The Stages of Engineering Design-Harley Davidson Video

The Harley Davidson Company was very popular in the 1990’s, and they began with the idea to do something that had never been done before. They wanted to create a bike with the speed of a speed bike while also keeping the essence of the Harley. The main problem was the VR1000 engine that they needed for the new speed bike could not fit in the original Harley frame. When they tried adding it to the bike, it took away from the traditional Harley look. In order to complete this project, it would take time and require many people to work and cooperate together.

The next step was to gather information, they began brainstorming and building clay models, prototypes, and adjusting the frame to attempt to fit everything. The clay models allowed the builders to implement the 2D ideas into 3D models. While they were gathering information for their new project, the industrial engineers were inspired by dragster, and other speed bikes. During this step they also visited Porsche in Germany to see if they could help them with their engine problem.

Throughout the brainstorming process, they began to run into other problems such as adjusting the radiator, the fuel tank tubes, and the cooling fans to all fit. They had to design it in such a way to make sure it had proper ventilation so it would not overheat. Every time they were able to solve one of their problems, another one would arise soon after. However, the final design soon began to fall into place. Harley created an elegantly curved double rail and made the frame a part of the styling process. The angle of the handles were adjusted to get the dragster look. Also the seat had been moved up in order to accommodate for the fuel tank. They tried many 1 gallon tanks, but they needed it to be at least 3 gallons so the riders didn’t have to fill up
the tank as often. In order to accommodate this problem they made the tank out of plastic, this way they could form the shape so it would fit and hold about 4 gallons. In addition a radiator was included, which was a major concern as it had never been done before. Another concern was they used aluminum which was also the first time it was added to a bike. In addition to the size of the engine being a problem, the noise from the engine was too loud for road standards. Accessorizing details, such as a saddle bag, which were typical of the Harley style were often included in the designing process.

When the prototypes and final designs began to fall into place, they had to fabricate and test these designs. They did a variety of tests on the bikes including riding them in the heat and for long distances. They had to ensure it would not overheat and break down. The company also did a test with water pressure in order to see if water would enter and damage the interior of the bike.

The prototype passed all of these tests and was ready to be released and presented to the public. Harley Davidson hosted a large event to present their VROD bike to the public after all of their years of hard work. Creating the bike was easier said than done, but with every setback became a success!