In 1995, Harley Davidson was at an impasse. Other motorcycle companies were beginning to design their bikes for speed, while Harley was still designing for style. Based on the new market, their new objective was to create the ultimate motorcycle, one with speed, power, and an iconic body style. In order to do this, Harley realized that they were going to have to go against their trademark designs. At the same time, they do not want to lose their signature style, and their loyal customers.

The first problem Harley had was to create a super-fast engine. Their normal engines were air-cooled, but in order to reach maximum speed potential an air-cooled engine simply would not cut it. They received inspiration from their racing team. The motorcycle they used to race had a liquid-cooled engine called the VR-1000. However, the VR-1000 was too expensive, and was much too cumbersome to fit in a stylish frame. The engine also did not pass the efficiency standards in order for it to be street legal. To solve this problem the engineers designated to create the engine teamed up with Porsche to create an engine similar to that of the VR-1000, but more affordable and efficient, and after years of engineering and testing they succeeded in doing so.

Another problem Harley faced was the process of cooling the radiator. They created the double scoop (one scoop on each side of the bike) to collect air and cool down the engine. However, after rigorous testing, the original radiator proved to be inefficient. Air would go in one side and shoot out of the other. Also Willie G said that the radiator was simply too big, and too ugly for it to be placed on a Harley. To solve this problem, they miraculously placed FedEx boxes as fins to circulate the air into the radiator which ended up working phenomenally. After testing, they built the fins into the radiator as well as succeeded in making it look stylish from the outside. The fuel tank of the bike was another issue. With so much space taken up by the new engine and frame, a traditional Harley Davidson metal fuel tank would not be efficient enough for the V-rod. The team decided to instead switch to a plastic material for the bike. The plastic was able to be precisely molded to fit into the frame and maximize fuel potential. This new tank would be placed under the seat of the bike, which was also a new idea for Harley. The plastic could retain more heat than the metal and proved to be just what Harley needed.

The frame to house the new engine of the bike also had to be customized because of the larger size of the engine. Harley Davidson motorcycles typically house their engine blocks on a single rail, but a single rail would not cut it for this new engine. Engineers developed a new, unprecedented frame, the double-rail. However, the frame had too many parts to shape and weld together, which concerned the engineering team in terms of labor to create these frames as well as the durability of the bike in the long run. The engineering turned towards hydroforming the frame. Hydroforming uses a combination of water and pressure to mold metal into shapes and sustain durability while reducing the amount of welds necessary to keep the frame together. The frame went originally from 17 welds to just 7. Along with the frame,
exhaust of the bike proved to be another issue. The bike needed to sound like a Harley, while meeting sound and safety standards. Too little an exhaust would be unsafe and too large an exhaust would be unstylish. The engineering came up with a variety of ideas to implement the exhaust for the bike. The winner was one combined a double exhaust pipe into a single exhaust. This new design had 12 liters of air capacity and gave the bike the flare that they were looking for.

After years of development and trial and error, the first prototype of the Harley V-rod was finally ready to ride. To keep their new, innovative bike a secret they spray painted the entire bike flat black. They gave the first ride to Willie G, who loved the bike, but broke it. This proved that the bike was a “Harley,” but definitely still needed to be adjusted. They proceeded to rigorously test this bike. These tests included, running the engine for 500 hours, sitting the bike in the sun for hours upon end on idle, working each individual part of the bike until it broke. They also tested the bike for radio interference, by placing it into a chamber and exposing it to a variety of radioactive waves. All of these tests were used to gather information on the efficiency of the bike, and ultimately fix the issues that were prevalent and finalize the product. Before they could release it however, they soaked the bike for 30 hours to test for any design flaws, such as leaks and in the end of the test the bike prevailed. The V-Rod was ready to hit the sales floor.

But before the bike could hit the market, it needed a name. A name that would be memorable, powerful and true to the Harley Davidson signature. There were hundreds of names available, but each time they stumbled upon one that they agreed on, some random overseas company would also have the same name trademarked. They ultimately fell in love with the name V-Rod. It satisfied all of the desires of Willie G and Harley Davidson as a company. After 6 years of hard work, innovative engineering, design, and persistent testing the V-Rod was ready to be released to the public. In 2001, at the annual Harley Davidson convention, the V-Rod made a splash in the motorcycle industry. Not only was the V-Rod a monumental success for Harley, it set the bar high for motorcycle companies across the globe.