

BRAKES

Hydraulic Components - Brake System (Sedan)

HYDRAULIC COMPONENTS

GENERAL INFORMATION

BRAKE SYSTEM, BLEEDING

WARNING:

- Do not, under any circumstances, allow brake fluid to come into contact with any fluids containing mineral oil (oil, gasoline, cleaning solvents). Mineral oil damages the sealing plugs and boots of the brake system.
- Brake fluid is poisonous. NEVER siphon brake fluid with your mouth! Also due to its corrosive effect, brake fluid must not come into contact with paintwork.
- Brake fluid is hygroscopic, meaning that it absorbs moisture from the surrounding air, and must therefore be stored in air-tight containers.
- When bleeding, brake fluid that has been flushed through must not be reused and must be disposed of properly.
- Observe disposal regulations BRAKE FLUID .

NOTE:

- Only use new brake fluid conforming to US-Norm FMVSS 116 DOT 4.
- Genuine VW/Audi brake fluid conforms to this specification.
- Do not use any silicone-based fluid.
- Avoid contaminating brake fluid with particles or lint (e.g. from cleaning cloths).
- Rinse off spills, by using plenty of water.
- Do not work with compressed air and do not move vehicle while the system is open.
- During the final road test, ensure that a ABS-controlled brake test is performed at least once (pulsation must be felt at the brake pedal).
- The brake system indicator light blinks when the brake fluid is too low or the ABS system or parking brake is malfunctioning.

Bleeding Procedure

CAUTION: To make sure the brake system and the brake control system function properly, the entire brake system and hydraulic components must be bled correctly. The hydraulic unit N55 must be prefilled for Service.

NOTE:

- There must be a positive pressure of 2 bar to bleed the ABS Hydraulic Unit -N55-. Pressure setting must be checked at bleeder device.
- Only place brake pedal load device on brake system during assembly, then bleed.

Special tools and workshop equipment required

- Brake filler bleeder unit VAS 5234
- Adapter VAS 5234/1

Bleed the brake system with the brake filler bleeder unit VAS 5234 with the adapter VAS 5234/1

Follow Brake filler bleeder unit VAS 5234 operating instructions.

-- Remove plenum chamber cover **Removal and Installation** .

-- Raise vehicle.

-- Connect Brake filler bleeder unit VAS 5234 with adapter VAS 5234/1.

-- Open bleeder screws in the specified sequence and bleed (support with pedal pressure if necessary).

Bleeding sequence

WARNING: Each brake caliper with two bleeder screws. To achieve optimum brake system bleeding, bleed the respective brake caliper at both bleeder screws. Always bleed the outer screw first, then the inner one.

1 - Left front brake caliper

2 - Right front brake caliper

3 - Left rear brake caliper

4 - Right rear brake caliper.

-- Bleed until brake fluid comes out with no bubbles and foam.

-- Close bleeder screws.

-- Lower vehicle.

-- Install plenum chamber cover **Removal and Installation** .

BRAKE FLUID, CHANGING

Brake Fluid, Changing

Refer to appropriate service information. Refer to **MAINTENANCE, DIAGNOSIS** .

BRAKE LINE ROUTING

Brakes and brake lines are delivered as ready-to-install replacement parts.

Secure brakes and brake lines at original fastening points when installing.

Lines to hydraulic assembly

-- Items -1- through -4- hex nuts (-M10- and M12 dia. 5 mm brake lines), 12 Nm tightening specification.

-- Items -5- and -6- hex nuts (-M14- dia. 8 mm brake lines), 16 Nm tightening specification.

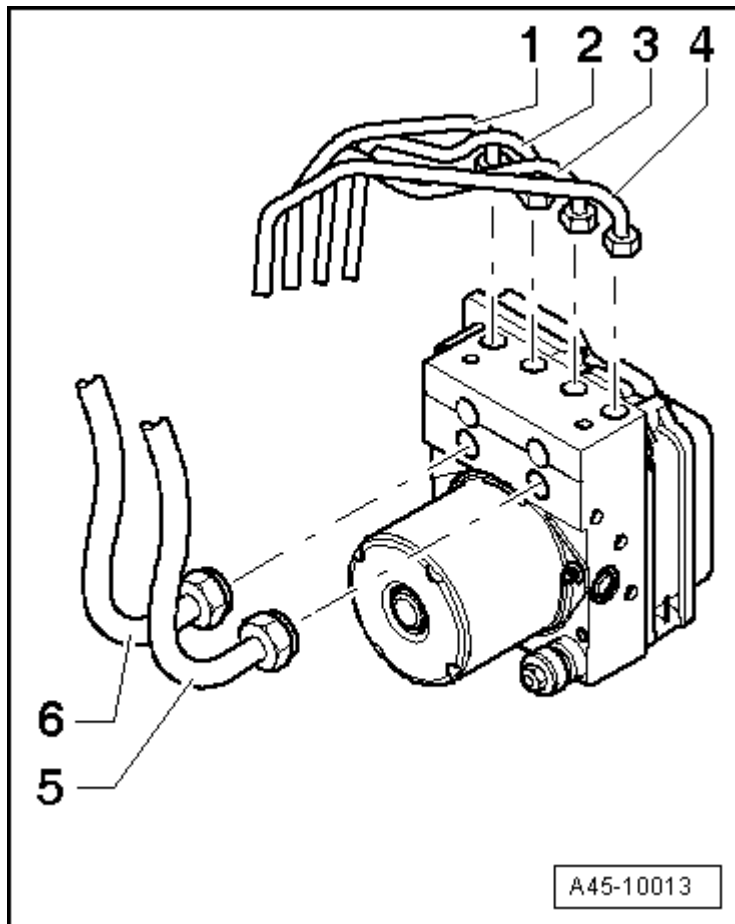


Fig. 1: Connecting Brake Caliper & Piston Circuit Lines
Courtesy of AUDI OF AMERICA, LLC

Brake hose to brake caliper to front axle

-- Item -1- brake hose, ensure retaining tabs are seated correctly in bracket.

- Item -2- retaining spring.
- Item -3- brake line, 17 Nm tightening specification.

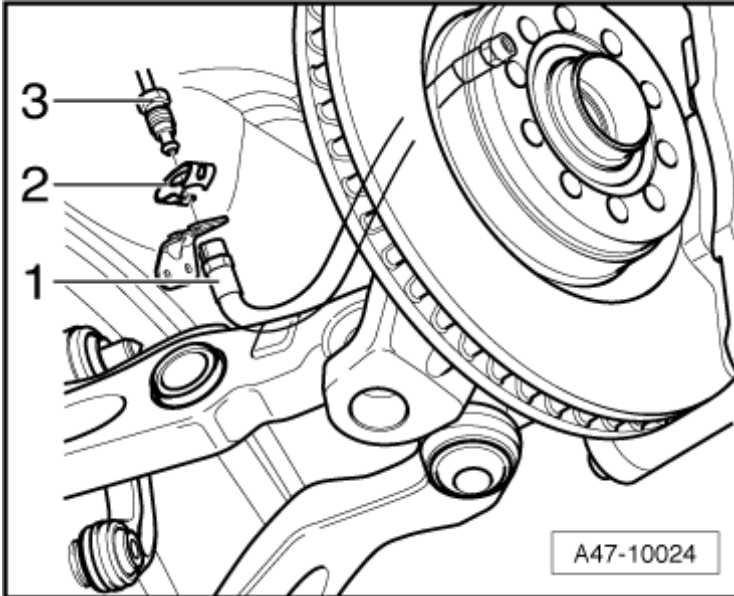


Fig. 2: Identifying Brake Hose, Retaining Spring & Brake Line
Courtesy of AUDI OF AMERICA, LLC

- Item -1- brake line, 17 Nm tightening specification.
- Item -2- retaining spring.
- Item -3- brake hose, ensure retaining tabs are seated correctly in bracket.

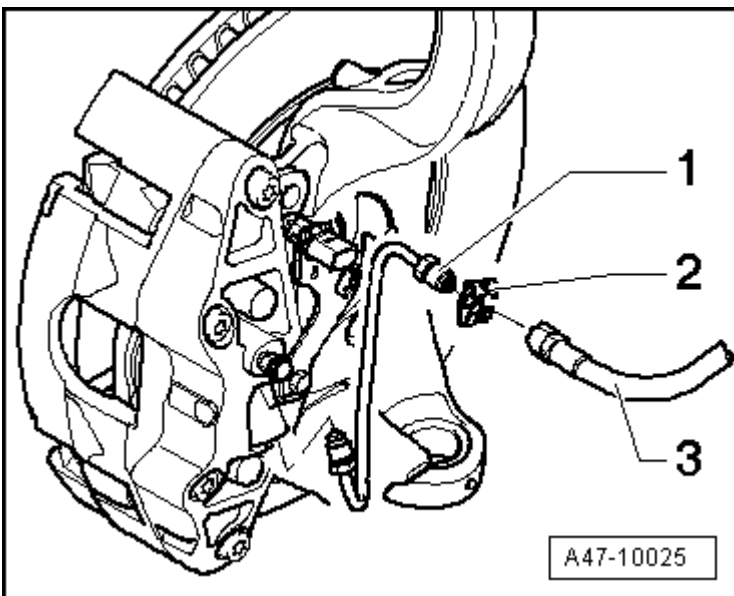


Fig. 3: Identifying Brake Line, Retaining Spring & Brake Hose

Courtesy of AUDI OF AMERICA, LLC

Brake line routing in wheel housing to front axle

- Item -1- brake line, 12 Nm tightening specification.
- Item -2- intermediate piece.
- Item -3- brake line, 12 Nm tightening specification.

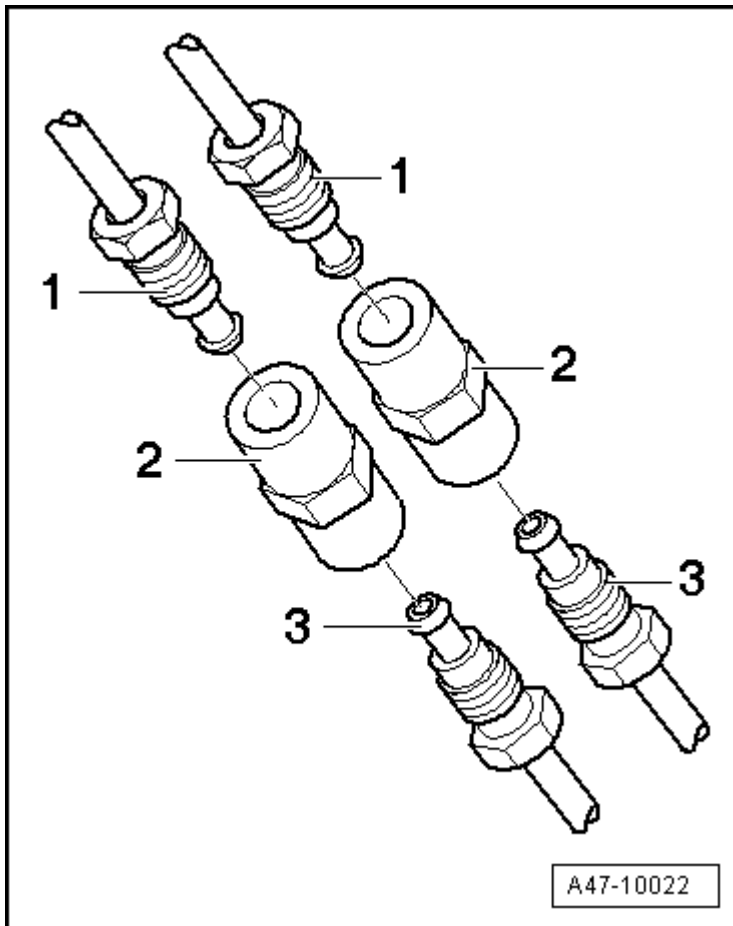


Fig. 4: Identifying Brake Line, Intermediate Piece & Brake Pipe Line
Courtesy of AUDI OF AMERICA, LLC

Brake line connecting in wheel housing to front axle

- Item -1- brake hose bracket.
- Item -2- brake line, 12 Nm tightening specification.

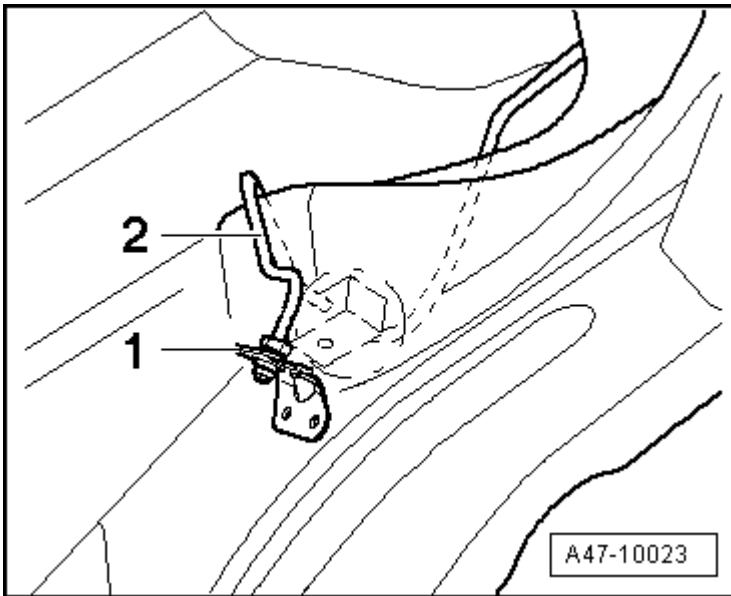


Fig. 5: Identifying Brake Hose Bracket & Brake Line
Courtesy of AUDI OF AMERICA, LLC

Brake line routing to rear axle

- Item -1- brake hose, 12 Nm tightening specification.
- Item -2- brake hose bracket, ensure retaining tabs are seated correctly in bracket.
- Item -3- retaining spring.
- Item -4- brake line, 12 Nm tightening specification.

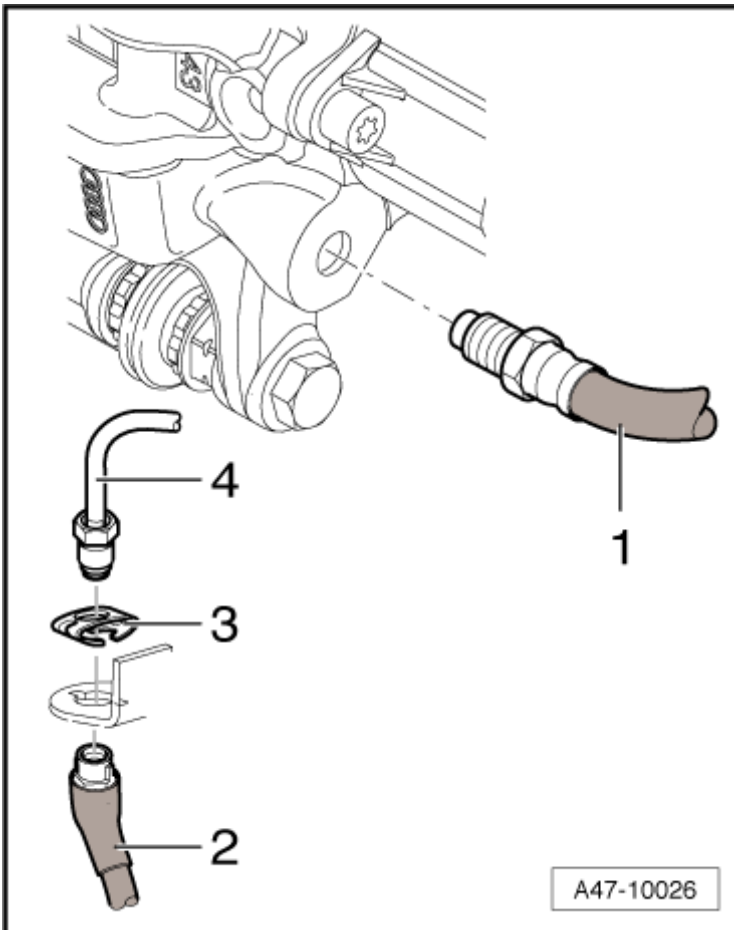


Fig. 6: Identifying Brake Hose, Brake Hose Bracket, Retaining Spring & Brake Line
 Courtesy of AUDI OF AMERICA, LLC

DESCRIPTION AND OPERATION

FN3

FBC

FN3 BRAKE CALIPER ASSEMBLY OVERVIEW

NOTE:

- Install complete repair kit when servicing.
- New brake calipers are filled with brake fluid and are pre-bled.
- Apply thin coat of assembly paste G 052 150 A2 to brake cylinders, pistons and seals.

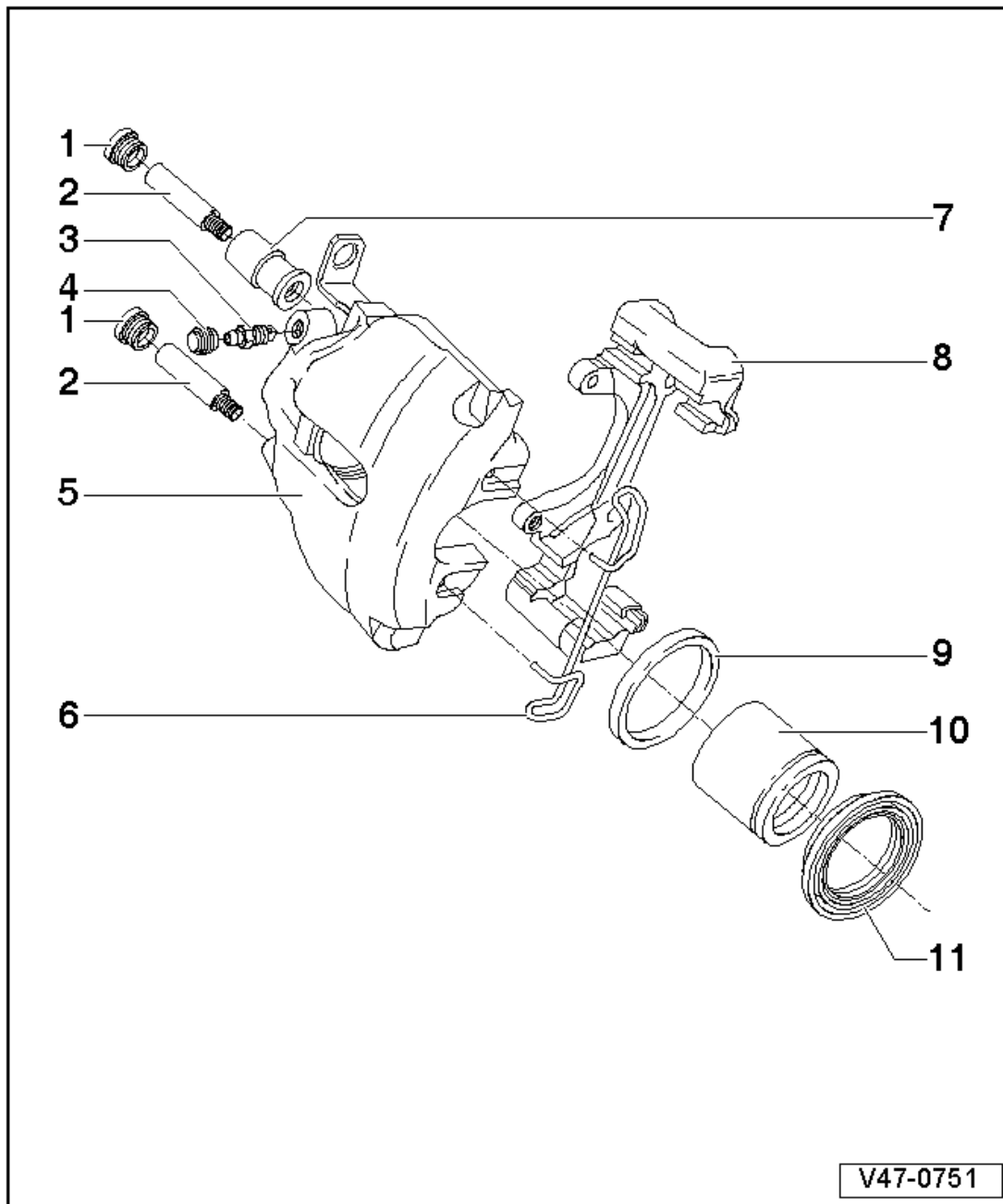


Fig. 7: Identifying FN3 Brake Caliper Overview
 Courtesy of AUDI OF AMERICA, LLC

1. Caps
 - Remove guide pins to remove.
 - Insert guide pins after installation.
2. Guide pins
 - 30 Nm
 - Replace **BUSHING AND GUIDE PINS, REPLACING**

3. Bleeder valve
 - Apply a thin coat of assembly paste G 052 150 A2 to threads before screwing in.
 - 10 Nm
4. Protective cap
 - Push onto bleeder valve
5. Brake caliper housing
6. Retaining spring
 - Insert with both ends in holes of brake caliper housing

NOTE: Retaining spring must be pressed under brake carrier after it is inserted in both holes. If improperly installed, the wear of the outer brake pad cannot be adjusted, thereby increasing brake pedal travel.

7. Bushing
 - Insert in brake caliper housing
 - Replace **BUSHING AND GUIDE PINS, REPLACING**
8. Brake carrier
 - Bolt to brake caliper housing
9. Seal
10. Pistons
 - First apply thin coat of brake cylinder paste G 052 150 A2 on piston
 - Diameter 57 mm.
11. Protective cap
 - Do not damage the piston when inserting it.

FBC BRAKE CALIPER ASSEMBLY OVERVIEW

- NOTE:**
- Install complete repair kit when servicing.
 - Apply thin coat of assembly paste G 052 150 A2 to brake cylinders, pistons and seals.

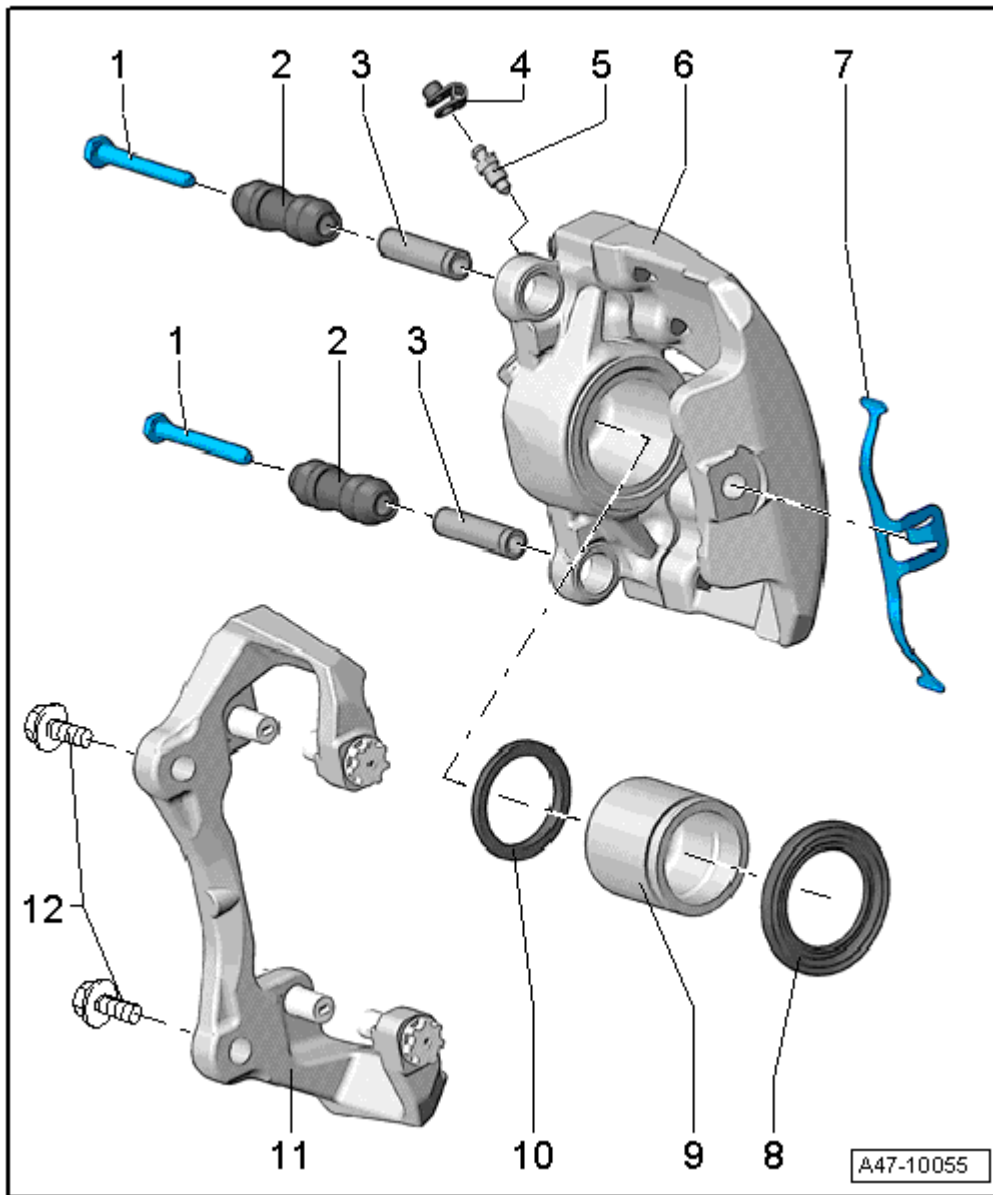


Fig. 8: Identifying Brake Caliper Exploded View

Courtesy of AUDI OF AMERICA, LLC

1. Bolt
 - 30 Nm
2. Protective cap
 - Insert in brake caliper
 - Replacing **PROTECTIVE CAP AND GUIDE PINS, REPLACING**
3. Guide pins
 - Slide through the boot
 - Replacing **PROTECTIVE CAP AND GUIDE PINS, REPLACING**
4. Protective cap

- Install on the bleeder valve.
- 5. Bleeder valve
 - Apply a thin coat of assembly paste G 052 150 A2 to the threads before screwing in.
 - 15 Nm
- 6. Brake caliper housing
- 7. Retaining spring
 - Ensure installation position is correct.
- 8. Protective cap
 - Do not damage when installing piston
 - Coat with Assembly paste G 052 150 A2
- 9. Pistons
 - First apply thin coat of brake cylinder paste G 052 150 A2 on piston
 - Diameter 57 mm.
- 10. Seal
 - Coat with assembly paste G 052 150 A2.
- 11. Brake carrier
 - Removing and Installing **BRAKE CALIPER WITH FRONT BRAKE CARRIER**
 - The 4 retaining pins for the brake pads on the brake carrier must not be loosened under any circumstances.
- 12. Bolt
 - 196 Nm

ELECTRONIC PARKING BRAKE REAR CALIPER ASSEMBLY OVERVIEW**NOTE:**

- **When servicing, install entire repair kit.**
- **Apply thin coat of assembly paste G 052 150 A2 to brake cylinders, pistons and seals.**

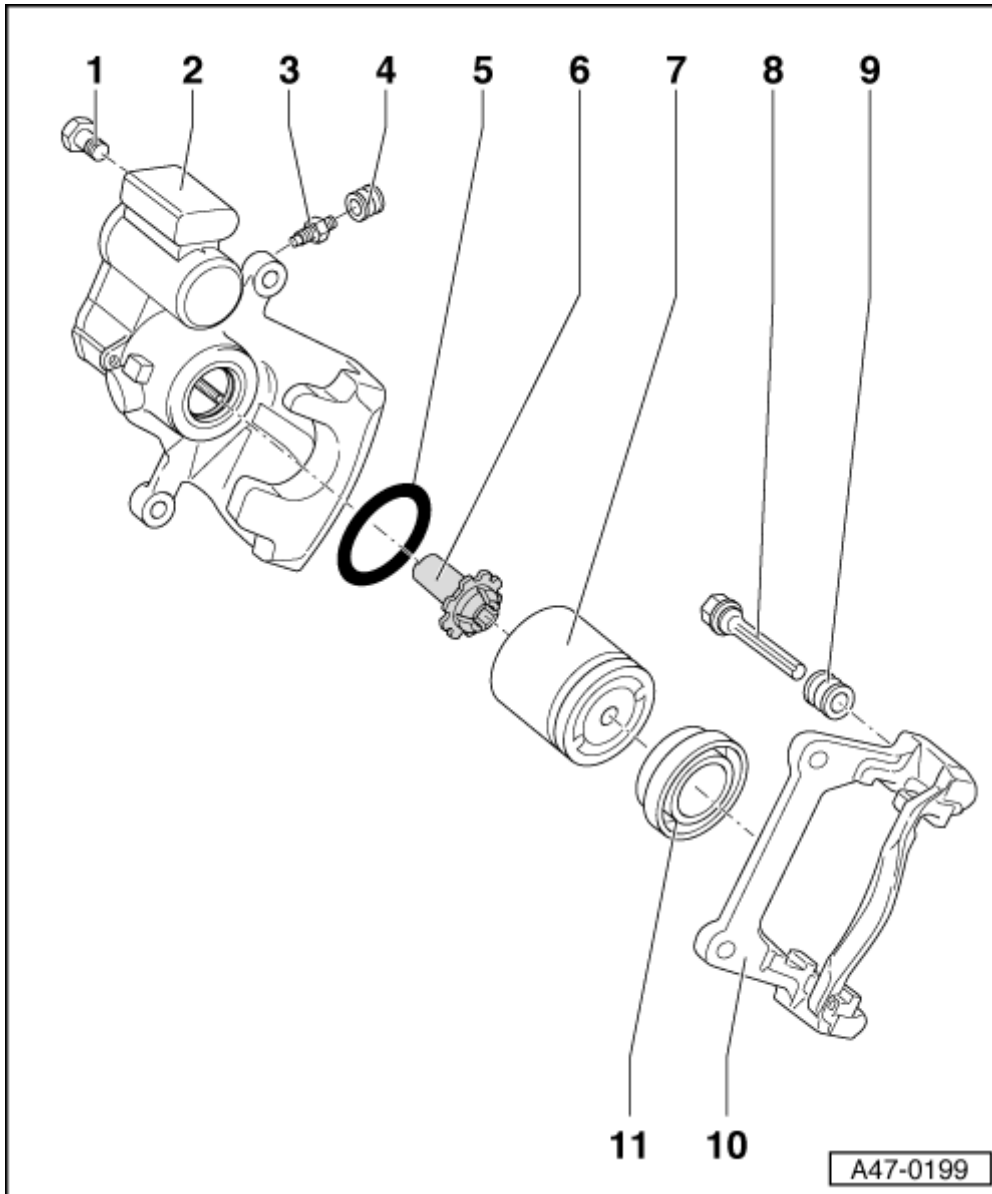


Fig. 9: Identifying Brake Caliper, Servicing Overview

Courtesy of AUDI OF AMERICA, LLC

1. Self-locking bolt
 - 35 Nm
 - Always replace
 - Counterhold at guide pin when loosening and tightening.
2. Brake caliper housing with actuator
3. Bleeder valve
 - 10 Nm
4. Dust cap
 - Push onto bleed valve

5. Seal
 - Removing and installing **REAR BRAKE CALIPER PISTON**
6. Pressure nut
 - To operate parking brake
7. Pistons
 - Removing and installing **REAR BRAKE CALIPER PISTON**
8. Guide pins
 - Grease before pulling on protective cap
 - Delivered as a replacement part with sufficient grease.
 - Replacing **REAR BRAKES GUIDE PINS AND PROTECTIVE CAPS, REPLACING**
9. Protective cap
 - Pull onto brake carrier and guide pin.
 - Replacing **REAR BRAKES GUIDE PINS AND PROTECTIVE CAPS, REPLACING**
10. Brake carrier with guide pins and protective cap
 - Supplied as pre-assembled replacement part with sufficient grease on guide pins
 - If protective caps or guide pins are damaged, install repair kit. Use grease packet supplied to lubricate guide pins.
11. Protective cap
 - Removing and Installing **REAR BRAKE CALIPER PISTON**
 - Pull onto the piston with the outer sealing lip.

BRAKE BOOSTER/BRAKE MASTER CYLINDER ASSEMBLY OVERVIEW**NOTE:**

- **Master brake cylinders can no longer be disassembled, servicing is not possible.**
- **Use only new brake fluid. Observe information on brake fluid reservoir!**

3. Sealing cap with seal and brake fluid lever warning switch --F34--
4. Bolt
 - 5 Nm
5. Wiring to the clutch master cylinder
6. Brake Booster
 - Adjusting ball head **Fig. 11**
 - Function test: With engine switched off, depress brake pedal firmly several times (to deplete vacuum in tool).
 - Depress and hold brake pedal with average foot pressure and start engine. If brake booster is working properly, pedal will be felt to give noticeably under foot (booster assistance becomes effective).
 - With adhesive seal
 - If malfunctioning: replace as complete unit.
 - Removing and Installing **BRAKE BOOSTER**
7. Pedal support bolt
 - 20 Nm
8. Brake pedal
 - Removing and Installing, with Manual Transmission **BRAKE PEDAL, WITH MANUAL TRANSMISSION**
 - Removing and Installing, with Automatic Transmission **BRAKE PEDAL, WITH AUTOMATIC TRANSMISSION**
9. Brake lamp sensor
 - Removing and Installing **BRAKE LAMP SENSOR**
10. Bolt
 - Connects brake booster to the mounting bracket
 - 25 Nm
11. Hex nut
 - For brake master cylinder
 - 49 Nm
12. Brake line
 - Brake master cylinder to hydraulic unit
 - 16 Nm
13. Brake line
 - Brake master cylinder to hydraulic unit
 - 16 Nm
14. Seal
 - Replace
15. Brake Master Cylinder
 - Cannot be serviced. Replace as complete unit if malfunctioning.

- Removing and Installing **BRAKE MASTER CYLINDER**

16. Sealing plugs

- Moisten with brake fluid and press into brake fluid reservoir

NOTE: Use only new brake fluid. Observe information on brake fluid reservoir!

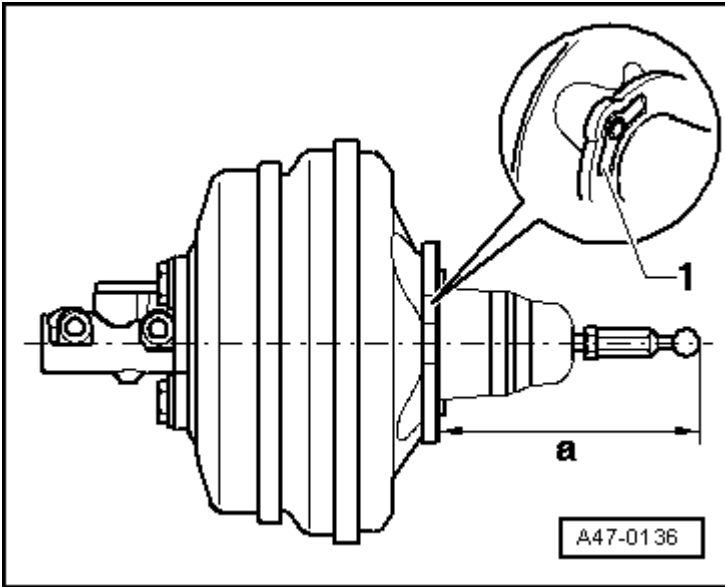


Fig. 11: Adjusting Ball Head

Courtesy of AUDI OF AMERICA, LLC

-a = 164.7mm ± 0.5mm-

NOTE:

- Surface -1- for measuring.
- When measuring, ball head must be arranged at a right angle to surface of brake booster.
- Measure to end of ball head without gasket installed.

Ball head to the push rod, 30 Nm.

VACUUM PUMP ASSEMBLY OVERVIEW

NOTE:

Only the vacuum pump is shown in the illustration and not the installation location

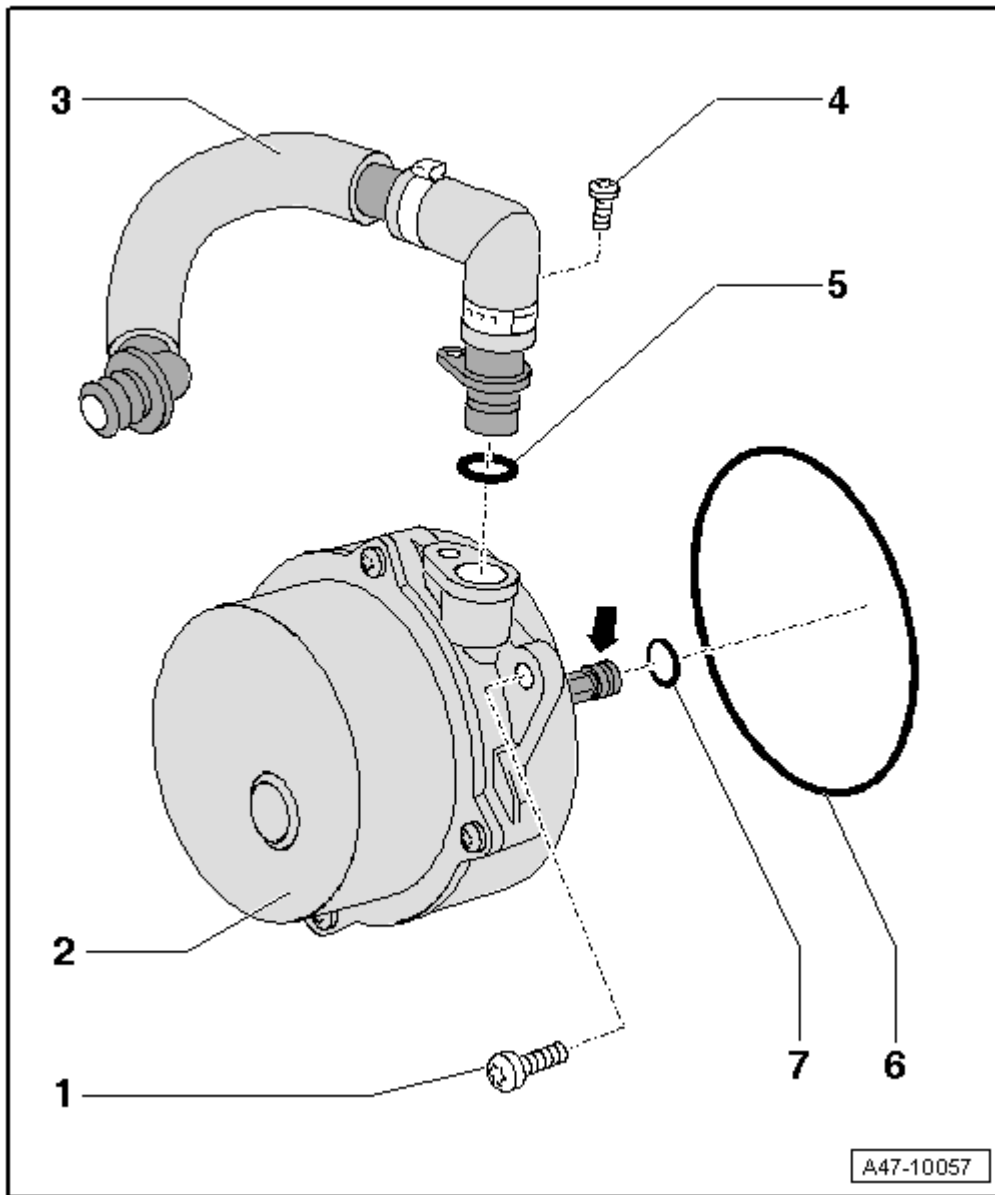


Fig. 12: Identifying Vacuum Pump Assembly Overview
Courtesy of AUDI OF AMERICA, LLC

1. Bolt
 - 9 Nm
 - Remove to remove pump.

NOTE: The pump is not designed to be disassembled.

2. Vacuum pump
3. Vacuum hose
 - Secure with hose clamps that match those used in production.

4. Bolt

- 5 Nm

NOTE: Installing the bolt depends on the model.

Alternatively, secure the vacuum hose with the hose clamp for the vehicle version.

5. O-Ring

- Replace

NOTE: Installation of the O-ring depends on the model.

6. O-Ring

- Replace

NOTE: Installation of the O-ring depends on the model.

7. O-Ring

- Replace

NOTE: Installation of the O-ring depends on the model.

VACUUM PUMP ASSEMBLY OVERVIEW

The construction of the vacuum pump V192 depends on the engine.

The electrical vacuum pump V192 is switched on by the engine control module depending on the intake line pressure.

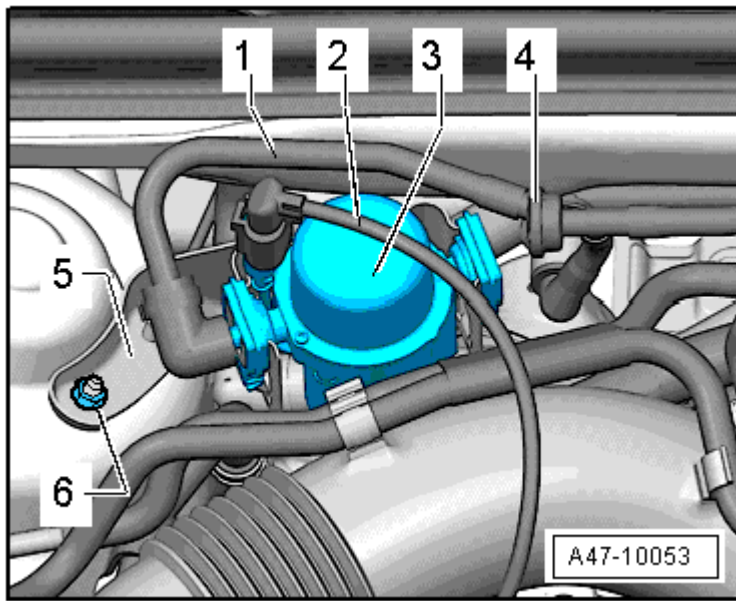


Fig. 13: Identifying Vacuum Pump Assembly Overview
Courtesy of AUDI OF AMERICA, LLC

1. Vacuum line
2. Electrical connector
3. Brake System Vacuum Pump -V192-
 - Removing and Installing VACUUM PUMP
 - Checking BRAKE SYSTEM VACUUM PUMP, CHECKING
4. Check valve
 - Removing and Installing
 - Checking CHECK VALVE, CHECKING
5. Vacuum pump V192 bracket
 - Removing and Installing VACUUM PUMP BRACKET
6. Bracket nut
 - 20 Nm

DIAGNOSIS AND TESTING

BRAKES, TESTING FOR LEAKS

NOTE:

- The hydraulic brake system must be bled.
- Only install genuine parts or components approved by Audi in the brake system.
- If the brake fluid replacement interval specified by Audi is exceeded, replace the brake fluid.
- Check the system visually for leaks.

- **Fix leaks and remove dirt on the hydraulic system.**

-- Switch engine off.

-- Press brake pedal until there is no more brake assistance - "pump the brake booster empty". The brake pedal becomes hard.

-- Press brake pedal about 20 mm out of resting position.

-- Hold the force on the pedal steady for about 20 seconds.

The brake pedal travel must not increase.

-- Release brake pedal.

-- Press firmly on brake.

-- Hold the force on the pedal steady for about 20 seconds.

The brake pedal travel must not increase.

If the pedal sinks down during one of the tests, repeat the visual inspection on the brake system.

If no leaks are found, the brake master cylinder probably has leaks and must be replaced.

CAUTION: Brake fluid must not run into the brake booster when replacing the brake master cylinder.

HIGH AND LOW PRESSURE TESTING

Special tools and workshop equipment required

- Brake Pressure Gauge 0-250 bar V.A.G 1310A

Before beginning :

Check brake system (brake master cylinder, brake hoses, brake lines and brake calipers) for leaks and function.

High pressure testing:

-- Remove bleeder screw at one of the front brake calipers. Connect brake pressure gauge V.A.G 1310A and bleed.

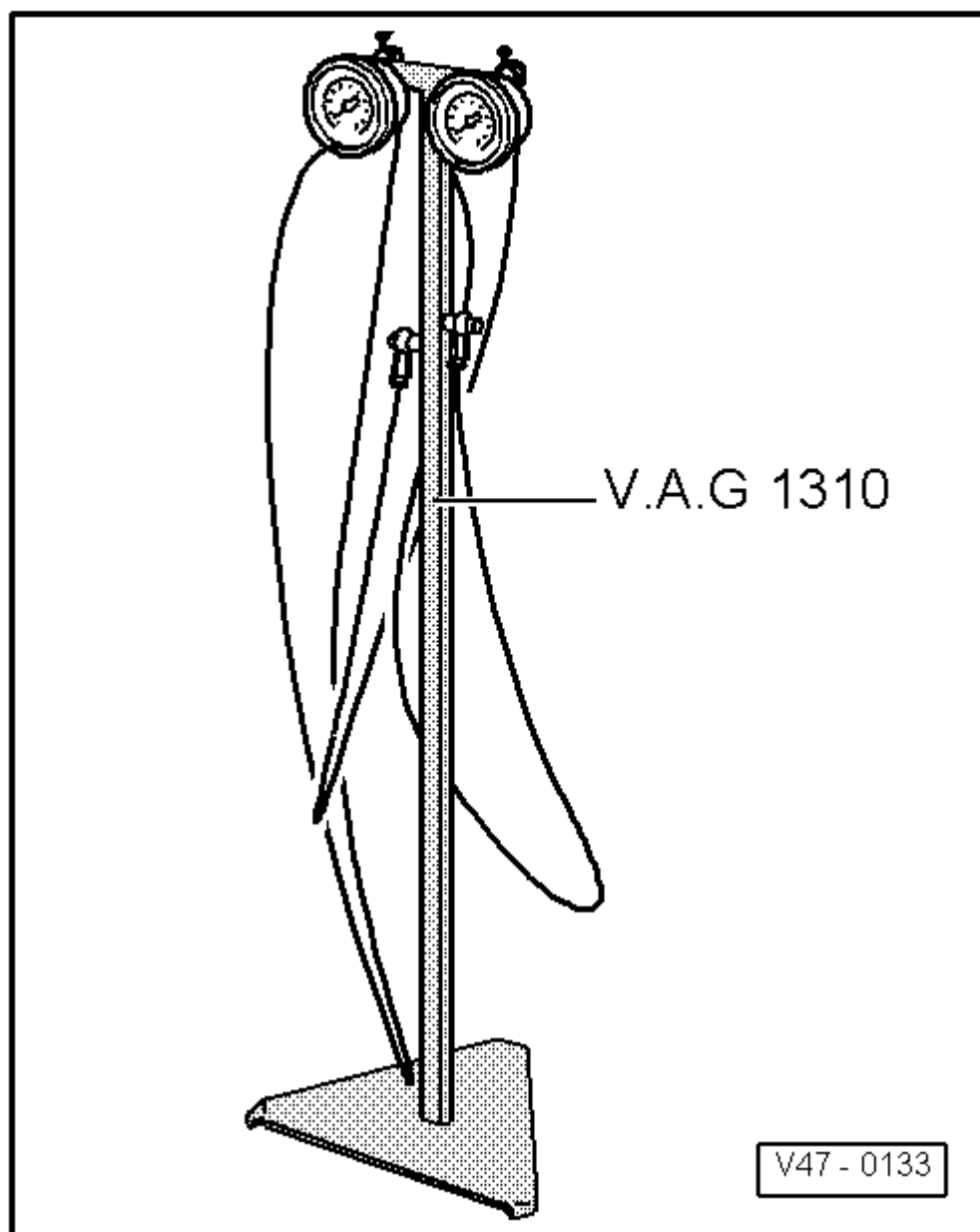


Fig. 14: Identifying Brake Pressure Gauge 0-250 Bar V.A.G 1310A
Courtesy of AUDI OF AMERICA, LLC

-- Install brake pedal loading device V.A.G 1869/2 between brake pedal and driver seat.

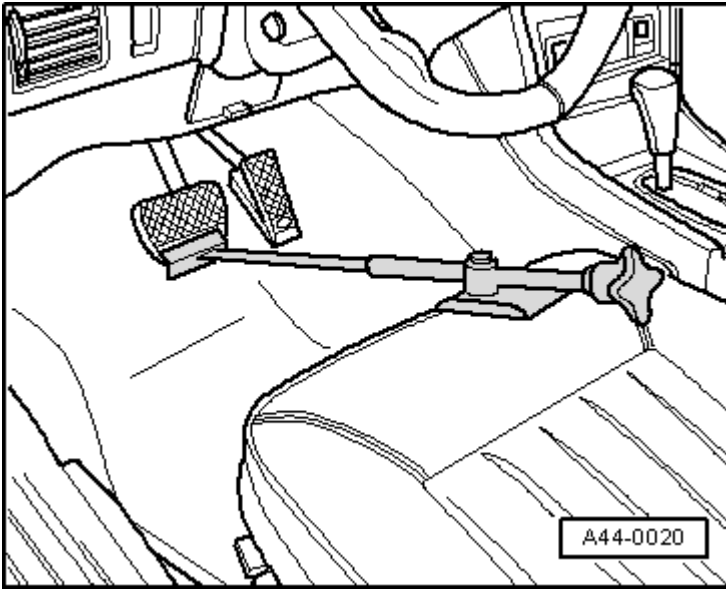


Fig. 15: Identifying Brake Pedal Depressor VAG 1869/2 Inserted Between Brake Pedal And Driver's Seat
Courtesy of AUDI OF AMERICA, LLC

-- Apply pressure to brake pedal until the gauge indicates a pressure of 50 bar.

The pressure must not drop by more than 4 bar during the test period of 45 seconds.

If pressure drop is large, replace hydraulic unit.

Low pressure testing:

-- Push brake pedal loading device V.A.G 1869/2 back until pressure gauge indicates 6 bar positive pressure.

-- The pressure must not drop by more than 1 bar during a test period of 3 minutes.

If pressure drop is large, replace hydraulic unit.

BRAKE SYSTEM VACUUM PUMP, CHECKING

Description and function

The electrical vacuum pump is switched on by the engine control module depending on the intake line pressure.

Vacuum pump has On Board Diagnostic (OBD) properties. Detected faults are stored in engine control module.

NOTE: **The function of the electrical vacuum pump can only be checked using OBD when the engine is switched off.**

Special tools and workshop equipment required

- Connect Vehicle Diagnostic, Testing and Information System VAS 5051B or VAS 5052.



Fig. 16: Connecting Diagnostic Cable VAS 5051/5A To Diagnostic Connector
Courtesy of AUDI OF AMERICA, LLC

Procedure

- Switch ignition off.
- Press th brake pedal until there is no more brake assistance - "pump brake booster empty". The brake pedal becomes hard.
- Connect vehicle diagnosis, testing and information system VAS 5051B or VAS 5052 to 16-pin Data Link Connector (DLC) in the vehicle with the ignition switched off.



Fig. 17: Connecting Diagnostic Cable VAS 5051/5A To Diagnostic Connector
Courtesy of AUDI OF AMERICA, LLC

-- Switch on Vehicle Diagnostic, Test And Information System.

The tester will now require up to 3 minutes to boot up.

-- Switch on ignition.

-- Select operating mode: On the display, select "Vehicle On-Board Diagnosis".

-- Select vehicle system: On the display, select "01 - Engine electronics".

At the upper right of the screen, the control module identification and coding are displayed.

-- Select diagnostic function: At this point, all diagnostic functions are available.

-- On the display, select "006 - Basic setting".

-- Press buttons **0** , **0** and **8** .

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-- Confirm input with **Q** button.

Displayed at the bottom of the screen:

Basic setting
Not actuated Pump off xxx mbar Test off

-- Select "Activate" in the display to begin the test.

Displayed at the bottom of the screen:

Basic setting
Not actuated Pump on xxx mbar Test on

The brake pedal may no longer be actuated once the test begins.

The brake system vacuum pump -V192- supplies the brake booster with vacuum. At the same time, the control module performs a diagnosis of the brake booster system.

If the pressure within in the brake booster reaches the cut-off threshold by the time that was predetermined by the diagnostic function, the test has been passed.

Displayed at the bottom of the screen:

Basic setting
not actuated Pump off xxx mbar Syst. O.K.

-- Using the **Go to** button, the operating mode can be interrupted or ended.

If the pressure within the brake booster does not reach the cut-off threshold by the time that was predetermined by the diagnostic function, the test has failed.

Displayed at bottom of the screen:

Basic setting
Not actuated

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BRAKES Hydraulic Components - Brake System (Sedan)

Pump off
xxx mbar
Syst. not O.K.

-- Perform "Guided Fault Finding" with the vehicle diagnosis, testing and information system VAS 5051.

The ignition must be switched off and on to repeat the test.

CHECK VALVE, CHECKING

Valve must allow air to flow in direction of arrow.

Valve must remain closed in opposite direction.

Observe correct installation position.

The arrow points to the vacuum pump.

REMOVAL AND INSTALLATION

FN3

FBC

FRONT BRAKE CALIPER PISTON

Special tools and workshop equipment required

- Trim Removal Wedge 3409.
- Piston Resetting Tool T10145.
- Assembly Paste G 052 150 A2.

Removing

-- Force piston from brake caliper housing using compressed air.

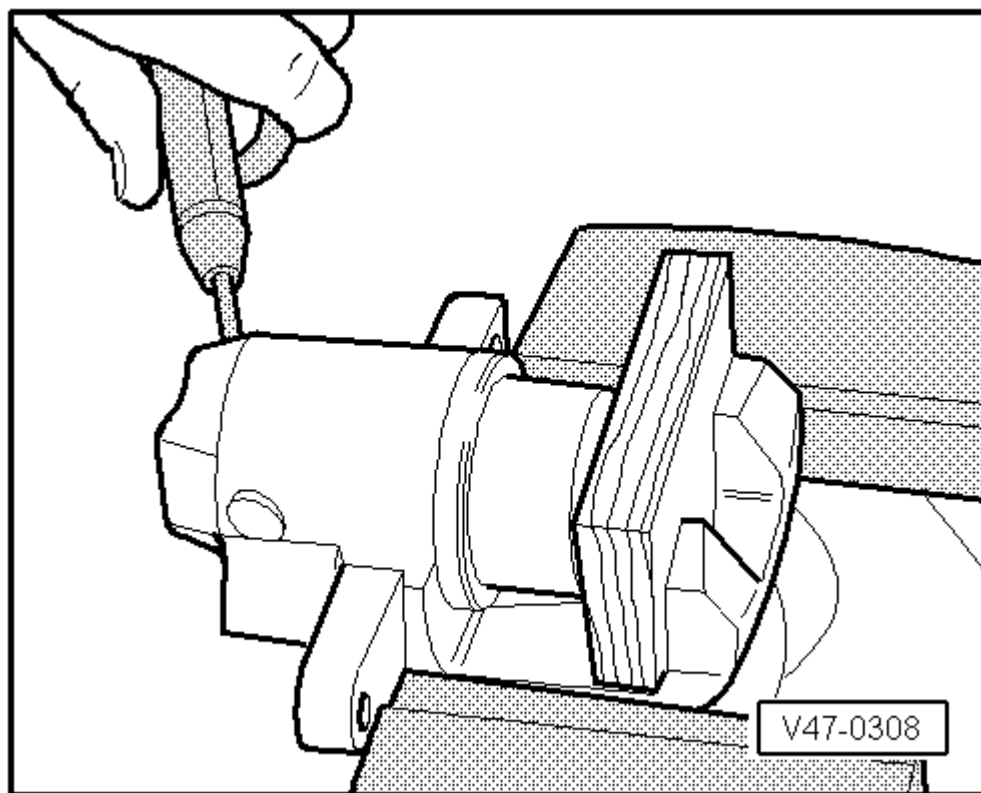


Fig. 18: Using Compressed Air To Force Piston Out Of Brake Caliper Housing
Courtesy of AUDI OF AMERICA, LLC

NOTE: Place a wooden board into the recess of the caliper housing so it is not damaged.

-- Remove seal.

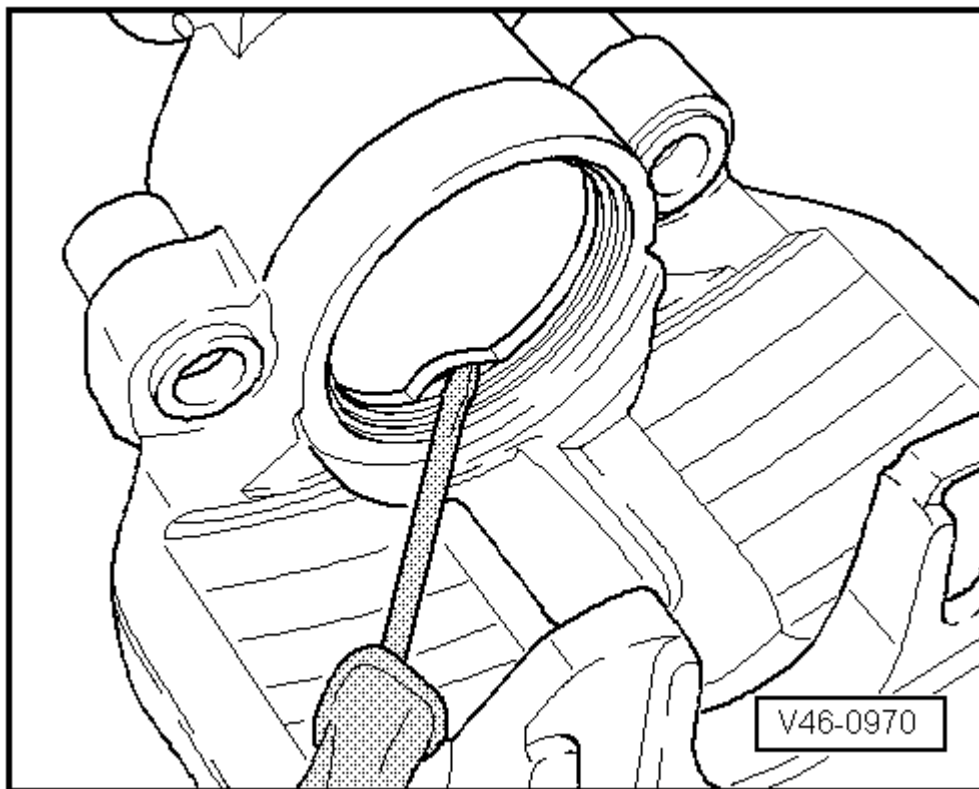


Fig. 19: Using Trim Removal Wedge 3409 To Remove/Install Seal
Courtesy of AUDI OF AMERICA, LLC

-- Use trim removal wedge 3409 for this.

NOTE: When removing, make sure that surface of cylinder is not damaged.

Installing

-- Insert inner seal in the brake caliper groove -arrow-.

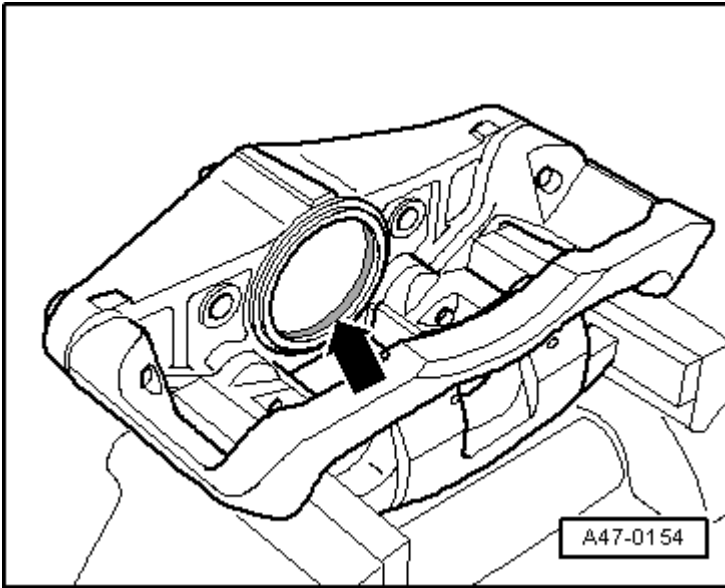


Fig. 20: Identifying Sealing Ring Installed In Brake Caliper
 Courtesy of AUDI OF AMERICA, LLC

-- Press protective cap onto the brake caliper housing so that it contacts the brake caliper housing all around.

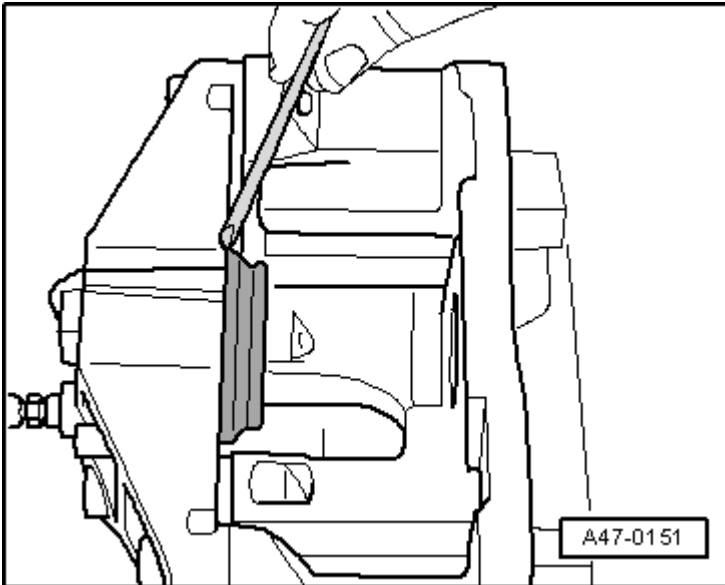


Fig. 21: Pressing Protective Cap Onto Brake Caliper Housing So That It Contacts Brake Caliper Housing All Around
 Courtesy of AUDI OF AMERICA, LLC

-- It should no longer be possible to remove the protective cap from the brake caliper housing by hand.

-- Thinly coat piston and seal with assembly paste G 052 150 A2 before inserting.

-- Press brake piston lightly on protective cap.

Do not angle piston, to avoid damaging the seal sleeve.

-- Blow protective cap on with pressurized air (max. 3 bar). The protective cap will thereby jump over the brake piston.

-- Press brake pistons into caliper using Piston Resetting Tool T10145.

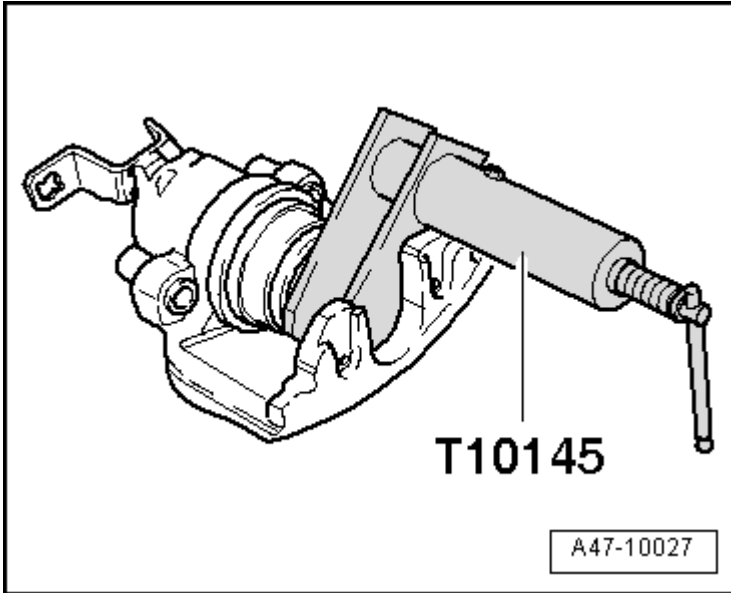


Fig. 22: Pressing Piston Into Brake Caliper Housing Using Piston Resetting Tool T10145
Courtesy of AUDI OF AMERICA, LLC

Do not angle piston, to avoid damaging the seal sleeve.

NOTE: The inner sealing lip of the protective cap thereby slips into the groove on the piston.

BUSHING AND GUIDE PINS, REPLACING

NOTE: When removing, mark brake pads that will be used again. Install in the same position, otherwise braking effect will be uneven!

Removing

-- Loosen brake caliper at pins -12-.

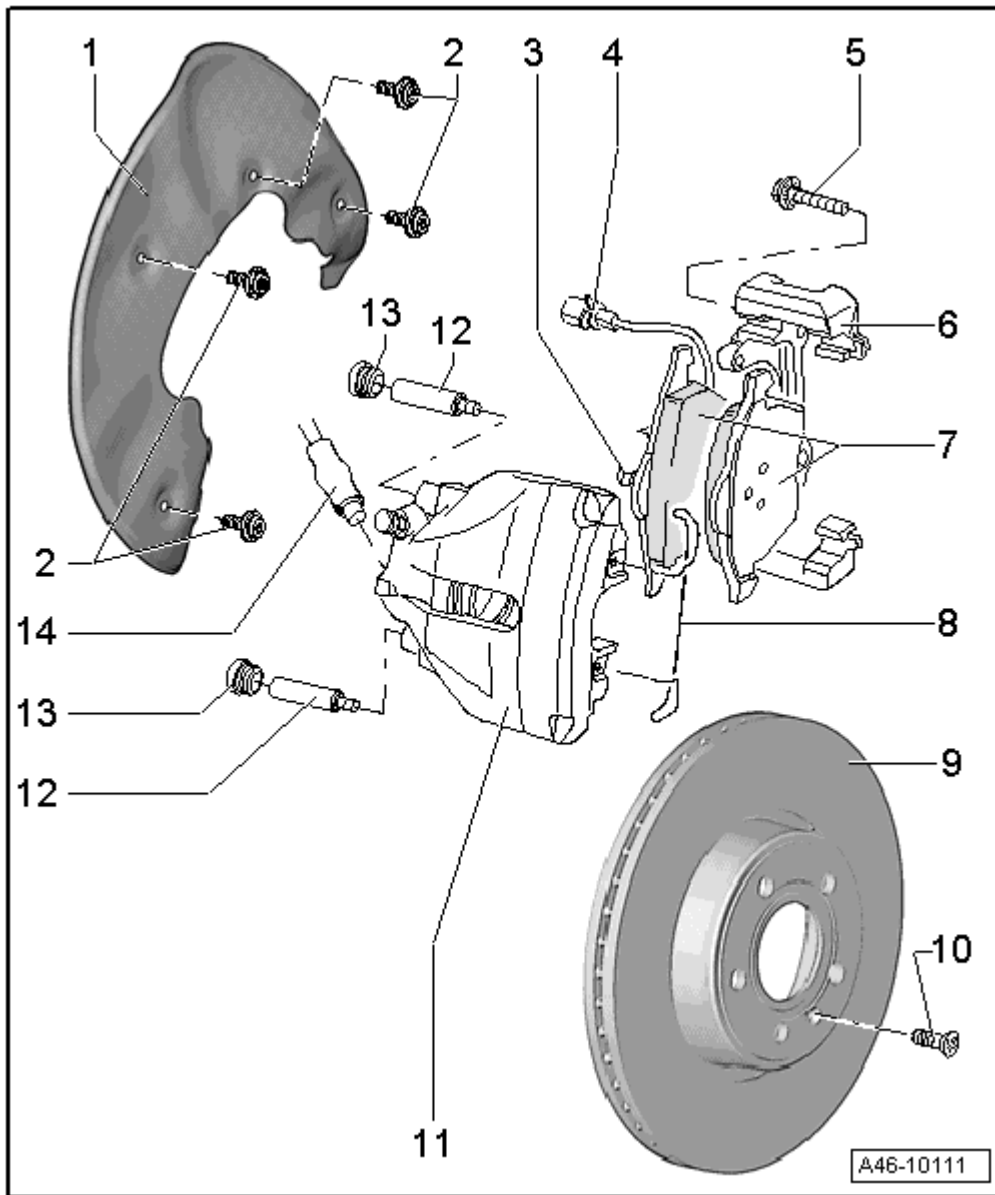


Fig. 23: Identifying Brake Caliper Components
 Courtesy of AUDI OF AMERICA, LLC

-- Remove brake caliper.

Do not let the brake caliper hang from the brake hose. Secure it to the body with suitable cable ties or wire. Do not support the weight with the brake hose.

-- Remove bushing from brake caliper.

Installing

Installation is in reverse sequence.

-- Use new guide pins.

FRONT BRAKE CALIPER PISTON

Removing

Special tools and workshop equipment required

- Disassembly wedge 3409
- Piston Resetting Tool T10145
- Assembly paste G 052 150 A2

-- Force piston from brake caliper housing using compressed air.

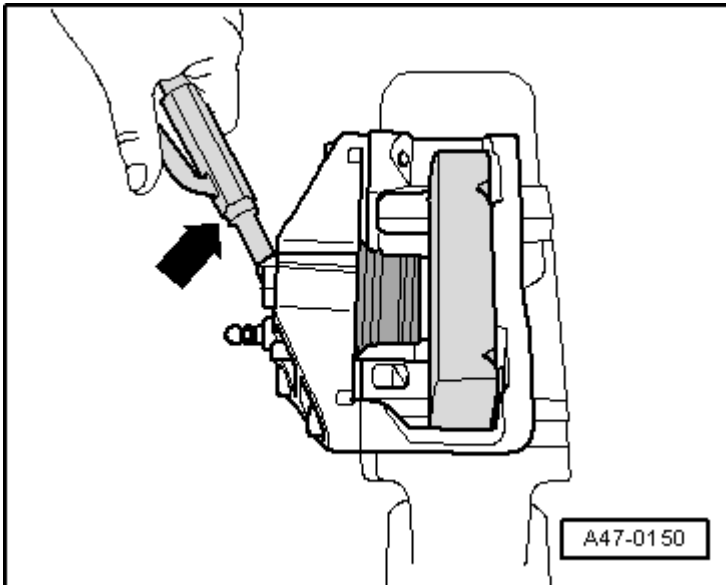


Fig. 24: Identifying Protective Cap From Brake Caliper With Trim Removal Wedge 3409
Courtesy of AUDI OF AMERICA, LLC

NOTE: Place a wooden board into the recess of the caliper housing so it is not damaged.

-- Remove seal.

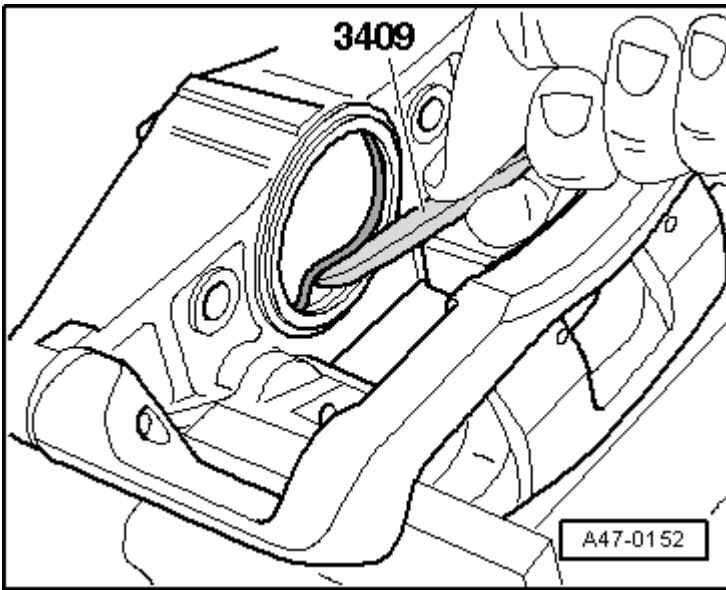


Fig. 25: Identifying Seal With Trim Removal Wedge 3409
Courtesy of AUDI OF AMERICA, LLC

-- Use trim removal wedge 3409 for this.

NOTE: When removing, make sure that surface of cylinder is not damaged.

Installing

-- The surface of the piston and seal must only be cleaned with mineral spirits and then dried.

-- Thinly coat piston and seal with assembly paste G 052 150 A2 before inserting.

-- Insert inner seal in the brake caliper groove -arrow-.

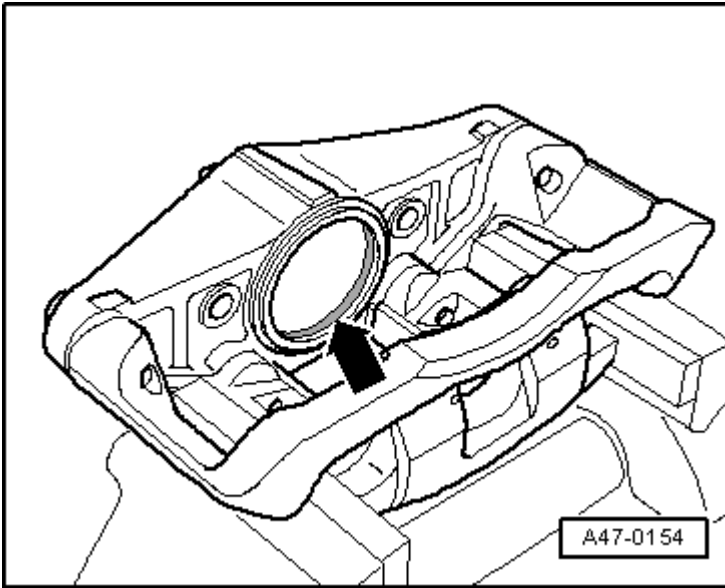


Fig. 26: Identifying Sealing Ring Installed In Brake Caliper
 Courtesy of AUDI OF AMERICA, LLC

-- Press protective cap onto the brake caliper housing so that it contacts the brake caliper housing all around.

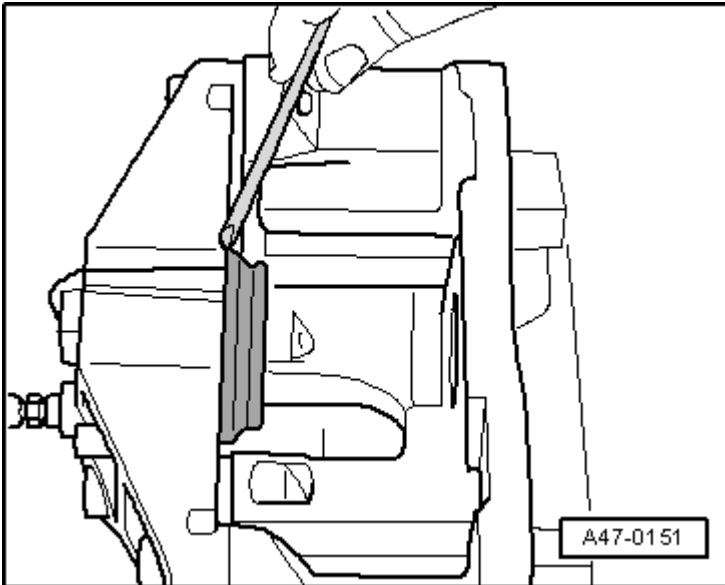


Fig. 27: Pressing Protective Cap Onto Brake Caliper Housing So That It Contacts Brake Caliper Housing All Around
 Courtesy of AUDI OF AMERICA, LLC

-- It should no longer be possible to remove the protective cap from the brake caliper housing by hand.

-- Thinly coat piston and seal with assembly paste G 052 150 A2 before inserting.

-- Press brake piston lightly on protective cap.

Do not angle piston, to avoid damaging the seal sleeve.

-- Blow protective cap on with pressurized air (max. 3 bar). The protective cap will thereby jump over the brake piston.

-- Press brake pistons into the caliper using Piston Resetting Tool T10145.

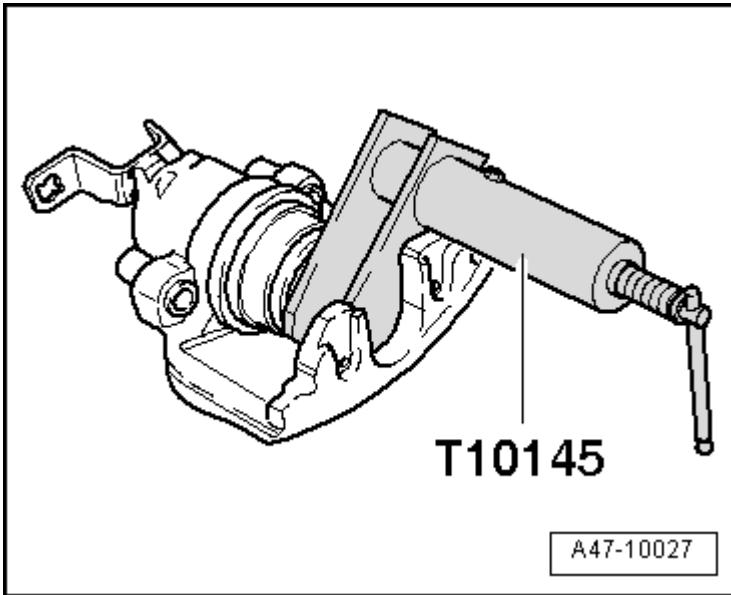


Fig. 28: Pressing Piston Into Brake Caliper Housing Using Piston Resetting Tool T10145
Courtesy of AUDI OF AMERICA, LLC

Do not angle piston, to avoid damaging the seal sleeve.

NOTE: The inner sealing lip of the protective cap thereby slips into the groove on the piston.

PROTECTIVE CAP AND GUIDE PINS, REPLACING

The guide pins must be removed if the protective caps are damaged.

Removing

NOTE: When removing, mark brake pads that will be used again. Install in the same position, otherwise braking effect will be uneven!

-- Press retaining spring -7- in the center.

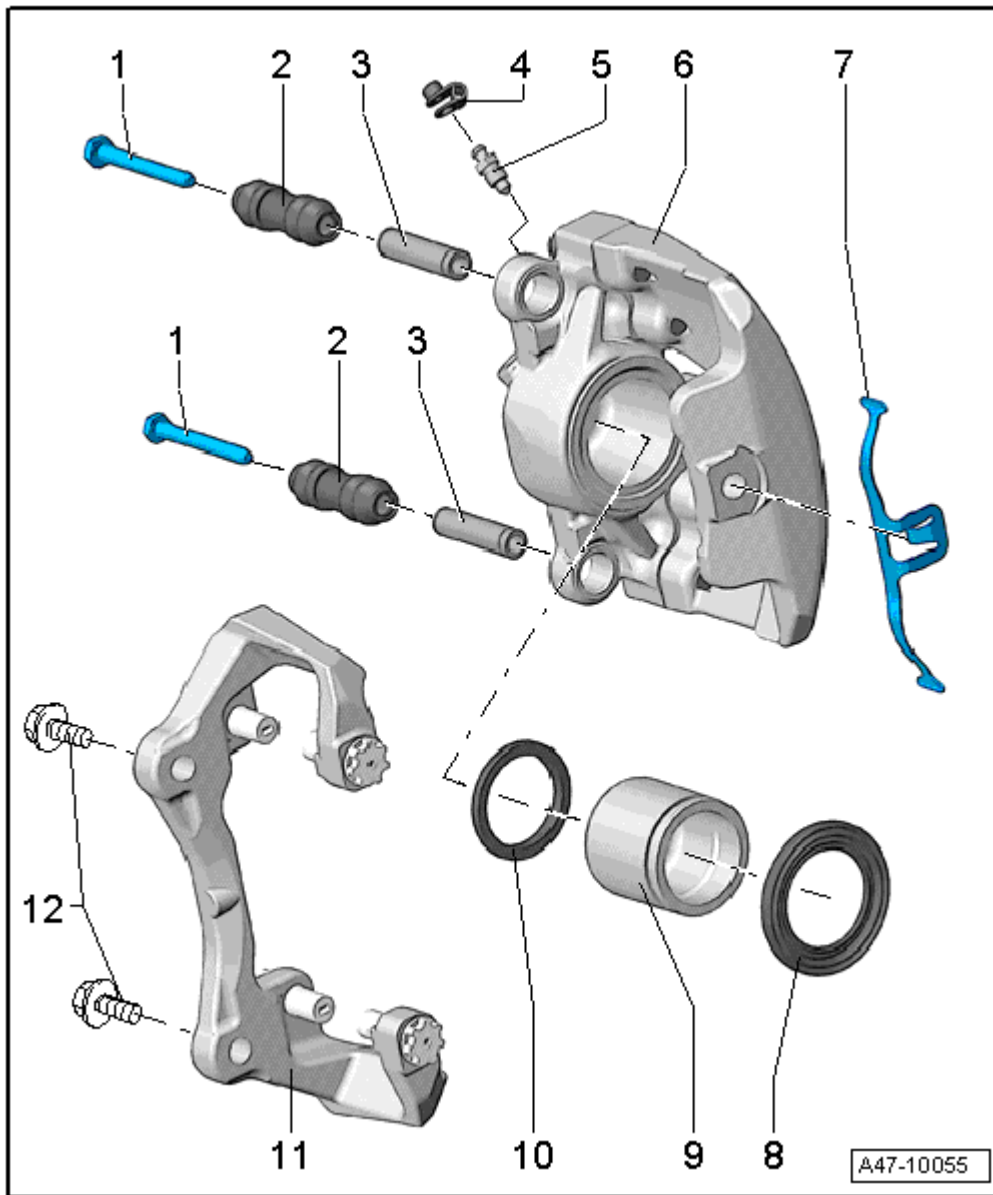


Fig. 29: Identifying Brake Caliper Exploded View

Courtesy of AUDI OF AMERICA, LLC

NOTE:

- The spring is tensioned, keep hands protected.
- When removing the spring, make sure it does not scratch the brake caliper or damage the paint.

-- Remove retaining spring carefully.

-- Remove bolts -1- on the brake caliper.

-- Remove brake caliper.

Do not let the brake caliper hang from the brake hose. Secure it to the body with suitable cable ties or wire. Do not support the weight with the brake hose.

-- Remove protective cap -2- on the outside from the groove on guide pin.

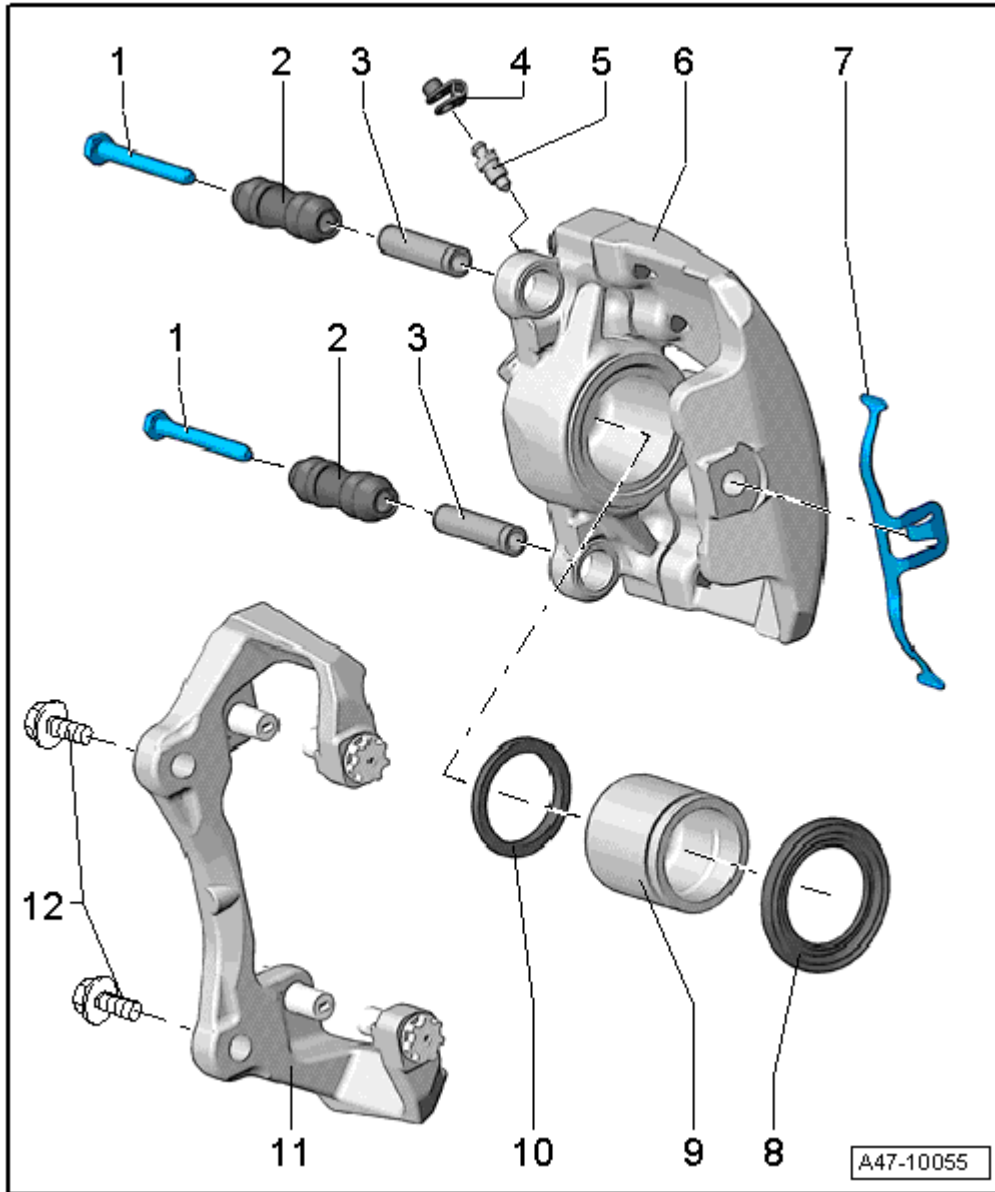


Fig. 30: Identifying Brake Caliper Exploded View

Courtesy of AUDI OF AMERICA, LLC

-- Pull guide pin -3- outward out of the protective cap.

-- Remove protective cap from brake caliper.

Installing

2012 Audi S4

BRAKES Hydraulic Components - Brake System (Sedan)

-- Carefully press the guide pin into the protective cap as far as the first groove.

-- Insert protective cap in the brake caliper.

The protective cap must be seated in the center of the brake caliper.

-- Press guide pin through the protective cap.

The protective cap must not be seated in both grooves on the guide pin.

Check the movement of the guide pin. Both guide pins must slide.

-- Install brake caliper and tighten bolts -1- to 30 Nm.

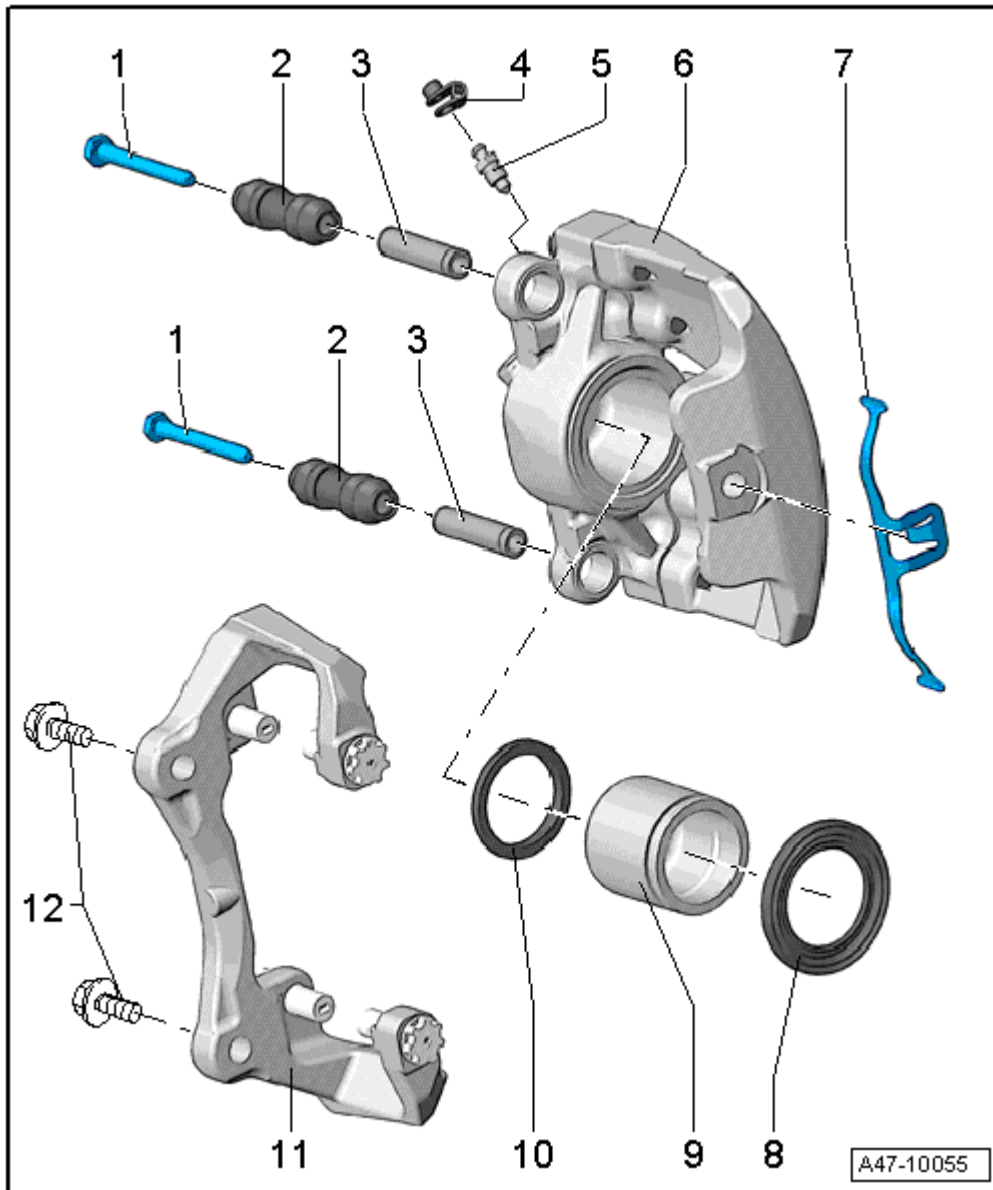


Fig. 31: Identifying Brake Caliper Exploded View**Courtesy of AUDI OF AMERICA, LLC**

-- Position retaining spring -7- on the outer brake pad.

-- Press retaining spring in the center and insert the center tab of the retaining spring in the hole on the brake caliper.

NOTE:

- **The spring is tensioned, keep hands protected.**
- **When removing the spring, make sure it does not scratch the brake caliper or damage the paint.**

The retaining spring tab must sit correctly in the hole -arrow- in the brake caliper or it can spring out and the brake pad will not be held in place.

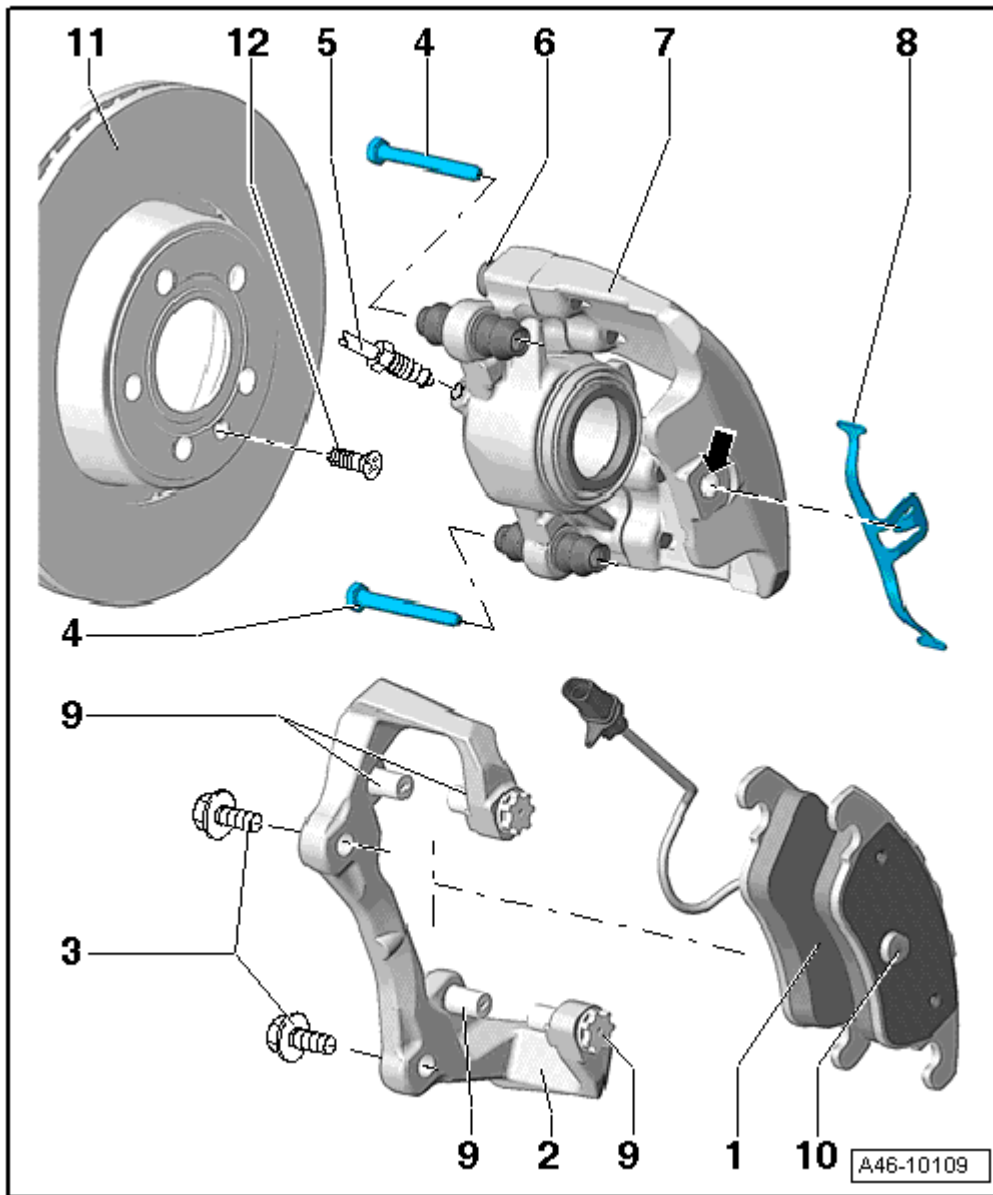


Fig. 32: Identifying Brake System Components

Courtesy of AUDI OF AMERICA, LLC

REAR BRAKE CALIPER PISTON

Special tools and workshop equipment required

- Torque Wrench V.A.G 1331
- Torque Wrench V.A.G 1332
- Piston Resetting Tool T10145
- Disassembly Wedge 3409
- Vehicle Diagnostic, Test And Information System VAS 5051B

Removing

- Remove pistons as far as possible from brake caliper
- Force piston out of brake caliper housing using compressed air.

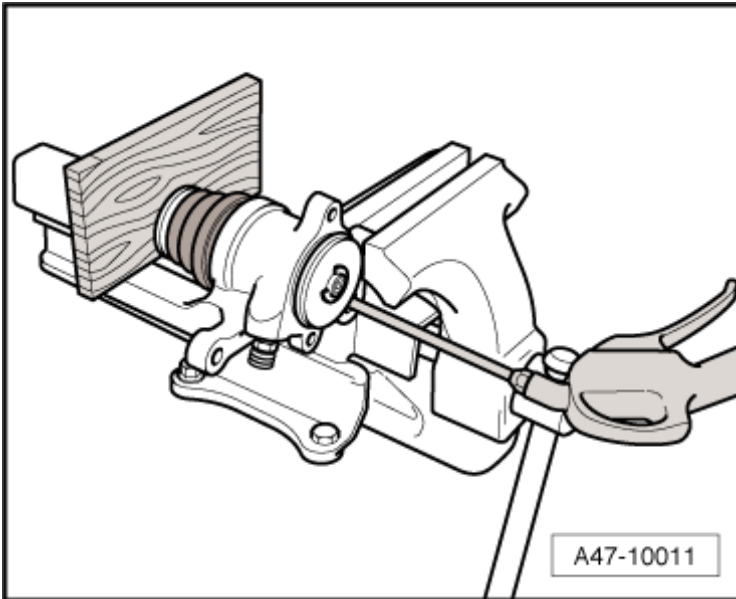


Fig. 33: Forcing Piston Out Of Brake Caliper Housing Using Compressed Air
Courtesy of AUDI OF AMERICA, LLC

NOTE:

- When removing, make sure that surface of cylinder is not damaged.
- Place a wooden board into the recess of the caliper housing so it is not damaged.

- Remove old seal from brake caliper with Trim Removal wedge 3409.

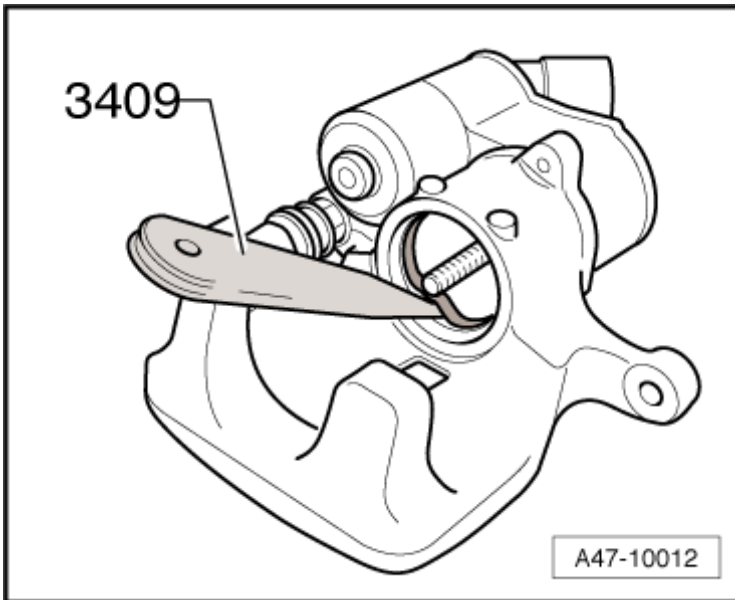


Fig. 34: Identifying Old Seal From Brake Caliper With Trim Removal Wedge 3409, Removal/Installation
Courtesy of AUDI OF AMERICA, LLC

Installing

-- Install new seal in brake caliper.

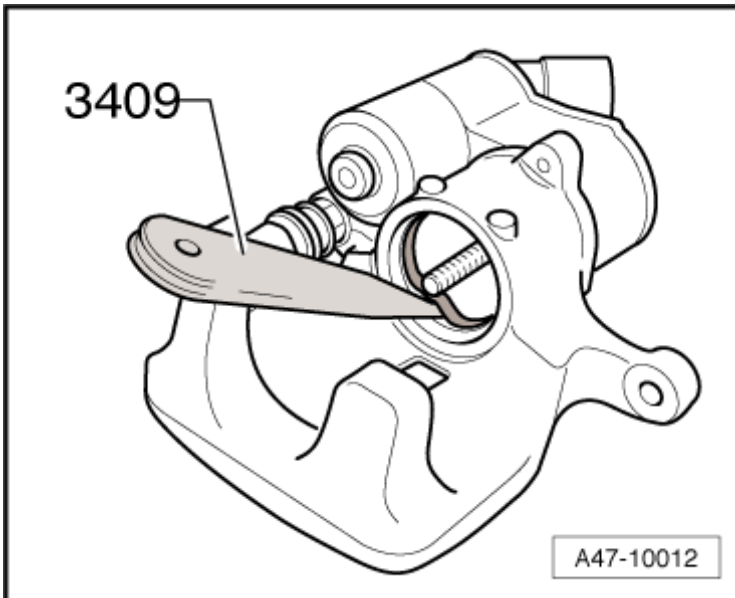


Fig. 35: Identifying Old Seal From Brake Caliper With Trim Removal Wedge 3409, Removal/Installation
Courtesy of AUDI OF AMERICA, LLC

-- Place new protective cap on brake pistons as shown.

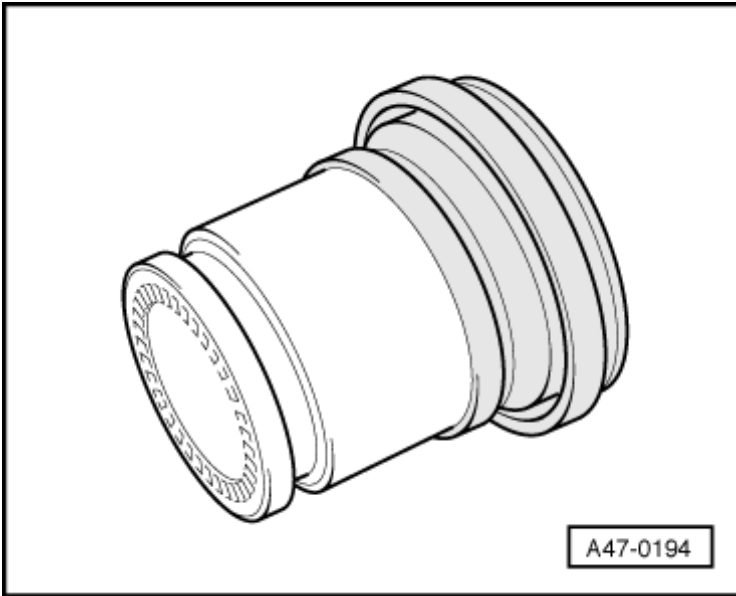


Fig. 36: Placing New Protective Cap On Brake Pistons
Courtesy of AUDI OF AMERICA, LLC

-- Install pressure nut to dimension -a- 15 mm.

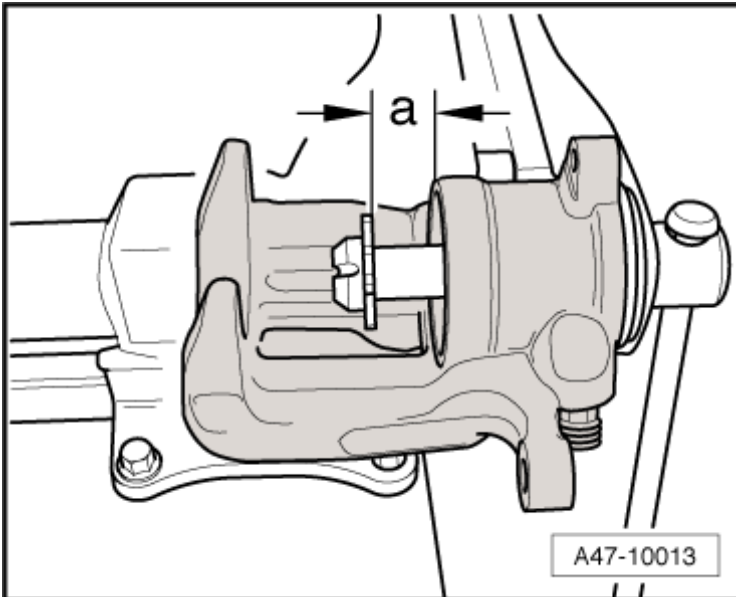


Fig. 37: Identifying Pressure Nut Installed On Spindle Until Dimension Achieved
Courtesy of AUDI OF AMERICA, LLC

-- Insert protective cap in brake caliper groove. Use Trim Removal wedge 3409 to do so.

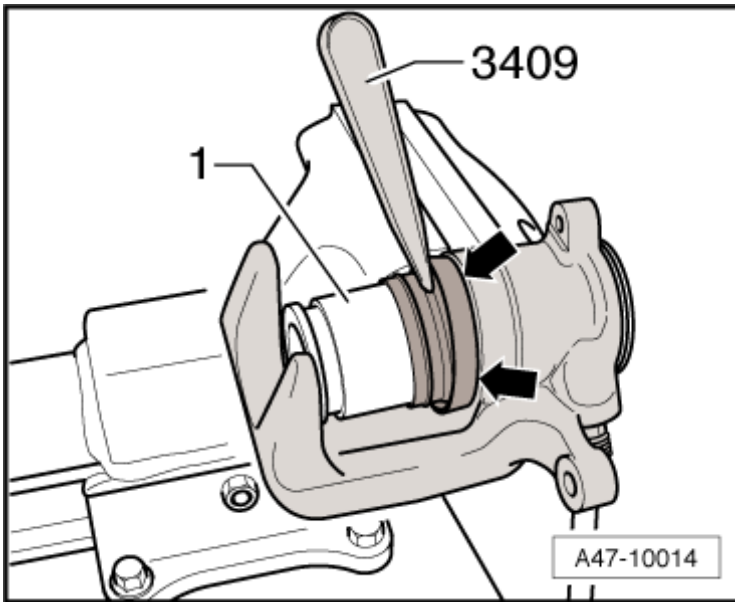


Fig. 38: Identifying Inner Sealing Lip Of Protective Boot Inserted In Groove In Brake Caliper With Trim Removal Wedge 3409

Courtesy of AUDI OF AMERICA, LLC

-- Carefully slide brake piston into brake caliper. Move brake piston when doing so. Brake piston must be guided over pressure nut, this is only possible in four positions.

-- After brake piston has been guided onto pressure nut, press it as far as stop into brake caliper.

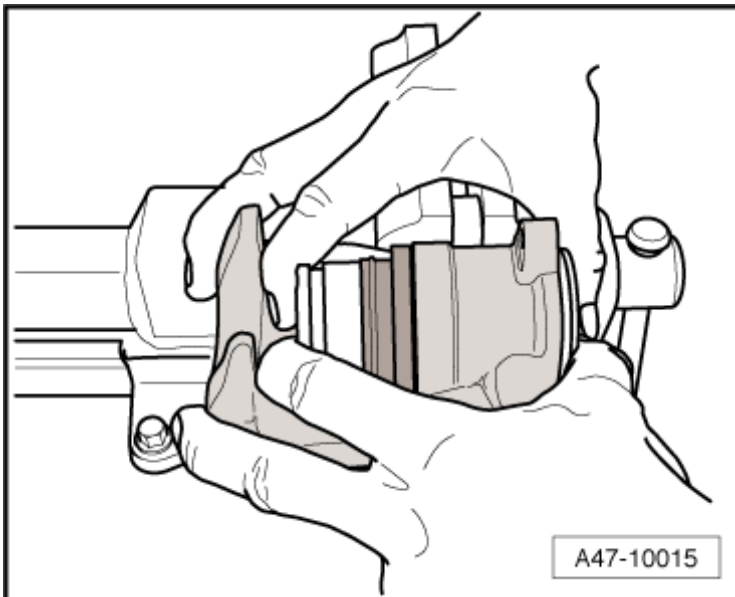


Fig. 39: Pressing Piston Into The Brake Caliper Until It Contacts Pressure Nut

Courtesy of AUDI OF AMERICA, LLC

NOTE: Ensure pressure nut is not damaged.

-- Install pressure nut clockwise as far as the stop.

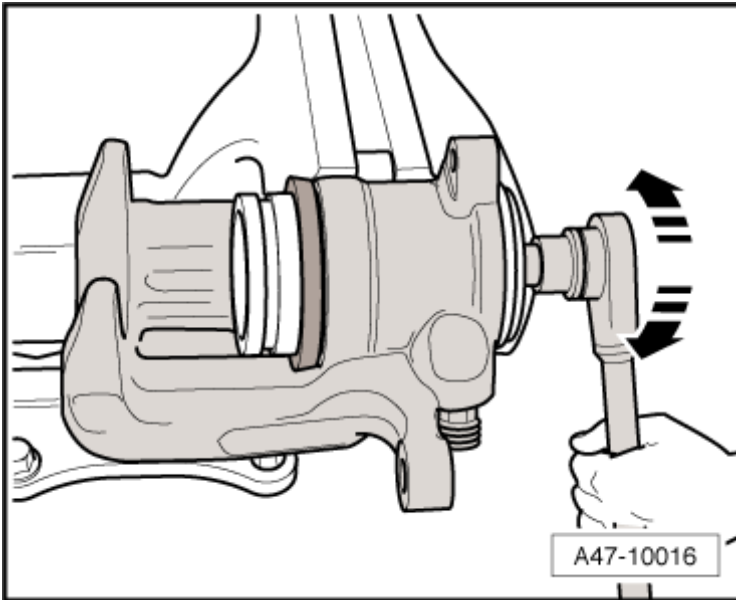


Fig. 40: Identifying Pressure Nut Clockwise
Courtesy of AUDI OF AMERICA, LLC

-- Make sure rubber makes contact around brake caliper housing -arrows-

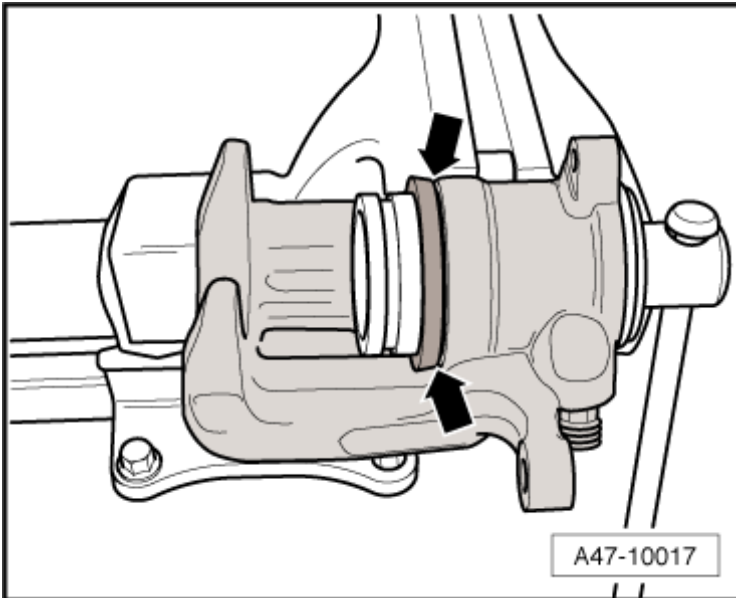


Fig. 41: Ensuring Rubber Makes Contact Around Brake Caliper Housing
Courtesy of AUDI OF AMERICA, LLC

-- Press piston into brake caliper by hand

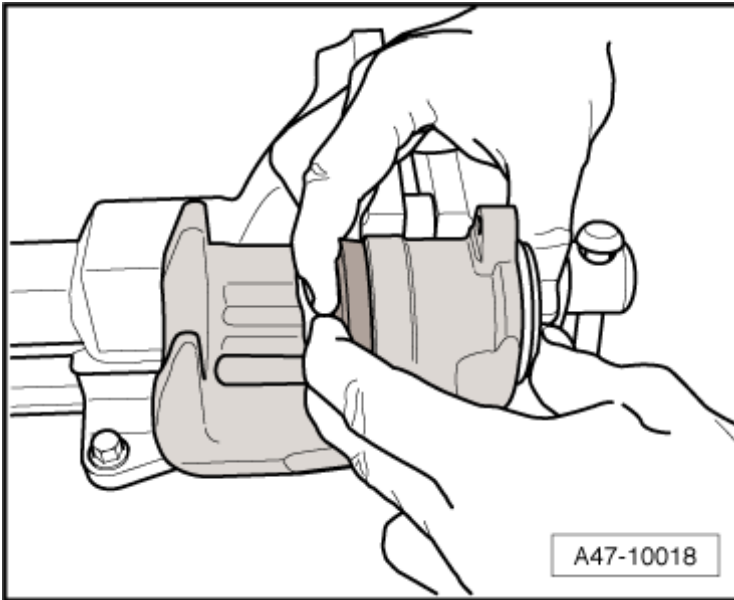


Fig. 42: Pressing Piston Into Brake Caliper By Hand
Courtesy of AUDI OF AMERICA, LLC

NOTE: The inner sealing lip of the protective cap thereby slips into the groove on the piston.

REAR BRAKES GUIDE PINS AND PROTECTIVE CAPS, REPLACING

If protective caps or guide pins are damaged, install repair kit. Use grease packet supplied to lubricate guide pins

Removing

-- Remove bolts -1- on brake caliper.

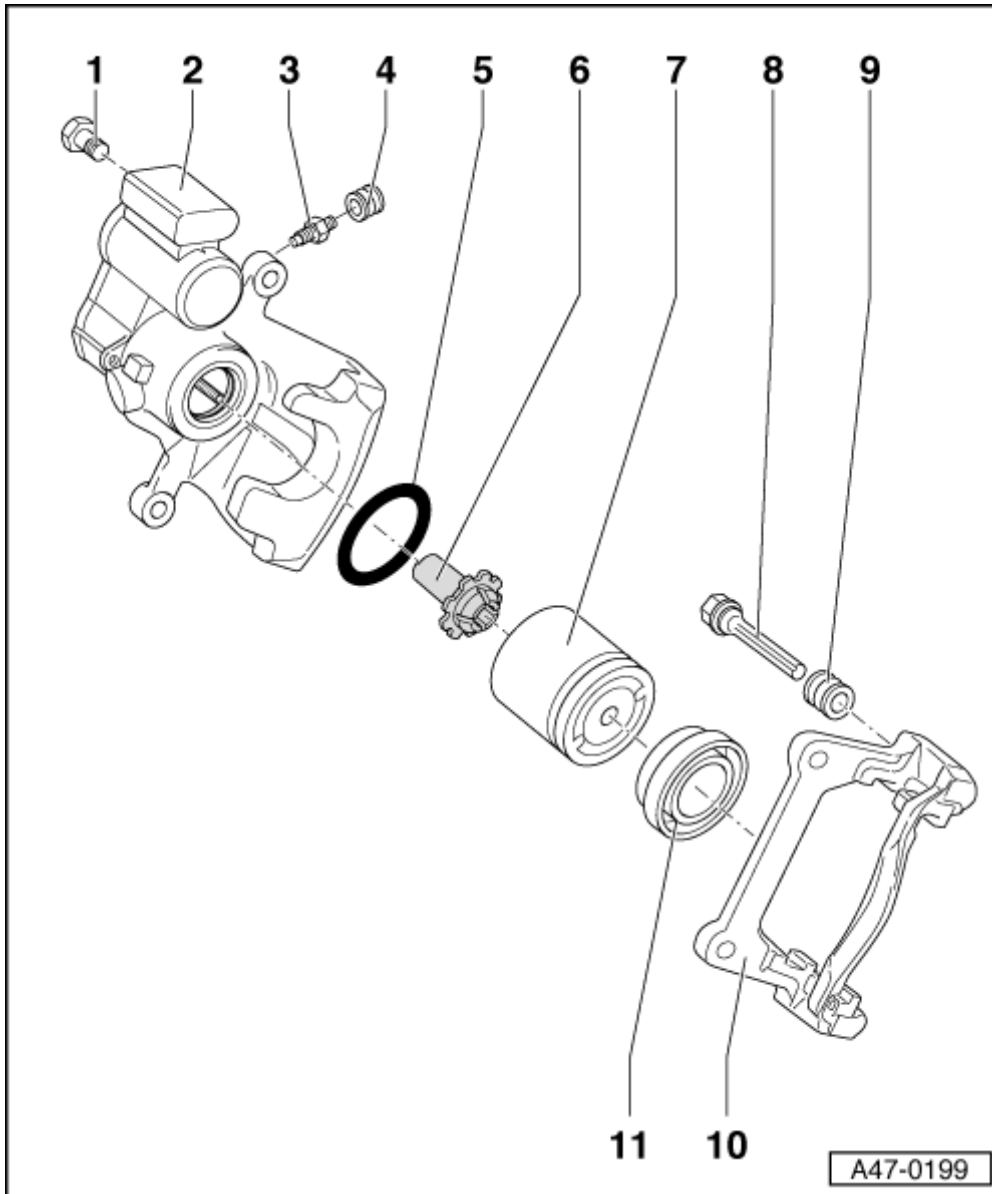


Fig. 43: Identifying Brake Caliper, Servicing Overview

Courtesy of AUDI OF AMERICA, LLC

-- Remove brake caliper.

Do not let the brake caliper hang from the brake hose. Secure it to the body with suitable cable ties or wire. Do not support the weight with the brake hose.

-- Remove protective cap -9- from nut on the brake carrier.

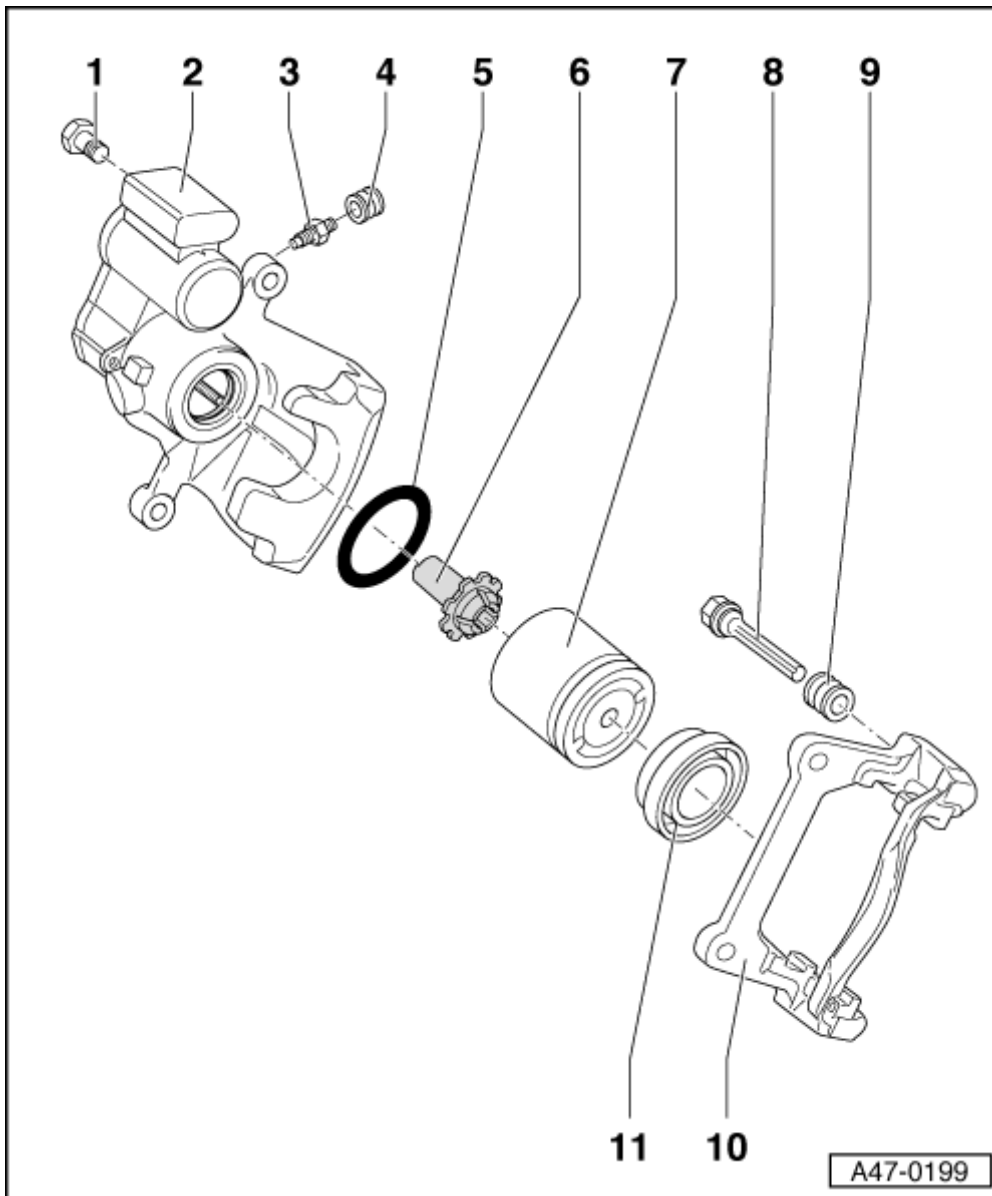


Fig. 44: Identifying Brake Caliper, Servicing Overview

Courtesy of AUDI OF AMERICA, LLC

-- Remove guide pins -8- from brake carrier.

-- Remove protective cap from guide pin.

Installing

-- Grease guide pin before inserting.

-- Slide protective cap over the groove on the guide pin.

-- Slide guide pin -8- with protective cap -9- through brake carrier.

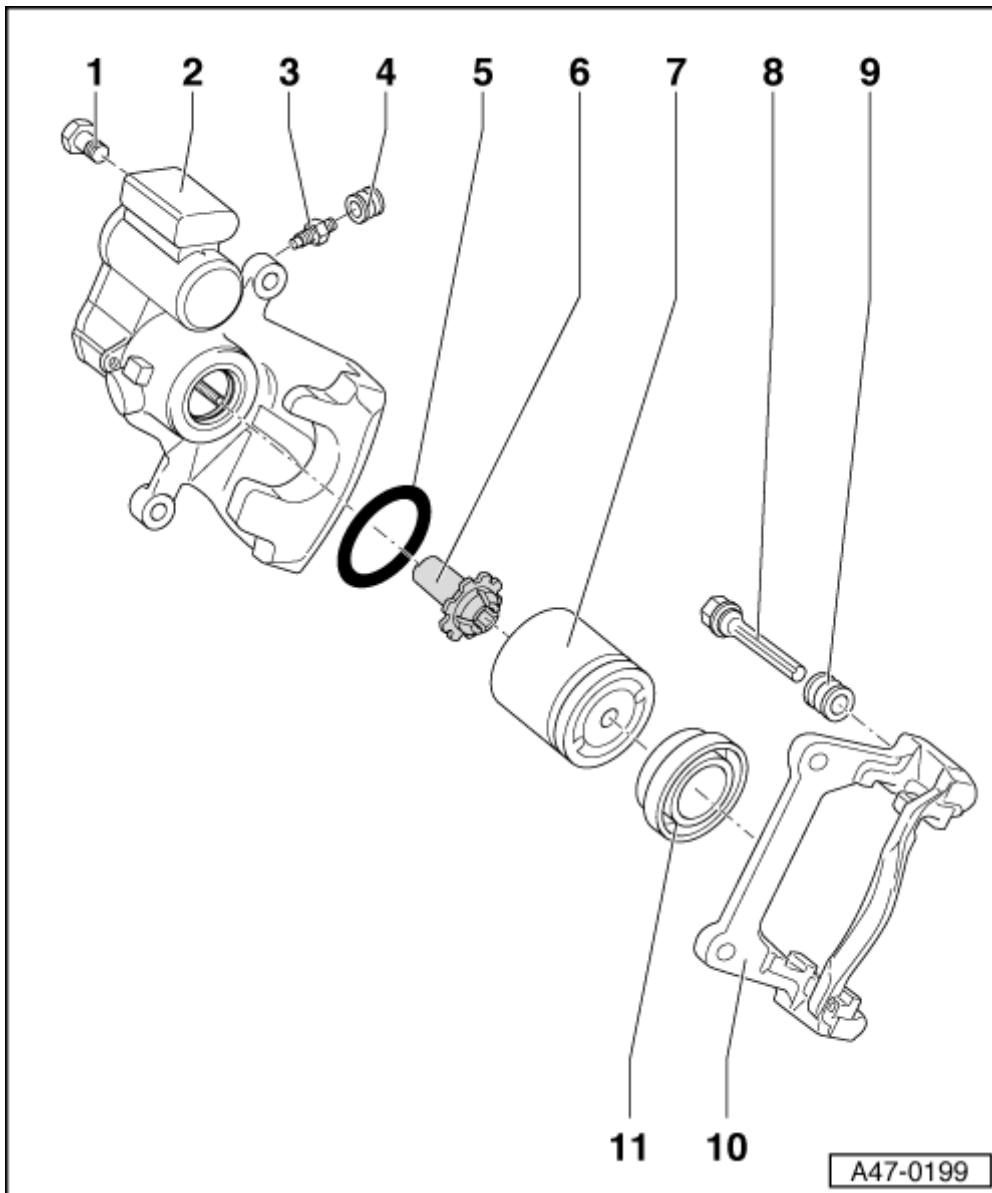


Fig. 45: Identifying Brake Caliper, Servicing Overview

Courtesy of AUDI OF AMERICA, LLC

- Press protective cap over the groove on the brake carrier.
- Insert brake caliper.
- Install bolts -1- and tighten them.

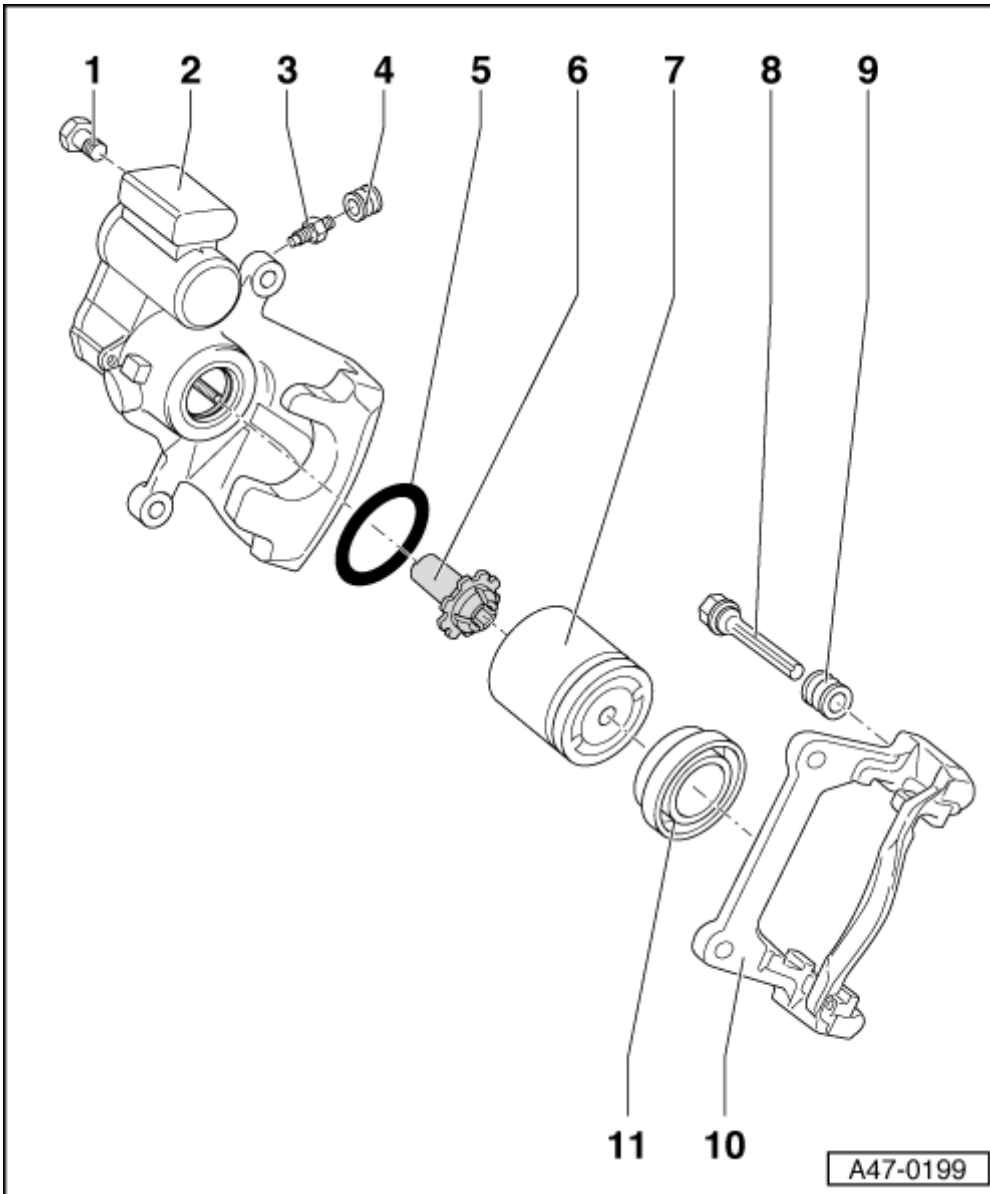


Fig. 46: Identifying Brake Caliper, Servicing Overview

Courtesy of AUDI OF AMERICA, LLC

BRAKE FLUID RESERVOIR COVER

Not installed in all vehicles.

The brake fluid reservoir cover has an opening on the left to check the brake fluid level. To prevent damage later, brake fluid must not enter between the brake fluid reservoir cover and the brake fluid reservoir.

Removing

-- Remove plenum chamber cover **Removal and Installation** .

-- Screw in bolt -4- and tighten.

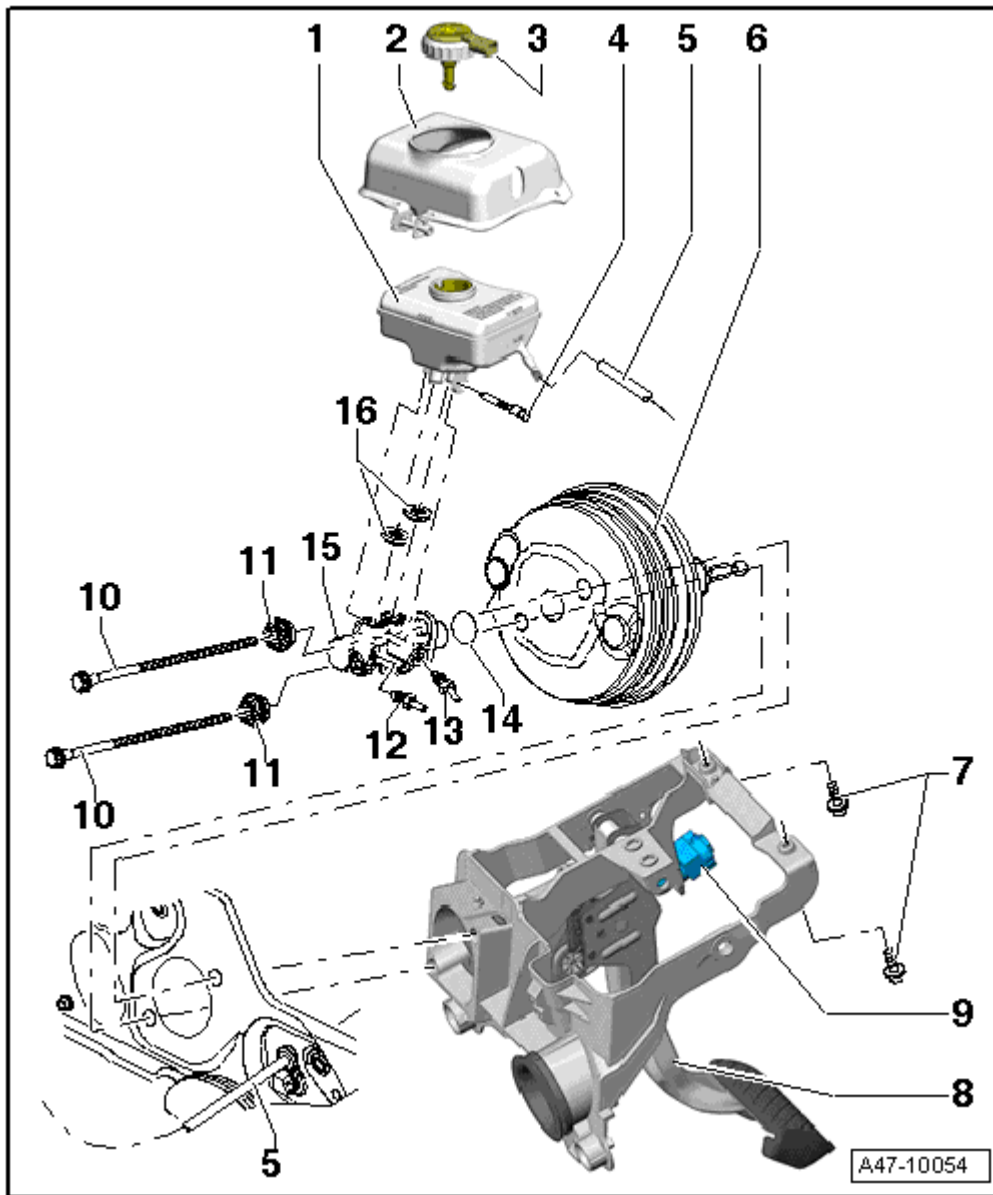


Fig. 48: Identifying Brake Master Cylinder Components
 Courtesy of AUDI OF AMERICA, LLC

-- Install plenum chamber cover **Removal and Installation** .

BRAKE FLUID RESERVOIR

Removing

-- Remove plenum chamber cover **Removal and Installation** .

-- Disconnect electrical connector from brake fluid level warning switch -F34-.

-- Remove brake fluid reservoir cover over brake fluid reservoir **BRAKE FLUID RESERVOIR COVER**.

- To protect against escaping brake fluid, place enough lint-free cloths in the area below the master brake cylinder.
- Extract as much brake fluid as possible from the brake fluid reservoir with the brake filler bleeder unit VAS 5234 and adapter VAS 5234/1.
- With manual transmissions, remove the clutch hydraulic line -5- from the brake fluid reservoir and seal it.

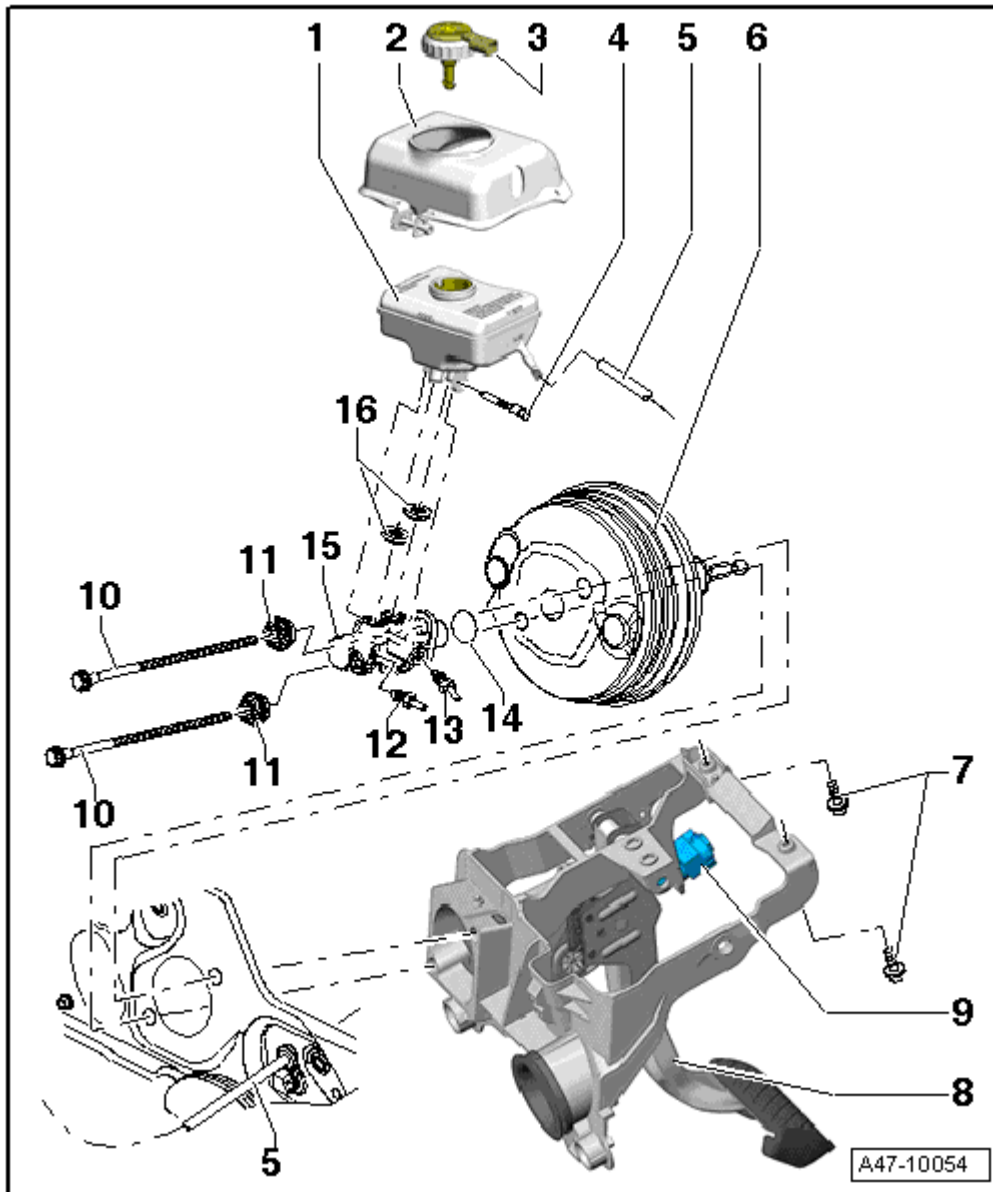


Fig. 49: Identifying Brake Master Cylinder Components

Courtesy of AUDI OF AMERICA, LLC

WARNING:

- Do not, under any circumstances, allow brake fluid to come into contact with any fluids containing mineral oil (oil, gasoline, cleaning

solvents). Mineral oil damages the sealing plugs and boots of the brake system.

- **Brake fluid is poisonous. NEVER siphon brake fluid with your mouth! Also due to its corrosive effect, brake fluid must not come into contact with paintwork.**
- **Observe disposal regulations.**

-- Pull lower locking pin out of the brake fluid reservoir.

-- Remove brake fluid reservoir from the brake master cylinder.

Installing

Remove protective cap on new brake fluid reservoir just before filling it.

-- Coat plugs on brake fluid reservoir with brake fluid.

-- Insert brake fluid reservoir in the sealing plugs in the brake master cylinder.

-- Push lower locking pin through brake fluid reservoir.

-- Connect electrical connector from brake fluid level warning switch -F34-.

-- With manual transmission, connect the clutch hydraulic line -5- to the brake fluid reservoir.

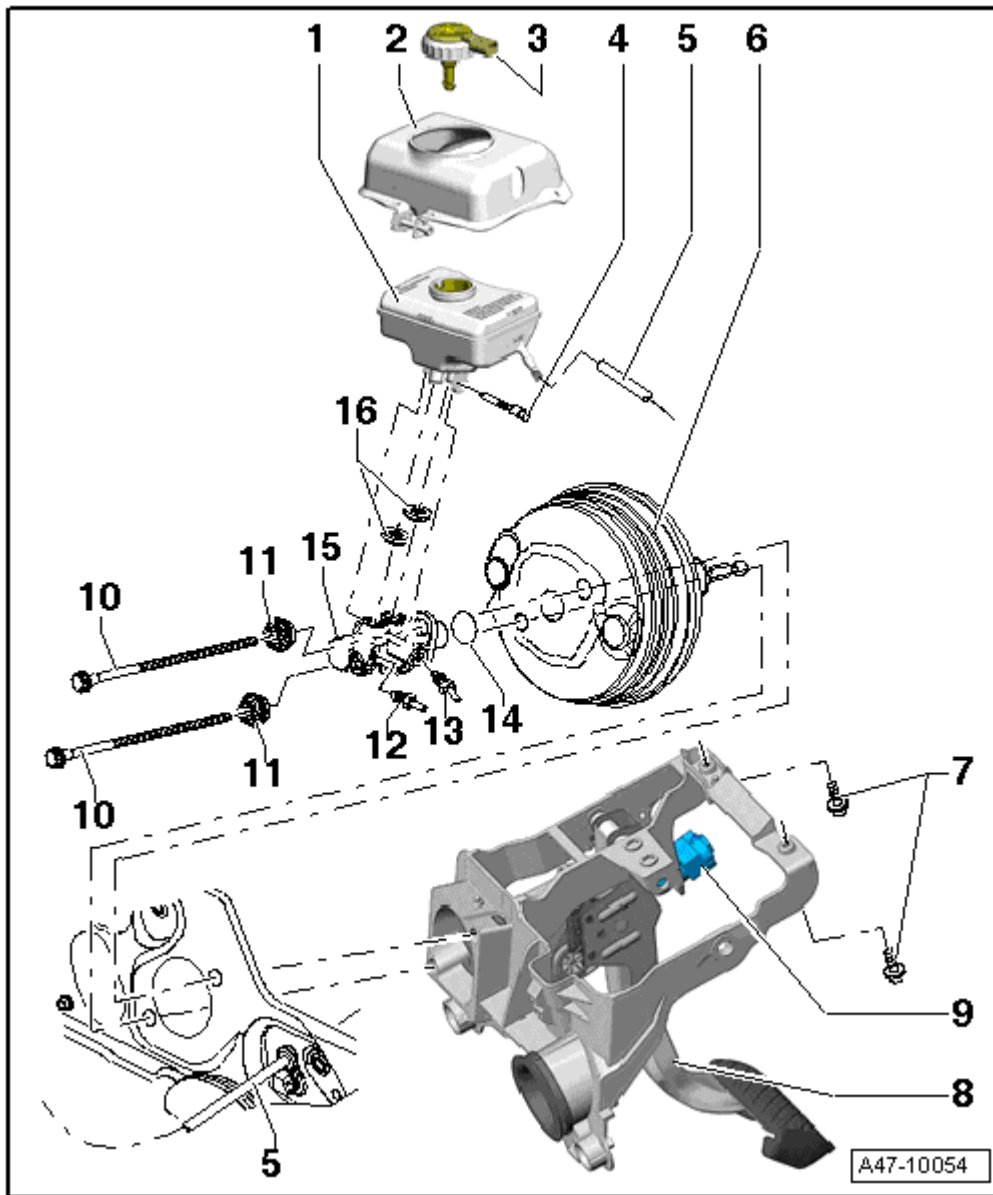


Fig. 50: Identifying Brake Master Cylinder Components

Courtesy of AUDI OF AMERICA, LLC

-- Fill brake fluid up to marking.

-- Bleed brake system **BRAKE SYSTEM, BLEEDING.**

-- With manual transmissions, bleed the clutch, refer to **[For engine(s) CCBA] General Information** or refer to **[For engine(s) CAEB, CALA] General Information** .

-- Install brake fluid reservoir cover over the brake fluid reservoir.

NOTE: **The brake fluid reservoir cover is not installed on all vehicle models.**

-- Install plenum chamber cover **Removal and Installation** .

BRAKE MASTER CYLINDER

Removing

Special tools and workshop equipment required

- Torque Wrench V.A.G 1331
- Adapter VAS 5234/1
- Brake filler/bleeder unit VAS 5234
- Sealing plugs repair kit, Part no. 1H0 698 311 A

Removing

-- Remove plenum chamber cover **Removal and Installation** .

-- Remove engine cover.

-- Remove tower brace **[For engine(s) CAEB, CALA, CCBA] Removal and Installation** .

-- Remove plenum chamber bulkhead **Removal and Installation** .

-- To protect against escaping brake fluid, place enough lint-free cloths in the area below the master brake cylinder.

-- Extract as much brake fluid as possible from the brake fluid reservoir with the brake filler /bleeder unit VAS 5234.

WARNING:

- Do not, under any circumstances, allow brake fluid to come into contact with any fluids containing mineral oil (oil, gasoline, cleaning solvents). Mineral oil damages the sealing plugs and boots of the brake system.
- Brake fluid is poisonous. NEVER siphon brake fluid with your mouth! Also due to its corrosive effect, brake fluid must not come into contact with paintwork.
- Observe disposal regulations.

-- Remove brake fluid reservoir **BRAKE FLUID RESERVOIR**.

-- Disconnect brake lines -2- at brake master cylinder and seal brake lines with sealing plugs from repair kit.

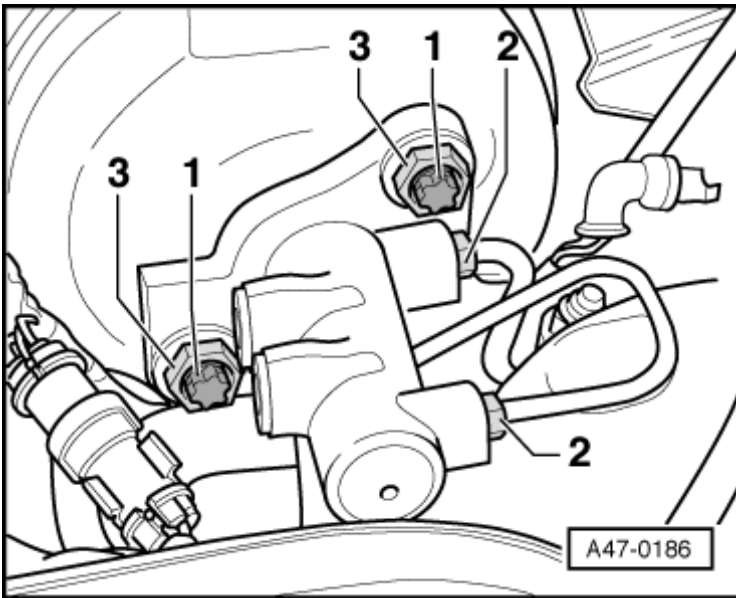


Fig. 51: Identifying Brake Booster Bolts, Brake Lines & Brake Master Cylinder Bolts
Courtesy of AUDI OF AMERICA, LLC

- Remove brake master cylinder mounting nuts -3-.
- Remove brake master cylinder from brake booster.
- Remove brake master cylinder from vehicle.

CAUTION: Do not let any brake fluid run into the brake booster.

Installing

Installation is in reverse order of removal.

CAUTION: Do not let any brake fluid run into brake booster.

Use new nuts.

- Replace sealing ring between brake master cylinder and brake booster.
- When replacing brake master cylinder, ensure pressure rod in brake booster is seated correctly.
- Press brake pedal down slightly. This makes it easier to guide the push rod into the brake master cylinder.
- Install new nuts -3- and tighten. Note torque.

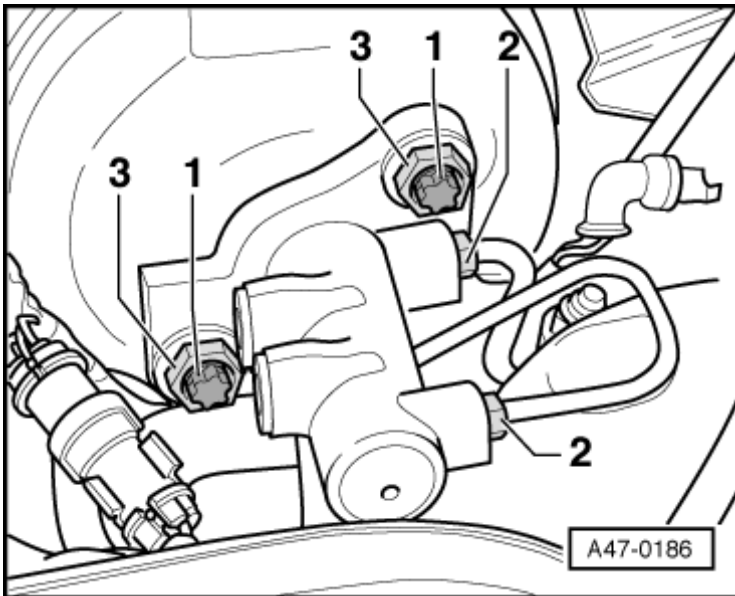


Fig. 52: Identifying Brake Booster Bolts, Brake Lines & Brake Master Cylinder Bolts
Courtesy of AUDI OF AMERICA, LLC

-- Install brake lines -2- on brake master cylinder. Note torque.

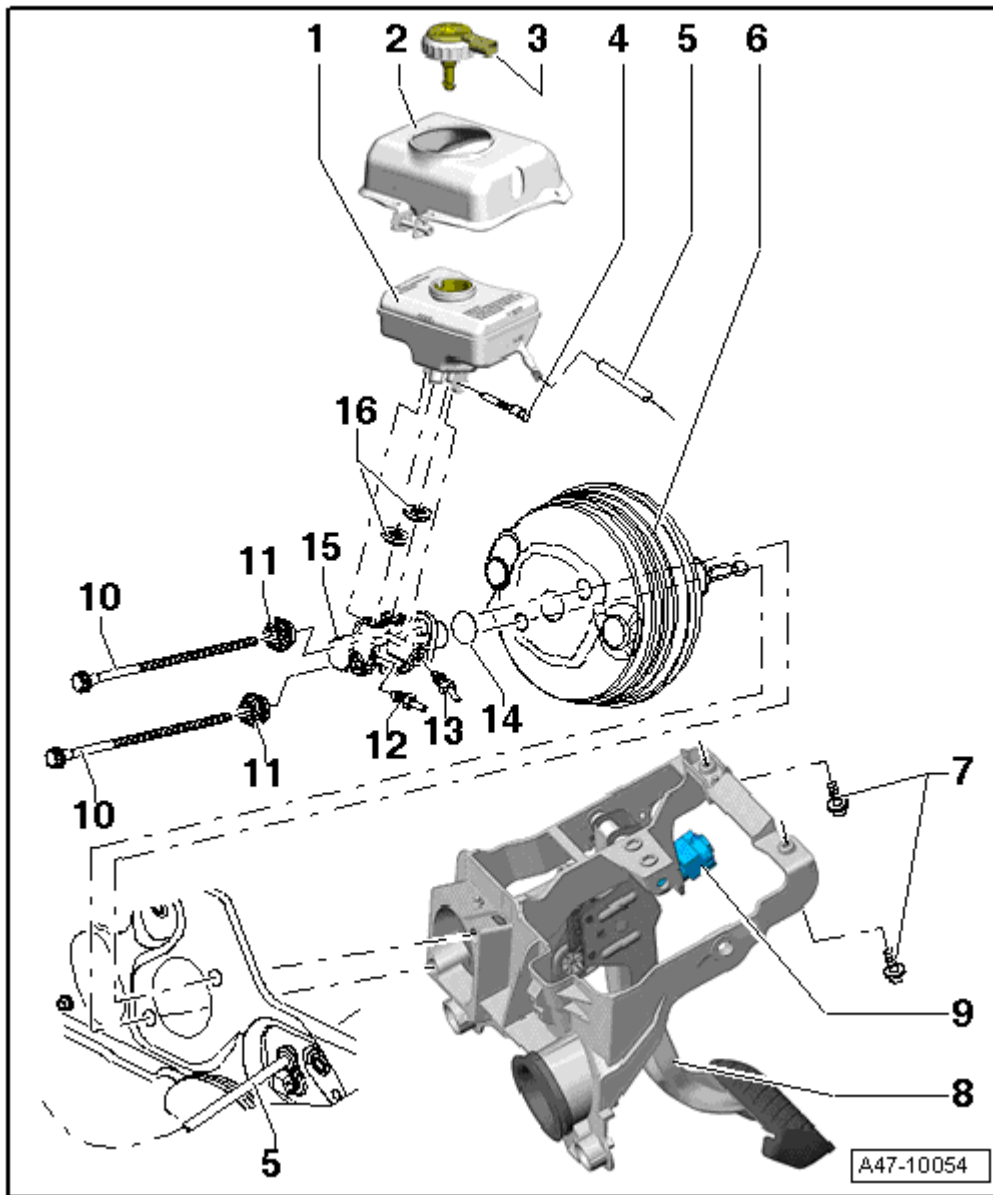


Fig. 53: Identifying Brake Master Cylinder Components

Courtesy of AUDI OF AMERICA, LLC

- Install brake fluid reservoir -1- **BRAKE FLUID RESERVOIR**.
- With manual transmissions, insert the clutch hydraulic line -5- into the brake fluid reservoir.
- Fill brake fluid up to the marking.
- Bleed brake system **BRAKE SYSTEM, BLEEDING**.
- With manual transmissions, bleed the clutch, refer to **[For engine(s) CCBA] General Information** or refer to **[For engine(s) CAEB, CALA] General Information** .

- Install plenum chamber bulkhead **Removal and Installation** .
- Install tower brace **[For engine(s) CAEB, CALA, CCBA] Removal and Installation** .
- Install engine cover.
- Install plenum chamber cover **Removal and Installation** .
- Perform ESP driving and system test.

BRAKE BOOSTER

Removing

Special tools and workshop equipment required

- Torque Wrench V.A.G 1331
- Adapter VAS 5234/1
- Brake filler bleeder unit VAS 5234
- Sealing plugs repair kit, Part no. 1H0 698 311 A

- Switch engine off.
- Press brake pedal until there is no more brake assistance - "pump brake booster empty". The brake pedal becomes hard.
- Remove driver side storage compartment -1 to 3-.

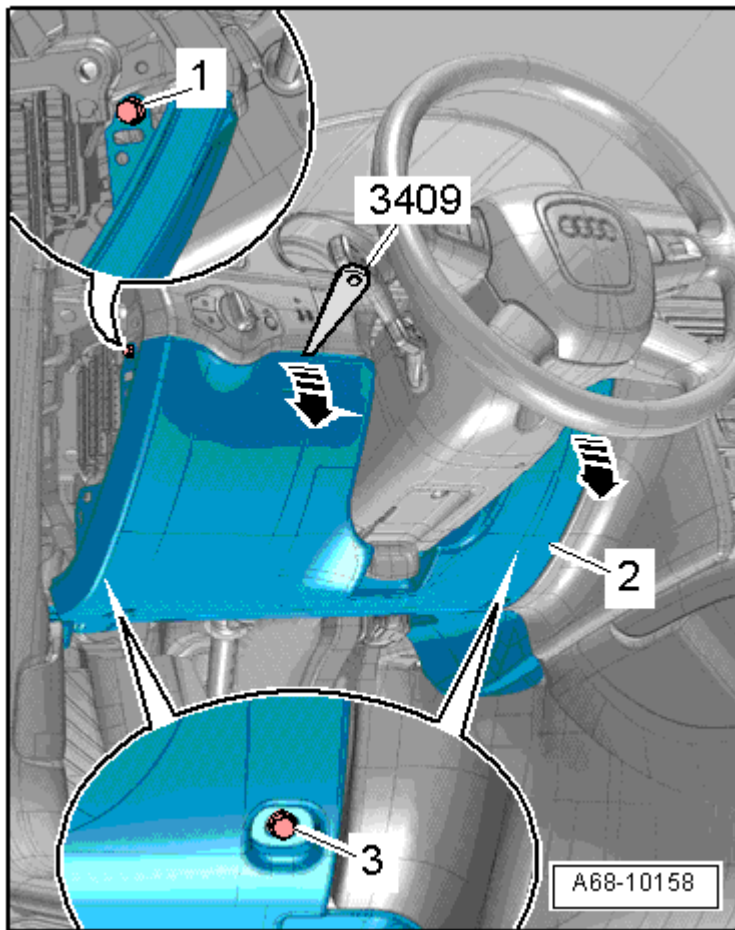


Fig. 54: Identifying Driver Side Storage Compartment
 Courtesy of AUDI OF AMERICA, LLC

-- Disconnect electrical connector to the footwell vent -C-.

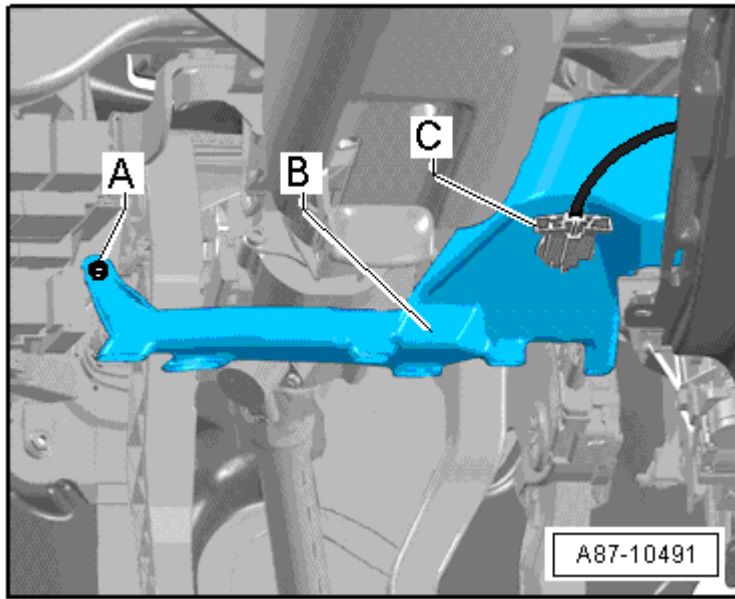


Fig. 55: Identifying Footwell Vents

Courtesy of AUDI OF AMERICA, LLC

- Remove footwell vents -A-B-.
- Remove brake lamp sensor **BRAKE LAMP SENSOR** .
- Disconnect brake pedal from brake booster **BRAKE PEDAL AND BRAKE BOOSTER, DISCONNECTING AND CONNECTING** .
- Remove engine cover.
- Remove plenum chamber cover **Removal and Installation** .
- Remove tower brace **[For engine(s) CAEB, CALA, CCBA] Removal and Installation** .
- Remove plenum chamber bulkhead **Removal and Installation** .
- Remove brake fluid reservoir **BRAKE FLUID RESERVOIR**.
- Remove brake master cylinder at the nuts -3- **BRAKE MASTER CYLINDER**.

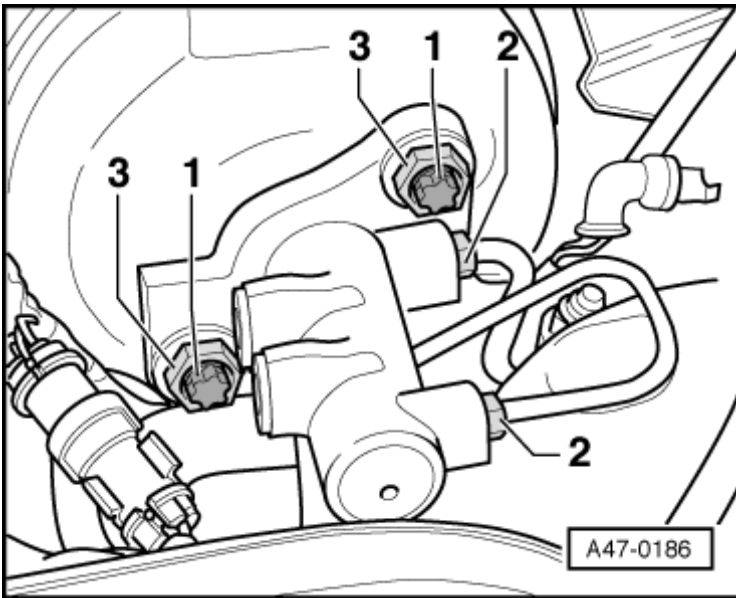


Fig. 56: Identifying Brake Booster Bolts, Brake Lines & Brake Master Cylinder Bolts
Courtesy of AUDI OF AMERICA, LLC

- Remove brake master cylinder from vehicle.
- Place brake master cylinder so no brake fluid can drain out.
- Remove vacuum line -3- from brake booster.

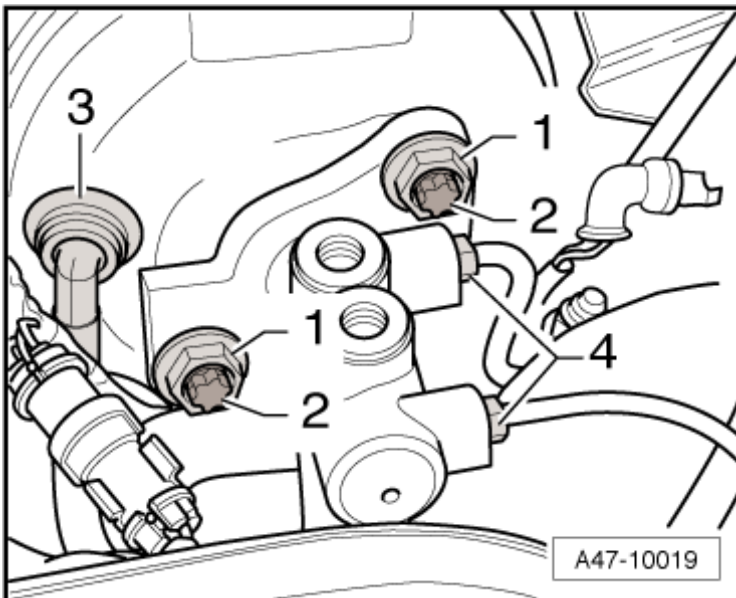


Fig. 57: Identifying Brake Master Cylinder Bolts
Courtesy of AUDI OF AMERICA, LLC

- Remove bolts mounting brake booster -1- to mounting bracket.

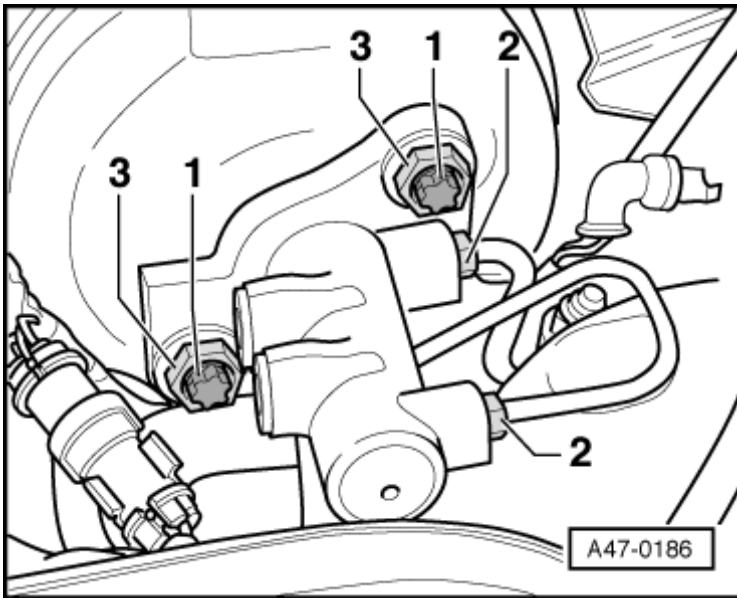


Fig. 58: Identifying Brake Booster Bolts, Brake Lines & Brake Master Cylinder Bolts
Courtesy of AUDI OF AMERICA, LLC

-- Remove brake booster from the vehicle.

Installing

-- Insert brake booster in the vehicle.

Make sure seal is seated correctly.

-- Install bolts -1- from brake booster to the mounting bracket and tighten them.

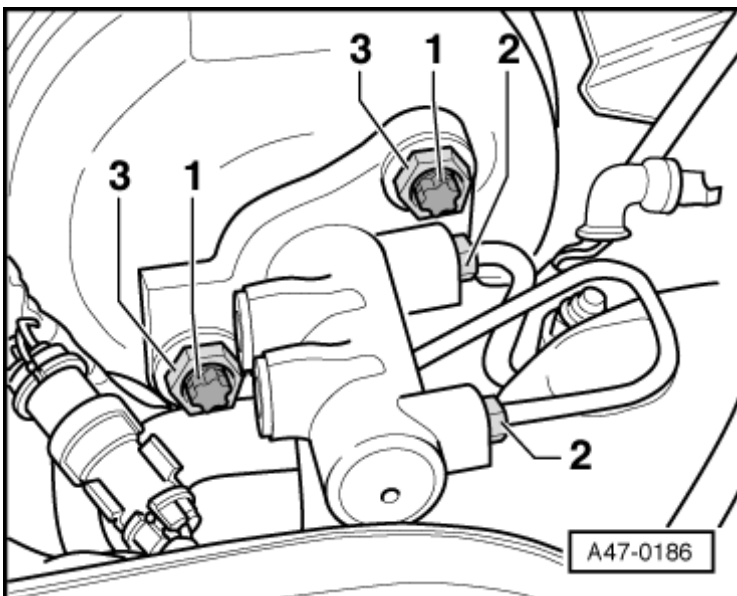


Fig. 59: Identifying Brake Booster Bolts, Brake Lines & Brake Master Cylinder Bolts

Courtesy of AUDI OF AMERICA, LLC

-- Press vacuum line -3- into brake booster.

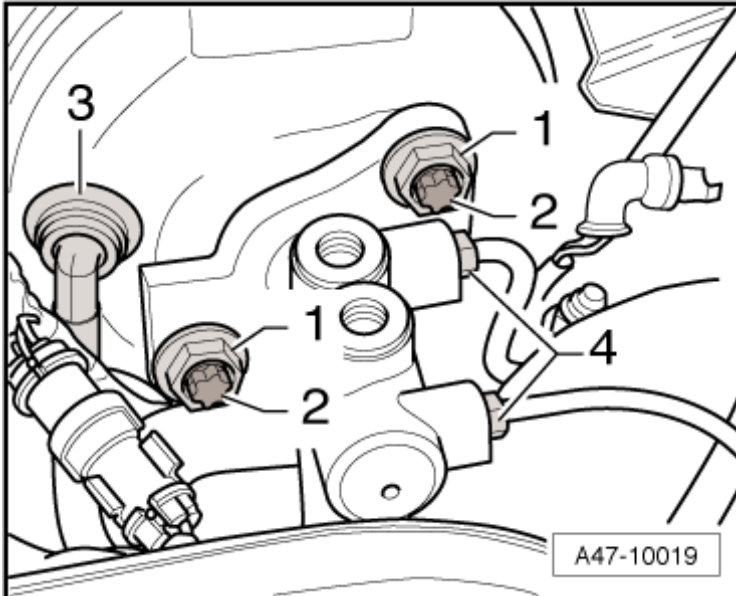


Fig. 60: Identifying Brake Master Cylinder Bolts

Courtesy of AUDI OF AMERICA, LLC

-- Install brake master cylinder -15- **BRAKE MASTER CYLINDER.**

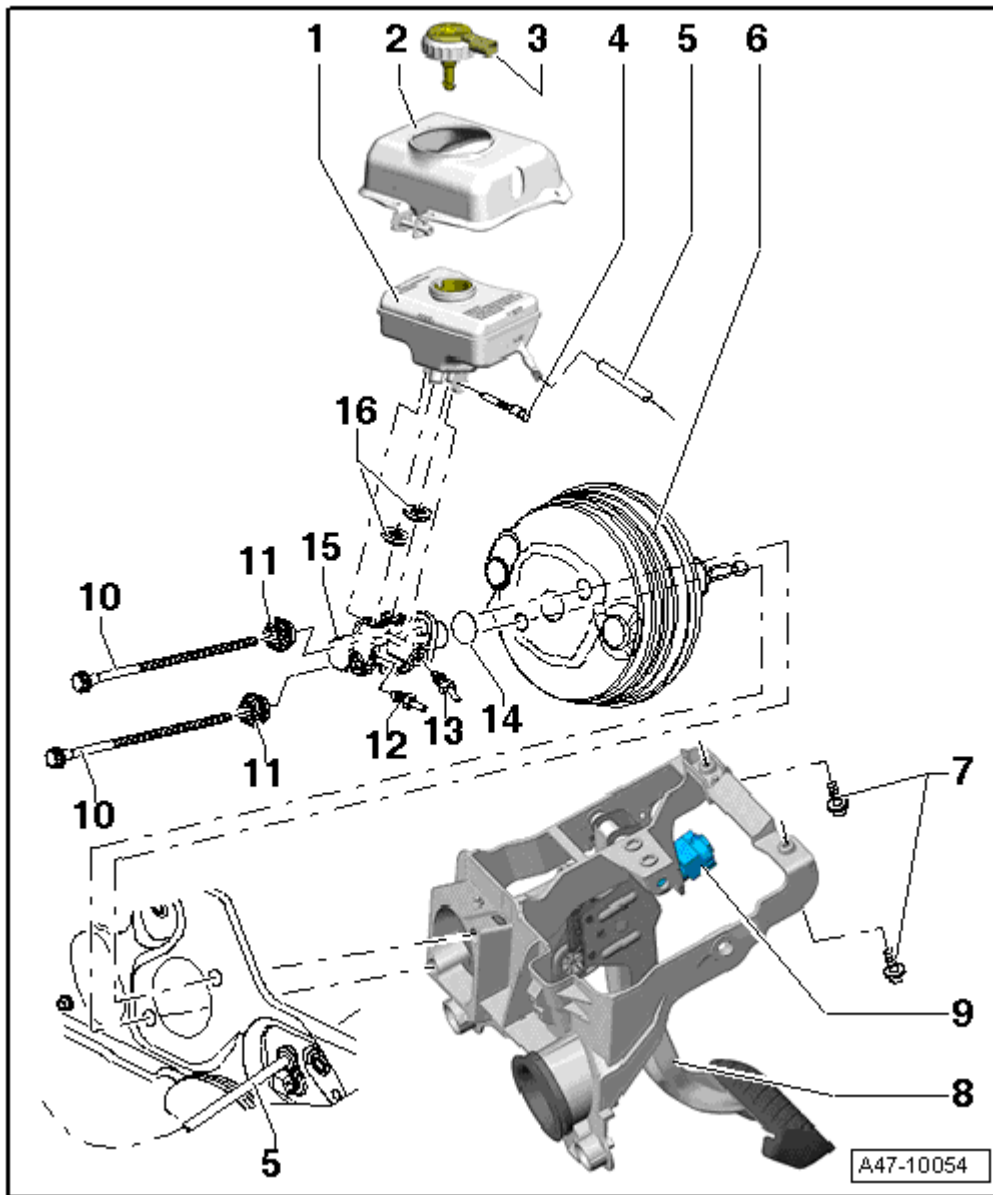


Fig. 61: Identifying Brake Master Cylinder Components

Courtesy of AUDI OF AMERICA, LLC

- Install brake fluid reservoir -1- **BRAKE FLUID RESERVOIR**.
- With manual transmissions, insert clutch hydraulic line -5- into brake fluid reservoir.
- Fill brake fluid up to the marking.
- Bleed brake system **BRAKE SYSTEM, BLEEDING**.
- With manual transmissions, bleed the clutch, refer to **[For engine(s) CCBA] General Information** or refer to **[For engine(s) CAEB, CALA] General Information** .

- Install plenum chamber bulkhead **Removal and Installation** .
- Install tower brace **[For engine(s) CAEB, CALA, CCBA] Removal and Installation** .
- Install engine cover.
- Install plenum chamber cover **Removal and Installation** .

Brake Pedal and Brake Booster, Connecting

- Hold ball head of push rod in front of mounting and push brake pedal in direction of brake booster, so the ball head locates audibly.
- Install brake lamp sensor **BRAKE LAMP SENSOR** .
- Install footwell vents -A- and -B-.

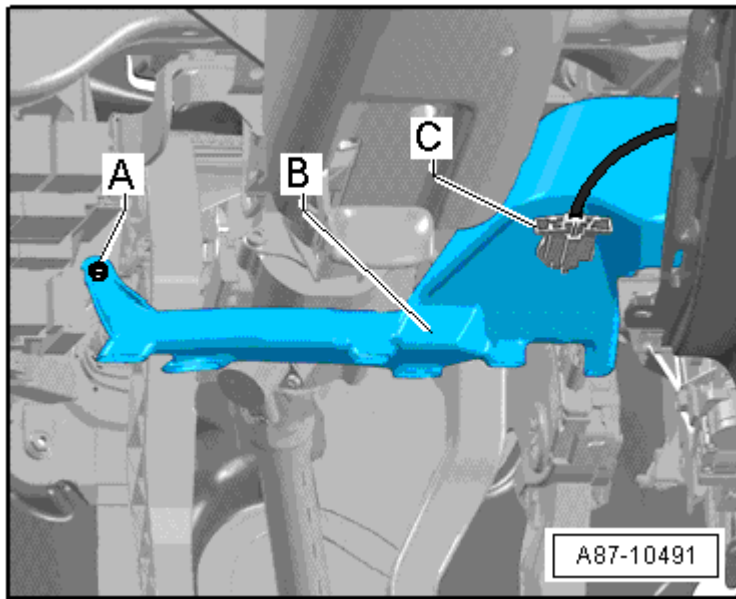


Fig. 62: Identifying Footwell Vents
Courtesy of AUDI OF AMERICA, LLC

- Tighten footwell vent screw -A-.
- Connect connector -C-.
- Install driver side storage compartment -1 to 3-.



VACUUM PUMP, TURBO FSI 4-CYLINDER

The plenum chamber bulkhead does not have to be removed.

Removing

The vacuum pump is installed in the engine compartment facing the rear -arrow-.

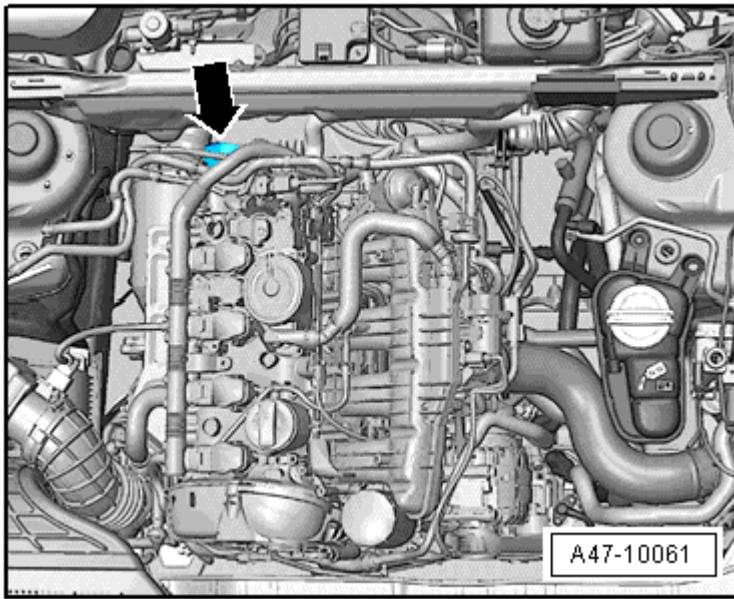


Fig. 64: Identifying Vacuum Pump Location
Courtesy of AUDI OF AMERICA, LLC

WARNING: The fuel line is pressurized, do not disconnect!

-- Remove engine covers carefully from the retaining pins, one after another.

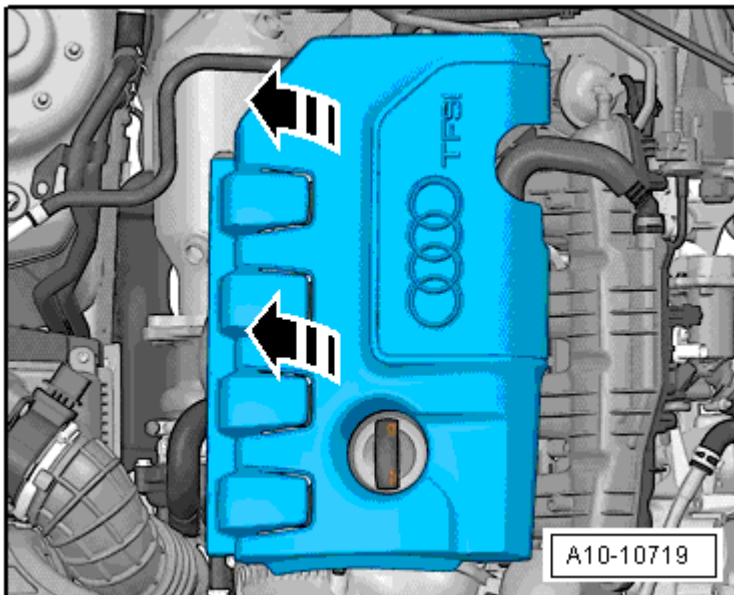


Fig. 65: Identifying Engine Cover
Courtesy of AUDI OF AMERICA, LLC

The vacuum pump is installed in the engine compartment on the right side facing the rear.

- Disconnect fuel high pressure pump connector -1-.
- Remove electric line from bracket -arrow-.

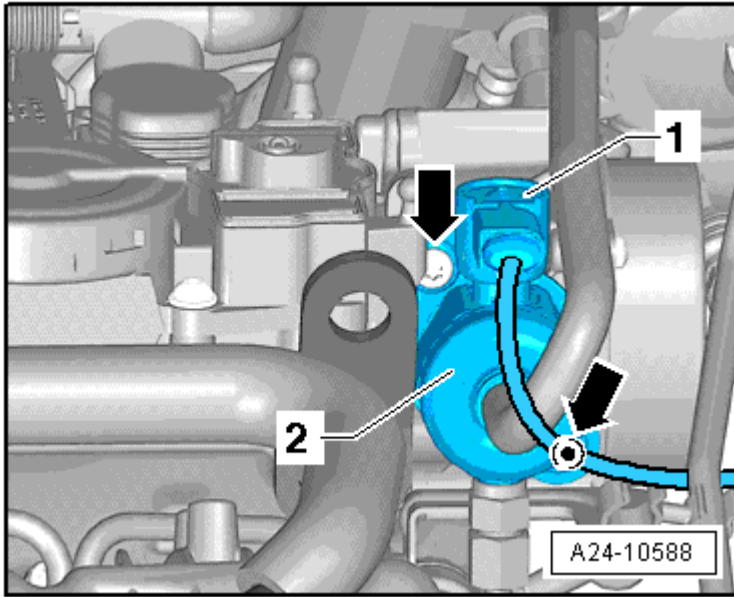


Fig. 66: Identifying Fuel High Pressure Pump
Courtesy of AUDI OF AMERICA, LLC

- Remove fuel high pressure pump -2-, refer to **[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** .
- Loosen ignition coil strip on the bracket.
- Disconnect ignition coil connectors -arrow-.

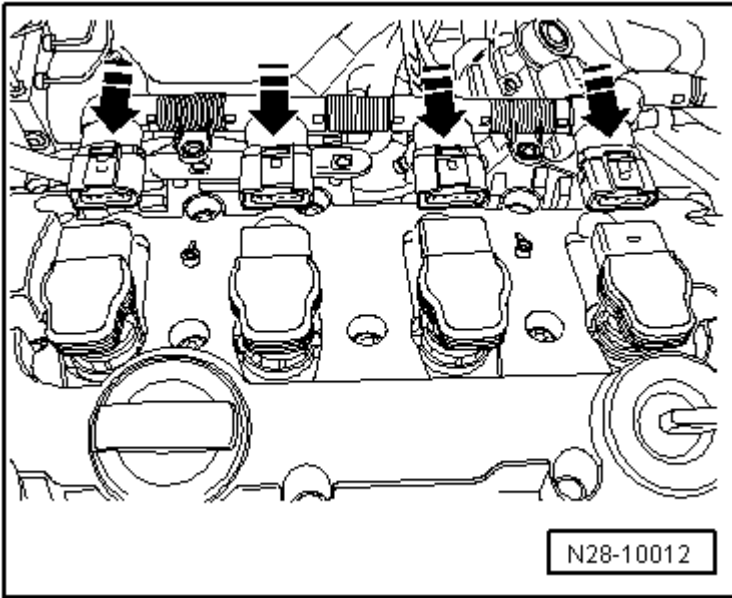


Fig. 67: Connecting Connectors To Ignition Coils

Courtesy of AUDI OF AMERICA, LLC

- Carefully push ignition coil strip to side.
- Disconnect wires on high pressure pump and on the vacuum pump and push them to the side.
- Disconnect vacuum hose at the hose clamp to the vacuum pump.

CAUTION: Do not damage the vacuum hose. Replace the vacuum hose if damaged.

- Remove all the bolts on the vacuum pump sealing flange -arrows-.

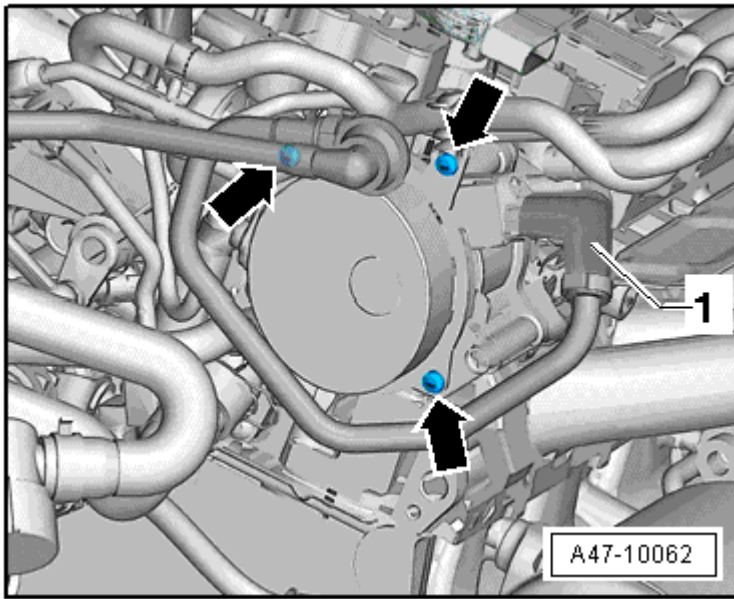


Fig. 68: Identifying Vacuum Pump Bolts Location
Courtesy of AUDI OF AMERICA, LLC

NOTE: Do not disconnect the vacuum hose from the vacuum line on the plenum chamber bulkhead -2-.

-- Remove vacuum pump from the mount.

Installing

NOTE: Replace the seal.

Make sure the seal is correctly installed.

-- Position vacuum pump tappet so it engages in the groove on the camshaft when vacuum pump is installed.

-- Make sure the seal is seated correctly.

-- Install and tighten all the bolts -arrows- on the vacuum pump sealing flange. Refer to item: 1

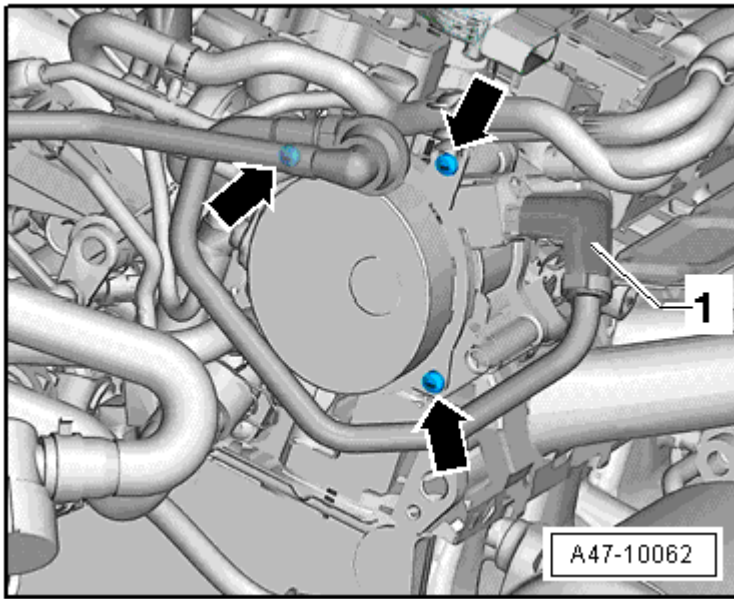


Fig. 69: Identifying Vacuum Pump Bolts Location
Courtesy of AUDI OF AMERICA, LLC

- Push new hose clamps over vacuum hose.
- Push vacuum hose over connection on the vacuum pump.
- Compress hose clamp on vacuum pump connections with pliers.

CAUTION: Do not damage the vacuum hose. Replace vacuum hose if damaged.

- Connect wires to high pressure pump and to the vacuum pump.
- Connect ignition coil connectors -arrow-.

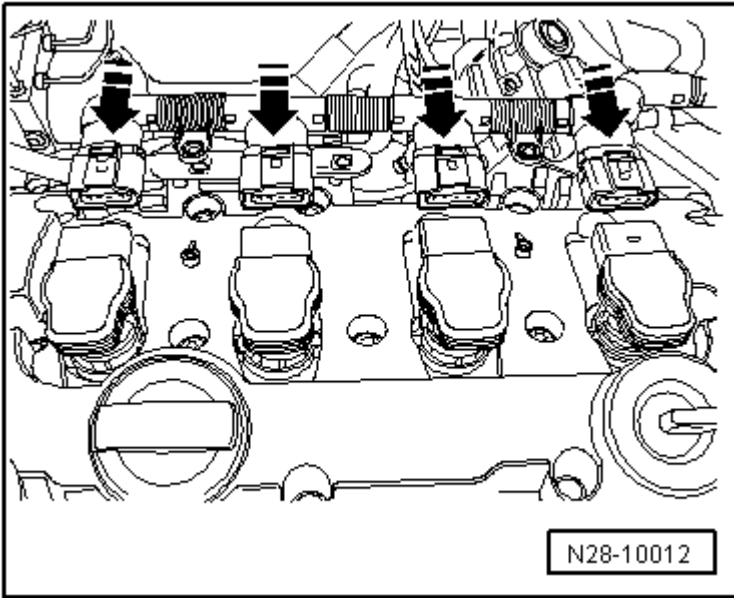


Fig. 70: Connecting Connectors To Ignition Coils

Courtesy of AUDI OF AMERICA, LLC

-- Install ignition coil strip.

-- Install fuel high pressure pump, refer to **[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**.

-- Install engine cover.

VACUUM PUMP, FSI V6

The vacuum pump is installed in the engine compartment at the front and on the left side in the driving direction.

Removing

-- Remove engine covers carefully from retaining pins, one after another.

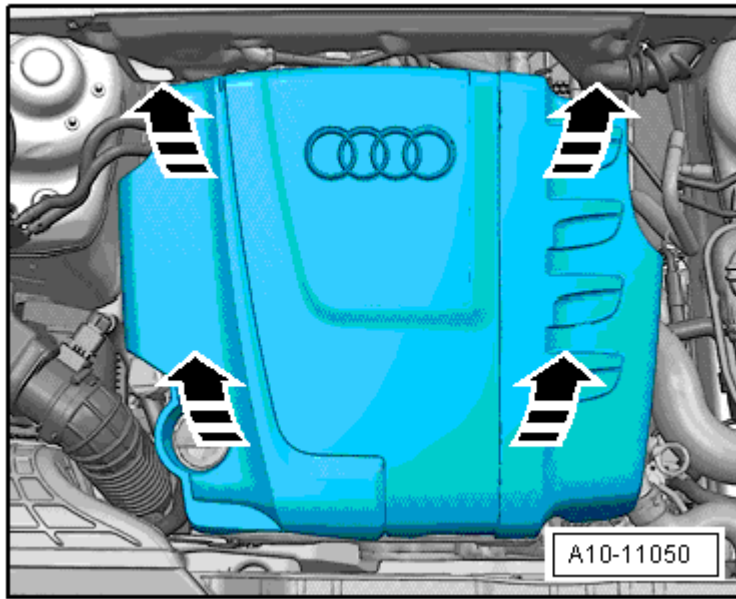


Fig. 71: Identifying Engine Covers
 Courtesy of AUDI OF AMERICA, LLC

-- Loosens hose clamp on the vacuum hose.

CAUTION: Do not damage the vacuum hose. Replace vacuum hose if damaged.

- Remove vacuum hose from vacuum pump.
- Remove all bolts on the vacuum pump sealing flange.
- Remove vacuum pump from the mount.

Installing

NOTE: Replace the seal.

Make sure the seal is correctly installed.

- Position vacuum pump tappet so it engages in the groove on the camshaft when vacuum pump is installed.
- Insert vacuum pump.
- Make sure seal is seated correctly.

-- Install and tighten all bolts on the vacuum pump sealing flange. **VACUUM PUMP ASSEMBLY OVERVIEW**) Bolt

- Push new hose clamps over the vacuum hose.
- Push vacuum hose over the connection on the vacuum pump.
- Compress hose clamp on the vacuum pump connections with pliers.
- Carefully install engine covers into retaining bolts one after the other.

VACUUM PUMP

The construction of the vacuum pump V192 depends on the engine.

The brake system vacuum pump -V192- is switched on by the engine control module depending on the intake line pressure.

Vacuum pump is not intended to be serviced. In case of complaints, determine cause with help of function or seal test. If there is a malfunction, replace electrical vacuum pump.

Removing

NOTE: The electrical vacuum pump is located in the engine compartment on the right side in front of the plenum chamber bulkhead.

- Remove engine cover.
- Disconnect electrical connector -1-.

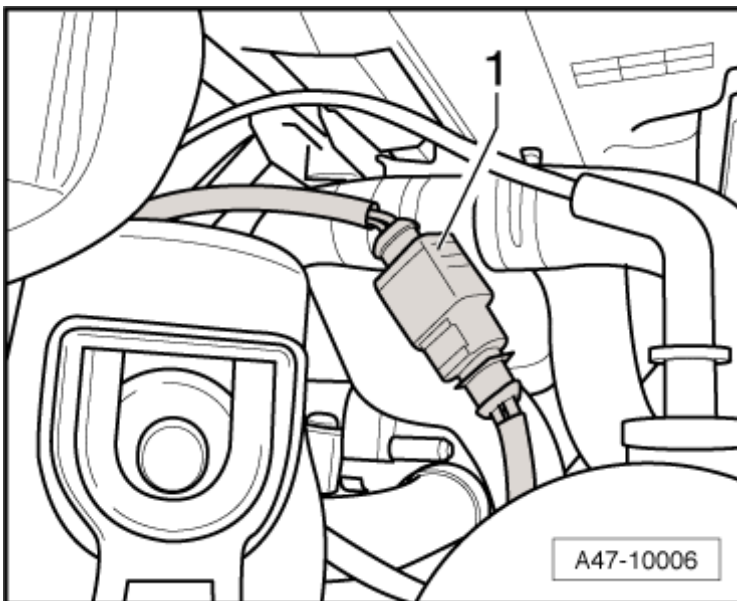


Fig. 72: Disconnecting Electrical Connector
Courtesy of AUDI OF AMERICA, LLC

- Loosen clamp on vacuum hose using suitable pliers.
- Disconnect vacuum hose from the vacuum pump.
- Press right and lift clips -arrow- out of the bracket by hand.

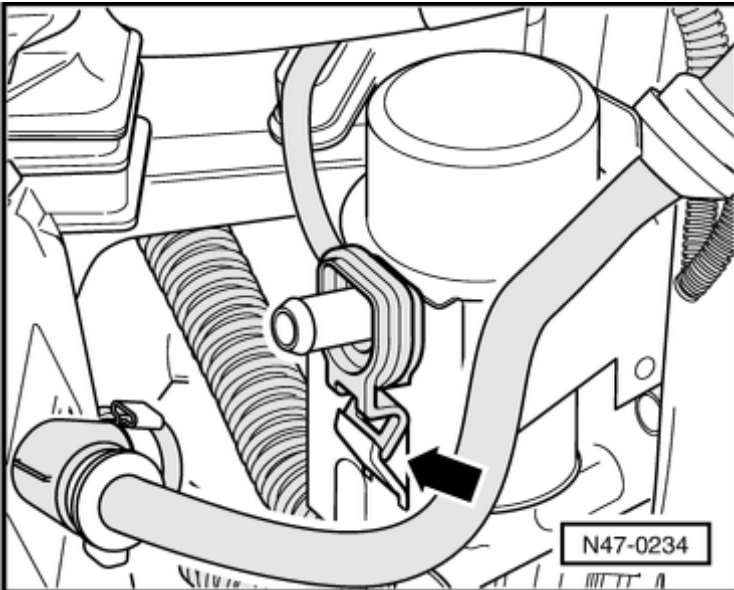


Fig. 73: Identifying Brake System Vacuum Pump V192 Upward From Bracket
Courtesy of AUDI OF AMERICA, LLC

- Remove electrical vacuum pump upward while holding the rubber buffer securely.

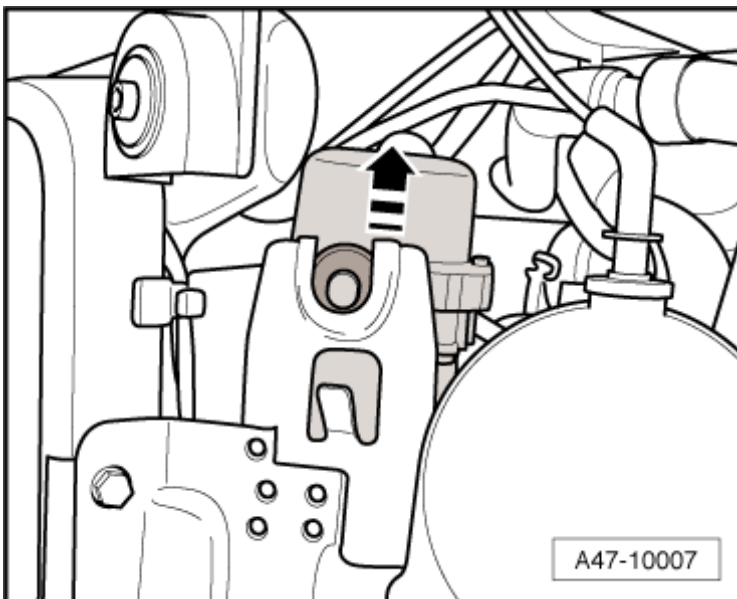


Fig. 74: Identifying Electrical Vacuum Pump Upward
Courtesy of AUDI OF AMERICA, LLC

NOTE: When removing the vacuum pump V192, make sure the lower rubber buffer does not fall into the engine compartment.

Installing

Installation is in reverse order of removal.

NOTE: Use new clamps when installing the vacuum line.

VACUUM PUMP BRACKET

NOTE: To remove the bracket, the vacuum pump must first be removed from the bracket.

Removing

- Remove engine cover.
- Remove vacuum pump **VACUUM PUMP**.
- Remove two nuts -6- on bracket.

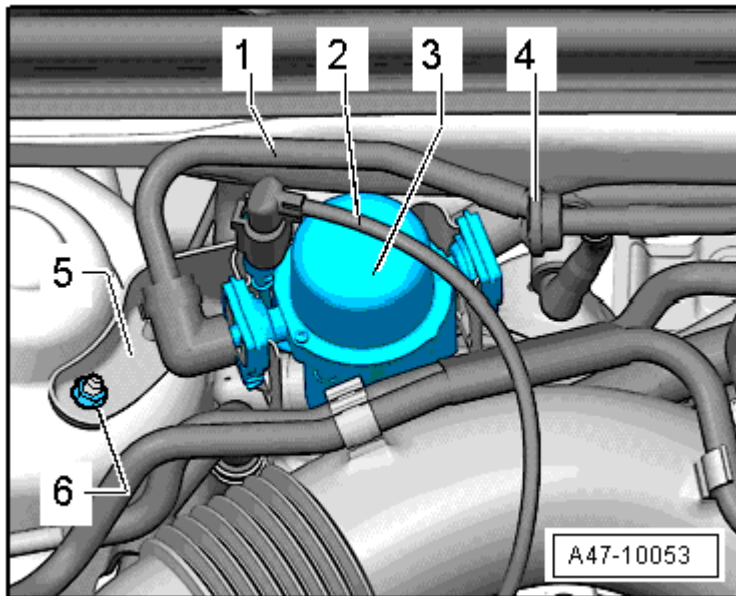


Fig. 75: Identifying Vacuum Pump Assembly Overview
Courtesy of AUDI OF AMERICA, LLC

- Remove bracket from vehicle.

Installing

-- Installation is in reverse sequence.

BRAKE BOOSTER PRESSURE SENSOR

Removing

-- Remove plenum chamber cover Removal and Installation .

NOTE: The brake booster pressure sensor -G294- is located in the plenum chamber near the brake booster.

-- Disconnect electrical connector -1-.

-- Remove pressure sensor in direction of -arrow-.

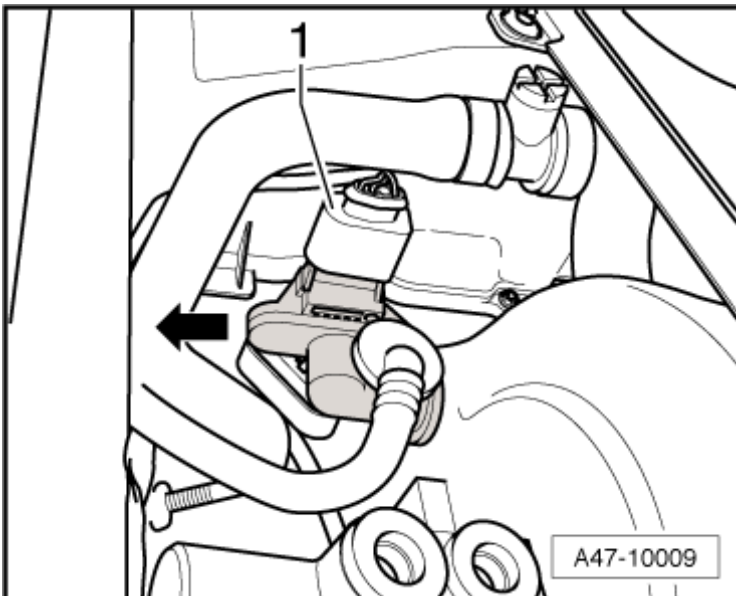


Fig. 76: Identifying Pressure Sensor

Courtesy of AUDI OF AMERICA, LLC

NOTE: The pressure sensor is secured with clips.

-- Release clips with pliers -1-.

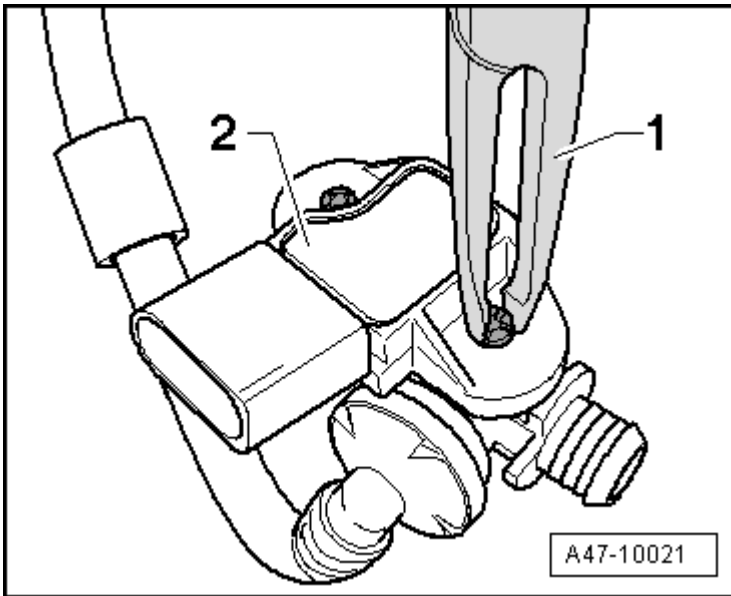


Fig. 77: Identifying Brake Booster Pressure Sensor G294, Clips And Pliers
Courtesy of AUDI OF AMERICA, LLC

-- Carefully pry Brake Booster Pressure Sensor -G294- off.

Installing

Installation is in reverse order of removal.

CHECK VALVE

Removing

-- Remove vacuum hose on left and right of the check valve -4-.

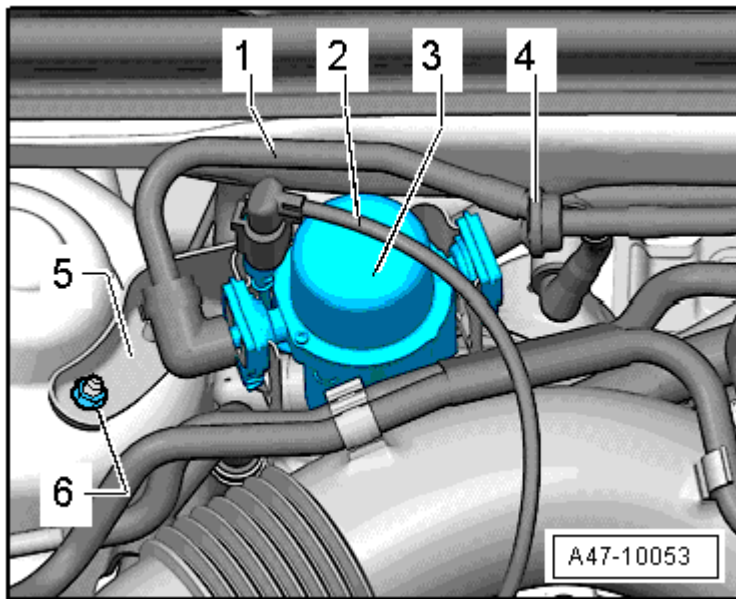


Fig. 78: Identifying Vacuum Pump Assembly Overview
Courtesy of AUDI OF AMERICA, LLC

-- Remove check valve from vehicle.

Installing

-- Installation is in reverse sequence. Observe the following when doing so:

Valve must allow air to flow in direction of arrow.

The arrow indicates the direction of the vacuum pump.

SPECIAL TOOLS

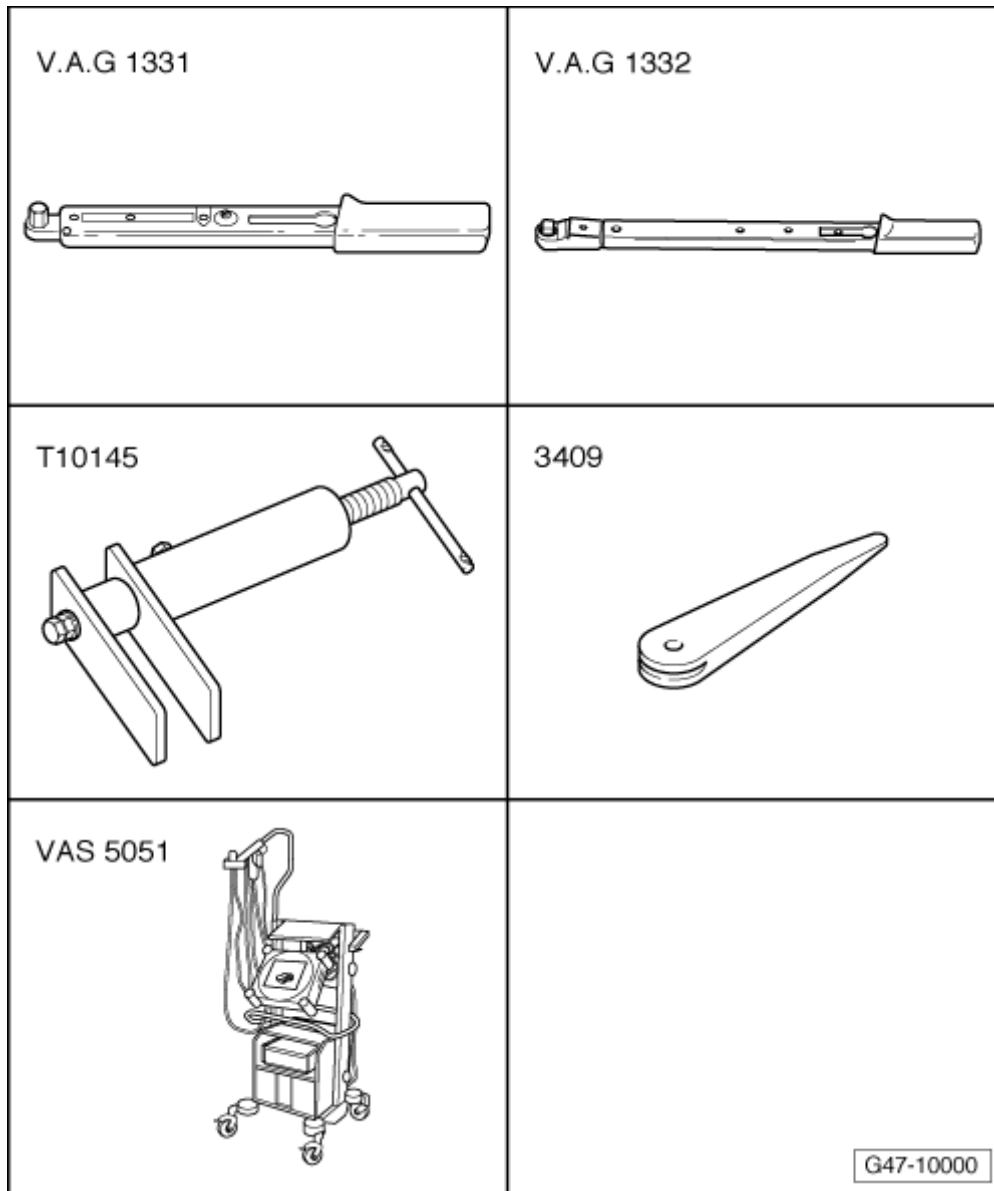


Fig. 79: Identifying Special Tools -- Rear Brake Caliper Piston, Removing And Installing
 Courtesy of AUDI OF AMERICA, LLC

Special tools and workshop equipment required

- Torque Wrench V.A.G 1331
- Torque Wrench V.A.G 1332
- Piston Resetting Tool T10145
- Disassembly wedge 3409
- Vehicle Diagnostic, Test And Information System VAS 5051B

Special tools and workshop equipment required

- Brake pressure gauge 0-250 bar V.A.G 1310A

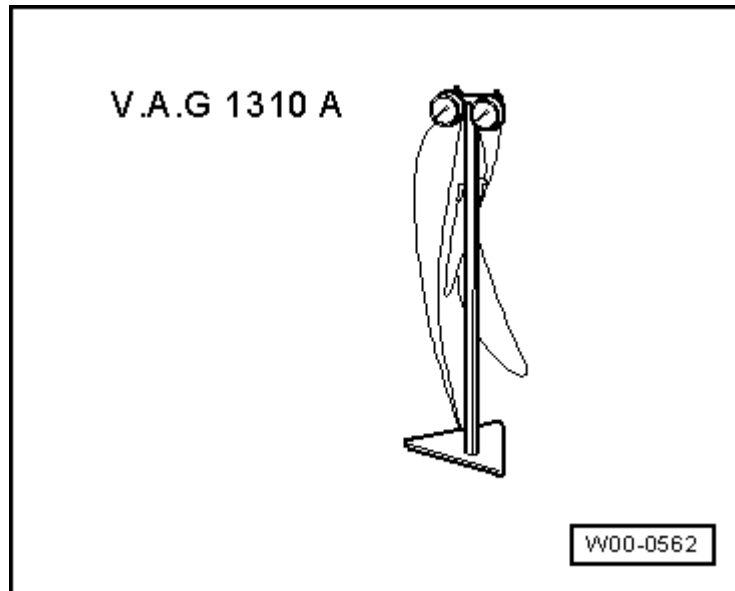


Fig. 80: Identifying Brake Pressure Gauge V.A.G 1310 A
Courtesy of AUDI OF AMERICA, LLC

- Brake filler bleeder unit VAS 5234

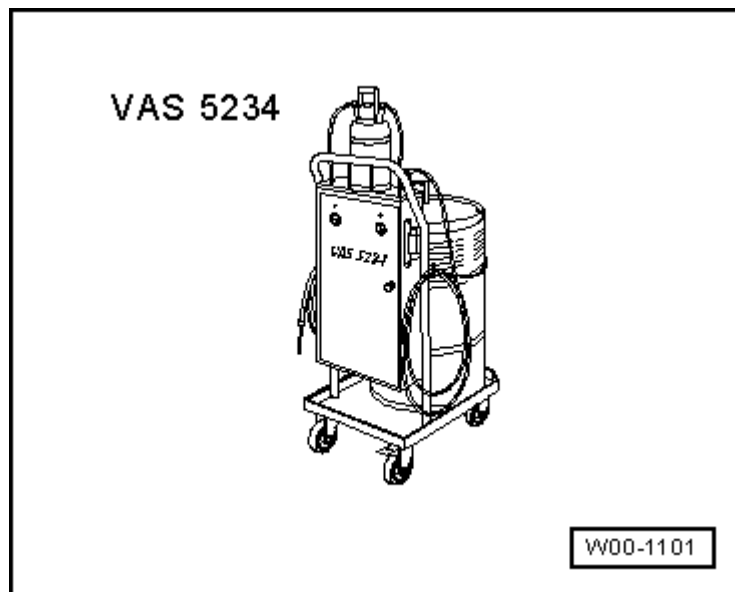


Fig. 81: Identifying Brake Charger/Bleeder Unit VAS 5234
Courtesy of AUDI OF AMERICA, LLC

- Adapter VAS 5234/1