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Engineering Design Process of the Harley Davidson V-Rod

During the first step of the engineering design process, Willy G for Harley Davidson requested a bike that would be faster than the normal Harleys, but it would have to have the same Harley-Davidson look to it. For the market pull of this bike, the public would want a faster bike than a normal Harley. The technology push for this bike was to research a racing engine that would eventually be put into a Harley and make it a faster bike. The main problem with engineering this type of Harley was the fact that the frame had to be sturdy enough to support a more powerful engine, while looking nice. Along with this came the fact that the Harley had to have the same Harley look as the rest of the bikes have. The exhaust pipes also proved to be difficult to design due to the fact that it was almost impossible to produce a design that looked good, but still did its job.

The team had trouble putting in a radiator that would effectively cool the system. They also had issues coming up with a fuel tank that would be efficient in this new bike. The team gathered information on how a racing type engine would be so they would get an idea of how the engine would work in a more typical Harley Davidson bike. For the conceptual ideas the team brainstormed ideas of what the bike would look like. It needed to have the Harley Davidson look while still being able to work and be fast. They also drafted the basic frame of the bike to get an idea of what they had to build. Sometimes, the Vice President would override what the design would look like because he did not like what it looked like. For comparing ideas, the team would

compare what would work better for a bike like this, a plastic fuel tank or a different one. They found out that a plastic fuel tank was better for the design. The Vice President overrode their ideas in that he believed a better design was possible. With the exhaust pipes, the clay maker of the bike produced a design that was simply impossible to produce with metal. The engineering team ended up being able to make a sort of “S” shape using a water bending machine that looked good and did its job.

Using the research and resources that they had, the team designed a frame that looked had the Harley Davidson look to it, while still being able to support a powerful engine. With the radiator, the team found a problem that not enough air was getting to the engine to cool it, so the team designed a radiator that has fins on it to allow more air to cool the system. For the engine, the team had to pair up with Porsche in Germany to produce an engine that would be powerful, but would essentially work for miles on end. The team tested the engine multiple times because if the engine did not work, the bike would essentially be useless. Since it took multiple times, the team drafted and tested multiple engines to guarantee that it would work. The team rode the bike in heat for multiple times to see if the bike would overheat since it needed to survive long idling times. The bike ended up passing the test in the desert. The team presented a sort of prototype to Willy G to see if he liked it. He ended up testing it for himself. While it did stop in the middle of testing, he did say it felt like a Harley Davidson motorcycle.

Two people were going back and forth picking names at random that seemed to fit the motorcycle. This process was a long one as the name needed to sound good, and needed to sound like something Harley would be pictured as. The name ended up being the V-Rod as that was the best name available and it fit the bike the best. At the end of the whole process of designing a new bike, it was presented to the public as a finished product. The team worked through many

complications to design a bike that would look like a Harley Davidson but essentially was faster. After five long years of designing the bike, the whole team was proud of the bike and proud of how they designed something from scratch.