

Crank Horsepower vs. Wheel Horsepower. (Updated in July 2024 - DLB)

Car manufacturers measure Crank Horsepower (CHP or Base HP) with the motor mounted on a rack with no additional load.

Wheel horsepower (WHP) is the amount of power that the engine makes through the drivetrain to the drive wheels of the vehicle. You need to take into consideration the weight of the car, the transmission load, and the wheel drag on the road when run on a dynamometer. On average, front engine/rear wheel, automatic transmission vehicles are said to lose between 15 - 16% of the Crank HP. Hence, Wheel HP is always a much smaller number than Crank HP.

Ambient temperature, humidity, and altitude also play a part in the actual HP results when the car is run on a dyno. The brand of dynamometer used also can yield different results. The most popular dynos are Mustang, DynoJet, and Dynapack and they all use slightly different algorithms to calculate WHP. So, it is inaccurate to compare WHP when cars are measured on different days and on different brand dynos. (confused yet?)

C7 and C8 Corvettes.

A C7 Corvette is rated by GM at 460 HP at the crank and the C7 Z06 is rated at 650 HP.

The C8 is rated at 490 CHP at the crank and the C8 Z06 is rated at 670 CHP.

To determine average rear WPH, multiply the Crank HP by 0.85 if you have an automatic transmission. Example: A C7 has 460 CHP x 0.85 = 391 rear WHP. A Z06 would run 552 rear WHP.

On the mid-engine C8's, the loss is said to be 12%. Example: 490 CHP x .88 = 431 WHP.

My best baseline stock run on a Dynojet dynamometer.

The best run we got on my stock C7 was 391.47 WHP and 414.36 ft. lbs. torque on a Dynojet. That is a 15% HP loss from the GM rated CHP of 460 and the number agrees with the published average loss.

My first performance mod.

I installed a Tony Mamo ported throttle body, a hi-flow air filter, and the aFe exhaust set of 3" down pipes with hi-flow mini cats with the matching aFe catless X pipe.

After several pulls on the dyno, each with custom tuning, the best we could get was **417 WHP (+23HP) and 430 (+16 lbs.) torque** with the car running at its optimum tune. Horsepower gains are expensive, but an increase of 23 WHP is pretty good for an \$1,800 bolt on package.

My final mod.

Later on, I installed an A&A Supercharger kit from A&A Corvettes with a 4" pulley which yields 7 lbs. of boost for a daily driver set up. I also added a Borla ATTAK axle back system to the exhaust. **The car was re-tuned on the dyno and ran 575 WHP and 542 ft lbs. of torque.**

That's a total increase of 184 WHP from my base dyno run of 391. Not bad at all for a daily driver setup.

As Brother John would say... and that's the rest of the story.

Diego

Tony Mammo ported throttle body

<https://www.mamomotorsports.com/gallery/Ported-Throttle-Bodies-c32190645>



You can see the ported difference on the Mammo unit on the left vs. the stock unit on the right.

A&A C7 Supercharger kit

<https://www.aacorvette.com/c7superchargers.html>



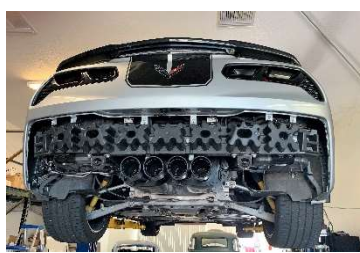
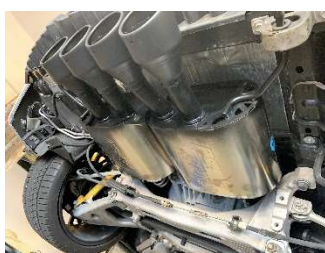
The A&A kit gives you absolutely everything you need including cooler spark plugs!

Afe Stainless 3" Pipes



Only two minicats in the front,
All others are gone.

Borla ATTACK Axle back system



The end result is almost
A free-flow system