

My Electrathon team is looking to get a set of two shocks to create a rear suspension. I was just curious if any one out there knew of any websites or stores that sold shocks at a reasonable price. We are looking to get shocks with about 250Lb of resistance. Thank You

We bought ours from eBay - real reasonable prices. Check junk yards as well. One student had an old motorcycle in his back yard that we used a shock off it.

We're thinking about using a rear monoshock type of suspension from a four wheeler with a swing arm type of set-up. Is that fairly common? We're just in the planning stages of our first car.

Pat Lowery, Wabeno

Rear Mono shock from a 4wheeler should work fine, it might be a bit too beefy/heavy than needed. Make sure there is room to mount the motor on the swing arm as well.

I agree the monoshock may be too stiff. You may want to just try using the shocks off the front instead. Some of my students are looking at that for a possibility. Also where are you located? There is a ATV junkyard up in the Crivitz area and the guy was pretty fair with his prices for us.

Here is why I probably would not build a car with suspension. Coil/over shocks aren't cheap & you may try several sets before getting some you like. Also every suspension part is experimental & custom made. Do you have tools, materials & expertise to design & build these parts & install them? Time is another consideration; this will be much more difficult than a solid suspension car. Additional weight is another factor to consider. But the one negative I would put at the top of my list is, with all these suspension parts hanging out in the air stream what has it done to my aerodynamics? OK, so I didn't experimental correctly, big deal. Stan

Stan, I agree with you in that Suspension is not needed and can be a negative when looking at fuel/energy consumption. That is if you are looking at the challenge at purely an endurance perspective. We have run cars with suspension and the driver liked the smoother ride. We have run cars without and the driver complained about the bumpiness, but got better endurance statistics. As a team, we are telling our Varsity drivers to "toughen up and deal" as that is an endurance car.

To get around this concept, we joined forces with Green Bay Preble HS last year and built a full suspension, four wheeled DOT rubber vehicle that was not necessarily a competitor with the "standard Electrathon endurance" vehicles. HOWEVER it allowed for the focus of Engineering & Manufacturing to be taken to the "next level" where students worked with a full A-Arm front suspension, custom built rack & pinion, custom built differential, machined hubs, etc etc. The list goes on! (ps, Preble still has 2 cars for sale if anyone wants them? Full Working Order!!!)

My point is; each team needs to look at what their focus is and go with it! If they want awards, they likely need to follow the mold to a degree. If they want deeper concepts, they may have to sacrifice the "norm" and get into other areas. Either way, students are LEARNING A TON!!!

No Suspension can be rough! Especially at WIR! BUT it is only an hour and students can buy foam padding :)

p.s., Watertown used a pair of Pneumatic Bike Shocks (WAY TOO EXPENSIVE, but last minute) on our XRV last year for the fronts. Worked and still work great! Rear shock was off an old ShopKo special mountain bike mono shock with spring... Very stiff, but gives 1/2" travel I guess... Not sure the point other than to say we had full suspension :)

Jesse Domer, Watertown High School

[www.GoslingElectric.com](http://www.GoslingElectric.com)

Cheap way to make custom shocks:

Buy a cheap scooter or pitbike coilover. Make sure you get one that you can compress the spring to take the shock apart or one that you can unscrew the preload nut.

Go to McMaster.com and locate the spring you need that will give you the appropriate spring rate.

Put the shock back together. We did this last year on both of our "Supermileage" cars. Total price for the shocks, with the new springs, about \$60. This gave us a custom coilover with the correct spring rate.

I am trying to choose between no suspension, some suspension, and full suspension. I think the engineering part of the learning process lends itself to building a suspension system of some sort. In the interest of a first year car, I may go without shocks this year.

We have built a suspension system on a vehicle for an Engineering Challenge contest at last year's SkillsUSA State Conference.

Pat Lowery

Wabeno