

**C4 - L98 CORVETTE ENGINE INSPECTION DIRECTIONS**  
**PERFORM THE FOLLOWING CHECKS PRIOR TO INSTALLING YOUR**  
**SUPERCHARGER SYSTEM AND/OR A NEW INTAKE MANIFOLD SYSTEM**

1. First & foremost you must drive and baseline the designated vehicle. It is absolutely imperative that no work be performed on the said vehicle before baselining. Baselining consists of the following:
  - a. Monitoring fuel pressure at idle (38 psig) and WOT (45 psig).
  - b. Check to see that the initial timing is somewhere between 6 to 8 degrees BTDC.
  - c. Scanning the engine 'ECM' for any trouble codes.
  - d. Scanning the engine 'ECM' at a hot idle and determining if the Block Learn is with-in an acceptable range, i.e. 128 plus or minus about 5% (120 to 135 is acceptable) although 128 is ideal. Higher or lower is indicative of a problem (that very well may be corrected upon installation of your new components).
  - e. Scanning (take a 'Snap-Shot') at WOT and recording the O<sub>2</sub> millivolt reading as well as the Knock Sensor, looking for degrees of knock retard.
  - f. Check the IAC counts at hot idle – should be between 30 – 50 counts.
  - g. If a 1985 thru 1989 vehicle check the TPS voltage. Should be .56 vdc<sup>1</sup>
  - h. Carefully listen to the vehicle radio/stereo and be sure there is no ignition noise or alternator whine. Be sure to listen to the AM radio where ignition noise may be most prevalent.
  - i. Check for excessive 'blow-by' by removing the engine oil fill cap and observing at hot idle any 'fumes' from fill area. Ideally there are no 'fumes' or smoke. Especially important is that there is no 'puffing' at the oil fill – a sure sign of excessive blow-by or worse yet a cracked piston.

Drive the vehicle for at least 25 miles in both city & highway conditions, making sure there are no "drivability" issues.

You must make sure that the transmission, if automatic, shifts properly and that the exhaust system has no leaks. Even a tiny leak at the exhaust manifold(s) will result in false O<sub>2</sub> readings.

These vehicles are equipped with a single wire O<sub>2</sub> sensor which is acceptable if running the stock exhaust manifolds. If headers are being installed it is mandatory to change the O<sub>2</sub> sensor to the 4 wire style – power for the heater circuit may be picked up at the fuel pump relay. Even with the stock exhaust manifolds it is a good idea to upgrade the O<sub>2</sub> sensor to a 4 wire. It is also a good idea to weld in an extra O<sub>2</sub> bung for a wide band A/F meter.

If using the on-board O<sub>2</sub> sensor thru a scan tool to determine your A/F ratio the MV (milli-volt) readings should be between 850 & 900 mv @ WOT. 850 is like 13.0:1 and 900 is like 12.5:1. I say 'like' because the on-board O<sub>2</sub> sensor is what we call "narrow-band". That is to say they are extremely accurate at 14.7:1 but kind of miserable outside that range. Narrow band O<sub>2</sub> sensors are ideal for emissions control and cheap. That's why the OEM's use them. If that's all you've got to go by its OK and certainly better than nothing.

A much better solution is to install a wide band O<sub>2</sub> sensor and read out such as the PLX Devices M-300 meter. The M-300 is no bigger than a pack of cigarettes and sits right on your dashboard. It comes with a wide band O<sub>2</sub> sensor and is easy to install.

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2. After driving the vehicle for at least 25 miles and having performed the entire baseline checkout, install the supplied new in-tank fuel pump and if supplied in-line fuel pump assembly and wiring harness. Change the fuel filter – this is absolutely essential – do not skip this step. Again - road test the vehicle. If all is OK you are now ready to tear down and change the intake system, throttle body, ignition wires, spark plugs and fuel injectors.
3. Chevy small blocks are notorious for oil leaks at the rear of the intake manifold by the distributor. We recommend that when you are ready to install your new intake manifold do so as follows. Engine block has been cleaned and properly prepared. Dry fit the intake manifold with the new intake gaskets in place. Be sure all holes line up etc. Remove the new intake manifold. Use a high quality silicone sealant and lay down a very thick bead at the front and rear block rib. Use no gasket – only the silicone sealant. Set the intake manifold in place allowing the silicone to squeeze out. Install all the intake manifold bolts, BUT, only finger tight !!! Allow the sealant to set-up for a minimum of 24 hours. Now torque the intake manifold bolts. What you are doing by letting the sealant set-up for 24 hours before torqueing is preventing it from squeezing out too far and either creating a leak or worse having some of the sealant fall into the engine valley.
4. Install the supplied spark plugs, ignition wires, fuel injectors and finally the new Mem-Cal Pack. This may be a good time to change the cap & rotor if worn or corroded.
5. When installing the new ignition wire set be sure to match up the wire lengths and install exactly as per factory stock. Do not allow the ignition wire set to come any closer to the firewall than the original factory wires for fear of introducing ignition noise into the radio.
6. When reinstalling the engine coolant be sure to use only distilled water. Shoot for a ratio of 60% water and 40% glycol. Too much glycol will contribute to overheating. Purging the air from the system is best done by allowing the engine to idle for 20 to 30 minutes with the surge tank fill cap off – allowing entrained air to escape. Don't worry if it overflows at first the level will settle out eventually. While it is idling check that the engine coolant fans cycle on and off at the new set points – typically 180 to 190 degrees F. After purging, cap off the surge tank and fill the coolant overflow tank to the top.
7. With the engine at a hot idle check the IAC counts. Adjust the mechanical stop on the new 58mm throttle body such that IAC counts are somewhere between 30 to 50: same as the stock set-up.
8. Initial timing should be stock, i.e. 6 to 8 degrees max BTDC.
9. Now repeat your entire baseline and road test and compare all readings. There must not be any “issues” prior to beginning the supercharger installation.

Assuming all is OK it is now safe to begin the S/C install. If you have any questions prior to beginning the installation be sure to call us @ 201-891-4690. Good Luck & enjoy !!!

### FOOTNOTES:

1. If the TPS voltage is too high, the ECM won't enter idle PID control, so the IAC will be controlled by the warm Park position table and TPS position. Basically it will add IAC counts and cause a high uncontrolled idle.