

Emissions – Leaf Blower vs. Ford Raptor

Edmonds' Insideline.com stated that a consumer- grade leaf blower emits more pollutants than a 6,200-pound 2011 Ford Raptor. They would have you believe that the leaf blower is worse for the environment than a powerful pickup truck when it comes to the generation of exhaust emission. I consider their test and resultant analogy flawed and intuitively unbelievable.

The FTP-75 (Federal Test Procedure) followed by Edmonds is intended to be used for emission certification of light duty vehicles in the U.S. It is not an effective test for trucks and it is totally inappropriate for testing leaf blowers. Effective model year 2000, all light duty vehicles must be additionally tested per two Supplemental Federal Test Procedures (SFTP) designed to address shortcomings with the FTP-75 in the representation of (1) aggressive, high speed driving (US06), and (2) the use of air conditioning (SC03).¹ Furthermore, none of the above tests take into account the emissions generated during heavy loading conditions as would be typical of the Raptor which has a 411 horsepower engine. Average load draw from this engine during the FTP-75 test depends only on running time and distance the vehicle is run during the test. The dynamometer only accounts for drive train losses and wind resistance, but not an appropriate load or the impact of hills. What gear was the vehicle in? What was the engine rpm? How much of the 411 horsepower was being used during the test?

Not mentioned in their results is the incompatibility of their test equipment with a leaf blower engine. The equipment is designed for measuring emissions from larger engines. The exhaust from the leaf blower was collected in a four inch diameter metal hose more than ten feet long. Edmonds designed a special adapter to connect to the engine exhaust port without regard to the effect it will have on the engine's performance. The test equipment also utilizes a suction fan to draw the exhaust through the sampling chambers.³ If there is a partial vacuum or even a small backpressure within the test equipment, results from a two stroke engine, which has no valves, would be compromised in a major way.

In order to sample the leaf blower engine exhaust, the outer cowling for the leaf blower engine had to be removed, which impacts engine cooling. With this housing removed, internal temperatures were likely impacted and consequently fuel evaporation within the engine may have been compromised, leading to incomplete combustion.

In addition to the incompatible test equipment, it should be noted that the ECHO leaf blower that was tested here was not representative of most blowers in that it did not contain a catalyst in the muffler to reduce the emission of unburned hydrocarbons. Given the above facts, the Edmonds test is at best inconclusive and at worst invalid.

It is simply illogical that the leaf blower should pollute more than a truck engine. The cylinder in this leaf blower displaces 50.8 cubic centimeters, about the volume occupied by a spool of thread, while the truck engine in the Ford Raptor is displacing 6.2 liters (6.55 quarts). It has eight cylinders that are approximately four inches in diameter with a stroke of 3¾ inches. This is 6200 cubic centimeters which is a displacement 122 times greater than the leaf blower. The raptor develops 411 horsepower while the leaf blower generates 2.41 horsepower. This is less than 1% that of the Raptor engine.

Simple time of use alone disqualifies this comparison. The Raptor will be used at least five hours per week if it is used for traveling to and from work each day and likely more than that if it is used for commercial purposes. A leaf blower will be used about 10 minutes per week per household on average.

One final comparison. What about CO₂? For the Raptor, at 11 miles per gallon and with a fuel tank that holds 36 gallons of gasoline, CO₂ (greenhouse gas) from the Raptor has to be out of sight. From the leaf blower, at 11 ounces of fuel per week, CO₂ is insignificant by comparison. With all this in mind, leaf blowers have far less impact on the environment than any motorized vehicle.

The Edmonds test has to be contrived, intended to cast dispersion on the leaf blower by testing it to automotive Standards using incompatible equipment and inappropriate test procedures. But regardless the outcome, the Edmonds test is of no consequence. The fact remains that leaf blower engines meet government emission Standards and by law, only the EPA or CARB are allowed to regulate emissions.

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References:

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- 3 http://www1.eere.energy.gov/vehiclesandfuels/avta/pdfs/afv/emissions_data/offcycle.pdf (page 23)
- 4 <http://leafblownoise.com/carchart%20comparison.htm>

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