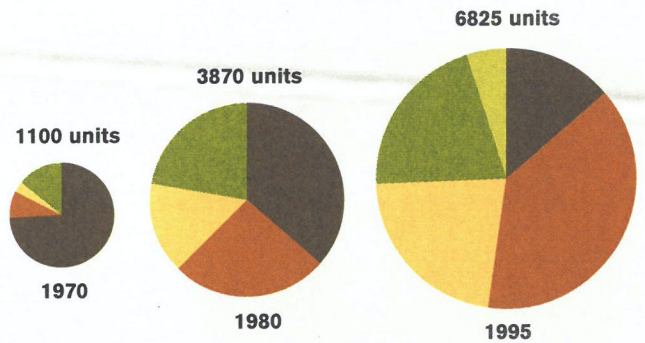


B10M, South Africa



B10M, Brazil

**Buses/chassis supplied per region
 1970 - 1980 - 1995**



- Scandinavia
- Rest of Europe
- Latin America
- North America
- Other markets

B10L,
 Austria



B10M,
 New Zealand



B10BLE,
 Denmark





A changing world

The conditions under which the world's bus manufacturers operate are subject to constant change. The international political upheavals of the past decade have left their imprint on many markets. The development of powerful trade blocs, deregulation of the transport industry in many countries and a changing customer structure are other factors which have affected and continue to affect the nature of our operations.

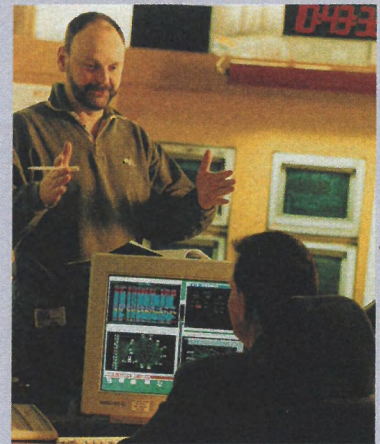
Fewer, larger, more powerful

Many markets have seen a parallel reduction in the number of both bus manufacturers and bodybuilders. There are fewer customers, and those that remain are larger and operate on an increasingly international scale. Municipal operations have in many cases been privatised and many transport companies focus exclusively on transport and passenger services, leaving

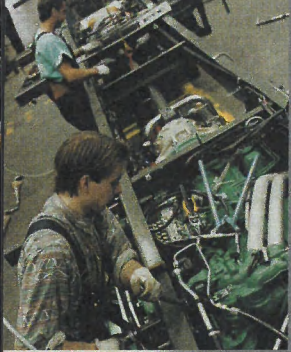
vehicle service, finance and other operations in the hands of external partners.

The way we see it, only a few bus manufacturers will be able to offer the flexibility, size and strength needed to meet forthcoming demands on products, services and global presence.

Volvo Buses is one of the few.







Everything from chassis to *complete transport solutions*

Volvo's aim is to be the world's leading manufacturer of large buses by the early years of the new century.

In order to succeed, we have to be committed to a role as the business partner best able to meet our customers' wishes, irrespective of geographic location.

The strategy is clear-cut:

We're going to continue developing our chassis operations while at the same time expanding our facilities for delivering complete buses.

We will expand our operations in terms of service and finance, and also play an active role in the development of transport systems.

We will consolidate and extend our presence on markets in which we are already active, and expand into new markets.

Volvo Buses is today the largest single supplier of bus chassis to Europe's independent bodybuilding specialists, and we maintain close cooperation with many of the world's leading bodybuilders. We also manufacture complete buses both in our own plants and together with external partners on many markets. Volvo Buses has ownership interests in about ten bodybuilding companies, most in the form of wholly-owned subsidi-

aries. This structure allows us to offer both naked chassis and complete vehicles in large production series, as well as buses which are individually tailored to suit local requirements and specific needs.

Volvo Buses – more than just buses

Our aim is to offer everything from workshop facilities and round-the-clock service to leasing and finance, and also to provide expert advice on complete transport systems. At present, the services available vary from one market to another, but there is a concerted drive to integrate all the available services into a uniform selection available universally.

You'll find us where we find our customers

Geographic growth is not an end in itself. By maintaining a presence wherever our customers are to be found, we can gain deeper insight into the everyday conditions under which bus companies operate on the various markets. Understanding their needs in this way puts us in an excellent position to meet all their requirements.

After all, it is our local success which nurtures our global standing.



It all began over a dish of crayfish



The year is 1924.

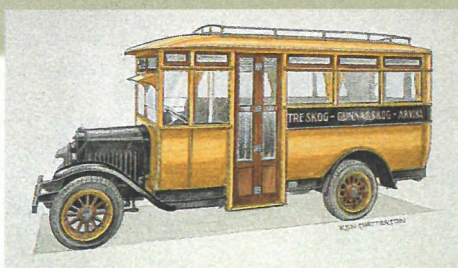
Over a delicious crayfish dinner at Stockholm's renowned Restaurant Sturehof, Assar Gabriellson and Gustaf Larson come to an agreement to start up car production in Sweden. On 14 April 1927, the first series-manufactured car bearing the Volvo badge rolls out of the factory in Göteborg on Sweden's west coast. February the following year sees the launch of Volvo's first trucks, followed soon after by a number of truck chassis clothed with bus bodies. The foundation was laid for what is today the Volvo Bus Corporation.

Chassis, chassis, chassis.

The company executive decided early on that Volvo would focus on the technology-intensive aspect of bus production, manufacturing only chassis, not complete buses. This would enable the company to sell its products on all markets, with full potential for modifying each vehicle locally. The final configuration would be an issue for the customer to take up with the body-building firm.



The first true bus chassis. 1934 saw the launch of Volvo's first dedicated bus chassis, the B1, with the frame curved over the rear axle. Customers could choose between two engines, one running on petrol and the other on crude oil, both producing 90 hp. At the time, petrol cost 29 öre and crude oil just 10 öre a litre. The 1930s were something of a golden age for buses, with rapid development towards larger, heavier and more powerful vehicles.



Enter the diesel engine.

The first diesel engine – the VDA – made its entry at the end of the war. A milestone in Volvo Buses's development and a cornerstone for subsequent successes.



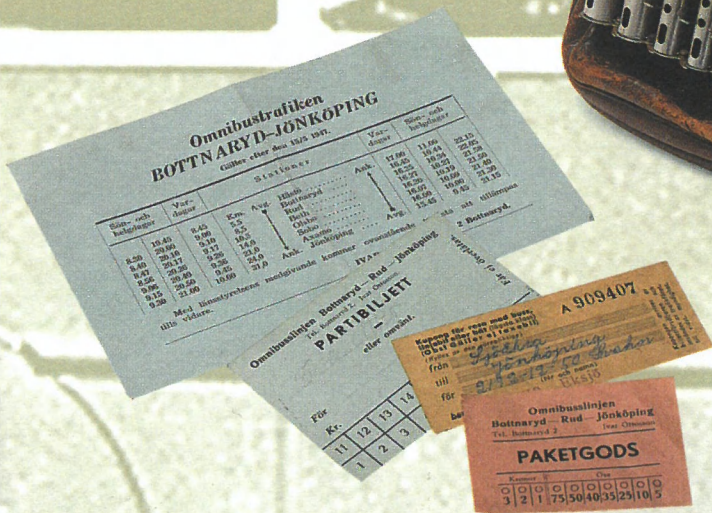


Popular model.

The B58 was launched in the mid-sixties, a classic design which is still manufactured in Brazil. Its successor, the B10M, was unveiled at the end of the 70s, and it is one of the most-used bus chassis in the world.



Premiere for the "Pancake". The early 50s saw the first few examples of the chassis type which would turn out to be Volvo Buses's greatest success-story, the mid-engine chassis. The horizontal engine was nicknamed the "Pancake".



New trend: the first body-builder was acquired.

Höglunds in Säffle was the first bodybuilder to be brought within the Volvo fold. With the acquisition of Höglunds in 1981, Volvo could start building complete buses in-house.

Turbocharger boosts power – and sales. As the first company in the world to do so, Volvo launched series production of turbocharged bus engines way back in 1957. One of the very first models to be so equipped was the B635, an efficient and very popular long-distance vehicle used both in route operations and as a tourist coach. AB Linjebuss won the Montreux Rally with this bus, and the Moroccan postal service still features this model on one of its postage stamps.



Breakthrough in Great Britain. Leyland Bus in Great Britain was acquired in 1988 to consolidate Volvo's position on the British market and in the Far East. The Olympian double-decker is a familiar profile on the streets of London, Singapore, Hong Kong and elsewhere.



Production in China. In 1994, Volvo started up bus production in partnership with a local company in Xian, China.



The same spirit then as now. A lot has changed since Gustaf Larson's and Assar Gabriellsson's time. However, the spirit which drove them to realise their ideas in the 1920s still lives on.

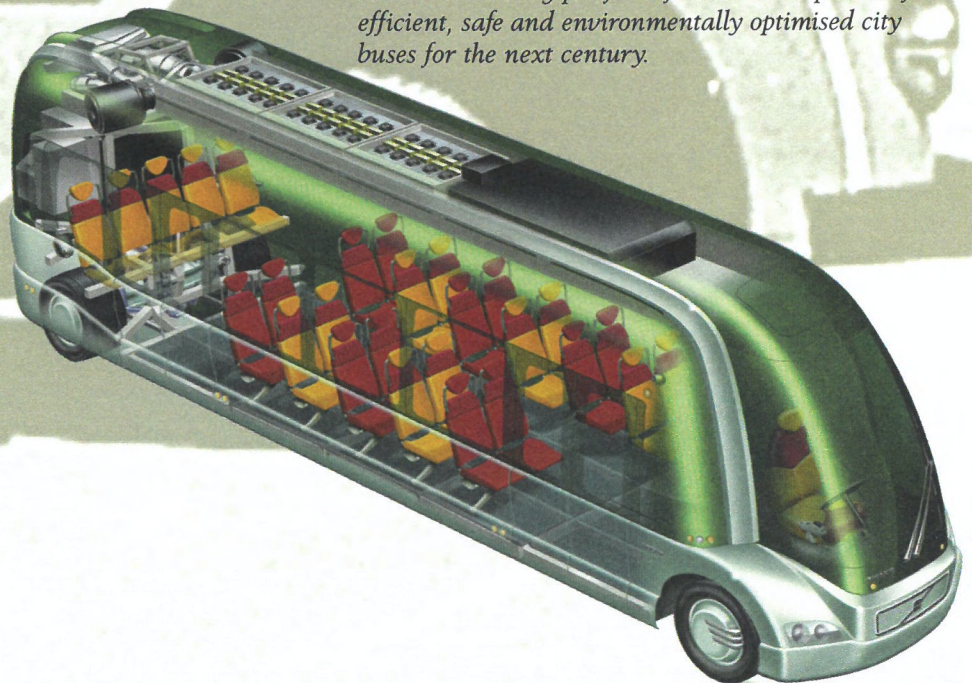


Prevost, the key to North America. 1995 heralded Volvo Buses's entry into North America through the acquisition of Canadian long-distance coach manufacturer Prevost Car Inc.

Natural-gas buses for Göteborg. The first of many environmentally-optimised natural-gas buses was delivered to Göteborg in 1992.



Environmental Concept Bus. The real attention-grabber of 1995 was Volvo's ECB or Environmental Concept Bus, an attractively designed bus bristling with a range of high-tech features and solutions, created as a working platform for the development of efficient, safe and environmentally optimised city buses for the next century.





Challenges

The challenges facing Volvo Buses are more or less the same which our customers have to square up to. Together, we have to provide fast, environmentally suitable and economical transport. And by improving comfort, design and passenger service, we are faced with the task of improving the bus's viability and status. From our perspective, anyone who sets foot outside his or her front door is a potential bus passenger. And that includes those who already ride buses everyday as well as those who haven't given it a thought.

Buses for short trips ...

The need for passenger transportation in cities and suburbs is on the increase. Especially in countries experiencing a burst of economic growth, expanding populations and accelerating urbanisation, the demands on public transport are very high indeed. At the same time, however, the resources available for expanding the infrastructure are limited. The way we see it, there is no transport medium which meets the demands for economy and efficiency better than the bus.

The bus is more flexible and far cheaper than light railways and commuter trains. Even with regard to capacity and speed, the bus is a strong alternative

when it operates under the same conditions as rail-bound traffic, for example with access to segregated bus lanes.

... and for long

In many parts of the world, the bus is the only available public-transport medium for long distances. Even in countries with a well-developed railway network and passenger air services, the bus has all the necessary pre-conditions for competing successfully. The bus uses the same infrastructure as the passenger car, which makes for immense flexibility, high availability and low cost. When it comes to passenger comfort, booking systems and terminals, however, there is still room for improvement.

For the tourist industry, the bus is a vital transport medium which is almost always a natural ingredient somewhere along the holiday route. Unlike aeroplanes and trains, the bus can always take the most scenic route, stop wherever there's something worth looking at, and thus make the journey into a goal in itself. No air service could even begin to compete.

Some people have even chosen to make the bus into their home. A look around the inside of a mobile home from Volvo's Canadian subsidiary Prévost reveals the ultimate in creature comforts.





Technology at your service

Perhaps the biggest challenge ahead of us lies in the environmental area. It's all about creating solutions which neither injure human health nor harm the environment. Volvo invests considerable research expertise in ways of reducing the environmental load exerted by our products. This includes everything from the choice of material and production processes to the use of vehicles and handling of residual products during scrapping.

About 90 per cent of the bus's total environmental load comes from its use. That is why the development of cleaner engines, im-

proved fuels and systems designed to streamline transportation are among the most important concerns for vehicle manufacturers, fuel suppliers and traffic planners.

Cleaner engines

Since the mid-seventies, emissions of legislated exhaust gases from Volvo's diesel engines have dropped by 70 to 85 per cent, and our engineers are working hard at lowering these levels even further.

New, cleaner engines are being introduced all the time and irrespective of where in the world our buses are sold, they always meet the toughest of environmental requirements.

New fuels and drive systems

One major advantage of the diesel engine is that it can be fuelled not just by diesel oil, but modified to run on other fuels.

Between 1993 and 1995, Volvo supplied almost 200 natural-gas buses and about 20 buses running on LPG (liquefied pet-

roleum gas). Interest is also increasing in alternatives such as biogas, various types of alcohol and DME (di-methyl ether).

Electric hybrid power is another area in which Volvo is well to the fore. The Environmental Concept Bus is a technically very advanced city bus equipped with a gas turbine linked to an integral high-speed generator, electric motor and batteries. The ECB produces extremely low exhaust emissions



under all operating conditions, and can even be run at zero emissions for short distances. Unlike dedicated electric vehicles, it has an operational range fully on a par with conventional buses. The ECB is not a commercially available product but

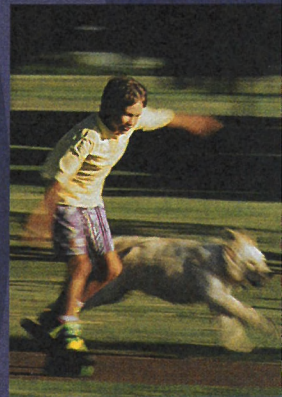


rather a rolling platform for continued development. However, some of the technologies used on the ECB have already made their way into the latest generation of electric-hybrid buses being used in large-scale trials.

We're ready!

The future offers many challenges. Backed by considerable technological competence, a keenness to participate in cross-disciplinary projects and across trans-national borders, and a strong, healthy organisation closely attuned to the market's needs, Volvo Buses is in an excellent position to face those challenges.

b u s



Poised between a renowned history *and an exciting future*

City buses, route buses, tourist coaches, long-distance buses, buses equipped as mobile intensive-care units, libraries or travelling homes: chassis from Volvo are used for all types of buses the world over, and it is as a chassis manufacturer that we have achieved our greatest successes over the years.

*B10M,
City bus*



*B10B,
Route bus*



*B12,
Tourist coach*



*Prévost,
Mobile home*



Even if we are concentrating more on building complete buses, chassis will continue to be a vital part of our future operations.

The choice is yours

A bus bearing the Volvo badge can be virtually anything the customer wants. There are Volvo chassis to suit a variety of operational needs, and the choices are almost unlimited. Engines, gearboxes and rear axles are designed to harmonise perfectly with each other. And behind the launch of each new product lie months and years of immensely tough function and quality tests. The goal is to create the best possible conditions for high running reliability allied to good transport economy.

City buses

Low floor, low boarding height, a choice of one or two decks, standard or articulated configuration, wide or narrow doors, engine installed at the front, middle or rear: each customer has specific requirements to be taken into account when config-

uring a city bus. Volvo can satisfy the most varying demands.

From city to city – or relaxed holiday cruising

High safety and utter reliability, excellent comfort, plenty of luggage space and engine power to eat up the miles on long distances; these are just some of the most common requirements for long-distance buses. The equipment generally varies with the distance to be covered. The longer the distance, the more comfortable the bus.

When “the usual” isn’t enough

For customers whose operational needs exceed the norm, there is always the possibility of making special chassis and special buses.

After all, flexibility is one of the fundamental attractions of the bus. Funnily enough, it also happens to be one of Volvo’s absolute strengths.

Coach of the Year. The European trade press voted the Volvo B12-600 as 1996 Coach of the Year.

000-600
THE YEAR 1999



Just where is *public transport* headed?

Volvo's interest lies not only in manufacturing vehicles, but also in contributing to efficient, streamlined transport solutions.

Curitiba in Brazil ran a project in which Volvo helped establish a transport system based entirely on buses. A system which has aroused considerable interest among city and traffic planners the world over. Experience from Curitiba shows that a system based entirely on buses can be as quick and serve as many passengers as rail-bound alternatives, but at a fraction of the cost. What is more, it can be built up in a far shorter time and is much simpler to modify if travel patterns and transport needs change.

Half the population uses public transport

Curitiba owes its success partly to the fact that the transport system was expanded as the city grew, but the main success factor is that the city fathers created an integrated system which ties together all the various transport links. Plans were afoot way back in the early 1970s for the expected expansion, and the first bus routes were planned at the time. Since then, Curitiba's

population has more than trebled to about 1.5 million. Half the city's population uses the public-transport system, making this the most-utilised public-transport system in all Brazil, even though the number of passenger cars per capita is the second highest in the country at one car per three people.

Quick and efficient

Curitiba's transport system is built around a network of separate bus routes linked by a number of feeder lines. There is also a network of high-speed express buses which stop every third kilometre at special terminals where passengers can switch to other lines. The terminal floors are at the same height as the bus floors to aid convenient and fast boarding and exiting. Passengers buy their tickets in advance. These relatively simple measures have created a highly efficient system characterised by short journey times.

High transport capacity and high speed

The third cornerstone in this system is the buses themselves. Both articulated and bi-articulated buses are used. Transport capacity is 23,000 passengers per hour, roughly the same as for rail-bound systems above ground. The average speed of the ex-



press buses is 32 km/h, and for the bi-articulated buses which stop every 500 metres, 20 km/h. A conventional bus in normal city traffic has an average speed of about 10 km/h, while the New York subway system operates at an average speed of 25-32 km/h.

An economical alternative

If the difference in speed between buses and subways is modest, the difference in cost is all the more pronounced. The investment cost for Curitiba's transport system is several hundred times lower than for a subway system of corresponding capacity. Using light railways instead of bi-articulated buses would cost roughly ten times more.

Each city is unique and the same system naturally cannot be implemented everywhere. In Europe's crowded city centres, for instance, different solutions are needed. We'd like to plan and implement them too. Because there's nothing we like more than a challenge.



A member of *the Volvo family*

As a member of the Volvo family, we have access to resources which a stand-alone bus manufacturer can only dream about.

The Volvo Group's various operational areas cover everything from cars, trucks, buses and construction machinery to drive systems for marine and industrial applications and aircraft engines. Cooperation between the Group's various operations goes beyond cross-disciplinary joint research to development and actual production.

Quality, safety and the environment

Volvo is an international corporation with more than 70,000 employees, production facilities in over 20 countries and sales across the entire world.

The Group's operations are based on three fundamental values: quality, safety and the environment. They characterise our work approach as well as the result of our work. Reliable products offering high safety and a low environmental profile are the hallmark of Volvo as a whole and Volvo Buses in particular.







VOLVO

Volvo Bus Corporation

Göteborg