

NOVEMBER-FEBRUARY
2021-22 ISSUE

UP 2 SPEED

THE OFFICIAL NEWSLETTER OF
SPARTAN RACING

Contents

- Holley High Voltage - 01
- Sponsor Facility Tours - 02
- Park and Ride Testing - 03
- Vehicle Progress - 04

Holley High Voltage

Spartan Racing Electric was invited to participate in the inaugural Holley High Voltage Experience at Sonoma Raceway in November. This was a two-day event for fully electric vehicles as well as conversions. The focus of the event was to demonstrate the driving performance of electric vehicles. We were given the opportunity to drive our car in the autocross and drag event as well as the road course! We had a great time connecting with other EV enthusiasts and showcasing our car.



Sponsor Facility Tours

In December our team set out to Stafl Systems and MASS Precision for a tour of their facilities. Stafl Systems focuses on BMS development as well as energy-based consultation and prototyping. We got the chance to look at their office space, electrical engineering lab, and machine shop to get a sneak peak at projects that were in progress.

MASS Precision's services include design & engineering, precision sheet metal fabrication, precision machining, painting & metal finishing, and a system of logistics to control complex component procurement for electronic manufacturing services (EMS). Our team got to tour their vast shop which showcased their machining, welding, and designing capabilities.



Park and Ride Testing

In January, our team set out to SJSU Park & Ride to gather valuable test data before manufacturing this season's cars.

There was a collaborative effort between the electronics team and the suspension team towards understanding the car on a deeper level. One of the areas was the brakes of the system. The suspension team wanted to test a brake bias switch to adjust between the front and rear brake pressure that will allow the driver to enter a corner a lot faster. The electronics team was able to supply the necessary sensors so that they could validate that the dynamic characteristics of the car were backed up by data while testing the car.

Load cells were used to determine how much force is going to the front wheels vs the rear wheels as well as left and right bias. They also measured acceleration with the new IMU put on the car. For the suspension team, they tested the brakes proportioning valve and tuning the bias.



Vehicle Progress

Aerodynamics: The front and rear wing elements have been manufactured and the sidepods for both vehicles are in process. Additionally, the airfoil layups will be bonded in the coming weeks.

Chassis: The lower cockpit has been welded and all of the remaining tubes have been received. The chassis will be completed in the coming weeks.

Suspension: One car's worth of A-arms has been completed and the uprights are currently being welded. The Suspension team has also been machining inserts, bungs, and ARB tubes.

IC Powertrain: Fuel tank bending has begun and cooling brackets have been made. In the past couple weeks, the team has been focusing its efforts on tuning and gathering analytical data on their newly acquired Triumph engines.

EV Powertrain: The EV Powertrain team has made some progress on the manufacturing of the modules. Printing has begun for the module walls and battery cell spot-welding will start after the completion of the modules. PCBs have arrived for the Instrument Control Unit, Shutdown Board, and Power Distribution Units and are being manufactured/tested this week.

Electronics: The PDU is currently being tested for continuity and ensuring the relays function properly in conjunction with the shutdown circuit. The Electronics team has also started manufacturing the harness and smaller gauge wire has been tested to handle higher amounts of current.

