**Harley-Davidson Engineering Design Process**

For the first step of the Engineering Design, Harley-Davidson needed to design a bike that had speed and power but still had the Harley “style.” If they didn’t design this, they risked going out of business. As a result, they decided to design the V-Rod motorcycle. This went against all of the traditional Harley-Davidson bikes because it was a new look, as well as it was built to contend with the faster motorcycles that were attracting customers. In order for the design to work, they had to create new products that would fit to the bike’s figure. First, they had to put the engine under the seat of the bike which was never done before. They also had to design a radiator that they could put behind the front tire so that it could absorb air to cool down the engine. To do this, they added cups to the edges of the radiator that would suction the air into the engine. A new aspect that they added to the bike was to use liquid cooling. They tested faster bikes to gather information on how faster bikes work. In addition, they made a clay model of the bike to look at and improve the style of the bike. Once the bike was made, they had several test runs to improve the bike and test that the bike would last over time. Some of the tests that they did were to test the ability of the bike to withstand high temperatures, poor weather conditions, and different terrains. To communicate their design, they talked to the Vice President about the style of the bike and he repeatedly rejected their designs because it didn’t have the traditional Harley-Davidson look. A few problems that they ran into along the way were that they had difficulty picking a name for the bike, they didn’t like the way the bike looked, the exhaust pipe, and the radiator. To make the final shapes of the bike, they used hydroforming. Some of their
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final designs were drawn on the computer and on paper. To introduce their final product to their customers, they had two showcases where they revealed the V-Rod.