

CLASSIFIED MOTORSPORTS

Classified Motorsports
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All vehicles will be booked in for a pre-Dyno check over before the appointment to be set up and to make sure there are no leaks, all systems are functioning properly.

Dyno Pre-Tune Checklist

At Classified Motorsports our goal is to provide you with a tune that will optimize the potential of your vehicle, while maintaining reliability and drivability. In order to do that, your car must be in good operating condition and be ready for the Dyno. To help achieve this goal and keep your costs to a minimum, the team at Classified has put together this Vehicle Preparedness Checklist for the benefit of our customers who are coming in for tuning and/or Dyno pulls. The list has been compiled to explain some of the routine issues we have encountered, as well as how to avoid them. It's important to note that it is the customer's responsibility to make certain their vehicle is healthy and ready to tune and Classified may not have been the shop who recommended the parts you should use or may not have built the engine. So please have your build specs with you or be familiar with what is in your engine.

_____ Initial

Base & Cam Timing

This is a fairly simple process on a stock engine and you can check your Service Manual for procedures on how to perform this. Various engine combinations (Frankenstein engines with VTEC Heads on non-VTEC blocks) may affect exactly how you bring the engine into proper spec. Other things that may affect

timing will be block and head surfacing, adjustable cam gears set incorrectly, timing belt set on the wrong teeth of the cam gear or incorrectly machined aftermarket cam gears, using the wrong parts for the combination put together and more. Please call us before your tune if you aren't 100% sure that your timing is set correctly. If mechanical timing is off, this will result in an Additional charge for us to repair. Also check base timing with timing light and make sure it synced with the software and or set to factory specifications. Adjust the distributor if this setting is way out of spec to see if you are able to bring it within spec using only the distributor. If you can, chances are everything mechanically is set correctly...if you cannot, then chances are something is set incorrectly. Timing is set correctly and synced with the computer software. _____ Initial

Tires

The Dyno we use is a Dynocom 5000 unit, it is a roller chassis dyno. This means the type of tires on your car are very important. Very sticky tires or slicks (or studded tires) DO NOT work. Street tires (all season or summer) work best for traction; please do not arrive with slicks. If these are the only tires you have, please call ahead of your tune and we will try to make other arrangements, if possible. I am not running slicks. _____ Initial

Tire Pressure

Alignment

A vehicle out of alignment will measure LOWER HP than one in correct alignment. It is also needed as drivability on the Dyno is very difficult for us if it is out. If you are concerned with numbers, please make sure you give yourself the best chance of achieving your goals; please have this done before your tuning appointment. I have a proper alignment. _____ Initial

Chassis Tie Down Points:

Make sure your vehicle is either equipped with the OEM Tow Hooks or a safe alternative. We need to be able to strap the vehicle down in a timely manner. There can be additional difficulties on turbocharged and/or vehicles with body kits because of the charge pipes, down-pipes, dump tubes and/or lower hanging body work. _____ Initial

Engine Fluids

Make sure you are running the proper amount and proper weight of oil for your application. There should be ZERO oil leaks from the engine for obvious reasons, no exceptions please. Make sure all seals are tight, and that your drain plug and oil filter are secure.

Your coolant system should be running a water/glycol mixture for a street vehicle and whatever is required for your track car (normally just straight water with water wetter). There should be no leaks in the radiator, cap or lines. You should have an overflow reservoir and the system should be properly bled and hold pressure. All clamps should be checked and secured prior to arriving for your tune. My vehicle has no fluid leaks and is running proper fluids. _____ Initial

Electrical/Sensor Wiring Issues:

The engine harness should be free from breaks and have no exposed wires. Breaks or exposed wires should not be twisted and taped together. Loose connections and stray wires in the engine bay can be hard to track down, costing time and money, so make sure your wiring is correct and secure.

_____ initial

AIT (Air Intake Temperature) Sensor:

A properly installed Air Intake Temp sensor should be installed in the intake manifold. We realize that some vehicles come with AIT sensors in the intake pipe from the factory, but whenever possible, it is best to have it installed in the manifold. We can't tune for heat-soak if the sensor is located elsewhere. Newer style AIT sensors that are located in the intake pipe should be installed post turbo for accurate readings. We offer billet AIT Bungs that can be welded to your intake manifold or charge pipe so you don't have to convert to the older style AIT sensor. Don't install the sensor in a charge pipe using an o-ring or grommet- it will not hold under boost and will need to be fixed. _____ Initial

(Check Engine Light)CEL:

If your Check Engine Light is on, it's on for a reason. Find out why your CEL is coming on and either have the issue fixed, or let us know ahead of time. There are a few exceptions that we may be able to work around, as some sensors are not as important to the tuning process as others, but we must ensure the required sensors are functioning correctly. CEL is not illuminated. _____ initial

Charging System:

A properly operating system should be charging at 13.5-14 Volts under all operating conditions. Exceptions are race cars running a 16V System, a vehicle that is equipped with an aftermarket crank pulley that under drives the alternator or a vehicle equipped w/ a high output alternator. _____ initial

Grounds:

Make sure your vehicle has good, clean grounds. Older vehicles that have surface rust in and or around the ground strap connection area may benefit from additional grounds.

The three (3) major grounds to be aware of are as follows. -Battery to Chassis -Transmission to Chassis - Engine to Chassis _____ initial

Fuel Issues:

Fuel Level:

MAKE SURE YOU HAVE A FULL TANK OF GAS - if we have to put fuel in your car you will be charged for the fuel and time to do it. _____ initial

Fuel Injector Plugs:

All fuel injector plugs should be complete and crack free. Plugs missing their metal retaining clips will present an issue and will be repaired or replaced. _____ initial

Fuel Pressure Gauge:

Many times we have a vehicle strapped down on the Dyno and in the process of tuning we find that the injector is either improperly sized or that the fuel pump simply cannot keep up. It is good practice to have a fuel pressure gauge installed to help troubleshoot if it comes to it. _____ initial

Fuel Pump:

Know what fuel pump is in the vehicle and how old it is. If you have any doubt, check it or replace it. Lack of fuel will show up at the least opportune time. Although it is an easy fix on the Dyno, it will cause delays and add extra cost. _____ initial

Fuel Pressure Regulator:

Not necessary for every application but it can't hurt. Fuel pressure regulators are great for turning down pressure in applications where it's not needed. They are also great for increasing the injectors duty cycle if/when you are at its limit. Base fuel pressure with engine on and vacuum line removed from the fuel pressure regulator should be between 40-50psi. _____ initial

Fuel Injectors:

Be sure that there are no vacuum and/ or fuel leaks at or around the injectors. Also, make sure your fuel injectors are sized appropriately for the power that you are trying to make. Below is a quick reference to what a given injector will support on a 4 cylinder motor at sea level:

240cc/min: 0-180whp

310cc/min: 0-240whp

370cc/min: 0-275whp

440cc/min: 0-325whp

550cc/min: 0-375whp

650cc/min: 0-425whp

750cc/min: 0-475whp

1000cc/min: 0-600whp

1200cc/min: 0-700whp

1600cc/min: 0-850whp

Injectors can support more power by upping the static fuel pressure. With high base fuel pressures of 60-70psi, a 20-30% increase in flow can be achieved. _____ Initial

Vacuum/ Boost Issues:

Vacuum Lines - Make sure that your intake, vacuum lines, and intercooler piping are sealed when under

vacuum as well as sealed when under pressure. A vacuum leak under vacuum can cause an erratic idle and the engine to run lean. A vacuum leak under boost will make the engine run rich. Major leaks can usually be found while Dyno tuning because the data will look incorrect, but minor leaks are very difficult to find. No matter the size or nature of the leak, the leak will prohibit us from tuning and must be found and repaired.

Secure all vacuum lines or charge piping so they do not blow off during tuning Tighten all throttle body, intake manifold, exhaust/ turbo manifold, turbo, down pipe, and/ or exhaust hardware. _____ initial

Exhaust Issues:

Exhaust Length – Tuning a car with an open header or open down pipe is sometimes a challenge - depending on the size and length. We have seen compromises in part throttle tunes due to O2 sensor readings and prefer that the car come in with a full exhaust. We can tune either way, but if the car is to be run open header or open down pipe, here are the recommendations for a great tune: O2 sensor bung should be mounted at least 10-14 inches from the turbo and at least 24-30 inches from the exit on turbo cars; and in the collector and at least 24 inches from the exhaust port on N/A and supercharged cars.

_____ initial

O2 Sensor:

If the vehicle is not equipped with a wideband we will need to remove the narrow band sensor so that we can install ours. Please make sure that the O2 sensor comes out easily, avoiding costly damage due to the sensor being installed without anti-seize. If the sensor must be replaced, you will be charged for the cost of the sensor as well as the additional labor needed to chase the threads. If the bung is ruined beyond repair, we sometimes need to remove that section of pipe to weld a new section of pipe, with a new bung in place. _____ Initial

Mechanical Issues:

Ignition and Spark

Without proper spark, the car cannot run to its full potential. Please make sure your coils/distributor is working correctly. Ensure you have a clean (or new) rotor and cap. Ensure the rubber seal around the outside of the distributor is present and in good shape to keep moisture out of the inside. Your spark plug wires should be working well; Make sure your spark plugs are in good shape and gapped correctly. We stock spark plugs but if you don't want to purchase a set from us, please have at least one or two extra sets with you when you come for your appointment. Please call well before your tuning appointment if you need recommendations on which plugs to run for your application. I know what spark plugs I have and have set gap properly. _____ Initial

Compression:

We do not perform compression or leak down tests on all vehicles that come in for tuning. We assume

that you are providing us a healthy motor. If the vehicle is down on power and the Tuner has to stop to check compression and/ or cylinder leak down, you will be charged. Depending on the results of said tests... we may be forced to stop the tune and you may be responsible for a portion of the tune/ time spent.

8:5-9:1 compression: 170-180psi per cylinder

9.1-10:1 compression: 180-210psi per cylinder

10:1-11:1 compression: 210-235psi per cylinder

11:1+ compression: 235+ per cylinder

Call before scheduling an appointment if your compression test shows large variances between cylinders. Your motor should not have more than a 20psi variance in compression or 20% variance in leak down between cylinders. Camshaft can affect compression ratio so the numbers listed above should be used loosely. _____ initial

Valve Lash:

Make sure the engine has proper valve lash for the camshafts being used. Performance camshafts typically require different settings and it is best to either contact the manufacturer or refer to your cam manufacturer. Valve adjustment should be performed when the motor is completely cool.

Intake Setting: _____ Exhaust Setting: _____ _____ initial

Timing Belt:

The timing belt should be installed properly with minimal to no slack as well as properly timed. A loose timing belt runs the risk of jumping/ skipping teeth which leads to timing issues and unnecessarily wasted time in adjusting. In extreme situations a loose belt may lead to total engine failure.

_____ Initial

Throttle Controls:

The gas pedal, throttle cable, and throttle body should move freely and return completely. The throttle body should not bind or stick and the throttle stop should be set. The cable should be adjusted so that there is adequate slack without being sloppy and the bracket should be mounted firmly with all appropriate hardware. _____ initial

Clutch Issues:

Make sure the clutch you are using is rated for the torque capacity that your vehicle WILL BE MAKING not the power it is currently making. Don't use a stock clutch or equivalent if you are running a supercharger, turbocharger or nitrous equipped engine. _____ Initial

If you do not have access to the proper equipment Classified Motorsports can offer a pre Dyno inspection for a flat rate charge before your Dyno appointment to assure your vehicle is ready for the Dyno. _____ Initial

This Form must be initialed and returned or emailed to us prior to your Dyno session, thank you for your time.

If you have questions or concerns about the following or if you need to make an appointment to make repairs or changes to your vehicle prior to your appointment please feel free to e-mail us and or call us.