

THE EXTRA MILE

Engine Building and Power Techniques

BY SCOTT SEHR



Absolutely. The Most Motor For Your Money! *Guaranteed*



Lighting up the candles

Now that our engine is all together its time to move it into our dyno room and install it on our dyno chassis and prepare it for fire up.

Once the engine is installed on our dyno and hooked up to the dyno brake, we install the carb and fuel lines, cooling hoses, headers, pyrometer probes, oil filter pre-screen and pressure line and O2 sensors. The appropriate oil and filter are installed and we hand prime the oil system with the valve covers off to verify that we have complete oiling to all areas of the engine before we light the fire. Once we have established a steady oil pressure and each of the 26 points on our checklist have been completed we are ready to begin with initial fire up and break in. As the criteria are met they are logged and initialed by the person responsible for the check.

We connect the throttle linkage to the throttle on the dyno council and check for full open and fully closed throttle positions. The engine is brought up to TDC and the distributor is in stalled, the fuel cell is filled with the type of fuel the engine is designed to run on and we pressurize the system and check for leaks and set the pressure. At this point we stop and back up to re-confirm that all the steps on our checklist are good to go. The timing light gets hooked up and we are ready to light the fire. Our first order of business upon fire up is to get the timing set. This is typically done at 2800 rpm to insure that we have full mechanical advance when we lock it down. Our performance engines are designed and built to run without vacuum advance.

Initial fire up is done without the choke being hooked up; we hook up the choke and set it for cold start after break in and cool down are done, usually the following morning. All engine controls are run form the dyno council from which all of the engine vital signs are monitored. There is also a read out in the dyno room and if anyone even thinks they see or hear something out of the ordinary, they have the power to abort the run. Initial fire up is the most critical time in an engines life, those first 20 minutes of run time can spell success or failure for any engine. Because those first minutes are so critical, it's imperative to establish the correct timing and jetting as soon as possible. For this very reason we do not put the engine under any load until we are sure we have it right.

Now that we have everything checked, set and ready to go it's time to do a light load. We use all of data logged from exhaust gas temperature probes for each cylinder, O2 sensors, fuel pressure and flow rates etc. to get all the power and do it safely. Our customers get the extra miles because we go the "Extra Mile."



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