

Background Information

For our project we have designed and constructed a mini-baja for the Society of Automotive Engineers competition. We will take our vehicle to a competition in May to compete with teams around the country. This competition is an off-road competition where there are several events that our team will compete in. These will be events include traction on dirt, dealing with mud, and special consideration had to be made because there is a water portion of our competition. Our group was joined with two other groups to design and construct the mini-baja.

Our group is in charge of the brakes, tires, and electrical for the mini-baja. Since these were pretty independent subjects we split it up so that one person was in charge of one part and could ask the group for help.

We have designed our vehicle in accordance with the SAE guidelines. We have also designed our vehicle to be easily replicated and safe. Finally, we have designed our vehicle for our client who graciously donated full funding for our car.

Team Members Information

Marc McCloskey
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Scott Seidman
Electrical
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Michael Johnson
Tires and Wheels
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Team Hot And Grounded

**Mechanical
Engineering
Group**

**Society of
Automotive
Engineers
Mini-Baja Group**

**Specializing in
Brakes, Tires, and
Electrical
Components**

Group Members:
Marc McCloskey
Scott Seidman
Michael Johnson

Brakes

By: Marc McCloskey

What Type:

We chose to use disc brakes for several reasons. The primary reasons being that they are more resistant to water and since ours is a water competition that is important. Also, they are able to more quickly and effectively stop a car.

Number and location:

We chose to use three disc brakes on our car. In the front we have one disc brake right inside the hub of each of the two tires. In the rear we have one disc brake on the main axle. We chose to use one on the main axle because one has enough torque to effectively stop the car quickly and on the interior of the car the brakes are less susceptible to damage.

Master Cylinders:

We chose to use two separate master cylinders. We chose to use two front atv master cylinders. We chose this because they are small and generate enough pressure for our application.

Other Considerations:

We chose to get a proportioning valve so that are able to proportion the pressure going to the front and rear brakes of the car.

Tires and Wheels

By: Michael Johnson

What type:

We chose to have 22" and 24" AMS Swampfox tires for the front and rear of the vehicle. These tires are excellent in both gravel and will fit on currently in stock 10" and 12" rims. The rims are aluminum alloy and connect to in stock hubs.



The Swampfox will also help to power the vehicle through the water when spinning. These tires move water from in front of the tire or in the middle of the tire to the outside.

Placement:

The 24" tires are in the rear and while the 22" tires are in the front to give the Baja a slight forward slant. This increases the ground clearance in the rear the water propulsion device, floatation and the drive train.

Electrical

Our vehicle will use two twelve volt batteries to power its electrical components. It needs to power the SAE approved brake light on the vehicle and two kill switches. Standard electrical wire will be used to do the wiring on our vehicle.

