

TRANSMISSION

Rear Final Drive 0BF & 0BE (Sedan)

39 FINAL DRIVE, DIFFERENTIAL

GENERAL INFORMATION

GEAR OIL IN REAR FINAL DRIVE 0BF AND 0BE, DRAINING

Special tools and workshop equipment required

- Catch Tray

Rear Final Drive 0BF

-- Remove the gear oil inspection plug -arrow-.

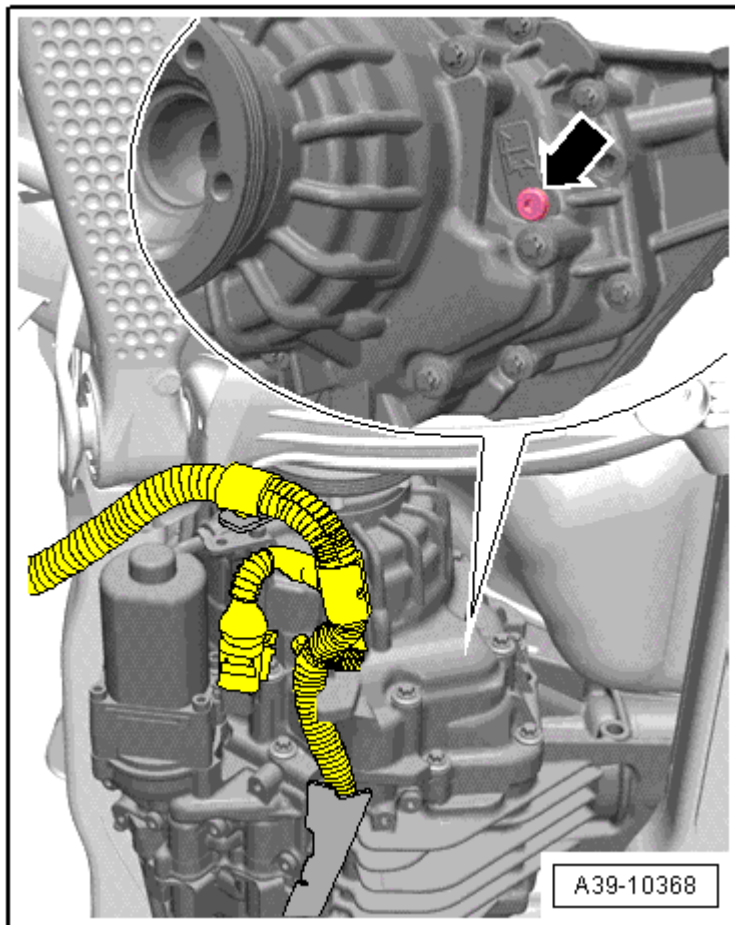


Fig. 1: Gear Oil Inspection Plug
Courtesy of AUDI OF AMERICA, LLC

NOTE: Overview of the gear oil plugs, refer to Fig. 38

Remove the gear oil inspection plug so that the gear oil can flow faster out of the drain hole.

-- Remove the drain plug -arrow- and drain the gear oil.

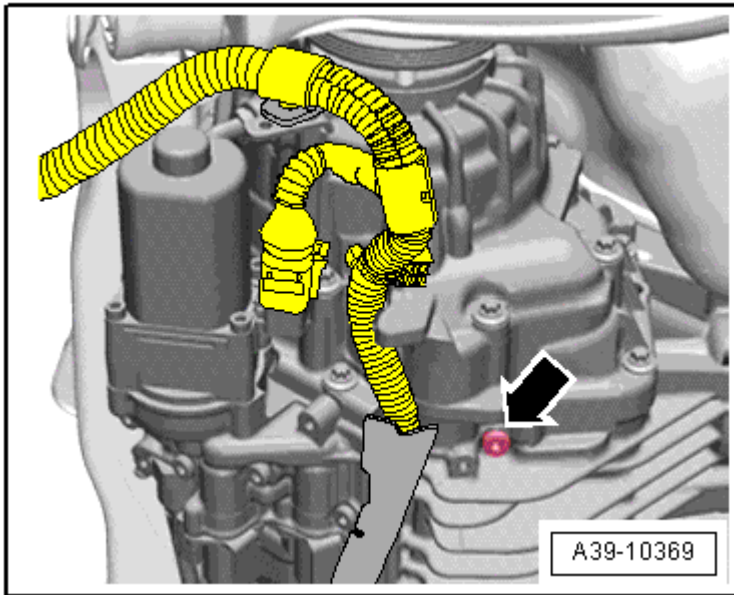


Fig. 2: Gear Oil Drain Plug

Courtesy of AUDI OF AMERICA, LLC

Rear Final Drive 0BE

-- Remove the gear oil inspection plug -1-.

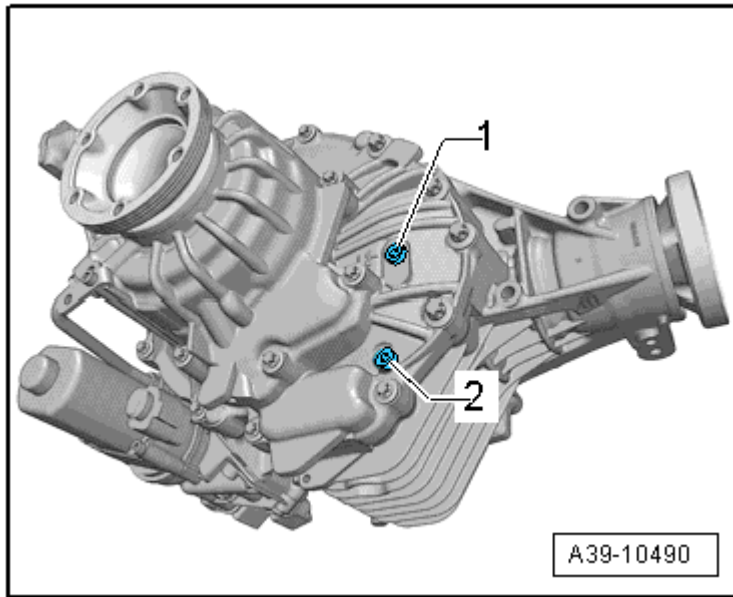


Fig. 3: Rear Final Drive Gear Oil Plugs
Courtesy of AUDI OF AMERICA, LLC

NOTE: Overview of the gear oil plugs, refer to Fig. 39.

Remove the gear oil inspection plug so that the gear oil can flow faster out of the drain hole.

-- Remove the drain plug -arrow- and drain the gear oil.

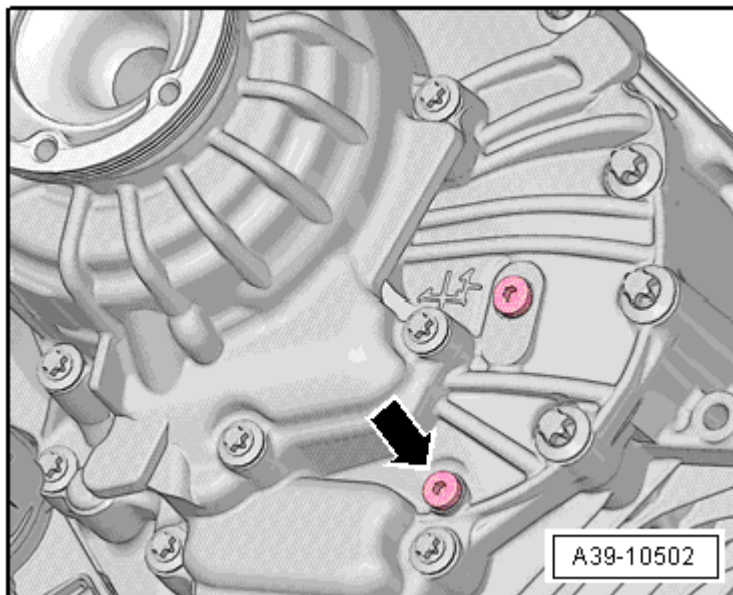


Fig. 4: Gear Oil Drain Plug
Courtesy of AUDI OF AMERICA, LLC

Continuation for All Rear Final Drives

-- Install and tighten the new gear oil drain plug -arrow-. Tightening specification, refer to item 16 in **Fig. 37**.

- **GEAR OIL IN REAR FINAL DRIVE 0BF, FILLING**
- **GEAR OIL IN REAR FINAL DRIVE 0BE, FILLING**

GEAR OIL IN REAR FINAL DRIVE 0BF, FILLING**Special tools and workshop equipment required**

- Charging Device F/ Haldex 2 Coup. VAS 6291 or Charging Device for Haldex Coupling 2 VAS 6291A
- Adapter for Oil Filling VAS 6291/2 VAS 6291/2 or Adapter for Oil Filling VAS 6291/ 3 VAS 6291/3
- Catch Tray
- The rear final drive must be in its installed position.
- The vehicle must horizontal.
- Overview of the gear oil plugs, refer to **Fig. 38**.
- Install and tighten the gear oil drain plug. Tightening specification, refer to item 16 in **Fig. 37**.
- Gear oil specification:

-- Fill using the VAS 6291.

-- Raise the vehicle.

-- Remove the gear oil inspection plug -arrow-.

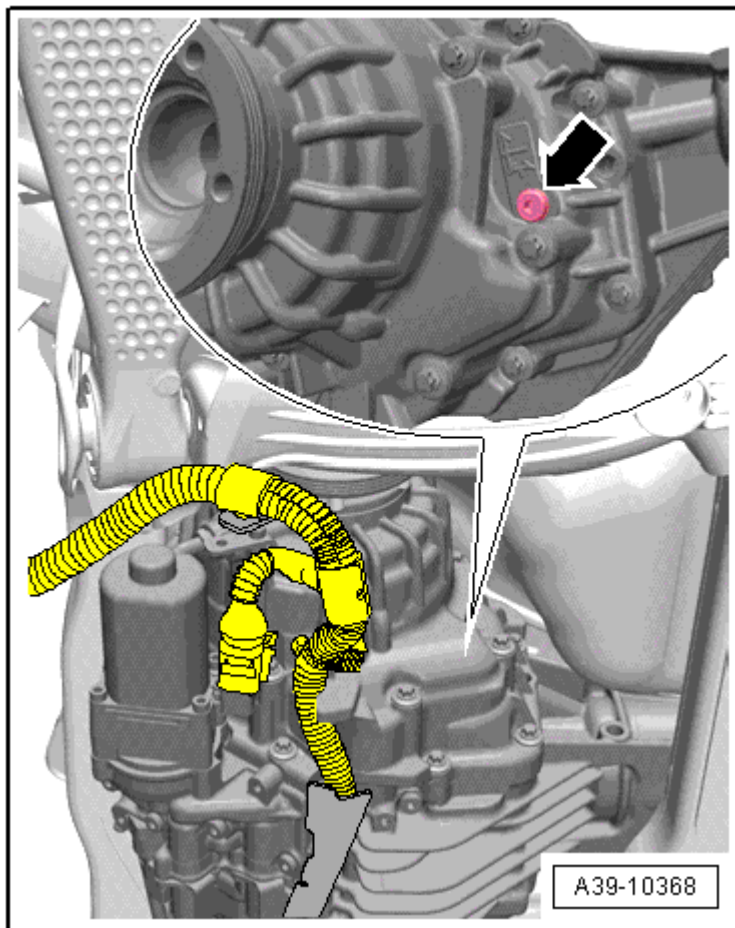


Fig. 5: Gear Oil Inspection Plug

Courtesy of AUDI OF AMERICA, LLC

-- Disconnect the adapter -A- from the elbow -B-.

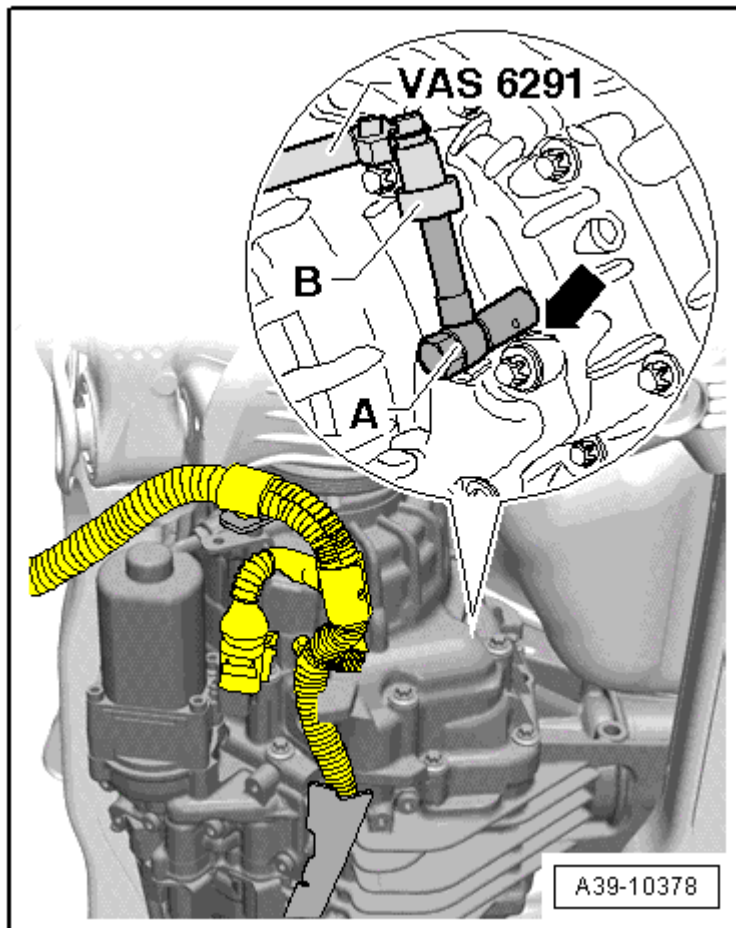


Fig. 6: Identifying Elbow Adapter

Courtesy of AUDI OF AMERICA, LLC

-- Install the adapter -A- all the way in.

CAUTION: Scrape the rib on the housing -arrow- with a scraper if the adapter -A- does not fit into the threaded hole for the plug.

- Be careful not to install the adapter -A- at an angle because this can damage the thread on the plug.

-- Lock the elbow -B- to the adapter -A-.

-- Route the hose over the right drive axle.

- The hose must not hang down. It must come out above the right rear wheel.

-- Lower the vehicle.

-- Make sure the valve -arrow- is closed.

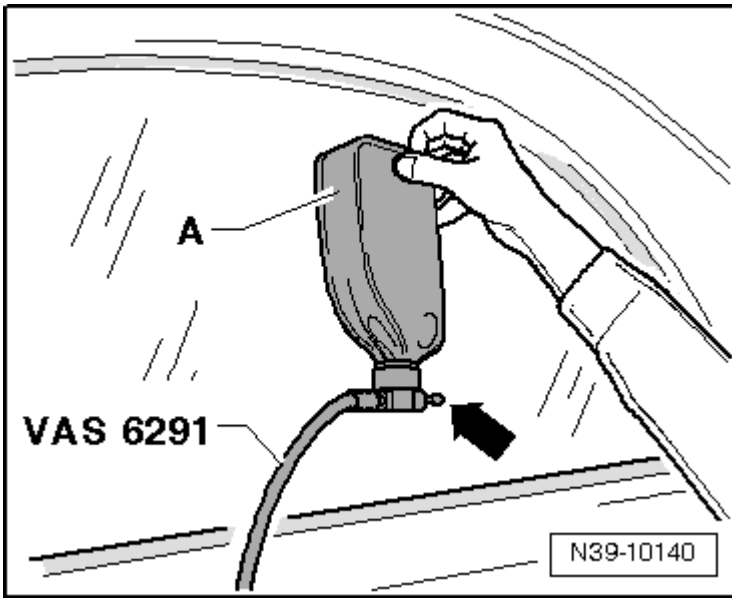


Fig. 7: Identifying Oil Container VAS 6291
Courtesy of AUDI OF AMERICA, LLC

- Attach the oil container -A- to the VAS 6291.
- Open the valve -arrow- and hold the oil container as illustrated.

The rear final drive will now be filled.

- When the rear final drive is correctly filled, oil will leak out between the adapter -A- and the final drive housing -arrow-.

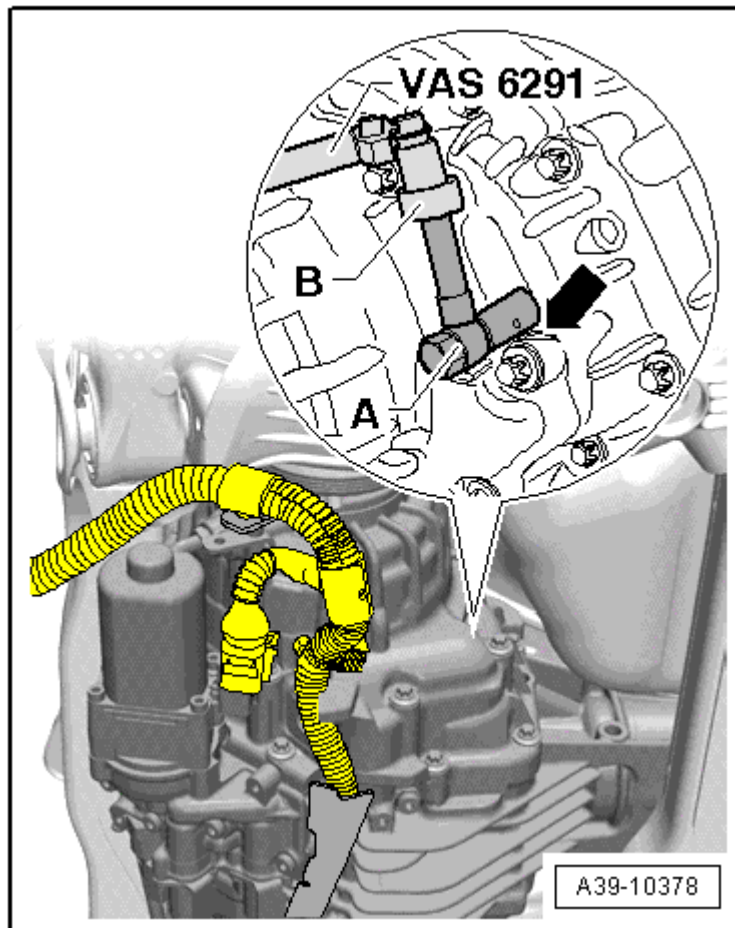


Fig. 8: Identifying Elbow Adapter
Courtesy of AUDI OF AMERICA, LLC

-- Raise the vehicle.

-- If no oil leaks out of the adapter -A-, set down the oil container.

Some of the excess oil will not run back into the oil container.

-- Disconnect the VAS 6291 when the oil stops flowing back.

- The fluid level is correct when the rear final drive is filled up to the lower edge of the fluid fill hole.

-- Fill the gear oil if necessary.

-- Install and tighten the new gear oil inspection plug -arrow-. Tightening specification, refer to item 22 in **Fig. 37**.

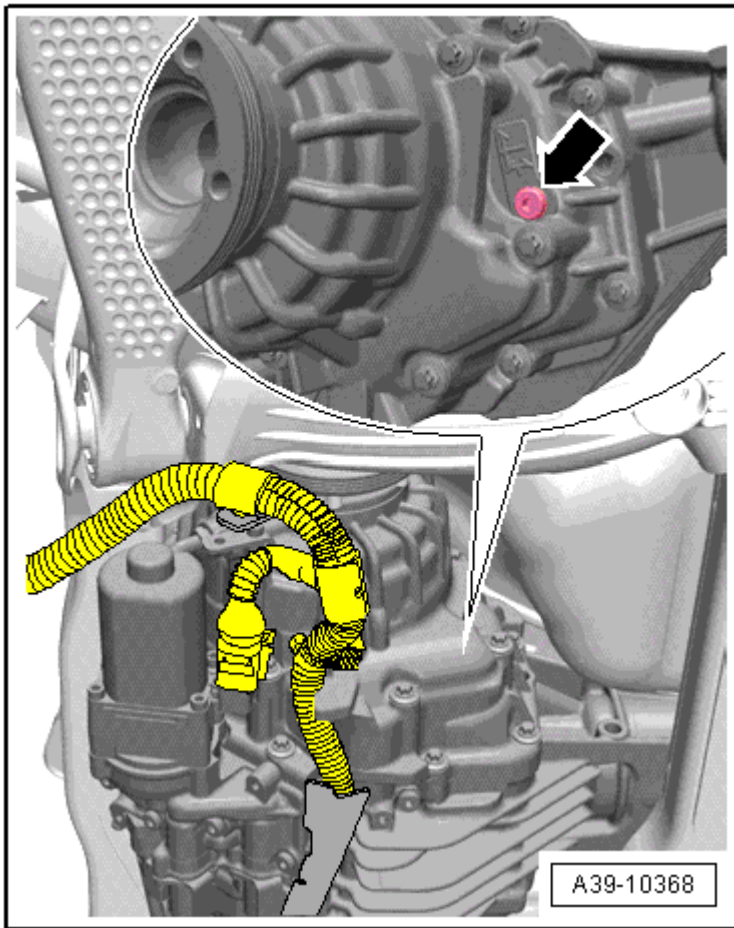


Fig. 9: Gear Oil Inspection Plug
Courtesy of AUDI OF AMERICA, LLC

GEAR OIL IN REAR FINAL DRIVE 0BE, FILLING

Special tools and workshop equipment required

- Charging Device F/Haldex 2 Coup. VAS 6291 or Charging Device for Haldex Coupling 2 VAS 6291A
- Adapter for Oil Filling VAS 6291/ 2 VAS 6291/2 or Adapter for Oil Filling VAS 6291/ 3 VAS 6291/3
- Catch Tray
- The rear final drive must be in its installed position.
- The vehicle must horizontal.
- Overview of the gear oil plugs, refer to **Fig. 39**.
- Install and tighten the gear oil drain plug. Tightening specification, refer to item 16 in **Fig. 37**.
- Gear oil specification

-- Fill using the VAS 6291.

-- Raise the vehicle.

-- Remove the gear oil inspection plug -1-.

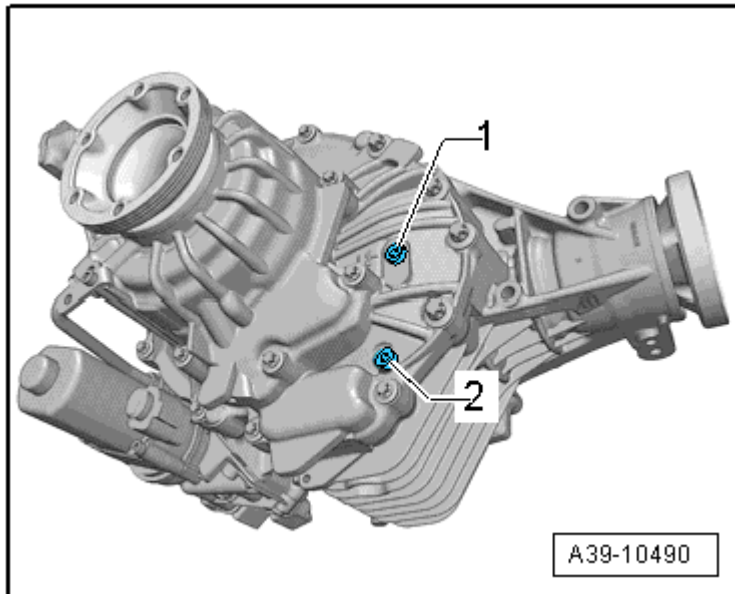


Fig. 10: Rear Final Drive Gear Oil Plugs
Courtesy of AUDI OF AMERICA, LLC

-- Install the VAS 6291/1 or VAS 6291/3 -1-.

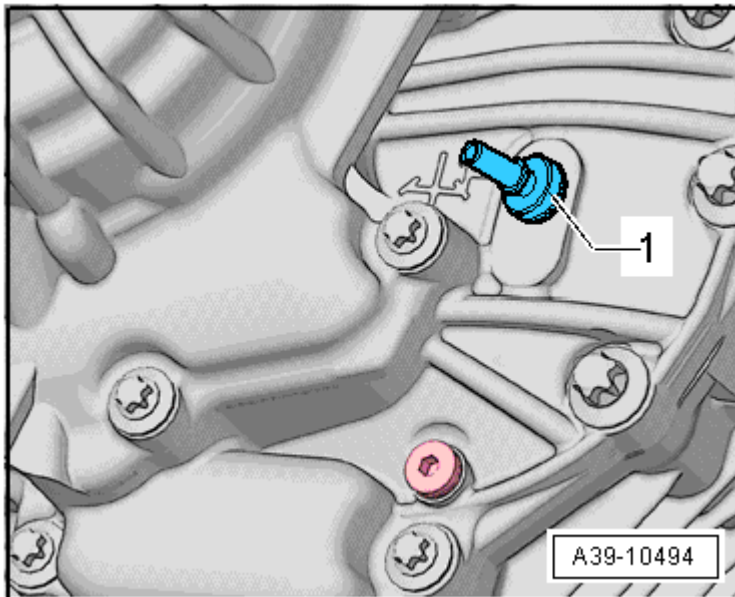


Fig. 11: Identifying VAS 6291/1 or VAS 6291/3
Courtesy of AUDI OF AMERICA, LLC

-- Lock the elbow -A- with the adapter -B-.

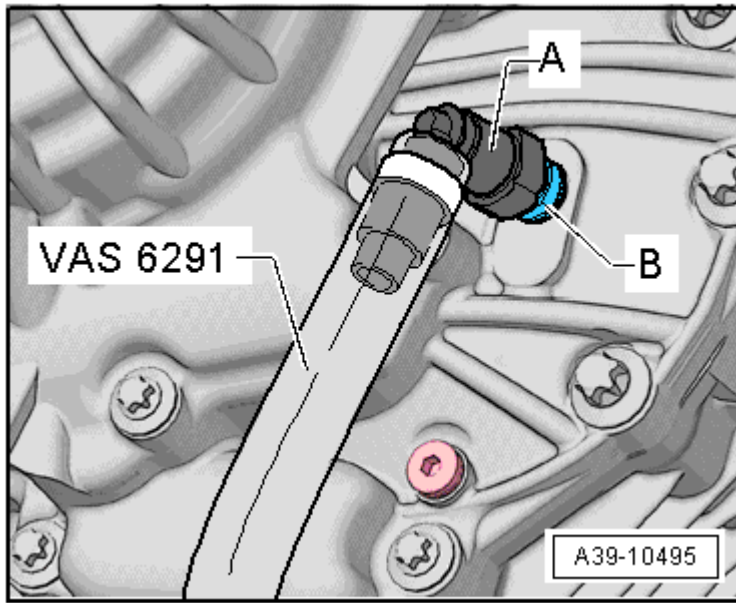


Fig. 12: Identifying Elbow With Adapter
Courtesy of AUDI OF AMERICA, LLC

-- Route the hose over the right drive axle.

- The hose must not hang down. It must come out above the right rear wheel.

-- Lower the vehicle.

-- Make sure the valve -arrow- is closed.

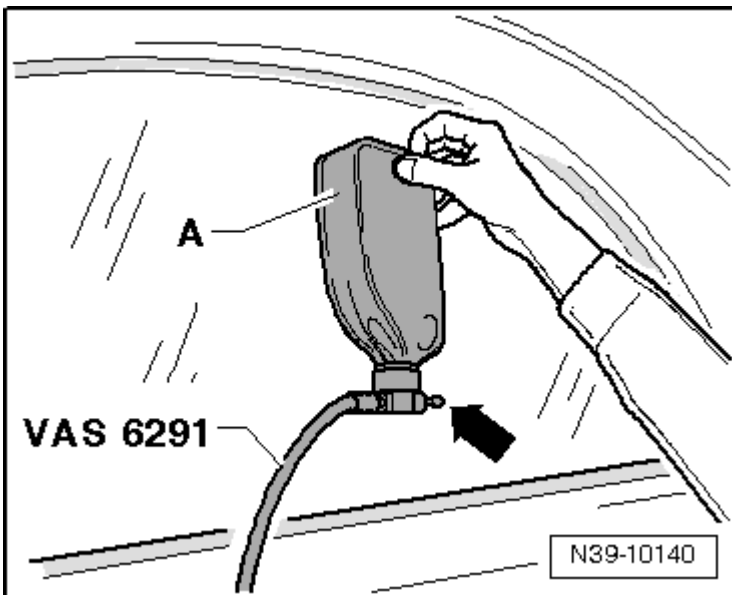


Fig. 13: Identifying Oil Container VAS 6291
Courtesy of AUDI OF AMERICA, LLC

- Attach the oil container -A- to the VAS 6291.
- Open the valve -arrow- and hold the oil container as illustrated.

The rear final drive will now be filled.

- When the rear final drive is correctly filled, oil will leak out between the adapter -B- and the final drive housing.

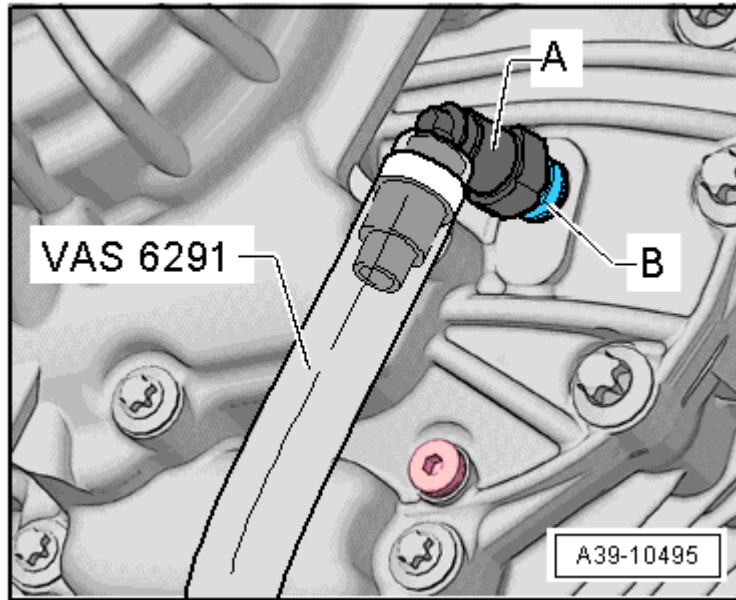


Fig. 14: Identifying Elbow With Adapter
Courtesy of AUDI OF AMERICA, LLC

- Raise the vehicle.
- If no oil leaks out of the adapter -B-, set down the oil container.

Some of the excess oil will not run back into the oil container.

- Disconnect the VAS 6291 when the oil stops flowing back.
 - The fluid level is correct when the rear final drive is filled up the lower edge of the fluid fill hole.
- Fill the gear oil if necessary.
- Install and tighten the new plug -1-. Tightening specifications, refer to item 22 in **Fig. 37**.

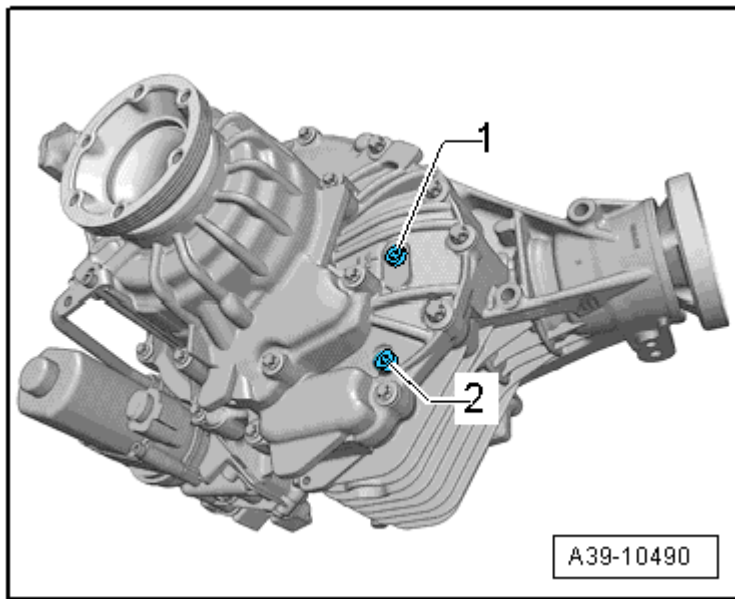


Fig. 15: Rear Final Drive Gear Oil Plugs
Courtesy of AUDI OF AMERICA, LLC

ATF IN REAR FINAL DRIVE 0BF AND 0BE, DRAINING

Special tools and workshop equipment required

- Catch Tray
- Overview ATF plugs, refer to **Fig. 40** and **Fig. 41**.

Rear Final Drive 0BF

-- Remove the plug so that the ATF can drain faster -arrow-.

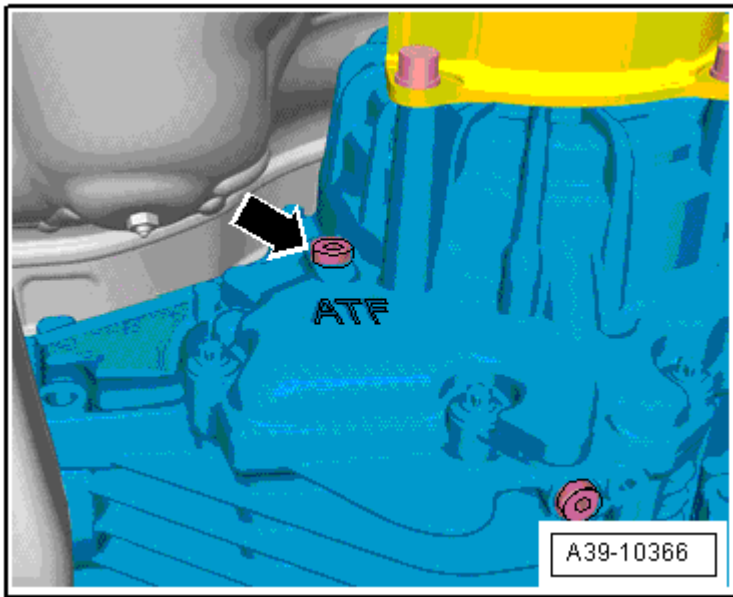


Fig. 16: Locating ATF Check Plug

Courtesy of AUDI OF AMERICA, LLC

-- Remove the ATF drain plug -arrow- and drain the ATF.

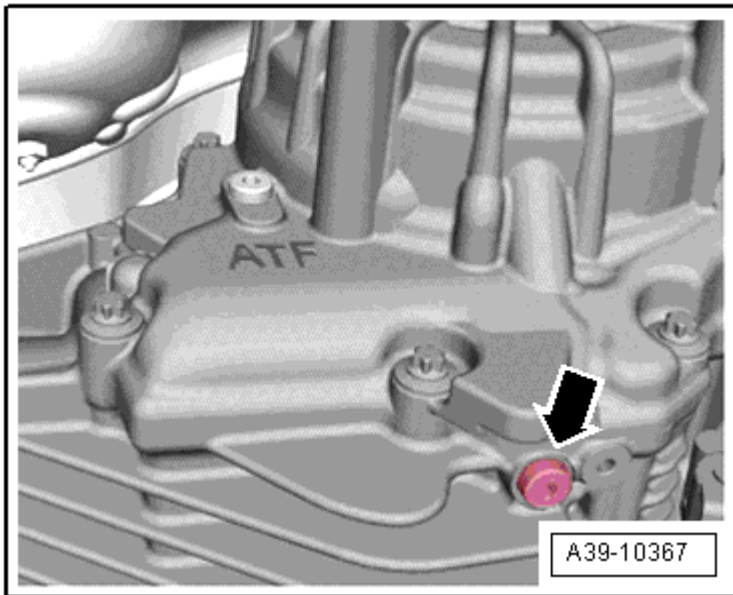


Fig. 17: Locating ATF Drain Plug

Courtesy of AUDI OF AMERICA, LLC

-- Install and tighten the new the ATF drain plug -arrow-. Tightening specification, refer to item 15 in **Fig. 37**.

Rear Final Drive 0BE

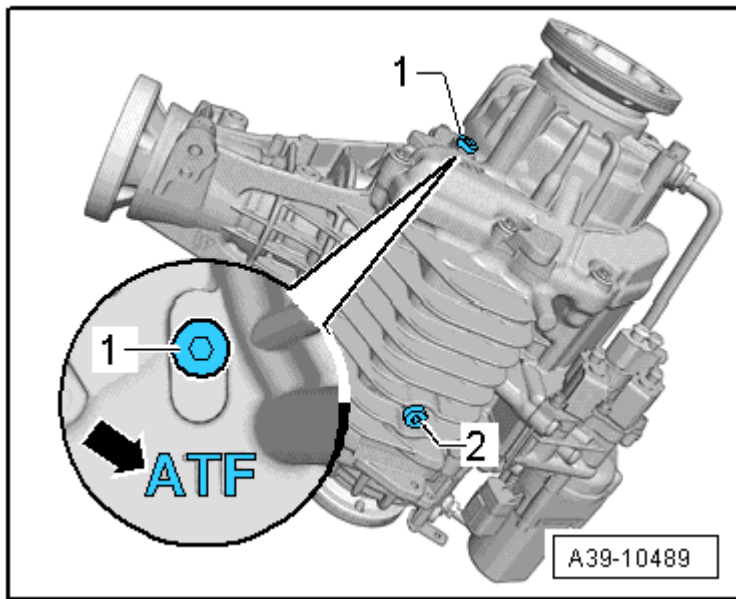


Fig. 18: Locating ATF Plugs

Courtesy of AUDI OF AMERICA, LLC

- Remove the ATF inspection plug so that the ATF can drain faster -1-.
- Remove the ATF drain plug -2- and drain the ATF.
- Install and tighten the new ATF drain plug -2-. Tightening specification, refer to item 15 in **Fig. 37**.

Continuation for All Rear Final Drives

- Fill the ATF in the rear final drive. Refer to **ATF IN REAR FINAL DRIVE 0BF AND 0BE, FILLING**.

ATF IN REAR FINAL DRIVE 0BF AND 0BE, FILLING

Special tools and workshop equipment required

- Vehicle Diagnostic Tester
- Charging Device F/Haldex 2 Coup. VAS 6291 or Charging Device for Haldex Coupling 2 VAS 6291A
- Adapter for Oil Filling VAS 6291/ 2 VAS 6291/2 or Adapter for Oil Filling VAS 6291/ 3 VAS 6291/3
- Catch tray

Test Conditions

- The rear final drive must be in its installed position.
- The vehicle must be horizontal.
- Install and tighten the ATF drain plug. Tightening specification, refer to item 15 in **Fig. 37**.

CAUTION: Danger of causing damage to the rear final drive.

- Only the ATF available as a replacement part may be used.
- Using other fluids will cause malfunctions in the rear final drive or will cause the rear final drive to stop working.
- For the correct allocation
- The ATF filling tool must be clean. Do not mix ATF with other fluids.

-- Fill using the VAS 6291.

-- Raise the vehicle.

-- Remove the ATF inspection plug -1-.

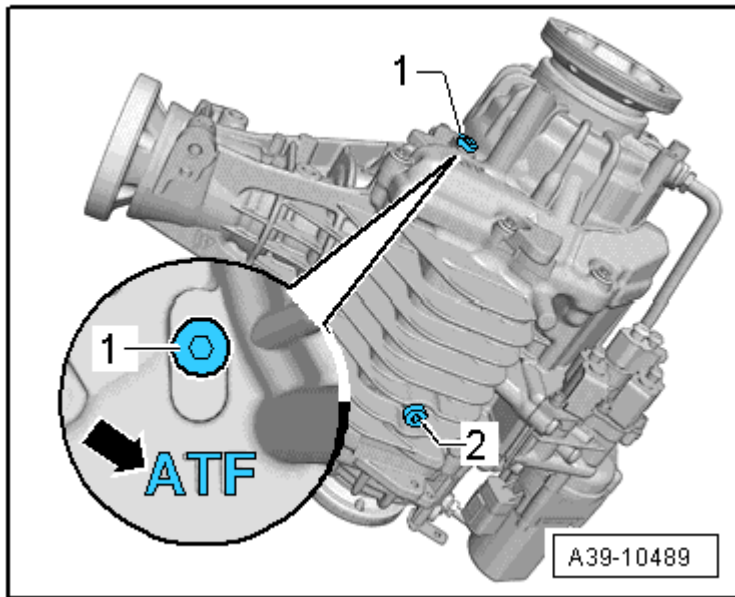


Fig. 19: Locating ATF Plugs
Courtesy of AUDI OF AMERICA, LLC

CAUTION: The ATF check plug -1- is located on the left side of the rear final drive.
>>ATF<< on the final drive housing -arrow-.

-- Disconnect the adapter -A- from the elbow -B-.

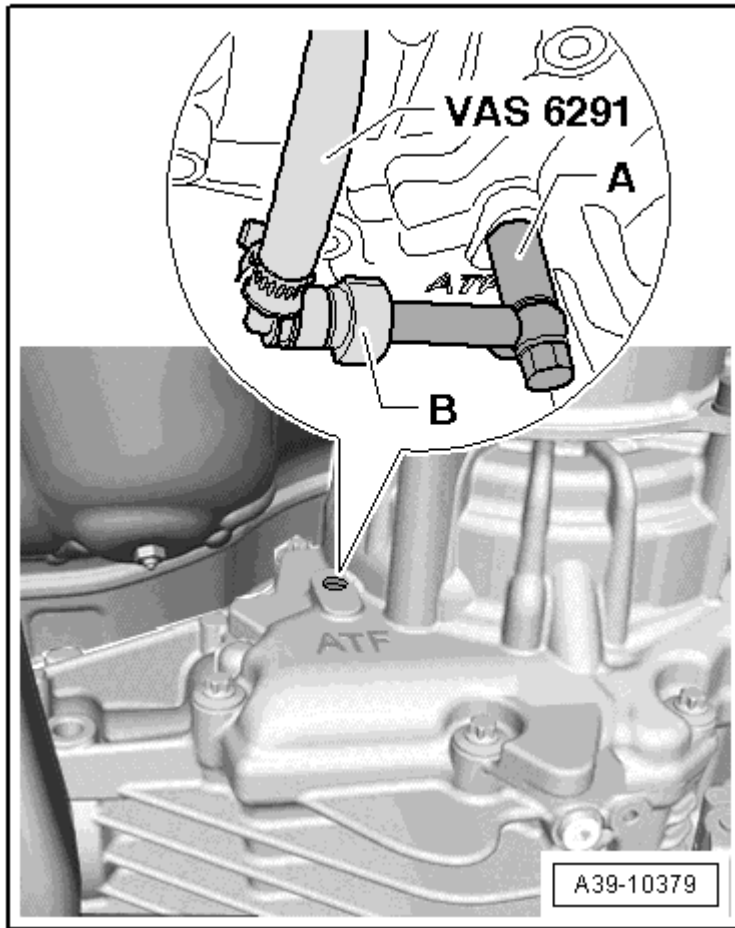


Fig. 20: Identifying Elbow Adapter
Courtesy of AUDI OF AMERICA, LLC

- Install the adapter -A- all the way in.
- Lock the elbow -B- to the adapter -A-.
- Route the hose over the left drive axle.
 - The hose must not hang down. It must come out above the left rear wheel.
- Lower the vehicle.
- Make sure the valve -arrow- is closed.

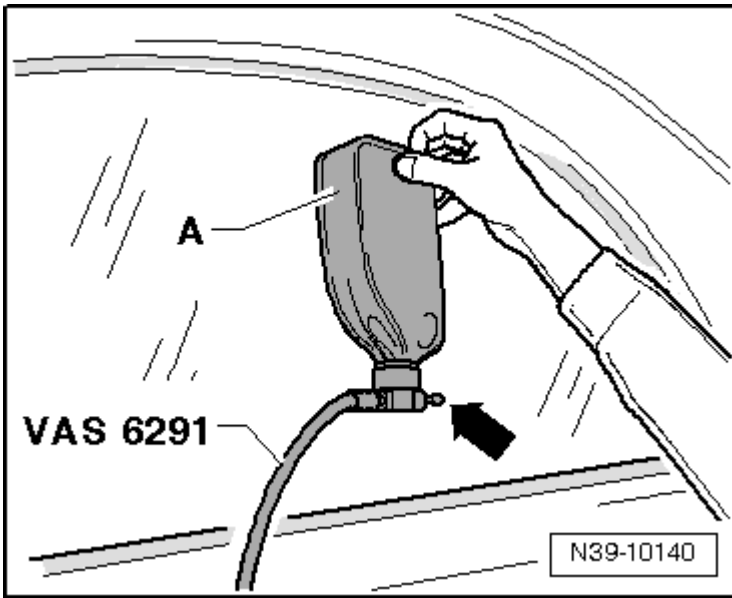


Fig. 21: Identifying Oil Container VAS 6291
Courtesy of AUDI OF AMERICA, LLC

- Attach the oil container -A- to the VAS 6291.
- Open the valve -arrow- and hold the oil container as illustrated.

The hydraulic control unit and the left and right chambers in the rear final drive are now filled.

- The rear final drive hydraulic control unit is filled correctly when the ATF starts to leak out of the adapter -A-.

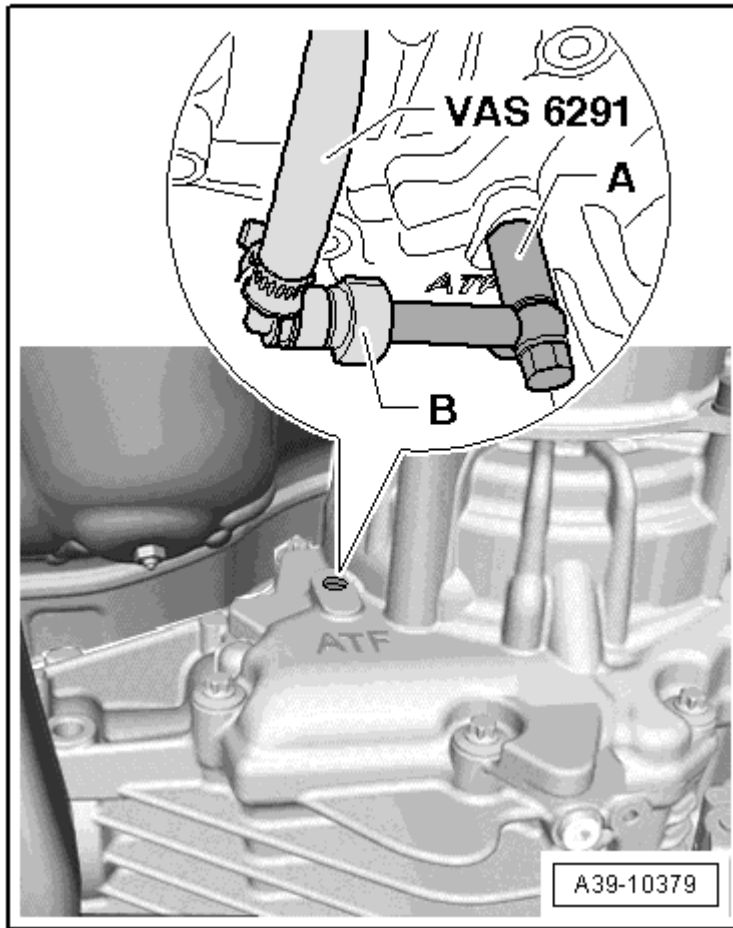


Fig. 22: Identifying Elbow Adapter
Courtesy of AUDI OF AMERICA, LLC

If ATF still does not leak from adapter -A- :

-- Continue filling until the level is correct.

If ATF does leak out of the adapter -A- :

-- Raise the vehicle.

-- Put down the oil container, for example, on a tool cart.

Some of the excess oil will not run back into the oil container.

-- Disconnect the VAS 6291 when the ATF stops flowing back.

- The fluid level is correct when the rear final drive is filled up the lower edge of the fluid fill hole.

-- Install the ATF check plug -arrow- hand-tight.

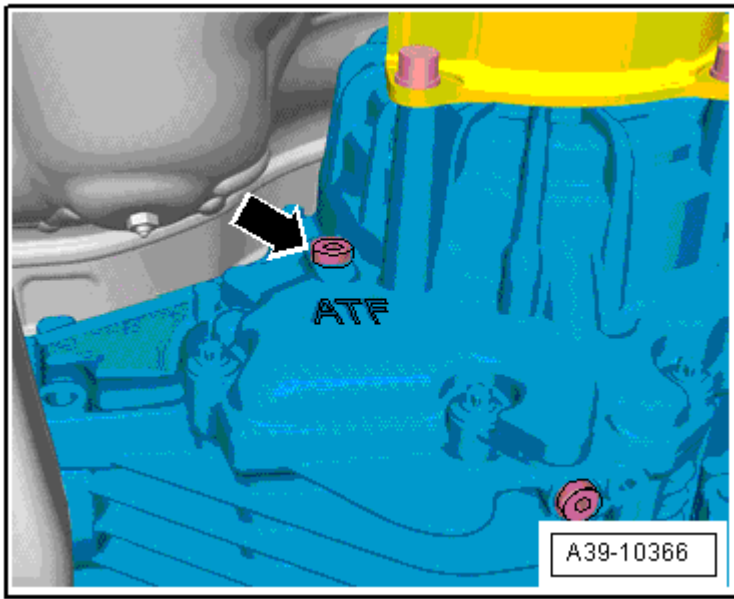


Fig. 23: Locating ATF Check Plug

Courtesy of AUDI OF AMERICA, LLC

-- Connect the vehicle diagnostic tester and turn on the ignition.

-- Select **22 - Fill ATF** in the vehicle diagnostic tester under **Guided Functions** in directory **22 - AWD electronics**

- Follow all the instructions on the vehicle diagnostic tester exactly.

The vehicle diagnostic tester fills and bleeds the system.

NOTE: If, after performing the **22 - Fill ATF** , the system detects air still in the system, then the filling procedure must be repeated.

-- Remove the ATF check plug -arrow- again.

Test Condition

- The ATF level is correct when the rear final drive is filled up to the lower edge of the fluid fill hole - arrow-.
- Fill with ATF if necessary.
- There are no entries and no "sporadic" in the Diagnostic Trouble Code (DTC) memory see vehicle diagnostic tester.

-- Install and tighten the new ATF inspection plug -arrow-. Tightening Specifications, refer to item 12 in **Fig. 37**.

DESCRIPTION AND OPERATION

AUDI A4 AND AUDI A5**DRIVESHAFT BOLTED ON TRANSMISSION-SIDE OVERVIEW**

NOTE: Observe general repair notes, refer to REPAIR INFORMATION .

The driveshafts cannot be repaired. They can only be removed, installed and adjusted.

Always store and transport driveshaft fully extended only.

The driveshaft can be bent at the center joint without using force. A hard bending to the stop may cause damage to the center joint or dust boot.

If the driveshaft is only detached at the transmission or from rear final drive, it should be tied up or supported at the shaft end. If necessary, it is permitted to bend the driveshaft at the center joint without using force.

Mark the position of all the parts before removing them. Install the parts in the same position, otherwise the imbalance can damage the bearing causing a humming noise.

Use the counterhold tool Touareg V10 T10172 and adapters T10172/5 to loosen or tighten the driveshaft bolts.

After disconnecting driveshaft from the rear final drive, an installed balance washer (thick washer between backing plate and internal multi-point bolt) may not be reinstalled.

Follow the tightening sequence for attaching the driveshaft bolts to the rear final drive, refer to Fig. 25.

If there are complaints about noise or vibration, make sure there is no tension on the intermediate bearing before replacing the driveshaft.

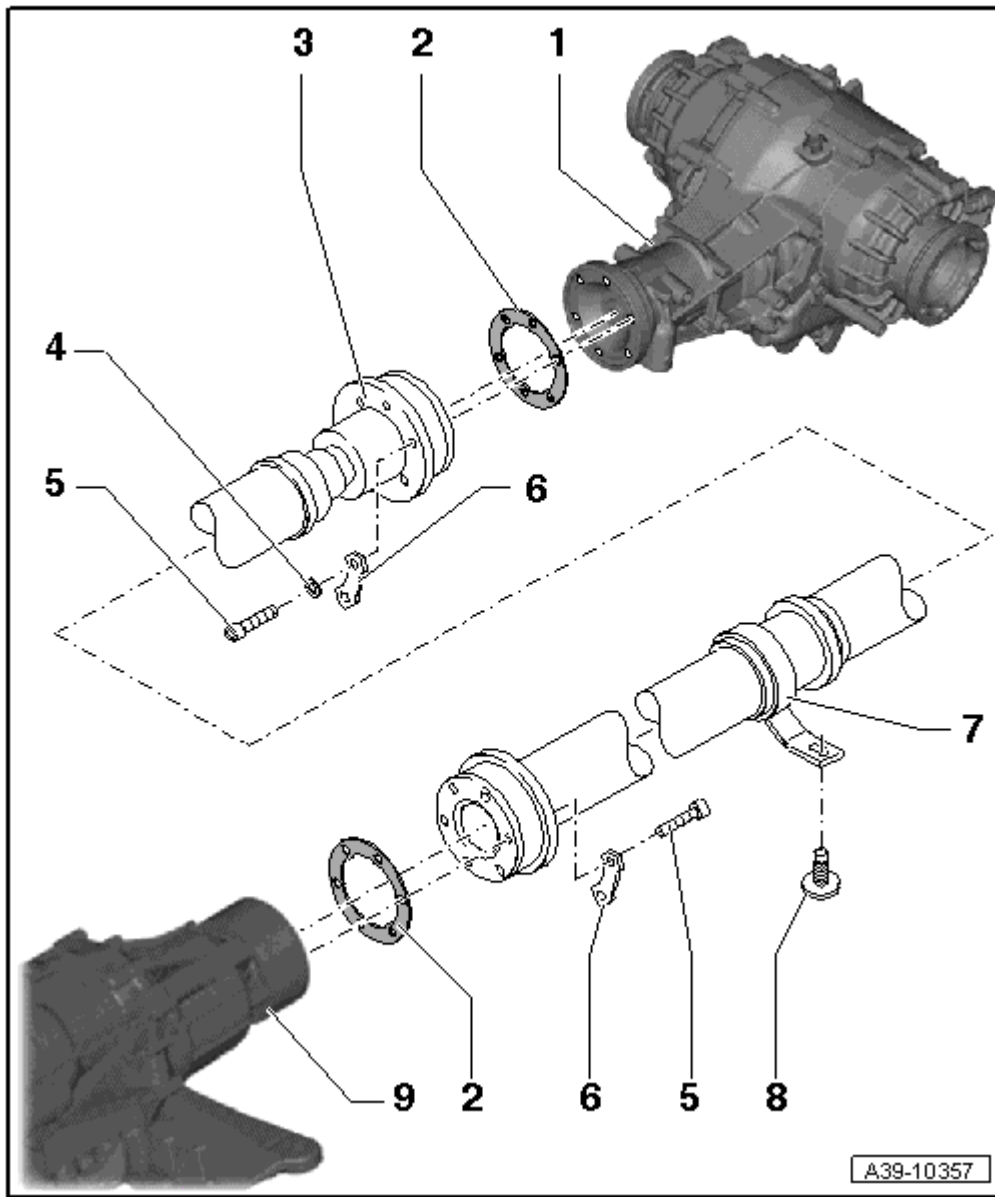


Fig. 24: Driveshaft Bolted On Transmission-Side Overview

Courtesy of AUDI OF AMERICA, LLC

1. Rear Final Drive

- Removing and installing, refer to **AUDI A4 AND AUDI A5**

2. Gasket

- Replace a damaged (bent) gasket.
- A seal that has a rubber layer peeling off, must be replaced.
- Remove any grease still on the flange and install the gasket.
- Sides having different colors, does not influence the installation.

3. Driveshaft

- Removing and installing, refer to **DRIVESHAFT BOLTED ON TRANSMISSION SIDE**

- Removing from the rear final drive and installing, refer to **DRIVESHAFT, REMOVING FROM REAR FINAL DRIVE AND INSTALLING**

4. Balancing Washer

- Not present on every vehicle
- Possibly located between an internal multi-point bolt, refer to item 5 in **Fig. 24** and a backing plate, refer to item 6 in **Fig. 24** on the rear final drive
- If present, this balancing washer must no longer be installed after disconnecting driveshaft from rear final drive.

5. Bolt

- Always replace if removed
- Self-locking
- Always clean the threaded holes in the flange shafts. (for example, use a thread cutter)
 - On the rear final drive
- Tightening specification and sequence, refer to **Fig. 25**
 - On the transmission
- 30 Nm plus an additional 90° turn

6. Backing Plate

7. Center Bearing

8. Bolt

- 20 Nm

9. Transmission

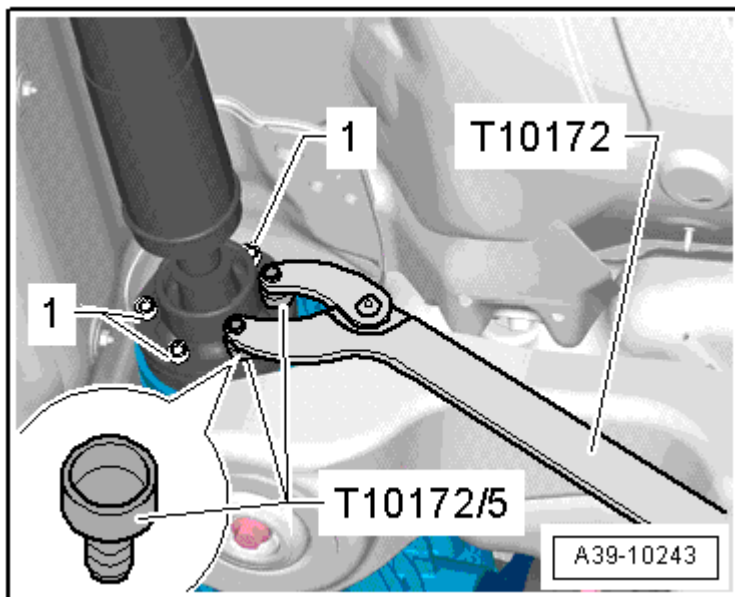


Fig. 25: Locating Driveshaft Bolts

Courtesy of AUDI OF AMERICA, LLC

2012 Audi S4

TRANSMISSION Rear Final Drive 0BF & 0BE (Sedan)

- Always replace the driveshaft bolts -1-.
- Counter hold using the counterhold tool Touareg V10 T10172 and adapters T10172/5.

-- Tighten the bolts -1- in 3 steps as follows:

Step	Bolts	Tightening Specification/Additional Turn
1.	-1-	Next to the color dots 30 Nm ¹⁾
2.	-1-	The remaining all around 30 Nm
3.	-1-	90° additional turn all around
• ¹⁾ The CV joint will be pushed toward the opposite side reducing the imbalance.		

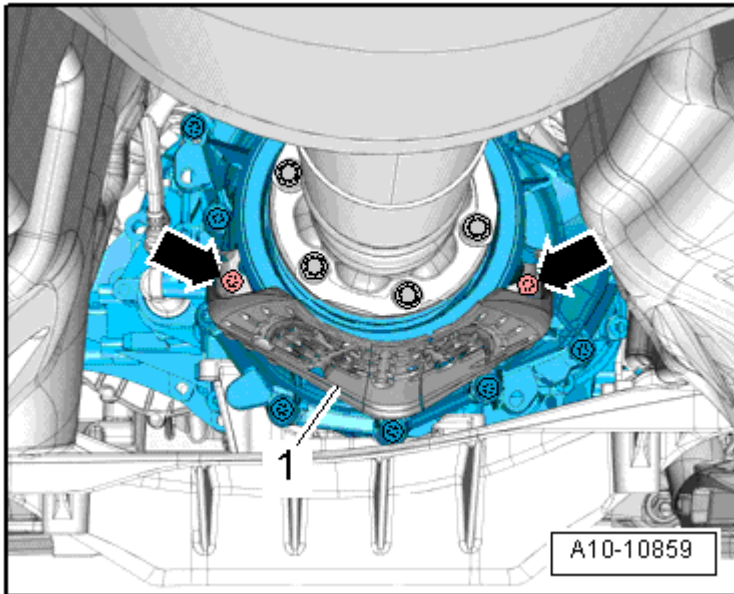


Fig. 26: Driveshaft Heat Shield - Tightening Specification
Courtesy of AUDI OF AMERICA, LLC

-- Tighten the bolts -arrows- to 24 Nm.

REAR FINAL DRIVE OVERVIEW

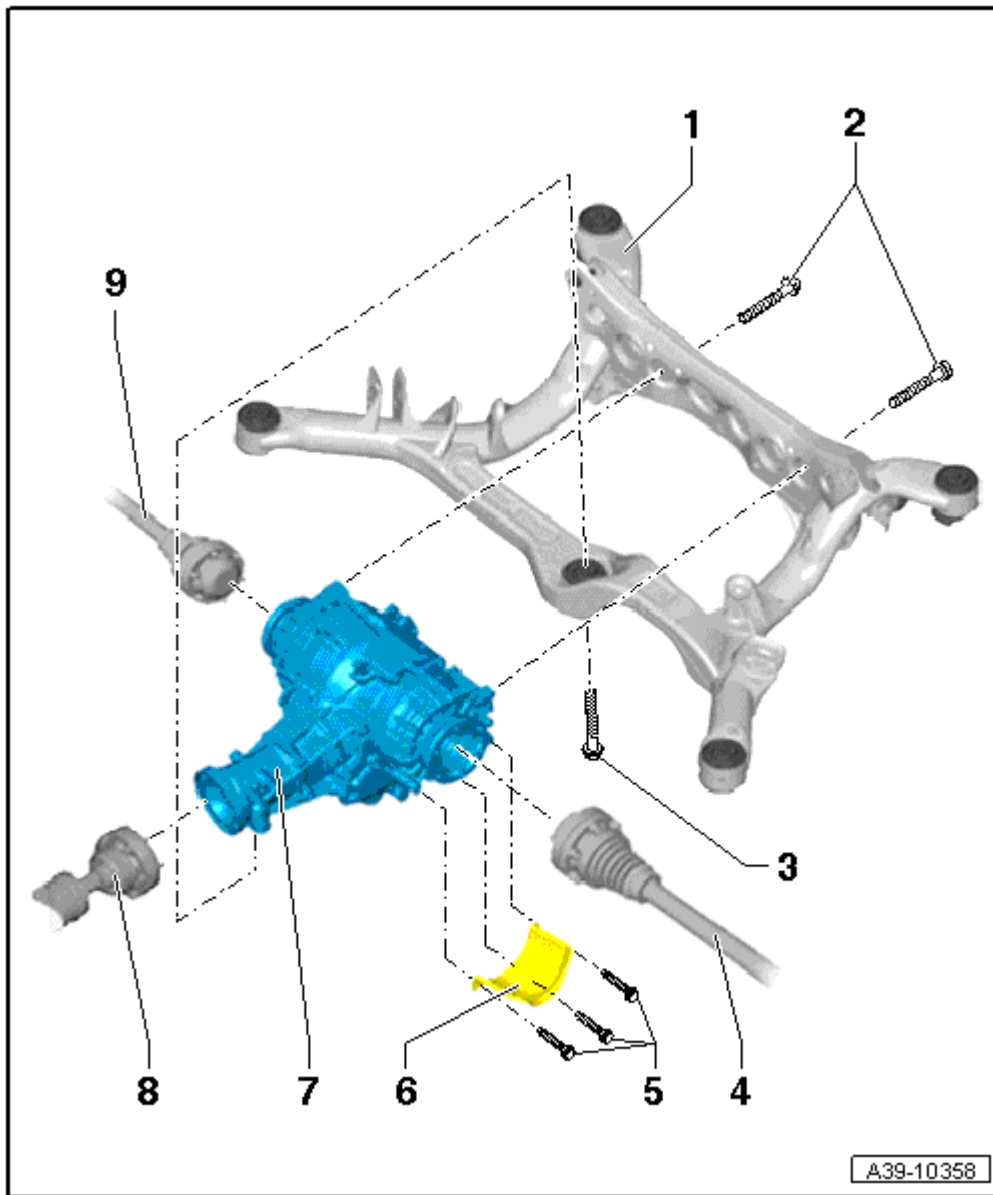


Fig. 27: Rear Final Drive Overview

Courtesy of AUDI OF AMERICA, LLC

1. Subframe
 - Removing and installing, refer to **[For engine(s) CAEB, CALA, CCBA] Removal and Installation**
2. Bolt
 - 95 Nm
3. Bolt
 - 55 Nm
4. Left Drive Axle
 - Removing and installing, refer to **[For engine(s) CAEB, CALA, CCBA] Removal and**

Installation

5. Bolt
 - 20 Nm
6. Heat Shield
7. Rear Final Drive
 - Removing and installing, refer to **REAR FINAL DRIVE**
 - Additional work after replacing the rear final drive, refer to **REAR FINAL DRIVE, ADDITIONAL WORK AFTER REPLACING**
8. Driveshaft
 - Removing and installing, refer to **DRIVESHAFT BOLTED ON TRANSMISSION SIDE**
9. Right Drive Axle
 - Removing and installing, refer to **[For engine(s) CAEB, CALA, CCBA] Removal and Installation**

DRIVESHAFT MOUNTED ON TRANSMISSION-SIDE OVERVIEW

- Observe general repair notes, refer to **REPAIR INFORMATION** .
- The attached driveshaft can only be removed from the transmission if it is removed completely.
- The driveshaft cannot be repaired. They can only be removed, installed and adjusted.
- Always store and transport the driveshaft fully extended only.
- The driveshaft can be bent at the center joint without using force. A hard bending to the stop may cause damage to the center joint or dust boot.
- If the driveshaft is only detached from the rear final drive, it should be tied up or supported at the shaft end. If necessary, it is permitted to bend the driveshaft at the center joint without using force.
- Use the socket wrench T10172 with the adapters T10172/5 (M8 bolts) or T10172/6 (M10 bolts) to loosen or tighten the driveshaft bolts.
- Always hold the driveshaft horizontal when installing it or removing it from the transmission output shaft.
- Follow the tightening sequence for attaching the driveshaft bolts to the rear final drive. Refer to **Fig. 29**.

If there are complaints (noise, vibration), do the following before replacing the driveshaft:

- Make sure the center bearing is free of tension.
- Remove the driveshaft bolts on the rear final drive. Tighten the driveshaft following the tightening sequence. Refer to **Fig. 29**.

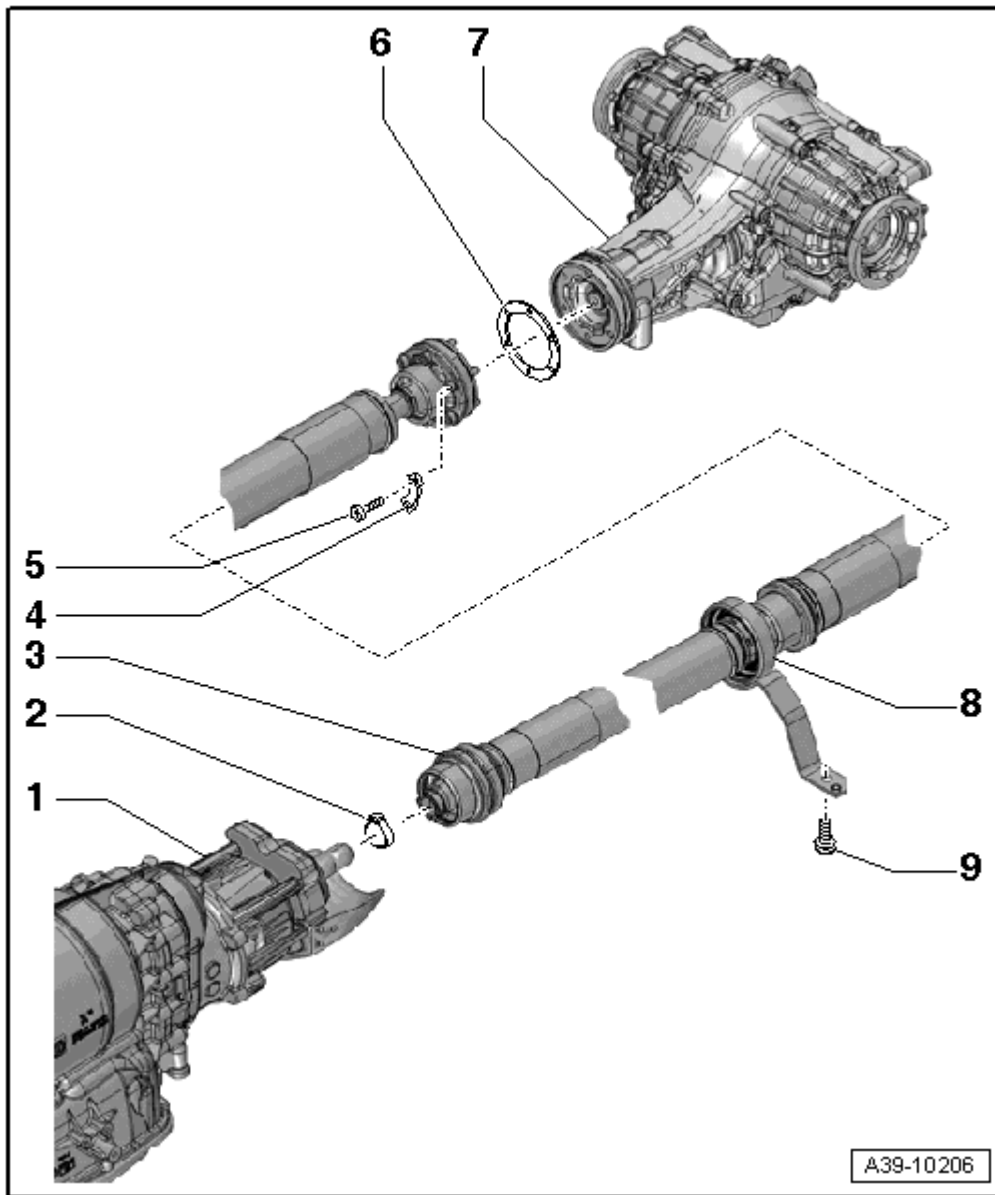


Fig. 28: Driveshaft Mounted On Transmission-Side Overview

Courtesy of AUDI OF AMERICA, LLC

1. Transmission
2. Hose Clamp
 - Replace
3. Driveshaft
 - Removing and installing, refer to **AUDI A4 AND AUDI A5**
 - Removing from the rear final drive and installing, refer to **DRIVESHAFT, REMOVING FROM REAR FINAL DRIVE AND INSTALLING**
4. Backing Plate
5. Bolt

- Final drive 0BF
 - Replace
 - M8 x 45
 - Self-locking
 - Threaded holes in flange shaft at rear final drive must be cleaned of locking compound residue. Use a thread cutter to clean the holes.
 - Tightening specification and sequence, refer to **Fig. 29**
 - Final drive 0BE (only A8 with a V8 TDI engine)
 - Replace
 - M10 x 45 x 1
 - Tightening specification and sequence, refer to **Fig. 29**
6. Gasket
- Replace a damaged (bent) gasket.
 - A seal that has a rubber layer peeling off, must be replaced
 - Remove any grease still on the flange and install the gasket.
 - Sides having different color does not influence the installation.
7. Rear Final Drive
- Removing and installing, refer to **AUDI A4 AND AUDI A5**
8. Center Bearing
9. Bolt
- 20 Nm

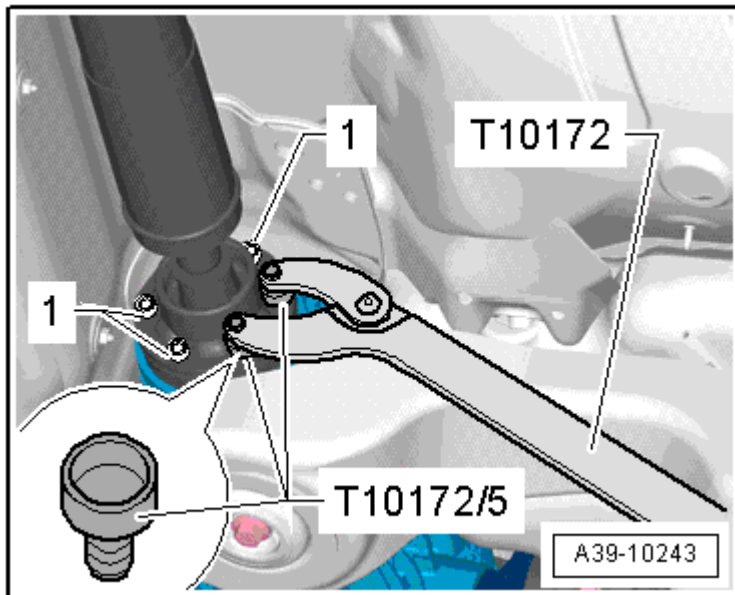


Fig. 29: Locating Driveshaft Bolts

Courtesy of AUDI OF AMERICA, LLC

- Always replace the driveshaft bolts -1-.
- Counterhold using the counterhold tool Touareg V10 T10172 and adapters T10172/5 (M8 bolts) or T10172/6 (M10 bolts).

-- Tighten the bolts -1- in 3 steps as follows:

Step	M8 and M10 Bolts	Tightening Specification/Additional Turn
1.	-1-	Next to the color dots 30 Nm ¹⁾
2.	-1-	The remaining all around 30 Nm
3.	-1-	90° additional turn all around
• ¹⁾ The CV joint will be pushed toward the opposite side reducing the imbalance.		

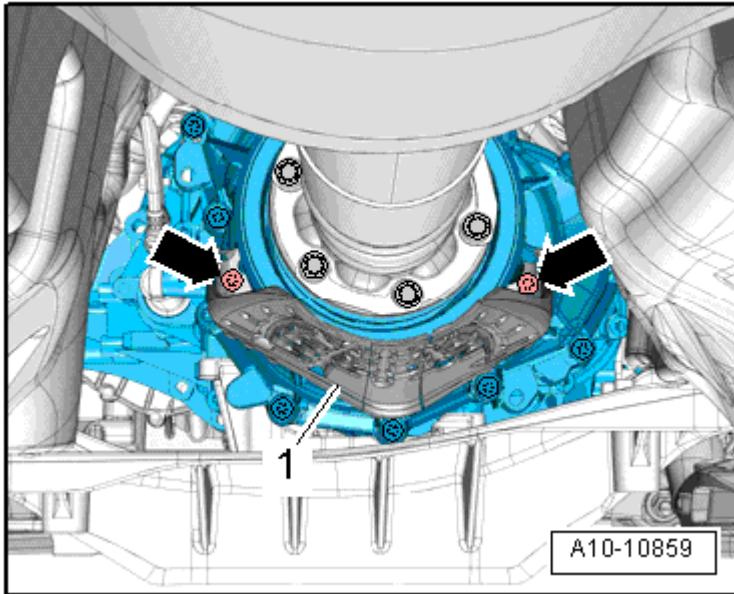


Fig. 30: Driveshaft Heat Shield - Tightening Specification
 Courtesy of AUDI OF AMERICA, LLC

-- Tighten the bolts -arrows- to 24 Nm.

ELECTRICAL AND ELECTRONIC COMPONENTS AND COMPONENT LOCATIONS

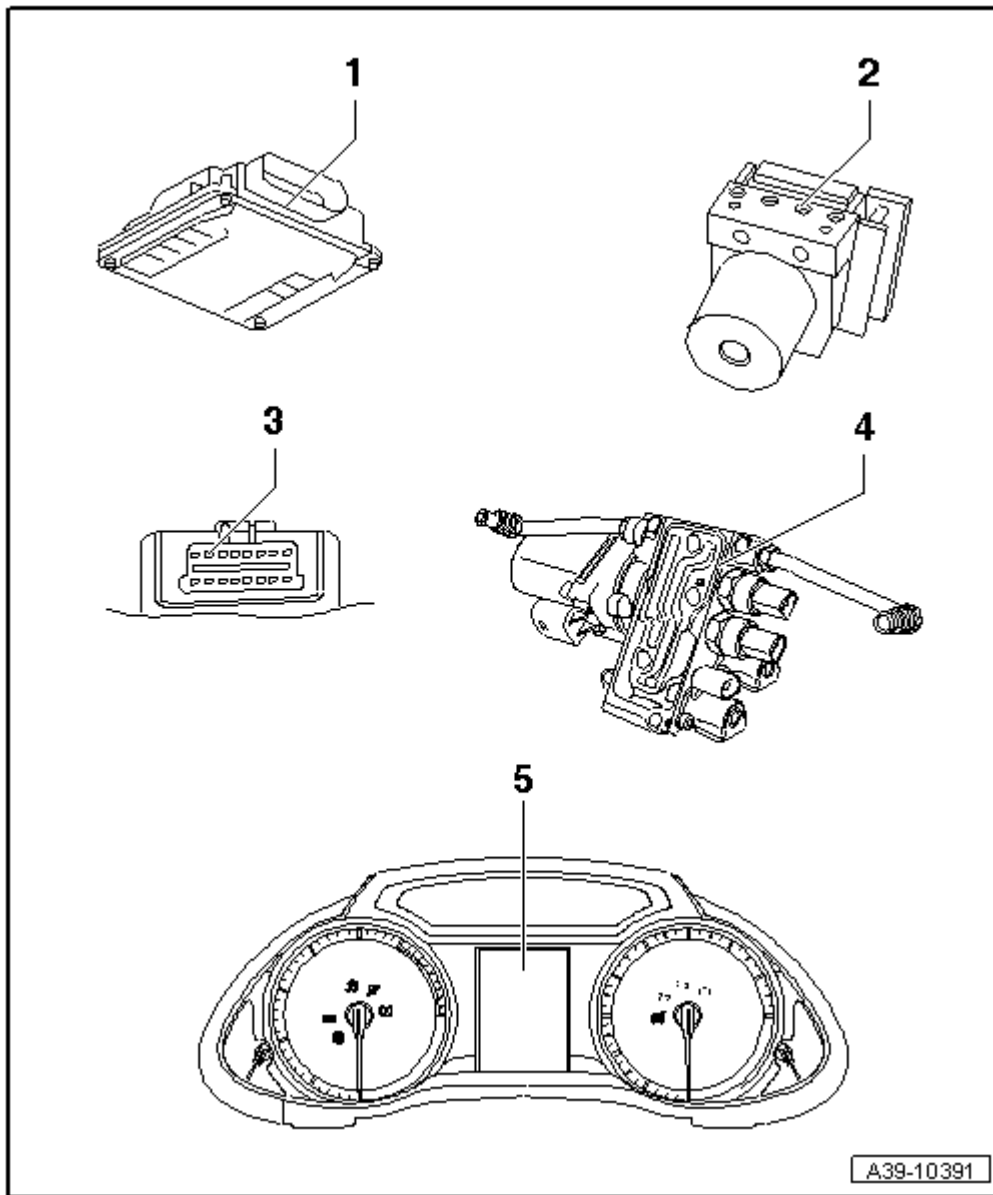


Fig. 31: Electrical And Electronic Components And Component Locations
 Courtesy of AUDI OF AMERICA, LLC

1. All Wheel Drive (AWD) Control Module -J492-

- Installed location on the A4 Sedan, A5 Coupe and A5 Cabriolet, refer to **Fig. 33**
- Installed location on the A4 Avant, refer to **Fig. 34**
- Installed locations on the Audi A6 and Audi A7, refer to **Fig. 35**
- Installed location on the A8, refer to **Fig. 36**
- Removing and installing, refer to **AWD CONTROL MODULE**
- Additional work after replacing the control module, refer to **AWD CONTROL MODULE, ADDITIONAL WORK AFTER REPLACING**
- Important signals are transmitted from the engine control module and the ABS control module -

J104- to the AWD control module via the data bus.

2. ABS Control Module -J104-

- Installed location; removing and installing, refer to **Removal and Installation**

3. Data Link Connector (DLC)

- Component location: Front footwell on the driver side **Fig. 32**
- Connect the vehicle diagnosis, testing and information system VAS 5051B or vehicle diagnosis and service system VAS 5052 and select the functions. Refer to **AWD CONTROL MODULE**

4. Hydraulic Control Unit

- Component location: On the rear final drive
- Removing and installing, refer to **HYDRAULIC CONTROL UNIT**
- Disassembling and assembling, refer to **HYDRAULIC CONTROL UNIT**
- Hydraulic control unit with:
 - All Wheel Drive (AWD) pump -V415-
 - Oil pressure/temperature sensor 2 -G640-
 - Oil pressure/temperature sensor -G437-
 - AWD clutch valve 2 -N446-
 - AWD clutch valve -N445-

5. Instrument Cluster Display

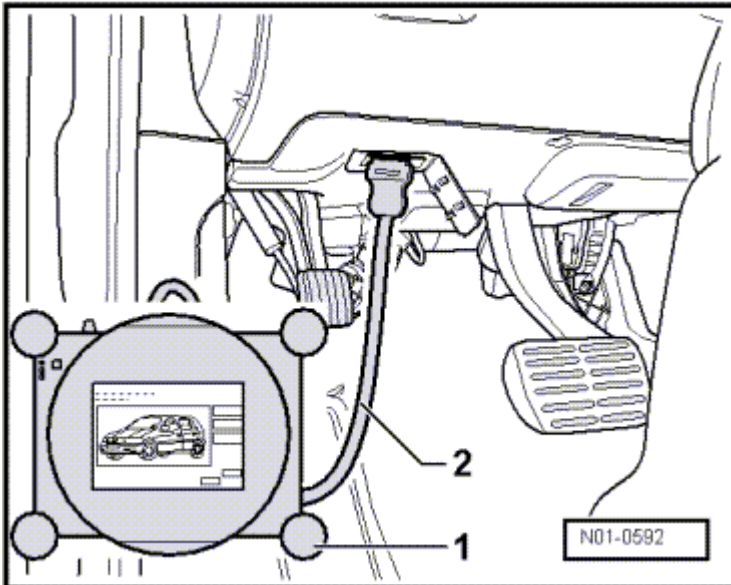


Fig. 32: Data Link Connector (DLC)

Courtesy of AUDI OF AMERICA, LLC

Component location: The DLC for the vehicle diagnosis, testing and information system VAS 5051B or vehicle diagnosis and service system VAS 5052 is located in the footwell on the driver side.

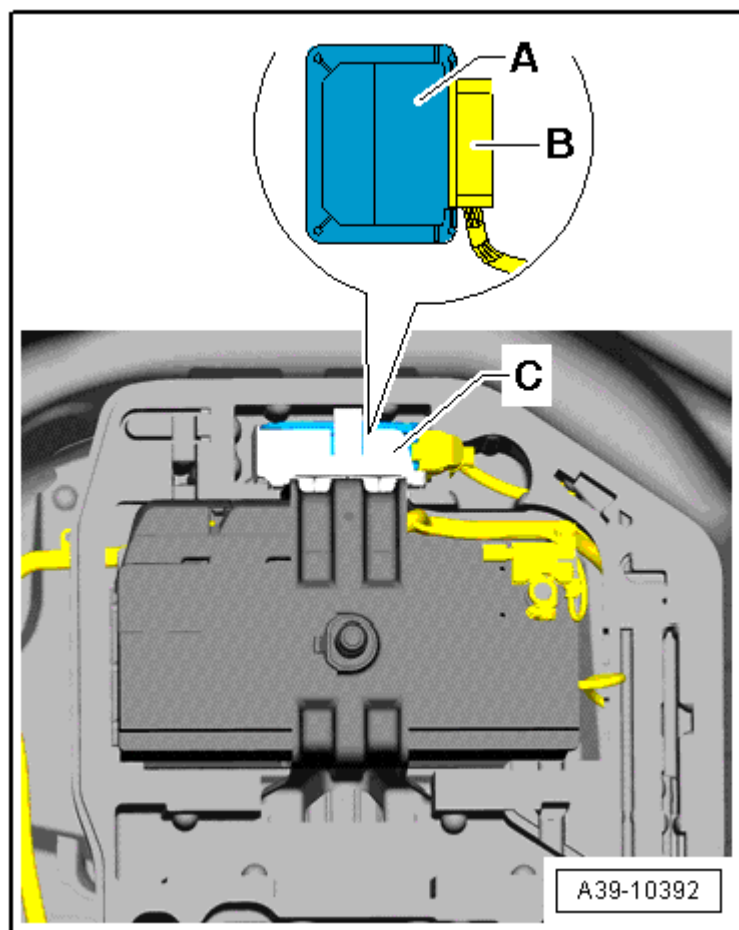


Fig. 33: All Wheel Drive (AWD) Control Module -J492- In Audi A4 Sedan, Audi A5 Coupe And Audi A5 Cabriolet

Courtesy of AUDI OF AMERICA, LLC

Component location: The AWD control module -A- is located in the spare wheel well in front of the battery.

2012 Audi S4

TRANSMISSION Rear Final Drive 0BF & 0BE (Sedan)

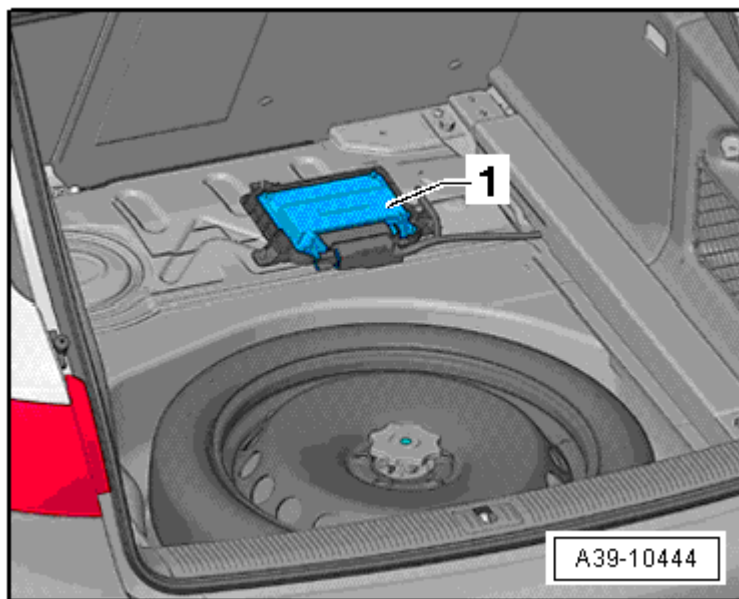


Fig. 34: All Wheel Drive (AWD) Control Module -J492- in the Audi A4 Avant
Courtesy of AUDI OF AMERICA, LLC

Component location: The AWD control module -1- is located inside the luggage compartment on the right side, in front of the spare wheel well.

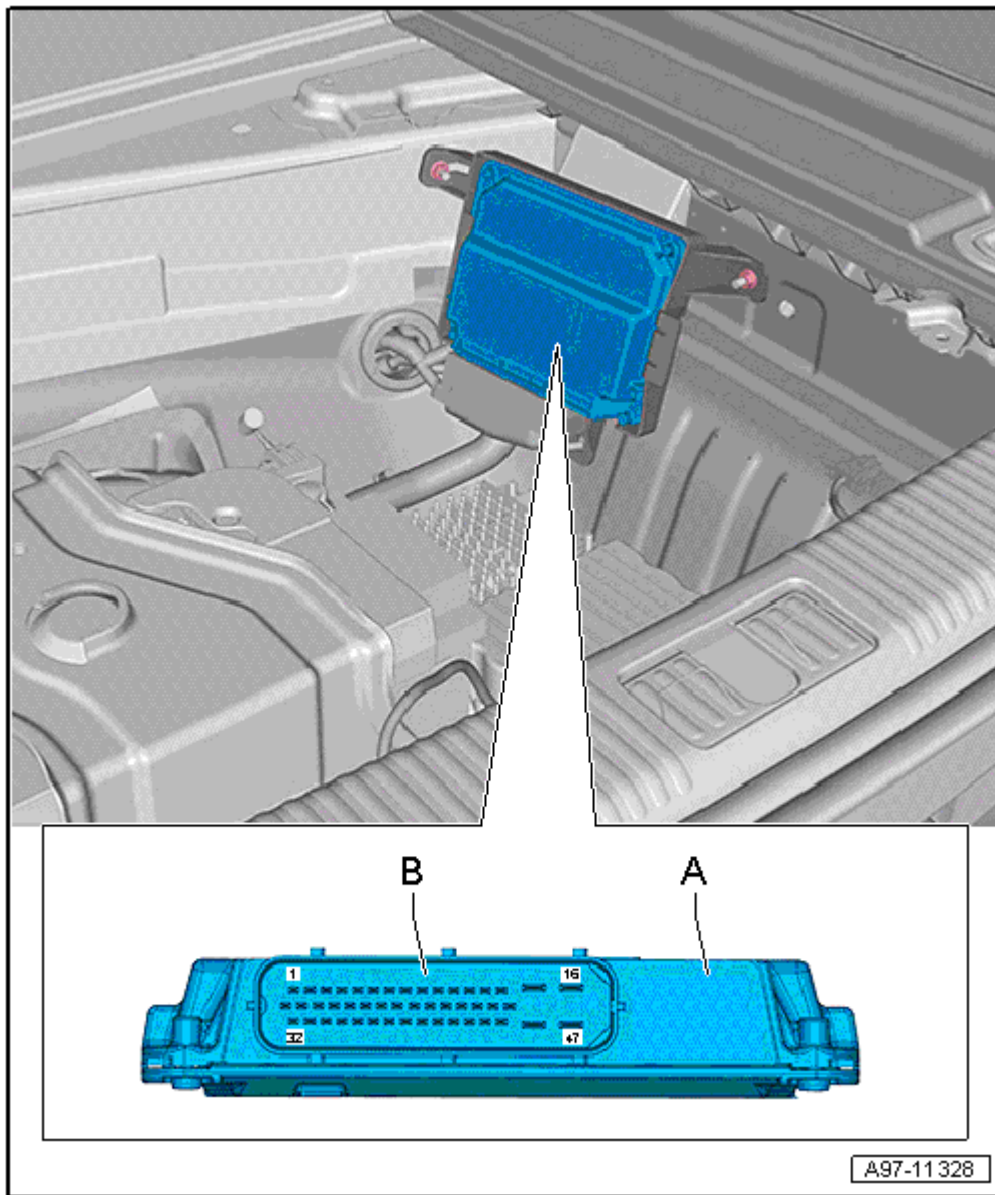


Fig. 35: All Wheel Drive (AWD) Control Module -J492- in the Audi A6/A7
 Courtesy of AUDI OF AMERICA, LLC

Component location: The AWD control module -A- is located in the spare wheel well on the right side.

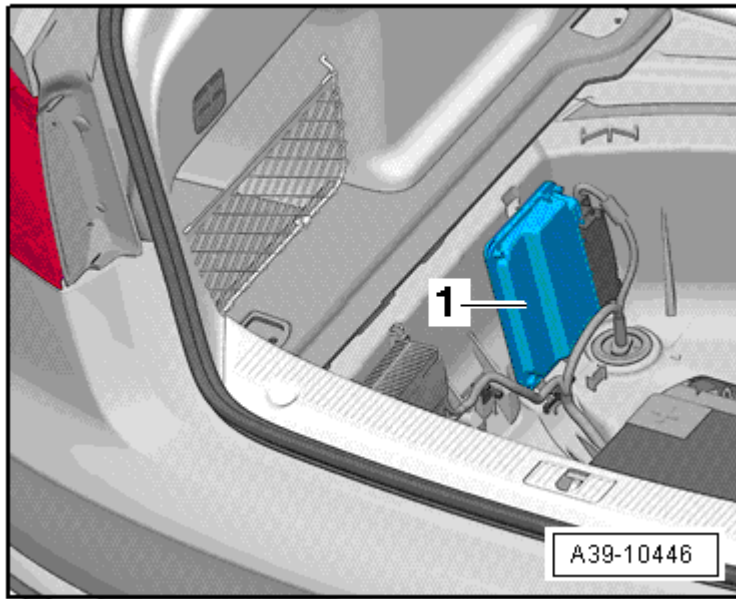


Fig. 36: All Wheel Drive (AWD) Control Module -J492- in the Audi A8
Courtesy of AUDI OF AMERICA, LLC

Component location: The AWD control module -1- is located in the spare wheel well on the left side.

REAR FINAL DRIVE OVERVIEW

CAUTION: Only very specific parts on the rear final drive can be disassembled.

- Currently it is not possible to remove both chambers, refer to item 11 in Fig. 37 and refer to item 25 in Fig. 37 from the final drive.
- This means that is currently not possible to repair any internal components.

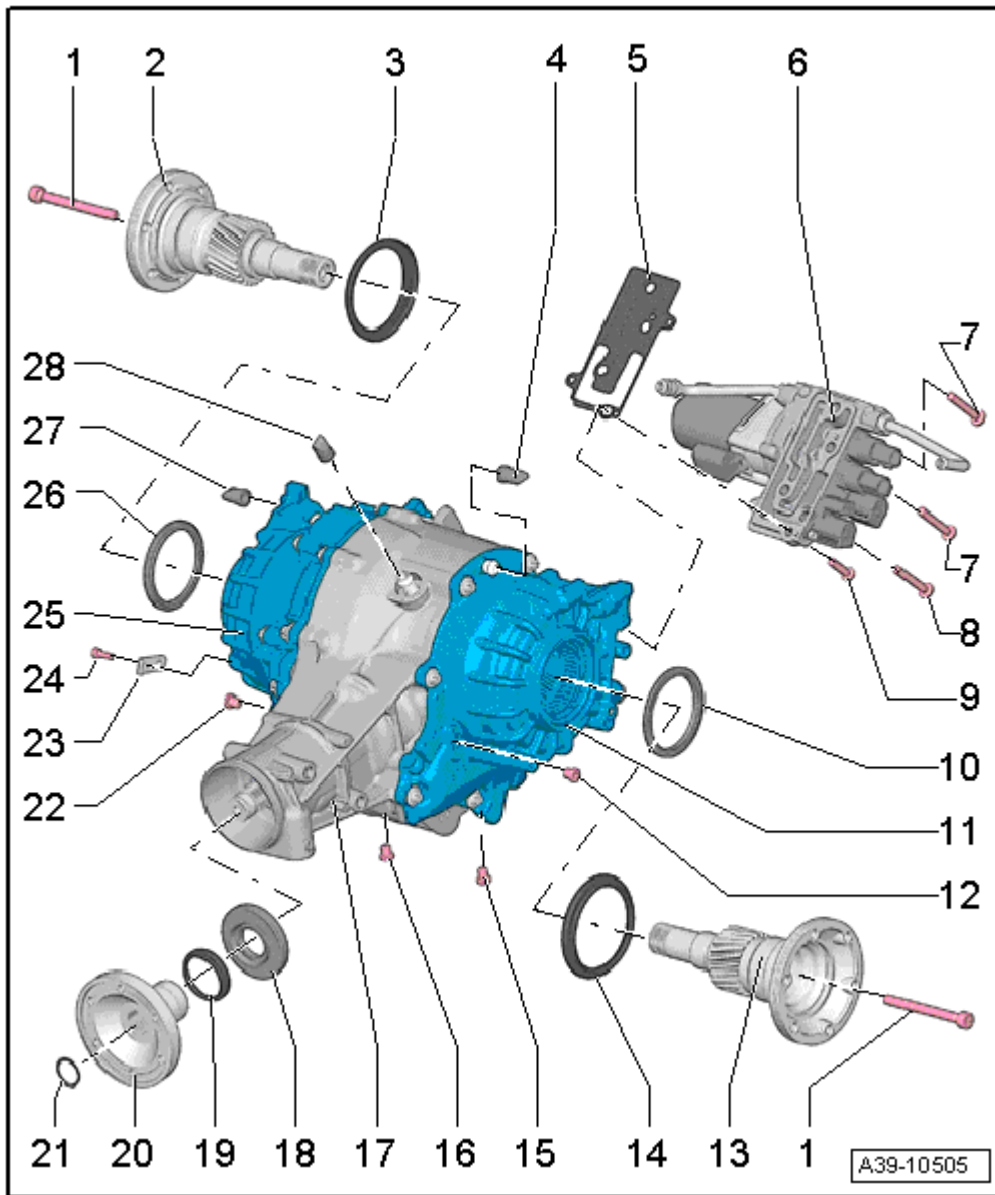


Fig. 37: Rear Final Drive Overview 0BE 0BF

Courtesy of AUDI OF AMERICA, LLC

1. Bolt
 - Always replace if removed
 - 50 Nm + 180° additional turn
2. Right Flange Shaft
 - Removing and installing, refer to **FLANGE SHAFT SEALS, REAR FINAL DRIVE REMOVED**
 - Do not confuse with the left flange shaft; they are different.
3. Ring
 - Replace, refer to **FLANGE SHAFT RING**

4. ATF Breather Pipe
 - For the left chamber
 - Clipped to the bleed pipe
5. Gasket
 - With a screen
6. Hydraulic Control Unit
 - With the All wheel Drive (AWD) pump -V415- and pipes to the chambers
 - Removing and installing, refer to **HYDRAULIC CONTROL UNIT**
 - Disassembling and assembling, refer to **HYDRAULIC CONTROL UNIT**
7. Bolt
 - 20 Nm
 - M8; 50 mm long
 - Quantity: 2
 - Follow tightening sequence, refer to **Fig. 96**
8. Bolt
 - 20 Nm
 - M8; 50 mm long
 - With a permanent seal under the bolt head
 - Coat the thread with sealant D 176 501 A1
 - Follow tightening sequence, refer to **Fig. 96**
9. Bolt
 - 20 Nm
 - M8; 30 mm long
 - Follow tightening sequence, refer to **Fig. 96**
10. Shaft Seal
 - For the left flange shaft
 - Replace, refer to **FLANGE SHAFT SEALS, REAR FINAL DRIVE REMOVED**
11. Left Chamber
12. ATF Check Plug
 - 15 Nm
 - Always replace if removed
 - With a permanent seal
13. Left Flange Shaft
 - Removing and installing, refer to **FLANGE SHAFT SEALS, REAR FINAL DRIVE REMOVED**
 - Do not confuse with the right flange shaft; they are different.
14. Ring
 - Replace, refer to **FLANGE SHAFT RING**

15. ATF Drain Plug
 - 15 Nm
 - Always replace if removed
 - With a permanent seal
16. Gear Oil Drain Plug
 - 15 Nm
 - Always replace if removed
 - With a permanent seal
17. Final Drive Housing
18. Shaft Seal
 - For the flange/driveshaft
 - Replace on the final drive 0BF, refer to **FLANGE/DRIVESHAFT SEAL, REAR FINAL DRIVE 0BF**
 - Replace on the final drive 0BE, refer to **FLANGE/DRIVESHAFT SEAL, REAR FINAL DRIVE 0BE**
19. Ring
 - Replace, refer to **FLANGE/DRIVESHAFT RING**
20. Flange/Driveshaft
 - Removing and installing on rear final drive 0BF, refer to **FLANGE/DRIVESHAFT SEAL, REAR FINAL DRIVE 0BF**
 - Removing and installing on rear final drive 0BE, refer to **FLANGE/DRIVESHAFT SEAL, REAR FINAL DRIVE 0BE**
21. Securing Ring
 - Always replace if removed
 - Installing **Fig. 148**
22. Gear Oil Inspection Plug
 - 15 Nm
 - Always replace if removed
 - With a permanent seal
23. Bracket
 - For the wiring harness
24. Bolt
 - 9 Nm
25. Right Chamber
26. Shaft Seal
 - For the right flange shaft
 - Replace, refer to **FLANGE SHAFT SEALS, REAR FINAL DRIVE REMOVED**
27. ATF Breather Pipe

- For the right chamber
- Clipped to the bleed pipe

28. Final Drive Bleeder

- Clipped to the bleed pipe

ATF AND GEAR OIL DRAIN AND INSPECTION PLUGS, REAR FINAL DRIVE 0BF AND 0BE OVERVIEW

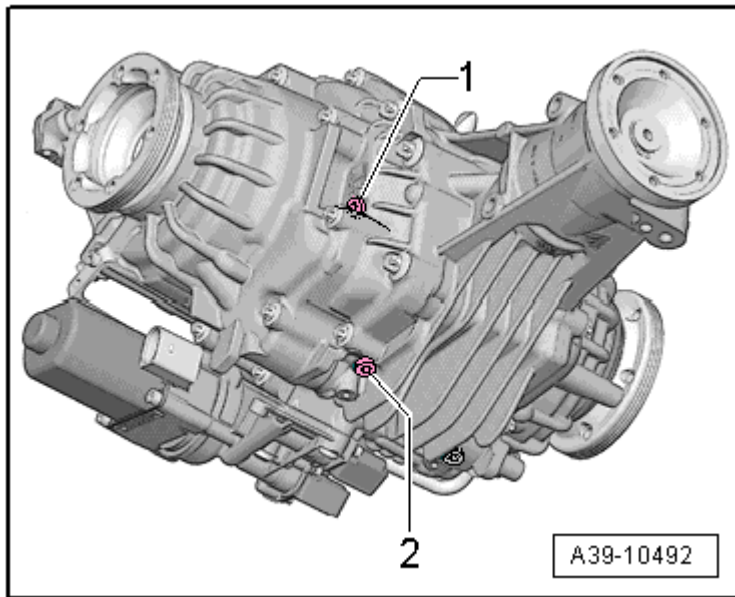


Fig. 38: Rear Final Drive Gear Oil Plugs
Courtesy of AUDI OF AMERICA, LLC

1 - Gear oil inspection plug

- Tightening specification, refer to item 22 in **Fig. 37**
- Always replace if removed

2 - Gear oil drain plug

- Tightening specification, refer to item 16 in **Fig. 37**
- Always replace if removed

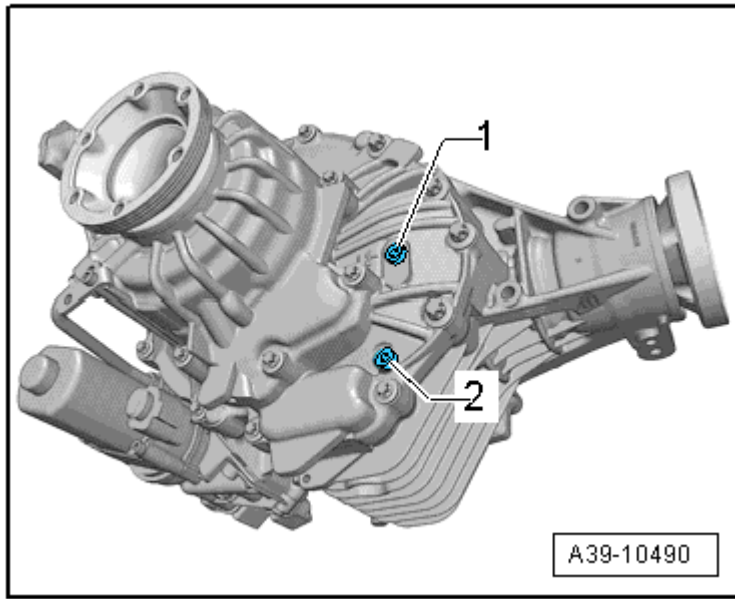


Fig. 39: Rear Final Drive Gear Oil Plugs
Courtesy of AUDI OF AMERICA, LLC

1 - Gear oil inspection plug

- Tightening specification, refer to item 22 in **Fig. 37**
- Always replace if removed

2 - Gear oil drain plug

- Tightening specification, refer to item 16 in **Fig. 37**
- Always replace if removed

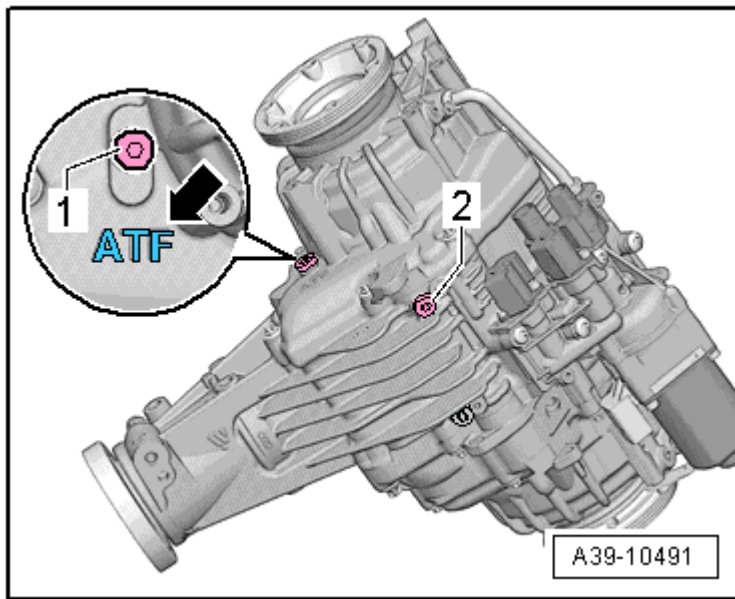


Fig. 40: Overview Of ATF Plugs On Rear Final Drive 0BF
Courtesy of AUDI OF AMERICA, LLC

1 - ATF inspection plug

- ATF identification on the housing -arrow-
- Tightening specification, refer to item 12 in **Fig. 37**
- Always replace if removed

2 - ATF drain plug

- Tightening specification, refer to item 15 in **Fig. 37**
- Always replace if removed

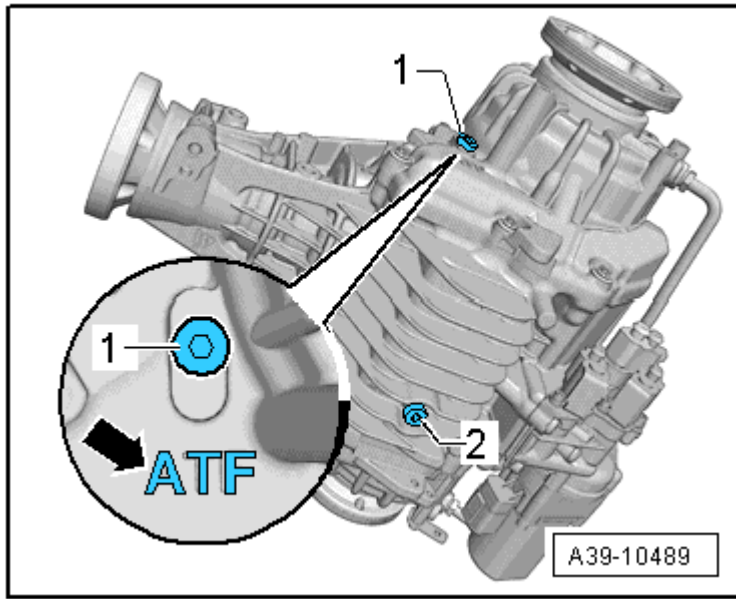


Fig. 41: Locating ATF Plugs

Courtesy of AUDI OF AMERICA, LLC

1 - ATF inspection plug

- ATF on the final drive housing -arrow-
- Tightening specification, refer to item 12 in **Fig. 37**
- Always replace if removed

2 - ATF drain plug

- Tightening specification, refer to item 15 in **Fig. 37**
- Always replace if removed

REAR FINAL DRIVE, ADDITIONAL WORK AFTER REPLACING

WARNING: Rear final drive malfunctions!

The following work must be performed if the rear final drive was replaced.

- Bleeding the hydraulic control unit see vehicle diagnostic tester
- Adapting the rear final drive to the All Wheel Drive (AWD) control module -J492- see vehicle diagnostic tester.
- These additional steps may only be performed if the rear final drive was replaced.

Procedure

2012 Audi S4

TRANSMISSION Rear Final Drive 0BF & 0BE (Sedan)

-- Connect the vehicle diagnostic tester and turn on the ignition.

-- Select **22 - Replace Rear Final Drive** in the VAS 5051 under **Guided Functions** in directory **22 - AWD Electronics**

- Follow all the instructions in the vehicle diagnostic tester exactly.

Using the vehicle diagnostic tester, "adapt" the new rear final drive to the AWD control module.

NOTE: A system check takes places after **22 - Replace Rear Final Drive** finishes. Use **"Guided Fault Finding"** to correct any malfunctions that may have been detected.

TIGHTENING SPECIFICATION

Component	Nm
Wiring harness bracket to the rear final drive	9

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Component	Fastener Size	Nm
All Wheel Drive Clutch Valve to Hydraulic Control Unit Housing Bolt	-	2.5
All Wheel Drive Pump to Hydraulic Control Unit Housing Bolt	-	5
Automatic Transmission Fluid Drain Plug to Final Drive Housing	-	15
Automatic Transmission Fluid Inspection Plug to Left Chamber	-	15
Bracket for the Wiring Harness		9
Center Bearing	-	20
Drive Axle Heat Shield to Rear Final Drive Bolt	-	20
Driveshaft Center Bearing to Body Bolt	-	20
Driveshaft to Rear Final Drive Flange Bolt ¹	-	30 + 90°
Driveshaft to Transmission Flange Bolt ¹	-	30 + 90°
Flange Shaft to Rear Final Drive Bolt ¹	-	50 + 180°
Gear Oil Inspection Plug to Final Drive Housing	-	15
Hydraulic Control Module to Final Drive Housing Bolt		
	M8 ²	20
	M8 ³	20
	M8 ⁴	30
Left Pipe Installed between the Hydraulic Control Unit and the Left Chamber, Nuts	-	30
Left/Right Chamber to Final Drive Housing Bolt	-	24

2012 Audi S4

TRANSMISSION Rear Final Drive 0BF & 0BE (Sedan)

Oil Pressure/Temperature Sensor to Hydraulic Control Unit Housing	-	10
Right Pipe Installed Between the Hydraulic Control Unit and the Right Chamber, Nuts	-	30
Shuttle Valve to Hydraulic Control Unit Housing	-	8
Subframe to Rear Final Drive		
- Lower Bolt	-	55
- Rear Bolt	-	95
Wiring Harness Bracket to Right Chamber Bolt	-	5
Wiring harness bracket to the rear final drive	-	9
¹ Always replace ² 50 millimeter (mm) long ³ 50 millimeter long, with a permanent seal under the bolt head ⁴ 30 mm long		

Driveshaft to Rear Final Drive - Tightening Specification and Sequence

- Always replace the driveshaft bolts -1-.

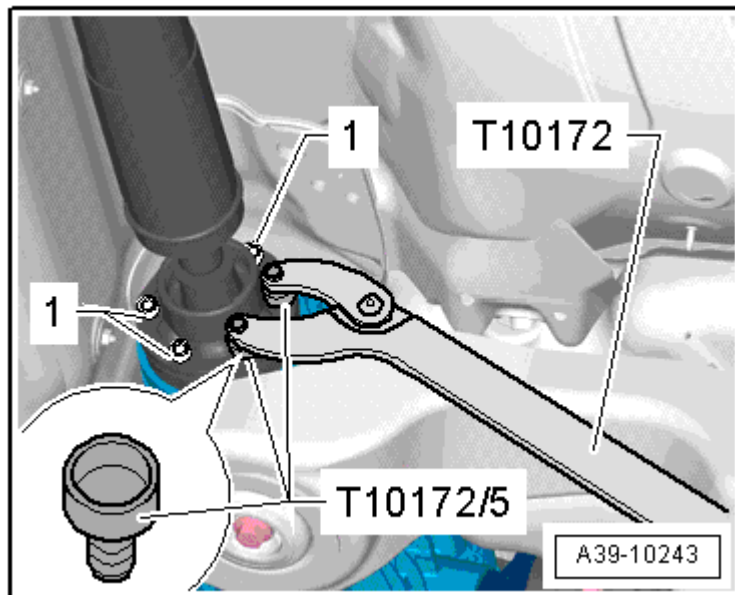


Fig. 42: Locating Driveshaft Bolts
Courtesy of AUDI OF AMERICA, LLC

- Counterhold using the counterhold tool Touareg V10 T10172 and adapters T10172/5.

-- Tighten the bolts -1- in 3 steps as follows:

--	--	--

2012 Audi S4

TRANSMISSION Rear Final Drive 0BF & 0BE (Sedan)

Step	Bolts	Tightening Specification/Additional Turn
1.	-1-	Next to the color dots 30 Nm ¹⁾
2.	-1-	The remaining all around 30 Nm
3.	-1-	90° additional turn all around
¹⁾ The CV joint will be pushed toward the opposite side reducing the imbalance.		

Driveshaft Heat Shield - Tightening Specification

-- Tighten the bolts -arrows- to 24 Nm.

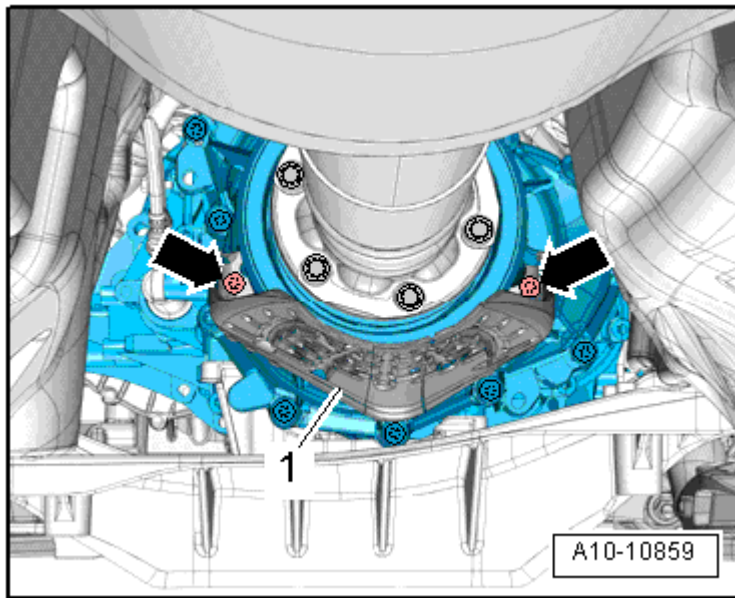


Fig. 43: Driveshaft Heat Shield - Tightening Specification
Courtesy of AUDI OF AMERICA, LLC

Driveshaft to Rear Final Drive 0BE and 0BF - Tightening Specification and Sequence

- Always replace the driveshaft bolts -1-.

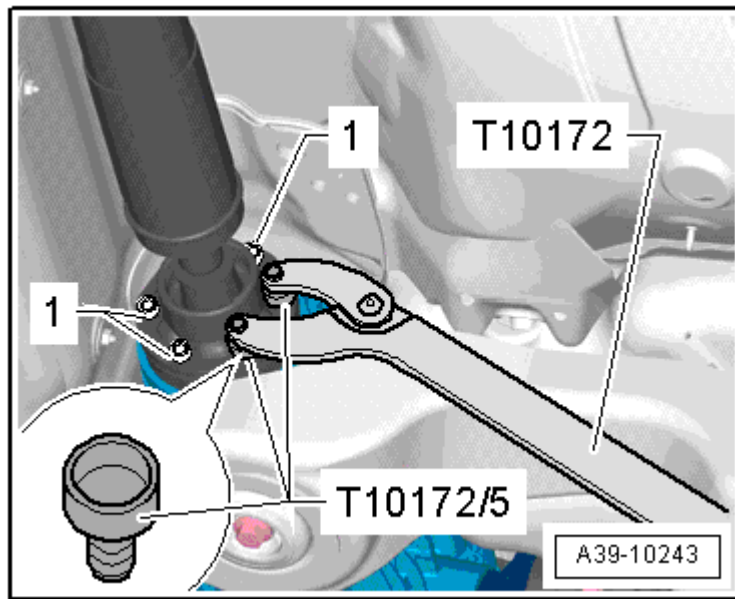


Fig. 44: Locating Driveshaft Bolts

Courtesy of AUDI OF AMERICA, LLC

- Counter hold using the counterhold tool Touareg V10 T10172 and adapters T10172/5 (M8 bolts) or T10172/6 (M10 bolts).

-- Tighten the bolts -1- in 3 steps as follows:

Step	M8 and M10 Bolts	Tightening Specification/Additional Turn
1.	-1-	Next to the color dots 30 Nm ¹⁾
2.	-1-	The remaining all around 30 Nm
3.	-1-	90° additional turn all around
• ¹⁾ The CV joint will be pushed toward the opposite side reducing the imbalance.		

DIAGNOSIS AND TESTING

TORQUE DISPLACEMENT, CHECKING

Special tools and workshop equipment required

- Vehicle Diagnostic Tester

Procedure

NOTE: Observe general repair notes, refer to REPAIR INFORMATION .

Follow all safety precautions, refer to SAFETY PRECAUTIONS AND TEST PROCEDURES .

Perform 22 - Check Torque Displacement :

- Working on the rear final drive wiring
- Working on the valves: All Wheel Drive (AWD) clutch valve -N445- and AWD clutch valve 2 -N446-
- Working on the hydraulic control unit

-- Lift the vehicle on a hoist just enough so that the wheels do not touch the floor.

-- Connect the vehicle diagnostic tester and turn on the ignition.

-- Select **22 - Adapt Sensor** in the vehicle diagnosis, testing and information system under **Guided Functions** in directory **22 - Check Torque Displacement**

- Follow all the instructions in the vehicle diagnosis, testing and information system vehicle diagnosis, testing and information system exactly.

The vehicle diagnostic tester checks if the torque is displaced on the correct side when the rear final drive is activated.

GEAR OIL LEVEL IN REAR FINAL DRIVE 0BF AND 0BE, CHECKING**Test requirement**

- Gear oil temperature: 10 °C to 60 °C (50 °F to 140 °F)
- The rear final drive must be in its installed position.
- The vehicle must horizontal.
- Overview of the gear oil plugs, refer to **Fig. 38** and **Fig. 39**

Special tools and workshop equipment required

- Catch tray

Rear Final Drive 0BF

-- Remove the gear oil inspection plug -arrow- located on the right side of the final drive.

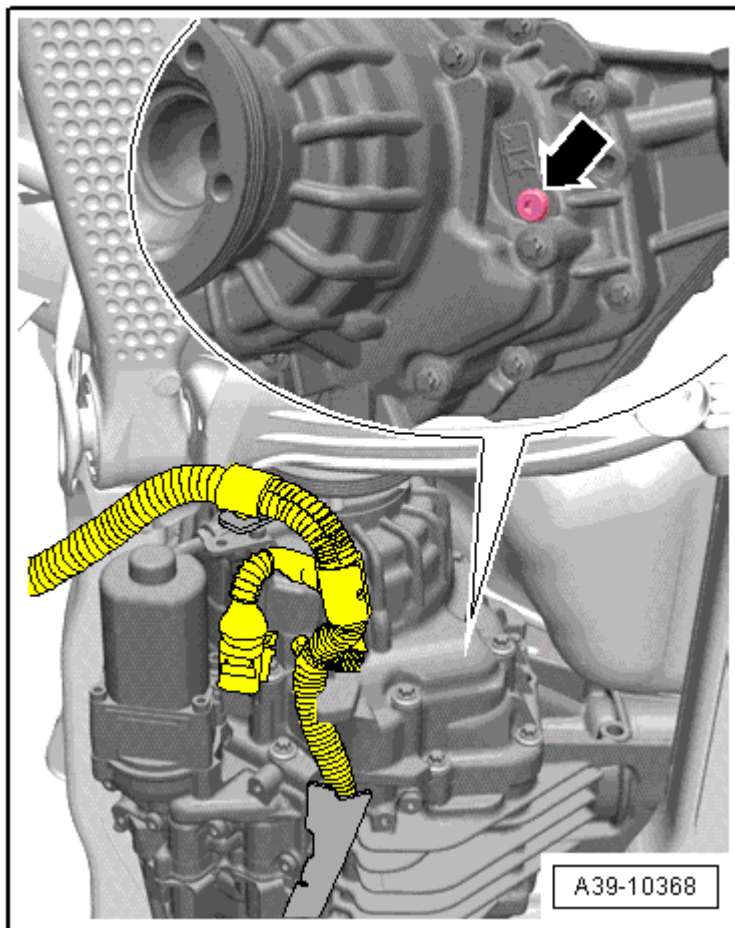


Fig. 45: Gear Oil Inspection Plug

Courtesy of AUDI OF AMERICA, LLC

Rear Final Drive 0BE

-- Remove the gear oil inspection plug -1-.

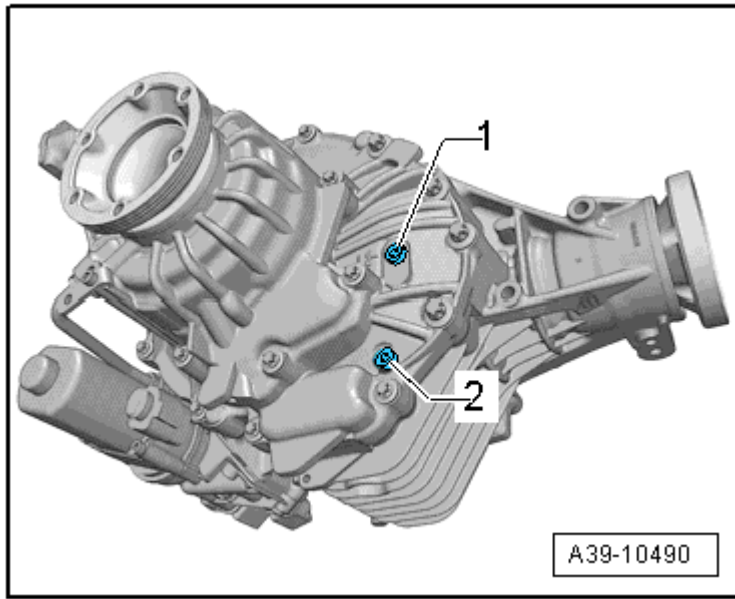


Fig. 46: Rear Final Drive Gear Oil Plugs
Courtesy of AUDI OF AMERICA, LLC

Continuation for All Rear Final Drives

- The fluid level is correct when the rear final drive is filled up the lower edge of the fluid fill hole.

-- Fill the gear oil if necessary.

- **GEAR OIL IN REAR FINAL DRIVE 0BF, FILLING**
- **GEAR OIL IN REAR FINAL DRIVE 0BE, FILLING**

-- Install and tighten the gear oil inspection plug -arrow-. Tightening specifications, refer to item 22 in **Fig. 37**

ATF LEVEL IN REAR FINAL DRIVE 0BF AND 0BE, CHECKING

Test requirement

- ATF temperature: 10 °C to 60 °C (50 °F to 140 °F)
- The rear final drive must be in its installed position.
- The vehicle must horizontal.

Special tools and workshop equipment required

- Catch tray

-- Remove the ATF inspection plug -1-.

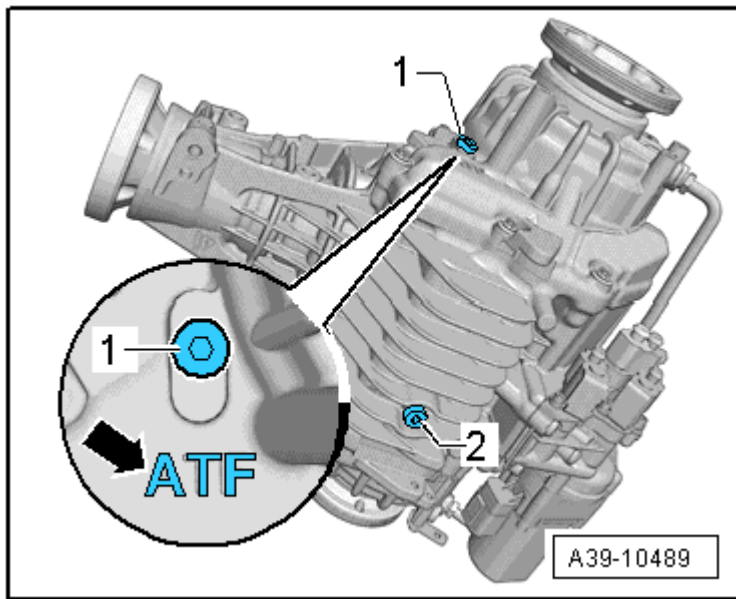


Fig. 47: Locating ATF Plugs

Courtesy of AUDI OF AMERICA, LLC

CAUTION:

- The ATF check plug -1- is located on the left side of the rear final drive. >>ATF<< on the final drive housing -arrow-.
- Overview of the ATF plugs, refer to Fig. 41

- The ATF level is correct when the rear final drive is filled up to the lower edge of the fluid fill hole.

If the ATF level is correct:

-- Install and tighten the new ATF inspection plug. Tightening specification -item 12- Fig. 37.

If the ATF level is not correct:

-- Fill with ATF. Refer to ATF IN REAR FINAL DRIVE 0BF AND 0BE, FILLING.

REMOVAL AND INSTALLATION

AUDI A4 AND AUDI A5

DRIVESHAFT BOLTED ON TRANSMISSION SIDE

Special tools and workshop equipment required

- Alignment Fixture-4W Dr.Shaft 3139
- Counterhold Tool Touareg V10 T10172 with Adapters T10172/5
- Engine-Gearbox Jack V.A.G 1383 A with Universal Mount V.A.G 1359/2

- High Temperature Grease G 000 633

Remove Driveshaft

- See notes, refer to **DRIVESHAFT BOLTED ON TRANSMISSION-SIDE OVERVIEW**
- Working on the driveshaft should only be performed with the vehicle on a two-column shop hoist.

NOTE: Do not bend the decoupling element in the front exhaust pipe more than 10°, otherwise it will get damaged.

-- Loosen the clamping sleeves -1 and 2- and separate the exhaust system.

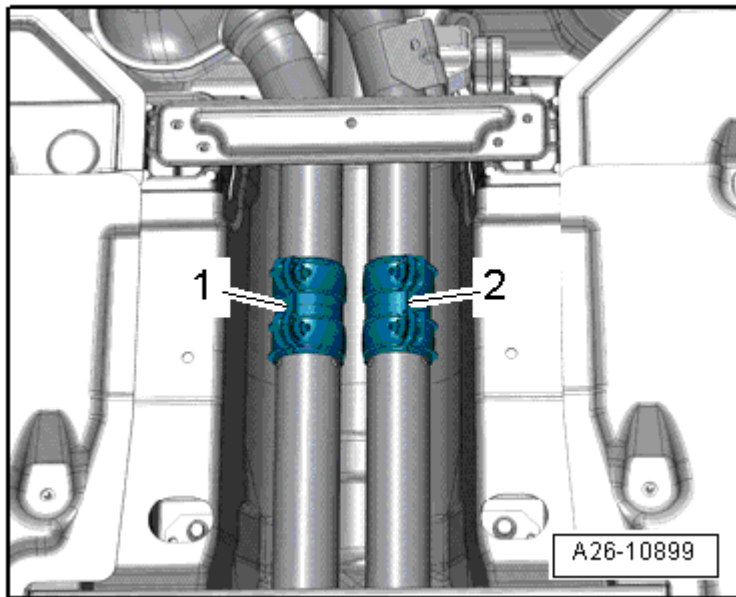


Fig. 48: Exhaust System Clamping Sleeves
Courtesy of AUDI OF AMERICA, LLC

-- Tie the front exhaust pipes to the underbody.

-- Remove rear portion of exhaust system. Refer to **[For transmission(s) 0AW] [For engine(s) CALA] Description and Operation** or to **[For engine(s) CCBA] Description and Operation** .

NOTE: A second technician will be needed to help remove the rear section of the exhaust system.

-- Remove the crossmember -3-.

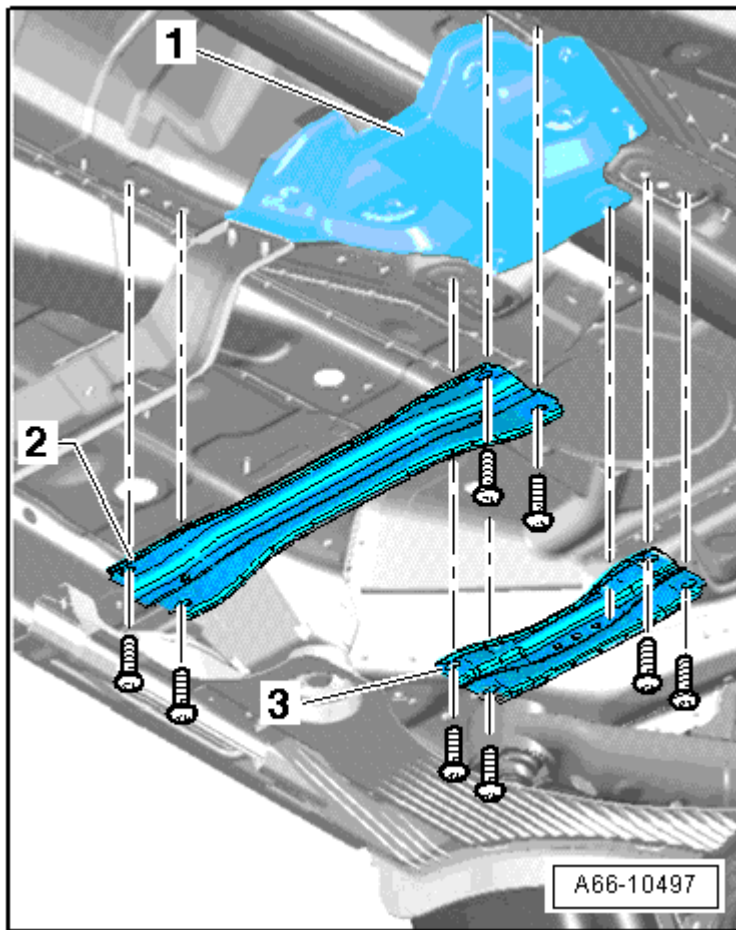


Fig. 49: Identifying Crossmember

Courtesy of AUDI OF AMERICA, LLC

- Remove the front crossmember -2-, if equipped.
- Remove the heat shield -1- -arrows-.
- Remove the heat shield -A- from the transmission -arrows-, if equipped.

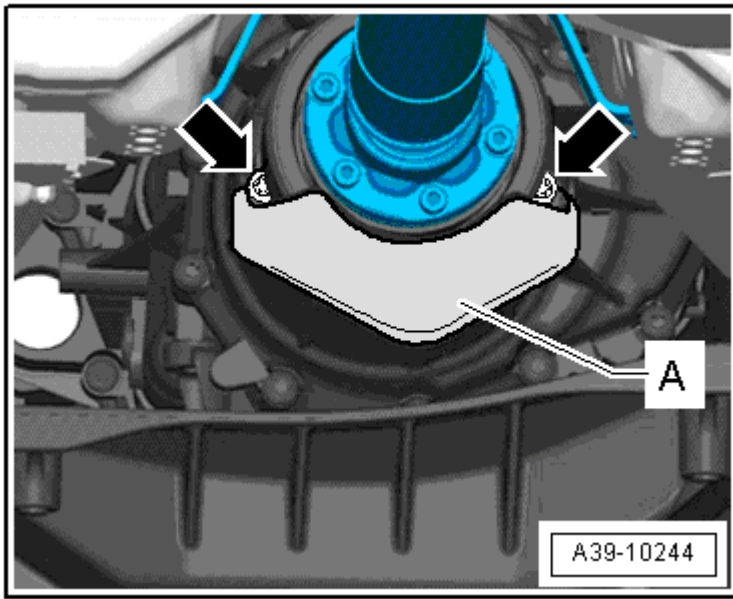


Fig. 50: Transmission Heat Shield

Courtesy of AUDI OF AMERICA, LLC

-- Check whether there is a marking (color marking) on the driveshaft and at flange/driveshaft at rear final drive -arrow A- and -arrow B-.

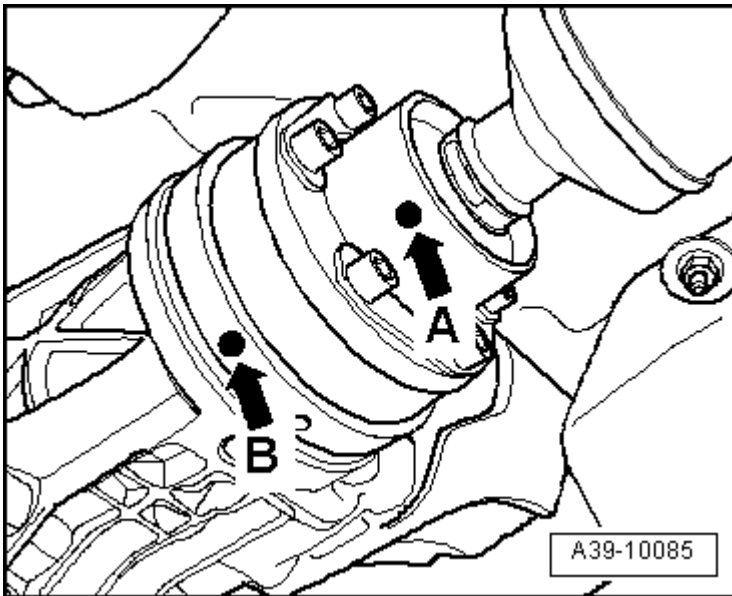


Fig. 51: Identifying Mark Position Of Driveshaft Flange To Rear Final Drive

Courtesy of AUDI OF AMERICA, LLC

-- If one of these markings is no longer visible (for example -arrow A- on the driveshaft), then make a new color marking.

- Die marking on the driveshaft -arrow A- and on the rear final drive -arrow B- must line up.

-- Attach the 3139 and tighten the plastic nuts.

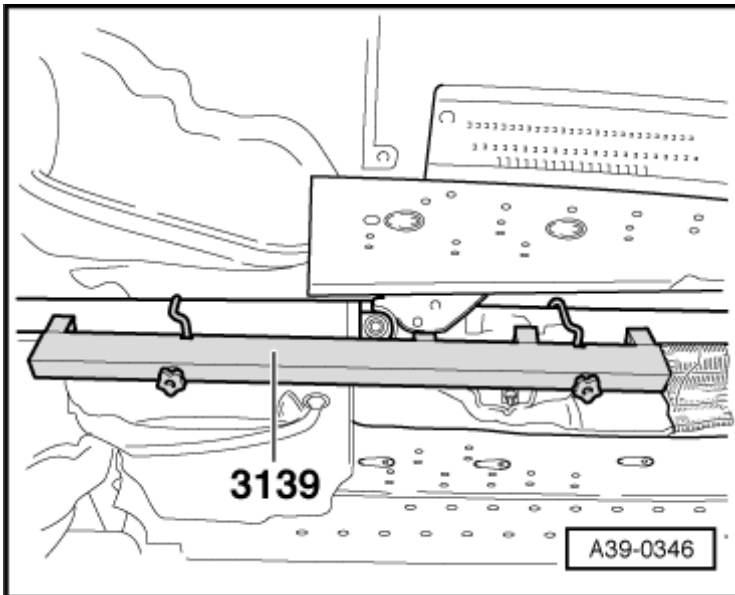


Fig. 52: Attaching Alignment Fixture - 4W Dr. Shaft 3139

Courtesy of AUDI OF AMERICA, LLC

NOTE: Never lay the assembly tool on the balance plates.

-- Remove the bolts -arrows- for intermediate bearing.

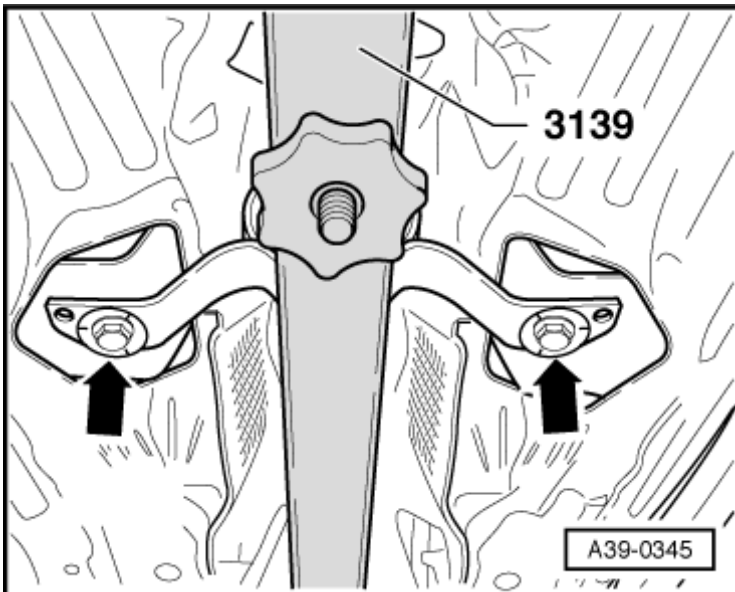


Fig. 53: Removing/Installing Securing Bolts For Center Bearing

Courtesy of AUDI OF AMERICA, LLC

-- Remove the bolts connecting the driveshaft to the transmission using the T10172 and T10172/5.

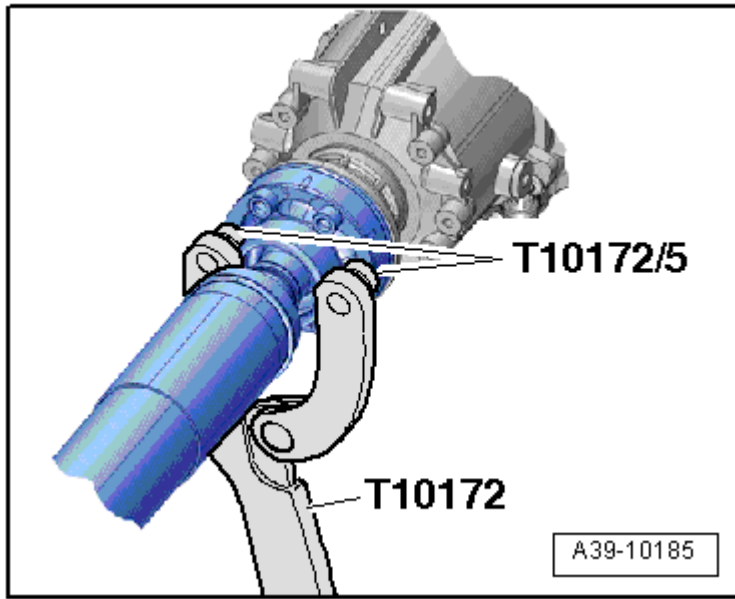


Fig. 54: Hold Driveshaft Using T10172
Courtesy of AUDI OF AMERICA, LLC

- Remove driveshaft from transmission and support it using V.A.G 1383 A.
- Remove the bolts -1- (quantity: 6) from the rear CV joint.

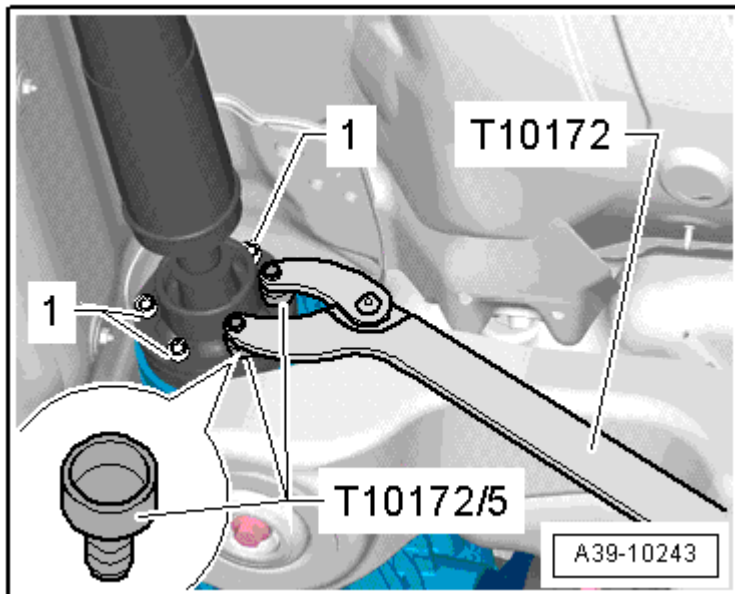


Fig. 55: Locating Driveshaft Bolts
Courtesy of AUDI OF AMERICA, LLC

- Use the T10172 and T10172/5.
- Remove driveshaft.

NOTE: Always store and transport a driveshaft fully extended only.

Install the Driveshaft.

Install in reverse order of removal. Be sure to note the following:

- Remove any old or dried-up high temperature grease from the CV joints and the driveshaft flanges. Fill with the exact same amount of high temperature grease G 000 633.
- Clean any locking fluid still inside the threaded holes in the flange shafts for the transmission driveshaft and rear final drive. Use a thread cutter to clean the holes. Otherwise the bolts could break off when being installed.
- After disconnecting driveshaft from rear final drive, an additional balance washer (thick washer) that may be located between shim and a bolt may not be reinstalled.
- Always replace (self-locking) securing bolts for driveshaft.
- Check the driveshaft seal on the rear final drive and on the transmission flange for damage (bent or the rubber has started to peel). Replace a damaged gasket.
- Note installation position of driveshaft: Center CV joint is located behind intermediate bearing in direction facing the rear final drive.

-- Install the driveshaft. Pay attention to the installed position on the rear final drive:

- Die markings on the driveshaft -arrow A- and on the rear final drive -arrow B- must line up.

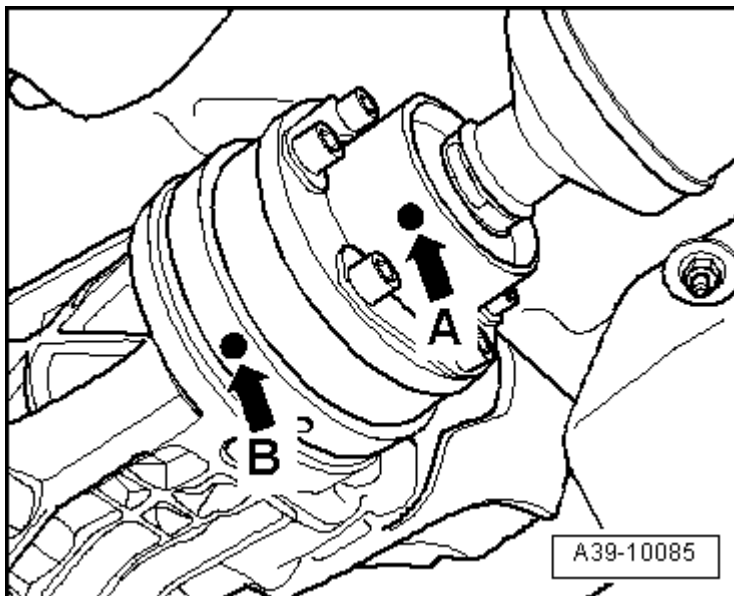


Fig. 56: Identifying Mark Position Of Driveshaft Flange To Rear Final Drive
Courtesy of AUDI OF AMERICA, LLC

- Maximum difference between the markings: 30°.

-- Install all the way in by hand, but do not tighten.

-- Install the bolts -arrows- just far enough so that the center bearing can still be moved.

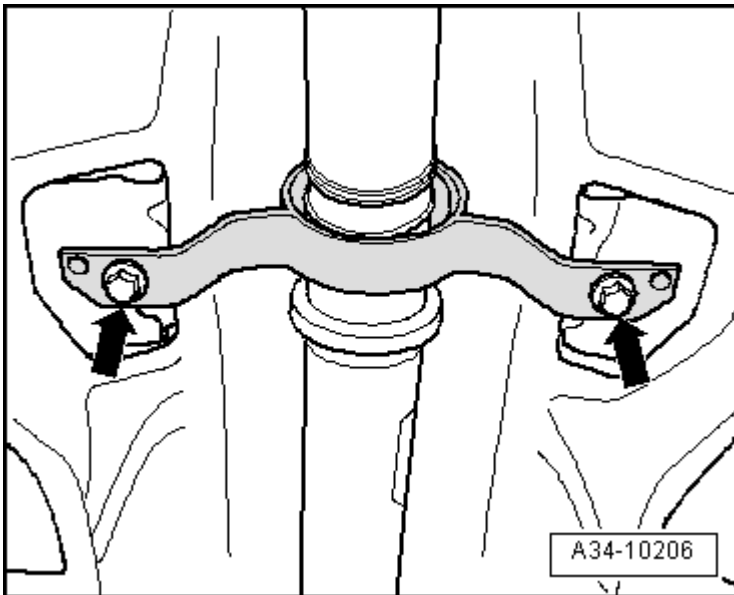


Fig. 57: Removing Mounting Bolts

Courtesy of AUDI OF AMERICA, LLC

-- Tighten the rear bolts -1- on the driveshaft. Follow the tightening sequence, refer to **Fig. 25**.

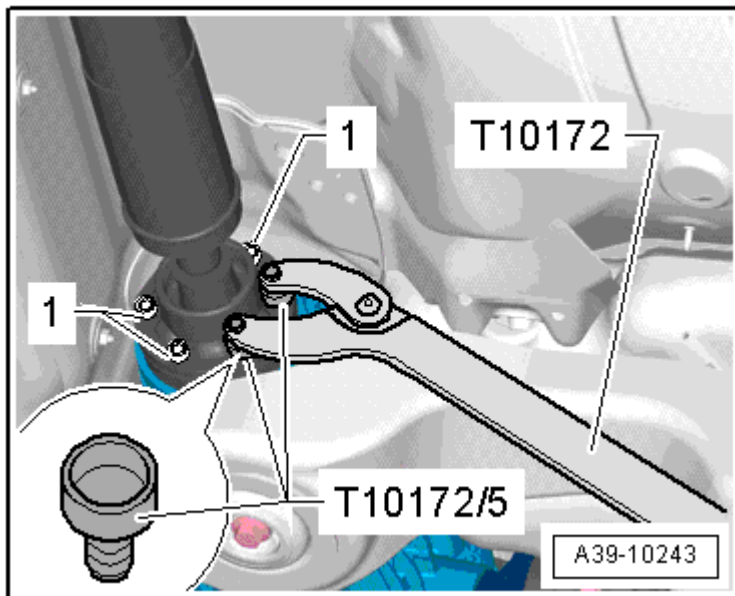


Fig. 58: Locating Driveshaft Bolts

Courtesy of AUDI OF AMERICA, LLC

-- Tighten the front bolts on the driveshaft. Tightening specification, refer to item 5 in **Fig. 24**.

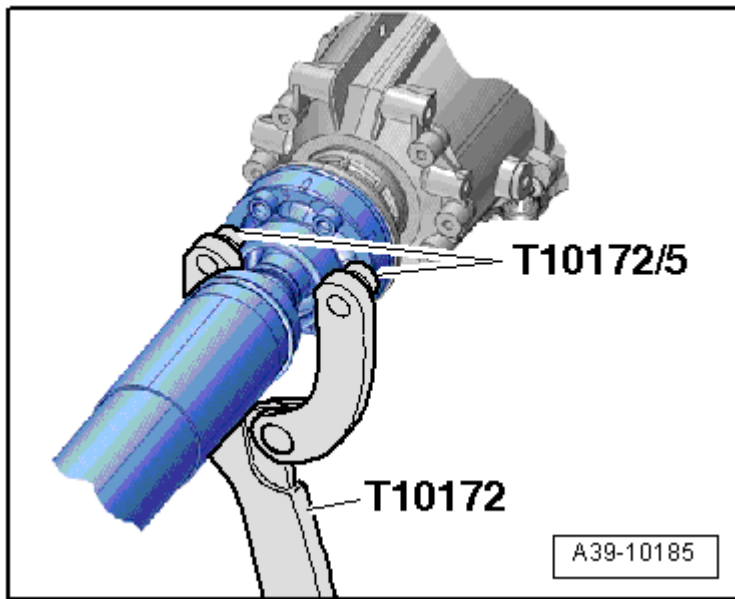


Fig. 59: Hold Driveshaft Using T10172
Courtesy of AUDI OF AMERICA, LLC

-- Remove 3139.

-- Attach the driveshaft center bearing to the body making sure it is free of tension. Tightening specification, refer to item 8 in **Fig. 24**.

-- Attach the heat shield -A- (if equipped) to the transmission -arrows-. Tightening specification, refer to **Fig. 26**

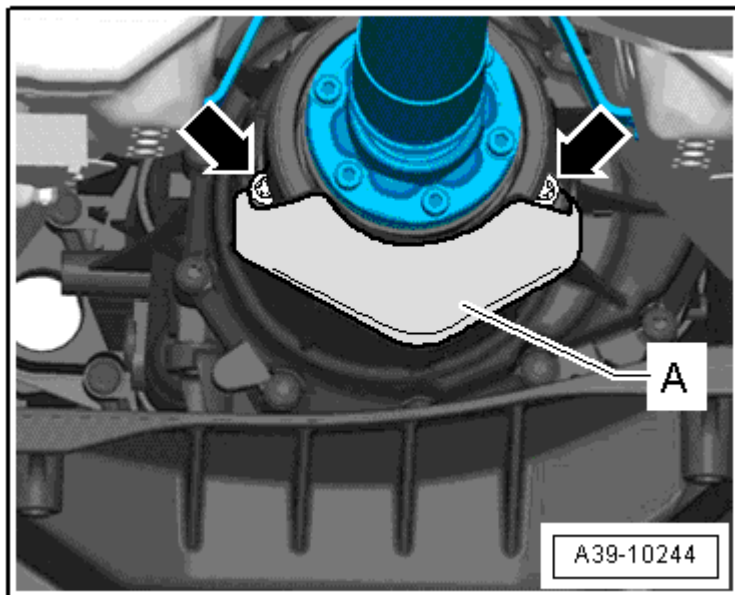


Fig. 60: Transmission Heat Shield
Courtesy of AUDI OF AMERICA, LLC

-- Install the heat shield -1-.

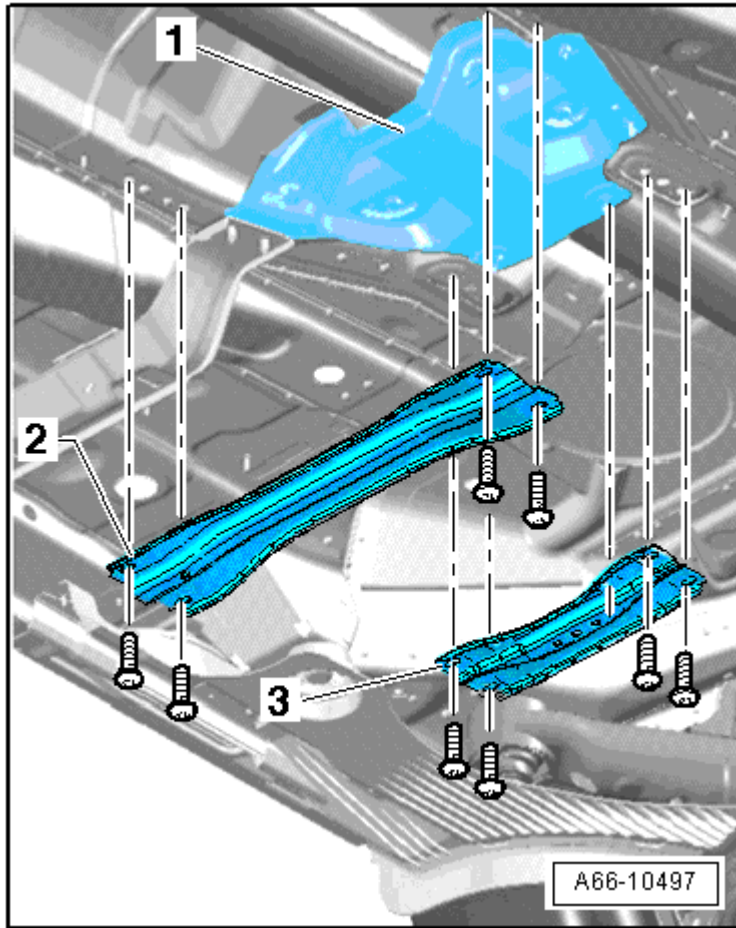


Fig. 61: Identifying Crossmember

Courtesy of AUDI OF AMERICA, LLC

-- Remove the front -2- and rear -3- crossmembers, if equipped. Refer to Description and Operation .

-- Install and adjust the exhaust system free of stress. Refer to [For transmission(s) 0AW] [For engine(s) CALA] Description and Operation or to [For engine(s) CCBA] Description and Operation .

ALL WHEEL DRIVE (AWD)

AWD CONTROL MODULE

NOTE: All Wheel Drive (AWD) control module -J492- locations -item 1- Fig. 31.

The description for removing and installing is based on the Audi A4 Sedan.

- Turn off the ignition.

-- Remove the luggage compartment floor covering.

- Remove the cover and vehicle tools bracket.
- Unclip the AWD control module -A- from its mount -C-.

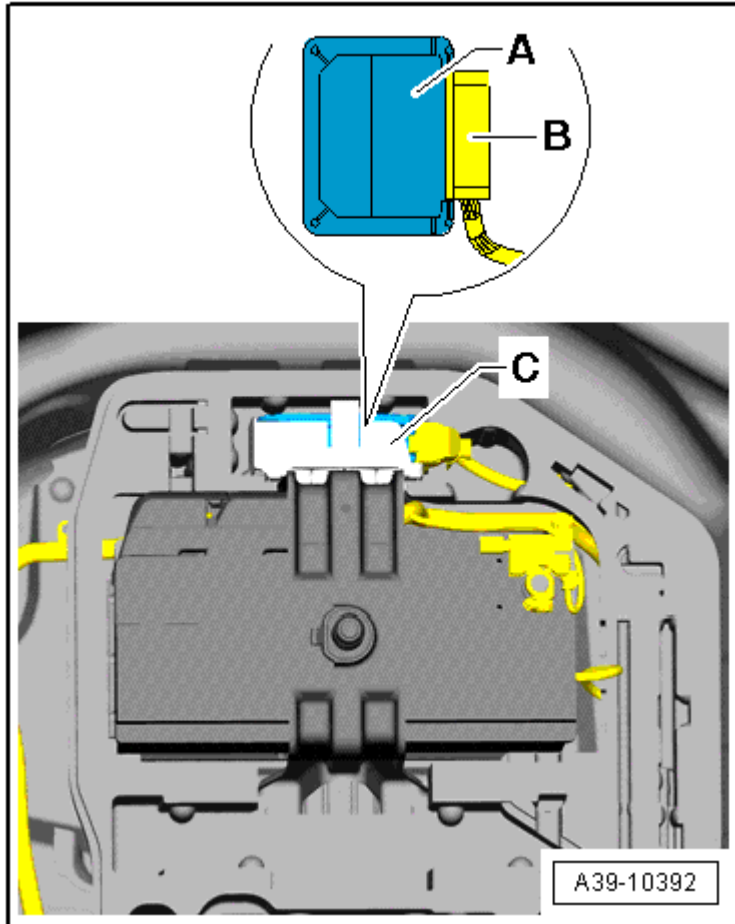


Fig. 62: All Wheel Drive (AWD) Control Module -J492- In Audi A4 Sedan, Audi A5 Coupe And Audi A5 Cabriolet

Courtesy of AUDI OF AMERICA, LLC

- Disconnect the connector -B- from the AWD control module.
- Install the AWD control module in reverse order of removal.
 - Additional work will be necessary if the AWD control module was replaced. Refer to **AWD CONTROL MODULE, ADDITIONAL WORK AFTER REPLACING**.

AWD CONTROL MODULE, ADDITIONAL WORK AFTER REPLACING

Special tools and workshop equipment required

- Vehicle Diagnostic Tester

NOTE: Perform the following only if the All Wheel Drive (AWD) control module -J492- was replaced.

-- Connect the vehicle diagnostic tester and turn on the ignition.

-- Select **22 - Replace Control Module** in the vehicle diagnostic tester under **Guided Functions** in directory **22 - AWD Electronics**

- Follow all the instructions in the VAS 5051 exactly.

Using the vehicle diagnostic tester, "adapt" the rear final drive, which was just installed, to the AWD control module.

NOTE: A system check takes place after **22 - Replace Control Module** finishes. Use "Guided Fault Finding" to correct any malfunctions that may have been detected.

PUMP

Special tools and workshop equipment required

- Hex Ball Socket T10058
- Drip Tray

NOTE: Observe general repair notes, refer to REPAIR INFORMATION .

Follow all safety precautions, refer to SAFETY PRECAUTIONS AND TEST PROCEDURES .

Removing

-- Place the vehicle on a hoist.

- Turn off the ignition.

-- Place the drip tray under the rear final drive.

-- Disconnect the connector -1- from the All Wheel Drive (AWD) pump -V415- -2-.

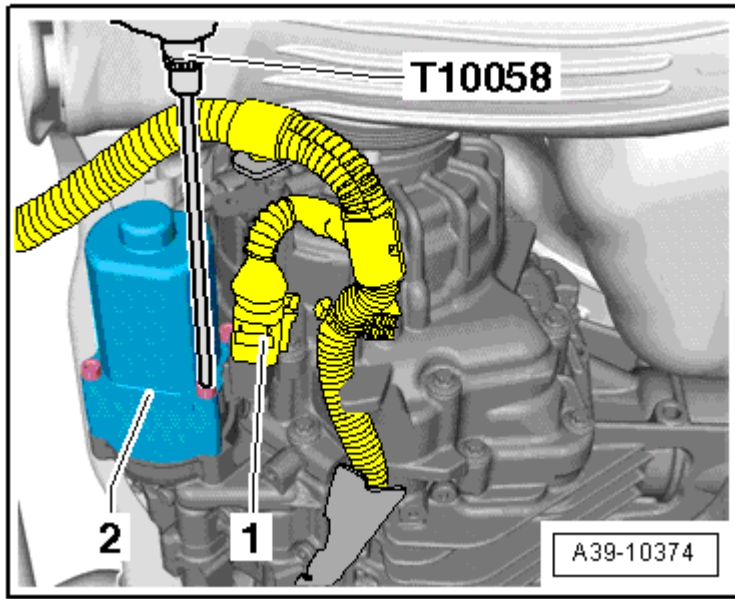


Fig. 63: All Wheel Drive (AWD) Pump Connector
Courtesy of AUDI OF AMERICA, LLC

-- Remove the 4 AWD pump bolts on the hydraulic control unit using the T10058.

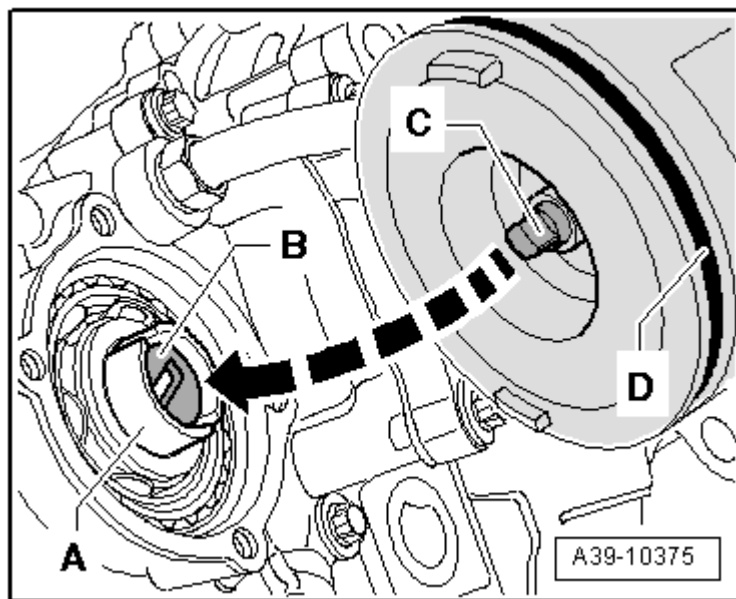
-- Carefully remove the AWD pump -2- while paying attention to the adapter, refer to item 4 in **Fig. 95** in the hydraulic pump.

NOTE: The adapter could fall out when removing the AWD pump.

Insert the adapter into the recesses in the hydraulic pump before installing the AWD pump.

Installing

- The hydraulic pump -A- is installed inside the hydraulic control unit in its Installed position; assembling the hydraulic pump. Refer to **Fig. 168**.

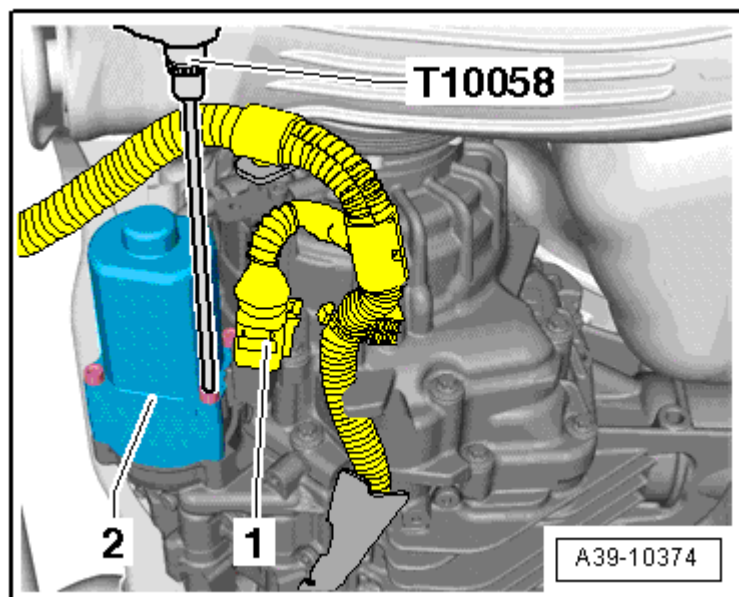
**Fig. 64: Hydraulic Pump**

Courtesy of AUDI OF AMERICA, LLC

- The adapter -B- is installed into the recesses in the hydraulic pump.
- The new O-ring -D- is installed on the AWD pump.

-- Install the AWD pump and the shaft -C- into the adapter -B-.

-- Tighten the four bolts on the AWD pump diagonally, refer to item 2 in **Fig. 95**.

**Fig. 65: All Wheel Drive (AWD) Pump Connector**

Courtesy of AUDI OF AMERICA, LLC

-- Connect the connector -1- to the AWD pump.

-- Fill the ATF in the rear final drive. Refer to **ATF IN REAR FINAL DRIVE 0BF AND 0BE, FILLING.**

CLUTCH VALVE OR CLUTCH VALVE 2

Special tools and workshop equipment required

- Socket XZN 4T10370
- Drip Tray

NOTE: Observe general repair notes, refer to **REPAIR INFORMATION** .

Follow all safety precautions, refer to **SAFETY PRECAUTIONS AND TEST PROCEDURES** .

CAUTION: Rear final drive malfunctions.

- Do not confuse the All Wheel Drive (AWD) clutch valve -N445- with the AWD clutch valve 2 -N446- when installing them.

Removing

- Turn off the ignition.

-- Place the vehicle on a hoist.

-- Slightly lower the rear section of the exhaust system and secure it.

-- Remove the wiring harness bracket from the rear final drive **Fig. 94.**

NOTE: Mark the connectors -1 through 4- for the oil pressure/temperature sensor -- and on the clutch valves --.

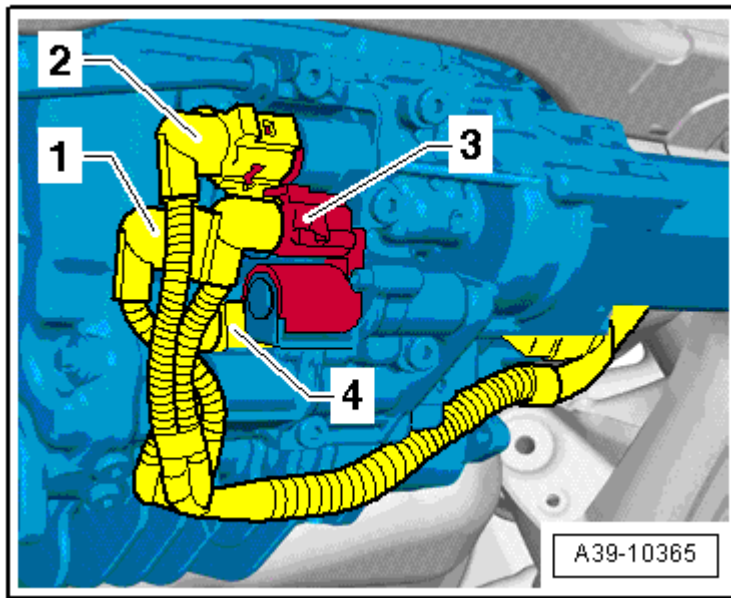


Fig. 66: Oil Pressure/Temperature Sensor Connector
Courtesy of AUDI OF AMERICA, LLC

Disconnect the connector -1 and 2-.

- Disconnect the connector -3- from the AWD clutch valve 2 and/or the connector -4- from the AWD clutch valve.
- Place the drip tray under the rear final drive.
- Remove the bolts -1- of each clutch valves -- using the T10370.

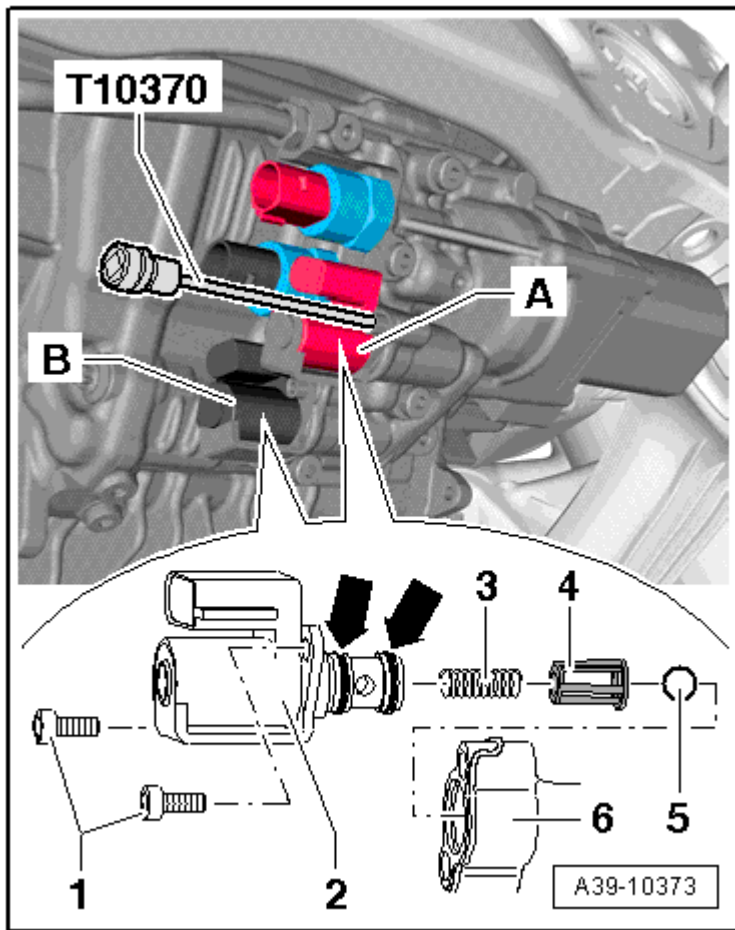


Fig. 67: Identifying Clutch Valves

Courtesy of AUDI OF AMERICA, LLC

-- Carefully pry out the clutch valve -- with a flat blade screwdriver. Pay close attention to the pressure spring - 3-. The pressure spring can fall out of the opening in the hydraulic control unit -6-.

-A- = AWD clutch valve 2 -N446-, brown

-B- = AWD clutch valve -N445-, black

Installing

- The ball -5-, the guide -4- (the smaller diameter faces the spring) and the spring -3- must be installed in the opening inside the housing -6- for the clutch valve -- -2-.

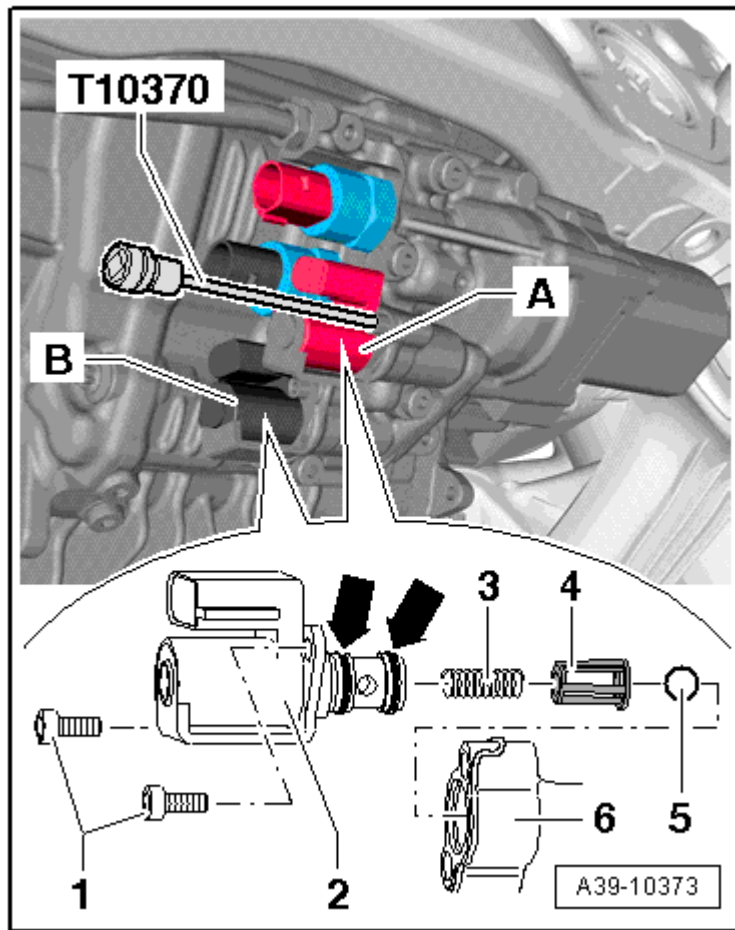


Fig. 68: Identifying Clutch Valves

Courtesy of AUDI OF AMERICA, LLC

-- Coat the new O-rings -arrows- with ATF and install the clutch valve --.

-- Pre-tighten the bolts -1- evenly hand-tight. Then tighten them to the tightening specification -13- **Fig. 167**.

Further installation is in the reverse sequence to removal. Note the following when doing this:

NOTE: Connector allocation for the oil pressure/temperature sensor -- and the clutch valves -- :

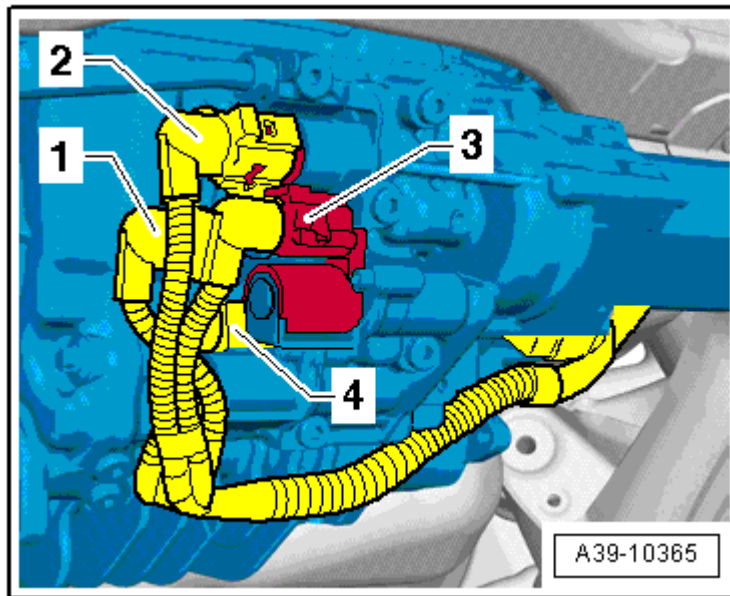


Fig. 69: Oil Pressure/Temperature Sensor Connector
 Courtesy of AUDI OF AMERICA, LLC

-1- = oil pressure/temperature sensor 2 -G640- connector

-2- = oil pressure/temperature sensor -G437- connector

-3- = AWD clutch valve 2 -N446- connector

-4- = AWD clutch valve -N445- connector

-- Attach the wiring harness bracket to the rear final drive Fig. 94.

-- Fill the ATF in the rear final drive. Refer to ATF IN REAR FINAL DRIVE 0BF AND 0BE, FILLING.

-- Install the rear section of the exhaust system free of tension. Refer to [For transmission(s) 0AW] [For engine(s) CALA] Description and Operation or to [For engine(s) CCBA] Description and Operation.

DRIVESHAFT, REMOVING FROM REAR FINAL DRIVE AND INSTALLING

Special tools and workshop equipment required

- Counterhold Tool Touareg V10 T10172 with Adapters T10172/5
- Adapter T10172/5 (M8 bolts)
- Adapter T10172/6 (M10 bolts)
- High temperature grease G 000 633
- See notes, refer to DRIVESHAFT BOLTED ON TRANSMISSION-SIDE OVERVIEW.
- Working on the driveshaft should only be performed with the vehicle on a two-column shop hoist.

Remove the driveshaft from the rear final drive.

-- Separate the exhaust system at the clamping sleeves -1 and 2-

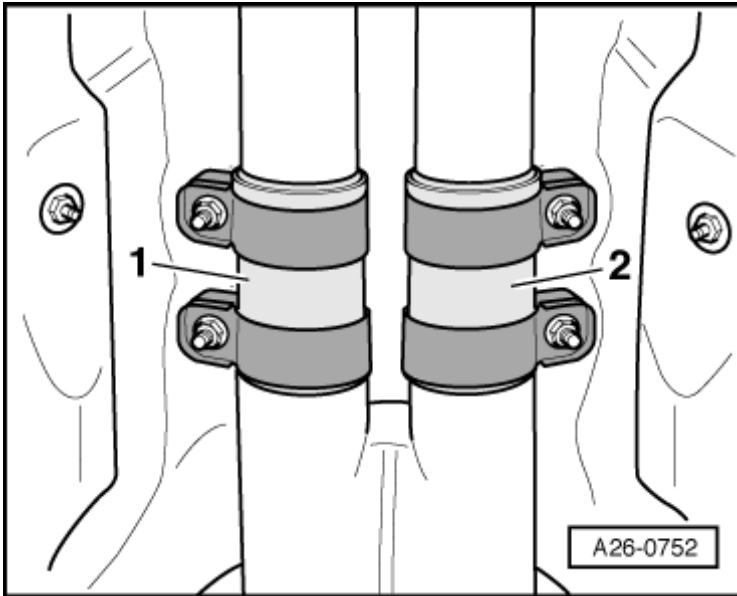


Fig. 70: Clamping Sleeves

Courtesy of AUDI OF AMERICA, LLC

-- Tie the front exhaust pipe(s) to the underbody.

NOTE: Do not bend the decoupling element in the front exhaust pipe more than 10°, otherwise it will get damaged. Tie up the front exhaust pipes to the body.

A second technician will be needed to help remove the rear section of the exhaust system.

-- Remove rear portion of exhaust system. Refer to [For transmission(s) 0AW] [For engine(s) CALA] Description and Operation or to [For engine(s) CCBA] Description and Operation .

-- Check whether there is a marking (color marking) on driveshaft and at flange/driveshaft at rear final drive - arrow A- and -arrow B-.

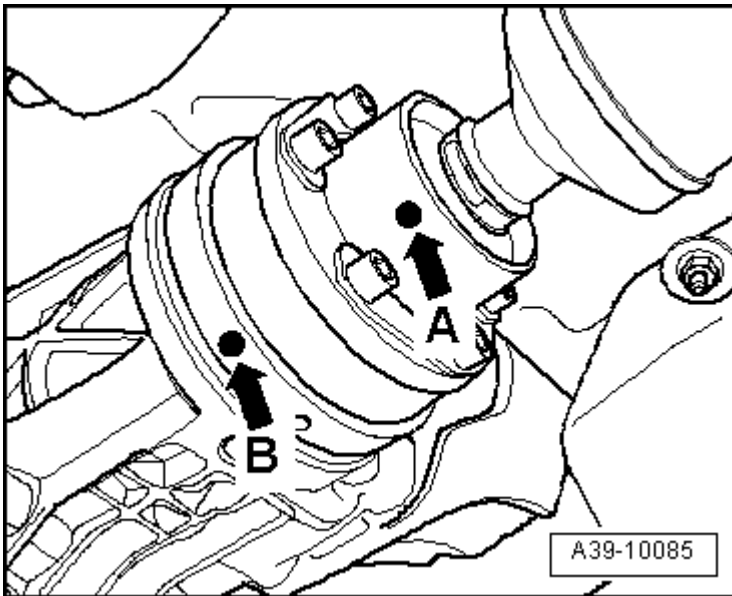


Fig. 71: Identifying Mark Position Of Driveshaft Flange To Rear Final Drive
 Courtesy of AUDI OF AMERICA, LLC

-- If one of these markings is no longer visible (for example -arrow A- on the driveshaft), then make a new color marking.

- Die marking on the driveshaft -arrow A- and on the rear final drive -arrow B- must line up.

Rear Final Drive 0BF

-- Remove the bolts -1- (quantity: 6) from the rear CV joint.

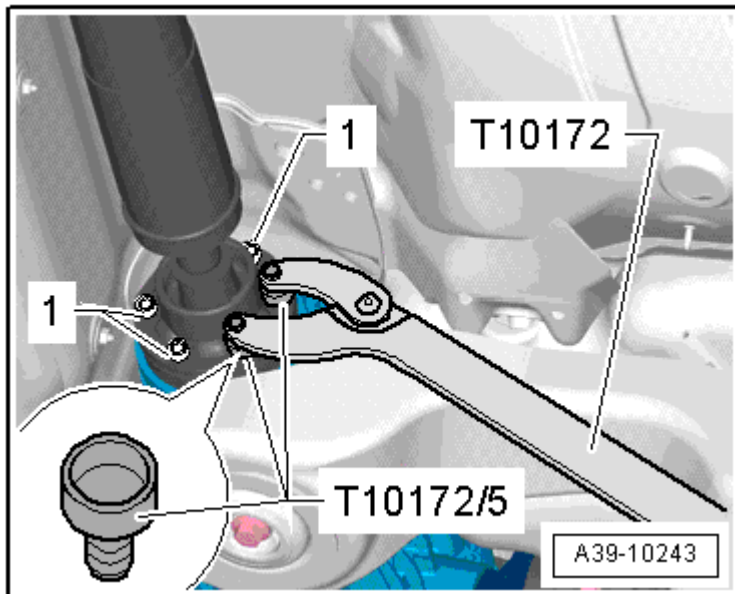


Fig. 72: Locating Driveshaft Bolts

Courtesy of AUDI OF AMERICA, LLC

- Counterhold using the T10172 and T10172/5.
- Remove the driveshaft from the rear final drive and lay it on the subframe.

Rear Final Drive 0BE

- Remove the bolts -1- (quantity: 6) from the rear CV joint.

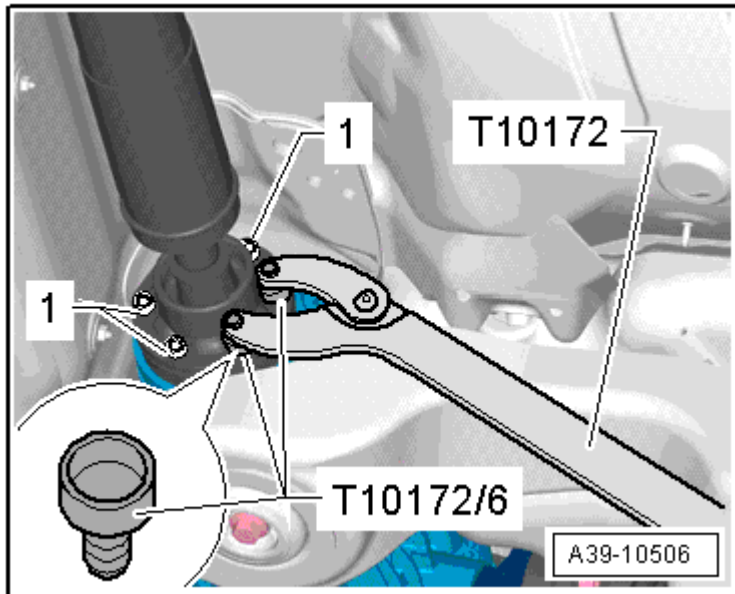


Fig. 73: Driveshaft Center Bearing Bolts
Courtesy of AUDI OF AMERICA, LLC

- Counter hold using the T10172 and T10172/6.
- Remove the driveshaft from the rear final drive and lay it on the subframe.

Attach the driveshaft to the rear final drive.

Install in reverse order of removal. Be sure to note the following:

- Remove any old or dried-up high temperature grease from the CV joint and the driveshaft flange. Fill with the exact same amount of high temperature grease G 000 633.
- Threaded holes in the flange shaft at rear final drive must be cleaned of locking compound residue. Use a thread cutter to clean the holes. Otherwise the bolts could break off when being installed.
- After disconnecting driveshaft from rear final drive, an additional balance washer (thick washer) that may be located between shim and a bolt may not be reinstalled.
- Always replace (self-locking) securing bolts for driveshaft.
- Check the driveshaft seal on the rear final drive for damage (bent or the rubber has started to peel)

Replace a damaged gasket.

-- Position the driveshaft on the rear final drive paying attention to the installed position:

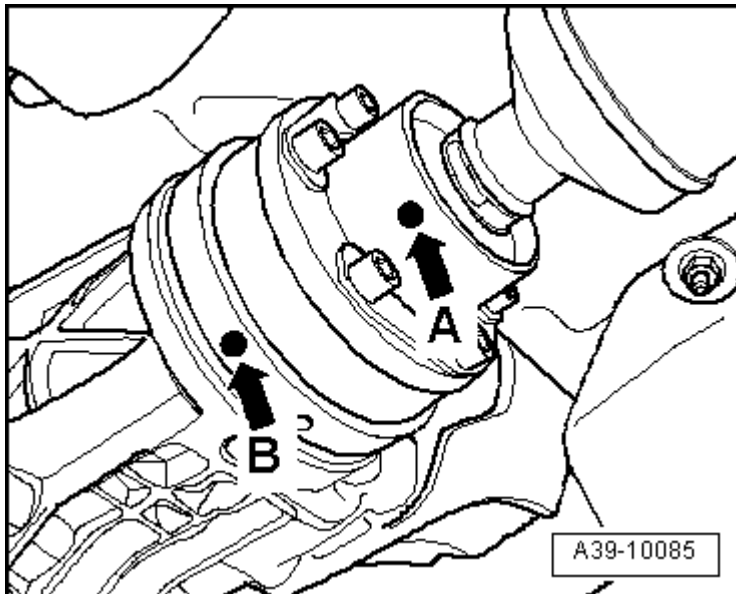


Fig. 74: Identifying Mark Position Of Driveshaft Flange To Rear Final Drive
Courtesy of AUDI OF AMERICA, LLC

- Die markings on the driveshaft -arrow A- and on the rear final drive -arrow B- must line up.
- Maximum difference between the markings: 30°.

-- Install and tighten the driveshaft bolts -1-. Follow the tightening sequence, refer to **Fig. 29**.

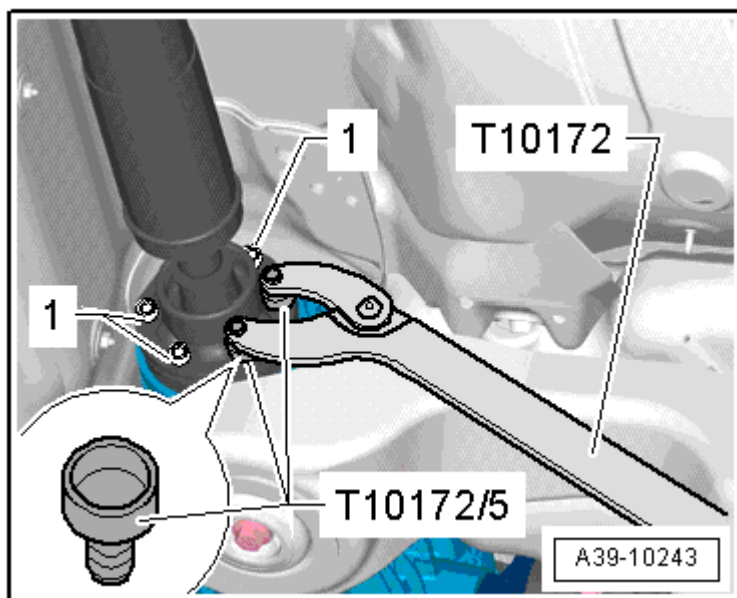


Fig. 75: Locating Driveshaft Bolts

Courtesy of AUDI OF AMERICA, LLC

-- Install rear section of the exhaust system. Refer to [For transmission(s) 0AW] [For engine(s) CALA] Description and Operation or to [For engine(s) CCBA] Description and Operation .

DRIVESHAFT ATTACHED ON TRANSMISSION SIDE

Special tools and workshop equipment required

- Transmission Support VW 785/1 B
- Counterhold Tool Touareg V10 T10172
- Adapter T10172/5
- Adapter T10172/6
- Hose Clamp Pliers V.A.G 1275
- High temperature grease G 000 633

Removing

NOTE: The attached driveshaft can only be removed from the transmission if it is removed completely.

Working on the driveshaft should only be performed with the vehicle on a two-column shop hoist.

Tie up or support the end of the shaft after disconnecting it from the rear final drive.

The driveshaft can be bent at the center joint without using force. A hard bending to the stop may cause damage to the center joint or dust boot.

Always hold the driveshaft horizontal when installing it or removing it from the transmission output shaft.

CAUTION: Danger of causing damage to the decoupling element.

- Never bend the decoupling element more than 10°.
- Never load the decoupling element.
- Do not damage the wire mesh on the decoupling element.

-- Loosen the clamping sleeves -1 and 2- and slide them to the rear.

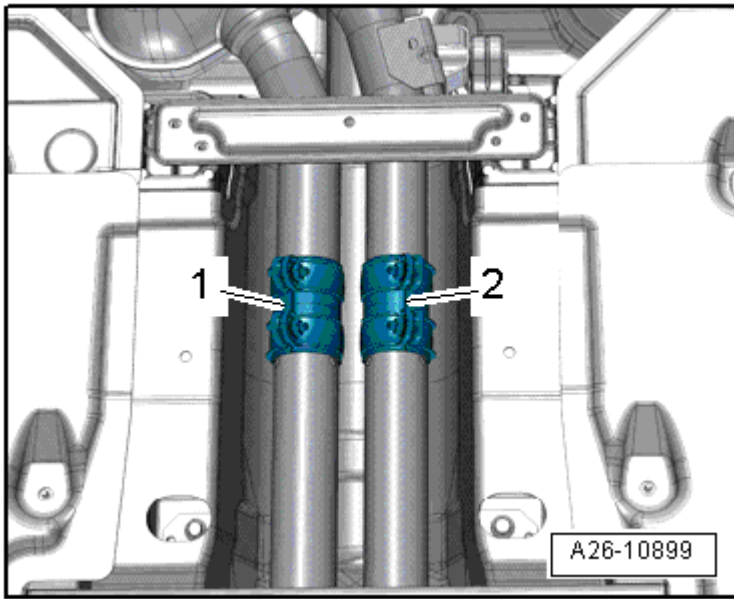


Fig. 76: Exhaust System Clamping Sleeves
Courtesy of AUDI OF AMERICA, LLC

- Attach the front muffler and/or left and right front exhaust pipe to the underbody.
- Remove the bolts -arrows- and remove the driveshaft heat shield -1-, if equipped.

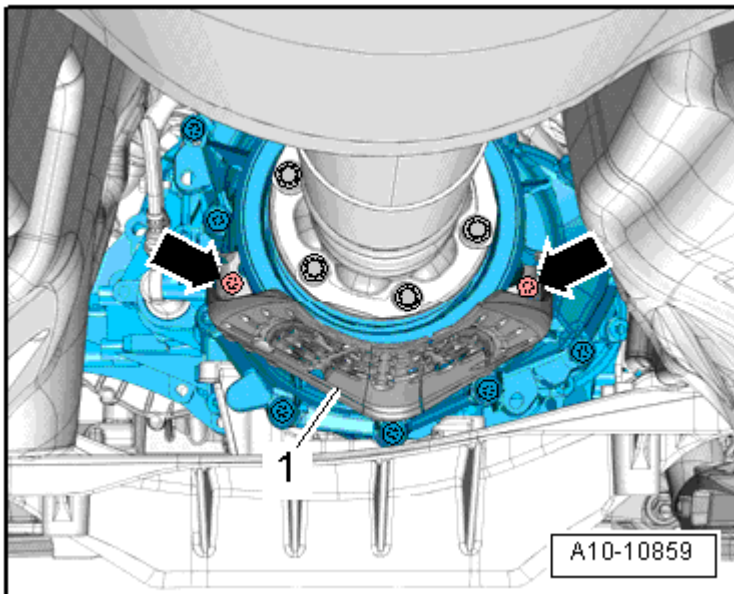


Fig. 77: Driveshaft Heat Shield - Tightening Specification
Courtesy of AUDI OF AMERICA, LLC

- Cut the hose clamp -1- for the driveshaft boot and remove it.

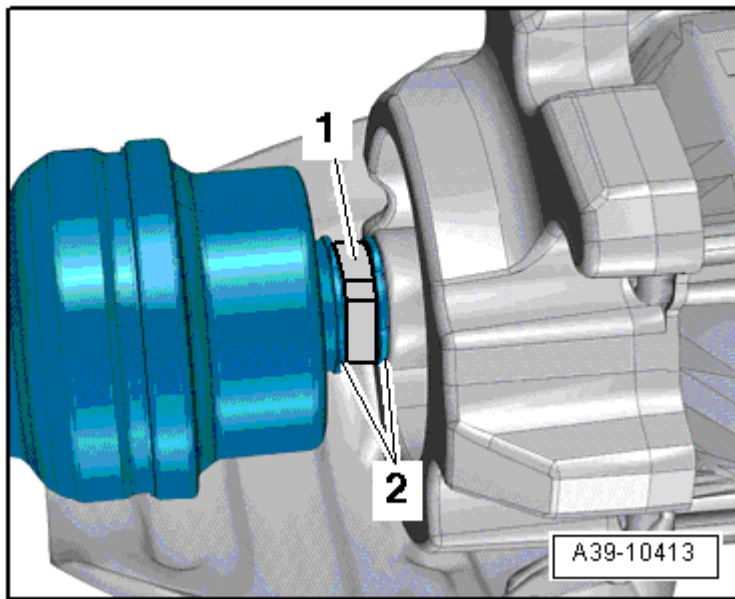


Fig. 78: Driveshaft Boot Hose Clamp
Courtesy of AUDI OF AMERICA, LLC

NOTE: Ignore -2-.

Audi A6 and Audi A7

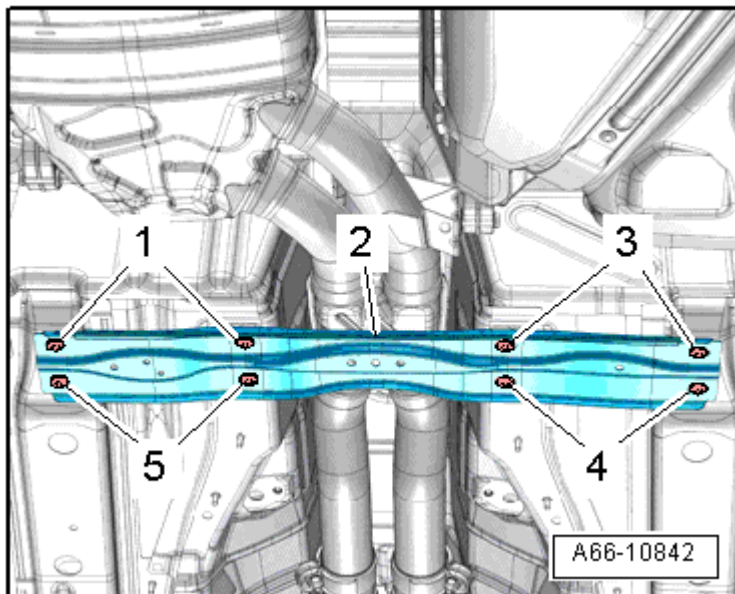


Fig. 79: Identifying Crossbrace
Courtesy of AUDI OF AMERICA, LLC

-- Remove the crossbrace -2-. Refer to "Heat Shields and Crossbraces" in **Exterior Equipment** .

Audi A4, Audi A5 Coupe, Audi A5 Cabriolet and Audi A8

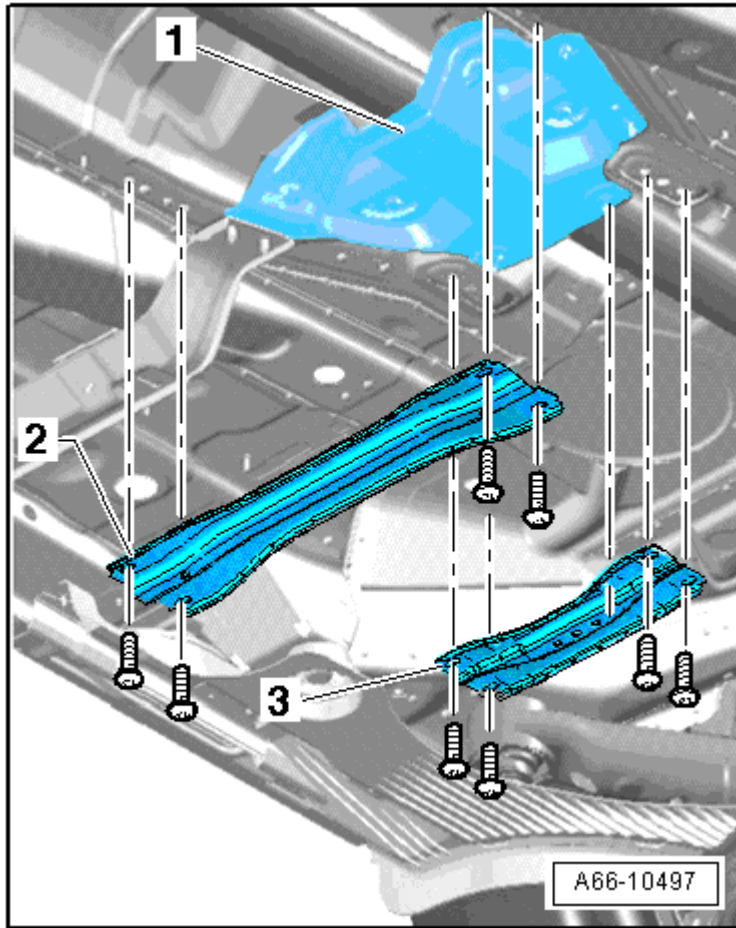


Fig. 80: Identifying Crossmember

Courtesy of AUDI OF AMERICA, LLC

-- Remove the front crossmember -2- and the rear crossmember -3-. Refer to "Underbody Trim" in **Description and Operation** .

Continuation for All Vehicles

-- Remove the heat shield -1-.

-- Lower the exhaust system rear section near the front and secure it using the VW 785/1 B as illustrated.

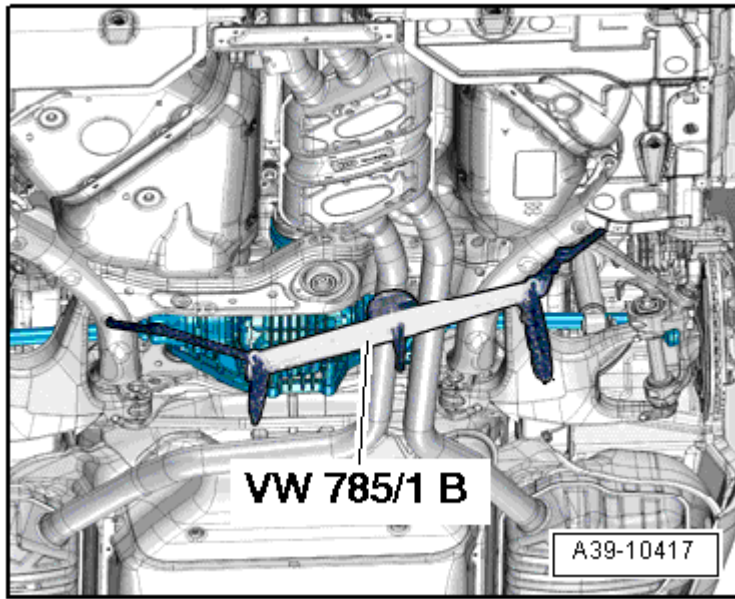


Fig. 81: VW 785/1 B

Courtesy of AUDI OF AMERICA, LLC

-- Check whether there is a marking (color marking) on driveshaft and at flange/driveshaft at rear final drive - arrow A- and -arrow B-.

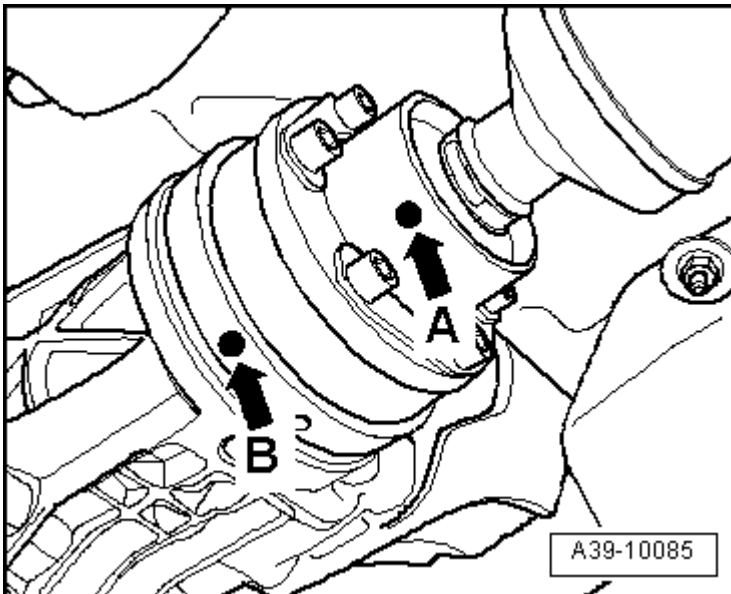


Fig. 82: Identifying Mark Position Of Driveshaft Flange To Rear Final Drive

Courtesy of AUDI OF AMERICA, LLC

-- If one of these markings is no longer visible, then make a new color marking.

- Die markings on the driveshaft -arrow A- and on the rear final drive -arrow B- must line up.

Rear Final Drive 0BF

-- Remove the bolts -1- (quantity: 6) from the rear CV joint.

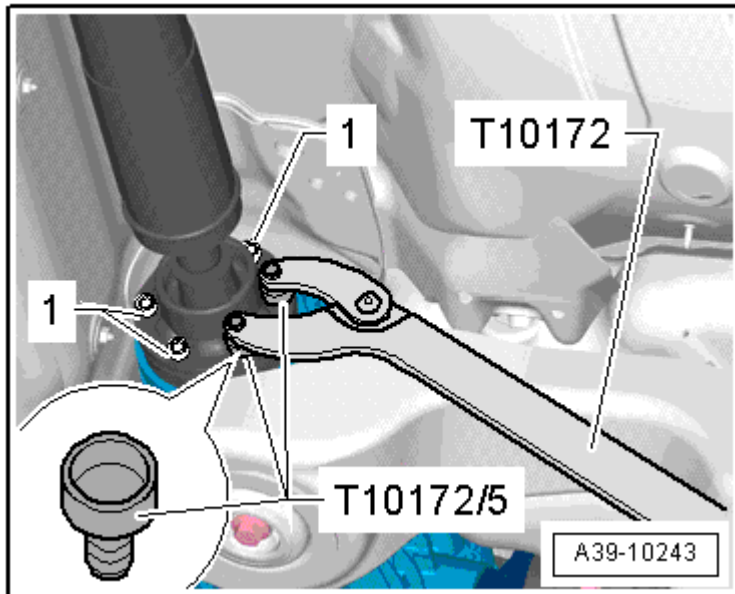


Fig. 83: Locating Driveshaft Bolts

Courtesy of AUDI OF AMERICA, LLC

-- Counter hold using the T10172 and T10172/5.

Rear Final Drive 0BE

-- Remove the bolts -1- (quantity: 6) from the rear CV joint.

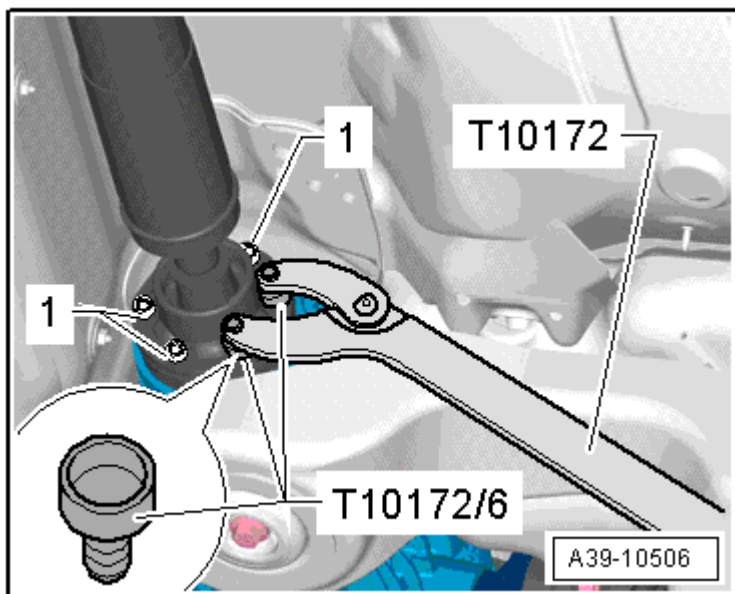


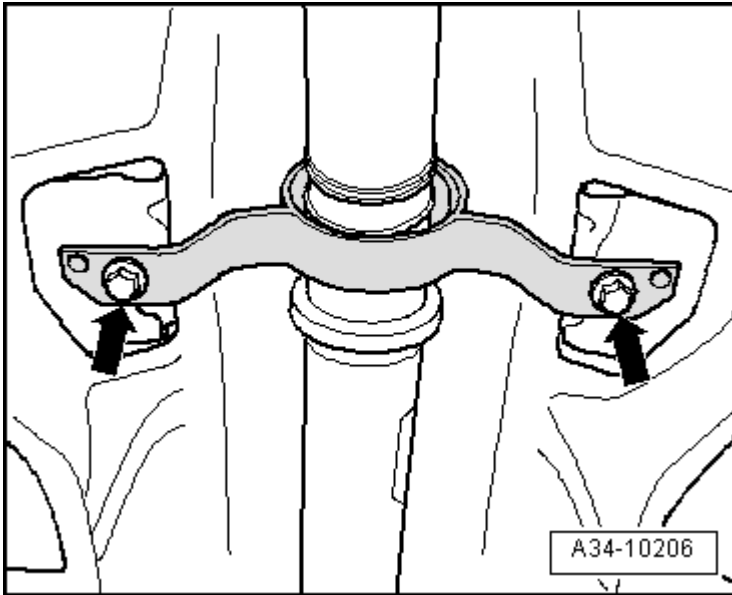
Fig. 84: Driveshaft Center Bearing Bolts

Courtesy of AUDI OF AMERICA, LLC

-- Counter hold using the T10172 and T10172/6.

Continuation for All Rear Final Drives

-- Remove the bolts -arrows- from the driveshaft center bearing.

**Fig. 85: Removing Mounting Bolts**

Courtesy of AUDI OF AMERICA, LLC

-- Lower the rear driveshaft at the fuel tank and at the subframe and remove it from the transmission.

Installing

- Tightening specifications, refer to **DRIVESHAFT MOUNTED ON TRANSMISSION-SIDE OVERVIEW** and **Fig. 30**.

NOTE: Remove old and dry high-temperature grease from CV joint and flange for driveshaft. Fill with the exact same amount of high temperature grease G 000 633.

Threaded holes in flange shaft at rear final drive must be cleaned of locking compound residue (not M10 bolts). Use a thread cutter to clean the holes. Otherwise the bolts could break off when being installed.

Replace the driveshaft bolts.

Replace the clamp -1- for the driveshaft rubber boot -2-.

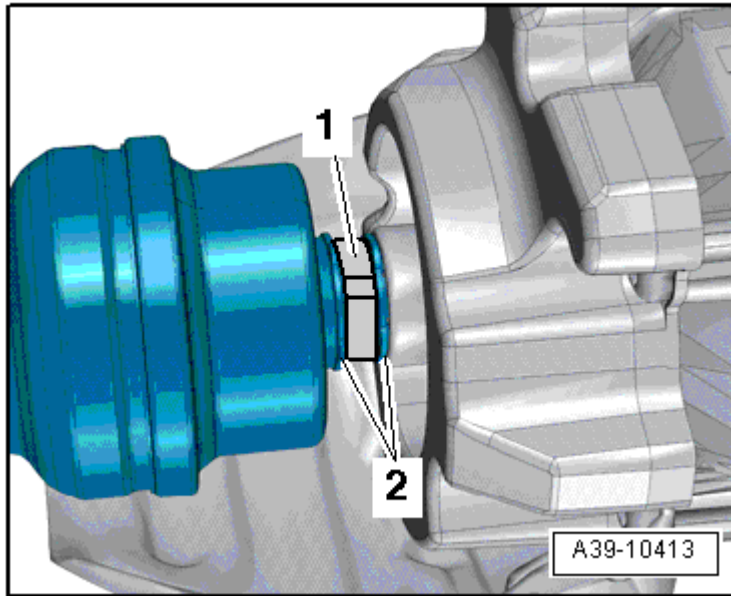


Fig. 86: Driveshaft Boot Hose Clamp
Courtesy of AUDI OF AMERICA, LLC

Check the driveshaft seal on the rear final drive for damage (bent or the rubber has started to peel) Replace a damaged gasket.

Wipe off the splines on the transmission output shaft with a towel before attaching it to the driveshaft. Do not grease the splines.

-- First attach the driveshaft to the transmission.

- Maximum bend angle: 10°.
- After installing the driveshaft approximately 50 mm onto the transmission output shaft, turn the driveshaft slightly to make sure the splines on the transmission output shaft mesh with the splines on the driveshaft.
- Push the driveshaft all the way onto the splines on the transmission output shaft.

-- Install the bolts -arrows- just far enough so that the intermediate bearing can still be moved.

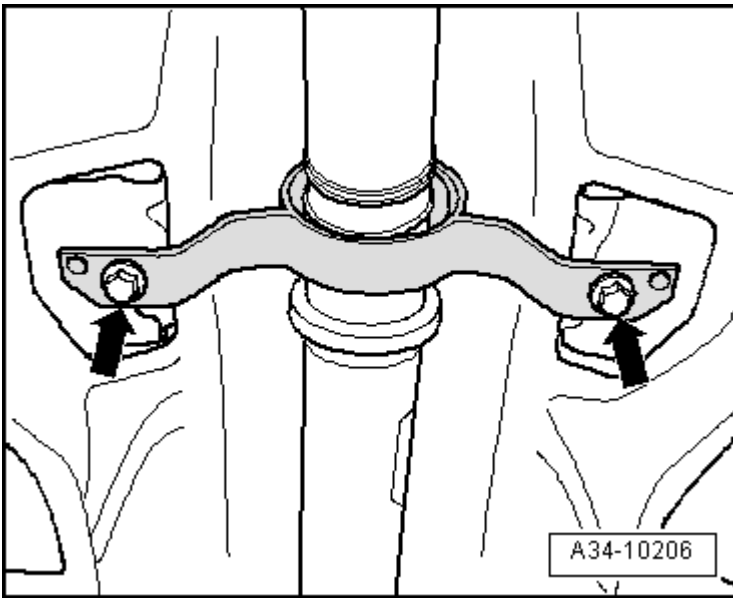


Fig. 87: Removing Mounting Bolts

Courtesy of AUDI OF AMERICA, LLC

-- Position the driveshaft on the rear final drive paying attention to the installed position:

- Die markings on the driveshaft -arrow A- and on the rear final drive -arrow B- must line up.

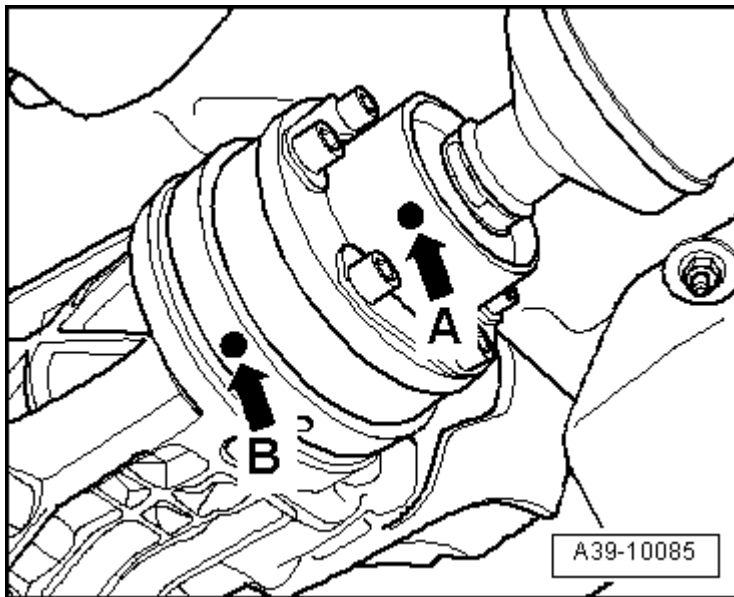


Fig. 88: Identifying Mark Position Of Driveshaft Flange To Rear Final Drive

Courtesy of AUDI OF AMERICA, LLC

- Maximum difference between the markings: 30°.

-- Install the bolts all the way in by hand but do not tighten them.

-- Align the clamp -1- for the driveshaft boot with the mounting points -2- and then tighten is using V.A.G 1275.

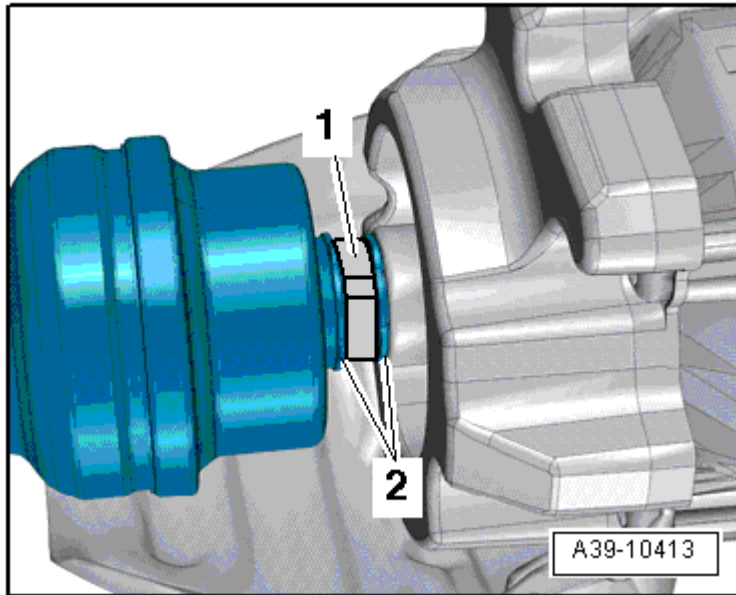


Fig. 89: Driveshaft Boot Hose Clamp
Courtesy of AUDI OF AMERICA, LLC

NOTE: Pushing the driveshaft back just a little makes it easier to install the V.A.G 1275 correctly.

-- Tighten the driveshaft bolts -1-. Follow the tightening sequence, refer to **Fig. 29**.

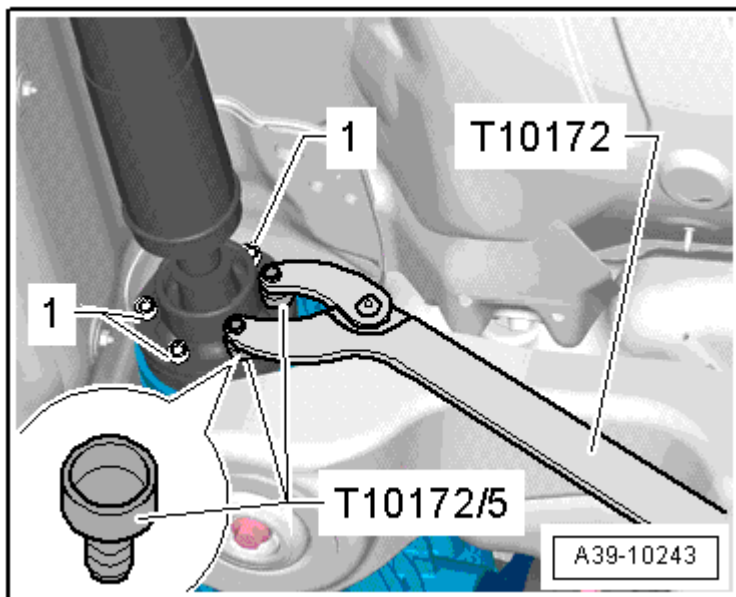


Fig. 90: Locating Driveshaft Bolts

Courtesy of AUDI OF AMERICA, LLC

-- Attach the driveshaft center bearing to the body making sure it is free of tension. Tightening specification, refer to item 9 in **Fig. 28**.

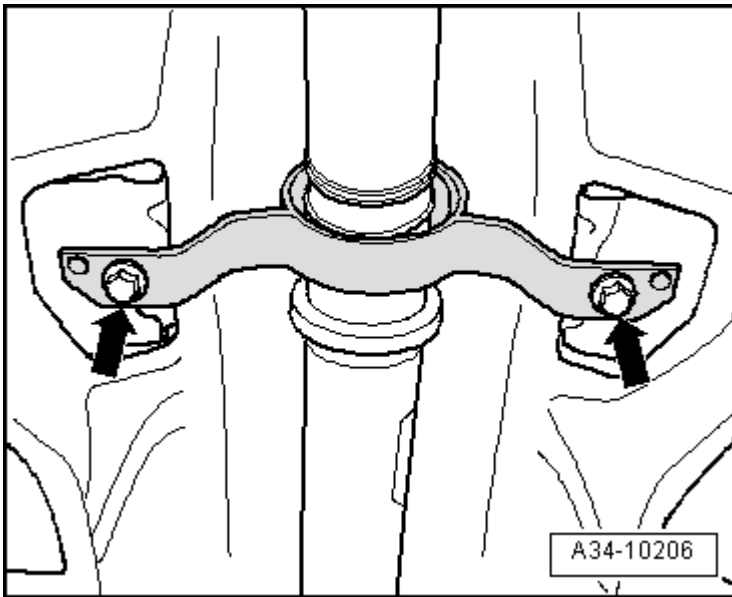


Fig. 91: Removing Mounting Bolts

Courtesy of AUDI OF AMERICA, LLC

Install in reverse order of removal. Be sure to note the following:

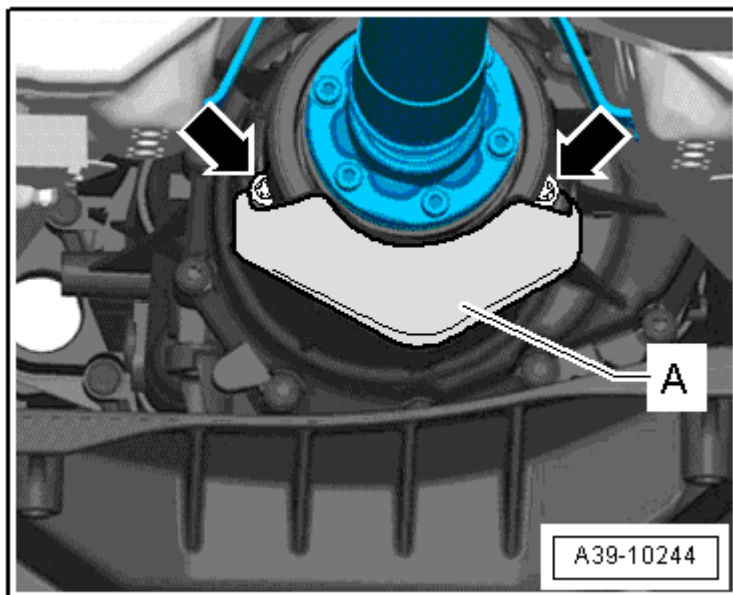


Fig. 92: Transmission Heat Shield

Courtesy of AUDI OF AMERICA, LLC

-- Attach the heat shield -A- (if equipped) to the transmission -arrows-. Tightening specification, refer to **Fig. 30**.

-- Install the heat shield -1-. Refer to **Removal and Installation** .

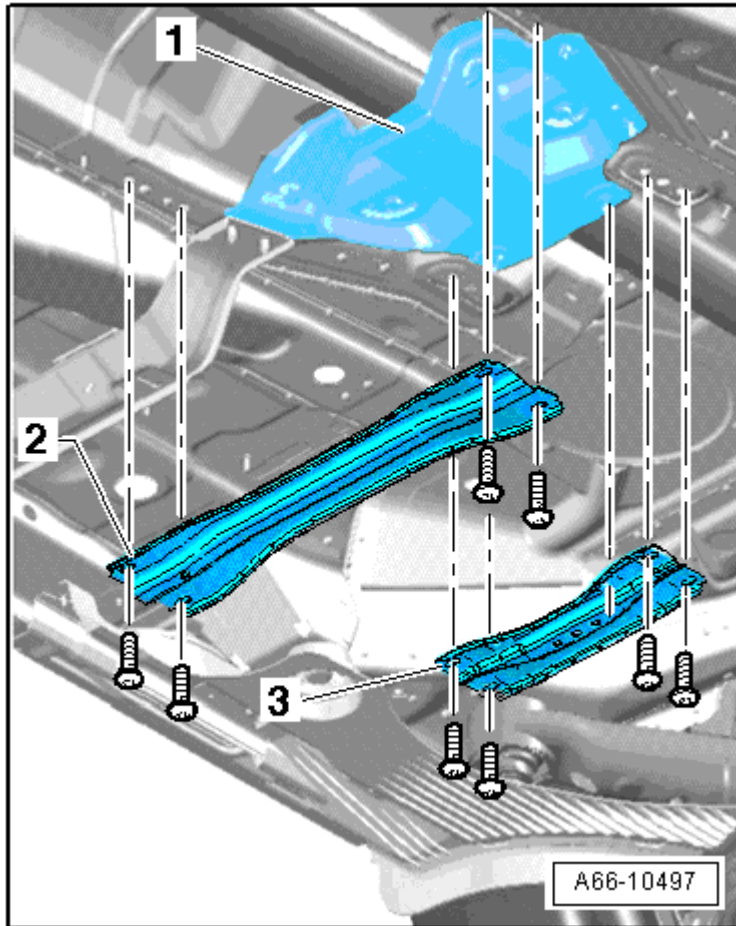


Fig. 93: Identifying Crossmember

Courtesy of AUDI OF AMERICA, LLC

-- Remove the front -2- and rear -3- crossmembers, if equipped. Refer to **Description and Operation** .

-- Install the exhaust system and adjust it so that it is free of tension. Refer to **[For transmission(s) 0AW] [For engine(s) CALA] Description and Operation** or to **[For engine(s) CCBA] Description and Operation** .

HYDRAULIC CONTROL UNIT

NOTE: Observe general repair notes, refer to **REPAIR INFORMATION** .

Follow all safety precautions. Refer to **SAFETY PRECAUTIONS AND TEST PROCEDURES** .

Removing

- Turn off the ignition.

-- Place the vehicle on a hoist.

-- Slightly lower the rear section of the exhaust system and secure it, or if necessary, remove it. Refer to [For transmission(s) 0AW] [For engine(s) CALA] Description and Operation or to [For engine(s) CCBA] Description and Operation .

NOTE: A second technician will be needed to help remove the rear section of the exhaust system.

-- Remove the bolts -arrows- and remove the wiring harness bracket -1- from the rear final drive..

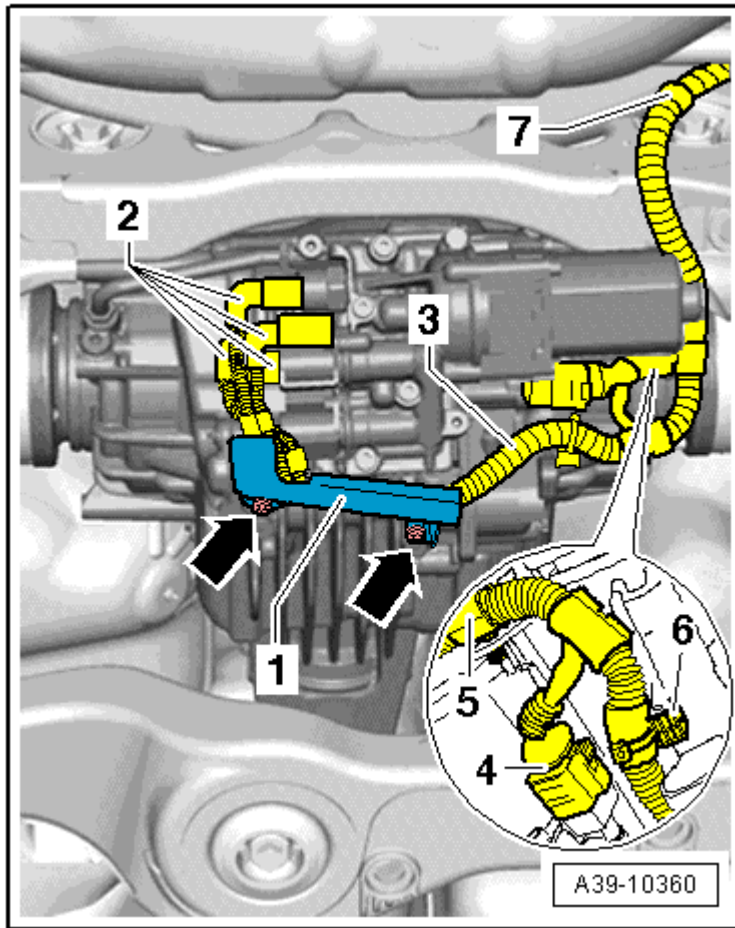


Fig. 94: Rear Final Drive Wiring Harness Bracket
Courtesy of AUDI OF AMERICA, LLC

NOTE: Mark the connectors -2- for the oil pressure/temperature sensor -- and on the clutch valves --.

-- Mark the connectors -2- on the oil pressure/temperature sensors -- and on the clutch valves --.

- Disconnect the connector -4- from the all wheel drive (AWD) pump -V415-.
- Unclip the wiring harness -3- from the final drive and the subframe -5 through 7- and tie it up.
- Place the drip tray under the rear final drive.
- Drain the ATF. Refer to **ATF IN REAR FINAL DRIVE 0BF AND 0BE, DRAINING**.
- Drain the gear oil. Refer to **GEAR OIL IN REAR FINAL DRIVE 0BF AND 0BE, DRAINING**.
- Remove the AWD pump. Refer to **PUMP**.

NOTE: Remove the AWD pump in order to loosen and tighten the nut for the right pipe on the hydraulic control unit **Fig. 95**.

- Loosen the left -6- and right -7- pipes on the hydraulic control unit -1- one turn -arrows A- and then remove them from the chambers -arrows B-.

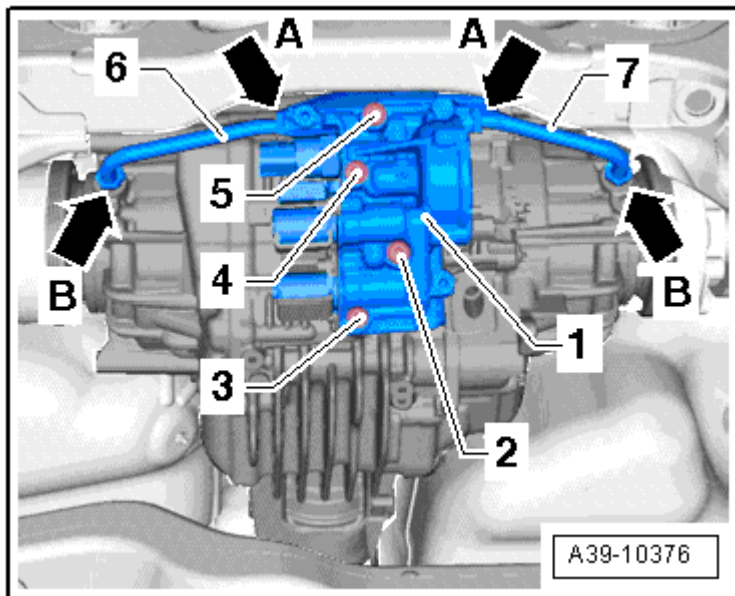


Fig. 95: Identifying Hydraulic Control Unit
 Courtesy of AUDI OF AMERICA, LLC

- Remove the bolts -2 through 5- and remove the hydraulic control unit -1- with the seal.

Installing

NOTE: Always follow the safety precautions when replacing the hydraulic control unit. Install the "old" sensors again if possible. Refer to **SAFETY PRECAUTIONS AND TEST PROCEDURES**.

Conditions:

- Replace the seal between the hydraulic control unit -1- and the final drive housing.

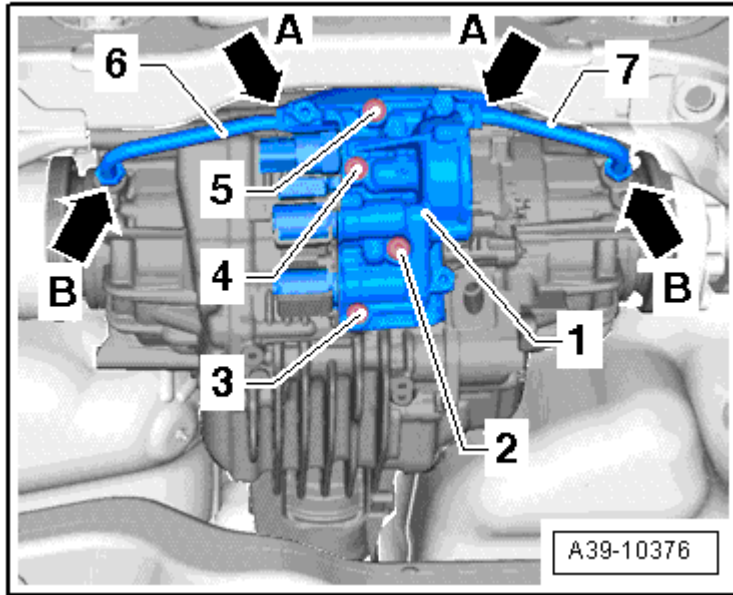


Fig. 96: Identifying Hydraulic Control Unit
 Courtesy of AUDI OF AMERICA, LLC

- The centering pins, refer to item 18 in **Fig. 167** must be installed inside the hydraulic control unit.
- The left -6- and right -7- pipes must installed loosely inside the control unit when attaching the hydraulic control unit -1- to the rear final drive.

Attach the hydraulic control unit -1- to the rear final drive as follows:

First install the pipes -6 and 7- into the chambers hand-tight -arrows B-.

Install the bolts -2 through 5- hand-tight. The bolt -2- has permanent seal on the bolt head. Coat the thread on this bolt with sealing compound D 176 501 A1.

Then tighten the bolts -2 through 5- to the tightening specification in the following sequence: -4-, -2-, -5- and -3- (M8 x 30 mm).

Tighten the nuts -arrows A- and -arrows B- on the left -6- and right -7- pipes to the tightening specification.

-- Install the AWD pump. Refer to **PUMP**.

-- Install the wiring harness -3- on the final drive and subframe -5 through 7-.

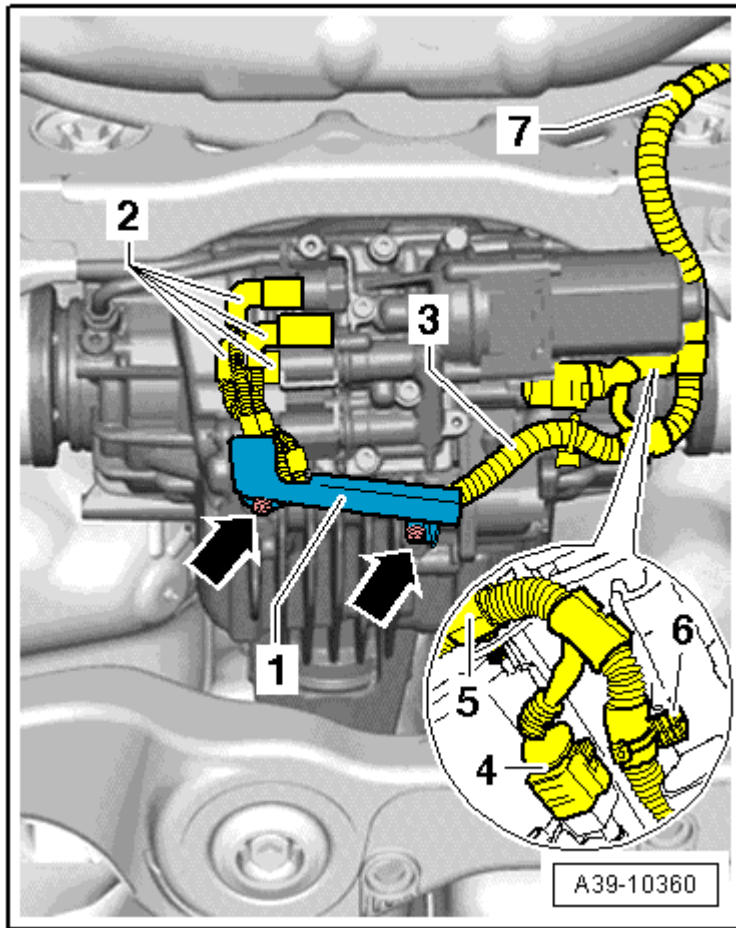


Fig. 97: Rear Final Drive Wiring Harness Bracket

Courtesy of AUDI OF AMERICA, LLC

-- Connect the connectors -4 and 2- using the markings made earlier when oil pressure/temperature sensor -- and the clutch valve -- were removed.

-- If equipped, hold the wiring harness bracket -1- on the rear final drive and then tighten the bolts -arrows- to the tightening specification. Be careful not to pinch the wiring harness -3-.

NOTE: Connector allocation for the oil pressure/temperature sensor -- and the clutch valves -- :

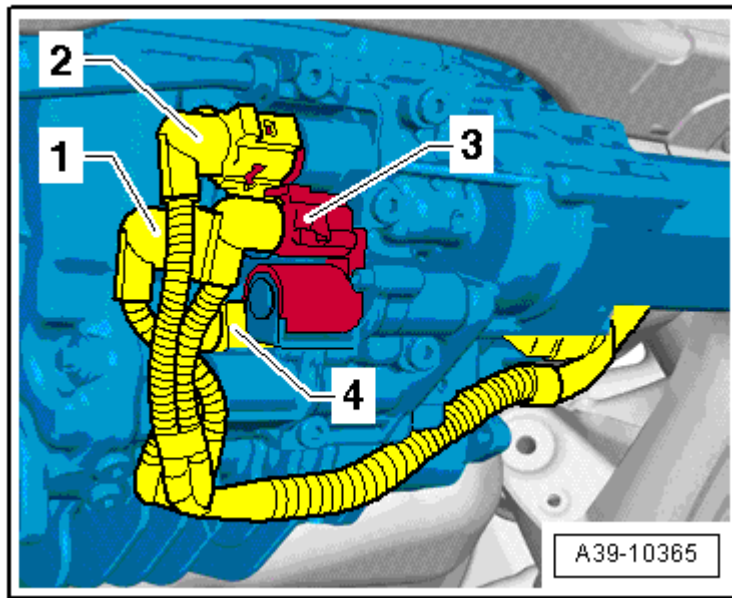


Fig. 98: Oil Pressure/Temperature Sensor Connector
Courtesy of AUDI OF AMERICA, LLC

-1- = oil pressure/temperature sensor 2 -G640- connector

-2- = oil pressure/temperature sensor -G437- connector

-3- = AWD clutch valve 2 -N446- connector

-4- = AWD clutch valve -N445- connector

-- Fill the gear oil in the rear final drive and check the level. Refer to **GEAR OIL LEVEL IN REAR FINAL DRIVE 0BF AND 0BE, CHECKING.**

-- Fill the ATF in the rear final drive and check the level. Refer to **ATF LEVEL IN REAR FINAL DRIVE 0BF AND 0BE, CHECKING.**

-- Install and adjust rear section of exhaust system free of stress. Refer to **[For transmission(s) 0AW] [For engine(s) CALA] Description and Operation** or to **[For engine(s) CCBA] Description and Operation** .

OIL PRESSURE/TEMPERATURE SENSOR -G437- OR OIL PRESSURE/TEMPERATURE SENSOR 2 -G640-

Special tools and workshop equipment required

- Socket 27 mm T40218
- Vehicle Diagnostic Tester
- Drip Tray

Important Safety Precautions:

- The sensor identity must be adapted in the All Wheel Drive (AWD) control module -J492- see vehicle diagnostic tester after replacing the oil pressure/temperature sensor -- or oil pressure/temperature sensor 2 --.
- The oil pressure/temperature sensor -- and oil pressure/temperature sensor 2 -- should not be replaced together at the same time because a valid sensor identity is needed for the allocation of the rear final drive AWD control module. The AWD control module would interpret the changing of both sensors at the same time as if the rear final drive was replaced. This will erase all adaptation values stored in the control module and will impair the performance of the rear final drive.
- If both the oil pressure/temperature sensor -- and oil pressure/temperature sensor 2 -- must be replaced due to mechanical damage, then this must be performed in two steps. After replacing the first sensor, the AWD control module must be reprogrammed with its identity see vehicle diagnostic tester. Then the same applies to the second sensor.
- If both the oil pressure/temperature sensor -- and oil pressure/temperature sensor 2 -- have to be replaced at the same time due to an electrical malfunction, then the AWD control module must be programmed with the new clutch classification see vehicle diagnostic tester. The ATF in the rear final drive must also be replaced. Refer to **ATF IN REAR FINAL DRIVE 0BF AND 0BE, DRAINING**.

NOTE: Observe general repair notes, refer to **REPAIR INFORMATION** .

Follow all Safety Precautions, refer to **SAFETY PRECAUTIONS AND TEST PROCEDURES .**

Removing

- Turn off the ignition.
- Place the vehicle on a hoist.
- Slightly lower the rear section of the exhaust system and secure it.
- Remove the wiring harness bracket from the rear final drive if necessary **Fig. 94**.
- Disconnect the connector -1- from the oil pressure/temperature sensor 2 -- or the connector -2- from the oil pressure/temperature sensor --.

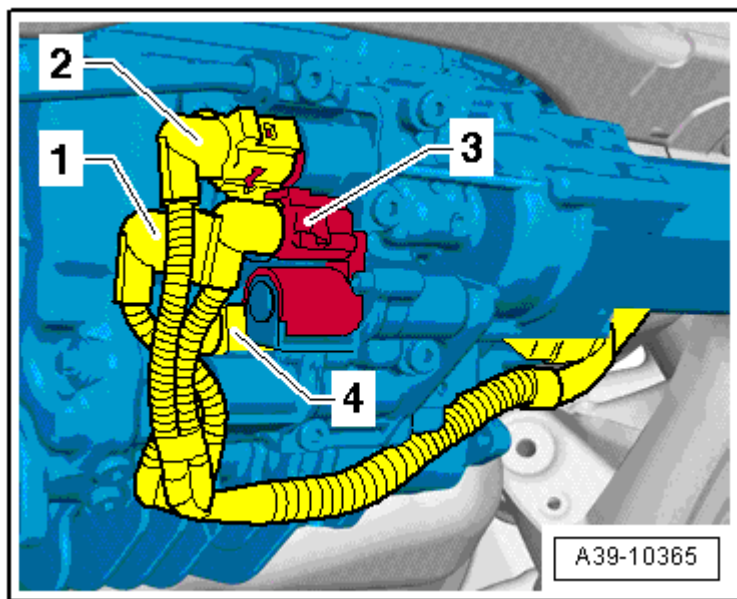


Fig. 99: Oil Pressure/Temperature Sensor Connector
Courtesy of AUDI OF AMERICA, LLC

NOTE: **Disconnect the connectors -3 and 4- if necessary.**

- Place the drip tray under the rear final drive.
- Remove each sensor -- using the T40218.

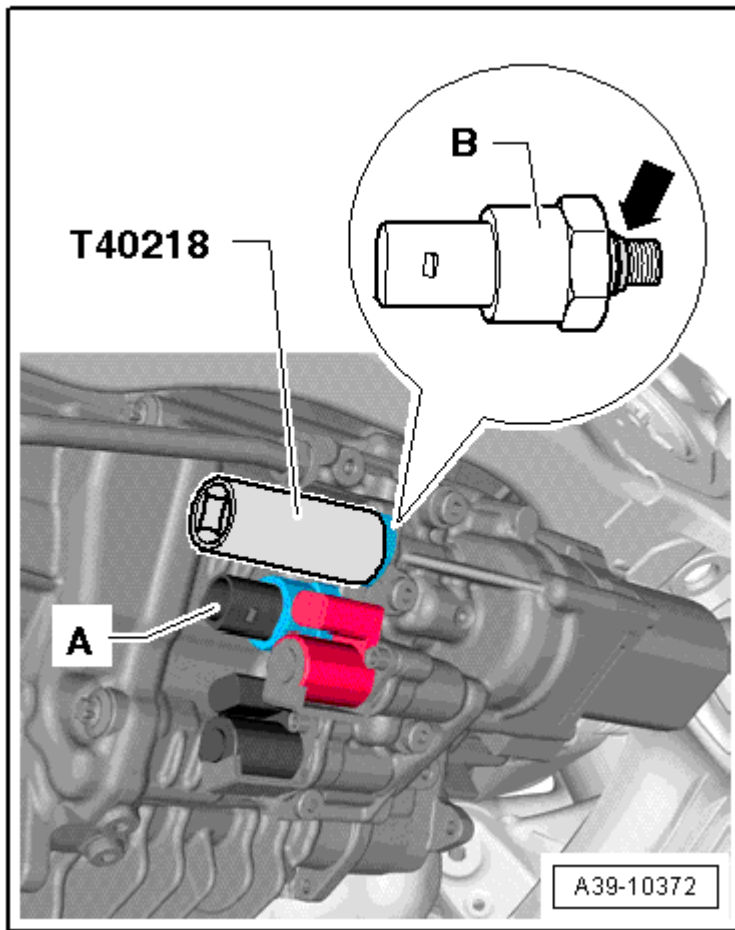


Fig. 100: Oil Pressure Temperature Sensors

Courtesy of AUDI OF AMERICA, LLC

-A- = Oil pressure/temperature sensor 2 -- - black connector

-B- = Oil pressure/temperature sensor -- - brown connector

Installing

-- Carefully install the new sensor -- with a new O-ring -arrow- and then tighten it to the tightening specification, refer to item 9 in **Fig. 167** or item 10 in **Fig. 167**.

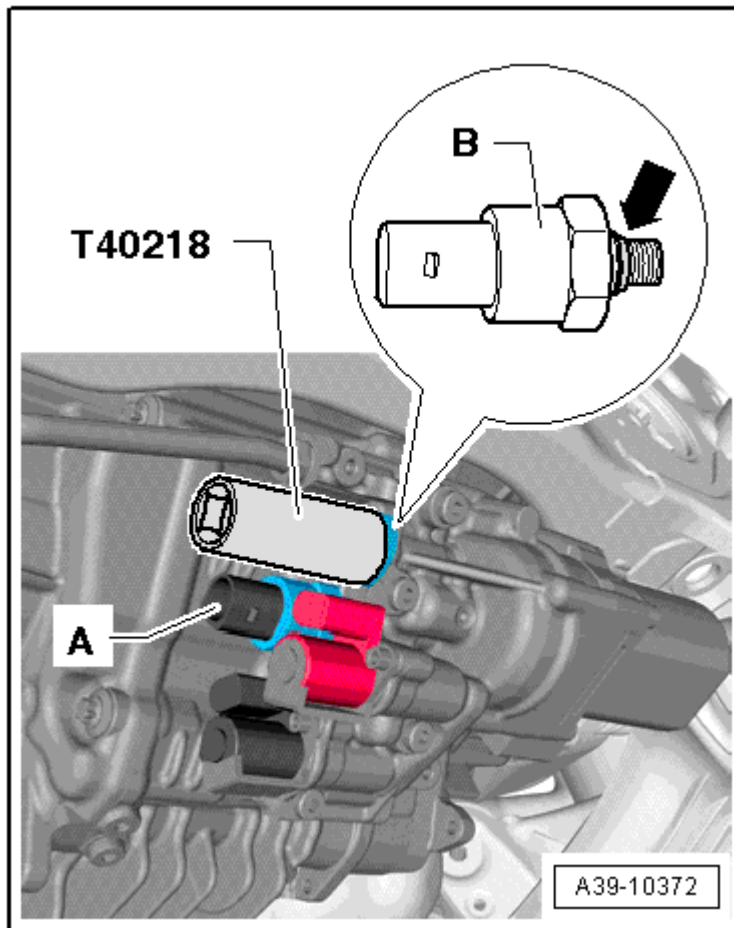


Fig. 101: Oil Pressure Temperature Sensors

Courtesy of AUDI OF AMERICA, LLC

-A- = Oil pressure/temperature sensor 2 -- - black connector

-B- = Oil pressure/temperature sensor -- - brown connector

-- Connect the connector -1- to the oil pressure/temperature sensor 2 -- or the connector -2- to the oil pressure/temperature sensor --.

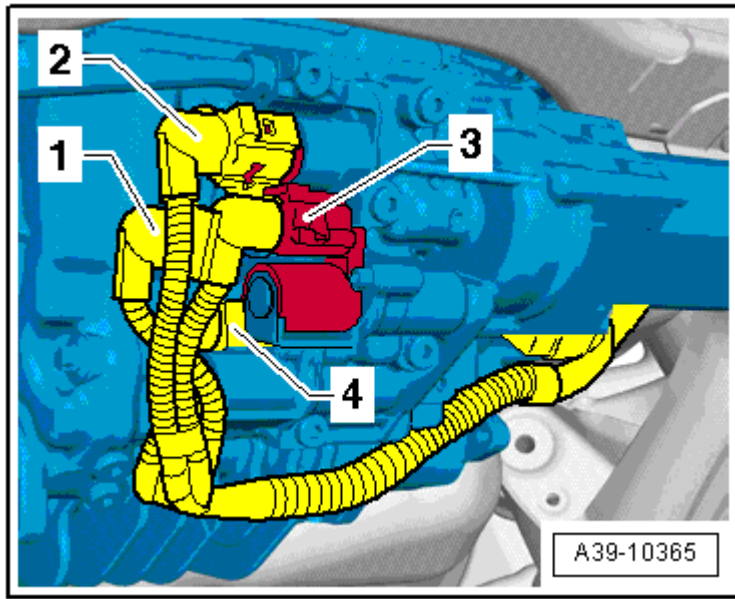


Fig. 102: Oil Pressure/Temperature Sensor Connector
 Courtesy of AUDI OF AMERICA, LLC

NOTE: Connect the connectors -3 and 4- if they were disconnected earlier.

- Attach the wiring harness bracket to the rear final drive, if it was removed earlier **Fig. 116**.
- Connect the vehicle diagnostic tester and turn on the ignition.
- Select **22 - Adapt Sensor** in the vehicle diagnostic tester under **Guided Functions** in directory **22 - AWD Electronics**
 - Follow all the instructions in the vehicle diagnostic tester exactly.

Using the vehicle diagnostic tester, "adapt" the new sensor to the AWD control module.

NOTE: A system check takes places after **22 - Adapt Sensor** finishes. Use "Guided Fault Finding" to correct any malfunctions that may have been detected.

- Fill the ATF in the rear final drive. Refer to **ATF IN REAR FINAL DRIVE 0BF AND 0BE, FILLING**.
- Install the rear section of the exhaust system free of tension. Refer to **[For transmission(s) 0AW] [For engine(s) CALA] Description and Operation** or to **[For engine(s) CCBA] Description and Operation** .

REAR FINAL DRIVE

Observe general repair notes, refer to **REPAIR INFORMATION** .

Follow all safety precautions, refer to **SAFETY PRECAUTIONS AND TEST PROCEDURES** .

Special tools and workshop equipment required

- Engine-Gearbox Jack V.A.G 1383 A With Universal Transmission Support V.A.G 1359/2
- Tensioning Strap T10038
- Counterhold Tool Touareg V10 T10172 And Adapters T10172/5
- Support Arm Bearing Inst. Tool 3346
- Nut 3346/3
- Assembly Tool 3301

Removing

-- Place the vehicle on a hoist.

-- Remove the hub cap from the left rear wheel. On a light alloy wheels, remove cover cap (removal hook in vehicle tool kit).

-- Remove rear wheels.

NOTE: Do not bend the decoupling element in the front exhaust pipe more than 10°, otherwise it will get damaged.

-- Loosen the clamping sleeves -1 and 2- and separate the exhaust system.

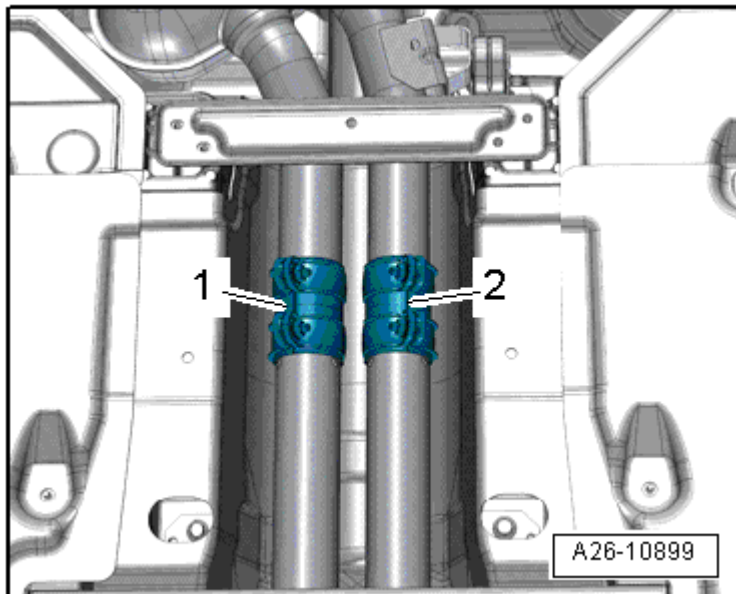


Fig. 103: Exhaust System Clamping Sleeves
Courtesy of AUDI OF AMERICA, LLC

-- Tie the front exhaust pipes to the underbody.

-- Remove the rear crossbrace -1-, if equipped. Refer to "Heat Shields and Crossbraces" in **Removal and Installation** .

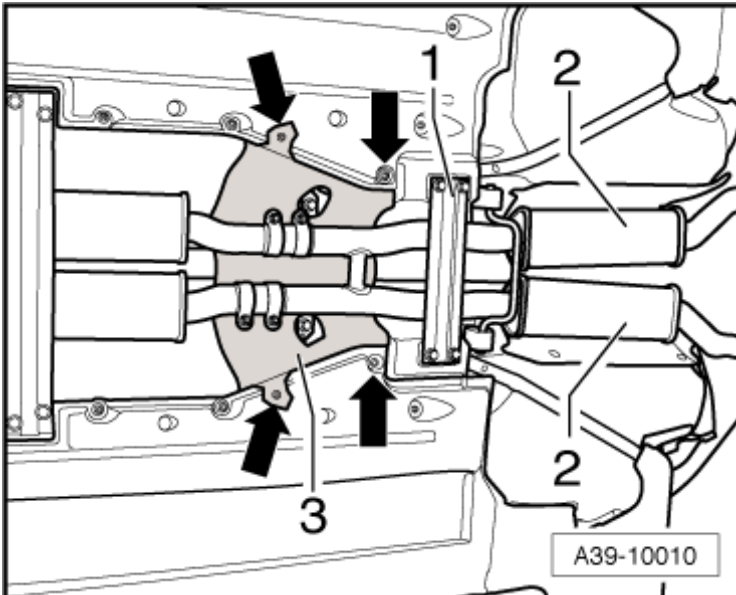


Fig. 104: Removing Rear Transverse Beam & Heat Shield From Vehicle Floor
Courtesy of AUDI OF AMERICA, LLC

-- Install rear section of the exhaust system -2-. Refer to **[For transmission(s) 0AW] [For engine(s) CALA] Description and Operation** or to **[For engine(s) CCBA] Description and Operation** .

NOTE: **A second technician will be needed to help remove the rear section of the exhaust system.**

-- Remove the driveshaft. Refer to **DRIVESHAFT BOLTED ON TRANSMISSION SIDE**.

-- Remove the left drive axle heat shield -A- from the rear final drive -arrows-.

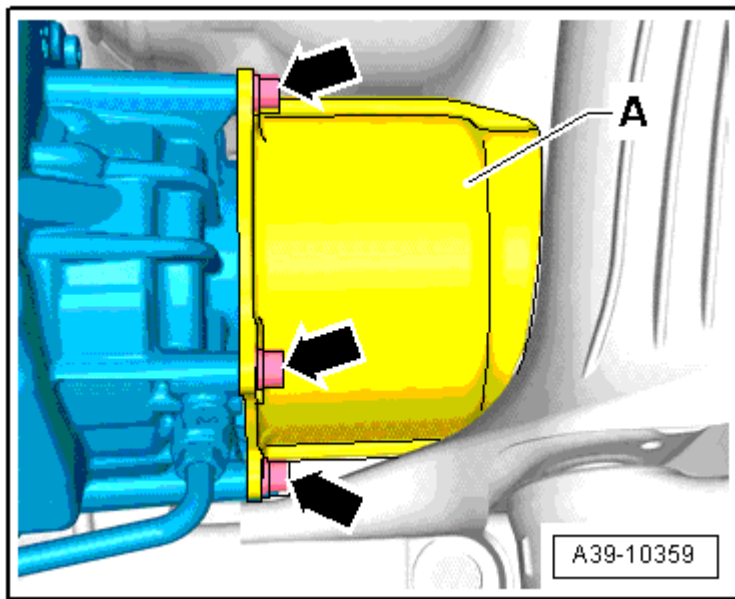


Fig. 105: Left Drive Axle Heat Shield

Courtesy of AUDI OF AMERICA, LLC

-- Remove the bolts -arrows- and remove the bracket -1- from the rear final drive.

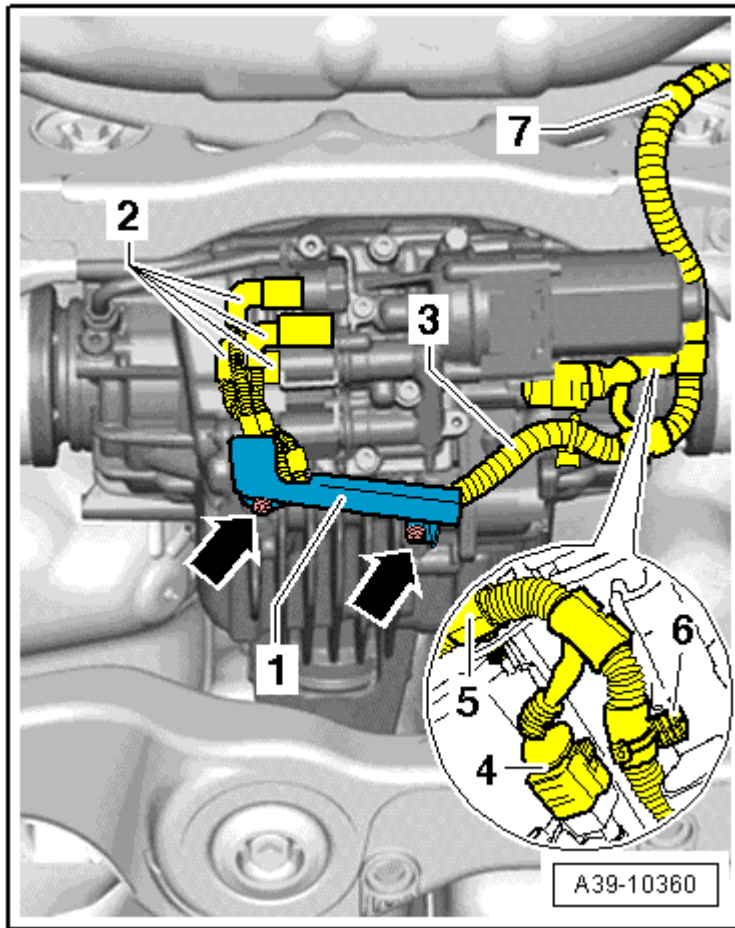


Fig. 106: Rear Final Drive Wiring Harness Bracket
 Courtesy of AUDI OF AMERICA, LLC

NOTE: Mark the connectors -2- for the oil pressure/temperature sensor -- and on the clutch valves --.

- Mark the connectors -2- on the oil pressure/temperature sensor -- and on the clutch valves --.
- Disconnect the connector -4- from the All Wheel Drive (AWD) pump -V415-.
- Unclip the wiring harness -3- from the final drive and the subframe -5 through 7- and tie it up.
- Remove the left -1- and right -3- from the final drive.

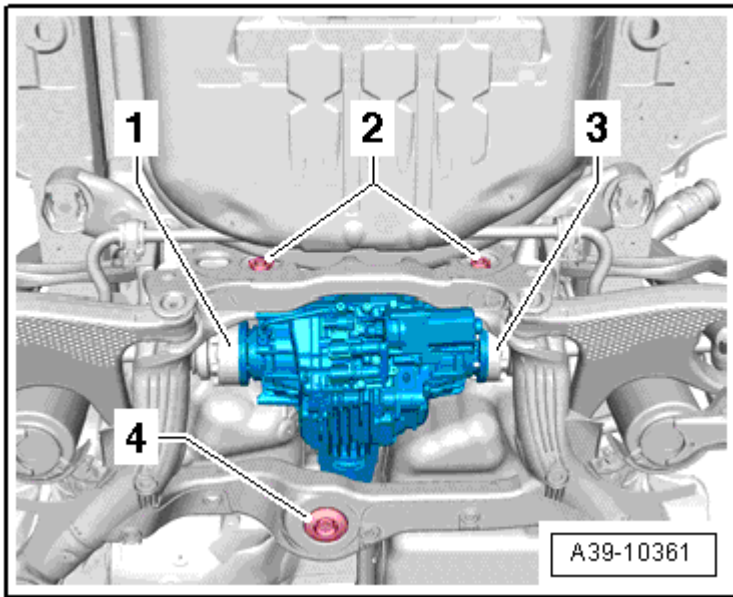


Fig. 107: Locating Rear Subframe Bolts
Courtesy of AUDI OF AMERICA, LLC

-- Loosen the bolts -2- approximately 3 turns..

-- Remove the bolt -4-.

Lower the subframe -1- at the rear as follows:

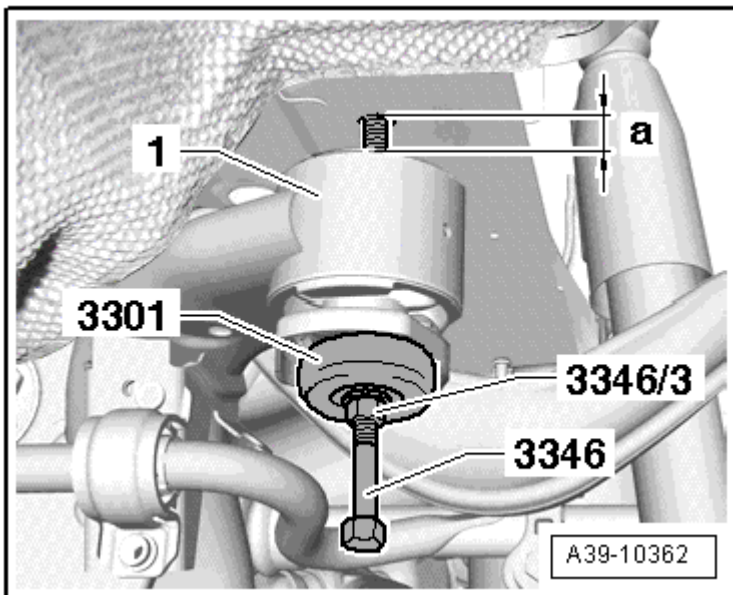


Fig. 108: Identifying Right Rear Subframe Bolt
Courtesy of AUDI OF AMERICA, LLC

-- Remove the right rear bolt connecting the subframe to the body.

- Attach the 3346 with the 3346/3 and the bracket from the 3301 into this threaded hole.
- Remove the left rear bolt connecting the subframe to the body.
- Lower the subframe to dimension -a- = 40 mm. Counter hold the 3346 and turn the 3346/3 counter-clockwise.
- Position the V.A.G 1383 A with the V.A.G 1359/2 and a suitable rubber or hard foam mat -A- under the rear final drive.

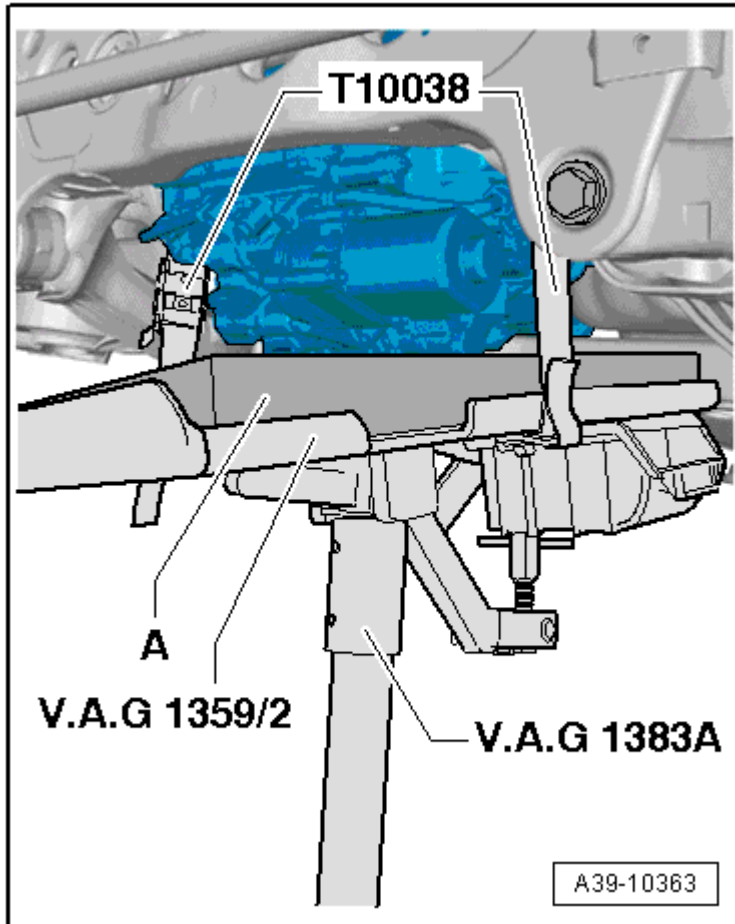


Fig. 109: V.A.G 1383/ V.A.G 1359/2
Courtesy of AUDI OF AMERICA, LLC

CAUTION: The rubber or hard foam mat is needed to prevent damaging the clutch valves -- on the rear final drive.

Use the T10038 to hold the rear final drive from falling down.

- Remove the two back bolts that connect the rear final drive to the subframe, refer to **Fig. 107**.
- A second technician will be needed to continue removing the rear final drive.

-- The second technician must now push the rear final drive toward the right side of the vehicle in direction of the -arrow-.

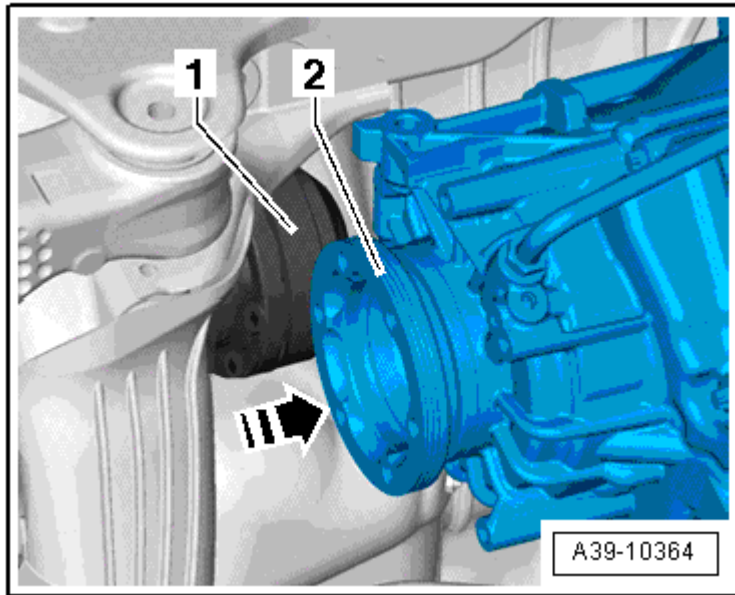


Fig. 110: Identifying Left Drive Axle & Final Drive Flange Shaft
Courtesy of AUDI OF AMERICA, LLC

- Guide the left drive axle -1- upward and out of the final drive flange shaft -2-.
- Remove the right drive axle and angle the final drive downward.
- Carefully lower the final drive together with the second technician. Pay attention to the subframe.

WARNING:

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

Installing

Install in reverse order of removal. Be sure to note the following:

WARNING: Rear final drive malfunctions!

There is additional work if the rear final drive was replaced. Refer to REAR FINAL DRIVE, ADDITIONAL WORK AFTER REPLACING.

- Carefully raise the rear final drive using the V.A.G 1383 A and, together with a second technician, position the final drive in its installed position on the subframe.

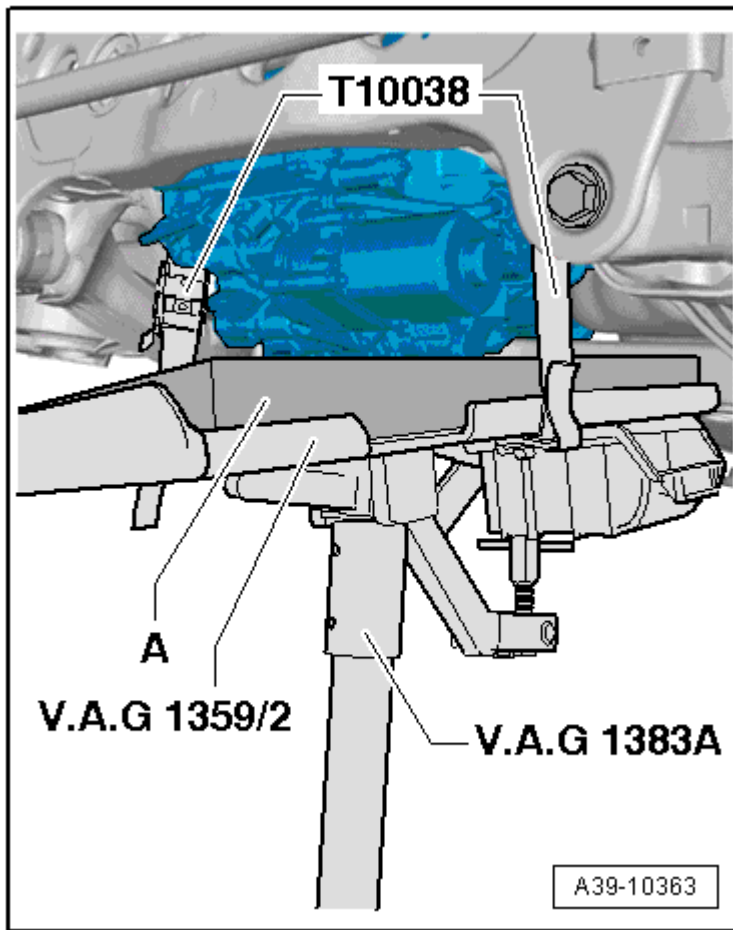


Fig. 111: V.A.G 1383/ V.A.G 1359/2
 Courtesy of AUDI OF AMERICA, LLC

-A- = rubber or hard foam mat

CAUTION: The rubber or hard foam mat is needed to prevent damaging the clutch valves -- on the rear final drive.

Use the T10038 to hold the rear final drive from falling down.

-- Insert the right drive axle into the final drive flange shaft.

-- The second technician must now push the rear final drive toward the right side of the vehicle in direction of the -arrow-.

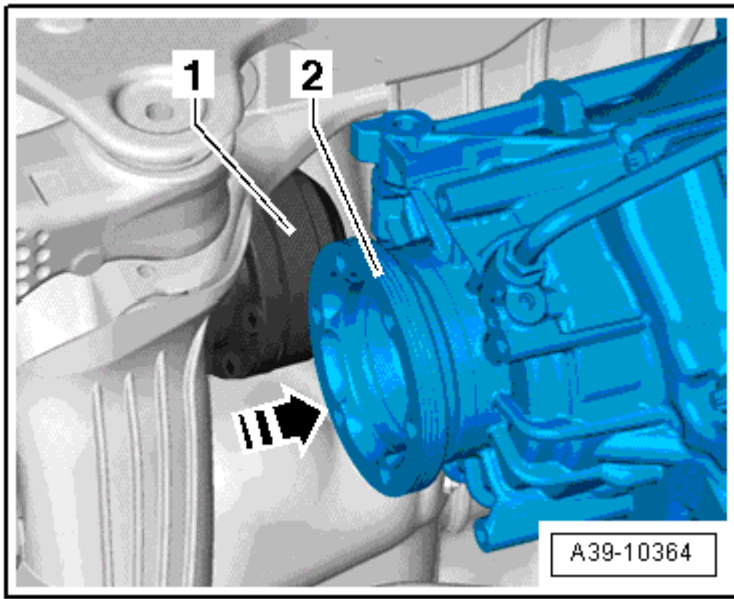


Fig. 112: Identifying Left Drive Axle & Final Drive Flange Shaft
Courtesy of AUDI OF AMERICA, LLC

- Insert the left drive axle -1- into the final drive flange shaft -2-.
- Install the bolts -2- that attach the rear final drive to the subframe hand-tight.

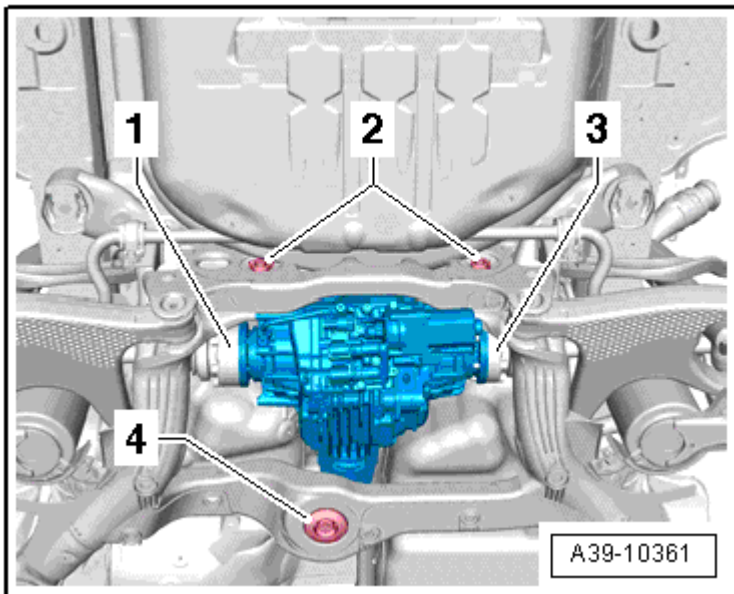


Fig. 113: Locating Rear Subframe Bolts
Courtesy of AUDI OF AMERICA, LLC

NOTE: The V.A.G 1383 A and the V.A.G 1359/2 are not shown in the illustration.

-- Tighten the bolt -4- to the tightening specification, refer to item 3 in **Fig. 27** and then tighten the bolts to the tightening specification, refer to item 2 in **Fig. 27**.

-- Remove the V.A.G 1383 A from under the final drive.

-- Install the left -1- and right -3- drive axles. Refer to **[For engine(s) CAEB, CALA, CCBA] Removal and Installation** .

Attach the back of the subframe -1- to the body as follows:

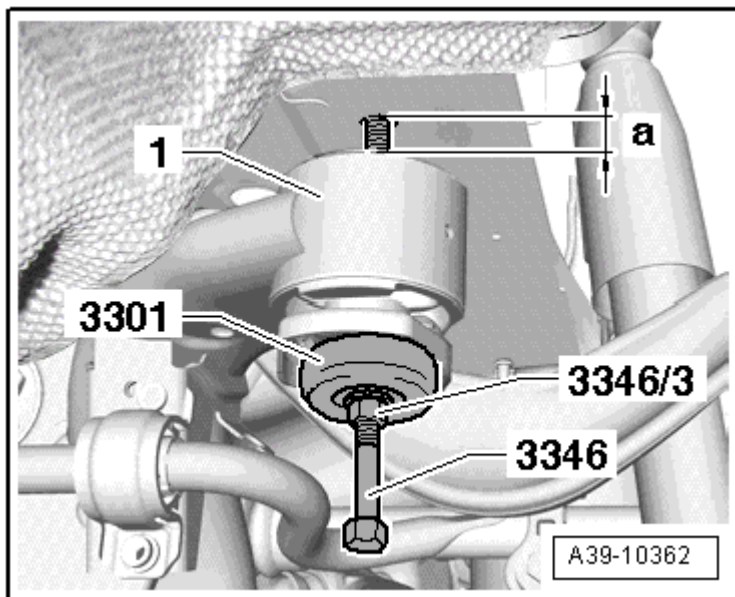


Fig. 114: Identifying Right Rear Subframe Bolt
Courtesy of AUDI OF AMERICA, LLC

-- First turn the 3346/3 clockwise until the subframe touches the body while counter holding by the 3346.

-- Then install the left rear bolt that attaches the subframe to the body and tighten it to the tightening specification. Refer to **[For engine(s) CAEB, CALA, CCBA] Removal and Installation** .

-- Remove the 3346 and install the right rear bolt that attaches the subframe to the body and tighten it to the tightening specification. Refer to **[For engine(s) CAEB, CALA, CCBA] Specifications** .

-- Attach the left drive axle heat shield -A- to the rear final drive -arrows-, refer to item 5 in **Fig. 27**.

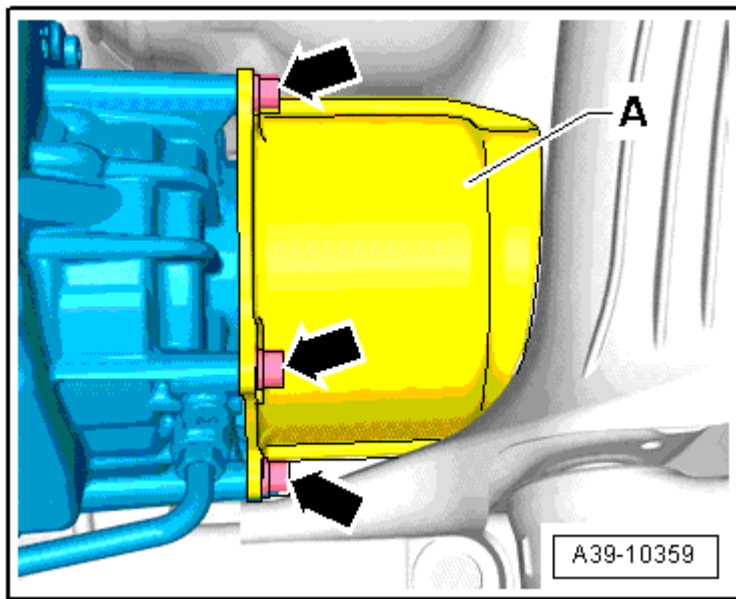


Fig. 115: Left Drive Axle Heat Shield
Courtesy of AUDI OF AMERICA, LLC

-- Install the wiring harness -3- on the final drive and subframe -5 through 7-.

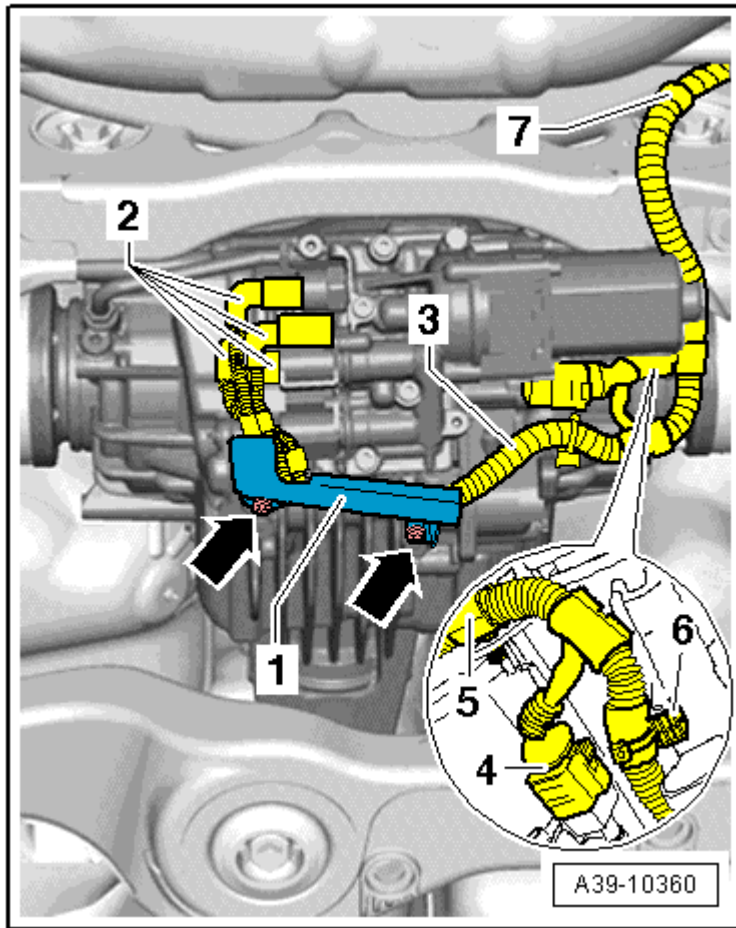


Fig. 116: Rear Final Drive Wiring Harness Bracket

Courtesy of AUDI OF AMERICA, LLC

-- Connect the connectors -4 and 2- using the markings made earlier when oil pressure/temperature sensor -- and the clutch valve -- were removed.

CAUTION: Danger of damaging the wiring harness.

- Be careful of the wiring harness -3- when attaching the bracket -1- to the rear final drive.

-- Hold the bracket -1- on the rear final drive and tighten the bolts -arrows- to the tightening specification, refer to **Tightening Specification**.

NOTE: Connector allocation for the oil pressure/temperature sensor -- and the clutch valves -- :

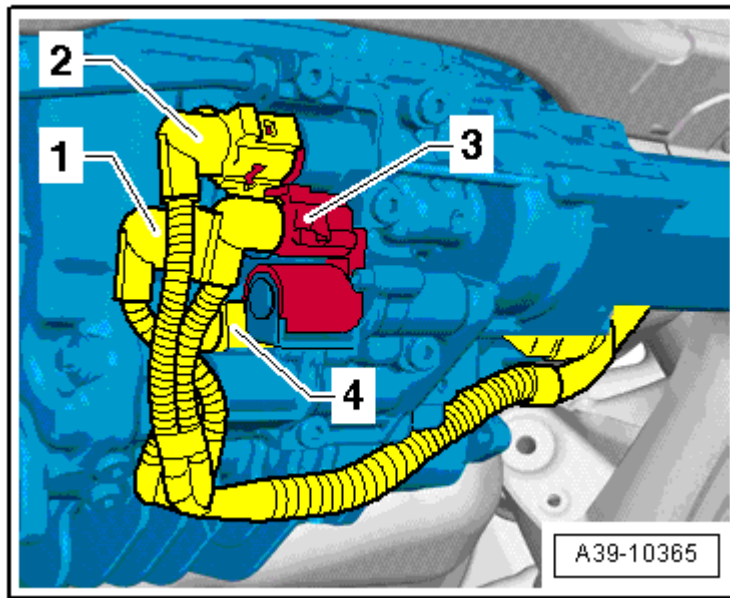


Fig. 117: Oil Pressure/Temperature Sensor Connector
 Courtesy of AUDI OF AMERICA, LLC

- 1- = Oil pressure/temperature sensor 2 -G640- connector
- 2- = Oil pressure/temperature sensor -G437- connector
- 3- = AWD clutch valve 2 -N446- connector
- 4- = AWD clutch valve -N445- connector

-- Install the driveshaft matching it up with the markings and then tighten the bolts according to the tightening sequence. Refer to **DRIVESHAFT BOLTED ON TRANSMISSION SIDE**.

-- Check the gear oil in the rear final drive. Refer to **GEAR OIL LEVEL IN REAR FINAL DRIVE 0BF AND 0BE, CHECKING**.

-- Check the ATF level in rear final drive. Refer to **ATF LEVEL IN REAR FINAL DRIVE 0BF AND 0BE, CHECKING**.

-- Install and adjust rear part of exhaust system free of stress. Refer to **[For transmission(s) 0AW] [For engine (s) CALA] Description and Operation** or to **[For engine(s) CCBA] Description and Operation** .

-- Install the rear crossbrace -1-, if equipped. Refer to "Heat Shields and Crossbraces" in **Removal and Installation** .

-- Install the rear wheels and tighten the bolts. Refer to **Removal and Installation** .

- There is additional work if the rear final drive was replaced. Refer to **REAR FINAL DRIVE, ADDITIONAL WORK AFTER REPLACING**.

REAR FINAL DRIVE**Special tools and workshop equipment required**

- Engine-Gearbox Jack V.A.G 1383 A

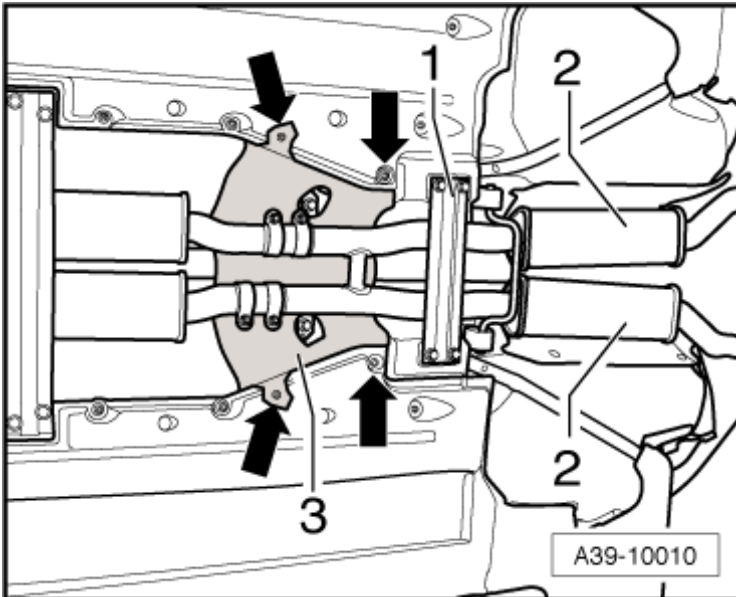
Removing

Fig. 118: Removing Rear Transverse Beam & Heat Shield From Vehicle Floor

Courtesy of AUDI OF AMERICA, LLC

-- Remove the rear crossmember -1-. Refer to "Underbody Trim" in Description and Operation .

NOTE: A second technician will be needed to help remove the rear section of the exhaust system.

-- Remove the rear section -2- of the exhaust system. Refer to [For transmission(s) 0AW] [For engine(s) CALA] Description and Operation or to [For engine(s) CCBA] Description and Operation .

-- Remove the driveshaft from the rear final drive. Refer to **DRIVESHAFT, REMOVING FROM REAR FINAL DRIVE AND INSTALLING**.

-- Place a 40 mm tall block of wood -A- on the rear crossmember -C- to secure the driveshaft -B-.

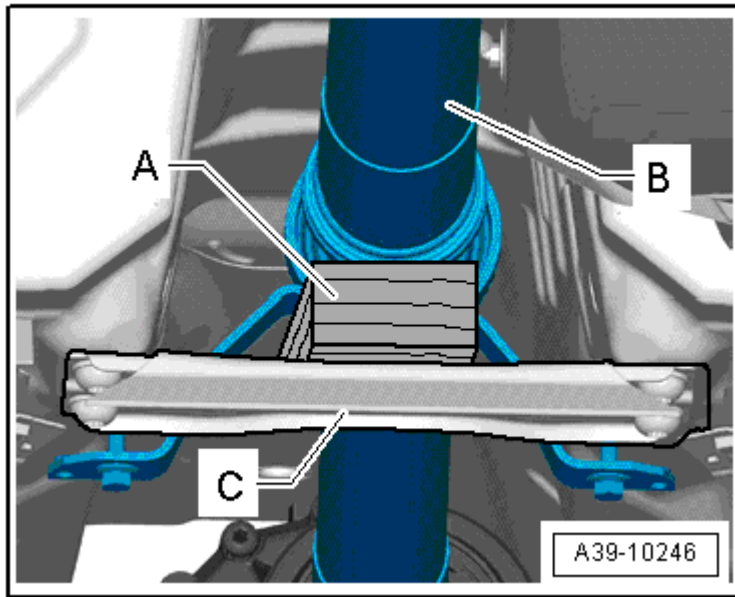


Fig. 119: Identifying Wood On Rear Crossmember
 Courtesy of AUDI OF AMERICA, LLC

NOTE: The driveshaft can be bent at the center joint without using force. A hard bending to the stop may cause damage to the center joint or dust boot.

-- Remove the bolts -arrows- and then remove the left driveshaft heat shield -1-.

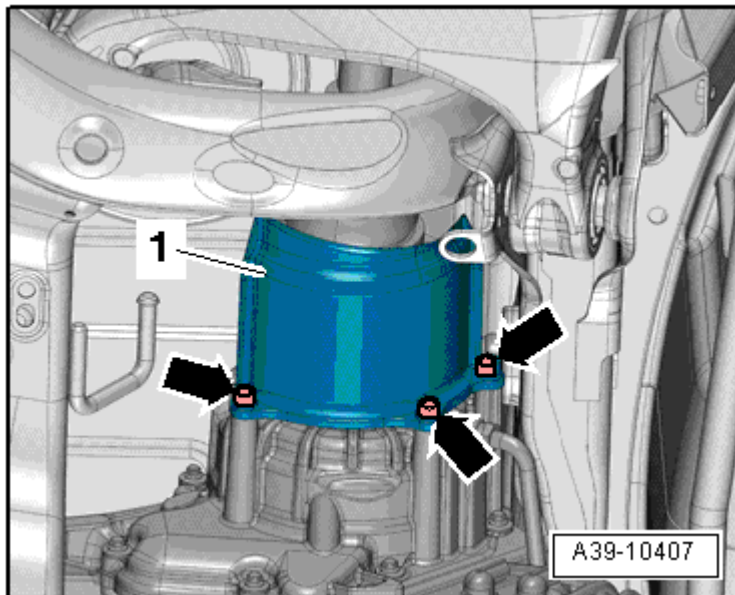


Fig. 120: Left Drive Axle Heat Shield Bolts
 Courtesy of AUDI OF AMERICA, LLC

-- Remove the left and right drive axles from the rear final drive. Refer to [For engine(s) CAEB, CALA,

CCBA| Removal and Installation .

-- Disconnect the connectors -1 through 5- and free up the wiring harness -arrow-.

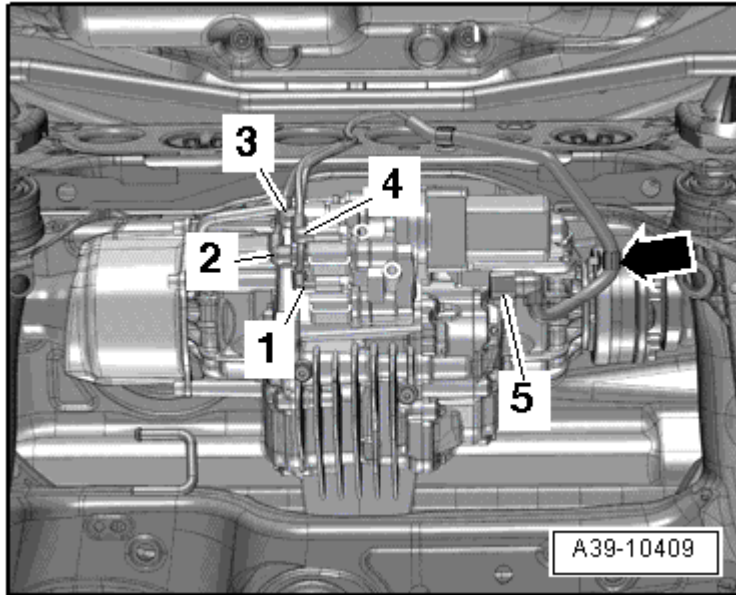


Fig. 121: Identifying Wiring Harness
Courtesy of AUDI OF AMERICA, LLC

-- Remove the bolts -1 and 2-.

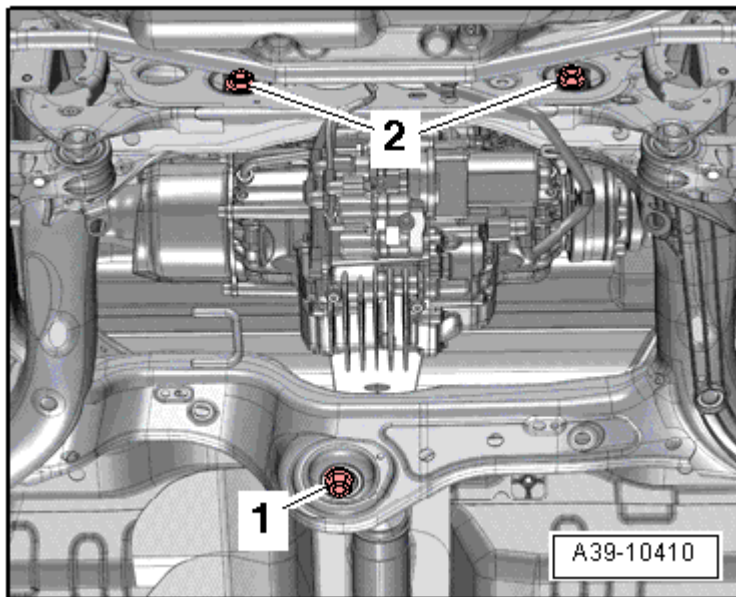


Fig. 122: Locating Rear Subframe Bolts
Courtesy of AUDI OF AMERICA, LLC

-- Place the V.A.G 1383 A under the rear final drive and support it with a block of wood -A- on the mounting

plate.

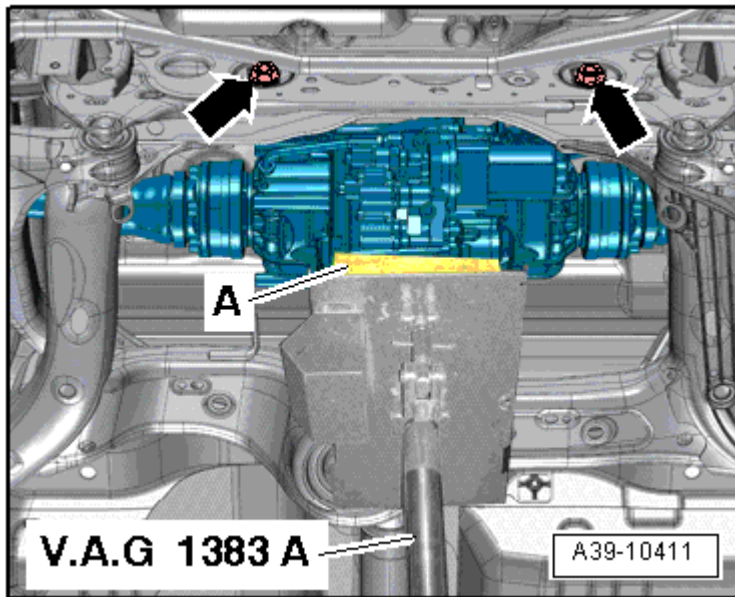


Fig. 123: V.A.G 1383

Courtesy of AUDI OF AMERICA, LLC

NOTE: Make sure the mounting plate on the engine/transmission jack does not touch the fuel tank.

-- Remove the bolts -arrows-.

-- Push the rear final drive to the left -arrow A-.

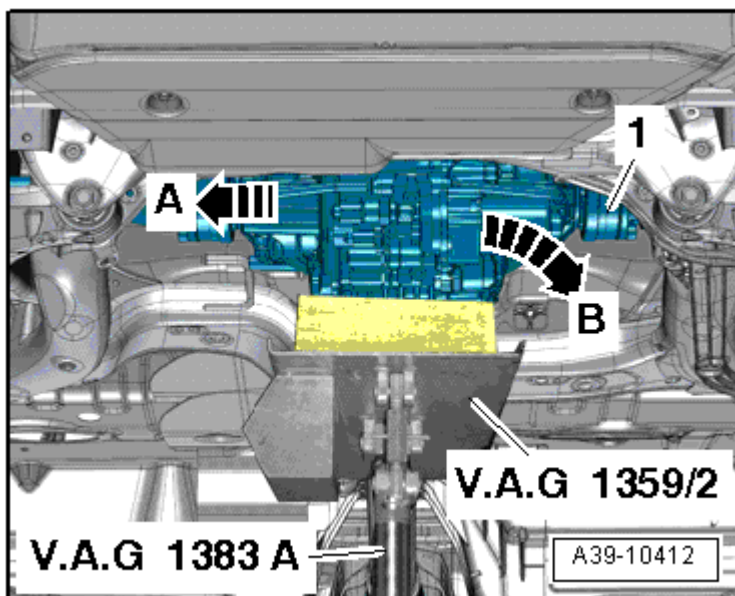


Fig. 124: Identifying Rear Final Drive
Courtesy of AUDI OF AMERICA, LLC

- Move the right drive axle -1- upward.
- First lower the back of the right drive axle -arrow B- and then loosen the left flange shaft from the drive axle.
- Secure the rear final drive with a strap and then lower it using the V.A.G 1383 A.

Installing

Install in reverse order of removal. Note the following:

WARNING: Rear final drive malfunctions!

There is additional work if the rear final drive was replaced. Refer to REAR FINAL DRIVE, ADDITIONAL WORK AFTER REPLACING.

- Tightening specifications, refer to .
- Attach the drive axles to the rear final drive. Refer to **[For engine(s) CAEB, CALA, CCBA] Removal and Installation** .
- Install the driveshaft **DRIVESHAFT, REMOVING FROM REAR FINAL DRIVE AND INSTALLING**.
- Install the exhaust system free of tension. Refer to **[For transmission(s) 0AW] [For engine(s) CALA] Description and Operation** or to **[For engine(s) CCBA] Description and Operation** .
- Install the rear crossmember -1-. Refer to "Underbody Trim" in **Description and Operation** .
- Check axle oil level in rear final drive. Refer to **GEAR OIL LEVEL IN REAR FINAL DRIVE 0BF AND 0BE, CHECKING**.
- Check the ATF level in rear final drive. Refer to **ATF LEVEL IN REAR FINAL DRIVE 0BF AND 0BE, CHECKING**.
- There is additional work if the rear final drive was replaced. Refer to **REAR FINAL DRIVE, ADDITIONAL WORK AFTER REPLACING**.

FLANGE SHAFT SEALS, REAR FINAL DRIVE REMOVED

- The seals can only be replaced when the final drive is removed.

Special tools and workshop equipment required

- Slide Hammer - Complete Set VW 771
- Thrust Piece T40221

- ATF

Removing

- Follow the general repair instructions. Refer to **REPAIR INFORMATION** .
- Remove rear final drive. Refer to **REAR FINAL DRIVE**.
- Remove the flange shaft bolt. While doing this, install the two bolts into the flange counter hold the flange shaft using a tire iron.

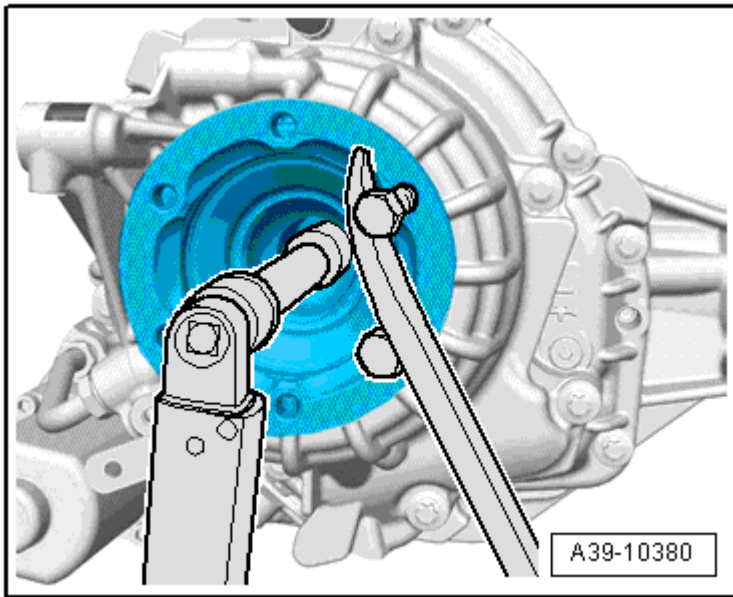


Fig. 125: Removing Flange Shaft Bolt
Courtesy of AUDI OF AMERICA, LLC

- Remove the flange shaft.

NOTE: Use the VW 771 to remove the flange shaft if it is not possible to remove it manually.

- Remove the flange shaft seal using the VW 771 and the additional part for the slide hammer VW 771/37.

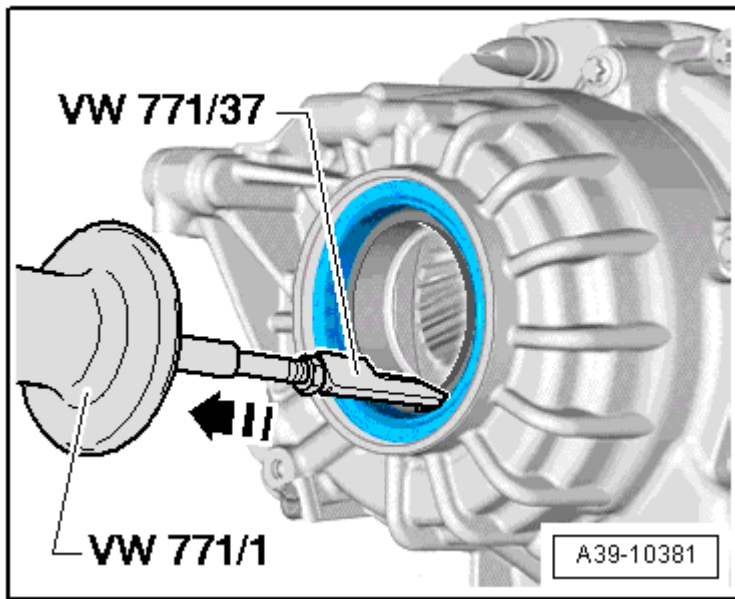


Fig. 126: Removing Flange Shaft Seal
Courtesy of AUDI OF AMERICA, LLC

Installing

Install in reverse order of removal. Be sure to note the following:

Install Right Shaft Seal.

- Coat the outer circumference and the sealing lips on the shaft seal with ATF.
- Install the new shaft seal all the way without tilting it.

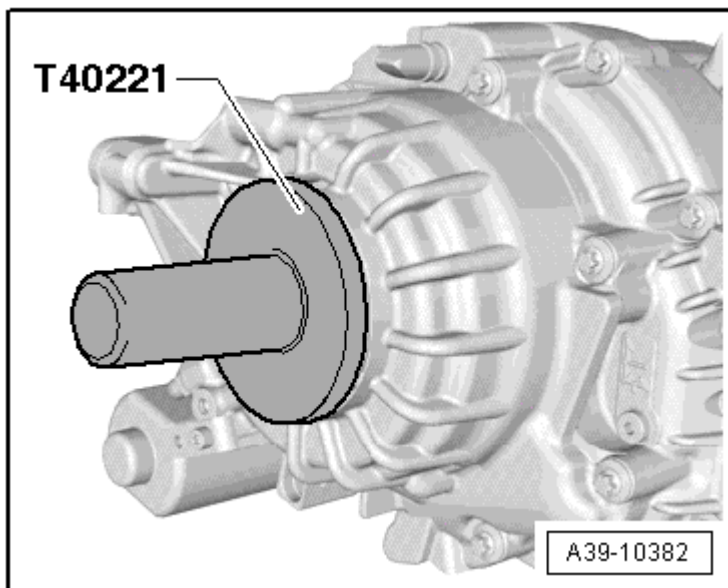


Fig. 127: Installing Flange Shaft Seal
Courtesy of AUDI OF AMERICA, LLC

Install Left Shaft Seal.

- Coat the outer circumference and the sealing lips on the shaft seal with ATF.
- Install the new shaft seal all the way without tilting it.

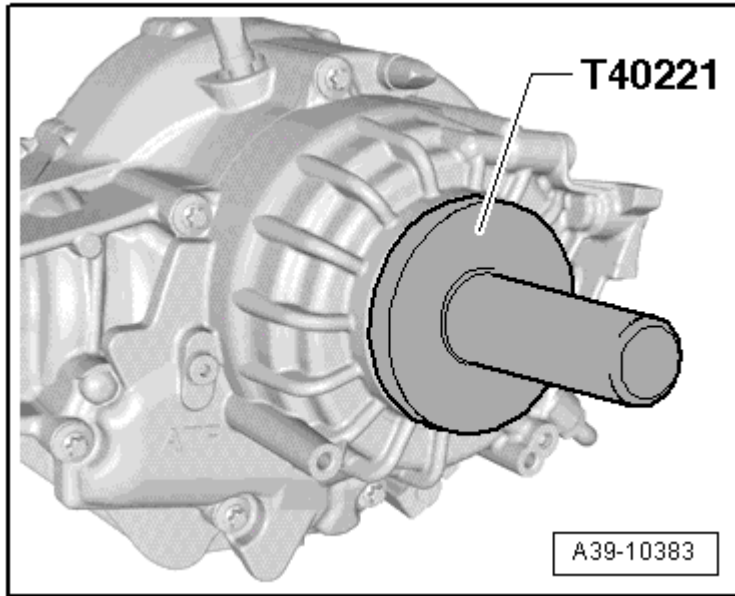


Fig. 128: T40221
Courtesy of AUDI OF AMERICA, LLC

- Install the flange shaft.

NOTE: If it is not possible to install the flange shaft all the way on by hand, then use a plastic hammer.

- Tighten the new bolts to the tightening specification, refer to item 1 in **Fig. 37**.
- Install rear final drive. Refer to **REAR FINAL DRIVE**.
- Check the ATF level in the rear final drive. Refer to **ATF LEVEL IN REAR FINAL DRIVE 0BF AND 0BE, CHECKING**.

FLANGE SHAFT RING

Special tools and workshop equipment required

- Thrust Plate VW 401

- Thrust Plate VW 402
- Thrust Disc VW 412
- Sleeve 40 - 21
- Seal Press Sleeve 2003/1 from the Seal Installer 2003
- Press Tool 3345
- Separating Device 22 to 115 mm, for example Kukko 17/2

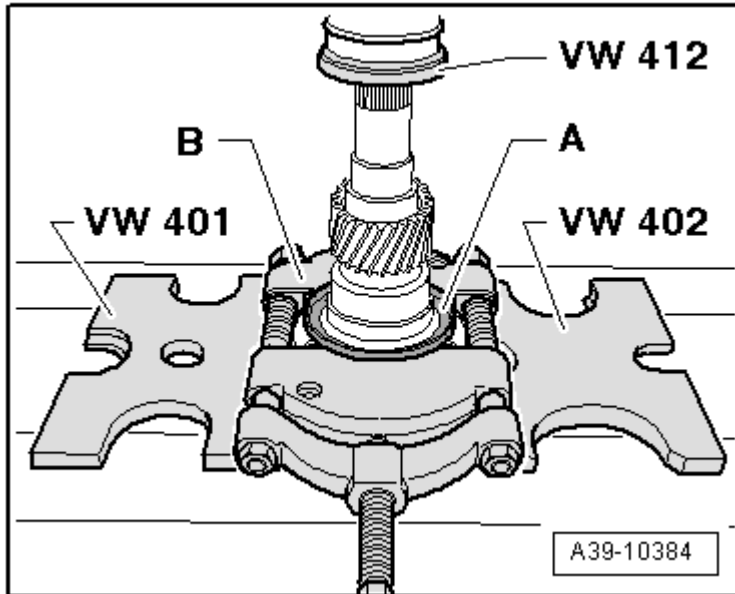


Fig. 129: Removing Ring -A- From Flange Shaft
Courtesy of AUDI OF AMERICA, LLC

B - Separating tool 22 to 115 mm, for example Kukko 17/2

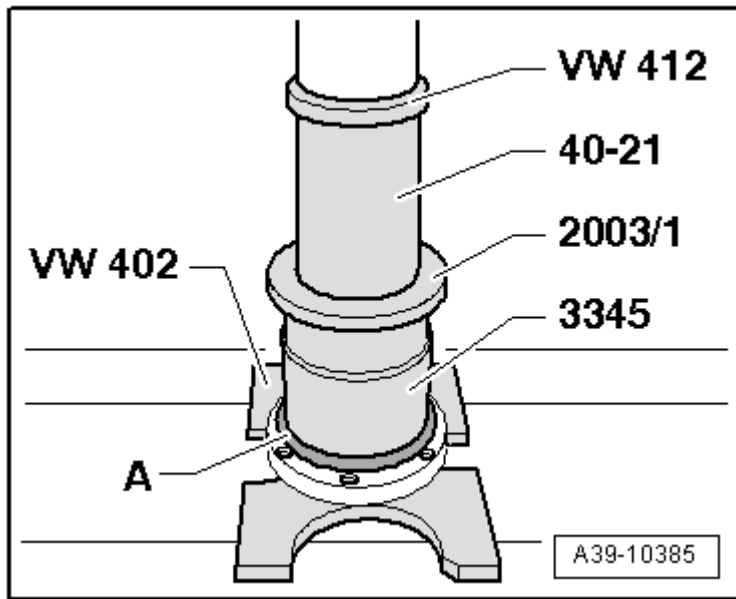


Fig. 130: Carefully Install Ring -A- Onto Flange Shaft
 Courtesy of AUDI OF AMERICA, LLC

- Ring installed position -A- : the larger outer circumference on the ring faces the 3345.

FLANGE/DRIVESHAFT SEAL, REAR FINAL DRIVE 0BF

Special tools and workshop equipment required

- Puller VW 391
- Puller T10055
- Adapter T10055/2
- Two M8 x 30 bolts
- Thrust piece T10380
- Assembly Tool T40222
- Guide sleeve T40222/1
- Sealing grease G 052 128 A1
- Inductive heat unit VAS 6414
- or
- Hotplate
- and
- Digital thermometer VAS 6519

Removing

- The rear final drive is installed
- Observe general repair notes, refer to **REPAIR INFORMATION** .

-- Separate the exhaust system at the clamping sleeves -1 and 2-

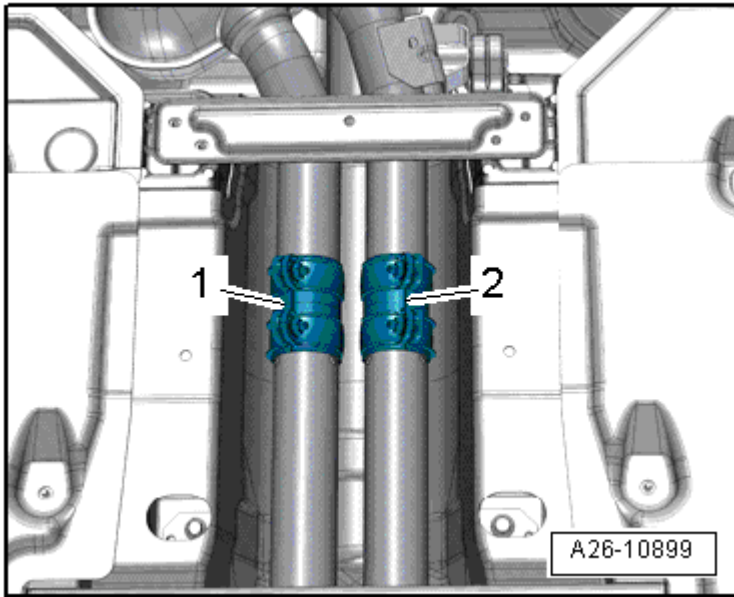


Fig. 131: Exhaust System Clamping Sleeves

Courtesy of AUDI OF AMERICA, LLC

-- Remove rear portion of exhaust system. Refer to [For transmission(s) 0AW] [For engine(s) CALA] Description and Operation or to [For engine(s) CCBA] Description and Operation .

NOTE: **A second technician will be needed to help remove the rear section of the exhaust system.**

-- Open the gear oil drain plug -2- and let approximately 300 ml gear oil drain out.

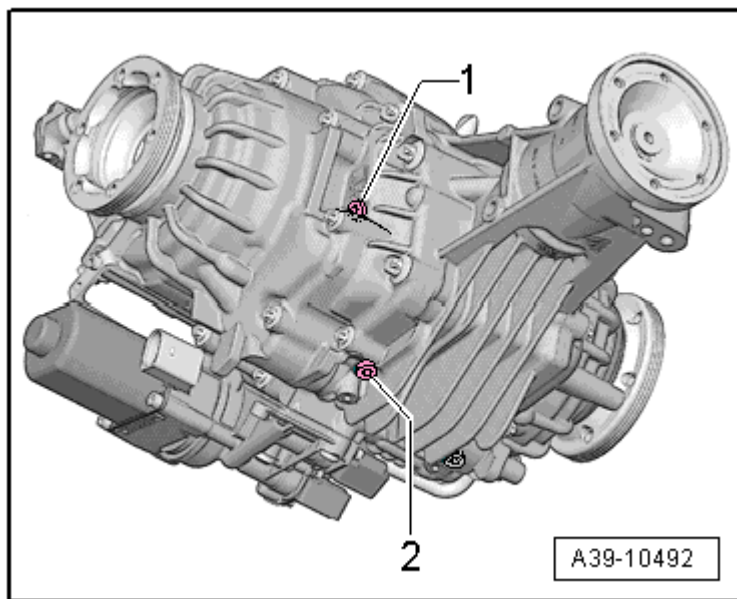


Fig. 132: Rear Final Drive Gear Oil Plugs
 Courtesy of AUDI OF AMERICA, LLC

-- Install and tighten the new drain plug -2-. Tightening specification, refer to item 16 in **Fig. 37**

-- Remove the driveshaft from the rear final drive. Refer to **DRIVESHAFT, REMOVING FROM REAR FINAL DRIVE AND INSTALLING.**

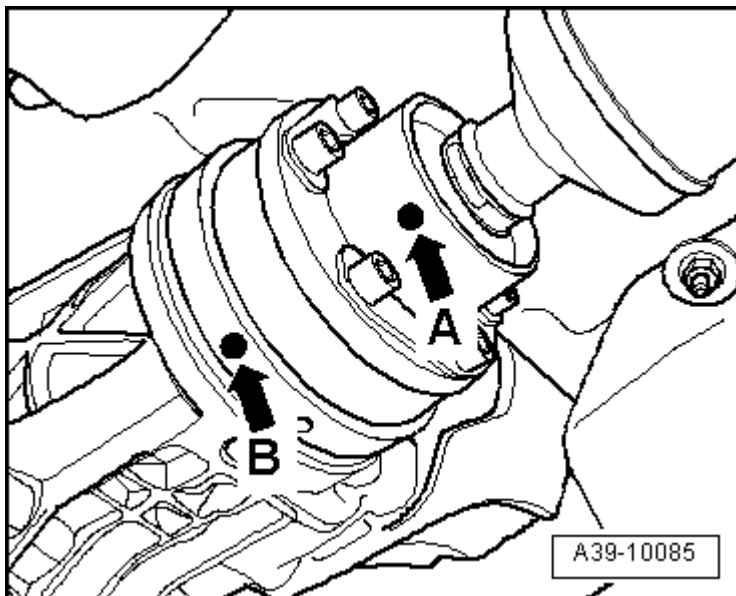


Fig. 133: Identifying Mark Position Of Driveshaft Flange To Rear Final Drive
 Courtesy of AUDI OF AMERICA, LLC

Audi A8

-- Guide the driveshaft between the fuel tank and the rear subframe downward and tie it to the side.

Audi A4, A5 Audi A5 Coupe/Cabriolet

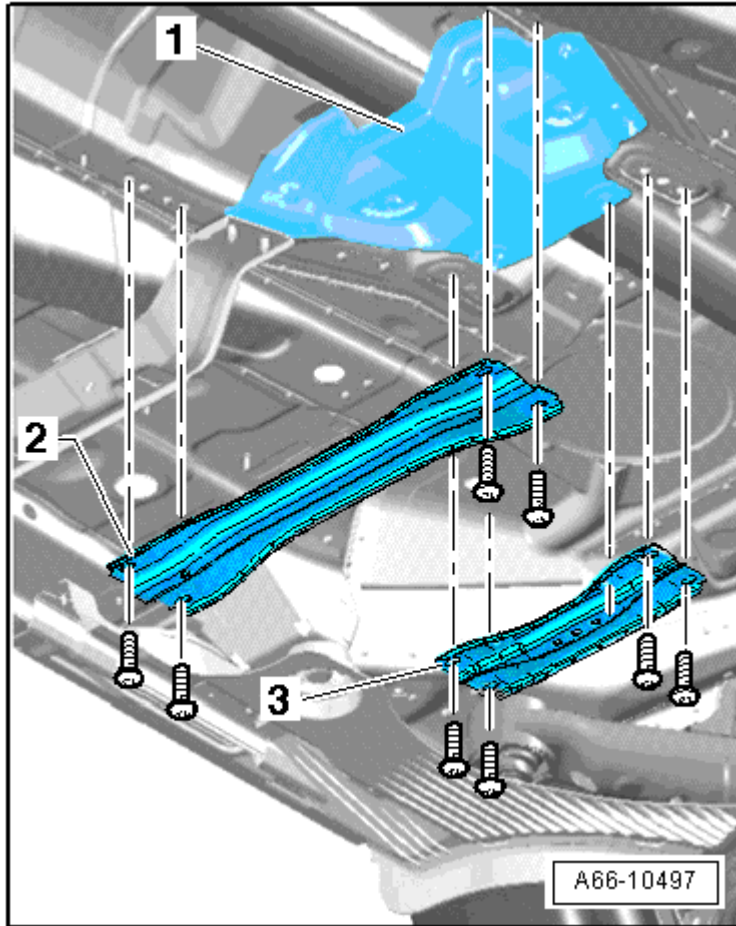


Fig. 134: Identifying Crossmember

Courtesy of AUDI OF AMERICA, LLC

- Remove the front crossmember -2-, if equipped.
- Remove the rear crossmember -3- and heat shield -1-.

Audi A6 and Audi A7

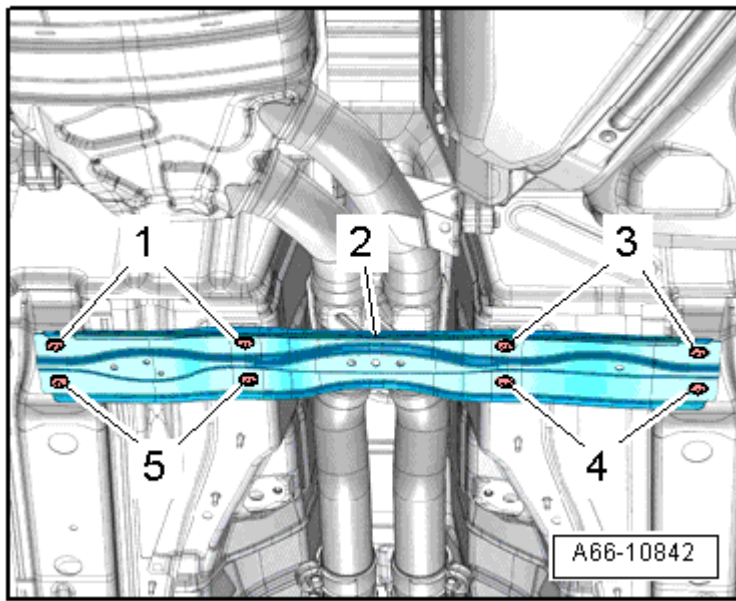


Fig. 135: Identifying Crossbrace

Courtesy of AUDI OF AMERICA, LLC

-- Remove the crossbrace -2-. Refer to "Heat Shields and Crossbraces" in **Removal and Installation** .

Audi A4, A5 Coupe/Convertible, Audi A6 and Audi A7

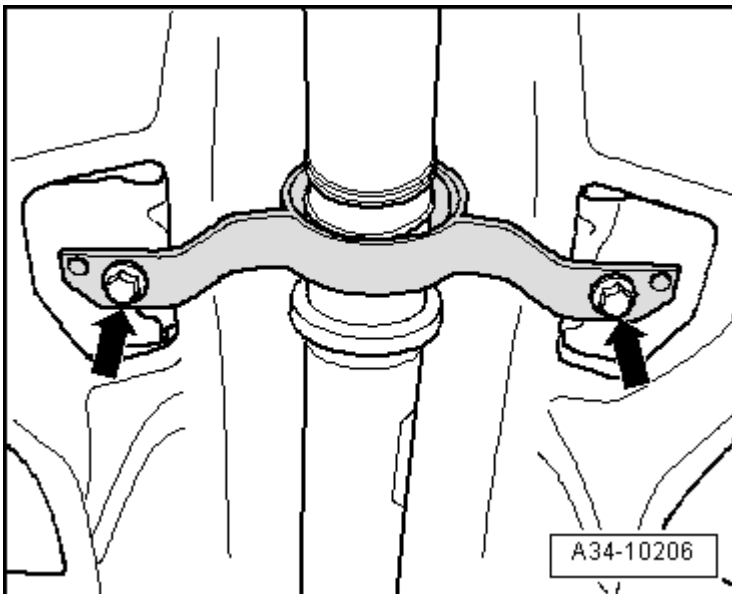


Fig. 136: Removing Mounting Bolts

Courtesy of AUDI OF AMERICA, LLC

-- Remove the bolts -arrows- from the driveshaft center bearing.

-- Lower the driveshaft by the center bearing.

- At the same time, guide the driveshaft between the fuel tank and the rear subframe downward.
- Install the bolts -arrows- for the center bearing hand-tight.
- Tie up the driveshaft.

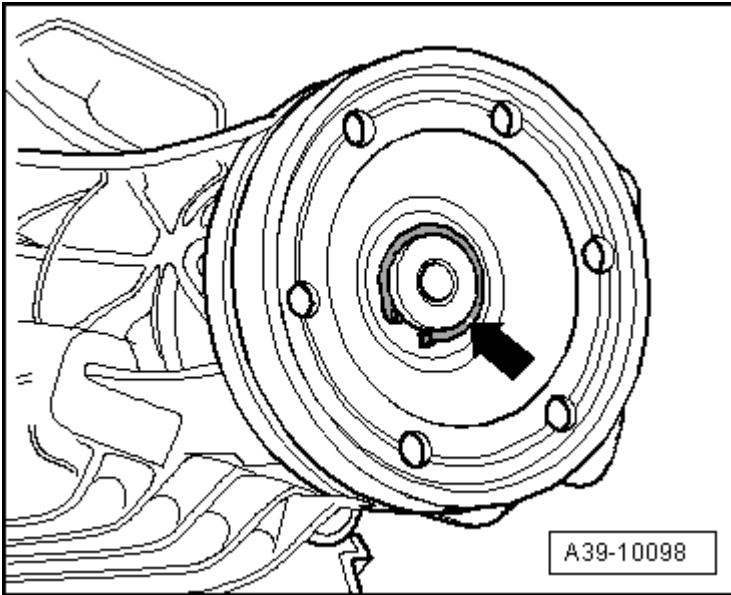
Continuation for All Vehicles

Fig. 137: Removing/Installing Circlip
Courtesy of AUDI OF AMERICA, LLC

- Remove any high temperature grease inside the flange/driveshaft.
- Remove the locking ring -arrow-.
- Mark the position of the flange/driveshaft -B- to the pinion -A- -arrow-.

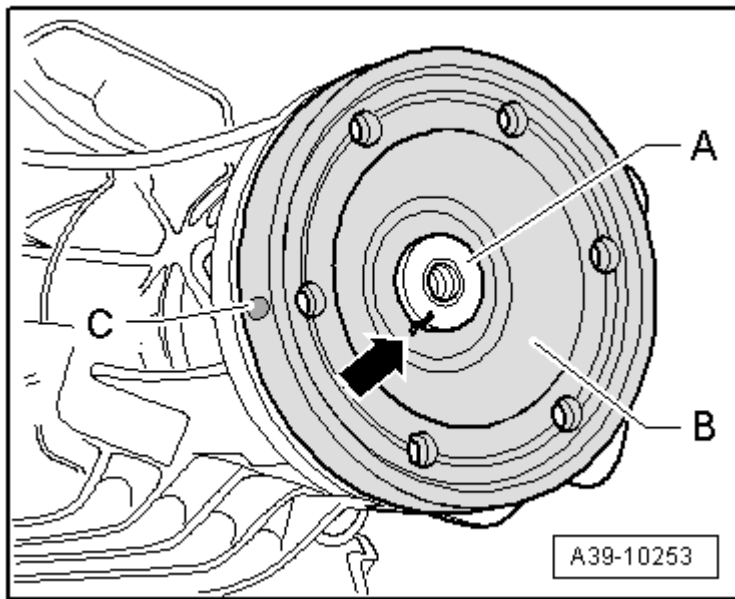


Fig. 138: Locating Mark Position Of Flange/Driveshaft To Pinion
 Courtesy of AUDI OF AMERICA, LLC

NOTE: This mark -arrow- is needed so that the color dot -C- on the outside of the flange remains in its earlier position.

Only by doing this can the smallest imbalance possible inside the rear final drive be guaranteed.

-- Install two M8 x 30 mm -arrow- into the flange.

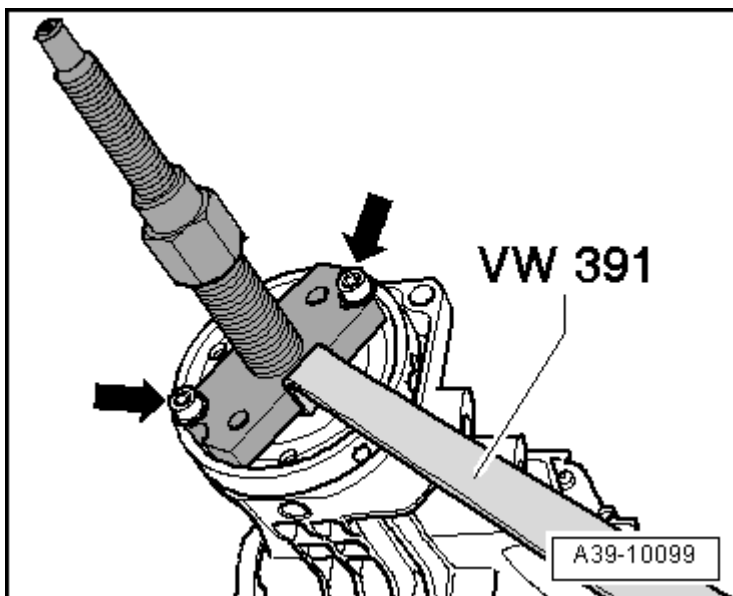


Fig. 139: Pulling Off Drive Shaft Flange Using Puller VW 391
 Courtesy of AUDI OF AMERICA, LLC

- Pull off the driveshaft flange using VW 391.
- Place an absorbent cloth -A- under the final drive on the subframe.

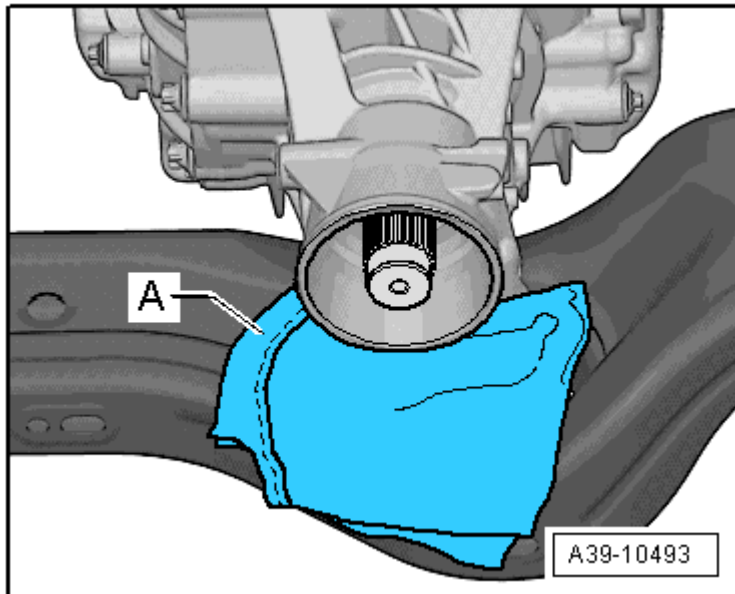


Fig. 140: Identifying Cloth Under Final Drive On Subframe
Courtesy of AUDI OF AMERICA, LLC

- Puncture the metal cover on the shaft seal -A- in direction of -arrow- using a scriber -B-.

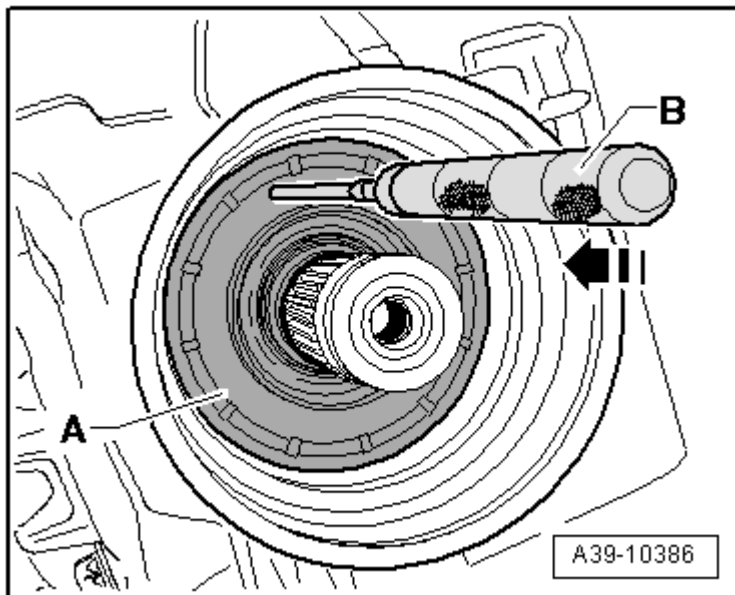


Fig. 141: Puncturing Metal Cover Using Scriber
Courtesy of AUDI OF AMERICA, LLC

- Insert a screw -arrow- into this opening -A-.

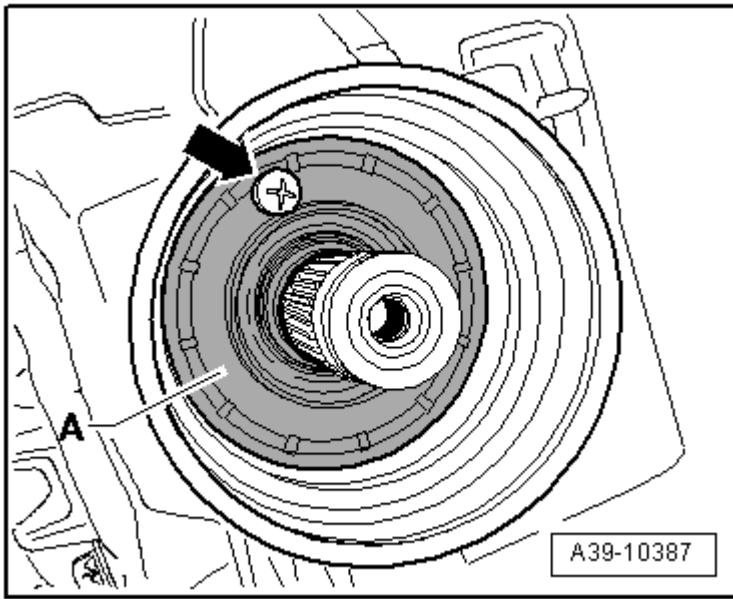


Fig. 142: Identifying Screw On Metal Cover
 Courtesy of AUDI OF AMERICA, LLC

-- Remove the flange/driveshaft seal -A- in direction of -arrow-.

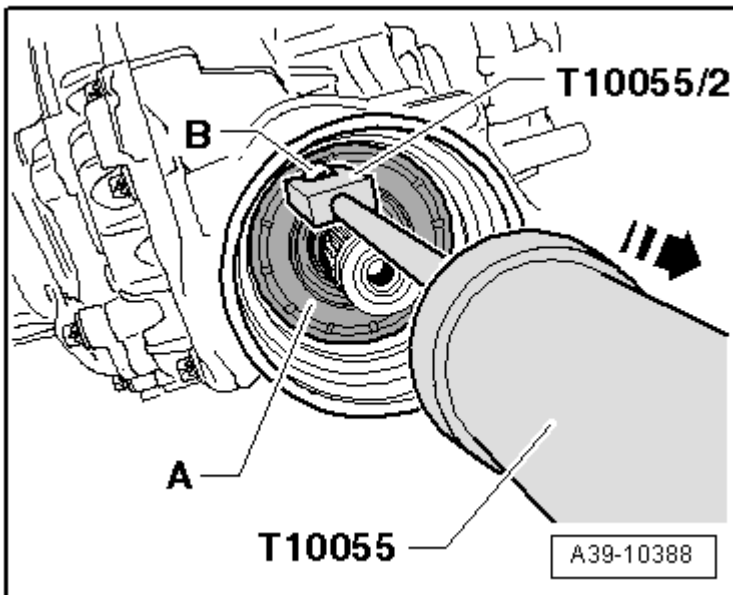


Fig. 143: Removing Flange/ Driveshaft Seal
 Courtesy of AUDI OF AMERICA, LLC

-B- screw

Installing

Install in reverse order of removal. Be sure to note the following:

- Fill the space between the sealing and dust lips halfway with sealing grease G 052 128 A1.
- Place the new seal -A- on the T40222/1.

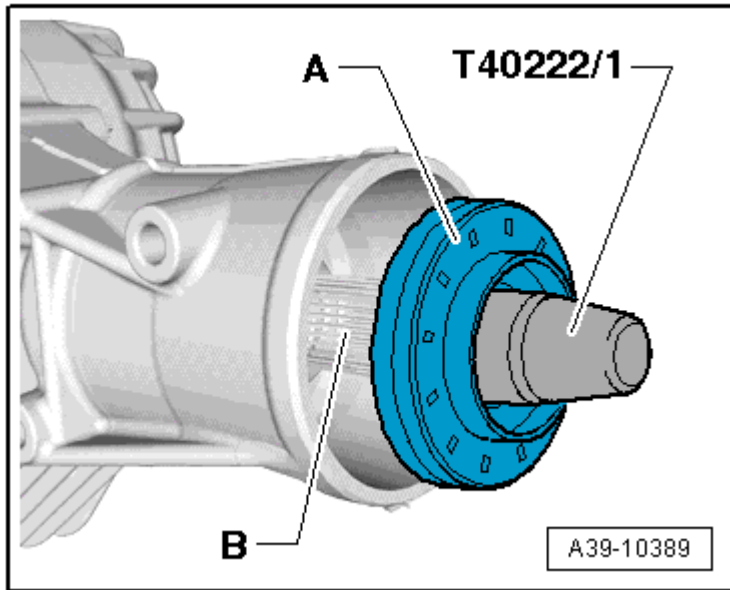


Fig. 144: T40222/1

Courtesy of AUDI OF AMERICA, LLC

NOTE: Make sure the spring on the seal is behind the sealing lip when it is installed.

- Coat the outer circumference of the shaft seal with gear oil.
- Install the T40222/1 and the shaft seal -A- on the pinion -B-.
- Install the new shaft seal all the way without tilting it.

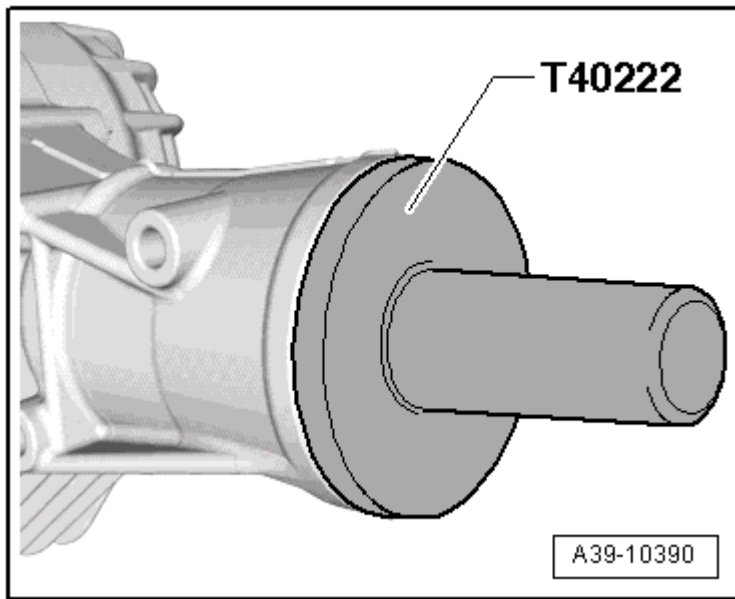


Fig. 145: T40222/1

Courtesy of AUDI OF AMERICA, LLC

-- Heat the flange/driveshaft -B- to 115 °C (239 °F) using the VAS 6414 or a hotplate.

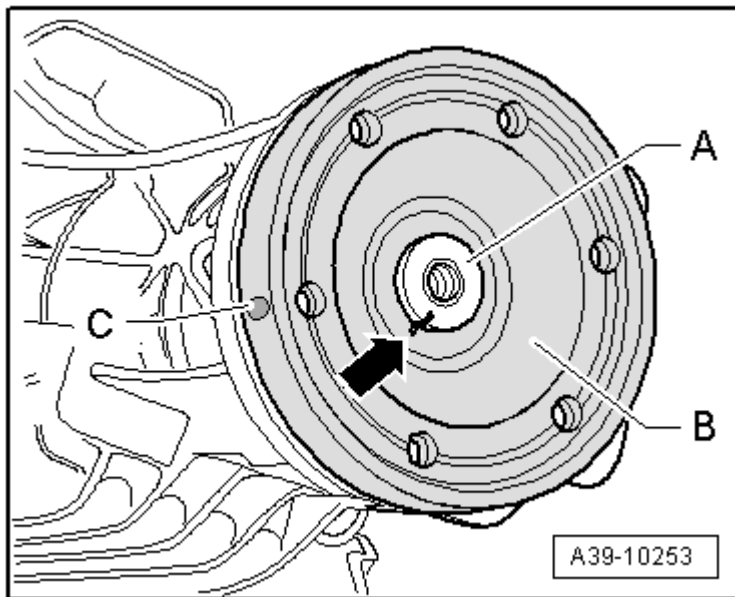


Fig. 146: Locating Mark Position Of Flange/Driveshaft To Pinion

Courtesy of AUDI OF AMERICA, LLC

WARNING:

- Wear protective gloves.
- Monitor the temperature with a VAS 6519 if using a hotplate.

-- Position the flange/driveshaft -B- on the pinion -A- so that the marking -arrow- lines up.

-- Install the flange/driveshaft all the way using the T10380.

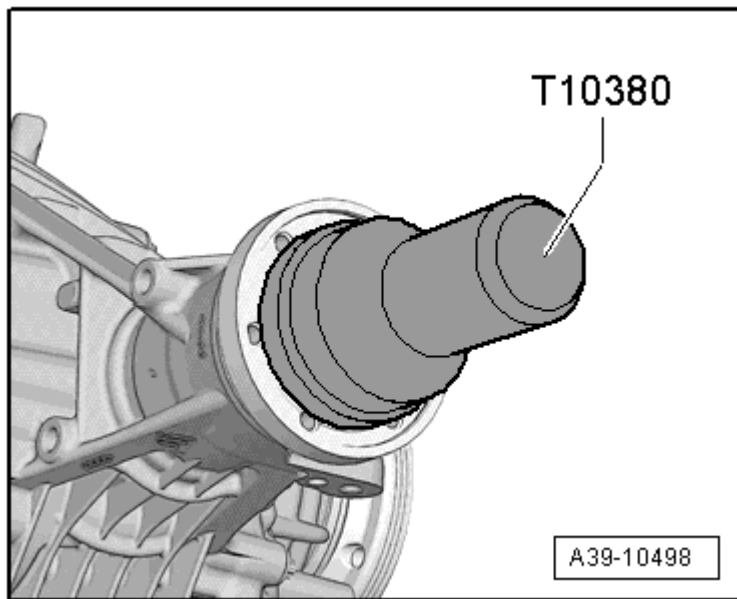


Fig. 147: T10380

Courtesy of AUDI OF AMERICA, LLC

INSTALL THE LOCKING RING -1- AS FOLLOWS

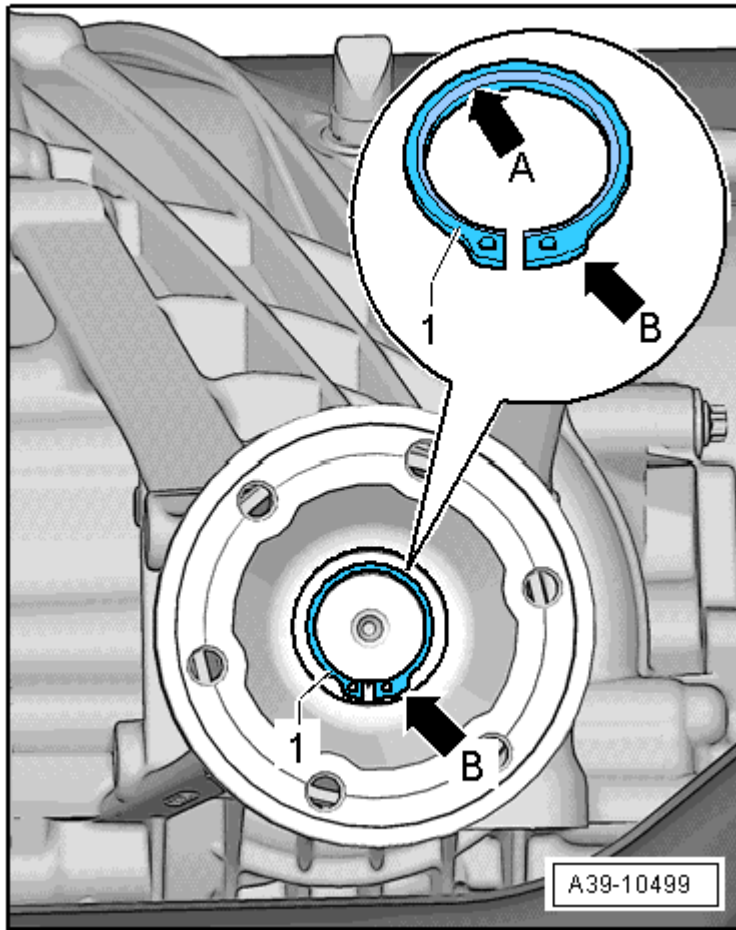


Fig. 148: Installing Locking Ring

Courtesy of AUDI OF AMERICA, LLC

- Always replace the locking ring -1-.
- The bevel on the inner diameter of the locking ring -arrow A- faces out, toward the driveshaft.
- The wide strip on the locking ring -arrow B- must be on the right side, as illustrated.

-- Measure the thickness of the old locking ring -1-.

-- Install a new locking ring -1- having the same thickness as the old one.

-- Install the new locking ring -1-.

NOTE: It is necessary to determine the circlip -arrow- when replacing the flange/driveshaft.

First determine and then install the thickest possible circlip that can be installed into the groove -arrow- that can be used.

-- Gear oil in rear final drive 0BF, Filling, refer to GEAR OIL IN REAR FINAL DRIVE 0BF, FILLING.

-- Driveshaft, attaching to rear final drive **DRIVESHAFT, REMOVING FROM REAR FINAL DRIVE AND INSTALLING**

Audi A4, A5 Coupe/Convertible, A6, A7

-- Tighten the driveshaft center bearing in the body free of tension. Tightening specification, refer to item 9 in **Fig. 28**.

-- Install the heat shield and the crossmember. Refer to **Description and Operation** .

Continuation for All Vehicles

-- Install rear section of exhaust system. Refer to **[For transmission(s) 0AW] [For engine(s) CALA] Description and Operation** or to **[For engine(s) CCBA] Description and Operation** .

FLANGE/DRIVESHAFT SEAL, REAR FINAL DRIVE 0BE

Special tools and workshop equipment required

- Thrust Pad 16.5/28 mm Dia. VW 431
- Puller T10055
- Adapter T10055/2
- Thrust Piece T10380
- Guide Sleeve T40247/1
- Assembly Tool T40247
- Two Arm Puller Kukko 20/10
- Inductive Heat Unit VAS 6414
- or
- Hotplate
- and
- Digitally VAS 6519
- Catch Tray
- Sealing Grease G 052 128 A1

Removing

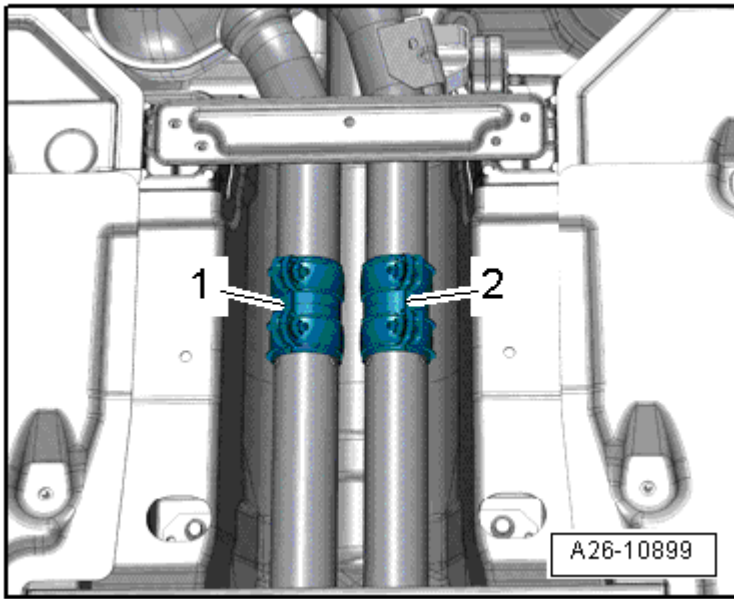


Fig. 149: Exhaust System Clamping Sleeves
Courtesy of AUDI OF AMERICA, LLC

- The rear final drive is installed
- Separate the exhaust system at the clamping sleeves -1 and 2-.
- Remove rear portion of exhaust system. Refer to **[For transmission(s) 0AW] [For engine(s) CALA] Description and Operation** or to **[For engine(s) CCBA] Description and Operation** .

NOTE: **A second technician will be needed to help remove the rear section of the exhaust system.**

- Open the gear oil drain plug -arrow- and let approximately 300 ml gear oil drain out.

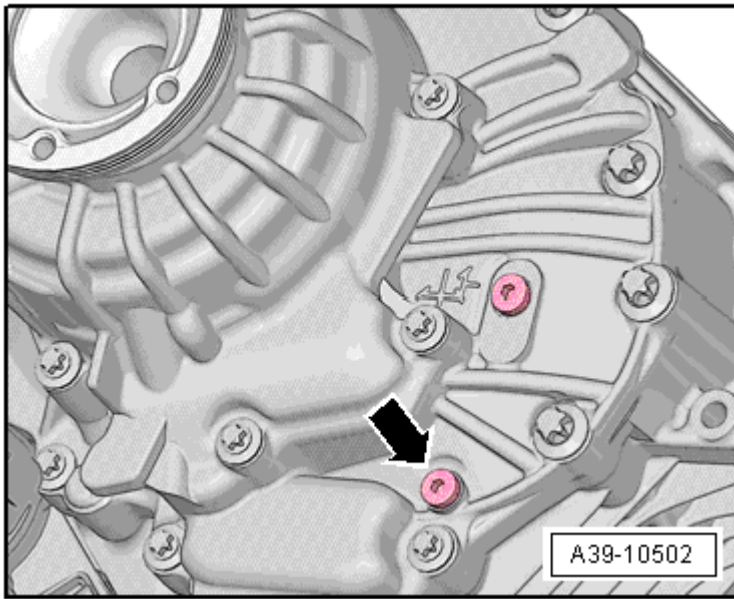


Fig. 150: Gear Oil Drain Plug

Courtesy of AUDI OF AMERICA, LLC

-- Install and tighten the new drain plug -arrow-. Tightening specification, refer to item 16 in **Fig. 37**

-- Remove the driveshaft from the rear final drive. Refer to **DRIVESHAFT, REMOVING FROM REAR FINAL DRIVE AND INSTALLING.**

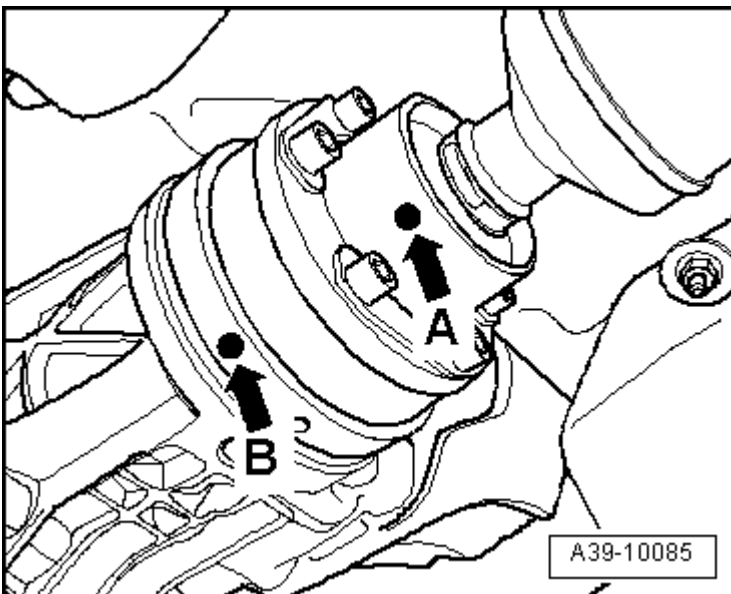


Fig. 151: Identifying Mark Position Of Driveshaft Flange To Rear Final Drive

Courtesy of AUDI OF AMERICA, LLC

-- Guide the driveshaft between the fuel tank and the rear subframe downward and tie it to the side.

-- Remove any high temperature grease inside the flange/driveshaft.

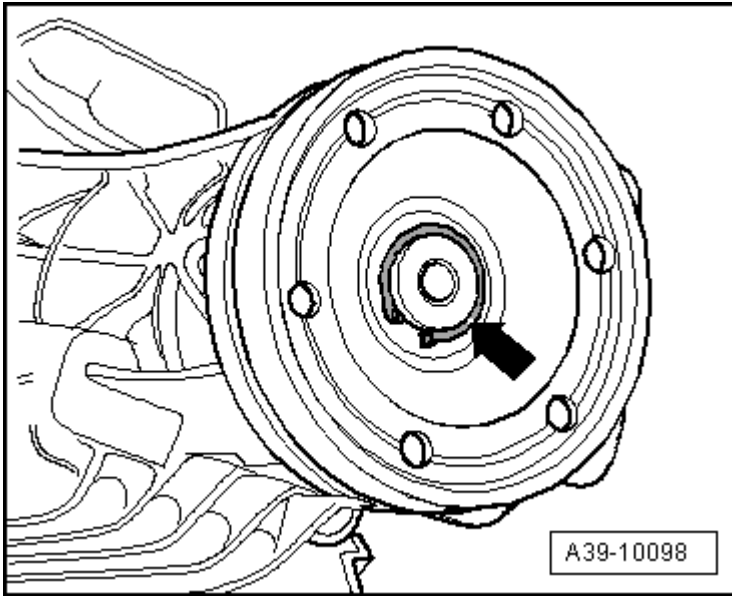


Fig. 152: Removing/Installing Circlip
Courtesy of AUDI OF AMERICA, LLC

-- Remove the locking ring -arrow-.

-- Mark the position of the flange/driveshaft -B- to the pinion -A- -arrow-.

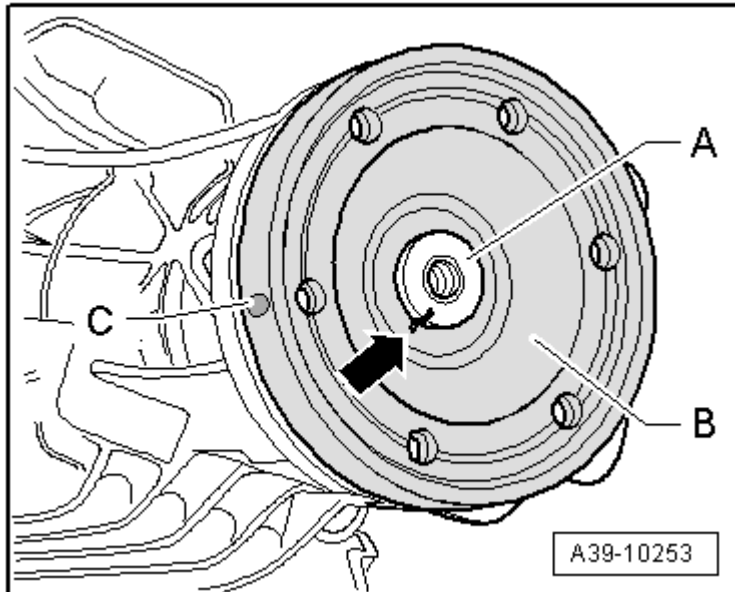


Fig. 153: Locating Mark Position Of Flange/Driveshaft To Pinion
Courtesy of AUDI OF AMERICA, LLC

NOTE: This mark -arrow- is needed so that the color dot -C- on the outside of the

flange remains in its earlier position.

Only by doing this can the smallest imbalance possible inside the rear final drive be guaranteed.

-- Remove the flange/driveshaft.

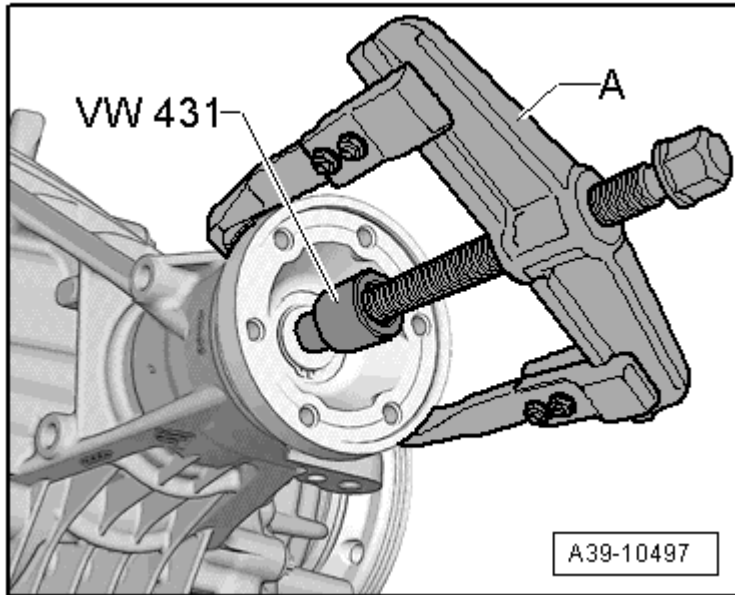


Fig. 154: Two-Arm Puller Kukko 20-10
Courtesy of AUDI OF AMERICA, LLC

A - For example, two-arm puller Kukko 20-10

-- Place an absorbent cloth -A- under the final drive on the subframe.

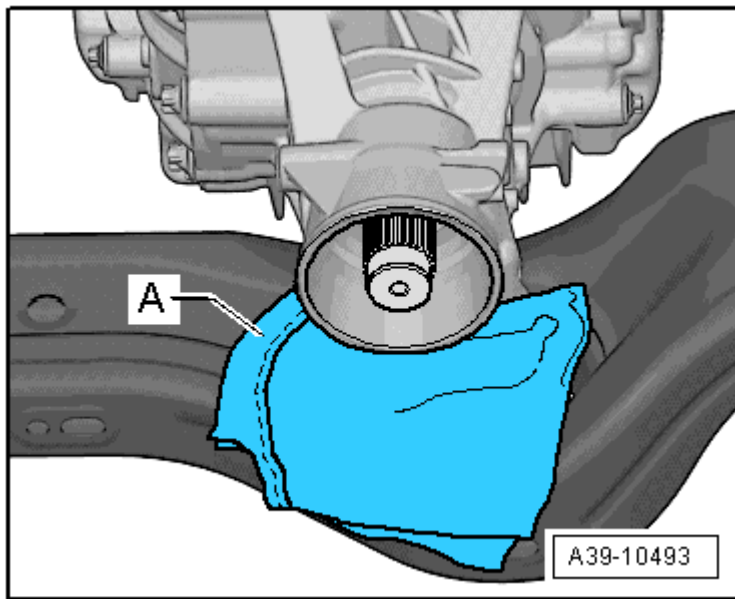


Fig. 155: Identifying Cloth Under Final Drive On Subframe
Courtesy of AUDI OF AMERICA, LLC

-- Puncture the metal cover on the shaft seal -A- in direction of the -arrow- using a scriber -B-.

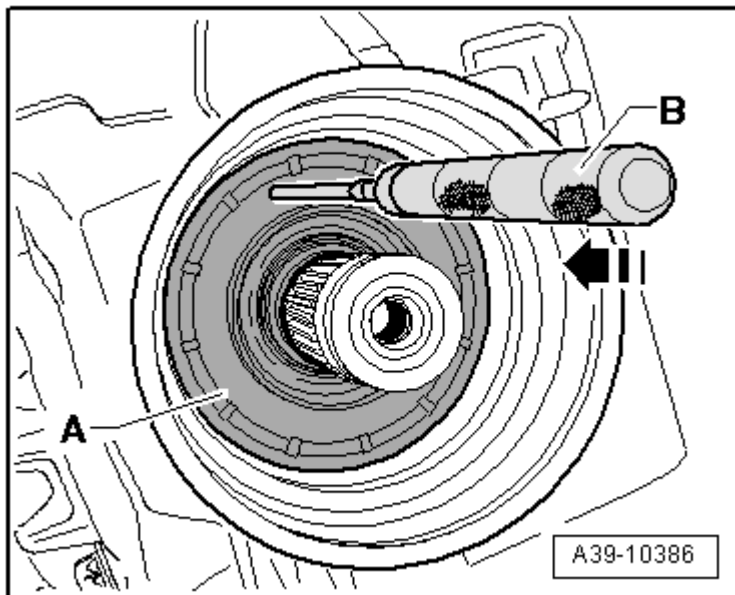


Fig. 156: Puncturing Metal Cover Using Scriber
Courtesy of AUDI OF AMERICA, LLC

-- Insert a screw -arrow- into this opening -A-.

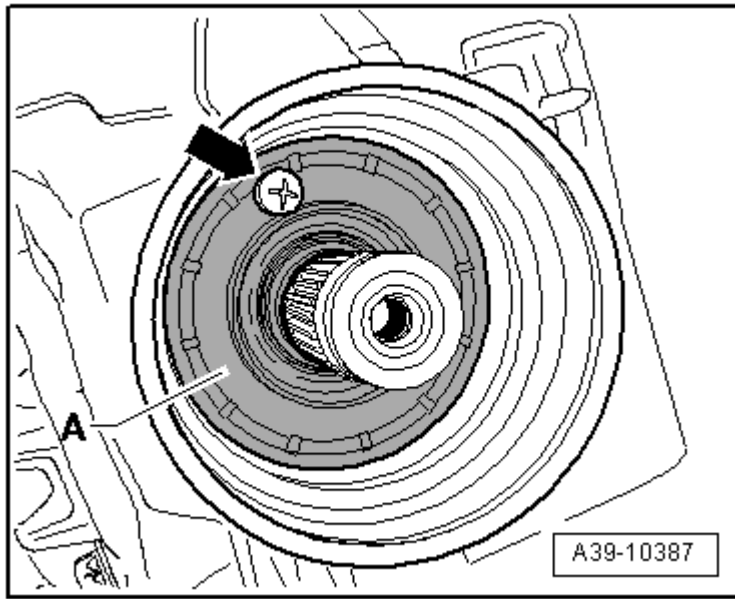


Fig. 157: Identifying Screw On Metal Cover
 Courtesy of AUDI OF AMERICA, LLC

-- Remove the flange/driveshaft seal -A- in direction of the -arrow-.

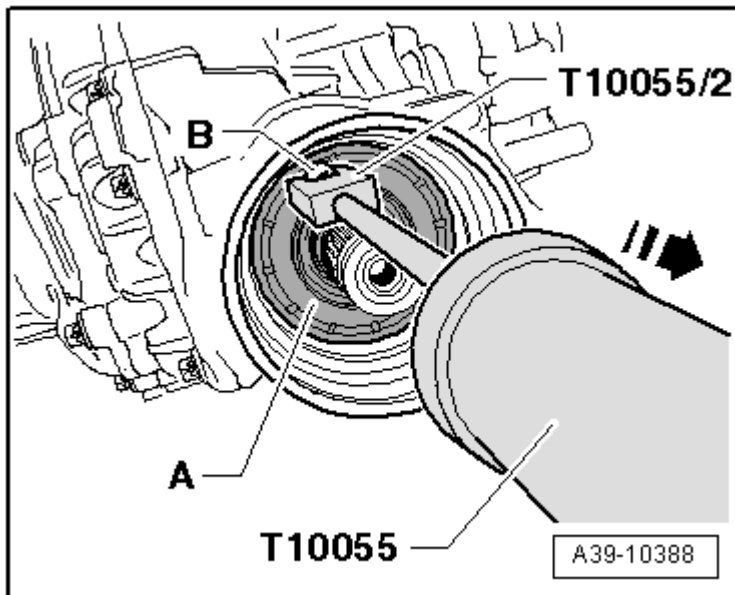


Fig. 158: Removing Flange/ Driveshaft Seal
 Courtesy of AUDI OF AMERICA, LLC

B - Sheet-metal screw

Installing

Install in reverse order of removal. Be sure to note the following:

- Fill the space between the sealing and dust lips halfway with sealing grease G 052 128 A1.
- Coat the outer circumference of the shaft seal with gear oil.
- Place the new seal -A- on the T40247/1.

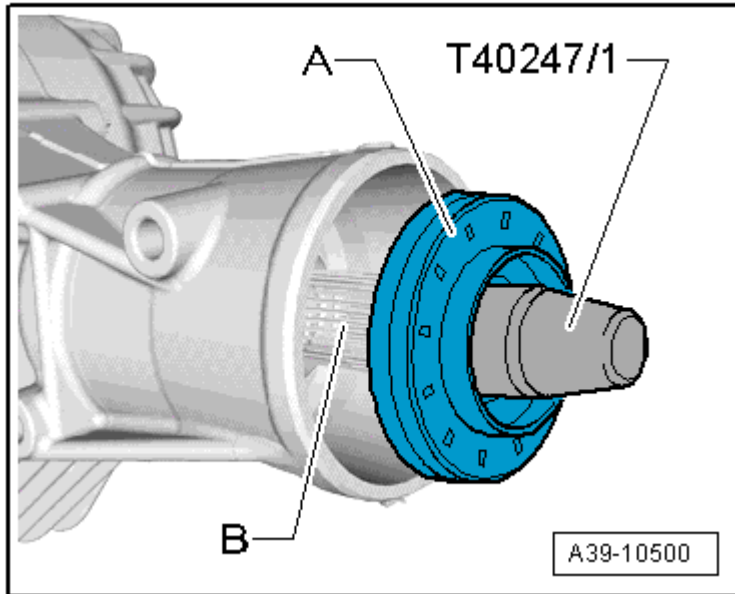


Fig. 159: T40247/1

Courtesy of AUDI OF AMERICA, LLC

NOTE: Make sure the spring on the seal is behind the sealing lip when it is installed.

- Install the T40247/1 and the shaft seal -A- on the pinion -B-.
- Install the new shaft seal all the way without tilting it.

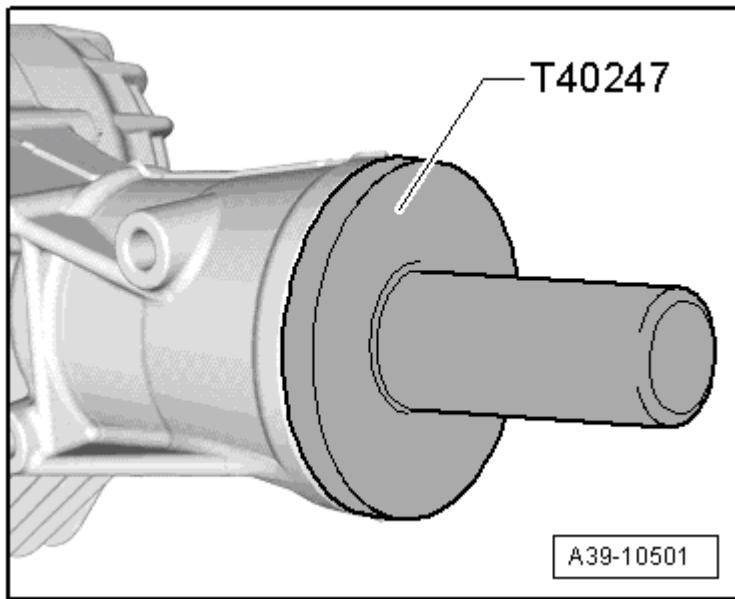


Fig. 160: T40247/1

Courtesy of AUDI OF AMERICA, LLC

-- Heat the flange/driveshaft -B- to 115 °C (239 °F) using the VAS 6414 or a hotplate.

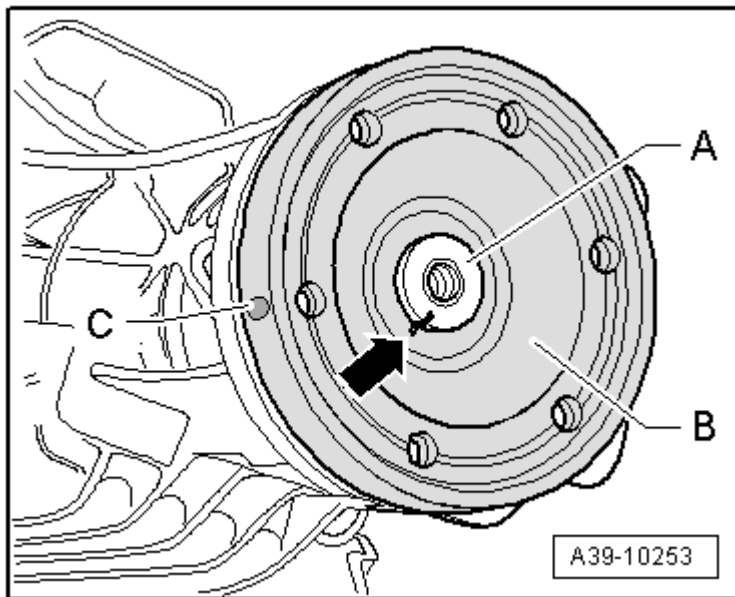


Fig. 161: Locating Mark Position Of Flange/Driveshaft To Pinion

Courtesy of AUDI OF AMERICA, LLC

WARNING:

- Wear protective gloves.
- Monitor the temperature with a VAS 6519 if using a hotplate.

-- Position the flange/driveshaft -B- on the pinion -A- so that the marking -arrow- lines up.

-- Install the flange/driveshaft all the way using the T10380.

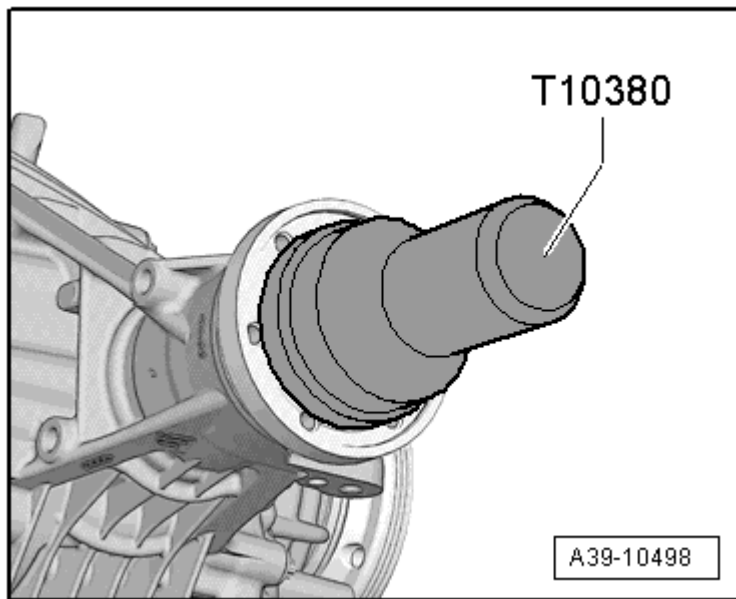


Fig. 162: T10380

Courtesy of AUDI OF AMERICA, LLC

Install the circlip -1- as follows:

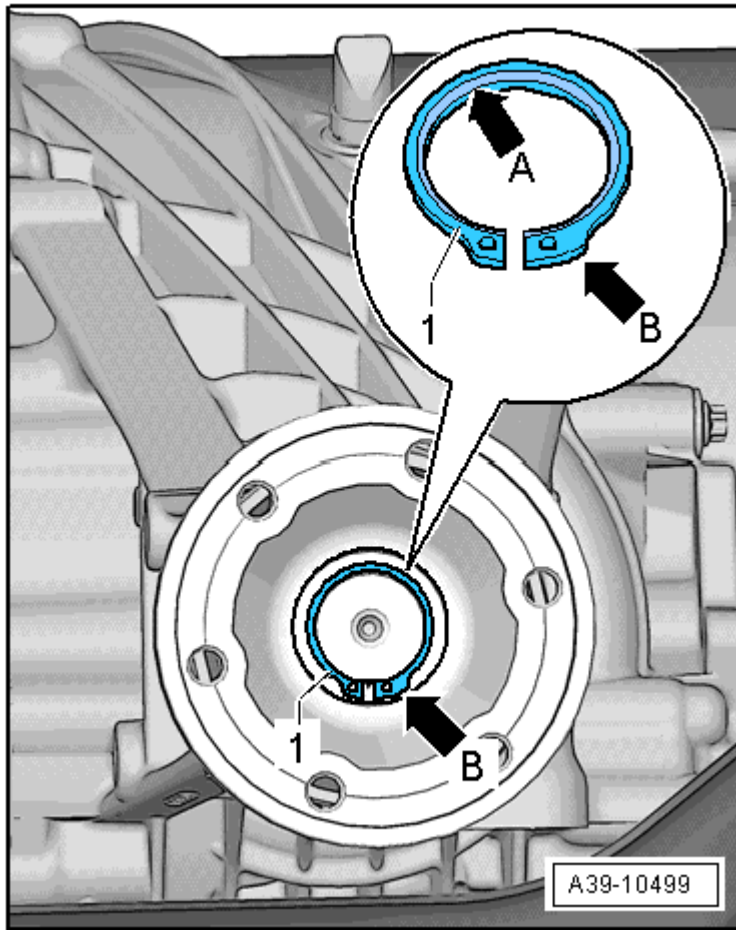


Fig. 163: Installing Locking Ring

Courtesy of AUDI OF AMERICA, LLC

- Always replace the circlip -1-.
- The bevel on the inner diameter of the locking ring -arrow A- faces out, toward the driveshaft.
- The wide strip on the locking ring -arrow B- must be on the right side, as illustrated.

-- Measure the thickness of the old circlip -1-.

-- Install a new circlip -1- having the same thickness as the old one.

-- Install the new locking ring -1-.

NOTE: It is necessary to determine the circlip -1- when replacing the flange/driveshaft.

First determine and then install the thickest possible circlip that can be installed into the groove -arrow- that can be used.

-- Gear oil in rear final drive 0BE, Filling, refer to **GEAR OIL IN REAR FINAL DRIVE 0BE, FILLING**.

-- Driveshaft, attaching to rear final drive **DRIVESHAFT, REMOVING FROM REAR FINAL DRIVE AND INSTALLING**

-- Install rear section of the exhaust system. Refer to **[For transmission(s) 0AW] [For engine(s) CALA] Description and Operation** or to **[For engine(s) CCBA] Description and Operation** .

FLANGE/DRIVESHAFT RING

Special tools and workshop equipment required

- Needle Bearing Drift VW 295 A
- Thrust Plate VW 402
- Punch VW 408 A
- Support Channels VW 457
- Separating Device 22 to 75 mm, for example Kukko 17/1

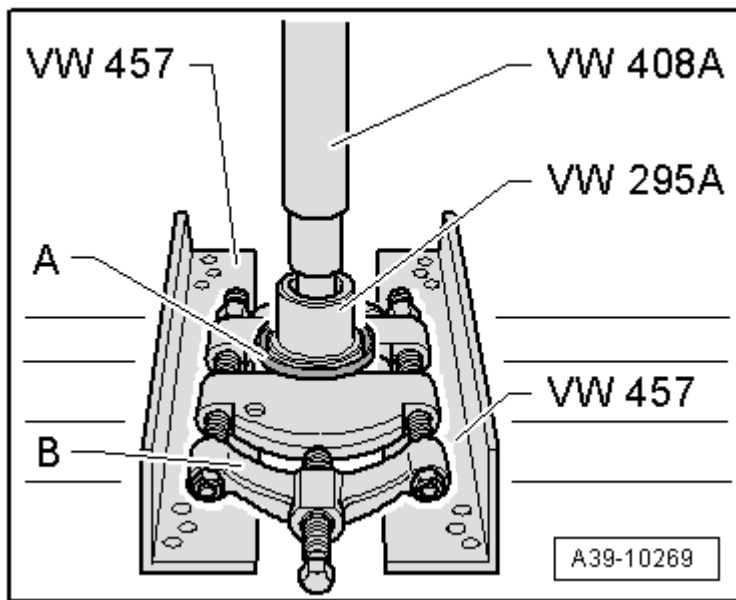


Fig. 164: Removing Ring -A- From Flange/Driveshaft
Courtesy of AUDI OF AMERICA, LLC

B - Separating tool 12 to 75 mm, for example Kukko 17/1

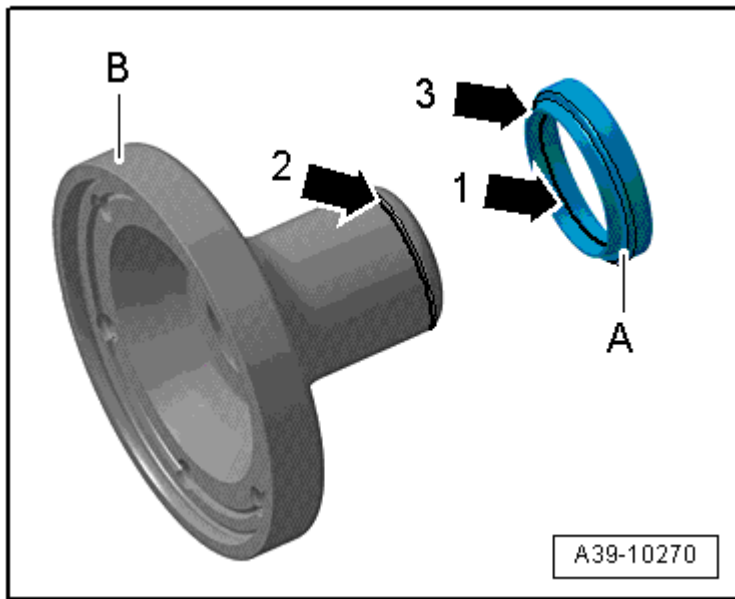


Fig. 165: Ring Installed Position -A- On Flange/Driveshaft
 Courtesy of AUDI OF AMERICA, LLC

- The ring -A- must be installed with the elevation -arrow 1- into the chamfer -arrow 2- on the flange -B-. The smaller outer circumference face the flange -arrow 3-.

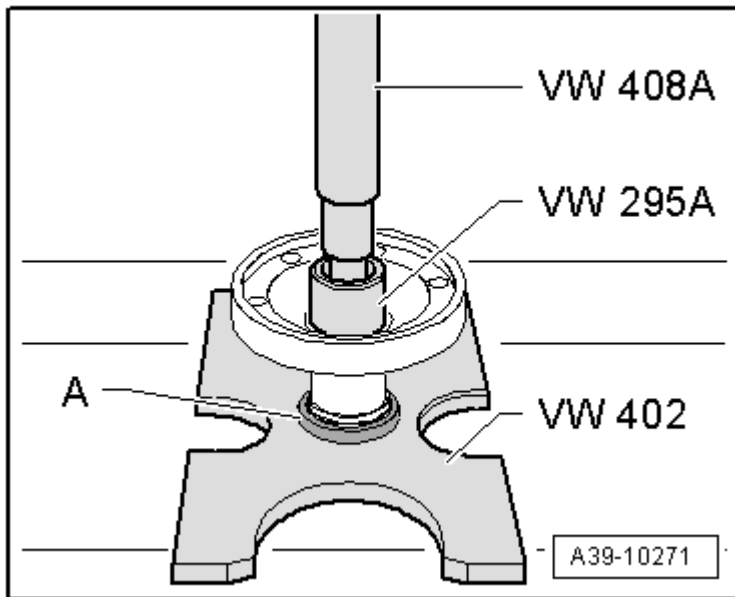


Fig. 166: Installing Ring -A- Onto Flange/Driveshaft
 Courtesy of AUDI OF AMERICA, LLC

- The ring -A- must clip into the chamfer in the flange **Fig. 165**.

DISASSEMBLY AND ASSEMBLY

HYDRAULIC CONTROL UNIT

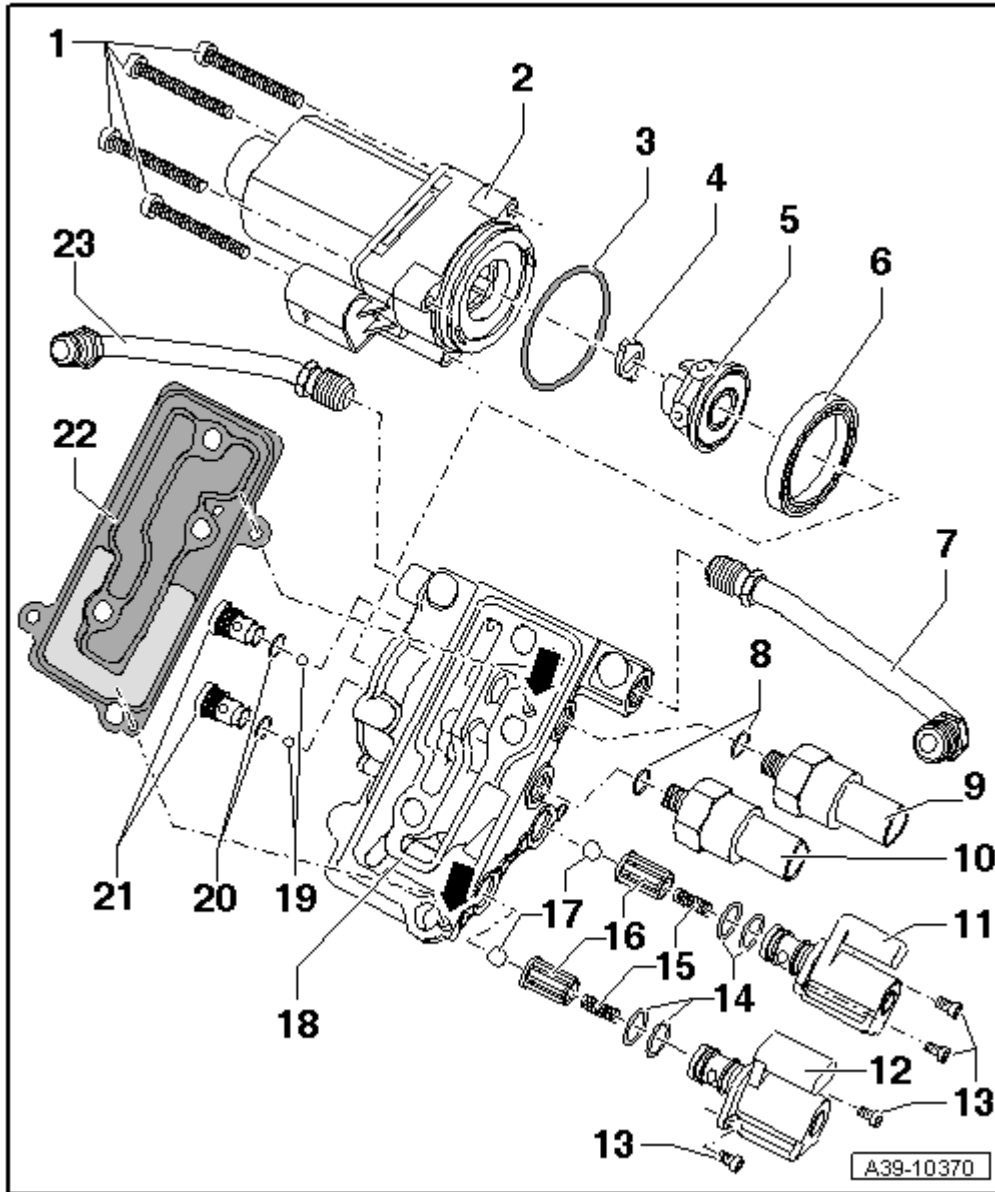


Fig. 167: Hydraulic Control Unit Replacement Components
 Courtesy of AUDI OF AMERICA, LLC

1. Bolt
 - 5 Nm
2. All Wheel Drive (AWD) Pump -V415-
 - Removing and installing, refer to **PUMP**
3. O-ring
 - Always replace if removed
4. Adapter

NOTE: The adapter could fall out when removing the AWD pump.

Insert the adapter into the recesses in the hydraulic pump before installing the AWD pump.

5. Hydraulic Pump
 - Consists of a guide ring, a housing and 6 pistons
 - Assembling, refer to **Fig. 168**
 6. Ball Bearing
 - Can be removed and installed by hand
 7. Left Pipe
 - Tighten the nuts to 30 Nm.
 - Installed between the hydraulic control unit and the left chamber
 - First install the nuts hand-tight
 8. O-ring
 - Always replace if removed
 9. Oil Pressure/Temperature Sensor -G437-
 - 10 Nm
 - Brown connector
 - Removing and installing, refer to **Oil Pressure/Temperature Sensor -G437- OR Oil Pressure/Temperature Sensor 2 -G640-**
 10. Oil Pressure/Temperature Sensor 2 -G640-
 - 10 Nm
 - Black connector
 - Removing and installing, refer to **Oil Pressure/Temperature Sensor -G437- OR Oil Pressure/Temperature Sensor 2 -G640-**
 11. All Wheel Drive (AWD) Clutch Valve 2 -N446-
 - Color: brown
 - Removing and installing, refer to **CLUTCH VALVE OR CLUTCH VALVE 2**
 - Installation position: The connector faces upward toward the oil pressure/temperature sensor --
- CAUTION: Do not confuse with the AWD clutch valve.**
12. All Wheel Drive (AWD) Clutch Valve -N445-
 - Color: black
 - Removing and installing, refer to **CLUTCH VALVE OR CLUTCH VALVE 2**
 - Installation position: The connector faces upward toward the oil pressure/temperature sensor --

CAUTION: Do not confuse with the AWD clutch valve 2.

13. Bolt
 - 2.5 Nm
14. O-ring
 - Always replace if removed
 - Position on the clutch valve --
15. Compression Spring
 - Install in the guide, refer to item 16
16. Guide
 - Installation position: The larger diameter faces the ball, refer to item 17
17. Ball
 - Insert into the guide before installing, refer to item 16
18. Hydraulic Control Unit Housing
 - With centering pins -arrows-
 - The centering pins hold the hydraulic control unit and seal to the final drive housing.
19. Ball
 - Insert into the hole in the shuttle valve, refer to item 21 before installing
20. O-ring
 - Always replace if removed
21. Shuttle Valve
 - 8 Nm
 - Removing and installing, refer to **Fig. 170**
22. Gasket
 - With a screen
 - Mount on the centering pins on the hydraulic control unit housing
23. Right Pipe
 - Tighten the nuts to 30 Nm.
 - Installed between the hydraulic control unit and the right chamber
 - First install the nuts hand-tight

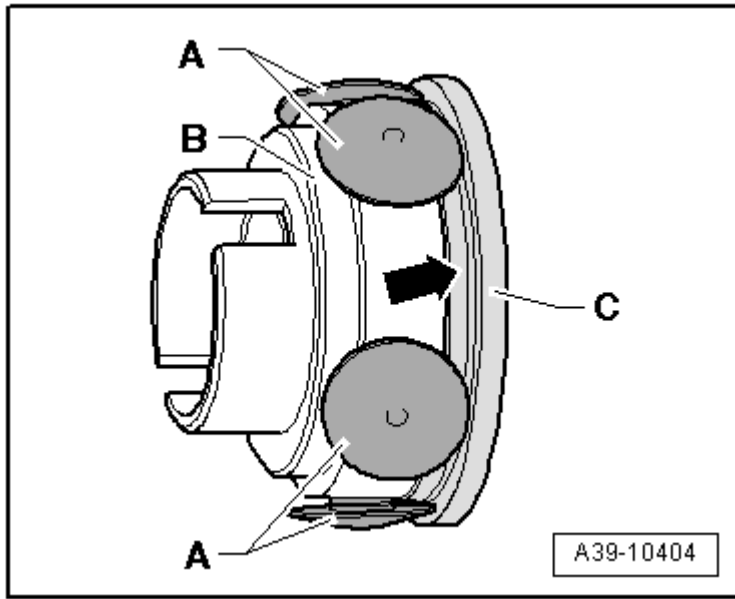


Fig. 168: Assembling Hydraulic Pump
 Courtesy of AUDI OF AMERICA, LLC

- Insert the 6 pistons -A- into the housing -B-.
- Position the guide ring -C- so that the piston touches the collar -arrow-.
- Install the hydraulic pump -1- and the guide ring -2- into the hydraulic control unit housing.

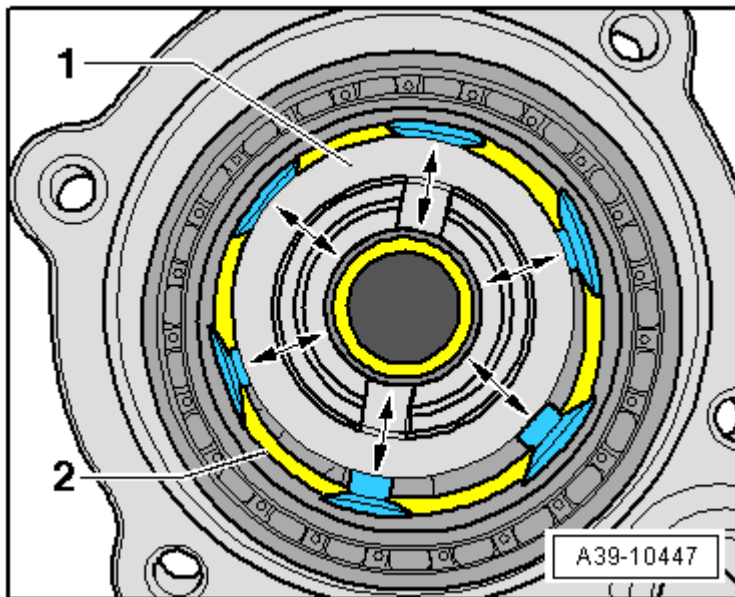


Fig. 169: Hydraulic Control Unit Housing
 Courtesy of AUDI OF AMERICA, LLC

Functional Check

-- Turn the hydraulic pump -1- several times. Pay attention to the following when doing this:

- The hydraulic pump must not get stuck or tilt when being turned.
- All the pistons must be pulled out and pushed in.

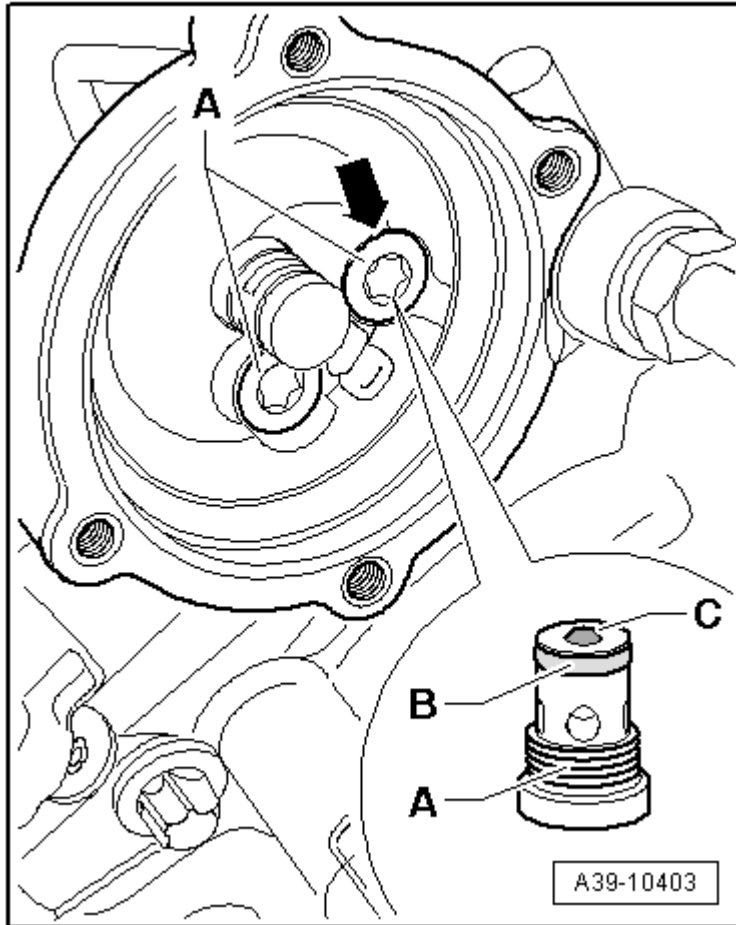


Fig. 170: Removing And Installing Shuttle Valves

Courtesy of AUDI OF AMERICA, LLC

NOTE: Remove the AWD pump, the hydraulic pump and the ball bearing beforehand, refer to item 6.

-- Remove the shuttle valves -A-. The ball -C- must be removed as well.

-- Insert the ball into the hole in the shuttle valve when installing.

-- Carefully install the shuttle valve with a new O-ring -B- all the way in.

- The shuttle valve must be deeper than the housing surface -arrow-. If this does not happen, then remove the valve again and adjust the position of the ball.

-- Tighten the shuttle valve to the tightening specification, refer to item 21.

SPECIAL TOOLS

Special tools and workshop equipment required

- Sleeve 40 - 21

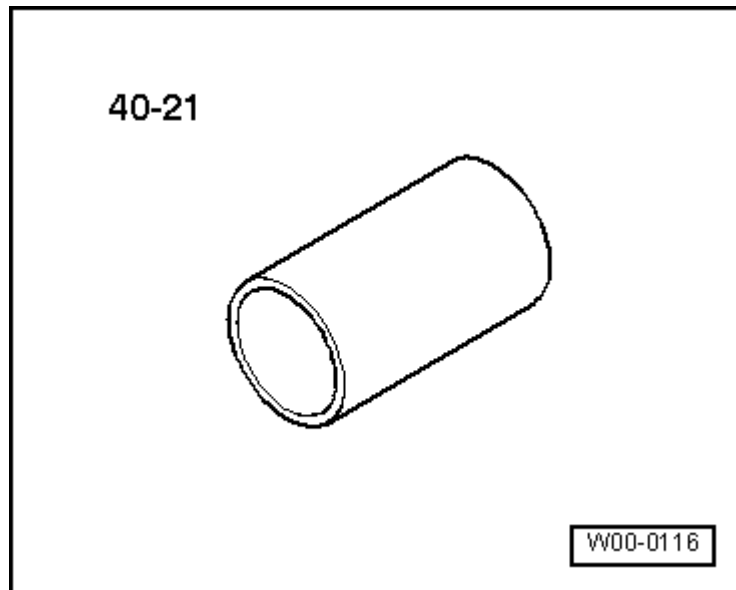


Fig. 171: Sleeve 40 - 21

Courtesy of AUDI OF AMERICA, LLC

- Seal Press Sleeve 2003/1 from the Seal Installer 2003

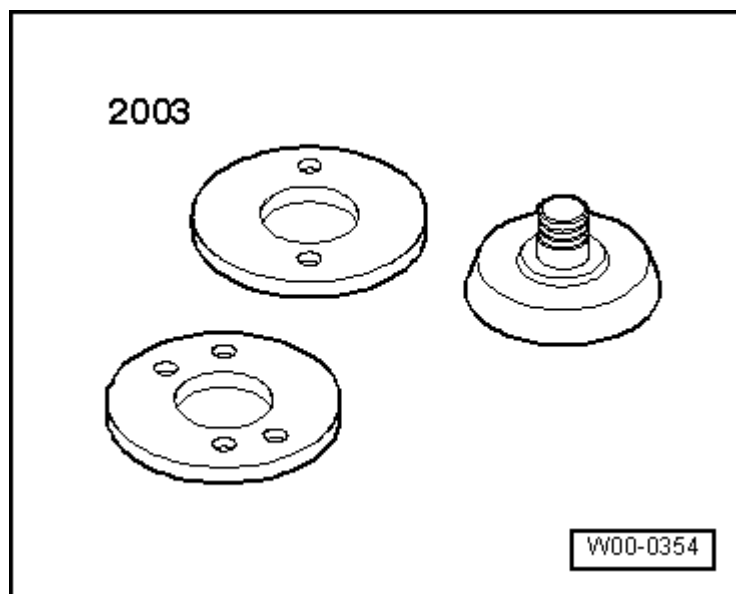


Fig. 172: Seal Press Sleeve 2003/1

Courtesy of AUDI OF AMERICA, LLC

- Alignment Fixture-4W Dr.Shaft 3139

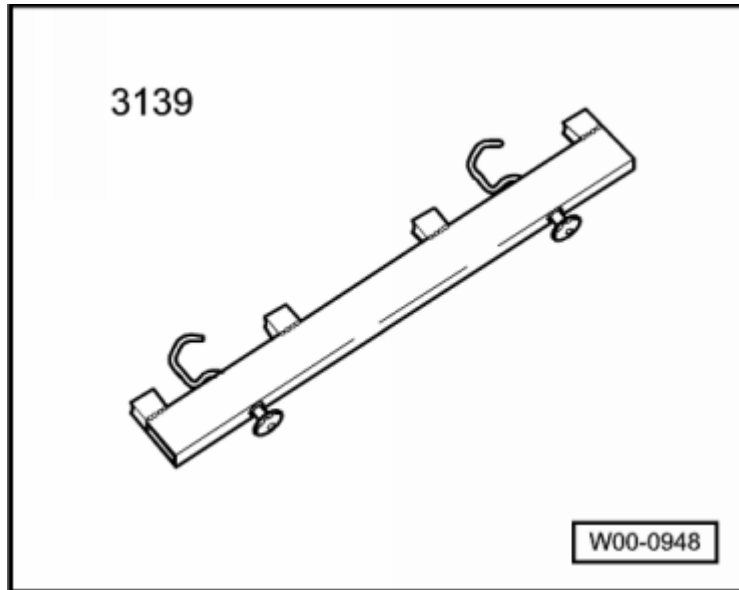


Fig. 173: Alignment Fixture-4W Dr.Shaft 3139
Courtesy of AUDI OF AMERICA, LLC

- Press Tool 3345

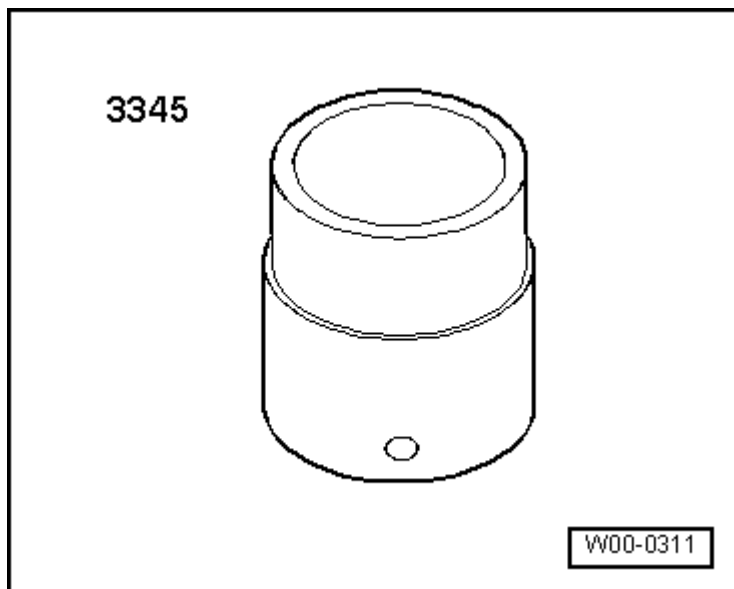


Fig. 174: Identifying Press Tool 3345
Courtesy of AUDI OF AMERICA, LLC

- Tensioning Strap T10038

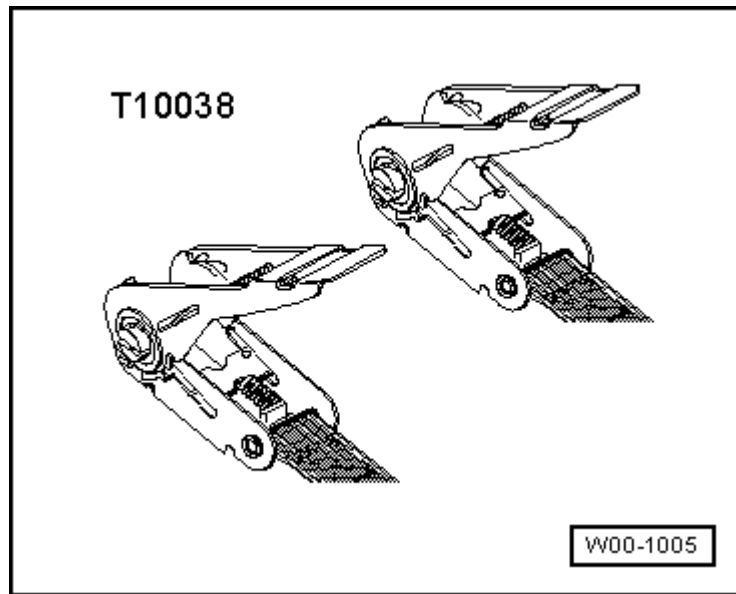


Fig. 175: Tensioning Strap T10038
Courtesy of AUDI OF AMERICA, LLC

- Puller T10055

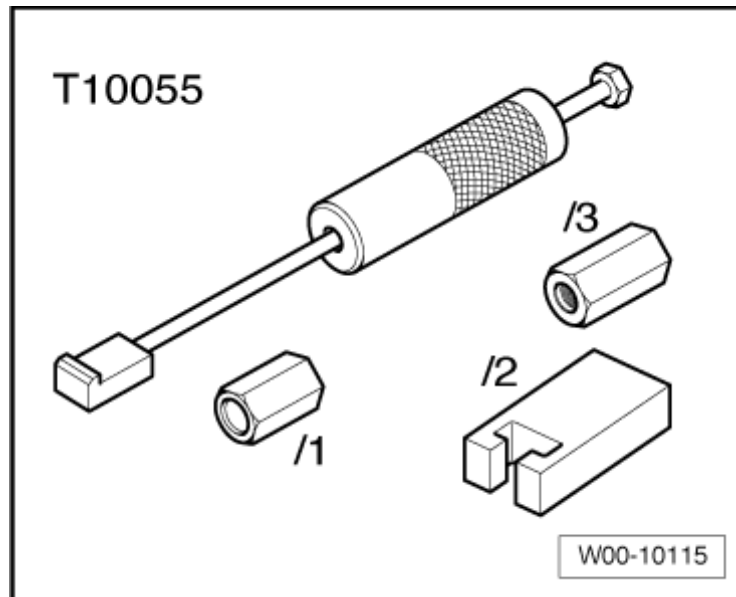


Fig. 176: Puller T10055
Courtesy of AUDI OF AMERICA, LLC

- -2- Adapter T10055/2
- Guide sleeve T40222/1
- Hex Ball Socket T10058

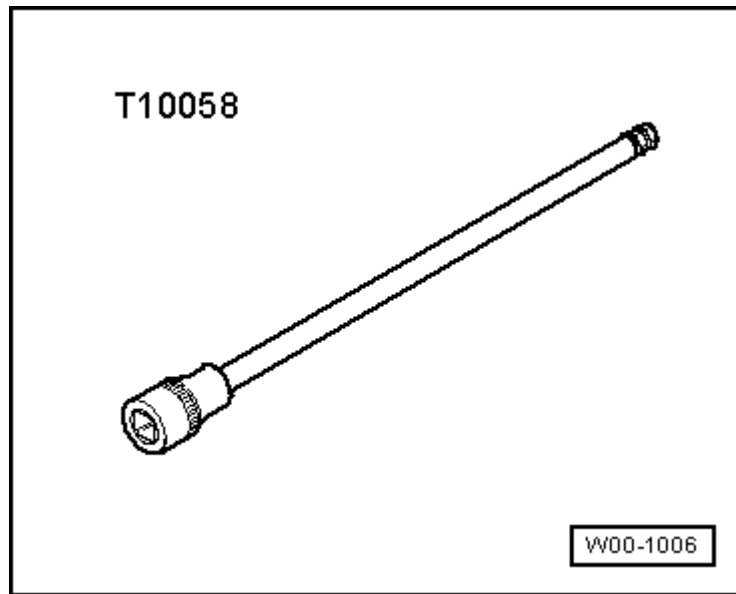


Fig. 177: Identifying Hex Ball Socket T10058
Courtesy of AUDI OF AMERICA, LLC

- Counterhold Tool Touareg V10 T10172 with Adapters T10172/5

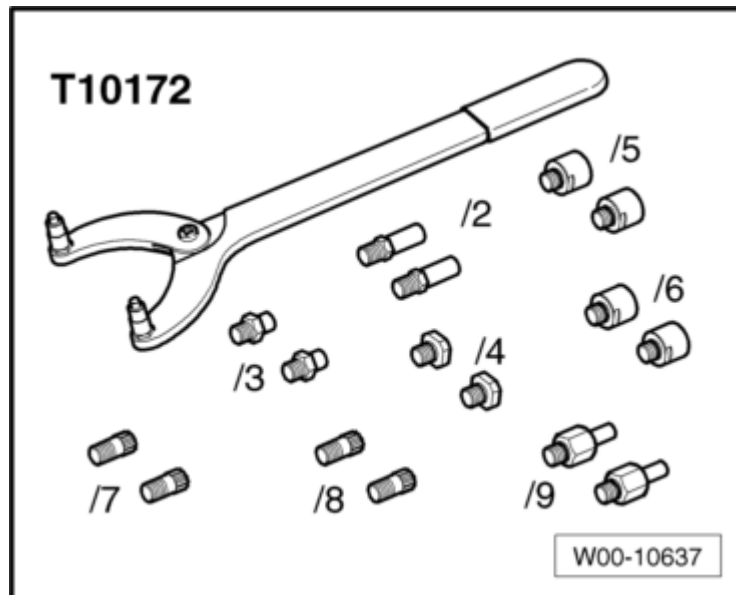


Fig. 178: Counterhold Tool T10172
Courtesy of AUDI OF AMERICA, LLC

- Adapter T10172/5 (M8 bolts)
- Adapter T10172/6 (M10 bolts)
- Socket XZN 4 T10370

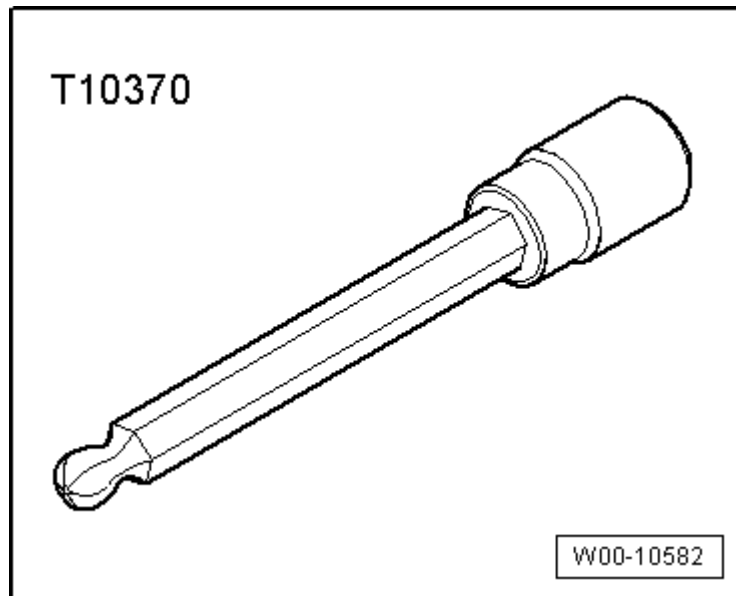


Fig. 179: Socket Wrench 4 mm T10370
Courtesy of AUDI OF AMERICA, LLC

- Thrust Piece T10380

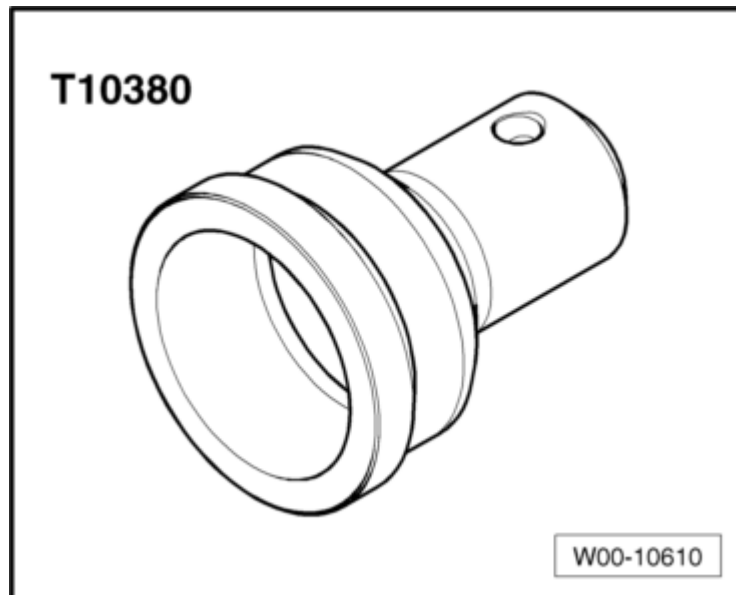


Fig. 180: Thrust Piece T10380
Courtesy of AUDI OF AMERICA, LLC

- Socket 27 mm T40218

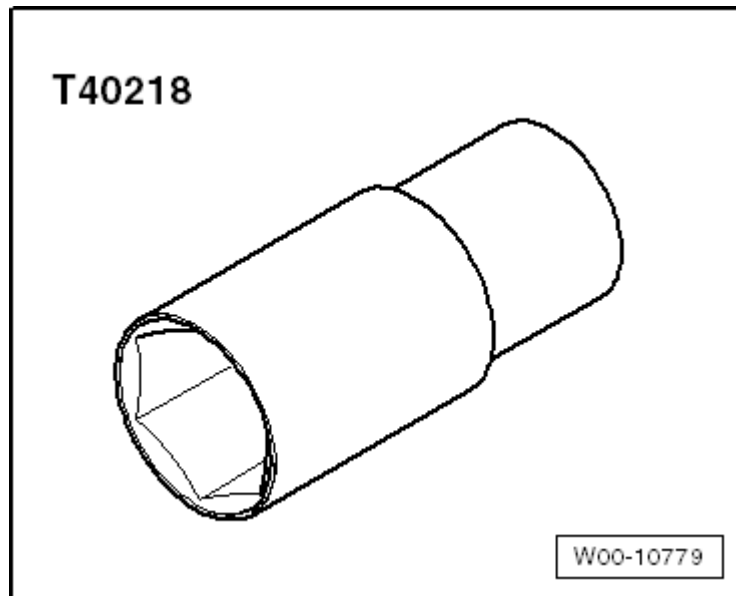


Fig. 181: Socket 27 mm T40218
Courtesy of AUDI OF AMERICA, LLC

- Assembly Tool T40222

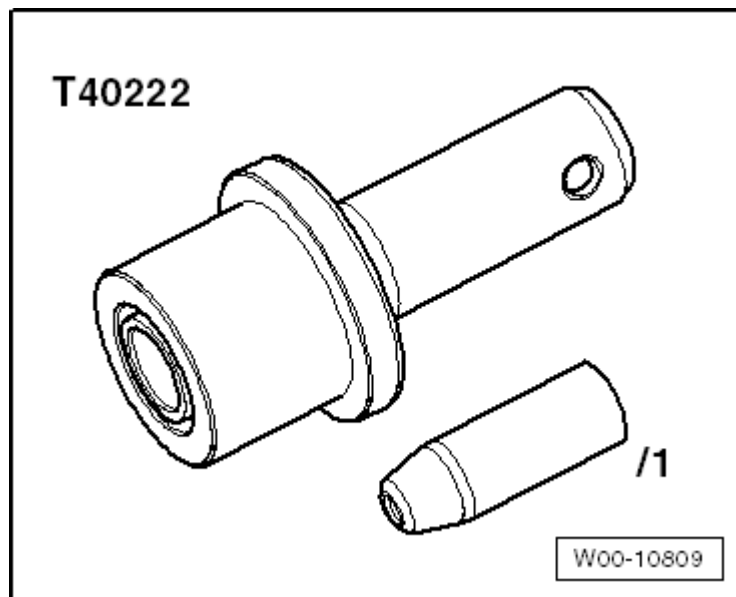


Fig. 182: Assembly Tool T40222
Courtesy of AUDI OF AMERICA, LLC

- Hose Clamp Pliers V.A.G 1275

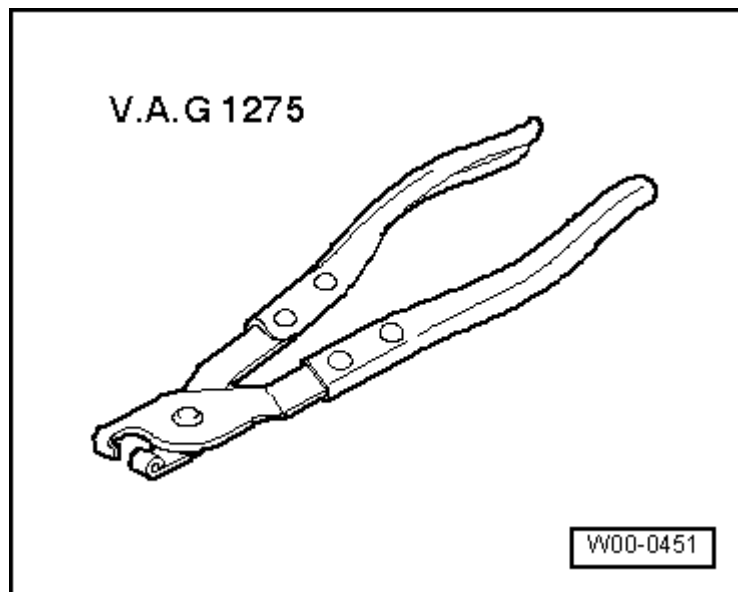


Fig. 183: Hose Clamp Pliers V.A.G 1275
Courtesy of AUDI OF AMERICA, LLC

- Engine-Gearbox Jack V.A.G 1383 A with Universal Mount V.A.G 1359/2

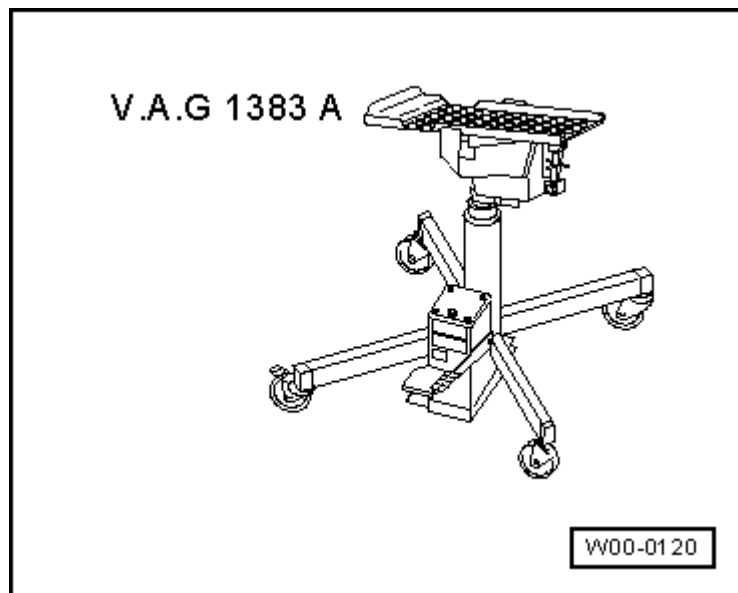


Fig. 184: Engine & Transmission Jack VAG 1383 A
Courtesy of AUDI OF AMERICA, LLC

- Charging Device F/Haldex 2 Coup. VAS 6291 or Charging Device for Haldex Coupling 2 VAS 6291A

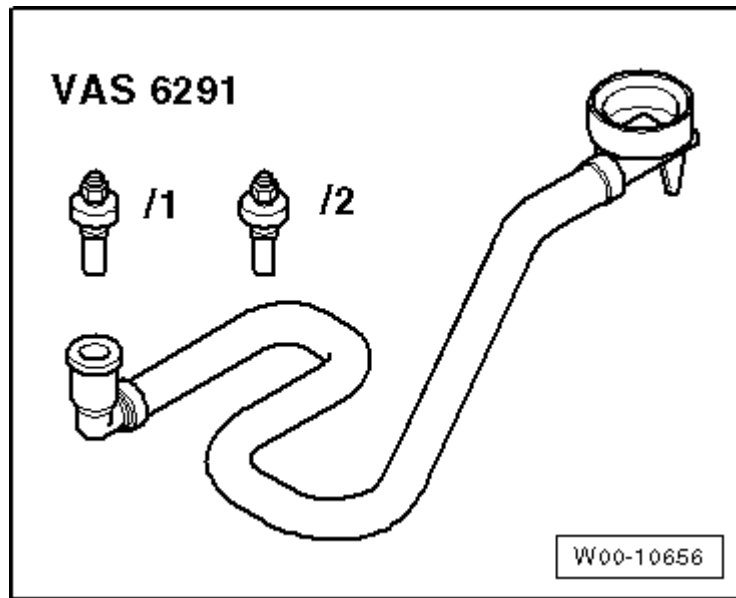


Fig. 185: Identifying Charging Device F / Haldex 2 Couplings And Adapters
Courtesy of AUDI OF AMERICA, LLC

- Adapter for Oil Filling VAS 6291/ 2 VAS 6291/2 or Adapter for Oil Filling VAS 6291/ 3 VAS 6291/3
- Vehicle Diagnosis, Testing and Information System VAS 5051B

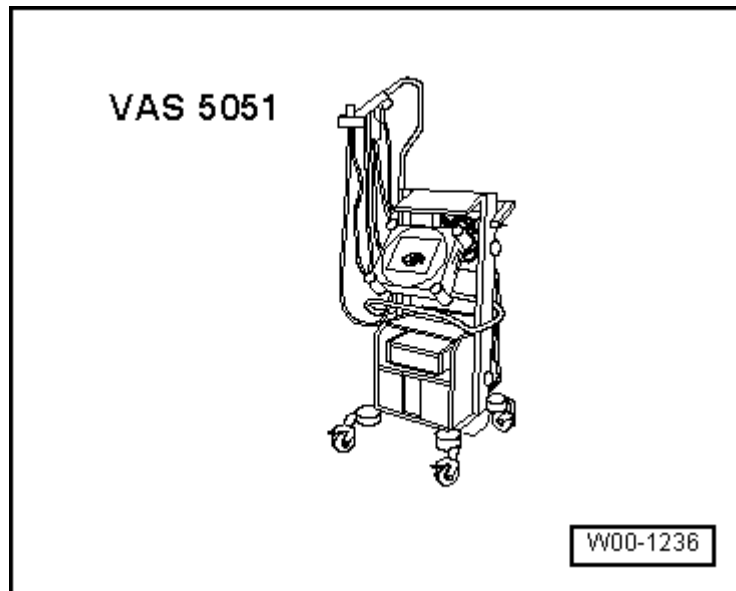


Fig. 186: VAS 5051
Courtesy of AUDI OF AMERICA, LLC

- -3- Separating Device 22 to 115 mm, for example Kukko 17/2

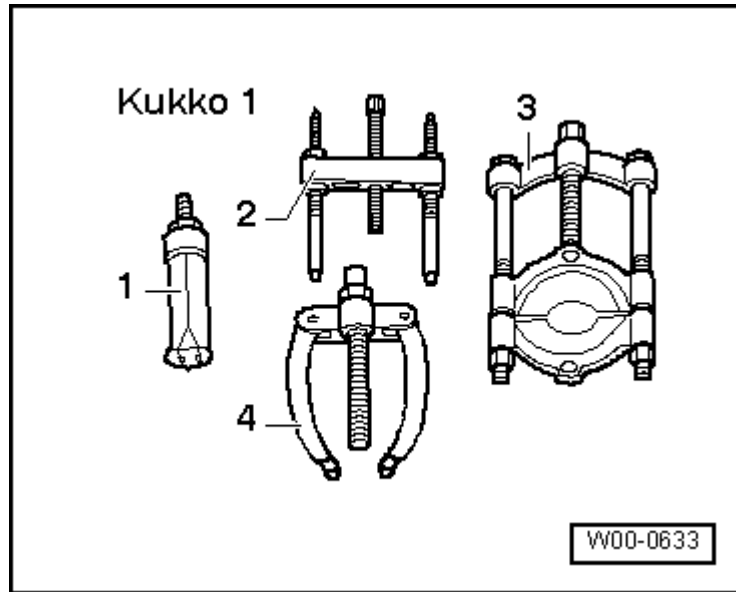


Fig. 187: Identifying Kukko Tools
Courtesy of AUDI OF AMERICA, LLC

- -1- Two Arm Puller Kukko 20/10

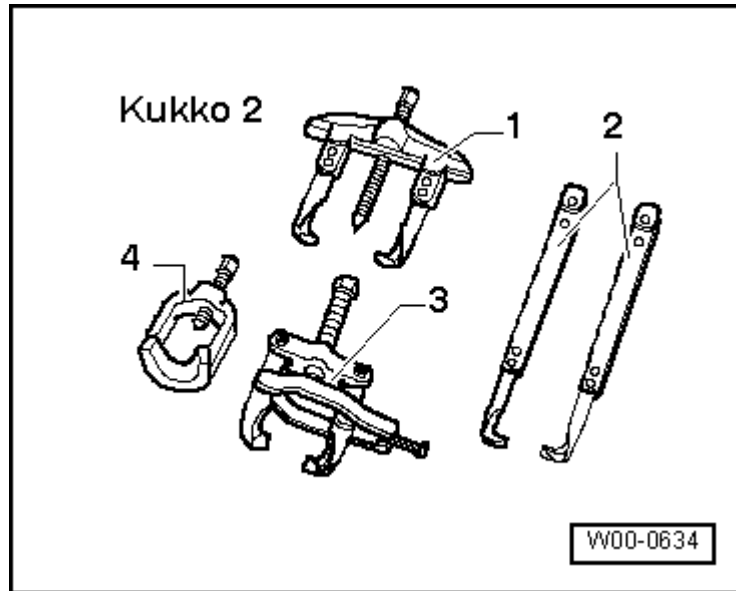


Fig. 188: Identifying Special Tools - Kukko 20/10 Puller Set
Courtesy of AUDI OF AMERICA, LLC

- Inductive heat unit VAS 6414

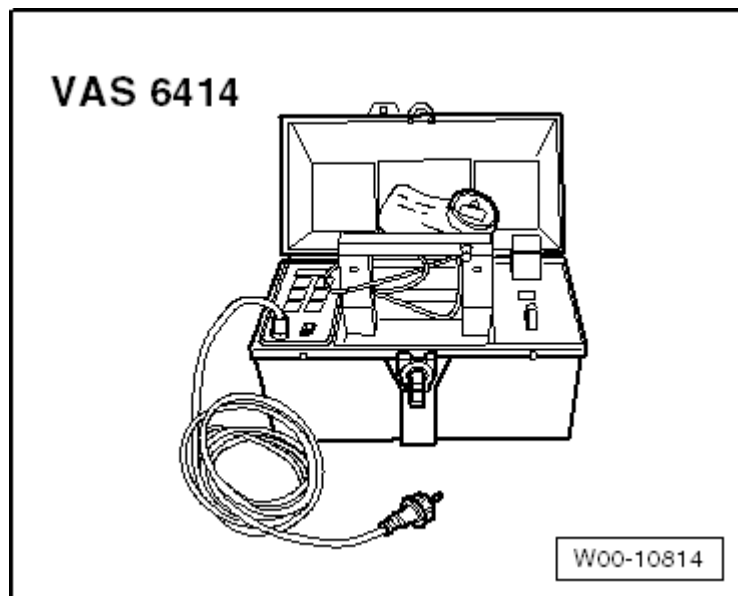


Fig. 189: Identifying Inductive Heater VAS 6414
Courtesy of AUDI OF AMERICA, LLC

- Needle Bearing Drift VW 295 A

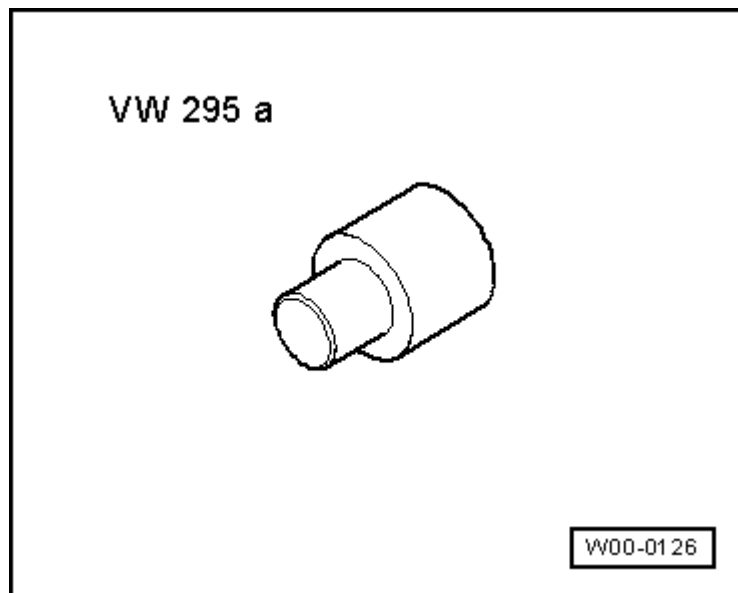


Fig. 190: VW 295 A
Courtesy of AUDI OF AMERICA, LLC

- Puller VW 391

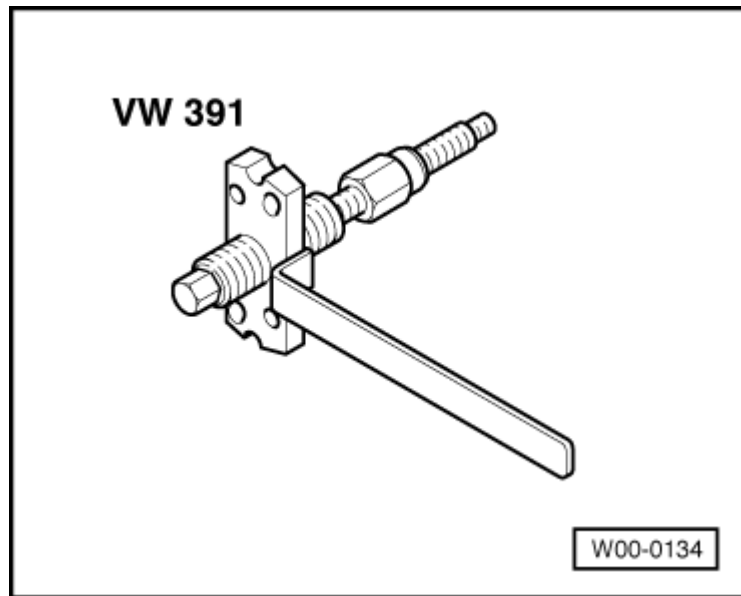


Fig. 191: Puller VW 391
Courtesy of AUDI OF AMERICA, LLC

- Thrust Plate VW 401

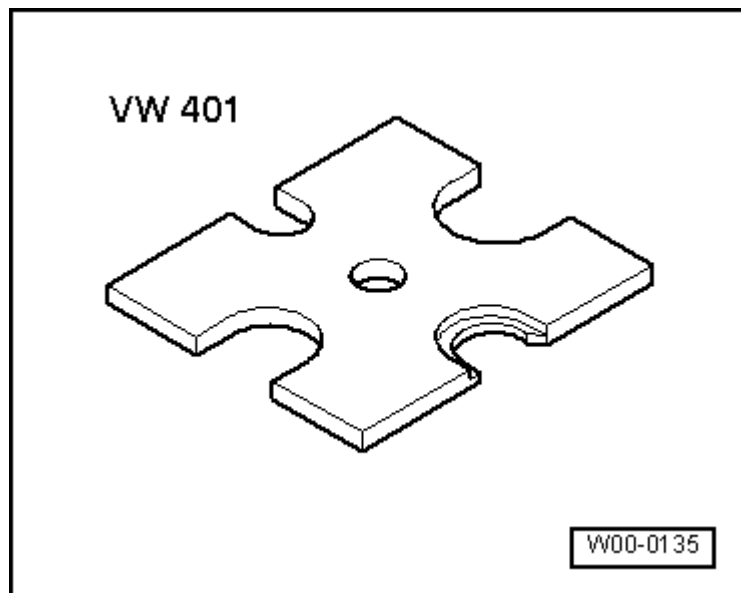


Fig. 192: Thrust Plate VW 401
Courtesy of AUDI OF AMERICA, LLC

- Thrust Plate VW 402

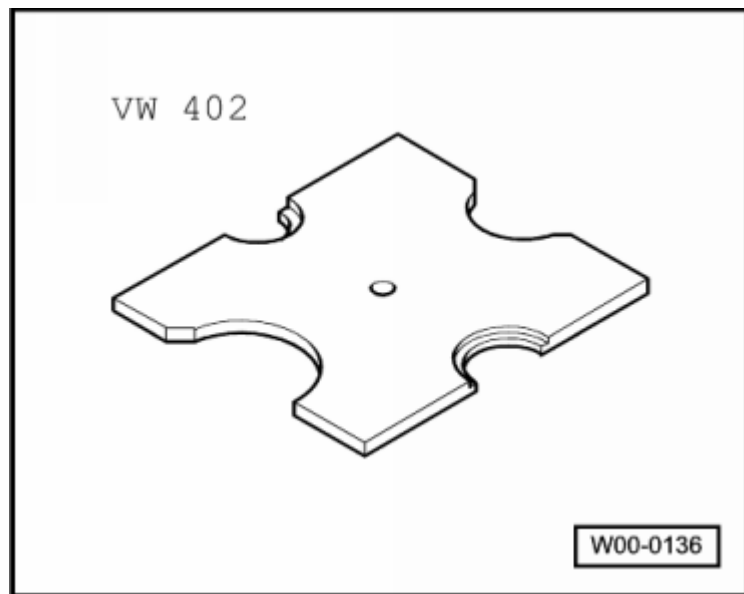


Fig. 193: Thrust Plate VW 402
Courtesy of AUDI OF AMERICA, LLC

- Punch VW 408 A

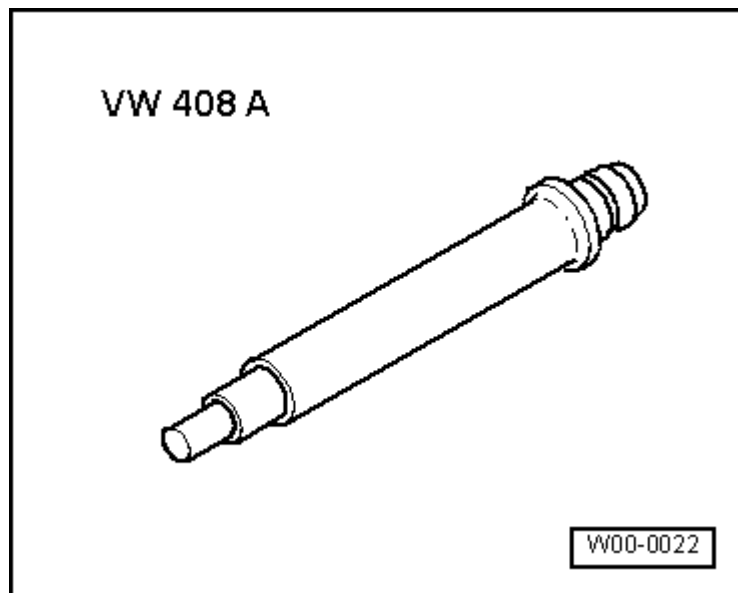


Fig. 194: VW 408 A
Courtesy of AUDI OF AMERICA, LLC

- Thrust Disc VW 412

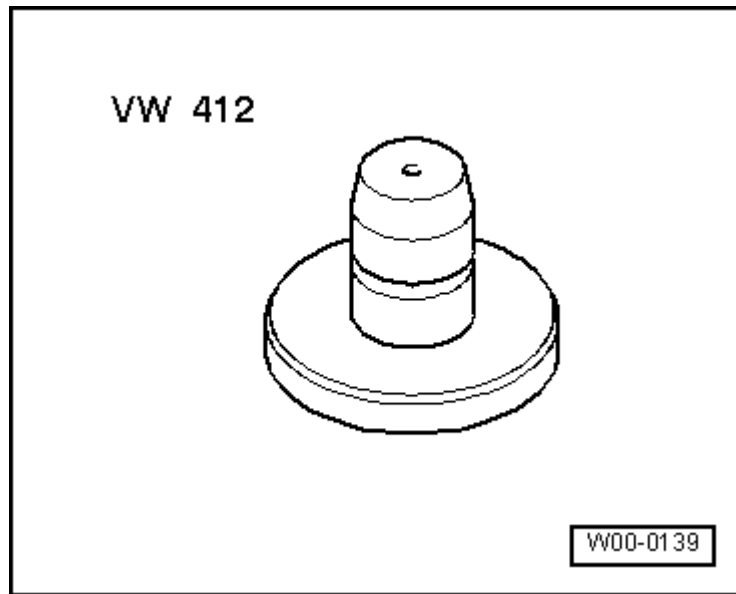


Fig. 195: Punch VW 412
Courtesy of AUDI OF AMERICA, LLC

- Thrust Pad 16.5/28 mm Dia. VW 431

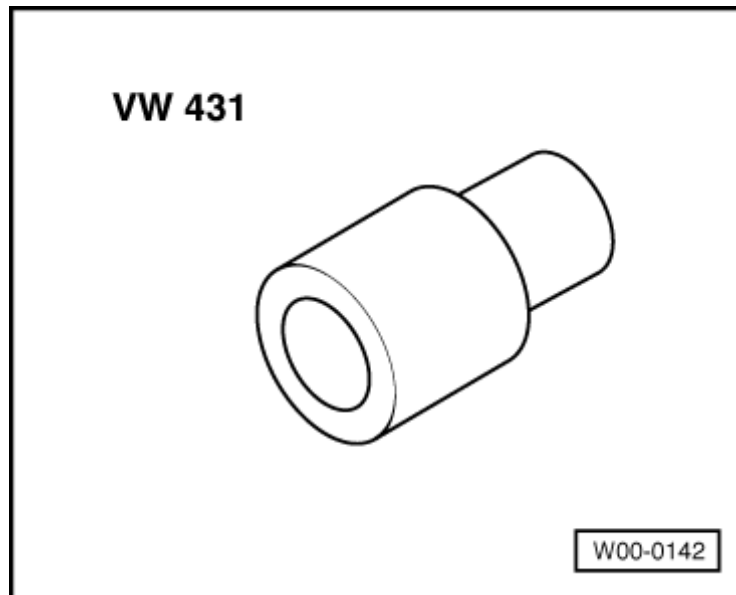


Fig. 196: VW 431
Courtesy of AUDI OF AMERICA, LLC

- Support Channels VW 457

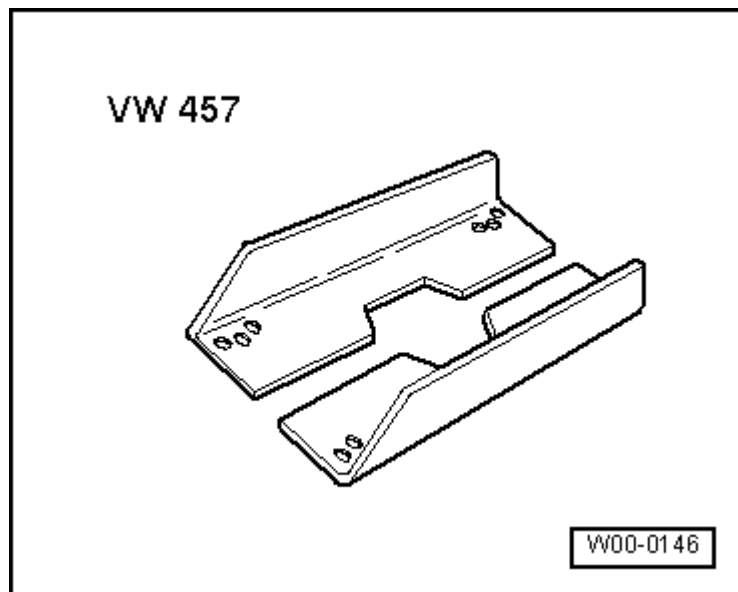


Fig. 197: VW 457

Courtesy of AUDI OF AMERICA, LLC

- Slide Hammer - Complete Set VW 771

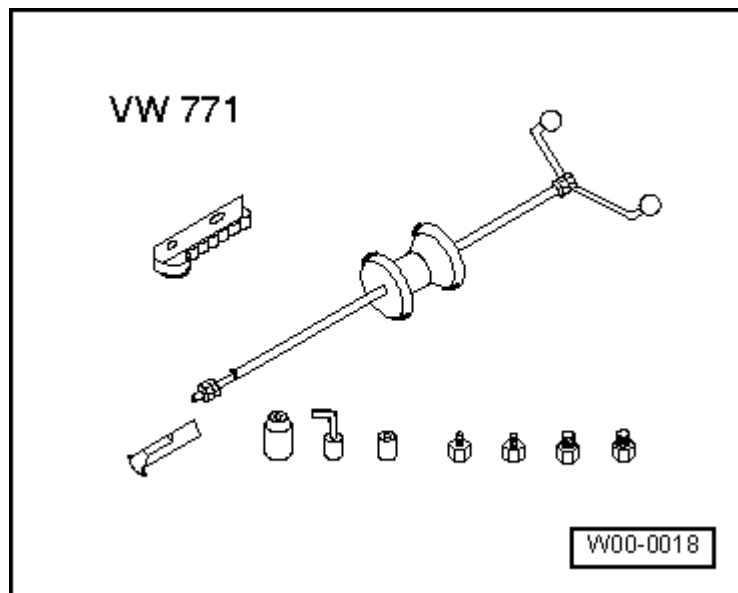


Fig. 198: Identifying Slide Hammer VW 771

Courtesy of AUDI OF AMERICA, LLC

- Transmission Support VW 785/1 B

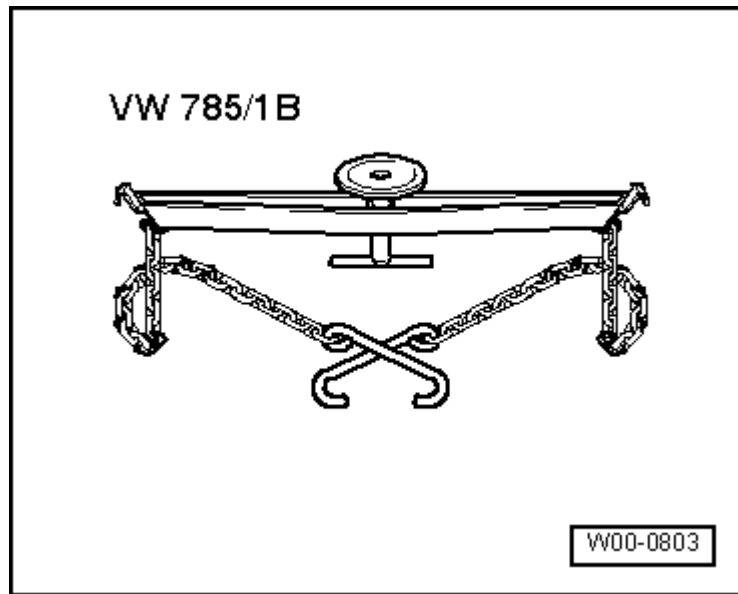


Fig. 199: Transmission support VW 785/1B
Courtesy of AUDI OF AMERICA, LLC

- Not illustrated:
- Assembly Tool 3301
- Support Arm Bearing Inst. Tool 3346
- Nut 3346/3
- Digital thermometer VAS 6519
- Thrust Piece T40221

Edition 1 20 2012