



www.pure-motorsport.co.uk

01841 531102

Race Engine First start and Running in Procedure

Checking prior to first start

Priming The Engine

Proper RPM's

Run Times

Oil Type and Oil Change Intervals

Checking prior to first start

Thoroughly inspect all moving parts during the removal of your old engine and installation of the new one. Check the clutch isn't dragging or binding and there is slack in the clutch cable allowing the thrust bearing to fully release.

Check all levels, engine oil, coolant, gear oil, fuel (we recommend Shell V Power).

First fill of the engine oil should be a good quality running in oil. Bleed all air out of the cooling system using the bleed screws on heater pipes (if you have them) and the bolt on the thermostat housing.

If the heater is removed make sure you haven't just joined the pipes together as this will bypass the radiator. They both need to be blanked off. You will also need to drill 4 x 5mm holes in the top of the thermostat flange so that coolant can flow through when shut otherwise the engine coolant may boil before the thermostat opens.

Priming the Oil Pump

Remove the spark plugs and crankshaft position sensor (CPS) plug and crank the engine until the oil light goes off or you see at least 30psi on your gauge.

Ensure you're making pressure while turning the engine with the CPS unplugged otherwise you risk flooding the engine with fuel as the ECU tries to start the engine.

If all is good, fit the spark plugs, connect the CPS, and start the car using a small throttle opening.

RPM and Engine Run Times

After the first start, let the engine run for 20 minutes at gently varying speeds between 2000 and 3000rpm. Do not blip the throttle continuously as this adds lots of transient fuel enrichment – just be gentle on the throttle!

It is critical to vary the RPM's for proper camshaft break-in and to ensure the piston rings and moving components are properly run-in. Throughout this period make sure the engine isn't left to idle. Check that the coolant is circulating properly, bleed

if necessary and ensure the thermostat opens and the radiator gets hot from bottom to top. Ensure cooling fan is working.

After the first 20 minutes, inspect for oil, coolant, or fuel leaks. If all is good, take it on the road if possible. Driving periods vary based on application, but no less than 30 miles is recommended. Head off to a low traffic area, where you can do long pulls at low load followed by engine braking back down to idle. This process is called "Vacuum Pulls" and helps seat the piston rings. Repeat no more than 50 miles and avoid open throttle and full boost scenarios. Watch your gauges like a hawk.

If you can't use the car on the road and you are bringing to us for mapping, the bedding in procedure will be done on the rolling road during mapping but the initial start-up must be done to ensure it's ready for the dyno session.

Oil Change Intervals

Initial start-up requires running-in oil and a new oil filter.

This oil will be in the engine from initial start up to the 50 mile mark. Change the oil at 50 miles, and again fill with running-in oil and run using the process outlined about for another 450 miles.

At 500 miles or after the rolling road session, you'll change the oil once again with a good quality fully synthetic oil and a new filter.

After this we recommend replacement after every couple of race weekends or 1-2 hours of use.

If you get stuck please ring for help and advice.

www.pure-motorsport.co.uk

enquiries@pure-motorsport.co.uk

01841 531102