

How to Replace Oxygen Sensors

I went looking for a “replace your O2 sensors for Dummies” tech article I couldn’t find one. This prompted me to summaries all the tips I collected from members on this forum and write one up. So here goes. First off I’m not a mechanic and I’m therefore only reiterating what of learnt from others. That doesn’t mean there is no other way of doing this, nor does it mean this is the best way. This is however one way.

Diagnosis

Estimations vary but generally speaking the functional life of O2 sensors is considered to be from 80,000km to 100,000km. They allow the ECU to provide a “finer” tune, therefore poor fuel efficiency is one of the symptoms of faulty sensors. The car will still run “ok” even if both sensors are not working (or even disconnected), all be it with a very rich mixture. Diagnosis is best done using software like Conzult or the like. Testing can only be done once the car is at operating temperature. First rev the car to 2000rpm and hold it there. The voltage of each sensor should continuously oscillate between 0.1 and 0.9V. If voltage is stable or operating in a narrow range they need replacing.

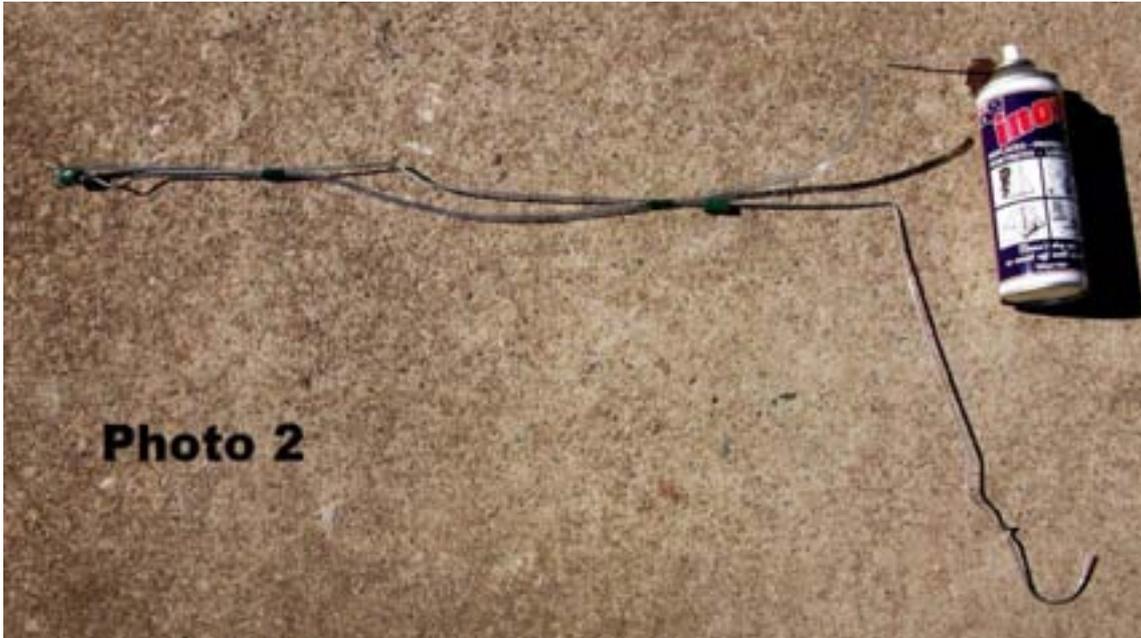
Before You Start

Please consider one piece of advice. You will need good tools. You will need a good quality ½ inch impact socket set with a number of extensions. You will most likely need a very good quality universal socket joint (Sidchrome – Part No. X4UJB), breaker bar, wobble bar and O2 sensor socket (Photo 1) and/or 22mm impact socket (more about these later). I highly recommend you also get a can of Inox, a coat hanger and about a metre of nylon tubing (Photo 2). It is possible to do the job without Inox, however it is highly recommended to use it. When you go to change your sensors, be aware it could be the first time they have ever been done, and this means they will be very difficult to remove. While changing my O2’s we bent an extension and broke a universal joint socket, so cheap stuff won’t do it in most cases.

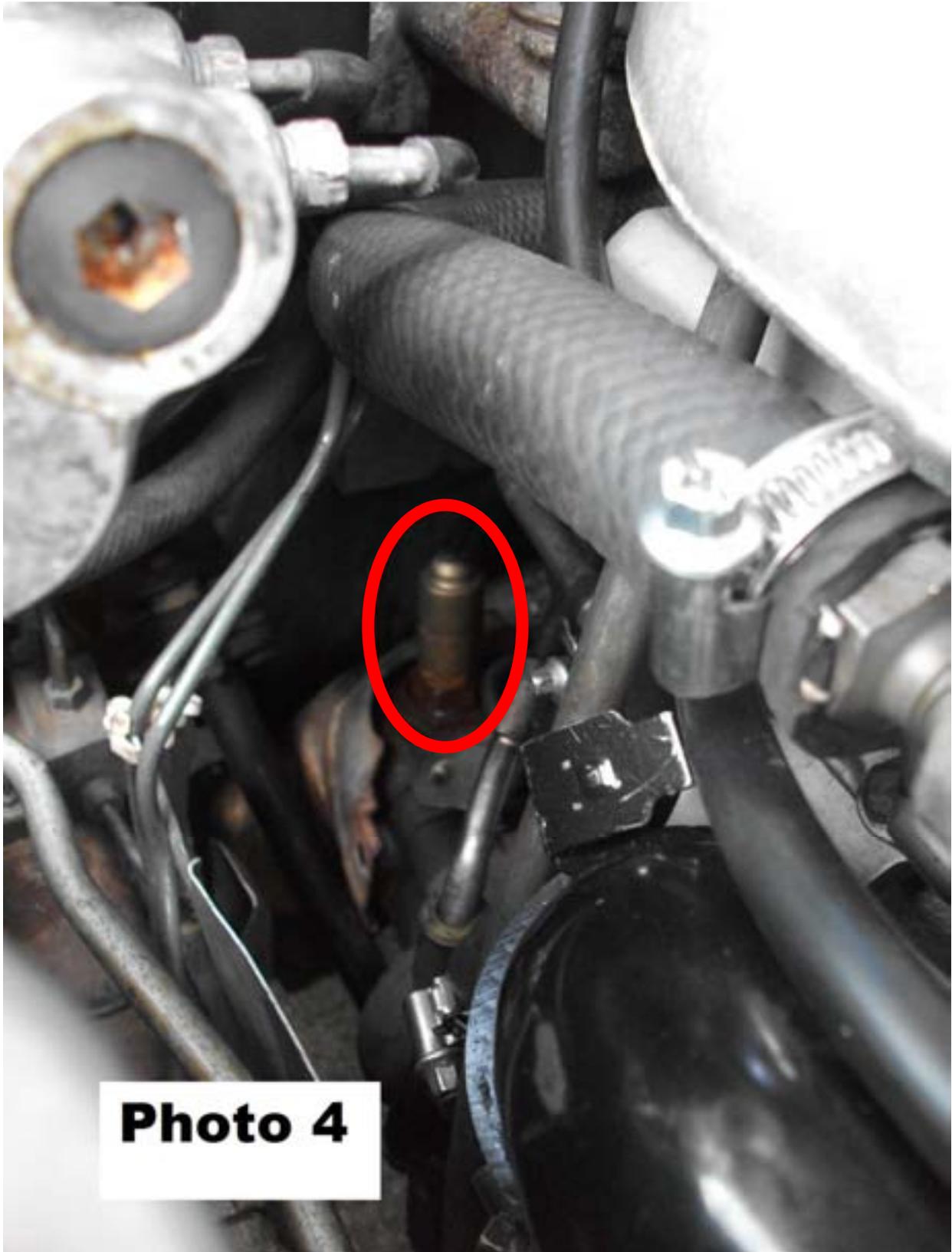


The How To

If possible, one week prior to removing the sensors soak both of them in Inox. Then reapply daily so that it has time to get deep into the threads and break down some of the corrosion. It was recommended that this be done for a minimum of three days. (A word of warning here, you will see white smoke from the area the next time you start the car as the hot manifold burns off the Inox). To help in the Inox application (the O2 sensors are difficult to reach with the Inox can) I purchased a roll of nylon tubing from the local hardware shop, and taped it to a coat hanger that I opened out (Photo 2). Using this I was able to quickly and accurately spray the base of the sensors each morning.

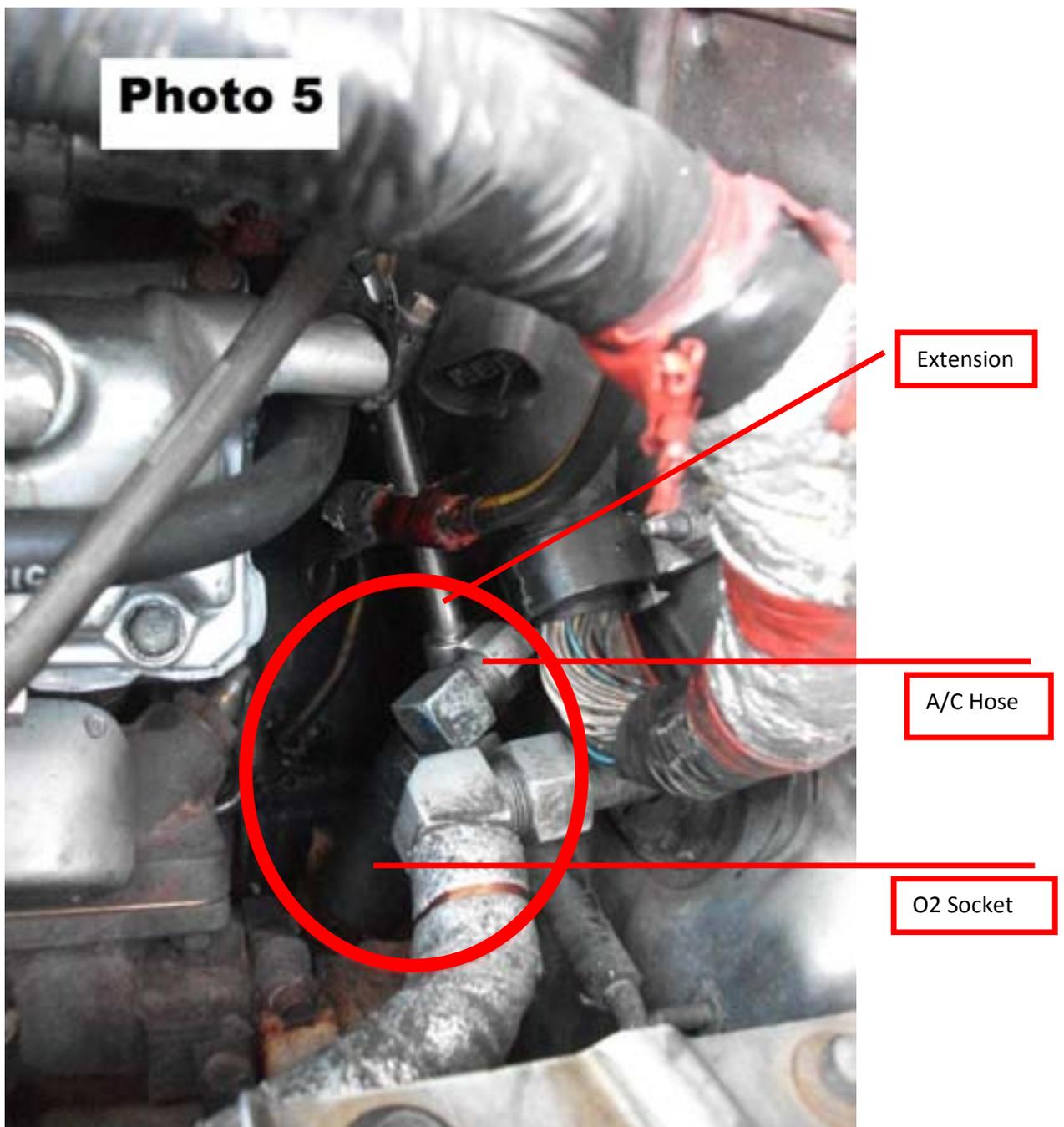


The O2 sensors are tucked back behind the engine on the exhaust manifolds, one on each side of the engine. The passenger side one is easier to see and reach with the battery removed (Photo 3). The driver's side one can be seen by looking down passed the brake booster (Photo 4).



The most difficult part of the removal is being able to get a strong turn on the socket driver / breaker bar. We found that although the driver's side was more difficult to get to, we were actually better able to get a straight line onto it with the socket extension. Once cracked it could almost be screwed out with fingers.

The passenger side was much easier to get to, but very difficult to get a straight line turn on it (Photo 5&6). The two problems were that the sensor was angled back toward the firewall, and the A/C hoses coming out of the firewall restricted access to the socket (Photo 5). Be very careful not to bend these pipes as they will likely crack and need replacing at even more expense. You can see in the photo below the extension coming down onto the top of the O2 socket right behind the A/C gas pipes. You can also see the angle between the socket and the extension. This is a very weak position to turn from and resulted in a broken universal socket joint. You may find using a wobble bar instead of the universal joint more effective but I am guessing this could be a car dependant decision. At the back of the engine bay I suggest you remove any electrical wiring in the way. This could be a great time to do some IAA (Idle Air Adjust) maintenance. There are only four screws and two electrical plugs to remove, and is important maintenance for these cars (see tech article). The electrical plugs on the IAA are also easy to damage when man handling a breaker bar in that area, so it's good to get them out of the way.





The problem with the O2 sockets is they have the slit down the side to accommodate the wires (Photo 1), which is also a point of weakness. Under high pressure from a breaker bar the slit can allow the O2 socket to spread, rounding off the sensor nut (as it did with this one). If this occurs there are three alternatives. Smash off the sensor and try to get a normal 22mm socket on to it (may be too late for that); smash off the sensor and try to get a socket on the hex boss nut the sensor is screwed into (if this can be removed, at least you can try to remove the sensor from the boss nut out on the bench); or lastly take it to a workshop to remove dump pipes for better access and let the professionals sort it out (this is costly so avoid rounding that nut off).

Good luck and I hope yours come out easier than mine did!!

Acknowledgements

Thank you to the following members for their contribution to the above information:

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