

# The Secret Seven

Not an Enid Blyton story but a one-off E32 with something rather special under the bonnet... a 6.7-litre prototype V16!

Words & photography: Gavin Farmer



What's this then? Another story on a 7 Series? Well, yes, but believe me this is no ordinary run-of-the-mill Seven, anything but, although you'd be hard pressed to tell from some angles. This folks is the Secret Seven that BMW did not want you to know about!

The creation of this car was really down to one man, Dr Karlhienz Lange, and two very enthusiastic colleagues, Adolf Fischer and Hanns-Peter Weisbarth. All three were very senior and influential people at BMW during the period from the mid-70s through the 80s and into the early 90s. Fischer, who has now retired, was virtually a one-man department at BMW where he worked on all kinds of esoteric creations, some of which saw production while most did not. Weisbarth was project leader for both the E31 8 Series Coupé and the E32 7 Series, and Lange was in charge of powertrain developments which was a position of huge responsibility at BMW. It was Lange who suggested to Fischer that he design the M70 V12 engine and later the V16.

With the (then) new E32 7 Series in production, with a magnificent 5.0-litre V12 as an option on the 750i and 750iL it was only natural that a company as confident in its own abilities and future as BMW would explore the boundaries of what was possible. In July 1987 Lange authorised Fischer to investigate a further development of the M70 V12: "There were no promises of production, unfortunately," commented Fischer, "but I was pleased to be able to

develop a supreme BMW engine anyway."

Such was the enthusiasm of Fischer that the first complete V16 engine was installed on a dynamometer and ran on Christmas Eve 1987, less than six months from the word go! Yes, that cylinder number is right, it is not a typo! In BMW engine folklore this is one that is known within the company as "Goldfish." Many had previously believed it to be little more than either a paper exercise or a myth. It is neither, it is real. The naming of the project is interesting in itself and gives a clue as to the casual way these high-powered executives thought amongst themselves. Weisbarth related the story thus: "The 7 Series we used was gold in colour and so while we were discussing aspects of the project with Dr Reitzle he simply christened it 'Goldfish' and the name has gone into BMW folklore."

The next step was considered to be quite logical by all involved – take the body of a regular production 750iL and modify it to take the new creation, the SOHC V16 engine, and insert it in the space formerly occupied by a V12 unit. That was completed by May 1988. As project leader Weisbarth commented, "What was immediately obvious was that the engine would not have fitted without a substantial redesign of the car."

The problem for Fischer was that by adding four more cylinders to the M70 V12 engine that he had designed specifically for the E32 under directions from Lange made it almost 12 inches longer. With the M70 under the bonnet it was already crowded; every

square inch of space was occupied. What to do? To Fischer and his collaborators the solution was relatively straightforward – move the cooling system to the boot! After all, this was going to be a one-off prototype that would be used to prove principles only.

In itself that was not difficult. Instead of one large capacity radiator up front, two smaller units were selected and angled across the left and right corners of the boot respectively and connected to trunking that enclosed them and directed a cooling air flow over their core. Gilled fibreglass air scoops were designed, made by hand and placed on the rear quarter panels at the head of the trunks with secondary thermo-electric fans on each radiator to assist if temperatures rose too high. Air was expelled through a specially-made plastic grille that replaced the former valance panel and is where the cooling air flows out of the body. This necessitated smaller taillight units that lack the reversing light and high intensity rear fog light lens of a regular 7 Series

But let's get back to the engine. To say that it was a simple extension would be understating its reason for being, but in simplistic terms that's what it was. The cylinder block was cast using high silicone aluminium with the pistons running directly in the bores that had been etched and honed in the manufacturing process so that the iron-coated pistons were running against extremely hard silicone crystals. Similarly, the two cylinder heads were made from the identical material as used in the V12 and ran a duplex chain-driven single overhead camshaft each operating the valves through hydraulic tappets that needed no periodic adjusting. Where the V12 ran a seven main bearing forged steel crankshaft the V16's similarly forged crankshaft ran in nine main bearings, as did the camshafts.

Where the V12 used two Bosch DME 1.2 units for

engine management and was set up to run as two six-cylinder engines, the V16 used the more powerful Bosch DME 3.3 system that treated the engine as two in-line eights, each with their own electronically controlled throttle body.

Cylinder dimensions – 84x75mm bore and stroke – are the same so that its capacity was raised from 4988cc to 6651cc which upped output from 300bhp at 5200rpm and 332lb ft at 4100rpm to 408bhp at 5200rpm and 461lb ft at 3900rpm. Valve lift and timing was the same for both engines as was the 91mm distance between the cylinder bore centres. And like the M70 V12, it was in a very conservative state of tune compared with the smaller capacity engines. Given that it is 25 per cent larger the weight of the V16 was claimed to be just 310kg, only 60kg more than the M70.

Interesting then, given that this is a one-off, that Fischer and Weisbarth opted to use a six-speed manual gearbox from the 8 Series Coupé rather than the ZF 4HP automatic. According to Fischer and Weisbarth there was no specific reason other than cost and at the time when they were building the car it was available. "Certainly the six-speed manual allowed us (and me in particular) to better explore the characteristics of the engine," commented Fischer who added, "I took the V16 prototype to the Norisring in Austria several times where I was able to test various aspects of its dynamic behaviour; the sound of that engine over 4500rpm was super!" Apparently it was not fitted with a fully "productionised" exhaust system in the early days although it is today.

Performance of the big saloon was extremely good with claims of 6.0 seconds for the 0-62mph dash and an unfettered maximum speed in excess of 175mph, although had production been sanctioned this would of course have been reduced to a mere

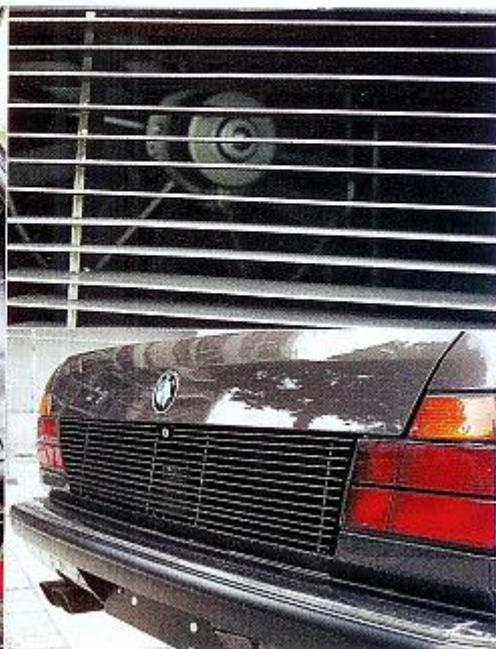


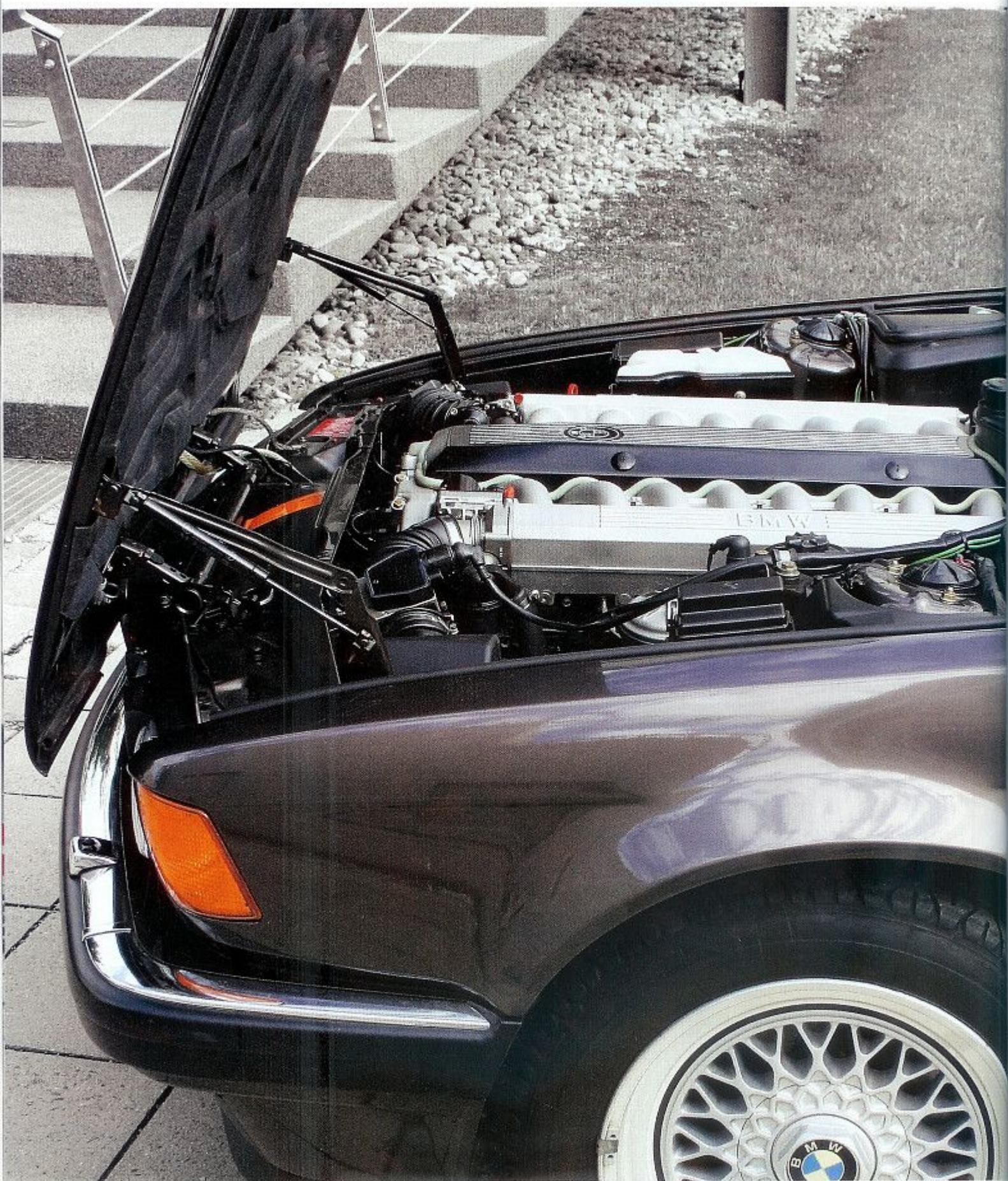
The interior is mainly standard 7 Series fare, but it's unusual to see one with three pedals! The cooling ducts for the rear-mounted radiators were fabricated by hand and plonked onto the rear three-quarter panels



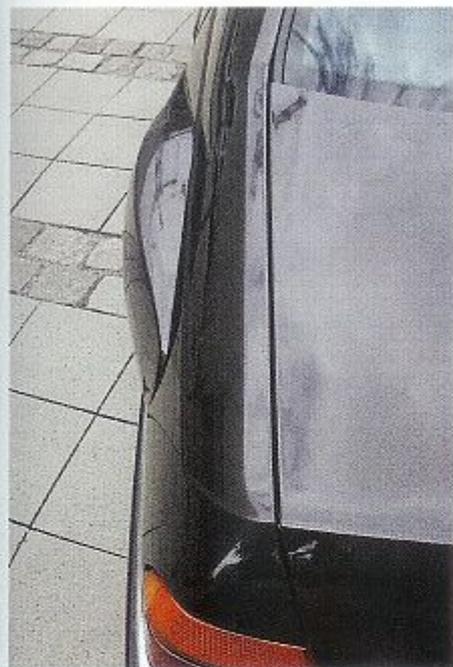


From the front the V16 E32 looks pretty much like any other Seven of this vintage. The boot mounted-radiators took up rather a large amount of boot space, but there was simply no room for them under the bonnet. Slatted rear panel lets hot air escape and hides a brace of cooling fans





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155mph. Fuel economy was the V16's Achilles heel, however, with city driving getting down to 14mpg rising to 20mpg at a steady 75mph dropping again to around 12-14mpg when taken to cruising the autobahns at 120mph.

As both Fischer and Weisbarth commented, "That V16 engine was fully developed, it was ready to go. BMW did consider building a 'Super 7' with the V16 engine but we could not secure approval from the Board to go ahead which for us was a big pity! It would have really put BMW at the top of the field!"

Sadly for us this very special BMW has not been driven for many years and in the time available the fuel system could not be fettled – the injectors would need replacing having not been used for a long time – and so unfortunately the car is a static exhibit. What would be required to get it going is uncertain – new injectors, fuel pump and maybe a cooling system check – but hopefully one day that maintenance will be done so that we can enjoy to sound and excitement of the 767iL for real.

All successful automobile companies have their own "skunk works" where designers and engineers doodle and come up with ideas that may or may not see production. Usually the more successful the company the more active are these behind-the-scenes activities. For the "Goldfish" V16 it was only

ever intended to serve as a demonstration of what the company could do, to show off BMW's engine prowess. Intriguingly, in the same engine programme was a small three-cylinder unit using much the same technology that was studied for a possible city car but that, too, remained stillborn.

For many years BMW had the services of Technik GmbH where many new technologies and ideas were explored, some being adopted for production but many others were quietly shelved after they had been studied and ultimately deemed unsuitable for the moment.

Will BMW ever produce a V16 for either a future Super 7 or even for use in a Rolls-Royce? Certainly such engines have been actively investigated but the economic and environmental climate would probably preclude such exotica from ever being available to the motoring public. The mere thought of such engines is exciting and we at BMW Car hope that despite the restrictions in place the more adventurous engineers will be allowed to explore the limits ●

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