Harley Davidson Project

The Harley V-Rod was the symbol of the American spirit in the 1990’s. The need for the new design of the Harley came because the consumers wanted the same Harley look with the performance of a racing style bike. With the new push in technology Harley had to step up their performance in order to keep up with the demand put forward by their customers. However there were many issues that they would face in order to succeed in their production.

The first of many problems was developing a frame that would be able to support the V1000 racing engine in a street bike. This was the first step in launching the new style of Harley Davidson. This meant they had to gather information for all aspects of the bike from research of other companies and their ideas in order to generate their new idea. In the process of gathering information they had specialists in the company take control of their area of expertise. One of the best ways to develop their idea was to get help from an outside source. Harley Davidson reached out to companies such as Porsche for ideas for their engine problems.

When brainstorming their ideas they found it best to start at the base and work their way out to the bodywork in the end. The frame needed to be simple and direct while enhancing the engine. However, it had to have the proper reinforcements to support the bike while keeping the same Harley feel to it. The experimented with different materials in order to fit the needs of the new design. They compared their base model to the traditional Harleys. The combination of all their gathered information created this new innovative design that turned into the V-Rod.

They started off by designing a clay model of what the finished product would look like to get a 3D representation of what they were constructing. They found out that they had more issues to deal with than they thought originally. They had the problem of a radiator for the first time on a bike, the exhaust system seemed bulky and unrealistic to create, and because of the size of the engine there was no room for a traditional gas tank. The farther along in the design process they got the more kinks they found that set them back. This made them adapt to the problems they had in their model design and fix them one by one by going back through the stages of gathering information, generating ideas, and developing prototypes.

The process was more than just making the product work, each time they came up with an idea they had to get it approved by the designer. If the product didn’t pass the designer’s inspections then they had to go back and modify it to be desirable and functional. After they worked out some of the issues they moved on to a functioning full scale prototype of the bike.

The first prototype was a success and a failure. It showed that there were still more issues to be dealt with. The radiator was still a problem because they needed sufficient airflow into the engine in order to cool it while riding. They had to develop “wings” that stuck out from the radiator behind the front tire to catch the air as it was pushed around the tire, but the original prototype was too large and the designers made the engineers go back and work out a new idea. They ended up solving this problem completely when they put cardboard in the structure in order to slow the airflow enough to allow the air to go into the radiator. The next issue was the size of the fuel tank. The original design of
the fuel tank was metal and could only hold one gallon of fuel which would not be very appealing to the customer base. They had to locate a new area to put the fuel tank in order to optimize the fuel capacity. In the end they found the best place to put the fuel tank would be underneath the seat, however they had to use a plastic mold in order to fit the shape required in this area. The exhaust system was a nightmare for both engineering and design. The new engine had a much larger output of exhaust than the regular engines. This meant that they had to develop a system that could pass noise regulations and pass the test of being a Harley. The finished product was a single chamber that split into a dual exhaust out of one side of the bike.

Finally they had to come up with a name for their new product. Once this was done they were ready to show their hard work off to the world. The unveiling was at the Harley Davidson Dealers Show, where Harley fanatics from all over came out to see the new Harley Davidson V-Rod. This was the birth of a new generation of Harley Davidsons.