

SUSPENSION**Front Suspension (Sedan)****40 FRONT SUSPENSION****GENERAL INFORMATION****FRONT SUSPENSION**

When installing waxed components, contact surfaces must be cleaned. Contact surfaces must be free of wax and grease.

Tightening specifications for unlubricated bolts and nuts are given.

Always replace self-locking nuts and bolts.

Always replace the bolts and nuts, which are tightened with an additional tightening angle.

Welding or straightening operations are not permitted on load-bearing or wheel-controlling components.

Always avoid the following actions with coil springs: Hammer stroke, welding beads, applying color identification later.

Do not perform any welding or grinding (separating work) in coil spring or suspension strut area! Cover coil spring or suspension struts if necessary.

When loosening, removing or installing hydraulic, pneumatic or electrical line, always make a sketch or take a picture. Doing so records the original installation locations.

If the cable ties, brackets or mounting elements were removed during the repair procedure, they must be installed at their original location.

Do not let the drive axle hang down. The inner joint could be damaged if it is bent too far.

Vehicles without a drive axle must not be moved, otherwise the wheel bearing will be damaged. If the vehicle does have to be moved, always note the following points:

-- Install an outer joint in place of the drive axle.

-- Tighten the threaded connection between the drive axle and the wheel hub to 200 Nm.

Bonded rubber bushings can only be turned to a limited extent. Only tighten threaded connections at control arms if the vehicle is in curb weight position or control position.

- Lifting wheel bearing to curb weight position. Refer to **WHEEL BEARING, WITH COIL SPRING, LIFTING TO CURB WEIGHT POSITION**.

As a running change in MY 2010, aluminum coupling rods were replaced by plastic coupling rods. It is not permitted to use different coupling rods on an axle.

CAUTION: The suspension components could be damaged.

If the subframe mount, the steering gear or the subframe crossbrace are not installed correctly, do not rest the vehicle on its wheels.

The vehicle must not be supported on the subframe or the subframe crossbrace (for example using a floor jack).

NOTE: If the vehicle must still have an axle alignment, every bolt and nut that must be loosened for adjustment must be tightened to the tightening specification. Tighten the bolts and nuts to the specified additional tightening angle after the alignment/adjustment is complete.

WARNING: All bolts and nuts must be tightened properly before driving the vehicle!

WHEEL BEARING

The wheel bearing must not be under a load while the drive axle threaded connection on the wheel side is loose.

If the bearings are loaded by the vehicle weight the wheel bearing will be damaged. This reduces the service life of the wheel bearings. Therefore observe the following:

- Procedure for loosening drive axle to wheel hub threaded connection. Refer to **THREADED CONNECTION BETWEEN DRIVE AXLE AND WHEEL HUB, LOOSENING AND TIGHTENING**.

Vehicles without a drive axle must not be moved, otherwise the wheel bearing will be damaged. If the vehicle does have to be moved, always note the following points:

-- Install an outer joint in place of the drive axle.

-- Tighten outer joint to 200 Nm.

Do not let the drive axle hang down. The inner joint could be damaged if it is bent too far.

CONTACT CORROSION

Contact corrosion can occur when incorrect fasteners (bolts, nuts, washers, etc.) are used.

For this reason, only fastening elements with a special surface coating (Dacromet) are installed. These elements can be recognized by their green color.

In addition, rubber and plastic parts and adhesive are of non-conducting materials.

If there are doubts as to whether parts should be reinstalled, install new parts.

NOTE: Only use genuine Audi replacement parts. They have been checked and are compatible with aluminum.

Accessories must be approved by Audi AG.

Damage due to contract corrosion is not covered under warranty!

LONGITUDINAL MEMBER THREADS, REPAIRING

Damaged threads can be repaired using wire inserts (heli-coil).

- Have the thread repair checked by the responsible foreman or next person in charge.
- Thread insert must be same length as thread in body.
- Repair any damage to the underbody sealant.

DESCRIPTION AND OPERATION

WHEEL BEARING, WITH COIL SPRING, LIFTING TO CURB WEIGHT POSITION

Special tools and workshop equipment required

- Engine-/Gearbox Jack V.A.G 1383 A
- Tensioning Strap T10038
- Wheel Hub Support T10149

NOTE: All bolts at suspension parts with bonded rubber bushings must always be tightened in curb weight position (unloaded condition).

Bonded rubber bushings can only be turned to a limited extent.

Parts with bonded rubber bushings must be brought into a position that corresponds to the position in driving mode before being tightened (curb weight position).

Otherwise, the bonded rubber bushing will be stressed resulting in a shortened service life.

By raising appropriate suspension using V.A.G 1383 A and T10149, this position can be simulated on the hoist.

-- Before starting work, take measurement -a-, with a tape measure, from center of wheel to lower edge of wheelhouse.

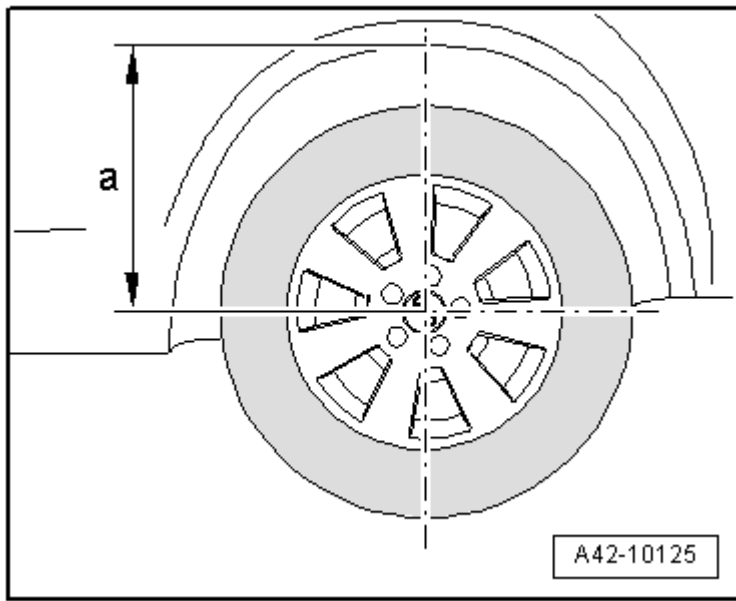


Fig. 1: Measuring Dimension From Center Of Wheel To Lower Edge Of Wheel Housing Using Tape Measure

Courtesy of AUDI OF AMERICA, LLC

Measurement must be performed in curb weight position (unloaded condition).

-- Note measured value. It will be required for tightening bolts/nuts.

Before the appropriate suspension is raised, the vehicle must be strapped to lift arms of hoist using T10038.

The vehicle could fall off the hoist if it is not secured.

-- Remove the wheel.

-- Turn the wheel hub until one of the holes for the wheel bolts is on top.

-- Install T10149 with the wheel bolt on wheel hub.

Tightening of the respective bolts/nuts must only occur if dimension -a-, measured before installation between wheel hub center and lower edge of wheel house, has been attained.

-- Using V.A.G 1383 A, lift wheel bearing housing until dimension -a- is reached.

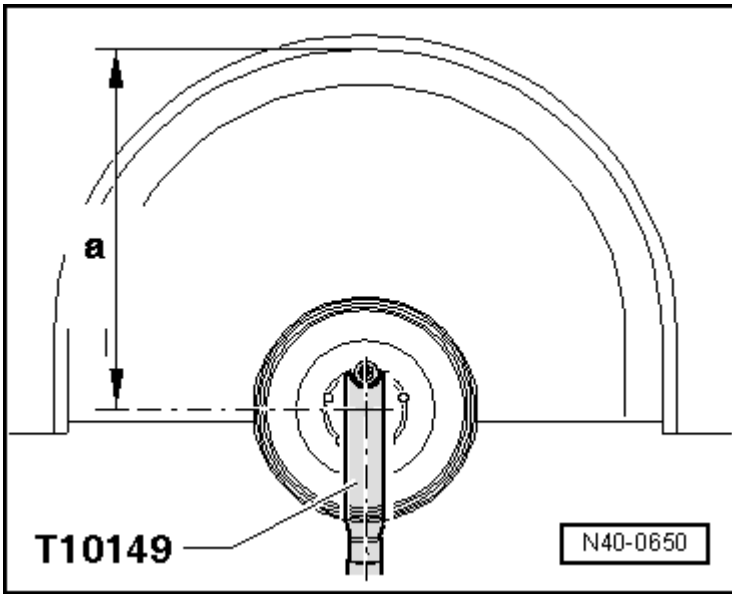


Fig. 2: Identifying Dimension Between Wheel Hub Center And Lower Edge Of Wheel Housing
Courtesy of AUDI OF AMERICA, LLC

WARNING:

- Do not lift or lower vehicle when the V.A.G 1383 A stands below the vehicle.
- Do not leave V.A.G 1383 A below vehicle any longer than necessary.

-- Tighten the bolts and nuts.

-- Lower the wheel bearing housing.

-- Remove V.A.G 1383 A from under the vehicle.

-- Remove T10149.

SUBFRAME, CROSSBRACE, STABILIZER BAR, COUPLING ROD AND SUBFRAME SHIELD OVERVIEW

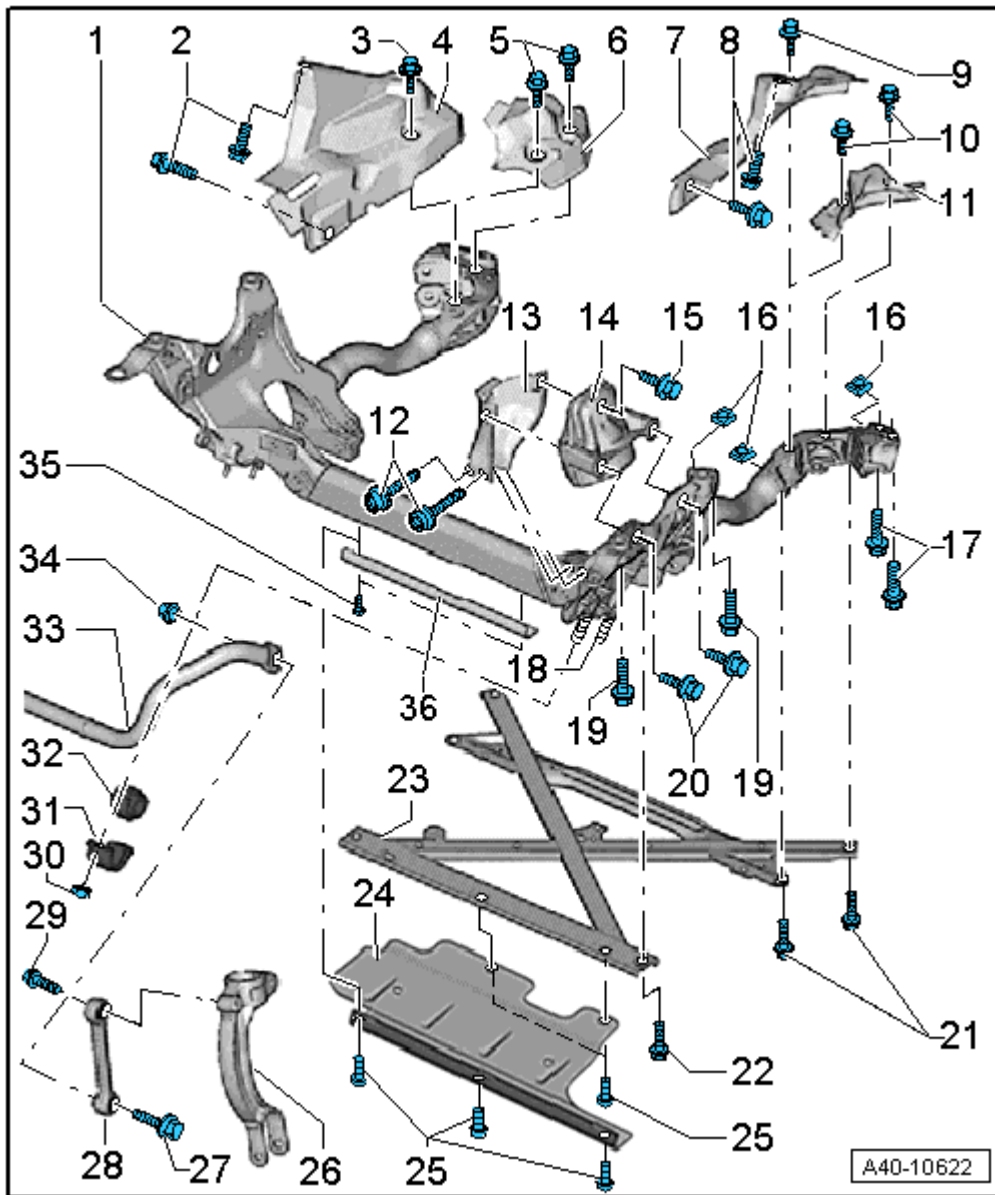


Fig. 3: Identifying Subframe, Crossbrace, Stabilizer Bar, Coupling Rod And Subframe Shield Overview
 Courtesy of AUDI OF AMERICA, LLC

1. Subframe
 - Removing and installing, refer to **SUBFRAME**
2. Bolt
 - 9 Nm
3. Bolt
 - 20 Nm
4. Subframe Shield
 - Installed depending on the engine versions
 - Removing and installing, refer to **SUBFRAME HEAT SHIELD**

5. Bolt
 - 20 Nm
6. Subframe Shield
 - Installed depending on the engine versions
7. Subframe Shield
 - Installed depending on the engine versions
 - Removing and installing, refer to **SUBFRAME HEAT SHIELD**
8. Bolt
 - 9 Nm
9. Bolt
 - 20 Nm
10. Bolt
 - 20 Nm
11. Subframe Shield
 - Installed depending on the engine versions
12. Bolt
 - Tightening specification, refer to **[For transmission(s) 0AW] [For engine(s) CALA] Specifications** or refer to **[For engine(s) CAEB] Specifications** or refer to **[For engine(s) CCBA] Specifications**
13. Retaining Plate
 - For the engine mount
14. Engine Mount
 - Removing and installing, refer to **[For transmission(s) 0AW] [For engine(s) CALA] Removal and Installation** or refer to **[For engine(s) CAEB] Removal and Installation** or refer to **[For engine(s) CCBA] Removal and Installation**
15. Bolt
 - Tightening specification, refer to **[For transmission(s) 0AW] [For engine(s) CALA] Specifications** or refer to **[For engine(s) CAEB] Specifications** or refer to **[For engine(s) CCBA] Specifications**
16. Square Nut
 - Always replace if removed.
 - There are no square nuts on the front if the vehicle has electro-mechanical power steering.
17. Bolt
 - 115 Nm +90° turn
 - Always replace if removed.
 - Tightening sequence or procedure for tightening the subframe **SUBFRAME**
18. Stud
 - Replace if damaged; allocation.
19. Bolt

- 115 Nm +90° turn
- Always replace if removed.
- Tightening sequence or procedure for tightening the subframe **SUBFRAME BOLTING PROCEDURE:**

20. Bolt

- Tightening specification, refer to **[For transmission(s) 0AW] [For engine(s) CALA] Specifications** or refer to **[For engine(s) CAEB] Specifications** or refer to **[For engine(s) CCBA] Specifications**

21. Bolt

- 90 Nm +135° turn
- Always replace if removed.

22. Bolt

- On vehicles with hydraulic power steering 90 Nm +135° turn
- On vehicles with electro-mechanical power steering: 90 Nm +90° turn
- Always replace if removed.

23. Subframe Crossbrace

- Removing and installing, refer to **SUBFRAME CROSSBRACE**

CAUTION: The suspension components could be damaged.

If the subframe, the steering gear or the subframe crossbrace are not installed correctly, do not rest the vehicle on its wheels.

The vehicle must not be supported on the subframe or the subframe crossbrace (for example using a floor jack).

24. Shield

- Installed on vehicles with electro-mechanical power steering and heavy duty suspension
- Not on quattro

25. Bolt

- 20 Nm

26. Shock Absorber Fork

27. Bolt

- 40 Nm + 90° turn
- Always replace if removed.
- Must be tightened in the curb weight position **WHEEL BEARING, WITH COIL SPRING, LIFTING TO CURB WEIGHT POSITION**

28. Coupling Rod

- There are versions made of aluminum and plastic. For allocation.
- A mixed installation is not permitted

- Removing and installing, refer to **COUPLING ROD**
29. Bolt
- 40 Nm + 90° turn
 - Always replace if removed.
 - Must be tightened in the curb weight position, refer to **WHEEL BEARING, WITH COIL SPRING, LIFTING TO CURB WEIGHT POSITION**
30. Nut
- 25 Nm
 - Always replace if removed.
 - Must be tightened in the curb weight position, refer to **WHEEL BEARING, WITH COIL SPRING, LIFTING TO CURB WEIGHT POSITION**
31. Clamp
32. Rubber Bushing
- When installing the subframe, the rubber bushing opening must face up.
 - The stabilizer bar and rubber bushing must be free of grease when installing.
33. Stabilizer Bar
- Removing and installing, refer to **STABILIZER BAR**
34. Nut
- Always replace if removed.
35. Bolt
- 20 Nm
 - Installed on vehicles with electro-mechanical power steering
36. Shield
- Installed on vehicles with electro-mechanical power steering
 - Not on quattro

ELECTRONICALLY CONTROLLED DAMPING OVERVIEW

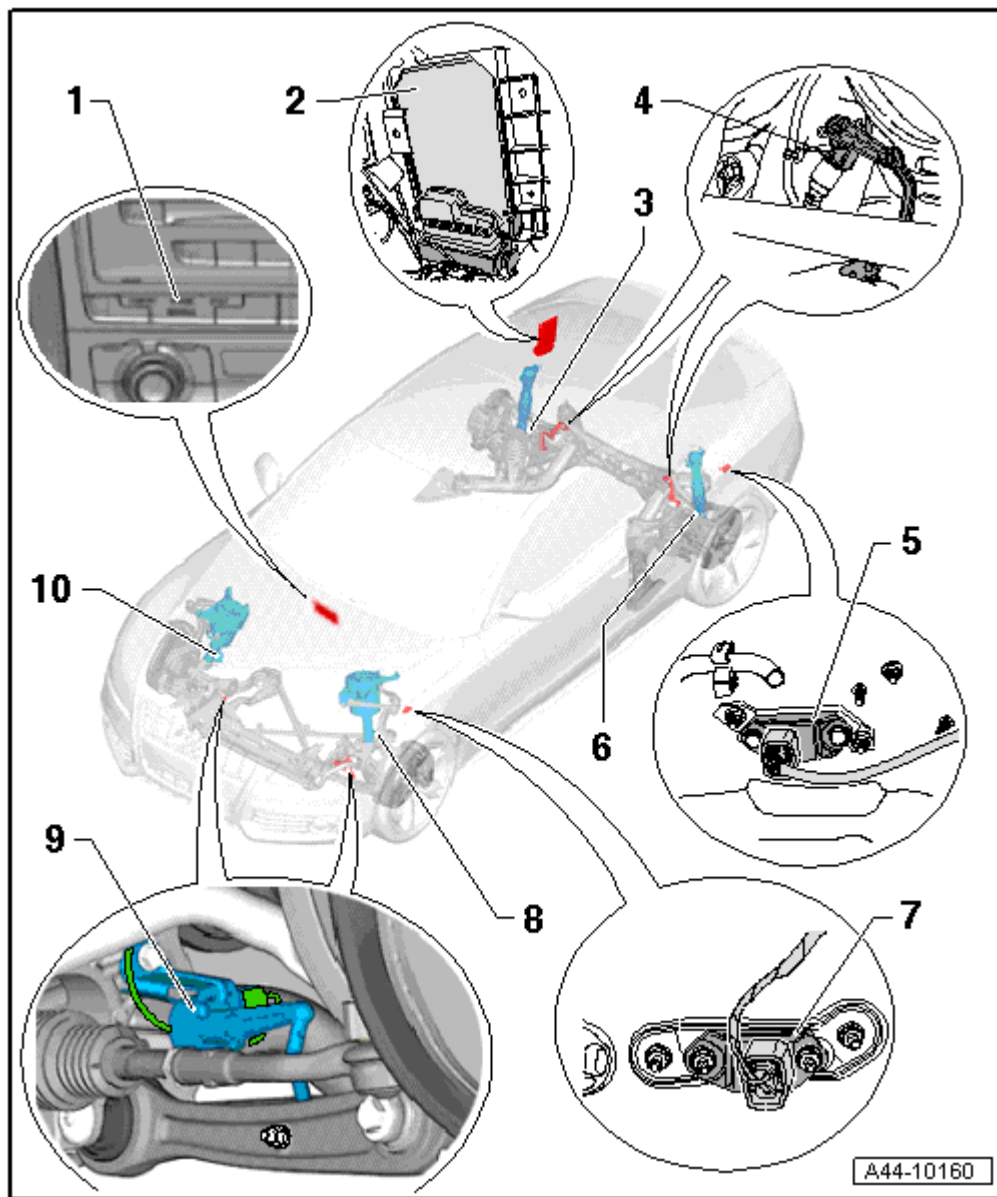


Fig. 4: Identifying Electronically Controlled Damping Overview

Courtesy of AUDI OF AMERICA, LLC

1. Driving Profile Selection Switch Module -E592-

- Component location: The driving profile selection switch module -- is installed in the instrument panel.

2. Electronic Damping Control Module -J250-

- Removing and installing, refer to **Electronic Damping Control Module -J250-**
- Component location: The electronic damping control module -- is located behind the right luggage compartment side trim panel.
- If the electronic damping control module -- is replaced, then the control position must be reprogrammed. Refer to **PROGRAMMING CONTROL POSITION USING Vehicle Diagnosis,**

Testing and Information System VAS 5051B vehicle diagnostic tester.

- If the control position was reprogrammed on vehicles with lane assist, the directional stabilization assistance control module -J759- must be recalibrated. Refer to **CALIBRATION PROCEDURE** .
3. Shock Absorber with Right Rear Dampening Adjustment Valve -N339-
 - Removing and installing, refer to **SHOCK ABSORBER**
 - Removing and installing, refer to **SHOCK ABSORBER**
 4. Left Rear Level Control System Sensor -G76- and Right Rear Level Control System Sensor -G77-
 - Removing and installing, refer to **LEVEL CONTROL SYSTEM SENSOR**
 - If the left rear level control system sensor -- and right rear level control system sensor -- were removed and installed or if the linkage was loosened, the control position must be reprogrammed on vehicles with electronically controlled damping **PROGRAMMING CONTROL POSITION USING Vehicle Diagnosis, Testing and Information System VAS 5051B** vehicle diagnostic tester
 - If the control position was reprogrammed on vehicles with lane assist, the directional stabilization assistance control module -J759- must be recalibrated **CALIBRATION PROCEDURE** .
 - On vehicles with automatic headlamp range control system, perform a basic setting on the headlamps. Refer to **Description and Operation** .
 5. Rear Body Acceleration Sensor -G343-
 - Removing and installing, refer to **Rear Body Acceleration Sensor -G343-**
 6. Shock absorber with Left Rear Dampening Adjustment Valve -N338-
 - Removing and installing, refer to **SHOCK ABSORBER**
 - Removing and installing, refer to **SHOCK ABSORBER**
 7. Left Front Body Acceleration Sensor -G341- and Right Front Body Acceleration Sensor -G342-
 - Removing and installing, refer to **Left Front Body Acceleration Sensor -G341- AND Right Front Body Acceleration Sensor -G342-**
 8. Shock Absorber with Left Front Dampening Adjustment Valve -N336-
 - Suspension strut, removing and installing, refer to **SUSPENSION STRUT WITH MOUNTING BRACKET**
 - Installing the suspension strut, refer to **SUSPENSION STRUT AND MOUNTING BRACKET**
 9. Left Front Level Control System Sensor -G78- and Right Front Level Control Sensor -G289-
 - Removing and installing, refer to **LEVEL CONTROL SYSTEM SENSOR**
 - If the left front level control system sensor -- and right front level control system sensor -- were removed and installed or if the linkage was loosened, the control position must be reprogrammed on vehicles with electronically controlled damping. Refer to **PROGRAMMING CONTROL POSITION USING Vehicle Diagnosis, Testing and Information System VAS 5051B**. See vehicle diagnostic tester
 - If the control position was reprogrammed on vehicles with lane assist, the directional stabilization assistance control module -J759- must be recalibrated. Refer to **CALIBRATION PROCEDURE** .
 - On vehicles with automatic headlamp range control system, perform a basic setting on the headlamps. Refer to **Description and Operation** .
 10. Shock Absorber with Right Front Dampening Adjustment Valve -N337-

- Suspension strut, removing and installing, refer to **SUSPENSION STRUT WITH MOUNTING BRACKET**
- Installing the suspension strut, refer to **SUSPENSION STRUT AND MOUNTING BRACKET**

MOUNTING BRACKET, SHOCK ABSORBER FORK, UPPER CONTROL ARM AND TOWER BRACE OVERVIEW

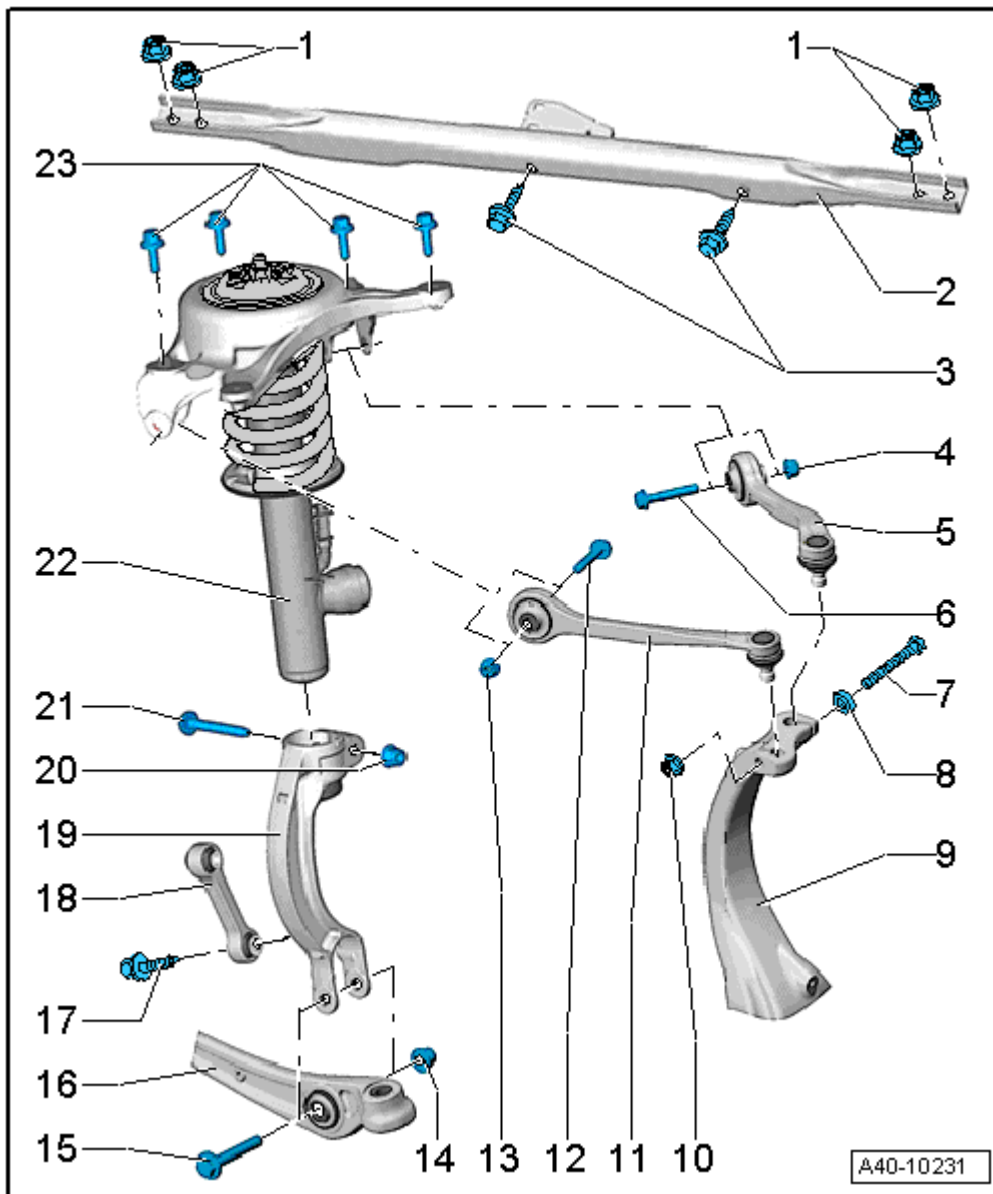


Fig. 5: Identifying Mounting Bracket, Shock Absorber Fork, Upper Control Arm And Tower Brace Overview

Courtesy of AUDI OF AMERICA, LLC

1. Nuts
 - 30 Nm

2. Tower Brace
 - Removing and installing, refer to **TOWER BRACE**
3. Bolts
 - 7 Nm
4. Nut
 - Always replace if removed.
5. Upper Rear Control Arm
 - Removing and installing, refer to **UPPER CONTROL ARM**
6. Bolt
 - 50 Nm + 90° turn
 - Always replace if removed.
 - Must be tightened in the curb weight position **WHEEL BEARING, WITH COIL SPRING, LIFTING TO CURB WEIGHT POSITION**
7. Bolt
 - Always replace if removed.
8. Washer
9. Wheel Bearing Housing
10. Nut
 - 40 Nm
 - Always replace if removed.
11. Upper Front Control Arm
 - Removing and installing, refer to **UPPER CONTROL ARM**
12. Bolt
 - 50 Nm + 90° turn
 - Always replace if removed.
 - Must be tightened in the curb weight position, refer to **WHEEL BEARING, WITH COIL SPRING, LIFTING TO CURB WEIGHT POSITION**
13. Nut
 - Always replace if removed.
14. Nut
 - 90 Nm + 90° turn
 - Always replace if removed.
 - Must be tightened in the curb weight position, refer to **WHEEL BEARING, WITH COIL SPRING, LIFTING TO CURB WEIGHT POSITION**
15. Bolt
 - Always replace if removed.
16. Control Arm
17. Bolt

- 40 Nm + 90° turn
- Always replace if removed.
- Must be tightened in the curb weight position, refer to **WHEEL BEARING, WITH COIL SPRING, LIFTING TO CURB WEIGHT POSITION**

18. Coupling Rod

- Note installed position, refer to **COUPLING ROD**
- There are versions made of aluminum and plastic. For allocation.
- A mixed installation is not permitted

19. Shock Absorber Fork

- Shock absorber fork, removing and installing, refer to **SHOCK ABSORBER FORK**

20. Nut

- 40 Nm + 180° turn
- Always replace if removed.

21. Bolt

- Always replace if removed.

22. Suspension Strut

- Suspension strut with mounting bracket, removing and installing, refer to **SUSPENSION STRUT WITH MOUNTING BRACKET**
- For servicing the suspension strut and mounting bracket, refer to **SUSPENSION STRUT AND MOUNTING BRACKET**
- There are different versions of the suspension. Refer to **EXPLANATIONS OF THE PRODUCTION CONTROL NUMBERS (PR NUMBER)** .
- Faulty shock absorbers must be vented and emptied before disposal. Refer to **FRONT GAS-FILLED STRUT, VENTING AND EMPTYING**
- Shock absorber, checking, refer to **SHOCK ABSORBERS, CHECKING WHEN REMOVED**

23. Bolts

- 40 Nm + 90° turn
- Follow tightening sequence **INSTALL AND TIGHTEN THE BOLTS, ON AFTER THE OTHER, IN THE FOLLOWING SEQUENCE -1, 2, 3 AND 4-.**
- Always replace if removed.

TRACK CONTROL ARM, BALL JOINT, GUIDE LINK AND LEVEL CONTROL SYSTEM SENSOR OVERVIEW

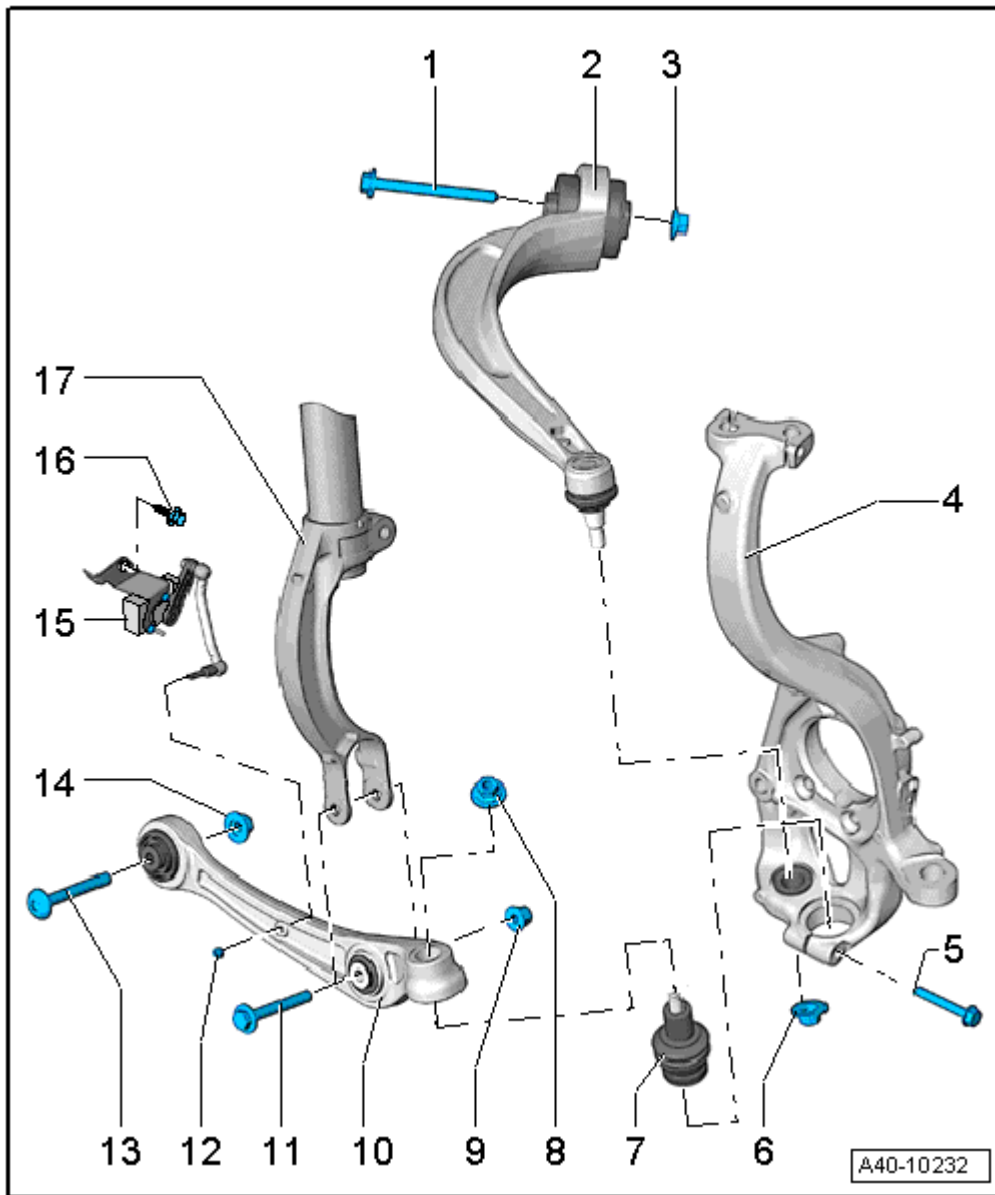


Fig. 6: Identifying Track Control Arm, Ball Joint, Guide Link And Level Control System Sensor Overview

Courtesy of AUDI OF AMERICA, LLC

1. Bolt
 - Always replace if removed.
2. Guide Link
 - Removing and installing, refer to **GUIDE LINK**
 - Different versions, for allocation.
 - A mixed installation is not permitted
 - Conventional bonded rubber bushing, removing and installing, 65 mm. Refer to **CONVENTIONAL BONDED RUBBER BUSHING, 65 MM.**

- Replacing the hydraulic bonded rubber bushing 75 mm for the guide link. Refer to **HYDRAULIC BONDED RUBBER BUSHING, 75 MM.**

3. Nut

- 70 Nm + 180° turn
- Always replace if removed.
- Must be tightened in the curb weight position. Refer to **WHEEL BEARING, WITH COIL SPRING, LIFTING TO CURB WEIGHT POSITION**

4. Wheel Bearing Housing

5. Bolt

- 40 Nm
- Always replace if removed.

6. Nut

- Always replace if removed.
- Different versions, for allocation.
- Pay attention to the different nut versions and to the tightening specifications **TRACK CONTROL ARM, BALL JOINT, GUIDE LINK AND LEVEL CONTROL SYSTEM SENSOR OVERVIEW.**
- After loosening threaded connection of guide control arm to wheel bearing housing, adhesive residue must be removed on thread of linkage stub.

7. Ball Joint

- Removing and installing, refer to **BALL JOINT**
- Different versions, for allocation.

NOTE: **Note installed position BALL JOINT.**

Install the ball joint into the wheel bearing housing up to the contact surface.

8. Nut

- Always replace if removed.
- Different versions, for allocation.
- Pay attention to the different nut versions and to the tightening specifications **NUT VERSIONS FOR THE CONTROL ARM AND GUIDE CONTROL ARM BRACKET.**
- After loosening threaded connection on the ball joint to the wheel bearing housing, adhesive residue must be removed on thread of linkage stub.

9. Nut

- 90 Nm + 90° turn
- Always replace if removed.
- Must be tightened in the curb weight position. Refer to **WHEEL BEARING, WITH COIL SPRING, LIFTING TO CURB WEIGHT POSITION.**

10. Control Arm

- Removing and installing, refer to **CONTROL ARM**
- Replacing bearings for track control arm, refer to **CONTROL ARM BALL BEARING, REPLACING**

11. Bolt

- Always replace if removed.

12. Nut

- 9 Nm

13. Bolt

- Always replace if removed.

14. Nut

- 70 Nm +180° turn
- Always replace if removed.
- Must be tightened in the curb weight position **WHEEL BEARING, WITH COIL SPRING, LIFTING TO CURB WEIGHT POSITION**

15. Left Front Level Control System Sensor -G78- or Right Front Level Control Sensor -G289-

- Only sensors of the same version may be installed.
- Only remove and install or replace completely. Refer to **LEVEL CONTROL SYSTEM SENSOR**
- The sensor lever must point toward the back.
- After loosening, check basic setting of headlamp adjustment. Refer to **Description and Operation** .
- If the vehicle level sensor -- was removed and installed on a vehicle with electronically controlled damping or if the linkage was loosened, the control position must be reprogrammed. Refer to **PROGRAMMING CONTROL POSITION USING Vehicle Diagnosis, Testing and Information System VAS 5051B**. Vehicle diagnostic tester.
- If the control position was reprogrammed on vehicles with lane assist, the directional stabilization assistance control module -J759- must be recalibrated. Refer to **CALIBRATION PROCEDURE** .

16. Bolt

- 20 Nm

17. Shock Absorber Fork

NUT VERSIONS FOR THE CONTROL ARM AND GUIDE CONTROL ARM BRACKET

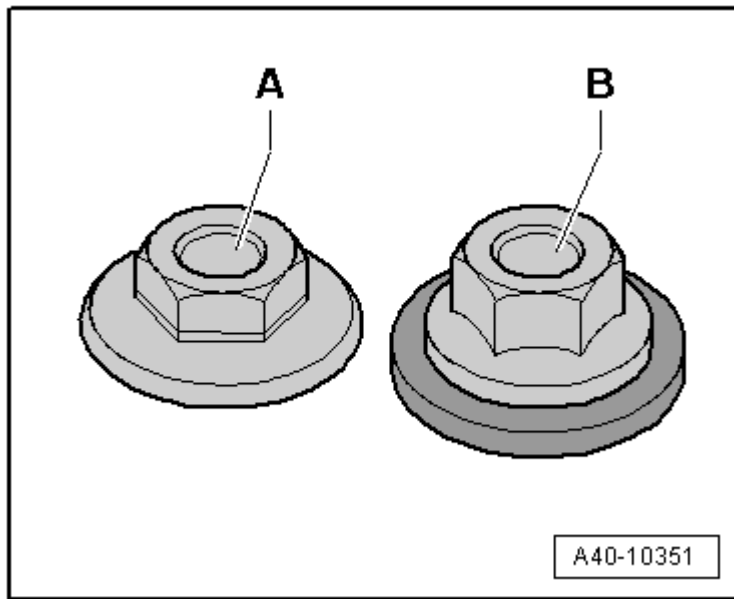


Fig. 7: Identifying Nut Versions For The Control Arm And Guide Control Arm Bracket
Courtesy of AUDI OF AMERICA, LLC

- Hex - collar nut -A- M12 wrench 21 mm

Tightening specifications: 145 Nm

- Hex - combination nut -B- M12 18 mm

Tightening specifications: 110 Nm

- Hex - combination nut -B- M12 21 mm

Tightening specifications: 120 Nm

- Hex - combination nut -B- M14 wrench 21 mm

Tightening specifications: 140 Nm

WHEEL BEARING HOUSING AND WHEEL BEARING UNIT OVERVIEW

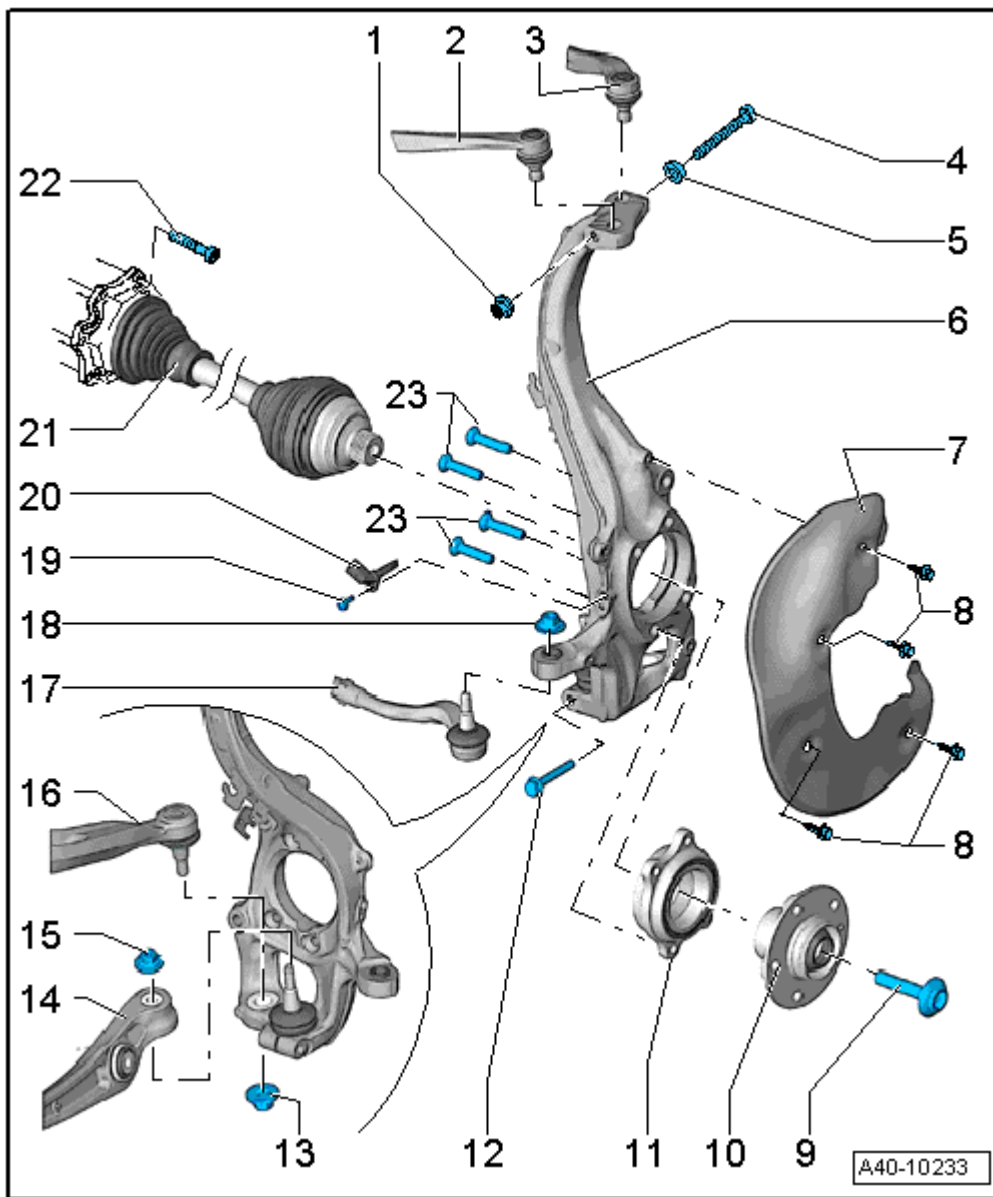


Fig. 8: Identifying Wheel Bearing Housing And Wheel Bearing Unit Overview
 Courtesy of AUDI OF AMERICA, LLC

1. Nut
 - 40 Nm
 - Always replace if removed.
2. Upper Front Control Arm
3. Upper Rear Control Arm
4. Bolt
 - Always replace if removed.
5. Washer
6. Wheel Bearing Housing

- Removing and installing, refer to **WHEEL BEARING HOUSING**
- Different versions, for allocation.
- Distinguishing characteristic **WHEEL BEARING HOUSING**.

WARNING: When exchanging the wheel bearing housing, make sure the length of the thread on the tie rod end is sufficient (there must be approximately 5 mm extra thread). If this is not the case, then install a new tie rod end with a longer thread pin.

7. Brake Shield
8. Bolt
 - 10 Nm
9. Bolt
 - 200 Nm + 180° turn
 - Replace after each removal **WHEEL BEARING HOUSING**.
 - Before installing, clean the threads in the CV joint with a tap.
10. Wheel Hub
 - Removing and installing, refer to **WHEEL BEARING UNIT, SERVICING**
11. Wheel Bearing
 - Removing and installing, refer to **WHEEL BEARING UNIT, SERVICING**

CAUTION: • Avoid contaminating with dirt and damaging the seal when setting down/storing. Refer to **Fig. 9**.

12. Bolt
 - 40 Nm
 - Always replace if removed.
13. Nut
 - Always replace if removed.
 - Different versions, for allocation.
 - Pay attention to the different nut versions and to the tightening specifications **WHEEL BEARING HOUSING**.
 - After loosening threaded connection of guide control arm to wheel bearing housing, adhesive residue must be removed on thread of linkage stub.
14. Control Arm
15. Nut
 - Always replace if removed.
 - Different versions, for allocation.
 - Pay attention to the different nut versions and to the tightening specifications **NUT VERSIONS FOR THE CONTROL ARM AND GUIDE CONTROL ARM BRACKET**.

- After loosening threaded connection on the ball joint to the wheel bearing housing, adhesive residue must be removed on thread of linkage stub.

16. Guide Link

17. Tie Rod End

- Different versions, for allocation.

18. Nut

- Different versions, for allocation.
- Pay attention to the different nut versions and to the tightening specifications **WHEEL BEARING HOUSING**.
- Always replace if removed.

19. Bolt

- 9 Nm

20. Wheel Speed Sensor

21. Drive Axle

22. Bolt

- 70 Nm
- Always replace if removed.

23. Bolts

- 80 Nm + 90° turn
- Always replace if removed.

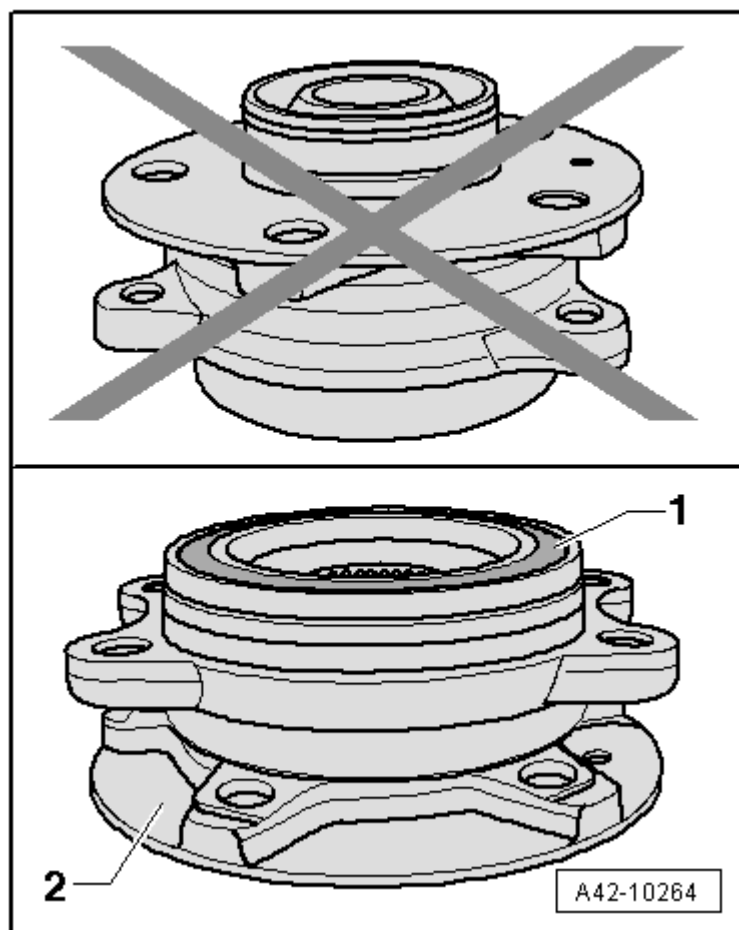


Fig. 9: Identifying Caution: Avoid Contaminating With Dirt And Damaging Seal When Setting Down/Storing

Courtesy of AUDI OF AMERICA, LLC

- The wheel bearing -1- must always face up.
- Always set the wheel bearing unit down on the wheel hub -2-.

NUT VERSIONS FOR THE TIE ROD BALL JOINT BRACKET

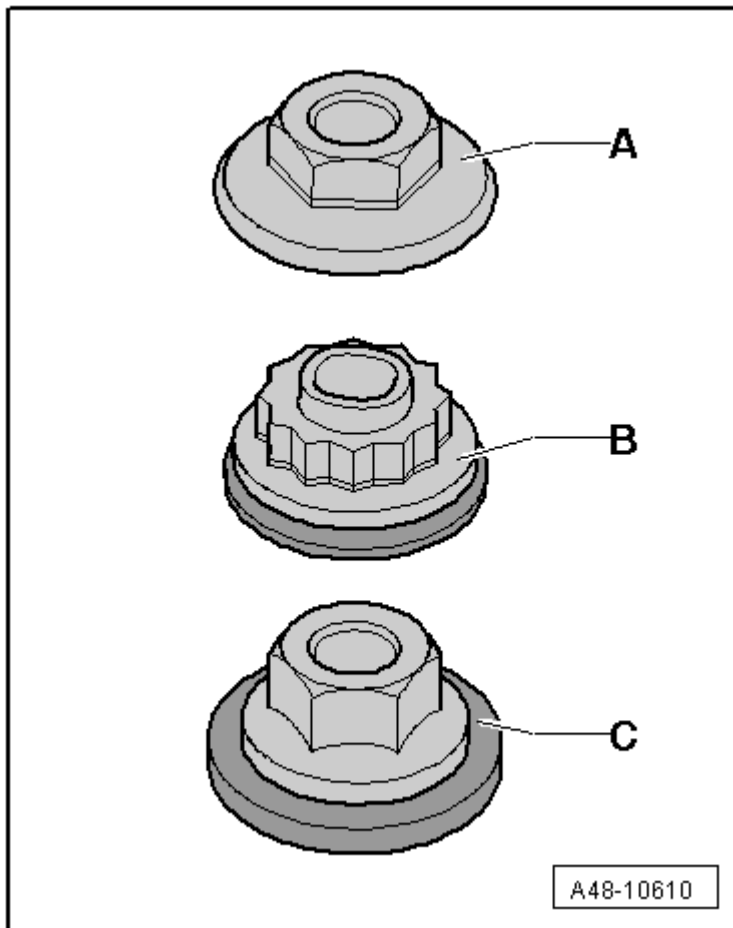


Fig. 10: Identifying Nut Versions

Courtesy of AUDI OF AMERICA, LLC

- Hex collar nut -A-

Tightening Specifications 20 Nm +90°

- 12-point combi nut -B-

Tightening Specifications 100 Nm

- Hex combi nut -C-

Tightening Specifications 110 Nm

WHEEL BEARING HOUSING WITH DIFFERENT STEERING ARM THICKNESS

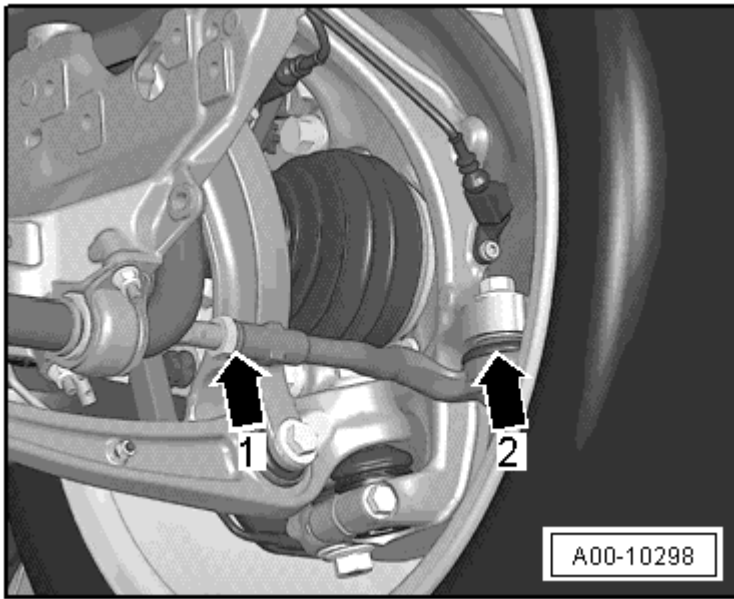


Fig. 11: Checking Play By Moving Tie Rods And Wheels
 Courtesy of AUDI OF AMERICA, LLC

- The wheel bearing housing differs in the thickness of the steering arm -2-.

NUT VERSIONS FOR THE CONTROL ARM AND GUIDE CONTROL ARM BRACKET

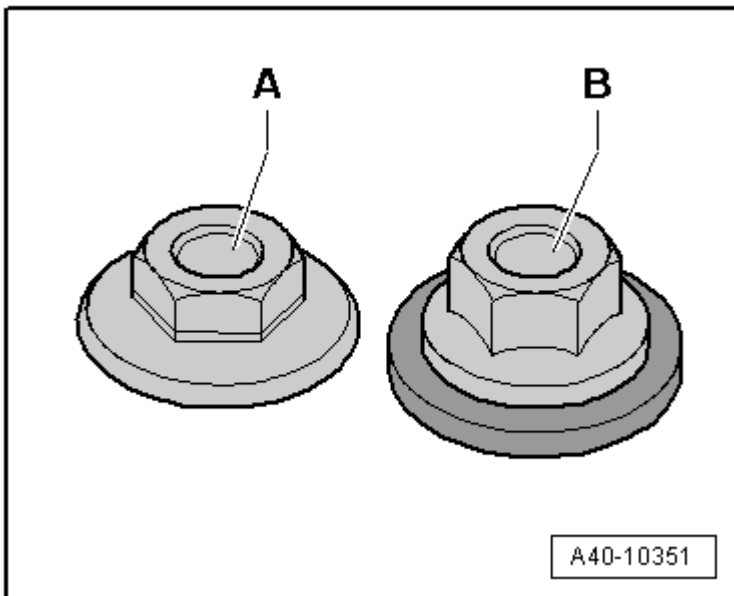


Fig. 12: Identifying Nut Versions For The Control Arm And Guide Control Arm Bracket
 Courtesy of AUDI OF AMERICA, LLC

- Hex - collar nut -A- M12 wrench 21 mm

Tightening Specifications 145 Nm

- Hex - combination nut -B- M12 18 mm

Tightening Specifications 110 Nm

- Hex - combination nut -B- M12 21 mm

Tightening Specifications 120 Nm

- Hex - combination nut -B- M14 wrench 21 mm

Tightening Specifications 140 Nm

THREADED CONNECTION BETWEEN DRIVE AXLE AND WHEEL HUB, LOOSENING AND TIGHTENING

Special tools and workshop equipment required

- Torque Wrench V.A.G 1576

Loosen the Threaded Connection between the Drive Axle and Wheel Hub

- With the vehicle still standing on its wheels, loosen bolt a maximum of 90°, otherwise wheel bearing will be pre-damaged.
- Lift the vehicle just enough so that the wheels are hanging free.
- Operate brake (second mechanic required).
- Remove the bolt -arrow-.

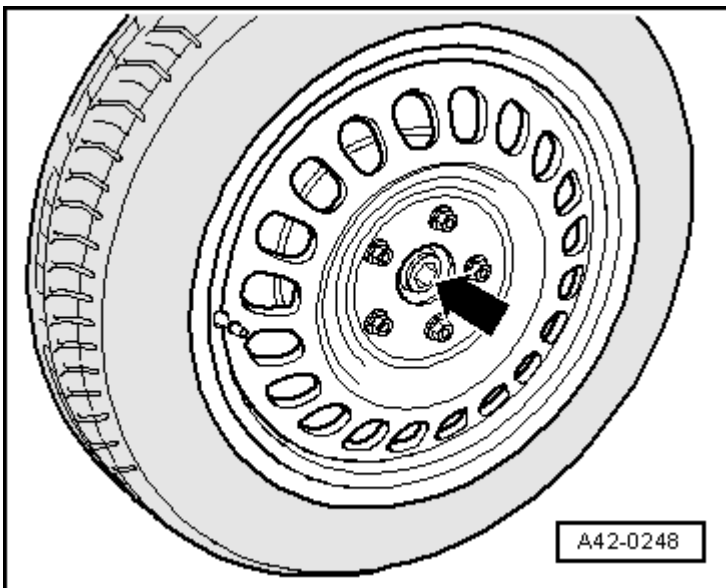


Fig. 13: Identifying Wheel Hex Bolt
Courtesy of AUDI OF AMERICA, LLC

Tighten the threaded Connection between the Drive Axle and Wheel Hub

-- Replace bolt -arrow-.

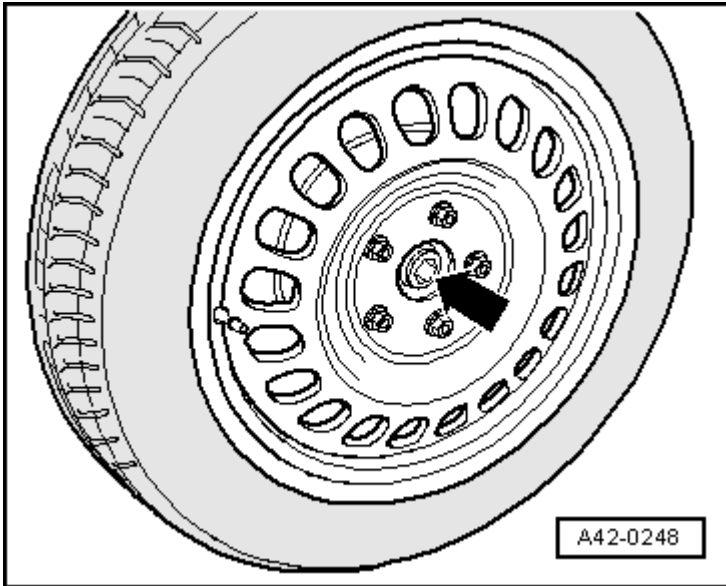


Fig. 14: Identifying Wheel Hex Bolt
Courtesy of AUDI OF AMERICA, LLC

NOTE: Before installing, clean the threads in the CV joint with a tap.

Wheels must not yet touch the ground to tighten the drive axle, wheel bearing may otherwise be damaged.

-- Operate brake (second mechanic required).

-- Tighten bolt to 200 Nm.

-- Lower the vehicle onto its wheels.

-- Tighten bolt an additional 180°.

DRIVE AXLE OVERVIEW

Peened triple roller joint AAR 2600 i with an outer CV joint with an 85/88 mm diameter.

Peened triple roller joint AAR 3300 i with an outer CV joint with an 94/100 mm diameter.

Peened triple roller joint AAR 3300 i with an outer CV joint with an 99/106 mm diameter.

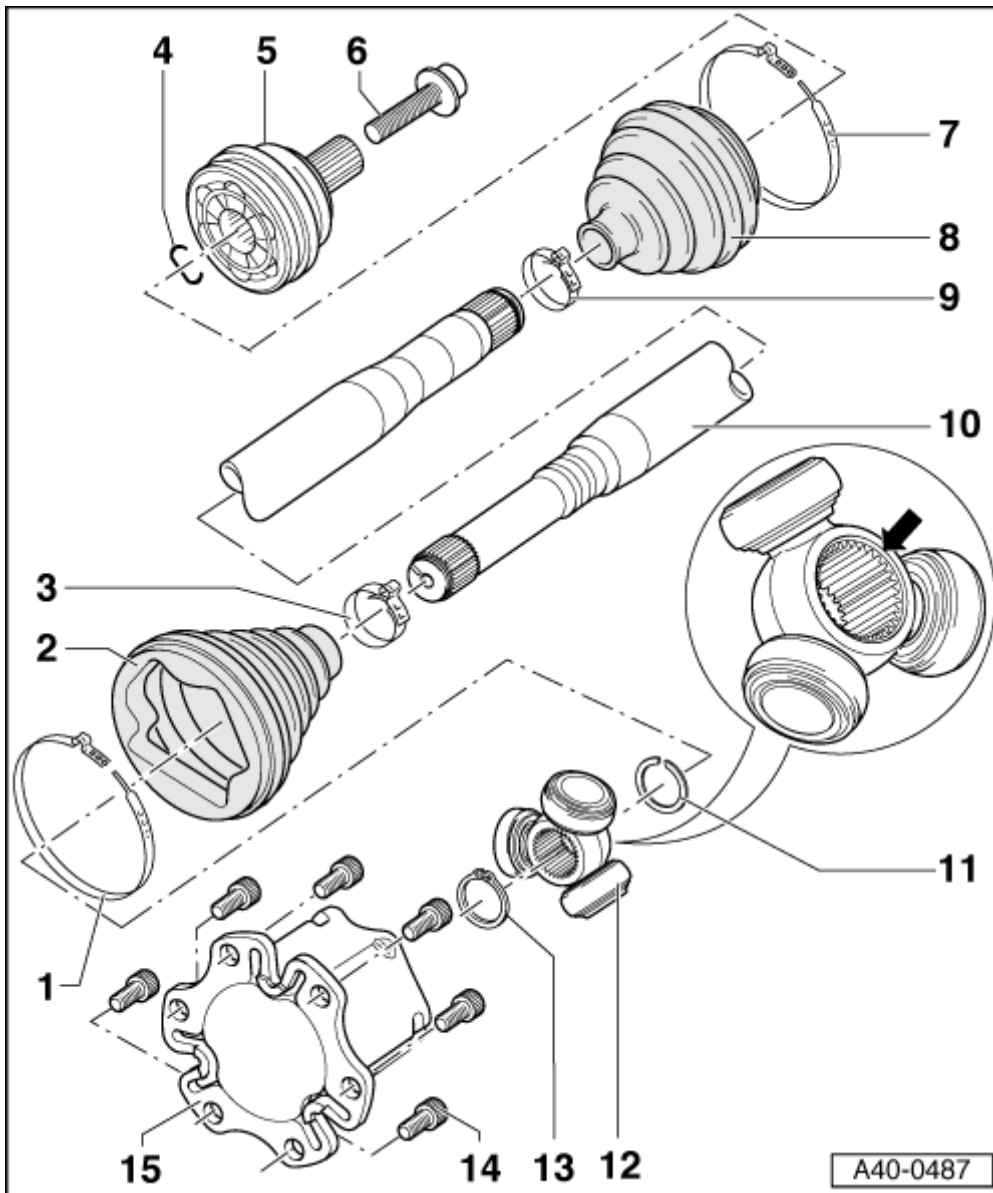


Fig. 15: Identifying Drive Axle Overview

Courtesy of AUDI OF AMERICA, LLC

1. Clamp
 - Always replace if removed.
 - Tensioning, refer to **LARGE AND SMALL CLAMPS, CLAMPING ON INNER OR OUTER JOINT**
2. Protective Boot with Triple Roller Joint Adapter
 - Protective joint boot must fit in groove and on joint contour.
 - Before tightening clamp, briefly raise CV boot to allow pressure to equalize.
3. Clamp
 - Always replace if removed.

- Tensioning, refer to **LARGE AND SMALL CLAMPS, CLAMPING ON INNER OR OUTER JOINT**
4. Locking Ring
 - Always replace if removed.
 - Insert before mounting in ring groove (not visible with joint installed)
 - Before installing CV joint, align sealing ring in center with opening facing upward.
 5. Outer CV Joint
 - Replace only as complete unit
 - Removing **OUTER CV JOINT, SERVICING.**
 - Checking, refer to **OUTER CV JOINT, CHECKING**
 - Installing **OUTER CV JOINT, SERVICING.**
 - Greasing **DRIVE AXLE OVERVIEW.**
 - When installing joint on axle shaft, splines on axle shaft must be lightly coated with grease used in joint.
 6. Bolt
 - 200 Nm + 180° turn
 - Always replace if removed.
 - Before installing, clean the threads in the CV joint with a tap.
 - Follow the sequence when loosening and tightening the threaded connection between the drive axle and the wheel hub, refer to **THREADED CONNECTION BETWEEN DRIVE AXLE AND WHEEL HUB, LOOSENING AND TIGHTENING.**
 7. Clamp
 - Always replace if removed.
 - Tensioning, refer to **LARGE AND SMALL CLAMPS, CLAMPING ON INNER OR OUTER JOINT**
 8. CV Boot for Outer CV Joint
 - Check for tears and scuffing
 - Before tightening clamp, briefly raise CV boot to allow pressure to equalize.
 9. Clamp
 - Always replace if removed.
 - Tensioning, refer to **LARGE AND SMALL CLAMPS, CLAMPING ON INNER OR OUTER JOINT**
 10. Drive Axle
 - Removing and installing, refer to **DRIVE AXLE**
 11. Locking Ring
 - Allocation
 12. Triple Roller Star
 - The chamfer -arrow- faces the splines on the drive axle
 - When installing triple roller star on axle shaft, splines on axle shaft must be lightly coated with

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grease used in joint.

13. Locking Ring

- Always replace if removed.
- Insert in shaft groove

14. Bolt

- Allocation
- Tightening specifications -item 22- **WHEEL BEARING HOUSING AND WHEEL BEARING UNIT OVERVIEW.**

15. Joint**GREASE QUANTITY AND TYPE**

Grease joint when replacing CV boot.

Pack the joint with grease.

NOTE: Note that the outer and inner joints use different types of grease.

Outer Joint	Grease Total Quantity	Of Total:	
		Joint	Boot
Diameter mm	[g]	[g]	[g]
85/88	128/90	64/50	6040
94/100	194/140	100/80	94/60
99/106	280	100	180
Inner joint			
	160	80	80

SPECIFICATIONS**FASTENER TIGHTENING SPECIFICATIONS**

Component	Fastener Size	Nm
Ball Joint to Lower Control Arm Nut ¹		
- Combination Nut, Wrench 18 mm	M12	110
- Combination Nut, Wrench 21 mm	M12	120
- Combination Nut	M14	140
- Collar Nut	M12	145
Ball Joint to Wheel Bearing Housing Bolt ¹	-	40
Body Acceleration Sensor Nut	-	5
Brake Shield to Wheel Bearing Housing Bolt	-	10
Coupling Rod to Shock Absorber Fork Bolt ^{1, 2}	-	40 + 90°
Coupling Rod to Stabilizer Bar Bolt ^{1, 2}	-	40 + 90°

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SUSPENSION Front Suspension (Sedan)

Drive Axle to Transmission Flange Bolt ¹	-	70
Drive Axle to Wheel Hub Bolt ¹	-	200 + 180°
Guide Link to Subframe Nut ^{1, 2}	-	70 + 180°
Level Control System Sensor Bolt	-	20
Lower Control Arm to Subframe Nut ^{1, 2}	-	70 + 180°
Shock Absorber Fork to Suspension Strut	-	90 + 180°
Shock Absorber Fork to Lower Control Arm Bolt ^{1, 2}	-	90 + 90°
Shock Absorber Mount to Shock Absorber ¹	-	50
Stabilizer Bar to Subframe Nut ^{1, 2}	-	25
Subframe to Body Bolt ¹	-	115 + 90°
Subframe Crossbrace Bolt ^{1, 3}		
	-	90 + 90°
	-	90 + 135°
Subframe Shield to Subframe Bolt	-	9
	-	20
Suspension Strut to Body Bolt ¹	-	40 + 90° turn
Suspension Strut to Shock Absorber Fork Nut ¹	-	40 + 90°
Tie Rod to Wheel Bearing Housing Nut ¹		
- Collar Nut	-	20 + 90°
- 12-Point Combi Nut	-	100
- Hex Combi Nut	-	110
Tower Brace Bolt	-	7
Tower Brace Nut	-	30
Upper Control Arm to Suspension Strut Bolt ^{1, 2}	-	50 + 90°
Upper Control Arm to Wheel Bearing Housing Nut ¹	-	40
Wheel Bearing and Hub to Wheel Bearing Housing Bolt ¹	-	80 + 90°
Wheel Speed Sensor to Wheel Bearing Housing Bolt	-	9

- ¹ Always replace after removal.
- ² Must be tightened in the curb weight position. Refer to **WHEEL BEARING, WITH COIL SPRING, LIFTING TO CURB WEIGHT POSITION**
- ³ For bolt tightening clarification, refer to **SUBFRAME, CROSSBRACE, STABILIZER BAR, COUPLING ROD AND SUBFRAME SHIELD OVERVIEW** and see items -21 and 22-

Nut Versions for the Control Arm and Guide Control Arm Bracket

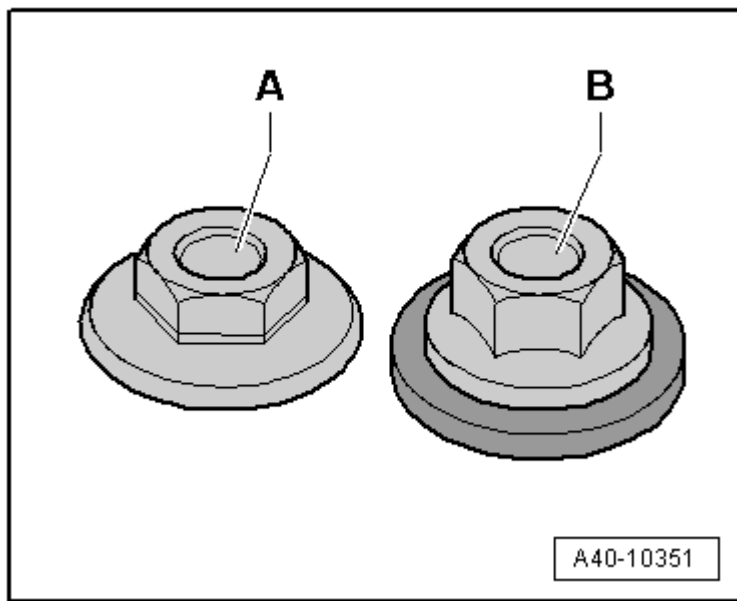


Fig. 16: Identifying Nut Versions For The Control Arm And Guide Control Arm Bracket
Courtesy of AUDI OF AMERICA, LLC

- Hex - collar nut -A- M12 wrench 21 mm

Tightening specifications: 145 Nm

- Hex - combination nut -B- M12 18 mm

Tightening specifications: 110 Nm

- Hex - combination nut -B- M12 21 mm

Tightening specifications: 120 Nm

- Hex - combination nut -B- M14 wrench 21 mm

Tightening specifications: 140 Nm

DIAGNOSIS AND TESTING

PROGRAMMING CONTROL POSITION USING VEHICLE DIAGNOSIS, TESTING AND INFORMATION SYSTEM VAS 5051B

Special tools and workshop equipment required

- Vehicle Diagnosis, Testing and Information System VAS 5051B with corresponding diagnostic cable.

WARNING:

- During a test drive, the testing and measuring equipment must

always be secured on the back seat.

- **These devices may be operated only by a passenger during a test drive.**

-- Connect the VAS 5051B to the vehicle using the appropriate diagnostic cable.

-- Turn VAS 5051B on.

VAS 5051B is ready to operate when it displays operating modes in button fields.

-- Turn on ignition.

Requirements

- The vehicle must be standing on an even surface.
- The vehicle may not be loaded.
- The electronic damping control module -J250- must be coded.
- The Diagnostic Trouble Code (DTC) memory may not contain any vehicle level sensor -- DTC memory entries.

NOTE: **If control modules or electric/electronic components were replaced, then the components must be adapted under "Guided Functions".**

-- Touch **Guided Functions** and the screen.

Then:

-- Select the corresponding program in "Guided Functions".

-- Follow the prompts on the screen.

NOTE: **If the control position was reprogrammed on vehicles with lane assist, the directional stabilization assistance control module -J759- with integrated camera must be recalibrated. Refer to CALIBRATION PROCEDURE .**

OUTER CV JOINT, CHECKING

It is necessary to disassemble the joint whenever replacing the grease or if the ball surfaces show wear or damage.

Disassembling

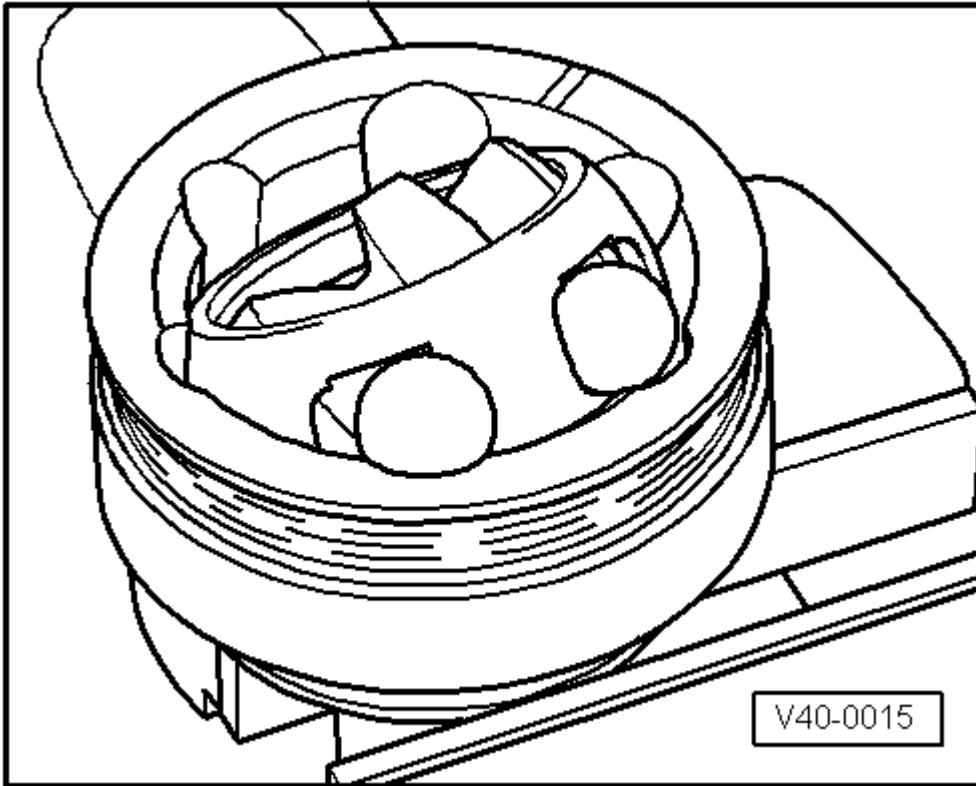


Fig. 17: Identifying Ball Hub And Ball Cage Swiveled
Courtesy of AUDI OF AMERICA, LLC

- Mark position of ball hub to ball cage and to housing before disassembling, using electro-writer or grindstone.
- Swivel the ball hub and ball cage.
- Remove the balls one after the other.
- Turn the cage, until two rectangular windows -arrow- contact joint body.

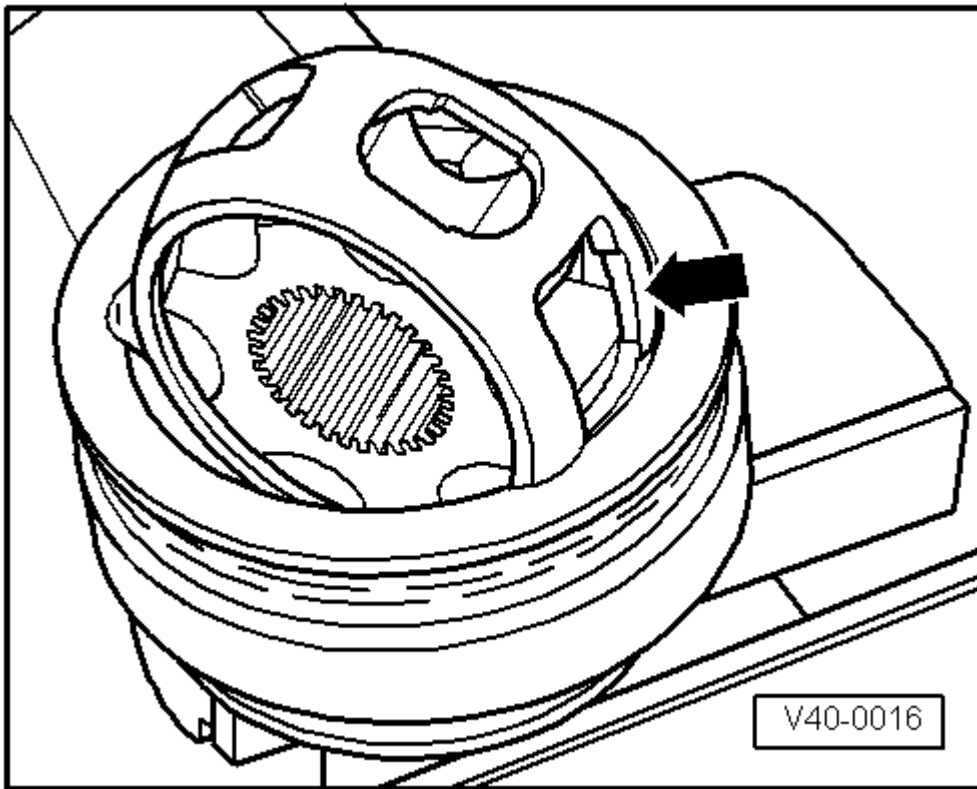


Fig. 18: Identifying Two Rectangular Windows Aligned With Joint Housing
Courtesy of AUDI OF AMERICA, LLC

- Lift out cage with hub.
- Swing hub segment with smaller pins into rectangular window on cage.

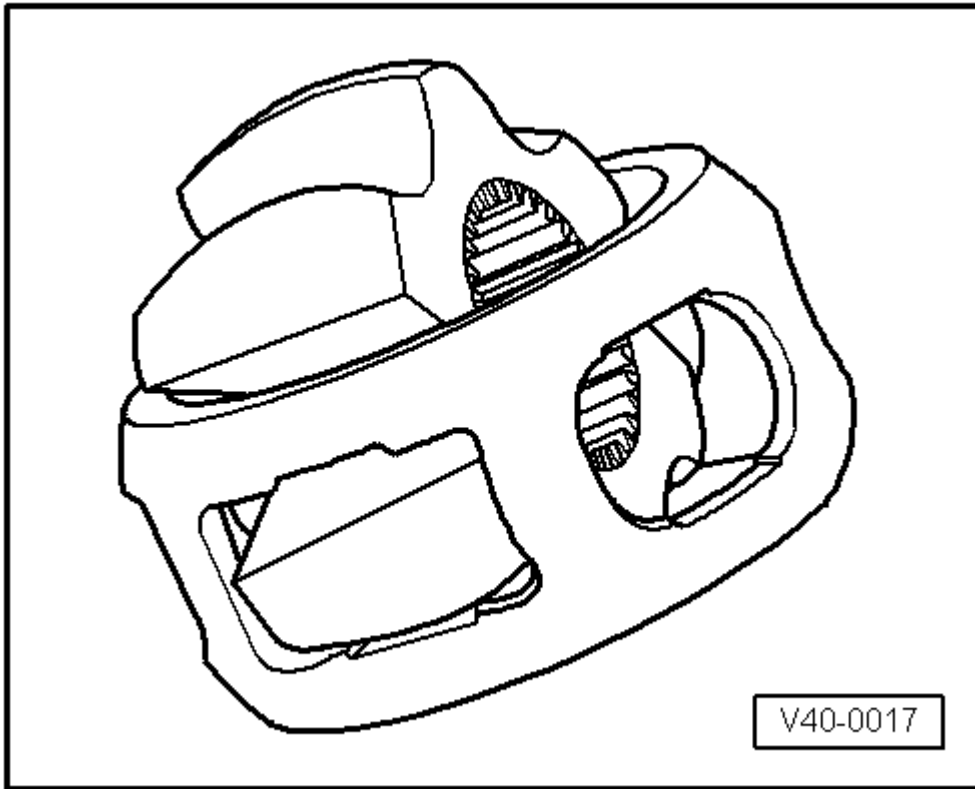


Fig. 19: Identifying Tilting Hub Out Of Cage
Courtesy of AUDI OF AMERICA, LLC

-- Fold hub out from cage.

Checking

The balls of each joint belong to one tolerance group. Check stub axle, hub, cage and balls for small depressions (pitting build-up) and chafing. Excessive circumferential backlash in joint makes itself noticed via tip-in shock, in such cases joint should be replaced. Flattening and running marks of balls are no reason to replace joint.

Assembling

-- Insert cage with hub into joint body.

NOTE: **Cage must be installed laterally correct.**

-- Press in opposing balls in sequence, during this, previous position of ball hub to ball cage and to joint body must be established again.

-- Press the grease into the joint body **DRIVE AXLE OVERVIEW**.

REMOVAL AND INSTALLATION

SUBFRAME**Special tools and workshop equipment required**

- The following tools can be used on all engine versions. The tools needed for working on a specific engine are described, refer to **[For transmission(s) 0AW] [For engine(s) CALA] Description and Operation** or refer to **[For engine(s) CAEB] Description and Operation** or refer to **[For engine(s) CCBA] Description and Operation** .
- Engine Support Bridge 10-222 A
- Engine support supplement set T40093, needed depending on the engine. Exact description for supporting the engine, refer to **[For transmission(s) 0AW] [For engine(s) CALA] Description and Operation** or refer to **[For engine(s) CAEB] Description and Operation** or refer to **[For engine(s) CCBA] Description and Operation** .
- Engine-/Gearboxack V.A.G 1383 A
- Wheel Hub Support T10149
- Tensioning Strap T10038

Removing

- Remove the wheels.
- Remove the left and right wheel housing liner. Refer to **Removal and Installation** .
- Remove noise insulation. Refer to **Description and Operation** .
- Remove the crossbrace. Refer to **SUBFRAME CROSSBRACE**.
- Remove the right and left subframe shield if applicable. Refer to **SUBFRAME HEAT SHIELD**.
- Remove the stabilizer bar. Refer to **STABILIZER BAR**.
- Remove the vehicle level sensor, if applicable. Refer to **LEVEL CONTROL SYSTEM SENSOR**.
- Secure the left and right wheel housing liner using a T10038 as shown in the illustration.

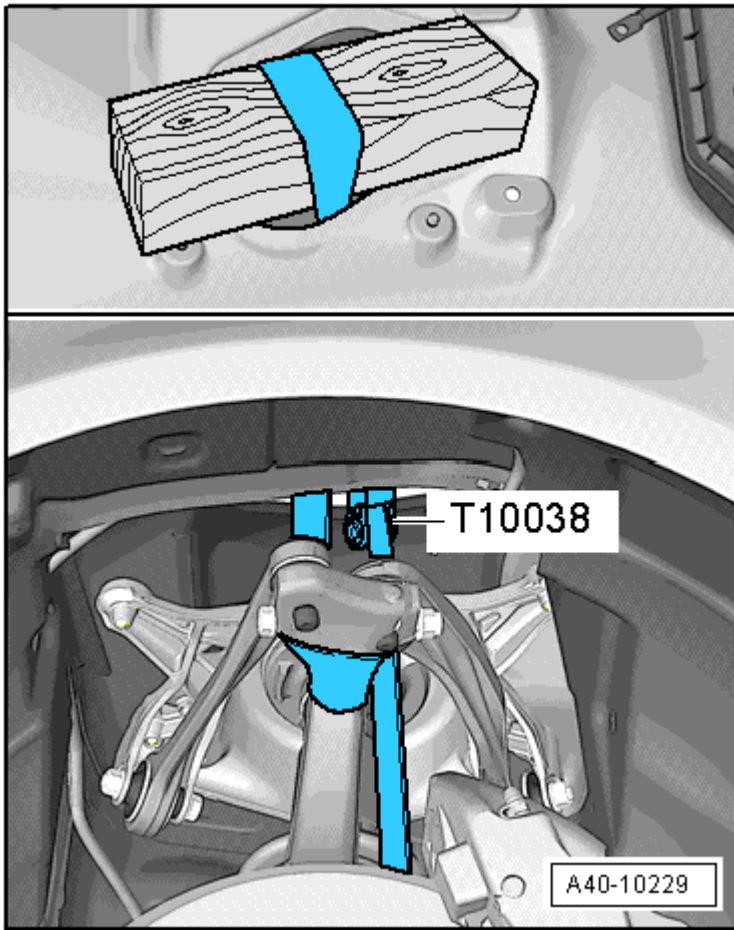


Fig. 20: Using T10038 To Secure Wheel Housing Liner
 Courtesy of AUDI OF AMERICA, LLC

- Remove the left and right control arms. Refer to **CONTROL ARM**.
- Steering gear, removing. Refer to **HYDRAULIC POWER STEERING GEAR** .
- Steering gear, removing. Refer to **ELECTRO-MECHANICAL STEERING GEAR** .
- Support the engine entirely using the 10-222 A. Refer to **[For transmission(s) 0AW] [For engine(s) CALA] Description and Operation** or refer to **[For engine(s) CAEB] Description and Operation** or refer to **[For engine(s) CCBA] Description and Operation** .
- Engine support bridge 10-222 A
- Engine support supplement set T40093, needed depending on the engine. Exact description for supporting the engine, refer to **[For transmission(s) 0AW] [For engine(s) CALA] Description and Operation** or refer to **[For engine(s) CAEB] Description and Operation** or refer to **[For engine(s) CCBA] Description and Operation** .
- Remove the bolts -1- and nuts -3- and the longitudinal braces -2-.

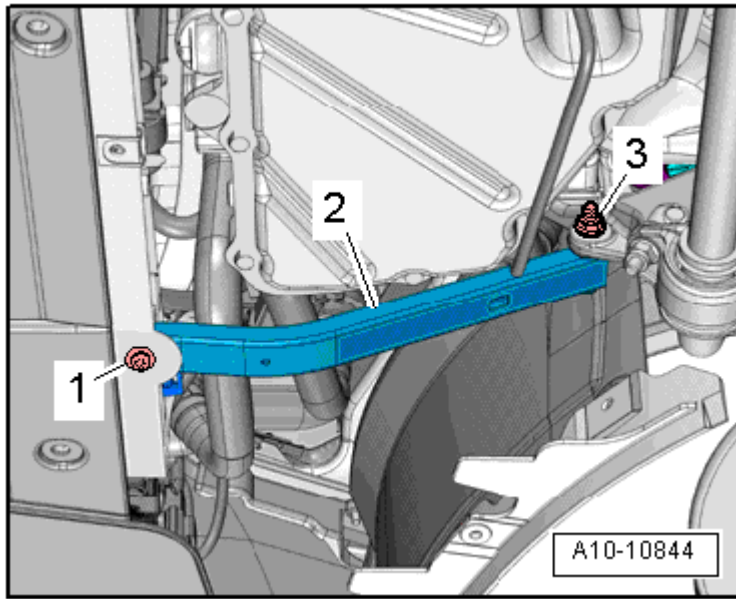


Fig. 21: Identifying Carrier Left Brace Components
Courtesy of AUDI OF AMERICA, LLC

-- Remove the bolt -1-.

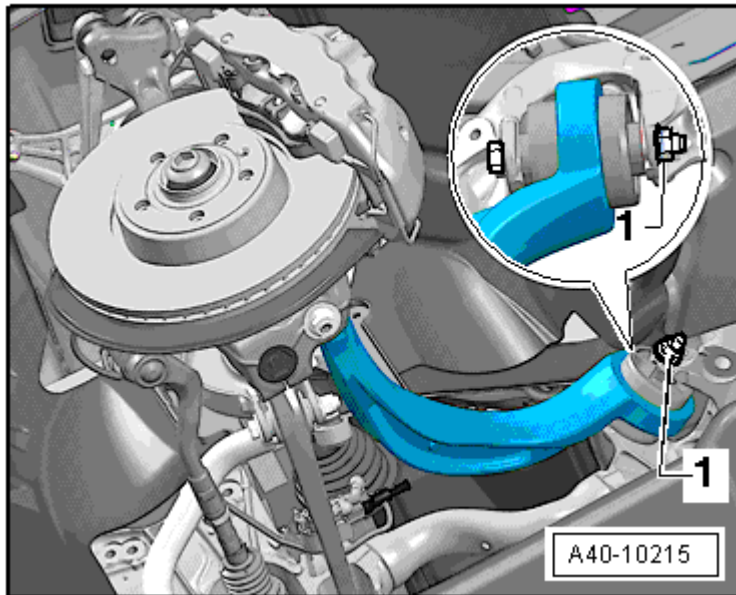


Fig. 22: Identifying Threaded Connection -1- And Guide Link
Courtesy of AUDI OF AMERICA, LLC

-- Move the guide link and secure it to the body with wire.

-- On vehicles with electrohydraulic engine mounts, disconnect the left electrohydraulic engine mount solenoid valve -N144- and right electrohydraulic engine mount solenoid valve -N145- connector -arrow-.

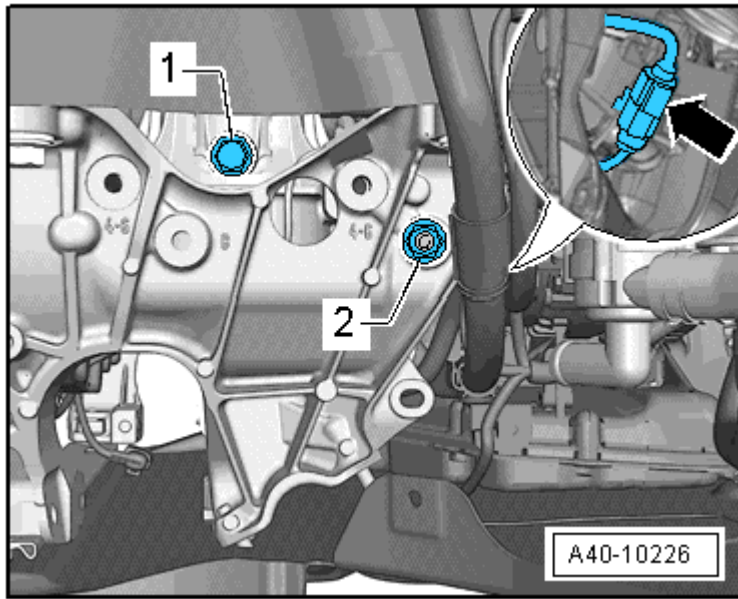


Fig. 23: Disconnecting Left Electrohydraulic Engine Mount Solenoid Valve
Courtesy of AUDI OF AMERICA, LLC

-- Depending on the engine version, remove the nut -2- for the electrical wiring bracket on the right side of the vehicle.

-- Remove the bolt -arrow- (if equipped) from the bracket for the power steering line.

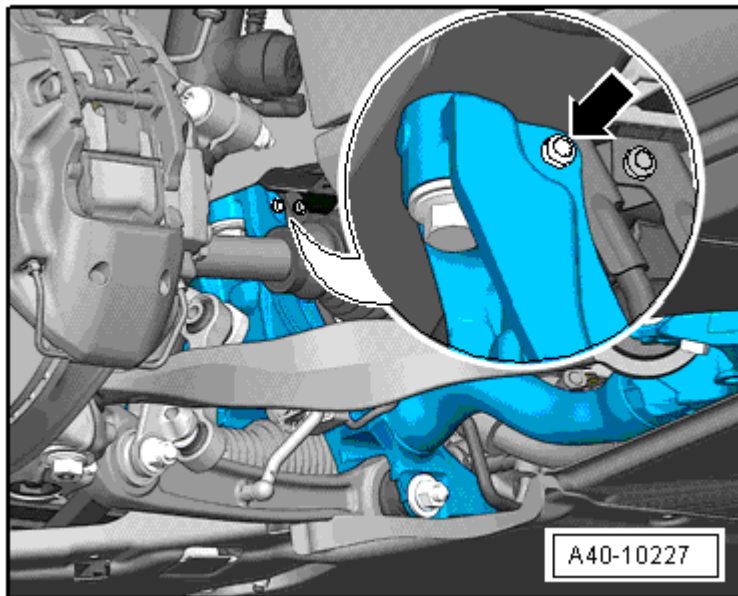


Fig. 24: Identifying Bolt (If Equipped) From Bracket For Power Steering Line
Courtesy of AUDI OF AMERICA, LLC

-- Remove the left and right engine mount bolts -1 and 5-.

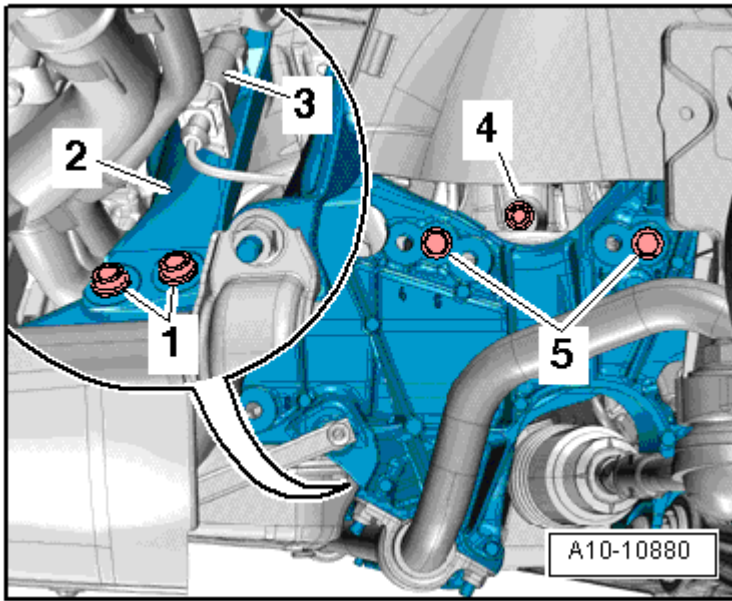


Fig. 25: Identifying Left And Right Engine Mount Bolts
Courtesy of AUDI OF AMERICA, LLC

-- Move the left and right engine mount retaining plate -2- to the side.

-- Before lowering the subframe, make sure all the electrical wiring connections have been disconnected and removed.

NOTE: Mark the installation location of the subframe -A to D-, for example, using a felt-tip pen.

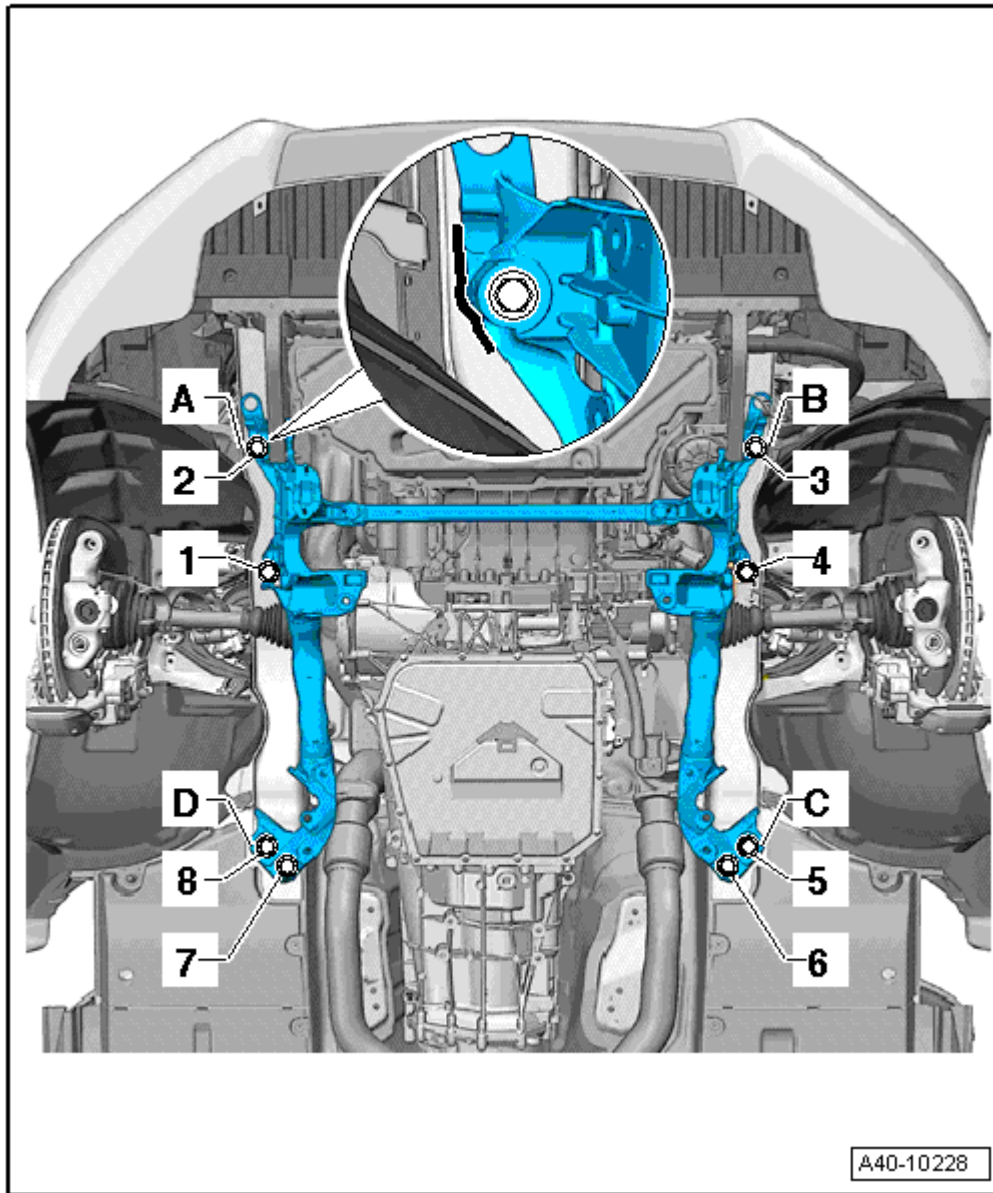


Fig. 26: Inserting Subframe And Align According To Markings
 Courtesy of AUDI OF AMERICA, LLC

-- Remove the bolts -1 through 8- and remove the subframe.

Installing

Install in reverse order of removal. Note the following:

Tightening specifications, refer to **SUBFRAME, CROSSBRACE, STABILIZER BAR, COUPLING ROD AND SUBFRAME SHIELD OVERVIEW**

Tightening specifications, refer to **MOUNTING BRACKET, SHOCK ABSORBER FORK, UPPER CONTROL ARM AND TOWER BRACE OVERVIEW**

Tightening specifications, refer to **TRACK CONTROL ARM, BALL JOINT, GUIDE LINK AND LEVEL CONTROL SYSTEM SENSOR OVERVIEW**

Tightening specifications, refer to **WHEEL BEARING HOUSING AND WHEEL BEARING UNIT OVERVIEW**

SUBFRAME BOLTING PROCEDURE:

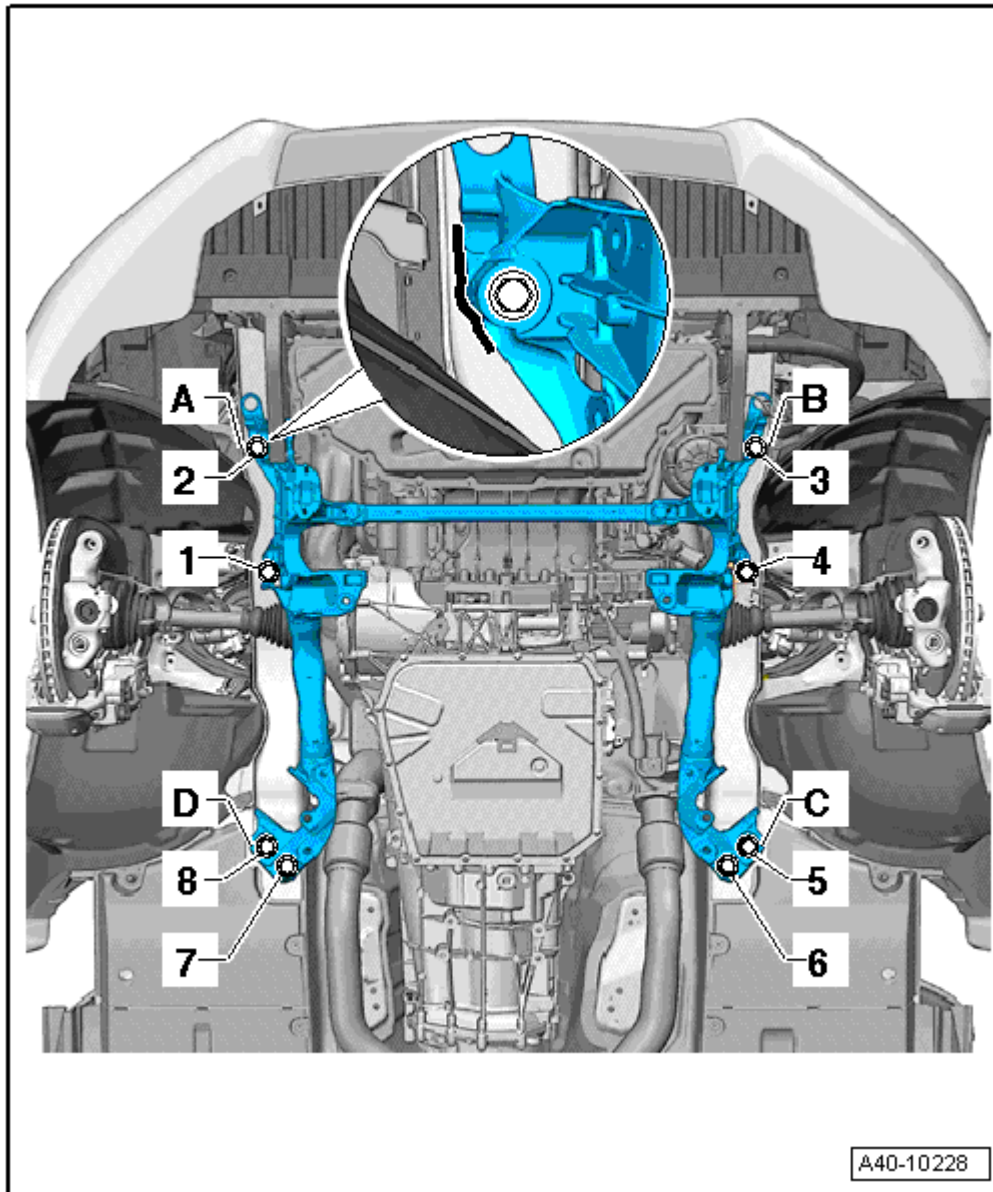


Fig. 27: Inserting Subframe And Align According To Markings
Courtesy of AUDI OF AMERICA, LLC

-- Insert the subframe and align according to the markings -A and B- made earlier. Tighten bolts -2 and 3- to the specification.

2012 Audi S4

SUSPENSION Front Suspension (Sedan)

- Press the subframe at the markings -C or D- and tighten the bolts -5 and 8- to the specification.
- Insert the bolts -1, 4, 6 and 7- and tighten to the specification.
- Tighten the bolts -1 through 8- with an additional turn.

NOTE: **Bonded rubber bushings can only be turned to a limited extent. Only tighten suspension bolts when vehicle is in curb weight or control position.**

Lifting wheel bearing to curb weight position, refer to WHEEL BEARING, WITH COIL SPRING, LIFTING TO CURB WEIGHT POSITION.

-- On vehicles with automatic headlamp range control system, perform a basic setting on the headlamps. Refer to Description and Operation .

-- If the vehicle level sensor -- was removed and installed on a vehicle with electronically controlled damping or if the linkage was loosened, the control position must be reprogrammed. Refer to PROGRAMMING CONTROL POSITION USING Vehicle Diagnosis, Testing and Information System VAS 5051B. Vehicle diagnostic tester.

-- If the control position was reprogrammed on vehicles with lane assist, the directional stabilization assistance control module -J759- must be recalibrated. Refer to CALIBRATION PROCEDURE .

-- Tighten the wheel. Refer to Specifications .

-- Axle alignment is required, see table, refer to WHEN VEHICLE ALIGNMENT IS NECESSARY .

SUBFRAME CROSSBRACE

Removing

-- Remove noise insulation. Refer to Description and Operation .

Applies to Vehicles with Hydraulic Power Steering

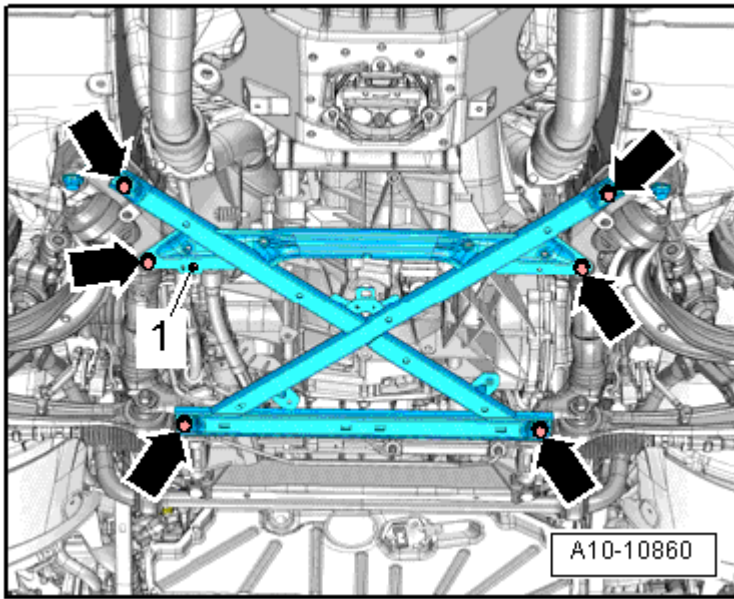


Fig. 28: Identifying Subframe Crossbrace
Courtesy of AUDI OF AMERICA, LLC

- Remove the power steering line bolt; refer to -1-.
- Remove the bolts -arrows- and the crossbrace.

Applies to Vehicles with Electromechanical Power Steering

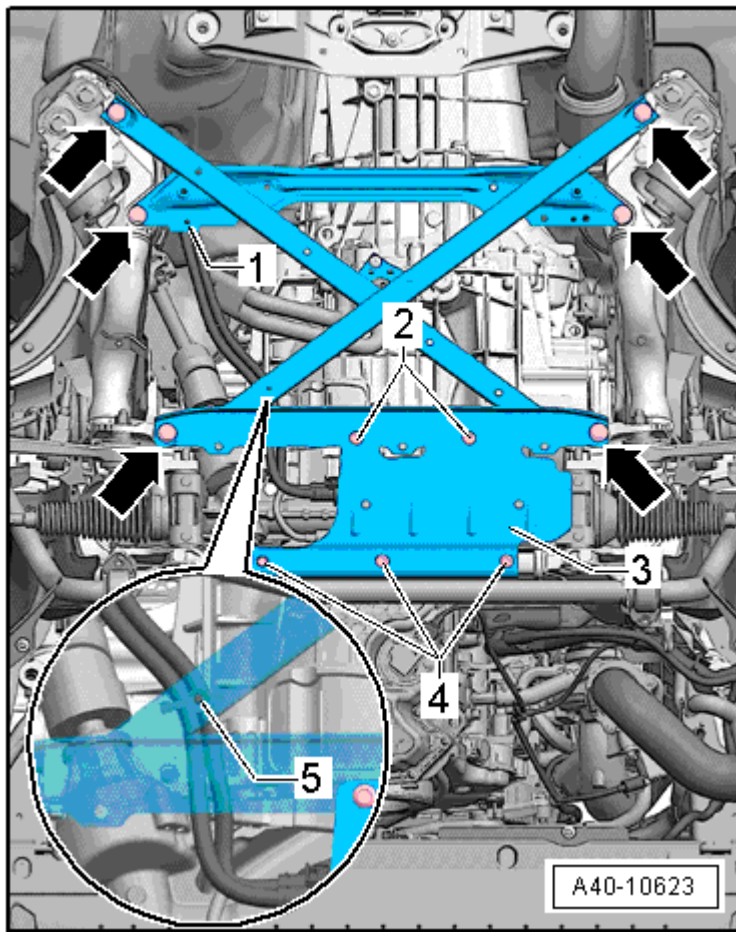


Fig. 29: Identifying Wire On Crossbrace
Courtesy of AUDI OF AMERICA, LLC

- Remove the wire on the crossbrace -1 and 5-.
- Remove the bolts -2 and 4- and the shield -3- (if equipped).
- Remove the bolts -arrows- and the crossbrace.

Continuation for All Vehicles

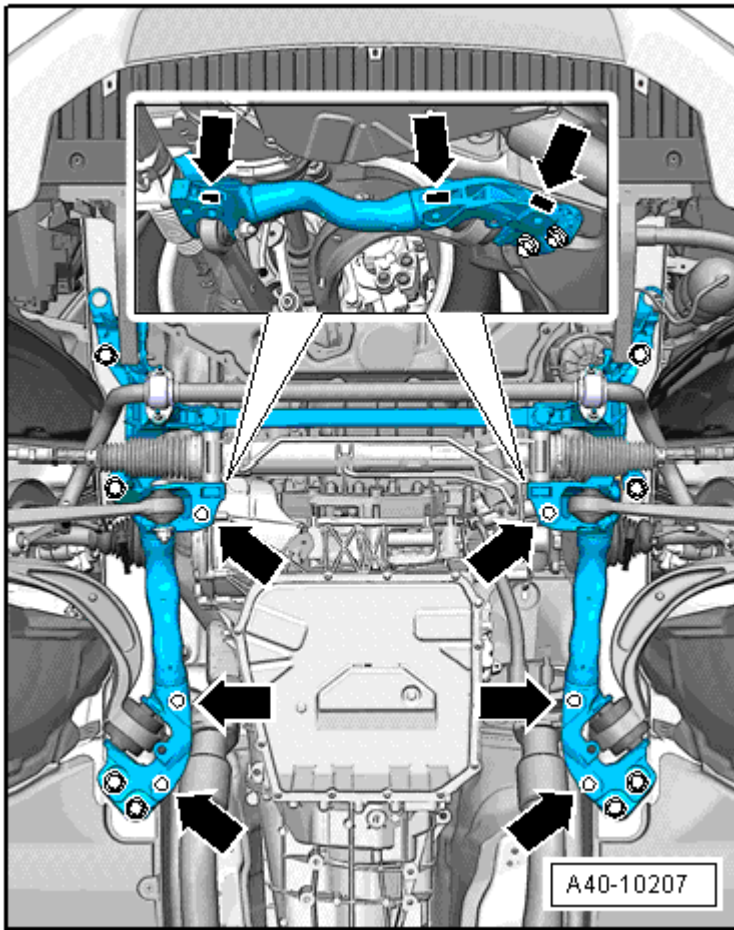


Fig. 30: Identifying Right And Left Subframe Shield If Applicable

Courtesy of AUDI OF AMERICA, LLC

-- Remove the right and left subframe shield if applicable. Refer to SUBFRAME HEAT SHIELD.

-- Remove the square nut -arrows- from the cast recesses.

NOTE: There are no square nuts on the front if the vehicle has electro-mechanical power steering.

CAUTION: The suspension components could be damaged.

If the subframe, the steering gear or the subframe crossbrace are not installed correctly, do not rest the vehicle on its wheels.

The vehicle must not be supported on the subframe or the subframe crossbrace (for example using a floor jack).

NOTE: If the vehicle must be moved, the crossbrace must be installed with the old bolts and square nuts and tightened to the specification without any additional

turning.

Installing

Install in reverse order of removal. Note the following:

- The square nuts must be inserted into the cast recesses before installing the subframe shields, where applicable -item 16- **SUBFRAME, CROSSBRACE, STABILIZER BAR, COUPLING ROD AND SUBFRAME SHIELD OVERVIEW**.

Tightening specifications, refer to **SUBFRAME, CROSSBRACE, STABILIZER BAR, COUPLING ROD AND SUBFRAME SHIELD OVERVIEW**

STABILIZER BAR

Removing

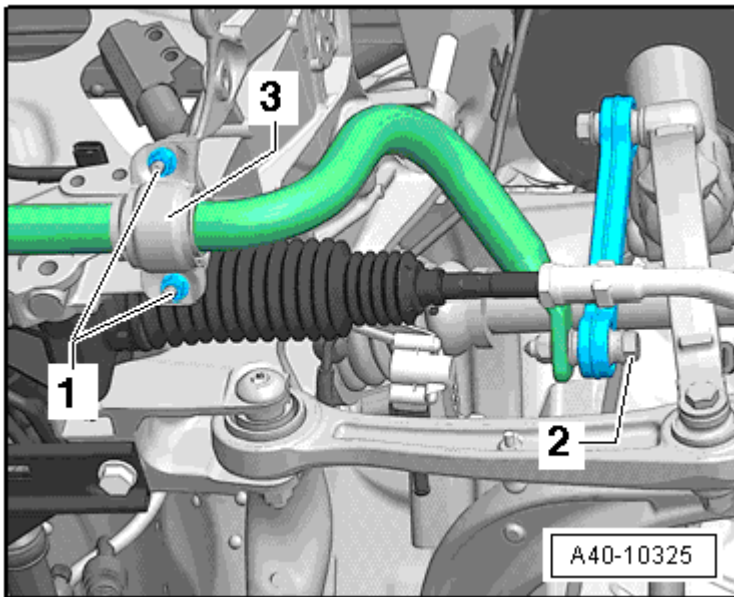


Fig. 31: Identifying Stabilizer Bar

Courtesy of AUDI OF AMERICA, LLC

- Remove noise insulation. Refer to **Description and Operation** .
- Disconnect left and right connectors -2-.
- Remove the left and right nuts -1- and the clamp -3-.
- Remove the stabilizer bar.

Installing

Install in reverse order of removal. Note the following:

Tightening specifications, refer to SUBFRAME, CROSSBRACE, STABILIZER BAR, COUPLING ROD AND SUBFRAME SHIELD OVERVIEW.

NOTE: Bonded rubber bushings can only be turned to a limited extent. Only tighten suspension bolts when vehicle is in curb weight or control position.

Lifting wheel bearing to curb weight position, refer to WHEEL BEARING, WITH COIL SPRING, LIFTING TO CURB WEIGHT POSITION.

NOTE: If you replace the stabilizer, note chassis version.

Stabilizer and mounting must be free of grease.

Install the rubber bushing opening in the direction of the subframe contact surface.

-- Install the nuts -1- but do not tighten them.

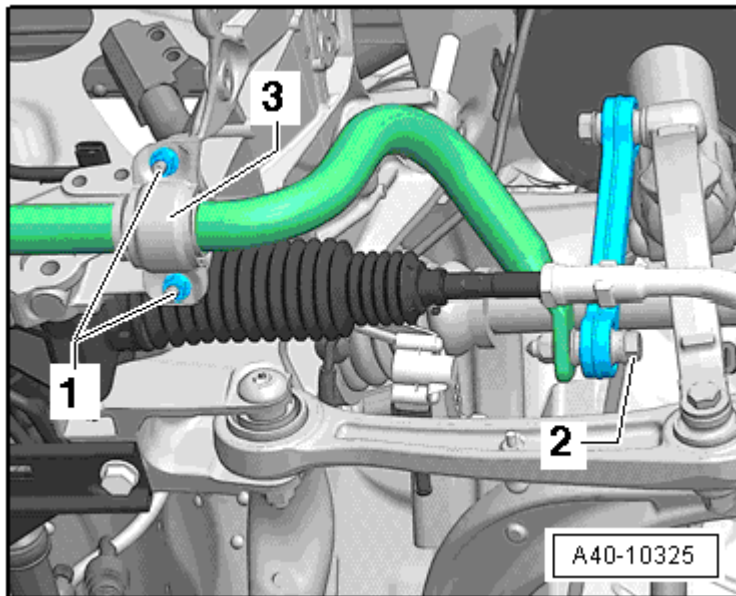


Fig. 32: Identifying Nuts (Install But Do Not Tighten)

Courtesy of AUDI OF AMERICA, LLC

-- Install the left and right threaded connections -2- but do not tighten them.

-- Lifting wheel bearing to curb weight position. Refer to WHEEL BEARING, WITH COIL SPRING, LIFTING TO CURB WEIGHT POSITION

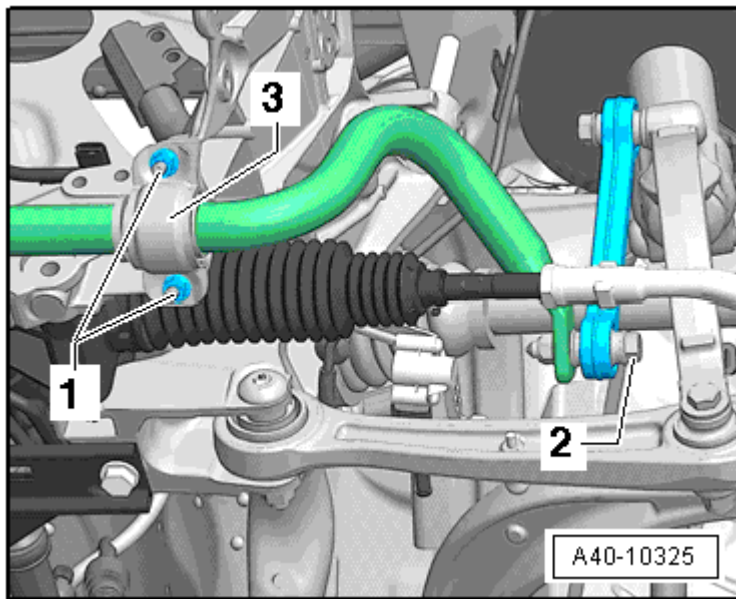


Fig. 33: Tightening Connections

Courtesy of AUDI OF AMERICA, LLC

-- Tighten connections -1 and 2--.

COUPLING ROD

NOTE: As a running change in MY 2010, aluminum coupling rods were replaced by plastic coupling rods. It is not permitted to use different coupling rods on an axle.

Removing

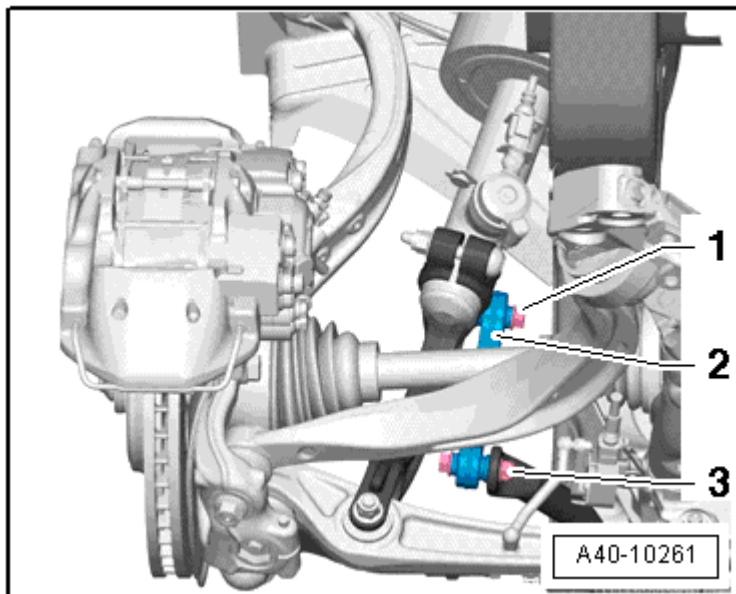


Fig. 34: Identifying Bolt

Courtesy of AUDI OF AMERICA, LLC

-- Disconnect connections -1 and 3--.

-- Remove the coupling rod -2--.

Installing

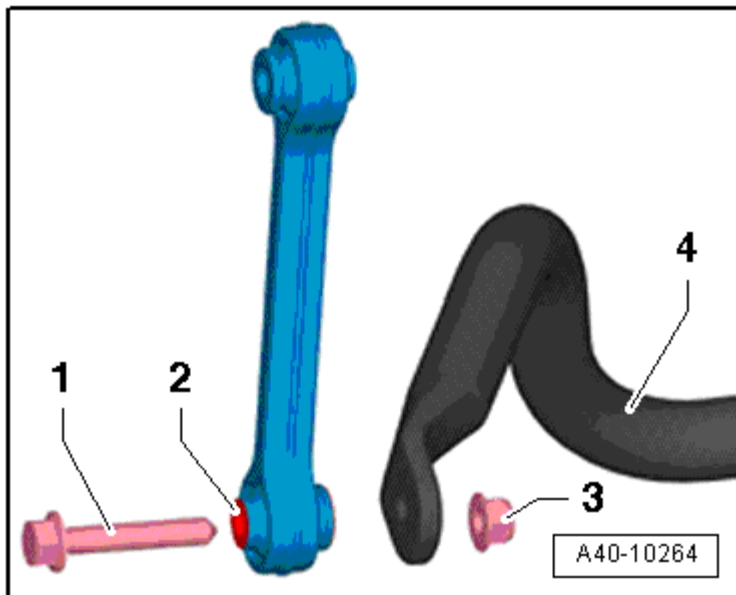
Install in reverse order of removal. Note the following:

NOTE: Note the installation position of the coupling rod.

Bonded rubber bushings can only be turned to a limited extent. Only tighten suspension bolts when vehicle is in curb weight or control position.

Lifting wheel bearing to curb weight position, refer to WHEEL BEARING, WITH COIL SPRING, LIFTING TO CURB WEIGHT POSITION.

-- The bolt -1- for connecting the coupling rod to the stabilizer bar -4- must be attached to the "small" surface -2- of the coupling rod collar and secured with the nut -3--.

**Fig. 35: Connecting Coupling Rod To Stabilizer Bar**

Courtesy of AUDI OF AMERICA, LLC

Tightening specifications, refer to SUBFRAME, CROSSBRACE, STABILIZER BAR, COUPLING ROD AND SUBFRAME SHIELD OVERVIEW

-- Install the threaded connections -1 and 3- but do not tighten them.

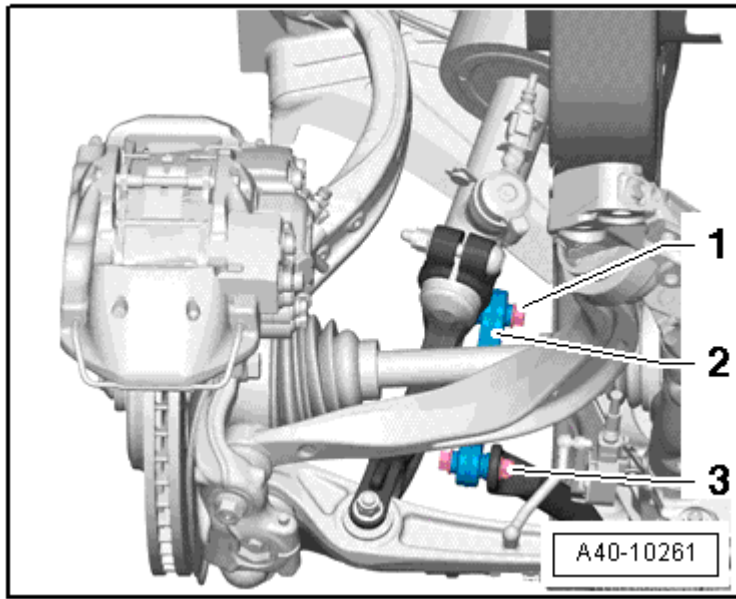


Fig. 36: Identifying Bolt

Courtesy of AUDI OF AMERICA, LLC

-- Lifting wheel bearing to curb weight position, refer to **WHEEL BEARING, WITH COIL SPRING, LIFTING TO CURB WEIGHT POSITION.**

-- Tighten connections -1 and 3-.

SUBFRAME HEAT SHIELD

Removing

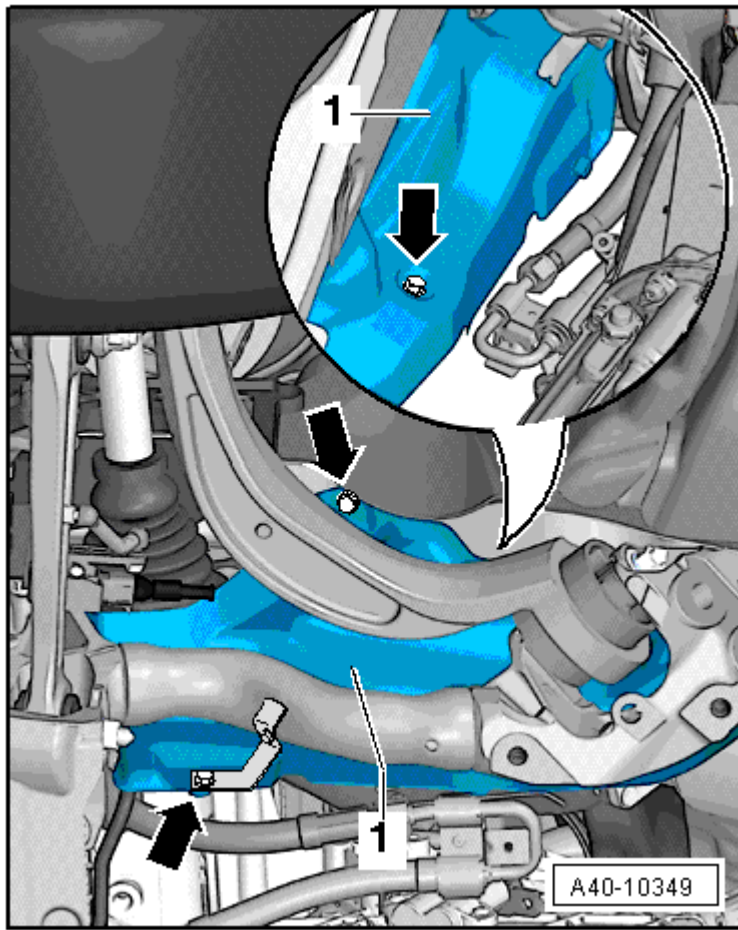


Fig. 37: Identifying Subframe Shield

Courtesy of AUDI OF AMERICA, LLC

- Remove the crossbrace. Refer to SUBFRAME CROSSBRACE.
- Remove the bolts -arrows-.
- Remove the subframe shield -1-.

Installing

Install in reverse order of removal. Note the following:

- Insert the square nuts into the cast recesses before installing the subframe shield -item 16- SUBFRAME, CROSSBRACE, STABILIZER BAR, COUPLING ROD AND SUBFRAME SHIELD OVERVIEW.

Tightening specifications, refer to SUBFRAME, CROSSBRACE, STABILIZER BAR, COUPLING ROD AND SUBFRAME SHIELD OVERVIEW

ELECTRONIC DAMPING CONTROL MODULE -J250-

Removing

The electronic damping control module -- is located behind the right luggage compartment side trim panel.

- Turn off all electrical consumers.
- Remove the key.
- Remove the cover from the right luggage compartment storage compartment.
- Release and disconnect the connector -3-.

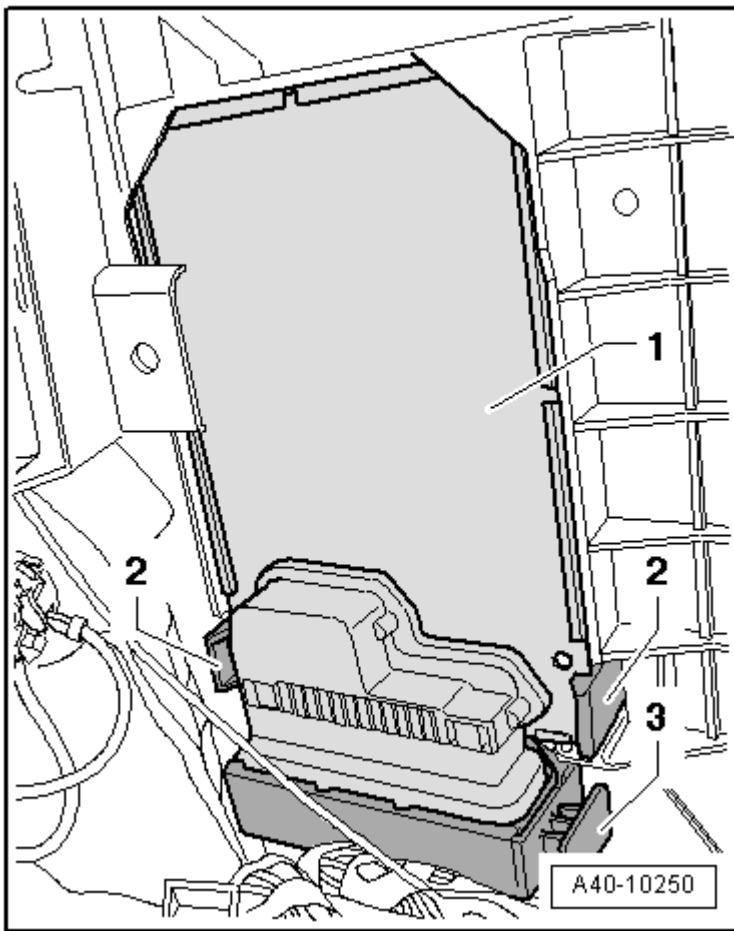


Fig. 38: Identifying Electronic Damping Control Module
Courtesy of AUDI OF AMERICA, LLC

- Press the clips -2- to the side and remove the electronically controlled damping control module -- -1-.

Installing

Installation is the reverse of removal, with special attention to the following:

-- Adapt the electronic damping control module --. Refer to **PROGRAMMING CONTROL POSITION USING Vehicle Diagnosis, Testing and Information System VAS 5051B**. Vehicle diagnostic tester.

LEFT FRONT BODY ACCELERATION SENSOR -G341- AND RIGHT FRONT BODY ACCELERATION SENSOR -G342-

Special tools and workshop equipment required

- Torque Wrench V.A.G 1410

Removing

- Remove the wheel.
- Remove the front wheel housing liner. Refer to **Removal and Installation** .
- Release and disconnect the connector -2-.
- Remove the nut -1- and sensor -3-.

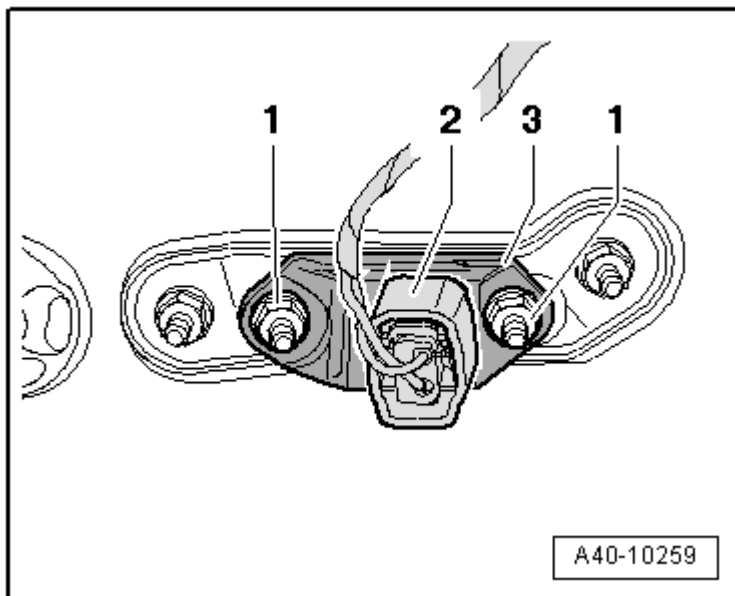


Fig. 39: Releasing And Disconnecting Connector
Courtesy of AUDI OF AMERICA, LLC

Installing

Install in reverse order of removal. Note the following:

- When installing, always pay attention to the installation position of the sensor.
- Install the sensor as illustrated.

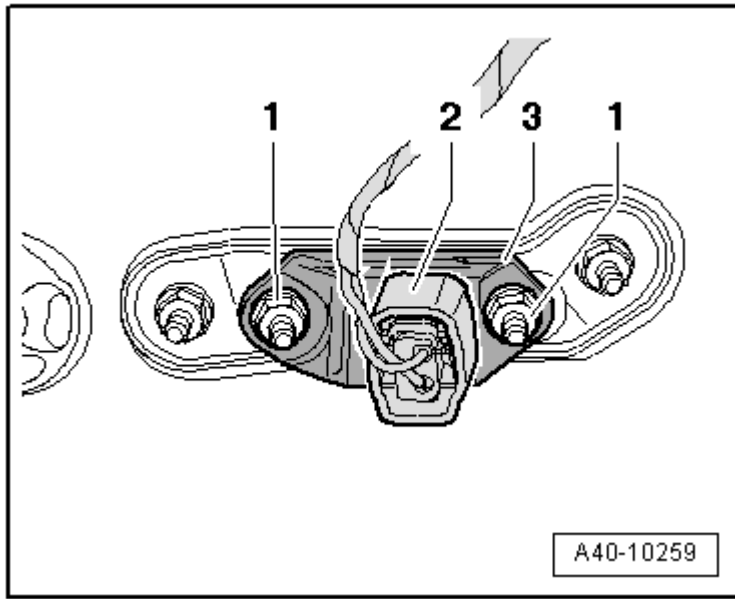


Fig. 40: Tightening Nuts To 5 Nm

Courtesy of AUDI OF AMERICA, LLC

-- Tighten the nuts -1- to 5 Nm.

REAR BODY ACCELERATION SENSOR -G343-

Special tools and workshop equipment required

- Torque Wrench V.A.G 1410

Removing

- Remove the wheel.
- Remove the left rear wheel housing liner. Refer to **Removal and Installation** .
- Release and disconnect the connector -2-.
- Remove the bolts -1- and the sensor -3-.

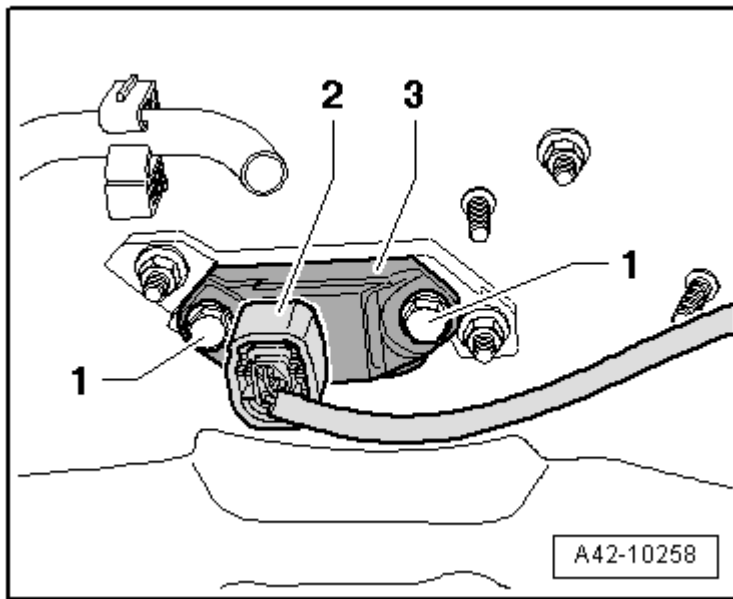


Fig. 41: Releasing And Disconnecting Connector
Courtesy of AUDI OF AMERICA, LLC

Installing

Install in reverse order of removal. Note the following:

- When installing, always pay attention to the installation position of the sensor.
- Install the sensor as illustrated.

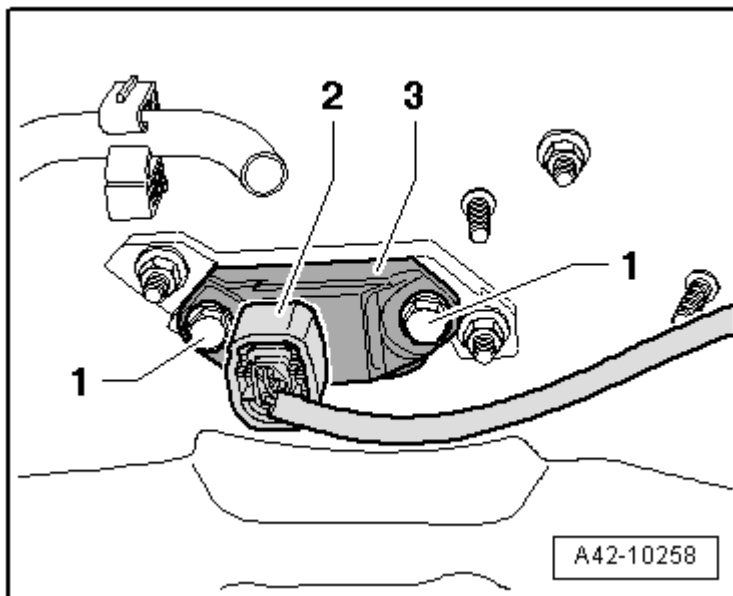


Fig. 42: Tightening Bolts To 5 Nm
Courtesy of AUDI OF AMERICA, LLC

-- Tighten the bolts -1- to 5 Nm.

SUSPENSION STRUT WITH MOUNTING BRACKET

Special tools and workshop equipment required

- Spreader 3424
- Torque Wrench 5-50 Nm V.A.G 1331
- Torque Wrench 50-200 Nm V.A.G 1332
- Tensioning Strap T10038

Removing

-- Remove the wheel.

-- Secure the wheel housing liner using a T10038 as shown in the illustration.

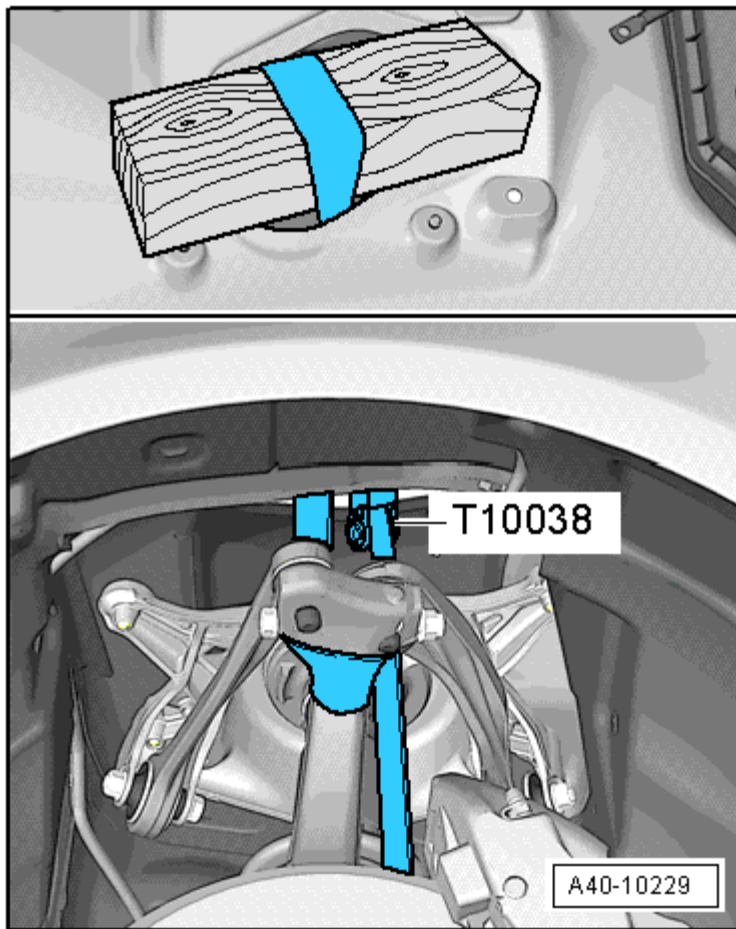


Fig. 43: Using T10038 To Secure Wheel Housing Liner
Courtesy of AUDI OF AMERICA, LLC

Applies to a Vehicle with Electronically Controlled Damping

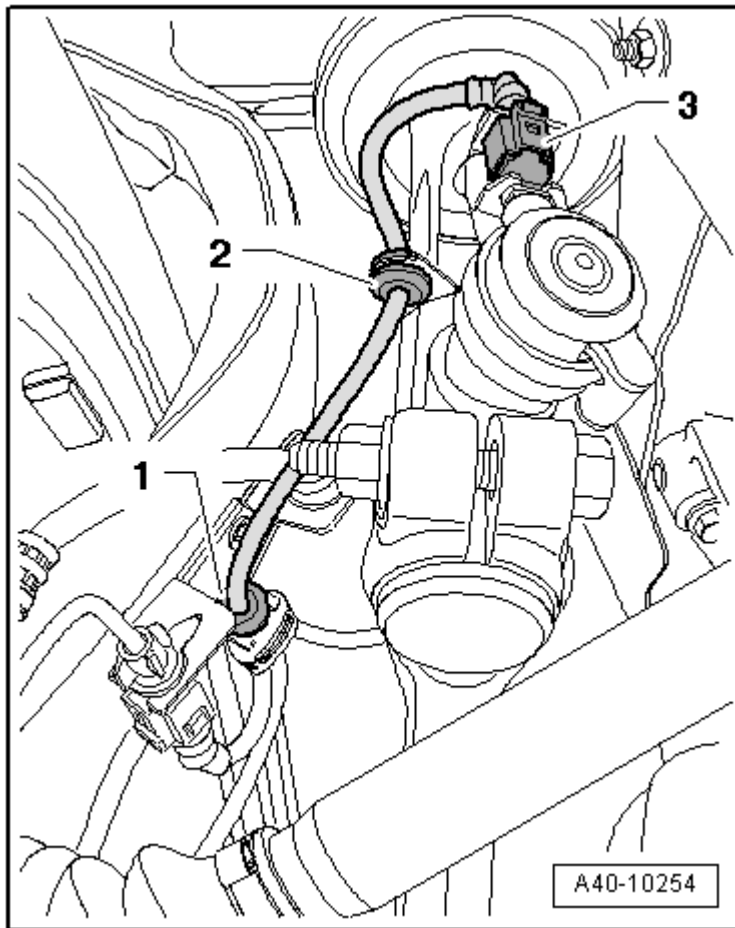


Fig. 44: Releasing To Remove Fasteners -1 & 2- And Connector -3-
Courtesy of AUDI OF AMERICA, LLC

-- Release and remove the connector -3-.

-- Remove the fasteners -1 and 2-.

Continuation for All Vehicles

Shock absorber fork, removing, refer to **SHOCK ABSORBER FORK**.

-- Remove the bolt -1-.

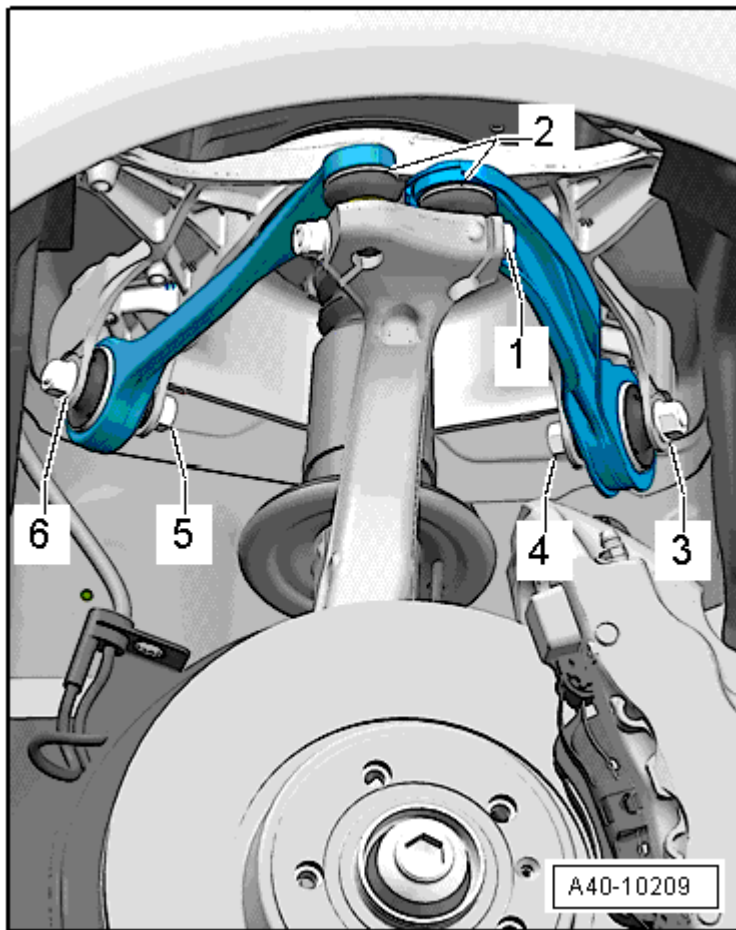


Fig. 45: Identifying Booth Joint Pins In Upper Control Arm
Courtesy of AUDI OF AMERICA, LLC

-- Remove booth joint pins in the upper control arm -2- from the wheel bearing housing.

The slits in the wheel bearing housing must not be widened using a chisel or similar tool!

Left Side

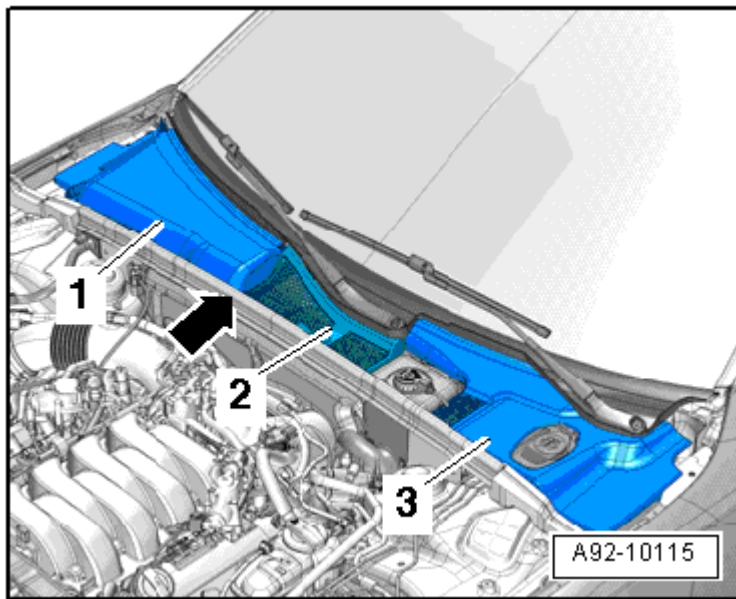


Fig. 46: Identifying Plenum Chamber Covers
 Courtesy of AUDI OF AMERICA, LLC

- Unclip the plenum chamber cover -3- and remove it.
- Remove the nut -1-.

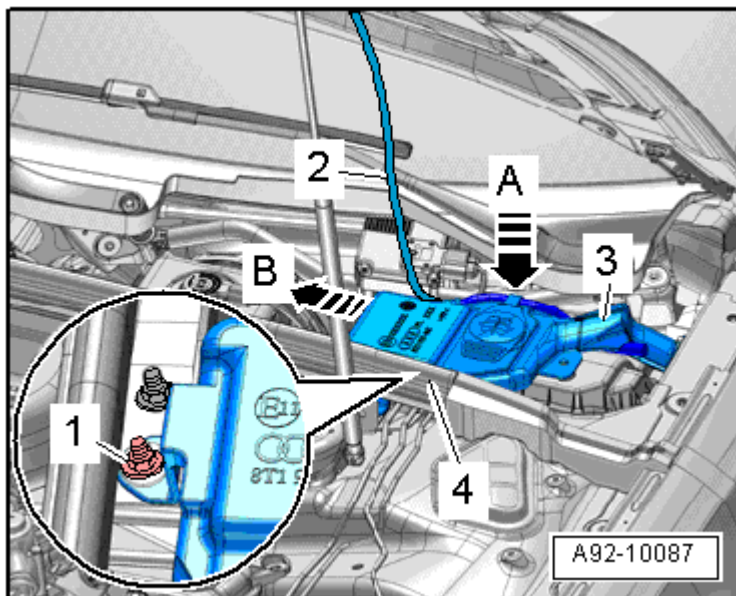


Fig. 47: Disengaging Wiring Harness
 Courtesy of AUDI OF AMERICA, LLC

- Remove the filler neck -3- with the filler tube from the washer fluid reservoir and the body opening -arrow B-

-- Remove the bolts -arrows- and the left E-box cover.

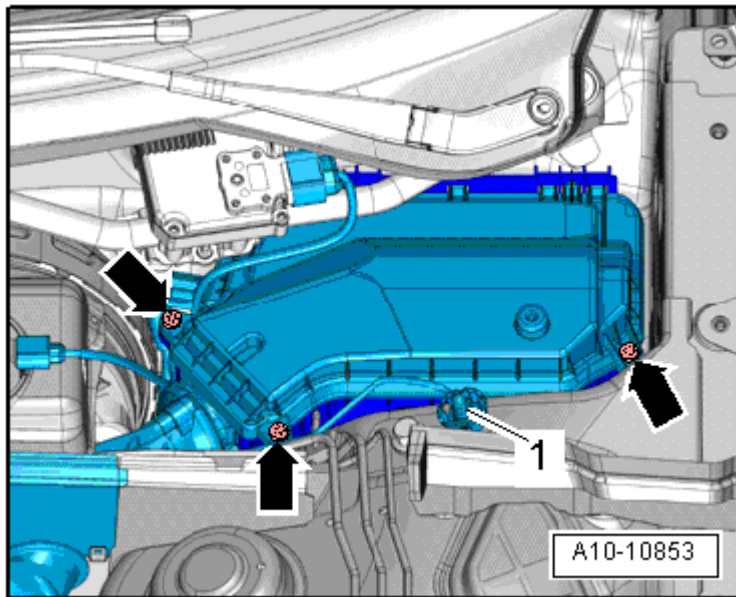


Fig. 48: Removing E-Box Bolts & Cover
Courtesy of AUDI OF AMERICA, LLC

-- Remove the nuts -arrows-, then remove the coolant reservoir and move it to the side.

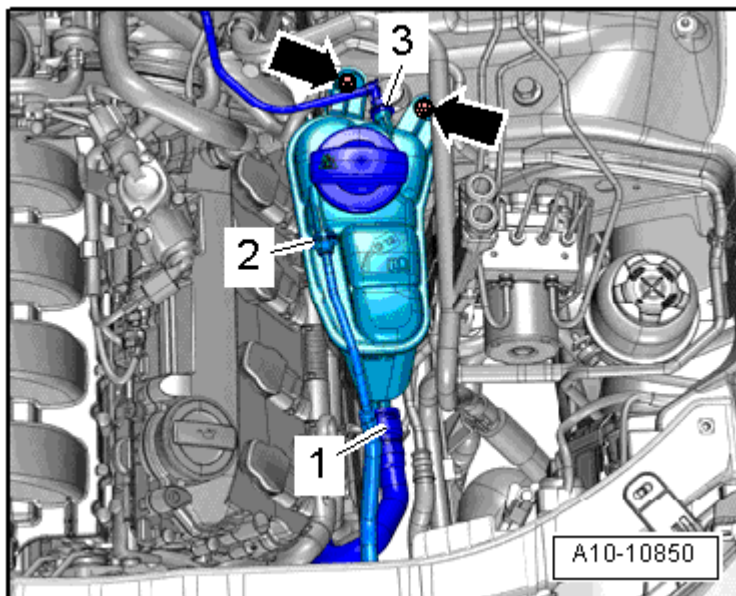


Fig. 49: Identifying Coolant Hose From Coolant Reservoir And Free It Up
Courtesy of AUDI OF AMERICA, LLC

Right Side

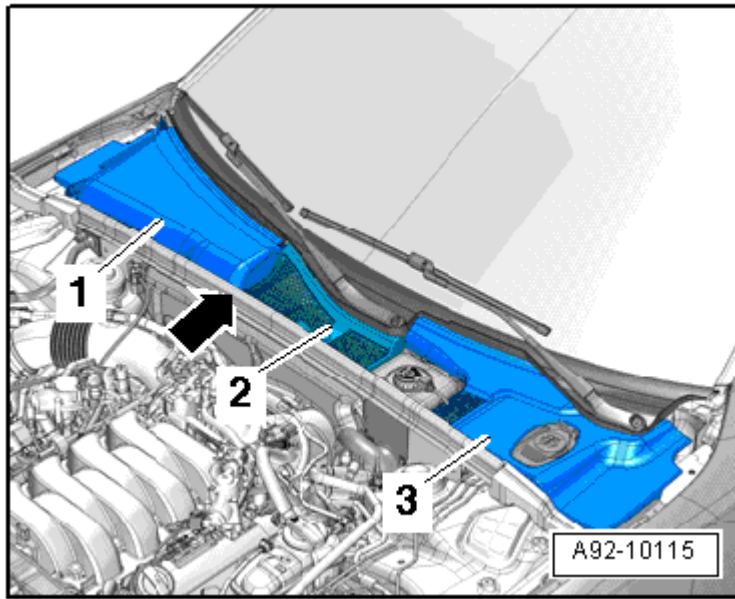


Fig. 50: Identifying Plenum Chamber Covers
Courtesy of AUDI OF AMERICA, LLC

-- Unclip the plenum chamber cover -1- and remove it.

Both Sides

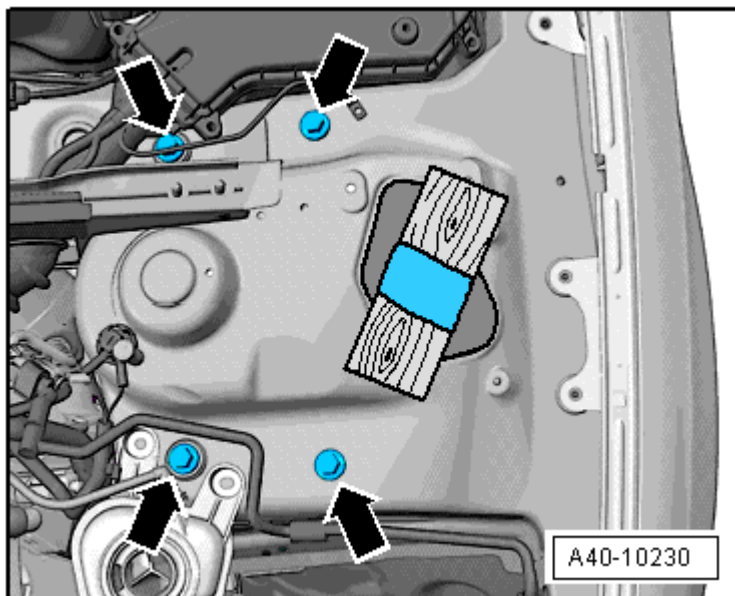


Fig. 51: Identifying Bolt And Suspension Strut With Mounting Bracket, Removal
Courtesy of AUDI OF AMERICA, LLC

-- Remove the bolts -arrows- and remove the suspension strut with the mounting bracket.

Installing

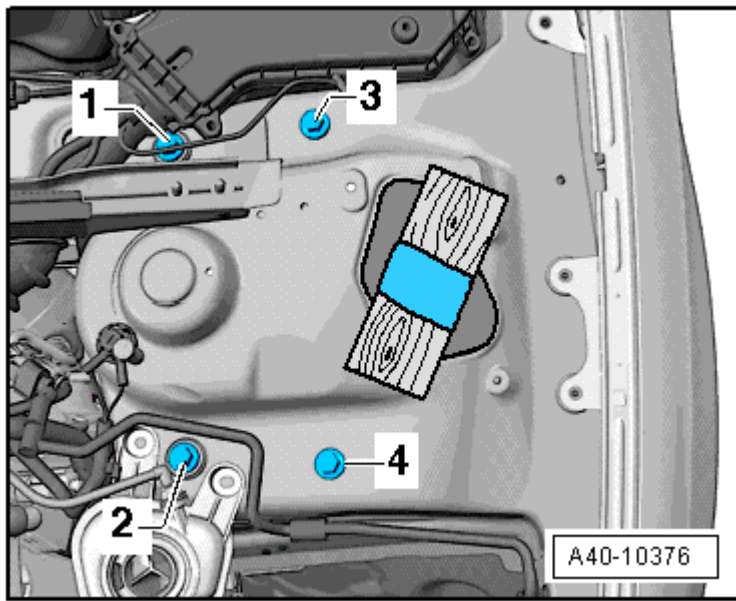


Fig. 52: Identifying Bolt And Suspension Strut With Mounting Bracket, Installation
Courtesy of AUDI OF AMERICA, LLC

Install in reverse order of removal. Note the following:

INSTALL AND TIGHTEN THE BOLTS, ON AFTER THE OTHER, IN THE FOLLOWING SEQUENCE -1, 2, 3 AND 4-.

NOTE: Always observe the tightening sequence for the mounting bracket threaded connection with the suspension strut to the suspension strut tower.

Tightening specifications, refer to SUBFRAME, CROSSBRACE, STABILIZER BAR, COUPLING ROD AND SUBFRAME SHIELD OVERVIEW

Tightening specifications, refer to MOUNTING BRACKET, SHOCK ABSORBER FORK, UPPER CONTROL ARM AND TOWER BRACE OVERVIEW

Tightening specifications, refer to TRACK CONTROL ARM, BALL JOINT, GUIDE LINK AND LEVEL CONTROL SYSTEM SENSOR OVERVIEW

Tightening specifications, refer to WHEEL BEARING HOUSING AND WHEEL BEARING UNIT OVERVIEW

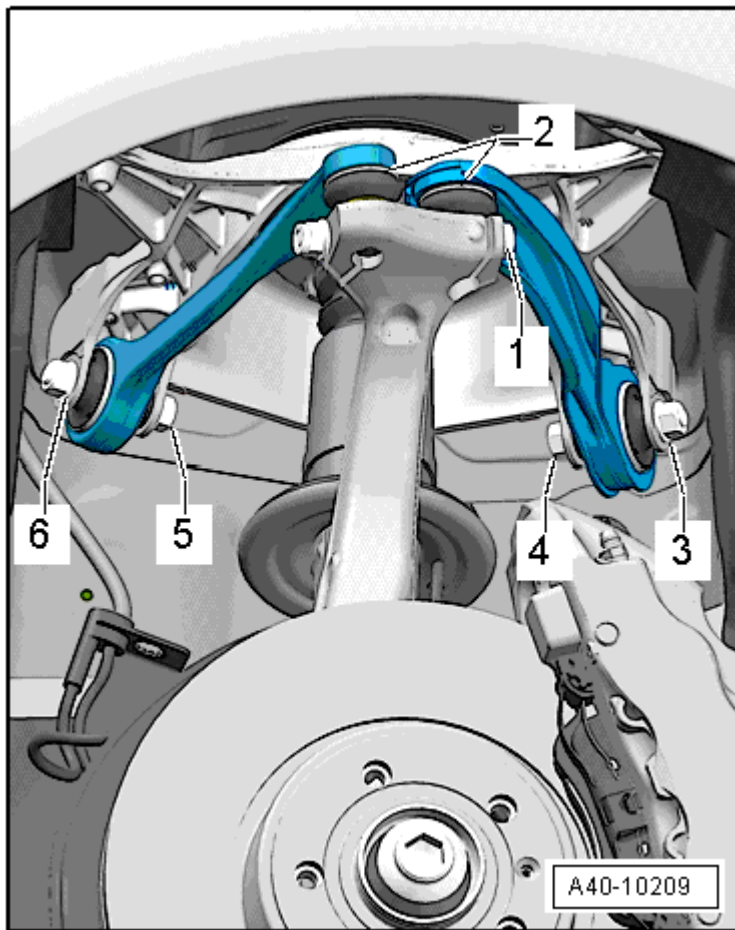


Fig. 53: Identifying Booth Joint Pins In Upper Control Arm

Courtesy of AUDI OF AMERICA, LLC

NOTE: Push the upper control arms down as far as possible while tightening the bolts!

-- Tighten the threaded connection -1-.

NOTE: When connecting, make sure the T-pins -arrow- engage in the shock absorber fork groove.

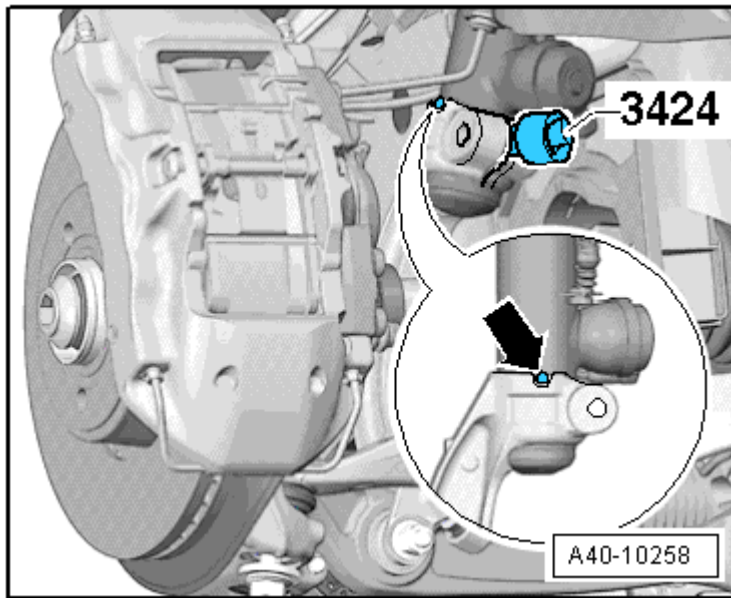


Fig. 54: Inserting 3424 Into Slot Of Wheel Bearing Housing
 Courtesy of AUDI OF AMERICA, LLC

NOTE: Bonded rubber bushings can only be turned to a limited extent. Only tighten suspension bolts when vehicle is in curb weight or control position.

-- Lifting wheel bearing to curb weight position, refer to WHEEL BEARING, WITH COIL SPRING, LIFTING TO CURB WEIGHT POSITION.

-- On vehicles with automatic headlamp range control system, perform a basic setting on the headlamps. Refer to Description and Operation .

-- If the vehicle level sensor -- was removed and installed on a vehicle with electronically control damping or if the linkage was loosened, the control position must be programmed once again. Refer to PROGRAMMING CONTROL POSITION USING Vehicle Diagnosis, Testing and Information System VAS 5051B. Vehicle diagnostic tester.

-- If the control position was reprogrammed on vehicles with lane assist, the directional stabilization assistance control module -J759- must be recalibrated. Refer to CALIBRATION PROCEDURE .

Shock absorber fork, installing, refer to SHOCK ABSORBER FORK.

-- Tighten the wheel. Refer to Specifications .

-- Axle alignment is required, see table, refer to WHEN VEHICLE ALIGNMENT IS NECESSARY .

SHOCK ABSORBER FORK

Special tools and workshop equipment required

- Spreader 3424
- Torque Wrench 5-50 Nm V.A.G 1331
- Torque Wrench 50-200 Nm V.A.G 1332
- Ball Joint Puller T40010 A

Removing

- Remove the wheel.
- Remove the nuts -1- and the cover -2-.

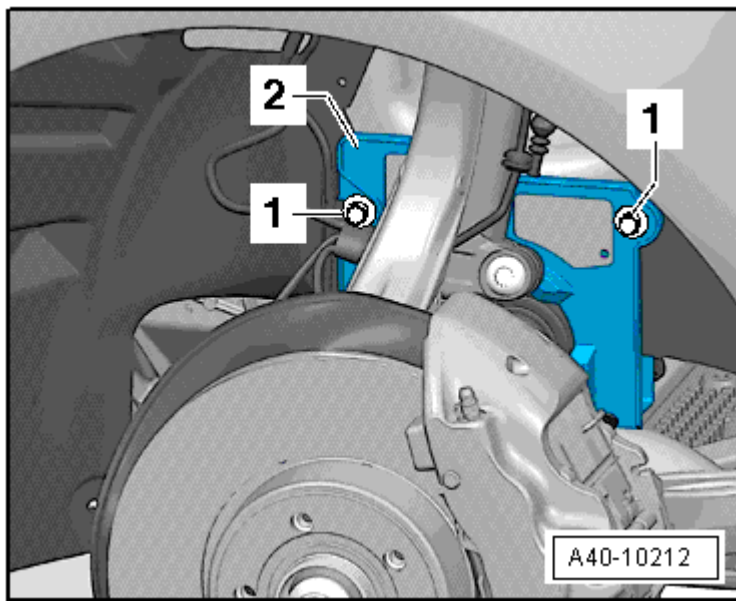


Fig. 55: Identifying Nuts And Cover
Courtesy of AUDI OF AMERICA, LLC

- Remove noise insulation. Refer to **Description and Operation** .
- In vehicles with level control system sensor, remove nut -2-.

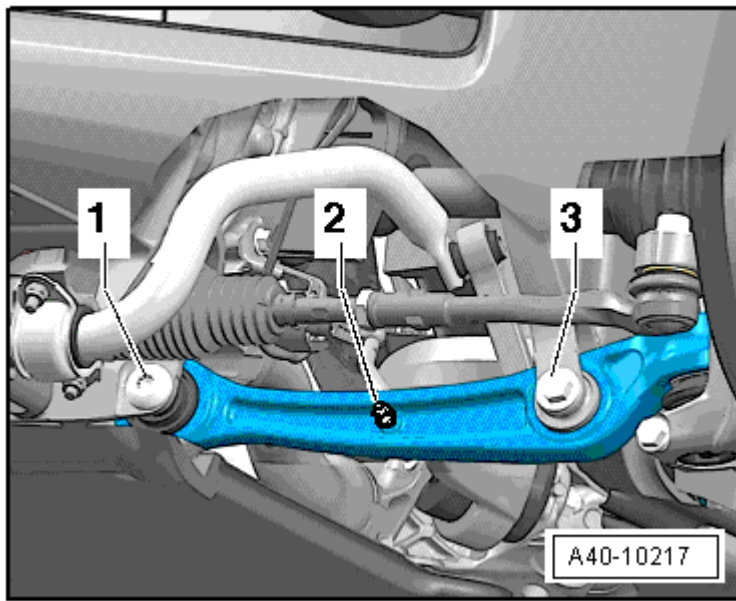


Fig. 56: Identifying Threaded Connection -1- And Control Arm
Courtesy of AUDI OF AMERICA, LLC

- Remove the bolt -2-.
- Disconnect connections -1 and 3-.

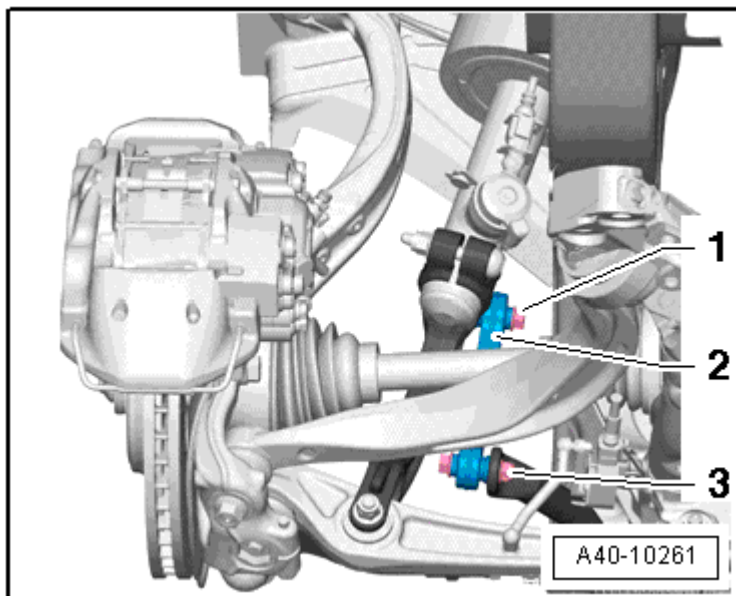


Fig. 57: Identifying Bolt
Courtesy of AUDI OF AMERICA, LLC

- Remove the coupling rod -2-.
- Remove the nut -1- from the tie rod end joint pin -2- until it is flush with the joint pin threads. Counter hold

when loosening.

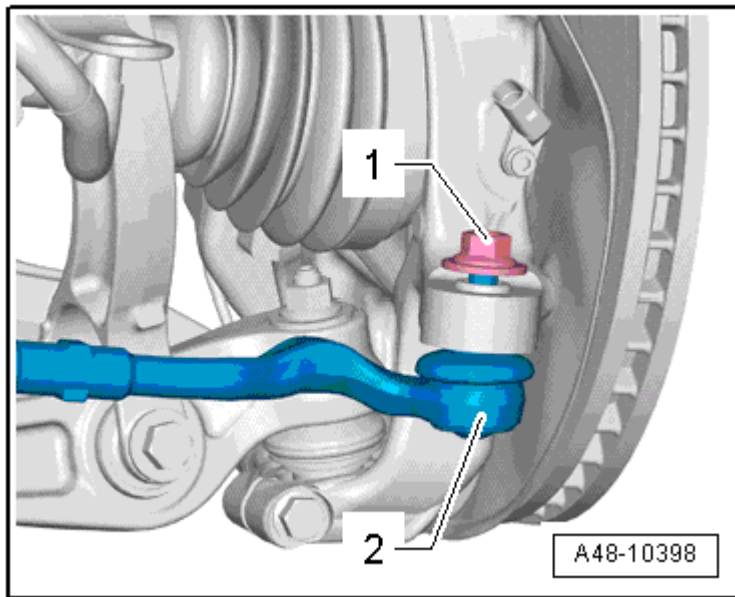


Fig. 58: Identifying Tie Rod End Joint Pin

Courtesy of AUDI OF AMERICA, LLC

To protect thread, screw nut on pin a few turns.

-- Press off tie rod ball joint from wheel bearing housing using T40010 A. Remove the nut.

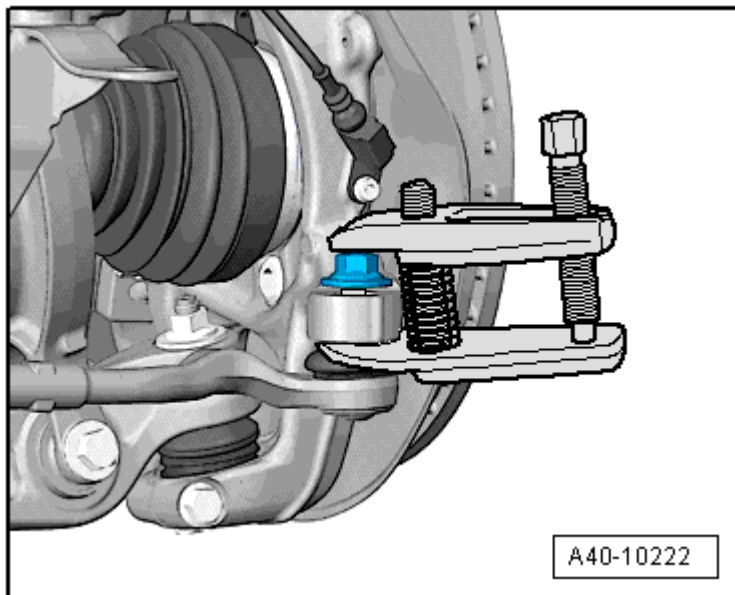


Fig. 59: Using T40010A To Press Off Tie Rod Ball Joint From Wheel Bearing Housing

Courtesy of AUDI OF AMERICA, LLC

-- Remove the bolt -3-.

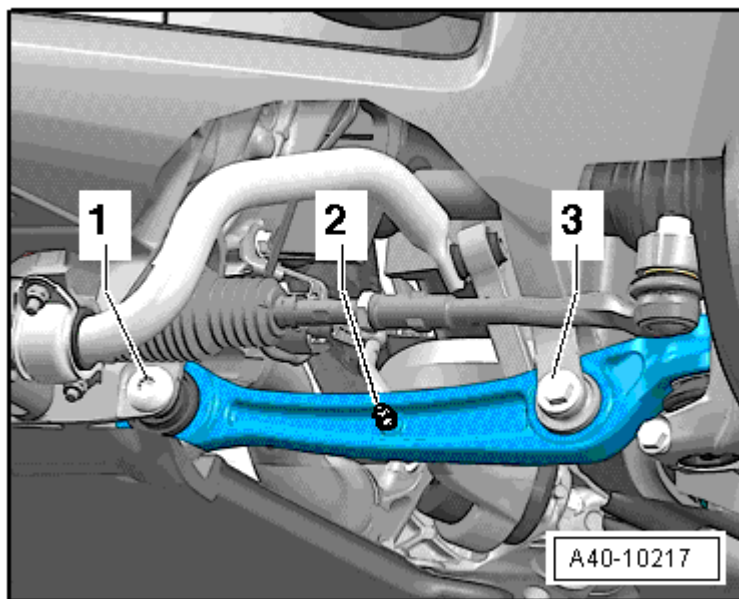


Fig. 60: Identifying Threaded Connection -1- And Control Arm
Courtesy of AUDI OF AMERICA, LLC

-- Separate the threaded connection -1- and guide the control arm out and tilt it forward.

NOTE: To remove the bolt -1-, turn the steering gear all the way to the left or right depending on the side of the vehicle.

-- Remove the bolt -1-.

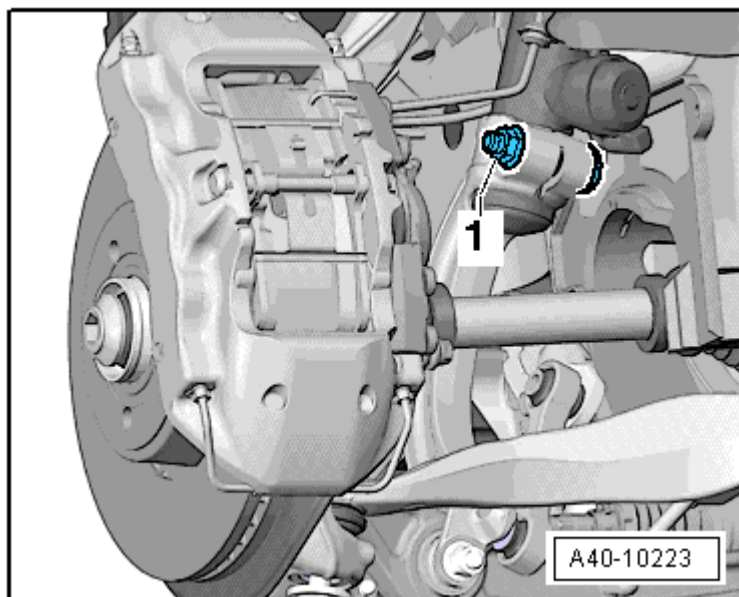


Fig. 61: Identifying Bolt
Courtesy of AUDI OF AMERICA, LLC

-- Insert 3424 into slot of the wheel bearing housing.

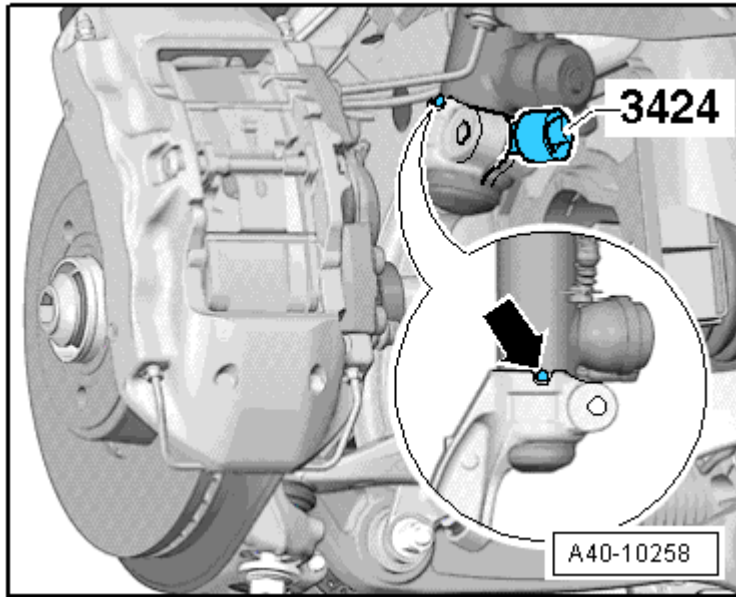


Fig. 62: Inserting 3424 Into Slot Of Wheel Bearing Housing
Courtesy of AUDI OF AMERICA, LLC

-- Using a ratchet and the 3424, open the wheel bearing housing slot.

-- Pull the shock absorber fork -1- downward from the shock absorber tube and remove it.

Installing

Install in reverse order of removal. Note the following:

Tightening specifications, refer to **MOUNTING BRACKET, SHOCK ABSORBER FORK, UPPER CONTROL ARM AND TOWER BRACE OVERVIEW**

Tightening specifications, refer to **CONTROL ARM**

NOTE: When connecting, make sure the T-pins -arrow- engage in the shock absorber fork groove.

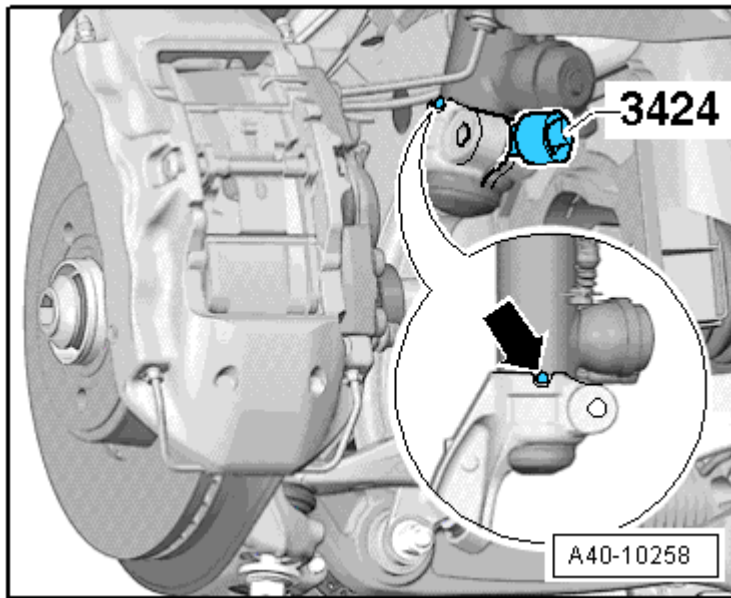


Fig. 63: Inserting 3424 Into Slot Of Wheel Bearing Housing
Courtesy of AUDI OF AMERICA, LLC

NOTE: Bonded rubber bushings can only be turned to a limited extent. Only tighten suspension bolts when vehicle is in curb weight or control position.

-- Lifting wheel bearing to curb weight position. Refer to WHEEL BEARING, WITH COIL SPRING, LIFTING TO CURB WEIGHT POSITION.

-- On vehicles with automatic headlamp range control system, perform a basic setting on the headlamps. Refer to Description and Operation .

-- If the vehicle level sensor -- was removed and installed on a vehicle with electronically controlled damping or if the linkage was loosened, the control position must be reprogrammed. Refer to PROGRAMMING CONTROL POSITION USING Vehicle Diagnosis, Testing and Information System VAS 5051B. Vehicle diagnostic tester.

-- If the control position was reprogrammed on vehicles with lane assist, the directional stabilization assistance control module -J759- must be recalibrated. Refer to CALIBRATION PROCEDURE .

-- Tighten the wheel. Refer to Specifications .

-- Axle alignment is required, see table. Refer to WHEN VEHICLE ALIGNMENT IS NECESSARY .

UPPER CONTROL ARM

Removing

-- Remove the wheel.

-- Remove the bolt -1-.

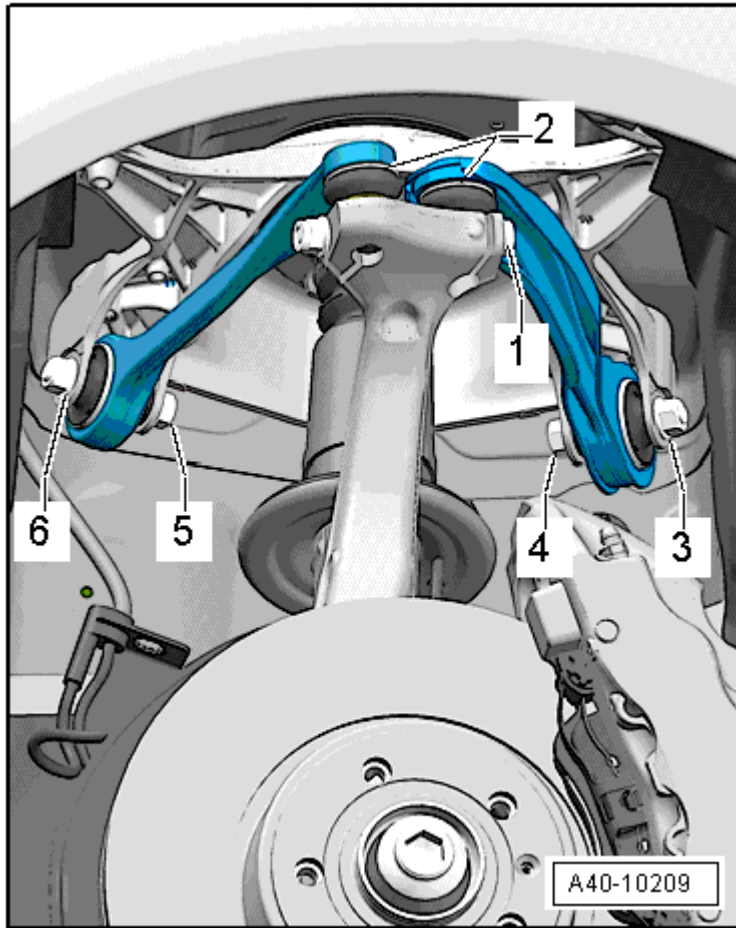


Fig. 64: Identifying Booth Joint Pins In Upper Control Arm
Courtesy of AUDI OF AMERICA, LLC

-- Remove booth joint pins in the upper control arm -2- from the wheel bearing housing.

The slits in the wheel bearing housing must not be widened using a chisel or similar tool!

-- Remove the nuts -3 and 6-.

-- Remove the bolts -4 and 5- and remove the upper control arm upward.

Installing

Install in reverse order of removal. Note the following:

Tightening specifications, refer to **MOUNTING BRACKET, SHOCK ABSORBER FORK, UPPER CONTROL ARM AND TOWER BRACE OVERVIEW**

NOTE: Bonded rubber bushings can only be turned to a limited extent. Only tighten suspension bolts when vehicle is in curb weight or control position.

-- Insert the upper control arm and the bolts -4 and 5-.

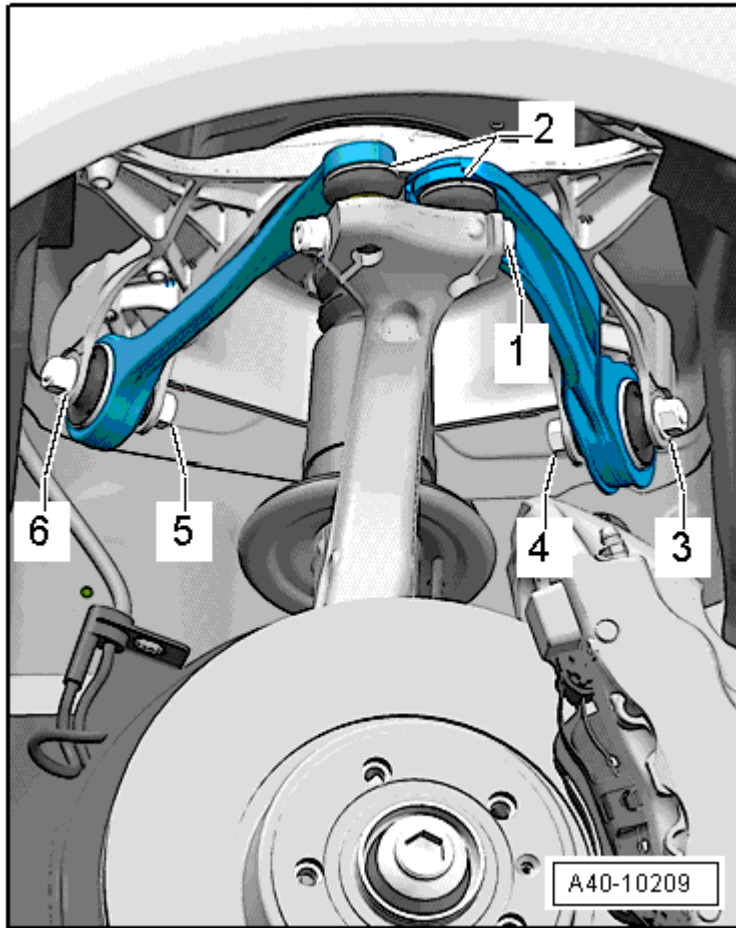


Fig. 65: Identifying Booth Joint Pins In Upper Control Arm
Courtesy of AUDI OF AMERICA, LLC

-- Install the nuts -3 and 6- and tighten by hand.

-- Insert both of the upper control arm joint pins -2- in the wheel bearing housing and insert the bolt -1-.

NOTE: Push the upper control arms down as far as possible while tightening the bolts!

-- Tighten the threaded connection -1-.

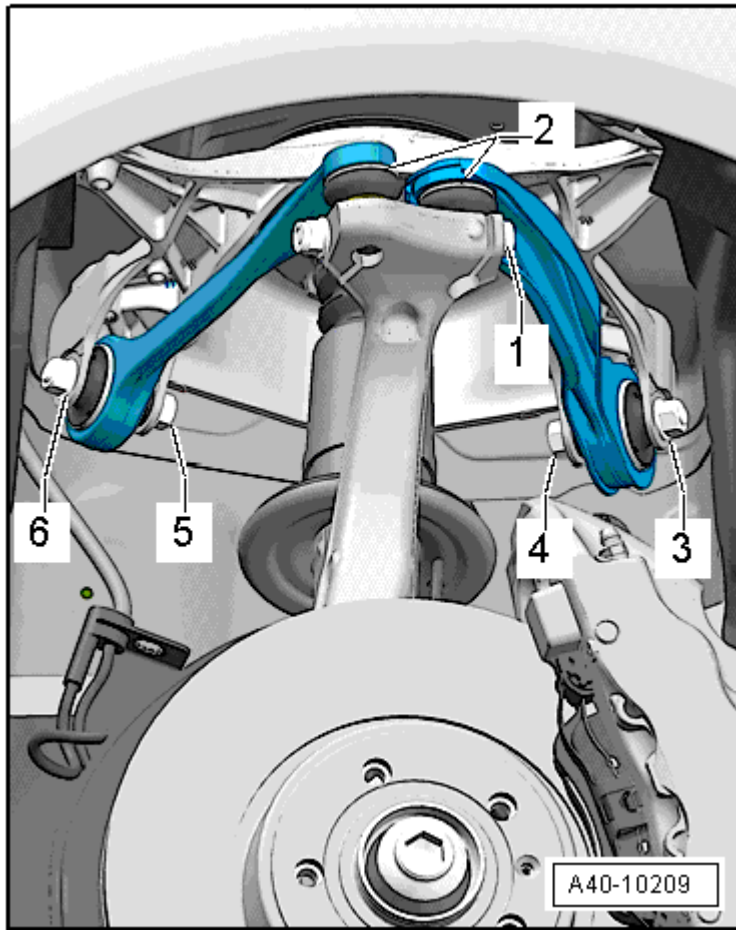


Fig. 66: Identifying Booth Joint Pins In Upper Control Arm
Courtesy of AUDI OF AMERICA, LLC

-- Lifting wheel bearing to curb weight position, refer to **WHEEL BEARING, WITH COIL SPRING, LIFTING TO CURB WEIGHT POSITION.**

NOTE: The upper control arm must be pressed toward the inside of the vehicle when tightening the nuts -3 and 6-.

-- Tighten the nuts -3 and 6-.

-- Tighten the wheel. Refer to **Specifications** .

-- Axle alignment is required, see table. Refer to **WHEN VEHICLE ALIGNMENT IS NECESSARY**

FRONT AND REAR UPPER CONTROL ARM BEARING

Special tools and workshop equipment required

- Assembly Tool 3301

- Front and Rear Bearing Tool 3348

NOTE: Control arms must only be clamped in a vise with protective vise jaw lining!

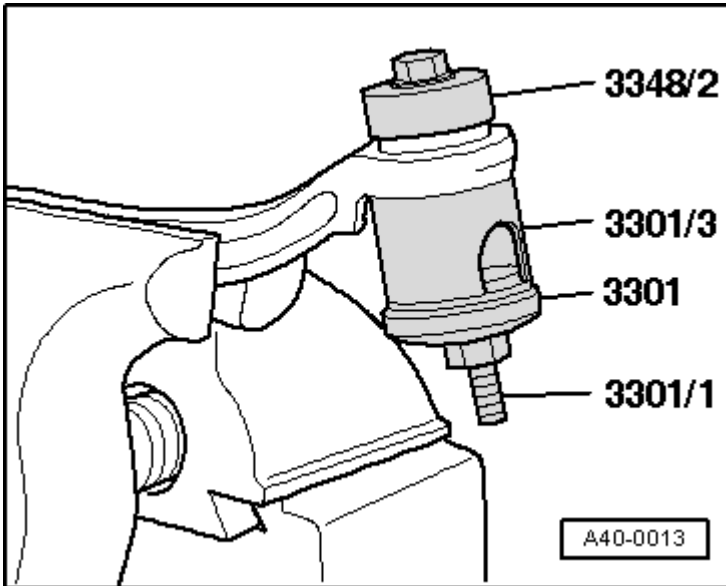


Fig. 67: Pulling Out Bushing

Courtesy of AUDI OF AMERICA, LLC

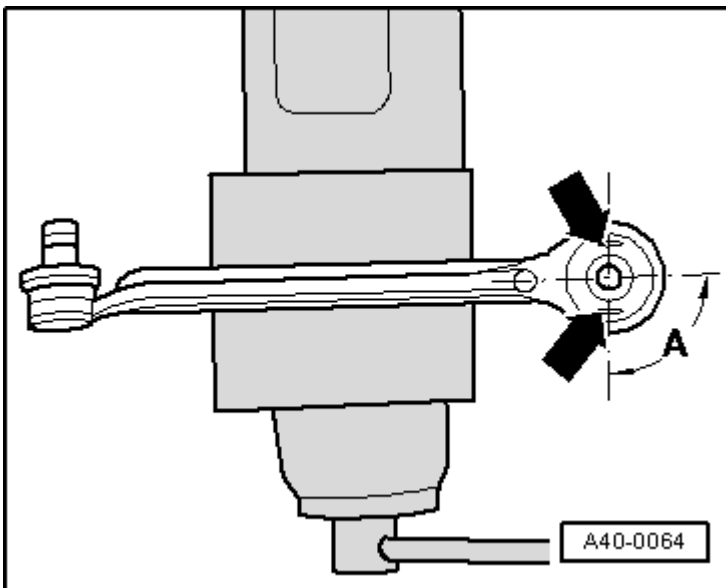


Fig. 68: Identifying Installation Location Of Bushing

Courtesy of AUDI OF AMERICA, LLC

A = $\sim 90^\circ \pm 5^\circ$

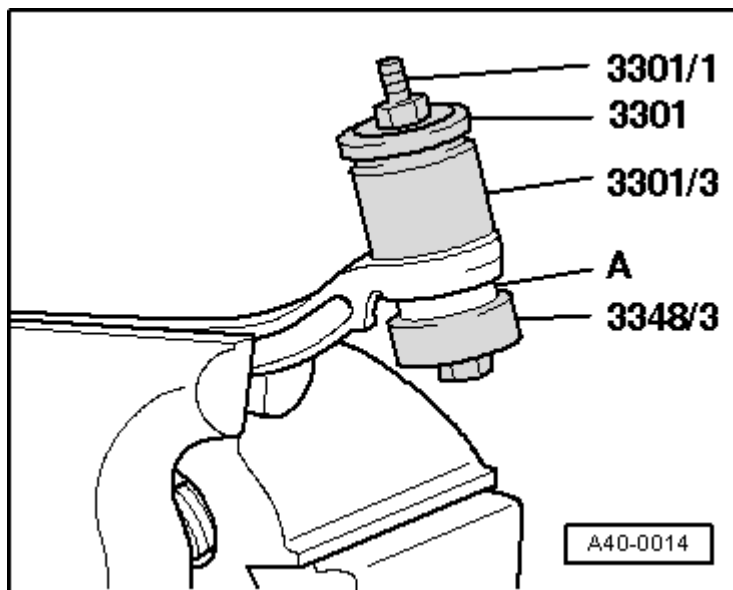


Fig. 69: Pulling In Bushing

Courtesy of AUDI OF AMERICA, LLC

A = bearing

NOTE: Do not use lubricant!

TOWER BRACE

Special tools and workshop equipment required

- Torque Wrench 5-50 Nm V.A.G 1331

Removing

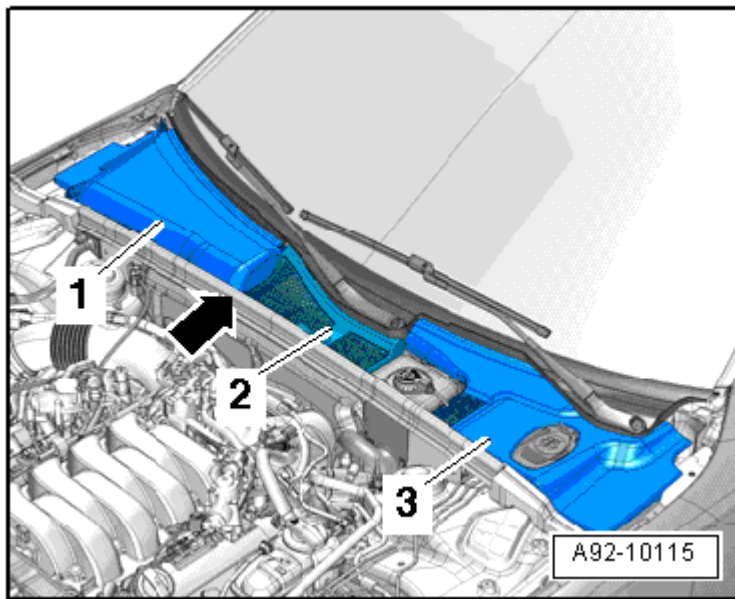


Fig. 70: Identifying Plenum Chamber Covers
Courtesy of AUDI OF AMERICA, LLC

- Unclip the plenum chamber cover -1 and 3- and remove it.
- Remove the bolt -1- and remove the E-box from the tower brace in the direction of the -arrow-.

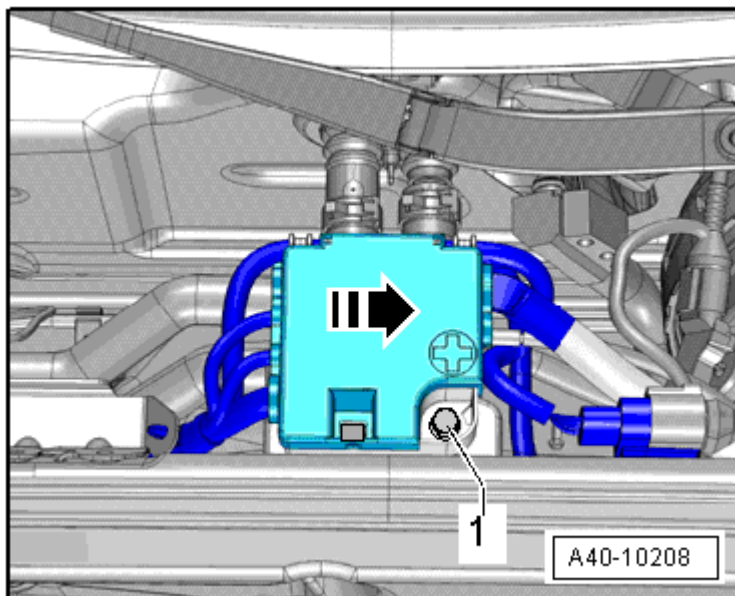


Fig. 71: Identifying Bolt And E-Box To Tower Brace
Courtesy of AUDI OF AMERICA, LLC

- Remove the bolts -1- and nuts -2- and the tower brace -3-.

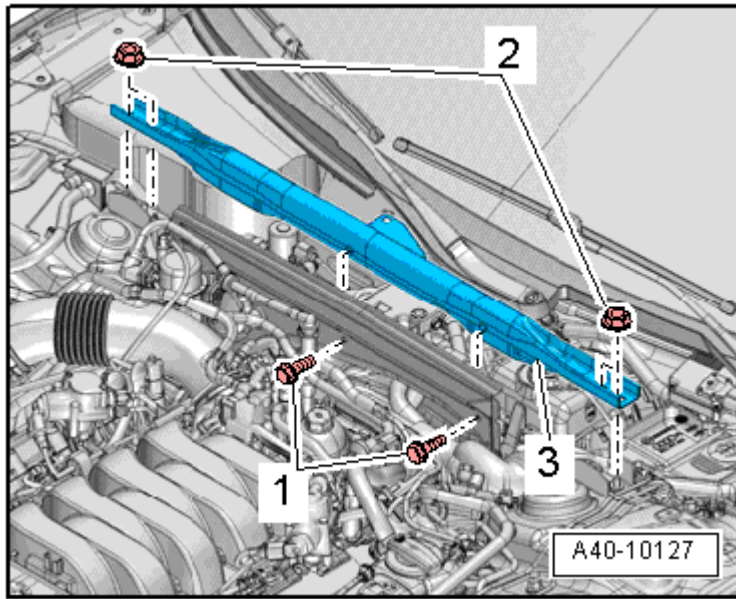


Fig. 72: Identifying Bolts, Nuts And Tower Brace
Courtesy of AUDI OF AMERICA, LLC

Installing

Install in reverse order of removal. Note the following:

Tightening specifications, refer to **MOUNTING BRACKET, SHOCK ABSORBER FORK, UPPER CONTROL ARM AND TOWER BRACE OVERVIEW**

CONTROL ARM

Special tools and workshop equipment required

- Engine-/Gearbox Jack V.A.G 1383 A
- Ball Joint Puller T40010 A
- Ring Spanner Insert VAG 1332/10 V.A.G 1332/10
- or Ring Spanner Insert, AF 21 mm V.A.G 1332/7

Removing

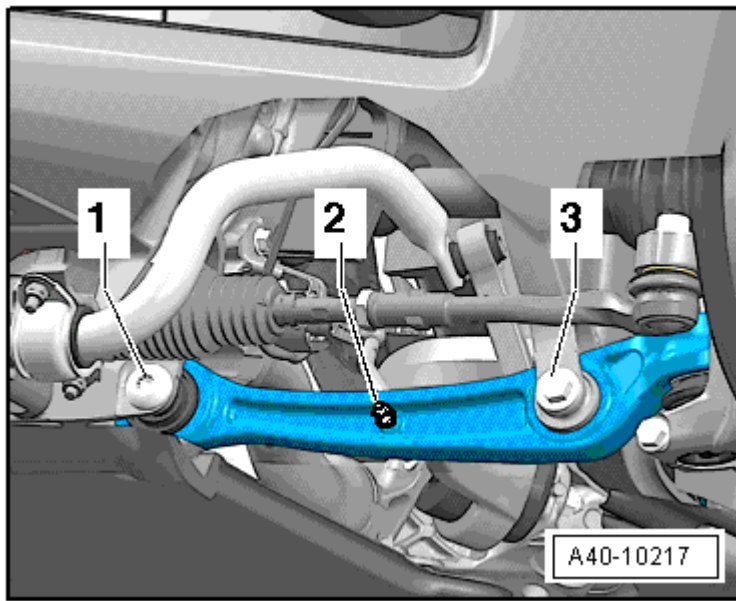


Fig. 73: Identifying Threaded Connection -1- And Control Arm
Courtesy of AUDI OF AMERICA, LLC

- Remove the wheel.
- Remove noise insulation. Refer to **Description and Operation** .
- In vehicles with level control system sensor, remove nut -2-.
- Remove the bolt -3-.
- Remove the nut -1- from the tie rod end joint pin -2- until it is flush with the joint pin threads. Counter hold when loosening.

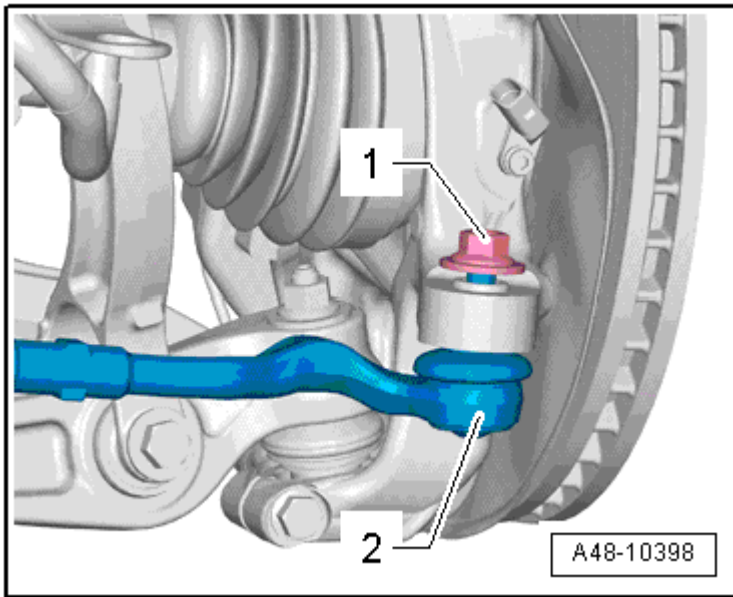


Fig. 74: Identifying Tie Rod End Joint Pin
Courtesy of AUDI OF AMERICA, LLC

To protect thread, screw nut on pin a few turns.

-- Press off the tie rod ball joint from wheel bearing housing using T40010 A. Remove the nut.

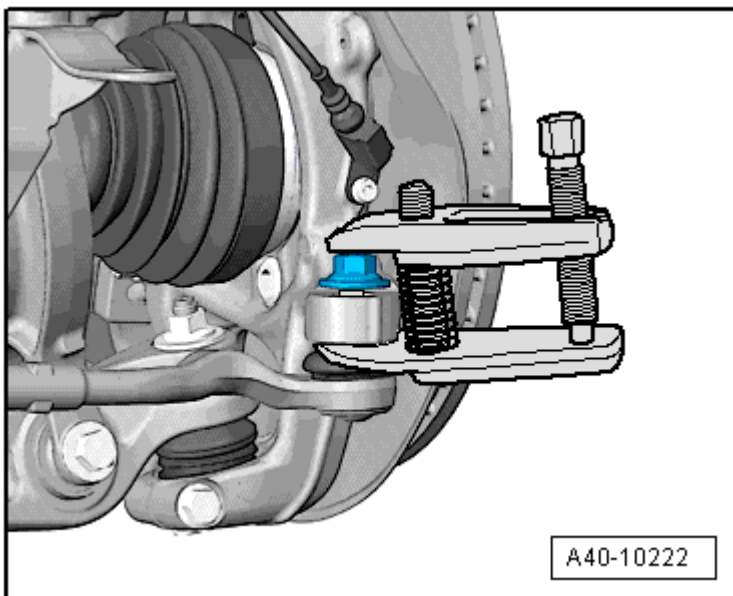


Fig. 75: Using T40010A To Press Off Tie Rod Ball Joint From Wheel Bearing Housing
Courtesy of AUDI OF AMERICA, LLC

NOTE: Make sure that both puller lever arms are parallel to each other when using greatest force, adjust if necessary.

-- Remove the bolt -1-.

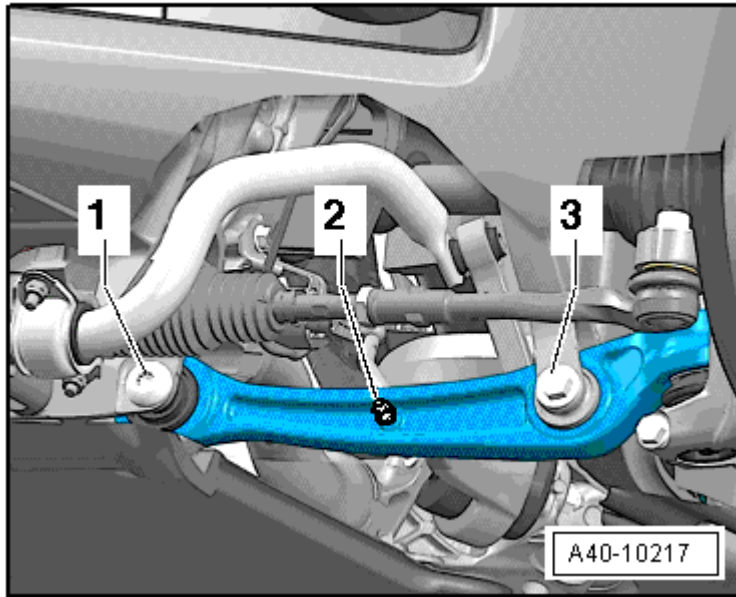


Fig. 76: Identifying Threaded Connection -1- And Control Arm
Courtesy of AUDI OF AMERICA, LLC

NOTE: To remove the bolt -1-, turn the steering gear all the way to the left or right depending on the side of the vehicle.

-- Remove the control arm from the subframe and move it to the rear.

-- Remove the nut from the ball joint pins just enough so it is flush with the joint pin threads. Counter hold when loosening.

-- Remove the ball joint pin from the conical seat T40010 A.

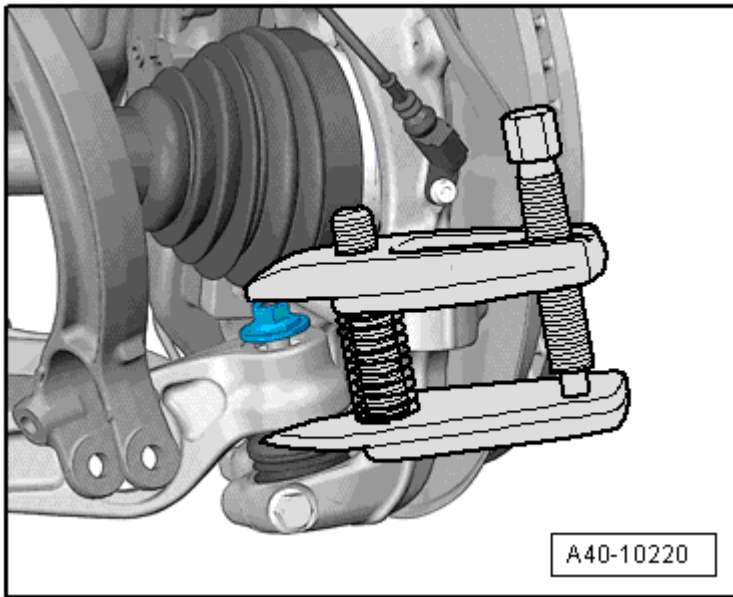


Fig. 77: Identifying Ball Joint Pin In Conical Seat T40010 A
Courtesy of AUDI OF AMERICA, LLC

NOTE: Make sure that both puller lever arms are parallel to each other when using greatest force, adjust if necessary.

Be careful not to damage the CV boot in the process!

In order not to damage the joints of the upper control arms, it is necessary to use V.A.G 1383 A, for example, to brace wheel bearing housing against too strong rebound.

- Remove the nut from linkage stub of track control arm.
- Remove track control arm.

Installing

Install in reverse order of removal. Note the following:

Tightening specifications, refer to **TRACK CONTROL ARM, BALL JOINT, GUIDE LINK AND LEVEL CONTROL SYSTEM SENSOR OVERVIEW**

NOTE: Bonded rubber bushings can only be turned to a limited extent. Only tighten suspension bolts when the vehicle is in curb weight or control position.

Lifting wheel bearing to curb weight position, refer to WHEEL BEARING, WITH COIL SPRING, LIFTING TO CURB WEIGHT POSITION.

When tightening the threaded connection -1-, the control arm must be pressed toward the inside of the vehicle.

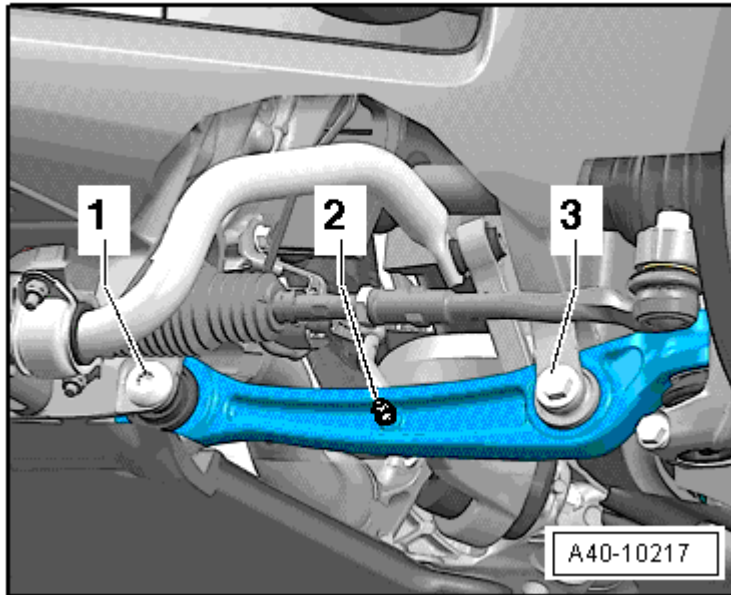


Fig. 78: Identifying Threaded Connection -1- And Control Arm
Courtesy of AUDI OF AMERICA, LLC

- Remove the adhesive residue from the ball joint stub thread.
- On vehicles with automatic headlamp range control system, perform a basic setting on the headlamps. Refer to **Description and Operation** .
- If the vehicle level sensor -- was removed and installed on a vehicle with electronically controlled damping or if the linkage was loosened, the control position must be reprogrammed. Refer to **PROGRAMMING CONTROL POSITION USING Vehicle Diagnosis, Testing and Information System VAS 5051B**. Vehicle diagnostic tester
- If the control position was reprogrammed on vehicles with lane assist, the directional stabilization assistance control module -J759- must be recalibrated. Refer to **CALIBRATION PROCEDURE** .
- Tighten the wheel. Refer to **Specifications** .
- Axle alignment is required, see table. Refer to **WHEN VEHICLE ALIGNMENT IS NECESSARY** .

CONTROL ARM BALL BEARING, REPLACING

Pressing out and in bearing for track control arm (on wheel bearing housing side)

Special tools and workshop equipment required

- Thrust Plate VW 402

- Thrust Disc VW 412
- Assembly Tool 3301
- Support Arm Bearing Inst. Tool 3346
- Assembly Tool T10030
- Assembly paste

NOTE: Hold track control arm firmly in position while pressing bearing out and in.

Bearing, Removing

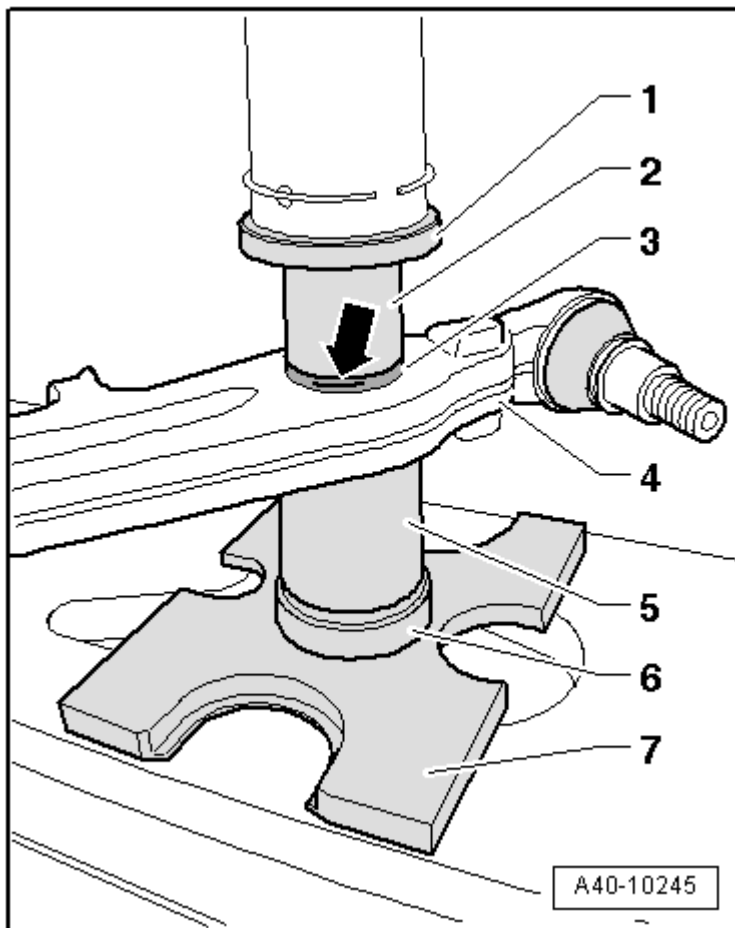


Fig. 79: Holding Track Control Arm Firmly In Position While Pressing Bearing Out And In
Courtesy of AUDI OF AMERICA, LLC

-- Remove track control arm. Refer to CONTROL ARM.

-- Mark the installation depth -arrow- on the bearing -1-.

Use a waterproof felt-tip pen.

-- Install the special tools as shown in the illustration.

1. Punch VW 412
2. Thrust Piece T10030/1
3. Rubber mount
4. Control Arm
5. Support sleeve 3301/3
6. Bearing race 3301/1
7. Thrust plate VW 402

-- Press bearing -3- out of track control arm -4-.

Bearing Race, Installing

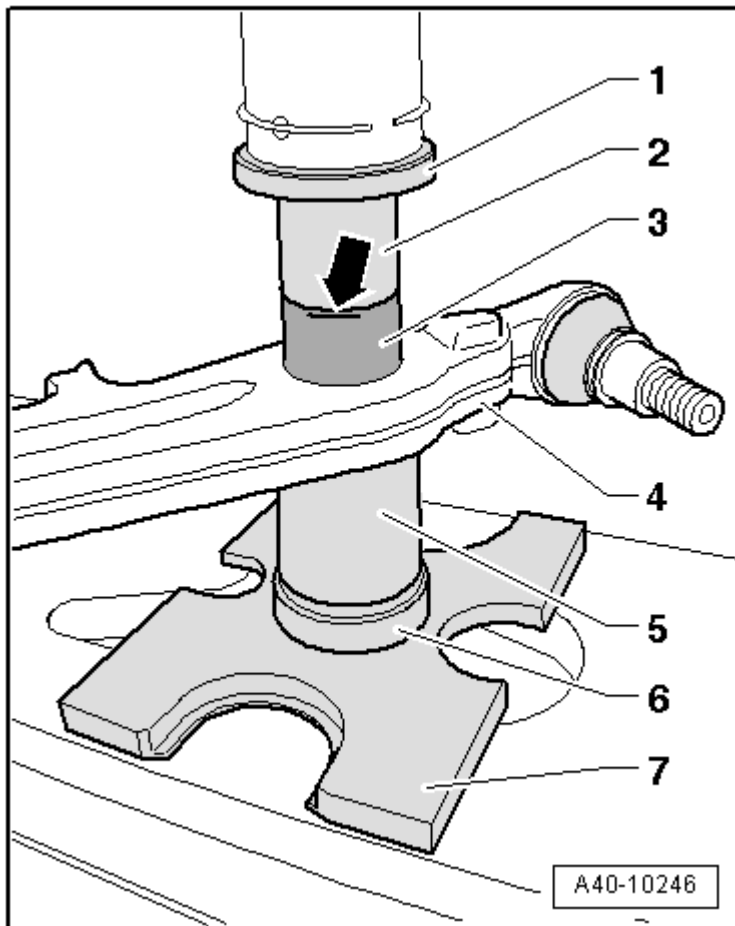


Fig. 80: Pressing Bearing Out Of Track Control Arm
Courtesy of AUDI OF AMERICA, LLC

-- Transfer the installation depth marking from the old bearing to the new one.

- Lightly coat the bearing with fitting paste.
- Insert bearing -3- into track control arm -4-.
- Install the special tools as shown in the illustration.

1. Punch VW 412
2. Thrust Piece T10030/1
3. Rubber mount
4. Control Arm
5. Thrust Piece 3346/1
6. Bearing race 3301/1
7. Thrust plate VW 402

NOTE: When installing, make sure the bearing does not tilt.

- Press bearing -3- into track control arm -4-.
- Note the installation depth marking when installing -arrow-.
- Check rim offset of bearing -1- in track control arm -2-.

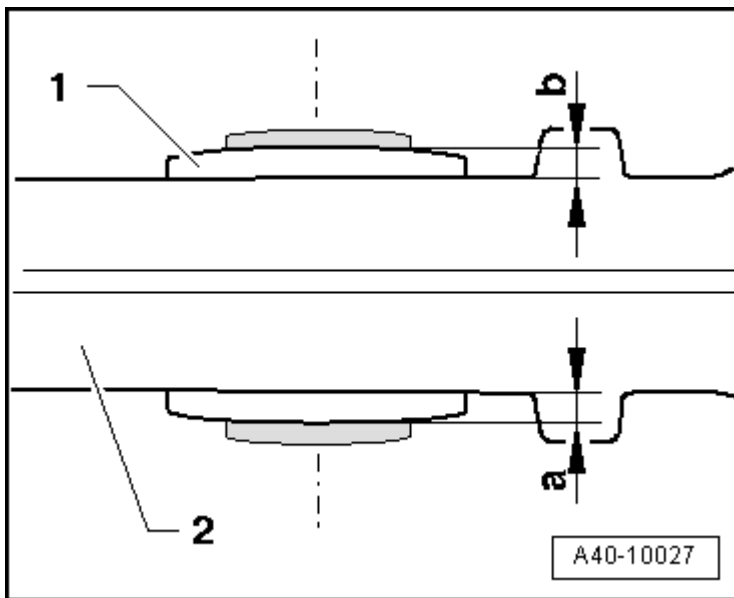


Fig. 81: Identifying Rim Offset Of Bearing In Control Arm
Courtesy of AUDI OF AMERICA, LLC

Dimensions -a and b- must be identical.

- If dimensions -a and b- are different, press the bearing -1- in more.

-- Install track control arm. Refer to **CONTROL ARM**.

Bearing for track control arm (on subframe side), pressing out and pressing in

Special tools and workshop equipment required

- Thrust Plate VW 402
- Thrust Disc VW 412
- Assembly Tool 3301
- Support Arm Bearing Inst. Tool 3346
- Assembly paste

NOTE: Hold track control arm firmly in position while pressing bearing out and in.

Bearing, Removing

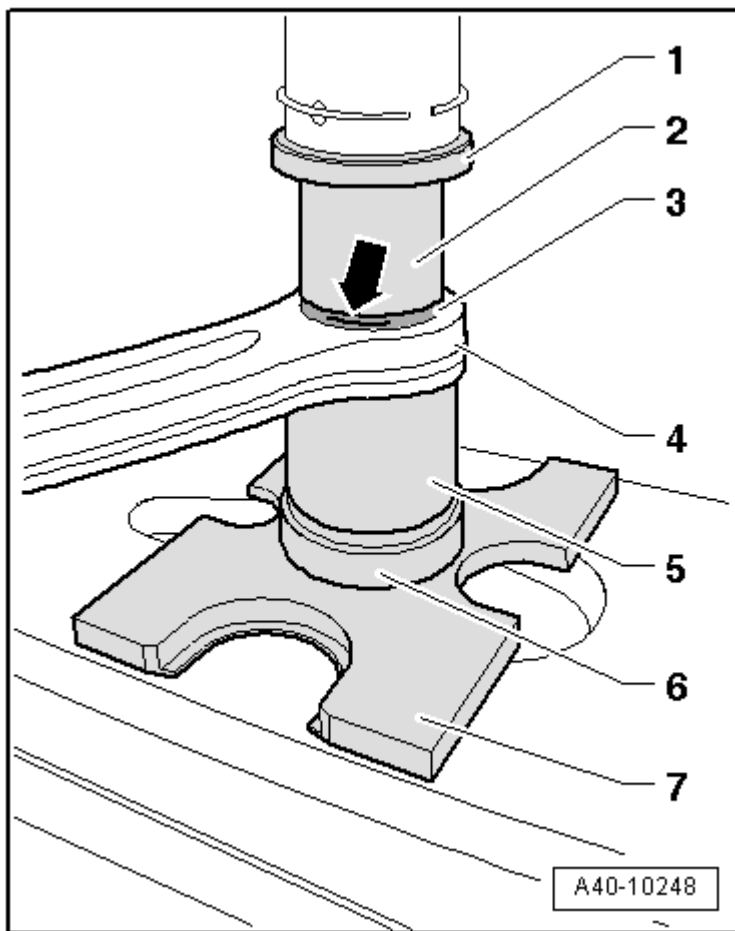


Fig. 82: Holding Track Control Arm Firmly In Position While Pressing Bearing Out And In
Courtesy of AUDI OF AMERICA, LLC

-- Remove track control arm. Refer to **CONTROL ARM**.

-- Mark the installation depth -arrow- on the bearing -3-.

Use a waterproof felt-tip pen.

-- Install the special tools as shown in the illustration.

1. Punch VW 412
2. Thrust Piece 3346
3. Rubber mount
4. Control Arm
5. Support sleeve 3301/4
6. Bearing race 3301/1
7. Thrust plate VW 402

-- Press bearing -3- out of track control arm -4-.

Bearing Race, Installing

-- Transfer the installation depth marking from the old bearing to the new one.

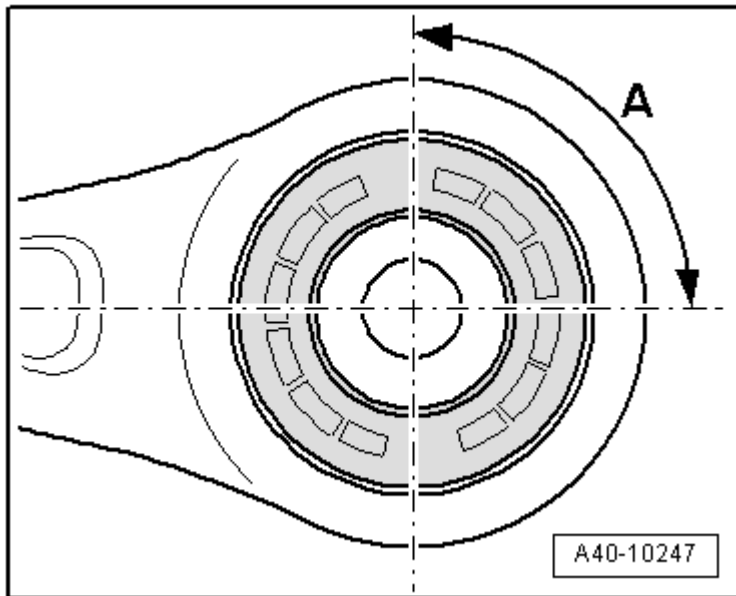


Fig. 83: Mounting installation location
Courtesy of AUDI OF AMERICA, LLC

$$A = \sim 90^{\circ} \pm 5^{\circ}$$

-- Lightly coat the bearing with fitting paste.

-- Insert bearing -1- into track control arm -2-.

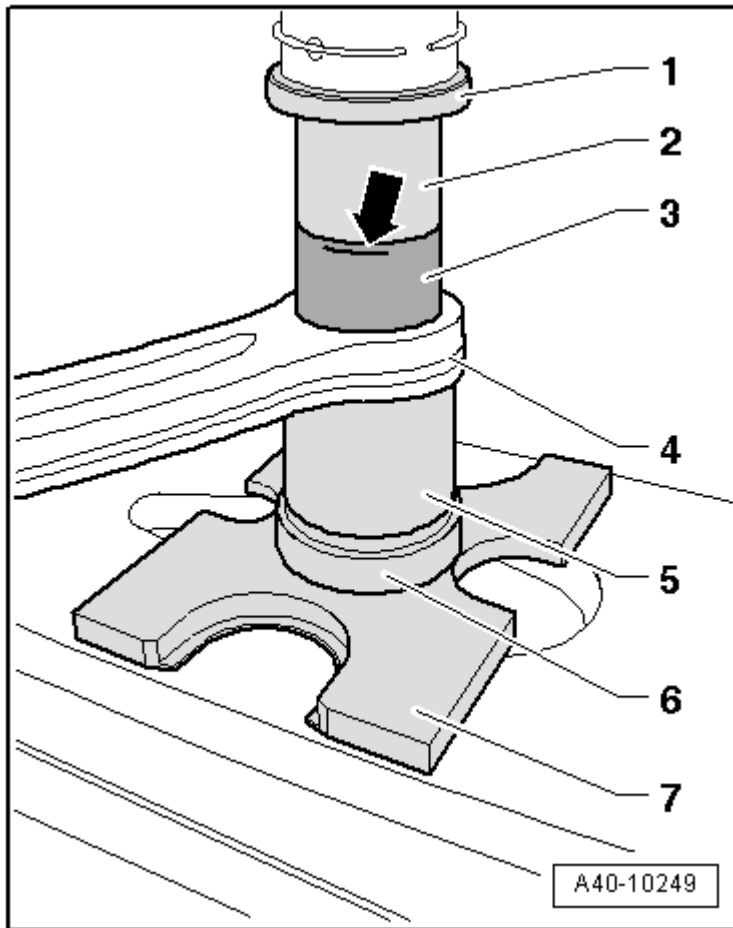


Fig. 84: Inserting Bearing Into Track Control Arm
Courtesy of AUDI OF AMERICA, LLC

-- Install the special tools as shown in the illustration.

1. Punch VW 412
2. Thrust Piece 3346
3. Rubber mount
4. Control Arm
5. Support sleeve 3301/3
6. Bearing race 3301/1
7. Thrust plate VW 402

NOTE: When installing, make sure the bearing does not tilt.

-- Press bearing -3- into track control arm -4-.

-- Note the installation depth marking when installing -arrow-.

-- Check rim offset of bearing -1- in track control arm -2-.

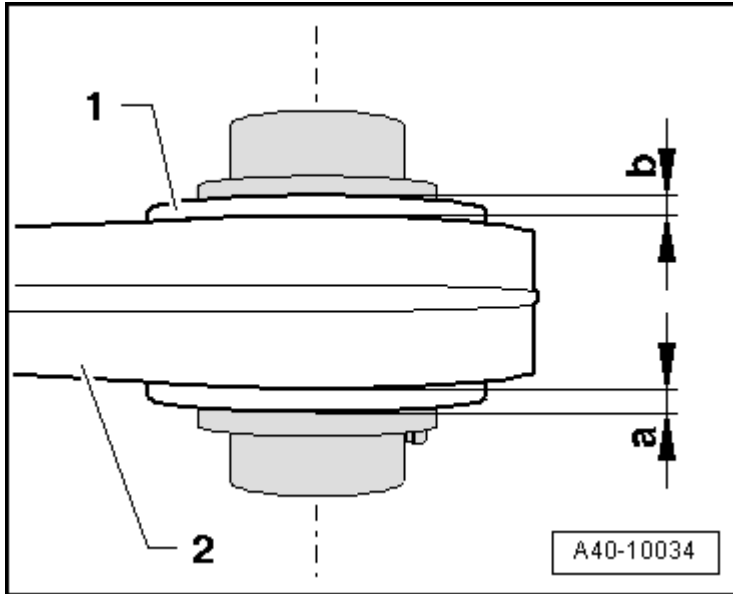


Fig. 85: Identifying Rim Offset Of Bearing In Control Arm
Courtesy of AUDI OF AMERICA, LLC

Dimensions -a and b- must be identical.

-- If dimensions -a and b- are different, press the bearing -1- in more.

-- Install track control arm. Refer to **CONTROL ARM**.

BALL JOINT

REMOVING

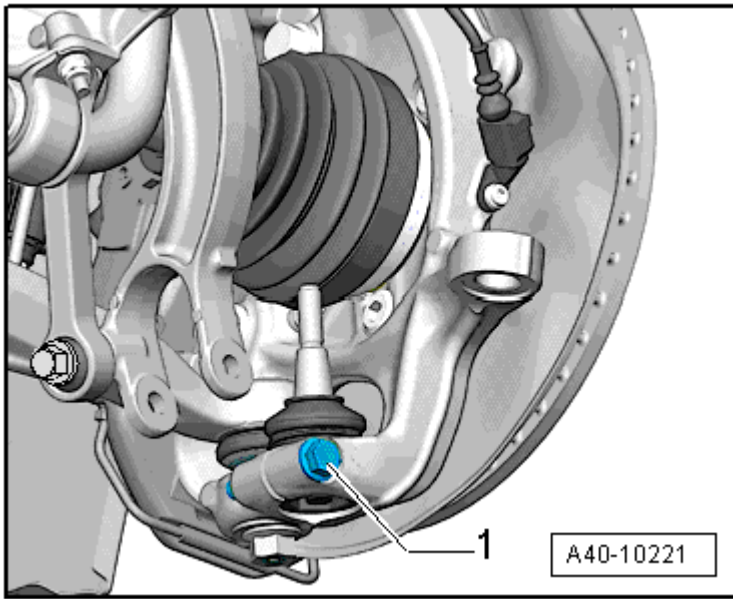


Fig. 86: Identifying Ball Joint

Courtesy of AUDI OF AMERICA, LLC

-- Remove the control arm. Refer to CONTROL ARM.

-- Remove bolt -1-.

-- Insert a washer or something similar -2- into the wheel bearing housing slot. The washer, or something similar, must be the exact same width as the slot.

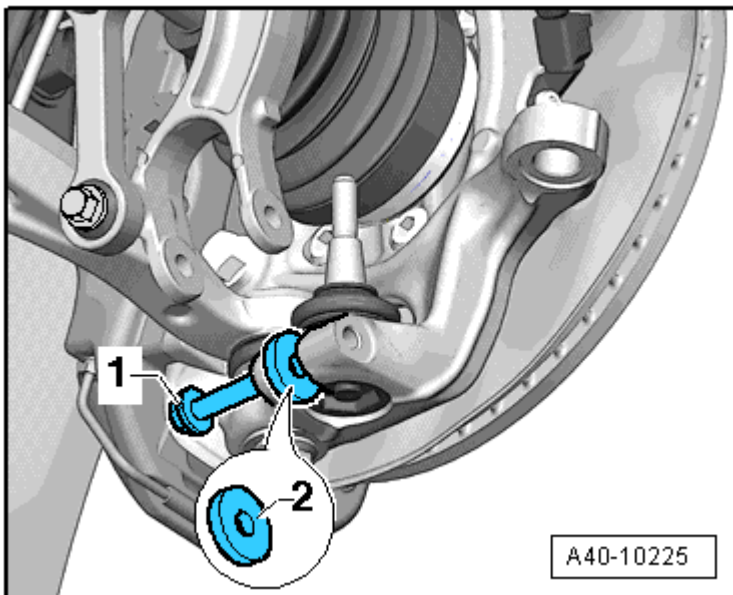


Fig. 87: Identifying Bolt And Washer -2-

Courtesy of AUDI OF AMERICA, LLC

- Install the bolt -1- until it touches the back of the washer.
- Side the wheel bearing housing slot by installing the bolt -1- further (one half turn).
- Remove the ball joint from the wheel bearing housing.

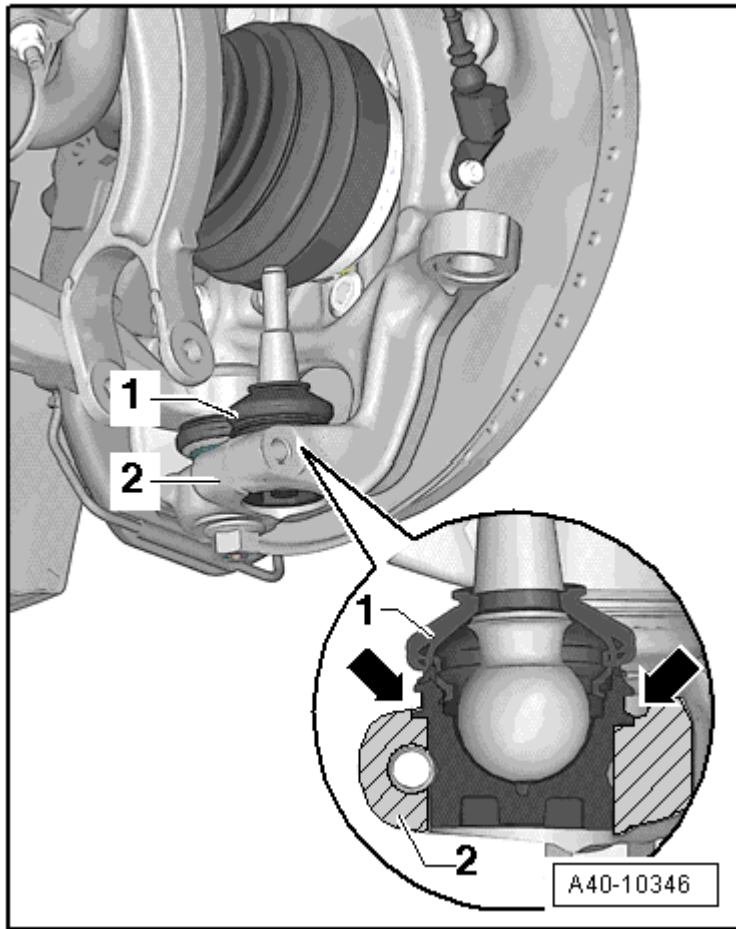
INSTALLING

Fig. 88: Identifying Lower Ball Joint
Courtesy of AUDI OF AMERICA, LLC

Install in reverse order of removal. Note the following:

- Install the ball joint -1- into the wheel bearing housing -2- as far as the contact surface -arrows-.

NOTE: If the ball joint -1- is not inserted up to the contact surface -arrows- then the threaded connection on the wheel bearing housing -2- could get damaged.

Tightening specifications, refer to **TRACK CONTROL ARM, BALL JOINT, GUIDE LINK AND LEVEL CONTROL SYSTEM SENSOR OVERVIEW**

2012 Audi S4

SUSPENSION Front Suspension (Sedan)

- Install the control arm. Refer to **CONTROL ARM**.
- Tighten the wheel. Refer to **Specifications** .
- Axle alignment is required, see table, refer to **WHEN VEHICLE ALIGNMENT IS NECESSARY** .

GUIDE LINK

NOTE: As of MY 2010, as a running change, guide links with a conventional bonded rubber bushing were replaced by guide links with a hydraulic bonded rubber bushing. It is not permitted to mix guide links with different bonded rubber bushings on an axle.

Special tools and workshop equipment required

- Engine-/Gearbox Jack V.A.G 1383 A
- Ball Joint Puller T40010 A

Removing

- Remove the wheel.
- Remove noise insulation. Refer to **Description and Operation** .
- Remove the bolts -arrows- and move the subframe shield -1- to the side, where applicable.

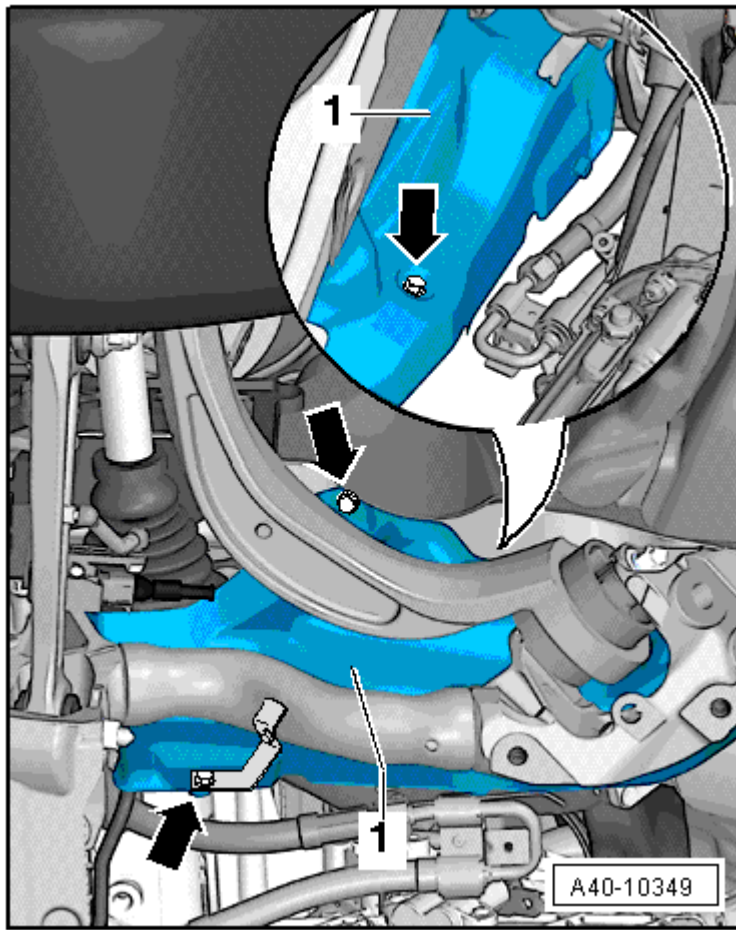


Fig. 89: Identifying Subframe Shield

Courtesy of AUDI OF AMERICA, LLC

-- Remove the nut from the guide link joint pins enough so it is flush with the joint pin threads. Counter hold the joint pins if necessary.

To protect thread, screw nut on pin a few turns.

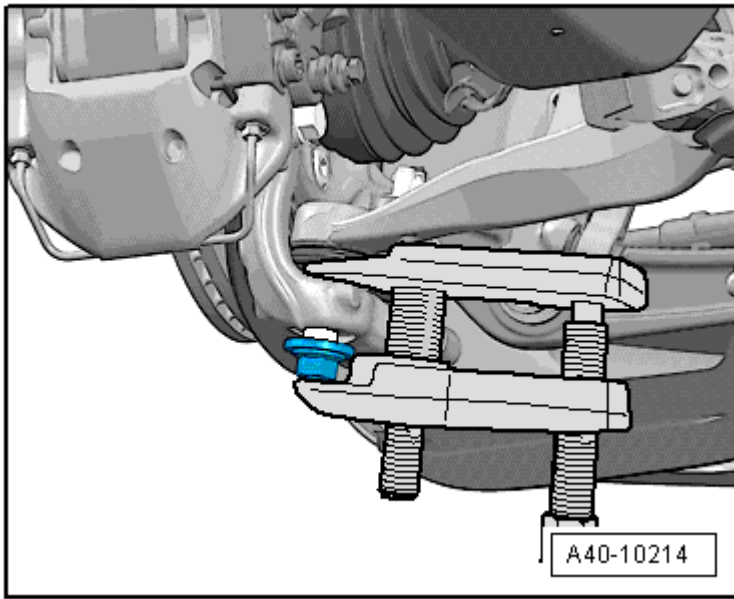


Fig. 90: Identifying Bolt -1-
 Courtesy of AUDI OF AMERICA, LLC

-- Press linkage stub of guide control arm off conical seating using T40010 A.

NOTE: Be careful not to damage CV boot in the process!

Make sure that both puller lever arms are parallel to each other when using greatest force.

-- Remove the bolt -1-.

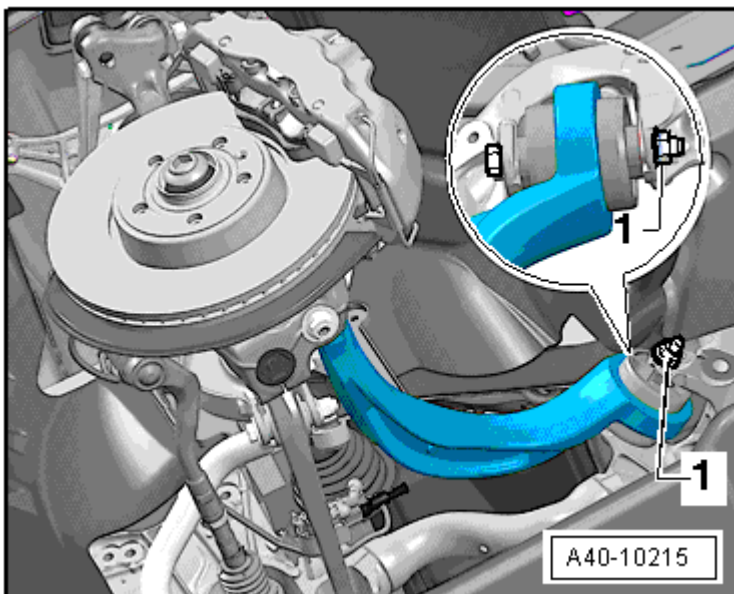


Fig. 91: Identifying Threaded Connection -1- And Guide Link
Courtesy of AUDI OF AMERICA, LLC

-- Remove guide link.

Installing

Install in reverse order of removal. Note the following:

Tightening specifications, refer to **TRACK CONTROL ARM, BALL JOINT, GUIDE LINK AND LEVEL CONTROL SYSTEM SENSOR OVERVIEW**

Tightening specifications, refer to **SUBFRAME, CROSSBRACE, STABILIZER BAR, COUPLING ROD AND SUBFRAME SHIELD OVERVIEW**

-- Remove adhesive residue at stub thread of guide control arm.

NOTE: Bonded rubber bushings can only be turned to a limited extent. Only tighten suspension bolts when vehicle is in curb weight or control position.

Lifting wheel bearing to curb weight position, refer to **WHEEL BEARING, WITH COIL SPRING, LIFTING TO CURB WEIGHT POSITION.**

When tightening the threaded connection -1-, the guide link must be pressed toward the inside of the vehicle.

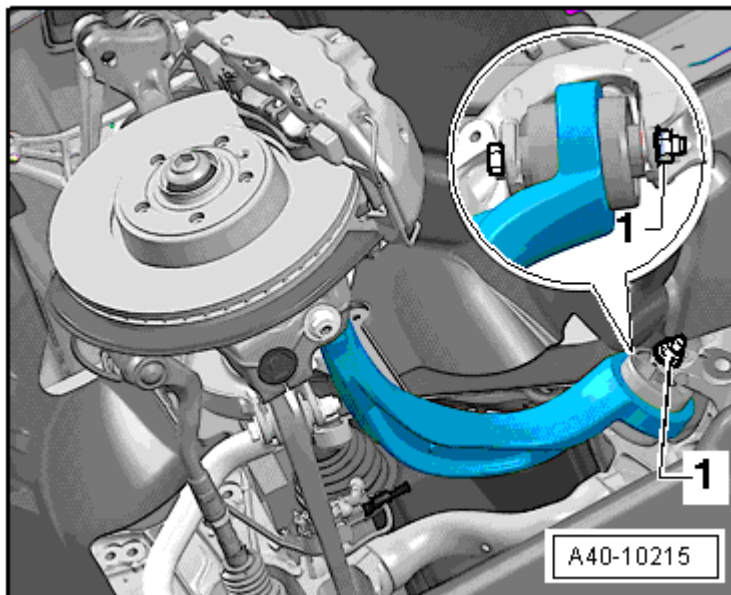


Fig. 92: Identifying Threaded Connection -1- And Guide Link
Courtesy of AUDI OF AMERICA, LLC

-- Tighten the wheel. Refer to **Specifications** .

-- Axle alignment is required, see table, refer to **WHEN VEHICLE ALIGNMENT IS NECESSARY** .

CONVENTIONAL BONDED RUBBER BUSHING, 65 MM

Special tools and workshop equipment required

- Thrust Plate VW 402
- Punch VW 407
- Press Tool 3345
- Assembly Tool 3347/1

NOTE: Hold the guide link firmly in position while pressing bearing out and in.

Bearing, Removing

- Remove guide control arm. Refer to **GUIDE LINK**.
- Mark the installation depth -arrow- on the bearing -1-.

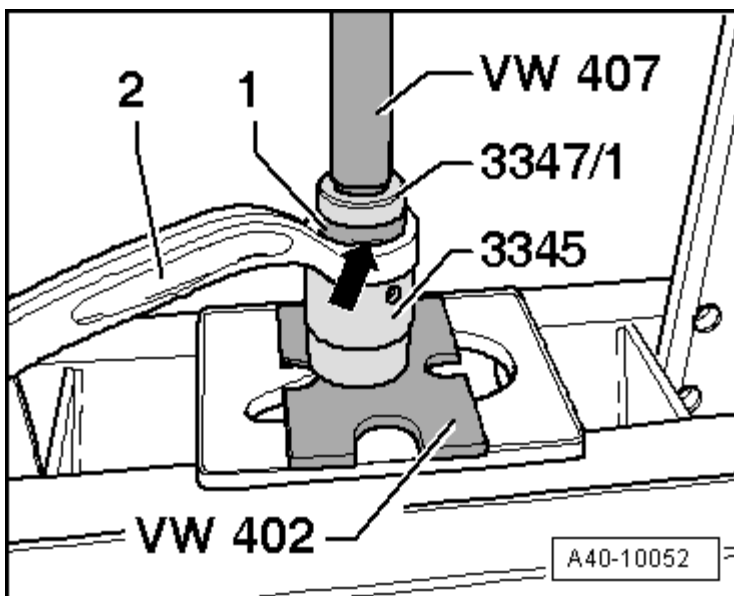


Fig. 93: Identifying Bearing, Removal
Courtesy of AUDI OF AMERICA, LLC

Use a waterproof felt-tip pen.

- Install the special tools as shown in the illustration.
- Press bearing -1- out of guide link -2-.

Bearing Race, Installing

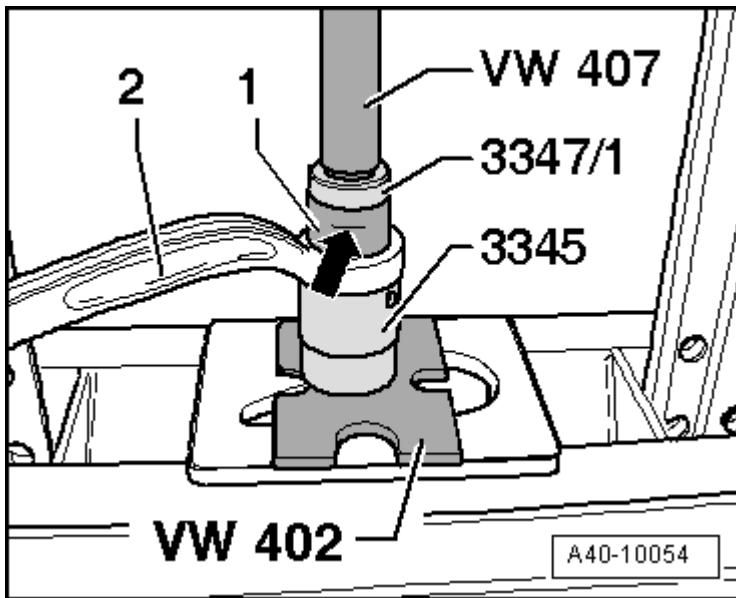


Fig. 94: Inserting Bearing Into Guide Link
 Courtesy of AUDI OF AMERICA, LLC

- Transfer the installation depth marking from the old bearing to the new one -arrow-.
- Lightly coat the bearing with fitting paste.

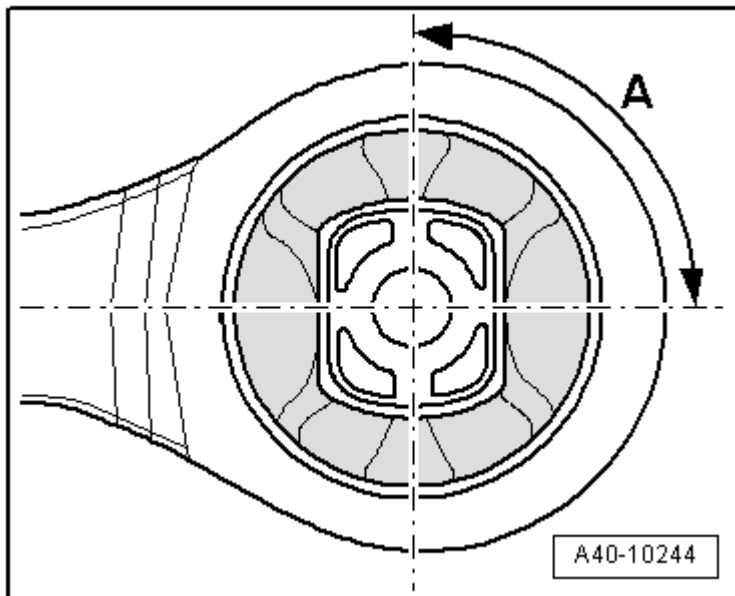


Fig. 95: Mounting Installation Location
 Courtesy of AUDI OF AMERICA, LLC

$$A = \sim 90^\circ \pm 5^\circ$$

- Insert bearing -1- into guide control arm -2-, observe installation position when doing this.

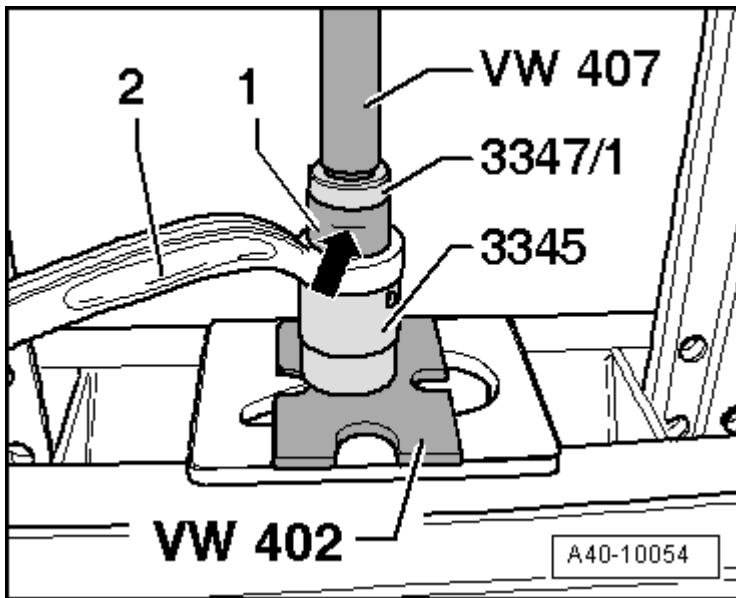


Fig. 96: Inserting Bearing Into Guide Link
 Courtesy of AUDI OF AMERICA, LLC

-- Install the special tools as shown in the illustration.

NOTE: When installing, make sure the bearing does not tilt.

-- Press bearing -1- into guide control arm -2-.

-- Note the installation depth marking when installing -arrow-.

-- Check installation position of bearing -1- in guide control arm -2-.

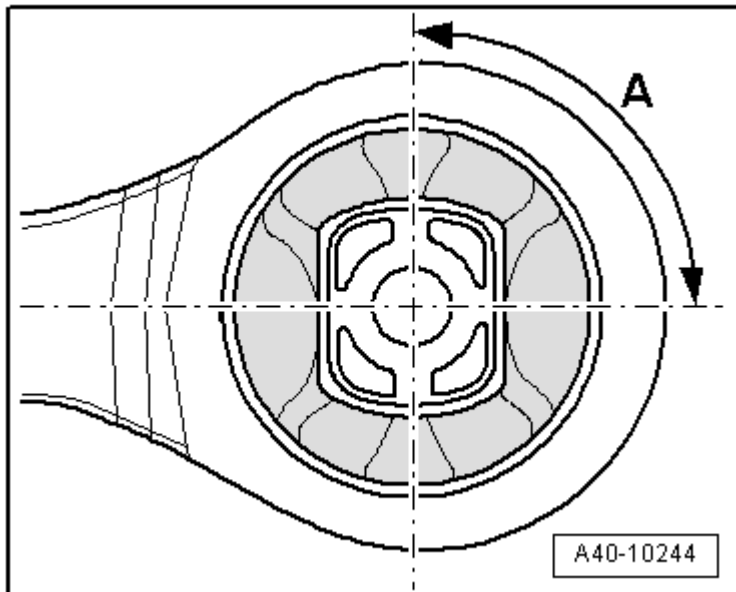
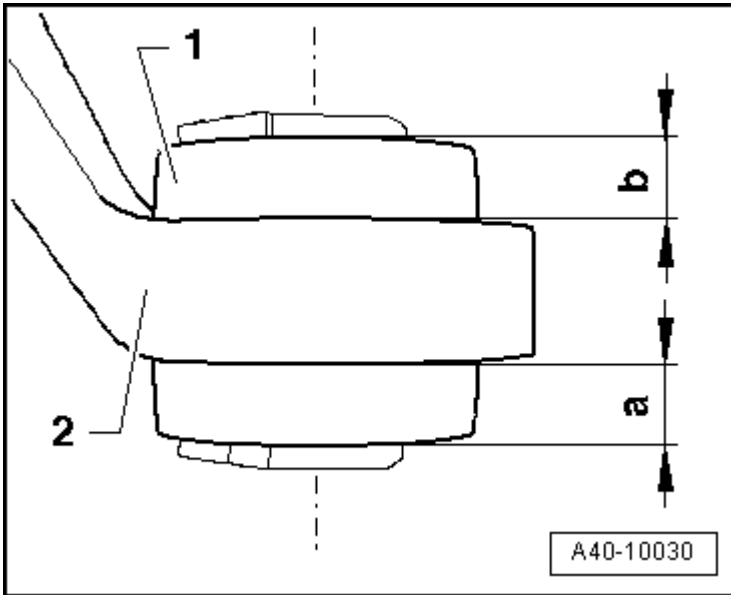


Fig. 97: Mounting Installation Location

Courtesy of AUDI OF AMERICA, LLC

 $A = \sim 90^\circ \pm 5^\circ$

-- Check rim offset of bearing -1- in guide control arm -2-.

**Fig. 98: Checking Rim Offset Of Bearing In Guide Control Arm**

Courtesy of AUDI OF AMERICA, LLC

Dimensions -a and b- must be identical.

-- If dimensions -a and b- are different, press the bearing -1- in more.

-- Install guide control arm. Refer to **GUIDE LINK**.

HYDRAULIC BONDED RUBBER BUSHING, 75 MM

Special tools and workshop equipment required

- Thrust Plate VW 402
- Thrust Disc VW 412
- Sleeve VW 463/2
- Press Support-R and I Wheel Brg's 3144
- Shop Press V.A.G 1290A
- Installation lubricant -- (1:20 thinned with water), for allocation.

Removing

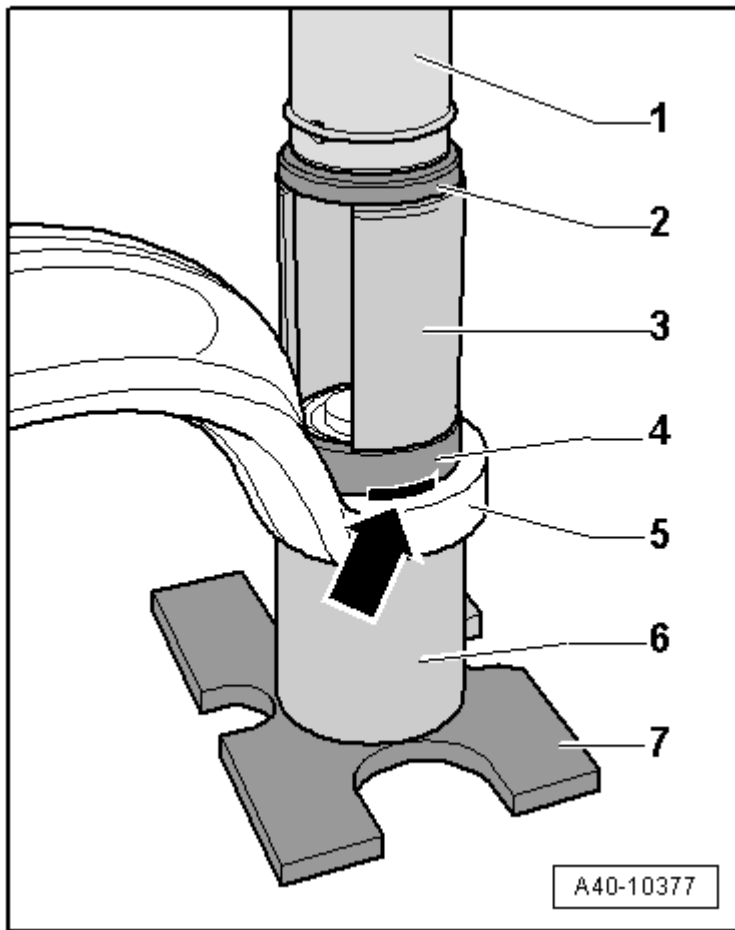


Fig. 99: Marking Installed Position On Hydraulic Bonded Rubber Bushing
Courtesy of AUDI OF AMERICA, LLC

- The guide link is removed. Refer to **GUIDE LINK**

-- Mark the installed position -arrow- on the hydraulic bonded rubber bushing -4-.

Use a water-proof marker.

-- Order the special tools as illustrated.

1. Shop press V.A.G 1290A punch
2. Thrust disc VW 412
3. Sleeve VW 463/2
4. Hydraulic bonded rubber bushing
5. Guide Link
6. Sleeve 3144
7. Thrust plate VW 402

-- Remove the hydraulic bonded rubber bushing -4- from the guide link -5-.

NOTE: Hold the guide link steady when removing/installing the hydraulic bonded rubber bushing.

Installing

-- Transfer the marking from the old hydraulic bonded rubber bushing to the new one.

-- Lightly coat the new hydraulic bonded rubber bushing with installation lubricant --

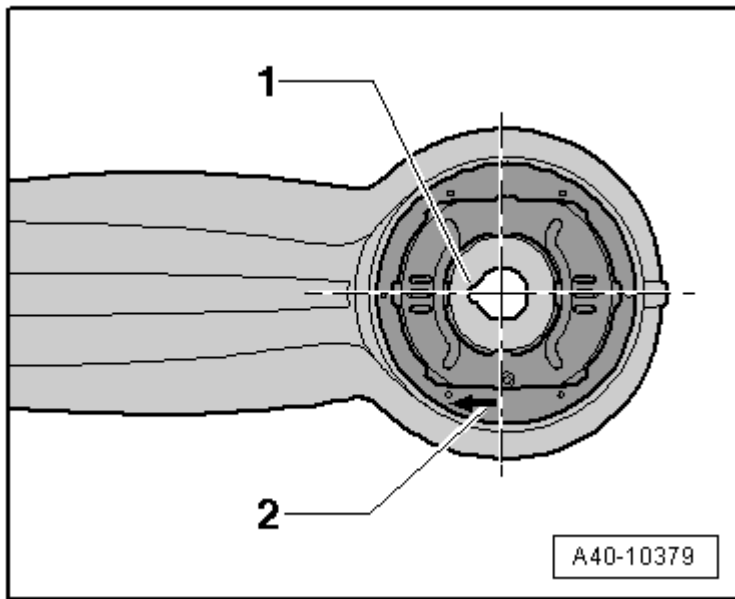


Fig. 100: Identifying Installation Position, Hydraulic Bonded Rubber Bushing
Courtesy of AUDI OF AMERICA, LLC

The notch -1- is on the steering axle and faces the inside of the guide link.

The arrow -2- faces the inside of the guide link.

-- Install the hydraulic bonded rubber bushing -4- in the guide link -5- paying close attention to the installed position.

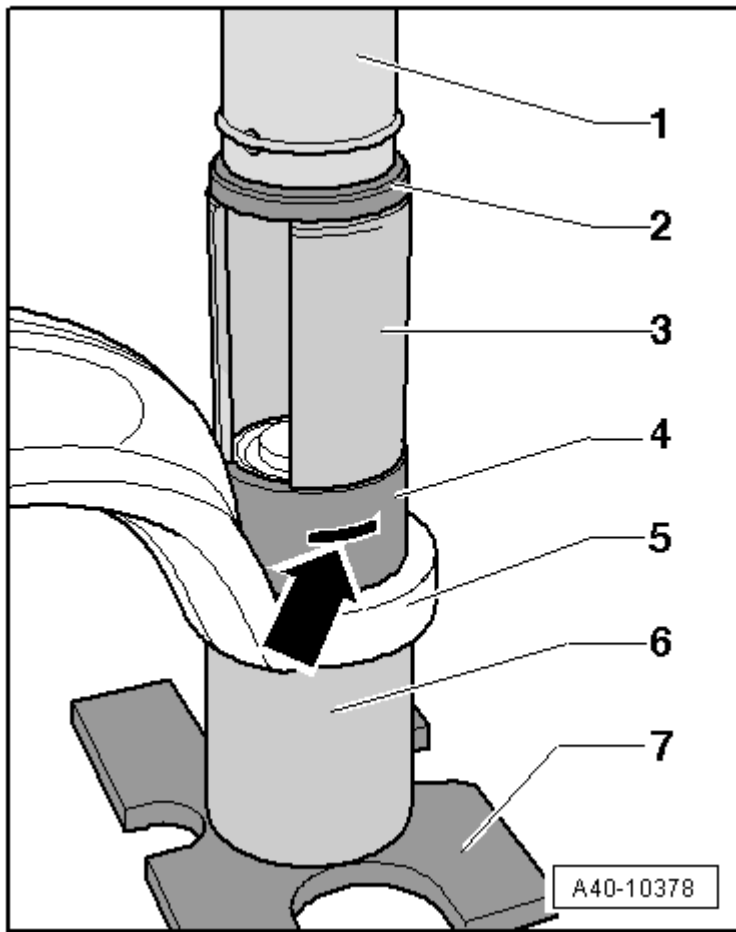


Fig. 101: Identifying Hydraulic Bonded Rubber Bushing In Guide Link, Installed Position
Courtesy of AUDI OF AMERICA, LLC

-- Order the special tools as illustrated.

1. Shop press V.A.G 1290A punch
2. Thrust disc VW 412
3. Sleeve VW 463/2
4. Hydraulic bonded rubber bushing
5. Guide Link
6. Sleeve 3144
7. Thrust plate VW 402

NOTE: Do not tilt the hydraulic bonded rubber bushing when installing it.

-- Install the hydraulic bonded rubber bushing -4- into the guide link -5-.

-- Pay close attention to the marking -arrow-.

-- Check the press-in depth -a- of the hydraulic bonded rubber bushing inside the guide link.

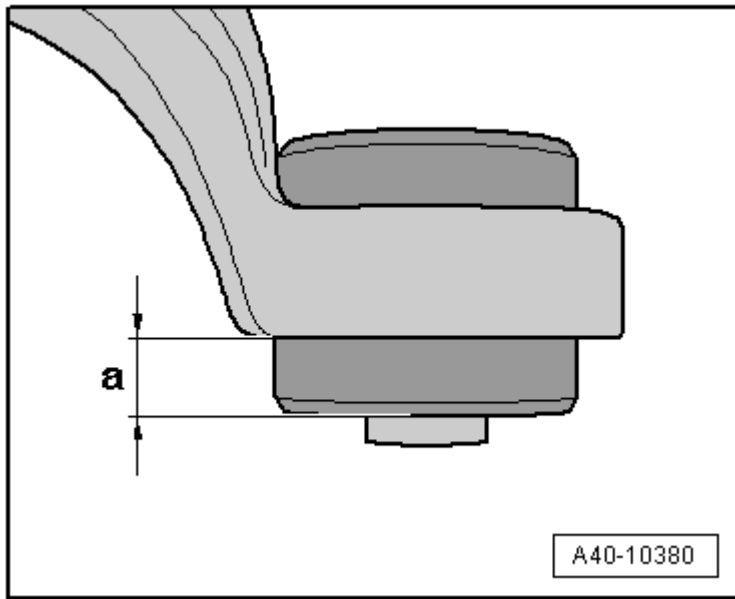


Fig. 102: Checking Press-In Depth Of Hydraulic Bonded Rubber Bushing Inside Guide Link
Courtesy of AUDI OF AMERICA, LLC

Dimension -a- = 18 mm.

-- If dimension -a- is not reached, then press the hydraulic bonded rubber bushing again.

-- Install the guide link. Refer to **GUIDE LINK**.

LEVEL CONTROL SYSTEM SENSOR

General Information

Vehicles with electronically controlled damping and/or HID headlamps have standard automatic headlamp range control. Refer to **Description and Operation**.

To function properly, the electronically controlled damping and automatic headlamp range control system need information about compression travel or rebound travel at the front and rear axles.

For this, the position of the left/right track control arm in relation to the body is transferred via a coupling rod to left front level control system sensor -G78- and right front level control sensor -G289-. These transmit electrical signals to the electronic damping control module -J250- and/or left/right high-intensity gas discharge lamp control module -J343/344-.

Left/right high-intensity gas discharge lamp control module --, servicing. Refer to **Description and Operation**.

At the rear axle, these signals are transmitted from the left rear level control system sensor -G76- and right rear level control system sensor -G77- to the electronic damping control module -J250- and/or the left/right high-

intensity gas discharge lamp control module --.

These signals are required for determining vehicle level.

The headlamp range control responds automatically to changes in the vehicle level.

The vehicle level can change in the following situations:

- Trailer Mode
- Different load conditions; vehicle empty, vehicle partially or fully loaded

NOTE: **Programming the control position and checking the headlamp basic setting is necessary on vehicles with electronically controlled damping if:**

- The track control arm has been removed and reinstalled or replaced,
- The subframe was replaced,
- Installation work has been performed on the level control system sensor,
- The level control system sensor has been replaced,
- The threaded connection for coupling rod of level control system sensor was loosened at track control arm.

Headlamp basic setting. Refer to **Description and Operation** .

If the vehicle has electronically controlled damping, then the control position must be programmed. Refer to **PROGRAMMING CONTROL POSITION USING Vehicle Diagnosis, Testing and Information System VAS 5051B**. Vehicle diagnostic tester.

If the control position was reprogrammed on vehicles with lane assist, the directional stabilization assistance control module -J759- must be recalibrated. Refer to **CALIBRATION PROCEDURE** .

Removing

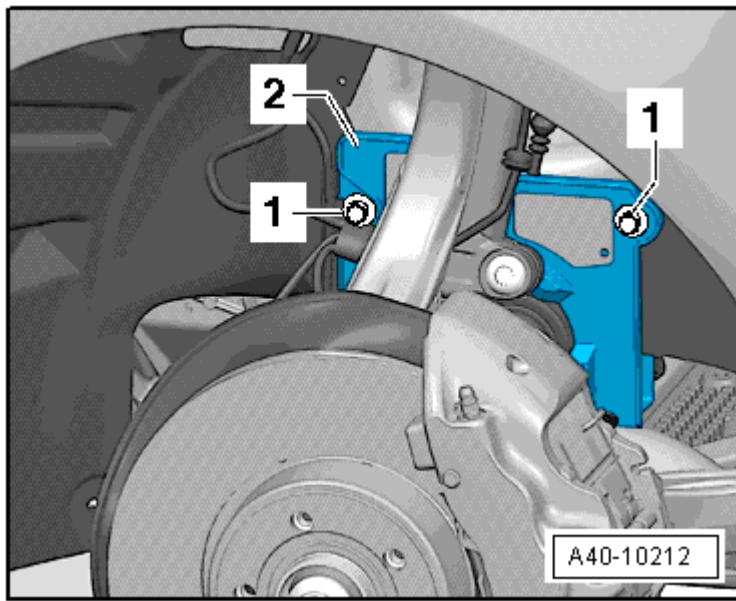


Fig. 103: Identifying Nuts And Cover
Courtesy of AUDI OF AMERICA, LLC

-- Remove the nuts -1- and the cover -2-.

-- Disconnect the harness connector -2-.

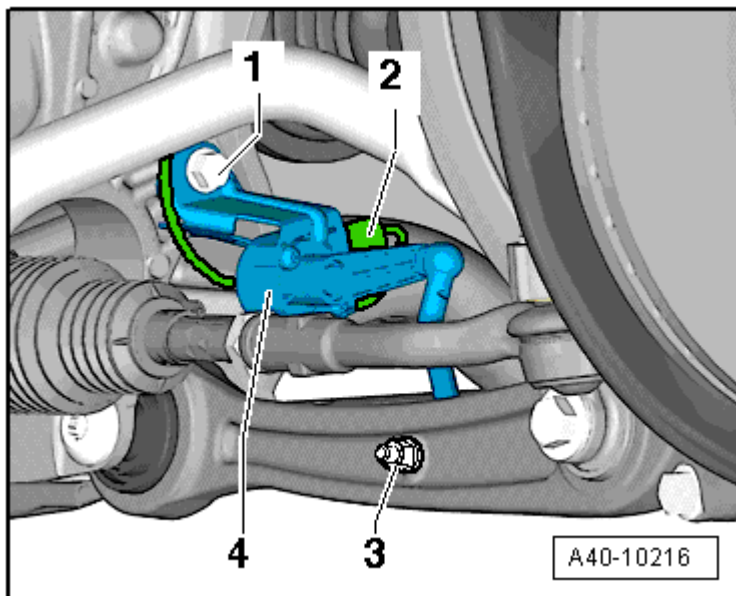


Fig. 104: Disconnecting Harness Connector
Courtesy of AUDI OF AMERICA, LLC

-- Remove nut -3-.

-- Remove the bolt -1-.

-- Remove level control system sensor -4-.

Installing

Install in reverse order of removal. Note the following:

NOTE: Only sensors of the same version may be installed.

Tightening specifications, refer to **TRACK CONTROL ARM, BALL JOINT, GUIDE LINK AND LEVEL CONTROL SYSTEM SENSOR OVERVIEW**

Guide the retaining hook on the sensor bracket into the subframe.

The sensor lever must point toward the back.

After loosening, check basic setting of headlamp adjustment. Refer to **Description and Operation** .

-- If the vehicle level sensor -- was removed and installed on a vehicle with electronically controlled damping or if the linkage was loosened, the control position must be reprogrammed. Refer to **PROGRAMMING CONTROL POSITION USING Vehicle Diagnosis, Testing and Information System VAS 5051B**.

-- If the control position was reprogrammed on vehicles with lane assist, the directional stabilization assistance control module -J759- must be recalibrated. Refer to **CALIBRATION PROCEDURE** .

WHEEL BEARING HOUSING

NOTE: Two different wheel bearing housings were installed in production; the difference between the two is the steering arm strength.

When exchanging the wheel bearing housing, make sure the length of the thread on the tie rod end is sufficient (there must be approximately 5 mm extra thread). If this is not the case, then install a new tie rod end with a longer thread pin.

Distinguishing characteristic WHEEL BEARING HOUSING AND WHEEL BEARING UNIT OVERVIEW

Special tools and workshop equipment required

- Torque Wrench 5-50 Nm V.A.G 1331
- Torque Wrench 50-200 Nm V.A.G 1332
- Ring Spanner Insert VAG 1332/10 V.A.G 1332/10
- or Ring Spanner Insert, AF 21 mm V.A.G 1332/7
- Ball Joint Puller T40010 A

Removing

-- Loosen the connection between the drive axle and wheel hub. Refer to **THREADED CONNECTION BETWEEN DRIVE AXLE AND WHEEL HUB, LOOSENING AND TIGHTENING**

-- Remove the control arm. Refer to **CONTROL ARM**.

-- Remove brake line and electrical line bracket from wheel bearing housing.

-- Remove the front wheel speed sensor --. Refer to **Removal and Installation** .

-- Remove brake caliper and secure to body so the weight of the caliper does not stress or damage brake hose or brake line.

-- Remove disc brake.

-- Remove the bolts -arrows- and remove the brake shield -1-.

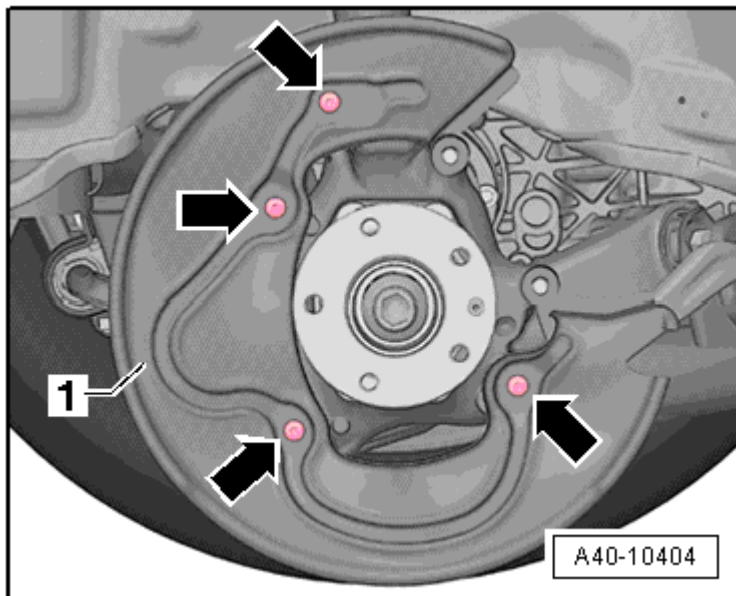


Fig. 105: Identifying Bolts And Brake Shield

Courtesy of AUDI OF AMERICA, LLC

-- Remove the nut from the guide link joint pins enough so it is flush with the joint pin threads. Counter hold when loosening.

To protect thread, screw nut on pin a few turns.

-- Press linkage stub of the guide control arm off conical seating using T40010 A.

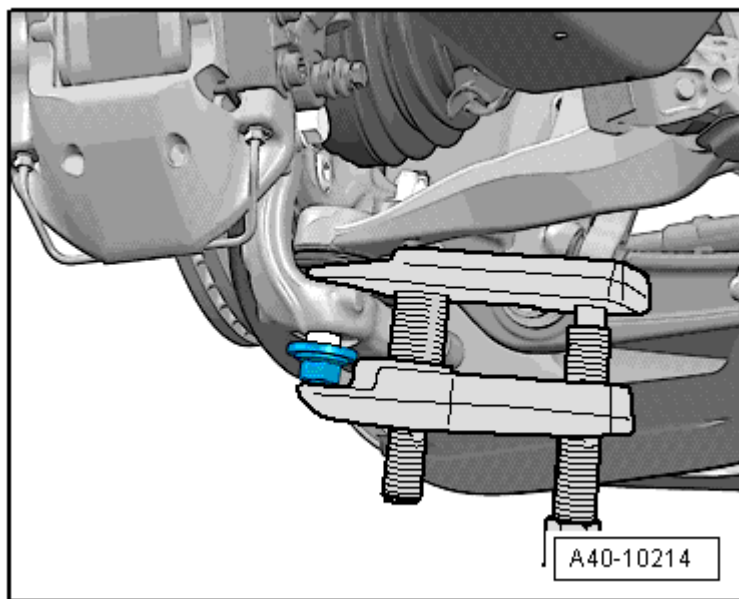


Fig. 106: Identifying Bolt -1-
Courtesy of AUDI OF AMERICA, LLC

-- Remove the bolt -1-.

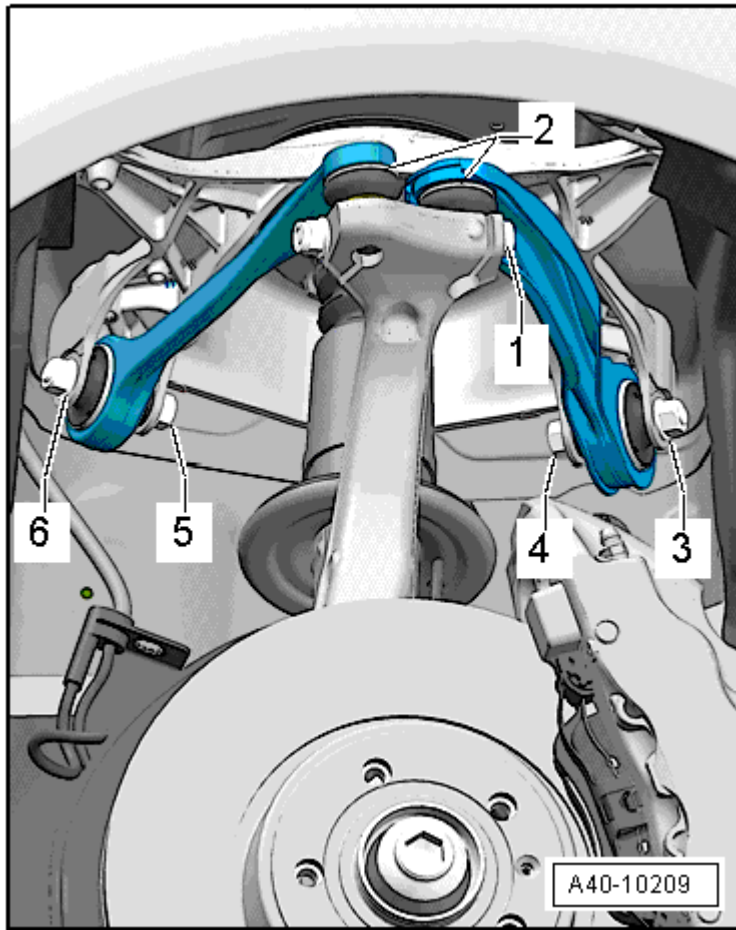


Fig. 107: Identifying Booth Joint Pins In Upper Control Arm

Courtesy of AUDI OF AMERICA, LLC

-- Remove booth joint pins in the upper control arm -2- from the wheel bearing housing.

The slits in the wheel bearing housing must not be widened using a chisel or similar tool!

-- Loosen the wheel bearing housing from the drive axle splines and remove it.

NOTE: The drive axle must not hang down, otherwise the inner joint will be damaged by over flexing.

Secure drive axle to body using wire.

Installing

Install in reverse order of removal. Note the following:

Tightening specifications, refer to **WHEEL BEARING HOUSING AND WHEEL BEARING UNIT OVERVIEW**

- Slide the wheel bearing housing onto the drive axle splines.
- Insert both of upper control arm joint pins -2- in the wheel bearing housing and insert the bolt -1-.

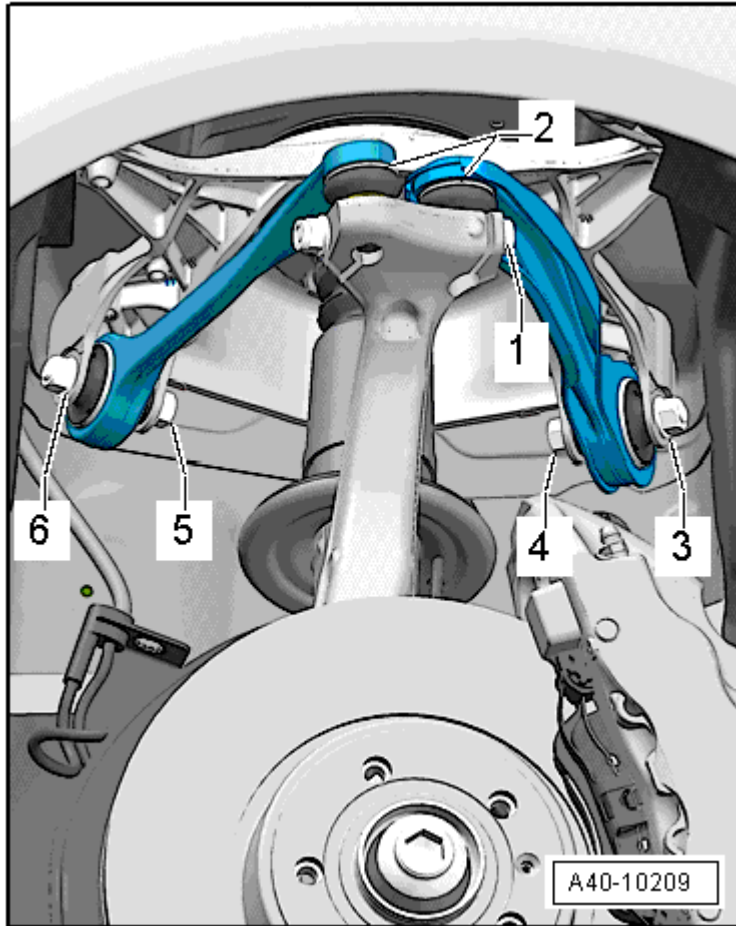


Fig. 108: Identifying Booth Joint Pins In Upper Control Arm
Courtesy of AUDI OF AMERICA, LLC

- Remove the adhesive residue on the ball joint and guide link stub threads.
- Install the guide link on the wheel bearing housing and tighten.
- Install the control arm. Refer to **CONTROL ARM**.

NOTE: Push the upper control arms down as far as possible while tightening the bolts!

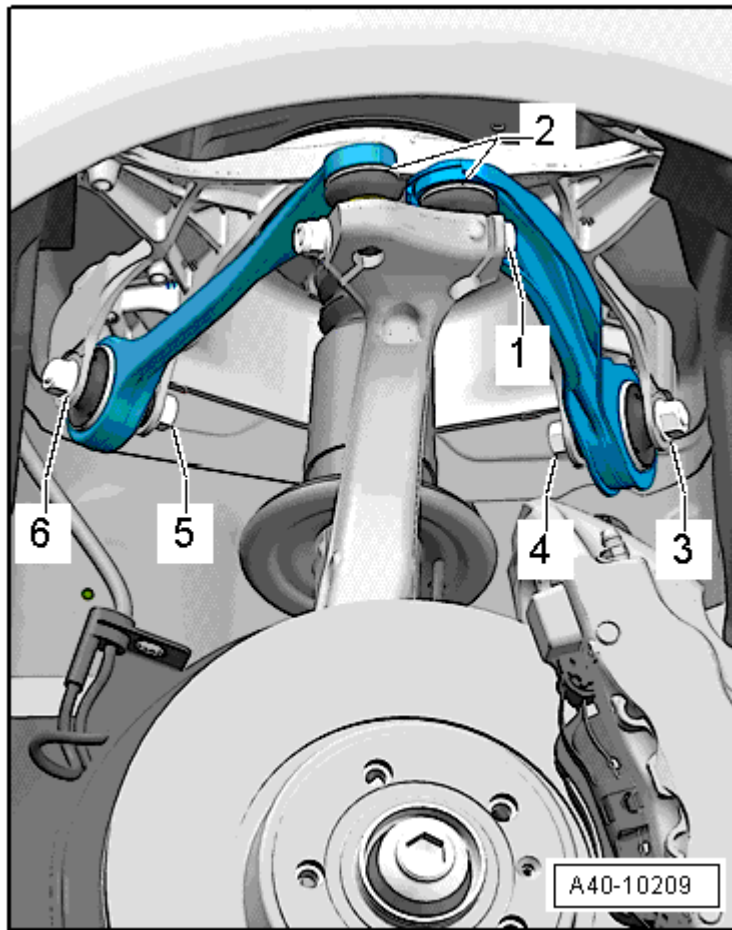


Fig. 109: Identifying Booth Joint Pins In Upper Control Arm
Courtesy of AUDI OF AMERICA, LLC

- Tighten the threaded connection -1-.
- Install the brake disc and caliper. Refer to **Removal and Installation** .
- Tighten the drive axle to wheel hub threaded connection. Refer to **THREADED CONNECTION BETWEEN DRIVE AXLE AND WHEEL HUB, LOOSENING AND TIGHTENING**.
- On vehicles with automatic headlamp range control system, perform a basic setting on the headlamps. Refer to **Description and Operation** .
- If the vehicle level sensor -- was removed and installed on a vehicle with electronically controlled damping or if the linkage was loosened, the control position must be reprogrammed. Refer to **PROGRAMMING CONTROL POSITION USING Vehicle Diagnosis, Testing and Information System VAS 5051B**. Vehicle diagnostic tester.
- If the control position was reprogrammed on vehicles with lane assist, the directional stabilization assistance control module -J759- must be recalibrated. Refer to **CALIBRATION PROCEDURE** .

-- Tighten the wheel. Refer to **Specifications** .

-- Axle alignment is required, see table, refer to **WHEN VEHICLE ALIGNMENT IS NECESSARY** .

WHEEL BEARING UNIT

Special tools and workshop equipment required

- Torque Wrench 5-50 Nm V.A.G 1331
- Torque Wrench 50-200 Nm V.A.G 1332
- Torque Wrench V.A.G 1576

Removing

-- Remove drive axle. Refer to **DRIVE AXLE**.

-- Insert both of upper control arm joint pins -2- in the wheel bearing housing and insert the bolt -1-.

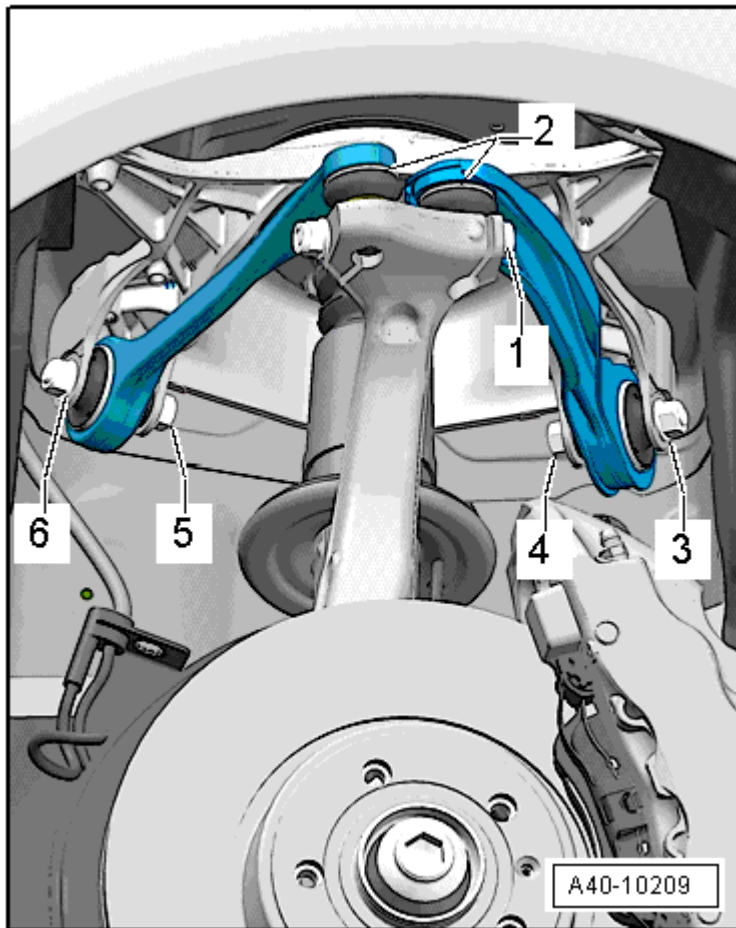


Fig. 110: Identifying Booth Joint Pins In Upper Control Arm
Courtesy of AUDI OF AMERICA, LLC

NOTE: This step is necessary to avoid damage to suspension components when loosening and tightening the bolts.

- Remove brake caliper and secure to body so that the weight of the brake caliper does not stress or damage brake hose or brake line. Refer to Removal and Installation .
- Remove disc brake.
- Remove the front wheel speed sensor --. Refer to Removal and Installation .
- Remove the bolts -arrows-.

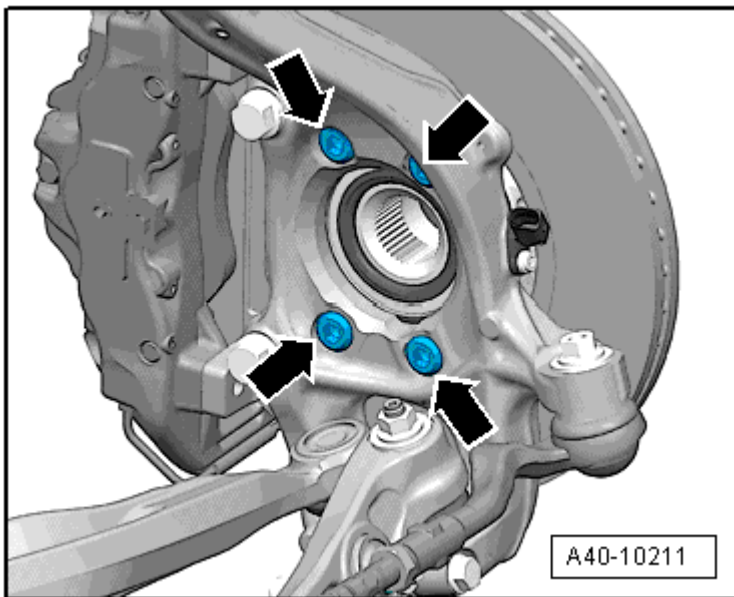


Fig. 111: Identifying Wheel Bearing Unit
Courtesy of AUDI OF AMERICA, LLC

- Remove wheel bearing unit.

CAUTION: • Avoid contaminating with dirt and damaging the seal when setting down/storing.

The wheel bearing -1- must always face up.

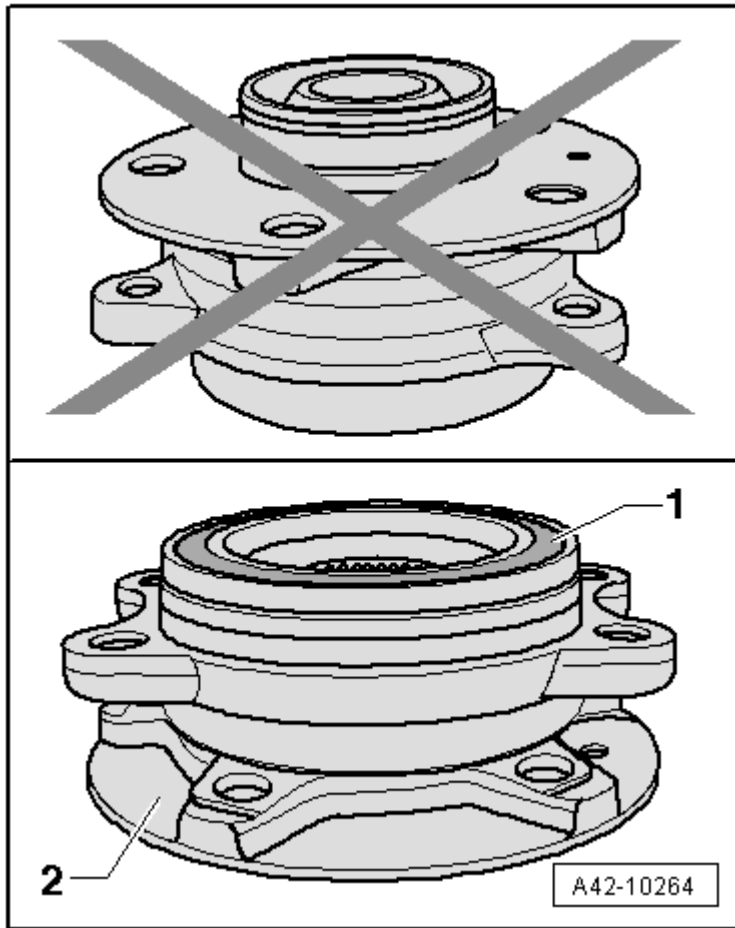


Fig. 112: Identifying Caution: Avoid Contaminating With Dirt And Damaging Seal When Setting Down/Storing

Courtesy of AUDI OF AMERICA, LLC

- Always set the wheel bearing unit down on the wheel hub -2-.
- Service the wheel bearing unit. Refer to **WHEEL BEARING UNIT, SERVICING**.

Installing

Install in reverse order of removal. Note the following:

Tightening specifications, refer to **WHEEL BEARING HOUSING AND WHEEL BEARING UNIT OVERVIEW**

- Install the drive axle. Refer to **DRIVE AXLE**.
- Tighten the wheel. Refer to **Specifications**.
- On vehicles with automatic headlamp range control system, perform a basic setting on the headlamps. Refer to **Description and Operation**.

-- If the vehicle level sensor -- was removed and installed on a vehicle with electronically controlled damping or if the linkage was loosened, the control position must be reprogrammed. Refer to **PROGRAMMING CONTROL POSITION USING Vehicle Diagnosis, Testing and Information System VAS 5051B**. Vehicle diagnostic tester.

-- If the control position was reprogrammed on vehicles with lane assist, the directional stabilization assistance control module -J759- must be recalibrated. Refer to **CALIBRATION PROCEDURE** .

DRIVE AXLE

Special tools and workshop equipment required

- Torque Wrench 50-200 Nm V.A.G 1332
- Torque Wrench V.A.G 1576

Removing

-- Loosen the connection between the drive axle and wheel hub **THREADED CONNECTION BETWEEN DRIVE AXLE AND WHEEL HUB, LOOSENING AND TIGHTENING**.

-- Remove the wheel.

-- Remove the nuts -1- and the cover -2-.

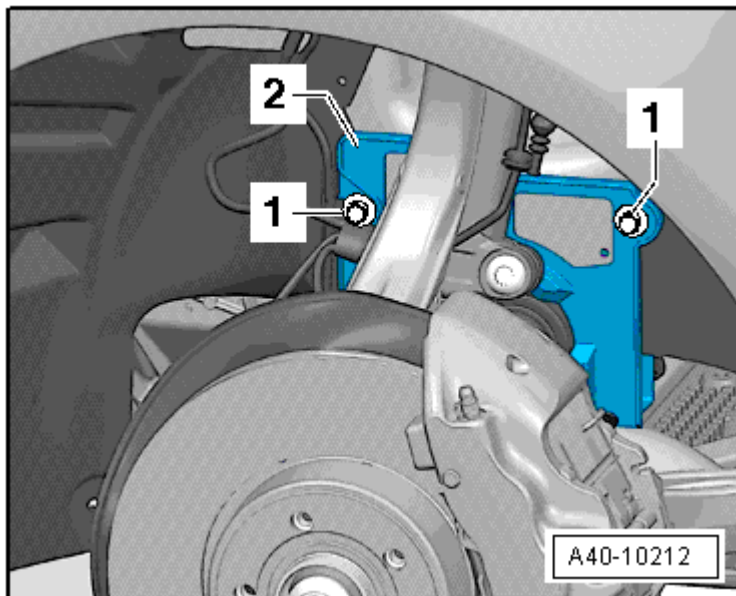


Fig. 113: Identifying Nuts And Cover
Courtesy of AUDI OF AMERICA, LLC

-- Remove the bolts -arrows- from the flange shaft/transmission.

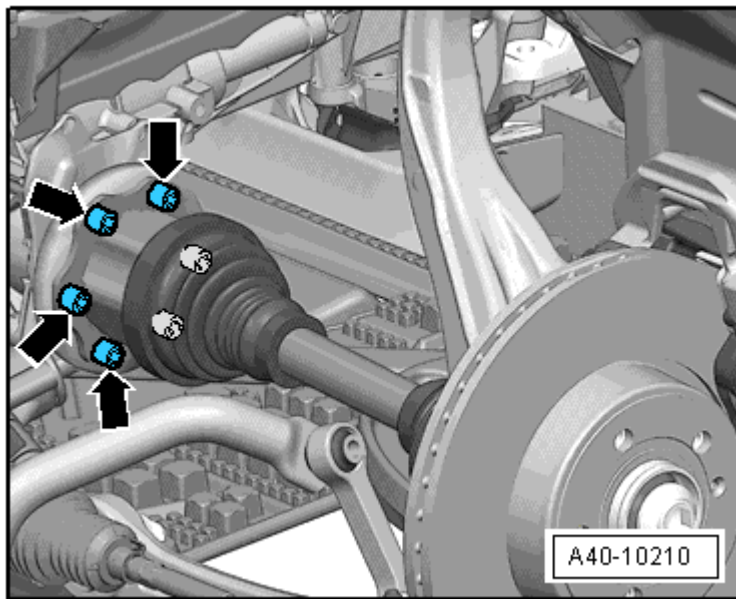


Fig. 114: Identifying Left And Right Drive Axles
Courtesy of AUDI OF AMERICA, LLC

-- Remove the drive axle.

Applies to a Vehicle with a Subframe Shield

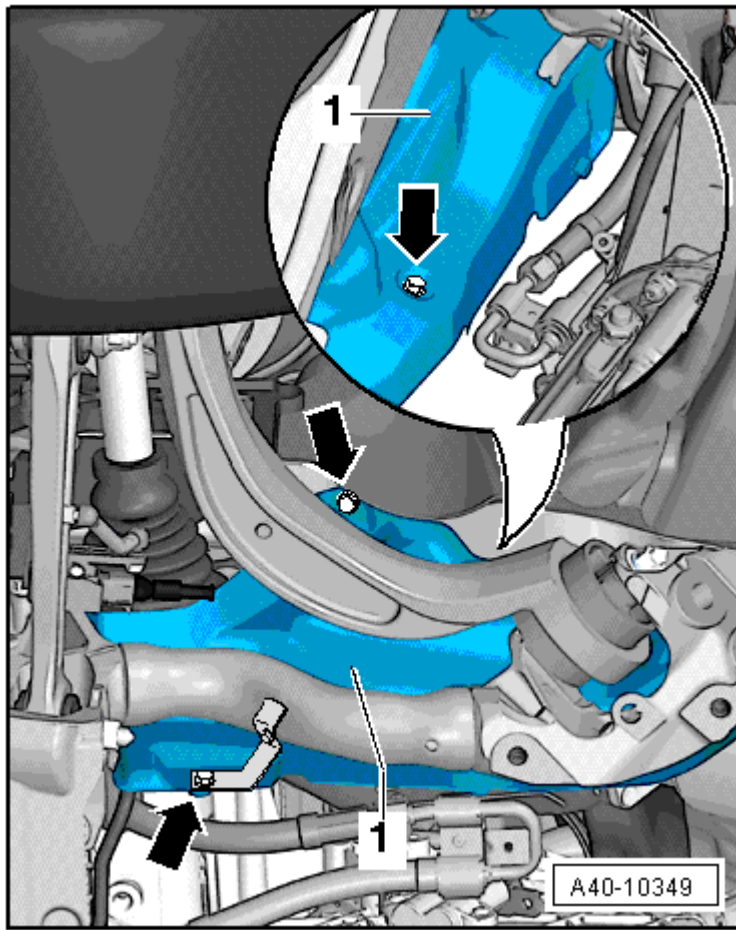


Fig. 115: Identifying Subframe Shield
Courtesy of AUDI OF AMERICA, LLC

If there is not enough room available to remove the drive axle, perform the following steps:

- Remove the bolts -arrows- and move the subframe shield -1- to the side.
- Remove the bracket for the brake hose and ABS line from the wheel bearing housing.
- Loosen the threaded connection -1- and remove both control arms -2- upward.

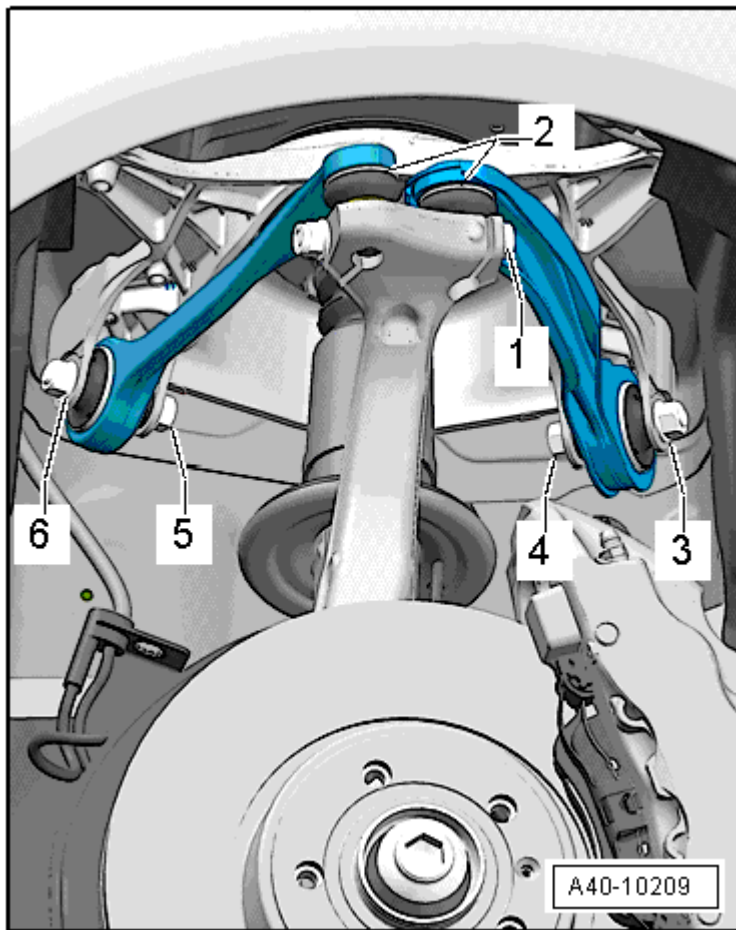


Fig. 116: Identifying Booth Joint Pins In Upper Control Arm
Courtesy of AUDI OF AMERICA, LLC

The slits in the wheel bearing housing must not be widened using a chisel or similar tool!

- Tilt the wheel bearing housing to the side while pulling the drive axle pins out of the wheel hub.
- Remove drive axle.

Installing

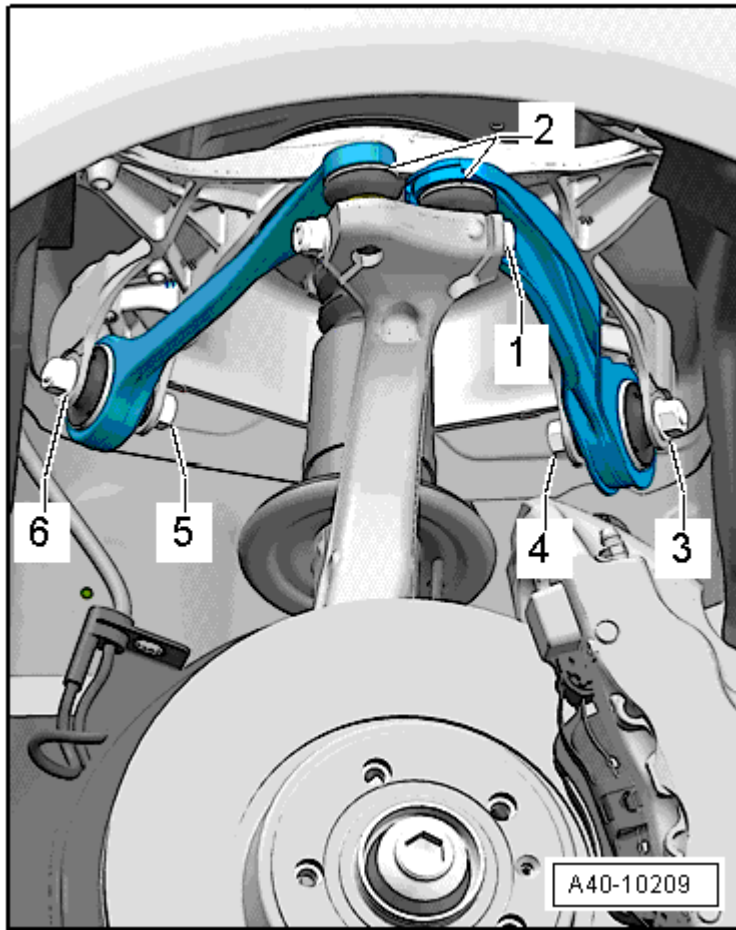


Fig. 117: Identifying Booth Joint Pins In Upper Control Arm

Courtesy of AUDI OF AMERICA, LLC

Install in reverse order of removal. Note the following:

-- Insert both of upper control arm joint pins -2- in the wheel bearing housing and insert the bolt -1-.

NOTE: Push the upper control arms down as far as possible while tightening the bolts!

-- Tighten the threaded connection -1-.

Tightening specifications, refer to **WHEEL BEARING HOUSING AND WHEEL BEARING UNIT OVERVIEW**

Tightening specifications, refer to **SUBFRAME, CROSSBRACE, STABILIZER BAR, COUPLING ROD AND SUBFRAME SHIELD OVERVIEW**

-- Tightening specification for drive axle to flange shaft/transmission. Refer to **WHEEL BEARING HOUSING AND WHEEL BEARING UNIT OVERVIEW**.

-- Install wheel.

-- Tighten the wheel. Refer to **Specifications** .

-- Tighten the drive axle to wheel hub threaded connection. Refer to **THREADED CONNECTION BETWEEN DRIVE AXLE AND WHEEL HUB, LOOSENING AND TIGHTENING.**

DISASSEMBLY AND ASSEMBLY

SUSPENSION STRUT AND MOUNTING BRACKET

Special tools and workshop equipment required

- Spring Compressor V.A.G 1752/1
- Spring Mounting Tool V.A.G 1752/2
- Spring Holder for A4 V.A.G 1752/7
- Supplementary Set F/Audi A6 (C6) V.A.G 1752/18
- Rod, Extended V.A.G 1752/18-3
- Clamping Jaw V.A.G 1752/19-1
- Supplementary set for Audi A5/ A4 V.A.G 1752/19
- Socket T10001/3
- Socket T10001/4
- Replacement Component for T10001T10001/7
- Replacement Component for T10001T10001/11

Assembly Overview

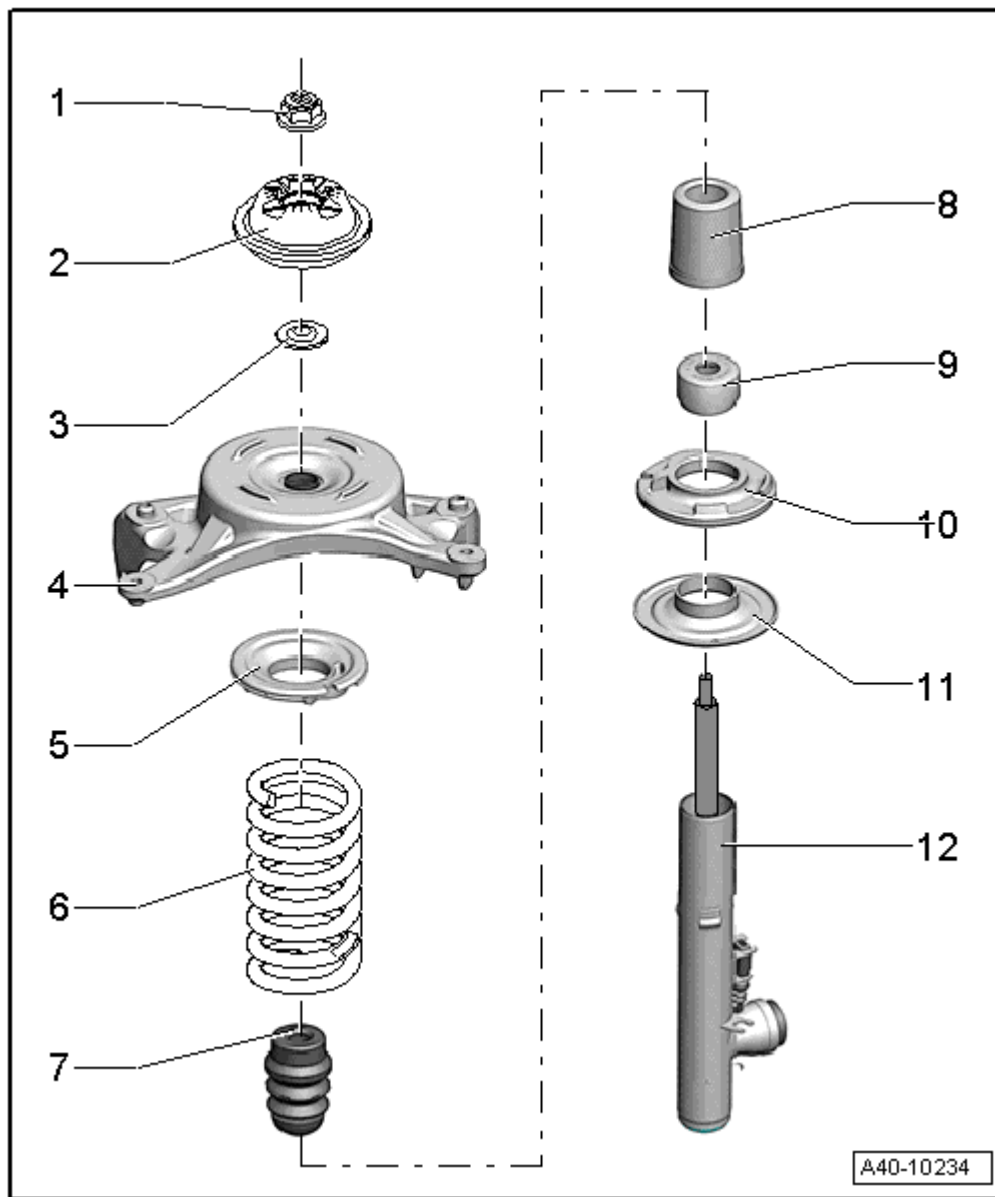


Fig. 118: Identifying Assembly Overview
 Courtesy of AUDI OF AMERICA, LLC

1. 1 - Nut
 - 50 Nm
 - Always replace if removed.
2. 2 - Shock Absorber Mount
3. 3 - Washer
4. 4 - Bracket
5. 5 - Upper Spring Support
6. 6 - Coil Spring
 - Removing, refer to **Fig. 119**

- Installing, refer to **Fig. 123**
 - There are different versions of the suspension. Refer to **EXPLANATIONS OF THE PRODUCTION CONTROL NUMBERS (PR NUMBER)** .
 - Allocation
7. 7 - Spring
 8. 8 - Protective Sleeve
 9. 9 - Cap
 10. 10 - Low Spring Support
 11. 11 - Lower Spring Plate
 12. 12 - Shock Absorbers
 - Replace, refer to **Fig. 122**
 - There are different versions of the suspension. Refer to **EXPLANATIONS OF THE PRODUCTION CONTROL NUMBERS (PR NUMBER)** .
 - Always release gas and drain malfunctioning shock absorbers before disposal.
 - Allocation

The shock absorber combination installed in the vehicle is indicated by the corresponding PR number on the vehicle data plate.

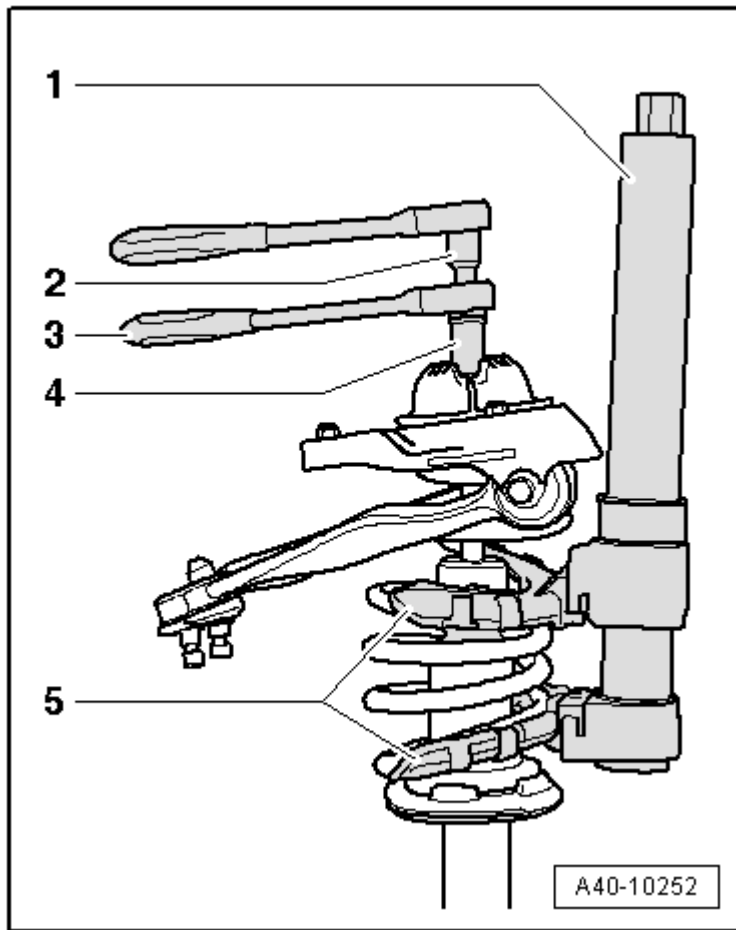


Fig. 119: Using Tools -2, 3 And 4- To Remove Coil Spring
Courtesy of AUDI OF AMERICA, LLC

1. Spring Compressor V.A.G 1752/1
2. Ring Spanner Insert AF 21T10001/7
3. Ratchet T10001/11
4. Ring Spanner Insert AF 21T10001/3
5. Spring Holder V.A.G 1752/7

- Clamp the suspension strut in the vise with the shock absorber fork installed.
- Mark the installation location of the mounting bracket to the T-pin on the shock absorber tube (felt-tip pen).
- Tension coil spring using spring compressor V.A.G 1752/1 and spring holder V.A.G 1752/7 until upper suspension strut is free.
- Make sure the coil spring is seated in the spring holder -2- correctly.

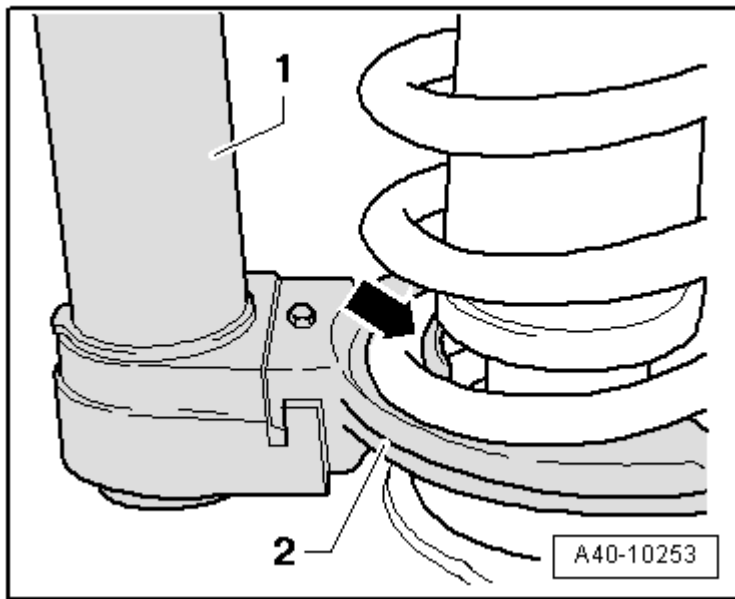


Fig. 120: Ensuring Coil Spring Is Seated In Spring Holder Correctly
Courtesy of AUDI OF AMERICA, LLC

1. Spring Compressor V.A.G 1752/1
2. Spring Holder V.A.G 1752/7

-- Remove the nut from the piston rod using the tools -2, 3 and 4-.

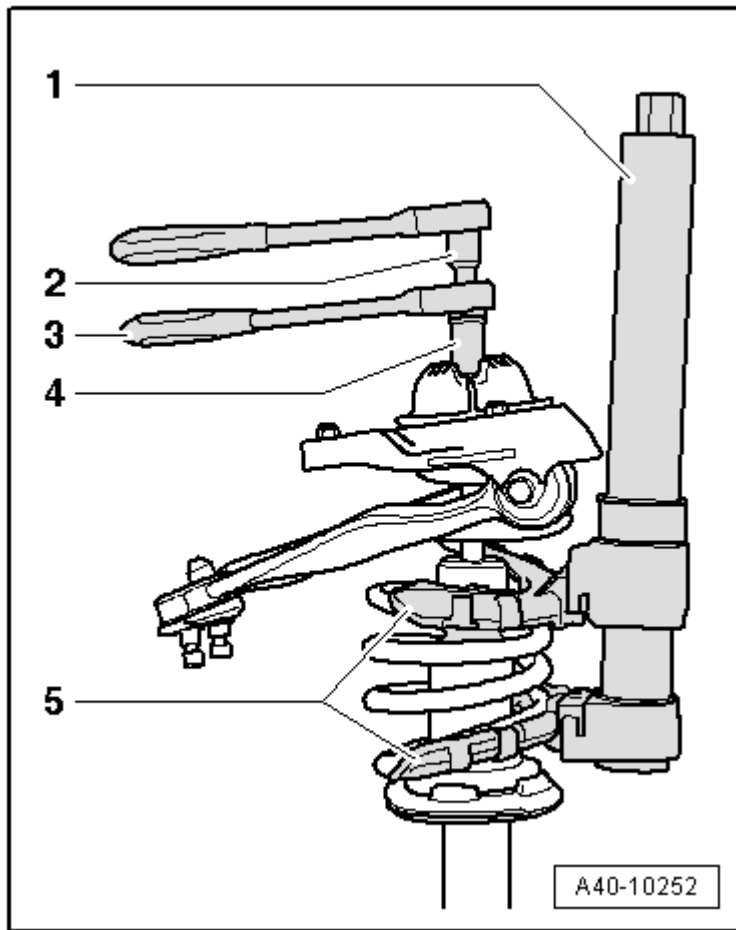


Fig. 121: Using Tools -2, 3 And 4- To Remove Coil Spring
Courtesy of AUDI OF AMERICA, LLC

1. Spring Compressor V.A.G 1752/1
2. Ring Spanner Insert AF 21T10001/7
3. Ratchet T10001/11
4. Ring spanner Insert AF 21T10001/3
5. Spring holder V.A.G 1752/7

-- Remove individual components of suspension strut and pre-tensioned coil spring with spring compressor V.A.G 1752/1.

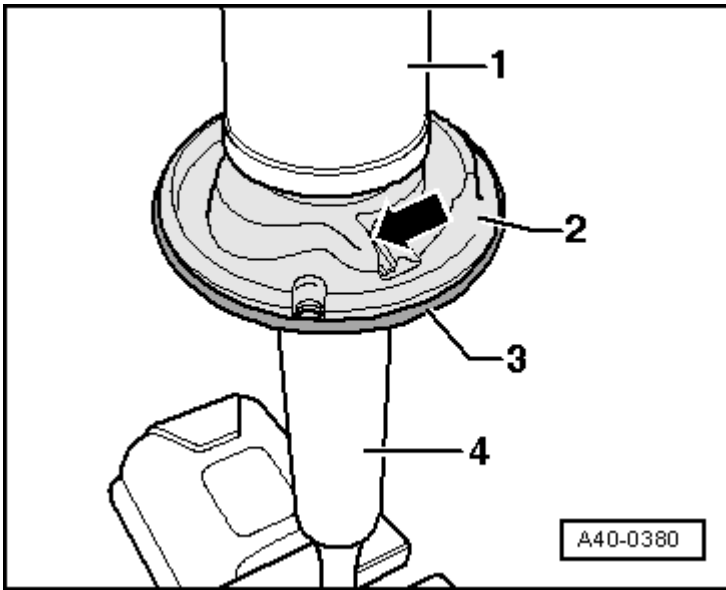


Fig. 122: Identifying Protective Cap, Bottom Spring Washer, And Spring Plate
Courtesy of AUDI OF AMERICA, LLC

- Remove the cap -1- and the lower spring support -2-.
- Loosen suspension strut -3- using plastic hammer and remove upward.
- Drive the spring plate onto the new shock absorber using a plastic hammer.

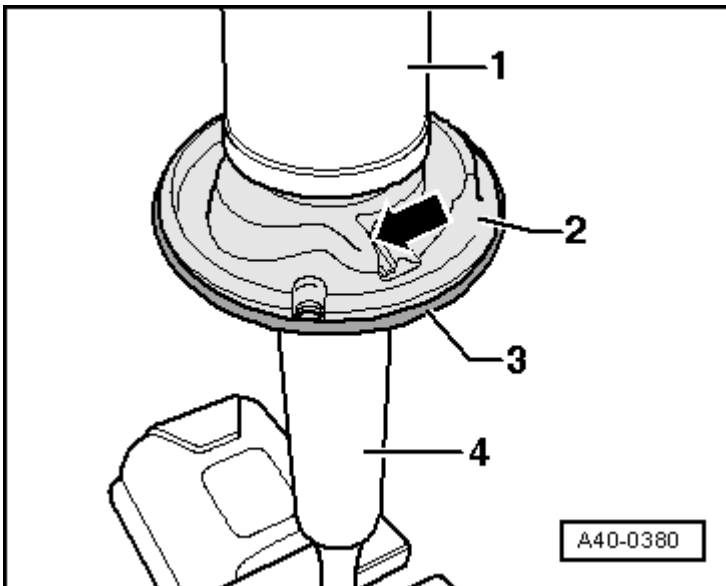


Fig. 123: Identifying Protective Cap, Bottom Spring Washer, And Spring Plate
Courtesy of AUDI OF AMERICA, LLC

- Install the lower spring support and the cap.

-- Position the tensioned coil spring on the lower spring support. End of spring coil must rest against stop - arrow- (permissible play max. 2 mm).

Install mounting bracket with spring washer onto pre-loaded spring so that spring washer makes contact on end of spring coil -arrow- (permissible play max. 2 mm).

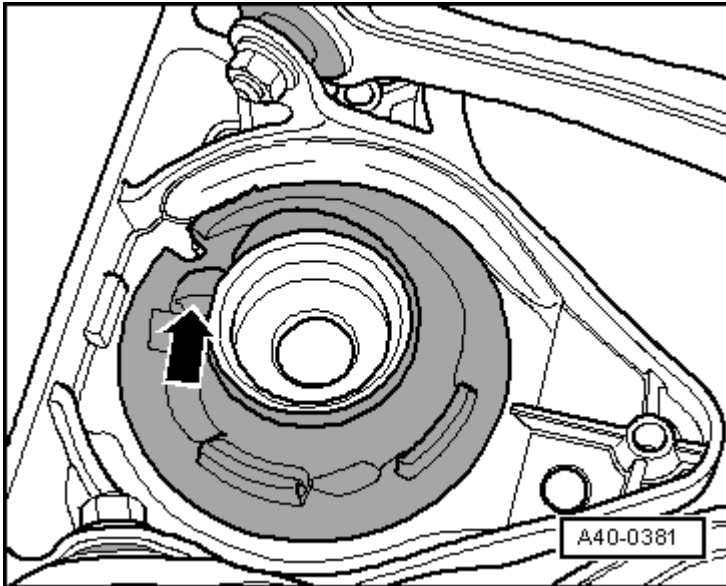


Fig. 124: Identifying Mounting Bracket With Spring Washer On Pre-Loaded Spring
Courtesy of AUDI OF AMERICA, LLC

-- Position individual suspension strut components.

-- Tighten the nut using special tools -item 1- **SUSPENSION STRUT AND MOUNTING BRACKET**.

-- Align the marking on the mounting bracket to the T-pin on the shock absorber tube and release the tension in the spring.

Mounting Bracket Installation Position

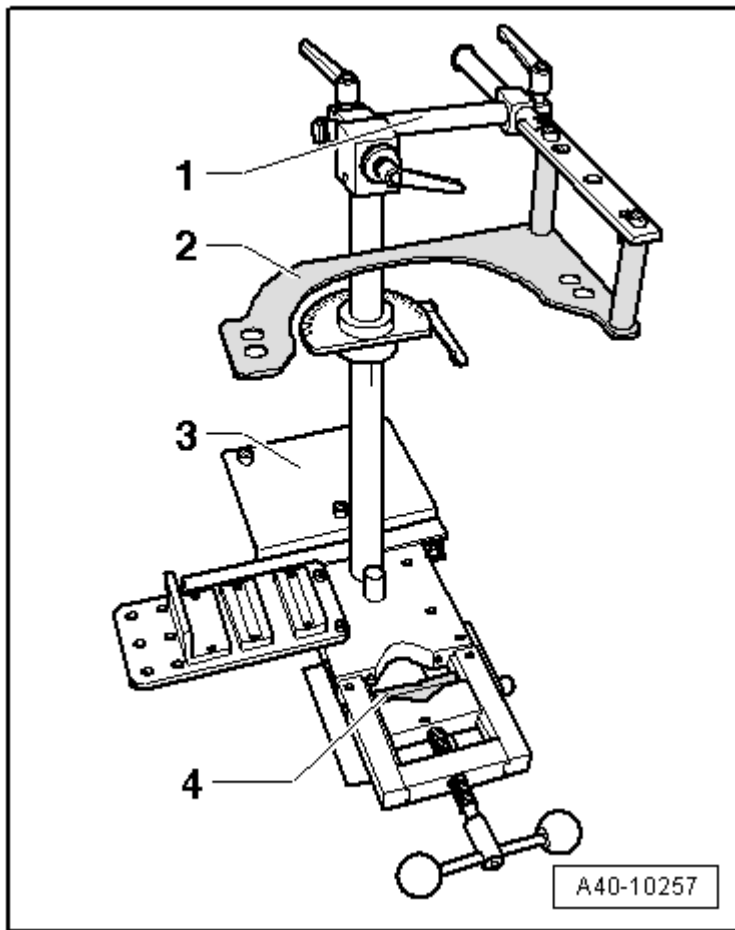


Fig. 125: Identifying Spring Mounting Tool V.A.G 1752/2
Courtesy of AUDI OF AMERICA, LLC

-- Install the spring mounting tool V.A.G 1752/2 as shown in the illustration.

1. Rod, extended V.A.G 1752/18-3
2. Suspension strut adjustment gauge V.A.G 1752/19
3. Spring mounting tool V.A.G 1752/2
4. Clamping jaw V.A.G 1752/19-1

-- Tension the suspension strut with spring compressor vertically in the spring mounting tool V.A.G 1752/2.

-- Tension the suspension strut so the pin -1- engages in the clamping jaw opening -2-.

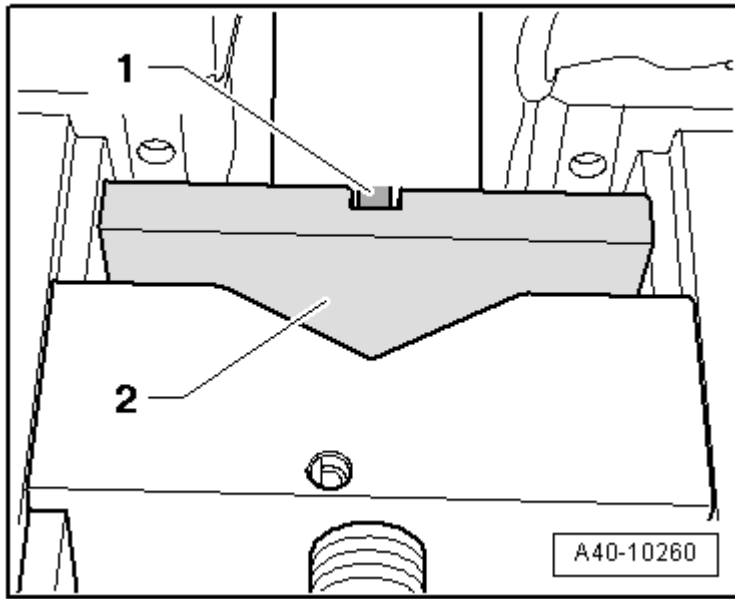


Fig. 126: Tensioning Suspension Strut So Pin Engages In Clamping Jaw Opening
 Courtesy of AUDI OF AMERICA, LLC

-- When tensioning, make sure the front damping adjustment valve -- -1- or electrical wiring connection -2- does not sit on the suspension strut mount -3-.

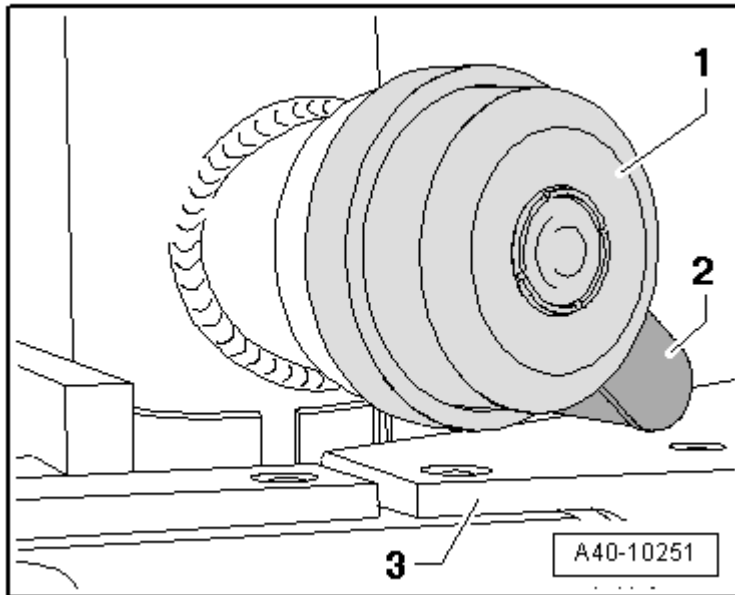


Fig. 127: Identifying Front Damping Adjustment Valve -1-, Electrical Wiring Connection -2- & Suspension Strut Mount -3-
 Courtesy of AUDI OF AMERICA, LLC

-- Disengage the locking lever and set the pointer to the 0° position -arrow-, then tighten the locking lever.

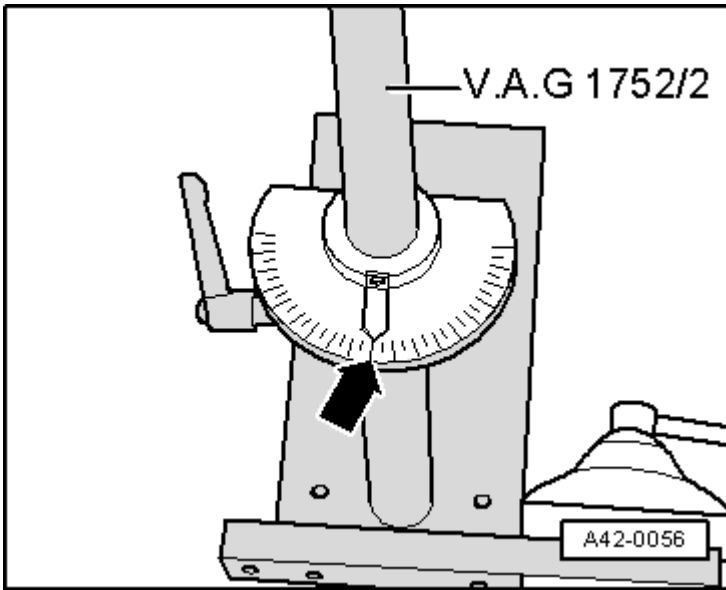


Fig. 128: Disengaging Locking Lever And Set Pointer To 0 Degrees Position And Seizing Locking Lever
Courtesy of AUDI OF AMERICA, LLC

-- Adjust the mounting bracket so the suspension strut adjustment gauge V.A.G 1752/19 for the respective side of the vehicle can be bolted to the mounting bracket.

Left Side

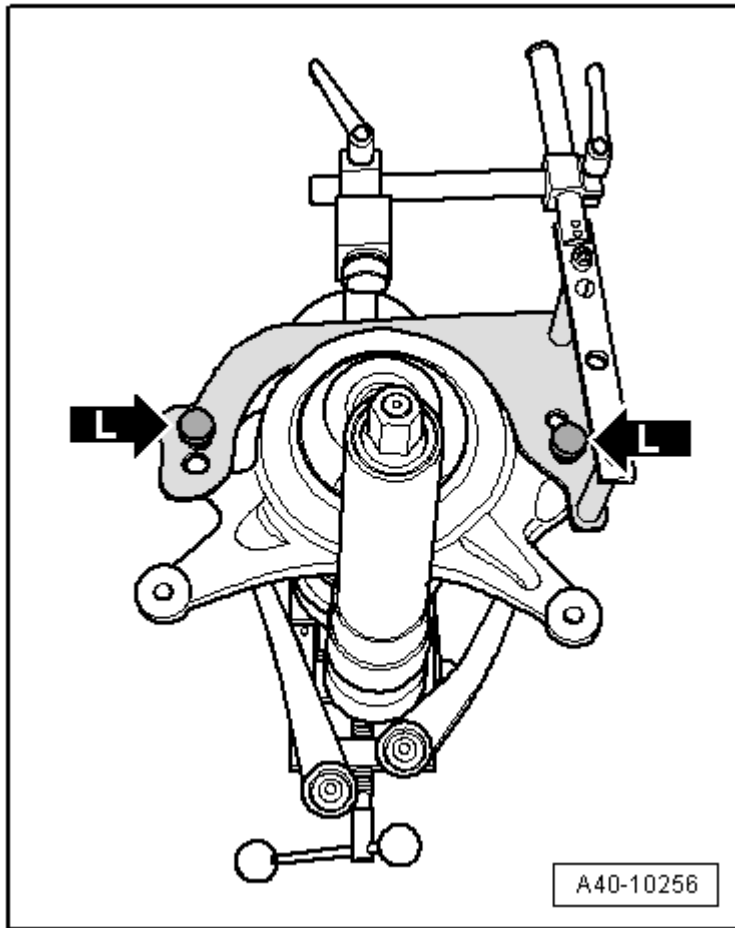


Fig. 129: Bolting Adjust Gauge For Suspension Strut V.A.G 1752/19 Onto Mounting Bracket
 Courtesy of AUDI OF AMERICA, LLC

-- Bolt adjust gauge for suspension strut V.A.G 1752/19 onto mounting bracket -arrows L-.

Right Side

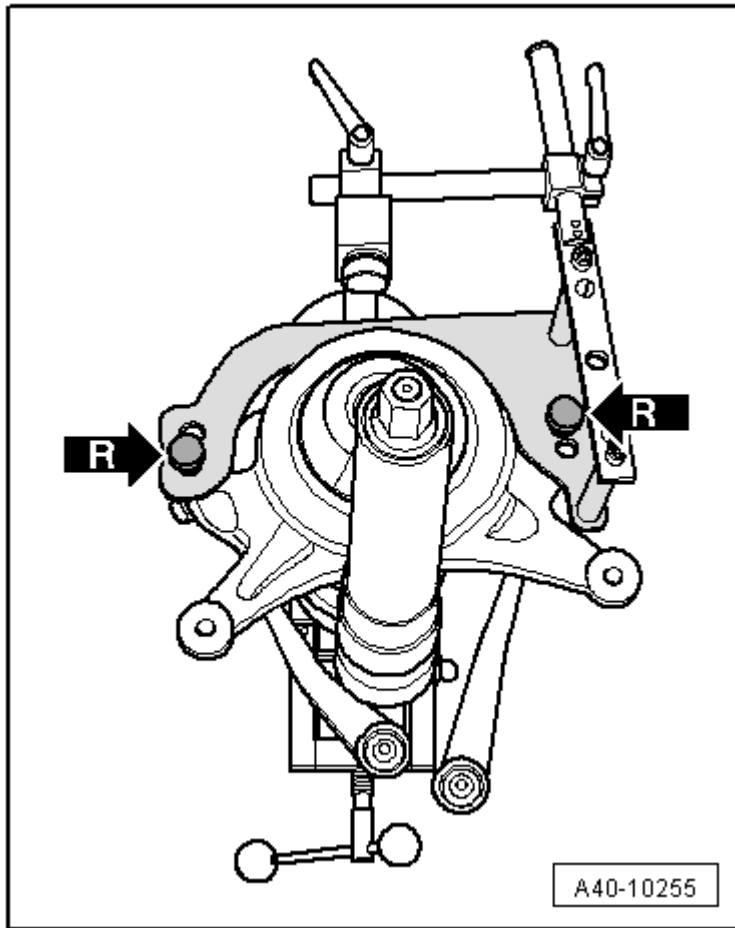


Fig. 130: Attaching Adjust Gauge For Suspension Strut V.A.G 1752/19 To Mounting Bracket
 Courtesy of AUDI OF AMERICA, LLC

- Attach the adjust gauge for suspension strut V.A.G 1752/19 to mounting bracket -arrows R-.
- Release the tension in the spring compressor V.A.G 1752/1 and remove it.

NOTE: When releasing the tension, make sure the ends of the spring lie on the spring support stops in the mounting bracket and the lower spring support.

- Check adjustment, repeat procedure if necessary.

Permissible deviation: $\pm 2^\circ$.

WHEEL BEARING UNIT, SERVICING

Special tools and workshop equipment required

- Thrust Plate VW 401
- Thrust Plate VW 402

- Punch VW 412
- Thrust Disc VW 412
- Assembly Tool T10230
- Kukko Puller 15/3 with 17/3
- Wheel bearing housing is removed. Refer to **WHEEL BEARING UNIT**.

Wheel Hub, Removing from Wheel Bearing

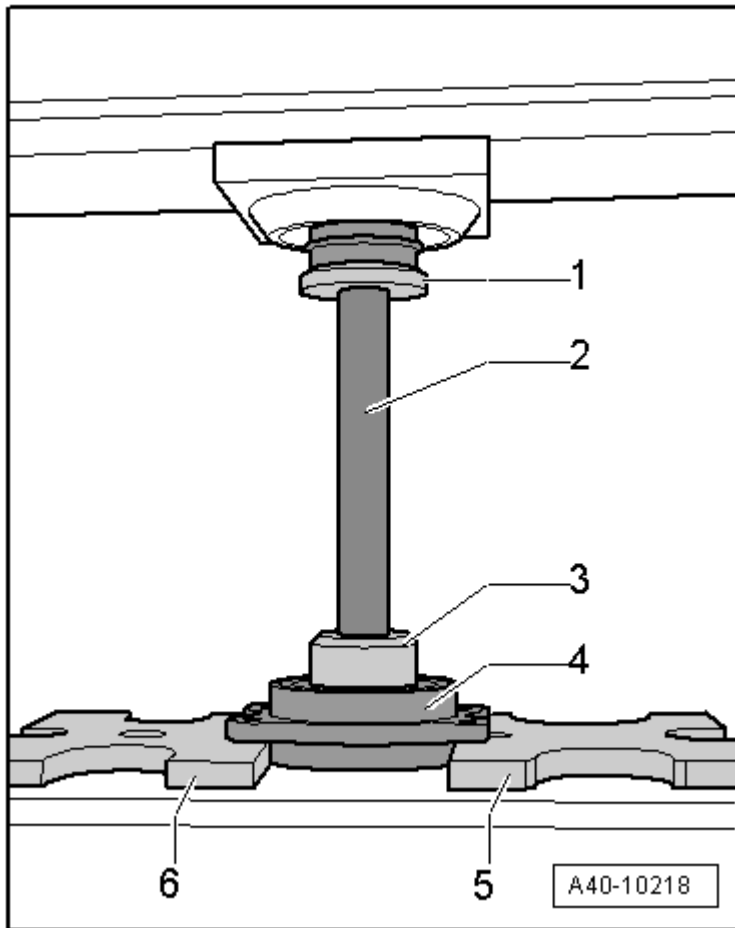


Fig. 131: Using Special Tool Assembly To Press Wheel Hub Out Of Wheel Bearing
Courtesy of AUDI OF AMERICA, LLC

-- Install special tools as shown in illustration.

1. Punch VW 412
2. Sleeve T10230/3 from the assembly tool T10230
3. Thrust piece T10230/8 from the assembly tool T10230
4. Wheel bearing unit
5. Thrust plate VW 402

6. Thrust plate VW 401

-- Press the wheel hub out of the wheel bearing.

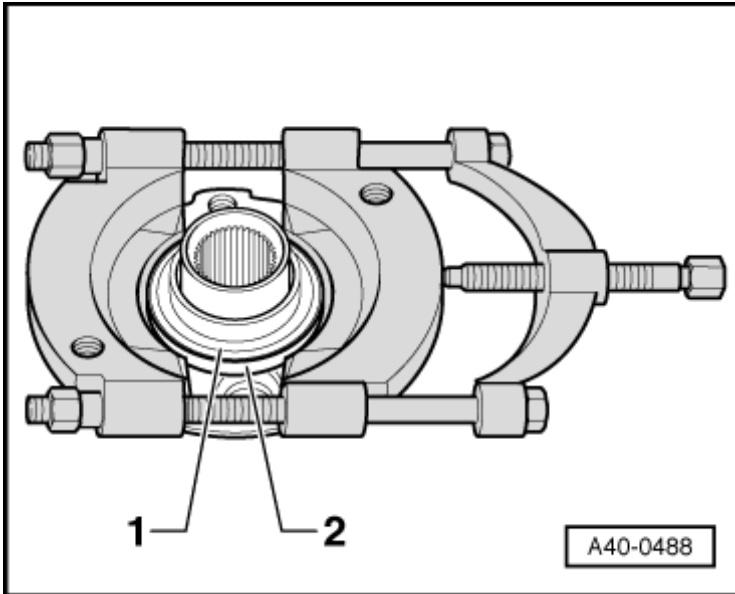


Fig. 132: Identifying Bearing Inner Race And Spinning Washer
Courtesy of AUDI OF AMERICA, LLC

-- Insert the separating tool between the bearing inner race -1- and the wheel hub -2- and pretension with the spindle.

NOTE: Use a commercially available separating tool such as the Kukko 15/3 with 17/3.

-- Install special tools as shown in illustration.

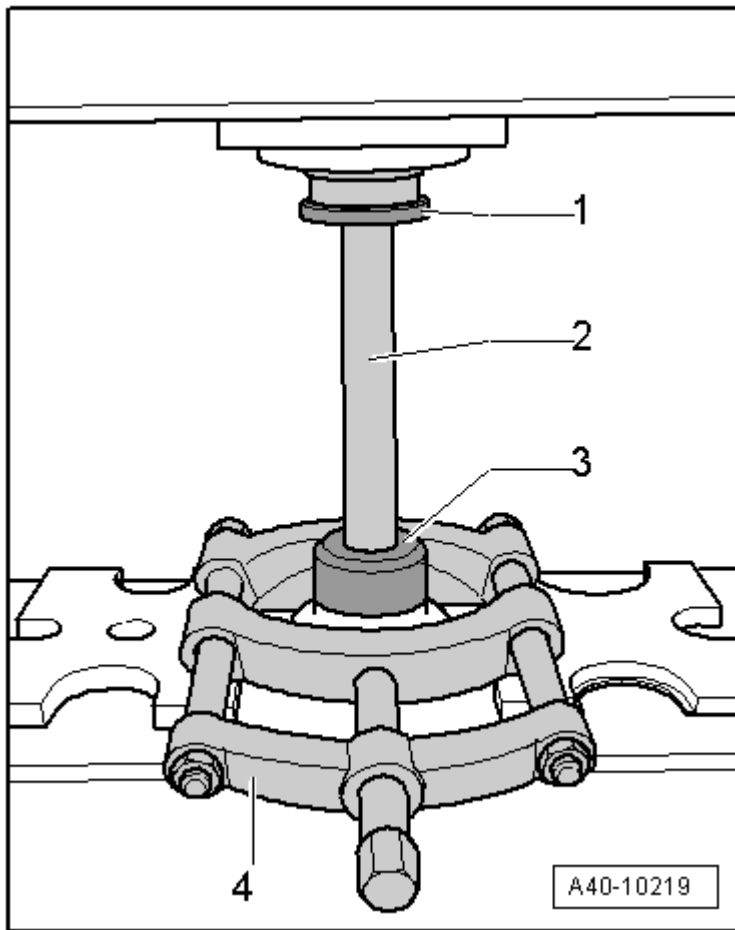


Fig. 133: Using Special Tool Assembly To Press Bearing Inner Race From Hub
Courtesy of AUDI OF AMERICA, LLC

1. Punch VW 412
2. Sleeve T10230/8 from the assembly tool T10230
3. Thrust piece T10230/3 from the assembly tool T10230
4. Kukko 15/3 with 17/3

-- Press the bearing inner race from the hub.

Pressing Wheel Hub into Wheel Bearing

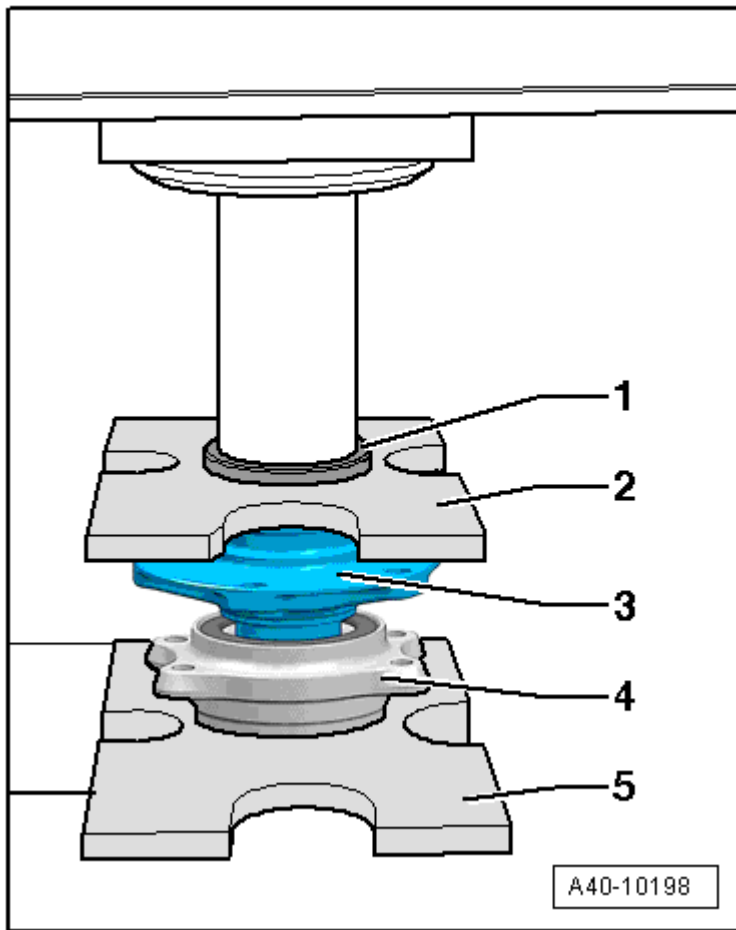


Fig. 134: Identifying Punch VW 412, Thrust Plate VW 402, Wheel Hub, Ball Bearing & Thrust Plate VW 401

Courtesy of AUDI OF AMERICA, LLC

-- Install special tools as shown in illustration.

1. Punch VW 412
2. Thrust plate VW 402
3. Wheel hub
4. Ball Bearing
5. Thrust plate VW 401

NOTE: The reworked surface on the wheel bearing outer race faces down.

CAUTION: When installing or pressing in, make sure there is no dirt or contaminants between the VW 401 -5- and the ball bearing -4-.

-- Press the wheel hub into the wheel bearing.

-- Install wheel bearing unit. Refer to **WHEEL BEARING UNIT**.

PEENED TRIPLE ROLLER JOINT AAR 2600 i OR 3300 i

Special tools and workshop equipment required

- Thrust Plate VW 401
- Thrust Plate VW 402
- Punch VW 408 A
- Punch VW 411
- Tube 37 mm Dia. VW 416 B
- Thrust Pad VW 447 H
- Hose Clamp Pliers V.A.G 1275
- Torque Wrench 5-50 Nm V.A.G 1331
- Torque Wrench 50-200 Nm V.A.G 1332
- CV Joint Boot Clamp Tool V.A.G 1682
- Assembly Tool T10065
- Slide Hammer - Complete Set VW 771
- Assembly/Removal Tool T40018 for triple roller joint AAR 3300 i
- or Removal & Assembly Tool T40084 for triple roller joint AAR 2600 i
- Brass or copper drift

Disassembling

-- Clamp drive axle horizontally in vise.

NOTE: Use vise clamp jaw protectors.

Make sure that drive axle is not damaged.

-- Mark the location of the joint to the drive axle

If they are not marked and are not installed in their previously installed positions, noises may occur later during driving operation.

A water-proof felt pen is well-suited for marking.

-- Open clamps -arrows-.

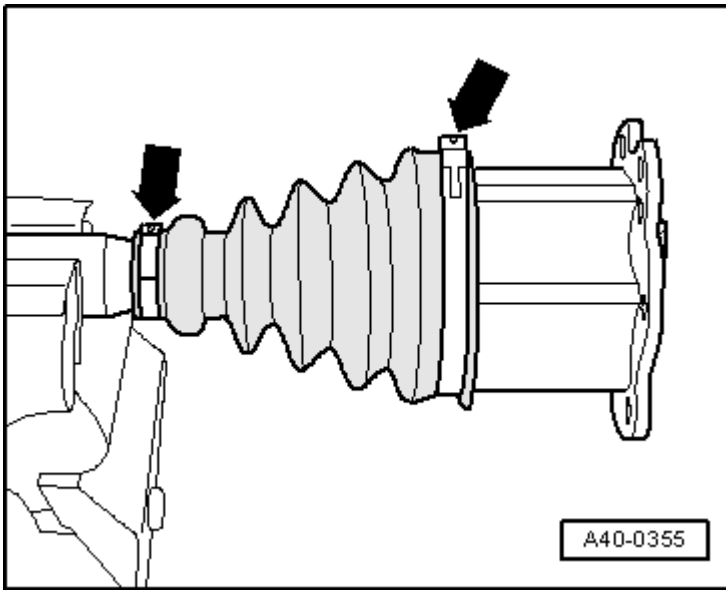


Fig. 135: Identifying Clamps & Protective Boot
 Courtesy of AUDI OF AMERICA, LLC

-- Slide back protective boot.

Distinguishing Characteristic of drive axle AAR 2600 i to AAR 3300 i

-- Determine dimension -A- as shown in illustration.

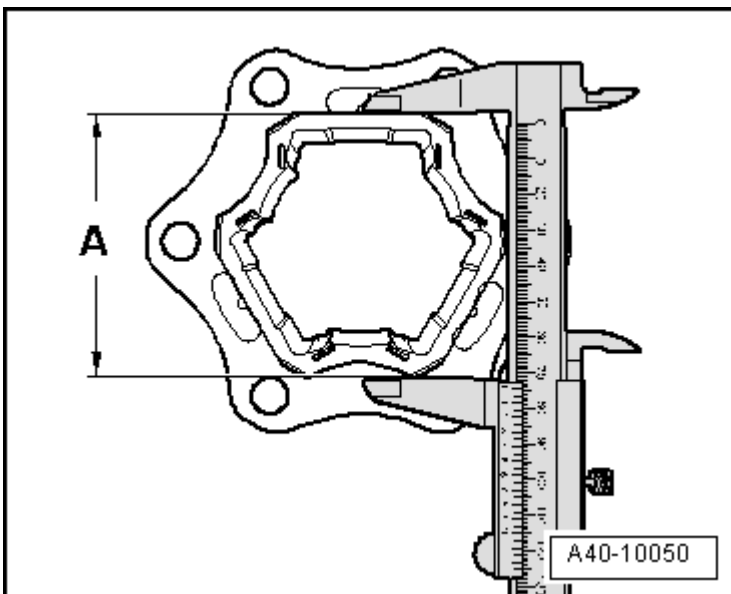


Fig. 136: Determining Dimension Of Drive Axle AAR 2600 i To AAR 3300 i
 Courtesy of AUDI OF AMERICA, LLC

- Dimension -A- 74 mm = driveshaft AAR 2600 i
- Dimension -A- 77 mm = driveshaft AAR 3300 i

CAUTION: Make sure that correct special tool allocation for each driveshaft.

-- Guide triple roller joint AAR 3300 i T40018 or triple roller joint AAR 2600 i T40084 behind joint.

Guide pins -1- must contact joint.

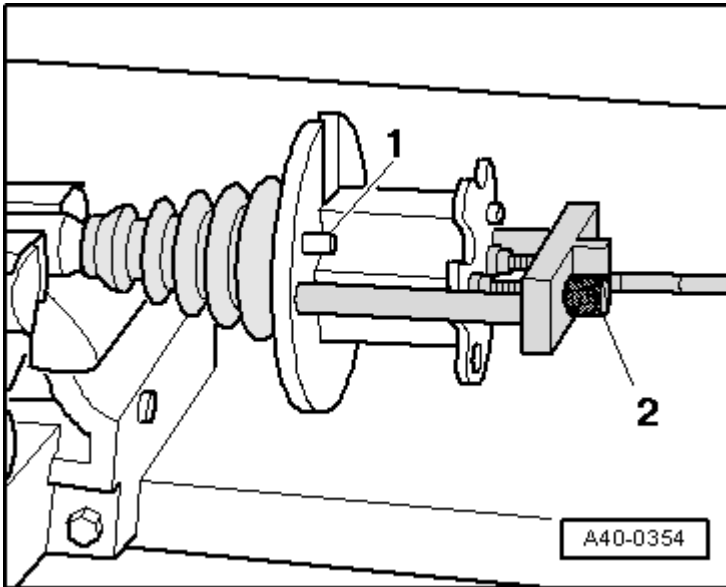


Fig. 137: Bringing Installation Device Into Contact With Joint By Turning Knurled Thumb Screws
Courtesy of AUDI OF AMERICA, LLC

-- Bring installation device into contact with joint by turning knurled thumb screws -2-.

NOTE: Joint must be secured without play in T40018 or T40084.

Tighten the screws -2- by hand only.

-- Screw VW 771 into T40018 or T40084.

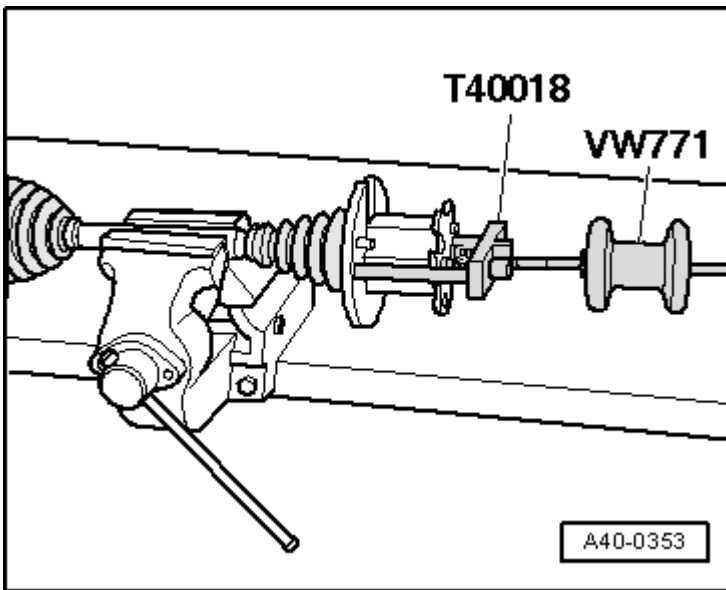


Fig. 138: Identifying Slide Hammer VW 771 Installed In Assembly/Removal Tool T40018
 Courtesy of AUDI OF AMERICA, LLC

Drive axle AAR 3300 i T40018 is shown in illustration.

Use T40084 with driveshaft AAR 2600 i.

-- Pull joint out horizontally with impact tool.

Leave joint in T40018 or T40084.

-- Mark installation position of the parts -1 and 2- with lines.

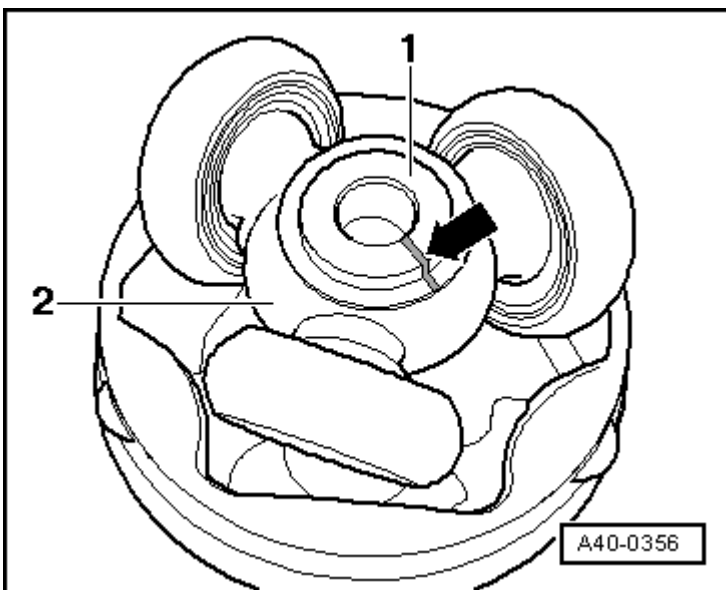


Fig. 139: Identifying Drive Axle & Triple Roller Star & Mark

Courtesy of AUDI OF AMERICA, LLC

If they are not marked and are not installed in their previously installed positions, noises may occur later during driving operation.

A water-proof felt pen is well-suited for marking.

1 - Drive axle

2 - Triple roller star

-- Remove grease with lint-free cloth.

-- Remove securing ring.

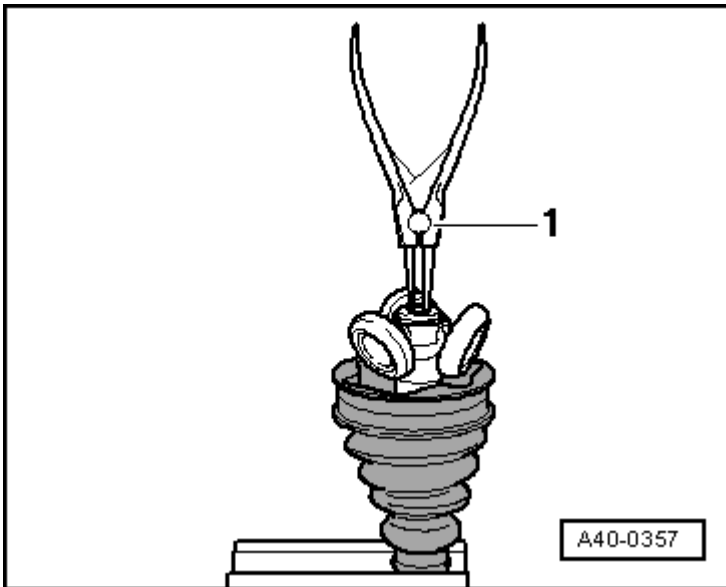


Fig. 140: Using Pliers To Remove/Install Circlip
Courtesy of AUDI OF AMERICA, LLC

1 - Pliers (commercially available)

-- Pressing triple roller star off of axle shaft.

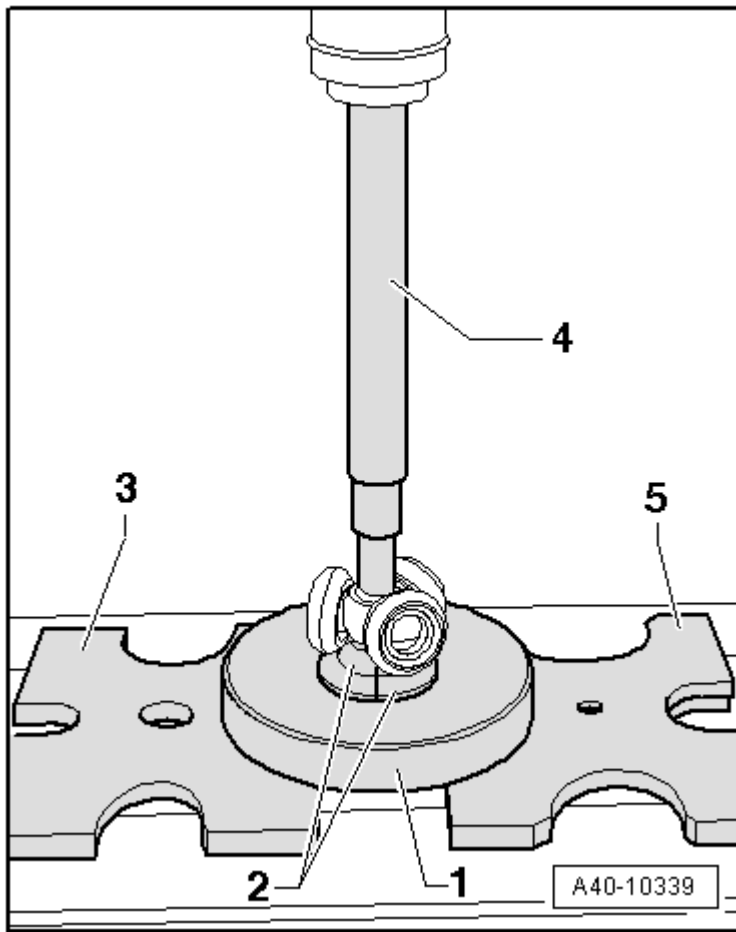


Fig. 141: Using Special Tool Assembly To Press Triple Roller Joint Onto Drive Axle
Courtesy of AUDI OF AMERICA, LLC

-- Use special tool shown in illustration.

1. Assembly tool T10065/1
2. The assembly tool T10065/5 must touch the triple roller star base
3. Thrust plate VW 401
4. Punch VW 408 A
5. Thrust plate VW 402

The assembly tool T10065/5 -2- must not touch the rollers; move the rollers to the side if necessary.

-- Remove the protective boot.

-- Remove the grease on the shaft splines.

-- Check the roller body and ball cage for wear.

-- Clean drive axle and housing.

Assembling

-- Slide on the small clamp with the protective boot and position the protective boot on the drive axle according to the version.

Version with Identification Groove:

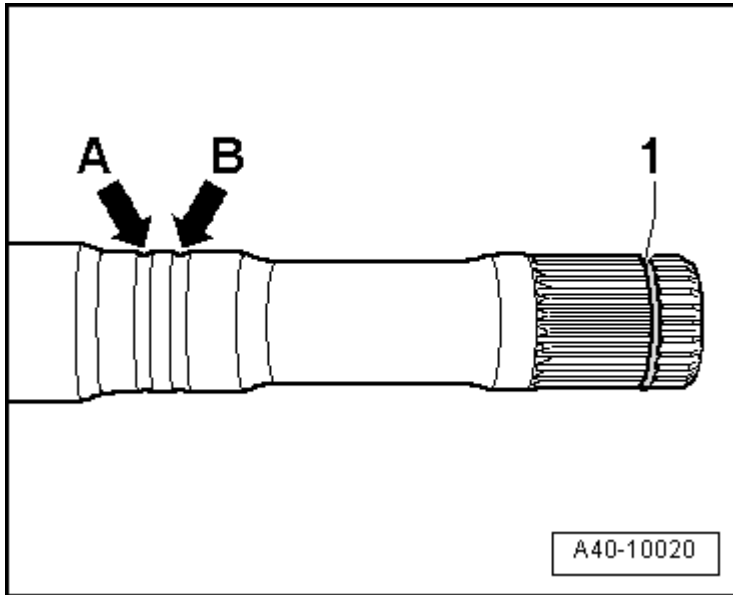


Fig. 142: Identifying Circlip And Outer/Inner Groove
Courtesy of AUDI OF AMERICA, LLC

-- Position CV boot in outer groove -arrow B-.

Inner groove -arrow A- must remain visible "identification groove" (for correct installation of CV boot).

Version with Base:

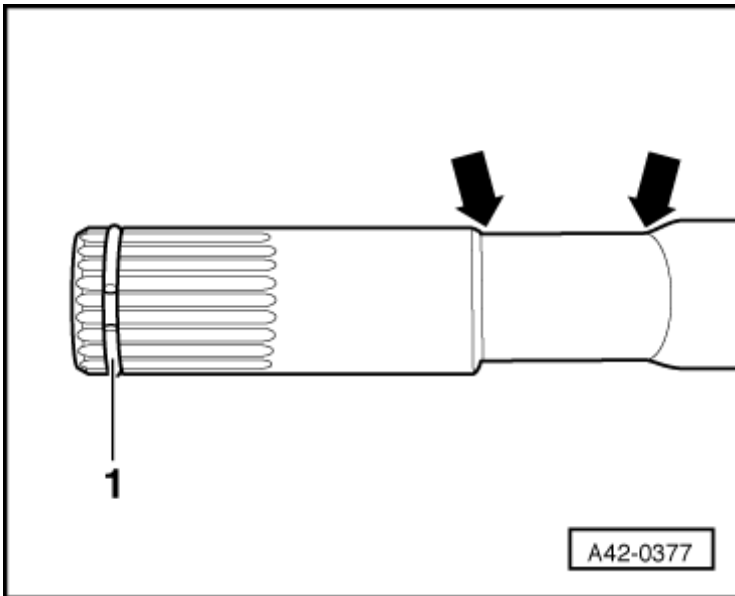


Fig. 143: Identifying Circlip (Snap Ring) & Positioning Protective Joint Boot
 Courtesy of AUDI OF AMERICA, LLC

-- Position protective joint boot between -arrows-.

Tripod Roller Star, Pressing onto Drive Axle

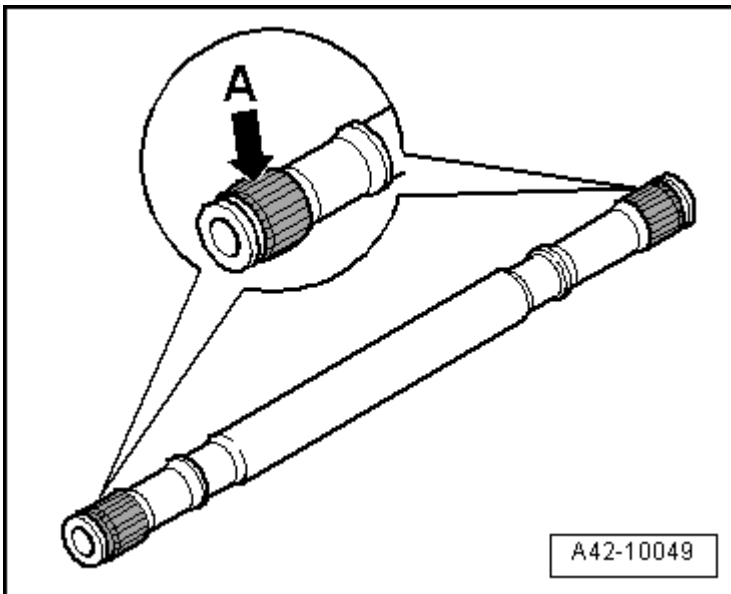


Fig. 144: Identifying Joint/Tripod Roller Star Splines
 Courtesy of AUDI OF AMERICA, LLC

The chamfer on the tripod roller star faces the drive axle. This is used as an assembly aid.

-- Before installing joint or tripod roller star, splines -A- must be lightly coated with grease used in joint.

-- Place triple roller star on shaft according to marking and drive on until impact.

Use the assembly tool T10065/6 -2-. Make sure it attaches to the bead at the bottom -arrow- in the drive axle.

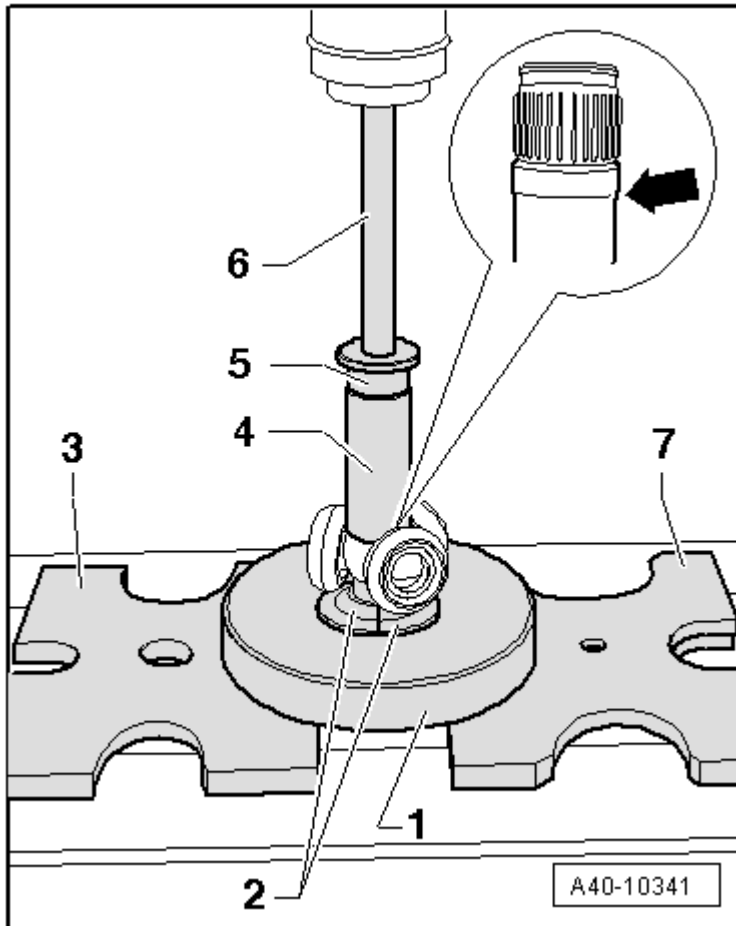


Fig. 145: Using Special Tool Assembly To Press Triple Roller Joint Onto Drive Axle
 Courtesy of AUDI OF AMERICA, LLC

-- Use special tool shown in illustration.

1. Assembly tool T10065/1
2. The assembly tool T10065/6 must attach to the bead at the bottom of the driveshaft -arrow-.
3. Thrust plate VW 401
4. Sleeve VW 416 B
5. Thrust pad VW 447 H
6. Punch VW 411
7. Thrust plate VW 402

The assembly tool T10065/6 -2- must not touch the rollers; move the rollers to the side if necessary.

-- Press the triple roller joint onto the drive axle.

-- Install circlip.

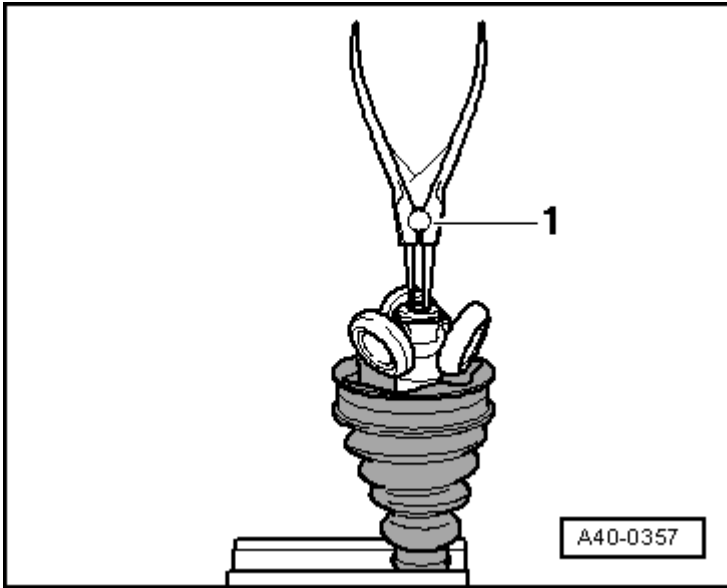


Fig. 146: Using Pliers To Remove/Install Circlip

Courtesy of AUDI OF AMERICA, LLC

-- Circlip must engage audibly, triple roller star must lie against circlip with no gap.

1 - Pliers (commercially available)

-- Press approximately 60% of the joint grease, from the repair set, into the back of the triple roller joint.

-- Lightly grease the roller body.

Make sure roller body does not tilt!

-- Press the joint over the triple roller star using a plastic hammer.

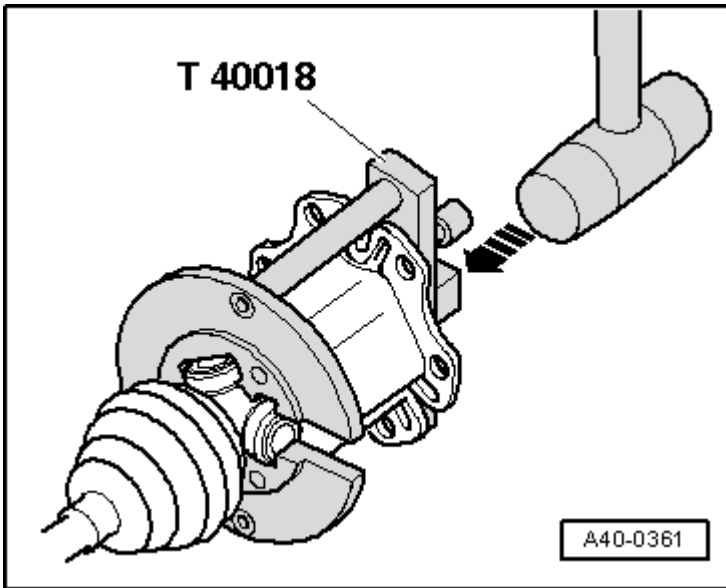


Fig. 147: Pressing Joint Over Triple Roller Star Using Plastic Hammer
 Courtesy of AUDI OF AMERICA, LLC

Drive axle AAR 3300 i assembly device T40018 is shown in illustration.

- Press remaining quantity of grease in protective boot.
- Make sure the protective boot is seated on the joint correctly.
- Protective joint boot must fit in groove and on joint contour.
- Position joint in center position. See the min - max position.

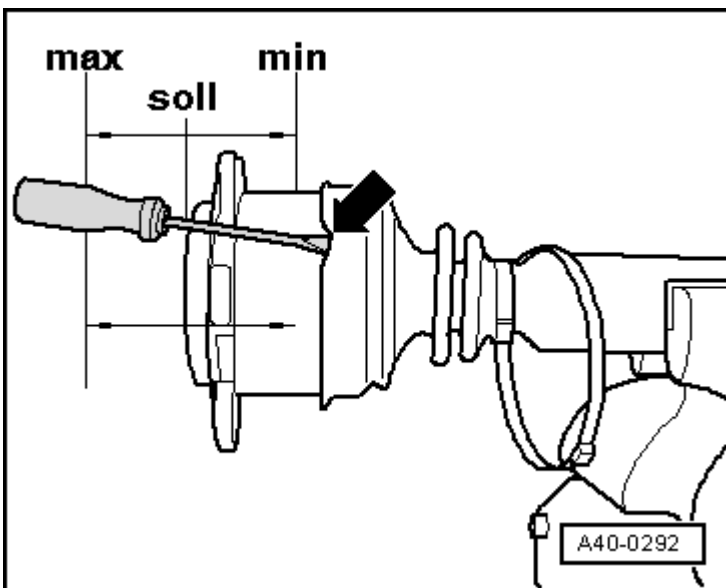


Fig. 148: Positioning Joint In Center Position & Venting CV Boot

Courtesy of AUDI OF AMERICA, LLC

NOTE: Vent CV boot -arrow-, for example using a screwdriver, while positioning joint piece in center position.

-- Install clamp.

NOTE: For a better alignment of multi-point socket head bolts when installing drive axle, clamping sleeve connecting tube -2- must be between joint connecting flanges -1-.

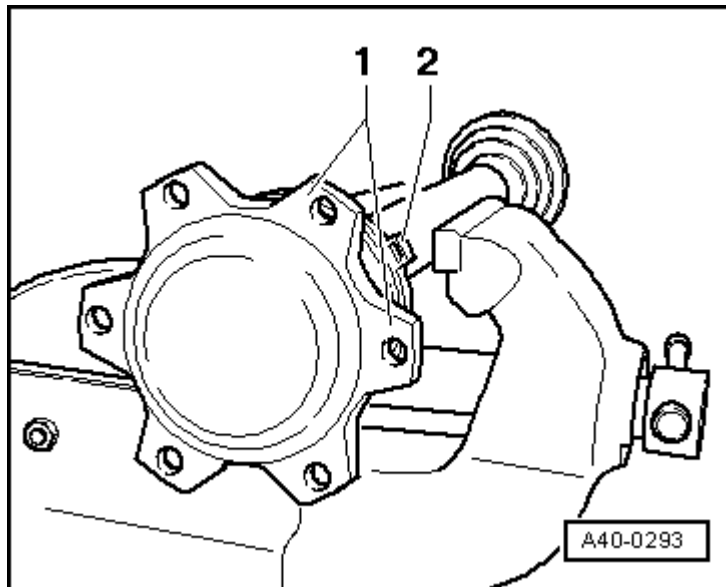


Fig. 149: Identifying Clamping Sleeve Connecting Tube & Flanges
Courtesy of AUDI OF AMERICA, LLC

-- Install the clamps on the triple roller joint. Refer to LARGE AND SMALL CLAMPS, CLAMPING ON INNER OR OUTER JOINT.

OUTER CV JOINT, SERVICING

OUTER CV JOINT, REMOVING

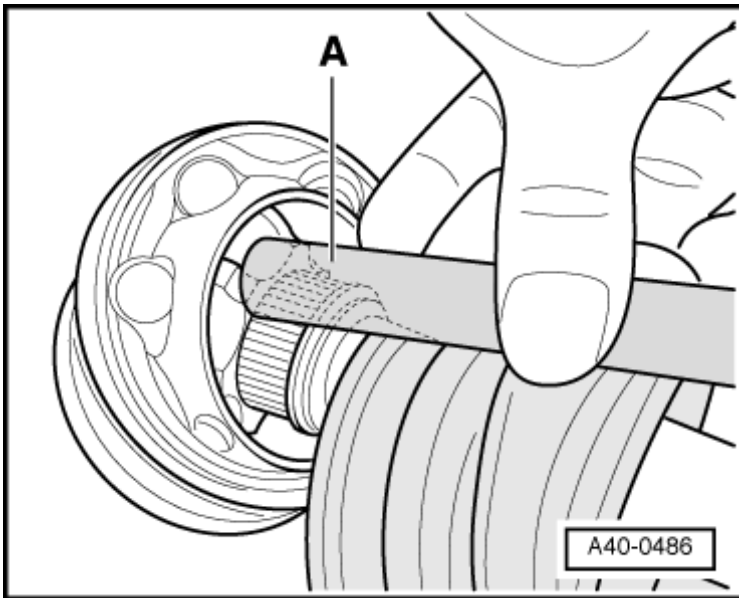


Fig. 150: Hitting Copper Or Brass Mandrel Onto Inner Ring Of Constant Velocity Joint
Courtesy of AUDI OF AMERICA, LLC

- Secure the drive axle with protective covers in a vise clamp.
- Open both clamping sleeves and remove protective joint boot from outer joint.
- Strike a copper or brass drift -A- on CV joint inner race with a hammer.
- Remove joint and protective joint boot.

OUTER CV JOINT, INSTALLING

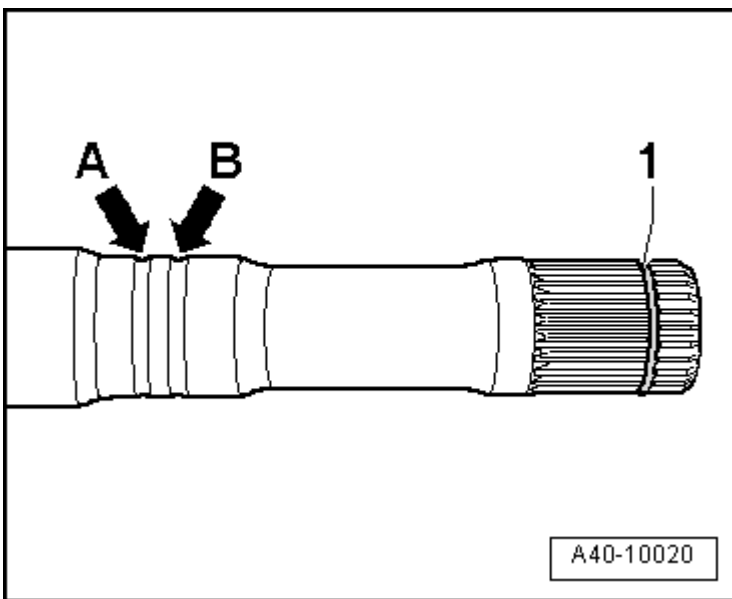


Fig. 151: Identifying Circlip And Outer/Inner Groove

Courtesy of AUDI OF AMERICA, LLC

Joints and protective joint boots must be free of grease.

-- Replace the circlip -1-.

-- Slide on the small clamp with the protective boot and position the protective boot on the drive axle according to the version.

Version with Identification Groove:

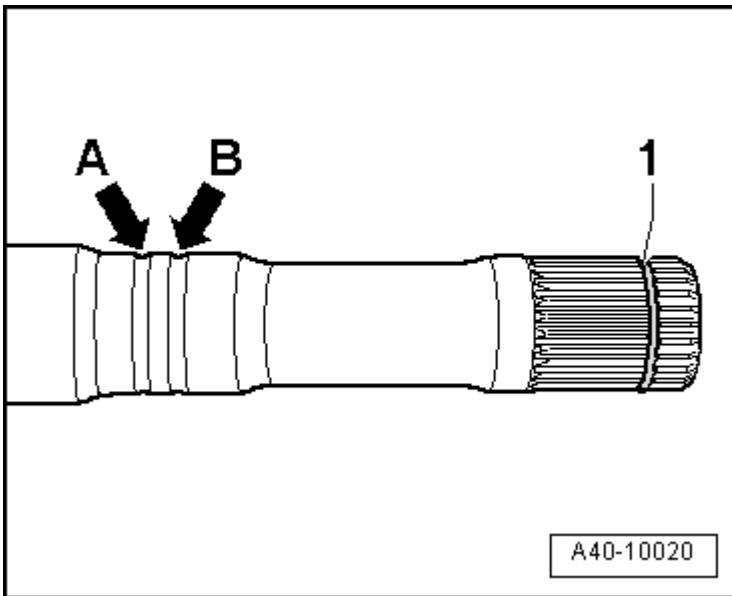


Fig. 152: Identifying Circlip And Outer/Inner Groove
Courtesy of AUDI OF AMERICA, LLC

-- Position CV boot in outer groove -arrow B-.

Inner groove -arrow A- must remain visible "identification groove" (for correct installation of CV boot).

Version with Base:

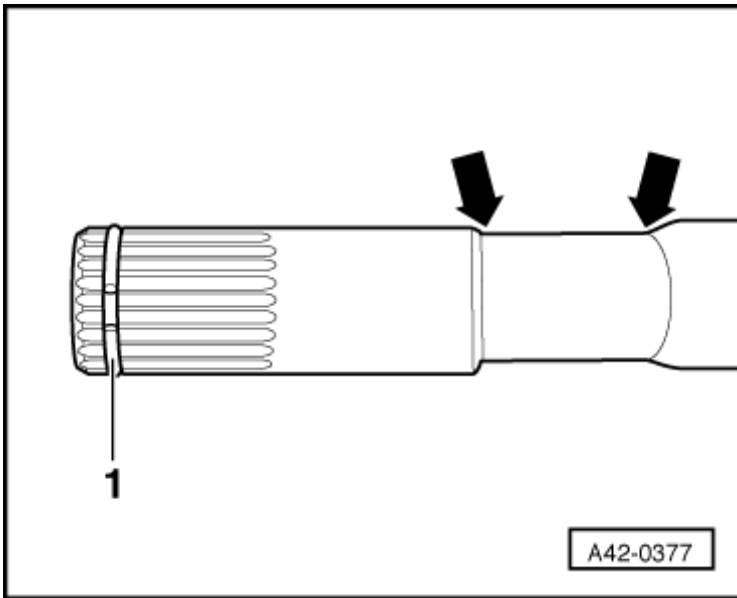


Fig. 153: Identifying Circlip (Snap Ring) & Positioning Protective Joint Boot
 Courtesy of AUDI OF AMERICA, LLC

- Position protective joint boot between -arrows-.
- Add the specified quantity of grease to the inner joint. See the table **GREASE QUANTITY AND TYPE**.
- Before installing joint piece, splines -A- must be lightly coated with grease used in joint.

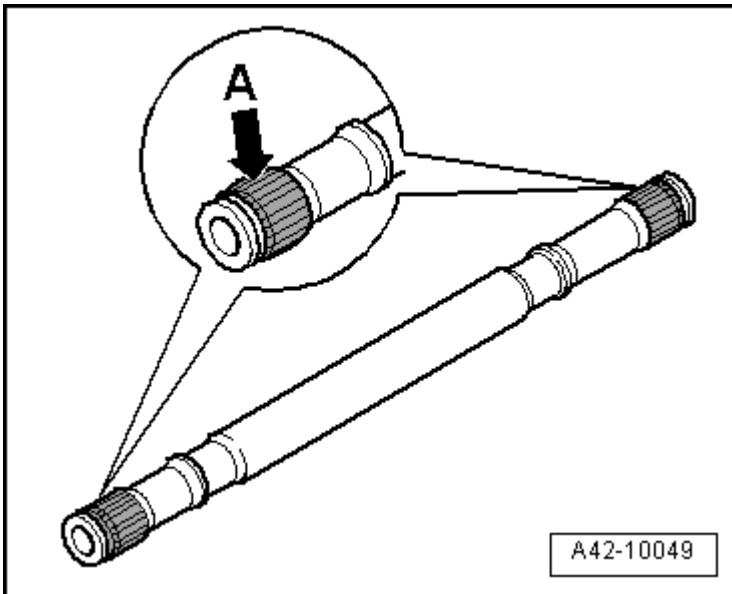


Fig. 154: Identifying Joint/Triple Roller Star Splines
 Courtesy of AUDI OF AMERICA, LLC

- Insert sealing ring in groove on shaft.

-- Slide on CV joint up to sealing ring.

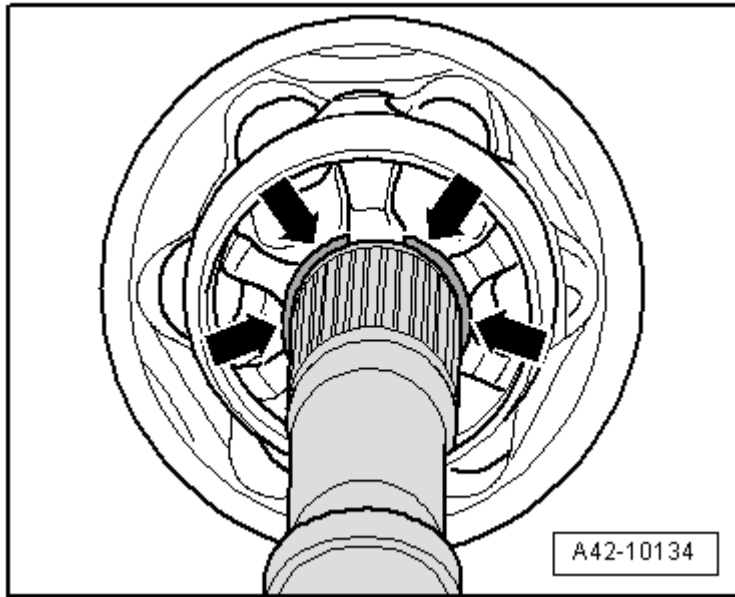


Fig. 155: Aligning Sealing Ring At Center With Opening Upward
Courtesy of AUDI OF AMERICA, LLC

-- Align sealing ring at center with opening upward see -arrows-.

-- Screw old drive axle bolt into joint as shown in the illustration.

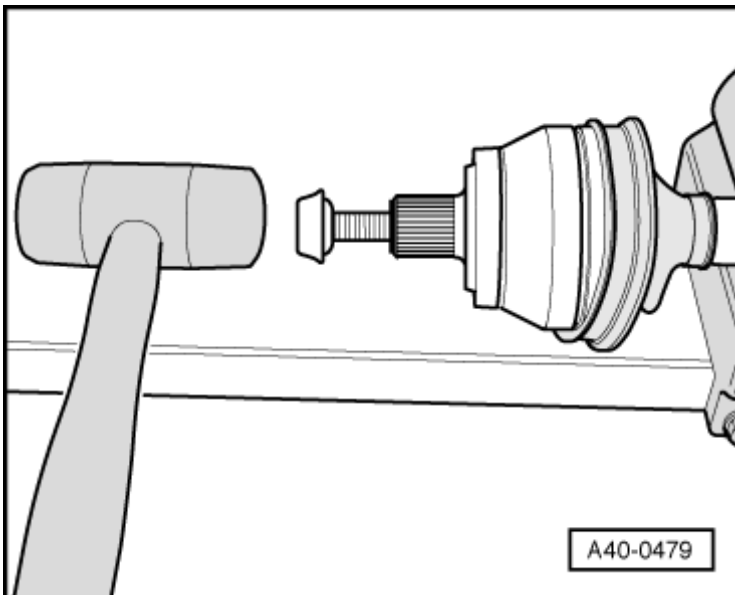


Fig. 156: Identifying Old Driveshaft Bolt Installed Into Joint
Courtesy of AUDI OF AMERICA, LLC

-- Drive joint onto drive axle with plastic hammer until circlip engages.

- Add the specified quantity of grease to the inner joint. See the table **GREASE QUANTITY AND TYPE**.
- Slide the protective boot onto the joint.
- Bleed protective joint boot.
- Make sure the protective boot is seated on the joint correctly.
- Protective joint boot must fit in groove and on joint contour.
- Tension clamps on outer joint. Refer to **LARGE AND SMALL CLAMPS, CLAMPING ON INNER OR OUTER JOINT**.

LARGE AND SMALL CLAMPS, CLAMPING ON INNER OR OUTER JOINT

Depending on the version of the clamp, use the following tools:

Special tools and workshop equipment required

- Pliers 3340
- Hose Clamp Pliers V.A.G 1275
- CV Joint Boot Clamp Tool V.A.G 1682

Install and tension the galvanized clamps using V.A.G 1275 as illustrated.

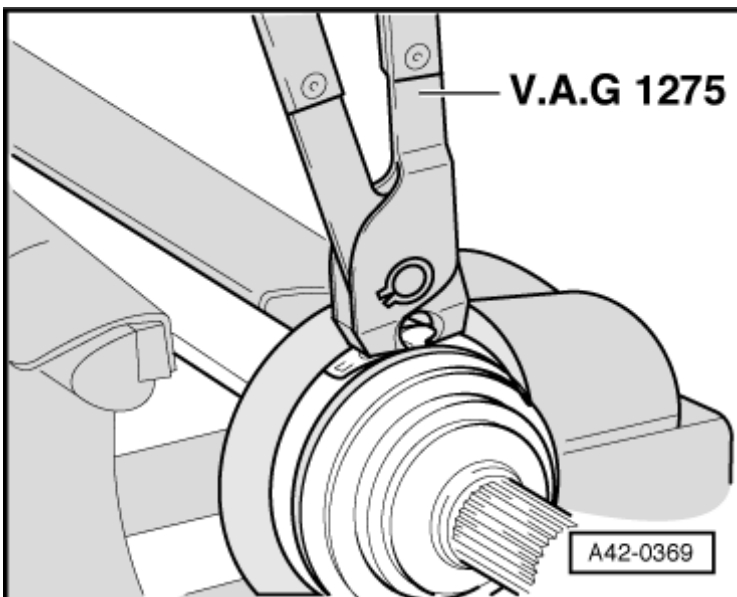


Fig. 157: Tensioning Clamp Using Hose Clamp Pliers V.A.G 1275
Courtesy of AUDI OF AMERICA, LLC

- When doing so, be sure that edges of clamping pliers are seated in corners of the clamp.

Mount and tension stainless steel clamps using V.A.G 1682 as illustrated.

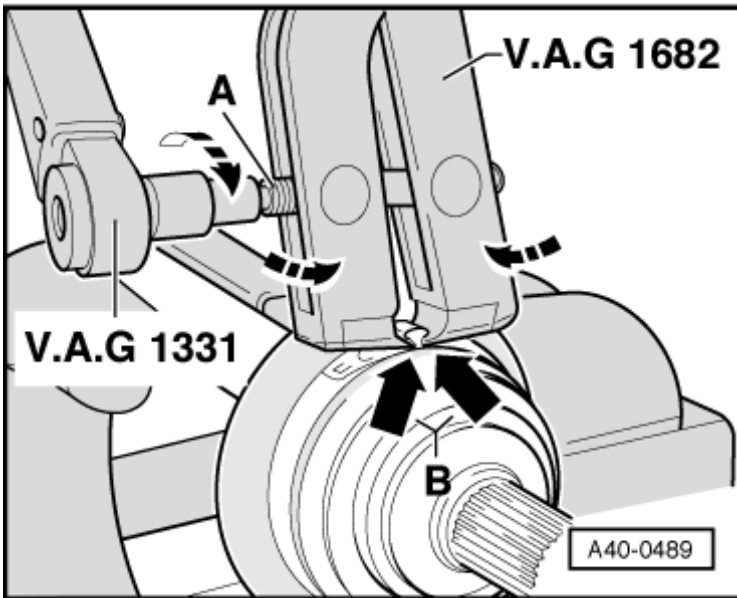


Fig. 158: Tightening Small And Large Clamps On Outer Joint
 Courtesy of AUDI OF AMERICA, LLC

-- When doing this, make sure that edges of clamping pliers are seated in corners -arrows B- of clamp.

-- Tighten the clamp by turning the spindle using a torque wrench -C- (do not tilt the pliers).

- A stainless steel clamp must be used due to the hardness of the CV boot material (compared to rubber). This clamp can only be tensioned using the V.A.G 1682.
- Tightening Specifications: 20 Nm
- Use torque wrench with 5 to 50 Nm range (for example V.A.G 1331).
- Make sure the spindle threads on the pliers -A- move freely. Grease with MoS₂ grease if necessary.
- If the thread is tight for example dirty, the required tensioning force for the hose clamp will not be achieved in spite of correct torque specification settings.

Mount and tension the clamp with the retaining tabs using 3340 as illustrated.

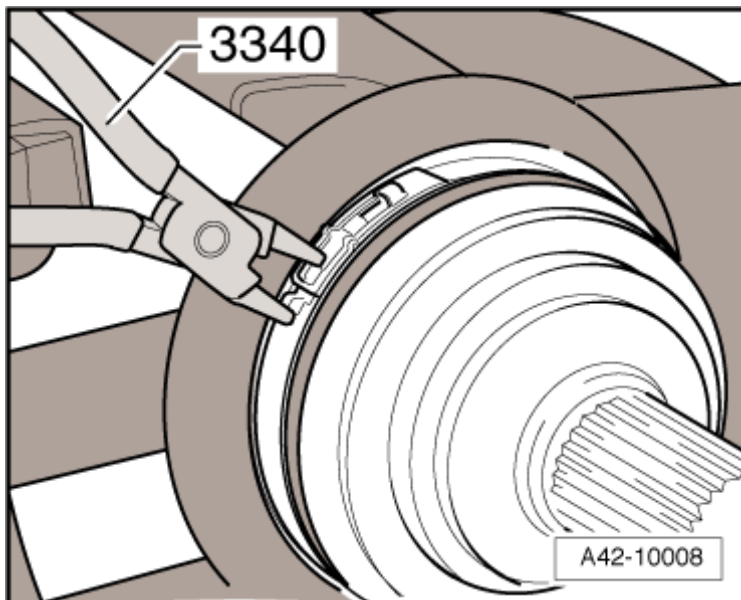


Fig. 159: Using Pliers 3340 To Close Clamp
Courtesy of AUDI OF AMERICA, LLC

- Engage the clamp at the first catch by hand.
- Close the clamp using 3340.

SPECIAL TOOLS

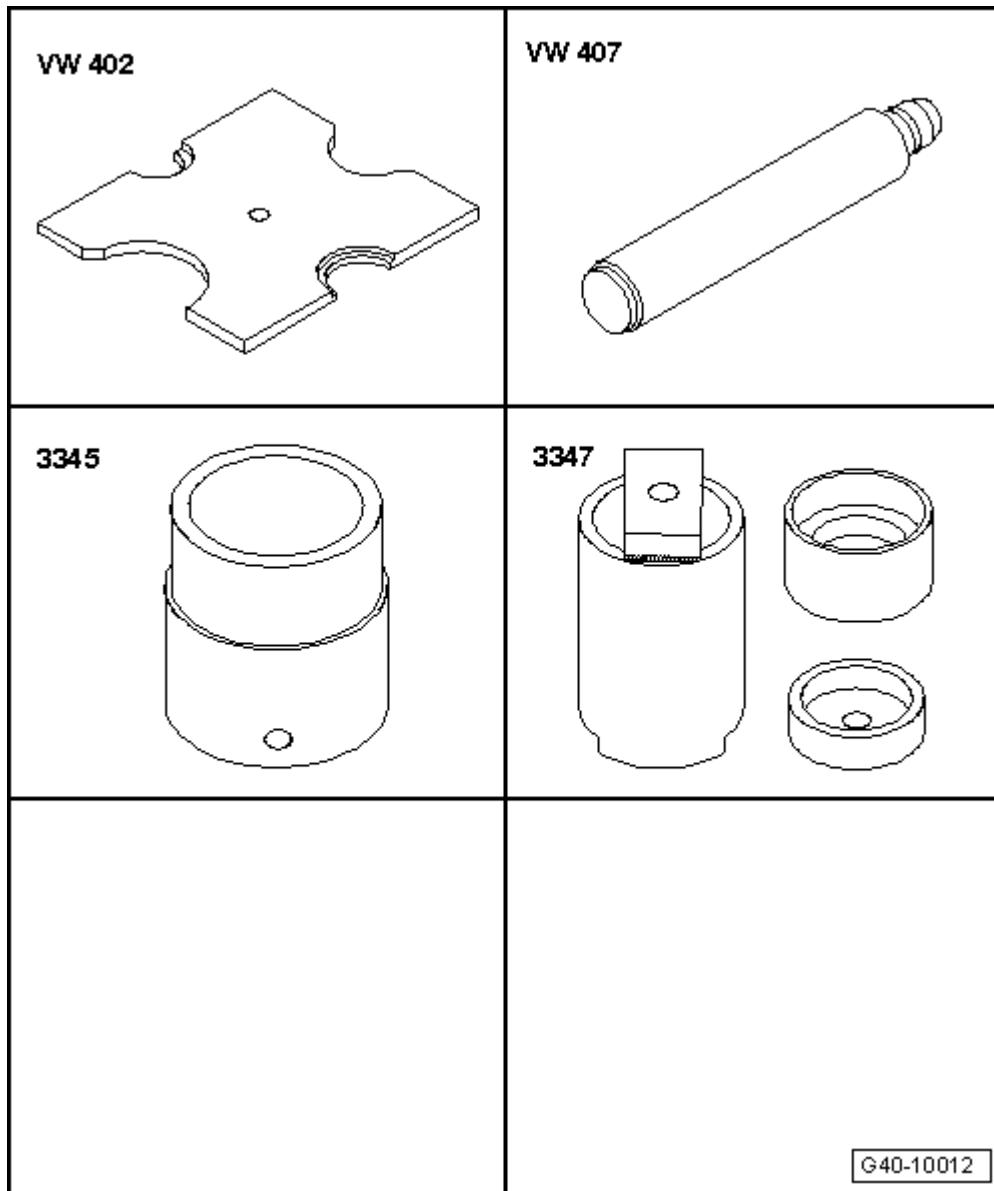


Fig. 160: Identifying Special Tools -- 65 Mm Guide Link Bearing, Replacing
Courtesy of AUDI OF AMERICA, LLC

Special tools and workshop equipment required

- Thrust Plate VW 402
- Punch VW 407
- Press Tool 3345
- Assembly Tool 3347/1

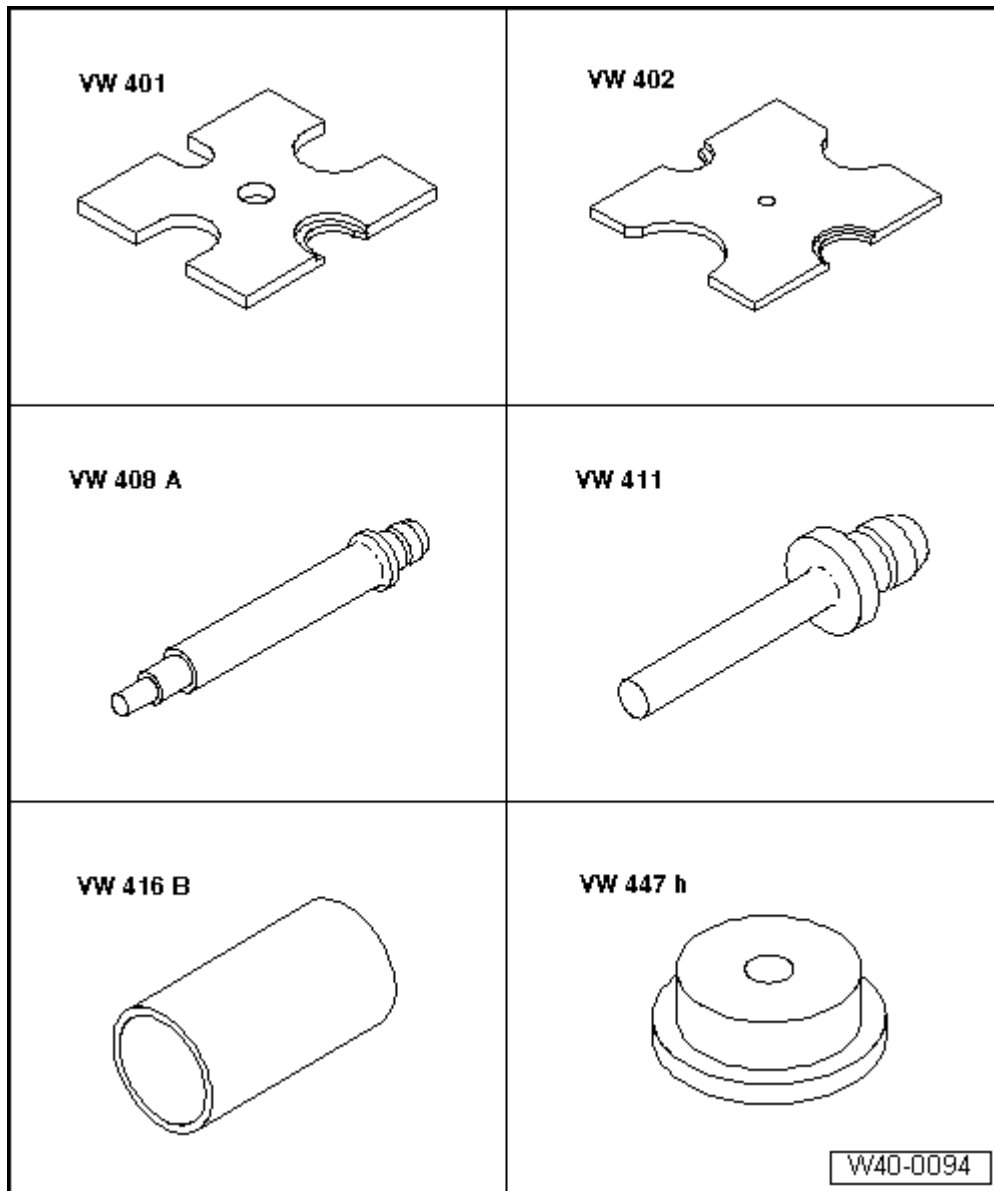


Fig. 161: Identifying Special Tools -- Axle Shaft Assembly
Courtesy of AUDI OF AMERICA, LLC

Special tools and workshop equipment required

- Thrust Plate VW 401
- Thrust Plate VW 402
- Punch VW 408 A
- Punch VW 411
- Tube 37mm Dia. VW 416 B
- Thrust Pad VW 447 H

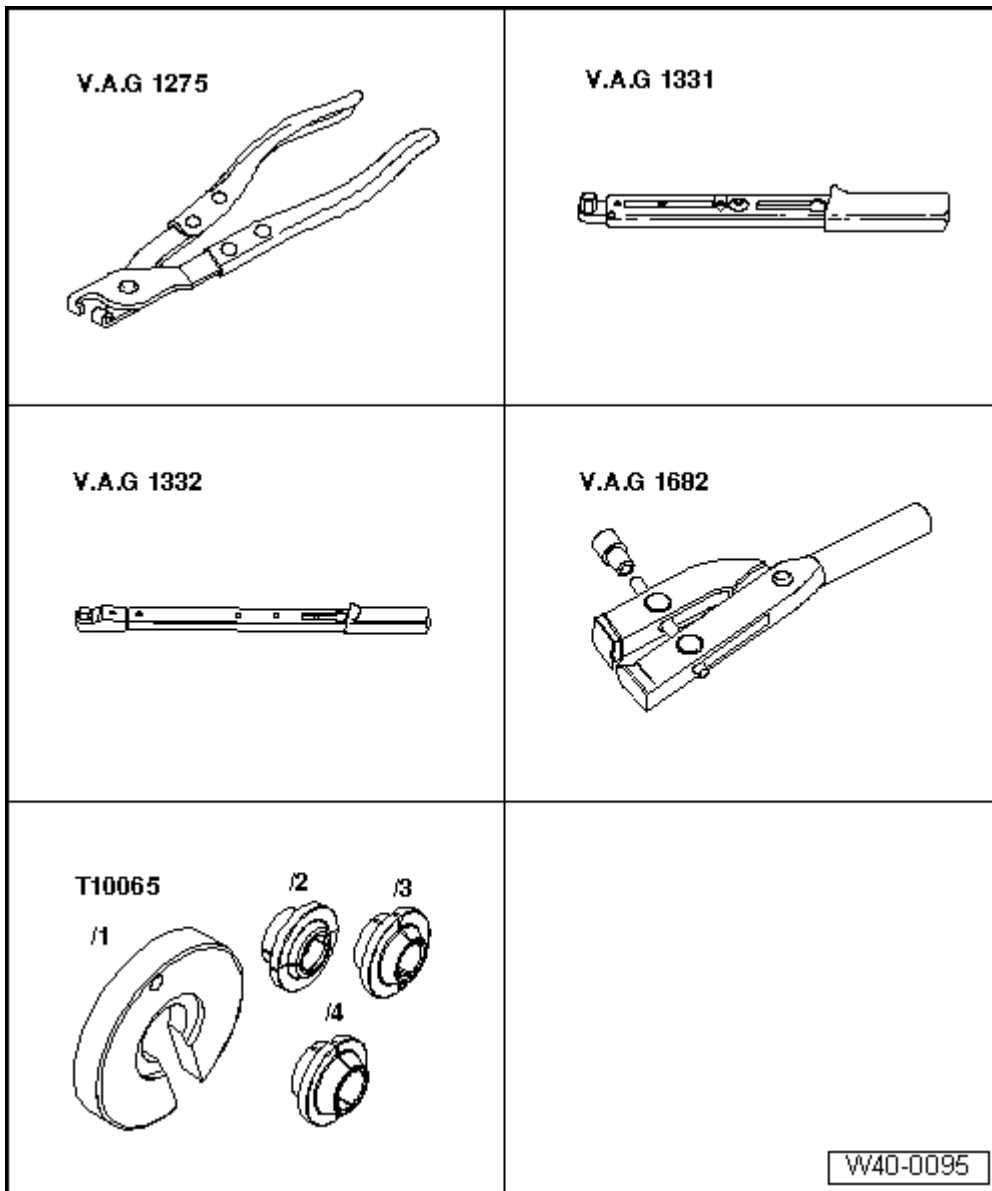


Fig. 162: Identifying Special Tools -- Axle Shaft Assembly With Triple Roller Joint
Courtesy of AUDI OF AMERICA, LLC

Special tools and workshop equipment required

- Hose Clamp Pliers V.A.G 1275
- Torque Wrench 5-50 Nm V.A.G 1331
- Torque Wrench 50-200 Nm V.A.G 1332
- CV Joint Boot Clamp Tool V.A.G 1682
- Assembly Tool T10065

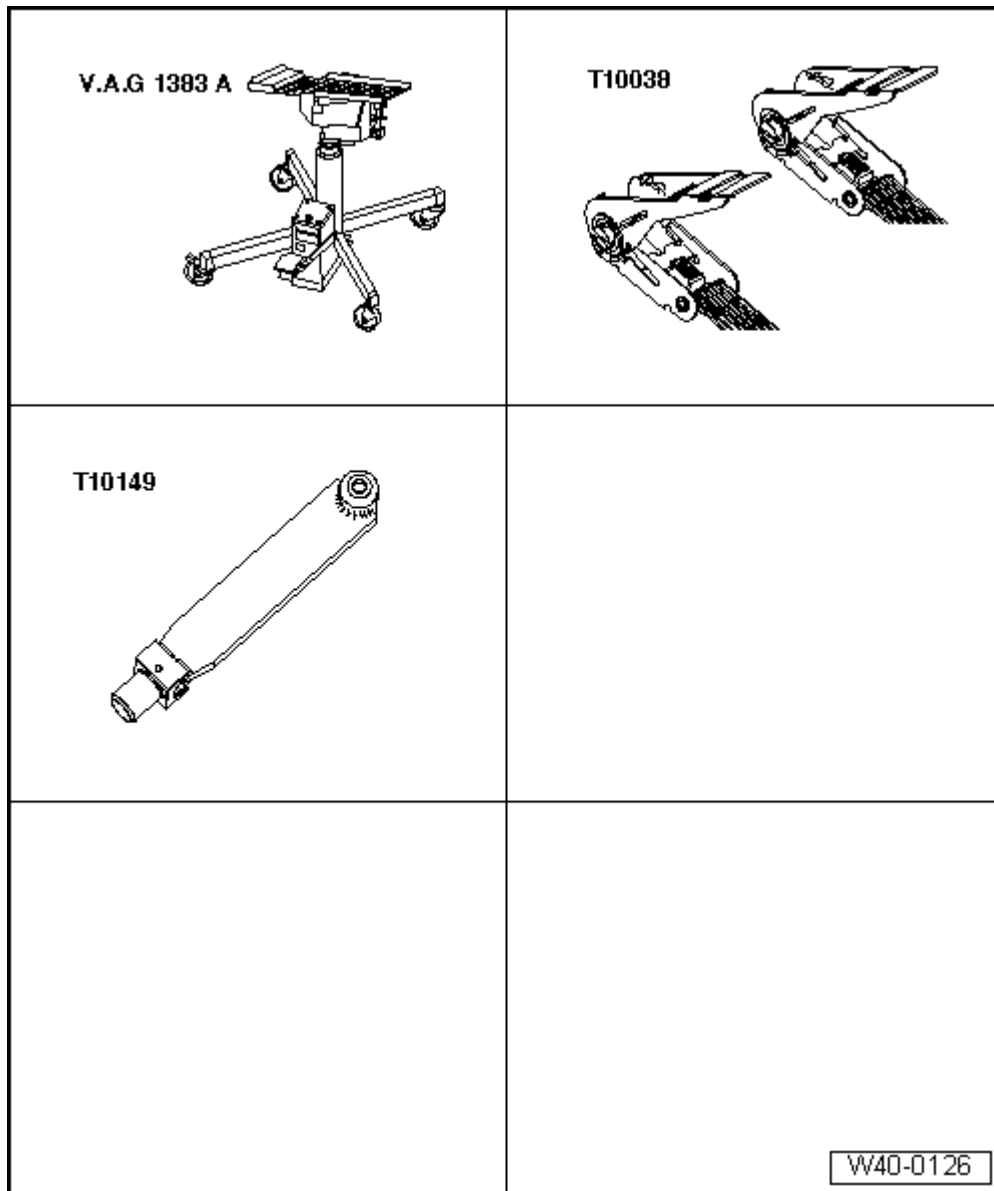


Fig. 163: Identifying Special Tools -- Axle And Wheel Bearing
Courtesy of AUDI OF AMERICA, LLC

Special tools and workshop equipment required

- Engine-/Gearbox Jack V.A.G 1383 A
- Tensioning Strap T10038
- Wheel Hub Support T10149

Special tools and workshop equipment required

- Engine Support Bridge 10-222 A

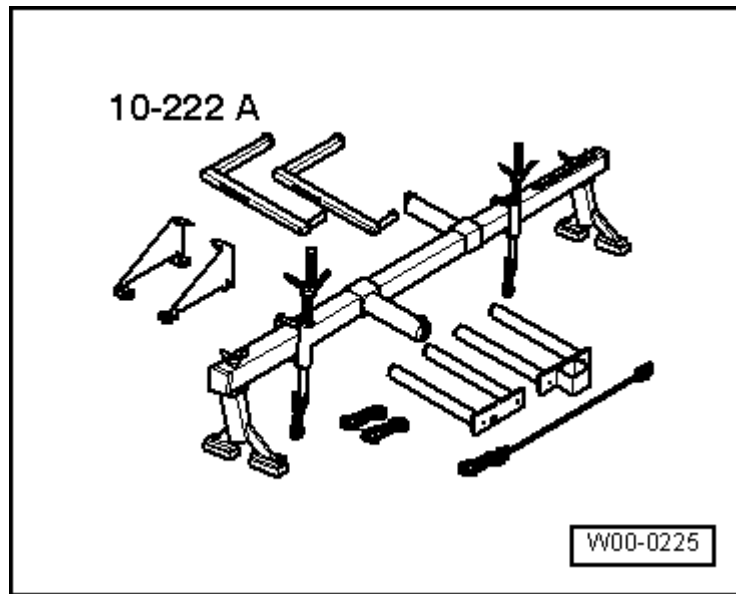


Fig. 164: Identifying Engine Support Bridge 10 - 222 A
 Courtesy of AUDI OF AMERICA, LLC

- -3- Kukko Puller 15/3 with 17/3

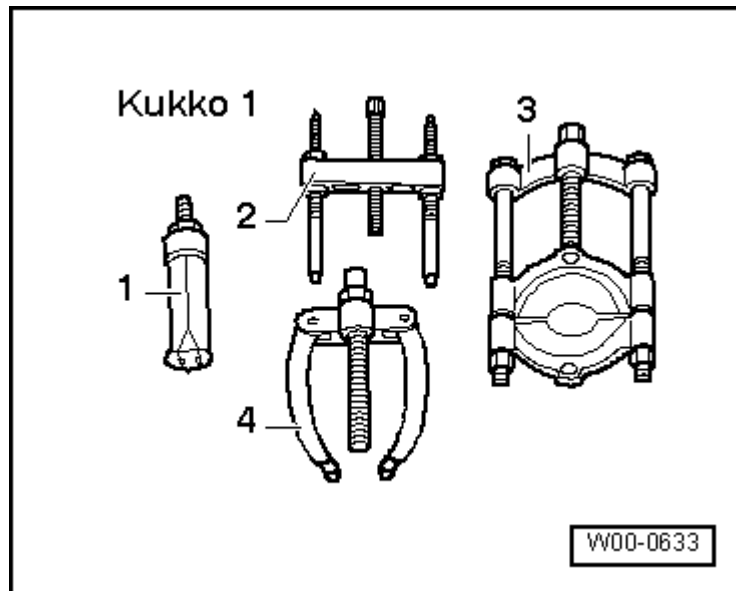


Fig. 165: Identifying Kukko Tools
 Courtesy of AUDI OF AMERICA, LLC

- Press Support-R and I Wheel Brg's 3144

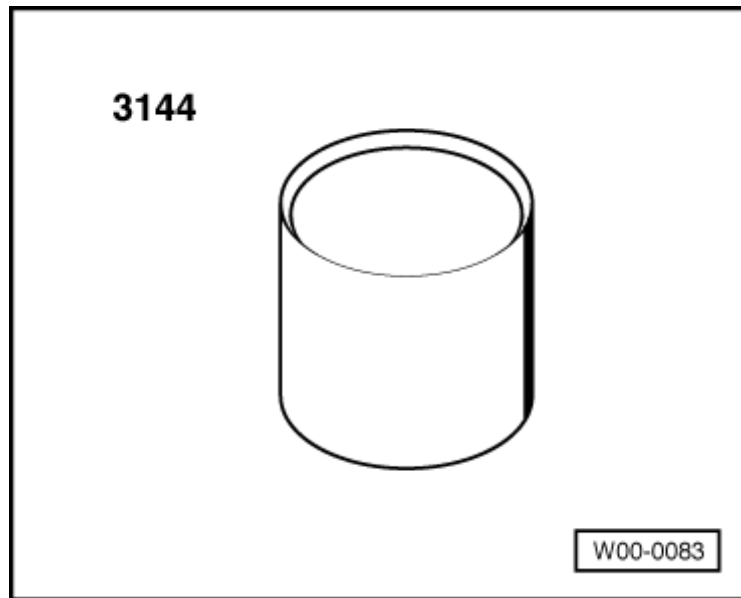


Fig. 166: Identifying Assembly Tool Press Support-R and I Wheel Brg's 3144
Courtesy of AUDI OF AMERICA, LLC

- Assembly Tool 3301

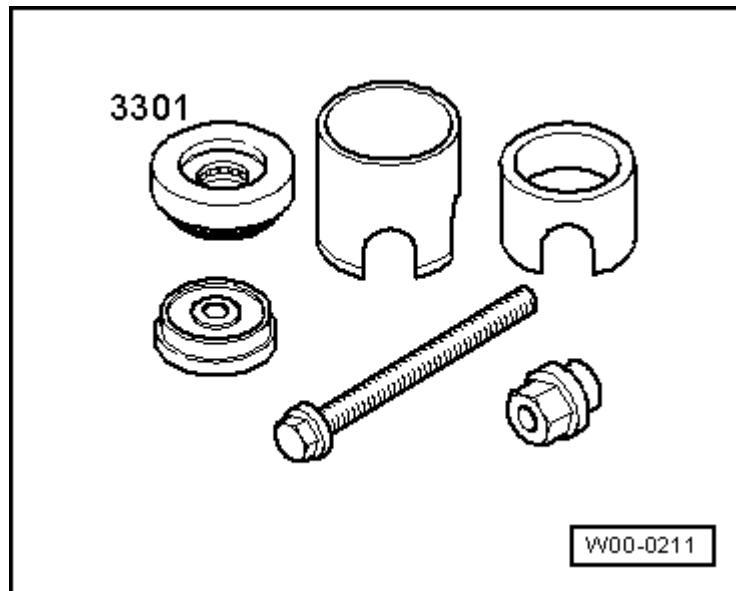


Fig. 167: Identifying Assembly Tool 3301
Courtesy of AUDI OF AMERICA, LLC

- Pliers 3340

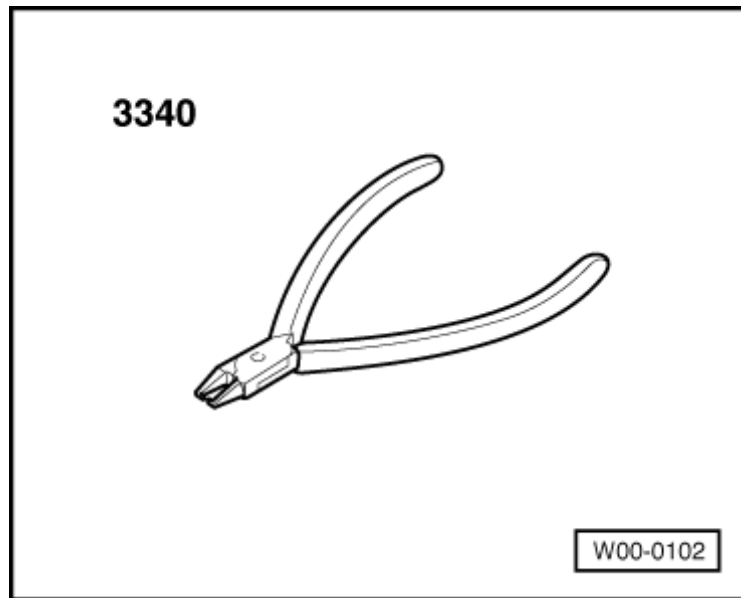


Fig. 168: Identifying CV Joint Boot Clamp Tool 3340
Courtesy of AUDI OF AMERICA, LLC

- Support Arm Bearing Inst. Tool 3346

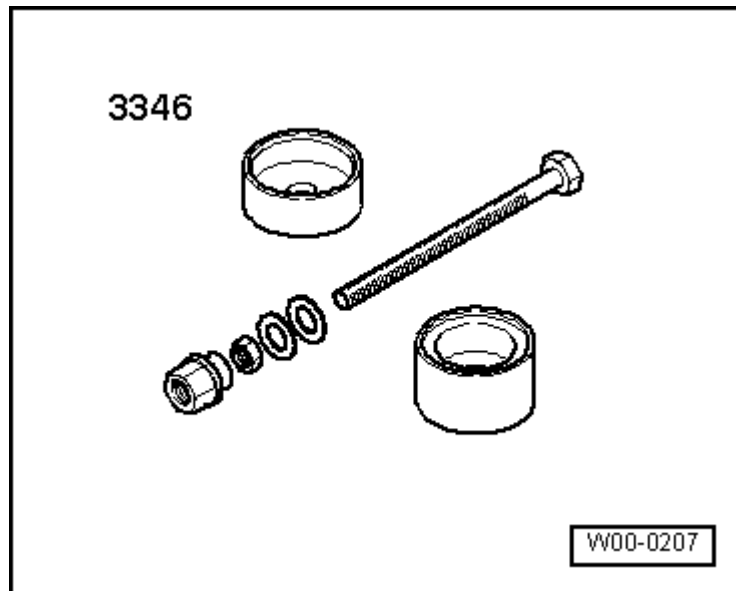


Fig. 169: Identifying Assembly Tool 3346
Courtesy of AUDI OF AMERICA, LLC

- Front and Rear Bearing Tool 3348

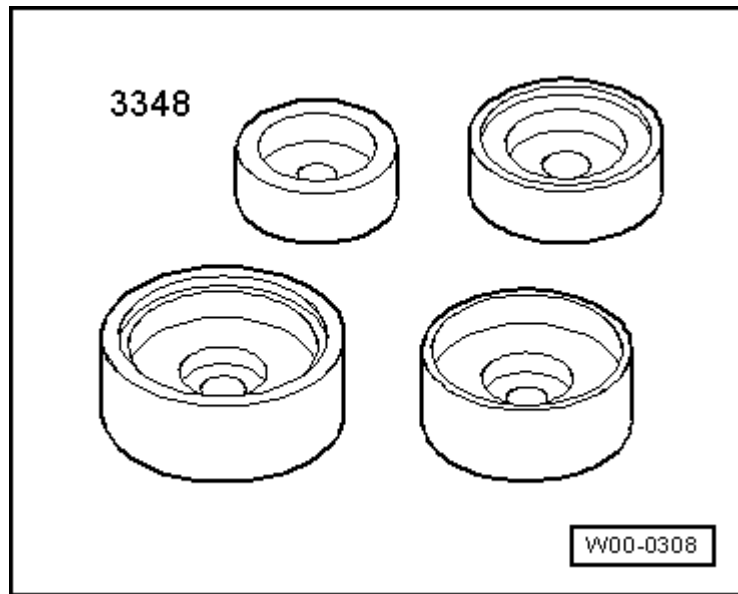


Fig. 170: Identifying Assembly Tool 3348
Courtesy of AUDI OF AMERICA, LLC

- Spreader 3424

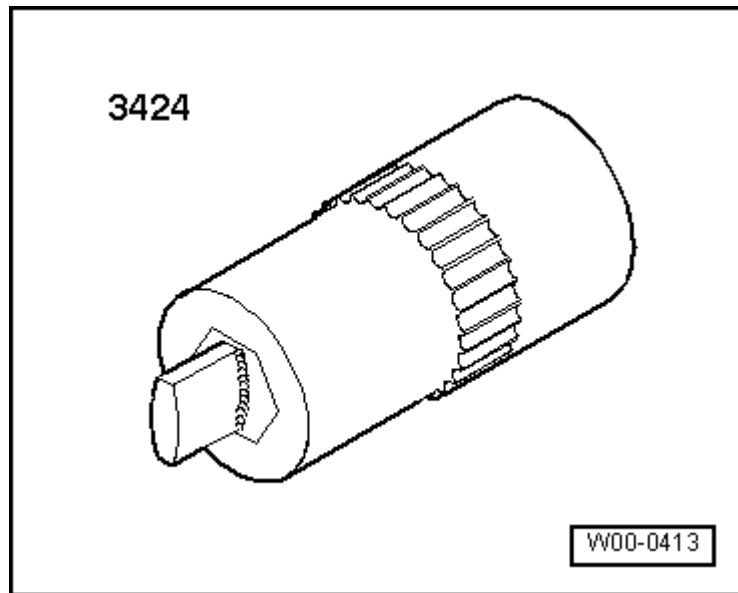


Fig. 171: Identifying Spreader 3424
Courtesy of AUDI OF AMERICA, LLC

- Socket T10001/3

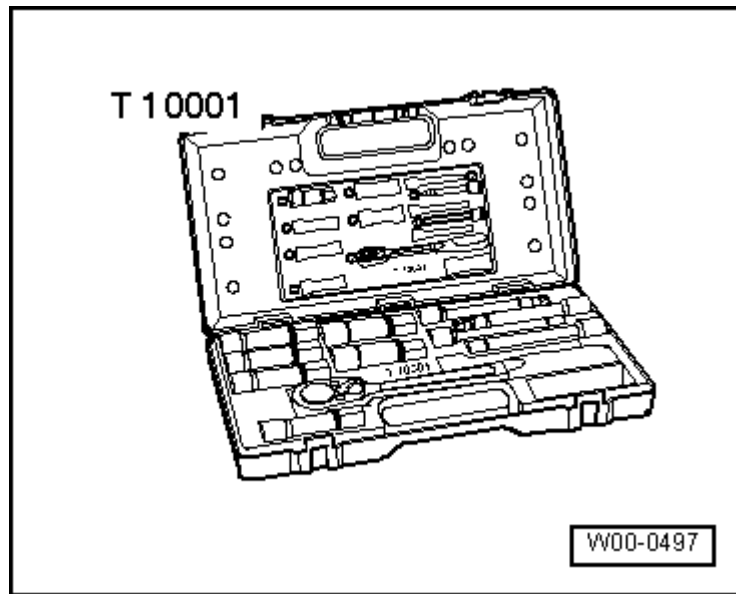


Fig. 172: Identifying Shock Absorber Set T10001
Courtesy of AUDI OF AMERICA, LLC

- Ssocket T10001/4
- Replacement Component for T100001 T10001/7
- Replacement Component for T10001 T10001/11
- Assembly Tool T10030

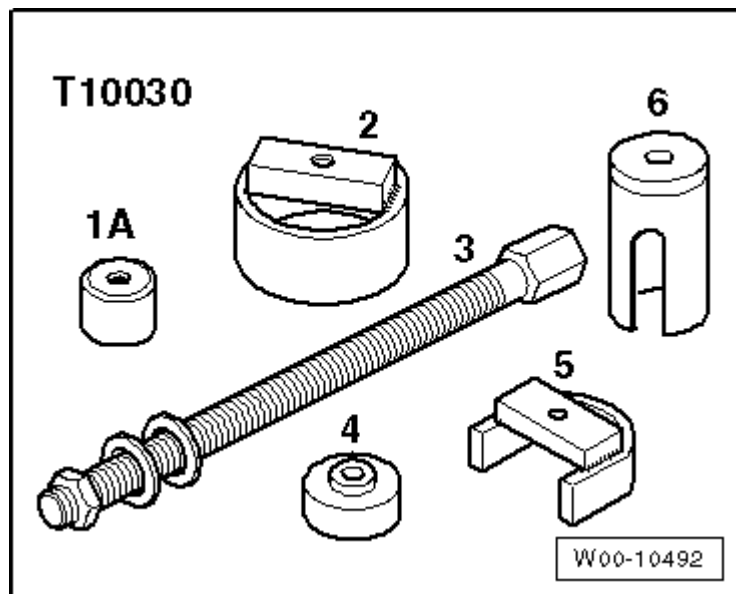


Fig. 173: Identifying Assembly Tool T10230
Courtesy of AUDI OF AMERICA, LLC

- Assembly Tool T10230

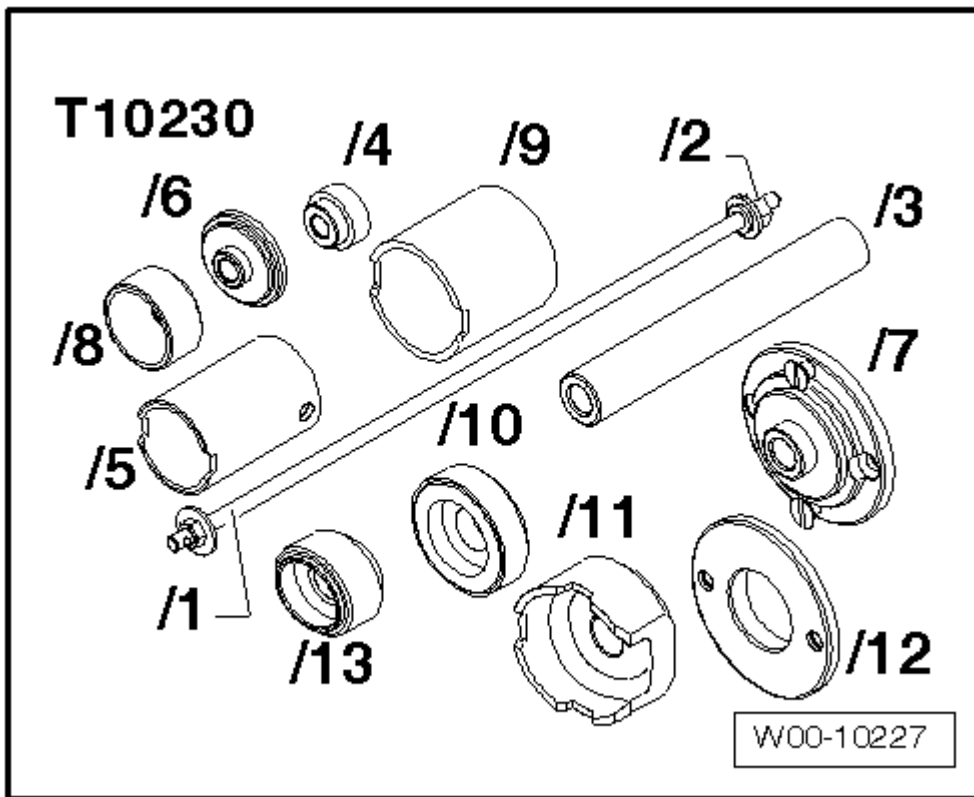


Fig. 174: Identifying Ball Joint Puller T40010 A
 Courtesy of AUDI OF AMERICA, LLC

- Ball Joint Puller T40010 A

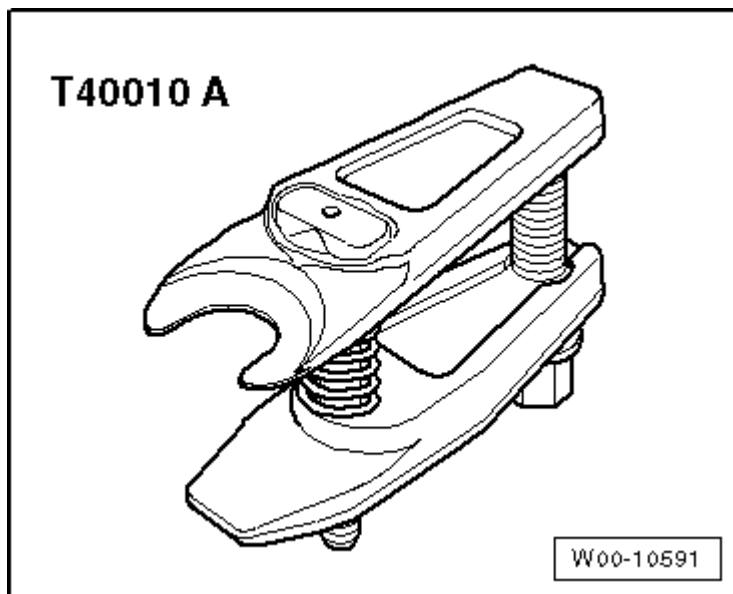


Fig. 175: Identifying Ball Joint Puller T40010 A
 Courtesy of AUDI OF AMERICA, LLC

- Assembly/Removal Tool T40018

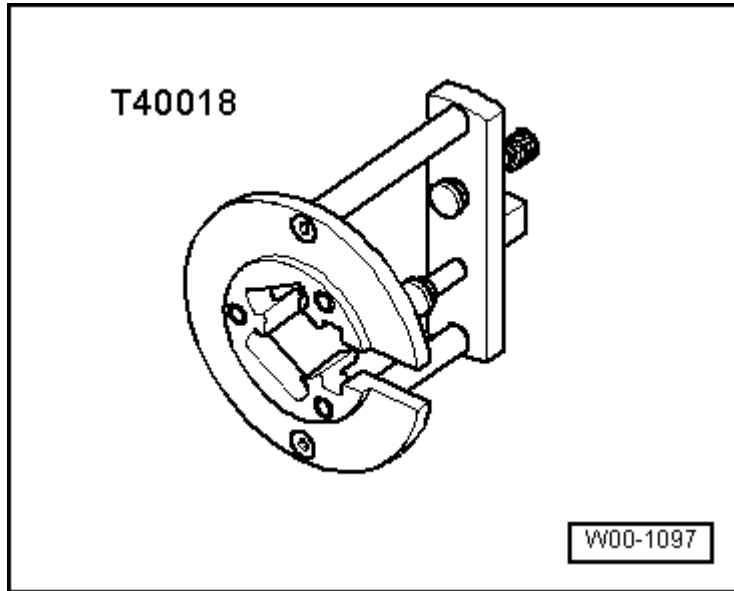


Fig. 176: Identifying Assembly Device T40018 For Triple Roller Joint AAR 3300 i
Courtesy of AUDI OF AMERICA, LLC

- or Removal & Assembly Tool T40084 for triple roller joint AAR 2600 i

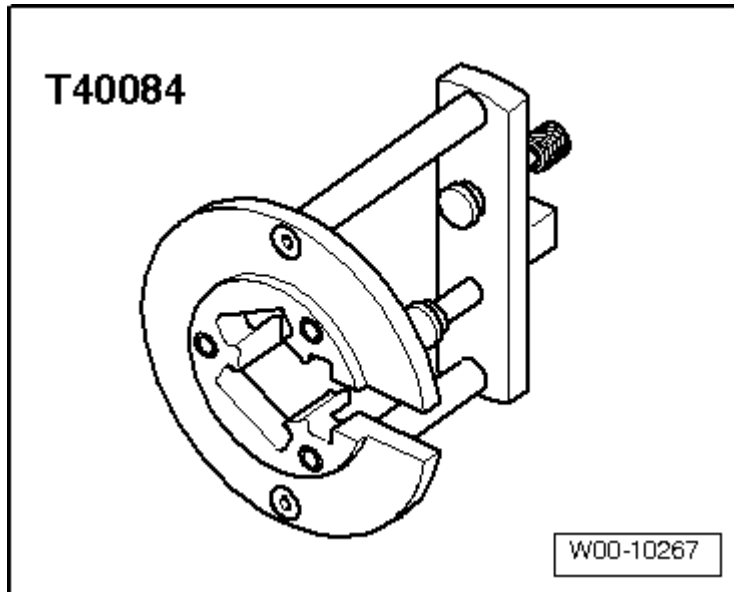


Fig. 177: Identifying Engine Support Supplement Set T40093
Courtesy of AUDI OF AMERICA, LLC

- Engine Support Supplement Set T40093.

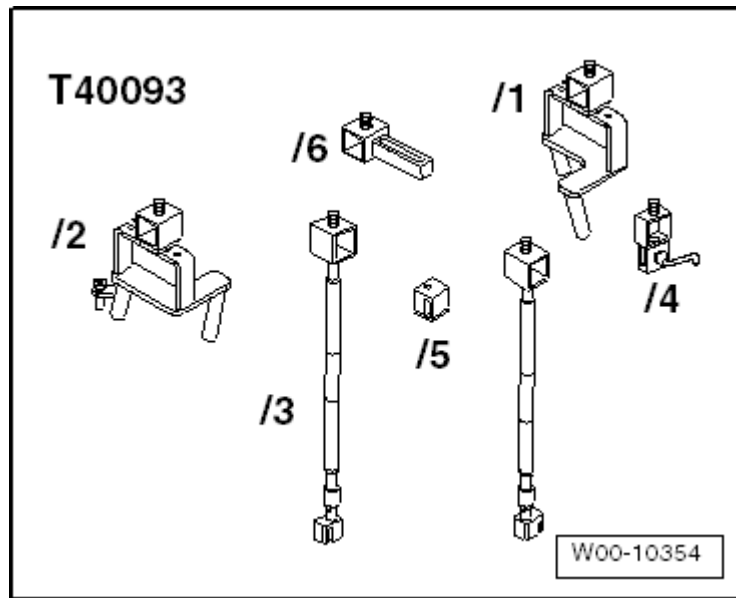


Fig. 178: Identifying Engine Support Supplement Set T40093
Courtesy of AUDI OF AMERICA, LLC

- Hose Clamp Pliers V.A.G 1275

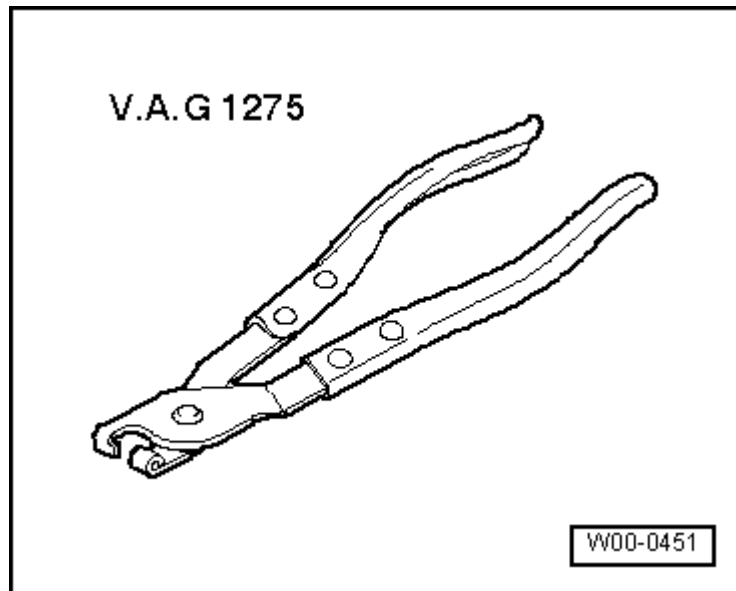


Fig. 179: Identifying Hose Clamp Pliers V.A.G 1275
Courtesy of AUDI OF AMERICA, LLC

- Shop Press V.A.G 1290A

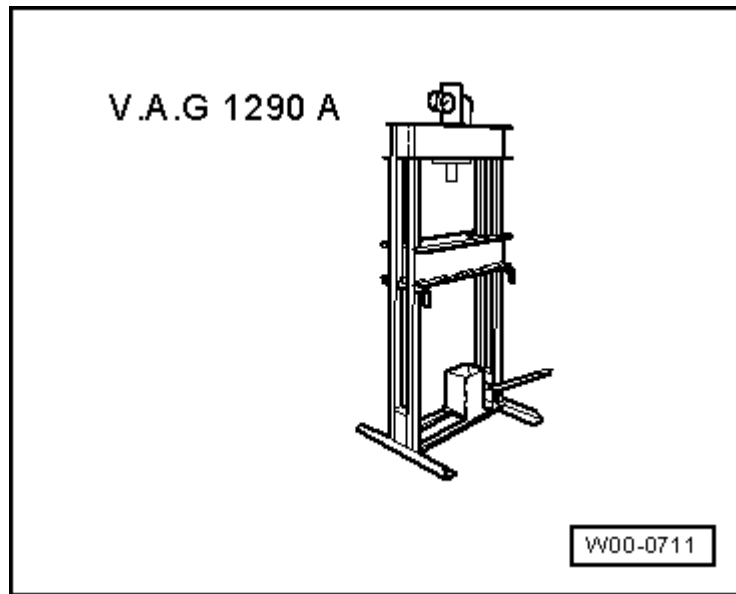


Fig. 180: Identifying Shop Press V.A.G 1290 A
Courtesy of AUDI OF AMERICA, LLC

- Torque Wrench 5-50 Nm V.A.G 1331

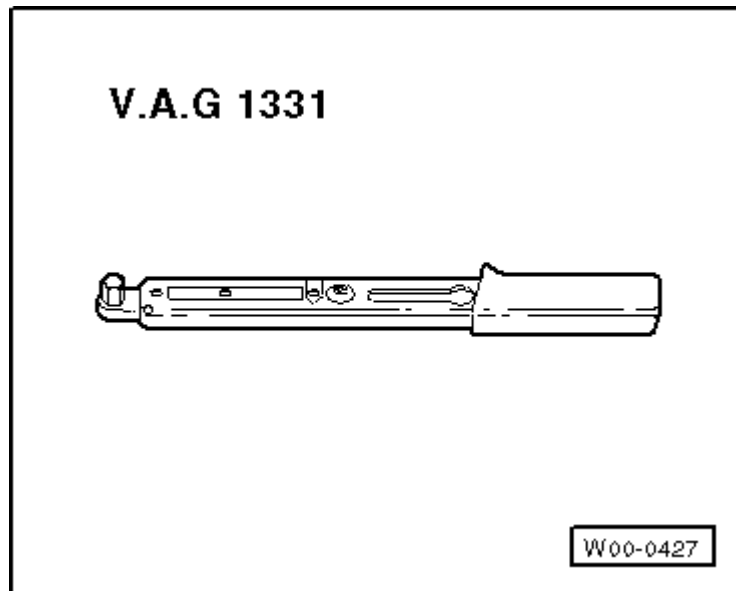


Fig. 181: Identifying Torque Wrench (5 To 50 Nm) V.A.G 1331
Courtesy of AUDI OF AMERICA, LLC

- Torque Wrench 50-200 Nm V.A.G 1332

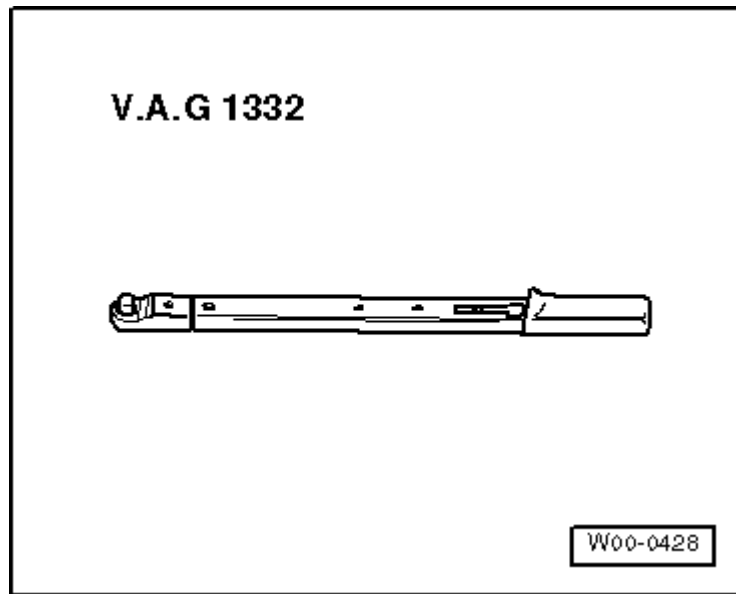


Fig. 182: Identifying Torque Wrench 40-200 Nm V.A.G 1332
Courtesy of AUDI OF AMERICA, LLC

- Ring Spanner Insert VAG 1332/10 V.A.G 1332/10

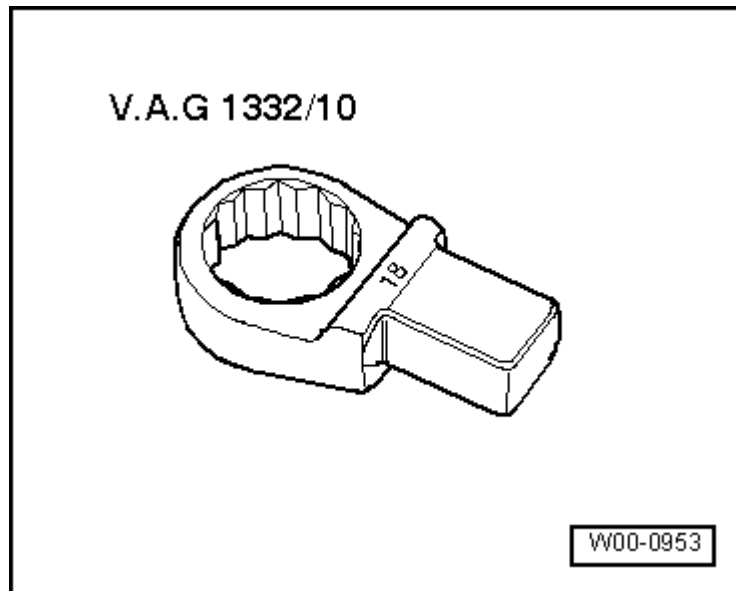


Fig. 183: Identifying Ring Spanner Insert V.A.G 1332/10
Courtesy of AUDI OF AMERICA, LLC

- or Ring Spanner Insert, AF 21 mm V.A.G 1332/7

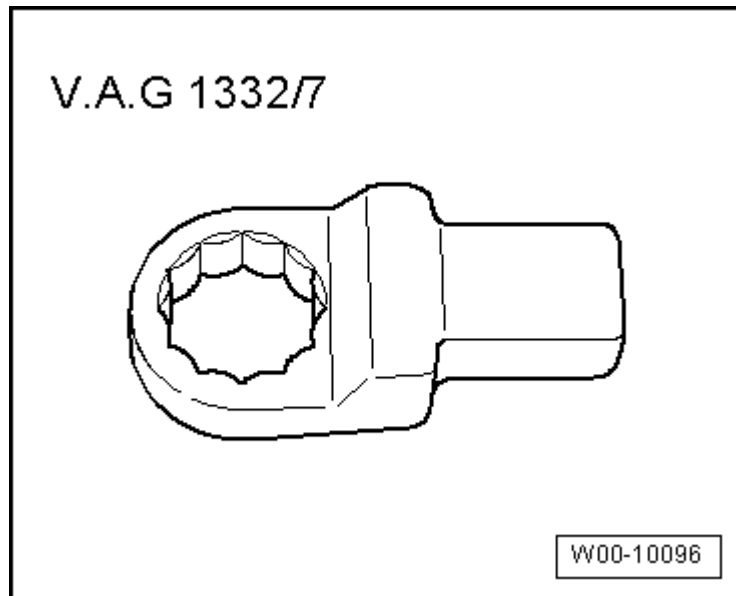


Fig. 184: Identifying Ring Insertion Tool V.A.G 1332/7
Courtesy of AUDI OF AMERICA, LLC

- Torque Wrench V.A.G 1410

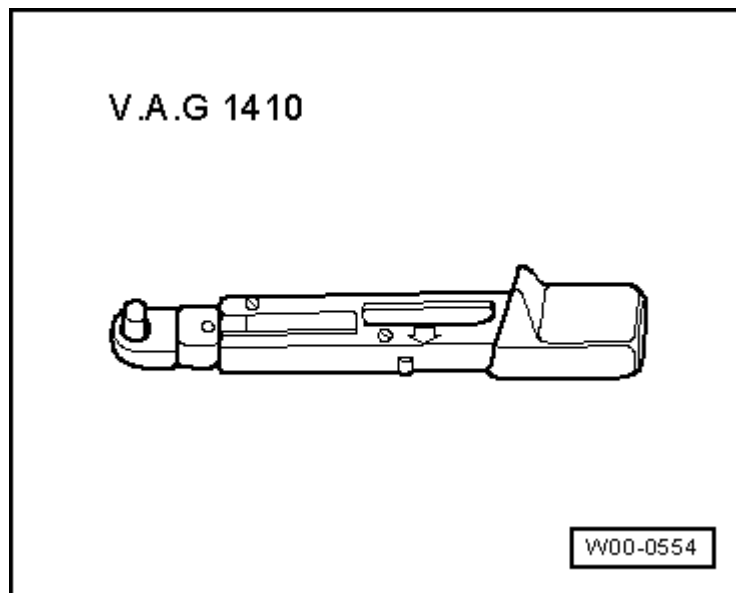


Fig. 185: Identifying Torque Wrench V.A.G 1410
Courtesy of AUDI OF AMERICA, LLC

- Torque Wrench V.A.G 1576

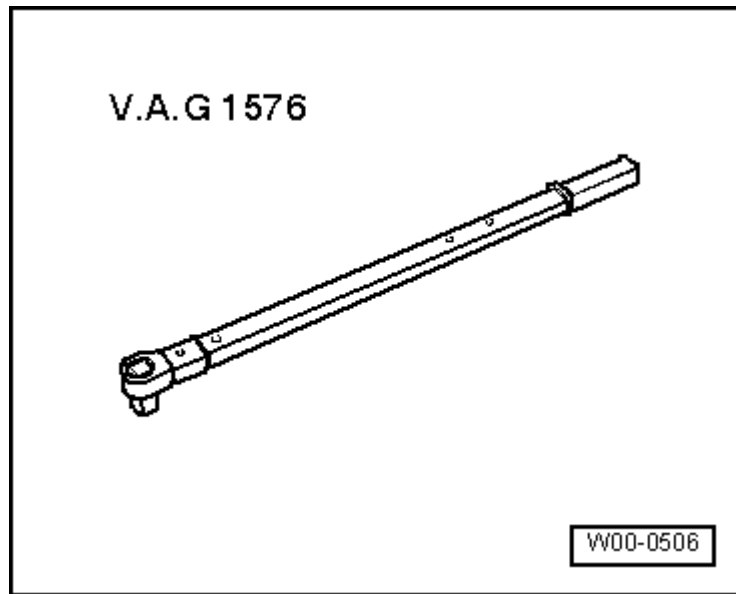


Fig. 186: Identifying Torque Wrench V.A.G 1576
Courtesy of AUDI OF AMERICA, LLC

- Torque Wrench V.A.G 1576

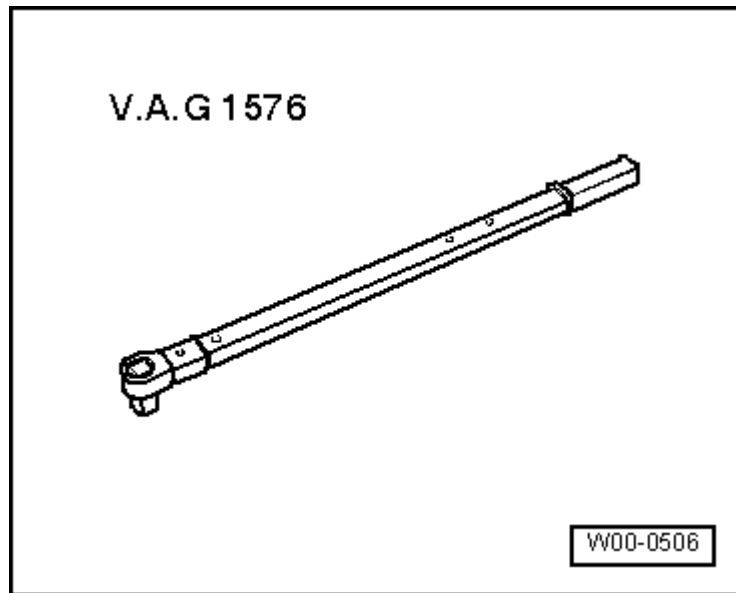


Fig. 187: Identifying Torque Wrench V.A.G 1576
Courtesy of AUDI OF AMERICA, LLC

- CV Joint Boot Clamp Tool V.A.G 1682

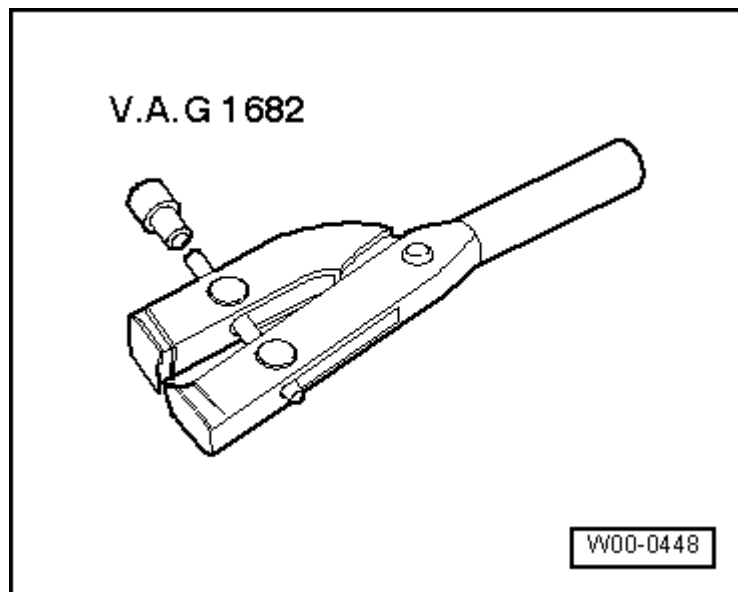


Fig. 188: Identifying CV Joint Boot Clamp Tool V.A.G 1682
Courtesy of AUDI OF AMERICA, LLC

- Spring Compressor V.A.G 1752/1
- Spring Mounting Tool V.A.G 1752/2

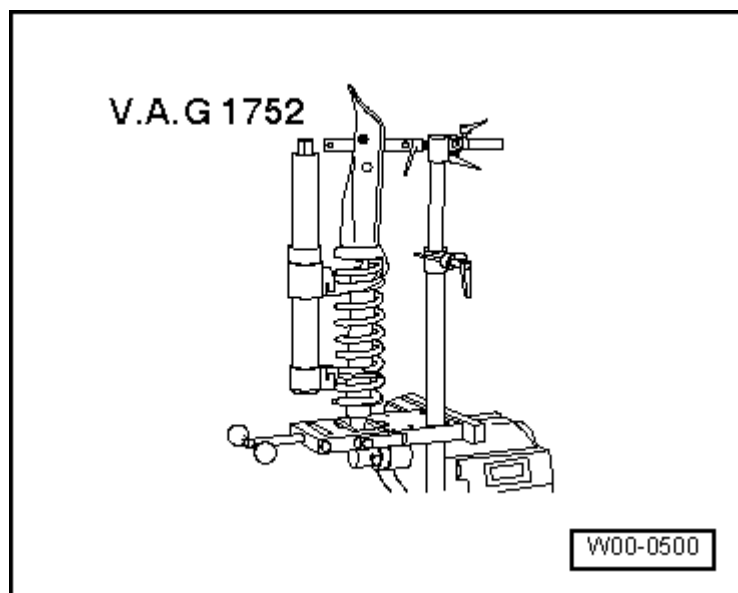


Fig. 189: Identifying Spring Compressor Kit V.A.G 1752
Courtesy of AUDI OF AMERICA, LLC

- Spring Holder for A4 V.A.G 1752/7

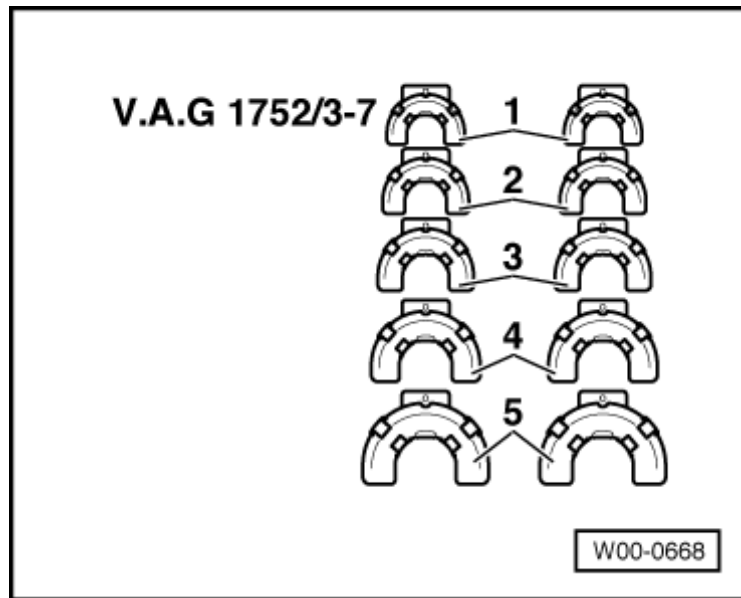


Fig. 190: Identifying Spring Compressor Kit V.A.G 1752/3-7
 Courtesy of AUDI OF AMERICA, LLC

- Supplementary Set F/Audi A6 (C6) V.A.G 1752/18
- Rod, Extended V.A.G 1752/18-3
- Clamping Jaw V.A.G 1752/19-1
- Supplementary set for Audi A5/A4 V.A.G 1752/19
- Vehicle Diagnosis, Testing and Information System VAS 5051B with corresponding diagnostic cable.

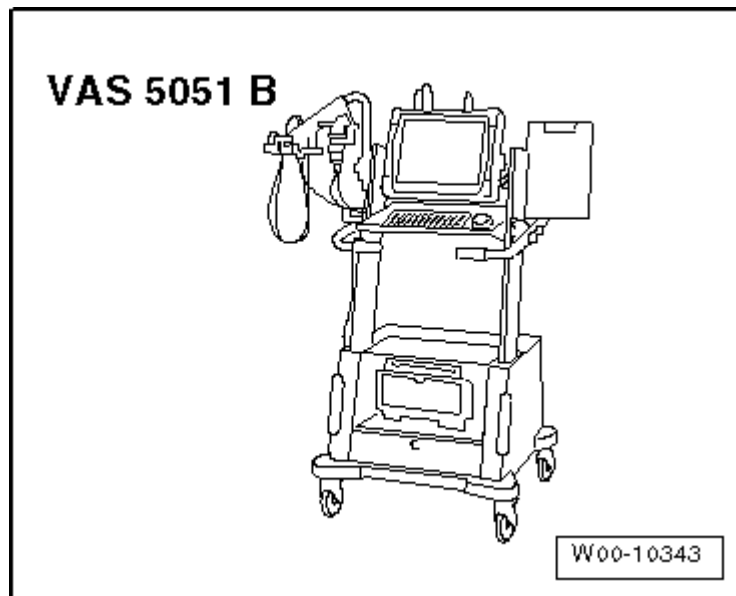


Fig. 191: Identifying Identifying Vehicle Diagnosis, Testing And Information System VAS 5051B
 Courtesy of AUDI OF AMERICA, LLC

- Thrust Plate VW 401

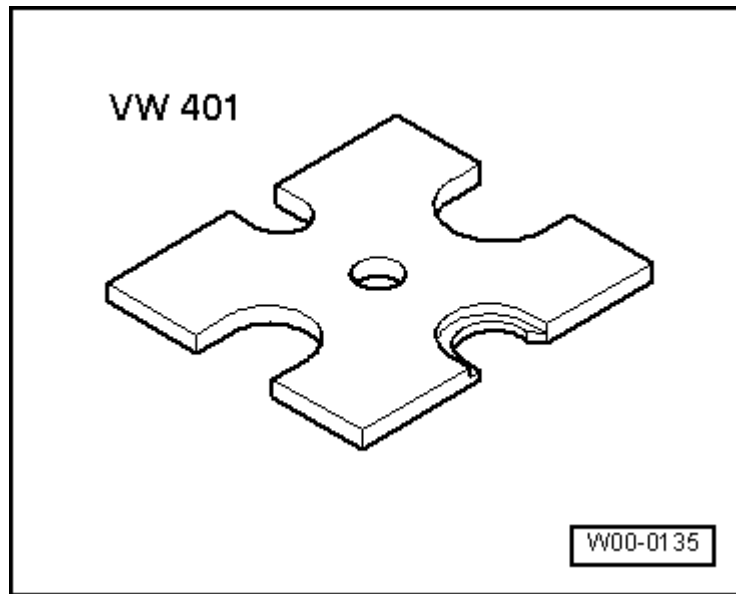


Fig. 192: Identifying Thrust Plate VW 401
Courtesy of AUDI OF AMERICA, LLC

- Thrust Disc VW 412

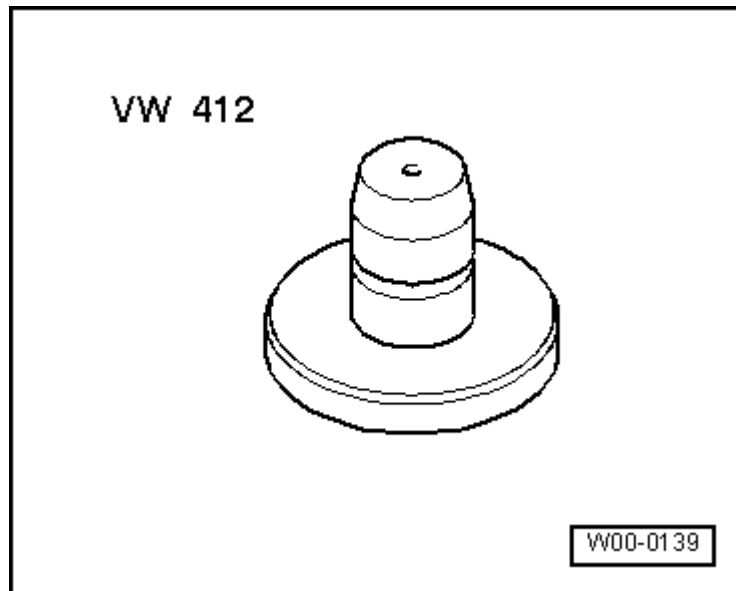


Fig. 193: Identifying Punch VW 412
Courtesy of AUDI OF AMERICA, LLC

- Sleeve VW 463/2

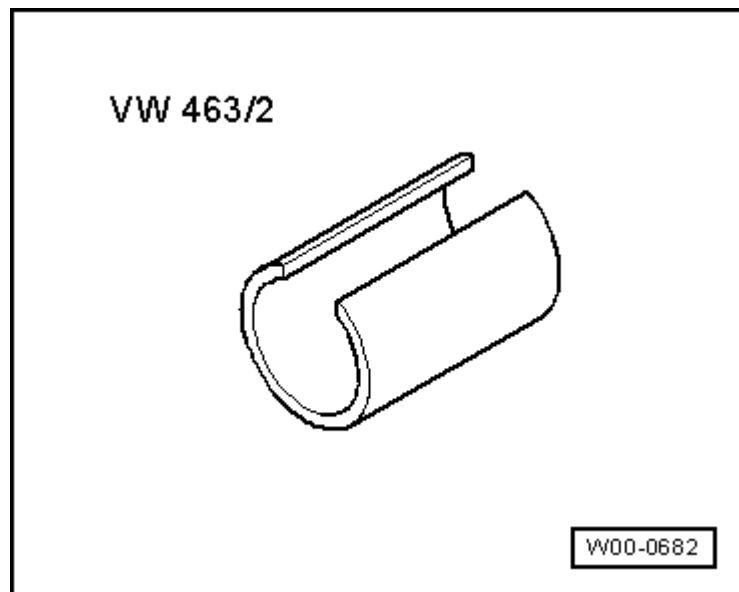


Fig. 194: Identifying Slide Hammer - Complete Set VW 771
Courtesy of AUDI OF AMERICA, LLC

- Slide Hammer - Complete Set VW 771

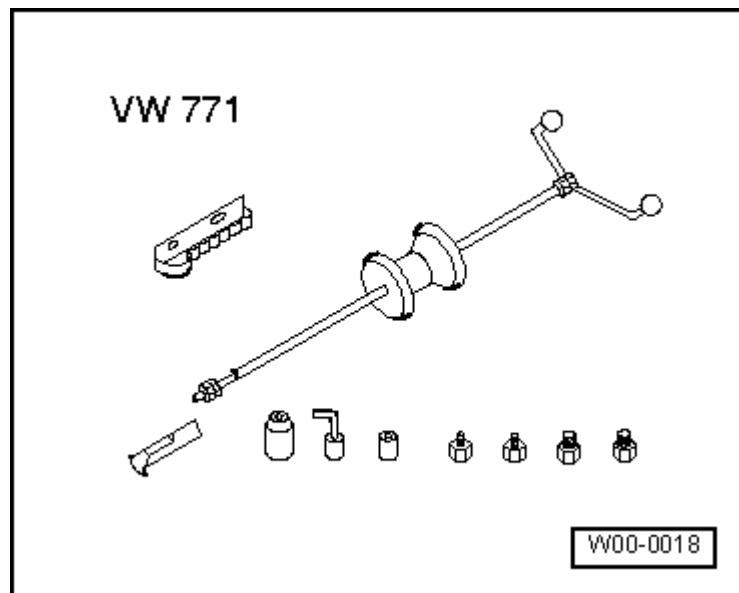


Fig. 195: Identifying Slide Hammer VW 771
Courtesy of AUDI OF AMERICA, LLC