

Heated Oxygen Sensor (HO2S) How-To

This information based on a first generation S-10. May be applied to any GM vehicle using a non heated sensor.

An Oxygen sensor cannot operate unless it has reached its operating temperature. By heating the individual oxygen sensors, they reach their activation temperature sooner than those without heaters. Once an oxygen sensor reaches the activation temperature, the sensor is able to monitor the oxygen content of the exhaust more accurately. The vehicle operates in Closed Loop status once activation temperature is reached. Thus, the VCMs Fuel Trim corrections reduce the vehicles total emissions. Vehicles produce fewer emissions when they are in Closed Loop than in Open Loop.

The heated oxygen sensors (HO2S) are mounted in the exhaust system where they can monitor the oxygen content of the exhaust gas stream. The oxygen present in the exhaust gas reacts with the sensor to produce a voltage output. This voltage should constantly fluctuate from approximately 100mV or high oxygen content--lean mixture, to 900mV or low oxygen content--rich mixture.

The VCM calculates what fuel mixture command to give to the injectors based upon voltage output of the oxygen sensor. Lean mixture--low HO2S voltage equals rich command and rich mixture--high HO2S voltage equals lean command. The heated oxygen sensor voltage can be monitored with a scan tool.

With a sensor in closed loop for the majority of your drive you will experience better drivability because the ECM will not switch from open to closed loop as often. You may also see an increase in fuel economy. So if you are still operating with a non heated oxygen sensor and wish to see some benefits this procedure may be for you.

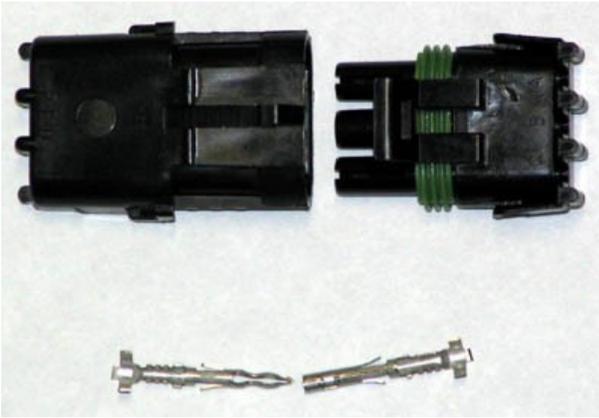
The first thing you will need is a new Heated Oxygen Sensor (HO2S). This author STRICTLY recommends buying an AC Delco sensor for your GM vehicle. Aftermarket sensors are just not as good.



Heated oxygen sensor GM p/n 25176708

This Oxygen sensor can be purchased at any GM dealership or a parts store carrying AC Delco parts. It is a common sensor found in 1990 to 1993 full size and S trucks. It is the same sensor for all gas engines.

The next part you will need is a new connector to plug into this new sensor.

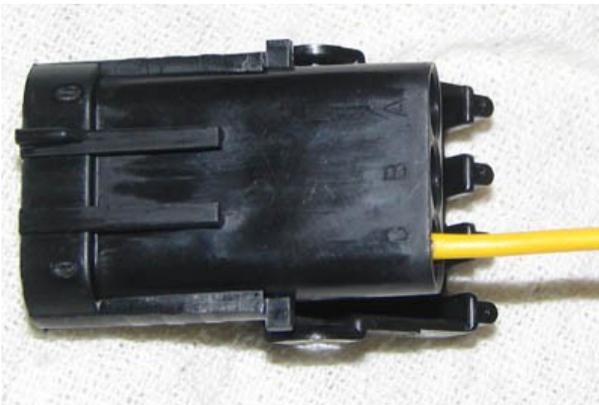


The connector will come with 3 male and 3 female pins and both a male and female connector. You will only need the female connector and male pins. This connector is available at most parts stores. If you cannot find this connector at your parts store, then you can use AC Delco pigtail P/N PT643 or GM P/N 12085484.

Now that you have all the parts it is time to get to work. Begin by removing the old sensor from the truck. Replace it with the new one at this time. Cut the old connector out of the truck. Take one of the pins out of package (being sure to use the pin that corresponds with the HO2S connector).



Strip the wire in the truck and then crimp and SOLDER the pin to the wire. When done leave it for now and move to a clean work surface. You now need 2 lengths of 18 gauge wire. Cut enough wire to string both a switched positive lead and a ground. Strip the ends of these wires and crimp and solder them to the appropriate pins.



Insert the 2 wires with their pins into the appropriate holes until they click in the connector.

- A=Switched 12V source
- B=Ground
- C=Sensor (purple wire in truck)

Now that you have your connector done take it over to the truck and insert your final purple wire. Plug your connector into the HO2S. Run the 2 new wires in the same wire loom that the existing wire is in. Be sure to keep away from the exhaust pipes. You now need to attach a ring terminal to your ground wire (B) and you can attach it to the nearest grounding screw on the firewall. Find a "Hot In Run" 12V source and splice into it with your remaining (A) wire.

Your sensor is now wired. To verify that the heater works you can turn your key to run (do not start the engine) and wait a minute or so. The sensor body should feel warm. The body will not be very

hot to the touch after just a minute but the tip will be. Now go out and enjoy your new found drivability. The most noticeable change will be the ECM's ability to stay in closed loop at idle.

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