



This document outlines the break in process for TunePlus, Inc shortblocks, longblocks, or any builds we have done in house that include these components. **Customers that have had us build their car, please skip to Final Break-In. The pre-start and initial break-in process has already been done before you received your vehicle.**

### **Shortblock/Longblock Customers Pre-Start Process:**

Before you begin please make sure you have the following.

1. Fresh fuel, recommend standard pump gas 91/93oct for break in. Do not break in on E85 or any ethanol mixes. If your fuel is less than a month old you are good to go.
2. Break-In Oil. We use Amsoil Break-In 30W in our shop for all our builds. It is available on our site. Other companies make break in oils and those are fine.
3. Fresh spark plugs. Recommend purchasing pre-gapped NGK spark plugs from our website to remove plugs as a variable during break-in and tuning.
4. Post Break-In Running Oil. Our Engines use Amsoil Dominator 15w50 Racing Oil or equivalent. If you do not plan on making 500whp+ then you can use a high quality 5w50 oil.

After receiving your engine please make sure before first start that the engine is primed with oil. During the assembly process the pump itself should have been primed with oil by putting a small amount of Amsoil Break-In Oil into the pickup hole and spinning the pump over by hand until oil comes out the back of the pump. Then install onto the engine. If you purchased a longblock from us, this has already been done.

After the engine is in the vehicle and ready to start, remove the spark plugs from the engine to reduce stress on the engine during priming. Make sure you have 8 quarts of oil in the engine as the balance shafts have been removed and requires more oil than OEM specs. Once you put in the 8 quarts let it sit for 20 minutes then add a new "FULL" mark to your dipstick as it will not be at the same level on the dipstick as stock. Start the vehicle with the accelerator pedal to the floor while cranking. The ECU will detect the pedal is to the floor and will not inject fuel, you won't have any spark because plugs will be out. Cycle the engine 3 times at minimum. Remove the oil filter to make sure oil has made it into the filter. Do not pre-fill the filter before installing. The oil pressure during cranking will be too low for the gauge (if equipped) to register, so checking the oil filter is the only way to check to make sure the engine has had oil cycle through it. Another option is to install an oil pressure gauge on the head by the serpentine belt tensioner.

Once the engine is primed you will be ready to put everything together and fire for the first time. With the Accessport gauge screen open, set one of the gauges to FRP Actual (Fuel Rail Pressure Actual) to make sure you have at minimum 300psi of fuel pressure. If you don't repeat the priming process until you do. Normally 3 crank cycles should generate full starting pressure.

Make sure you have a tune from us, or your tuner flashed to the car before starting to account for any modifications that require it. If you **don't** have a fuel pump upgrade, injector upgrade, or upgraded map sensor the car will start on any off the shelf tune or stock tune. The engine itself, nor our longblock with upgraded camshafts require a specific tune to start/break-in. Obviously before you go full throttle that car should have a proper tune on it, this is speaking on behalf of the break in process itself.

### **Post Start Process:**

After the engine has been started, immediately confirm there are no leaks and the engine is running properly. Do not let the engine continue to run if it is misfiring, stalling, or stumbling. The first minutes of this engine's life is the most important, so do not carry on if you have any issues. Slight hesitations are normal for the first 30 seconds while the pistons get hot and the ECU is in CSER Mode (Cold Start Emissions Reduction). Anything beyond that, do not continue.

If you have paired one of our cylinder heads with our shortblock, or purchased a fully assembled longblock from us, after the engine is started hold the accelerator pedal slightly to keep the RPMs at 2500rpm for 30 seconds to break in the camshafts. If you are running a stock head this does not need to be done.

Let the car warm up completely before turning it off for the first time. During the warm up we recommend giving it a few blips of throttle just to get some RPM in it. Do not rev it to the moon, keep revs under 4000rpm. For the first start we are just trying to minimize how much time it spends sitting at idle. After it is fully warmed up, the car is ready to be buttoned up to start the driving break-in process.

### **Initial Break-In Process:**

As mentioned above the first minutes of the engines life are the most important. Second most important part of it's life is the first drive and how the car is driven. After you have confirmed no issues with the car and it is ready to drive, do your first break-in drive. This will be done with the same break-in oil in the engine. **You will not change this until you reach 50 miles.**

Keep RPM's under 5000rpm and accelerate steadily with under 15psi of boost. Boost is GOOD for the first drive, don't let anyone tell you different. Boost promotes proper ring sealing and helps with getting the cylinder walls properly broken in. We aren't talking about WOT pulls, we are talking about a nice steady throttle through the gears while keeping boost under 15psi. Any time you are **not** accelerating, you should be in gear, clutch out (use paddles if an Automatic), during decel to keep RPM's from dropping to idle and keep the engine in vacuum during decel. Drop down through the gears as you decel if coming to a stop.

**AVOID STEADY RPM AND HIGHWAY DRIVING! Do not hop on the highway and set cruise to get your miles in. Steady RPM is the devil, and not what Bobby Boucher's Momma would have wanted. This can glaze over your cylinder walls and cause heavy oil consumption/loss of compression.**

This process will be repeated for the first 50 miles on the engine, then you will swap the engine oil out for fresh break-in oil. We don't like to keep the initial oil in the car for long as it is collecting all the first start bearing material, assembly lube, ARP torque lube, and any shedding from coated pistons.

After new oil is swapped into the engine it is time to start the tuning process with us or your tuner. The first initial tuning will be conservative and around 20psi max, so let your tuner know that we recommend this for the second part of the break-in process. You will do your normal full throttle logs and any other logs that we or your tuner request. Once the initial tune is completed you will run the break in oil for an additional 200 miles and swap for your running oil. We recommend Amsoil Dominator 15w50 as mentioned above.

### **Final Break-In:**

Before max power tuning we would like to see at least 900-1000 miles on the engine. So from 250-1000 miles you will run on the same conservative tune and limit your highway drive time or driving at any steady RPM to under 20 minutes at a time. No road trips just to get your miles. It's not Pokemon, you don't need to collect them all, you need to work those miles for best results!

Once you reach your 900-1000 miles, you will want to do the following inspections and re-torques.

1. If running an ARP Crank Pulley Bolt we recommend retorquing it. It is torqued to 175ft-lbs and will require a crank pulley holding tool. OEM Crank Pulley does not need to be retorqued.
2. Spark plugs should be pulled, inspected, and reinstalled. If any concerning colors or marks on the plugs are present - replace them. Cheap insurance.
3. Check again for any leaks and make sure fluids are all topped off.

You are now ready for full power tuning and any additional fuels you want to run. Your first oil change of your running oil should be at 2000 miles, then normal oil change intervals of 5000 miles from there.

If you have any questions at all, please email [tuning@adamtuned.com](mailto:tuning@adamtuned.com) directly.