

Workshop ...

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DIY - Servicing/Changing Oil Control Valve (OCV) filters/strainers

Started by Kenshin X, March 2, 2011

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Kenshin X

Posted March 2, 2011 · Report post



□□□□ 2ZZGE

□□□□□□□□□□□□



Management

MANAGEMENT

□ 69

5,680 posts

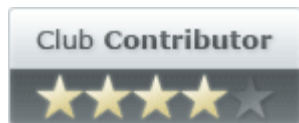
First Name:□□

Gender*:Male

Toyota Model:□□□□ALLEX

Year: 2003

Location: Victoria



Disclaimer: Neither TOCAU nor me take any responsibility if you damage any part of your engine/car during this DIY. Ensure you have the proper tools before commencing any type of DIY work.

OK folks, many of you who have the ZZE12x Corollas with the 1zz-fe and 2zz-ge engines might find this useful to do. Oil control valves (OCVs) are used in today's variable valve timing (VVT) systems to regulate the oil pressure throughout the engine to maintain correct oil pressure when the engine is running. I'm going to show you how to service/clean the valves and filters. In the 2zz-ge engine may help with quieting the "tractor noise" (the 2zz-ge engines will always have the tractor noise) during idle and may help with the "P1693" code that shoots out when lift isn't working etc. its also a good idea to do this with the engine cold so that the metals of the engine block doesn't expand so you might cross thread the bolts/nuts etc.

please note that the OCV strainers/filters are NOT interchangeable and maybe different across the years that the 2zz were produced. always check with your toyota dealer for these parts against your VIN number to match them 100%

Things you need:

10mm ratchet socket with extension

sharp nose pliers

electronic tweezers

14mm socket

solvent cleaner of choice (i just used my MAF sensor cleaner as its safer on plastics and the VVT OCV filter has plastic bits on it)

old toothbrush

old rags

Here are the two filters you need to change/clean. I just bought mine from toyota for 20 bucks for both so i ended up just changing them.

The left one with the black plastic is the VVT OCV filter and the right full metal is the VVTL OCV filter.



VVT OCV filter location (driver's side front of the 2zz and 1zz location is the same) the bigger thing with the plug connected to it is the valve. the bolt underneath is where the filter sits



Stuff some tissue under the bolt and use the 14mm socket wrench to loosen it and remove (small fingers help)



More often than not the filter will be removed with the bolt. In my case, not so much because you can see it sticking out abit. Never fear, this is when the tweezers come in handy. Take care in taking it out, you don't want it to fall somewhere in the engine bay (takes alot of swearing and cursing to find it again)



Picture of dirty > clean > bolt. As you can see the dirty one has a few chunks blocking the oil flow through the strainer. my engines done approx 120,000 kms so its pretty clean for an engine that's done that much mileage.



Now clean the filter with solvent and the toothbrush or replace it and the bolt and washer and attach it to the bolt like this



...and put it back in the engine and tighten the bolt.

make sure that you attach the strainer onto the bolt as shown above otherwise you WILL run the risk of crushing the filter.

with the OCV loosen the bolt with the 10mm socket ratchet and remove from the

engine bay. clean and let dry and put it back inside. However there is the oil pipe that's blocking the ocv from coming out. this is what you have to do to get to it:

- remove the accessory belt
- remove the top bolt of alternator
- unplug all wires from the alternator
- loosen bottom bolt of alternator
- pivot the alternator forward
- remove bolt that holds the oil dip stick
- remove the two nuts that hold the oil pipe into the block (located just above the vvt-i ocv)
- oil pipe should come out with a bit of leverage from a screw driver
- out comes the vvt-i ocv!

picture of it from a celica forum (i forgot to take a photo with mine)





VVT OCV and filter done! 

1 person likes this



Kenshin X

□□□□ 2ZZGE
□□□□□□□□□□□□



Posted March 2, 2011 · Report post



Now for the Lift OCV

This is where its located on the engine: Passenger side on the side beneath all the pipes of the intake and oil etc.

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5,680 posts

First Name:

Gender*:Male

Toyota Model:ALLEX

Year: 2003

Location: Victoria

Club Contributor



1) remove the OCV plugs and temp sensor plug (3 in all)



2) use your 10mm socket ratchet to remove the earth wires (2)



3) remove the 2 nuts and 3 bolts that hold the OCV housing



4) slip the housing off the engine block (the rag will come in handy now as oil will leak out. i did it when the engine was cold so not much came out) you can see the small filter sticking out in the block.



The OCV itself should be bolted on to the housing. use your 10mm socket again to loosen it and remove the housing.





with the tweezers, take the filter/strainer out (this ones much easier than the VVT strainer 😞)

dirty compared to clean/new





clean the filter with solvent of choice and let dry/replace the filter with a new one. clean the housing and the VVTL OCV the same way and when they are all dry, put it back all together. also make sure the mating part of the engine block is wiped over as well to prevent oil leaking

now go for a blat and see if there are any oil leaks etc. don't worry if the check engine light appears, it maybe the momentary loss of oil pressure in the solenoid. i lost a bit of oil cleaning it and stuff.

Purpose of this is really to clean the gunk out of the strainers to help with the oil flow in the solenoids. both of my strainers weren't that dirty but i did notice a smoother transition across ALL the rev range until redline. This is a non-performance enhancing procedure unless you find that your strainer is completely blocked by the particles in the engine. this would manifest as lift not kicking in, horrendous fuel consumption etc. tractor noise during idle is somewhat lessened.

enjoy! :)

johnnieboi

Vitamin C

□ □ □ □ □ □



TOC Supporter

SUPPORTER

□ 6

1,568 posts

First Name:John

Gender*:Male

Toyota Model:Corolla Levin ZR

- ZRE152R

Year: 2008

Location: Victoria



Posted March 3, 2011 · Report post



Nice write up and photos man. Im sure it'll be useful when someone needs to do it. 🙌

thegourou20

Advanced Member

□ □ □ □ □



TOC Supporter

SUPPORTER

□ 0

Posted March 4, 2011 · Report post



□ On 3/3/2011 at 7:02 AM, johnnieboi said:

Nice write up and photos man. Im sure it'll be useful when someone needs to do it. 🙌

x2

535 posts

Gender*:Male

Toyota Model:Corolla Sportivo
2005 Facelift

vince0259

Newbie



Members

0

1 post

First Name:Vincent

Gender*:Male

Toyota Model:Pontiac Vibe GT
/ Matrix XRS

Year: 2005

Location: Other Non-Australia

Posted February 4, 2012 · Report post



Wow! Thats exacly what I need! But, how did you get the vvt filter (the one with plastic) out. I cant reach it with my tools. Did you remouve a part? Did you use a special tool? Thanks a lot!!!

Kenshin X

2ZZGE



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5,680 posts

First Name:

Gender*:Male

Toyota Model:ALLEX

Posted February 4, 2012 · Report post




just used tweezers or sharp tool.

Year: 2003

Location: Victoria

Club Contributor



SuperDave

April 2008 Member of the Month

□□□□□□□□□□



TOC Supporter

SUPPORTER

□ 17

4,467 posts

Gender*:Male

Toyota Model:2004 Corolla RunX

Club Contributor



Posted February 5, 2012 · Report post



Also note, that the VVT and VVL solenoids are a tight fit, and that they can break easily, so be sure to pull them out square in relation to their home in the head, not the ground. They aren't interchangeable either, so don't mix them up.

Torque settings from memory are about 10Nm on the 10mm bolts/nuts. It's only aluminium the bolts go into, so be careful not to over tighten and strip the thread.

Kenshin X

□□□□ 2ZZGE

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Gender*:Male

Toyota Model:□□□□ALLEX

Year: 2003

Location: Victoria

Posted February 5, 2012 · Report post



□ On 2/5/2012 at 3:23 AM, SuperDave said:

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Torque settings from memory are about 10Nm on the 10mm bolts/nuts. It's only aluminium the bolts go into, so be careful not to over tighten and strip the thread.

thanks for clearing that up Dave! though I remember I did read somewhere that they are interchangeable? I edited OP anyways :)

Club Contributor



Kenshin X

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Year: 2003

Location: Victoria

Club Contributor



Posted May 26, 2013 · Report post



just to let people know how bad a clogged ocv can look like... this one prevented my friends celica from hitting lift.

from the block...



amount of sludge i scooped out with a screw driver from the block...



the vvtl-i ocv housing...



as you can see from the left solenoid sensor, it was clogged up with sludge. i even left the lift ocv sitting there on the newspaper and went into the garage to help my friend with something else and when i came back, a huge glob of sludge dislodged from the ocv and splatted on the newspaper -_- <_<

sprayed it was carby cleaner and put it back in with some fresh oil and bang! LIFT!!! 🙌

jesterfilms

Newbie



Members

0

1 post

First Name:court

Toyota Model:matrix

Year: 2005

Location: Other Non-Australia

Posted July 7, 2014 · Report post



Love the pictures and descriptions. Does anyone know the parts numbers for the two filters?

Camry 2010 mileage 93K

Newbie



Members

0

1 post

First Name:Rebin

Toyota Model:camry

Year: 2010

Location: Other Non-Australia

Posted January 5, 2015 · [Report post](#)



it is possible that sludge causes rattle noise during cold start up ?

c3lica

Newbie



Regular Member

0

3 posts

Gender*:Female

Toyota Model:2002 ZR

Posted July 29 (edited) · [Report post](#)



does anyone know what the part number is for the ocv housing gasket?

better yet, any mechanics in SE Melbourne that know how to do this job correct and clean it?

I already have the filters.

Edited July 29 by c3lica

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