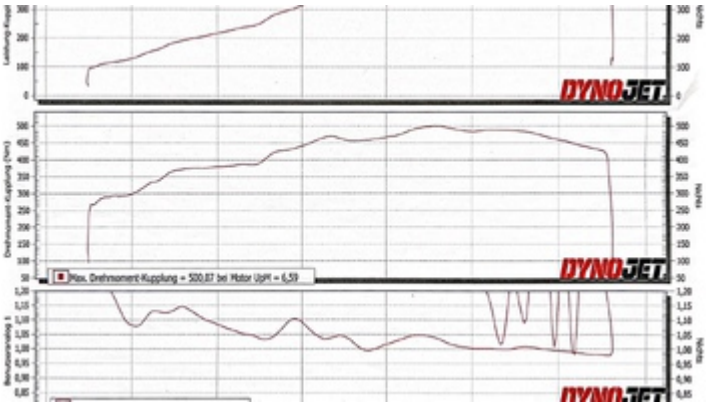
Wheel power or engine power, what's the difference?

Beitrag von „Albert Motorsport“ vom 11. April 2022, 21:29

Dear all,

a customer has just asked me what power we specify for power increases, the wheel power, measured on the test bench, or the engine power.

The #performance of a #Porsche #991 #Gen.1 #GT3 #Cup engine has to be increased, so our customer is wondering about the #performance #difference that is #achieved after the #tuning measure.



A power measurement on a #roller #dynamometer #measures the power that is #transferred from the #wheels to the rollers.

The #engine #power is calculated from the wheel power, whereby the unknown factors that represent the power difference are not identical for all vehicles.

In order to keep the error rate as small as possible in the calculation and to be able to #reproduce an adequate #measurement on another test bench with the same result, the #performance #measurement must take place according to an international standard. Nowadays the #EWG standard #80/1269 is used for this.

The wheel power measured on the test bench is always lower than the engine power, which is specified for performance upgrades and also in our vehicle fronts. The engine power is therefore always greater than the measured wheel power, which is also called #propulsion power.

From the engine to the road there are #transmission losses and #cardan losses and #differential #gear losses.

These #mechanical #friction losses in the drive train are called #drag #power or #power #loss.

But how do you determine the engine power:

The motor power is calculated by adding the power loss to the wheel power. You can add a flat rate of around 20%, but this is quite imprecise because the power loss increases proportionally at higher speeds.

In modern dynamometers, the drag power or power loss when coasting is determined on the roller dynamometer by depressing the clutch when the maximum speed is reached, and the drag torque of the drive train is determined as the wheel speeds decrease.

This power loss or drag power corresponds approximately to the power lost in the drive train from the engine to the wheels. The only factor is the roller power or the power loss that the test bench itself generates.

Modern test benches automatically compensate for these friction torques so that the engine #performance corresponds to the actual engine performance with the exception of insignificant deviations.

If we now carry out an increase in performance for a customer, as in this case, an increase from 460 hp to around 520 hp, then call we give the customer the measured and already corrected performance of the engine.

This is the power that is transferred from the clutch to the drive train. This engine power is also called #clutch #power.

The data and values of one of our #performance-enhanced Porsche 991 Gen.1 Cup vehicles are given on the attached test bench protocol.

If you have any questions about performance increases

from #Porsche #engines, we are happy to answer.

Warm greetings

Jürgen Albert

master mechanic

Text and Foto: Jürgen Albert