In the 1990s the motorcycle industry was beginning to change. Riders went from wanting the loud tough guy rides to the fast daredevil cycles. This put a lot of pressure on the Harley Davidson manufacturers to be able to compete with the new growing market and to dodge bankruptcy. They were forced to make a new design, but not just any design would do for Willy G, the son of the former Harley Davidson President. The new bike had to look and sound like a Harley but have the power, speed, torque, and acceleration of the newer high speed bikes.

Harley had never made an engine consisting of a liquid cooled engine or the necessary radiator needed to keep the engine from overheating. Harley turned towards their racing bike team and had a look at their V-R1000 which had a liquid cooled engine. Originally the plan was to use the normal body frame of the bike and just add the engine of the V-R1000 but this was quickly shot down after realizing the engine was too big for the frame and everything would not fit together. On top of this a new frame had to be made rather than just a new engine because the original frames would not be able to support the amount of power behind a high powered engine. Rather than just welding a new body type together because it still would not be able to support the power they were looking to have in the new engine, the design team turned to hydro bubbling which uses the power of water pressure to bend the pikes into shape.
After the new designs were made for the frame, the engine still had taken up so much room that it was necessary to move the gas tank because of the placement of the new exhaust. They decided to make the gas tank out of plastic which would help make more room for gas because plastic was easy to mold into any shape. A new engine had to be designed as well because the engine from the V-R1000 was not street legal. Harley turned their design teams and decided to work with Porsche on making this new engine that still had the original Harley V twin engine. So by 1997 they had made the right engine approved by Willy G. but this caused a new problem. The exhaust for the engine was too big and Willy G. did not like the look. The design teams went to work and fabricated an exhaust that had the looks of it being two different pipes but were actually just one.

Last, but possibly the most difficult task of all was designing an air intake radiator that did the job of keeping the engine cool but was not an eye sore. The team decided to put the radiator behind the front wheel of the bike where it would be seen the least. This caused a new problem because the front wheel would act as a wall for the air trying to get into the radiator and the air actually managing to get in was shot out the opposite side without making its way through the engine. Using a “Fed Ex Box,” they placed ripples into the radiator which caused the air to turn and find its way through the engine. After realizing this idea worked, the “Fed Ex Box” was of course changed into steel.

After all the prototypes the newly designed bike was put to the ultimate tests beginning with the 400 test. They had the engine run for 400 hours straight to make sure there were no flaws in the engines durability. The bike was then put through a number of simulators designed to demonstrate the roughest driving conditions to make sure the frame would hold. Then, to
make sure the radiator was working correctly and cooling the engine the way it should be, it was put to a test practically designed to overheat an engine. The bike was ridden for an hour on a track in the sun then placed in a steel box with an open top but kept running the entire time. An hour later the bike was again ridden and this process was done all day and the new bike was a success.

The final tests were to make sure this bike screamed Harley Davidson by the look and the sound of the bike and it had to be approved by Willy G. who had turned down a lot of the team’s designs already. After riding the bike, Willy G. was more than satisfied. Now the last problem was, “What do we call this new bike?” It had been about 5 years since the idea for the new bike had come up and throughout these 5 years every new name had been turned down. Finally after looking through hundreds of names they agreed on the “V-Rod” based off of the original idea of using the V-R1000 engine.