Volvo XC90 T8 Twin Engine Plug-in SUV First Impressions

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Should we get connected with the new Volvo XC90 T8 Twin Engine Plug-in large SUV? asks David Miles (Miles Better News Agency)

With SUV sales in Europe accelerating to the top selling market segment in Europe last year and a 21.5% increase in the UK, where it is the third largest sector, the arrival of the new Volvo XC90 T8 Twin Engine plug-in petrol electric hybrid is timely. Sales of PHEVs in the UK in 2015 rose by 94% and in January this year they have increased again by 33%.

The new Volvo XC90 T8 Twin Engine is a petrol hybrid plug-in electric (PHEV) large seven seater SUV and joins the luxury XC90 range introduced last year, which initially only offered 2.0 litre petrol and turbodiesel engines.



Driven by tax saving, because of their lower emissions and supported by the UK Government's plug-in vehicle grant, sales of PHEVs have escalated rapidly, causing many manufacturers to now enter this sector of the market. They all want a share of the booming sales and it is also a way of meeting global regulations to reduce the overall CO2 and NOx emissions of their model ranges.

Ms Nikki Rooke, Head of Public Affairs for Volvo Car UK Ltd, told journalists at the launch of the XC90 T8 Twin Engine models, "Last year the company sold around 3,000 units of the all-new XC90, with supply restricted because of the changeover from the previous to new generation models. This year we expect to sell around 6,000 units of the XC90s and the new T8 Twin Engine will account for 15 to 20% of those sales."

The UK is the fourth largest global market for the Swedish Volvo brand with 43,432 sales last year, a rise of 6% over 2014 and the best year for 21 years. They have a target of 45,000 UK sales this year.

Founded in 1927 Volvo was taken over by the Chinese automotive group Geely in 2011 but the brand remains totally Swedish in terms of new model design, technology, engineering, sales and marketing.

The Volvo XC90 is the first model to be built on the firm's scalable product architecture. Using the latest low energy powertrains, the range topping T8 Twin Engine hybrid combines a 2.0 litre, four cylinder 320 bhp turbocharged and supercharged petrol engine with a plug-in rechargeable battery pack and an 87 bhp electric motor at the rear. The two power units together push out a maximum 407 bhp and once power losses within the drivetrain are taken into account, a huge 640 Nm (472 lb.ft) of torque.

As a result the top speed, although restricted, is an impressive 140 mph and the 0-62mph time is 5.6 seconds.

Even more impressive is the official Combined Cycle fuel consumption, which is claimed to be 134.5 mpg. It also emits just 49 g/km CO2. This means that company car driver's Benefit-

in-Kind is currently just 5%, but this rises to 7% from 1 April when the new rates come into force. Also, until the end of February, the vehicle is eligible for the Government's Plug-In Car Grant of £5,000 off the purchase price – but a new three tier system comes into force from 1 March when the grant reduces to £2,500 in the T8 Twin Engine model's category. Under the new three tier grant system, because of the relatively high price, only the cheapest Momentum version is eligible for the new grant as any PHEV model of any brand over £60,000 doesn't receive it. In addition to personal tax advantages the all new XC90 T8s bought by businesses have a 100% write-down allowance of its total cost in the first year of ownership and up to £11,470 in corporation tax relief.

Furthermore, like most other PHEVs the new Volvo T8 is currently exempt from VED road tax and free of the London Congestion Charge because of the low CO2 emissions.

But it costs significant purchase price money to enjoy the savings in tax and potential fuel costs. The XC90 T8 Twin Engine models all have the same technical components and seven seats but the vehicle is available with three levels of specification. The starting point is Momentum, which costs £57,350 after the new £2,500 grant has been applied. The R-Design version costs £62,750 and the top spec. Inscription is priced at £63,600 – and neither of these gets the grant.

Volvo in the UK say they expect 42% of UK XC90 T8 customers to choose the Momentum version because it receives the plug-in grant subsidy, 38% will opt for the top spec. Inscription model and 20% will choose the mid-range R-Design version.

The new XC90 T8 Twin Engine models will do up to 27 miles with a maximum speed of 78 mph on electric power alone. The 400v lithium-ion battery pack is not positioned under the load area floor but it is located in what would normally be, on a 4×4, the transmission tunnel between the front seats. This positioning allows for the vehicle to retain its middle row of three seats with lots of legroom, and the third row of folding twin seats, making it a seven-seater, the same as the conventional petrol and diesel versions. The battery pack can be fast charged from flat in 2.5 hours from a fast charging point or 3.5 hours from a

conventional 13 amp domestic three-pin power source.

This slideshow requires JavaScript.

Unlike its XC90 stable-mates, the D5 2-litre 225 hp turbodiesel and the 2.0 litre 320 hp T6 petrol models, the XC90 T8 Twin Engine models use the 2.0 litre turbocharged and supercharged petrol engine for the front wheels and an electric motor for the rear ones. It can run in front, rear or all-wheel drive modes, depending on the driving conditions.

When it comes to specification levels, even the base model T8 Twin Engine gets a panoramic sunroof, four-zone air-con,12.3 inch touchscreen, sophisticated navigation and internet connections, voice control and the emergency on-call system, with LED turning headlights, powered tailgate and an enormous range of Apps are being incorporated into the car's Wi-Fi system.

Being a Volvo, it is full of safety features such as the off road protection system which detects if the vehicle swerves off the road and tightens the front seat belts, with shock absorbers built into the front seats. During normally on-road driving the radar system sweeps the road to reduce the chance of an impact with another vehicle.

Because the Volvo XC90 T8 Twin Engine is heavier than its stable-mates it has been given carefully revised suspension, brakes and steering to cope with the loading so it is kept easy to drive despite its large size.

The newcomer benefits from the same 3 years/60,000 miles warranty as its companion models and servicing is in line with the purely internal combustion powered versions.



Just how economical is it?

Our mid-range R-Design T8 Twin Engine test car covered 21 miles from start on the 400v lithium-ion battery positioned under the floor between the front seats and in the combined hybrid mode it showed 57.4 mpg, but when the charge was exhausted and it seamlessly reverted to petrol power alone, it ended up with 35.6 mpg overall. This is a far cry from the official EU test figure of 134.5 mpg, which will only be obtained if the vast majority of driving is done with electric power and a small amount of support from the petrol engine. It is a must with all PHEVs that they are charged at least daily from a mains electricity supply to get close to the official figure. If used for a daily commute of around 20 miles or so, a

daily charge will mean no petrol use at all, ideal for the family runs to and from schools or shopping trips or a business executive's drive to work which is close to home. I can see lots of these being used in London where short drives are the norm, and of course there is no Congestion Charge to pay. But for more realist use our test driving route took in a town section where we used battery power only followed by the hybrid mode for the flatter terrain of the Vale of Evesham and then followed by the hilly roads of the North Cotswolds –by which time the battery power had run out.

The effortless way the T8 decided which power mode to use was impressive, from gliding away silently from the start of driving with only electric power before the petrol engine chimed in. Starting off the default mode is Hybrid, one of six modes ranging from battery power only, to battery save, to Hybrid and through to off-road. The 2.0 litre petrol engine from Volvo's acclaimed Drive E family is very good, quiet and powerful with a good spread of torque, especially when boosted through the rear wheels by the electric motor. The eight-speed automatic box was very smooth and the brakes and steering inspired confidence, while the suspension was smooth if slightly on the firm side, and there was a noticeable amount of road noise intrusion – due in part to the quiet operation of the petrol engine and electric motor.



One area I thought could be improved was the on-route power harvesting function for the battery. During de-acceleration on the overrun or during braking most PHEVs are able to top-up the power in the battery. The T8 can only do this efficiently if the gear select lever is put into B mode driving down hill or during slowing, for example coming to road junctions or roundabouts. But even then the harvesting function felt much weaker than with the best selling Mitsubishi Outlander PHEV 4×4 models.

VERDICT

The Volvo XC90 T8 Twin Engine model is an expensive alternative to the rest of the highly praised petrol and diesel versions, but it will appeal because of its relatively lower tax costs, tax saving, exclusivity and technology. Used in the right way in the right motoring

environment it works. As my test driving colleague said, “It’s a good car as far as it goes.”

For: Refined hybrid performance, significant tax savings, impeccable quality, practical and spacious interior, desirable brand.

Against: Only one version is eligible, because of price, for the Government’s plug-in grant, poor real-life fuel economy once the battery power has run out, only realistic to be used for short journey commuter/family travel otherwise diesel versions are much more practical for higher mileage users.



MILESTONES/WHEELS-ALIVE TECH. SPEC. IN BRIEF:

Volvo XC90 T8 Twin Engine.

Powertrain: Front mounted 2.0 litre, 4 cylinder turbocharged and supercharged petrol unit with 320 hp and 400 Nm (295 lb.ft) of torque plus a rear mounted 87 hp/240 Nm (177 lb.ft) electric motor, total power/torque output, allowing for losses within the drivetrain's operation, are 407 hp/640 Nm (472 lb.ft), 8-speed auto, AWD.

0-62mph: 5.6-seconds.

Top speed: 140mph (restricted) 0-62mph.

Electric power range/overall economy: Electric power only range 27 miles, Combined Cycle 134.5 mpg (on a 50 mile test – actual achieved 35.6mpg).

Emissions and taxation: CO2 49 g/km, VED road tax currently £0 every year, BIK company car tax now 5% then 7% from April.

Warranty: 3 years/60,000 miles.

Insurance group: Tba.

Dimensions/capacities: L 4,950 mm (16 ft 3 in), W 2,008 mm (6 ft 7 in), H 1,776 mm (5ft 10in), 5 doors/7 seats, boot/load space 314 to 1,868 litres (11.09 to 65.97 cu.ft), braked towing weight 2,400 kg (5,291 lb).

Retail prices: £59,859 to £63,600, (only the least expensive version is eligible for the new £2,500 plug-in vehicle grant from 1 March due to the £60k grant price cap).