New Year, New Shop, New Car

Throughout December Warrior Racing has been finalizing designs and preparing for manufacturing. One of the team’s biggest goals was optimizing the safety and efficiency of the shop. New members, Filippo Caro & Gursewak Matharu, led the project with guidance from the Business Director. Layout plans and new policies were fabricated to eradicate the problems of the past. The compact size of the shop has presented itself as an issue several times, especially when moving cars around, but equipment has now been relocated to ensure proper clearance between the walls and heavy machinery. Certain manufacturing processes have been isolated or contained to prevent problems from arising when every machine in the shop is active. There’s still plenty of changes in action, and as always there will be projects to take on. But thanks to the hard work of the team our shop is now an efficient powerhouse, and we’ve already put it to work by manufacturing the first components of RW-9.
Sneak Peek at Road Warrior 9

After an intense semester of research and design, Road Warrior 9 is ready to be manufactured! This model will be lighter than its predecessors while carrying the same engine as RW-8. RW-9’s suspension is one of the highlights of the vehicle, featuring an adjustable assembly to pair with its optimized geometry. The drivetrain package has dropped a substantial amount of weight while ensuring the power from the engine is efficiently dispersed to the rear wheels. All of our other systems have been optimized through research, testing, and the design process, and more of the car’s unique features will be revealed as the car is brought to life. There’s still a few tweaks and final touches that need to be made, but the Powertrain and Chassis divisions have fulfilled their goals of designing an epic car that will be sure to break our records in each event.

We’re excited to begin manufacturing, and several of our systems have already begun fabricating their components. Suspension bell-cranks and drivetrain mounting components have been created thanks to our hard working teammates on the mill. Parts of the brakes assembly have been manufactured as well. All of the other pieces and parts are next in line. Our very complex designs, the ones we can’t manufacture in house, have been sent to some of our awesome sponsors. Soon we’ll begin assembling our frame, and members are using their time wisely by practicing our welding skills.
The momentum is on our side and the hard work of all of our members is paying off. Needless to say, the team is pumped to bring Road Warrior 9 to life!

**Formula SAE Warrior Racing Members**
The following individuals have completed a series of introductory assignments and actively participated in the program, resulting in full time membership with Warrior Racing.

**Alexandre Melo Delfim**  
*Chassis - Brakes*
Alex is a Mechanically Engineering student who focused his starting assignments on the brakes system. He worked on RW-6 in Solidworks, CADing the pedal assembly and making sure to incorporate all of its changes over the years. Alex will continue to be a part of the brakes system during his time with Warrior Racing, and will branch into other sections of the Chassis division.

**Mateus Noro Villas Boas**  
*Chassis - Brakes*
Mateus is studying Mechanical Engineering. He worked on developing a paddle shifter system for the Road Warrior series. His design incorporated lightweight, yet sturdy paddles into the quick release wheel found on all of our models. Moving forward, Mateus will continue developing his design and assist the Chassis team with manufacturing RW-9.
Reviving the Dynamometer

Over the years, Warrior Racing’s in-house student built dynamometer has seen plenty of changes. As the team renovated the primary workspace of the shop, the Powertrain Director focused on rejuvenating the dyno. After the last season, the powertrain division reviewed all of its testing data and determined that some changes to the dyno needed to be made. There were some issues with the stability of the unit at different speeds, resulting in inadequate data. New components were created and the cell’s layout was adjusted to be more versatile. Now the unit efficiently holds the load of the engine at various speeds. This is extremely important for our team, since it opens up the ability to calibrate the engine at specific load points.

The return of the dynamometer also heralds the (re)start of component testing. For our program, the dyno not only assists with the tuning of the engine, but with the design and validation of all powertrain components. Our induction systems (intake, fuel, and exhaust) can be installed in the apparatus to test their function. The new components for RW-9 are on the verge of fabrication, so in the mean time we’ll be using RW-7 and RW-8’s parts to collect data. Running the dynamometer is a great learning experience, but building one from the ground up is even more rewarding.
Performance Racing Industry

Several members of our team took a road trip to Indianapolis to attend the Performance Racing Industry show. Hundreds of companies were present, including quite a few of our sponsors. It was a great experience to see the new cutting edge technology and designs in the aftermarket automotive racing scene. For some members of our team, this was a glimpse of a potential career. Designing, manufacturing, and presenting products that will enhance the automotive experience.
Drive Away Hunger Game Night
Friday, January 30th @ WSU
6:00 pm - 10:00 pm
$10 + non-perishable food item
RSVP by 1/23/15
Email adam.niner@wayne.edu to RSVP / learn more.

Kart 2 Kart Grand Prix
Sunday, February 22nd
2 qualifier races, 1 Grand Prix.
Price - $45
RSVP by 2/13/15
Email adam.niner@wayne.edu to RSVP / learn more.

Formula Michigan
May 11th - May 16th
Michigan International Speedway
Brooklyn, MI
Over 100 teams registered!
Warrior Racing will be representing the number 95!

Winter Racing
Our teammates and their families all got together for a little Christmas dinner and some exciting racing at Kart 2 Kart! Individuals from our team, some of our supporters, and other Formula teams buckled in for a two hour endurance race. Out of our registered teams, the Warmbold family took first place. Congrats to Kevin Royce for setting the best time at 26.02 (s). Looking forward to our next race, and hopefully we'll see you out on the track!

It was great meeting with all of our sponsors at the show. Thanks for the continue support of our program and our success!

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Warrior Racing is excited to welcome the Chrysler Foundation back to the Warrior Racing family! They provided our program with some financial support which will go a long way for our team! Thanks Chrysler!

Warrior Racing is also excited to welcome The North American International Auto Show back to the Warrior Racing family! We’ll be returning to Cobo Hall for another great experience. Be sure to visit the show and stop by our area!

For more information about the auto show, click the link below!

http://www.naias.com/
Thanks to our sponsor SKF for providing our team with a wide variety of bearings. These will play crucial roles in the function of many of our components, from suspension bell-cranks to ergonomics shifters.

Thanks to our new sponsor TW Metals for donating aluminum stock for our components. Needless to say, without this material we would never be able to complete our cars!
The Auto Dolly generously donated a set of dollies to our program. With four cars being worked on around the shop, these invaluable tools will definitely come in handy!

Thanks to our new sponsor Arch Global Precision for donating sets of countersink bits. These bits will help create components that feature better packaging of nuts and screws.

Thanks to our new sponsor Dino-Lite for donating an awesome microscope. It’ll definitely come in handy for design validation and research.
Our team’s success is made possible through the generous donations and support from the following companies. Without them our team would not have the resources needed to provide invaluable hands on experience and to manufacture our formula cars. From all members of our team, thank you Warrior Racing sponsors!
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