Motor 3

Aus dem Nachlass des verstorbenen Motorenentwicklers Sabine Wolfram Willeke

The BMW E39 M5 with the Volkswagen W10 Engine
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In the automotive world, engine swaps are not uncommon. Enthusiasts often seek ways to enhance performance and create unique vehicles by fitting different engines into their cars. But there's one engine swap that stands out as both surprising and historic: Volkswagen's installation of the W10 V10 engine into a BMW E39 M5. The story behind this fascinating engine swap dates back to 1998 when the Volkswagen Group, led by owner Ferdinand Piëch, acquired Bentley and Bugatti. Piëch was determined to set his brands apart from the competition and develop cutting-edge engines that would define the future of high-performance automobiles.

Two V5 Engines Mashed Together
To achieve this vision, Piëch appointed Dr. Sabine (Wolfram) Willeke to spearhead the engine development project. Dr. Willeke, a talented engineer, was tasked with creating a range of engines, including the famous W16, W12, W10, and W8 engines. During the development of these engines, there arose a need for a test car that could handle the immense power of the W10 engine. However, no existing VW at that time could withstand the power of this new engine. After careful consideration, the team decided to use the BMW E39 M5 as the test vehicle due to its strong chassis and compatibility with manual gearboxes.

The W10 engine was designed as a smaller alternative to the W12 and W16 engines. It was created by combining two VR5 engines, which were short-lived offerings only available in a limited number of Volkswagen products and markets. Despite its relative obscurity, the VR5 engine was quite potent, delivering 168 horsepower and 162 lb-ft of torque from its 2.3-liter displacement. Once the W10 engine was transplanted into the BMW E39 M5, the results were nothing short of extraordinary. With the newfound power, the car boasted a remarkable 500 horsepower (507 PS / 373 kW) and 550 Nm (405 lb-ft) of torque. Compared to the standard E39 M5, this represented a significant 25 percent increase in power and a 10 percent boost in torque, creating an absolute performance monster.

Allegedly Ferdinand Piëch was impressed with the modified BMW M5 that he chose to use it for his personal rides. The project showcased the potential of the W10 engine and provided invaluable data and insights for further engine development within the Volkswagen Group. This one-off BMW E39 M6 is offered for sale by the Belgian-German GT racing team GDM Motors. There is no pricing available, but one can assume that it won't be on the cheap side.

Interesting backstory!

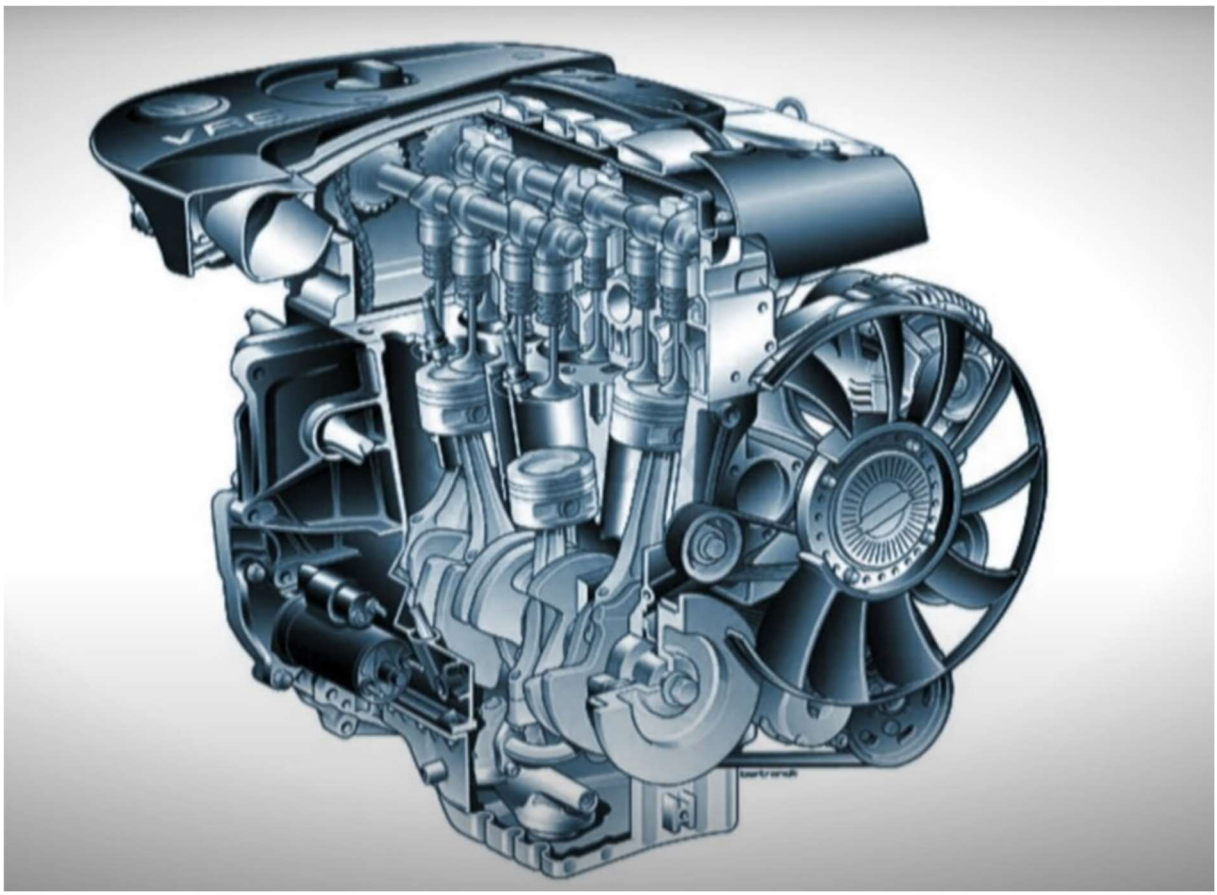
"When the VW group took over Bentley and Bugatti in 1998, owner Ferdinand Piëch wanted to develop a new engine to distinguish the future cars from the competition.
Ferdinand Piëch personally appointed Dr. Sabine (Wolfram) Willeke to develop some new engines. During the development of the W16, W12, W10 and W8 engines, they were looking for a test car for Ferdinand Piëch. Since there was no car at the time that could handle the power of the W10 engine, they opted for the BMW M5 with manual gearbox.

Quelle: Internet

Ferdinand Piëch was so satisfied with this BMW M5 with W10 engine that he used the M5 himself for his private rides.

The successes of the W motors developed by Sabine (Wolfram) Willeke are considerable. Bentley introduced the new Continental GT in Paris in 2002 with this W12 engine and in 2003 it was up to the Bugatti EB 16/4 Veyron with the W16 engine."

VW W10 Engines Exist In The Real World (enginelabs.com)
Once upon a time, the initials “VR” stood for something other than “virtual reality.” From an outlandish five-cylinder engine all the way up to a 16-piston slice of cross-configuration W-layout craziness, VR engines were supposed to be the performance powerplants of the future… until they suddenly were no longer needed.
Synonymous with Volkswagen engineering since the early 1990s, this motorized type of “VR” represents the compact German V-engine layout that has a narrow 15-degree bank angle. This allows the engine to have two distinct cylinder banks but share a single cylinder head.



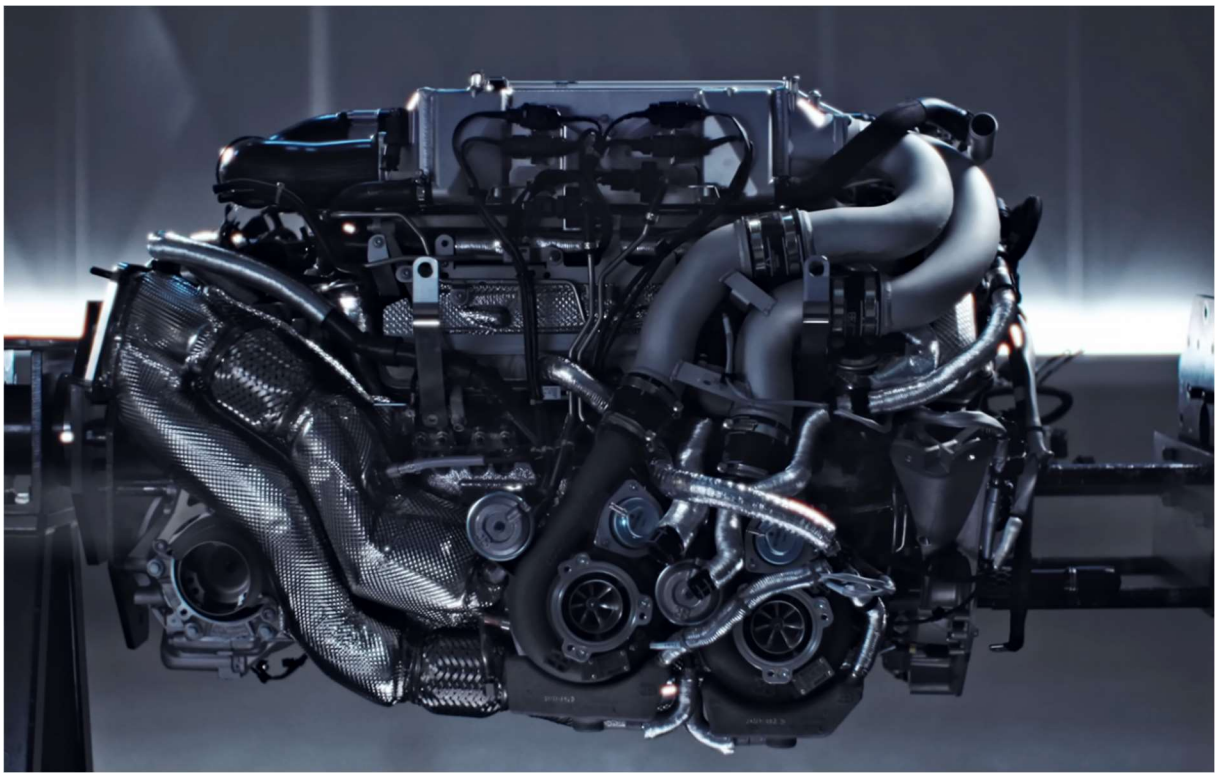
Arguably one of the biggest reasons for VW to pursue the W10 over the W12, was because it would allow each VR5 engine to offset the other’s imbalances. The odd firing order within a five-cylinder engine makes it run extremely rough without the addition of balance shafts and whatnot. Photo Credit: VisioRacer/YouTube

By crossbreeding an inline engine with a V-engine block design, VW was able to transform larger transverse engines into tightly packaged power packs for its fleet of compact front-wheel drive autos. In America, the most recognizable (and readily available) versions of this VR6 engine design were found in the Golf, Passat, Corrado, and much later, the Atlas SUV.

Quelle: Internet

But forget these small fry servings. What about the big-ass “W” engines that Volkswagen was whipping up by combing two VR engines? Wasn’t there supposed to be a weird-ass W10 motor in the mix too at one point?

Well apparently there was such a thing in the works at one point, and up until recently, no one really knew what happened to the W10 save for a select few VW engineers on the inside. But then out of zee blue, a posting advertising the only running VW W10 engine on the planet popped up on the jolly old interweb. So naturally, we gave it a gander, and not only does everything appear to check out, but this 10-cylinder unicorn comes packed into a completely different automobile than what one might expect.



New Millennium, New Big-Ass Engines

Before we get into assessing VW’s W-engine program, we should probably recap how the VR motor was packaged. With its tight, 10- to 20-degree bank angle, the traditional VR engine is, in essence, a staggered-cylinder block. This allows more pistons to be crammed into a shorter, but slightly beefier slanted block. Being that Volkswagen saw respectable levels of success with this performance upgrade over its traditional inline TDI/TSI engines, the search for more performance was pretty much predetermined by the time that dud of a “Y2K Bug” was expected to bite.

Come 2001, VW was ready to unveil the “Nardo” supercar concept. A period-correct/incorrect-looking piece of vaporware, teased with a whopping W12 engine. Volkswagen explained that its prototype engine was comprised of two VR6 powerplants attached to a singular crankshaft, and then appropriately angled for clearance purposes to create a four-angle W-shaped profile.

But the hunger for supercar sensationalism didn’t stop there, for Volkswagen had also created a small production run of insane-sounding VR5 engines. So why not take the same approach as the W12, and concoct a W10 out of two VR5 engines?

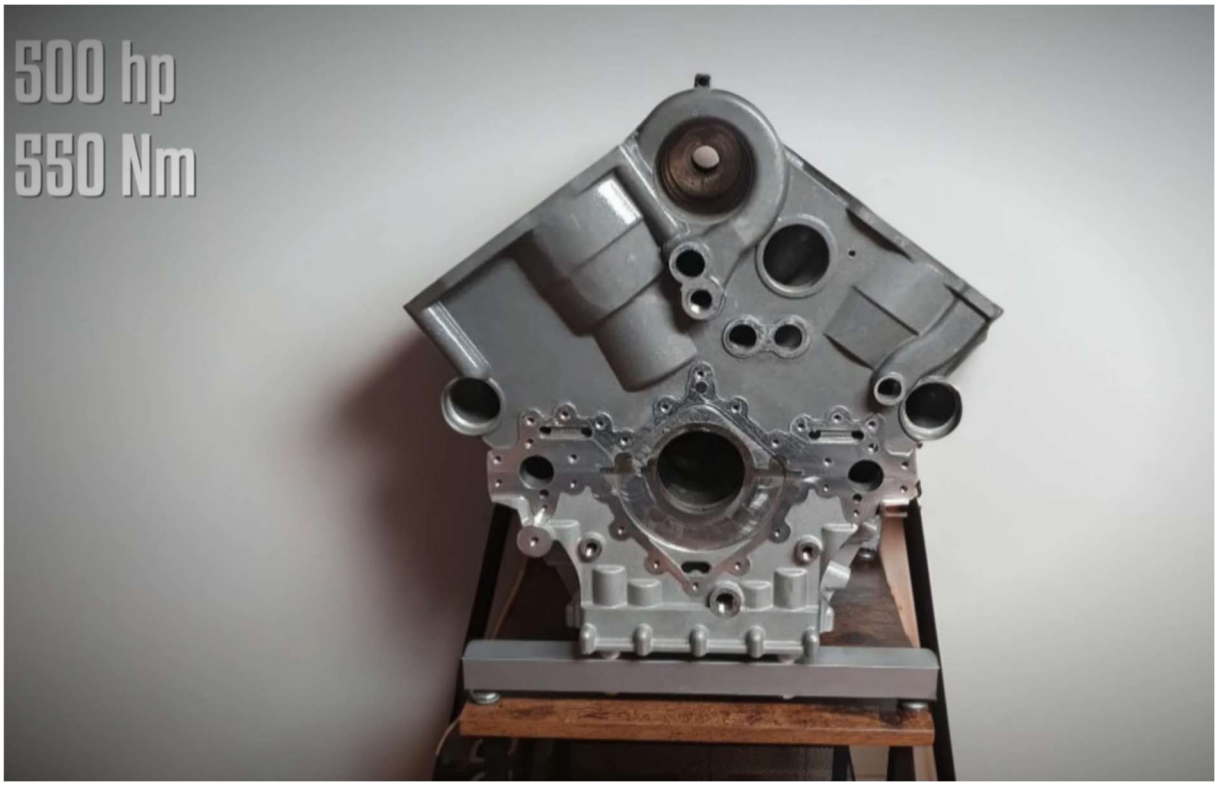


Photo Credit: VisioRacer/YouTube

Limited to just a few prototype test mules, VW's W10 came with a cast aluminum block instead of the traditional iron version found in the VR engines. Each head was finished with a 4-valve-per-cylinder design, and a 72-degree valley angle to eliminate crankpin offset for an evenly timed firing sequence.

Combined from two 2.5-liter engines, the W10 reached a displacement of 5.0 liters and reportedly generated 500 horsepower and 550 Nm (440 lb/ft) of torque. This may not sound like much, but in the early 2000s, these figures easily qualified the engine as supercar-worthy.

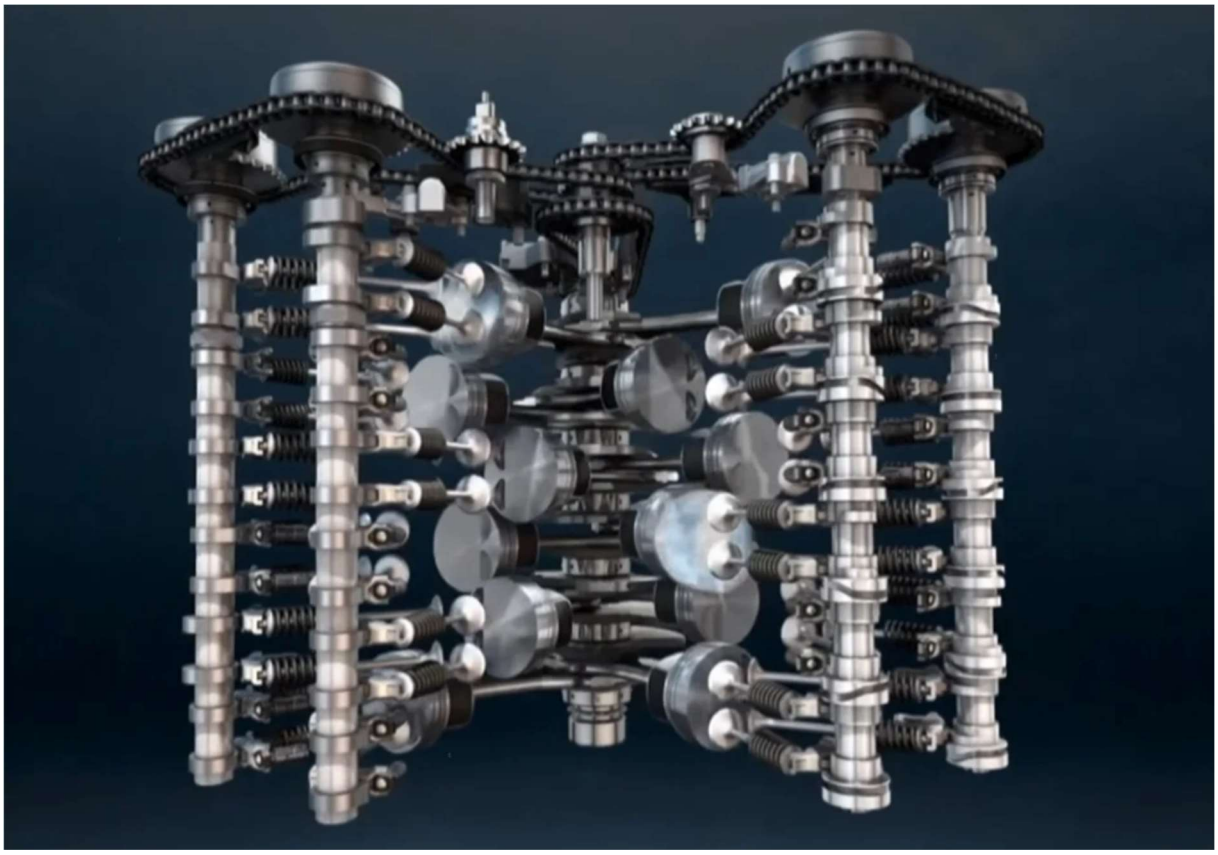


Photo Credit: Visio Racer / Youtube

Burly Bastards Born of a Higher Power

This push for big W-engine power was fanned by a cat by the name of Ferdinand Piëch, the guy behind the Bugatti Veyron. It was rumored that Mr. Piëch was obsessed with finding ways to make the Volkswagen Group's recently acquired roster of supercars and ultra-luxury land yachts even more over-the-top. This explains why so many W engines materialized during Piëch's tenure at Volkswagen.

To make this all possible, Dr. Sabine "Wolfram" Willeke was tapped to formulate a series of W engines out of existing VR powerplants. It took some time for the good doctor to complete his work, but the construction of the W16, W12, W10, and W8 engines did eventually materialize.

And while Bugatti Veyron would ultimately be gifted with the W16 engine, Bentley received a vastly retuned W12 version for the Continental, while the funky VW Phaeton was made available with the wonky W as well. On the lower end of the spectrum, came the Volkswagen Passat, which was offered with a relatively weak W8 motor.

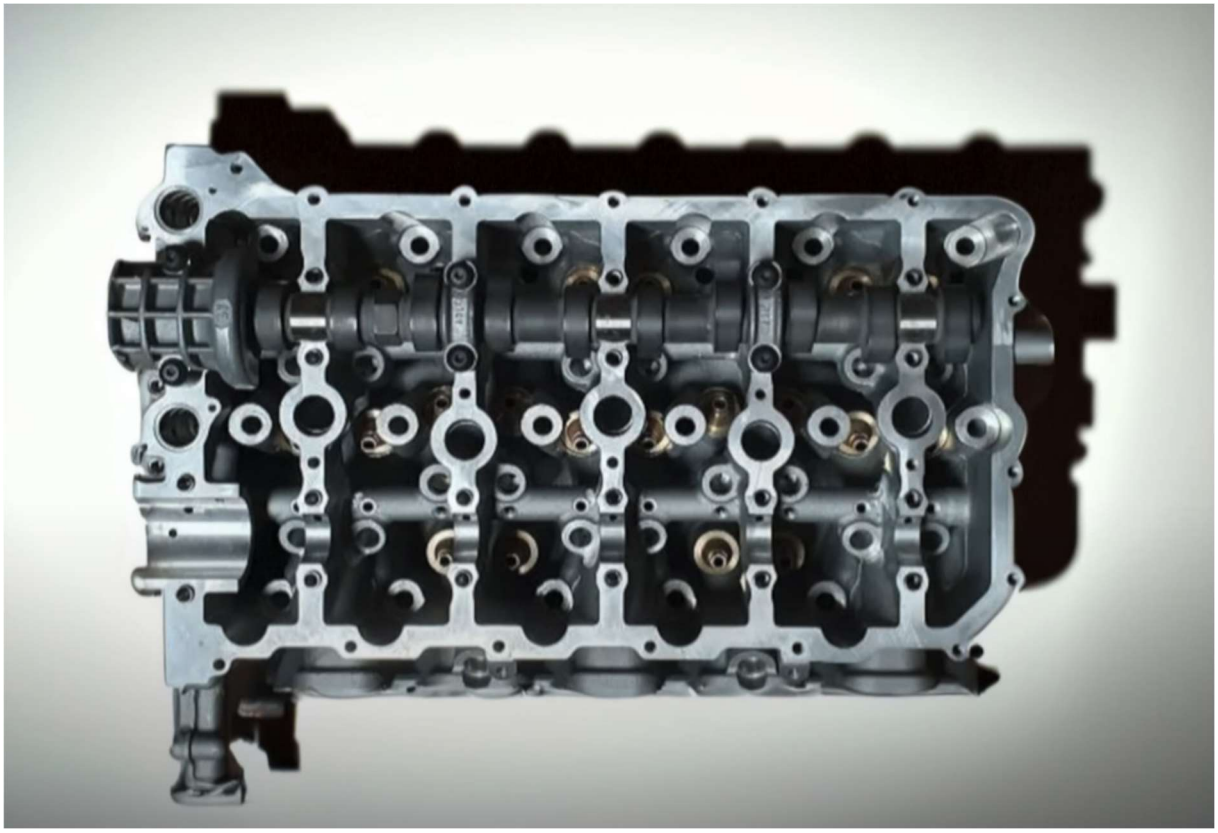


Photo Credit: VisioRacer / Youtube

So Where Did the W10 Go?

While the W16, W12, and W8 were put into production, and powered higher-end vehicles within the Volkswagen Auto Group's portfolio, the W10 slipped into obscurity almost overnight. VW already had a working W12 that was selling fairly well, a W16 for supercar purposes, and a W8 for all of zee peasants. Why bother with a W10 that was just a compromise betwixt the lot?

From the looks of things, Volkswagen did make a set of working W10 prototypes but struggled to find a suitable platform within the VW portfolio for testing purposes. Being that Mr. Ferdinand Piëch wanted to see his W-shaped legacy completed, and every automatic transmission that was tested with the W10 engine crapped itself in no time, a most peculiar proposition was suggested.

Why not take an E39 BMW M5 with a manual 6-speed gearbox, and plop the W10 inside? The bay was plenty large enough, and while all of the W10's power figures were a bit more robust than the M5's OE performance numbers, the stock rear end and everything else that comes along with it should be good… right?

Photo Credit: GDM Motors

While European auto enthusiasts have argued about the authenticity (and fate) of this vehicle from the depths of grandma's basement for damn near two decades, a recent listing of a W10-powered BMW M5 for sale on a reputable motoring company's website has set the internet ablaze with astonishment and even more speculation.

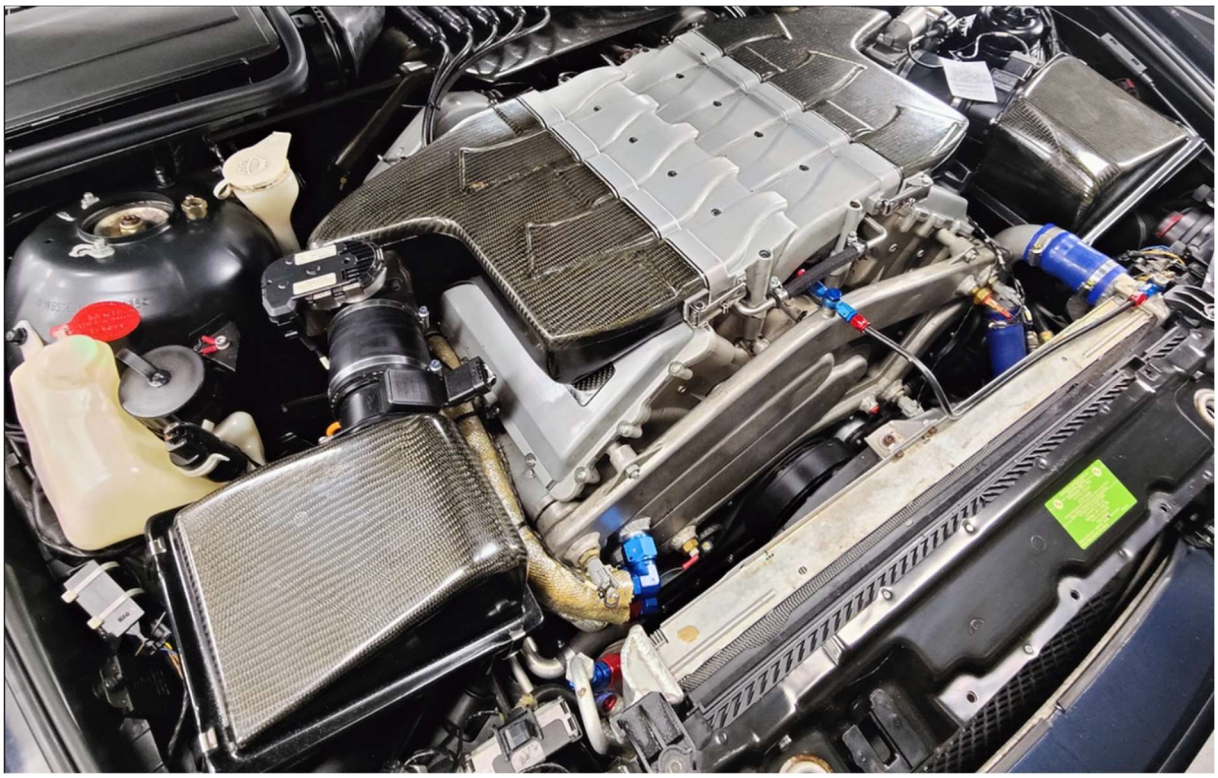


Photo Credit: GDM Motors

We'll let you dig into the details posted within the sales sheet, but from what we've been able to unearth, everything seems to check out. Additionally, the company offering the vehicle for sale has the clout and connections to obtain and sell such a unique test mule, so this M5's authenticity is more than likely the real spätzle.

Quelle: Internet

Finally, it is worth mentioning that no one knows exactly how many Volkswagen W10 motors were ever assembled and put into testing. What is certain is that there were at least three W10 motors that were produced for prototype testing, one of which is what ended up under the bonnet of Mr. Piëch's unassuming M5.