The Harley-Davidson V-Rod started off as a simple idea. Harley wanted to put the power of a racing motorcycle in an everyday use bike. New advances in technology, many failed designs, and many years of hard work would come before the bike was seen on the streets. The V-Rod came out as a bike that still had a Harley-Davidson feel, but the power of a modern crotch rocket motorcycle.

As time passed, many street motorcycles were becoming faster. Bikes of other companies were coming off the line with over 100 horsepower. Harley-Davidson consumers were simply asking for more speed, while maintaining the “Harley feel”. Harley struggled in the early stages, coming up with ideas for how to put a racing engine inside of a street motorcycle. Many problems started to surface, such as the need for a water cooled radiator, the limited space for a gas tank, or making the frame strong enough to hold such a powerful engine. Harley engineers started to gather information from companies like Porsche, to help them with the engine. They also looked at many designs for racing motorcycles, and into plastic materials to hold the fuel.

In the early stages, Harley had many designs, most of which were scrapped immediately. The frame had to be made from bent metal, in machines that limited the amount of welding areas needed. Also, two support beams were needed to hold the engine in place. Harley struggled with making the design both beautiful and efficient. The CEO of Harley wanted the frame to look like a piece of art if hung from the wall, and a speed machine while on the road. Harley designers went with an extended front end to give the bike a more streamlined and stable feel. Harley compared ideas from many places before making any final decisions. The gas tank had to be big enough to hold more than one gallon of gas, but space in the frame of the bike was extremely limited. By using plastic, the gas tank could be molded to fit the empty spaces inside of the bike. Also, the angle of the seat was a big issue for the late stages of the V-Rod. The gas tank made the seat angled forward, but engineers wanted the seat to be a
relaxed and more leaned back feel; this would allow the rider to feel as if her/she was on a Harley, but have the power of a racing motorcycle at their fingertips.

Before the bike was done, Harley ran into many issues with the exhaust pipes. The engineers and designers had to go back to the drawing board to find a way to rid the engine of all its exhaust. Another team was working on the air intake for the radiator in the front of the bike, which was being largely blocked by the front tire. Designers worked out fins to take in more air, and a new piece for the exhaust system to maximize the airflow out of the pipes. Issues like these took time to solve, but after all these issues were resolved, and the bike was ready for testing; Harley put the bike to the test in the prototype stages. The bike was put together, and sent out for extreme testing. The wear and tear of the engine was tested by having it run at a high RPM for extended periods of time. Each piece was set in the sun to test for weather damage, and the bike itself was washed for many hours to represent water damage. After minor changes were made to the bike, it was eventually ready to be marketed and mass produced. The design was brought to the Harley-Davidson showcase and presented to Harley consumers. The bike received amazing reviews and soon hit full time production as a new member of the Harley-Davidson family.

Harley-Davidson engineers had to overcome many problems in the design process, and make new pieces of technology just to get the bike to run. The bike successfully combined the feel of a Harley with the power of a racing motorcycle. Although the bike took many years to make, it is now officially a member of the Harley-Davidson family, and a symbol for riders everywhere.