TRANSMISSION

6 Spd. Automatic Transmission 09L All Wheel Drive

00 TECHNICAL DATA

TRANSMISSION IDENTIFICATION

Transmission identification

The "6-speed automatic transmission 09L" is installed in the Audi A4 2002 --> in combination with various engine versions. Allocation --> **Code letters, transmission allocation, ratios, equipment**.

Location of code letters on transmission

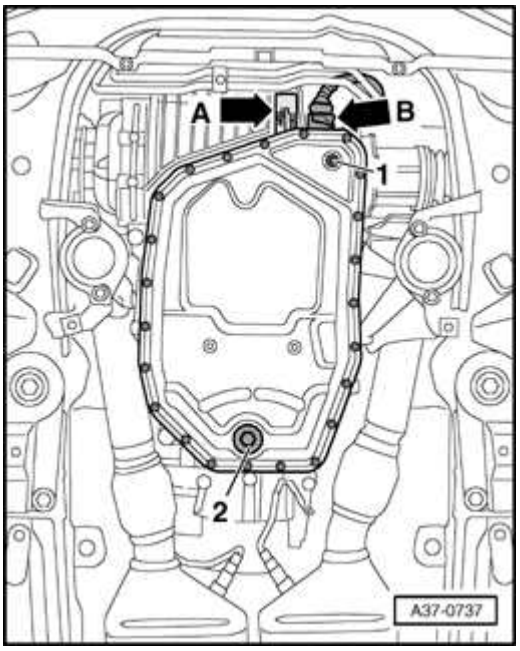

Fig. 1: Locating Type Plate
Courtesy of VOLKSWAGEN UNITED STATES, INC.

The transmission code letters are given on the type plate at the bottom of the transmission - **arrow A** -.

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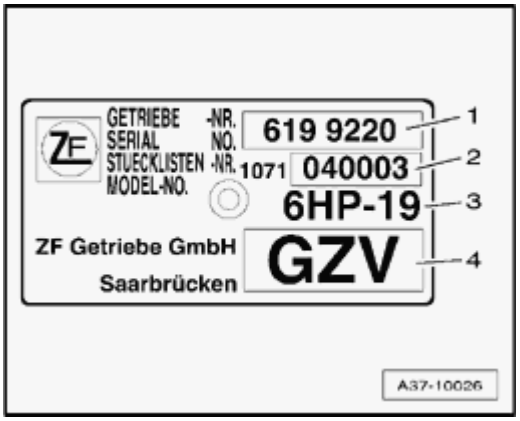

Fig. 2: Identifying Type Plate
Courtesy of VOLKSWAGEN UNITED STATES, INC.

The type plate lists the following information:

1. Serial number of transmission
2. Part number
3. Transmission designation, in this example 6HP19
4. Code letters, in this example GZV

Additional data are production-related.

NOTE:

- **The code letters for the transmission are also given on the vehicle data stickers.**

NOTES ON THE AUTOMATIC 6-SPEED TRANSMISSION 09L

Notes on the automatic 6-speed transmission 09L

Transmission

The 6-speed automatic transmission 09L (all wheel drive) has six hydraulically activated forward gears. When the lock-up clutch is closed these forward gears become mechanically driven gears by cutting out the torque converter slip.

Torque converter

The torque converter is equipped with a slip-controlled lock-up clutch.

Mechatronics unit

The mechatronics unit incorporates the hydraulic control system, the electronic Transmission Control Module (TCM) J217, the Multi-Function Transmission Range (TR) switch F125 and the sensors and actuators as a complete unit. The mechatronics unit is installed in the transmission within the oil pan.

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Transmission Control Module (TCM) J217

The control module is part of the mechatronics unit in the transmission.

The switching point is calculated automatically (depends on driving situation and driving resistance).

Advantages:

- Gear changes are timed for maximum fuel economy.
- Maximum engine output is always available
- Individual adaptation of gear change points in all driving situations
- Gear change points are infinitely variable

Self-diagnosis

Before performing repairs to the automatic transmission, determine the cause of the fault as precisely as possible using "Guided fault finding".

"Guided fault finding" is performed using the vehicle diagnostic, testing and information system VAS 5051 A.

Gear shift point variations for hills

An additional gear change map automatically selects gear changes for hills depending on accelerator pedal position and driving speed.

- Gear change map for extreme uphill stretches is matched to engine output
- Gear change map for extreme downhill stretches is matched to the braking effect of the engine
- The engine braking effect can also be fully exploited via a specific gear, e.g. on hills when towing a trailer, by directly selecting a gear with the Tiptronic.

CODE LETTERS, TRANSMISSION ALLOCATION, RATIOS, EQUIPMENT

Code letters, transmission allocation, ratios, equipment

Automatic transmission			**09L.D**	**09L.D**
Transmission	Code letters		GUR	GUR
	Manufactured	from	06.03	01.04
		to	05.04	05.04
Torque converter	Code letters		D76	D76
Mechatronics unit			Allocation according to transmission code letters	
Application	Model		Audi A4 2002 -->	Audi A4 Cabriolet 2003 -->
	Engine		4.2 ltr. 5V - 250 kW	4.2 ltr. 5V - 250 kW

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Primary drive			33:29	1.138	33:29	1.138
Front axle	Spur gear drive		31:29	1.069	31:29	1.069
	Bevel gear drive		32:11	2.909	32:11	2.909
	Ratio		3.539		3.539	
Rear axle	Bevel gear drive		31:10	3.100	31:10	3.100
	Ratio		3.528		3.528	

Automatic transmission			**09L.D**		**09L.D**		**09L.D**	
Transmission	Code letters		HHL		HHM		HHU	
	Manufactured	from	11.04		11.04		05.04	
		to						
Torque converter	Code letters		Z80		H77		D76	
Mechatronics unit			Allocation according to transmission code letters					
Application	Model		Audi A4 2002 -->		Audi A4 2002 --> USA		Audi A4 2002 -->	
	Engine		2.0 ltr. TFSI - 147 kW		3.2 ltr. FSI - 188 kW		4.2 ltr. 5V - 250 kW	
Primary drive			33:29	1.138	33:29	1.138	33:29	1.138
Front axle	Spur gear drive		31:29	1.069	31:29	1.069	31:29	1.069
	Bevel gear drive		32:11	2.909	32:11	2.909	32:11	2.909
	Ratio		3.539		3.539		3.539	
Rear axle	Bevel gear drive		31:10	3.100	31:10	3.100	31:10	3.100
	Ratio		3.528		3.528		3.528	

Automatic transmission			**09L.D**		
Transmission	Code letters		HHU	HLB	
	Manufactured	from	05.04	11.04	
		to			
Torque converter	Code letters		D76	D76	
Mechatronics unit			Allocation according to transmission code letters		
Application	Model		Audi A4 Cabriolet 2004 -->	Audi A4 2002 -->	

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	Engine		4.2 ltr. 5V - 250 kW		4.2 ltr. 5V - 250 kW			
Primary drive			33:29	1.138	33:29	1.138		
Front axle	Spur gear drive		31:29	1.069	31:29	1.069		
	Bevel gear drive		32:11	2.909	32:11	2.909		
	Ratio		3.539		3.539			
Rear axle	Bevel gear drive		31:10	3.100	31:10	3.100		
	Ratio		3.528		3.528			

REAR FINAL DRIVE IDENTIFICATION

Rear final drive identification

The final drive 01R is allocated to the automatic transmission 09L all wheel drive

Assembly allocation -->

- **00 GENERAL, TECHNICAL DATA** for REAR FINAL DRIVE
- **00 - GENERAL, TECHNICAL DATA** for REAR FINAL DRIVE 0AR

.

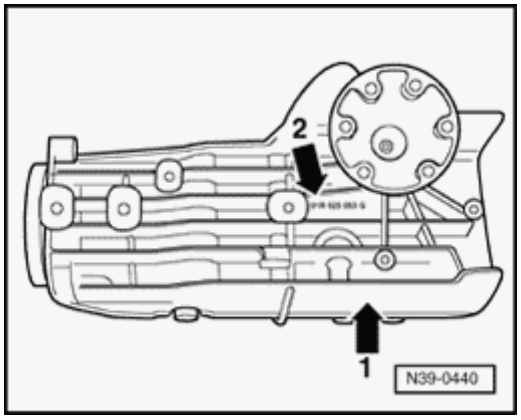

Fig. 3: Locations Of Final Drive Identification
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Location on final drive

Code letters and date of manufacture - **arrow 1** -

Final drive 01R - **arrow 2** -

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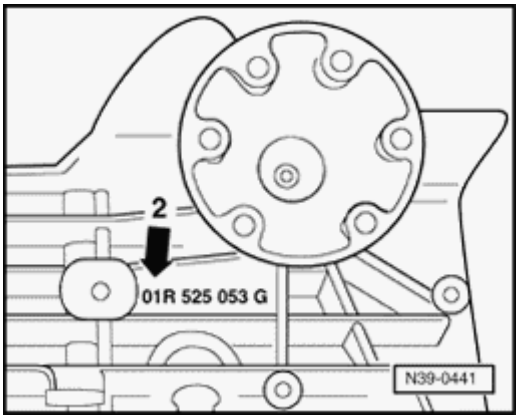

Fig. 4: Final Drive 01R
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Final drive 01R - arrow 2 -

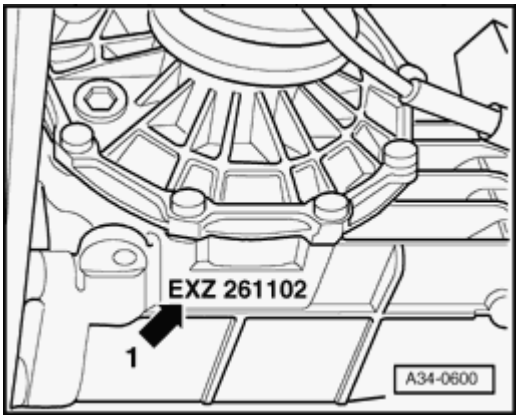

Fig. 5: Rear Final Drive Identification
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Final drive code letters and date of manufacture - arrow 1 -

Example:	EXZ	26	11	02
	I	I	I	I
	I	I	I	I
	Code letters	Day	Month	Year of manufacture (2002)

Additional data are production-related.

Code letters, ratios, capacities -->

- **00 GENERAL, TECHNICAL DATA** for REAR FINAL DRIVE
- **00 - GENERAL, TECHNICAL DATA** for REAR FINAL DRIVE 0AR

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CAPACITIES

Planetary transmission

Capacities	Planetary transmission	Automatic transmission
Initial filling	9.8 ltr.	09L
Changing interval	no change required * See note	
Lubricant	ATF(Shell ATF M-1375.4)	

*Lifetime filling: change only after repair, approx. 8 ltrs. if oil pan has been removed.

ATF is obtainable as a replacement part.

Container size 1.0 ltr. - *ATF (automatic transmission fluid) G 055 005 A2*

Use only the correct type of ATF (available as a replacement part) for the planetary gearing in automatic transmission 09L. Other oils may cause faults and/or failure of the transmission.

- Checking ATF level in planetary transmission --> **ATF level, checking and correcting**.

Front final drive

Capacities	Front final drive	Automatic transmission
Initial filling	1.1 ltr.	09L
Changing	no change required * See note	
Lubricant	Gear oil SAE 75 W 90 (synthetic oil)	

*Lifetime filling: change only after repairs, up to 1.1 ltrs. if differential cover has been removed.

Gear oil SAE 75 W 90 (synthetic oil) is available as a replacement part in following container sizes:

- 0.5 ltr. - *gear oil G 052 145 A1*
- 1.0 ltr. - *gear oil G 052 145 S2*

- Checking oil level in front final drive --> **Front final drive gear oil**.

Transfer gear

Capacities	Transfer gear	Automatic transmission
Initial filling	0.55 ltr.	09L
Changing interval	no change required * See note	

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Lubricant	Gear oil SAE 75 W 90 (synthetic oil)	

*Lifetime filling: change only after repairs, up to 0.55 ltrs. if Torsen differential cover has been removed.

Gear oil SAE 75 W 90 (synthetic oil) is available as a replacement part in following container sizes:

- 0.5 ltr. - *gear oil G 052 145 A1*
- 1.0 ltr. - *gear oil G 052 145 S2*

- Checking transfer gear oil level--> **Transfer gear oil**.

Rear final drive

- Checking gear oil level -->
  - **39 FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE
  - **39 - FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE 0AR

.

Capacities and specifications -->

- **00 GENERAL, TECHNICAL DATA** for REAR FINAL DRIVE
- **00 - GENERAL, TECHNICAL DATA** for REAR FINAL DRIVE 0AR

.

NOTES ON TOW-STARTING AND TOWING

Notes on tow-starting and towing

CAUTION: When vehicle is being towed, selector lever must be set to position "N" and vehicle must not to be towed for more than 50 km or at a speed in excess of 50 km/h, as the transmission would otherwise be destroyed.

NOTE:

- **It is not possible to start the engine by means of tow-starting, for instance in the case of insufficient battery charge or if starter is not working.**

REPAIR INSTRUCTIONS

General repair instructions

The maximum possible care and cleanliness and proper tools are essential for satisfactory and successful transmission repairs. The usual basic safety precautions also naturally apply when performing vehicle repairs.

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A number of generally applicable instructions for the various repair procedures - which were previously repeated at numerous places in the article - are summarized here. They apply to the work described in this article.

Special tools

For a complete list of special tools used in this article "Special tools".

Transmission

- Read the rules for cleanliness when working on the automatic transmission --> **Rules for cleanliness**.
- Do not run engine or tow vehicle with oil pan removed or when there is no ATF in the transmission.
- If the transmission has been removed from vehicle, secure torque converter to prevent it from falling out.
- Thoroughly clean all joints and surrounding areas before disassembling.
- Before installing transmission check position of torque converter.
- When installing transmission make sure dowel sleeves are correctly seated.
- Carefully cover or seal open components if repairs cannot be carried out immediately.
- When installing a new automatic transmission, check the following fluid levels and top off if necessary: ATF in the planetary gearbox --> **ATF level, checking and correcting**, the gear oil in the front final drive --> **Front final drive gear oil**, the transfer gear oil --> **Transfer gear oil**. Capacities and specifications --> **Capacities**
- When installing a new rear final drive, check the oil level in the rear final drive and top off if necessary. Capacities and specifications -->
  - **00 GENERAL, TECHNICAL DATA** for REAR FINAL DRIVE
  - **00 - GENERAL, TECHNICAL DATA** for REAR FINAL DRIVE 0AR

  .

O-rings, oil seals, gaskets

- Always install new O-rings, oil seals and gaskets.
- After removing gaskets and seals, always inspect the contact surface on the housing or shaft for burrs resulting from removal or for other signs of damage.

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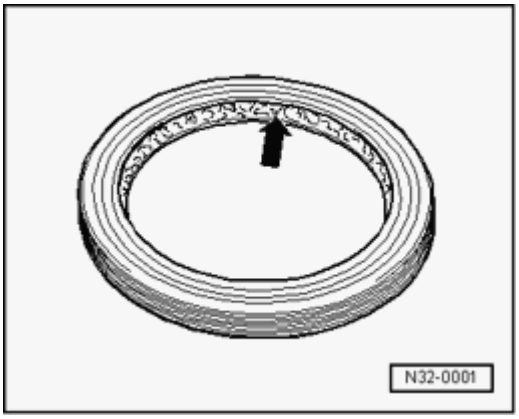

Fig. 6: Identifying Space Between Oil Seal Sealing Lips
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Before installing oil seals, fill the space between the sealing lips - **arrow** - half full with *sealing grease G 052 128 A1* .
- The open side of the oil seals faces toward the side with fluid filling.
- Before installing, lightly lubricate outer circumference of seal and sealing lips with ATF or gear oil, depending on location.
- Lightly lubricate O-rings with ATF before installation to prevent them from getting crushed during assembly.

- Use only ATF in ATF area. Other lubricants will cause the transmission hydraulics to malfunction.
- When installing a new oil seal, position the seal in the housing so that sealing lip does not contact the shaft in the same place as the old seal (make use of insertion depth tolerances).
- Replace paper gaskets, clean all sealing surfaces thoroughly and remove previous gaskets completely.
- After installing, check the relevant fluid levels and top off if necessary: ATF in planetary gearbox --> **ATF level, checking and correcting**, gear oil in front final drive --> **Front final drive gear oil**, transfer gear oil --> **Transfer gear oil**, gear oil in rear final drive -->
  - **39 FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE
  - **39 - FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE 0AR

  . Capacities and specifications --> **Capacities**

Nuts, bolts

- Loosen bolts in reverse sequence to the specified tightening sequence.
- Nuts and bolts which secure covers and housings should be loosened and tightened in diagonal sequence and in stages if no tightening sequence is specified.
- The tightening torques stated apply to non-oiled nuts and bolts.
- Always replace self-locking bolts and nuts.

- Clean threads of bolts which are secured by a locking compound with a wire brush. Then apply *locking fluid AMV 185 101 A1* to bolts again before installing.

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- Threaded holes which take self-locking bolts or bolts coated with locking compound must be cleaned (using a tap or similar). Otherwise there is a danger of the bolts shearing when subsequently being removed.

Locking elements

- Do not over-stretch circlips.
- Always replace circlips which have been damaged or over-tensioned.
- Retaining rings/circlips must be properly seated in the base of the groove.

Bearings

- Lubricate bearings with gear oil or ATF, depending on location.

Mechatronics unit

CAUTION:

- **Before touching or removing the mechatronics unit, always discharge any static electricity by touching vehicle ground or other grounded object by hand.**
- **Never touch the 16 contacts in connector - B - with your hands, as static discharge would damage the control module and mechatronics unit.**

- Replace the transmission if any of the shift elements are scorched.
- Allocate mechatronics unit according to transmission code letters .

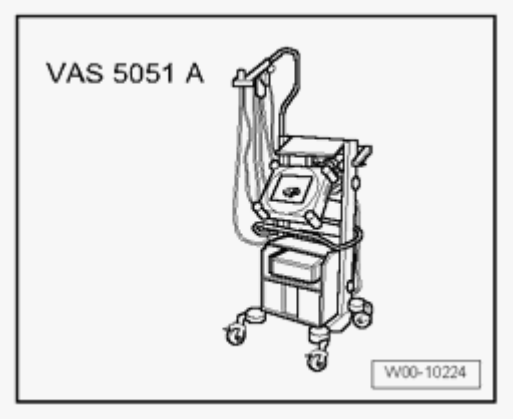

Fig. 7: Identifying Vehicle Diagnosis, Testing And Information System VAS 5051 A
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Guided fault finding, vehicle self-diagnosis and testing system

- Before servicing the automatic transmission, the exact cause of the failure must be determined as precisely as possible via the vehicle diagnostic, testing and information system VAS 5051 A in the modes

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"Guided Fault Finding", "vehicle self-diagnosis" and "testing system".

RULES FOR CLEANLINESS

Rules for cleanliness

- Observe the general repair instructions --> **General repair instructions**.

- Thoroughly clean all joints and surrounding areas before disassembling.
- Place removed parts on a clean surface and cover them with sheeting and paper or use lint-free cloths.
- Carefully cover or seal open components if repairs cannot be carried out immediately.
- Only install clean components: do not remove replacement parts from packaging until just before installation.

32 TORQUE CONVERTER

TORQUE CONVERTER

Torque converter

CAUTION: Before installing transmission check position of torque converter.

NOTE:

- **Read the rules for cleanliness when working on the automatic transmission --> Rules for cleanliness.**
- **General repair instructions --> General repair instructions.**
- **Apply thin coat of ATF to seals. Other types of lubricant will cause the transmission hydraulics to malfunction.**

Torque converter, identification

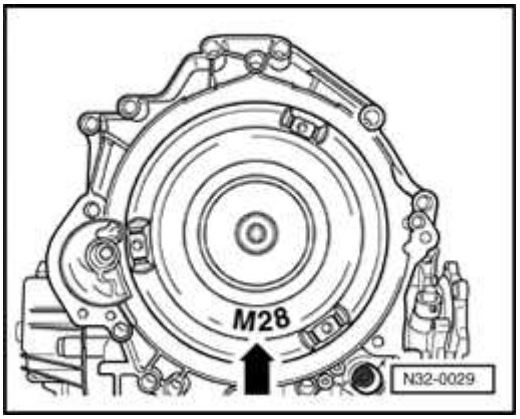

Fig. 8: Torque Converter, Identification
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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There are various types of torque converter. They are marked with code letters - **arrow** -.

Torque converter/transmission allocation --> **Code letters, transmission allocation, ratios, equipment**.

Torque converter, draining

Special tools, testers and auxiliary items required

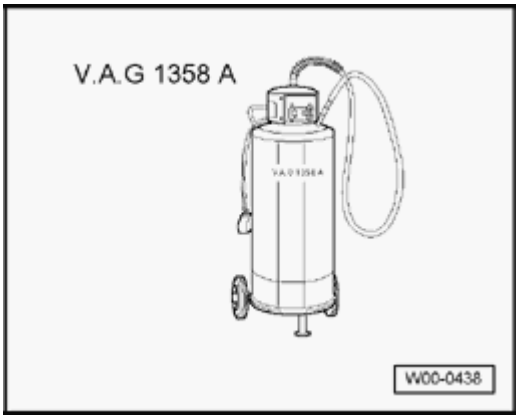

Fig. 9: Special Tool - Oil Extraction Unit V.A.G 1358 A
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Oil extractor V.A.G 1358 A
- Oil extractor probe V.A.G 1358 A/1

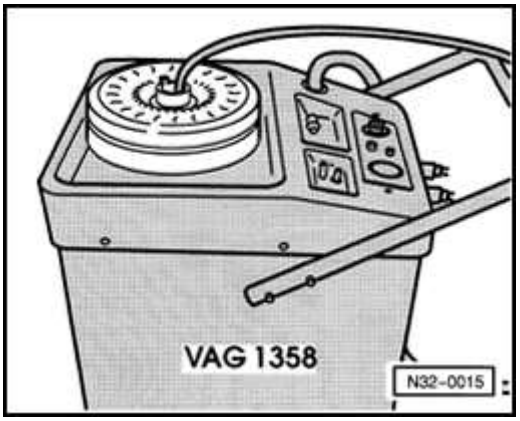

Fig. 10: Extracting ATF From Torque Converter Using Oil Extractor V.A.G 1358 A And Oil Extractor Probe V.A.G 1358 A/1
Courtesy of VOLKSWAGEN UNITED STATES, INC.

If the ATF has become fouled by abrasion or when performing a major transmission overhaul, drain the torque converter as follows:

- Extract ATF from torque converter using oil extractor V.A.G 1358 A and oil extractor probe V.A.G 1358 A/1.

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Torque converter oil seal, replacing

Special tools, testers and auxiliary items required

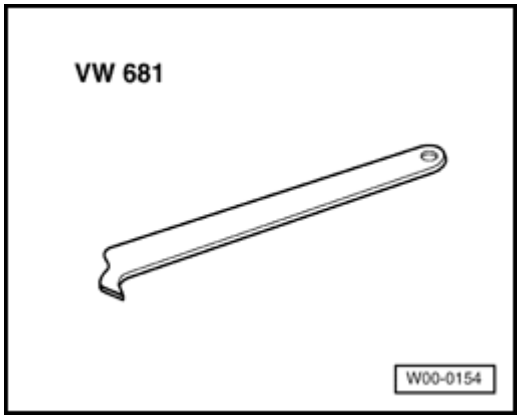

Fig. 11: Special Tool - Oil Seal Extractor Lever VW 681
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Extractor lever VW 681

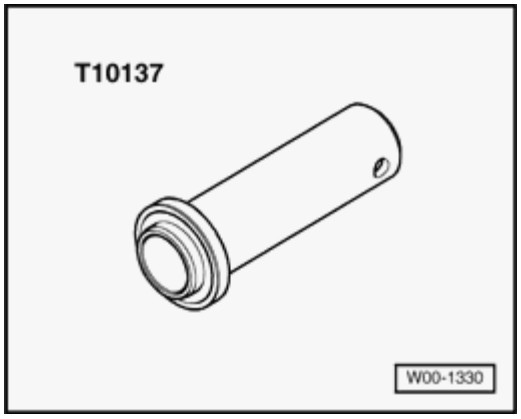

Fig. 12: Thrust Piece T10137
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Thrust piece T10137

Procedure

- Remove transmission: --> **Transmission, removing (vehicles with 2.0 ltr. TFSI engine)**, --> **Transmission, removing (vehicles with 3.2 ltr. FSI engine)**, --> **Transmission, removing (vehicles with 4.2 ltr. MPI engine)**.
- Mount transmission on assembly stand --> **Transmission, securing to assembly stand**.
- Carefully pull out torque converter.

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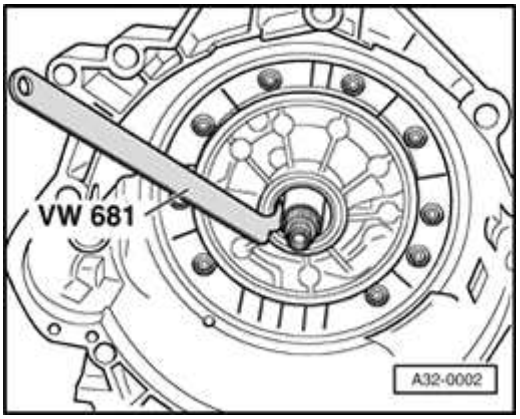

Fig. 13: Applying Extractor Lever VW 681 Directly Behind Sealing Lip Of Oil Seal
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove oil seal for torque converter using oil seal extractor VW 681.
- Lightly lubricate outer circumference and sealing lips of oil seal with ATF.

- Installation position: open side of oil seal points toward transmission

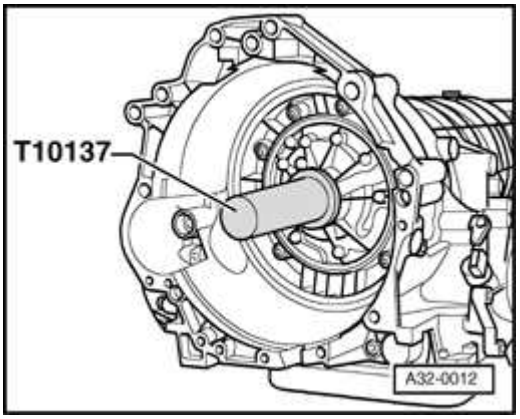

Fig. 14: Driving In Torque Converter Oil Seal With Thrust Piece T10137 Until Thrust Piece Reaches Stop
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drive in torque converter oil seal with thrust piece T10137 until thrust piece reaches stop.

Torque converter, checking

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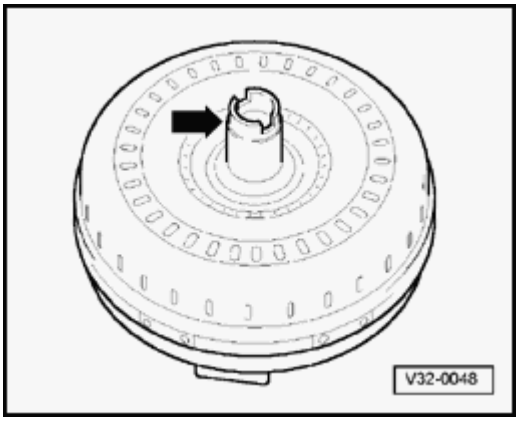

Fig. 15: Inspect Torque Converter Hub For Irregular Grooves
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Check hub - **arrow** - of torque converter for scoring.

NOTE:

- **The torque converter is a welded assembly and must be replaced as a complete unit in the event of any damage or malfunctions.**

Torque converter, installing

Special tools, testers and auxiliary items required

- Depth gauge

Installing

- Press torque converter hub through oil seal as far as first stop.
- Lightly press torque converter inward and turn until slots on torque converter hub engage in drive lugs on ATF pump gear and torque converter slides in a noticeable distance.

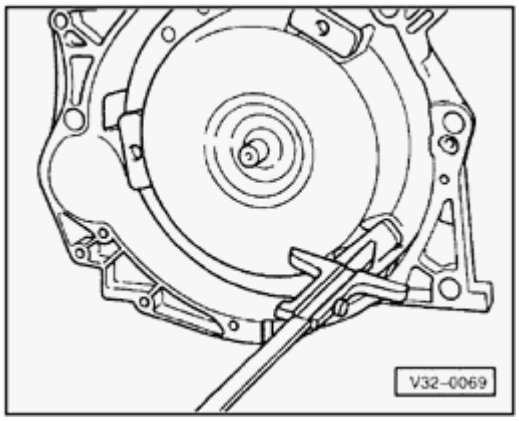

Fig. 16: Checking Torque Converter Is Correctly Positioned
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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Installed depth

If the torque converter is correctly installed, the depth between the contact surfaces at the tapped holes on the torque converter and the contact surface of the torque converter bell housing is at least 19 mm.

CAUTION: If the torque converter is not installed correctly, the torque converter drive lugs or the ATF pump will be seriously damaged when the transmission is joined to the engine.

- Use new ribbed bolts to secure torque converter to drive plate.

When installing the transmission, observe the following instructions.

CAUTION: Before and while you are tightening the bolts on the engine/transmission flange keep checking that the torque converter can still be rotated behind the drive plate. If the converter cannot be turned, it must be assumed that it has not been installed correctly and the drive lugs on the converter or the ATF pump will be damaged when the bolts are fully tightened.

37 CONTROLS, HOUSING

ELECTRICAL/ELECTRONIC COMPONENTS AND LOCATIONS

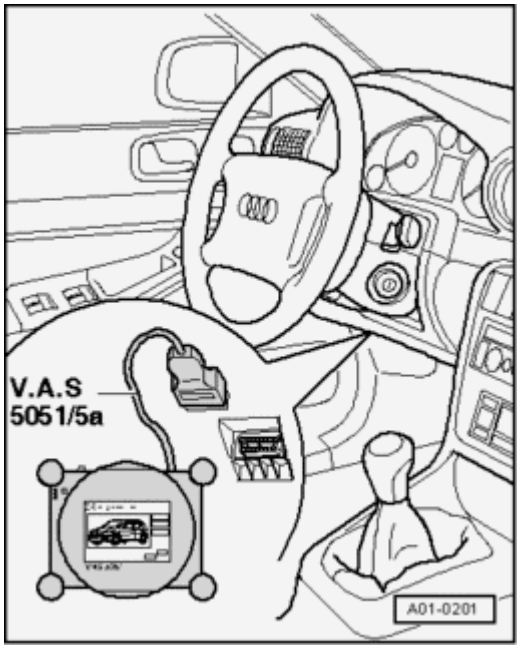

Fig. 17: Connecting Data Link Connector (DLC)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Data Link Connector (DLC)

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Location: below knee padding on left side of steering wheel

The following components can be tested in the "Guided fault finding" using vehicle diagnostic, testing and information system VAS 5051 A.

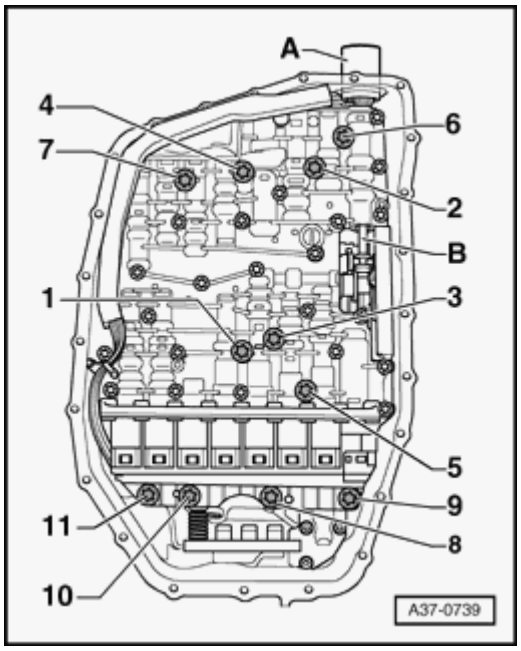

Fig. 18: Removing/Installing Securing Bolts For Mechatronics Unit In Sequence
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Mechatronics unit, Transmission Control Module (TCM) J217, Multi-function transmission range (TR) switch F125, Transmission input speed (RPM) sensor G182 and Transmission output speed (RPM) sensor G195

Location: the mechatronics unit is bolted to the underside of the transmission housing and covered by the transmission oil pan.

The mechatronics unit incorporates the hydraulic control system, the electronic control module and the sensors and actuators as a complete synchronized unit. This includes:

- Transmission Control Module (TCM) J217
- Multi-Function Transmission Range (TR) Switch F125
- Transmission Input Speed (RPM) Sensor G182
- Transmission Output Speed (RPM) Sensor G195

The "mechatronics" unit can only be replaced as a complete unit.

NOTE:

- **All components mentioned are tested via Self-diagnosis.**

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- Removing and installing mechatronics unit --> **Mechatronics unit, removing and installing**

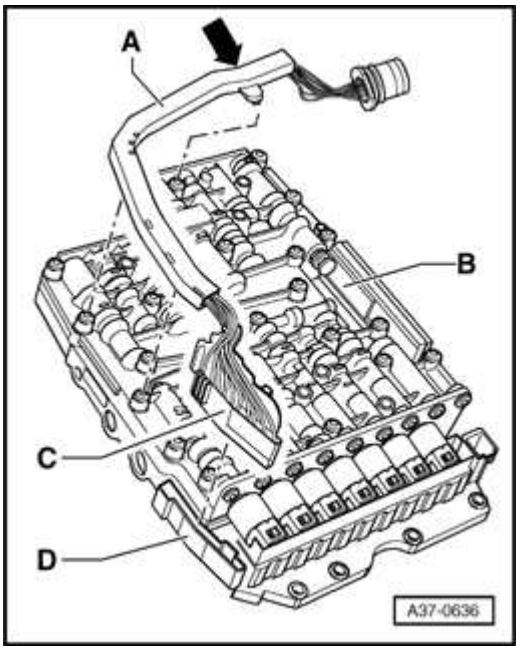

Fig. 19: Locating Wiring Harness With Connector Is Attached To The Mechatronics Unit
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Internal wiring harness in transmission

Location: the wiring harness - **A** - with connector - **C** - is attached to the mechatronics unit - **B** -.

- Removing and installing wiring harness --> **Wiring harness in transmission, removing and installing**.

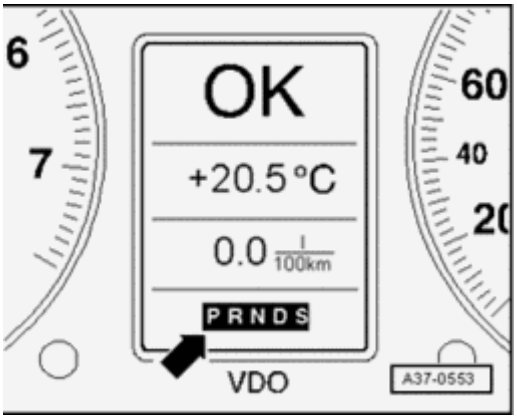

Fig. 20: Transmission Range (TR) Selector Lever Display -Y6-
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Transmission Range (TR) Display Y6

Location: integrated into instrument cluster

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NOTE:

- **The Transmission Range (TR) Display Y6 can only be replaced together with instrument cluster.**

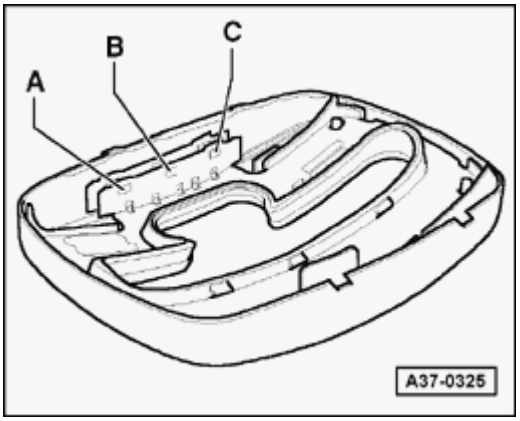

Fig. 21: Selector Mechanism Consists Of 3 Hall Senders, And
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Tiptronic switch F189

- Location: The Tiptronic switch F189 is integrated in the printed circuit of the symbol panel, which is located in the selector mechanism cover.
- Comprises 3 Hall sensors actuated by a magnet on transverse slide of the sliding cover.

A - Tip-down sensor

B - Sensor for Tiptronic recognition

C - Tip-up sensor

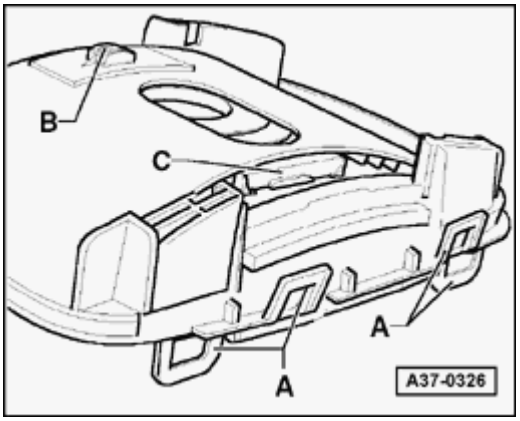

Fig. 22: Checking Whether Solenoid Is Properly Attached To Roll Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **In the event of faults, first check that magnet is properly secured on the**

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transverse slide - C - of the sliding cover. Replace sliding cover if necessary. Always check wiring before replacing symbol insert with integrated printed circuit. On vehicles with multi-function steering wheel the buttons on the steering wheel and their wiring connections must also be checked.

- **Ignore - item A - and - item B -.**

- Removing and installing Tiptronic switch F189 --> **Tiptronic switch F189, removing and installing**

SELECTOR MECHANISM, SERVICING

Selector mechanism, servicing

CAUTION: Before working on vehicle when engine is running, shift the selector lever into position "P" and apply the parking brake.

Ignition key removal lock, checking

- Turn ignition key to "ignition on" position.
- Press and hold brake pedal.

- When button in selector lever handle is pressed, it should be possible to move selector lever out of position "P" without "catching".
- It should not be possible to remove the ignition key when the selector lever is in any position other than "P".

- Shift selector lever to position "P".

- It should be possible to move ignition key to removal position without "sticking".

- Pull out ignition key.

- It should only be possible to remove ignition key in selector lever position "P".
- Selector lever cannot be shifted out of "P" position with button pressed and foot brake depressed.

If ignition key removal lock does not function as described, locking cable has to be adjusted --> **Locking cable, adjusting**.

Selector mechanism, checking

- It should not be possible to operate the starter while the selector lever is in position "S", "D", "R" or in the "Tiptronic gate".
- When travelling at speeds above 5 km/h and shifting into selector lever position "N", the solenoid for the selector lever lock must not engage and block the selector lever. The selector lever can be shifted into a driving gear.

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- When travelling at speeds below 2 km/h (almost stationary) and shifting into selector lever position "N", the solenoid for the selector lever lock should only engage after about 1 second. Selector lever cannot be shifted out of "N" position until brake pedal is depressed.

Selector lever in "P" position and ignition switched on:

- Do not depress brake pedal.
- Selector lever is locked and cannot be shifted out of "P" position. Solenoid for selector lever lock blocks selector lever.
- Press and hold brake pedal.
- Solenoid for selector lever lock releases selector lever. It is possible to shift into a driving gear. Shift selector lever slowly from "P" position through "R, N, D and S" and check whether the display in the instrument cluster shows the correct selector lever position in each case.

Selector lever in "N" position and ignition switched on:

- Do not depress brake pedal.
- After a short waiting time: Selector lever is locked and cannot be shifted out of "N" position. Solenoid for selector lever lock blocks selector lever.
- Depress brake pedal.
- Solenoid for selector lever lock releases selector lever. It is possible to shift into a driving gear.

Selector lever in "D" position, ignition and lights switched on:

- Shift selector lever into "Tiptronic gate".
- The illuminated "D" symbol in the selector lever position indicator should go out and the "+" and "-" symbols should light up.
- The selector lever position indicator in the instrument cluster should switch from "PRNDS" to "654321" when the selector lever is shifted into the "Tiptronic gate".

If ignition key removal lock does not function as described, selector lever cable has to be checked and possibly adjusted --> Selector lever cable, checking and adjusting.

Selector mechanism cover, selector lever handle, component overview

NOTE:

- **Lubricate all bearings and moving surfaces with *polycarbamide grease G 052 142 A2* .**

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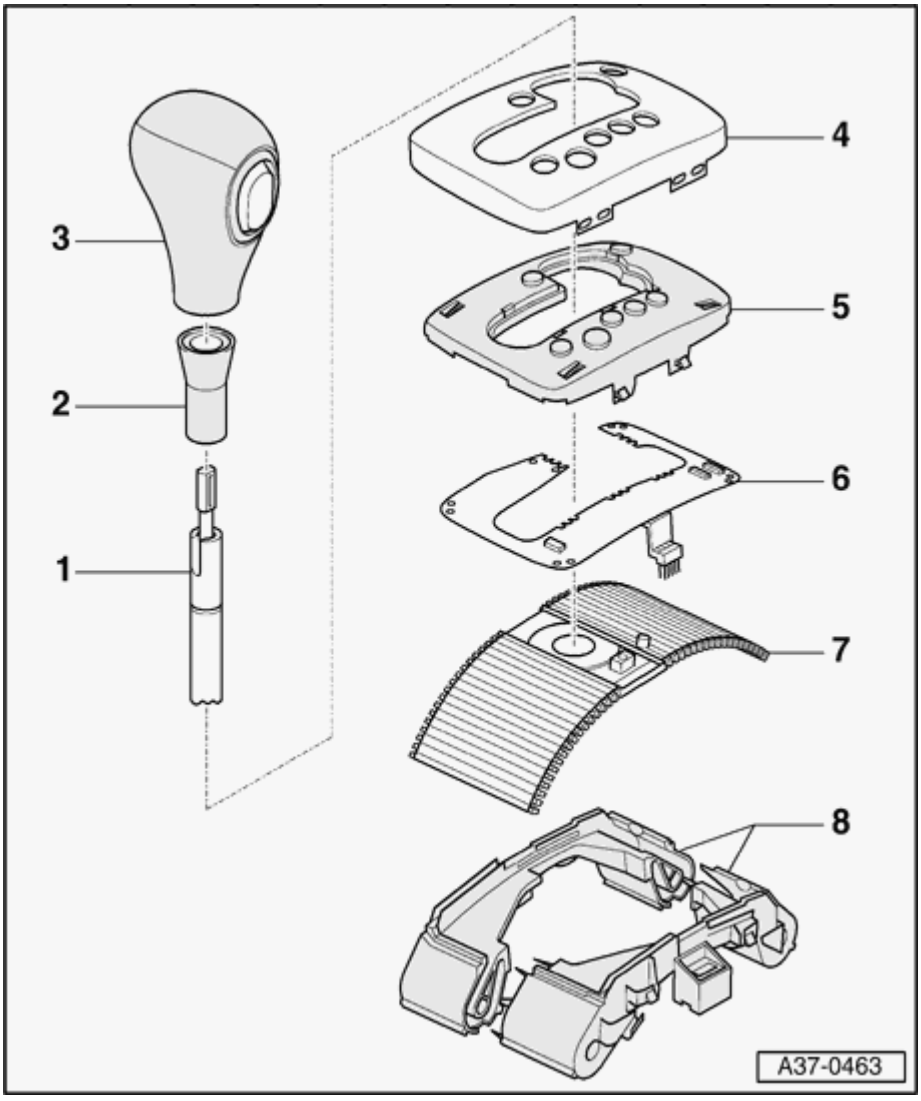

Fig. 23: Selector Mechanism Cover, Selector Lever Handle, Component Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Selector lever

2 - Sleeve for selector lever

- Removing and installing --> **Selector lever handle, removing and installing**

3 - Selector lever handle

- Removing and installing --> **Selector lever handle, removing and installing**

4 - Cover

- With position indicator and Tiptronic gate and display for selector lever lock

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- Removing and installing --> **Selector mechanism cover, removing and installing**

5 - Symbol insert

- Clipped onto cover

6 - Printed circuit board

- With integrated Tiptronic switch F189
- Removing and installing --> **Tiptronic switch F189, removing and installing**

7 - Sliding cover

- With integrated magnet for Tiptronic switch F189 on transverse slide.
- Removing and installing --> **Tiptronic switch F189, removing and installing**

8 - Guide for sliding cover

- Carefully pry apart two halves

Selector lever handle, removing and installing

Removing

- Shift selector lever to position "D".

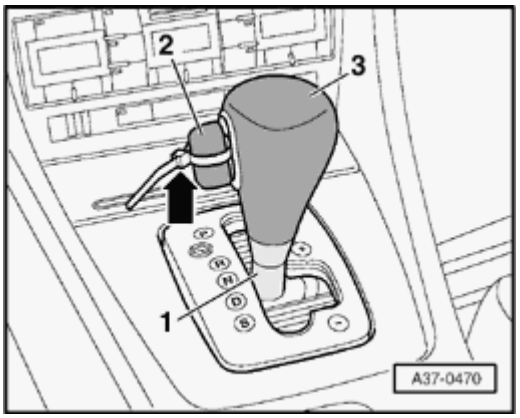

Fig. 24: Selector Lever Handle, Removing And Installing
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Turn sleeve - **1** - counter-clockwise and push down onto stop.
- Pull button - **2** - out of selector lever handle - **3** - carefully, just far enough to be able to insert a cable tie between button and selector lever.

NOTE:

- **Under no circumstances pull button out further, as selector lever handle**

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would then become damaged.

- Use cable tie to secure the button in its pulled position - **arrow** - , as shown in illustration.
- Remove selector lever handle by pulling it off.

Installing

Installation is performed in reverse sequence. Note the following:

- Shift selector lever to position "D".

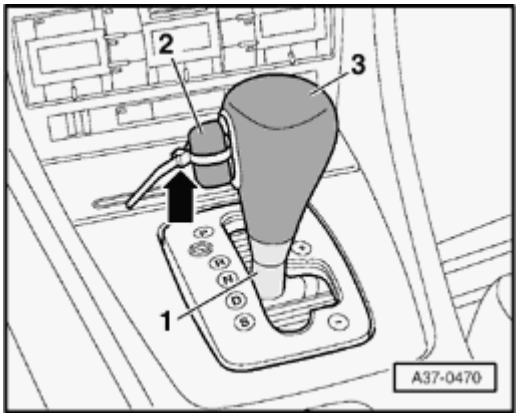

Fig. 25: Selector Lever Handle, Removing And Installing
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **To install the selector lever handle - 3 - the button - 2 - has to be pulled out to the stop and must be secured with either a cable tie - arrow - or with the assembly aid supplied together with the new handle.**
- **If, by mistake, the button has not been secured, it must not be pulled out of the selector lever handle using mechanical tools. Position a compressed air gun at the bottom of the handle and carefully press the button out with compressed air.**

- Install selector lever handle - **3** - fully onto selector lever; button - **2** - points toward the driver. The handle must engage in annular groove of selector lever.
- Remove cable tie - **arrow** - or assembly aid; the button mechanism will then engage in the vertical groove on the selector lever. If necessary, press button into selector lever handle.
- Pull sleeve - **1** - upward and engage by turning in clockwise direction.

Selector mechanism cover, removing and installing

Removing

- Remove selector lever handle --> **Selector lever handle, removing and installing**.

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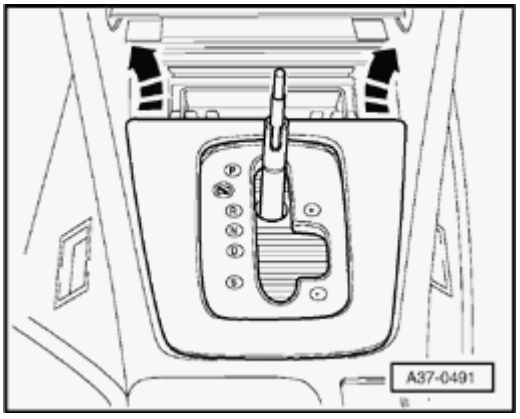

Fig. 26: Opening Ashtray In Center Console And Removing Trim
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Open ashtray on center console and remove trim - **arrows** -.

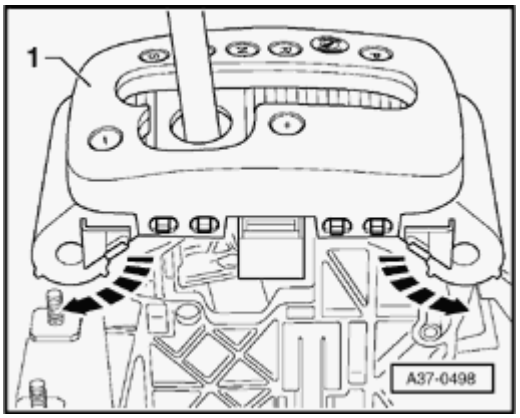

Fig. 27: Releasing Clips And Pulling Cover With Guide Upward To Remove
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Release 4 retainers - **arrows** - and lift off cover - **1** - including guide.
- Disconnect electrical connector from side of guide.

Installing

Installation is performed in reverse sequence. Note the following:

- Install selector lever handle --> **Transmission, installing (vehicles with 4.2 ltr. MPI engine)**.

Tiptronic switch F189, removing and installing

- Comprises 3 Hall sensors actuated by a magnet on the transverse slide of sliding cover.
- Also check that magnet is properly secured on transverse slide of sliding cover, replace sliding cover with guide if necessary.

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Removing

- Remove selector mechanism cover --> **Selector mechanism cover, removing and installing**.

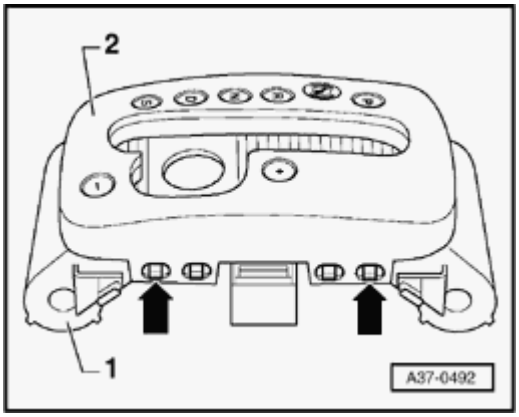

Fig. 28: Pressing Lugs Inward And Removing Cover From Guide
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press 4 locking hooks - **arrows** - inward and pull cover - **2** - off guide - **1** -.
- Take printed circuit with integrated Tiptronic switch F189 out of cover.

NOTE:

- **If necessary, the sliding cover with the magnet for the Tiptronic switch F189 can be removed as described below. However, as a replacement part the sliding cover is only available together with the guide.**

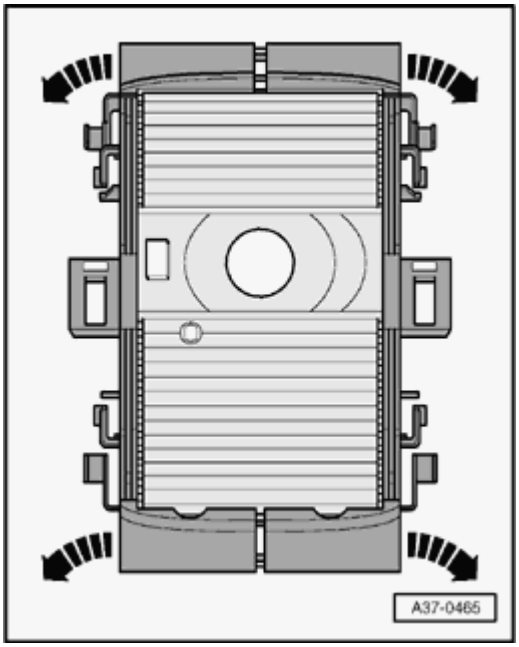

Fig. 29: Separating Both Guide Parts By Applying Careful Levering Movements
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Carefully separate two halves of guide by levering them apart - **arrows** -.
- Remove sliding cover with magnet for Tiptronic switch F189.

Installing

Installation is performed in reverse sequence. Note the following:

- Install selector mechanism cover --> **Selector mechanism cover, removing and installing**.
- Install selector lever handle --> **Transmission, installing (vehicles with 4.2 ltr. MPI engine)**.

Selector mechanism, component overview

NOTE:

- **Lubricate all bearings and moving surfaces with *polycarbamide grease G 052 142 A2* .**

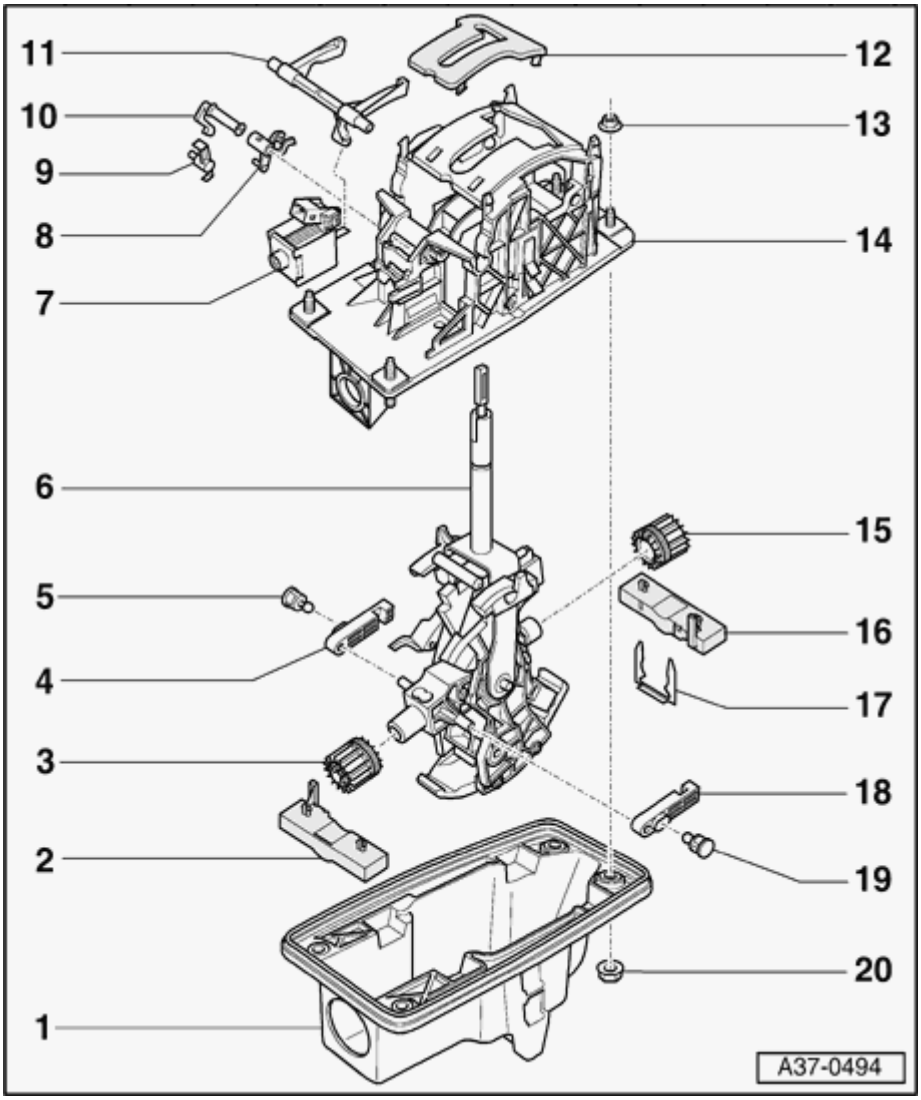

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Fig. 30: Selector Mechanism, Component Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Selector mechanism cover (bottom)

2 - Retaining clip for selector lever

3 - Bearing bushing

4 - Tiptronic locking lever

5 - Pivot pin

6 - Selector lever

7 - Shift lock solenoid N110

- Removing and installing --> **Shift lock solenoid N110, removing and installing**

8 - Actuating lever for locking cable

9 - Lock for locking cable

10 - Lever for locking cable

11 - Locking lever

12 - Selector gate

13 - 10 Nm

14 - Selector housing

15 - Bearing bushing

16 - Retaining clip for selector lever

17 - Retaining clip

- Replace

18 - Tiptronic locking lever

19 - Pivot pin

20 - 10 Nm

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Selector mechanism, removing and installing

NOTE:

- **The following procedure describes how to remove and install the selector mechanism without the selector lever cable, i.e. the selector lever cable remains in the vehicle.**

Removing

- Remove selector lever handle --> **Selector lever handle, removing and installing**.

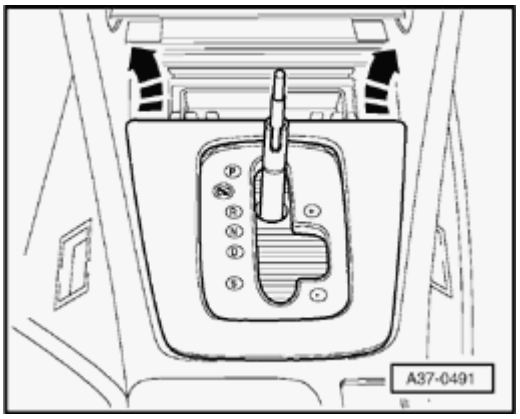

Fig. 31: Opening Ashtray In Center Console And Removing Trim
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Open ashtray on center console and remove trim - **arrows** -.
- Remove air conditioning control console --> **87 AIR CONDITIONING** .
- Remove ashtray from center console -->
  - **68 - INTERIOR EQUIPMENT**
  - **68 - INTERIOR EQUIPMENT** for BODY INTERIOR - CABRIOLET

.

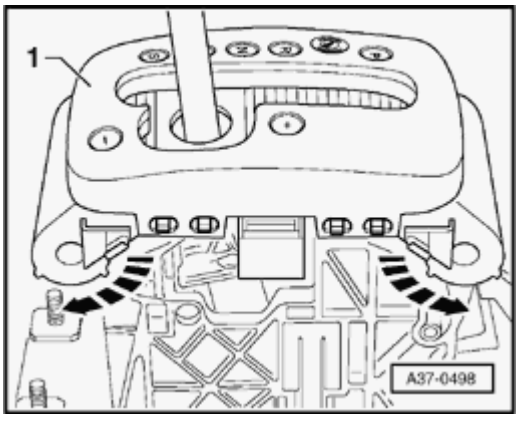

Fig. 32: Releasing Clips And Pulling Cover With Guide Upward To Remove
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Release 4 retainers - **arrows** - and lift off cover - **1** - including guide.
- Disconnect electrical connector from side of guide.
- Disconnect electrical connector from Shift lock solenoid Shift lock solenoid N110.

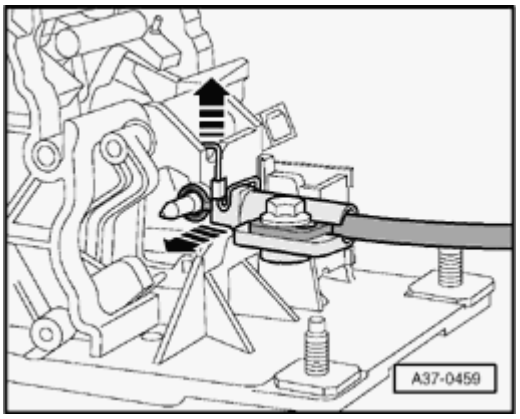

Fig. 33: Disengaging Locking Cable
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unhook locking cable - **arrows** -.
- Shift selector lever to position "S".

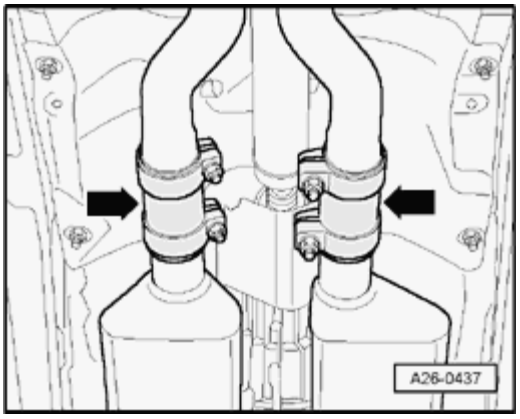

Fig. 34: Loosening Clamping Sleeves
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Vehicles with 4.2 ltr. MPI engine:

NOTE:

- **To prevent damage, the flexible couplings in the front exhaust pipes must not be bent further than 10°.**

- Disconnect exhaust system at clamps - **arrows** -.
- Disengage rear section of exhaust system at rubber mountings and remove.

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NOTE:

- **A second technician is required for removing the rear section of the exhaust system.**

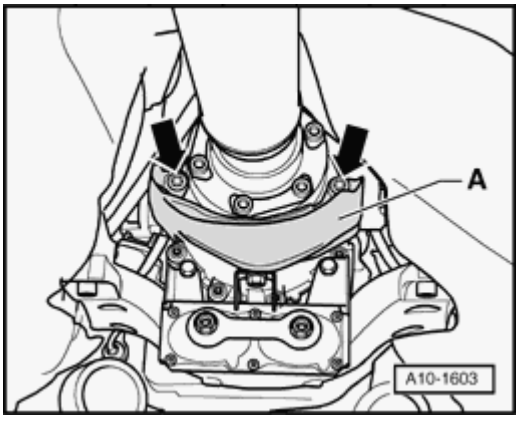

Fig. 35: Removing/Installing Heat Shield For Driveshaft
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect exhaust system at clamp - **arrow** -.
- Remove heat shield - **A** - for driveshaft - **arrows** -.

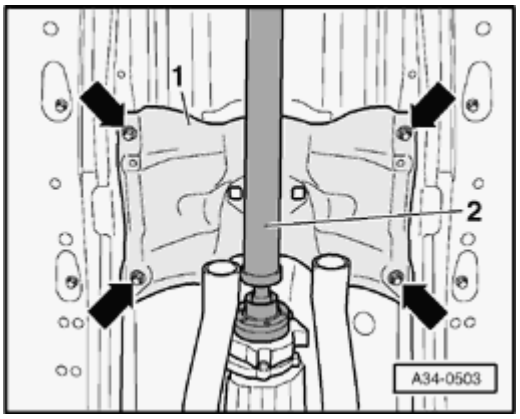

Fig. 36: Driveshaft Heat Shield Bolts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove heat shield - **1** - for exhaust system below selector mechanism - **arrows** -.
- Remove bolts at transmission/driveshaft flange.
- Push driveshaft - **2** - together toward rear final drive. The constant velocity joints can be moved axially.

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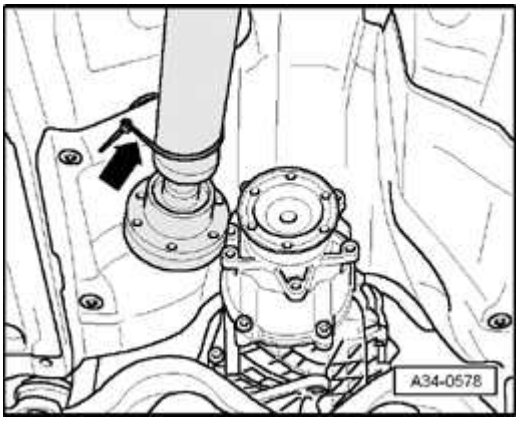

Fig. 37: Drive Shaft Tied To Side, Onto Heat Shield
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tie driveshaft to side, onto heat shield - **arrow** -.

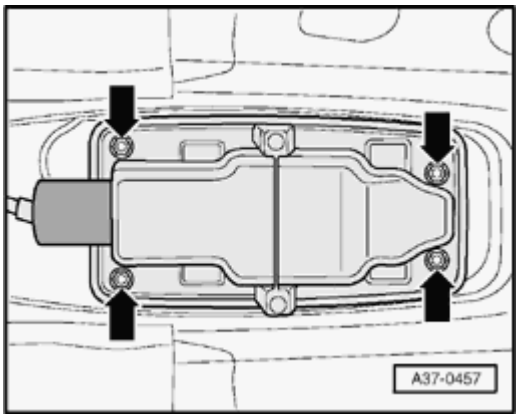

Fig. 38: Removing/Installing Lower Cover From/To Shift Mechanism
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove cover on underside of selector mechanism - **arrows** -.
- Remove selector lever cable sleeve from selector mechanism cover (bottom) and slide back.

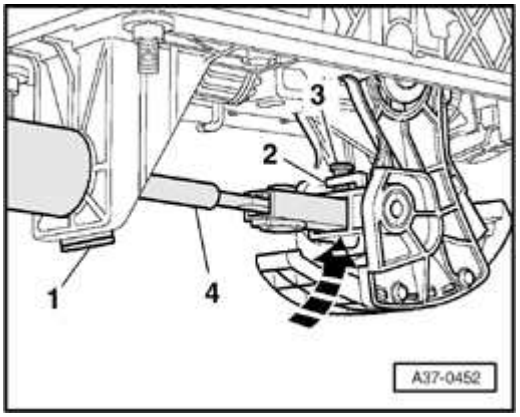

Fig. 39: Identifying Retaining Clip, Securing Spring, Push Pin & Selector Lever Cable

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove retaining clip - **1** - for selector lever cable by pulling it off downward at the selector mechanism.
- Pull plastic securing spring - **2** - slightly forward and press pin - **3** - upward, but only as far as is necessary - **arrow** -.

NOTE:

- **Make sure that pin is not pressed out completely.**

- Pull selector lever cable - **4** - out of selector mechanism.

NOTE:

- **Do not bend or kink the selector lever cable.**

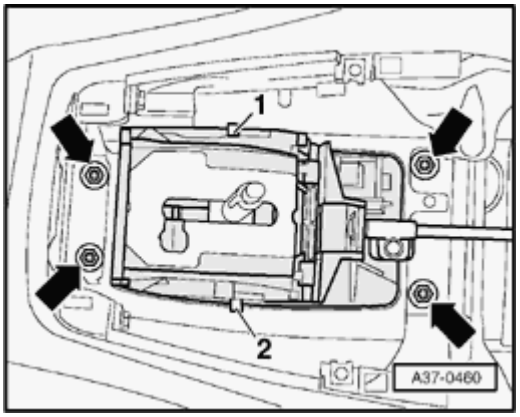

Fig. 40: Unscrewing Nuts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove nuts - **arrows** -.

NOTE:

- **A second technician is required to detach the selector mechanism under the vehicle.**

- Push retaining clips - **1** - and - **2** - inward, at the same time pushing the selector mechanism downward.

NOTE:

- **Do not bend or kink the selector lever cable.**

Installing

Installation is performed in reverse sequence. Note the following:

- Install selector lever cable --> **Selector lever cable, removing and installing (vehicles with 2.0 ltr. TFSI engine)**, --> **Selector lever cable, removing and installing (vehicles with 3.2 ltr. FSI engine)**, --> **Selector lever cable, removing and installing (vehicles with 4.2 ltr. MPI engine)**.

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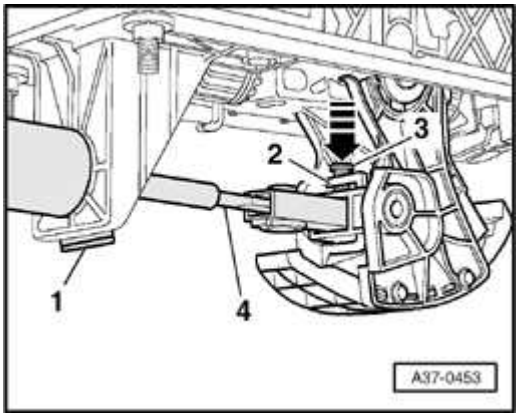

Fig. 41: Inserting End Of Selector Lever Cable Into Joint Of Selector Lever
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install new retaining clip - **1** - for selector lever cable on selector mechanism.

- Installation position: The angled end of the retaining clip faces to the inside of selector mechanism.

- Install locking cable --> **Locking cable, removing and installing**.
- Adjust locking cable --> **Locking cable, adjusting**.
- Adjust selector lever cable --> **Selector lever cable, checking and adjusting**.
- Bolt driveshaft onto transmission -->
  - **39 FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE
  - **39 - FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE 0AR

  .

- Install exhaust system free of stress -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
  - **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): BNS
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

  .

Tightening torques

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Component	Nm
Selector mechanism to body	10
Cover (bottom) to selector mechanism	10

Selector mechanism, disassembling and assembling

NOTE:

- **Removing and installing securing spring for locking cable Removing and installing securing spring for locking cable.**
- **If selector gate or selector housing are faulty the entire selector mechanism has to be replaced. The two components cannot be adjusted using workshop tools.**

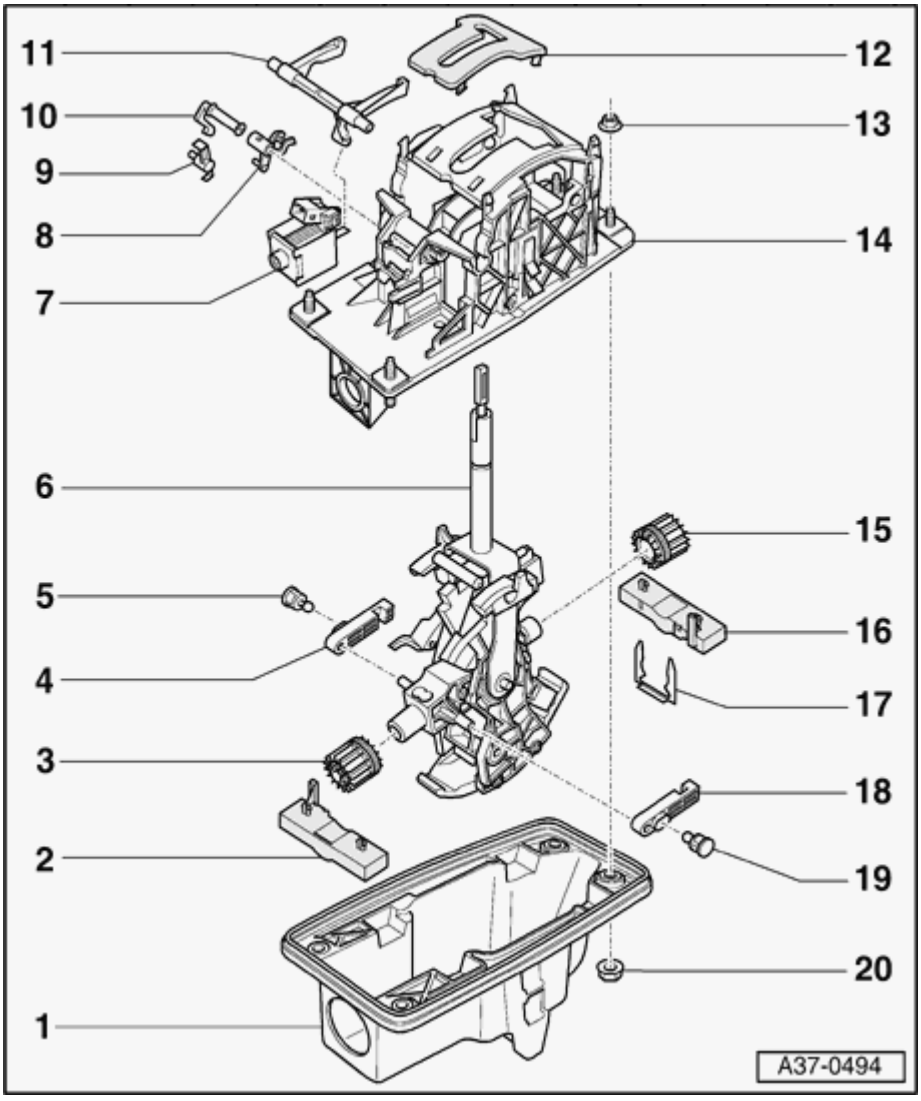

Fig. 42: Selector Mechanism, Disassembling And Assembling Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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Disassembling

- Shift selector lever to position "S".
- Remove Shift lock solenoid N110 - **item 7** - --> **Shift lock solenoid N110, removing and installing**.
- Unbolt and then unclip selector gate - **12** - from selector housing - **14** -.
- Release pivot pins - **5** - and - **19** - and pull them out sideways.

- Unclip retaining clips - **2** - and - **16** -.
- Pull off retaining clip - **17** -.
- Swivel locking lever - **11** - upward as far as it will go.
- Pull selector lever - **6** - together with bushings - **3** - and - **15** - and Tiptronic locking levers - **4** - and - **18** - downward out of selector housing - **14** -.

Assembling

- Make sure that selector lever is still in position "S".
- Swivel locking lever - **11** - upward as far as it will go.
- Insert selector lever - **6** - into selector lever housing - **14** - from below.
- Install Tiptronic locking levers - **4** - and - **18** - , and bushings - **3** - and - **15** - onto selector lever.

- Push selector lever - **6** - together with bushings into selector lever housing - **14** - and position with retaining clip - **17** -.
- Engage retaining clips - **2** - and - **16** - on selector lever housing.
- Press pivot pins - **5** - and - **19** - into selector lever - **6** - until they engage.
- Check that the pivot pins are engaged in the Tiptronic locking lever.

- Install Shift lock solenoid N110 - **item 7** - --> **Shift lock solenoid N110, removing and installing**.
- Clip selector gate - **12** - onto selector housing - **14** - and tighten to 0.4 Nm.

Removing and installing securing spring for locking cable

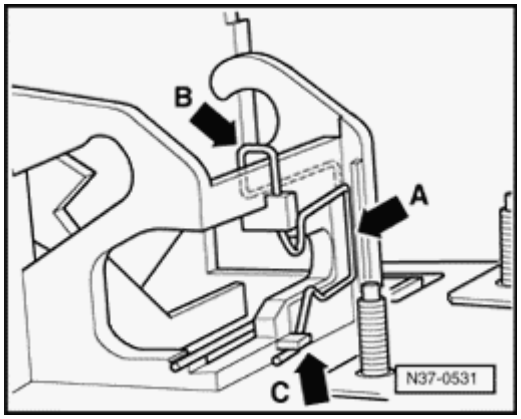

Fig. 43: Removing And Installing Securing Spring For Locking Cable

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

Removing

- To remove locking cable lift spring slightly at top - **arrow B** -.
- Disengage spring from retainer lug - **arrow C** - and lift out.

Installing

- Insert spring from above - **arrow B** - and engage under retainer lug - **arrow C** -.
- Align spring so that it lies level in groove - **arrow A** -.
- To install locking cable, lift spring slightly at the top - **arrow B** -.

Shift lock solenoid N110, removing and installing

Removing

- Remove selector mechanism cover --> **Selector mechanism cover, removing and installing**.

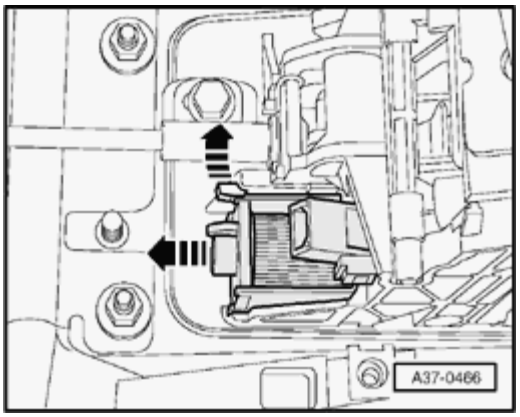

Fig. 44: Releasing Lugs And Selector Lever Lock Solenoid Forward
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical connector at Shift lock solenoid N110.
- Release retainer and pull out Shift lock solenoid N110 from front - **arrows** -.

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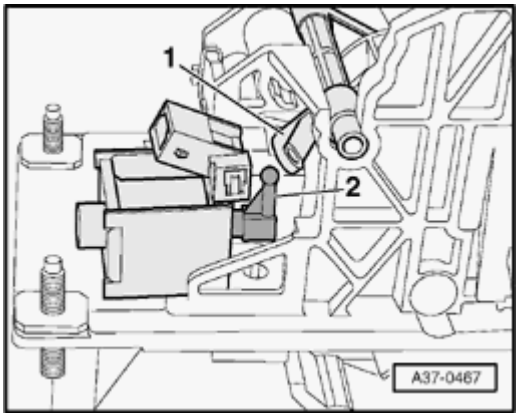

Fig. 45: Pressing Selector Lever Lock Solenoid Into Guide Until It Engages
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Installing

Installation is performed in reverse sequence. Note the following:

- Press Shift lock solenoid into guide until it engages. Actuating lever - **2** - for solenoid must engage in locking lever - **1** - on selector mechanism.
- Install selector mechanism cover --> **Selector mechanism cover, removing and installing**.

Selector lever cable and locking cable, components overview

NOTE:

- **Do not bend or kink the selector lever cable.**
- **Before installing, lightly lubricate cable eye and ball socket with *polycarbamide grease G 052 142 A2* .**

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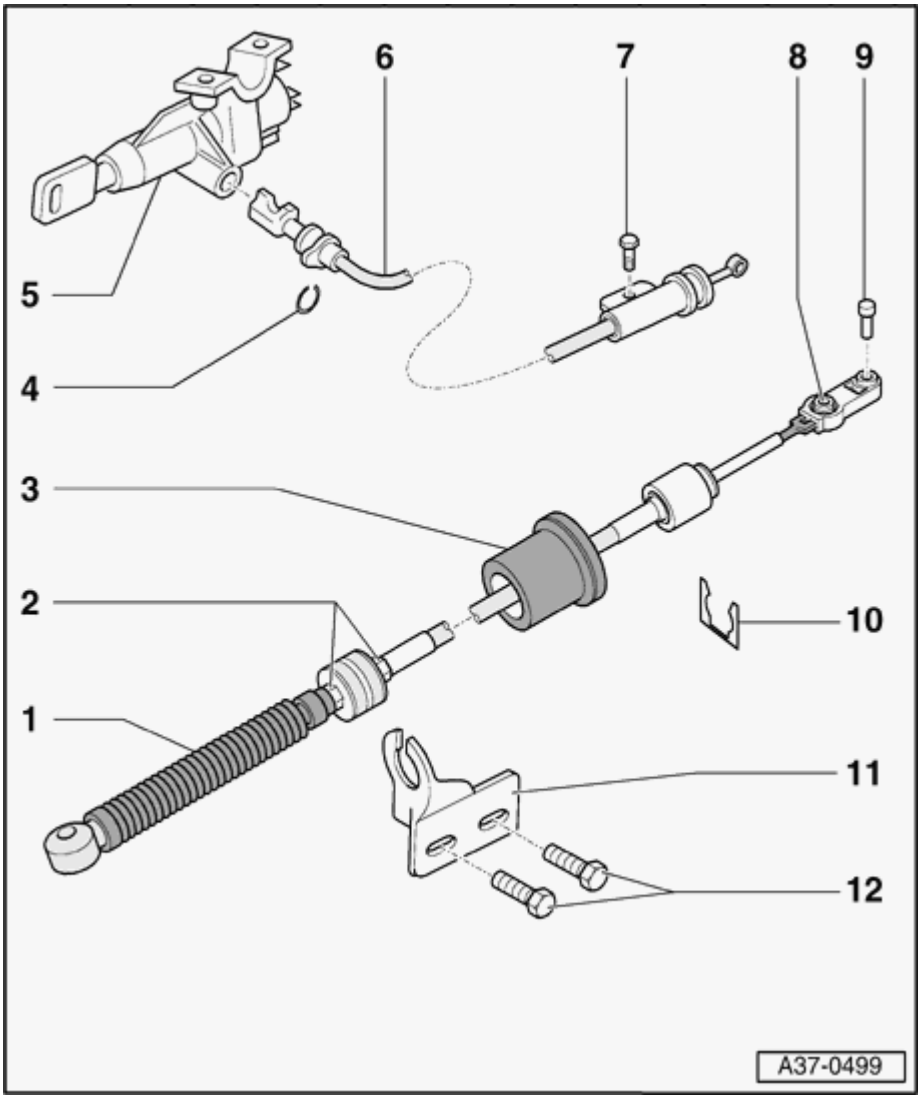

Fig. 46: Selector Lever Cable And Locking Cable, Assembly Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Selector lever cable

- Must not be kinked
- Removing and installing: --> **Selector lever cable, removing and installing (vehicles with 2.0 ltr. TFSI engine)**, --> **Selector lever cable, removing and installing (vehicles with 3.2 ltr. FSI engine)**, --> **Selector lever cable, removing and installing (vehicles with 4.2 ltr. MPI engine)**
- Adjusting --> **Selector lever cable, checking and adjusting**

2 - Lock nuts, 12 Nm

3 - Sleeve for selector lever cable

- Press into selector mechanism cover (bottom).

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4 - Circlip

5 - Starter switch

- With ignition key removal lock

6 - Locking cable for ignition key removal lock

- Must not be kinked
- Removing and installing --> **Locking cable, removing and installing**
- Adjusting --> **Locking cable, adjusting**

7 - Hex bolt, 9 Nm

8 - Clamping bolt for selector lever cable, 13 Nm

- Loosen 1 turn for adjusting, do NOT remove completely

9 - Pin for selector lever cable

- To remove selector lever cable pull plastic locking spring on selector mechanism forward slightly and push up pin just far enough to release cable.

10 - Retaining clip for selector lever cable

- Replace

11 - Support bracket

- For securing selector lever cable to transmission

12 - Hex bolt, 10 Nm

Selector lever cable, removing and installing (vehicles with 2.0 ltr. TFSI engine)

Removing

- Shift selector lever to position "P".

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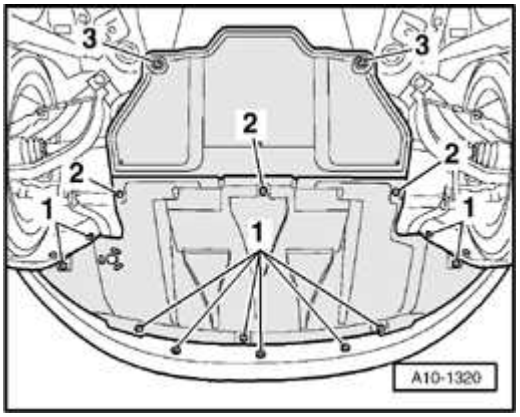

Fig. 47: Identifying Quick-Release Fasteners And Noise Insulation
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Open quick release fasteners - **2** - and - **3** - and remove rear sound insulation.

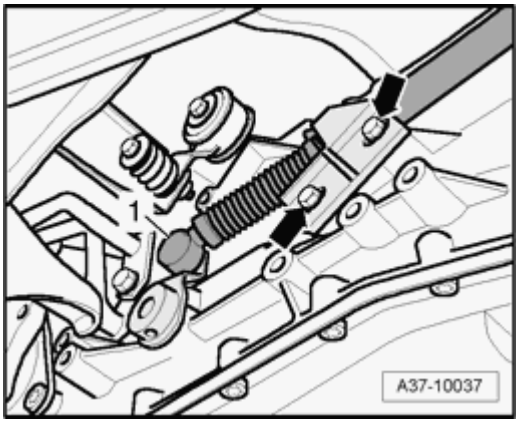

Fig. 48: Pressing Ball Socket Of Selector Lever Cable From Selector Shaft Lever & Removing Bracket On Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Pry ball socket - **1** - of selector lever cable off selector shaft lever.
- Remove support bracket from transmission - **arrows** -.

NOTE:

- **Shown in illustration with transmission support removed.**

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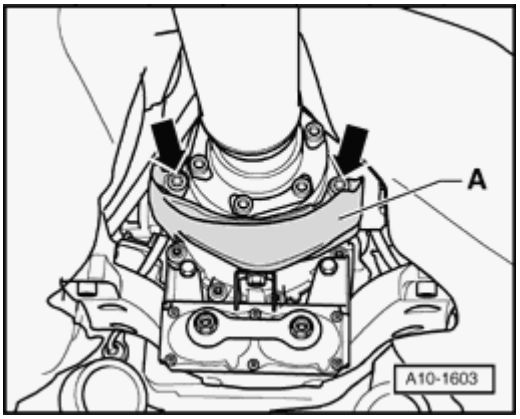

Fig. 49: Removing/Installing Heat Shield For Driveshaft
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove heat shield - **A** - for driveshaft - **arrows** -.

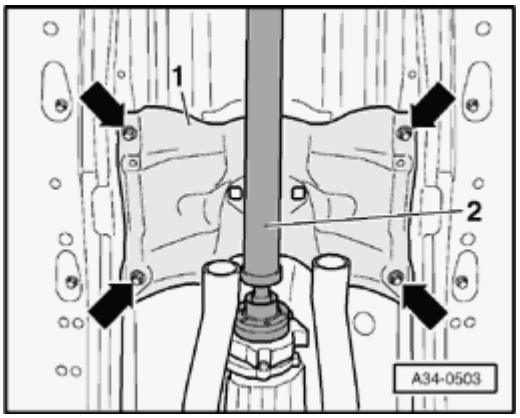

Fig. 50: Driveshaft Heat Shield Bolts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove heat shield - **1** - for exhaust system below selector mechanism - **arrows** -.
- Remove bolts at transmission/driveshaft flange.
- Push driveshaft - **2** - together toward rear final drive. The constant velocity joints can be moved axially.

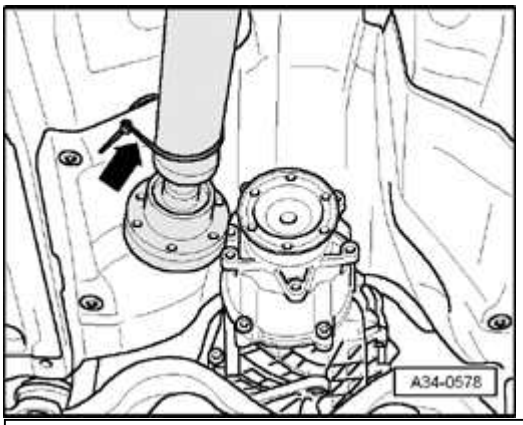

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Fig. 51: Drive Shaft Tied To Side, Onto Heat Shield
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tie driveshaft up to side onto heat shield - **arrow** -.

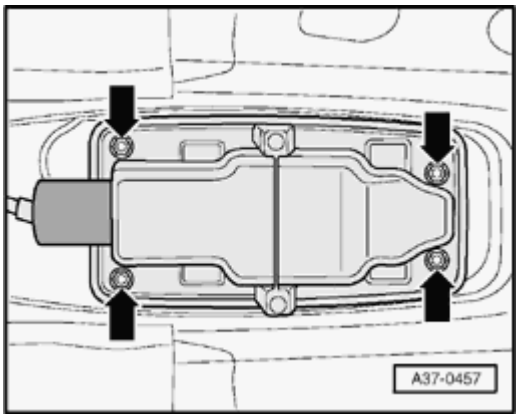

Fig. 52: Removing/Installing Lower Cover From/To Shift Mechanism
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove selector lever cable sleeve from selector mechanism cover (bottom) and slide back.
- Remove cover on underside of selector mechanism - **arrows** -.

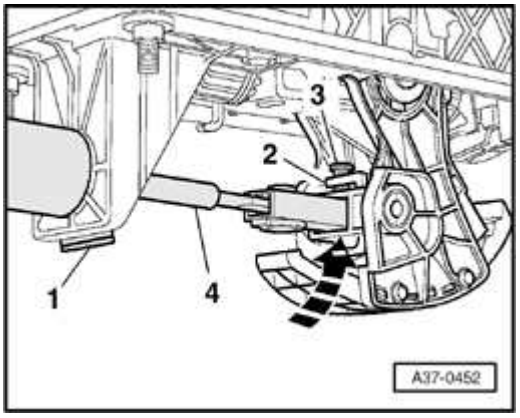

Fig. 53: Identifying Retaining Clip, Securing Spring, Push Pin & Selector Lever Cable
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove retaining clip - **1** - for selector lever cable by pulling it off downward at selector mechanism.
- Pull plastic securing spring - **2** - slightly forward and press pin - **3** - upward, but only as far as is necessary - **arrow** -.

NOTE:

- **Make sure that pin is not pressed out completely.**

- Pull selector lever cable - **4** - out of selector mechanism.

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NOTE:

- **Do not bend or kink the selector lever cable.**

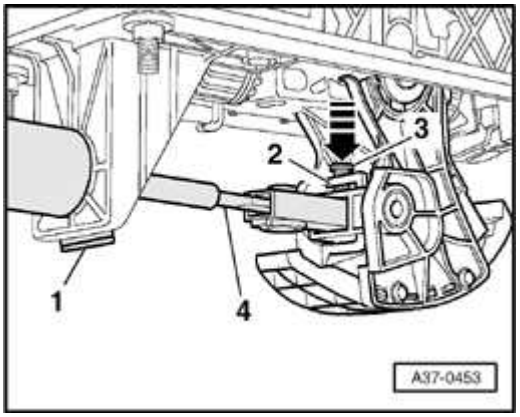

Fig. 54: Inserting End Of Selector Lever Cable Into Joint Of Selector Lever
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Installing

Installation is performed in reverse sequence. Note the following:

- Install new retaining clip - **1** - for selector lever cable on selector mechanism.
- Installation position: The angled end of the retaining clip faces to the inside of the selector mechanism.
- Insert end of selector lever cable - **4** - in joint on selector lever.
- Push pin - **3** - down - **arrow** -.
- Check that plastic securing spring - **2** - has locked the pin.

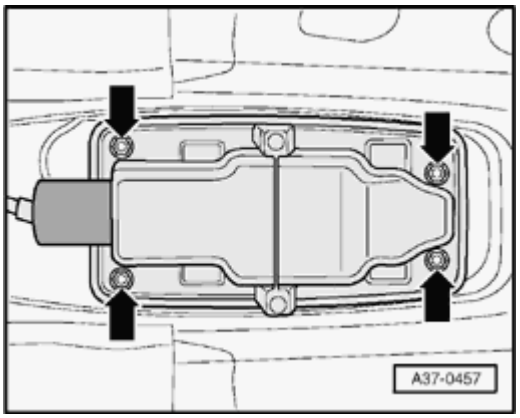

Fig. 55: Removing/Installing Lower Cover From/To Shift Mechanism
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Secure cover to underside of selector mechanism - **arrows** -.
- Attach sleeve for selector lever cable to selector mechanism cover (bottom).

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- Shift selector lever from position "P" to "S".

- Selector mechanism and selector lever cable must move freely. If necessary replace selector lever cable or service selector mechanism.

NOTE:

- **Do not bend or kink the selector lever cable.**

- Shift selector lever to position "P".

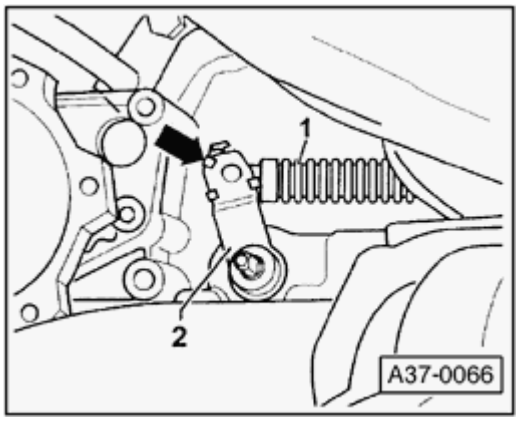

Fig. 56: Pushing Lever/Selector Shaft On Transmission Fully Forward Into Position "S"
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Push selector shaft lever - **2** - on transmission toward rear as far as possible (in illustration: as far as possible to the right) until parking lock engages.

NOTE:

- **When the parking lock has engaged it should no longer be possible to rotate both front wheels in one direction.**

- Make sure that the selector lever cable - **1** - has not been bent or kinked and that it is not under tension.

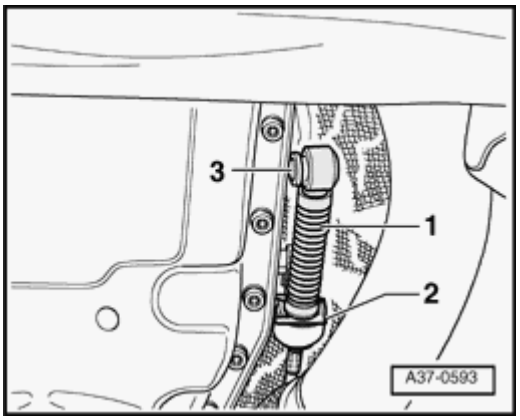

Fig. 57: Pressing Selector Lever Cable Onto Ball Head Of Selector Shaft Lever
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Carefully press selector lever cable - **1** - onto ball head of selector shaft lever - **3** -.

NOTE:

- **Make sure you do not bend the selector shaft lever when pressing on the ball socket, as this would make it impossible to obtain an accurate adjustment of the selector mechanism.**

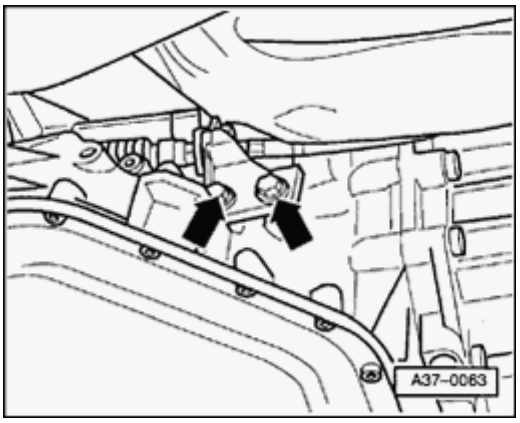

Fig. 58: Identifying Cable Support Bracket To Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Bolt on support bracket for selector lever cable - **arrows** -.
- Adjust selector lever cable --> **Selector lever cable, checking and adjusting**.
- Bolt driveshaft onto transmission -->
  - **39 FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE
  - **39 - FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE 0AR

  .
- Install exhaust system free of stress -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
  - **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): BNS
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

  .

Tightening torques

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Component	Nm
Cover (bottom) to selector mechanism	10
Selector lever cable to support bracket	12
Support bracket to transmission	10

Selector lever cable, removing and installing (vehicles with 3.2 ltr. FSI engine)

Special tools, testers and auxiliary items required

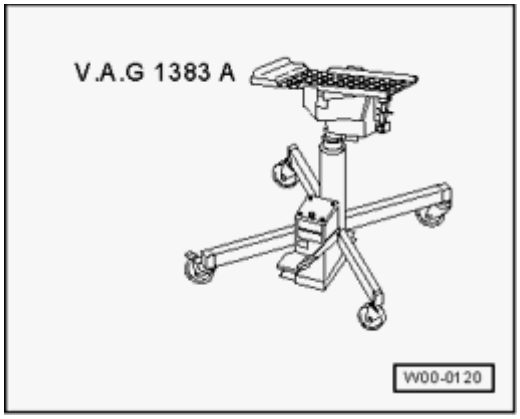

Fig. 59: Identifying Engine/Transmission Jack V.A.G. 1383 A
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Engine/transmission jack V.A.G 1383 A

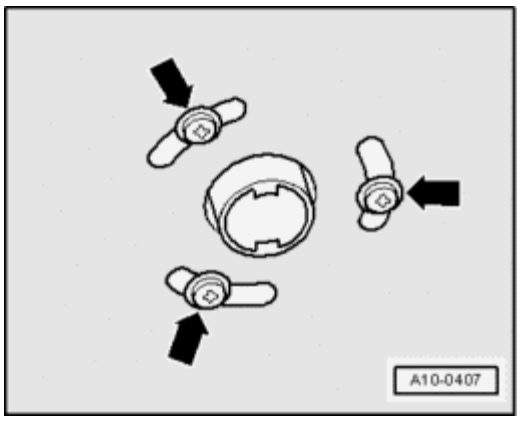

Fig. 60: Identifying Exhaust Pipe Fasteners
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Removing

- Shift selector lever to position "P".
- On vehicles equipped with auxiliary heater, remove screws - **arrows** - securing exhaust pipe of auxiliary heater to sound insulation.

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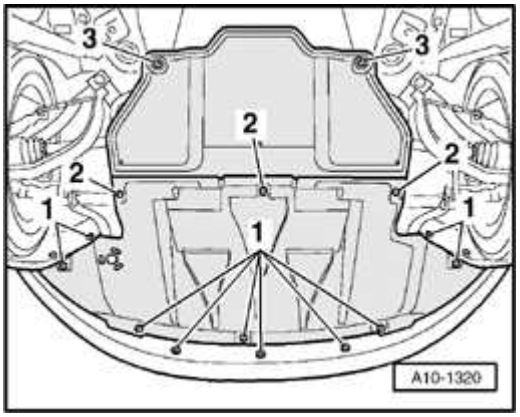

Fig. 61: Identifying Quick-Release Fasteners And Noise Insulation
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Open quick release fasteners - **2** - and - **3** - and remove rear sound insulation.

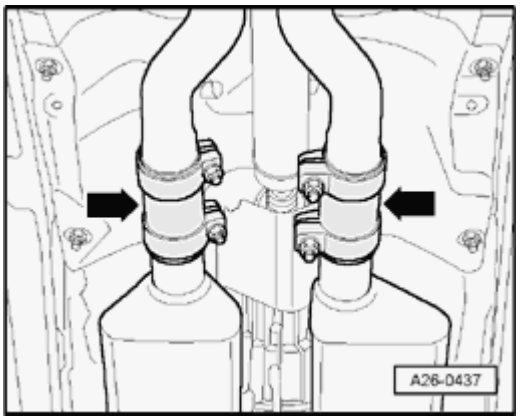

Fig. 62: Loosening Clamping Sleeves
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **To prevent damage, the flexible couplings in the front exhaust pipes must not be bent further than 10°.**

- Disconnect exhaust system at clamps - **arrows** -.
- Disengage rear section of exhaust system at rubber mountings and remove.

NOTE:

- **A second technician is required for removing the rear section of the exhaust system.**

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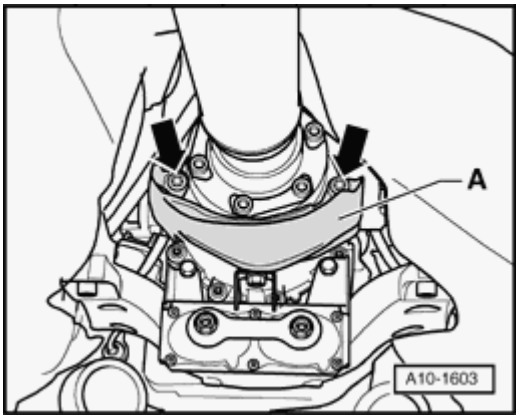

Fig. 63: Removing/Installing Heat Shield For Driveshaft
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove heat shield - **A** - for driveshaft - **arrows** -.

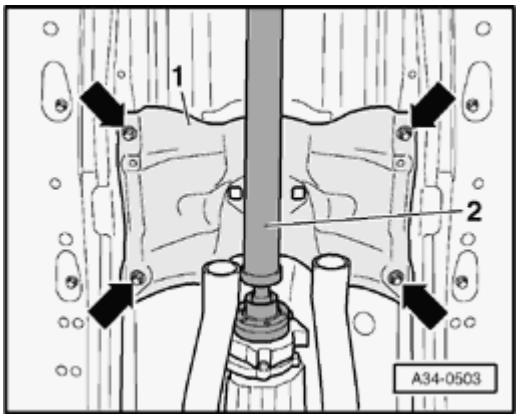

Fig. 64: Driveshaft Heat Shield Bolts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove heat shield - **1** - for exhaust system below selector mechanism - **arrows** -.
- Remove bolts at transmission/driveshaft flange.
- Push driveshaft - **2** - together toward rear final drive. The constant velocity joints can be moved axially.

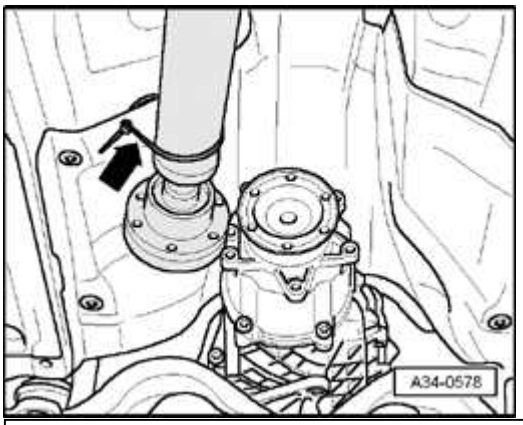

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Fig. 65: Drive Shaft Tied To Side, Onto Heat Shield
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tie driveshaft up to side onto heat shield - **arrow** -.

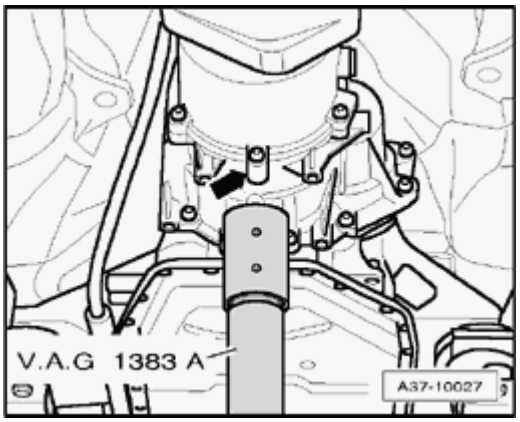

Fig. 66: Placing Lifting Surface Of Engine/Transmission Jack V.A.G 1383 A Centrally On Lower Housing Base
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove universal support V.A.G 1359/2 from engine/transmission jack V.A.G 1383 A.
- Place telescopic arm of engine/transmission jack V.A.G 1383 A centrally below cast lug on transmission housing - **arrow** - and support transmission from below.

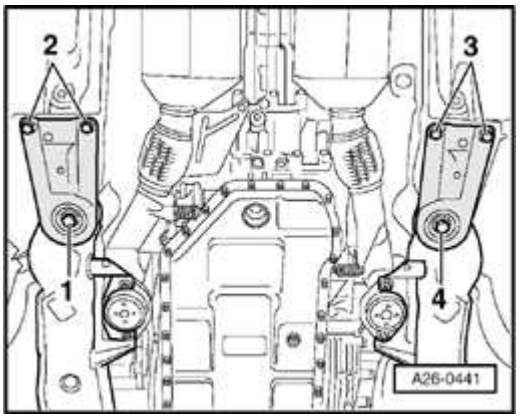

Fig. 67: Removing/Installing Bolts And Mounting Bolts Of Subframe
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **2** - and - **3** - and then subframe securing bolts - **1** - and - **4** -.

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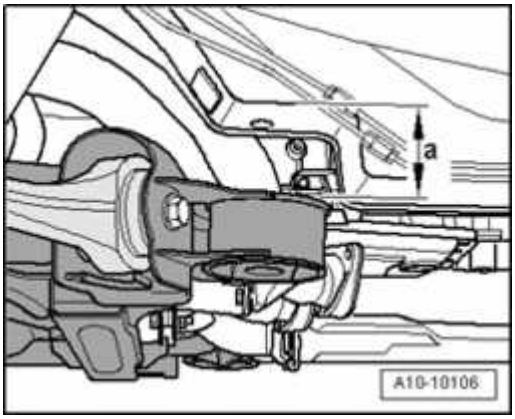

Fig. 68: Lowering Engine/Transmission Assembly Using Scissor Lift Platform VAS 6131 Only Approx. By Dimension
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Slowly lower transmission and subframe using engine/transmission jack V.A.G 1383 A until distance - **a** - is as specified.

- Dimension - **a** - = 50 mm

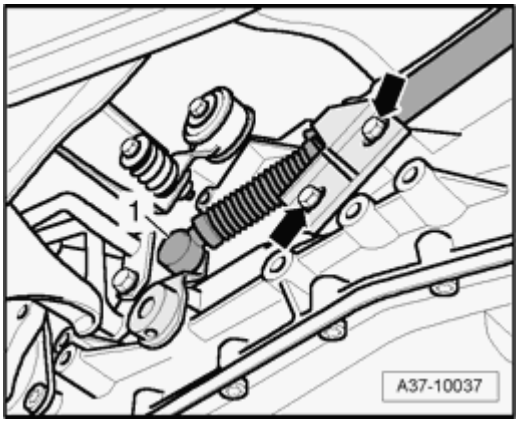

Fig. 69: Pressing Ball Socket Of Selector Lever Cable From Selector Shaft Lever & Removing Bracket On Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Pry ball socket - **1** - of selector lever cable off selector shaft lever.
- Remove support bracket from transmission - **arrows** -.

NOTE:

- **Shown in illustration with transmission support removed.**
- **Do not bend or kink the selector lever cable.**

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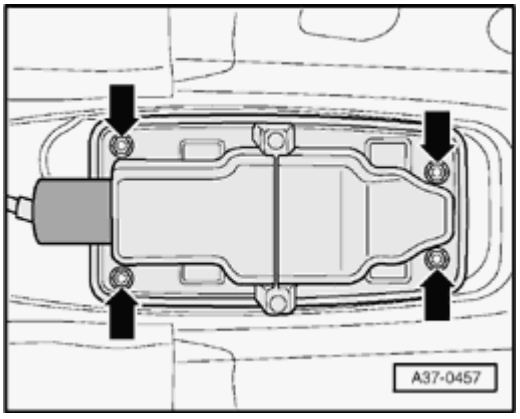

Fig. 70: Removing/Installing Lower Cover From/To Shift Mechanism
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove selector lever cable sleeve from selector mechanism cover (bottom) and slide back.
- Remove cover on underside of selector mechanism - **arrows** -.

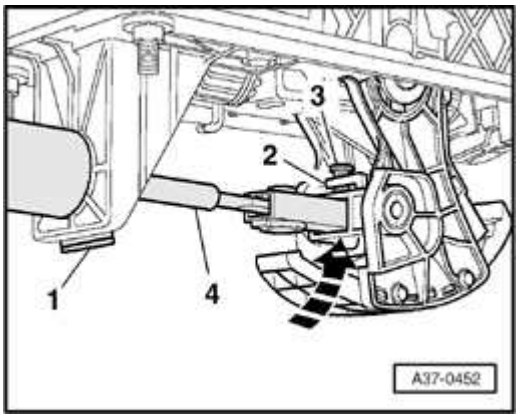

Fig. 71: Identifying Retaining Clip, Securing Spring, Push Pin & Selector Lever Cable
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove retaining clip - **1** - for selector lever cable by pulling it off downward at selector mechanism.
- Pull plastic securing spring - **2** - slightly forward and press pin - **3** - upward, but only as far as is necessary - **arrow** -.

NOTE:

- **Make sure that pin is not pressed out completely.**

- Pull selector lever cable - **4** - out of selector mechanism.

NOTE:

- **Do not bend or kink the selector lever cable.**

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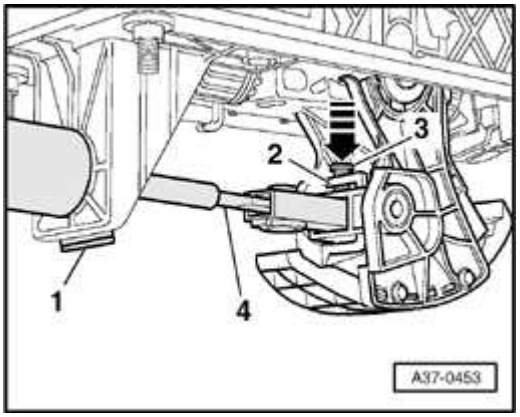

Fig. 72: Inserting End Of Selector Lever Cable Into Joint Of Selector Lever
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Installing

Installation is performed in reverse sequence. Note the following:

- Install new retaining clip - **1** - for selector lever cable on selector mechanism.
- Installation position: The angled end of retaining clip faces to the inside of selector mechanism.
- Insert end of selector lever cable - **4** - in joint on selector lever.
- Push pin - **3** - down - **arrow** -.
- Check that plastic securing spring - **2** - has locked the pin.

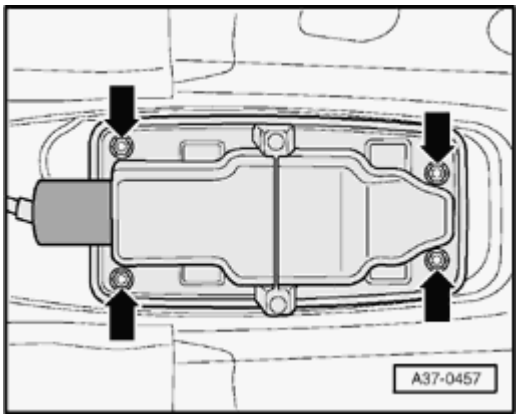

Fig. 73: Removing/Installing Lower Cover From/To Shift Mechanism
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Secure cover to underside of selector mechanism - **arrows** -.
- Attach sleeve for selector lever cable to selector mechanism cover (bottom).
- Shift selector lever from position "P" to "S".

- Selector mechanism and selector lever cable must move freely. If necessary replace selector lever cable or

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service selector mechanism.

NOTE:

- **Do not bend or kink the selector lever cable.**

- Shift selector lever to position "P".

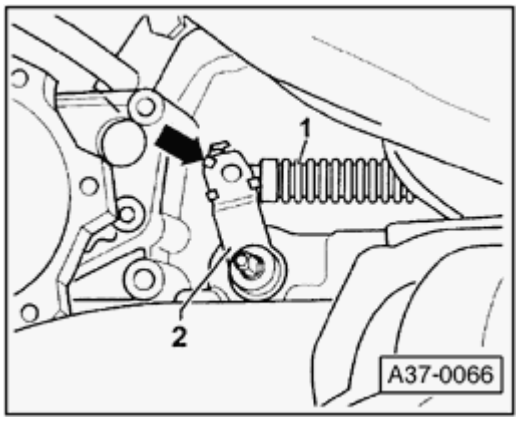

Fig. 74: Pushing Lever/Selector Shaft On Transmission Fully Forward Into Position "S"
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press selector shaft lever - **2** - on transmission as far as it will go toward the rear (in direction of - **arrow** -) until parking lock engages.

NOTE:

- **When the parking lock has engaged it should no longer be possible to rotate both front wheels in one direction.**

- Make sure that the selector lever cable - **1** - has not been bent or kinked and that it is not under tension.

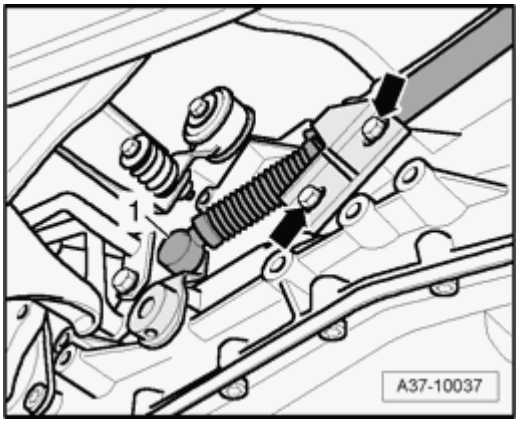

Fig. 75: Pressing Ball Socket Of Selector Lever Cable From Selector Shaft Lever & Removing Bracket On Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Carefully press selector lever cable - **1** - onto ball head of selector shaft lever.

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NOTE:

- **Make sure you do not bend the selector shaft lever when pressing on the cable, as this would make it impossible to obtain an accurate adjustment of the selector mechanism.**

- Bolt on support bracket for selector lever cable - **arrows** -.
- Adjust selector lever cable --> **Selector lever cable, checking and adjusting**.
- Install subframe, observing the correct tightening sequence --> **40 - FRONT SUSPENSION** .
- Bolt driveshaft onto transmission -->
  - **39 FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE
  - **39 - FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE 0AR

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- Install exhaust system free of stress -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
  - **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): BNS
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

  .

Tightening torques

Component	Nm
Cover (bottom) to selector mechanism	10
Selector lever cable to support bracket	12
Support bracket to transmission	10

Selector lever cable, removing and installing (vehicles with 4.2 ltr. MPI engine)

Special tools, testers and auxiliary items required

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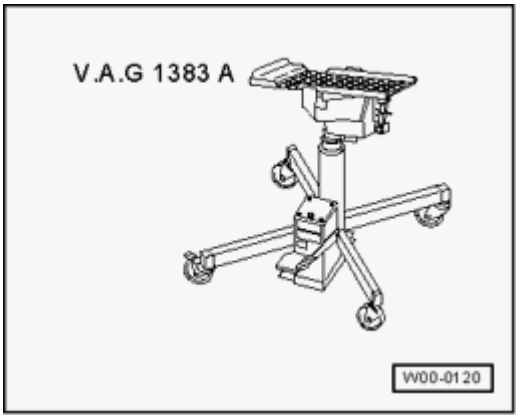

Fig. 76: Identifying Engine/Transmission Jack V.A.G. 1383 A
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Engine/transmission jack V.A.G 1383 A

Removing

- Shift selector lever to position "P".

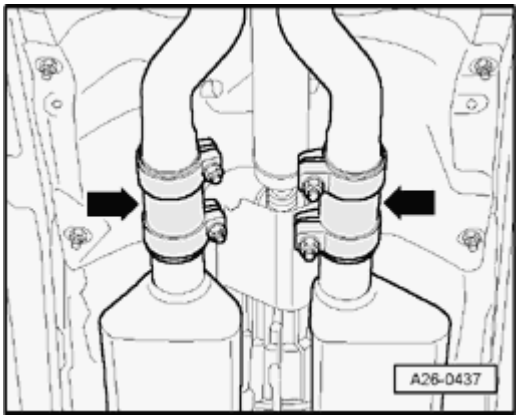

Fig. 77: Loosening Clamping Sleeves
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **To prevent damage, the flexible couplings in the front exhaust pipes must not be bent further than 10°.**

- Disconnect exhaust system at clamps - **arrows** -.
- Disengage rear section of exhaust system at rubber mountings and remove.

NOTE:

- **A second technician is required for removing the rear section of the exhaust system.**

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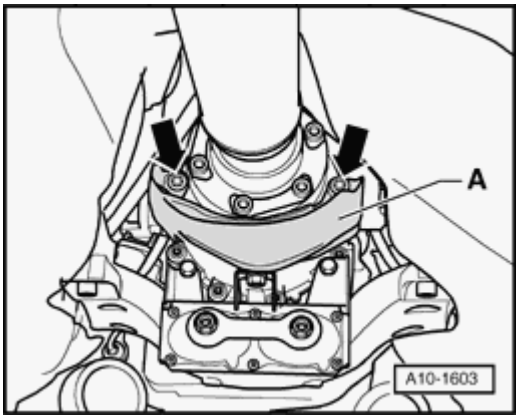

Fig. 78: Removing/Installing Heat Shield For Driveshaft
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove heat shield - **A** - for driveshaft - **arrows** -.

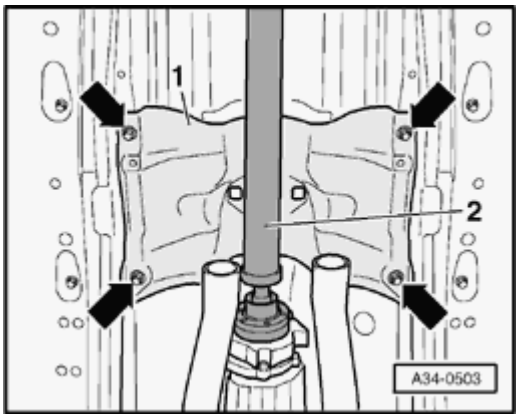

Fig. 79: Driveshaft Heat Shield Bolts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove heat shield - **1** - for exhaust system below selector mechanism - **arrows** -.
- Remove bolts at transmission/driveshaft flange.
- Push driveshaft - **2** - together toward rear final drive. The constant velocity joints can be moved axially.

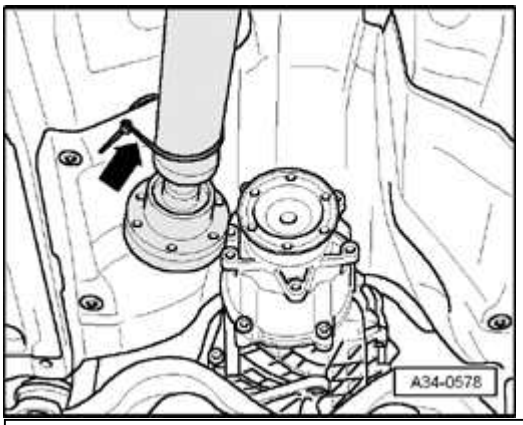

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Fig. 80: Drive Shaft Tied To Side, Onto Heat Shield
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tie driveshaft to side, onto heat shield - **arrow** -.

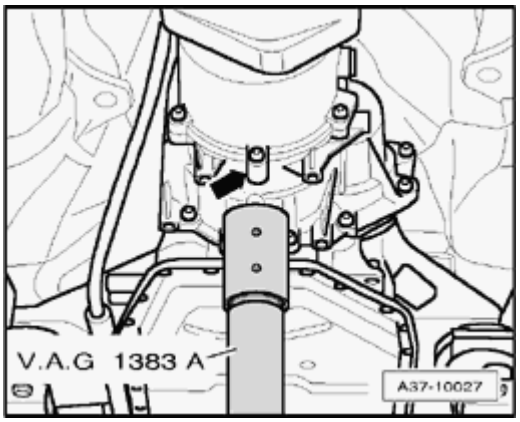

Fig. 81: Placing Lifting Surface Of Engine/Transmission Jack V.A.G 1383 A Centrally On Lower Housing Base
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Detach universal mounting bracket V.A.G 1359/2 from engine/transmission jack V.A.G 1383 A.
- Place telescopic arm of engine/transmission jack V.A.G 1383 A centrally below cast lug on transmission housing - **arrow** - and support transmission from below.

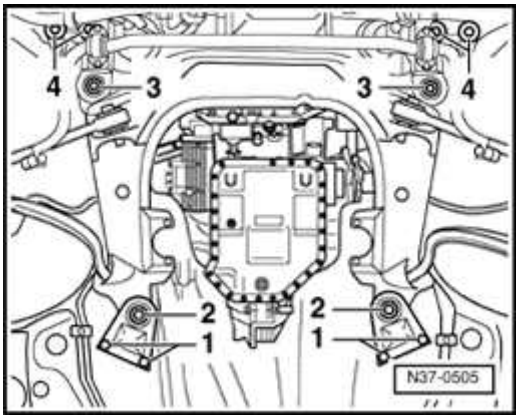

Fig. 82: Remove Bolts 2- And At Front And Rear Of Subframe On Both Sides Of Vehicle
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **1** - and - **2** - and lower subframe at rear.
- Remove transmission support (left-side) --> **Transmission support and transmission mounting, removing and installing (left and right)**.

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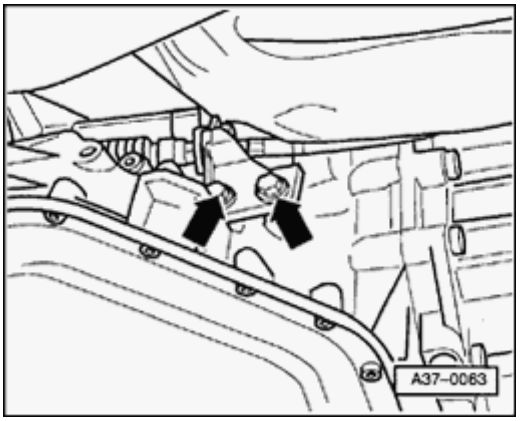

Fig. 83: Identifying Cable Support Bracket To Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove support bracket for selector lever cable - **arrows** -.

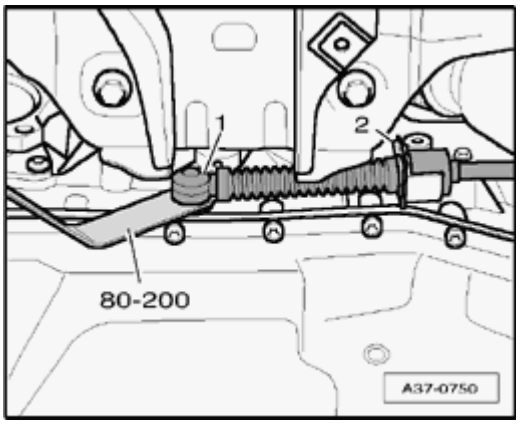

Fig. 84: Using Pry Lever - RMV Outside Mirror 80-200 To Pry Ball Socket On Selector Lever Cable Off Selector Shaft Lever
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Use pry lever - RMV outside mirror 80-200 to pry ball socket - **1** - on selector lever cable off selector shaft lever.

NOTE:

- **Do not bend or kink the selector lever cable.**
- **- Item 2 - can be disregarded.**

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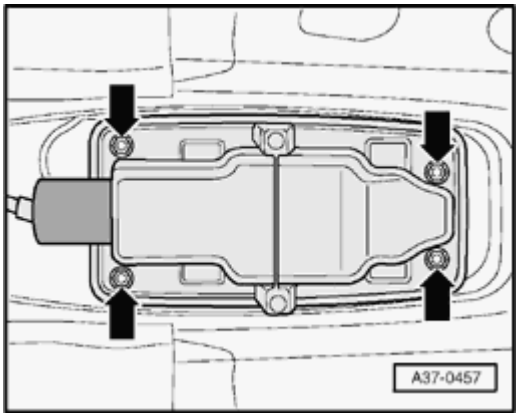

Fig. 85: Removing/Installing Lower Cover From/To Shift Mechanism
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove selector lever cable sleeve from selector mechanism cover (bottom) and slide back.
- Remove cover on underside of selector mechanism - **arrows** -.

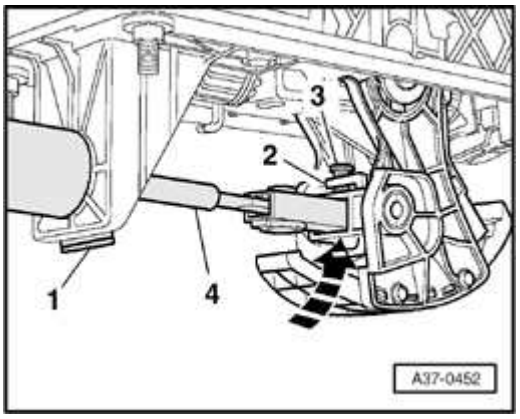

Fig. 86: Identifying Retaining Clip, Securing Spring, Push Pin & Selector Lever Cable
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove retaining clip - **1** - for selector lever cable by pulling it off downward at selector mechanism.
- Pull plastic securing spring - **2** - slightly forward and press pin - **3** - upward, but only as far as is necessary - **arrow** -.

NOTE:

- **Make sure that pin is not pressed out completely.**

- Pull selector lever cable - **4** - out of selector mechanism.

NOTE:

- **Do not bend or kink the selector lever cable.**

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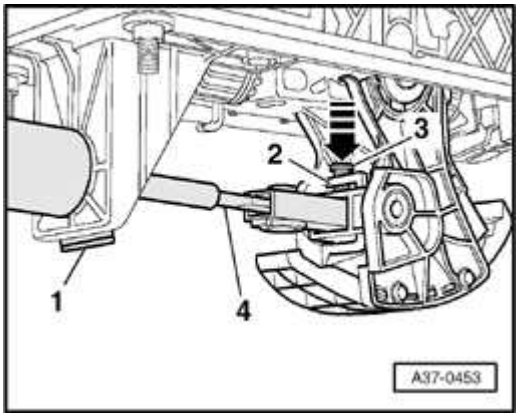

Fig. 87: Inserting End Of Selector Lever Cable Into Joint Of Selector Lever
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Installing

Installation is performed in reverse sequence. Note the following:

- Install new retaining clip - **1** - for selector lever cable on selector mechanism.
- Installation position: The angled end of the retaining clip faces to the inside of the selector mechanism.
- Insert end of selector lever cable - **4** - in joint on selector lever.
- Push pin - **3** - down - **arrow** -.
- Check that plastic securing spring - **2** - has locked the pin.

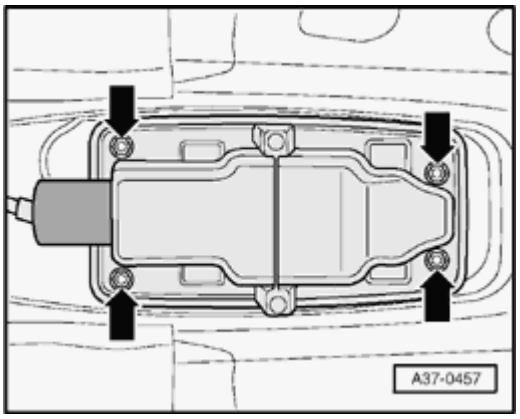

Fig. 88: Removing/Installing Lower Cover From/To Shift Mechanism
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Secure cover to underside of selector mechanism - **arrows** -.
- Attach sleeve for selector lever cable to selector mechanism cover (bottom).
- Shift selector lever from position "P" to "S".

- Selector mechanism and selector lever cable must move freely. If necessary replace selector lever cable or

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service selector mechanism.

NOTE:

- **Do not bend or kink the selector lever cable.**

- Shift selector lever to position "P".

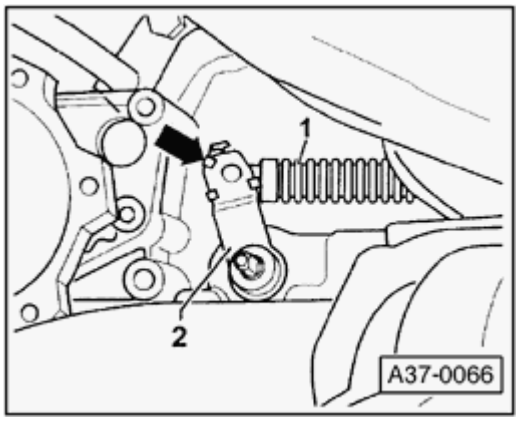

Fig. 89: Pushing Lever/Selector Shaft On Transmission Fully Forward Into Position "S"
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Push selector shaft lever - **2** - on transmission toward rear as far as possible (in illustration: as far as possible to the right) until parking lock engages.

NOTE:

- **When the parking lock has engaged it should no longer be possible to rotate both front wheels in one direction.**

- Make sure that the selector lever cable - **1** - has not been bent or kinked and that it is not under tension.

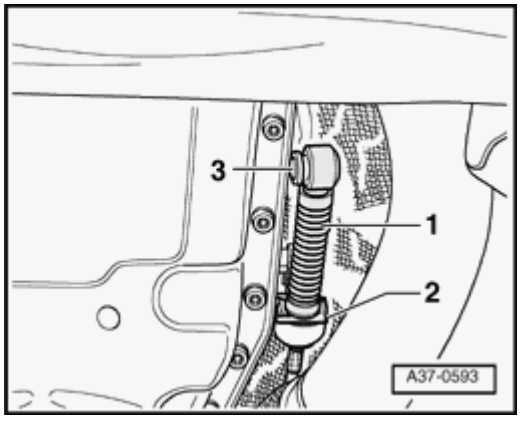

Fig. 90: Pressing Selector Lever Cable Onto Ball Head Of Selector Shaft Lever
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Carefully press selector lever cable - **1** - onto ball head of selector shaft lever - **3** -.

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NOTE:

- **Make sure you do not bend the selector shaft lever when pressing on the ball socket, as this would make it impossible to obtain an accurate adjustment of the selector mechanism.**

- Install transmission supports --> **Transmission support and transmission mounting, removing and installing (left and right)**.
- Install subframe, observing the correct tightening sequence --> **40 - FRONT SUSPENSION** .

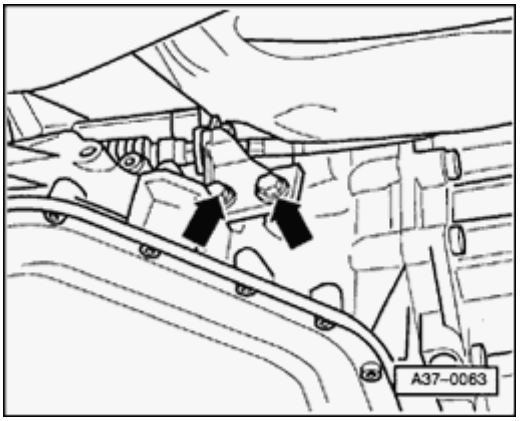

Fig. 91: Identifying Cable Support Bracket To Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Bolt on support bracket for selector lever cable - **arrows** -.
- Adjust selector lever cable --> **Selector lever cable, checking and adjusting**.
- Bolt driveshaft onto transmission -->
  - **39 FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE
  - **39 - FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE 0AR

  .
- Install exhaust system free of stress -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
  - **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): BNS
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

  .

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Tightening torques

Component	Nm
Cover (bottom) to selector mechanism	10
Selector lever cable to support bracket	12
Support bracket to transmission	10

Selector lever cable, checking and adjusting

Special tools, testers and auxiliary items required

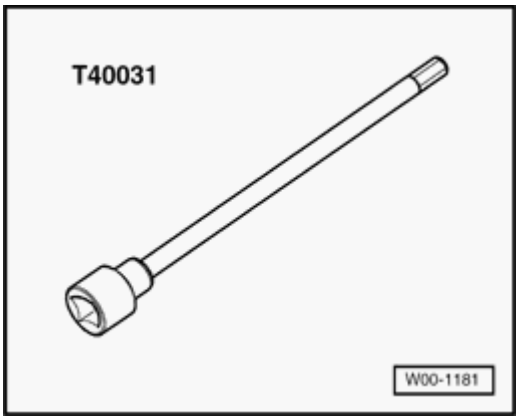

Fig. 92: Socket And Key T40031
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Socket and key T40031

Procedure

- Remove selector mechanism cover --> **Selector mechanism cover, removing and installing**.
- Shift selector lever to position "S".

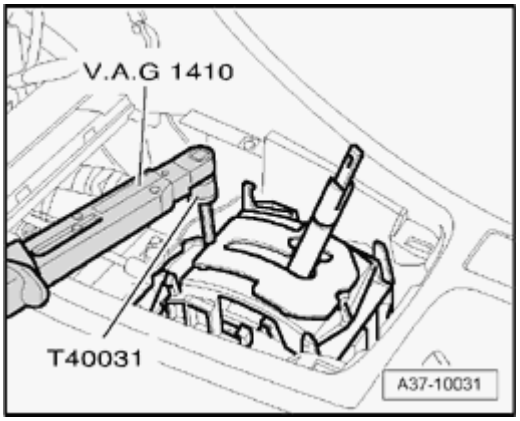

Fig. 93: Inserting Socket And Key T40031 Through Access Hole In Selector Mechanism To Loosen Clamping Bolt At Rear Of Selector Lever Cable

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert socket and key T40031 through access hole in selector mechanism to loosen clamping bolt at rear of selector lever cable approx. 1 turn.

NOTE:

- **Only loosen clamping bolt 1 turn - do not remove.**
- **Clamping bolt can only be accessed with selector lever in position "S".**
- **The selector lever must remain in "S" position when clamping bolt is loosened; otherwise, adjustment will not be correct.**

- Carefully move selector lever slightly forward and backward, without shifting lever into a different selector lever position.
- Pull selector lever once more to rear as far as possible into "S" position and release the selector lever.

NOTE:

- **Do not touch selector lever again during adjustment process.**

- Tighten clamping bolt in this position using socket and key T40031.
- Install selector mechanism cover --> **Selector mechanism cover, removing and installing**.
- Check selector mechanism --> **Selector mechanism, checking**.

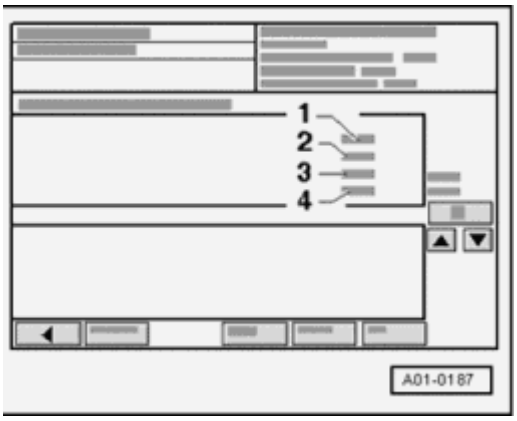

Fig. 94: Diagnostic System VAS 5051: Display
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **Use the vehicle diagnostic, testing and information system VAS 5051 A (Self-diagnosis, 02 - Automatic transmission, 08 - Read measured value block, Display group 4 in display field - 3 - to compare the position of the Multi-Function Transmission Range (TR) Switch F125 with the position on the selector lever.**

If selector mechanism is not functioning correctly after adjusting selector lever cable, proceed as follows:

- Adjust selector lever cable to basic setting --> **Adjusting selector lever cable to basic setting**.

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Tightening torque

Component	Nm
Clamping bolt to selector lever cable	13

Adjusting selector lever cable to basic setting

Special tools, testers and auxiliary items required

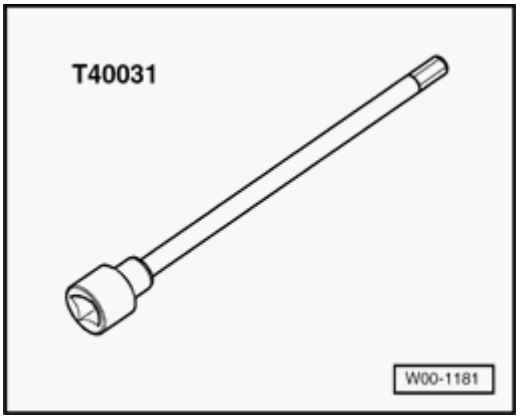

Fig. 95: Socket And Key T40031
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Socket and key T40031

Procedure

- Remove selector mechanism cover --> **Selector mechanism cover, removing and installing**.
- Shift selector lever to position "S".

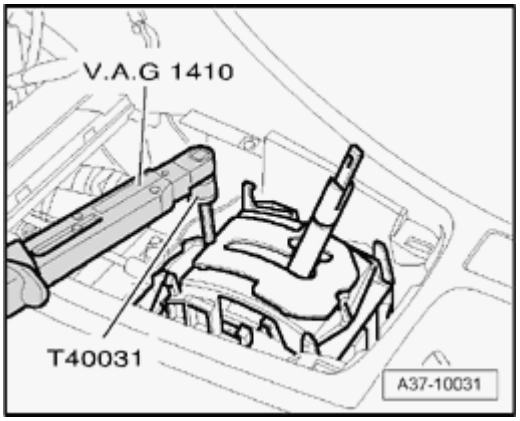

Fig. 96: Inserting Socket And Key T40031 Through Access Hole In Selector Mechanism To Loosen Clamping Bolt At Rear Of Selector Lever Cable
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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NOTE:

- **Before adjusting the selector lever cable to basic setting make sure that clamping bolt has been tightened. The clamping bolt can be accessed via the hole in the selector mechanism, when in position "S". Use socket and key T40031 to tighten clamping bolt.**

- Tighten clamping bolt to 13 Nm in this position, using socket and key T40031.
- Shift selector lever to position "P".

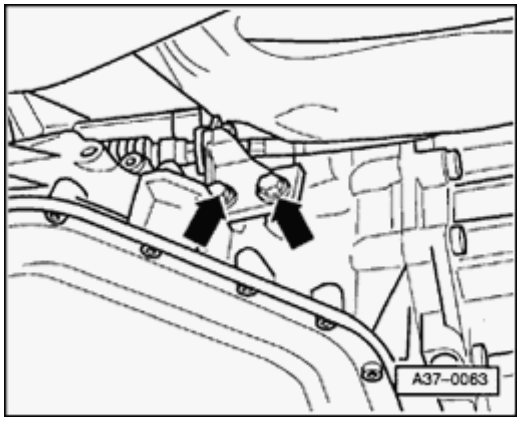

Fig. 97: Identifying Cable Support Bracket To Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove support bracket for selector lever cable - **arrows** -.

NOTE:

- **Make sure the selector lever is in position "P".**

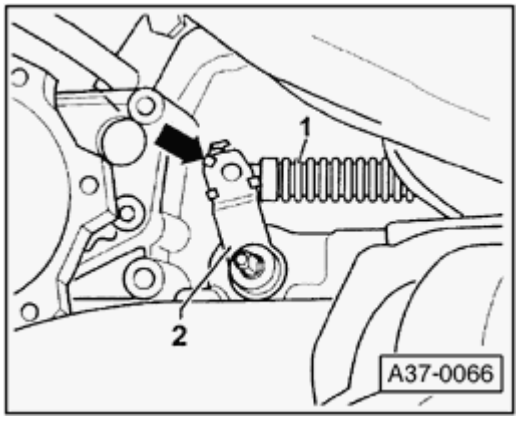

Fig. 98: Pushing Lever/Selector Shaft On Transmission Fully Forward Into Position "S"
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Push selector shaft lever - **2** - on transmission toward rear as far as possible (in illustration: as far as possible to the right) until parking lock engages.

NOTE:

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- **When the parking lock has engaged it should no longer be possible to rotate both front wheels in one direction.**

- Make sure that the selector lever cable - **1** - has not been bent or kinked and that it is not under tension.

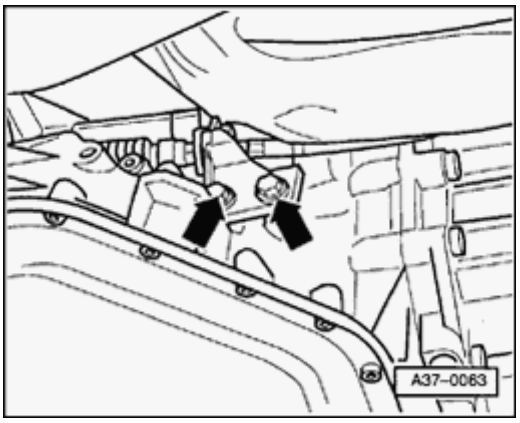

Fig. 99: Identifying Cable Support Bracket To Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Bolt on support bracket for selector lever cable - **arrows** -.
- Adjust selector lever cable --> **Selector lever cable, checking and adjusting**.

Tightening torque

Component	Nm
Support bracket to transmission	10

Locking cable, removing and installing

Removing

NOTE:

- **The locking cable must not be bent or kinked.**

- Shift selector lever to position "S".

CAUTION: Follow steps required when disconnecting battery -->

- **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
- **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL for ELECTRICAL EQUIPMENT, CABRIOLET**

.

- With ignition switched off, disconnect battery Ground (GND) strap.

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- Remove storage compartment on drivers side -->
  - **68 - INTERIOR EQUIPMENT**
  - **68 - INTERIOR EQUIPMENT** for BODY INTERIOR - CABRIOLET

  .
- Remove steering column cover -->
  - **68 - INTERIOR EQUIPMENT**
  - **68 - INTERIOR EQUIPMENT** for BODY INTERIOR - CABRIOLET

  .
- Remove A/C control console --> **87 AIR CONDITIONING** .
- Remove ashtray from center console -->
  - **68 - INTERIOR EQUIPMENT**
  - **68 - INTERIOR EQUIPMENT** for BODY INTERIOR - CABRIOLET

  .
- Remove selector mechanism cover --> **Selector mechanism cover, removing and installing**.
- Turn ignition key to "ignition on" position.
- Shift selector lever to position "P".

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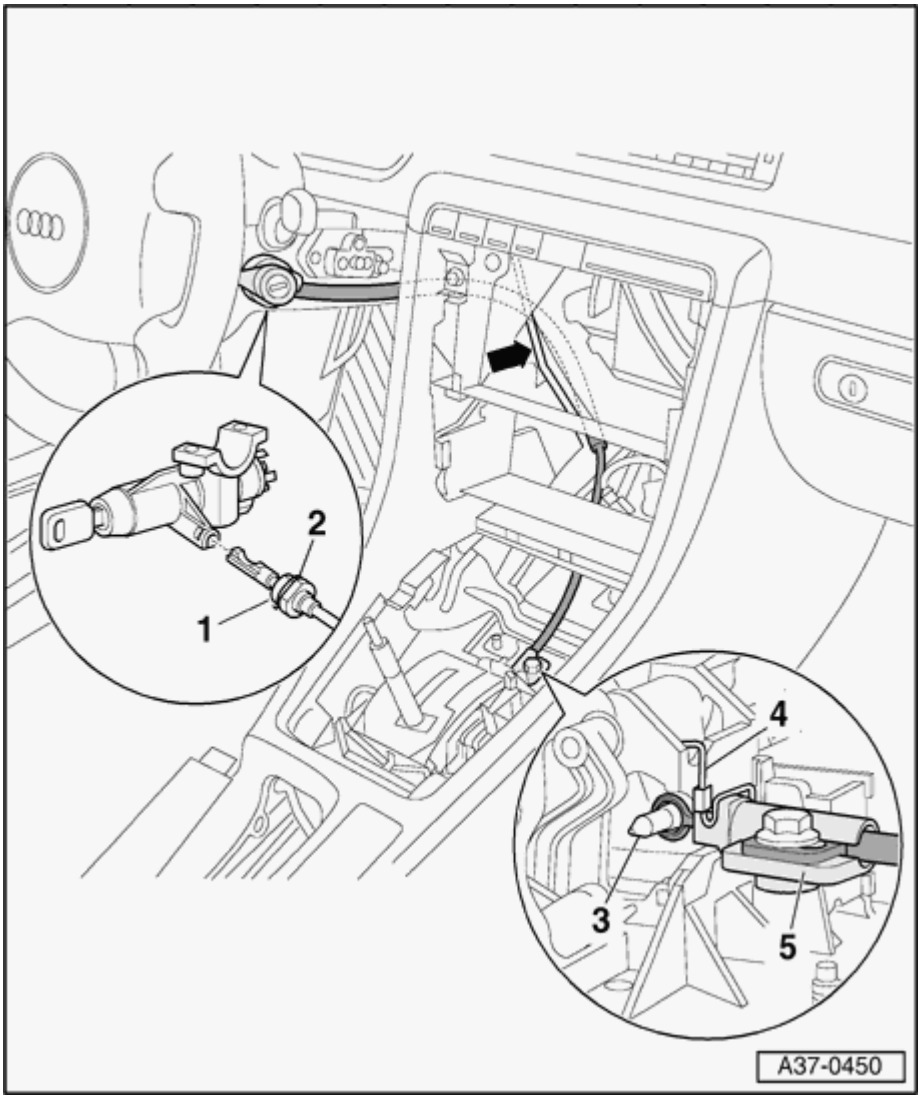

Fig. 100: Locking Cable Remove/Install Components
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Locking cable

- Lift up retaining clip - **2** - on locking device and pull locking rod - **1** - off starter switch.
- Lift up locking cable securing spring - **4** -. Pull locking cable support bracket - **5** - sideways off selector mechanism, then disengage locking cable eye.

Installing

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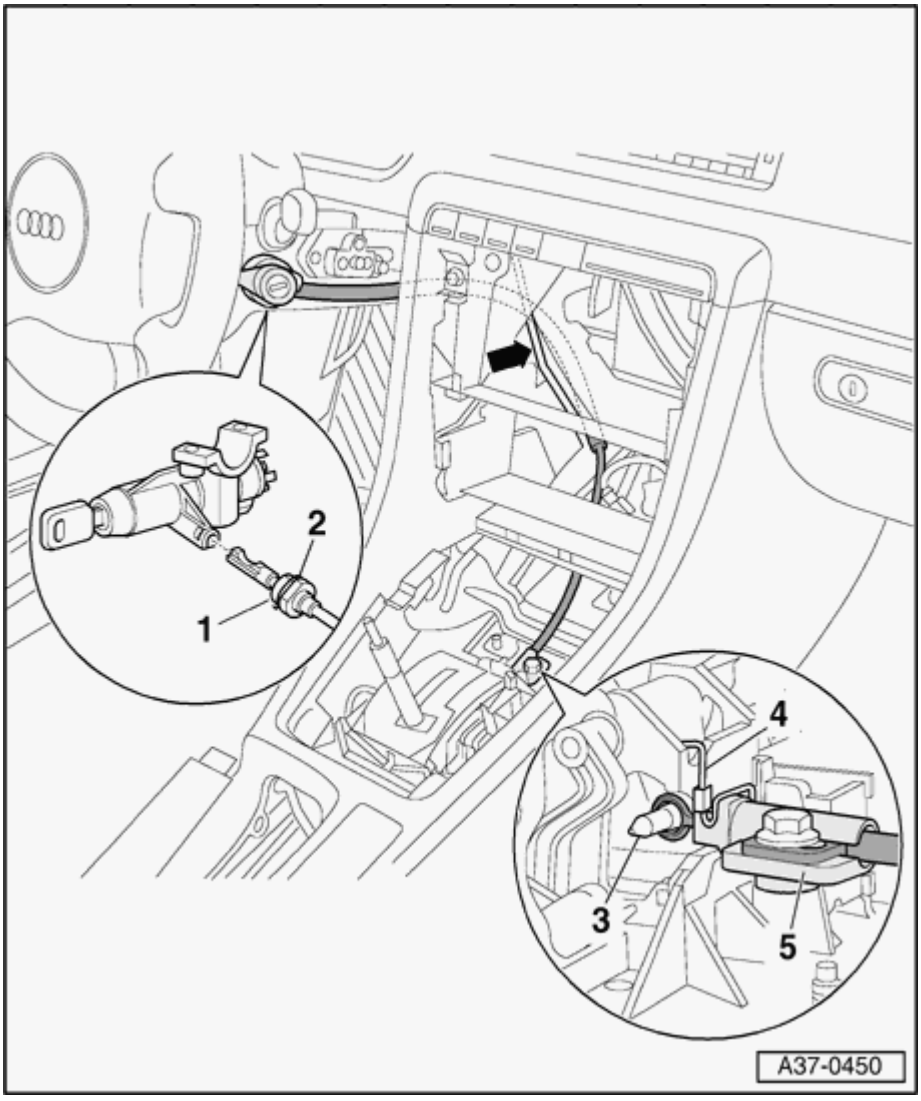

Fig. 101: Locking Cable Remove/Install Components
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Locking cable

Installation is performed in reverse sequence. Note the following:

- Route locking cable behind instrument panel brace - **arrow** - without kinking.
- Turn ignition key to "ignition on" position.
- Insert locking cable - **1** - into starter switch.
- Check that locking device - **2** - engages.

- Turn starter switch to locked position (ignition off).
- Make sure that selector lever is in position "P".
- Hook eye of locking cable onto pin - **3** -.

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- Lift up securing spring - **4** - slightly.

- Insert locking cable support bracket - **5** - into selector mechanism from the right. Push it in so that securing spring - **4** - engages.
- Adjust locking cable --> **Locking cable, adjusting**.
- Install selector mechanism cover --> **Selector mechanism cover, removing and installing**.
- Install ashtray in center console -->
  - **68 - INTERIOR EQUIPMENT**
  - **68 - INTERIOR EQUIPMENT** for BODY INTERIOR - CABRIOLET

  .

- Install air conditioning operating unit --> **87 AIR CONDITIONING** .
- Install steering column cover -->
  - **68 - INTERIOR EQUIPMENT**
  - **68 - INTERIOR EQUIPMENT** for BODY INTERIOR - CABRIOLET

  .
- Install storage compartment on drivers side -->
  - **68 - INTERIOR EQUIPMENT**
  - **68 - INTERIOR EQUIPMENT** for BODY INTERIOR - CABRIOLET

  .
- Follow steps required after connecting battery -->
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** for ELECTRICAL EQUIPMENT, CABRIOLET

  .

Locking cable, adjusting

Special tools, testers and auxiliary items required

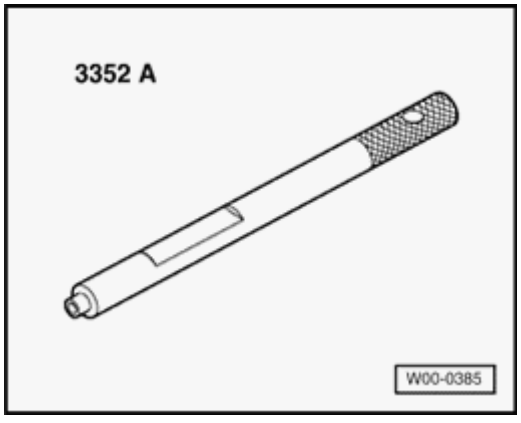

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Fig. 102: Identifying Special Tools - Adjustment Pin For Shiftlock 3 3352A
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Adjustment pin for shift lock 3 3352 A
- Angle grinder
- Safety goggles

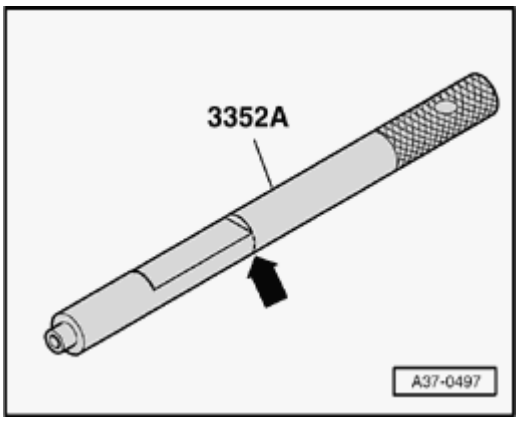

Fig. 103: Identifying Cutting Area Of Adjusting Gauge 3352A
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Preparation

NOTE:

- **If the procedure described below is followed the center console does not have to be removed.**

- Using an angle grinder or similar, cut off Adjustment pin for shift lock 3 3352 A at rear end of flat section - **arrow** -.

CAUTION: Wear safety goggles.

- Order a new Adjustment pin for shift lock 3 3352 A as a replacement for subsequent use.

Requirements for adjustment

- Locking cable must be in installation position.
- Selector lever is in position "P"
- Ignition key is in removal position.

Procedure

- Remove trim panel from center console --> **Selector mechanism cover, removing and installing**.

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NOTE:

- **The selector lever handle and cover can remain installed.**

- Remove ashtray from center console -->
  - **68 - INTERIOR EQUIPMENT**
  - **68 - INTERIOR EQUIPMENT** for BODY INTERIOR - CABRIOLET

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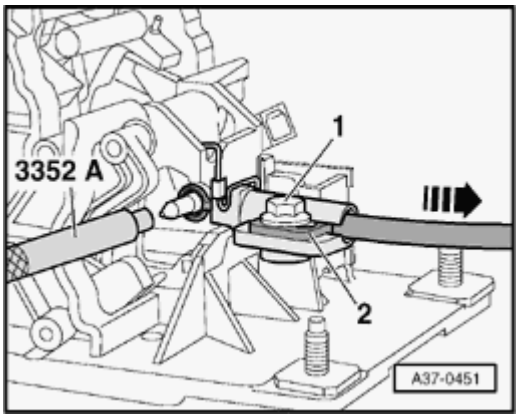

Fig. 104: Removing Adjusting Gauge
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Loosen bolt - **1** -.

- It should be possible to move support bracket - **2** - for locking cable by hand.

- Insert modified Adjustment pin for shift lock 3 3352 A between pin on locking cable lever and locking cable eye.
- Pull locking cable in direction of - **arrow** - as far as it will go and tighten bolt.

- In this position it should be easy to remove and insert Adjustment pin for shift lock 3 3352 A.

- Remove adjustment gauge.
- Install ashtray in center console -->
  - **68 - INTERIOR EQUIPMENT**
  - **68 - INTERIOR EQUIPMENT** for BODY INTERIOR - CABRIOLET

.

- Always test ignition key removal lock after adjusting locking cable --> **Ignition key removal lock, checking**.

Tightening torque

Component	Nm
Locking cable to support bracket	9

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TRANSMISSION, REMOVING AND INSTALLING

Transmission, removing and installing

Overview:

- --> **Transmission, removing (vehicles with 2.0 ltr. TFSI engine)**
- --> **Transmission, installing (vehicles with 2.0 ltr. TFSI engine)**
- --> **Transmission, removing (vehicles with 3.2 ltr. FSI engine)**
- --> **Transmission, installing (vehicles with 3.2 ltr. FSI engine)**

- --> **Transmission, removing (vehicles with 4.2 ltr. MPI engine)**
- --> **Transmission, installing (vehicles with 4.2 ltr. MPI engine)**

Transmission, removing (vehicles with 2.0 ltr. TFSI engine)

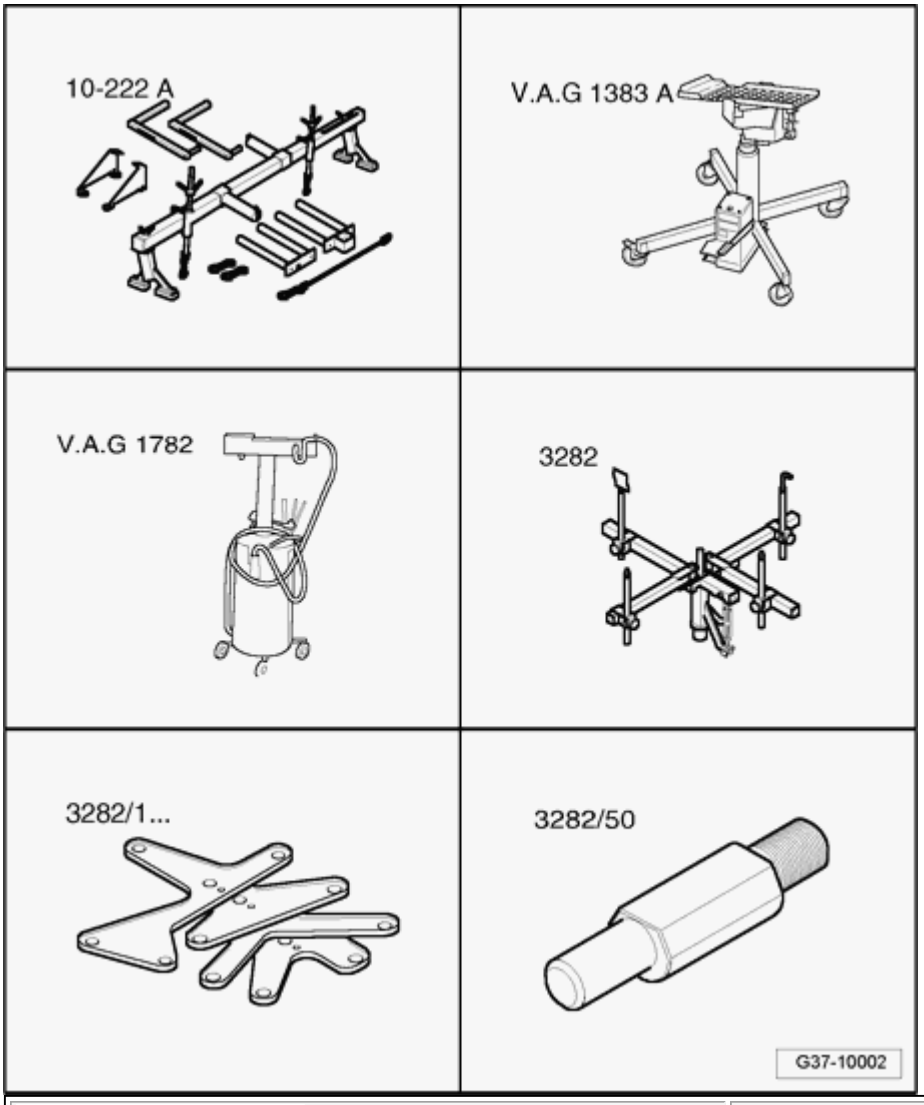

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Fig. 105: Identifying Special Tools - Transmission, Removing (Vehicles With 2.0 ltr. TFSI Engine)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Engine support bridge 10-222 A
- Engine/transmission jack V.A.G 1383 A
- Used oil collection and extraction unit V.A.G 1782
- Transmission support 3282
- Adapter 3282/48
- Pin 3282/50

Special tools, testers and auxiliary items required

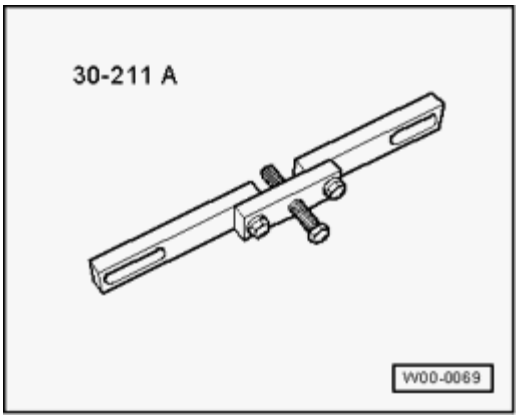

Fig. 106: Bracket 30-211 A
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Bracket 30-211 A

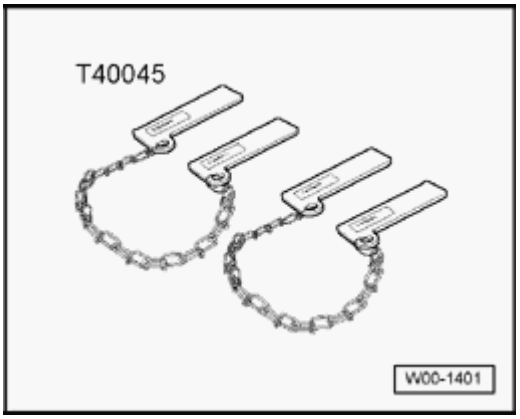

Fig. 107: Insert Pad For Front Fender T40045
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Insert pad for front fender T40045
- Bolt M10x20

Removing

NOTE:

- **General repair instructions --> General repair instructions.**
- **Read the rules for cleanliness when working on the automatic transmission --> Rules for cleanliness.**
- **All cable ties which are released or cut open during removal must be installed in the same position when installing.**

- Shift selector lever to position "N".

CAUTION: Follow the steps required when disconnecting battery -->

- **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
- **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL for ELECTRICAL EQUIPMENT, CABRIOLET**

.

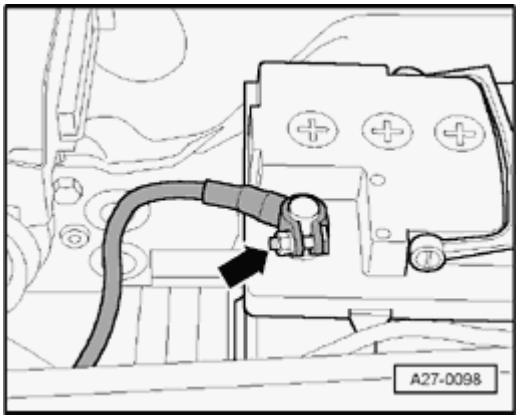

Fig. 108: Disconnecting Battery Ground (GND) Strap
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- With ignition switched off, disconnect Ground (GND) wire - **arrow** - at battery.

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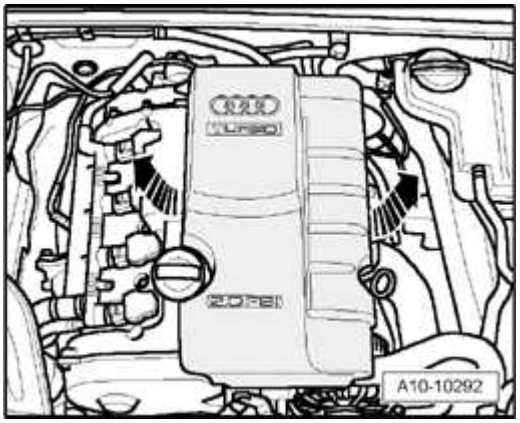

Fig. 109: Removing Engine Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove engine cover - **arrows** -.

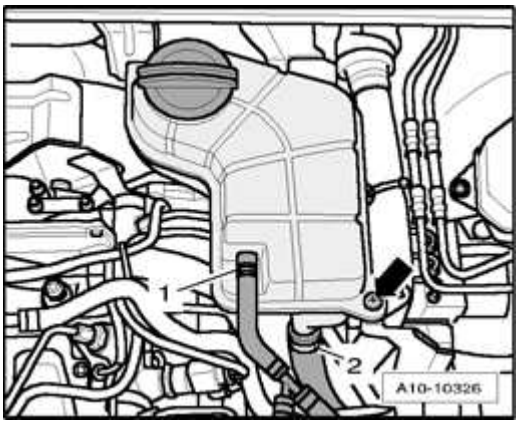

Fig. 110: Unbolting Coolant Expansion Tank
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unbolt coolant expansion tank - **arrow** -.
- Disconnect electrical connector for Engine Coolant Level (ECL) Warning Switch F66 at bottom of coolant expansion tank.
- Place coolant expansion tank to one side, leaving coolant hoses - **1** - and - **2** - connected.

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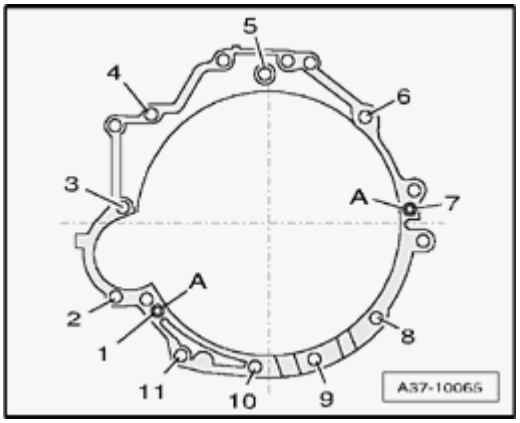

Fig. 111: Identifying Engine/Transmission Threaded Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove engine/transmission securing bolts - **4** - , - **5** - and - **6** - (accessible from above).

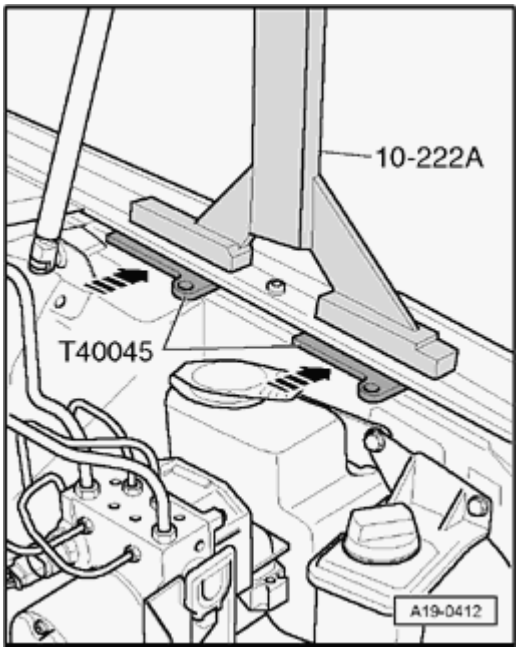

Fig. 112: Inserting Insert Pad For Front Fender T40045 On Both Sides Between Fender Mounting Flange And Body Panel Underneath
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove rubber seal from edges of fender mounting flanges.
- To avoid damaging edges of fender panels using engine support bridge 10-222 A, insert pad for front fender T40045 on both sides between fender mounting flange and body panel underneath.

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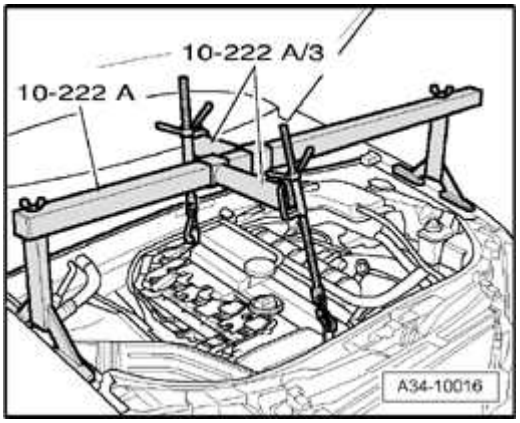

Fig. 113: Engine Support Bridge 10-222 A Set Up With Adapters 10-222/3 On Fender Mounting Flanges
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Set up engine support bridge 10-222 A with adapters 10-222/3 on fender mounting flanges.
- Engage spindles on engine lifting eyes as illustrated.
- Take up weight of engine using spindles.
- Remove both front wheels.

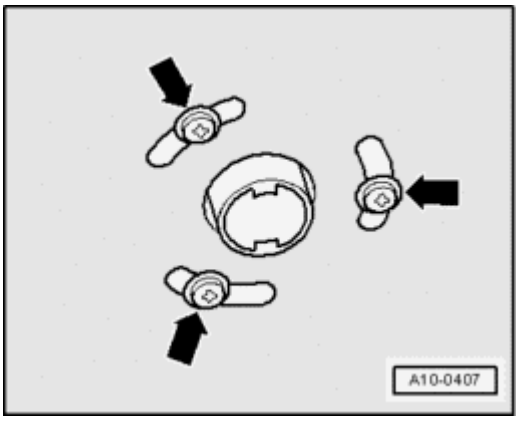

Fig. 114: Identifying Exhaust Pipe Fasteners
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- On vehicles equipped with auxiliary heater, remove screws - **arrows** - securing exhaust pipe of auxiliary heater to sound insulation.

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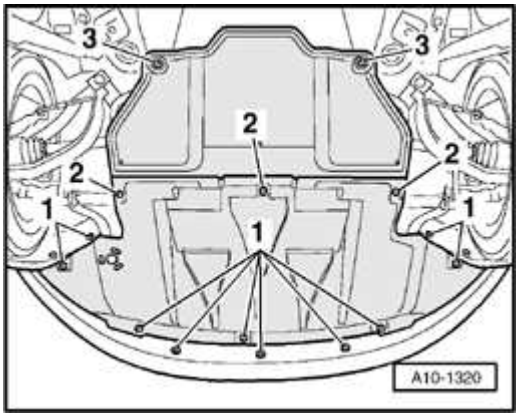

Fig. 115: Identifying Quick-Release Fasteners And Noise Insulation
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Open quick-release fasteners - **1 to 3** - and remove front and rear sound insulation.

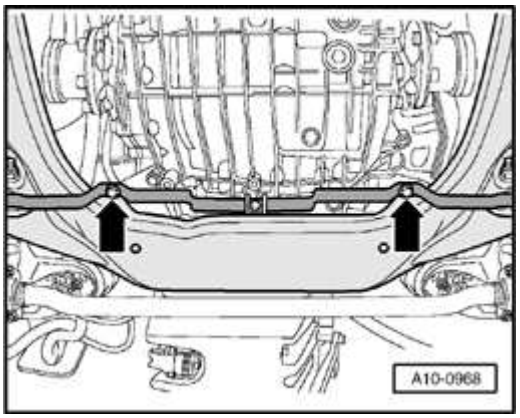

Fig. 116: Removing Bracket For Sound Insulation
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bracket for sound insulation - **arrows** -.

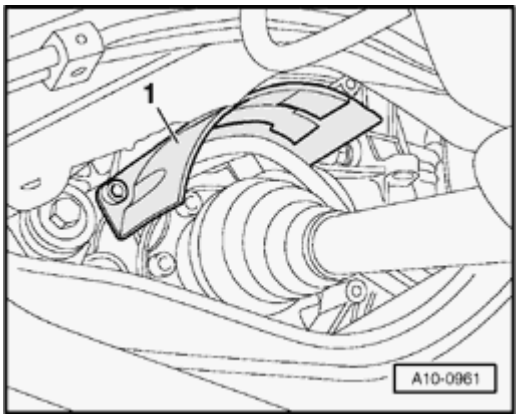

Fig. 117: Removing Left/Right Heat Shields For Drive Axles
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Remove heat shield - **1** - for drive axle (left-side).
- Unbolt drive axles (left and right) from transmission flange shafts.

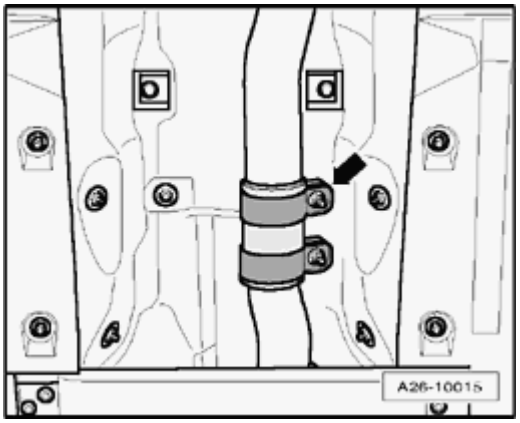

Fig. 118: Loosening Clamping Sleeve
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

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

- Loosen nuts on front clamp - **arrows** -.
- Push clamp toward rear of vehicle to disconnect exhaust system.

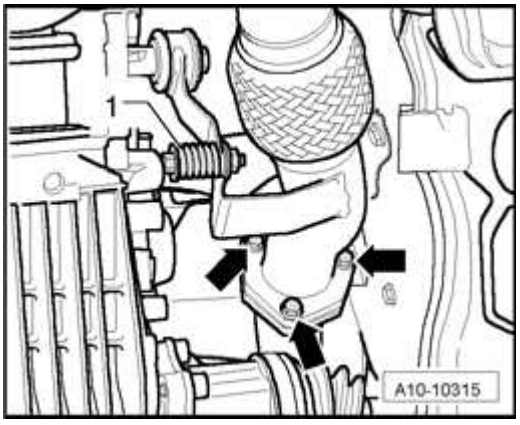

Fig. 119: Separating Front Exhaust Pipe/Catalytic Converter
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **arrows** - at connection between front exhaust pipe and catalytic converter.
- Remove nut - **1** - at bracket for front exhaust pipe and remove front exhaust pipe.

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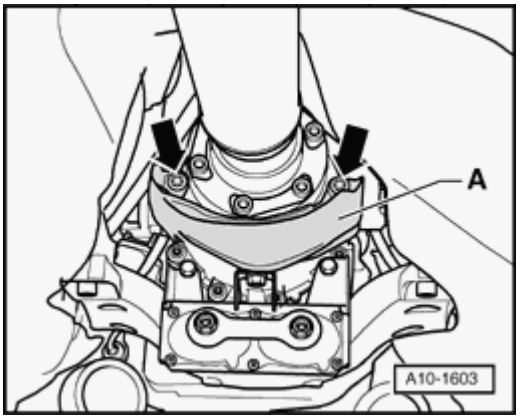

Fig. 120: Removing/Installing Heat Shield For Driveshaft
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

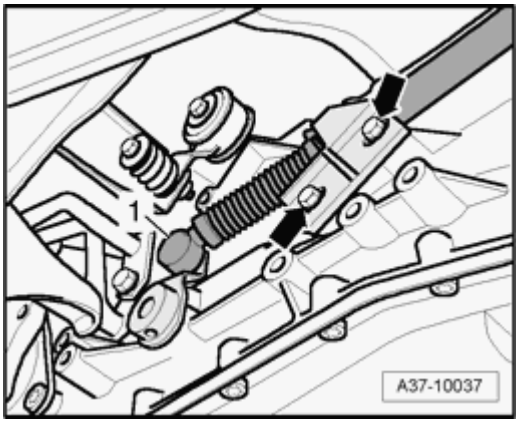

Fig. 121: Pressing Ball Socket Of Selector Lever Cable From Selector Shaft Lever & Removing Bracket On Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

NOTE:

- **Mark installation position of support bracket for selector lever cable with a felt-tip pen.**

- Remove support bracket from transmission - **arrows** -.
- Move selector lever cable clear.

NOTE:

- **Shown in illustration with transmission support removed.**

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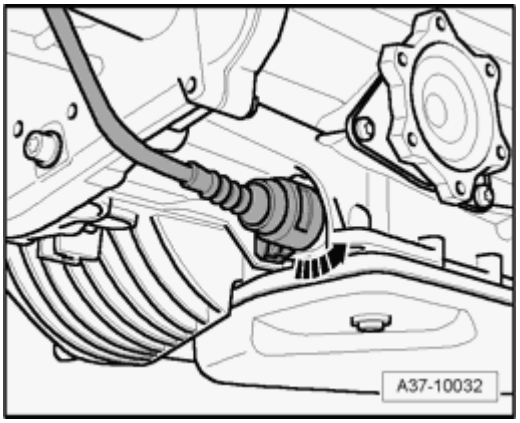

Fig. 122: Disconnecting Electrical Connector At Transmission By Turning Fastener Cap Counter-Clockwise
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical connector at transmission by turning fastener cap counter-clockwise - **arrow** -.

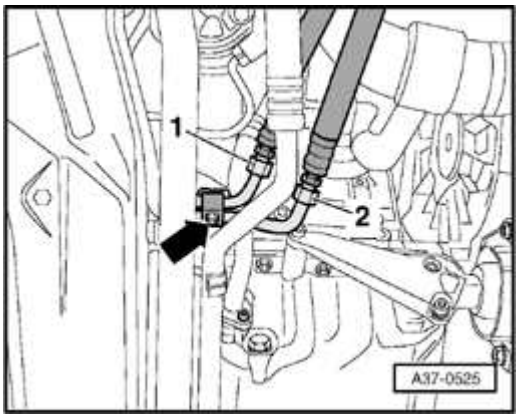

Fig. 123: Disconnecting ATF Pipes & Removing Bracket For ATF Lines
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **Read the rules for cleanliness when working on automatic transmission --> Rules for cleanliness.**

- Place used oil collection and extraction unit V.A.G 1782 below engine.
- Unscrew union nuts - **1** - and - **2** - and disconnect ATF pipes.
- Remove bracket for ATF lines - **arrow** -.

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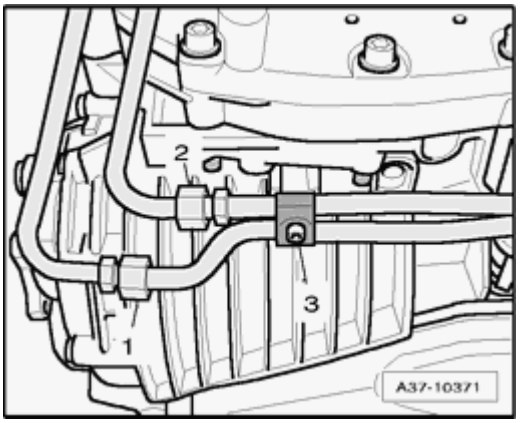

Fig. 124: Disconnecting ATF Lines At Connection Points On Right Side Of Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect ATF lines - **1** - and - **2** - at connection points on right side of transmission.
- Remove ATF lines going to ATF cooler.
- Detach bracket - **3** - for ATF lines at bottom of transmission.

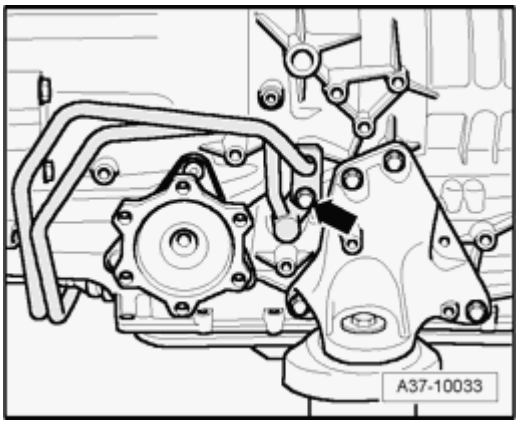

Fig. 125: Removing Bolt & Disconnecting ATF Lines From Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolt - **arrow** -.
- Detach ATF lines from transmission.

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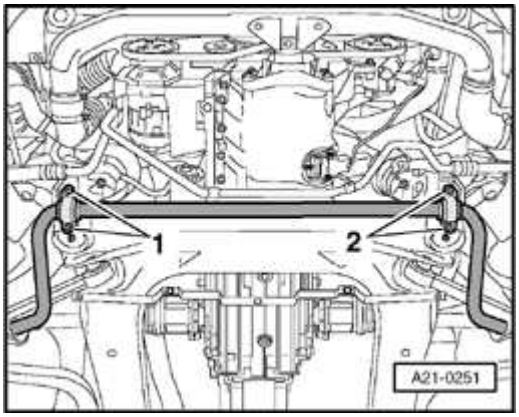

Fig. 126: Removing Stabilizer Bar Mountings
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove stabilizer bar mountings on both sides - **1** - and - **2** -.

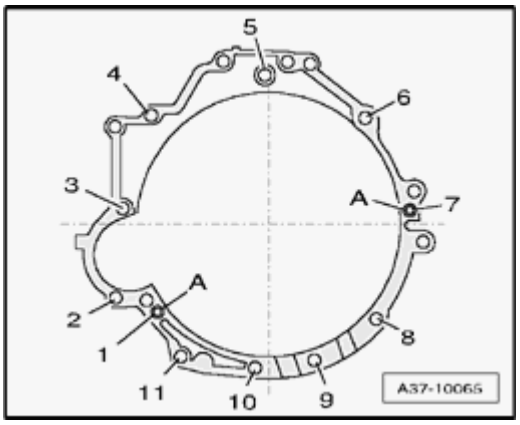

Fig. 127: Identifying Engine/Transmission Threaded Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove engine/transmission securing bolts - **1 to 3** - and - **8 to 11** -.

NOTE:

- **Bolt - 7 - should remain screwed in hand-tight.**

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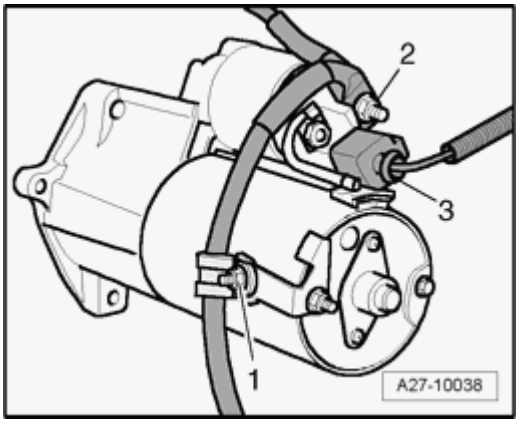

Fig. 128: Identifying Starter, Electrical Connector & Nuts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Detach starter and swivel to one side.
- Disconnect electrical connector - **3** -.
- Remove nut - **1** - for clamp.
- Remove nut - **2** - and detach electrical wiring.

- Remove starter.

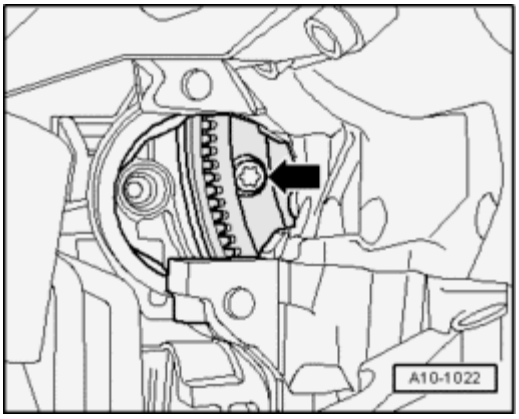

Fig. 129: Torque Converter Bolts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove 3 torque converter bolts - **arrows** - through opening for removed starter (turning crankshaft $^{1}/_{3}$ turn each time).

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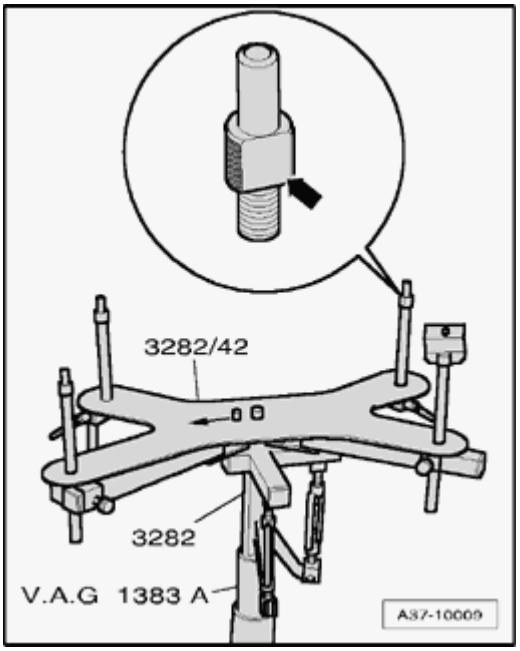

Fig. 130: Placing Adapter 3282/48 On Transmission Support 3282
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Set up transmission support 3282 on engine/transmission jack V.A.G 1383 A.
- Place Adapter 3282/48 on transmission support 3282 as shown in illustration.
- Align arms of transmission support according to holes in adjustment plate.
- Attach support elements as illustrated on adjustment plate.

- Pin 3282/50 has to be screwed in at right rear.
- Place engine/transmission jack V.A.G 1383 A with transmission support 3282 underneath transmission.

NOTE:

- **The arrow symbol on the adjustment plate points in the direction of travel.**

- Align adjustment plate parallel with transmission.

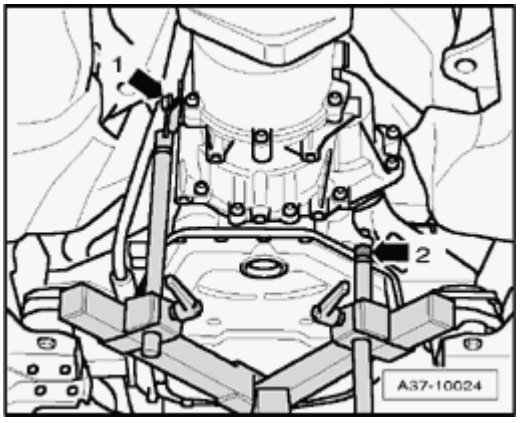

Fig. 131: Bolting Support To Left Rear Tapped Hole On Transmission

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Bolt support to left rear tapped hole on transmission - **1** - using one bolt M10x20.
- Insert flattened pin 3282/50 into mounting hole at right rear of transmission housing - **arrow 2** -.

CAUTION:

- **The flattened side of the pin must face toward the transmission oil pan to prevent the oil pan from being bent or damaged.**
- **Replace the transmission oil pan if damaged.**

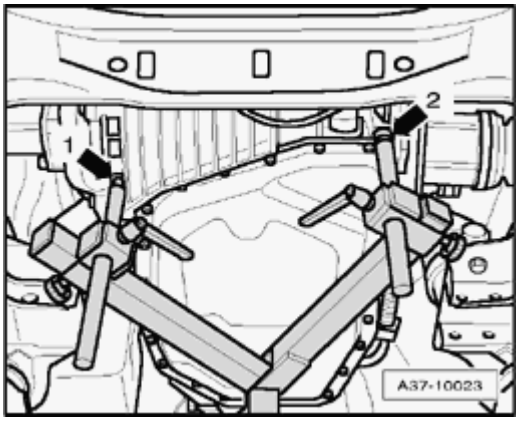

Fig. 132: Inserting Pin Into Mounting Hole At Left Front Of Transmission Housing & Recess In Housing At Right Front Of Differential Housing
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert pin into mounting hole at left front of transmission housing - **arrow 2** -.
- Insert pin into recess in housing at right front of differential housing - **arrow 1** -.
- Raise transmission slightly.

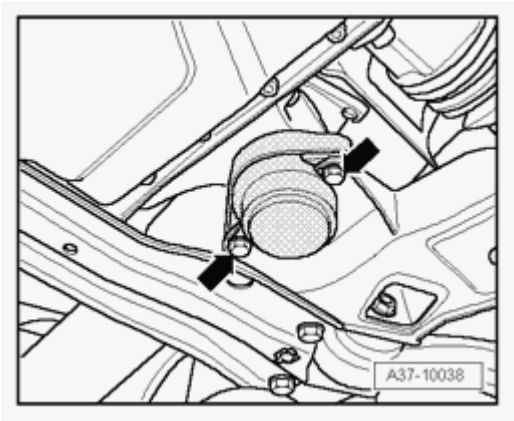

Fig. 133: Removing Bolts For Transmission Mountings
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **arrows** - for transmission mountings (left and right).

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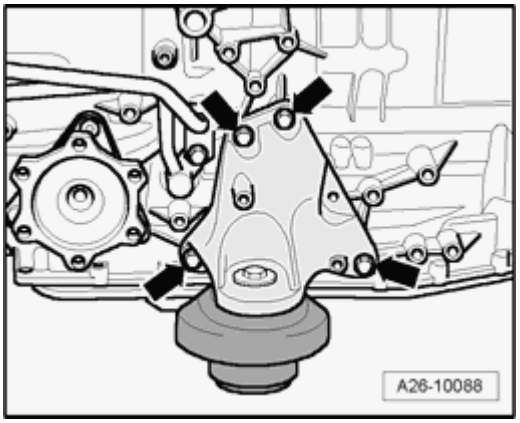

Fig. 134: Removing Heat Shield For Left Transmission Support
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove heat shield for transmission support (left-side).
- Remove transmission supports (left and right) together with transmission mountings - **arrows** -.
- Remove last engine/transmission securing bolt.
- Push transmission off engine and at the same time pry torque converter off drive plate using a screwdriver.
- Carefully lower transmission using engine/transmission jack V.A.G 1383 A.

NOTE:

- **When lowering transmission, make sure there is sufficient clearance from drive axles.**

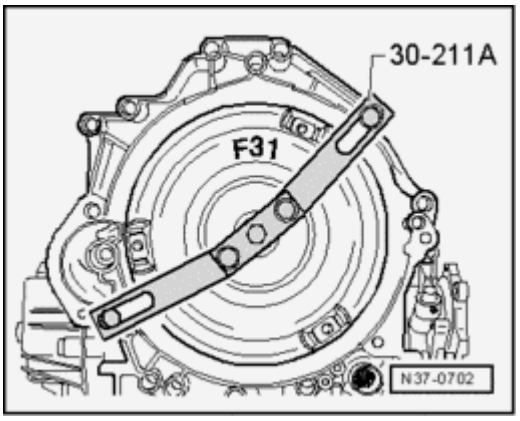

Fig. 135: Securing Torque Converter
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Secure torque converter in transmission with support bridge 30-211 A to prevent it from dropping out.

Transmission, installing (vehicles with 2.0 ltr. TFSI engine)

NOTE:

- **Use thread tap to remove any remaining locking fluid from all threaded**

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holes which will accommodate self-locking bolts.

- **Replace self-locking nuts and bolts when performing assembly work.**
- **Re-attach all cable ties at the same locations when re-installing.**

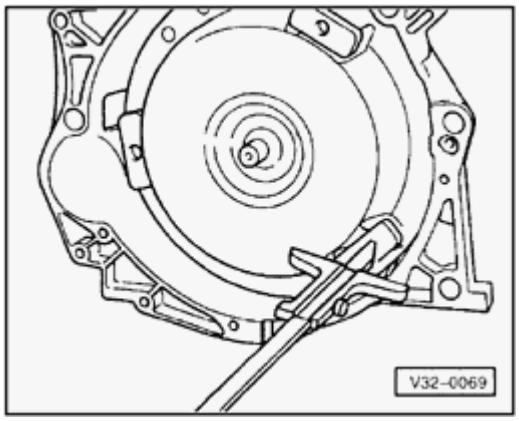

Fig. 136: Checking Torque Converter Is Correctly Positioned
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Before installing transmission, you must ensure that the torque converter is properly fitted in the transmission.

- If the torque converter is correctly installed, the depth between the contact surfaces at tapped holes on torque converter and contact surface of the torque converter bell housing is at least 19 mm.

CAUTION: If the torque converter is not installed correctly, the torque converter drive lugs or the ATF pump will be seriously damaged when the transmission is joined to the engine.

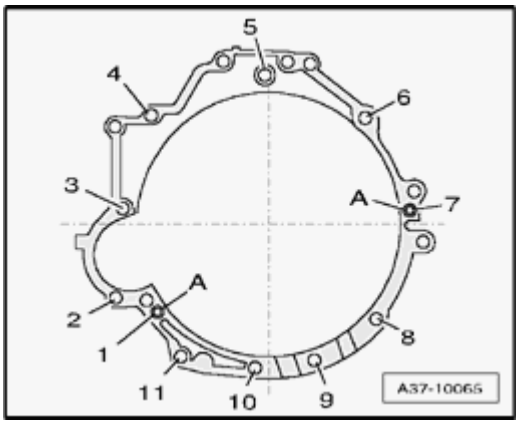

Fig. 137: Identifying Engine/Transmission Threaded Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Before installing transmission, check for correct positioning of dowel sleeves - **A** - at cylinder block. Install new dowel sleeves if necessary.

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- Install intermediate plate between engine and transmission in the original position.
- Before joining engine and transmission, turn torque converter and drive plate (on engine) until one hole and one tapped hole are in line with the opening for the removed starter.
- When pushing the engine and transmission together, make sure that no wiring or lines etc. can become trapped.

Install the transmission, adhere to the following instructions.

CAUTION: Before and while tightening the bolts on the engine/transmission flange keep checking that the torque converter can still be rotated behind the drive plate. If the converter cannot be turned, it must be assumed that it has not been installed correctly and the drive lugs on the converter or the ATF pump will be damaged when the bolts are fully tightened.

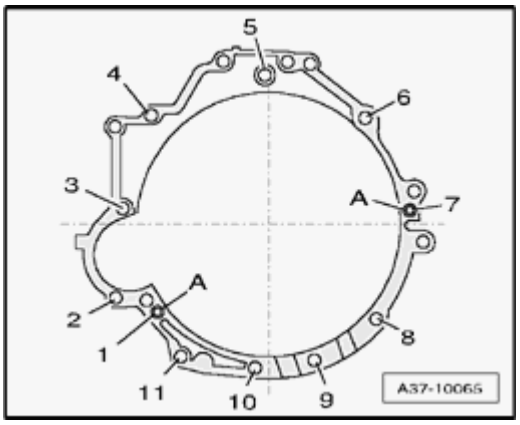

Fig. 138: Identifying Engine/Transmission Threaded Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Screw in bolt - **7** - hand-tight.
- Install transmission support with transmission mounting --> **Transmission support and transmission mounting, removing and installing (left and right)**.
- Counterhold crankshaft to tighten torque converter bolts.

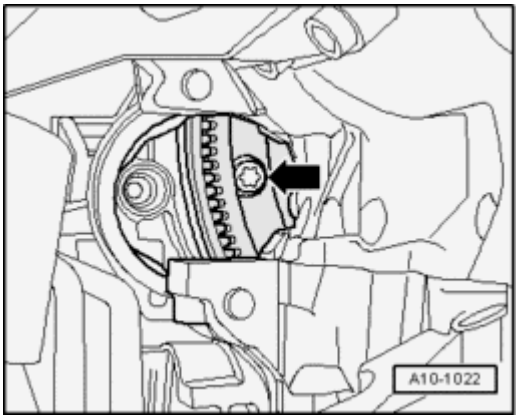

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Fig. 139: Torque Converter Bolts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Use new ribbed bolts to secure torque converter to drive plate. Use only the correct bolts (same as original equipment) .
- Install 3 bolts - **arrow** - for torque converter hand-tight into opening of removed starter (turning crankshaft $^{1}/_{3}$ turn each time).
- Bolt transmission onto engine.

NOTE:

- **Tightening torques only apply to lightly greased, oiled, phosphated or blackened nuts and bolts.**
- **Lubricants such as engine or transmission oil may be used, but do not use graphite lubricant.**
- **Do not use parts which have been degreased.**
- **Tolerance for tightening torques ±15%.**

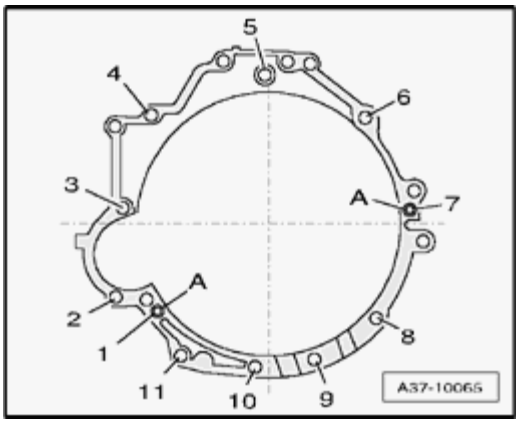

Fig. 140: Identifying Engine/Transmission Threaded Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Engine/transmission securing bolts

Item	Bolt	Nm
1	M12x67	65
2	M10x60	65 * See note
3, 4, 5	M12x75	65
6	M12x100	65
7	M12x90	65
8	M10x60	45
9 to 11	M10x45	45
A	Dowel sleeves for centralizing	

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*Bolt strength 10.9

The remaining installation steps are in reverse sequence. Note the following:

- Install starter -->
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** for ELECTRICAL EQUIPMENT, CABRIOLET

  .
- Install stabilizer bar --> **40 - FRONT SUSPENSION** .
- Clean ATF lines and ATF cooler --> **ATF cooling lines and ATF cooler, cleaning**.
- Secure ATF lines to transmission and engine --> **ATF cooling lines**.

- Adjust selector lever cable --> **Selector lever cable, checking and adjusting**.
- Install driveshaft -->
  - **39 FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE
  - **39 - FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE 0AR

  .
- Install front exhaust pipe with main catalytic converter -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
  - **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): BNS
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

  .
- Align exhaust system free of stress -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 3.2 V6 4V ENGINE MECHANICAL, ENGINE CODE(S): BKH

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- **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS
- **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

.

- Install drive axles --> **40 - FRONT SUSPENSION** .
- Follow steps required after connecting battery -->
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** for ELECTRICAL EQUIPMENT, CABRIOLET

.

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

Component	Nm
Drive plate to torque converter	85 * See note
Heat shield for drive axle to transmission	23
Bracket for sound insulation to subframe	10

*Replace bolts.

Transmission, removing (vehicles with 3.2 ltr. FSI engine)

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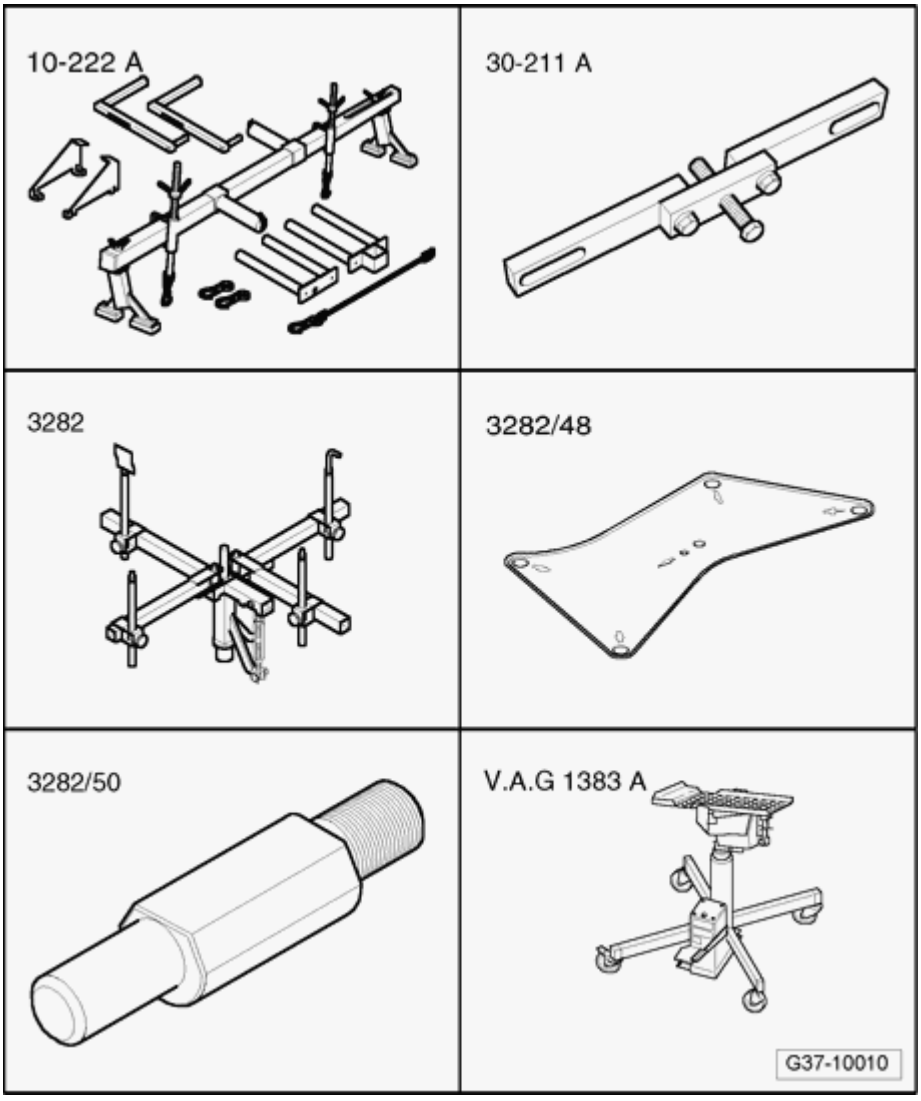

Fig. 141: Identifying Special Tools - Transmission, Removing (Vehicles With 3.2 ltr. FSI Engine) (1 Of 2)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Engine support bridge 10-222 A
- Support bridge 30-211 A
- Transmission support 3282
- Adapter 3282/48

- Pin 3282/50
- Engine/transmission jack V.A.G 1383 A

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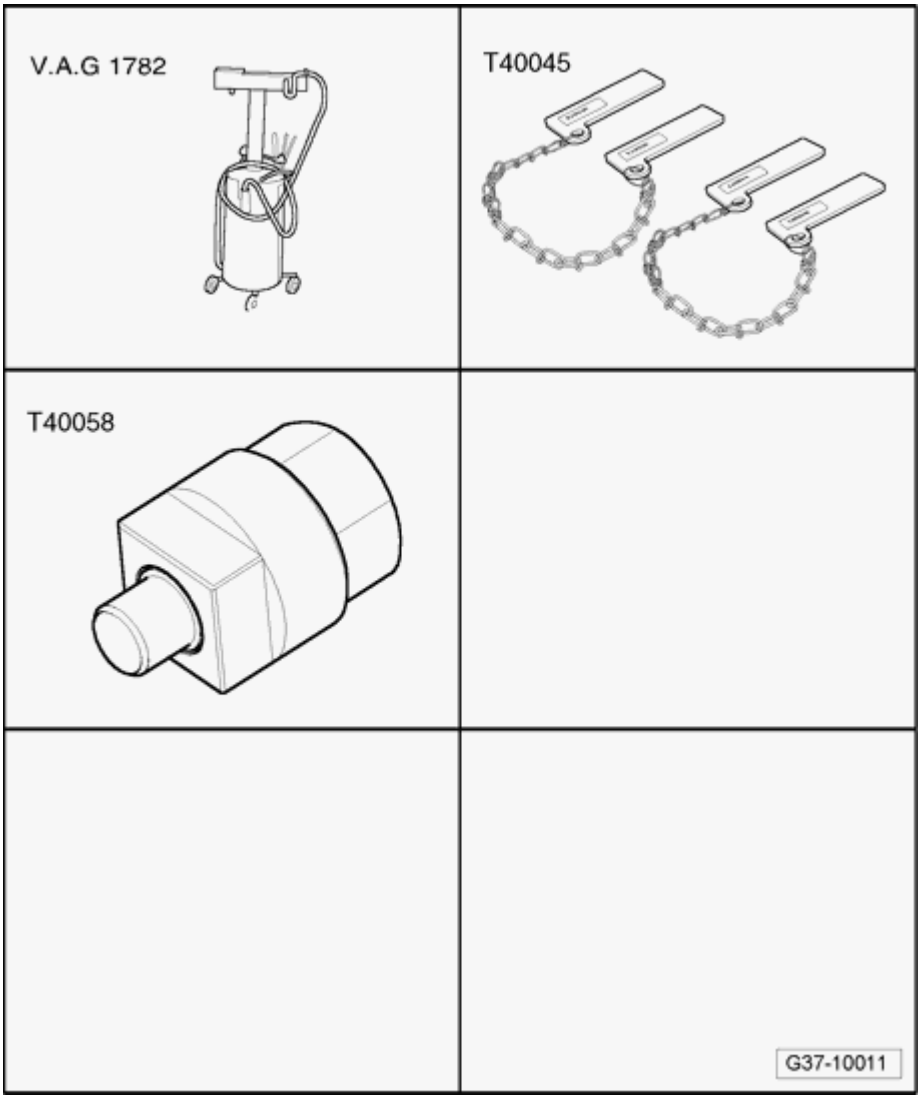

Fig. 142: Identifying Special Tools - Transmission, Removing (Vehicles With 3.2 ltr. FSI Engine) (2 Of 2)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Used oil collection and extraction unit V.A.G 1782
- Insert pad for front fender T40045
- Adapter T40058
- Bolt M10x20

Removing

NOTE:

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

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- **All cable ties which are released or cut open during removal must be installed in the same position when installing.**

- Shift selector lever to position "N".

CAUTION: Follow steps required when disconnecting battery -->

- **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
- **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL for ELECTRICAL EQUIPMENT, CABRIOLET**

.

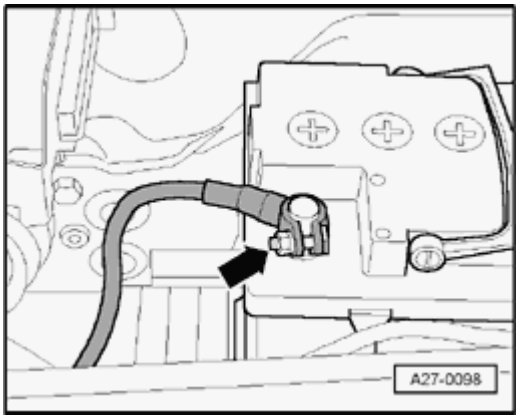

Fig. 143: Disconnecting Battery Ground (GND) Strap
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- With ignition switched off, disconnect Ground (GND) wire - **arrow** - at battery.
- Remove front exhaust pipe with catalytic converter (left and right) -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
  - **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): BNS
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

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NOTE:

- **After removal of the front exhaust pipes the subframe is detached at the rear and the transmission support (left-side) is removed.**

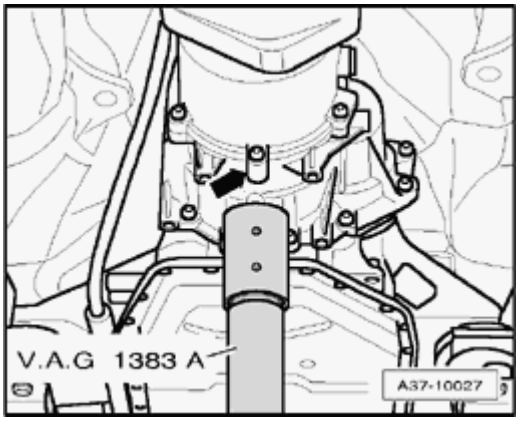

Fig. 144: Placing Lifting Surface Of Engine/Transmission Jack V.A.G 1383 A Centrally On Lower Housing Base
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- The transmission is supported centrally at the connection on the housing - **arrow** - with engine/transmission jack V.A.G 1383 A.

- Use engine/transmission jack V.A.G 1383 A to lift transmission up slightly.

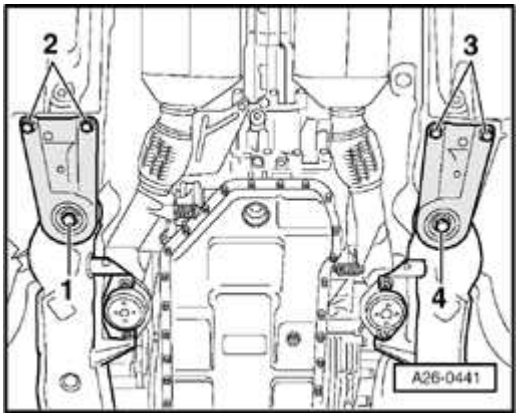

Fig. 145: Removing/Installing Bolts And Mounting Bolts Of Subframe
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install bolts - **1** - and - **4** - hand-tight.

NOTE:

- **- Item 2 - and - item 3 - can be disregarded.**

- Lower transmission and remove engine/transmission jack V.A.G 1383 A from under vehicle.

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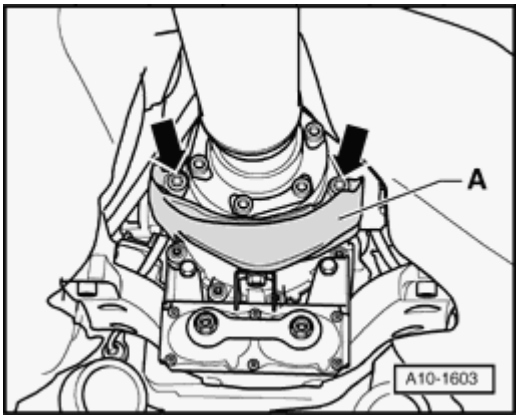

Fig. 146: Removing/Installing Heat Shield For Driveshaft
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove heat shield - **A** - for driveshaft - **arrows** -.
- Remove bolts at transmission/driveshaft flange.
- Slide driveshaft together toward rear final drive. The constant velocity joints can be moved axially.
- Rest driveshaft on exhaust system (right-side).

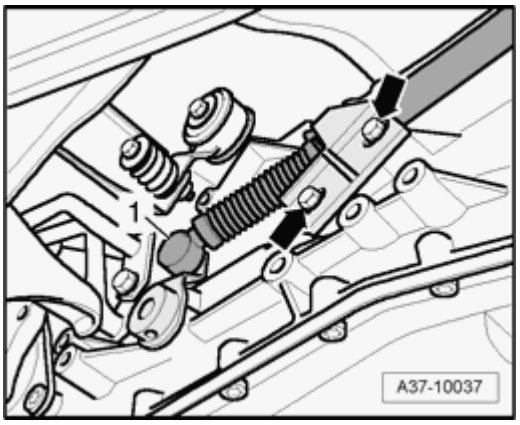

Fig. 147: Pressing Ball Socket Of Selector Lever Cable From Selector Shaft Lever & Removing Bracket On Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **Mark installation position of support bracket for selector lever cable with a felt-tip pen.**

- Pry ball socket - **1** - of selector lever cable off selector shaft lever.
- Remove support bracket from transmission - **arrows** -.

NOTE:

- **Do not bend or kink the selector lever cable.**

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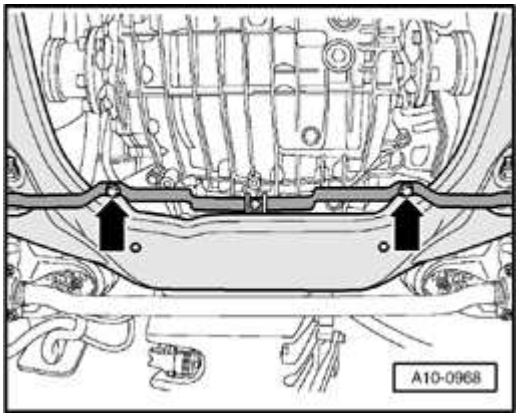

Fig. 148: Removing Bracket For Sound Insulation
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bracket for sound insulation - **arrows** -.

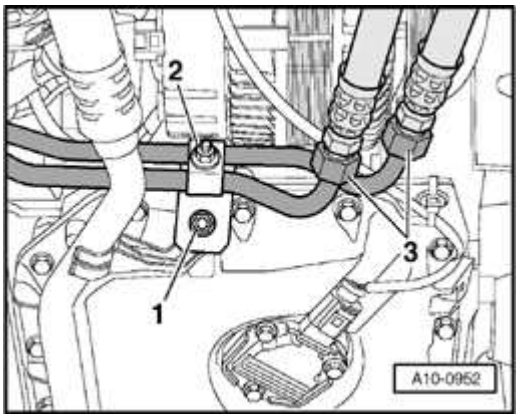

Fig. 149: Removing Union Nuts And Disconnect ATF Lines
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **Read the rules for cleanliness when working on automatic transmission -- > Rules for cleanliness.**

- Place used oil collection and extraction unit V.A.G 1782 below engine.
- Unscrew union nuts - **3** - and disconnect ATF lines.
- Remove bracket - **2** - securing ATF lines.

NOTE:

- **- Item 1 - can be disregarded.**

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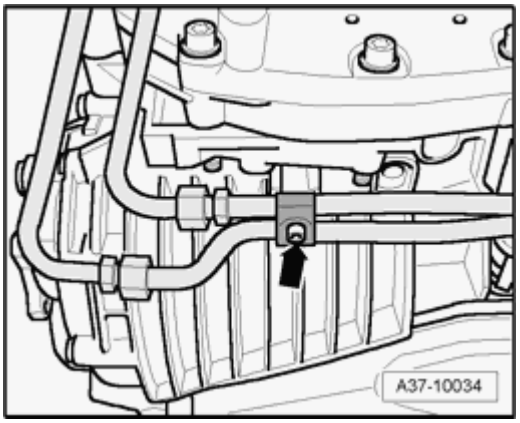

Fig. 150: Removing Bracket For ATF Lines At Bottom On Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bracket - **arrow** - for ATF lines at bottom section of transmission.

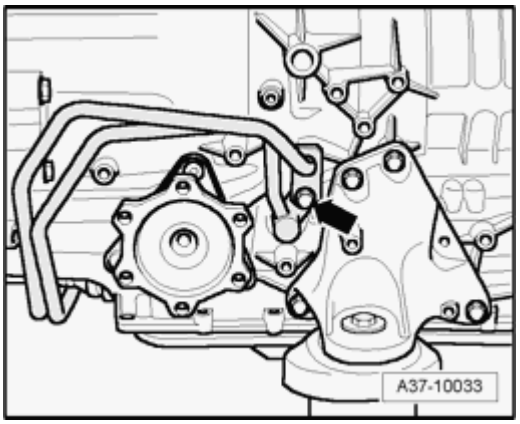

Fig. 151: Removing Bolt & Disconnecting ATF Lines From Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **Place a cloth below the ATF line to catch escaping ATF.**

- Remove bolt - **arrow** -.
- Pull ATF lines out of transmission.

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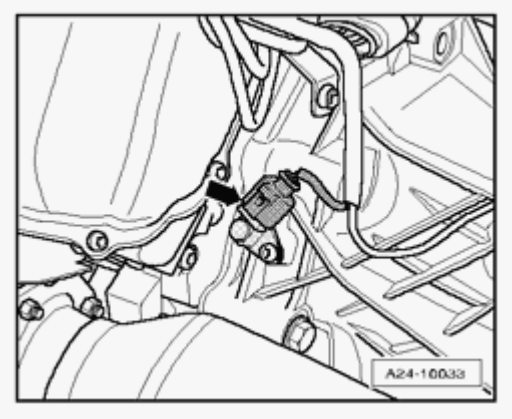

Fig. 152: Disconnecting Electrical Connector On Engine Speed (RPM) Sensor G28
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical connector - **arrow** - for engine speed (RPM) sensor G28.

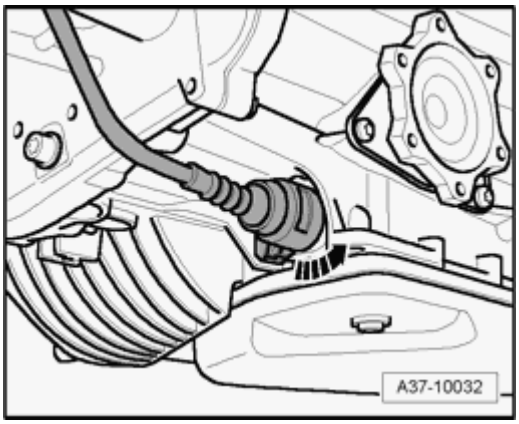

Fig. 153: Disconnecting Electrical Connector At Transmission By Turning Fastener Cap Counter-Clockwise
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical connector at transmission by turning fastener cap counter-clockwise - **arrow** -.

CAUTION: Check once again to make sure that the rear subframe mountings are secured hand-tight.

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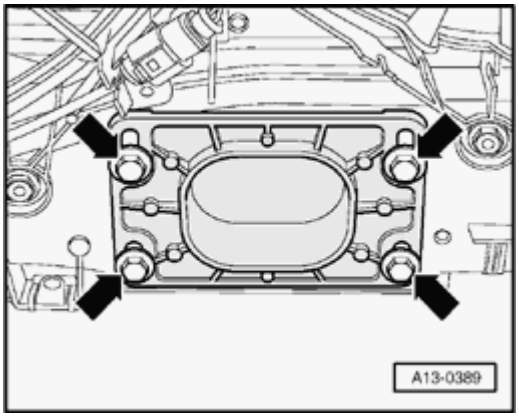

Fig. 154: Removing/Installing Bolts At Torque Support Stop
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unscrew bolts - **arrows** - two turns at stop for torque reaction support.

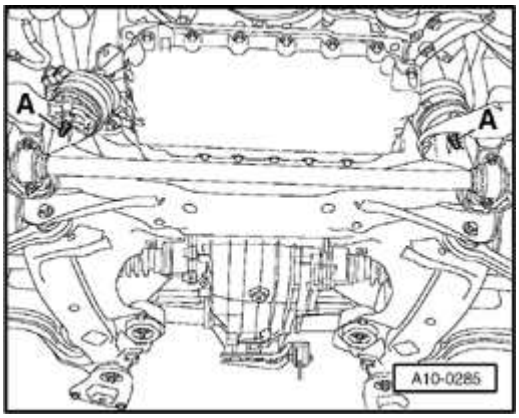

Fig. 155: Removing Nuts At Bottom On Left/Right Engine Mounts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unscrew nuts - **A** - below left and right engine mountings until nuts are flush with bottom end of studs.

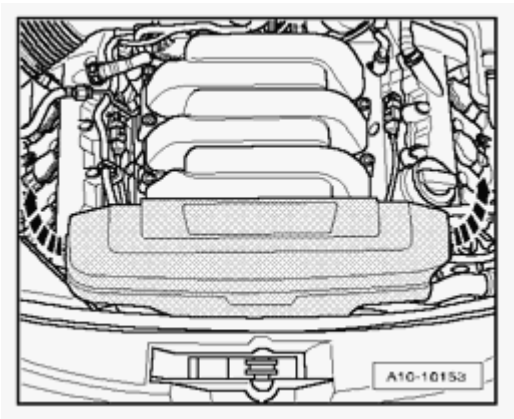

Fig. 156: Identifying Front Engine Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Remove front engine cover - **arrows** -.

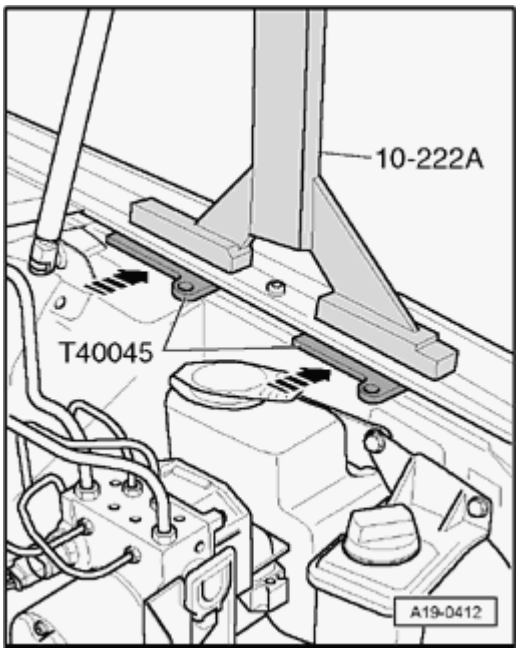

Fig. 157: Inserting Insert Pad For Front Fender T40045 On Both Sides Between Fender Mounting Flange And Body Panel Underneath
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove rubber seal from edges of fender mounting flanges.
- To avoid damaging edges of fender panels with engine support bridge 10-222 A, insert pad for front fender T40045 on both sides between the fender mounting flange and body panel underneath.

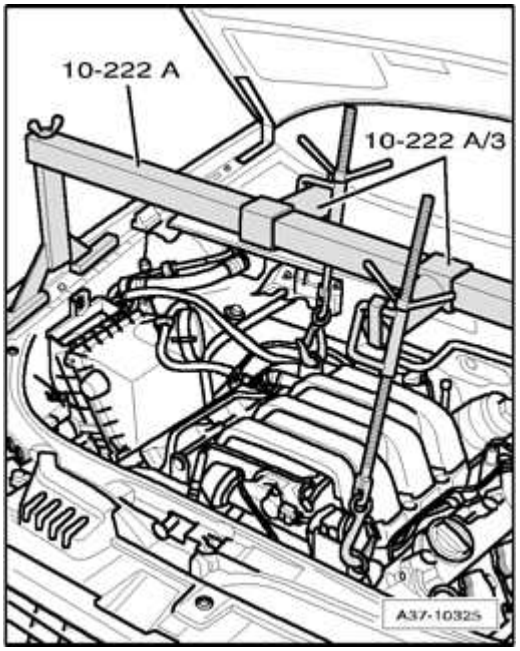

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Fig. 158: Setting Up Engine Support Bridge 10-222 A With Adapters 10-222 A/3 On Fender Mounting Flanges
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Set up engine support bridge 10-222 A with adapters 10-222 A/3 on fender mounting flanges.
- Engage spindles on engine lifting eyes as illustrated.
- Take up weight of engine with spindles until bottom engine/transmission securing bolts are accessible.

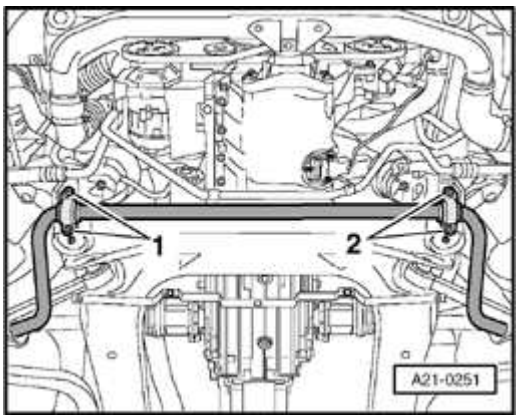

Fig. 159: Removing Stabilizer Bar Mountings
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unbolt stabilizer bar mountings on both sides - **1** - and - **2** -.
- Swivel stabilizer bar downward.

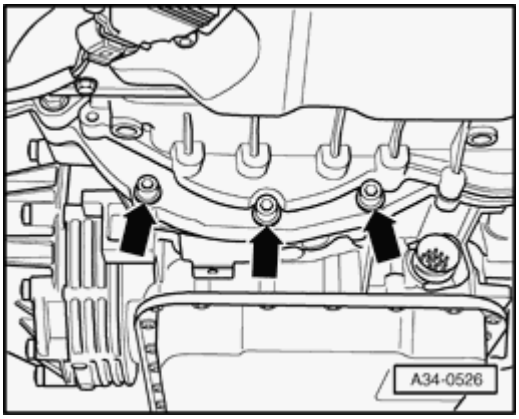

Fig. 160: Removing Bottom Engine/Transmission Connecting Bolts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bottom engine/transmission securing bolts - **arrows** -.

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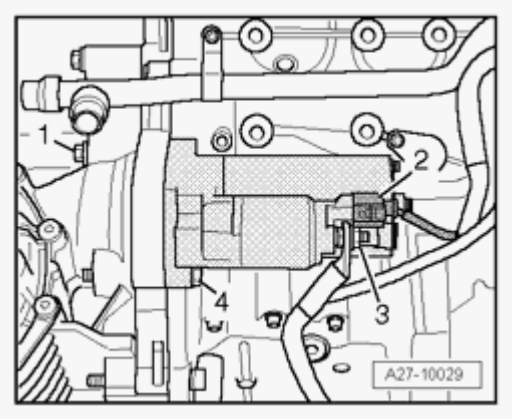

Fig. 161: Disconnecting Electrical Wires On Starter, Removing Bolts & Starter
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect wires - **2** - and - **3** - at starter.
- Remove bolts - **1** - and - **4** - and remove starter.
- Guide starter toward the rear through wheel housing on right side of vehicle.

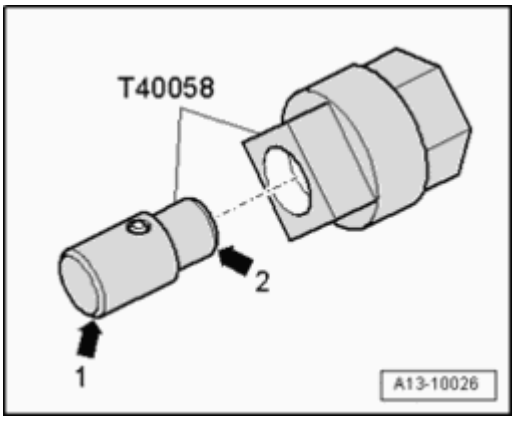

Fig. 162: Inserting Guide Pin Of Adapter T40058
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert guide pin of adapter T40058 so that the large diameter - **arrow 1** - faces engine. The smaller diameter - **arrow 2** - faces adapter.

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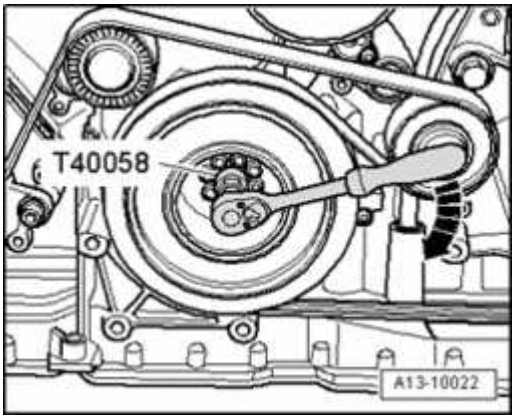

Fig. 163: Loosening Torque Converter Bolts Using Adapter T40058
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Counter-hold crankshaft using adapter T40058 to loosen torque converter bolts.

NOTE:

- **- Arrow - can be disregarded.**

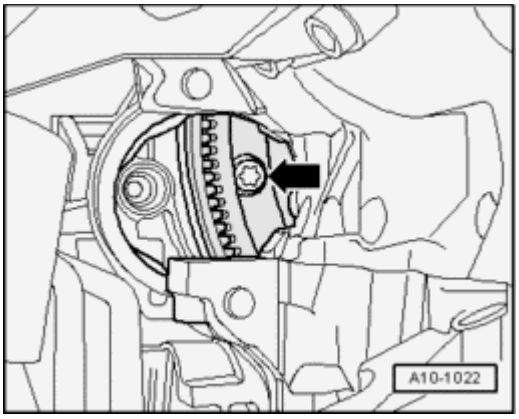

Fig. 164: Torque Converter Bolts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove 3 torque converter bolts - **arrows** - through the opening for removed starter (turning crankshaft $^{1}/_{3}$ turn each time).

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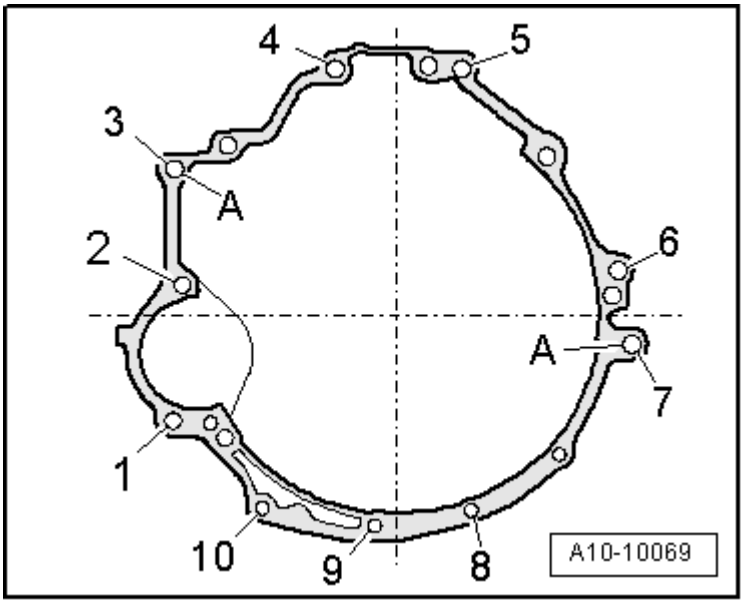

Fig. 165: Identifying Engine/Transmission Threaded Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove engine/transmission securing bolts - **4 to 6** -.

NOTE:

- **Bolts - 3 - and - 7 - remain screwed in hand-tight.**

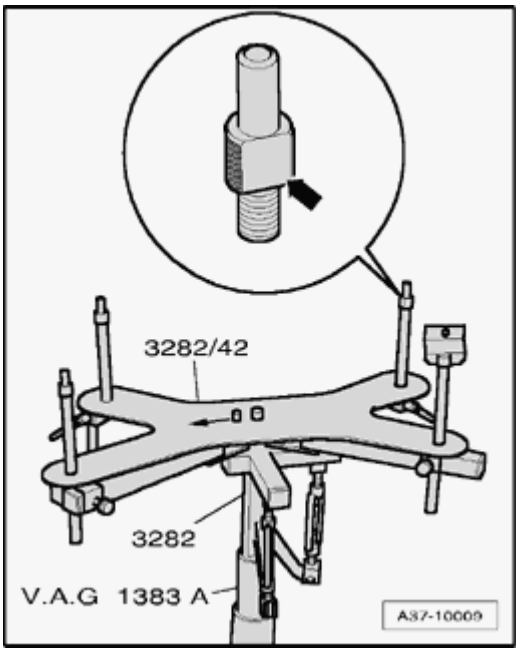

Fig. 166: Placing Adapter 3282/48 On Transmission Support 3282
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Set up transmission support 3282 on engine/transmission jack V.A.G 1383 A.

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- Place Adapter 3282/48 on transmission support 3282 as shown in illustration.
- Align arms of transmission support according to holes in adjustment plate.
- Attach support elements as illustrated on adjustment plate.

- pin 3282/50 has to be screwed in at right rear.
- Place engine/transmission jack V.A.G 1383 A with transmission support 3282 underneath transmission.

NOTE:

- **The arrow symbol on the adjustment plate points in the direction of travel.**

- Align adjustment plate parallel with transmission.

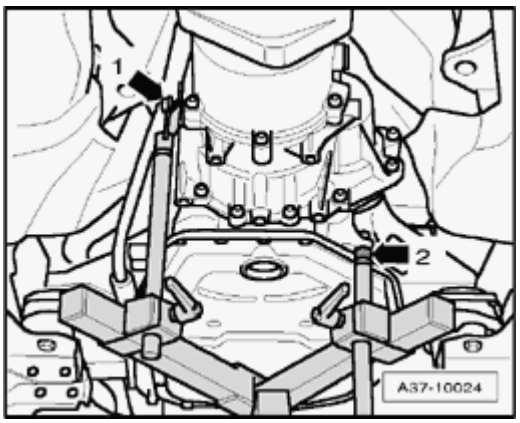

Fig. 167: Bolting Support To Left Rear Tapped Hole On Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Bolt support to left rear tapped hole on transmission - **1** - using one bolt M10x20.
- Insert flattened pin 3282/50 into mounting hole at rear right of transmission housing - **arrow 2** -.

CAUTION:

- **The flattened side of the pin must face toward the transmission oil pan to prevent the oil pan from being bent or damaged.**
- **Replace the transmission oil pan if damaged.**

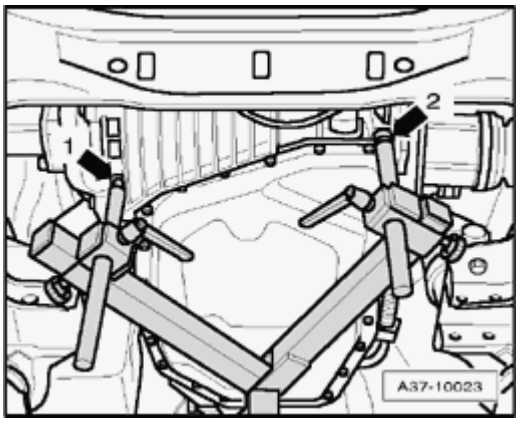

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Fig. 168: Inserting Pin Into Mounting Hole At Left Front Of Transmission Housing & Recess In Housing At Right Front Of Differential Housing
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert pin into mounting hole at left front of transmission housing - **arrow 2** -.
- Insert pin into recess in housing at right front of differential housing - **arrow 1** -.
- Raise transmission slightly.

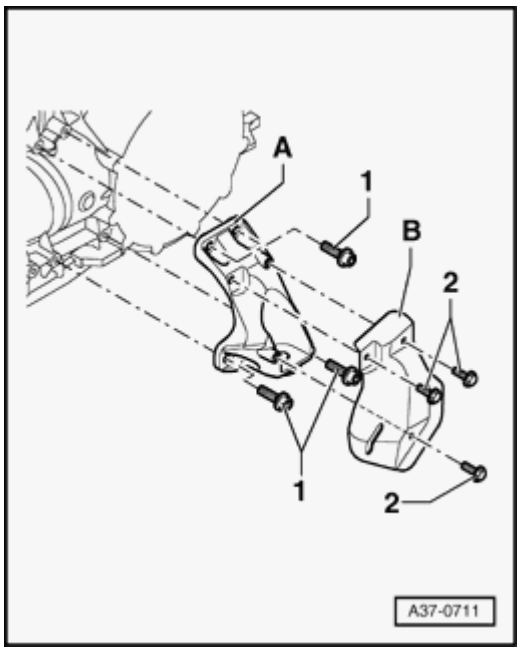

Fig. 169: Removing/Installing Bolts, Heat Shield, Transmission Support
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **2** - at transmission support (right-side) and detach heat shield - **B** -.
- Remove bolts - **1** -.
- Detach transmission support - **A** - together with transmission mounting from transmission.

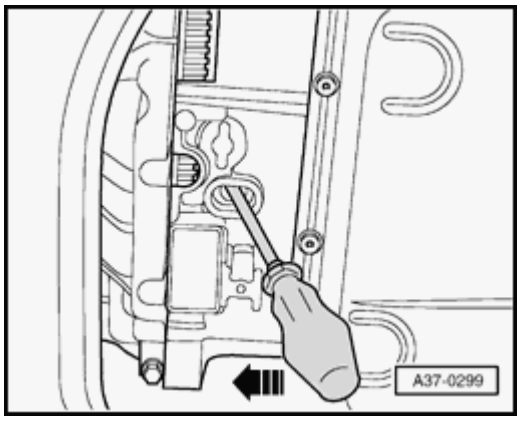

Fig. 170: Pressing Transmission Off Engine, While Pressing Torque Converter Off Of Drive Plate

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove last engine/transmission securing bolts.
- Push transmission off engine and at the same time pry torque converter off drive plate using a screwdriver.
- Carefully lower transmission using engine/transmission jack V.A.G 1383 A.

NOTE:

- **When lowering transmission, make sure there is sufficient clearance from drive axles.**

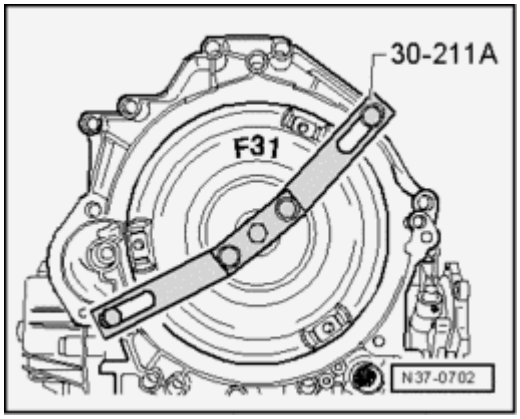

Fig. 171: Securing Torque Converter
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Secure torque converter in transmission using support bridge 30-211 A to prevent it from dropping out.

Transmission, installing (vehicles with 3.2 ltr. FSI engine)

NOTE:

- **Use thread tap to remove any remaining locking fluid from all threaded holes which will accommodate self-locking bolts.**
- **Replace self-locking nuts and bolts when performing assembly work.**
- **Replace O-rings**
- **Re-attach all cable ties at the same locations when re-installing.**

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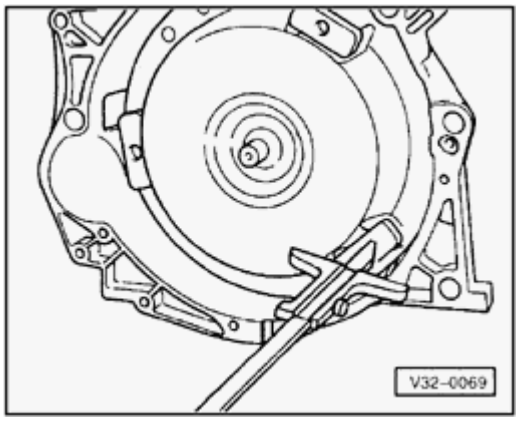

Fig. 172: Checking Torque Converter Is Correctly Positioned
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Before installing transmission, make sure that the torque converter is properly installed in the transmission.

- If the torque converter is correctly installed, the depth between the contact surfaces at the tapped holes on the torque converter and contact surface of torque converter bell housing is at least 19 mm.

CAUTION: If the torque converter is not installed correctly, the torque converter drive lugs or the ATF pump will be seriously damaged when the transmission is joined to the engine.

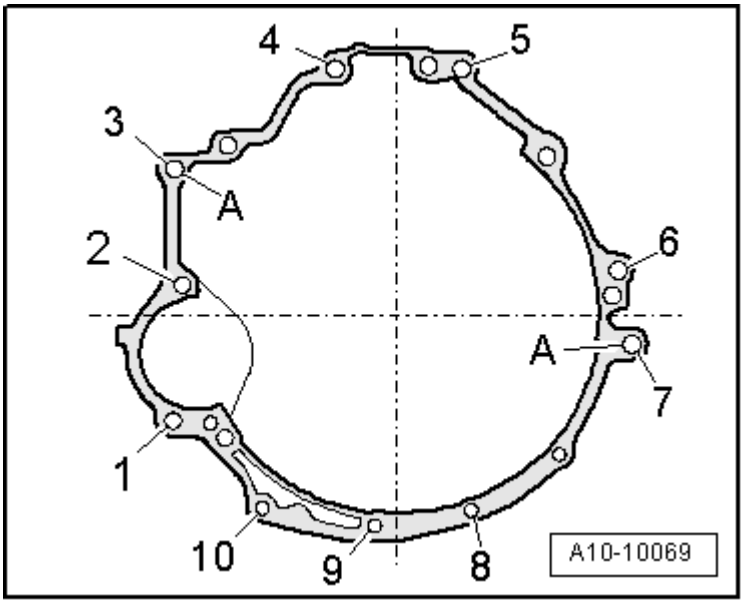

Fig. 173: Identifying Engine/Transmission Threaded Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Before installing transmission, check for correct positioning of dowel sleeves - **A** - at cylinder block. Install new dowel sleeves if necessary.

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- Install intermediate plate between engine and transmission in the original position.
- Before joining engine and transmission, turn torque converter and drive plate (on engine) until one hole and one tapped hole are in line with the opening for removed starter.
- When pushing engine and transmission together, make sure that no wiring or lines etc. can become trapped.

Install transmission, adhere to the following instructions.

CAUTION: Before and while tightening the bolts on the engine/transmission flange keep checking that the torque converter can still be rotated behind the drive plate. If the converter cannot be turned, it must be assumed that it has not been installed correctly and the drive lugs on the converter or the ATF pump will be damaged when the bolts are fully tightened.

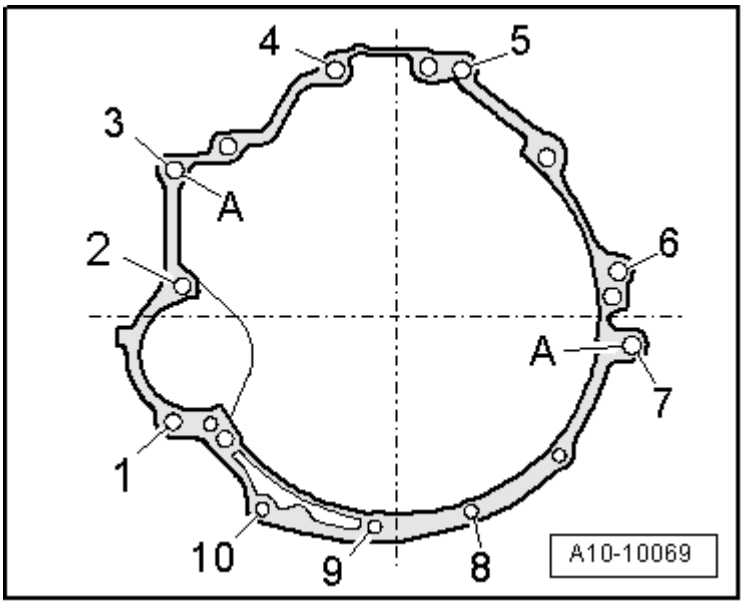

Fig. 174: Identifying Engine/Transmission Threaded Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install bolts - **3** - and - **7** - hand-tight.
- Install transmission support (right-side) with transmission mounting --> **Transmission support and transmission mounting, removing and installing (left and right)**.

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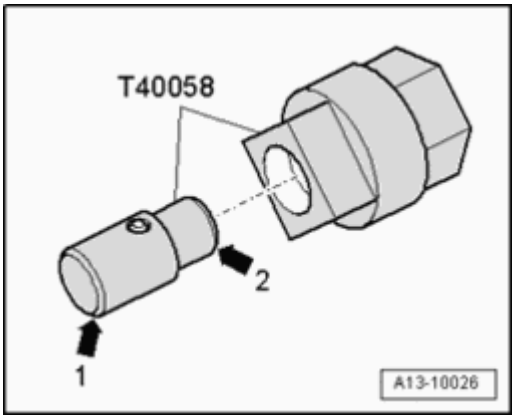

Fig. 175: Inserting Guide Pin Of Adapter T40058
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert guide pin of adapter T40058 so that the large diameter - **arrow 1** - faces engine. The smaller diameter - **arrow 2** - faces adapter.

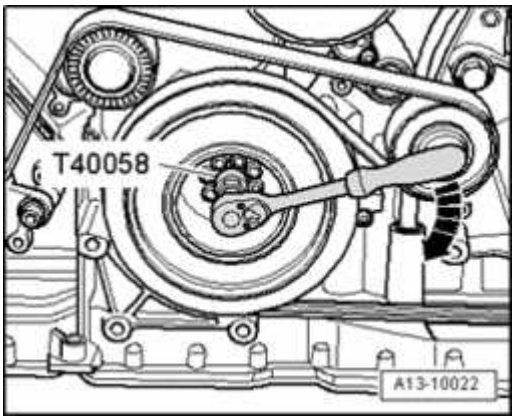

Fig. 176: Loosening Torque Converter Bolts Using Adapter T40058
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Counter-hold crankshaft using adapter T40058 to secure torque converter bolts.

NOTE:

- **- Arrow - can be disregarded.**

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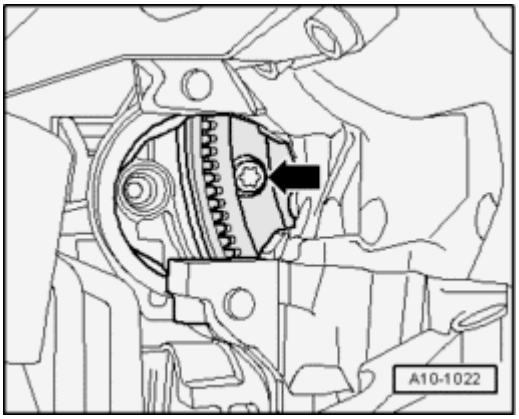

Fig. 177: Torque Converter Bolts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Use new ribbed bolts to secure torque converter to drive plate. Use only correct bolts (same as original equipment) .
- Install 3 bolts - **arrow** - for torque converter hand-tight into opening of removed starter (turning crankshaft $^{1}/_{3}$ turn each time).
- Bolt transmission onto engine.

NOTE:

- **Tightening torques only apply to lightly greased, oiled, phosphated or blackened nuts and bolts.**
- **Lubricants such as engine or transmission oil may be used, but do not use graphite lubricant.**
- **Do not use parts which have been degreased.**
- **Tolerance for tightening torques ±15%.**

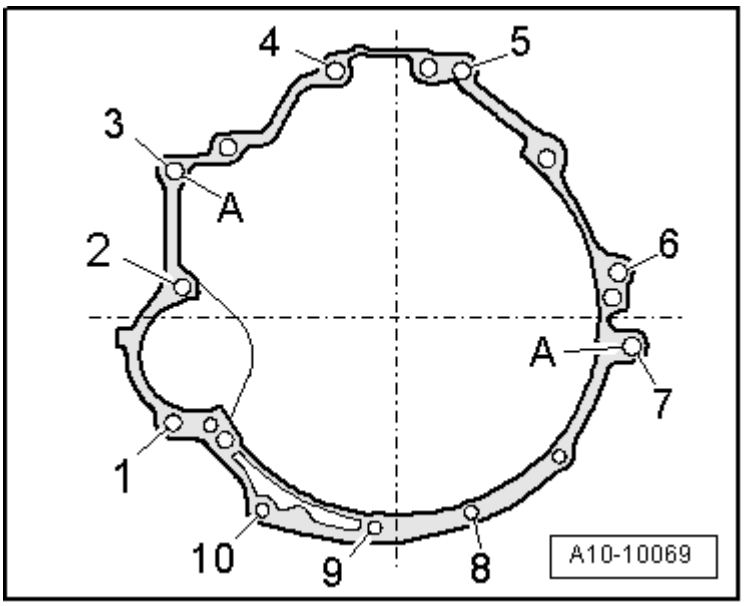

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Fig. 178: Identifying Engine/Transmission Threaded Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Engine/transmission securing bolts

Item	Bolt	Nm
1	M10x115	65 * See note
2, 6	M12x125	65
3, 5	M12x110	65
4	M12x115	65
7	M12x140	65
8, 9, 10	M10x80	45
A	Dowel sleeves for centralizing	

*Bolt strength 10.9

The remaining installation steps are in reverse sequence. Note the following:

- Install starter -->
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** for ELECTRICAL EQUIPMENT, CABRIOLET

  .
- Install stabilizer bar --> **40 - FRONT SUSPENSION** .
- Clean ATF pipes and ATF cooler --> **ATF cooling lines and ATF cooler, cleaning**.
- Secure ATF pipes to transmission and engine --> **ATF cooling lines**.
- Install selector lever cable --> **Selector lever cable, removing and installing (vehicles with 3.2 ltr. FSI engine)**.
- Adjust selector lever cable --> **Selector lever cable, checking and adjusting**.
- Install driveshaft -->
  - **39 FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE
  - **39 - FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE 0AR

  .
- Install front exhaust pipes -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN

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- **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): BNS
- **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

.

- Align exhaust system free of stress -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
  - **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): BNS
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

.

- Install drive shafts --> **40 - FRONT SUSPENSION** .

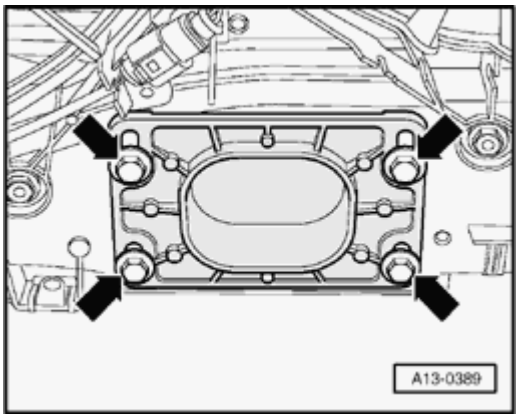

Fig. 179: Removing/Installing Bolts At Torque Support Stop
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Allow stop for torque reaction support to settle under its own weight on rubber buffer for torque reaction support and tighten bolts - **arrows** -.
- Follow steps required after connecting battery -->
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** for ELECTRICAL

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EQUIPMENT, CABRIOLET

.

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

Component	Nm
Drive plate to torque converter	85 * See note
Engine mounting to support	23
Heat shield for drive shaft to transmission	23
Bracket for sound insulation to subframe	10
Stop for torque reaction support to lock carrier	28

*Replace bolts.

Transmission, removing (vehicles with 4.2 ltr. MPI engine)

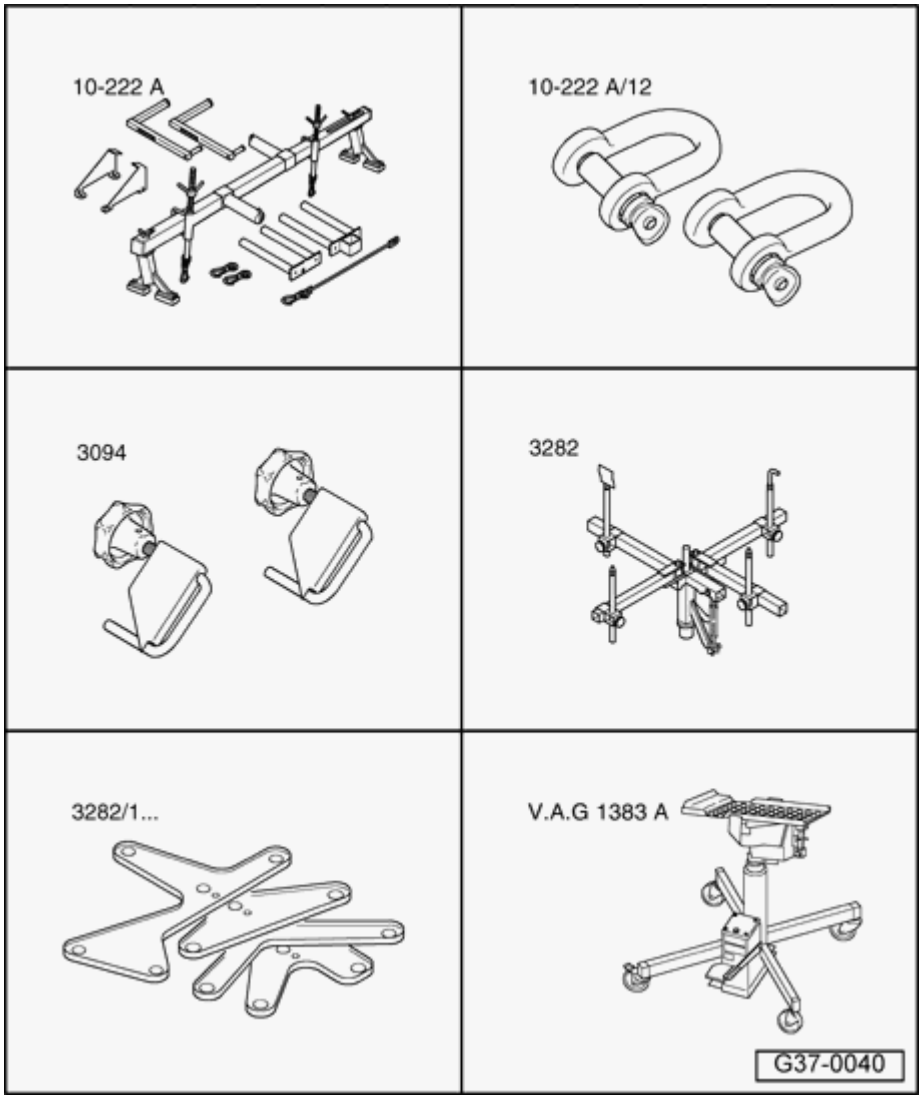

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Fig. 180: Identifying Special Tools - Transmission, Removing (Vehicles With 4.2 ltr. MPI Engine) (1 Of 2)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Engine support bridge 10-222 A
- Shackle 10-222 A/12
- Hose clamps, up to 25 mm dia. 3094
- Transmission support 3282
- Adapter 3282/48
- Engine/transmission jack V.A.G 1383 A

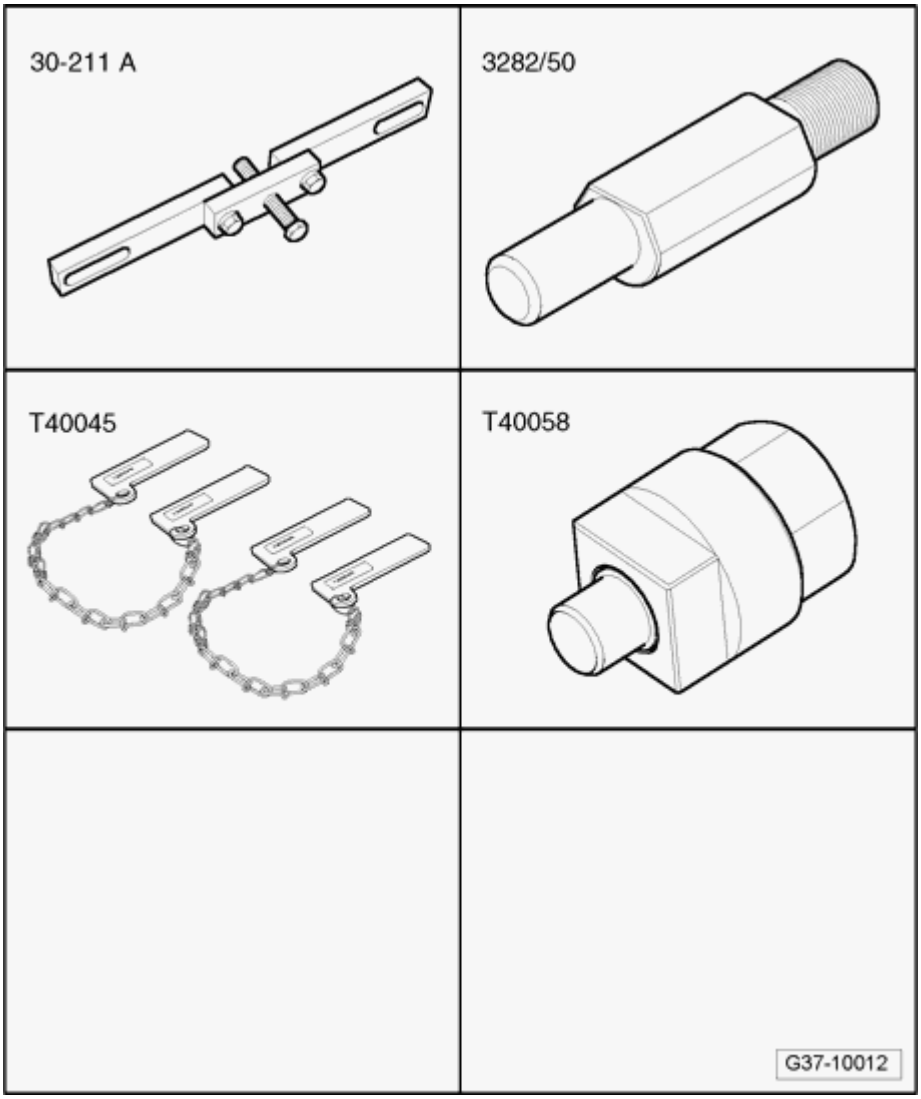

Fig. 181: Identifying Special Tools - Transmission, Removing (Vehicles With 4.2 ltr. MPI Engine) (2 Of 2)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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Special tools, testers and auxiliary items required

- Bracket 30-211 A
- Pin 3282/50
- Insert pad for front fender T40045
- Adapter T40058
- Bolt M10x20

Removing

NOTE:

- **General repair instructions --> General repair instructions.**
- **Read the rules for cleanliness when working on the automatic transmission --> Rules for cleanliness.**
- **All cable ties which are released or cut open during removal must be installed in the same position when installing.**
- **Heat insulation sleeves removed during removal of transmission must be installed in the same position when installing.**

- Shift selector lever to position "P".

CAUTION: Follow steps required when disconnecting battery -->

- **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
- **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL for ELECTRICAL EQUIPMENT, CABRIOLET**

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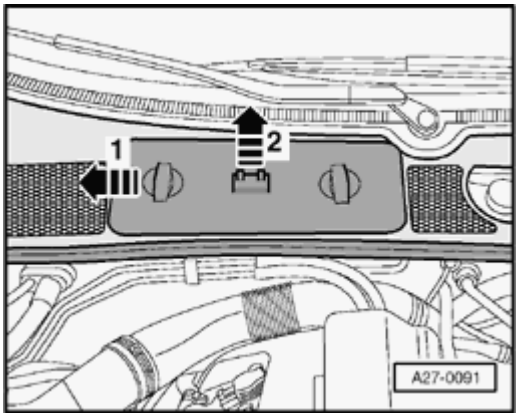

Fig. 182: Sliding Battery Cover Toward Right Side Of Vehicle And Remove
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Slide battery cover toward right side of vehicle - **arrow 1** - and remove - **arrow 2** -.

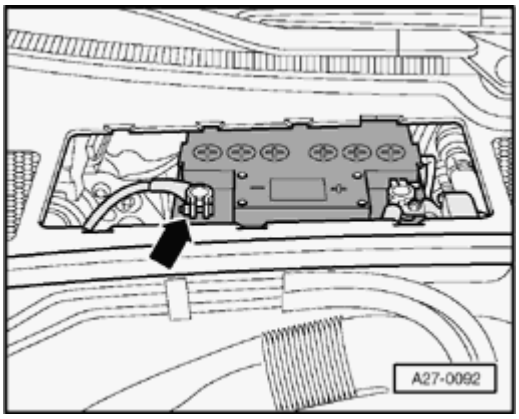

Fig. 183: Disconnecting Ground (GND) Wire At Battery
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- With ignition switched off, disconnect Ground (GND) wire - **arrow** - at battery.

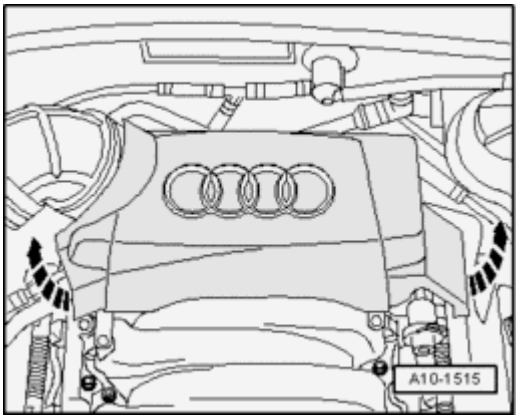

Fig. 184: Removing Rear Engine Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove rear engine cover - **arrows** -.

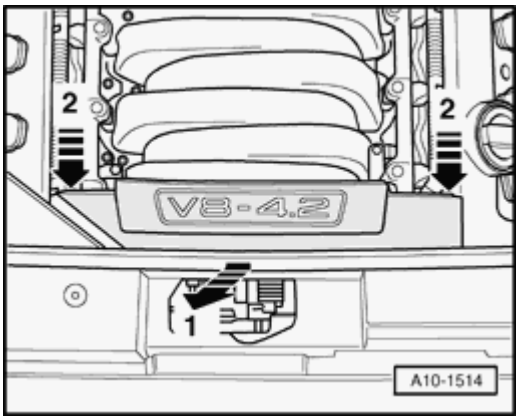

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Fig. 185: Removing Front Engine Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove front engine cover - **arrows** -.

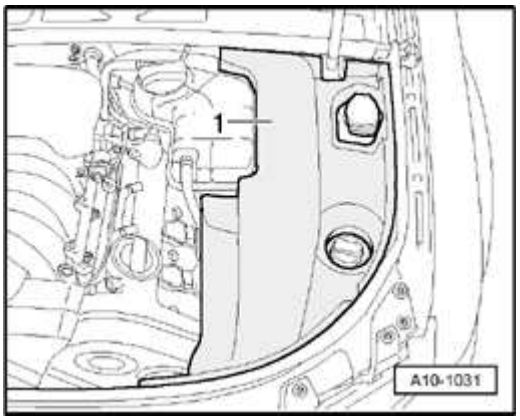

Fig. 186: Removing Cover In Engine Compartment (Left Side)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove cover - **1** - on left side of engine compartment.

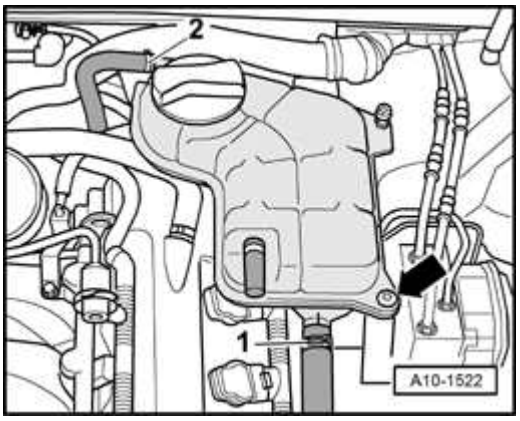

Fig. 187: Removing Coolant Hoses & Coolant Expansion Tank
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect coolant hose - **2** - with hose clamp 3094 and detach at coolant expansion tank.
- Unbolt coolant expansion tank - **arrow** -.
- Disconnect electrical wire leading to Engine Coolant Level (ECL) warning switch F66 at expansion tank (bottom) and move coolant expansion tank (with coolant hose - **1** - attached) clear to one side.
- If necessary, close off connection with a suitable plug.

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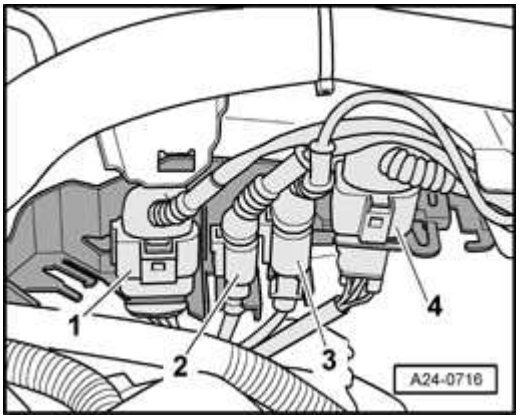

Fig. 188: Removing Bracket For Electrical Harness Connectors At Left From Bulkhead
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical connectors - **1 to 4** - from retainer at left of bulkhead.
- Disconnect electrical connectors - **1** - , - **3** - and - **4** -.
- Detach retainer at bulkhead.
- Detach heat insulation sleeve at wiring harness and move wiring harness clear.
- Move Lambda probe wires clear (downward).

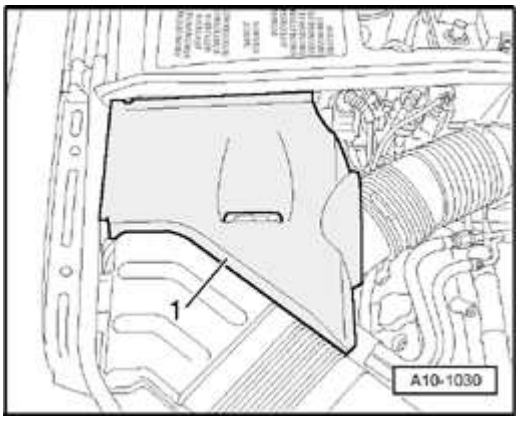

Fig. 189: Removing Cover In Engine Compartment (Right Side)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove cover - **1** - on right side of engine compartment.

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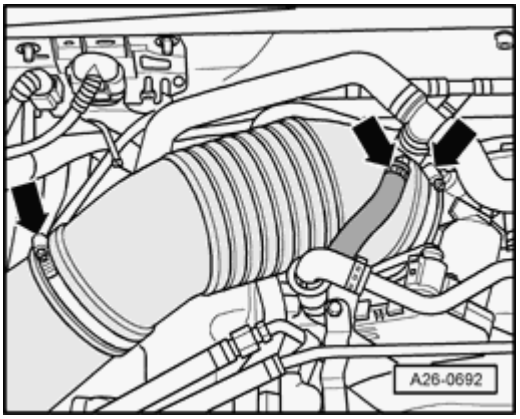

Fig. 190: Removing Air Guide Hose
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove air intake hose - **arrows** -.

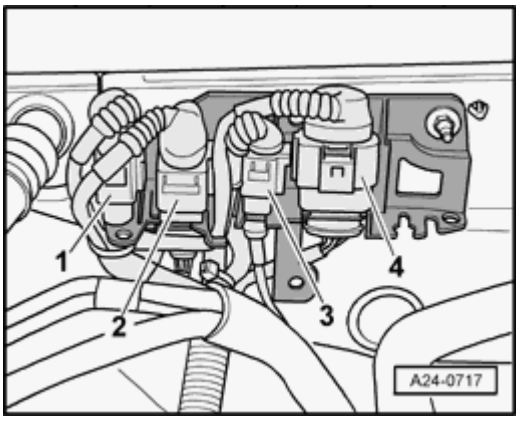

Fig. 191: Removing Bracket For Electrical Harness Connectors At Right From Bulkhead
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect connectors - **1 to 4** - from retainer at right of bulkhead.
- Disconnect electrical connectors - **2** - and - **4** -.
- Move Lambda probe wires clear (downward).

NOTE:

- **Mark the attachment points for the Lambda probe wires, to make sure they are attached in the same place during installation.**

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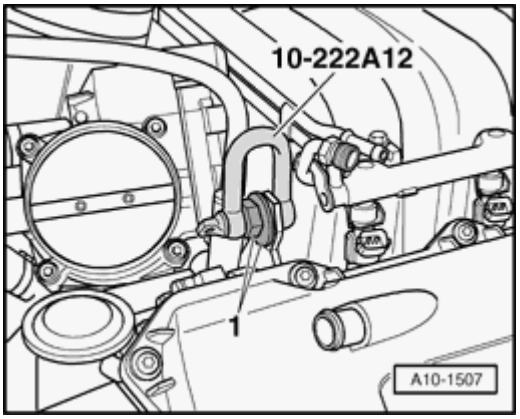

Fig. 192: Installing Shackle 10-222 A/12 To Engine Lifting Eye (Right Rear)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install shackle 10-222 A/12 to engine lifting eye (right rear).

NOTE:

- **- Item 1 - can be disregarded.**

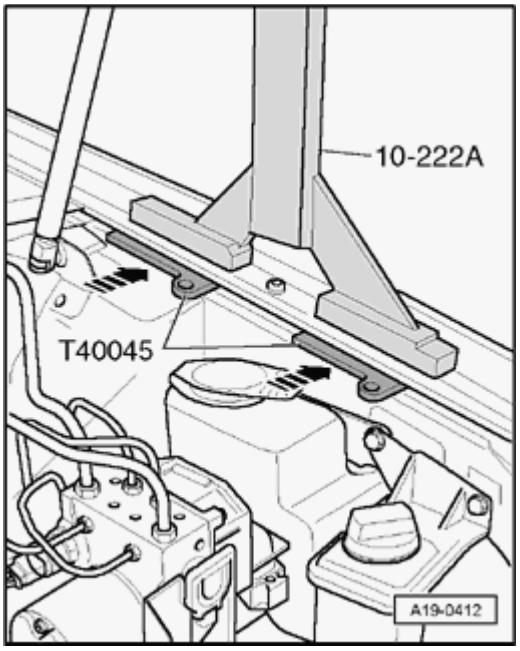

Fig. 193: Inserting Insert Pad For Front Fender T40045 On Both Sides Between Fender Mounting Flange And Body Panel Underneath
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Detach rubber seal from edges of fender mounting flanges.
- To avoid damaging edges of fender panels with engine support bridge 10-222 A, insert pad for front fender T40045 on both sides between the fender mounting flange and body panel underneath.

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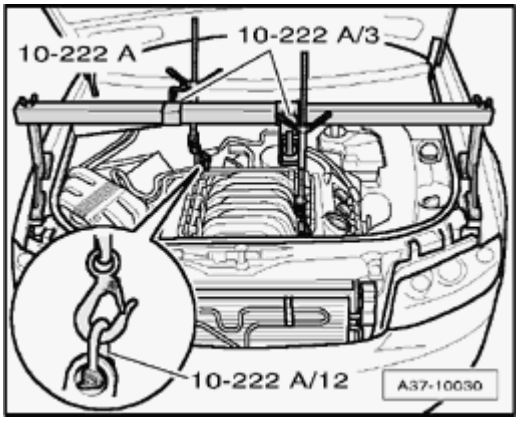

Fig. 194: Placing Engine Support Bridge 10-222 A With Adapters 10-222 A/3 Onto Fender Panel Flange
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Place engine support bridge 10-222 A with adapters 10-222 A/3 onto fender panel flange, as shown in illustration.
- Engage spindles of engine support bridge 10-222 A in engine lifting eye (front) and in shackle 10-222 A/21 (rear).
- Take up weight of engine on spindles of support bar, but do not lift.

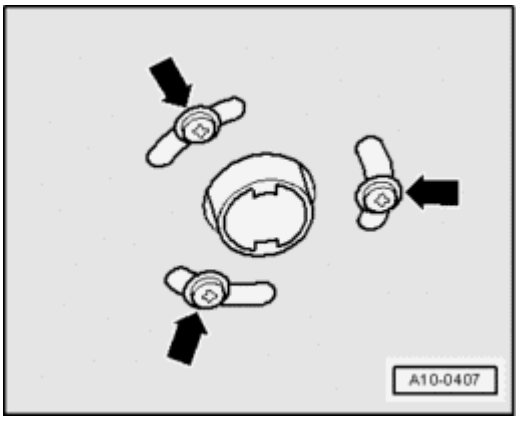

Fig. 195: Identifying Exhaust Pipe Fasteners
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove both front wheels.
- On vehicles equipped with auxiliary heater remove screws - **arrows** - securing exhaust pipe of auxiliary heater to sound insulation.

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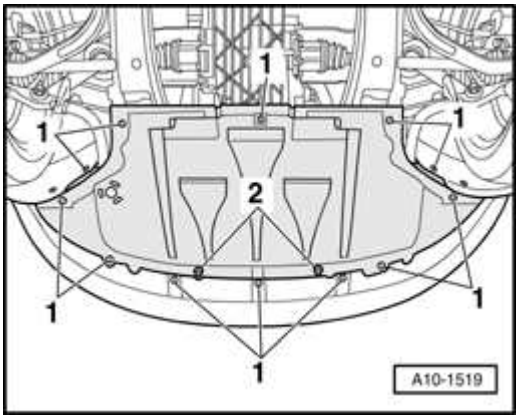

Fig. 196: Removing Quick-Release Fasteners, Screws And Noise Insulation
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Release quick release fasteners - **1** - , remove bolts - **2** - and remove sound insulation.

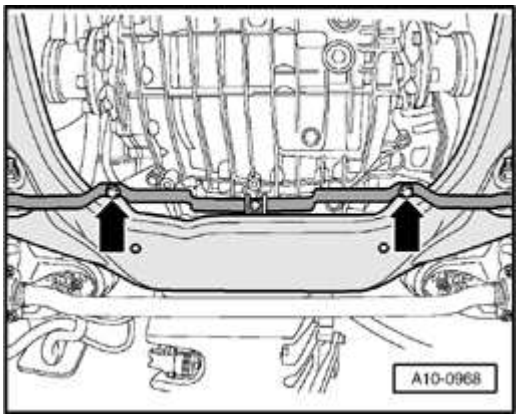

Fig. 197: Removing Bracket For Sound Insulation
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bracket for sound insulation - **arrows** -.

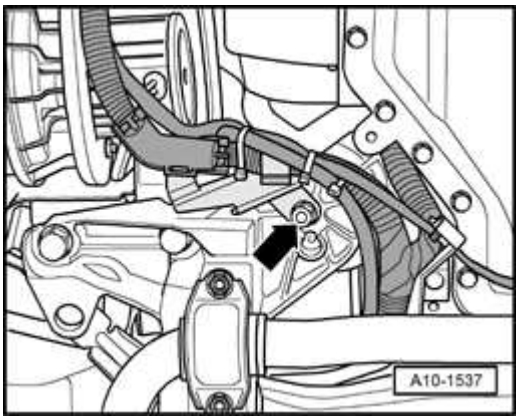

Fig. 198: Removing Wiring Harness Bracket At Right Engine Plate
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Remove bracket for wiring harness at engine support (right-side) - **arrows** -.

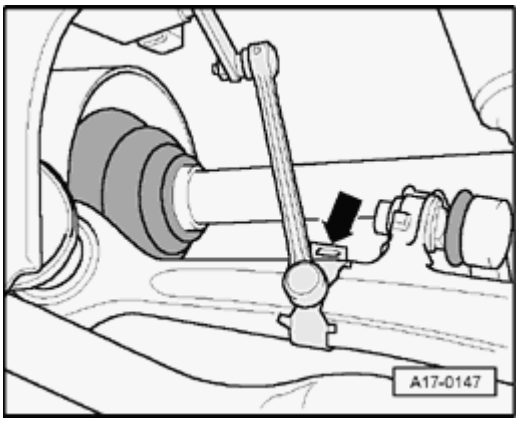

Fig. 199: Unclipping Operating Rod For Vehicle Levelling Sensor At Lower Transverse Link
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- If installed, unclip operating rod for vehicle level sensor from lower transverse link - **arrow** - or detach connector at operating rod (top).

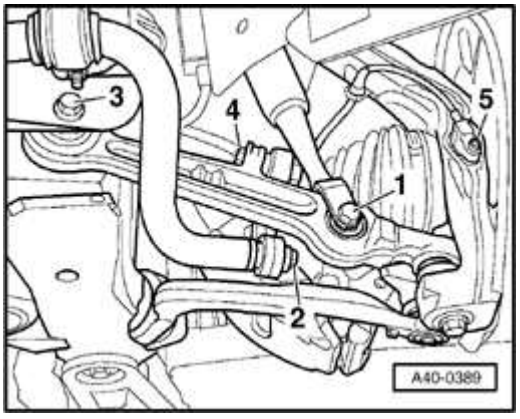

Fig. 200: Removing Bolt (On Left And Right)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolt - **2** - (on left and right).

NOTE:

- **Ignore - item 1 - and - items 3 to 5 -.**

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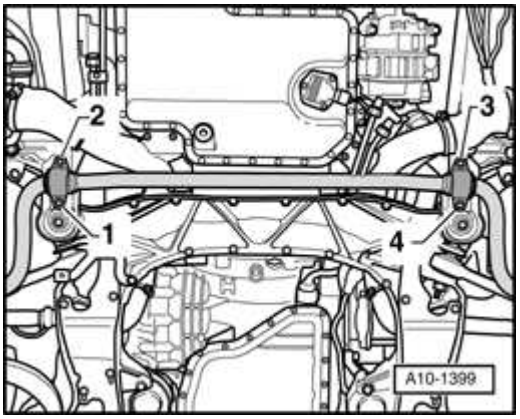

Fig. 201: Removing Nuts For Left/Right Stabilizer Mounts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove nuts (left and right) - **1 to 4** - for stabilizer bar mounting and remove stabilizer bar.

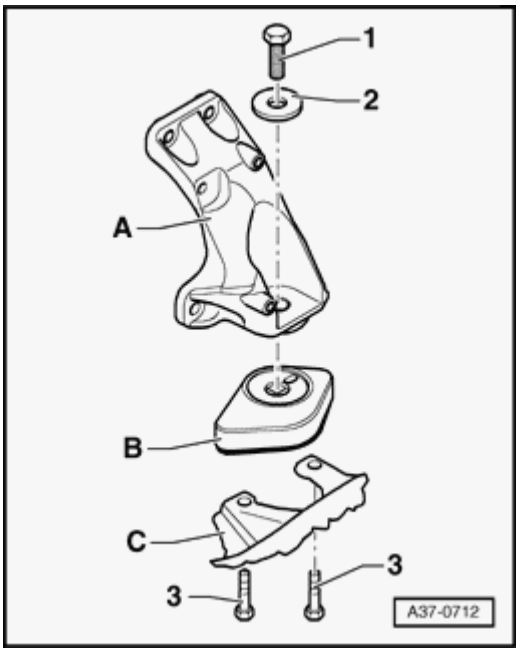

Fig. 202: Removing/Installing Securing Bolts (Left/Right) For Transmission Mounting At Subframe
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove securing bolts (left and right) - **3** - for transmission mounting - **B** - at subframe - **C** -.

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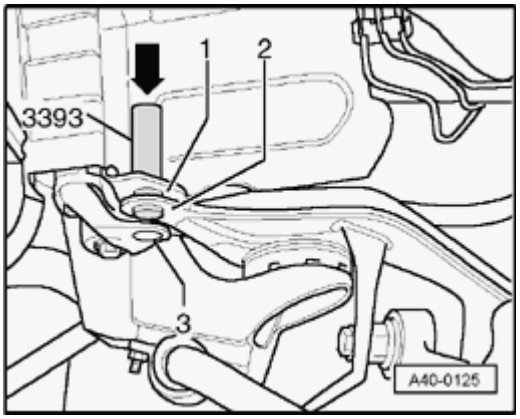

Fig. 203: Checking Holes Align Using Testing Mandrel 3393
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Before loosening subframe, use locating pin 3393 to check whether holes - **1** - and - **2** - are aligned.

If this is not the case, wheel alignment has to be performed after installing subframe.

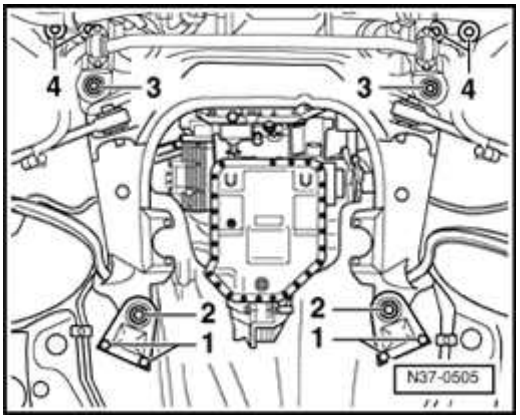

Fig. 204: Remove Bolts 2- And At Front And Rear Of Subframe On Both Sides Of Vehicle
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **1 to 4** - and lower subframe.

NOTE:

- **The subframe may be allowed to rest on the transverse links. It does not have to be removed completely.**

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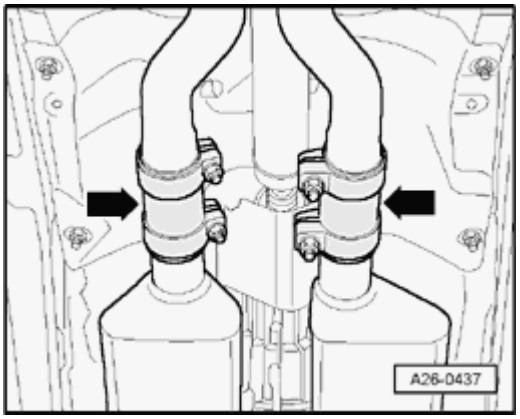

Fig. 205: Loosening Clamping Sleeves
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **To prevent damage, the flexible couplings in the front exhaust pipes must not be bent further than 10°.**

- Disconnect exhaust system at clamps - **arrows** -.

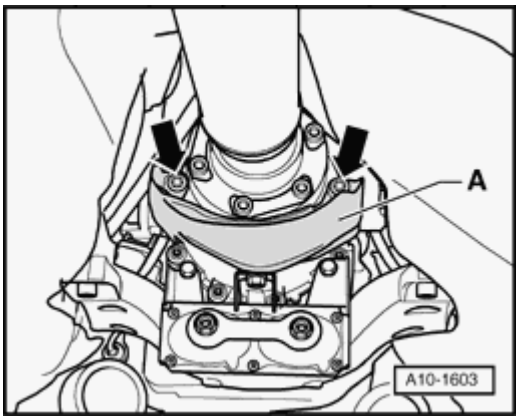

Fig. 206: Removing/Installing Heat Shield For Driveshaft
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

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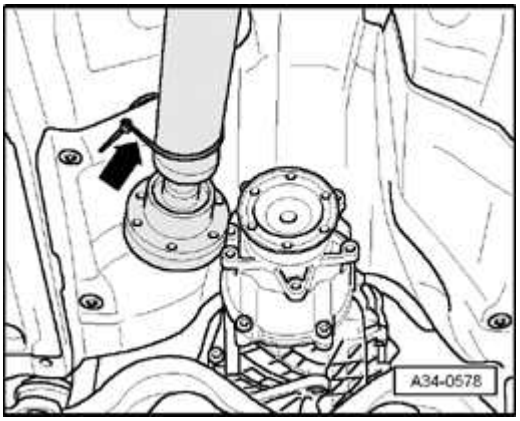

Fig. 207: Drive Shaft Tied To Side, Onto Heat Shield
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tie driveshaft to side, onto heat shield - **arrow** -.

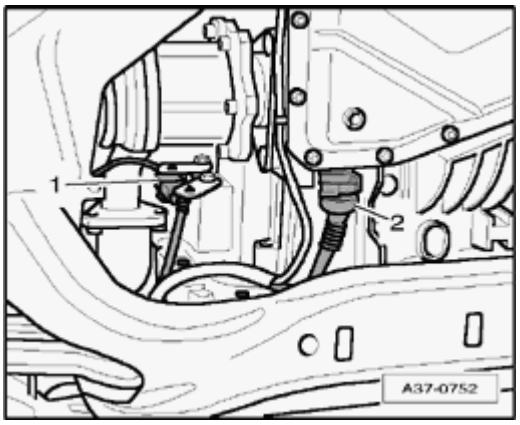

Fig. 208: Disconnecting 16-Pin Electrical Connector At Transmission By Folding Out Release Tab And Turning Fastener Cap Counter-Clockwise
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect 16-pin electrical connector - **2** - at transmission by folding out the release tab and turning fastener cap counter-clockwise.

NOTE:

- **- Item 1 - can be disregarded.**

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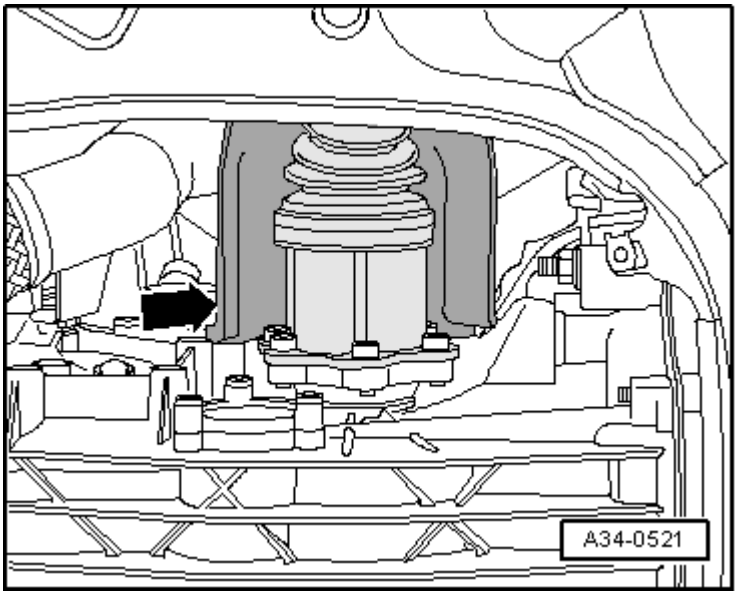

Fig. 209: Drive Axle Heat Shield
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove heat shields - **arrow** - for drive axles (left and right).
- Remove drive axles (left and right) from flange on transmission.

NOTE:

- **Make sure you do not damage surface coating on drive axles.**

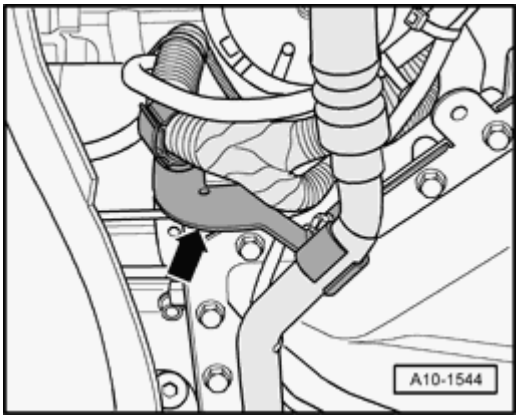

Fig. 210: Removing Refrigerant Line On Bracket
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bracket (right-side) - **arrow** - for refrigerant line.

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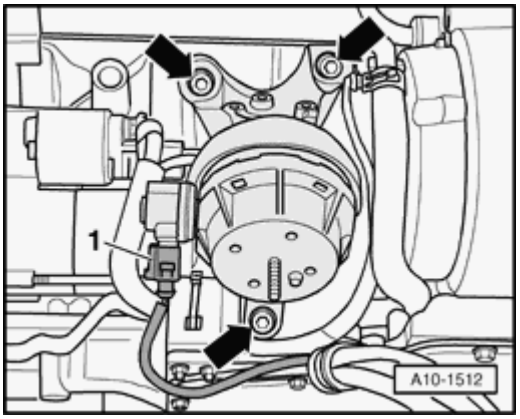

Fig. 211: Disconnecting Electrical Harness Connector At Right Engine Mount
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical connector - **1** -.
- Remove bolts - **arrows** - and remove engine support together with engine mounting.

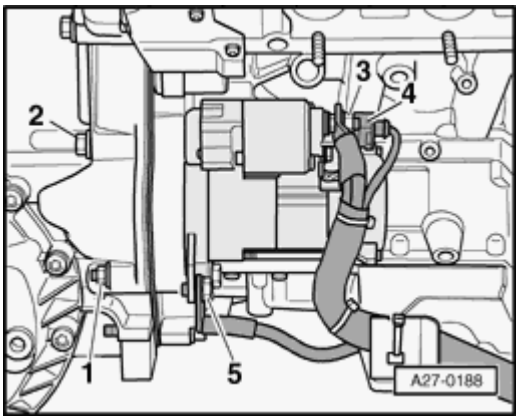

Fig. 212: Identifying Ground (GND) Wire, Wires, Nuts, Bolts & Starter
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove Ground (GND) wire - **5** -.
- Disconnect wires - **3** - and - **4** -.
- Remove nut - **1** - and bolt - **2** -.
- Remove starter.

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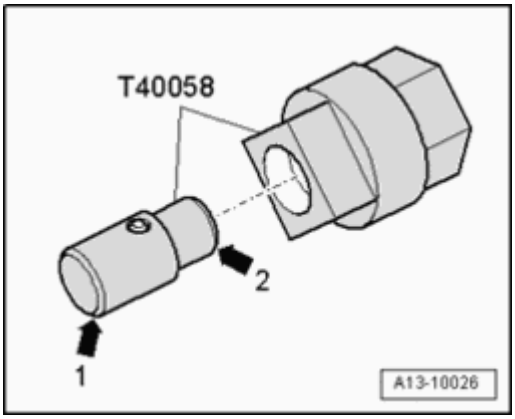

Fig. 213: Inserting Guide Pin Of Adapter T40058
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert guide pin of adapter T40058 so that the large diameter - **arrow 1** - faces engine. The smaller diameter - **arrow 2** - faces adapter.
- Counter-hold crankshaft using adapter T40058 to loosen torque converter bolts.

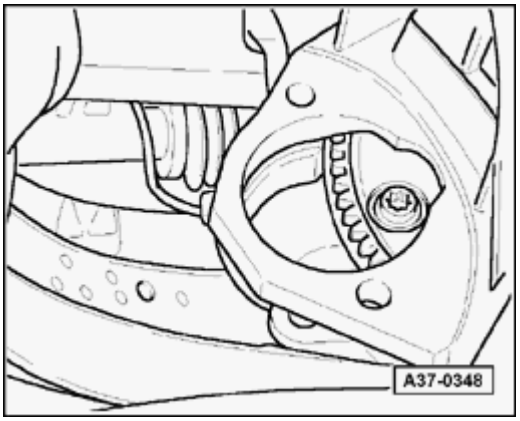

Fig. 214: Removing Bolts From Torque Converter Through Opening For Starter
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove 3 bolts from torque converter through opening for starter (turn crankshaft $^{1}/_{3}$ of a turn to access one bolt after another).

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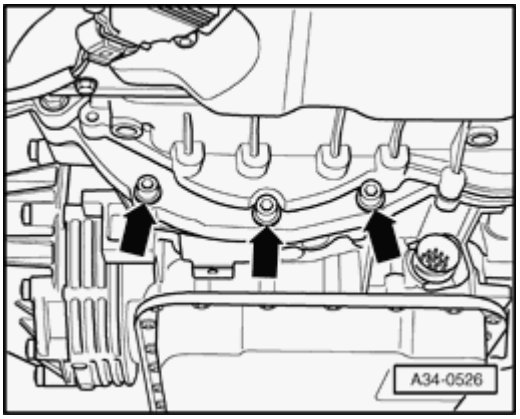

Fig. 215: Removing Bottom Engine/Transmission Connecting Bolts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove lower engine/transmission securing bolts - **arrows** -.

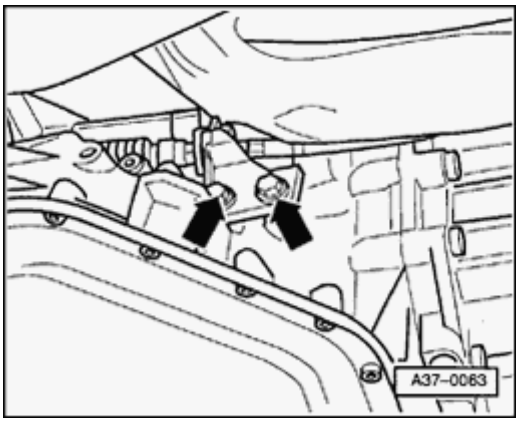

Fig. 216: Identifying Cable Support Bracket To Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Mark position of mounting bracket for selector lever cable relative to transmission housing to simplify reassembly. Unbolt mounting bracket - **arrows** -.
- Loosen clips securing ATF lines to transmission and engine --> **ATF cooling lines**.
- Lower engine/transmission assembly as far as possible, using spindles of support bracket.

CAUTION: When lowering the engine/transmission assembly, make sure none of the lines or wires are stretched or pinched and also avoid causing damage to any other components.

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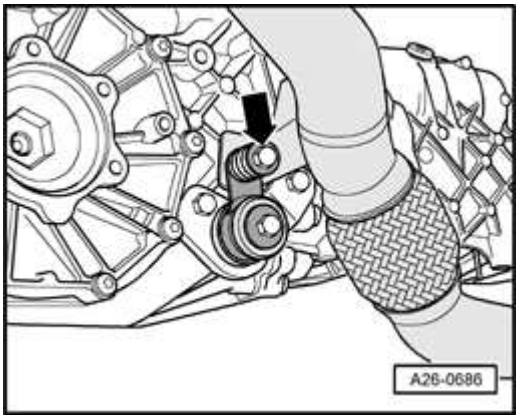

Fig. 217: Removing Bolt At Strap For Left Front Exhaust Pipe
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **Mark the attachment points for the Lambda probe wires, to make sure they are attached in the same place during installation.**

- Remove bolt - **arrow** - at bracket for front exhaust pipe (left-side).

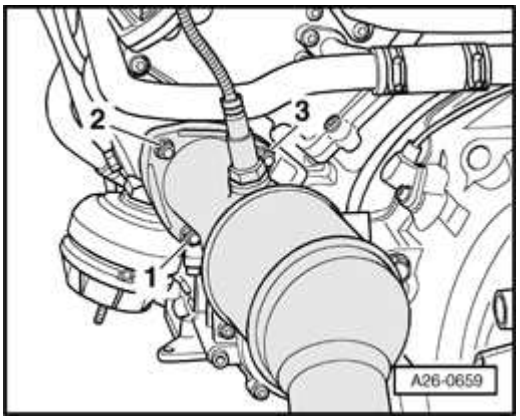

Fig. 218: Removing Nuts For Left Front Exhaust Pipe/Exhaust Manifold
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove nuts - **1 to 3** - connecting front exhaust pipe (left-side) to exhaust manifold.

NOTE:

- **In the illustration the engine has been removed.**

- Detach front exhaust pipe from exhaust manifold (left-side).
- Remove front exhaust pipe.

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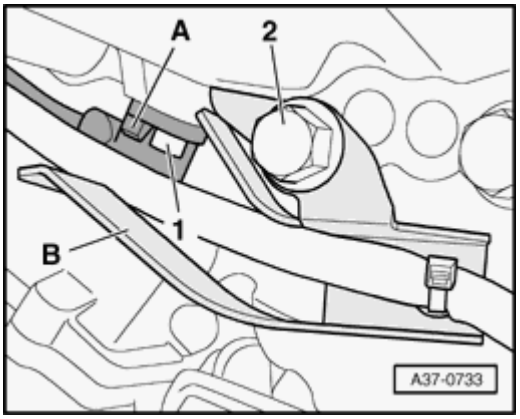

Fig. 219: Identifying Bolt, Heat Shield, Bolt & Engine Speed (RPM) Sensor G28
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolt - **2** -.
- Remove heat shield - **B** -.
- Remove bolt - **1** -.
- Pull engine speed (RPM) sensor G28 - **item A** - out of transmission.

NOTE:

- **The engine speed (RPM) sensor G28 is inserted in bell housing (top left).**

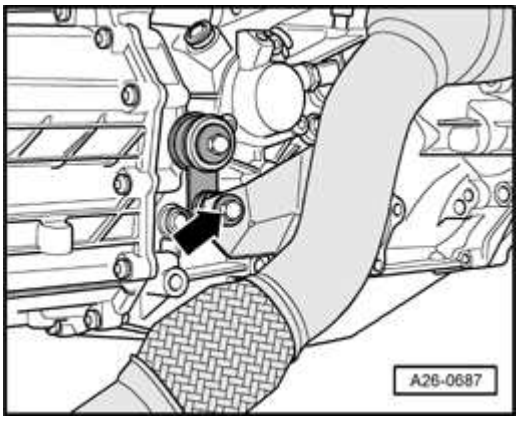

Fig. 220: Removing Bolt At Strap For Right Front Exhaust Pipe
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolt - **arrow** - at bracket for front exhaust pipe (right-side).

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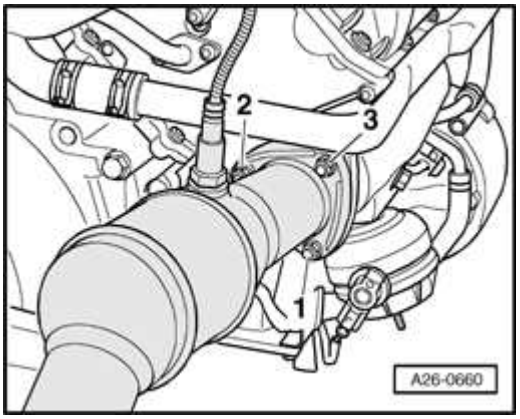

Fig. 221: Removing Nuts For Right Front Exhaust Pipe/Exhaust Manifold
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove nuts - **1 to 3** - connecting front exhaust pipe (right-side) with exhaust manifold.

NOTE:

- **In the illustration the engine has been removed.**

- Remove front exhaust pipe.

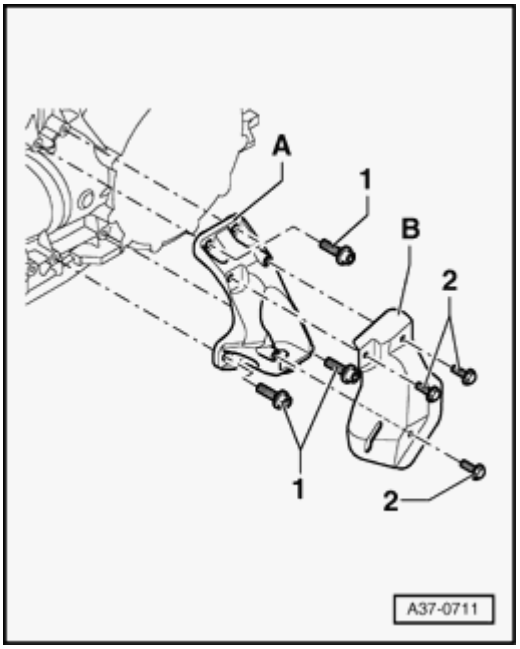

Fig. 222: Removing/Installing Bolts, Heat Shield, Transmission Support
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **2** - at transmission supports (right and left) and detach heat shields - **B** -.
- Remove bolts - **1** -.
- Detach transmission support - **A** - together with transmission mounting from transmission.

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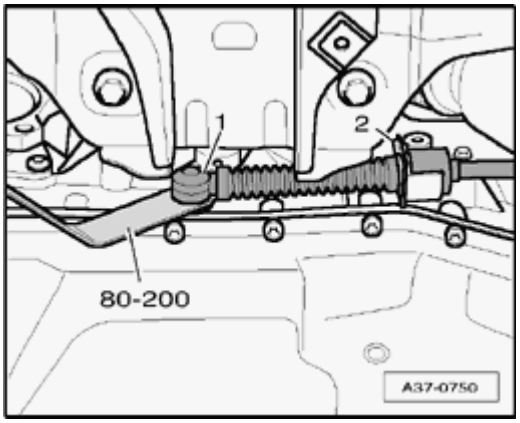

Fig. 223: Using Pry Lever - RMV Outside Mirror 80-200 To Pry Ball Socket On Selector Lever Cable Off Selector Shaft Lever
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Use removal lever 80-200 to pry ball socket - **1** - on selector lever cable off selector shaft lever.

NOTE:

- **Do not bend or kink the selector lever cable.**
- **- Item 2 - can be disregarded.**

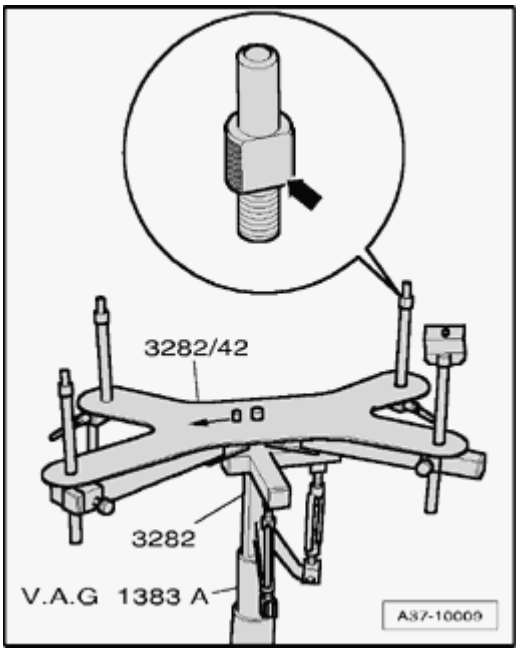

Fig. 224: Placing Adapter 3282/48 On Transmission Support 3282
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Set up transmission support 3282 on engine/transmission jack V.A.G 1383 A.
- Place Adapter 3282/48 on transmission support 3282 as shown in illustration.
- Align arms of transmission support according to holes in adjustment plate.

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- Attach support elements as illustrated on adjustment plate.
- pin 3282/50 has to be screwed in at rear right.

NOTE:

- **The pin 3282/50 is flattened at the side - arrow - , the flattened side should face the oil pan when inserting pin into transmission.**

- Place engine/transmission jack V.A.G 1383 A with transmission support 3282 underneath transmission.

NOTE:

- **The arrow symbol on the adjustment plate points in the direction of travel.**

- Align adjustment plate parallel with transmission.

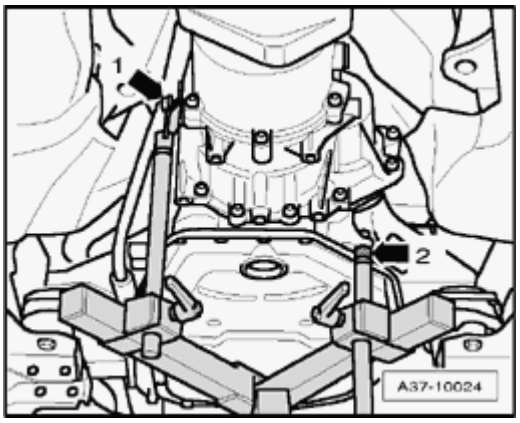

Fig. 225: Bolting Support To Left Rear Tapped Hole On Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Bolt support to left rear tapped hole on transmission - **1** - using one bolt M10x20.
- Insert flattened pin 3282/50 into mounting hole at right rear of transmission housing - **arrow 2** -.

CAUTION:

- **The flattened side of the pin must face toward the transmission oil pan to prevent the oil pan from being bent or damaged.**
- **Replace the transmission oil pan if damaged.**

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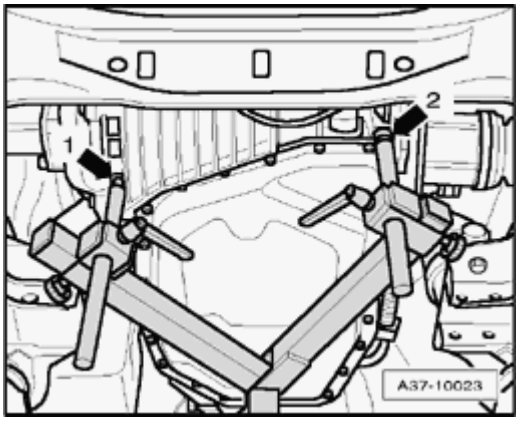

Fig. 226: Inserting Pin Into Mounting Hole At Left Front Of Transmission Housing & Recess In Housing At Right Front Of Differential Housing
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert pin into mounting hole at left front of transmission housing - **arrow 2** -.
- Insert pin into recess in housing at right front of differential housing - **arrow 1** -.
- Place drip tray in position.

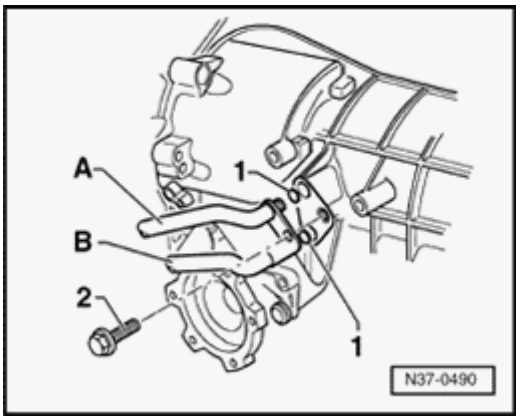

Fig. 227: Location Of ATF Lines At Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **2** -.
- Pull ATF cooling lines off transmission.
- Seal lines and transmission connections with clean sealing plugs to prevent ATF from escaping.

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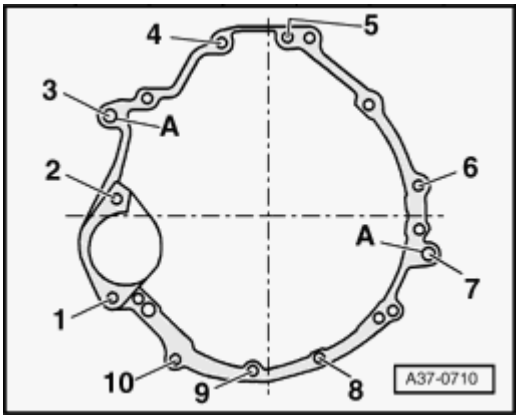

Fig. 228: Identifying Engine/Transmission Threaded Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove all remaining securing bolts between engine and transmission.
- If necessary, lower engine slightly again via spindles.

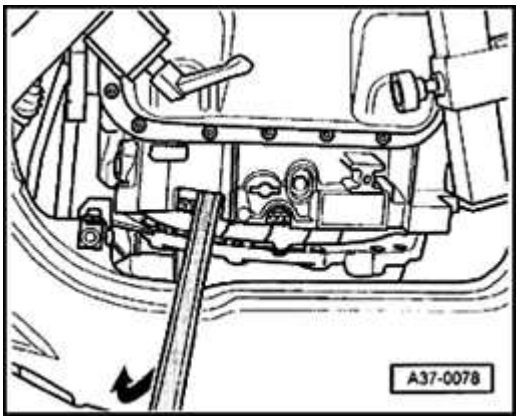

Fig. 229: Using Assembly Lever To Press Torque Converter Off Drive Plate Of Engine
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Use assembly lever to press torque converter off drive plate of engine - **arrow** -.
- Press transmission off engine.

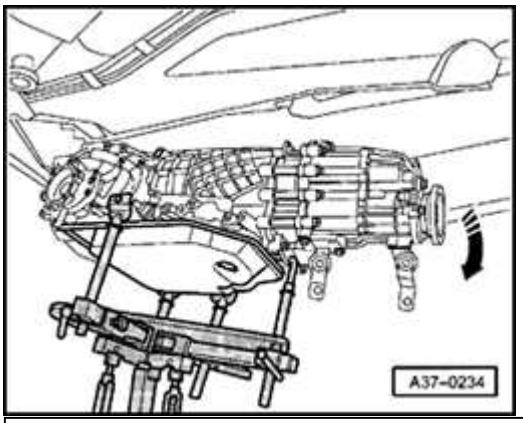

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Fig. 230: Lowering Rear Edge Of Transmission By Adjusting Transmission Support 3282 Accordingly
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Lower rear edge of transmission by adjusting transmission support 3282 accordingly.
- Guide transmission out diagonally downward/to rear.

NOTE:

- **When lowering transmission, make sure there is sufficient clearance to drive axles.**

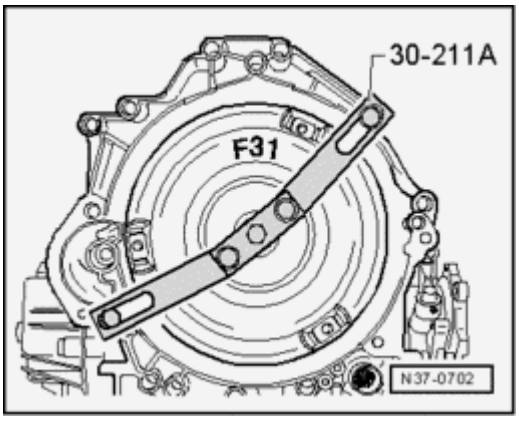

Fig. 231: Securing Torque Converter
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Secure torque converter in transmission using Bracket 30-211 A to prevent it from dropping out.

Transmission, installing (vehicles with 4.2 ltr. MPI engine)

NOTE:

- **Re-attach all cable ties at the same locations when re-installing.**
- **Secure all hose connections with the correct hose clips (as original equipment) .**
- **Re-attach heat shield sleeves at the same locations when re-installing.**
- **Replace self-locking nuts.**

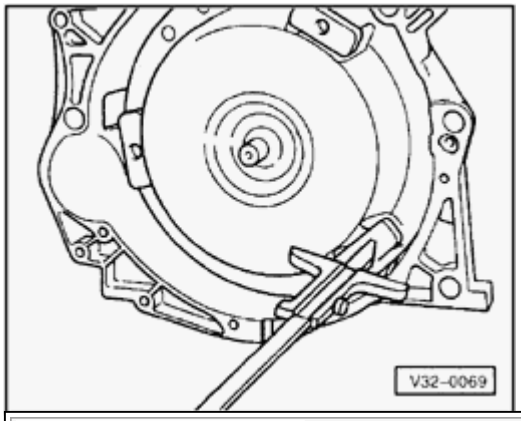

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Fig. 232: Checking Torque Converter Is Correctly Positioned
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Before installing transmission, make sure that the torque converter is properly installed in transmission.
- If torque converter is correctly installed, the depth between contact surfaces at tapped holes on torque converter and contact surface of torque converter bell housing is at least 19 mm.

CAUTION: If the torque converter is not installed correctly, the torque converter drive lugs or the ATF pump will be seriously damaged when the transmission is joined to the engine.

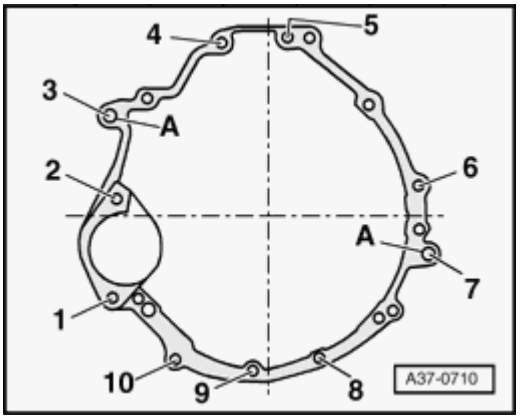

Fig. 233: Identifying Engine/Transmission Threaded Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Before installing transmission, check for correct positioning of dowel sleeves - **A** - at cylinder block. Install new dowel sleeves if necessary.
- If an intermediate plate was installed between engine and transmission, reinstall plate in same position.
- When pushing engine and transmission together, make sure that no cables, lines, etc. can become trapped.

CAUTION: Before and while tightening the bolts on the engine/transmission flange keep checking that the torque converter can still be rotated behind the drive plate. If the converter cannot be turned, it must be assumed that it has not been installed correctly and the drive lugs on the converter or the ATF pump will be damaged when the bolts are fully tightened.

- Bolt transmission onto engine **Illustration of transmission flange**.
- Use new ribbed bolts to secure torque converter to drive plate. Use only correct bolts (same as original equipment) .

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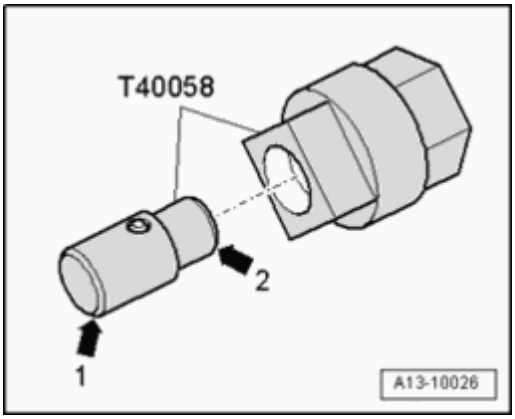

Fig. 234: Inserting Guide Pin Of Adapter T40058
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert guide pin of adapter T40058 so that the large diameter - **arrow 1** - faces engine. The smaller diameter - **arrow 2** - faces adapter.
- Counter-hold crankshaft using adapter T40058 to secure torque converter bolts.

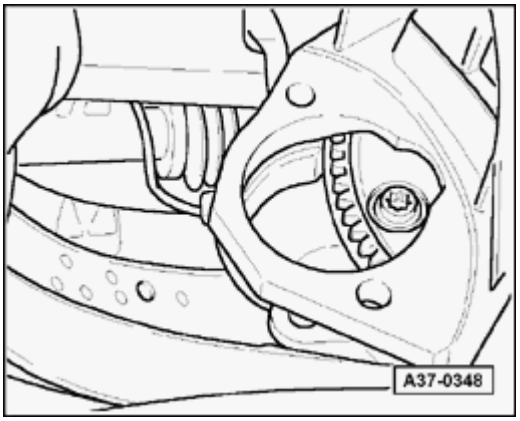

Fig. 235: Removing Bolts From Torque Converter Through Opening For Starter
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install 3 torque converter bolts through opening for starter (finger-tight). Turn crankshaft $^{1}/_{3}$ of a turn to access one bolt after another.
- Tighten torque converter bolts to torque (turning crankshaft $^{1}/_{3}$ turn each time).

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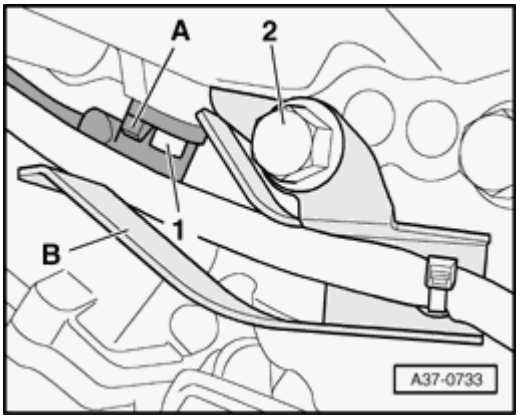

Fig. 236: Identifying Bolt, Heat Shield, Bolt & Engine Speed (RPM) Sensor G28
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert engine speed (RPM) sensor G28 - **item A** - into bell housing (top left) and tighten bolt - **1** -.
- Install heat shield - **B** - and tighten bolt - **2** - (transmission/engine bolt connection **Illustration of transmission flange**)

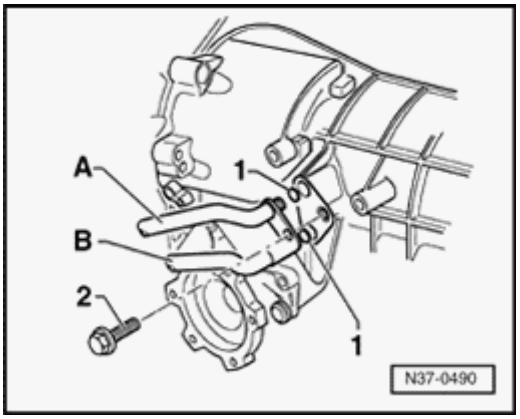

Fig. 237: Location Of ATF Lines At Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert ATF cooling lines - **A** - and - **B** - into transmission as far as possible and tighten bolt - **2** -.

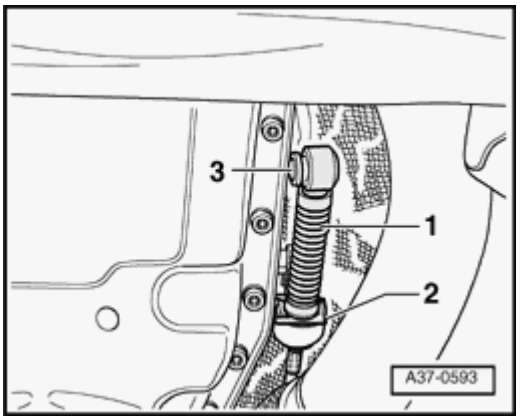

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Fig. 238: Pressing Selector Lever Cable Onto Ball Head Of Selector Shaft Lever
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press selector lever cable - **1** - onto selector shaft lever - **3** -.
- Install starter -->
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** for ELECTRICAL EQUIPMENT, CABRIOLET

  .
- Install transmission support with transmission mounting --> **Transmission support and transmission mounting, removing and installing (left and right)**.
- Install front exhaust pipes -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
  - **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): BNS
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

  .

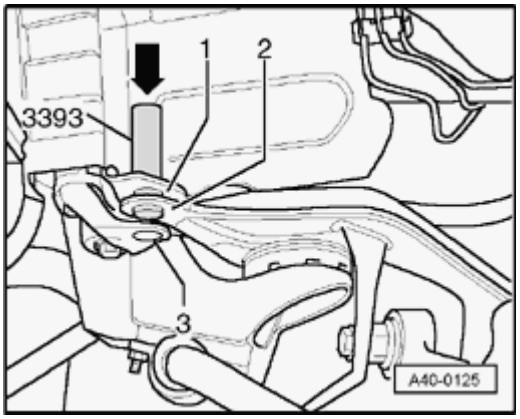

Fig. 239: Checking Holes Align Using Testing Mandrel 3393
Courtesy of VOLKSWAGEN UNITED STATES, INC.

If measurement performed with locating pin 3393 during removal showed that holes - **1** - and - **2** - were aligned:

- Install subframe, observing tightening sequence --> **40 - FRONT SUSPENSION** .

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If measurement performed with locating pin 3393 during removal showed that holes - **1** - and - **2** - were NOT aligned:

- Only tighten bolts for subframe to tightening torque setting, do not yet turn further (wait until wheel alignment has been carried out).

CAUTION: The vehicle must not be driven.

- Clean ATF lines and ATF cooler --> **ATF cooling lines and ATF cooler, cleaning**.
- Secure ATF lines to transmission and engine --> **ATF cooling lines**.

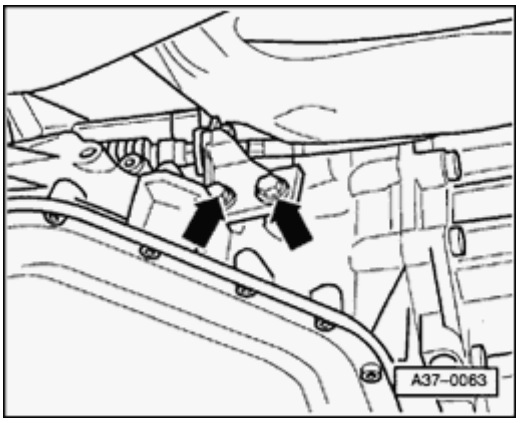

Fig. 240: Identifying Cable Support Bracket To Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Bolt on support bracket for selector lever cable - **arrows** -.
- Secure driveshaft to transmission -->
  - **39 FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE
  - **39 - FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE 0AR

.

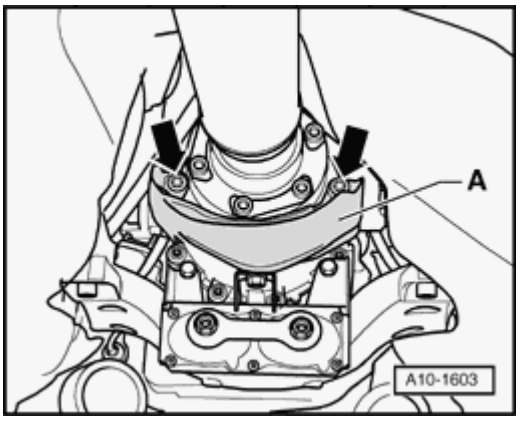

Fig. 241: Removing/Installing Heat Shield For Driveshaft

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Secure heat shield - **A** - for driveshaft - **arrows** -.
- Install exhaust system free of stress -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
  - **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): BNS
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

  .
- Bolt drive axles to flange shafts --> **40 - FRONT SUSPENSION** .

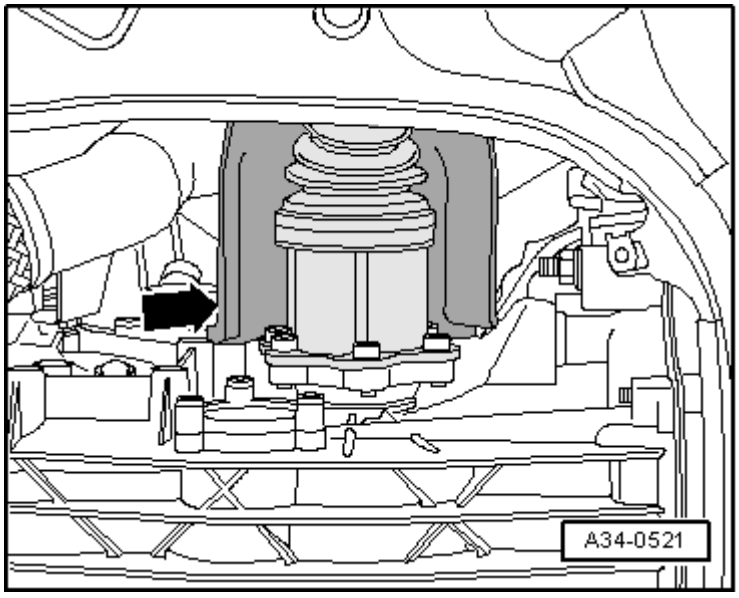

Fig. 242: Drive Axle Heat Shield
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install heat shields - **arrow** - for drive axles (left and right).
- Adjust selector lever cable --> **Selector lever cable, checking and adjusting**.
- Check oil level in final drive (front) --> **Front final drive gear oil**.
- Check oil level in transfer gear--> **Transfer gear oil**.

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- Follow steps required after connecting battery -->
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** for ELECTRICAL EQUIPMENT, CABRIOLET

  .
- Check ATF level --> **ATF level, checking and correcting**.
- If necessary, carry out wheel alignment --> **44 - WHEELS, TIRES, VEHICLE ALIGNMENT** .

CAUTION: After wheel alignment tighten subframe bolts to their final torque setting.

Tightening torques

NOTE:

- **Tightening torques only apply to lightly greased, oiled, phosphated or blackened nuts and bolts.**
- **Lubricants such as engine or transmission oil may be used, but do not use graphite lubricant.**
- **Do not use parts which have been degreased.**

Drive plate to torque converter	Nm
Ribbed bolts, M10x1x21.5 (3x) * See note* See note	
4.2 ltr. MPI engine	85

*Replace bolts.

*Use new bolts (same as original equipment) .

Illustration of transmission flange

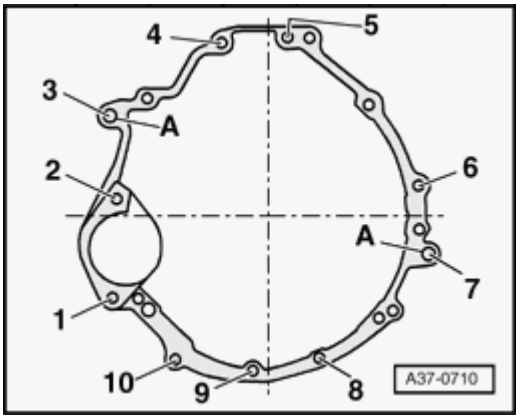

Fig. 243: Identifying Engine/Transmission Threaded Connections

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

A: dowel sleeves for centralizing

Securing engine to transmission:

Item	Bolt	Nm
1	M12x80	65 * See note
8	M10x60	45
9	M10x60	45
10	M10x60	45

*Also secures starter.

Securing transmission to engine:

Item	Bolt	Nm
2	M12x105	65
3	M12x110	65
4	M12x105	65
5	M12x105	65
6	M12x130	65 * See note
7	M12x170	65

*Also secures a heat shield.

Component	Nm
Engine speed (RPM) sensor G28 to transmission	10
Bracket for ATF lines to transmission	21
Bracket for exhaust pipe lug.	23
Heat shields above drive axles to transmission	23
Heat shield for driveshaft to transmission cover	25
Bracket for sound insulation to subframe	10
Support bracket to transmission	10

Transmission support and transmission mounting, removing and installing (left and right)

Special tools, testers and auxiliary items required

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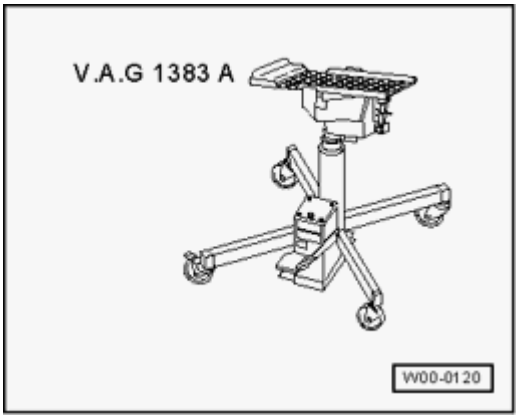

Fig. 244: Identifying Engine/Transmission Jack V.A.G. 1383 A
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Engine/transmission jack V.A.G 1383 A

Removing

- Remove front exhaust pipe on relevant side of transmission -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
  - **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): BNS
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

.

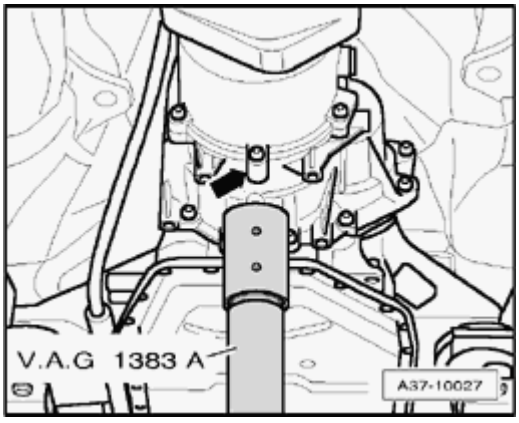

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Fig. 245: Placing Lifting Surface Of Engine/Transmission Jack V.A.G 1383 A Centrally On Lower Housing Base
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Detach universal mounting bracket V.A.G 1359/2 from engine/transmission jack V.A.G 1383 A.
- Place telescopic arm of engine/transmission jack V.A.G 1383 A centrally below cast lug on transmission housing - **arrow** - and support transmission from below.

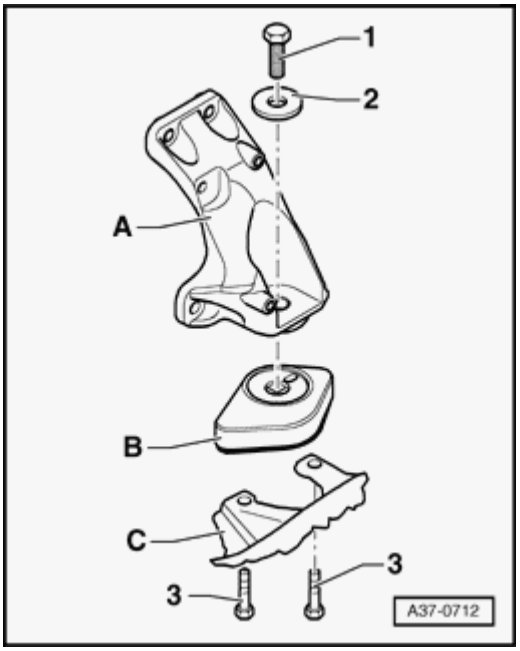

Fig. 246: Removing/Installing Securing Bolts (Left/Right) For Transmission Mounting At Subframe
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove securing bolts (left and right) - **3** - for transmission mounting - **B** - at subframe - **C** -.

NOTE:

- **Always remove both transmission mountings from the subframe.**

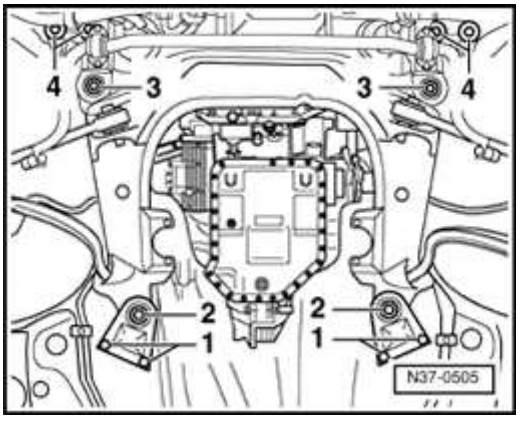

Fig. 247: Remove Bolts 2- And At Front And Rear Of Subframe On Both Sides Of Vehicle

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **1** - and - **2** - and lower subframe at rear.

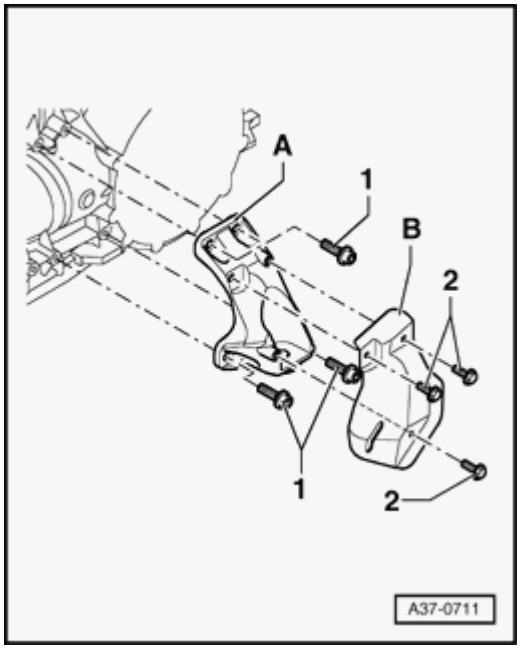

Fig. 248: Removing/Installing Bolts, Heat Shield, Transmission Support
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Lower transmission slightly with engine/transmission jack V.A.G 1383 A to make bolts - **1** - and - **2** - more accessible.
- Remove bolts - **2** -.
- Remove heat shield - **B** -.

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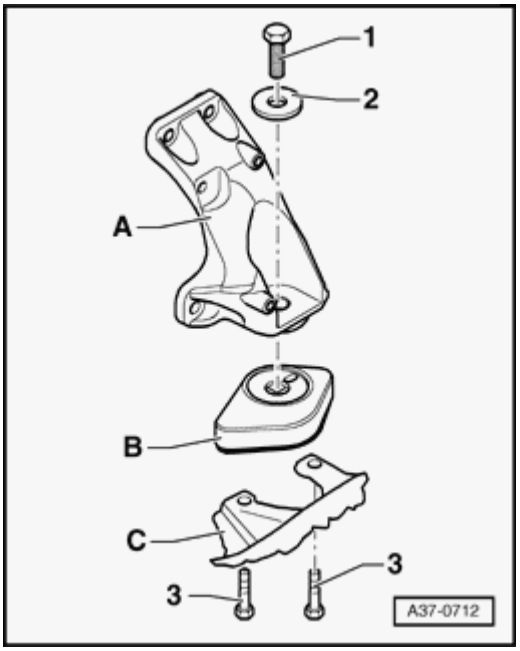

Fig. 249: Removing/Installing Securing Bolts (Left/Right) For Transmission Mounting At Subframe
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Removing transmission mounting - B -

- Remove bolt - **1** -.
- Detach transmission mounting - **B** -.

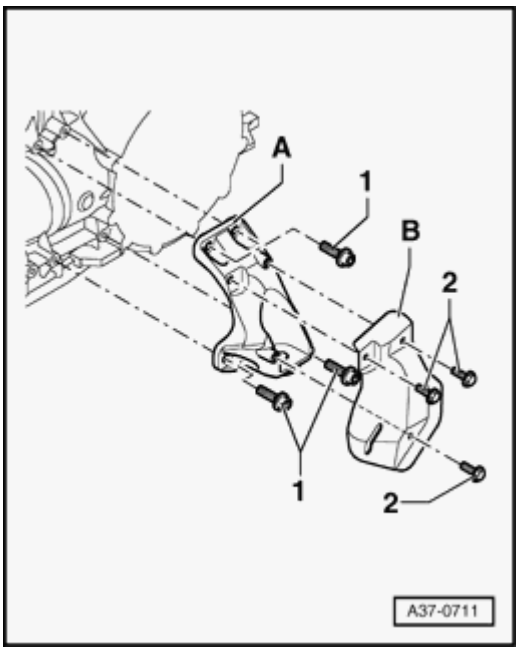

Fig. 250: Removing/Installing Bolts, Heat Shield, Transmission Support
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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Removing transmission support

- Remove bolts - **1** -.
- Remove transmission support - **A** - with transmission mounting.

Installing

Installation is performed in reverse sequence. Note the following:

- Install transmission supports.
- Install subframe, observing tightening sequence --> **40 - FRONT SUSPENSION** .

NOTE:

- **Do not tighten transmission mountings to subframe to specified torque until re-installation of subframe has been completed.**

- To avoid tension you may have to re-align transmission mounting and transmission support.
- Tighten all bolts to specified torque.

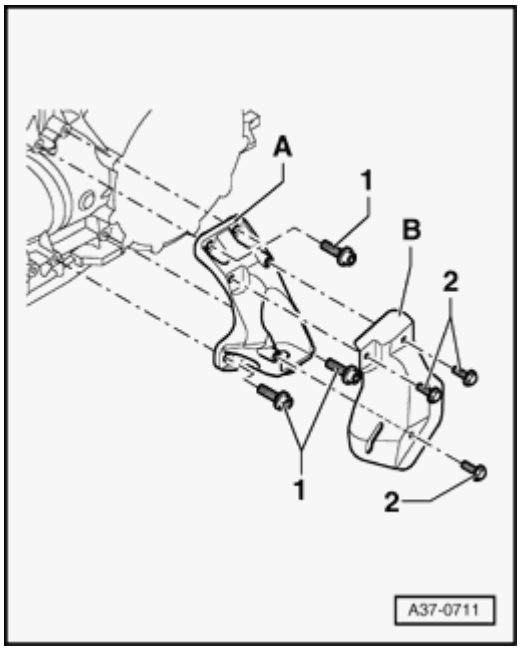

Fig. 251: Removing/Installing Bolts, Heat Shield, Transmission Support
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Tightening torques for transmission support and heat shield (left and right)

1. Bolt (3x) for securing transmission support to transmission, 23 Nm
2. Bolt (3x) for securing heat shield to transmission support, 10 Nm

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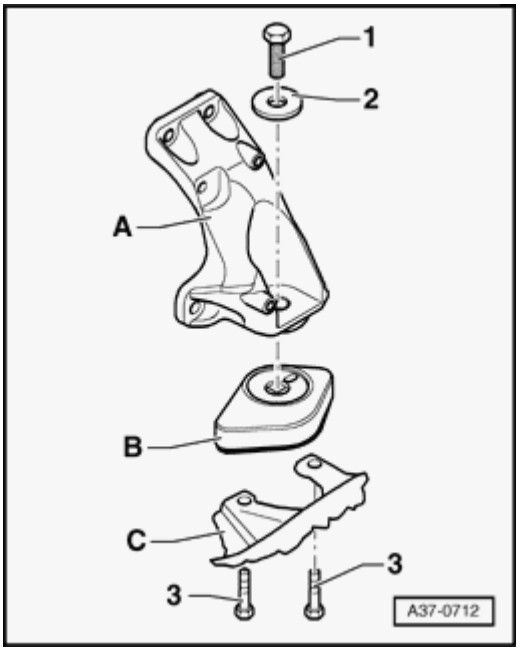

Fig. 252: Removing/Installing Securing Bolts (Left/Right) For Transmission Mounting At Subframe
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Tightening torques for transmission mountings (left and right)

1. Bolt (1x) for securing transmission mounting to transmission support, 50 Nm
2. Washer
3. Bolt (2x) for securing transmission mounting to subframe, 23 Nm

- Install front exhaust pipe -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
  - **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): BNS
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

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Transmission, transporting

Special tools, testers and auxiliary items required

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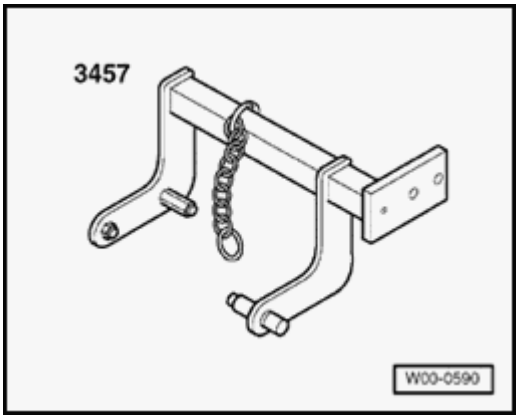

Fig. 253: Identifying Special Tools - Automatic Transmission, Transporting
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Attachment and holding rig. 3457

Procedure

Attachment and holding rig. 3457 can be used to transport automatic transmission and also when setting up transmission support 3282.

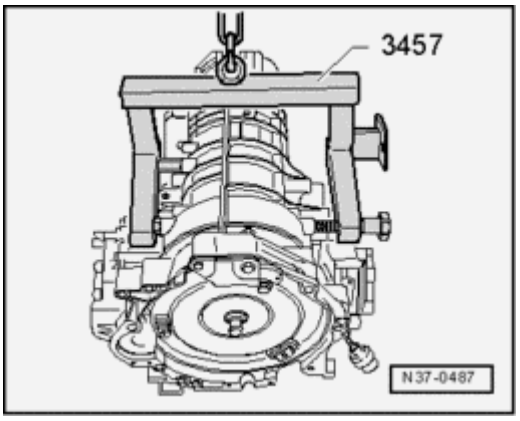

Fig. 254: Special Tool 3457 Attachment To Transmission Housing
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install attachment and holding rig. 3457 to attachment points on transmission housing and secure in place.

Transmission, securing to assembly stand

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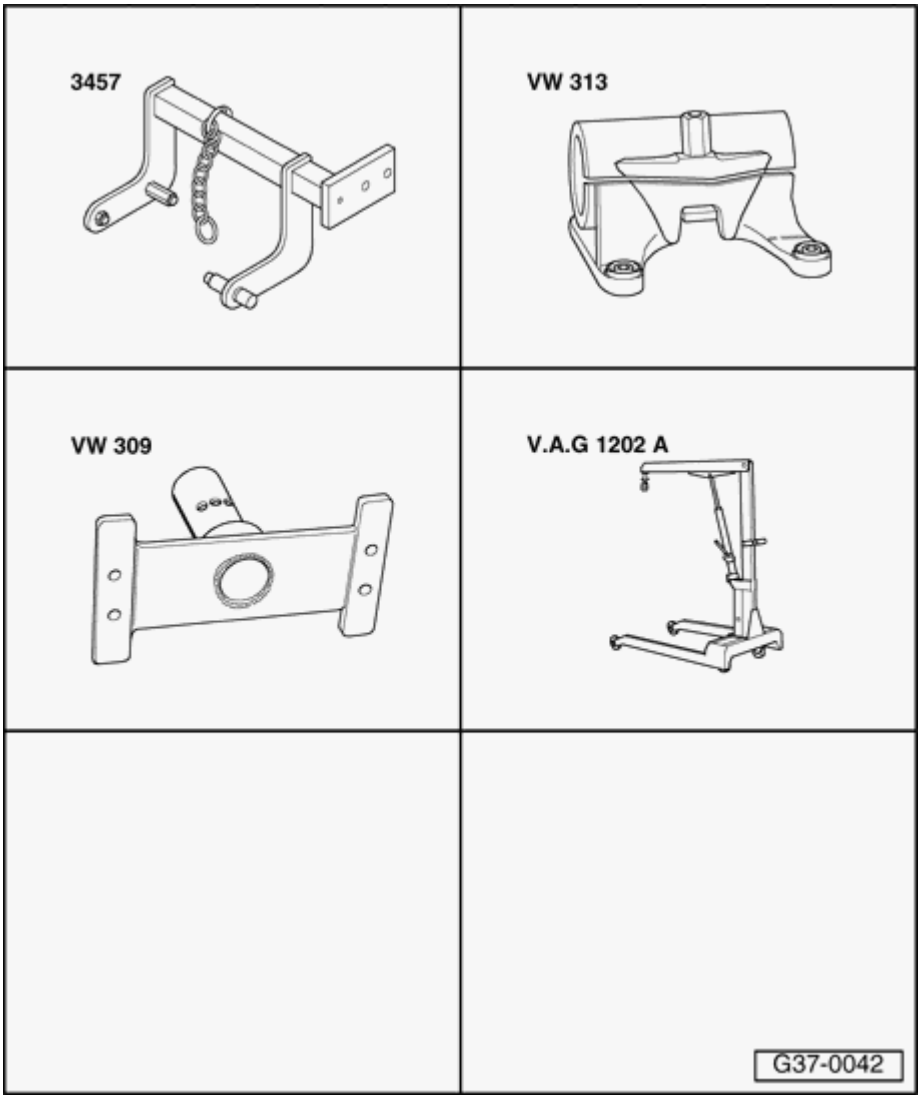

Fig. 255: Identifying Special Tools - Transmission, Securing To Assembly Stand
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Attachment and holding rig. 3457
- Support clamp VW 313
- Support plate VW 309
- Workshop crane V.A.G 1202 A or workshop crane VAS 6100

- Transmission is removed

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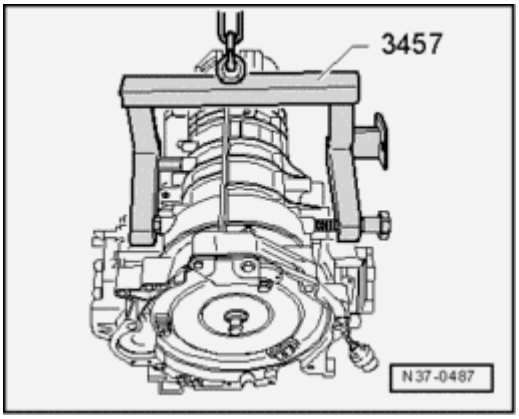

Fig. 256: Special Tool 3457 Attachment To Transmission Housing
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install attachment and holding rig. 3457 to attachment points on transmission housing and secure in place.
- Bolt transportation tool onto support plate VW 309 and install into support clamp VW 313 with the aid of workshop crane.

CAUTION: The center of gravity of the transmission is outside the pivot center of the support clamp. A second technician has to hold the transmission housing when it is being turned to prevent it from swinging round.

NOTE:

- **If the installed transmission with oil pan is to be turned upside down on assembly stand, seal the transmission housing and final drive breathers.**

PLANETARY GEARBOX AUTOMATIC TRANSMISSION FLUID (ATF)

Planetary gearbox Automatic Transmission Fluid (ATF)

NOTE:

- **Read the rules for cleanliness when working on the automatic transmission --> Rules for cleanliness.**

ATF level, checking and correcting

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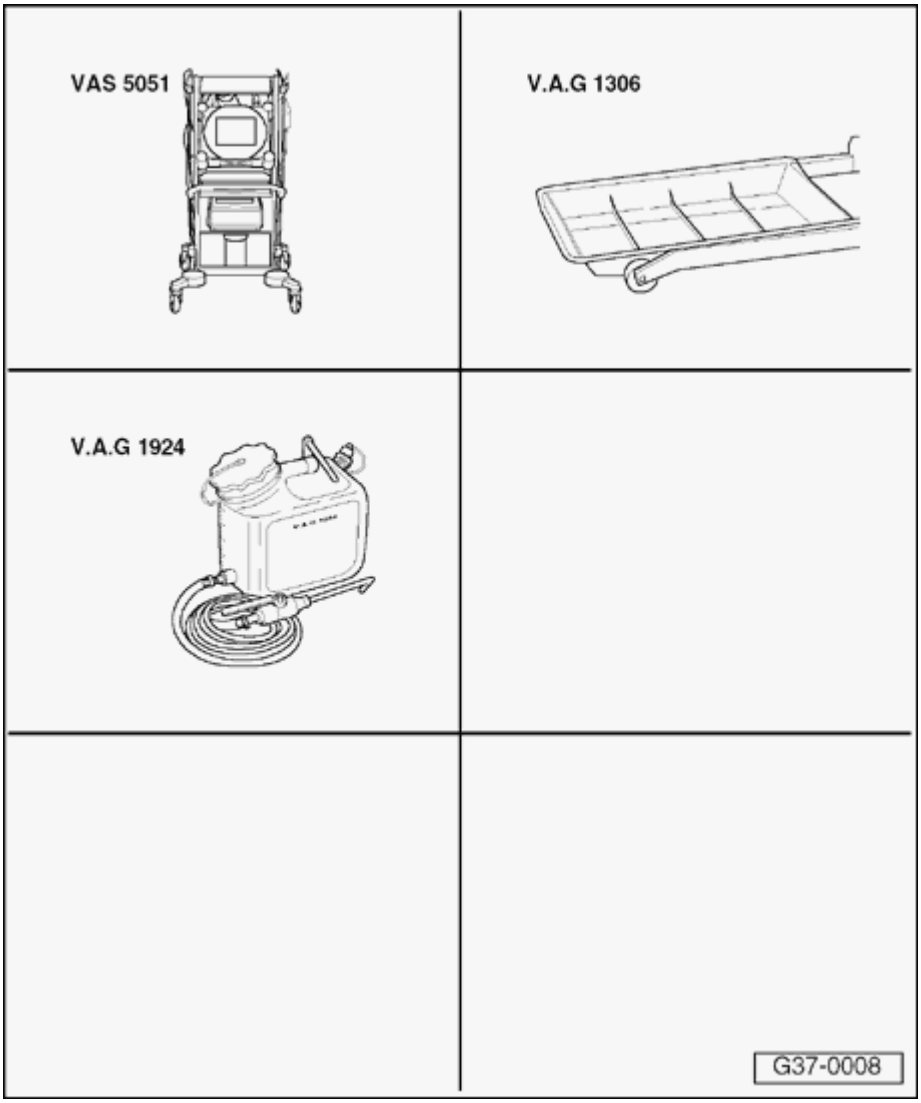

Fig. 257: Identifying Special Tools - ATF Level, Checking And Correcting
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Vehicle diagnostic, testing and information system VAS 5051 A
- Drip tray V.A.G 1306
- ATF charging device V.A.G 1924
- Safety goggles

Conditions

- Transmission must not be in emergency running (backup) mode.
- Vehicle must be level (horizontal).
- Selector lever in position "P", engine idling.

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- Air conditioner and heating system switched off.
- Vehicle diagnostic, testing and information system VAS 5051 A connected; vehicle self-diagnosis and vehicle system "02 - gearbox electronics" selected.
- The ATF temperature at the beginning of the test must not be higher than 30° C. If necessary, first allow the transmission to cool down.

NOTE:

- **The ATF temperature is taken from the reading on the vehicle diagnostic, testing and information system VAS 5051 A.**
- **The ATF level will vary according to the ATF temperature.**
- **If the ATF level is checked when the ATF temperature is too low, this will result in overfilling.**
- **If the level is checked when the ATF temperature is too high, this will result in underfilling.**
- **Both overfilling and underfilling have a detrimental effect on the functioning of the transmission.**
- **Use only correct type of ATF (available as a replacement part) for the planetary gearing in automatic transmission 09L. Other oils cause faults and/or failure of the transmission; for ATF specification refer to --> Capacities .**

ATF temperature reading

Display on VAS 5051 A:

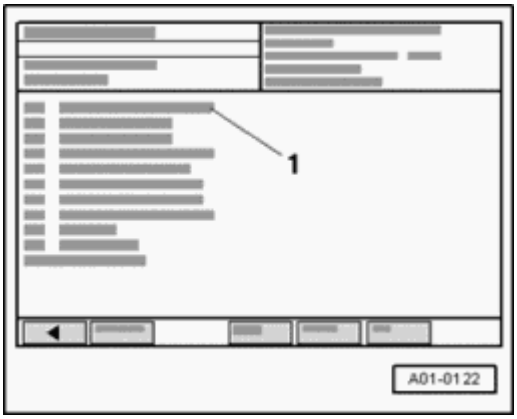

Fig. 258: Diagnostic System VAS 5051: Display
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- From list - **1** - select diagnostic function "08 - Read data block (measured value block)".

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Fig. 259: Diagnostic System VAS 5051: Display
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Display on VAS 5051 A:

1 - Enter display group

- Use keypad - **2** - to enter "4" for "Display group number 4" and confirm by touching Q key.

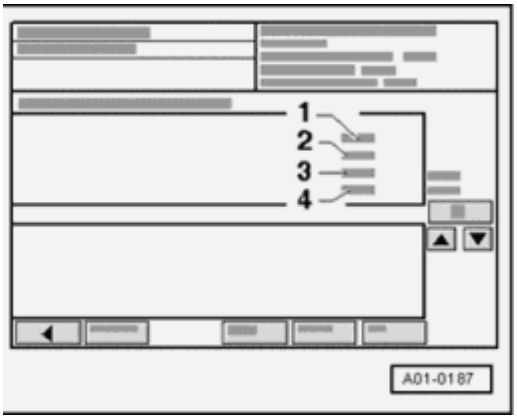

Fig. 260: Diagnostic System VAS 5051: Display
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Display on VAS 5051 A:

- Reading for ATF temperature is shown in display zone - **1** -.

Checking and correcting ATF level

NOTE:

- **The ATF level is checked at the ATF inspection plug.**
- **The ATF level is correct if a small amount of fluid comes out at the ATF inspection plug when ATF temperature is between 35° C and 45° C, or 50° C in hot climates (the fluid level rises due to expansion as it warms up).**

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- Drive vehicle onto a four-column hoist or over an inspection pit so that it is absolutely horizontal.
- Fill container of ATF charging device V.A.G 1924 with ATF for automatic transmission 09L; ATF specification --> **Capacities** .

CAUTION: The ATF charging device must be clean and the ATF must not be mixed with other types of ATF!

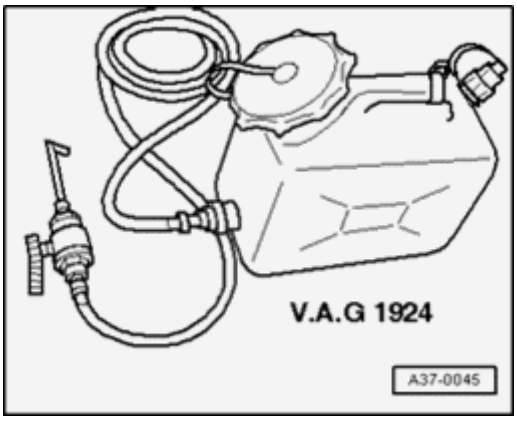

Fig. 261: Securing Container Of ATF Filler Tool VAG1924 As High Up On Vehicle As Possible
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Secure reservoir for ATF charging device V.A.G 1924 as high as possible on vehicle.
- Start engine and let it idle.
- Place drip tray V.A.G 1306 under transmission.

CAUTION: Wear safety goggles.

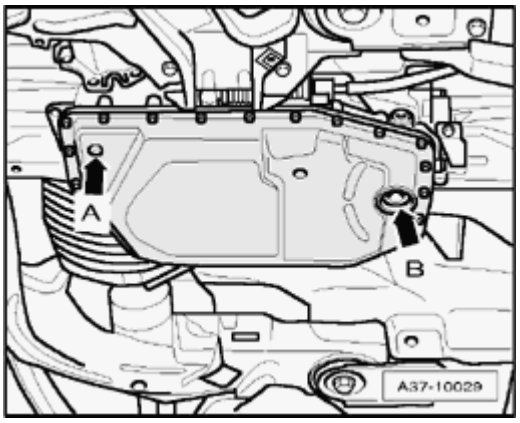

Fig. 262: Identifying ATF Inspection Plug
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- When an ATF temperature of 35° C is reached, remove ATF inspection plug - **arrow B** - and drain off

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any surplus ATF.

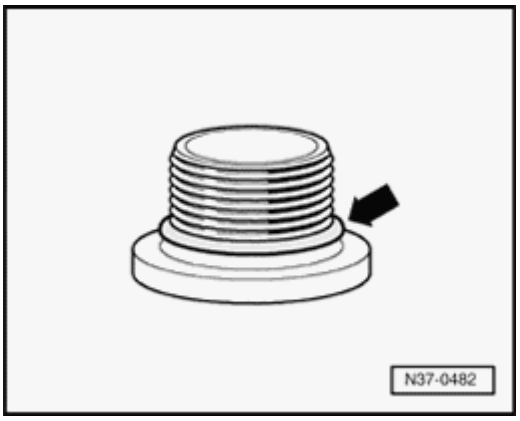

Fig. 263: Filler Plug Seal
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Replace seal - **arrow** - for ATF inspection plug.

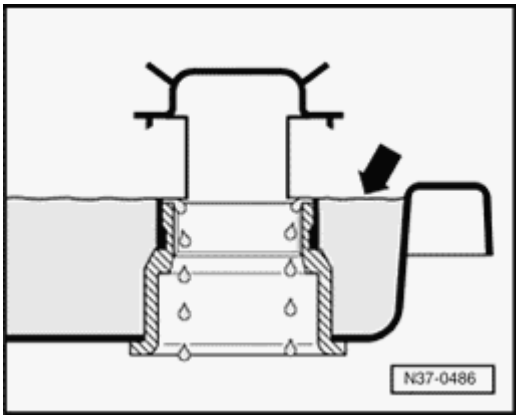

Fig. 264: Correct ATF Level
Courtesy of VOLKSWAGEN UNITED STATES, INC.

If ATF comes out of inspection hole before ATF has reached 40° C the ATF level - **arrow** - is OK.

NOTE:

- **The ATF inspection plug must be screwed in again at the latest when ATF reaches a temperature of 45° C (or 50° C in hot climates).**

If no ATF emerges from ATF inspection hole when ATF has reached 45° C, top off with ATF.

- Install new seal on ATF inspection plug and tighten to 80 Nm. The ATF check is now completed.
- End function "08 - Read data block (measured value block)" by touching <-- key.
- Press "06 - End output".
- Switch off ignition and disconnect diagnostic connector.

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Filling up ATF

If no ATF emerges from ATF inspection hole when ATF has reached 40° C, top off with ATF.

NOTE:

- **The ATF inspection plug must be screwed in again at the latest when ATF temperature reaches 45° C (or 50° C in hot climates). If necessary, switch off the engine, allow transmission to cool down and repeat the test.**

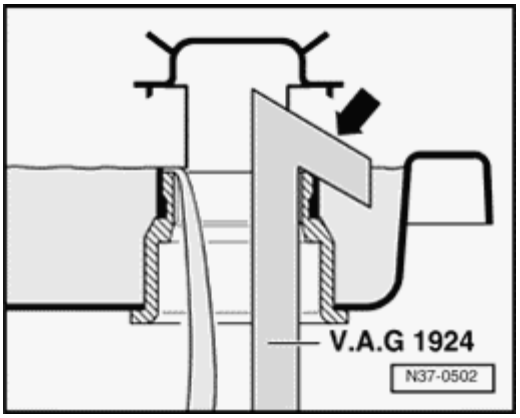

Fig. 265: Fill With ATF Using V.A.G 1924
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Guide filler nozzle of ATF charging device V.A.G 1924 in from below through an opening in deflector cap - **arrow** - , taking care not to push deflector cap upward out of position.
- Fill with ATF using ATF charging device V.A.G 1924 until ATF comes out of inspection hole.

NOTE:

- **The ATF level must not be too low or too high, otherwise this would impair the function of the transmission.**

- Install new seal on ATF inspection plug and tighten to 80 Nm.
- End function "08 - Read data block (measured value block)" by touching <-- key.
- Press "06 - End output".
- Switch off ignition and disconnect diagnostic connector.

Draining ATF or filling after repairs

Special tools, testers and auxiliary items required

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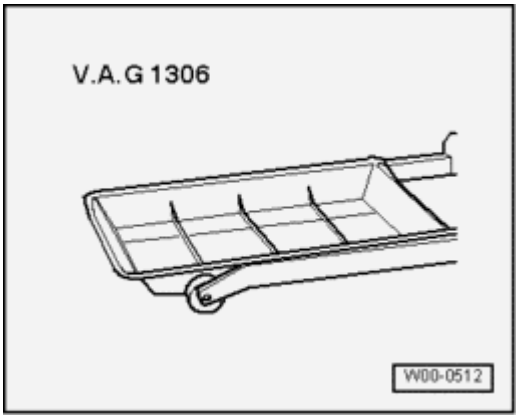

Fig. 266: Identifying Drip Tray V.A.G 1306
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray V.A.G 1306

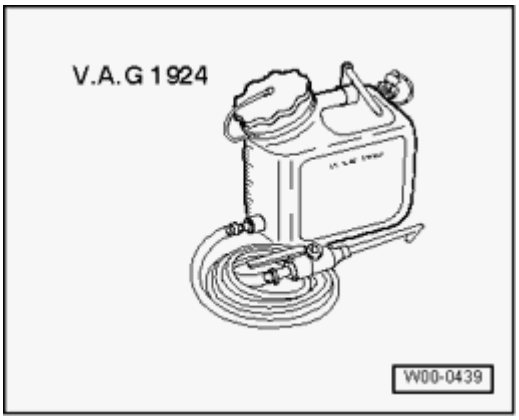

Fig. 267: V.A.G 1924 Reservoir
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- ATF charging device V.A.G 1924
- Safety goggles

Procedure

- Engine not running.

- Drive vehicle onto a four-column hoist or over an inspection pit so that it is absolutely horizontal.
- Fill container of ATF charging device V.A.G 1924 with ATF for automatic transmission 09L; ATF specification --> **Capacities** .

CAUTION: The ATF charging device must be clean and the ATF must not be mixed with other types of ATF!

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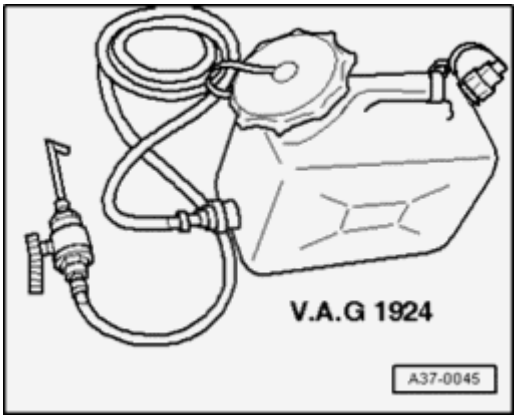

Fig. 268: Securing Container Of ATF Filler Tool VAG1924 As High Up On Vehicle As Possible
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Secure reservoir for ATF charging device V.A.G 1924 as high as possible on vehicle.

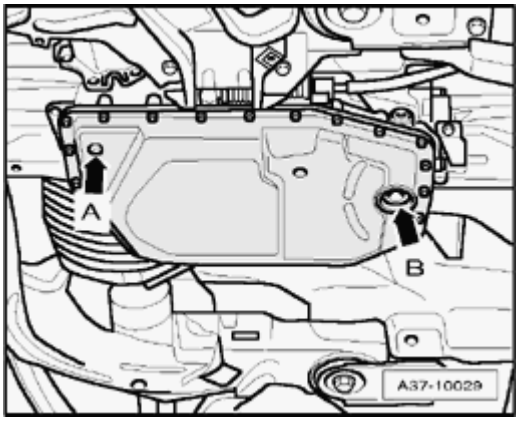

Fig. 269: Identifying ATF Inspection Plug
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Draining ATF

- Place drip tray V.A.G 1306 under transmission.

CAUTION: Wear safety goggles.

- Remove ATF drain plug - **arrow A** -.
- Drain ATF.

NOTE:

- **Observe relevant disposal regulations.**
- **The engine must not be started and vehicle must not be towed without ATF in transmission.**

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

- Tighten new drain plug - **arrow A** - to 12 Nm.

Filling with ATF

- Remove ATF inspection plug - **arrow B** -.

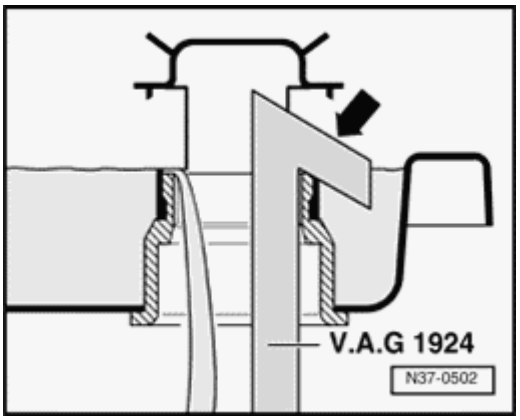

Fig. 270: Fill With ATF Using V.A.G 1924
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Guide filler nozzle of ATF charging device V.A.G 1924 in from below through an opening in deflector cap - **arrow** - , taking care not to push deflector cap upward out of position.
- Fill with ATF using ATF charging device V.A.G 1924 until ATF comes out of inspection hole.
- Shift selector lever to position "P".
- Start engine and let it idle.

- Continue filling with ATF using ATF charging device V.A.G 1924 until ATF comes out of inspection hole again.
- Tighten ATF inspection plug.
- With engine idling, press brake pedal and shift selector lever through all selector lever positions leaving selector lever at least 10 seconds in each position.
- Shift selector lever to position "N".

- Increase engine speed to 2000 rpm and maintain for at least 60 seconds.
- Shift selector lever to position "P".
- Check ATF level --> **ATF level, checking and correcting**.

NOTE:

- **Observe all notes and test requirements for "Checking and correcting ATF level".**

ATF COOLING LINES

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ATF cooling lines

NOTE:

- **General repair instructions --> General repair instructions.**

ATF cooling lines, component overview (vehicles with 2.0 ltr. TFSI engine)

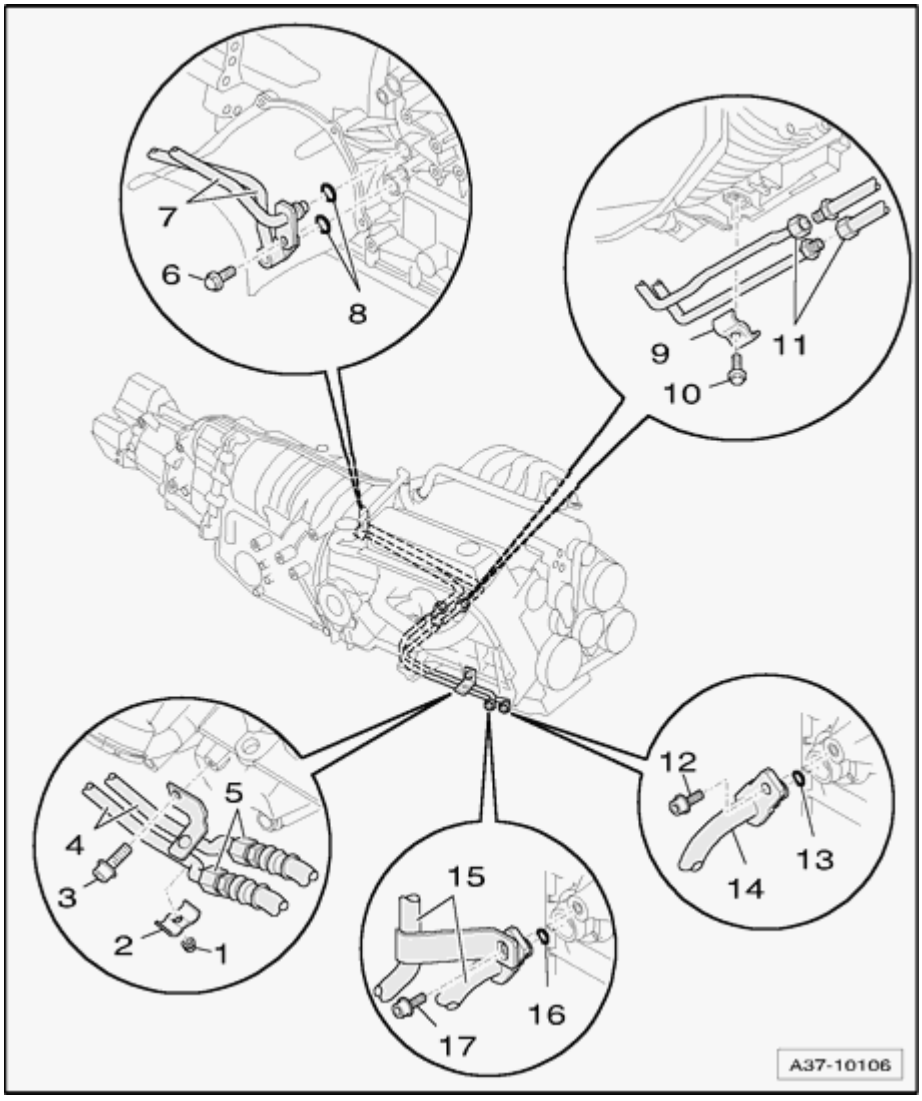

Fig. 271: ATF Cooling Lines, Component Overview (Vehicles With 2.0 ltr. TFSI Engine)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Nut, 8 Nm

2 - Clip

3 - Bolt, 42 Nm

4 - ATF lines

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5 - Union nuts, 29 Nm

6 - Bolt, 21 Nm

- Before tightening bolt, push in ATF lines onto stop by hand

7 - ATF lines

- Before tightening bolt, push in ATF lines onto stop by hand

8 - O-rings

- Replace
- Lubricate with ATF when installing

9 - Clip

10 - Bolt, 5 Nm

- Secures ATF lines to transmission

11 - Union nuts, 29 Nm

12 - Bolt, 5 Nm

- Secures ATF line at ATF cooler (top)
- Before tightening bolt, push in ATF line onto stop by hand

13 - O-ring

- Replace
- Lubricate with ATF when installing

14 - ATF line

- Inserted into ATF cooler (top)
- Before tightening bolt, push in ATF line onto stop by hand

15 - ATF lines

- Inserted into ATF cooler (bottom)
- Before tightening bolt, push in ATF lines onto stop by hand

16 - O-ring

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- Replace
- Lubricate with ATF when installing

17 - Bolt, 5 Nm

- Secures ATF lines to transmission
- Before tightening bolt, push in ATF lines onto stop by hand

ATF cooling lines, component overview (vehicles with 4.2 ltr. MPI engine)

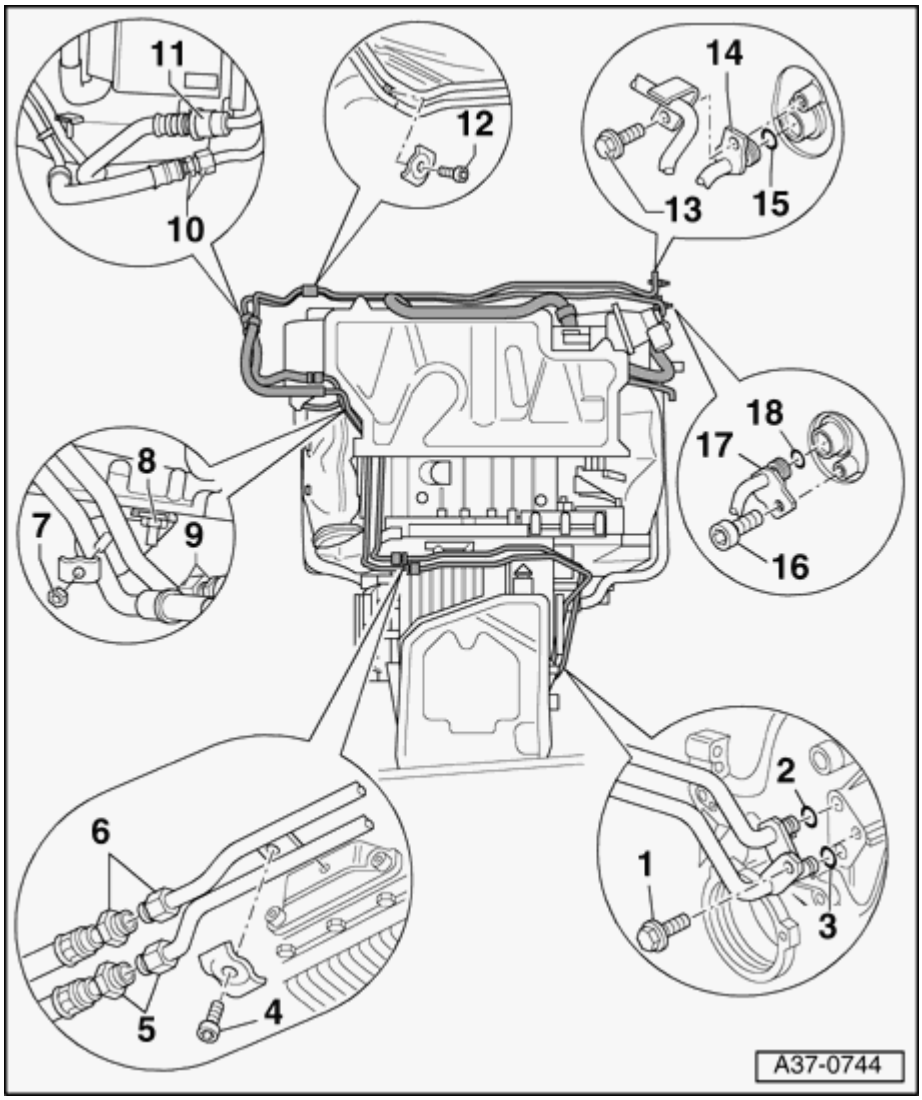

Fig. 272: ATF Cooling Lines, Component Overview (Vehicles With 4.2 ltr. MPI Engine)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Bolt, 21 Nm

- Before tightening bolt, push in line onto stop by hand

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2 - O-ring

- Replace
- Lubricate with ATF when installing

3 - O-ring

- Replace
- Lubricate with ATF when installing

4 - Bolt -5 Nm-

- For securing ATF lines to transmission

5 - Union nut, 29 Nm

6 - Union nut, 29 Nm

7 - Nut, 5 Nm

- For securing ATF lines to bracket

8 - Nut, 5 Nm

- For securing bracket to transmission

9 - Union nut, 29 Nm

10 - Union nut, 29 Nm

11 - Plug connector

12 - Bolt, 5 Nm

- For securing ATF lines at front end

13 - Bolt, 5 Nm

- Before tightening bolt, push in line onto stop by hand
- For securing ATF line to bracket at ATF cooler (bottom)

14 - ATF line

- Inserted into ATF cooler (bottom)
- Before tightening bolt, push in ATF line onto stop by hand

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15 - O-ring

- Replace
- Lubricate with ATF when installing

16 - Bolt, 5 Nm

- For securing ATF line at ATF cooler (top)
- Before tightening bolt, push in line onto stop by hand

17 - ATF line

- Inserted into ATF cooler (top)
- Before tightening bolt, push in ATF line onto stop by hand

18 - O-ring

- Replace
- Lubricate with ATF when installing

ATF cooling lines, removing and installing

Special tools, testers and auxiliary items required

- Drip tray
- Safety goggles

NOTE:

- **Read the rules for cleanliness when working on the automatic transmission --> Rules for cleanliness.**
- **Thoroughly clean all joints and surrounding areas before disassembling.**

Removing

- Mark position of all ATF cooling lines in relation to one another with different colors to avoid confusion.
- Place drip tray V.A.G 1306 underneath.

CAUTION: Wear safety goggles.

- Disconnect ATF cooling lines.
- Seal opened cooling lines with clean sealing plugs.

Installing

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Installation is performed in reverse sequence. Note the following:

- Clean ATF lines --> **ATF cooling lines and ATF cooler, cleaning**.
- Lightly lubricate O-rings with ATF.
- First press ATF lines onto transmission or cooler by hand until they engage, then secure lines --> **ATF cooling lines, component overview (vehicles with 4.2 ltr. MPI engine)**.
- Check ATF level --> **ATF level, checking and correcting**.

ATF cooling lines and ATF cooler, cleaning

Special tools, testers and auxiliary items required

- Compressed air gun (commercially available)
- Hose, approx. 18 mm dia.
- Drip tray

NOTE:

- **Always clean ATF cooling lines and ATF cooler before installing a replacement transmission.**
- **Read the rules for cleanliness when working on the automatic transmission --> Rules for cleanliness.**
- **Thoroughly clean all joints and surrounding areas before disassembling.**

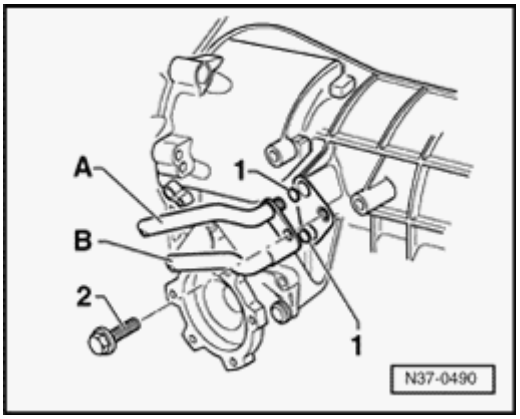

Fig. 273: Location Of ATF Lines At Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Procedure

- Place drip tray underneath.
- Remove bolt - **2** -.
- Connect a hose approx. 18 mm dia. to ATF line - **A** - and secure with a hose clamp. Place other end of hose in drip tray.

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CAUTION: Wear safety goggles.

- Blow through ATF line - **B** - using a compressed air line (max. 10 bar).
- Change hose from ATF line - **A** - over to ATF line - **B** - and repeat sequence.
- Press ATF cooling lines onto transmission or cooler by hand until they engage, then tighten --> **ATF cooling lines, component overview (vehicles with 4.2 ltr. MPI engine)**.
- Check ATF level --> **ATF level, checking and correcting**.

38 GEARS, CONTROL

OIL PAN, ATF STRAINER AND MECHATRONICS UNIT, REMOVING AND INSTALLING

Oil pan, ATF strainer and mechatronics unit, removing and installing

CAUTION: Do not run engine or tow vehicle with oil pan removed or when there is no ATF in the transmission.

NOTE:

- **General repair instructions --> General repair instructions.**
- **Read the rules for cleanliness when working on the automatic transmission --> Rules for cleanliness.**
- **Always replace mechatronics unit if contaminated or faulty.**
- **Lightly lubricate O-rings and seals with ATF. Other types of lubricant will cause the transmission hydraulics to malfunction.**

Oil pan, removing and installing

Special tools, testers and auxiliary items required

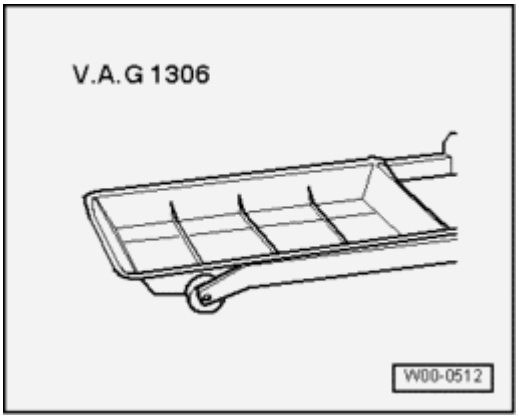

Fig. 274: Identifying Drip Tray V.A.G 1306
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Drip tray V.A.G 1306
- Safety goggles

Removing

NOTE:

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

- Place drip tray V.A.G 1306 under transmission.

CAUTION: Wear safety goggles.

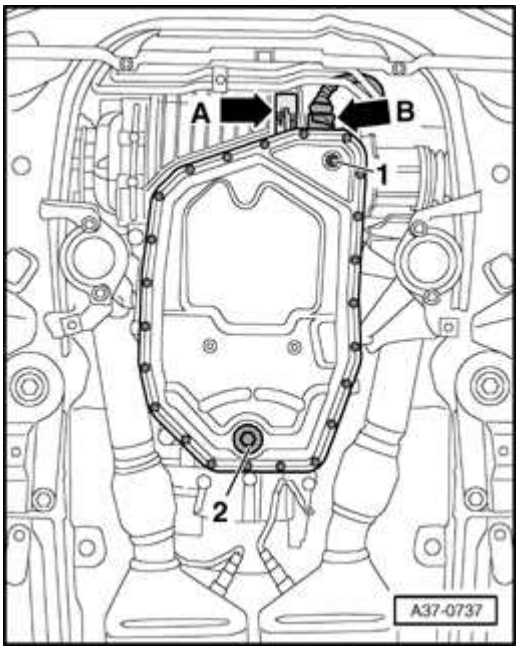

Fig. 275: Locating Type Plate
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove ATF drain plug - **1** -.
- Drain ATF.

NOTE:

- **Observe relevant disposal regulations.**
- **The engine must not be started and vehicle must not be towed without ATF in transmission.**

- Loosen 23 bolts on oil pan in diagonal sequence and remove oil pan.

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Installing

Installation is performed in reverse sequence. Note the following:

NOTE:

- **Replace seals and gaskets.**
- **The drain plug with seal must be replaced.**

- Clean all magnets in recesses on oil pan. Make sure that magnets make full contact with oil pan.
- Clean sealing surface thoroughly; remaining material from the previous gasket must be removed completely.

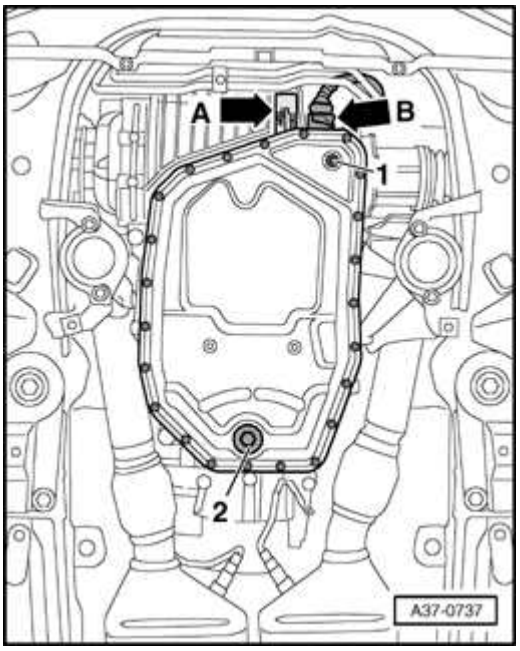

Fig. 276: Locating Type Plate
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tighten oil pan bolts in several stages and in diagonal sequence.
- Tighten new drain plug - **1** -.
- Fill with ATF --> **Draining ATF or filling after repairs**.

Tightening torques

Component	Nm
Drain plug to oil pan	12 * See note
Oil pan to transmission housing	12 * See note

*Replace plug.

*Tighten diagonally in stages.

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ATF strainer, removing and installing

Removing

NOTE:

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

- Remove oil pan --> **Oil pan, removing and installing**.

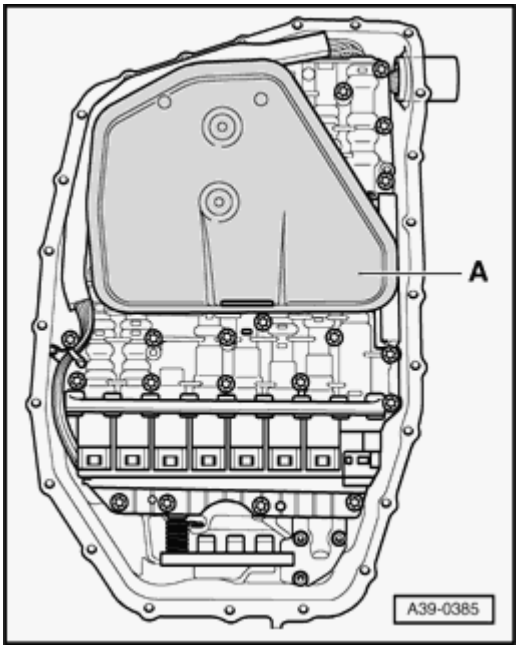

Fig. 277: Identifying Intake Line Of ATF Strainer
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Carefully remove ATF strainer - **A** - from transmission.

Installation is performed in reverse sequence. Note the following:

NOTE:

- **The ATF strainer only has to be replaced if it has been damaged.**

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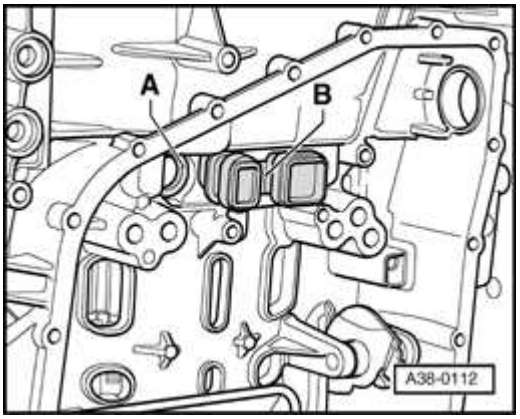

Fig. 278: Removing/Installing Oil Seal For ATF Strainer From Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

If replacing ATF strainer:

- If installed, carefully remove oil seal for ATF strainer - **A** - from transmission using a screwdriver or similar.

NOTE:

- **Take care not to damage sealing surface.**
- **For illustration purposes the oil seal is shown with mechatronics unit removed.**
- **The new ATF strainer is supplied with oil seal installed.**

Continuation for new and old ATF strainer:

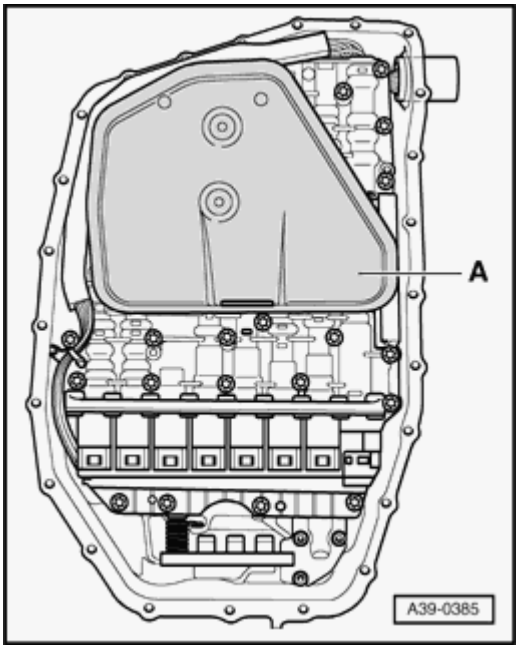

Fig. 279: Identifying Intake Line Of ATF Strainer

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press intake line of ATF strainer - **A** - carefully onto stop into mounting hole in transmission.

NOTE:

- **A new ATF strainer is pressed into transmission with oil seal installed.**

- Install oil pan --> **Oil pan, removing and installing**.
- Fill with ATF --> **Draining ATF or filling after repairs**.

Mechatronics unit, removing and installing

NOTE:

- **Always replace mechatronics unit if contaminated or faulty.**
- **General repair instructions --> General repair instructions.**
- **Read the rules for cleanliness when working on the automatic transmission --> Rules for cleanliness.**

Removing

CAUTION: Follow steps required when disconnecting battery -->

- **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
- **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL for ELECTRICAL EQUIPMENT, CABRIOLET**

.

- With ignition switched off, disconnect battery Ground (GND) strap.
- Remove oil pan --> **Oil pan, removing and installing**.
- Remove ATF strainer --> **ATF strainer, removing and installing**.

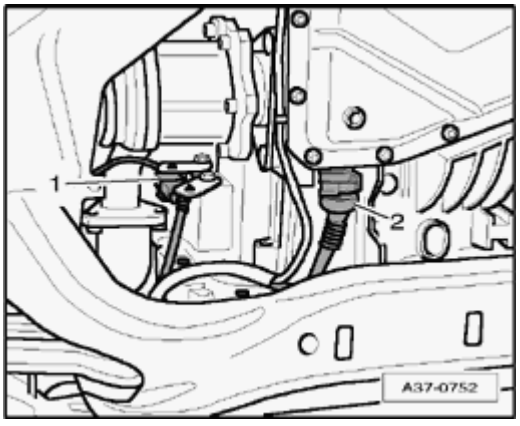

Fig. 280: Disconnecting 16-Pin Electrical Connector At Transmission By Folding Out Release Tab And Turning Fastener Cap Counter-Clockwise

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect 16-pin electrical connector - **2** - at transmission by folding out release tab and turning fastener cap counter-clockwise.

NOTE:

- **- Item 1 - can be disregarded.**

- Touch vehicle Ground (GND) with your hand (without gloves) to discharge any static electricity.

CAUTION:

- **Before touching or removing the mechatronics unit, always discharge any static electricity by touching vehicle Ground (GND) or other Ground (GND) object with your hand.**
- **Never touch contacts in 16-pin connector by hand, as static discharge would damage the control module and mechatronics unit.**

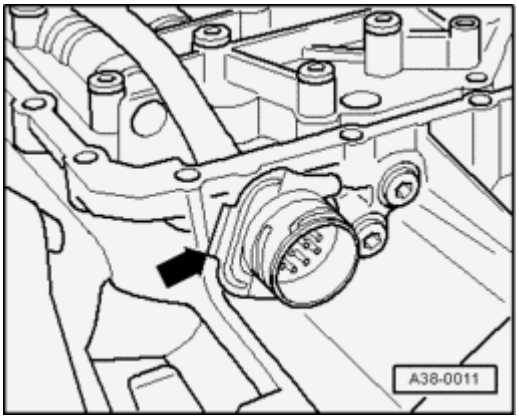

Fig. 281: Location Of Wiring Harness/Harness Connector Securing Circlip
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unfasten retaining clip - **arrow** - for wiring harness connector on outside of transmission housing.

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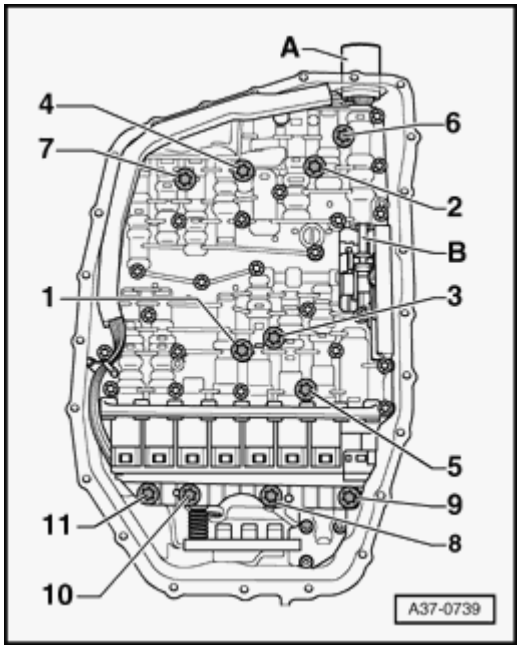

Fig. 282: Removing/Installing Securing Bolts For Mechatronics Unit In Sequence
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove securing bolts for mechatronics unit in sequence - **11 to 1** -.

NOTE:

- **Only remove securing bolts marked - 1 to 11 -.**
- **If other bolts are loosened, this may affect the operation of the mechatronics unit or the mechatronics unit could come apart.**

- Remove mechatronics unit together with wiring harness from transmission, at the same time guide out connector for wiring harness.

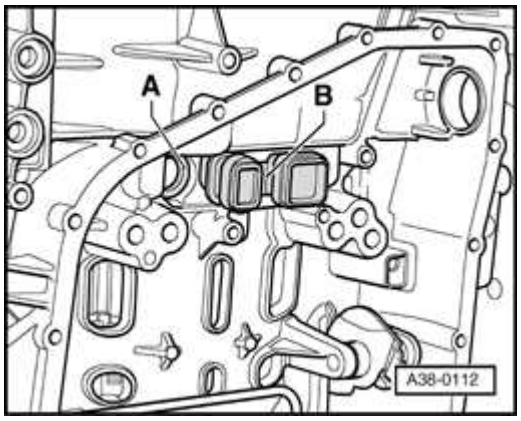

Fig. 283: Removing/Installing Oil Seal For ATF Strainer From Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Installing

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- Make sure that seal - **B** - is properly inserted and secured.
- Replace O-rings on connector for wiring harness and lightly lubricate with ATF.

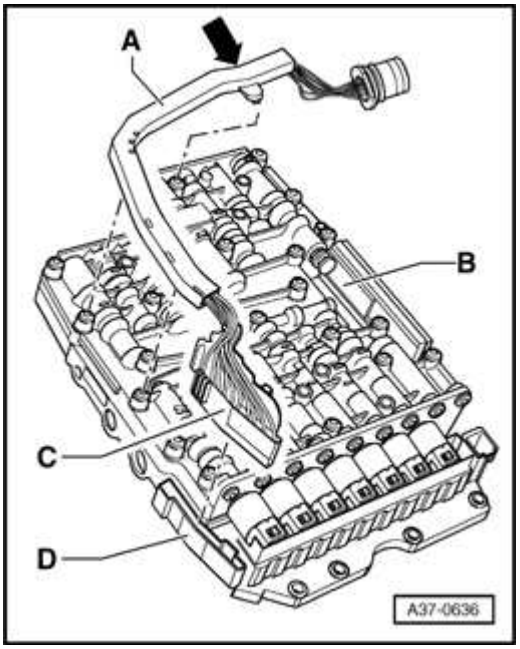

Fig. 284: Locating Wiring Harness With Connector Is Attached To The Mechatronics Unit
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Clip wiring harness - **A** - onto mechatronics unit - **B** - by first attaching tab - **arrow** - on reverse side of wiring harness to mechatronics unit.

NOTE:

- **If the tab on the reverse side of the wiring harness breaks off, the wiring harness must be replaced --> Wiring harness in transmission, removing and installing.**

- Install wiring harness connector in transmission housing.

- Installation position: flat part of rear shoulder faces downward, the lugs at shoulder are horizontal

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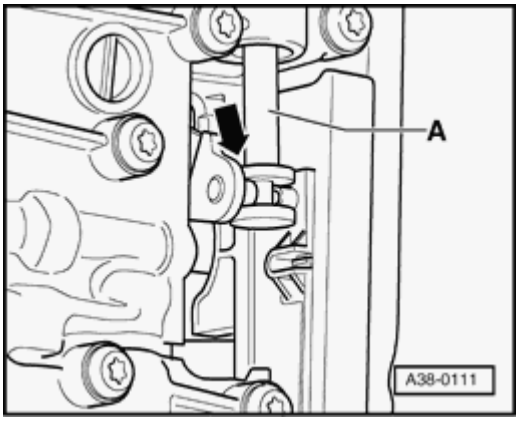

Fig. 285: Inserting Transmission Selector Lever Stud Into Groove On Selector Slide
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- While installing mechatronics unit without force, insert transmission selector lever stud - **arrow** - into groove on selector slide - **A** - (move selector slide backward and forward if necessary).

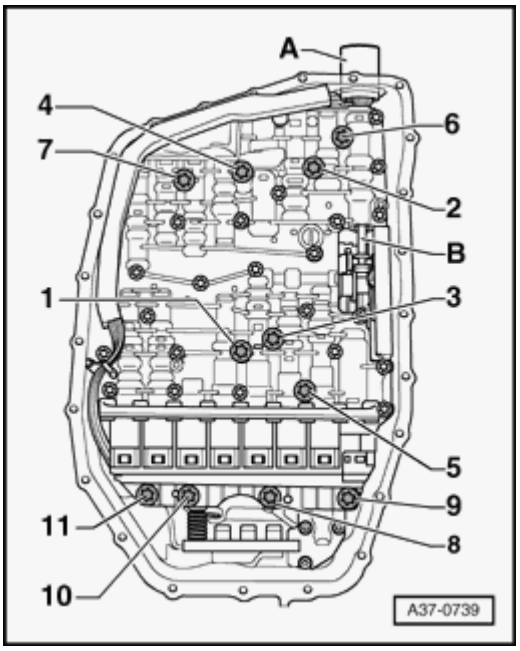

Fig. 286: Removing/Installing Securing Bolts For Mechatronics Unit In Sequence
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tighten securing bolts - **1** - and - **2** - for mechatronics unit to 2 Nm.
- Then tighten securing bolts in specified sequence - **1 to 11** - to 8 Nm.

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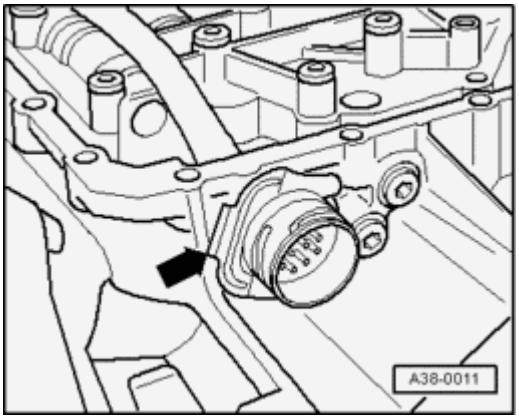

Fig. 287: Location Of Wiring Harness/Harness Connector Securing Circlip
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Push retainer clip - **arrow** - onto wiring harness connector.
- Install ATF strainer --> **ATF strainer, removing and installing**.
- Install oil pan --> **Oil pan, removing and installing**.
- Follow steps required after connecting battery -->
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** for ELECTRICAL EQUIPMENT, CABRIOLET

  .

- Fill with ATF --> **Draining ATF or filling after repairs**.

Wiring harness in transmission, removing and installing

Removing

- Remove mechatronics unit --> **Mechatronics unit, removing and installing**
- Touch vehicle Ground (GND) with your hand (without gloves) to discharge any static electricity.

CAUTION:

- **Before touching or removing the mechatronics unit, always discharge any static electricity by touching vehicle Ground (GND) or other Ground (GND) object with your hand.**
- **Never touch contacts in 16-pin connector by hand, as static discharge would damage the control module and mechatronics unit.**

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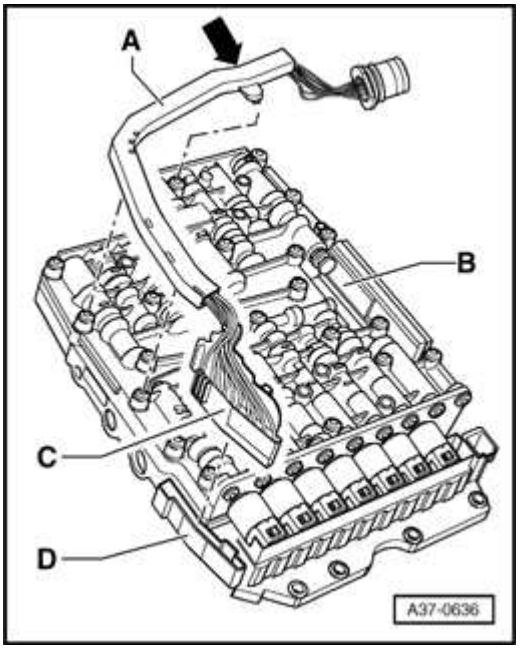

Fig. 288: Locating Wiring Harness With Connector Is Attached To The Mechatronics Unit
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Carefully disconnect wiring harness - **A** - from mechatronics unit - **B** -. Make sure you detach tab - **arrow** - on reverse side of wiring harness from mechatronics unit.

NOTE:

- **If the tab on the reverse side of the wiring harness breaks off, the wiring harness must be replaced --> Wiring harness in transmission, removing and installing.**

- Carefully disconnect connector - **C** - from socket - **D** - of mechatronics unit.

Installing

Installation is performed in reverse sequence. Note the following:

- Carefully connect connector - **C** - to socket - **D** - on mechatronics unit.
- Clip wiring harness - **A** - onto mechatronics unit - **B** - by first attaching tab - **arrow** - on reverse side of wiring harness to mechatronics unit.
- Install mechatronics unit --> **Mechatronics unit, removing and installing**.
- Fill with ATF --> **Draining ATF or filling after repairs**.

39 FINAL DRIVE - FRONT DIFFERENTIAL

FRONT FINAL DRIVE GEAR OIL

Front final drive gear oil

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NOTE:

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

Front final drive gear oil level, checking

Special tools, testers and auxiliary items required

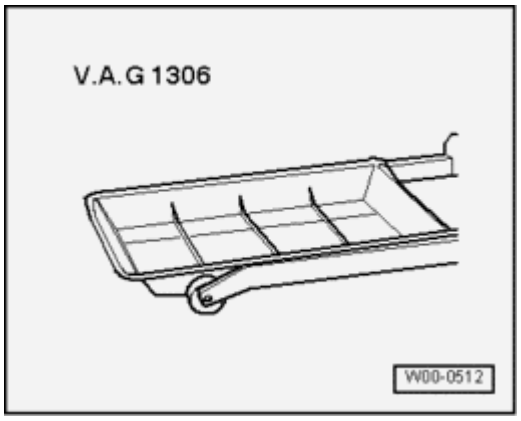

Fig. 289: Identifying Drip Tray V.A.G 1306
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray V.A.G 1306
- Safety goggles

Condition

- Gear oil about 20° C (room temperature)

Work sequence

- Drive vehicle onto a four-column lifting platform or over an inspection pit in order for it to be absolutely horizontal.
- Place drip tray V.A.G 1306 under the transmission.

CAUTION: Wear safety goggles.

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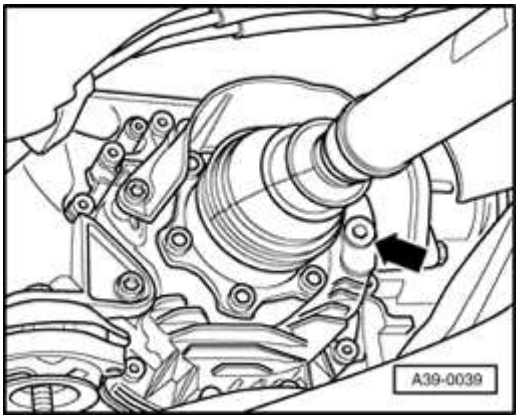

Fig. 290: Locating Sealing Plug
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- 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; specification --> **Capacities** .

NOTE:

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

- Tighten new plug to 35 Nm.

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

Special tools, testers and auxiliary items required

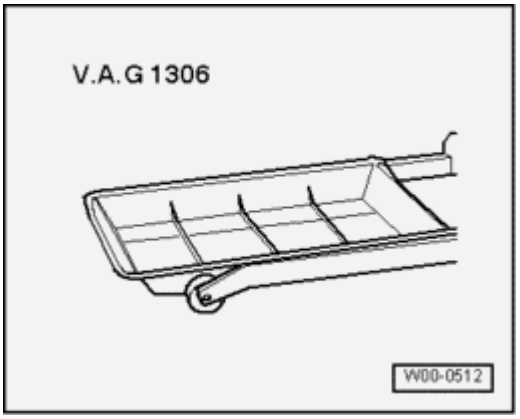

Fig. 291: Identifying Drip Tray V.A.G 1306
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray V.A.G 1306
- Safety goggles

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Requirements:

- Gear oil about 20° C (room temperature)

Topping off

NOTE:

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

- Drive vehicle onto a four-column hoist or over an inspection pit so that it is absolutely horizontal.
- Place drip tray V.A.G 1306 under transmission.

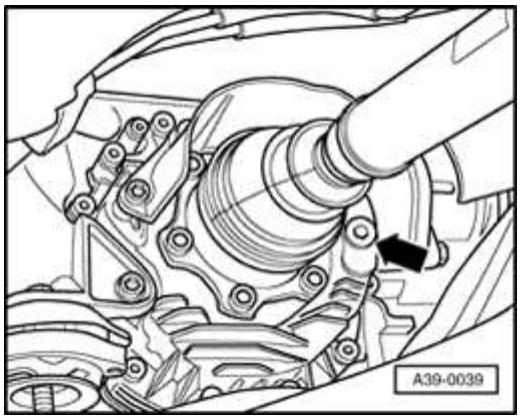

Fig. 292: Locating Sealing Plug
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove plug - **arrow** -.
- Fill front final drive slowly and at a constant rate for a period of at least 5 minutes until gear oil (capacity and specification --> **Capacities**) 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 plug with seal must be replaced.**

- Tighten new plug to 35 Nm.

NOTE:

- **The oil level does not need to be re-checked.**

FRONT FINAL DRIVE, SERVICING

Front final drive, servicing

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NOTE:

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

Front final drive, assembly overview

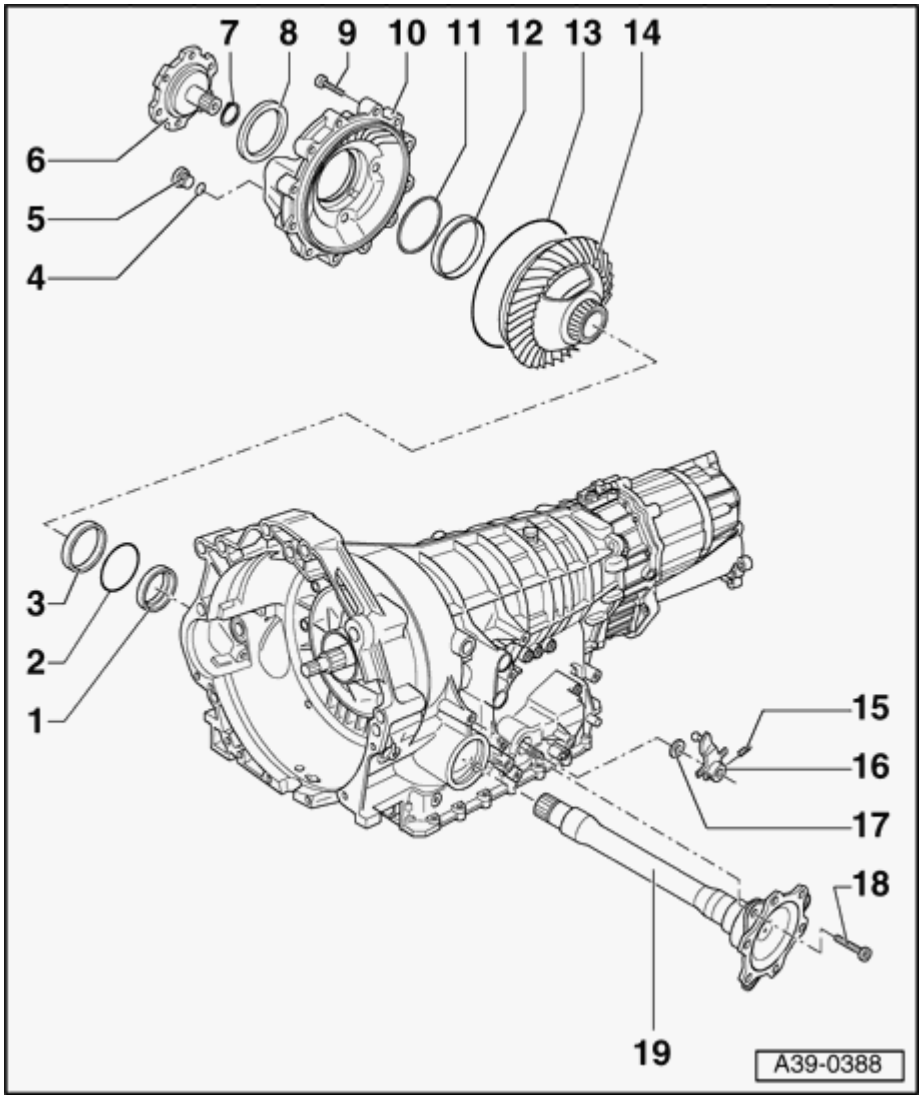

Fig. 293: Front Final Drive, Assembly Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Oil seal

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

2 - Shim

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- Behind tapered roller bearing outer race

3 - Outer race for tapered roller bearing

4 - O-ring

- Replace

5 - Plug, 35 Nm

- Replace

6 - Flange shaft (right-side)

- Removing and installing --> **Flanged 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

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17 - Oil seal for selector shaft

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

18 - Bolt, 23 Nm

19 - Flange shaft (left-side)

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

Flange shaft (left-side), removing and installing

Special tools, testers and auxiliary items required

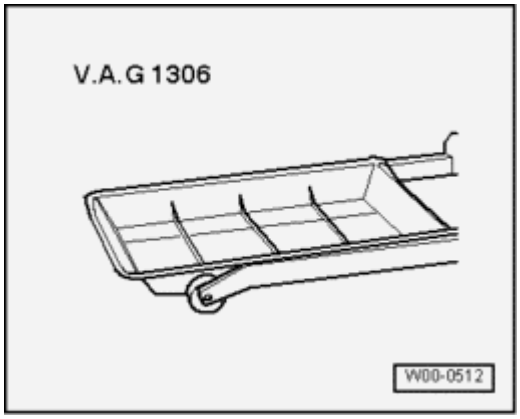

Fig. 294: Identifying Drip Tray V.A.G 1306
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray V.A.G 1306

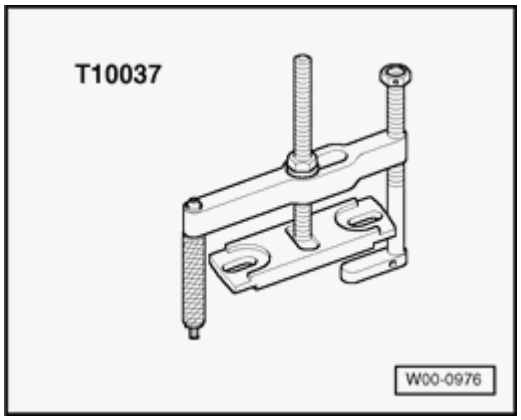

Fig. 295: Puller T10037
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Puller T10037

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Removing

- Transmission installed

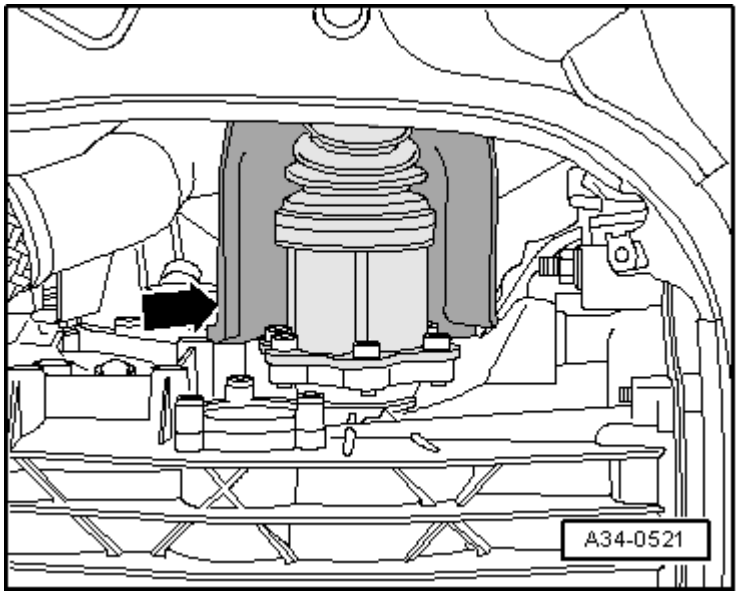

Fig. 296: Drive Axle Heat Shield
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unbolt heat shield - **arrow** - from transmission above drive axle (left-side).
- Unbolt drive axle (left-side) from flange on transmission and tie up.
- Place drip tray V.A.G 1306 under transmission.

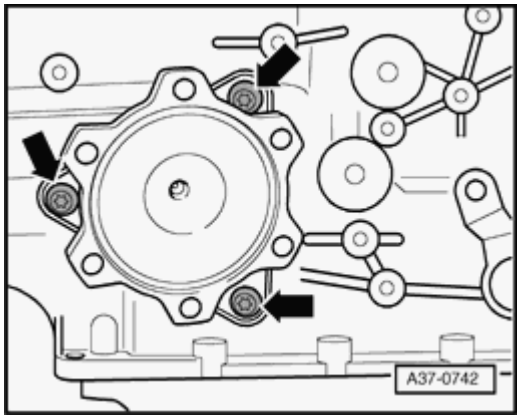

Fig. 297: Removing Bolts On Retaining Bracket For Left-Side Flange Shaft
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

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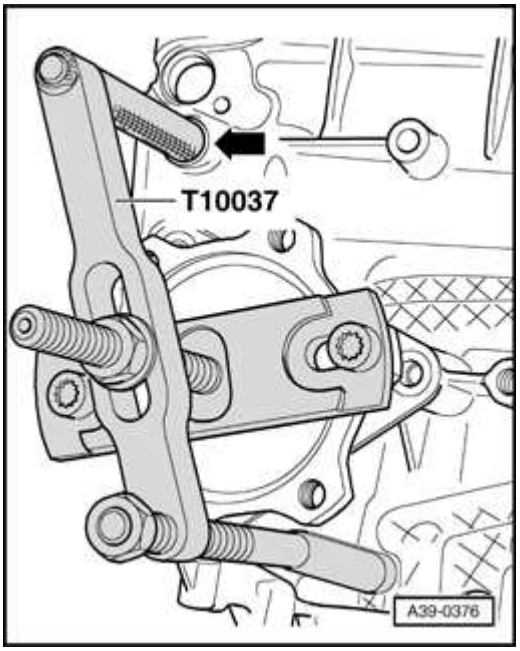

Fig. 298: Screwing Puller T10037 Onto Differential Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- 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.

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

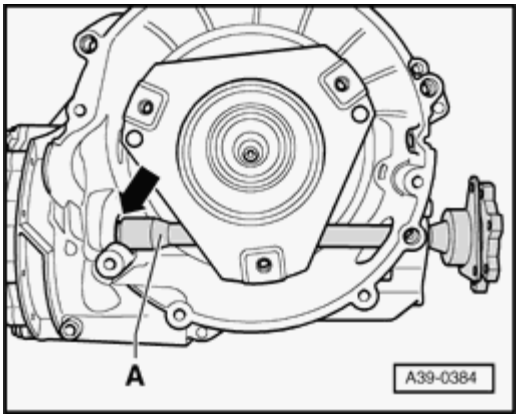

Fig. 299: Removing/Inserting Flange Shaft Into Transmission And Guide Shaft Into Seal On Differential
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

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Installing

Installation is performed in reverse sequence. Note the following:

- Clean flange shaft.

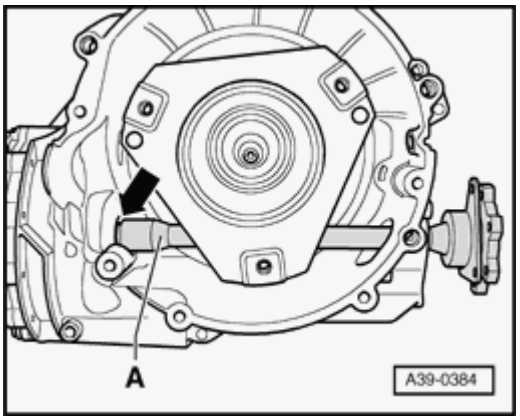

Fig. 300: Removing/Inserting Flange Shaft Into Transmission And Guide Shaft Into Seal On Differential
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- 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 the final drive and transmission housing. The seal will require replacement--> Final drive/transmission housing oil seal, replacing.**

- Bolt left drive axle to flange shaft --> **40 - FRONT SUSPENSION** .
- Check oil level in front final drive --> **Front final drive gear oil**.

Tightening torques

Component	Nm
Retaining bracket for left flange shaft to transmission	23
Heat shield for drive axle to transmission	23

Flanged shaft (right side), removing and installing

Special tools, testers and auxiliary items required

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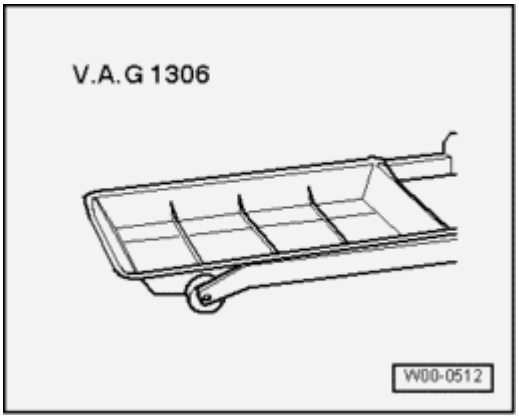

Fig. 301: Identifying Drip Tray V.A.G 1306
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray V.A.G 1306

Removing

- Transmission installed

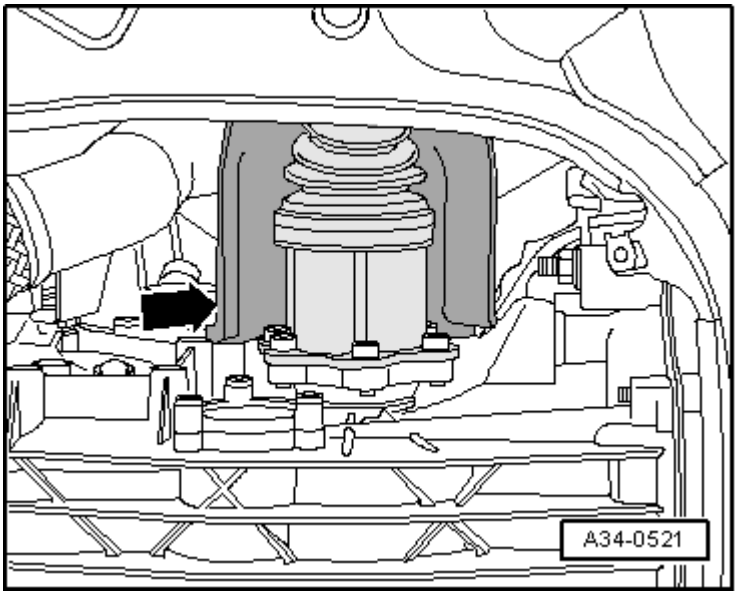

Fig. 302: Drive Axle Heat Shield
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unbolt heat shield - **arrow** - from transmission above drive axle (right-side).
- Unbolt drive axle (right-side) from flange on transmission and tie up.

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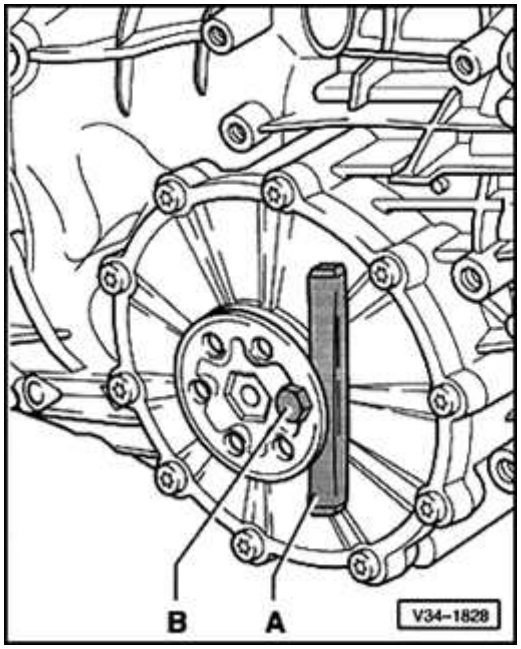

Fig. 303: Placing Chisel Or Suitable Spacer Under Flange Shaft And Pulling Flange Shaft Out By Turning Bolt
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Place drip tray V.A.G 1306 under transmission.
- Remove flange shaft: Place a chisel or suitable spacer - **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 screw the bolt into the opposite hole to assist removal.**

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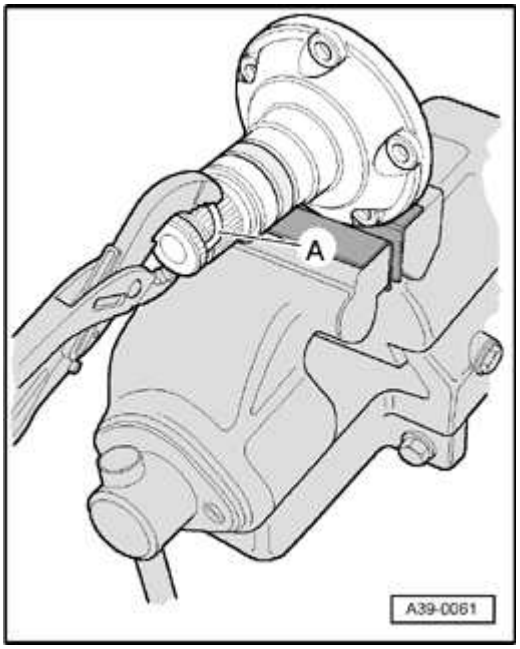

Fig. 304: Removing And Installing Securing Ring
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- 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 performed 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 VW 295 as far as stop.

NOTE:

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

- Bolt right drive axle to flange shaft --> **40 - FRONT SUSPENSION** .
- Check oil level in front final drive --> **Front final drive gear oil**.

Tightening torque

Component	Nm

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Heat shield for drive axle to transmission	23

Flanged shaft oil seal (right side), replacing

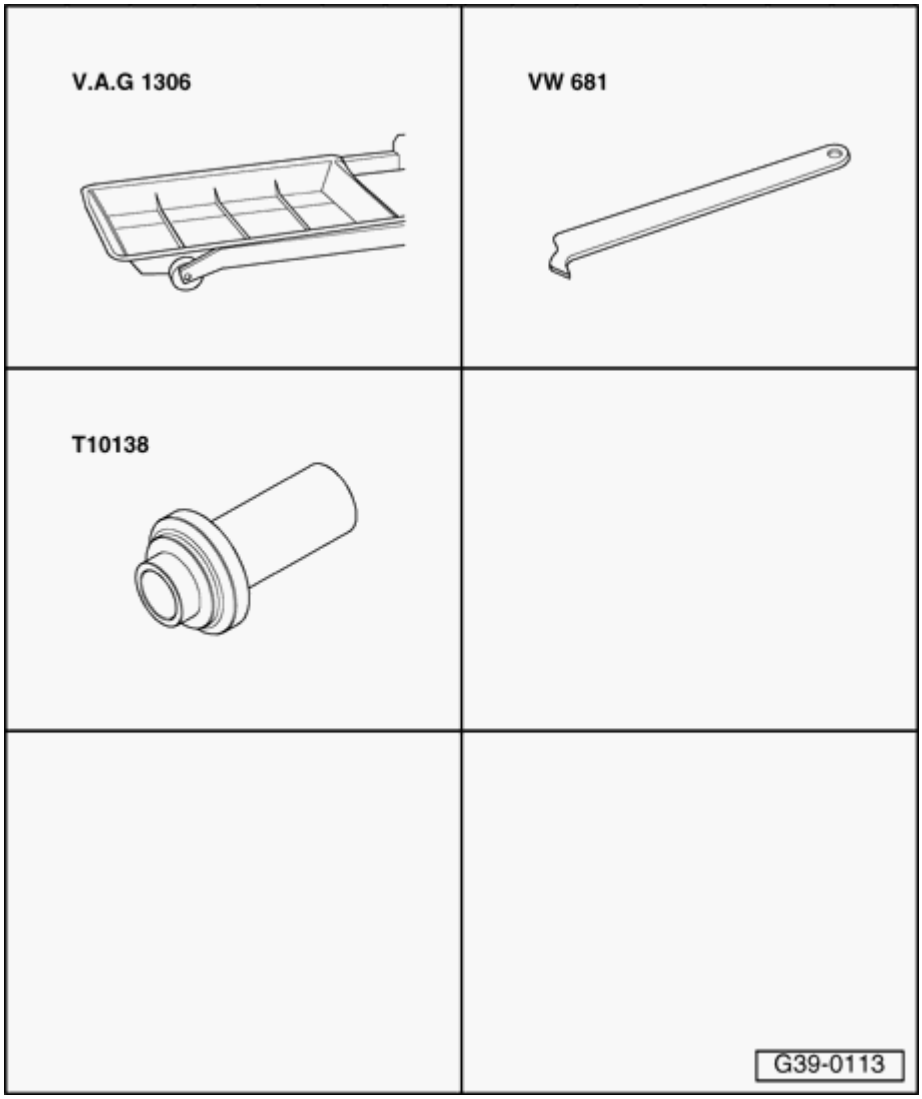

Fig. 305: Identifying Special Tools - Flanged Shaft Oil Seal (Right Side), Replacing
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Drip tray V.A.G 1306
- Extractor lever VW 681
- Thrust piece T10138

Procedure

- Transmission installed

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NOTE:

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

- Place drip tray V.A.G 1306 under transmission.
- Remove flange shaft (right-side) --> **Flanged shaft (right side), removing and installing**.

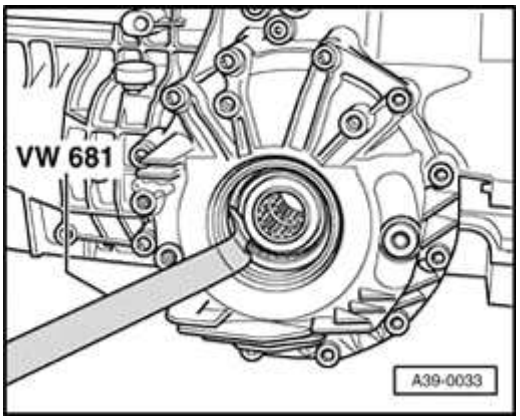

Fig. 306: Removing Flange Shaft Oil Seal
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Pull out flange shaft oil seal.

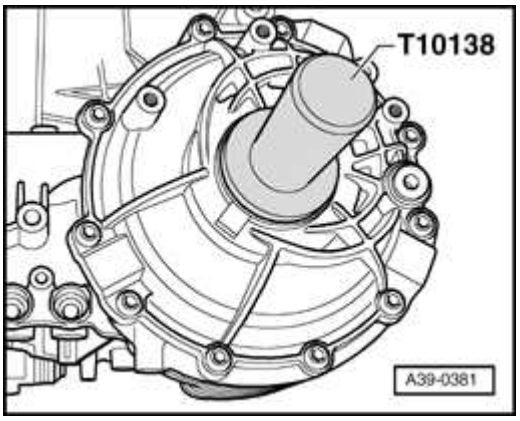

Fig. 307: Driving New Seal In Onto Stop
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Lubricate outer circumference of seal with gear oil
- Drive new seal in onto stop (take care to keep seal straight).

- Installation position: open side of seal faces transmission.

- Pack space between sealing lip and dust lip half full with *sealing grease G 052 128 A1* .
- Install flange shaft (right-side) --> **Flanged shaft (right side), removing and installing**.

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- Check oil level in front final drive --> **Front final drive gear oil**.

Final drive cover O-ring, replacing

Special tools, testers and auxiliary items required

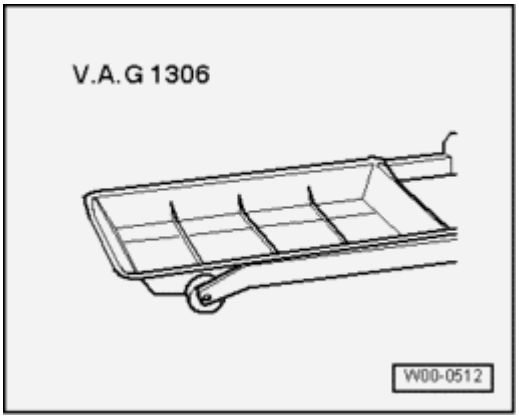

Fig. 308: Identifying Drip Tray V.A.G 1306
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray V.A.G 1306

Procedure

- Transmission installed

NOTE:

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

- Remove transmission support (right-side) --> **Transmission support and transmission mounting, removing and installing (left and right)**.
- Place drip tray V.A.G 1306 under transmission.
- Remove flange shaft (right-side) --> **Flanged shaft (right side), removing and installing**.

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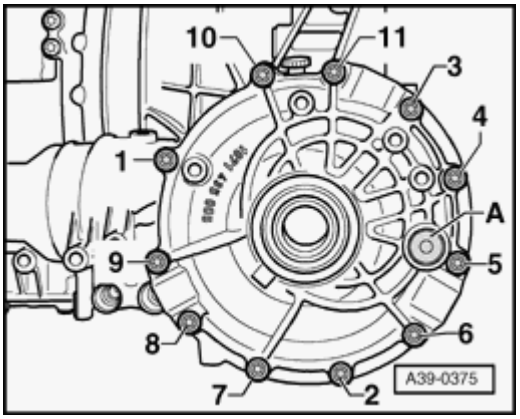

Fig. 309: Removing/Installing Bolts On Final Drive Cover In Sequence
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts on final drive cover in sequence - **11 to 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.**

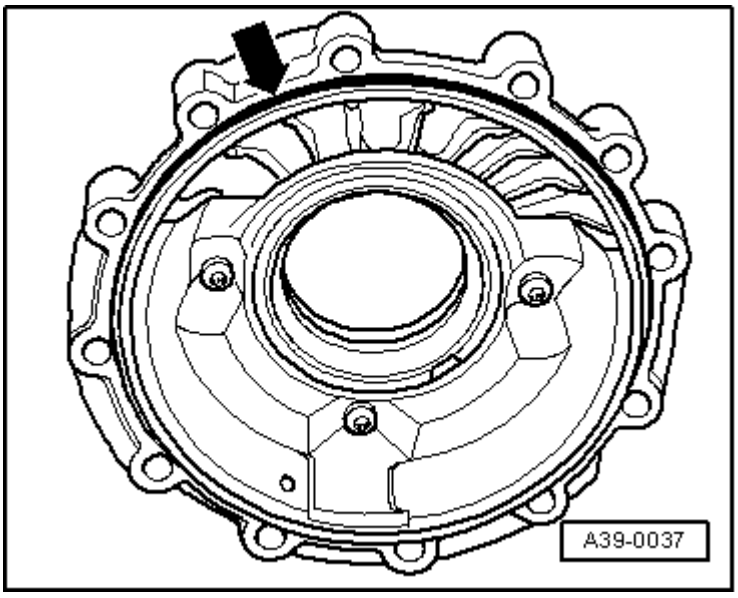

Fig. 310: Identifying Cover For Front Final Drive And O-Ring
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- 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

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as stop.

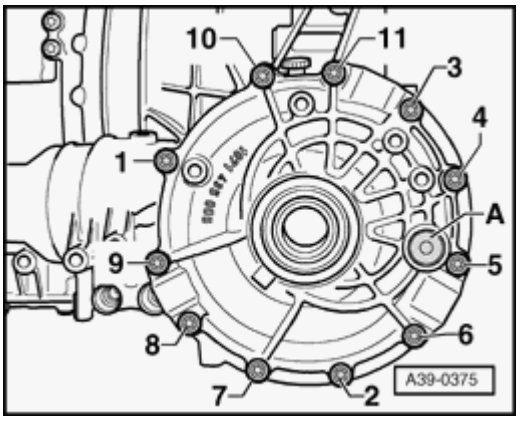

Fig. 311: Removing/Installing Bolts On Final Drive Cover In Sequence
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tighten bolts of final drive cover as follows.

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

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

Final drive/transmission housing oil seal, replacing

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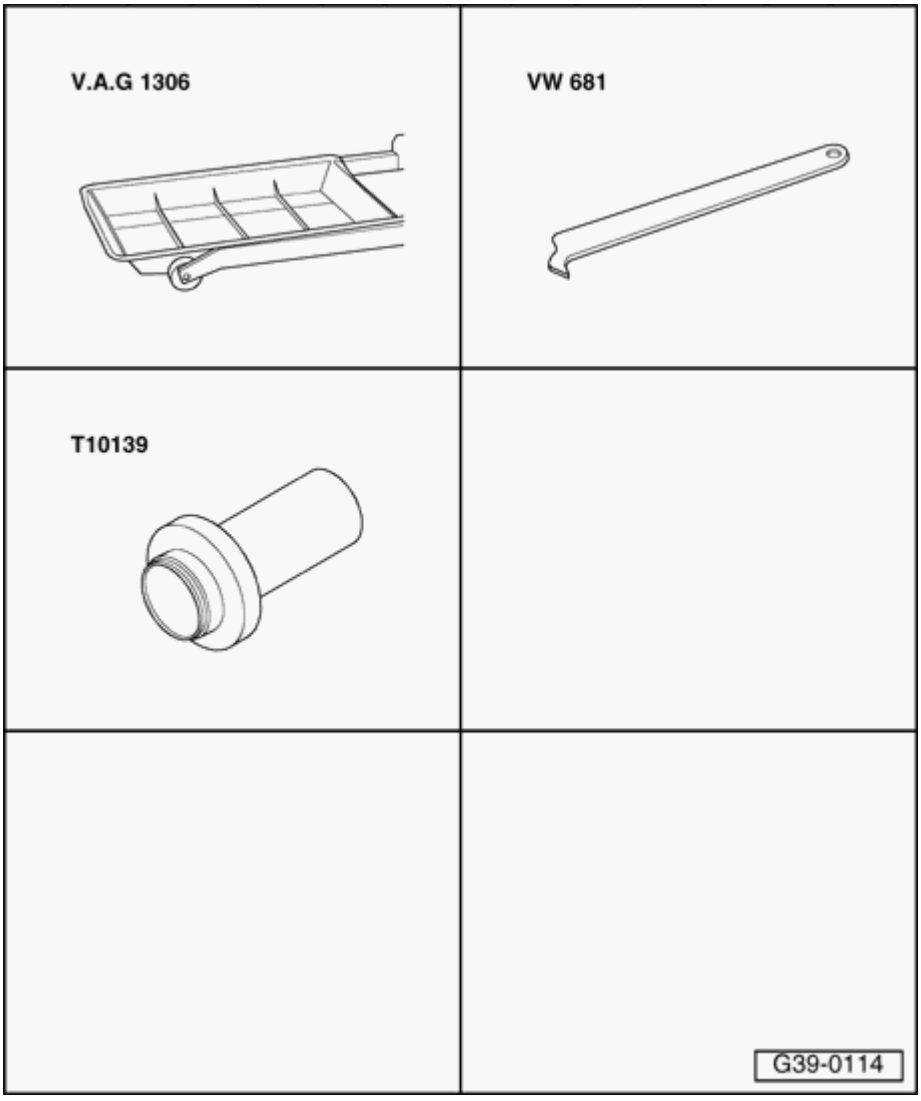

Fig. 312: Identifying Special Tools - Final Drive/Transmission Housing Oil Seal, Replacing
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Drip tray V.A.G 1306
- Extractor lever VW 681
- Thrust piece T10139

Requirements

- Transmission is removed
- Transmission mounted on assembly stand --> **Transmission, securing to assembly stand**.

CAUTION: Do not place transmission down on the oil pan.

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Procedure

NOTE:

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

- Remove transmission support (right-side) --> **Transmission support and transmission mounting, removing and installing (left and right)**.
- Place drip tray V.A.G 1306 under transmission.
- Remove flange shaft (right-side) --> **Flanged shaft (right side), removing and installing**.

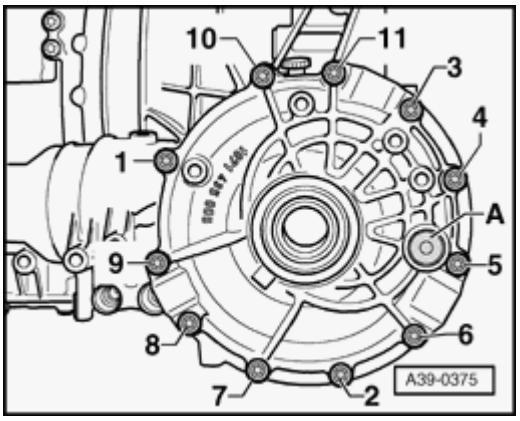

Fig. 313: Removing/Installing Bolts On Final Drive Cover In Sequence
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts on final drive cover in sequence - **11 to 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.**

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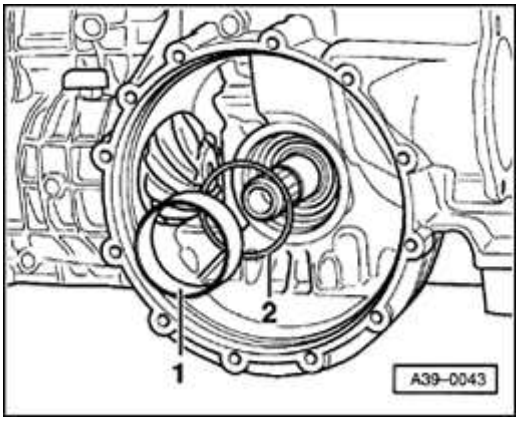

Fig. 314: Identifying Tapered Roller Bearing Outer Race For Differential And Shim
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

NOTE:

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

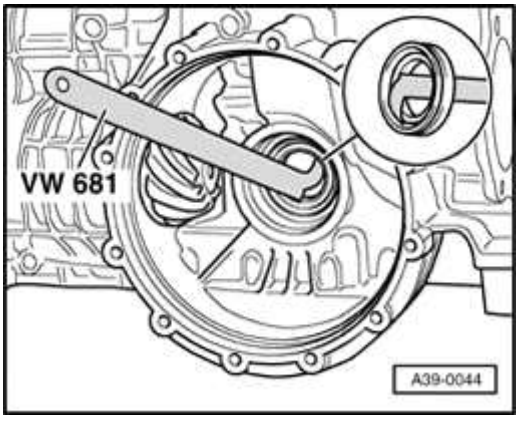

Fig. 315: Pulling Out Oil Seal
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

NOTE:

- **The oil seal extractor lever VW 681 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.

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- Lightly lubricate outer circumference and sealing lip of oil seal with gear oil.

NOTE:

- **Push the seal onto the thrust piece with the protruding sealing lip of the seal facing the tool.**

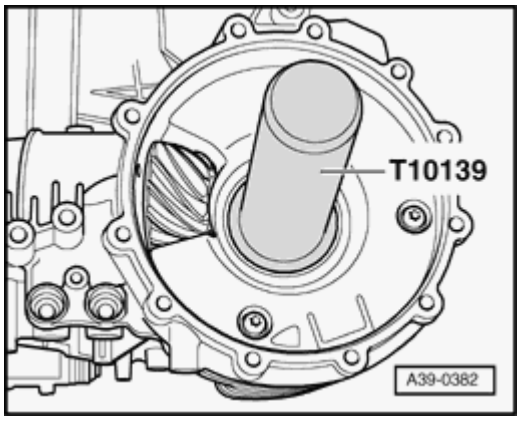

Fig. 316: Driving In New Oil Seal As Far As Stop Using Thrust Piece T10139
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

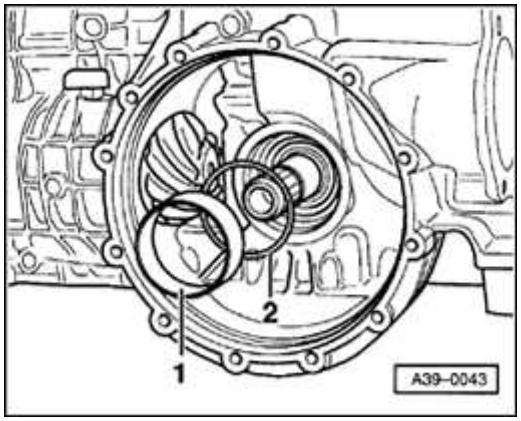

Fig. 317: Identifying Tapered Roller Bearing Outer Race For Differential And Shim
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- 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.**

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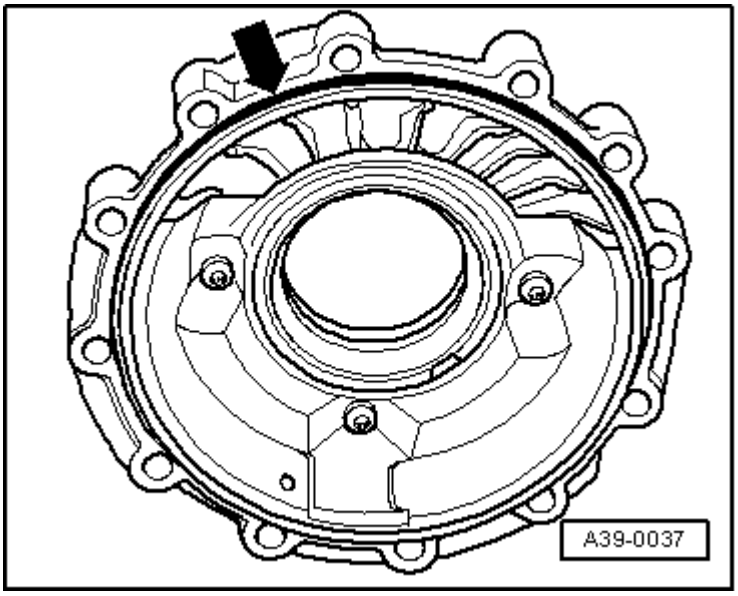

Fig. 318: Identifying Cover For Front Final Drive And O-Ring
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Replace 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 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 the stop.

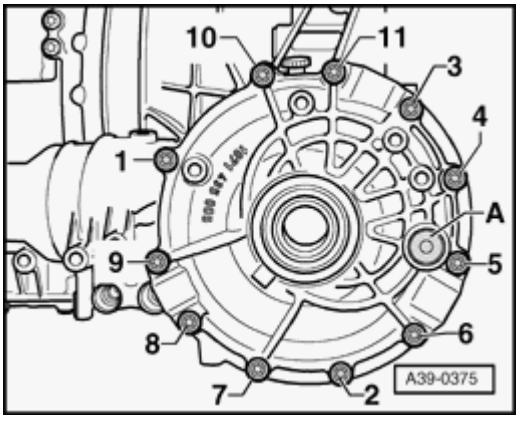

Fig. 319: Removing/Installing Bolts On Final Drive Cover In Sequence
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tighten bolts of cover for final drive as follows.

Step	Tightening sequence

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

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

Selector shaft oil seal, replacing

Special tools, testers and auxiliary items required

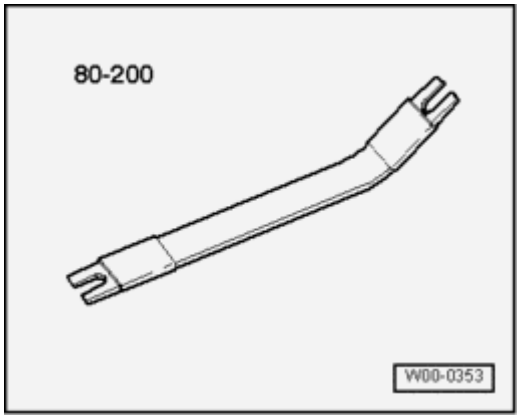

Fig. 320: Identifying Pry Lever 80-200
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Removal lever 80-200

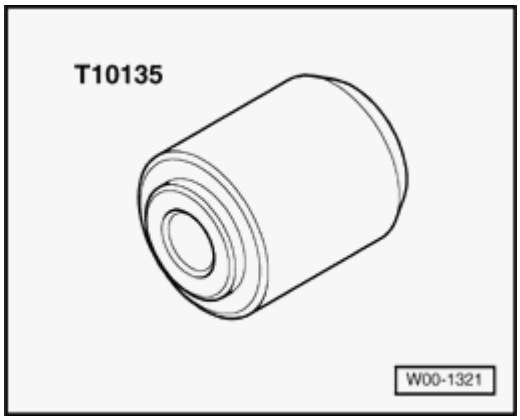

Fig. 321: Thrust Piece T10135
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Thrust piece T10135

Procedure

NOTE:

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

- Shift selector lever to position "P".
- Remove transmission support (left-side) --> **Transmission support and transmission mounting, removing and installing (left and right)**.

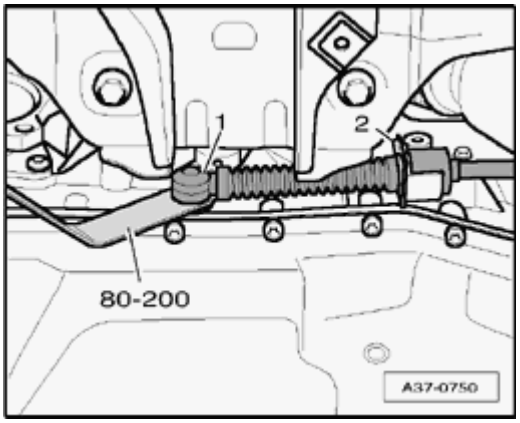

Fig. 322: Using Pry Lever - RMV Outside Mirror 80-200 To Pry Ball Socket On Selector Lever Cable Off Selector Shaft Lever
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Use removal lever 80-200 to pry ball socket - **1** - on selector lever cable off selector shaft lever.

NOTE:

- **Do not bend or kink the selector lever cable.**
- **- Item 2 - can be disregarded.**

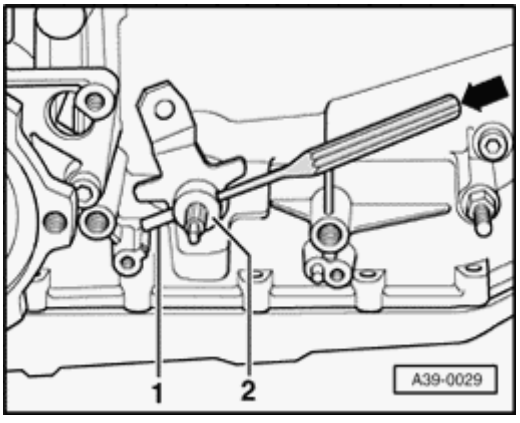

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Fig. 323: Driving Out Spring Dowel Sleeve At Lever/Shift Rod Of Travel Toward Front
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

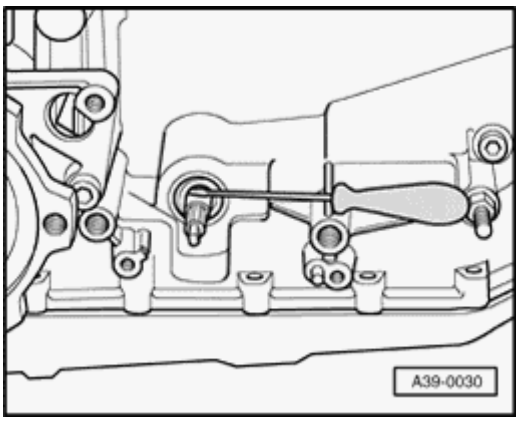

Fig. 324: Prying Seal Out With A Screwdriver
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Push a small screwdriver through seal and pull it out.
- Lubricate outer circumference and the space between sealing lips of seal with ATF.
- Install new seal onto selector shaft.

- Installation position: open side of seal faces transmission.

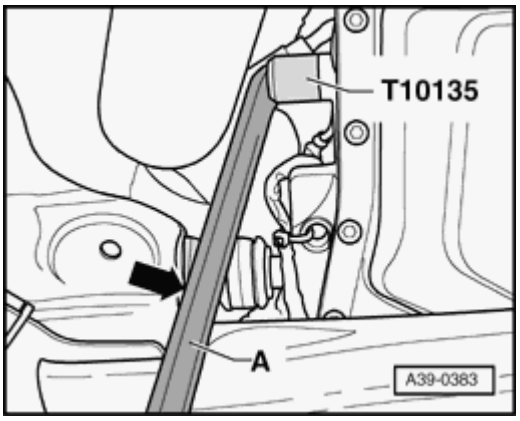

Fig. 325: Pressing On New Oil Seal Using Thrust Piece T10135 And Assembly Lever As Far As Stop
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- 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 -.**

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- 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.

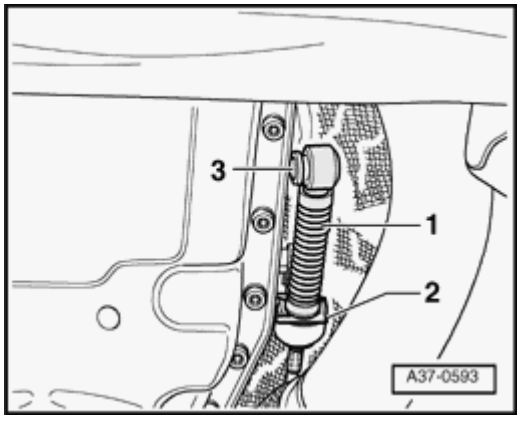

Fig. 326: Pressing Selector Lever Cable Onto Ball Head Of Selector Shaft Lever
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press selector lever cable - **1** - onto selector shaft lever - **3** -.

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**
- **- Item 2 - can be disregarded.**

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

TRANSFER GEAR OIL

Transfer gear oil

NOTE:

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

Transfer gear oil level, checking

Special tools, testers and auxiliary items required

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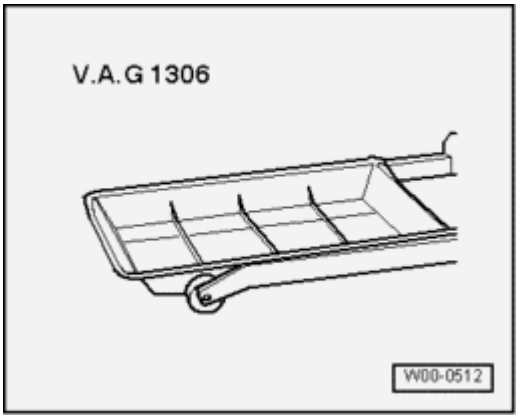

Fig. 327: Identifying Drip Tray V.A.G 1306
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray V.A.G 1306
- 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.
- Place drip tray V.A.G 1306 under transmission.

CAUTION: Wear safety goggles.

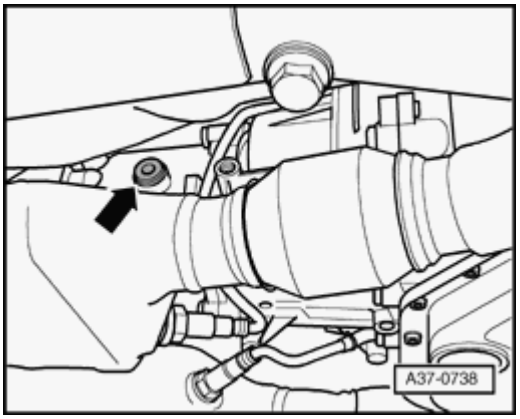

Fig. 328: Removing Plug
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove plug - **arrow** -.

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- The oil level must be up to lower edge of filler hole.

- Top off with gear oil if necessary; specification --> **Transfer gear**.

NOTE:

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

- Tighten new plug to 35 Nm.

Transfer gear oil, topping off after repairs

Special tools, testers and auxiliary items required

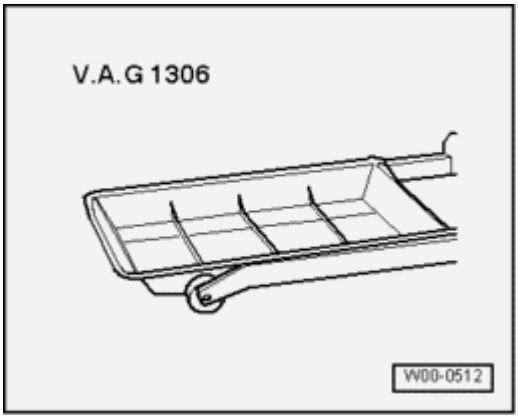

Fig. 329: Identifying Drip Tray V.A.G 1306
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray V.A.G 1306
- Safety goggles

Conditions

- Gear oil about 20° C (room temperature)
- The 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.
- Place drip tray V.A.G 1306 under the transmission.

CAUTION: Wear safety goggles.

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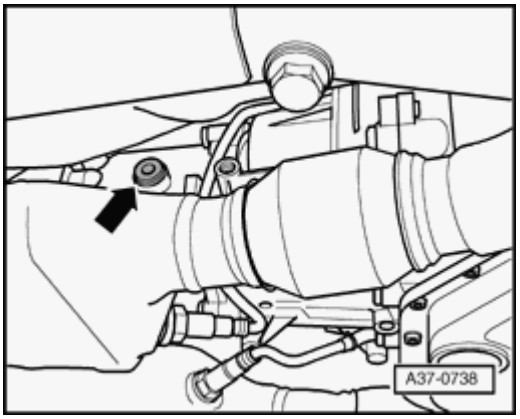

Fig. 330: Removing Plug
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- 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 a period of at least 5 minutes with gear oil (capacity and 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:

- **The level does not need to be re-checked.**

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

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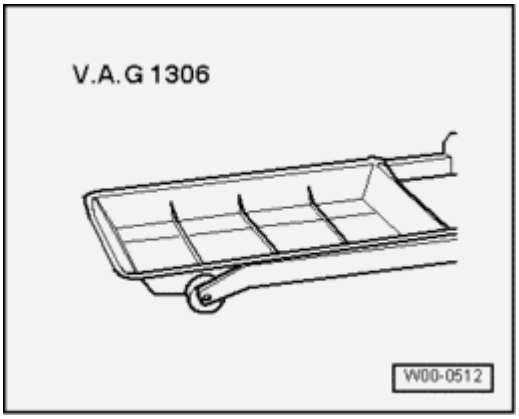

Fig. 331: Identifying Drip Tray V.A.G 1306
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray V.A.G 1306
- Safety goggles

Removing

- Transmission installed

CAUTION: The engine must not run and the vehicle must not be towed without gear oil.

NOTE:

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

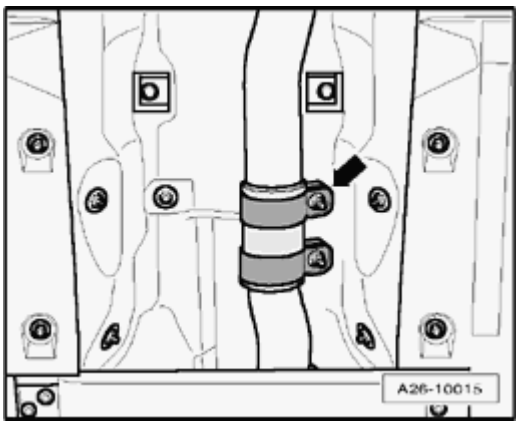

Fig. 332: Loosening Clamping Sleeve
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Vehicles with 2.0 ltr. TFSI engine

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NOTE:

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

- Loosen nuts on front clamp - **arrows** -.
- Push clamp toward rear of vehicle to disconnect exhaust system.

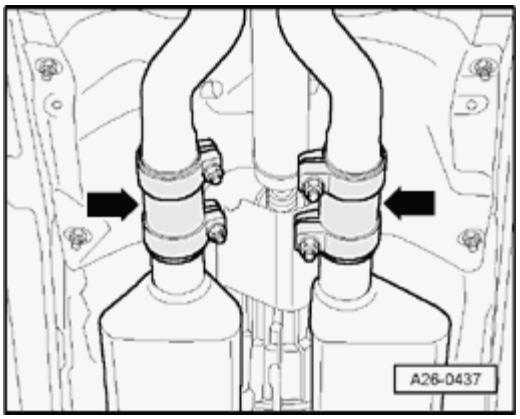

Fig. 333: Loosening Clamping Sleeves
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Vehicles with 4.2 ltr. MPI engine:

NOTE:

- **To prevent damage, the flexible couplings in the front exhaust lines must not be bent further than 10°.**

- Disconnect exhaust system at clamps - **arrows** -.
- Disengage rear section of exhaust system at rubber mountings and remove.

NOTE:

- **A second technician is required for removing the rear section of the exhaust system.**

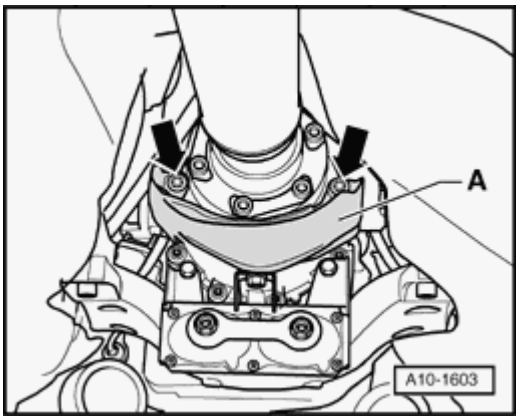

Fig. 334: Removing/Installing Heat Shield For Driveshaft

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

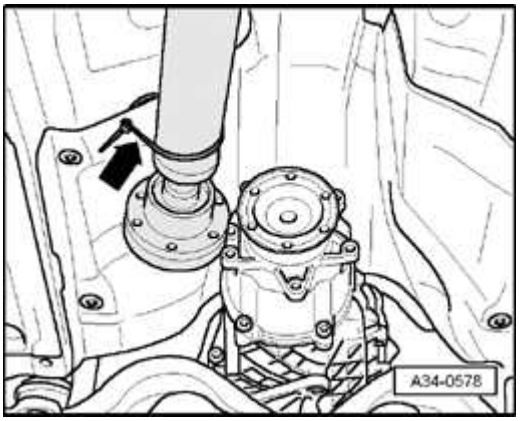

Fig. 335: Drive Shaft Tied To Side, Onto Heat Shield
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tie driveshaft to side, onto heat shield - **arrow** -.

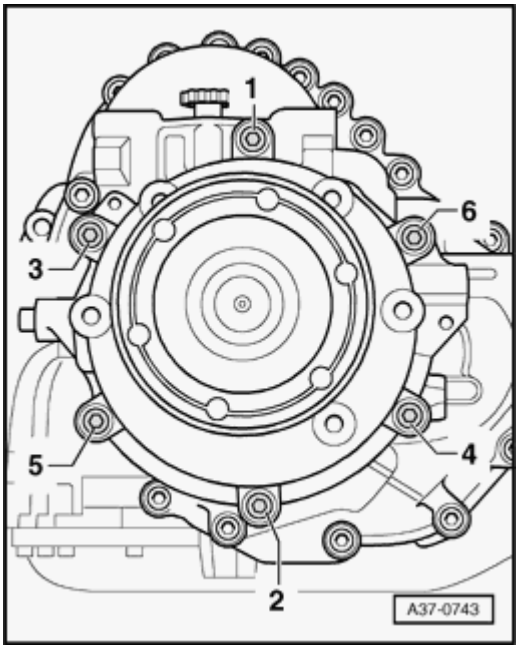

Fig. 336: Loosening/Tightening Securing Bolts For Cover For Torsen Differential In Sequence
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Place drip tray V.A.G 1306 under transmission.

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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 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.

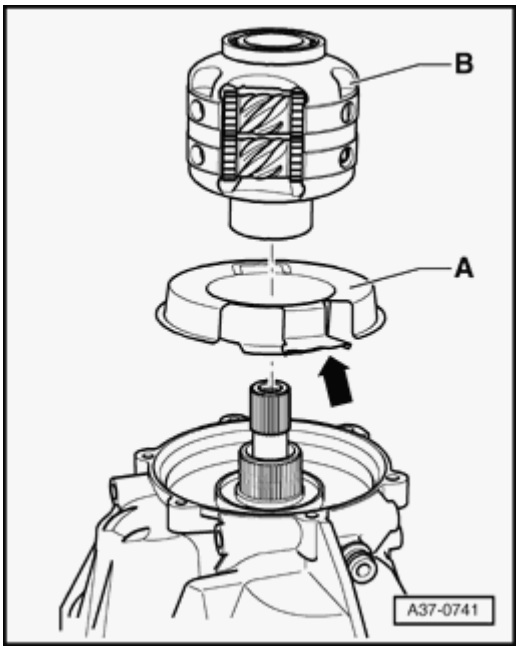

Fig. 337: Securing Torsen Differential And Baffle Plate To Prevent Them From Dropping Out
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

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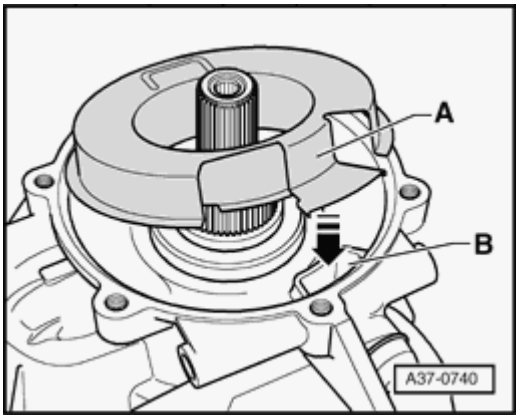

Fig. 338: Identifying If Torsen Differential And Baffle Plate Have Been Removed
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Installing

Installation is performed in reverse sequence. Note the following:

NOTE:

- **Replace O-ring on cover for transfer gear.**

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

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

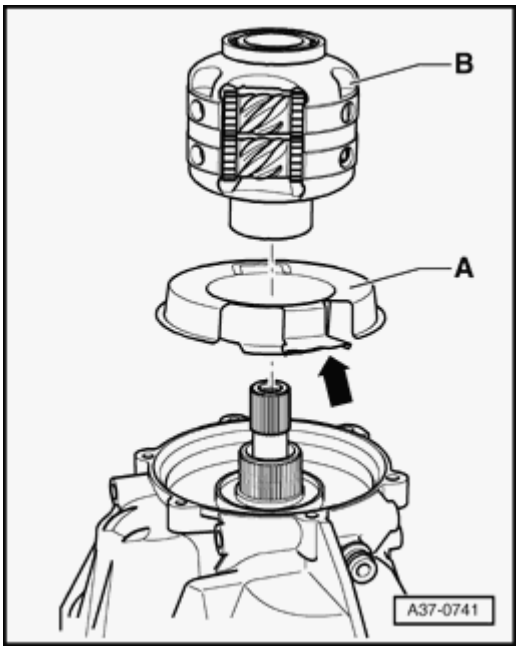

Fig. 339: Securing Torsen Differential And Baffle Plate To Prevent Them From Dropping Out

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

NOTE:

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

- Check whether the 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.

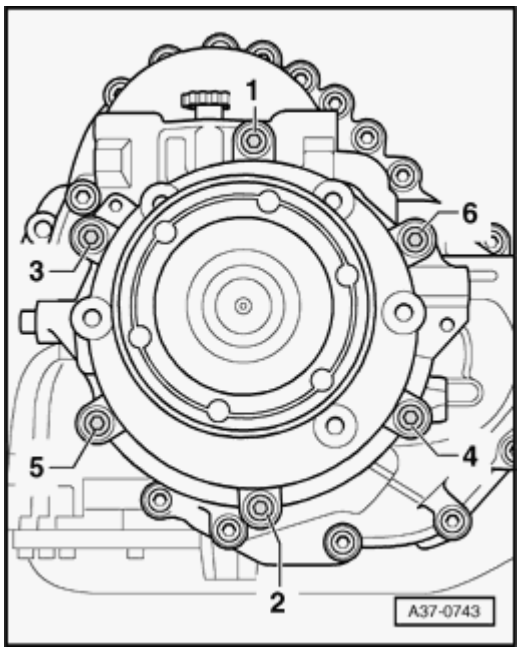

Fig. 340: Loosening/Tightening Securing Bolts For Cover For Torsen Differential In Sequence
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tighten bolts of cover 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 driveshaft -->
  - **39 FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE
  - **39 - FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE 0AR

  .
- Install exhaust system free of stress -->

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- **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
- **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
- **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
- **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): BNS
- **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

.

- 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 axle to transmission	23

Flanged shaft oil seal (rear), replacing

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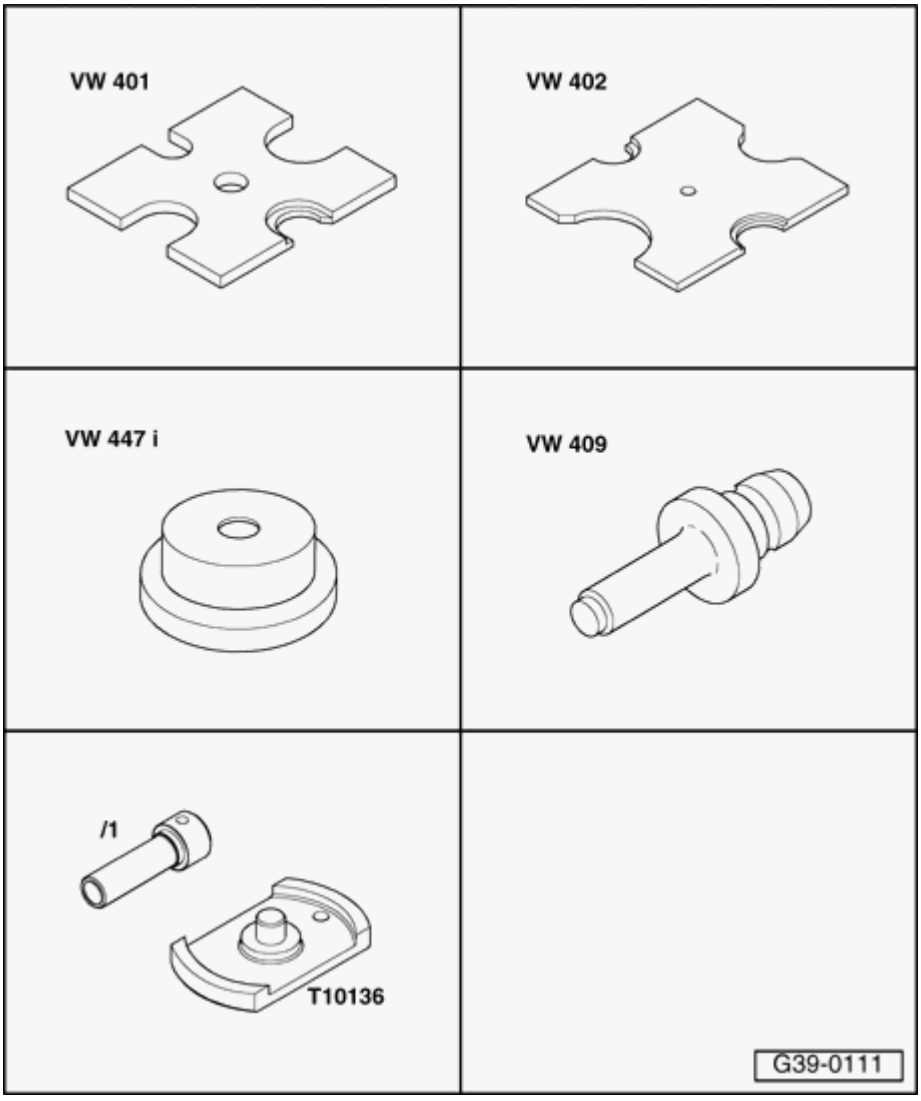

Fig. 341: Identifying Special Tools - Flanged Shaft Oil Seal (Rear), Replacing
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Thrust plate VW 401
- Thrust plate VW 402
- Thrust pad VW 447 i
- Punch VW 409

- Pressure application device T10136

Procedure

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

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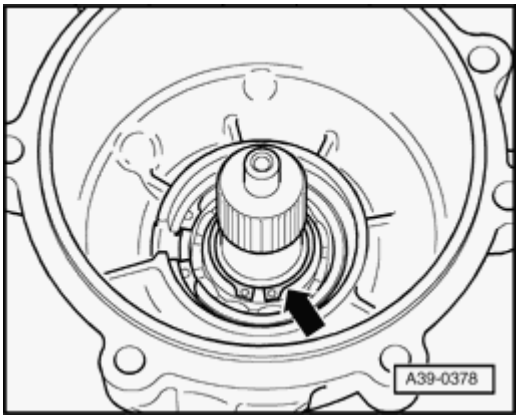

Fig. 342: Removing/Installing Circlip On Inner Side Of Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

NOTE:

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

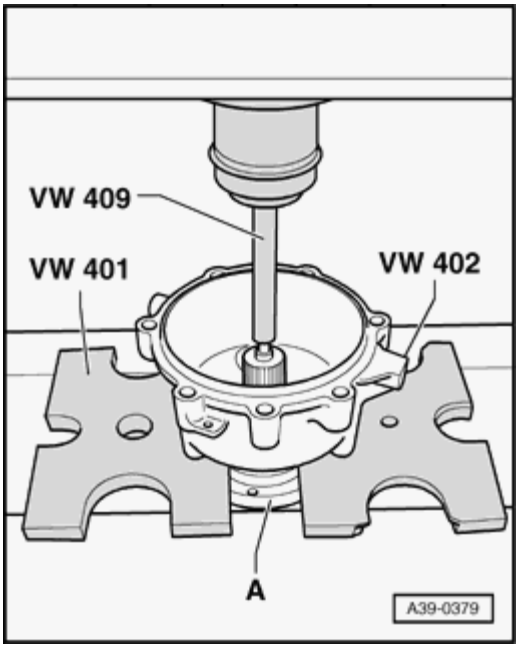

Fig. 343: Using Punch VW 409 To Press Flange Shaft Out Of Torsen Differential Cover By Placing Cover On Thrust Plate VW 401 And Thrust Plate VW 402
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Using punch VW 409, press flange shaft out of Torsen differential cover by placing cover on thrust plate VW 401 and thrust plate VW 402.

NOTE:

- **Hold flange shaft - A - with one hand to prevent it from falling.**

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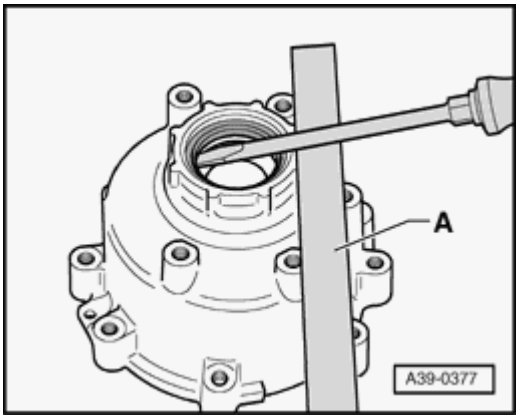

Fig. 344: Prying Out Oil Seal
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Pry out oil seal.

NOTE:

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

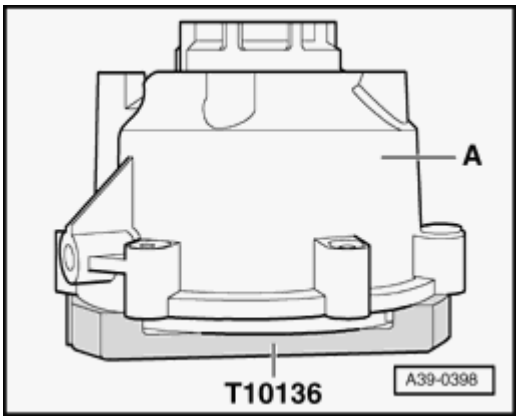

Fig. 345: Placing Torsen Differential Cover On Pressure Application Device T10136
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Place Torsen differential cover - **A** - 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 pressure application device T10136/1.**

- Lubricate outer circumference of seal with gear oil
- Push new seal onto pressure application device T10136/1.

- Installation position: open side of seal faces cover.

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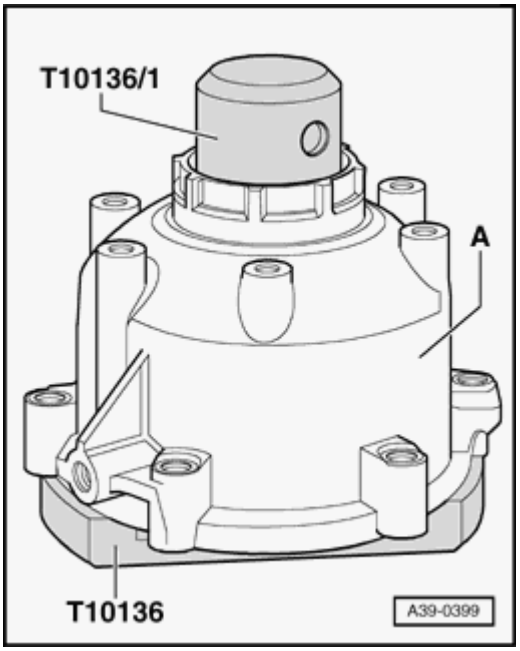

Fig. 346: Inserting Pressure Application Device T10136/1 With Seal Into Cover From Above
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert pressure application device 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* .

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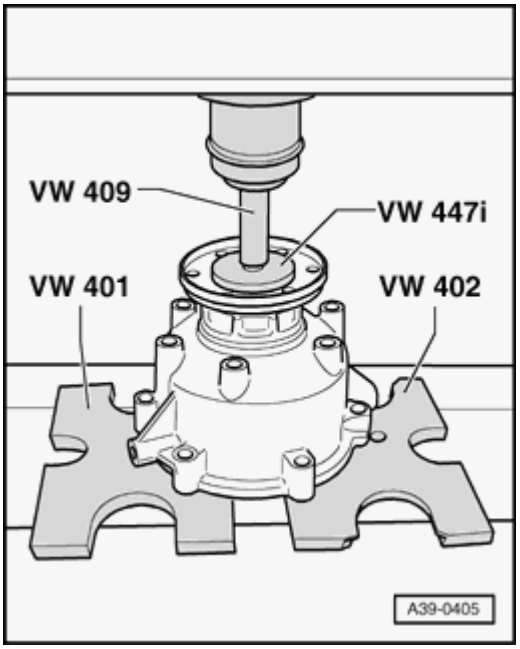

Fig. 347: Pressing Flange Shaft Using Punch VW 409 And Thrust Pad VW 447 I Into Torsen Differential Cover By Placing Cover On Thrust Plate VW 401 And Thrust Plate VW 402
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press flange shaft 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.

NOTE:

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

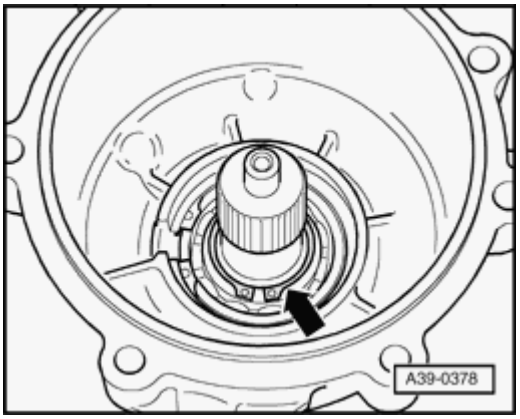

Fig. 348: Removing/Installing Circlip On Inner Side Of Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

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32 TORQUE CONVERTER

TORQUE CONVERTER

Torque converter

CAUTION: Before installing transmission check position of torque converter.

NOTE:

- **Read the rules for cleanliness when working on the automatic transmission --> Rules for cleanliness.**
- **General repair instructions --> General repair instructions.**
- **Apply thin coat of ATF to seals. Other types of lubricant will cause the transmission hydraulics to malfunction.**

Torque converter, identification

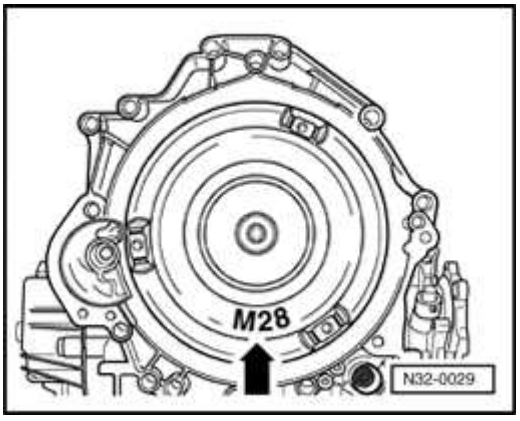

Fig. 8: Torque Converter, Identification
Courtesy of VOLKSWAGEN UNITED STATES, INC.

There are various types of torque converter. They are marked with code letters - **arrow** -.

Torque converter/transmission allocation --> **Code letters, transmission allocation, ratios, equipment**.

Torque converter, draining

Special tools, testers and auxiliary items required

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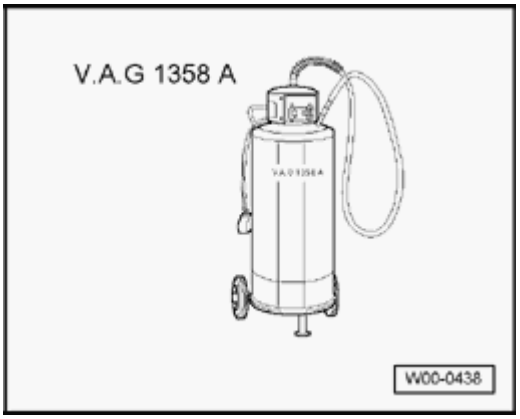

Fig. 9: Special Tool - Oil Extraction Unit V.A.G 1358 A
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Oil extractor V.A.G 1358 A
- Oil extractor probe V.A.G 1358 A/1

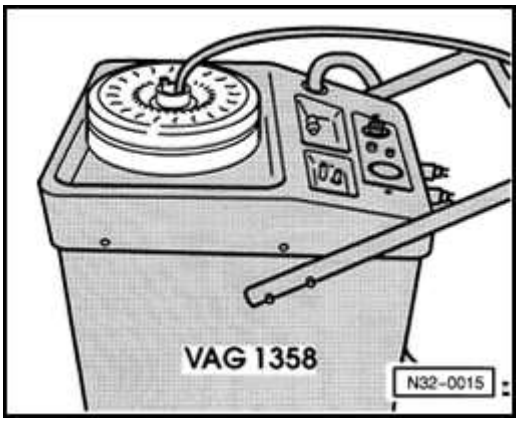

Fig. 10: Extracting ATF From Torque Converter Using Oil Extractor V.A.G 1358 A And Oil Extractor Probe V.A.G 1358 A/1
Courtesy of VOLKSWAGEN UNITED STATES, INC.

If the ATF has become fouled by abrasion or when performing a major transmission overhaul, drain the torque converter as follows:

- Extract ATF from torque converter using oil extractor V.A.G 1358 A and oil extractor probe V.A.G 1358 A/1.

Torque converter oil seal, replacing

Special tools, testers and auxiliary items required

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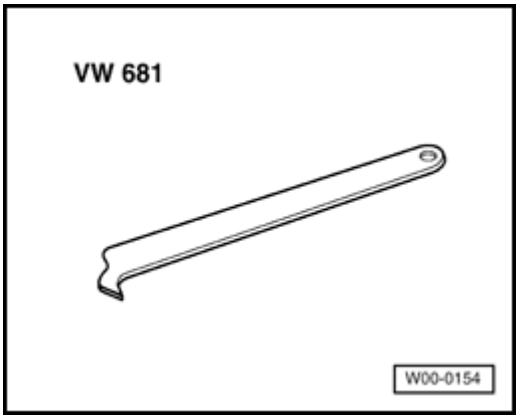

Fig. 11: Special Tool - Oil Seal Extractor Lever VW 681
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Extractor lever VW 681

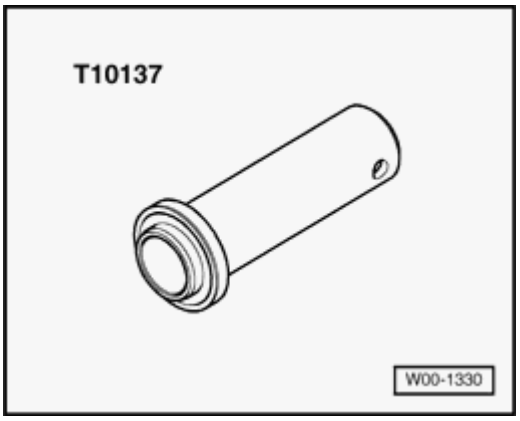

Fig. 12: Thrust Piece T10137
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Thrust piece T10137

Procedure

- Remove transmission: --> **Transmission, removing (vehicles with 2.0 ltr. TFSI engine)**, --> **Transmission, removing (vehicles with 3.2 ltr. FSI engine)**, --> **Transmission, removing (vehicles with 4.2 ltr. MPI engine)**.
- Mount transmission on assembly stand --> **Transmission, securing to assembly stand**.
- Carefully pull out torque converter.

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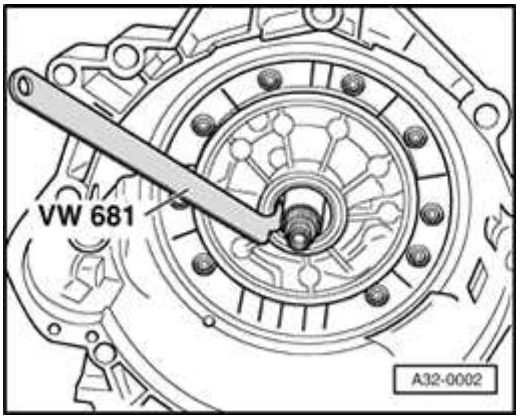

Fig. 13: Applying Extractor Lever VW 681 Directly Behind Sealing Lip Of Oil Seal
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove oil seal for torque converter using oil seal extractor VW 681.
- Lightly lubricate outer circumference and sealing lips of oil seal with ATF.

- Installation position: open side of oil seal points toward transmission

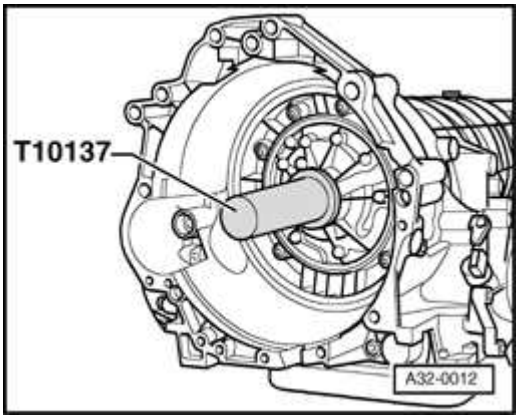

Fig. 14: Driving In Torque Converter Oil Seal With Thrust Piece T10137 Until Thrust Piece Reaches Stop
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drive in torque converter oil seal with thrust piece T10137 until thrust piece reaches stop.

Torque converter, checking

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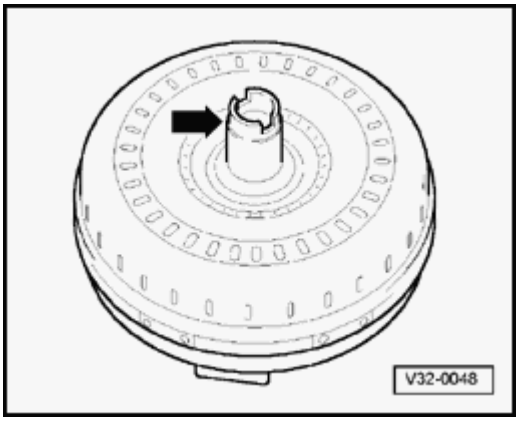

Fig. 15: Inspect Torque Converter Hub For Irregular Grooves
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Check hub - **arrow** - of torque converter for scoring.

NOTE:

- **The torque converter is a welded assembly and must be replaced as a complete unit in the event of any damage or malfunctions.**

Torque converter, installing

Special tools, testers and auxiliary items required

- Depth gauge

Installing

- Press torque converter hub through oil seal as far as first stop.
- Lightly press torque converter inward and turn until slots on torque converter hub engage in drive lugs on ATF pump gear and torque converter slides in a noticeable distance.

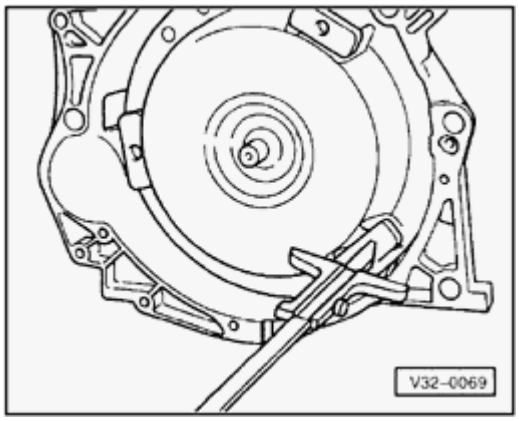

Fig. 16: Checking Torque Converter Is Correctly Positioned
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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Installed depth

If the torque converter is correctly installed, the depth between the contact surfaces at the tapped holes on the torque converter and the contact surface of the torque converter bell housing is at least 19 mm.

CAUTION: If the torque converter is not installed correctly, the torque converter drive lugs or the ATF pump will be seriously damaged when the transmission is joined to the engine.

- Use new ribbed bolts to secure torque converter to drive plate.

When installing the transmission, observe the following instructions.

CAUTION: Before and while you are tightening the bolts on the engine/transmission flange keep checking that the torque converter can still be rotated behind the drive plate. If the converter cannot be turned, it must be assumed that it has not been installed correctly and the drive lugs on the converter or the ATF pump will be damaged when the bolts are fully tightened.

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37 CONTROLS, HOUSING

ELECTRICAL/ELECTRONIC COMPONENTS AND LOCATIONS

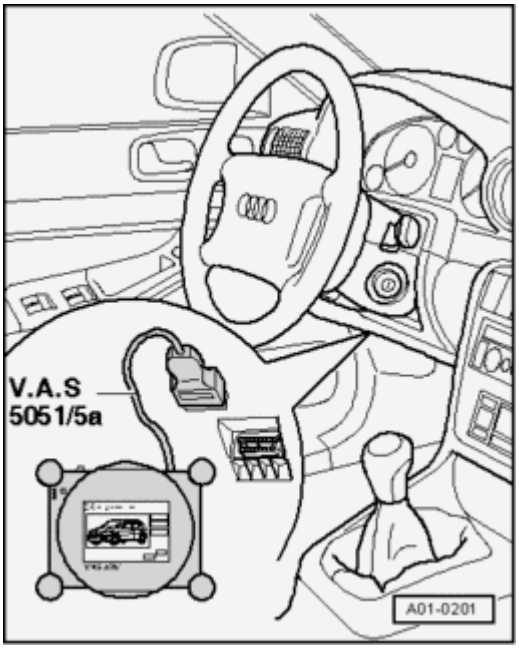

Fig. 17: Connecting Data Link Connector (DLC)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Data Link Connector (DLC)

Location: below knee padding on left side of steering wheel

The following components can be tested in the "Guided fault finding" using vehicle diagnostic, testing and information system VAS 5051 A.

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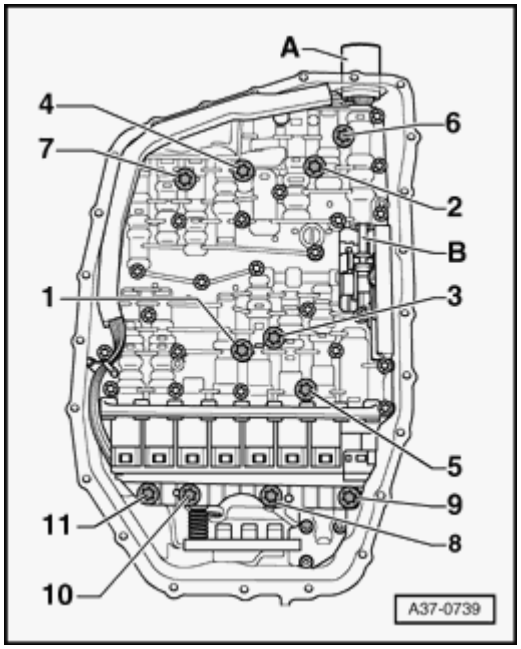

Fig. 18: Removing/Installing Securing Bolts For Mechatronics Unit In Sequence
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Mechatronics unit, Transmission Control Module (TCM) J217, Multi-function transmission range (TR) switch F125, Transmission input speed (RPM) sensor G182 and Transmission output speed (RPM) sensor G195

Location: the mechatronics unit is bolted to the underside of the transmission housing and covered by the transmission oil pan.

The mechatronics unit incorporates the hydraulic control system, the electronic control module and the sensors and actuators as a complete synchronized unit. This includes:

- Transmission Control Module (TCM) J217
- Multi-Function Transmission Range (TR) Switch F125
- Transmission Input Speed (RPM) Sensor G182
- Transmission Output Speed (RPM) Sensor G195

The "mechatronics" unit can only be replaced as a complete unit.

NOTE:

- **All components mentioned are tested via Self-diagnosis.**

- Removing and installing mechatronics unit --> **Mechatronics unit, removing and installing**

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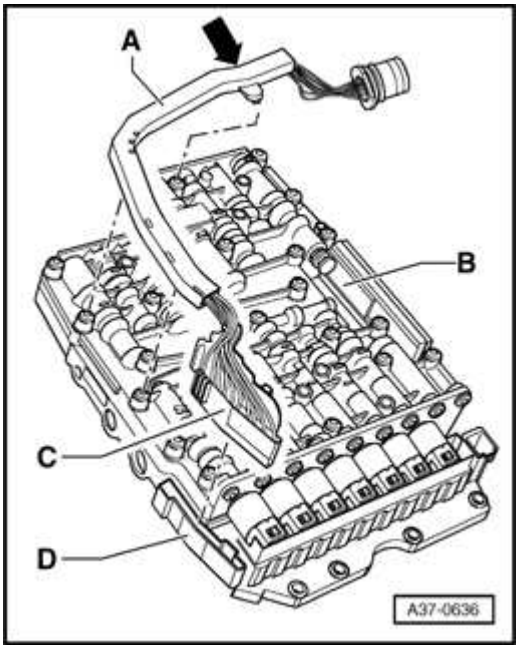

Fig. 19: Locating Wiring Harness With Connector Is Attached To The Mechatronics Unit
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Internal wiring harness in transmission

Location: the wiring harness - **A** - with connector - **C** - is attached to the mechatronics unit - **B** -.

- Removing and installing wiring harness --> **Wiring harness in transmission, removing and installing**.

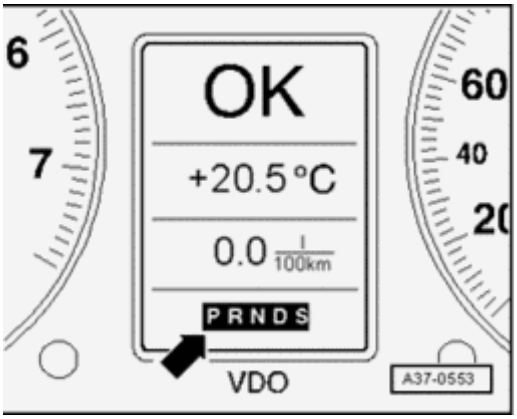

Fig. 20: Transmission Range (TR) Selector Lever Display -Y6-
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Transmission Range (TR) Display Y6

Location: integrated into instrument cluster

NOTE:

- **The Transmission Range (TR) Display Y6 can only be replaced together**

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with instrument cluster.

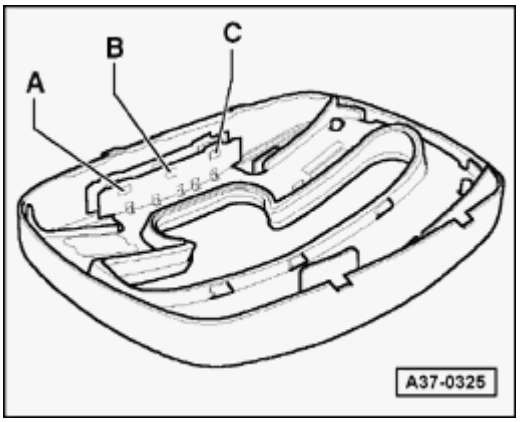

Fig. 21: Selector Mechanism Consists Of 3 Hall Senders, And
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Tiptronic switch F189

- Location: The Tiptronic switch F189 is integrated in the printed circuit of the symbol panel, which is located in the selector mechanism cover.
- Comprises 3 Hall sensors actuated by a magnet on transverse slide of the sliding cover.

A - Tip-down sensor

B - Sensor for Tiptronic recognition

C - Tip-up sensor

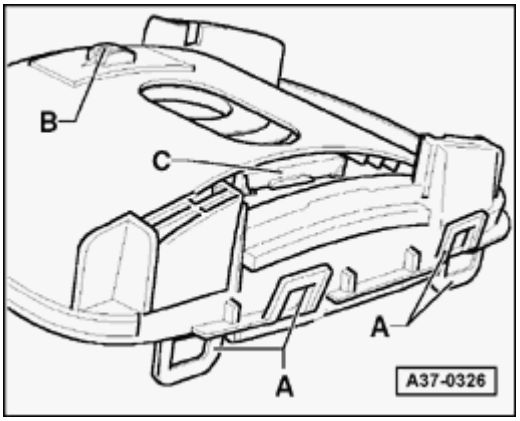

Fig. 22: Checking Whether Solenoid Is Properly Attached To Roll Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **In the event of faults, first check that magnet is properly secured on the transverse slide - C - of the sliding cover. Replace sliding cover if**

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necessary. Always check wiring before replacing symbol insert with integrated printed circuit. On vehicles with multi-function steering wheel the buttons on the steering wheel and their wiring connections must also be checked.

- **Ignore - item A - and - item B -.**

- Removing and installing Tiptronic switch F189 --> **Tiptronic switch F189, removing and installing**

SELECTOR MECHANISM, SERVICING

Selector mechanism, servicing

CAUTION: Before working on vehicle when engine is running, shift the selector lever into position "P" and apply the parking brake.

Ignition key removal lock, checking

- Turn ignition key to "ignition on" position.
- Press and hold brake pedal.

- When button in selector lever handle is pressed, it should be possible to move selector lever out of position "P" without "catching".
- It should not be possible to remove the ignition key when the selector lever is in any position other than "P".

- Shift selector lever to position "P".

- It should be possible to move ignition key to removal position without "sticking".

- Pull out ignition key.

- It should only be possible to remove ignition key in selector lever position "P".
- Selector lever cannot be shifted out of "P" position with button pressed and foot brake depressed.

If ignition key removal lock does not function as described, locking cable has to be adjusted --> Locking cable, adjusting.

Selector mechanism, checking

- It should not be possible to operate the starter while the selector lever is in position "S", "D", "R" or in the "Tiptronic gate".
- When travelling at speeds above 5 km/h and shifting into selector lever position "N", the solenoid for the selector lever lock must not engage and block the selector lever. The selector lever can be shifted into a driving gear.
- When travelling at speeds below 2 km/h (almost stationary) and shifting into selector lever position "N",

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the solenoid for the selector lever lock should only engage after about 1 second. Selector lever cannot be shifted out of "N" position until brake pedal is depressed.

Selector lever in "P" position and ignition switched on:

- Do not depress brake pedal.
- Selector lever is locked and cannot be shifted out of "P" position. Solenoid for selector lever lock blocks selector lever.
- Press and hold brake pedal.
- Solenoid for selector lever lock releases selector lever. It is possible to shift into a driving gear. Shift selector lever slowly from "P" position through "R, N, D and S" and check whether the display in the instrument cluster shows the correct selector lever position in each case.

Selector lever in "N" position and ignition switched on:

- Do not depress brake pedal.
- After a short waiting time: Selector lever is locked and cannot be shifted out of "N" position. Solenoid for selector lever lock blocks selector lever.
- Depress brake pedal.
- Solenoid for selector lever lock releases selector lever. It is possible to shift into a driving gear.

Selector lever in "D" position, ignition and lights switched on:

- Shift selector lever into "Tiptronic gate".
- The illuminated "D" symbol in the selector lever position indicator should go out and the "+" and "-" symbols should light up.
- The selector lever position indicator in the instrument cluster should switch from "PRNDS" to "654321" when the selector lever is shifted into the "Tiptronic gate".

If ignition key removal lock does not function as described, selector lever cable has to be checked and possibly adjusted --> **Selector lever cable, checking and adjusting**.

Selector mechanism cover, selector lever handle, component overview

NOTE:

- **Lubricate all bearings and moving surfaces with *polycarbamide grease G 052 142 A2* .**

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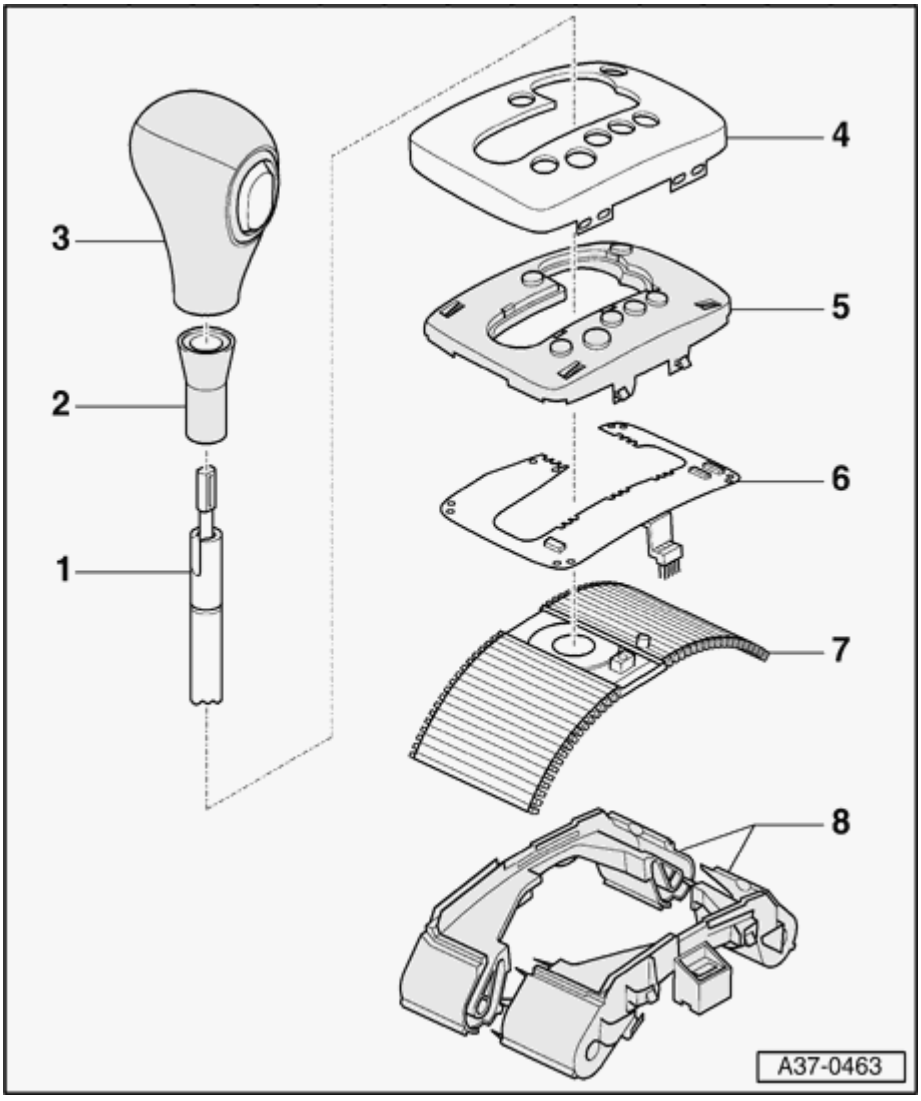

Fig. 23: Selector Mechanism Cover, Selector Lever Handle, Component Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Selector lever

2 - Sleeve for selector lever

- Removing and installing --> **Selector lever handle, removing and installing**

3 - Selector lever handle

- Removing and installing --> **Selector lever handle, removing and installing**

4 - Cover

- With position indicator and Tiptronic gate and display for selector lever lock

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- Removing and installing --> **Selector mechanism cover, removing and installing**

5 - Symbol insert

- Clipped onto cover

6 - Printed circuit board

- With integrated Tiptronic switch F189
- Removing and installing --> **Tiptronic switch F189, removing and installing**

7 - Sliding cover

- With integrated magnet for Tiptronic switch F189 on transverse slide.
- Removing and installing --> **Tiptronic switch F189, removing and installing**

8 - Guide for sliding cover

- Carefully pry apart two halves

Selector lever handle, removing and installing

Removing

- Shift selector lever to position "D".

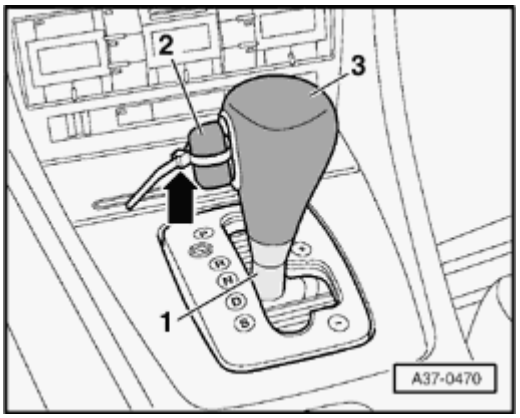

Fig. 24: Selector Lever Handle, Removing And Installing
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Turn sleeve - **1** - counter-clockwise and push down onto stop.
- Pull button - **2** - out of selector lever handle - **3** - carefully, just far enough to be able to insert a cable tie between button and selector lever.

NOTE:

- **Under no circumstances pull button out further, as selector lever handle**

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would then become damaged.

- Use cable tie to secure the button in its pulled position - **arrow** - , as shown in illustration.
- Remove selector lever handle by pulling it off.

Installing

Installation is performed in reverse sequence. Note the following:

- Shift selector lever to position "D".

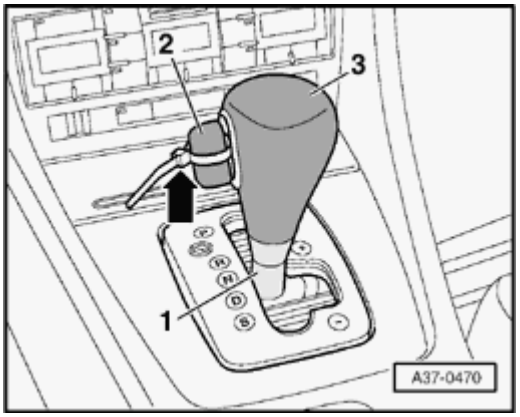

Fig. 25: Selector Lever Handle, Removing And Installing
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **To install the selector lever handle - 3 - the button - 2 - has to be pulled out to the stop and must be secured with either a cable tie - arrow - or with the assembly aid supplied together with the new handle.**
- **If, by mistake, the button has not been secured, it must not be pulled out of the selector lever handle using mechanical tools. Position a compressed air gun at the bottom of the handle and carefully press the button out with compressed air.**

- Install selector lever handle - **3** - fully onto selector lever; button - **2** - points toward the driver. The handle must engage in annular groove of selector lever.
- Remove cable tie - **arrow** - or assembly aid; the button mechanism will then engage in the vertical groove on the selector lever. If necessary, press button into selector lever handle.
- Pull sleeve - **1** - upward and engage by turning in clockwise direction.

Selector mechanism cover, removing and installing

Removing

- Remove selector lever handle --> **Selector lever handle, removing and installing**.

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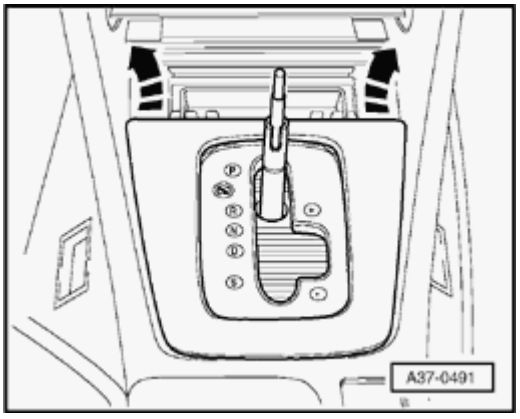

Fig. 26: Opening Ashtray In Center Console And Removing Trim
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Open ashtray on center console and remove trim - **arrows** -.

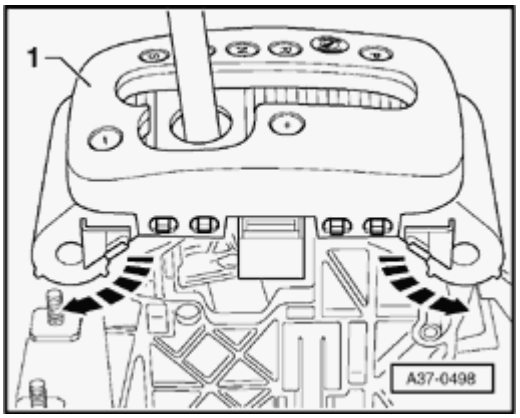

Fig. 27: Releasing Clips And Pulling Cover With Guide Upward To Remove
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Release 4 retainers - **arrows** - and lift off cover - **1** - including guide.
- Disconnect electrical connector from side of guide.

Installing

Installation is performed in reverse sequence. Note the following:

- Install selector lever handle --> **Transmission, installing (vehicles with 4.2 ltr. MPI engine)**.

Tiptronic switch F189, removing and installing

- Comprises 3 Hall sensors actuated by a magnet on the transverse slide of sliding cover.
- Also check that magnet is properly secured on transverse slide of sliding cover, replace sliding cover with guide if necessary.

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Removing

- Remove selector mechanism cover --> **Selector mechanism cover, removing and installing**.

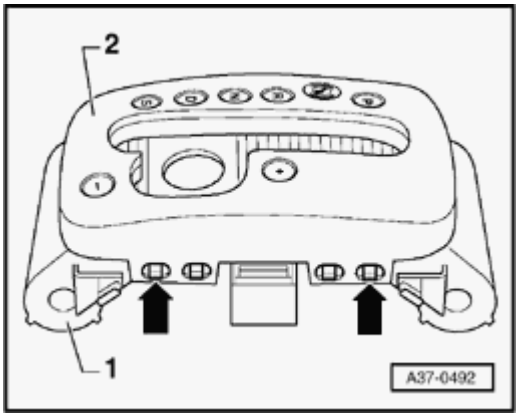

Fig. 28: Pressing Lugs Inward And Removing Cover From Guide
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press 4 locking hooks - **arrows** - inward and pull cover - **2** - off guide - **1** -.
- Take printed circuit with integrated Tiptronic switch F189 out of cover.

NOTE:

- **If necessary, the sliding cover with the magnet for the Tiptronic switch F189 can be removed as described below. However, as a replacement part the sliding cover is only available together with the guide.**

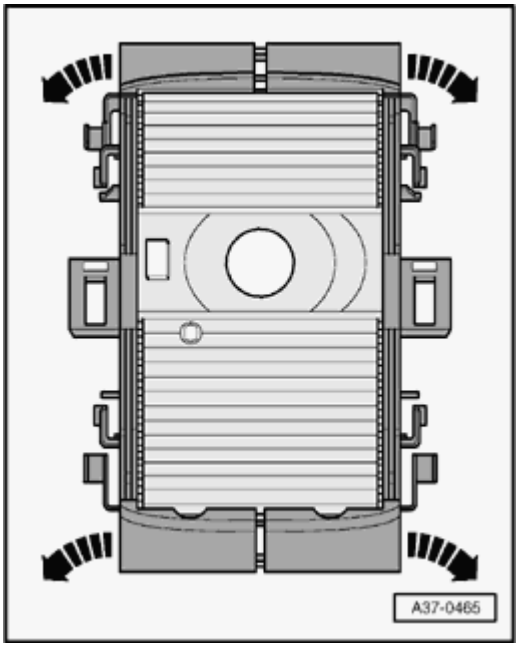

Fig. 29: Separating Both Guide Parts By Applying Careful Levering Movements
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Carefully separate two halves of guide by levering them apart - **arrows** -.
- Remove sliding cover with magnet for Tiptronic switch F189.

Installing

Installation is performed in reverse sequence. Note the following:

- Install selector mechanism cover --> **Selector mechanism cover, removing and installing**.
- Install selector lever handle --> **Transmission, installing (vehicles with 4.2 ltr. MPI engine)**.

Selector mechanism, component overview

NOTE:

- **Lubricate all bearings and moving surfaces with *polycarbamide grease G 052 142 A2* .**

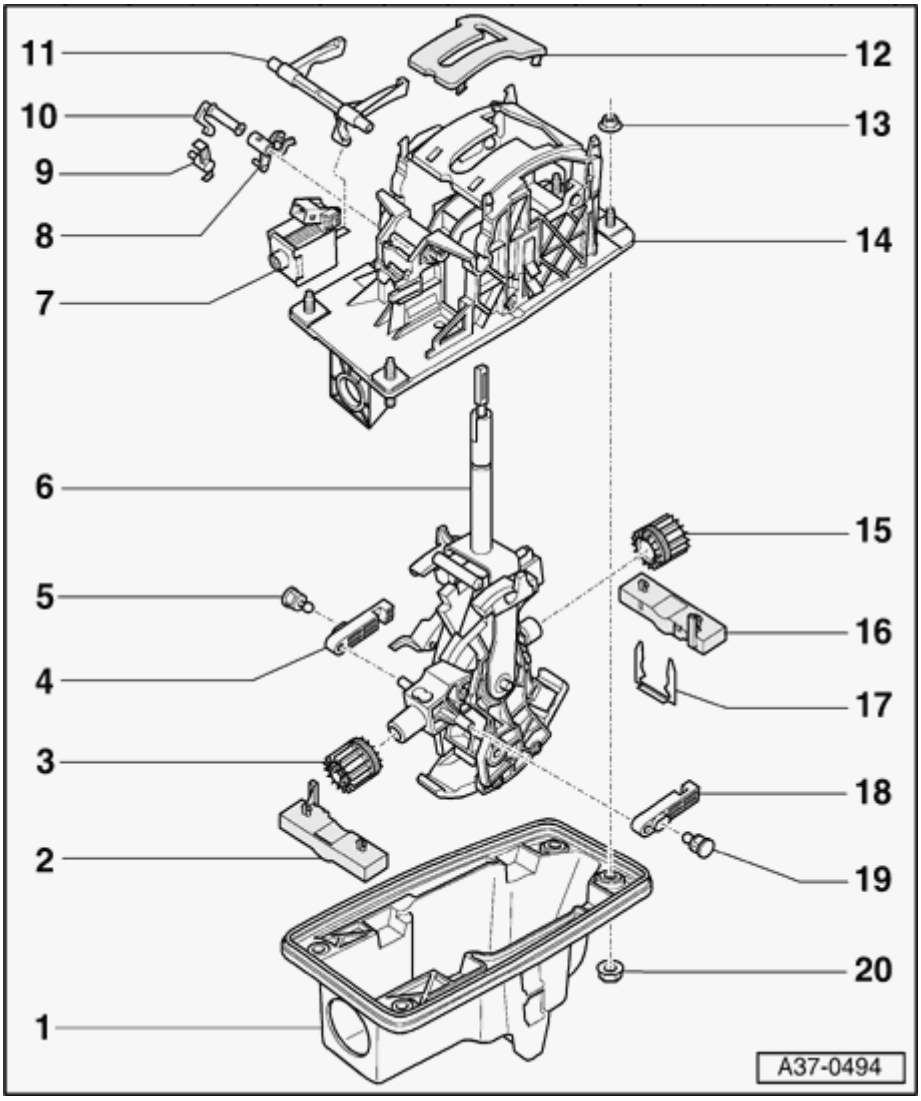

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Fig. 30: Selector Mechanism, Component Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Selector mechanism cover (bottom)

2 - Retaining clip for selector lever

3 - Bearing bushing

4 - Tiptronic locking lever

5 - Pivot pin

6 - Selector lever

7 - Shift lock solenoid N110

- Removing and installing --> **Shift lock solenoid N110, removing and installing**

8 - Actuating lever for locking cable

9 - Lock for locking cable

10 - Lever for locking cable

11 - Locking lever

12 - Selector gate

13 - 10 Nm

14 - Selector housing

15 - Bearing bushing

16 - Retaining clip for selector lever

17 - Retaining clip

- Replace

18 - Tiptronic locking lever

19 - Pivot pin

20 - 10 Nm

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Selector mechanism, removing and installing

NOTE:

- **The following procedure describes how to remove and install the selector mechanism without the selector lever cable, i.e. the selector lever cable remains in the vehicle.**

Removing

- Remove selector lever handle --> **Selector lever handle, removing and installing**.

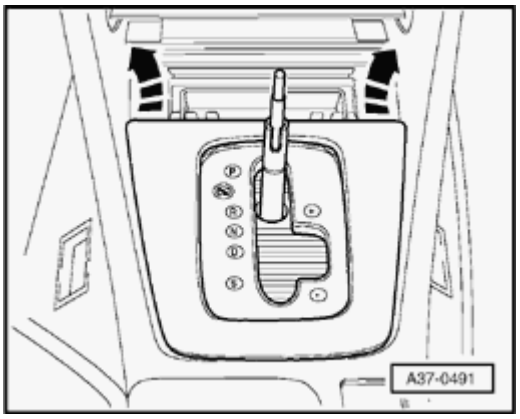

Fig. 31: Opening Ashtray In Center Console And Removing Trim
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Open ashtray on center console and remove trim - **arrows** -.
- Remove air conditioning control console --> **87 AIR CONDITIONING** .
- Remove ashtray from center console -->
  - **68 - INTERIOR EQUIPMENT**
  - **68 - INTERIOR EQUIPMENT** for BODY INTERIOR - CABRIOLET

.

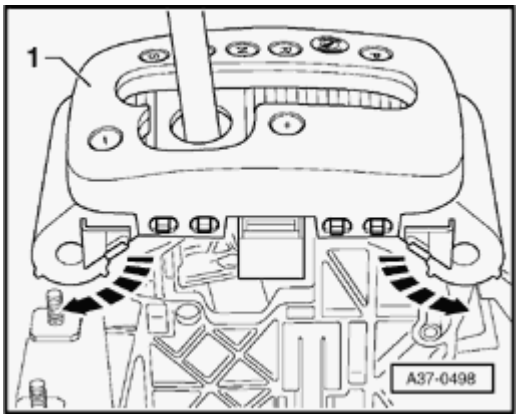

Fig. 32: Releasing Clips And Pulling Cover With Guide Upward To Remove
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Release 4 retainers - **arrows** - and lift off cover - **1** - including guide.
- Disconnect electrical connector from side of guide.
- Disconnect electrical connector from Shift lock solenoid Shift lock solenoid N110.

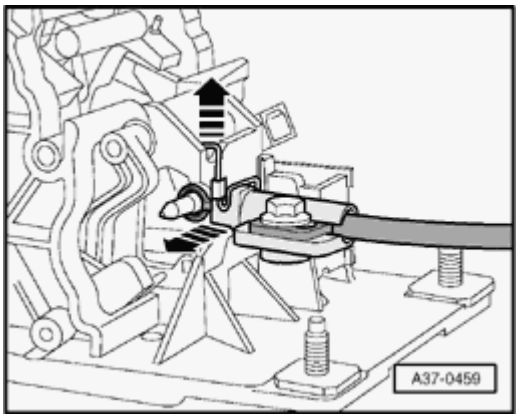

Fig. 33: Disengaging Locking Cable
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unhook locking cable - **arrows** -.
- Shift selector lever to position "S".

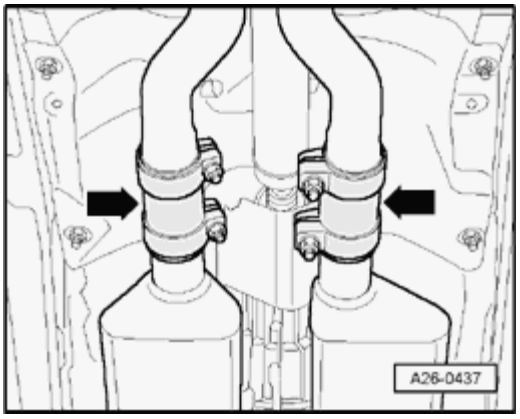

Fig. 34: Loosening Clamping Sleeves
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Vehicles with 4.2 ltr. MPI engine:

NOTE:

- **To prevent damage, the flexible couplings in the front exhaust pipes must not be bent further than 10°.**

- Disconnect exhaust system at clamps - **arrows** -.
- Disengage rear section of exhaust system at rubber mountings and remove.

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NOTE:

- **A second technician is required for removing the rear section of the exhaust system.**

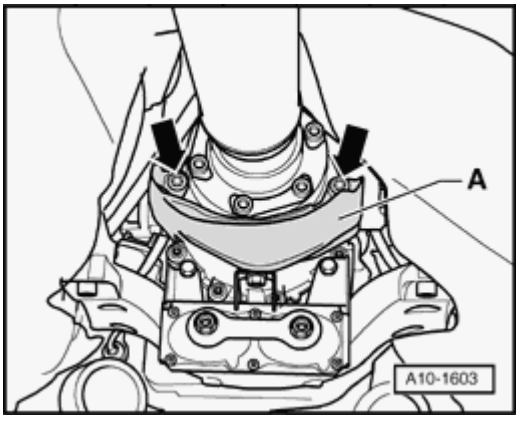

Fig. 35: Removing/Installing Heat Shield For Driveshaft
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect exhaust system at clamp - **arrow** -.
- Remove heat shield - **A** - for driveshaft - **arrows** -.

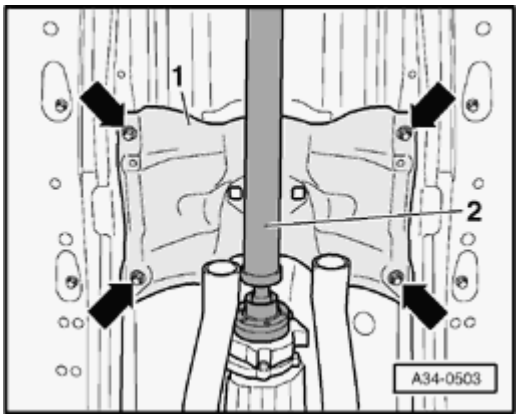

Fig. 36: Driveshaft Heat Shield Bolts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove heat shield - **1** - for exhaust system below selector mechanism - **arrows** -.
- Remove bolts at transmission/driveshaft flange.
- Push driveshaft - **2** - together toward rear final drive. The constant velocity joints can be moved axially.

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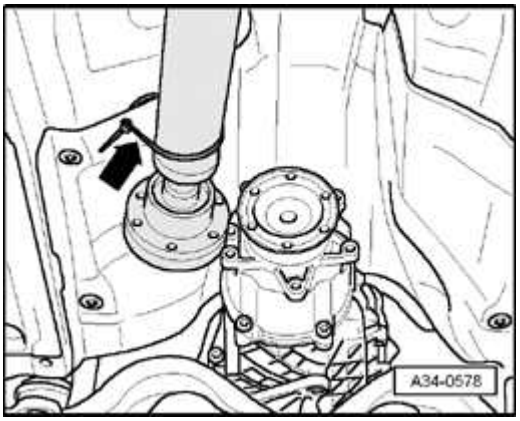

Fig. 37: Drive Shaft Tied To Side, Onto Heat Shield
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tie driveshaft to side, onto heat shield - **arrow** -.

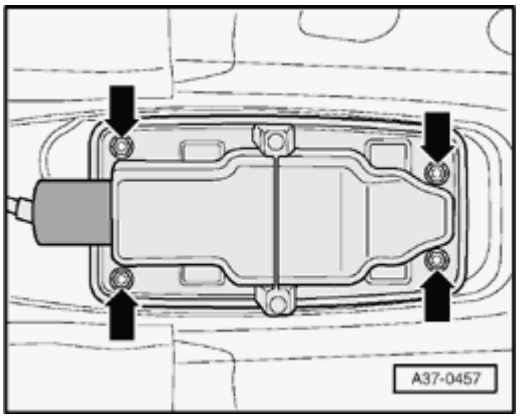

Fig. 38: Removing/Installing Lower Cover From/To Shift Mechanism
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove cover on underside of selector mechanism - **arrows** -.
- Remove selector lever cable sleeve from selector mechanism cover (bottom) and slide back.

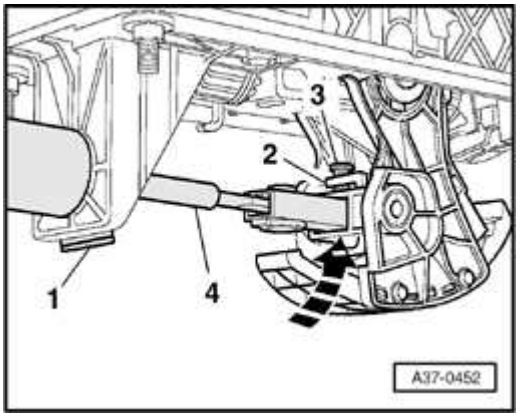

Fig. 39: Identifying Retaining Clip, Securing Spring, Push Pin & Selector Lever Cable

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove retaining clip - **1** - for selector lever cable by pulling it off downward at the selector mechanism.
- Pull plastic securing spring - **2** - slightly forward and press pin - **3** - upward, but only as far as is necessary - **arrow** -.

NOTE:

- **Make sure that pin is not pressed out completely.**

- Pull selector lever cable - **4** - out of selector mechanism.

NOTE:

- **Do not bend or kink the selector lever cable.**

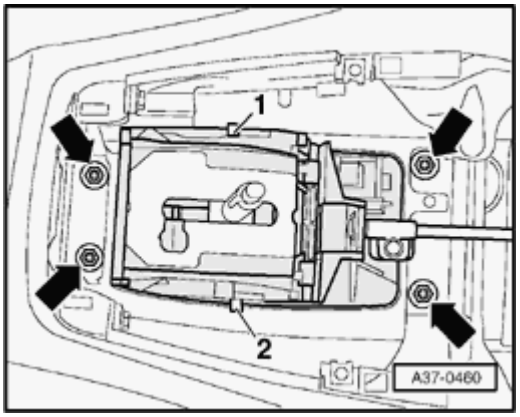

Fig. 40: Unscrewing Nuts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove nuts - **arrows** -.

NOTE:

- **A second technician is required to detach the selector mechanism under the vehicle.**

- Push retaining clips - **1** - and - **2** - inward, at the same time pushing the selector mechanism downward.

NOTE:

- **Do not bend or kink the selector lever cable.**

Installing

Installation is performed in reverse sequence. Note the following:

- Install selector lever cable --> **Selector lever cable, removing and installing (vehicles with 2.0 ltr. TFSI engine)**, --> **Selector lever cable, removing and installing (vehicles with 3.2 ltr. FSI engine)**, --> **Selector lever cable, removing and installing (vehicles with 4.2 ltr. MPI engine)**.

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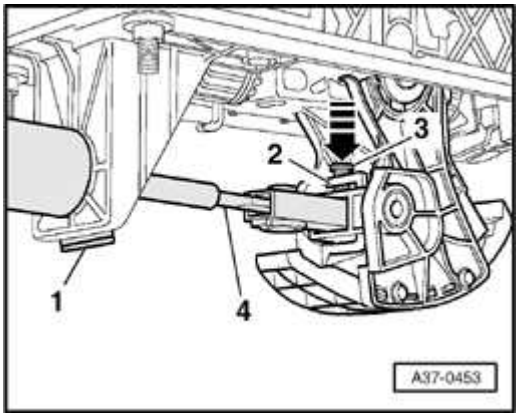

Fig. 41: Inserting End Of Selector Lever Cable Into Joint Of Selector Lever
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install new retaining clip - **1** - for selector lever cable on selector mechanism.
- Installation position: The angled end of the retaining clip faces to the inside of selector mechanism.
- Install locking cable --> **Locking cable, removing and installing**.
- Adjust locking cable --> **Locking cable, adjusting**.
- Adjust selector lever cable --> **Selector lever cable, checking and adjusting**.
- Bolt driveshaft onto transmission -->
  - **39 FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE
  - **39 - FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE 0AR

  .

- Install exhaust system free of stress -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
  - **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): BNS
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

  .

Tightening torques

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Component	Nm
Selector mechanism to body	10
Cover (bottom) to selector mechanism	10

Selector mechanism, disassembling and assembling

NOTE:

- **Removing and installing securing spring for locking cable Removing and installing securing spring for locking cable.**
- **If selector gate or selector housing are faulty the entire selector mechanism has to be replaced. The two components cannot be adjusted using workshop tools.**

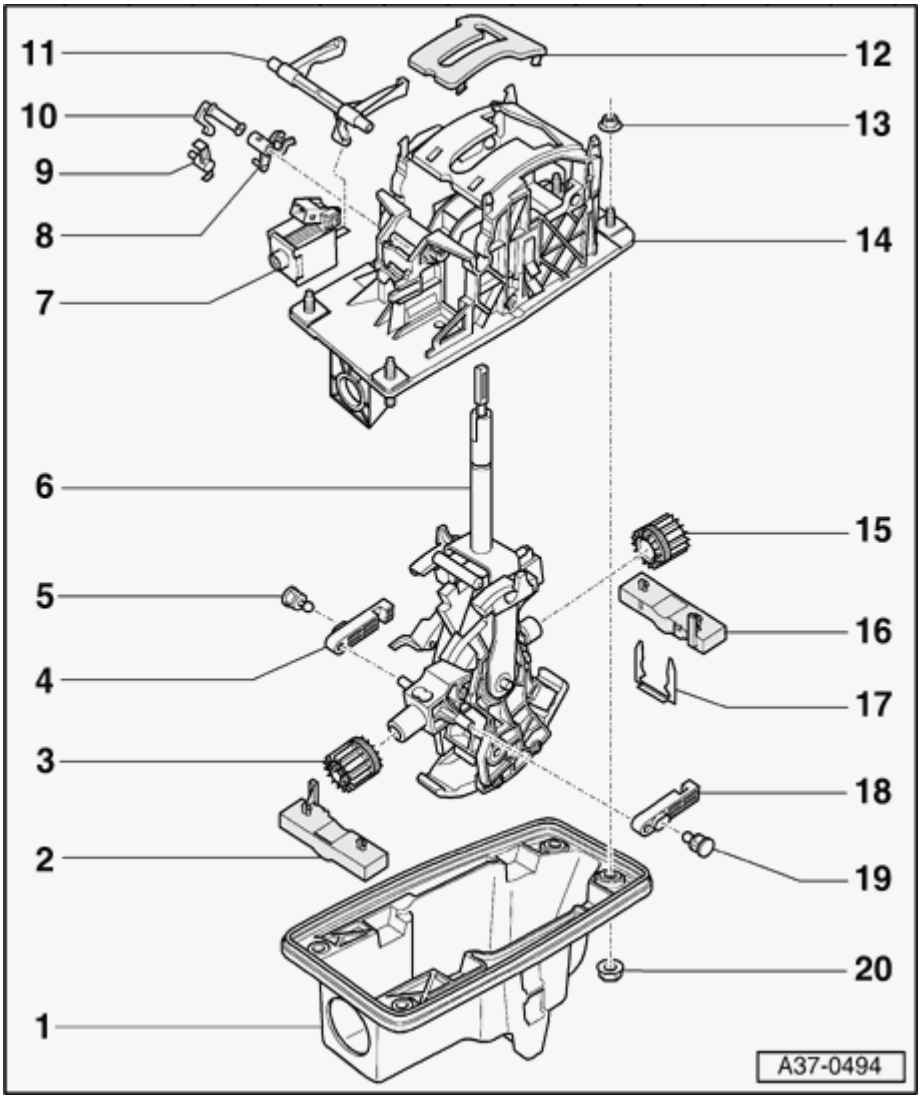

Fig. 42: Selector Mechanism, Disassembling And Assembling Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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Disassembling

- Shift selector lever to position "S".
- Remove Shift lock solenoid N110 - **item 7** - --> **Shift lock solenoid N110, removing and installing**.
- Unbolt and then unclip selector gate - **12** - from selector housing - **14** -.
- Release pivot pins - **5** - and - **19** - and pull them out sideways.
- Unclip retaining clips - **2** - and - **16** -.
- Pull off retaining clip - **17** -.
- Swivel locking lever - **11** - upward as far as it will go.
- Pull selector lever - **6** - together with bushings - **3** - and - **15** - and Tiptronic locking levers - **4** - and - **18** - downward out of selector housing - **14** -.

Assembling

- Make sure that selector lever is still in position "S".
- Swivel locking lever - **11** - upward as far as it will go.
- Insert selector lever - **6** - into selector lever housing - **14** - from below.
- Install Tiptronic locking levers - **4** - and - **18** - , and bushings - **3** - and - **15** - onto selector lever.
- Push selector lever - **6** - together with bushings into selector lever housing - **14** - and position with retaining clip - **17** -.
- Engage retaining clips - **2** - and - **16** - on selector lever housing.
- Press pivot pins - **5** - and - **19** - into selector lever - **6** - until they engage.
- Check that the pivot pins are engaged in the Tiptronic locking lever.
- Install Shift lock solenoid N110 - **item 7** - --> **Shift lock solenoid N110, removing and installing**.
- Clip selector gate - **12** - onto selector housing - **14** - and tighten to 0.4 Nm.

Removing and installing securing spring for locking cable

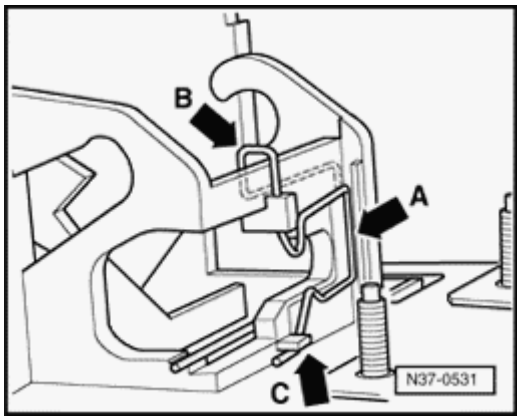

Fig. 43: Removing And Installing Securing Spring For Locking Cable

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

Removing

- To remove locking cable lift spring slightly at top - **arrow B** -.
- Disengage spring from retainer lug - **arrow C** - and lift out.

Installing

- Insert spring from above - **arrow B** - and engage under retainer lug - **arrow C** -.
- Align spring so that it lies level in groove - **arrow A** -.
- To install locking cable, lift spring slightly at the top - **arrow B** -.

Shift lock solenoid N110, removing and installing

Removing

- Remove selector mechanism cover --> **Selector mechanism cover, removing and installing**.

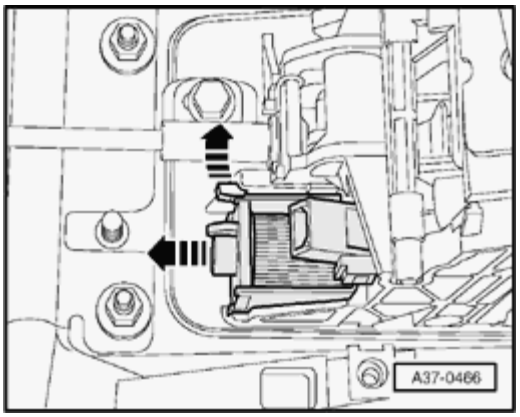

Fig. 44: Releasing Lugs And Selector Lever Lock Solenoid Forward
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical connector at Shift lock solenoid N110.
- Release retainer and pull out Shift lock solenoid N110 from front - **arrows** -.

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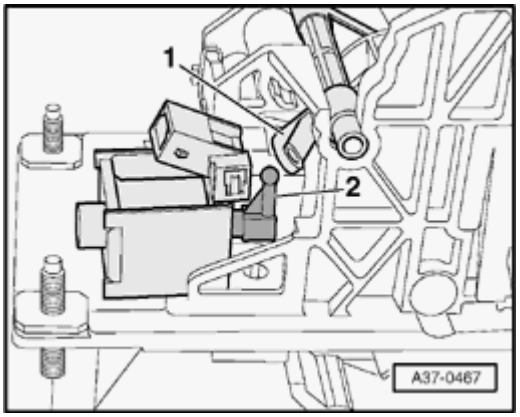

Fig. 45: Pressing Selector Lever Lock Solenoid Into Guide Until It Engages
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Installing

Installation is performed in reverse sequence. Note the following:

- Press Shift lock solenoid into guide until it engages. Actuating lever - **2** - for solenoid must engage in locking lever - **1** - on selector mechanism.
- Install selector mechanism cover --> **Selector mechanism cover, removing and installing**.

Selector lever cable and locking cable, components overview

NOTE:

- **Do not bend or kink the selector lever cable.**
- **Before installing, lightly lubricate cable eye and ball socket with *polycarbamide grease G 052 142 A2* .**

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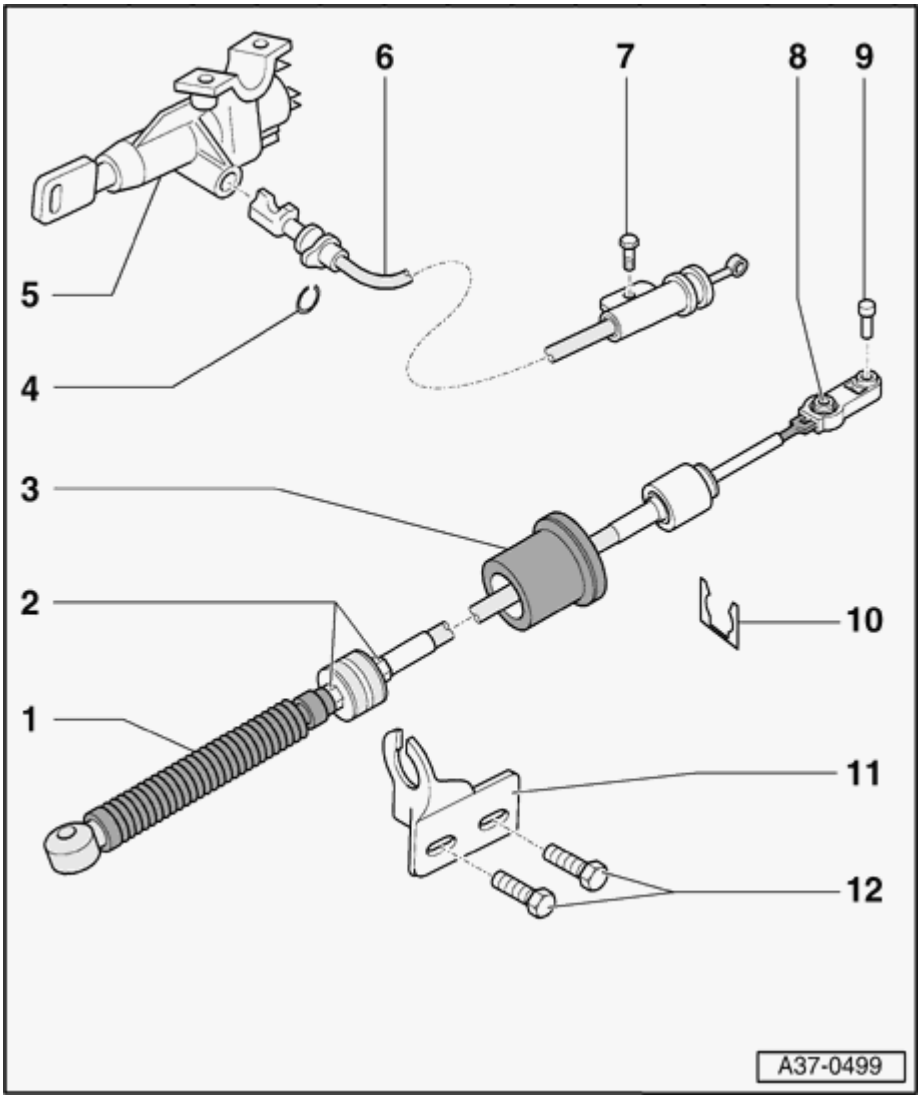

Fig. 46: Selector Lever Cable And Locking Cable, Assembly Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Selector lever cable

- Must not be kinked
- Removing and installing: --> **Selector lever cable, removing and installing (vehicles with 2.0 ltr. TFSI engine)**, --> **Selector lever cable, removing and installing (vehicles with 3.2 ltr. FSI engine)**, --> **Selector lever cable, removing and installing (vehicles with 4.2 ltr. MPI engine)**
- Adjusting --> **Selector lever cable, checking and adjusting**

2 - Lock nuts, 12 Nm

3 - Sleeve for selector lever cable

- Press into selector mechanism cover (bottom).

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4 - Circlip

5 - Starter switch

- With ignition key removal lock

6 - Locking cable for ignition key removal lock

- Must not be kinked
- Removing and installing --> **Locking cable, removing and installing**
- Adjusting --> **Locking cable, adjusting**

7 - Hex bolt, 9 Nm

8 - Clamping bolt for selector lever cable, 13 Nm

- Loosen 1 turn for adjusting, do NOT remove completely

9 - Pin for selector lever cable

- To remove selector lever cable pull plastic locking spring on selector mechanism forward slightly and push up pin just far enough to release cable.

10 - Retaining clip for selector lever cable

- Replace

11 - Support bracket

- For securing selector lever cable to transmission

12 - Hex bolt, 10 Nm

Selector lever cable, removing and installing (vehicles with 2.0 ltr. TFSI engine)

Removing

- Shift selector lever to position "P".

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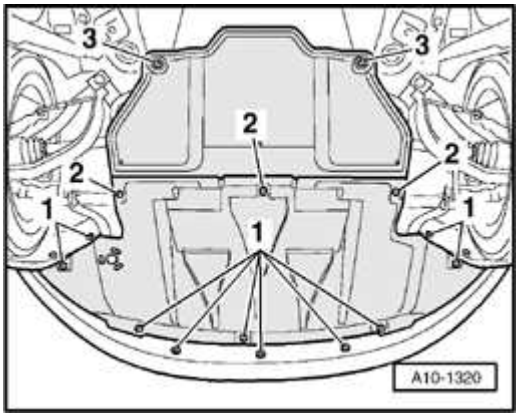

Fig. 47: Identifying Quick-Release Fasteners And Noise Insulation
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Open quick release fasteners - **2** - and - **3** - and remove rear sound insulation.

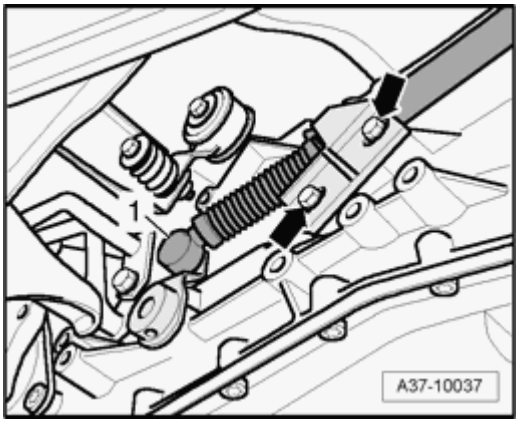

Fig. 48: Pressing Ball Socket Of Selector Lever Cable From Selector Shaft Lever & Removing Bracket On Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Pry ball socket - **1** - of selector lever cable off selector shaft lever.
- Remove support bracket from transmission - **arrows** -.

NOTE:

- **Shown in illustration with transmission support removed.**

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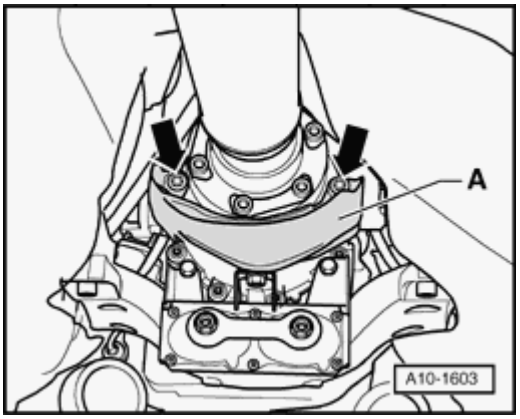

Fig. 49: Removing/Installing Heat Shield For Driveshaft
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove heat shield - **A** - for driveshaft - **arrows** -.

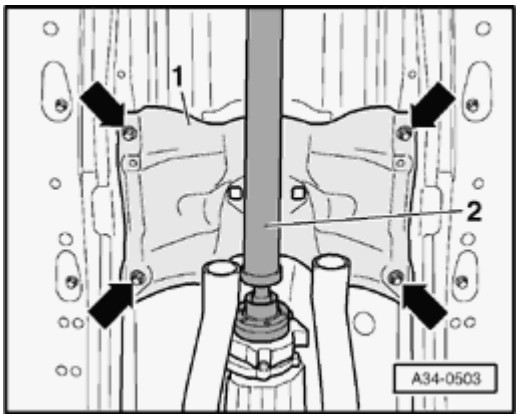

Fig. 50: Driveshaft Heat Shield Bolts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove heat shield - **1** - for exhaust system below selector mechanism - **arrows** -.
- Remove bolts at transmission/driveshaft flange.
- Push driveshaft - **2** - together toward rear final drive. The constant velocity joints can be moved axially.

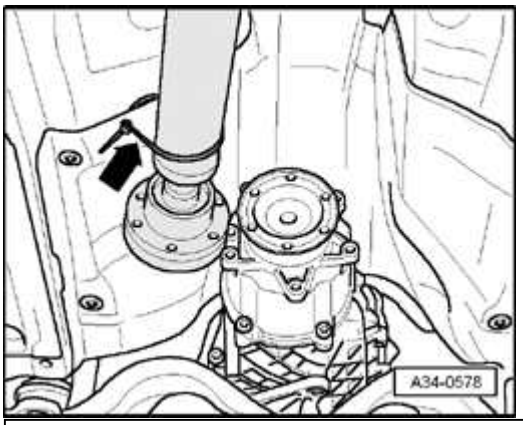

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Fig. 51: Drive Shaft Tied To Side, Onto Heat Shield
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tie driveshaft up to side onto heat shield - **arrow** -.

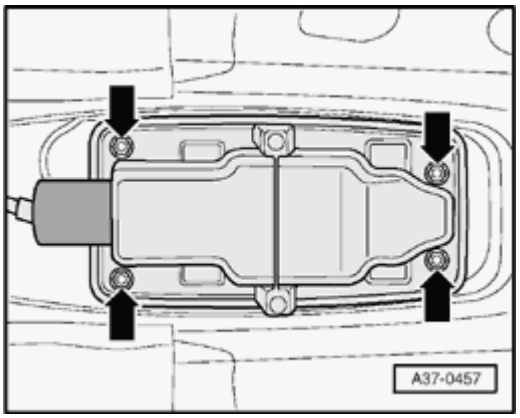

Fig. 52: Removing/Installing Lower Cover From/To Shift Mechanism
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove selector lever cable sleeve from selector mechanism cover (bottom) and slide back.
- Remove cover on underside of selector mechanism - **arrows** -.

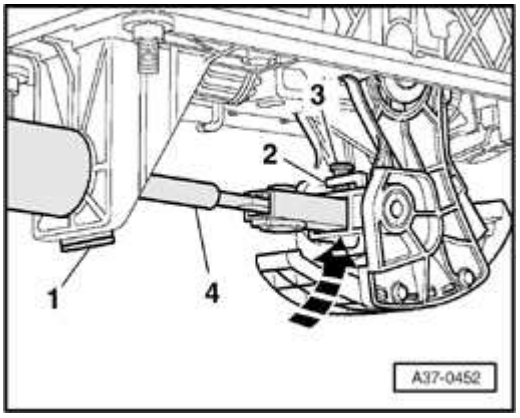

Fig. 53: Identifying Retaining Clip, Securing Spring, Push Pin & Selector Lever Cable
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove retaining clip - **1** - for selector lever cable by pulling it off downward at selector mechanism.
- Pull plastic securing spring - **2** - slightly forward and press pin - **3** - upward, but only as far as is necessary - **arrow** -.

NOTE:

- **Make sure that pin is not pressed out completely.**

- Pull selector lever cable - **4** - out of selector mechanism.

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NOTE:

- **Do not bend or kink the selector lever cable.**

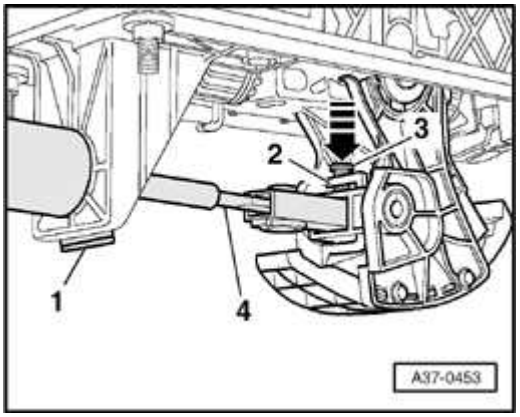

Fig. 54: Inserting End Of Selector Lever Cable Into Joint Of Selector Lever
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Installing

Installation is performed in reverse sequence. Note the following:

- Install new retaining clip - **1** - for selector lever cable on selector mechanism.
- Installation position: The angled end of the retaining clip faces to the inside of the selector mechanism.
- Insert end of selector lever cable - **4** - in joint on selector lever.
- Push pin - **3** - down - **arrow** -.
- Check that plastic securing spring - **2** - has locked the pin.

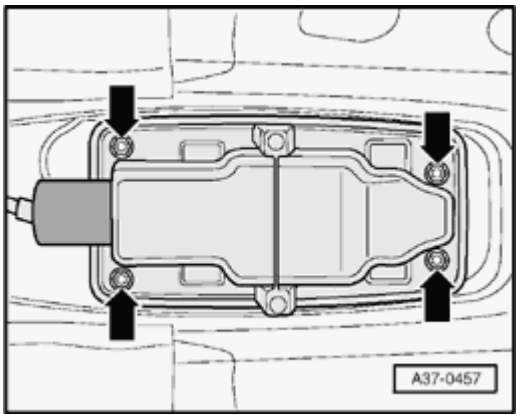

Fig. 55: Removing/Installing Lower Cover From/To Shift Mechanism
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Secure cover to underside of selector mechanism - **arrows** -.
- Attach sleeve for selector lever cable to selector mechanism cover (bottom).

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- Shift selector lever from position "P" to "S".

- Selector mechanism and selector lever cable must move freely. If necessary replace selector lever cable or service selector mechanism.

NOTE:

- **Do not bend or kink the selector lever cable.**

- Shift selector lever to position "P".

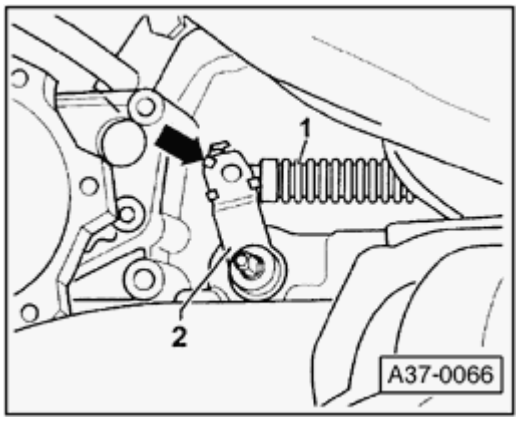

Fig. 56: Pushing Lever/Selector Shaft On Transmission Fully Forward Into Position "S"
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Push selector shaft lever - **2** - on transmission toward rear as far as possible (in illustration: as far as possible to the right) until parking lock engages.

NOTE:

- **When the parking lock has engaged it should no longer be possible to rotate both front wheels in one direction.**

- Make sure that the selector lever cable - **1** - has not been bent or kinked and that it is not under tension.

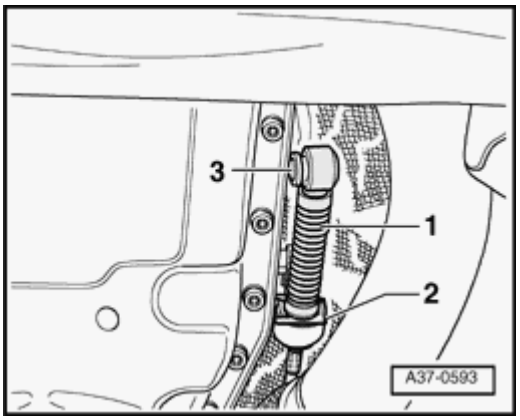

Fig. 57: Pressing Selector Lever Cable Onto Ball Head Of Selector Shaft Lever
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Carefully press selector lever cable - **1** - onto ball head of selector shaft lever - **3** -.

NOTE:

- **Make sure you do not bend the selector shaft lever when pressing on the ball socket, as this would make it impossible to obtain an accurate adjustment of the selector mechanism.**

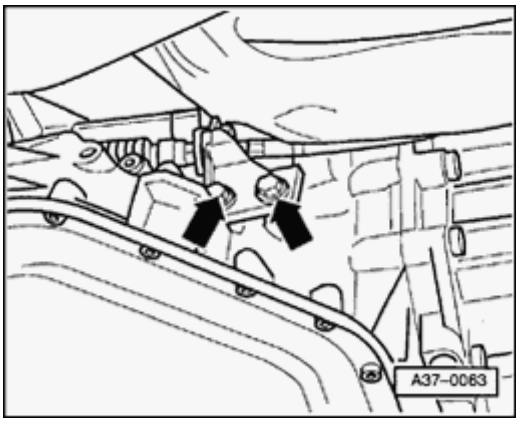

Fig. 58: Identifying Cable Support Bracket To Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Bolt on support bracket for selector lever cable - **arrows** -.
- Adjust selector lever cable --> **Selector lever cable, checking and adjusting**.
- Bolt driveshaft onto transmission -->
  - **39 FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE
  - **39 - FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE 0AR

  .
- Install exhaust system free of stress -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
  - **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): BNS
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

  .

Tightening torques

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Component	Nm
Cover (bottom) to selector mechanism	10
Selector lever cable to support bracket	12
Support bracket to transmission	10

Selector lever cable, removing and installing (vehicles with 3.2 ltr. FSI engine)

Special tools, testers and auxiliary items required

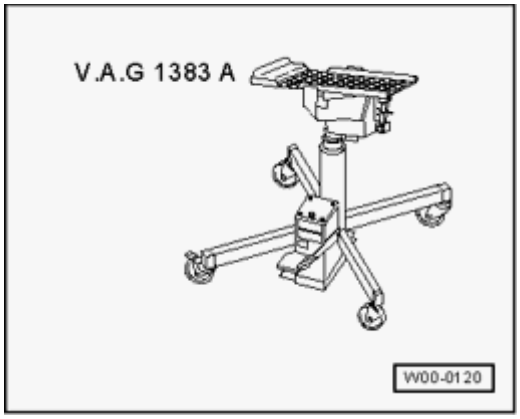

Fig. 59: Identifying Engine/Transmission Jack V.A.G. 1383 A
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Engine/transmission jack V.A.G 1383 A

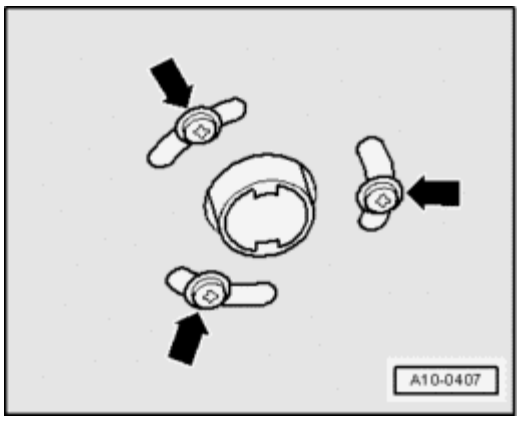

Fig. 60: Identifying Exhaust Pipe Fasteners
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Removing

- Shift selector lever to position "P".
- On vehicles equipped with auxiliary heater, remove screws - **arrows** - securing exhaust pipe of auxiliary heater to sound insulation.

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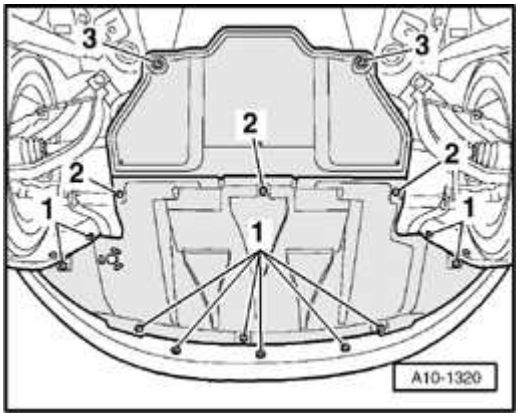

Fig. 61: Identifying Quick-Release Fasteners And Noise Insulation
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Open quick release fasteners - **2** - and - **3** - and remove rear sound insulation.

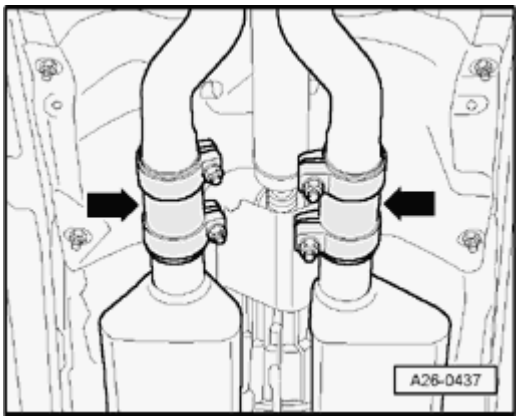

Fig. 62: Loosening Clamping Sleeves
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **To prevent damage, the flexible couplings in the front exhaust pipes must not be bent further than 10°.**

- Disconnect exhaust system at clamps - **arrows** -.
- Disengage rear section of exhaust system at rubber mountings and remove.

NOTE:

- **A second technician is required for removing the rear section of the exhaust system.**

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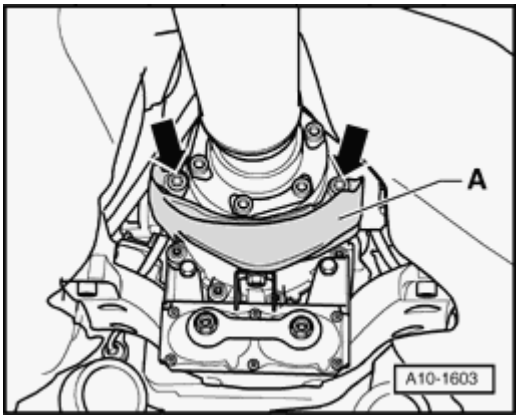

Fig. 63: Removing/Installing Heat Shield For Driveshaft
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove heat shield - **A** - for driveshaft - **arrows** -.

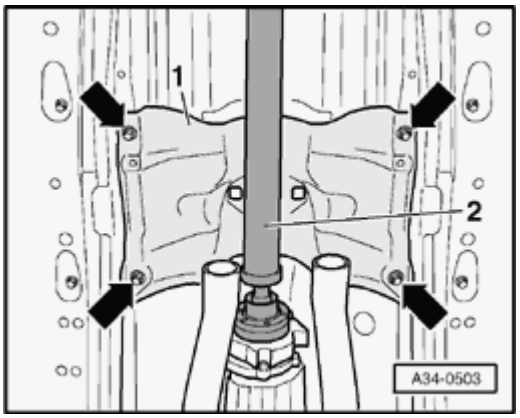

Fig. 64: Driveshaft Heat Shield Bolts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove heat shield - **1** - for exhaust system below selector mechanism - **arrows** -.
- Remove bolts at transmission/driveshaft flange.
- Push driveshaft - **2** - together toward rear final drive. The constant velocity joints can be moved axially.

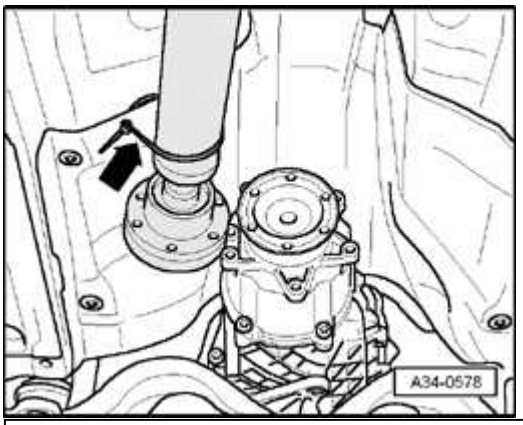

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Fig. 65: Drive Shaft Tied To Side, Onto Heat Shield
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tie driveshaft up to side onto heat shield - **arrow** -.

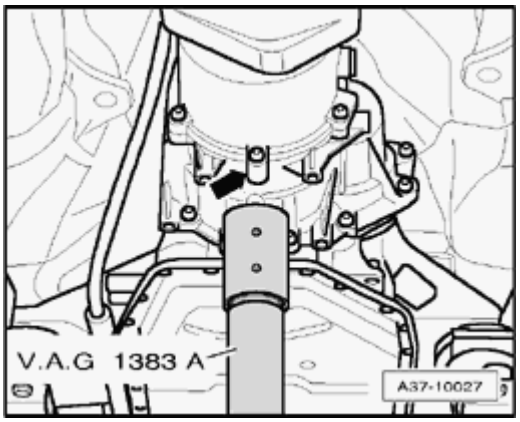

Fig. 66: Placing Lifting Surface Of Engine/Transmission Jack V.A.G 1383 A Centrally On Lower Housing Base
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove universal support V.A.G 1359/2 from engine/transmission jack V.A.G 1383 A.
- Place telescopic arm of engine/transmission jack V.A.G 1383 A centrally below cast lug on transmission housing - **arrow** - and support transmission from below.

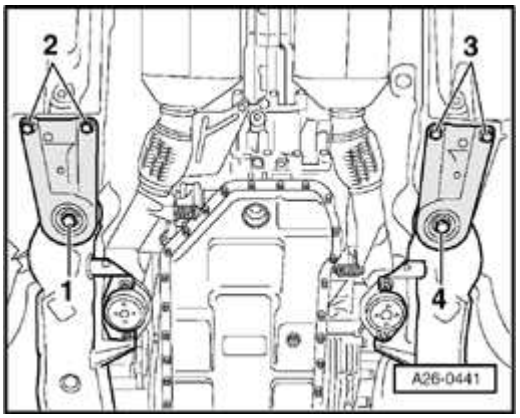

Fig. 67: Removing/Installing Bolts And Mounting Bolts Of Subframe
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **2** - and - **3** - and then subframe securing bolts - **1** - and - **4** -.

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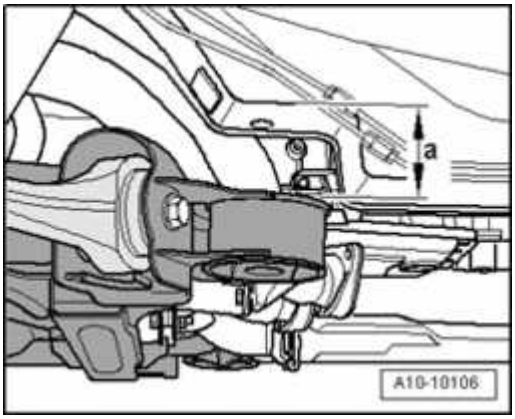

Fig. 68: Lowering Engine/Transmission Assembly Using Scissor Lift Platform VAS 6131 Only Approx. By Dimension
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Slowly lower transmission and subframe using engine/transmission jack V.A.G 1383 A until distance - **a** - is as specified.

- Dimension - **a** - = 50 mm

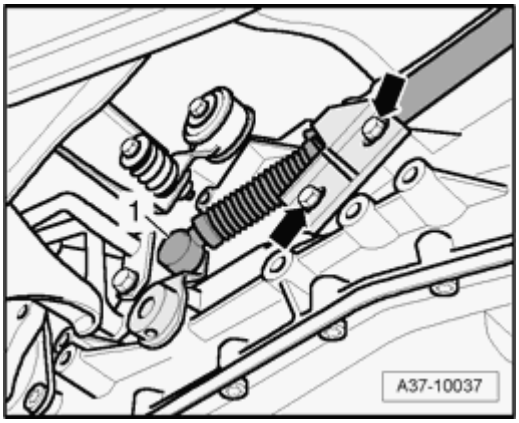

Fig. 69: Pressing Ball Socket Of Selector Lever Cable From Selector Shaft Lever & Removing Bracket On Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Pry ball socket - **1** - of selector lever cable off selector shaft lever.
- Remove support bracket from transmission - **arrows** -.

NOTE:

- **Shown in illustration with transmission support removed.**
- **Do not bend or kink the selector lever cable.**

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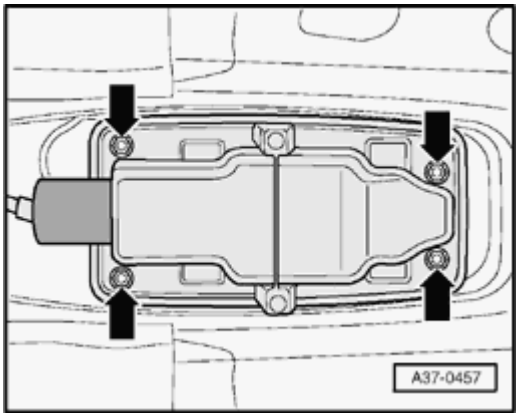

Fig. 70: Removing/Installing Lower Cover From/To Shift Mechanism
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove selector lever cable sleeve from selector mechanism cover (bottom) and slide back.
- Remove cover on underside of selector mechanism - **arrows** -.

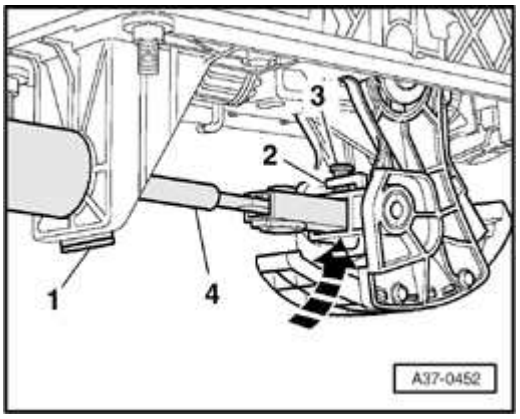

Fig. 71: Identifying Retaining Clip, Securing Spring, Push Pin & Selector Lever Cable
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove retaining clip - **1** - for selector lever cable by pulling it off downward at selector mechanism.
- Pull plastic securing spring - **2** - slightly forward and press pin - **3** - upward, but only as far as is necessary - **arrow** -.

NOTE:

- **Make sure that pin is not pressed out completely.**

- Pull selector lever cable - **4** - out of selector mechanism.

NOTE:

- **Do not bend or kink the selector lever cable.**

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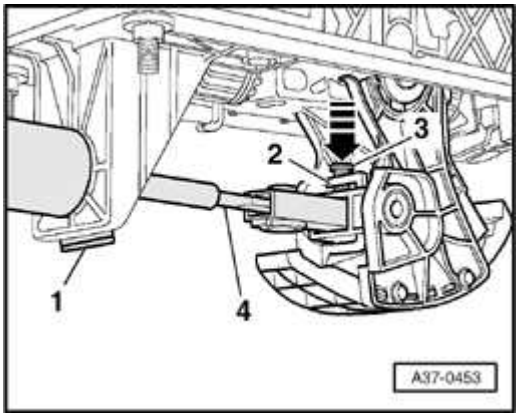

Fig. 72: Inserting End Of Selector Lever Cable Into Joint Of Selector Lever
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Installing

Installation is performed in reverse sequence. Note the following:

- Install new retaining clip - **1** - for selector lever cable on selector mechanism.
- Installation position: The angled end of retaining clip faces to the inside of selector mechanism.
- Insert end of selector lever cable - **4** - in joint on selector lever.
- Push pin - **3** - down - **arrow** -.
- Check that plastic securing spring - **2** - has locked the pin.

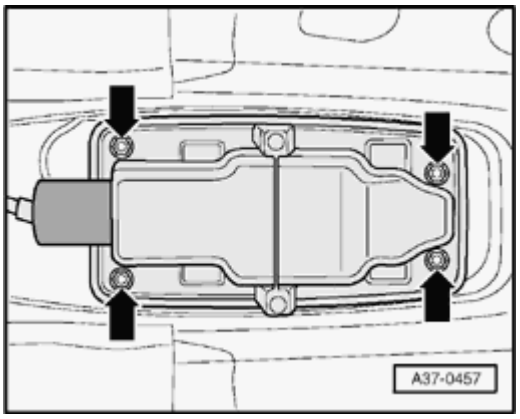

Fig. 73: Removing/Installing Lower Cover From/To Shift Mechanism
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Secure cover to underside of selector mechanism - **arrows** -.
- Attach sleeve for selector lever cable to selector mechanism cover (bottom).
- Shift selector lever from position "P" to "S".

- Selector mechanism and selector lever cable must move freely. If necessary replace selector lever cable or

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service selector mechanism.

NOTE:

- **Do not bend or kink the selector lever cable.**

- Shift selector lever to position "P".

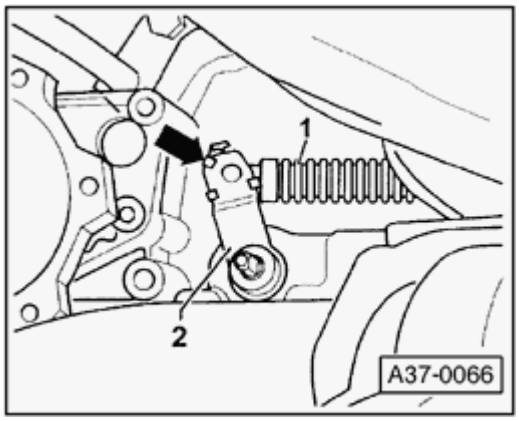

Fig. 74: Pushing Lever/Selector Shaft On Transmission Fully Forward Into Position "S"
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press selector shaft lever - **2** - on transmission as far as it will go toward the rear (in direction of - **arrow** -) until parking lock engages.

NOTE:

- **When the parking lock has engaged it should no longer be possible to rotate both front wheels in one direction.**

- Make sure that the selector lever cable - **1** - has not been bent or kinked and that it is not under tension.

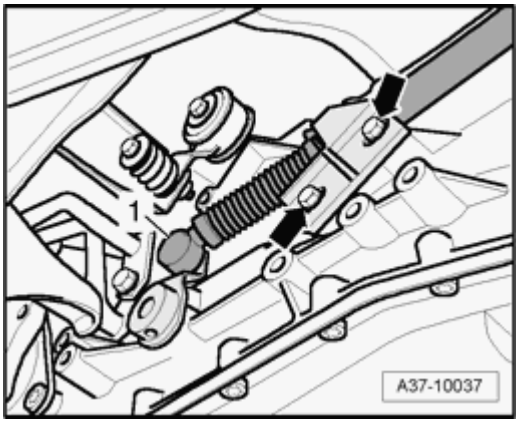

Fig. 75: Pressing Ball Socket Of Selector Lever Cable From Selector Shaft Lever & Removing Bracket On Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Carefully press selector lever cable - **1** - onto ball head of selector shaft lever.

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NOTE:

- **Make sure you do not bend the selector shaft lever when pressing on the cable, as this would make it impossible to obtain an accurate adjustment of the selector mechanism.**

- Bolt on support bracket for selector lever cable - **arrows** -.
- Adjust selector lever cable --> **Selector lever cable, checking and adjusting**.
- Install subframe, observing the correct tightening sequence --> **40 - FRONT SUSPENSION** .
- Bolt driveshaft onto transmission -->
  - **39 FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE
  - **39 - FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE 0AR

  .

- Install exhaust system free of stress -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
  - **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): BNS
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

  .

Tightening torques

Component	Nm
Cover (bottom) to selector mechanism	10
Selector lever cable to support bracket	12
Support bracket to transmission	10

Selector lever cable, removing and installing (vehicles with 4.2 ltr. MPI engine)

Special tools, testers and auxiliary items required

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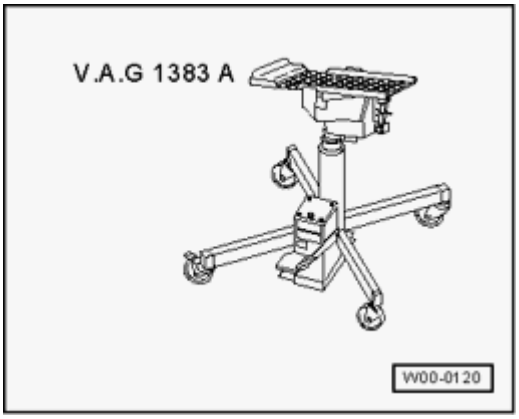

Fig. 76: Identifying Engine/Transmission Jack V.A.G. 1383 A
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Engine/transmission jack V.A.G 1383 A

Removing

- Shift selector lever to position "P".

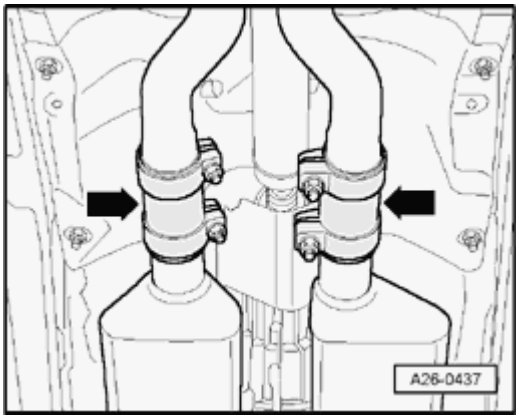

Fig. 77: Loosening Clamping Sleeves
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **To prevent damage, the flexible couplings in the front exhaust pipes must not be bent further than 10°.**

- Disconnect exhaust system at clamps - **arrows** -.
- Disengage rear section of exhaust system at rubber mountings and remove.

NOTE:

- **A second technician is required for removing the rear section of the exhaust system.**

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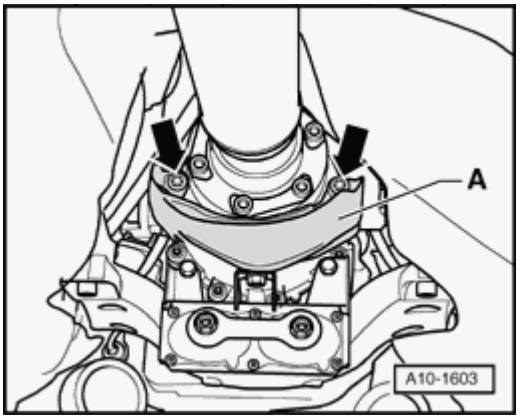

Fig. 78: Removing/Installing Heat Shield For Driveshaft
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove heat shield - **A** - for driveshaft - **arrows** -.

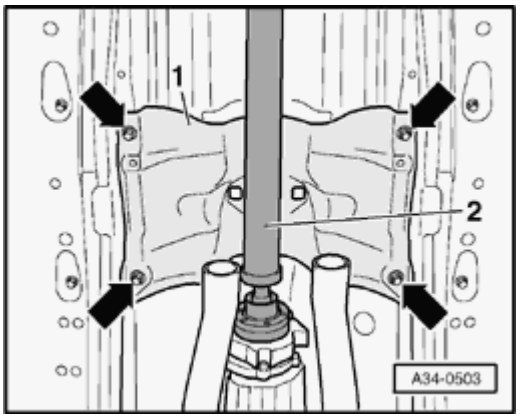

Fig. 79: Driveshaft Heat Shield Bolts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove heat shield - **1** - for exhaust system below selector mechanism - **arrows** -.
- Remove bolts at transmission/driveshaft flange.
- Push driveshaft - **2** - together toward rear final drive. The constant velocity joints can be moved axially.

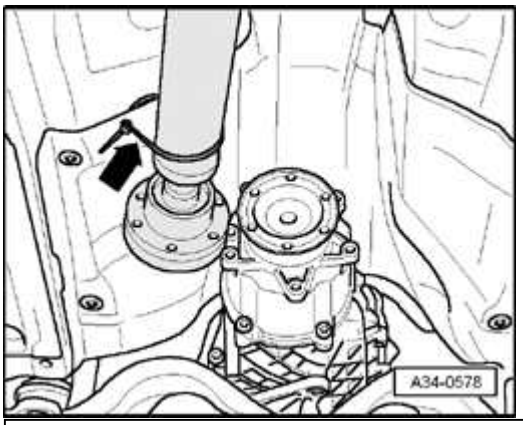

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Fig. 80: Drive Shaft Tied To Side, Onto Heat Shield
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tie driveshaft to side, onto heat shield - **arrow** -.

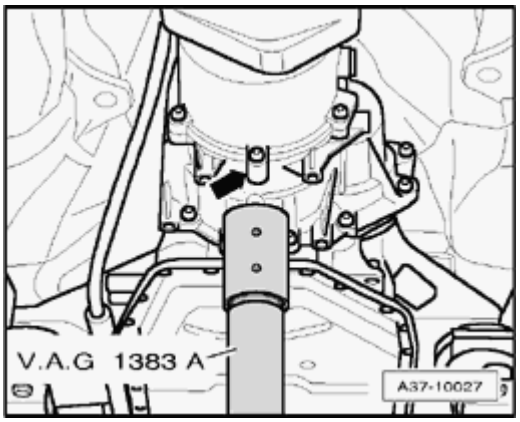

Fig. 81: Placing Lifting Surface Of Engine/Transmission Jack V.A.G 1383 A Centrally On Lower Housing Base
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Detach universal mounting bracket V.A.G 1359/2 from engine/transmission jack V.A.G 1383 A.
- Place telescopic arm of engine/transmission jack V.A.G 1383 A centrally below cast lug on transmission housing - **arrow** - and support transmission from below.

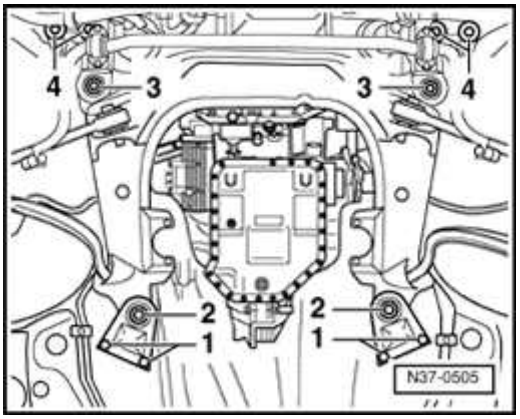

Fig. 82: Remove Bolts 2- And At Front And Rear Of Subframe On Both Sides Of Vehicle
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **1** - and - **2** - and lower subframe at rear.
- Remove transmission support (left-side) --> **Transmission support and transmission mounting, removing and installing (left and right)**.

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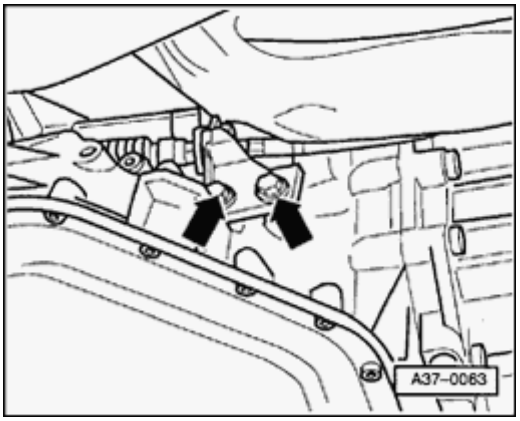

Fig. 83: Identifying Cable Support Bracket To Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove support bracket for selector lever cable - **arrows** -.

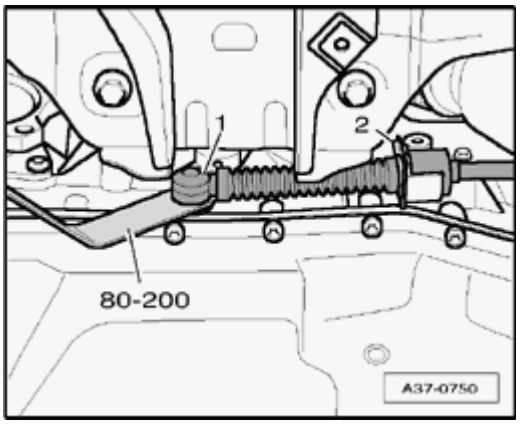

Fig. 84: Using Pry Lever - RMV Outside Mirror 80-200 To Pry Ball Socket On Selector Lever Cable Off Selector Shaft Lever
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Use pry lever - RMV outside mirror 80-200 to pry ball socket - **1** - on selector lever cable off selector shaft lever.

NOTE:

- **Do not bend or kink the selector lever cable.**
- **- Item 2 - can be disregarded.**

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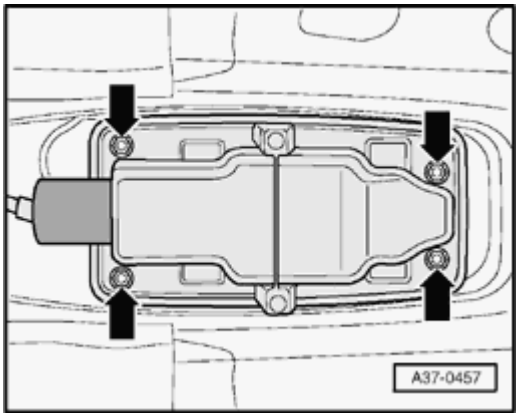

Fig. 85: Removing/Installing Lower Cover From/To Shift Mechanism
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove selector lever cable sleeve from selector mechanism cover (bottom) and slide back.
- Remove cover on underside of selector mechanism - **arrows** -.

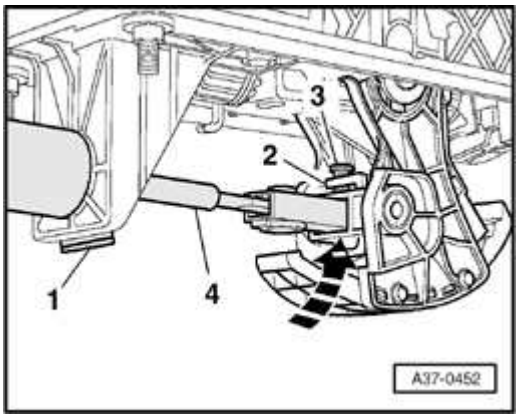

Fig. 86: Identifying Retaining Clip, Securing Spring, Push Pin & Selector Lever Cable
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove retaining clip - **1** - for selector lever cable by pulling it off downward at selector mechanism.
- Pull plastic securing spring - **2** - slightly forward and press pin - **3** - upward, but only as far as is necessary - **arrow** -.

NOTE:

- **Make sure that pin is not pressed out completely.**

- Pull selector lever cable - **4** - out of selector mechanism.

NOTE:

- **Do not bend or kink the selector lever cable.**

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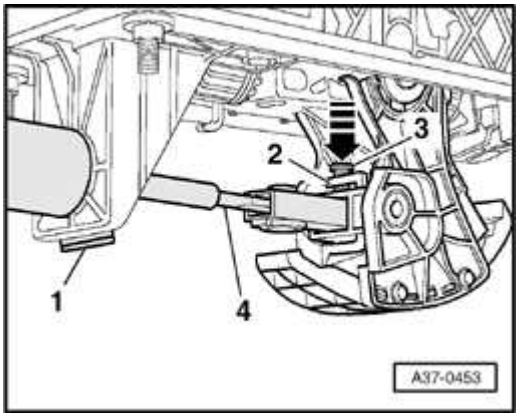

Fig. 87: Inserting End Of Selector Lever Cable Into Joint Of Selector Lever
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Installing

Installation is performed in reverse sequence. Note the following:

- Install new retaining clip - **1** - for selector lever cable on selector mechanism.
- Installation position: The angled end of the retaining clip faces to the inside of the selector mechanism.
- Insert end of selector lever cable - **4** - in joint on selector lever.
- Push pin - **3** - down - **arrow** -.
- Check that plastic securing spring - **2** - has locked the pin.

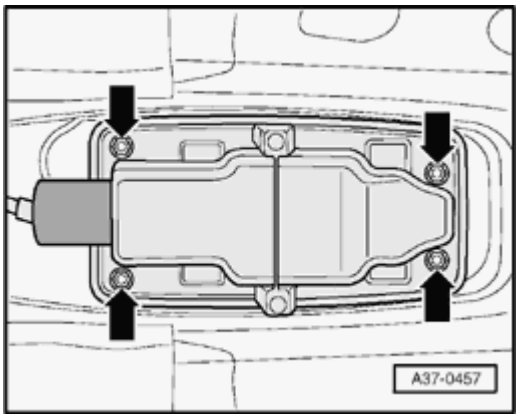

Fig. 88: Removing/Installing Lower Cover From/To Shift Mechanism
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Secure cover to underside of selector mechanism - **arrows** -.
- Attach sleeve for selector lever cable to selector mechanism cover (bottom).
- Shift selector lever from position "P" to "S".

- Selector mechanism and selector lever cable must move freely. If necessary replace selector lever cable or

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service selector mechanism.

NOTE:

- **Do not bend or kink the selector lever cable.**

- Shift selector lever to position "P".

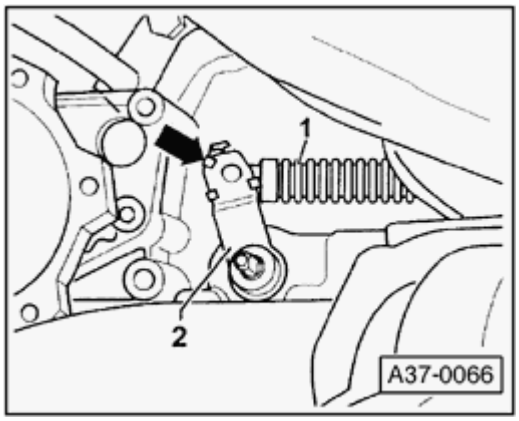

Fig. 89: Pushing Lever/Selector Shaft On Transmission Fully Forward Into Position "S"
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Push selector shaft lever - **2** - on transmission toward rear as far as possible (in illustration: as far as possible to the right) until parking lock engages.

NOTE:

- **When the parking lock has engaged it should no longer be possible to rotate both front wheels in one direction.**

- Make sure that the selector lever cable - **1** - has not been bent or kinked and that it is not under tension.

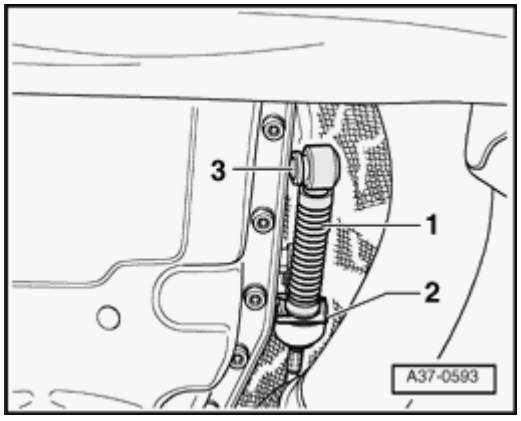

Fig. 90: Pressing Selector Lever Cable Onto Ball Head Of Selector Shaft Lever
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Carefully press selector lever cable - **1** - onto ball head of selector shaft lever - **3** -.

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NOTE:

- **Make sure you do not bend the selector shaft lever when pressing on the ball socket, as this would make it impossible to obtain an accurate adjustment of the selector mechanism.**

- Install transmission supports --> **Transmission support and transmission mounting, removing and installing (left and right)**.
- Install subframe, observing the correct tightening sequence --> **40 - FRONT SUSPENSION** .

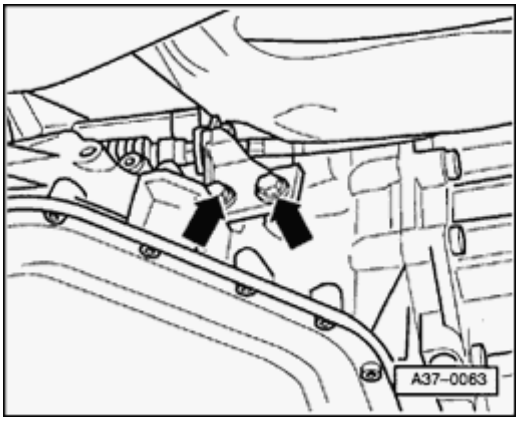

Fig. 91: Identifying Cable Support Bracket To Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Bolt on support bracket for selector lever cable - **arrows** -.
- Adjust selector lever cable --> **Selector lever cable, checking and adjusting**.
- Bolt driveshaft onto transmission -->
  - **39 FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE
  - **39 - FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE 0AR

  .
- Install exhaust system free of stress -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
  - **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): BNS
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

  .

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Tightening torques

Component	Nm
Cover (bottom) to selector mechanism	10
Selector lever cable to support bracket	12
Support bracket to transmission	10

Selector lever cable, checking and adjusting

Special tools, testers and auxiliary items required

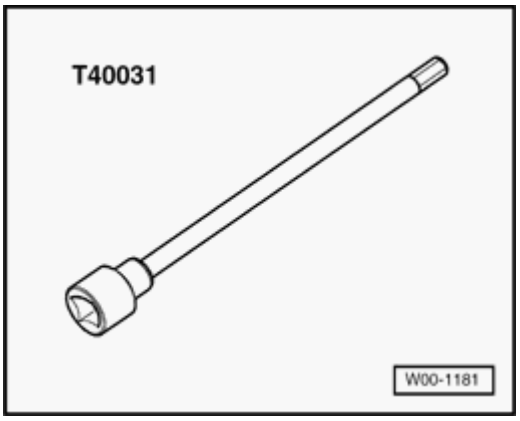

Fig. 92: Socket And Key T40031
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Socket and key T40031

Procedure

- Remove selector mechanism cover --> **Selector mechanism cover, removing and installing**.
- Shift selector lever to position "S".

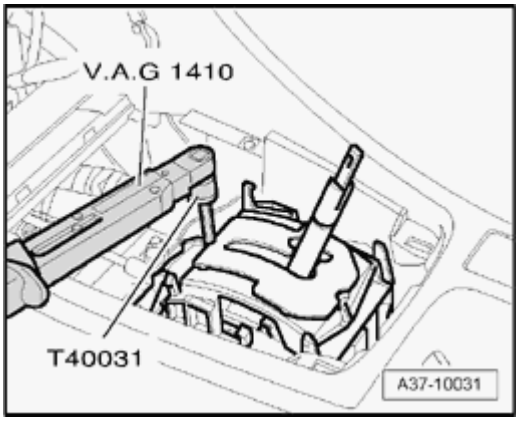

Fig. 93: Inserting Socket And Key T40031 Through Access Hole In Selector Mechanism To Loosen Clamping Bolt At Rear Of Selector Lever Cable

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert socket and key T40031 through access hole in selector mechanism to loosen clamping bolt at rear of selector lever cable approx. 1 turn.

NOTE:

- **Only loosen clamping bolt 1 turn - do not remove.**
- **Clamping bolt can only be accessed with selector lever in position "S".**
- **The selector lever must remain in "S" position when clamping bolt is loosened; otherwise, adjustment will not be correct.**

- Carefully move selector lever slightly forward and backward, without shifting lever into a different selector lever position.
- Pull selector lever once more to rear as far as possible into "S" position and release the selector lever.

NOTE:

- **Do not touch selector lever again during adjustment process.**

- Tighten clamping bolt in this position using socket and key T40031.
- Install selector mechanism cover --> **Selector mechanism cover, removing and installing**.
- Check selector mechanism --> **Selector mechanism, checking**.

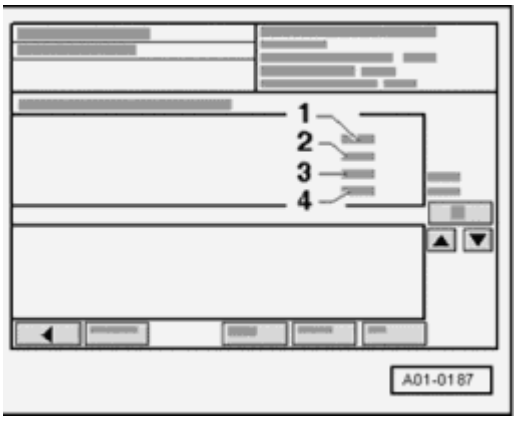

Fig. 94: Diagnostic System VAS 5051: Display
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **Use the vehicle diagnostic, testing and information system VAS 5051 A (Self-diagnosis, 02 - Automatic transmission, 08 - Read measured value block, Display group 4 in display field - 3 - to compare the position of the Multi-Function Transmission Range (TR) Switch F125 with the position on the selector lever.**

If selector mechanism is not functioning correctly after adjusting selector lever cable, proceed as follows:

- Adjust selector lever cable to basic setting --> **Adjusting selector lever cable to basic setting**.

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Tightening torque

Component	Nm
Clamping bolt to selector lever cable	13

Adjusting selector lever cable to basic setting

Special tools, testers and auxiliary items required

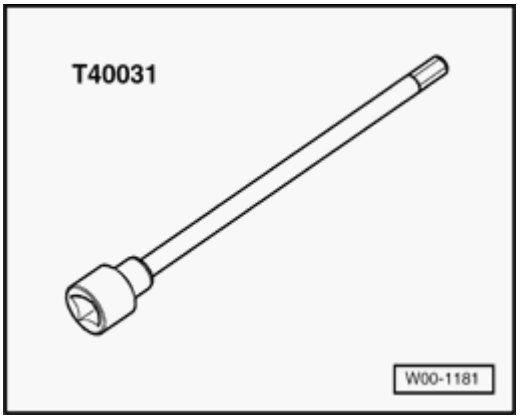

Fig. 95: Socket And Key T40031
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Socket and key T40031

Procedure

- Remove selector mechanism cover --> **Selector mechanism cover, removing and installing**.
- Shift selector lever to position "S".

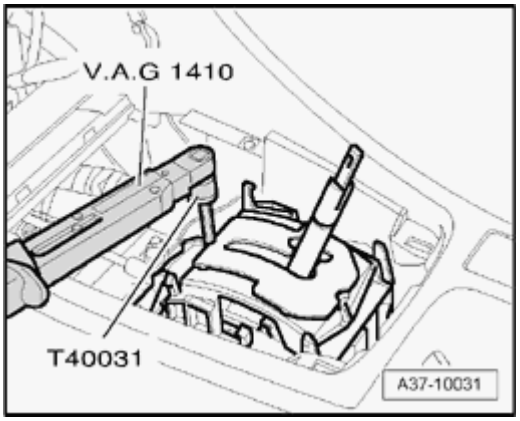

Fig. 96: Inserting Socket And Key T40031 Through Access Hole In Selector Mechanism To Loosen Clamping Bolt At Rear Of Selector Lever Cable
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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NOTE:

- **Before adjusting the selector lever cable to basic setting make sure that clamping bolt has been tightened. The clamping bolt can be accessed via the hole in the selector mechanism, when in position "S". Use socket and key T40031 to tighten clamping bolt.**

- Tighten clamping bolt to 13 Nm in this position, using socket and key T40031.
- Shift selector lever to position "P".

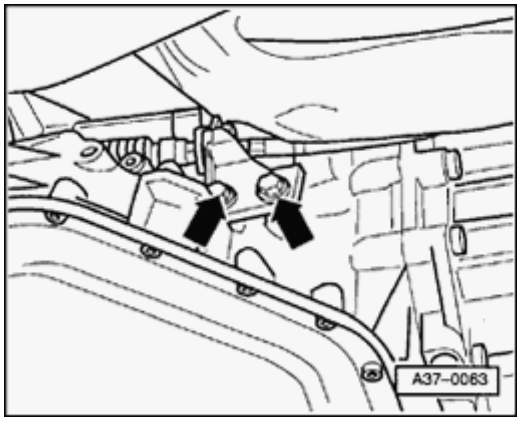

Fig. 97: Identifying Cable Support Bracket To Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove support bracket for selector lever cable - **arrows** -.

NOTE:

- **Make sure the selector lever is in position "P".**

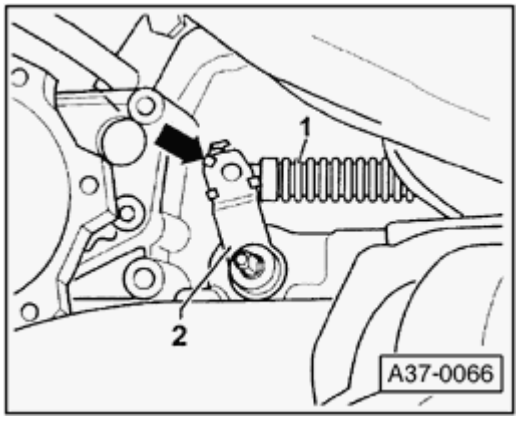

Fig. 98: Pushing Lever/Selector Shaft On Transmission Fully Forward Into Position "S"
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Push selector shaft lever - **2** - on transmission toward rear as far as possible (in illustration: as far as possible to the right) until parking lock engages.

NOTE:

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- **When the parking lock has engaged it should no longer be possible to rotate both front wheels in one direction.**

- Make sure that the selector lever cable - **1** - has not been bent or kinked and that it is not under tension.

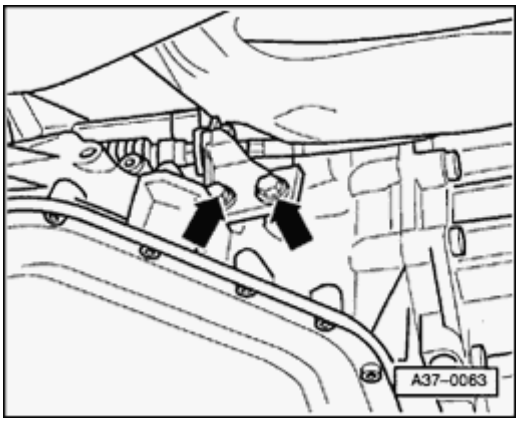

Fig. 99: Identifying Cable Support Bracket To Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Bolt on support bracket for selector lever cable - **arrows** -.
- Adjust selector lever cable --> **Selector lever cable, checking and adjusting**.

Tightening torque

Component	Nm
Support bracket to transmission	10

Locking cable, removing and installing

Removing

NOTE:

- **The locking cable must not be bent or kinked.**

- Shift selector lever to position "S".

CAUTION: Follow steps required when disconnecting battery -->

- **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
- **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL for ELECTRICAL EQUIPMENT, CABRIOLET**

.

- With ignition switched off, disconnect battery Ground (GND) strap.

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- Remove storage compartment on drivers side -->
  - **68 - INTERIOR EQUIPMENT**
  - **68 - INTERIOR EQUIPMENT** for BODY INTERIOR - CABRIOLET

  .
- Remove steering column cover -->
  - **68 - INTERIOR EQUIPMENT**
  - **68 - INTERIOR EQUIPMENT** for BODY INTERIOR - CABRIOLET

  .
- Remove A/C control console --> **87 AIR CONDITIONING** .
- Remove ashtray from center console -->
  - **68 - INTERIOR EQUIPMENT**
  - **68 - INTERIOR EQUIPMENT** for BODY INTERIOR - CABRIOLET

  .
- Remove selector mechanism cover --> **Selector mechanism cover, removing and installing**.
- Turn ignition key to "ignition on" position.
- Shift selector lever to position "P".

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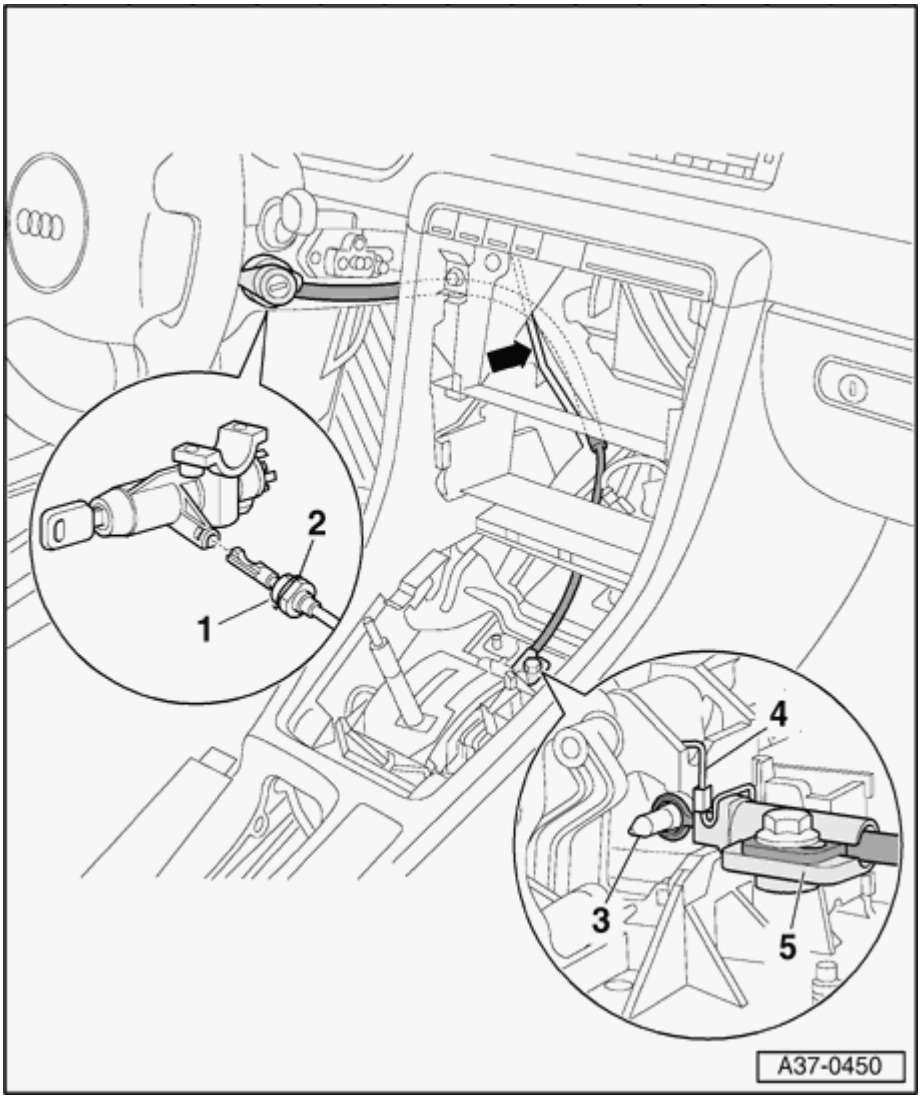

Fig. 100: Locking Cable Remove/Install Components
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Locking cable

- Lift up retaining clip - **2** - on locking device and pull locking rod - **1** - off starter switch.
- Lift up locking cable securing spring - **4** -. Pull locking cable support bracket - **5** - sideways off selector mechanism, then disengage locking cable eye.

Installing

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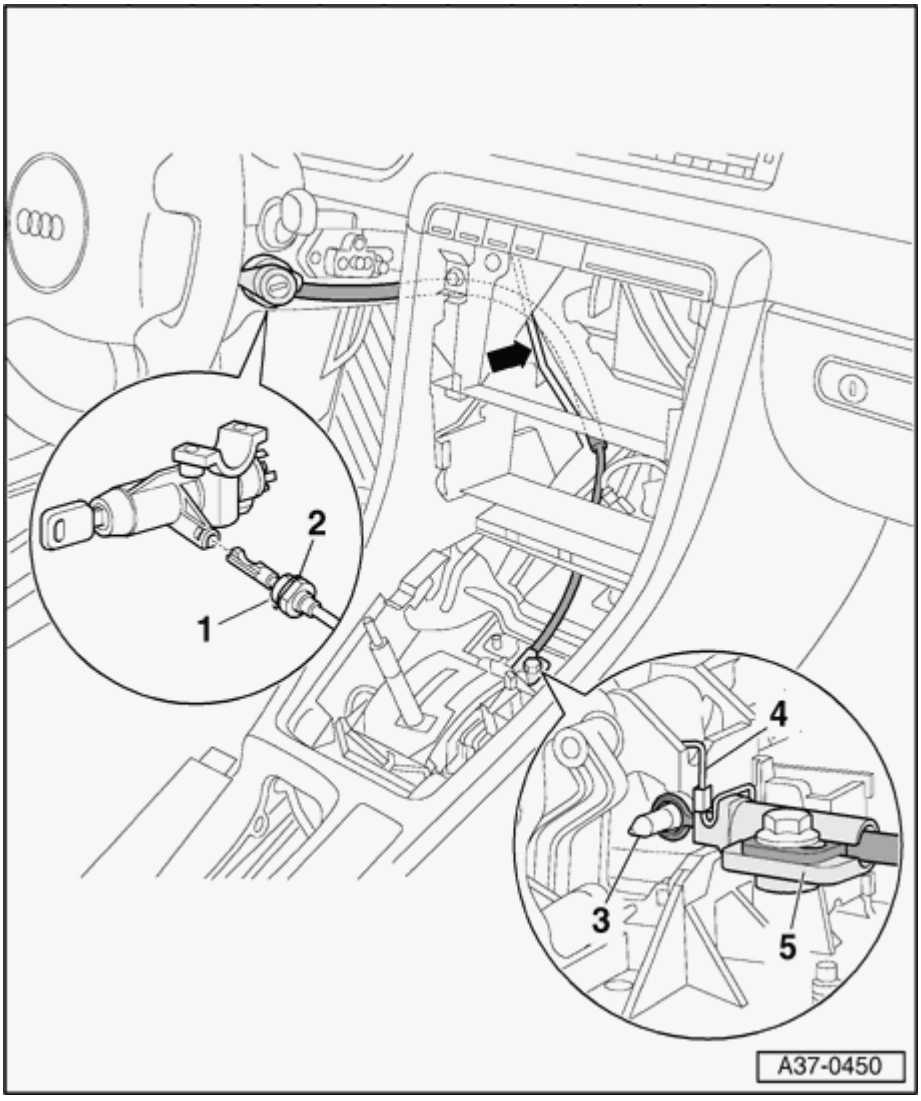

Fig. 101: Locking Cable Remove/Install Components
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Locking cable

Installation is performed in reverse sequence. Note the following:

- Route locking cable behind instrument panel brace - **arrow** - without kinking.
- Turn ignition key to "ignition on" position.
- Insert locking cable - **1** - into starter switch.
- Check that locking device - **2** - engages.

- Turn starter switch to locked position (ignition off).
- Make sure that selector lever is in position "P".
- Hook eye of locking cable onto pin - **3** -.

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- Lift up securing spring - **4** - slightly.

- Insert locking cable support bracket - **5** - into selector mechanism from the right. Push it in so that securing spring - **4** - engages.
- Adjust locking cable --> **Locking cable, adjusting**.
- Install selector mechanism cover --> **Selector mechanism cover, removing and installing**.
- Install ashtray in center console -->
  - **68 - INTERIOR EQUIPMENT**
  - **68 - INTERIOR EQUIPMENT** for BODY INTERIOR - CABRIOLET

  .

- Install air conditioning operating unit --> **87 AIR CONDITIONING** .
- Install steering column cover -->
  - **68 - INTERIOR EQUIPMENT**
  - **68 - INTERIOR EQUIPMENT** for BODY INTERIOR - CABRIOLET

  .
- Install storage compartment on drivers side -->
  - **68 - INTERIOR EQUIPMENT**
  - **68 - INTERIOR EQUIPMENT** for BODY INTERIOR - CABRIOLET

  .
- Follow steps required after connecting battery -->
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** for ELECTRICAL EQUIPMENT, CABRIOLET

  .

Locking cable, adjusting

Special tools, testers and auxiliary items required

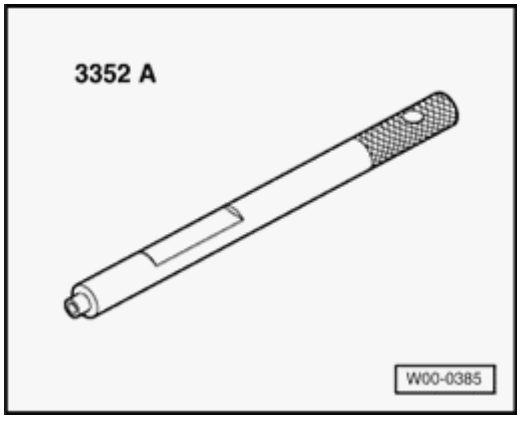

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Fig. 102: Identifying Special Tools - Adjustment Pin For Shiftlock 3 3352A
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Adjustment pin for shift lock 3 3352 A
- Angle grinder
- Safety goggles

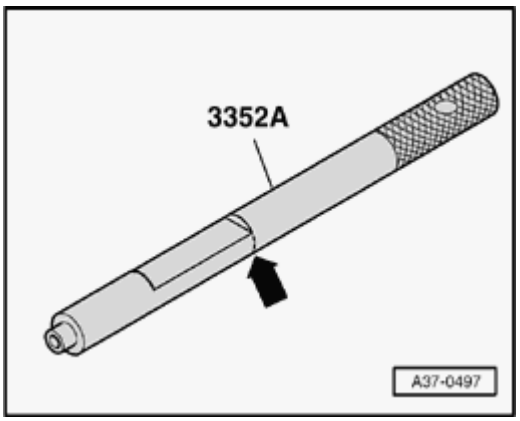

Fig. 103: Identifying Cutting Area Of Adjusting Gauge 3352A
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Preparation

NOTE:

- **If the procedure described below is followed the center console does not have to be removed.**

- Using an angle grinder or similar, cut off Adjustment pin for shift lock 3 3352 A at rear end of flat section - **arrow** -.

CAUTION: Wear safety goggles.

- Order a new Adjustment pin for shift lock 3 3352 A as a replacement for subsequent use.

Requirements for adjustment

- Locking cable must be in installation position.
- Selector lever is in position "P"
- Ignition key is in removal position.

Procedure

- Remove trim panel from center console --> **Selector mechanism cover, removing and installing**.

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NOTE:

- **The selector lever handle and cover can remain installed.**

- Remove ashtray from center console -->
  - **68 - INTERIOR EQUIPMENT**
  - **68 - INTERIOR EQUIPMENT** for BODY INTERIOR - CABRIOLET

.

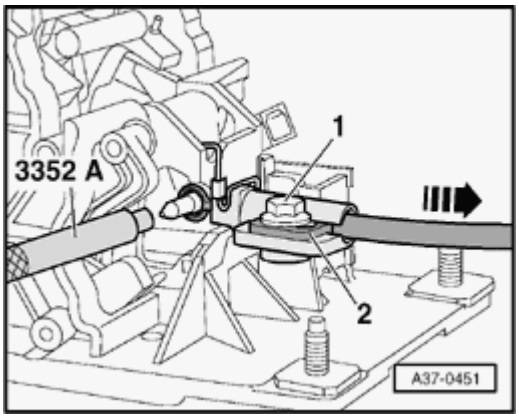

Fig. 104: Removing Adjusting Gauge
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Loosen bolt - **1** -.

- It should be possible to move support bracket - **2** - for locking cable by hand.

- Insert modified Adjustment pin for shift lock 3 3352 A between pin on locking cable lever and locking cable eye.
- Pull locking cable in direction of - **arrow** - as far as it will go and tighten bolt.

- In this position it should be easy to remove and insert Adjustment pin for shift lock 3 3352 A.

- Remove adjustment gauge.
- Install ashtray in center console -->
  - **68 - INTERIOR EQUIPMENT**
  - **68 - INTERIOR EQUIPMENT** for BODY INTERIOR - CABRIOLET

.

- Always test ignition key removal lock after adjusting locking cable --> **Ignition key removal lock, checking**.

Tightening torque

Component	Nm
Locking cable to support bracket	9

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TRANSMISSION, REMOVING AND INSTALLING

Transmission, removing and installing

Overview:

- --> **Transmission, removing (vehicles with 2.0 ltr. TFSI engine)**
- --> **Transmission, installing (vehicles with 2.0 ltr. TFSI engine)**
- --> **Transmission, removing (vehicles with 3.2 ltr. FSI engine)**
- --> **Transmission, installing (vehicles with 3.2 ltr. FSI engine)**

- --> **Transmission, removing (vehicles with 4.2 ltr. MPI engine)**
- --> **Transmission, installing (vehicles with 4.2 ltr. MPI engine)**

Transmission, removing (vehicles with 2.0 ltr. TFSI engine)

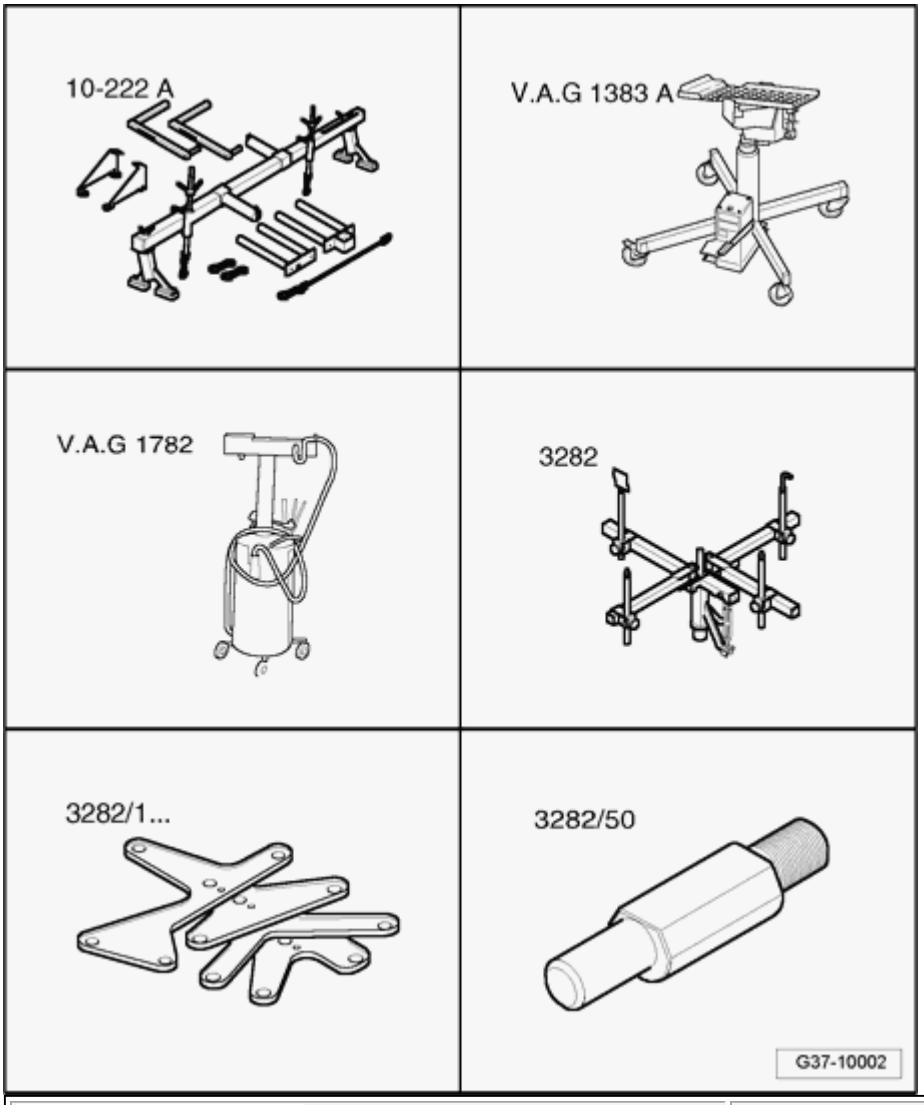

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Fig. 105: Identifying Special Tools - Transmission, Removing (Vehicles With 2.0 ltr. TFSI Engine)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Engine support bridge 10-222 A
- Engine/transmission jack V.A.G 1383 A
- Used oil collection and extraction unit V.A.G 1782
- Transmission support 3282
- Adapter 3282/48
- Pin 3282/50

Special tools, testers and auxiliary items required

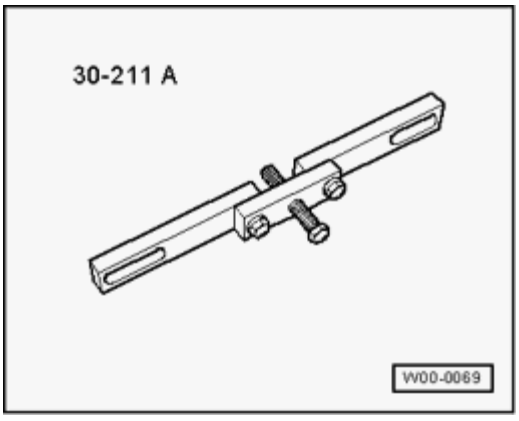

Fig. 106: Bracket 30-211 A
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Bracket 30-211 A

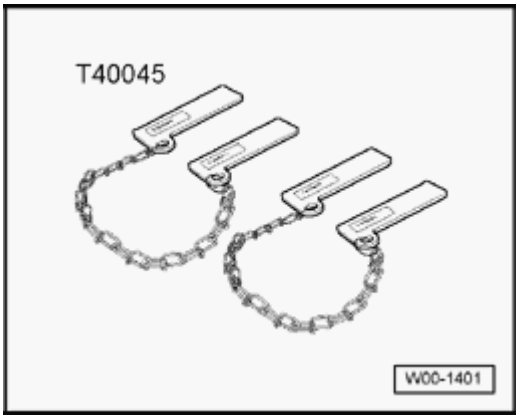

Fig. 107: Insert Pad For Front Fender T40045
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Insert pad for front fender T40045
- Bolt M10x20

Removing

NOTE:

- **General repair instructions --> General repair instructions.**
- **Read the rules for cleanliness when working on the automatic transmission --> Rules for cleanliness.**
- **All cable ties which are released or cut open during removal must be installed in the same position when installing.**

- Shift selector lever to position "N".

CAUTION: Follow the steps required when disconnecting battery -->

- **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
- **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL for ELECTRICAL EQUIPMENT, CABRIOLET**

.

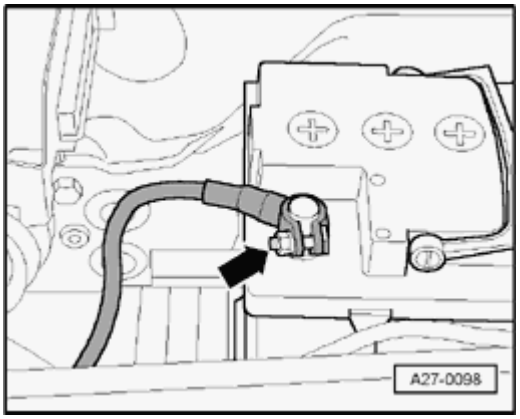

Fig. 108: Disconnecting Battery Ground (GND) Strap
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- With ignition switched off, disconnect Ground (GND) wire - **arrow** - at battery.

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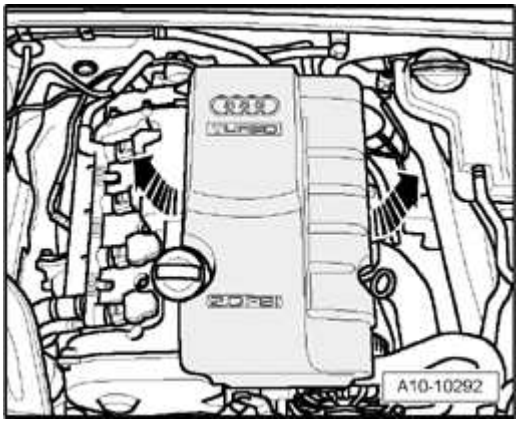

Fig. 109: Removing Engine Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove engine cover - **arrows** -.

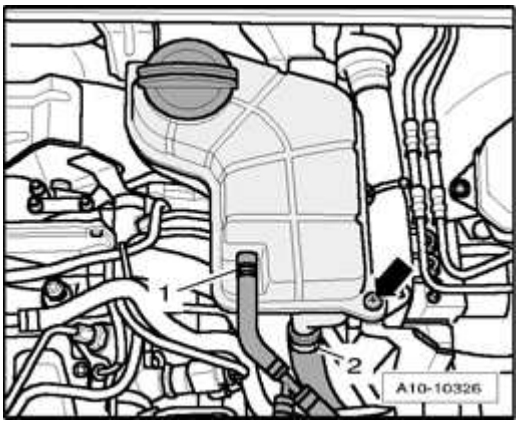

Fig. 110: Unbolting Coolant Expansion Tank
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unbolt coolant expansion tank - **arrow** -.
- Disconnect electrical connector for Engine Coolant Level (ECL) Warning Switch F66 at bottom of coolant expansion tank.
- Place coolant expansion tank to one side, leaving coolant hoses - **1** - and - **2** - connected.

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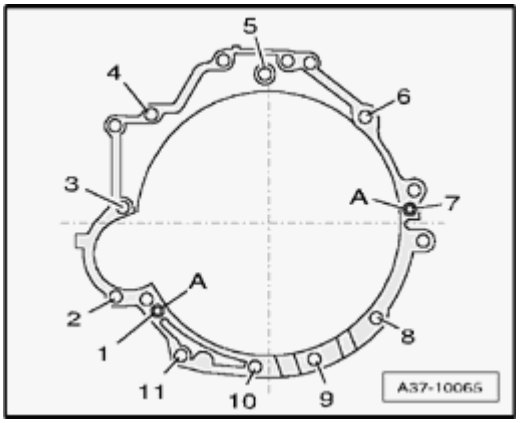

Fig. 111: Identifying Engine/Transmission Threaded Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove engine/transmission securing bolts - **4** - , - **5** - and - **6** - (accessible from above).

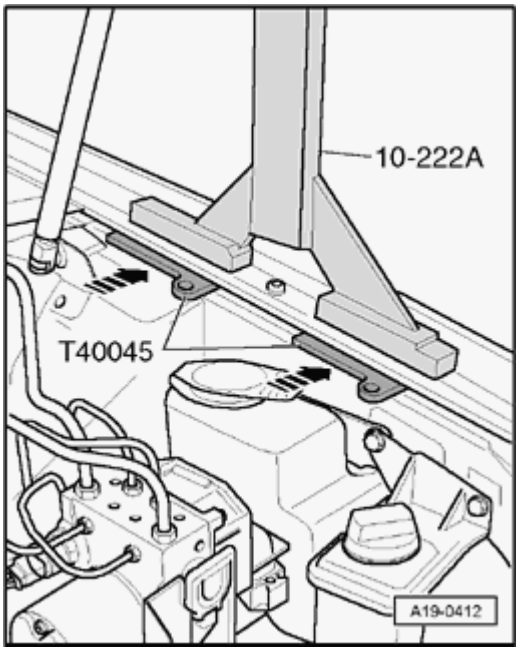

Fig. 112: Inserting Insert Pad For Front Fender T40045 On Both Sides Between Fender Mounting Flange And Body Panel Underneath
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove rubber seal from edges of fender mounting flanges.
- To avoid damaging edges of fender panels using engine support bridge 10-222 A, insert pad for front fender T40045 on both sides between fender mounting flange and body panel underneath.

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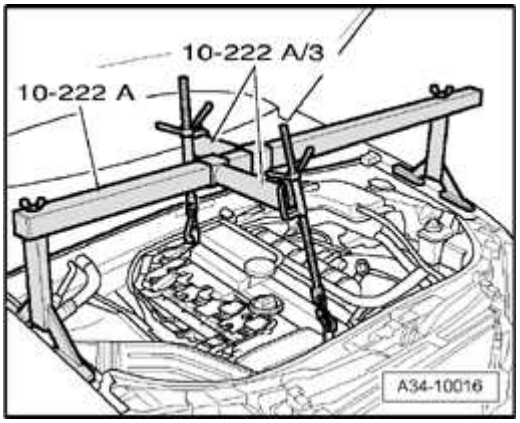

Fig. 113: Engine Support Bridge 10-222 A Set Up With Adapters 10-222/3 On Fender Mounting Flanges
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Set up engine support bridge 10-222 A with adapters 10-222/3 on fender mounting flanges.
- Engage spindles on engine lifting eyes as illustrated.
- Take up weight of engine using spindles.
- Remove both front wheels.

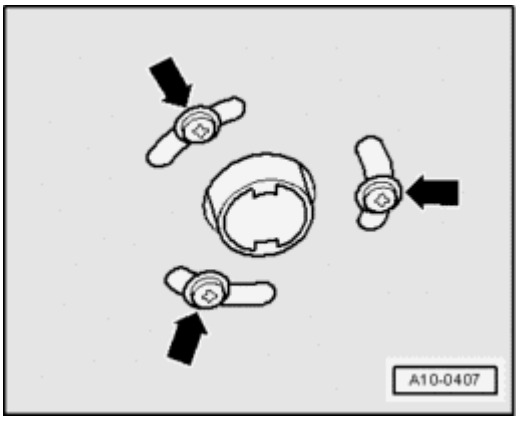

Fig. 114: Identifying Exhaust Pipe Fasteners
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- On vehicles equipped with auxiliary heater, remove screws - **arrows** - securing exhaust pipe of auxiliary heater to sound insulation.

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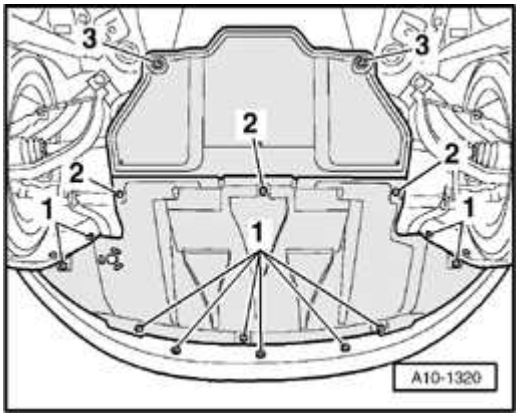

Fig. 115: Identifying Quick-Release Fasteners And Noise Insulation
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Open quick-release fasteners - **1 to 3** - and remove front and rear sound insulation.

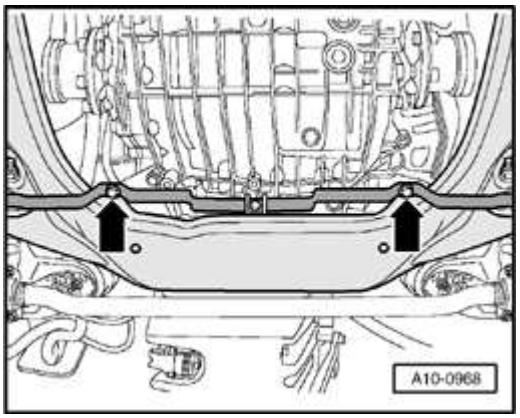

Fig. 116: Removing Bracket For Sound Insulation
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bracket for sound insulation - **arrows** -.

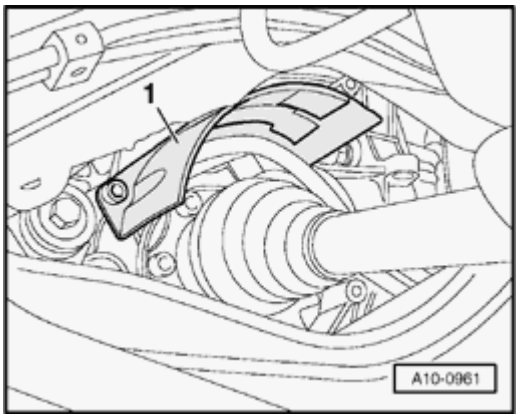

Fig. 117: Removing Left/Right Heat Shields For Drive Axles
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Remove heat shield - **1** - for drive axle (left-side).
- Unbolt drive axles (left and right) from transmission flange shafts.

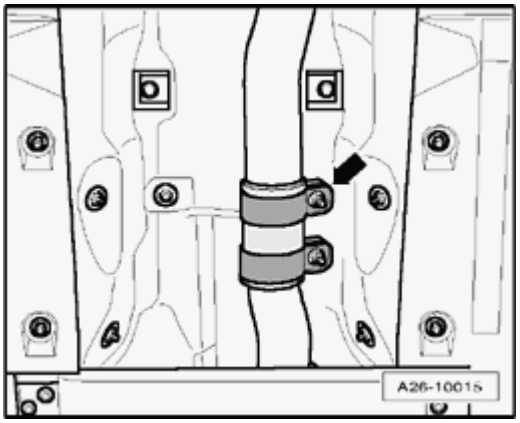

Fig. 118: Loosening Clamping Sleeve
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

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

- Loosen nuts on front clamp - **arrows** -.
- Push clamp toward rear of vehicle to disconnect exhaust system.

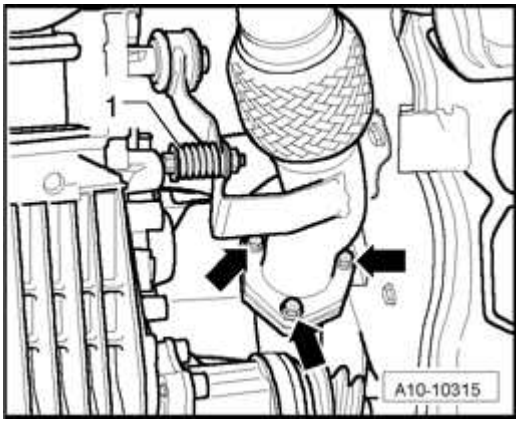

Fig. 119: Separating Front Exhaust Pipe/Catalytic Converter
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **arrows** - at connection between front exhaust pipe and catalytic converter.
- Remove nut - **1** - at bracket for front exhaust pipe and remove front exhaust pipe.

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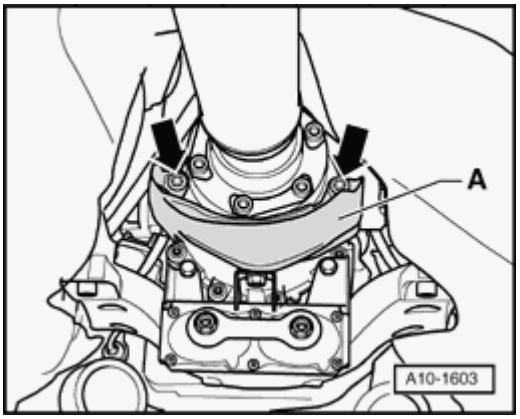

Fig. 120: Removing/Installing Heat Shield For Driveshaft
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

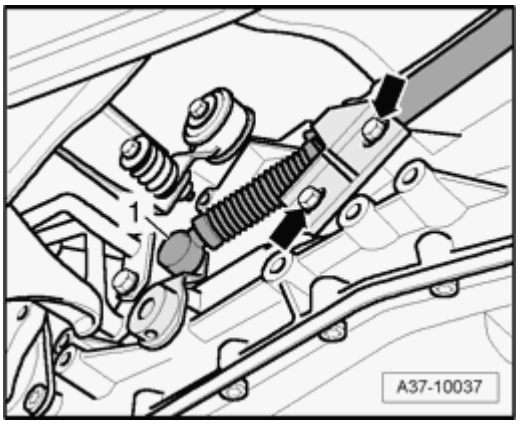

Fig. 121: Pressing Ball Socket Of Selector Lever Cable From Selector Shaft Lever & Removing Bracket On Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

NOTE:

- **Mark installation position of support bracket for selector lever cable with a felt-tip pen.**

- Remove support bracket from transmission - **arrows** -.
- Move selector lever cable clear.

NOTE:

- **Shown in illustration with transmission support removed.**

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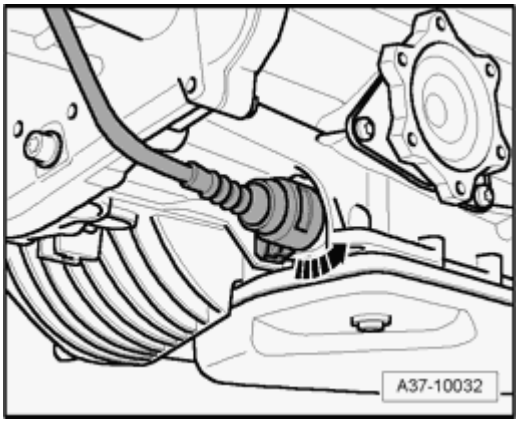

Fig. 122: Disconnecting Electrical Connector At Transmission By Turning Fastener Cap Counter-Clockwise
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical connector at transmission by turning fastener cap counter-clockwise - **arrow** -.

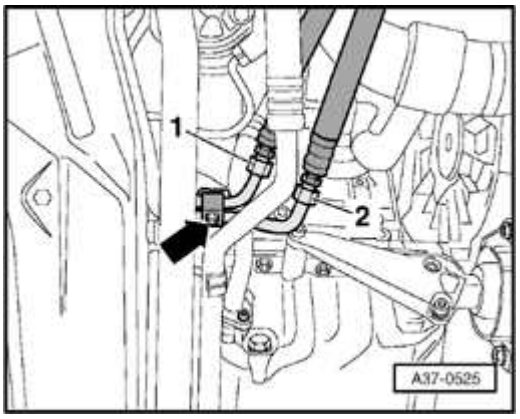

Fig. 123: Disconnecting ATF Pipes & Removing Bracket For ATF Lines
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **Read the rules for cleanliness when working on automatic transmission -- > Rules for cleanliness.**

- Place used oil collection and extraction unit V.A.G 1782 below engine.
- Unscrew union nuts - **1** - and - **2** - and disconnect ATF pipes.
- Remove bracket for ATF lines - **arrow** -.

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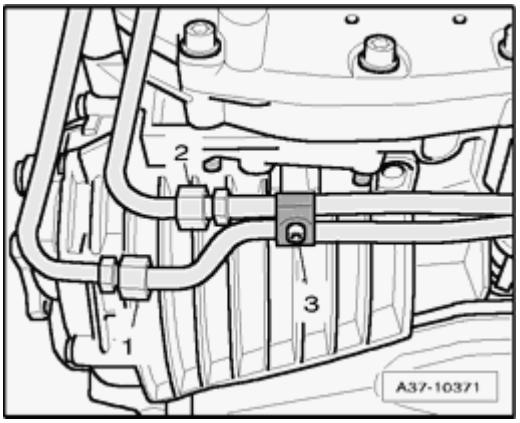

Fig. 124: Disconnecting ATF Lines At Connection Points On Right Side Of Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect ATF lines - **1** - and - **2** - at connection points on right side of transmission.
- Remove ATF lines going to ATF cooler.
- Detach bracket - **3** - for ATF lines at bottom of transmission.

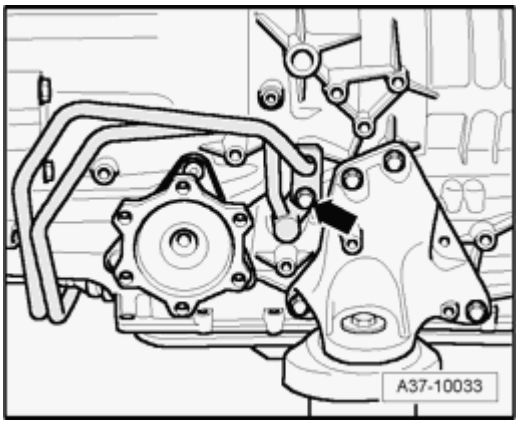

Fig. 125: Removing Bolt & Disconnecting ATF Lines From Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolt - **arrow** -.
- Detach ATF lines from transmission.

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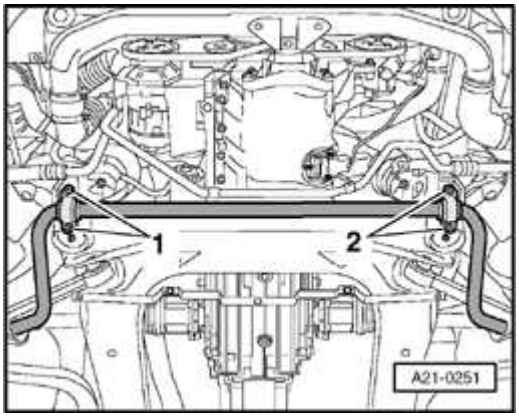

Fig. 126: Removing Stabilizer Bar Mountings
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove stabilizer bar mountings on both sides - **1** - and - **2** -.

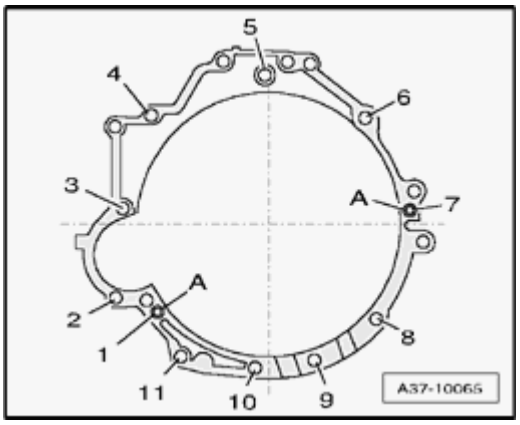

Fig. 127: Identifying Engine/Transmission Threaded Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove engine/transmission securing bolts - **1 to 3** - and - **8 to 11** -.

NOTE:

- **Bolt - 7 - should remain screwed in hand-tight.**

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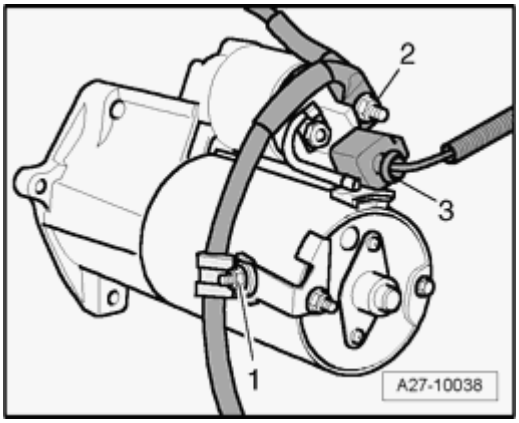

Fig. 128: Identifying Starter, Electrical Connector & Nuts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Detach starter and swivel to one side.
- Disconnect electrical connector - **3** -.
- Remove nut - **1** - for clamp.
- Remove nut - **2** - and detach electrical wiring.
- Remove starter.

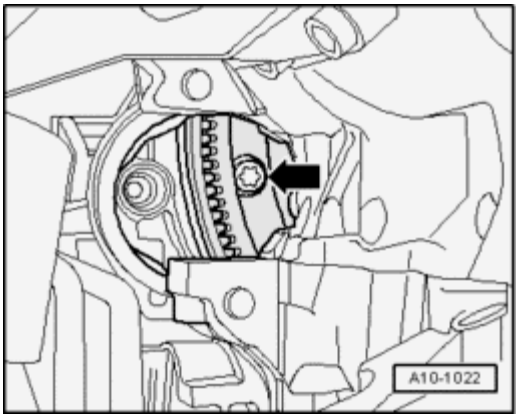

Fig. 129: Torque Converter Bolts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove 3 torque converter bolts - **arrows** - through opening for removed starter (turning crankshaft $^{1}/_{3}$ turn each time).

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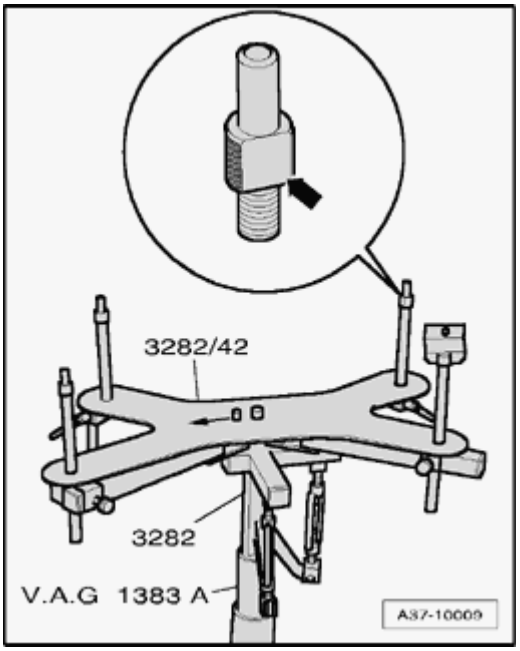

Fig. 130: Placing Adapter 3282/48 On Transmission Support 3282
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Set up transmission support 3282 on engine/transmission jack V.A.G 1383 A.
- Place Adapter 3282/48 on transmission support 3282 as shown in illustration.
- Align arms of transmission support according to holes in adjustment plate.
- Attach support elements as illustrated on adjustment plate.

- Pin 3282/50 has to be screwed in at right rear.
- Place engine/transmission jack V.A.G 1383 A with transmission support 3282 underneath transmission.

NOTE:

- **The arrow symbol on the adjustment plate points in the direction of travel.**

- Align adjustment plate parallel with transmission.

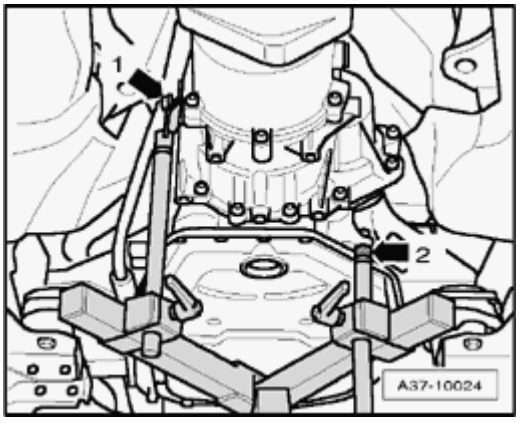

Fig. 131: Bolting Support To Left Rear Tapped Hole On Transmission

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Bolt support to left rear tapped hole on transmission - **1** - using one bolt M10x20.
- Insert flattened pin 3282/50 into mounting hole at right rear of transmission housing - **arrow 2** -.

CAUTION:

- **The flattened side of the pin must face toward the transmission oil pan to prevent the oil pan from being bent or damaged.**
- **Replace the transmission oil pan if damaged.**

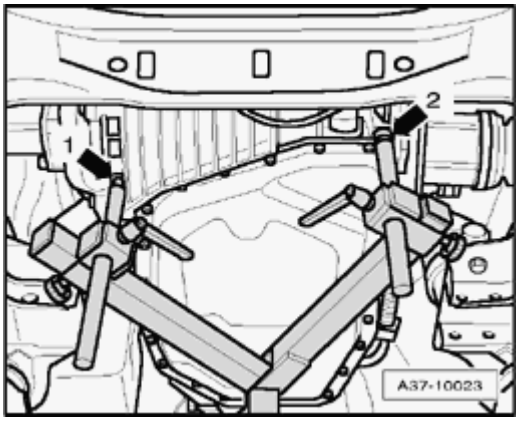

Fig. 132: Inserting Pin Into Mounting Hole At Left Front Of Transmission Housing & Recess In Housing At Right Front Of Differential Housing
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert pin into mounting hole at left front of transmission housing - **arrow 2** -.
- Insert pin into recess in housing at right front of differential housing - **arrow 1** -.
- Raise transmission slightly.

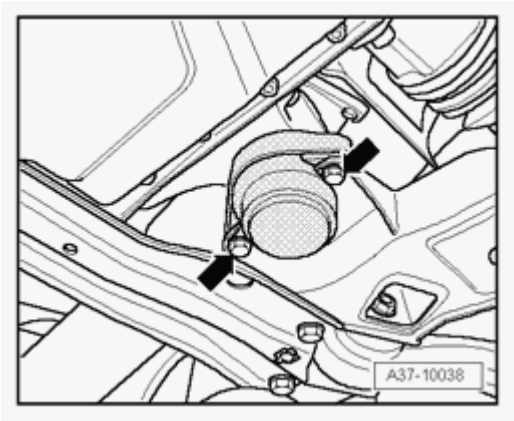

Fig. 133: Removing Bolts For Transmission Mountings
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **arrows** - for transmission mountings (left and right).

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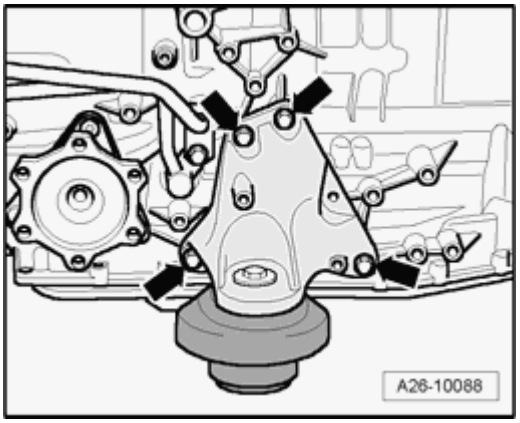

Fig. 134: Removing Heat Shield For Left Transmission Support
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove heat shield for transmission support (left-side).
- Remove transmission supports (left and right) together with transmission mountings - **arrows** -.
- Remove last engine/transmission securing bolt.
- Push transmission off engine and at the same time pry torque converter off drive plate using a screwdriver.
- Carefully lower transmission using engine/transmission jack V.A.G 1383 A.

NOTE:

- **When lowering transmission, make sure there is sufficient clearance from drive axles.**

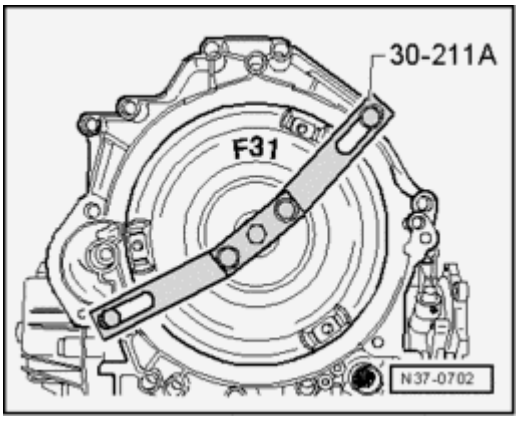

Fig. 135: Securing Torque Converter
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Secure torque converter in transmission with support bridge 30-211 A to prevent it from dropping out.

Transmission, installing (vehicles with 2.0 ltr. TFSI engine)

NOTE:

- **Use thread tap to remove any remaining locking fluid from all threaded**

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holes which will accommodate self-locking bolts.

- **Replace self-locking nuts and bolts when performing assembly work.**
- **Re-attach all cable ties at the same locations when re-installing.**

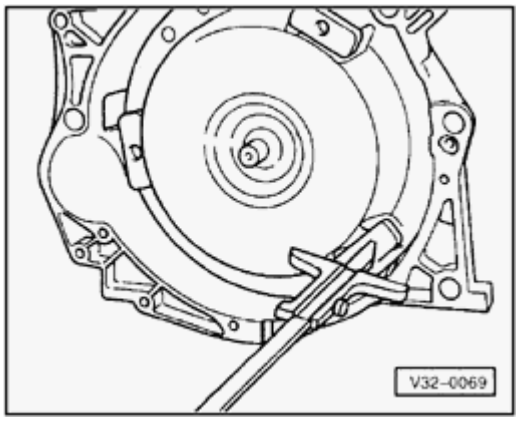

Fig. 136: Checking Torque Converter Is Correctly Positioned
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Before installing transmission, you must ensure that the torque converter is properly fitted in the transmission.

- If the torque converter is correctly installed, the depth between the contact surfaces at tapped holes on torque converter and contact surface of the torque converter bell housing is at least 19 mm.

CAUTION: If the torque converter is not installed correctly, the torque converter drive lugs or the ATF pump will be seriously damaged when the transmission is joined to the engine.

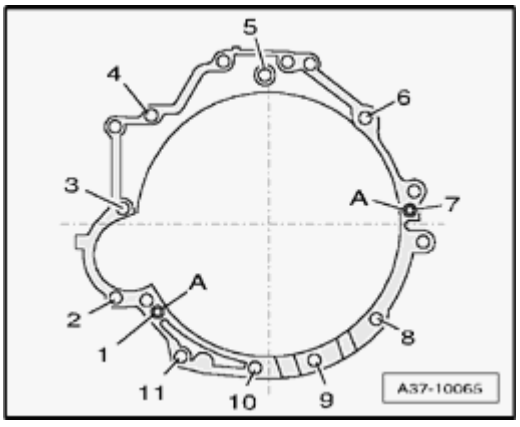

Fig. 137: Identifying Engine/Transmission Threaded Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Before installing transmission, check for correct positioning of dowel sleeves - **A** - at cylinder block. Install new dowel sleeves if necessary.

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- Install intermediate plate between engine and transmission in the original position.
- Before joining engine and transmission, turn torque converter and drive plate (on engine) until one hole and one tapped hole are in line with the opening for the removed starter.
- When pushing the engine and transmission together, make sure that no wiring or lines etc. can become trapped.

Install the transmission, adhere to the following instructions.

CAUTION: Before and while tightening the bolts on the engine/transmission flange keep checking that the torque converter can still be rotated behind the drive plate. If the converter cannot be turned, it must be assumed that it has not been installed correctly and the drive lugs on the converter or the ATF pump will be damaged when the bolts are fully tightened.

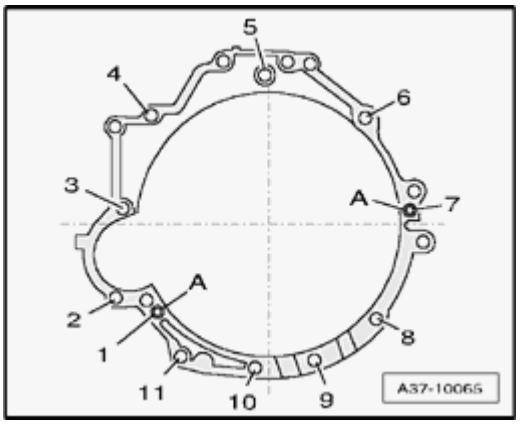

Fig. 138: Identifying Engine/Transmission Threaded Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Screw in bolt - **7** - hand-tight.
- Install transmission support with transmission mounting --> **Transmission support and transmission mounting, removing and installing (left and right)**.
- Counterhold crankshaft to tighten torque converter bolts.

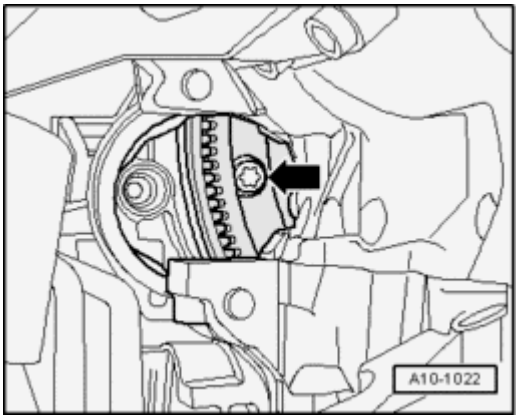

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Fig. 139: Torque Converter Bolts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Use new ribbed bolts to secure torque converter to drive plate. Use only the correct bolts (same as original equipment) .
- Install 3 bolts - **arrow** - for torque converter hand-tight into opening of removed starter (turning crankshaft $^{1}/_{3}$ turn each time).
- Bolt transmission onto engine.

NOTE:

- **Tightening torques only apply to lightly greased, oiled, phosphated or blackened nuts and bolts.**
- **Lubricants such as engine or transmission oil may be used, but do not use graphite lubricant.**
- **Do not use parts which have been degreased.**
- **Tolerance for tightening torques ±15%.**

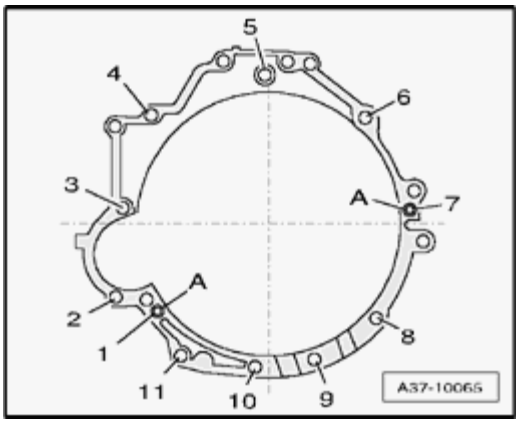

Fig. 140: Identifying Engine/Transmission Threaded Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Engine/transmission securing bolts

Item	Bolt	Nm
1	M12x67	65
2	M10x60	65 * See note
3, 4, 5	M12x75	65
6	M12x100	65
7	M12x90	65
8	M10x60	45
9 to 11	M10x45	45
A	Dowel sleeves for centralizing	

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*Bolt strength 10.9

The remaining installation steps are in reverse sequence. Note the following:

- Install starter -->
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** for ELECTRICAL EQUIPMENT, CABRIOLET

  .
- Install stabilizer bar --> **40 - FRONT SUSPENSION** .
- Clean ATF lines and ATF cooler --> **ATF cooling lines and ATF cooler, cleaning**.
- Secure ATF lines to transmission and engine --> **ATF cooling lines**.

- Adjust selector lever cable --> **Selector lever cable, checking and adjusting**.
- Install driveshaft -->
  - **39 FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE
  - **39 - FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE 0AR

  .
- Install front exhaust pipe with main catalytic converter -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
  - **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): BNS
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

  .
- Align exhaust system free of stress -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 3.2 V6 4V ENGINE MECHANICAL, ENGINE CODE(S): BKH

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- **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS
- **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

.

- Install drive axles --> **40 - FRONT SUSPENSION** .
- Follow steps required after connecting battery -->
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** for ELECTRICAL EQUIPMENT, CABRIOLET

.

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

Component	Nm
Drive plate to torque converter	85 * See note
Heat shield for drive axle to transmission	23
Bracket for sound insulation to subframe	10

*Replace bolts.

Transmission, removing (vehicles with 3.2 ltr. FSI engine)

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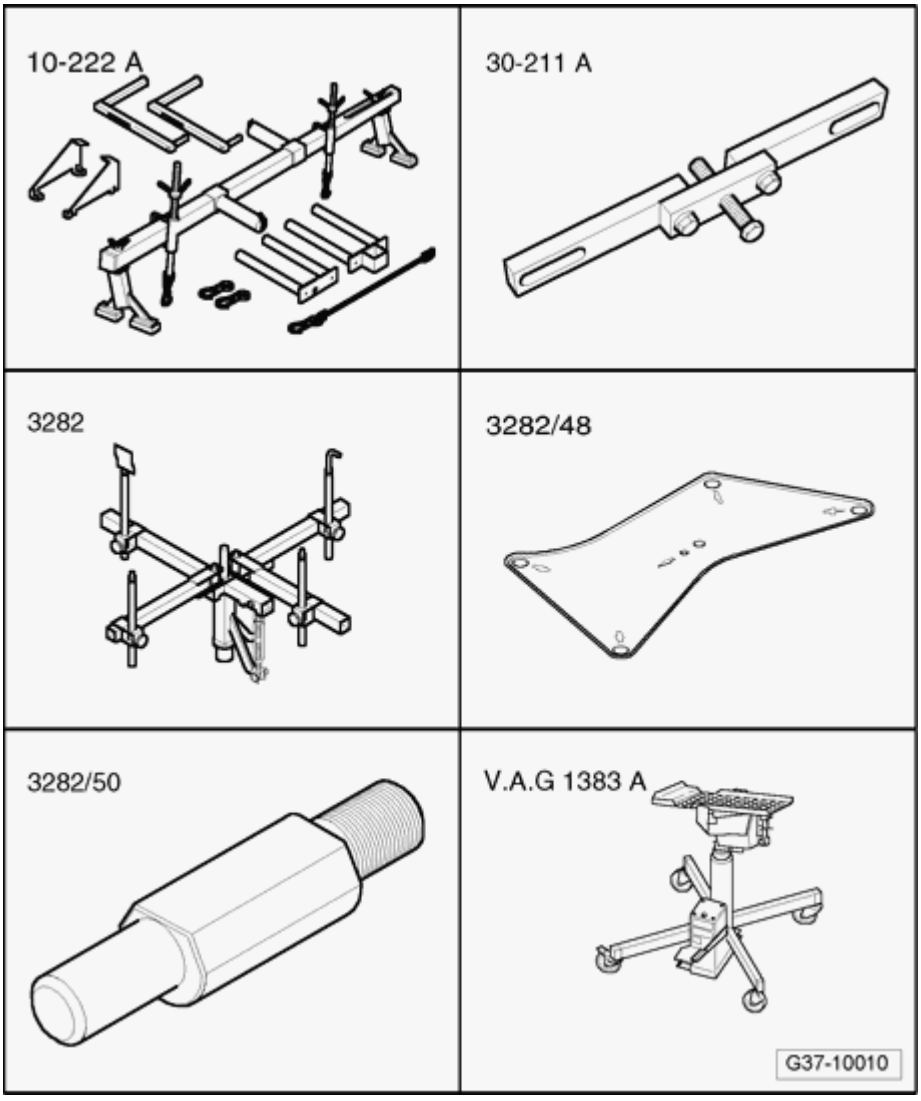

Fig. 141: Identifying Special Tools - Transmission, Removing (Vehicles With 3.2 ltr. FSI Engine) (1 Of 2)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Engine support bridge 10-222 A
- Support bridge 30-211 A
- Transmission support 3282
- Adapter 3282/48

- Pin 3282/50
- Engine/transmission jack V.A.G 1383 A

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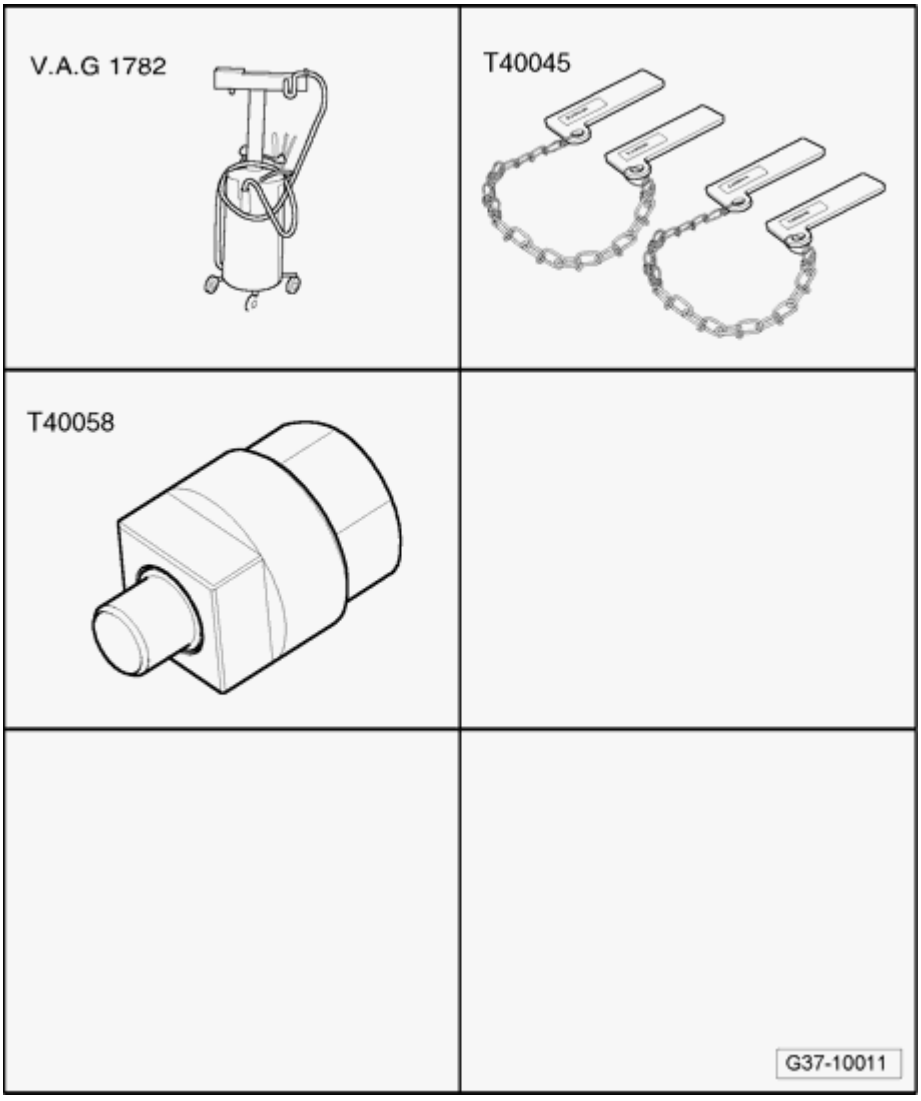

Fig. 142: Identifying Special Tools - Transmission, Removing (Vehicles With 3.2 ltr. FSI Engine) (2 Of 2)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Used oil collection and extraction unit V.A.G 1782
- Insert pad for front fender T40045
- Adapter T40058
- Bolt M10x20

Removing

NOTE:

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

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- **All cable ties which are released or cut open during removal must be installed in the same position when installing.**

- Shift selector lever to position "N".

CAUTION: Follow steps required when disconnecting battery -->

- **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
- **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL for ELECTRICAL EQUIPMENT, CABRIOLET**

.

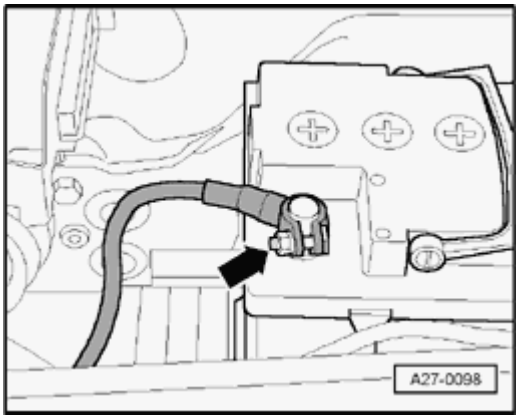

Fig. 143: Disconnecting Battery Ground (GND) Strap
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- With ignition switched off, disconnect Ground (GND) wire - **arrow** - at battery.
- Remove front exhaust pipe with catalytic converter (left and right) -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
  - **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): BNS
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

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NOTE:

- **After removal of the front exhaust pipes the subframe is detached at the rear and the transmission support (left-side) is removed.**

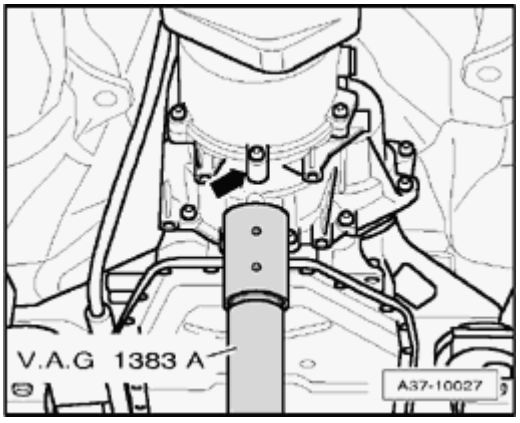

Fig. 144: Placing Lifting Surface Of Engine/Transmission Jack V.A.G 1383 A Centrally On Lower Housing Base
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- The transmission is supported centrally at the connection on the housing - **arrow** - with engine/transmission jack V.A.G 1383 A.

- Use engine/transmission jack V.A.G 1383 A to lift transmission up slightly.

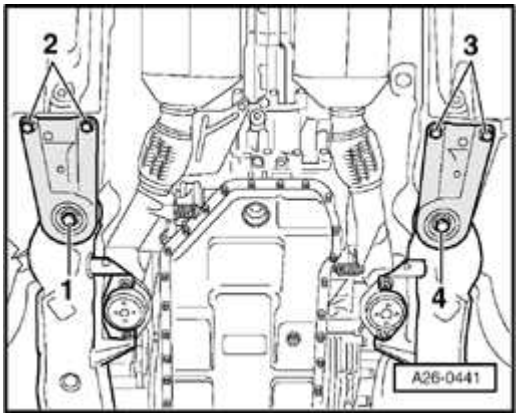

Fig. 145: Removing/Installing Bolts And Mounting Bolts Of Subframe
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install bolts - **1** - and - **4** - hand-tight.

NOTE:

- **- Item 2 - and - item 3 - can be disregarded.**

- Lower transmission and remove engine/transmission jack V.A.G 1383 A from under vehicle.

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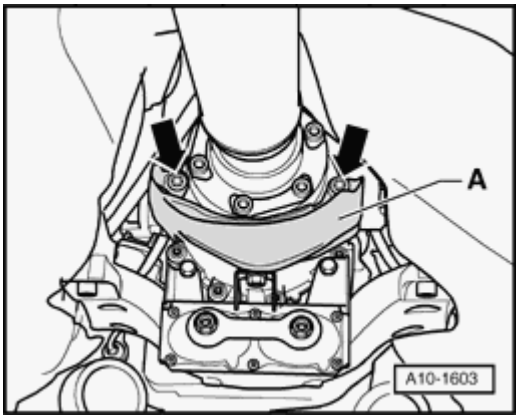

Fig. 146: Removing/Installing Heat Shield For Driveshaft
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove heat shield - **A** - for driveshaft - **arrows** -.
- Remove bolts at transmission/driveshaft flange.
- Slide driveshaft together toward rear final drive. The constant velocity joints can be moved axially.
- Rest driveshaft on exhaust system (right-side).

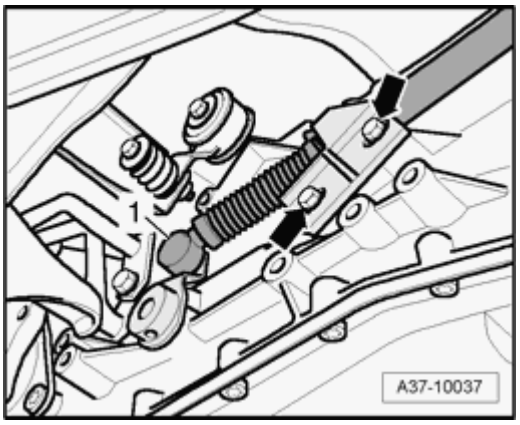

Fig. 147: Pressing Ball Socket Of Selector Lever Cable From Selector Shaft Lever & Removing Bracket On Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **Mark installation position of support bracket for selector lever cable with a felt-tip pen.**

- Pry ball socket - **1** - of selector lever cable off selector shaft lever.
- Remove support bracket from transmission - **arrows** -.

NOTE:

- **Do not bend or kink the selector lever cable.**

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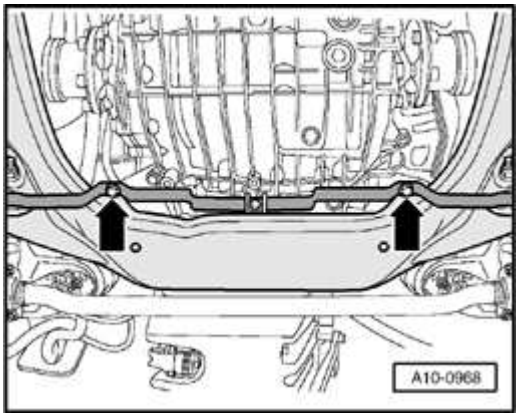

Fig. 148: Removing Bracket For Sound Insulation
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bracket for sound insulation - **arrows** -.

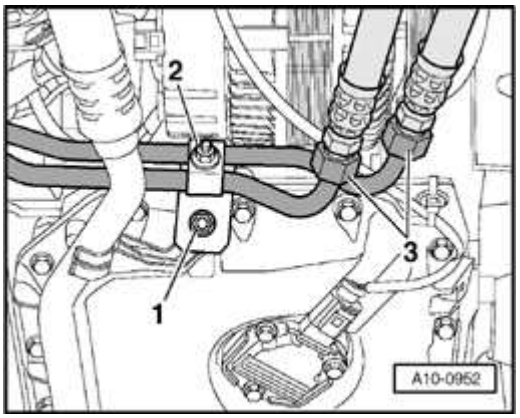

Fig. 149: Removing Union Nuts And Disconnect ATF Lines
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **Read the rules for cleanliness when working on automatic transmission -- > Rules for cleanliness.**

- Place used oil collection and extraction unit V.A.G 1782 below engine.
- Unscrew union nuts - **3** - and disconnect ATF lines.
- Remove bracket - **2** - securing ATF lines.

NOTE:

- **- Item 1 - can be disregarded.**

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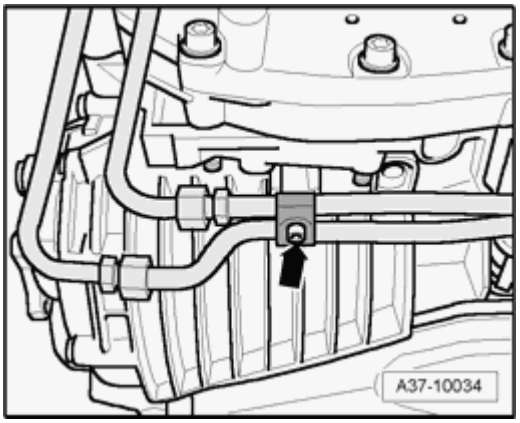

Fig. 150: Removing Bracket For ATF Lines At Bottom On Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bracket - **arrow** - for ATF lines at bottom section of transmission.

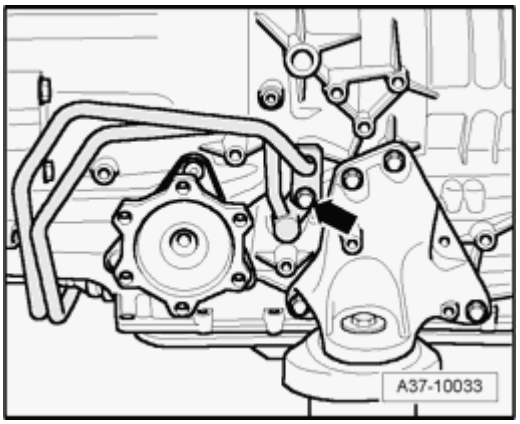

Fig. 151: Removing Bolt & Disconnecting ATF Lines From Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **Place a cloth below the ATF line to catch escaping ATF.**

- Remove bolt - **arrow** -.
- Pull ATF lines out of transmission.

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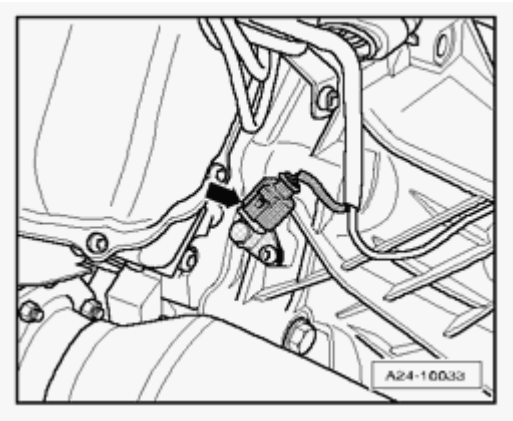

Fig. 152: Disconnecting Electrical Connector On Engine Speed (RPM) Sensor G28
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical connector - **arrow** - for engine speed (RPM) sensor G28.

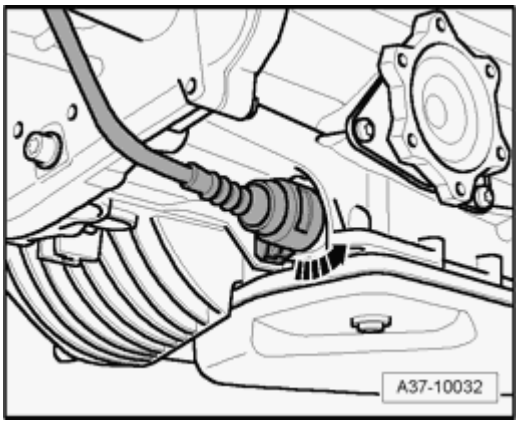

Fig. 153: Disconnecting Electrical Connector At Transmission By Turning Fastener Cap Counter-Clockwise
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical connector at transmission by turning fastener cap counter-clockwise - **arrow** -.

CAUTION: Check once again to make sure that the rear subframe mountings are secured hand-tight.

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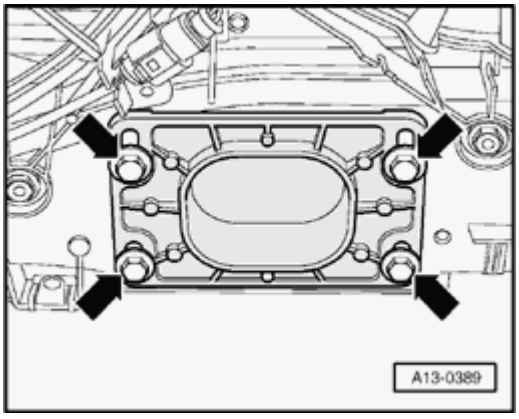

Fig. 154: Removing/Installing Bolts At Torque Support Stop
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unscrew bolts - **arrows** - two turns at stop for torque reaction support.

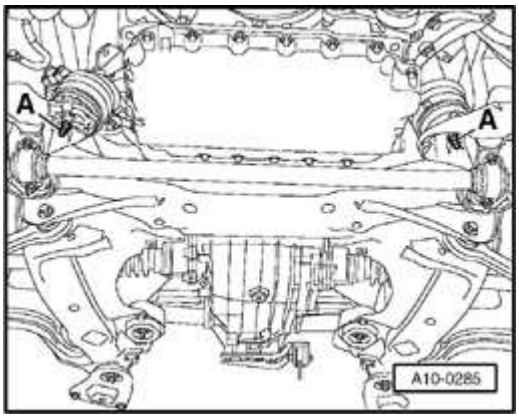

Fig. 155: Removing Nuts At Bottom On Left/Right Engine Mounts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unscrew nuts - **A** - below left and right engine mountings until nuts are flush with bottom end of studs.

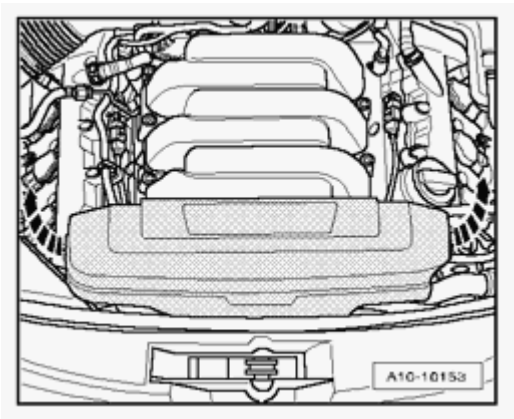

Fig. 156: Identifying Front Engine Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Remove front engine cover - **arrows** -.

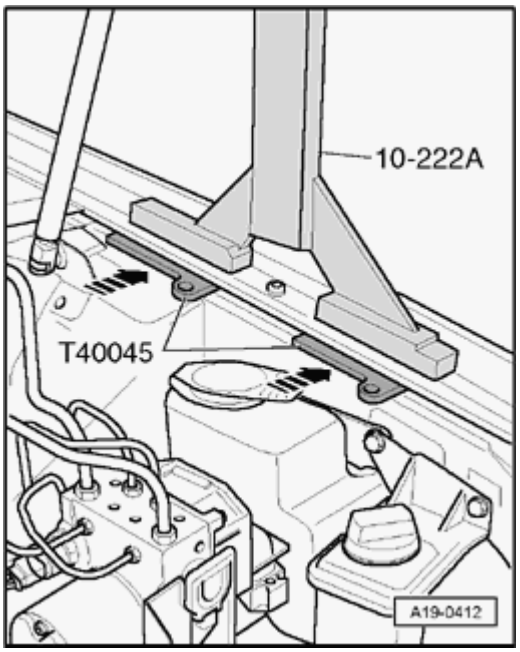

Fig. 157: Inserting Insert Pad For Front Fender T40045 On Both Sides Between Fender Mounting Flange And Body Panel Underneath
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove rubber seal from edges of fender mounting flanges.
- To avoid damaging edges of fender panels with engine support bridge 10-222 A, insert pad for front fender T40045 on both sides between the fender mounting flange and body panel underneath.

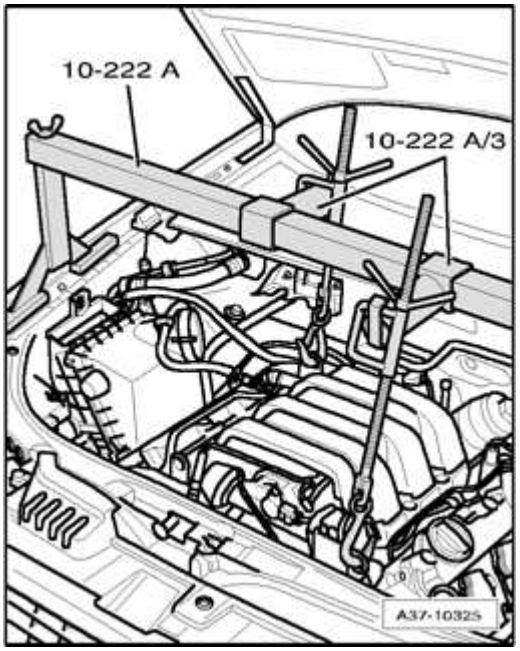

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Fig. 158: Setting Up Engine Support Bridge 10-222 A With Adapters 10-222 A/3 On Fender Mounting Flanges
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Set up engine support bridge 10-222 A with adapters 10-222 A/3 on fender mounting flanges.
- Engage spindles on engine lifting eyes as illustrated.
- Take up weight of engine with spindles until bottom engine/transmission securing bolts are accessible.

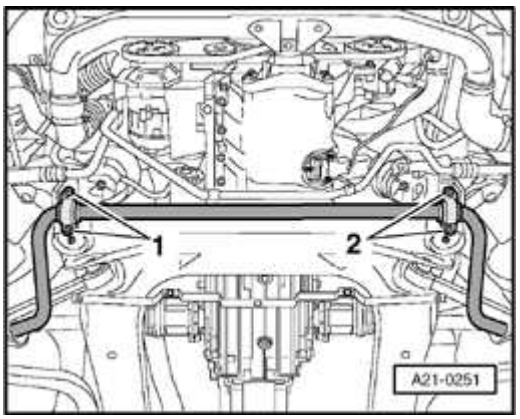

Fig. 159: Removing Stabilizer Bar Mountings
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unbolt stabilizer bar mountings on both sides - **1** - and - **2** -.
- Swivel stabilizer bar downward.

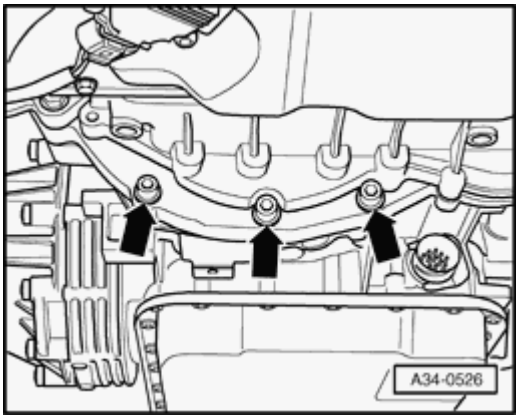

Fig. 160: Removing Bottom Engine/Transmission Connecting Bolts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bottom engine/transmission securing bolts - **arrows** -.

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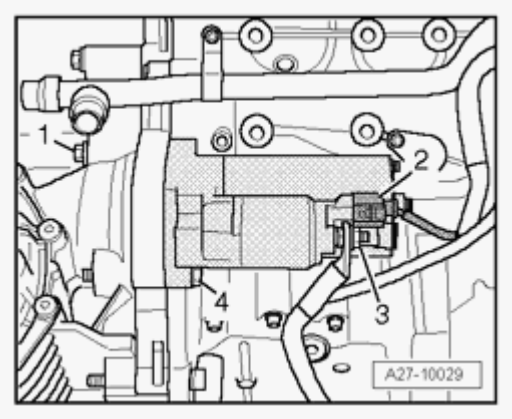

Fig. 161: Disconnecting Electrical Wires On Starter, Removing Bolts & Starter
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect wires - **2** - and - **3** - at starter.
- Remove bolts - **1** - and - **4** - and remove starter.
- Guide starter toward the rear through wheel housing on right side of vehicle.

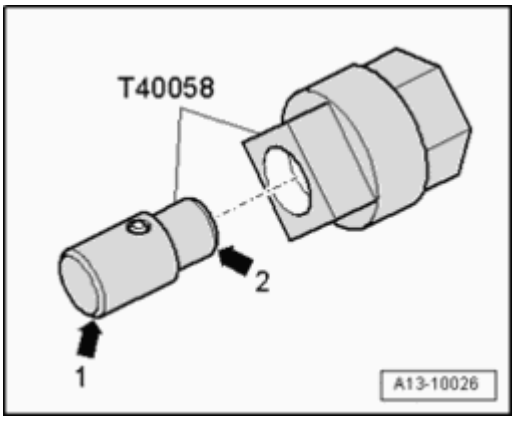

Fig. 162: Inserting Guide Pin Of Adapter T40058
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert guide pin of adapter T40058 so that the large diameter - **arrow 1** - faces engine. The smaller diameter - **arrow 2** - faces adapter.

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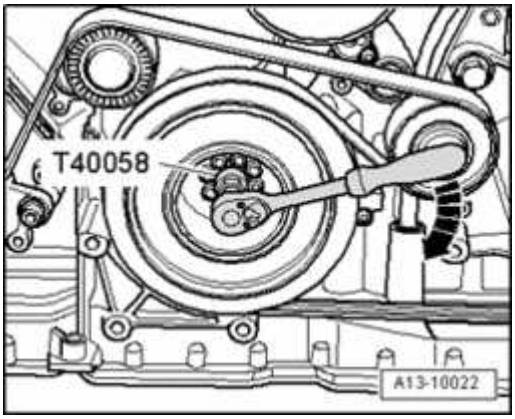

Fig. 163: Loosening Torque Converter Bolts Using Adapter T40058
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Counter-hold crankshaft using adapter T40058 to loosen torque converter bolts.

NOTE:

- **- Arrow - can be disregarded.**

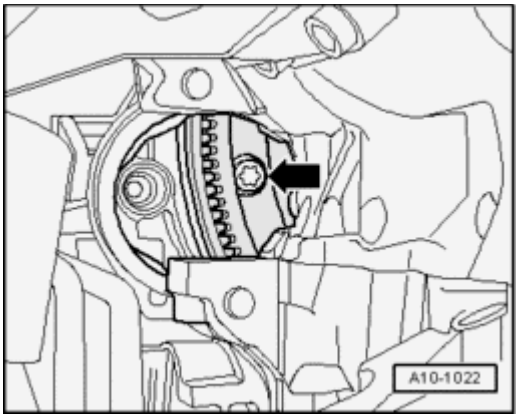

Fig. 164: Torque Converter Bolts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove 3 torque converter bolts - **arrows** - through the opening for removed starter (turning crankshaft $^{1}/_{3}$ turn each time).

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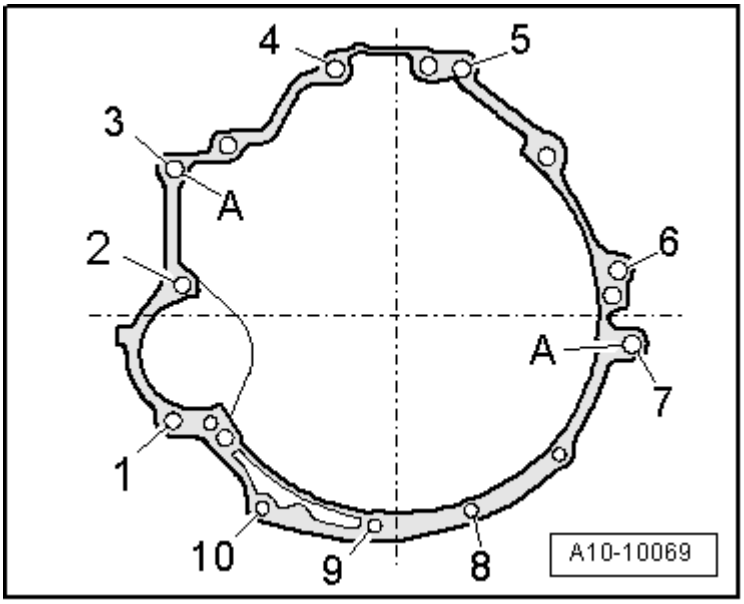

Fig. 165: Identifying Engine/Transmission Threaded Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove engine/transmission securing bolts - **4 to 6** -.

NOTE:

- **Bolts - 3 - and - 7 - remain screwed in hand-tight.**

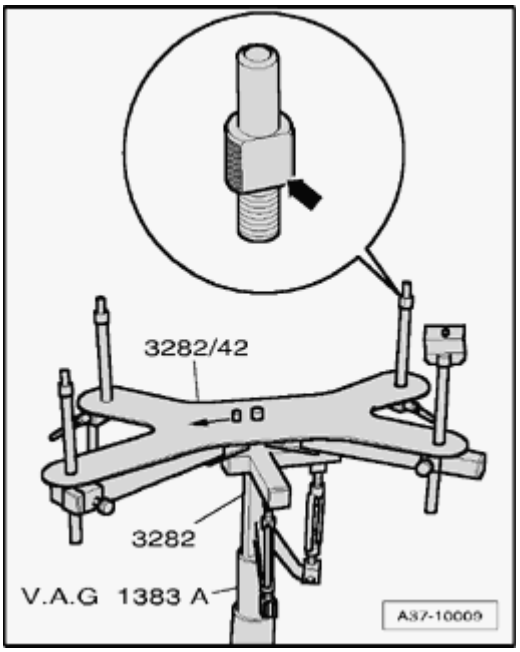

Fig. 166: Placing Adapter 3282/48 On Transmission Support 3282
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Set up transmission support 3282 on engine/transmission jack V.A.G 1383 A.

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- Place Adapter 3282/48 on transmission support 3282 as shown in illustration.
- Align arms of transmission support according to holes in adjustment plate.
- Attach support elements as illustrated on adjustment plate.

- pin 3282/50 has to be screwed in at right rear.
- Place engine/transmission jack V.A.G 1383 A with transmission support 3282 underneath transmission.

NOTE:

- **The arrow symbol on the adjustment plate points in the direction of travel.**

- Align adjustment plate parallel with transmission.

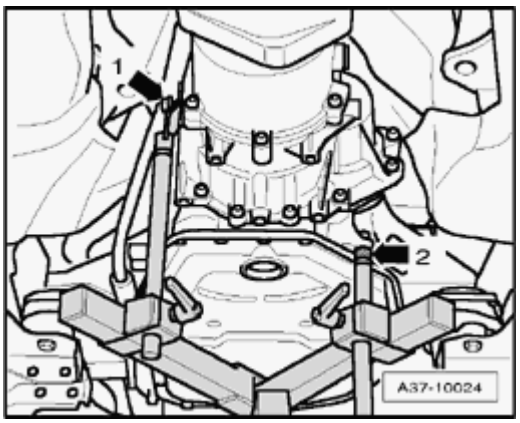

Fig. 167: Bolting Support To Left Rear Tapped Hole On Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Bolt support to left rear tapped hole on transmission - **1** - using one bolt M10x20.
- Insert flattened pin 3282/50 into mounting hole at rear right of transmission housing - **arrow 2** -.

CAUTION:

- **The flattened side of the pin must face toward the transmission oil pan to prevent the oil pan from being bent or damaged.**
- **Replace the transmission oil pan if damaged.**

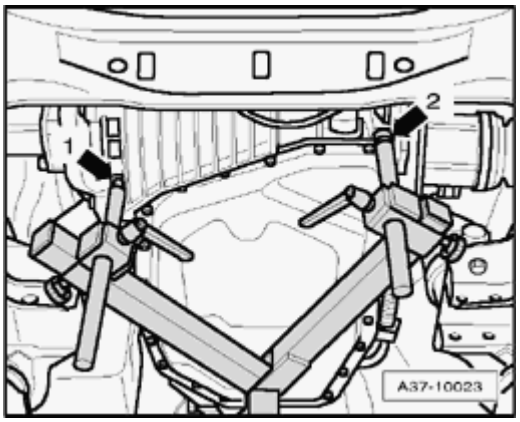

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Fig. 168: Inserting Pin Into Mounting Hole At Left Front Of Transmission Housing & Recess In Housing At Right Front Of Differential Housing
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert pin into mounting hole at left front of transmission housing - **arrow 2** -.
- Insert pin into recess in housing at right front of differential housing - **arrow 1** -.
- Raise transmission slightly.

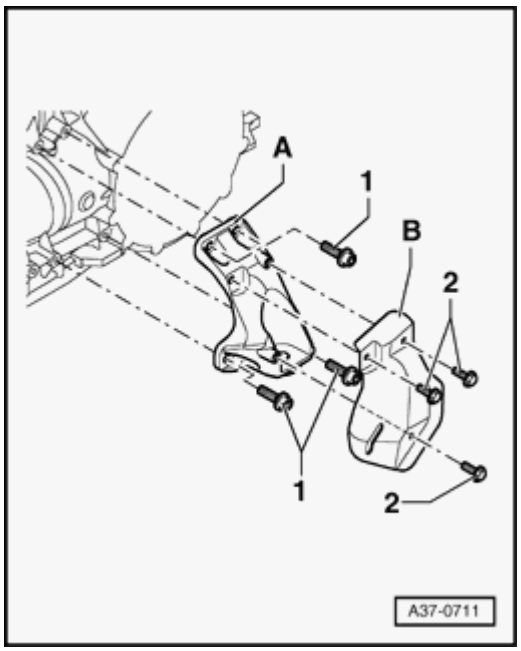

Fig. 169: Removing/Installing Bolts, Heat Shield, Transmission Support
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **2** - at transmission support (right-side) and detach heat shield - **B** -.
- Remove bolts - **1** -.
- Detach transmission support - **A** - together with transmission mounting from transmission.

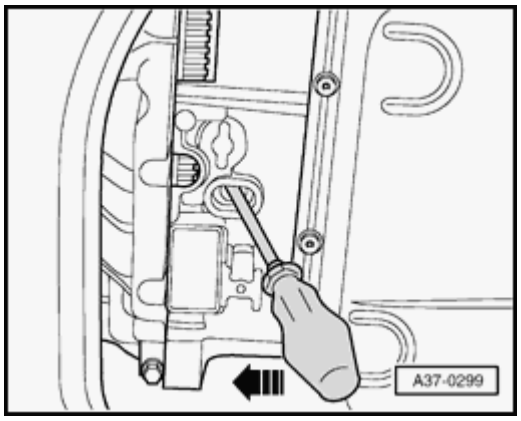

Fig. 170: Pressing Transmission Off Engine, While Pressing Torque Converter Off Of Drive Plate

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove last engine/transmission securing bolts.
- Push transmission off engine and at the same time pry torque converter off drive plate using a screwdriver.
- Carefully lower transmission using engine/transmission jack V.A.G 1383 A.

NOTE:

- **When lowering transmission, make sure there is sufficient clearance from drive axles.**

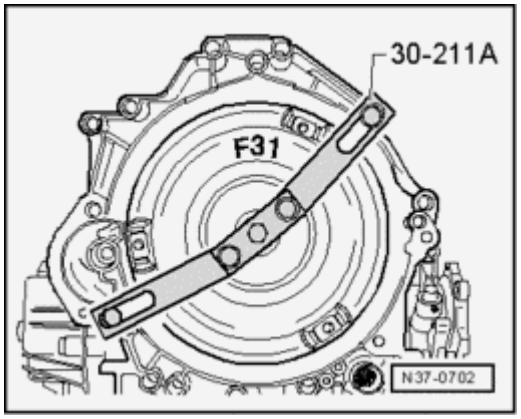

Fig. 171: Securing Torque Converter
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Secure torque converter in transmission using support bridge 30-211 A to prevent it from dropping out.

Transmission, installing (vehicles with 3.2 ltr. FSI engine)

NOTE:

- **Use thread tap to remove any remaining locking fluid from all threaded holes which will accommodate self-locking bolts.**
- **Replace self-locking nuts and bolts when performing assembly work.**
- **Replace O-rings**
- **Re-attach all cable ties at the same locations when re-installing.**

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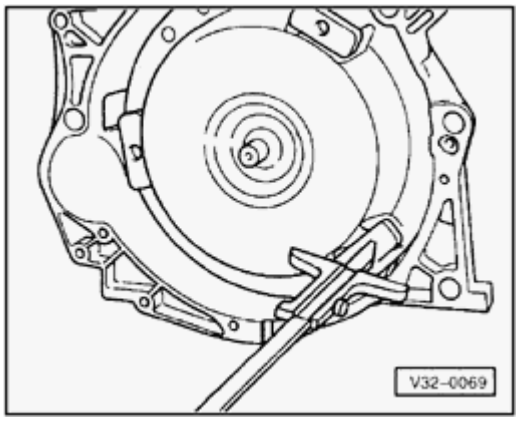

Fig. 172: Checking Torque Converter Is Correctly Positioned
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Before installing transmission, make sure that the torque converter is properly installed in the transmission.

- If the torque converter is correctly installed, the depth between the contact surfaces at the tapped holes on the torque converter and contact surface of torque converter bell housing is at least 19 mm.

CAUTION: If the torque converter is not installed correctly, the torque converter drive lugs or the ATF pump will be seriously damaged when the transmission is joined to the engine.

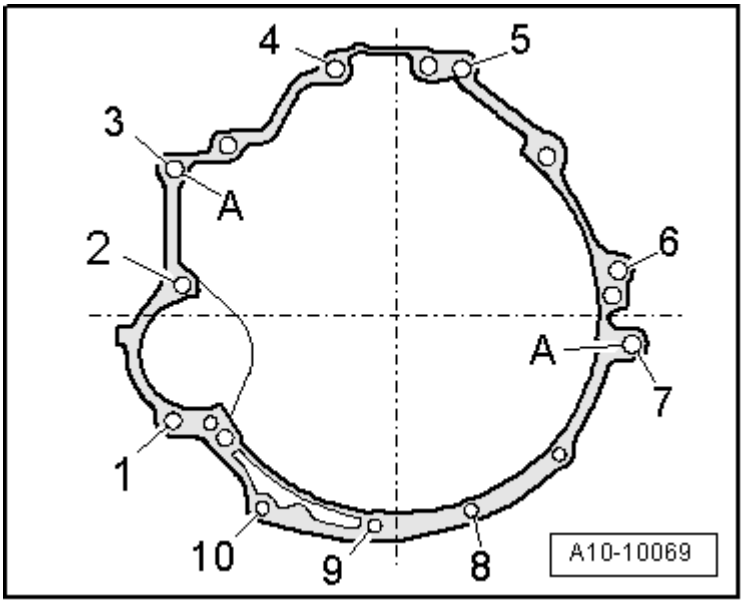

Fig. 173: Identifying Engine/Transmission Threaded Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Before installing transmission, check for correct positioning of dowel sleeves - **A** - at cylinder block. Install new dowel sleeves if necessary.

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- Install intermediate plate between engine and transmission in the original position.
- Before joining engine and transmission, turn torque converter and drive plate (on engine) until one hole and one tapped hole are in line with the opening for removed starter.
- When pushing engine and transmission together, make sure that no wiring or lines etc. can become trapped.

Install transmission, adhere to the following instructions.

CAUTION: Before and while tightening the bolts on the engine/transmission flange keep checking that the torque converter can still be rotated behind the drive plate. If the converter cannot be turned, it must be assumed that it has not been installed correctly and the drive lugs on the converter or the ATF pump will be damaged when the bolts are fully tightened.

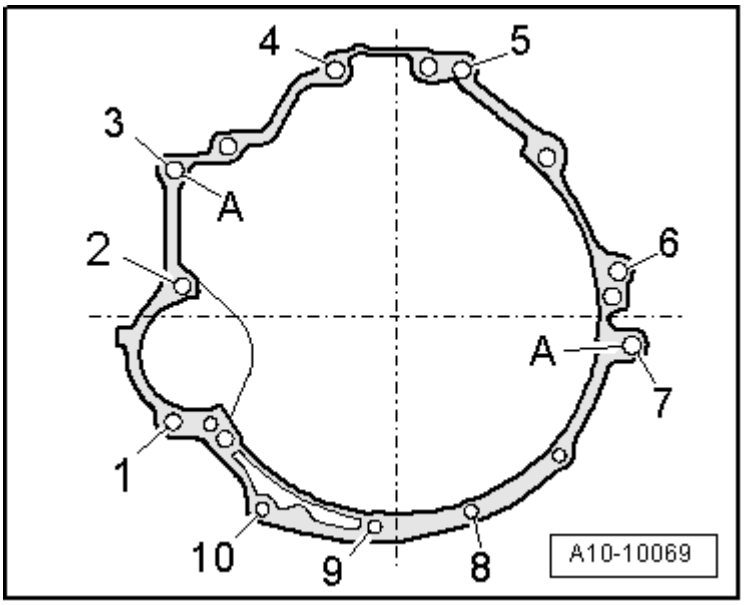

Fig. 174: Identifying Engine/Transmission Threaded Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install bolts - **3** - and - **7** - hand-tight.
- Install transmission support (right-side) with transmission mounting --> **Transmission support and transmission mounting, removing and installing (left and right)**.

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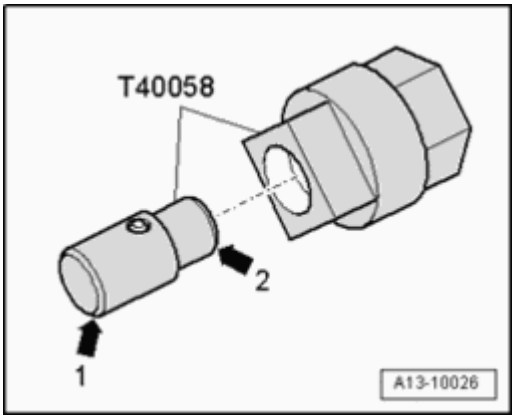

Fig. 175: Inserting Guide Pin Of Adapter T40058
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert guide pin of adapter T40058 so that the large diameter - **arrow 1** - faces engine. The smaller diameter - **arrow 2** - faces adapter.

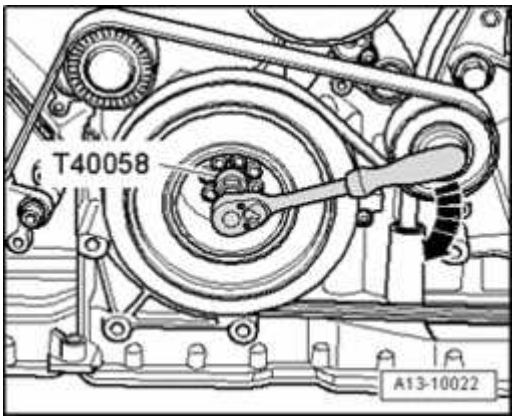

Fig. 176: Loosening Torque Converter Bolts Using Adapter T40058
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Counter-hold crankshaft using adapter T40058 to secure torque converter bolts.

NOTE:

- **- Arrow - can be disregarded.**

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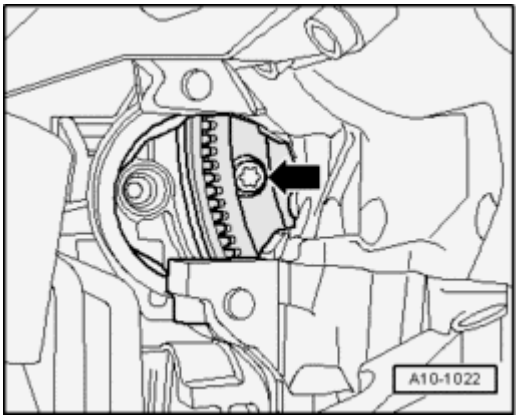

Fig. 177: Torque Converter Bolts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Use new ribbed bolts to secure torque converter to drive plate. Use only correct bolts (same as original equipment) .
- Install 3 bolts - **arrow** - for torque converter hand-tight into opening of removed starter (turning crankshaft $^{1}/_{3}$ turn each time).
- Bolt transmission onto engine.

NOTE:

- **Tightening torques only apply to lightly greased, oiled, phosphated or blackened nuts and bolts.**
- **Lubricants such as engine or transmission oil may be used, but do not use graphite lubricant.**
- **Do not use parts which have been degreased.**
- **Tolerance for tightening torques ±15%.**

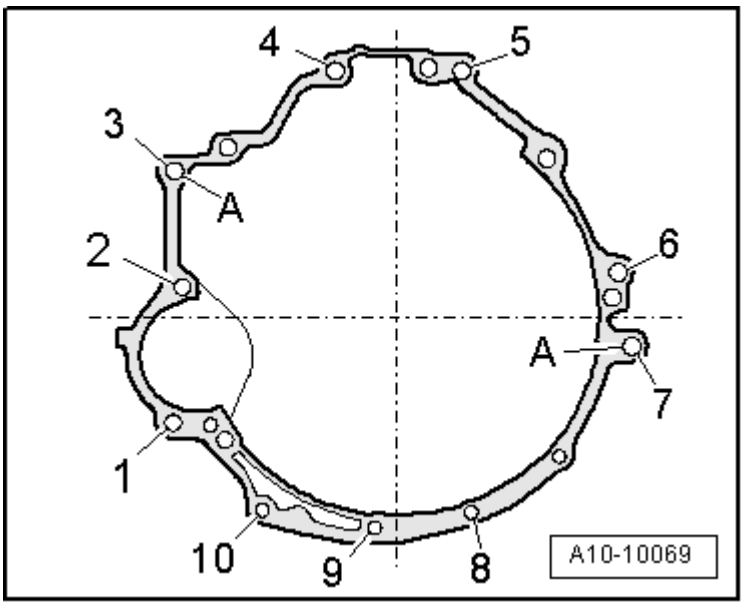

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Fig. 178: Identifying Engine/Transmission Threaded Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Engine/transmission securing bolts

Item	Bolt	Nm
1	M10x115	65 * See note
2, 6	M12x125	65
3, 5	M12x110	65
4	M12x115	65
7	M12x140	65
8, 9, 10	M10x80	45
A	Dowel sleeves for centralizing	

*Bolt strength 10.9

The remaining installation steps are in reverse sequence. Note the following:

- Install starter -->
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** for ELECTRICAL EQUIPMENT, CABRIOLET

  .
- Install stabilizer bar --> **40 - FRONT SUSPENSION** .
- Clean ATF pipes and ATF cooler --> **ATF cooling lines and ATF cooler, cleaning**.
- Secure ATF pipes to transmission and engine --> **ATF cooling lines**.
- Install selector lever cable --> **Selector lever cable, removing and installing (vehicles with 3.2 ltr. FSI engine)**.
- Adjust selector lever cable --> **Selector lever cable, checking and adjusting**.
- Install driveshaft -->
  - **39 FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE
  - **39 - FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE 0AR

  .
- Install front exhaust pipes -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN

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- **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): BNS
- **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

.

- Align exhaust system free of stress -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
  - **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): BNS
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

.

- Install drive shafts --> **40 - FRONT SUSPENSION** .

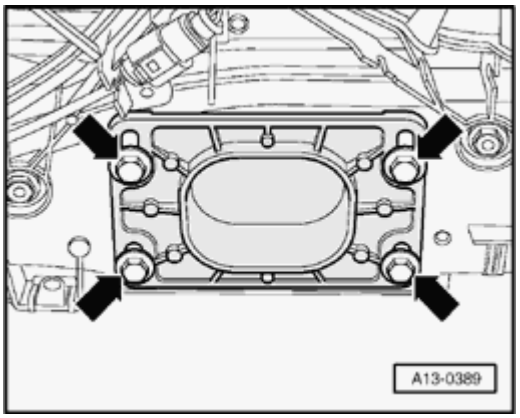

Fig. 179: Removing/Installing Bolts At Torque Support Stop
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Allow stop for torque reaction support to settle under its own weight on rubber buffer for torque reaction support and tighten bolts - **arrows** -.
- Follow steps required after connecting battery -->
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** for ELECTRICAL

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EQUIPMENT, CABRIOLET

.

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

Component	Nm
Drive plate to torque converter	85 * See note
Engine mounting to support	23
Heat shield for drive shaft to transmission	23
Bracket for sound insulation to subframe	10
Stop for torque reaction support to lock carrier	28

*Replace bolts.

Transmission, removing (vehicles with 4.2 ltr. MPI engine)

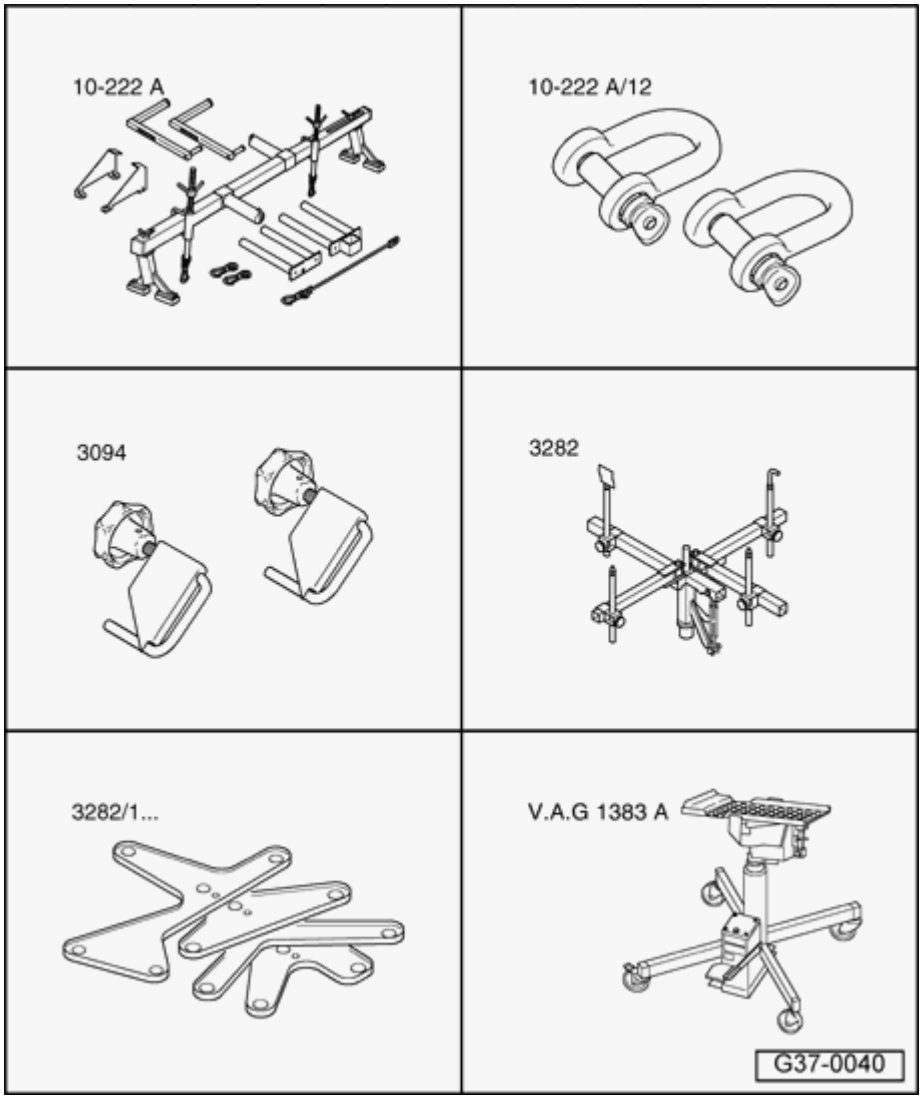

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Fig. 180: Identifying Special Tools - Transmission, Removing (Vehicles With 4.2 ltr. MPI Engine) (1 Of 2)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Engine support bridge 10-222 A
- Shackle 10-222 A/12
- Hose clamps, up to 25 mm dia. 3094
- Transmission support 3282
- Adapter 3282/48
- Engine/transmission jack V.A.G 1383 A

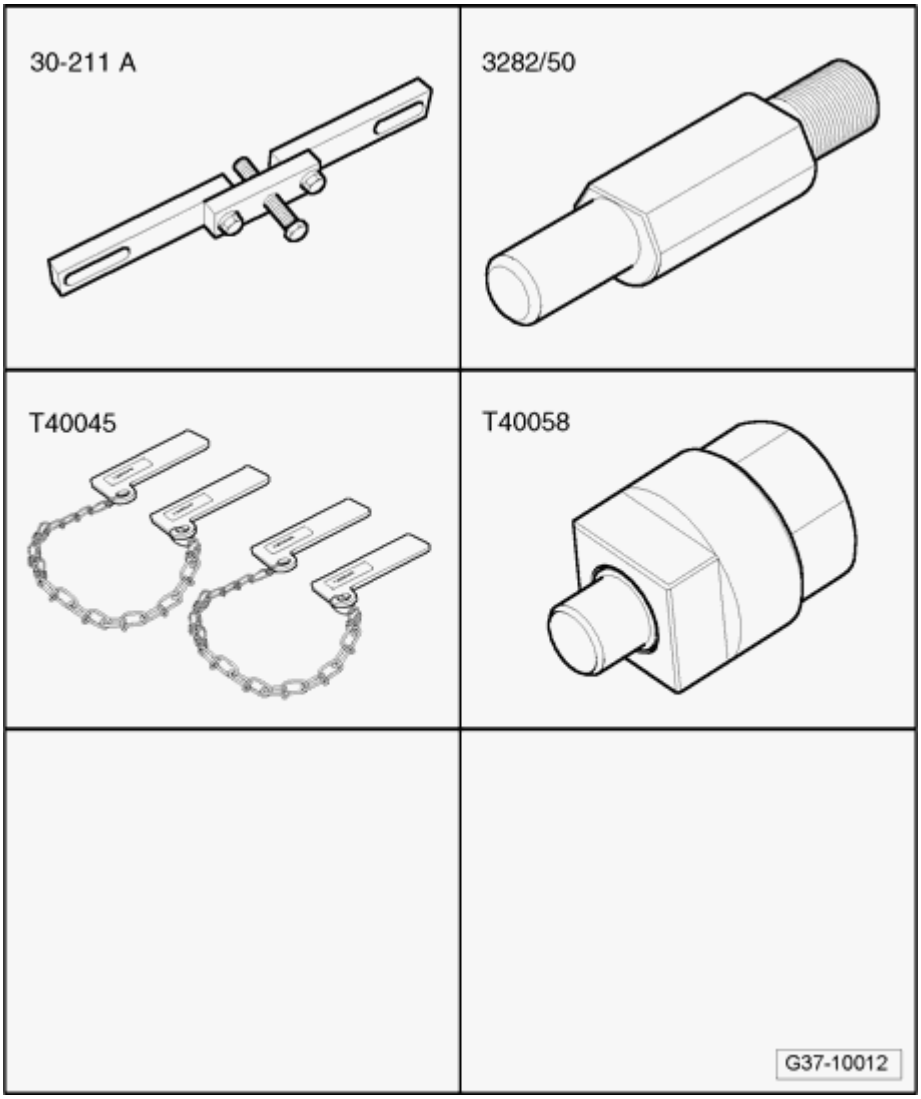

Fig. 181: Identifying Special Tools - Transmission, Removing (Vehicles With 4.2 ltr. MPI Engine) (2 Of 2)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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Special tools, testers and auxiliary items required

- Bracket 30-211 A
- Pin 3282/50
- Insert pad for front fender T40045
- Adapter T40058
- Bolt M10x20

Removing

NOTE:

- **General repair instructions --> General repair instructions.**
- **Read the rules for cleanliness when working on the automatic transmission --> Rules for cleanliness.**
- **All cable ties which are released or cut open during removal must be installed in the same position when installing.**
- **Heat insulation sleeves removed during removal of transmission must be installed in the same position when installing.**

- Shift selector lever to position "P".

CAUTION: Follow steps required when disconnecting battery -->

- **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
- **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL for ELECTRICAL EQUIPMENT, CABRIOLET**

.

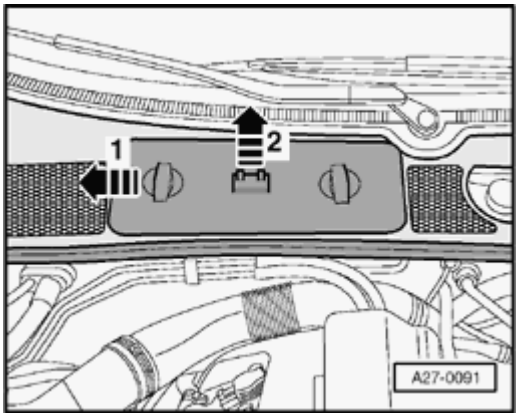

Fig. 182: Sliding Battery Cover Toward Right Side Of Vehicle And Remove
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Slide battery cover toward right side of vehicle - **arrow 1** - and remove - **arrow 2** -.

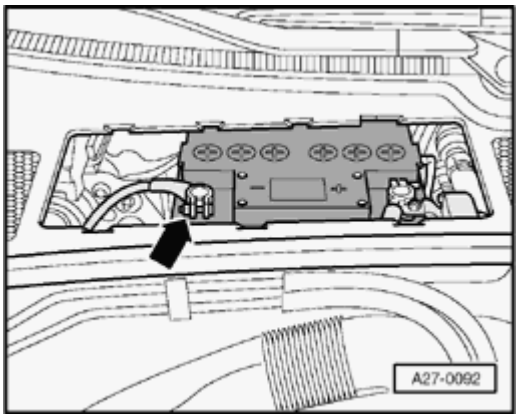

Fig. 183: Disconnecting Ground (GND) Wire At Battery
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- With ignition switched off, disconnect Ground (GND) wire - **arrow** - at battery.

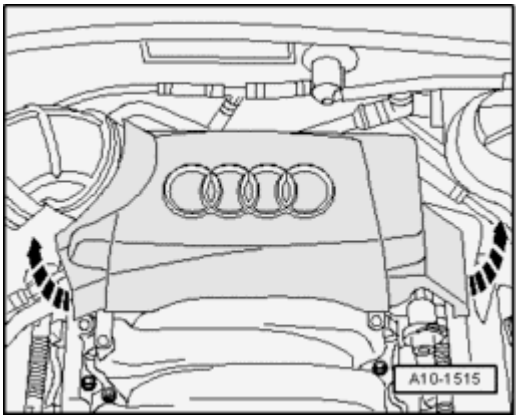

Fig. 184: Removing Rear Engine Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove rear engine cover - **arrows** -.

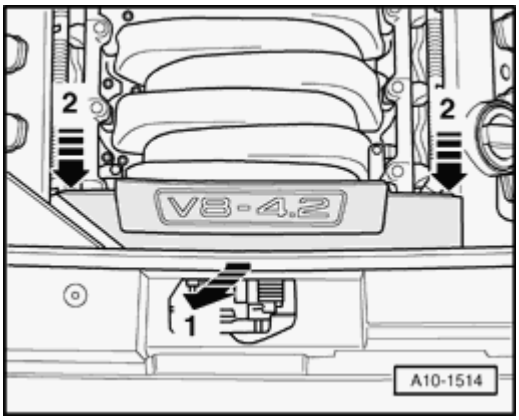

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Fig. 185: Removing Front Engine Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove front engine cover - **arrows** -.

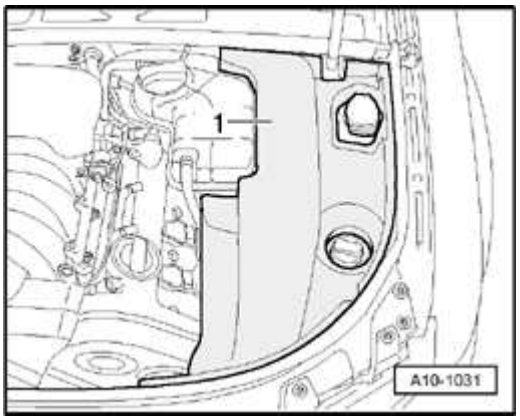

Fig. 186: Removing Cover In Engine Compartment (Left Side)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove cover - **1** - on left side of engine compartment.

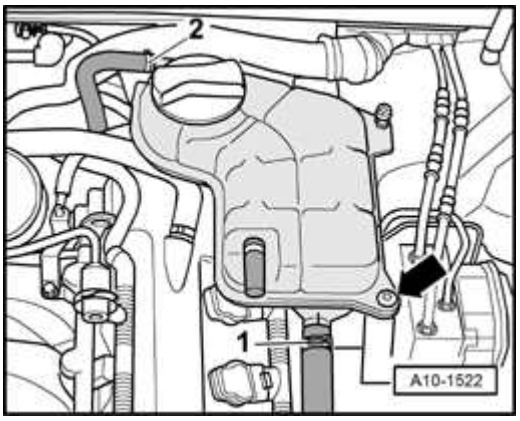

Fig. 187: Removing Coolant Hoses & Coolant Expansion Tank
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect coolant hose - **2** - with hose clamp 3094 and detach at coolant expansion tank.
- Unbolt coolant expansion tank - **arrow** -.
- Disconnect electrical wire leading to Engine Coolant Level (ECL) warning switch F66 at expansion tank (bottom) and move coolant expansion tank (with coolant hose - **1** - attached) clear to one side.
- If necessary, close off connection with a suitable plug.

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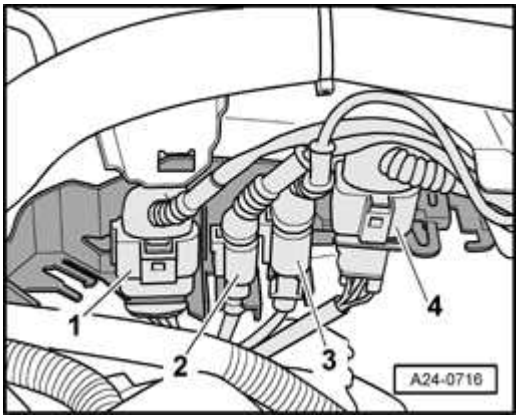

Fig. 188: Removing Bracket For Electrical Harness Connectors At Left From Bulkhead
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical connectors - **1 to 4** - from retainer at left of bulkhead.
- Disconnect electrical connectors - **1** - , - **3** - and - **4** -.
- Detach retainer at bulkhead.
- Detach heat insulation sleeve at wiring harness and move wiring harness clear.
- Move Lambda probe wires clear (downward).

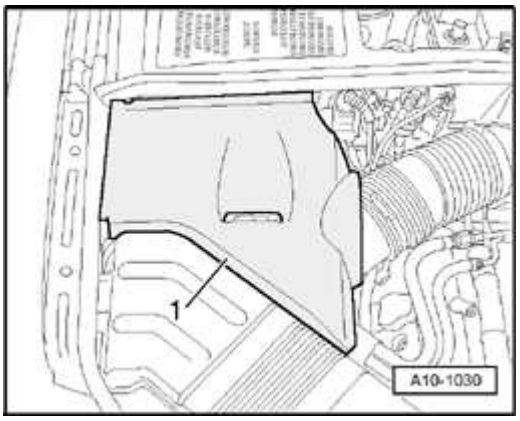

Fig. 189: Removing Cover In Engine Compartment (Right Side)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove cover - **1** - on right side of engine compartment.

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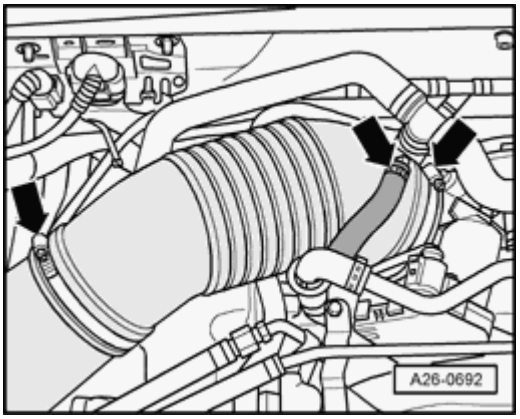

Fig. 190: Removing Air Guide Hose
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove air intake hose - **arrows** -.

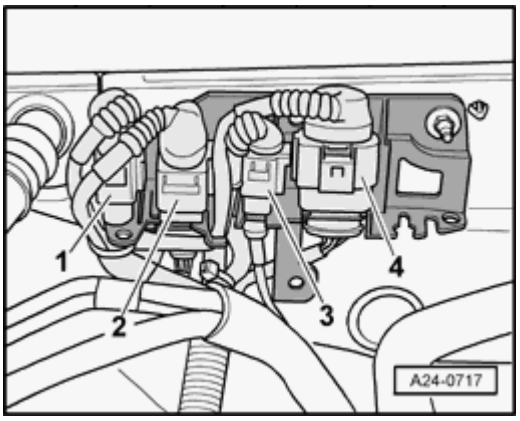

Fig. 191: Removing Bracket For Electrical Harness Connectors At Right From Bulkhead
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect connectors - **1 to 4** - from retainer at right of bulkhead.
- Disconnect electrical connectors - **2** - and - **4** -.
- Move Lambda probe wires clear (downward).

NOTE:

- **Mark the attachment points for the Lambda probe wires, to make sure they are attached in the same place during installation.**

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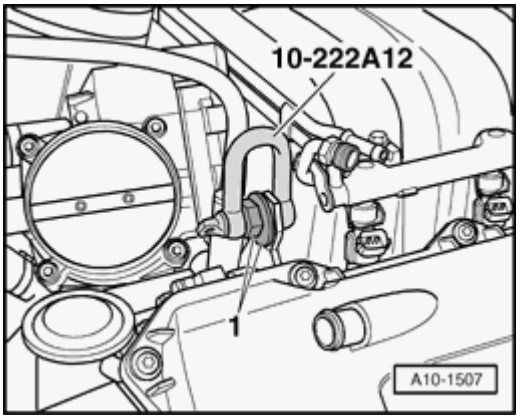

Fig. 192: Installing Shackle 10-222 A/12 To Engine Lifting Eye (Right Rear)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install shackle 10-222 A/12 to engine lifting eye (right rear).

NOTE:

- **- Item 1 - can be disregarded.**

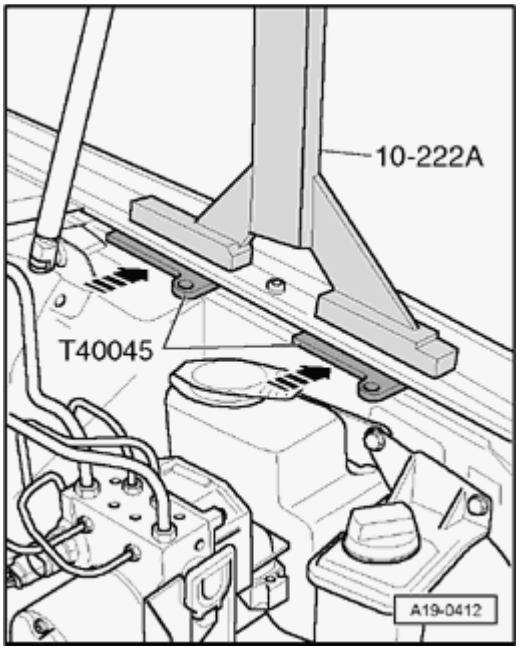

Fig. 193: Inserting Insert Pad For Front Fender T40045 On Both Sides Between Fender Mounting Flange And Body Panel Underneath
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Detach rubber seal from edges of fender mounting flanges.
- To avoid damaging edges of fender panels with engine support bridge 10-222 A, insert pad for front fender T40045 on both sides between the fender mounting flange and body panel underneath.

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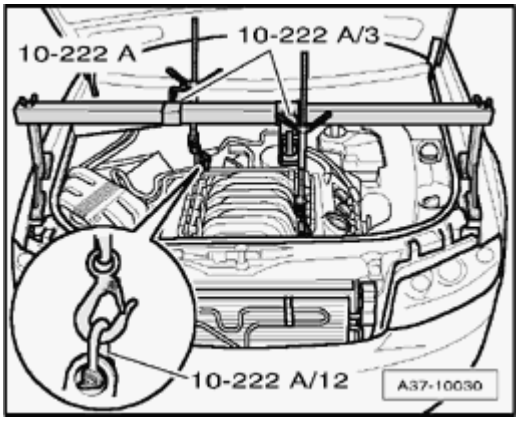

Fig. 194: Placing Engine Support Bridge 10-222 A With Adapters 10-222 A/3 Onto Fender Panel Flange
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Place engine support bridge 10-222 A with adapters 10-222 A/3 onto fender panel flange, as shown in illustration.
- Engage spindles of engine support bridge 10-222 A in engine lifting eye (front) and in shackle 10-222 A/21 (rear).
- Take up weight of engine on spindles of support bar, but do not lift.

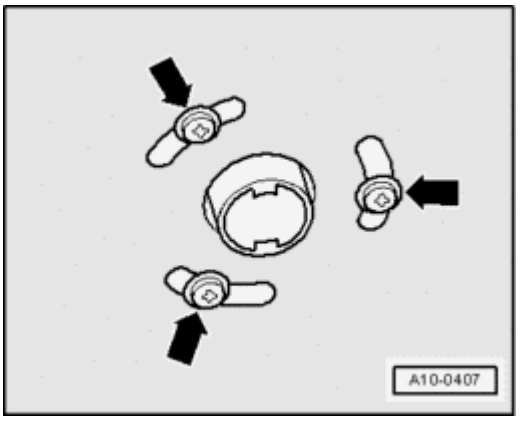

Fig. 195: Identifying Exhaust Pipe Fasteners
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove both front wheels.
- On vehicles equipped with auxiliary heater remove screws - **arrows** - securing exhaust pipe of auxiliary heater to sound insulation.

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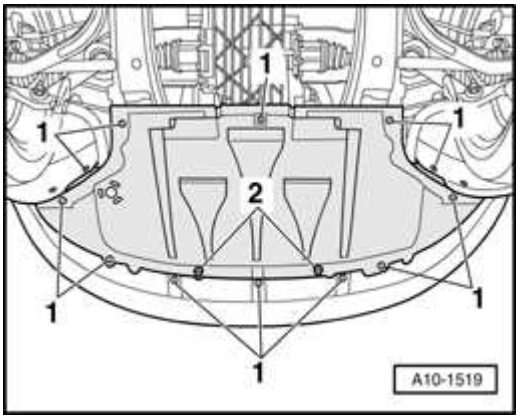

Fig. 196: Removing Quick-Release Fasteners, Screws And Noise Insulation
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Release quick release fasteners - **1** - , remove bolts - **2** - and remove sound insulation.

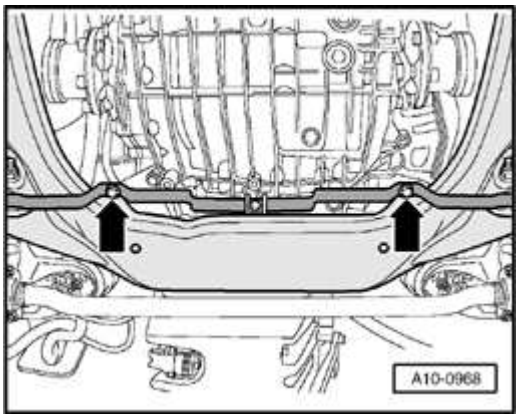

Fig. 197: Removing Bracket For Sound Insulation
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bracket for sound insulation - **arrows** -.

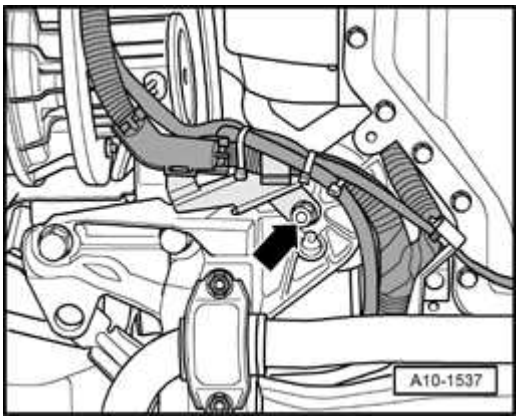

Fig. 198: Removing Wiring Harness Bracket At Right Engine Plate
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Remove bracket for wiring harness at engine support (right-side) - **arrows** -.

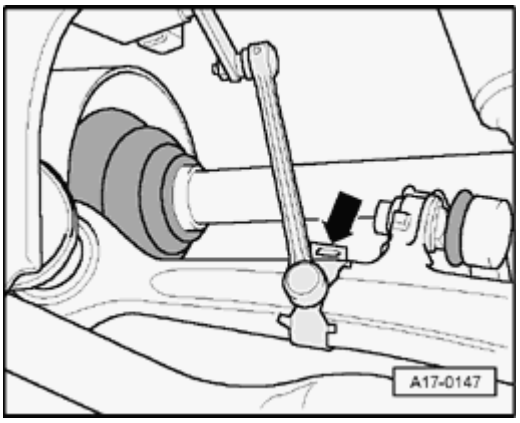

Fig. 199: Unclipping Operating Rod For Vehicle Levelling Sensor At Lower Transverse Link
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- If installed, unclip operating rod for vehicle level sensor from lower transverse link - **arrow** - or detach connector at operating rod (top).

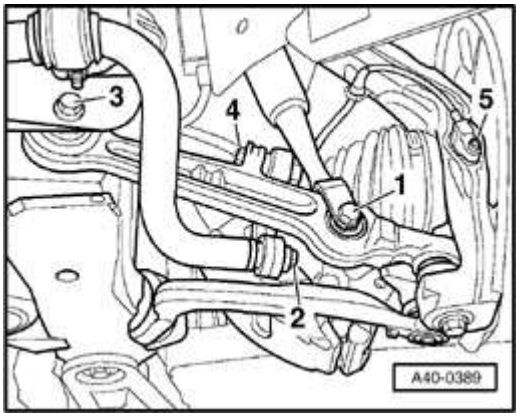

Fig. 200: Removing Bolt (On Left And Right)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolt - **2** - (on left and right).

NOTE:

- **Ignore - item 1 - and - items 3 to 5 -.**

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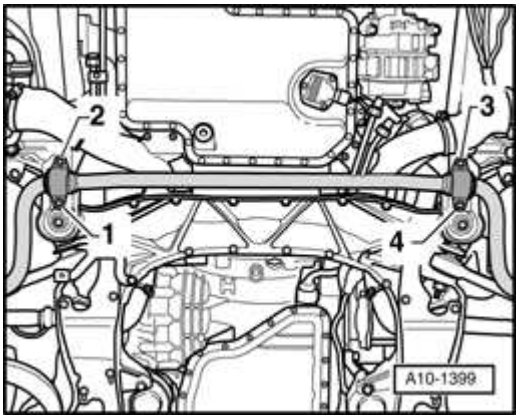

Fig. 201: Removing Nuts For Left/Right Stabilizer Mounts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove nuts (left and right) - **1 to 4** - for stabilizer bar mounting and remove stabilizer bar.

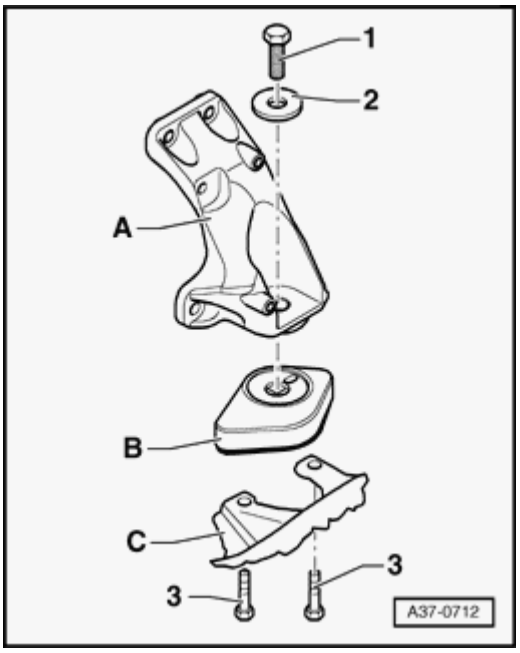

Fig. 202: Removing/Installing Securing Bolts (Left/Right) For Transmission Mounting At Subframe
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove securing bolts (left and right) - **3** - for transmission mounting - **B** - at subframe - **C** -.

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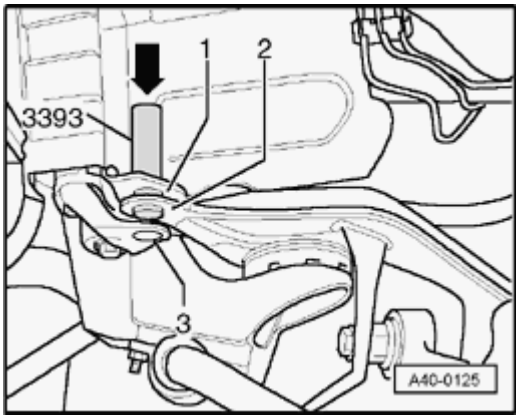

Fig. 203: Checking Holes Align Using Testing Mandrel 3393
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Before loosening subframe, use locating pin 3393 to check whether holes - **1** - and - **2** - are aligned.

If this is not the case, wheel alignment has to be performed after installing subframe.

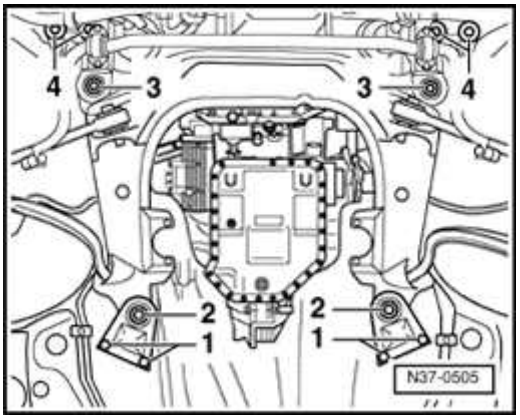

Fig. 204: Remove Bolts 2- And At Front And Rear Of Subframe On Both Sides Of Vehicle
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **1 to 4** - and lower subframe.

NOTE:

- **The subframe may be allowed to rest on the transverse links. It does not have to be removed completely.**

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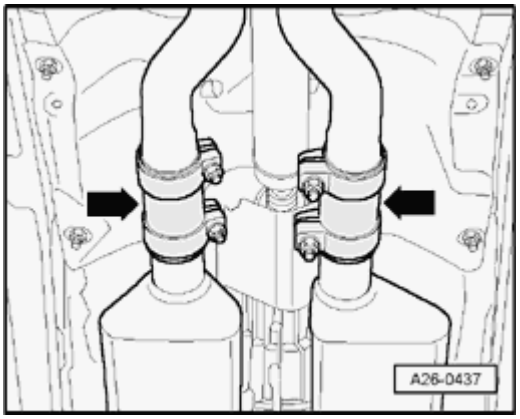

Fig. 205: Loosening Clamping Sleeves
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **To prevent damage, the flexible couplings in the front exhaust pipes must not be bent further than 10°.**

- Disconnect exhaust system at clamps - **arrows** -.

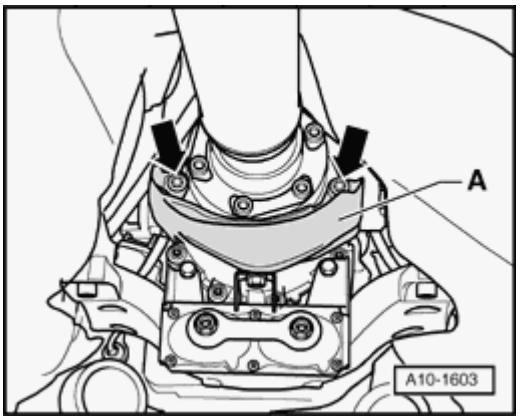

Fig. 206: Removing/Installing Heat Shield For Driveshaft
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

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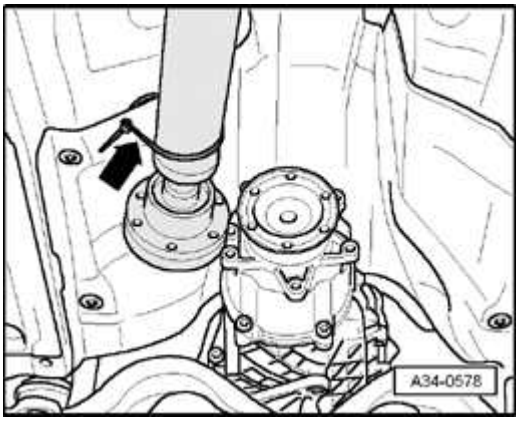

Fig. 207: Drive Shaft Tied To Side, Onto Heat Shield
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tie driveshaft to side, onto heat shield - **arrow** -.

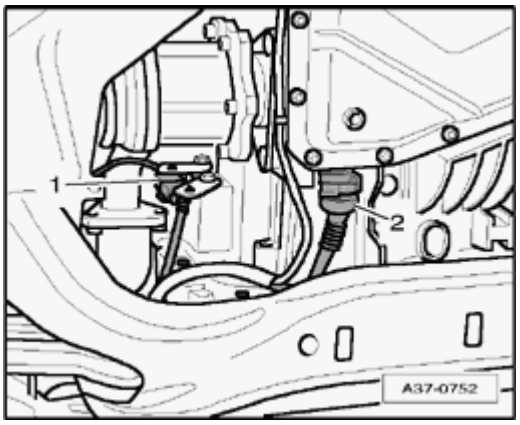

Fig. 208: Disconnecting 16-Pin Electrical Connector At Transmission By Folding Out Release Tab And Turning Fastener Cap Counter-Clockwise
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect 16-pin electrical connector - **2** - at transmission by folding out the release tab and turning fastener cap counter-clockwise.

NOTE:

- **- Item 1 - can be disregarded.**

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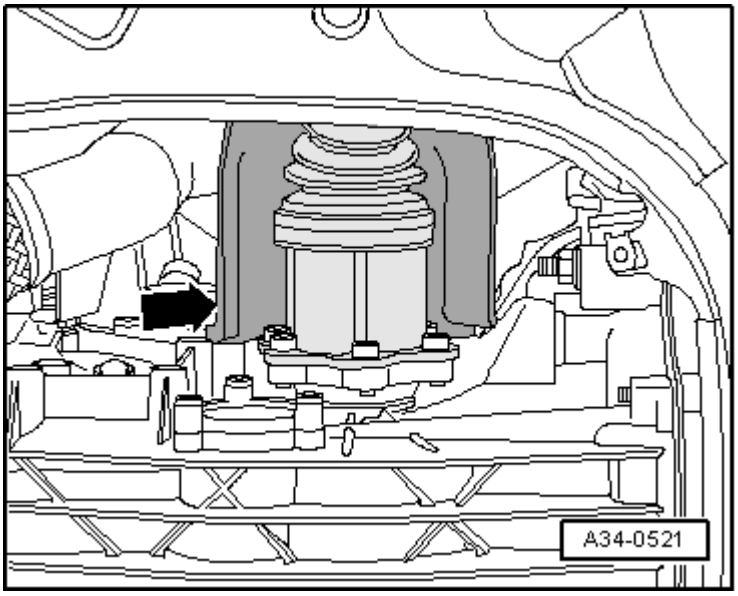

Fig. 209: Drive Axle Heat Shield
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove heat shields - **arrow** - for drive axles (left and right).
- Remove drive axles (left and right) from flange on transmission.

NOTE:

- **Make sure you do not damage surface coating on drive axles.**

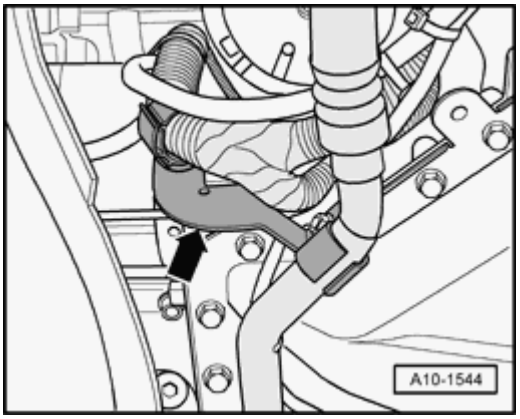

Fig. 210: Removing Refrigerant Line On Bracket
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bracket (right-side) - **arrow** - for refrigerant line.

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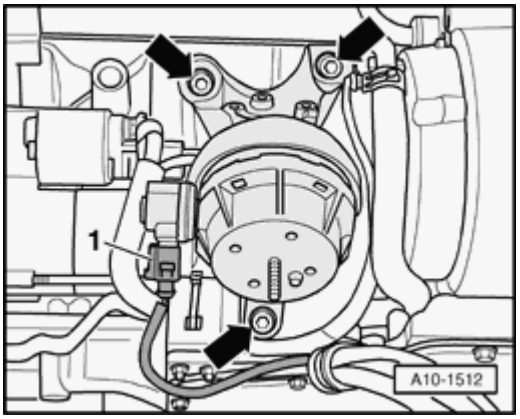

Fig. 211: Disconnecting Electrical Harness Connector At Right Engine Mount
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical connector - **1** -.
- Remove bolts - **arrows** - and remove engine support together with engine mounting.

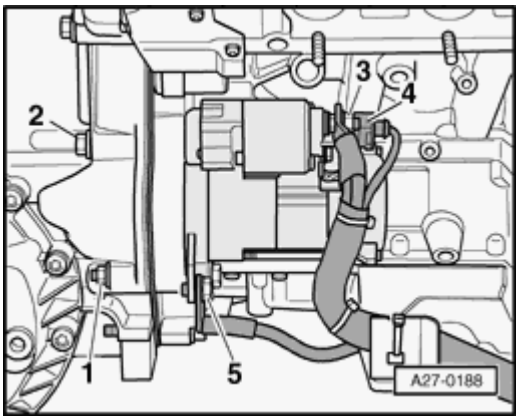

Fig. 212: Identifying Ground (GND) Wire, Wires, Nuts, Bolts & Starter
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove Ground (GND) wire - **5** -.
- Disconnect wires - **3** - and - **4** -.
- Remove nut - **1** - and bolt - **2** -.
- Remove starter.

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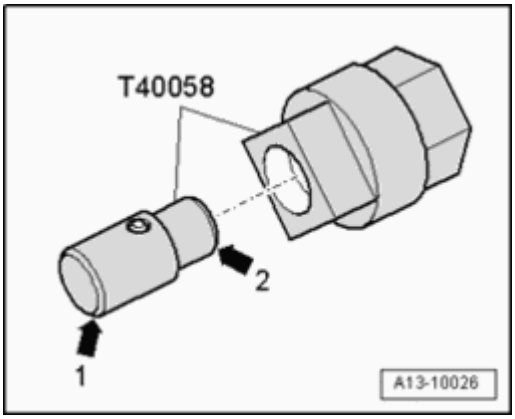

Fig. 213: Inserting Guide Pin Of Adapter T40058
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert guide pin of adapter T40058 so that the large diameter - **arrow 1** - faces engine. The smaller diameter - **arrow 2** - faces adapter.
- Counter-hold crankshaft using adapter T40058 to loosen torque converter bolts.

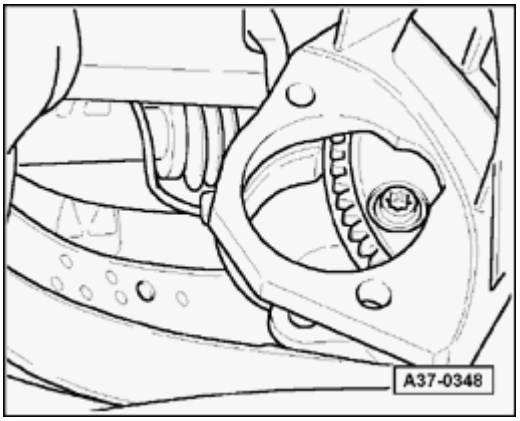

Fig. 214: Removing Bolts From Torque Converter Through Opening For Starter
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove 3 bolts from torque converter through opening for starter (turn crankshaft $^{1}/_{3}$ of a turn to access one bolt after another).

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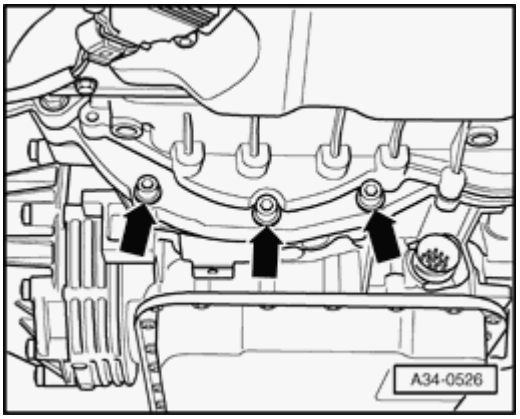

Fig. 215: Removing Bottom Engine/Transmission Connecting Bolts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove lower engine/transmission securing bolts - **arrows** -.

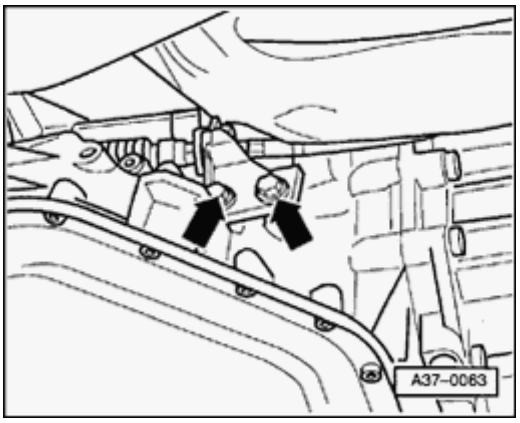

Fig. 216: Identifying Cable Support Bracket To Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Mark position of mounting bracket for selector lever cable relative to transmission housing to simplify reassembly. Unbolt mounting bracket - **arrows** -.
- Loosen clips securing ATF lines to transmission and engine --> **ATF cooling lines**.
- Lower engine/transmission assembly as far as possible, using spindles of support bracket.

CAUTION: When lowering the engine/transmission assembly, make sure none of the lines or wires are stretched or pinched and also avoid causing damage to any other components.

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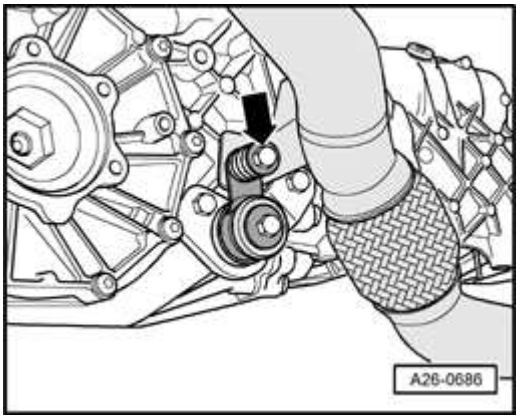

Fig. 217: Removing Bolt At Strap For Left Front Exhaust Pipe
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **Mark the attachment points for the Lambda probe wires, to make sure they are attached in the same place during installation.**

- Remove bolt - **arrow** - at bracket for front exhaust pipe (left-side).

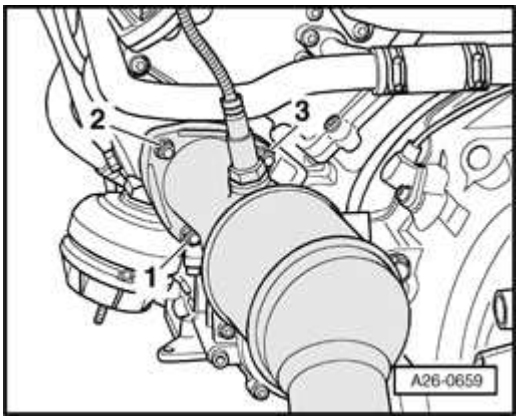

Fig. 218: Removing Nuts For Left Front Exhaust Pipe/Exhaust Manifold
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove nuts - **1 to 3** - connecting front exhaust pipe (left-side) to exhaust manifold.

NOTE:

- **In the illustration the engine has been removed.**

- Detach front exhaust pipe from exhaust manifold (left-side).
- Remove front exhaust pipe.

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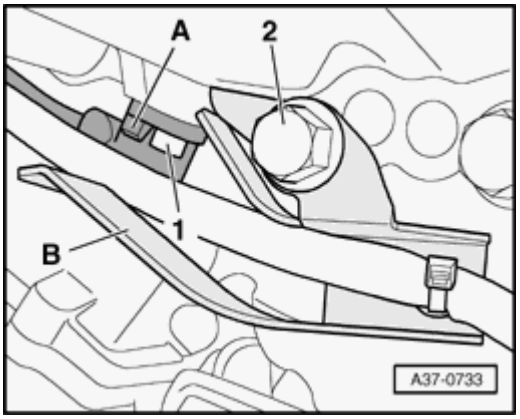

Fig. 219: Identifying Bolt, Heat Shield, Bolt & Engine Speed (RPM) Sensor G28
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolt - **2** -.
- Remove heat shield - **B** -.
- Remove bolt - **1** -.
- Pull engine speed (RPM) sensor G28 - **item A** - out of transmission.

NOTE:

- **The engine speed (RPM) sensor G28 is inserted in bell housing (top left).**

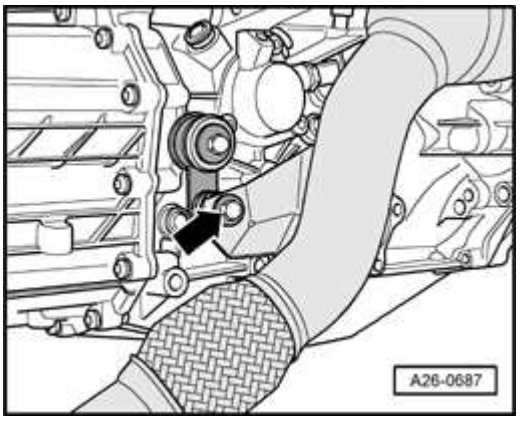

Fig. 220: Removing Bolt At Strap For Right Front Exhaust Pipe
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolt - **arrow** - at bracket for front exhaust pipe (right-side).

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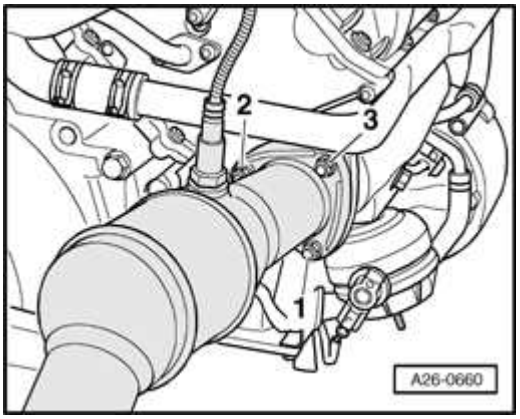

Fig. 221: Removing Nuts For Right Front Exhaust Pipe/Exhaust Manifold
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove nuts - **1 to 3** - connecting front exhaust pipe (right-side) with exhaust manifold.

NOTE:

- **In the illustration the engine has been removed.**

- Remove front exhaust pipe.

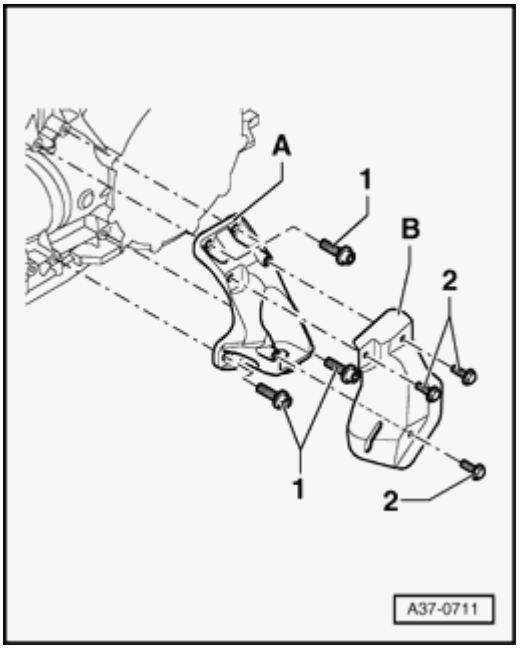

Fig. 222: Removing/Installing Bolts, Heat Shield, Transmission Support
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **2** - at transmission supports (right and left) and detach heat shields - **B** -.
- Remove bolts - **1** -.
- Detach transmission support - **A** - together with transmission mounting from transmission.

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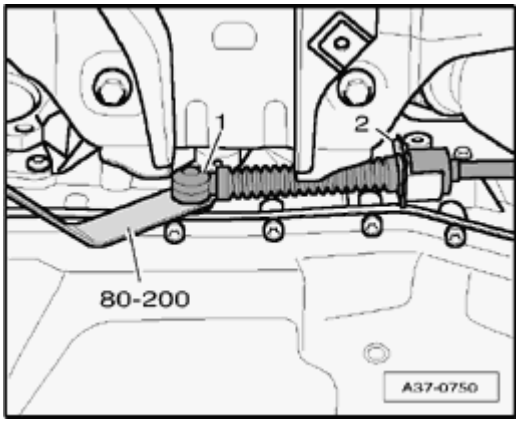

Fig. 223: Using Pry Lever - RMV Outside Mirror 80-200 To Pry Ball Socket On Selector Lever Cable Off Selector Shaft Lever
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Use removal lever 80-200 to pry ball socket - **1** - on selector lever cable off selector shaft lever.

NOTE:

- **Do not bend or kink the selector lever cable.**
- **- Item 2 - can be disregarded.**

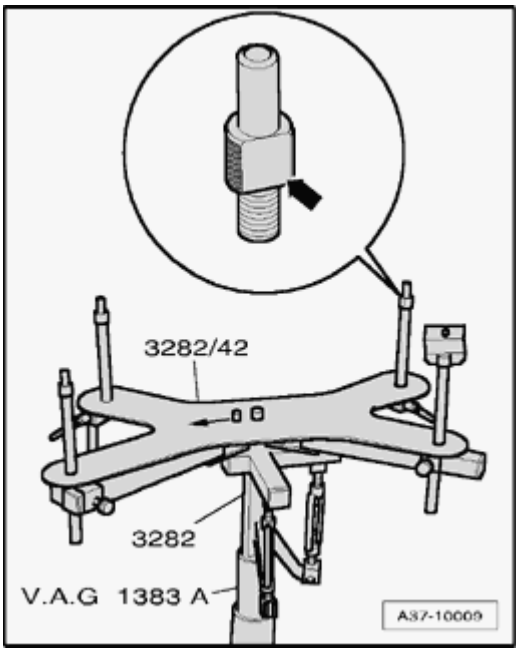

Fig. 224: Placing Adapter 3282/48 On Transmission Support 3282
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Set up transmission support 3282 on engine/transmission jack V.A.G 1383 A.
- Place Adapter 3282/48 on transmission support 3282 as shown in illustration.
- Align arms of transmission support according to holes in adjustment plate.

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- Attach support elements as illustrated on adjustment plate.
- pin 3282/50 has to be screwed in at rear right.

NOTE:

- **The pin 3282/50 is flattened at the side - arrow - , the flattened side should face the oil pan when inserting pin into transmission.**

- Place engine/transmission jack V.A.G 1383 A with transmission support 3282 underneath transmission.

NOTE:

- **The arrow symbol on the adjustment plate points in the direction of travel.**

- Align adjustment plate parallel with transmission.

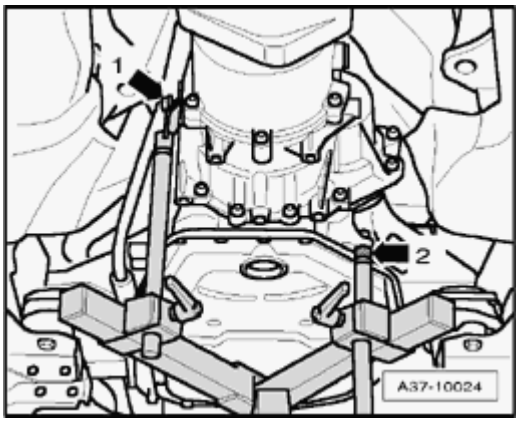

Fig. 225: Bolting Support To Left Rear Tapped Hole On Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Bolt support to left rear tapped hole on transmission - **1** - using one bolt M10x20.
- Insert flattened pin 3282/50 into mounting hole at right rear of transmission housing - **arrow 2** -.

CAUTION:

- **The flattened side of the pin must face toward the transmission oil pan to prevent the oil pan from being bent or damaged.**
- **Replace the transmission oil pan if damaged.**

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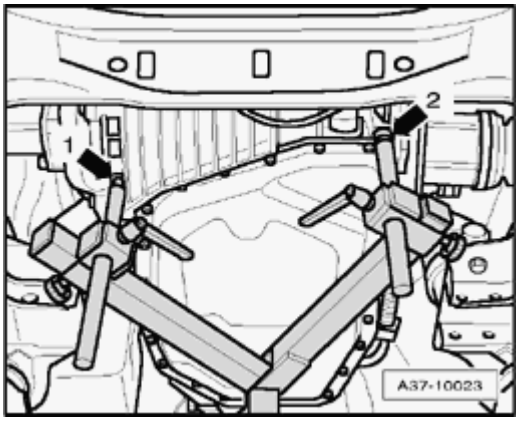

Fig. 226: Inserting Pin Into Mounting Hole At Left Front Of Transmission Housing & Recess In Housing At Right Front Of Differential Housing
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert pin into mounting hole at left front of transmission housing - **arrow 2** -.
- Insert pin into recess in housing at right front of differential housing - **arrow 1** -.
- Place drip tray in position.

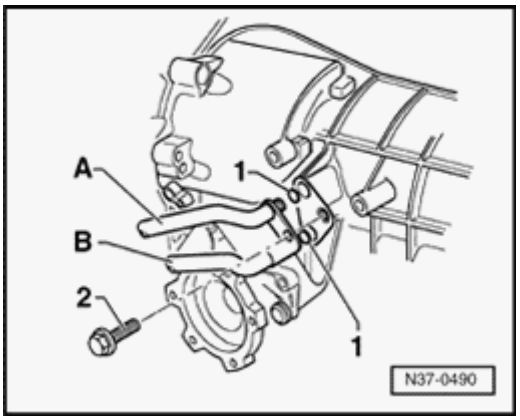

Fig. 227: Location Of ATF Lines At Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **2** -.
- Pull ATF cooling lines off transmission.
- Seal lines and transmission connections with clean sealing plugs to prevent ATF from escaping.

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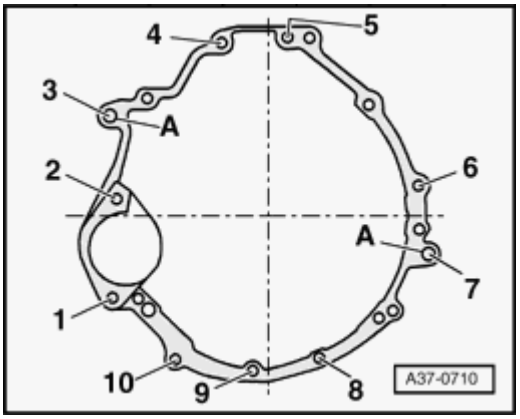

Fig. 228: Identifying Engine/Transmission Threaded Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove all remaining securing bolts between engine and transmission.
- If necessary, lower engine slightly again via spindles.

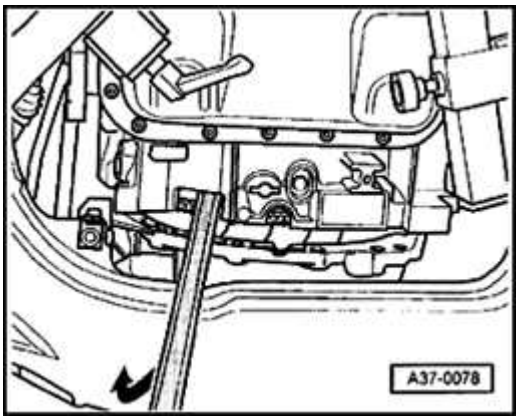

Fig. 229: Using Assembly Lever To Press Torque Converter Off Drive Plate Of Engine
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Use assembly lever to press torque converter off drive plate of engine - **arrow** -.
- Press transmission off engine.

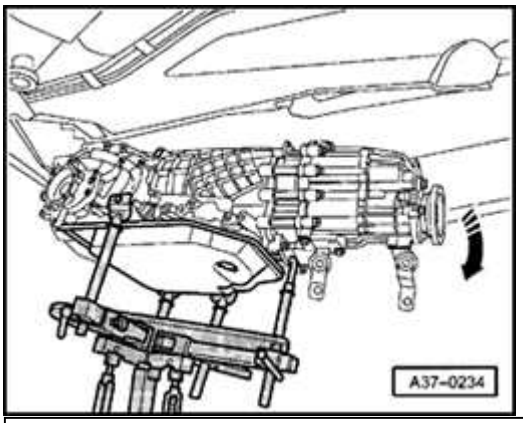

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Fig. 230: Lowering Rear Edge Of Transmission By Adjusting Transmission Support 3282 Accordingly
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Lower rear edge of transmission by adjusting transmission support 3282 accordingly.
- Guide transmission out diagonally downward/to rear.

NOTE:

- **When lowering transmission, make sure there is sufficient clearance to drive axles.**

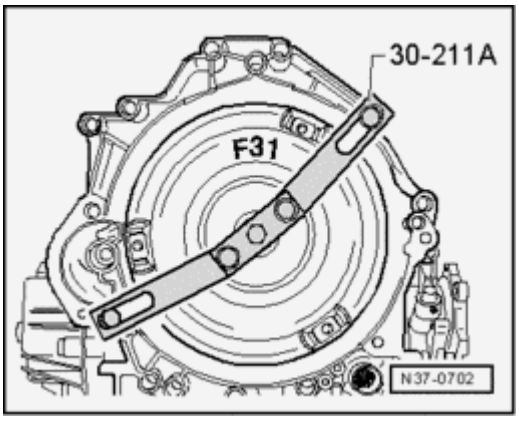

Fig. 231: Securing Torque Converter
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Secure torque converter in transmission using Bracket 30-211 A to prevent it from dropping out.

Transmission, installing (vehicles with 4.2 ltr. MPI engine)

NOTE:

- **Re-attach all cable ties at the same locations when re-installing.**
- **Secure all hose connections with the correct hose clips (as original equipment) .**
- **Re-attach heat shield sleeves at the same locations when re-installing.**
- **Replace self-locking nuts.**

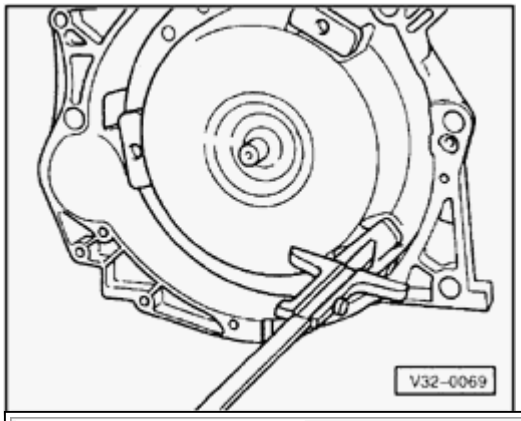

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Fig. 232: Checking Torque Converter Is Correctly Positioned
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Before installing transmission, make sure that the torque converter is properly installed in transmission.
- If torque converter is correctly installed, the depth between contact surfaces at tapped holes on torque converter and contact surface of torque converter bell housing is at least 19 mm.

CAUTION: If the torque converter is not installed correctly, the torque converter drive lugs or the ATF pump will be seriously damaged when the transmission is joined to the engine.

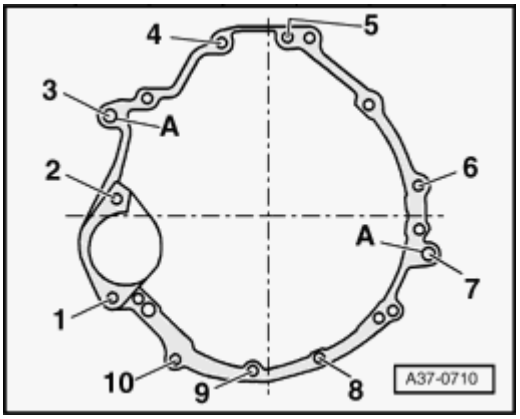

Fig. 233: Identifying Engine/Transmission Threaded Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Before installing transmission, check for correct positioning of dowel sleeves - **A** - at cylinder block. Install new dowel sleeves if necessary.
- If an intermediate plate was installed between engine and transmission, reinstall plate in same position.
- When pushing engine and transmission together, make sure that no cables, lines, etc. can become trapped.

CAUTION: Before and while tightening the bolts on the engine/transmission flange keep checking that the torque converter can still be rotated behind the drive plate. If the converter cannot be turned, it must be assumed that it has not been installed correctly and the drive lugs on the converter or the ATF pump will be damaged when the bolts are fully tightened.

- Bolt transmission onto engine **Illustration of transmission flange**.
- Use new ribbed bolts to secure torque converter to drive plate. Use only correct bolts (same as original equipment) .

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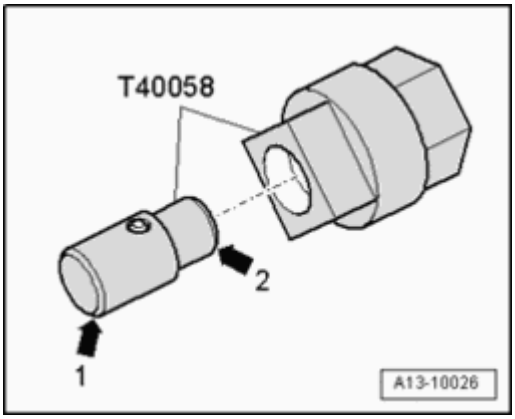

Fig. 234: Inserting Guide Pin Of Adapter T40058
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert guide pin of adapter T40058 so that the large diameter - **arrow 1** - faces engine. The smaller diameter - **arrow 2** - faces adapter.
- Counter-hold crankshaft using adapter T40058 to secure torque converter bolts.

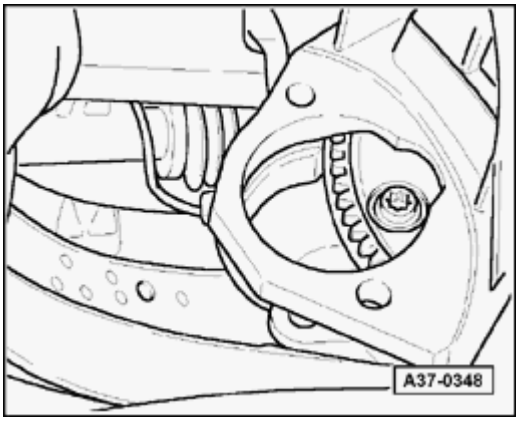

Fig. 235: Removing Bolts From Torque Converter Through Opening For Starter
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install 3 torque converter bolts through opening for starter (finger-tight). Turn crankshaft $^{1}/_{3}$ of a turn to access one bolt after another.
- Tighten torque converter bolts to torque (turning crankshaft $^{1}/_{3}$ turn each time).

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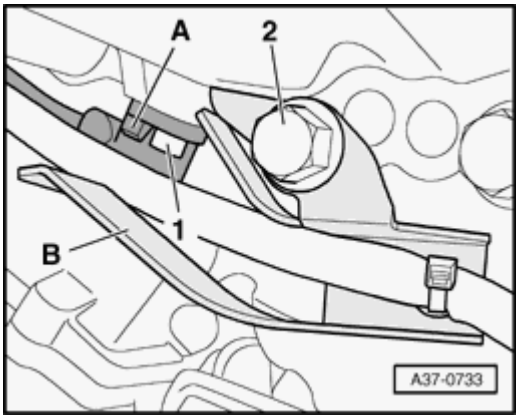

Fig. 236: Identifying Bolt, Heat Shield, Bolt & Engine Speed (RPM) Sensor G28
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert engine speed (RPM) sensor G28 - **item A** - into bell housing (top left) and tighten bolt - **1** -.
- Install heat shield - **B** - and tighten bolt - **2** - (transmission/engine bolt connection **Illustration of transmission flange**)

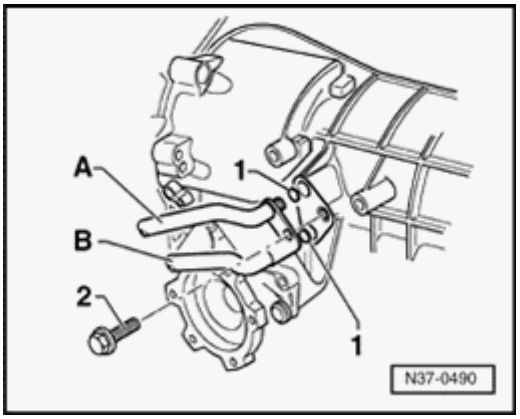

Fig. 237: Location Of ATF Lines At Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert ATF cooling lines - **A** - and - **B** - into transmission as far as possible and tighten bolt - **2** -.

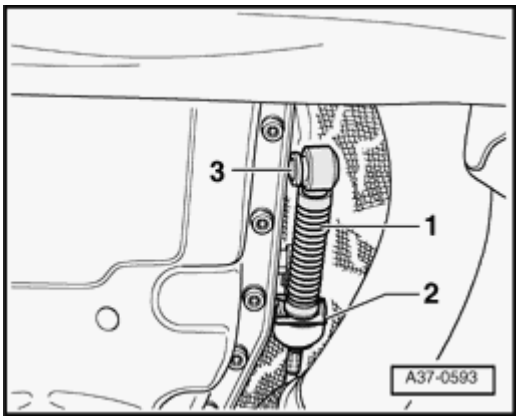

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Fig. 238: Pressing Selector Lever Cable Onto Ball Head Of Selector Shaft Lever
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press selector lever cable - **1** - onto selector shaft lever - **3** -.
- Install starter -->
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** for ELECTRICAL EQUIPMENT, CABRIOLET

  .
- Install transmission support with transmission mounting --> **Transmission support and transmission mounting, removing and installing (left and right)**.
- Install front exhaust pipes -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
  - **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): BNS
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

  .

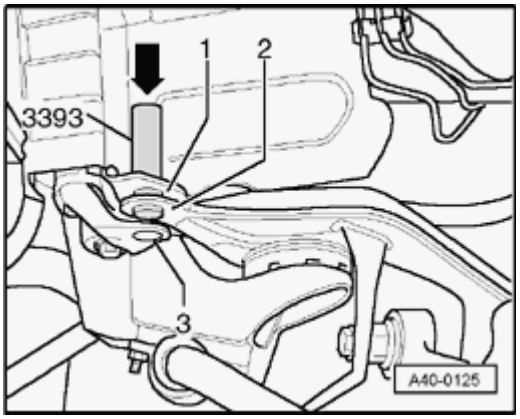

Fig. 239: Checking Holes Align Using Testing Mandrel 3393
Courtesy of VOLKSWAGEN UNITED STATES, INC.

If measurement performed with locating pin 3393 during removal showed that holes - **1** - and - **2** - were aligned:

- Install subframe, observing tightening sequence --> **40 - FRONT SUSPENSION** .

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If measurement performed with locating pin 3393 during removal showed that holes - **1** - and - **2** - were NOT aligned:

- Only tighten bolts for subframe to tightening torque setting, do not yet turn further (wait until wheel alignment has been carried out).

CAUTION: The vehicle must not be driven.

- Clean ATF lines and ATF cooler --> **ATF cooling lines and ATF cooler, cleaning**.
- Secure ATF lines to transmission and engine --> **ATF cooling lines**.

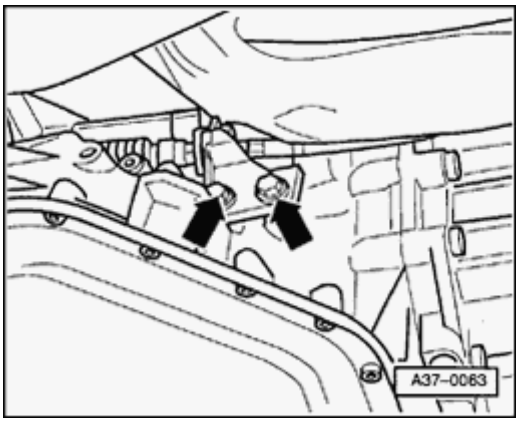

Fig. 240: Identifying Cable Support Bracket To Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Bolt on support bracket for selector lever cable - **arrows** -.
- Secure driveshaft to transmission -->
  - **39 FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE
  - **39 - FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE 0AR

.

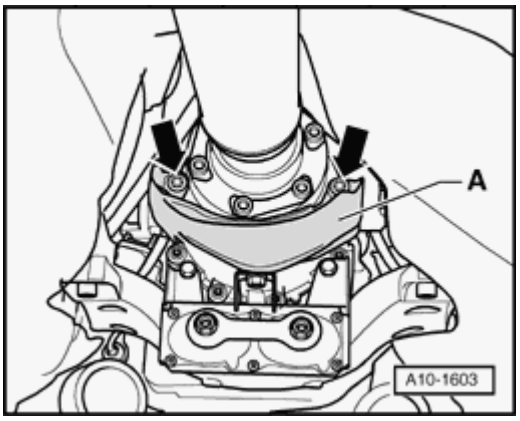

Fig. 241: Removing/Installing Heat Shield For Driveshaft

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Secure heat shield - **A** - for driveshaft - **arrows** -.
- Install exhaust system free of stress -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
  - **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): BNS
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

  .
- Bolt drive axles to flange shafts --> **40 - FRONT SUSPENSION** .

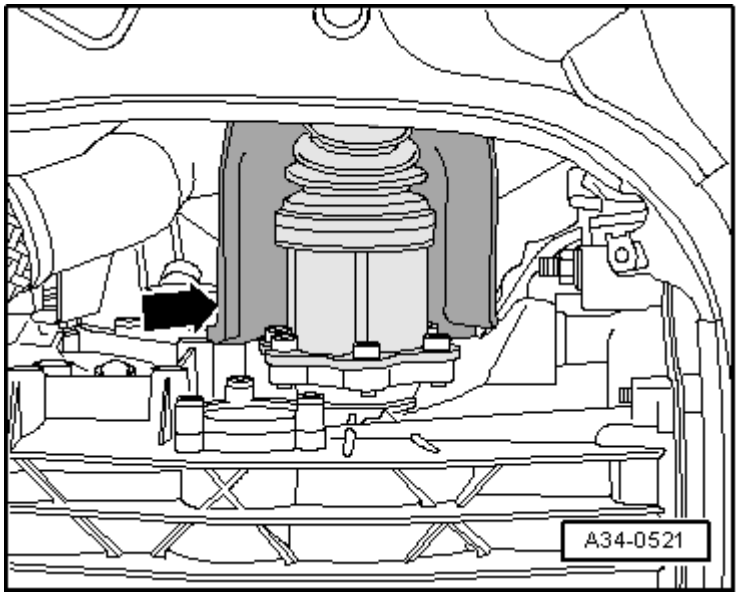

Fig. 242: Drive Axle Heat Shield
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install heat shields - **arrow** - for drive axles (left and right).
- Adjust selector lever cable --> **Selector lever cable, checking and adjusting**.
- Check oil level in final drive (front) --> **Front final drive gear oil**.
- Check oil level in transfer gear--> **Transfer gear oil**.

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- Follow steps required after connecting battery -->
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** for ELECTRICAL EQUIPMENT, CABRIOLET

  .
- Check ATF level --> **ATF level, checking and correcting**.
- If necessary, carry out wheel alignment --> **44 - WHEELS, TIRES, VEHICLE ALIGNMENT** .

CAUTION: After wheel alignment tighten subframe bolts to their final torque setting.

Tightening torques

NOTE:

- **Tightening torques only apply to lightly greased, oiled, phosphated or blackened nuts and bolts.**
- **Lubricants such as engine or transmission oil may be used, but do not use graphite lubricant.**
- **Do not use parts which have been degreased.**

Drive plate to torque converter	Nm
Ribbed bolts, M10x1x21.5 (3x) * See note* See note	
4.2 ltr. MPI engine	85

*Replace bolts.

*Use new bolts (same as original equipment) .

Illustration of transmission flange

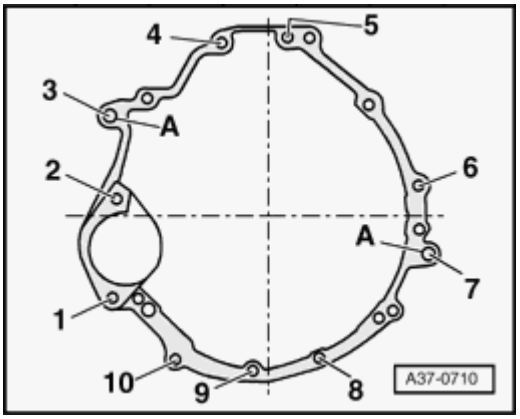

Fig. 243: Identifying Engine/Transmission Threaded Connections

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

A: dowel sleeves for centralizing

Securing engine to transmission:

Item	Bolt	Nm
1	M12x80	65 * See note
8	M10x60	45
9	M10x60	45
10	M10x60	45

*Also secures starter.

Securing transmission to engine:

Item	Bolt	Nm
2	M12x105	65
3	M12x110	65
4	M12x105	65
5	M12x105	65
6	M12x130	65 * See note
7	M12x170	65

*Also secures a heat shield.

Component	Nm
Engine speed (RPM) sensor G28 to transmission	10
Bracket for ATF lines to transmission	21
Bracket for exhaust pipe lug.	23
Heat shields above drive axles to transmission	23
Heat shield for driveshaft to transmission cover	25
Bracket for sound insulation to subframe	10
Support bracket to transmission	10

Transmission support and transmission mounting, removing and installing (left and right)

Special tools, testers and auxiliary items required

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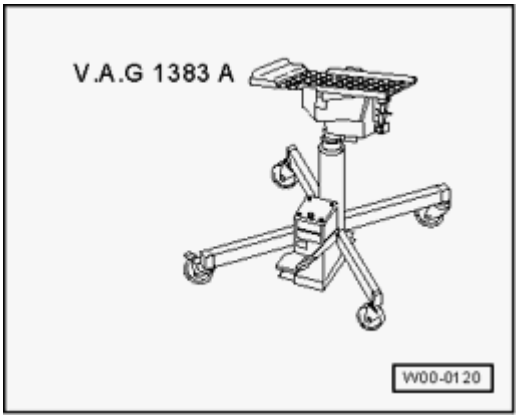

Fig. 244: Identifying Engine/Transmission Jack V.A.G. 1383 A
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Engine/transmission jack V.A.G 1383 A

Removing

- Remove front exhaust pipe on relevant side of transmission -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
  - **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): BNS
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

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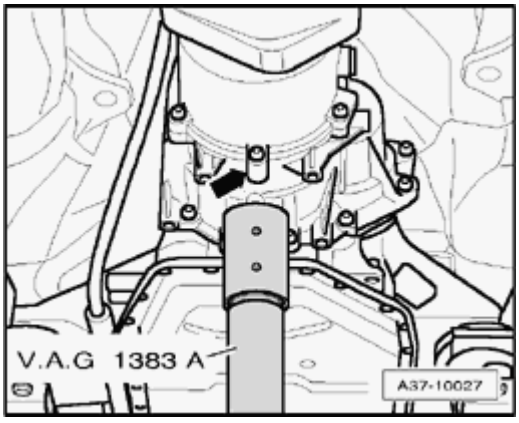

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Fig. 245: Placing Lifting Surface Of Engine/Transmission Jack V.A.G 1383 A Centrally On Lower Housing Base
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Detach universal mounting bracket V.A.G 1359/2 from engine/transmission jack V.A.G 1383 A.
- Place telescopic arm of engine/transmission jack V.A.G 1383 A centrally below cast lug on transmission housing - **arrow** - and support transmission from below.

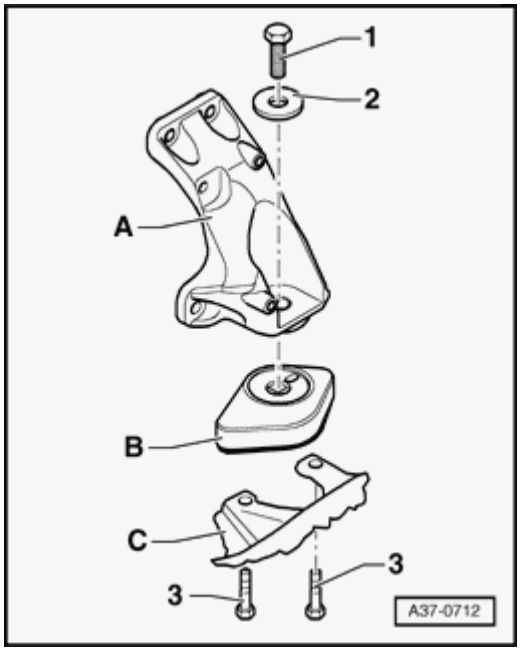

Fig. 246: Removing/Installing Securing Bolts (Left/Right) For Transmission Mounting At Subframe
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove securing bolts (left and right) - **3** - for transmission mounting - **B** - at subframe - **C** -.

NOTE:

- **Always remove both transmission mountings from the subframe.**

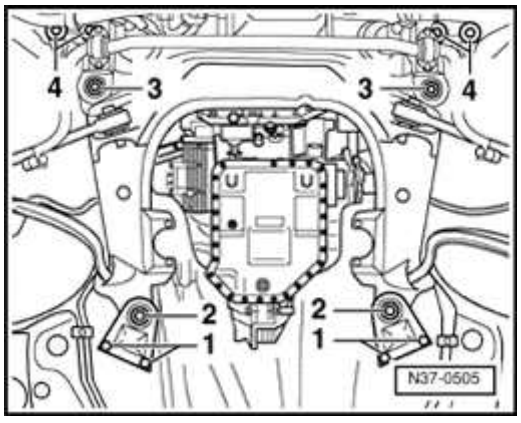

Fig. 247: Remove Bolts 2- And At Front And Rear Of Subframe On Both Sides Of Vehicle

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **1** - and - **2** - and lower subframe at rear.

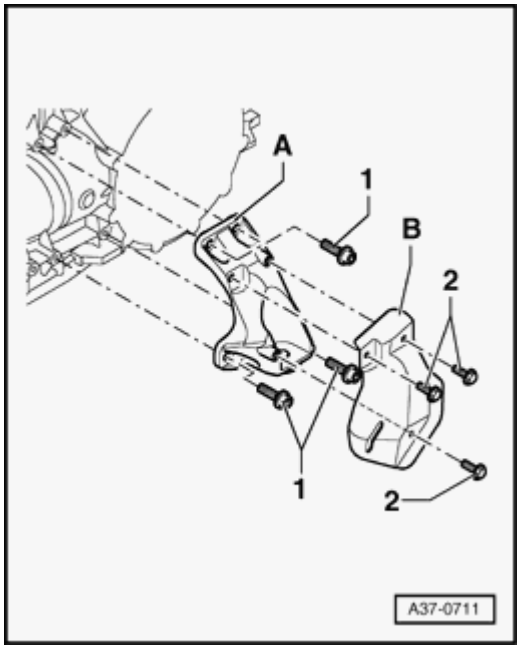

Fig. 248: Removing/Installing Bolts, Heat Shield, Transmission Support
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Lower transmission slightly with engine/transmission jack V.A.G 1383 A to make bolts - **1** - and - **2** - more accessible.
- Remove bolts - **2** -.
- Remove heat shield - **B** -.

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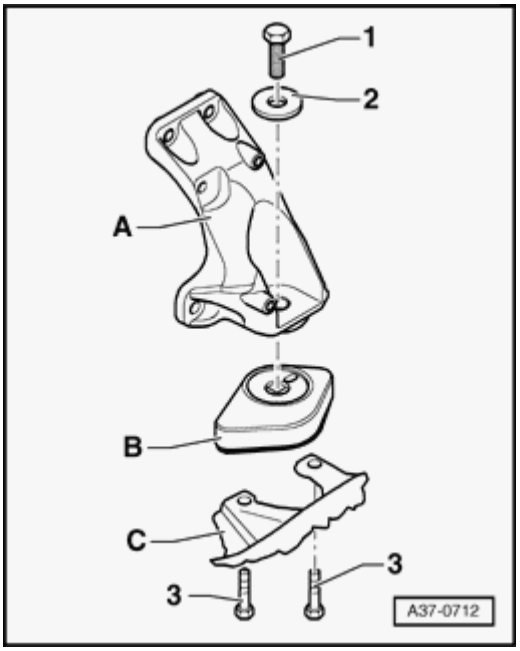

Fig. 249: Removing/Installing Securing Bolts (Left/Right) For Transmission Mounting At Subframe
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Removing transmission mounting - B -

- Remove bolt - **1** -.
- Detach transmission mounting - **B** -.

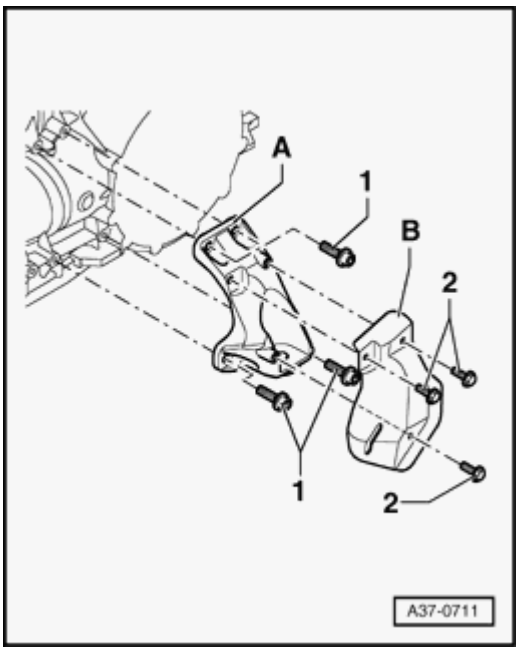

Fig. 250: Removing/Installing Bolts, Heat Shield, Transmission Support
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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Removing transmission support

- Remove bolts - **1** -.
- Remove transmission support - **A** - with transmission mounting.

Installing

Installation is performed in reverse sequence. Note the following:

- Install transmission supports.
- Install subframe, observing tightening sequence --> **40 - FRONT SUSPENSION** .

NOTE:

- **Do not tighten transmission mountings to subframe to specified torque until re-installation of subframe has been completed.**

- To avoid tension you may have to re-align transmission mounting and transmission support.
- Tighten all bolts to specified torque.

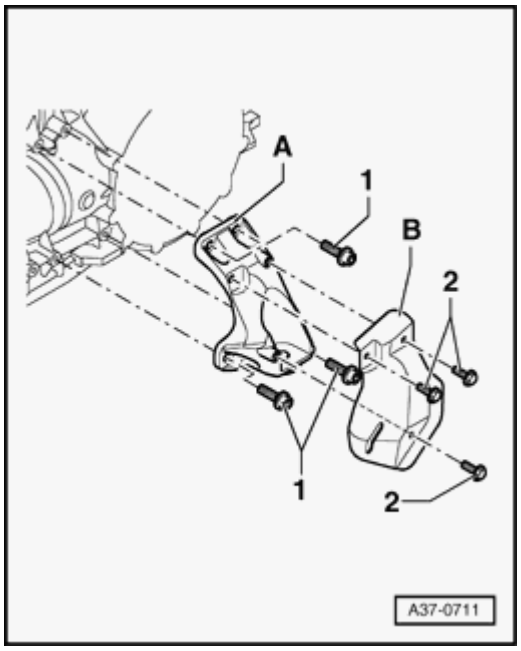

Fig. 251: Removing/Installing Bolts, Heat Shield, Transmission Support
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Tightening torques for transmission support and heat shield (left and right)

1. Bolt (3x) for securing transmission support to transmission, 23 Nm
2. Bolt (3x) for securing heat shield to transmission support, 10 Nm

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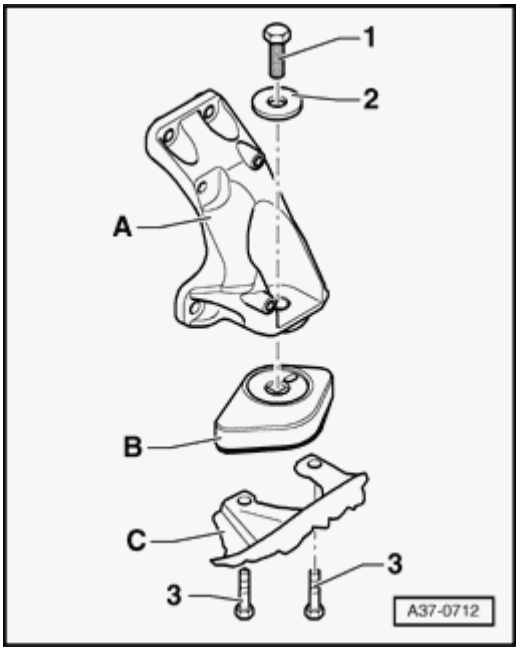

Fig. 252: Removing/Installing Securing Bolts (Left/Right) For Transmission Mounting At Subframe
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Tightening torques for transmission mountings (left and right)

1. Bolt (1x) for securing transmission mounting to transmission support, 50 Nm
2. Washer
3. Bolt (2x) for securing transmission mounting to subframe, 23 Nm

- Install front exhaust pipe -->
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
  - **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
  - **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): BNS
  - **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

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Transmission, transporting

Special tools, testers and auxiliary items required

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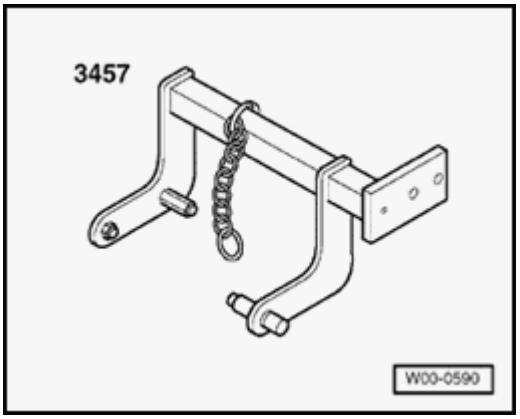

Fig. 253: Identifying Special Tools - Automatic Transmission, Transporting
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Attachment and holding rig. 3457

Procedure

Attachment and holding rig. 3457 can be used to transport automatic transmission and also when setting up transmission support 3282.

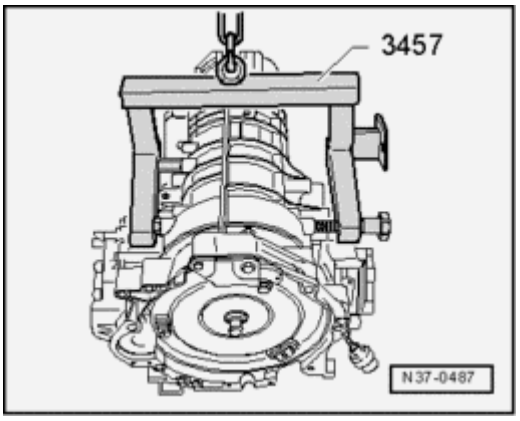

Fig. 254: Special Tool 3457 Attachment To Transmission Housing
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install attachment and holding rig. 3457 to attachment points on transmission housing and secure in place.

Transmission, securing to assembly stand

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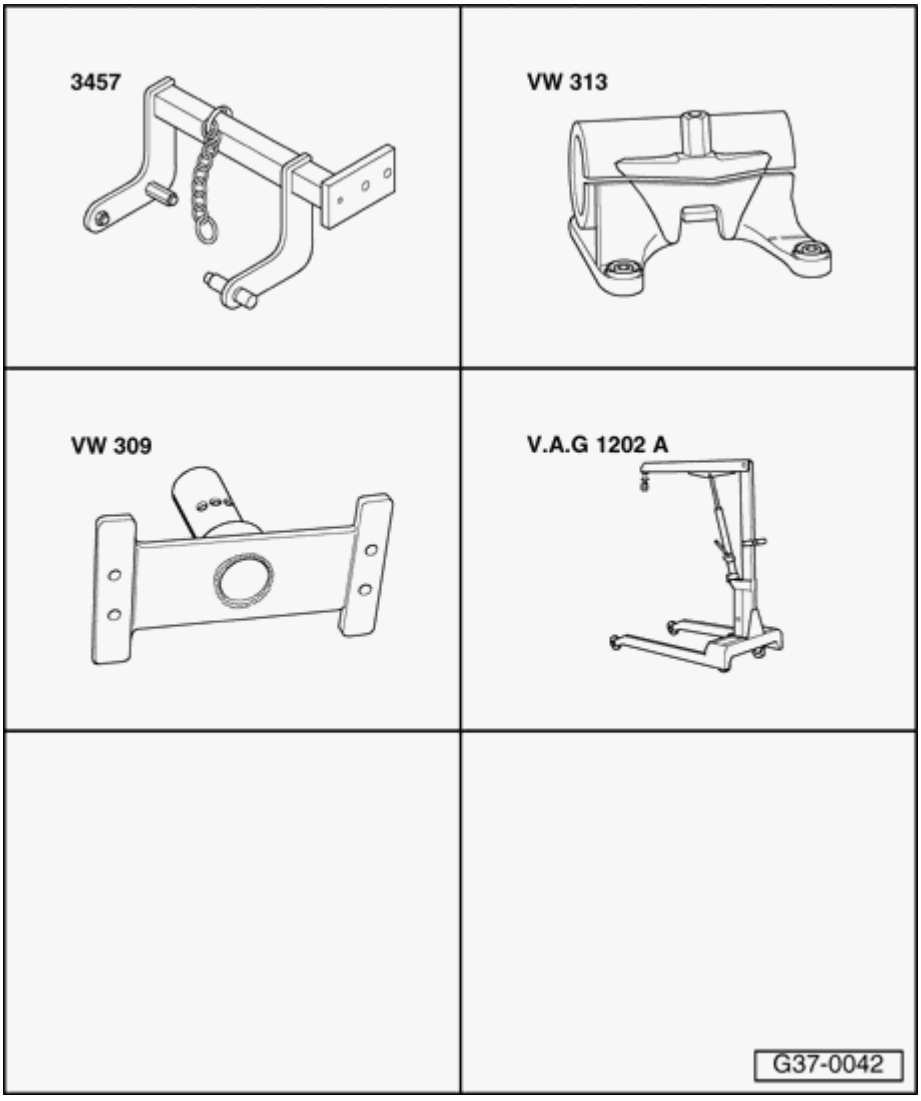

Fig. 255: Identifying Special Tools - Transmission, Securing To Assembly Stand
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Attachment and holding rig. 3457
- Support clamp VW 313
- Support plate VW 309
- Workshop crane V.A.G 1202 A or workshop crane VAS 6100

- Transmission is removed

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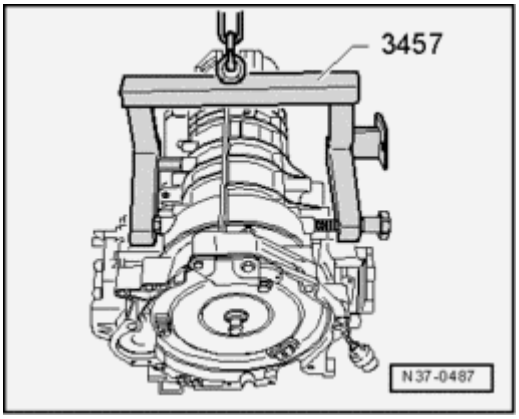

Fig. 256: Special Tool 3457 Attachment To Transmission Housing
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Install attachment and holding rig. 3457 to attachment points on transmission housing and secure in place.
- Bolt transportation tool onto support plate VW 309 and install into support clamp VW 313 with the aid of workshop crane.

CAUTION: The center of gravity of the transmission is outside the pivot center of the support clamp. A second technician has to hold the transmission housing when it is being turned to prevent it from swinging round.

NOTE:

- **If the installed transmission with oil pan is to be turned upside down on assembly stand, seal the transmission housing and final drive breathers.**

PLANETARY GEARBOX AUTOMATIC TRANSMISSION FLUID (ATF)

Planetary gearbox Automatic Transmission Fluid (ATF)

NOTE:

- **Read the rules for cleanliness when working on the automatic transmission --> Rules for cleanliness.**

ATF level, checking and correcting

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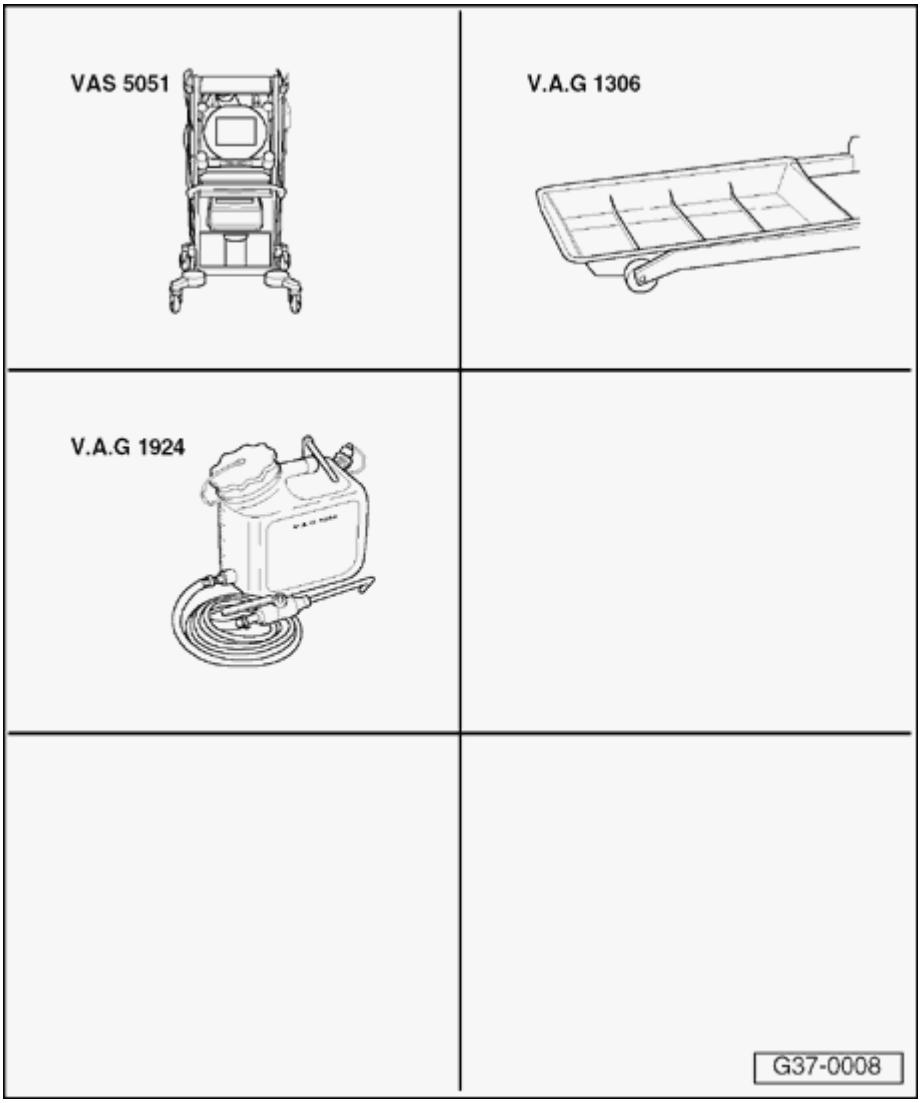

Fig. 257: Identifying Special Tools - ATF Level, Checking And Correcting
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Vehicle diagnostic, testing and information system VAS 5051 A
- Drip tray V.A.G 1306
- ATF charging device V.A.G 1924
- Safety goggles

Conditions

- Transmission must not be in emergency running (backup) mode.
- Vehicle must be level (horizontal).
- Selector lever in position "P", engine idling.

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- Air conditioner and heating system switched off.
- Vehicle diagnostic, testing and information system VAS 5051 A connected; vehicle self-diagnosis and vehicle system "02 - gearbox electronics" selected.
- The ATF temperature at the beginning of the test must not be higher than 30° C. If necessary, first allow the transmission to cool down.

NOTE:

- **The ATF temperature is taken from the reading on the vehicle diagnostic, testing and information system VAS 5051 A.**
- **The ATF level will vary according to the ATF temperature.**
- **If the ATF level is checked when the ATF temperature is too low, this will result in overfilling.**
- **If the level is checked when the ATF temperature is too high, this will result in underfilling.**
- **Both overfilling and underfilling have a detrimental effect on the functioning of the transmission.**
- **Use only correct type of ATF (available as a replacement part) for the planetary gearing in automatic transmission 09L. Other oils cause faults and/or failure of the transmission; for ATF specification refer to --> Capacities .**

ATF temperature reading

Display on VAS 5051 A:

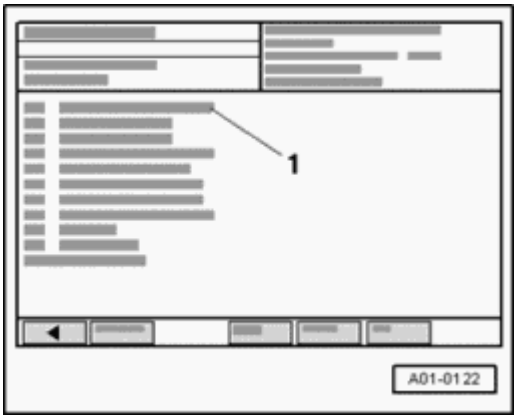

Fig. 258: Diagnostic System VAS 5051: Display
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- From list - **1** - select diagnostic function "08 - Read data block (measured value block)".

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Fig. 259: Diagnostic System VAS 5051: Display
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Display on VAS 5051 A:

1 - Enter display group

- Use keypad - **2** - to enter "4" for "Display group number 4" and confirm by touching Q key.

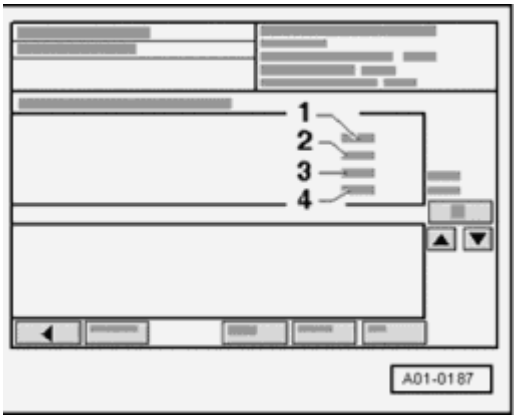

Fig. 260: Diagnostic System VAS 5051: Display
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Display on VAS 5051 A:

- Reading for ATF temperature is shown in display zone - **1** -.

Checking and correcting ATF level

NOTE:

- **The ATF level is checked at the ATF inspection plug.**
- **The ATF level is correct if a small amount of fluid comes out at the ATF inspection plug when ATF temperature is between 35° C and 45° C, or 50° C in hot climates (the fluid level rises due to expansion as it warms up).**

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- Drive vehicle onto a four-column hoist or over an inspection pit so that it is absolutely horizontal.
- Fill container of ATF charging device V.A.G 1924 with ATF for automatic transmission 09L; ATF specification --> **Capacities** .

CAUTION: The ATF charging device must be clean and the ATF must not be mixed with other types of ATF!

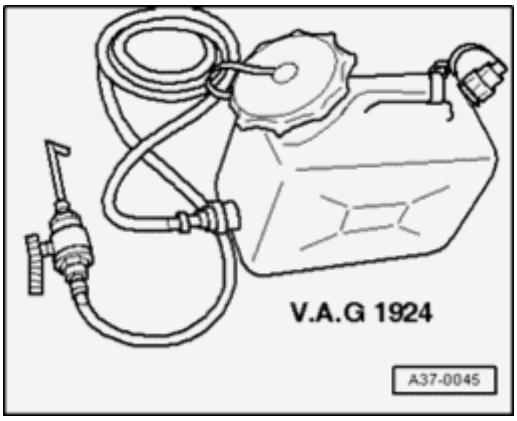

Fig. 261: Securing Container Of ATF Filler Tool VAG1924 As High Up On Vehicle As Possible
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Secure reservoir for ATF charging device V.A.G 1924 as high as possible on vehicle.
- Start engine and let it idle.
- Place drip tray V.A.G 1306 under transmission.

CAUTION: Wear safety goggles.

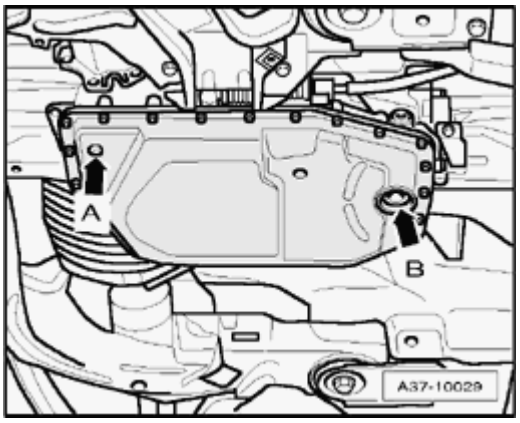

Fig. 262: Identifying ATF Inspection Plug
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- When an ATF temperature of 35° C is reached, remove ATF inspection plug - **arrow B** - and drain off

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any surplus ATF.

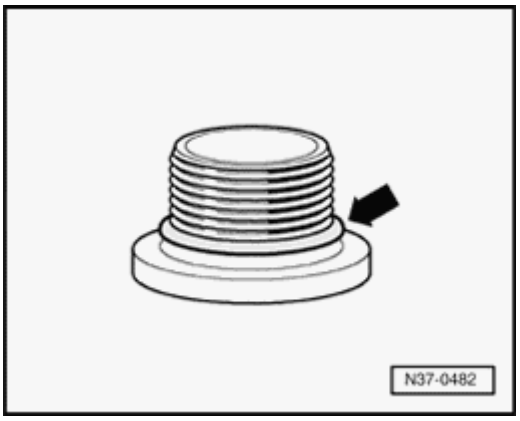

Fig. 263: Filler Plug Seal
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Replace seal - **arrow** - for ATF inspection plug.

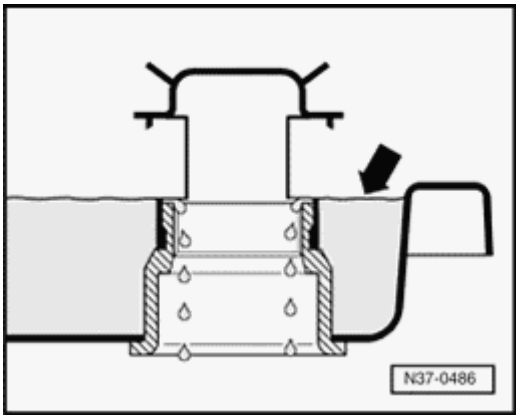

Fig. 264: Correct ATF Level
Courtesy of VOLKSWAGEN UNITED STATES, INC.

If ATF comes out of inspection hole before ATF has reached 40° C the ATF level - **arrow** - is OK.

NOTE:

- **The ATF inspection plug must be screwed in again at the latest when ATF reaches a temperature of 45° C (or 50° C in hot climates).**

If no ATF emerges from ATF inspection hole when ATF has reached 45° C, top off with ATF.

- Install new seal on ATF inspection plug and tighten to 80 Nm. The ATF check is now completed.
- End function "08 - Read data block (measured value block)" by touching <-- key.
- Press "06 - End output".
- Switch off ignition and disconnect diagnostic connector.

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Filling up ATF

If no ATF emerges from ATF inspection hole when ATF has reached 40° C, top off with ATF.

NOTE:

- **The ATF inspection plug must be screwed in again at the latest when ATF temperature reaches 45° C (or 50° C in hot climates). If necessary, switch off the engine, allow transmission to cool down and repeat the test.**

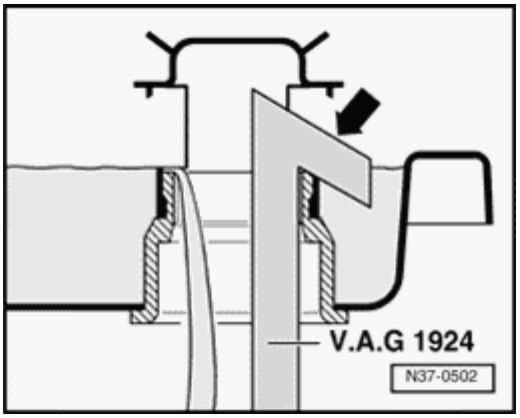

Fig. 265: Fill With ATF Using V.A.G 1924
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Guide filler nozzle of ATF charging device V.A.G 1924 in from below through an opening in deflector cap - **arrow** - , taking care not to push deflector cap upward out of position.
- Fill with ATF using ATF charging device V.A.G 1924 until ATF comes out of inspection hole.

NOTE:

- **The ATF level must not be too low or too high, otherwise this would impair the function of the transmission.**

- Install new seal on ATF inspection plug and tighten to 80 Nm.
- End function "08 - Read data block (measured value block)" by touching <-- key.
- Press "06 - End output".
- Switch off ignition and disconnect diagnostic connector.

Draining ATF or filling after repairs

Special tools, testers and auxiliary items required

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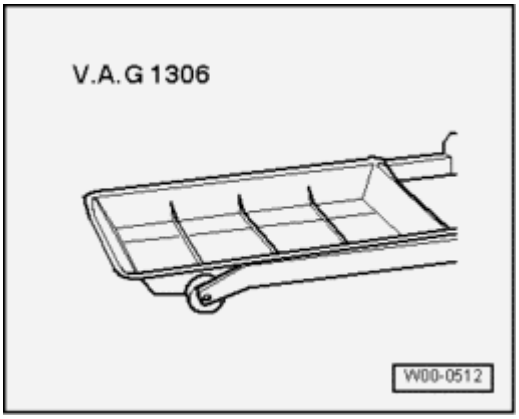

Fig. 266: Identifying Drip Tray V.A.G 1306
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray V.A.G 1306

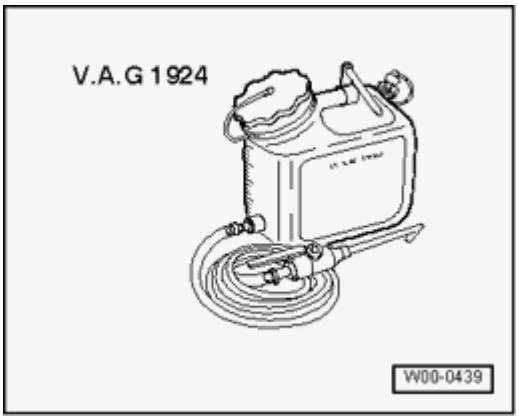

Fig. 267: V.A.G 1924 Reservoir
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- ATF charging device V.A.G 1924
- Safety goggles

Procedure

- Engine not running.

- Drive vehicle onto a four-column hoist or over an inspection pit so that it is absolutely horizontal.
- Fill container of ATF charging device V.A.G 1924 with ATF for automatic transmission 09L; ATF specification --> **Capacities** .

CAUTION: The ATF charging device must be clean and the ATF must not be mixed with other types of ATF!

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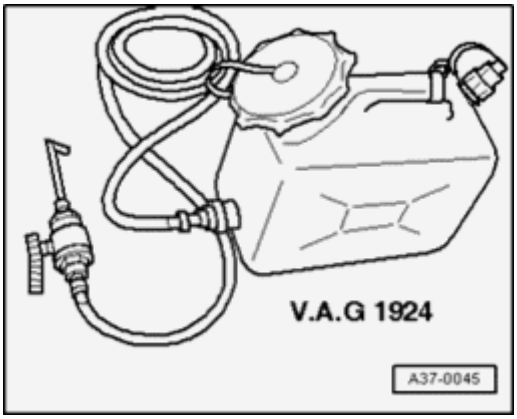

Fig. 268: Securing Container Of ATF Filler Tool VAG1924 As High Up On Vehicle As Possible
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Secure reservoir for ATF charging device V.A.G 1924 as high as possible on vehicle.

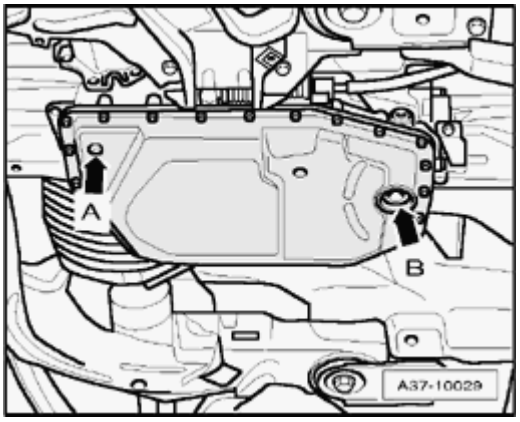

Fig. 269: Identifying ATF Inspection Plug
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Draining ATF

- Place drip tray V.A.G 1306 under transmission.

CAUTION: Wear safety goggles.

- Remove ATF drain plug - **arrow A** -.
- Drain ATF.

NOTE:

- **Observe relevant disposal regulations.**
- **The engine must not be started and vehicle must not be towed without ATF in transmission.**

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

- Tighten new drain plug - **arrow A** - to 12 Nm.

Filling with ATF

- Remove ATF inspection plug - **arrow B** -.

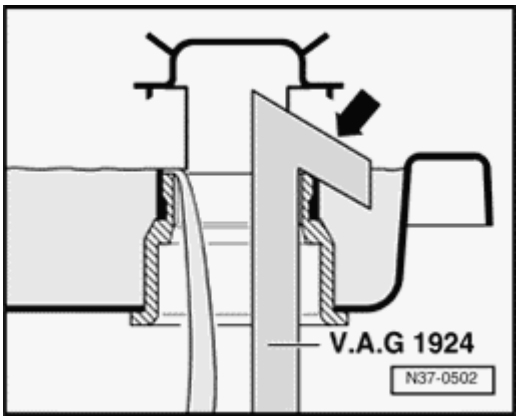

Fig. 270: Fill With ATF Using V.A.G 1924
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Guide filler nozzle of ATF charging device V.A.G 1924 in from below through an opening in deflector cap - **arrow** - , taking care not to push deflector cap upward out of position.
- Fill with ATF using ATF charging device V.A.G 1924 until ATF comes out of inspection hole.
- Shift selector lever to position "P".
- Start engine and let it idle.

- Continue filling with ATF using ATF charging device V.A.G 1924 until ATF comes out of inspection hole again.
- Tighten ATF inspection plug.
- With engine idling, press brake pedal and shift selector lever through all selector lever positions leaving selector lever at least 10 seconds in each position.
- Shift selector lever to position "N".

- Increase engine speed to 2000 rpm and maintain for at least 60 seconds.
- Shift selector lever to position "P".
- Check ATF level --> **ATF level, checking and correcting**.

NOTE:

- **Observe all notes and test requirements for "Checking and correcting ATF level".**

ATF COOLING LINES

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ATF cooling lines

NOTE:

- **General repair instructions --> General repair instructions.**

ATF cooling lines, component overview (vehicles with 2.0 ltr. TFSI engine)

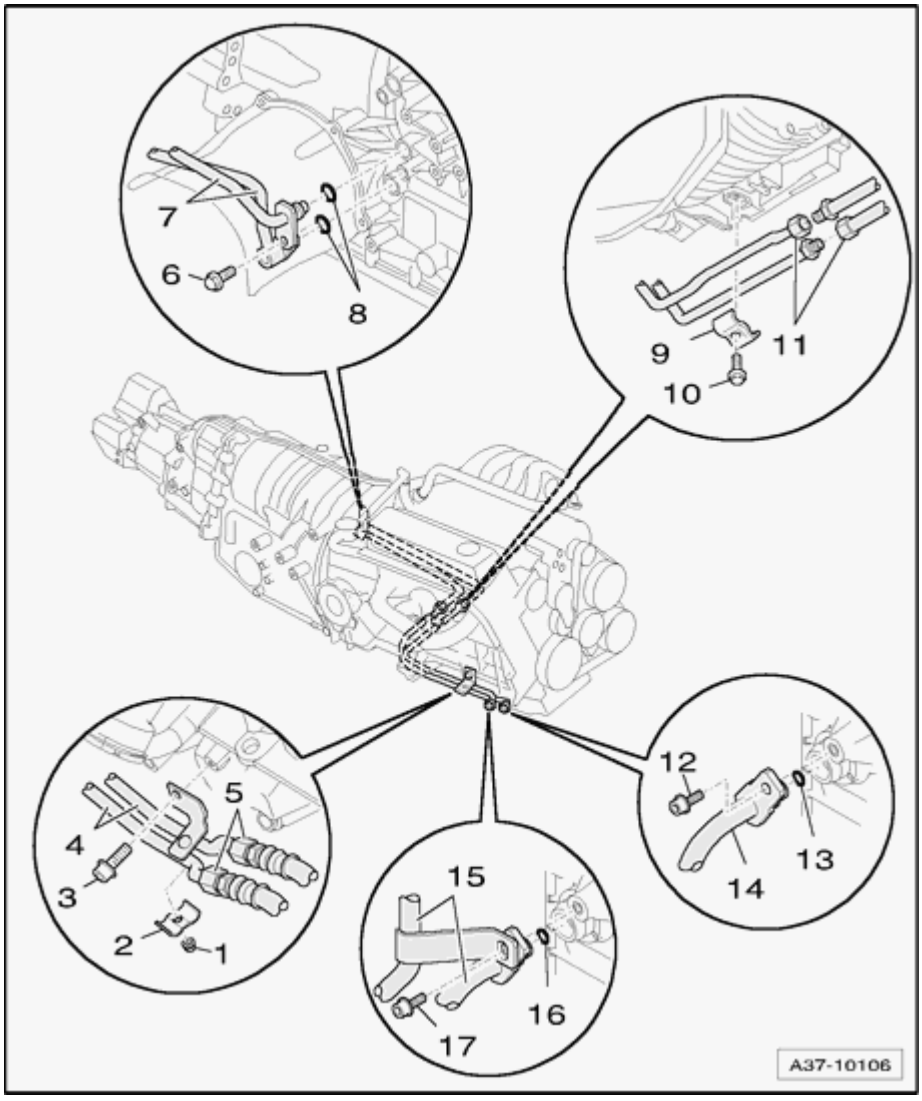

Fig. 271: ATF Cooling Lines, Component Overview (Vehicles With 2.0 ltr. TFSI Engine)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Nut, 8 Nm

2 - Clip

3 - Bolt, 42 Nm

4 - ATF lines

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5 - Union nuts, 29 Nm

6 - Bolt, 21 Nm

- Before tightening bolt, push in ATF lines onto stop by hand

7 - ATF lines

- Before tightening bolt, push in ATF lines onto stop by hand

8 - O-rings

- Replace
- Lubricate with ATF when installing

9 - Clip

10 - Bolt, 5 Nm

- Secures ATF lines to transmission

11 - Union nuts, 29 Nm

12 - Bolt, 5 Nm

- Secures ATF line at ATF cooler (top)
- Before tightening bolt, push in ATF line onto stop by hand

13 - O-ring

- Replace
- Lubricate with ATF when installing

14 - ATF line

- Inserted into ATF cooler (top)
- Before tightening bolt, push in ATF line onto stop by hand

15 - ATF lines

- Inserted into ATF cooler (bottom)
- Before tightening bolt, push in ATF lines onto stop by hand

16 - O-ring

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- Replace
- Lubricate with ATF when installing

17 - Bolt, 5 Nm

- Secures ATF lines to transmission
- Before tightening bolt, push in ATF lines onto stop by hand

ATF cooling lines, component overview (vehicles with 4.2 ltr. MPI engine)

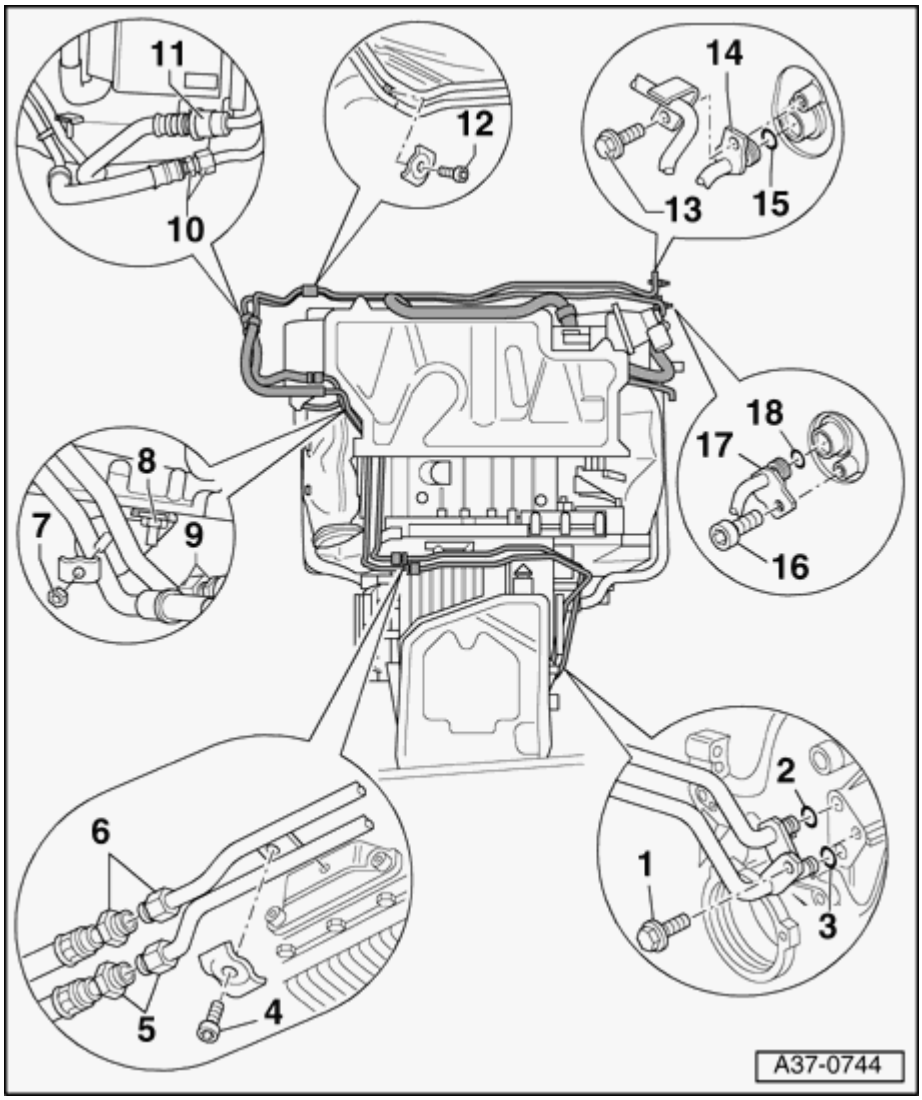

Fig. 272: ATF Cooling Lines, Component Overview (Vehicles With 4.2 ltr. MPI Engine)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Bolt, 21 Nm

- Before tightening bolt, push in line onto stop by hand

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2 - O-ring

- Replace
- Lubricate with ATF when installing

3 - O-ring

- Replace
- Lubricate with ATF when installing

4 - Bolt -5 Nm-

- For securing ATF lines to transmission

5 - Union nut, 29 Nm

6 - Union nut, 29 Nm

7 - Nut, 5 Nm

- For securing ATF lines to bracket

8 - Nut, 5 Nm

- For securing bracket to transmission

9 - Union nut, 29 Nm

10 - Union nut, 29 Nm

11 - Plug connector

12 - Bolt, 5 Nm

- For securing ATF lines at front end

13 - Bolt, 5 Nm

- Before tightening bolt, push in line onto stop by hand
- For securing ATF line to bracket at ATF cooler (bottom)

14 - ATF line

- Inserted into ATF cooler (bottom)
- Before tightening bolt, push in ATF line onto stop by hand

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15 - O-ring

- Replace
- Lubricate with ATF when installing

16 - Bolt, 5 Nm

- For securing ATF line at ATF cooler (top)
- Before tightening bolt, push in line onto stop by hand

17 - ATF line

- Inserted into ATF cooler (top)
- Before tightening bolt, push in ATF line onto stop by hand

18 - O-ring

- Replace
- Lubricate with ATF when installing

ATF cooling lines, removing and installing

Special tools, testers and auxiliary items required

- Drip tray
- Safety goggles

NOTE:

- **Read the rules for cleanliness when working on the automatic transmission --> Rules for cleanliness.**
- **Thoroughly clean all joints and surrounding areas before disassembling.**

Removing

- Mark position of all ATF cooling lines in relation to one another with different colors to avoid confusion.
- Place drip tray V.A.G 1306 underneath.

CAUTION: Wear safety goggles.

- Disconnect ATF cooling lines.
- Seal opened cooling lines with clean sealing plugs.

Installing

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Installation is performed in reverse sequence. Note the following:

- Clean ATF lines --> **ATF cooling lines and ATF cooler, cleaning**.
- Lightly lubricate O-rings with ATF.
- First press ATF lines onto transmission or cooler by hand until they engage, then secure lines --> **ATF cooling lines, component overview (vehicles with 4.2 ltr. MPI engine)**.
- Check ATF level --> **ATF level, checking and correcting**.

ATF cooling lines and ATF cooler, cleaning

Special tools, testers and auxiliary items required

- Compressed air gun (commercially available)
- Hose, approx. 18 mm dia.
- Drip tray

NOTE:

- **Always clean ATF cooling lines and ATF cooler before installing a replacement transmission.**
- **Read the rules for cleanliness when working on the automatic transmission --> Rules for cleanliness.**
- **Thoroughly clean all joints and surrounding areas before disassembling.**

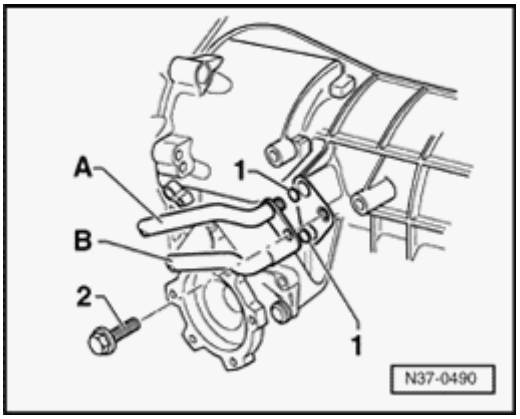

Fig. 273: Location Of ATF Lines At Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Procedure

- Place drip tray underneath.
- Remove bolt - **2** -.
- Connect a hose approx. 18 mm dia. to ATF line - **A** - and secure with a hose clamp. Place other end of hose in drip tray.

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CAUTION: Wear safety goggles.

- Blow through ATF line - **B** - using a compressed air line (max. 10 bar).
- Change hose from ATF line - **A** - over to ATF line - **B** - and repeat sequence.
- Press ATF cooling lines onto transmission or cooler by hand until they engage, then tighten --> **ATF cooling lines, component overview (vehicles with 4.2 ltr. MPI engine)**.
- Check ATF level --> **ATF level, checking and correcting**.

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38 GEARS, CONTROL

OIL PAN, ATF STRAINER AND MECHATRONICS UNIT, REMOVING AND INSTALLING

Oil pan, ATF strainer and mechatronics unit, removing and installing

CAUTION: Do not run engine or tow vehicle with oil pan removed or when there is no ATF in the transmission.

NOTE:

- **General repair instructions --> General repair instructions.**
- **Read the rules for cleanliness when working on the automatic transmission --> Rules for cleanliness.**
- **Always replace mechatronics unit if contaminated or faulty.**
- **Lightly lubricate O-rings and seals with ATF. Other types of lubricant will cause the transmission hydraulics to malfunction.**

Oil pan, removing and installing

Special tools, testers and auxiliary items required

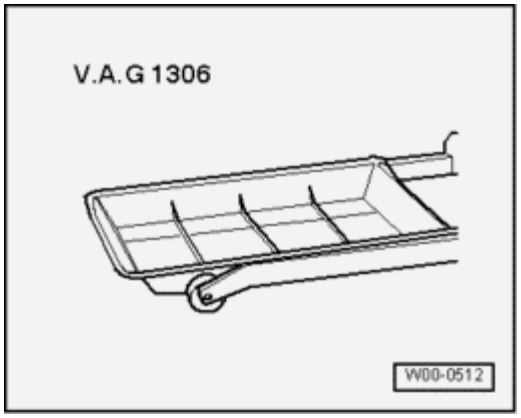

Fig. 274: Identifying Drip Tray V.A.G 1306
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray V.A.G 1306
- Safety goggles

Removing

NOTE:

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

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transmission --> Rules for cleanliness.

- Place drip tray V.A.G 1306 under transmission.

CAUTION: Wear safety goggles.

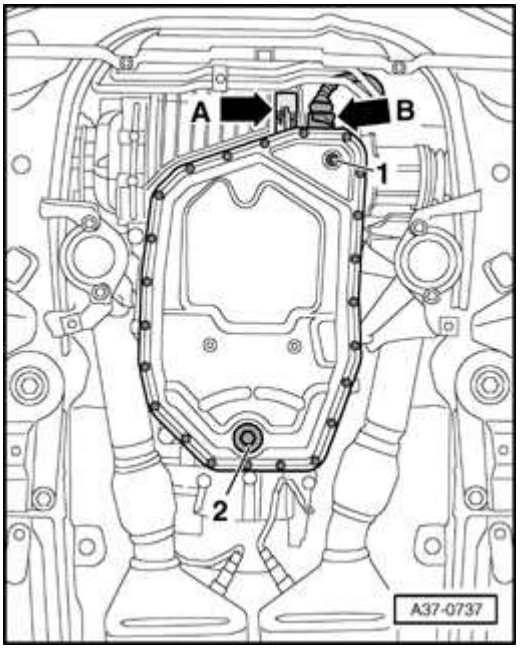

Fig. 275: Locating Type Plate
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove ATF drain plug - **1** -.
- Drain ATF.

NOTE:

- **Observe relevant disposal regulations.**
- **The engine must not be started and vehicle must not be towed without ATF in transmission.**

- Loosen 23 bolts on oil pan in diagonal sequence and remove oil pan.

Installing

Installation is performed in reverse sequence. Note the following:

NOTE:

- **Replace seals and gaskets.**
- **The drain plug with seal must be replaced.**

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- Clean all magnets in recesses on oil pan. Make sure that magnets make full contact with oil pan.
- Clean sealing surface thoroughly; remaining material from the previous gasket must be removed completely.

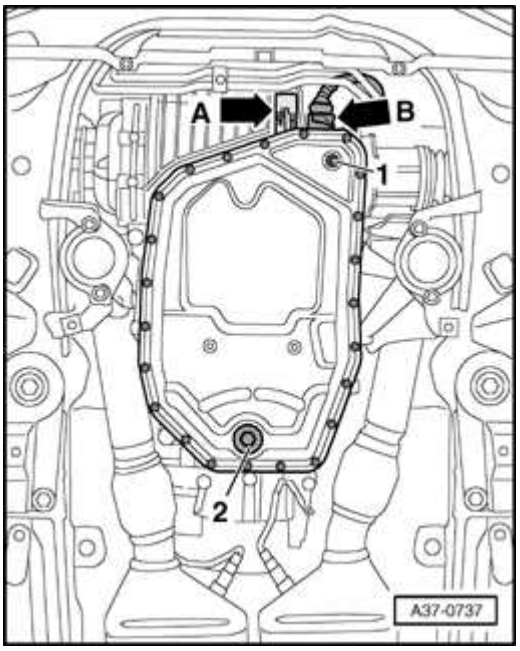

Fig. 276: Locating Type Plate
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tighten oil pan bolts in several stages and in diagonal sequence.
- Tighten new drain plug - **1** -.
- Fill with ATF --> **Draining ATF or filling after repairs**.

Tightening torques

Component	Nm
Drain plug to oil pan	12 * See note
Oil pan to transmission housing	12 * See note

*Replace plug.

*Tighten diagonally in stages.

ATF strainer, removing and installing

Removing

NOTE:

- **General repair instructions --> General repair instructions.**

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- **Read the rules for cleanliness when working on the automatic transmission --> Rules for cleanliness.**

- Remove oil pan --> **Oil pan, removing and installing**.

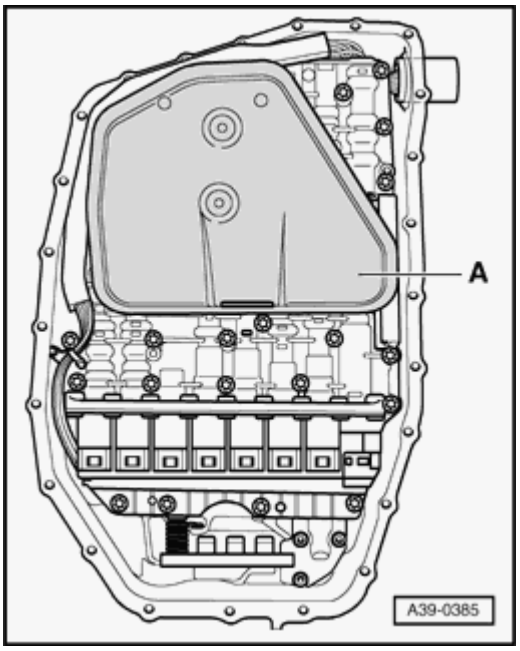

Fig. 277: Identifying Intake Line Of ATF Strainer
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Carefully remove ATF strainer - **A** - from transmission.

Installation is performed in reverse sequence. Note the following:

NOTE:

- **The ATF strainer only has to be replaced if it has been damaged.**

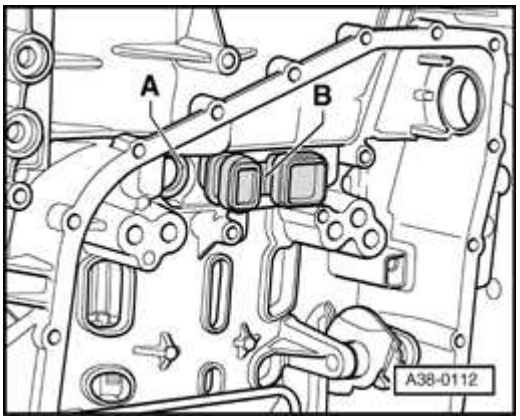

Fig. 278: Removing/Installing Oil Seal For ATF Strainer From Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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If replacing ATF strainer:

- If installed, carefully remove oil seal for ATF strainer - **A** - from transmission using a screwdriver or similar.

NOTE:

- **Take care not to damage sealing surface.**
- **For illustration purposes the oil seal is shown with mechatronics unit removed.**
- **The new ATF strainer is supplied with oil seal installed.**

Continuation for new and old ATF strainer:

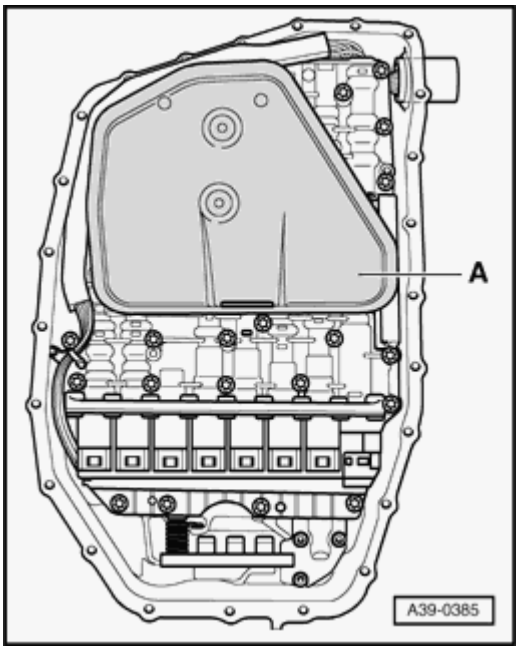

Fig. 279: Identifying Intake Line Of ATF Strainer
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press intake line of ATF strainer - **A** - carefully onto stop into mounting hole in transmission.

NOTE:

- **A new ATF strainer is pressed into transmission with oil seal installed.**

- Install oil pan --> **Oil pan, removing and installing**.
- Fill with ATF --> **Draining ATF or filling after repairs**.

Mechatronics unit, removing and installing

NOTE:

- **Always replace mechatronics unit if contaminated or faulty.**
- **General repair instructions --> General repair instructions.**

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- **Read the rules for cleanliness when working on the automatic transmission --> Rules for cleanliness.**

Removing

CAUTION: Follow steps required when disconnecting battery -->

- **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
- **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL for ELECTRICAL EQUIPMENT, CABRIOLET**

.

- With ignition switched off, disconnect battery Ground (GND) strap.
- Remove oil pan --> **Oil pan, removing and installing**.
- Remove ATF strainer --> **ATF strainer, removing and installing**.

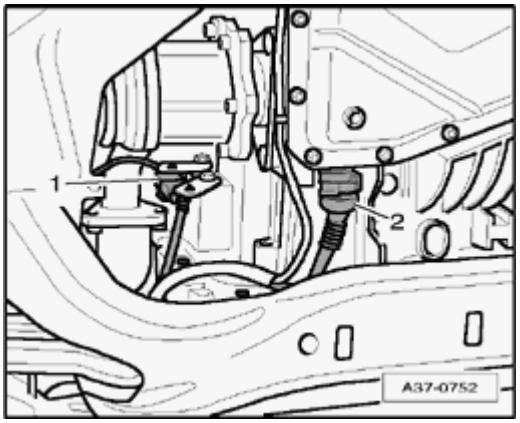

Fig. 280: Disconnecting 16-Pin Electrical Connector At Transmission By Folding Out Release Tab And Turning Fastener Cap Counter-Clockwise
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect 16-pin electrical connector - **2** - at transmission by folding out release tab and turning fastener cap counter-clockwise.

NOTE:

- **- Item 1 - can be disregarded.**

- Touch vehicle Ground (GND) with your hand (without gloves) to discharge any static electricity.

CAUTION:

- **Before touching or removing the mechatronics unit, always discharge any static electricity by touching vehicle Ground (GND) or other Ground (GND) object with your hand.**
- **Never touch contacts in 16-pin connector by hand, as static**

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discharge would damage the control module and mechatronics unit.

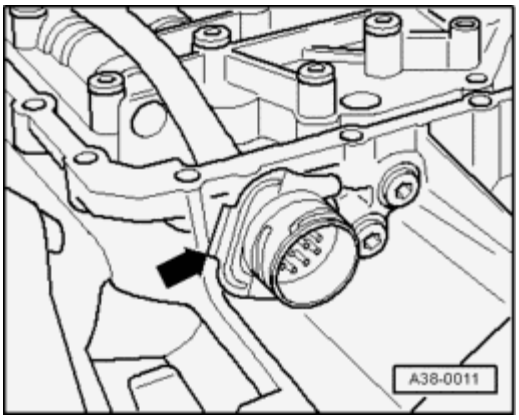

Fig. 281: Location Of Wiring Harness/Harness Connector Securing Circlip
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unfasten retaining clip - **arrow** - for wiring harness connector on outside of transmission housing.

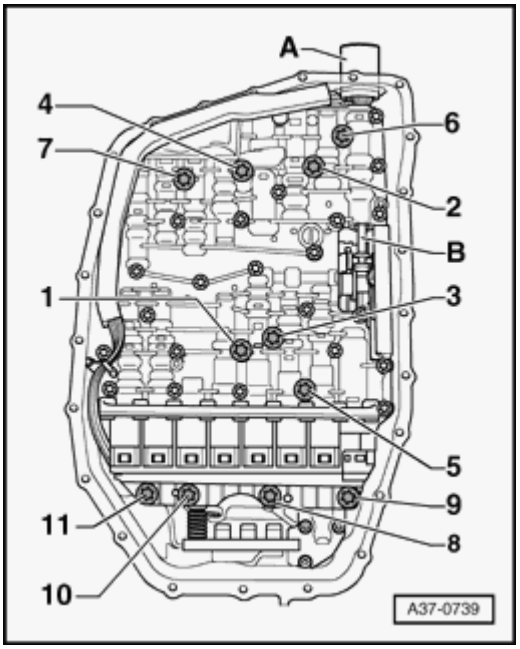

Fig. 282: Removing/Installing Securing Bolts For Mechatronics Unit In Sequence
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove securing bolts for mechatronics unit in sequence - **11 to 1** -.

NOTE:

- **Only remove securing bolts marked - 1 to 11 -.**
- **If other bolts are loosened, this may affect the operation of the mechatronics unit or the mechatronics unit could come apart.**

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- Remove mechatronics unit together with wiring harness from transmission, at the same time guide out connector for wiring harness.

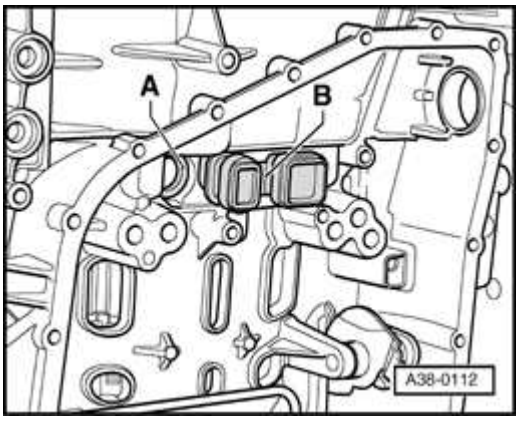

Fig. 283: Removing/Installing Oil Seal For ATF Strainer From Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Installing

- Make sure that seal - **B** - is properly inserted and secured.
- Replace O-rings on connector for wiring harness and lightly lubricate with ATF.

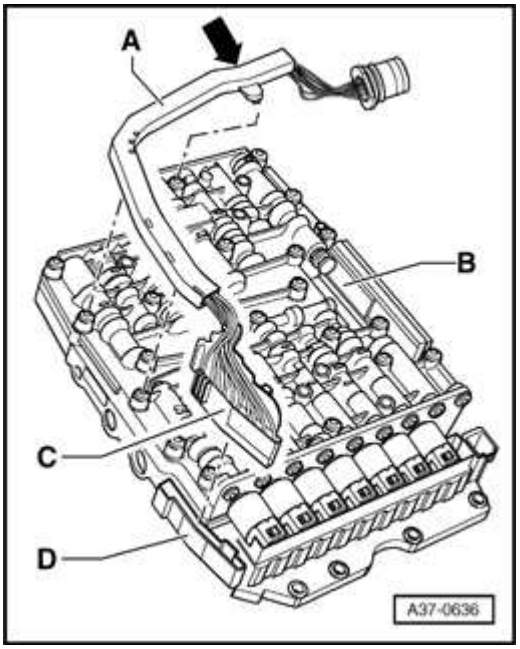

Fig. 284: Locating Wiring Harness With Connector Is Attached To The Mechatronics Unit
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Clip wiring harness - **A** - onto mechatronics unit - **B** - by first attaching tab - **arrow** - on reverse side of wiring harness to mechatronics unit.

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NOTE:

- **If the tab on the reverse side of the wiring harness breaks off, the wiring harness must be replaced --> Wiring harness in transmission, removing and installing.**

- Install wiring harness connector in transmission housing.

- Installation position: flat part of rear shoulder faces downward, the lugs at shoulder are horizontal

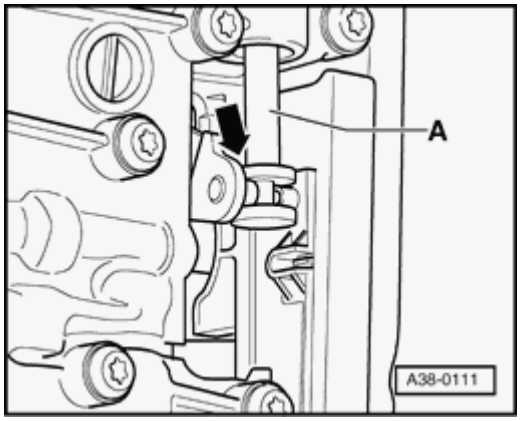

Fig. 285: Inserting Transmission Selector Lever Stud Into Groove On Selector Slide
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- While installing mechatronics unit without force, insert transmission selector lever stud - **arrow** - into groove on selector slide - **A** - (move selector slide backward and forward if necessary).

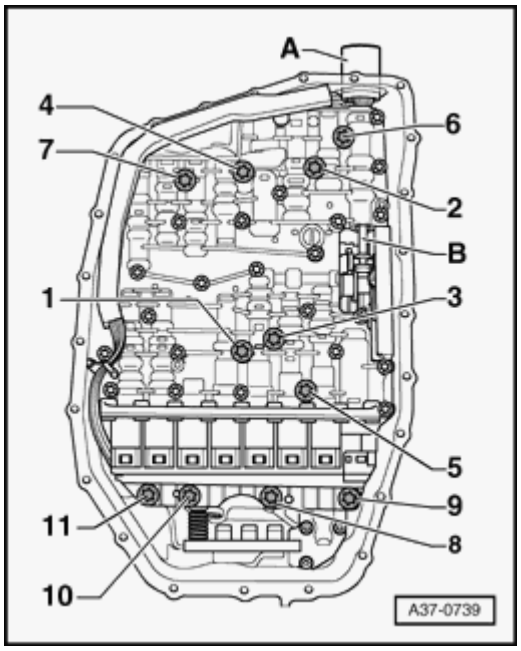

Fig. 286: Removing/Installing Securing Bolts For Mechatronics Unit In Sequence
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Tighten securing bolts - **1** - and - **2** - for mechatronics unit to 2 Nm.
- Then tighten securing bolts in specified sequence - **1 to 11** - to 8 Nm.

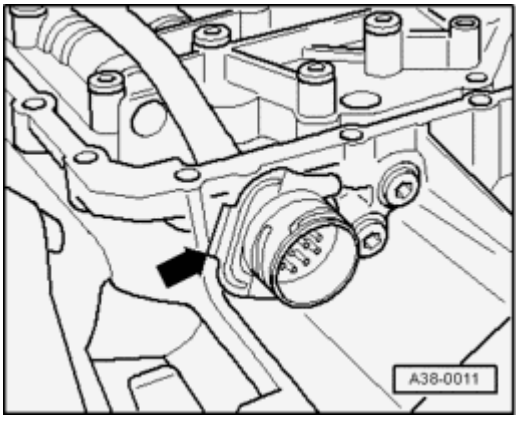

Fig. 287: Location Of Wiring Harness/Harness Connector Securing Circlip
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Push retainer clip - **arrow** - onto wiring harness connector.
- Install ATF strainer --> **ATF strainer, removing and installing**.
- Install oil pan --> **Oil pan, removing and installing**.
- Follow steps required after connecting battery -->
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL**
  - **27 BATTERY, STARTER, GENERATOR, CRUISE CONTROL** for ELECTRICAL EQUIPMENT, CABRIOLET

  .

- Fill with ATF --> **Draining ATF or filling after repairs**.

Wiring harness in transmission, removing and installing

Removing

- Remove mechatronics unit --> **Mechatronics unit, removing and installing**
- Touch vehicle Ground (GND) with your hand (without gloves) to discharge any static electricity.

CAUTION:

- **Before touching or removing the mechatronics unit, always discharge any static electricity by touching vehicle Ground (GND) or other Ground (GND) object with your hand.**
- **Never touch contacts in 16-pin connector by hand, as static discharge would damage the control module and mechatronics unit.**

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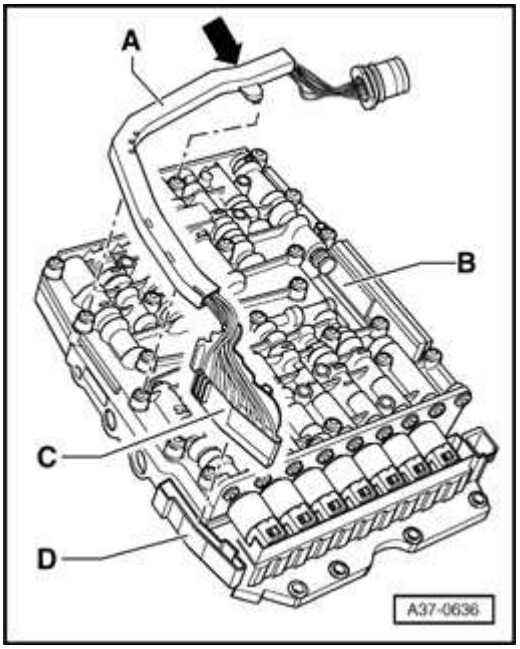

Fig. 288: Locating Wiring Harness With Connector Is Attached To The Mechatronics Unit
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Carefully disconnect wiring harness - **A** - from mechatronics unit - **B** -. Make sure you detach tab - **arrow** - on reverse side of wiring harness from mechatronics unit.

NOTE:

- **If the tab on the reverse side of the wiring harness breaks off, the wiring harness must be replaced --> Wiring harness in transmission, removing and installing.**

- Carefully disconnect connector - **C** - from socket - **D** - of mechatronics unit.

Installing

Installation is performed in reverse sequence. Note the following:

- Carefully connect connector - **C** - to socket - **D** - on mechatronics unit.
- Clip wiring harness - **A** - onto mechatronics unit - **B** - by first attaching tab - **arrow** - on reverse side of wiring harness to mechatronics unit.
- Install mechatronics unit --> **Mechatronics unit, removing and installing**.
- Fill with ATF --> **Draining ATF or filling after repairs**.

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. . .

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 for cleanliness when working on the automatic transmission --> Rules for cleanliness.**

Front final drive gear oil level, checking

Special tools, testers and auxiliary items required

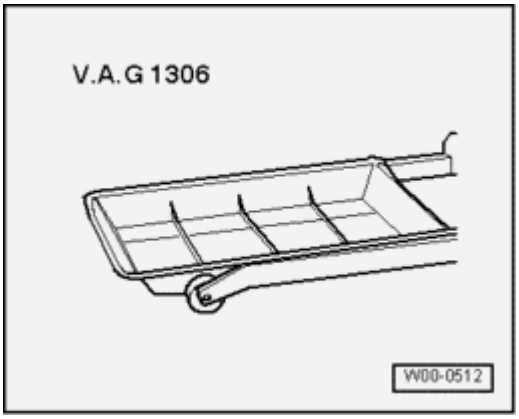

Fig. 289: Identifying Drip Tray V.A.G 1306
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray V.A.G 1306
- Safety goggles

Condition

- Gear oil about 20° C (room temperature)

Work sequence

- Drive vehicle onto a four-column lifting platform or over an inspection pit in order for it to be absolutely horizontal.
- Place drip tray V.A.G 1306 under the transmission.

CAUTION: Wear safety goggles.

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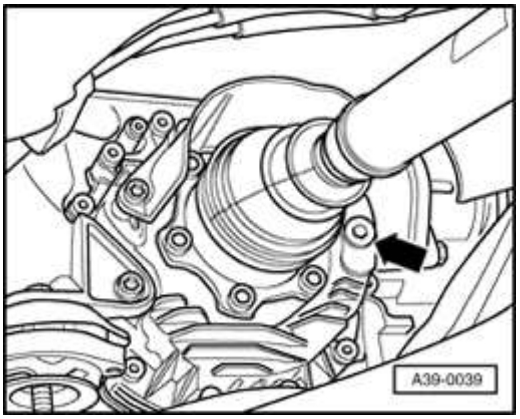

Fig. 290: Locating Sealing Plug
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- 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; specification --> **Capacities** .

NOTE:

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

- Tighten new plug to 35 Nm.

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

Special tools, testers and auxiliary items required

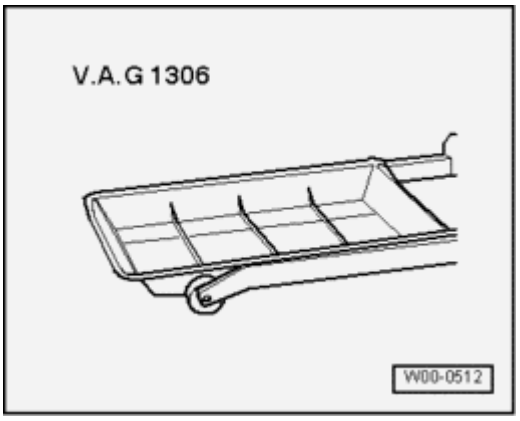

Fig. 291: Identifying Drip Tray V.A.G 1306
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray V.A.G 1306

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- Safety goggles

Requirements:

- Gear oil about 20° C (room temperature)

Topping off

NOTE:

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

- Drive vehicle onto a four-column hoist or over an inspection pit so that it is absolutely horizontal.
- Place drip tray V.A.G 1306 under transmission.

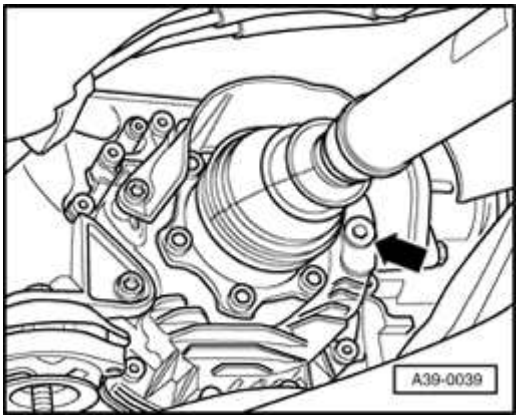

Fig. 292: Locating Sealing Plug
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove plug - **arrow** -.
- Fill front final drive slowly and at a constant rate for a period of at least 5 minutes until gear oil (capacity and specification --> **Capacities**) 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 plug with seal must be replaced.**

- Tighten new plug to 35 Nm.

NOTE:

- **The oil level does not need to be re-checked.**

FRONT FINAL DRIVE, SERVICING

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Front final drive, servicing

NOTE:

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

Front final drive, assembly overview

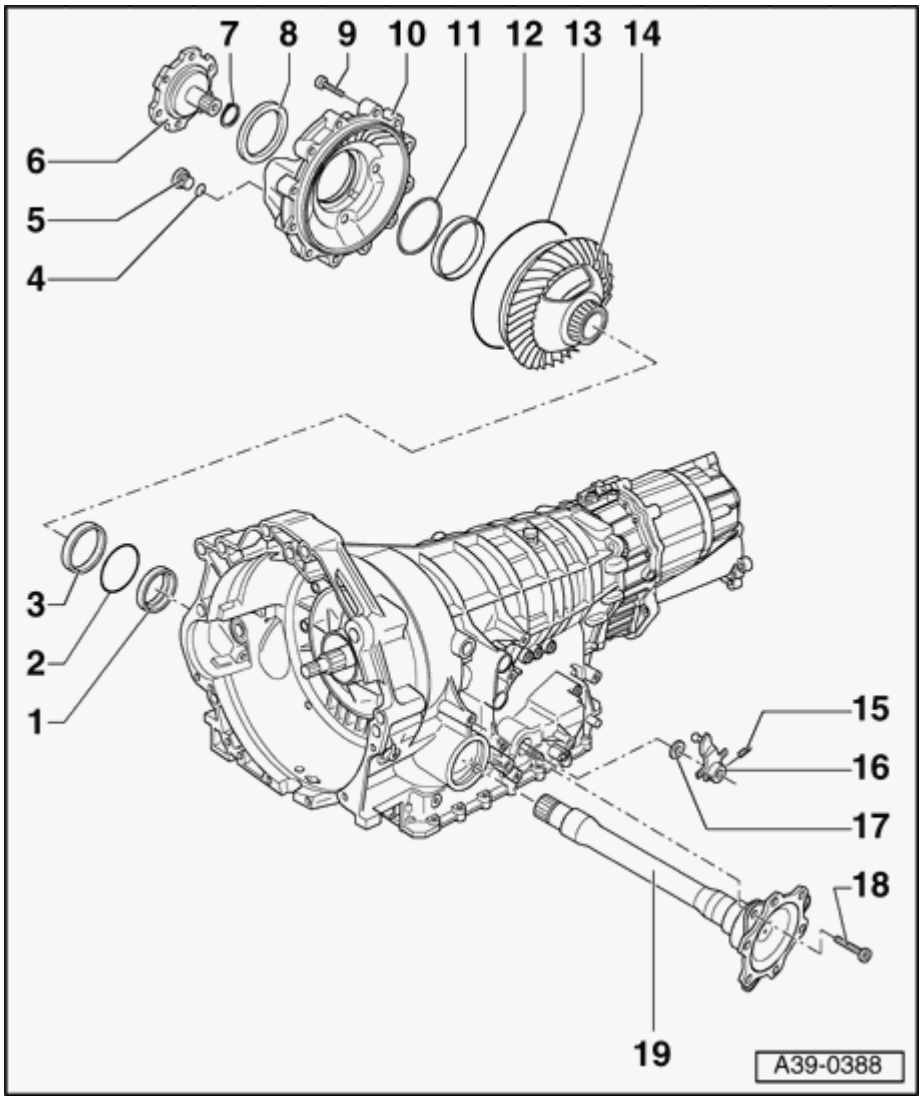

Fig. 293: Front Final Drive, Assembly Overview
Courtesy of VOLKSWAGEN UNITED STATES, INC.

1 - Oil seal

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

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2 - Shim

- Behind tapered roller bearing outer race

3 - Outer race for tapered roller bearing

4 - O-ring

- Replace

5 - Plug, 35 Nm

- Replace

6 - Flange shaft (right-side)

- Removing and installing --> **Flanged 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

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

Flange shaft (left-side), removing and installing

Special tools, testers and auxiliary items required

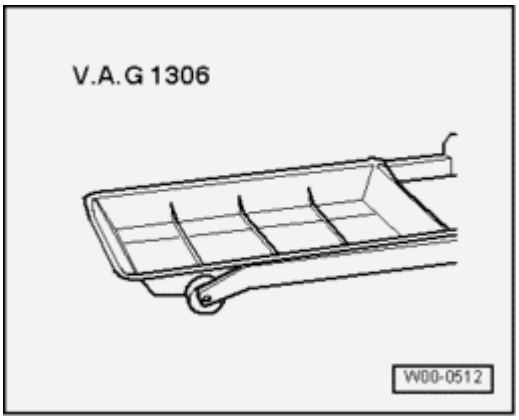

Fig. 294: Identifying Drip Tray V.A.G 1306
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray V.A.G 1306

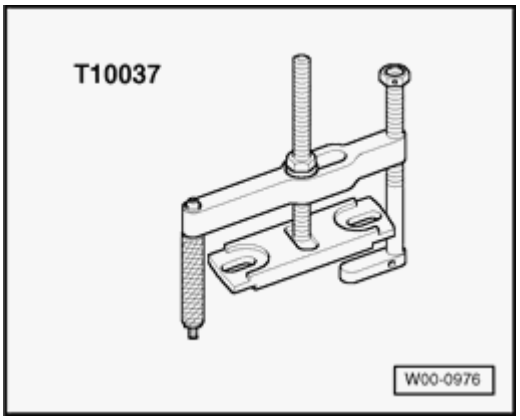

Fig. 295: Puller T10037
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Puller T10037

Removing

- Transmission installed

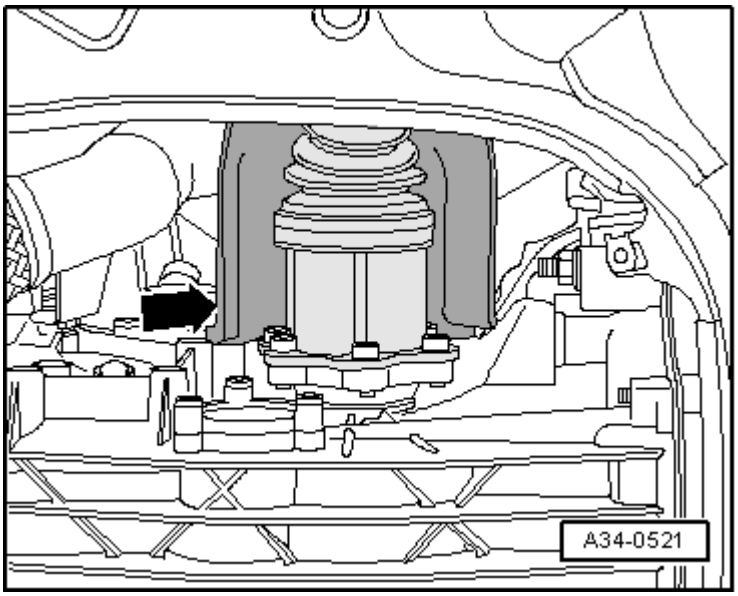

Fig. 296: Drive Axle Heat Shield
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unbolt heat shield - **arrow** - from transmission above drive axle (left-side).
- Unbolt drive axle (left-side) from flange on transmission and tie up.
- Place drip tray V.A.G 1306 under transmission.

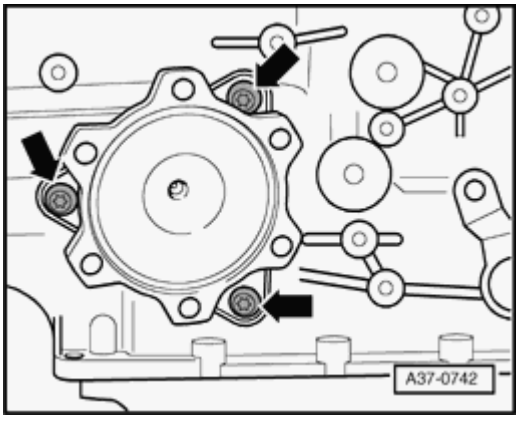

Fig. 297: Removing Bolts On Retaining Bracket For Left-Side Flange Shaft
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

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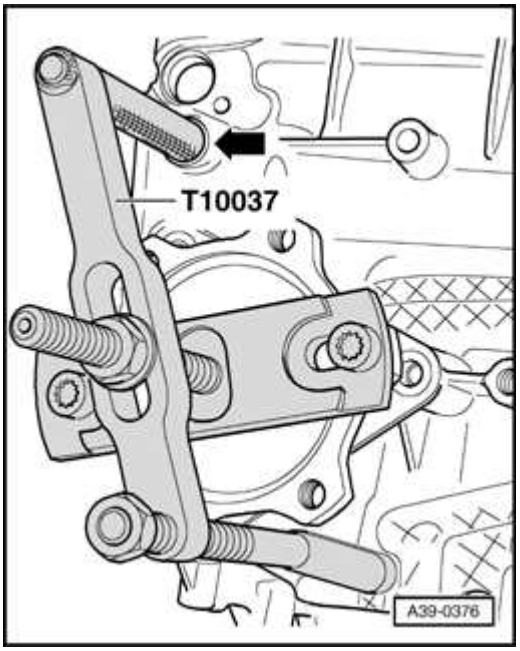

Fig. 298: Screwing Puller T10037 Onto Differential Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- 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.

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

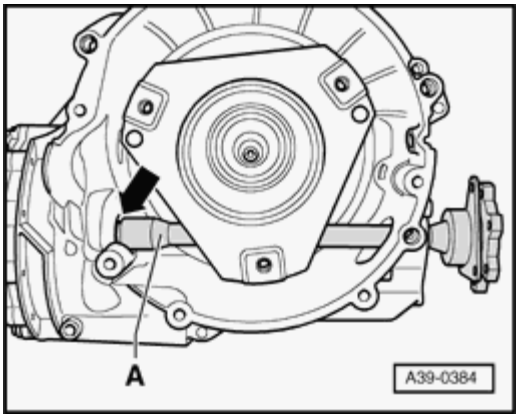

Fig. 299: Removing/Inserting Flange Shaft Into Transmission And Guide Shaft Into Seal On Differential
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

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Installing

Installation is performed in reverse sequence. Note the following:

- Clean flange shaft.

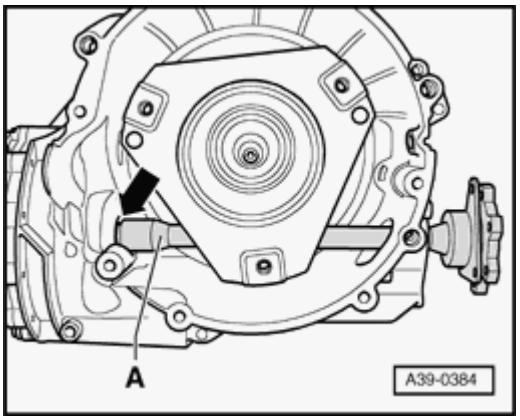

Fig. 300: Removing/Inserting Flange Shaft Into Transmission And Guide Shaft Into Seal On Differential
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- 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 the final drive and transmission housing. The seal will require replacement--> Final drive/transmission housing oil seal, replacing.**

- Bolt left drive axle to flange shaft --> **40 - FRONT SUSPENSION** .
- Check oil level in front final drive --> **Front final drive gear oil**.

Tightening torques

Component	Nm
Retaining bracket for left flange shaft to transmission	23
Heat shield for drive axle to transmission	23

Flanged shaft (right side), removing and installing

Special tools, testers and auxiliary items required

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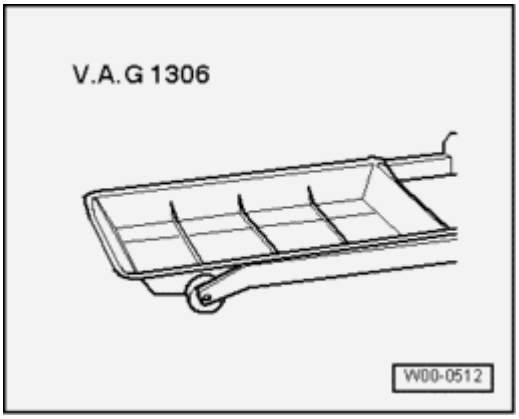

Fig. 301: Identifying Drip Tray V.A.G 1306
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray V.A.G 1306

Removing

- Transmission installed

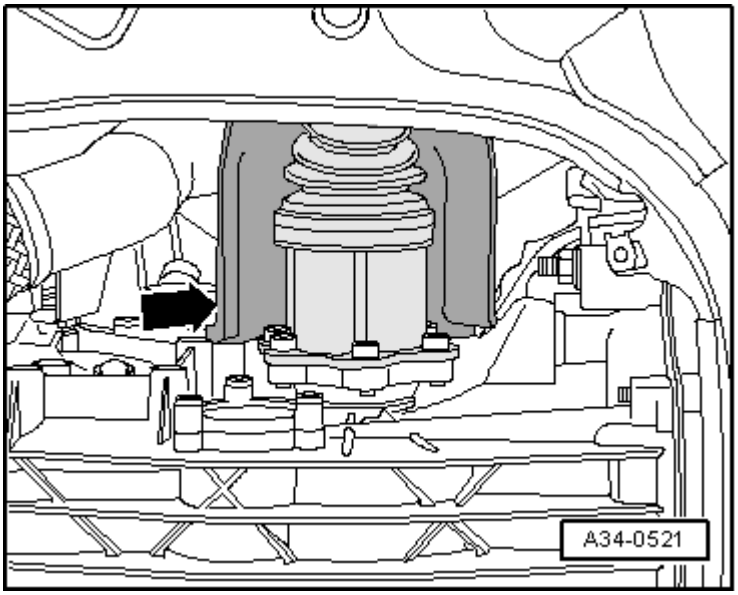

Fig. 302: Drive Axle Heat Shield
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unbolt heat shield - **arrow** - from transmission above drive axle (right-side).
- Unbolt drive axle (right-side) from flange on transmission and tie up.

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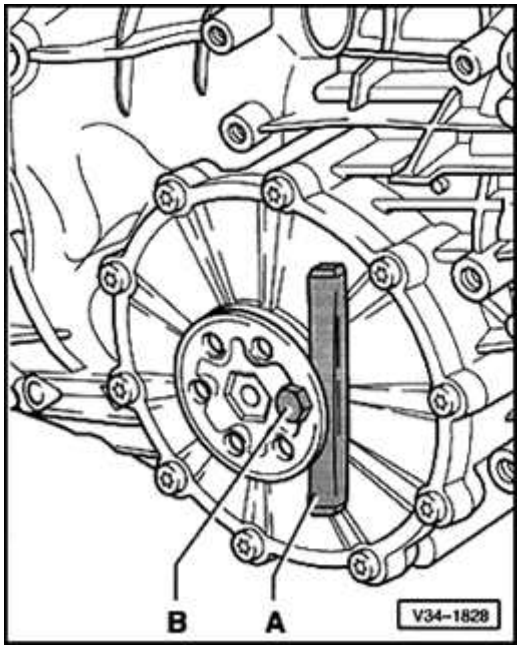

Fig. 303: Placing Chisel Or Suitable Spacer Under Flange Shaft And Pulling Flange Shaft Out By Turning Bolt
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Place drip tray V.A.G 1306 under transmission.
- Remove flange shaft: Place a chisel or suitable spacer - **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 screw the bolt into the opposite hole to assist removal.**

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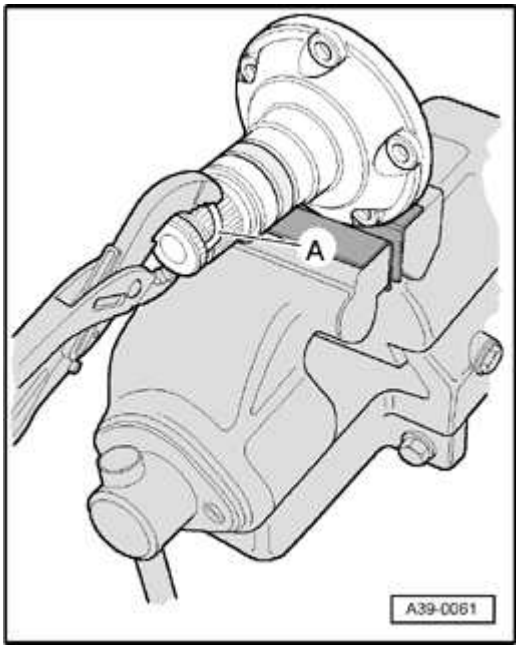

Fig. 304: Removing And Installing Securing Ring
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- 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 performed 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 VW 295 as far as stop.

NOTE:

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

- Bolt right drive axle to flange shaft --> **40 - FRONT SUSPENSION** .
- Check oil level in front final drive --> **Front final drive gear oil**.

Tightening torque

Component	Nm

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Heat shield for drive axle to transmission	23

Flanged shaft oil seal (right side), replacing

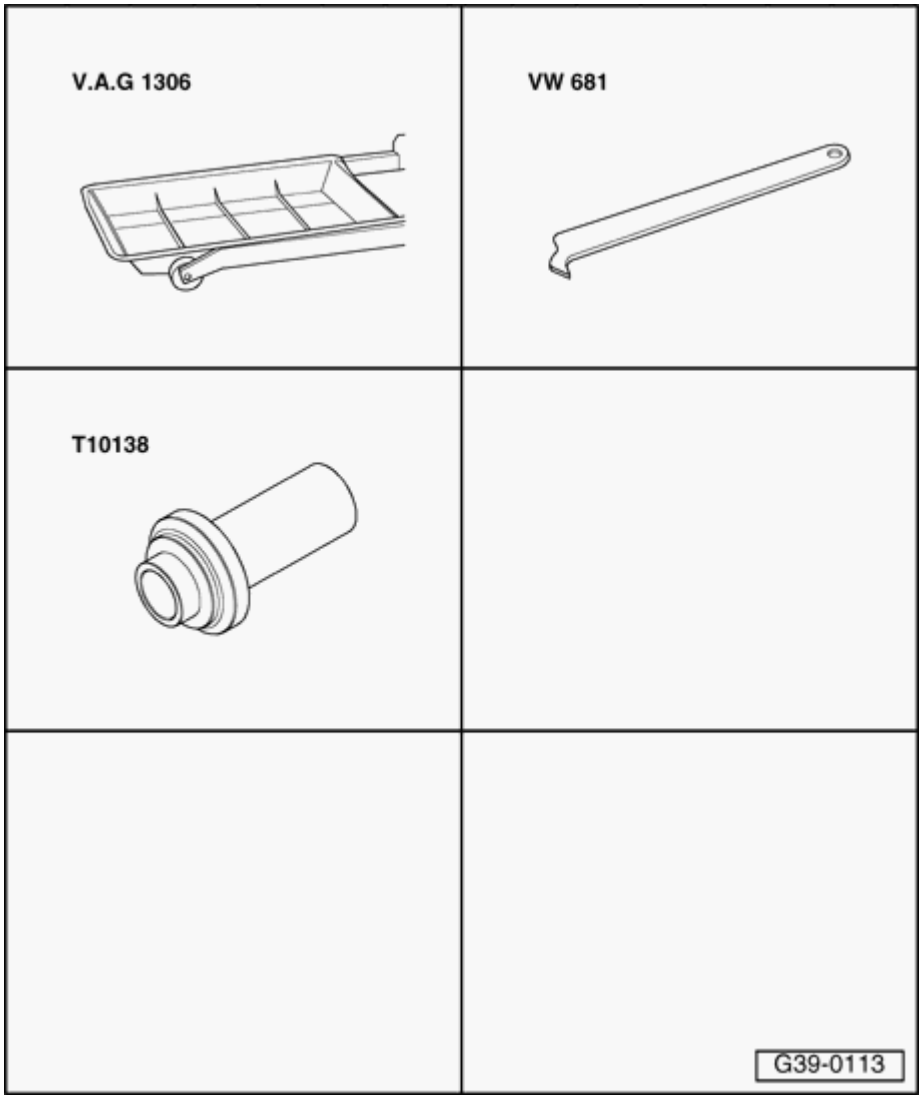

Fig. 305: Identifying Special Tools - Flanged Shaft Oil Seal (Right Side), Replacing
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Drip tray V.A.G 1306
- Extractor lever VW 681
- Thrust piece T10138

Procedure

- Transmission installed

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NOTE:

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

- Place drip tray V.A.G 1306 under transmission.
- Remove flange shaft (right-side) --> **Flanged shaft (right side), removing and installing**.

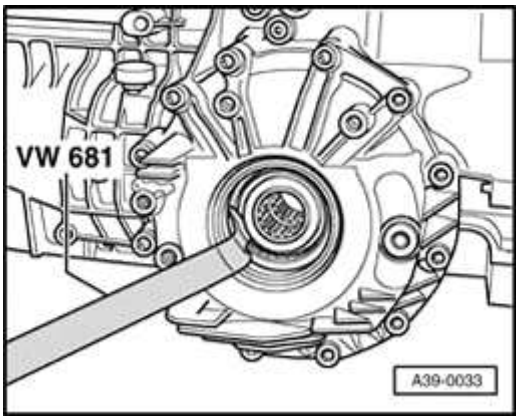

Fig. 306: Removing Flange Shaft Oil Seal
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Pull out flange shaft oil seal.

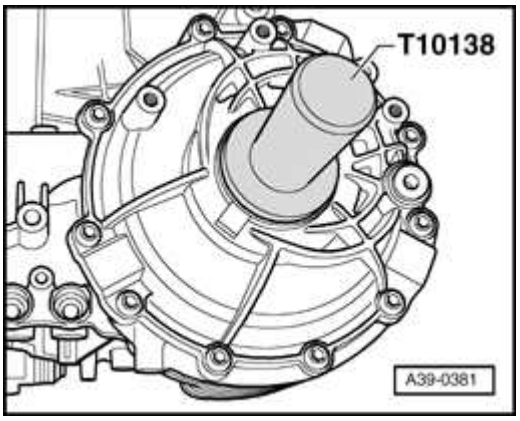

Fig. 307: Driving New Seal In Onto Stop
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Lubricate outer circumference of seal with gear oil
- Drive new seal in onto stop (take care to keep seal straight).

- Installation position: open side of seal faces transmission.

- Pack space between sealing lip and dust lip half full with *sealing grease G 052 128 A1* .
- Install flange shaft (right-side) --> **Flanged shaft (right side), removing and installing**.

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- Check oil level in front final drive --> **Front final drive gear oil**.

Final drive cover O-ring, replacing

Special tools, testers and auxiliary items required

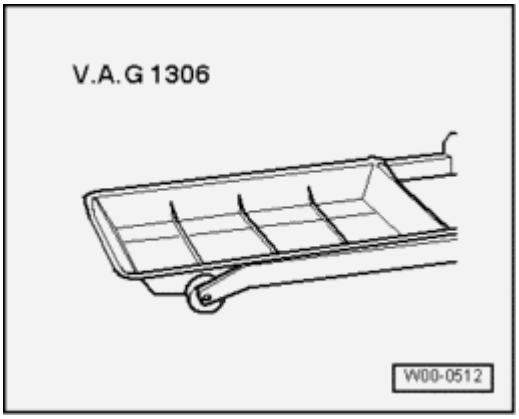

Fig. 308: Identifying Drip Tray V.A.G 1306
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray V.A.G 1306

Procedure

- Transmission installed

NOTE:

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

- Remove transmission support (right-side) --> **Transmission support and transmission mounting, removing and installing (left and right)**.
- Place drip tray V.A.G 1306 under transmission.
- Remove flange shaft (right-side) --> **Flanged shaft (right side), removing and installing**.

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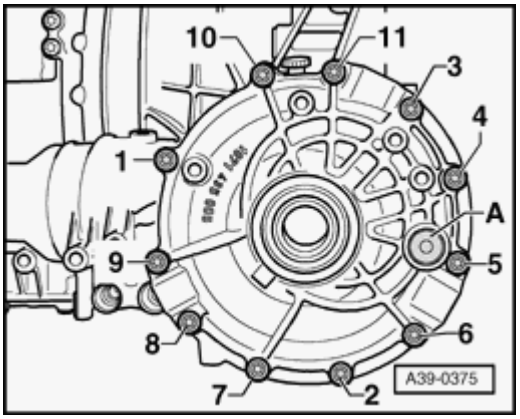

Fig. 309: Removing/Installing Bolts On Final Drive Cover In Sequence
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts on final drive cover in sequence - **11 to 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.**

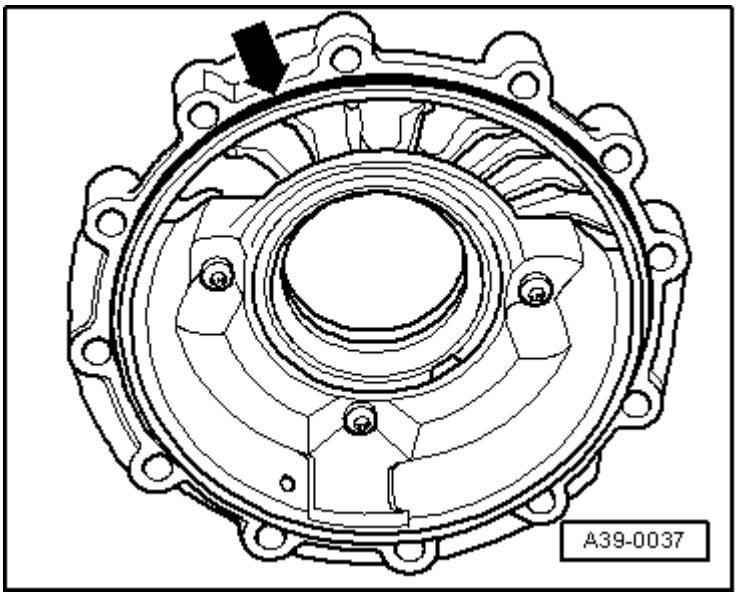

Fig. 310: Identifying Cover For Front Final Drive And O-Ring
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- 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

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as stop.

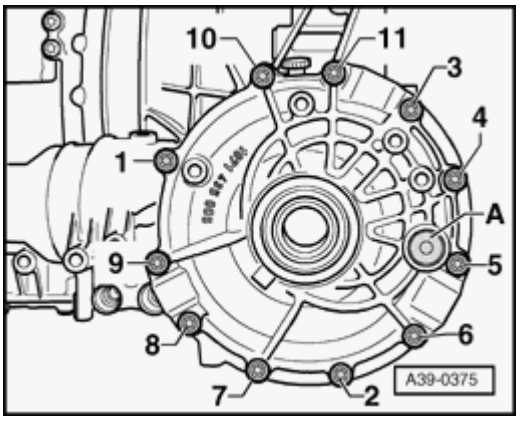

Fig. 311: Removing/Installing Bolts On Final Drive Cover In Sequence
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tighten bolts of final drive cover as follows.

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

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

Final drive/transmission housing oil seal, replacing

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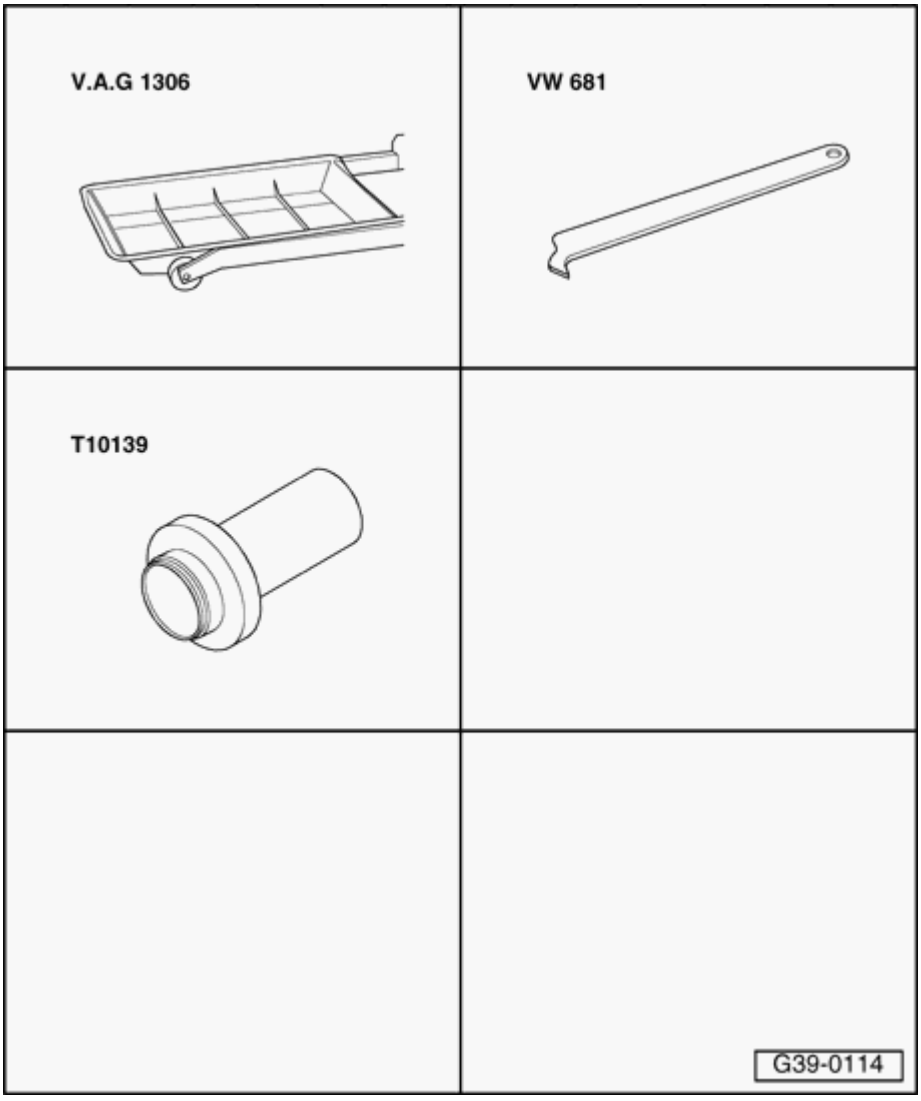

Fig. 312: Identifying Special Tools - Final Drive/Transmission Housing Oil Seal, Replacing
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Drip tray V.A.G 1306
- Extractor lever VW 681
- Thrust piece T10139

Requirements

- Transmission is removed
- Transmission mounted on assembly stand --> **Transmission, securing to assembly stand**.

CAUTION: Do not place transmission down on the oil pan.

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Procedure

NOTE:

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

- Remove transmission support (right-side) --> **Transmission support and transmission mounting, removing and installing (left and right)**.
- Place drip tray V.A.G 1306 under transmission.
- Remove flange shaft (right-side) --> **Flanged shaft (right side), removing and installing**.

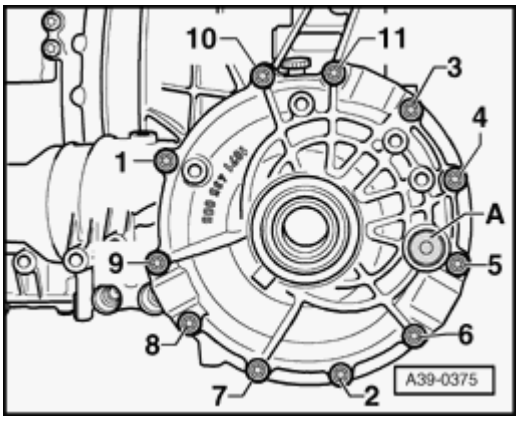

Fig. 313: Removing/Installing Bolts On Final Drive Cover In Sequence
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts on final drive cover in sequence - **11 to 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.**

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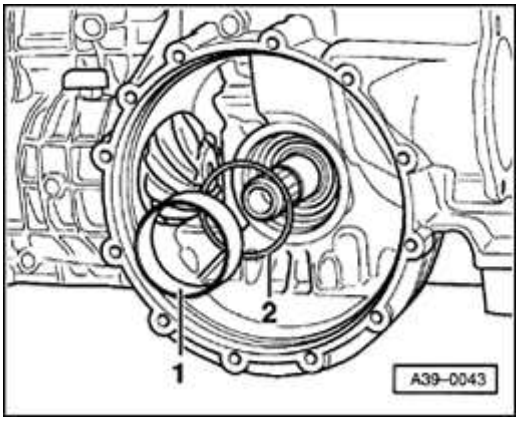

Fig. 314: Identifying Tapered Roller Bearing Outer Race For Differential And Shim
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

NOTE:

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

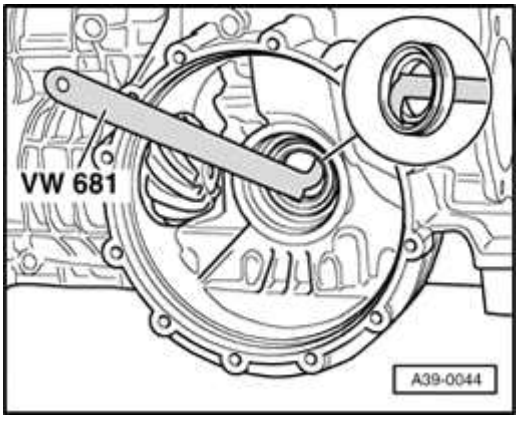

Fig. 315: Pulling Out Oil Seal
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

NOTE:

- **The oil seal extractor lever VW 681 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.

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- Lightly lubricate outer circumference and sealing lip of oil seal with gear oil.

NOTE:

- **Push the seal onto the thrust piece with the protruding sealing lip of the seal facing the tool.**

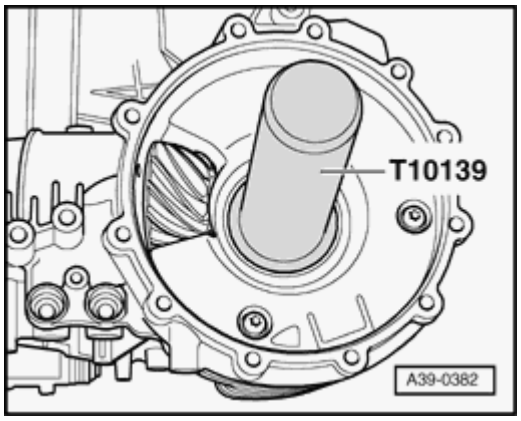

Fig. 316: Driving In New Oil Seal As Far As Stop Using Thrust Piece T10139
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

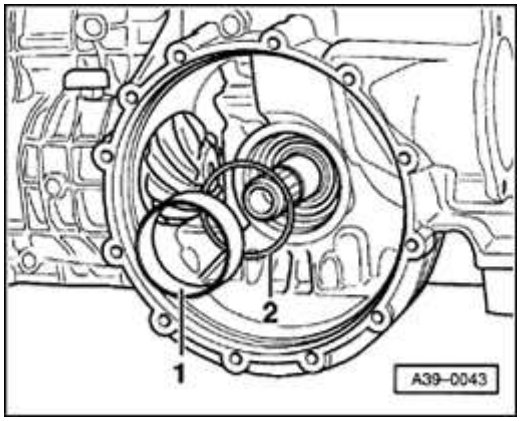

Fig. 317: Identifying Tapered Roller Bearing Outer Race For Differential And Shim
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- 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.**

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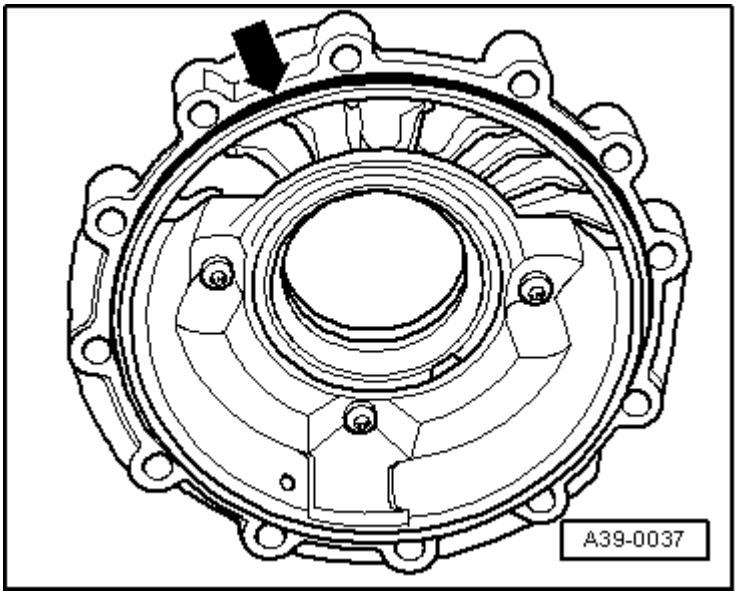

Fig. 318: Identifying Cover For Front Final Drive And O-Ring
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Replace 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 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 the stop.

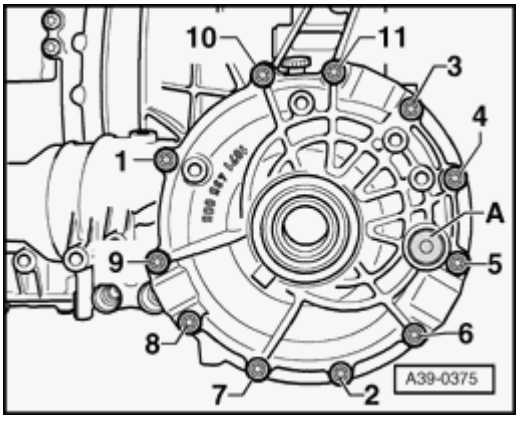

Fig. 319: Removing/Installing Bolts On Final Drive Cover In Sequence
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tighten bolts of cover for final drive as follows.

Step	Tightening sequence

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

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

Selector shaft oil seal, replacing

Special tools, testers and auxiliary items required

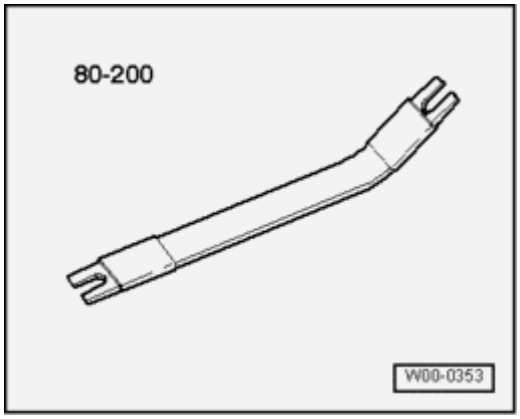

Fig. 320: Identifying Pry Lever 80-200
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Removal lever 80-200

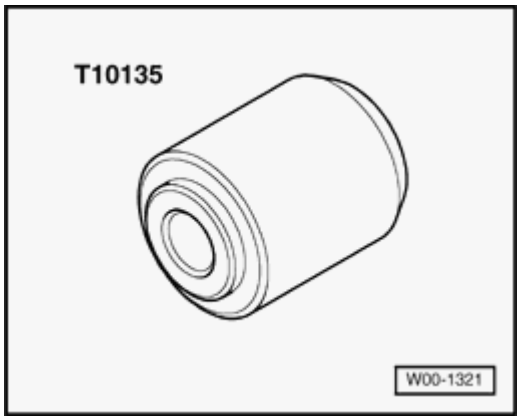

Fig. 321: Thrust Piece T10135
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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- Thrust piece T10135

Procedure

NOTE:

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

- Shift selector lever to position "P".
- Remove transmission support (left-side) --> **Transmission support and transmission mounting, removing and installing (left and right)**.

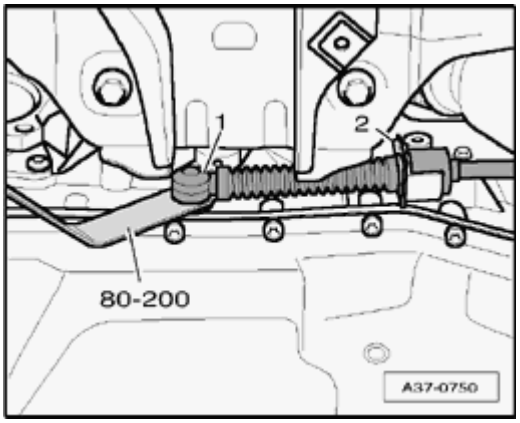

Fig. 322: Using Pry Lever - RMV Outside Mirror 80-200 To Pry Ball Socket On Selector Lever Cable Off Selector Shaft Lever
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Use removal lever 80-200 to pry ball socket - **1** - on selector lever cable off selector shaft lever.

NOTE:

- **Do not bend or kink the selector lever cable.**
- **- Item 2 - can be disregarded.**

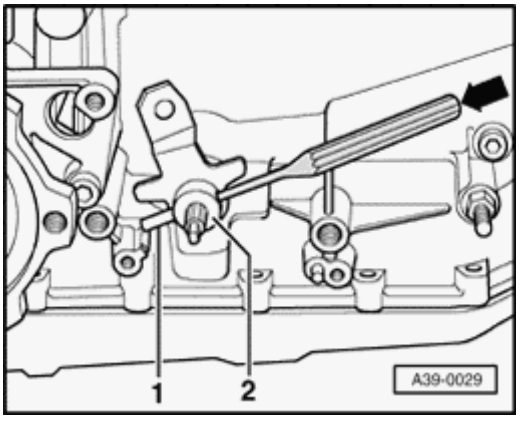

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Fig. 323: Driving Out Spring Dowel Sleeve At Lever/Shift Rod Of Travel Toward Front
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

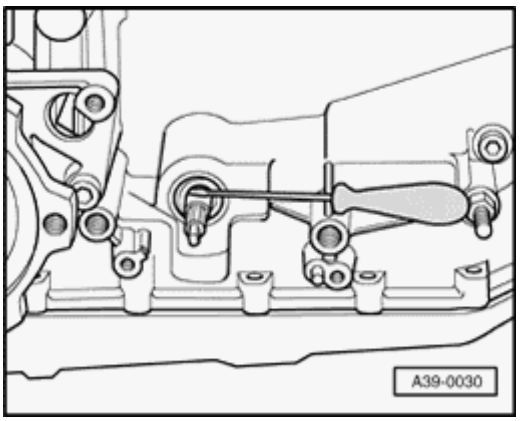

Fig. 324: Prying Seal Out With A Screwdriver
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Push a small screwdriver through seal and pull it out.
- Lubricate outer circumference and the space between sealing lips of seal with ATF.
- Install new seal onto selector shaft.

- Installation position: open side of seal faces transmission.

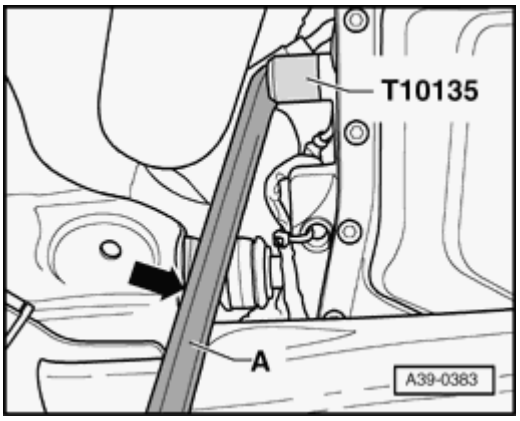

Fig. 325: Pressing On New Oil Seal Using Thrust Piece T10135 And Assembly Lever As Far As Stop
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- 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 -.**

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- 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.

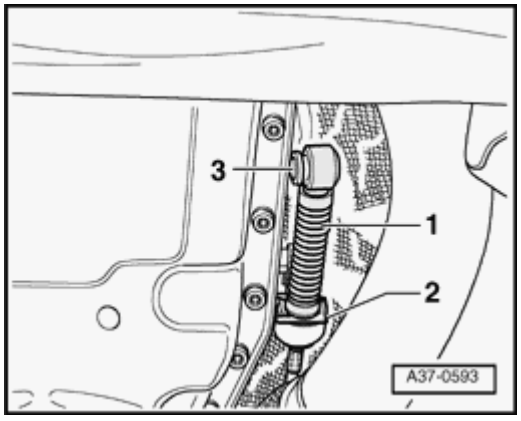

Fig. 326: Pressing Selector Lever Cable Onto Ball Head Of Selector Shaft Lever
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press selector lever cable - **1** - onto selector shaft lever - **3** -.

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**
- **- Item 2 - can be disregarded.**

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

TRANSFER GEAR OIL

Transfer gear oil

NOTE:

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

Transfer gear oil level, checking

Special tools, testers and auxiliary items required

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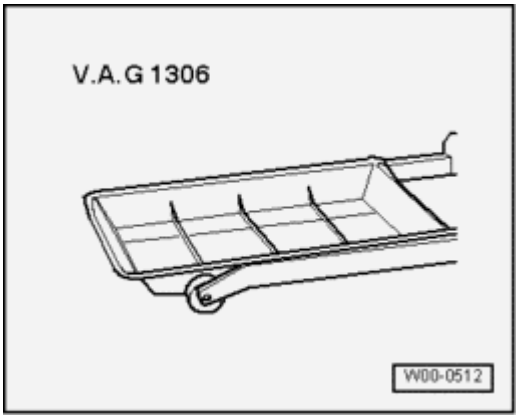

Fig. 327: Identifying Drip Tray V.A.G 1306
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray V.A.G 1306
- 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.
- Place drip tray V.A.G 1306 under transmission.

CAUTION: Wear safety goggles.

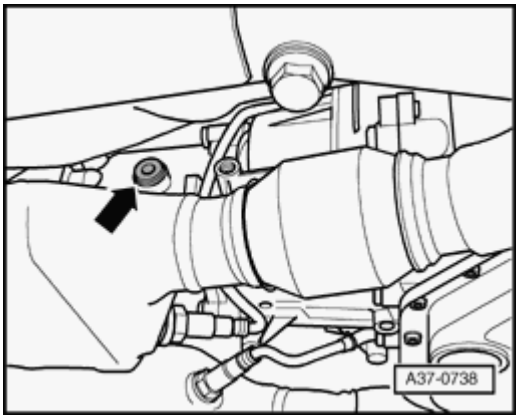

Fig. 328: Removing Plug
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove plug - **arrow** -.

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- The oil level must be up to lower edge of filler hole.

- Top off with gear oil if necessary; specification --> **Transfer gear**.

NOTE:

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

- Tighten new plug to 35 Nm.

Transfer gear oil, topping off after repairs

Special tools, testers and auxiliary items required

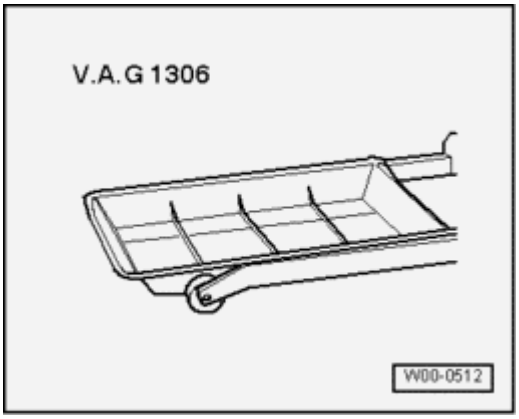

Fig. 329: Identifying Drip Tray V.A.G 1306
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray V.A.G 1306
- Safety goggles

Conditions

- Gear oil about 20° C (room temperature)
- The 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.
- Place drip tray V.A.G 1306 under the transmission.

CAUTION: Wear safety goggles.

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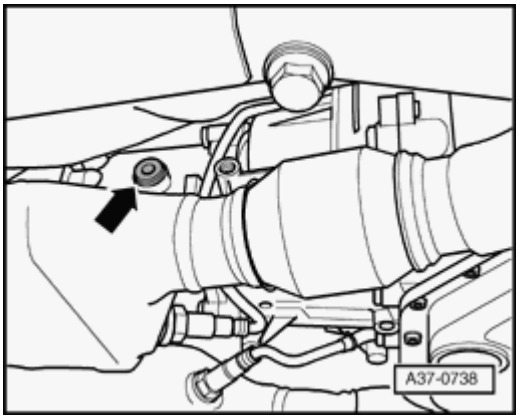

Fig. 330: Removing Plug
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- 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 a period of at least 5 minutes with gear oil (capacity and 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:

- **The level does not need to be re-checked.**

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

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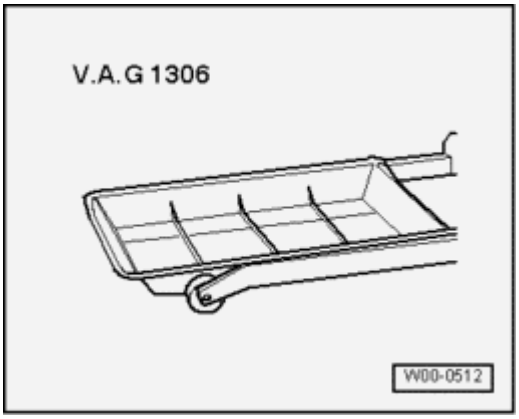

Fig. 331: Identifying Drip Tray V.A.G 1306
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Drip tray V.A.G 1306
- Safety goggles

Removing

- Transmission installed

CAUTION: The engine must not run and the vehicle must not be towed without gear oil.

NOTE:

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

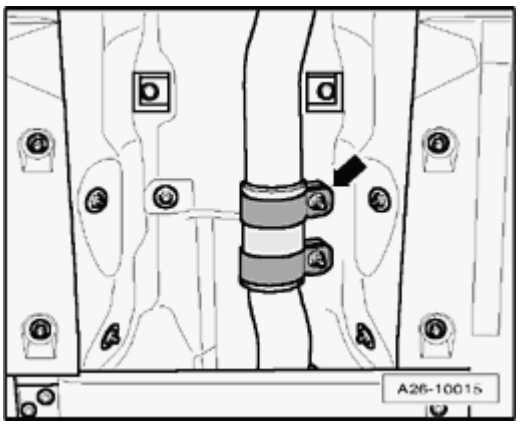

Fig. 332: Loosening Clamping Sleeve
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Vehicles with 2.0 ltr. TFSI engine

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NOTE:

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

- Loosen nuts on front clamp - **arrows** -.
- Push clamp toward rear of vehicle to disconnect exhaust system.

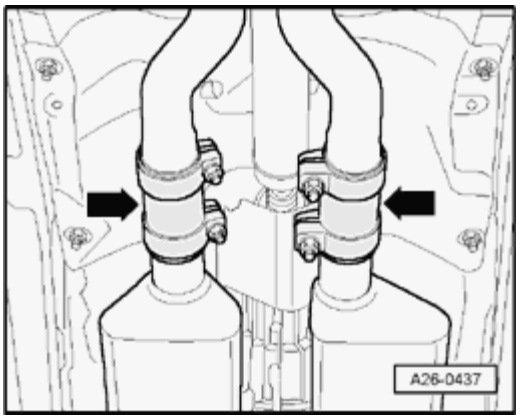

Fig. 333: Loosening Clamping Sleeves
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Vehicles with 4.2 ltr. MPI engine:

NOTE:

- **To prevent damage, the flexible couplings in the front exhaust lines must not be bent further than 10°.**

- Disconnect exhaust system at clamps - **arrows** -.
- Disengage rear section of exhaust system at rubber mountings and remove.

NOTE:

- **A second technician is required for removing the rear section of the exhaust system.**

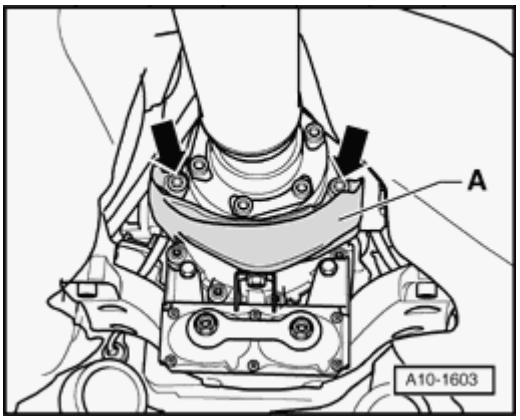

Fig. 334: Removing/Installing Heat Shield For Driveshaft

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

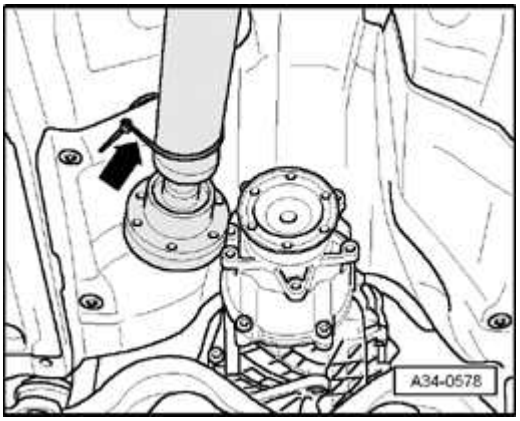

Fig. 335: Drive Shaft Tied To Side, Onto Heat Shield
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tie driveshaft to side, onto heat shield - **arrow** -.

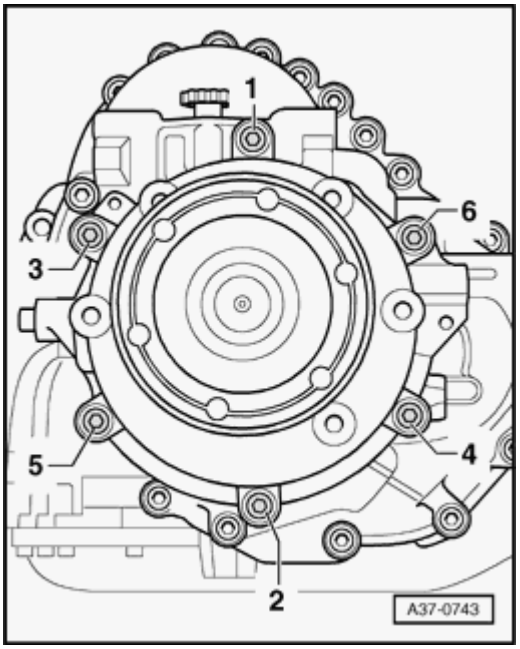

Fig. 336: Loosening/Tightening Securing Bolts For Cover For Torsen Differential In Sequence
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Place drip tray V.A.G 1306 under transmission.

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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 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.

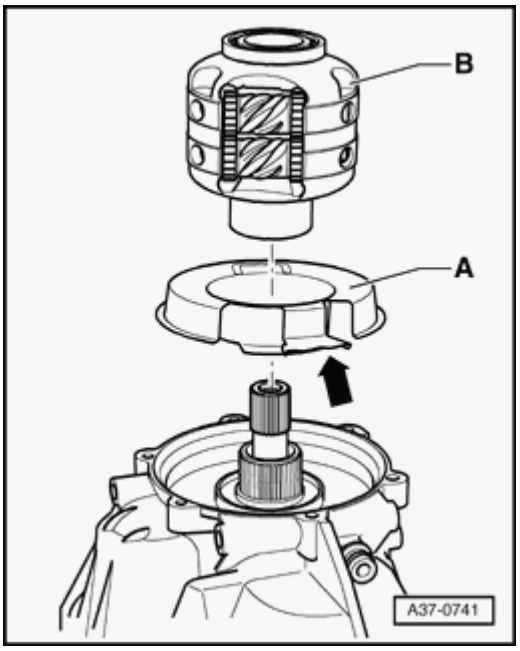

Fig. 337: Securing Torsen Differential And Baffle Plate To Prevent Them From Dropping Out
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

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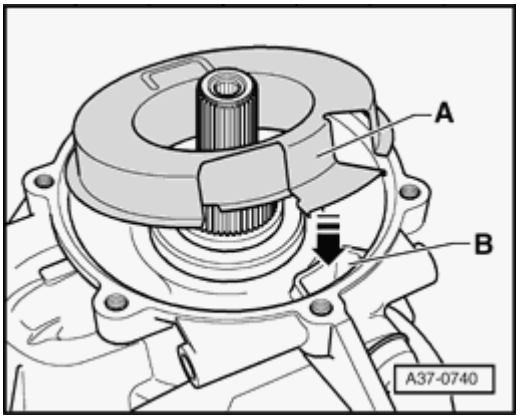

Fig. 338: Identifying If Torsen Differential And Baffle Plate Have Been Removed
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Installing

Installation is performed in reverse sequence. Note the following:

NOTE:

- **Replace O-ring on cover for transfer gear.**

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

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

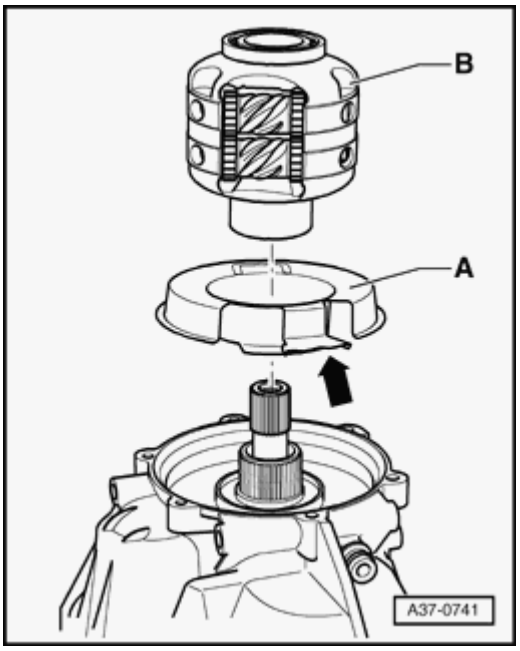

Fig. 339: Securing Torsen Differential And Baffle Plate To Prevent Them From Dropping Out

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Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

NOTE:

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

- Check whether the 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.

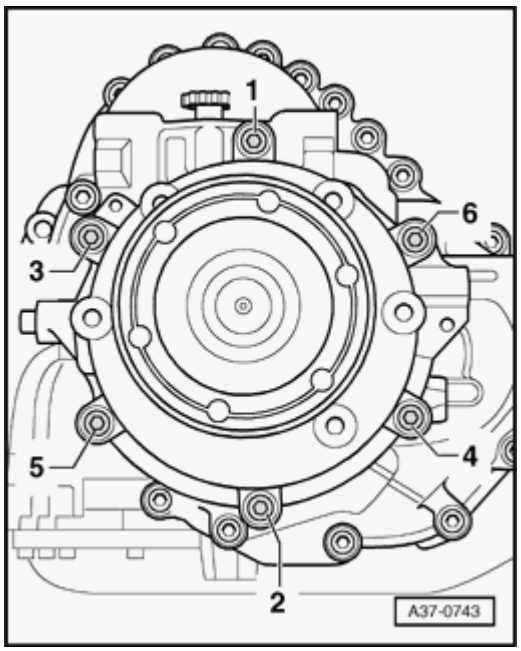

Fig. 340: Loosening/Tightening Securing Bolts For Cover For Torsen Differential In Sequence
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tighten bolts of cover 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 driveshaft -->
  - **39 FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE
  - **39 - FINAL DRIVE, DIFFERENTIAL** for REAR FINAL DRIVE 0AR

  .
- Install exhaust system free of stress -->

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- **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 1.8 LITER 4-CYL. 5V TURBO ENGINE MECHANICAL, ENGINE CODE(S): AMB
- **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 2.0 LITER 4-CYL. 4V TURBO ENGINE MECHANICAL, ENGINE CODE(S): BPG, BWT
- **26 EXHAUST SYSTEM, EMISSION CONTROLS** for 3.0 LITER 6-CYL. 5V ENGINE MECHANICAL, ENGINE CODE(S): AVK, BGN
- **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): BNS
- **26 - EXHAUST SYSTEM, EMISSION CONTROLS** for 4.2 LITER V8 4V ENGINE MECHANICAL, ENGINE CODE(S): BNS

.

- 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 axle to transmission	23

Flanged shaft oil seal (rear), replacing

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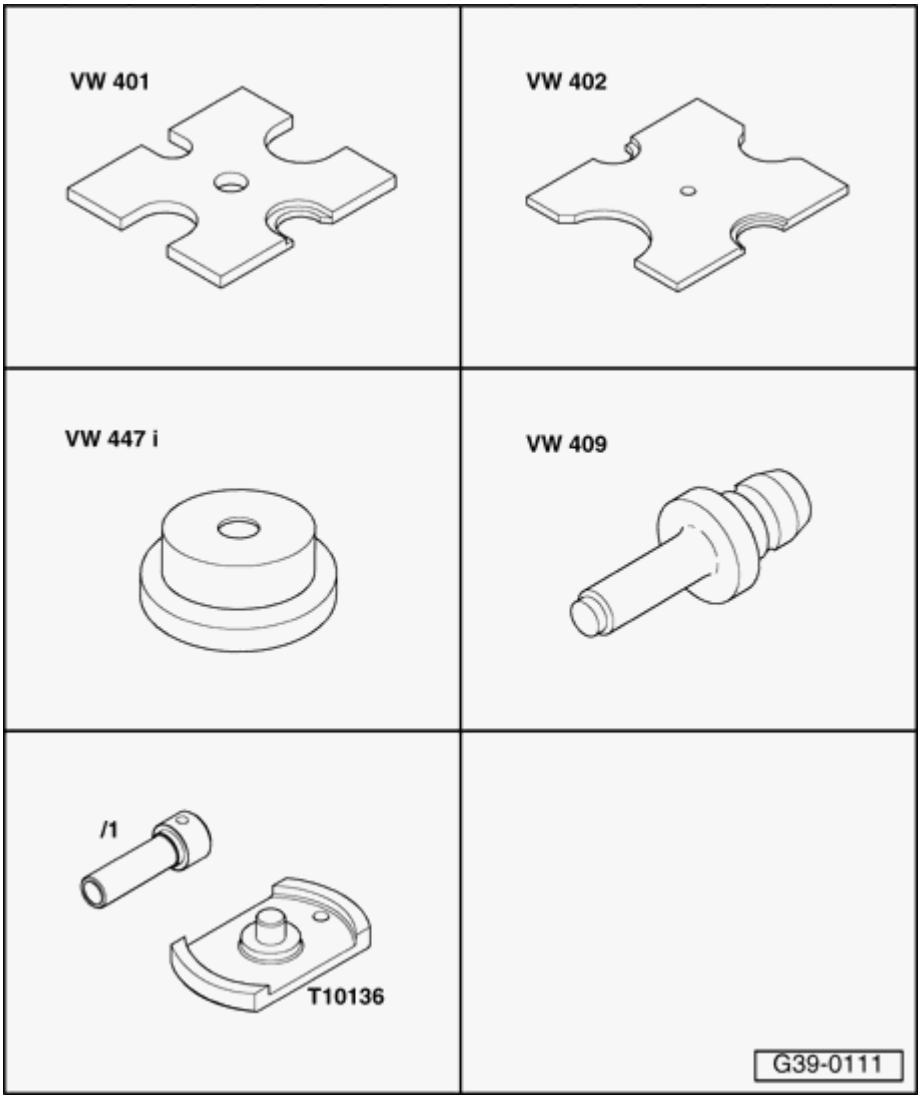

Fig. 341: Identifying Special Tools - Flanged Shaft Oil Seal (Rear), Replacing
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Thrust plate VW 401
- Thrust plate VW 402
- Thrust pad VW 447 i
- Punch VW 409
- Pressure application device T10136

Procedure

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

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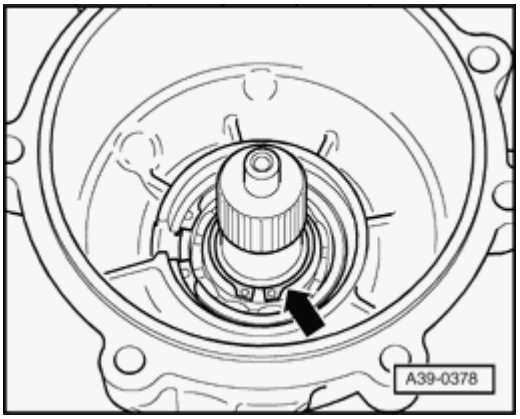

Fig. 342: Removing/Installing Circlip On Inner Side Of Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

NOTE:

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

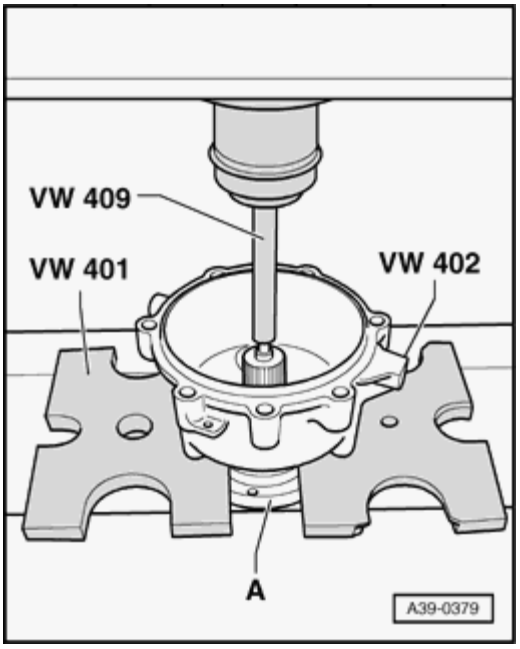

Fig. 343: Using Punch VW 409 To Press Flange Shaft Out Of Torsen Differential Cover By Placing Cover On Thrust Plate VW 401 And Thrust Plate VW 402
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Using punch VW 409, press flange shaft out of Torsen differential cover by placing cover on thrust plate VW 401 and thrust plate VW 402.

NOTE:

- **Hold flange shaft - A - with one hand to prevent it from falling.**

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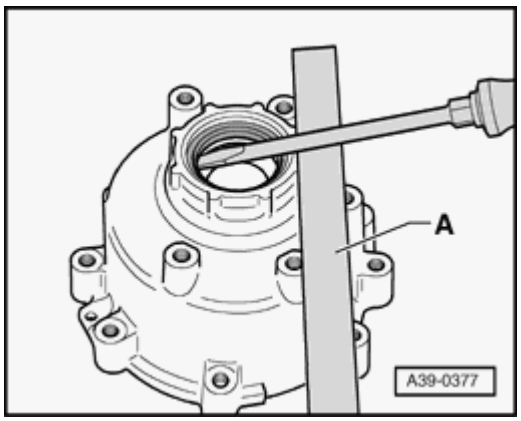

Fig. 344: Prying Out Oil Seal
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Pry out oil seal.

NOTE:

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

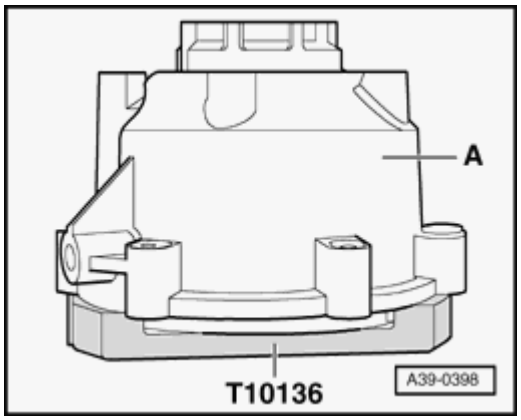

Fig. 345: Placing Torsen Differential Cover On Pressure Application Device T10136
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Place Torsen differential cover - **A** - 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 pressure application device T10136/1.**

- Lubricate outer circumference of seal with gear oil
- Push new seal onto pressure application device T10136/1.

- Installation position: open side of seal faces cover.

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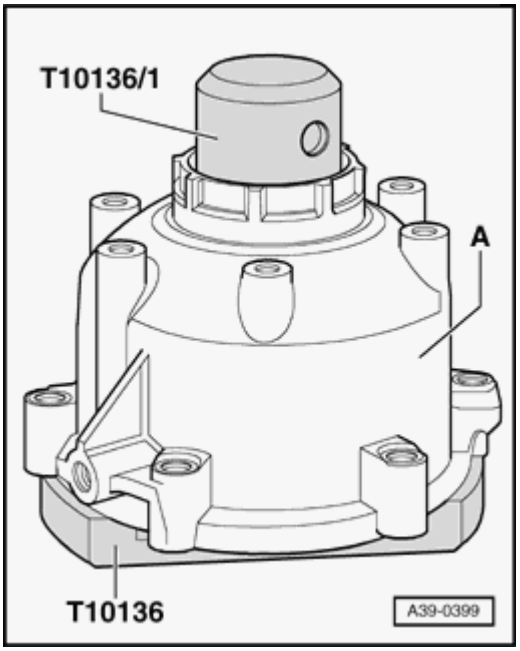

Fig. 346: Inserting Pressure Application Device T10136/1 With Seal Into Cover From Above
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Insert pressure application device 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* .

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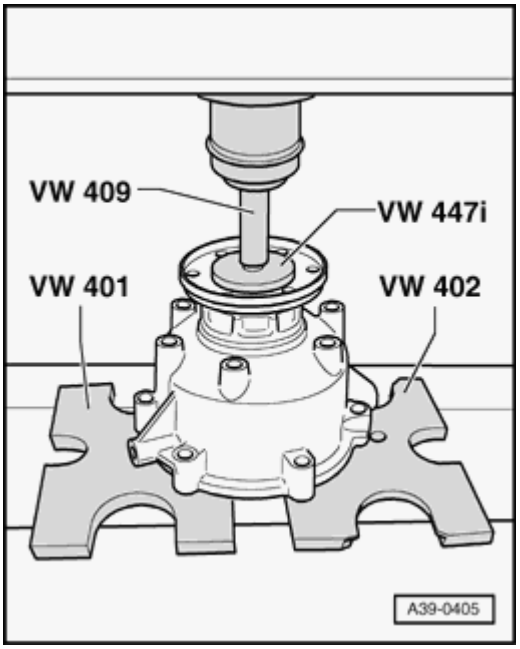

Fig. 347: Pressing Flange Shaft Using Punch VW 409 And Thrust Pad VW 447 I Into Torsen Differential Cover By Placing Cover On Thrust Plate VW 401 And Thrust Plate VW 402
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press flange shaft 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.

NOTE:

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

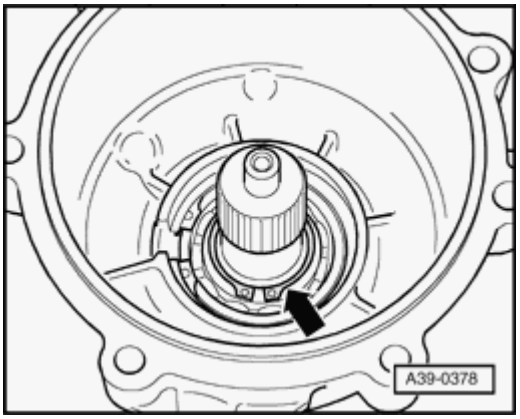

Fig. 348: Removing/Installing Circlip On Inner Side Of Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

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