

AERO 101

After a long hiatus, it's time to come back to this! WTAC 2015 is almost underway, and you know what that means! This week, we will take a look at a returning contender, the JDMYard Civic!

The front of this car looks mean!



The front of this car appears different from many of the other cars we've seen. Instead of a completely flat front bumper, this one tapers forward at the bottom and features unique undercuts. The tapering of the bottom helps guide air towards these undercuts, as the splitter slices through the air. The undercuts themselves are designed to maximize splitter surface area (though the "splitters" on the bumper are not exactly splitters since they have an angle to them) while guiding air towards the sides of the car. There are two sets of plates on the splitter, larger ones that are

attached to the bumper, mounted at an angle; and smaller endplates that mount to the splitter. The larger ones act as a turning vane, keeping the air flowing through the undercuts separated from air passing over the splitter, and controlling how the air will pass through the undercut. The smaller plates work as traditional splitter end plates, keeping the pressure regions from mixing, though they are quite small. The hood is heavily louvered, to allow air passing through the intercooler and radiator to escape, as well as heat from the engine bay. Next, we move onto the fenders, which, like almost every highly aero-modded car, are vented towards the rear. What is interesting about this Civic is that there are plates sitting on top of the fender. We believe this is used to induce a vortex to shield the air exiting the wheel well, keeping it away from the rear wing. The side skirts follow the shape of the fender vents and also have small splitters designed into them.



At the rear of the car, the JDMYard Civic's wing mounts have been covered up. This helps reduce the drag created by the cutouts in the wing mounts, but also serves as strakes to help with high end stability, the way a dorsal fin would. The APR GT-1000 appears to have been replaced with a single element wing. The X-bracing has been kept out of the airstream, to reduce any turbulent effects it would create. They appear to be running the same diffuser as last year, which is quite large and has a high AOA. This year, however, they have incorporated the exhaust into the diffuser design, to make it an effective exhaust blown diffuser. There are advantages to introducing the high energy exhaust jet to the bottom side of the diffuser; it helps the airflow stay attached to the diffuser better. Introducing the exhaust jet to the top will do the same, but not at the same magnitude, due to the fact that over the top does not actually affect the air moving through the diffuser. It should be noted that the diffuser has small channels on the outside edges of it; at this time, we are unable to determine their purpose.