In the mid 90’s the motorcycle market pulled towards faster and more agile designs. Harley-Davidson was known for their style and tradition and not for their speed. They needed to evolve and add more power to their engines in order to keep up with market demands. To keep the iconic Harley style, a hybrid bike with both power and style was needed. As the design process progressed, more needs were presented in order to keep up with earlier ideas.

Harley-Davidson had never created such a bike and lacked the knowledge in the design department on such an objective. They had to design an entirely new bike from the ground up, based upon new requests. The first problem they encountered was that their traditional aluminum bike frame couldn’t support the high powered engine that was wanted. More problems arose when they were tasked with designing a fuel tank that could hold sufficient fuel for the high powered engine while still fitting in the frame they designed. Another problem they encountered was that the radiator in the front of the bike wasn’t getting enough air flow, thus not cooling the engine down sufficiently.

The team began to gather information on how to solve the above problems. They consulted the Harley-Davidson racing team for the VR-1000 engine, a high powered, water cooled engine. The engine was a departure from what Harley had ever done before, and would later be named the “Revolution” engine. They recruited a team from Porsche to help manufacture the engine, make it more reliable, and street legal. For radiator ideas, they consulted the liquid cooling of racing bikes for their more powerful engines.
The first ideas for the frame of the motorcycle came from the low-slung design of dragster motorcycles. The design had to be able to hold the stronger engine and maintain control while going at high speeds. The handle bars had to be more easily maneuverable without breaking from the more striking appearance of Harleys. The design department devised plans for the looks of the bike while the engineering department came up with their own based on practicality and purpose of use.

The ideas that had been put forth by the design and Engineering teams needed to be brought to life. The Engineering department needed the exhaust system to be a large size, but the design department refused, the two teams compromised and created a system that appeared smaller and more sleek than it was in reality. They also needed to find a gas tank design that was good looking, at yet practical in size. They needed to combine all of the ideas of the classic Harley-Davidson, with the new school of thought.

In order to install the new, powerful engine in the traditional bike frame, the team of engineers needed to enhance the strength of the frame while still keeping with the cool Harley-Davidson look. In order to do so, they added a double frame with curved bars instead of their traditional single frame straight bar. This allowed for a stronger, more durable frame that could meet the expectations of a high powered motorcycle. With a stronger engine brings more fuel consumptions. Harley needed to create a bigger fuel tank that compensated for the larger fuel consumption and allowed for bikers to ride around without having to refuel every so-often. They tackled this issue by taking the metal one-gallon fuel tank out and adding a four gallon plastic fuel tank that molded to the inside of the frame and engine. It filled all the unused space of the engine, thus allowing for more fuel and greater ride time. The problem with the radiator was a big issue in that it wasn’t getting enough air due to the air-flow around the front tire. They added scoops on the side of the radiator to create a greater intake. However even when the
radiator received air, it would be forced out the other scoop and the engine wouldn’t cool down enough. The engineers added fins to keep the air going through the radiator and into the engine.

Once the design of the motorcycle had been agreed upon by the designers and the engineers the prototype was built. A clay motorcycle was built and was then followed by a working bike. The first test was getting the approval of Willie Davidson. After a test drive, Davidson gave his blessing for the bike. Since Harley-Davidson was known for the quality of their bikes, they had to make sure sure the V-Rod would last the test of time. The next test was simulating a ride on the Autobahn, to make sure the bike was able to drive for hours. The bike was then tested in Arizona to make sure the engine could withstand high temperatures because riding in long, slow moving parades is a Harley-Davidson tradition. Multiple other test dealing with the durability of the parts bikes were also completed to make sure the V-Rod would not disappoint the loyal Harley-Davidson customers. Once the bike had passed all of the tests, it was ready to be produced.

The bike had been designed and produced, it was now time to name and market the new design. After hundreds of names and over a year of debate the name V-Rod was chosen. The V for the V-Twin design, R for the VR 1000 racing engine, and Rod for the dragster image. The newly named bike was revealed at the Harley-Davidson Dealer Meeting in 2001. The design was communicated verbally at the meeting, graphically in the motorcycle’s signature look, and written in its now famous name, the V-Rod.