

# Volvo B10L



**VOLVO**

# A genuine city bus

*No other means of transport is as adaptable as the bus. Its practical design and construction can be easily adapted to match various forms of travel, and its technical equipment can be matched to various traffic conditions.*

## **Public transport in the city environment**

An area in which the bus — when it is correctly designed — is practically unbeatable as a means of transport. Modern buses operating in city environments drive quietly and smoothly often in very hectic road traffic conditions, and they also emit less pollution per passenger than a car. Moreover, Volvo has introduced various technical solutions to reduce exhaust gas emissions to a fraction of what they were some ten years or so ago.

## **Effective and convenient**

At an early stage of bus development there was a concentration on designing doors and boarding steps on city buses to achieve a fast flow of passengers at bus stops. Traffic planners are now also agreeing on the principles for passenger comfort, which means among other things that everyone — including disabled people and passengers with

prams — will be able to get on the bus, pass through inside it, and get off it easily and conveniently. The requests are now on an international basis. What's more, various organizations have drawn up definite regulations for factors such as boarding step heights and floor inclinations.

## **Volvo's solution**

Volvo has developed a city bus taking these requirements and guidelines into consideration. For the sake of operational reliability and total economy, this bus — as all our other models — is based on proven Volvo components. However, when the special conditions of urban traffic so require, we have adopted new and effective design solutions. The result is the B10L, a highly effective bus for fast, economical transport in urban areas.





# Low-floor level comfort

The B10L has been designed and built to permit a smooth flow of passengers with a minimum of differences in level. The floor level is low throughout the bus thanks to special wheel mounting and engine location solutions – the boarding step is extremely convenient, and there are no steps inside the bus. This is of considerable value to passengers with prams and also disabled people.

The boarding step by the front and centre doors is as low as 320 mm. When the bus “kneels”, this can be lowered even more, to 230 mm. There are two steps by the rear door, and these can be made to be at a height of 350 + 240 mm.

There is an unusually wide aisle inside the bus between the front wheel housings – as much as 950 mm if you place single seats by the wheel housings.

The seats above the engine and rear axle are placed on seat platforms. As regards all other seats, the bus operator himself decides if they are to be fitted on platforms or not. This means that the bus can be completely free from seat platforms forward of the rear wheel housings.

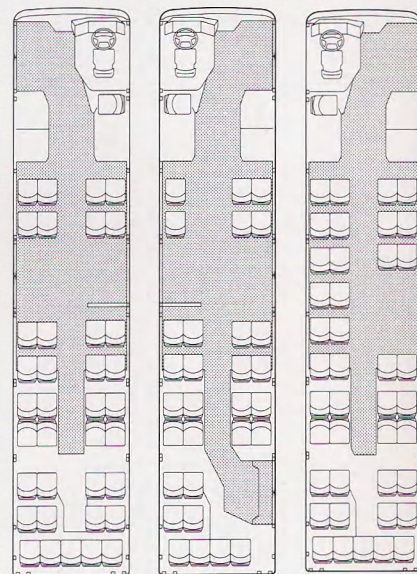
A specially designed fuel tank can be fitted above any of the front wheel housings.

The bus radiators are located at the rear of the bus on the right-hand side. They are positioned in an upright position to provide space for a double door behind the rear axle. On buses that do not have a door behind the rear axle on the right-hand side, the radiators are

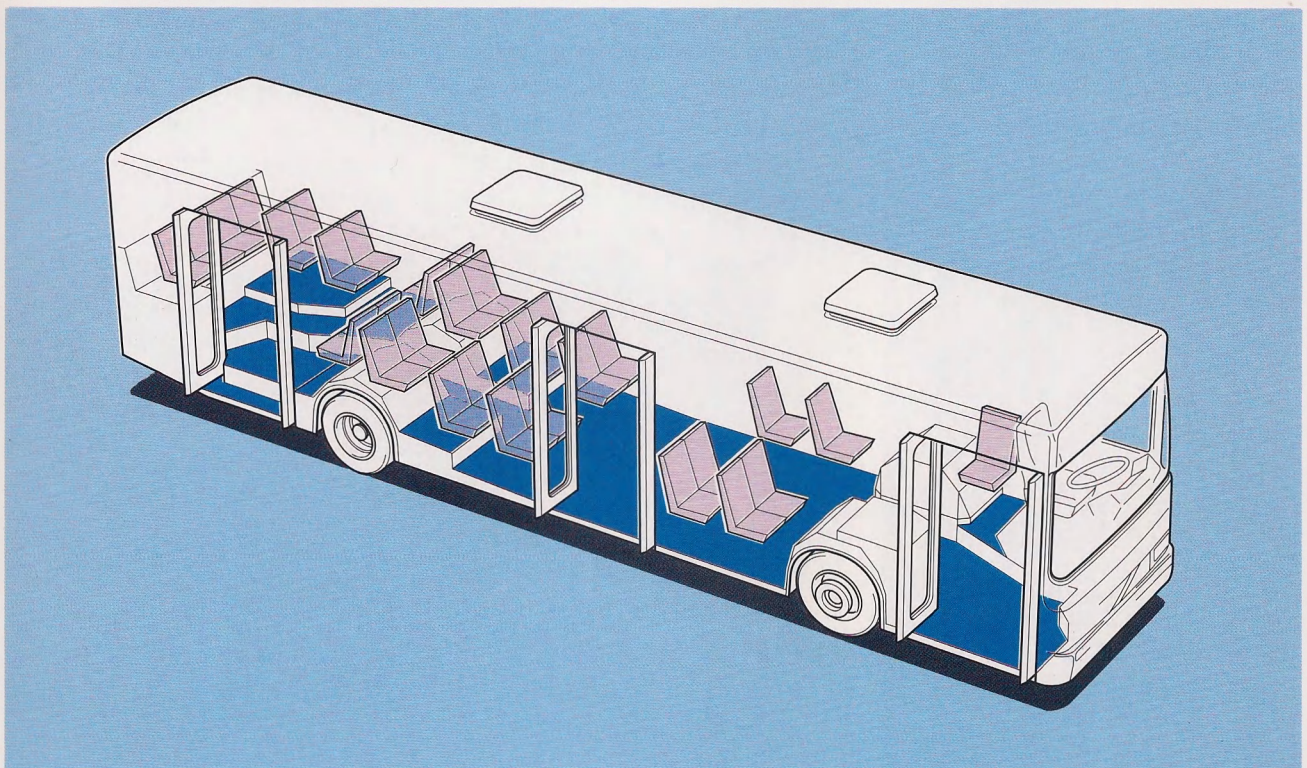


positioned in a horizontal position. Horizontal radiators provide space for an extra seat.

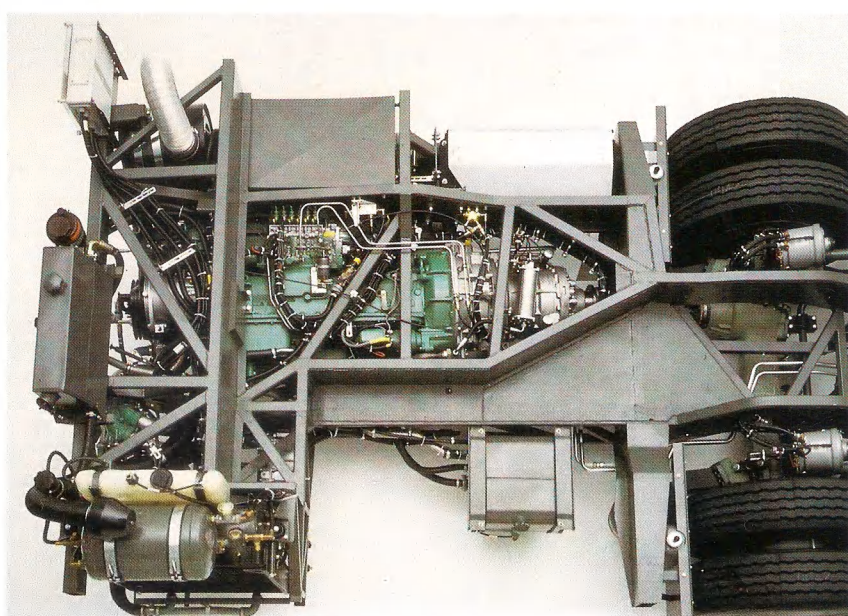
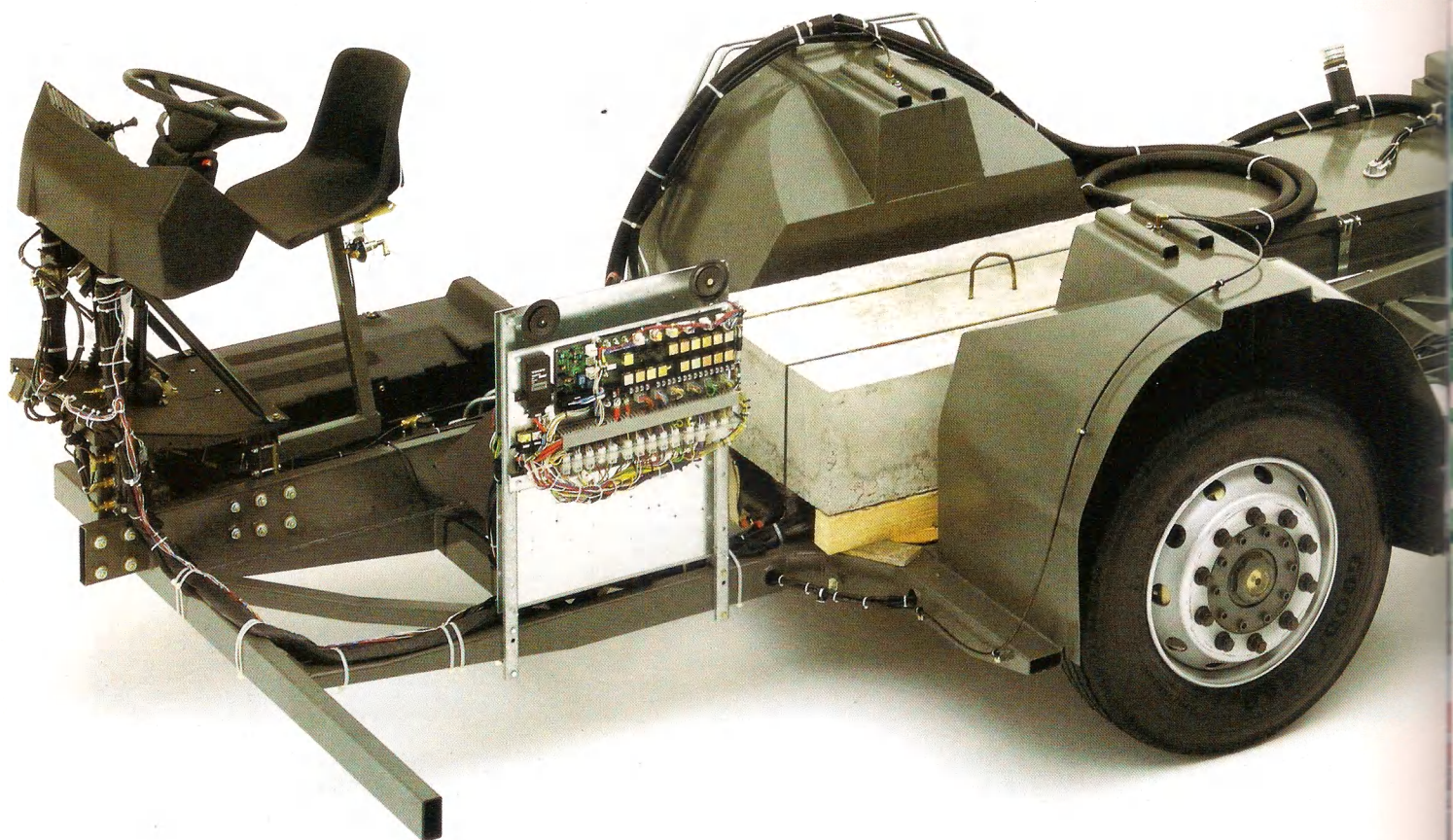
If you do not have a rear door, you can gain four more seats, making a total of five.

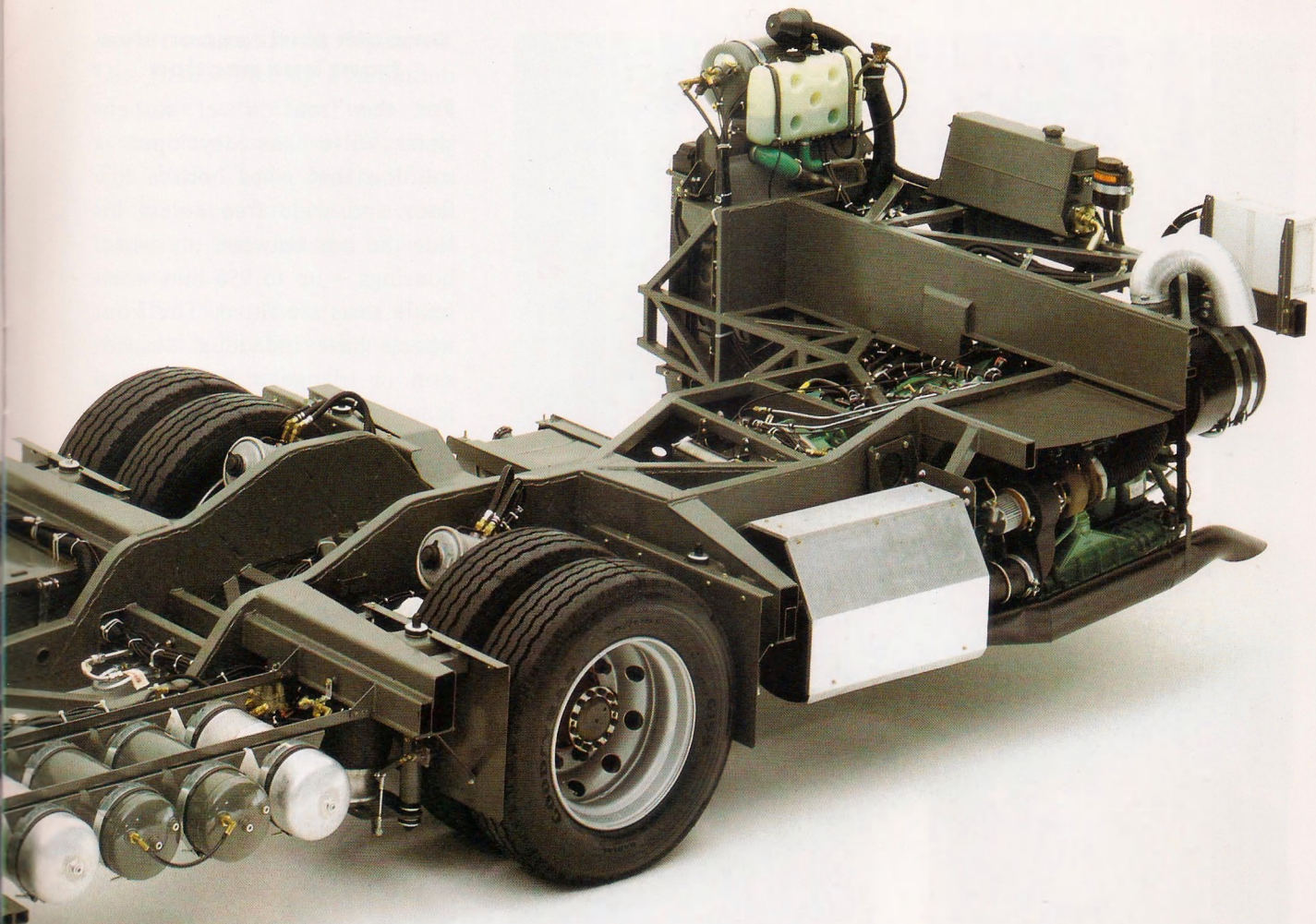


VOEYAT SERVICE



# Technique for city environments





The environmentally safe Volvo horizontal six-cylinder, 10-litre turbocharged diesel engine is installed in a separate compartment at the rear of the bus. The fact that the engine is a proven unit and relatively big helps to achieve both high operational reliability and long service life. It has also been developed for an optimum combination of good fuel economy and first-class environmental properties (comply with the EURO II requirements). There are two alternative power ratings: 180 and 210 kW (245 and 286 hp).

The engine is positioned lengthways to prevent having to use an extra angle gear that would make it more expensive and power-consuming. Moreover, the engine is located on the left-hand side of the

bus, and this gives a low floor even in the rear part of the bus. Liquid-based charge air cooling is a standard feature, as is also electronic fuel injection control – EDC. An essential benefit of the EDC is that it gives better control of exhaust emissions. Cleaner exhaust emissions are also provided by the exhaust pressure governor – EPG. The fan is thermostat-controlled and hydraulically-driven. Without any special sound insulation, the finished bus has a maximum external noise level of 80 dB(A). With sound insulation, this level can be reduced to 77 dB(A).

#### **Automatic gearshifting**

An automatic gearbox is a natural standard option when operating in urban traffic conditions.

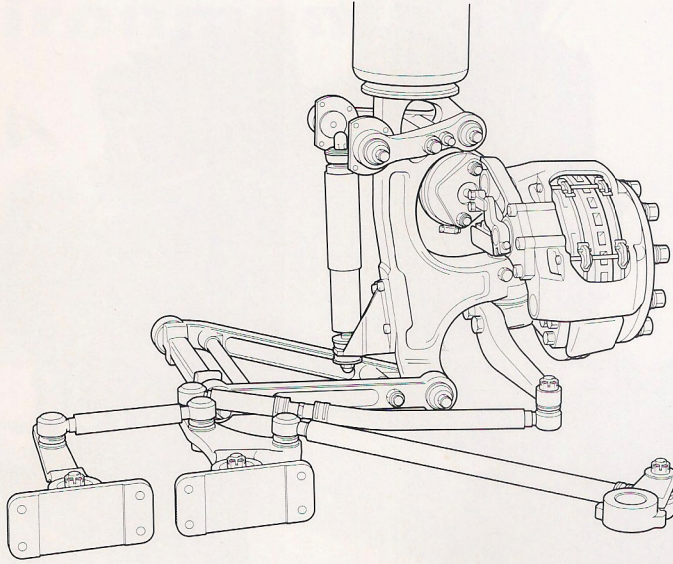
There are options available with 3, 4 or 5 speeds, plus a torque converter. All variants feature an integrated retarder to supplement the braking system. They also all have their own cooling circuit that counteracts overheating when subjected to high loading.

#### **Corrosion-protected lattice frame**

The frame is of a light and torsionally rigid lattice construction. The chassis is delivered from Volvo with what's known as a "transport wheelbase"; in other words, the front and rear sections are bolted to each other. The body builder separates the two sections and inserts a space section to give the desired wheelbase. The frame elements are carefully protected against corrosion.

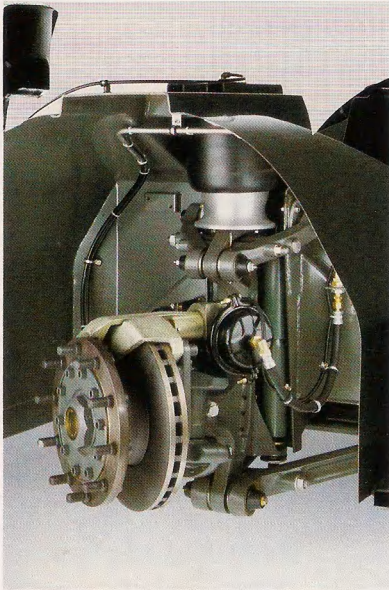
### **Smooth and responsive front bus section**

For the front wheel suspension, Volvo has developed a solution that gives both a low floor and wide free access inside the bus between the wheel housings – up to 950 mm when single seats are fitted. The front wheels have individual suspension in triangular links with a long spring travel. This yields excellent ride comfort, while at the same time the bus is in a class of its own when it comes to driving comfort.



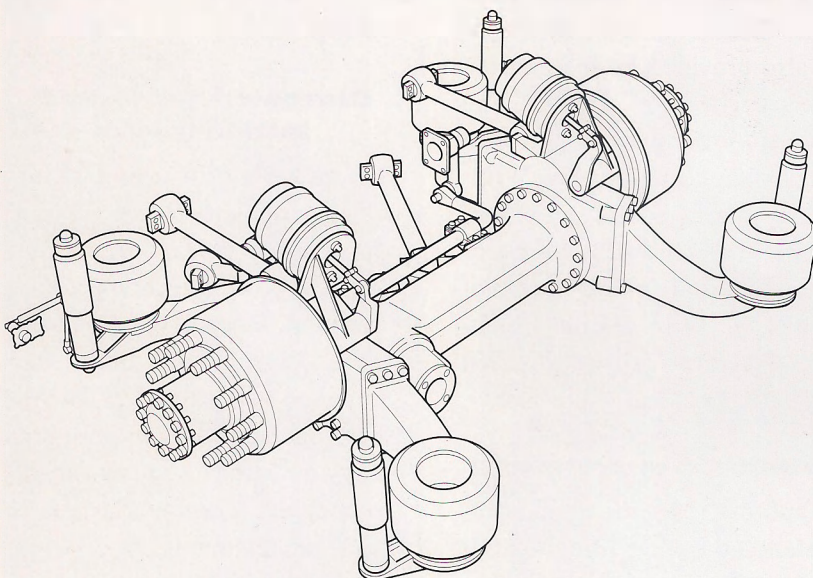
### **Alternative kneeling**

Air suspension has automatic level control and a kneeling function, with electronic and extremely precise control of the level valves. The level control function can also be utilised to raise the bus about 80 mm to give a higher ground clearance. The bus can “kneel” either by the front door or along the entire door side.



### **Low rear axle**

The B10L features a so-called “drop centre” rear axle which has a reduction gear next to each wheel. The drop centre design concept lowers the rear axle between wheels by 156 mm. The reduction gears enable the final drive to take up less space. It also has an asymmetric position, close to the left rear wheel. These solutions have made it possible to keep the floor at a low level even in the rear part of the bus.



### **Disc brakes for economy of space**

The front wheels are fitted with disc brakes. Disc brakes in themselves have a more effective means of cooling than drum brakes – and here the discs also

have ventilated air channels. Disc brakes take up a minimum of space and allow wide free access between wheel housings. The brake pads in the front wheel brakes are easily accessible, and they can be replaced very quickly.

The rear wheels are fitted with drum brakes, with a spring-type parking brake.

ABS anti-lock brakes are optional extra equipment.

By making use of the hydraulic retarder – which is standard on all gearbox options – the driver is able to reduce wheel brake wear quite substantially.

### **Flexible when operating in city traffic**

A wide wheel lock angle – 50° with 275/70R22.5 tyres – enables the bus to be easy to drive in narrow and congested areas. With a 6-metre wheelbase, the turning circle radius will only be 9.16 metres.

### **A good place to work in for the driver**

The driver area in the B10L conforms with Volvo's high standards, with anti-glare and easy to read instruments and ergonomically positioned controls. The steering wheel is adjustable – different drivers can adjust both the height and rake to exactly how they want it. Drivers who are used to driving Volvo buses will feel at home immediately in the B10L. The driver area is exactly the same in all modern Volvo buses.

The height of the driver area has been matched to give the driver good close-up visibility to the front, and to give him natural eye contact with passengers who are standing.



# Quality on the road



When it comes to quality, Volvo policy is a very practical one: Buses must be kept on the road in order to achieve the targets set out in the financial estimates. We do not create quality to gain prestige, but to improve total economy for Volvo owners.

That's why we regard operational reliability as one of the most important quality factors. And

that's why we base our products in the first instance on proven components and why we continually look for even more effective ways of combining them — known technology is utilized for creating new solutions to meet new requirements.

In the B10L, for example, we use engines and gearboxes that are already used in other Volvo

models, but we have positioned them differently to create the foundation for achieving the ideal city bus: a bus with a low floor throughout, without any steps inside the bus. The radiators have a different and special location for a low-floor bus. The fan is driven hydraulically by components that have already been developed for other Volvo



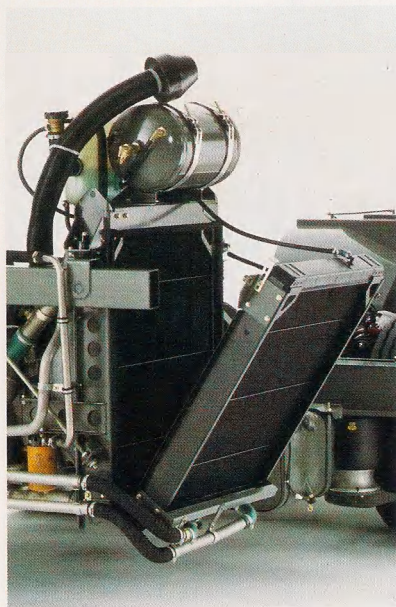
models. We have been able to transfer some components systems from other Volvo models without needing to make any changes or modifications. These include the electrical system, which is a decisive factor when it comes to operational reliability. From front to rear, the B10L incorporates Volvo technology that has already proved its

worth and to be of a high standard of quality.

Practically the only components to have been newly developed are the chassis frame, the front wheel brakes, and the wheel suspension at front and rear. And both new and proven components have been subjected to an exhaustive programme of tests: individually in laboratories,

in prototype trucks on Volvo's proving grounds and test tracks, and in a number of pre-production trucks at certain bus companies.

# High level service



To us, vehicle service is one way of maintaining the high levels of quality and profitability of our buses as long as possible. And in a wider sense, we regard service as responsibility for ensuring Volvo buses will operate without any problems.

That's why we've built up our operator support function Volvo. The Action Service. With efficient resources to deal with maintenance and parts issues on a local basis. Volvo buses must be kept on the road!

We founded the quality of service while designing the B10L. Service specialists were involved from an early stage of the design and development of the B10L, and have ensured that all vital points are easily accessible for inspection, repair or replacement. Accessibility is particularly crucial, of course, to a low-floor bus with its limited space underneath the body. Practical features of the B10L are that the outer of the two radiators can be folded outwards to give easy access to the inner one, such as when cleaning, and hatches in

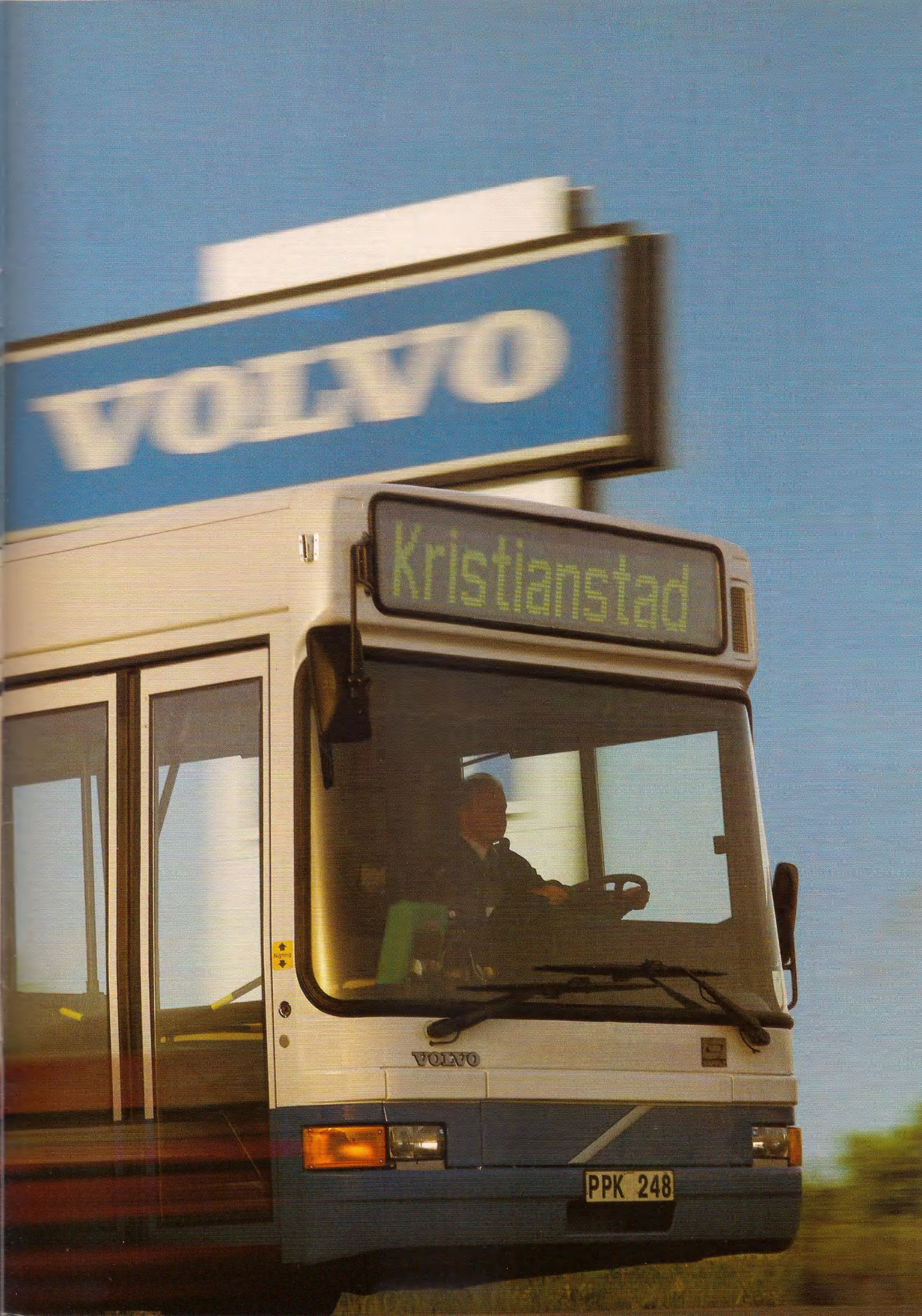
the floor provide access to the engine from above.

In all countries where the B10L is sold, we have a network of authorised service workshops offering well-trained personnel, special tools, and continuously updated service manuals.

Bus companies that have their own workshop are provided with extensive support in the form of training, manuals, and continuous information from our service organization.

Two factors in particular help us to maintain a very efficient supply of parts for the B10L. One is an advanced storage and distribution system based on modern computer and communication technology; the other is consistent standardization of components throughout the entire Volvo Group – many of the parts in a B10L bus are used in other Volvo buses as well as in Volvo's truck range.





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# Sparring partners

The Volvo B10L is backed up by bus specialists at the Volvo Bus Corporation, which in turn is backed up by the whole of the Volvo Group. The Group operates on a broad front dealing with issues such as transport solutions, vehicle technology, engine technology, and environmental issues related to traffic.

By being part of the Volvo Group, the Volvo Bus Corporation has access to resources which a lone bus manufacturer cannot hope to have — resources such as advanced special laboratories, a wind tunnel, and a large proving ground with many different types of test tracks.

Group resources in the form of know-how and technical expertise are also essential — here there is fruitful co-operation between Group companies.

A practical example of this is the effective co-operation between engineers at the Volvo Bus Corporation in Gothenburg and Volvo's engine plant in Skövde, which is by far one of the most modern automotive engine production plants in the world. By having short and uncomplicated forms of contact we can create an understanding and produce automotive engines that comply with two important requirements: they are matched directly to the conditions of bus traffic, and they are also based on a group-wide standard programme that gives low component costs, simplifies service training, and makes it easier to maintain effective stocks of parts.



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