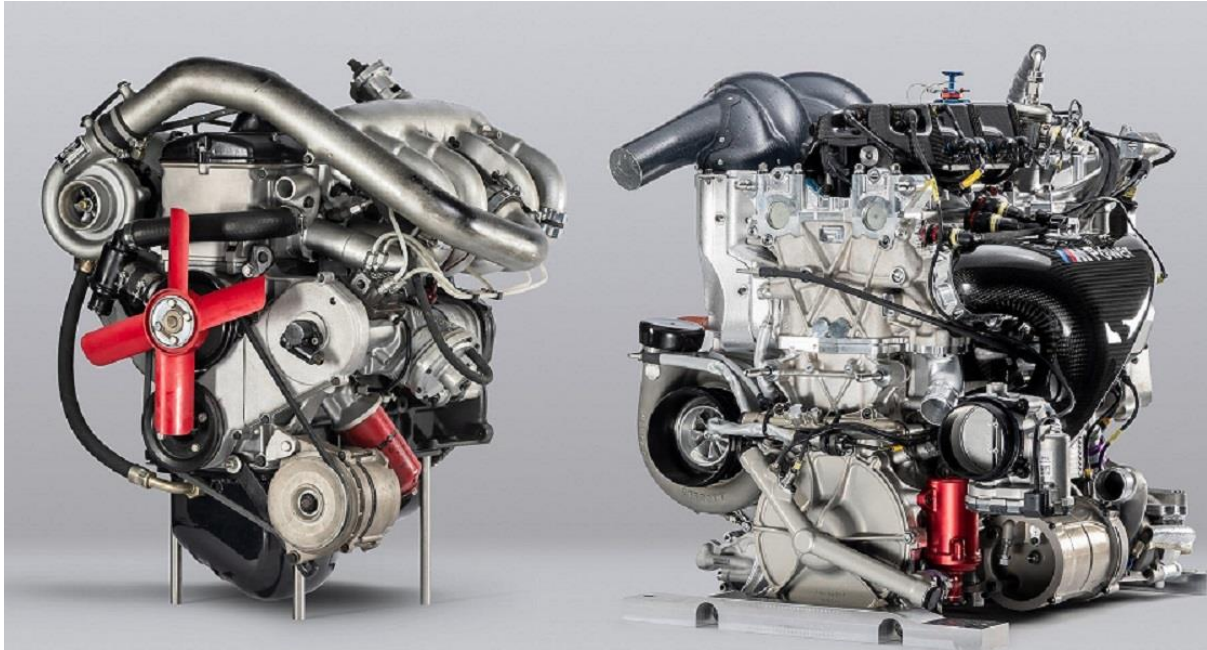


# BMW Four-Cylinder Turbo Engines.

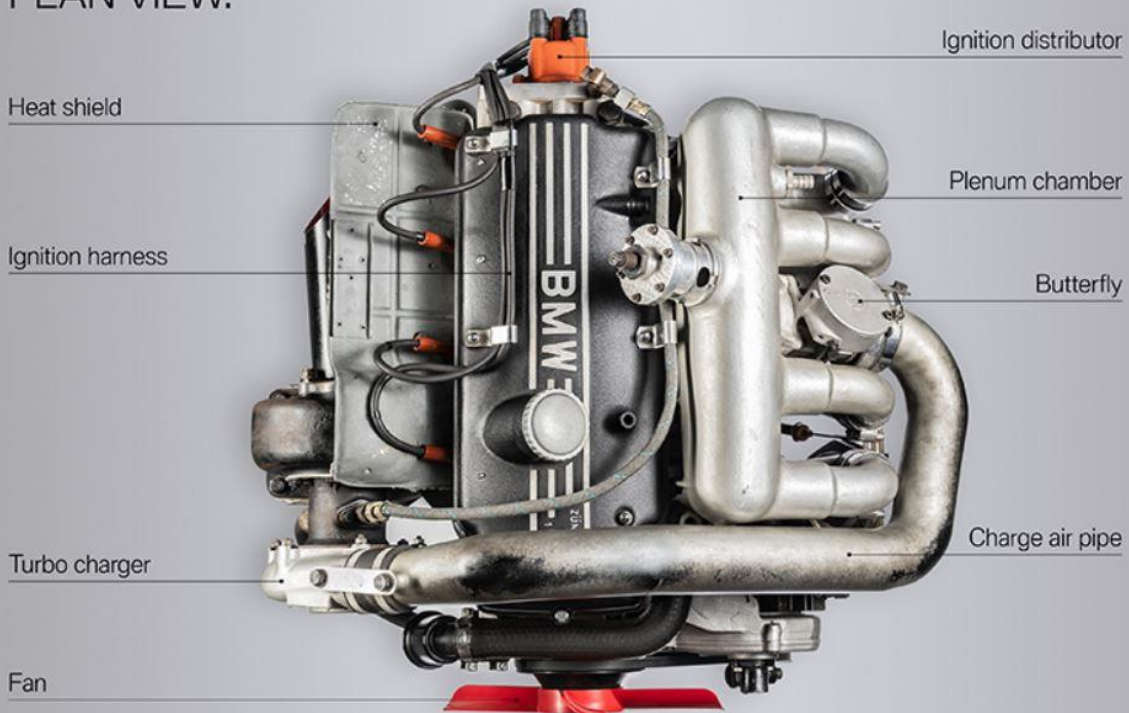
The BMW 2002 Turbo was, in its time, a masterpiece at the cusp of technological innovation. In the world of motorsports, it featured BMW's very first turbocharged engine—the M121—all the way back in 1969. Fifty years later, BMW is getting ready to unveil its brand new P48 engine to the world, and while they may share the same bloodline, the technology found in the company's most recent racing powerplant shows just how much engine development has progressed.



Both the M121 and P48 are built on the same principle: a turbocharged, fuel injected, 2.0-liter four-cylinder engine designed for the race track. And while the engines may seem like they are cut from the same cloth, it's akin to comparing a mountain to a molehill—it's all about perspective.

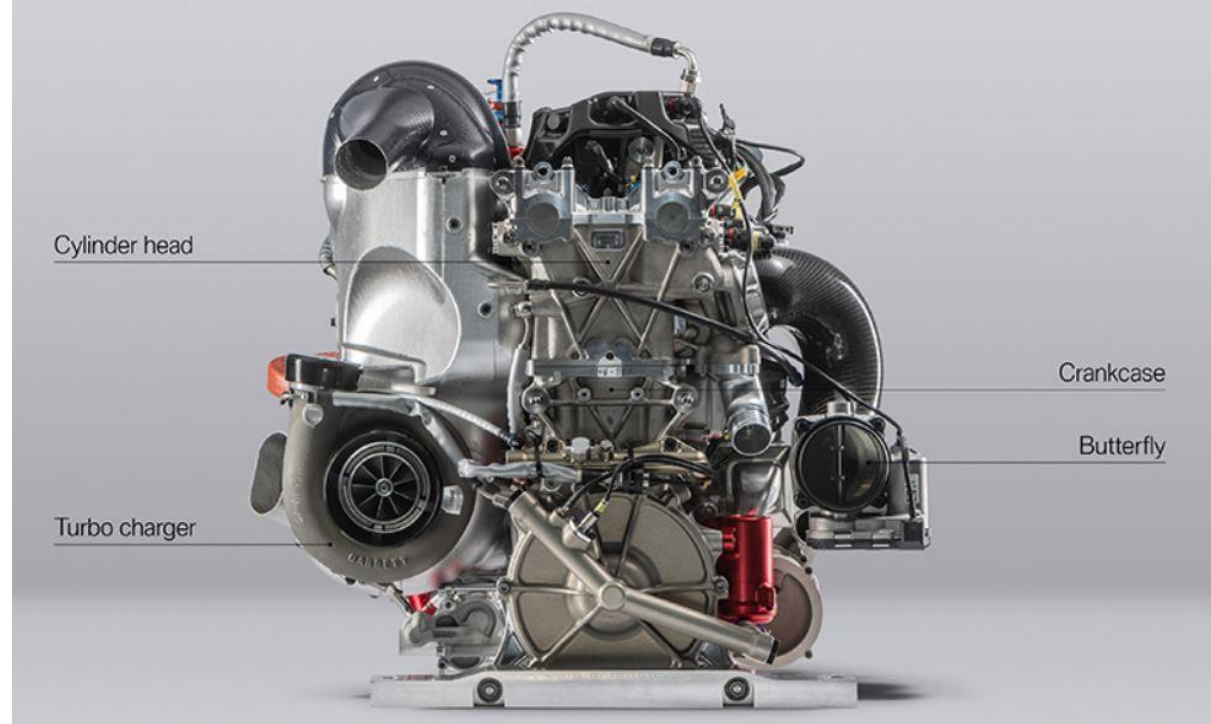
Back in 1969, the M121 was the epitome of a modern engine. The all-aluminum head and block were sand-casted and built to handle all 14.2 PSI of boost pressure thrown at it. The result was a platform which could produce 280 horsepower at 6,500 rpm, a staggering number at the time for such a small engine. BMW says that the turbo fitted to the motor was capable of delivering more than 25.5 PSI of sustained forced-air into the motor; however, it was dialed down to ensure that the motor didn't lift the head.

## THE BMW M121 TURBO ENGINE. PLAN VIEW.



Enter BMW's new P48 engine, a motor five decades in the making. While maintaining the same number of cylinders and displacement, the engineering put into it makes for a marvel of sophisticated German engineering. The 600-horsepower unit revs to an ear-shredding 9,500 rpm and can support more than 36 pounds of boost from its turbocharger with ease. Its fuel system is still mechanically operated, albeit now direct-injected, and its oiling re-engineered into a proper dry-sump setup.

## THE BMW P48 TURBO ENGINE. FRONT VIEW.

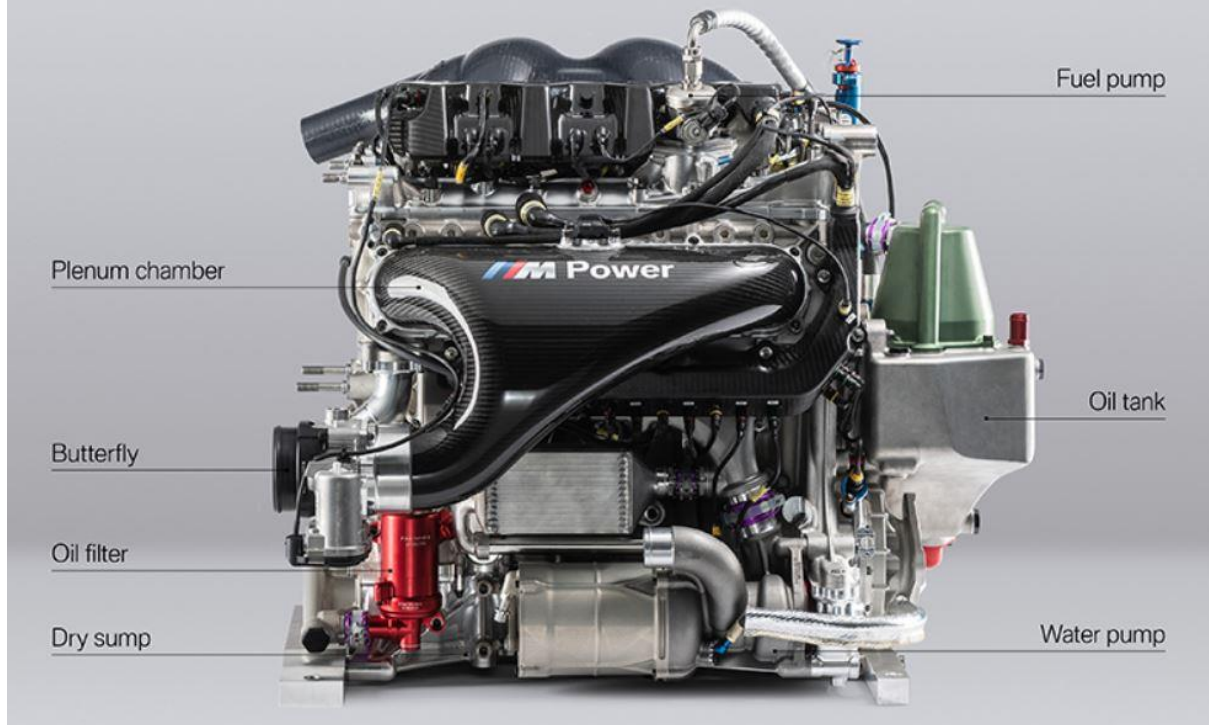


BMW also says that longevity was an important factor when building the P48. The automaker expects the engine to last just over 3,700 miles between rebuilds, meaning that about 1.5 engines will be consumed during the course of a race season.

Sometimes, it's important to look back at our roots and compare where we came from. BMW is doing just that as it shows the world the P48 without downplaying the influence that the M121 had on modern BMW cars as a whole. Now we sit back and wait to see what the next 50 years hold.



## THE BMW P48 TURBO ENGINE. SIDE VIEW.



### Fun facts about the P48:

- The application's turbocharger flows roughly 400 litres of air per second, nearly 3,500 times what a human can breathe.
- The water pump flows 18,000 litres of coolant per hour, enough to fill an entire bathtub in 20 seconds.
- More than 2,000 parts make up the entire assembly of the engine. If laid out side-by-side, the parts would cover the floor of a 2,690-square-foot apartment.

## THE BMW P48 TURBO ENGINE. PLAN VIEW.

