

TEAM MONSTER



MONSTER
ENERGY

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Formula High School/



Wisconsin Formula High School is a project designed to allow students with interests in motorsports, engineering, and technology to showcase their skills and talents in designing and building a car. Once construction is completed, the teams bring their cars to the Briggs & Stratton Motorplex at Road America in Elkhart Lake, Wisconsin. The students are given a base chassis that all participating teams will make and then the teams design the front and back end of the car. Since all of the cars are using the same engine, the designs of drivetrains, alignments and steering systems are vital for a winning car. On race day, the teams will put their car up against the clock and the team with the lowest time will take home the victory along with bragging rights.

Our Team



Front: Vladimer P, Taylor A, Zach T, Back: Khue L, Tyler V, Luis A, Justin P, Tyler N

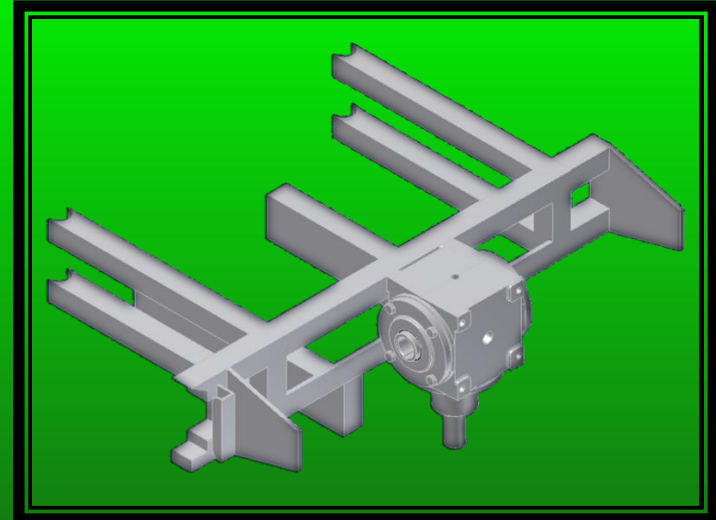
Our team this year consisted of people from two different hours in the day. The sixth hour team, which we were apart of, included Taylor A., Tyler N., Justin P., and Zach Trembl. When we came into this year, only one of our teammates had welding experience. All four of our team members in sixth hour had completed the class IED, but had little other experience working with cars. Our whole team came a long way throughout the year. Some learned how to weld, others learned the wiring system, and we all learned that it is not as easy as it looks.

Construction of the Car

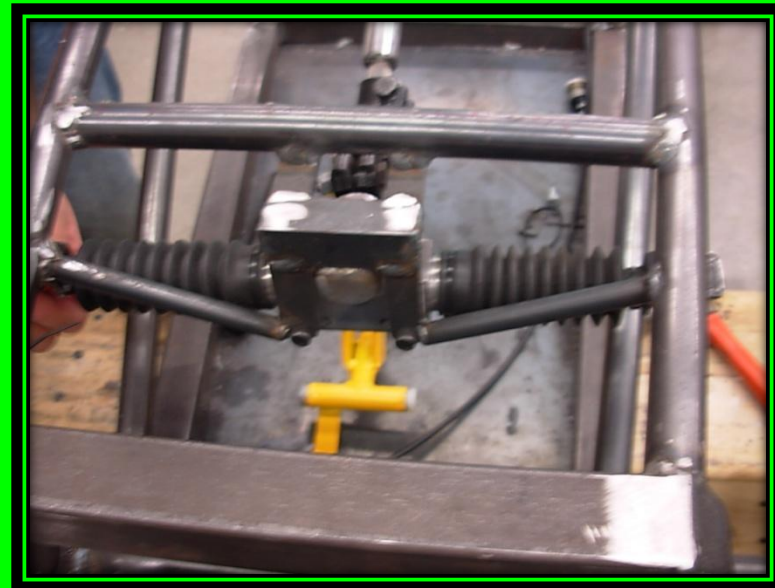


Starting in fall we had to get our main body and roll cage built before we could do anything else. The main frame and roll cage had to meet specific standards set by Briggs and Stratton. We used CAD drawings to get our measurements. Which was a big step for this team, considering some of the guys could not figure out how to use a measuring tape. A skill that we all were taught in middle school tech ed, was forgotten. After we got the main body built we could start on the floor. A simple task that required a water jet, that NWTC was kind enough to let us come in and use. The car was slowly taking shape. We could then start getting into putting a car together. Starting with the front and back axel. The car was finally starting to take shape.

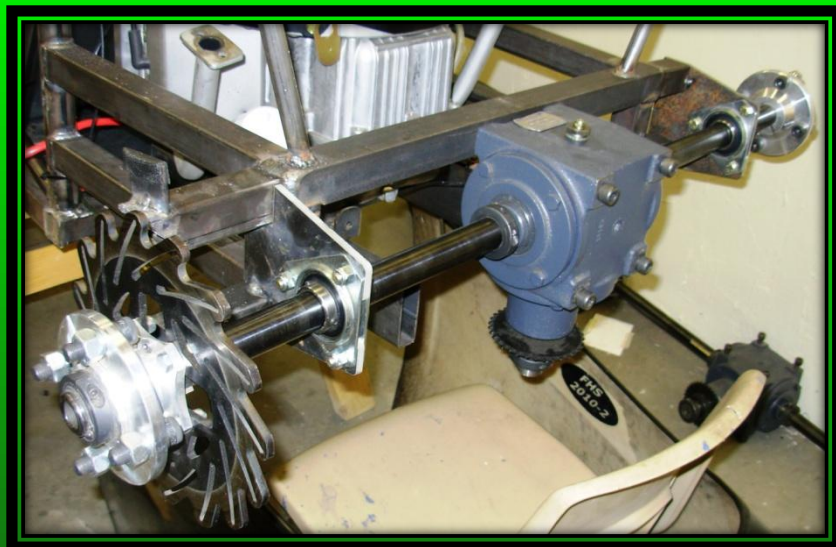
We designed a back end on Auto CAD which, had to be big enough to hold our engine and gear box. We didn't want it to bulky though; otherwise it would slow the car down. The solution to this problem looks relatively simple, but took many class periods spent in the CAD lab trying to design it. After we got it approved by Mr. Meyer, we could start going to work building it.



We also had to think about the front axle. We made it a little bit longer, so the car would be more stable when we take high speed turns. When we got that built, we could get the car on rubber. We were the first ones on rubber. We went with last year's gear box whereas all the other teams went with a new one, which comes with differential lock. Then we started going into the steering, pedal mounts and engine mounts. The car was far from being done but we had a good head start on all the other teams. We decided to mount our battery up front, which gives us more even weight distribution throughout the whole car. In doing this though we had to mount our steering and pedals on the top of the main body instead of on the floor, like past years teams have done. This was a new task that required new designs and parts.



While some of our team worked on the steering system, other members started taking our CAD drawing of the back end and creating it. Our first attempt to mount the back end was a failure. We mounted it to low but it was an easy fix, as all we had to do was break the tacks. After we got the main outer structure of the back created, we started to work on the engine mount. Those came along better than expected but we ran into problems with it later in the build. We then had the bearing mounts cut out at NWTC. Then mounted those and then got to work on the back brake assembly. There was many trials and errors with this but we finally came up with a design that would work for us.



Next, we got to work on wiring the car and putting the mounts on for the fiberglass body. Wiring the car went quite smoothly and only took us a couple of days. The mounts for the body also went very good and we had those completed in a couple of hours. We were now able to test our car and it fired right up. We disassembled our car and primed it for paint. Our team decided to save money by painting our chassis ourselves. We put on a primer coat and then two coats of black paint. Once the paint dried, reassembly took place. We encountered a major problem during reassembly. Because we didn't have our chain on the car when we test fired it, we didn't notice that the gear box and the clutch were not lined up. What we had to do was cut out the middle section in our engine mount and move it down a half inch.



Our fiberglass body was painted black at NWTC. Then our body was custom painted by a guy that one of our team members know. We really were not sure what the car was going to look like but we were happy with the results. We also painted some other parts including the steering wheel, the tie rods, and some bolts. Once we got that completed, we had one major obstacle in our way, the fire wall.



While some of our teammates worked on the fire wall, others worked on the decals. It took us a couple of tries to get the decals just right but we ended up figuring it out quite quickly. Meanwhile, we finished up reassembly and Mr. Meyer took our car for a test drive. We ran into a problem that we could not figure out. Our car would not accelerate when the choke was off. We tried a variety of different things until we looked at another team's carburetor and noticed that we were missing a washer. Once we replaced that washer, our car ran great. We then put our engine back together and completed our fire wall.

We finished making our decals for the car and stuck them onto the body. We then completely put the car back together and took it for one last test drive. Our last problem occurred during this time. Once the car started to move, Mr. Meyer noticed that the brakes were not working. We brought the car back into the shop and tried to bleed the brakes. After multiple tries, we were stumped as to why they were not getting any better. The thing that was causing this problem was that there was a loose connection to the master cylinder. We tightened that up and the brakes worked to perfection. It was now time to race!



Race Day

On April 30th and May 1st , teams from our school and from throughout the state went to the Briggs and Stratton Motorplex at Road America in Elkhart Lake, WI. On the first day there, the teams were able to practice driving on the tracks. We raced until 4 p.m. and then headed to our hotel. We stayed overnight at the Osthoff resort. We arrived back at the track at 8 a.m. That is when the races started. On the oval track, our car took fourth and was one of the only cars not to break down. We had very nice weather this year and had a wonderful time.



Race Day Pictures





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