



Crank Sensor Seal Replacement

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Crank sensor seal replacement for the R53

A discussion thread is here: <http://www.motoringalliance.com/forums/cooper-s-engine-drivetrain/11940-replacing-crank-sensor-o-ring-r53-discussion.html>

On almost every R53 that I've seen lately, the crank sensor is weeping at least a little bit of oil. When it is just barely leaking, you will get a growth of a black oil and road grime on the front of the engine block that looks like cauliflower gone very bad. As it gets worse, you will find oil running down the front of the engine and blowing back along the bottom of the oil pan. Luckily this is both a cheap and easy fix with a few tricks shared with me by the great techs at MINI of Dallas.

Parts:

You will need a new crank sensor o-ring for under \$2 at your local MINI parts desk: 12-14-7-514-983

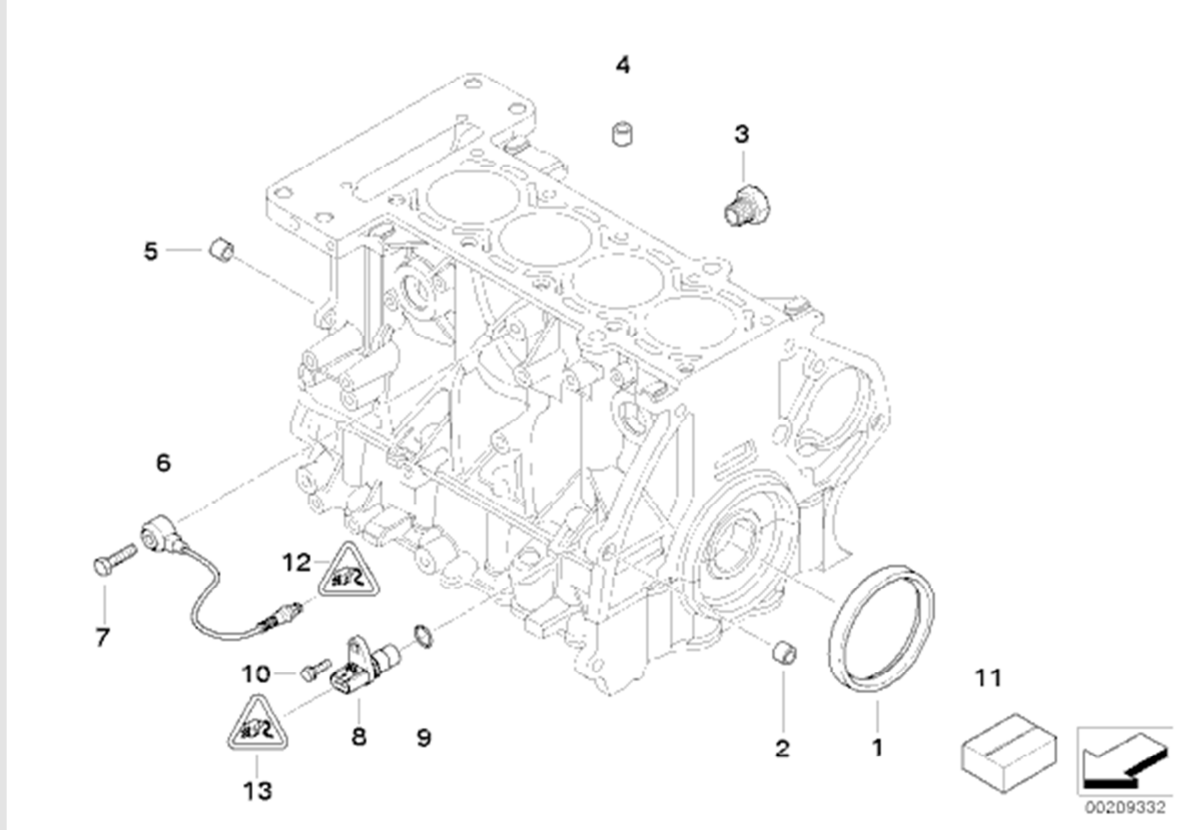


Figure 1: The crank sensor is part #8. You will need to replace the o-ring, part #9 and will be removing the small bolt, part #10, to remove and reinstall the sensor. Thank you, www.RealOEM.com, for the picture.

Getting to work:

Step 1: Lift the car and drain the oil if you want to do an oil change too.

I was lucky enough to be able to do this work on a full-sized lift, but it could be done by putting just the front of the car up on 2 jack stands. We drained the oil, changed the filter and reassembled everything (we will add the oil back later). Because the sensor is above the level of oil in the sump, you can do this job without changing the oil, but it is very convenient to do 'em both at the same time.

Step2: Find the crank sensor and clean things up.

The crank sensor is attached to the front of the engine block. It is between the engine block and the radiator fan. To get to it, though, you will have to remove a plastic shield, just behind the front bumper. Loosen the three 10mm bolts under the front bumper and turn the 2 Phillips head screws ½ turn until they unlock. Pull the panel towards the rear of the car to remove.

In Figure 2, you can spot it by looking for the wires that lead towards the front of the car. This one has been leaking for a while, but I had spent a few minutes wiping it off w/ a shop rag before I thought to take the picture. Now is the time to clean things up... remove all of the oil/dirt in the area to the best of your abilities. If there is a more serious leak, having a clean starting point will make diagnosis easier in the future.

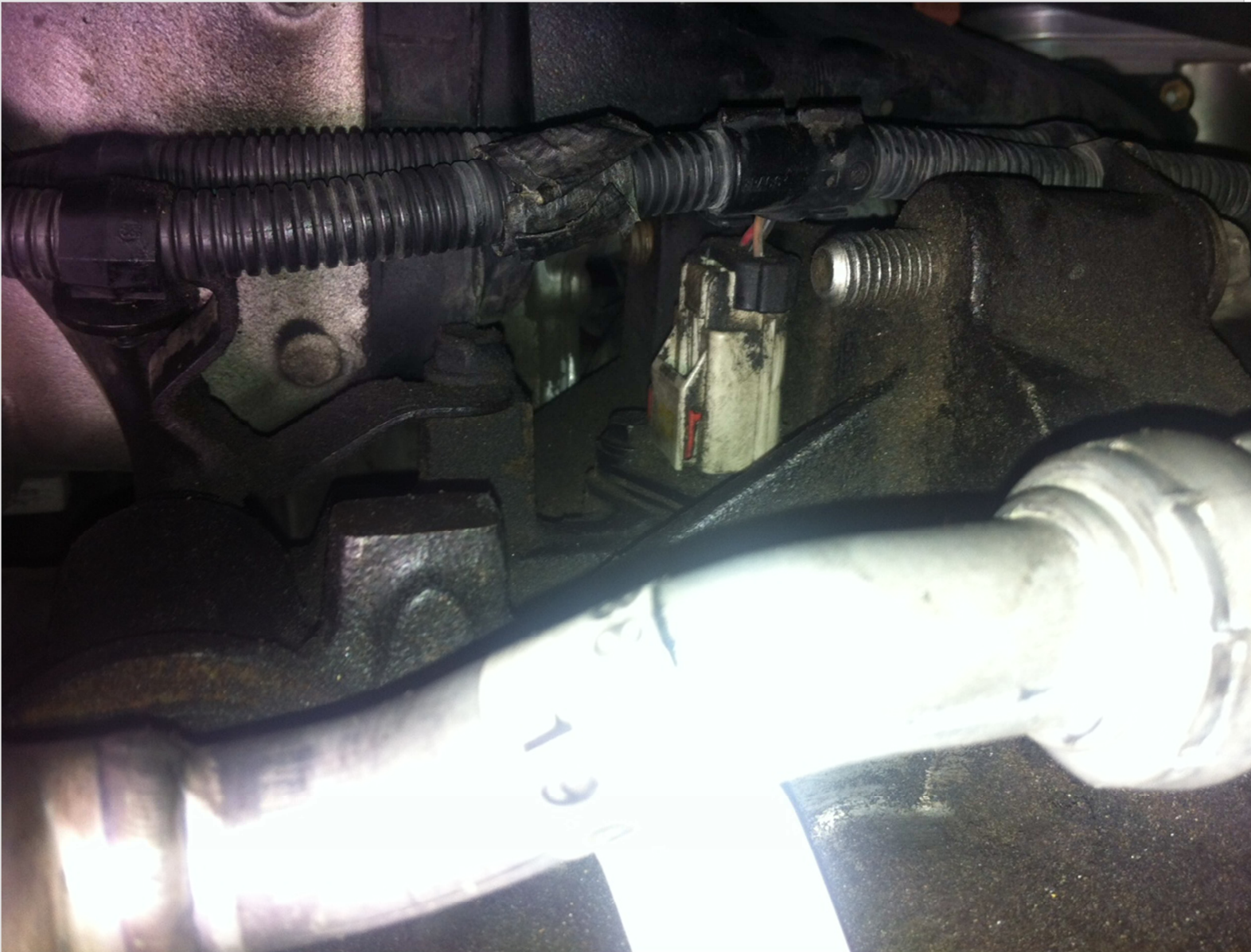


Figure 2: I took this pic from underneath the car, looking up. The bright object at the bottom of the pic is an air conditioning refrigerant line, to help you find the right place. The crank sensor is the white plastic object in the center of the frame

Step 3: Make some room to work.

You need to be able to get good access to the crank sensor. The techs at MINI of Dallas showed me a great trick. To get enough room to work comfortably and reach the bolt, you swing the engine back on the upper mounts. First remove the 2 bolts, marked with the yellow/green arrows, that hold on the power steering pump fan. The fan is light, so I just let it dangle by the wires. Remove the 2 bolts, marked in red, on the lower engine mount (aka: the 'Dog Bone') and pull it out.



Figure 3:

Now, attach a ratchet strap to the engine mount bracket and to a firm point farther back in the car and tighten the strap to rock the engine back. Note: As is pointed out in the discussion thread, pulling the engine back too far may stress the upper engine mount. Just pull the engine back far enough to get your hand in there and do what you need to do.



Figure 4

Step 4: Replace the o-ring.

Now you remove the 10mm bolt that is just above the crank sensor. The sensor will simply pull forward and you can carefully cut away the old o-ring, marked with the yellow arrow. Replace it with a new blue ring and re-install.



Figure 5

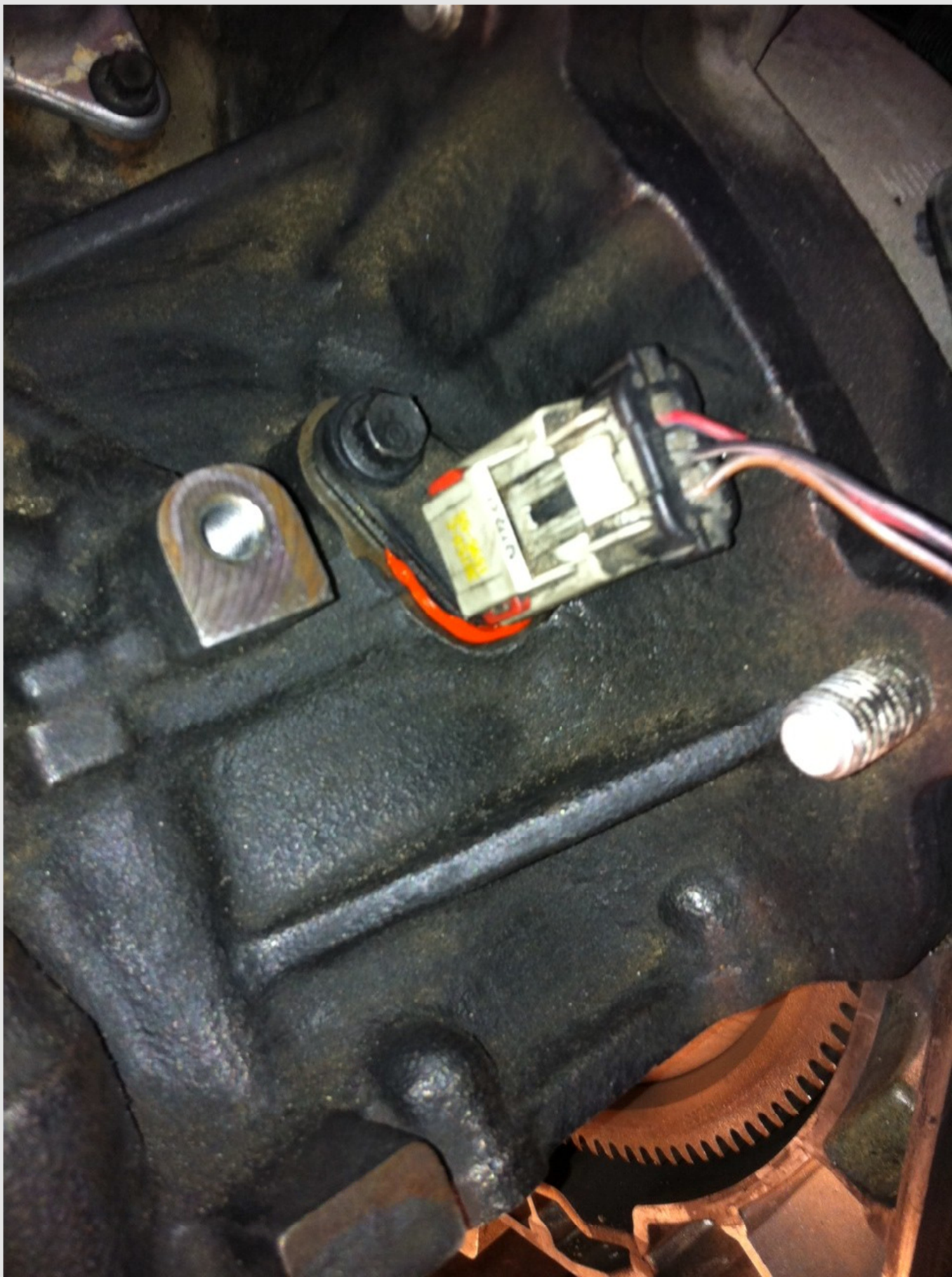


Figure 6: I added a bit of high-temp red RTV sealant, applied just above the o-ring, for a bit of extra sealing. It squished out a bit when I tightened the bolt. This is optional.

Step 5: Reassemble.

This is self explanatory... just put it all together in reverse order. Don't forget to add oil to the engine if you decided to do an oil change at the same time!