



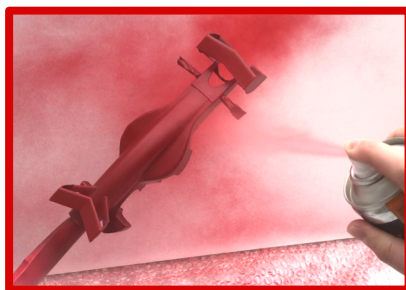
## INITIAL ASSEMBLY

- ✂ We positioned the main body, nose and rear wing together and after making sure everything was perfectly aligned attached the components to one another using a thin, even coat of superglue.



## PAINTING

- ✂ We taped up the inside of the CO<sub>2</sub> cartridge chamber and axels, so that paint wouldn't cover these areas and potentially alter the very precise dimensions required to fit the bearings.
- ✂ Taking all necessary safety precautions (see Pg. 8), we gave the main body an initial coat of grey primer, followed by three additional coats. After each coat, the primed body was sanded to remove the marks left by the CNC router, ensuring a smooth body and surface for painting.



- ✂ We then evenly sprayed two coats of metallic red paint onto the body (minimal coats were required as the primer had created an optimum surface for the paint to adhere to)

- ✂ The wheel covers and rear wheel support structures were also painted in the same way, but separately to the main body. This is because these components would only be attached to the car in the final stages of the manufacturing. Taping these components up in the right places would therefore vital to ensuring that they still fit properly onto the main body, once painted.

## FINAL ASSEMBLY

- ✂ We printed our decals onto white and clear waterslide decal paper, using an inkjet printer, and after sealing the ink with a few coats of clear lacquer, we cut them to size.
- ✂ The decals were then placed in water, until they started slipping off the backing paper, after which they were carefully transferred onto the bodywork.
- ✂ Whilst we made sure to immediately dry any excess water on/around the decal, we also decided to leave our car to dry for an extra 24 hours, to ensure that there was no moisture left underneath the decals.
- ✂ Once it had dried, we sprayed both the main body and the separate components with two thin coats of clear lacquer to obtain the smoothest and glossiest possible surface finish

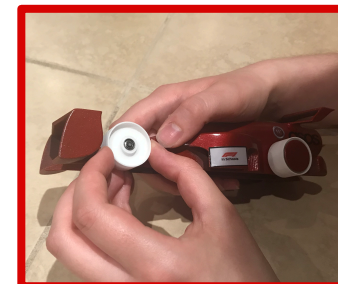


- ✂ After leaving the lacquer to harden, we began the final stage of the car's assembly.
- ✂ The first step was temporarily assembling our rear wheel support structure and front and rear wheels (we mounted two bearings onto each wheel, then slotted them onto the front axels and secured them with a clip and wheel cover).
- ✂ The fully assembled car was then weighed to see how much weight we would have to add, having designed the car underweight.



- ✂ We used blue tack as a ballast, placing it in specifically designed slots on either side of the rear wheel support structure, until we were happy with the mass.

- ✂ Given that this stage involved removing components and reassembling the car several times, we used a set of 'dummy bearings' rather than the actual ones. This is because we wanted to handle the bearings that would go on our race cars as little as possible, to reduce the risk of small particles getting inside and creating unnecessary friction, which could be very detrimental to our lap time.
- ✂ Once our car had reached the perfect weight, we removed the 'dummy' bearings and blew any dust/fine particles off all four wheels, to ensure a clean environment for the new bearings.
- ✂ We then carefully removed the new bearings from their packaging and immediately placed them in the wheels, taking care not to touch them more than necessary, and using a tool with a large, flat surface to push the bearings into their slots with an even distribution of pressure, to make sure the bearings went in straight.



- ✂ Once all eight bearings had been mounted onto the wheels, the wheels were slotted onto the axels, and secured with clips and covers.
- ✂ Although the rear wheels were mounted, the rear wheel support structure was not yet fixed and this allowed us to ensure the car's tracking was perfect before we locked the axels into place.
- ✂ We then rolled the car back and forth, exerting a considerable amount of pressure on the car to better align the bearings within the wheels.
- ✂ After making sure that all wheels were touching the ground and rolled smoothly at all times, we secured the rear wheel support structure by adding superglue in the joints. The use of a super glue activator helped us to accelerate the drying of the glue, ensuring that the structure was immediately locked in the correct place.