

# formula monthly



SEPTE  
MBER  
2024



**FORMULA**  
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Engineered with Passion



# KEEPING UP WITH FM

## STRUCTURES

Several brackets were welded onto the chassis. The firewall was meticulously fabricated to exact specifications. Meanwhile, the torsion jig is in production, designed to validate the TR value with precision. Additionally, the TSAC handcart design has been successfully finalized.

## AERODYNAMICS & COMPOSITES

The nosecone moulds were delivered and sanding has started. Testing for the seat layup is in progress. Primary E-box was manufactured. Steering wheel and dash were designed and manufactured. The nosecone molds have been successfully delivered, and the sanding process has already commenced, for a smooth finish. Meanwhile, testing for the seat layup is actively underway. The primary E-box was manufactured, meeting all technical requirements. Additionally, the steering wheel and dashboard were both designed and manufactured.

## VEHICLE DYNAMICS

A complete vehicle model has been developed in ChassisSim in order to conduct transient laptime simulations. The steering, pedal and brake assemblies have been fully aligned, assembled and fitted to the car, thus completing the vehicle dynamics assembly on FMXXV. In addition to this, tyres and rims were fitted to the previously machined wheel centres. A complete rolling chassis was achieved with the required travel and ground clearance, we eagerly await dynamic testing.

On the Statics front, the Business Plan Presentation (BPP) Prelims was held on September 15, 2024. The team is currently preparing for the Engineering Design Presentation (EDP).

## E-POWERTRAIN

The radiator was strategically repositioned to the rear of the car, optimizing cooling efficiency, and a completely new cooling circuit was designed and implemented. In parallel, the accumulator container was expertly insulated using high-performance Nomex material, with individual segments carefully placed inside to ensure secure and efficient operation.

## TRANSMISSION

This month the scatter shield was manufactured and welded. A new one piece intermediate shaft was designed. The eccentric disc design was also changed to accommodate the new bearing chosen. The changed intermediate shaft was analyzed and torque testing was done upto 140 Nm with the new intermediate shafts and eccentric discs.

## ELECTRONICS & CONTROLS

The VCU PCB was expertly soldered and rigorously tested, ensuring optimal functionality and reliability. Meanwhile, the harness manufacturing is well underway, with careful attention to detail to guarantee seamless integration and performance.

## AUTONOMOUS

The SDK case on the Jetson platform has been successfully upgraded, enhancing its overall capabilities and performance. In addition, an alternative telemetry system was developed, offering improved data monitoring and transmission. Currently, work is underway on the motor for the innovative brake-by-wire (BBW) system.



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