Safety Recall
Code: 45F5

Subject	**ABS Control Module Software**
Release Date	February 14, 2017
Affected Vehicles	***U.S.A. & CANADA:*** **2009 MY Audi A3** *Check Campaigns/Actions screen in Elsa on the day of repair to verify that a VIN qualifies for repair under this action. Elsa is the only valid campaign inquiry & verification source.* ✓ *Campaign status must show "open."* ✓ *If Elsa shows other open action(s), inform your customer so that the work can also be completed at the same time the vehicle is in the workshop for this campaign.*
Problem Description	On certain vehicles, a fault within the antilock brake system (ABS) may cause the module to fail during ABS and/or electronic stability control (ESC) activation. This will cause warning lights for ABS, brake and the ESC systems to illuminate. If this happens, the brake system related vehicle stabilizing functions (ABS/ESC) may not be available, increasing the risk of a loss of vehicle control and could lead to a crash causing injury and/or property damage.
Corrective Action	Update the ABS control module software with improved diagnostic capability to detect insufficient PCU ground connection. ABS modules with insufficient ground connections will be replaced.
Precautions	If the ABS/ESC and/or brake system warning lights illuminate at any time while driving, or if any of the lights have been illuminated and then turn off after an ignition key cycle, the customer should contact the nearest authorized Audi dealer to have their vehicle inspected. Ensure all vehicle drivers have read the vehicle owner's manual so they are familiar with how the ABS, ESC and vehicle brake systems and associated warning lights work.
Parts Information	Software update – however, please note: due to the very low expected parts replacement rate, there will be no parts allocation. If parts are needed to support a vehicle repair, submit your request with VIN via email to vwoaspecialservices@vw.com.
Code Visibility	On or about February 14, 2017, affected vehicles will be listed on the Inventory Vehicle Open Campaign Action report under My Dealership Reports (found on www.accessaudi.com & OMD Web). A list will not be posted for dealers who do not have any affected vehicles. On or about February 14, 2017, this campaign code will show open on affected vehicles in Elsa. On or about February 14, 2017, affected vehicles will be identified with this campaign code in the VIN Lookup tool at www.audiusa.com and on the NHTSA VIN lookup tool at www.safercar.gov.
Owner Notification	Owner notification will take place on or about February 14, 2017. Owner letter examples are included in this bulletin for your reference.
Additional Information	**Please alert everyone in your dealership about this action, including Sales, Service, Parts and Accounting personnel. Contact Warranty if you have any questions.** **IMPORTANT REMINDER ON VEHICLES AFFECTED BY SAFETY & COMPLIANCE RECALLS** **New Vehicles in Dealer Inventory: It is a violation of Federal law for a dealer to deliver a new motor vehicle or any new or used item of motor vehicle equipment (including a tire) covered by this notification under a sale or lease until the defect or noncompliance is remedied. By law, dealers must correct, prior to delivery for sale or lease, any vehicle that fails to comply**

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with an applicable Federal Motor Vehicle Safety Standard or that contains a defect relating to motor vehicle safety.

Pre-Owned Vehicles in Dealer Inventory: Dealers should not deliver any pre-owned vehicles in their inventory which are involved in a safety or compliance recall until the defect has been remedied.

Dealers must ensure that every affected inventory vehicle has this campaign completed before delivery to consumers.

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Claim Entry Instructions

After campaign has been completed, enter claim as soon as possible to help prevent work from being duplicated elsewhere. Attach the Elsa screen print showing action *open on the day of repair* to the repair order.

If customer refused campaign work:

- ✓ U.S. dealers: Submit the request through Audi Warranty Online under the Campaigns/Update option.
- ✓ Canada dealers: Fax repair order to Warranty at (905) 428-4811.

Service Number	45F5
Damage Code	0099
Parts Vendor Code	002
Claim Type	Sold vehicle: 7 10 Unsold vehicle: 7 90
Causal Indicator	Mark labor as causal
Vehicle Wash/Loaner	Do not claim wash/loaner under this action
Criteria I.D.	8P
	Connect battery charger Repair operation: 2706 89 50 10 T.U. **--AND--** Update ABS Control Module software Repair operation: 4545 25 99 Time stated on diagnostic protocol (max 50 TU)

AND - (ONLY if necessary from diagnostic log)

Replace ABS Control Module and update ABS Control Module Software

Labor operation: 4545 23 99 350 T.U.

Quantity	Part Number	Description
1.00	1K0907375AP	ABS Control Module
-OR-		
1.00	1K0907375AN	ABS Control Module

-AND-

1.00	B 000750M2	Brake Fluid

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Customer Letter Example (USA)

NHTSA: 16V913

Subject: **Safety Recall 45F5 - ABS Control Module Software**
Certain 2009 Model Year Audi A3

Dear Audi Owner,

This notice is sent to you in accordance with the National Traffic and Motor Vehicle Safety Act. Audi has decided that a defect, which relates to motor vehicle safety, exists in certain 2009 model year Audi A3 vehicles. Our records show that you are the owner of a vehicle affected by this action.

What is the issue?

On certain vehicles, a fault within the antilock brake system (ABS) may cause the module to fail during ABS and/or electronic stability control (ESC) activation. This will cause warning lights for ABS, brake and the ESC systems to illuminate. If this happens, the brake system related vehicle stabilizing functions (ABS/ESC) may not be available, increasing the risk of a loss of vehicle control and could lead to a crash causing injury and/or property damage.

What will we do?

To help correct this defect, your authorized Audi dealer will update the ABS control module software with improved diagnostic capability to detect insufficient PCU ground connection. ABS modules with insufficient ground connections will be replaced. The software update will take less than an hour to complete; if the ABS module requires replacement, this work can take up to a full day to complete. The recall repair will be performed for you free of charge.

Should there ever be an issue with the ABS control module after the new software is installed, an authorized Audi dealer will cover replacement of the ABS control module if certain, specific fault codes are present at the time of diagnosis.

Please be aware that other conditions (unrelated to the issue described in this letter) may cause the ABS system warning light in your vehicle to illuminate. Customers should be prepared to cover diagnosis and repair costs associated with these other, unrelated conditions.

What should you do?

Please contact your authorized Audi dealer without delay to schedule this recall repair. For your convenience, you can also visit www.audiusa.com and click on the “Find a Dealer” link to locate a dealer near you and schedule this service.

Precautions you should take

If the ABS/ESC and/or brake system warning lights illuminate at any time while driving, or if any of the lights have been illuminated and then turn off after an ignition key cycle, contact the nearest authorized Audi dealer to have your vehicle inspected. Ensure all vehicle drivers have read the vehicle owner’s manual so they are familiar with how the ABS, ESC and vehicle brake systems and associated warning lights work.

Lease vehicles and address changes

If you are the lessor and registered owner of the vehicle identified in this action, the law requires you to forward this letter immediately via first-class mail to the lessee within ten (10) days of receipt. If you have changed your address or sold the vehicle, please fill out the enclosed prepaid Owner Reply card and mail it to us so we can update our records.

Reimbursement of Expenses

If you have previously paid for repairs relating to the condition described in this letter, the enclosed form explains how to request reimbursement. We would be pleased to review your reimbursement request.

Can we assist you further?

If your authorized Audi dealer fails or is unable to complete this work free of charge within a reasonable time, please contact Audi Customer Experience at 1-800-253-2834 or via our “Contact Us” page at www.audiusa.com.

Checking your vehicle for open Recalls and Service Campaigns

To check your vehicle’s eligibility for repair under this or any other recall/service campaign, please visit the ***Recall/Service Campaign Lookup*** tool at www.audiusa.com and enter your Vehicle Identification Number (VIN).

If you still cannot obtain satisfaction, you may file a complaint with: The Administrator, National Highway Traffic Safety Administration, 1200 New Jersey Avenue, SE., Washington, DC 20590; or call the toll-free Vehicle Safety Hotline at 1-888-327-4236 (TTY: 1-800-424-9153); or go to http://www.safercar.gov.

We apologize for any inconvenience this matter may cause; however we are taking this action to help ensure your safety and continued satisfaction with your vehicle.

Sincerely,

Audi Customer Protection

The repair information in this document is intended for use only by skilled technicians who have the proper tools, equipment and training to correctly and safely maintain your vehicle. These procedures are not intended to be attempted by “do-it-yourselfers,” and you should not assume this document applies to your vehicle, or that your vehicle has the condition described. To determine whether this information applies, contact an authorized Audi dealer. ©2017 Audi of America, Inc. and Audi Canada. All Rights Reserved.

Customer Letter Example (CANADA)

Subject: Safety Recall 45F5 - ABS Control Module Software
Certain 2009 Model Year Audi A3

Dear Audi Owner,

This notice is sent to you in accordance with the requirements of the Motor Vehicle Safety Act. Audi has decided that a defect, which relates to motor vehicle safety, exists in certain 2009 model year Audi A3 vehicles. Our records show that you are the owner of a vehicle affected by this action.

What is the issue? On certain vehicles, a fault within the antilock brake system (ABS) may cause the module to fail during ABS and/or electronic stability control (ESC) activation. This will cause warning lights for ABS, brake and the ESC systems to illuminate. If this happens, the brake system related vehicle stabilizing functions (ABS/ESC) may not be available, increasing the risk of a loss of vehicle control and could lead to a crash causing injury and/or property damage.

What will we do? To help correct this defect, your authorized Audi dealer will update the ABS control module software with improved diagnostic capability to detect insufficient PCU ground connection. ABS modules with insufficient ground connections will be replaced. The software update will take less than an hour to complete; if the ABS module requires replacement, this work can take up to a full day to complete. The recall repair will be performed for you free of charge.

Should there ever be an issue with the ABS control module after the new software is installed, an authorized Audi dealer will cover replacement of the ABS control module if certain, specific fault codes are present at the time of diagnosis.

Please be aware that other conditions (unrelated to the issue described in this letter) may cause the ABS system warning light in your vehicle to illuminate. Customers should be prepared to cover diagnosis and repair costs associated with these other, unrelated conditions.

What should you do? Please contact your authorized Audi dealer without delay to schedule this recall repair.

Precautions you should take If the ABS/ESC and/or brake system warning lights illuminate at any time while driving, or if any of the lights have been illuminated and then turn off after an ignition key cycle, contact the nearest authorized Audi dealer to have your vehicle inspected. Ensure all vehicle drivers have read the vehicle owner's manual so they are familiar with how the ABS, ESC and vehicle brake systems and associated warning lights work.

Lease vehicles and address changes If you are the lessor and registered owner of the vehicle identified in this action, the law requires you to forward this letter immediately via first-class mail to the lessee within ten (10) days of receipt. If you have changed your address or sold the vehicle, please fill out the enclosed prepaid Owner Reply card and mail it to us so we can update our records.

Reimbursement of Expenses If you have previously paid for repairs relating to the condition described in this letter, the enclosed form explains how to request reimbursement. We would be pleased to review your reimbursement request.

Can we assist you further? If your authorized Audi dealer fails or is unable to complete this work free of charge within a reasonable time, please contact Audi Customer Relations Monday through Friday from 8AM to 8PM EST at 1-800-822-2834 or via our "Contact Audi Canada" page at www.audi.ca.

We apologize for any inconvenience this matter may cause; however we are taking this action to help ensure your safety and continued satisfaction with your vehicle.

Sincerely,

Audi Customer Protection

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WARNING

Risk of injury. Refer to “Warning and Safety Precautions”, found in **Appendix A** at the end of this document.

CAUTION

Refer to “Antilock Brake System (ABS) Repair Information”, found in **Appendix B** at the end of this document.

NOTE

- Damages resulting from improper repair or failure to follow these work instructions are the dealer’s responsibility and are not eligible for reimbursement under this action.
- This procedure must be read in its entirety prior to performing the repair.
- Due to variations in vehicle equipment and options, the steps/illustrations in this work procedure may not identically match all affected vehicles.

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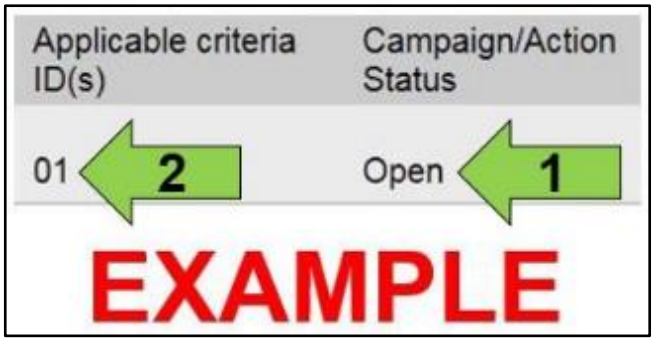
Repair Instruction

Section A - Check for Previous Repair



- Enter the VIN in Elsa and proceed to the "Campaign/Action" screen.

TIP

On the date of repair, print this screen and keep a copy with the repair order.

- Confirm the Campaign/Action is open <arrow 1>. If the status is closed, no further work is required.
- Note the Applicable Criteria ID <arrow 2> for use in determining the correct work to be done and corresponding parts associated.

Proceed to Section B

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Section B – Repair Procedure

NOTE

Prior to launching the VAS Diagnostic Tester and starting an update, ensure the following conditions are met;

- ✓ **The battery charger is connected to the vehicle battery and remains connected for the duration of the software update.**
  - Battery voltage must remain above 12.6 volts for the duration of the software update. Failure to do so may cause the update to fail, which could result in damage to the control module. Control modules damaged by insufficient voltage will not be covered.
- ✓ **The screen saver and power saving settings are off.**
  - Failure to do so may result in the tester entering power save mode during the software update, which could result in damage to the control module.
- ✓ **The VAS Diagnostic Tester is plugged in using the supplied power adapters.**
  - Under no circumstances should the tester be used on battery power alone during the software update. Failure to do so may result in the tester powering off during the update, which could result in damage to the control module.
- ✓ **If using a Bluetooth transmitter head, it is connected to the tester with a USB cable.**

NOTE

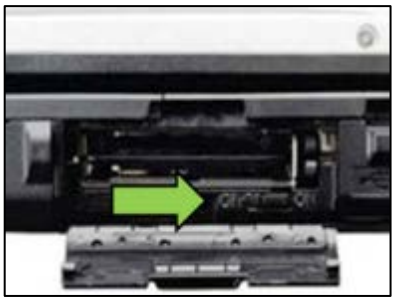
Using Bluetooth for this action is PROHIBITED!

Damage caused to electronic components (e.g. ABS Control Module, etc.) during the SVM flash process is not covered.

- Performing a software update using a Bluetooth connection increases the risk of losing connection during the update, which could result in damage to the control module.
  It also greatly increases the time required to perform the update. Requests for additional time or parts will be denied if the GFF log shows the update was performed using Bluetooth.

- ✓ **The Bluetooth function of the scan tool is physically switched off <see pictures below>.**

VAS 6150 & VAS 6150A
(Front panel behind handle)



VAS 6150B
(Right side behind WIRELESS door)

VAS 6150C/D
(Left side behind SC/EX door)

WARNING

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Radiator Fan(s) may cycle ON high speed during the Update Process! There is a serious risk that personal injury may result if contact is made with spinning fan blades. Keep hands and all objects away from Radiator Fan(s) during Update Process!

TIP

To Update-Programming using SVM, review and follow instructions in Technical Bulletin 2014603: *Software Version Management (SVM) Operating Instructions.*

The SVM Process must be completed in its entirety so the database receives the update confirmation response. A warranty claim may not be reimbursed if there is no confirmation response to support the claim.

- Open the hood.
- Open the battery cover.
- Attach the GRX3000VAS Tester/Charger (or equivalent) to the vehicle battery.
- Switch the ignition on.
- Apply the parking brake.
- Turn off all consumers; headlights, heated seats, etc.
- Connect the VAS6150D Diagnostic Tester (or equivalent) to the vehicle.
- Start the ODIS program.

- Confirm that scan tool is communicating with the diagnostic head by USB <Green Arrow>.
    - If the Bluetooth symbol is shown <Red Arrow> then disconnect the diagnostic head from the vehicle and reconnect the USB cable to the diagnostic head and then reattach to the vehicle.
- Upon ODIS startup, verify the "Diagnosis" operating mode is selected <as shown>.
- Select "Starting Diagnosis" and perform a GFF scan of the vehicle.

NOTE

Using <u>Bluetooth</u> for this action is <u>PROHIBITED</u>!

Damage caused to electronic components (e.g. ABS Control Module, etc.) during the SVM flash process is not covered.

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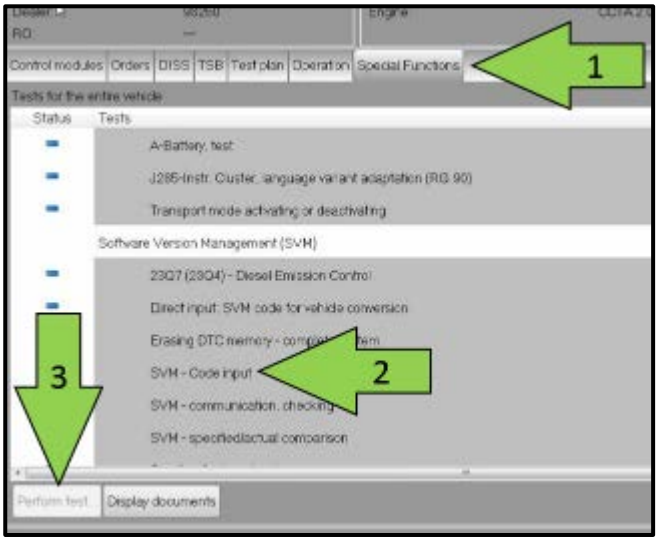

- Once the GFF scan is complete:
  - Record any faults that may be stored.
  - Select “Special functions” <arrow 1>, then “SVM – Code input” <arrow 2>, then select “Perform test” <arrow 3>.
- Select the appropriate option to update “**through measures code**” <arrow>.

NOTE

Read this screen carefully. The option to update software through measures code is **NOT** always selection #1 on this screen.

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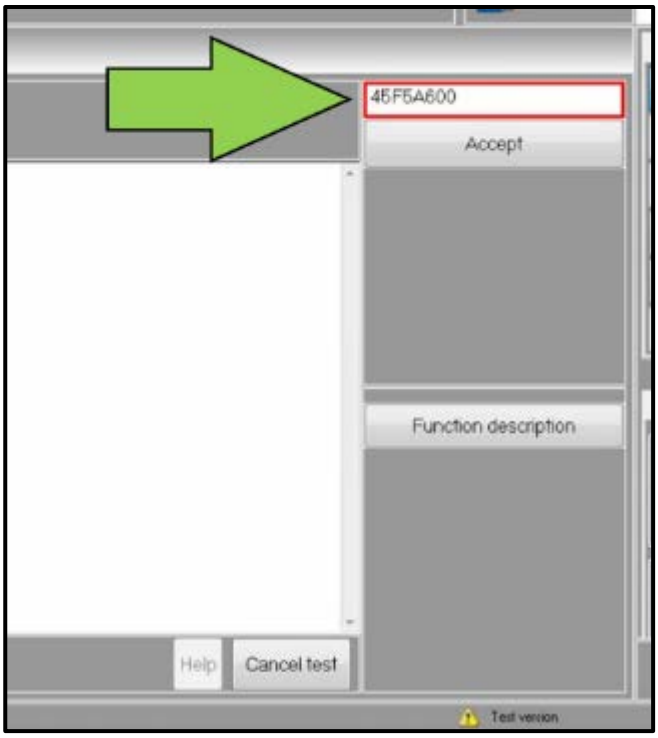

- Enter “**45F5A600**” <as shown>.
- Select “Accept” <arrow> and follow on screen instructions.

Proceed to Section C.

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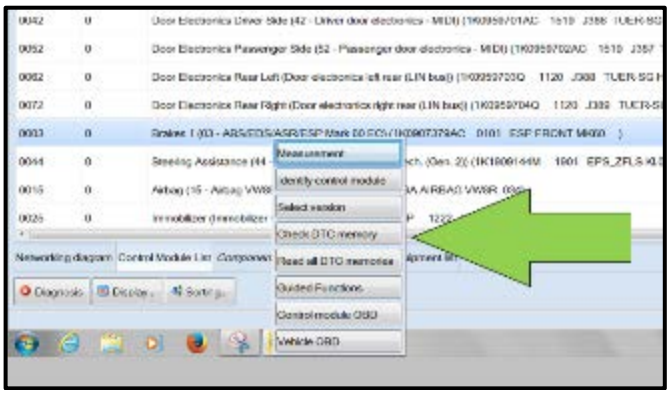
Section C – ABS Fault Interrogation

NOTE

- To activate the self-test of the new software drive the vehicle at a speed of over 10 mi/hr before interrogating faults.
- If scan tool is disconnected for the road test, be sure to save the current ODIS session and restart the session when returning from the road test.

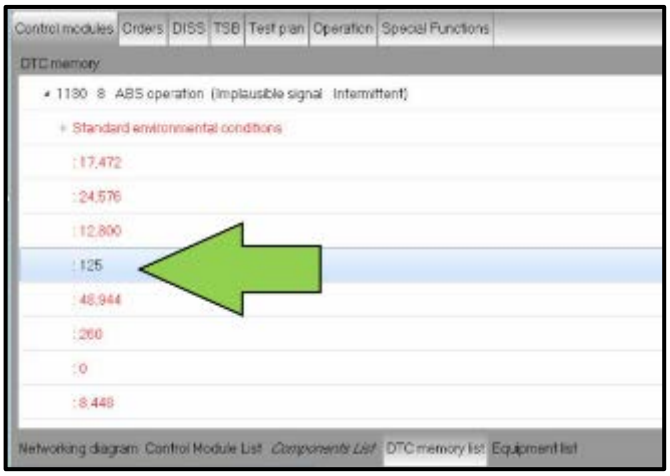


- After the short road test, turn off the ignition and cycle ignition back on.
- Select the “Control Module” tab.
- Scroll down and right click on Address Word 0003/ABS Control Module.
- Select Check DTC Memory.

- If faults **01130: ABS Operation – Implausible Signal** with 125 shown in the 4th line of the Expanded ambient conditions and/or **16352: Control Module Faulty** with 96 shown in the 4th line of the Expanded ambient conditions are stored in the ABS Control Module (address word 0003), the ABS module will require replacement. **Continue to Section D.**

NOTE

Fault 01130 **MUST** have 125 shown in the 4th line of the Expanded ambient conditions to qualify for ABS module replacement and/or fault 16352 **MUST** have 96 shown in the 4th line of the Expanded ambient conditions to qualify for ABS module replacement.



- If faults **01130: ABS Operation – Implausible Signal** with 125 shown in the 4th line of the Expanded ambient conditions and/or **16352: Control Module Faulty** with 96 shown in the 4th line of the Expanded ambient conditions are not stored, the ABS Control Module does NOT require replacement:
  - Exit ODIS, send the Diagnostic Protocol online to GFF paperless.
  - Remove the battery charger.
  - **Continue to Section G.**

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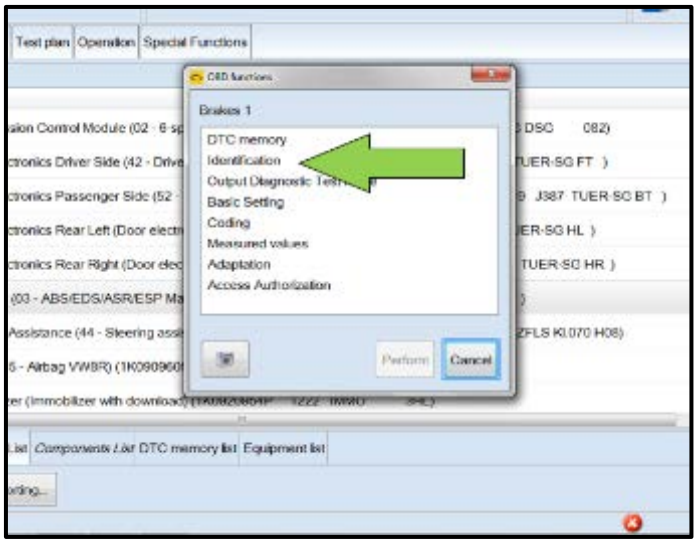
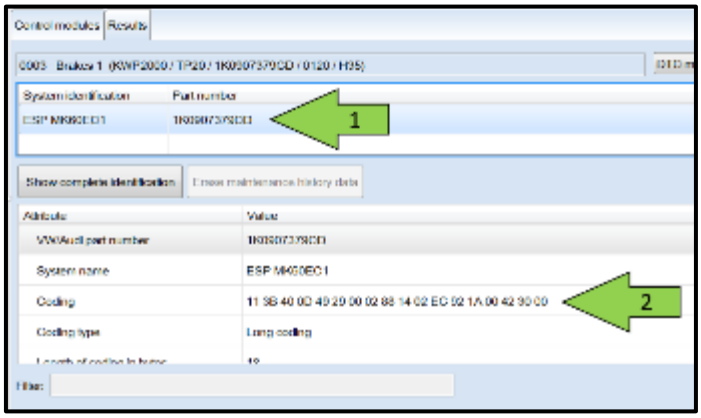
Section D – Retrieve ABS Coding and ABS Module Part Number



- Right click on Address 0003 (ABS Control Module), select “Control Module OBD” and then select “Identification” <arrow>.



- Record the ABS Control Module part # <arrow1> and the coding of the ABS Control Module <arrow 2> on the repair order. ABS Control Module coding will need to be entered manually after the ABS Control Module is replaced.
- Send the ODIS Diagnostic Protocol online.

Once the new ABS Control Module is on hand for installation, Continue to Section E

NOTE

- When ordering a new ABS Control Module, refer to ETKA to ensure the correct part number is ordered. (See parts table below)
- Do not continue with this procedure until the new ABS Control Module is ready for installation.

Section E – ABS Module Replacement (all vehicles)

Parts for ABS module replacement (only if necessary)

Quantity	Part Number	Part Description
1	1K0907375AP	ABS Control Module
OR		
1	1K0907375AN	ABS Control Module

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AND		
1	B000750M2	Brake Fluid

Required Tools

- Hose Clip Pliers -VAS6362- (or equivalent)

- VAS6150D - Diagnostic Tester (or equivalent)
- VAS6154 - Vehicle Communication Interface (or equivalent)

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- GRX3000VAS – Battery Tester/Charger (or equivalent)

- ESD Worksurface - VAS 6613

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- Torque Wrench 5–50Nm -V.A.G 1331- (or equivalent)

- Torque Wrench -V.A.G 1410- (or equivalent)

- Torque Wrench 1331 Insert - Ring Wrench - 11mm & 17mm -VAG1331/2- (or equivalent)

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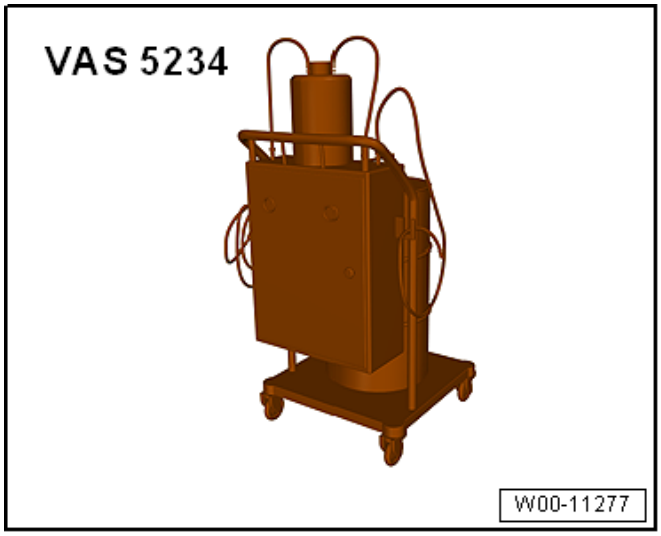
- Brake Pedal Actuator -V.A.G 1869/2-

- Engine Bung Set –VAS6122- (or equivalent)



- Brake Charger/Bleeder Unit -VAS 5234-

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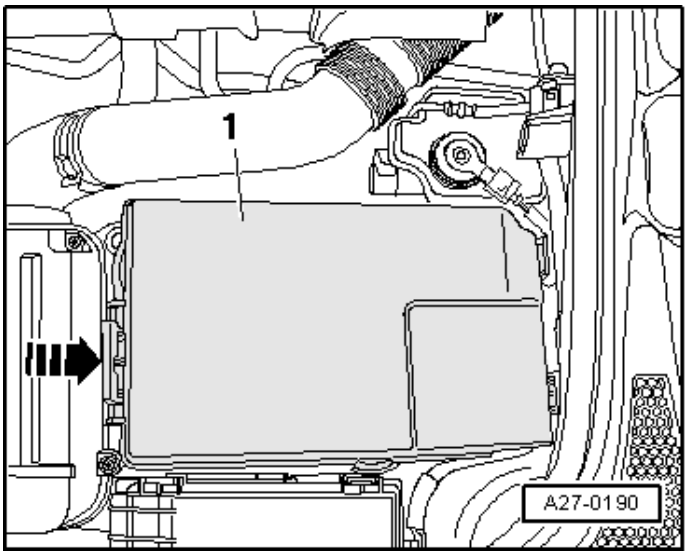
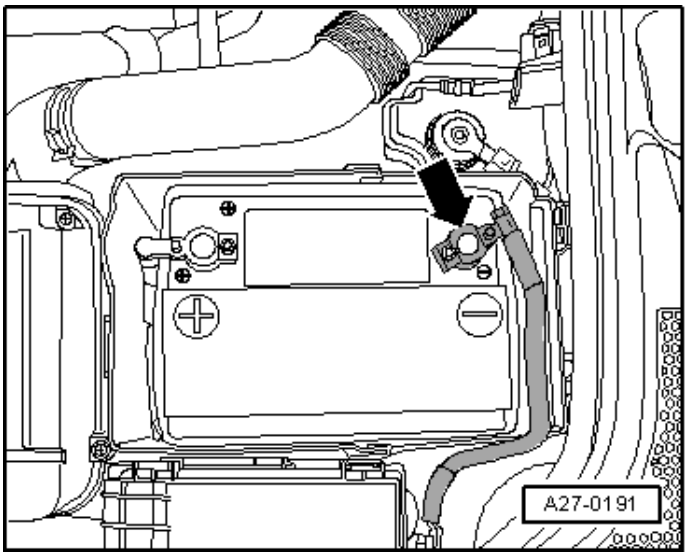
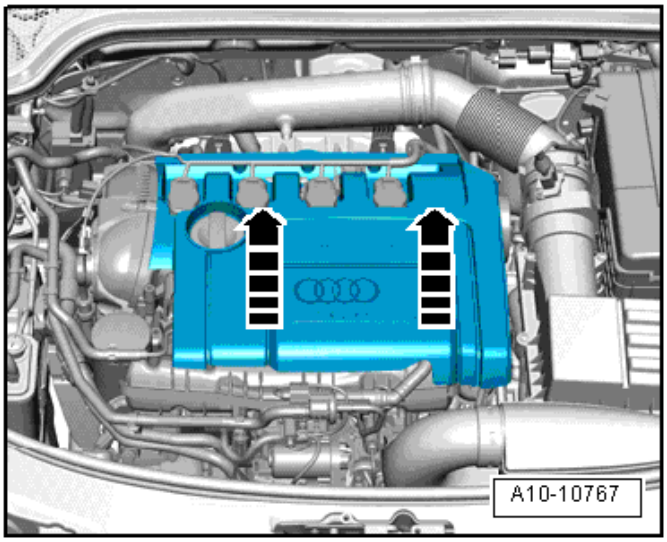
Vehicles with 4 cylinder TSI engine:



- Switch off ignition and remove ignition key.
- Remove battery cover <1> by pressing release button in direction of <arrow>.



- Loosen the nut <arrow>.
- Remove and isolate the battery ground cable terminal from the battery terminal.



- Remove the engine cover.

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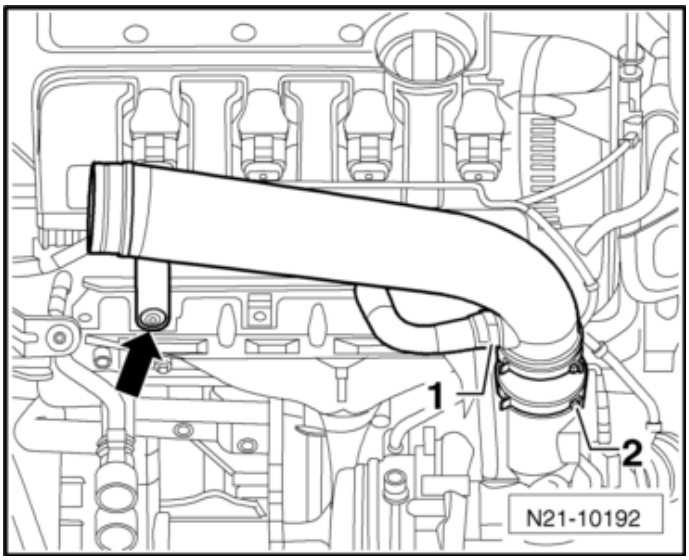
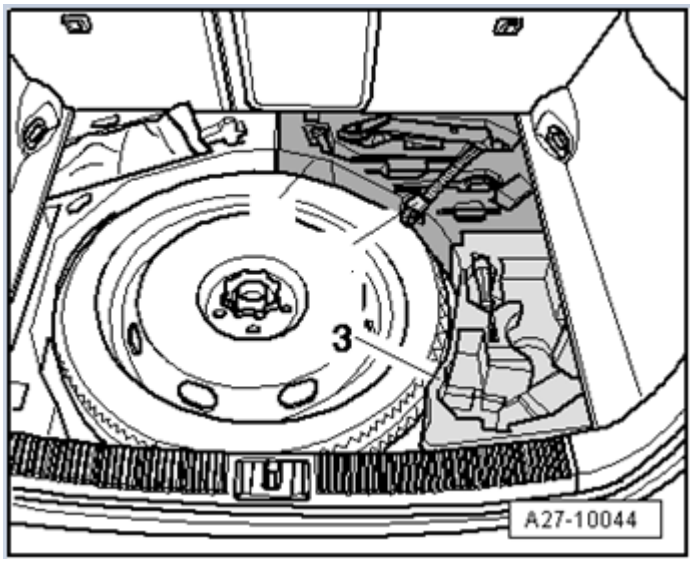


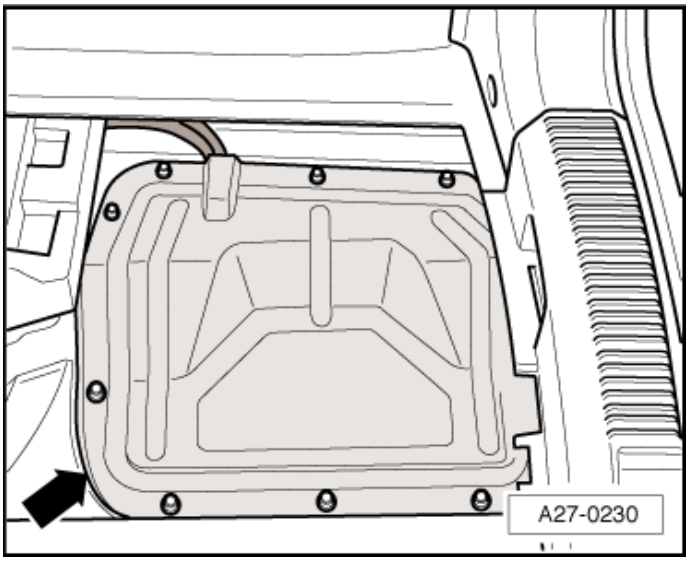
- Press the release button to disconnect the air duct hose <1>.
- Remove the air duct pipe bolt <arrow>.
- Loosen hose clamp <2> and remove air duct.
- Remove the intake hose between the intermediate pipe and the turbocharger.
- Seal the turbocharger with the Engine Bung Set -VAS6122-.

Continue to Section F

Vehicles with 6 cylinder engine:



- Turn off the ignition and remove the key.
- Remove the rear molded insert <3> which holds the vehicle tools located under the luggage compartment floor.



- Remove the battery cover <arrow.
- Remove the molded insert on top of the battery.

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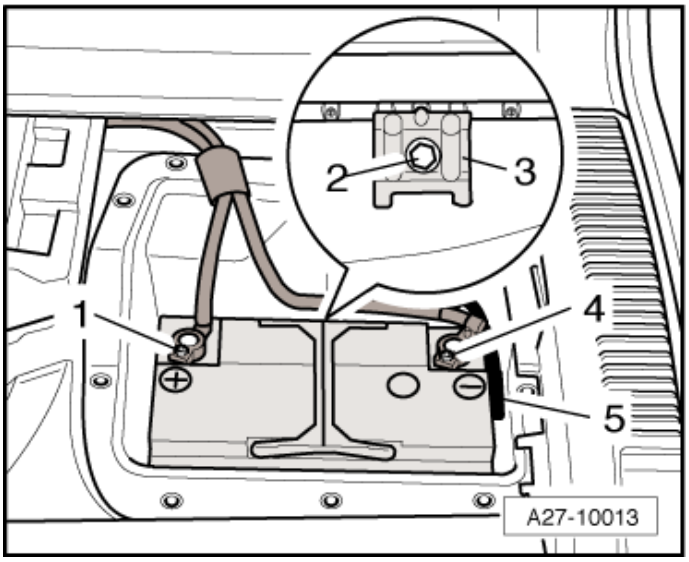
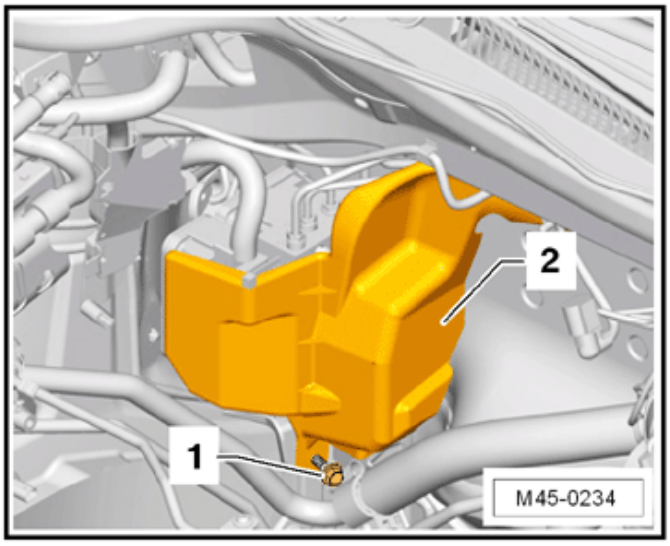


- Loosen nut <4> a few turns, remove and isolate the battery ground cable terminal from the battery terminal.

Continue to Section F

Section F – ABS Module Replacement Continued for all vehicles



- Remove the nut <1> and remove the heat shield <2> (if equipped).

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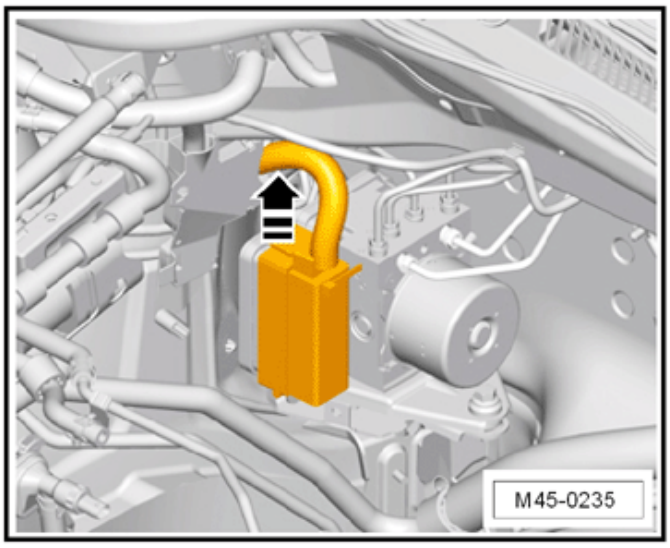
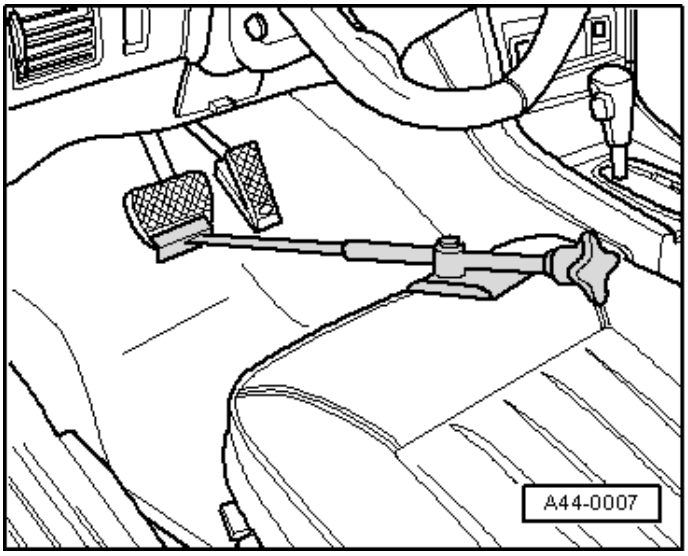
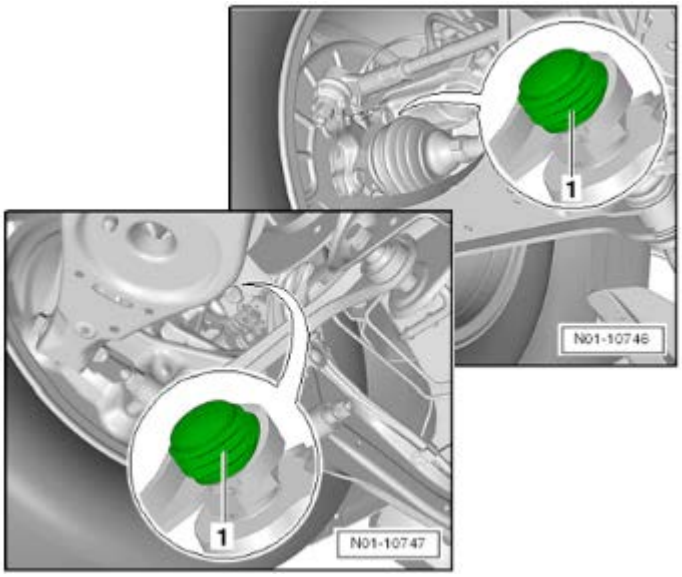


- Release and remove connector from control module in <direction of arrow>.



- Insert Brake Pedal Actuator -V.A.G 1869/2-.



- Remove bleeder valve caps <1> from the left front and left rear brake bleeder valves.

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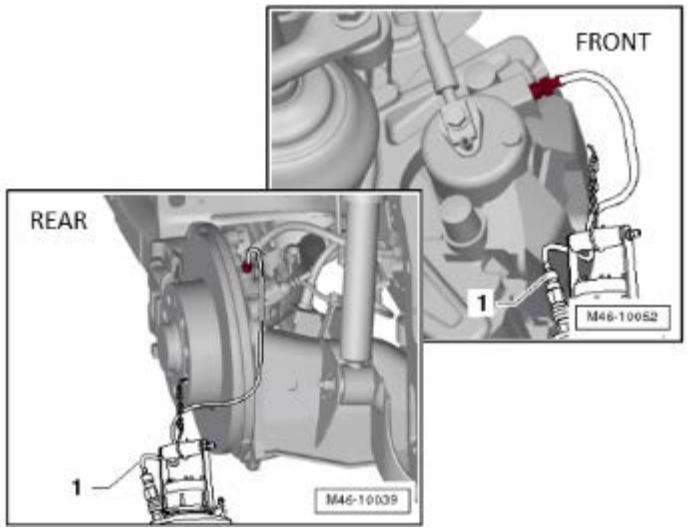


- Attach a bleed hose to the left front and left rear brake caliper breather valves.

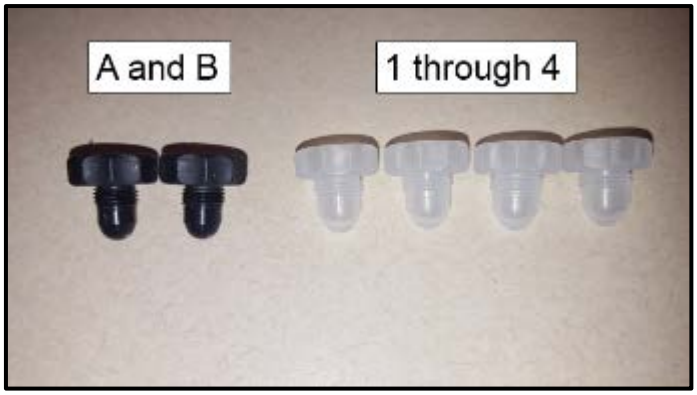
NOTE

Use a suitable bleeder hose. It must fit tightly on the breather valve so that no air can get into the brake system.

- Position the opposite ends of the bleed hoses into an appropriate container.
- Open the breather valves to the left front and left rear brake caliper.
- Push the brake pedal down at least 60 mm using the Brake Pedal Actuator -VAG1869/2-.
- Close the left front and left rear breather valves after pressing down on the brake pedal.

CAUTION

Do not remove the Brake Pedal Actuator -VAG1869/2-.



NOTE

When removing the brake lines from the ABS module, the threaded holes in the hydraulic unit must be sealed. The new ABS module includes sealing plugs. The black plugs are for threaded holes <A and B> in the work procedure and the clear plugs are for threaded holes <1 through 4> in the work procedure.

NOTE

- Make sure that brake fluid does not come in contact with the terminals.
- Clean the brake line fittings with a suitable cleaner.
- It is not permitted to use any cleaning products which contain mineral oil, such as oils, greases etc.

WARNING

Do not bend the brake lines near the hydraulic unit.

- To protect against escaping brake fluid, place a lint-free rag in the area under the control module and hydraulic unit.

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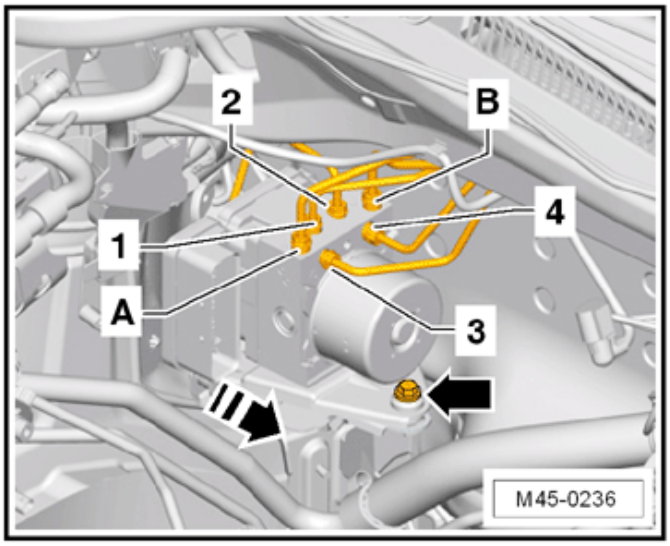
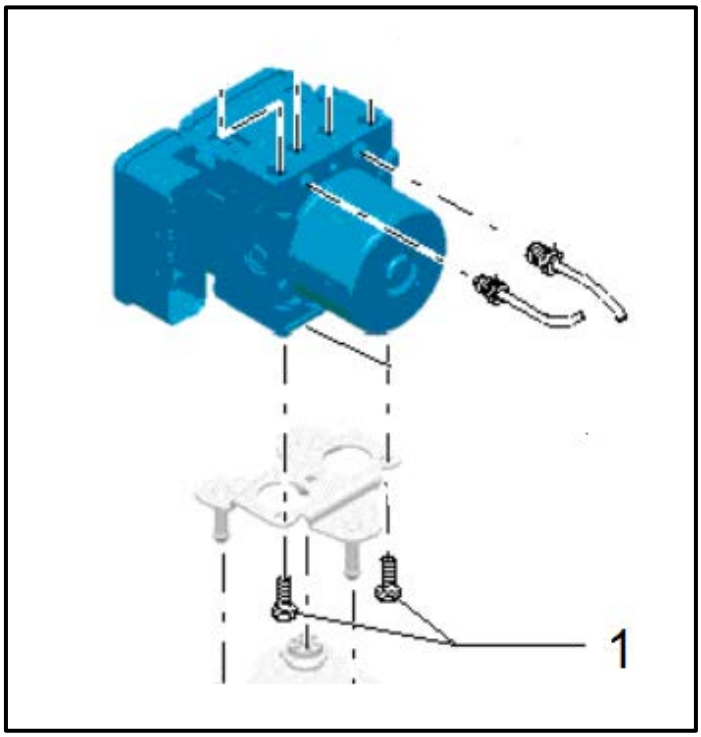


- First, mark the installed position of both brake lines from master cylinder <A and B> and remove from the hydraulic unit.
- Seal threaded holes with black sealing plugs (provided with new ABS module) and cover exposed brake lines using a clean plastic bag.
- Mark the installed position of brake lines (brake caliper) <1 through 4> and remove.
- Seal threaded holes with clear sealing plugs (provided with new ABS module) and cover exposed brake lines using a clean plastic bag.
- Remove bolt <arrow> from the bracket.
- Remove the hydraulic unit, the control module and the side retainer in <direction of arrow> from the bracket rubber insulation.



- Remove bolts <1> and separate the hyrdraulic unit from the bracket.

TIP

Remove the bracket from the hydraulic unit while the assembly is still in the engine compartment.

- Remove the hydraulic unit and the control module from the vehicle.

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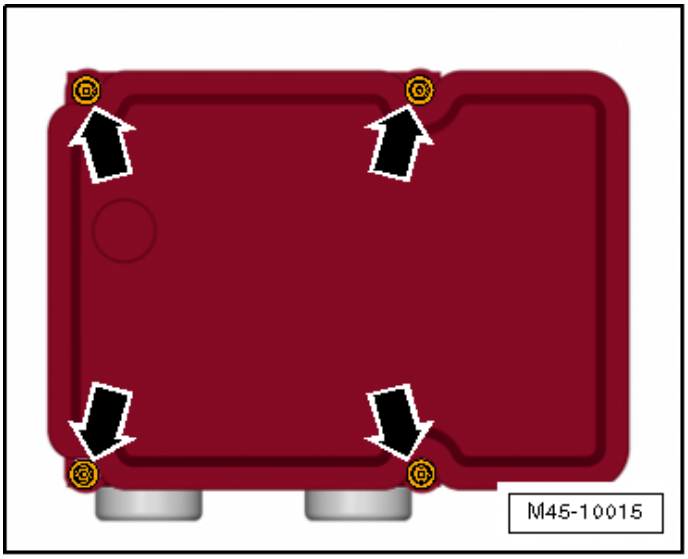
⚠ WARNING

- On a disconnected control module the circuit board is exposed.
- No moisture or particles of dirt must penetrate into the interior of control module.
- See **Appendix C** for ESD workplace instructions.

- Set hydraulic unit with control module facing upward onto the ESD workmat.



- Remove and discard bolts <arrows>.

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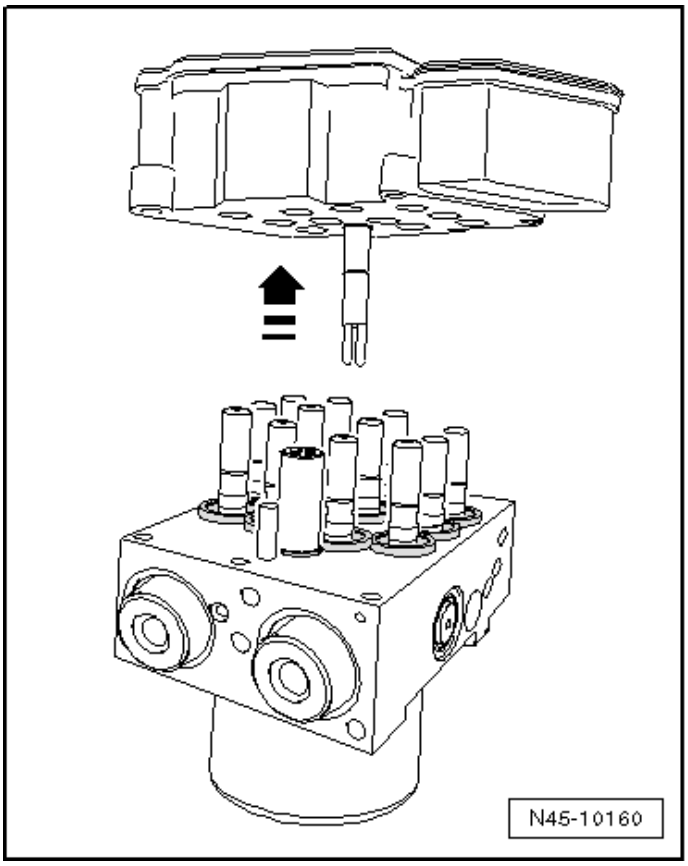
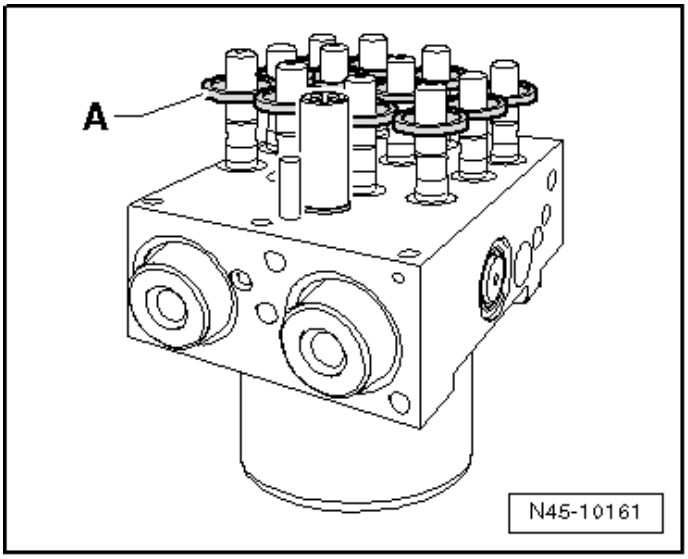


- Remove the ABS Control Module -J104- from the ABS Hydraulic Unit -N55- in the direction of <arrow> without tilting it.
- Carefully remove and discard all the seals from the valve domes on the ABS Hydraulic Unit -N55-.

NOTE

- It is imperative that a clean environment is present and that the ABS Hydraulic Unit and ABS Control module are thoroughly cleaned before separating the units. The cleanliness level should be maintained throughout the remainder of the repair to avoid contaminating the brake hydraulic system.
- It is not permitted to use any cleaning products which contain mineral oil, such as oils, greases etc.



- Install new sealing rings <A> slightly over the valve domes as shown.

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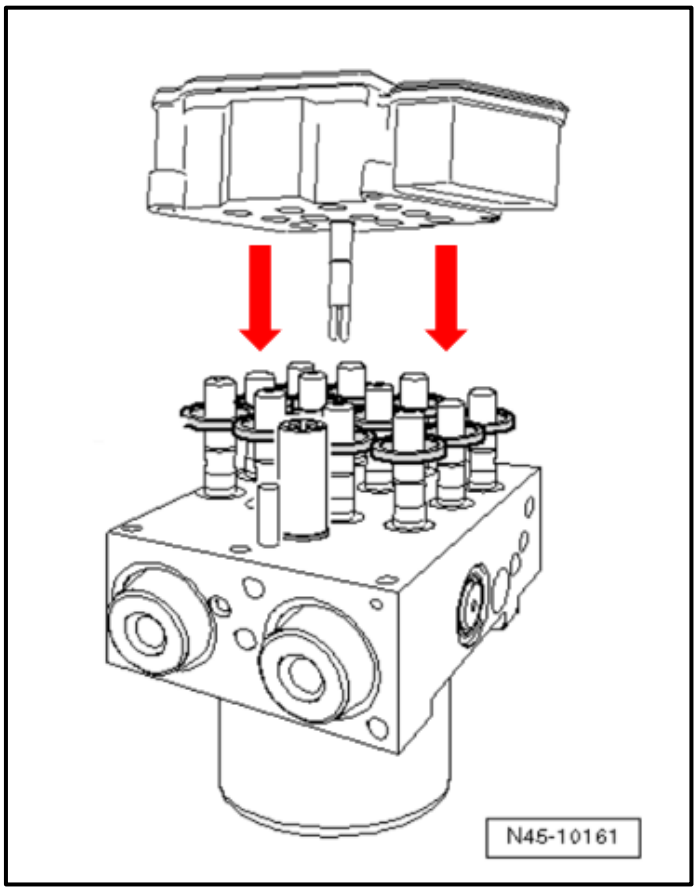


WARNING

- On a disconnected control module the circuit board is exposed.
- No moisture or particles of dirt must penetrate into the interior of control module.

- Place the new ABS Control Module -J104- on the ABS Hydraulic Unit -N55- without tilting it.

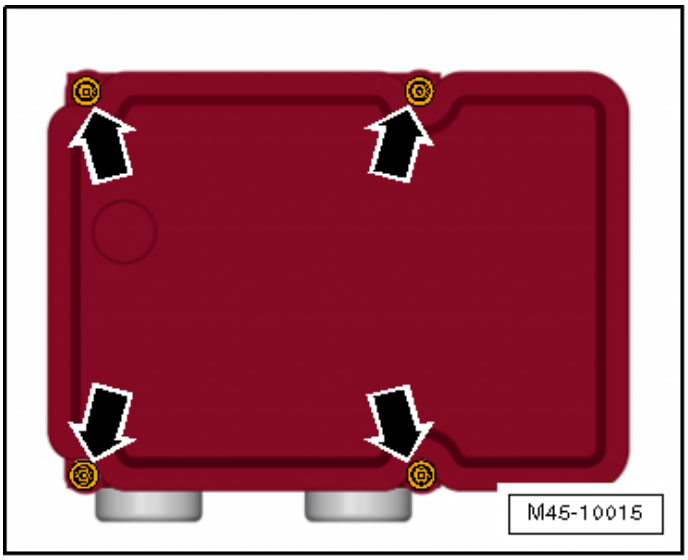
Part Number	Part Description
1K0907375AP	ABS Control Module
OR	
1K0907375AN	ABS Control Module

NOTE

When ordering a new ABS Control Module, refer to ETKA to ensure the correct part number is ordered.

NOTE

Once installed, the sealing rings will be brought into their end position.



- Install and torque new bolts <arrows> in a cross pattern to 2 Nm ± 0.8 Nm.

NOTE

New bolts are included with the new ABS Control Module.

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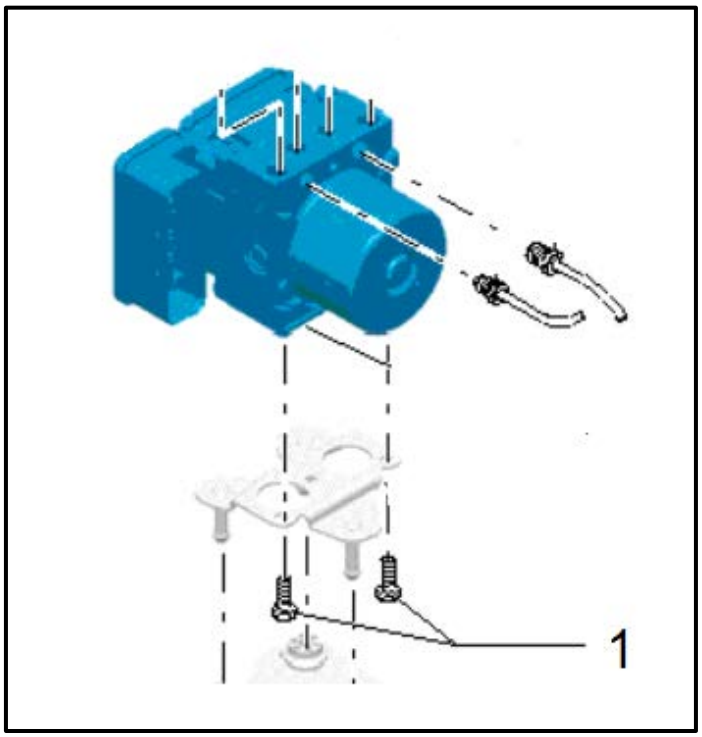
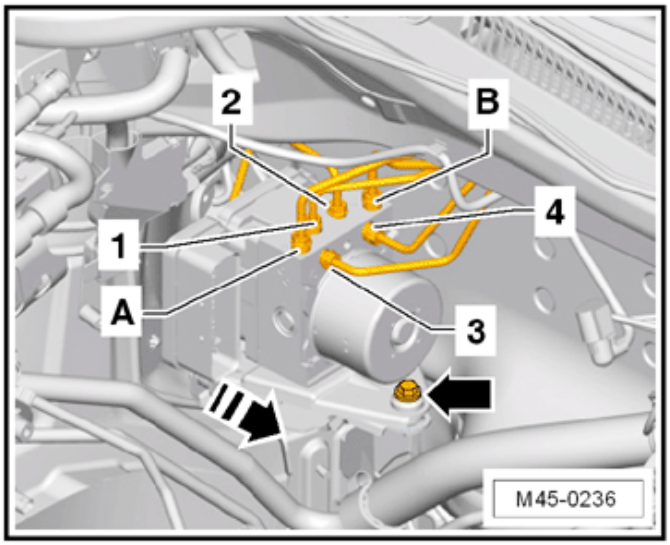


- Woking inside the engine compartment, install the bracket to the ABS Hydraulic Unit -N55- and torque the bolts <1> to 8 Nm.



- Install the ABS Hydraulic Unit -N55- with the ABS Control Module -J104- and the bracket sideways into the rubber bushings on the console.

NOTE

When installing the ABS Control Module, make sure the rubber insulation does not push out of the bracket. Silicone spray can be used to ease installation. After installing, make sure the hydraulic unit and the control module are secure, otherwise malfunctions will register.

- Install the bolt <arrow> and torque to 8 Nm.
- Remove sealing plugs for brake lines <1 through 4>, install the brake lines and torque to 14 Nm.
- Remove sealing plugs for brake lines <A and B>, install the brake lines and torque to 14 Nm.

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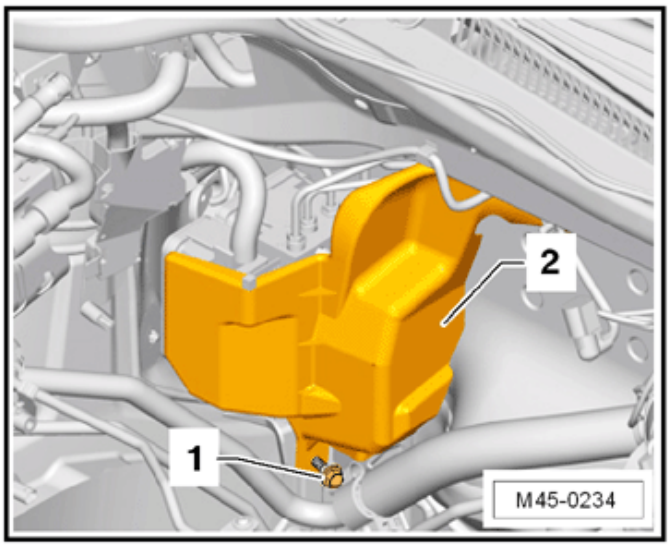
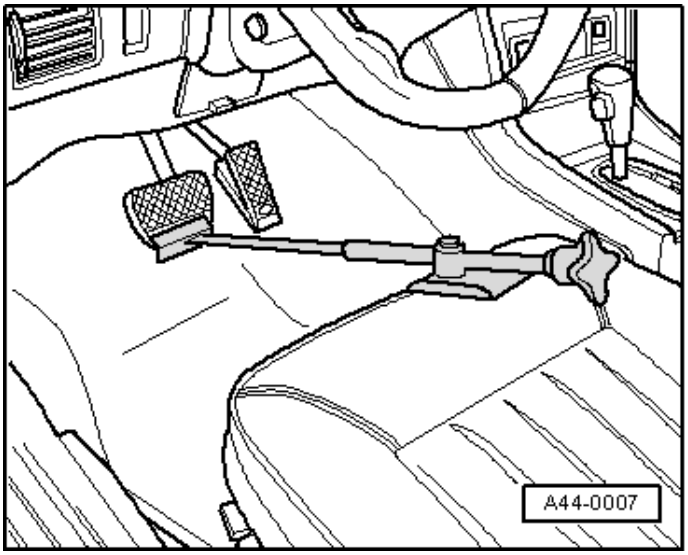
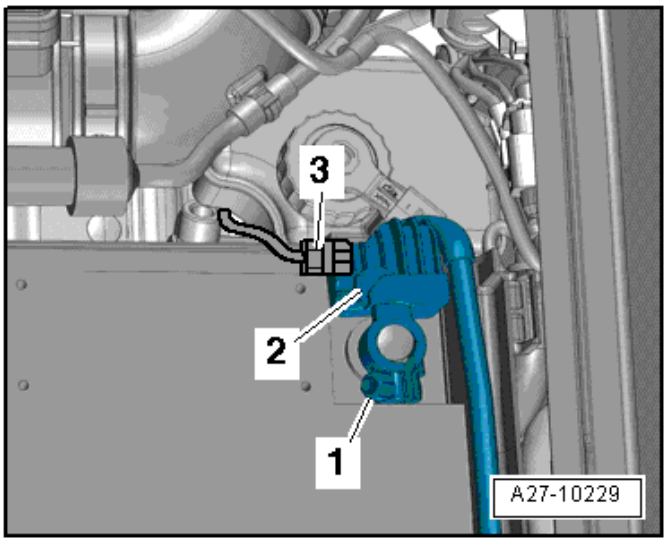


- Install heat shield <2> (if equipped) and torque bolt <1> to 8 Nm.



- Remove the Brake Pedal Actuator -V.A.G 1869/2-



- Connect the battery ground cable terminal <2> by hand to the battery negative terminal.
- Torque the nut <arrow> to 6 Nm.

NOTE

- For vehicles with Battery Monitoring Control Module -J367- :
  - Disconnect the electrical connector <3> on the battery monitoring control module <1>.
  - Connect the ground wire terminal clamp <1> by hand to the battery negative terminal and torque nut to 6 Nm..
  - Connect the electrical connector on the battery monitoring control module.

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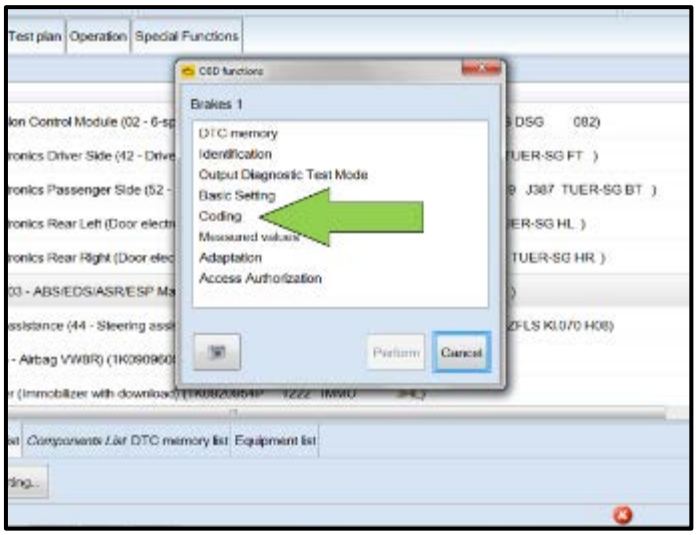
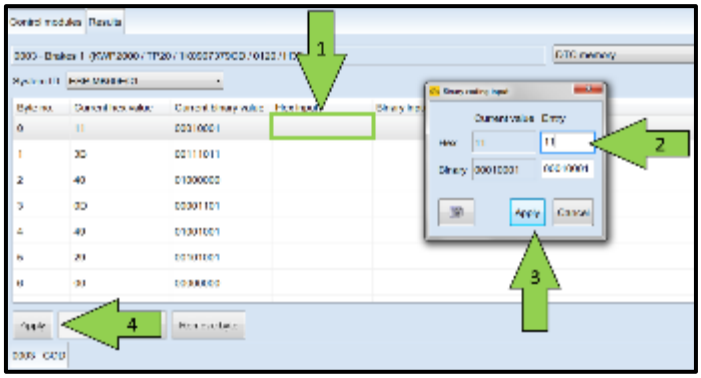
- Connect the VAS6150D Diagnostic Tester (or equivalent) to the vehicle.
- Turn ignition on.
- Store previously recorded radio presets (if necessary)
- Set clock to local time.
- Activate the power window regulator one-touch up/down function.



- Start the ODIS program.
- Right click on Address 0003 (ABS Control Module), select “Control Module OBD” and then select “Coding”.



- Enter the previously recorded coding:
  - Left click on the empty box in the Hex Input column <arrow 1> for the appropriate coding byte.
  - Enter the previously recorded Hex value <arrow 2>.
  - Select Apply <3
  - Repeat for each coding byte.
  - Once all coding bytes have been entered, select Apply in the bottom left <arrow 4>.
- After coding is complete, an ignition cycle will need to be performed.

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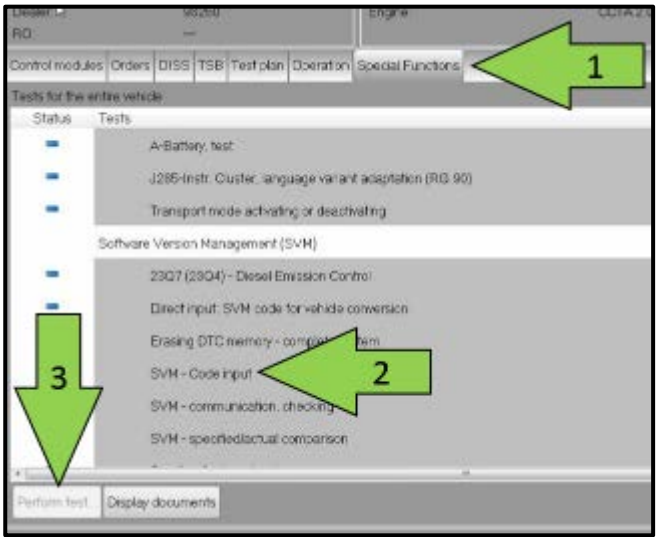
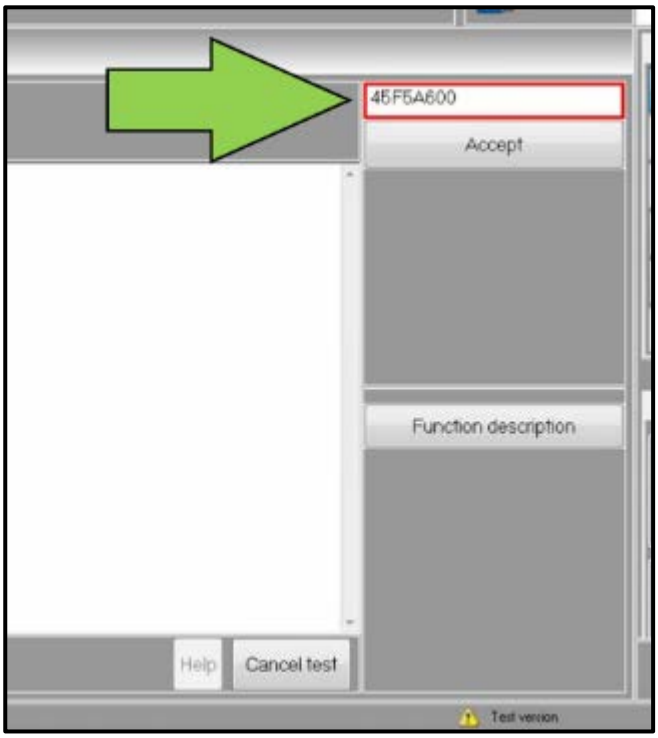


- Once the new ABS Control Module is coded, the software update will have to be applied.
- Select the "Diagnosis" operating mode:
  - Select "Special functions" <arrow 1>, then "SVM – Code input" <arrow 2>, then select "Perform test" <arrow 3>.
- Select the appropriate option to update "**through measures code**" <arrow>.

NOTE

Read this screen carefully. The option to update software through measures code is **NOT** always selection #1 on this screen.



- Enter "**45F5A600**" <arrow>.
- Select "Accept" and follow on screen instructions.

NOTE

- Only use new brake fluid conforming to VW/AUDI standard (VW 501 14).
- Genuine VW/Audi brake fluid conforms to this specification.
- Due to its caustic nature, brake fluid must never be brought into contact with paint.
- Brake fluid is hygroscopic, meaning that it absorbs moisture from the surrounding air, and must therefore be stored in air-tight containers.
- Rinse off spills, by using plenty of water.

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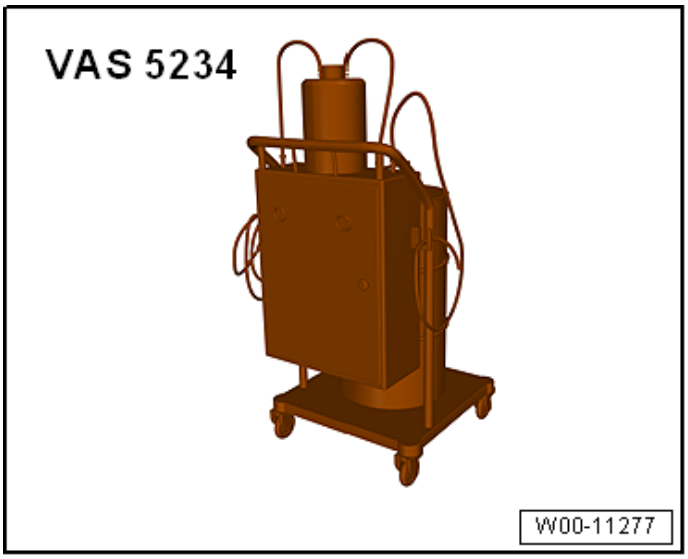
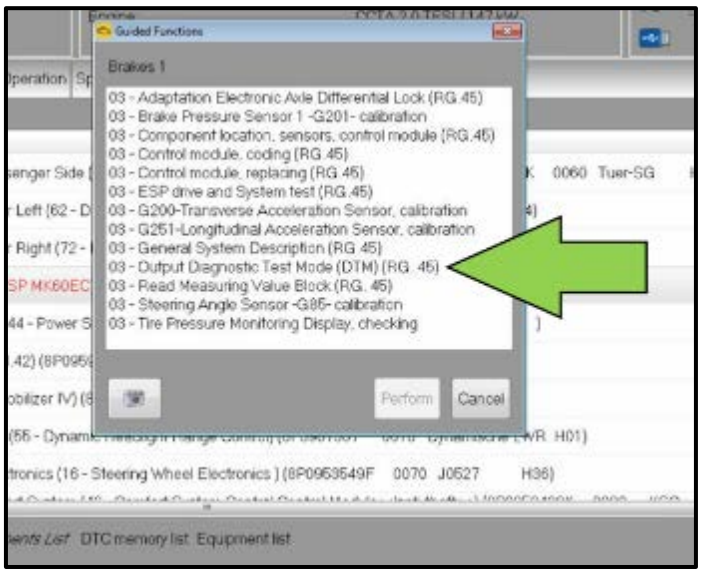


- Remove all four wheels.
- Connect Brake Charger/Bleeder Unit -VAS 5234- and perform **Pre-Bleeding** of the brake system.

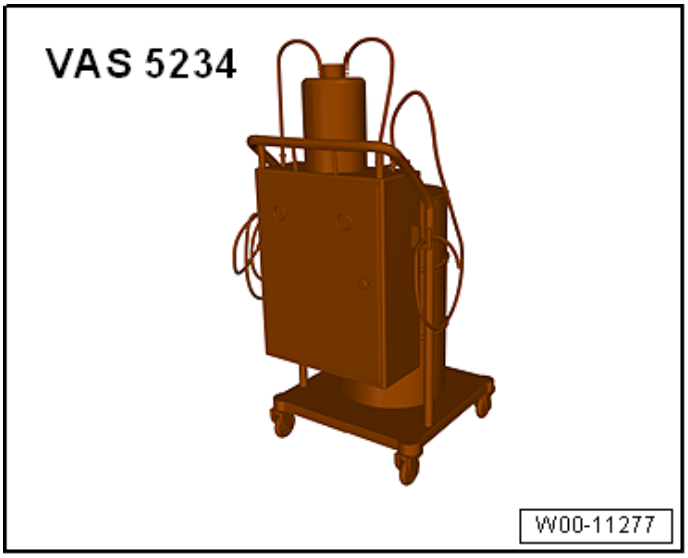
NOTE

There must be a positive pressure of 2 bar when bleeding the hydraulic unit.

- With bleeder bottle hoses attached, leave bleeder valves open long enough that brake fluid exits without bubbles using the following bleeding sequence:
    - Bleed left front and right front brake caliper together simultaneously.
    - Bleed left rear and right rear brake caliper together simultaneously.



- Attach the GRX3000VAS Tester/Charger (or equivalent) to the vehicle battery.
- Start the ODIS program.
- Hydraulic unit must now be bled once more via Guided Function test:
    - Select operating mode “Diagnosis”, scroll down and right click on Address Word 0003/ABS Control Module, select Guided Functions, select “03 – Output Diagnostic Test Mode (DTM)” <arrow> and follow on screen directions.
- After basic setting has been performed, remove the battery charger.



NOTE

There must be a positive pressure of 1 bar when performing the normal brake bleeding procedure.

- After Pre-Bleeding has been completed, the brake system is then bled normally using the Brake Charger/Bleeder Unit -VAS 5234- using the following bleeding sequence:
    1. Front left brake caliper
    2. Right front brake caliper
    3. Left rear brake caliper
    4. Right rear brake caliper
- With bleeder bottle hose attached, leave bleeder valve open long enough that brake fluid exits without bubbles.

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NOTE

The Post-Bleeding procedure must be performed 5 times per brake caliper.

- Perform the Post-Bleeding procedure using a second technician:
    - Bleeding sequence:
        1. Front left brake caliper.
        2. Right front brake caliper.
        3. Left rear brake caliper.
        4. Right rear brake caliper.
    - Depress brake pedal forcefully and hold.
    - Open bleeder valve at brake caliper
    - Press brake pedal down onto stop.
    - Close bleeder screw with pedal depressed.
    - Release brake pedal slowly.
- Torque bleeder valves to 10 Nm and install brake bleeder valve caps on all four brake bleeder valves.
- Install all four wheels and torque lug bolts to 120 Nm.
- Lower the vehicle.
- Attach the GRX3000VAS Tester/Charger (or equivalent) to the vehicle battery.
- Turn ignition on.
- Start the ODIS program.
- Perform basic setting test plans for steering angle sensor -G85-, transverse acceleration sensor -G200-, brake pressure sensor 1 -G201- and Longitudinal Acceleration Sensor -G251- (if equipped).
- Check the DTC memories of all the control units and erase Under-voltage faults if necessary.
- Perform a road test. During the road test, at least one ABS stop must be performed.

Contine to Section G

Section G – Campaign Completion Stamp

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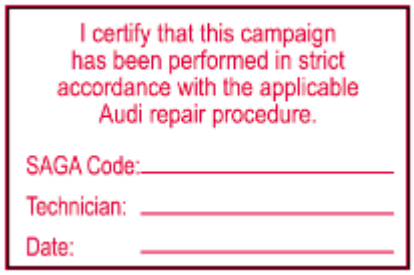

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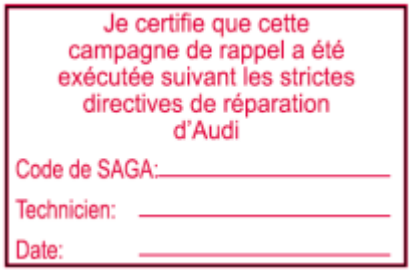
-OR-



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- Once the campaign has been completed, the technician should stamp the repair order.
- Stamps are available for ordering through the Compliance Label Ordering Portal.
- **Proceed to Section H**

Section H - Parts Return/Disposal

Properly store (retain), destroy or dispose of removed parts in accordance with all state/province and local requirements, unless otherwise indicated and/or requested through the Warranty Parts Portal (WPP).

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Appendix A – Warning and Safety Precautions

⚠ WARNING

- Only use new brake fluid conforming to VWAUDI standard (VW 501 14).
- Adhere strictly to work sequence when bleeding brake system.
- Brake fluid is poisonous. Due to its caustic nature, it must also never be brought into contact with paint.
- Brake fluid is hygroscopic, meaning that it absorbs moisture from the surrounding air, and must therefore be stored in air-tight containers.
- Wash off any spilled brake fluid with plenty of water.

Appendix B – Antilock Brake System (ABS) Repair Information

⚠ CAUTION

- Turn off the ignition and disconnect the battery ground cable.
- Carry out work before welding with an electric welding tool.
- After finishing any work that required opening the brake system, bleed the brake system using the brake charger/bleeder unit -VAS 5234-.
- During final road test, carry out at least one ABS-controlled braking operation (appropriate pulsations must be felt at brake pedal).
- It is necessary to maintain a high level of cleanliness when working on the ABS system. It is not permitted to use any cleaning products which contain mineral oil, such as oils, greases etc.
- Thoroughly clean all unions and the adjacent areas before loosening. Do not use aggressive cleaning agents such as brake cleaner, fuel, thinners or similar chemicals.
- Place parts that have been removed on a clean surface and cover.
- After removing the control module from the hydraulic unit, use the valve dome transport protection.
- Carefully cover or seal open components, if repairs are not carried out immediately. (Use the plugs from repair kit 1H0 698 311 A)
- Only use lint-free cloths.
- Only unpack replacement parts immediately prior to installation.
- Only use parts in their original packaging.
- Do not work with compressed air and do not move vehicle while the system is open.
- Do not touch the contact surface on the connector, the pressure sensor and control module, as well as the silicone gel.
- When painting, electronic control module can be exposed to a maximum temperature of. 95 °C only briefly, and to a maximum of 85 °C for longer periods (approximately 2 hours).
- Make sure that brake fluid does not enter harness connectors.

Appendix C – ESD Workplace Instructions

- Prior to beginning work, all parts and tools are to be placed on the ESD table mat.
- Assemble ESD workplace according to the instructions included with the ESD Workplace.
- The wall socket or extension cord used must have a sufficient ground.

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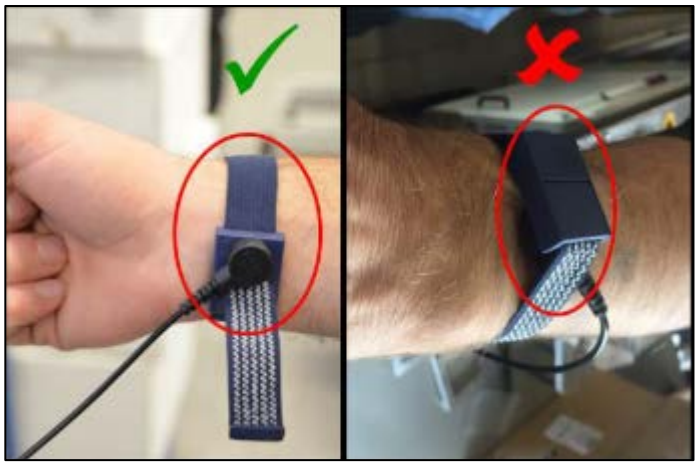

CAUTION

The white dots on the wrist strap must be against the skin.

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