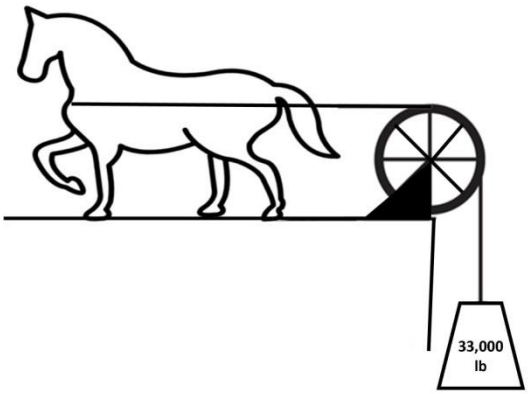
Halesowen Engine Remapping

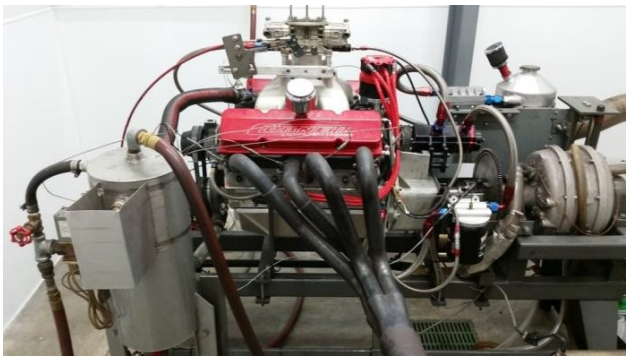
All about what's Watt!

There's lots of confusion when it comes to stating the power output of an engine and it's not surprising.



Let's start with the units - HP / BHP / kW / PS

The term **'horsepower' (HP)** was adopted by Victorian engineer James Watt to compare the output of steam engines with the output a horse. He determined that a horse had the power to lift 33,000 pound by one foot in one minute. If an engine could lift 66,000 by one foot in one minute, then it was a 2 HP engine.



The term **brake horsepower (BHP)** means the same thing but refers to how an engine is attached to a brake in order to measure it's output. These brakes can be friction, hydraulic or electric in nature and are also known as dynamometers. Here we have a 4-cylinder petrol engine is attached to a hydraulic brake for testing.

In our metric world, the unit for power is the **Watt (W)** (named after James Watt) or more commonly with engines, the kilo Watt (kW) which is a thousand Watts. James' 1HP horse would be able to lift 75kg by a height of 1m in 1 second and would have a power of 0.745 kW. about 3/4 kW

Unfortunately, very few manufacturer's quote engine power in kW. Instead they still use the old BHP figure (because it gives a bigger number - 200 BHP = 149 kW). Bigger numbers sell better!! To further complicate things, most manufacturers actually quote **PS (Pferdestärke)** which is a unit developed in Germany in the 19th Century. It is *almost* the same, but slightly smaller than HP and so 200 HP = 203 PS. Consequently, PS is used in the automotive marketing industry because, again, it gives a slightly bigger number. The unit doesn't seem to be used anywhere else.

It's worth noting that engine power quoted by manufacturers is measured at the flywheel and a very significant proportion of this power is lost in the transmission system. The power available at the wheels will be very much less. How much less depends on many, many variables such as gearbox type, how many differentials, the speed and load at any given time, etc, etc. 15% is often quoted as a 'rule of thumb', but this is very misleading. Losses can be much higher in some situations, and very much lower in others. 'Run-down' tests are sometimes used on a dyno to attempt to measure transmission losses, but because this test is not carried out under load (but rather while coasting to a stop) it really only measures off-load transmission losses as well as rolling resistance. It's better to accept that these two measures of power aren't easily correlated and forego any attempt to do so.

Find out about remapping your vehicle
