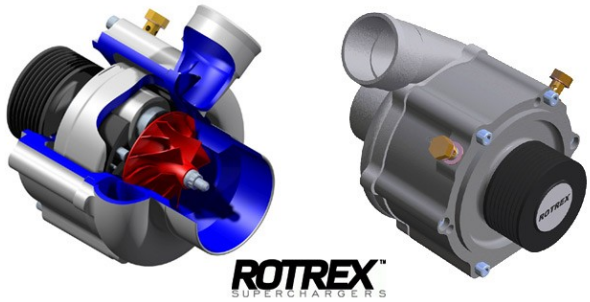
Slingshot Rotrex Supercharger Kit



This supercharger kit improves on the Slingshot by forcing more dense air into the engine and creating more power.

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 supercharger kit can be installed in under 8 hours, however we suggest that you schedule at least a full weekend for the installation.

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

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 dielectric grease and some Vaseline.
5. Also make sure that you have been running premium gas (91 octane or better) for the last 2 tanks. **This kit is tuned for premium fuel only.**

Note:

Some photos used in these instructions may look different than your slingshot as the photos taken are of a test and development vehicle. All sizes and locations will be the same.

***2016.5 Slingshot Edit.**

If you have a 2016.5 or newer Slingshot you may have an extra plastic shroud behind your radiator. We recommend removing this shroud and not using it along with this kit. However you may modify the plastic shroud on your own to fit with the kit if you wish to keep it.

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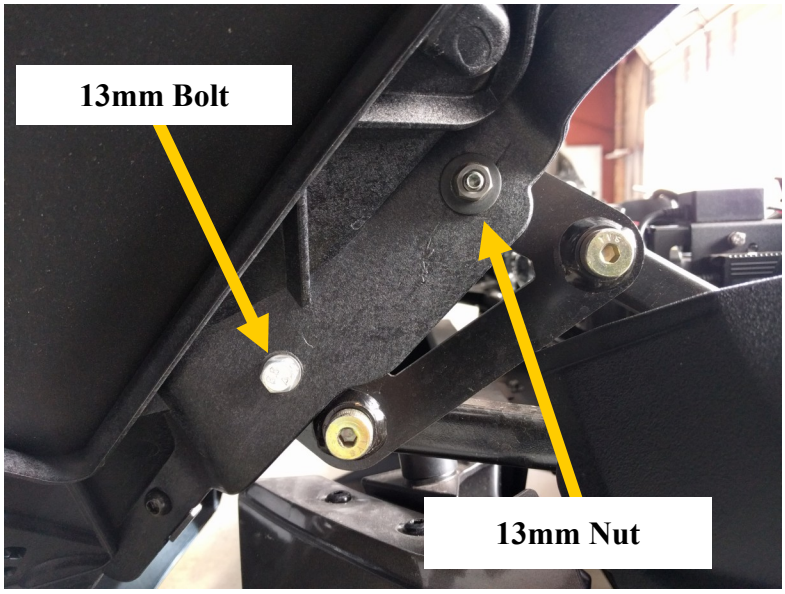
Removal of the Hood

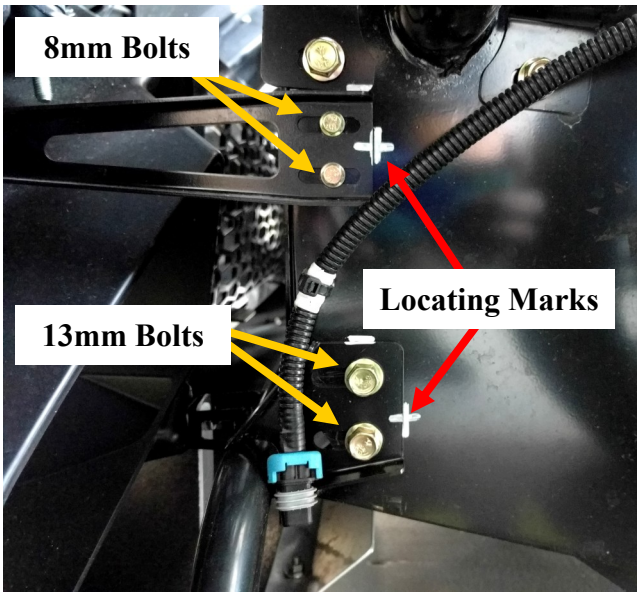


During the installation of the supercharger kit you will be working around the engine bay extensively. Removing the hood will allow you better access to the engine bay and make the install much easier.

Removal consists of removing only 2 bolts and 2 nuts, with the help of a friend it is very easy.

Both the Bolts and Nuts are 13mm hex head so you will need your 13mm socket wrench. With the hood open and 1 person on each side of the hood, one person will support the hood while the other removes the nut and bolt from one side of the slingshot. Once one side is free pass the socket wrench to the other side of the slingshot and support the hood while the other nut and bolt are removed. After both sides are free you can carefully level the hood out, pivoting on the studs that the nuts came off of. With the hood tilted down toward the engine, still being supported on both sides, one person needs to reach into the hood hinge and push it slightly inward to push the stud out of the hole in the hood. Once the stud is out on one side of the slingshot the hood can be slid off the stud on the opposite side and carefully set out of the way.

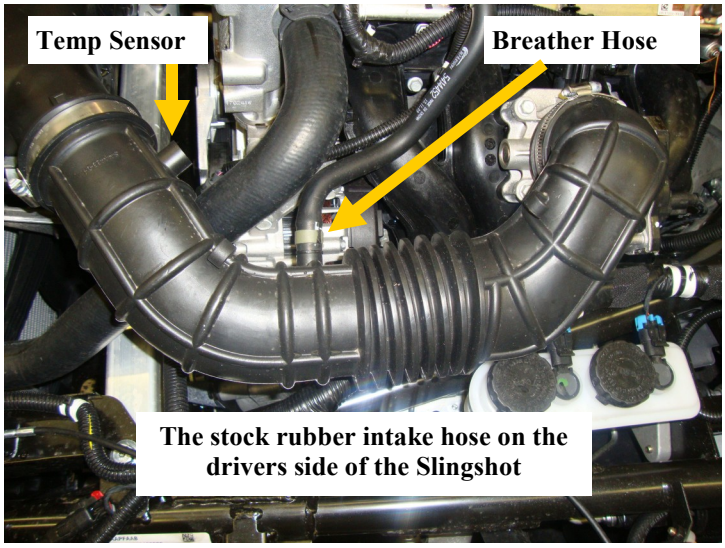
Removal of the Nose



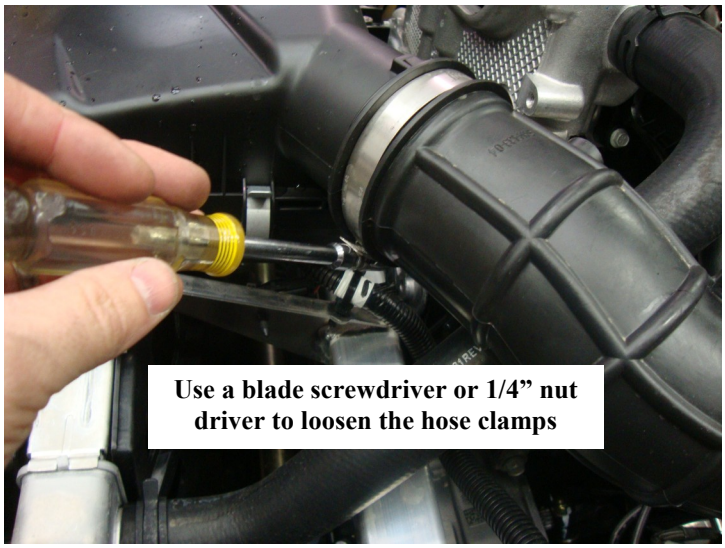
Next, to gain more access, you will remove the nose piece from the slingshot. There are 8 bolts holding the nose on. Before removing the bolts be sure to mark the location of the brackets on the frame so you can line it back up easier later when reinstalling. We use a silver sharpie marker to mark the brackets. After completing the installation, you can use some rubbing alcohol to remove the marks. With the location of the brackets marked you can now remove the 4 bolts from each side of the slingshot and carefully remove the nose piece. Set it off to the side out of the way.

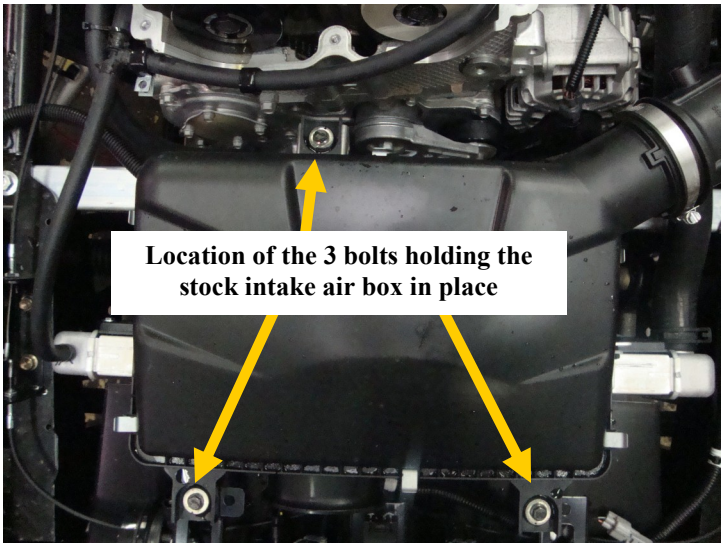
Removing the stock intake

1. **Make sure your Slingshot engine is cool to the touch and in neutral with the parking brake on before starting installation.**
2. First thing to remove is the rubber hose going from the throttle body to the stock intake air filter box. Open your hood and on the drivers side of the engine bay you will see a rubber hose like the picture to the right. That hose is held in place with 2 hose clamps, one hose clamp at each end. Use a blade screwdriver to loosen both hose clamps.
3. Before pulling the rubber hose off, you will need to disconnect the breather line going to the valve cover and also the intake air temperature sensor. You want to remove the intake air temperature sensor first. The sensor is the only thing you will see in the rubber hose that has a wire going to it. That sensor simply pulls out of the stock rubber hose. Remove by pulling and wiggling gently on the sensor and it will come out of the stock rubber tube.
4. The breather line is a rubber hose that goes from the intake tube to the valve cover. It is held in place with a hose clamp that is typically a light green color. To release the hose clamp, use a pair of pliers to squeeze the small tabs on the hose clamp together, then you will be able to slide the hose clamp up the breather hose about an inch. Once the hose clamp is slid up the hose toward the valve cover about an inch, you will then be able to pull the hose off of the plastic nipple that it is hooked to on the stock rubber intake tube.
5. With the breather line removed and the intake air temperature sensor removed, go ahead and remove the stock rubber intake hose from the Slingshot.
6. The stock intake air box is held to the Slingshot chassis with 3 bolts that all have 10mm heads on them. The picture to the right shows the location of the 3 bolts.
7. Remove all 3 bolts and the stock intake air box can be removed from the Slingshot.



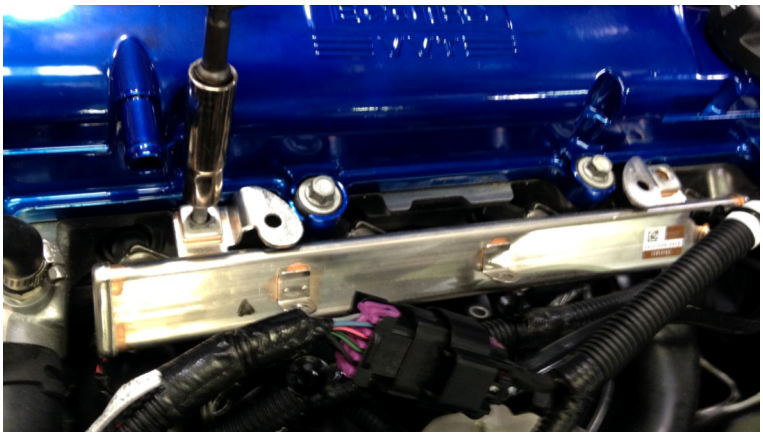
The stock rubber intake hose on the drivers side of the Slingshot


Use a blade screwdriver or 1/4" nut driver to loosen the hose clamps


Location of the 3 bolts holding the stock intake air box in place

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 and injectors.
2. Next, remove the two 10mm head bolts that are holding the fuel rail in place.
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. Next, 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.

This is what the small plastic piece looks like that has to be re-installed in the car if it came out with the injectors

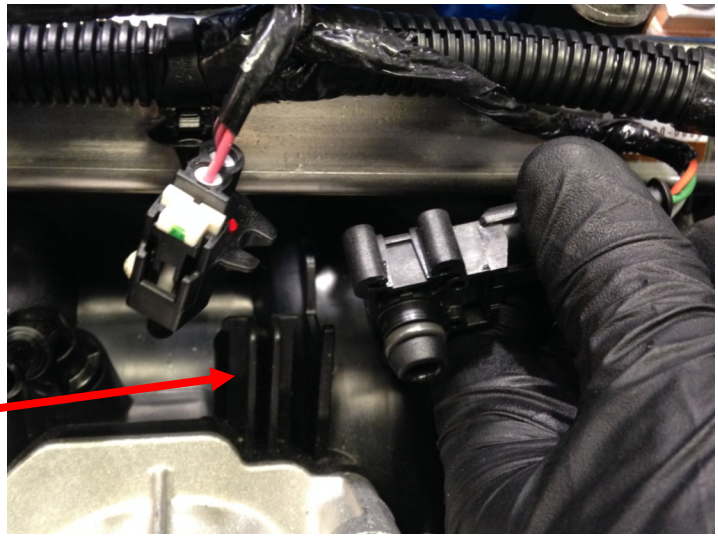
5. To remove the injectors from the fuel rail, there is a small metal clip that holds them into the fuel rail. Using a pair of needle nose pliers carefully pull on this clip. Once this clip is removed the injector can be removed from the fuel rail. Remove all 4 injectors at this time.

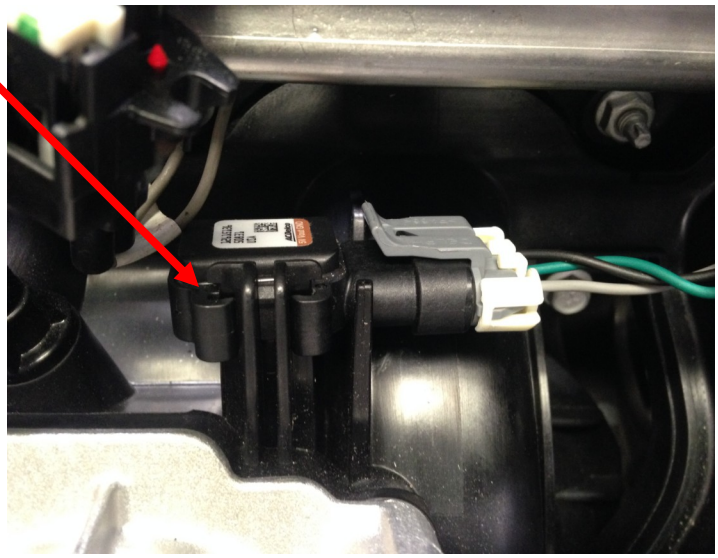
This is what the small metal clamp looks like that is holding in the injectors.

6. Now we will put the new injectors in. Put a little Vaseline on your fingers and lubricate the seals on the new 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 two 10mm head bolts that held the fuel rail in place.
10. Leave the fuel injectors unplugged right now, as it will make it easier to do the next step.

Replacing the MAP Sensor

1. Now we are going to replace the stock MAP sensor with a higher pressure one. The MAP sensor is located just above the throttle body that is attached to the intake manifold. It has an electrical connection going to it with 3 wires.
2. First squeeze the plastic clip that is holding the electrical plug onto the MAP sensor and disconnect the sensor from the wiring harness.
3. 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.
4. Install the new MAP sensor in the same place the stock one was located.
5. Push the sensor down to lock it in place and reconnect the electrical connection, the new sensor has an adapter harness attached to it already.
6. Also plug the fuel injectors back into the wiring harness at this times also.





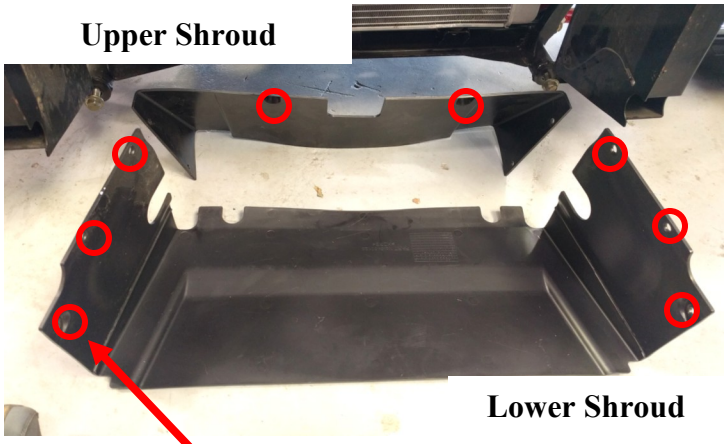
Changing the Spark Plugs

1. To change out the spark plugs for the upgraded plugs included in the supercharger kit you must first unplug all four coil packs.
2. Next you will remove the 10mm hex head bolt holding each coil down to the cylinder head and simply pull the coil packs up and out of the engine.
3. With all 4 coils removed use a spark plug socket and extension to remove the stock spark plugs.
4. After all four stock spark plugs are removed locate the new spark plugs and remove them from the box. Using a small dab of anti seize on the threads of each new spark plug, carefully thread them into each cylinder.
5. With all four spark plugs replaced torque them all down to 18ft lbs each.
6. The coil packs can now be reinstalled and the 10mm bolts torqued down to 10nm or 7ft lbs.
7. Be sure to plug all four coil packs back in to the wiring harness and this step is complete.

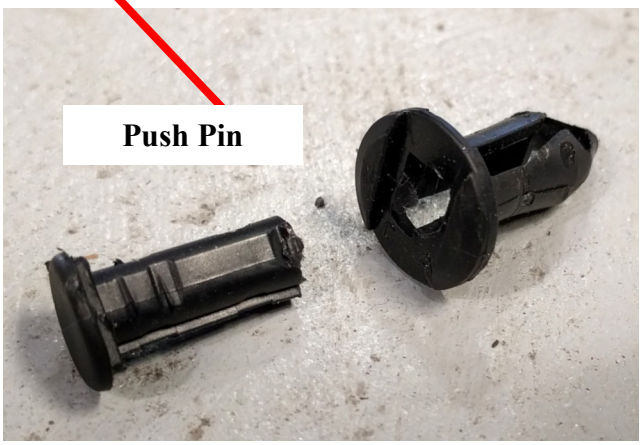
Removing the stock radiator shroud

To remove the Stock Radiator Shrouding. There are 8 of these plastic push pins holding the shroud in.

It may be necessary to jack up the front of your slingshot to gain access underneath and remove the shrouding. If needed make sure you are on a level surface with the emergency brake on, and the slingshot is supported by jack stands.



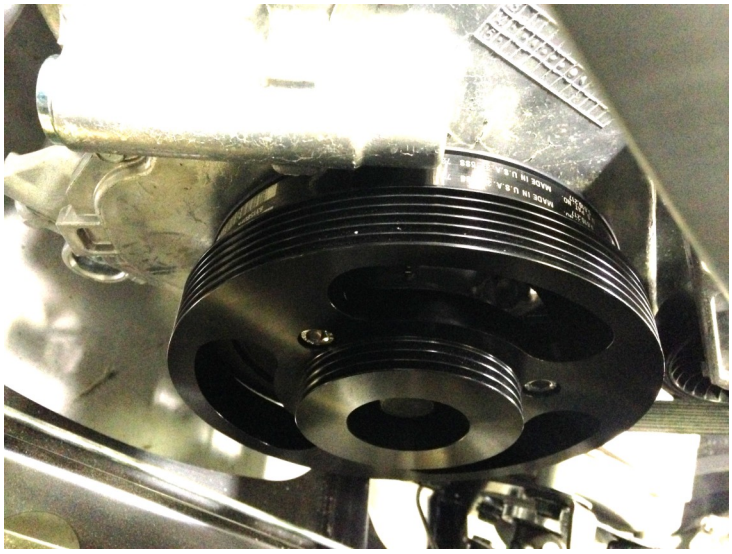
Using a flat head screw driver or a small pair of side cutters gently pry the push pin out of its base and remove the to pieces of the push pin from the Slingshot.



After you have removed all the push pins the shrouding will come out of the slingshot in two parts. The upper and the Lower.

Crank Pulley Overlay

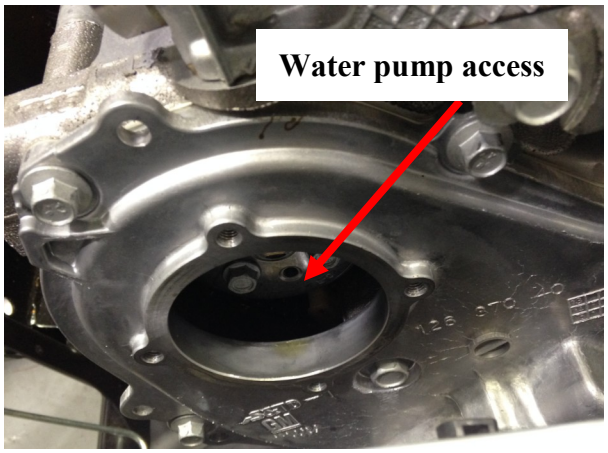
Included in your kit is a Crank Pulley Overlay, New Crank bolt, and 3 socket head bolts.



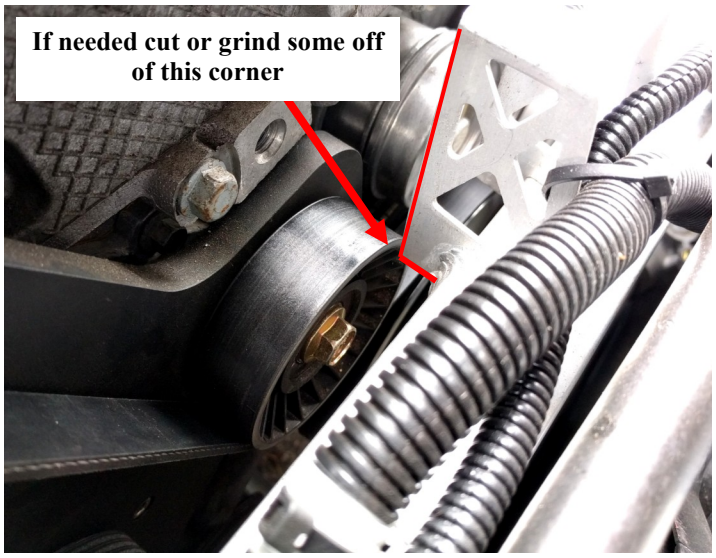
1. The first step to installing the Overlay is to remove your stock Crank Pulley Bolt.
2. The bolt is a 21mm hex head and you will want to use a long breaker bar to get it loose. With the Slingshot in 5th gear and the emergency engaged there will be enough resistance to hold the engine from turning over while you remove the Bolt.
3. With the bolt removed you can slip the New Pulley Overlay into place.
4. Next, with a little loctite on each bolt, insert the 3 socket head bolts through the Overlay and into the threaded holes in the stock crank pulley. Make sure to get all 3 bolts started first but do not tighten them down yet.
5. Install the new Crank Bolt provided in the kit and 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.
6. Torque on the crank bolt is 150 ft/lbs, then tighten the 3 socket head bolts.

Rotrex Front Plate Install

1. It is time to start to install the actual supercharger unit. The first thing that needs to be done is to install the front plate to the engine.
2. On the front of your engine, toward the passenger side, you will see a small cover plate that is held in place with four 10mm hex head bolts. This is the water pump access plate. Remove the 4 bolts and then remove the plate and its thin metal gasket.

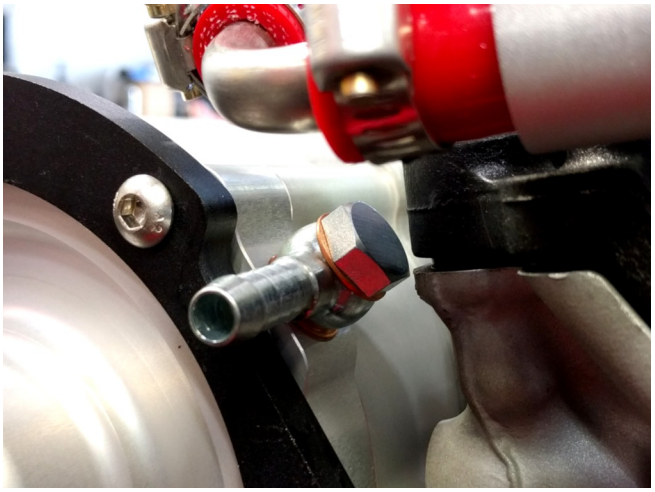


3. You will see on your new Rotrex front plate that there are 4 corresponding bolt holes. You will re use the gasket and the cover along with an extra water pump cover included in the kit to get the correct spacing off of the engine. (Put a small dab of silicone or Vaseline on the back of the gasket to help hold it in place on the Rotrex plate while you line it up and bolt it on.) Using the new socket head bolts supplied, bolt the front plate into place over top of the water pump access hole with the 2 cover plates. Do not tighten the bolts down yet, just get all 4 bolts started.
4. Once the bolts are started, place the 1 inch aluminum spacer behind the 12mm hole in the Rotrex plate that is more on the driver side of the plate. It will rest on your engine while you insert the M12 button head bolt through the plate and start to tighten it down. Once you get all 5 bolts started, go ahead and tighten them all now. The 4 water pump cover bolts should be torqued to 10nm or 7ft lbs.
5. There is a smooth pulley, with a pulley stand off, and a 30mm long bolt that gets bolted into the front plate over top of the 12mm bolt you just installed. This pulley and bolt can be tricky because it is near the radiator support bar. You may need to cut / grind a small amount of the aluminum off of the stock air box mount to be sure your pulley does not rub. Unfortunately some slingshots have more room than others in this area. Be sure to use a small dab of loctite on the bolt threads.



6. Next is the ribbed pulley towards the bottom of the front plate. Again with a pulley stand off and a slightly longer 35mm bolt. Using loctite on the bolt threads here too.
7. Next you will bolt the Auto tensioner to the Rotrex Front Plate. There is a hole for the guide pin on the tensioner as well as a threaded hole for the tensioner bolt. Line both of these up and using the M10 bolt and washer supplied tighten the tensioner down to the plate. We have also included another washer and lock nut for the back of the plate as added security. Please be sure to install the washer and lock nut on the back.
8. With the front plate installed, the supercharger gets bolted in next.

Rotrex Supercharger Install

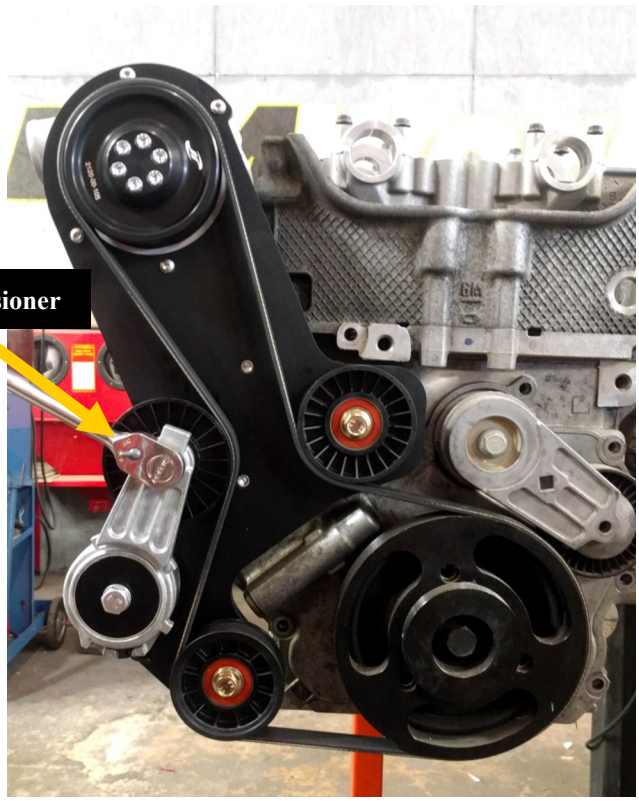


1. The first thing that needs to be done before bolting the supercharger to the front plate is to make sure the oil fitting is in place as it will not fit in after the Rotrex is attached to the plate.
2. Install the oil fitting on the “oil in” side of the supercharger. First remove the protective yellow plastic plug by unscrewing it from the supercharger. Now find the banjo bolt in the kit and put a crush washer over it, then put the bolt through the barbed fitting and then another crush washer. Install that onto the “oil in” side of the supercharger and tighten it down so that the barb fitting is facing toward the front of the Slingshot.
3. With the oil fittings in place you can put your Rotrex supercharger into the hole in the front plate. Using the M6x80 button head bolts and washers, attach the Rotrex into place on the plate. These M6x80 bolts should be tightened to 9Nm (6.6 ft-lb) do Not over tighten. You can use a small amount of loctite on the end of the threads to ensure the bolts do not come loose over time.

Belt Installation

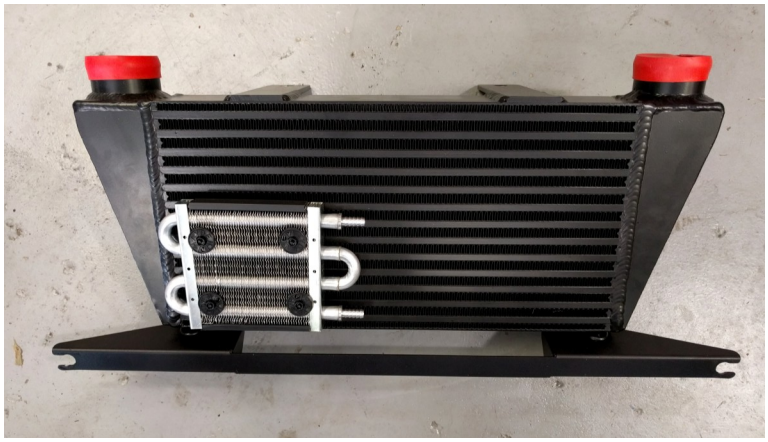
To do this you will need a 3/8 drive ratchet wrench to insert into the auto tensioner. You will be pulling the wrench from the passenger side of the slingshot up toward you.

Take the belt included in your kit and feed it down in front of the engine. This photo shows the belt routing around the pulleys and auto tensioner.



Start by wrapping the belt around the crank pulley and the lower ribbed idler pulley. Then in-between the tensioner pulley and smooth idler pulley. Last wrap the belt around the supercharger pulley and slowly release the tensioner.

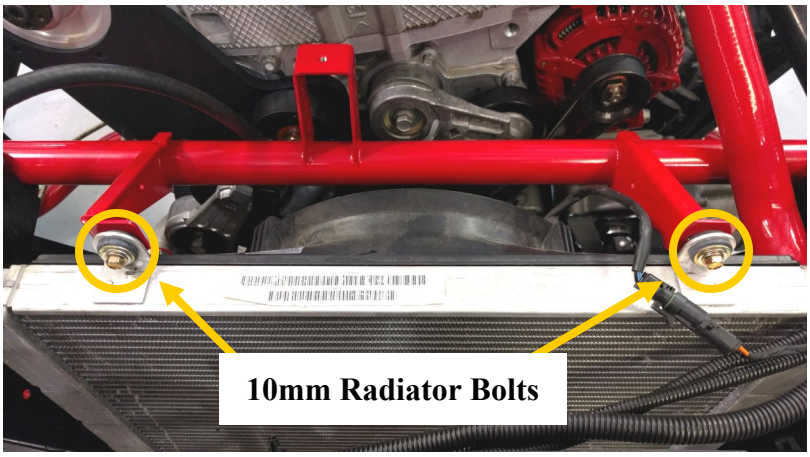
Oil System and Intercooler



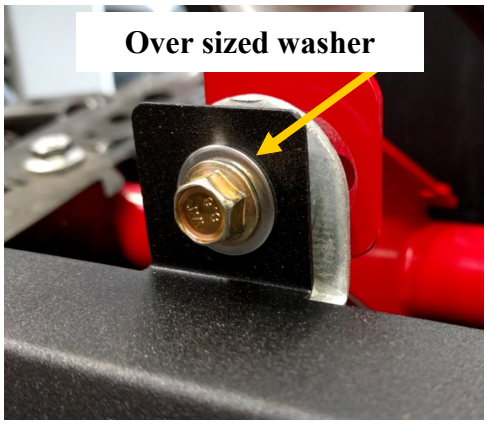
1. The Rotrex system has a dedicated oil cooler, this cooler gets installed on the back of the intercooler. Find the oil cooler which is in the kit and it will get attached to the back of the intercooler (the side opposite the way the brackets on the intercooler face)
2. Set the oil cooler on the back of the intercooler, to secure it in place, use the nylon ties provided. The oil cooler attaches to the Back of the Intercooler in the bottom left side, when looking at the back. The oil outlet fitting should point toward the right side of the intercooler, still looking at the back.
3. Now push the Nylon ties through the oil cooler fins carefully as to not bend them up to much. Once you have the ties through, slide one foam square onto each nylon tie. These will act as a buffer between the oil cooler and intercooler. Next push the ties through your intercooler. And finally use the tie locks on the front of the intercooler to hold everything in place, and trim off the excess nylon tie.

Upper Shroud

To install the upper shroud you must first remove the two M6 10mm hex head bolts that hold the radiator in place.

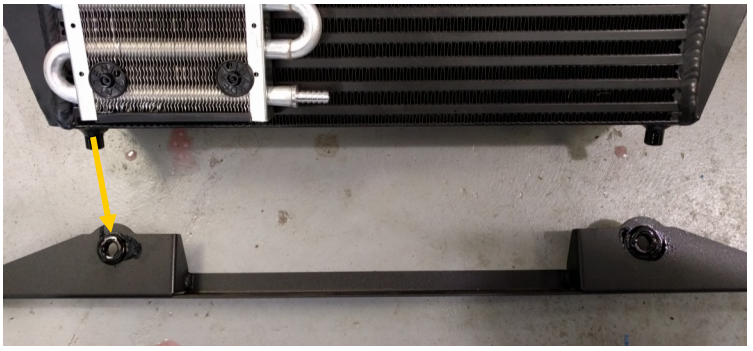


Next, carefully slide the upper shroud into place. The two tabs should line up with the bolt holes in the radiator and radiator support bar. Using the M6 over sized washers, provided in the kit, place one on each bolt you removed for the radiator and re install them through the new shroud, radiator, and support bar. Place the second over sized washer on the back followed by the nut you previously removed. Tighten these nuts and bolts down securing the top of the shroud and the radiator in place.

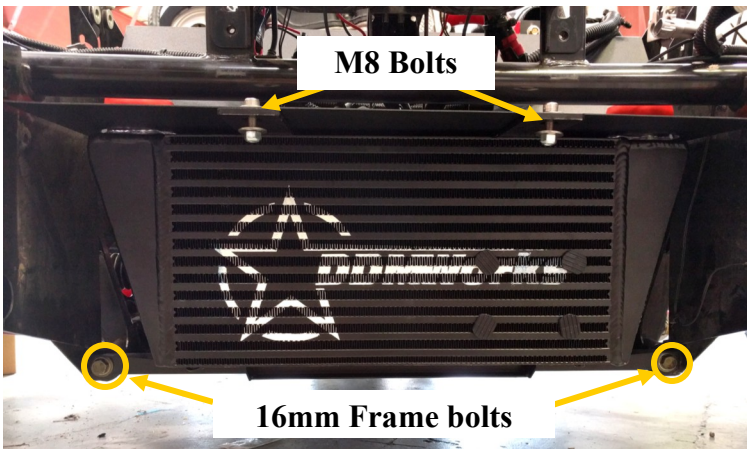


Intercooler Mounting

1. The Intercooler has 2 posts welded to the bottom, these posts correspond with the holes in the lower intercooler mount. The lower mount should be installed onto the intercooler with the straight edge in the back and the mounting tabs facing toward the front. Use some lubricant to help slide the lower mount over the 2 posts on the inter-cooler.



2. Using a 16mm socket remove the two bolts on the front of the bottom frame tubes. The lower intercooler mount will bolt in place here reusing the factory bolts.
3. With the bolts removed from the frame, lift the Intercooler into place. You can use a jack to support it while you get the bolts started or have a friend help hold it in place.
4. Reinstall the bottom frame bolts this time going through the slots in the lower mount before going back into the frame. And tighten down.



5. At the top / front of the intercooler and shroud insert the M8 socket head bolts, with oversized washers, down through the shroud and intercooler. Use another oversized washer and lock nut on the bottom of each and tighten down.

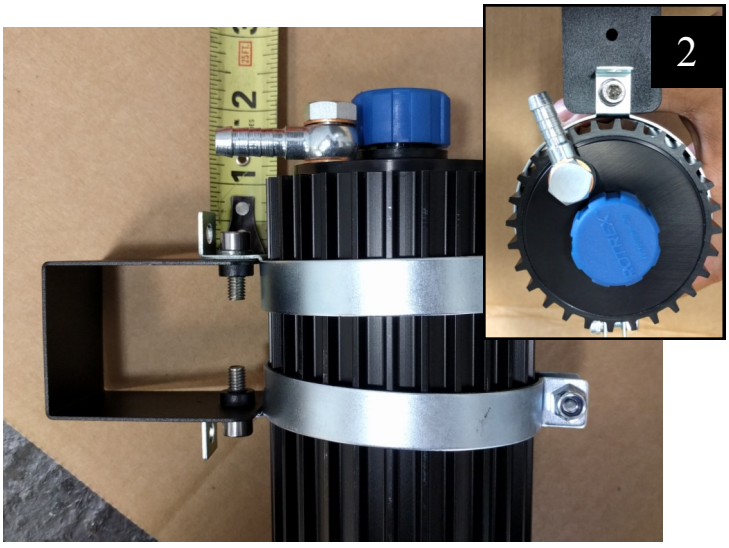
Oil System continued

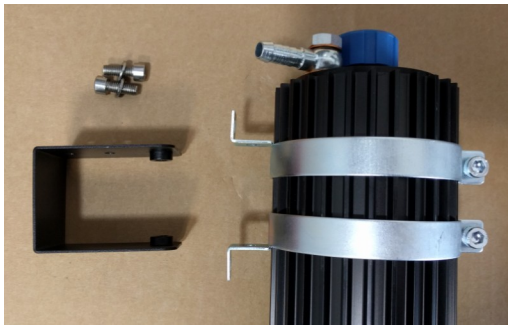
Setting up the Rotrex Oil Reservoir.

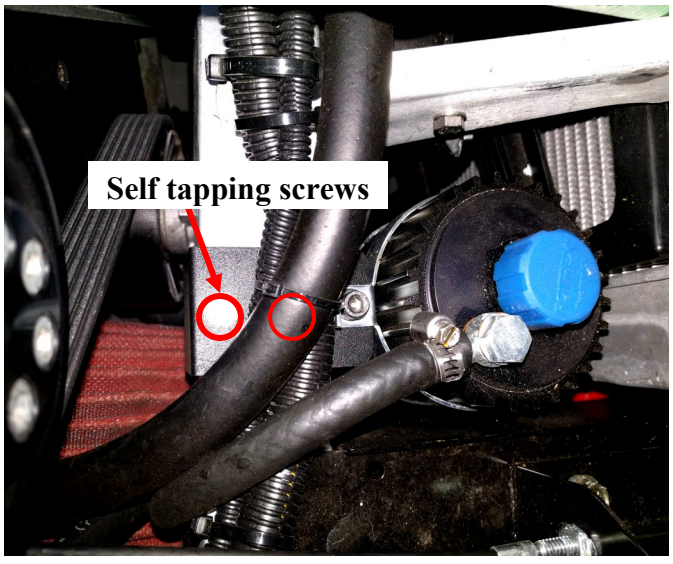
Install the banjo bolt and barbed fitting to the bottom and top of the reservoir. Make sure to use a crush washer between the banjo bolt and barb fitting and between the barb fitting and reservoir. Do not tighten the banjo bolts yet.

Locate the C shaped Reservoir Bracket in your kit as well as the Reservoir and Clamps.

1. Using the M6 socket head bolts supplied, bolt the clamps onto the Reservoir Bracket as shown in the photo (1).
2. Slide the Reservoir into the clamps and leave about 1 inch sticking out the top. Also clock the reservoir so that the banjo fitting points off to the left side of the bracket as shown in the photo (2). Tighten the clamps down onto the reservoir using the bolts supplied.
3. With the clamps tightened down on the reservoir, remove the two socket head bolts holding the clamps to the C bracket.
4. The C bracket needs to be installed onto the radiator support bar in the engine bay of the slingshot. The bracket will have to be gently pulled open as you slide it over the square tube on the slingshot. The bracket goes right in front of the supercharger on the square tube. Located between the radiator support and frame rail on the passenger side. The two holes in the bracket need to be on the top.
5. Once you have the bracket on the square tube, use the self tapping screws provided to fasten the bracket down through the two holes.

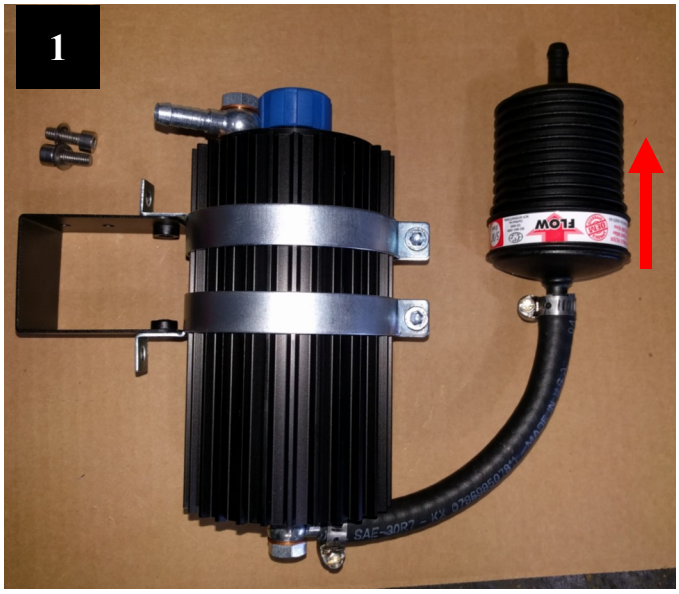






Oil System continued

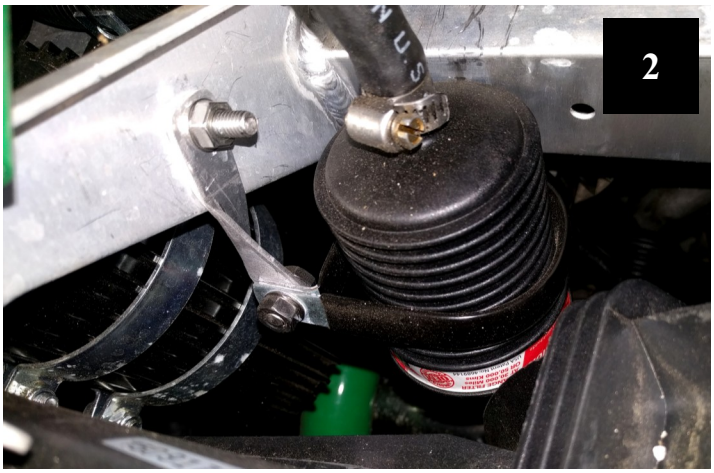
With the Reservoir in place attach the oil line labeled Reservoir out to Filter in. Use the hose clamps provided to tighten down the oil lines so they do not come off or leak. You can also tighten the banjo fitting on the reservoir at this time. Pay attention to the Flow direction on the filter. It should be facing up as pictured (1)



The Filter has a clamp and bracket to hold it in place on the radiator support bar as shown in photo (2). Use the hardware supplied to mount the filter.

The next oil line runs from the Filter Out to the Rotrex In fitting on the supercharger unit. Tighten the hose clamps on each end, but leave this Banjo fitting loose as you will be bleeding the system when all the lines are installed.

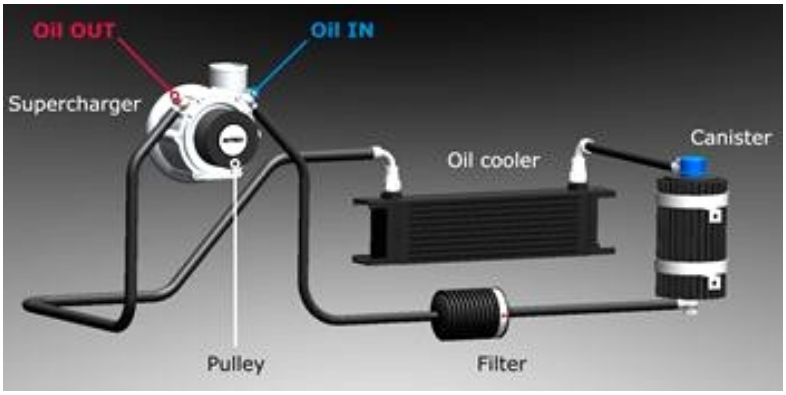
Next is the oil line from the Rotrex Oil Out to the Oil Cooler behind the Intercooler. Attach this line and tighten the clamps on each end.



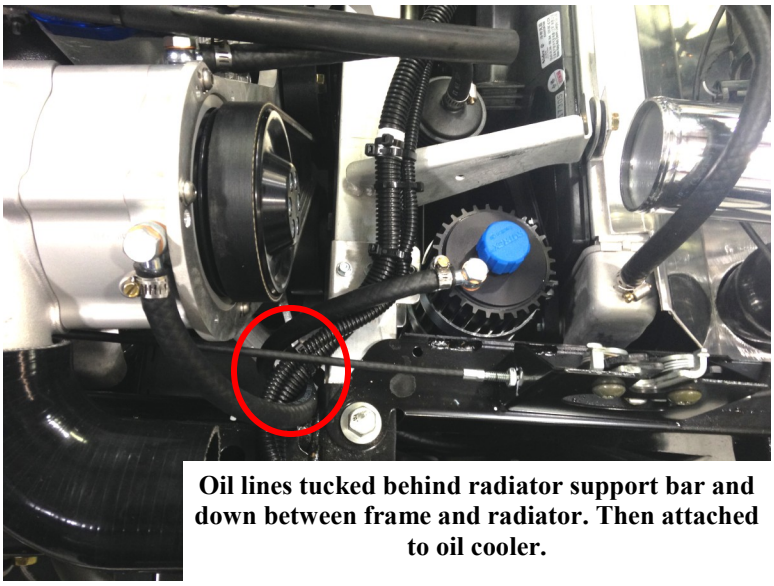
Last is the Oil line going from the Oil Cooler to the top of the Reservoir. Attach it and tighten the clamps on each end.

All of the connections on the oil system should now be tight, except for the “oil in” on the supercharger, it needs to be just a half turn loose at this point for us to bleed the system.
Fill the reservoir about 1/2 full using only the Rotrex oil provided in the kit.

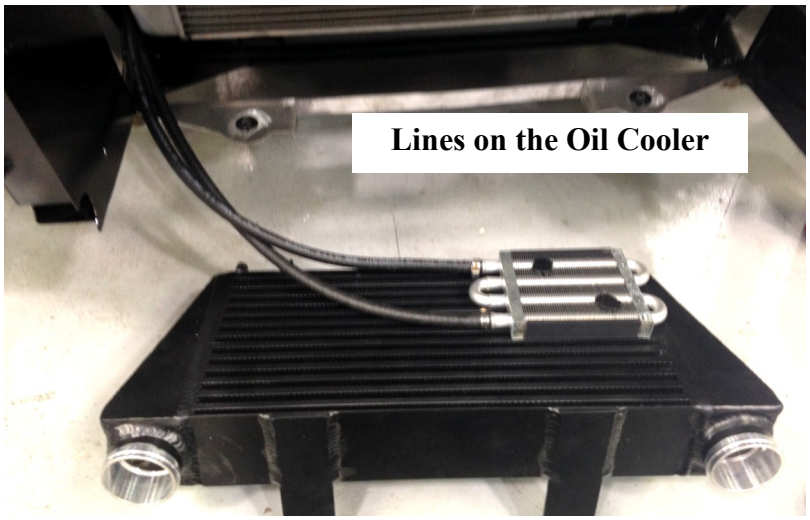
To bleed the system we need to build pressure in the reservoir until the oil comes out of the “oil in” on the supercharger. Use the breather line that is included in the kit and hold it to the opening on the top of the reservoir and blow hard into the other end. After about 10 seconds you should start to see the blue oil come out of barb fitting at the “oil in” at the supercharger. Once you see oil come out of that fitting, tighten it down, the system is now bled.



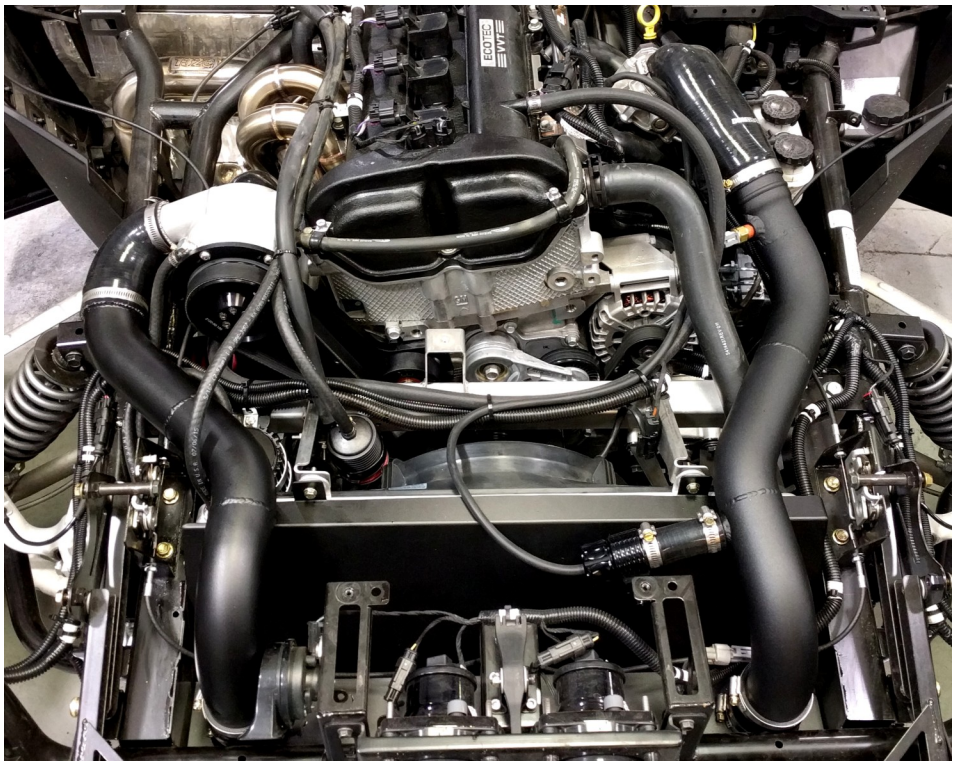
Oil Line Routing



Oil lines tucked behind radiator support bar and down between frame and radiator. Then attached to oil cooler.



Charge tubes and Silicone



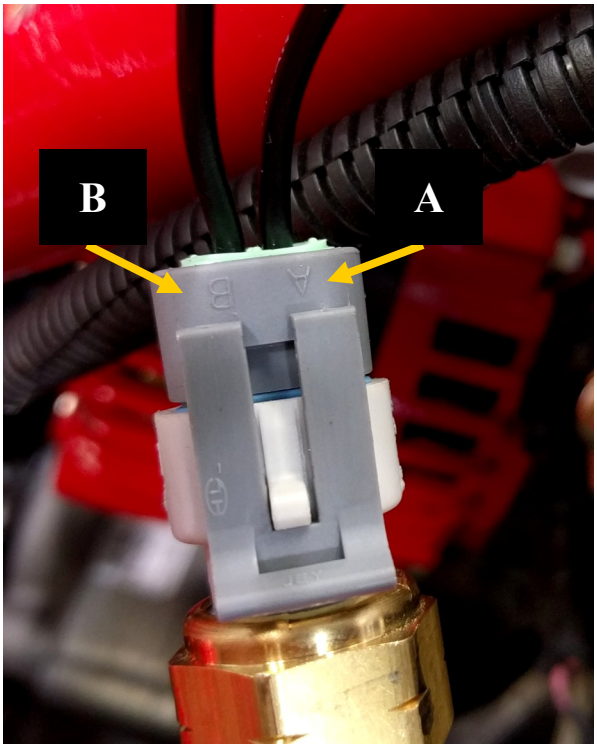
You can use some lubricant to help slide any of these silicone couplers into place at any time during the installation. Start with the 2 hump hoses and 4 of the #40 hose clamps that will slip on top of the intercooler inlet and out let pipes. Leave the hose clamps loose until all of the tubes are in place.

Next is the driver side charge tube which is the tube that has the blow off valve fitting and air intake temp sensor fitting on it. On the flared end, closest to the threaded temp sensor bung, you will need to attach the throttle body elbow to the tube first. Then insert the tube down into the hump hose on the intercooler. Then the throttle body.

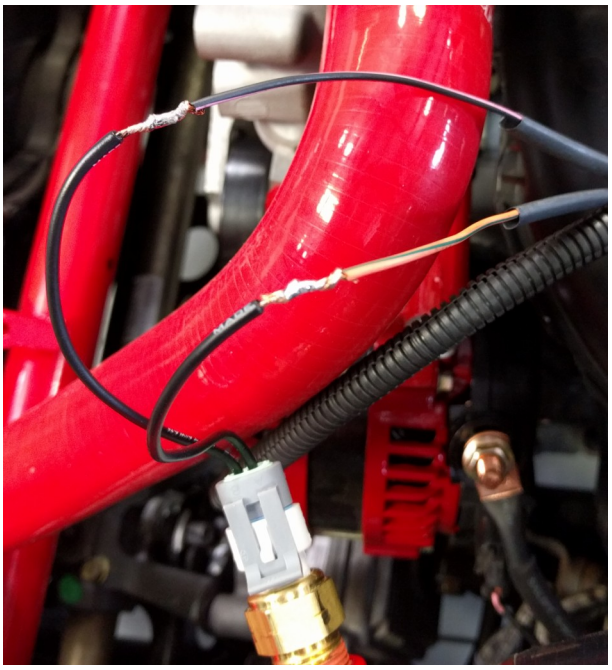
On the passenger side charge tube, attach the 90 degree reducing elbow to the rotrex side of the charge tube. Insert the charge tube into the hump hose on the passenger side of the intercooler. Then slide it onto the rotrex air outlet.

Air Intake Temp Sensor

The new air intake Temperature sensor has to be wired in place of the stock unit.

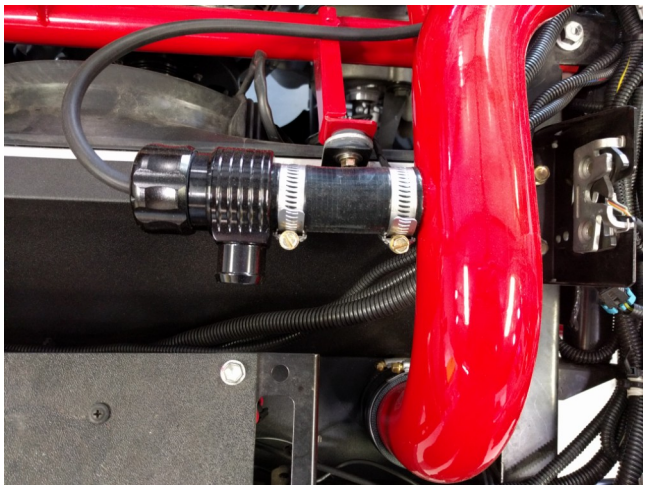


1. Start by inserting the new Temp Sensor into the threaded bung on the driver side charge tube and tighten it down.
2. Next you will see the new Plug with 2 wires sticking out of it. The two wires are labeled on the plug. Wire A and Wire B.
3. On the sling shot you will have to remove some electrical tape and wire loom to expose the factory wires for the slingshot air intake temp sensor.
4. There will be two wires, one is Black with a Pink stripe and the other is Orange with a Green stripe.
5. Using a pair of wire cutters, cut the two wires for the factory slingshot temp sensor about 2 inches behind the factory grey electrical connector. Then using wire stripers, strip back about one inch on each of the factory wires.
6. With the new A/B wiring plug plugged into the new temp sensor on the charge tube you can over lap the new wires and stock wires to see if any needs trimmed off.
7. Once you have the correct length set you can strip back the new A/B wires about 1 inch.
8. Wire B connects to the Black factory slingshot wire and Wire A connects to the Orange factory slingshot wire.
9. It is recommended you solder the connections to make sure it is connected well and never comes apart.
10. Then using heat shrink tubing cover the bare sections of the wires.



Installing the Blow Off Valve

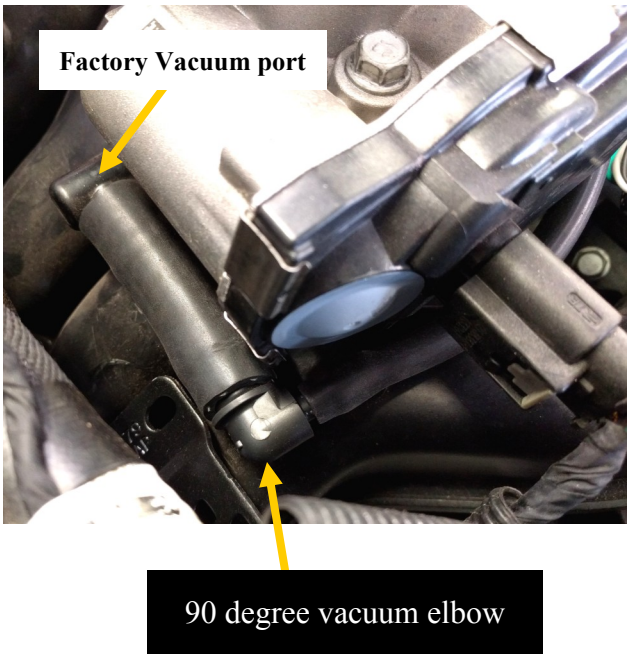
The Blow Off Valve gets installed on the drive side charge tube just above the intercooler.



In the kit you will find your Blow Off Valve, A section of 1 inch round silicone, 2 hose clamps, a roll of vacuum hose, a 90 degree reducing vacuum elbow, and a short section of half inch hose.

As you can see in the photos the Blow Off Valve gets inserted into the 1 inch silicone hose and clamped down. Then the hose is clamped onto the driver side charge tube.

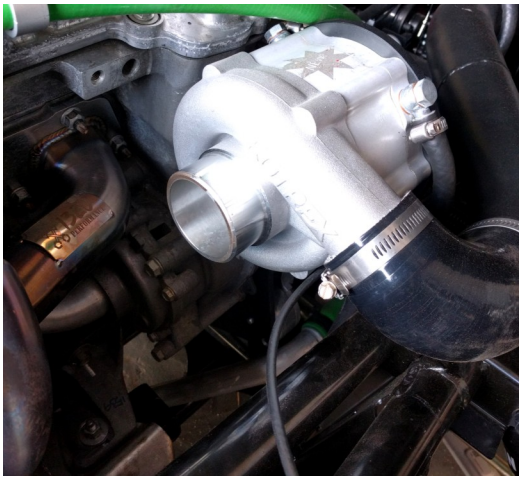
The roll of vacuum line runs from the fitting on top of the blow off valve up along the charge tube and around the throttle body. Just under the throttle body you will find a factory vacuum port which is capped off. Remove that cap and replace it with the short section of half inch rubber hose. Then insert the half inch side of the 90 degree vacuum elbow into the short rubber hose. And connect the vacuum line to the smaller side of the elbow, completing the blow off valve system.

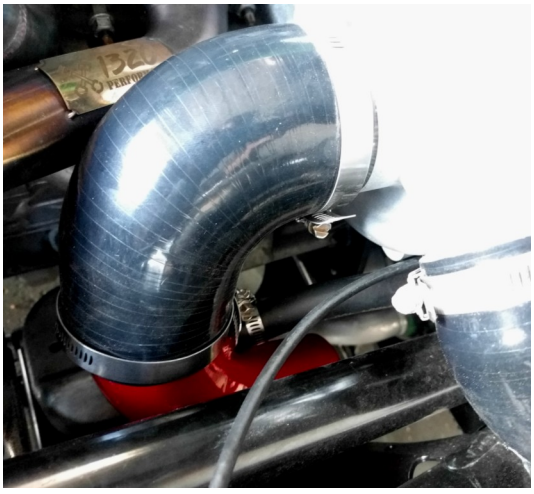


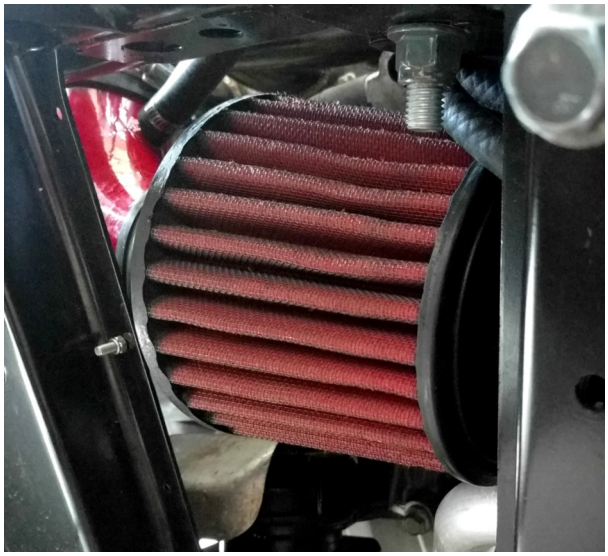
Air Intake

Installing the Air Intake, Air Filter, And Breather Line.

1. In the kit you will find an Air Filter, Air intake tube, A 90 degree silicone elbow, hose clamps, A Breather Hose, And a Clamp with hardware.
2. The 90 degree silicone attaches to the top of the air intake tube and then onto the fresh air inlet on the Rotrex.
3. Leave all clamps loose until everything is in place.
4. Insert the Air filter through the frame in the wheel well behind the suspension components and attach it to the air intake tube. Leave this clamp loose for now as well.
5. With the air intake in place you can install the clamp around the air intake tube right behind the air filter.
6. The bolt will go through the clamp and through the small hole in the frame. Then the locking nut on the outside of the frame.



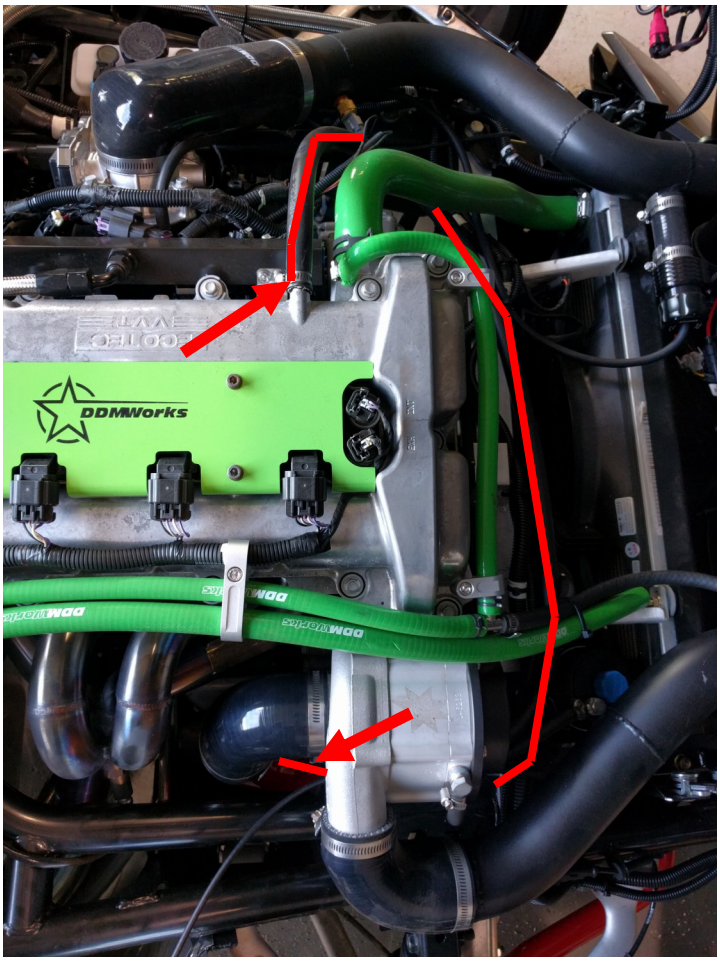




Breather Line

The Breather Line runs from the Valve cover around the front of the engine, under the rotrex, and onto the fitting on the air intake tube.

You will zip tie the breather line back away from the engine and belts so it does not interfere with anything and cause problems down the road.



First fire up

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

1. Make sure everything is clear, make sure that all rubber hoses are clear of the belts, etc. If possible have a friend watching the engine while you turn the car over.
2. Once the engine starts, check to make sure everything looks good, there is nothing hitting anything, etc. check for fluid leaks, etc.
3. Listen for any possible vacuum leaks and tighten any hose clamps that may need it.
4. Once the engine is idling well, let it warm up fully and take it for a short 5 minute cruise without doing any full throttle runs.
5. Come back and shut off the engine and check again for any leaks or rubbing., also retighten **all** hose clamps at this point.
6. Check the fluid in the oil reservoir for the supercharger and re-fill as necessary.
7. The ECM will continue to adapt to the new supercharger over the next 500 miles, during this time a slight idle droop may be notices. This will get better as the ECM continues to learn.
8. If everything looks good now, put the hood back on and go enjoy the new power!

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

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

This Product is Jake the Super dog approved!