

43 - SELF LEVELING SUSPENSION

SETTINGS FOR AIR SPRING SUSPENSION, AND CONNECTING VAS 5051 AND SELECTING FUNCTIONS

Settings for air spring suspension, and connecting VAS 5051 and selecting functions

Possible level control settings --> Possible level control settings.

Adjusting vehicle level --> Vehicle level, adjusting.

Vehicle jack mode --> Vehicle jack mode.

Operating with something in tow --> Operating with something in tow.

Shipping mode --> Shipping mode.

VAS 5051 , connecting and selecting functions --> VAS 5051 , connecting and selecting functions

Possible level control settings

Driver can set four different level settings:

- Automatic
- Dynamic
- Comfort
- Lift

NOTE:

- **The automatic control procedures are dependent on speed and time. For example, raising vehicle to the height setting is not possible above certain speeds.**

For further details on level settings: Operating instructions.

Vehicle level, adjusting

Vehicle level is set in the MMI.

- Switch on ignition.
- Press "CAR" function button. The central menu "adaptive air suspension" appears.
- Select desired level via control knob.

NOTE:

- **Note that not every vehicle level can be selected in every driving situation.**

For further information on vehicle levels: Operating instructions.

Vehicle jack mode

Before raising vehicle using vehicle jack or lifting platform, the vehicle jack mode must be activated so that the automatic control procedures of the air spring suspension, do not impede the lifting using vehicle jack or lifting platform.

- NOTE:**
- **Vehicle jack mode is automatically switched off at a vehicle speed above 10 km/h.**

Switching on

- Switch on ignition.
- Press "CAR" function button. The central menu "adaptive air suspension" appears.
- Press "SETUP" function button. The menu "adaptive air suspension" appears.
- Turn control knob to desired mode and select "ON".

- Switch off ignition.

Switching off

- Switch on ignition.
- Press "CAR" function button. The central menu "adaptive air suspension" appears.
- Press "SETUP" function button. The menu "adaptive air suspension" appears.
- Turn control knob to "Vehicle jack mode" and select "OFF" to switch off vehicle jack mode.

- Switch off ignition.

Operating with something in tow

If towing operation is activated, other vehicle levels can only be actuated with restrictions.

Switching on

- Switch on ignition.
- Press "CAR" function button. The central menu "adaptive air suspension" appears.
- Press "SETUP" function button. The menu "adaptive air suspension" appears.
- Turn control knob to desired mode and select "ON".

- Switch off ignition.

Switching off

- Switch on ignition.
- Press "CAR" function button. The central menu "adaptive air suspension" appears.
- Press "SETUP" function button. The menu "adaptive air suspension" appears.
- Turn control knob to "Towing mode" and select "OFF" to switch off towing operation.
- Switch off ignition.

Shipping mode

Special tools, testers and auxiliary items required

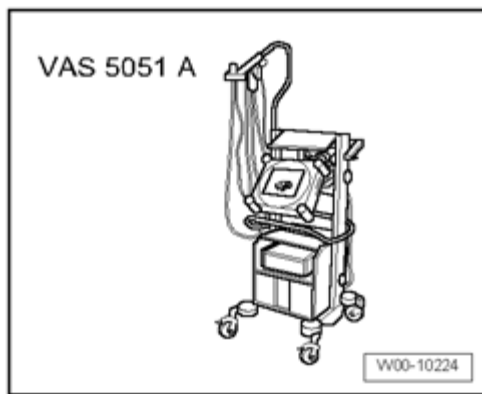


Fig. 459: Vehicle Diagnosis, Testing And Information System VAS 5051 A
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Vehicle Diagnosis, Testing and Information System VAS 5051 A

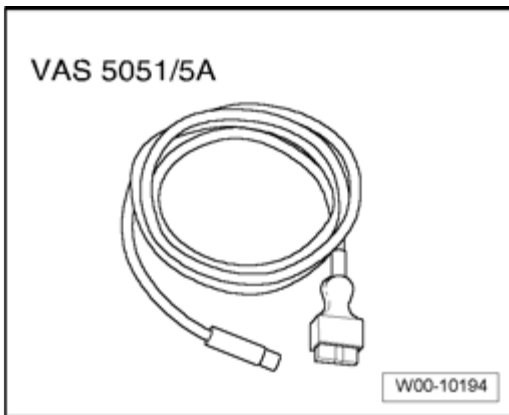


Fig. 460: Diagnostic Cable VAS 5051/5A
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Diagnostic cable VAS 5051/5A

Shipping mode is to be activated and deactivated only using tester VAS 5051.

If shipping mode has been activated, it is not possible to actuate a different vehicle level via MMI.

Activating and deactivating

- Connect tester VAS 5051 and select functions --> **VAS 5051 , connecting and selecting functions**

Then

- "Suspension".
- "Level control system".
- "On Board Diagnostic (OBD) capable systems".
- "Control module for vehicle level control system".

- "Activating and deactivating Level Control System Control Module -J197- shipping mode".

VAS 5051 , connecting and selecting functions

Special tools, testers and auxiliary items required

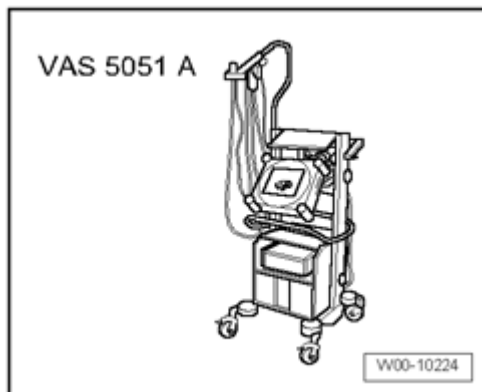


Fig. 461: Vehicle Diagnosis, Testing And Information System VAS 5051 A
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Vehicle Diagnosis, Testing and Information System VAS 5051 A

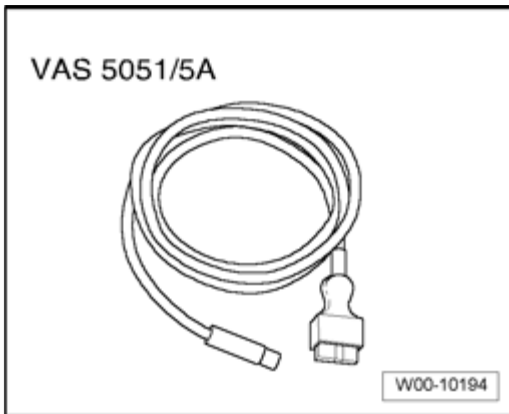


Fig. 462: Diagnostic Cable VAS 5051/5A
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Diagnostic cable VAS 5051/5A

CAUTION:

- Test equipment must always be secured on the rear seat during a road test.
- Drivers must NEVER operate these tools while driving.

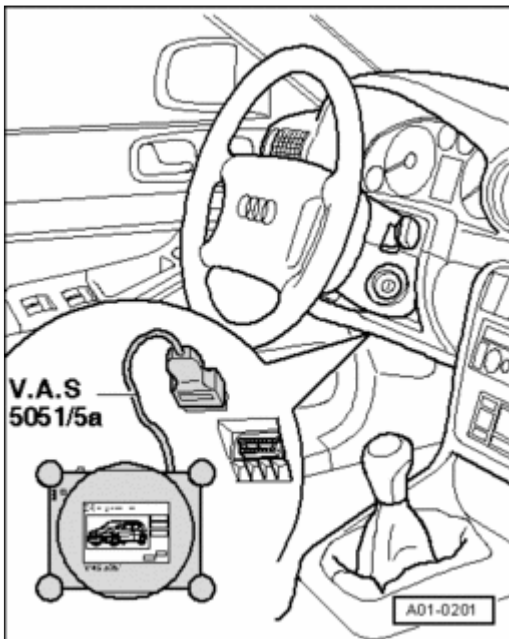


Fig. 463: Connecting Diagnostic Cable VAS 5051/5A Connector To Data Link Connector (DLC)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Connect diagnostic cable VAS 5051/5A connector to Data Link Connector (DLC).

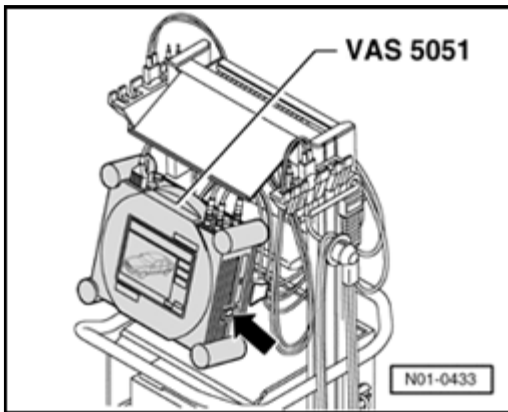


Fig. 464: Identifying Volkswagen Tester VAS 5051, On Switch
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Switch on tester - **arrow** -.

Tester is ready for operation when it displays buttons for its operating modes.

- Switch on ignition.

NOTE:

- **If control modules or electric/electronic components were replaced, then Adaptation of the component must be performed in general in "Guided Fault Finding".**

- Touch Guided Fault Finding on screen.
- Select one after another:
 - Brand
 - Model
 - Model year
 - Version
- Engine identification
- Confirm entered data.

NOTE:

- **Wait until tester has checked all control modules installed in the vehicle.**
- **Press Goto button and select "Function/component selection" function.**

Then

- "Suspension".
- "Level control system".

- "On Board Diagnostic (OBD) capable systems".
- "Control module for vehicle level control system".
- "Functions of Level Control System Control Module -J197-".

or

- "Suspension".
- "Level control system"
- "On Board Diagnostic (OBD) capable systems".
- "Control module for vehicle level control system".
- "Electrical components".

LEVEL CONTROL SYSTEM, SERVICING

Level control system, servicing

Overview of electrical/electronic components and component locations --> **Electrical/electronic components and component locations, overview.**

Removing and installing Front Vehicle Level Sensor --> **Front Vehicle Level Sensor , removing and installing.**

Rear Level Control System Sensor , removing and installing --> **Rear Vehicle Level Sensor , removing and installing.**

Removing and installing Left Front Body Acceleration Sensor G341 and G342 --> **Left Front Body Acceleration Sensor G341 and Right Front Body Acceleration Sensor G342 , removing and installing.**

Removing and installing Rear Body Acceleration Sensor G343 --> **Rear Body Acceleration Sensor G343 , removing and installing.**

Removing and installing Level Control System Control Module J197 --> **Level Control System Control Module J197 , removing and installing**

Adapting Level Control System Control Module again --> **Level Control System Control Module, adjusting again.**

Check body acceleration signal of front/rear body acceleration sensors --> **Body acceleration signal of front/rear body acceleration sensors, checking.**

System bleeding or charging --> **System bleeding or charging.**

Adapt control position again --> **Control position, adapting again.**

Electrical/electronic components and component locations, overview

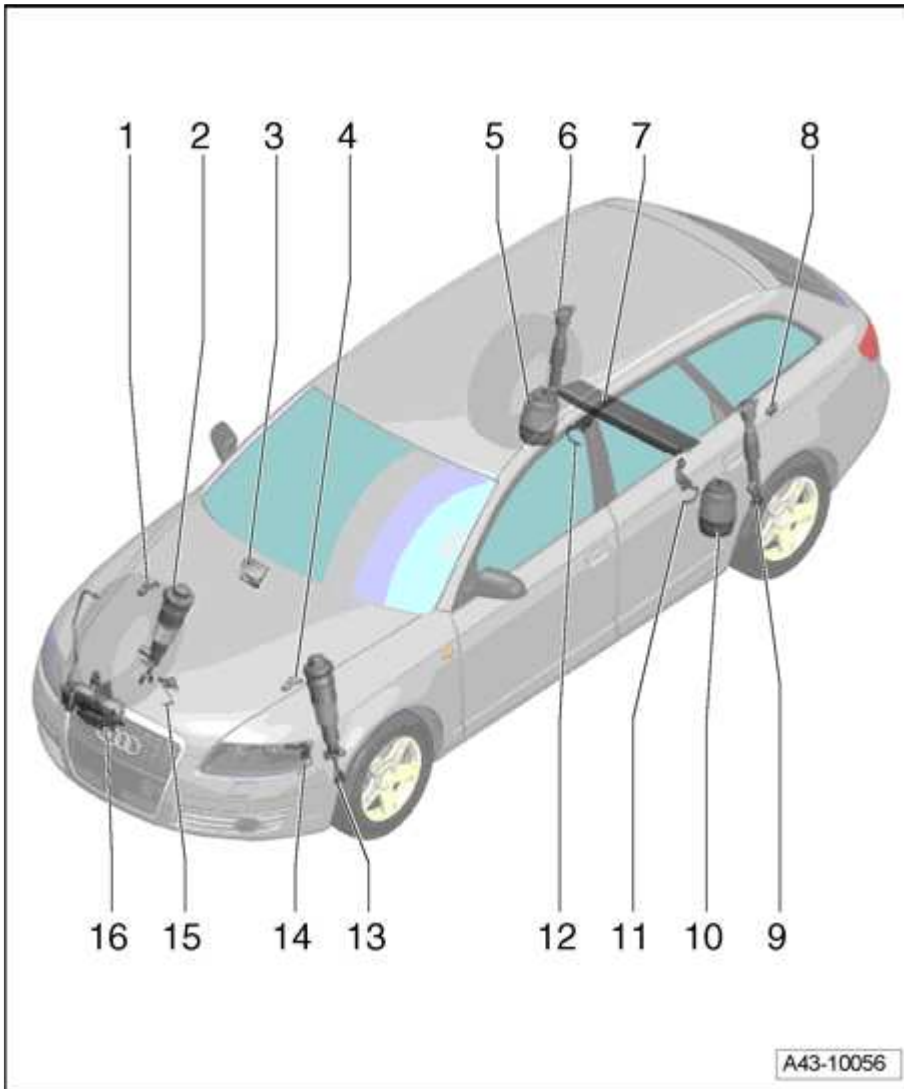


Fig. 465: Electrical/Electronic Components And Component Locations, Overview
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Right Front Body Acceleration Sensor G342

- Removing and installing --> **Left Front Body Acceleration Sensor G341 and Right Front Body Acceleration Sensor G342 , removing and installing**
- Can be checked in "Guided Fault Finding" using VAS 5051 A

2 - Right front suspension strut (air spring suspension)

- With Right Front Dampening Adjustment Valve N337
- Removing and installing --> **Suspension strut (air spring suspension) with mounting bracket, removing and installing**

- Charging --> **System bleeding or charging**

3 - Level Control System Control Module J197

- Removing and installing --> **Level Control System Control Module J197 , removing and installing**

4 - Left Front Body Acceleration Sensor G341

- Removing and installing --> **Left Front Body Acceleration Sensor G341 and Right Front Body Acceleration Sensor G342 , removing and installing**
- Can be checked in "Guided Fault Finding" using VAS 5051 A

5 - Right rear air spring

- Removing and installing --> **Air springs, removing and installing**

6 - Right rear shock absorber

- With Right Rear Dampening Adjustment Valve N339
- Removing and installing --> **Shock absorber for air spring suspension, removing and installing**

7 - Pressure reservoir

- If pressure reservoir is removed, a system bleed of pressure reservoir must be performed beforehand using VAS 5051 A via "Guided Fault Finding"
- Removing and installing --> **Pressure reservoir, removing and installing**

8 - Rear Body Acceleration Sensor G343

- Removing and installing --> **Rear Body Acceleration Sensor G343 , removing and installing**
- Can be checked in "Guided Fault Finding" using VAS 5051 A
- Rear Body Acceleration Sensor G343 is installed behind left wheel housing lining in vicinity of upper shock absorber threaded connection.

9 - Left rear shock absorber

- With Left Rear Dampening Adjustment Valve N338
- Removing and installing --> **Air springs, removing and installing**

10 - Left rear air spring

- Removing and installing --> **Air springs, removing and installing**

11 - Left Rear Level Control System Sensor G76

- Removing and installing --> **Rear Vehicle Level Sensor , removing and installing**
- After loosening, adapt control position again --> **Control position, adapting again**
- Can be checked in "Guided Fault Finding" using VAS 5051 A

12 - Right Rear Level Control System Sensor G77

- Removing and installing --> **Rear Vehicle Level Sensor , removing and installing**
- After loosening, adapt control position again --> **Control position, adapting again**
- Can be checked in "Guided Fault Finding" using VAS 5051 A

13 - Left front suspension strut (air spring suspension)

- With Left Front Dampening Adjustment Valve N336
- Removing and installing --> **Suspension strut (air spring suspension) with mounting bracket, removing and installing**

14 - Left Front Level Control System Sensor G78

- Removing and installing --> **Front Vehicle Level Sensor , removing and installing**
- After loosening, adapt control position again --> **Control position, adapting again**
- Can be checked in "Guided Fault Finding" using VAS 5051 A

15 - Right Front Level Control Sensor G289

- Removing and installing --> **Front Vehicle Level Sensor , removing and installing**
- After loosening, adapt control position again --> **Control position, adapting again**
- Can be checked in "Guided Fault Finding" using VAS 5051 A

16 - Air supply unit with solenoid valve block

- Removing and installing air supply unit --> **Air supply unit, removing and installing**
- Removing and installing solenoid valve block --> **Solenoid valve block, removing and installing**

Front Vehicle Level Sensor , removing and installing

General Information

Vehicles with level control system and/or with gas-discharge headlights have an automatic vertical aim control system as standard equipment --> **94 - LIGHTS, SWITCHES - EXTERIOR** .

To function properly, the vehicle level control system and automatic vertical aim control system require information about compression travel or rebound travel at front and rear axles.

For this, position of left/right control arm in relation to body is transferred via a coupling rod to Left Front

Level Control System Sensor G78 and Right Front Level Control Sensor G289. They send electrical signals to Left High-intensity Gas Discharge Lamp Control Module/Right High-intensity Gas Discharge Lamp Control Module J343/344.

Servicing Left High-intensity Gas Discharge Lamp Control Module/Right High-intensity Gas Discharge Lamp Control Module J343/344 --> **94 - LIGHTS, SWITCHES - EXTERIOR** .

At rear axle, these signals are relayed from Left Rear Level Control System Sensor G76 and Right Rear Level Control System Sensor G77 to Left High-intensity Gas Discharge Lamp Control Module/Right High-intensity Gas Discharge Lamp Control Module J343/344.

These signals are needed to determine vehicle level.

The headlight vertical aim control reacts automatically to changes in vehicle level.

The vehicle level can change in the following situations:

- Operating with something in tow
- Various loading conditions; vehicle empty, vehicle partially or completely loaded

CAUTION: Setting of headlights and of level control system!

Adapting control position and testing basic setting of headlights is always required when

- Control arm has been removed and reinstalled or replaced,
- Installation work has been performed on level control system sensor,
- Level control system sensor has been replaced,
- Threaded connection for coupling rod of level control system sensor was loosened at control arm.

Adapt control position again --> **Control position, adapting again**.

Basic setting of headlights --> **94 - LIGHTS, SWITCHES - EXTERIOR** .

Removing

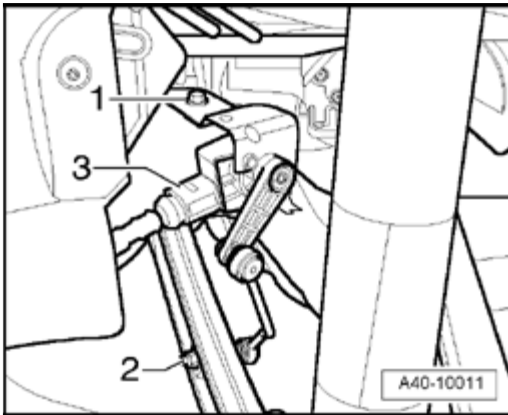


Fig. 466: Identifying Harness Connector, Hex Nut, And Hex Bolt
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect harness connector - **3** -.
- Remove hex nut - **2** -.
- Remove hex bolt - **1** -.
- Remove vehicle level sensor.

Installing

Installation is in reverse order of removal. Note the following:

Locating hook on sensor bracket must engage on subframe.

Sensor lever must point toward front.

Tightening torques: --> **Control arm, guide link, level control system sensor, assembly overview**

- Adapt control position again --> **Control position, adapting again.**
- Perform basic setting of headlamps --> **94 - LIGHTS, SWITCHES - EXTERIOR** .

Rear Vehicle Level Sensor , removing and installing

General Information

Vehicles level control system and/or with gas-discharge headlights have an automatic vertical aim control system as standard equipment --> **94 - LIGHTS, SWITCHES - EXTERIOR** .

To function properly, the vehicle level control system and automatic vertical aim control system require information about compression travel or rebound travel at front and rear axles.

For this, the position of left/right trapezoidal arm in relation to the body is transferred via a coupling rod to Left Rear Level Control System Sensor G76 and Right Rear Level Control System Sensor G77. They send electrical signals to Left High-intensity Gas Discharge Lamp Control Module/Right High-intensity Gas Discharge Lamp

Control Module J343/344.

Servicing Left High-intensity Gas Discharge Lamp Control Module/Right High-intensity Gas Discharge Lamp Control Module J343/344 --> **94 - LIGHTS, SWITCHES - EXTERIOR** .

At front axle, these signals are relayed from Left Front Level Control System Sensor G78 and Right Front Level Control Sensor G289 to Left High-intensity Gas Discharge Lamp Control Module/Right High-intensity Gas Discharge Lamp Control Module J343/344.

These signals are needed to determine vehicle level.

The headlight vertical aim control reacts automatically to changes in vehicle level.

The vehicle level can change in the following situations:

- Operating with something in tow
- Various loading conditions; vehicle empty, vehicle partially or completely loaded

CAUTION: Setting of headlights and of level control system!

Adapting control position and testing basic setting of headlights is always required when

- Trapezoidal control arm has been removed and reinstalled or replaced,
- Installation work has been performed on level control system sensor,
- Level control system sensor has been replaced,
- Threaded connection for coupling rod of level control system sensor was loosened at trapezoidal control arm.

Adapt control position again --> **Control position, adapting again.**

Basic setting of headlights --> **94 - LIGHTS, SWITCHES - EXTERIOR** .

Replacing level control system sensor with subframe installed.

- Remove wheel.

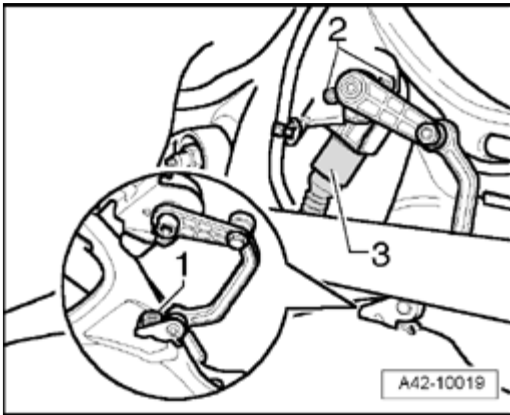


Fig. 467: Identifying Harness Connector And Bolts
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect harness connector - 3 -.
- Remove bolt - 1 -.
- Remove bolts - 2 - using angled wrench. Do not bend upper retaining plate when doing this.
- Remove vehicle level sensor.
- Rework replacement part accordingly and install.

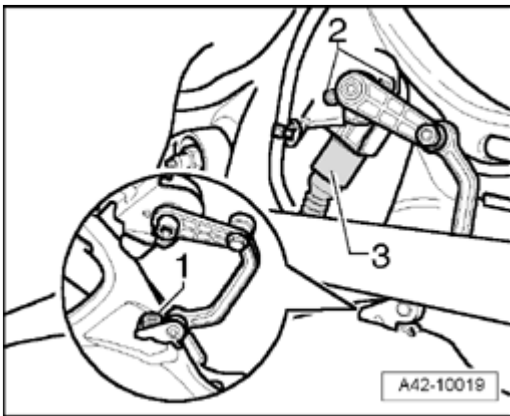


Fig. 468: Identifying Harness Connector And Bolts
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install bolts - 2 - using angled wrench. Do not bend upper retaining plate when doing this.

NOTE:

- **When tightening bolts - 2 - , hold vehicle level sensor firmly in position.**

Sensor lever must point outward.

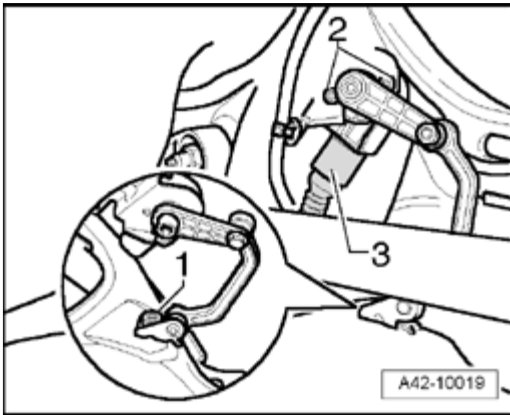


Fig. 469: Identifying Harness Connector And Bolts
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install bolt - **1** -.
- Connect harness connector - **3** -.

Tightening torques: --> **Trapezoidal control arm, upper control arm, tie rod, coil spring, level control system sensor, assembly overview**

- Adapt control position again --> **Control position, adapting again.**
- Perform basic setting of headlamps --> **94 - LIGHTS, SWITCHES - EXTERIOR .**

Left Front Body Acceleration Sensor G341 and Right Front Body Acceleration Sensor G342 , removing and installing

Special tools, testers and auxiliary items required

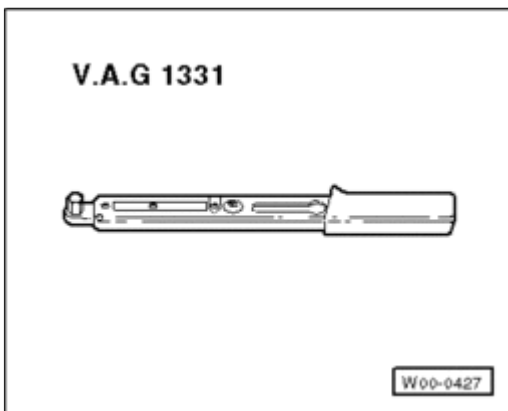


Fig. 470: Torque Wrench V.A.G 1331
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Torque wrench V.A.G 1331

Removing

NOTE:

- Front body acceleration sensors are installed at top in wheel housing respectively on left and right sides.

- Remove wheel.

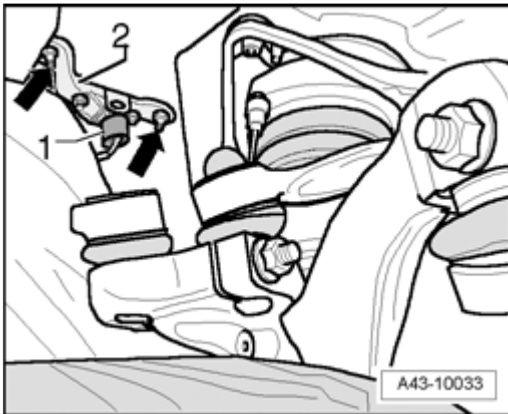


Fig. 471: Identifying Connector, Nuts, And Body Acceleration Sensor
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect connector - **1** -.
- Remove nuts - **arrows** - and remove body acceleration sensor - **2** -.

Installing

Installation is in reverse order of removal. Note the following:



Fig. 472: Identifying Connector, Nuts, And Body Acceleration Sensor
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install nuts - **arrows** - for body acceleration sensor and tighten to 6 Nm.
- Connect harness connector - **1** -.
- Install wheel and tighten --> **44 - Wheels, Tires, Wheel alignment**
- Set vehicle on wheels --> **Placing vehicle onto lifting platform and onto wheels.**

- Checking body acceleration signal --> **Body acceleration signal of front/rear body acceleration sensors, checking.**

Rear Body Acceleration Sensor G343 , removing and installing

Special tools, testers and auxiliary items required

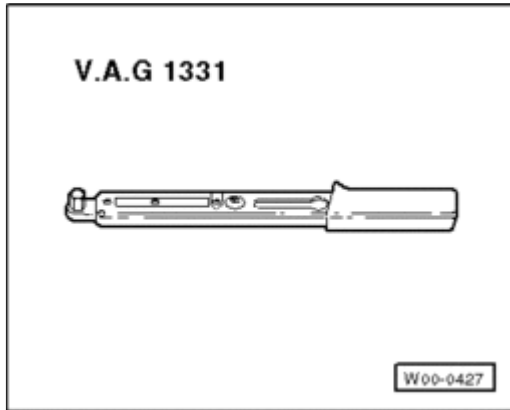


Fig. 473: Torque Wrench V.A.G 1331

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Torque wrench V.A.G 1331

Removing

NOTE:

- **Rear Body Acceleration Sensor G343 is installed behind left wheel housing lining in the vicinity of upper shock absorber threaded connection.**

- Position vehicle on lifting platform --> **Placing vehicle onto lifting platform and onto wheels.**
- Remove decorative wheel cover, for light-alloy wheels pull off protective cap (use pulling hook in vehicle tool kit).
- Remove wheel.
- Remove left rear wheel housing liner --> **66 - EXTERIOR EQUIPMENT** .

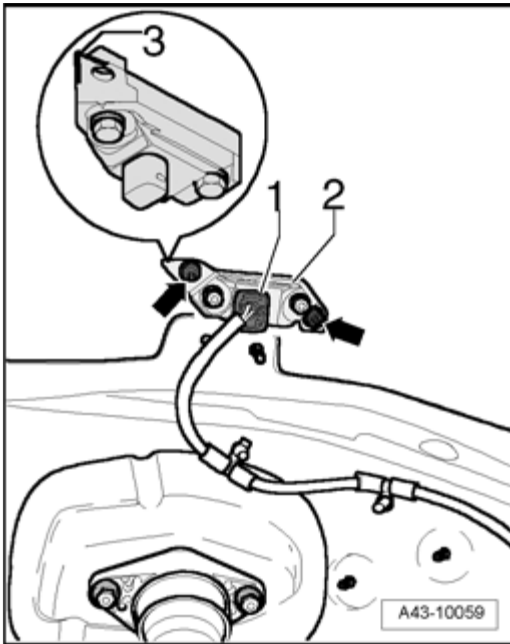


Fig. 474: Identifying Connector, Nuts, And Rear Body Acceleration Sensor G343
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect connector - 1 -.

NOTE:

- **Note installation position of rear body acceleration sensor.**

- Remove nuts - **arrows** - and remove Rear Body Acceleration Sensor G343 - 2 -.

Installing

Installation is in reverse order of removal. Note the following:

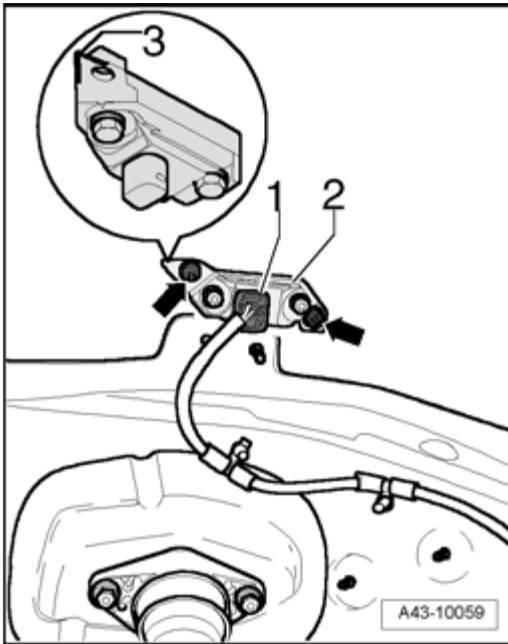


Fig. 475: Identifying Connector, Nuts, And Rear Body Acceleration Sensor G343
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- Points of - arrows - - 3 - of rear body acceleration sensor must point in direction of travel.

- Install nuts - **arrows** - for body acceleration sensor and tighten to 6 Nm.
- Connect harness connector - **1** -.
- Install left rear wheel housing liner --> **66 - EXTERIOR EQUIPMENT** .
- Install wheel and tighten --> **44 - Wheels, Tires, Wheel alignment**
- Set vehicle on wheels --> **Placing vehicle onto lifting platform and onto wheels.**
- Checking body acceleration signal --> **Body acceleration signal of front/rear body acceleration sensors, checking.**

Level Control System Control Module J197 , removing and installing

Removing

- If control module is replaced, select function "Replace" of respective control module in "Guided Fault Finding".

Use Vehicle Diagnosis, Testing and Information System VAS 5051 A.

NOTE:

- **Level Control System Control Module J197 is installed behind glove compartment on bulkhead.**

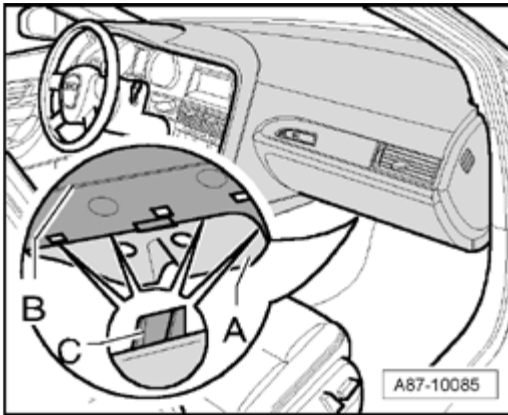


Fig. 476: Identifying Lid For Lower Glove Compartment Cover
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove lid - **A** - from lower cover of glove compartment - **B** -.

NOTE:

- The lid - **A** - is secured in lower cover of glove compartment - **B** - via 4 locking mechanisms. It is possible these locking mechanisms may be disengaged only with difficulty, therefore make sure that the lower cover of the glove compartment - **B** - is not damaged when removing.

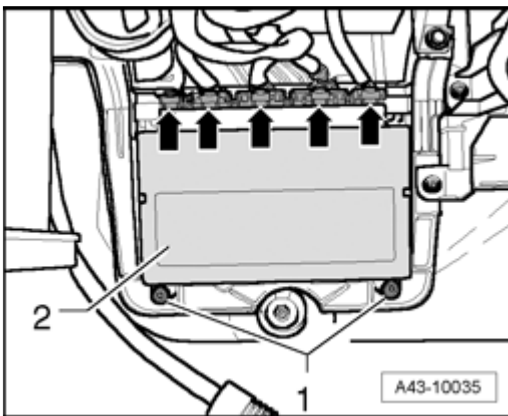


Fig. 477: Identifying Bolts, Control Module, And Electrical Harness Connector
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **1** -.
- Remove control module - **2** - downward.
- Disengage electrical harness connectors - **arrows** - from control module and disconnect.
- Remove control module - **2** -.

Installing

Installation is in reverse order of removal. Note the following:

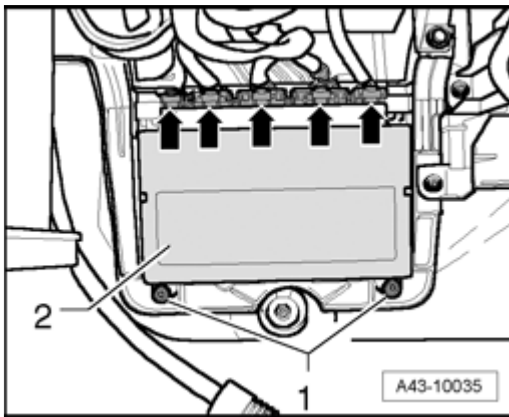


Fig. 478: Identifying Bolts, Control Module, And Electrical Harness Connector
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Connect electrical harness connectors - **arrows** -.
- Install bolts - **1** - and tighten to 2 Nm.
- Adapt Level Control System Control Module J197 again --> **Level Control System Control Module, adjusting again.**

Level Control System Control Module, adjusting again

- Connect VAS 5051 A , perform vehicle-specific entries in Guided Fault Finding and select "Function/component selection" via Goto button --> **VAS 5051 , connecting and selecting functions.**

Then

- "Suspension"
- "Level control system".
- "On Board Diagnostic (OBD) capable systems"
- "Functions of Level Control System Control Module -J197-".
- "Replace Level Control System Control Module -J197-".

Body acceleration signal of front/rear body acceleration sensors, checking

- Connect VAS 5051 A , perform vehicle-specific entries in Guided Fault Finding and select "Function/component selection" via the Goto button --> **VAS 5051 , connecting and selecting functions.**

Then

- "Suspension"
- "Level control system".
- "On Board Diagnostic (OBD) capable systems"
- "Functions of Level Control System Control Module -J197-".

- "Left Front Body Acceleration Sensor -G341-".

or

- "Right Front Body Acceleration Sensor -G342-".

or

- "Rear Body Acceleration Sensor -G343-".

System bleeding or charging

- Connect VAS 5051 A , perform vehicle-specific entries in Guided Fault Finding and select "Function/component selection" via Goto button --> **VAS 5051 , connecting and selecting functions.**

Then

- "Suspension"
- "Level control system".
- "On Board Diagnostic (OBD) capable systems"
- "Functions of Level Control System Control Module -J197-".
- "Level Control System Control Module -J197- system bleeding or charging".

NOTE:

- Note the following when charging rear axle.

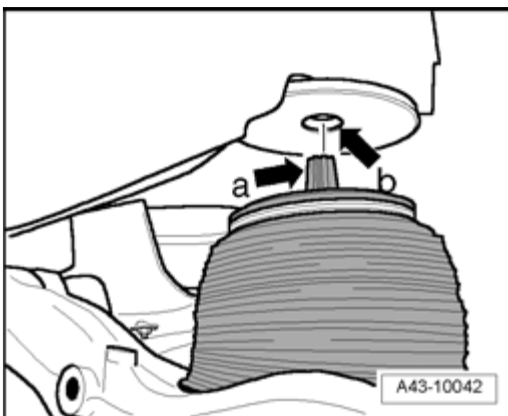


Fig. 479: Identifying Centering Pin And Bore Of Longitudinal Member
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

Charging air spring of rear axle

CAUTION: When charging, make sure that centering pin - arrow a - drives into bore of longitudinal member - arrow b -.

Control position, adapting again

- Connect VAS 5051 A , perform vehicle-specific entries in Guided Fault Finding and select "Function/component selection" via Goto button --> **VAS 5051 , connecting and selecting functions.**

Then

- "Suspension"
- "Level control system".
- "On Board Diagnostic (OBD) capable systems"
- "Functions of Level Control System Control Module -J197-".
- "Level Control System Control Module -J197- adapt control position anew".

PNEUMATIC LEVEL CONTROL

Pneumatic level control

Overview of air lines --> **Air lines, overview.**

Replacing air line --> **Air line, servicing.**

Replacing connecting piece --> **Connecting piece, replacing.**

Assembly overview of air supply unit and solenoid valve block --> **Air supply unit and solenoid valve block, assembly overview.**

Removing and installing air supply unit --> **Air supply unit, removing and installing.**

Removing and installing solenoid valve block --> **Solenoid valve block, removing and installing.**

Removing and installing pressure reservoir --> **Pressure reservoir, removing and installing.**

Air lines, overview

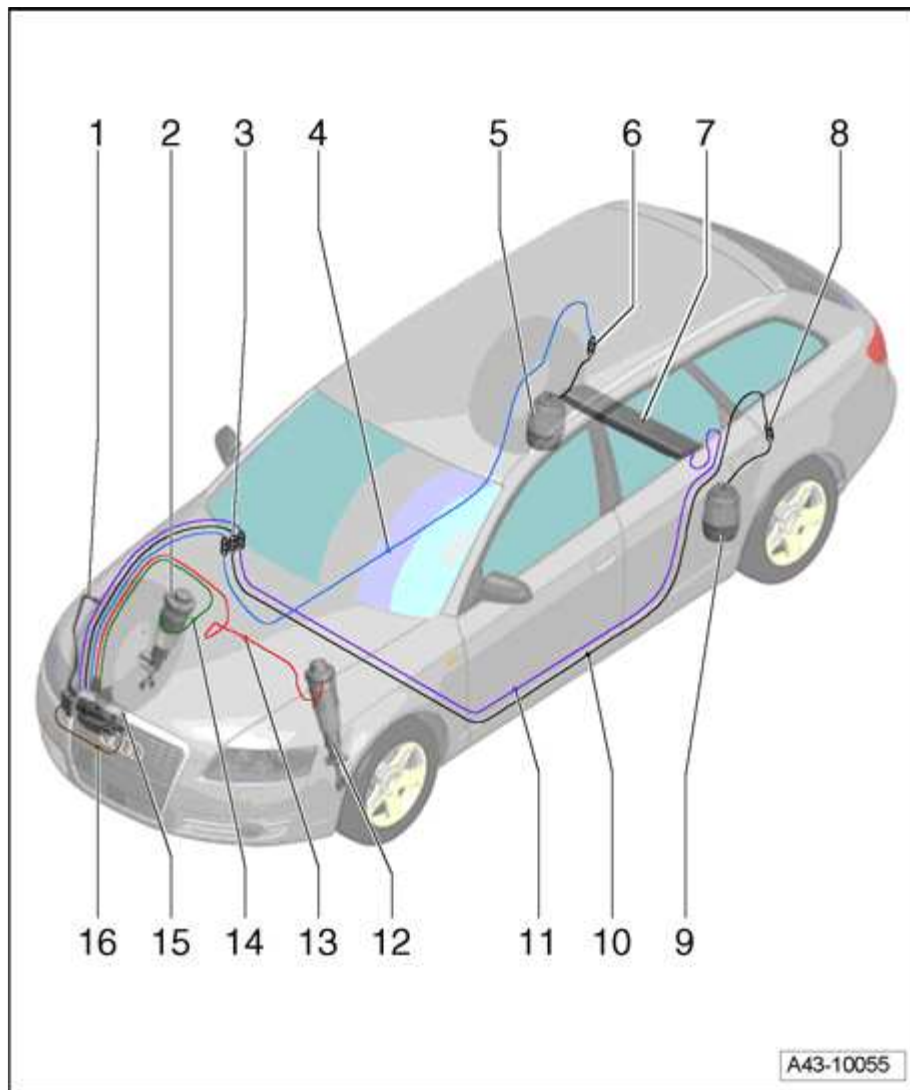


Fig. 480: Air Lines, Overview

Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Air intake tract with filter

2 - Right front suspension strut (air spring suspension)

3 - Connector for air lines

- Component location: In vehicle interior on front passengers side behind A-pillar trim **Component location of air line connector**

4 - Air line "blue"

- From solenoid valve block to right rear air spring
- Servicing air line --> **Air line, servicing**

- Replacing connecting piece --> **Connecting piece, replacing.**

5 - Right rear air spring

6 - Connector for air lines

- Component location: Below right rear wheel housing liner

7 - Pressure reservoir

- Pressure reservoir is installed in luggage compartment, under dirt tray cover, under luggage compartment floor.

8 - Connector for air lines

- Component location: Below left rear wheel housing liner

9 - Left rear air spring

10 - Air line "black"

- From solenoid valve block to left rear air spring
- Servicing air line --> **Air line, servicing**
- Replacing connecting piece --> **Connecting piece, replacing.**

11 - Air line "violet"

- From solenoid valve block to pressure reservoir
- Servicing air line --> **Air line, servicing**
- Replacing connecting piece --> **Connecting piece, replacing.**

12 - Left front suspension strut (air spring suspension)

13 - Air line "red"

- From solenoid valve block to left front suspension strut (air spring suspension)
- Servicing air line --> **Air line, servicing**
- Replacing connecting piece --> **Connecting piece, replacing.**
- Component location: Air line is routed in engine compartment beneath plenum chamber cover parallel to brake line.

14 - Air line "green"

- From solenoid valve block to right front suspension strut (air spring suspension)

- Servicing air line --> **Air line, servicing**
- Replacing connecting piece --> **Connecting piece, replacing.**

15 - Air supply unit with solenoid valve block

- Line assignment on solenoid valve block **Line assignment on solenoid valve block**

16 - Air line "brown"

- From air supply unit to solenoid valve block
- Servicing air line --> **Air line, servicing**
- Replacing connecting piece --> **Connecting piece, replacing.**

Line assignment on solenoid valve block

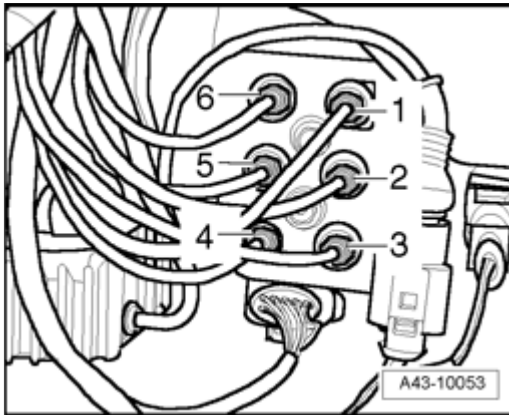


Fig. 481: Line Assignment On Solenoid Valve Block
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Air line are color-coded:

1. Air line brown : From air supply unit
2. Air line red : To left front suspension strut (air spring suspension)
3. Air line violet : To pressure reservoir
4. Air line blue : To right rear air spring shock absorber
5. Air line black : To left rear air spring shock absorber
6. Air line green : To right front suspension strut (air spring suspension)

Component location of air line connector

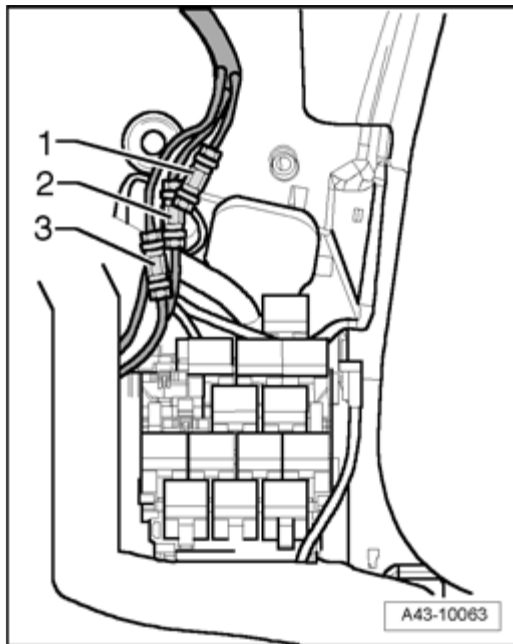


Fig. 482: Component Location Of Air Line Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Connections - 1 - , - 2 - and - 3 - for air lines leading to rear axle are attached in vehicle interior on front passengers side behind A-pillar trim.

Air line, servicing

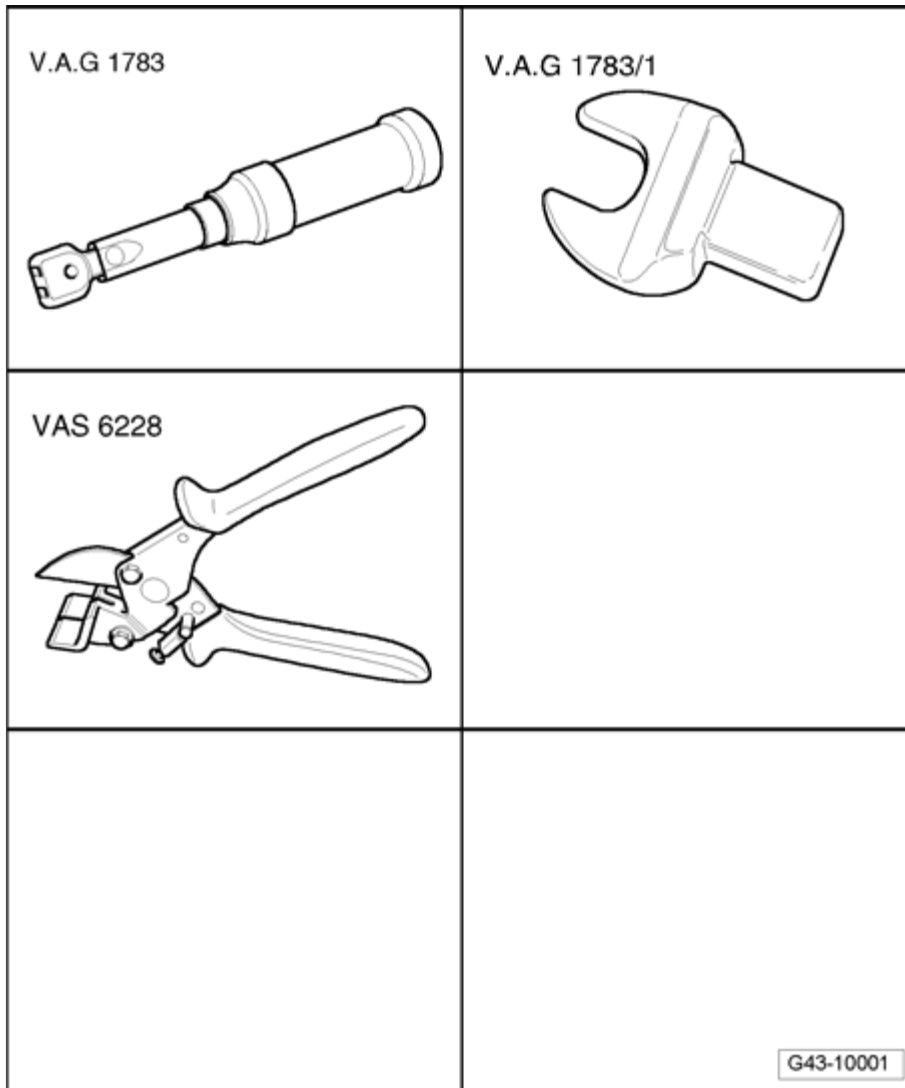


Fig. 483: Identifying Special Tools For Air Line
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Torque wrench V.A.G 1783
- Insertion tool 10 mm V.A.G 1783/1
- Air hose pliers VAS 6228

If air line is damaged, the damaged area can be replaced.

If connection leaks, air line can be shortened approx. 10 mm and a new connecting piece can be installed -->
Connecting piece, replacing.

NOTE:

- Air line between air supply unit and solenoid valve block as well as right

front suspension strut (air spring suspension) and solenoid valve block is replaced completely by original equipment line.

- Air line between solenoid valve block and left front suspension strut (air spring suspension) can be replaced with parts from repair kit in left and right wheel housings.
- In vehicle interior, damaged air lines are replaced completely with original equipment lines. Route new air line along on air line/wiring harness. Secure new air line at points marked. Replace cut cable ties if necessary.
- Clean area of separating point before disconnecting an air line connection.
- Dirt penetrating into the lines can lead to a malfunction or system failure.
- Clean areas of connecting piece and corresponding separating points.
- Remove connecting piece and remove air line.

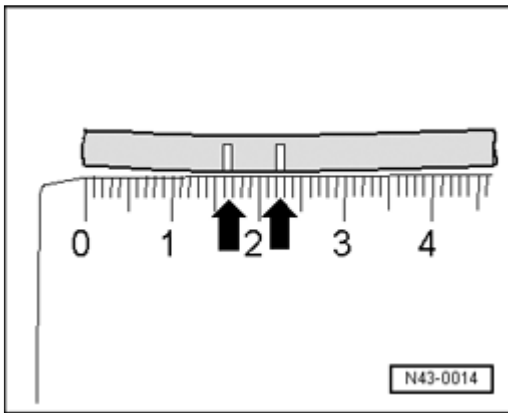


Fig. 484: Marking Line End Of Air Line In Vehicle And Both Ends Of New Air Line
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Then mark line end of air line in vehicle and both ends of new air line using a waterproof marker.

With markings 17 mm or 22 mm, check whether air line is inserted far enough into connecting piece.

- Attach sponge rubber onto both lines.
- Install new connection.

NOTE:

- **Connecting pieces in connection are already threaded to tightening torque. Air lines must only be inserted.**

- Remove protective transportation cap.

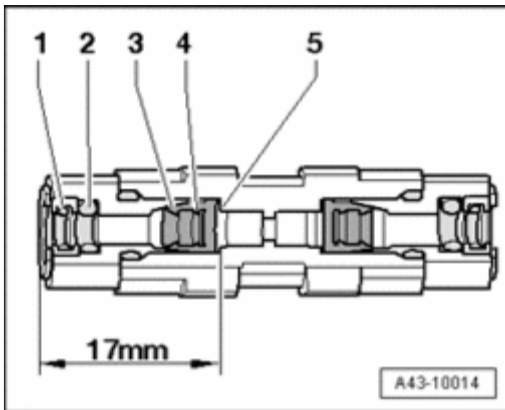


Fig. 485: Identifying Sealing Rings, Edges, And Cutting Ring
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Slide old air line through sealing rings - **1** - and - **2** - .
- Then slide air line using slight pressure through edges - **3** - and - **4** - of cutting ring up to stop - **5** - in connection.
- Slide sponge rubbers on to connecting pieces.
- Repeat work procedure with new air line.
- Replacing connecting piece --> **Connecting piece, replacing.**

Connecting piece, replacing

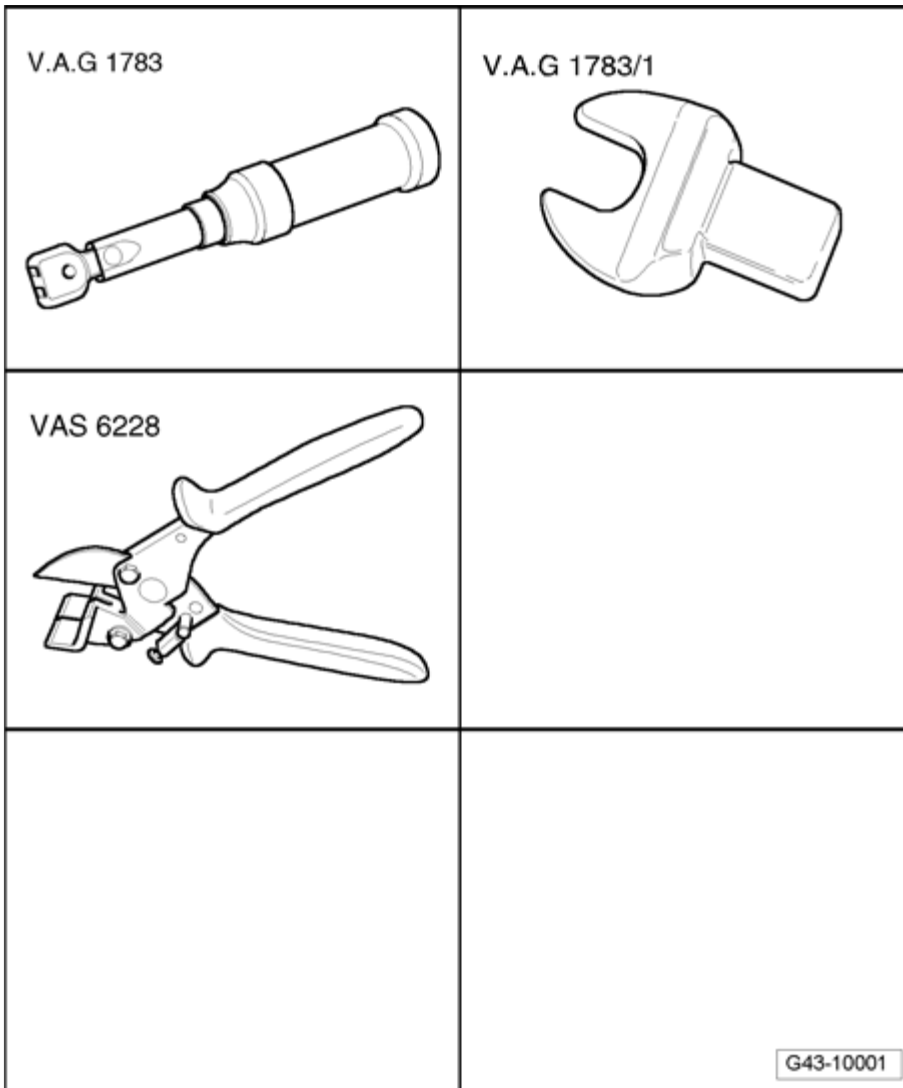


Fig. 486: Identifying Special Tools For Air Line
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Torque wrench V.A.G 1783
- Insertion tool 10 mm V.A.G 1783/1
- Air hose pliers VAS 6228

If connection leaks, air line can be shortened approx. 10 mm (if there is sufficient length) and a new connecting piece can be installed.

NOTE:

- Clean area of separating point before disconnecting an air line connection.
- Dirt penetrating into the lines can lead to a malfunction or system failure.
- Clean area of connecting piece.

- Remove connecting piece and remove air line.
- Remove cutting ring from air line.
- Using air hose pliers VAS 6228 , cut air line at a right angle behind pressure point of cutting ring.

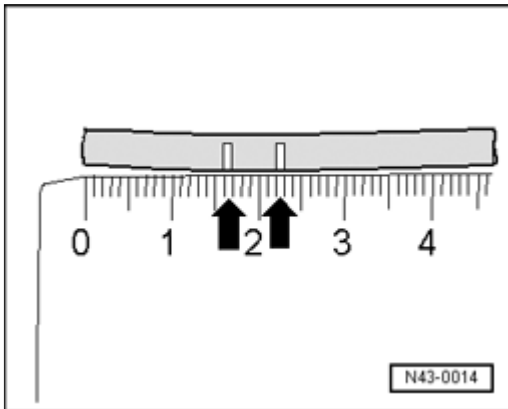


Fig. 487: Marking Line End Of Air Line In Vehicle And Both Ends Of New Air Line
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Then mark line end of air line in vehicle using a waterproof marker.

With markings 17 mm or 22 mm, check whether air line is inserted far enough into connecting piece.

- Always replace connecting piece.

Always tighten to tightening torque!

- Install new connecting piece by hand and tighten **Tightening torques**.

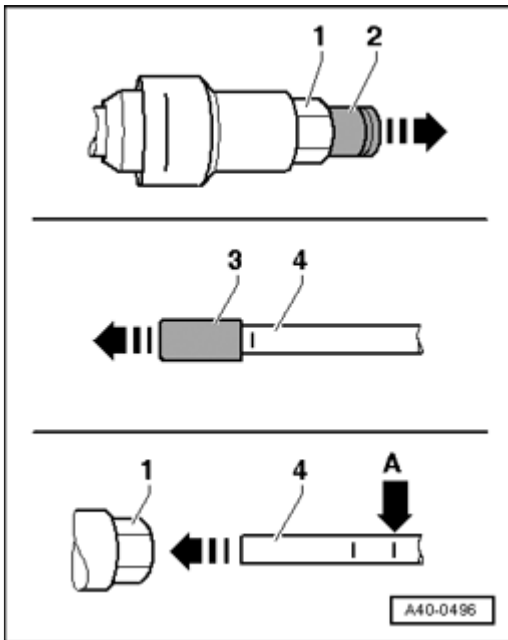


Fig. 488: Identifying Transportation Caps, Air Line, Safety Devices, And Connecting Piece
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

Remove protective transportation caps - **2** - and - **3** - only immediately prior to connecting air line - **4** -.

- Route air line with corresponding mounting clips/sleeves in vehicle. Replace cut cable ties if necessary.
- Pull off transport safety devices - **2** - and - **3** -.
- Using some pressure, slide air line - **4** - up to stop into connecting piece - **1** -.

Air lines are installed properly when only one of the two markings is still visible - **arrow A** -.

Air supply unit and solenoid valve block, assembly overview

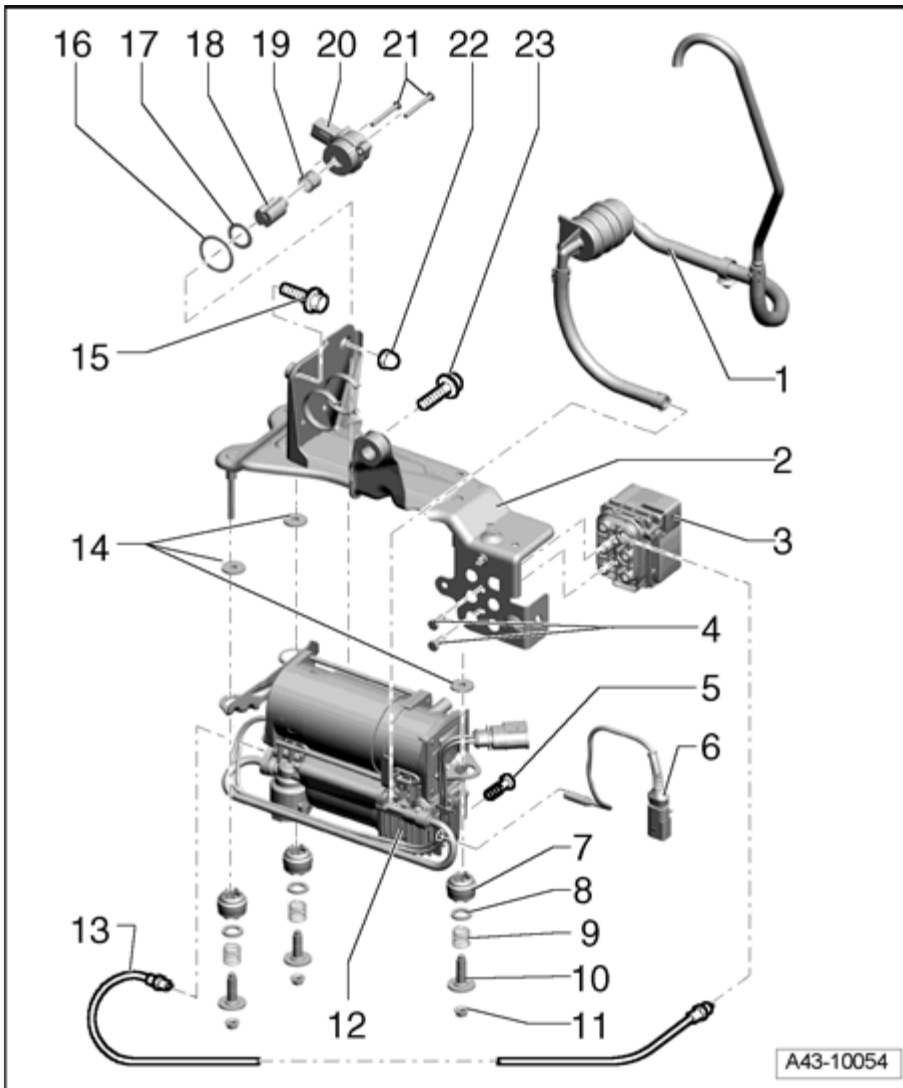


Fig. 489: Air Supply Unit And Solenoid Valve Block, Assembly Overview
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Air intake tract with filter

2 - Bracket for compressor unit and solenoid valve block

3 - Solenoid valve block

- Removing and installing --> **Solenoid valve block, removing and installing**

4 - Bolt, 10 Nm

5 - Bolt, 7 Nm

6 - Compressor temperature sensor for level control system

- Removing and installing --> **Level Control Pump Temperature Sensor G290 , removing and installing**

7 - Rubber bushing

8 - Spring seat

9 - Spring

10 - Sleeve

11 - Self-locking nut, 6 Nm

- Always replace after removal

12 - Air supply unit

- Removing and installing --> **Air supply unit, removing and installing**

13 - Air line

- Between solenoid valve block and air supply unit
- If leaking, replace air line --> **Air line, servicing**

14 - Washer

15 - Bolt, 20 Nm

16 - O-ring

17 - O-ring

18 - Armature

- Note installation position, chamfer must point toward spring **Level Control System Solenoid N111 , removing and installing**

19 - Spring

20 - Level control system vent valve

- Removing and installing --> **Level Control System Solenoid N111 , removing and installing**

21 - Bolt, 3 Nm

22 - Cap nut, 20 Nm

23 - Bolt, 20 Nm

Tightening torques

| | |
|--|------|
| Component | |
| Connecting piece in solenoid valve block | 2 Nm |
| Connecting piece in air supply unit | 2 Nm |
| Connecting piece in rear air spring | 2 Nm |
| Connecting piece in residual pressure valve (front suspension struts of air spring suspension) | 3 Nm |
| Connecting piece in pressure reservoir | 5 Nm |
| Connecting piece in connection made of plastic | 3 Nm |
| Connecting piece in connection made of brass | 5 Nm |

Air supply unit, removing and installing


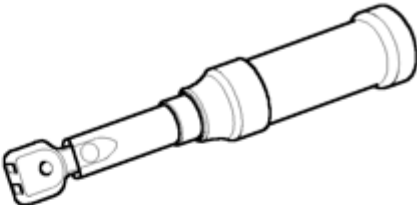
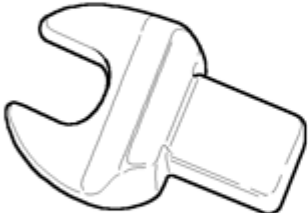
| | |
|---|--|
| <p>V.A.G 1331</p>  | <p>V.A.G 1783</p>  |
| <p>V.A.G 1783/1</p>  | |
| | <p>G43-10000</p> |

Fig. 490: Identifying Special Tools For Air Spring At Rear Axle
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Torque wrench V.A.G 1331
- Torque wrench V.A.G 1783
- Insertion tool 10 mm V.A.G 1783/1

Removing

NOTE: • **Air supply unit is installed beneath right front wheel housing liner.**

- Position vehicle on lifting platform --> **Placing vehicle onto lifting platform and onto wheels.**
- Perform system bleed using VAS 5051 A --> **System bleeding or charging.**
- Remove decorative wheel cover, for light-alloy wheels pull off protective cap (use pulling hook in vehicle tool kit).
- Remove wheel.
- Remove noise insulation --> **50 - BODY - FRONT** .
- Remove right rear wheel housing liner --> **66 - EXTERIOR EQUIPMENT** .

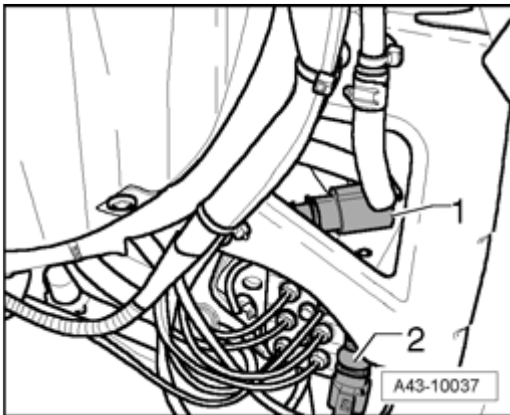


Fig. 491: Unclipping And Disconnecting Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unclip and disconnect harness connectors - **1** - and - **2** - .

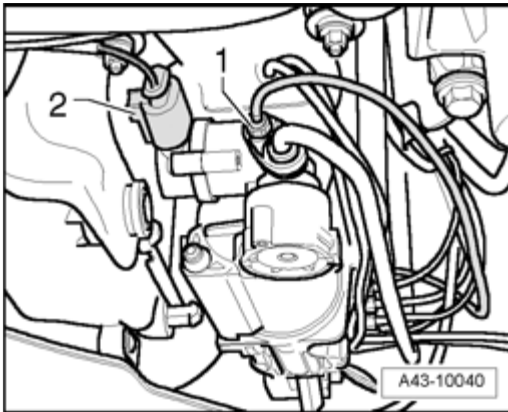


Fig. 492: Identifying Air Line And Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Slowly loosen air line - 1 - of air supply unit and let air pressure dissipate. Once air pressure has dissipated, remove air lines.
- Disconnect harness connectors - 2 -.

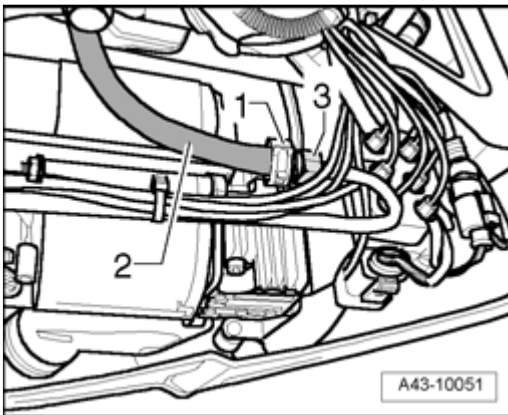


Fig. 493: Opening Clamp And Disconnecting Intake Hose Of Connector Piece
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Open clamp - 1 - and disconnect intake hose - 2 - of connector piece - 3 -.
- Remove cable ties.

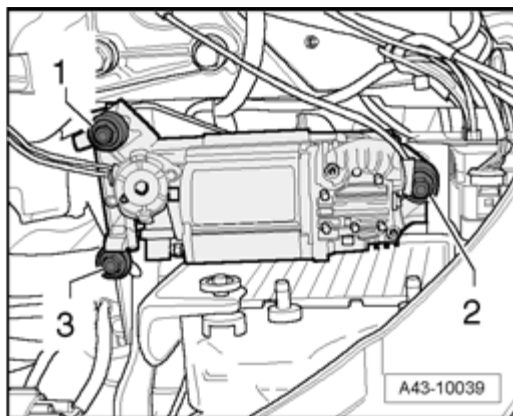


Fig. 494: Identifying Nuts For Air Supply Unit
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove nuts - 1 - , - 2 - and - 3 - and remove air supply unit.

NOTE:

- Note correct locations when removing mounting sleeves.

Installing

Installation is in reverse order of removal. Note the following:

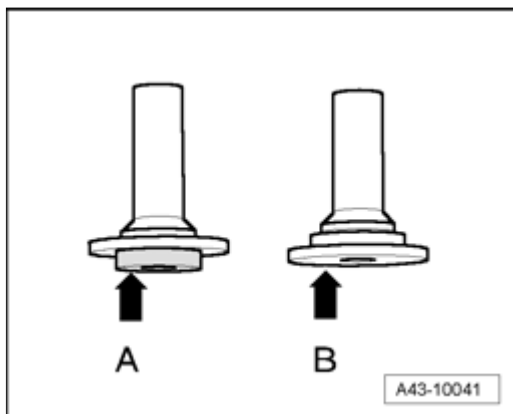


Fig. 495: Distinguishing Characteristics Of Sleeves
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

Distinguishing characteristics of sleeves

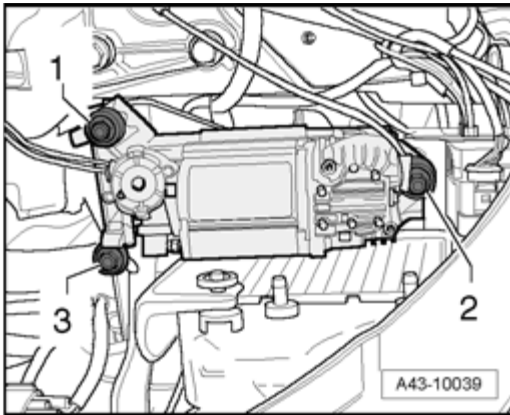


Fig. 496: Identifying Nuts For Air Supply Unit
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Sleeve - **B** - without collar - **arrow** - is installed on outer side of vehicle - **2** -.

Tightening torques: --> **Air supply unit and solenoid valve block, assembly overview**

- Install right front wheel housing liner --> **66 - EXTERIOR EQUIPMENT** .
- Install front noise insulation --> **50 - BODY - FRONT** .
- Install wheel.
- Position vehicle on its wheels --> **Placing vehicle onto lifting platform and onto wheels.**
- Tighten wheel --> **44 - Wheels, Tires, Wheel alignment.**

Level Control System Solenoid N111 , removing and installing

Special tools, testers and auxiliary items required

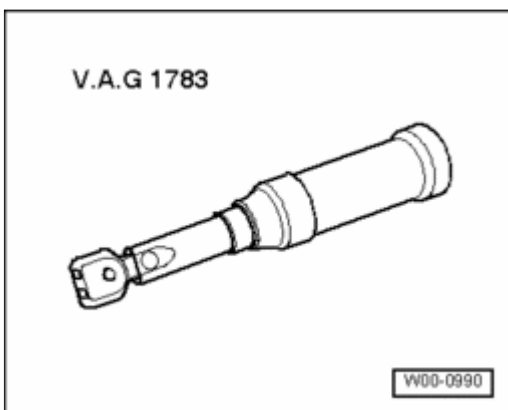


Fig. 497: Torque Wrench V.A.G 1783
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Torque wrench V.A.G 1783

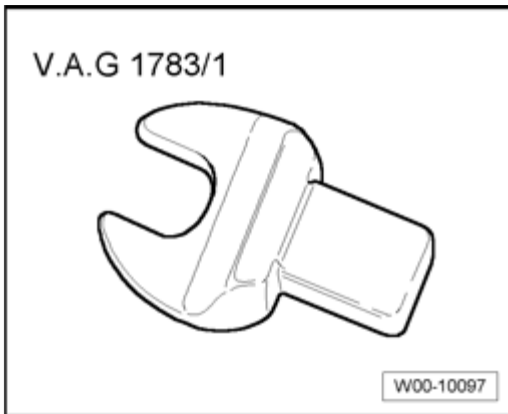


Fig. 498: Open End Spanner Insert AF 10 V.A.G 1783/1
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insertion tool 10 mm V.A.G 1783/1

Removing

NOTE:

- Level Control System Solenoid N111 is installed on air supply unit under right front wheel housing liner.
- Position vehicle on lifting platform --> Placing vehicle onto lifting platform and onto wheels.
- Remove noise insulation --> 50 - BODY - FRONT .

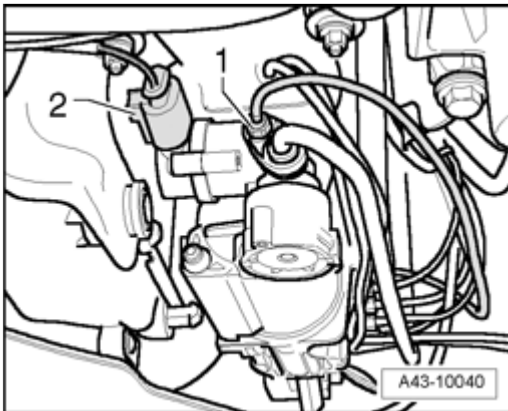


Fig. 499: Identifying Air Line And Harness Connectors
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Slowly loosen air line - 1 - of air supply unit and let air pressure dissipate. Once air pressure has dissipated, remove air lines.

NOTE:

- For the sake of illustration, air supply unit is depicted as removed.

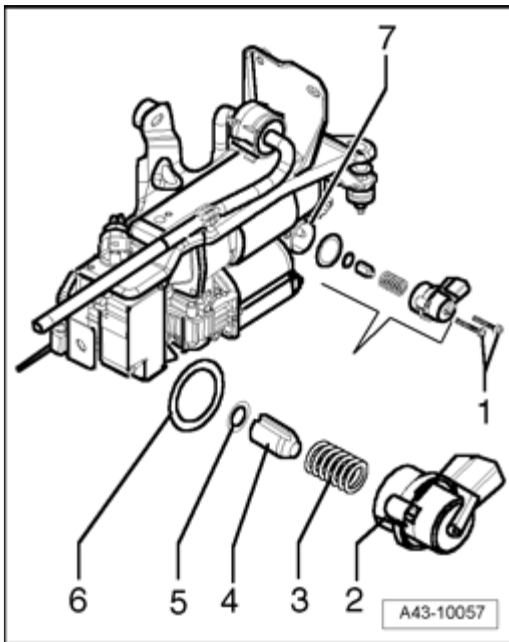


Fig. 500: Identifying Electrical Harness Connector, Level Control System Solenoid, O-Rings And Threaded Connections

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical harness connector from level control system solenoid and remove threaded connections - **1** -.

NOTE:

- **Note installation position of armature - 4 -.**

- Remove level control system solenoid - **2** - with spring - **3** - and armature - **4** -.
- Remove O-rings - **5** - and - **6** -.

NOTE:

- **Old O-ring - 5 - may still be found in housing - 7 -.**

Installing

Always replace O-rings.

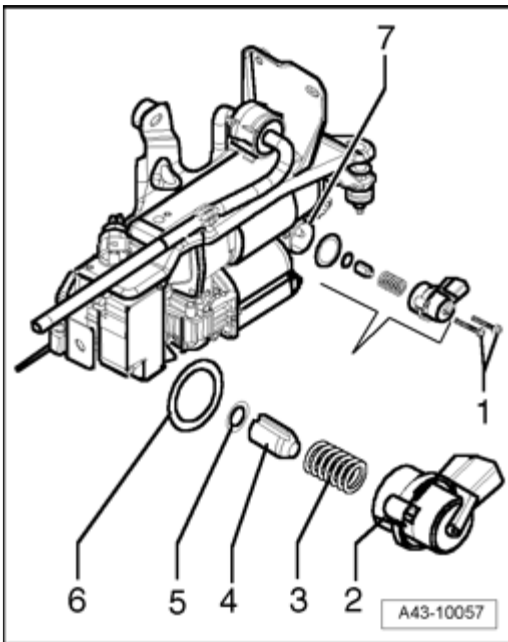


Fig. 501: Identifying Electrical Harness Connector, Level Control System Solenoid, O-Rings And Threaded Connections

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Coat O-rings - 5 - and - 6 - with grease supplied.

NOTE:

- Note installation position of armature - 4 -. Chamfer must point toward spring.

- Insert spring - 3 - and armature - 4 - into level control system solenoid - 2 -.
- Slide level control system solenoid - 2 - with spring and armature into housing - 7 -.

NOTE:

- Coil must not be canted when sliding in.

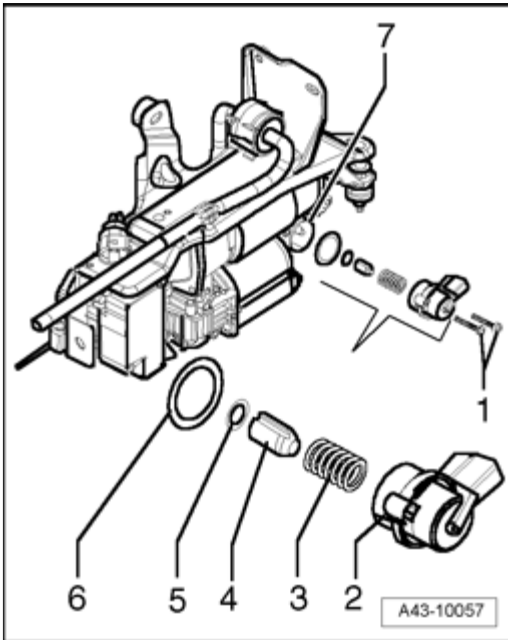


Fig. 502: Identifying Electrical Harness Connector, Level Control System Solenoid, O-Rings And Threaded Connections

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install threaded connections - 1 - and tighten --> **Air supply unit and solenoid valve block, assembly overview.**
- Connect electrical harness connector to level control system solenoid - 2 -.

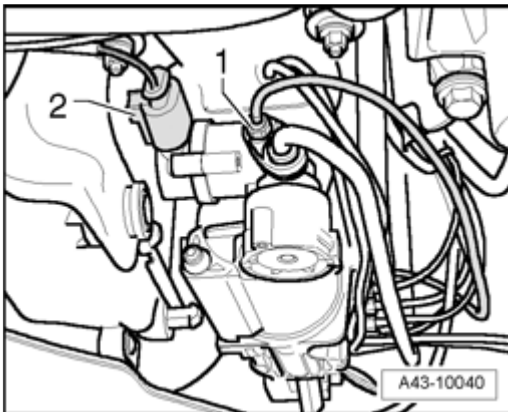


Fig. 503: Identifying Air Line And Harness Connectors

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install air line - 1 - on air supply unit.
- Install noise insulation --> **50 - BODY - FRONT .**
- Position vehicle on its wheels --> **Placing vehicle onto lifting platform and onto wheels.**

Level Control Pump Temperature Sensor G290 , removing and installing

Removing**NOTE:**

- **Level Control Pump Temperature Sensor G290 is installed on air supply unit under right front wheel housing liner.**

- Position vehicle on lifting platform --> **Placing vehicle onto lifting platform and onto wheels.**
- Remove noise insulation --> **50 - BODY - FRONT** .
- Remove wheel.
- Remove right rear wheel housing liner --> **66 - EXTERIOR EQUIPMENT** .

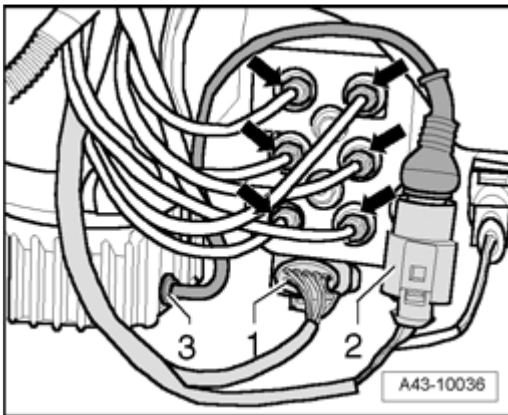


Fig. 504: Identifying Harness Connector And Air Lines
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unclip and disconnect harness connectors - **2** -.

NOTE:

- **For the sake of illustration, air supply unit is depicted as removed.**

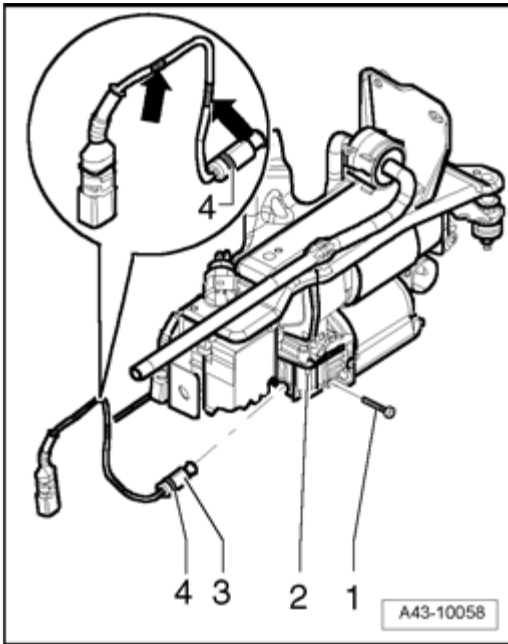


Fig. 505: Identifying Bolt, O-Rings, Housing, And Level Control Pump Temperature Sensor
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolt - 1 - and pull out Level Control Pump Temperature Sensor - 3 -.

Installing

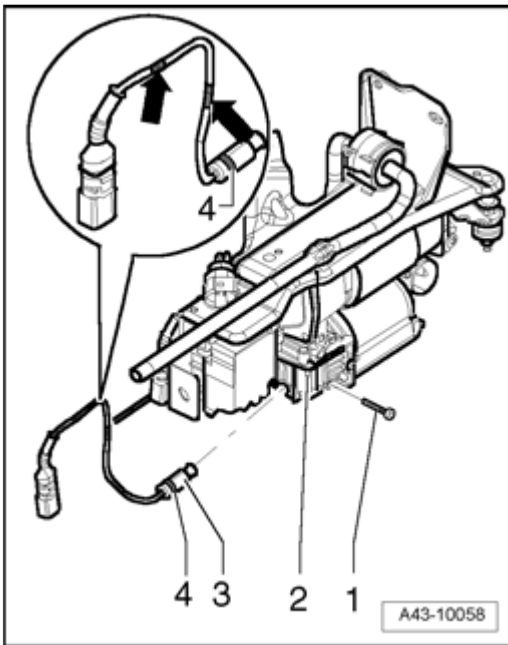


Fig. 506: Identifying Bolt, O-Rings, Housing, And Level Control Pump Temperature Sensor
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Coat O-rings - 4 - with grease supplied.

- Slide Level Control Pump Temperature Sensor - 3 - into housing - 2 - up to stop.
- Install bolt - 1 - and tighten to specified tightening torque --> **Air supply unit and solenoid valve block, assembly overview.**

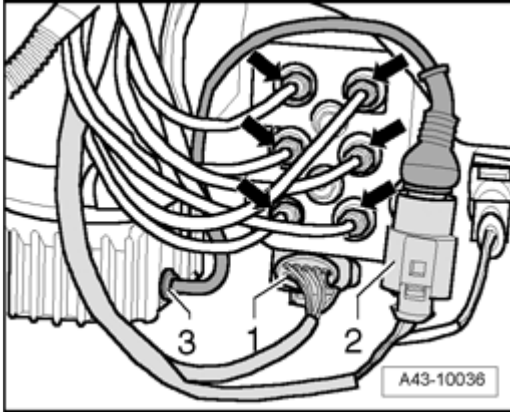


Fig. 507: Identifying Harness Connector And Air Lines
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Connect harness connector - 2 - and clip in electrical wire.

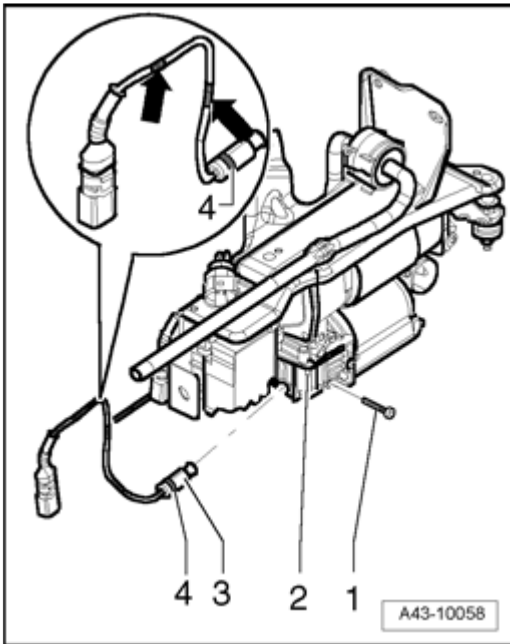


Fig. 508: Identifying Bolt, O-Rings, Housing, And Level Control Pump Temperature Sensor
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE: • **Secure electrical wire only at positions marked - arrows -.**

- Install noise insulation --> **50 - BODY - FRONT** .
- Install right front wheel housing liner --> **66 - EXTERIOR EQUIPMENT** .

- Install wheel.
- Position vehicle on its wheels --> **Placing vehicle onto lifting platform and onto wheels.**
- Tighten wheel --> **44 - Wheels, Tires, Wheel alignment.**

Solenoid valve block, removing and installing

Special tools, testers and auxiliary items required

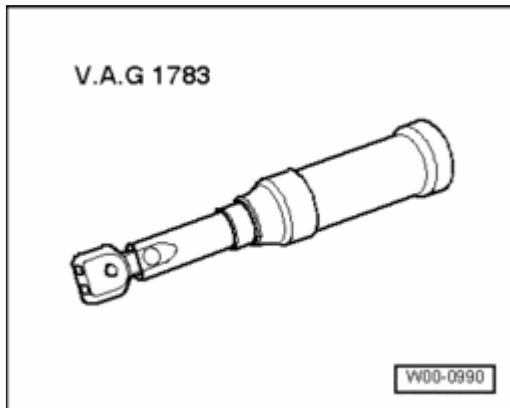


Fig. 509: Torque Wrench V.A.G 1783
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Torque wrench V.A.G 1783

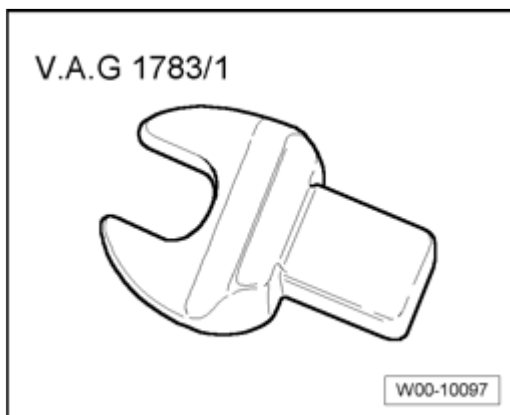


Fig. 510: Open End Spanner Insert AF 10 V.A.G 1783/1
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insertion tool 10 mm V.A.G 1783/1

Removing

NOTE: ● Solenoid valve block is installed on right side, behind front bumper.

- Position vehicle on lifting platform --> **Placing vehicle onto lifting platform and onto wheels.**
- Perform system bleed using VAS 5051 A --> **System bleeding or charging.**
- Remove decorative wheel cover, for light-alloy wheels remove protective cap (use pulling hook in vehicle tool kit).
- Remove wheel.
- Remove noise insulation --> **50 - BODY - FRONT** .
- Remove right rear wheel housing liner --> **66 - EXTERIOR EQUIPMENT** .

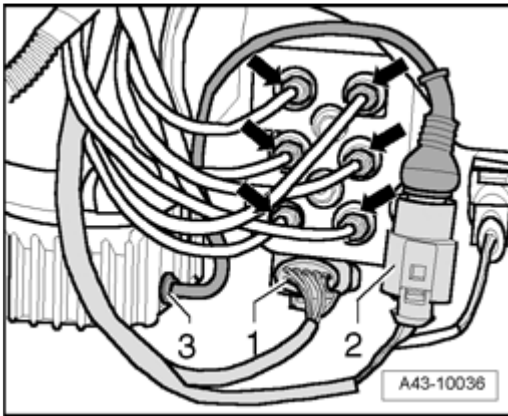


Fig. 511: Identifying Harness Connector And Air Lines
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect connector - **1** - .
- Slowly loosen air lines - **arrows** - and let air pressure dissipate. Once air pressure has dissipated, remove air lines.
- Protect air lines from dirt.

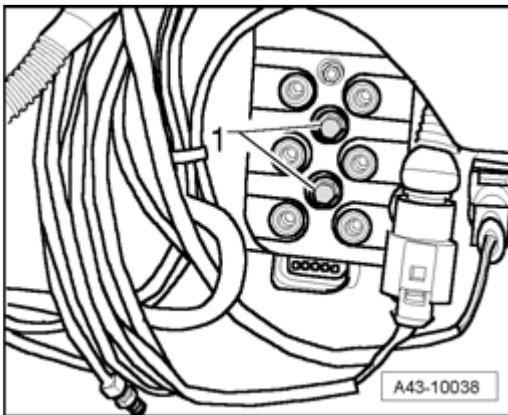


Fig. 512: Identifying Bolts For Solenoid Valve Block
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **1** - and remove solenoid valve block.

Installing

Installation is in reverse order of removal. Note the following:

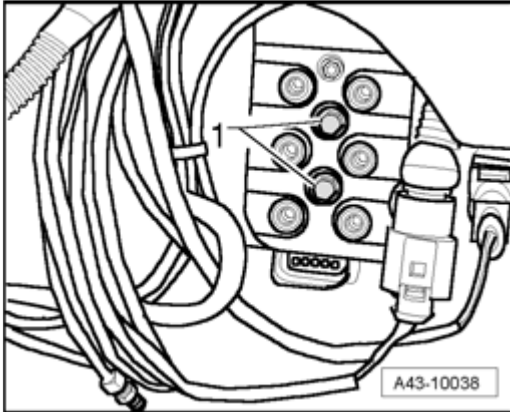


Fig. 513: Identifying Bolts For Solenoid Valve Block
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert solenoid valve block.
- Install bolts - **1** - and tighten --> **Air supply unit and solenoid valve block, assembly overview.**
- Remove air line connections on new solenoid valve block.

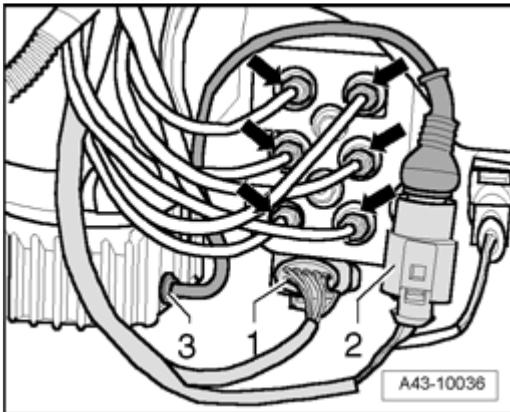


Fig. 514: Identifying Harness Connector And Air Lines
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install air lines - **arrows** - on solenoid valve block and tighten **Tightening torques.**
- Connect harness connector - **1** -.
- Install wheel housing liner --> **66 - EXTERIOR EQUIPMENT .**
- Install noise insulation --> **50 - BODY - FRONT .**
- Install wheel.
- Position vehicle on its wheels --> **Placing vehicle onto lifting platform and onto wheels.**
- Tighten wheel --> **44 - Wheels, Tires, Wheel alignment.**

Pressure reservoir, removing and installing

Special tools, testers and auxiliary items required

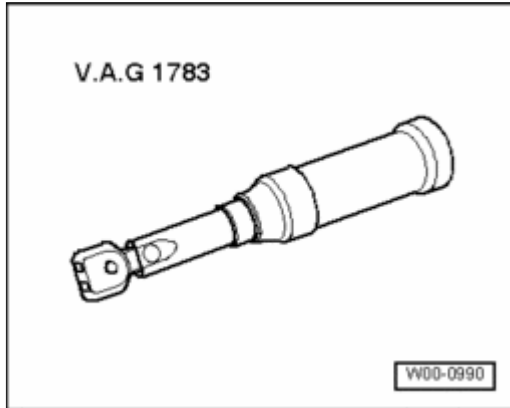


Fig. 515: Torque Wrench V.A.G 1783

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Torque wrench V.A.G 1783

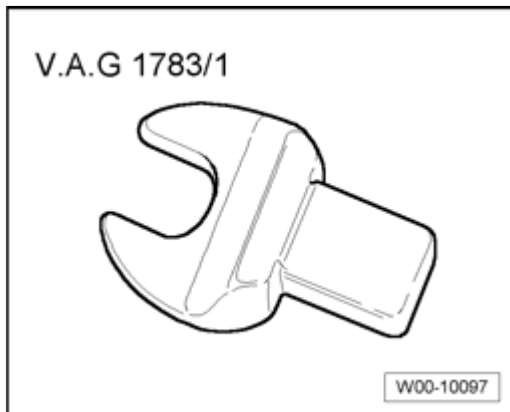


Fig. 516: Open End Spanner Insert AF 10 V.A.G 1783/1

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insertion tool 10 mm V.A.G 1783/1

Removing

NOTE:

- **Pressure reservoir is installed in luggage compartment, under dirt tray cover, under luggage compartment floor.**

- Position vehicle on lifting platform --> **Placing vehicle onto lifting platform and onto wheels.**
- Perform system bleed using VAS 5051 A --> **System bleeding or charging.**
- Remove storage area floor --> **70 - INTERIOR TRIM** .

- Removing and installing dirt tray cover --> **70 - INTERIOR TRIM** .

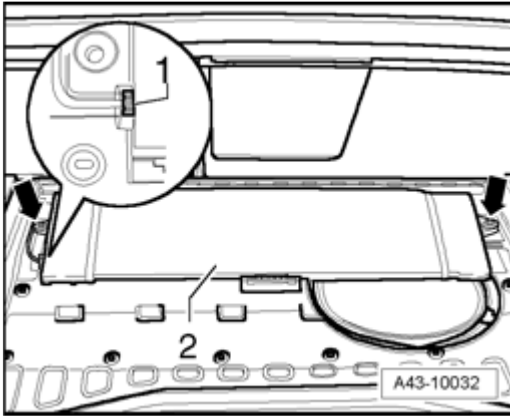


Fig. 517: Loosening Air Line On Pressure Reservoir And Letting Air Pressure Dissipate
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Slowly loosen air line - **1** - on pressure reservoir - **2** - and let air pressure dissipate. Once air pressure has dissipated, remove air line - **1** - .
- Remove bolts - **arrows** - and swivel pressure reservoir - **2** - 90 ° upward.

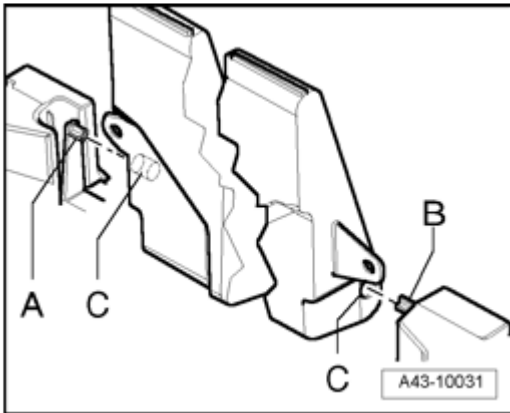


Fig. 518: Identifying Peg, Bores, And Pressure Reservoir
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Guide peg - **A** - and then peg - **B** - out of bores - **C** - and remove pressure reservoir.

Installing

Installation is in reverse order of removal. Note the following:

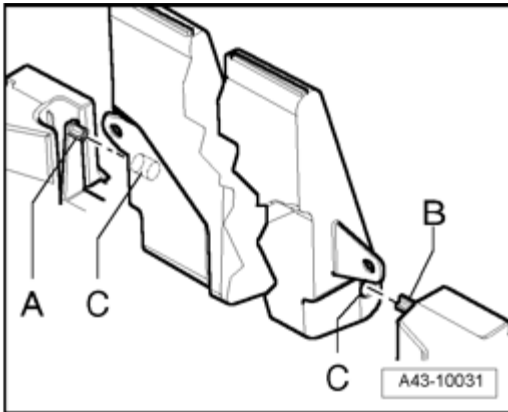


Fig. 519: Identifying Peg, Bores, And Pressure Reservoir
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert peg - **B** - first, then peg - **A** - into bores - **C** - and swivel pressure reservoir 90 ° into loading compartment.

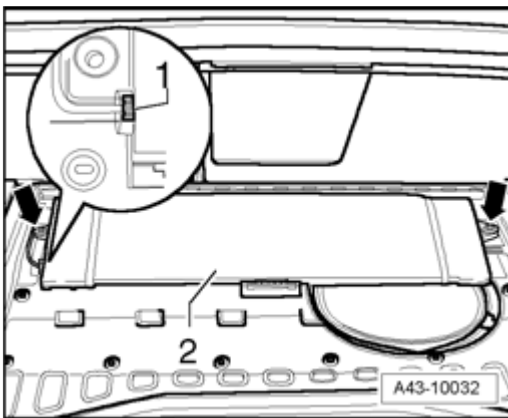


Fig. 520: Loosening Air Line On Pressure Reservoir And Letting Air Pressure Dissipate
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install bolts - **arrows** - and tighten to 4 Nm.
- Install air line - **1** - on pressure reservoir - **2** - and tighten **Tightening torques**.
- Position vehicle on its wheels --> **Placing vehicle onto lifting platform and onto wheels.**