

RV6 Performance Downpipe Install Guide For 10th Generation Civic Type R FK8

This is an install guide written for the RV6 Performance downpipe for the 2017+ FK8 Civic Type R. This is a 3" downpipe made from 304 stainless steel with 304 stainless cast transition sections and a 200 cell high flow catalytic converter. Black and silver ceramic coatings are also available to help minimize heat transfer to the engine bay.

More specifically this guide details a high temperature catted downpipe with silver ceramic coating installed on a 2017 Type R, #00561. This car had no engine modifications and a stock exhaust. All removal instructions reference stock components but the process would be similar for removing other aftermarket components such as an air intake. This process will be the same when installing a catless down pipe. It also may not be required to remove all of the components discussed in this procedure, but removal will give more space to work in.

Always perform auto work in a safe manner. Never work underneath a vehicle without appropriate retention devices (jack stands or a lift.) Always wear proper protective equipment. Safety glasses and gloves are recommended. Other tools may be substituted based on availability or personal preference from the list provided below.



Tools Recommended:

•3/8" Socket Size

- o 3/8" Socket Wrench
- o 10mm Socket
- o 12mm Socket
- o 14mm Socket
- o Various Extensions
- o Flex Joint Adapter

• **1/2" Socket Size**

- 1/2" Socket Wrench
- 1/2" Breaker Bar
- 14mm Socket
- 22mm Slotted Socket (Or Similar O2 Removal Tool)
- Various Extensions

Phillips Head Screw Driver

Flat Head Screw Driver

Magnetic Extension Rod

Primary Car Jack

Secondary Small Car Jack

Jack Stands (2x)

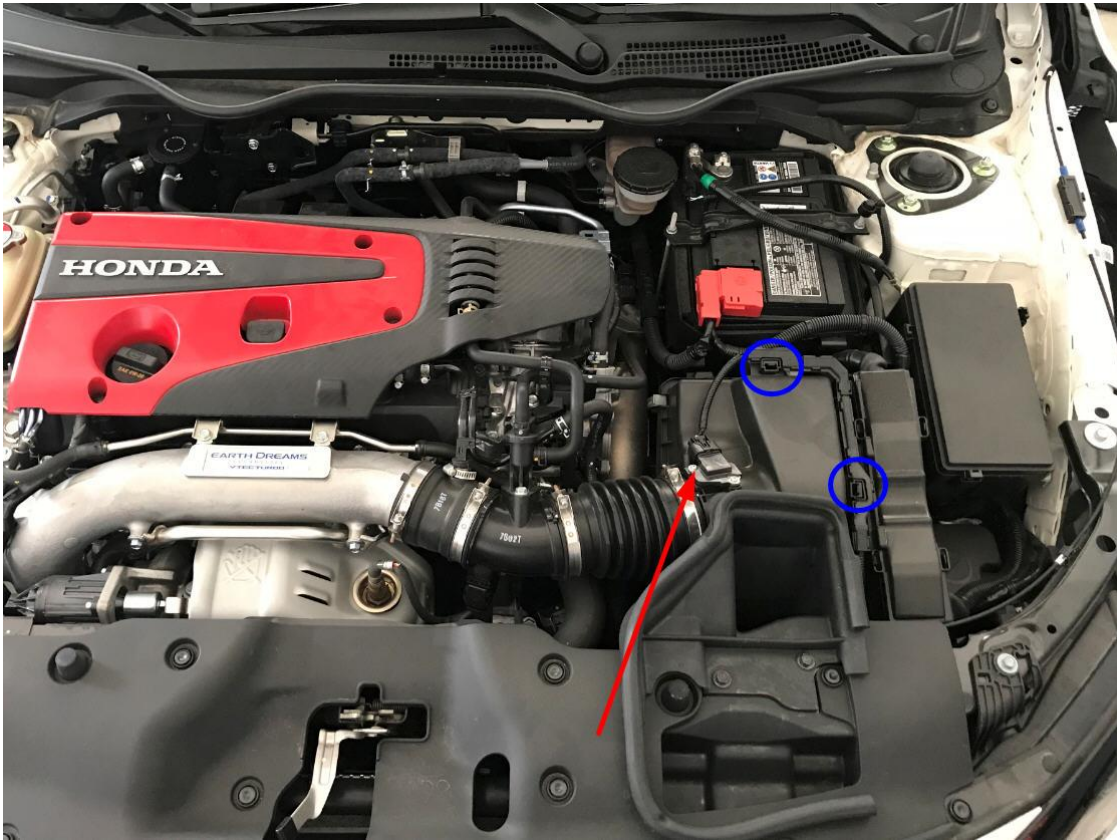
Channel Lock Pliers

PB Blaster (Or Similar Penetrating Liquid)

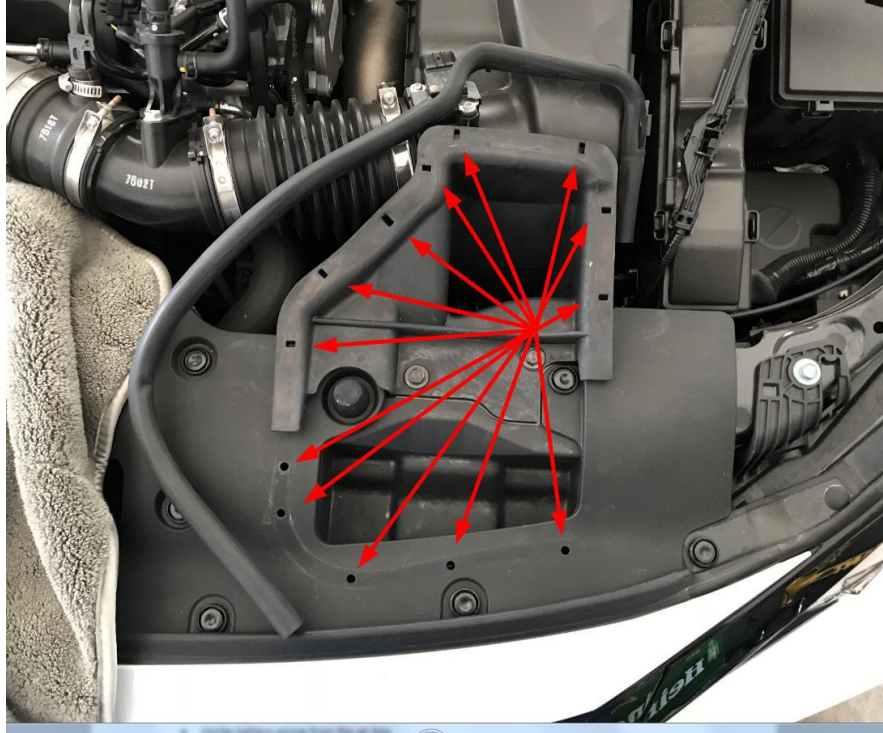
Installation Instructions:

Step 1: Remove Air Intake

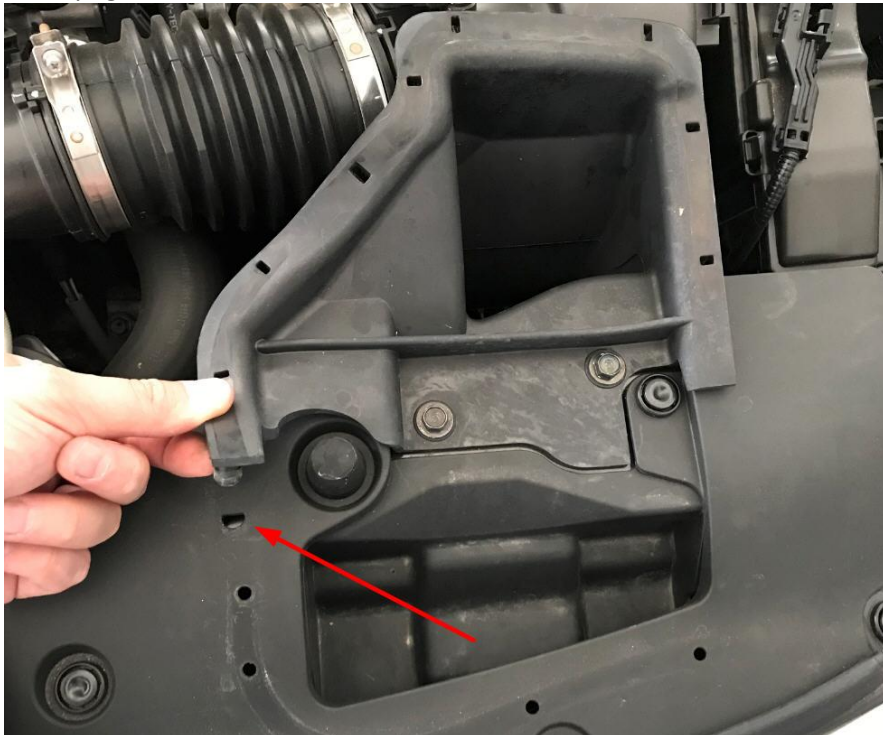
- 1.1: Unplug the MAF sensor from the intake tube (Red Arrow) and unclip the sensor wiring from the air box (Blue circles.)



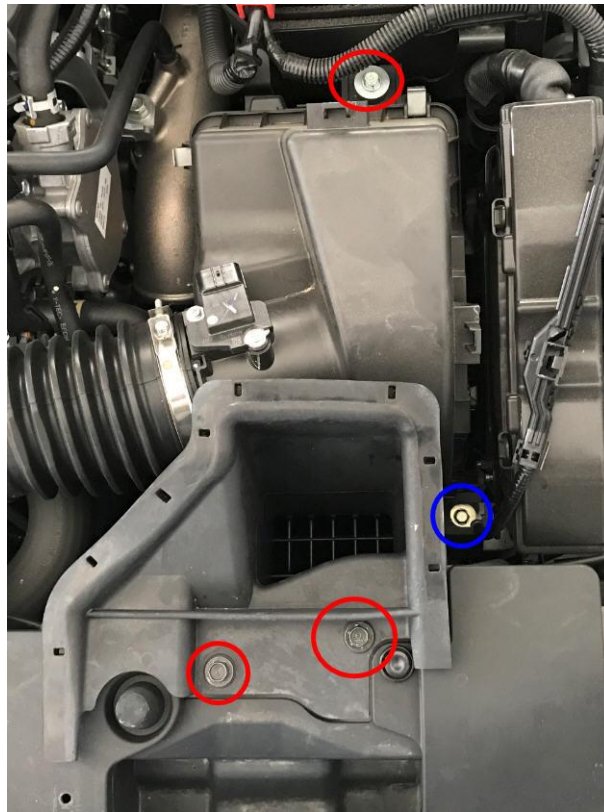
- 1.2: Remove rubber stripping by releasing clips holding it to the air duct and to the radiator cover (Red Arrows.) A flathead screwdriver can help pry up the tabs, but be careful not to tear the weather stripping.



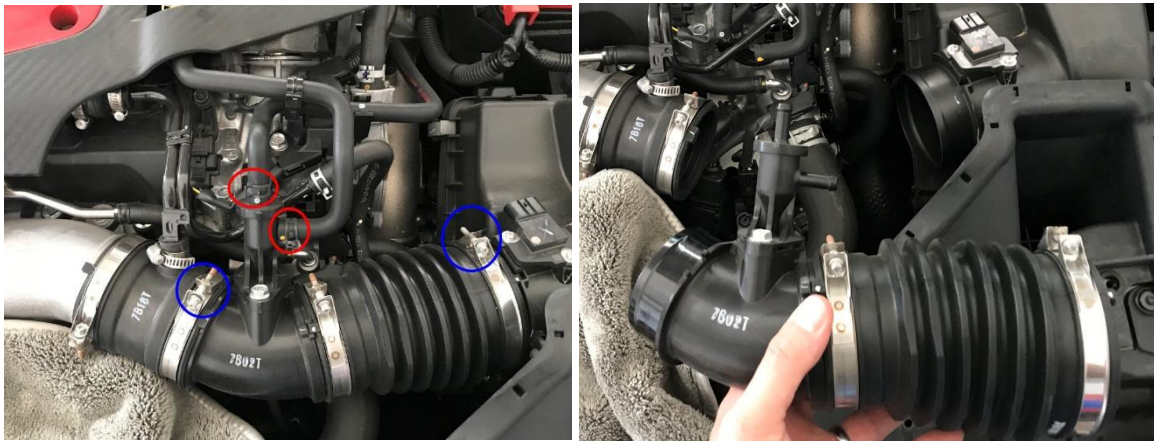
- 1.3: Lift the front peg of the air duct from the radiator cover.



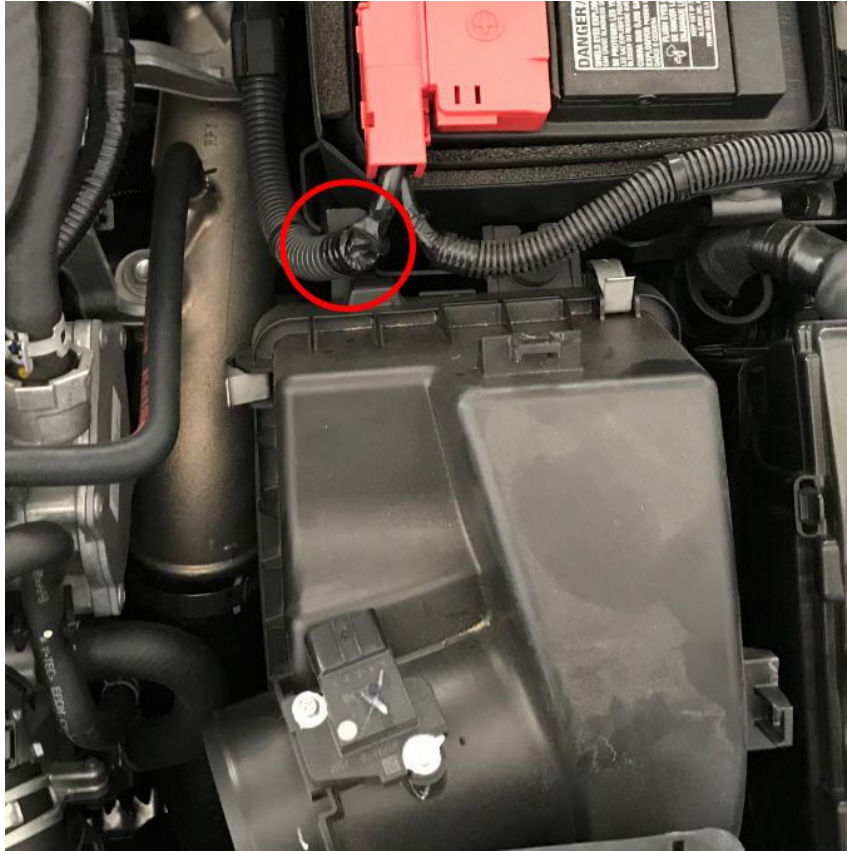
- 1.4: Remove 4x 10 mm head bolts (3 Red Circles and 1 Blue Circle) Using a 3/8 inch socket. A Roughly 9 inch extension will be required to access the lower 10 mm head bolt (Blue Circle.) Note – the lower bolt may be difficult to remove from the intake housing bushing but can stay in position while the entire intake is removed (Blue Circle.)



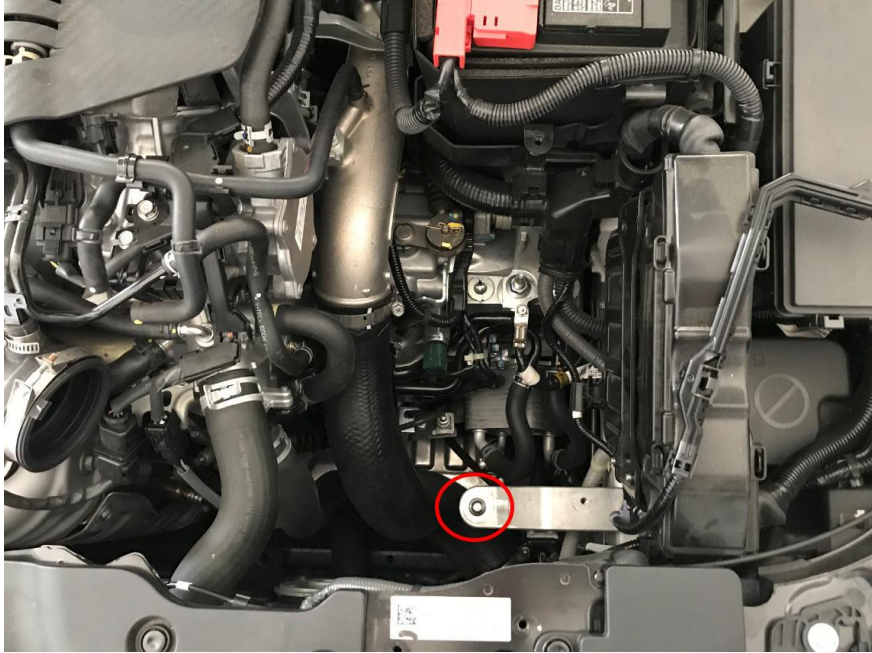
- 1.5: Compress the clamps on the jet valve hoses using channel lock pliers and disconnect the hoses from the black intake tube (Red Circles.) A flat head screwdriver can help push hoses off of their ports. Loosen the worm clamps with a Phillips head screwdriver (Blue Circles) and remove this section of the black intake tube.



- 1.6: Unclip the battery wiring from the air box (Red Circle.)

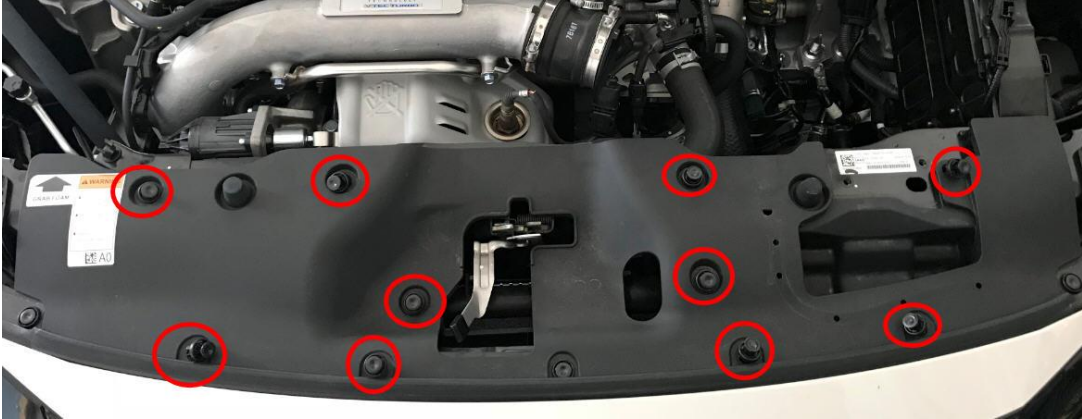


- 1.7: Remove air box from the vehicle. Note – there is a metal spire and rubber grommet on the underside of the air box that will provide some resistance when removing the air box (Red Circle.) A reasonable amount of vertical force is required to remove the air box from this connection point. It is also possible to remove the air box cover, air filter, and the rubber shroud prior to removing the air box itself in order to have better leverage. When removing the rubber shroud all 6x connection points must be disconnected (Red Arrows, 2x on the air box cover and 4x on the lower air box housing.) Be careful not to tear the rubber during this process. All components are shown below.



Step 2: Remove Radiator Cover

- 2.1: Unclip 10x push clips securing the radiator cover with a flathead screwdriver and remove. Take care not to drop any in the engine bay as they can be difficult to retrieve.



Step 3: Remove Top Pipe

- 3.1: Remove 3x 10mm head bolts (Red Circles.)



- 3.2: Remove 2x 10mm head bolts (Red Circles.)



- 3.3: Remove 2x 10mm head bolts securing the wire harness to the top pipe (Red Arrows.) The view below is looking from the right hand side of the car. The lower bolt is difficult to see and access. The socket extension and flex joint used can be seen in the lower right hand side of the image. The socket is seated on the bolt head at this time.

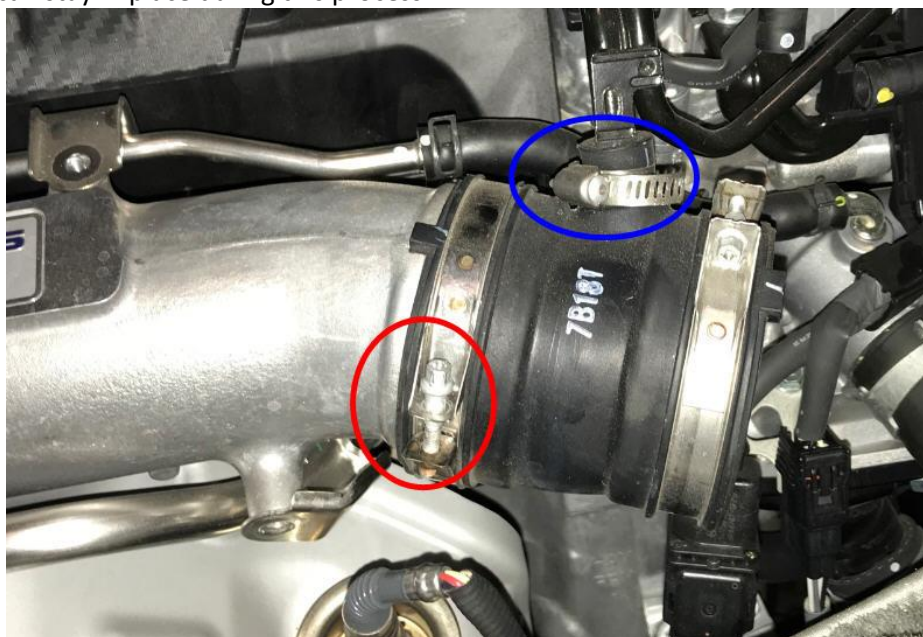


- 3.4: Remove 2x 12mm head bolts (Red Circles.) The rearmost bolt can easily be accessed with a 5" socket extension, but the forward most bolt is difficult to reach due to the plumbing and wires in the area. The images below show the socket orientation used for this bolt. It will likely be required to gently move hoses and wires in order to get the socket into place. Due to the difficulty in photographing the forward most bolt, the bare top pipe is also shown when removed from the engine in order to clarify where the 2x 10mm head harness bolts from the previous step (Blue Circles) and the 2x 12mm head bolts (Red Circles) are located. All photographs are taken from viewpoint at the right hand side of the vehicle.





- 3.5: Loosen the worm clamp (Red Circle) using a Phillips head screwdriver and disconnect the final section of the black intake pipe from the silver top pipe. Due to type of rivet used (Blue Circle) this section of the intake pipe is left on. It can be destructively removed and replaced, or this section of pipe can stay in place during this process.



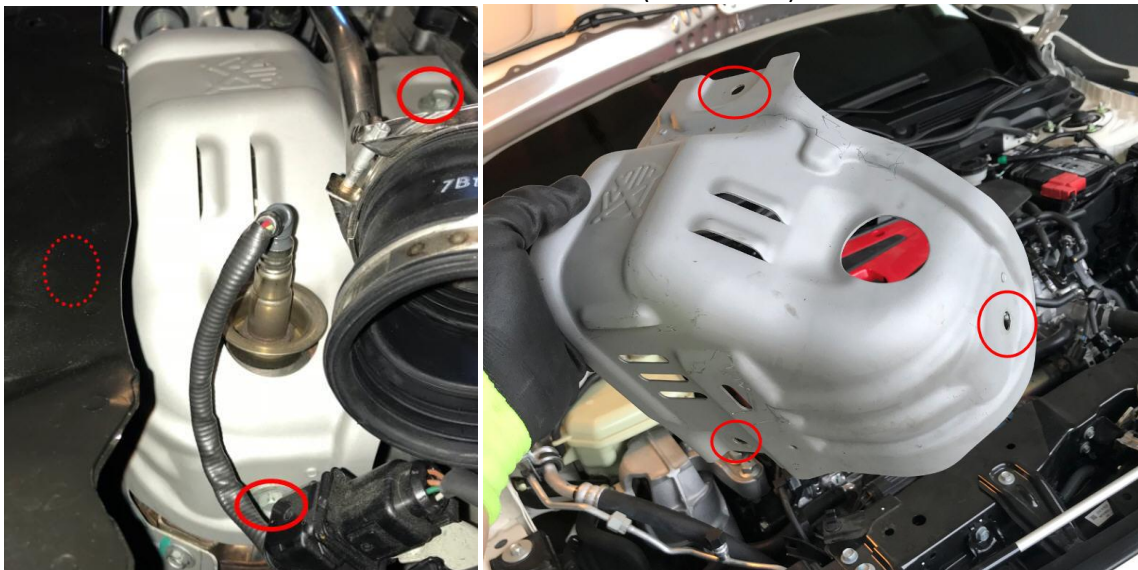
- 3.6: Remove the top pipe from the engine bay. Take care not to lose the gasket between the top pipe and the turbo.

Step 4: Remove Top Heat Shield and Upstream O2 Sensor

- 4.1: Unplug the upper O2 sensor harness (Red Arrow) and the downstream O2 sensor harness (Yellow Arrow.)



- 4.2: Remove the upstream O2 sensor using a 22 mm slotted deep socket or other dedicated O2 sensor tool. The downstream O2 sensor can be left in place and removed after the downpipe is out of the vehicle.
- 4.3: Remove 3x 12 mm head bolts and remove the heat shield (2x Visible Bolts Shown in Solid Red Circles, Hidden Bolt Shown in Dashed Red Circle.) The forward most bolt is on the front vertical face of the heats shield and may be difficult to remove due to access. The second image shows the removed heat shield with all three bolt locations (Red Circles.)

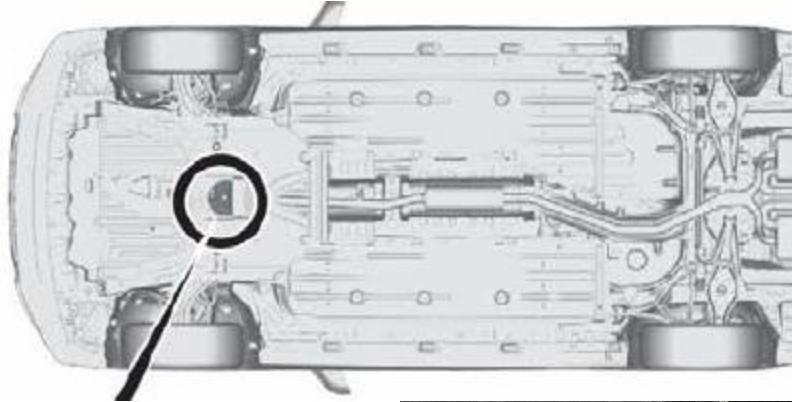


Step 5: Spray Penetrating Liquid on Upper Downpipe Hardware

- 5.1: Coat the 2x bolts and 2x nuts connecting the down pipe to the turbo with penetrating liquid. It is recommended to then let the liquid soak into the joint for several hours for best results. Re-apply penetrating liquid several times during this time period. Proceed with steps 6-8 while the liquid soaks into the joints.

Step 6: Raise Vehicle and Install Jack Stands

- 6.1: Utilize the center jack location shown below or other means to raise the vehicle and install jack stands under the side life points. Due to the location of the central jacking location, a smaller secondary jack may be used to partially lift the vehicle using the tow hook shown in order to gain access for the primary jack. Install jack stands when enough clearance is obtained underneath the vehicle.

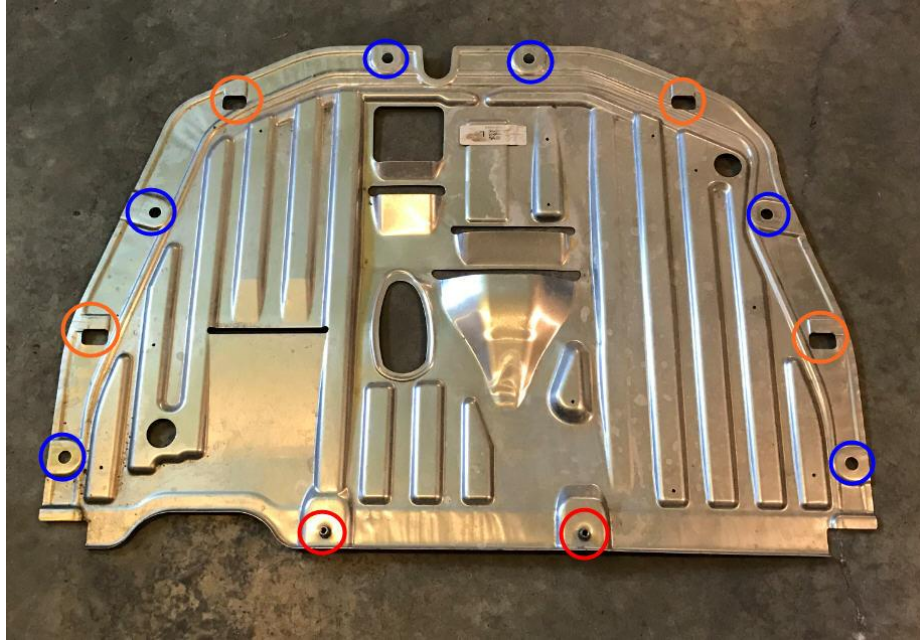




Step 7: Remove Belly Pan

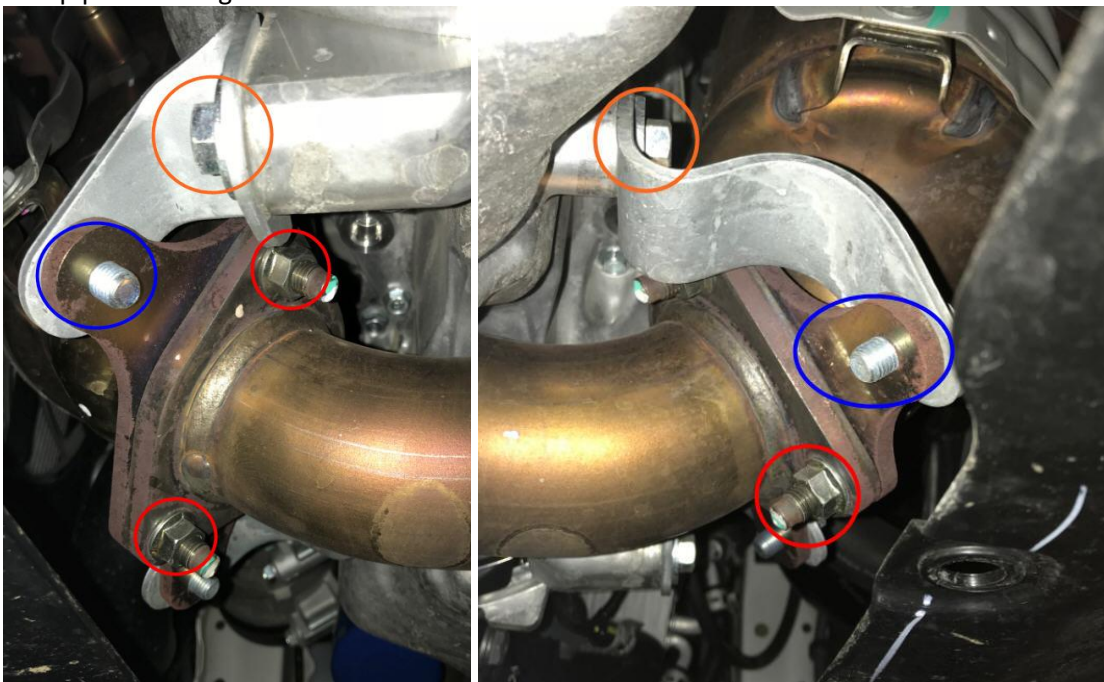
- 7.1: Remove 2x Phillips head machine screws at the front edge of the belly pan (Red Circles.) Remove 6x 90 degree plugs with a flat head screwdriver (Blue Circles.) Slide belly pan rearward to release it from 4x tabs (Orange circles.)





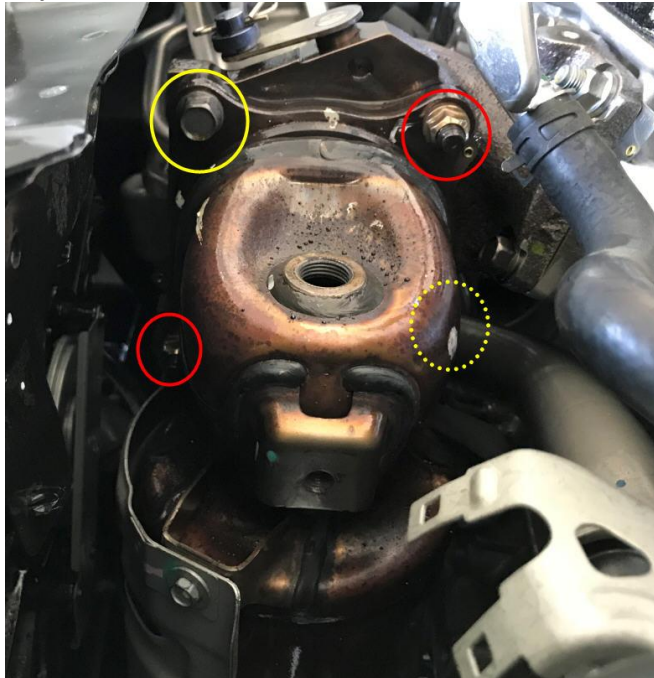
Step 8: Disconnect Lower End of Down Pipe

- 8.1: Remove 3x nuts with a 14 mm socket (Red Circles) between the down pipe and the front pipe, 2x 14 mm head bolts securing the support brackets to the frame (Orange Circles) and 2x 14 mm head bolts holding the support brackets to the downpipe (Blue Circles.) The photos below show one view from the left side of the vehicle and the other from the right side. Note that the brackets holding the downpipe are stamped with an "L" or "R" for ease of re-assembly. The studs may come out of the downpipe during this process but are not needed to be kept. The RV6 Performance kit provides new studs. Penetrating liquid can be used to help with disassembly of these bolts as well. It may not be required to fully remove the brackets prior to removing the downpipe but doing so allows additional movement freedom.



Step 9: Remove Down Pipe

- 9.1: Allow a sufficient amount of time for the upper down pipe bolts to soak in penetrating liquid. It is recommended to allow 2-3 hours for this process to mitigate the chance of breaking the studs or bolts on the turbo.
- 9.2: Remove the 2x 14 mm head bolts (1x Visible Bolt Shown in Solid Yellow Circle and 1x Hidden Bolt Shown In Dashed Yellow Circle) and 2x nuts (Red Circles) with a 14 mm socket from the turbo. Various extensions may be required to gain access, but it is recommended to limit the use of flex joints to better control the torque through the socket wrench. Impact tools are not recommended as they have been known to shear these bolts and studs. For best results utilize consistent pressure on the socket wrench rather than jerking motions. Once the joint initially breaks loose apply additional penetrating liquid and work the joint back and forth slightly to fully break any remaining adhesion. A breaker bar can be helpful to provide additional leverage during this process. As a last resort a torch applied briefly to the bolts and nuts can help expand the metal and loosen the joints.



- 9.3: Remove the downpipe from the engine bay. The process used for this guide was to slide the downpipe off of the studs at the turbo, which then allows for the downpipe to be pulled vertically upward to release the lower studs from the front pipe. The downpipe was removed through the top of the engine bay for this guide but can be removed from underneath the vehicle as well.

Step 10: Prepare New Down Pipe for Assembly

- 10.1: Remove 4x 10 mm head bolts (Red Circles) from the factory heat shield and install onto the RV6 Performance downpipe. The heatshield will only assemble one way, do not force the shield to assemble upside down as compared to the factory installation. Swapping the heat shield may not be required when assembling a down pipe with a ceramic coating, but will additionally help mitigate under hood temperatures.

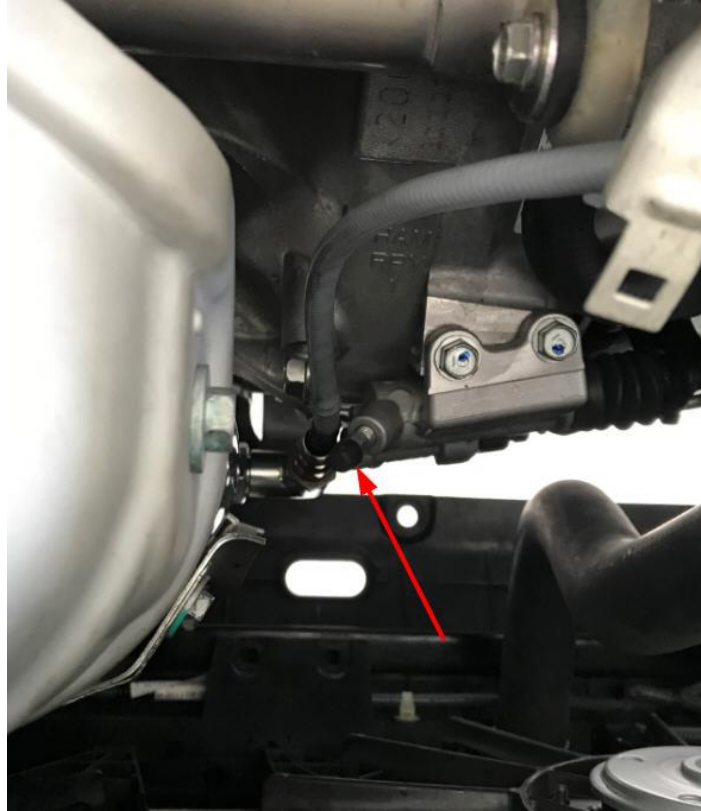


- 10.2: Remove the downstream O2 sensor from the factory downpipe (Red Arrow) and assemble to the de-fouler on the RV6 Performance downpipe. The downpipe is provided with the de-fouler already assembled.



Step 11: Down Pipe Installation

- 11.1: Insert downpipe into the engine bay from the top and slide the lower downpipe studs into the front pipe. Ensure the gasket provided is assembled between the components during this process. Loosely assemble the 3x nuts between the downpipe and the front pipe.
- 11.2: Slide the downpipe over the two studs protruding from the turbo. Ensure the factory gaskets are in place between these components. Loosely assemble the 2x 14 mm head bolts and 2x nuts.
- 11.3: Reassemble the lower downpipe brackets to the frame using 2x 14 mm head bolts and the brackets to the downpipe using 2x 14 mm head bolts. Torque the brackets to the frame and then to the downpipe.
- 11.4: Torque the 2x 14 mm head bolts and 2x nuts with a 14 mm socket between the downpipe and the turbo.
- 11.4: Torque the 3x nuts with a 14 mm sockets between the downpipe and the front pipe.
- 11.5: Check the orientation of the de-fouler and downstream O2 sensor to ensure clearance is seen between the sensor wires and the component shown (Red Arrow.) The de-fouler used in this guide needed to be rotated slightly to achieve more clearance.



- 11.6: Assemble the upper heat shield with 3x 12 mm head bolts.
- 11.7: Reassemble the upstream O2 sensor. Tighten O2 sensor to the down pipe prior to re-connecting the electrical harness.

Step 12: Final Assembly

- 12.1: Perform steps 1-7 in reverse to re-assemble the belly pan, top pipe and air intake.

General Notes:

- Torque specs have not been listed in this document as all hardware mentioned tends to be of small enough size to where "hand tight" should be sufficient. However utilization of a calibrated torque wrench provides clear evidence that sufficient bolt pre-loads have been achieved. Note the table below for some general guidelines on bolt torques. The below table assumes torques measured through a torque wrench have a +/- 10% accuracy. All hardware removed in this guide appeared to be grade 8.8.

Grade 8.8 Hardware

Bolt Head Size (mm)	Bolt Thread Size	Dry Torque (Nm)
10	M6	9.8
12	M8	23.8
14	M10	47

- Anti-seize compound may be applied to hardware to prevent hardware from becoming frozen together and aid with future disassembly. If chosen, take note that this lubricates the bolted joint

and less torque is required to obtain the same bolt clamping force. The above dry torque values should be reduced by roughly 30% when utilizing anti-seize.

- When re-torquing the downpipe to the turbo (4x bolted connections) and the downpipe to the front pipe (3x bolted connections) apply the torque evenly across all bolts. To ensure proper joint clamping it is not recommended to fully torque one connection then move on to the next, but rather to gradually torque all connections in an alternating pattern until full torque is achieved at each connection.
- Downpipe Comparison. The factory downpipe is shown next to the RV6 Performance downpipe below. Both downpipes were also weighed. The factory downpipe was seen to weigh 11 lbs even, while the RV6 Performance downpipe was seen to weigh 11 lbs and 10.5 oz.





- More details for the product mentioned in this document can be found at:
 - <https://www.rv6-p.com/rv6-high-temp-catted-downpipe-for-17-civic-type-r-2-0t-fk8.html>