# TOP FUEL DRAGSTER – INTERESTING FACTS

* One Top Fuel dragster 500 cubic-inch Hemi engine makes more horsepower (11,000 HP) than the first 10 rows at the Daytona 500 (Daytona and Talladega engines (restrictor plate tracks) make about 550 hp).
* Under full throttle, a dragster engine consumes 1.2-1.5 gallons of nitromethane per second; a fully loaded 747 at cruise speed consumes jet fuel at about the same rate.
* A stock Dodge Hemi V8 engine cannot produce enough power to merely drive the dragster's supercharger. It takes about 1,000 hp to drive the supercharger of a Top Fuel engine.
* With 3000 CFM of air being rammed in by the supercharger on overdrive, the fuel mixture is compressed into a near-solid form before ignition. Cylinders run on the verge of hydraulic lock at full throttle.  
  <https://www.youtube.com/watch?v=xGTbQuhhluY>
* NHRA limits fuel to 90% nitromethane, and the rest is usually 10% methanol. At the stoichiometric 1.7:1 air/fuel mixture for nitromethane the flame front temperature measures 4050 degrees F.
* Nitromethane burns yellow. Several other colors can be seen in the exhaust from a Top Fuel engine. White flame (often seen above the yellow nitromethane flame) is usually considered to be hydrogen, which has disassociated from the water vapor in the exhaust. Green flame usually comes from the combustion of copper or beryllium – this would be consumption of the copper head gasket, or beryllium valve seat in the head. Orange flame is often due to a lubricant that some teams use for the fuel pump.
* Ignition for Top Fuel engines comes from a pair of magnetos, each firing a separate spark plug for each cylinder. Each MSD magneto is supplied by 44 amps of 12VDC current, which comes out to 1 kW of electrical power. The high-voltage output ends up being similar to the arc of a TIG welder across the spark plug
* Spark plug ground strap is often consumed during a single ¼ mile pass. After ½ track the spark plugs and exhaust valves are so hot that the only way to shut down the engine is by cutting the fuel flow.
* If spark momentarily fails early in the run, unburned nitro builds up in the affected cylinders and then explodes with sufficient force to blow cylinder heads off the block in pieces or split the block in half.
* Dragsters reach over 300 MPH before you have completed reading this sentence.
* In order to reach 300 MPH in 3.5 seconds, dragsters accelerate an average of ~ 4 G's. Most will reach 100 MPH within 0.8 seconds with a peak acceleration approaching 8 G's.
* Over the timed ¼ mile race a Top Fuel engine only goes through ~540 revolutions (or ~270 cycles). The rest of the time (sometimes as much as 5 minutes) is spent at idle.
* Including the burnout, the engine must only survive 900 revolutions under load.
* The redline is actually quite high at 9500 RPM.
* THE BOTTOM LINE: Assuming all the equipment is paid off, the crew worked for free, & for once, NOTHING BLOWS UP, each run costs an estimated $1,000 per second.
* 6 negative g-forces upon deployment of twin chutes at 300 MPH An NHRA Top Fuel
* Dragsters have the fastest acceleration of any land-based vehicles with humans inside, including things like rockets. Airplanes landing on an aircraft carrier decelerate around 3-4 G’s. However, normal acceleration in fighter aircraft can be around 9 G’s.