



Repair Manual

Golf 2013 ➤

Golf Variant 2014 ➤

Brake System

Edition 03.2015





List of Workshop Manual Repair Groups

Repair Group

- 00 - General, Technical Data
- 45 - Antilock Brake System
- 46 - Mechanical Components
- 47 - Hydraulic Components

Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

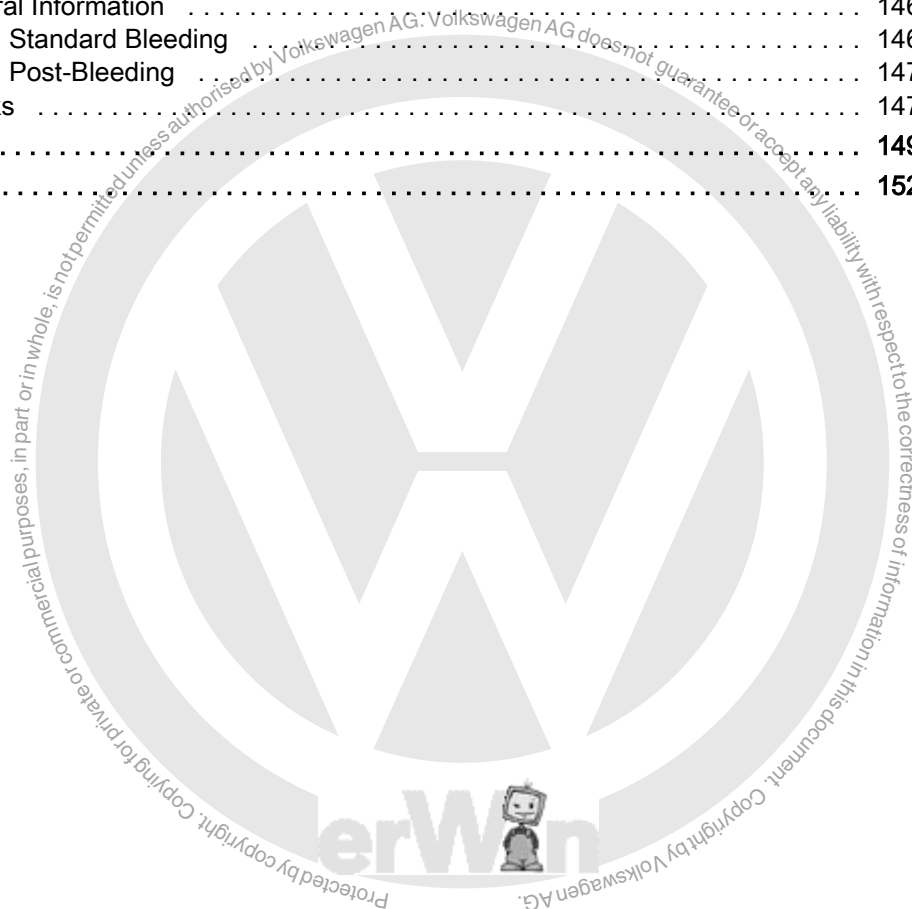


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00 – General, Technical Data

1 Safety Precautions

(Edition 03.2015)

⇒ [“1.1 Safety Precautions during Road Test with Testing Equipment”, page 1](#)

1.1 Safety Precautions during Road Test with Testing Equipment

There is a risk of injury caused by unsecured testing equipment.

If the front passenger airbag deploys during an accident, unsecured testing equipment becomes a dangerous projectile.

- Secure the testing equipment to the rear seat.

or

- Have a second person operate testing equipment on the rear seat.





2 Identification

⇒ "2.1 Brake PR Numbers", page 2

2.1 Brake PR Numbers

⇒ "2.1.1 Front Brakes", page 2

⇒ "2.1.2 Rear Brakes", page 2

2.1.1 Front Brakes

The PR number on the vehicle data label describes which brake system is installed in the vehicle.

There is a vehicle data label in the spare wheel well and also one in the customer Maintenance booklet.

- For information regarding each brake installed. Refer to ELSA/ vehicle-specific information.

In this example, the vehicle has "1KU" rear brakes.

- Allocation. Refer to the Parts Catalog.
- The following tables explain the PR numbers. These are important for the combination brake caliper/brake rotor and brake pad.

| PR-Nummern | Motorcode | Familie | Prüfung |
|------------|-----------|---------|---------|
| 1JA | L | ALZ | 1 |
| 1KU | L | QHW | 1 |
| 1LJ | L | QHW | 1 |
| 1M | L | QHW | 1 |
| N3 | L | QHW | 1 |

| Engine | PR Number | Front Brakes |
|--|---------------------------|--------------|
| 1.2L - 63; 77 kW TSI ¹⁾ 3) | 1ZF | FS III (15") |
| 1.6L -66; 77 kW TDI ¹⁾ 3) | | |
| 1.2L - 63; 77 kW TSI ¹⁾ 2) | 1ZE/1ZP | PC57 (15") |
| 1.4L - 90 kW TSI ¹⁾ | | |
| 1.4L - 103 kW TSI ¹⁾ | | |
| 1.6L -66; 77 kW TDI ¹⁾ 2) | | |
| 1.6L - 81 kW TDI ¹⁾ | | |
| 2.0L - 110 kW TDI | 1ZA/1ZD | PC57 (16") |
| 2.0L - 135 kW TDI | 1ZA/1ZD/1ZB ²⁾ | |
| 2.0L - 162 kW TSI | 1ZB | |
| 2.0L - 169 kW TSI | 1LJ | C60 (17") |
| 2.0L - 206; 213; 221 kW TSI | 1LM | |

1) Vehicles with adaptive chassis DCC receive the 16" brakes.

2) Through 11/04/2013

3) From 11/04/2013

4) Optional

2.1.2 Rear Brakes

The PR number on the vehicle data label describes which brake system is installed in the vehicle.

There is a vehicle data label in the spare wheel well and also one in the customer Maintenance booklet.



- For information regarding each brake installed. Refer to ELSA/ vehicle-specific information.

In this example, the vehicle has “1KU” rear brakes.

- ◆ Allocation. Refer to the Parts Catalog.
- ◆ The following tables explain the PR numbers. These are important for the combination brake caliper/brake rotor and brake pad.

| Engine | PR number | Rear Brakes |
|-----------------------------|-----------------------|---------------|
| 1.2L - 63 kW TSI | 1KE | FNC-M38 (15") |
| 1.2L - 77 kW TSI | | |
| 1.4L - 90 kW TSI | | |
| 1.4L - 103 kW TSI | | |
| 1.6L -66; 77; 81 kW TDI | | |
| 2.0L - 110 kW TDI | 1KE/1KV ²⁾ | FNC-M42 (17") |
| 2.0L - 135 kW TDI | | |
| 2.0L - 162 kW TSI | | |
| 2.0L - 169 kW TSI | | |
| 2.0L - 206; 213; 221 kW TSI | | |
| | 1KV | |
| | 1KJ | |
| | 1KY | |

²⁾ optional

Fahrzeugdaten

| | | | |
|-----------------|---------|--------------------------|---------------------------|
| Marken: | V | Fahrzeugidentifizierung: | WV0222942W000129 |
| Modelljahr: | 2008 | Produktionsdatum: | Tiguan Trendline TDI 140A |
| Verkaufsstelle: | 5010413 | Auslieferungsdatum: | 2007-05-04 |
| Modell: | CRAB | Leasing: | |
| GEK: | 200 | | |

Farbausstattung

| Typ | Farbcode | Lacknummer (Lack-ED-Nr.) | Beschreibung |
|-------------------------|----------|--------------------------|---|
| außen (Transserie/Gach) | 8E/8E | LA7W | Reflexsilber Metallic/Reflexsilber Metallic |
| innen | YY | | Consol. - - - - -schwarz/Schwarz |

Pr-Nummern

| Pr-Nummern | Herstellung | Familie | P |
|------------|-------------|---------|-----|
| 8 | 010 | L | HLZ |
| 9 | 018 | L | QHN |
| 10 | 147 | L | 815 |
| 11 | 100 | L | ANV |
| 12 | 100 | L | SZU |
| 13 | 100 | L | ANB |
| 14 | 101 | L | TVS |
| 15 | 100 | L | |
| 16 | 100 | L | |
| 17 | 100 | L | |
| 18 | 100 | L | BAH |
| 19 | 100 | L | BAV |
| 20 | 100 | L | BA |
| 21 | 100 | L | LEN |
| 22 | 100 | L | BA |
| 23 | 100 | L | BA |
| 24 | 100 | L | BA |
| 25 | 100 | L | BA |
| 26 | 100 | L | BA |

1JA L
1KU L
1LJ L
1M L
1N3 L

N00-10593



3 Technical Data

⇒ **"3.1 Brakes Technical Data", page 4**

3.1 Brakes Technical Data

⇒ **"3.1.1 Brake Master Cylinder and Brake Booster", page 4**

⇒ **"3.1.2 Front Brakes", page 4**

⇒ **"3.1.3 Rear Brakes", page 6**

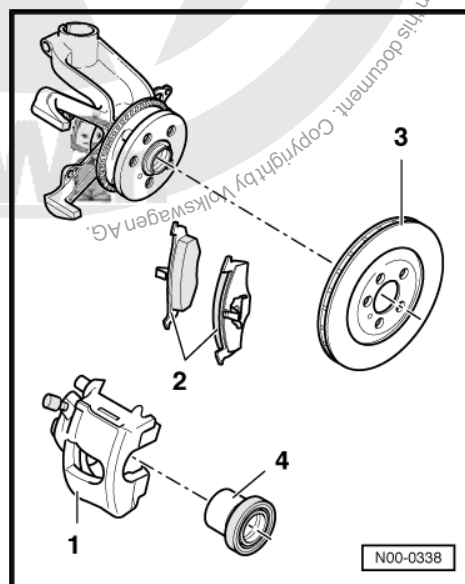
3.1.1 Brake Master Cylinder and Brake Booster

| | | |
|--|--------------------|---------------|
| Brake master cylinder, depending on the engine installed | diameter in mm | 23.81 or 25.4 |
| Brake booster, depending on the engine installed | Diameter in inches | 10 or 11 |

3.1.2 Front Brakes

Front brakes FS III (15"):

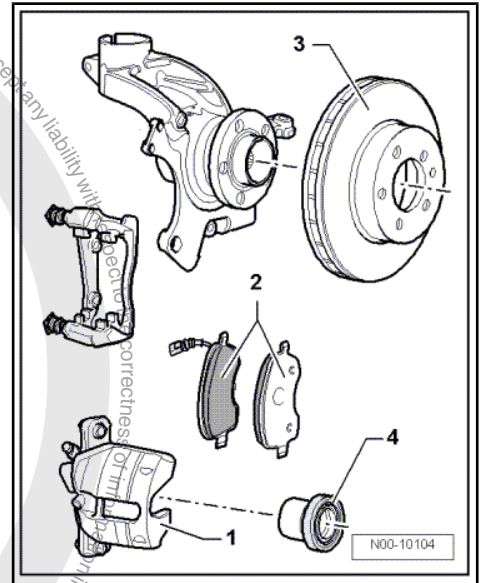
| Item | PR Number | | 1ZF |
|------|---|----------------|--------------|
| 1 | Brake Caliper | | FS III (15") |
| 2 | Brake pad, thickness | mm | 12 |
| | Brake pad, wear limit without backing plate | mm | 2 |
| 3 | Brake Rotor | diameter in mm | 276 |
| | Brake rotor, thickness | mm | 24 |
| | Brake rotor, wear limit | mm | 21 |
| 4 | Brake caliper, piston | diameter in mm | 57 |





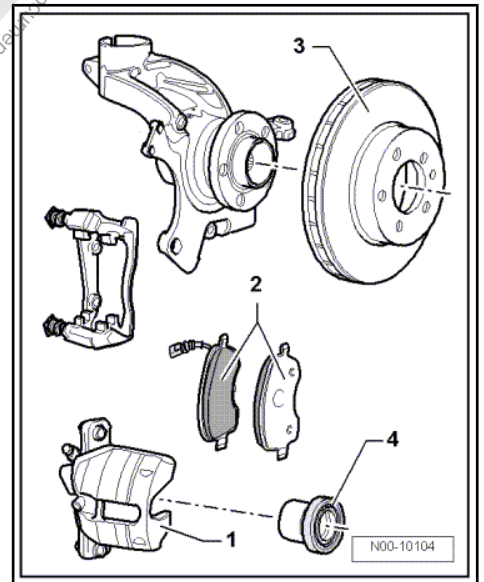
Front brakes PC57 (15"):

| Item | PR number | | 1ZE/1ZP |
|------|--|----------------|------------|
| 1 | Brake caliper | | PC57 (15") |
| 2 | Brake pad, thickness | mm | 14 |
| | Brake pad, wear limit without back plate | mm | 2 |
| 3 | Brake rotor | diameter in mm | 288 |
| | Brake rotor, thickness | mm | 25 |
| | Brake rotor, wear limit | mm | 22 |
| 4 | Brake caliper, piston | diameter in mm | 57 |



Front brakes PC57 (16"):

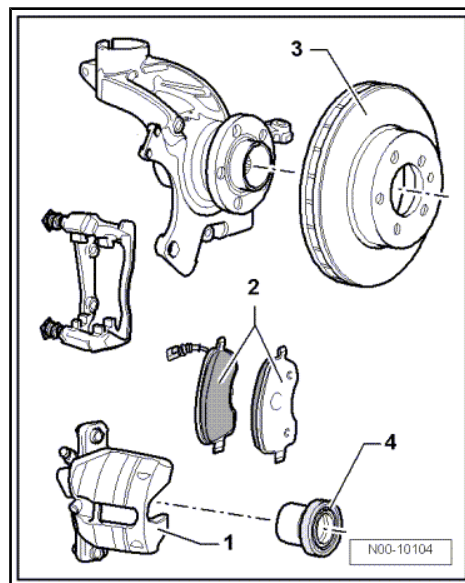
| Item | PR number | | 1ZA/1ZD/1ZB |
|------|--|----------------|-------------|
| 1 | Brake caliper | | PC57 (16") |
| 2 | Brake pad, thickness | mm | 14 |
| | Brake pad, wear limit without back plate | mm | 2 |
| 3 | Brake rotor | diameter in mm | 312 |
| | Brake rotor, thickness | mm | 25 |
| | Brake rotor, wear limit | mm | 22 |
| 4 | Brake caliper, piston | diameter in mm | 57 |





Front brakes C60 (17"):

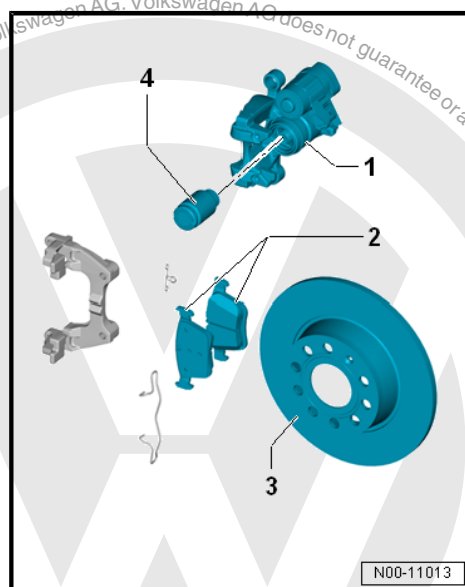
| Item | PR number | | 1LJ/1LM |
|------|--|----------------|-----------|
| 1 | Brake caliper | | C60 (17") |
| 2 | Brake pad, thickness | mm | 13 |
| | Brake pad, wear limit without back plate | mm | 2 |
| 3 | Brake rotor | diameter in mm | 340 |
| | Brake rotor, thickness | mm | 30 |
| | Brake rotor, wear limit | mm | 27 |
| 4 | Brake caliper, piston | diameter in mm | 60 |



3.1.3 Rear Brakes

Rear Brakes FNc-M38 (15"):

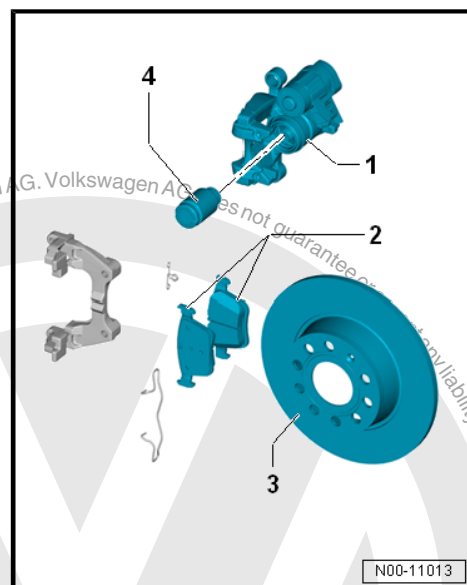
| Item | PR number | | 1KE/1KV |
|------|--|----------------|---------------|
| 1 | Brake caliper | | FNc-M38 (15") |
| 2 | Brake pad, thickness | mm | 11 |
| | Brake pad, wear limit without back plate | mm | 2 |
| 3 | Brake rotor | diameter in mm | 272 |
| | Brake rotor, thickness | mm | 10 |
| | Brake rotor, wear limit | mm | 8 |
| 4 | Brake caliper, piston | diameter in mm | 38 |





Rear brakes FNc-M42 (17"):

| Item | PR number | | 1KJ/1KY |
|------|--|----------------|---------------|
| 1 | Brake caliper | | FNc-M42 (17") |
| 2 | Brake pad, thickness | mm | 11 |
| | Brake pad, wear limit without back plate | mm | 2 |
| 3 | Brake rotor | diameter in mm | 310 |
| | Brake rotor, thickness | mm | 22 |
| | Brake rotor, wear limit | mm | 20 |
| 4 | Brake caliper, piston | diameter in mm | 42 |





4 Brakes Inspection

⇒ [“4.1 General Information”, page 8](#)

⇒ [“4.2 Front Wheel Drive Vehicles, Checking”, page 8](#)

⇒ [“4.3 AWD Vehicles, Checking”, page 8](#)

⇒ [“4.4 Parking Brake, Checking”, page 9](#)

4.1 General Information

- ◆ The testing takes place on a test stand.
- ◆ When testing, manual transmission vehicles must be in idle and automatic transmission vehicles must be in driving position N.
- ◆ Always follow the instructions provided by the test stand manufacturer.



Note

Brake regulation system does not function with ignition off.

4.2 Front Wheel Drive Vehicles, Checking

The brake test is to be performed on a one-axle roller test stand.

Do not exceed a test speed of 6 km/h.

Volkswagen approved test stands meet these requirements.

4.3 AWD Vehicles, Checking

⇒ [“4.3.1 Controlled Opposite-Running Test Stand”, page 8](#)

⇒ [“4.3.2 Without Test Stand”, page 9](#)

4.3.1 Controlled Opposite-Running Test Stand



Note

With AWD, Testing with a Controlled Opposite-Running One-Axle Dynamometer

“Moving in opposite directions” means: The rollers on the one-axle roller test stand turn forward on the one side and backward on the other side.

During this test, the wheels of one axle are driven in opposite directions, to prevent delivering power to the other axle.

“Controlled” means: The speed of the test stand rollers must be regulated in such a way as to avoid any speed difference during the brake test.

The transferring of a force to the rolling wheels in the roller set is prevented by the stationary wheel (outside of the roller set) via the drive harness.

During testing, the wheel turning forward is measured, therefore two braking test are necessary on each axle.

Do not exceed a test speed of 6 km/h.

Volkswagen approved test stands meet these requirements.



4.3.2 Without Test Stand



Note

With AWD, Testing with Standard One-Axle Dynamometer

- Drive the vehicle forward onto the rollers.
- Turn off the engine and wait 2 seconds.
- Perform the braking test.
- Start the engine and wait approximately 5 seconds until there is enough vacuum.
- Drive the vehicle forward until the rear wheels are standing on the rollers.
- Turn off the engine and wait 2 seconds.
- Perform the braking test for the rear brakes.
- Start the engine and wait approximately 5 seconds until there is enough vacuum.

4.4 Parking Brake, Checking

➔ ["4.4.2 Electromechanical Parking Brake, Checking, AWD Vehicles", page 10](#)

➔ ["4.4.1 Electromechanical Parking Brake, Checking, FWD Vehicles", page 9](#)

4.4.1 Electromechanical Parking Brake, Checking, FWD Vehicles

Activating »TÜV mode«:

- The seat belt is on.
- Rear axle in the one-axle roller test stand
- The ignition remains on.
- Auto Hold is off.
- The front wheel must not be moving.
- The rear wheel must rotate for at least 5 seconds non-stop between 2.5 and 9 km/h

»TÜV mode« is indicated when the yellow Electric Parking/Hand Brake Malfunction Indicator Lamp - K214- comes on.



Note

The electromechanical parking brake does not close completely the first time the »TÜV mode« button is pressed.

Operating the Electric Parking/Hand Brake Malfunction Indicator Lamp - E538- four times increases the tension.

Operating the Electromechanical Parking Brake Button - E538- a fifth time releases the electromechanical parking brake.

Ending »TÜV mode«:

- Front wheels, speed greater than 0 km/h
- Rear wheels, speed less than 2.5 km/h or greater than 9 km/h



- Ignition off.

4.4.2 Electromechanical Parking Brake, Checking, AWD Vehicles

Activating »TÜV mode«:

- The seat belt is on.
- Rear axle in the one-axle roller test stand
- The engine is off and the ignition is on.
- Auto Hold is off.
- The front wheel must not be moving.
- The rear wheel must rotate for at least 5 seconds non-stop between 2.5 and 9 km/h

»TÜV mode« is indicated when the yellow Electric Parking/Hand Brake Malfunction Indicator Lamp - K214- comes on.



Note

The electromechanical parking brake does not close completely the first time the »TÜV mode« button is pressed.

Operating the Electric Parking/Hand Brake Malfunction Indicator Lamp - E538- four times increases the tension.

Operating the Electromechanical Parking Brake Button - E538- a fifth time releases the electromechanical parking brake.

- Start the engine and wait approximately 5 seconds until there is enough vacuum.

Ending »TÜV mode«:

- Front wheels, speed greater than 0 km/h
- Rear wheels, speed less than 2.5 km/h or greater than 9 km/h
- Ignition off.



45 – Antilock Brake System

1 General Information

⇒ [“1.1 ABS Repair Instructions”, page 11](#)

1.1 ABS Repair Instructions

The ABS brake system is divided diagonally (two circuits). The vacuum brake servo unit boosts the brakes pneumatically.

Models with ABS do not have a mechanical brake pressure regulator. A specially coordinated software program in the control module determines brake pressure allocation at the rear axle.



Note

ABS malfunctions do not affect the brake system and the booster. Conventional brake system stays operative even without ABS. A change in braking behavior should be checked. When the ABS indicator lamp is lit up, the rear wheels may lock prematurely during braking!

ABS Layout

1 - Hydraulic unit and control module

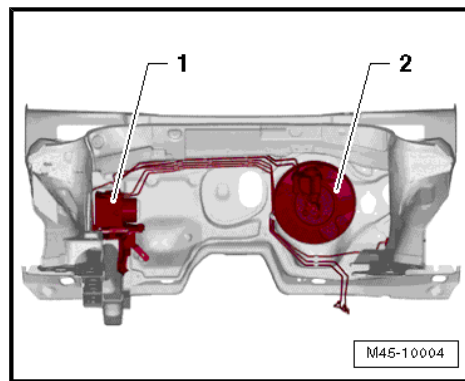
2 - Brake Booster

The control module and hydraulic unit form one component. Separation can only be performed when removed from vehicle. The hydraulic pump must also not be separated from the hydraulic unit.

- ◆ Before carrying out repair work on the anti-lock braking system, as well as the control module coding, determine the cause of the malfunction using "guided fault finding".

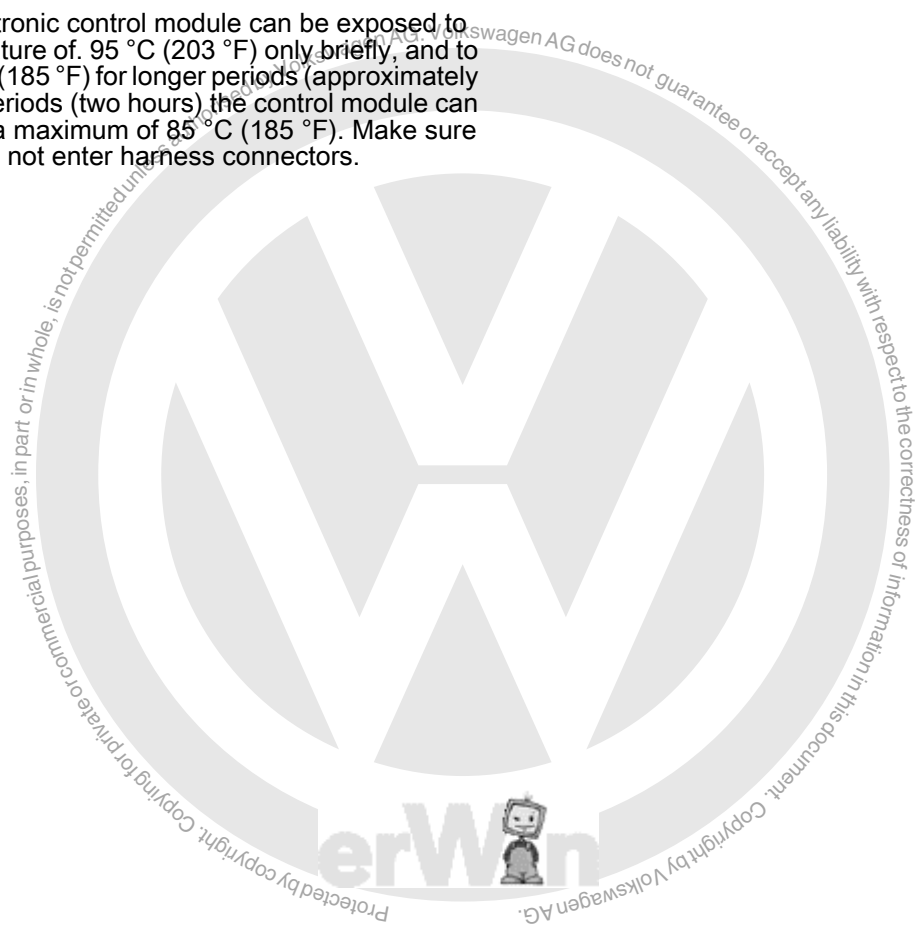
Performs "Guided Fault Finding" using the -Vehicle diagnostic tester- .

- ◆ Turn off the ignition and disconnect the battery ground cable.
- ◆ Carry out before welding with an electric welding tool. Refer to ⇒ General Information; Body Repairs, Body Collision Repair .
- ◆ When working with brake fluid, observe relevant safety precautions and notes. Refer to ⇒ ["6.1 Brake Fluid General Information", page 146](#) .
- ◆ After finishing any work that required opening the brake system, bleed the brake system using the Brake Charger/Bleeder Unit -VAS5234- . Refer to ⇒ ["6.2 Hydraulic System, Standard Bleeding", page 146](#) .
- ◆ During final road test, carry out at least one ABS-controlled braking operation (appropriate pulsations must be felt at brake pedal).
- ◆ Absolute cleanliness is required when working on the anti-lock brake system. Do not use any 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 the removed parts on a clean surface and cover them.
- ◆ Carefully cover or seal open components, if repairs are not carried out immediately. (Use plugs from repair set 1-H0 698 311 A)
- ◆ Only use lint-free cloths.
- ◆ Only unpack replacement parts immediately prior to installation.
- ◆ Only use parts in their original packaging.
- ◆ If the system is open, do not work with compressed air and do not move the vehicle.
- ◆ The valve coils inside the control module cannot be adjusted.
- ◆ The valve coils inside the control module cannot be replaced.
- ◆ The pressure sensor must be changed or damaged.





- ◆ The pressure sensor cannot be replaced.
- ◆ Do not place anything on the sensor housing.
- ◆ It is not possible to perform any measurements on the contacts inside the control module.
- ◆ It is not possible to perform any measurements on the contacts inside the hydraulic unit.
- ◆ The valve bodies inside the hydraulic unit must not be damaged or bent.
- ◆ The contacts cannot be replaced.
- ◆ Do not use contact spray on the contacts and pressure sensor.
- ◆ Make sure there are no foreign objects between the control module and the hydraulic unit.
- ◆ When painting, electronic control module can be exposed to a maximum temperature of 95 °C (203 °F) only briefly, and to a maximum of 85 °C (185 °F) for longer periods (approximately 2 hours). For long periods (two hours) the control module can only be exposed to a maximum of 85 °C (185 °F). Make sure that brake fluid does not enter harness connectors.





2 Component Location Overview

⇒ ["2.1 Overview - ABS/ESP", page 14](#)

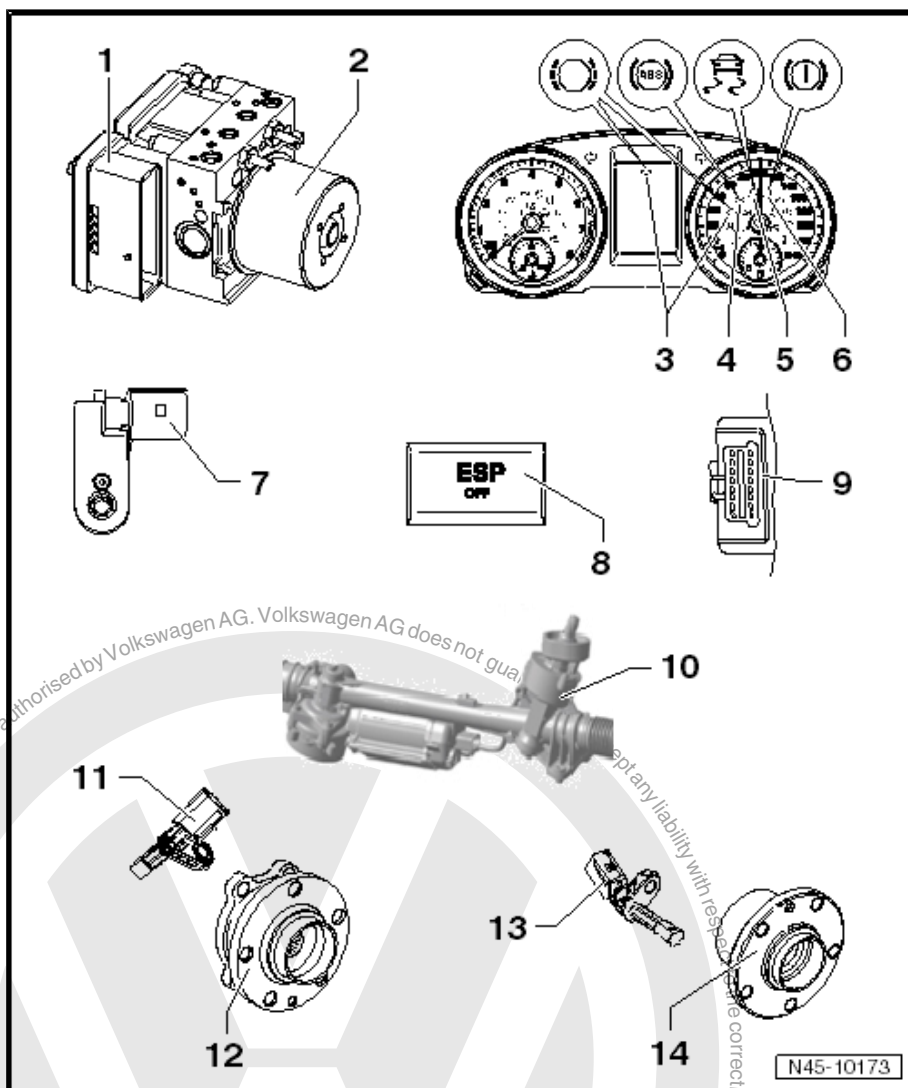
2.1 Overview - ABS/ESP

1 - ABS Control Module - J104-

- ❑ Component location: in the hydraulic unit in the motor compartment on the front passenger side.
- ❑ Do not disconnect connector before successfully completing On Board Diagnostic (OBD). Turn off the ignition before disconnecting the connector.

The following components are integrated inside the control module:

- ◆ Electromechanical Parking Brake Control Module - J540-
- ◆ Transverse Acceleration Sensor - G200-
- ◆ Rotation Rate Sensor - G202-
- ◆ Longitudinal Acceleration Sensor - G251- (depending on vehicle equipment)
- ◆ The components cannot be replaced individually.
 - ❑ Removing and installing. Refer to ["3.2.1 ABS Control Module and ABS Hydraulic Unit, Removing and Installing, LHD, Gasoline Engine", page 20](#).



2 - ABS Hydraulic Unit - N55-

- ❑ Component location: in the engine compartment on the front passenger side

The hydraulic unit consists of the components:

- ◆ ABS Hydraulic Pump - V64-
- ◆ Brake Pressure Sensor 1 - G201-
- ◆ Valve block (contains inlet and outlet valves)
 - ❑ The ABS Hydraulic Pump - V64- and valve block must not be separated from one another.
 - ❑ Removing and installing. Refer to ["3.2.1 ABS Control Module and ABS Hydraulic Unit, Removing and Installing, LHD, Gasoline Engine", page 20](#).

3 - Brake Pad Wear Indicator Lamp - K32-

- ❑ Component location: inside the instrument cluster

4 - ABS Indicator Lamp - K47-

- ❑ Component location: inside the instrument cluster



5 - ASR/ESP Indicator Lamp - K155-

- ☐ Component location: inside the instrument cluster

6 - Brake System Indicator Lamp - K118-

- ☐ Component location: inside the instrument cluster

7 - Brake Lamp Switch - F-

- ☐ Installed location: on the master brake cylinder
- ☐ Removing and installing. Refer to ⇒ ["3.2.1 Brake Lamp Switch, Removing and Installing", page 102](#) .

8 - TASR/ESP Button - E256-

- ☐ Two versions, two component locations:
- ◆ As a button in the center console
- ◆ via the functioning surfaces in the Infotainment system menu
- ☐ ASR/ESP Button - E256- in the center console removing and installing. Refer to ⇒ Electrical Equipment; Rep. Gr. 96 ; Controls; ASR/ESP Button - E256- , Removing and Installing .

9 - Diagnostic Connection

- ☐ Installed location: Driver side footwell cover

10 - Steering Angle Sensor - G85-

- ☐ Installed location: inside the steering gear
- ☐ The Steering Angle Sensor - G85- cannot be replaced separately.
- ☐ Steering removing and installing. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48 ; Steering Gear; Steering Gear, Removing and Installing .

11 - Right Front ABS Wheel Speed Sensor - G45- / Left Front ABS Wheel Speed Sensor - G47-

- ☐ Removing and installing. Refer to ⇒ ["4.1 Overview - Front Axle Speed Sensor", page 46](#) .

12 - Wheel Hub with Wheel Bearing

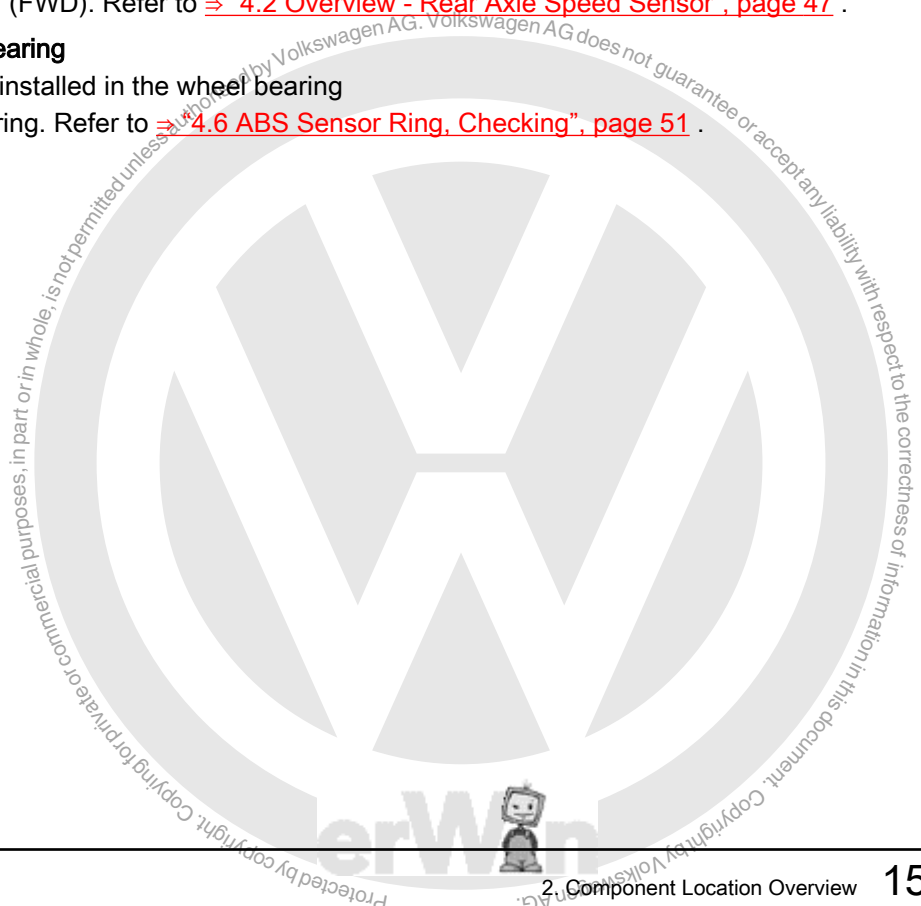
- ☐ The ABS sensor ring is installed in the wheel bearing
- ☐ Check the ABS sensor ring. Refer to ⇒ ["4.6 ABS Sensor Ring, Checking", page 51](#) .

13 - Right Rear ABS Wheel Speed Sensor - G44- / Left Rear ABS Wheel Speed Sensor - G46-

- ☐ Removing and installing (FWD). Refer to ⇒ ["4.2 Overview - Rear Axle Speed Sensor", page 47](#) .

14 - Wheel Hub with Wheel Bearing

- ☐ The ABS sensor ring is installed in the wheel bearing
- ☐ Check the ABS sensor ring. Refer to ⇒ ["4.6 ABS Sensor Ring, Checking", page 51](#) .





3 Control Module and Hydraulic Unit

⇒ ["3.1 Overview - Control Module and Hydraulic Unit", page 16](#)

⇒ ["3.2 ABS Control Module J104 / ABS Hydraulic Unit N55, Removing and Installing", page 20](#)

⇒ ["3.5 Brake Lines, Attaching to Hydraulic Unit", page 43](#)

⇒ ["3.3 Control Module, Separating from Hydraulic Unit", page 41](#)

⇒ ["3.4 Control Module, Attaching to Hydraulic Unit", page 42](#)

3.1 Overview - Control Module and Hydraulic Unit

⇒ ["3.1.1 Overview - Control Module and Hydraulic Unit", page 16](#)

3.1.1 Overview - Control Module and Hydraulic Unit

1 - ABS Control Module - J104-

- ❑ Removing and installing. Refer to
⇒ ["3.2.1 ABS Control Module and ABS Hydraulic Unit, Removing and Installing, LHD, Gasoline Engine", page 20](#).

2 - ABS Hydraulic Unit - N55-

- ❑ Removing and installing. Refer to
⇒ ["3.2.1 ABS Control Module and ABS Hydraulic Unit, Removing and Installing, LHD, Gasoline Engine", page 20](#).

3 - TORX® Screw

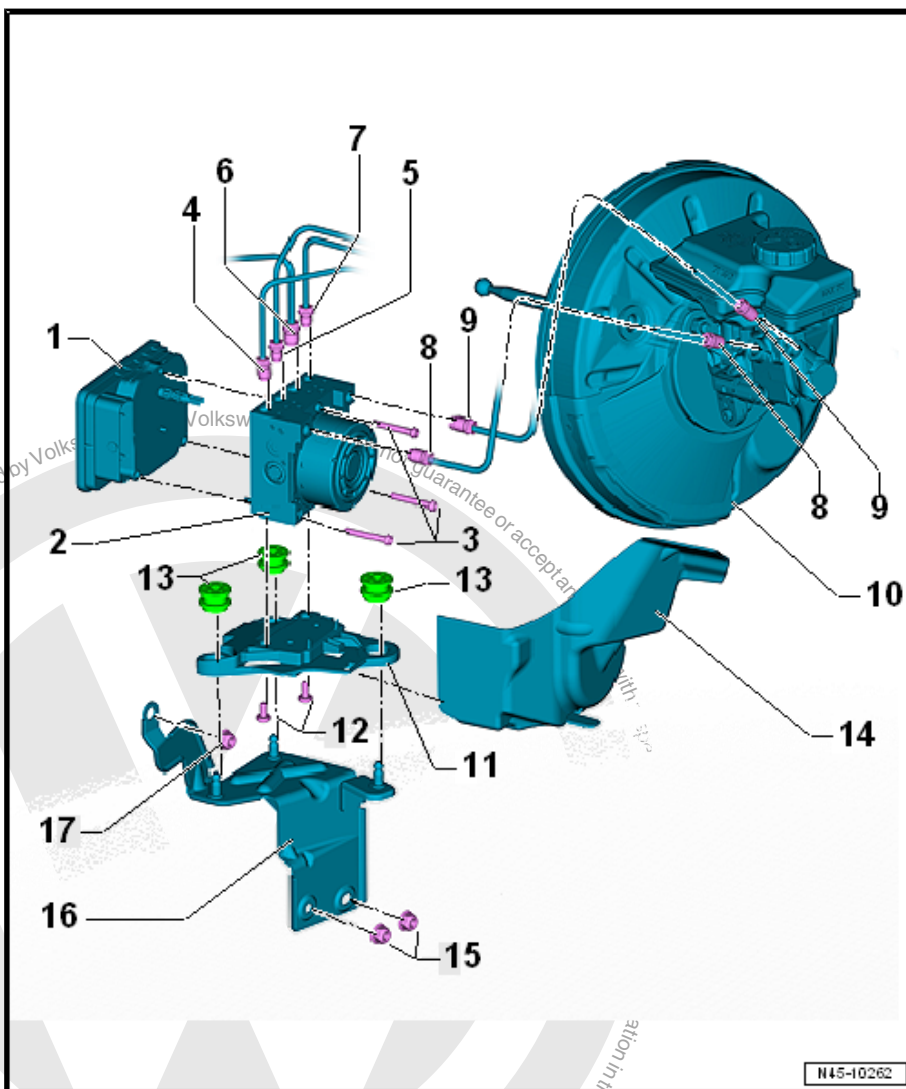
- ❑ Step 1: temporary tightening specification: 1 Nm to 1.5 Nm (to install the seal)
- ❑ Step 2: final tightening specification: 2.5 Nm
- ❑ Install the new TORX® bolts in two steps switching back and forth.

4 - Brake Line

- ❑ 14 Nm
- ❑ To the right rear brake caliper
- ❑ Identification: 5.25 mm diameter and tube fitting with thread M 12 x 1

5 - Brake Line

- ❑ 14 Nm





- ☐ To the left front brake caliper
- ☐ Identification: 5.25 mm diameter and tube fitting with thread M 10 x 1

6 - Brake Line

- ☐ 14 Nm
- ☐ To the right front brake caliper
- ☐ Identification: 5.25 mm diameter and tube fitting with thread M 12 x 1

7 - Brake Line

- ☐ 14 Nm
- ☐ To the left rear brake caliper
- ☐ Identification: 5.25 mm diameter and tube fitting with thread M 10 x 1

8 - Brake Line

- ☐ 14 Nm
- ☐ Master brake cylinder/primary piston circuit to hydraulic control unit
- ☐ Identification: Diameter 6 mm and tube fitting with thread M 12 x 1

9 - Brake Line

- ☐ 14 Nm
- ☐ Master brake cylinder/secondary piston circuit to hydraulic unit
- ☐ Identification: Diameter 6 mm and tube fitting with thread M 12 x 1

10 - Brake Booster

- ☐ Removing and installing. Refer to ⇒ ["3.3.1 Brake Booster, Removing and Installing", page 105](#) .

11 - Bracket

12 - TORX® Screw

- ☐ 8 Nm

13 - Rubber Insulation

- ☐ When installing the mount, make sure the rubber bushing does not push out of the bracket. Make sure the ABS Hydraulic Unit - N55- is secure after installing it otherwise malfunctions can occur.

14 - Heat Shield

Allocation. Refer to the Parts Catalog.

15 - Nut

- ☐ 20 Nm

16 - Bracket

17 - Nut

- ☐ 20 Nm

3.1.2 Overview - Control Module and Hydraulic Unit, RHD

1 - Brake Line

- ☐ Brake master cylinder/secondary piston circuit to hydraulic unit
- ☐ Identification: 6 mm diameter and tube fitting with a M12 x 1 thread
- ☐ Repairing the brake lines. Refer to [⇒ "5.1 Brake Lines, Repairing", page 142](#) .
- ☐ 14 Nm

2 - Brake Line

- ☐ Brake master cylinder/primary piston circuit to hydraulic unit
- ☐ Identification: 6 mm diameter and tube fitting with a M12 x 1 thread
- ☐ Repairing the brake lines. Refer to [⇒ "5.1 Brake Lines, Repairing", page 142](#) .
- ☐ 14 Nm

3 - Brake Line

- ☐ To the right rear brake caliper
- ☐ Identification: 5.25 mm diameter and tube fitting with a M12 x 1 thread
- ☐ Repairing the brake lines. Refer to [⇒ "5.1 Brake Lines, Repairing", page 142](#) .
- ☐ 14 Nm

4 - Brake Line

- ☐ To the left front brake caliper
- ☐ Identification: 5.25 mm diameter and tube fitting with a M10 x 1 thread
- ☐ Repairing the brake lines. Refer to [⇒ "5.1 Brake Lines, Repairing", page 142](#) .
- ☐ 14 Nm

5 - Brake Line

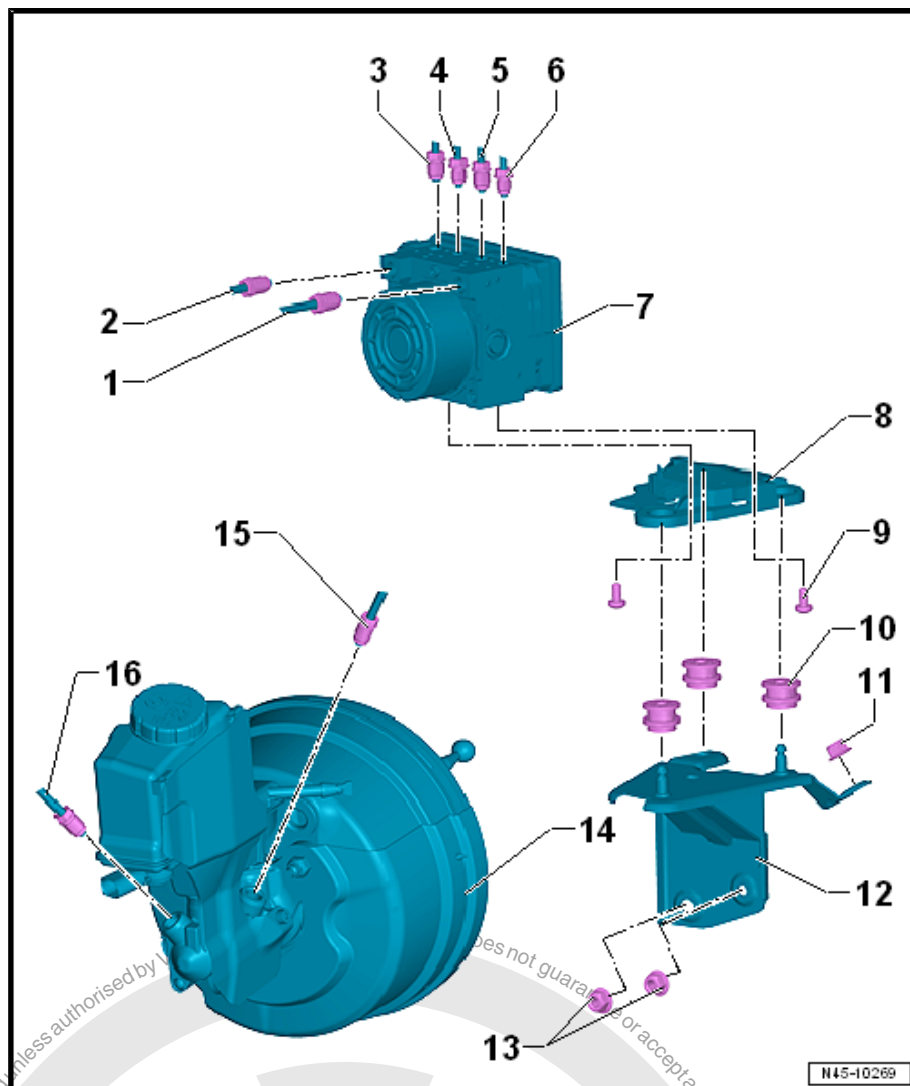
- ☐ To the right front brake caliper
- ☐ Identification: 5.25 mm diameter and tube fitting with a M12 x 1 thread
- ☐ Repairing the brake lines. Refer to [⇒ "5.1 Brake Lines, Repairing", page 142](#) .
- ☐ 14 Nm

6 - Brake Line

- ☐ To the left rear brake caliper
- ☐ Identification: 5.25 mm diameter and tube fitting with a M10 x 1 thread
- ☐ Repairing the brake lines. Refer to [⇒ "5.1 Brake Lines, Repairing", page 142](#) .
- ☐ 14 Nm

7 - ABS Hydraulic Unit - N55- with ABS Control Module - J104-

- ☐ Component location overview. Refer to [⇒ "2 Component Location Overview", page 14](#) .





- ☐ Removing and Installing. Refer to
⇒ [“3.2.5 ABS Control Module and ABS Hydraulic Unit, Removing and Installing, RHD”, page 37](#) .
- ☐ Disconnecting the ABS Control Module - J104- from the ABS Hydraulic Unit - N55- . Refer to
⇒ [“3.3 Control Module, Separating from Hydraulic Unit”, page 41](#) .
- ☐ Install the ABS Control Module - J104- on the ABS Hydraulic Unit - N55- . Refer to
⇒ [“3.4 Control Module, Attaching to Hydraulic Unit”, page 42](#) .
- ☐ Connecting the brake lines. Refer to ⇒ [“3.5.1 Brake Lines, Attaching to Hydraulic Unit”, page 43](#) .

8 - Bracket

- ☐ after installing, make sure it fits properly

9 - Screw

- ☐ 8 Nm

10 - Rubber Bushing

- ☐ When installing the mount, make sure the rubber bushing does not push out of the bracket. Make sure the ABS Hydraulic Unit - N55- is secure after installing it otherwise malfunctions can occur.

11 - Nut

- ☐ 20 Nm

12 - Bracket

13 - Nut

- ☐ 20 Nm

14 - Brake Booster with Master Brake Cylinder

- ☐ Overview - Brake Booster/Brake Master Cylinder. Refer to
⇒ [“3.1 Overview - Brake Booster/Master Brake Cylinder”, page 98](#) .
- ☐ Checking the brake booster. Refer to ⇒ [“4.4 Vacuum System, Checking”, page 137](#) .
- ☐ Brake booster, removing and installing on vehicles with diesel engine. Refer to
⇒ [“3.3.2 Brake Booster, Removing and Installing, RHD with Diesel Engine”, page 110](#) .
- ☐ Brake booster removing and Installing on vehicles with 1.2L and 1.4L gasoline engine. Refer to
⇒ [“3.3.3 Brake Booster, Removing and Installing, RHD vehicles with 1.2L and 1.4L Gasoline Engines”, page 119](#) .
- ☐ Brake master cylinder, removing and installing. Refer to
⇒ [“3.4.2 Brake Master Cylinder, Removing and Installing, RHD Vehicles”, page 130](#) .

15 - Brake Line

- ☐ Brake master cylinder/primary piston circuit to hydraulic unit
- ☐ Identification: 6 mm diameter and tube fitting with a M12 x 1 thread
- ☐ Repairing the brake lines. Refer to ⇒ [“5.1 Brake Lines, Repairing”, page 142](#) .
- ☐ 14 Nm

16 - Brake Line

- ☐ Brake master cylinder/secondary piston circuit to hydraulic unit
- ☐ Identification: 6 mm diameter and tube fitting with a M12 x 1 thread
- ☐ Repairing the brake lines. Refer to ⇒ [“5.1 Brake Lines, Repairing”, page 142](#) .
- ☐ 14 Nm



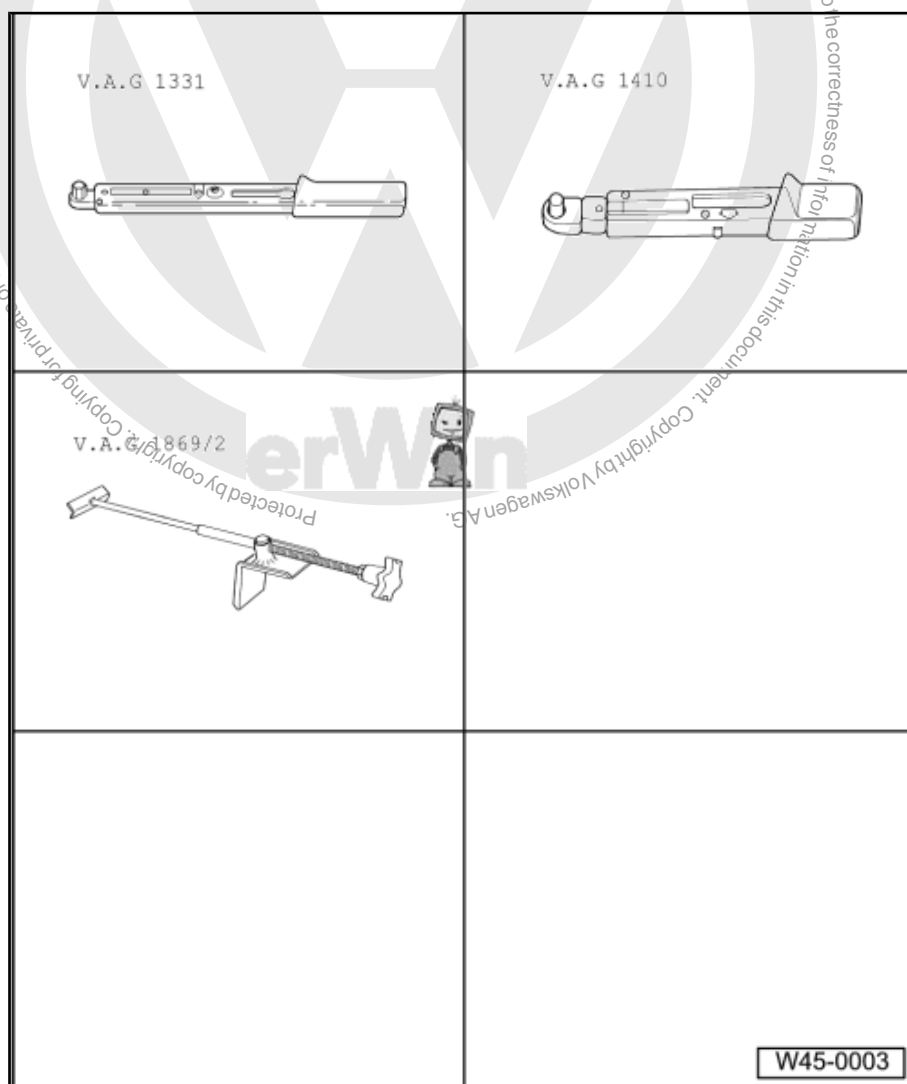
3.2 ABS Control Module - J104- / ABS Hydraulic Unit - N55- , Removing and Installing

⇒ "3.2.4 ABS Control Module and ABS Hydraulic Unit, Removing and Installing", page 34

3.2.1 ABS Control Module and ABS Hydraulic Unit, Removing and Installing, LHD, Gasoline Engine

Special tools and workshop equipment required

- ◆ Torque Wrench 1331
5-50Nm - VAG1331-
- ◆ Torque Wrench 1410 -
VAG1410-
- ◆ Brake Pedal Actuator -
VAG1869/2- .

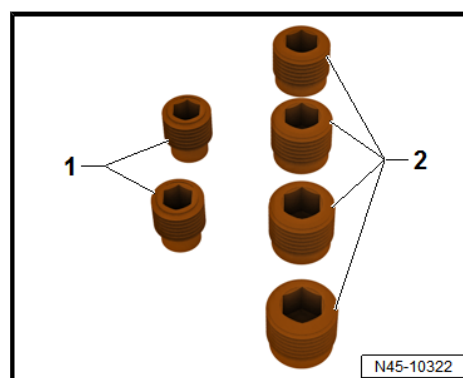


Plugs 5Q0 698 311

- 1 - M10 Plug
- 2 - M12 Plug

Removing

Component Location:



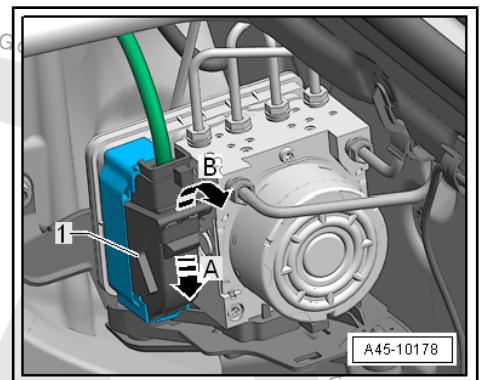
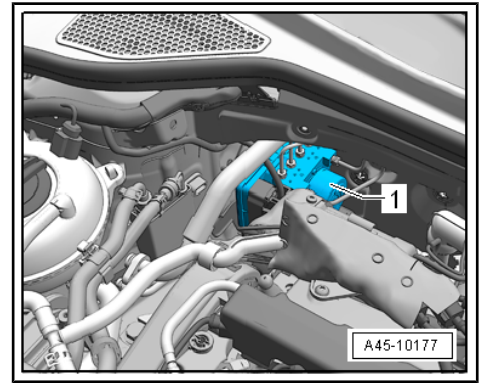


The control module is bolted to the hydraulic unit and is located at right in the engine compartment.

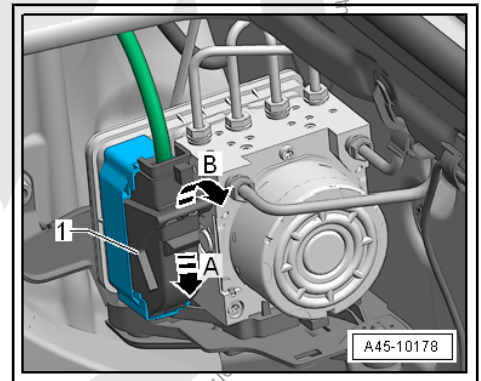
! NOTICE

Risk of destroying the brake lines by bending.

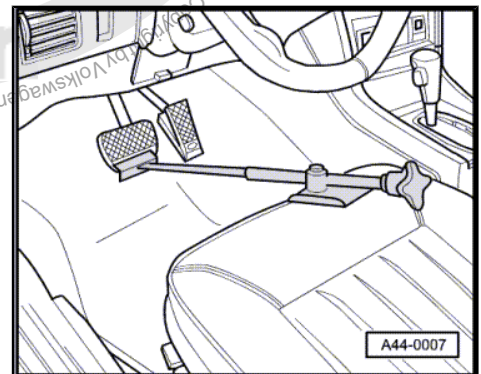
- **Never forcefully bend the brake lines in the hydraulic unit area.**
- Read and note the present control module code.
- On vehicles with a coded radio, note the code. Retrieve it if necessary.
- Disconnect the battery. Refer to ➤ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .
- For vehicles with a heat shield, remove the heat shield.
- Press the locking mechanism downward -arrow A-



- Release the connector -arrow B-
- Remove the connector -1-

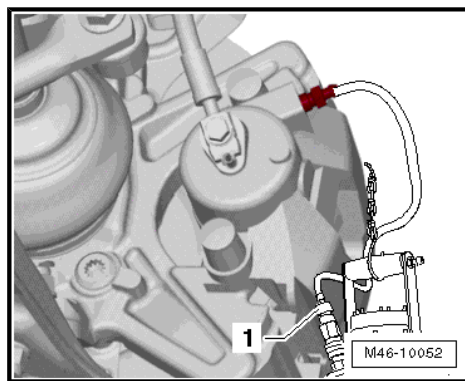


- Insert the Brake Pedal Actuator -VAG1869/2-

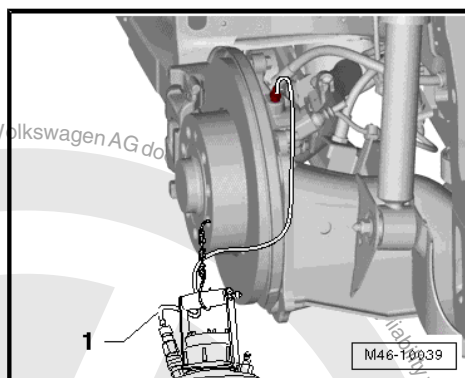




- Attach the bleeder bottle bleed hose -1- to the left front brake caliper bleed valve.
- Open the bleeder valve.



- Attach the bleeder bottle bleed hose -1- to the left rear brake caliper bleed valve.
- Open the bleeder valve.
- Push the brake pedal at least 60 mm using the Brake Pedal Actuator - VAG1869/2- .
- Close the left front and left rear bleeder valves.
- Do not remove the Brake Pedal Actuator - VAG1869/2- .



Note

Make sure no brake fluid gets on the contacts.

- Remove the cover from the bulkhead and unclip the brake lines.
- First, mark both brake lines from the brake master cylinder and remove from the hydraulic unit.
- Immediately seal the threaded holes with the plugs from the assembly repair kit 5Q0 698 311.
- Mark the remaining brake lines (brake calipers), remove them and seal off the threaded holes.
- Pull the hydraulic unit with the control module upward out of the shock absorbers -arrow-.

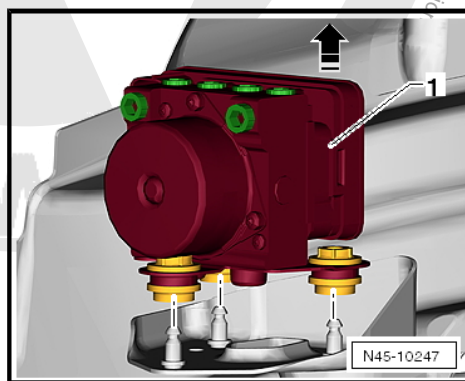
Installing

Install in reverse order of removal while paying attention to the following:



Note

- ◆ *Only remove the plugs on the new hydraulic unit if the corresponding brake line is installed.*
- ◆ *If the plugs are removed too early from the hydraulic unit, brake fluid can escape and the unit may not be sufficiently filled or adequately bled.*
- ◆ *When installing the hydraulic unit, make sure that the rubber bushings are not pushed out of the bracket.*

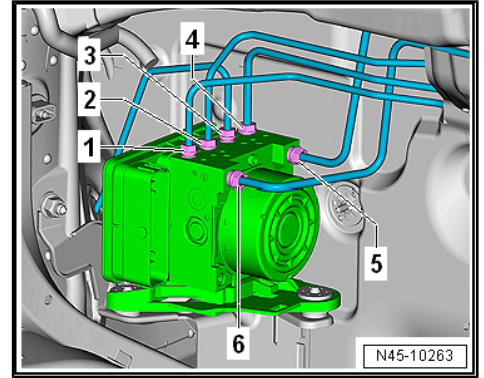




Brake Line Tightening Sequence:

- Remove the Brake Pedal Actuator - VAG1869/2- .
- Bleed the brake system. Refer to
⇒ ["6.2 Hydraulic System, Standard Bleeding", page 146](#) .
- Code the radio.
- Code the ABS Control Module -J104- using the ⇒ Vehicle diagnostic tester in "Guided Fault Finding".

While doing so, a basic setting for the Steering Angle Sensor - G85- , Transverse Acceleration Sensor - G200- , Longitudinal Acceleration Sensor - G251- and Brake Pressure Sensor 1 - G201- must be performed.



Tightening Specifications



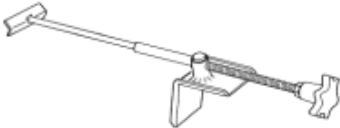
- ◆ ⇒ ["3.1.1 Overview - Control Module and Hydraulic Unit", page 16](#)
- ◆ Battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Overview - Battery .
- ◆ Front bleeder valve. Refer to
⇒ ["1.1 Overview - Front Brake Caliper", page 91](#) .
- ◆ Rear bleeder valves. Refer to
⇒ ["2.1 Overview - Rear Brake Caliper", page 95](#) .

3.2.2 ABS Control Module and ABS Hydraulic Unit, Removing and Installing, LHD, Diesel Engine



Special tools and workshop equipment required

- ◆ Torque Wrench 1331
5-50Nm - VAG1331-
- ◆ Torque Wrench 1410 -
VAG1410-
- ◆ Brake Pedal Actuator -
VAG1869/2- .

| | |
|---|---|
| <p>V.A.G 1331</p>  | <p>V.A.G 1410</p>  |
| <p>V.A.G 1869/2</p>  | |
| | <p>W45-0003</p> |

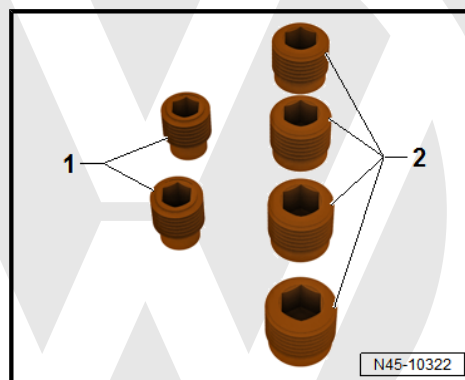
Plugs 5Q0 698 311

1 - M10 Plug

2 - M12 Plug

Removing

Component Location:



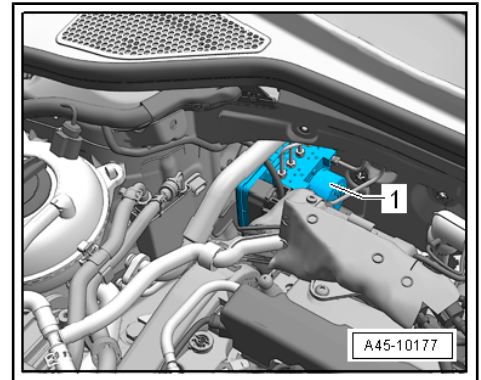


The control module is bolted to the hydraulic unit -1- and is located in the engine compartment on the right side.

NOTICE

Risk of destroying the brake lines by bending.

- **Never forcefully bend the brake lines in the hydraulic unit area.**
- Read and note the present control module code.
- On vehicles with a coded radio, note the code. Retrieve it if necessary.
- Disconnect the battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .
- Remove the engine cover.

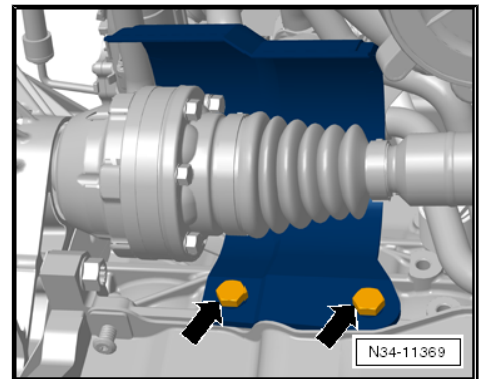


Diesel Engine with Particulate Filter:

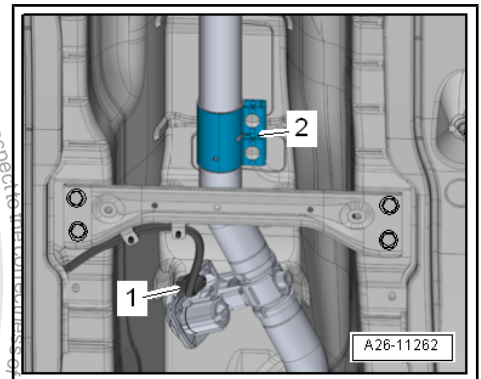
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Noise Insulation; Overview - Noise Insulation .
- Remove the driveshaft heat shield -arrows-, if equipped. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Driveshaft; Driveshaft Heat Shield, Removing and Installing .

For Vehicles with Parking/Auxiliary Heater:

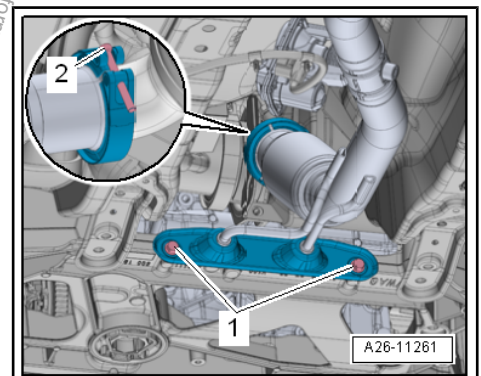
- Remove the front exhaust pipe. Refer to ⇒ Rep. Gr. 26 ; Exhaust Pipes/Mufflers; Front Exhaust Pipe, Removing and Installing .



- Disconnect the connector -1-.
- Loosen the clamping sleeve -2- and slide it toward the rear.



- Remove the bolts -1-.
- Loosen the bolt -2- and remove the clamp.
- Remove the front exhaust pipe.

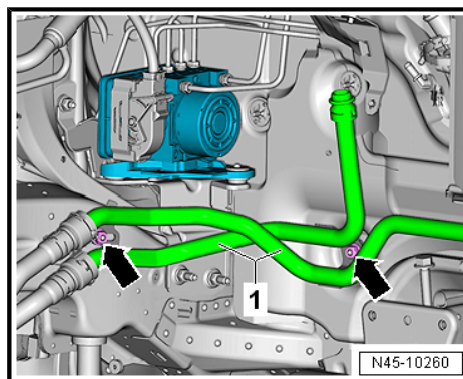




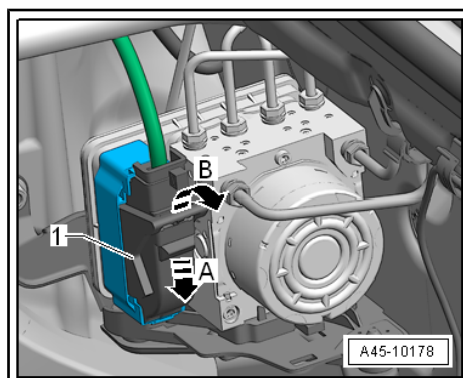
- Remove both nuts -arrows- from the brackets for the coolant line -1- on the longitudinal member and the bulkhead.
- Remove the bracket from the pins. Then pull the coolant lines as far downward as possible.

Continuation for all vehicles:

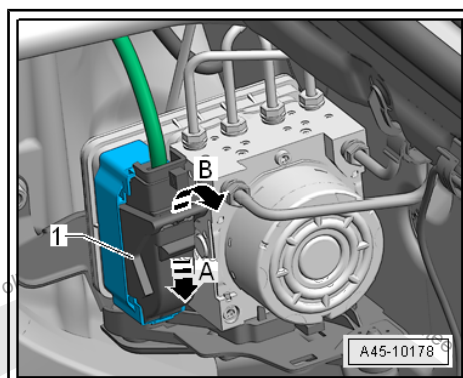
- For vehicles with a heat shield, remove the heat shield.
- Unclip the wiring guide.



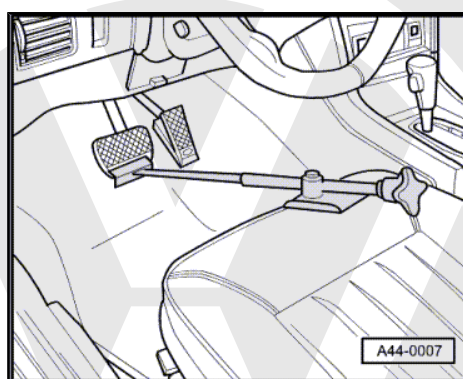
- Press the locking mechanism downward -arrow A-.



- Release the connector -arrow B-.
- Remove the connector -1-.

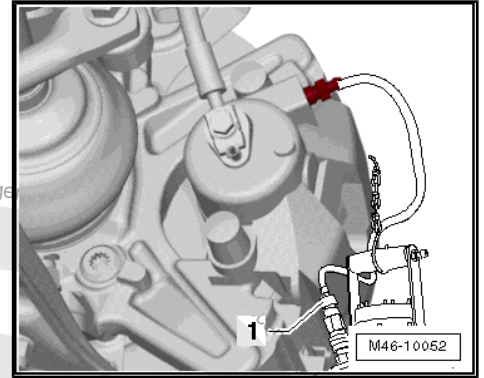


- Insert the Brake Pedal Actuator - VAG1869/2- .

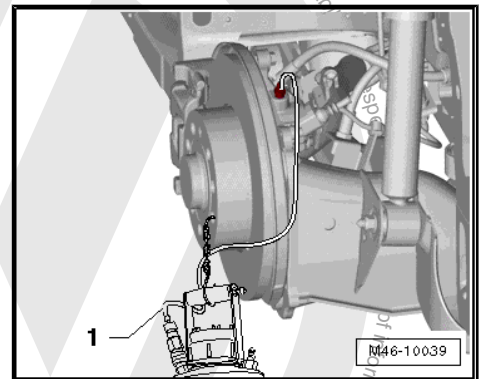




- Attach the bleeder bottle bleed hose -1- to the left front brake caliper bleed valve.
- Open the bleeder valve.



- Attach the bleeder bottle bleed hose -1- to the left rear brake caliper bleed valve.
- Open the bleeder valve.
- Push the brake pedal at least 60 mm using the Brake Pedal Actuator - VAG1869/2-.
- Close the left front and left rear bleeder valves.
- Do not remove the Brake Pedal Actuator - VAG1869/2-.
- Place enough lint-free cloths under the control module and hydraulic unit.



Note

Make sure that no brake fluid gets into the contacts.

- Remove the cover from the bulkhead and unclip the brake lines.
- First, mark both brake lines from the brake master cylinder and remove from the hydraulic unit.
- Immediately seal the threaded holes with the plugs from the assembly repair kit 5Q0 698 311.
- Mark the remaining brake lines (brake calipers), remove them and seal off the threaded holes.
- Pull the hydraulic unit with the control module upward out of the shock absorbers -arrow-.
- Carefully place the hydraulic unit with the control module at the bottom of the engine compartment.

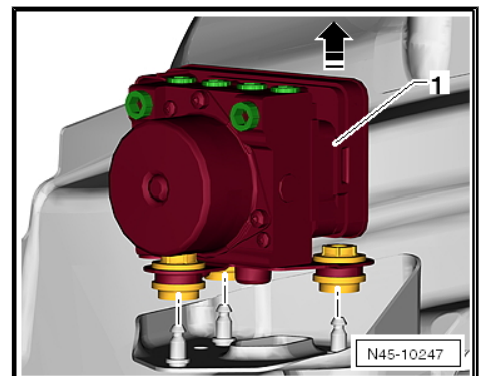


Note

Position the ABS Hydraulic Unit - N55- with the ABS Control Module - J104- so that it cannot fall down.

- Raise the vehicle.

For Vehicles with Parking/Auxiliary Heater:





- Remove the bracket in the vehicle from the hydraulic unit -arrows-.
- Guide out the hydraulic unit from the vehicle.

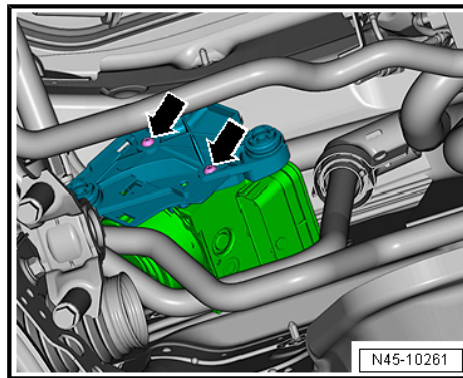
Installing

Install in reverse order of removal while paying attention to the following:



Note

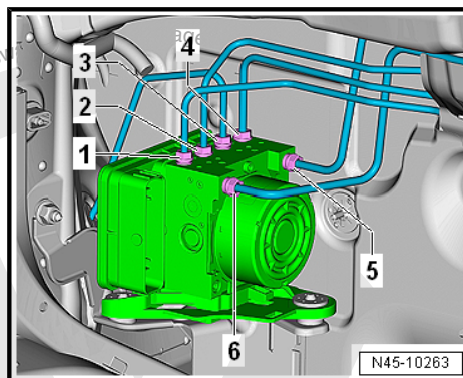
- ◆ *Only remove the plugs on the new hydraulic unit if the corresponding brake line is installed.*
- ◆ *If the plugs are removed too early from the hydraulic unit, brake fluid can escape and the unit may not be sufficiently filled or adequately bled.*
- ◆ *When installing the hydraulic unit, make sure that the rubber bushings are not pushed out of the bracket.*



Brake Line Tightening Sequence:

- Remove the Brake Pedal Actuator - VAG1869/2- .
- Bleed the brake system. Refer to
⇒ [“6.2 Hydraulic System, Standard Bleeding”, page 146](#) .
- Code the radio.
- Code the ABS Control Module -J104- using the ⇒ Vehicle diagnostic tester.

While doing so, a basic setting for the Steering Angle Sensor - G85- , Transverse Acceleration Sensor - G200- , Longitudinal Acceleration Sensor - G251- and Brake Pressure Sensor 1 - G201- must be performed.



Tightening Specifications



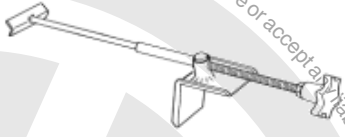
- ◆ ⇒ [“3.1.1 Overview - Control Module and Hydraulic Unit”, page 16](#)
- ◆ Battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Overview - Battery .
- ◆ Noise insulation bolts. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Noise Insulation; Overview - Noise Insulation .
- ◆ Front exhaust pipe. Refer to ⇒ Rep. Gr. 26 ; Exhaust Pipes/ Mufflers; Front Exhaust Pipe, Removing and Installing .
- ◆ Pendulum support. Refer to ⇒ Rep. Gr. 10 ; Subframe Mount; Overview - Subframe Mount .
- ◆ Front bleeder valve. Refer to
⇒ [“1.1 Overview - Front Brake Caliper”, page 91](#) .
- ◆ Rear bleeder valves. Refer to
⇒ [“2.1 Overview - Rear Brake Caliper”, page 95](#) .

3.2.3 Control Module and Hydraulic Unit, Removing and Installing, LHD, AWD Diesel Engine



Special tools and workshop equipment required

- ◆ Torque Wrench 1331
5-50Nm - VAG1331-
- ◆ Torque Wrench 1410 -
VAG1410-
- ◆ Brake Pedal Actuator -
VAG1869/2- .

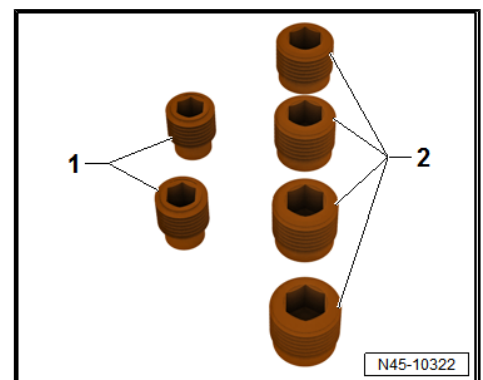
| | |
|---|---|
| <p>V.A.G 1331</p>  | <p>V.A.G 1410</p>  |
| <p>V.A.G 1869/2</p>  | |
| | <p>W45-0003</p> |

Plugs 5Q0 698 311

- 1 - M10 Plug
- 2 - M12 Plug

Removing

Component Location:



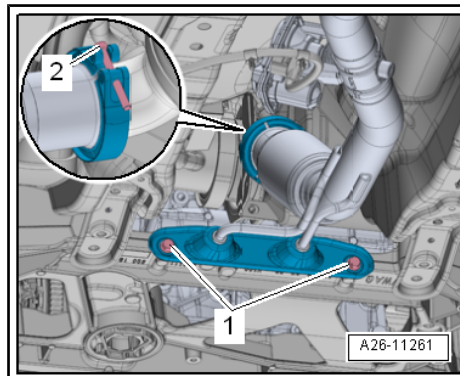
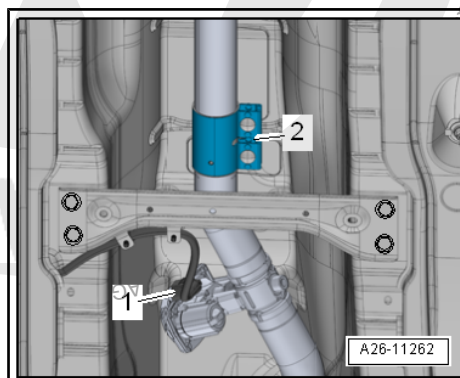
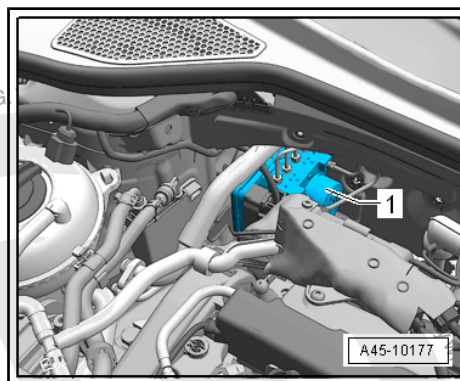


The control module is bolted to the hydraulic unit -1- and is located in the engine compartment on the right side.

NOTICE

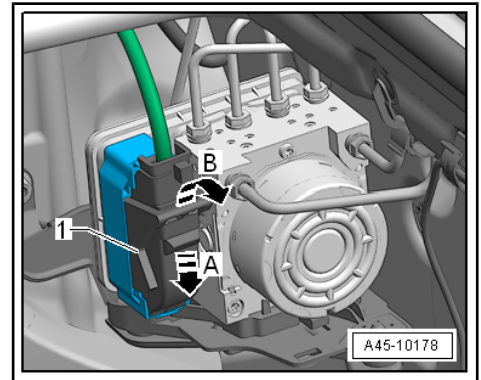
Risk of destroying the brake lines by bending.

- **Never forcefully bend the brake lines in the hydraulic unit area.**
- Read and note the present control module code.
- On vehicles with a coded radio, note the code. Retrieve it if necessary.
- Disconnect the battery. Refer to ➤ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .
- Remove the engine cover.
- Remove the noise insulation. Refer to ➤ Body Exterior; Rep. Gr. 66 ; Noise Insulation; Overview - Noise Insulation .
- Remove the front exhaust pipe. Refer to ➤ Rep. Gr. 26 ; Exhaust Pipes/Mufflers; Front Exhaust Pipe, Removing and Installing .
- Disconnect the connector -1-.
- Loosen the clamping sleeve -2- and slide it toward the rear.
- Remove the bolts -1-.
- Loosen the bolt -2- and remove the clamp.
- Remove the front exhaust pipe.
- Remove the right driveshaft. Refer to ➤ Suspension, Wheels, Steering; Rep. Gr. 40 ; Driveshaft; Driveshaft, Removing and Installing .
- Pivot the suspension strut to the rear and lock.
- For vehicles with a heat shield, remove the heat shield.
- Unclip the wiring guide.

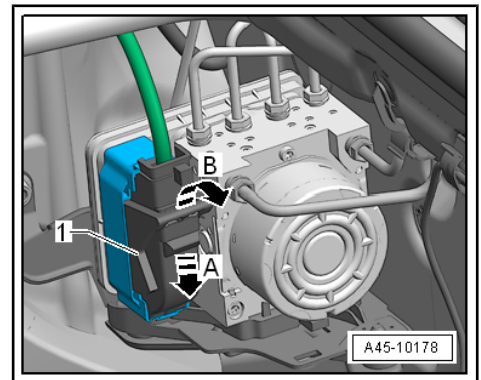




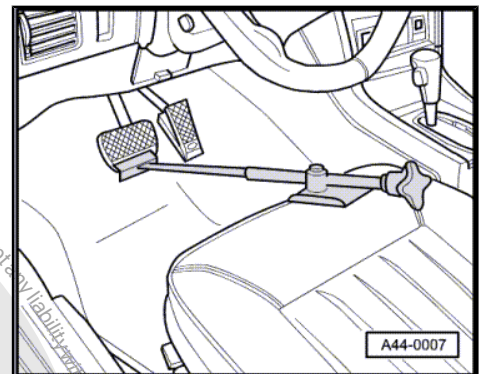
- Press the locking mechanism downward -arrow A-.



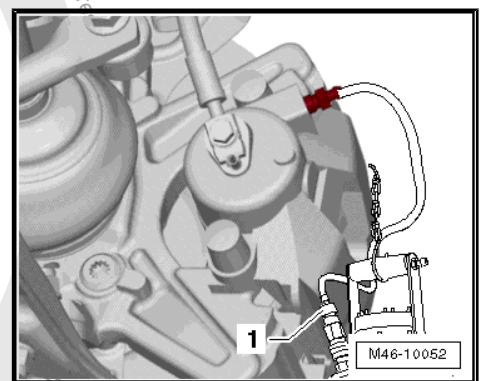
- Release the connector -arrow B-.
- Remove the connector -1-.



- Insert the Brake Pedal Actuator - VAG1869/2- .

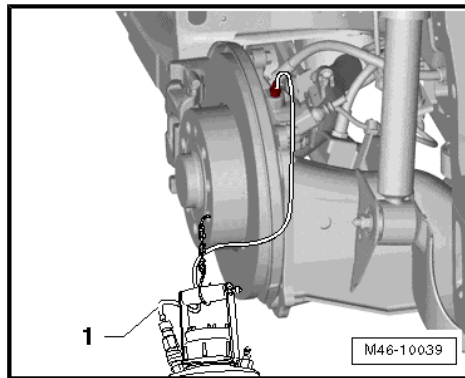


- Attach the bleeder bottle bleed hose -1- to the left front brake caliper bleed valve.
- Open the bleeder valve.





- Attach the bleeder bottle bleed hose -1- to the left rear brake caliper bleed valve.
- Open the bleeder valve.
- Push the brake pedal at least 60 mm using the Brake Pedal Actuator - VAG1869/2- .
- Close the left front and left rear bleeder valves.
- Do not remove the Brake Pedal Actuator - VAG1869/2- .
- Place enough lint-free cloths under the control module and hydraulic unit.



Note

Make sure that no brake fluid gets into the contacts.

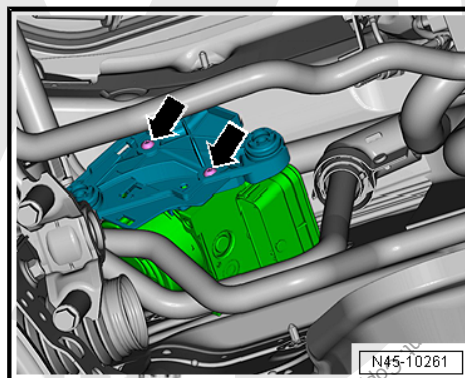
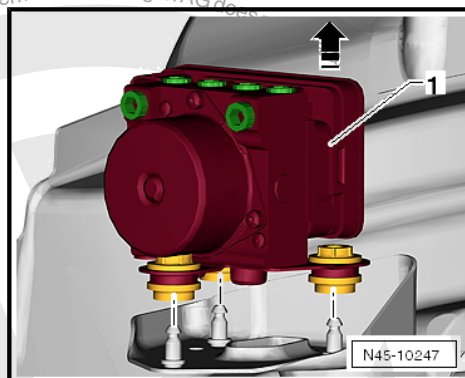
- Remove the cover from the bulkhead and unclip the brake lines.
- First, mark both brake lines from the brake master cylinder and remove from the hydraulic unit.
- Immediately seal the threaded holes with the plugs from the assembly repair kit 5Q0 698 311.
- Mark the remaining brake lines (brake calipers), remove them and seal off the threaded holes.
- Pull the hydraulic unit with the control module upward out of the shock absorbers -arrow-.
- Carefully place the hydraulic unit with the control module at the bottom of the engine compartment.



Note

Position the ABS Hydraulic Unit - N55- with the ABS Control Module - J104- so that it cannot fall down.

- Raise the vehicle.
- Remove the bracket in the vehicle from the hydraulic unit -arrows-.
- Pivot the suspension strut -1- to the side and toward the rear. Lock it in this position with a wooden block -2-.





- Guide out the hydraulic unit -3- out of the vehicle through the wheel housing.

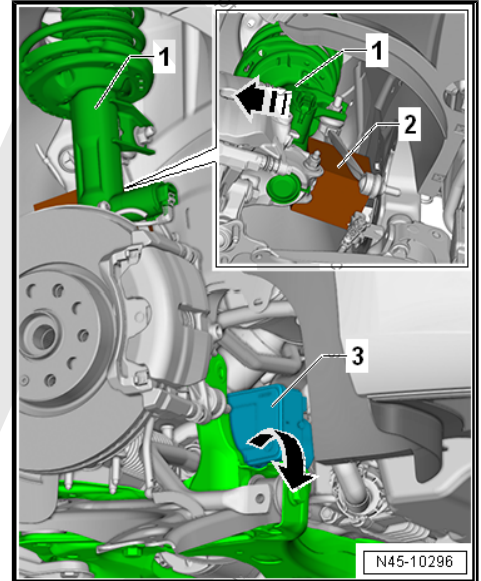
Installing

Install in reverse order of removal while paying attention to the following:



Note

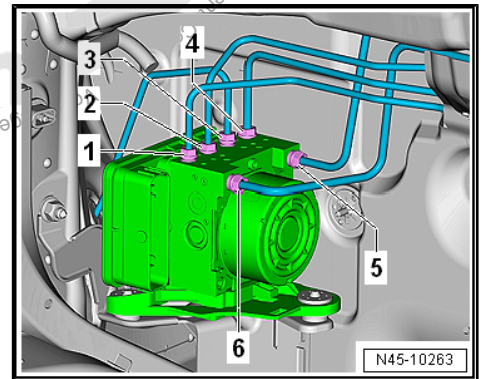
- ◆ Only remove the plugs on the new hydraulic unit if the corresponding brake line is installed.
- ◆ If the plugs are removed too early from the hydraulic unit, brake fluid can escape and the unit may not be sufficiently filled or adequately bled.
- ◆ When installing the hydraulic unit, make sure that the rubber bushings are not pushed out of the bracket.



Brake Line Tightening Sequence:

- Remove the Brake Pedal Actuator -VAG1869/2- .
- Bleed the brake system. Refer to
⇒ [“6.2 Hydraulic System, Standard Bleeding”, page 146](#) .
- Code the radio.
- Code the ABS Control Module -J104- using the ⇒ Vehicle diagnostic tester.

While doing so, a basic setting for the Steering Angle Sensor - G85- , Transverse Acceleration Sensor - G200- , Longitudinal Acceleration Sensor - G251- and Brake Pressure Sensor 1 - G201- must be performed.



Tightening Specifications

- ◆ ⇒ [“3.1.1 Overview - Control Module and Hydraulic Unit”, page 16](#)
- ◆ Battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Overview - Battery .
- ◆ Noise insulation bolts. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Noise Insulation; Overview - Noise Insulation .
- ◆ Front exhaust pipe. Refer to ⇒ Rep. Gr. 26 ; Exhaust Pipes/ Mufflers; Front Exhaust Pipe, Removing and Installing .
- ◆ Pendulum support. Refer to ⇒ Rep. Gr. 10 ; Subframe Mount; Overview - Subframe Mount .
- ◆ Driveshaft. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Driveshaft; Overview - Driveshaft .
- ◆ Lower control arm. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Lower Control Arm and Ball Joint; Overview - Lower Control Arm and Ball Joint .
- ◆ Front bleeder valve. Refer to
⇒ [“1.1 Overview - Front Brake Caliper”, page 91](#) .
- ◆ Rear bleeder valves. Refer to
⇒ [“2.1 Overview - Rear Brake Caliper”, page 95](#) .



3.2.4 ABS Control Module and ABS Hydraulic Unit, Removing and Installing

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Torque Wrench 1410 - VAG1410-
- ◆ Brake Pedal Actuator - VAG1869/2- .

Plug assembly part number 5Q0 698 311

1 - M10 plug

2 - M12 plug

Removing

Installed location:

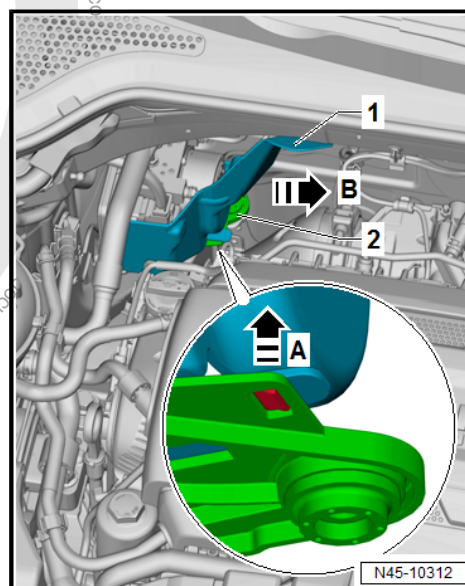
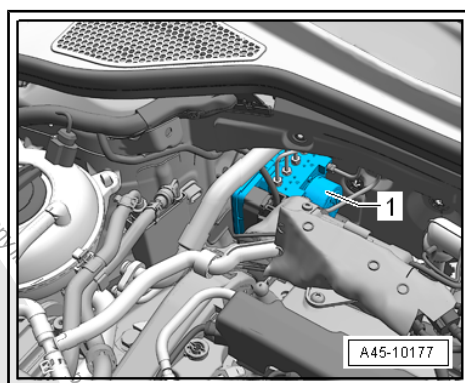
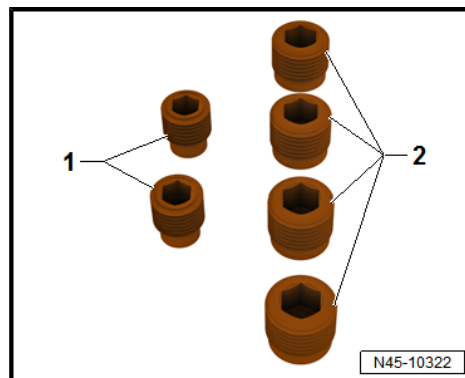
The control module is bolted to the hydraulic unit and is located at right in the engine compartment.



NOTICE

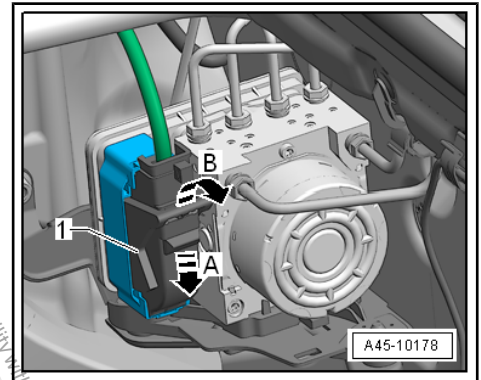
Risk of destroying the brake lines by bending.

- **Never forcefully bend the brake lines in the hydraulic unit area.**
- Read and note the present control module coding.
- If the vehicle has a coded radio, get the radio code from the customer before beginning.
- Disconnect the battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .
- Remove the heat shield -1- from the bracket -2-. Loosen the catch in the direction of the -arrow A- and remove the heat shield in the direction of the -arrow B-.

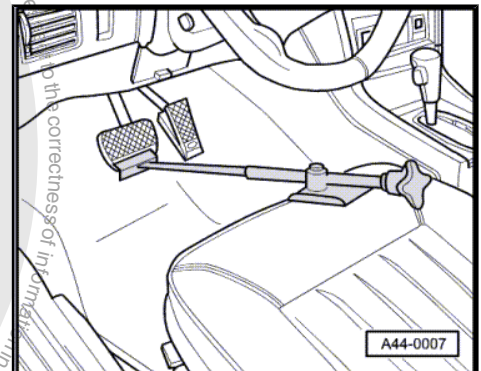




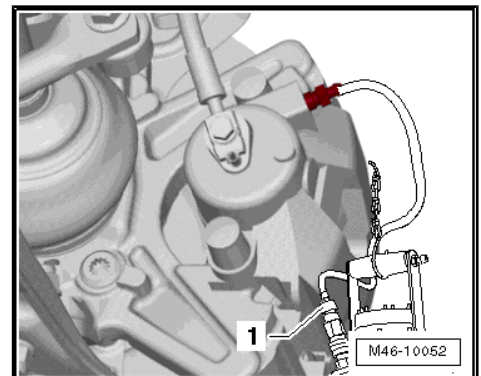
- Push down the lock washer in the direction of the -arrow A-.
- Release the connector -1- in the direction of the -arrow B- and remove from the control module.



Install the Brake Pedal Actuator - VAG1869/2- .

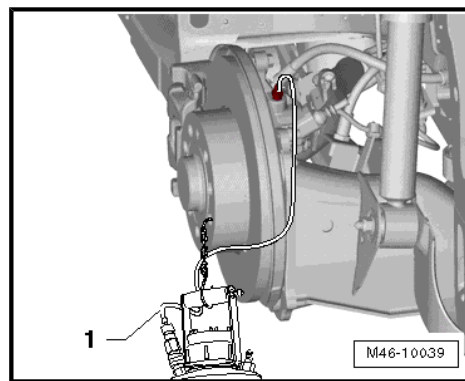


- Attach the bleeder bottle bleed hose -1- to the left front brake caliper bleed valve.
- Open the bleed valve.





- Attach the bleeder bottle bleed hose -1- to the left rear brake caliper bleed valve.
- Open the bleed valve.
- Push the brake pedal with the Brake Pedal Actuator - VAG1869/2- at least 60 mm.
- Close left front and left rear bleeder valves.
- Do not remove the Brake Pedal Actuator - VAG1869/2- .
- Place sufficient lint-free cloths under the control module and hydraulic unit.



Note

Pay attention that brake fluid does not get into the control module contacts and the connector.

- First, mark both brake lines from master cylinder and remove from the hydraulic unit.
- Seal the threaded holes immediately with plugs from the assembly part set part number 5Q0 698 311.
- Mark, remaining brake lines (brake calipers), unfasten and plug the threaded holes.
- Remove the ABS Hydraulic Unit - N55- with the bracket -1- upward in the direction of the -arrow- from the bracket.
- Remove the ABS Hydraulic Unit - N55- with the bracket -1- upward from the vehicle.

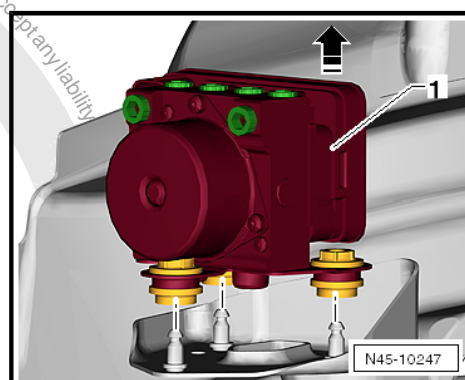
Installing

Install in reverse order of removal while paying attention to the following:



Note

- ◆ *Do not remove sealing plugs at new hydraulic unit until the corresponding brake line is about to be installed.*
- ◆ *If the sealing plugs are removed too early, brake fluid can escape and unit may not be sufficiently filled or adequately bled.*
- ◆ *When installing the hydraulic unit, make sure the damper rubber is not pushed out of the console.*





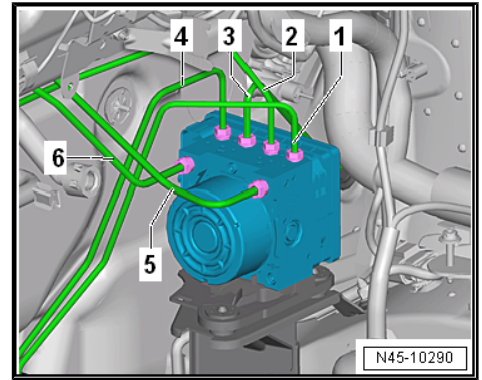
Brake Line Tightening Sequence

- Install the brake lines in the sequence -1- to -6-.
- Tighten the brake lines in the sequence -1- to -6-.
- Remove the Brake Pedal Actuator - VAG1869/2- .
- Bleed the brake system. Refer to
⇒ ["6.2 Hydraulic System, Standard Bleeding", page 146](#) .
- Enter radio code.
- Code the ABS Control Module - J104- using the -Vehicle Diagnostic Tester- in "Guided Fault Finding".

A Steering Angle Sensor - G85- , Transverse Acceleration Sensor - G200- , Longitudinal Acceleration Sensor - G251- and Brake Pressure Sensor 1 - G201- basic setting must be done.

Tightening Specifications

- ◆ Refer to
⇒ ["3.1.1 Overview - Control Module and Hydraulic Unit", page 16](#)
- ◆ Connect the battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .
- ◆ Front bleeder valve. Refer to
⇒ ["1.1 Overview - Front Brake Caliper", page 91](#) .
- ◆ Rear bleeder valves. Refer to
⇒ ["2.1 Overview - Rear Brake Caliper", page 95](#)

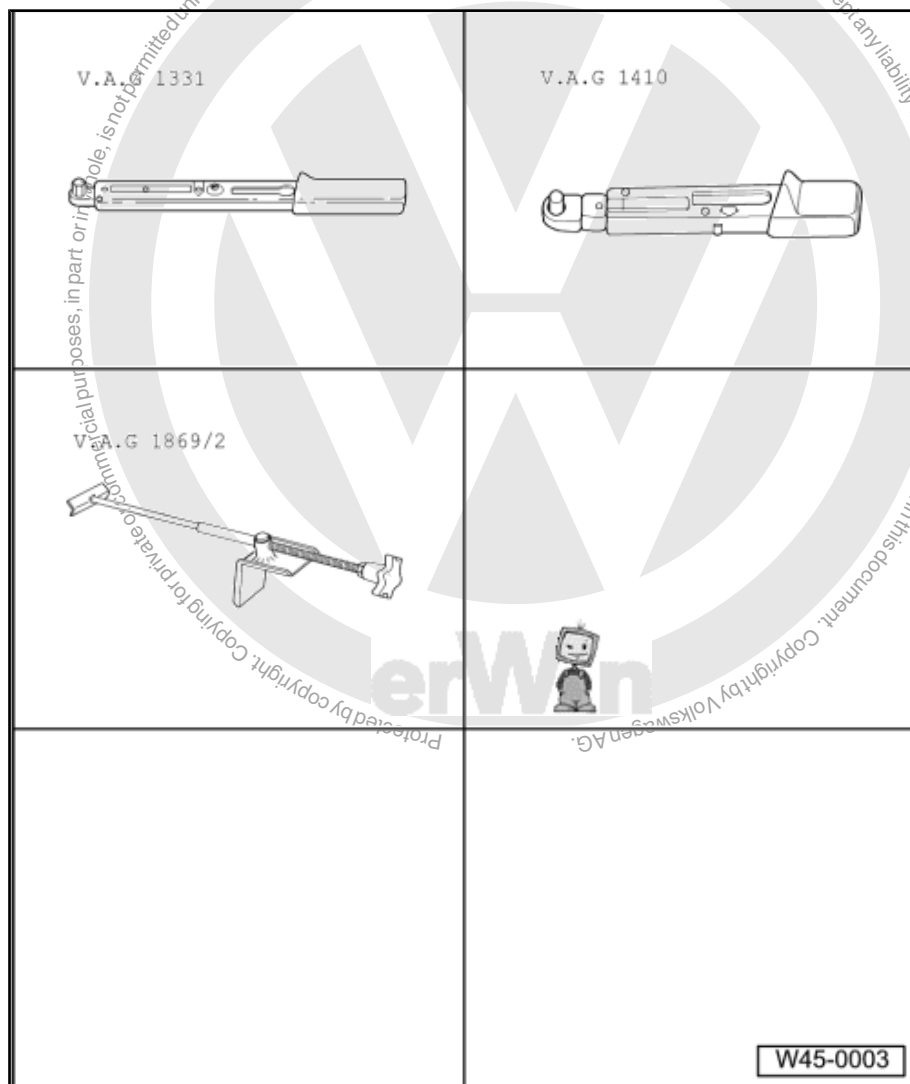


3.2.5 ABS Control Module and ABS Hydraulic Unit, Removing and Installing, RHD



Special tools and workshop equipment required

- ◆ Torque Wrench 1331
5-50Nm - VAG1331-
- ◆ Torque Wrench 1410 -
VAG1410-
- ◆ Brake Pedal Actuator -
VAG1869/2- .

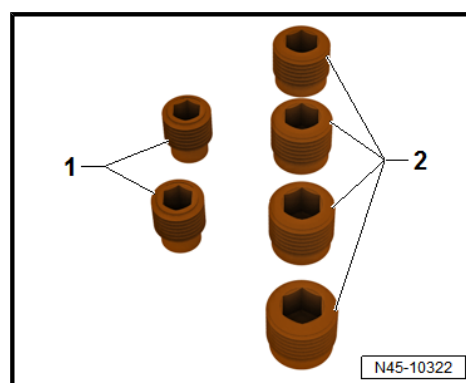


Plugs 5Q0 698 311

1 - M10 Plug

2 - M12 Plug

Removing





Component location of the ABS Hydraulic Unit - N55- and the ABS Control Module - J104- in RHD vehicles:

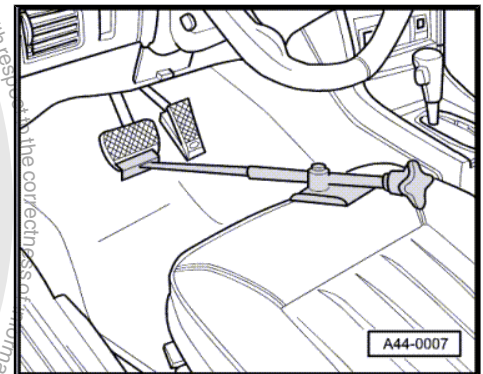
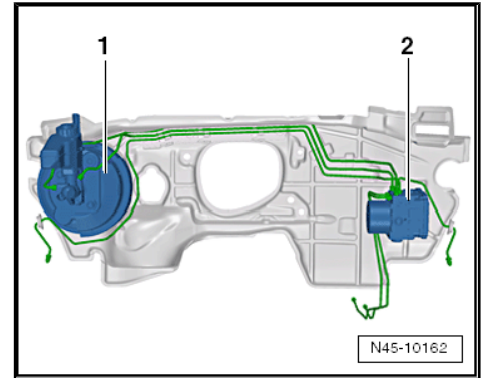
- 1 - Brake Booster with Master Brake Cylinder
- 2 - ABS Hydraulic Unit - N55- and ABS Control Module - J104-

! NOTICE

Risk of destroying the brake lines by bending.

- **Never forcefully bend the brake lines in the hydraulic unit area.**

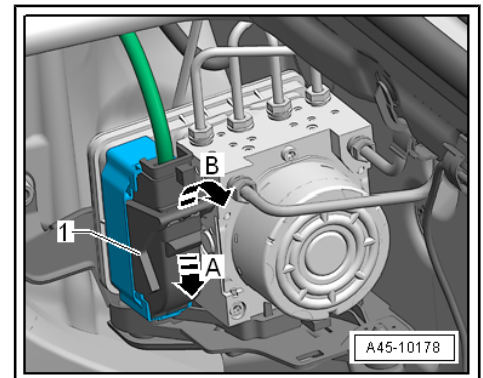
- Read and note the present control module code.
- On vehicles with a coded radio, note the code. Retrieve it if necessary.
- Disconnect the battery. Refer to ➤ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting
- Remove the battery tray -1-. Refer to ➤ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery Tray, Removing and Installing
- Insert the Brake Pedal Actuator - VAG1869/2- .
- Remove the noise insulation. Refer to ➤ Body Exterior; Rep. Gr. 66 ; Noise Insulation; Overview - Noise Insulation .



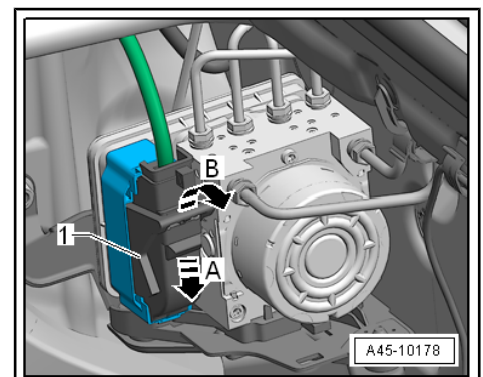
Press the locking mechanism downward -arrow A-.

i Note

The illustration shows the installation position of the ABS Hydraulic Unit - N55- and the ABS Control Module - J104- in a LHD vehicle:

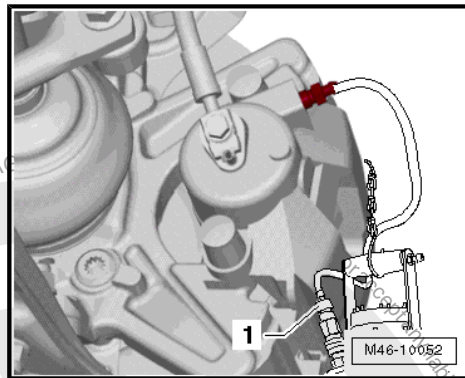


- Release the connector -arrow B-.
- Remove the connector -1-.

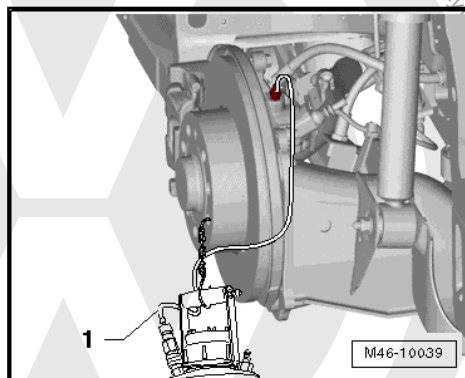




- Attach the bleeder bottle bleed hose -1- to the left front brake caliper bleed valve.
- Open the bleeder valve.



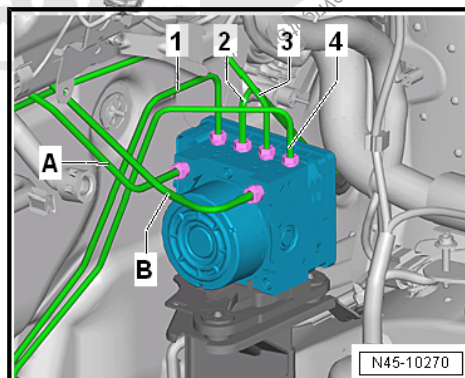
- Attach the bleeder bottle bleed hose -1- to the left rear brake caliper bleed valve.
- Open the bleeder valve.
- Push the brake pedal at least 60 mm using the Brake Pedal Actuator - VAG1869/2- .
- Close the left front and left rear bleeder valves.
- Do not remove the Brake Pedal Actuator - VAG1869/2- .
- Place enough lint-free cloths under the ABS Control Module - J104- and the ABS Hydraulic Unit - N55- .



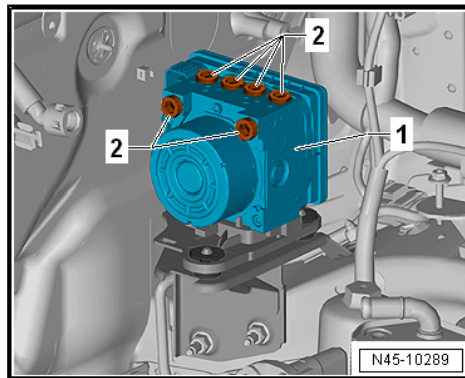
Note

Pay attention that brake fluid does not run on the ABS Control Module - J104- contacts.

- First label both brake lines from the brake master cylinder -A- and -B-.
- Remove both the brake master cylinder brake lines -A- and -B- from the ABS Hydraulic Unit - N55- .
- Immediately seal the threaded holes with the plugs from the assembly repair kit 5Q0 698 311.



- Label the remaining brake lines (brake caliper) and remove. Seal the threaded holes -2-.





- Remove the ABS Hydraulic Unit - N55- -1- together with the bracket -2- in the direction of the -arrow-.
- This will remove the rubber buffers -arrows- from the bracket stud bolts -3- at the same time.
- Guide out the hydraulic unit from the vehicle.

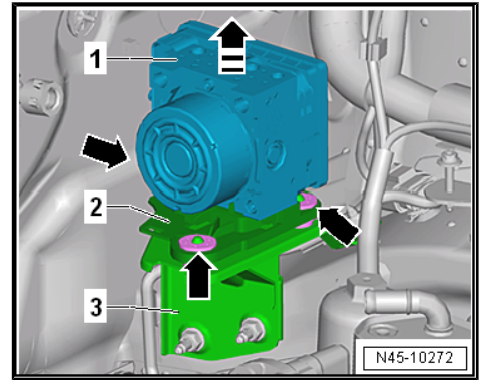
Installing

Install in reverse order of removal while paying attention to the following:



Note

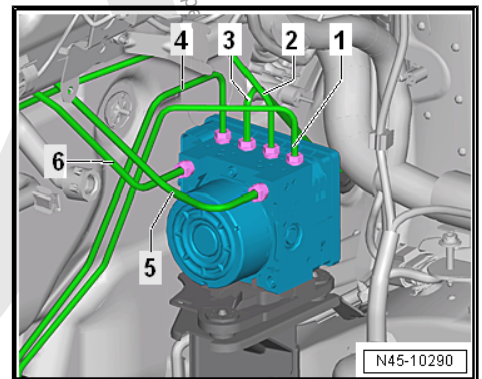
- ◆ Do not remove sealing plugs at new hydraulic unit until the corresponding brake line is about to be installed.
- ◆ If the plugs are removed too early from the hydraulic unit, brake fluid can escape and the unit may not be sufficiently filled or adequately bled.
- ◆ Do not bend the brake lines near the ABS Hydraulic Unit - N55- !
- ◆ When installing the mount, make sure the rubber bushing does not push out of the bracket. Make sure the ABS Hydraulic Unit - N55- is secure after installing it otherwise malfunctions can occur.



Brake Line Tightening Sequence:

- Pre-tighten the brake lines in the sequence -1- to -6-.
- Tighten the brake lines in the sequence -1- to -6-.
- Remove the Brake Pedal Actuator - VAG1869/2- .
- Bleed the brake system. Refer to [⇒ "6.2 Hydraulic System, Standard Bleeding", page 146](#) .
- Code the radio.
- Code the ABS Control Module -J104- using the ⇒ Vehicle diagnostic tester.

While doing so, a basic setting for the Steering Angle Sensor - G85- , Transverse Acceleration Sensor - G200- , Longitudinal Acceleration Sensor - G251- and Brake Pressure Sensor 1 - G201- must be performed.



Tightening Specifications

- ◆ ⇒ ["3.1.2 Overview - Control Module and Hydraulic Unit, RHD", page 18](#)
- ◆ Battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Overview - Battery .
- ◆ noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Noise Insulation; Noise Insulation, Assembly Overview .
- ◆ Front bleeder valve. Refer to [⇒ "1.1 Overview - Front Brake Caliper", page 91](#) .
- ◆ Rear bleeder valves. Refer to [⇒ "2.1 Overview - Rear Brake Caliper", page 95](#) .

3.3 Control Module, Separating from Hydraulic Unit

Special tools and workshop equipment required



- ◆ ESD Work Surface - VAS6613-
- ◆ TORX® insert T25
- ◆ If the control module is faulty, then the control module is to be separated from the hydraulic unit and only the control module replaced.
- ◆ If the hydraulic unit is faulty, the hydraulic unit and the control module are to be replaced together.
- ◆ The ESP unit must be removed in order to separate the control module and the hydraulic unit.

NOTICE

There is a risk of destroying the hydraulic unit by removing the return flow pump.

- Never separate the return flow pump from the hydraulic unit.

NOTICE

There is a risk of destroying the control module through the electrostatic charge and reduced cleanliness.

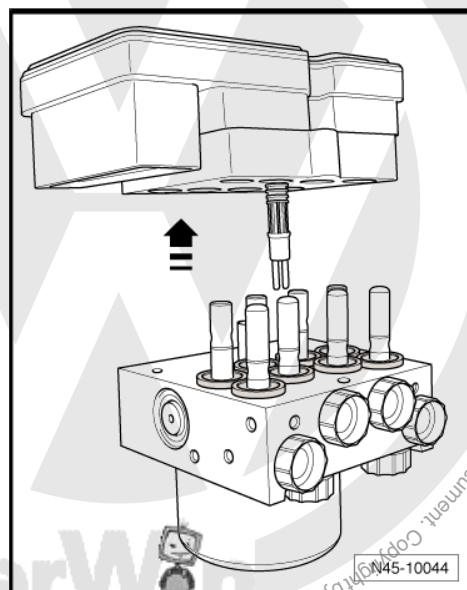
- Discharge electrostatic charge: touch the electrostatic discharge work surface
- Protect the inner control module from moisture and dirt.
- Touch a grounded object before working on electrical equipment ESD Work Surface - VAS6613- . Do not touch connector terminals or electronic components directly.
- Position the hydraulic unit with the control module on the ESD Work Surface - VAS6613- .
- Remove the three TORX® bolts from the control module and set aside immediately (risk of confusing them new TORX® bolts).
- Position the hydraulic unit with the control module from above on the ESD Work Surface - VAS6613- .
- Pull control module off from hydraulic unit without angling.
- Cover control module magnetic coils with a lint free cloth.
- Check the cleanliness of the hydraulic unit sealing surface if necessary clean with mineral spirits and a lint-free cloth.

The hydraulic unit sealing surface must not be worked with a file, metal scraper, sand paper or similar.

If the hydraulic unit sealing surface is damaged (for example through grooves or scrapes) the hydraulic unit must be replaced with the control module.

The seal on the control module must not be pulled out or raised up.

The seal on the control module cannot be replaced.



3.4 Control Module, Attaching to Hydraulic Unit

Special tools and workshop equipment required



- ◆ ESD Work Surface - VAS6613-
- ◆ Torque Screwdriver - VAG1624-
- ◆ TORX® insert T25



Note

Excessive shaking (for example, dropping, impact) may destroy the control module. The control module must then no longer be used.

- Surfaces must be cleaned before assembling.
- Place the control module on the hydraulic unit without tilting.
- Install the hydraulic unit and control module with the new inner TORX® bolts switching back and forth in two steps according to the tightening specification.



Note

The hydraulic unit threads cannot be re-cut to secure the control module. In the threads are damaged (bolts are difficult to install by hand or the bolts cannot be tightened to the tightening specification). The hydraulic unit must be replaced.

Tightening Specification

- ◆ Refer to
⇒ [“3.1.1 Overview - Control Module and Hydraulic Unit”, page 16](#)



Note

- ◆ A new control module may be installed a max. of three times to a used hydraulic unit, to ensure that the elastic gasket seals sufficiently.
- ◆ Do not install a used control module.

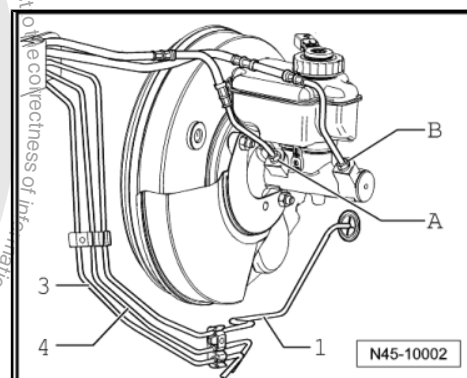
3.5 Brake Lines, Attaching to Hydraulic Unit

⇒ [“3.5.1 Brake Lines, Attaching to Hydraulic Unit”, page 43](#)

3.5.1 Brake Lines, Attaching to Hydraulic Unit

On tandem master brake cylinder:

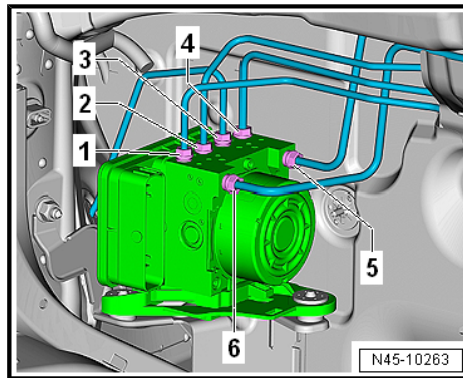
- A - Primary piston circuit of master brake cylinder to hydraulic unit
- Identification: Diameter 6 mm and tube fitting with thread M 12 x 1
- B - Secondary piston circuit of master brake cylinder to hydraulic unit
- Identification: Diameter 6 mm and tube fitting with thread M 12 x 1
- 1 - Hydraulic unit to left front brake caliper
- 3 - Hydraulic unit to left rear brake caliper
- 4 - Hydraulic unit to rear right brake caliper





On hydraulic unit:

- 1 - Hydraulic unit to rear right brake caliper
 - Identification: Diameter 5.25 mm and tube fitting with shorter thread M12 x 1
- 2 - Hydraulic unit to left front brake caliper
 - Identification: 5.25 mm diameter and tube fitting with thread M 10 x 1
- 3 - Hydraulic unit to right front brake caliper
 - Identification: Diameter 5.25 mm and tube fitting with shorter thread M12 x 1
- 4 - Hydraulic unit to left rear brake caliper
 - Identification: 5.25 mm diameter and tube fitting with thread M 10 x 1
- 5 - Hydraulic unit to master cylinder secondary piston circuit
 - Identification: Diameter 6 mm and tube fitting with thread M 12 x 1
- 6 - Hydraulic unit to primary piston circuit of master brake cylinder
 - Identification: Diameter 6 mm and tube fitting with thread M 12 x 1



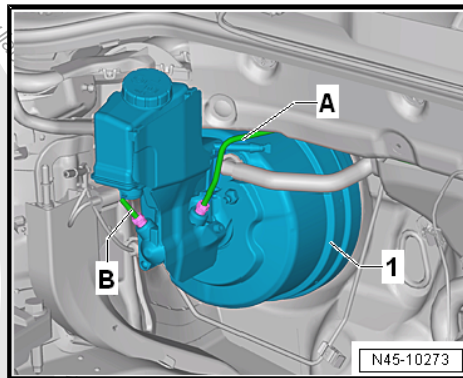
Tightening Specification

- ◆ Refer to
⇒ ["3.1.1 Overview - Control Module and Hydraulic Unit", page 16](#)

3.5.2 Brake Lines, Attaching to Hydraulic Unit, RHD

On tandem master brake cylinder:

- A - Master brake cylinder primary piston circuit to hydraulic unit
 - Identification: 6 mm diameter and tube fitting with a M12 x 1 thread
- B - Master brake cylinder secondary piston circuit to hydraulic unit
 - Identification: 6 mm diameter and tube fitting with a M12 x 1 thread
- 1 - Brake Booster with Master Brake Cylinder





On the ABS Hydraulic Unit - N55- :

1 - Hydraulic unit to left rear brake caliper

- Identification: 5.25 mm diameter and tube fitting with a M12 x 1 thread

2 - Hydraulic unit to right front brake caliper

- Identification: 5.25 mm diameter and tube fitting with a M10 x 1 short thread

3 - Hydraulic unit to left front brake caliper

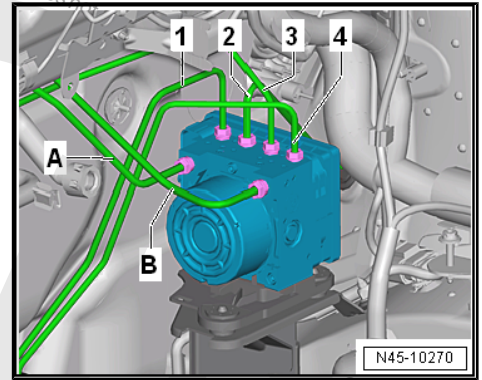
- Identification: 5.25 mm diameter and tube fitting with a M12 x 1 thread

4 - Hydraulic unit to right rear brake caliper

- Identification: 5.25 mm diameter and tube fitting with a M10 x 1 short thread

Tightening Specification

- ◆ ⇒ ["3.1.2 Overview - Control Module and Hydraulic Unit, RHD", page 18](#)





4 Sensors

⇒ [“4.1 Overview - Front Axle Speed Sensor”, page 46](#)

⇒ [“4.2 Overview - Rear Axle Speed Sensor”, page 47](#)

⇒ [“4.3 ESP Sensor Unit G419 , Removing and Installing”, page 48](#)

⇒ [“4.4 Right/Left Front ABS Wheel Speed Sensor G45 / G47 , Removing and Installing”, page 49](#)

⇒ [“4.5 Right/Left Rear ABS Wheel Speed Sensor G44 / G46 , Removing and Installing”, page 49](#)

4.1 Overview - Front Axle Speed Sensor

1 - ABS Speed Sensor

- ☐ Clean the inner surface of the opening before inserting the sensor
- ☐ Coat the inner surface with Hot Bolt Paste - G 052 112 A3-
- ☐ Removing and Installing. Refer to ⇒ [“4.4 Right/Left Front ABS Wheel Speed Sensor G45 / G47 , Removing and Installing”, page 49](#) .

2 - Bolt

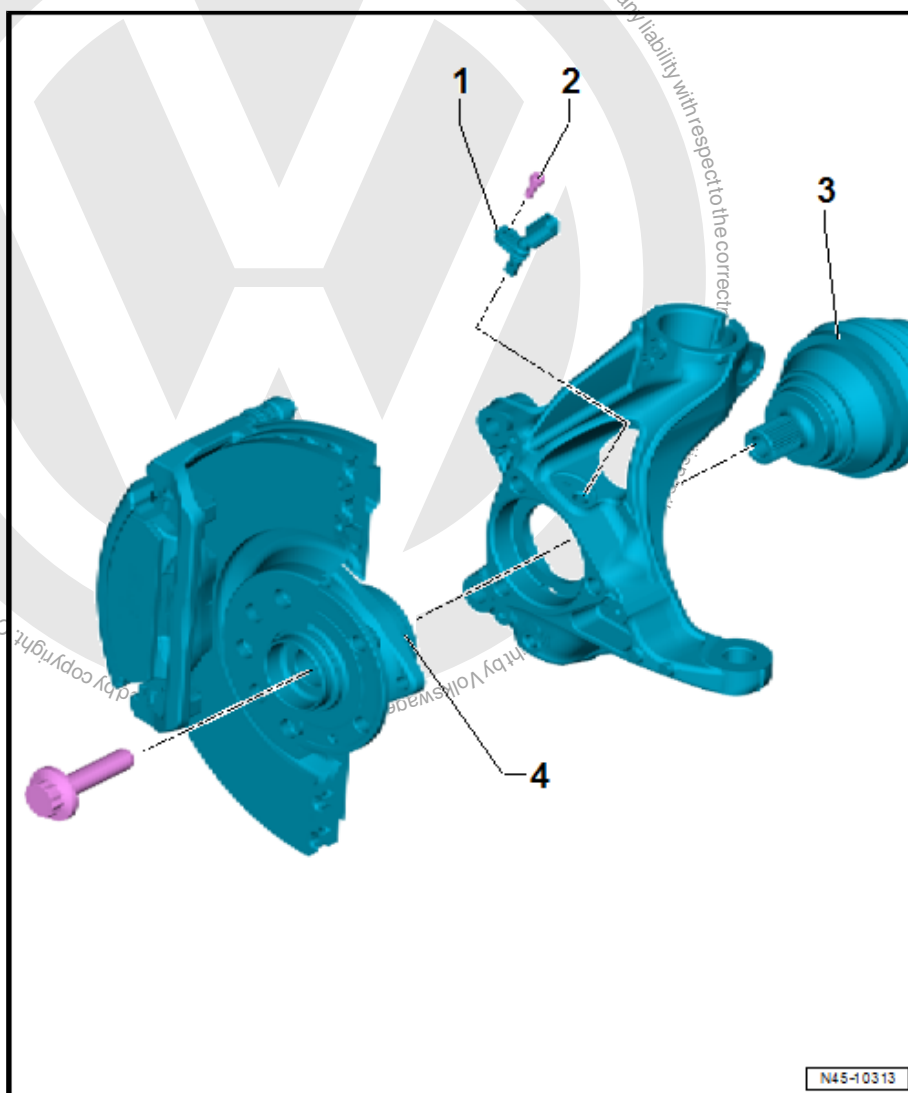
- ☐ 8 Nm

3 - Driveshaft

- ☐ Overview. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axle; Overview - Drive Axle .
- ☐ Removing and installing. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Drive Axle; Drive Axle, Removing and Installing .

4 - Wheel Hub with Wheel Bearing Unit

- ☐ The ABS sensor ring is integrated in the wheel bearing unit
- ☐ Check the ABS sensor ring. Refer to ⇒ [“4.6 ABS Sensor Ring, Checking”, page 51](#) .
- ☐ Removing and installing. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Wheel Bearing; Wheel Bearing Unit, Removing and Installing .





4.2 Overview - Rear Axle Speed Sensor

⇒ ["4.2.2 Overview - Rear Axle Speed Sensor", page 48](#)

4.2.1 Overview - Rear Axle Speed Sensor, FWD

1 - ABS Speed Sensor

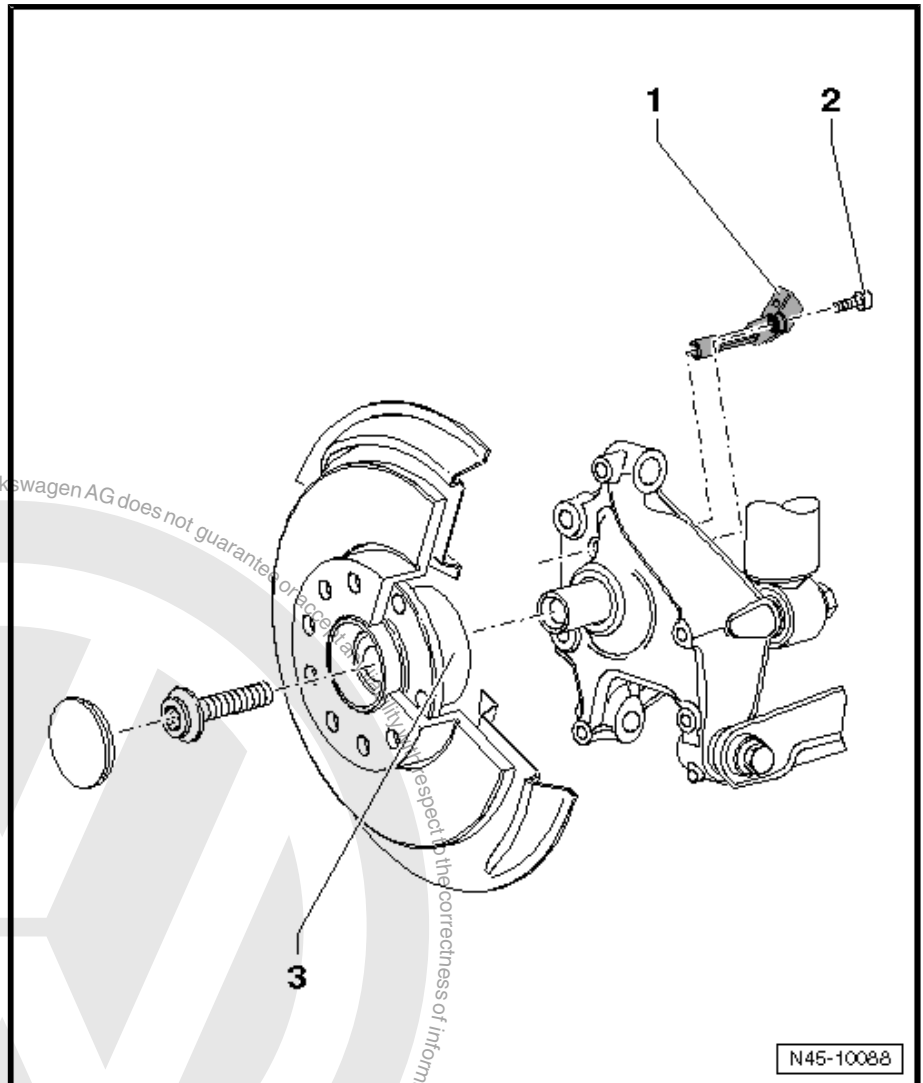
- ☐ Clean the inner surface of the opening before inserting the sensor
- ☐ Coat the inner surface with Hot Bolt Paste - G 052 112 A3- .
- ☐ Removing and Installing. Refer to ⇒ ["4.5.1 Right/Left Rear ABS Wheel Speed Sensor G44 / G46 , Removing and Installing, FWD", page 49](#) .

2 - Bolt

- ☐ 8 Nm

3 - Wheel Hub with Wheel Bearing Unit

- ☐ The ABS sensor ring is integrated in the wheel bearing unit
- ☐ Check the ABS sensor ring. Refer to ⇒ ["4.6 ABS Sensor Ring, Checking", page 51](#) .
- ☐ Removing and Installing. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 42 ; Wheel Bearing, Trailing Arm; Wheel Bearing Unit, Removing and Installing .





4.2.2 Overview - Rear Axle Speed Sensor

1 - ABS Speed Sensor

- ❑ Clean the inner surface of the opening before inserting the sensor
- ❑ Coat the inner surface with Hot Bolt Paste - G 052 112 A3- .
- ❑ Removing and Installing. Refer to ➔ ["4.5.2 Right/Left Rear ABS Wheel Speed Sensor G44 / G46 , Removing and Installing, AWD", page 50 .](#)

2 - Bolt

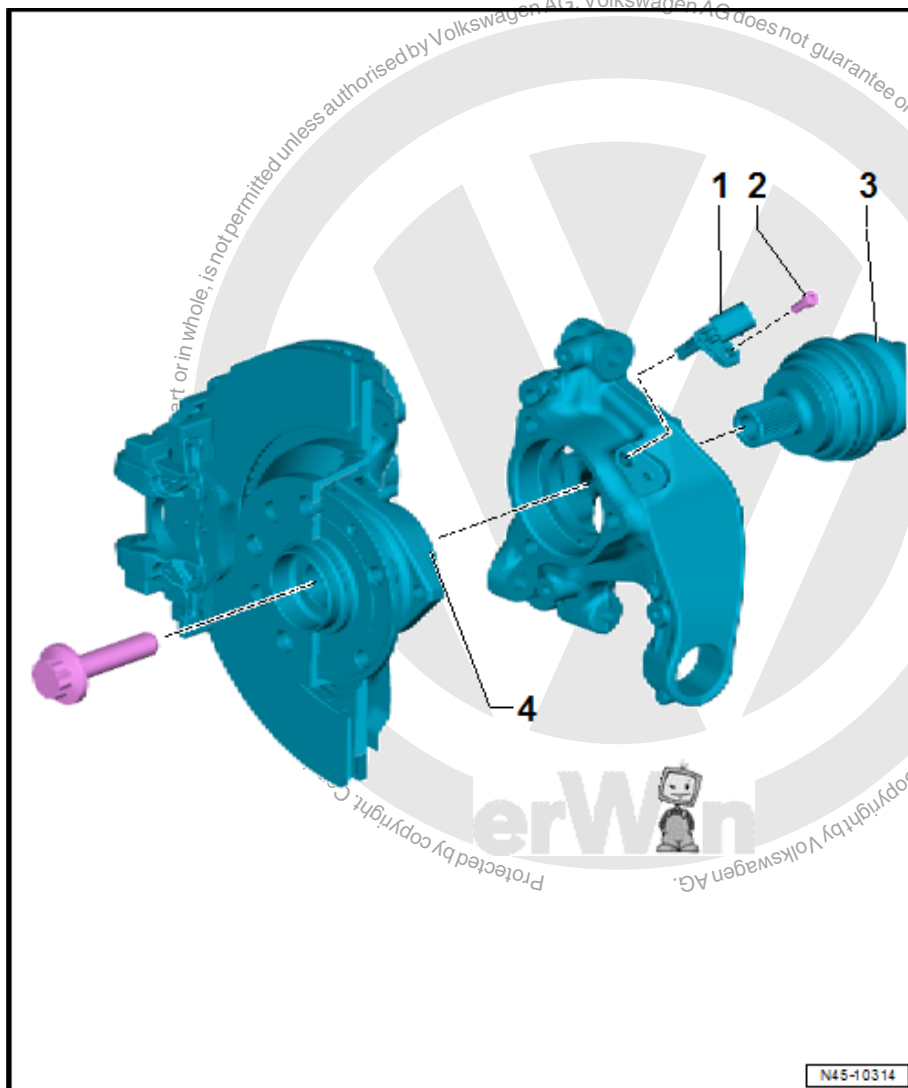
- ❑ 8 Nm

3 - Driveshaft

- ❑ Overview. Refer to ➔ Suspension, Wheels, Steering; Rep. Gr. 42 ; Drive Axle; Overview - Drive Axle .
- ❑ Removing and installing. Refer to ➔ Suspension, Wheels, Steering; Rep. Gr. 42 ; Drive Axle; Drive Axle, Removing and Installing .

4 - Wheel Hub with Wheel Bearing Unit

- ❑ The ABS sensor ring is integrated in the wheel bearing unit
- ❑ Check the ABS sensor ring. Refer to ➔ ["4.6 ABS Sensor Ring, Checking", page 51 .](#)
- ❑ Removing and Installing. Refer to ➔ Suspension, Wheels, Steering; Rep. Gr. 42 ; Wheel Bearing, Trailing Arm; Wheel Bearing Unit, Removing and Installing .



4.3 ESP Sensor Unit - G419- , Removing and Installing

The Transverse Acceleration Sensor - G200- , the Rotation Rate Sensor - G202- and the Longitudinal Acceleration Sensor - G251- are installed together with the Electromechanical Parking Brake Control Module - J540- in the ABS Control Module - J104- .

The components cannot be replaced individually.

- ABS Control Module - J104- , Removing and Installing. Refer to ➔ ["3.2 ABS Control Module J104 / ABS Hydraulic Unit N55 , Removing and Installing", page 20 .](#)



4.4 Right/Left Front ABS Wheel Speed Sensor -G45- / -G47- , Removing and Installing



Note

The example describes the removal and installation of the left front ABS wheel speed sensor. The removal and installation of the right front ABS wheel speed sensor is identical.

Removing

- Raise the vehicle
- Disconnect the connector -3- from the Left Front ABS Wheel Speed Sensor - G47- -1-.
- Remove the bolt -2- and remove the Left Front ABS Wheel Speed Sensor - G47- -1- from the wheel bearing housing.

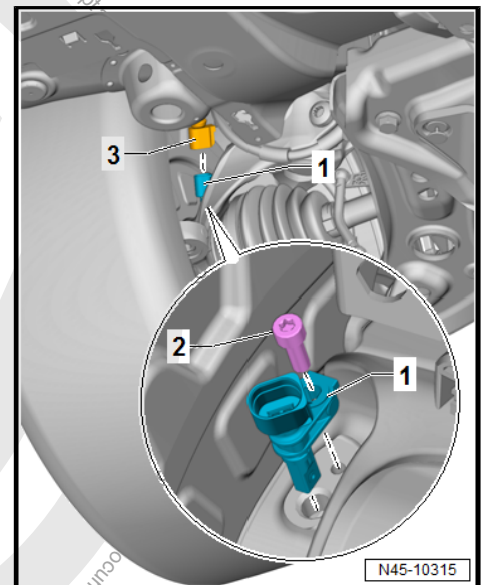
Installing

Install in reverse order of removal. Note the following:

- Clean the inner surface of the hole before inserting the speed sensor.
- Coat the speed sensor all around with hot bolt paste G 052 112 A3.

Tightening Specification

- ◆ Refer to
⇒ [“4.1 Overview - Front Axle Speed Sensor”, page 46](#)



4.5 Right/Left Rear ABS Wheel Speed Sensor -G44- / -G46- , Removing and Installing

⇒ [“4.5.1 Right/Left Rear ABS Wheel Speed Sensor G44 / G46 , Removing and Installing, FWD”, page 49](#)

⇒ [“4.5.2 Right/Left Rear ABS Wheel Speed Sensor G44 / G46 , Removing and Installing, AWD”, page 50](#)

4.5.1 Right/Left Rear ABS Wheel Speed Sensor -G44- / -G46- , Removing and Installing, FWD



Note

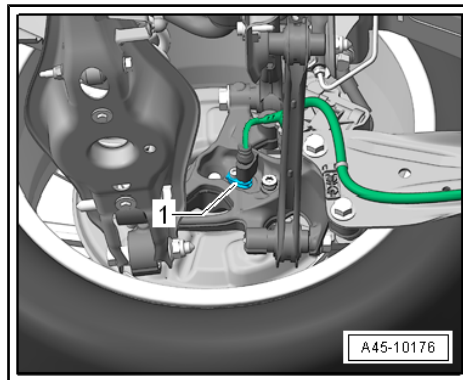
The example describes the removal and installation of the left rear ABS wheel speed sensor. The removal and installation of the right rear ABS wheel speed sensor is identical.



Left Rear ABS Wheel Speed Sensor - G46- -1-

Removing

- Raise the vehicle.

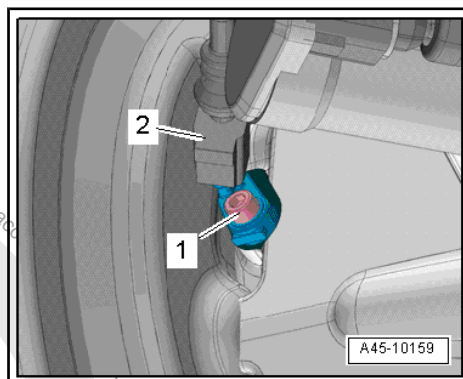


- Disconnect the connector -2- from the Left Rear ABS Wheel Speed Sensor - G46- .
- Remove bolt -1-, and remove the speed sensor from the wheel bearing housing.

Installing

Install in reverse order of removal. Note the following:

- Clean the inner surface of the hole before inserting the speed sensor.
- Coat the speed sensor all around with hot bolt paste G 052 112 A3.



Tightening Specifications

- ♦ Refer to
⇒ [4.2.1 Overview - Rear Axle Speed Sensor, FWD](#),
[page 47](#)

4.5.2 Right/Left Rear ABS Wheel Speed Sensor -G44- / -G46- , Removing and Installing, AWD



Note

The example describes the removal and installation of the left rear ABS wheel speed sensor. The removal and installation of the right rear ABS wheel speed sensor is identical.

Removing

- Raise the vehicle.



- Disconnect the connector -3- from the Left Rear ABS Wheel Speed Sensor - G46- -1-.
- Remove the bolt -2- and remove the Left Rear ABS Wheel Speed Sensor - G46- -1- from the wheel bearing housing.

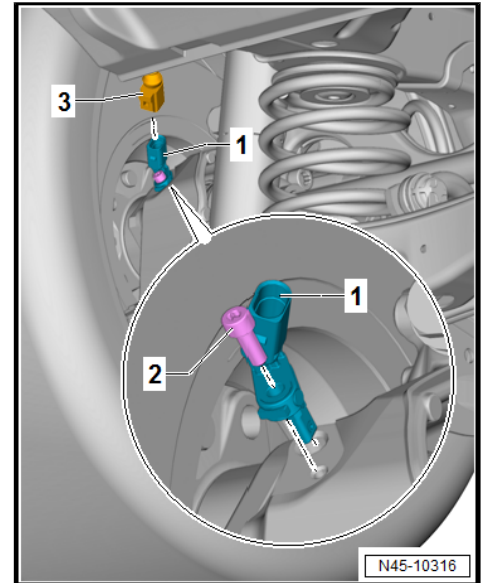
Installing

Install in reverse order of removal. Note the following:

- Clean the inner surface of the hole before inserting the speed sensor.
- Coat the speed sensor all around with hot bolt paste G 052 112 A3.

Tightening Specifications

- ◆ Refer to
⇒ ["4.2.2 Overview - Rear Axle Speed Sensor", page 48](#)



4.6 ABS Sensor Ring, Checking

Special tools and workshop equipment required

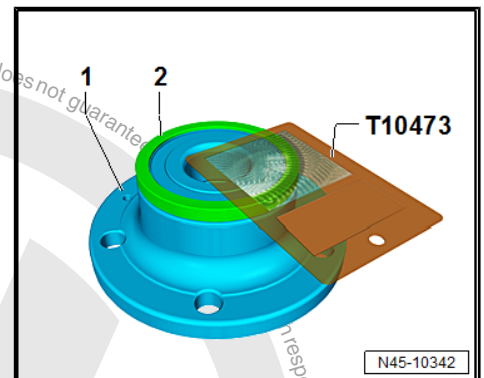
- ◆ Gauge - Sender Wheel - T10473-

Procedure

- The wheel bearing unit is removed.
- Check the entire circumference of the ABS sensor ring -2- with the Gauge - Sender Wheel - T10473- as shown.

1 - Wheel Bearing Unit

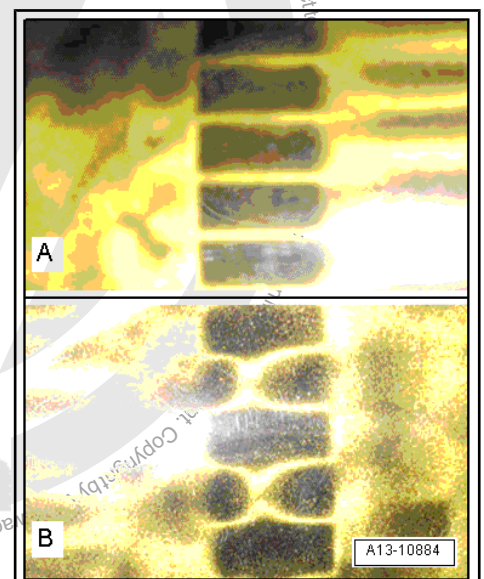
2 - Seal with integrated ABS Sensor Ring



ABS sensor ring test diagram.

A - ABS Sensor Ring is OK

B - ABS Sensor Ring is Faulty








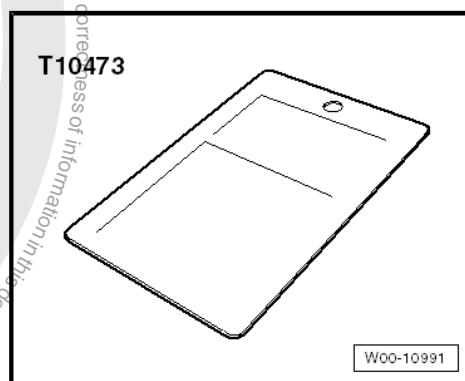
5 Special Tools

Special tools and workshop equipment required

- ◆ Torque Wrench 1331
5-50Nm - VAG1331-
- ◆ Torque Wrench 1410 -
VAG1410-
- ◆ Brake Pedal Actuator -
VAG1869/2- .

| | |
|---|---|
| <p>V.A.G 1331</p>  | <p>V.A.G 1410</p>  |
| <p>V.A.G 1869/2</p>  | |
| | <p>W45-0003</p> |

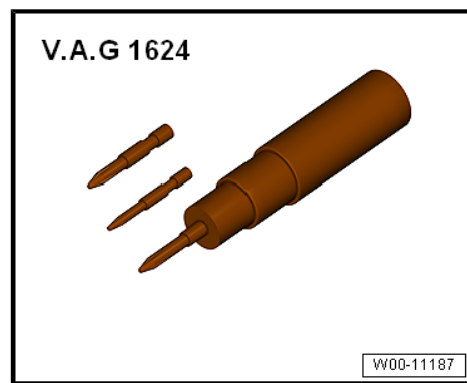
- ◆ Gauge - Sender Wheel - T10473-



- ◆ ESD Work Surface - VAS6613-



◆ Torque Screwdriver - VAG1624-





46 – Mechanical Components

1 Front Brakes

⇒ [“1.1 Overview - Front Brakes”, page 54](#)

⇒ [“1.2 Brake Pads, Removing and Installing”, page 58](#)

⇒ [“1.3 Brake Caliper, Removing and Installing”, page 62](#)

1.1 Overview - Front Brakes

⇒ [“1.1.1 Overview - Front Brakes FS III”, page 54](#)

⇒ [“1.1.2 Overview - Front Brakes PC57 and C60”, page 56](#)

1.1.1 Overview - Front Brakes FS III



Note

- ◆ *After every brake pad replacement, firmly press down on the brake pedal several times with vehicle stationary so that the brake pads are properly set in their respective operating position.*
- ◆ *Use the Brake Charger/Bleeder Unit - VAS5234- to extract brake fluid from the brake fluid reservoir.*
- ◆ *Install the Brake Pedal Actuator - VAG1869/2- before removing a brake caliper or disconnecting a brake hose (doing so reduces the pressure).*





1 - Brake Rotor

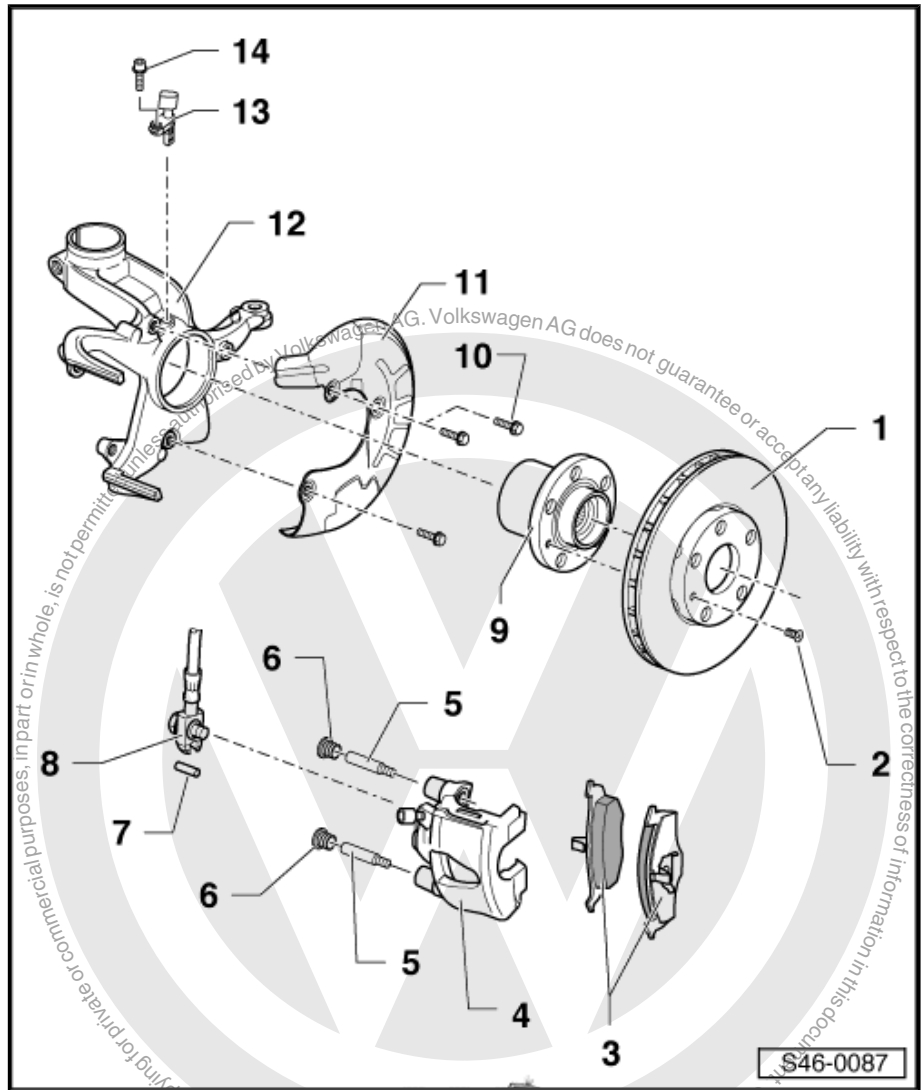
- ☐ Internally vented
- ☐ Wear limits. Refer to
⇒ ["3.1.2 Front Brakes"](#),
[page 4](#) .
- ☐ Always replace on both
axles.
- ☐ Remove the brake cali-
per before removing
- ☐ Do not use excessive
force to separate the
brake rotor from the
wheel hub. If necessary,
use rust penetrant, oth-
erwise the brake rotors
could be damaged.

2 - TORX® Bolt

- ☐ 8 Nm

3 - Brake Pads

- ☐ Thickness: 12 mm with-
out backing plate
- ☐ Wear limit: 2 mm without
backing plate
- ☐ Checking thickness.
Refer to ⇒ Mainte-
nance ; Booklet ; Front
and Rear Brake Pads:
Checking Thickness .
- ☐ Always replace on both
axles.
- ☐ Removing and Instal-
ling. Refer to
⇒ ["1.2.1 Brake Pads,
Removing and Instal-
ling, Front Brakes FS](#)





[III", page 58](#) .

4 - Brake Caliper

- ☐ Do not remove the brake hose when changing the brake pads.
- ☐ Removing and Installing. Refer to [⇒ "1.3.1 Brake Caliper, Removing and Installing, Front Brakes FS III", page 62](#) .
- ☐ Servicing. Refer to [⇒ "1.1.1 Overview - Brake Caliper FS III", page 91](#) .

5 - Guide Pin

- ☐ 30 Nm

6 - Cap

- ☐ Remove

7 - Mounting Sleeve

8 - Brake Hose with Ring Connection and Banjo Bolt

- ☐ 35 Nm

9 - Wheel Hub with Wheel Bearing

- ☐ Pressing in and out. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Wheel Bearing; Overview - Wheel Bearing .

10 - TORX® bolts

- ☐ 12 Nm

11 - Cover Plate

12 - Wheel Bearing Housing

- ☐ With integrated brake carrier
- ☐ Lightly grease the pad guide surfaces with Lithium Lubricating Grease - G 052 150 A2- .

13 - Speed Sensor

- ☐ Before inserting the sensor, clean the inner surface of the hole and coat with Hot Bolt Paste - G 052 112 A3- .

14 - Hex Socket Bolt

- ☐ 8 Nm

1.1.2 Overview - Front Brakes PC57 and C60



Note

- ◆ *After replacing brake pads, depress brake pedal firmly several times with vehicle stationary so that the brake pads are properly seated in their normal operating position.*
- ◆ *Use Brake Charger/Bleeder Unit - VAS5234- to extract brake fluid from brake fluid reservoir.*
- ◆ *Install the Brake Pedal Actuator - VAG1869/2- to relieve pressure before removing a brake caliper or disconnecting a brake hose.*

Overview - front brakes PC57 and C60:



1 - Cover Plate

2 - TORX® Screw

- ☐ 12 Nm

3 - Brake Rotor

- ☐ Vented on the inside
- ☐ Wear limits. Refer to ➔ ["3.1.2 Front Brakes", page 4](#) .
- ☐ Always replace on both axles.
- ☐ Remove brake caliper and brake carrier before removing

4 - TORX® Screw

- ☐ 8 Nm

5 - Brake Carrier

- ☐ Lightly grease the pad guide surface with lithium grease G 052150 A2.

6 - Brake Pads

- ☐ Thickness 14 mm without backing plate
- ☐ With front right brake pad wear display
- ☐ When wear limit is reached (limit: approximately 4 mm) the warning lamp in instrument cluster will come on, the contact sensor can be replaced separately.
- ☐ Wear limit: 2 mm without backing plate
- ☐ Check the thickness. Refer to ➔ Maintenance ; Booklet 36.1 .
- ☐ Always replace on both axles.
- ☐ Removing and installing. Refer to ➔ ["1.2.2 Brake Pads, Removing and Installing, Front Brakes PC57 and C60", page 60](#) .

7 - Trim with Emblem

Allocation. Refer to the Parts Catalog.

8 - Brake Caliper

- ☐ Do not disconnect the brake hose when replacing a brake pad
- ☐ Removing and installing. Refer to ➔ ["1.3.2 Brake Caliper, Removing and Installing, Front Brakes PC57 and C60", page 64](#) .
- ☐ Servicing. Refer to ➔ ["1.1 Overview - Front Brake Caliper", page 91](#) .

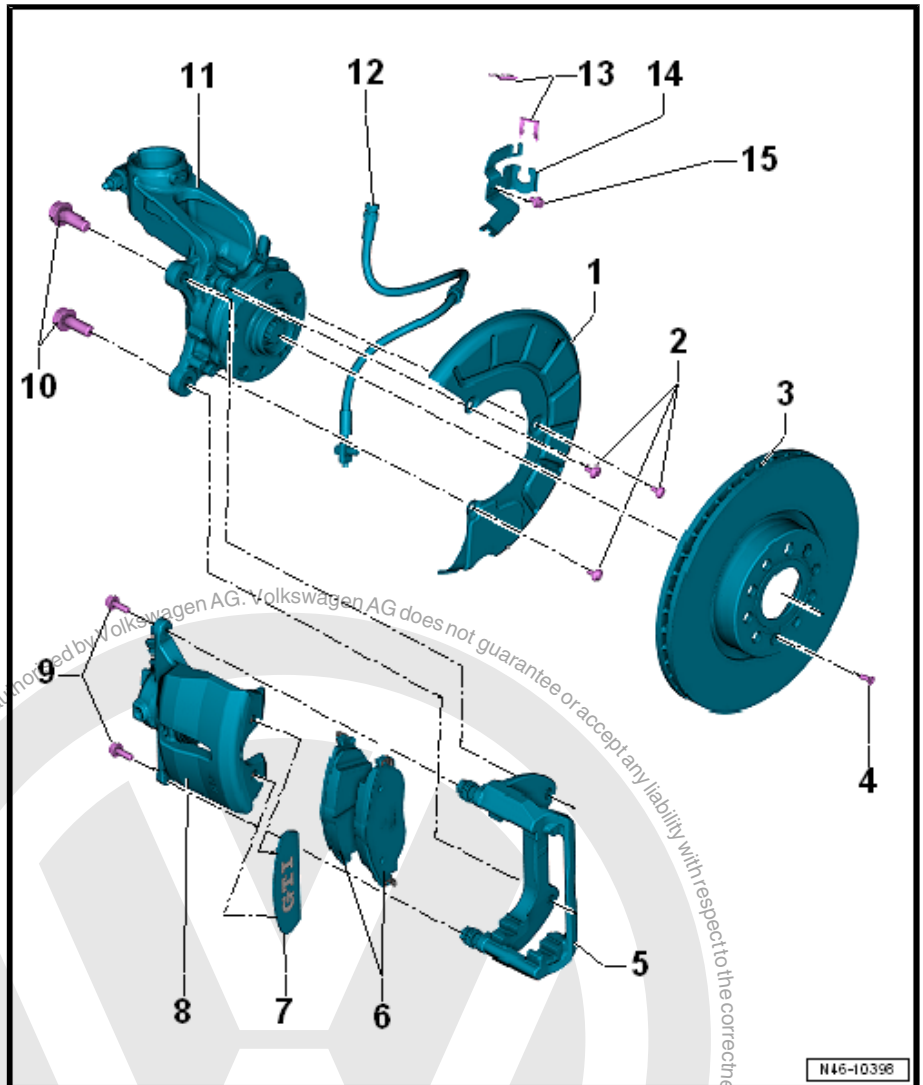
Allocation. Refer to the Parts Catalog.

9 - Hex Bolt, Self-Locking

- ☐ 35 Nm
- ☐ Replace after removing

10 - Ribbed Bolt

- ☐ 200 Nm
- ☐ Clean if using again.





11 - Wheel Bearing Housing

- ☐ With fastened brake carrier

Allocation. Refer to the Parts Catalog.

12 - Brake Hose with Ring Connection and Banjo Fitting

- ☐ 35 Nm
- ☐ Make sure it is installed in the correct position.

13 - Clip

14 - Bracket

15 - Bolt

- ☐ 8 Nm

1.2 Brake Pads, Removing and Installing

⇒ ["1.2.1 Brake Pads, Removing and Installing, Front Brakes FS III", page 58](#)

⇒ ["1.2.2 Brake Pads, Removing and Installing, Front Brakes PC57 and C60", page 60](#)

1.2.1 Brake Pads, Removing and Installing, Front Brakes FS III

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Piston Resetting Tool - T10145-
- ◆ Lithium Lubricating Grease - G 052150 A2-

Removing

Label the brake pads that will be used again when removing. Install in the same position, otherwise the braking effect will be uneven.

- Remove the wheels.
- Remove the caps.



- Remove both guide pins -arrows- from the brake caliper.
- Remove the brake caliper and secure with wire so that the weight of the brake caliper does not burden or damage the brake hose.
- Remove brake pads from brake caliper.

Cleaning:



WARNING

Health risk due to toxic dust from the brake system.

Irreversible deposit of dust particles in the lungs. Breathing impairments may occur.

- **Never blow out the brake system with compressed air.**

- Thoroughly clean the contact surfaces for the brake pads on the brake carrier; remove any corrosion.
- Clean the brake caliper.



Note

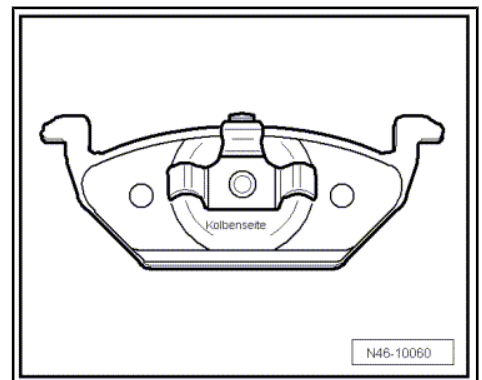
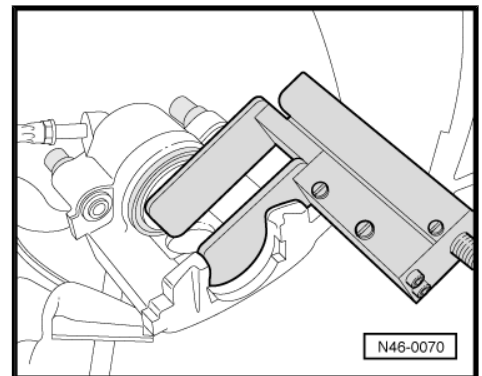
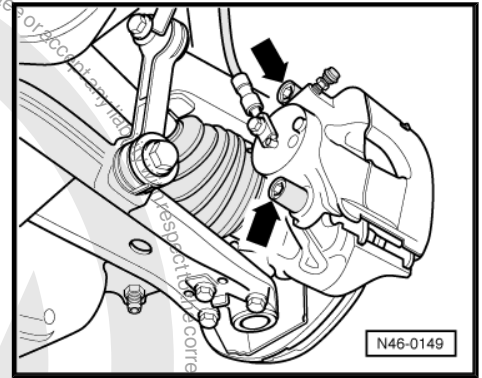
Only use mineral spirits for cleaning the brake caliper.

Installing

Before pushing back the pistons, extract some of the brake fluid out of the brake fluid reservoir using a bleeder bottle. Otherwise brake fluid will overflow and cause damage, especially if the brake fluid was added intermittently.

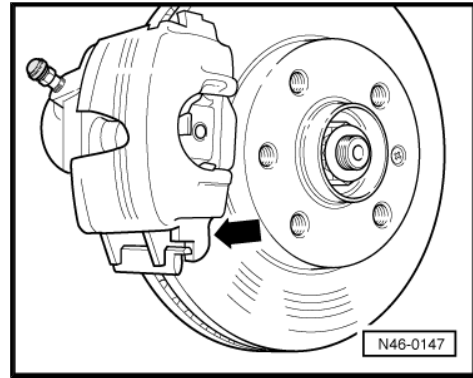
- Lightly grease the pad guide surfaces on the brake carrier with Lithium Lubricating Grease - G 052150 A2- .
- Press the piston back.
- Insert the brake pads in the brake caliper and piston.

- Insert the brake pad with the lettering “piston side” on the backing plate in the brake piston.





- Install the brake caliper with the brake pads on the wheel bearing housing.
- Place brake caliper on the brake carrier first at the bottom -arrow-.
- Pin of brake caliper must stand behind guide of brake carrier!
- Tighten brake caliper to brake carrier using both guide pins.
- Install both caps.
- Install the wheels.



Note

- ◆ *After every brake pad replacement, firmly press down on the brake pedal several times with vehicle stationary so that the brake pads are properly set in their respective operating position.*
- ◆ *Check the brake fluid level after replacing the brake pad.*

Tightening Specifications

- ◆ Refer to ⇒ ["1.1.1 Overview - Front Brakes FS III", page 54](#)
- ◆ Wheel Bolts. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 44 ; Wheels, Tires: Wheel Bolt Tightening Specifications .

1.2.2 Brake Pads, Removing and Installing, Front Brakes PC57 and C60

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Piston Resetting Tool - T10145-

Removing



Note

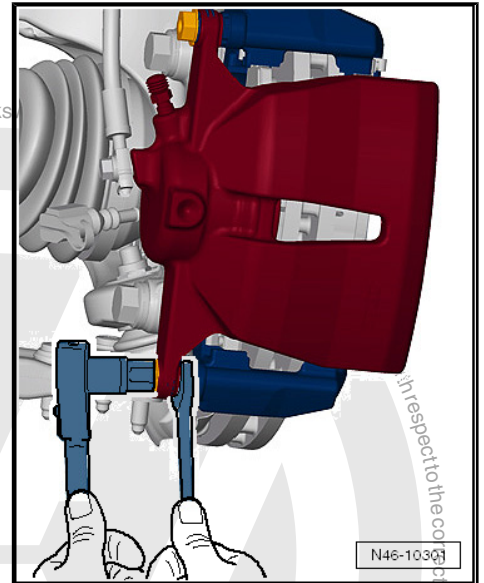
When removing, mark brake pads that will be used again. Install in the same position, otherwise braking effect will be uneven.

- Remove the wheels from the front axle.
- Disconnect the brake pad wear display connector.

The brake pad wear indicator is installed at the front right.



- Counterhold the guide pins and remove both screws from the brake caliper.



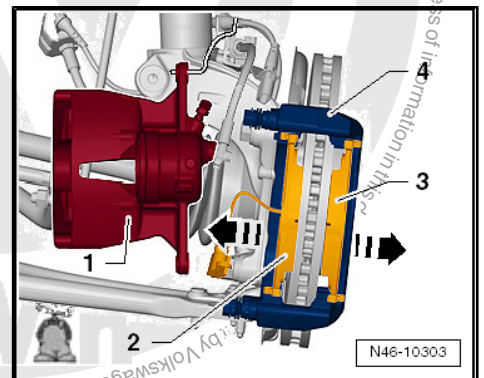
- Remove the brake caliper -1- and secure with wire so that the weight of the brake caliper does not stress or damage the brake hose.
- Remove the brake pads -2 and 3- from the brake carrier -4-.

Cleaning:

WARNING

Health risk due to toxic dust from the brake system.
Irreversible deposit of dust particles in the lungs. Breathing impairments may occur.

- Never blow out the brake system with compressed air.



- Thoroughly clean contact surfaces for brake pads at brake carrier, remove corrosion.
- Clean the brake caliper.

Note

Use only appropriate solvents for cleaning brake caliper.

Installing

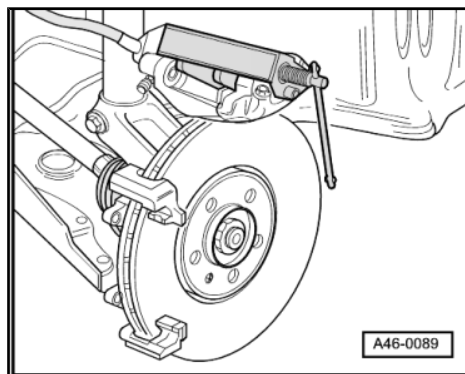
Install in reverse order of removal while paying attention to the following:

Note

Before pressing piston into cylinder using piston resetting tool, brake fluid must be extracted from brake fluid reservoir. Otherwise, especially if reservoir has been topped off, fluid will overflow and cause damage.



- Press the piston back.
- Lightly grease the pad guide surface on the brake carrier with lithium grease G 052150 A2.



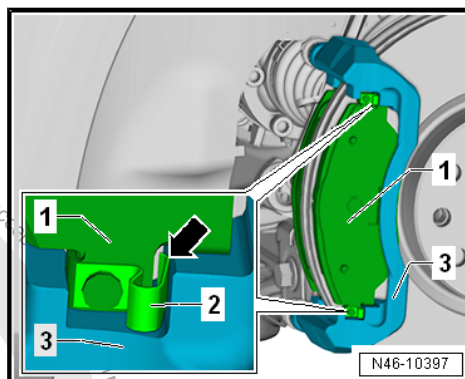
- Place the brake pads -1- and the springs -2- into the opening in the brake carrier -3-.



Note

After installing the brake pads -arrow-, check the seating of all retaining springs -2-.

- Place the brake caliper carefully on the brake carrier.
- Counterhold the guide pins and attach the brake caliper to the brake carrier with new self-locking screws.
- Connect the brake pad wear display connector.
- Install the wheels.



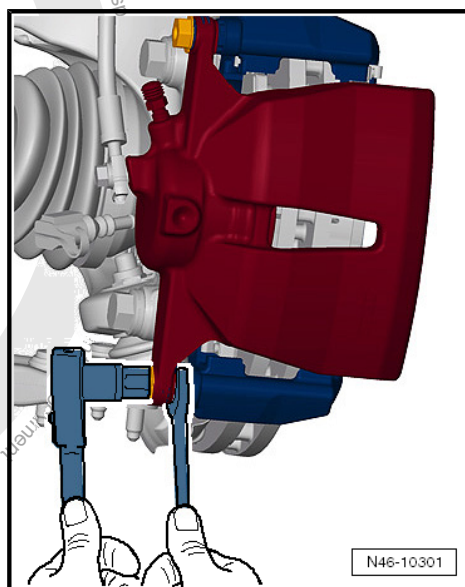
Tightening Specifications

- ♦ Refer to
⇒ ["1.1.2 Overview - Front Brakes PC57 and C60", page 56](#)
- ♦ Wheel bolts. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 44 ; Wheels and Tires; Wheel Bolt Tightening Specifications .



Note

- ♦ *After replacing brake pads, depress brake pedal firmly several times with vehicle stationary so that the brake pads are properly seated in their normal operating position.*
- ♦ *Check brake fluid level after replacing brake pad.*



1.3 Brake Caliper, Removing and Installing

⇒ ["1.3.1 Brake Caliper, Removing and Installing, Front Brakes FS III", page 62](#)

⇒ ["1.3.2 Brake Caliper, Removing and Installing, Front Brakes PC57 and C60", page 64](#)

1.3.1 Brake Caliper, Removing and Installing, Front Brakes FS III

Special tools and workshop equipment required

- ♦ Torque Wrench 1331 5-50Nm - VAG1331-



◆ Brake Pedal Actuator - VAG1869/2- .

Removing



Note

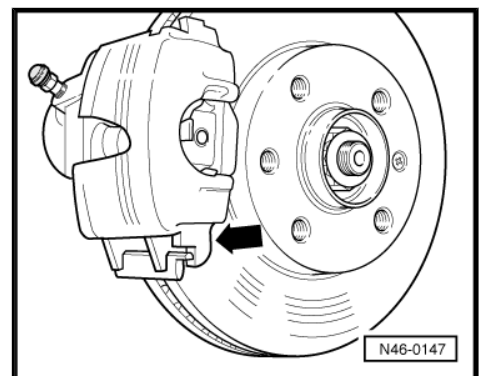
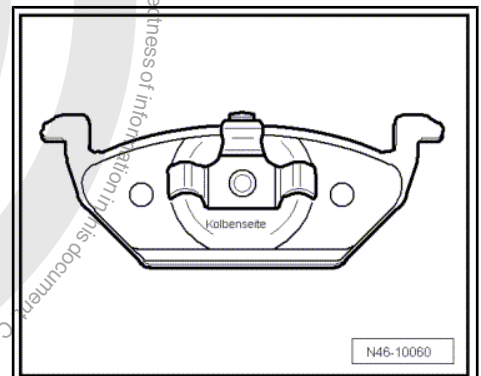
The procedure only applies to the replacement of or subsequent repair work done on the brake caliper.

- Remove the wheels.
- Attach the bleeder bottle bleed hose -1- to the brake caliper bleed valve.
- Open the bleeder valve.
- Install the Brake Pedal Actuator - VAG1869/2- .
- Close the bleeder valve and remove the bleeder bottle.
- Remove the brake hose.
- Remove both caps from the brake caliper bearing bushings.
- Loosen both guide pins and remove from brake caliper.
- Remove the brake caliper from the brake carrier.
- Remove the brake pads from the brake caliper.

Installing

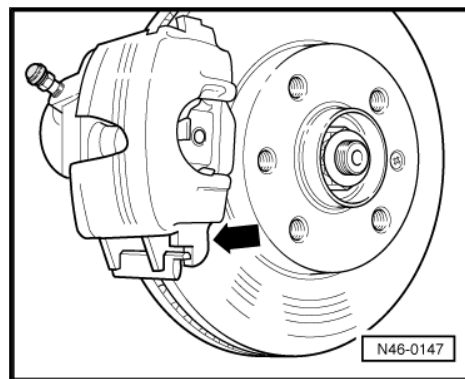
- Piston is pressed back.
- Insert the brake pads in the brake caliper and piston.
- Insert the brake pad with the lettering “piston side” on the backing plate in the brake piston.

- Install the brake caliper with the brake pads on the wheel bearing housing.





- Place brake caliper with brake pads on brake carrier first at bottom -arrow-.
- Tighten brake caliper to brake carrier using both guide pins.
- Pin of brake caliper must stand behind guide of brake carrier!
- Install both caps.
- Screw brake hose on brake caliper.
- Remove the Brake Pedal Actuator - VAG1869/2- .
- Bleed the brake system. Refer to
⇒ [“6.2 Hydraulic System, Standard Bleeding”, page 146](#) .
- Install the wheels.



Note

- ♦ *With the vehicle stationary, firmly press the brake pedal several times so that the brake pads are properly set in their respective operating position.*
- ♦ *Check the brake fluid level.*

Tightening Specifications

- ♦ Refer to ⇒ [“1.1.1 Overview - Front Brakes FS III”, page 54](#)
- ♦ Wheel Bolts. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 44 ; Wheels, Tires; Wheel Bolt Tightening Specifications .

1.3.2 Brake Caliper, Removing and Installing, Front Brakes PC57 and C60

Special tools and workshop equipment required

- ♦ Torque Wrench 1331 5-50Nm - VAG1331-
- ♦ Brake Pedal Actuator - VAG1869/2- .

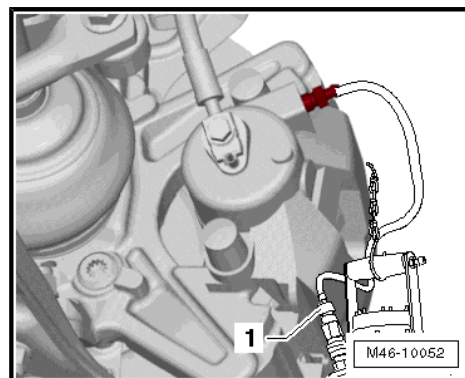


Note

Work procedure applies only for replacing or when performing subsequent service work on brake caliper.

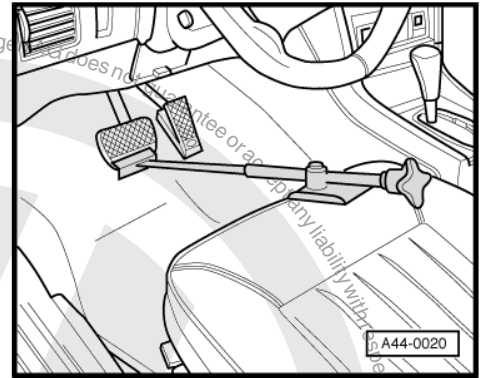
Removing

- Remove the wheel from the affected front side.
- Disconnect the brake pad wear display connector.
- Attach the bleeder bottle bleed hose -1- to the brake caliper bleed valve.
- Open the bleeder valve.





- Install the Brake Pedal Actuator - VAG1869/2- .
- Close the bleed valve and remove the bleeder bottle.
- Remove the brake hose.

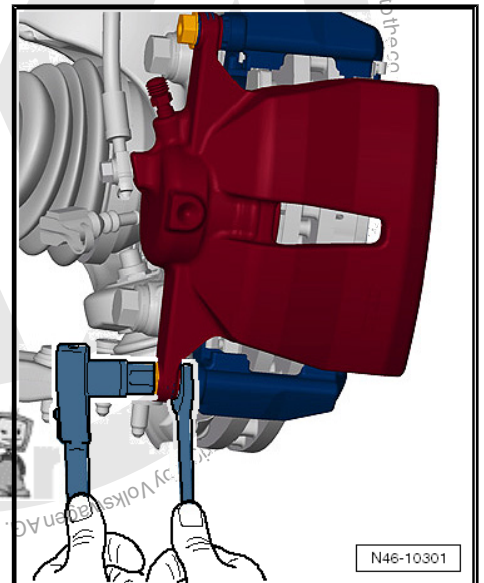


- Counterhold the guide pins and remove both screws from the brake caliper.
- Remove the brake caliper from the brake carrier.

Installing

Install in reverse order of removal while paying attention to the following:

- Piston is pressed back.
- Both brake pads and their springs fit into the opening in the brake carrier.
- Place the brake caliper carefully on the brake carrier.
- Counterhold the guide pins and attach the brake caliper to the brake carrier with new self-locking screws.
- Attach the brake hose to the brake caliper.
- Remove the Brake Pedal Actuator - VAG1869/2- .
- Connect the brake pad wear display connector.
- Bleed the brake system. Refer to
⇒ ["6.2 Hydraulic System, Standard Bleeding", page 146](#) .
- Install the wheel.



Tightening Specifications

- ◆ Refer to
⇒ ["1.1.2 Overview - Front Brakes PC57 and C60", page 56](#)
- ◆ Bleeder valve. Refer to
⇒ ["1.1 Overview - Front Brake Caliper", page 91](#) .
- ◆ Wheel bolts. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 44 ; Wheels and Tires; Wheel Bolt Tightening Specifications .



Note

- ◆ *Before moving the vehicle, press the brake pedal firmly several times to seat the brake pads correctly in their operating position.*
- ◆ *Check brake fluid level.*



2 Rear Brakes

⇒ [“2.1 Overview - Rear Brakes”, page 66](#)

⇒ [“2.2 Brake Pads, Removing and Installing”, page 68](#)

⇒ [“2.3 Brake Caliper, Removing and Installing”, page 72](#)

2.1 Overview - Rear Brakes

Overview - Rear Brakes:



Note

- ◆ Use Brake Charger/Bleeder Unit - VAS5234- to extract brake fluid from brake fluid reservoir.
- ◆ Install the Brake Pedal Actuator - VAG1869/2- to relieve pressure before removing a brake caliper or disconnecting a brake hose.

1 - Brake Shield

- ❑ Allocation ⇒ Electronic Parts Catalog

2 - TORX® Screw

- ❑ 12 Nm

3 - Brake Rotor

- ❑ Wear limits. Refer to ⇒ [“3.1.3 Rear Brakes”, page 6](#).
- ❑ Do not use excessive force to separate the brake rotor from the wheel hub. If necessary, use rust penetrant, otherwise the brake rotors could be damaged.
- ❑ Replace both sides if worn.
- ❑ To remove, first remove brake caliper and carrier

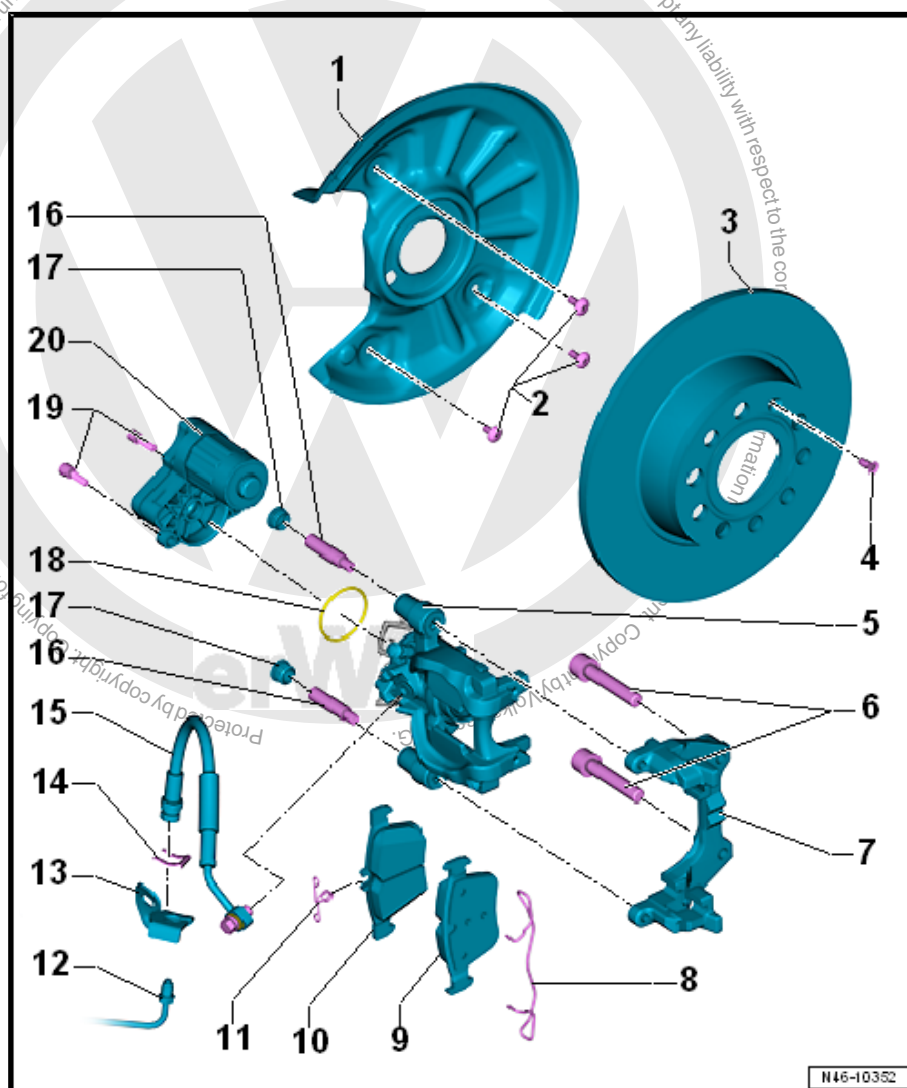
4 - TORX® Screw

- ❑ 8 Nm

5 - Brake Caliper

- ❑ Do not remove the brake hose when changing the brake pads.
- ❑ Removing and installing. Refer to ⇒ [“2.3 Brake Caliper, Removing and Installing”, page 72](#).
- ❑ Servicing. Refer to ⇒ [“2 Rear Brake Caliper”, page 95](#).

- ❑ After servicing or replacing perform the “Basic Setting” with the -Vehicle Diagnostic Tester-.





6 - Internal Multi-Point Bolt

- ☐ 90 Nm +90°
- ☐ Remove and install using Multipoint Socket - T10035- . Refer to [⇒ Fig. "“ Multipoint Socket -T10035- ”", page 68](#)
- ☐ Replace after removing

7 - Brake Carrier

8 - Spring

9 - Outer Brake Pad

- ☐ Thickness 11 mm without backing plate
- ☐ Wear limit: 2 mm without backing plate
- ☐ Check the thickness. Refer to ⇒ Maintenance ; Booklet 36.1 .
- ☐ Always replace on both axles.
- ☐ Removing and installing. Refer to [⇒ "2.2 Brake Pads, Removing and Installing", page 68 .](#)

10 - Inner Brake Pad

- ☐ With spring
- ☐ Thickness 11 mm without backing plate
- ☐ Wear limit: 2 mm without backing plate
- ☐ Check the thickness. Refer to ⇒ Maintenance ; Booklet 36.1 .
- ☐ Always replace on both axles.
- ☐ Removing and installing. Refer to [⇒ "2.2 Brake Pads, Removing and Installing", page 68 .](#)

11 - Spring

- ☐ Installed on the inner brake pad only.
- ☐ Pay attention to the installed position.

12 - Brake Line

- ☐ 14 Nm

13 - Bracket

14 - Brake Hose Spring on the Bracket

15 - Brake Hose with Ring Connection and Banjo Fitting

- ☐ To the brake caliper: 35 Nm
- ☐ To the brake line: 14 Nm

16 - Guide Pins

- ☐ 35 Nm

17 - Caps

- ☐ For guide pins

18 - Seal

- ☐ For the parking brake motor
- ☐ Replace

19 - Hex Socket Head Bolt

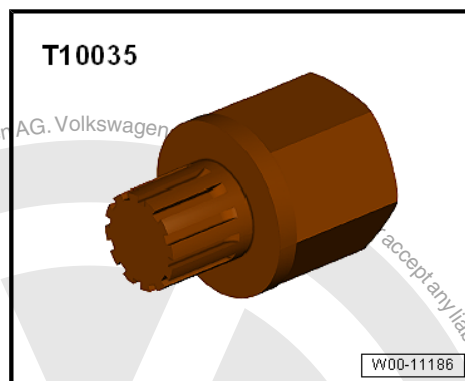
- ☐ 8 Nm

20 - Parking Brake Motor

- ☐ Removing and installing. Refer to [⇒ "3.3 Left/Right Parking Brake Motor V282 / V283 , Removing and Installing", page 77 .](#)



Multipoint Socket - T10035-



2.2 Brake Pads, Removing and Installing

Special tools and workshop equipment required

- ◆ Vehicle Diagnostic Tester
- ◆ Brake Bleeding Tool Set - VAS6564-
- ◆ Torque Wrench 1331 Insert - Ratchet Head - VAS6784-
- ◆ Hex Bit - 7mm - T10503-
- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Piston Resetting Tool - T10145-

Removing

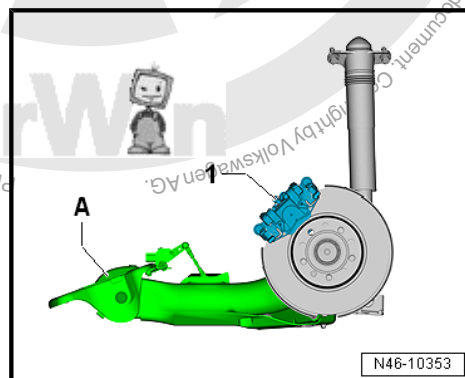


Note

The installed location of the brake caliper depends on the rear axle. Because of this the removal and insulation varies slightly but there are additional tools required.

Installed location of the brake caliper on a Torsion beam axle:

- 1 - Brake caliper
- A - Torsion beam axle





Installed location on a multi-link suspension.

1 - Brake caliper

B - Multi-link suspension.

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



Note

Do not disconnect the connectors from the parking brake motors.

- Electromechanical parking brake not actuated.
- Remove the rear axle wheels.

The pistons on the electromechanical parking brake must be driven back using the -Vehicle Diagnostic Tester- .



Note

Before pressing piston back, draw off brake fluid from reservoir using a bleeder bottle. Otherwise, especially if reservoir has been topped off, fluid will overflow and cause damage.

- Drive back the piston with the -Vehicle Diagnostic Tester- .



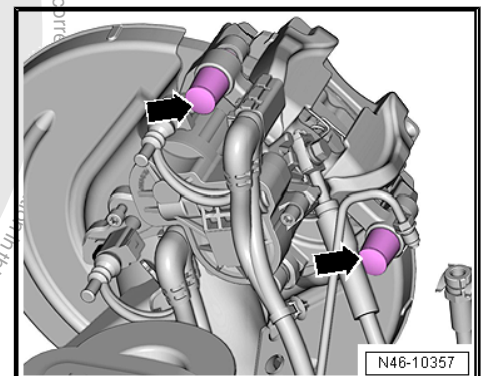
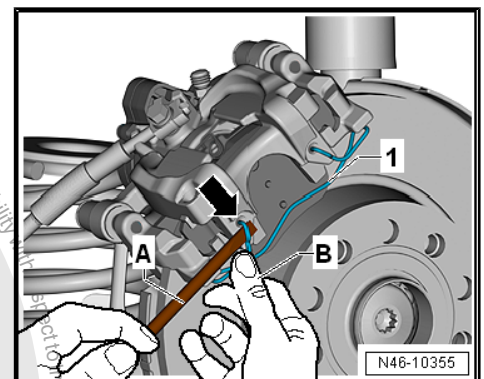
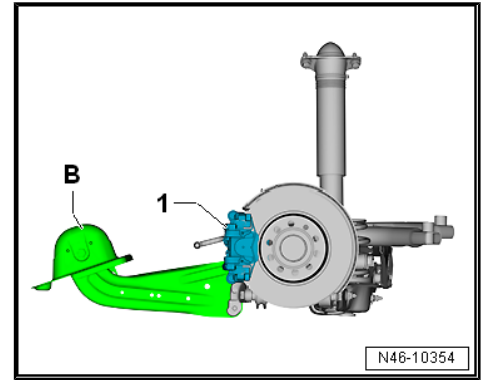
CAUTION

**There is a risk of injury because the spring is tensioned.
The spring can jump out and cause eye or skin injury.**

- Hold the spring with a hand.

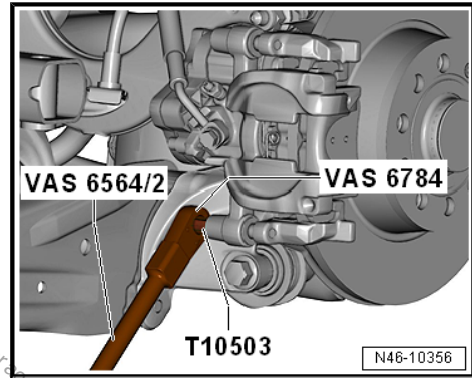
- Using screwdriver -A-, pry off the brake pad retaining spring -1- from brake caliper -arrow-, while doing so secure the retaining spring with the other hand.

- Remove caps -arrows-.





- Remove both guide pins from the brake caliper using the Hex Bit - 7mm - T10503- and Torque Wrench 1331 Insert - Ratchet Head - VAS6784- .



- Remove brake caliper -1- and secure with wire -A- so that the weight of the brake caliper does not stress or damage the brake hose.

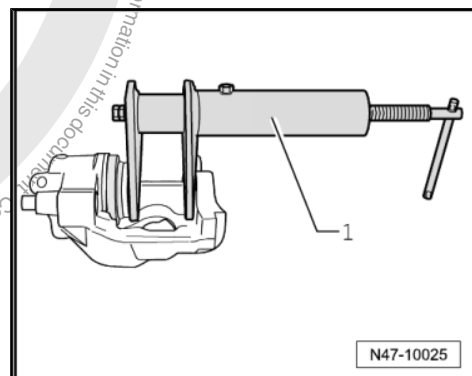
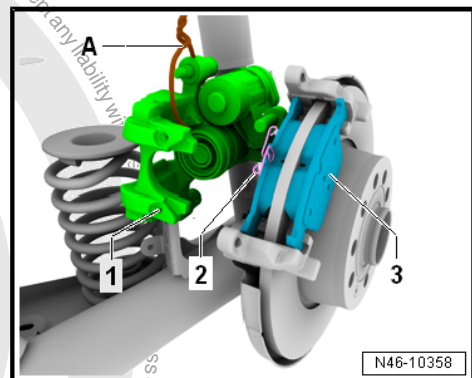


Note

Driving back the pistons with using the -Vehicle Diagnostic Tester- is not necessary. The pressure nut in the piston is a floating mount so the piston can only be pressed and cannot be pulled back. Only the spindle with the pressure nut is moved back.

The piston must first be reset using the -Vehicle Diagnostic Tester- .

- Use the Piston Resetting Tool - T10145- to press back the piston





- Remove the brake pads -2 and 3-.

Cleaning:

WARNING

Health risk due to toxic dust from the brake system.
Irreversible deposit of dust particles in the lungs. Breathing impairments may occur.

- Never blow out the brake system with compressed air.

- Thoroughly clean contact surfaces for brake pads at brake carrier, remove corrosion.
- Clean the brake caliper.

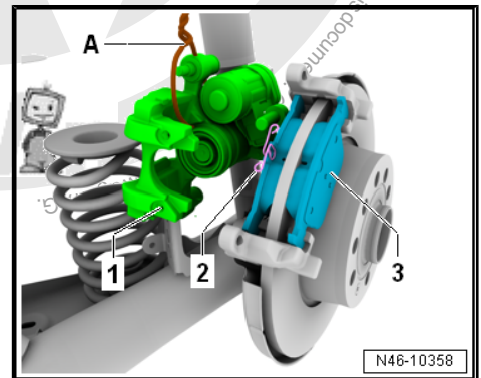
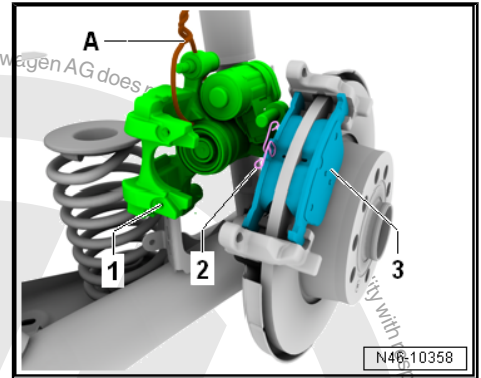
Note

Use only appropriate solvents for cleaning brake caliper.

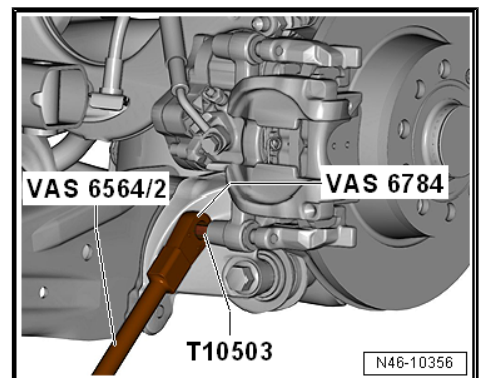
Installing

Install in reverse order of removal while paying attention to the following:

- Install the inner brake pad -2- and outer -3- in the brake carrier.

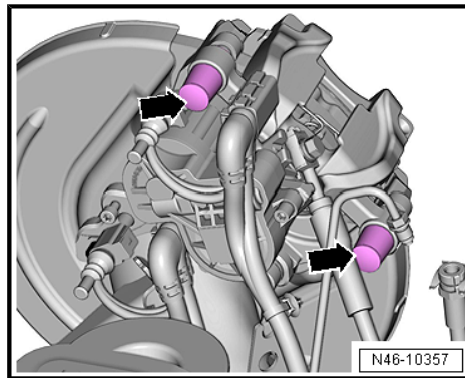


- Attach the brake caliper.





- Install the caps -arrows-.



- Install the brake pads spring in the brake caliper opening -arrow-.



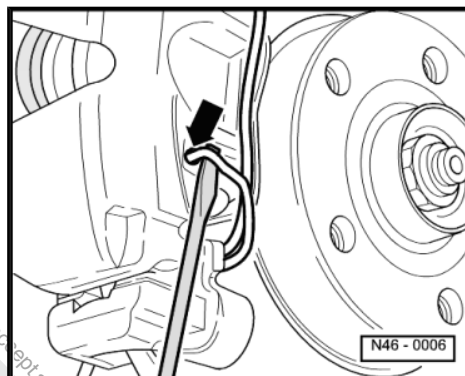
Note

Make sure that the spring is seated correctly in the holes on the brake caliper.

- Drive out the pistons using the -Vehicle Diagnostic Tester-.
- Install the wheels.

Tightening Specifications

- ◆ Refer to ⇒ [“2.1 Overview - Rear Brakes”, page 66](#)
- ◆ Wheel bolts. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 44 ; Wheels and Tires; Wheel Bolt Tightening Specifications .



Note

Check brake fluid level after replacing brake pad.

2.3 Brake Caliper, Removing and Installing

Special tools and workshop equipment required

- ◆ Vehicle Diagnostic Tester
- ◆ Brake Bleeding Tool Set - VAS6564-
- ◆ Torque Wrench 1331 Insert - Ratchet Head - VAS6784-
- ◆ Hex Bit - 7mm - T10503-
- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Piston Resetting Tool - T10145-
- ◆ Brake Pedal Actuator - VAG1869/2- .

Removing



Note

Work procedure applies only for replacing or when performing subsequent service work on brake caliper.



Note

Do not disconnect the connectors from the parking brake motors.

- Remove the wheel from the affected rear side.

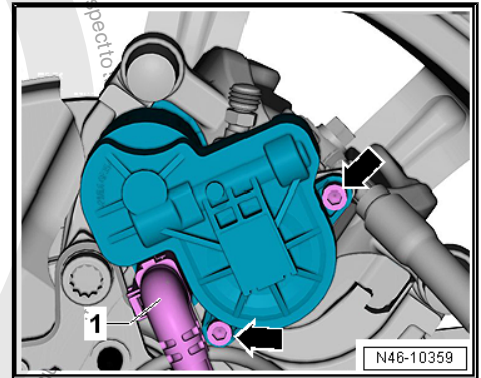
The pistons on the electromechanical parking brake must be driven back using the -Vehicle Diagnostic Tester-.



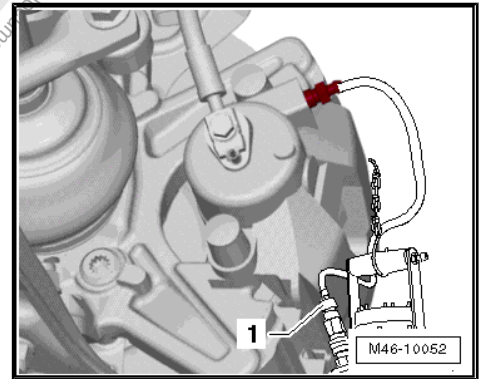
Note

Before pressing piston back, draw off brake fluid from reservoir using a bleeder bottle. Otherwise, especially if reservoir has been topped off, fluid will overflow and cause damage.

- Drive back the piston with the -Vehicle Diagnostic Tester-.
- Remove the bolts -arrows- for the parking brake motor.
- Remove the parking brake motor and set aside, without disconnecting the connectors.



- Attach the bleeder bottle bleed hose -1- to the brake caliper bleed valve.
- Open the bleeder valve.
- Install the Brake Pedal Actuator - VAG1869/2-.
- Close the bleed valve and remove the bleeder bottle.
- Remove the brake hose.

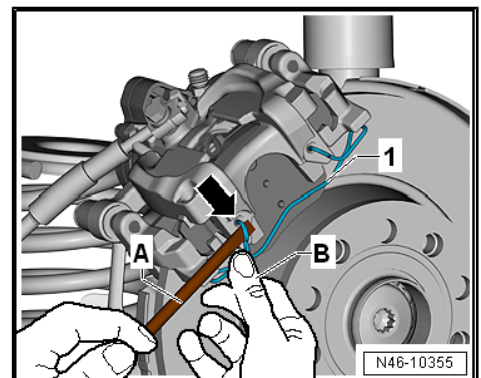


CAUTION

**There is a risk of injury because the spring is tensioned.
The spring can jump out and cause eye or skin injury.**

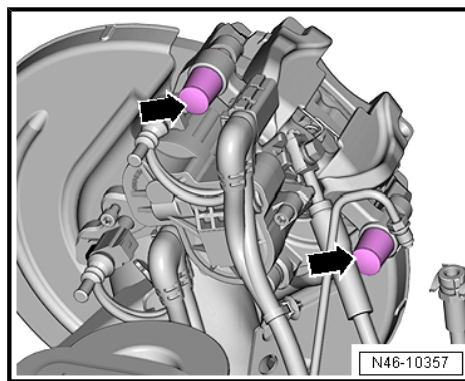
- Hold the spring with a hand.

- Using screwdriver -A-, pry off the brake pad retaining spring -1- from brake caliper -arrow-, while doing so secure the retaining spring with the other hand.





- Remove caps -arrows-.



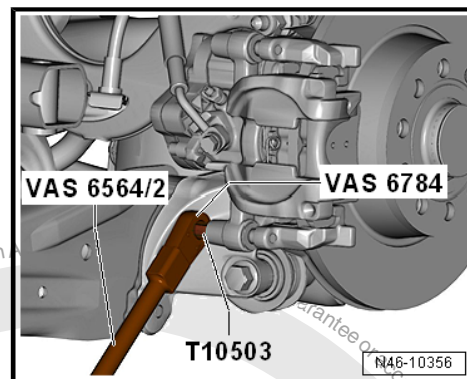


- Remove both guide pins from the brake caliper using the Hex Bit - 7mm - T10503- and Torque Wrench 1331 Insert - Ratchet Head - VAS6784- .
- Remove the brake caliper from the brake carrier.

Installing

Install in reverse order of removal while paying attention to the following:

- Brake pads sit in retaining springs on the brake carrier.
- Secure brake caliper on brake carrier using new self-locking bolts.



Note

Ring groove and contact surface of parking brake motor must be clean.

- Install new seal.
- Turn the spindle back slightly using a E11 TORX® socket, until the parking brake motor can be correctly positioned.
- Carefully install the parking brake motor, while doing so pay attention to the seating of the seals.
- Rotate the parking brake motor until the bolt hole and threads are aligned.



Note

Make sure that the parking brake motor is seated flush against the brake caliper. Do not, under any circumstances, pull the parking brake motor against the brake caliper using the bolts.

- Install new hex socket bolts by hand and then tighten.
- Screw brake hose on the brake caliper.
- Bleed the brake system. Refer to
⇒ [“6.2 Hydraulic System, Standard Bleeding”, page 146](#) .

After driving the pistons out using the -Vehicle Diagnostic Tester-, a basic setting of the brake system must be performed.

- Perform the basic setting of the brake system with the -Vehicle Diagnostic Tester- .
- Install the wheel.

Tightening Specifications

- ◆ Refer to ⇒ [“2.1 Overview - Rear Brakes”, page 66](#)
- ◆ Bleeder valve. Refer to
⇒ [“2.1 Overview - Rear Brake Caliper”, page 95](#) .
- ◆ Wheel bolts. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 44 ; Wheels and Tires; Wheel Bolt Tightening Specifications .



Note

Check brake fluid level.



3 Parking Brake

⇒ ["3.1 Overview - Parking Brake Component Location", page 76](#)

⇒ ["3.2 Electromechanical Parking Brake Control Module J540, Removing and Installing", page 77](#)

⇒ ["3.3 Left/Right Parking Brake Motor V282 / V283, Removing and Installing", page 77](#)

3.1 Overview - Parking Brake Component Location

1 - Hex Socket Head Bolt

- 8 Nm

2 - Parking Brake Motor

- Left Parking Brake Motor - V282- , component location: on the left rear brake caliper
- Right Parking Brake Motor - V283- , component location: on the right rear brake caliper
- Removing and installing. Refer to ⇒ ["3.3 Left/Right Parking Brake Motor V282 / V283, Removing and Installing", page 77](#) .

3 - Electromechanical Parking Brake Control Module - J540-

- Integrated in the ABS Control Module - J104- and cannot be replaced separately.
- ABS Control Module - J104- , removing and installing. Refer to ⇒ ["3.2.1 ABS Control Module and ABS Hydraulic Unit, Removing and Installing, LHD, Gasoline Engine", page 20](#) .

4 - -AUTO HOLD- Button - E540-

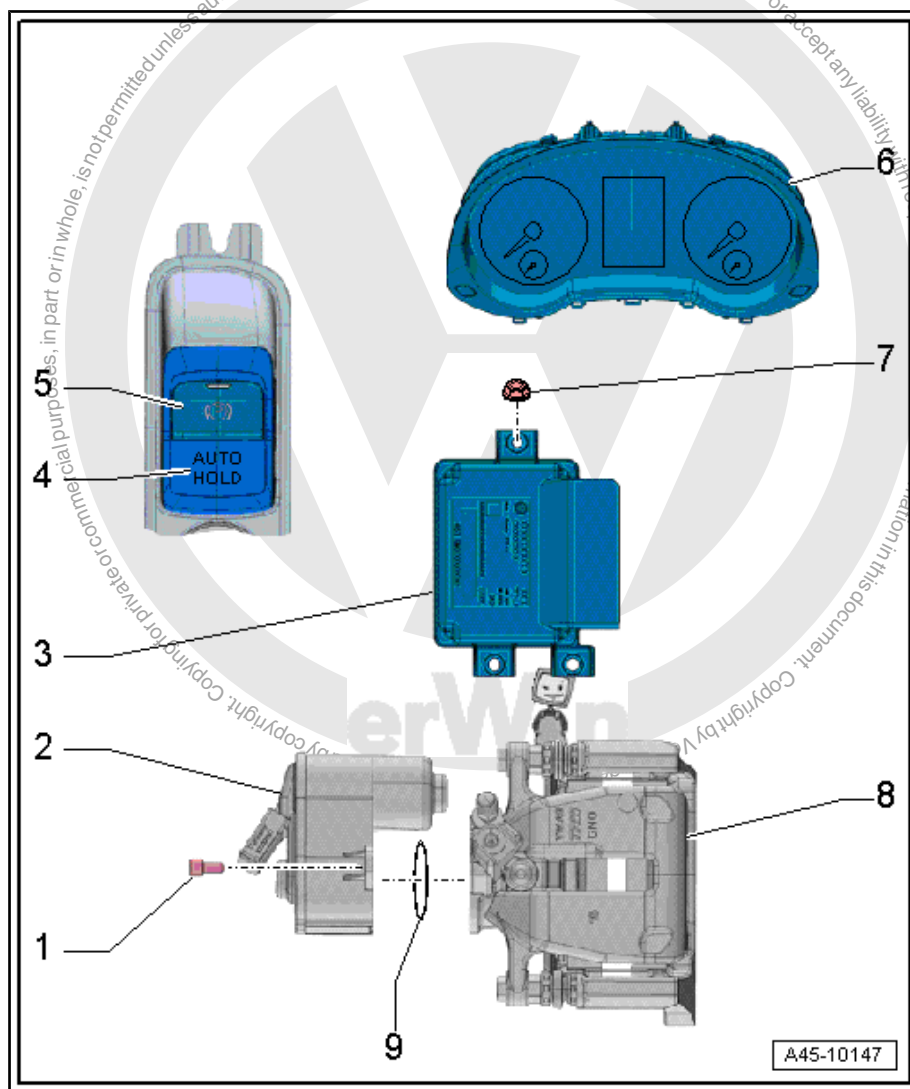
- With -AUTO HOLD- Indicator Lamp - K237-
- Component location: inside the center console
- Removing and Installing. Refer to ⇒ Electrical Equipment; Rep. Gr. 96 ; Controls; Component Location Overview - Center Console Controls .

5 - Electromechanical Parking Brake Button - E538-

- With Electromechanical Parking Brake Indicator Lamp - K213-
- Component location: inside the center console
- Removing and Installing. Refer to ⇒ Electrical Equipment; Rep. Gr. 96 ; Controls; Component Location Overview - Center Console Controls .

6 - Instrument Cluster

- With Brake System Indicator Lamp - K118-





- ☐ With the Electric Parking/Hand Brake Malfunction Indicator Lamp - K214-

7 - Nut

- ☐ Not equipped

8 - Rear Brake Caliper

9 - Seal

- ☐ Replace

3.2 Electromechanical Parking Brake Control Module - J540- , Removing and Installing

The Electromechanical Parking Brake Control Module - J540- is integrated in the ABS Control Module - J104- and cannot be replaced separately.

- ABS Control Module - J104- , removing and installing. Refer to
⇒ [“3.2.1 ABS Control Module and ABS Hydraulic Unit, Removing and Installing, LHD, Gasoline Engine”, page 20](#) .

3.3 Left/Right Parking Brake Motor -V282- / -V283- , Removing and Installing

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Vehicle Diagnostic Tester

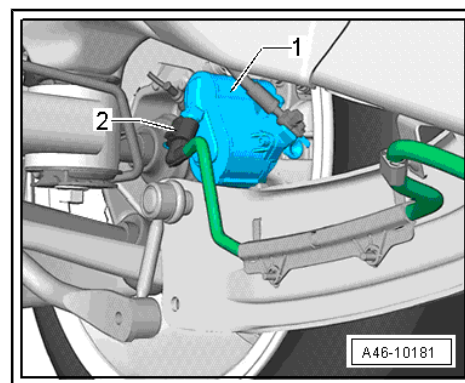
Removing



Note

Ignition must be switched off for at least 30 seconds before disconnecting the connector.

- Remove the connector -2- from the parking brake motor -1-.





- Remove both hex socket bolt -arrows- from the parking brake motor.
- Remove the parking brake motor from the brake caliper, while doing so turn the parking brake motor back and forth.
- Remove the seal.



Note

Make sure that the ring groove of the seal and the contact surface of the parking brake motor do not become damaged.

- Clean the parking brake motor ring groove and contact surface.

Installing

- Lightly grease the seal and install, while doing so do not twist or damage the seal.
- Completely grease the TORX® socket on the parking brake motor driveshaft.



Note

Do not remove the gasket when assembling the parking brake motor.

- Carefully push the parking brake motor on the brake caliper while doing so pay attention that the seals are seated correctly.



Note

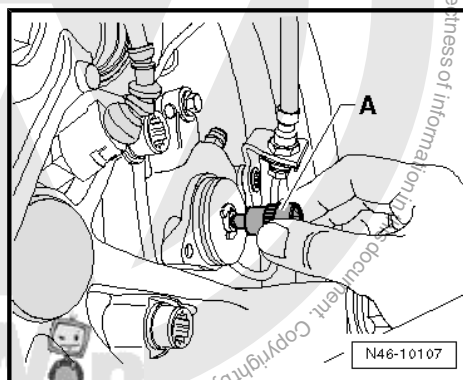
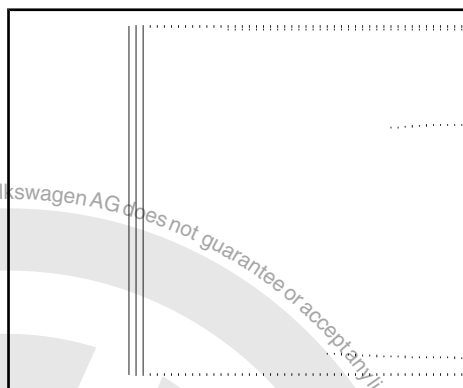
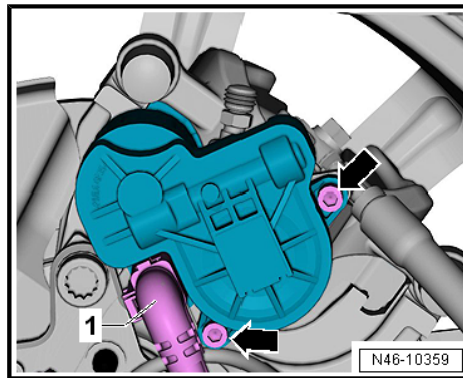
If necessary slightly turn back the drive shaft using a E11 TORX® socket -A- so that the parking brake motor can be correctly positioned.

- Rotate the parking brake motor until the bolt hole and threads are aligned.



Note

Make sure that the parking brake motor is seated flush against the brake caliper. Do not, under any circumstances, pull the parking brake motor against the brake caliper using the bolts.

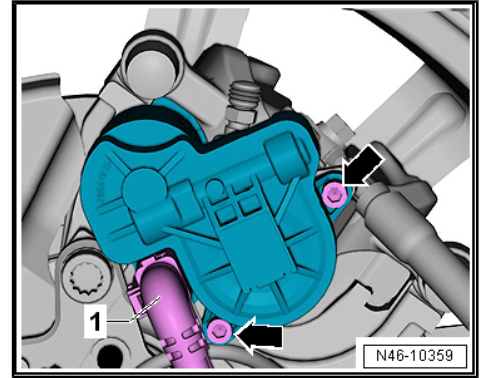




- Set the hex socket bolts -arrows- in place by hand and then tighten.
- Install connector -1-.
- Perform the basic setting of the brake system with the -Vehicle Diagnostic Tester- .

Tightening Specification

- ◆ Refer to
⇒ ["3.1 Overview - Parking Brake Component Location", page 76](#)





4 Brake Pedal

⇒ [“4.1 Overview - Brake Pedal”, page 80](#)

⇒ [“4.2 Bracket, Removing and Installing”, page 83](#)

⇒ [“4.3 Brake Pedal, Removing from Brake Booster”, page 87](#)

⇒ [“4.4 Brake Pedal, Attaching to Brake Booster”, page 88](#)

⇒ [“4.5 Brake Pedal, Removing and Installing”, page 88](#)

4.1 Overview - Brake Pedal

⇒ [“4.1.1 Brake Pedal, Assembly Overview”, page 80](#)

4.1.1 Brake Pedal, Assembly Overview



Note

- ◆ Do not shorten the bath for the brake pedal with additional carpets.
- ◆ Do not lubricate or grease the mounting pin. The mounting pin must remain dry.

1 - Self-Locking Hex Nut

- ❑ 25 Nm
- ❑ Replace after removing
- ❑ Bolt tightening sequence. Refer to
⇒ [Fig. ““Tightening Sequence””, page 81](#)

2 - Mounting Pin

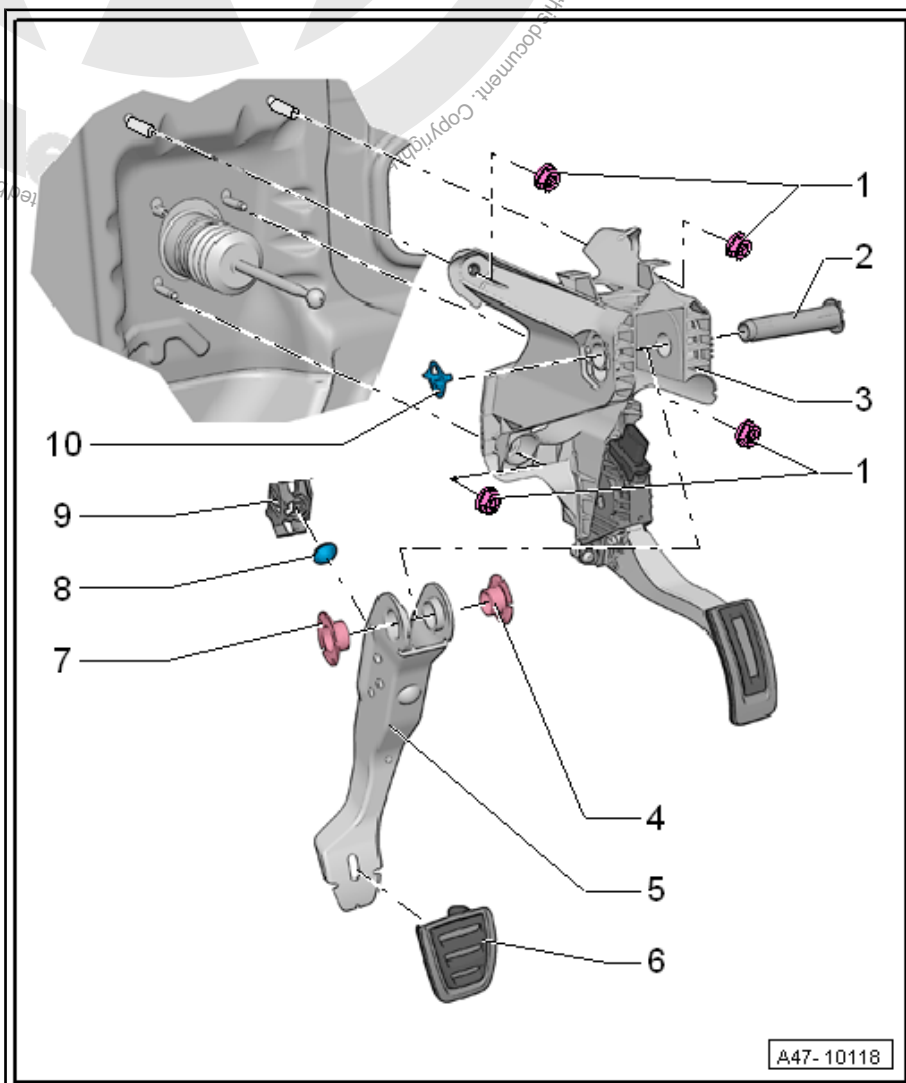
- ❑ Remove the bracket to remove.
- ❑ Removing Turn the mounting pin clockwise, while doing so the tabs on the mounting pin break.
- ❑ Replacing the mounting pin
- ❑ Do not lubricate or grease the mounting pin. The mounting pin must remain dry.
- ❑ Installing Turn the mounting pin counter-clockwise, until the tabs at stop engage audibly

3 - Foot Pedal Assembly/ Bracket

- ❑ Removing and installing. Refer to
⇒ [“4.2 Bracket, Removing and Installing”, page 83](#).

4 - Bearing Bushing

- ❑ Not exchangeable,





make sure that it is installed in the correct position.

5 - Brake Pedal

- ☐ Separate the brake pedal from brake booster. Refer to ➔ [“4.3 Brake Pedal, Removing from Brake Booster”, page 87](#) .
- ☐ Brake pedal to brake booster, connecting. Refer to ➔ [“4.4 Brake Pedal, Attaching to Brake Booster”, page 88](#) .
- ☐ Removing and installing. Refer to ➔ [“4.5 Brake Pedal, Removing and Installing”, page 88](#) .

6 - Cover

7 - Bearing Bushing

- ☐ Not exchangeable, make sure that it is installed in the correct position.

8 - Bearing Shell

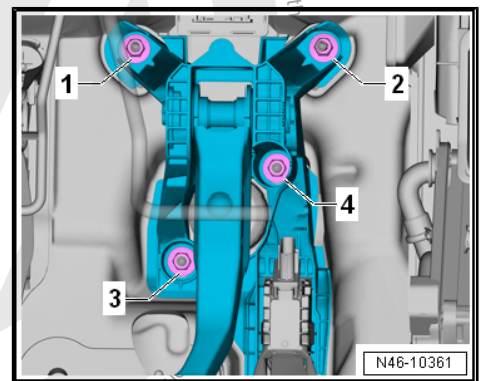
9 - Mount

- ☐ For the ball head on the brake booster push rod

10 - Clip

- ☐ Replacing
- ☐ Install in both holes on the bracket.

Tightening Sequence





4.1.2 Overview - Brake Pedal, RHD



Note

- ◆ Do not shorten the bath for the brake pedal with additional carpets.
- ◆ Do not lubricate or grease the mounting pin. The mounting pin must remain dry.

1 - Screw

- 20 Nm

2 - Bracket

- Removing and Installing. Refer to
⇒ ["4.2 Bracket, Removing and Installing", page 83](#).

3 - Nut

- 25 Nm

4 - Clip

- Replacing
- Insert in both holes on the bracket

5 - Nut

- To secure the brake booster
- Quantity: 2
- 25 Nm

6 - Mounting Pin

- Remove the bracket to remove.
- Removing: Turn the mounting pin clockwise and while doing so, the tabs on the mounting pin break.
- Replace the mounting pin
- Do not lubricate or grease the mounting pin. The mounting pin must remain dry.

- Installing: Turn the mounting pin counter-clockwise until the tabs engage audibly in the stop

7 - Bearing Bushing

- Not replaceable; check for proper installation position

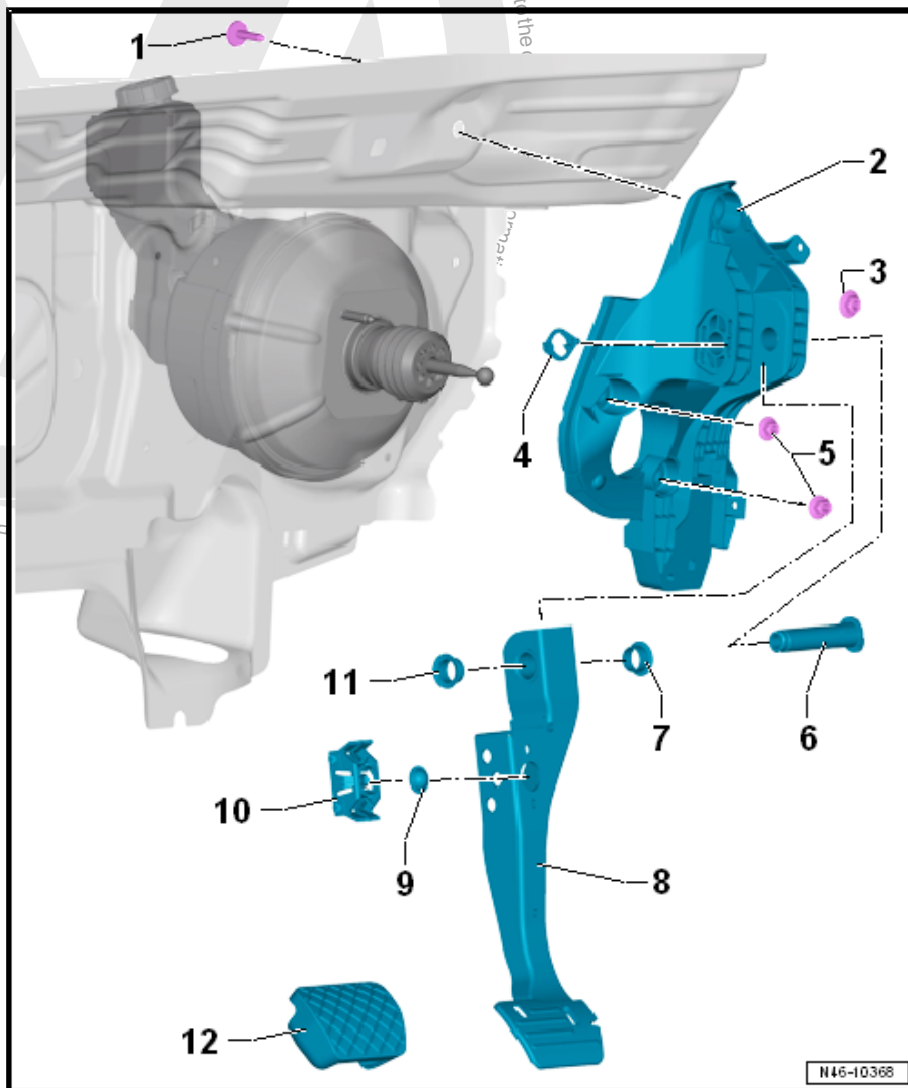
8 - Brake Pedal

- Brake Pedal, Removing from Brake Booster. Refer to
⇒ ["4.3 Brake Pedal, Removing from Brake Booster", page 87](#).
- Brake Pedal, Attaching to Brake Booster. Refer to
⇒ ["4.4 Brake Pedal, Attaching to Brake Booster", page 88](#).
- Removing and Installing. Refer to ⇒ ["4.5 Brake Pedal, Removing and Installing", page 88](#).

9 - Bearing Shell

10 - Mount

- For the brake booster push rod ball head





11 - Bearing Bushing

- ❑ Not replaceable; check for proper installation position

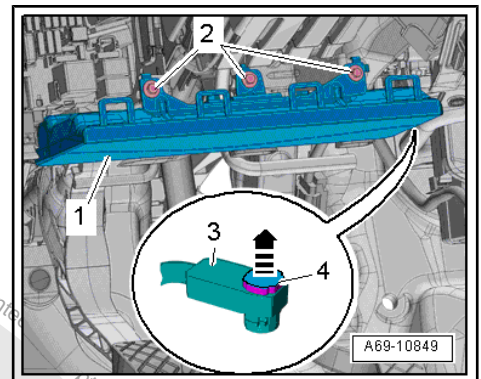
12 - Cap

4.2 Bracket, Removing and Installing

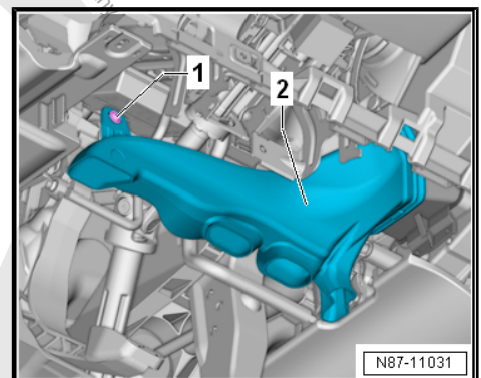
⇒ **"4.2.1 Mounting Bracket, Removing and Installing", page 83**

4.2.1 Mounting Bracket, Removing and Installing

- Remove the driver side instrument panel side cover. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Instrument Panel; Instrument Panel Side Cover, Removing and Installing .
- Remove the footwell cover on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartment/Covers .
- Remove the driver side center console cover. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Center Console; Center Console Cover, Removing and Installing .
- Remove the driver side storage compartment. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartment/Covers .
- Remove the driver side instrument panel cover. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments/Covers; Driver Side Instrument Panel Cover, Removing and Installing .
- Remove the knee airbag -1-. Refer to ⇒ Body Interior; Rep. Gr. 69 ; Overview - Knee Airbag .

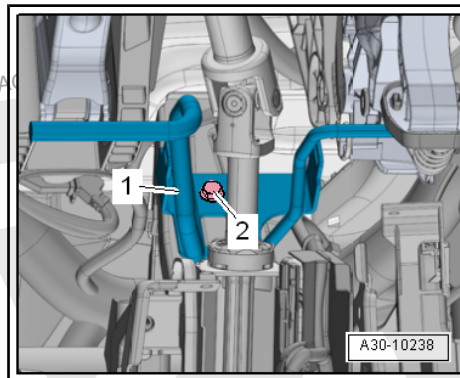


- Remove the driver side footwell vent. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 87 ; Air Routing; Overview - Passenger Compartment Air Ducts and Air Distribution .
- Remove the brake pedal crash bolster and set aside. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Instrument Panel Central Tube; Overview - Instrument Panel Central Tube .

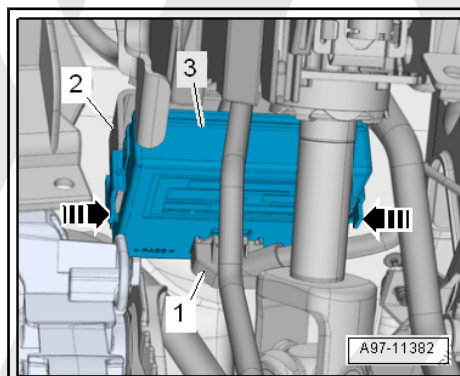




- Remove the bolt -2-, and disengage the crash bolster -1- and push aside.



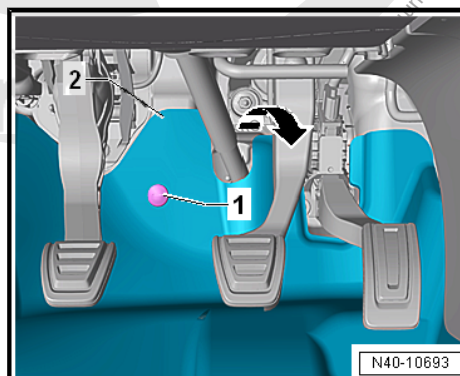
- Remove the Data Bus On Board Diagnostic Interface - J533-3- control module and set aside. Refer to ⇒ Electrical Equipment; Rep. Gr. 97 ; Control Module; Overview - Data Bus On Board Diagnostic Interface .



- Disconnect the brake pedal from the brake booster. Refer to ⇒ ["4.3 Brake Pedal, Removing from Brake Booster"](#), page 87 .

- Remove the connector from the accelerator pedal position sensor.

- Remove the bolts -1- and fold the footwell trim panel -2- in the direction of the -arrow- into the vehicle interior.

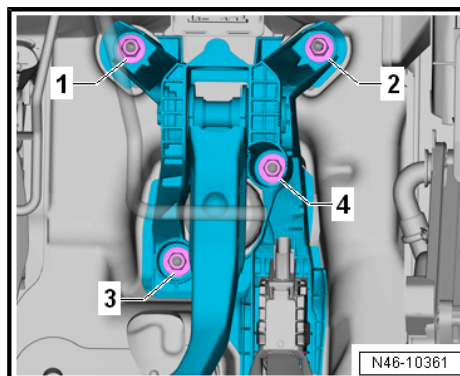


- Remove the nuts -1 through 4-.
- Carefully remove the pedal assembly.

Installing

Install in reverse order of removal while paying attention to the following:

- Connect the brake pedal with the brake booster. Refer to ⇒ ["4.4 Brake Pedal, Attaching to Brake Booster"](#), page 88 .

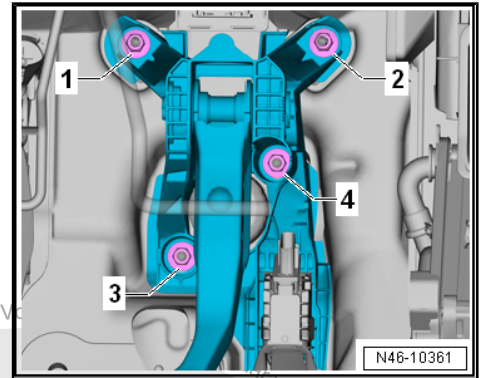




Nut Tightening Sequence:

Tightening Specifications

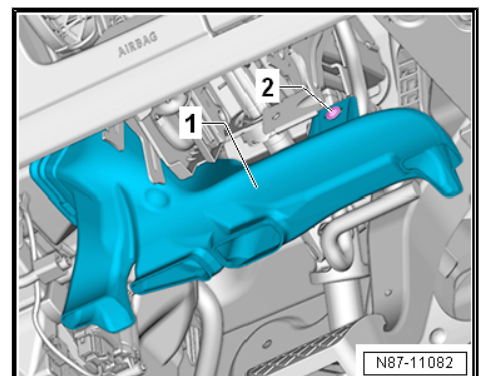
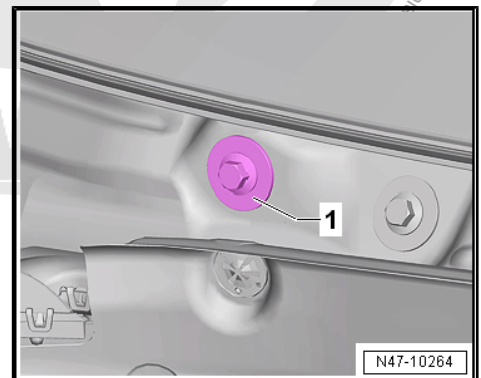
- ◆ Refer to
⇒ [“4.1.1 Brake Pedal, Assembly Overview”, page 80](#)
- ◆ Crash Bolster. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Instrument Panel Central Tube; Overview - Instrument Panel Central Tube .
- ◆ Footwell Vent. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 87 ; Air Routing; Overview - Passenger Compartment Air Ducts and Air Distribution .
- ◆ Knee Airbag. Refer to ⇒ Body Interior; Rep. Gr. 69 ; Knee Airbags; Overview - Knee Airbag
- ◆ Driver Side Covers. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartment/Covers; Component Location Overview - Storage Compartment/Covers



4.2.2 Mounting Bracket, Removing and Installing, RHD

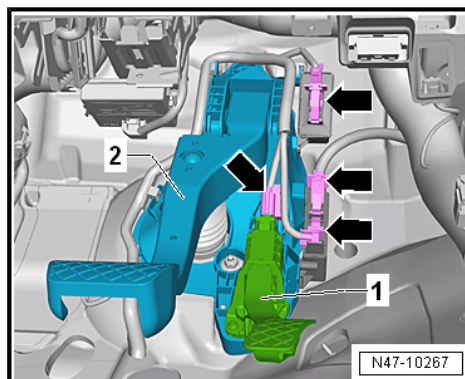
Removing

- Remove the windshield wiper arms. Refer to ⇒ Electrical Equipment; Rep. Gr. 92 ; Windshield Wiper System; Wiper Arms, Removing and Installing .
- Remove the plenum chamber cover. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Bulkhead; Plenum Chamber Cover, Removing and Installing .
- Remove the Windshield Wiper Motor - V- . Refer to ⇒ Electrical Equipment; Rep. Gr. 92 ; Windshield Wiper System; Windshield Wiper Motor V, Removing and Installing .
- Remove the bolt -1-.
- Remove the driver side instrument panel side cover. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Instrument Panel; Instrument Panel Side Cover, Removing and Installing .
- Remove the footwell cover on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartment/Covers .
- Remove the driver side storage compartment. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartment/Covers .
- Remove the driver side instrument panel cover. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments/Covers; Driver Side Instrument Panel Cover, Removing and Installing .
- Remove the knee airbag. Refer to ⇒ Body Interior; Rep. Gr. 69 ; Knee Airbags; Overview - Knee Airbag .
- Remove the driver side footwell vent -1-. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 87 ; Air Duct; Overview - Air Ducts and Air Distribution in Passenger Compartment .
- Remove the bolt -2- and remove the driver side footwell vent -1-.
- Remove the brake pedal crash bolster and set aside. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Instrument Panel Central Tube; Overview - Instrument Panel Central Tube .
- Disconnect the brake pedal from the brake booster. Refer to ⇒ [“4.3 Brake Pedal, Removing from Brake Booster”, page 87](#) .

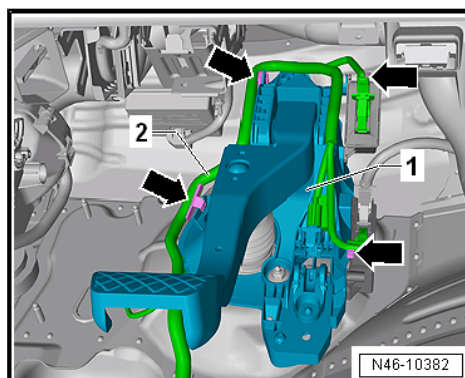




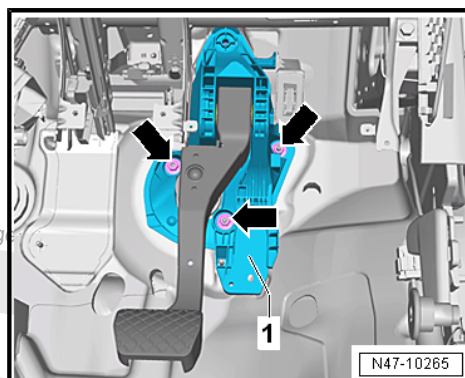
- Disconnect and remove the connector -arrow-.
- Remove the Accelerator Pedal Module -1- from the bracket -2-. Refer to ➤ Rep. Gr. 20 ; Accelerator Pedal Mechanism; Accelerator Pedal Module with Accelerator Pedal Position Sensor G79/G185, Removing and Installing .



- Unclip the wiring harness -2- from the bracket -1- -arrows-.



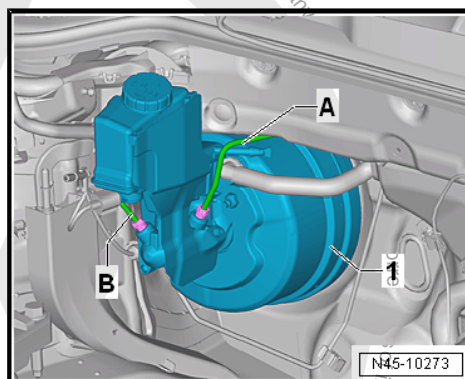
- Remove the nuts -arrows- from the bracket -1-.



- Secure the brake booster -1- from falling out.

Installing

Install in reverse order of removal while paying attention to the following:

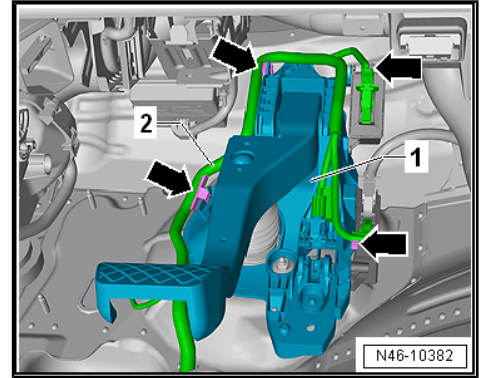




- Route the wiring harness -2- correctly so that it is not pinched.
- Clip in the wiring harness -2- on the bracket -1- -arrows-.
- Connect the brake pedal with the brake booster. Refer to ➤ [“4.4 Brake Pedal, Attaching to Brake Booster”, page 88](#) .

Tightening Specifications

- ◆ ➤ [“4.1.2 Overview - Brake Pedal, RHD”, page 82](#)
- ◆ Crash Bolster. Refer to ➤ Body Interior; Rep. Gr. 70 ; Instrument Panel Central Tube; Overview - Instrument Panel Central Tube .
- ◆ Footwell Vent. Refer to ➤ Heating, Ventilation and Air Conditioning; Rep. Gr. 87 ; Air Routing; Overview - Passenger Compartment Air Ducts and Air Distribution .
- ◆ Knee Airbag. Refer to ➤ Body Interior; Rep. Gr. 69 ; Knee Airbags; Overview - Knee Airbag
- ◆ Driver Side Covers. Refer to ➤ Body Interior; Rep. Gr. 68 ; Storage Compartment/Covers; Component Location Overview - Storage Compartment/Covers .
- ◆ Windshield wiper system. Refer to ➤ Electrical Equipment; Rep. Gr. 92 ; Windshield Wiper System; Overview - Windshield Wiper System
- ◆ Plenum chamber cover. Refer to ➤ Body Exterior; Rep. Gr. 50 ; Bulkhead; Overview - Plenum Chamber Cover .



4.3 Brake Pedal, Removing from Brake Booster

Special tools and workshop equipment required

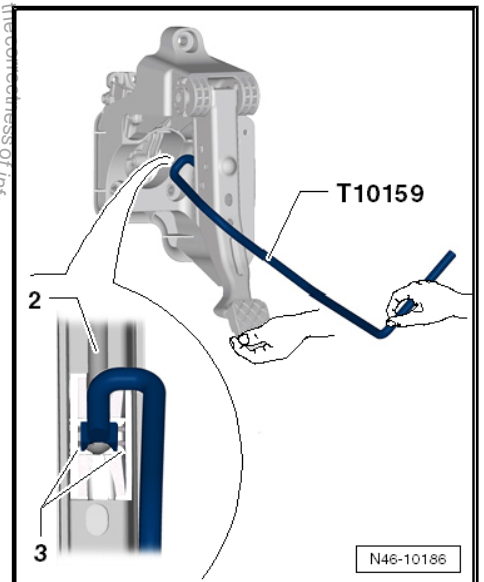
- ◆ Release Tool - T10159B-
 - Remove the footwell cover on the driver side. Refer to ➤ Body Interior; Rep. Gr. 68 ; Storage Compartment/Covers .
 - Press and hold the brake pedal in the direction of the brake booster.
- 2 - Push Rod
- 3 - Retaining Tabs
 - Insert the Release Tool - T10159B- and pull in the direction of the driver seat. While doing so, counterhold on the brake pedal (at this moment the pedal must not move to the driver seat). The mount retaining tabs -3- will thereby be pressed off the ball head of the push rod -2-.

The process of separating the brake pedal from the brake booster is shown with the pedal assembly removed.

- Pull the Release Tool - T10159B- and brake pedal together in the direction of the driver seat. (This will pull the brake pedal off of the push rod ball head).

Tightening Specification

- ◆ Driver Side Footwell Cover. Refer to ➤ Body Interior; Rep. Gr. 68 ; Storage Compartment/Covers; Component Location Overview - Storage Compartment/Covers .



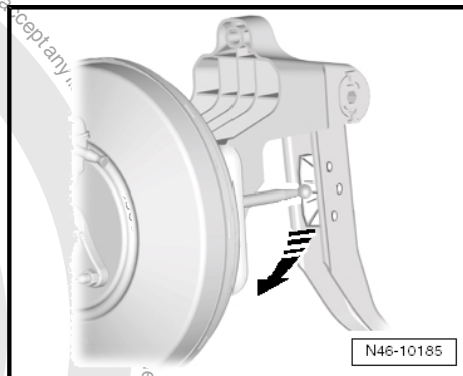


4.4 Brake Pedal, Attaching to Brake Booster

- Hold the push rod ball head in front of the mount and push the brake pedal toward the brake booster so that the ball head engages audibly.

- Check the engagement by pulling briefly on the brake pedal.

Install in reverse order of removal.



4.5 Brake Pedal, Removing and Installing

⇒ **"4.5.1 Brake Pedal, Removing and Installing", page 88**

4.5.1 Brake Pedal, Removing and Installing

Removing the brake pedal separately in the vehicle is not possible.

- Remove the pedal assembly/bracket first. Refer to
⇒ **"4.2 Bracket, Removing and Installing", page 83**.



Note

Remove the brake pedal from the removed bracket.



- Turn the mounting pin clockwise in the direction of the -arrow-.
- 1- = 14 mm Hex Socket Wrench



Note

While doing so, the tabs -B- break. Replace the mounting pin.

- Remove the clip from the mounting pin.
- Remove the mounting pin toward the right.
- Remove the brake pedal from the bracket.

Installing

Install in reverse order of removal while paying attention to the following:



Note

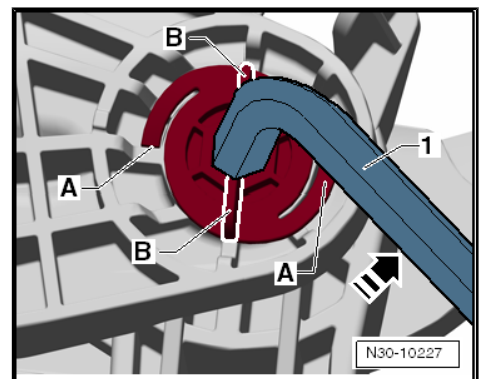
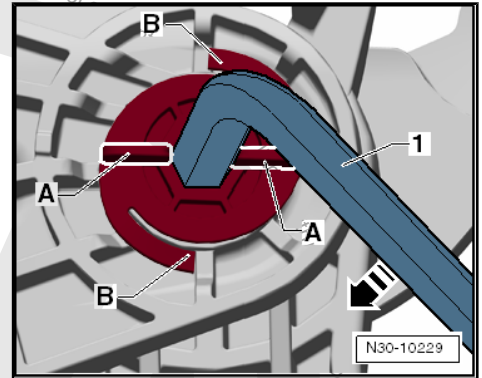
Replace the mounting pin and clip.



Note

Do not lubricate or grease the mounting pin. The mounting pin must remain dry.

- Push the mounting pin from the right to the left through the bracket and brake pedal.
- Place the clip on the mounting pin, while doing so place the mounting pin in both openings on the bracket.
- Turn the mounting pin counter-clockwise in the direction of the -arrow- until the tabs -A- on the stop engage audibly in the bracket.
- Install the pedal assembly/bracket. Refer to [⇒ "4.2 Bracket, Removing and Installing", page 83](#) .

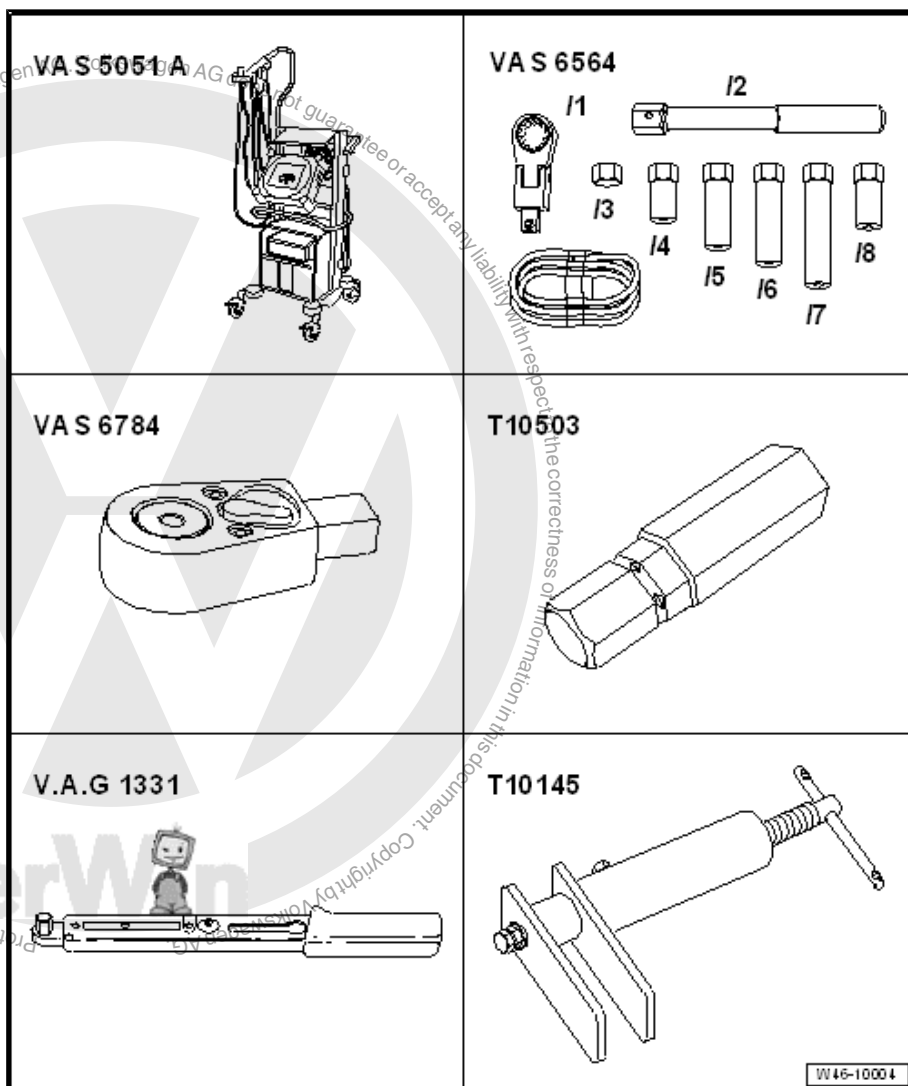




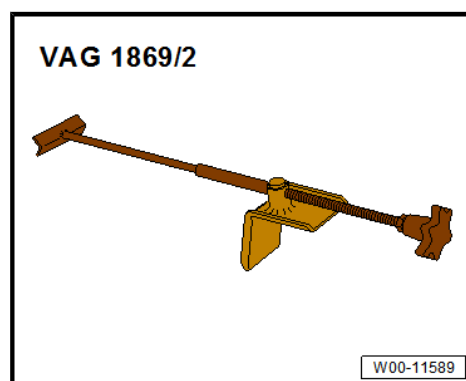
5 Special Tools

Special tools and workshop equipment required

- ◆ Vehicle Diagnostic Tester
- ◆ Brake Bleeding Tool Set - VAS6564-
- ◆ Torque Wrench 1331 Insert - Ratchet Head - VAS6784-
- ◆ Hex Bit - 7mm - T10503-
- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Piston Resetting Tool - T10145-



- ◆ Brake Servo Release Tool - T10159A-
- ◆ Brake Pedal Actuator - VAG1869/2- .





47 – Hydraulic Components

1 Front Brake Caliper

⇒ [“1.1 Overview - Front Brake Caliper”, page 91](#)

⇒ [“1.2 Brake Caliper Piston, Removing and Installing”, page 93](#)

1.1 Overview - Front Brake Caliper

⇒ [“1.1.1 Overview - Brake Caliper FS III”, page 91](#)

⇒ [“1.1.2 Overview - Brake Caliper PC57”, page 92](#)

1.1.1 Overview - Brake Caliper FS III

1 - Dust Cap

- ☐ Attach to bleeder valve

2 - Bleeder Valve

- ☐ 10 Nm
- ☐ Lightly grease the threads with Lithium Lubricating Grease - G 052 150 A2- before screwing in.

3 - Bearing Bushing

- ☐ Insert in brake caliper

4 - Guide Pin

- ☐ 30 Nm

5 - Caps

- ☐ Insert in bushing

6 - Brake Caliper

7 - Seal

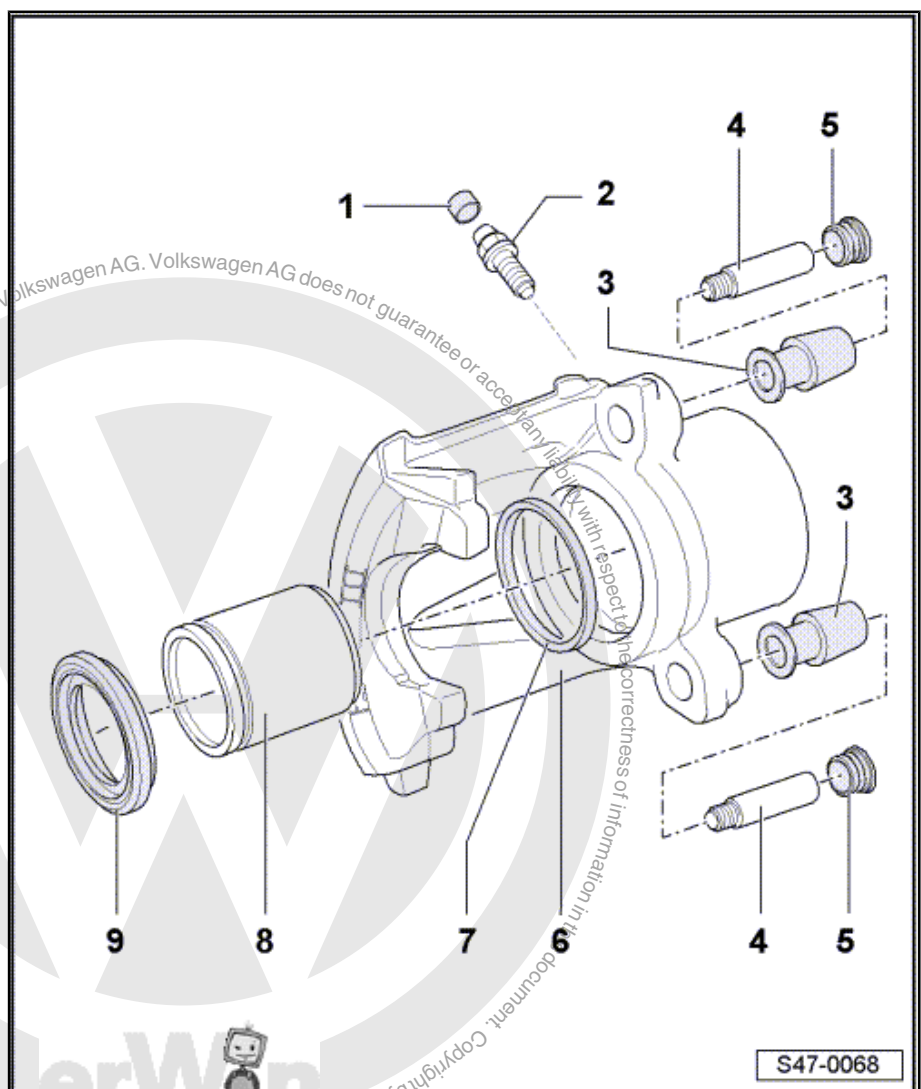
- ☐ Removing and Installing. Refer to
⇒ [“1.2.1 Brake Caliper Piston PC57, Removing and Installing”, page 93](#).

8 - Piston

- ☐ Apply thin coat of assembly paste G 052 150 A2 on the piston before inserting
- ☐ Removing and Installing. Refer to
⇒ [“1.2.1 Brake Caliper Piston PC57, Removing and Installing”, page 93](#).

7 - Protective Cap

- ☐ Removing and Installing. Refer to
⇒ [“1.2.1 Brake Caliper Piston PC57, Removing and Installing”, page 93](#).
- ☐ When inserting the piston do not damage the protective cap.



S47-0068



1.1.2 Overview - Brake Caliper PC57

1 - Dust Cap

- ❑ Install onto bleeder valve.

2 - Bleeder Valve

- ❑ 10 Nm
- ❑ Lightly grease the threads with Lithium Lubricating Grease - G 052 150 A2- before screwing in.

3 - Bolt

- ❑ 35 Nm
- ❑ Replace after removing.

4 - Guide Pins

5 - Protective Cap

- ❑ Lubricate the groove with the grease that comes with the repair kit and then install the cap into the groove on the brake carrier and the guide pin.

6 - Brake Carrier

- ❑ Is assembled with the guide pins and caps as well as with sufficient grease on the guide pins.
- ❑ Install the repair kit if the caps or guide pins are damaged. Use grease packet supplied to lubricate guide pins.

7 - Protective Cap

- ❑ Removing and installing. Refer to [⇒ "1.2.1 Brake Caliper Piston PC57, Removing and Installing", page 93](#) .
- ❑ When inserting the piston, do not damage the protective cap.

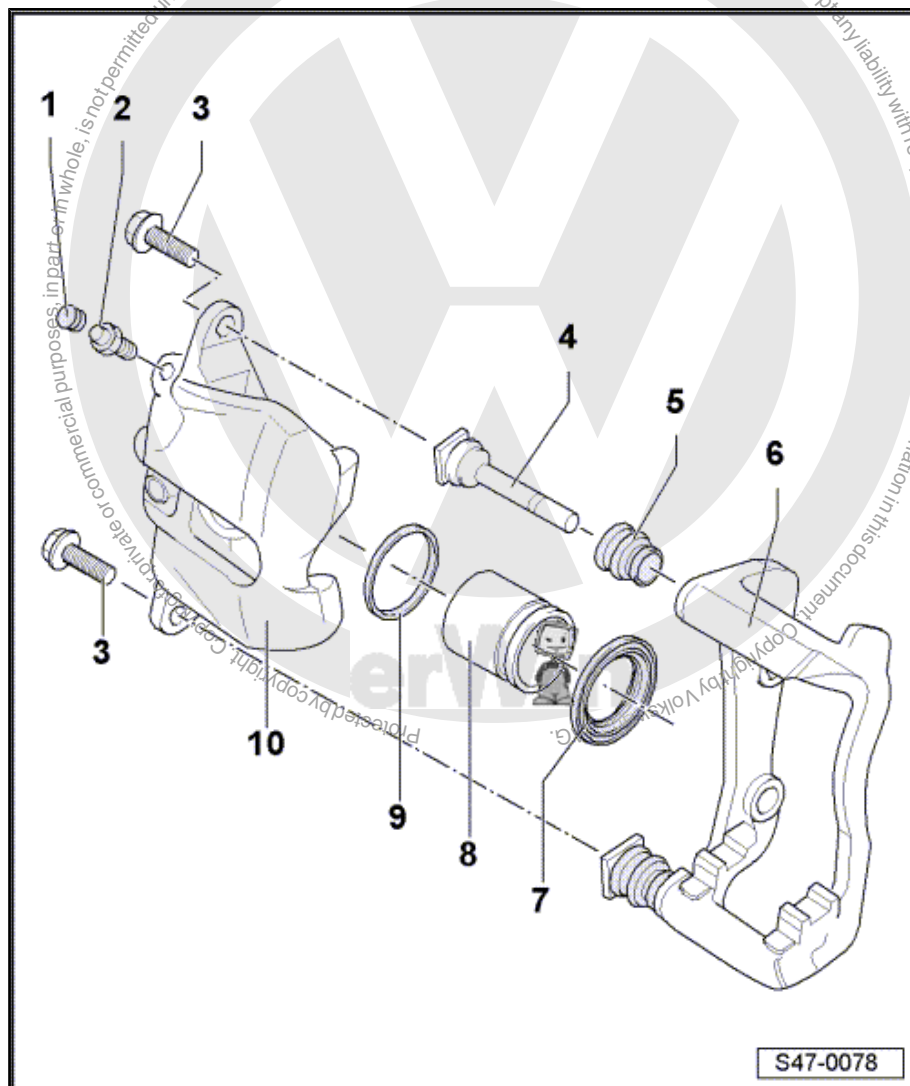
8 - Piston

- ❑ Removing and installing. Refer to [⇒ "1.2.1 Brake Caliper Piston PC57, Removing and Installing", page 93](#) .
- ❑ Apply thin coat of assembly paste G 052 150 A2 on the piston before inserting.

9 - Seal

- ❑ Removing and installing. Refer to [⇒ "1.2.1 Brake Caliper Piston PC57, Removing and Installing", page 93](#) .

10 - Brake Caliper





1.2 Brake Caliper Piston, Removing and Installing

⇒ ["1.2.1 Brake Caliper Piston PC57, Removing and Installing", page 93](#)

1.2.1 Brake Caliper Piston PC57, Removing and Installing

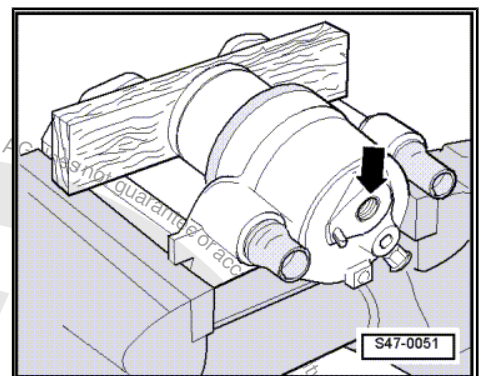
Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-
- ◆ Piston Resetting Tool - T10145-

Removing

- Force piston from brake caliper using compressed air.

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



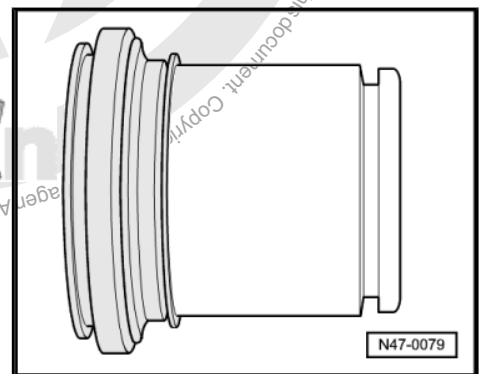
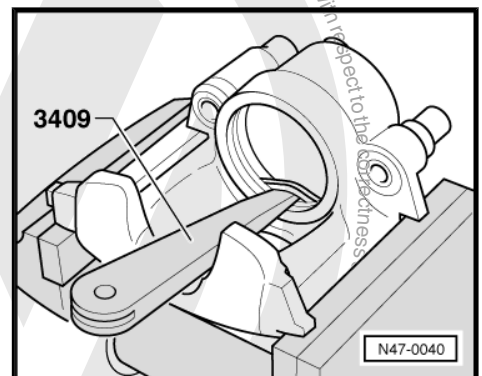
- Remove seal with wedge 3409.

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

Installing

Install in reverse order of removal while paying attention to the following:

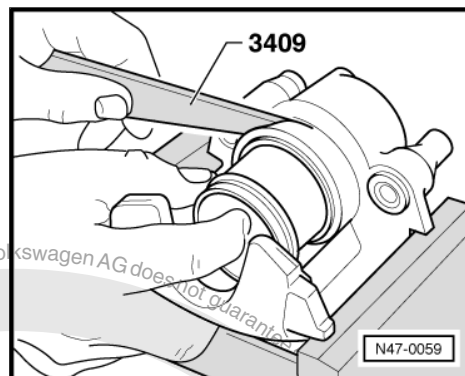
- Clean the surfaces on the pistons and seal with mineral spirits.
- Apply a thin coat of installation paste G 052 150 A2 on the piston and the seal before installing.
- Insert oil seal into brake caliper.
- Place the cap with the outer sealing lip on the piston.





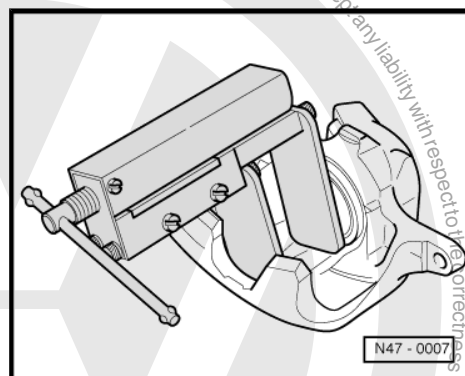
- Insert inner sealing lip in cylinder groove with trim removal wedge 3409.

Hold piston in front of brake caliper for this procedure.



- Press piston into the brake caliper using piston resetting tool.

Outer sealing lip of protective cap will then engage in piston groove.





2 Rear Brake Caliper

⇒ ["2.1 Overview - Rear Brake Caliper", page 95](#)

⇒ ["2.2 Dust Cap, Removing and Installing", page 95](#)

2.1 Overview - Rear Brake Caliper

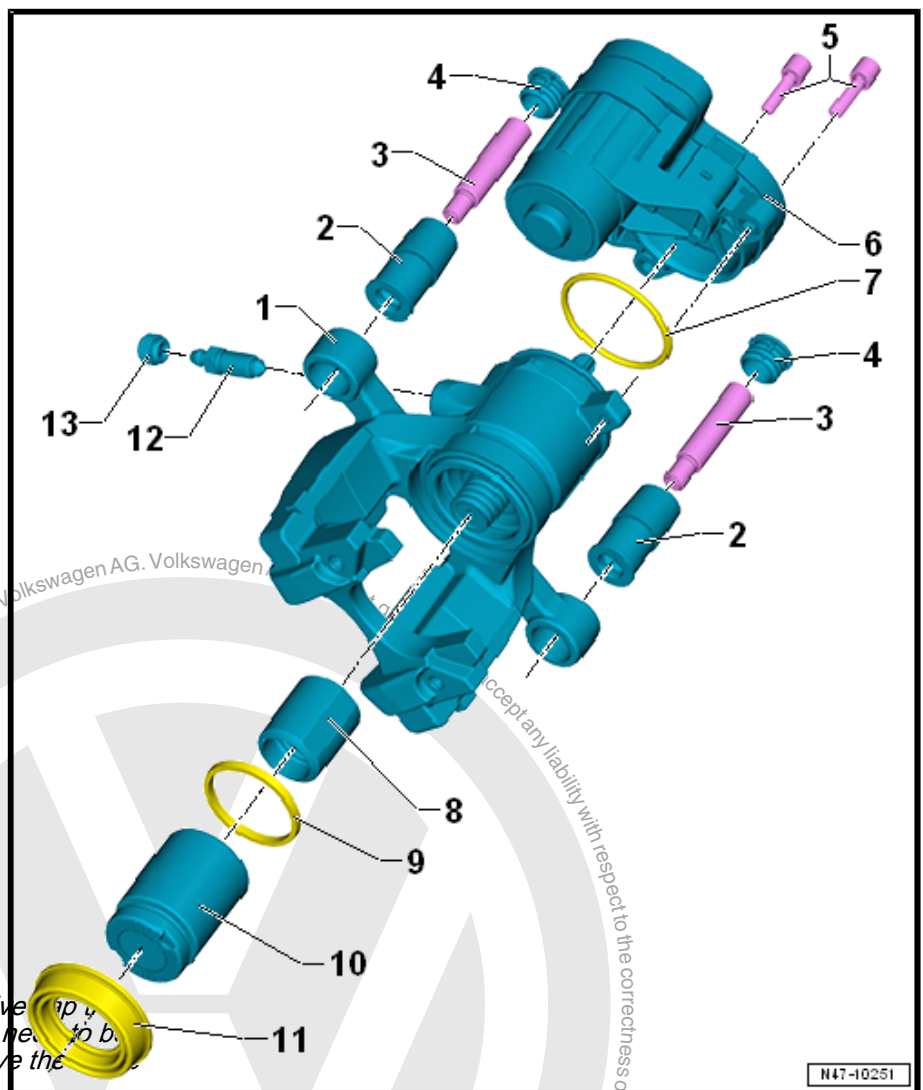
- ◆ Install complete repair kit when servicing.
- ◆ Only use mineral spirits to clean brake parts.
- ◆ New brake calipers are filled with brake fluid and are pre-bled.

- 1 - Brake Caliper
- 2 - Damping Sleeves
- 3 - Guide Pins
- 4 - Caps
- 5 - Hex Socket Head Bolt
 - ☐ 8 Nm
- 6 - Parking Brake Motor
- 7 - Seal
 - ☐ Replace
- 8 - Pressure Nut
 - ☐ Removing and installing is not possible.
- 9 - Seal
 - ☐ Removing and installing is not possible.
- 10 - Piston
 - ☐ Removing and installing is not possible.
- 11 - Protective Cap
 - ☐ Removing and installing. Refer to
⇒ ["2.2 Dust Cap, Removing and Installing", page 95](#).



Note

To change the protective cap of the rear brake caliper does not need to be removed, do not remove the hose.



- 12 - Bleeder Valve
 - ☐ 10 Nm
 - ☐ Apply a thin coat of assembly paste G 052 150 A2 to the threads before screwing in.
- 13 - Dust Cap

2.2 Dust Cap, Removing and Installing

Special tools and workshop equipment required



- ◆ Trim Removal Wedge - 3409-
- ◆ Press Piece - T10502- for the rear brakes FNc-M38 (15")
- ◆ Piston Resetting Tool - Caps /1,/2,/3,/4,/5 - T10146/5- for the rear brakes FNc-M42 (17")
- ◆ Piston Resetting Tool - T10145-

Removing

It is possible to only replace the protective cap.



Note

To change the protective cap the brake caliper does not need to be removed, do not remove the brake hose.

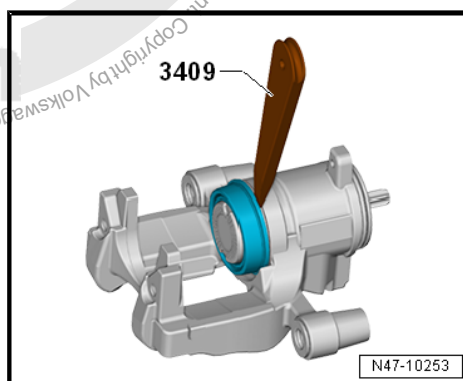
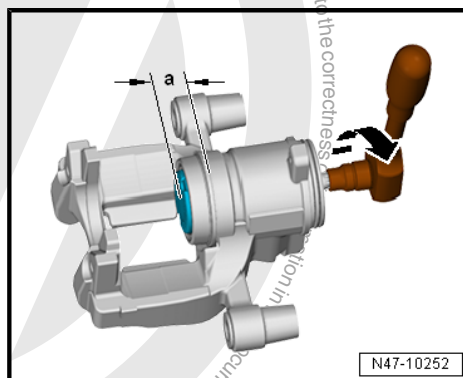
- The piston is driven back.
- The parking brake motor is removed.



NOTICE

There is a risk of destroying the ball thread by removing from the piston and thrust nut.

- **Never completely remove the piston and thrust nut.**
- Remove the piston maximum 20 mm -dimension a- with a E11 TORX® socket in the direction of the -arrow-.
- Pry up the protective cap with the Trim Removal Wedge - 3409- from the brake caliper -arrows-.



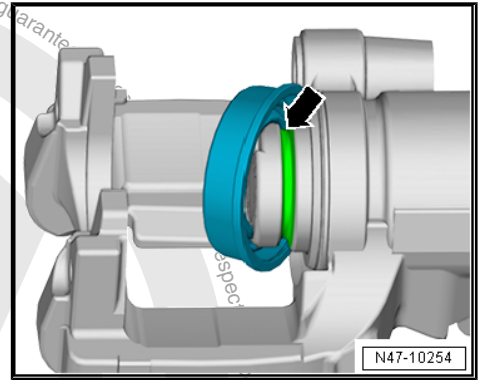
Installing

Install in reverse order of removal while paying attention to the following:

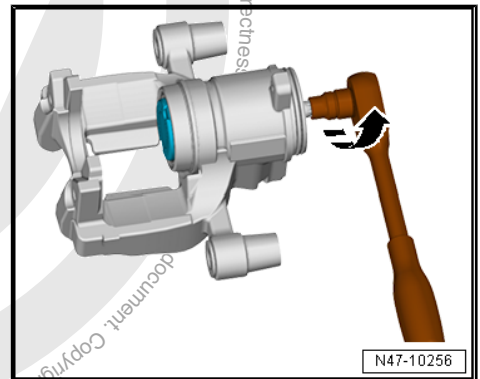
- The surface on the piston and the brake caliper must only be cleaned with mineral spirits and then dried.



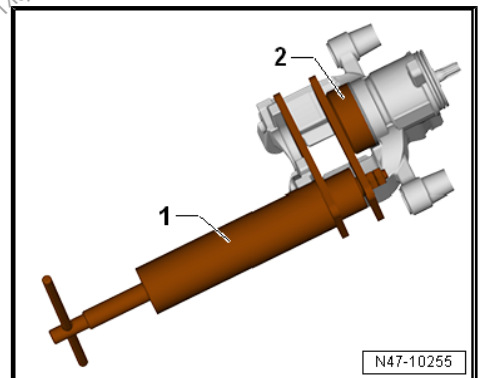
- Place the protective cap in the groove -arrow- on the piston.



- Reinstall the piston in the direction of the -arrow-.



- Push the protective cap on the brake caliper with the Seal Installer - Camshaft O-Ring - T10502- -2- and the Piston Resetting Tool - T10145- -1- so that it is all around the brake caliper.





3 Brake Booster/Master Brake Cylinder

⇒ [“3.1 Overview - Brake Booster/Master Brake Cylinder”, page 98](#)

⇒ [“3.2 Brake Lamp Switch, Removing and Installing”, page 102](#)

⇒ [“3.3 Brake Booster, Removing and Installing”, page 105](#)

3.1 Overview - Brake Booster/Master Brake Cylinder

⇒ [“3.1.1 Overview - Brake Booster/Brake Master Cylinder”, page 98](#)

3.1.1 Overview - Brake Booster/Brake Master Cylinder



Note

Only use new brake fluid conforming to VW standard (VW 501 14).

1 - Self-Locking Hex Nut

- ☐ 25 Nm
- ☐ Replace after removing
- ☐ Tightening sequence. Refer to
⇒ [Fig. “Tightening Sequence”, page 99](#)

2 - Bracket/Pedal Assembly

3 - Bulkhead

4 - Self-Locking Hex Nut

- ☐ 23 Nm
- ☐ Replace after removing

5 - Brake Master Cylinder

- ☐ Cannot be serviced. Replace as complete unit if malfunctioning.
- ☐ Removing and Installing. Refer to
⇒ [“3.4.1 Brake Master Cylinder, Removing and Installing”, page 127](#)

6 - Brake Lamp Switch - F-

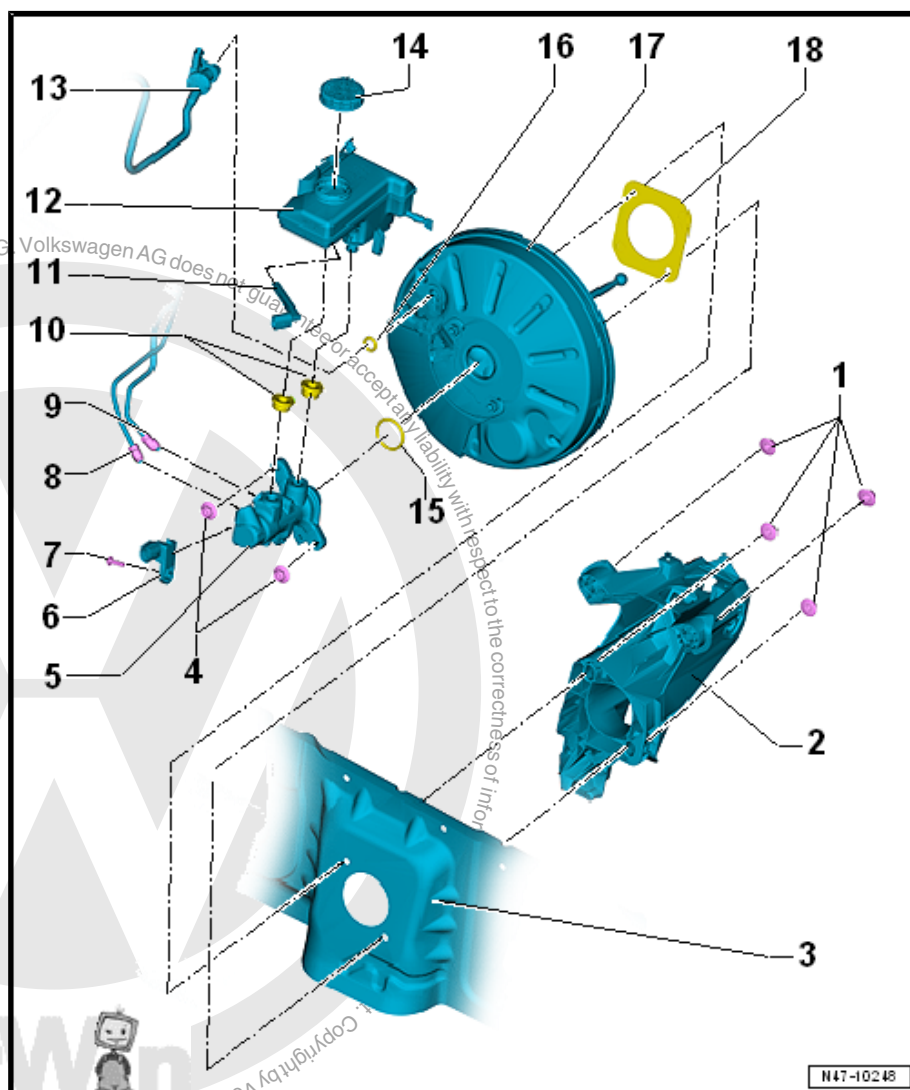
- ☐ Removing and installing. Refer to
⇒ [“3.2.1 Brake Lamp Switch, Removing and Installing”, page 102](#)

7 - Bolt

- ☐ 8 Nm

8 - Brake Line

- ☐ 14 Nm





- ☐ Master brake cylinder/
secondary piston circuit to hydraulic unit

9 - Brake Line

- ☐ 14 Nm
- ☐ Master brake cylinder/primary piston circuit to hydraulic control unit

10 - Sealing Plug

- ☐ Moisten with brake fluid and press into brake fluid reservoir

11 - Brake Fluid Level Warning Switch - F34-

12 - Brake Fluid Reservoir

- ☐ Bolt 8 Nm

13 - Vacuum Hose

- ☐ With check valve
- ☐ Insert into brake booster
- ☐ On some vehicles with a gasoline engine the Brake Booster Vacuum Sensor - G608- is installed. Refer to ⇒ ["4.3 Vacuum Sensor G608, Removing and Installing", page 136](#) .

14 - Cap

15 - Seal

- ☐ Vacuum hose/brake booster

16 - Seal

- ☐ Master brake cylinder/brake booster

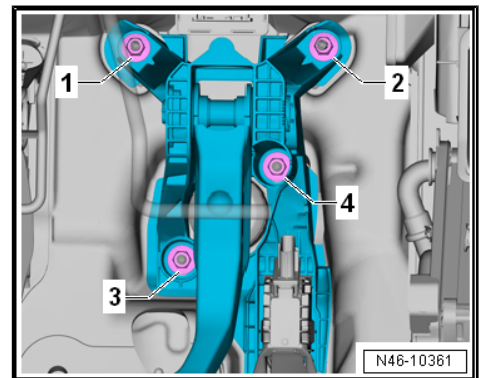
17 - Brake Booster

- ☐ Functional check:
 - With engine switched off, depress brake pedal firmly several times (to exhaust the vacuum in the unit).
 - Depress and hold brake pedal with average foot pressure and start engine. If brake booster is working properly, pedal will be felt to give noticeably under foot (booster assistance becomes effective).
- ☐ Replace completely if there are malfunctions (check the vacuum system for the brake booster first; refer to ⇒ ["4.4 Vacuum System, Checking", page 137](#))
- ☐ Removing and installing. Refer to ⇒ ["3.3.1 Brake Booster, Removing and Installing", page 105](#) .

18 - Seal

- ☐ Replacing
- ☐ attached, only at the factory
- ☐ Do not replace the gluing on the brake booster and plenum chamber.

Tightening Sequence





3.1.2 Overview - Brake Booster/Brake Master Cylinder, RHD



Note

Only use new brake fluid conforming to VW standard (VW 501 14).

1 - Cap

2 - Brake Fluid Reservoir

- ☐ With Brake Fluid Level Warning Switch - F34-

3 - Brake Booster

- ☐ Removing and installing. Refer to ➔ ["3.3.2 Brake Booster, Removing and Installing, RHD with Diesel Engine", page 110](#).

- ☐ Functional check:

- With engine switched off, depress brake pedal firmly several times (to exhaust the vacuum in the unit).

- Depress and hold brake pedal with average foot pressure and start engine. If brake booster is working properly, pedal will be felt to give noticeably under foot (booster assistance becomes effective).

- ☐ Replace completely if there are malfunctions (check the vacuum system for the brake booster first; refer to ➔ ["4.4 Vacuum System, Checking", page 137](#))

4 - Seal

- ☐ Vacuum hose/brake booster

5 - Vacuum Line

6 - Seal

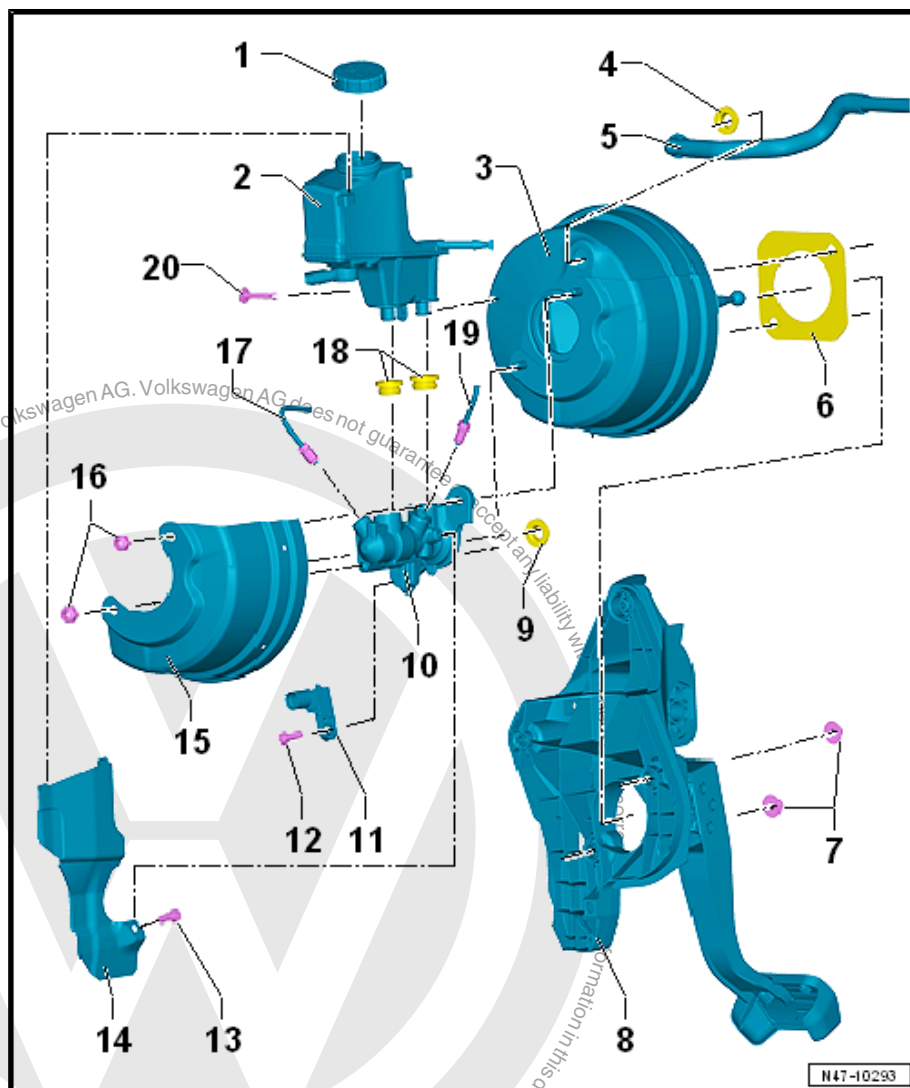
- ☐ Replace after removing
- ☐ attached, only at the factory
- ☐ Removing the adhesive residue
- ☐ Do not replace the gluing on the brake booster and plenum chamber.

7 - Nut

- ☐ Quantity: 2
- ☐ 20 Nm

8 - Bracket with Brake Pedal

- ☐ Remove the bracket. Refer to ➔ ["4.2 Bracket, Removing and Installing", page 83](#).
- ☐ Remove the brake pedal. Refer to ➔ ["4.5 Brake Pedal, Removing and Installing", page 88](#).





- ☐ Separate the brake pedal from brake booster. Refer to
⇒ [“4.3 Brake Pedal, Removing from Brake Booster”, page 87](#) .
- ☐ Brake pedal to brake booster, connecting. Refer to
⇒ [“4.4 Brake Pedal, Attaching to Brake Booster”, page 88](#) .

9 - Seal

- ☐ Replace if damaged.
- ☐ Make sure the seal is seated correctly.
- ☐ Master brake cylinder/brake booster

10 - Brake Master Cylinder

- ☐ Removing and Installing. Refer to
⇒ [“3.4.2 Brake Master Cylinder, Removing and Installing, RHD Vehicles”, page 130](#) .
- ☐ Connecting the brake lines. Refer to ⇒ [“3.5 Brake Lines, Attaching to Hydraulic Unit”, page 43](#) .
- ☐ When installing together the brake master cylinder and brake booster, make sure that the push rod is correctly located in the brake master cylinder.

11 - Brake Lamp Switch - F-

- ☐ Removing and installing. Refer to
⇒ [“3.2.2 Brake Lamp Switch, Removing and Installing, RHD Vehicle”, page 103](#) .

12 - Bolt

- ☐ 8 Nm

13 - Bolt

- ☐ 8 Nm

14 - Heat shield

- ☐ On the brake fluid reservoir

15 - Heat shield

- ☐ For the brake booster

16 - Nut

- ☐ Replace after removing
- ☐ Quantity: 2
- ☐ Self-locking
- ☐ 23 Nm

17 - Brake line

- ☐ Master brake cylinder/secondary piston circuit to hydraulic unit
- ☐ Repairing the brake lines. Refer to ⇒ [“5.1 Brake Lines, Repairing”, page 142](#) .
- ☐ 14 Nm

18 - Sealing Plug

- ☐ Replace if damaged.
- ☐ Make sure the plugs are seated correctly.
- ☐ Coat the plugs with brake fluid before pushing the brake fluid reservoir into the master brake cylinder.
- ☐ Brake Master Cylinder/Brake Fluid Reservoir

19 - Brake line

- ☐ Master brake cylinder/primary piston circuit to hydraulic control unit
- ☐ Repairing the brake lines. Refer to ⇒ [“5.1 Brake Lines, Repairing”, page 142](#) .
- ☐ 14 Nm

20 - Expanding Rivet

- ☐ To secure the brake fluid reservoir



3.2 Brake Lamp Switch, Removing and Installing

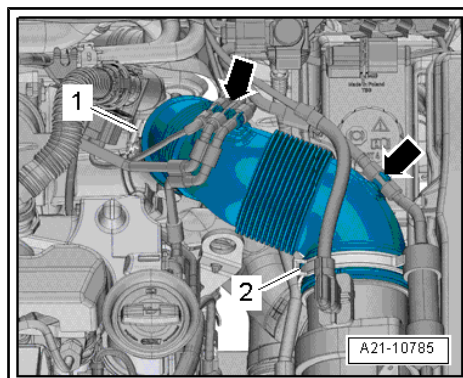
⇒ **"3.2.1 Brake Lamp Switch, Removing and Installing", page 102**

3.2.1 Brake Lamp Switch, Removing and Installing

Removing

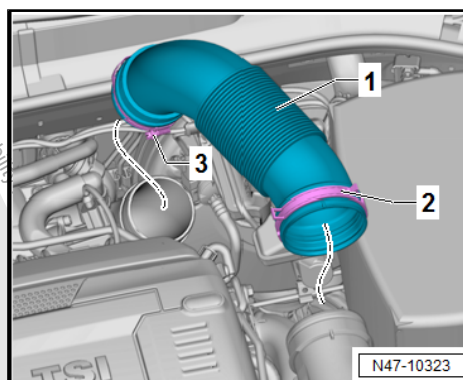
On vehicles with diesel engine:

- Remove the air guide hose from the air filter housing.



On »R« vehicles:

- Open the lock washer -2- and the screw-type clamp -3-.
- Remove the air guide hose -1-.

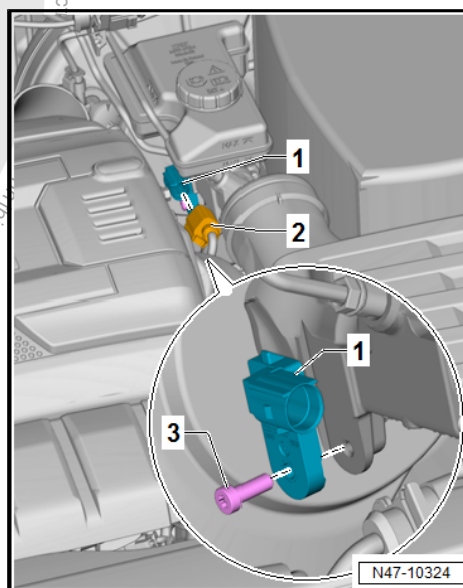


Continuation for all vehicles:

- Disconnect the connector -2- from the Brake Lamp Switch - F- -1-.
- Remove the bolt -3-.
- Remove the lower Brake Lamp Switch - F- -1- from the brake master cylinder.

Installing

Install in reverse order of removal. Watch out for the following:

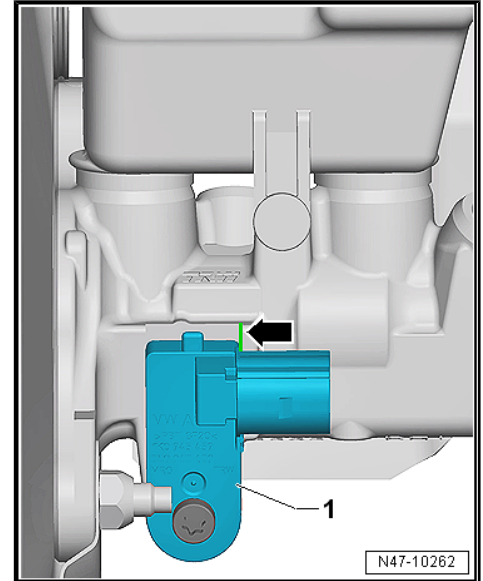




- Pay attention that the Brake Lamp Switch - F- -1- is positioned correctly on the edge -arrow- of the brake master cylinder.

Tightening Specification

- ◆ Refer to
⇒ ["3.1.1 Overview - Brake Booster/Brake Master Cylinder "](#),
[page 98](#)



3.2.2 Brake Lamp Switch, Removing and Installing, RHD Vehicle

Removing

Diesel vehicles:

- Remove the engine cover. Refer to ⇒ Rep. Gr. 10 ; Engine Cover; Engine Cover, Removing and Installing .

CAUTION

Fuel system is under pressure.

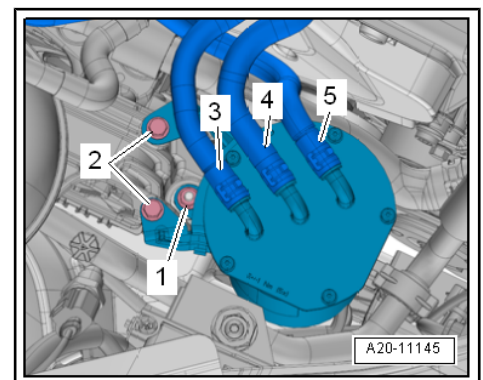
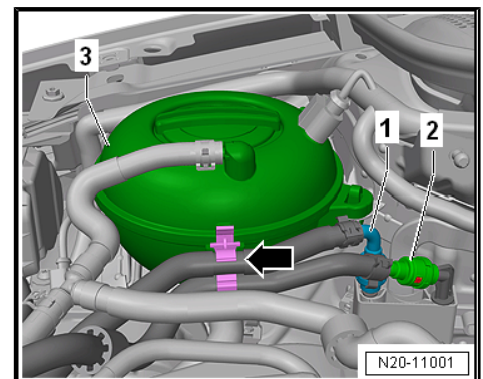
Risk of injury from fuel spraying out.

- Wear protective eyewear.
- Wear safety gloves.
- Reduce the pressure: Lay clean cloths around the connection point and carefully open the connection point.

- Release and disconnect the fuel supply lines -1- and -2-.
- Disconnect the couplings. Refer to ⇒ Rep. Gr. 20 ; Couplings; Couplings, Disconnecting .

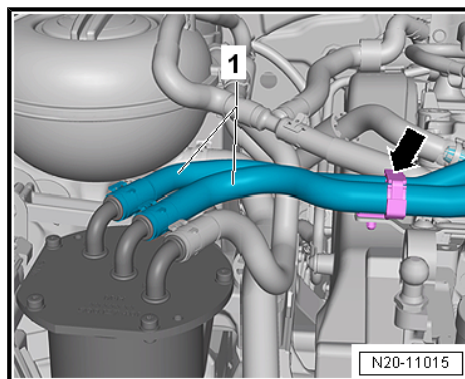
Unclip the fuel lines -1- and -2- from the bracket -arrow- on the coolant expansion tank -3-.

- Remove bolts -2-.
- Remove the nut -1-.

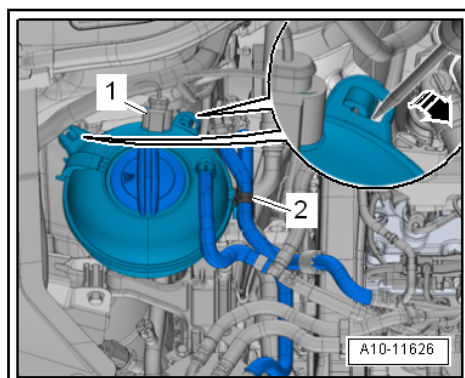




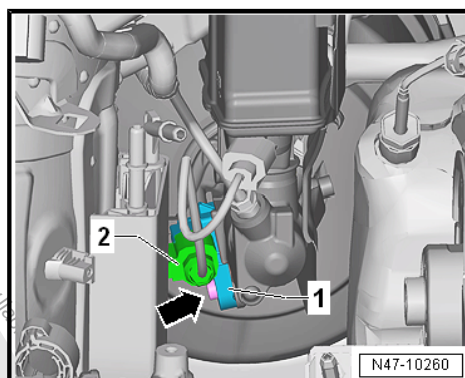
- Open the bracket -arrow- and unclip the fuel lines -1-.
- Then move the fuel filter to the side.



- Disconnect the connector -1-.
- Release the catches with a screwdriver -arrow-.
- Lay the coolant reservoir on the engine.
- Remove the upper toothed belt guard. Refer to ➤ Rep. Gr. 15 ; Toothed Belt Drive; Toothed Belt Guard, Removing and Installing .



- Release and disconnect the connector -2- on the Brake Lamp Switch - F- -1-.
- Remove the bolt -arrow-.
- Remove the Brake Light Switch - F- from brake master cylinder.



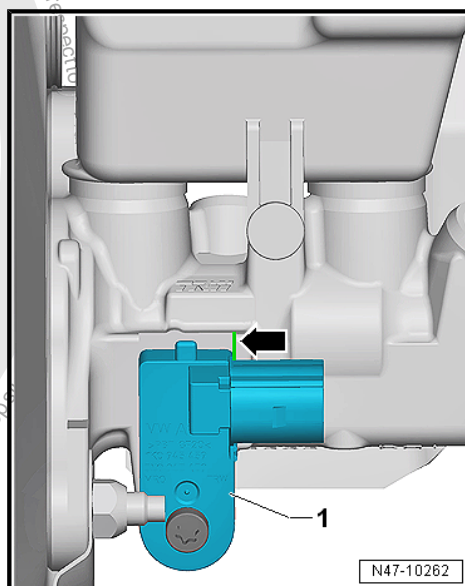
Installing

Install in reverse order of removal while paying attention to the following:

- Pay attention that the Brake Lamp Switch - F- -1- is positioned correctly on the edge -arrow- of the brake master cylinder.

Tightening Specifications

- ◆ ➤ [“3.1.2 Overview - Brake Booster/Brake Master Cylinder, RHD”, page 100](#)
- ◆ Toothed belt guard. Refer to ➤ Rep. Gr. 15 ; Toothed Belt Drive; Overview - Toothed Belt Guard .
- ◆ Fuel filter. Refer to ➤ Rep. Gr. 20 ; Overview - Fuel Filter .





3.3 Brake Booster, Removing and Installing

⇒ **"3.3.1 Brake Booster, Removing and Installing", page 105**

3.3.1 Brake Booster, Removing and Installing

Special tools and workshop equipment required

- ◆ Brake Charger/Bleeder Unit - VAS5234-
- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Sealing Tool - T10249-
- ◆ Adhesive Strip Remover - VAS6349-
- ◆ Drill for example cordless drill or straight sander.



Note

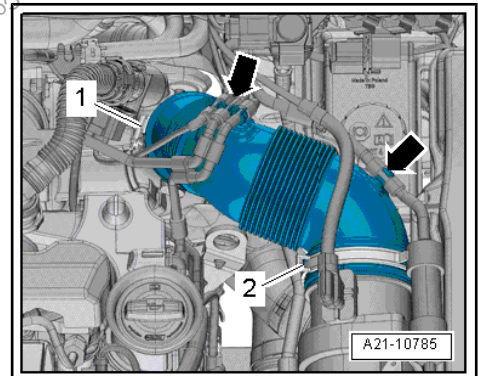
Check the brake boost vacuum first if there are complaints regarding the brake booster. Refer to
⇒ **"4.4 Vacuum System, Checking", page 137**.

Removing

- If the vehicle has a coded radio, get the radio code from the customer before beginning.
- Disconnect the battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .
- Remove the battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Removing and Installing .

On vehicles with diesel engine:

- Remove the engine cover.
- Loosen hose clamp -1- and remove the air guide hose and air filter housing. Refer to ⇒ Rep. Gr. 23 ; Air Filter; Air Filter Housing, Removing and Installing .

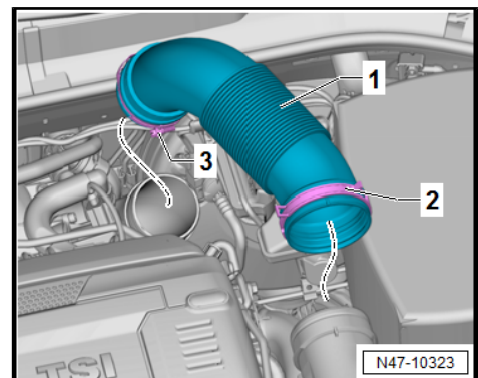


On »R« vehicles:

- Loosen the hose clamps -2- and -3-.
- Remove the air guide hose -1- and air filter housing. Refer to ⇒ Rep. Gr. 24 ; Air Filter; Air Filter Housing, Removing and Installing .

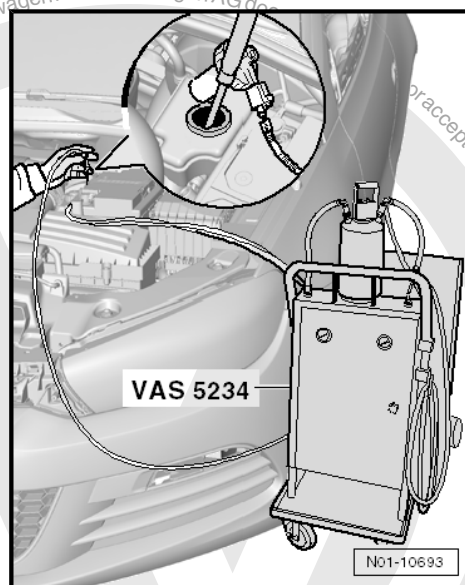
Continuation for all vehicles:

- Remove the battery holder. Refer to ⇒ Electrical equipment; Rep. Gr. 27 ; Battery; Battery, Removing and Installing .
- Place sufficient lint-free cloths in the area of the engine and transmission.



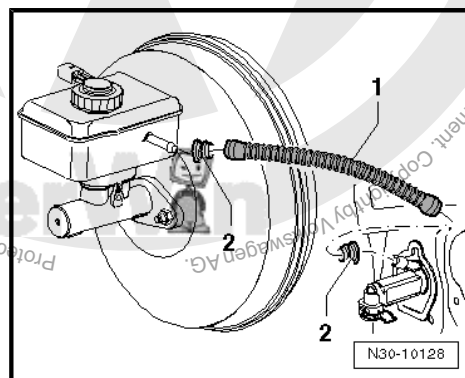


- Extract as much brake fluid as possible from the brake fluid reservoir with the Brake Charger/Bleeder Unit - VAS5234.



For vehicles with manual transmission:

- Remove the clutch slave cylinder return hose -1-, close using the Sealing Tool - T10249- tie up or the using a commercially available tool for example Hazet 4590 disconnect and remove the clutch slave cylinder return hose -1-.





Continuation for all vehicles:

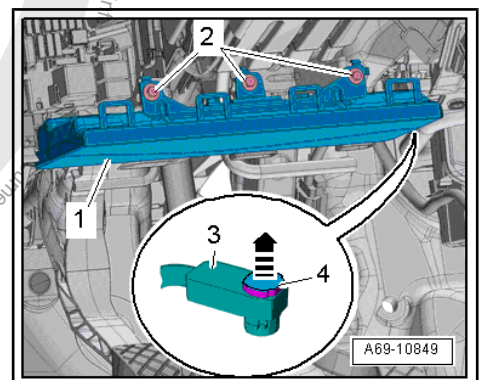
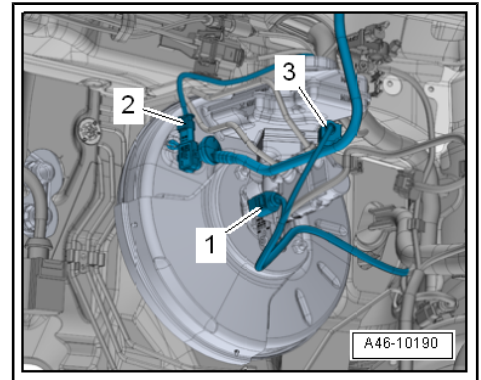
- Remove the connectors from the -3- Brake Fluid Level Warning Switch - F34- , if equipped from the -2- Vacuum Sensor - G608- and from the -1- Brake Lamp Switch - F- .
- Remove the vacuum in the brake booster by pressing the brake pedal repeatedly.
- Remove the vacuum hose from the brake booster.
- Disconnect the brake lines at the brake master cylinder and seal the lines with sealing plugs from repair kit part number. 1H0 698 311 A.

For vehicles with 7-Gear DSG transmission:

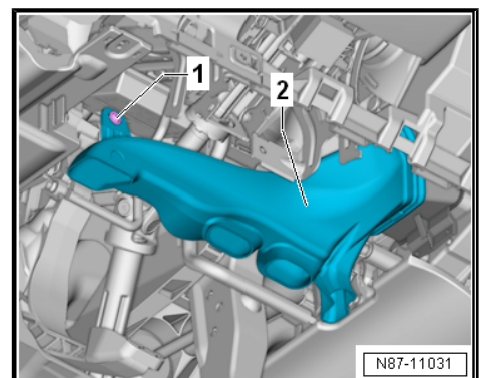
- Remove the selector lever cable and cable bracket from the transmission. Refer to ➤ Rep. Gr. 34 ; Selector Mechanism; Overview - Selector Mechanism .

Continuation for all vehicles:

- Remove the side cover from the driver side instrument panel. Refer to ➤ Body Interior; Rep. Gr. 70 ; Instrument Panel; Instrument Panel Side Cover, Removing and Installing .
- Remove the footwell cover on the driver side. Refer to ➤ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers .
- Remove the driver side center console cover. Refer to ➤ Body Interior; Rep. Gr. 68 ; Center Console; Center Console Cover, Removing and Installing .
- Remove the driver side storage compartment. Refer to ➤ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers .
- Remove the driver side instrument panel cover. Refer to ➤ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Driver Side Instrument Panel Cover, Removing and Installing .
- Remove the knee airbag -1-. Refer to ➤ Body Interior; Rep. Gr. 69 ; Knee Airbags; Overview - Knee Airbag .

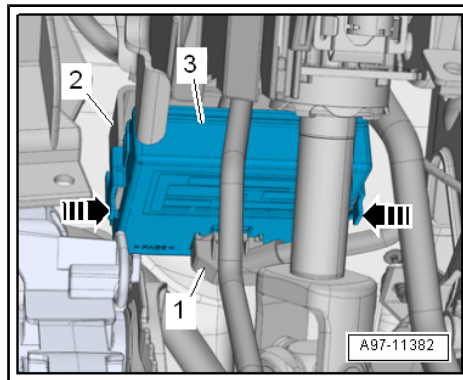


- Remove the footwell vent on the driver side. Refer to ➤ Heating, Ventilation and Air Conditioning; Rep. Gr. 87 ; Air Routing; Overview - Air Routing and Air Distribution in Passenger Compartment .

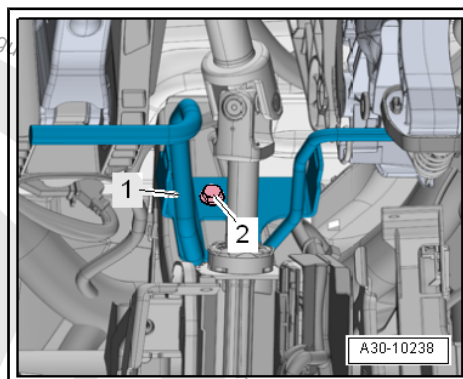




- Remove the Data Bus on Board Diagnostic Interface - J533-3- control module and set aside. Refer to ⇒ Electrical Equipment; Rep. Gr. 97 ; Control Modules; Data Bus On Board Diagnostic Interface - J533- , Removing and Installing .

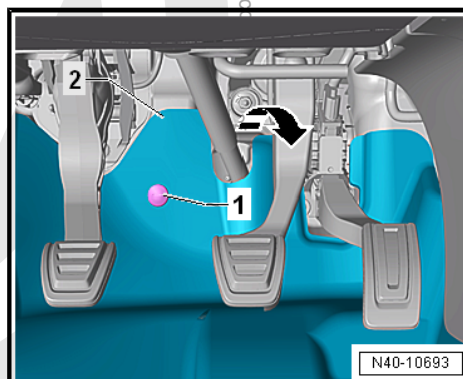


- Remove the brake pedal crash bolster -1- disengage -2- and set aside. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Instrument Panel Central Tube; Overview - Instrument Panel Central Tube .



- Disconnect brake pedal from brake booster. Refer to ⇒ [“4.3 Brake Pedal, Removing from Brake Booster”, page 87](#) .

- Remove the bolts -1- and fold the footwell trim panel -2- in the direction of the -arrow- into the vehicle interior.

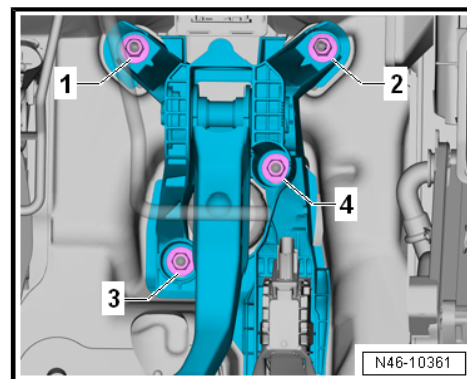




- Remove the nuts -3, and 4- from the brake booster.
- Pull the brake booster from the plenum chamber against the seal adhesiveness.
- Carefully remove the brake booster from the vehicle.
- Remove the master brake cylinder nuts.
- Remove any heat shield.
- Carefully remove the master brake cylinder from the brake booster.

Installing

Install in reverse order of removal while paying attention to the following:



Note

- ◆ *The brake booster is only additionally glued with the seal at the factory.*
- ◆ *Do not replace the gluing on the brake booster and plenum chamber, but replace the seal.*
- Remove all adhesive residue from the bulkhead and the brake booster, if necessary. To do so, use the Adhesive Strip Remover - VAS6349- with a drill, cordless drill or straight sander.
- Allow the Adhesive Strip Remover - VAS6349- run slowly and rub against the running direction.
- Replace the seal.
- Attach the brake pedal to the brake booster. Refer to [⇒ "4.4 Brake Pedal, Attaching to Brake Booster", page 88](#).
- After installing, bleed brake system (refer to [⇒ "6.2 Hydraulic System, Standard Bleeding", page 146](#)) and the clutch.

Tightening Specifications

- ◆ Refer to [⇒ "3.1.1 Overview - Brake Booster/Brake Master Cylinder", page 98](#)
- ◆ Crash bolster. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Instrument Panel Central Tube; Overview - Instrument Panel Central Tube .
- ◆ Footwell vent. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 87 ; Air Routing; Overview - Air Routing and Air Distribution in Passenger Compartment .
- ◆ Knee airbag. Refer to ⇒ Body Interior; Rep. Gr. 69 ; Knee Airbags; Overview - Knee Airbag
- ◆ Covers on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Component Location Overview - Storage Compartment/Covers .



3.3.2 Brake Booster, Removing and Installing, RHD with Diesel Engine

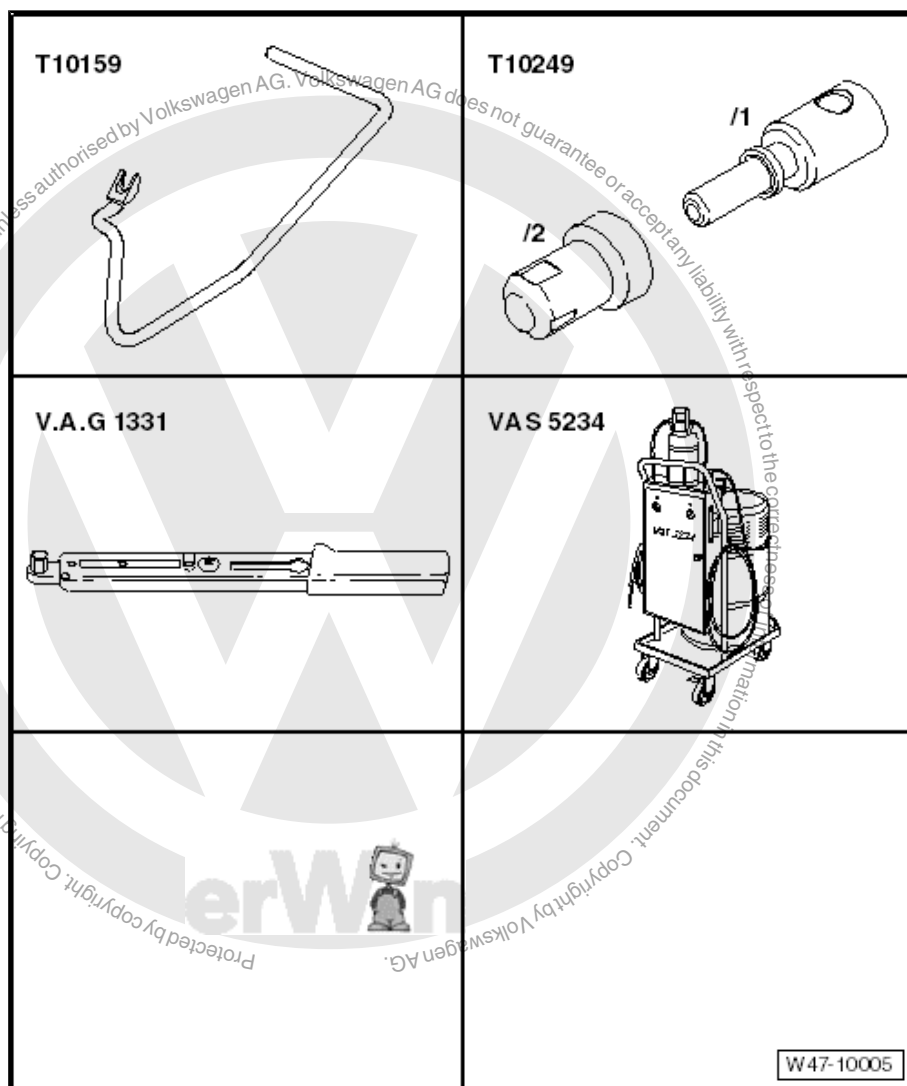


Note

First check the vacuum system for the brake booster in case of complaints regarding the brake booster. Refer to
⇒ ["4.4 Vacuum System, Checking", page 137](#).

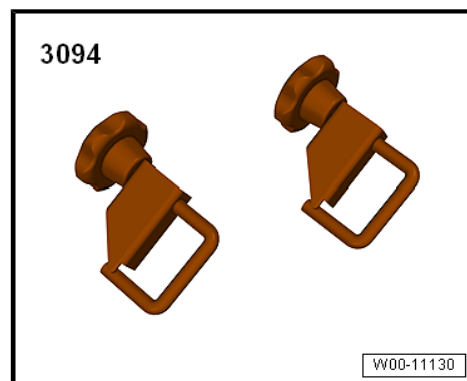
Special tools and workshop equipment required

- ◆ Release Tool - Brake Servo
- T10159A-
- ◆ Sealing Tool - T10249-
- ◆ Torque Wrench 1331
5-50Nm - VAG1331-
- ◆ Brake Charger/Bleeder
Unit - VAS5234-

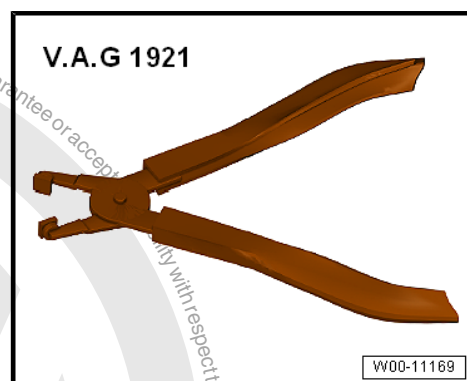




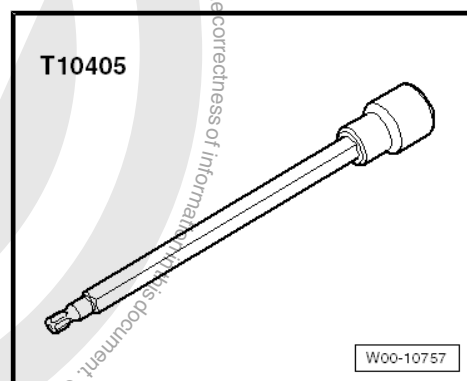
◆ Hose Clamps - Up To 25 mm - 3094-



◆ Hose Clip Pliers - VAG1921-



◆ Socket T30 - T10405-





Brake booster component location in RHD vehicles:

- 1 - Brake Booster with Master Brake Cylinder
- 2 - ABS Hydraulic Unit - N55- and ABS Control Module - J104-

Removing

- On vehicles with a coded radio, note the code. Retrieve it if necessary.
- Remove the engine cover. Refer to ➤ Rep. Gr. 10 ; Engine Cover; Engine Cover, Removing and Installing .

⚠ CAUTION

Fuel system is under pressure.

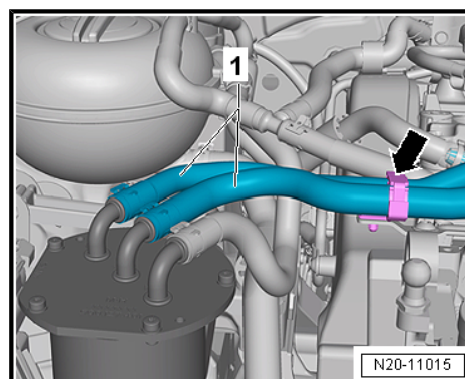
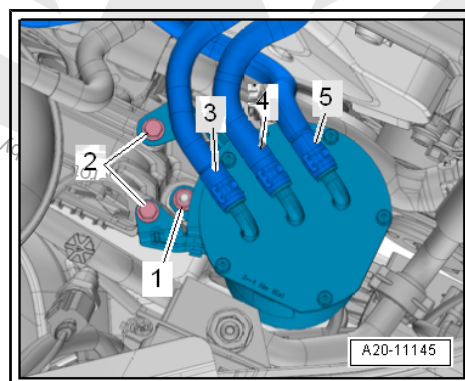
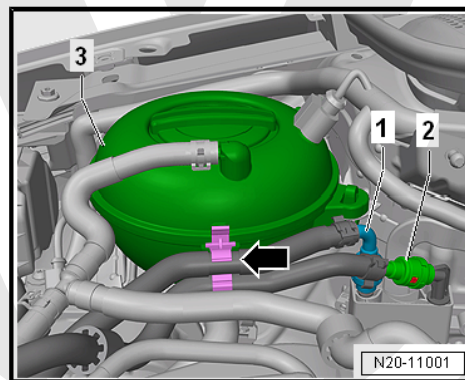
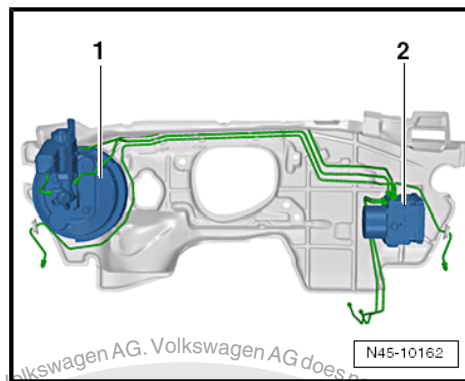
Risk of injury from fuel spraying out.

- Wear protective eyewear.
- Wear safety gloves.
- Reduce the pressure: Lay clean cloths around the connection point and carefully open the connection point.

- Remove fuel supply line -1- and -2-.
- Disconnect the couplings. Refer to ➤ Rep. Gr. 20 ; Couplings; Couplings, Disconnecting .
- Unclip the fuel lines -1- and -2- from the bracket -arrow- on the coolant expansion tank -3-.

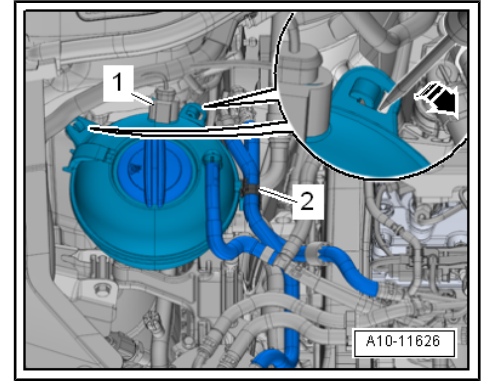
- Remove bolts -2-.
- Remove the nut -1-.

- Open the bracket -arrow- and unclip the fuel lines -1-.
- Then move the fuel filter to the side.

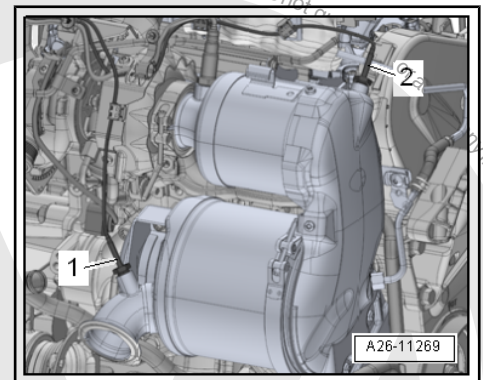
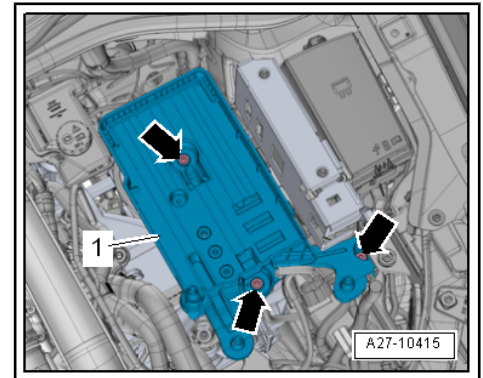




- Disconnect the connector -1-.
- Release the catches with a screwdriver -arrow-.
- Lay the coolant reservoir on the engine.



- Remove the battery tray -1-. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery Tray, Removing and Installing .
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Noise Insulation; Overview - Noise Insulation .
- Remove the subframe with the steering gear. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Subframe; Subframe and Steering Gear, Removing and Installing .
- Remove the front exhaust pipe. Refer to ⇒ Rep. Gr. 26 ; Exhaust Pipes/Mufflers; Front Exhaust Pipe, Removing and Installing .
- Drain the coolant. Refer to ⇒ Rep. Gr. 19 ; Coolant System/ Coolant; Coolant, Draining and Filling .
- Remove the left coolant pipes. Refer to ⇒ Rep. Gr. 19 ; Coolant Pipes; Overview - Coolant Pipes .
- Remove the rear coolant pipe. Refer to ⇒ Rep. Gr. 19 ; Coolant Pipes; Overview - Coolant Pipes .
- Remove the EGR cooler. Refer to ⇒ Rep. Gr. 26 ; Exhaust Gas Recirculation (EGR); EGR Cooler, Removing and Installing .
- Remove the exhaust gas temperature sensor -1- and -2-. Refer to ⇒ Rep. Gr. 26 ; Overview - Exhaust Temperature Regulation .

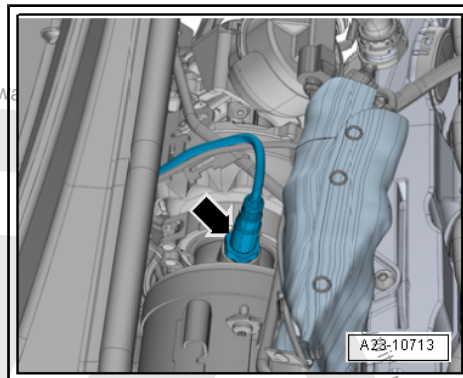




- Remove the heated oxygen sensor -arrow-. Refer to ⇒ Rep. Gr. 23 ; Heated Oxygen Sensor, Removing and Installing .
- Remove the emissions control module. Refer to ⇒ Rep. Gr. 26 ; Emissions Control; Emissions Control Module, Removing and Installing .

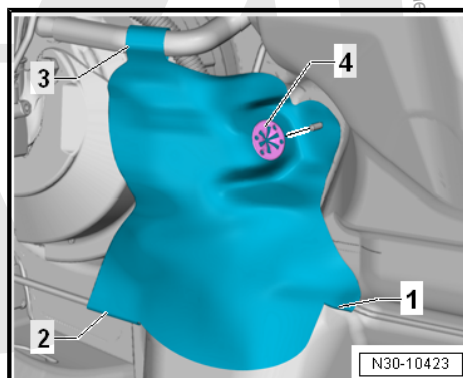
Vehicles with A/C system:

- Discharge the refrigerant circuit. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 00 ; Working with the A/C Service Station; Discharging the Refrigerant Circuit with the A/C Service Station .
- Remove the refrigerant lines with the inner heat exchanger. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 87 ; Refrigerant Circuit; Refrigerant Lines with Inner Heat Exchanger, Removing and Installing .

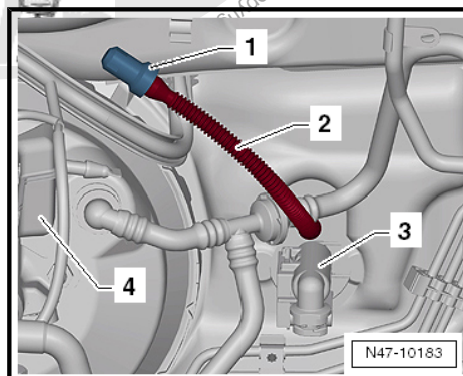


Vehicles with Manual Transmission:

- If equipped remove the heat shield.
- To do so remove the lock washer -4- from the bulkhead.
- Open the push buttons -1- to -3- on the heat shield.



- Remove the supply hose -2- for the clutch master cylinder -3- from the brake fluid reservoir -4-.
- Seal the return hose -2- for the clutch master cylinder -3- using the Sealing Tool - T10249- -1- or with the Hose Clamps - Up To 25mm - 3094- .
- Tie up the supply hose -2-.





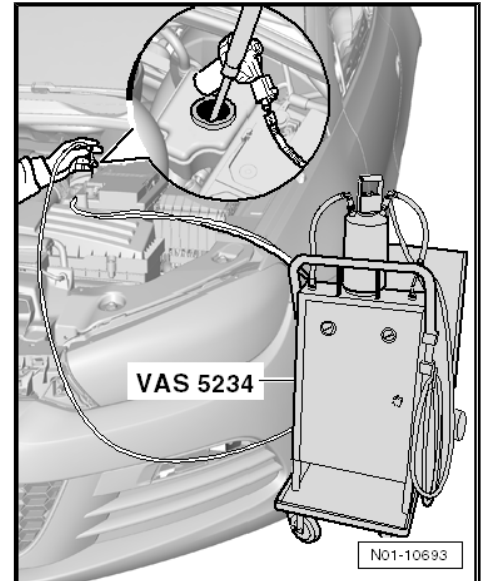
Continuation for all vehicles:



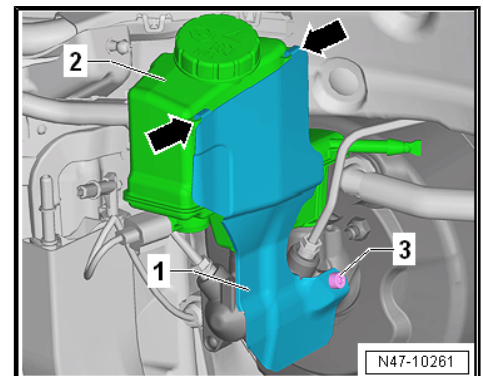
Note

The illustration shows the installation position of the ABS Hydraulic Unit - N55- and the ABS Control Module - J104- in a LHD vehicle:

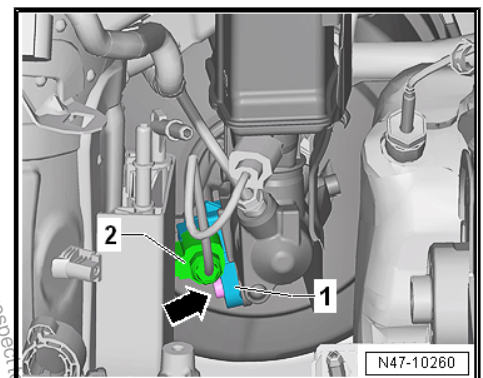
- Place enough lint-free cloths in the engine area.
- Extract as much brake fluid as possible from the brake fluid reservoir with the Brake Charger/Bleeder Unit - VAS5234- .



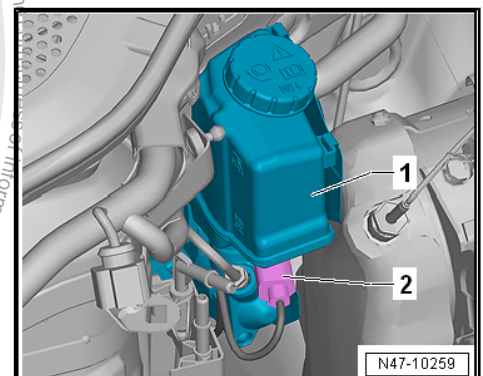
- If equipped, remove the heat shield -1-.
- To do so remove the bolt -3- using the Socket T30 T10405 - T10405- .
- Remove the heat shield -1- upward from the mounts -arrows- on the brake fluid reservoir -2-.



- Release and disconnect the connector -2- on the Brake Lamp Switch - F- -1-.

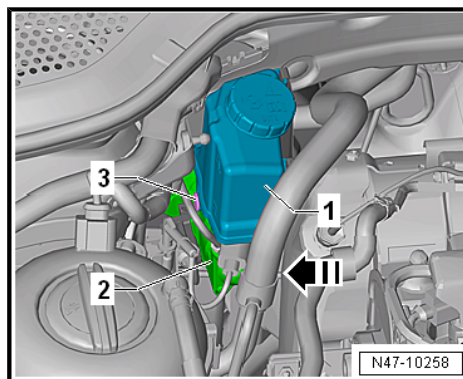


- Release and disconnect the connector -2- for the Brake Fluid Level Warning Switch - F34- from the brake fluid reservoir -1-.

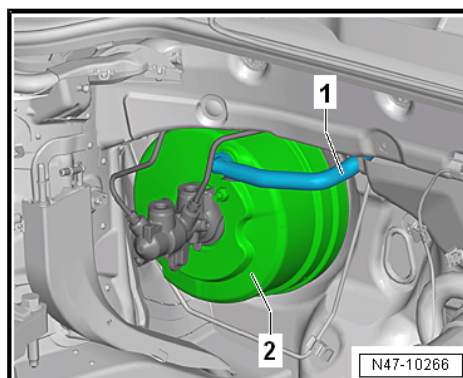




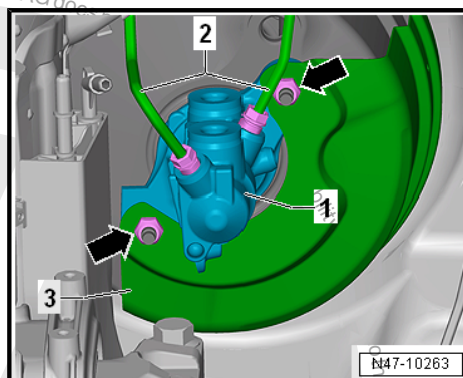
- Remove the expanding rivet -3- in the direction of the -arrow-.
- Remove the brake fluid reservoir -1- upward from the brake master cylinder -2-.



- Reduce the vacuum in the brake booster by pressing the brake pedal repeatedly.
- Pull the vacuum line -1- out of the brake booster -2-.

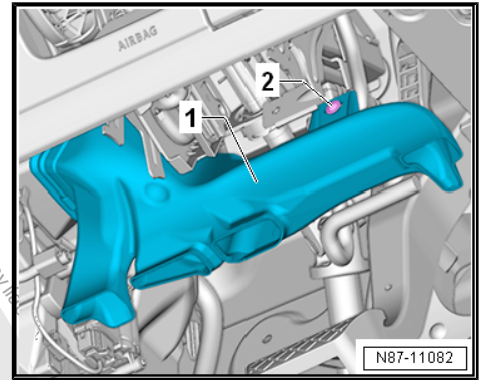


- Remove brake lines -2- on the master brake cylinder -1-.
- Disconnect the brake lines at the brake master cylinder and seal the lines with sealing plugs from the repair kit part number 1H0 698 311 A.
- Remove the nuts -arrows-.
- Remove the heat shield -3-.
- Carefully remove the brake master cylinder from the brake booster.
- Remove the driver side instrument panel side cover. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Instrument Panel; Instrument Panel Side Cover, Removing and Installing .
- Remove the footwell cover on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartment/Covers .
- Remove the driver side storage compartment. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartment/Covers .
- Remove the driver side instrument panel cover. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments/Covers; Driver Side Instrument Panel Cover, Removing and Installing .
- Remove the knee airbag. Refer to ⇒ Body Interior; Rep. Gr. 69 ; Knee Airbags; Overview - Knee Airbag .





- Remove the driver side footwell vent -1-. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 87 ; Air Duct; Overview - Air Ducts and Air Distribution in Passenger Compartment .
- Remove the bolt -2- and remove the driver side footwell vent -1-.
- Remove the brake pedal crash bolster and set aside. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Instrument Panel Central Tube; Overview - Instrument Panel Central Tube .
- Disconnect the brake pedal from the brake booster. Refer to ⇒ ["4.3 Brake Pedal, Removing from Brake Booster"](#), [page 87](#) .





- ## Installing



Note

- ◆ *The brake booster is also bonded with the seal at the factory only.*
- ◆ *The bonding on the brake booster and bulkhead must not be replaced*
- Remove all adhesive residue from the bulkhead and the brake booster, if necessary. To do so, use the Adhesive Strip Remover - VAS6349- with a drill, cordless drill or straight sander.
- Allow the Adhesive Strip Remover - VAS6349- run slowly and rub against the running direction.
- Carefully insert the brake booster and tighten the nuts.
- When assembling the brake master cylinder with the brake booster, make sure that the push rod is correctly seated in the brake master cylinder.
- Make sure the seal -item 9- ⇒ Item 9 (page 101) fits correctly when assembling the brake master cylinder with the brake booster.
- Make sure the sealing plugs -item 18- ⇒ Item 18 (page 101) are seated correctly in the brake master cylinder.
- Coat the plugs -item 18- ⇒ Item 18 (page 101) with brake fluid before pushing the brake fluid reservoir into the brake master cylinder.
- Attach the brake pedal to the brake booster. Refer to ⇒ "4.4 Brake Pedal, Attaching to Brake Booster", page 88 .
- Fill the coolant. Refer to ⇒ Rep. Gr. 19 ; Coolant System/ Coolant; Coolant, Draining and Filling .
- Bleed the brake system. Refer to ⇒ "6.2 Hydraulic System, Standard Bleeding", page 146 .

Vehicles with Manual Transmission:

- Bleed the clutch mechanism. Refer to ⇒ Rep. Gr. 30 ; Clutch Mechanism; Clutch Mechanism, Bleeding .

Vehicles with A/C system:

- Fill the refrigerant circuit. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 00 ; Working with the A/C Service Station; Filling the Refrigerant Circuit with the A/C Service Station .

Tightening Specifications

- ◆ ⇒ “3.1.2 Overview - Brake Booster/Brake Master Cylinder, RHD”, page 100
- ◆ ⇒ “3.4.2 Brake Master Cylinder, Removing and Installing, RHD Vehicles”, page 130
- ◆ Crash Bolster. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Instrument Panel Central Tube; Overview - Instrument Panel Central Tube .



- ◆ Footwell Vent. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 87 ; Air Routing; Overview - Passenger Compartment Air Ducts and Air Distribution .
- ◆ Knee Airbag. Refer to ⇒ Body Interior; Rep. Gr. 69 ; Knee Airbags; Overview - Knee Airbag
- ◆ Driver Side Covers. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartment/Covers; Component Location Overview - Storage Compartment/Covers .
- ◆ Subframe. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 40 ; Overview - Subframe .
- ◆ Cooling system. Refer to ⇒ Rep. Gr. 19 ; Overview - Coolant Pipes .
- ◆ Emissions control. Refer to ⇒ Rep. Gr. 26 ; Overview - Emissions Control .
- ◆ EGR. Refer to ⇒ Rep. Gr. 26 ; Overview - EGR .
- ◆ Exhaust system. Refer to ⇒ Rep. Gr. 26 ; Exhaust Pipes/Mufflers; Overview - Muffler .
- ◆ Toothed belt guard. Refer to ⇒ Rep. Gr. 15 ; Toothed Belt Drive; Overview - Toothed Belt Guard .
- ◆ Exhaust gas temperature sensor. Refer to ⇒ Rep. Gr. 26 ; Overview - Exhaust Gas Temperature Sensor .
- ◆ Fuel filter. Refer to ⇒ Rep. Gr. 20 ; Overview - Fuel Filter .
- ◆ A/C system. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 87 ; System Overview - Refrigerant Circuit .
- ◆ Battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Overview - Battery .
- ◆ noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Noise Insulation; Noise Insulation, Assembly Overview .
- ◆ Front bleeder valve. Refer to
⇒ ["1.1 Overview - Front Brake Caliper", page 91](#) .
- ◆ Rear bleeder valves. Refer to
⇒ ["2.1 Overview - Rear Brake Caliper", page 95](#) .

3.3.3 Brake Booster, Removing and Installing, RHD vehicles with 1.2L and 1.4L Gasoline Engines



Note

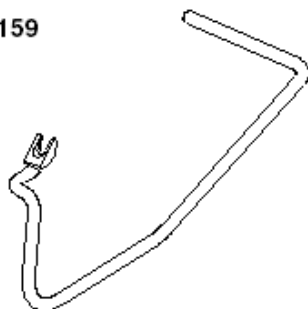
*First check the vacuum system for the brake booster in case of complaints regarding the brake booster. Refer to
⇒ ["4.4 Vacuum System, Checking", page 137](#) .*



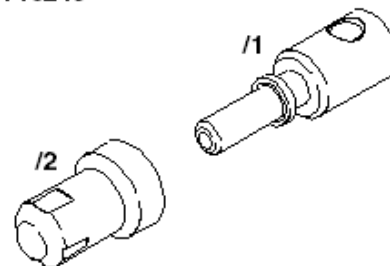
Special tools and workshop equipment required

- ◆ Release Tool - Brake Servo - T10159A-
- ◆ Sealing Tool - T10249-
- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Brake Charger/Bleeder Unit - VAS5234-

T10159



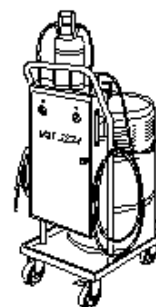
T10249



V.A.G 1331



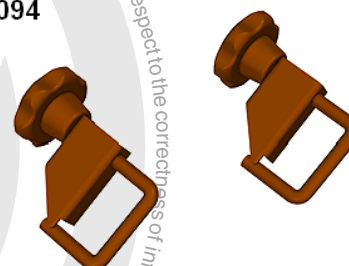
VAS 5234



W47-10005

- ◆ Hose Clamps - Up To 25 mm - 3094-

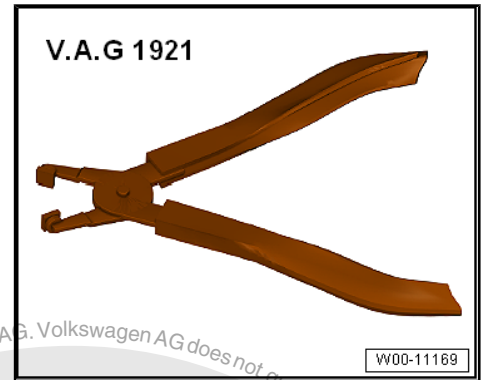
3094



W00-11130



◆ Hose Clip Pliers - VAG1921-

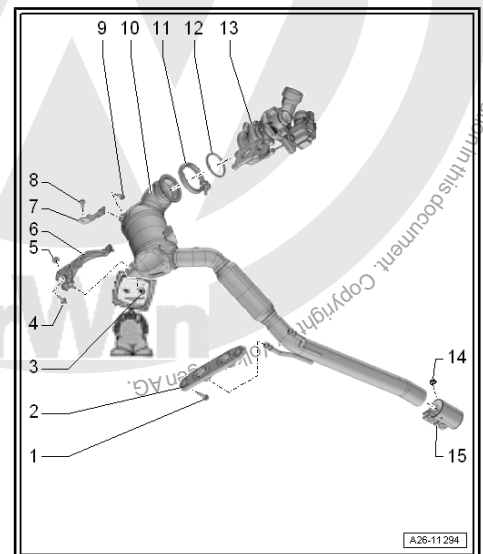
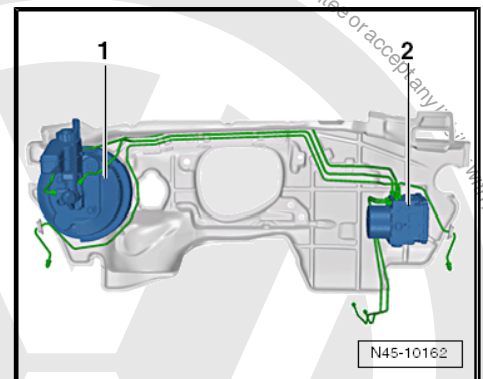


Brake booster component location in RHD vehicles:

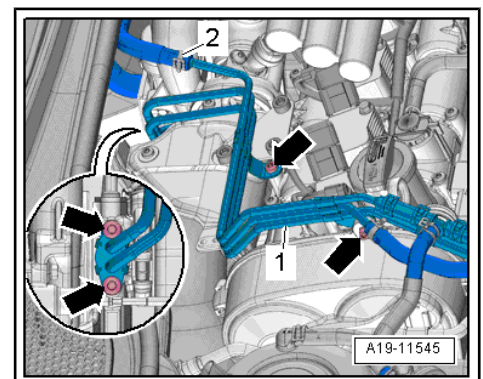
- 1 - Brake Booster with Master Brake Cylinder
- 2 - ABS Hydraulic Unit - N55- and ABS Control Module - J104-

Removing

- On vehicles with a coded radio, note the code. Retrieve it if necessary.
- Remove the noise insulation. Refer to ➔ Body Exterior; Rep. Gr. 66 ; Noise Insulation; Overview - Noise Insulation .
- Drain the coolant. Refer to ➔ Rep. Gr. 19 ; Coolant System/ Coolant; Coolant, Draining and Filling .
- Remove the catalytic converter -10-. Refer to ➔ Rep. Gr. 26 ; Emissions Control; Catalytic Converter, Removing and Installing .
- Remove the bracket -7-.

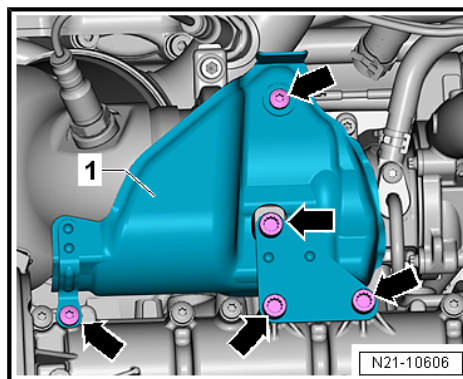


- Loosen the hose clamp -2- and remove the coolant hose.
- Remove the bolts -arrows- and move the coolant lines -1- to the right.

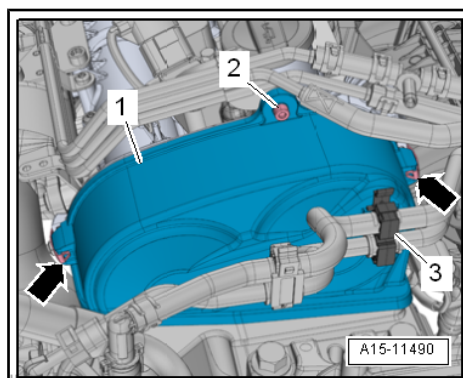




- Remove the bolts -arrows-.
- Remove the heat shield -1-.

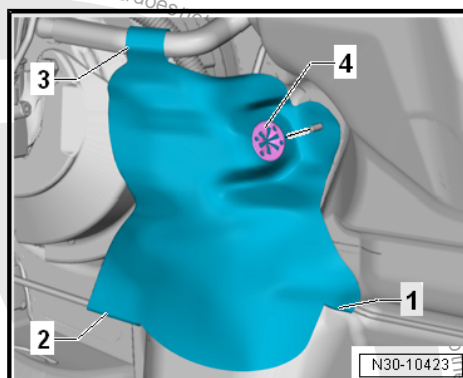


- Remove the bolt -2-.
- Free up the hoses on the bracket -3-.
- Loosen the clamps -arrows- and remove the upper toothed belt cover -1-.



Vehicles with Manual Transmission:

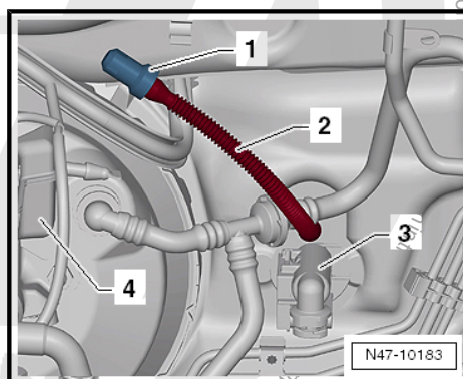
- If equipped remove the heat shield.
- To do so remove the lock washer -4- from the bulkhead.
- Open the push buttons -1- to -3- on the heat shield.



- Remove the supply hose -2- for the clutch master cylinder -3- from the brake fluid reservoir -4-.
- Seal the return hose -2- for the clutch master cylinder -3- using the Sealing Tool - T10249- -1- or with the Hose Clamps - Up To 25mm - 3094- .
- Tie up the supply hose -2-.

Vehicles with A/C system:

- Discharge the refrigerant circuit. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 00; Working with the A/C Service Station; Discharging the Refrigerant Circuit with the A/C Service Station .
- Remove the refrigerant lines with the inner heat exchanger. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 87 ; Refrigerant Circuit; Refrigerant Lines with Inner Heat Exchanger, Removing and Installing .





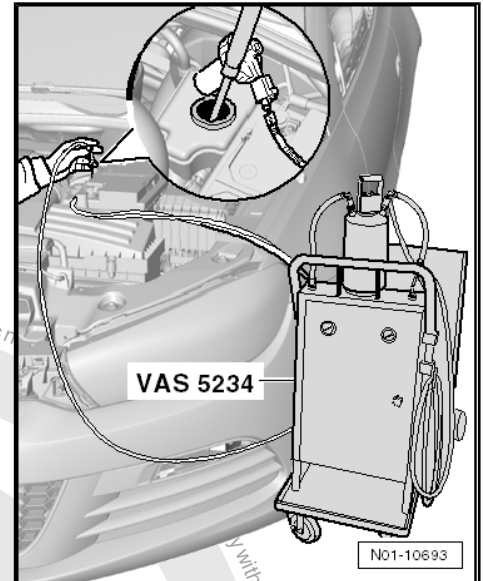
Continuation for all vehicles:

- Place enough lint-free cloths in the engine area.
- Extract as much brake fluid as possible from the brake fluid reservoir with the Brake Charger/Bleeder Unit - VAS5234- .

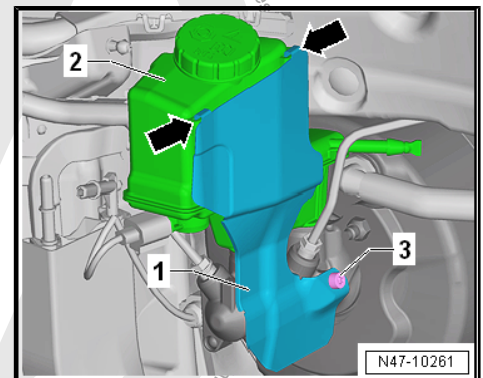


Note

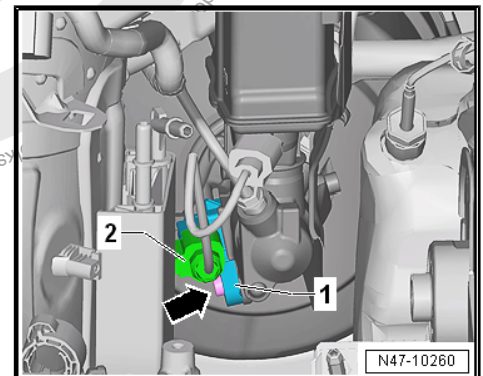
The illustration shows the installation position of the ABS Hydraulic Unit - N55- and the ABS Control Module - J104- in a LHD vehicle:



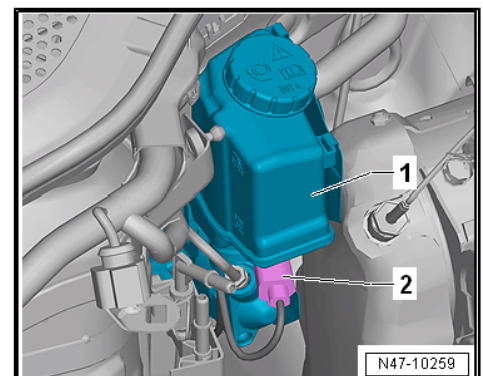
- If equipped, remove the heat shield -1-.
- Remove the bolt -3- to do so.
- Remove the heat shield -1- upward from the mounts -arrows- on the brake fluid reservoir -2-.



- Release and disconnect the connector -2- on the Brake Lamp Switch - F- -1-.

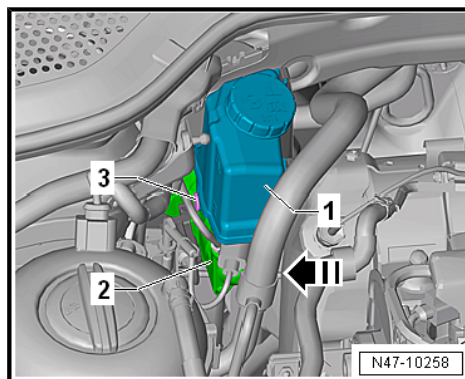


- Release and disconnect the connector -2- for the Brake Fluid Level Warning Switch - F34- from the brake fluid reservoir -1-.

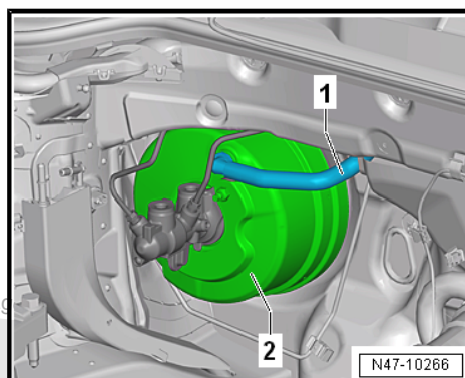




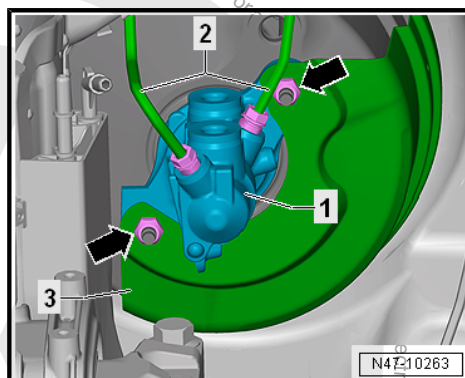
- Remove the expanding rivet -3- in the direction of the -arrow-.
- Remove the brake fluid reservoir -1- upward from the brake master cylinder -2-.



- Reduce the vacuum in the brake booster by pressing the brake pedal repeatedly.
- Pull the vacuum line -1- out of the brake booster -2-.

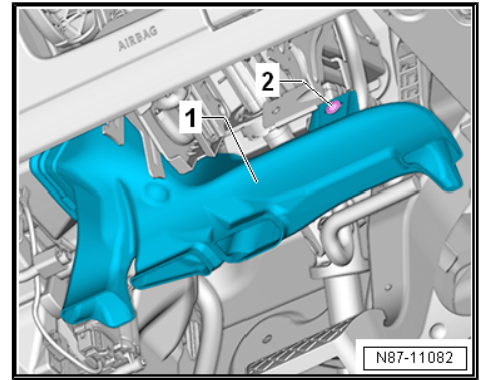


- Remove brake lines -2- on the master brake cylinder -1-.
- Disconnect the brake lines at the brake master cylinder and seal the lines with sealing plugs from the repair kit part number. 1H0 698 311 A.
- Remove the nuts -arrows-.
- Remove the heat shield -3-.
- Carefully remove the brake master cylinder from the brake booster.
- Remove the driver side instrument panel side cover. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Instrument Panel; Instrument Panel Side Cover, Removing and Installing .
- Remove the footwell cover on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartment/Covers .
- Remove the driver side storage compartment. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartment/Covers .
- Remove the driver side instrument panel cover. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments/Covers; Driver Side Instrument Panel Cover, Removing and Installing .
- Remove the knee airbag. Refer to ⇒ Body Interior; Rep. Gr. 69 ; Knee Airbags; Overview - Knee Airbag .





- Remove the driver side footwell vent -1-. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 87 ; Air Duct; Overview - Air Ducts and Air Distribution in Passenger Compartment .
- Remove the bolt -2- and remove the driver side footwell vent -1-.
- Remove the brake pedal crash bolster and set aside. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Instrument Panel Central Tube; Overview - Instrument Panel Central Tube .
- Disconnect the brake pedal from the brake booster. Refer to ⇒ ["4.3 Brake Pedal, Removing from Brake Booster"](#), [page 87](#) .





- Remove the nuts -arrows- from the bracket.

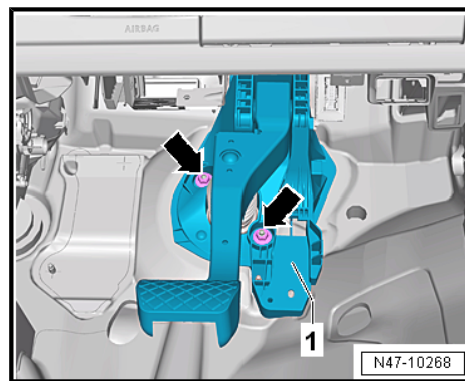
Installing

Install in reverse order of removal while paying attention to the following:



Note

- ◆ *The brake booster is also bonded with the seal at the factory only.*
- ◆ *The bonding on the brake booster and bulkhead must not be replaced*



- Remove all adhesive residue from the bulkhead and the brake booster, if necessary. To do so, use the Adhesive Strip Remover - VAS6349- with a drill, cordless drill or straight sander.
- Allow the Adhesive Strip Remover - VAS6349- run slowly and rub against the running direction.
- Carefully insert the brake booster and tighten the nuts.
- When assembling the brake master cylinder with the brake booster, make sure that the push rod is correctly seated in the brake master cylinder.
- Make sure the seal -item 9- ➔ [Item 9 \(page 101\)](#) fits correctly when assembling the brake master cylinder with the brake booster.
- Make sure the sealing plugs -item 18- ➔ [Item 18 \(page 101\)](#) are seated correctly in the brake master cylinder.
- Coat the plugs -item 18- ➔ [Item 18 \(page 101\)](#) with brake fluid before pushing the brake fluid reservoir into the brake master cylinder.
- Attach the brake pedal to the brake booster. Refer to ➔ [“4.4 Brake Pedal, Attaching to Brake Booster”, page 88](#) .
- Fill the coolant. Refer to ➔ Rep. Gr. 19 ; Coolant System/ Coolant; Coolant, Draining and Filling .
- Bleed the brake system. Refer to ➔ [“6.2 Hydraulic System, Standard Bleeding”, page 146](#) .

Vehicles with Manual Transmission:

- Bleed the clutch mechanism. Refer to ➔ Rep. Gr. 30 ; Clutch Mechanism; Clutch Mechanism, Bleeding .

Vehicles with A/C system:

- Fill the refrigerant circuit. Refer to ➔ Heating, Ventilation and Air Conditioning; Rep. Gr. 00 ; Working with the A/C Service Station; Filling the Refrigerant Circuit with the A/C Service Station .

Tightening Specifications

- ◆ ➔ [“3.1.2 Overview - Brake Booster/Brake Master Cylinder, RHD”, page 100](#)
- ◆ ➔ [“3.5.2 Brake Lines, Attaching to Hydraulic Unit, RHD”, page 44](#)
- ◆ Crash Bolster. Refer to ➔ Body Interior; Rep. Gr. 70 ; Instrument Panel Central Tube; Overview - Instrument Panel Central Tube .



- ◆ Footwell Vent. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 87 ; Air Routing; Overview - Passenger Compartment Air Ducts and Air Distribution .
- ◆ Knee Airbag. Refer to ⇒ Body Interior; Rep. Gr. 69 ; Knee Airbags; Overview - Knee Airbag
- ◆ Driver Side Covers. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartment/Covers; Component Location Overview - Storage Compartment/Covers .
- ◆ Catalytic converter. Refer to ⇒ Rep. Gr. 26 ; Overview - Emissions Control .
- ◆ Coolant lines on the turbocharger. Refer to ⇒ Rep. Gr. 21 ; Overview - Turbocharger
- ◆ Toothed belt guard. Refer to ⇒ Rep. Gr. 15 ; Toothed Belt Drive; Overview - Toothed Belt Guard .
- ◆ A/C system. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 87 ; System Overview - Refrigerant Circuit .
- ◆ Battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Overview - Battery .
- ◆ noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Noise Insulation; Noise Insulation, Assembly Overview .
- ◆ Front bleeder valve. Refer to
⇒ ["1.1 Overview - Front Brake Caliper", page 91](#) .
- ◆ Rear bleeder valves. Refer to
⇒ ["2.1 Overview - Rear Brake Caliper", page 95](#) .

3.4 Brake Master Cylinder, Removing and Installing

⇒ ["3.4.1 Brake Master Cylinder, Removing and Installing", page 127](#)

3.4.1 Brake Master Cylinder, Removing and Installing

Special tools and workshop equipment required

- ◆ Brake Charger/Bleeder Unit - VAS5234-
- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Sealing Tool - T10249-

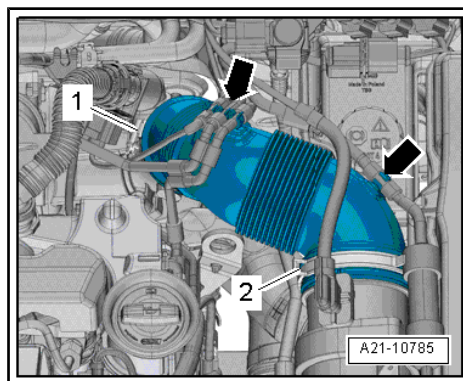
Removing

- On vehicles with a coded radio, note the code. Retrieve it if necessary.
- Disconnect the battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .
- Remove the battery. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Removing and Installing .



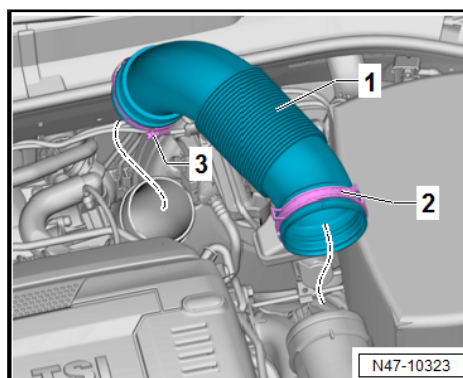
On Vehicles with Diesel Engine:

- Remove the engine cover.
- Loosen hose clamp -1- and remove the air guide hose and air filter housing. Refer to ➔ Rep. Gr. 23 ; Air Filter; Air Filter Housing Removing and Installing .



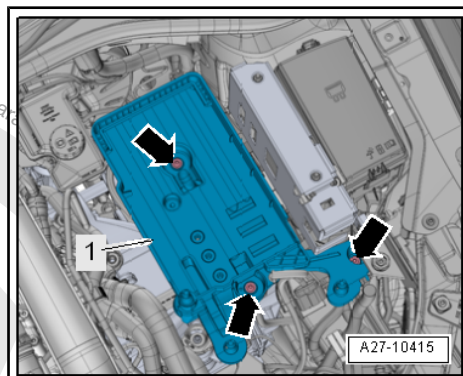
On »R« Vehicles:

- Loosen the hose clamps -2- and -3-.
- Remove the air guide hose -1- and air filter housing. Refer to ➔ Rep. Gr. 24 ; Air Filter; Air Filter Housing Removing and Installing .

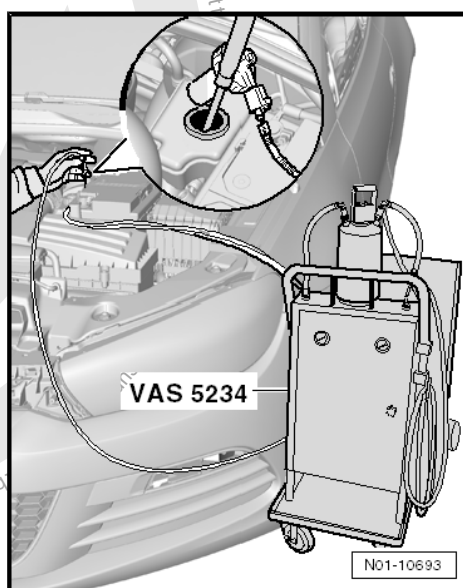


Continuation for All Vehicles:

- Remove the battery tray. Refer to ➔ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery Removing and Installing .
- Place enough lint-free cloths near the engine and transmission.



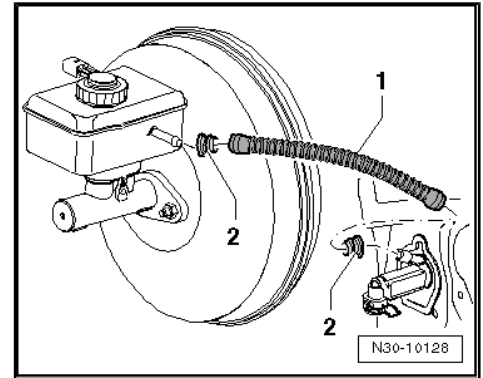
- Extract as much brake fluid as possible from the brake fluid reservoir with the Brake Charger/Bleeder Unit - VAS5234- .





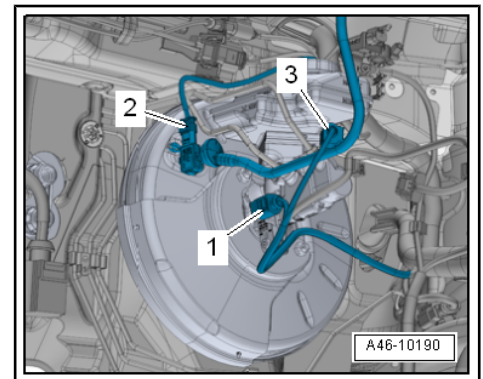
For Vehicles with Manual Transmission:

- Remove the clutch slave cylinder return hose -1-, close using the Sealing Tool - T10249- tie up or the using a commercially available tool for example Hazet 4590 disconnect and remove the clutch slave cylinder return hose -1-.

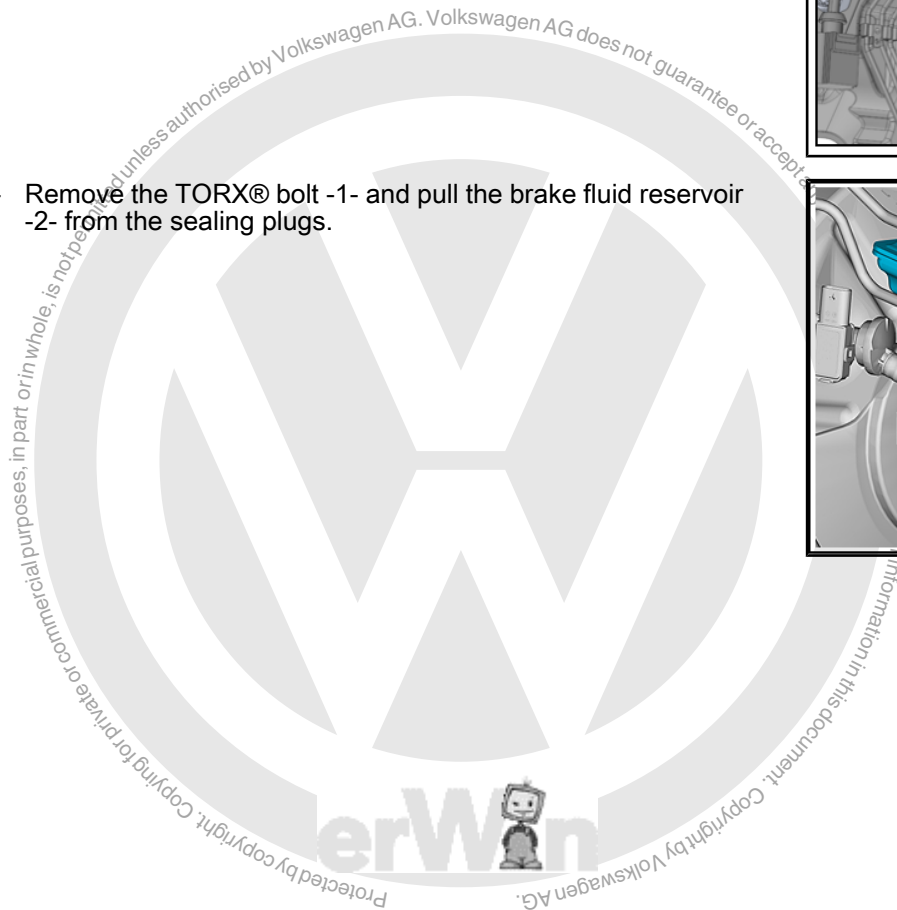
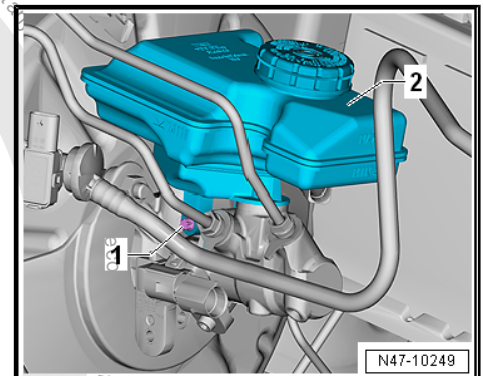


Continuation for All Vehicles:

- Remove the connectors from the -3- Brake Fluid Level Warning Switch - F34- , if equipped from the -2- Vacuum Sensor - G608- and from the -1- Brake Lamp Switch - F- .

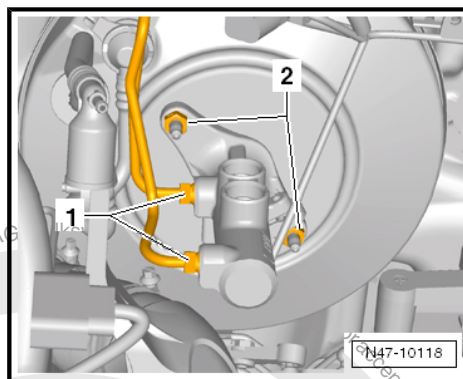


- Remove the TORX® bolt -1- and pull the brake fluid reservoir -2- from the sealing plugs.





- Disconnect the brake lines -1- at the brake master cylinder and seal the lines with sealing plugs from repair kit part number 1H0 698 311 A.
- Remove the nuts -2- from the brake master cylinder.
- Remove the heat shield, if equipped.
- Carefully take the brake master cylinder out of the brake booster.
- Remove the Brake Lamp Switch - F- from the brake master cylinder.



Installing

Install in reverse order of removal while paying attention to the following:

- When assembling the brake master cylinder with the brake booster, make sure that the push rod is correctly seated in the brake master cylinder.

The seals must be located in the return hose for the clutch master cylinder.

- Bleed the brake system. Refer to [⇒ "6.2 Hydraulic System, Standard Bleeding", page 146](#).

Tightening Specifications

- ◆ Refer to [⇒ "3.1.1 Overview - Brake Booster/Brake Master Cylinder", page 98](#)

3.4.2 Brake Master Cylinder, Removing and Installing, RHD Vehicles

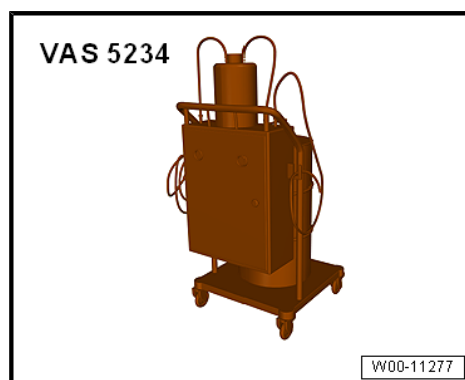


Note

First check the vacuum system for the brake booster in case of complaints regarding the brake booster. Refer to [⇒ "4.4 Vacuum System, Checking", page 137](#).

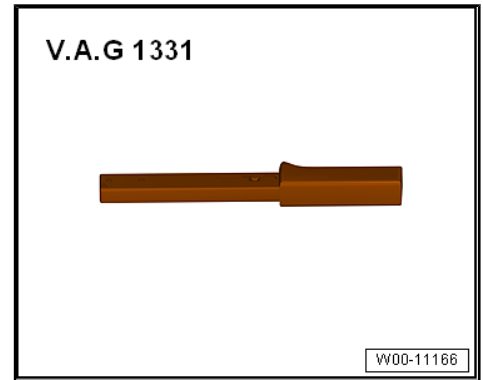
Special tools and workshop equipment required

- ◆ Brake Charger/Bleeder Unit - VAS5234-

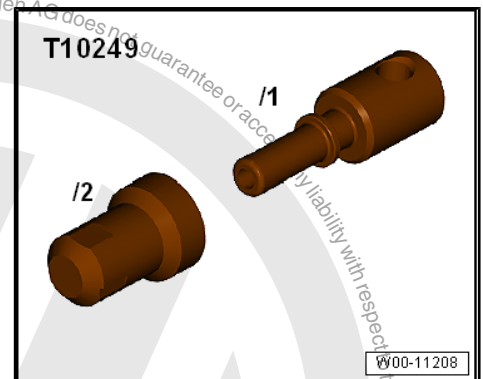




- ◆ Torque Wrench 1331 5-50Nm - VAG1331-



- ◆ Sealing Tool - T10249-



Brake master cylinder component location in RHD vehicles:

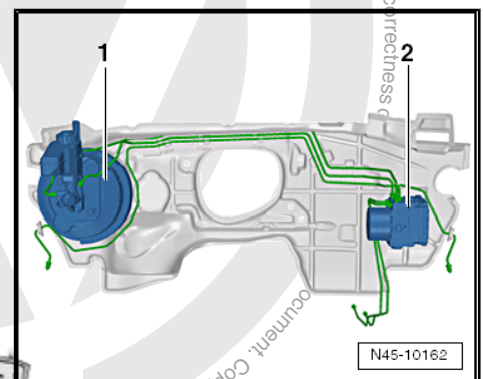
- 1 - Brake Booster with Master Brake Cylinder
- 2 - ABS Hydraulic Unit - N55- and ABS Control Module - J104-

Removing

- On vehicles with a coded radio, note the code. Retrieve it if necessary.

Diesel vehicles:

- Remove the engine cover. Refer to ➤ Rep. Gr. 10 ; Engine Cover; Engine Cover, Removing and Installing .



⚠ CAUTION

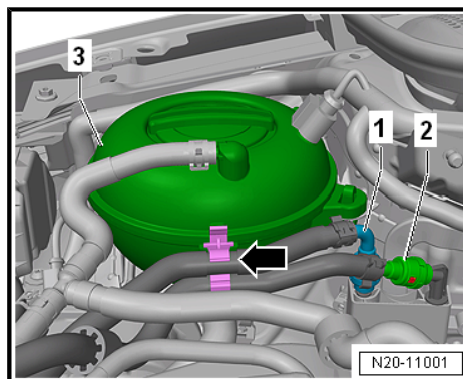
Fuel system is under pressure.

Risk of injury from fuel spraying out.

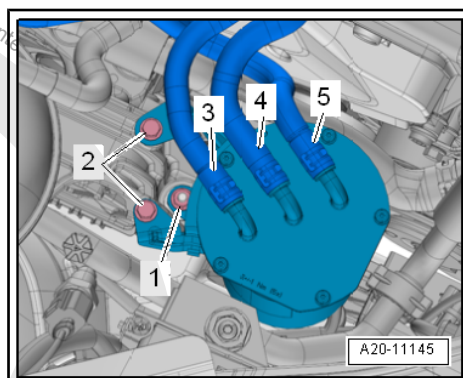
- Wear protective eyewear.
- Wear safety gloves.
- Reduce the pressure: Lay clean cloths around the connection point and carefully open the connection point.



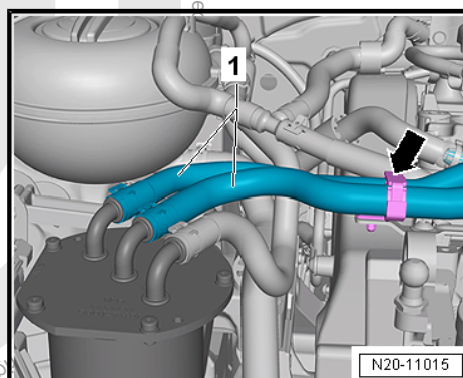
- Release and disconnect the fuel supply lines -1- and -2-.
- Disconnect the couplings. Refer to ⇒ Rep. Gr. 20 ; Couplings; Couplings, Disconnecting .
- Unclip the fuel lines -1- and -2- from the bracket -arrow- on the coolant expansion tank -3-.



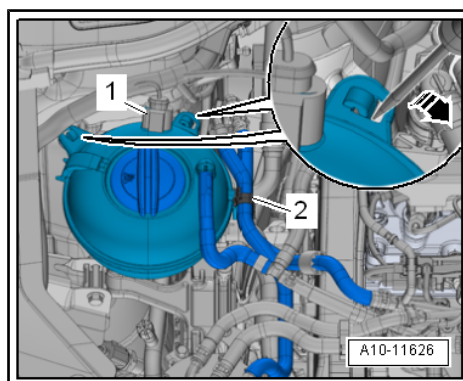
- Remove bolts -2-.
- Remove the nut -1-.



- Open the bracket -arrow- and unclip the fuel lines -1-.
- Then move the fuel filter to the side.



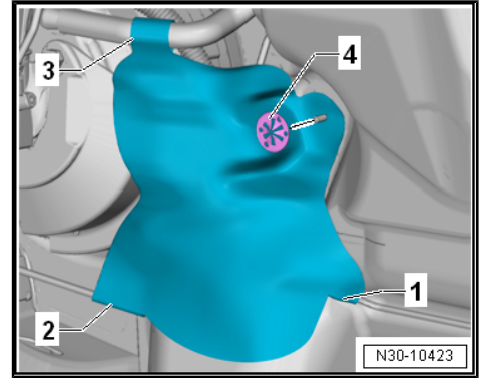
- Disconnect the connector -1-.
- Release the catches with a screwdriver -arrow-.
- Lay the coolant reservoir on the engine.
- Remove the upper toothed belt guard. Refer to ⇒ Rep. Gr. 15 ; Toothed Belt Drive; Toothed Belt Guard, Removing and Installing .



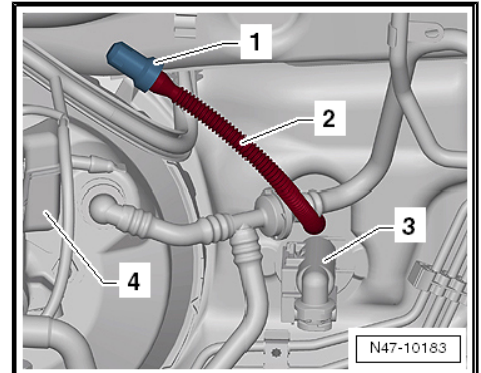


Vehicles with Manual Transmission:

- If equipped remove the heat shield.
- To do so remove the lock washer -4- from the bulkhead.
- Open the push buttons -1- to -3- on the heat shield.

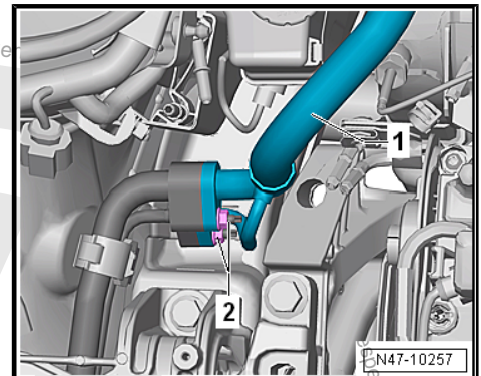


- Remove the supply hose -2- for the clutch master cylinder -3- from the brake fluid reservoir -4-.
- Seal the return hose -2- for the clutch master cylinder -3- using the Sealing Tool - T10249- -1- or with the Hose Clamps - Up To 25mm - 3094- .
- Tie up the supply hose -2-.



Vehicles with A/C system:

- Discharge the refrigerant circuit. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 00 ; Working with the A/C Service Station; Discharging the Refrigerant Circuit with the A/C Service Station .
- Remove the nuts -2- from the refrigerant line -1-.
- Remove the refrigerant line -1-.



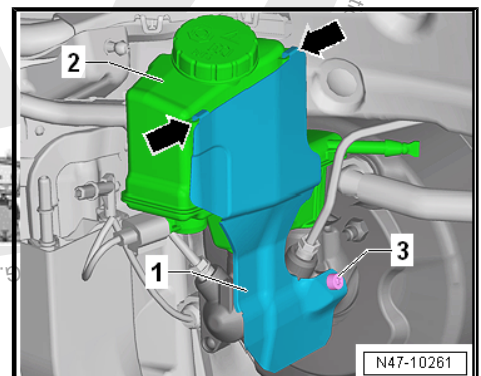
Continuation for all vehicles:



Note

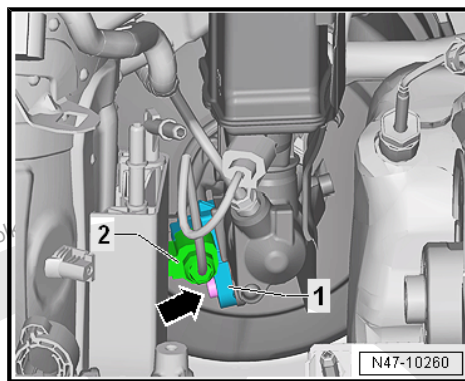
The illustration shows the installation position of the ABS Hydraulic Unit - N55- and the ABS Control Module - J104- in a LHD vehicle:

- Place enough lint-free cloths in the engine area.
- Extract as much brake fluid as possible from the brake fluid reservoir with the Brake Charger/Bleeder Unit - VAS5234- .
- If equipped, remove the heat shield -1-.
- Remove the bolt -3- to do so.
- Remove the heat shield -1- upward from the mounts -arrows- on the brake fluid reservoir -2-.

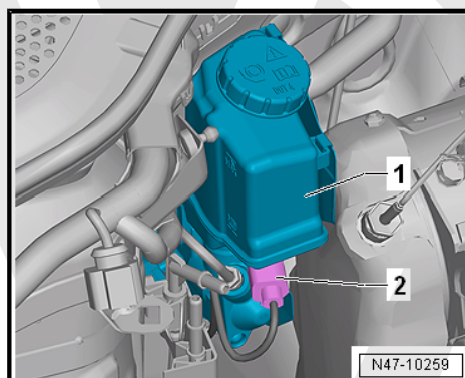




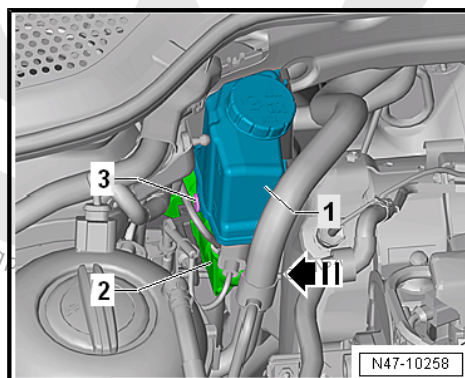
- Release and disconnect the connector -2- on the Brake Lamp Switch - F- -1-.



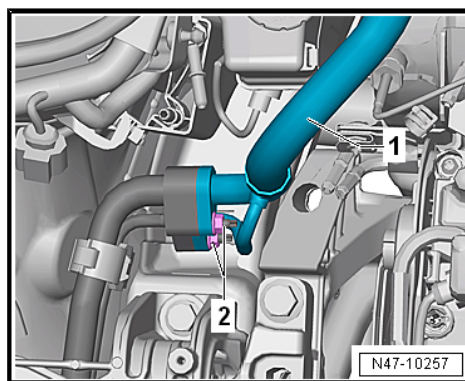
- Release and disconnect the connector -2- for the Brake Fluid Level Warning Switch - F34- from the brake fluid reservoir -1-.



- Remove the expanding rivet -3- in the direction of the -arrow-.
- Remove the brake fluid reservoir -1- upward from the brake master cylinder -2-.

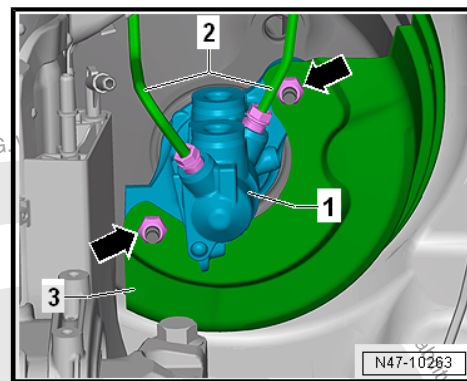


- While doing so lightly push the refrigerant line -1- upward.





- Remove brake lines -2- on the master brake cylinder -1-.
- Seal off the brake lines with the plugs from the repair kit 1H0 698 311 A.
- Remove the nuts -arrows-.
- Remove the heat shield -3-.
- Carefully remove the brake master cylinder from the brake booster.



Installing

Install in reverse order of removal while paying attention to the following:

- When assembling the brake master cylinder with the brake booster, make sure that the push rod is correctly seated in the brake master cylinder.
- Make sure the seal -item 9- ➔ [Item 9 \(page 101\)](#) fits correctly when assembling the brake master cylinder with the brake booster.
- Make sure the sealing plugs -item 18- ➔ [Item 18 \(page 101\)](#) are seated correctly in the brake master cylinder.
- Coat the plugs -item 18- ➔ [Item 18 \(page 101\)](#) with brake fluid before pushing the brake fluid reservoir into the brake master cylinder.
- Bleed the brake system. Refer to ➔ ["6.2 Hydraulic System, Standard Bleeding", page 146](#).

Vehicles with Manual Transmission:

- Bleed the clutch mechanism. Refer to ➔ Rep. Gr. 30 ; Clutch Mechanism; Clutch Mechanism, Bleeding .

Vehicles with A/C system:

- Fill the refrigerant circuit. Refer to ➔ Heating, Ventilation and Air Conditioning; Rep. Gr. 00 ; Working with the A/C Service Station; Filling the Refrigerant Circuit with the A/C Service Station .

Tightening Specifications

- ◆ ➔ ["3.1.2 Overview - Brake Booster/Brake Master Cylinder, RHD", page 100](#)
- ◆ ➔ ["3.5.2 Brake Lines, Attaching to Hydraulic Unit, RHD", page 44](#)
- ◆ Toothed belt guard. Refer to ➔ Rep. Gr. 15 ; Toothed Belt Drive; Overview - Toothed Belt Guard .
- ◆ Fuel filter. Refer to ➔ Rep. Gr. 20 ; Overview - Fuel Filter .
- ◆ A/C system. Refer to ➔ Heating, Ventilation and Air Conditioning; Rep. Gr. 87 ; System Overview - Refrigerant Circuit .
- ◆ Front bleeder valve. Refer to ➔ ["1.1 Overview - Front Brake Caliper", page 91](#) .
- ◆ Rear bleeder valves. Refer to ➔ ["2.1 Overview - Rear Brake Caliper", page 95](#) .



4 Vacuum System

⇒ ["4.2 Check Valve, Checking", page 136](#)

⇒ ["4.3 Vacuum Sensor G608 , Removing and Installing", page 136](#)

⇒ ["4.4 Vacuum System, Checking", page 137](#)

4.1 Overview - Vacuum Pump

⇒ ["4.1.1 Brake Booster Vacuum Pump, Diesel Vehicles", page 136](#)

4.1.1 Brake Booster Vacuum Pump, Diesel Vehicles

Vacuum Pump for 4-Cylinder Diesel Engines (1.6L Common Rail):

The vacuum pump is installed behind the oil pump.

- Vacuum Pump/oil pump removing and installing. Refer to ⇒ Rep. Gr. 17 ; Oil Pan/Oil Pump; Overview - Oil Pan/Oil Pump .

4.2 Check Valve, Checking

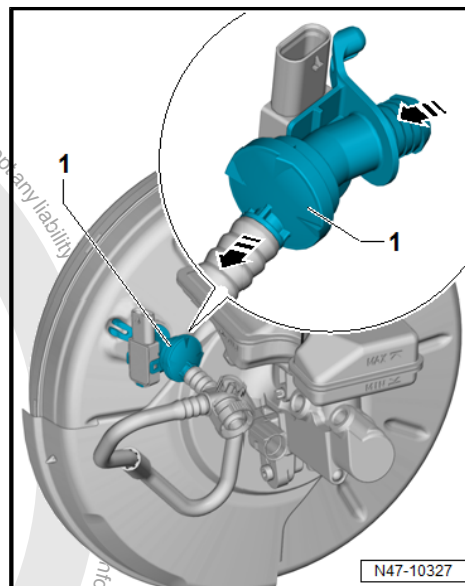
Inspection process

- Carefully remove the check valve with the vacuum line -1- from the brake booster.
- Blow some air first in one then in the other direction through the check valve -1-.
- The check valve -1- must allow air through in the direction of the -arrow-.
- The check valve -1- must remain locked in the opposite direction of the -arrow-. If this is not the case, replace the check valve of the complete vacuum line.



Note

Pay attention when installing that the vacuum line with the check valve installation position is correct on the brake booster.



4.3 Vacuum Sensor - G608- , Removing and Installing



Note

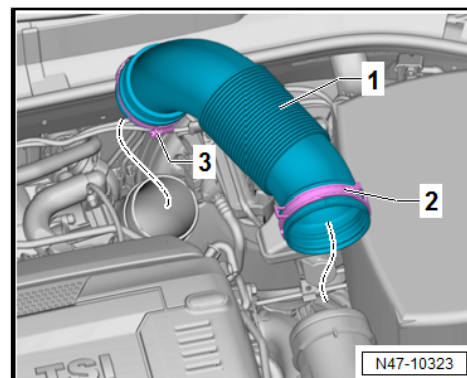
The Vacuum Sensor - G608- is only installed on some gasoline engines.



Removing

On »R« vehicles:

- Open the lock washer -2- and the screw-type clamp -3-.
- Remove the air guide hose -1-.



Continuation for all vehicles:

- Disconnect the connector -3- from the Vacuum Sensor - G608- -1-.
- Unclip the Vacuum Sensor - G608- -1- from the vacuum line -2-.

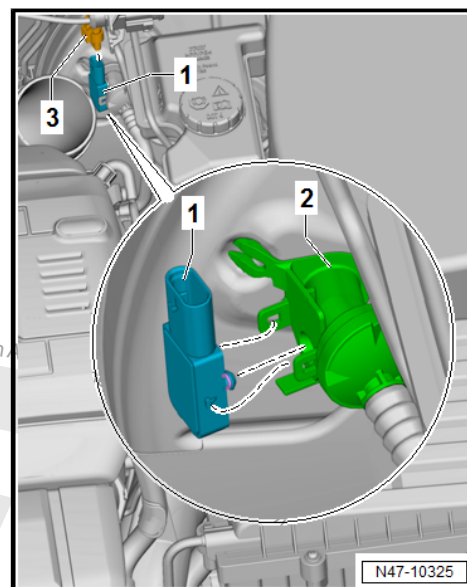
Installing

Install in reverse order of removal. Watch out for the following:



Note

- ◆ Pay attention that before installing the Vacuum Sensor - G608- is checked for leaks and damage.
- ◆ Replace the vacuum sensor if the seal is damaged.



4.4 Vacuum System, Checking

⇒ ["4.4.1 Test Instructions", page 137](#)

⇒ ["4.4.2 Brake Servo Tester VAS6721 , Connecting", page 138](#)

⇒ ["4.4.3 Vacuum, Checking", page 139](#)

⇒ ["4.4.4 Leak Test", page 139](#)

⇒ ["4.4.5 Vacuum, Creating with Hand Vacuum Pump VAS6213 ", page 141](#)

4.4.1 Test Instructions

The following checks will be helpful when performing Fault Finding if there are complaints regarding the brake booster or the so-called »hard brake pedal«.

The following components are included in the check:

- ◆ Brake Booster
- ◆ Seal between the brake master cylinder and the brake booster
- ◆ Check Valve
- ◆ Vacuum hoses with connectors
- ◆ Vacuum pump (if equipped)



Keep the geographical surrounding in mind when evaluating the measured results. The higher above sea level, the lower the air pressure.

Always observe all test requirements before checking the vacuum system:

- ◆ Visually inspect all of the vacuum hoses for damage (for example, tears or damage caused by animals) and secure fit
- ◆ Maintain clean working conditions when working on the vacuum system
- ◆ Clean the engine compartment before starting, if necessary

4.4.2 Brake Servo Tester - VAS6721- , Connecting

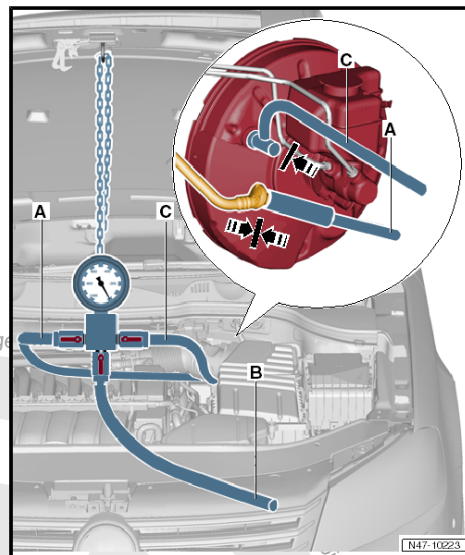
Special tools and workshop equipment required

- ◆ Brake Servo Tester - VAS6721-
 - Remove the vacuum hose from the brake booster.

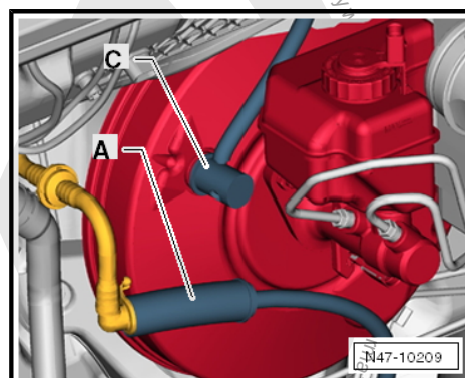
Pressing the brake pedal a few times beforehand makes it easier to remove the vacuum hose.

- Connect the Brake Servo Tester - VAS6721- . Refer to the following illustrations.

| Item number | Component | Explanation |
|-------------|----------------|---|
| A | Shut-off valve | In direction toward the vacuum hose, the check valve and vacuum pump (if equipped) |
| B | Shut-off valve | <ul style="list-style-type: none">◆ Opening the Brake Servo Tester - VAS6721- makes it easier to remove.◆ Open to simulate an incorrect source◆ Connect the Hand Vacuum Pump - VAS6213- . |
| C | Shut-off valve | Toward the brake booster |



- Connect the Brake Servo Tester - VAS6721- hose -A- too the vacuum hose and push the adapter -C- into the brake booster.





4.4.3 Vacuum, Checking



Note

- ◆ *The average earth atmospheric air pressure at sea level (N. N.) is 1013 mbar (15 psi) and it decreases dramatically at higher altitudes (approximately 100 mbar (1.5 psi) every 1000 meters higher) Local and time fluctuations will influence the vacuum.*
- ◆ *A cold engine, the A/C switched being on and even only the engine idling can negatively influence the vacuum.*

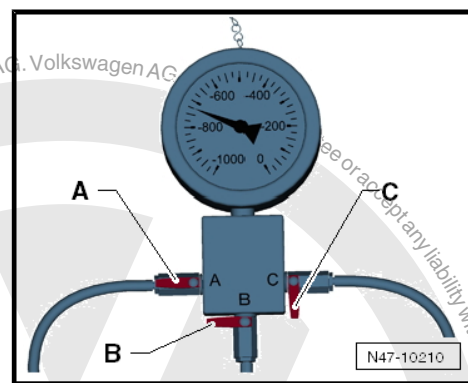
- Check all the vacuum hoses beforehand for damage (for example, tears or damaged caused by animals) and make sure they are secure
- Connect the Brake Servo Tester - VAS6721- . Refer to [⇒ “4.4.2 Brake Servo Tester VAS6721 , Connecting”, page 138](#) .
- Open the shut-off valve -A-.
- Close the shut-off valves -B+C-.
- Start the warm (above 60 °C) engine and press the accelerator pedal one time quickly (engine RPM higher than 2,000).
- Read the measured value displayed.

Normally (see note) the vacuum should be between 600 and 950 mbar (8.7 and 13.8 psi) (depending on the engine installed).

Check the vacuum system for leaks if the measured value is not reached, even though all requirements (see notes).

- Create the vacuum using a Hand Vacuum Pump - VAS6213- for comparison purposes. Refer to [⇒ “4.4.5 Vacuum, Creating with Hand Vacuum Pump VAS6213”, page 141](#) .

Opening the shut-off valve -B- makes it easier to remove the hose connections and the adapter.



4.4.4 Leak Test



Note

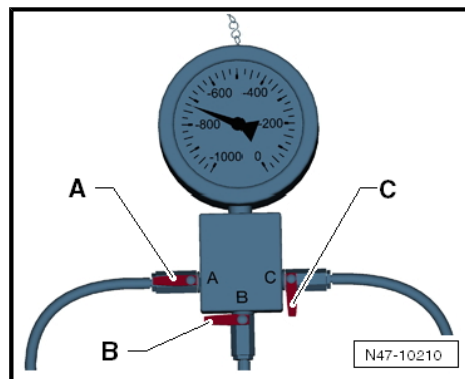
- ◆ *The average earth atmospheric air pressure at sea level (N. N.) is 1013 mbar (15 psi) and it decreases dramatically at higher altitudes (approximately 100 mbar (1.5 psi) every 1000 meters higher) Local and time fluctuations will influence the vacuum.*
- ◆ *A cold engine, the A/C switched being on and even only the engine idling can negatively influence the vacuum.*

- Check all the vacuum hoses beforehand for damage (for example, tears or damaged caused by animals) and make sure they are secure
- Connect the Brake Servo Tester - VAS6721- . Refer to [⇒ “4.4.2 Brake Servo Tester VAS6721 , Connecting”, page 138](#) .
- Open the shut-off valve -A-.



- Close the shut-off valves -B+C-.
- Start the warm (greater than 60 °C) engine and press the accelerator pedal one time quickly (engine RPM higher than 2,000).

Normally (see note) the vacuum should be between 600 and 950 mbar (8.7 and 13.8 psi) (depending on the engine installed).



- Open the shut-off valve -C- and evacuate the brake booster.
- Turn off the engine.
- Read the measured value displayed and write it down.

The vacuum may drop 400 mbar (5.38 psi) within 12 hours.

If the drop in vacuum is greater, check for leaks in the area of the....

1 - Brake Booster

or the

2 - Check Valve, the Vacuum Hoses with Connectors and the Vacuum Pump/Intake Manifold

for leaks.

The vacuum will drop considerably within a few seconds if there are large leaks.

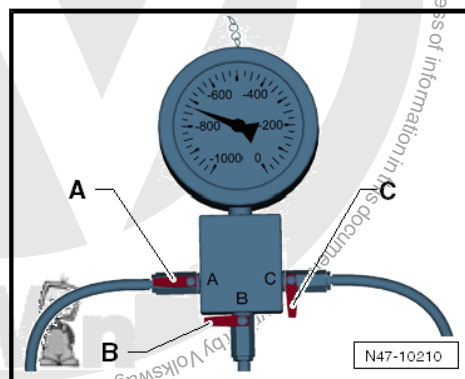
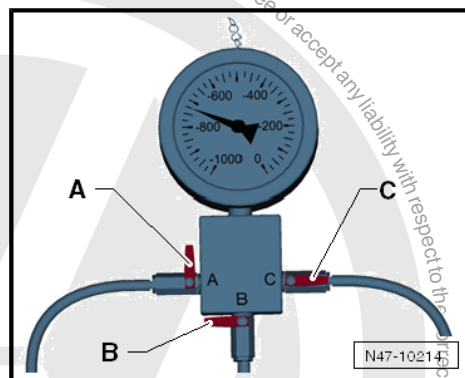
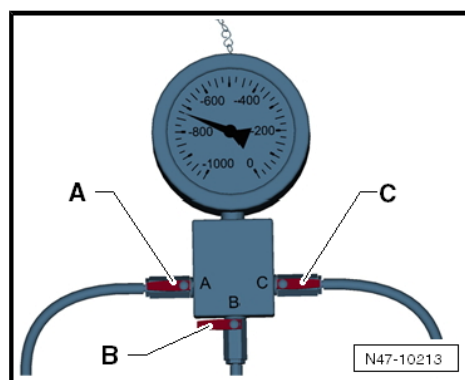
Checking the vacuum near the brake booster:

- Close the shut-off valve -A- after creating the vacuum to test the brake booster vacuum.

Vacuum test near the check valve, vacuum hoses and connections and vacuum pump/intake manifold

- Close the shut-off valve -C- after creating the vacuum to check the Brake Servo Tester - VAS6721- vacuum up to the intake manifold or up to the vacuum pump.

Opening the shut-off valve -B- makes it easier to remove the hose connections and the adapter.

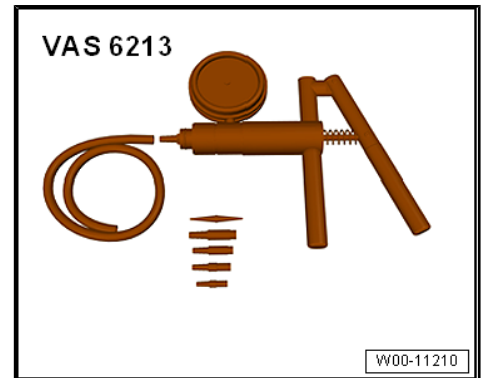




4.4.5 Vacuum, Creating with Hand Vacuum Pump - VAS6213-

In certain situations, the vacuum can be created using a Hand Vacuum Pump - VAS6213- instead of using the engine or a vacuum pump.

- Connect the Hand Vacuum Pump - VAS6213- to the vacuum hose on the connection -B- on the Brake Servo Tester - VAS6721- .
- Open the shut-off valve -B-.
- Create the vacuum using the Hand Vacuum Pump - VAS6213- until a vacuum between 600 and 950 mbar (8.7 and 13.8 psi) on the Brake Servo Tester - VAS6721- is displayed.
- Perform the tests.





5 Brake Lines

⇒ ["5.1 Brake Lines, Repairing", page 142](#)

5.1 Brake Lines, Repairing

⇒ ["5.1.1 Overview - Flanging Tool", page 142](#)

⇒ ["5.1.2 Flanging Tool, Instructions", page 143](#)

5.1.1 Overview - Flanging Tool

Special tools and workshop equipment required

- ◆ Brake Line Tool Kit - VAS6056-
- ◆ Brake Charger/Bleeder Unit - VAS5234-

Flare the brake lines with 5 mm outer diameter using the Brake Line Tool Kit - VAS6056- without damaging coating. In this way, brake lines can be inexpensively partially replaced in certain cases.



Note

- ◆ *Brake lines must not be bent more than 90°, otherwise they kink or deform causes unacceptable constriction in the line.*
- ◆ *Disconnect the brake lines preferably at the underbody.*
- ◆ *Position of intermediate pieces should be selected so that they cannot rub against moving parts.*
- ◆ *Do not lubricate the spindle, clean only with mineral spirits.*

List of individual tools:



1 - Brake Line Tool Kit - Flanging Tool - VAS6056/1-

- ❑ The Clamp Jaws - VAS6056/6- are included in the Brake Line Tool Kit - Flanging Tool - VAS6056/1-.

2 - Brake Line Tool Kit - Pipe Cutter - VAS6056/2-

3 - Brake Line Tool Kit - Brake Line Scraper - VAS6056/3-

- ❑ The threaded pins (in shaft and at sides) are set and must not be adjusted!

4 - Brake Line Tool Kit - Line Grips - VAS6056/4-

5 - Brake Line Tool Kit - Pipe Bending Tool - VAS6056/5-

6 - 6 mm Offset Screwdriver

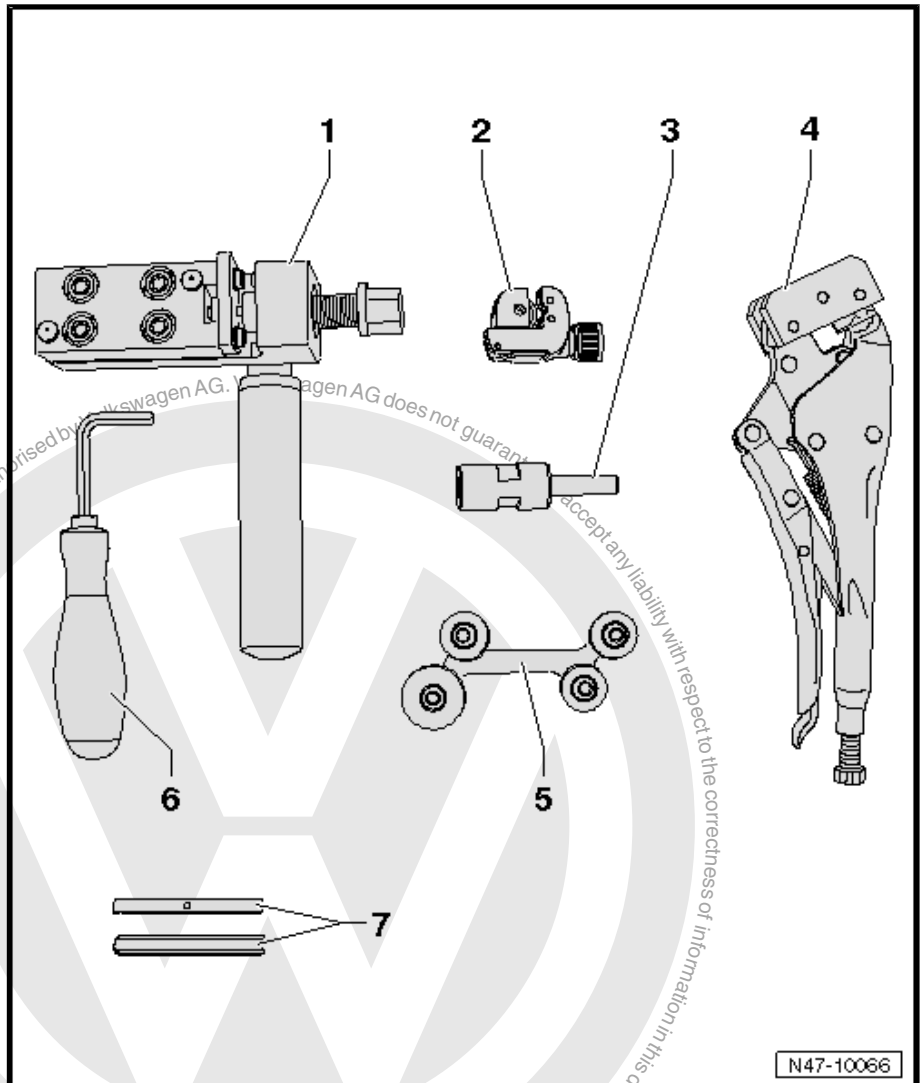
7 - Brake Line Tool Kit - Flaring Jaws - VAS6056/6- or Brake Line Tool Kit - Flaring Jaws - VAS6056/7-

- ❑ Brake Line Tool Kit - Flaring Jaws - VAS6056/6- for black brake lines
- ❑ Brake Line Tool Kit - Flaring Jaws - VAS6056/7- for green brake lines



Note

The arrow on the rounded side of the flaring jaws must face toward edge of housing and the straight side of the flaring jaws must be installed toward spindle, otherwise flared head will not be formed correctly.

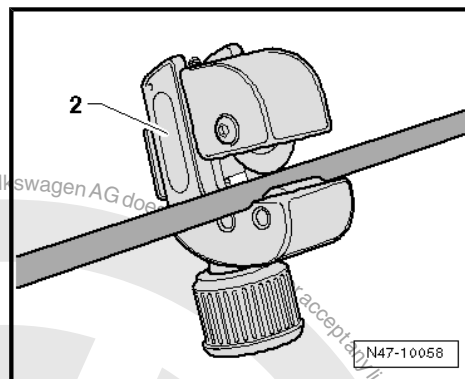


5.1.2 Flanging Tool, Instructions

- Remove the affected brake line from the brake caliper or brake cylinder. Be sure to catch any leaking brake fluid and dispose of it correctly.

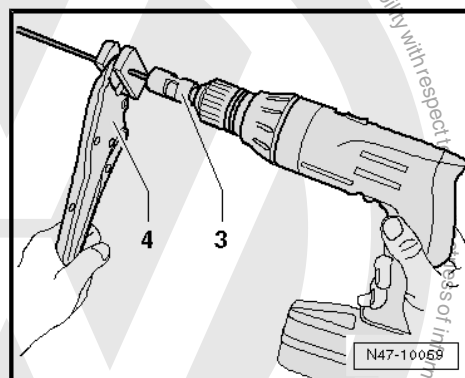


- Cut the brake line at a suitable place (straight, easily accessible piece) with the pipe cutter -2-.
- Remove the piece to be exchanged.
- Lubricate the brake line surface.



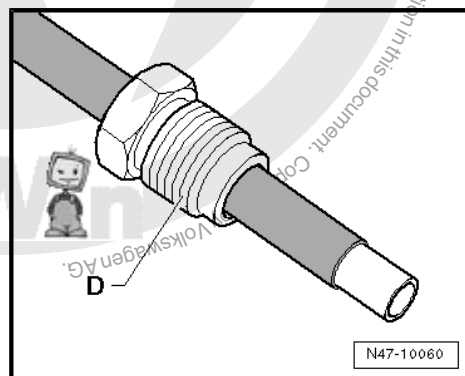
- Clamp the brake line in the locking pliers -4- so that approximately 50 mm is sticking out of the plastic clamping jaws.
- Mount the shearing tool -3- in a drill and place it on the brake line.
- Shear the coating from the brake line at a slow drill RPM and with light pressure against the brake line.

The length of the sheared-off portion is determined by the stop in the shearing tool.



- Remove the shearing tool from the brake line and remove the shavings.

- Remove the locking pliers and push the pipe fitting -D- onto the brake line.



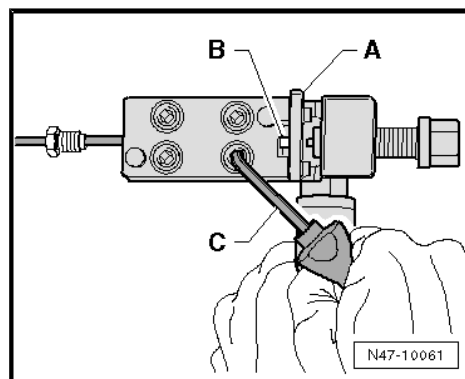
- Push the brake line -B- against the stop -A- inside the flanging tool.



Note

The brake line must contact the stop when tightening the hex socket bolts, otherwise the flanged head will not be formed correctly.

- Clamp the brake line in the flaring tool until it cannot be moved any more. Fold the stop -A- up and tighten the hex socket head screws diagonally with the angle screw driver -C-.

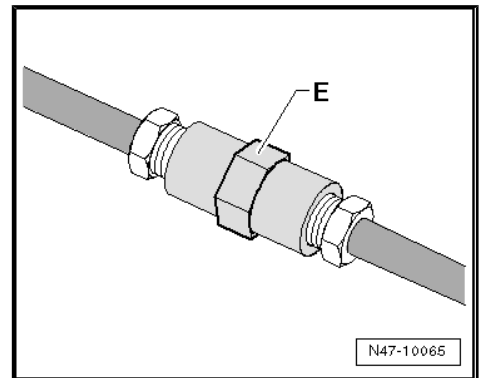
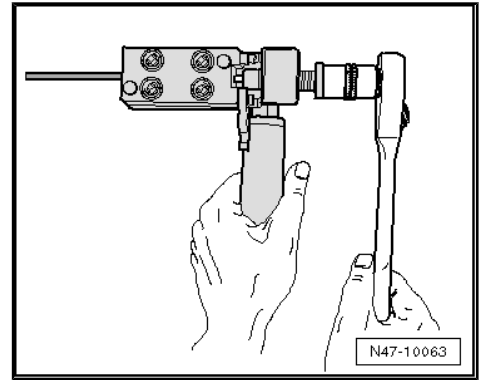




- Turn the spindle all the way in the flanging tool.
- Turn the spindle back.
- Loosen the hex socket bolts diagonally.
- Remove the brake line from the flanging tool, clean and check the brake line and flared head.

Briefly rinse the part of the brake line remaining in the vehicle:

- Connect the Brake Charger/Bleeder Unit - VAS5234- , place the bleeder bottle hose on the flared head of the brake line and run the Brake Charger/Bleeder Unit - VAS5234- briefly until some brake fluid runs through.
- Clean the new brake line to be inserted with compressed air.
- Join the brake lines with the connecting piece -E-.
- Assemble the brake line.
- Bleed the brake system. Refer to
[⇒ "6.2 Hydraulic System, Standard Bleeding", page 146](#) .





6 Hydraulic System

⇒ ["6.1 Brake Fluid General Information", page 146](#)

⇒ ["6.2 Hydraulic System, Standard Bleeding", page 146](#)

⇒ ["6.3 Hydraulic System, Post-Bleeding", page 147](#)

⇒ ["6.4 Checking for Leaks", page 147](#)

6.1 Brake Fluid General Information

⇒ ["6.1.1 Brake Fluid General Information", page 146](#)

⇒ ["6.1.2 Brake Fluid, Changing", page 146](#)

6.1.1 Brake Fluid General Information



Note

- ◆ *Only use new brake fluid conforming to VW standard (VW 501 14).*
- ◆ *Brake fluid is poisonous. Due to its caustic nature, it must also never come in contact with paint.*
- ◆ *Brake fluid is hygroscopic, meaning that it absorbs moisture from the surrounding air, and must therefore be stored in airtight containers.*
- ◆ *Rinse any spilled brake fluid with plenty of water.*

6.1.2 Brake Fluid, Changing

Refer to ⇒ Maintenance ; Booklet ; Brake and Clutch System, Changing Brake Fluid.

6.2 Hydraulic System, Standard Bleeding

Special tools and workshop equipment required

- ◆ Brake Charger/Bleeder Unit - VAS5234-
- ◆ Brake Bleeding Tool Set - VAS6564-



Note

- ◆ *The bleeding of hydraulic system using the Brake Charger/Bleeder Unit - VAS5234- is described.*
- ◆ *A positive pressure of 2 bar (29 psi) required to bleed the ABS Hydraulic Unit - N55-.*

Perform the following:

- Remove the rear wheels on vehicles with 15" rims.



Note

Adhere strictly to work sequence when bleeding brake system.

- Connect the Brake Charger/Bleeder Unit - VAS5234-
- Open bleeder valves in the prescribed sequence and bleed brake caliper.

1- Front left brake caliper



- 2 - Right front brake caliper
- 3 - Left rear brake caliper
- 4 - Right rear brake caliper



Note

Use suitable bleeder hose. It must fit tightly on bleeder valve so that no air gets into brake system.

- With bleeder bottle hose attached, leave bleeder valve open long enough that brake fluid exits without bubbles.

6.3 Hydraulic System, Post-Bleeding



Note

Perform a post-bleeding when:

- ◆ the brake pedal travel is too long, or the so-called »soft brake pedal«

A second technician is required during the post-bleeding.

- Connect the Brake Charger/Bleeder Unit - VAS5234-
- Depress brake pedal forcefully and hold.
- Open bleeder valve at brake caliper.
- Press brake pedal down onto stop.
- Close bleeder valve with pedal depressed.
- Release brake pedal slowly.



Note

This bleeding procedure must be performed 5 times per brake caliper.

Bleeding sequence:

- 1- Front left brake caliper
- 2 - Right front brake caliper
- 3 - Left rear brake caliper
- 4 - Right rear brake caliper



Note

A road test must be performed after bleeding. During this, at least one ABS regulation must be performed!

6.4 Checking for Leaks

Special tools and workshop equipment required

- ◆ Brake Pressure Gauge - VAG1310A-
- ◆ Brake Pressure Gauge - Adapter M10 - VAG1310/6-



Test Prerequisites

- Brake system (hydraulic unit, brake hoses, brake lines and brake calipers) operating properly and free of leaks.

Perform the following:

Checking

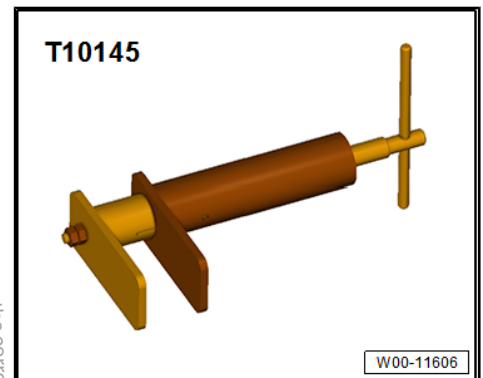
- Remove the bleeder valve at one front brake caliper.
- Attach and bleed the Brake Pressure Gauge - VAG1310A.
- Apply pressure to brake pedal until the gauge indicates a pressure of 50 bar (725 psi). The pressure must not drop by more than 4 bar (58 psi) during the test period of 45 seconds. Replace master cylinder if pressure drops greatly.



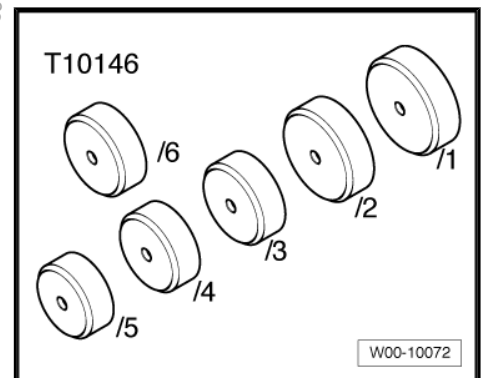
7 Special Tools

Special tools and workshop equipment required

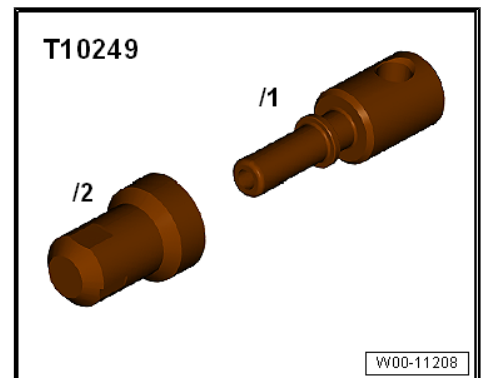
- ◆ Piston Resetting Tool - T10145-



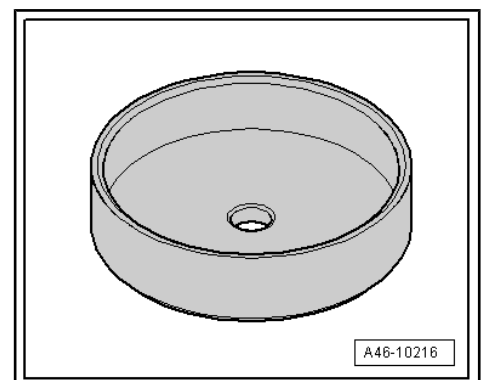
- ◆ Piston Resetting Tool - Caps /1,/2,/3,/4,/5 - T10146/5-



- ◆ Sealing Tool - T10249-

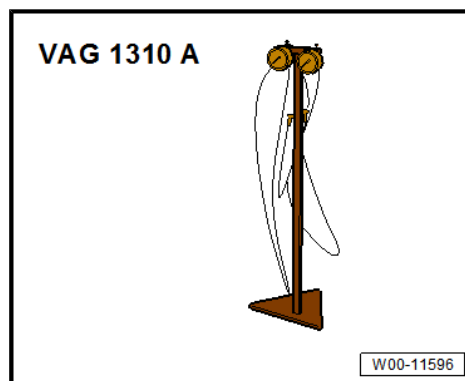


- ◆ Press Piece - T10502-

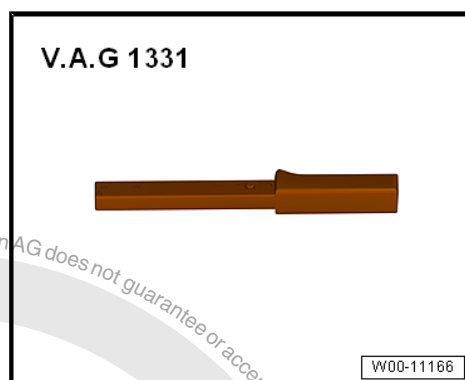




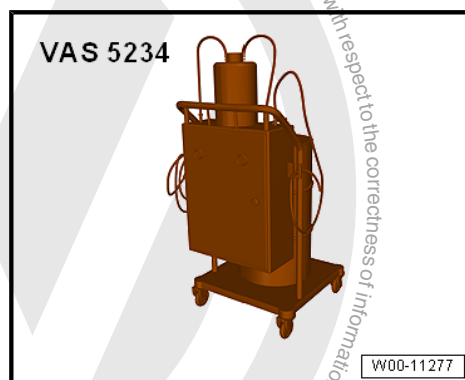
- ◆ Brake Pressure Gauge - VAG1310A-



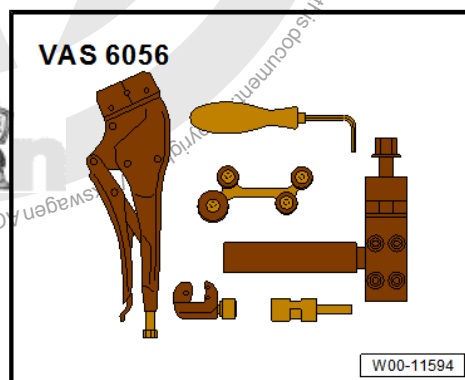
- ◆ Brake Pressure Gauge - Adapter M10 - VAG1310/6-
- ◆ Torque Wrench 1331 5-50Nm - VAG1331-



- ◆ Torque Wrench 1331 Insert - Ring Wrench - 11mm & 17mm - VAG1331/2-
- ◆ Brake Charger/Bleeder Unit - VAS5234-



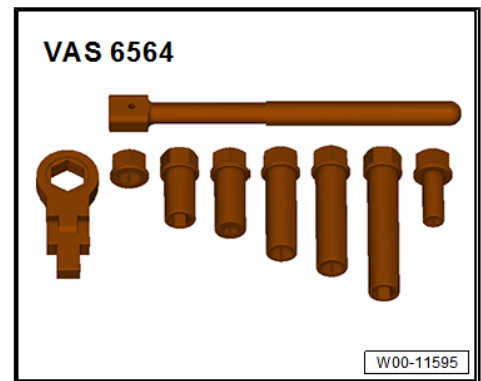
- ◆ Brake Line Tool Kit - VAS6056-



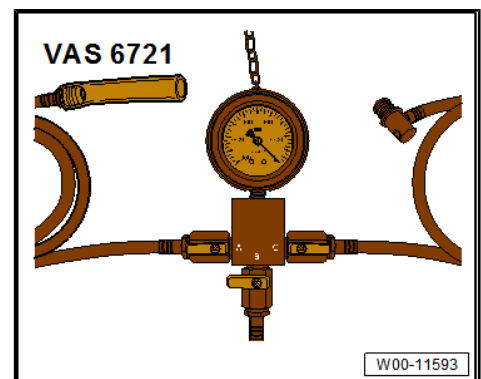
- ◆ Adhesive Strip Remover - VAS6349-



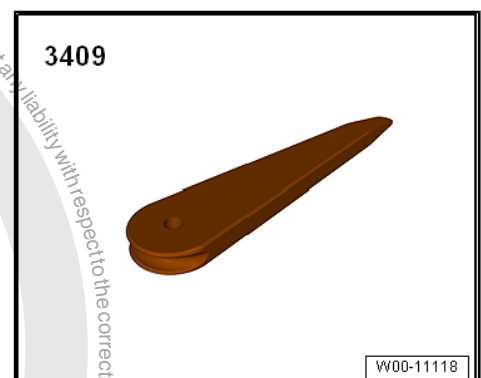
◆ Brake Bleeding Tool Set - VAS6564-



◆ Brake Servo Tester - VAS6721-



◆ Trim Removal Wedge - 3409-



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8 Revision History

| Re- vi- sion | Date | Job Type | Feedback # | Notes | Editor |
|--------------------|------------|----------------|------------|--|-----------|
| | | | | | |
| 4 | 04/01/2015 | Factory Update | | | Tom Perry |
| 3 | 01/07/2015 | Factory Update | | | Tom Perry |
| 2 | 11/19/2014 | Link Checking | | | Tom Perry |
| 1 | 08/19/2014 | Factory New | N/A | Informed that this book is for 5G1 only (Golf R and Variant) imported from Germany. Chapters blocked and metadata changed to reflect this. | Tom Perry |

Cautions & Warnings

Please read these WARNINGS and CAUTIONS before proceeding with maintenance and repair work. You must answer that you have read and you understand these WARNINGS and CAUTIONS before you will be allowed to view this information.

- If you lack the skills, tools and equipment, or a suitable workshop for any procedure described in this manual, we suggest you leave such repairs to an authorized Volkswagen retailer or other qualified shop. We especially urge you to consult an authorized Volkswagen retailer before beginning repairs on any vehicle that may still be covered wholly or in part by any of the extensive warranties issued by Volkswagen.
- Disconnect the battery negative terminal (ground strap) whenever you work on the fuel system or the electrical system. Do not smoke or work near heaters or other fire hazards. Keep an approved fire extinguisher handy.
- Volkswagen is constantly improving its vehicles and sometimes these changes, both in parts and specifications, are made applicable to earlier models. Therefore, part numbers listed in this manual are for reference only. Always check with your authorized Volkswagen retailer parts department for the latest information.
- Any time the battery has been disconnected on an automatic transmission vehicle, it will be necessary to reestablish Transmission Control Module (TCM) basic settings using the VAG 1551 Scan Tool (ST).
- Never work under a lifted vehicle unless it is solidly supported on stands designed for the purpose. Do not support a vehicle on cinder blocks, hollow tiles or other props that may crumble under continuous load. Never work under a vehicle that is supported solely by a jack. Never work under the vehicle while the engine is running.
- For vehicles equipped with an anti-theft radio, be sure of the correct radio activation code before disconnecting the battery or removing the radio. If the wrong code is entered when the power is restored, the radio may lock up and become inoperable, even if the correct code is used in a later attempt.
- If you are going to work under a vehicle on the ground, make sure that the ground is level. Block the wheels to keep the vehicle from rolling. Disconnect the battery negative terminal (ground strap) to prevent others from starting the vehicle while you are under it.
- Do not attempt to work on your vehicle if you do not feel well. You increase the danger of injury to yourself and others if you are tired, upset or have taken medicine or any other substances that may impair you or keep you from being fully alert.
- Never run the engine unless the work area is well ventilated. Carbon monoxide (CO) kills.
- Always observe good workshop practices. Wear goggles when you operate machine tools or work with acid. Wear goggles, gloves and other protective clothing whenever the job requires working with harmful substances.
- Tie long hair behind your head. Do not wear a necktie, a scarf, loose clothing, or a necklace when you work near machine tools or running engines. If your hair, clothing, or jewelry were to get caught in the machinery, severe injury could result.
- Do not re-use any fasteners that are worn or deformed in normal use. Some fasteners are designed to be used only once and are unreliable and may fail if used a second time. This includes, but is not limited to, nuts, bolts, washers, circlips and cotter pins. Always follow the recommendations in this manual - replace these fasteners with new parts where indicated, and any other time it is deemed necessary by inspection.

Cautions & Warnings

- Illuminate the work area adequately but safely. Use a portable safety light for working inside or under the vehicle. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.
- Friction materials such as brake pads and clutch discs may contain asbestos fibers. Do not create dust by grinding, sanding, or by cleaning with compressed air. Avoid breathing asbestos fibers and asbestos dust. Breathing asbestos can cause serious diseases such as asbestosis or cancer, and may result in death.
- Finger rings should be removed so that they cannot cause electrical shorts, get caught in running machinery, or be crushed by heavy parts.
- Before starting a job, make certain that you have all the necessary tools and parts on hand. Read all the instructions thoroughly; do not attempt shortcuts. Use tools that are appropriate to the work and use only replacement parts meeting Volkswagen specifications. Makeshift tools, parts and procedures will not make good repairs.
- Catch draining fuel, oil or brake fluid in suitable containers. Do not use empty food or beverage containers that might mislead someone into drinking from them. Store flammable fluids away from fire hazards. Wipe up spills at once, but do not store the oily rags, which can ignite and burn spontaneously.
- Use pneumatic and electric tools only to loosen threaded parts and fasteners. Never use these tools to tighten fasteners, especially on light alloy parts. Always use a torque wrench to tighten fasteners to the tightening torque listed.
- Keep sparks, lighted matches, and open flame away from the top of the battery. If escaping hydrogen gas is ignited, it will ignite gas trapped in the cells and cause the battery to explode.
- Be mindful of the environment and ecology. Before you drain the crankcase, find out the proper way to dispose of the oil. Do not pour oil onto the ground, down a drain, or into a stream, pond, or lake. Consult local ordinances that govern the disposal of wastes.
- The air-conditioning (A/C) system is filled with a chemical refrigerant that is hazardous. The A/C system should be serviced only by trained automotive service technicians using approved refrigerant recovery/recycling equipment, trained in related safety precautions, and familiar with regulations governing the discharging and disposal of automotive chemical refrigerants.
- Before doing any electrical welding on vehicles equipped with anti-lock brakes (ABS), disconnect the battery negative terminal (ground strap) and the ABS control module connector.
- Do not expose any part of the A/C system to high temperatures such as open flame. Excessive heat will increase system pressure and may cause the system to burst.
- When boost-charging the battery, first remove the fuses for the Engine Control Module (ECM), the Transmission Control Module (TCM), the ABS control module, and the trip computer. In cases where one or more of these components is not separately fused, disconnect the control module connector(s).
- Some of the vehicles covered by this manual are equipped with a supplemental restraint system (SRS), that automatically deploys an airbag in the event of a frontal impact. The airbag is operated by an explosive device. Handled improperly or without adequate safeguards, it can be accidentally activated and cause serious personal injury. To guard against personal injury or airbag system failure, only trained Volkswagen Service technicians should test, disassemble or service the airbag system.

Cautions & Warnings

- Do not quick-charge the battery (for boost starting) for longer than one minute, and do not exceed 16.5 volts at the battery with the boosting cables attached. Wait at least one minute before boosting the battery a second time.
- Never use a test light to conduct electrical tests of the airbag system. The system must only be tested by trained Volkswagen Service technicians using the VAG 1551 Scan Tool (ST) or an approved equivalent. The airbag unit must never be electrically tested while it is not installed in the vehicle.
- Some aerosol tire inflators are highly flammable. Be extremely cautious when repairing a tire that may have been inflated using an aerosol tire inflator. Keep sparks, open flame or other sources of ignition away from the tire repair area. Inflate and deflate the tire at least four times before breaking the bead from the rim. Completely remove the tire from the rim before attempting any repair.
- When driving or riding in an airbag-equipped vehicle, never hold test equipment in your hands or lap while the vehicle is in motion. Objects between you and the airbag can increase the risk of injury in an accident.

I have read and I understand these Cautions and Warnings.

