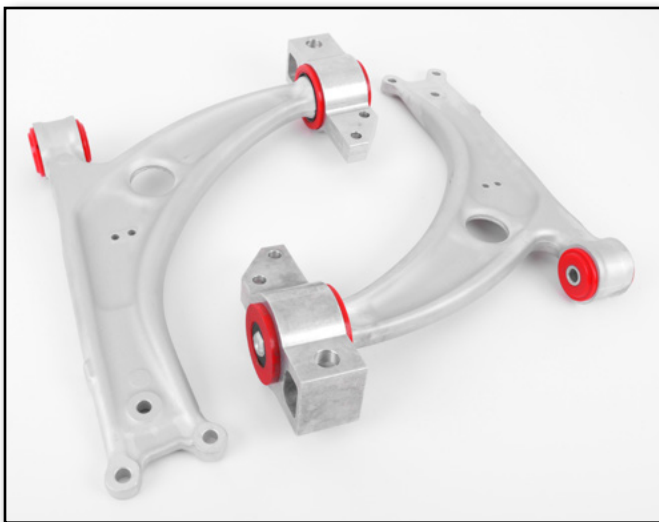
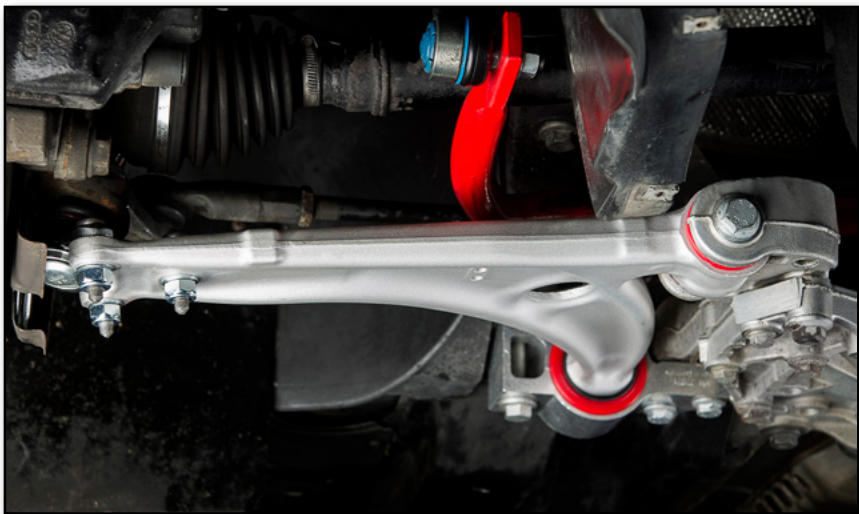




## Volkswagen MK5/MK6 Performance Lower Control Arm Kit Installation Instructions



Proper service and repair procedures are vital to the safe, reliable operation of all motor vehicles as well as the personal safety of those performing the repairs. Standard safety procedures and precautions (including use of safety goggles and proper tools and equipment) should be followed at all times to eliminate the possibility of personal injury or improper service which could damage the vehicle or compromise its safety.

## INTRODUCTION

### The Project:

Today we are going to install our upgraded Performance Lower Control Arm Kit w/Polyurethane Bushings into a MK5 Jetta, but keep in mind that this kits also fits MK5 Rabbit/GTI and MK6 Golf/GTI, and these instructions will apply to all four vehicles. This control arm kit comes with ECS Polyurethane Bushings pre-installed into lightweight B6 Passat cast aluminum control arms, which offer significant weight savings, far superior corrosion resistance, load bearing capacity, and structural rigidity compared to stock.

### ECS Difficulty Gauge



The ECS Difficulty Gauge is reading just above “**2 - Moderate**”, meaning that basic skills and a basic set of tools are required. This slightly higher rating is due to the nature of polyurethane bushings, they can be difficult to manipulate by hand when it comes time to line the control arm up with the mounts. But don’t worry, we’re going to lay out the entire install step-by-step for you, and we’ll even show you some tricks for lining everything up.



The Performance Lower Control Arms are available in **TWO DIFFERENT KITS**. One kit offers the control arms alone, and the other kit offers all of the required hardware and ball joints.

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## KIT CONTENTS - CONTROL ARMS ONLY



Lower Control Arm w/ECS Bushings - Left



Lower Control Arm w/ECS Bushings - Right

## KIT CONTENTS - COMPLETE KIT



Lower Control Arm w/ECS Bushings - Left



Lower Control Arm w/ECS Bushings - Right



M12x90 Control Arm Bolt - **QTY 2**



M12x110 Control Arm Bolt - **QTY 2**



Left Ball Joint w/Hardware



Right Ball Joint w/Hardware



M16x70 CV Axle Bolt - **QTY 2**



M10x76 Control Arm Bolt - **QTY 4**

## REQUIRED TOOLS

Note: The tools required for each step will be listed by the step number throughout these instructions.

### Standard Automotive Tools

- **Protecta-Sockets (for lug nuts)** ..... [ES#2221243](#)
- **3/8" Drive Ratchet** ..... [ES#2765902](#)
- **3/8" Drive Torque Wrench** ..... [ES#2221245](#)
- **3/8" Drive Deep and Shallow Sockets** ..... [ES#2763772](#)
- **3/8" Drive Extensions** ..... [ES#2804822](#)
- **Hydraulic Floor Jack** ..... [ES#240941](#)
- **Torx Drivers and Sockets** ..... [ES#11417/8](#)
- **1/2" Drive Deep and Shallow Sockets** ..... [ES#2839106](#)
- **1/2" Drive Ratchet**
- **1/2" Drive Extensions**
- **1/2" Drive Torque Wrench** ..... [ES#2221244](#)
- **1/2" Drive Breaker Bar** ..... [ES#2776653](#)
- **1/2" Drive Pneumatic Impact**
- Crows Foot Wrenches
- **Hook and Pick Tool Set** ..... [ES#2778980](#)

### Required For This Install

### Available On Our Website

- **1/4" Drive Ratchet** ..... [ES#2823235](#)
- **1/4" Drive Deep and Shallow Sockets** ..... [ES#2823235](#)
- **1/4" Drive Extensions** ..... [ES#2823235](#)
- **Plier and Cutter Set** ..... [ES#2804496](#)
- **Flat and Phillips Screwdrivers** ..... [ES#2225921](#)
- **Jack Stands** ..... [ES#2763355](#)
- **32oz Ball Pein Hammer**
- **Pry Bar Set** ..... [ES#1899378](#)
- Wire Strippers/Crimpers
- Bench Mounted Vise
- Drill Bits
- Punch and Chisel Set
- **Hex Bit (Allen) Wrenches and Sockets** ..... [ES#11420](#)
- **Thread Repair Tools** ..... [ES#1306824](#)
- **Open/Boxed End Wrench Set** ..... [ES#2765907](#)



## SHOP SUPPLIES AND MATERIALS

**Standard Shop Supply Recommendations:** We recommend that you have a standard inventory of automotive shop supplies before beginning this or any automotive repair procedure. The following list outlines the basic shop supplies that we like to keep on hand. Shop supplies with a hyperlink are available on our website.

- Hand Cleaner/Degreaser - [Click Here](#)
- Pig Mats - for protecting your garage floor and work area from spills and stains - [Click Here](#)
- Spray detailer - for rapid cleaning of anything that comes into contact with your paint such as brake fluid - [Click Here](#)
- Micro Fiber Towels - for cleaning the paint on your car - [Click Here](#)
- Latex Gloves - for the extra oily and dirty jobs - [Click Here](#)
- Medium and High Strength Loctite Thread lock compound - to prevent bolts from backing out - [Click Here](#)
- Anti-Seize Compound - to prevent seizing, galling, and corrosion of fasteners - [Click Here](#)
- Aerosol Brake/Parts Cleaner - for cleaning and degreasing parts
- Shop Rags - used for wiping hands, tools, and parts
- Penetrating oil - for helping to free rusted or stuck bolts and nuts
- Mechanics wire - for securing components out of the way
- Silicone spray lube - for rubber components such as exhaust hangers
- Paint Marker - for marking installation positions or bolts during a torquing sequence
- Plastic Wire Ties/Zip Ties - for routing and securing wiring harnesses or vacuum hoses
- Electrical tape - for wrapping wiring harnesses or temporary securing of small components

## INSTALLATION NOTES

- **RH** refers to the *passenger side* of the vehicle.
- **LH** refers to the *driver side* of the vehicle.
- Always use the proper torque specifications.
- If applicable to this installation, torque specifications will be listed throughout the document and at the end as well.
- Please read all of these instructions and familiarize yourself with the complete process **BEFORE** you begin.

## GENERAL PREPARATION AND SAFETY INFORMATION

ECS Tuning cares about your health and safety. Please read the following safety information. This information pertains to automotive service in general, and while it may not pertain to every job you do, please remember and share these important safety tips.

- Park your car in a safe, well lit, level area.
- Shut the engine off and remove the key from the ignition switch.
- Make sure any remote start devices are properly disabled.
- **ALWAYS** wear safety glasses.
- Make sure the parking brake is applied until the vehicle is safely lifted and supported.
- If using an automotive lift, be sure and utilize the factory specified lift points. Lifting a vehicle in an incorrect location can cause damage to the suspension/running gear.
- When lifting a vehicle using a jack, always utilize the factory specified lift points. Lifting a vehicle in an incorrect location can cause damage to the suspension/running gear. **ALWAYS** support the vehicle with jack stands.
- Always read and follow all safety information and warnings for the equipment you are using.



**NEVER** get underneath a vehicle that is supported only by a jack, and **ALWAYS** make sure that the vehicle is securely supported on jack stands.



## REMOVING THE STOCK CONTROL ARMS

### Step 1: 17mm Socket, 1/2" Breaker Bar, Wheel Hanger

Safely lift and support the vehicle, then remove both front wheels.



If you purchased the complete control arm kit, continue to step 2 below.



If you purchased the control arm only kit, skip to Step 3 on [Page 10](#).



### Step 2: 24mm 12-point Socket, 1/2" Impact or Breaker Bar

Next, we need to remove the axle bolts on both sides, this can be done by using one of the following options:

1. Use a 1/2" drive pneumatic impact gun and a 24mm 12-point socket to remove the bolts.
2. Have an assistant sit inside the vehicle and firmly press the brake pedal while you use a 1/2" breaker bar and 24mm 12-point socket to loosen the bolts.



**CAUTION:** Do not attempt to loosen the axle bolts with the wheels on the ground, this can damage the wheel bearings.



## REMOVING THE STOCK CONTROL ARMS

### Step 3: T25 & T30 Torx

We need to remove the engine insulation panel in order to gain access to the control arms. As you can see in the photo on the right we have an ECS Tuning Street Shield installed on our vehicle, but the process is the same for stock belly pans. The nine screws which are highlighted in **RED** are T25, and the three screws which are highlighted in **BLUE** are T30.



If you have a stock belly pan it may not be necessary to remove it in order to access the control arm bolts.



### Step 4: 16mm Socket & Ratchet

Remove the three nuts which secure the ball joint to the lower control arm.



We highly recommend spraying the ball joint nuts with penetrating oil to aid in their removal.



From this point forward we will only be working on one side of the vehicle, you may choose to install one side at a time or do them both simultaneously.



## REMOVING THE STOCK CONTROL ARMS

### Step 5: 10mm Socket & Ratchet, Pry Bar

Remove the nut which secures the headlight leveling sensor bracket (LH only if equipped), then pry the control arm off of the ball joint studs.



If you purchased the control arm only kit, skip Step 6 and proceed with Step 7 on [Page 12](#).



### Step 6:

Grasp the CV axle as shown in the photo and guide the splines out of the wheel bearing. Secure the axle out of the way with mechanic's wire or a hanger.



**CAUTION:** Make sure the axle does not fall or become over extended, this could cause the inner CV joint to come apart.





## REMOVING THE STOCK CONTROL ARMS

### Step 7: 16mm, 18mm Sockets, 1/2" Drive Breaker Bar

Remove the 18mm bolt which secures the front control arm bushing to the subframe, then remove the 16mm and 18mm bolts which secure the rear control arm bushing housing to the subframe and chassis.



On vehicles equipped with an automatic transmission, the LH horizontal bolt cannot be completely removed due to the location of the transmission pan. You will need to unbolt the pendulum or "dog bone" mount at the subframe and swing the engine forward, or in extreme cases, loosen and lower the subframe in order to remove the control arm bolt.

### Step 8:

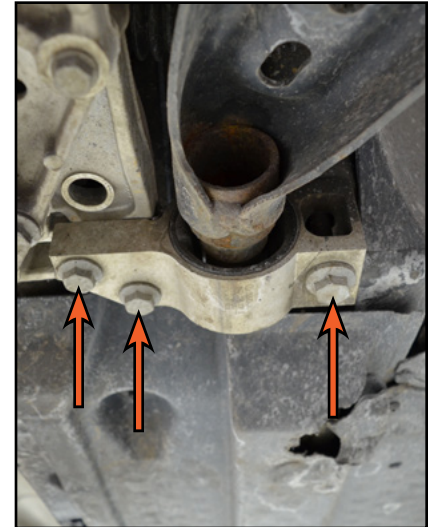
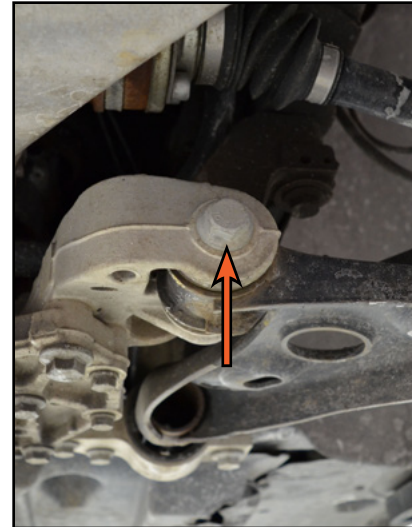
You can now remove the control arm from the vehicle by pulling it down and toward the steering knuckle, you may need to swing the control up and down a few times while pulling if it is difficult to remove.



If you purchased the complete control arm kit with ball joints, continue to Step 9 on [Page 13](#).



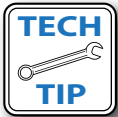
If you purchased the control arm only kit, skip to the diagram on [Page 15](#).



## REMOVING THE STOCK CONTROL ARMS

### Step 9: 18mm Wrench, T40 Torx (or 5mm Allen) & Ratchet

Next, we need to remove the ball joint nut from the steering knuckle. In many cases the ball joint nut can be completely removed with only a wrench or socket, but this will only work if the ball joint is “stuck” in the knuckle. If the ball joint stud releases from the knuckle, place a T40 Torx (or 5mm Allen depending on the ball joint) socket into the stud to hold it in place while removing the nut.

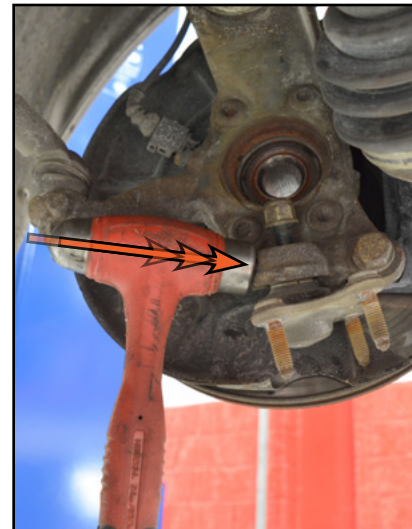


If you’ve got them, an impact wrench with an impact swivel socket will usually make short work of removing these nuts.



### Step 10: 32oz Hammer

If the ball joint stud loosened when removing the nut, the ball joint will come right out. If it is still stuck in steering knuckle, you can remove it using a ball joint or “pickle” fork, but an even easier method for removal is to hit the steering knuckle directly on the crown of the casting with a quick, sharp blow from a ball pein hammer. Use at least a 32oz hammer so it’s got some weight behind it, one solid hit is all it usually takes and the ball joint will “pop” right out.





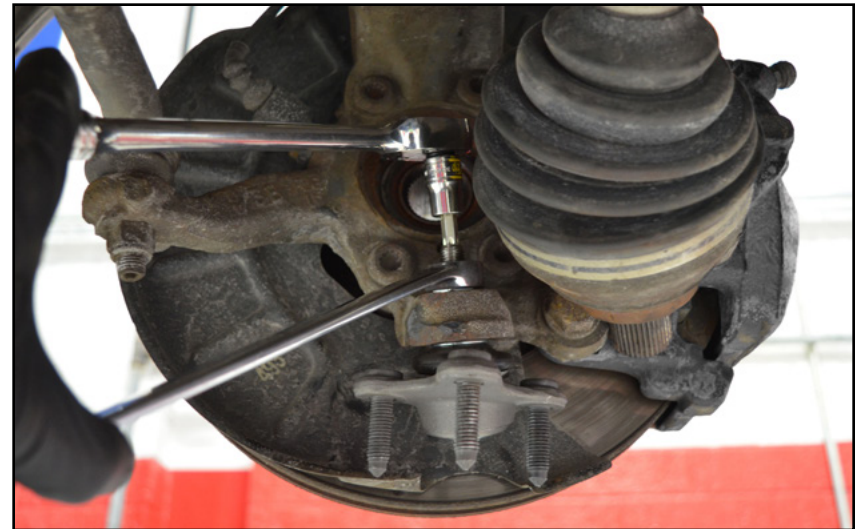
## INSTALLING THE NEW CONTROL ARMS

### Step 1: 19mm Wrench, 5mm Allen Socket, Ratchet, Torque Wrench

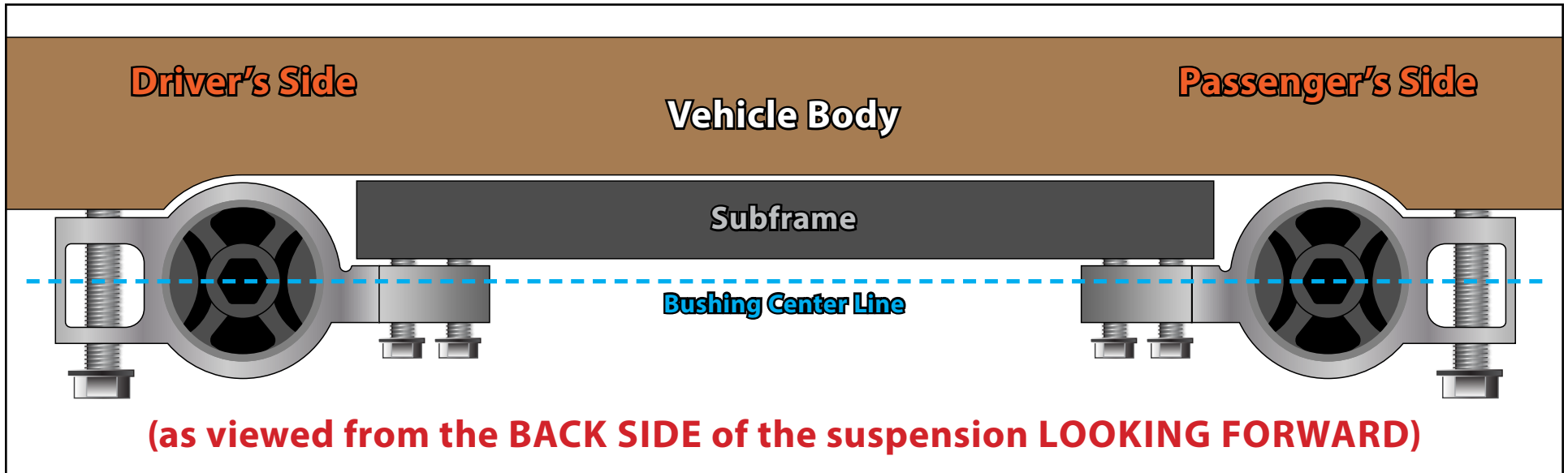
Install the new ball joint into the knuckle, this time you will definitely need to hold the stud with the 5mm Allen to keep it from rotating. Once the nut is snug you should be able to remove the 5mm Allen and torque the nut to 60 Nm (44 Ft-lbs).

### Step 2:

Slide the CV axle splines back into the wheel bearing.



## INSTALLING THE NEW CONTROL ARMS



While the control arms are identical for either side of the vehicle, the rear bushing housings **ARE NOT**. Since the control arms are pre-assembled, we must determine which one fits the LH (Driver's) side, and which one fits the RH (Passenger's) side. The illustration above shows the rear bushing housings as they are meant to be installed into the vehicle, though it is important to note that this illustration has been created to represent what the bushings look like when viewed from the **BACK SIDE** of the suspension **LOOKING FORWARD**.

Notice how the subframe is mounted lower than the vehicle body, the rear bushing housings are designed with one side lower than the "**Bushing Center Line**" to accommodate for this difference. If the control arms are installed on the incorrect side the bolts will not line up properly, and serious damage can occur to the housings.

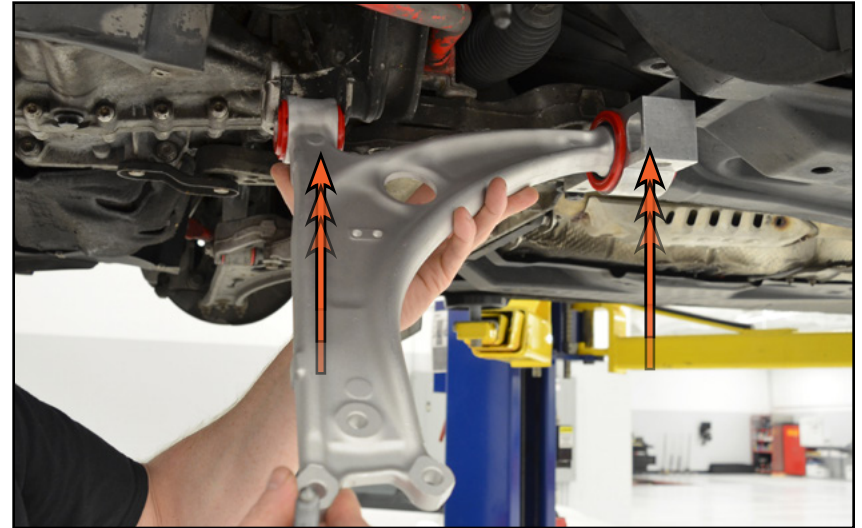
Please be sure to identify the LH and RH side control arms, then continue to the next page.



## INSTALLING THE NEW CONTROL ARMS

### Step 3:

Begin installing the control arm into the vehicle by lifting it straight up and pushing the front bushing into the subframe, while also guiding the rear bushing housing into place.



### Step 4:

Partially thread in the M12x90 bolt into the rear control arm bushing housing **BY HAND**, then partially thread the M12x110 bolt into the front bushing **BY HAND**.



## INSTALLING THE NEW CONTROL ARMS

### Step 5:

Now we need to partially thread in the two M10x76 bolts into the rear control arm bushing housing **BY HAND**. Once all of the bolts have been started by hand, tighten them until they make contact, then continue to the following steps for torque specifications and procedures.

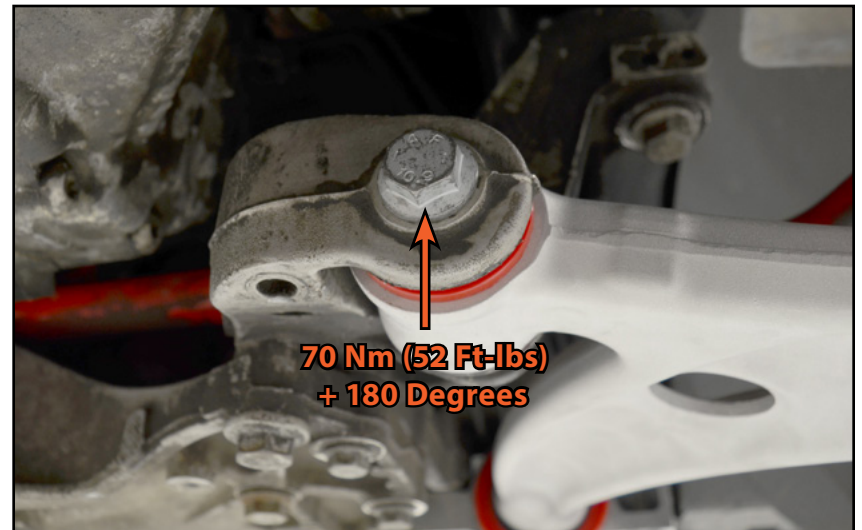


### Step 6: 18mm Socket, Torque Wrench, Breaker Bar

Begin by tightening the 18mm front control arm bolt to 70 Nm (52 Ft-lbs), then rotate the bolt with a breaker bar an additional 180 degrees.



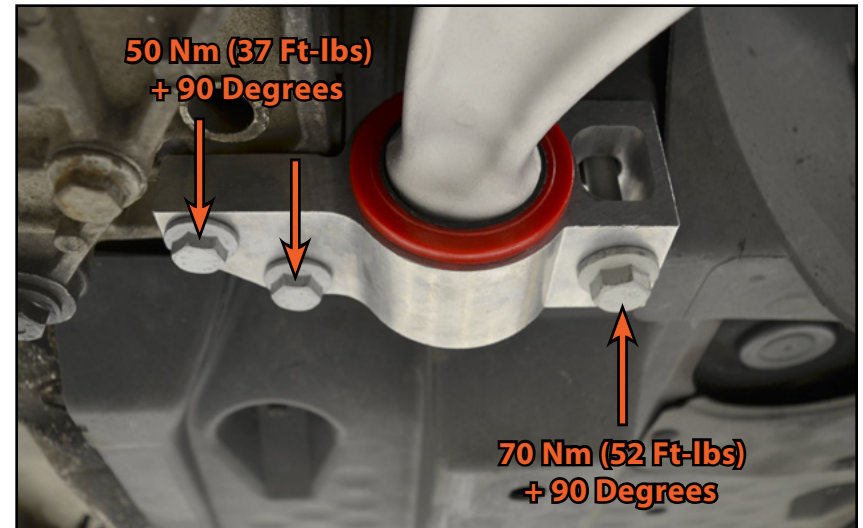
**CAUTION:** The control arm bolts are “torque to yield”, this means they are designed to stretch when tightened to their torque specification. These bolts **MUST** be replaced after removal to ensure proper clamping force.



## INSTALLING THE NEW CONTROL ARMS

### Step 7: 16mm & 18mm Sockets, Torque Wrench, Breaker Bar

Next, torque the 18mm rear control arm bolt to 70 Nm (52 Ft-lbs), then rotate the bolt with a breaker bar an additional 90 degrees. Finally, torque the 16mm rear control arm bolts to 50 Nm (37 Ft-lbs), then rotate the bolts with a breaker bar an additional 90 degrees.



### Step 8: 17mm Socket, Torque Wrench

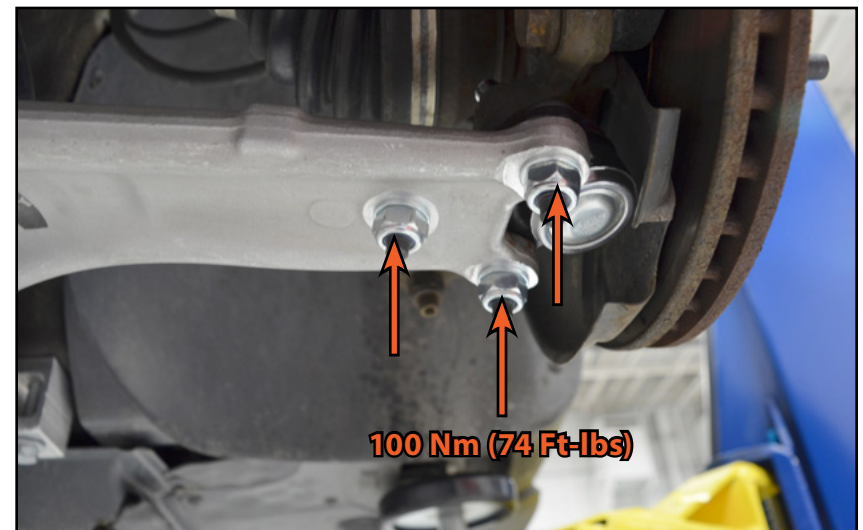
Install the ball joint into the control arm, then tighten the ball joint nuts to 100 Nm (74 Ft-lbs).



If you purchased the complete control arm kit, continue to Step 9 on [Page 19](#).



If you purchased the control arm only kit, please skip to Step 10 on [Page 20](#).





## INSTALLING THE NEW CONTROL ARMS

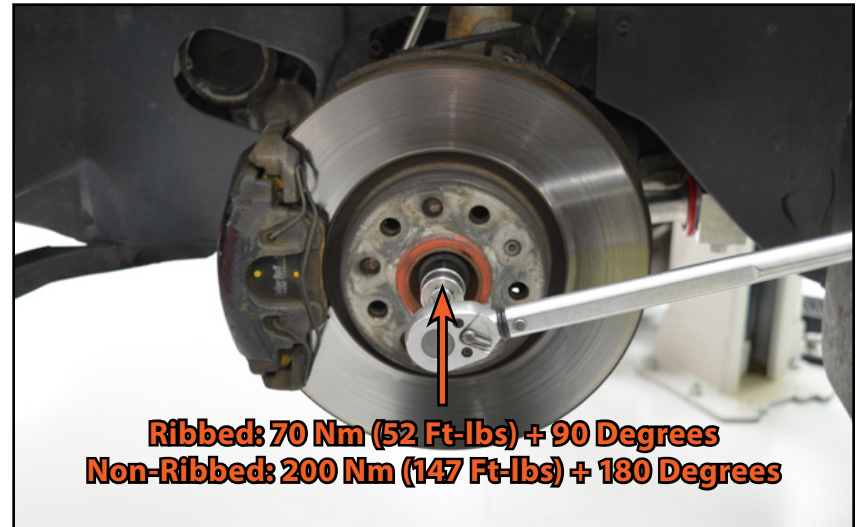
### Step 9: 24mm 12-point Socket, Torque Wrench, Breaker Bar

Determine whether your axle bolt is “ribbed” or “non-ribbed”. If you need clarification on what type your bolt is, please reference at the information at the bottom of [Page 21](#). Next, have an assistant hold the brake pedal down from inside the vehicle, then tighten the axle bolt to the applicable specification:

- **Ribbed Bolt:** Torque the bolt to 70 Nm (52 Ft-lbs) in the air, then install the wheel with the center cap removed. Lower the vehicle onto the ground and rotate the bolt an additional 90 degrees with a breaker bar, then reinstall the center cap.
- **Non-Ribbed Bolt:** Torque the bolt to 200 Nm (147 Ft-lbs) in the air, then install the wheel with the center cap removed. Lower the vehicle onto the ground, rotate the bolt an additional 180 degrees with a breaker bar, then reinstall the center cap.



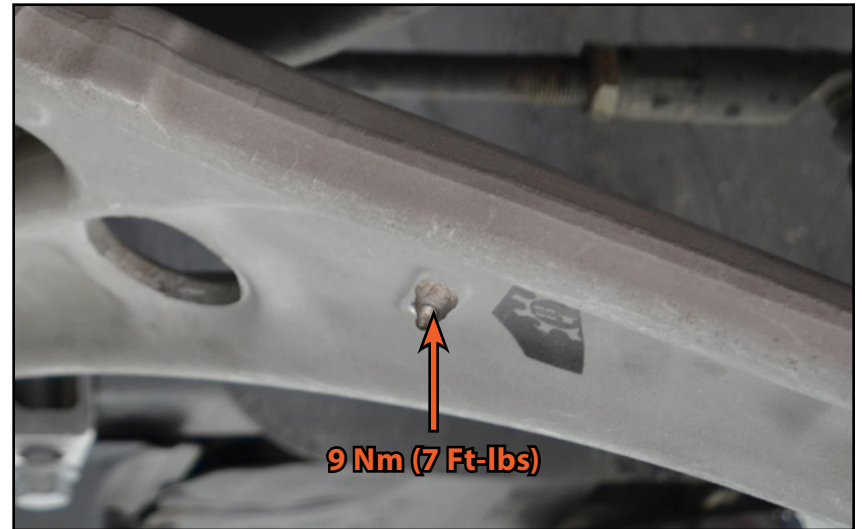
**DO NOT** lower the vehicle onto the ground until the 70 or 200 Nm torque spec has been achieved, failing to do this first can damage the wheel bearings.



## INSTALLING THE NEW CONTROL ARMS

### Step 10: 10mm Socket & Torque Wrench

Reinstall the headlight leveling sensor bracket (if equipped) and tighten the nut to 9 Nm (7 Ft-lbs).



### Step 11:

Repeat this entire process as required to install the other control arm, then reinstall your wheels and torque the wheel fasteners (factory spec is 120 Nm [89 Ft-lbs]). Reinstall the engine insulation panel.

The last step is to take your vehicle into a qualified repair facility to have an alignment performed. Failure to perform an alignment can result in accelerated tire wear, wandering or vague feeling steering feedback, or a steering pull one direction while driving.



## TORQUING TIPS

### Torque to Yield or "Stretch" Bolts

Many bolts will have a torque specification listed in the format - xx Nm (xx Ft-lbs) + xx degrees. These bolts are torque to yield bolts, commonly referred to as "stretch" bolts. The correct procedure for torquing these bolts is:

**Stage One** - Torque the bolt(s) to the initial Nm or Ft-lb specification. If there is more than one, be sure to torque them in the correct sequence.

**Stage Two** - Tighten or "stretch" the bolt(s) the additional specified number of degrees. If there is more than one, be sure to follow the correct sequence.

**Note** - Some bolts may have two or more stages of torquing before the final stage of "stretching" the bolts.

When tightening more than one bolt in a specified sequence, be sure to mark each fastener with paint **immediately** after performing the final stage or "stretching" of the bolts. This will ensure that you keep track of which bolts have already been "stretched".

All Torque to Yield bolts should only be used once and should be replaced each time they are removed. If they are reused, they will not be able to achieve the proper clamping force with the specified torque.

### Lubrication

Torque specifications are always listed for a dry fastener (**no** lubrication) unless specified otherwise.

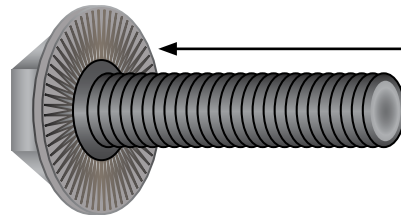
Some fasteners require lubrication on the threads -or- on the contact surface while torquing. These fasteners will be listed with the specific location and type of lubrication required. Always follow manufacturers recommendations exactly.

Lubricating a fastener that is intended to be installed dry and then torquing it to factory specifications will increase the clamping force and stress on the fastener and components, which can result in damage or failure.

Do not lubricate the threads of any fastener unless it is specifically recommended by the manufacturer.

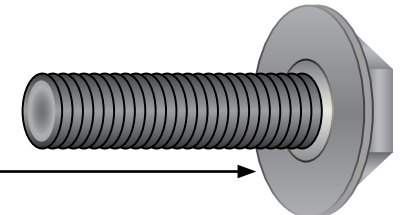
### Ribbed vs. Non-Ribbed Bolts

Ribbed and Non-Ribbed bolts in the same location generally require a different torque specification.



A ribbed bolt is identified by the ribs on the contact surface

A non-ribbed bolt is identified by the smooth contact surface



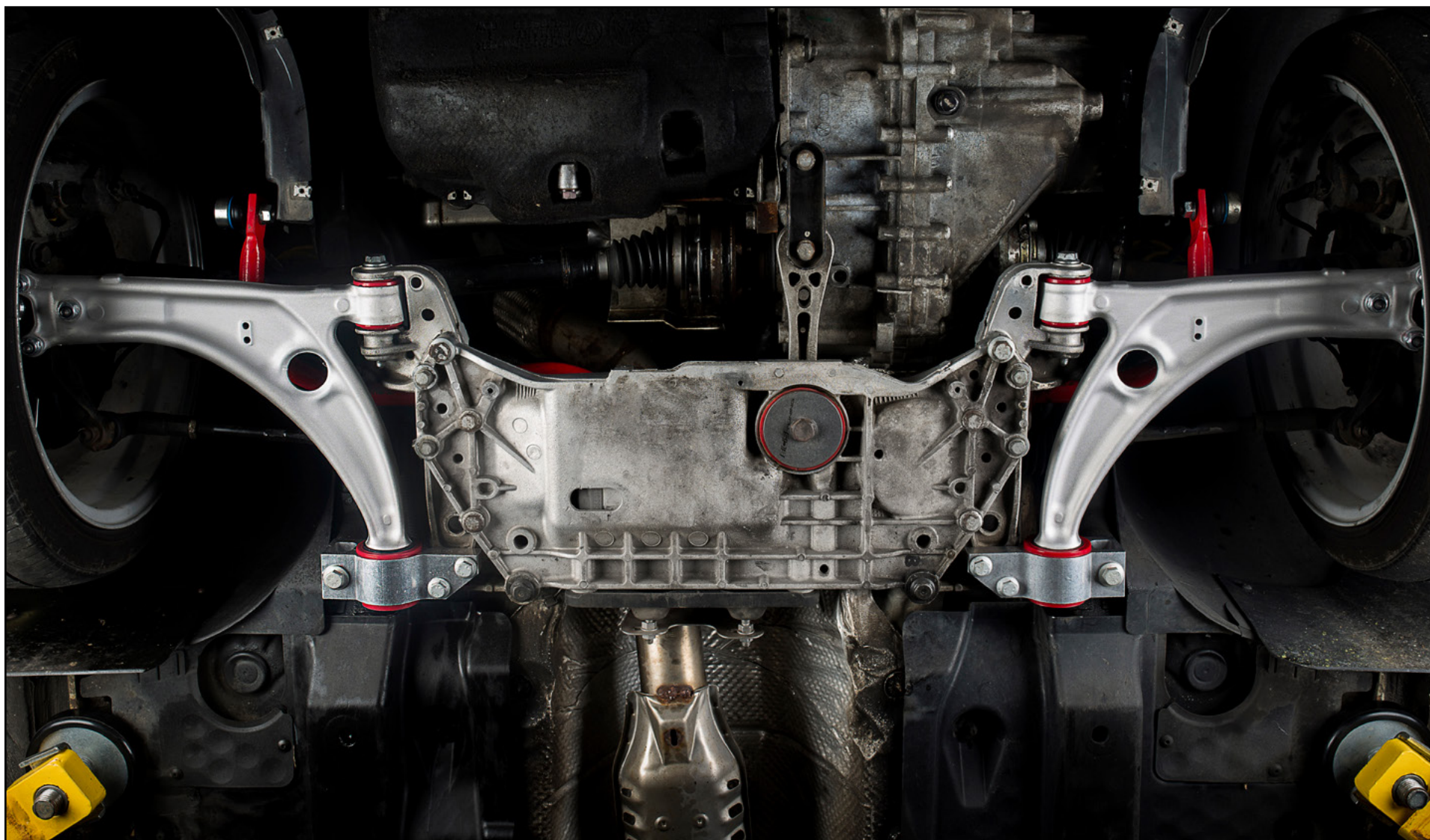
## SCHWABEN - BUILD THE ULTIMATE TOOL COLLECTION

At ECS Tuning, we carry a line of high quality Schwaben Tools and Equipment to help you build your ultimate tool collection. Never before has affordability and quality been so closely related. Our entire Schwaben line is subjected to strict in house testing for strength and durability. See what we have to offer and equip your garage without breaking the bank.





**Your Performance Lower Control Arm Installation is complete!**



**These instructions are provided as a courtesy by ECS Tuning**

Proper service and repair procedures are vital to the safe, reliable operation of all motor vehicles as well as the personal safety of those performing the repairs. Standard safety procedures and precautions (including use of safety goggles and proper tools and equipment) should be followed at all times to eliminate the possibility of personal injury or improper service which could damage the vehicle or compromise its safety.

Although this material has been prepared with the intent to provide reliable information, no warranty (express or implied) is made as to its accuracy or completeness. Neither is any liability assumed for loss or damage resulting from reliance on this material. SPECIFICALLY, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER WARRANTY IS MADE OR TO BE IMPLIED WITH RESPECT TO THIS MATERIAL. In no event will ECS Tuning, Incorporated or its affiliates be liable for any damages, direct or indirect, consequential or compensatory, arising out of the use of this material.