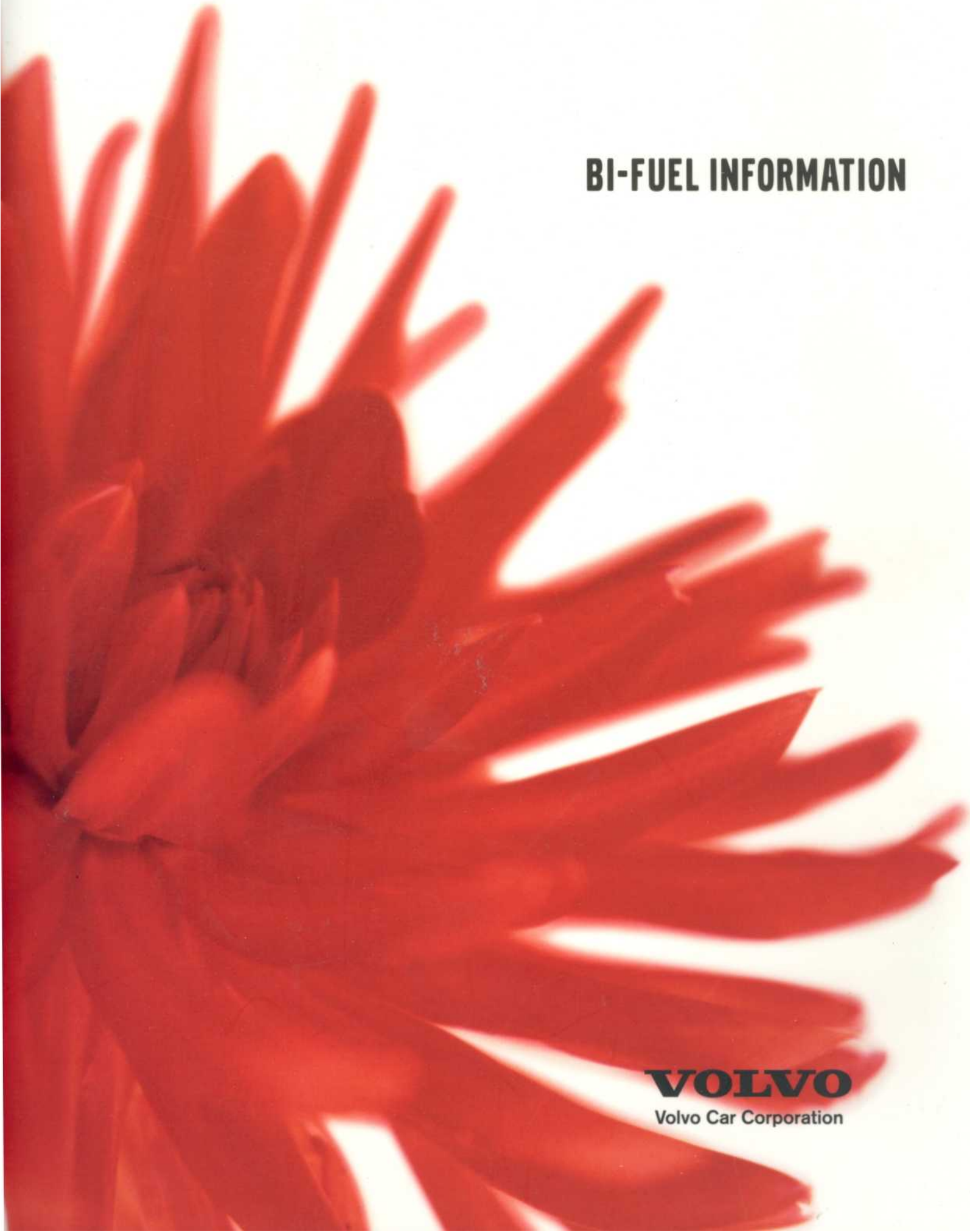
BI-FUEL INFORMATION



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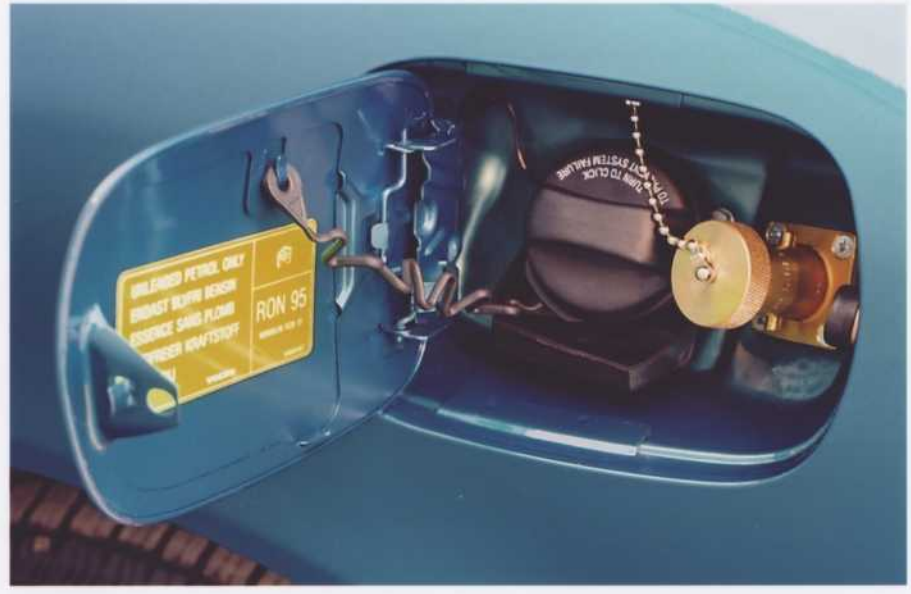

V40 Bi-Fuel

May 2001

VOLVO

Press Office 01628 422268

V40 Bi-Fuel

May 2001

VOLVO

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Volvo Car Corporation

PRESS INFORMATION

Volvo Bi-Fuel - the environmental option without compromises

Most Volvo car models are now available in a Bi-Fuel version with the latest generation Bi-Fuel gas/petrol engine, offering major benefits for both the environment and the car owner.
The no-compromise Bi-Fuel concept offers better environmental properties and lower running costs than other Volvo cars.
The true premium car experience in a Bi-Fuel car also includes world-class safety, unchanged loading capacity and access to a full range of personal specifications.

Cleaner and more fuel-efficient vehicles are important parts of Volvo Cars' `Clean Inside and Out' environmental concept, which also includes eco-branded interiors and filter systems that make the air inside the car cleaner than the air outside.
Volvo Cars' new Bi-Fuel engines run on gas, using petrol as a reserve fuel - and no other car manufacturer can match this offer:

- The 2.4-litre, five-cylinder Bi-Fuel engine for the Volvo S80, Volvo V70 and Volvo S60 will be available in two variants: one powered by methane (natural gas or biogas) and one that runs on liquefied petroleum gas (LPG). The maximum power is 140 bhp both on gas and petrol. Production of the S80 and V70 methane powered cars will start in May, all other versions in August.

- The Volvo S40 and V40 are available with a 1.8-litre, four-cylinder Bi-Fuel engine running on LPG. The output is 120 bhp in LPG mode and 122 bhp when driving on petrol. (Belgium and France: 116 bhp in LPG mode and 116 bhp on petrol). Production will start in May.

Volvo Car Corporation's initiative to offer several Bi-Fuel models makes it possible to achieve substantial reductions of greenhouse gas emissions and other hazardous emissions. The Bi-Fuel concept also has advantages from an energy resource point of view.

The latest engine generation

The Bi-Fuel engine is part of Volvo Cars' latest engine generation. Low internal friction combined with electronic engine management and variable valve timing promote good performance and low fuel consumption in the petrol-powered variant - and by adding an advanced injection system for gas power, the engine has an even lower impact on the environment.

When running on petrol, the Volvo S80 and Volvo V70 Bi-Fuel already meet the stringent EU 2005 tail pipe emission requirements - and when running on gas the emission levels are even lower. The Volvo S40 and V40 fulfil the present demands, i e EU2000.

The NMHC issue

When driving on methane, the actual environmental impact is even lower than what the EU certification tests show at present.

The reason is that methane can be divided into two groups: methane and non-methane hydrocarbons (NMHC).

Methane is not a hazardous emission, but NMHC is - and the NMHC emissions from CNG and LPG vehicles are much lower than from a petrol powered car.

The U.S. authorities already make a distinction between total hydrocarbons and NMHC. A similar system is being discussed for cars within the EU (already introduced for heavy vehicles), but it has not yet been decided.

Two kinds of methane

Methane is a combustible fuel that can be obtained in two ways. It can either be extracted from the earth in the form of natural gas or produced from organic material in the form of biogas.

Natural gas produces lower total emissions of environmentally hazardous and toxic substances compared with petrol and diesel. Emissions of carbon dioxide, which contributes to the greenhouse effect, are more than 20 percent lower than when driving on petrol.

Driving on biogas produces no extra carbon dioxide at all, since the car is running on methane that is already an integrated part of the eco-system.
Natural gas is available in most European countries, with a total of about 500 public filling stations - and the number is rising rapidly, especially in Sweden, Germany, Switzerland and Italy.
Biogas is so far produced on a small scale, but interest in this clean and high-quality fuel is growing. Volvo Cars' hometown Göteborg is an excellent example of how biogas produced from waste is systematically added to the existing CNG supply system.

LPG is a mixed gas

LPG is a mixture of two gases: propane and butane. It can be obtained directly when oil and gas are pumped out of the ground - or indirectly as a residual product from oil refineries.
Similar to natural gas, LPG is a cleaner fuel than petrol and diesel. The emissions of carbon dioxide are 10 percent lower than from petrol.
LPG is available from some 3,000 refuelling stations in Europe, with the greatest concentration in the Netherlands, Great Britain, Italy, Belgium, and France. The numbers are rising here, too, particularly in Great Britain thanks to very determined governmental support.

Attractive fuel costs

The price of the gas power system makes the initial car price higher. The growing focus on the need to limit greenhouse gas emissions, on the other hand, has led in several countries to incentives supporting the build-up of new alternative fuel infrastructures.

Examples of such incentives are:

- In Great Britain, the so-called Power Shift Programme returns up to 75 percent of the extra cost to the car buyer. The government is also using fuel taxes to make more people drive gas powered cars. The new company car taxation is also heavily in favour of cars with reduced carbon dioxide emissions.
- In Germany, some of the local regions offer strong financial support to buyers of new natural gas cars. The programme is primarily targeting taxi owners.

- One out of ten cars in the Netherlands is LPG powered - and the authorities recently implemented new tax advantages for gas vehicles.
- France is introducing tax advantages on LPG vehicles to tackle a growing particle problem due to the rising diesel population.
- Italy is also subsidising gas powered vehicles.

In some regions, owners of gas powered vehicles are offered exclusive benefits such as free parking in city centres, access to public transport lanes, access to city areas normally closed to car traffic or permissions to use cars when limitations apply to conventional cars.

Quick "pay back"

Driving on gas offers considerably reduced running costs - and the higher purchase price is quickly "paid back" through the lower fuel costs. The average taxi driver reaches the break-even level after six months.

Depending on the market, the cost of driving on natural gas is 30-60 percent lower than running on petrol and between 20 and 40 percent lower than diesel.

Tanks under the floor

Gas is filled via a special nipple, located next to the fuel-filling cap. The gas tanks are located under the floor. This provides the owner access to the same load space as in the petrol and diesel powered versions. The possibility of creating an individually specified car is, of course, also unchanged.

Gas is the default fuel. If the driver runs out of gas, the engine automatically switches to petrol power. The driver can also switch manually between gas and petrol.

The Volvo S80, V70 and Volvo S60 Bi-Fuel have a range of about 300 km on a tank of methane or 450 km on a tank of LPG. The petrol tank provides an additional range of 350 km.

The Volvo S40 and V40 Bi-Fuel has a 400 km driving range on LPG and a further 750 km on petrol.

In-house production and first-class safety

The Bi-Fuel installation is designed, tested and factory-fitted at Volvo Car Corporation. The Bi-Fuel cars are naturally crash-tested to ensure that they meet Volvo Cars' stringent safety requirements.

Both the gas tank and all the connections are designed to withstand the forces in collision. The tanks are much stronger than comparable petrol tanks. The largest of the three CNG tanks is made of carbon fibre-reinforced aluminium, while the two smaller ones are made of steel.
These gas tanks have been subjected to tough tests, including extreme heat, high pressure, gun shots, collisions and fire.
The fuel system is also equipped with valves and other safety devices to prevent leakage.
It should also be emphasized that methane is a non-toxic gas and safer to handle than petrol. LPG is a mix of gas and fluid with similar safety aspects as petrol.

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VOLVO

Volvo Car Corporation

PRESS INFORMATION

Volvo Bi-Fuel cars - Clean inside and out

Volvo Car Corporation's environmental approach is not just a matter of improving the situation for the surrounding world and people outside the car.

Our development efforts also focus on improving the environment for all those who travel in the car. Bi-Fuel models are equipped with a number of technological solutions that make them clean - inside and out.

In an age when many people suffer from allergies, it is quite natural for Volvo Cars to provide its customers with a good in-car environment. This involves both choosing the right materials and purifying the air that enters the car via the climate unit.

Environmental labelling for textiles

The textiles inside the car meet the requirements of Öko-Tex Standard 100, the world's leading eco-labelling standard. All interior textiles are free of hazardous substances and residual products. This is particularly important for children and people who are hypersensitive.

Öko-Tex certification covers fabrics, thread, padding, mats and belts, etc. In order to meet Öko-Tex labelling requirements, no hazardous substances may be used in manufacture and handling. Nor may the textiles emit any hazardous substances during use.

The leather upholstery is tanned in a process that uses only natural vegetable substances, which is also in line with the requirements of Öko-Tex Standard 100.

Cleaner air inside than out
Effective filters mean that the air inside the car is cleaner than it is outside.

An effective particle filter that catches pollen and dirt particles on their way into the car is a standard feature.

The customer can also equip the car with a ventilation system that has further functions aimed at improving the in-car air quality. In addition to the particle filter, there is a filter with active carbon and a gas sensor that registers the incoming air.

This multi-filter sharply reduces levels of gases such as nitrogen oxides, ground-level ozone and hydrocarbons - as well as protecting occupants from the smell of petrol and diesel exhaust fumes, wiper fluid and oil.

The ventilation system monitors the levels of toxic carbon monoxide in the incoming air and closes the air intake before the levels inside the car become unhealthy - when driving behind trucks, for example, or in traffic jams and tunnels.

PremAir® reduces ground-level ozone while driving
Ground-level ozone is a hazardous gas that causes respiratory problems and extensive damage to the natural environment. Volvo Cars was the first in the automotive industry to introduce the PremAir® `ozone eater' - a coating on the radiator that converts the ozone to oxygen as the air flows through the radiator.

PremAir® is most effective in conditions where ozone formation is greatest - i.e. hot days with strong sunlight and high levels of exhaust fumes. In such conditions, it converts up to 75% of the ozone into oxygen. The technology has been developed by the American company Engelhard in collaboration with Volvo Cars.

Environmental declaration

Few car manufacturers, if any, have better control over the environmental factors than Volvo Cars. Each new car that is introduced is accompanied by an environmental declaration that describes the environmental impact of the car in detail - during manufacture, driving and at end-of-life. The environmental declaration is, moreover, inspected and verified by Lloyd's Register in London.

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VOLVO

Volvo Car U K Limited
Marlow

Press Information

For immediate release

22 May 2001

SAVE MONEY AND THE ENVIRONMENT WITH VOLVO'S BI-FUEL RANGE

Volvo is helping reduce exhaust emissions and save motorists money with its all-new BI-Fuel models that combine two types of fuel in one car - petrol, and gas that's about half the price of petrol or diesel!

Volvo is the first manufacturer to design and build its own range of type-approved, gas-fuelled models, with discreet under-floor tanks, at the same factory as the standard cars, and has now announced prices for its full Bi-Fuel range, available in S and SE trim with full 3-year, 60,000 mile Volvo UK warranty:

model	CO_2 (g/km)	on the road £ S	on the road £ SE
S40 Bi-Fuel 1.8 (LPG)	168 LPG/ 193 petrol	£17,020	£18,842
V40 Bi-Fuel 1.8 (LPG)	168 LPG/ 193 petrol	£17,870	£19,692
S60 2.4 Bi-Fuel (LPG)	191 LPG/ 212 petrol	£20,695	tbc
S60 2.4 Bi-Fuel (CNG)	161 CNG/ 212 petrol	£21,495	tbc
V70 2.4 Bi-Fuel (LPG)	193 LPG/ 214 petrol	£24,460	tbc
V70 2.4 Bi-Fuel (CNG)	164 CNG/ 214 petrol	£25,260	tbc
S80 2.4 Bi-Fuel (LPG)	193 LPG/ 214 petrol	£22,840	tbc
S80 2.4 Bi-Fuel (CNG)	162 CNG/ 214 petrol	£23,640	tbc

more...

Postal address

Globe Park, Marlow,
Buckinghamshire SL7 1 YQ

Telephone: (01628) 477977
Fax: (01628) 4761 73
Website: http://www.volvocars.volvo.co.uk

Registered Office

Globe Park, Marlow,
Buckinghamshire SL7 1 YO.
Registered in England No; 2281044

Prices for the SE models will be available soon, but are expected to represent a premium over petrol models of around £1,800 for LPG and £2,200 for CNG models,

What's more, grants of up to 75 per cent of the additional cost of Bi-Fuel models are available from the Government's Energy Saving Trust's Powershift scheme.

VOLVO BI-FUEL - THE FACTS

- Bi-Fuel models run on petrol and gas in S40, V40, S60, V70 and S80
- Saving the environment - lower CO_2 and harmful toxic emissions
- Saving money - gas only costs around 38p/litre - about half the price of petrol or diesel - which could save the typical motorist covering 15,000 miles per year over £700
- Less tax - lower CO_2 emissions can reduce company car tax liability and Vehicle Excise Duty rates, too
- Performance - no noticeable loss of performance when running on gas
- Clear luggage space - Volvo's Bi-Fuel models are designed with gas tanks under the floor of the boot to leave a clear load space for long loads - no more bulky gas tanks taking up valuable space
- Not an after-market conversion - Volvo Bi-Fuel models are built on same production lines as standard models and come with a full three year (or 60,000 mile) Volvo UK warranty

IT'S A GAS! FILL-UP FOR 38P/LITRE WITH A VOLVO BI-FUEL

Although there's a slight increase in fuel consumption when running on LPG, the significantly cheaper price of the fuel can soon reap large savings. For instance, it is estimated that a Volvo S40 Bi-Fuel should cover its additional purchase cost after approximately 21,000 miles, or only 7,000 miles per annum over a three year period (or less, of course, if a company uses 'bunkered' LPG).

An example of the fuel savings available for a Volvo S40 Bi-Fuel over three years at an average of 15,000 miles per annum;

Fuel Type	Typical price/litre	Typical MPG	Total fuel bill	Saving over petrol
Petrol	79p	35	£4,617	-
Diesel	79p	52	£3,105	1,512
LPG	38p	31	£2,508	£2,109
'bunkered' LPG	28p	31	£1,848	£2,769

It's easy to see the potential reduction in running costs when these savings are multiplied across a company car fleet. For instance, a fleet of 25 cars with 'bunkered' LPG could save over £69,000, or with 100 cars this would escalate to over a quarter of a million pounds!

Better By Design

The cars are engineered and built by Volvo on the same production line as standard models so the gas installation, unlike some rivals, is a fully integral part of the car's design. For instance, both refuelling points are neatly behind the standard filler flap, and with gas tanks fitted below the boot floor there is a clear load space in S60, V70 and S80 models, and a slight raised area on the boot floor of S40 and V40 models.

LPG and CNG

All Bi-Fuel models are available with a petrol and Liquefied Petroleum Gas (LPG) combination, while the S60, V70 and S80 will also be available with petrol and Compressed Natural Gas (CNG) as well.

LPG is now widely available in around 1000 outlets across the country as more and more petrol stations commit to alternative fuels and install LPG pumps.

This is expected to be the most popular Bi-Fuel model, especially as LPG is available from as little as 38p/litre or less, making it approximately 50 per cent cheaper than petrol or diesel,

CNG also offers substantial fuel savings and is an even cleaner fuel than LPG, but availability is more limited and tends to be most popular among the commercial vehicle market for operators or local authorities with their own re-fuelling facilities. It is hoped that a 'homefill' system will enable refuelling from a domestic gas supply in the future.

Both LPG and CNG Bi-Fuel versions offer around 10 and 20 per cent less emissions (respectively), which is good news for the environment - and company car users worried about the impending changes based on CO_2 figures to Benefit in Kind taxation and Vehicle Excise Duty.

Available This Year

Volvo is officially opening the order books for BI-Fuel models in July. Production is due to start in late August, with first deliveries expected to dealers in September/October and to customers in November/December.

Typical fuel cost comparison (May 2001)

fuel	petrol	diesel	LPG	CNG
cost per litre	78p	78p	38p*	45p**

*'Bunkered' LPG fuel, available to companies can be available for as little as 28p/litre
**litre equivalent

Volvo Bi-Fuel range

model	minimum kerbweight	power	C02 (g/km)	combined MPG	on the road £
S40 1.8 S LPG S40 1.8 SE LPG	316 kg	122 bhp petrol/ 120 bhp LPG	193 petrol/ 168 [PG	34.9 petrol/ 27.2 LPG	£ 17,020 £18,842
V40 1.8 S LPG V40 1.8 SE LPG	316 kg	122 bhp petrol/ 120 bhp LPG	193 petrol/ 168 LPG	34.9 petrol/ 27.2 LPG	£18,842 *£19,692*
S60 2.4 S LPG S60 2.4 SE LPG	520 kg	140 bhp petrol! 140 bhp LPG	212 petrol/ 191 LPG	32.1 petrol/ 24.8 LPG	£20,695 the
S60 2.4 S CNG S60 2.4 SE CNG	520kg	140 bhp petrol! 140 bhp CNG	214 petrol/ 161 CNG	32.1 petrol/ l0miles/kgCNG	£21,495 the
V70 2.4 S LPG V70 2.4 SE LPG	550 kg	140 bhp petrol/ 140 bhp LPG	214 petrol/ 193 LPG	31.7 petrol/ 24.6 LPG	£24,460 the
V70 2.4 S CNG V70 2.4 SE CNG	569 kg	140 bhp petrol! 140 bhp CNG	214 petrol/ 164 CNG	31.7 petrol/ 9.7miles/kgCNG	£25,260 the
S80 2.4 S LPG S80 2.4 SE LPG	520 kg	140 bhp petrol! 140 bhp LPG	214 petrol/ 193 LPG	31.7 petrol/ 25.2 LPG	£24,460 the
S80 2.4 S CNG S80 2.4 SE CNG	539 kg	140 bhp petrol/ 140 bhp CNG	214 petrol/ 162 CNG	31.7 petrol/ 9.9miles/kgCNG	£25,260 the

(note: these figures are preliminary data as the vehicles have not been officially tested yet)

Fuel Tanks

Bi-Fuel models	Petrol	Gas
S40/V40 LPG	60 litres	41 litres
S60 LPG	30 litres	50 litres
S60 CNG	30 litres	23 litres*
V70 LPG	30 litres	50 litres
V70 CNG	30 litres	23 litres*
S80 LPG	30 litres	50 litres
S80 CNG	30 litres	23 litres*

* litre equivalent

Cost savings examples

An example of fuel costs for an S401.8 doing 15,000 miles per annum:

Fuel Type	Typical price per litre	Typical MPG	Annual fuel bill	Saving over petrol
Petrol	79p	35	£1,539	-
Diesel	79p	52	£1,035	£504
LPG	38p	27	£952	£587
'bunkered' LPG	28p	27	£702	£837

An example of fuel costs for an V70 2.4 doing 15,000 miles per annum:

Fuel Type	Typical price per litre	Typical MPG	Annual fuel bill	Saving over petrol
Petrol	79p	31	£1,738	
Diesel	79p	45	£1,197	£541
LPG	38p	25	£1,037	£701
CNG*	45p	31	£990	£748

* or litre equivalent

How much extra does a Volvo Bi-Fuel cost?

- Grants are available towards the extra cost of the Bi-Fuel option under the Government Energy Savings Trust's Powershift scheme. A 60 per cent grant is available for S40/V40, and a 75 per cent grant is expected for the S60, V70 and S80. Visit the Powershift website for details: www.est-powershift.org.uk

  As an example (S/V40 LPG BiFuel)

  Extra cost of LPG BiFuel (compared to petrol equivalent) = £1,532 (excl VAT)

  60% Powershift grant = £919

  40% customer payment = £613 plus VAT (on £1,532) = £881

This makes the net additional cost (ex Powershift)

S/V40 LPG £881

S60/V70/S80 LPG £796 (expected)

S60/V70/S80 CNG £1,085 (expected)

Breakeven analysis

An example for an S40, calculated over a three year period shows that the Bi-Fuel covers its additional purchase cost after it has covered less than 7,000 miles each year.

LPG S40	LPG (Fuel Station)	LPG (Bunkered)
Break-even (miles/year) - compared to petrol	6,756	4,789
Which means savings for greater mileages		
10,000 rn/year	£132	£299
20,000 m/year	£539	£873
30,00 0 m/year	£946	£1,447
40,000 m /year	£1,353	£2.021
50,000 m/year	£1,760	£2,596

(fuel prices: petrol 80p, LPG 38p, LPG bunkered' 28p/litre)

Is company car tax (BIK) calculated on petrol or gas emissions?

From April 2002 Benefit In Kind (BIK) taxation on company cars will be based on its C02 emissions and its retail cost (P11 D). A Bi-fuel car is taxed on its lower gas C02 emissions and its higher retail value.

The following table shows how the legislation will effect a driver of an S40 1.8:

Fuel	CO2 (g/km)	BIK %	Tax (40% rate)
Petrol	193	20%	£1,220 / year
Diesel – 102bhp	142	18%	£1,163 / year
LPG Bi-Fuel	168	14%	£954 / year

As a comparison, a driver of an equivalent S40 1.8 petrol car would currently pay:

- Less than 3,500 business miles: £2,134 / year
- Between 3,500 and 18,000 business miles: £ 1,525 / year
- Over 18,000 business miles: £915 / year

The following table shows how the legislation will effect a driver of an S80 2.4:

Fuel	CO2 (g/km)	BIK %	Tax (40% rate)
Petrol – 140bhp	205	23%	£1,898 / year
Diesel (D5) 163bhp	170	18%	£1,738 / year
LPG BiFuel	193	19%	£1,705 / year
CNG BiFuel	164	14%	£1,324 / year

As a comparison, a driver of an equivalent S80 2.4 petrol car would currently pay:

- Less than 3,500 business miles.... £2,890 / year.
- Between 3,500 and 18,000 business miles.... £2,064 / year.
- Over 18,000 business miles.... £1,238 / year.

Vehicle Excise Duty Savings

Since March 2001 all new cars pay Vehicle Excise Duty (VED) linked to C02 emissions and fuel type:

C02 Band	Clean Fuel	Petrol	Diesel
150 g/km	£90	£100	£110
165 g/km	£110	£120	£130
185 g/km	£130	£140	£150
186 g/km	£150	£155	£160

(Clean fuels include gas BiFuels, electric hybrid and battery cars)

- Comparison of VED for Volvo Bi-Fuel models and equivalent petrol/diesel models

model	Bi-Fuel	Petrol	Diesel
S40/V40 1.8	£130	£155	£110
V70/S60/S80 2.4	£150 LPG/£1 10 CNG	£155	the

Useful websites:

Volvo Car UK Limited	www.volvocars.co.uk
Volvo Car Coporation Media website	www.media.volvocars.com
Volvo corporate citizenship report	www.citizenship.volvocars.com
Volvo environmental product declaration	http://epd.volvocars.se
Volvo environment prize home page	www.environment-prize.com
LPG association	www.lpga.co.uk
Powershift (Energy Saving Trust)	www.est-powershift.org.uk
European Environment Agency	www.eea.eu.int

VOLVO

Volvo Car UK Limited
Marlow

Press Information

Q&A **Bi-Fuel - facts and figures 2**

What is LPG and CNG?

LPG = Liquified Petroleum Gas

- A mixture of butane and propane gas, by-products of oil refining and natural gas production, LPG is a popular alternative fuel with a profusion of outlets at filling stations across the UK and Europe
- lower emissions: 10 per cent lower C02 emissions than petrol

CNG = Compressed Natural Gas

- A well known, clean fuel used by the majority of households and offices for heating or cooking. It currently has a poor vehicle refuelling infrastructure in UK, however it is possible that a 'homefill' system may be introduced for refuelling from a domestic gas supply
- lower emissions: 20 per cent lower C02 emissions than petrol

Both have:

- cleaner emissions: lower levels of all regulated, harmful exhaust emissions
- lower contribution to the formation of ground-level ozone and smog

Why buy a Bi-Fuel car?

- environmental benefits: Lower emissions from gas powered cars. (see above)
- save money: Gas is approximately 50 per cent cheaper than petrol or diesel. Fleet customers can gain further significant savings of around 10-20p/litre by having their own fuel 'bunkering' facilities
  Note: The Government has frozen the duty levied on LPG and CNG until 2004
- save tax: Lower emissions also make gas powered cars eligible for lower rates of Vehicle Excise Duty and company car tax
- legislation: There is increasing pressure to reduce pollution from traffic. Cleaner Bi-Fuel cars should be able to avoid the potential limitations on use, extra charges or taxes for offending vehicles currently under discussion
- stop thief: Gas cannot be removed from the tank by fuel thieves - a real bonus for some fleet operators

Are Bi-Fuel cars slower and less responsive?

- Although there is a minimal drop in power when running on gas, there is no noticeable difference in performance when powered by gas under normal driving. Also, there is a very quick and smooth transition during the changeover between fuels

Does the gas tank take up space in the boot?

- No. The fuel system has been engineered by Volvo itself and is integral to the design of its cars. The gas tanks in the latest S60. V70 and S80 Volvos are completely hidden under the rear floor and offer exactly the same load space as the standard models, while there is only a small raised area in the floor of the S40 and V40 which still leaves a clear platform for carrying long loads, when required.
  Note: The only limitations imposed by the gas tanks are:
  - the optional extra seat in the rear of the V70 is not available
  - there is no spare wheel. Volvo advises carrying a tyre fix spray can
  - some bass speakers under the rear floor of estates are unavailable

Where is it converted?

- It's not. Unlike some other manufacturers Volvo produces its Bi-Fuel models on the same production lines as its standard models and are sold with the full Volvo UK 3-year, 60,000 mile warranty

Why not just get my own car converted?

- Volvo's own Bi-Fuel models will always be superior to any after-market conversion as they are specifically designed for Volvo, produced in its own factories, sold with its full 3-yea 60,000 mile warranty, and fully integrated into the car with special switches on the dashboard and gas fuel gauge alongside the petrol one on the instrument panel

Is a BI-Fuel car safe?

- Like any Volvo, Bi-Fuel models are rigorously collision tested in accordance with Volvo's high standards. The gas tanks, tested in a variety of extreme conditions (including heat, high pressure, fire and pistol shots) and to greater limits so they are stronger than the comparable petrol tanks to allay any safety concerns. A closed fuel system prevents fuel spillage and evaporation.

Is Volvo seriously committed to the environment and alternative fuels?

- Yes. The environment is one of Volvo's three core values - Environment, safety and quality. As such it has devoted considerable resources into the constant monitoring and development of alternative fuels.

Hasn't Volvo sold with Bi-Fuel models before?

- Yes. Volvo has pioneered alternative fuelled vehicles and marketed earlier gas-powered vehicles. It is now the first manufacturer with a fully warranted Bi-Fuel range with the latest, discreetly integrated, under-floor gas tanks

Is LPG/CNG available abroad?

- Yes. LPG is widely available across Europe. Holland and the UK use the same LPG filler nozzle, while an adapter (supplied with the car) is required to refuel in other European countries. CNG is more limited - but more popular in some countries, such as Germany and Sweden. Refer to appropriate websites for refuelling locations before travel.

- Note: Eurotunnel does not currently allow gas-powered cars to travel on its trains. It has issued this statement:

  'LPG and dual-powered vehicles are currently prohibited from travelling on Eurotunnel shuttle services because of the safety problems associated with the design of fuel tanks fitted to some LPG-powered vehicles. We have never intended that the ban on these vehicles should be permanent. We do not believe there is anything inherently unsafe about LPG-powered vehicles, which we acknowledge are an increasingly popular, clean, and efficient form of transport. Incidents on the Continent have confirmed our view that the prohibition should not be relaxed until new manufacturing standards for such vehicles are agreed and enforced throughout Europe. In order to carry such vehicles, we would need to seek approval from our independent safety regulator for an extension to our operating certificate to cover such vehicles.'

What is the towing capacity of a Bi-Fuel model?

- Volvo Bi-Fuel cars have the same towing capacities as the equivalent petrol models

Will Volvo be introducing a `hybrid' vehicle?

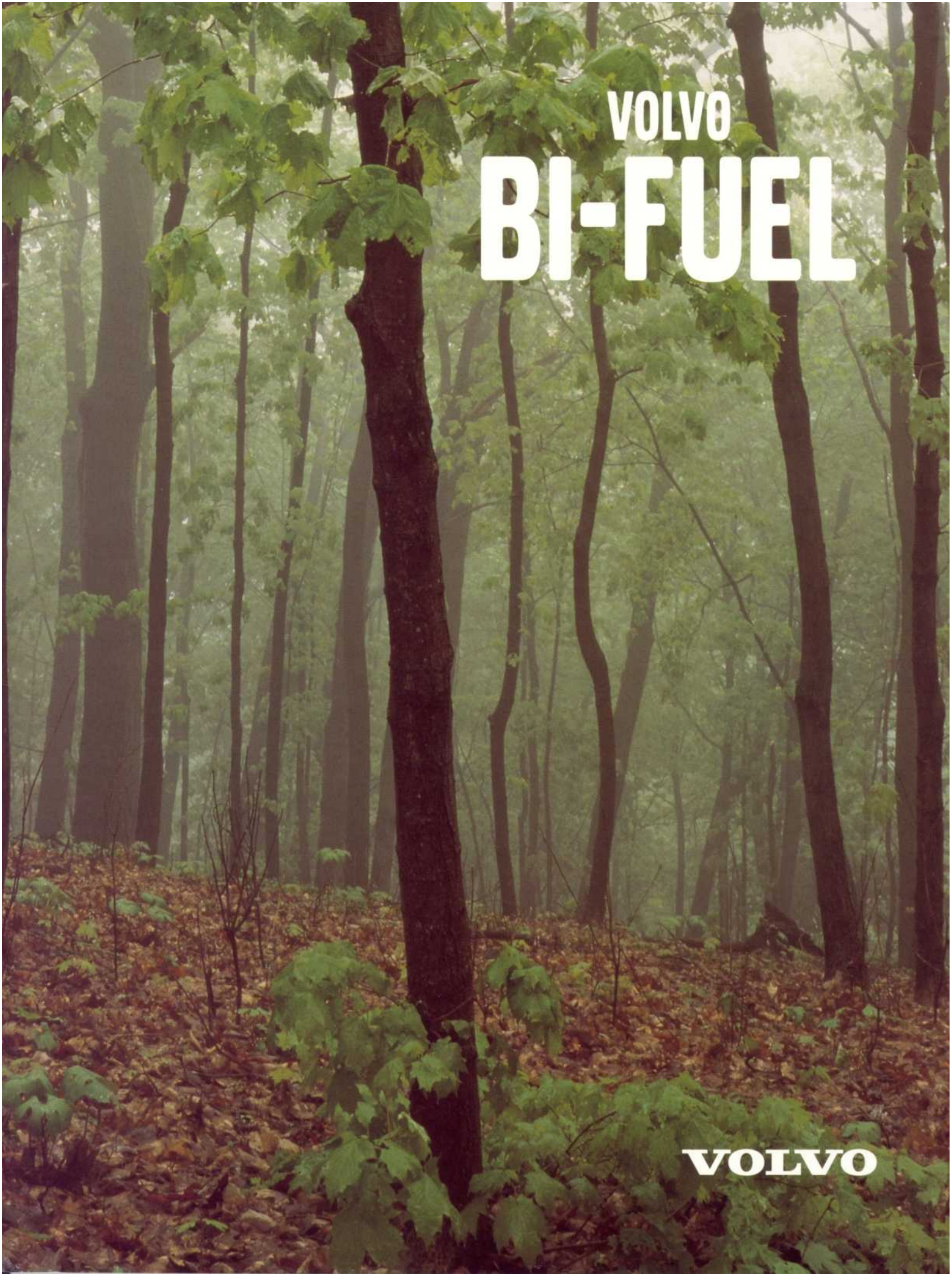
- Volvo is always testing and developing alternative fuel systems, including 'hybrid' solutions, However, at the moment, it considers gas-powered cars to be the practical and environmentally beneficial solution

How many Bi-Fuel Volvos do you expect to sell?

- Unlike some countries, the market for Bi-Fuel models in the UK is currently relatively small. In its first full year of sales (2002) Volvo expects to sell around 1,300 LPG Bi-Fuel cars, with nearly half of these V70 models. CNG sales are expected to be around 150 cars

When will Volvo Bi-Fuel be on sale?

- Volvo Bi-Fuel models should go on sale in June
- Prices are now available
- Production is due to start late August/early September
- First deliveries are expected to dealers in September/October, and to customers in November/December


VOLVO
BI-FUEL
VOLVO

TO IMPROVE YOUR ENVIRONMENT,

SELECT A CLEANER,

MORE COST-EFFICIENT FUEL.

Volvo Bi-fuel - a more environmentally friendly choice

Every time we use our car, we release harmful emissions into the environment. That's why, at Volvo we've worked hard to develop the petrol and diesel engine technology behind some of the world's most efficient car engines.

But cars don't have to use only one fuel. Gas-based alternatives, like Methane (Compressed Natural Gas) and Liquefied Petroleum Gas, cost less to use, and offer considerably lower emissions of harmful substances. Why not drive a car that can use these as well?

Throughout 2001, we are launching Bi-fuel versions of most Volvo models in the UK. It's your chance to reduce emissions and fuel costs - at a flick of a switch on your dashboard.

One engine. Two fuels.

Every Volvo Bi-fuel car has separate tanks to store petrol and gas. For the Volvo S40 and V40, a four cylinder 1.8 litre engine runs on petrol and Liquefied Petroleum Gas (LPG). For the Volvo S80 and V70, two versions of the 2.4 litre engine are available - one for petrol and LPG, the other for petrol and Compressed Natural Gas (CNG).
A switch on the dashboard selects the fuel in use. You can even change it whilst driving, without any noticeable difference to performance.

Model	Bi-fuel option	Available in the UK
Volvo S40 and V40	Petrol and LPG	Q 4 2001
Volvo S80	Petrol and LPG	Q 4 2001
Volvo S80	Petrol and CNG	Q 4 2001
Volvo V70	Petrol and LPG	Q 4 2001
Volvo V70	Petrol and CNG	Q 4 2001
Volvo S60	Petrol and CNG	Q 4 2001
Volvo S60	Petrol and LPG	Q 4 2001

Bi-fuel CNG

CNG is purified, compressed Methane. It occurs as natural gas, and can also be produced from organic material such as 'biogas'. Compared to petrol and diesel, toxic and harmful by-products from using CNG are significantly reduced. A car's carbon dioxide emissions - which contribute to the greenhouse effect and global warming - is 20% less running on CNG instead of petrol. Using CNG from a biogas source even helps cut greenhouse gases in the atmosphere.

Over 15 'fast fill' stations are already selling CNG around the UK. Over the next year, we expect to see a home system that will let drivers refuel from the home gas supply.

Filling stations across the UK

CNG fast fill locations: www.est-powershift.org.uk

LPG stations: www.lpga.co.uk or www.est-powershift.org.uk

Bi-fuel LPG

Liquefied Petroleum Gas (LPG) is a mixture of propane and butane gases. It is obtained when oil or gas is pumped out of the ground, and as a residual product from oil refineries.

Using LPG significantly reduces running costs. It can save 50% compared to driving on petrol, and 20% compared with diesel. Like CNG, it is also far cleaner. Emissions of carbon dioxide are 10% lower than petrol use.

Over 700 stations sell LPG across the UK, with a new one added almost every day. Around half of these are typical petrol forecourt sites. Increasingly, fleet operators using LPG are installing on-site gas storage facilities (`bunkers'), so reducing LPG costs even further.

ENVIRONMENTAL PRACTICALITY.

BUILT-IN CARE THAT REALLY COUNTS.

If you choose a Bi-fuel engine, do you compromise the flexibility and driving pleasure of owning a Volvo?

Of course not. The great handling, refinement, safety, space and comfort stay unchanged. The fuel tanks are sealed away underneath the car, not in the cargo area. And two things are even improved. Your running costs and the environment.

More efficiency, less impact.

The Volvo Bi-fuel is our latest engine generation. Low internal friction, electronic engine management and variable valve timing ensure performance is rewarding, whilst fuel consumption is low. An advanced injection system for gas power keeps combustion lean and efficient. Running on petrol, the Volvo S80 and V70 Bi-fuel already meet the extremely stringent EU emission requirements scheduled for 2005. If you run on gas, emissions are even cleaner - naturally.

Same luggage space. Longer range.

With fuel tanks underneath the car, there's no loss of luggage space. And with two fuels to choose from, you can also travel further. The Volvo S40 and V40 Bi-fuel have an estimated range of 200-250* miles on LPG, and a further 400-450* miles on petrol. The manual transmission Volvo S80 CNG tank is good for approximately 200* miles, with a further 217* miles from the petrol reserve. For full details see overleaf.

Safe. Sound.

The Bi-fuel installation is designed, tested and factory-fitted by Volvo. All Bi-fuel models have undergone the same stringent crash tests as any petrol or diesel Volvo. The reinforced gas tank and connections are engineered to withstand immense forces. Advanced valves and safety systems ensure fuel cannot leak. CNG is even non-toxic - and safer to handle than petrol.

*These figures are based on preliminary data as the vehicles have not yet been subject to official testing.

The UK government is actively encouraging us to use cleaner fuels in motoring. Choosing a Volvo Bi-fuel means you can look forward to less expensive fuel, reduced vehicle excise duty, a grant towards vehicle purchase and reduced 'benefit in kind' company car tax.

Litre for litre, LPG and CNG fuel costs significantly less than petrol or diesel. The small additional cost of a Bi-fuel model over a conventional fuel equivalent is quickly recouped in fuel savings. Over 3 years, refuelling at retail forecourts, the additional cost of a Volvo S40 or V40 Bi-fuel model will be exceeded by the savings after as little as 10,000 miles (over a 3 year cycle) driving per annum.

Through the Government's Powershift grant scheme, owners of a new Volvo Bi-fuel will be eligible for a grant based on the car's cleaner exhaust emissions.

Currently, the grant for a Volvo S40 or V40 Bi-fuel is £919 (60% of incremental cost), with even higher levels (expected 75% of incremental cost) for the Volvo V70 and S80.
For further details and conditions, visit www.est-powershift.org.uk

From 1st April 2001, Vehicle Excise Duty for new cars is linked to carbon dioxide emissions and fuel type. A Volvo S40 LPG driver will pay only £130 per year, compared to £155 to licence the Volvo S40 1.8 petrol version.

Currently, drivers provided with company cars pay a 'benefit in kind' tax. It is calculated on the car's value and annual business mileage. From April 2002 the tax will be based on car value and carbon dioxide emissions.
For instance, the personal tax saving between choosing a petrol and Bi-fuel LPG Volvo S40, would be £266 for a 40% ratepayer.

MAKE A NATURAL CHOICE.

Using CNG and LPG fuels can make a significant impact. It can reduce poor air quality in UK cities and minimise the carbon dioxide emissions linked to global warming.

By choosing our factory fitted Bi-fuel technology you can be sure your car is every part a Volvo - a safe natural choice for your family, and the world in which we live.

Like every new Volvo we build your car to your specification. You can also expect the industry-leading Volvo New Car Warranty and roadside assistance cover, plus access to competitive finance and insurance services.

Cleaner motoring. Lower fuel costs. A better environment.

Make a natural choice with a Volvo Bi-fuel. Call or visit your Volvo dealer today and arrange a test drive.

Fuel Range*

S40/V40 LPG		
LPG	244 miles (394km)	
Petrol	460 miles (741 km)	
V70 LPG	Manual Transmission	Automatic Transmission
LPG	313 miles (505km)	280 miles (452km)
Petrol	216 miles (349km)	198 miles (323km)
V70 CNG	Manual Transmission	Automatic Transmission
CNG	193 miles (311 km)	178 miles (288km)
Petrol	216 miles (349km)	200 miles (323km)
S80 LPG	Manual Transmission	Automatic Transmission
LPG	313 miles (505km)	251 miles (405km)
Petrol	216 miles (349km)	198 miles (319km)
S80 CNG	Manual Transmission	Automatic Transmission
CNG	193 miles (311 km)	178 miles (288km)
Petrol	216 miles (349km)	198 miles (319km)

*These figures are based on preliminary data as the vehicles have not yet been subject to official testing.

CHOOSE A FUEL THAT TAKES YOU ALL THE WAY TO YOUR DESTINATION.

With a Volvo Bi-Fuel, you always have secure access to fuel - wherever you travel. Today, you can fill up with gas in and around most mayor European cities. In Europe, there are about 10.000 stations for LPG and some 600 stations providing natural gas - and the number is increasing every day. And should the need ever arise, there's always the 200.000 or so petrol stations to fall back on.

For more information - CNG

Switzerland;	www.erdgas.ch/
Austria:	www.omv.com/bereich2html/content 2 2 4 3.html?l=0#3
Germany:	www.erd9asfahrzeu9e.de/welcome/fr-tank-OO.htm
Sweden:	www.fordonsgas.se/
The Netherlands:	www.na.nl/indexgas.htm
Italy:	www.eni.it/snam/italiano/target/automobilista/automobilista.html
Norway:	www.naturgass.no

For more information - LPG

Europe:	mlocek.hyperlink.cz/vyberlpg.html
UK:	www.est-powershift.org.uk/LPGrefuelling-map-htm
	www.lpga.co.uk/refuelmg stations2.htm
Denmark:	www.dvfg.de/autogas.htm
Poland:	www.lpg.mtl.pl/
Hungary:	www.primagaz.hu/pages/autogaz/autogaz.en.htm
France:	stations.gpl.online,fr/index.html
Germany:	www.dvfg.de/autogas.htm
Italiy:	www.geocities.com/lpg_italy/index.htm
Switzerland:	www.rmcs.ch/gas.html
Austria:	www.oeamtc.at/netautor/pages/resshp/anwendg/1001531.html

AN ECONOMICAL FUEL FOR TODAY...

If you choose a Volvo Bi-Fuel, you will not just be doing the environment a service. You will also be reducing your own total car costs.

In Europe, the fuel cost for the Volvo Bi-Fuel will vary between 25 and 70 per cent of the cost when running on petrol. The differences from one country to another are mainly due to differences in fuel tax, but there are also some local variations in pre tax-pricing.

Apart from the savings on the fuel bill, there could also be other economical benefits in different countries such as:

- exemptions from restricted access to city centres for vehicles using conventional fuels (common in Italy)
- governmental purchasing subsidies or favourable financing rates (common in UK, Germany and Italy)
- other preferential treatment, such as free or subsidized inner-city parking (common in Sweden)
- Fiscal incentives in the form of reduced purchase tax or excise duty, and lower annual road tax plus favourable treatment concerning company car tax values (common in several countries).

...AND FOR THE FUTURE

In view of the environmental advantages - less carbon dioxide, far fewer toxic emissions, far less ground-ozone generation and no particulate emissions - any coming changes in fuel taxation are likely to favour gas in comparison with conventional fuels like petrol and diesel.

From a long-term angle, the price of gas is likely to increase at a slower pace than the price of crude oil derivatives like petrol and diesel.

So, if gas is an economical fuel today, it will probably be a real bargain tomorrow.

VOLVO BI-FUEL

Technical Specifications

VOLVO

Volvo Car Corporation

VOLVO S40 Bi-Fuel

ENGINES

Type	
Configuration	
Displacement, cm^3	
Engine cylinder block material	
Cylinderhead material	
Combustion chamber type	
Compression ratio	
Valves, no/cylinder	
Camshafts	
Engine management system	
Ignition sequence	
Engine idling speed	
Fuel, rec. octane	
Max output, kW (hk)/rpm.	
Max torque, Nm/rpm.	

TRANSMISSIONS

5-speed manual gearbox. 5-speed adaptive automatic transmission, electronically controlled, with lock-up and winter mode selection.

Ratio	JC5-227
First	3.36
Second	1.86
Third	1.32
Fourth	1.03
Fifth	0.82
Reverse	3.55

Manual gearbox/final drive	
Automatic transmission/final drive	

PERFORMANCE

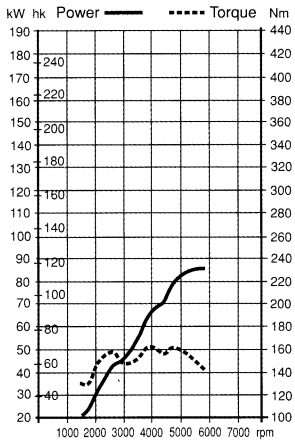
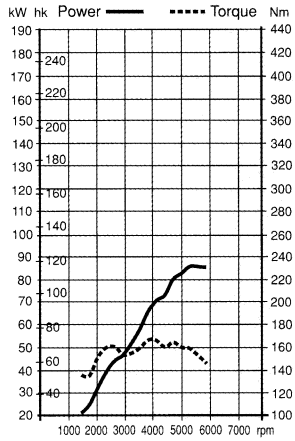
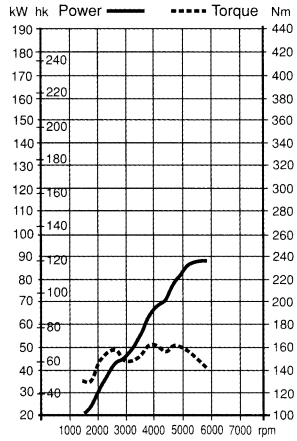
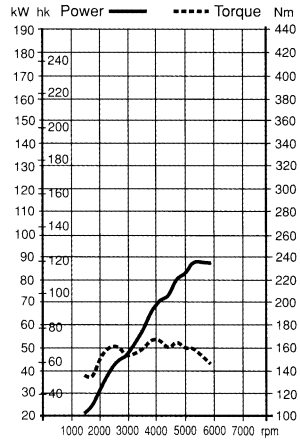
Gearbox	
Acceleration, 0–100 km/h (sec)	
Top speed, km/h	
Fuel consumption l/100 km (EC 1999/100, combined)	
CO_2 g/km	

CHASSIS

Suspension	front	Spring-strut, lower link, anti-roll bar
	rear	Individual, Multi-Link, with coil springs, anti-roll bar
Steering		Rack and pinion, power assisted
Turning circle		10.6 m
Turns of steering wheel lock to lock		3.1
Braking system		ABS discs all round, ventilated at the front + EBD
Brake disc diameter (front/rear)		256/260

B4184S10 only for Belgium and France.

B4184S9 only for the Netherlands, UK and Italy.

B4184S10 (LPG mode)	B4184S10 (petrol mode)	B4184S9 (LPG mode)	B4184S9 (petrol mode)
In-line 4 cyl. naturally aspirated	In-line 4 cyl. naturally aspirated	In-line 4 cyl. naturally aspirated	In-line 4 cyl. naturally aspirated
Transverse, front wheel drive	Transverse, front wheel drive	Transverse, front wheel drive	Transverse, front wheel drive
1783	1783	1783	1783
Aluminium	Aluminium	Aluminium	Aluminium
Aluminium	Aluminium	Aluminium	Aluminium
Pent-roof	Pent-roof	Pent-roof	Pent-roof
10.3:1	10.3:1	10.3:1	10.3:1
4	4	4	4
2	2	2	2
Microprocessor controlled fuel and ignition with self-diagnostics			
1-3-4-2	1-3-4-2	1-3-4-2	1-3-4-2
750	750	750	750
LPG	91–98 RON	LPG	91–98 RON
85 (116)/5500	85 (116)/5500	88 (120)/5800	90 (122)/5800
167/4000	170/4000	167/4000	170/4000
			
JC5-227/3.87:1	JC5-227/3.87:1	JC5-227/3.87:1	JC5-227/3.87:1
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Manual	–	Manual	–	Manual	–	Manual	–
11.4	–	10.8	–	11.0	–	10.5	–
195	–	195	–	200	–	200	–
10.4 LPG	–	8.0	–	10.4 LPG	–	8.1	–
168	–	187	–	168	–	193	–

MEASUREMENTS AND VOLUMES

Exterior measurements (cm)	
Length	452
Width	172
Height	142
Wheelbase	256
Track, front	147
Track, rear	147
Ground clearance	15
Load height	67
Weights/Miscellaneous	
Weight/kg min.	1316
Petrol tank, l	60
LPG tank, l	41
Max. trailer weight, kg	1200
Drag coefficient	0.31–0.32

Interior measurements (cm)	
Headroom with sunroof (front/rear)	96/93
Headroom without sunroof (front/rear)	98/95
Passenger compartment width at shoulder height (front/rear)	137/137
Luggage volume, litres (DIN V211)	415
Load length	95
Load length with rear seat folded down	169
Load length with rear seat and front passenger seat folded down	264
Height of luggage compartment	51
Width of luggage compartment between wheel arches	90

VOLVO V40 Bi-Fuel

ENGINES

Type	
Configuration	
Displacement, cm^3	
Engine cylinder block material	
Cylinderhead material	
Combustion chamber type	
Compression ratio	
Valves, no/cylinder	
Camshafts	
Engine management system	
Ignition sequence	
Engine idling speed	
Fuel, rec. octane	
Max output, kW (hk)/rpm.	
Max torque, Nm/rpm.	

TRANSMISSIONS

5-speed manual gearbox. 5-speed adaptive automatic transmission, electronically controlled, with lock-up and winter mode selection.

Ratio	JC5-227
First	3.36
Second	1.86
Third	1.32
Fourth	1.03
Fifth	0.82
Reverse	3.55

Manual gearbox/final drive	
Automatic transmission/final drive	

PERFORMANCE

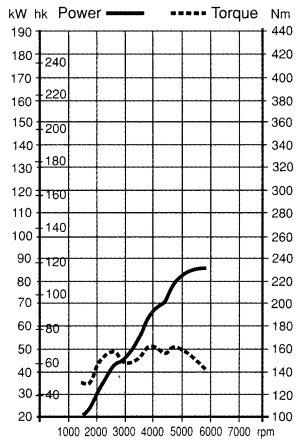
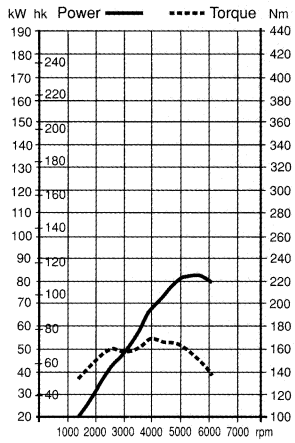
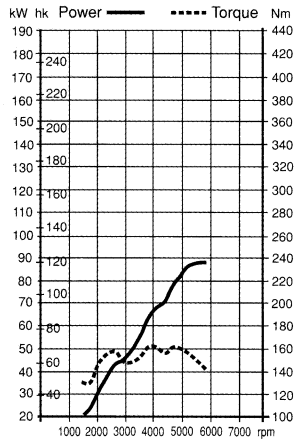
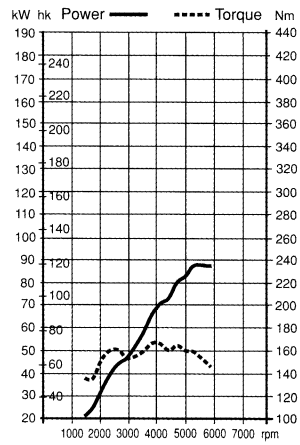
Gearbox	
Acceleration, 0–100 km/h (sec)	
Top speed, km/h	
Fuel consumption l/100 km (EC 1999/100, combined)	
CO_2 g/km	

CHASSIS

Suspension	front	Spring-strut, lower link, anti-roll bar
	rear	Individual, Multi-Link, with coil springs, anti-roll bar
Steering		Rack and pinion, power assisted
Turning circle		10.6 m
Turns of steering wheel lock to lock		3.1
Braking system		ABS discs all round, ventilated at the front + EBD
Brake disc diameter (front/rear)		256/260

B4184S10 only for Belgium and France.

B4184S9 only for the Netherlands, UK and Italy.

B4184S10 (LPG mode)	B4184S10 (petrol mode)	B4184S9 (LPG mode)	B4184S9 (petrol mode)
In-line 4 cyl. naturally aspirated	In-line 4 cyl. naturally aspirated	In-line 4 cyl. naturally aspirated	In-line 4 cyl. naturally aspirated
Transverse, front wheel drive	Transverse, front wheel drive	Transverse, front wheel drive	Transverse, front wheel drive
1783	1783	1783	1783
Aluminium	Aluminium	Aluminium	Aluminium
Aluminium	Aluminium	Aluminium	Aluminium
Pent-roof	Pent-roof	Pent-roof	Pent-roof
10.3:1	10.3:1	10.3:1	10.3:1
4	4	4	4
2	2	2	2
Microprocessor controlled fuel and ignition with self-diagnostics		Microprocessor controlled fuel and ignition with self-diagnostics	
1-3-4-2	1-3-4-2	1-3-4-2	1-3-4-2
750	750	750	750
LPG	91–98 RON	LPG	91–98 RON
85 (116)/5500	85 (116)/5500	88 (120)/5800	90 (122)/5800
167/4000	177/4000	167/4000	170/4000
			
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–	–	–	–

Manual	–	Manual	–	Manual	–	Manual	–
11.4	–	10.8	–	11.0	–	10.5	–
195	–	195	–	200	–	200	–
10.4 LPG	–	8.0	–	10.4 LPG	–	8.1	–
168	–	187	–	168	–	193	–

MEASUREMENTS AND VOLUMES

Exterior measurements (cm)	
Length	452
Width	172
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Weight/kg min.	1341
Petrol tank, l	60
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Max. trailer weight, kg	1200
Drag coefficient	0.32–0.33

Interior measurements (cm)	
Headroom with sunroof (front/rear)	96/93
Headroom without sunroof (front/rear)	98/97
Passenger compartment width at shoulder height (front/rear)	137/137
Luggage volume, litres (DIN V211/212/213)	357/695/1365
Load length	97
Load length with rear seat folded down	175
Load length with rear seat and front passenger seat folded down	273
Height of luggage compartment	88
Width of luggage compartment between wheel arches	90

VOLVO S60 Bi-Fuel

ENGINES

Type, in-line 5 cylinder	
Configuration	
Displacement, cm^3	
Engine cylinder block material	
Cylinderhead material	
Combustion chamber type	
Compression ratio	
Valves, no/cylinder	
Camshafts (overhead)	
Engine management system	
Ignition sequence	
Engine idling speed	
Fuel, rec. octane	
Max output, kW(hk)/rpm.	
Max torque, Nm/rpm.	

TRANSMISSIONS

5-speed manual gearbox.
5-speed adaptive automatic transmission, electronically controlled, with lock-up and winter mode selection.

Ratio	M56L	AW55-50
First	3.39	4.77
Second	1.91	3.00
Third	1.19	1.96
Fourth	0.87	1.32
Fifth	0.70	1.02
Reverse	3.30	3.23

Manual gearbox/final drive	
Automatic transmission/final drive	

PERFORMANCE

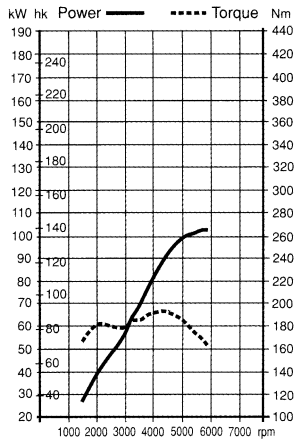
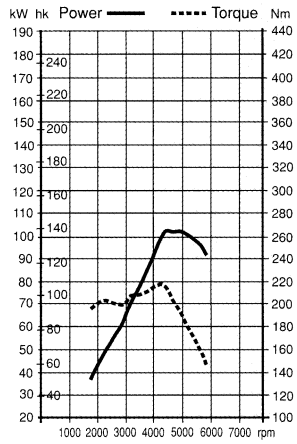
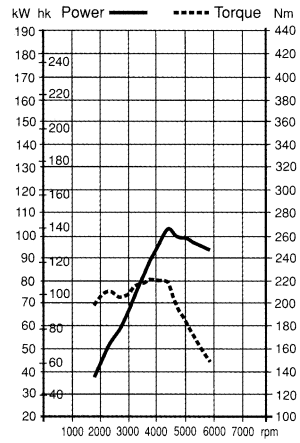
Gearbox	
Acceleration, 0–100 km/h (sec)	
Top speed, km/h	
Fuel consumption l/100 km (EU 1999/100, combined)	
CO_2 g/km	

All data are preliminary.

CHASSIS

Suspension	front	Spring-strut, lower link, anti-roll bar
	rear	Individual Multi-link suspension, anti-roll bar, aut levelling system
Steering		Rack and pinion, power assisted
Turning circle		11.9
Turns of steering wheel lock to lock		2.8
Braking system		ABS system with EBD. Ventilated discs front, discs rear
Brake disc diameter (front/rear)		286/288 mm

STC	Option (Standard certain markets)
DSTC	Option

B5244SG (CNG mode)	B5244SG2 (LPG mode)	B5244SG/SG2 (petrol mode)
Naturally aspirated Bi-Fuel	Naturally aspirated Bi-Fuel	Naturally aspirated Bi-Fuel
Transverse, front wheel drive	Transverse, front wheel drive	Transverse, front wheel drive
2435	2435	2435
Aluminium	Aluminium	Aluminium
Aluminium	Aluminium	Aluminium
Pent-roof	Pent-roof	Pent-roof
10.3	10.3	10.3
4	4	4
2	2	2
Microprocessor controlled fuel and ignition with self-diagnostics		
1-2-4-5-3	1-2-4-5-3	1-2-4-5-3
750	750	750
CNG	LPG	91–98 RON
103 (140)/5800	103 (140)/5100	103 (140)/4500
192/4500	214/4500	220/3750
		
M56L/4.00:1	M56L/4.00:1	M56L/4.00:1
AW55-50/2.44:1	AW55-50/2.44:1	AW55-50/2.44:1

Manual	Automatic	Manual	Automatic	Manual	Automatic
10.7	11.6	10.3	11.2	10.2	11.1
210	205	210	205	210	205
7.4 Nm^3 CNG	8.2 Nm^3 CNG	11.4 LPG	13.2 LPG	8.8	9.9
161	179	191	212	212	235

MEASUREMENTS AND VOLUMES

Exterior measurements (cm)	
Length	458
Width	180
Height	145
Wheelbase	272
Track, front	155
Track, rear	155
Ground clearance	14
Load height	68
Weights/Miscellaneous	
Weight/kg min. CNG/LPG	1539/1520
Petrol tank, l	30
CNG tank, Nm^3	23
LPG tank, l	50

Max. trailer weight, kg	1600
Drag coefficient	0.28
Interior measurements (cm)	
Headroom with sunroof (front/rear)	99/96
Headroom without sunroof (front/rear)	98/96
Passenger compartment width at shoulder height (front/rear)	143/141
Luggage volume, litres (DIN V210)	424
Load length	105
Load length with rear seat folded down	173
Load length with rear seat and front passenger seat folded down	276
Height of luggage compartment	44
Width of luggage compartment between wheel arches	114

Explanation of Methane /Natural gas units

1 kg pure methane will last as long as 1.05 kg of Danish natural gas. Official certification values are represented in m^3, fuel gas is sold in Nm^3 or kg.

Conversion table	kg	Nm^3 (0°C)	m^3 (15°C)
pure methane	1.00	1.39	1.53
natural gas	1.00	1.19	1.26
pure methane	0.72	1.00	1.10
natural gas	0.84	1.00	1.06

VOLVO V70 Bi-Fuel

ENGINES

Type, In-line 5 cylinder	
Configuration	
Displacement, cm^3	
Engine cylinder block material	
Cylinderhead material	
Combustion chamber type	
Compression ratio	
Valves, no/cylinder	
Camshafts	
Engine management system	
Ignition sequence	
Engine idling speed	
Fuel, rec. octane	
Max output, kW(hk)/rpm.	
Max torque, Nm/rpm.	

TRANSMISSIONS

5-speed manual gearbox.
5-speed adaptive automatic transmission, electronically controlled, with lock-up and winter mode selection.

Ratio	M56L	AW55-50
First	3.39	4.77
Second	1.91	3.00
Third	1.19	1.96
Fourth	0.87	1.32
Fifth	0.70	1.02
Reverse	3.30	3.23

Manual gearbox/final drive	
Automatic transmission/final drive	

PERFORMANCE

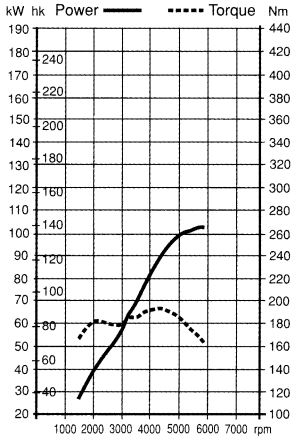
Gearbox	
Acceleration, 0–100 km/h (sec)	
Top speed, km/h	
Fuel consumption l/100 km (EU 1999/100, combined)	
CO_2 g/km	

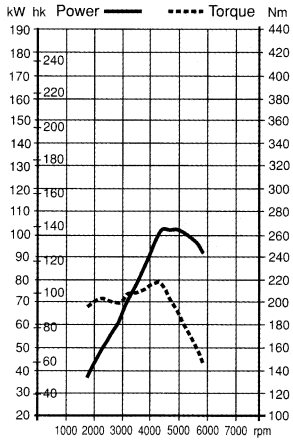
CHASSIS

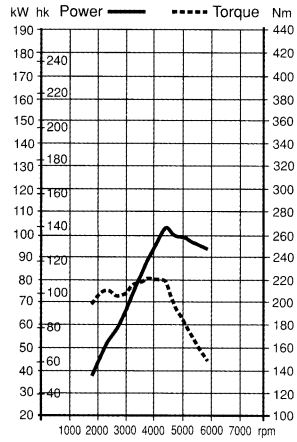
Suspension	front	Spring-strut, lower link, anti-roll bar
	rear	Individual Multi-link suspension, anti-roll bar, aut levelling system
Steering		Rack and pinion, power assisted
Turning circle		11.9
Turns of steering wheel lock to lock		2.8
Braking system		ABS system with EBD. Ventilated discs front, discs rear
Brake disc diameter (front/rear)		286/288 mm

STC	Option (Standard certain markets)
DSTC	Option

B5244SG (CNG mode)	B5244SG2 (LPG mode)	B5244SG/SG2 (petrol mode)
Naturally aspirated Bi-Fuel	Naturally aspirated Bi-Fuel	Naturally aspirated Bi-Fuel
Front wheel drive	Front wheel drive	Front wheel drive
2435	2435	2435
Aluminium	Aluminium	Aluminium
Aluminium	Aluminium	Aluminium
Pent-roof	Pent-roof	Pent-roof
10.3:1	10.3:1	10.3:1
4	4	4
2	2	2
Microprocessor controlled fuel and ignition with self-diagnostics		
1-2-4-5-3	1-2-4-5-3	1-2-4-5-3
750	750	750
CNG	LPG	91–98 RON
103 (140)/5800	103 (140)/5100	103 (140)/4500
192/4500	214/4500	220/3750







M56L/4.00:1		M56L/4.00:1		M56L/4.00:1	
AW55-50/2.44:1		AW55-50/2.44:1		AW55-50/2.44:1	
Manual	Automatic	Manual	Automatic	Manual	Automatic
11.0	11.9	10.6	11.5	10.5	11.4
205	200	205	200	205	200
7.6 Nm^3 CNG	8.4 Nm^3 CNG	11.5* LPG	13.3* LPG	8.9	10.0
164	181	193*	216*	214	240

* Preliminary values

MEASUREMENTS AND VOLUMES

Exterior measurements (cm)	V70
Length	471
Width	180
Height (without rails)	(147) 150
Wheelbase	276
Track, front	155
Track, rear	155
Ground clearance	14
Load height	61
Weights/Miscellaneous	
Weight/kg min. CNG/LPG	1569/1550
Petrol tank, l	30
CNG tank, Nm^3	23
LPG tank, l	50
Max. trailer weight, kg	1800
Drag coefficient	0.30

Interior measurements (cm)	
Headroom with sunroof (front/rear)	100/99
Headroom without sunroof (front/rear)	100/99
Passenger compartment width at shoulder height (front/rear)	143/142
Luggage volume, litres (DIN V211/V212/V214)	485/745/1641
Load length	109
Load length with rear seat folded down	185
Load length with rear seat and front passenger seat folded down	282
Height of luggage compartment	81
Width of luggage compartment between wheel arches	113

Explanation of Methane /Natural gas units

1 kg pure methane will last as long as 1.05 kg of Danish natural gas. Official certification values are represented in m^3, fuel gas is sold in Nm^3 or kg.

Conversion table	kg	Nm^3 (0°C)	m^3 (15°C)
pure methane	1.00	1.39	1.53
natural gas	1.00	1.19	1.26
pure methane	0.72	1.00	1.10
natural gas	0.84	1.00	1.06

VOLVO S80 Bi-Fuel

ENGINES

Type, in-line 5 cylinder	
Configuration	
Displacement, cm^3	
Engine cylinder block material	
Cylinderhead material	
Combustion chamber type	
Compression ratio	
Valves, no/cylinder	
Camshafts (overhead)	
Engine management system	
Ignition sequence	
Engine idling speed	
Fuel, rec. octane	
Max output, kW(hk)/rpm.	
Max torque, Nm/rpm.	

TRANSMISSIONS

5-speed manual gearbox.
5-speed adaptive automatic transmission, electronically controlled, with lock-up and winter mode selection.

Ratio	M56L	AW55-50
First	3.39	4.77
Second	1.91	3.00
Third	1.19	1.96
Fourth	0.87	1.32
Fifth	0.70	1.02
Reverse	3.30	3.23

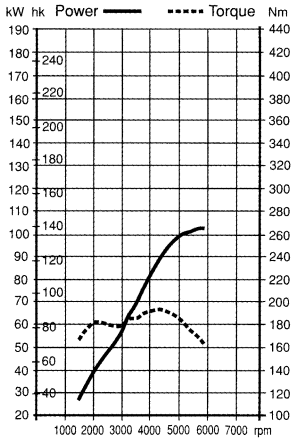
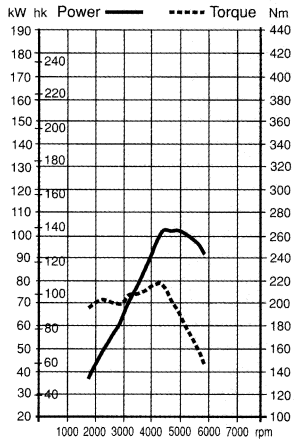
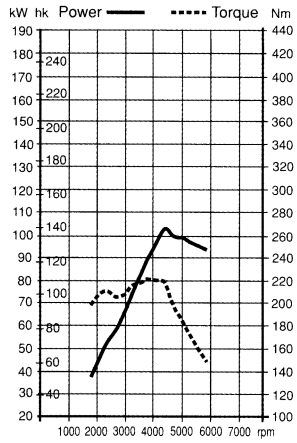
Manual gearbox/final drive	
Automatic transmission/final drive	

PERFORMANCE

Gearbox	
Acceleration, 0–100 km/h (sec)	
Top speed, km/h	
Fuel consumption l/100 km (EU 1999/100, combined)	
CO_2 g/km	

CHASSIS

Suspension	front	Spring-strut, lower link, anti-roll bar
	rear	Individual Multi-link suspension, anti-roll bar, aut levelling system
Steering		Rack and pinion, power assisted
Turning circle		12.0 m
Turns of steering wheel lock to lock		2.9
Braking system		ABS system with EBD. Ventilated discs front, discs rear
Brake disc diameter (front/rear)		286/288 mm
STC		Option (Standard certain markets)
DSTC		Option

B5244SG (CNG mode)	B5244SG2 (LPG mode)	B5244SG/SG2 (petrol mode)
Naturally aspirated Bi-Fuel	Naturally aspirated Bi-Fuel	Naturally aspirated Bi-Fuel
Transverse, front wheel drive	Transverse, front wheel drive	Transverse, front wheel drive
2435	2435	2435
Aluminium	Aluminium	Aluminium
Aluminium	Aluminium	Aluminium
Pent-roof	Pent-roof	Pent-roof
10.3	10.3	10.3
4	4	4
2	2	2
Microprocessor controlled fuel and ignition with self-diagnostics		
1-2-4-5-3	1-2-4-5-3	1-2-4-5-3
750	750	750
CNG	LPG	91–98 RON
103 (140)/5800	103 (140)/5400	103 (140)/4500
192/4500	210/3750	220/3750
		
M56L/4.00:1	M56L/4.00:1	M56L/4.00:1
AW55-50/2.44:1	AW55-50/2.44:1	AW55-50/2.44:1

Manual	Automatic	Manual	Automatic	Manual	Automatic
11.0	11.9	10.6	11.5	10.5	11.4
205	200	205	200	205	200
7.5 Nm^3 CNG	8.4 Nm^3 CNG	11.2* LPG	13.2* LPG	8.9	9.9
162	182	193*	213*	214	237

* Preliminary values

MEASUREMENTS AND VOLUMES

Exterior measurements (cm)	
Length	482
Width	183
Height	147
Wheelbase	279
Track, front	157
Track, rear	155
Ground clearance	14
Load height	68
Weights/Miscellaneous	
Weight, kg min. CNG/LPG	1539/1520
Petrol tank, l	30
CNG tank, m^3	23
LPG tank, l	50
Max. trailer weight, kg	1800
Drag coefficient	0.28

Interior measurements (cm)	
Headroom with sunroof (front/rear)	95/96
Headroom without sunroof (front/rear)	99/96
Passenger compartment width at shoulder height (front/rear)	147/145
Luggage volume, litres (ISO V210)	460
Load length	111
Height of luggage compartment	44

Explanation of Methane /Natural gas units

1 kg pure methane will last as long as 1.05 kg of Danish natural gas. Official certification values are represented in m^3, fuel gas is sold in Nm^3 or kg.

Conversion table	kg	Nm^3 (0° C)	m^3 (15° C)
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