

## **MP62 Supercharger for the Solstice/Sky—Stage II Full install**



This supercharger kit improves on the Solstice/Sky by installing a supercharger onto the engine.

Installation time of the supercharger depends on you and your mechanical skills. It is suggested that you read through the directions a few times to familiarize yourself with the components of the kit, and your car.

If you are pretty handy with tools the intake can be installed in 8 hours, however we suggest that you schedule at least a full weekend for the installation.

For more information and detailed instructions please visit the Solstice/Sky page at

Before we start installing the kit, you will need to do the following:

1. Disconnect the negative terminal from the battery.
2. Make sure that you are in a well ventilated area away from open flames and open the gas cap to relieve pressure in the fuel system.
- 3. Look through all of the tubes you will be installing to make sure they are free from any debris, loose powder coating, etc.**
4. You will need about 2 bottles of power steering fluid, dielectric grease and some RTV sealant
5. Also make sure that you have been running premium gas for the last 2 tanks. This kit is tuned for premium fuel only.

# DDMWorks Solstice / Sky MP-62 Supercharger kit

## Step 1 Removal of hood (optional)

During the installation of the supercharger kit you will be working around the engine bay extensively, while the supercharger kit can be installed with the hood on the car, it makes the installation of the kit much easier if the hood is removed. Removal consists of removing only 4 bolts and with the help of a friend is very easy. If you are going to install the supercharger 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.



Remove these two plastic retainers

Remove the 2 bolts holding the hood directly to the metal bracket.

## Step 1 Removal of stock intake

At the time of these instructions, both cars that we have installed the supercharger on had aftermarket intakes, so we do not have any pictures, or specific instructions on the removal of the stock intake set-up.

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. Remove the two screws that are holding the MAF to the intake tube. Set the MAF aside and be careful to protect it from being dropped.
4. Now remove the clamp holding the stock intake tube to the throttle body.
5. Remove the entire plastic intake at this point and set it aside, you will not be re-using it.
6. Your car should now look like the picture to the right:
7. Using a 10mm socket remove the 4 bolts holding the throttle body to the intake manifold. Be careful not to drop anything into the hole that is left open in the intake manifold. We suggest putting a clean towel in the opening to make sure nothing falls in.



Throttle Body

## Removal of stock crank pulley

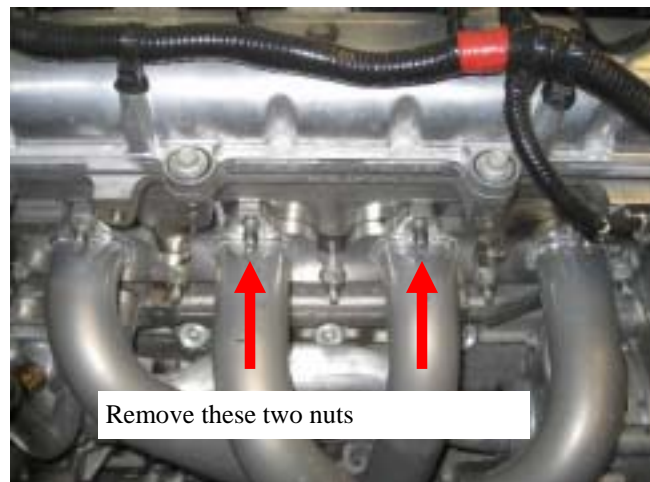
There are 2 belts on the stock engine, a power steering belt and the main serpentine belt. We need to remove the stock crank pulley from the car that drives both of these belts.

1. First you need to remove the fan unit from the car. There are 2—10mm head bolt that hold the fan unit in. Each of these bolts are located on the top of each side of the fan unit. Once these bolts are removed, there is a plug that you need to disconnect on the passenger side of the fan, and then it will lift off of the 2 plastic tabs that it is resting on. It is easiest to lift the fan out on the driver's side of the car. Now we need to remove the belts.
2. To remove the power steering belt push down on the auto tensioner and while holding the tensioner down slip the belt over the pulley on the power steering pump and remove the belt from the car.
3. The main belt auto tensioner takes a little more effort to remove. On the front of the autotensioner you will see a square hole that you can insert a 3/8" ratchet drive into.
4. Using the ratchet for leverage, take tension off of the stock serpentine belt and remove it from the car, keep the belts handy as they will be re-used.
5. Now we need to remove the crank pulley from the car. To do this put the car in 5th gear and engage the parking brake fully.
6. Next using a 21mm socket loosen the main crank pulley bolt in the middle of the crank pulley, and carefully slide the crank pulley off of the engine.



## Removal of other misc. items

1. On the exhaust side of the engine there is a bolt holding two electrical connections to the engine, remove that bolt.
2. There is also another bolt farther towards the back of the engine that is holding a long piece of metal sticking out towards the side of the car, remove that bolt and piece of metal and set them aside, you will not be re-using it.
3. If you are using the stock exhaust manifold, remove the 3 bolts that are holding the heat shield onto the exhaust manifold.
4. With the heat shield removed, now remove the 2 nuts on the exhaust manifold to the right. Keep these 2 nuts handy, as we will be using them in the future.
5. We now need to remove the power steering reservoir. First remove the cap from the reservoir
6. Slide the reservoir off of its mount. Once you have slid the reservoir off turn the reservoir upside down and pour the power steering fluid into a container, empty as much fluid from the reservoir as possible.
7. There are two hoses coming off of the reservoir. The large tube goes down to the power steering pump attached to the engine, remove that hose from the reservoir. The other tube is smaller and goes towards the front of the car, remove that tube where it joins the other tube near the hood lift along the wheel well.



### Trimming the power steering bracket

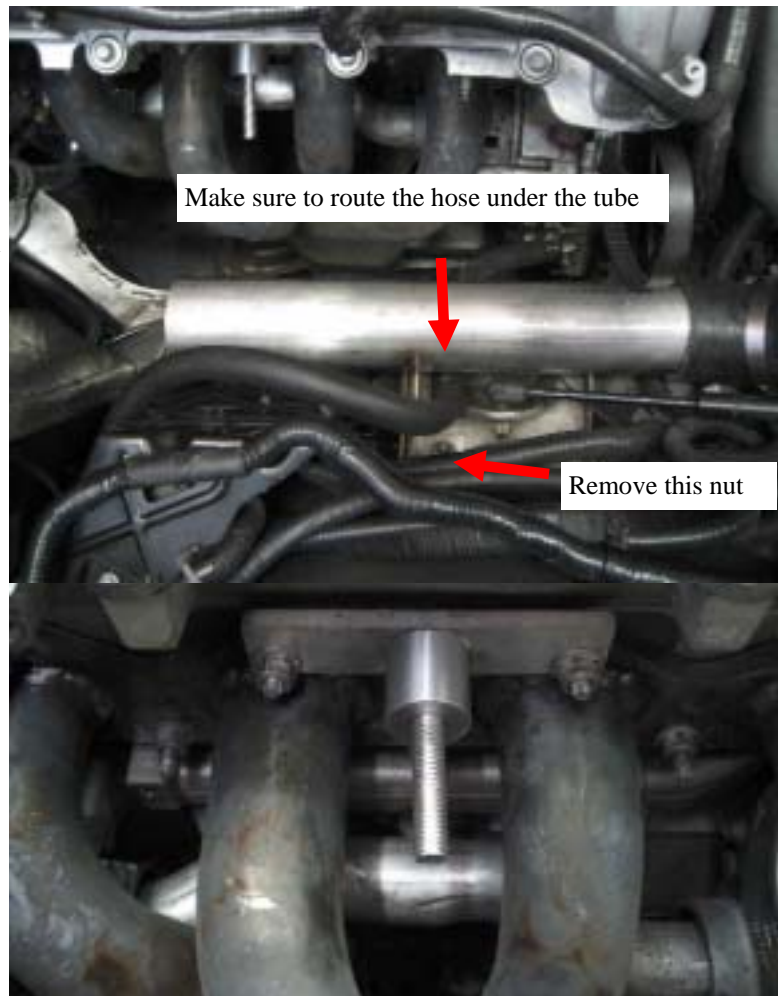
Now comes the hardest part of the install, we need to trim the bracket that held the power steering reservoir.

1. The power steering bracket has a 90 degree angle that held the actual reservoir, we need to cut the bracket back, so that there is not a bend in it anymore.
2. Before you cut the bracket put some towels down to help catch any cutting or shavings
3. Using a hack saw or other tool for cutting cut the bracket after it makes its bend.
4. The picture to the right shows what we want your bracket to look like after you trim it.
5. Get a little black paint and touch up the edge to make it look better.



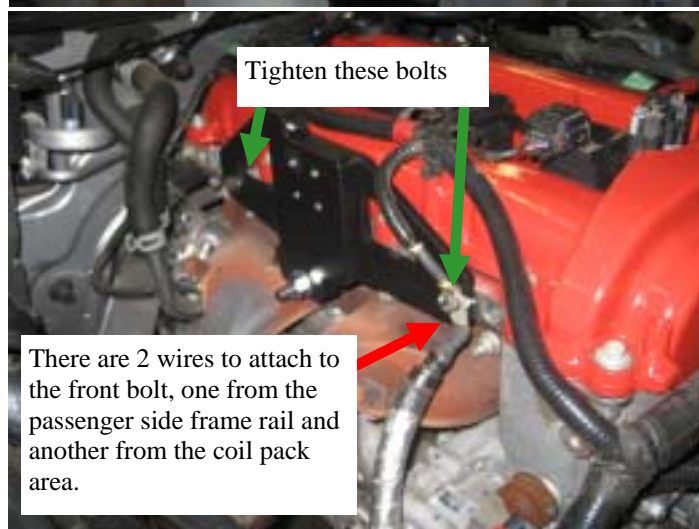
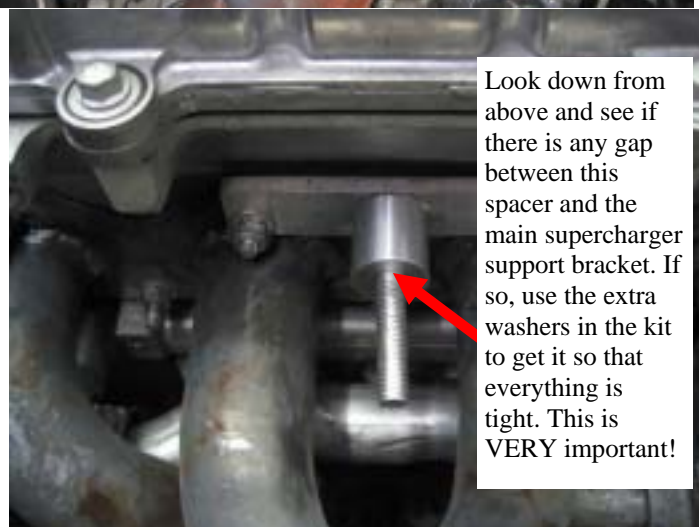
### Installing the supercharger

1. First you will need to attach the 5/8" hose to the power steering pump with the hose clamp provided in the kit.
2. Next, remove the nut holding the passenger side shock.
3. Now install the stainless steel tube with a bracket attached to it over that stud making sure that the hose you just installed goes under the tube like the picture to the right.
4. Re-install the nut onto the shock.
5. Find the 2 3/4" flex hose in the kit and slide it over the back of the tube you just installed and secure with a hose clamp.
6. On the other end of the stainless tube, slide a 90 degree silicone connector so that the opening is facing up and is right next to the radiator hose. Secure that connector to the stainless tube with a hose clamp.
7. Now find the bracket that has a bolt welded to it. This bracket will slide over the two studs on the exhaust that we took the nuts off of earlier. Secure the bracket using the two nuts we removed earlier.
8. There is a 1" long aluminum spacer that needs to slide over the bolt on the bracket that we just installed, slide it over it now.



## Installing the supercharger —cont.

9. The supercharger was shipped to you bolted together. Using a 6mm Allen key you need to remove the main supercharger support bracket from the supercharger so we can install it on the car. There are 3 bolts on the back of the supercharger that need to be removed.
10. Slide that bracket over the bolt and bracket that we just installed.
11. Using the two supplied 8mmx35mm long bolts attach the main supercharger support bracket to the engine where they line up with the two holes we took bolts out of earlier.
12. Some of the aftermarket headers use a different thickness of flange than the stock exhaust manifold, so we need to make sure that we adjust fitment for that. With those two bolts holding the main supercharger support bracket to the engine, look down behind the main supercharger support bracket and see if there is any gap between the spacer we installed earlier and the main supercharger support bracket. Reach behind the bracket and feel for any play. There are two spacers included in the kit if you need to add them in to make sure that there is no gap between the pieces.
13. Once the spacing looks good, tighten the two bolts to the head holding the main supercharger support bracket and also put the supplied washer and nut on the stud sticking out and tighten it down also. You also need to put a little dielectric grease between the head and the main supercharger support bracket. Also you need to put 2 wires under the front bolt. There is a ground wire coming from the passenger side frame rail that needs to be attached and also there is a wire coming from the coil pack area that needs to be attached to that front bolt as in the picture to the right.
14. Your car should now look like the picture to the right (except your brackets will be black) If the bracket feels nice and tight, we are ready to move to the next step.
15. Get the throttle body that we removed earlier we are going to attach it to the back of the supercharger.
16. You will need to put a little RTV sealant on the back of the throttle body to have it seal to the supercharger. You only need a thin even coat on the back of the throttle body, don't go overboard with it! Once you have the RTV on the throttle body attach it to the back of the supercharger using 4—6mmx25mm black flange bolts supplied in the kit. The throttle body gets installed onto the supercharger with the large silver box part of the throttle body with the electrical connection on the top side of the supercharger.



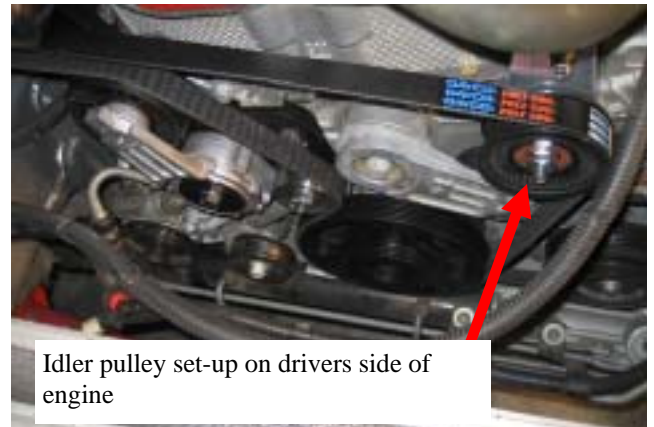
## Installing the supercharger—cont

18. The next step is to install the main front mount for the supercharger. This is the large piece that has 2 metal pulleys on it and the belt autotensioner. Before we can install this on the car you will need to remove the autotensioner and the metal pulley on the side of the bracket that holds the supercharger. (see picture to right)
19. There is a water pump access panel on the front of the motor, it is the panel that has 4—10mm head bolt holding it on. Remove the bolts and panel, there is a black gasket that comes off with the panel, we will reuse this gasket.
20. Now set the front mount bracket in place like the picture to the right. There is a M12 bolt and spacer that will go in just above the metal pulley on the lower end of the bracket, and there are 3—M6x25mm black flange bolts that will go in the holes around the water pump access hole that you just removed. Then there is 1 M6 socket head bolt that will go in the 1 recessed hole in the bracket to finish installing the bracket. Make sure to install the gasket that you just removed around the water pump access hole behind the bracket you are installing now. It is easiest to get all of these bolts started before tightening any of them down.
21. We are going to lift the supercharger into place now. When you lift the supercharger into place you need to make sure that the large group of wires coming from on top of the valve cover goes under the supercharger outlet manifold but above the supercharger now (see pic to right). There is a half inch thick spacer plate that you will need now to install the front of the supercharger. There is a M8x35mm bolt that you will put through the front mount, then through the spacer plate and thread into the mounting hole on the front of the supercharger that it lines up with. With that bolt started in the supercharger, get the M8x25mm bolt and put it in the recessed hole in the front mount plate, through the spacer plate and turn the supercharger until you can start that bolt in the supercharger. Now you will need the 3 bolts that you removed from the supercharger earlier and re-install them in the back of the supercharger now attaching the supercharger to the main mounting plate. Once all of the bolts are started, tighten down the front bolts first then the 3 bolts in the back.



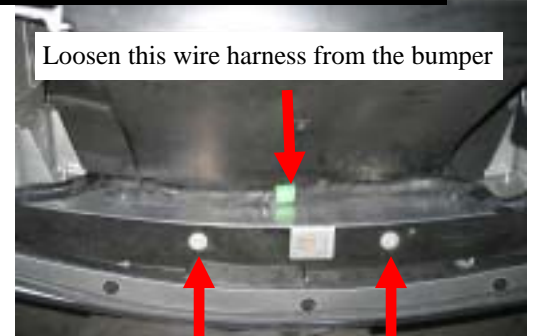
## Installing the supercharger accesories

1. Now that the supercharger is installed we need to install some of the pieces that we took off. Start by reinstalling the metal pulley that you removed earlier. Once that is back on, re-attach the self adjusting idler to the main bracket (note— The self adjusting idler has a black metal tab that comes out of it that ends up being really close to the lower metal pulley. Take a look at your particular set-up, if it looks like it is going to touch, now is a good time to take a file and clearance that distance a little—each of these self adjusting tensioners are different and some need it and some do not)
2. On the back of the supercharger you will need to bring up the flex hose from the intake tube under the supercharger and install it on the back of the throttle body and tighten down a hose clamp on it.
3. On the front of the engine we need to install the new crank pulley and overlay. Start by installing the new crank pulley on the engine. It will slide into the hole that you removed the factory crank pulley from. Sometimes it helps to rotate the pulley as you install it to help it get past the oil pump and seated all the way up to the engine block.
4. Once the crank pulley is on, set the crank pulley overlay up to the crank pulley you just installed and use the 3—M8x16mm bolts to attach the overlay to the factory crank pulley. Make sure to get all 3 bolts started first but do not tighten them down yet. Re-install the crank bolt that you removed earlier. ( check for clearance on the washer on this bolt and the crank overlay as you may need to take a little metal off of the washer for the bolt to slide all the way into the crank overlay as the washer on this bolt is a stamped piece and not very consistent from one batch to the next.)
5. Now that the crank bolt is installed, make sure and tighten down the 3 other bolts holding on the crank overlay.
6. Now re-install the factory 5 rib belt around the alternator and A/C compressor
7. We need to install the idler pulley set-up that attaches to the drivers side of the engine. There is a 3/16" spacer plate that goes between the idler bracket and the engine. Use the supplied M8 bolts to attach to the engine, there is one hole on the top of the bracket and 3 holes that you can use in the middle of the bracket, for most set-ups you will use the middle of the 3 holes.
8. You should now have the supercharger mounted and the idler bracket and crank overlay installed like the picture to the right.
9. Lastly install the new 6 rib belt on the supercharger set-up, using a 3/8" drive ratchet to hold the autotensioner while slipping the belt over all of the pulleys.



## Removal of the factory plastic radiator shroud

1. To install the intercooler we need to remove the plastic radiator shroud, start by looking under the nose, there are 2—10mm bolts that hold the corners of the shroud just in front of the radiator under the car, remove these bolts.
2. There are 2 plastic push in fasteners on the back of the shroud just above the radiator, use a screwdriver to pry them up and remove them.
3. With those fasteners removed, the shroud can be shifted back towards the firewall to release it from under the front bumper, once it moves back from the front bumper, remove the shroud from the car.
4. Remove the 2 bolts on the front bumper for mounting the intercooler as shown to the right.



Remove these two bolts also

## Replacing the MAP Sensor

Now we are going to replace the stock MAP sensor with a higher pressure one. The MAP sensor is located just above the 90 degree tube that you just attached to the intake manifold. It has an electrical connection going to it with 3 wires.

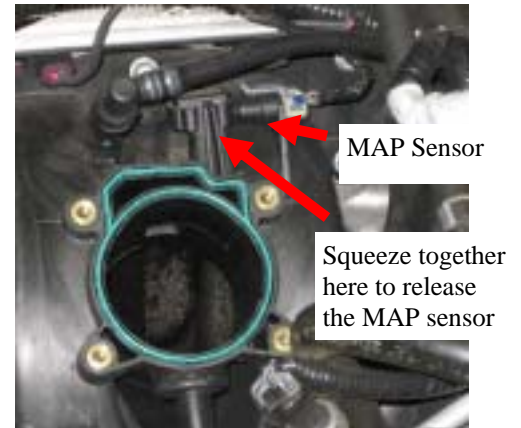
First squeeze the plastic clip that is holding the electrical plug onto the MAP sensor and disconnect the sensor from the wiring harness.

Now squeeze the plastic that secures the map sensor to the intake manifold and pull up on the sensor, it will pull out of the intake manifold.

There is a small rubber boot on the end of the stock MAP sensor that needs to be taken off and transferred to the new map sensor.

Once you have transferred over the small rubber boot, install the new MAP sensor in the same place the stock one was located.

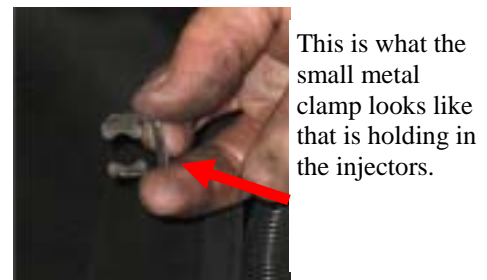
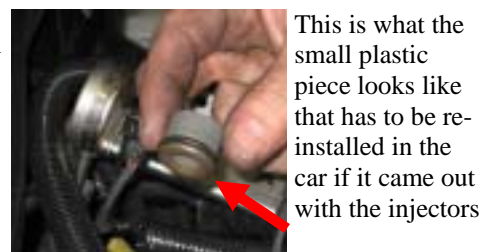
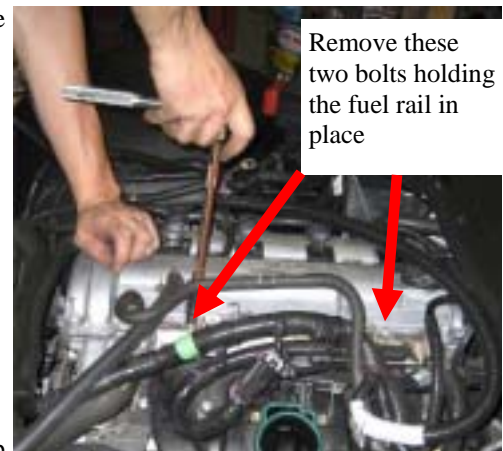
Push the sensor down to lock it in place and reconnect the electrical connection.



## Installing the larger fuel injectors

The fuel injectors are located under the metal fuel rail on the drivers side of the engine.

1. Start by disconnecting the electrical connections on the fuel injectors.
2. Next remove the two 10mm head bolts that are holding the fuel rail in place, your gas cap is still removed, right?
3. Once those two bolts are removed carefully pull on the rail away from the engine. There also may be some fuel spilled, make sure that you have some towels around to soak it up.
4. Now remove the injectors from the fuel rail and head so that all 4 are removed from the car. There are small gray colored plastic pieces that may have stayed in the head, or may have come out on the injectors. You need to make sure that all of these go back into the head, they seal the injectors to the car and are very important.
5. To remove the injectors from the fuel rail, there is a small metal clip that holds them into the fuel rail. Using a pair of needle nose pliers carefully pull on this clip. Once this clip is removed the injector can be removed from the fuel rail. Remove all 4 injectors at this time.
6. Now we will put the new injectors in. Spray a little WD40 on your fingers and lubricate the seals on the injectors, this will help them to slide into place and seat properly.
7. Push the injectors into the fuel rail and secure them with the small metal clamps that you pulled off of the stock injectors. When re-installing these clamps make sure that they fit into the small indentations on the injectors that are made for them.
8. Once all 4 of the new injectors are installed in the fuel rail, re-insert the fuel rail and injectors into place. The gray plastic pieces in the head will help guide the injectors back into place. Be very careful when re-installing the injectors that they are all lining up with their holes correctly, as you do not want to bang up the end of the injectors.
9. Once the fuel rail is back in place, re-install the 2 10mm head bolts that held the fuel rail in place.



## Power steering

There is a small bracket that will be installed above the battery to relocate the power steering reservoir.

1. Using the supplied hardware attach the relocation bracket to the car just above the battery, there is a hole with a threaded insert in it that the bolt will go into.
2. Feed the 5/8" line going to the power steering pump through the small opening below the fuse box and attach to the power steering reservoir.
3. Attach the 3/8" line to the reservoir and run it up to the hose that we disconnected earlier and hose the 3/8" hose barb fitting to attach it.
4. The reservoir sits just above the battery with the smaller 3/8" line pointing out towards the fender.
5. Once you have routed the hoses and there does not appear to be any kinks, attach the reservoir to the relocation bracket.
6. Fill the system with fluid, you will have to re-check the fluid after starting the car.



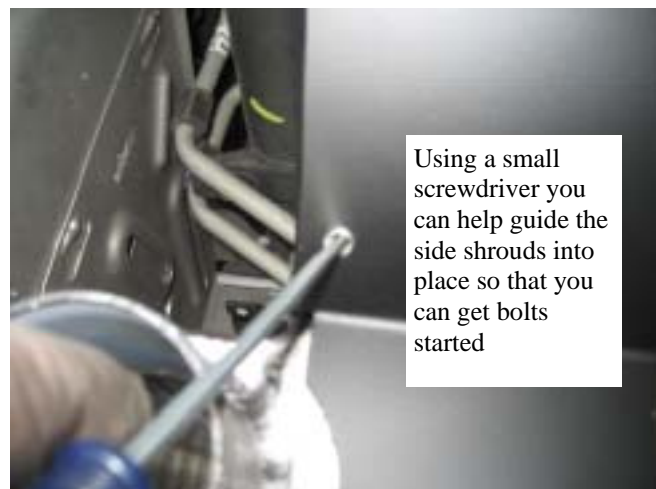
## Trimming the lower plastic shroud for intercooler fitment

1. To install the intercooler we need to trim the lower plastic radiator shroud still in the car.
2. The easiest way to trim the hard plastic is with a cutoff wheel on an air tool, if you do not have this, a utility knife works also. If you have a propane torch, heat the utility knife up and it will make it easier to cut through the plastic.
3. You will need to mark a horizontal line from the back edge of the lower shroud forward 3 1/2" and then vertical all the way to the top of the shroud.
4. Do this on both sides.
5. After cutting lift the intercooler into place with the tabs on the intercooler facing towards the front of the car.
6. The holes in the tabs should line up with the holes from the bolts you removed earlier. With the holes lined up with the bolt holes in the bumper, line up the back of the intercooler with the back of the lower plastic radiator shroud, check clearance in front of the intercooler to the plastic shroud and make sure that they are close, but not touching, trim again if needed.



## Installing the intercooler and shrouding

1. It is now time to install the intercooler and shrouding. There are two tall pieces of sheet metal with tabs on them that will make up part of the intercooler shroud. One of them has two notches in the back side and one has one notch in the back side. These pieces go in front of the A/C condenser, the one with 2 notches goes on the passenger side and the other goes on the drivers side.
2. After you set them in place you will secure the lower corner into place with the 10mm head bolts that you removed earlier from under the car.
3. With these 2 pieces secured on the lower side, set the intercooler in place with the tabs facing forward, your car should look like the picture to the right:
4. Now attach the two smaller shrouds to each side of the front of the main shroud with only one bolt.
5. With the small shrouds attached to the front of the main shroud we can start fitting the main shroud to the car. We have found that all cars differ in the fitting of this shroud and have given some adjustability in the shroud to fit. You can also take bulb molding off of the sides of the shrouds if you need some more room.
6. Once you get the holes in the front of the main shroud to line up with the 2 holes that are in the tabs of the intercooler and the holes in the front bumper, use the two bolts that you removed earlier to secure them into place, do not tighten these bolts all the way yet though.
7. This is the toughest part of the installation next. You need to get the holes on the main shroud to line up with the nut inserts on the side pieces you put in and get the bolts to go in. The best way to do this is to reach up from under the car to get them to line up for the rear shrouds. You can also use a small screwdriver to help guide them into place.
8. Once you have one lined up, insert the bolt and get it started, do not tighten any of the bolts down until you get all of the 8 bolts holding the shrouds started.
9. With all 8 bolts holding the shroud in place tight, make sure the 10mm head bolts under the car that are holding the bottom of the shroud are tight also.
10. Lastly, re-insert the 2 plastic fasteners that secure the shroud just above the radiator.



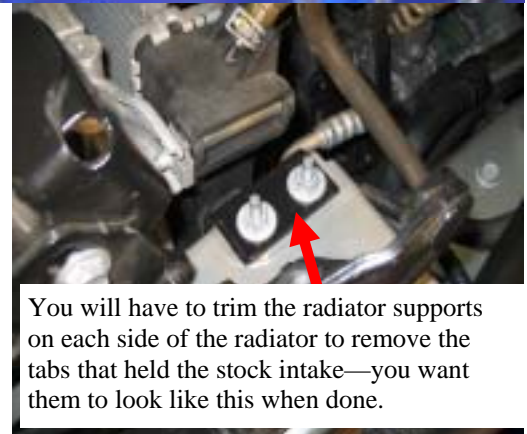
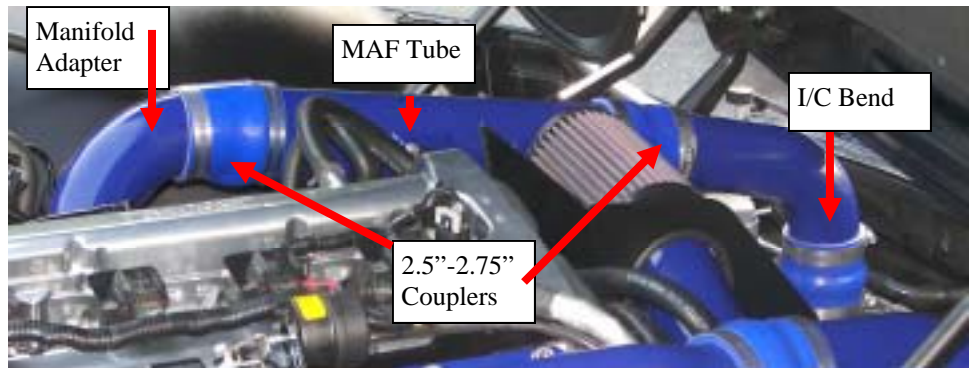
### Installing the intake tube and intake box

1. We are going to install the intake and tubing next
2. Start by install the intake first. The intake tube that comes under the supercharger should still have a silicone 90 degree bend on it. Make sure that the hose clamp on the tube is loose so that you can rotate the silicone connector. You need to rotate the silicone connector so that it points towards the drivers side of the engine bay with a slight up angle, we will adjust it in just a second.
3. Next, slide the new intake tube that has the Crankcase Vent Tube on it under the radiator hose and into the 90 degree silicone elbow. It helps to loosen the clamps on the radiator hose and tilt it up a little away from the intake tube.
4. With the intake tube in place, we are going to install the intake box. Slide the intake box down the intake tube until the mounting holes line up with the shroud. Secure the intake box in place using the supplied hardware.
5. Now make sure that the silicone 90 is in place and secure it in place with the hose clamps.
6. Also now is a good time to re-install the air filter on the intake.



### Installing the intercooler tubes

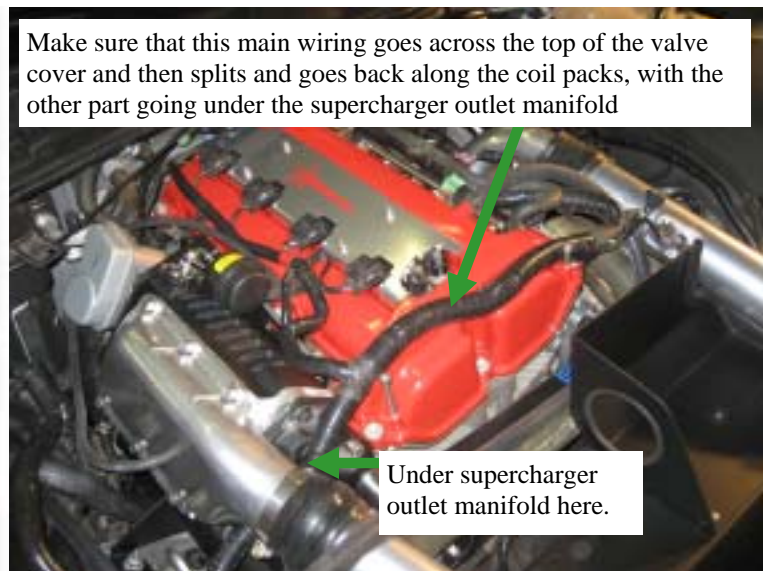
1. We are getting close to firing this thing up!
2. The intercooler tubes are next to go on. Start with the drivers side tubes. Install the silicone hump hose over each end of the intercooler. Coming off the Intake Adapter, install the 2.5"-2.75" Silicon coupler. Next we need to insert the MAF. Rotate the MAF toward the engine with the capped vent tube closest. Install the other 2.5"-2.75" Silicon coupler on the end of the tube. Lastly insert the bent tube from the coupler to the IC hump hose. Remember to install a hose clamp on each side of every silicon connector.
3. Next we are going to install the passenger side tubes. There is a short tube with a 77 degree bend in it. The short leg of this tube gets installed toward the intercooler, with the long leg facing toward the supercharger.
4. Next using the straight coupler attach the other tube between the tube you just installed and the supercharger. It is easy to release the hood support from the gas shock that holds it up at this time and lower the hood support bracket down. With this bracket down you can arrange the tubes until they clear this bracket.
5. With everything in place, tighten down all of the hose clamps.



You will have to trim the radiator supports on each side of the radiator to remove the tabs that held the stock intake—you want them to look like this when done.

## Final Clean-up

1. Just a couple things left to do before we test fire the engine:
2. You need to attach the breather line to the intake tube using the hose clamp that you removed earlier.
3. Also insert the Air Flow Meter into the new intake tube and secure with the bolts that you removed earlier.
4. Make sure that everything is clear from the belt and that there are no wires touching the belt.
5. If you removed your hood, re-install.
6. We need to run the extension to the throttle body. There is an extension wire that will plug into the stock harness and the other end will plug into the new throttle body location.
7. We also need to run a vacuum line from the supercharger outlet manifold to the bypass actuator. Use the supplied tubing to do this now.
8. You also need to swap out your ECM at this time with the one supplied with the kit. The stock ECM is located near the drivers side fender of the car. There are some quick disconnect wire harness and a couple of tabs that will release the ECM. Once this is done reverse the procedure for the new ECM.
9. We have included 4 pre-gapped Iridium spark plugs in a cooler heat range than stock, this is to provide an extra bit of protection against engine knock. Replace all 4 of your stock spark plugs now with the new Iridium's.
10. Replace the gas cap if you have not done so yet
11. Make sure the bolts that retain the belt tensioner are tight.
12. Check to make sure that all of the bolts are tight, **all hose clamps** are tight and everything looks clear. Use the supplied zip ties if needed to secure any wiring away from the supercharger.
13. Re-connect the battery at this time.
14. There are 2 bolts in the kit that can be used to hold the wires crossing over the valve cover on the car, 1 is longer than the other and the long one goes on the passenger side of the engine, the shorter goes on the drivers side of the engine (see pic below)



## First fire up

It is now time to fire up the car for the first time.

1. Make sure everything is clear, if possible have a friend watching the engine while you turn the car over.
2. Once the car starts, check to make sure everything looks good, there is nothing hitting anything, etc.
3. Listen for any possible vacuum leaks and tighten any hose clamps that may need it.
4. Once the car is idling well, let it warm up fully and take it for a short 10 minute cruise without doing any full throttle runs.
5. Come back and shut off the car and look under the hood again for any leaks or rubbing., also retighten **all** hose clamps at this point.
6. If everything looks good now, go enjoy the car!

If you have any questions feel free to give us a call at 864-907-6004 or 864-907-6007. You can also email us at Tech@ddmworks.com.

Thanks again for purchasing the DDMWorks supercharger kit for the Solstice/Sky, we appreciate it and look forward to serving you in the future.

If you have a chance, please take some pictures of your install and send them to Dave@ddmworks.com, we love to see the supercharger installs!

