BMW E9X Non-M Front and Rear Sway Bar Installation Instructions

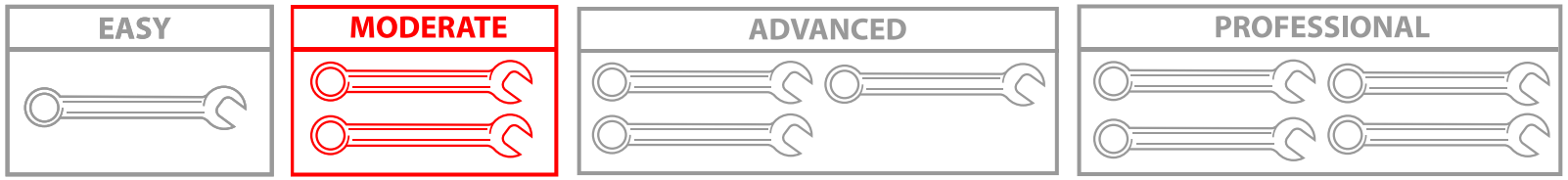
INTRODUCTION

BMW E9X Front And Rear Sway Bars ES#2769930 & ES#2769931

ECS Tuning BMW E9X Front and Rear Sway Bars offer the following features:

- Reduced body roll
- Increased lateral stiffness
- Improved handling and ride control
- Easy installation
- New bushings included

BWM recommends the replacement of many of the suspension fasteners when they are removed. Before you begin, please refer to page 33 “Torque Specifications” for identification and make sure you have all the required fasteners to complete this installation.



BASIC SKILLS REQUIRED

SOME EXPERIENCE RECOMMENDED

ADVANCED SKILLS & EXPERIENCE REQUIRED

PROFESSIONAL SKILLS & SPECIALTY TOOLS REQUIRED

Installing ECS Tuning front and rear sway bars on your E9X BMW is a rewarding project that you will be able to complete in a weekend. Our step by step instructions will remove any guesswork and provide you with a smooth installation. Before you begin, read and familiarize yourself with these instructions and make sure you have all the required tools on hand. Even though you will not be altering any actual alignment adjustments, as with any type of suspension work, we recommend that you plan a four wheel alignment to keep your suspension fine tuned and to correct for any minor changes that may occur. Thank you for purchasing our ECS Tuning Sway Bars. We appreciate your business!

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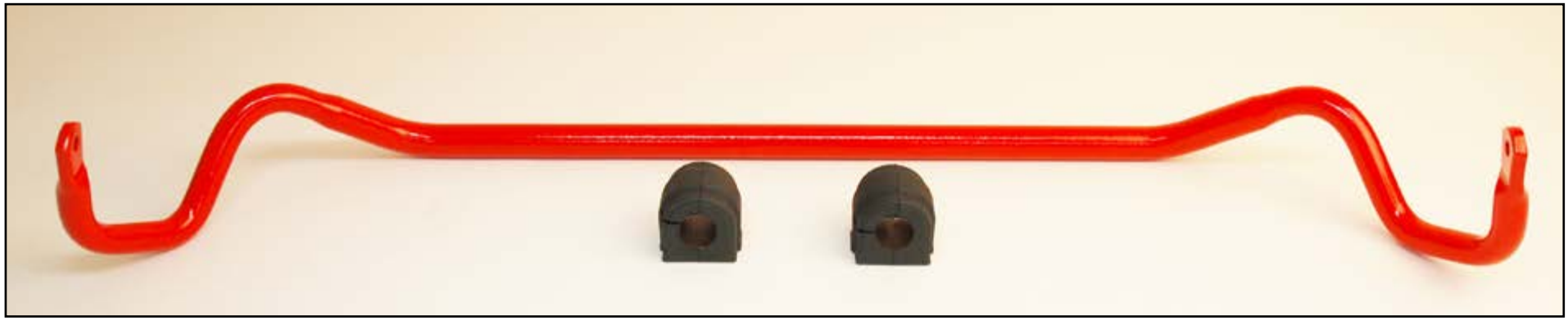
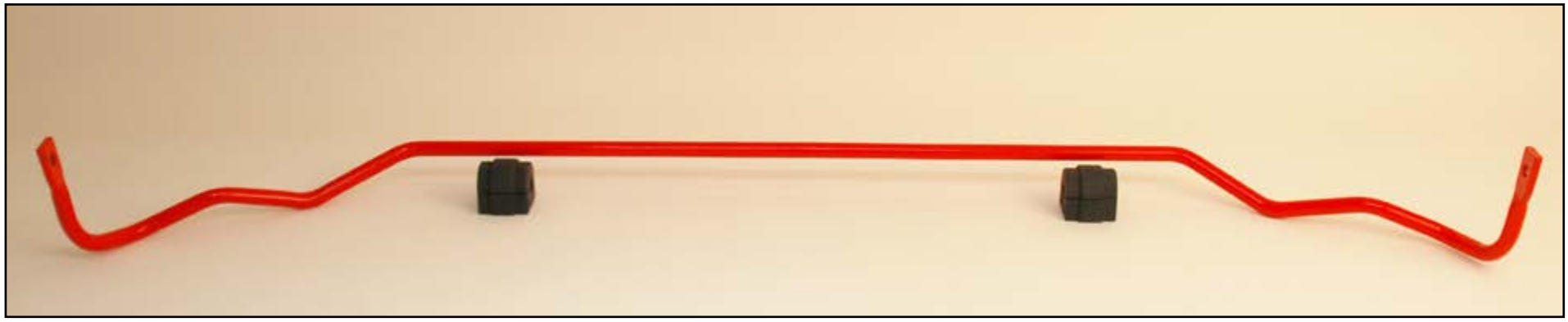


REAR SWAY BAR AND BUSHINGS



REQUIRED TOOLS

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

We recommend that you have a complete selection of tools and equipment necessary for automotive repair. Below is a list of the tools we used to install the ECS Tuning Sway Bars. Additional tools may be required for any issues that arise during installation such as rust, corrosion, or broken and stripped fasteners.

- 17mm Protecta-Socket (for lug nuts)..... Available at ecstuning.com ..... ES#2221243
- 3/8" Drive Torque Wrench ..... Available at ecstuning.com ..... ES#2221245
- 1/2" Drive Torque Wrench ..... Available at ecstuning.com ..... ES#2221244
- Flat and Phillips Blade Screwdriver(s)..... Available at ecstuning.com ..... ES#2225921
- 12mm x 1.5 Wheel Hanger ..... Available at ecstuning.com ..... ES#2636265
- 1/4" Drive Sockets: 8mm, 10mm
- 1/4" Ratchet, Extensions
- Metric Open/Box End Wrenches: 10mm, 16mm, 17mm, 21mm
- 3/8 Drive Sockets: 12mm, 13mm, 16mm, 18mm
- 3/8 Ratchet, Extensions
- Air Impact Wrench
- External Torx Socket: E10, E12, E18
- 1/2" Drive Sockets: 21mm
- 1/2" Drive Ratchet
- Transmission Jack or Floor Jack
- Torx Socket: T50
- Small Punch
- Paint Marker
- Safety Glasses

SHOP SUPPLIES AND MATERIALS

- Hand Cleaner/Degreaser..... Available at ecstuning.com ..... ES#2167336
- Shop Rags ..... Available at your local auto parts store
- Silicone Spray Lubricant..... Available at your local auto parts store
- Aerosol Spray Lubricant/Penetrating Oil..... Available at your local auto parts store

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. Always make sure that the vehicle is securely supported on jack stands.

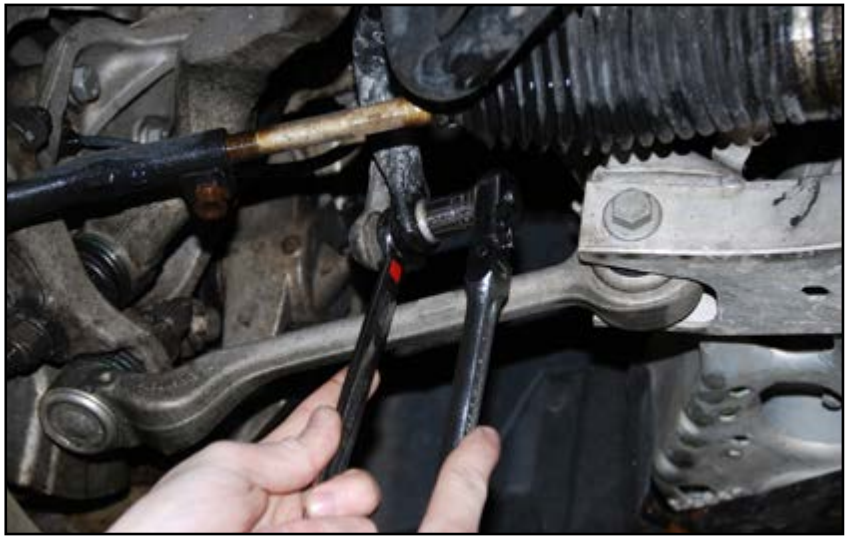
FRONT SWAY BAR INSTALLATION

Step 1: 8mm Socket and Ratchet

Safely raise and support the vehicle. Remove the front insulation panel located directly beneath the engine.

Step 2: 17mm Wrench, 16mm Socket and Ratchet

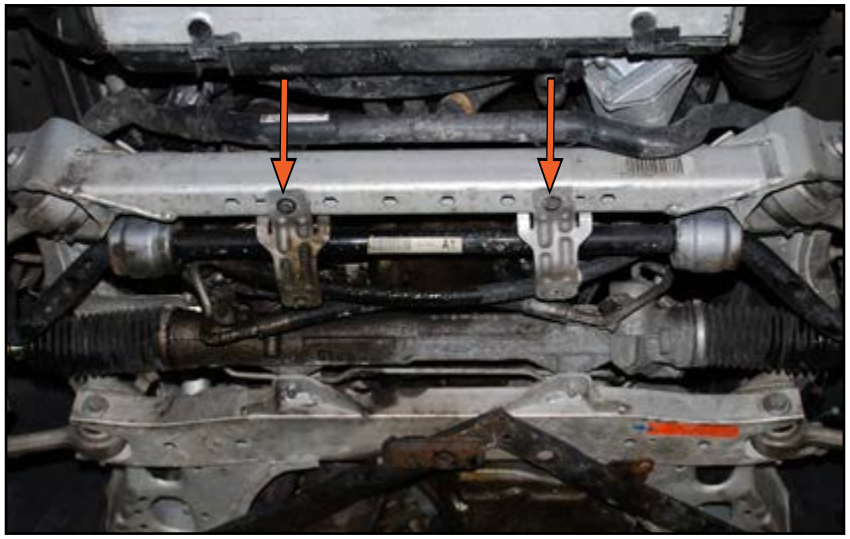
Hold the lower stud of each front sway bar link stationary with a wrench, then remove both lower nuts from each link and pull the ends out of the original sway bar.



FRONT SWAY BAR INSTALLATION

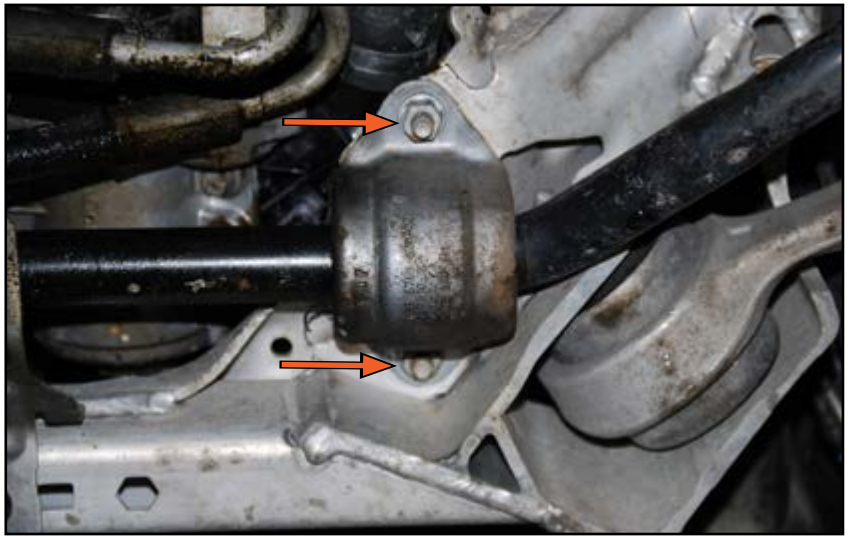
Step 3: 8mm Socket and Ratchet

Remove the two front insulation panel brackets (one screw holding each in place).



Step 4: 13mm Socket and Ratchet

Remove the four nuts holding the front sway bar brackets in place (two on each side).



CAUTION

Once all four nuts are removed, the sway bar will be loose and ready to remove. Use caution so it does not fall off.

FRONT SWAY BAR INSTALLATION

Step 5:

Using both hands, lower the front of the sway bar, shift it a few inches to either side, and remove it from the vehicle.

Step 6: Long 1/4" Extension

Insert a suitable tool through the sway bar bracket mounting holes for leverage, then pry the sway bar brackets back and forth, alternating holes, to remove them from the bushings.

FRONT SWAY BAR INSTALLATION

Step 7:

Spread each of the new front sway bar bushings by hand and install them onto the new front sway bar.

NOTE

No grease is required for these bushings. The "cut" or "open" side of each bushing can be placed on either side.

Step 8: Silicone Spray Lube

Lubricate the inside of each sway bar bracket, then press them down fully onto each new sway bar bushing.

Install the new sway bar in place, rotating the bushings as necessary to push the brackets onto the bracket studs. Make sure the ends of the sway bar are located above the tie rods and lower control arms then install, but do not tighten the nuts onto the end of each stud.

13mm, 16mm Sockets, Ratchet, 17mm Wrench

Install the two lower end link studs into the sway bar and install the nuts. Torque the end link nuts to 60 Nm (44 Ft-lbs). Torque the sway bar bracket mouting nuts to 21 Nm (16 Ft-lbs).

- [ ] Install the front insulation panel brackets
- [ ] Install the front insulation panel

Front Sway Bar installation is complete!

REAR SWAY BAR INSTALLATION

Step 1: 17mm Protecta Socket, Wheel Hanger

Safely raise and support the vehicle and remove the rear wheels.

NOTE

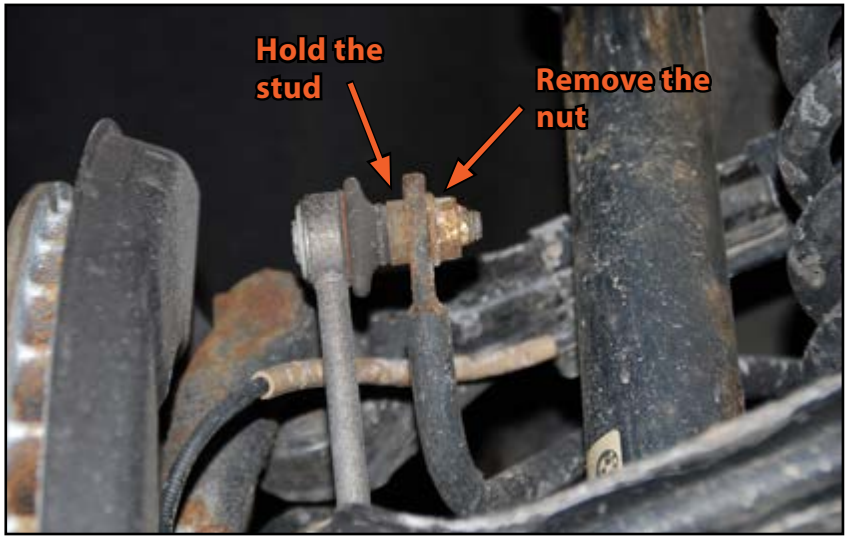
For safety and convenience, we are using a wheel hanger to support the wheel as we remove the lug bolts.

Step 2: 16mm Socket and Ratchet, 16mm Wrench

Hold both rear sway bar link studs stationary with a narrow spanner wrench, then remove both link nuts and pull the link studs out of the rear sway bar.

NOTE

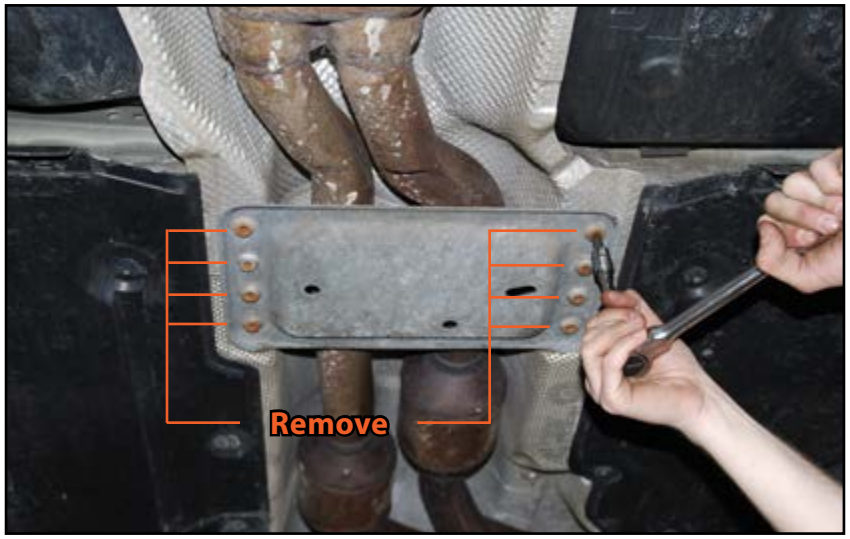
The original link studs require a narrow spanner type wrench to hold them. If you do not have the appropriate wrench, locking pliers may be used but be careful not to tear the link boot.



REAR SWAY BAR INSTALLATION

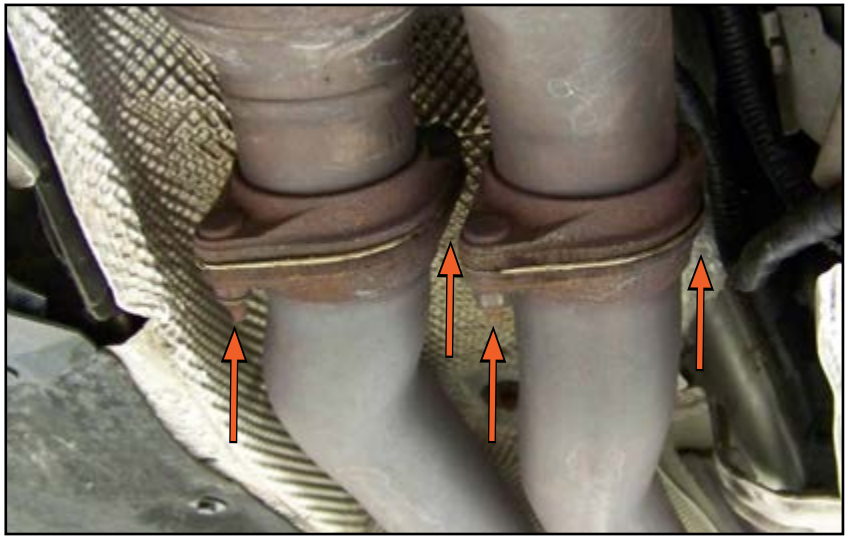
Step 3: T50, Ratchet

Remove the eight bolts and remove the center support plate.



Step 4: 12mm Socket, Ratchet

Remove three of the four nuts holding the front exhaust pipes to the catalytic converter flanges. Many of these nuts have been replaced and the actual sizes may vary, but they are usually 12mm or 13mm. Loosen the fourth nut, but leave it threaded on a few threads to support the front of the exhaust until you are ready to remove it.



REAR SWAY BAR INSTALLATION

Step 5:

Pull the vacuum line off the exhaust valve on the LH rear.

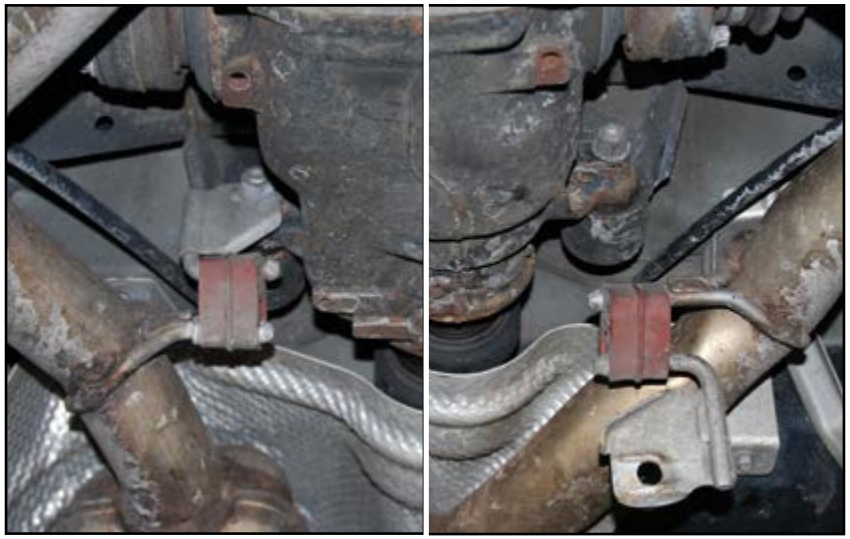
Step 6: E10 Socket, Ratchet

Remove the exhaust pipe support clamp located at the rear of the transmission.

REAR SWAY BAR INSTALLATION

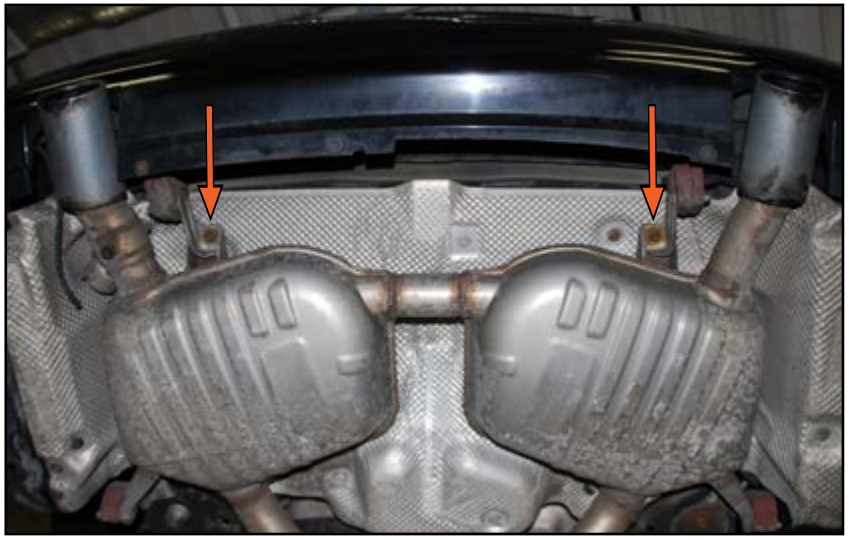
Step 7: 18mm Socket, Ratchet

At the front of the rear differential, remove the two exhaust hanger bracket nuts, pull the brackets off each side, then pivot them down out of the way. Thread the nuts back on by hand.



Step 8: E10 Socket, Ratchet

Remove the two rear exhaust hanger bolts.



REAR SWAY BAR INSTALLATION

Step 9:

Place a jack underneath the front of the exhaust system and remove the last nut from the front exhaust pipe.

CAUTION

The exhaust system is very heavy. Before proceeding with the next step, we recommend you enlist the help of a friend, or even two, to lower the system.

Step 10: 13mm Socket, Ratchet

Remove the two remaining exhaust mounting brackets and lower the entire exhaust system from the car.

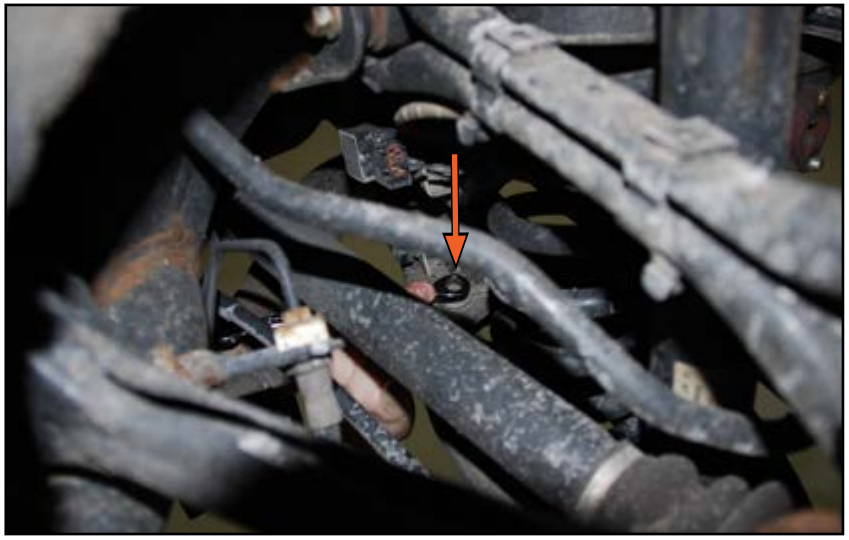
REAR SWAY BAR INSTALLATION

Step 11: E12 Socket, Ratchet

Remove both lower shock bolts on each side.

Step 12: 10mm Wrench

On the LH side only, remove the bolt securing the headlight level sensor rod bracket to the LH rear lower control arm.



REAR SWAY BAR INSTALLATION

Step 13: 21mm Socket, 21mm Wrench, Ratchet

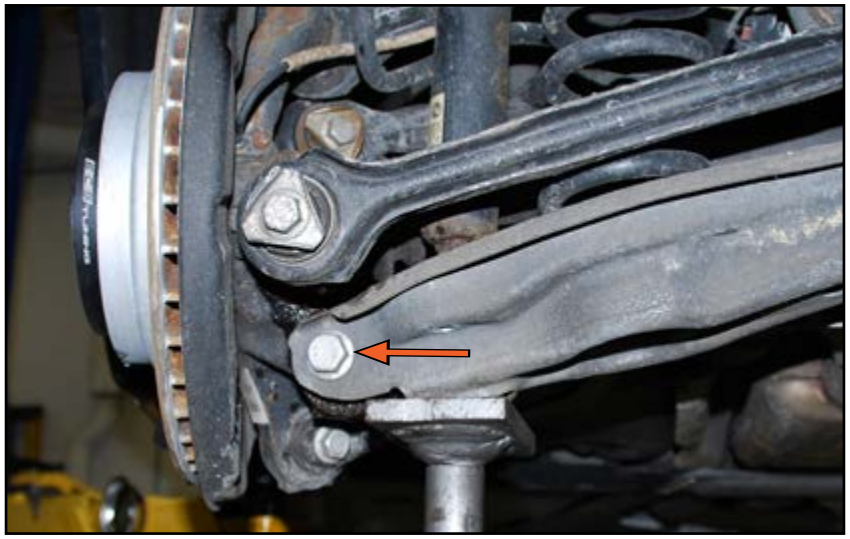
Place a jack underneath one of the lower control arms, then remove the bolt that connects the lower control arm to the steering knuckle.

NOTE

Raise or lower the jack as necessary to relieve tension on the bolt before removing it.

CAUTION

Only raise the jack enough to relieve spring tension on the bolt. Be sure not to lift the car and shift the weight on the lift or jack stands.



Step 14:

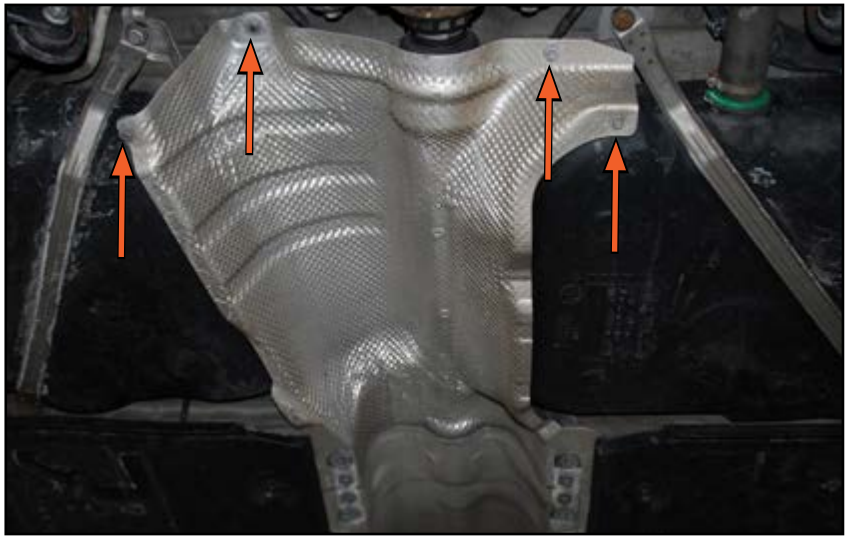
Slowly lower the jack until the control arm clears the steering knuckle and shock absorber.

Relieve all tension on the jack, then pull down on the control arm with one hand and remove the coil spring with the other.

☐ Remove the coil spring on the other side (repeat steps 13 through 15).

10mm Socket, Ratchet

Remove the three screws and one stamped nut and remove the rear heat shield.



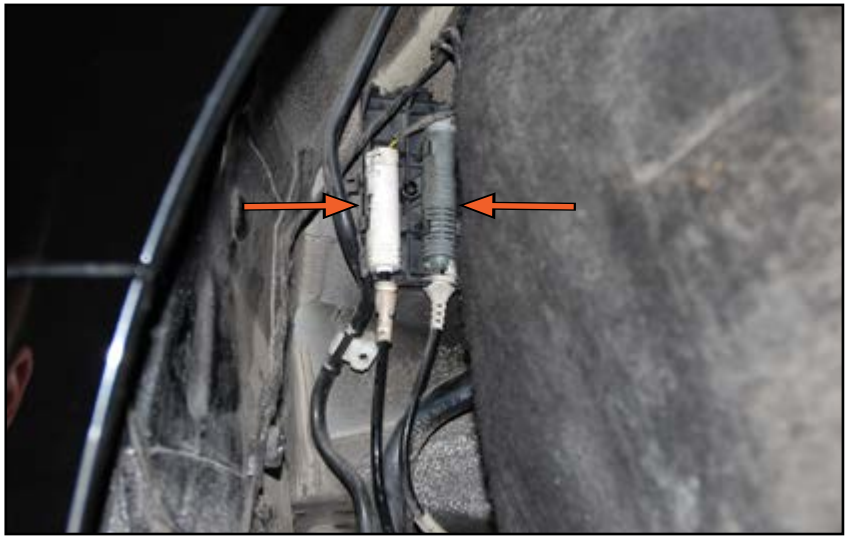
REAR SWAY BAR INSTALLATION

Step 17: 8mm, 10mm

On both sides, remove the fasteners at the rear of the fender liners as necessary to pull each fender liner back and access the connectors underneath.

Step 18:

On the RH (passenger) side, disconnect the ABS and pad sensor connectors, then let the wires hang down and allow the fender liner to return back into place.



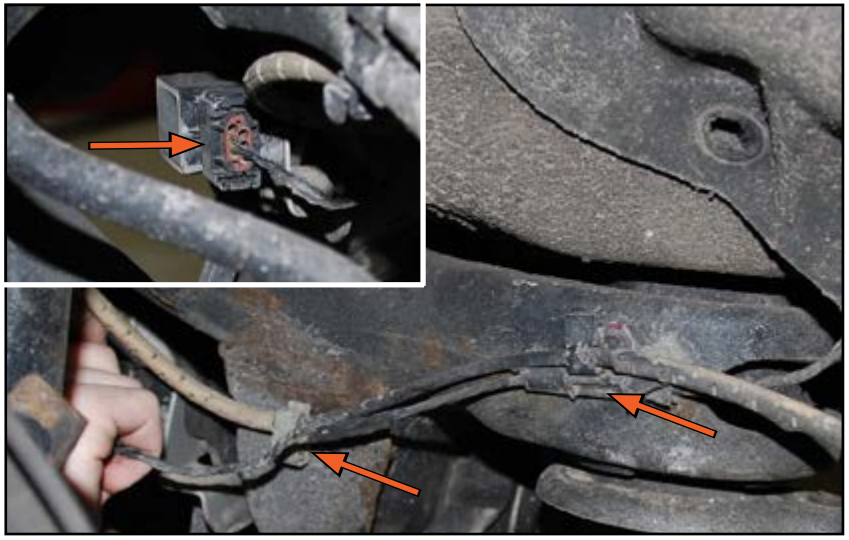
REAR SWAY BAR INSTALLATION

Step 19:

On the LH (driver) side, disconnect the ABS connector and let it hang down, then allow the fender liner to return back into place.

Step 20:

Disconnect the headlight leveling sensor, then remove the sensor wires from the plastic retainers on the subframe. Let the wires hang free.



REAR SWAY BAR INSTALLATION

Step 21: 18mm Socket, Ratchet

Remove the outer bolt at the steering knuckle for each upper control arm.

Step 22:

Each upper control arm will pivot up freely as shown.

REAR SWAY BAR INSTALLATION

Step 23:

Unhook the wiring harness retainers from each upper control arm, then allow the harnesses to hang free underneath.

Step 24:

Locate the expanding rivet that secures the rear of the rocker panel trim at the front corner of each forward subframe brace.

REAR SWAY BAR INSTALLATION

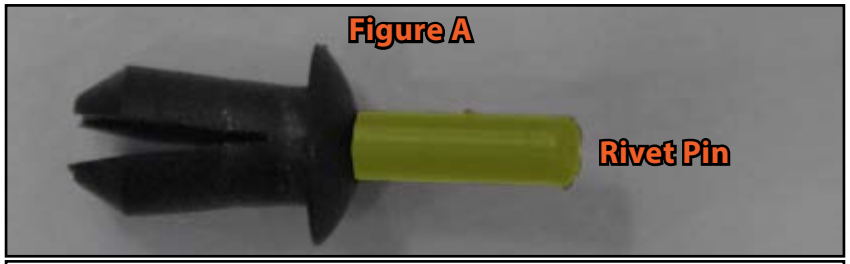
Step 25:

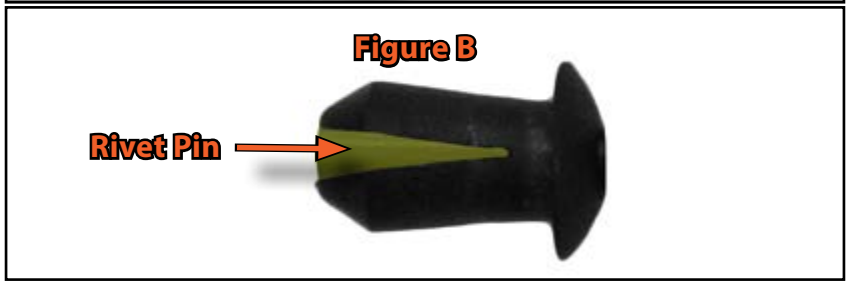
The expanding rivet works like this:

Figure A: The rivet pin is out allowing the fingers to compress and pass through the hole in the subframe brace.

Figure B: The rivet pin is pushed into the rivet, keeping the fingers expanded to a diameter larger than the hole in the subframe brace, preventing it from backing out and keeping the trim securely in place.

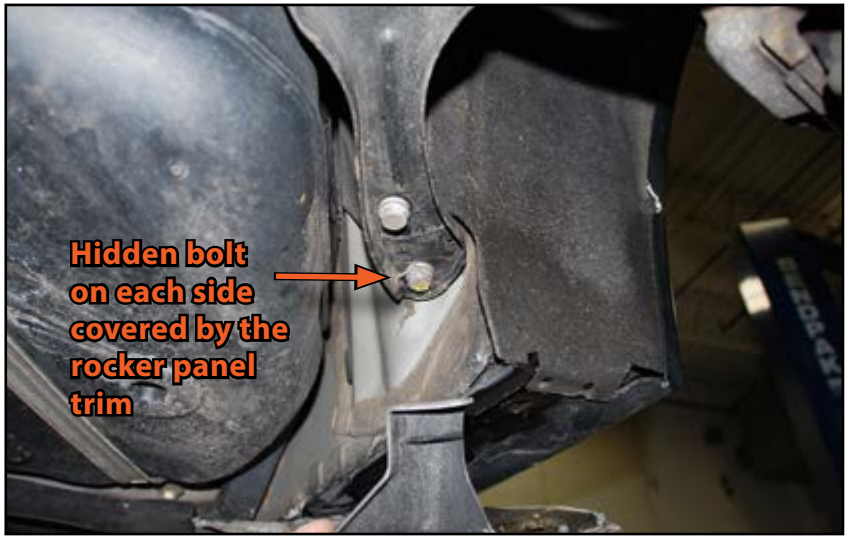
To remove an expanding rivet you need to first remove the rivet pin. This can be done by either pulling it out (if it protrudes and can be grabbed with pliers) or using a small punch to push it all the way through.





Step 26: Small Punch or similar tool

Remove the expanding rivet on each side and pull the rocker panel trim down to access the bolt underneath.



REAR SWAY BAR INSTALLATION

Step 27: E18, 16mm Sockets and Ratchet

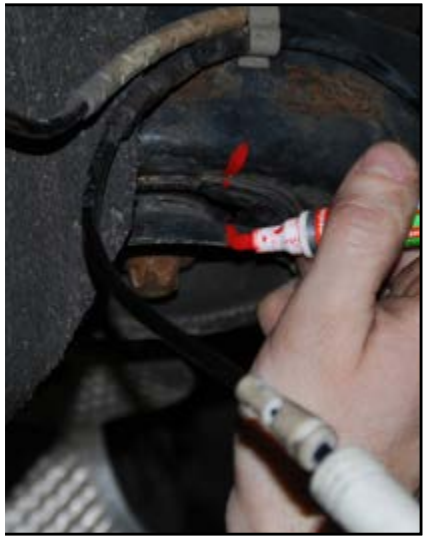
Remove the two 16mm subframe brace bolts on each side, then remove each E18 subframe bolt. Remove the subframe braces, then thread each E18 subframe bolt back in place, leaving them out approximately 1/4" to 1/2".

NOTE

Do not leave these forward subframe bolts out. Be sure to thread them in place as described. This will allow the subframe to pivot as needed, while keeping tension off of the brake hoses.

Step 28: Paint Marker

Make a reference mark bewteen the rear subframe mounting plate and the subframe. The M8 stud on the side of each mounting plate is for the exhaust hangers (removed in step ten), and will need to be reinstalled with the same orientation.



REAR SWAY BAR INSTALLATION

Step 29: Transmission Jack or Floor Jack

Securely locate a jack underneath the rear differential. Once the jack contacts the differential, raise it just enough to put a slight amount of tension on the differential mounts. This will keep the subframe tight against the body when you remove the rear bolts.

CAUTION

Be careful not to lift the car and shift the weight on the lift or jack stands.

Step 30: E18 Socket and Ratchet

Remove both rear subframe bolts.

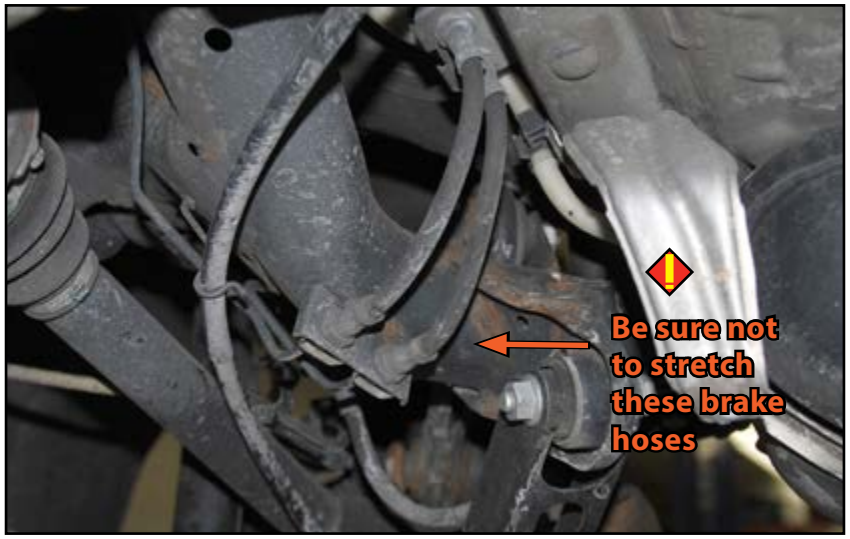
REAR SWAY BAR INSTALLATION

Step 31:

Slowly lower the jack until the subframe has dropped down only about three inches. This will give you all the room you need to access and remove the rear sway bar.

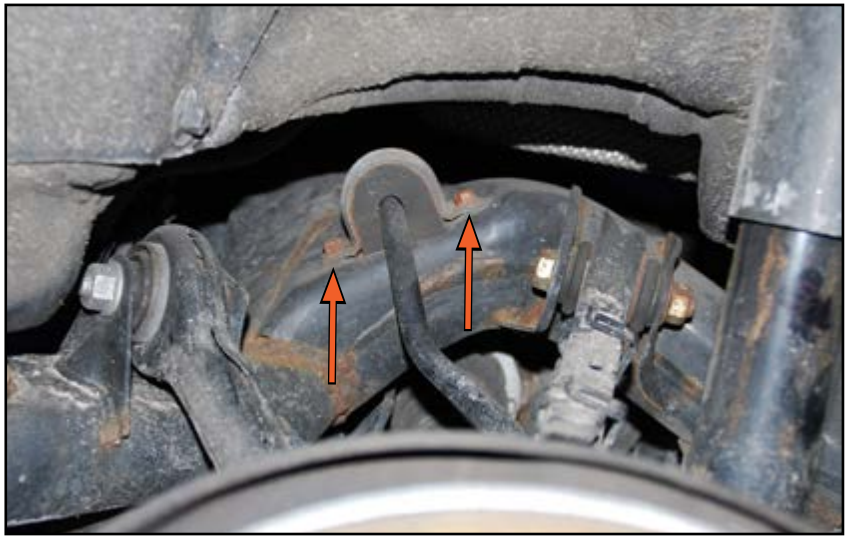
As you lower the subframe, check to make sure that nothing is binding or stretched, paying particular attention to the shocks and the ABS and brake sensor wires.

Make sure that the brake hoses do not get stretched.



Step 32: 10mm Wrench

Remove the two rear sway bar bracket bolts on each side.



Screwdriver

Carefully use a screwdriver to pry the brackets off of the original bushings, then remove the bushings from the sway bar.

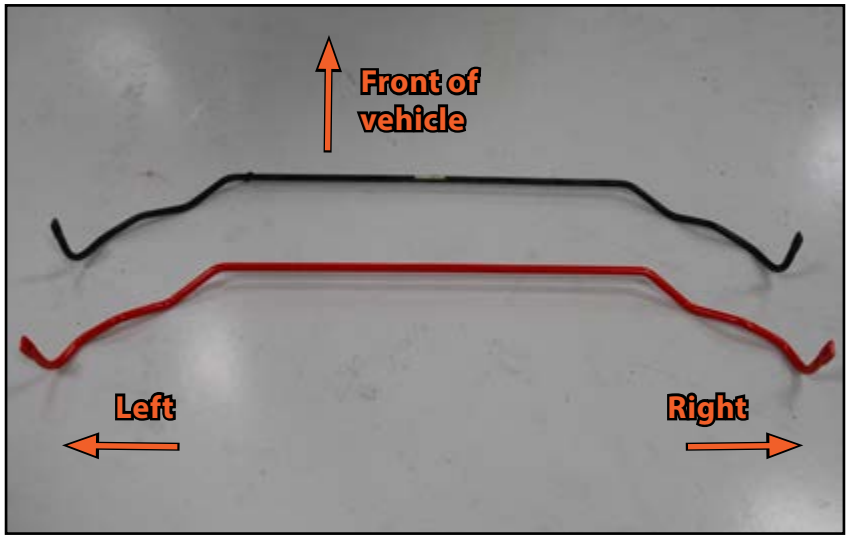
Remove the original rear sway bar using the following procedure:

- [ ] Pull the sway bar a few inches out the LH side of the vehicle.
- [ ] Make sure the sway bar is clear of the wires on the RH side.
- [ ] From the RH side, move the sway bar over the differential and towards the rear of the car.
- [ ] Slowly pull the sway bar the rest of the way out from the LH side.
- [ ] Place the swar bar on the ground, keeping the orientation the same as it was when installed in the car.

REAR SWAY BAR INSTALLATION

Step 35:

Place the new rear sway bar next to the original, matching the orientation so it will be correctly installed.



Step 36:

Install the new rear sway bar in place using the reverse of the procedure which was used to remove it.

NOTE

The new sway bar is thicker than the original. You may have to lower the subframe slightly (approximately and additional 1/2") to install the new bar.

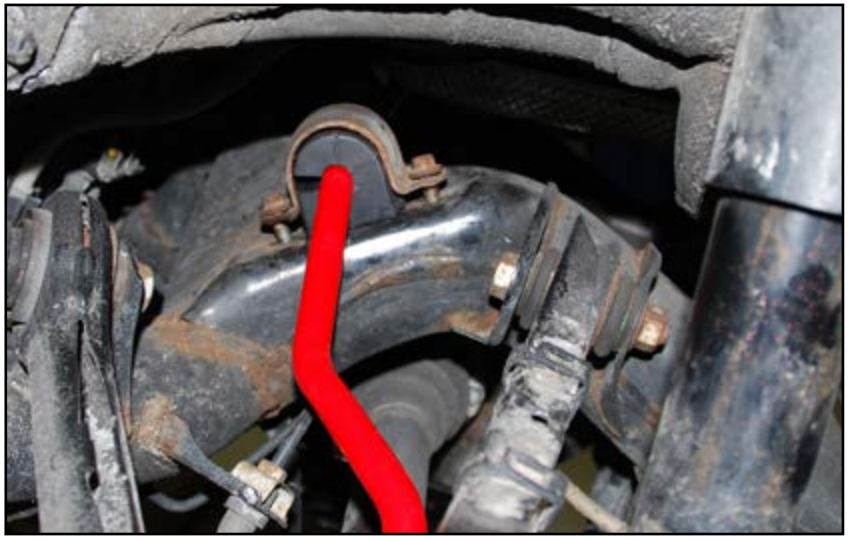
REAR SWAY BAR INSTALLATION

Step 37:

Spread the new sway bar bushings and install them onto the sway bar.

Step 38: Silicone Spray Lube

Lubricate the sway bar brackets and push them into place on each side. Install all four bolts loosely at first, then thread them all the way in on each side and torque them to 21 Nm (16 Ft-lbs).



The remainder of the installation is the reverse of removal, but for convenience and accuracy we have provided this step by step checklist, along with torque specifications and special details as needed.

- [ ] Raise the rear subframe up until it meets the body. Make sure no wires are caught or pinched.
- [ ] Install both rear subframe bolts and mounting plates. Thread the bolts all the way in but do not tighten them at this time.
- [ ] Remove the forward subframe bolts, install the subframe braces, reinstall the subframe bolts, then install the two brace bolts on each side.
- [ ] Torque all four subframe bolts to 100 Nm (74 Ft-lbs).
- [ ] Torque the subframe brace bolts to 47 Nm+90 degrees (35 Ft-lbs+90 degrees).
- [ ] Reposition the rocker panel trim and install the expanding rivets.
- [ ] Install the wiring harnesses onto each upper control arm.
- [ ] Install the upper control arm bolts. Thread them all the way in but do not tighten them at this time.
- [ ] Connect the headlight leveling sensor and install the harness into the retainers on the subframe.
- [ ] Connect the ABS and sensor wires on each side and reinstall the fender liners.
- [ ] Reinstall the heat shield.
- [ ] Install the coil springs into place. Make sure the bottom of each coil spring is properly indexed in the lower control arm.
- [ ] Raise the lower control arms using a jack until the shock mounts and control arm bolts can be installed.

- [ ] Install both lower shock absorber mounts and torque the bolts to 60 Nm (44 Ft-lbs).
- [ ] Install the lower control arm bolts and nuts. Thread the nuts all the way on but do not tighten them at this time.
- [ ] Install the headlight level sensor rod bracket.
- [ ] Reinstall the exhaust system. Torque the brackets at the front of the rear differential mounts to 100 Nm (74 Ft-lbs). Also connect the vacuum line.
- [ ] Install the center support plate.
- [ ] Install the sway bar end links and torque them to 58 Nm (43 Ft-lbs).

NOTE

Suspension bushings must be tightened with the vehicle at ride height so they are not loaded in their rest position. This can be done with the wheels installed and the car on a drive-on style of lift, but access can be difficult even if you have this style of lift. An alternative method is to jack up the suspension until the point at which the suspension no longer compresses and you begin to lift the vehicle. This is an adequate representation of ride height and the fasteners can be torqued at this time. If your BMW has the newer "ball joint style" of bushings, they can be torqued at any time. Only a traditional rubber bushing must be torqued in this fashion.

- [ ] Jack up the suspension on each side so it is positioned at ride height, then torque the upper control arm bolts to 100 Nm+90 degrees (74 Ft-lbs+90 degrees).
- [ ] Torque the lower control arm bolts to 165 Nm (122 Ft-lbs).
- [ ] Install both rear wheels and torque them to 120 Nm (89 Ft-lbs).

TORQUE SPECIFICATIONS

Exhaust Hanger Brackets at Differential	100 Nm (74 Ft-lbs)	(Page 32)
Forward Subframe Brace 16mm Bolts (Always Replace)	47 Nm+90 degrees (35 Ft-lbs+90 degrees)	(Page 31)
Forward Subframe E18 Bolts (Always Replace)	100 Nm (74 Ft-lbs)	(Page 31)
Front Sway Bar Bracket Nuts	21 Nm (16 Ft-lbs)	(Page 11)
Front Sway Bar Link Nuts	60 Nm (44 Ft-lbs)	(Page 11)
Lower Control Arm Bolts (Use New Nut)	165 Nm (122 Ft-lbs)	(Page 32)
Lower Rear Shock Absorber Mount Bolts (Always Replace)	60 Nm (44 Ft-lbs)	(Page 32)
Rear Subframe Bolts	100 Nm (74 Ft-lbs)	(Page 31)
Rear Sway Bar Bracket to Subframe Bolts	21 Nm (16 Ft-lbs)	(Page 30)
Rear Sway Bar Link Nuts	58 Nm (43 Ft-lbs)	(Page 32)
Upper Control Arm Bolts (Always Replace)	100 Nm+90 degrees (74 Ft-lbs+90 degrees)	(Page 32)
Wheels	120 Nm (89 Ft-lbs)	(Page 32)

• A note about torque to yield or "stretch" bolts: Many bolts will have a torque specification listed in the format - xx Nm+xx degrees (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 them to the Nm or Ft-lb specification. *Stage Two* - tighten each one the additional specified number of degrees. To prevent over torquing it is important to mark each fastener with paint *immediately* after performing the second stage or "stretching" of the bolts.

Your E9X Front and Rear Sway Bar 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.