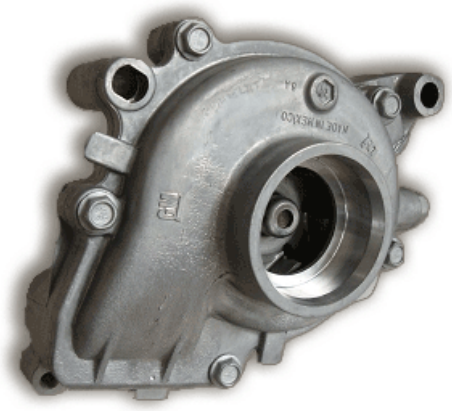
Solstice/Sky Water Pump Replacement
DDM-GM-12630084



The water pump on the Solstice/Sky is starting to need replacement on some
vehicles. This guide will help in replacing the water pump while the engine is still in the car and without removing the stock turbo.

If you have any questions during the install you can call us at (864) 907-6004 or email us at Tech@ddmworks.com

Before starting on replacing the water pump, please make sure that the engine is cool to the touch and has been sitting for at least 6 hours. The cooling system can build a lot of pressure and when doing the water pump, very hot pressurized water can spray out causing severe burns if the engine is not cool

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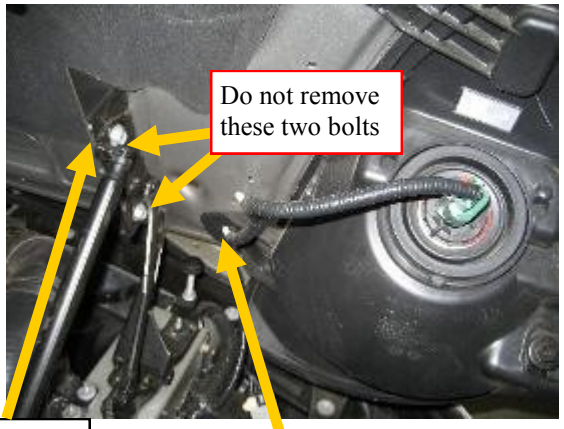
Solstice/Sky Water pump replacement

Step 1 Removal of hood (optional)

Although removal of the hood is not necessary when doing the water pump, it does make it much easier to do. Removal consists of removing only 4 nuts and with the help of a friend is very easy. If you are going to install the water pump without removing the hood, just fast forward to the next section.

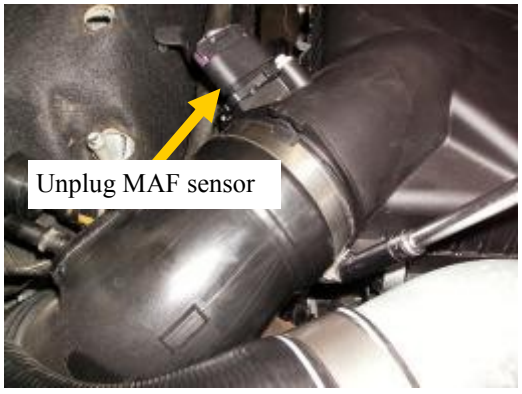
1. Disconnect the electrical connections on the back of the headlight.
2. There are two plastic retainers on each wire leading to the headlight that hold the wires to the hood. These retainers need to be pulled out of the hood.
3. Using a pair of pliers gently pull the plastic retainers out of the hood. The wires to the headlights should now be free from the hood.
4. Lay a blanket on the ground to set the hood on after removal.
5. Using a 13mm socket loosen the 4 nuts on the hood that are holding the hood to the hood brackets, make sure to have a friend help you support the hood and remove it from the car.
6. Now that the hood is removed it is time to remove the stock intake.

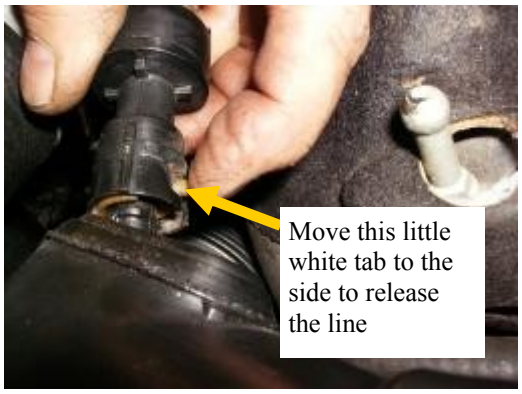


Step 1 Removal of stock intake

The pictures in this guide are from a 2.0L GXP water pump, so some of the steps/pictures will not match up with the 2.4L exactly, but the general steps are similar. Although the water pump can be changed without removing the stock air box, removing it does allow an easier time of it and is recommended.

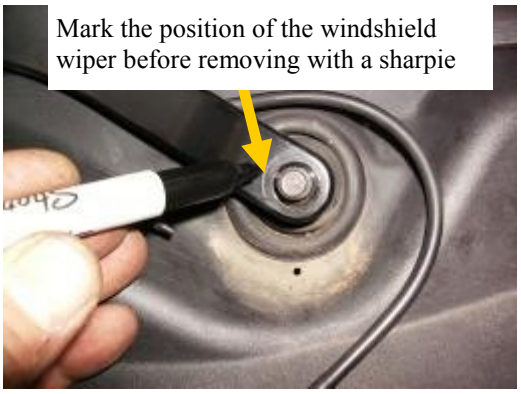
1. First start by removing the plastic engine cover from the engine.
2. In the stock intake tract there will be a wire leading to the Mass Air Flow meter (MAF). Disconnect the wire going to the MAF.
3. Now remove the clamp holding the stock intake tube to the air box and also the clamp holding it to the turbo.
4. There is a single stainless steel line with a plastic end on it going to the intake tube.. Be very careful as the plastic tube that this hooks to on the intake tube can be very brittle and likes to break. To release this line, push the little white tab over a little bit and then pull slightly, the tube will slide off.
5. Remove the entire plastic intake tube at this point and set it aside, also pop the metal clips holding the lid on the air box, and lift the upper portion of the air box off and set it aside.
6. Also it makes it a little easier to remove the heat shield from the turbo also. There are 2 - 10mm head bolts holding it on top, and a single 10mm head bolt on the side, remove all 3 and it will come off from the car.

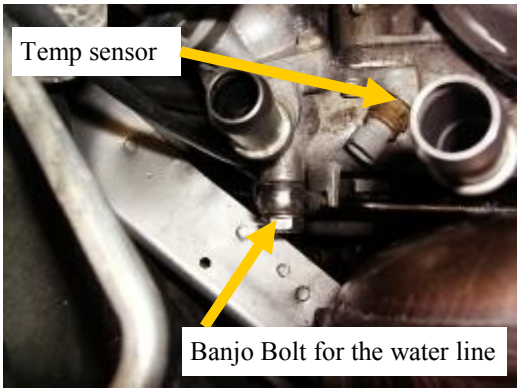




Removing the old water pump

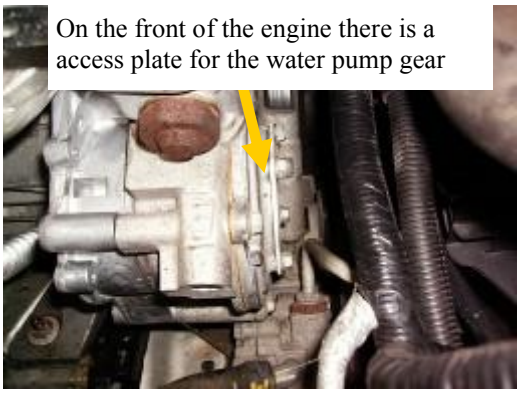
1. First is to place the front of the car up on jack stands, as you will need to be under the car for a couple bolts. Never work on a car supported by only a jack, make sure to place the jack stands in secure locations while the car is on level ground.
2. Next, you will need to drain the coolant from the system. Please make sure that the engine is cool to the touch and has been sitting for at least 6 hours.
3. On the lower passenger side of the radiator, there is a small white drain plug, loosen it by turning it counterclockwise until coolant starts to come out of the small hole in the radiator mount. Make sure to have a small bucket underneath to collect the coolant. Remove the cap from the coolant reservoir on the drivers side of the engine also as this will help drain the coolant quicker.
4. While the coolant is draining, remove the black plastic shroud in front of the windshield. To do this, first remove the windshield wipers. There is a small cap on the end of the windshield wipers, twist and pull on the cap and it will reveal a nut, sometime the use of a small blade screwdriver will help to pop this cap. Mark the position of the windshield wiper and the shaft that it goes on with a sharpie to make it easier to line up when re-installing.
5. Loosen the bolts holding the windshield wipers and rock them back and forth slightly to release them from the shafts that they attach to. To remove them completely you will need to pull slightly on the windshield washer line and pop them off of the nipple they attach to, then remove and set aside the wiper arms.
6. To remove the plastic shroud, pop up the plastic push locks (make sure to open the doors to get the ones behind there) and also remove the 7mm bolts that are holding it down. Once the fasteners are removed, lift up slightly and pull the shroud forward slightly and it will release from under the windshield. On the drivers side there is a windshield washer line that will also need to be disconnected before removing the shroud.
7. With the shrouding off, the next thing is to remove the rear thermostat housing. Start by releasing the heater hoses from the firewall. There are white clips inside the ends of the hose that you will squeeze and then pull on the hoses to get them to release.
8. Next the water feed to the turbo will need to come off. There is a banjo bolt on each end of the line, using a socket remove the bolt from each end of the line running from the thermostat housing to the center section of the turbo. The thermostat housing is located on the back of the engine, close to the firewall. It has a large rubber coolant line going into it. With the banjo bolts removed, the line does not need to be removed from the car, just loose enough to move around.
9. Next, remove the temp sensor from the thermostat housing. You will need to remove the electrical connection first, then a use a deep socket to remove the sensor.
10. To remove the thermostat housing there are 3 - 10mm head bolts holding it to the engine, remove all 3 bolts and the housing will be loose from the engine, slide it backwards at this point towards the firewall.

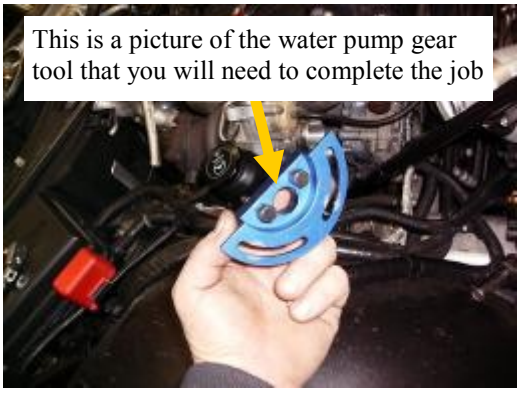


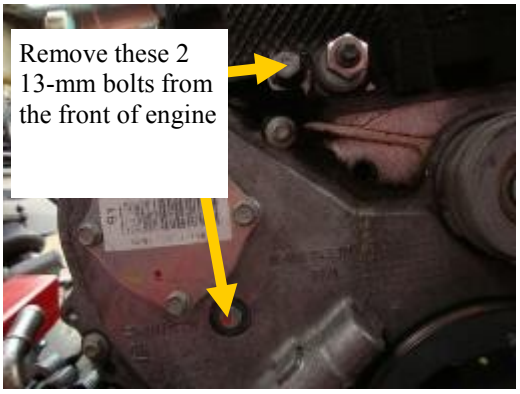


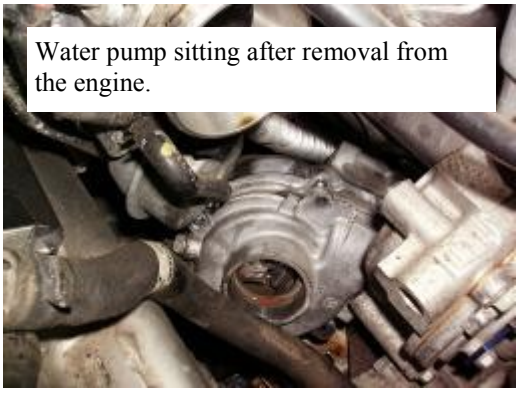
Removing the old water pump

11. While moving the thermostat housing backwards, there is a tube that goes from the front of the housing to the water pump, under the turbo. This tube may have come out of the thermostat housing or the water pump. It doesn't matter which end it comes out of first, go ahead and free the tube from both the thermostat housing and the water pump and remove it from the car.
12. It is now time to start removing the water pump. On the front of the engine is a access plate held in with 4-10mm head bolts, remove all 4 bolts and remove the plate from the engine. This will give you access to the water pump gear.
13. Using the water pump gear tool, bolt the tool to the front of the water pump gear. The water pump gear has threads in the front of it to accept the bolts in the tool. Once you get the tool to bolt to the water pump gear, use 2 of the 10mm head bolts that you just removed from the cover and bolt the tool to the front of the engine where the cover bolted to.
14. Once you have the gear secured, there are 3 bolts on the front of the water pump gear that need to be removed. They are 10mm head bolts. Using a 1/4" drive deep 10mm socket, remove those bolts from the front of the water pump gear. Be very careful when removing these bolts, you do not want to drop them into the engine. I suggest packing the end of your socket with vasoline which will help hold the bolt to the socket after you loosen it.
15. With the water pump gear secure, there are 2 13mm head bolts on the front of the engine that you need to remove (picture to the right)
16. The last 2 bolts holding the water pump are accessed from the back of the water pump along the outside edge of the engine. Once all 4 bolts are removed, the water pump will slide out.
17. The water pump will not come out as one piece, so you will need to remove the 4 bolts on the cover of the water pump to remove the cover. Once the cover is removed, the water pump will come out in 2 pieces from the engine.


On the front of the engine there is a access plate for the water pump gear


This is a picture of the water pump gear tool that you will need to complete the job

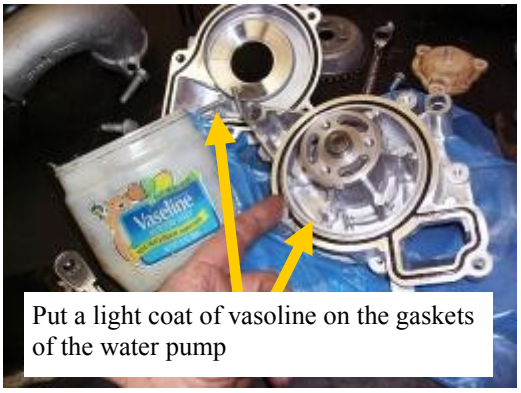

Remove these 2 13-mm bolts from the front of engine

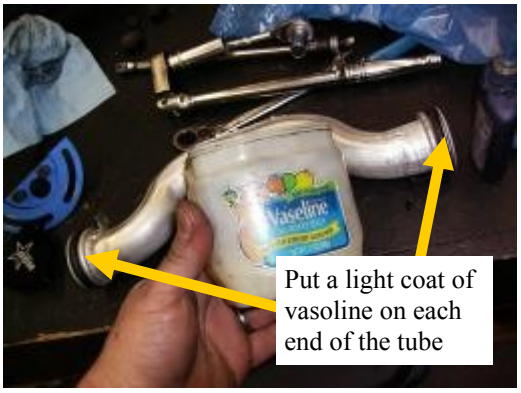

Water pump sitting after removal from the engine.

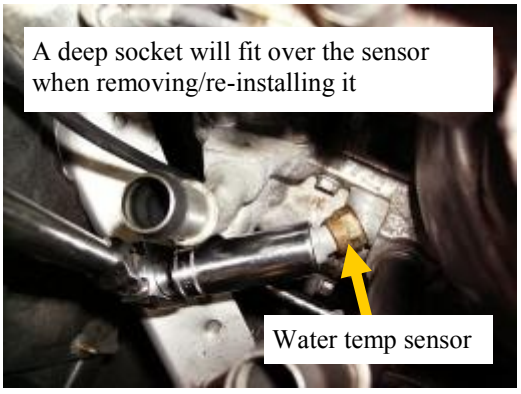

Picture of cover removed from the water pump, it can now be rotated and removed

Installing new water pump

1. With the old water pump removed, it is time to start to install the new pump. The order is basically the same as removal just in reverse.
2. While the new pump is out of the car, remove the front cover plate from the water pump.
3. After you remove the cover to the new water pump, there are some little alignment pins that will want to pop out. They may have popped out of the old water pump when you removed it. Go ahead and remove the pins now and remember the location of them.
4. Before setting the new water pump down into the engine, lightly coat the gasket on the back of the water pump with vasoline.
5. With the pins removed, and the cover removed, set the water pump down into the engine bay where you removed the cover off of the old water pump.
6. Using some vasoline to help hold them in place, set the alignment pins into place on the new water pump and align the cover onto the new water pump and re-install the 4 bolts holding the cover onto the new water pump.
7. To help line up the new water pump with the water pump gear, if you have some m6 studs about 2" long, you can insert them in the front of the water pump now, which will help line the holes up between the two. If you do not have any studs, just set the water pump up in place and you will have to rotate the water pump around until you get the bolt holes to line up.
8. Once you get the bolt holes on the water pump gear to line up with the bolt holes on the water pump, start all 3 of the bolts that hold the gear to the water pump, but do not tighten them yet.
9. With the 3 bolts holding the gear to the water pump, now start the 2 bolts on the back of the water pump to the engine, and then start the 2 bolts on the front of the engine to the water pump. Once all of the bolts are started, tighten down the 3 bolts on the gear first, then the bolts on the front of the engine, and lastly the bolts on the back of the engine.
10. Next find the tube that goes from the water pump to the thermostat housing and put a light coat of vasoline on the rubber seals on each end of the tube.
11. Now insert the tube into the water pump, slide the thermostat housing over the other end of the tube (make sure to line up the locator tab on the tube with the notch in the thermostat housing). With the thermostat housing in place, start the 3 bolts that hold it in place, once all 3 bolts are started, tighten them all.
12. Now re-install the temp sensor and also the heater lines. Make sure to plug the temp sensor back in.
13. Next, re-install the water feed to the turbo using the banjo bolts, make sure to re-install the gaskets with the line on both ends.
14. Re-install the turbo heat shield if you removed it.
15. Remove the tool from the water pump gear in the front of the engine
16. Re-install access plate cover on the front of the engine using the original bolts.







Installing new water pump

17. Re-install the intake cover and intake tube onto the car. Make sure to plug the MAF back in.
18. Make sure to close the drain on the radiator now, then fill the system with coolant and also make sure to bleed the system completely. The coolant bleed on the 2.0L engines is a little difficult sometimes and we have done a video to show the proper way to do it. Go to Youtube.com and search for DDMworks. On our YouTube page you will find a video on the coolant bleed procedure that will walk you through the process.
19. Re-install the shrouding in front of the windshield, make sure to connect the windshield washer line on the driver side.
20. Re-install the windshield wipers, using the marks you made earlier will help to line them back up, tighten the bolts down and re-install the caps. Make sure to hook up the windshield washer lines to the wipers also.

Congratulations! You have finished the install. All of us here at DDMWorks thank you for your purchase and hope you enjoy your new water pump.

If you have any questions feel free to give us a call or text us at 864-907-6004. You can also email us at Tech@ddmworks.com.

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