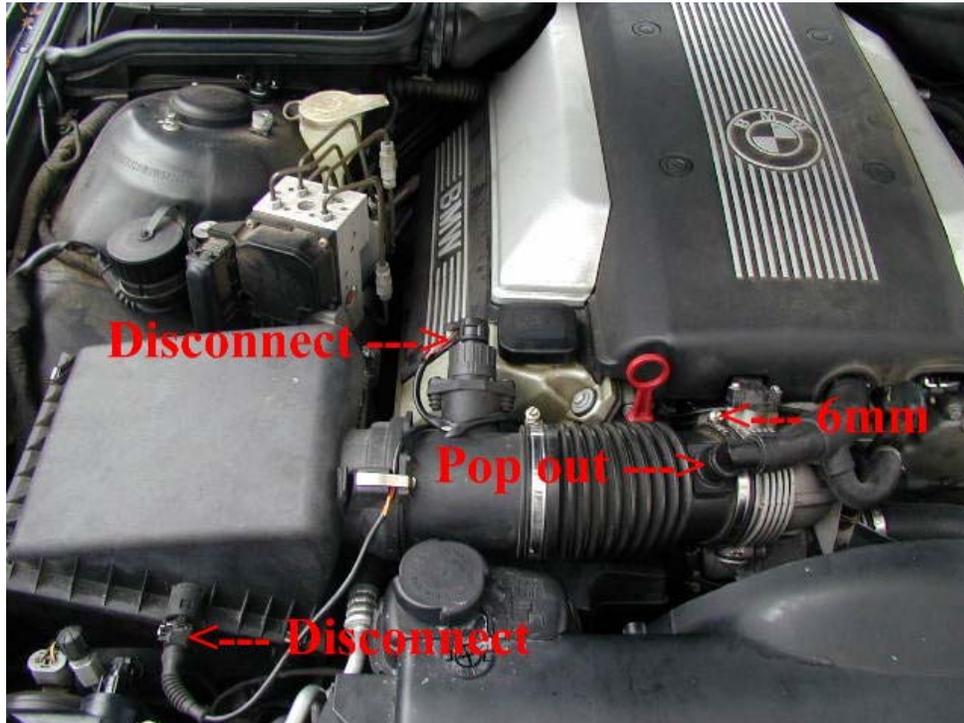


**M62 Camshaft Position Sensor (CPS) replacement**  
as performed on a 1998 BMW 540iA Sport by kowached @ Roadfly

**REQUIRED TOOLS:** 5mm Hex (Allen) Key, 6mm Nutdriver, and a 10mm Nutdriver. A Peake R5/FCX scan tool is also nice to have to reset the “Check Engine” light.

**REQUIRED PARTS:** A new CPS (12-14-1-742-185) and O-ring (12-14-1-748-398).

1. Remove the top of the air filter box by disengaging the 4 perimeter clips around the air box as well as the 2 clips that connect the air intake tube to the engine. Disconnect the electrical connection to the air box temp sensor and the Mass Air Flow (MAF) sensor. Pop out the tube that leads to the Idle Control Valve and use a 6mm nut-driver to unscrew the hose clamp downstream from the MAF:



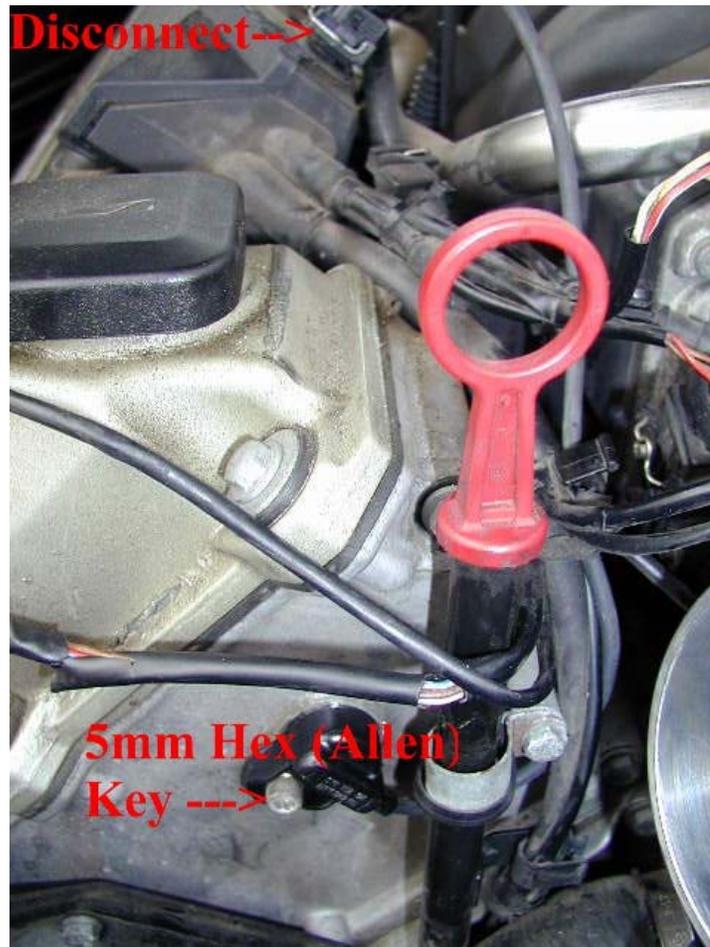
There's the Camshaft Position Sensor (below):



2. Remove the air intake silencer with a 10mm nut-driver:



3. Unscrew the 5mm Hex (Allen) Key that holds the CPS in place. Remove the engine cover and disconnect the electrical connector that goes from the CPS to the top of the engine. Yes, the connector end can and will slide behind the oil dipstick, but just barely:



4. Install the new CPS being sure to lightly oil the O-ring as you would the oil filter O-ring so that it seals properly. Be very careful to make sure that all intake hose connections are tight, any air leak between the MAF and the engine can cause problems.

\*\* Note that if you would like more growl in the 3000+ RPM range you can easily replace the air silencer box with a 1 inch PVC cap (not plug, cap only) and a hose clamp:



If you have a Peake R5/FCX scan tool ([http://www.peakeresearch.com/code\\_tool.shtml](http://www.peakeresearch.com/code_tool.shtml)), now would be a good time to reset the check engine light.

**Below is just how everything happened with my car, it may help in your diagnosis:**

Message Title: **HELP: Dead E39.**

Just driving along and no sound, no nothing, engine dies. Got it restarted after a few tries, and it drove fine for a mile or two. Made it to a friends house and let it cool down with the hood up (30 degrees outside) for 10-15 minutes. Car started up and ran fine for 5 miles, died. Waited another 15 minutes and drove it 2 miles to another friends house and left it there.

I'll hit it with the Peake Code Reader tomorrow, but it sounds like Cam Position Sensor symptoms.

What do you think?  
Thanks,  
Dave

Message Title: **UPDATE: Dr. Peake says E (nothing), then...**

This is a follow on to my post below: <http://bimmer.roadfly.org/bmw/forums/e39/forum.php?postid=1370915>

So I hook the Peake up to the car this morning and it gives me an "E", which not only provides no diagnostic information, but means that there is a data communication problem. GREAT, without error codes it looks like a \$ to the dealer. But thanks to Roadfly and you guys I decided to inspect the Camshaft Position Sensor and the MAF for "physical damage" before having the flatbed come and take her to the dealer. MAF, looks fine. CPS, looks fine. Note, I was just looking for obvious physical damage, either could have been electrically shot. When re-assembling the intake system I noticed that the Idle Control Valve (silver can on its side at the top front of the engine under the cover) was wobbling as I was reconnecting the intake hoses. I touched it and it almost fell off, its clamping system was loose and the part that sits in the intake manifold was not all the way in. SWEET! So I properly attach it and the rest of the stuff and start her up no prob. Shut her down and clear the check engine light and triumphantly get on my way.

About 5 miles later on the freeway I'm dead on the side of the road. So while I'm waiting for the flatbed I installed the eye hook in the front bumper (you all need to lube your threads) and decided to play with the Peake tool again. Hook it up and hit GO fully expecting an "E" when "70" comes up! Flip through the book find 1998 540iA DE63 - use chart 14. So what could

be on Chart 14 error code 70? Camshaft Position Sensor, the very piece that I had in my hand an hour ago.

Well, no dealers are open on the weekends (not that I wanted to pay their price), so I'll wait until Monday and try Pacific BMW and Creiver BMW to see who has the best price, and if the price is right I'll get 2 because it is common part to fail and can easily be kept in the trunk and can be replaced in 10 minutes with a screwdriver and a 5mm hex (Allen) head wrench...

Thanks,  
Dave

**CPS failures** seem to happen suddenly with no warning. My CPS was fine until the engine warmed up, then it would fail.

Roadfly CPS Posts:

<http://bimmer.roadfly.org/bmw/forums/e39/archives/forum.php?postid=629417&page=3>

<http://bimmer.roadfly.org/bmw/forums/e39/archives/forum.php?postid=627714&page=3>

**MAF failures** that I read in the Roadfly archives sounded like gradual failures, or started out only at a certain RPM before failing completely. I have had no previous stumbling or stalling. The power cutting out part sounds dead on, but also a symptom for the CPS.

Roadfly MAF Posts:

<http://bimmer.roadfly.org/bmw/forums/e39/archives/forum.php?postid=626566&page=4>

<http://bimmer.roadfly.org/bmw/forums/e39/archives/forum.php?postid=599218&page=10>

**O2 sensor failures** also have similar symptoms but seem to be more gradual like the MAF failures, but also commonly cause reduced fuel economy (lower MPG) along the way.