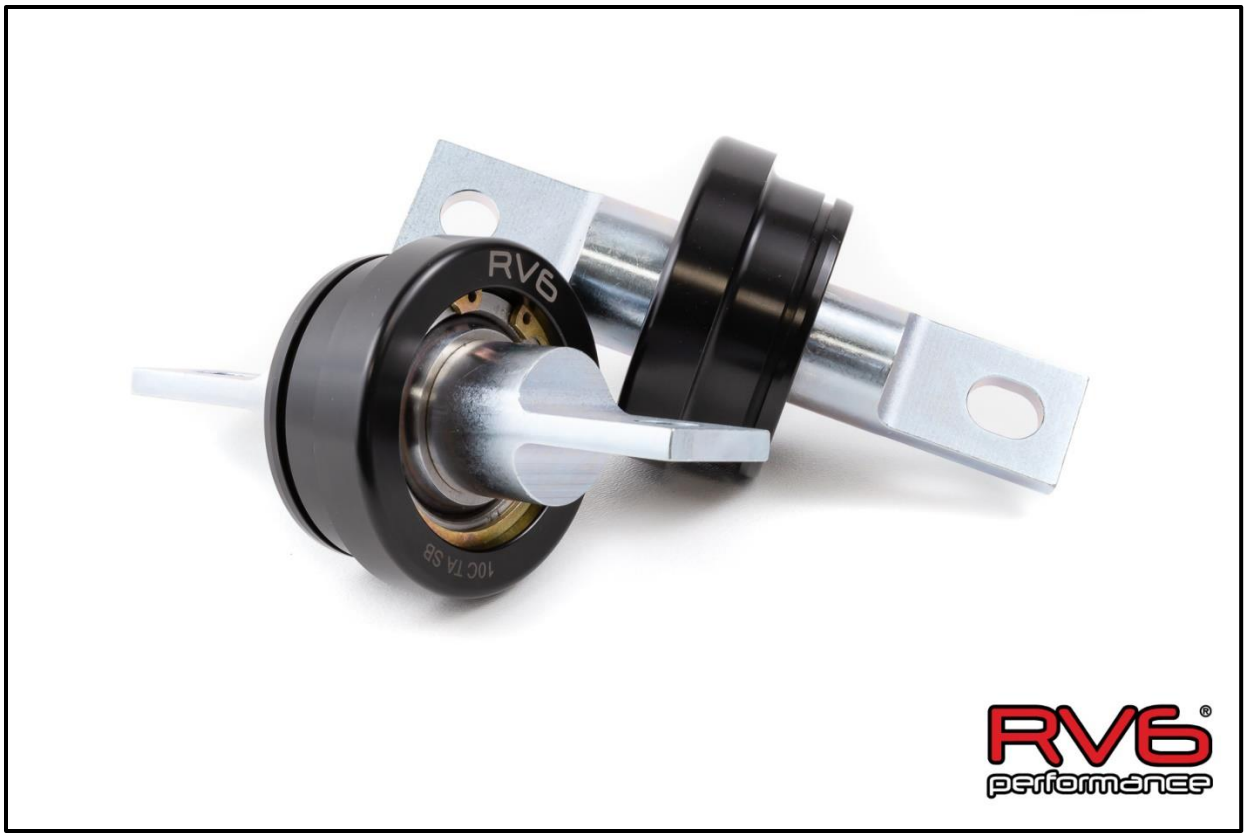
RV6 Performance Solid Rear Trailing Arm Spherical Bearing Kit Install Guide

This is an install guide written for the RV6 Performance rear trailing arm solid spherical bearing kit for the 10th generation 2017+ FK8 Civic Type R. This kit replaces the rubber bushings in the rear trailing arms with solid bearings, which makes for a solid connection between the trailing arms and the vehicle chassis. This kit is aimed to remove the excess play and slop in the rear suspension resulting from using compliant rubber bearings to provide a clean, crisp and responsive suspension feel during sport driving.

Included in this kit are 2x solid spherical bearings to assemble in the rear trailing arms and 2x snap rings. The spherical bearings to assemble into the rear trailing arms are complete with the center trunnion mount to connect the front of the rear trailing arms to the vehicle chassis.





Preface:

This guide details the installation of this spherical bearing kit on a 2017 Type R, #00561. Prior to assembly this vehicle had modifications to the rear suspension in the form of an aftermarket rear sway bar, lower control arms, toe links and the addition of a subframe rigid collar kit. Despite these changes the installation steps covered in this document will be identical to the process of working with fully stock components. The process detailed will be the same even if other suspension modifications such as lowering springs, coilovers, camber kits or alternative rear sway bars have been installed.

To install these components the rear trailing arms will need to be removed from the vehicle. Both left and right rear trailing arms assemble to the vehicle chassis with 2x bolts and to the rear knuckle with an additional 3x bolts. Once this hardware and the retention points for nearby electrical harnesses are removed the control arms can be taken from the vehicle to replace the bearings.

Note that any time suspension components are installed or altered a vehicle alignment should be performed to ensure the optimum settings are achieved. Also note that in general when moving from compliant OEM style rubber bushings to solid bearings some increase in NVH can be expected.

To maximize the suspension response and the user control over rear tire alignment settings it is recommended to install the RV6 Performance lower control arms, adjustable rear toe links, rear sway bar and the solid rear suspension bearings as an entire package.

For this document all directions mentioned are the same as if you are seated in the vehicle (IE forward means towards the front of the vehicle.) Also, for this document the terms "bushing" and "bearing" are used interchangeably. The term "heim joint" refers to a spherical bearing and housing used to allow freedom of motion at specific component connections. The term "trunnion" refers to the protruding features integrated in the inner rotating portion of a spherical bearing that provide mounting points to assemble against another component. Unless specifically mentioned when referencing hardware in the document below the size listed is for the tool size required, not the size of the hardware itself.

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.

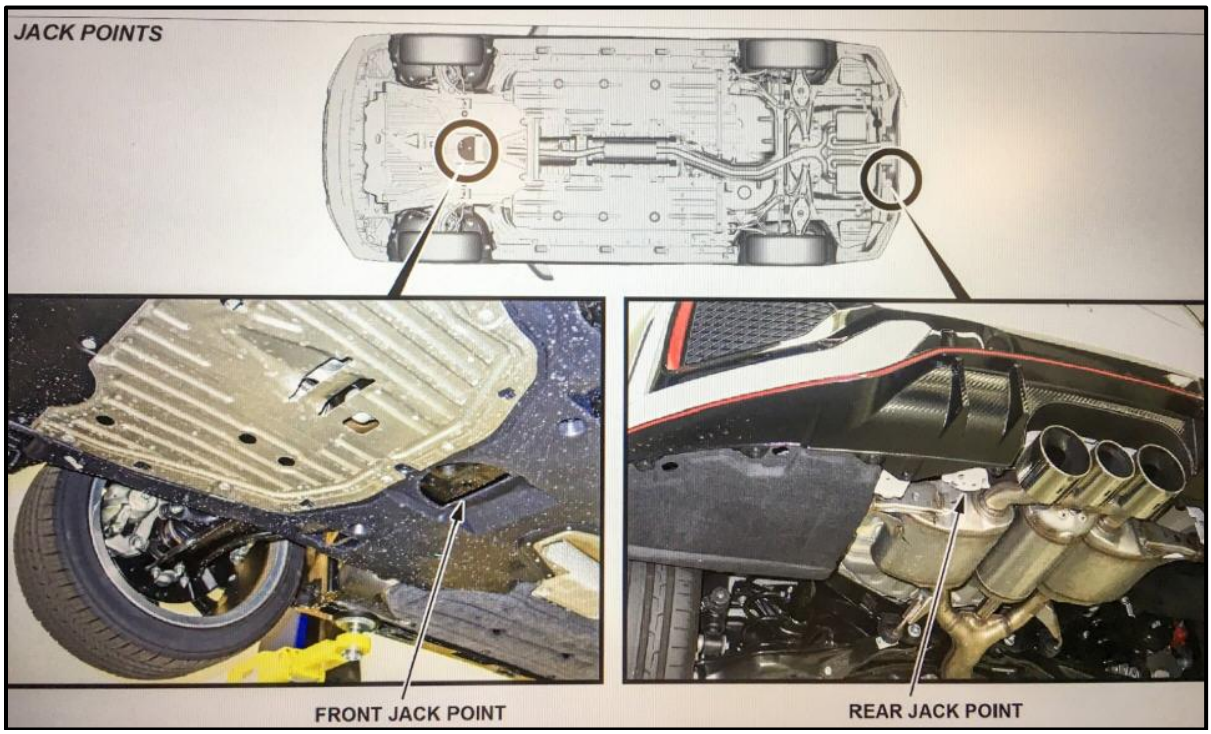
Tools Recommended:

- Socket Wrenches:
  - 3/8" or 1/2" Socket Wrench / Breaker Bar / Impact Gun
    - 10mm Socket
    - 12mm Socket
    - 19mm Socket
    - Various Extensions
  - Universal socket adapter (Flex Joint)
- Open Ended Wrenches
  - 19mm
- Flat Head Screwdriver
- Snap Ring Pliers
- Means to Press Bearings In and Out. Options include:
  - Hydraulic Press
  - Ball Joint Removal Kit
  - Varying Selections of Pipe, Bolts and Washers
- Floor Jack(s) or Lift
- Jack Stands (2-4x)
- PB Blaster (Or Similar Penetrating Liquid)

Installation Steps:

Step 1: Raise Vehicle, Install Jack Stands and Remove Rear Wheels

- 1.1: Utilize the rear central jack location shown below to raise the rear of the vehicle and install jack stands under both the left and right rear retention points. Although not necessary, the front of the vehicle may also be lifted to maximize working space. If desired, utilize the front center jack location to raise the vehicle and install jack stands under both left and right front retention points.



Note: Due to difficulty accessing the front central lifting location a smaller secondary jack may be used to partially raise the vehicle at the front lower retrieval hook (underneath the engine) or at one side jack stand location. Raise the vehicle enough to position the primary floor jack under the central lift location and proceed with raising the vehicle from there. Alternatively, vehicle ramps, low profile car jacks or full lift systems may be used. Install jack stands when enough clearance is obtained underneath the vehicle if not working on a lift system.

- 1.2: Remove the two rear wheels in order to gain more access to the rear knuckles.

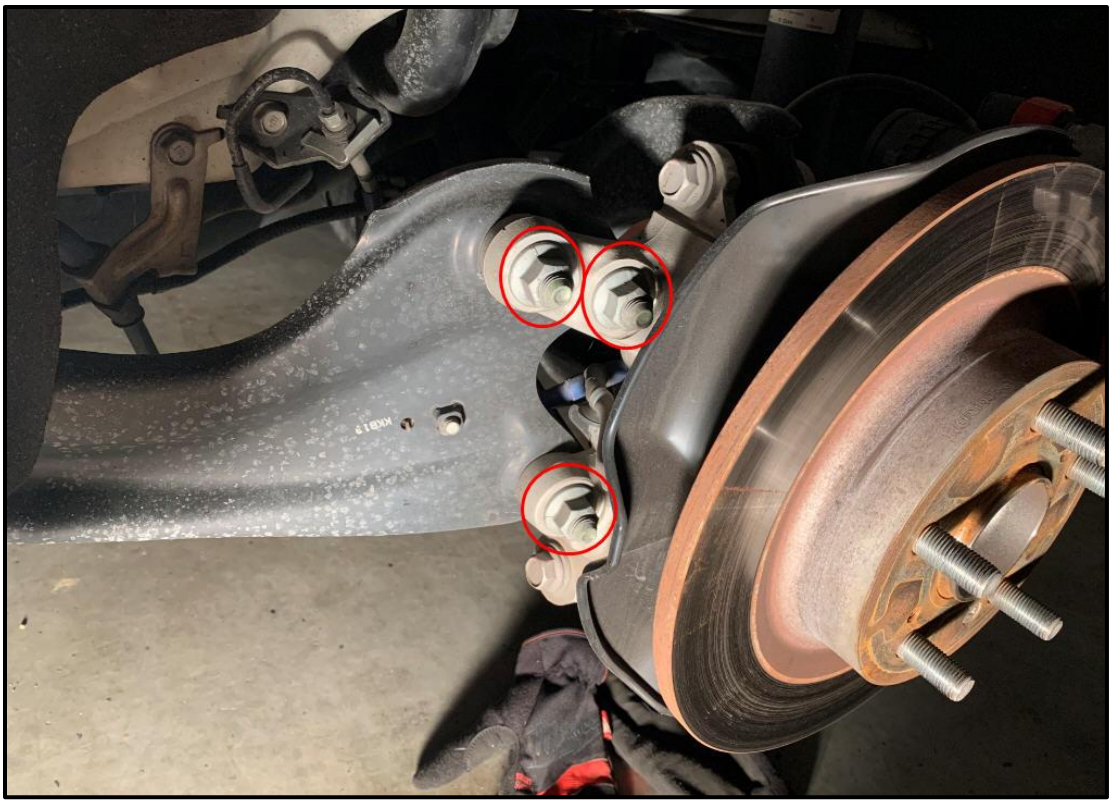
Step 2: Remove Rear Trailing Arms

Note: Both the left and right rear trailing arms have vehicle harnesses assembled near the front bearing connection and a wire running along the length of the arms themselves to connect into sensors at the rear knuckles. For the proceeding steps take care to always be aware of the nearby harness locations when removing hardware and the trailing arms themselves. A note will be mentioned if specific steps must be taken to avoid the electrical wires.

- 2.1: Remove 1x 12mm head bolt connecting the wire retention bracket to the inboard side of each trailing arm (Red Circles) on both left and right rear trailing arms, 2x bolts total. The below image shows the inboard side of the trailing arm, but the same bolt can be seen from the outboard side in the images used below for more clarification on location.

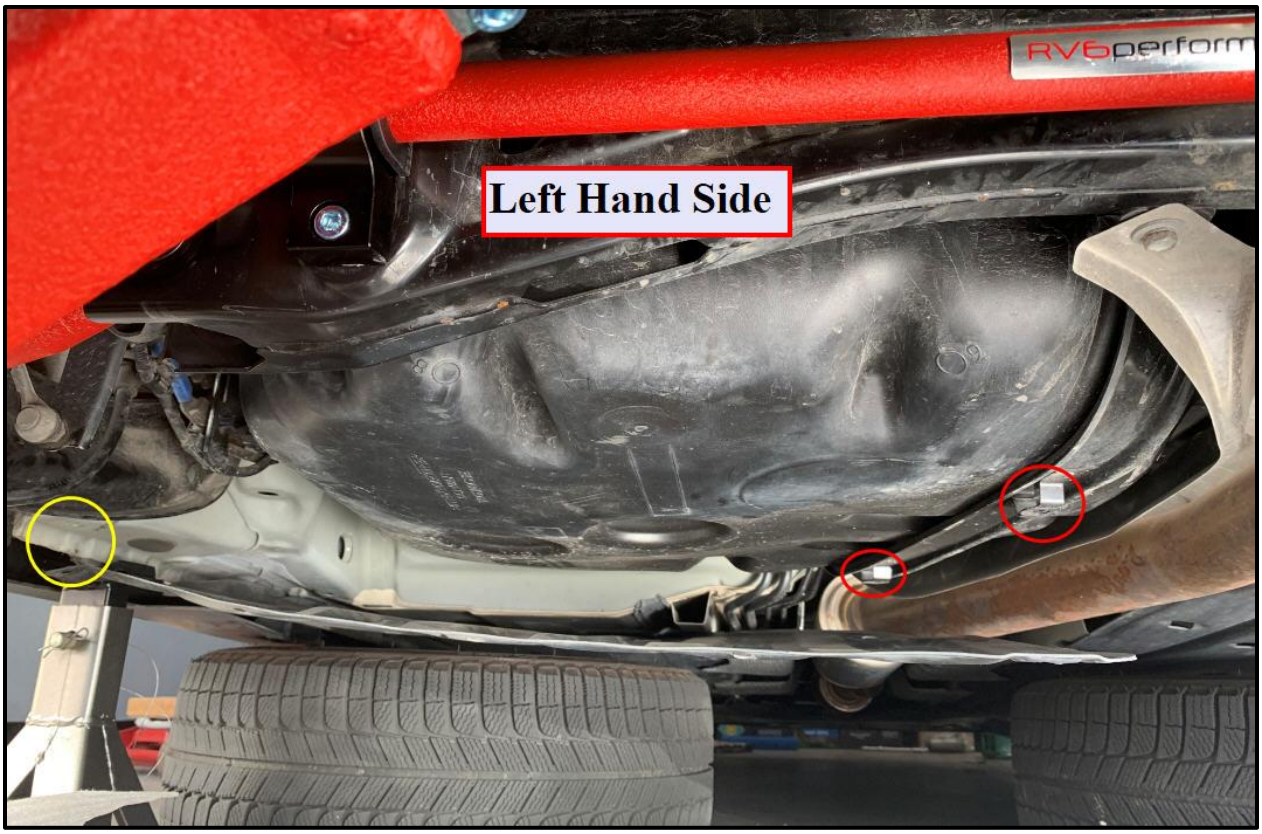


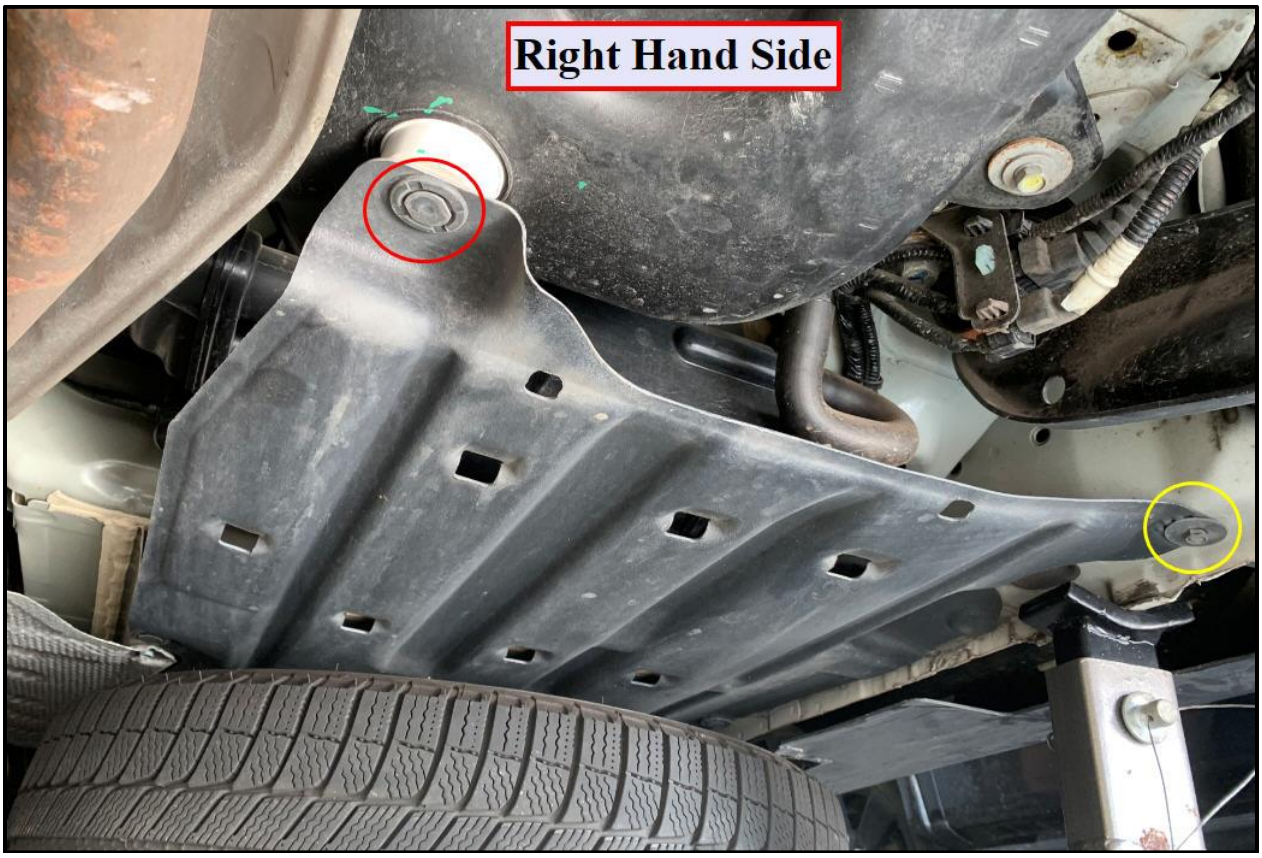
- 2.2: Remove 3x 19mm head bolts connecting the rear trailing arms to the rear knuckles (Red Circles) on both left and right sides of the vehicle, 6x bolts total. These bolts will require a 19mm socket to loosen each connection and a 19mm wrench or socket to act as a backup on the reverse side of a given bolt. Convenient tool access for some of these bolts can be difficult to obtain. The forward most bolt can be accessed easily from the outboard, nut side with an extension and a wrench or socket acting as a backup on the inboard, bolt head side. However, the two bolts closer to the rear edge of the trailing arm cannot be accessed this way due to the brake rotor and heat shield. These bolts were loosened using a socket and extension on the inboard, bolt head side and an open ended wrench acting as a backup on the outboard, nut side.



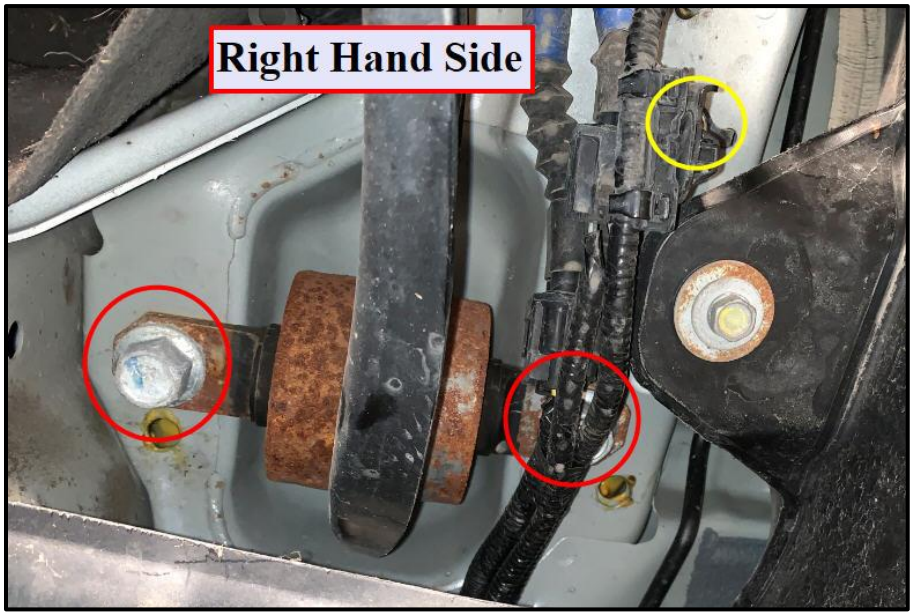
Note: After the nuts have been removed the bolts may still be difficult to remove from the joint until all 3x bolts on a given side have been loosened. Once all bolts have been loosened the trailing arm can be adjusted to remove any pressure on the bolts in order to remove them.

- 2.3: Drop the rear edge of the splash guards in order to gain straight tool access to the front of the trailing arms where they mount into the chassis. The left and right side splash guards do not mount into the vehicle in the exact same way. The left hand side requires the removal of 1x 10mm head bolt and 2x pop clips, and the right hand side has 1x 10mm head bolt but only 1x pop clip to remove. The below images show these locations (10mm head bolts in Yellow Circles and pop clips in Red Circles) for both the left and right vehicle sides. The image showing the left hand side is after the bolt and pop clips have been removed and the splash shield has been pulled down.


RV6perform
Left Hand Side


Right Hand Side

- 2.4: Remove 2x 19mm head bolts connecting the trunnion mounted bearing in the rear trailing arm to the vehicle chassis on both left and right sides of the vehicle, 4x bolts total. Tool clearance can be difficult to obtain due to the electrical harness retained to the chassis near this bearing. On the left hand side of the vehicle the harness could be gently moved to the side during hardware and component removal. On the right hand side the harness routing was slightly different and required the nearby retention bracket to be disconnected from the chassis. For the right hand side remove 1x 12mm head bolt (Yellow Circle) and gently move the harness to the side in order to remove the hardware and the trailing arm. Be very careful not to damage or pull the electrical wire when removing these bolts.





- 2.5: Remove both rear trailing arms from the vehicle. Be careful not to damage or pull the electrical wire when moving the trailing arm away from the vehicle chassis.

Step 3: Replace the Factory Bushings from the Rear Trailing Arms with RV6 Performance Solid Bearings

This step requires pressing out the factory rubber bushing from the front side of the rear trailing arms. Multiple methods can be used to accomplish this task such as using a hydraulic press, a bench vice and hand tools, or a bearing removal kit. It is recommended to utilize the tools and methods that the user is most familiar with as long as the work is performed in a safe fashion. The method discussed in this document involves using a hydraulic press and appropriately sized press adapters. Regardless of the method used exercise extreme caution when applying the large amounts of force required to press bearings in and out.

- 3.1: Brace the trailing arms in the shop press and prepare to press out the OEM bushings. The OEM bushings have a slightly barrel shaped housing (wider in the middle than at the ends) and as such should be pushed out towards the outboard side of the arms. In other words, push out the OEM bearings toward the side of the trailing arms that have the rounded surface at the bearing housings, not the sharp edges. Be sure to brace the outboard face of the tailing arms, not the housing of the bearings, and be sure to press against the inboard face of the bearing housings rather than the rubber portions or the central trunnions. A photo of the removed OEM bearing is also shown below.

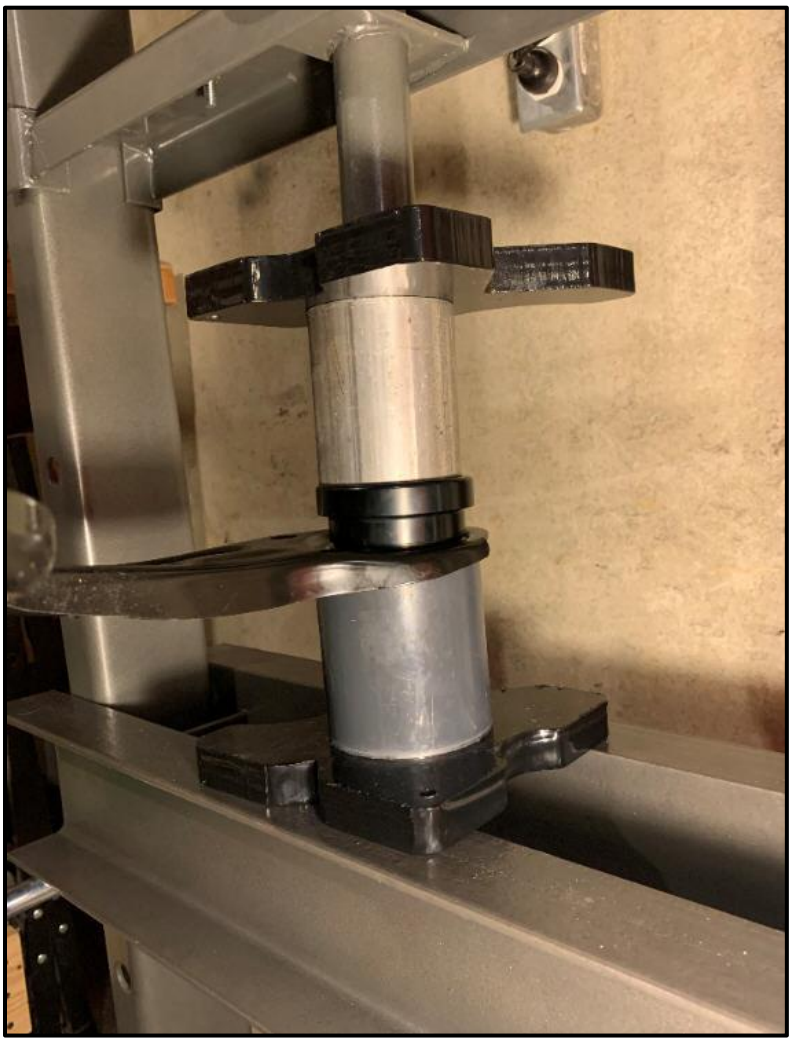


It is highly recommended to source properly sized adapters or pipe sections to brace components when in the press. During the removal of the OEM bushing using the setup shown above a suitably sized adapter was not able to be located and as such two smaller adapters were used to brace the control arm on two sides while the bearing was pressed out. This method did work to remove the bearings, but some small cosmetic damage was inflicted on the trailing arms from

focusing all of the press force against the two smaller adapters. Step 3.3 shows a much more suitable press setup that was utilized after correctly sized components were sourced.

- 3.2: Clean the bore in the trailing arm and inspect for any damage.

- 3.3: Utilizing the reverse of the process shown in Step 3.1 press in the new solid bearings from RV6 Performance. For this step two sections of pipe were utilized, each being longer than the protruding bearing trunnions to avoid applying the pressing force through that feature instead of the bearing housing or the trailing arm. The image below shows a section of pipe that fits neatly around the inboard side of the trailing arm bore (~85 mm ID works well) and a section that fits around the trunnion on the bearing and presses against the bearing face.



Press the bearings in from the outboard, rounded edge side of the trailing arms until they are fully seated. The bearings are fully seated when the snap ring groove is fully past the trailing arm on the inboard side.

Note: The rotational orientation of the bearings and trunnions does not matter. The trunnions can be rotated to any required position after being pressed into the trailing arms.

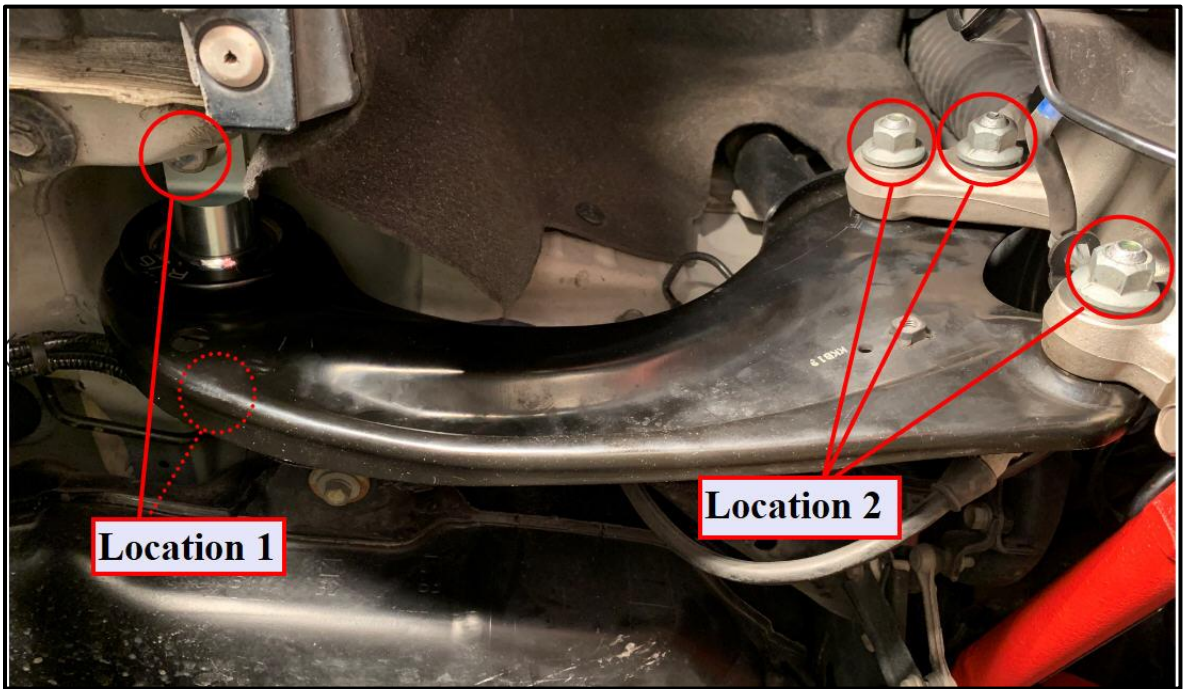
- 3.4: Use a snap ring plier set to expand the retaining rings and place them into to the respective grooves in the inboard sides of the bearing housings. A screwdriver can help push the ring into the groove if needed, or a small mallet can be used to gently tap the outer diameter of the snap rings to make sure they are fully seated into the bearing grooves. The orientation of the snap rings does not matter.

Step 4: Re-Install the Trailing Arms into the Vehicle

- 4.1: Reverse the process followed in Step 2 to re-install the trailing arms into the same left or right side of the vehicle that they were removed from. Utilize all originally removed hardware for the chassis, rear knuckle and harness retention connection points. It is advised to start with the spherical bearing connection but leave the bolts slightly loose. This allows for adjustment of the trailing arms along with the rear knuckles in order to align the bolts between those components. Hand tighten all hardware once all bolts are assembled. Ensure the electrical harnesses are returned to their proper locations and retained in the same manner as prior to disassembly.

Step 5: Apply Final Torques

- 5.1: Reference the below images for the locations requiring specific torques during re-assembly. The torques listed below are for the OEM hardware. The torques to apply are as follows:
    - Location 1 (Trailing Arm Front Bearings to Vehicle Chassis - 4x Bolts Total): 116 ft*lbf
        - Note one bolt is hidden from the view in the image shown below
    - Location 2 (Trailing Arm Rear Bolts to Rear Knuckles - 6x Bolts Total): 87 ft*lbf



Step 6: Wrap Up the Installation

- 6.1: Re-assemble the rear edges of the under body splash guards with the 2x 10mm head bolts and 3x pop clips that were removed in Step 2.3.

- 6.2: Re-install the rear wheels onto the respective hubs.

- 6.3: Lower the vehicle to the ground after removing the retention method used to keep it elevated.

- 6.4: Ensure proper torques are set at each lug nut. Stock lug nuts must be torqued to 94 ft*lbf.

Step 7: Complete a Vehicle Alignment

- 7.1: After the installation has been completed have a 4 wheel vehicle alignment performed by your preferred auto service shop to ensure the proper wheel settings are obtained. It is recommended to have an alignment completed immediately after installing these components. No issues should arise from driving short distances without an alignment (such as driving to the location performing the service) but care should be taken to not drive in an aggressive manner. Driving the vehicle aggressively prior to having an alignment completed could result in abnormal or excessive component and tire wear.

Tips and Tricks:

- Unless specifically mentioned the order of the instructions to remove the above components is arbitrary. The parts discussed in this document can be removed in any order.
- PB Blaster or a similar penetrating liquid can help reduce the effort required to initially loosen bolted joints that may have seized over time and reduce the risk of shearing hardware during removal. Spray a small amount on the joints to be removed and let sit for at least 15 minutes before attempting to break hardware loose.
- When initially breaking hardware loose in a given joint by hand exercise a smooth and steady application of torque to minimize hardware failure. Avoid sudden bursts of force applied to the socket wrench (no "jerking" motions.) Alternatively, use of an impact gun is an effective way to remove stubborn hardware due to the hammering style of rotary torque the tool generates.
- If using an impact gun, ensure that you are utilizing impact grade sockets and extensions. These generally have a black finish instead of chrome. Damage to non-impact grade hardware is likely if used with an impact gun. This is especially relevant regarding universal (flex) socket joints.
- To minimize the risk of lost hardware it is recommended to loosely re-install any bolts or nuts in their respective housings or studs once the components are disconnected.
- Anti-seize compound may be applied to any hardware to prevent the threads from becoming seized 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 15-20% when utilizing anti-seize.
- When re-torqueing joints that utilize a pattern of bolts (3 or more) 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 the full torque is achieved at each connection.

- The plastic clips securing the vehicle under cover are fragile. If any clips are broken during removal the OEM part number to replace them is 91505-TY2-003.
- For purchasing and additional details on the above described kits please visit RV6 Performance's website at:
    - https://www.rv6-p.com/rv6-fk8-trailing-arm-spherical-bushing.html

Rev	Description	Date	Writer
A	Initial Release	02/28/2020	B. Shatto
B	Updated Introduction Photos	02/28/2020	B. Shatto
C			
D			