

39 FINAL DRIVE - FRONT DIFFERENTIAL

FRONT FINAL DRIVE GEAR OIL

Front final drive gear oil

NOTE:

- General repair instructions --> General repair instructions.
- Read the rules when working on the automatic transmission --> Read the rules.

Front final drive gear oil level, checking

Special tools, testers and auxiliary items required

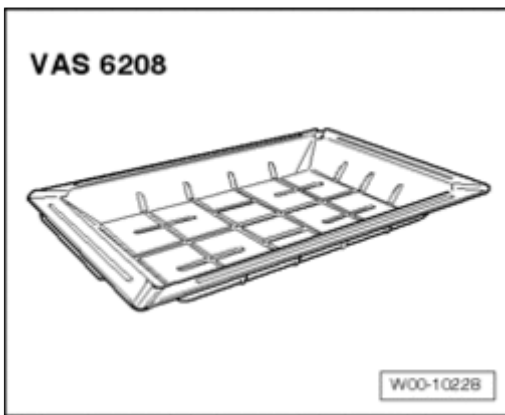


Fig. 184: Drip Tray For VAS 6100, VAS 6208
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray for workshop hoist VAS 6208
- Safety goggles

Condition

- Gear oil about 20 ° C (room temperature)

Work sequence

- Drive vehicle onto a four-column hoist or over an inspection pit so that it is absolutely horizontal.

NOTE:

- Before raising the vehicle on a lifting platform (wheels off the ground) you must first activate the jacking mode --> 43 - SELF LEVELING SUSPENSION
- Place drip tray for workshop hoist VAS 6208 under transmission.

CAUTION: Wear safety goggles.

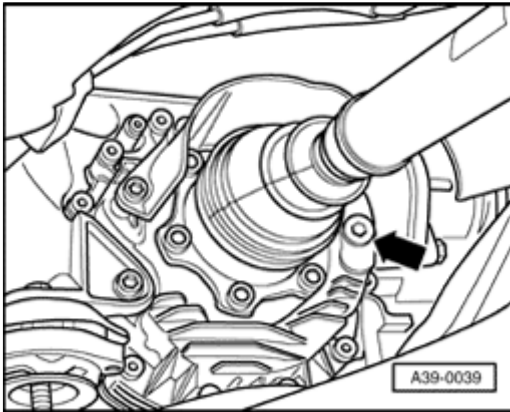


Fig. 185: Locating Sealing Plug

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove plug - **arrow** -.
- Oil level must be up to lower edge of filler hole.
- Drain off any excess oil or top off to proper level.

NOTE: ● **The screw plug with seal must be replaced.**

- Tighten new plug to 35 Nm.

NOTE: ● **If the vehicle has been raised on a hoist you must also de-activate the jacking mode --> 43 - SELF LEVELING SUSPENSION .**

Front final drive gear oil, topping off gear oil level after repairs

Special tools, testers and auxiliary items required

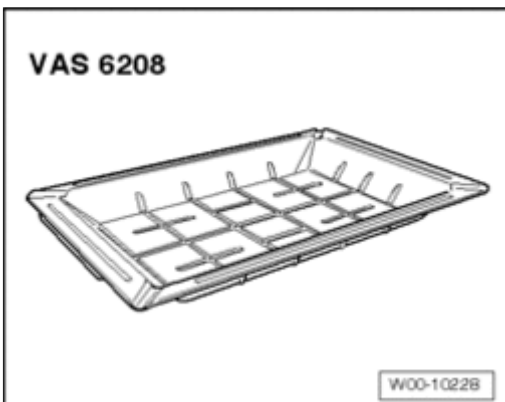


Fig. 186: Drip Tray For VAS 6100, VAS 6208

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray for workshop hoist VAS 6208
- Safety goggles

Requirements:

- Gear oil about 20 ° C (room temperature)

Topping off

NOTE:

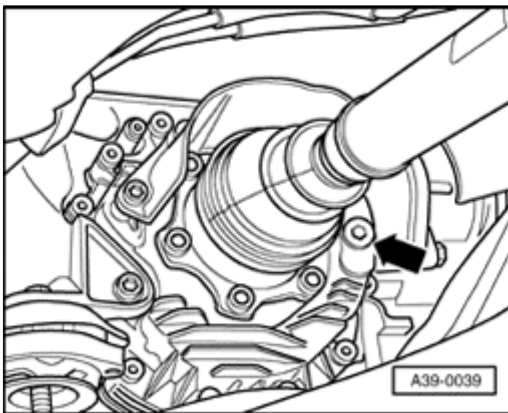
- **General repair instructions --> General repair instructions.**
- **Read the rules when working on the automatic transmission --> Read the rules.**

- Drive vehicle onto a four-column hoist or over an inspection pit so that it is absolutely horizontal.

NOTE:

- **Before raising the vehicle on a hoist (wheels off the ground) you must first activate the jacking mode --> 43 - SELF LEVELING SUSPENSION .**

- Place drip tray for workshop hoist VAS 6208 under the transmission.

**Fig. 187: Locating Sealing Plug**

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove plug - **arrow** -.
- Fill front final drive slowly and evenly over at least 5 minutes until gear oil comes out at lower edge of oil filler hole.

NOTE:

- **The top off period of at least 5 minutes is necessary so that the internal oil level can be balanced out between differential and baffle chamber.**

- **The screw plug with seal must be replaced.**

- Tighten new plug to 35 Nm.

NOTE:

- **A subsequent level check is not required.**
- **If the vehicle has been raised on a hoist you must also de-activate the jacking mode --> 43 - SELF LEVELING SUSPENSION .**

FRONT FINAL DRIVE, SERVICING

Front final drive, servicing

NOTE:

- **General repair instructions --> General repair instructions.**
- **Read the rules when working on the automatic transmission --> Read the rules.**

Front final drive, assembly overview

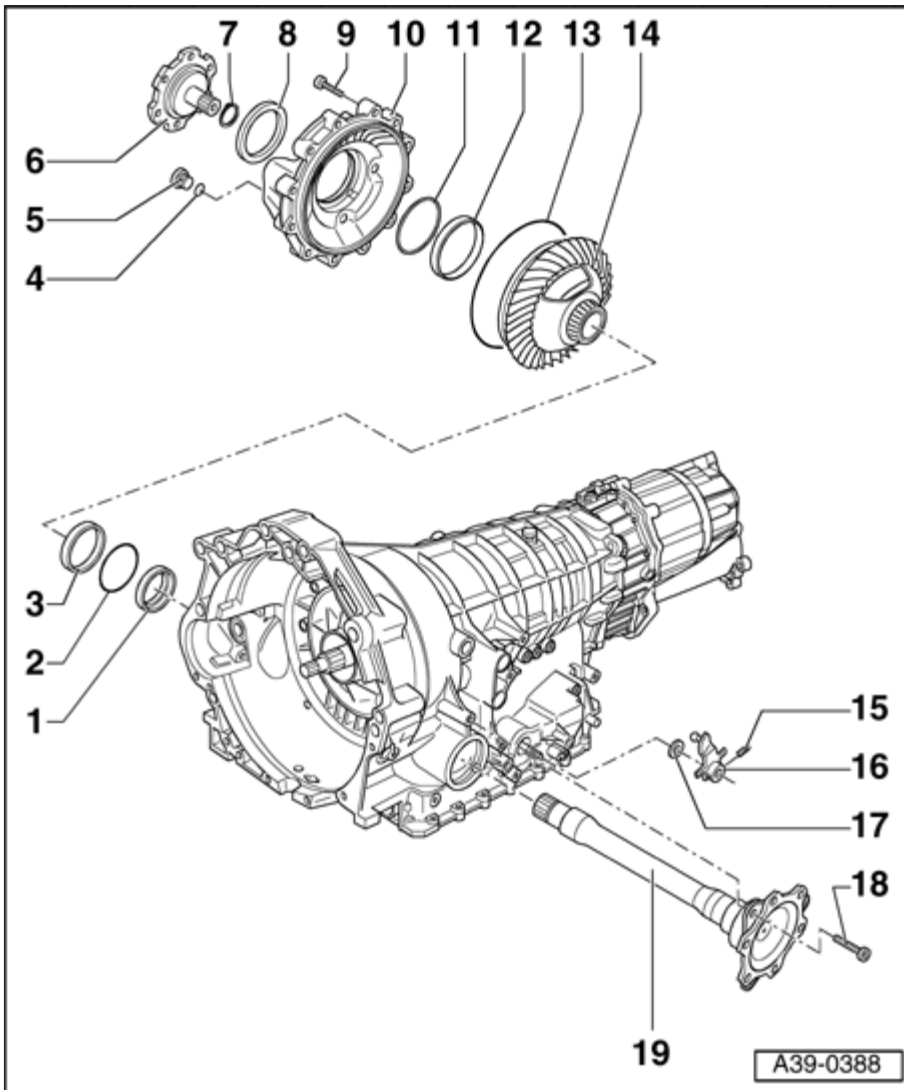


Fig. 188: Front Final Drive, Assembly Overview
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Oil seal

- Between final drive and transmission housing
- Replacing --> **Final drive/transmission housing oil seal, replacing**

2 - Shim

- Behind tapered roller bearing outer race

3 - Outer race for tapered roller bearing

4 - O-ring

- Replace

5 - Screw plug, 35 Nm

- Replace

6 - Flange shaft (right-side)

- Removing and installing --> **Flange shaft (right-side), removing and installing**

7 - Retaining ring

- Replace

8 - Flange shaft oil seal (right-side)

- Replacing --> **Flanged shaft oil seal (right side), replacing**

9 - Bolt -23 Nm-

- Follow correct tightening sequence --> **Final drive cover O-ring, replacing**

10 - Cover for final drive

11 - Shim

- Behind tapered roller bearing outer race

12 - Outer race for tapered roller bearing

13 - O-ring for final drive cover

- Replacing --> **Final drive cover O-ring, replacing**

14 - Differential

15 - Spring pin

16 - Selector shaft lever

17 - Oil seal for selector shaft

- Replacing --> **Selector shaft oil seal, replacing**

18 - Bolt, 23 Nm

19 - Flange shaft (left-side)

- Removing and installing --> **Flanged shaft (left side), removing and installing**

Flanged shaft (left side), removing and installing

Special tools, testers and auxiliary items required

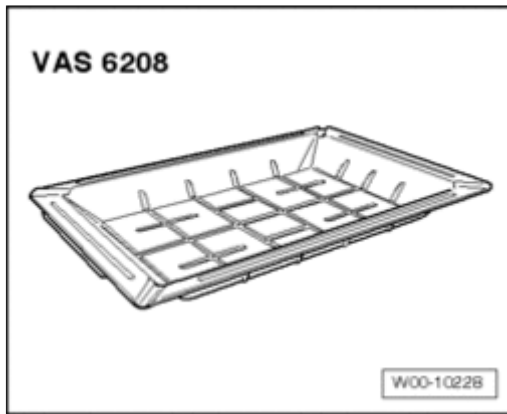


Fig. 189: Drip Tray For VAS 6100, VAS 6208
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray for workshop hoist VAS 6208

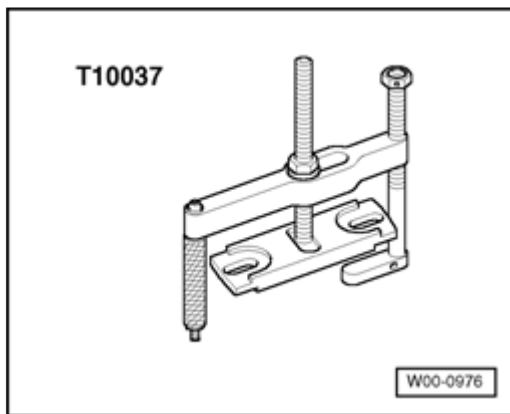


Fig. 190: Puller T10037
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Puller T10037

Removing

- Transmission is removed
- Place drip tray for workshop hoist VAS 6208 under transmission.

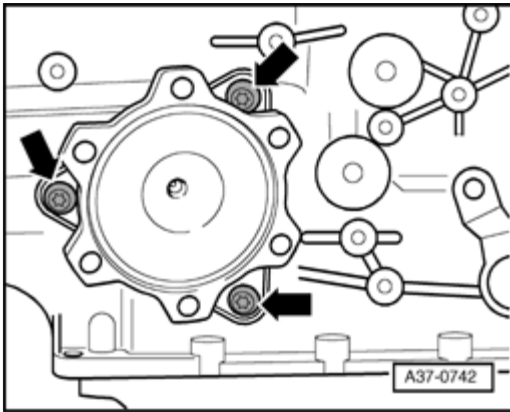


Fig. 191: Removing Bolts On Retaining Bracket For Left-Side Flange Shaft
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **arrows** - on retaining bracket for left-side flange shaft.

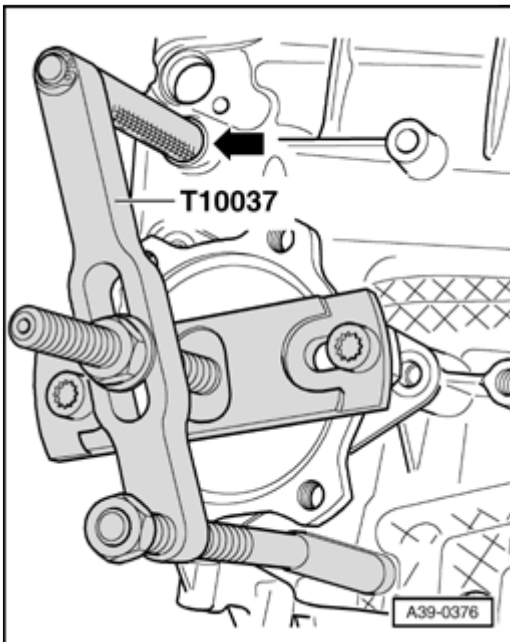


Fig. 192: Screwing Puller T10037 Onto Differential Cover
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Screw puller T10037 onto differential cover - **arrow** -.
- Pull out left flange shaft using puller T10037 only until bearing on shaft is removed from transmission housing.

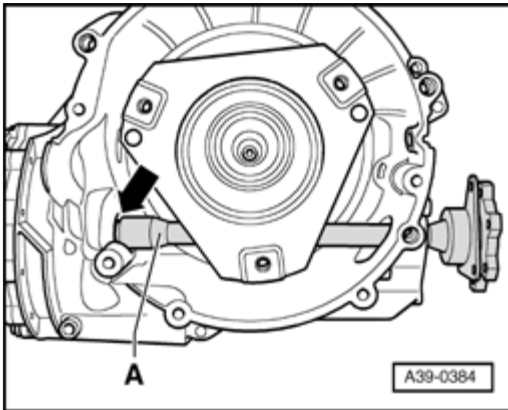


Fig. 193: Removing/Inserting Flange Shaft Into Transmission And Guide Shaft Into Seal On Differential
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Pull left flange shaft - A - out of transmission, making sure that the shaft remains centered in the opening on the differential - **arrow** -.

NOTE:

- If the shaft is not kept centered, the splines of the shaft will fall against the inner seal between final drive and transmission housing. The seal will be damaged and require replacement --> Final drive/transmission housing oil seal, replacing.

Installing

Installation is carried out in reverse sequence. Note the following:

- Clean flange shaft.

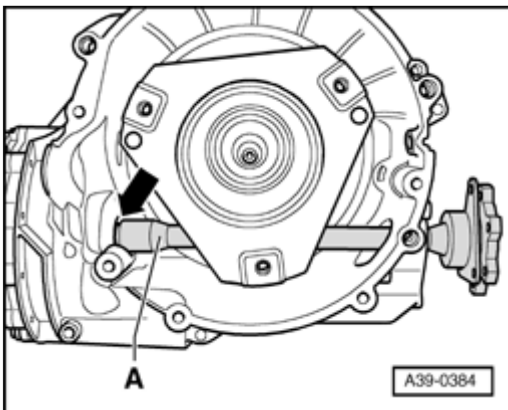


Fig. 194: Removing/Inserting Flange Shaft Into Transmission And Guide Shaft Into Seal On Differential
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert flange shaft - A - into transmission and guide shaft into seal on differential - **arrow** - , keeping it centered.

NOTE:

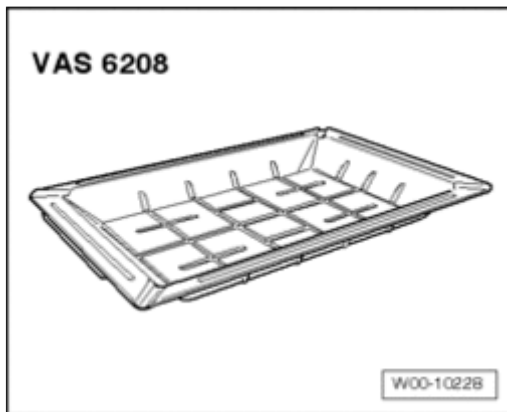
- If the shaft is not kept centered, the splines of the shaft will damage the seal between final drive and transmission housing. The seal will require replacement --> Final drive/transmission housing oil seal, replacing.

Tightening torques

Component	Nm
Retaining bracket for left flange shaft to transmission	23

Flange shaft (right-side), removing and installing

Special tools, testers and auxiliary items required

**Fig. 195: Drip Tray For VAS 6100, VAS 6208**

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray for workshop hoist VAS 6208

Removing

- Transmission installed
- Activate jacking mode --> 43 - SELF LEVELING SUSPENSION .

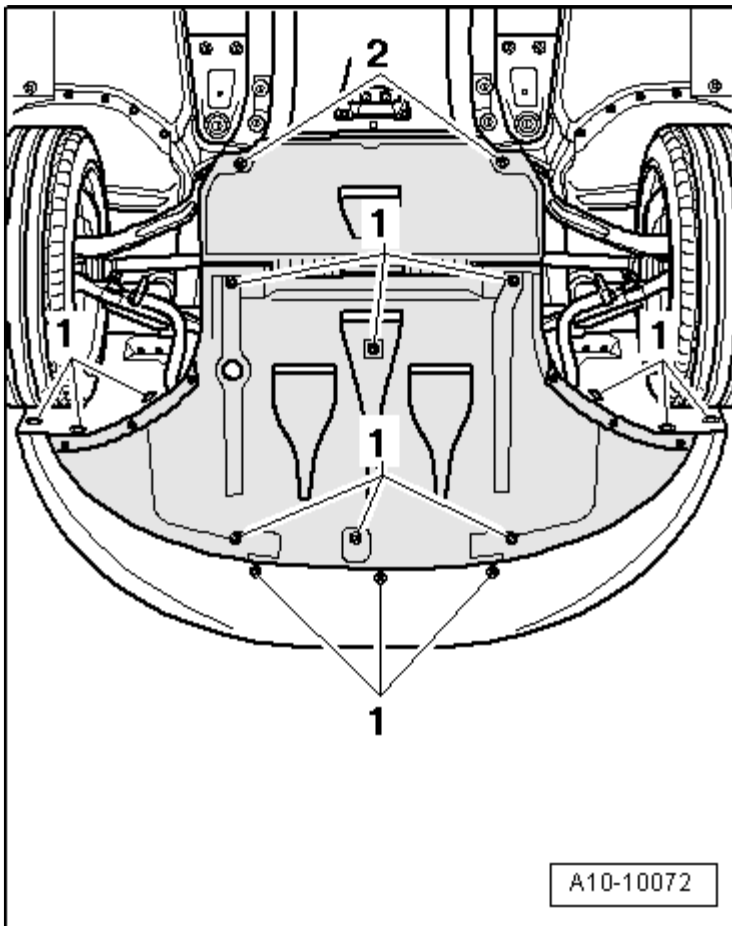


Fig. 196: Identifying Quick-Release Fasteners & Noise Insulation
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unfasten quick-release catches - 2 - and detach rear noise insulation.
- Unbolt axle shaft (right-side) from flange on transmission and tie up.

NOTE:

- **The right-side axle shaft must be removed on vehicles with a front exhaust pipe on the right side --> 40 - FRONT SUSPENSION**

- Place drip tray for workshop hoist VAS 6208 under transmission.

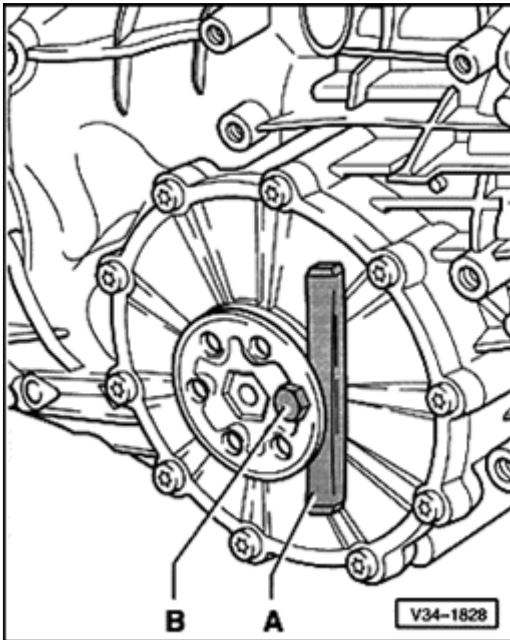


Fig. 197: Placing Chisel Or Suitable Spacer Under Flange Shaft And Pulling Flange Shaft Out By Turning Bolt

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Place a chisel or distance piece - **A** - under flange shaft and pull flange shaft out by turning bolt - **B** -.

NOTE:

- If the flange shaft does not come out easily, turn the shaft and insert a bolt in the opposite hole to assist removal.

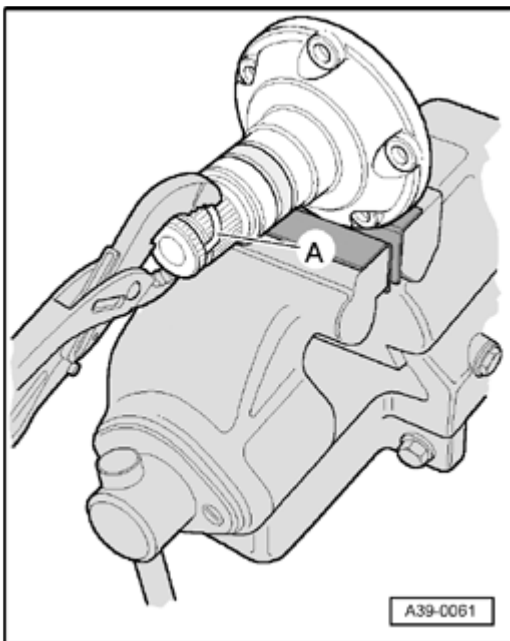


Fig. 198: Removing And Installing Securing Ring

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Replace circlip for flange shaft
- Clamp flange shaft in vise, using jaw protectors. Use new retaining ring - **A** - to press old retaining ring out of groove in flange shaft.

Installing

Installation is carried out in reverse sequence; note the following:

- Clean flange shaft and seal.
- If seal is damaged, it must be replaced --> **Flanged shaft oil seal (right side), replacing.**
- Pack space between sealing lip and dust lip half-full with **sealing grease G 052 128 A1** .
- Insert flange shaft by hand into splines of differential until splines lock properly into place.
- Press flange shaft in by hand or with mandrel VW295 as far as the stop.

NOTE:

- **The circlip on the flange shaft should click into place.**

- Bolt right axle shaft to flange shaft --> **40 - FRONT SUSPENSION** .
- Check oil level in final drive (front) --> **Front final drive gear oil.**
- Deactivate jacking mode --> **43 - SELF LEVELING SUSPENSION** .

Flanged shaft oil seal (right side), replacing

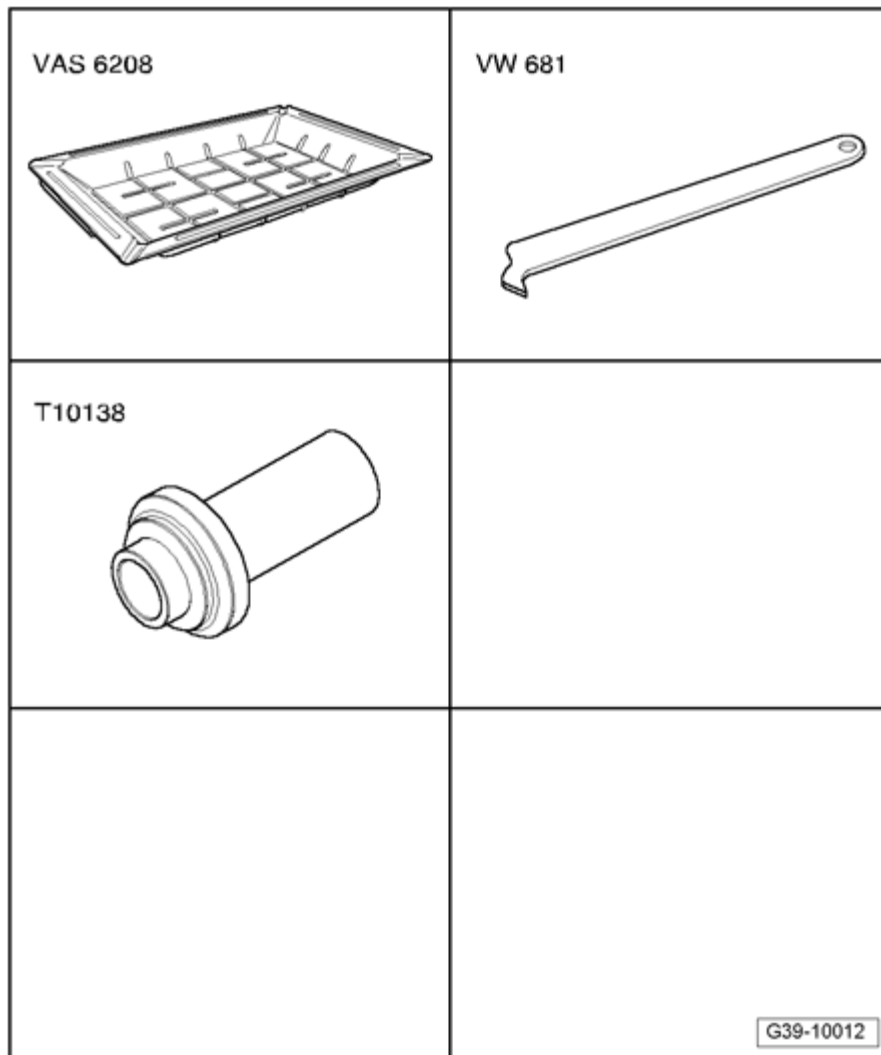


Fig. 199: Identifying Special Tools - Flanged Shaft Oil Seal (Right Side), Replacing
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Drip tray for workshop hoist VAS 6208
- Extractor lever VW681
- Thrust piece T10138

Procedure

- Transmission installed

NOTE:

- **General repair instructions --> [General repair instructions.](#)**
- **Read the rules when working on the automatic transmission --> [Read the](#)**

rules.

- Activate jacking mode --> **43 - SELF LEVELING SUSPENSION** .
- Place drip tray for workshop hoist VAS 6208 under transmission.
- Remove flange shaft (right-side) --> **Flange shaft (right-side), removing and installing.**

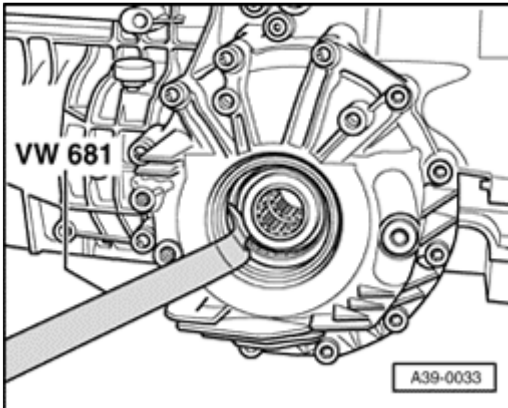


Fig. 200: Removing Flange Shaft Oil Seal
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Pull out flange shaft oil seal.
- Lubricate outer circumference of seal with gear oil

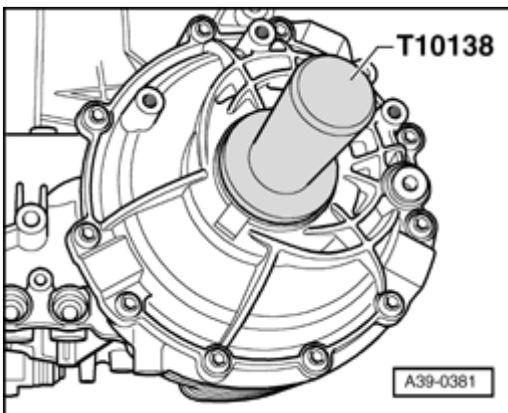


Fig. 201: Driving New Seal In Onto Stop
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drive new seal in onto stop (take care to keep seal straight).
- Installation position: the open side of the seal should face the transmission.
- Pack space between sealing lip and dust lip half-full with **sealing grease G 052 128 A1** .
- Install flange shaft (right-side) --> **Flange shaft (right-side), removing and installing.**
- Check oil level in final drive (front) --> **Front final drive gear oil.**

- Deactivate jacking mode --> **43 - SELF LEVELING SUSPENSION**

Final drive cover O-ring, replacing

Special tools, testers and auxiliary items required

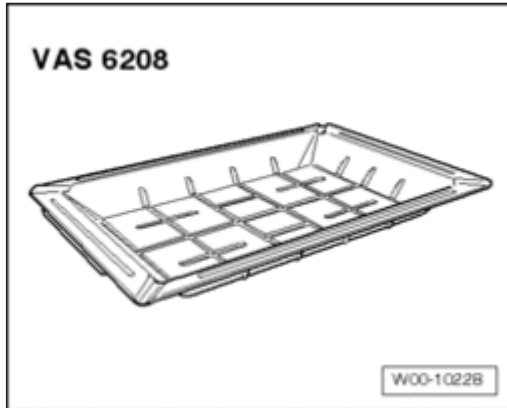


Fig. 202: Drip Tray For VAS 6100, VAS 6208
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray for workshop hoist VAS 6208

Procedure

- Transmission installed
- Activate jacking mode --> **43 - SELF LEVELING SUSPENSION** .
- Place drip tray for workshop hoist VAS 6208 under transmission.
- Remove flange shaft (right-side) --> **Flange shaft (right-side), removing and installing.**

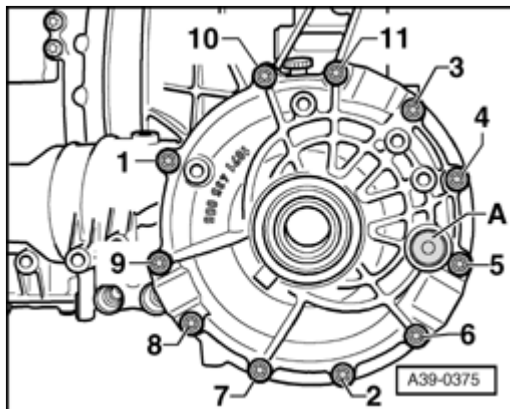


Fig. 203: Removing/Installing Bolts On Final Drive Cover In Sequence
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts on final drive cover in sequence - **11... 1** - and remove cover together with outer race for

tapered roller bearing and shim.

NOTE:

- Thickness of shim has been measured to fit; the shim must not be replaced with another shim of different thickness.

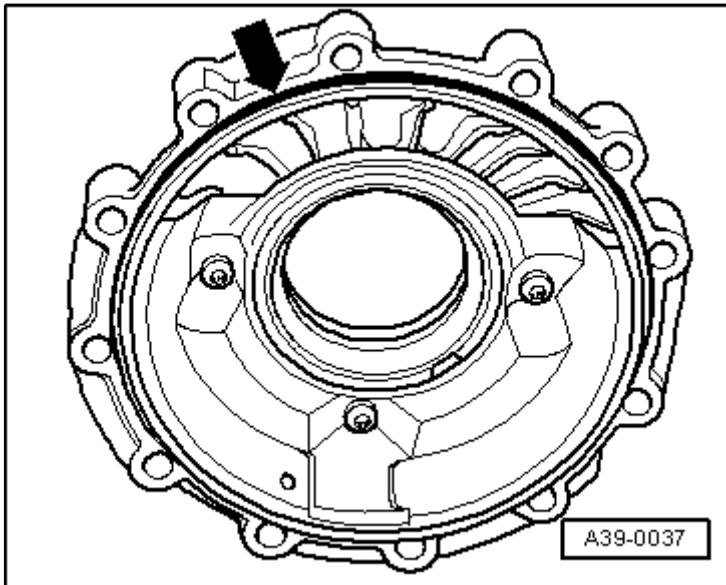


Fig. 204: Identifying Cover For Front Final Drive And O-Ring
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Replace O-ring - **arrow** -.

Note the following if the outer race for tapered roller bearing and the shim have dropped out of the final drive cover:

- Lubricate shim and outer race for tapered roller bearing with gear oil and insert in final drive cover as far as stop.

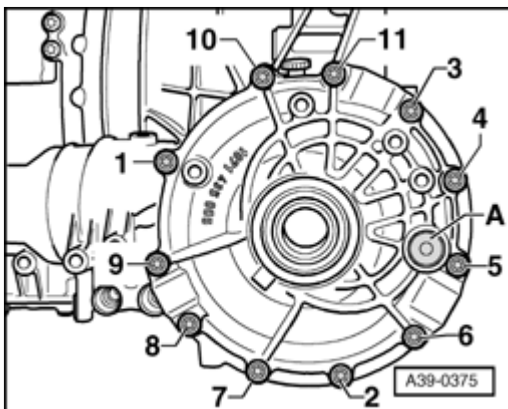


Fig. 205: Removing/Installing Bolts On Final Drive Cover In Sequence
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tighten bolts of final drive cover as follows.

Step	Tightening sequence
I	○ Tighten bolts - 1 - and - 2 - to 3 Nm.
II	○ Tighten bolts - 1... 11 - to 23 Nm in the sequence indicated.

- Install flange shaft (right-side) --> **Flange shaft (right-side), removing and installing.**
- Check oil level in final drive (front) --> **Front final drive gear oil.**
- Deactivate jacking mode --> **43 - SELF LEVELING SUSPENSION .**

Final drive/transmission housing oil seal, replacing

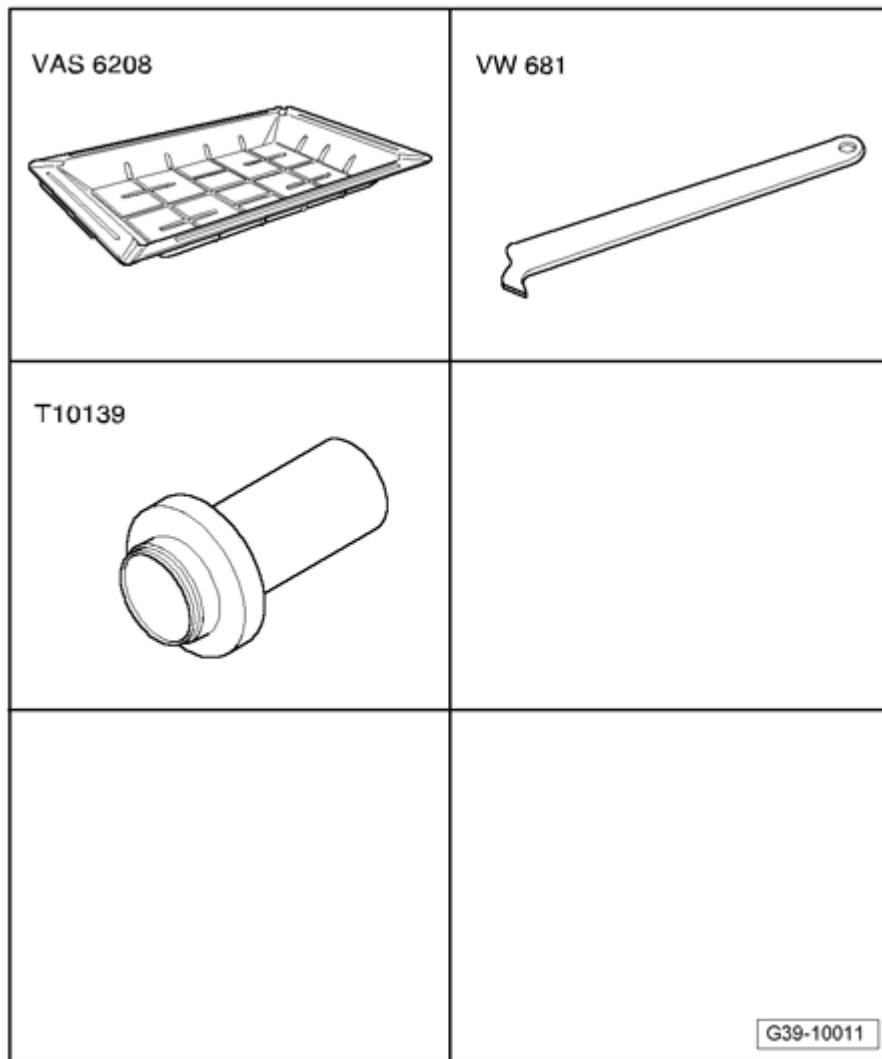


Fig. 206: Identifying Special Tools - Final Drive/Transmission Housing Oil Seal, Replacing
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Drip tray for workshop hoist VAS 6208
- Extractor lever VW681
- Thrust piece T10139

Requirements

- Transmission is removed
- Transmission mounted on assembly stand --> **Securing transmission to assembly stand.**

CAUTION: Do not place transmission down on ATF cooler or oil pan.

Procedure

NOTE:

- A faulty seal allows gear oil to enter the torque converter bellhousing.
- General repair instructions --> **General repair instructions.**
- Read the rules when working on the automatic transmission --> **Read the rules.**

- Place drip tray for workshop hoist VAS 6208 under the transmission.
- Remove flange shaft (right-side) --> **Flange shaft (right-side), removing and installing.**

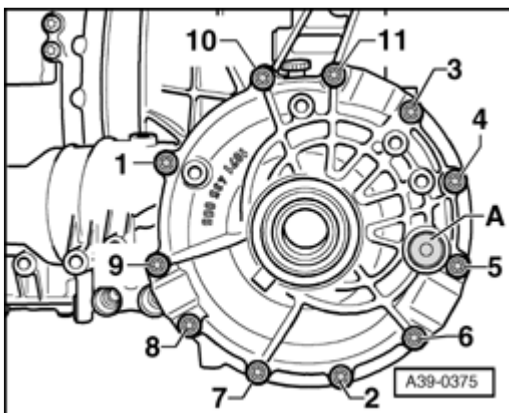


Fig. 207: Removing/Installing Bolts On Final Drive Cover In Sequence

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts on final drive cover in sequence - **11... 1** - and remove cover together with outer race for tapered roller bearing and shim.

NOTE:

- The thickness of shim has been measured to fit; the shim must not be replaced with another shim of different thickness.

- Remove differential.

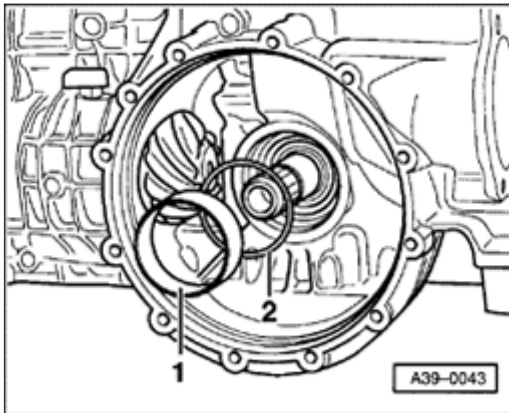


Fig. 208: Identifying Tapered Roller Bearing Outer Race For Differential And Shim
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove tapered roller bearing outer race - **1** - for differential and shim - **2** - (behind outer race) from transmission housing by hand.

NOTE:

- **The thickness of shim has been measured to fit; the shim must not be replaced with another shim of different thickness.**

- Remove flange shaft (left-side) --> **Flanged shaft (left side), removing and installing.**

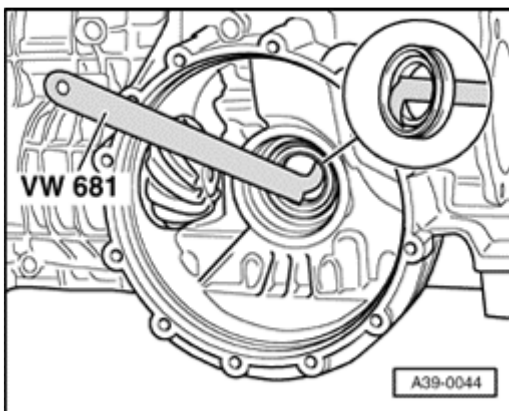


Fig. 209: Pulling Out Oil Seal
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove seal.

NOTE:

- **The oil seal extractor lever VW681 must be applied behind the two sealing lips of the oil seal. Do not apply the lever to the outer circumference of the seal, as this would damage the sealing surface in the transmission. Guide the lever carefully when removing the seal.**

- Examine oil seal seat in transmission housing for damage; reface surface if necessary.
- Lightly lubricate outer circumference and sealing lip of oil seal with gear oil.

NOTE:

- Push seal onto thrust piece with the protruding sealing lip on the seal facing toward the tool.

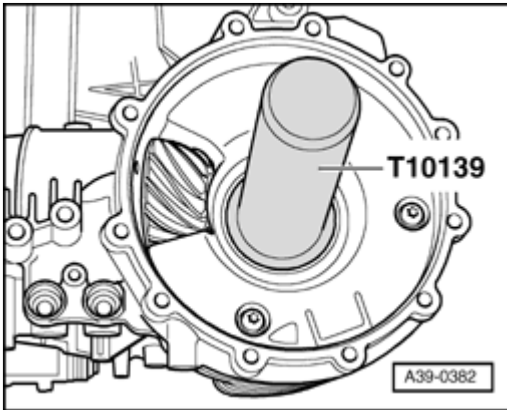


Fig. 210: Driving In New Oil Seal As Far As Stop Using Thrust Piece T10139
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drive new oil seal as far as stop using thrust piece T10139.

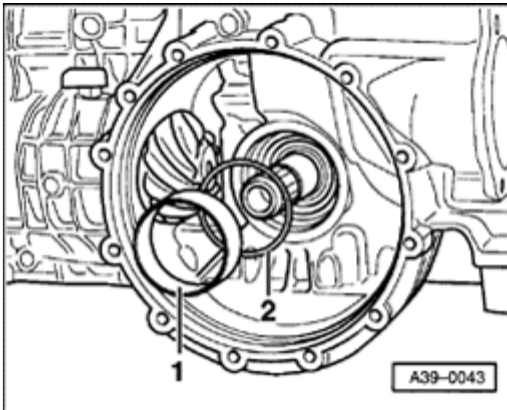


Fig. 211: Identifying Tapered Roller Bearing Outer Race For Differential And Shim
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert shim - 2 - and tapered roller bearing outer race - 1 - for differential onto stop in transmission housing by hand.

NOTE:

- Make sure that shim and outer race are kept straight when inserting.

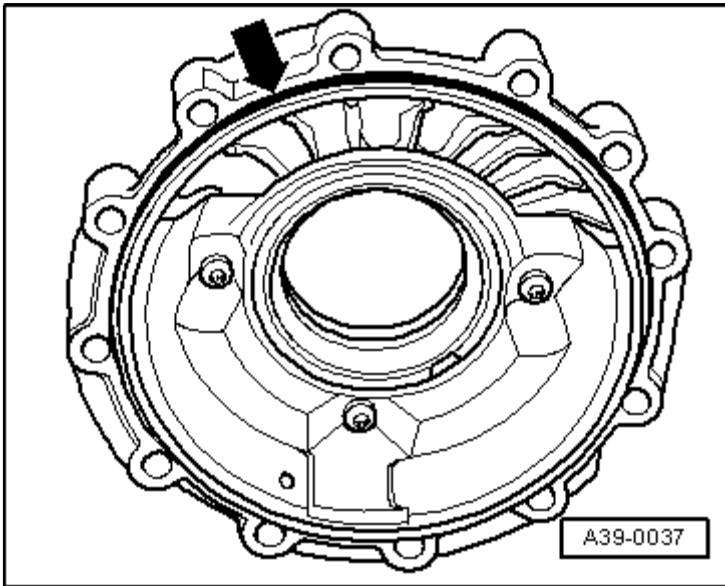


Fig. 212: Identifying Cover For Front Final Drive And O-Ring
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Renew O-ring - **arrow** -.
- Install differential in transmission housing.

Note the following if the outer race for tapered roller bearing and the shim have dropped out of final drive cover:

- Lubricate shim and outer race for tapered roller bearing with gear oil and insert in final drive cover as far as stop.

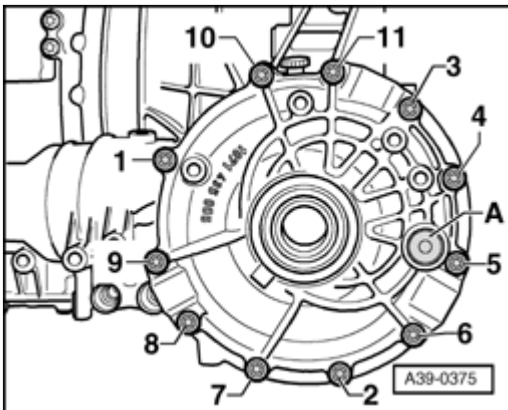


Fig. 213: Removing/Installing Bolts On Final Drive Cover In Sequence
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tighten bolts of cover for final drive as follows.

Step	Tightening sequence

I	○ Tighten bolts - 1 - and - 2 - to 3 Nm.
II	○ Tighten bolts - 1...11 - to 23 Nm in the sequence indicated.

- Install flange shaft (left-side) --> **Flanged shaft (left side), removing and installing.**
- Install flange shaft (right-side) --> **Flange shaft (right-side), removing and installing.**
- Check oil level in final drive (front) --> **Front final drive gear oil.**

Selector shaft oil seal, replacing

Special tools, testers and auxiliary items required

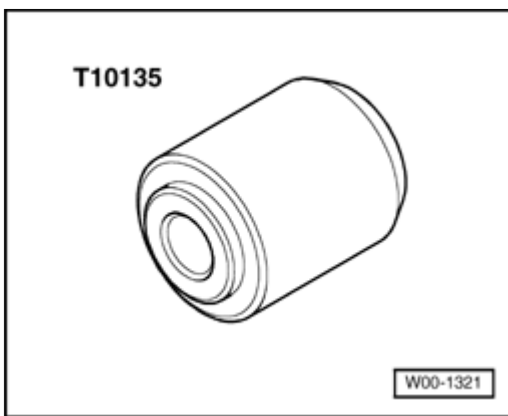


Fig. 214: Thrust Piece T10135

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Thrust piece T10135

Procedure

NOTE:

- **General repair instructions --> General repair instructions.**
- **Read the rules when working on the automatic transmission --> Read the rules.**

- Activate jacking mode --> **43 - SELF LEVELING SUSPENSION** .
- Shift selector lever to position "P".

On vehicles with 6-cyl. GDI engine:

- Remove transmission support (left-side).

All models:

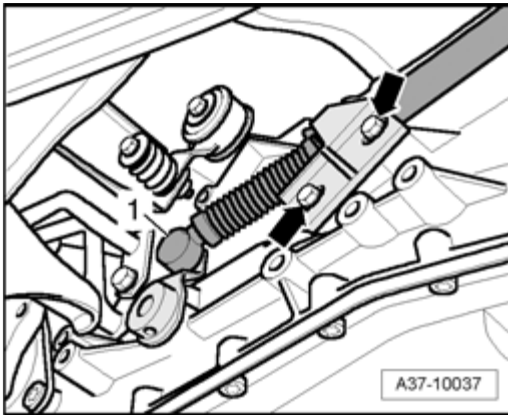


Fig. 215: Pressing Ball Socket Of Selector Lever Cable From Selector Shaft Lever & Removing Bracket On Transmission

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Pry ball socket - 1 - of selector lever cable off selector shaft lever.

NOTE:

- Do not bend or kink the selector lever cable.

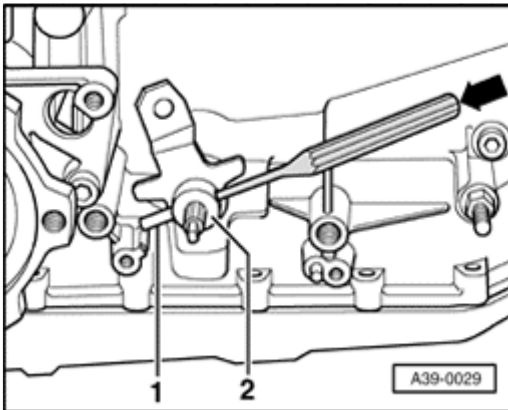


Fig. 216: Driving Out Spring Dowel Sleeve At Lever/Shift Rod Of Travel Toward Front

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drive out roll pin - 1 - at selector shaft lever - 2 - - **arrow** - until it is possible to detach selector shaft lever from selector shaft.

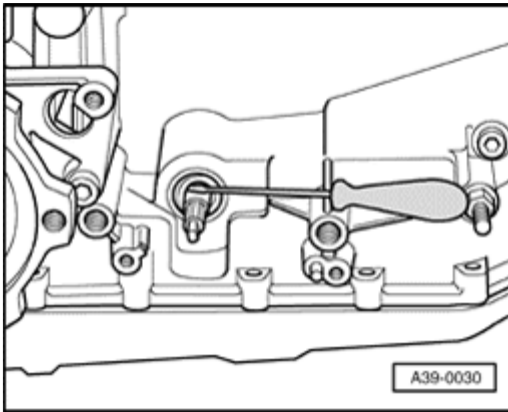


Fig. 217: Prying Seal Out With A Screwdriver

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Push a small screwdriver through seal and pull it out.
- Lubricate outer circumference and space between sealing lips of seal with ATF.
- Install new seal onto selector shaft.
- Installation position: the open side of the seal should face transmission.

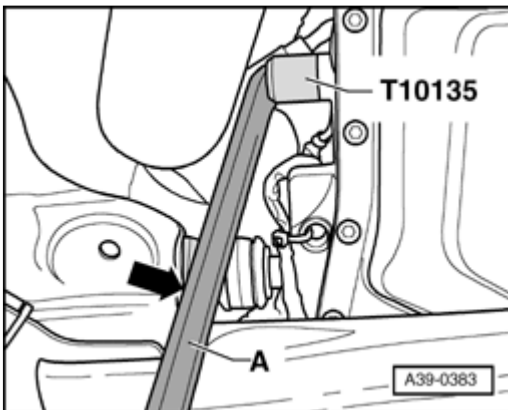


Fig. 218: Pressing On New Oil Seal Using Thrust Piece T10135 And Assembly Lever As Far As Stop

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press on new oil seal using thrust piece T10135 and assembly lever - A - as far as stop; make sure that oil seal remains straight.

NOTE:

- To prevent slippage when pressing in oil seal, place something as a base (e.g. piece of rubber) between assembly lever and subframe - arrow -.

- Before installing, drive roll pin in selector shaft lever back through lever in opposite direction.
- Push selector shaft lever onto selector shaft and drive in roll pin.

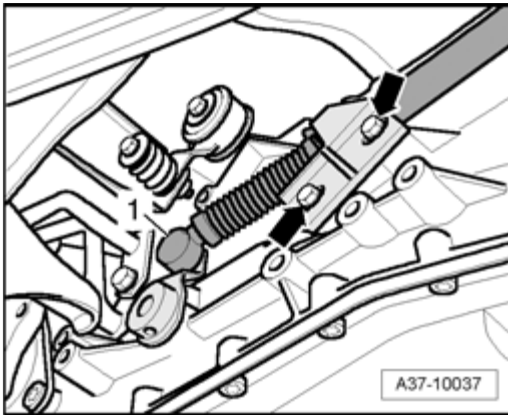


Fig. 219: Pressing Ball Socket Of Selector Lever Cable From Selector Shaft Lever & Removing Bracket On Transmission

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press on ball socket - 1 - of selector lever cable onto selector shaft lever.

NOTE:

- Do not bend the selector shaft lever when pressing on the ball socket, as otherwise it will no longer be possible to precisely adjust the gear selector mechanism

- Check ATF level --> ATF level, checking and correcting.

TRANSFER GEAR OIL LEVEL

Transfer gear oil level

NOTE:

- General repair instructions --> General repair instructions.
- Read the rules when working on the automatic transmission --> Read the rules.

Transfer gear oil level, checking

Special tools, testers and auxiliary items required

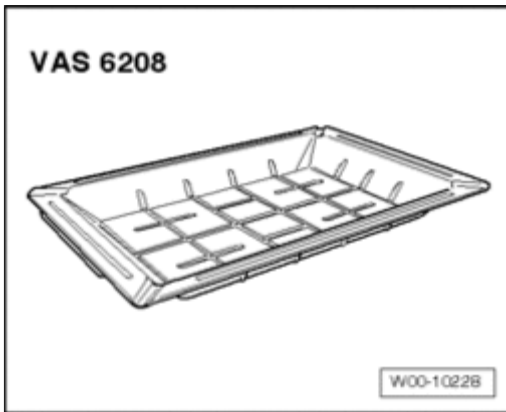


Fig. 220: Drip Tray For VAS 6100, VAS 6208
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray for workshop hoist VAS 6208
- Safety goggles

Condition

- Gear oil about 20 ° C (room temperature)

Work sequence

- Drive vehicle onto a four-column hoist or over an inspection pit so that it is absolutely horizontal.

NOTE:

- **Before raising the vehicle on a hoist (wheels off the ground) you must first activate the jacking mode --> 43 - SELF LEVELING SUSPENSION .**

- Place drip tray for workshop hoist VAS 6208 under transmission.

CAUTION: Wear safety goggles.

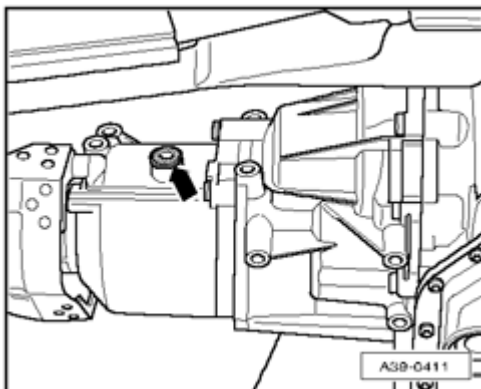


Fig. 221: Transfer Gear Oil Plug

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove plug - **arrow** -.
- Oil level must be up to lower edge of filler hole.
- Drain off any excess oil or top off to proper level; specification --> **Transfer gear**.

NOTE:

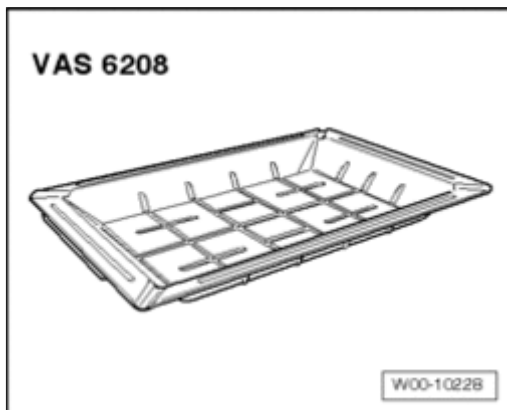
- **The plug with seal must be replaced.**

- Tighten new plug to 35 Nm.

NOTE:

- **If the vehicle has been raised on a lifting platform you must also deactivate the jacking mode --> 43 - SELF LEVELING SUSPENSION .**

Transfer gear oil, topping off after repairs

Special tools, testers and auxiliary items required**Fig. 222: Drip Tray For VAS 6100, VAS 6208**

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray for workshop hoist VAS 6208
- Safety goggles

Test conditions

- Gear oil about 20 ° C (room temperature)
- Cover was removed from Transfer gear and all gear oil was thereby drained.

Work sequence

- Drive vehicle onto a four-column hoist or over an inspection pit so that it is absolutely horizontal.

NOTE:

- **Before raising the vehicle on a hoist (wheels off the ground) you must first activate the jacking mode --> 43 - SELF LEVELING SUSPENSION .**

- Place drip tray for workshop hoist VAS 6208 under transmission.

CAUTION: Wear safety goggles.

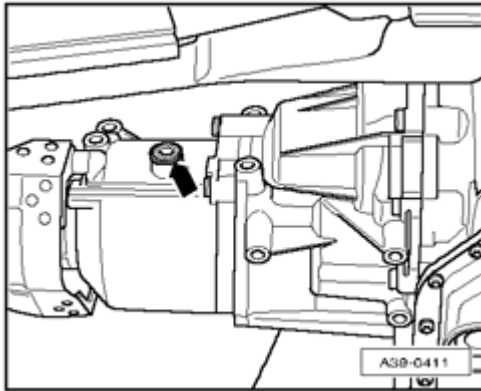


Fig. 223: Transfer Gear Oil Plug

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove plug - arrow -.

NOTE:

- **The engine must not be started and vehicle must not be towed without gear oil in transmission.**

- Fill transfer gear slowly and evenly over at least 5minutes with gear oil (specification --> Transfer gear).

NOTE:

- **The top off period of at least 5 minutes is necessary so that the internal oil level can be balanced out between Torsen differential and baffle chamber.**
- **The plug with seal must be replaced.**

- Tighten new plug to 35 Nm.

NOTE:

- **A subsequent level check is not required.**
- **If the vehicle has been raised on a hoist you must also de-activate the jacking mode --> 43 - SELF LEVELING SUSPENSION .**

TRANSFER GEAR, SERVICING

Transfer gear, servicing

CAUTION: Do not run the engine or tow the vehicle if the Torsen differential is removed or if the gear oil has been drained from the transmission.

Torsen differential cover, removing and installing

Special tools, testers and auxiliary items required

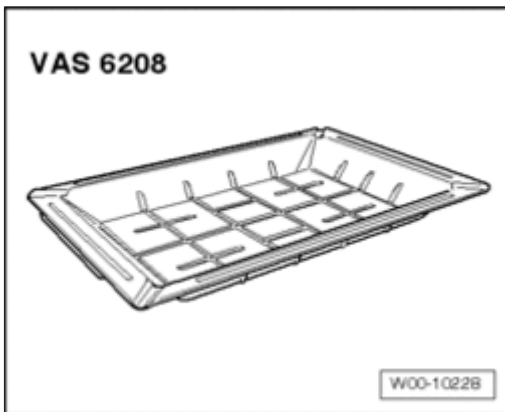


Fig. 224: Drip Tray For VAS 6100, VAS 6208
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray for workshop hoist VAS 6208
- Safety goggles

Removing

- Transmission installed

CAUTION: Do not run the engine or tow the vehicle if the Torsen differential is removed or if the gear oil has been drained from the transmission.

NOTE:

- General repair instructions --> General repair instructions.
- Read the rules when working on the automatic transmission --> Read the rules.
- Activate jacking mode --> 43 - SELF LEVELING SUSPENSION .

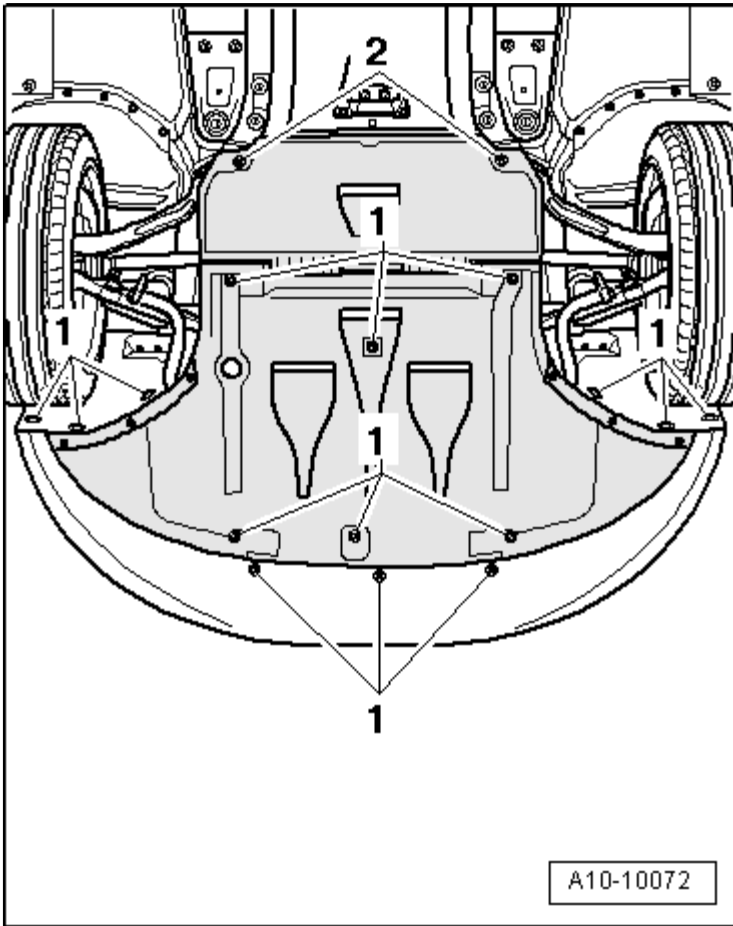


Fig. 225: Identifying Quick-Release Fasteners & Noise Insulation
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- o Release quick-release fasteners - 1 - and - 2 - and detach noise insulation panels.

On vehicles with 6-cyl. GDI engine:

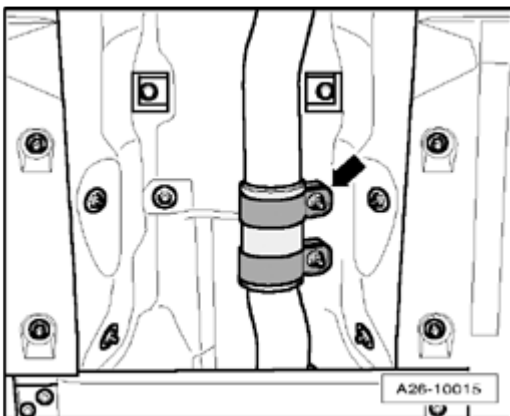


Fig. 226: Loosening Clamping Sleeve
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect exhaust system at clamp - **arrow** -.

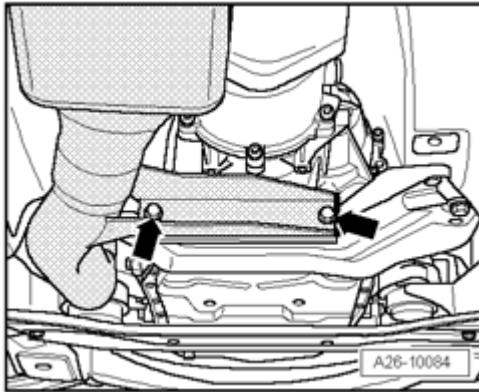


Fig. 227: Locating Bolts At Center Bracket For Front Exhaust Pipe
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **The flexible pipe connection (de-coupling element) on the front exhaust pipe must not be bent by more than 10 ° - otherwise it can be damaged.**

- Remove bolts - **arrows** - at center bracket for front exhaust pipe.
- Tie up front exhaust pipe to side or support from below.

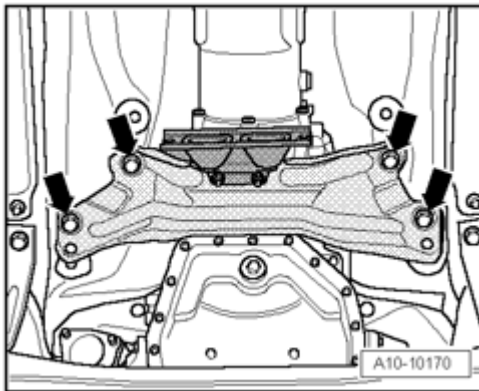


Fig. 228: Tunnel Cross Member And Bolts
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **arrows** - at tunnel cross member.
- Remove tunnel cross member with center bracket for front exhaust pipe.

On vehicles with 8-cyl. engine:

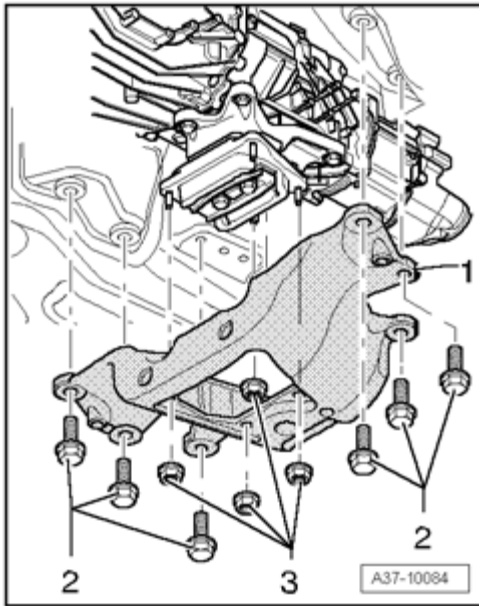


Fig. 229: Tunnel Cross-Member

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove tunnel cross member - **1** -.

All models:

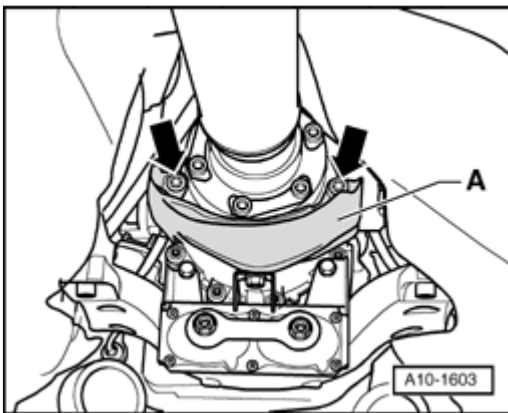


Fig. 230: Removing/Installing Heat Shield For Driveshaft

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove heat shield - **A** - for drive axle - **arrows** -.
- Remove bolts at transmission/drive shaft flange.
- Slide drive shaft together toward rear final drive. The constant velocity joints can be moved axially.
- Tie up drive shaft to side.

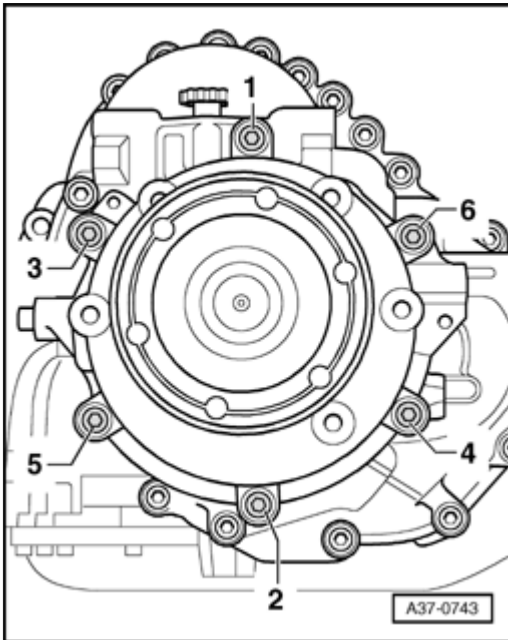


Fig. 231: Loosening/Tightening Securing Bolts For Cover For Torsen Differential In Sequence
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Place drip tray for workshop hoist VAS 6208 under transmission.

CAUTION: Wear safety goggles.

- Loosen securing bolts for cover for Torsen differential in sequence - **6 to 1** - and remove; allow gear oil to drain out.

NOTE:

- **The cover is not equipped with a drain plug; drain the gear oil by removing the cover.**

CAUTION: Pull the Torsen differential cover backward from the transmission housing slowly and carefully. The Torsen differential may otherwise fall out of the transmission.

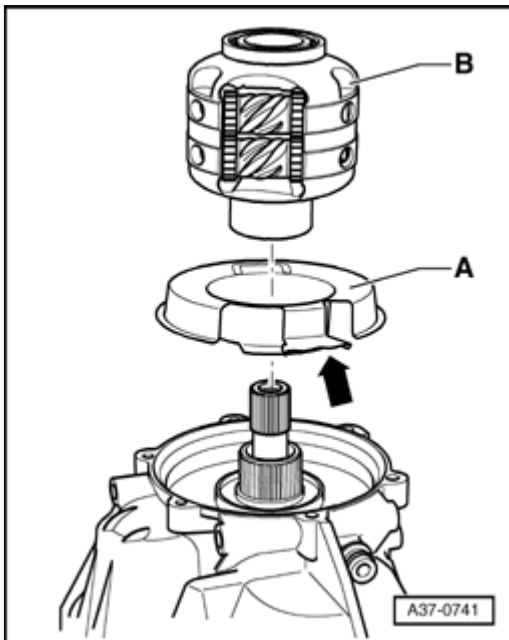


Fig. 232: Securing Torsen Differential And Baffle Plate To Prevent Them From Dropping Out
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Secure Torsen differential - **B** - and baffle plate - **A** - to prevent them dropping out, or pull them off the output shaft toward rear.

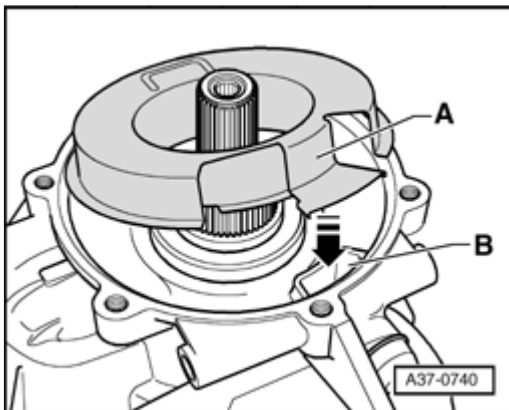


Fig. 233: Identifying If Torsen Differential And Baffle Plate Have Been Removed
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Installing

Installation is carried out in reverse sequence. Note the following:

- NOTE:**
- Replace O-ring on Transfer gear cover.

Note the following if the Torsen differential - **B** - and baffle plate - **A** - have been removed:

- Clean baffle plate, lubricate with gear oil and insert in transmission.
- Installation position: tongue - **A** - on baffle plate should be positioned on transmission so that the side lugs are located above opening - **B** -.

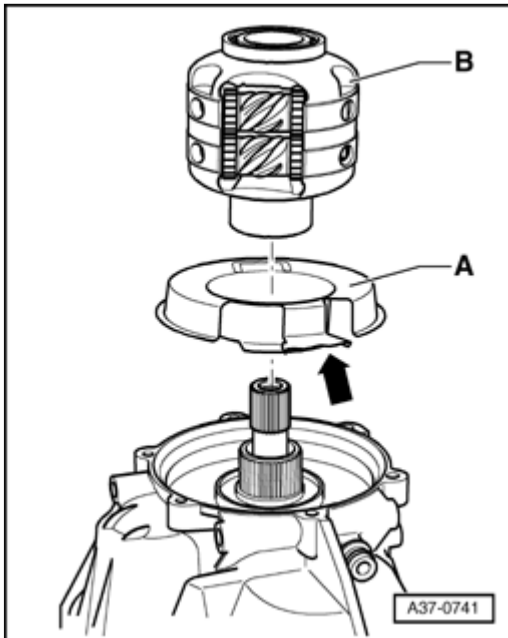


Fig. 234: Securing Torsen Differential And Baffle Plate To Prevent Them From Dropping Out
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install Torsen differential - **B** - onto output shaft splines (turn slightly at same time).

NOTE:

- **Check installation position of tongue on baffle plate - arrow - again.**

- Check whether attached Torsen differential can be turned manually.
- Check whether tongue - **arrow** - on baffle plate is still located properly.
- Place cover for Torsen differential with shaft installed onto Torsen differential, turn slightly if necessary.

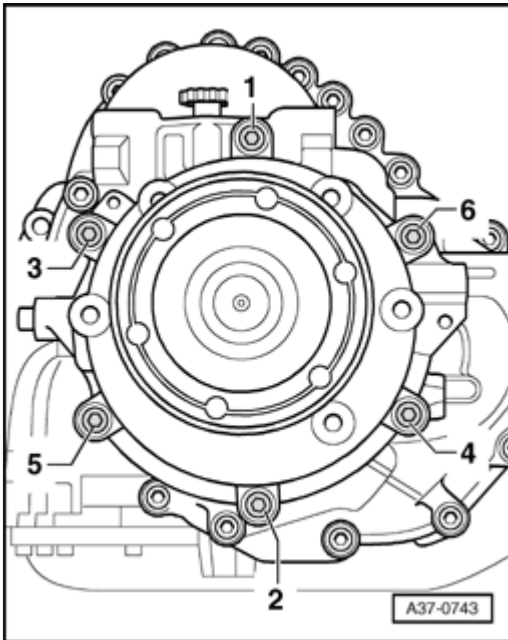


Fig. 235: Loosening/Tightening Securing Bolts For Cover For Torsen Differential In Sequence
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tighten cover bolts for Torsen differential as follows.

Step	Tightening sequence
I	○ Tighten bolts - 1 - and - 2 - to 3 Nm.
II	○ Tighten bolts - 1 to 6 - to 23 Nm in the sequence indicated.

- Install drive shaft --> **39 FINAL DRIVE, REAR DIFFERENTIAL** .
- Install exhaust system -->
 - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 3.2 V6 4V ENGINE MECHANICAL, ENGINE CODE(S): BKH
 - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BAT, BNK
 - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BVJ
 - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** 5.2 LITER 10-CYL. 4V ENGINE MECHANICAL ENGINE CODE(S): BXA
- Top off Transfer gear oil --> **Transfer gear oil, topping off after repairs**

Tightening torques

Component	Nm

Cross member to body	23
Heat shield for drive shaft to transmission	23

Flanged shaft oil seal (rear), replacing

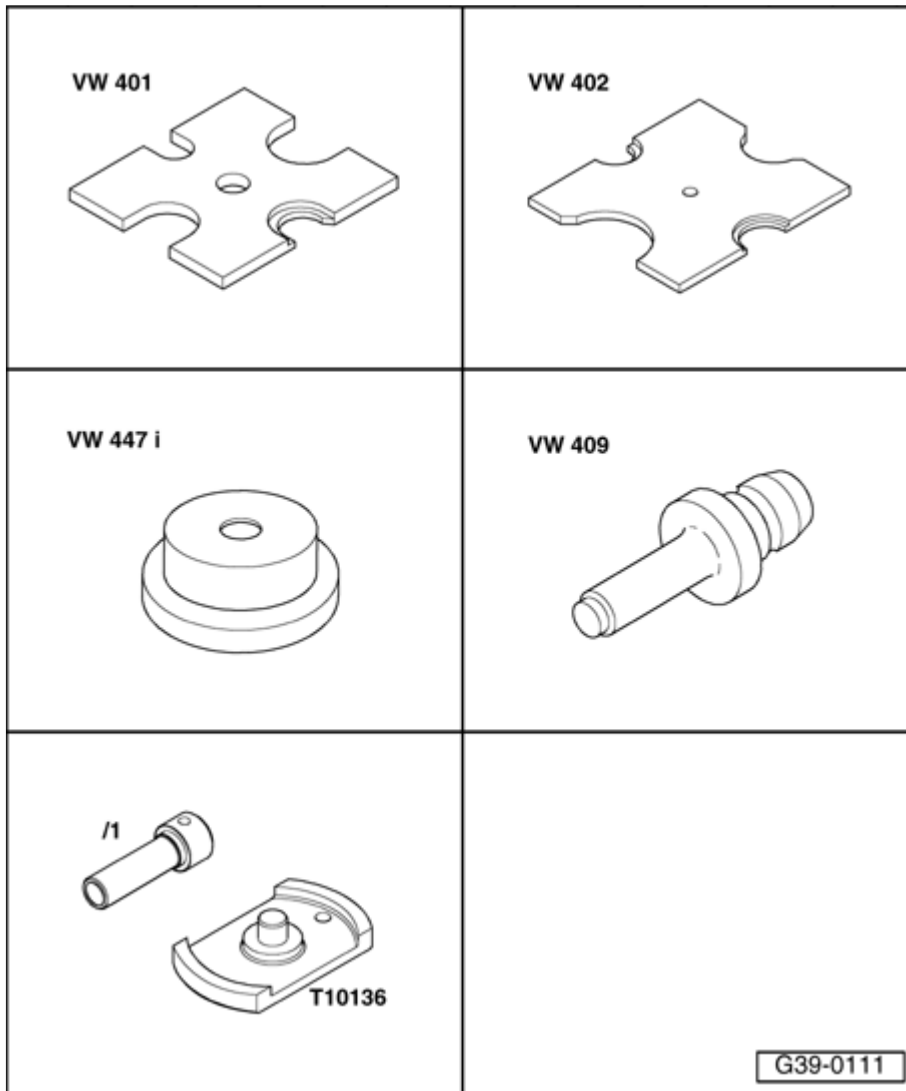


Fig. 236: Identifying Special Tools -- Flanged Shaft Oil Seal (Rear), Replacing
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Thrust plate VW401
- Thrust plate VW402
- Thrust pad VW447 i
- Punch VW409

- Pressure application device T10136

Procedure

- Remove Torsen differential cover --> **Torsen differential cover, removing and installing.**

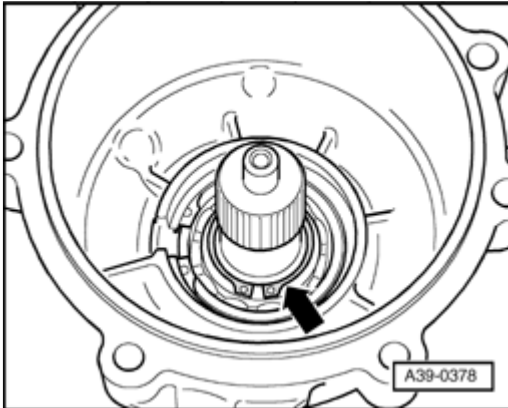


Fig. 237: Removing/Installing Circlip On Inner Side Of Cover
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove circlip - **arrow** - on inner side of cover.

NOTE:

- The circlip locates the flange shaft on the bearing in the cover.

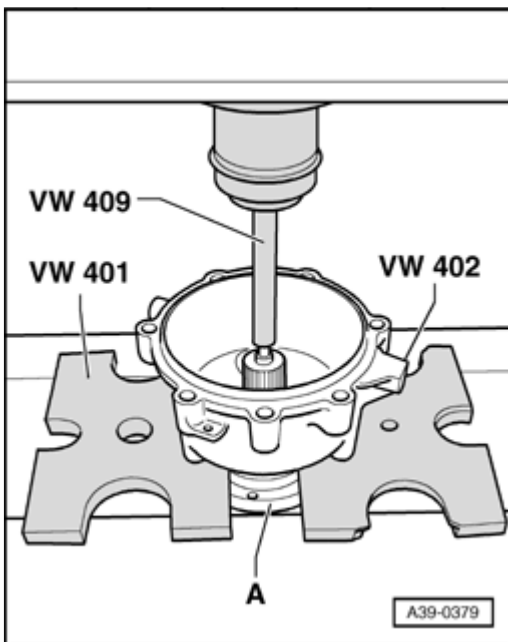


Fig. 238: Using Punch VW 409 To Press Flange Shaft Out Of Torsen Differential Cover By Placing Cover On Thrust Plate VW 401 And Thrust Plate VW 402
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Using press tool VW409 , press flanged shaft out of Torsen differential cover by placing cover on thrust plate thrust plate VW401 and thrust plate VW402.

NOTE: ● Hold flange shaft - A - with one hand to prevent it from falling.

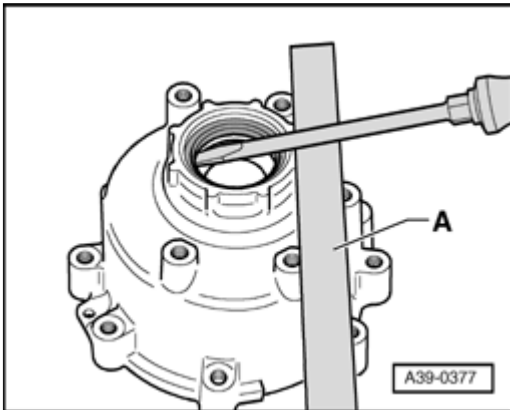


Fig. 239: Prying Out Oil Seal
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Pry out oil seal.

NOTE: ● To prevent damage to the housing, place something underneath (e.g. metal bar - A -).

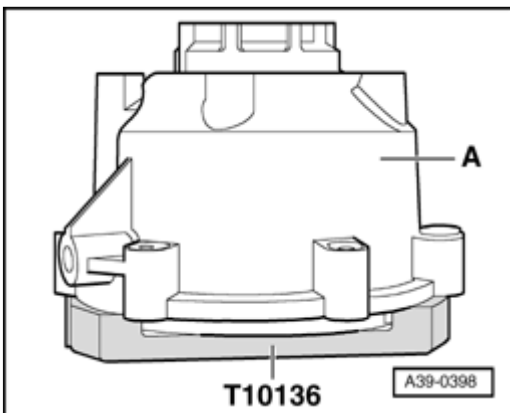


Fig. 240: Placing Torsen Differential Cover On Pressure Application Device T10136
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Place cover - A - for Torsen differential on pressure application device T10136.

NOTE: ● The peg in the middle of the tool is centered and faces upward in the cover. It serves as a guide and stop for press tool T10136/1.

- Lubricate outer circumference of seal with gear oil

- Push new seal onto press tool T10136/1.
- Installation position: open side of seal should face cover.

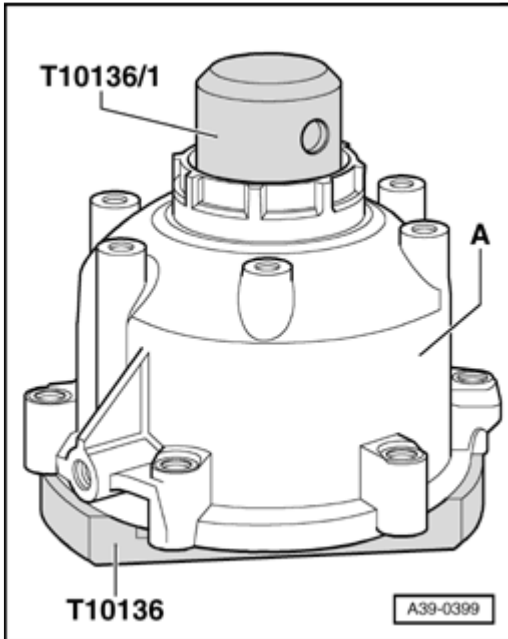


Fig. 241: Inserting Pressure Application Device T10136/1 With Seal Into Cover From Above
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert press tool T10136/1 with seal into cover from above.

NOTE:

- The peg of the pressure application device T10136 serves as a guide from below and also as a stop for press tool T10136/1.

- Drive new seal in onto stop (take care to keep seal straight).
- Pack space between sealing lip and dust lip half-full with **sealing grease G 052 128 A1** .

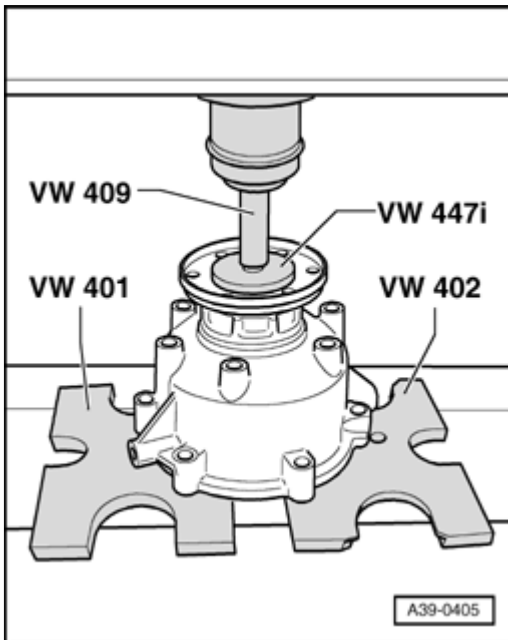


Fig. 242: Pressing Flange Shaft Using Punch VW 409 And Thrust Pad VW 447 I Into Torsen Differential Cover By Placing Cover On Thrust Plate VW 401 And Thrust Plate VW 402
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press flange shaft with press tool VW409 and thrust pad VW447 i into cover for Torsen differential. To do so, place cover on thrust plate VW401 and thrust plate VW402.

NOTE:

- Only insert flange shaft as far as necessary to install circlip.

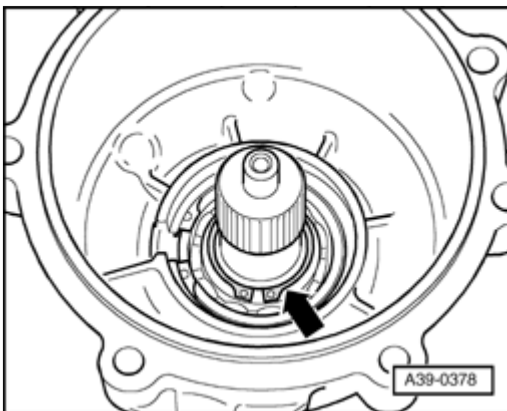


Fig. 243: Removing/Installing Circlip On Inner Side Of Cover
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install circlip - **arrow** - in groove of flange shaft on inner side of cover.
- Install cover for Torsen differential --> **Torsen differential cover, removing and installing.**
- Top off oil in Transfer gear --> **Transfer gear oil, topping off after repairs**