

## Vehicle Maintenance Checklist

Basic maintenance is essential to achieve good fuel mileage. Before installing the HAFC kit it is recommended that the vehicle be in good condition to benefit from the fuel savings the HAFC has to offer. Below is a list of items that should be checked before installing the HAFC kit.

- **Spark plugs** - Worn spark plugs should be changed as they are essential in igniting the fuel mixture. Even if your vehicle use platinum or iridium plugs they should be checked. Many vehicle manufactures recommend spark plugs be changed at 100,000 miles. If you have one of these vehicles and are under the recommended mileage you should still check the spark plugs. You can refer to your vehicles owners' manual for the recommended replacement intervals.
- **Air Filter** - A clean air filter is just as important to a running engine as the fuel in your gas tank. An engine is basically an air pump. Air comes into to the intake and then out the exhaust. If you were to plug the air coming in the engine would stall. Just as if you were to suffocate yourself you would die. A dirty air filter is one of the most overlooked maintenance items contributing to poor fuel economy.
- **Fuel Filter** - Fuel is the engines food supply, without it the engine would not run just as if you had no food intake you would not live. A clogged fuel filter will restrict the fuel flow to the engine robbing the engine of performance. Even a dirty fuel filter will contaminate the fuel causing poor fuel mileage.
- **Exhaust System** - Examine the exhaust system for leaks. An exhaust system with leaks would cause inaccurate readings from the oxygen sensor. Also you need to make sure the exhaust is not clogged or restricted. Look for dents from bottoming out dents in the exhaust could be to muck of a restriction. Remember the engine is an air pump; whatever air comes in must go out.
- **Catalytic Converter** - Many vehicles' today use more then one catalytic converter. It is very important that you check the catalytic converter for clogging or breaking up internally. This usually can be done by banging on the catalytic converter and listening for an internal rattle. Some vehicles use an oxygen sensor after the catalytic converter to monitor its condition. Even if your vehicle uses this set up its still recommended that the catalytic converter be checked.
- **Oxygen Sensor** - This sensor is responsible for determine if the engine is running rich or lean. It will send a signal back to the ECM so the ECM can make fuel mixture adjustments. Most cars today will have a check engine light on if there is a problem with the oxygen sensor. It is very important to monitor oxygen sensor activity with a scanner. A sensor which is switching slowly (rich to lean) may need to be replaced even though the check engine light is not on. The proper operation of the oxygen sensor is essential for the optimizer help increase fuel economy.
- **Distributor Cap & Rotor** - A worn distributor cap and rotor will cause a weak spark. A strong spark is essential to ignite the fuel mixture.
- **Spark Plug Wires** - Worn spark plug wires will leak voltage causing the spark plugs not to fire properly.
- **Engine Oil & Antifreeze** - Performing regular fluids changes is an important maintenance for good fuel economy. Engine oil that does not get changed on a regular basis will get contaminated with hydrocarbons. This is a very common cause of high HC levels in the exhaust.

These are the major items to be checked. However the entire maintenance should be reviewed by the installer to determine if the vehicle will benefit from the HAFC kit. A vehicle with a poor maintenance history should not be considered for the HAFC kit. A vehicle with a lot of mechanical problems also should not be considered for the HAFC kit.