Designing the V-Rod

In 2001 Harley Davidson revolutionized the market by launching their newest product known as the V-Rod. With the need to compete with competitors, the Harley Davidson team had to go through a multitude of stages to construct the V-Rod from the ground up. By utilizing the engineering design process, the Harley Davidson team were able to work together to make an idea a reality.

In the mid 90s, Harley Davidson ran into a dilemma. The market was pulling for high performance speed bikes rather than the classic motorcycles that Harley has been known to produce. Harley recognized that they were losing sales, and decided they needed to go with the flow of the market. They gathered together a group of top class engineers and started to design a new bike, which was to appeal to this new demand of the market. However, Willie G, Harley Davidson’s artist, wanted to preserve the classic look and style that the company was so famous for. Harley Davidson had already completed the first two steps in the engineering design process, recognizing a need through analyzing the market, and defining a problem through wanting to combine the better performance and classic styling.

To achieve this final product, the team first had to gather information regarding high performance speed bikes. They did this by studying the bikes they wished to replicate the performance of. They looked at drag racing bikes, and copied the low center of gravity for speed, as well as the water cooled engine. After researching these drag racers, they realized that they had to come up with some clever concepts to make the combination between speed bikes and production bikes a reality.

Creating this combination of style and speed was by no means easy. Often the engineers would come up with something that seemed perfect, but the artists would say it wasn’t aesthetic enough. A few of these final designs took years to come up with. One of the most tasking ones was the radiator. Having a giant radiator on the front of the bike looked very ugly, however a radiator was essential to cool down an engine of that size. They eventually developed a radiator that was curved, to scoop air out from the sides. They added vortex generators eventually as well to trap the air inside. Another problem was the gas tank. It was much too small, only holding about half of a gallon. The engineers finally remedied this by changing the material of the tank itself. They chose to use plastic, which shaped into the perfect
mold in order to take up as much space as possible. By the end, it could hold eight times as much gas than it could previously. After a few years, the engineers were able to create a prototype of this speed bike, while maintaining the original Harley design the artists strived for. Due to the ability to change and adapt made it all possible.

The prototype had to undergo many tests in order to hit the road. One of many road tests included a ride on the famous autobahn during what is commonly called the “Dusseldorf Test”. Another road test included a simulation of driving on a road with bumps and potholes to ensure the durability and suspension of the bike. They also tested its ability to sit idle without stalling. They tested this by running the bike inside a scorching hot shed in the middle of Arizona. They also simulated harsh weather conditions by blasting the prototype with high pressurized water canons for long periods of time. After rigorous amounts of testing, the V-Rod was ready to be publically revealed.

They had finally finished developing the V-Rod, but there was still one more step, communicating it to people. They first revealed the V-Rod to the public as most motorcycles are revealed, at an expo. Once the V-Rod had been revealed, Harley continued to promote their bike through advertisements and such. The public loved the new bike and began buying it. Harley Davidson had succeeded in creating a brand new bike. The bike was an exceptional example of both a motorcycle and the engineering design process.