

“My bike is dyno tuned”

by Mull Engineering

Here is a common phrase heard all too often these days but what does it mean? First, the word dyno is a nick name for dynamometer which is a device that measures not only the power output of an engine, but can give useful data about what an engine or other operating systems are doing when under hard acceleration. There are basically two types of dynamometers, inertial and brake. Inertial is by far the most simple of the two. This device is comprised of a heavy roller and a means of accurately measuring the rpm of the roller. When a vehicle's tires are used to accelerate the roller, the acceleration rate of the roller over time can be measured and calculated into a useful graph of performance to the rear tires.

The second type of dyno is the brake type. This type of dyno is less common because it is more expensive but gives the operator the ability to stall a vehicle and gain precise control over a load. This type of device uses brakes or more commonly called, absorbers to absorb or transfer the energy from a load to the absorber itself. This energy can be dissipated into the air with fans, water, etc. Brake dyno absorber designs vary greatly but all work towards the same goal which is to absorb power. Common brake designs use electromagnetic forces, water, hydraulic oil, etc to slow down the acceleration of a test vehicle.

So which is better? Without question, a brake dyno has a much larger array of testing that it can do. Steady state, acceleration, step, etc. There are many things a brake dyno can do that an inertial cannot. Inertial dynos are common because they are cheaper, easier to run, and make very few things to go wrong with them. Depending on what type of testing one is doing, an inertial dyno may prove adequate for testing purposes. The brake dyno is the logical choice for intricate or endurance testing where a vehicle can maintain load and speed indefinitely.

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This phrase is commonly used to imply that a vehicle has been put on a dyno and tuned according to what the data from the dyno told them. A dynamometer simply put, is a “tool”. A tool is only as good as the operator using the tool. What this is saying is if a tuner or operator does not know how to use the data obtained from a dyno, the useful data can very much be useless. A dyno can be very useful to help tune a vehicle for max performance but that is not to say one cannot obtain the exact same level of performance by road testing a vehicle as well. An experienced tuner will use a dyno as only one part of the process of tuning. This is because a dyno “can” give faulty data if parts on the dyno are in need of repair or there are other errors in the test. If an inexperienced tuner uses the invalid data to try to enhance performance, this could lead to poor performance, engine failure, etc. It is critical that a dyno operator understand how to tune an engine correctly as well as run a dyno correctly.

So the next time you hear “dyno tuned”, you might ask, “what type of dyno”, and “who did the work” because you always get what you pay for. Dyno tuned can mean as little or as much as the operator puts into it and understands it. Remember, a dyno is a tool and only that. They do not fix problems, they only give information. These days, many shops buy a dyno to suck in new customers without the proper knowledge of how to use it. Be cautious if an operator cannot tell you about their dyno system or what they plan to do with your vehicle to optimize performance.