

ENGINE

3.0 Liter - Engine Assembly - Engine Code(s): CCBA (Sedan)

ENGINE ASSEMBLY

DESCRIPTION AND OPERATION

SUBFRAME MOUNT OVERVIEW

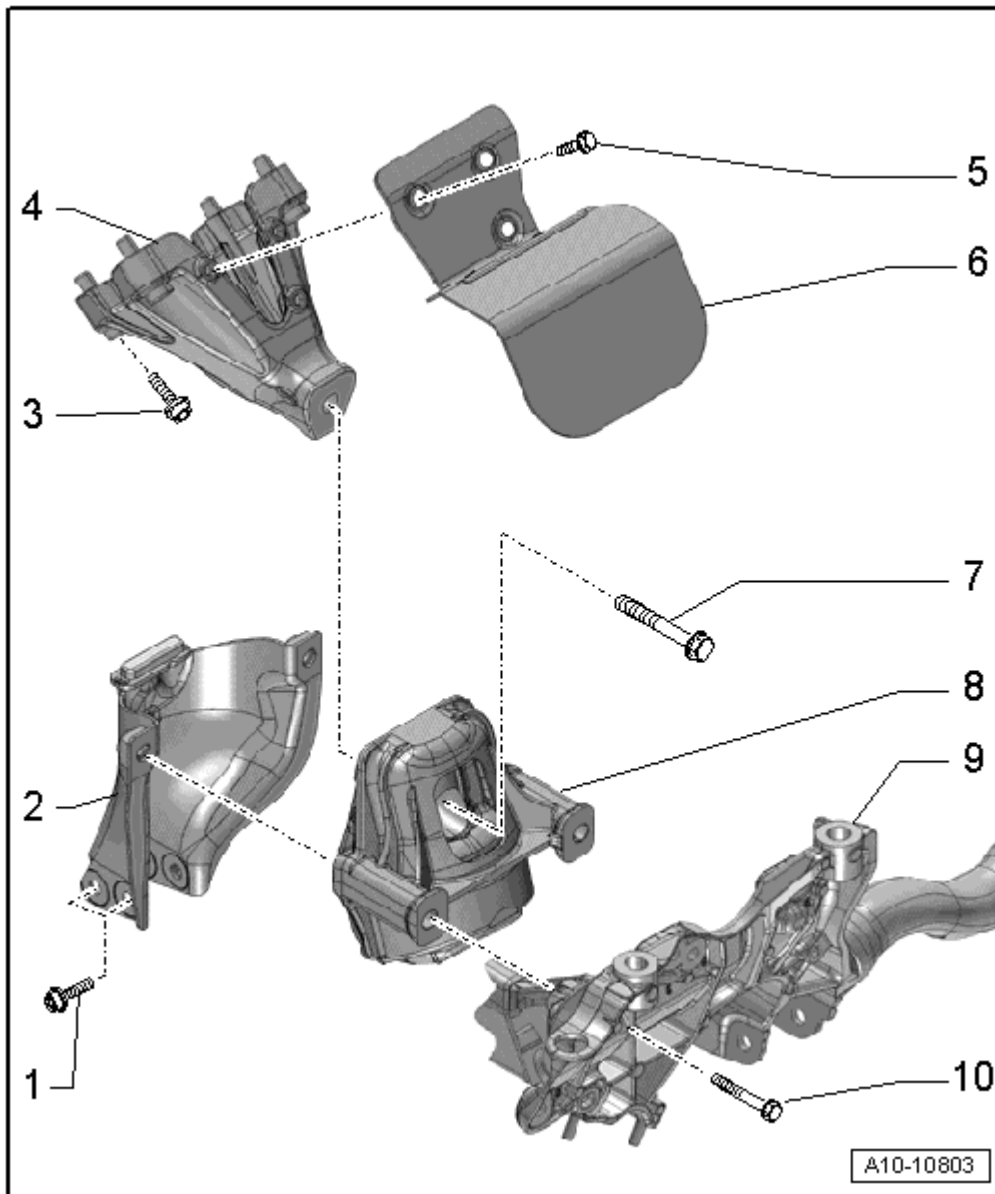


Fig. 1: Identifying Subframe Mount Assembly Overview
Courtesy of AUDI OF AMERICA, LLC

1. Bolt
 - 20 Nm
2. Mounting Plate
 - For the engine mount
 - If the engine mount is faulty, replace the retaining plate
 - Check the retaining plate on the opposite side; replace if necessary
3. Bolt
 - 40 Nm
4. Engine Support
5. Bolt
 - 10 Nm
6. Heat Shield
7. Bolt
 - Replace
 - 90 Nm plus an additional 90° turn
8. Engine Mount
 - Removing and installing: Left **LEFT ENGINE MOUNT**, right **RIGHT ENGINE MOUNT**
 - Replace in pairs
9. Subframe
10. Bolt
 - 55 Nm

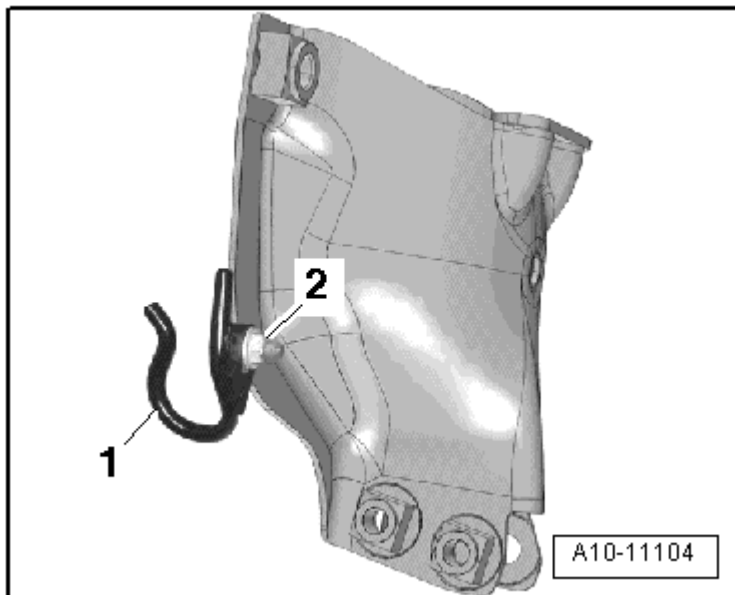


Fig. 2: Identifying Power Steering Fluid Hose Bracket For Vehicles With Hydraulic Power Steering - Tightening Specification

Courtesy of AUDI OF AMERICA, LLC

2012 Audi S4

ENGINE 3.0 Liter - Engine Assembly - Engine Code(s): CCBA (Sedan)

-- Tighten the nut -2- for the hydraulic oil hose bracket -1- to 9 Nm.

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Component	Fastener Size	Nm
Bolts and Nuts		
	M6	9
	M7	15
	M8	20
	M10	40
	M12	65
Engine Mount ¹	-	90 + 90°
Engine Support	-	40
Heat Shield	-	10
Mounting Plate	-	20
Subframe	-	55
• ¹ Always replace		

Power Steering Fluid Hose Bracket for Vehicles with Hydraulic Power Steering - Tightening Specification

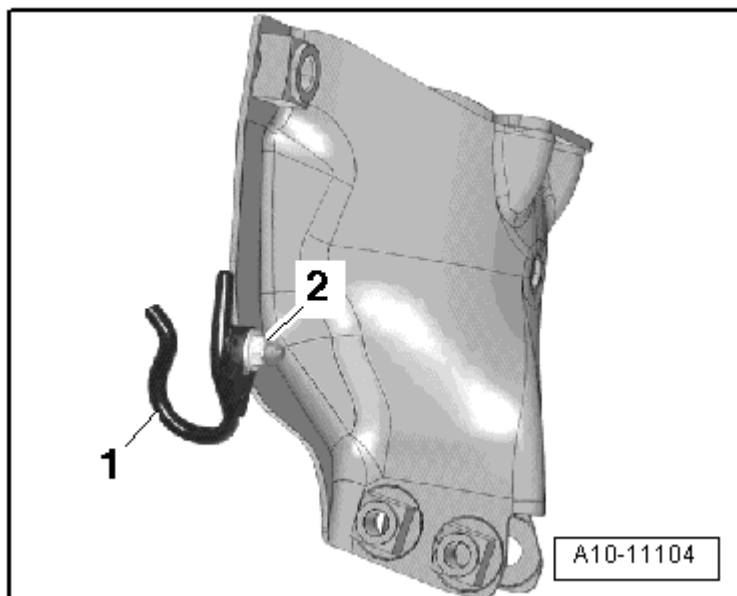


Fig. 3: Identifying Power Steering Fluid Hose Bracket For Vehicles With Hydraulic Power Steering - Tightening Specification

Courtesy of AUDI OF AMERICA, LLC

-- Tighten the nut -2- for the hydraulic oil hose bracket -1- to 9 Nm.

Ground Bolt to Strut Tower - Tightening Specification

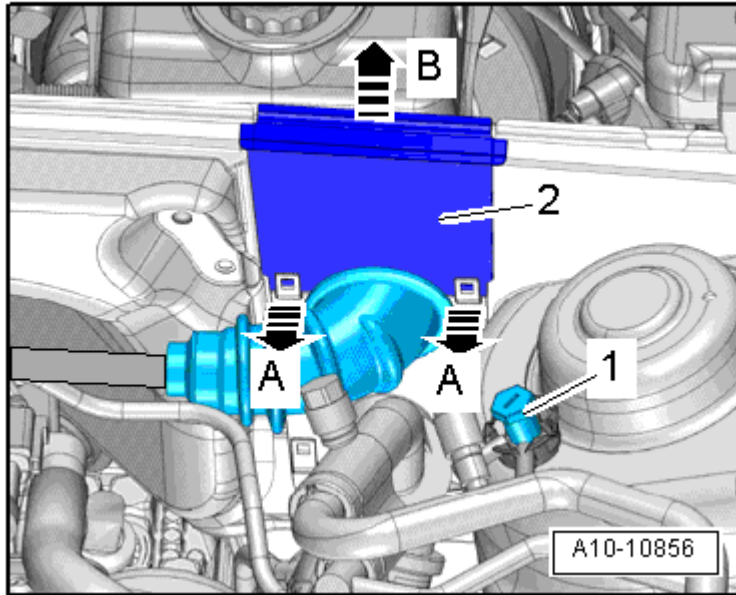


Fig. 4: Identifying Ground Bolt To Strut Tower - Tightening Specification
Courtesy of AUDI OF AMERICA, LLC

-- Tighten the ground bolt -1- to 9 Nm.

Tightening Specification for Ground Wires to the Longitudinal Member

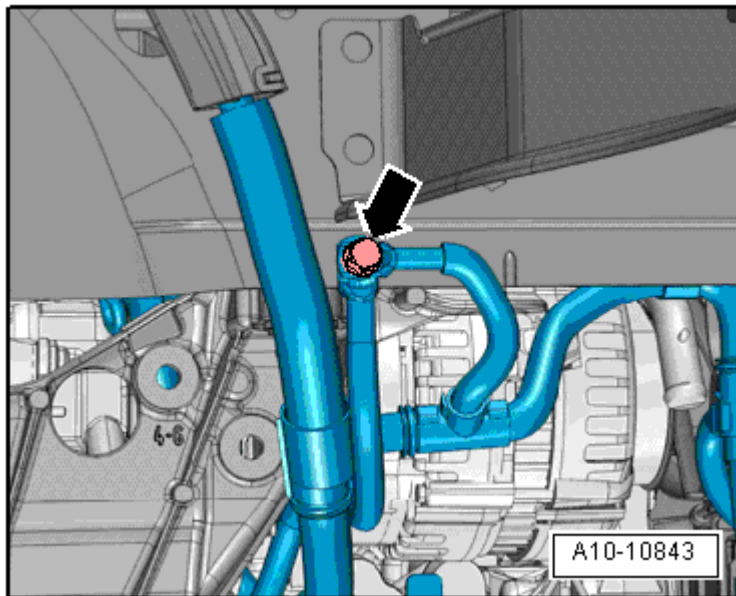


Fig. 5: Identifying Nut -Arrow- To Longitudinal Member
Courtesy of AUDI OF AMERICA, LLC

-- Tighten the nut -arrow- to 9 Nm.

Engine to Manual Transmission

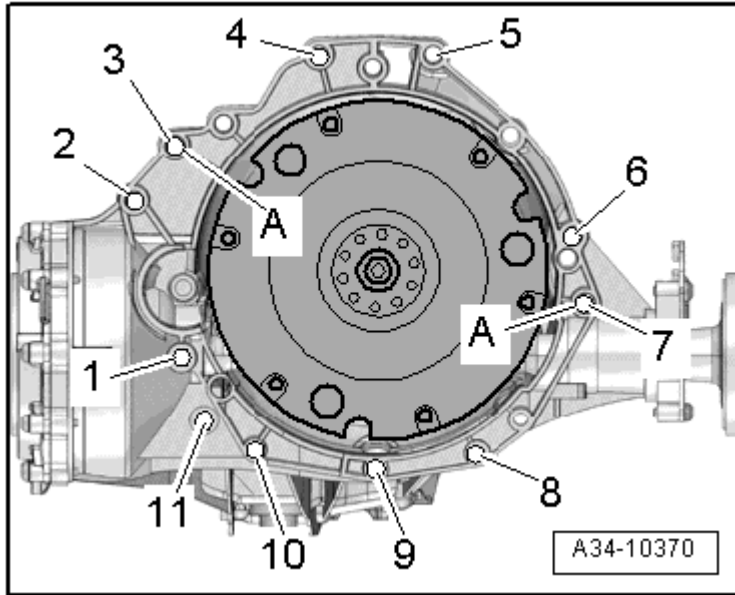


Fig. 6: Inspecting Aluminum Bolts To Connect Engine To Transmission
 Courtesy of AUDI OF AMERICA, LLC

Item	Bolt	Nm
1	M10 x 50 ¹⁾	65
2 through 6	M12 x 100 ²⁾	30 + 90°
7	M12 x 125 ²⁾	30 + 90°
8, 11	M10 x 60 ²⁾	15 + 90°
9, 10	M10 x 95 ²⁾	15 + 90°
A	Alignment sleeves for centering	
• ¹⁾ Bolt class 10.9, the steel bolt may be used again unlimited number of times. • ²⁾ The aluminum bolts can be used 2 times, refer to <u>ALUMINUM BOLTS</u>.		

Engine to S-Tronic Transmission 0B5

2012 Audi S4

ENGINE 3.0 Liter - Engine Assembly - Engine Code(s): CCBA (Sedan)

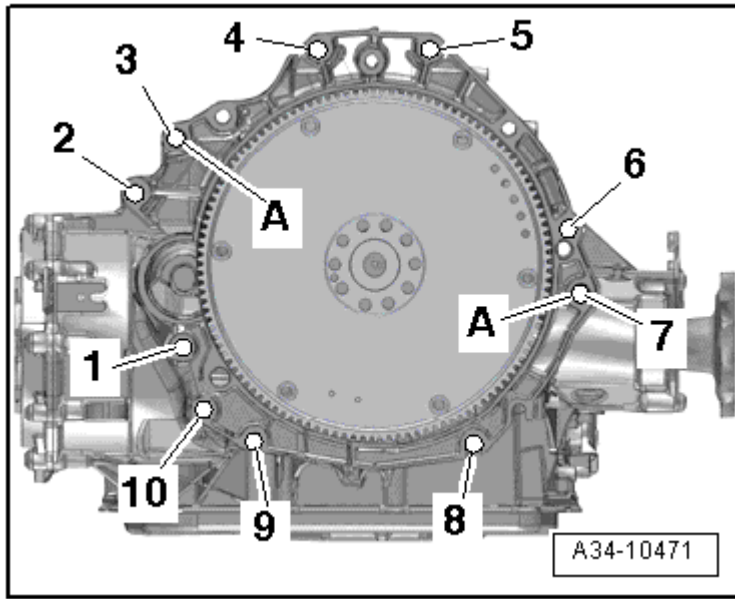


Fig. 7: Identifying Engine/Transmission Connecting Bolts, Tightening Sequence
Courtesy of AUDI OF AMERICA, LLC

Item	Bolt	Nm
1	M10 x 50 ¹⁾	65
2 ••• 6	M12 x 100 ²⁾	30 + 90°
7	M12 x 125 ²⁾	30 + 90°
8	M10 x 60 ²⁾	15 + 90°
9, 10	M10 x 95 ²⁾	15 + 90°
A	Alignment sleeves for centering	
• ¹⁾ Bolt class 10.9, the steel bolt may be used again unlimited number of times. • ²⁾ The aluminum bolts can be used 2 times, refer to <u>ALUMINUM BOLTS</u>.		

REMOVAL AND INSTALLATION

ENGINE, SECURING TO ENGINE AND TRANSMISSION HOLDER

Special tools and workshop equipment required

- Engine Sling 2024 A
- Engine and Transmission Holder VAS 6095 with Universal Mounting VAS 6095/1 and Bracket for V6 FSI Engine, Audi A6 VAS 6095/1-5
- Shop Crane - Load Cap = 700-1200 Kg VAS 6100
- Lift Arm Ext./Workshop Hoist VAS 6101
- Joint Support VAS 6131/13-7

- Engine Bung Set VAS 6122

Procedure

WARNING: Risk of an accident!

- The engine may be transported only in the manner described and without the transmission.
- The engine/transmission subassembly is removed and the engine and transmission are separated.
- Engine secured with VAS 6131/13-7.

Vehicles with Hydraulic Power Steering

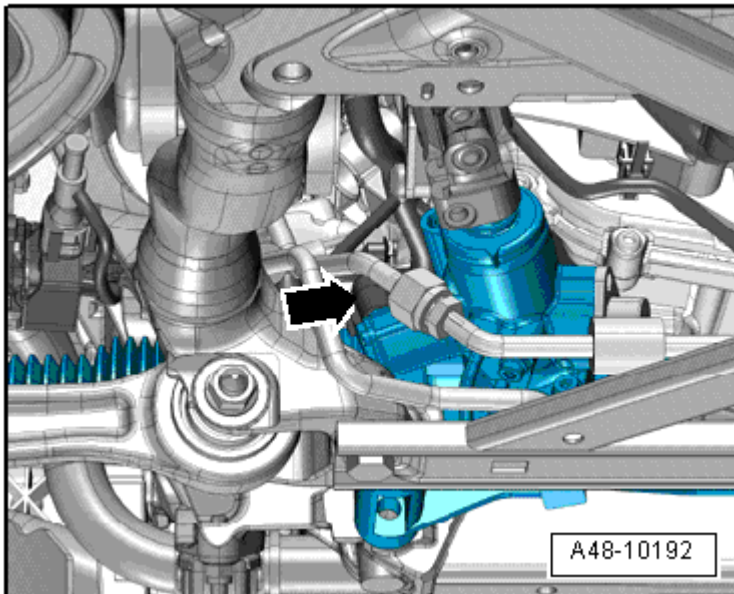


Fig. 8: Disconnecting Electrical Connector On Steering Gear
Courtesy of AUDI OF AMERICA, LLC

-- Disconnect electrical connector -arrow- on steering gear.

NOTE: Place a cloth underneath to soak up any escaping power steering fluid.

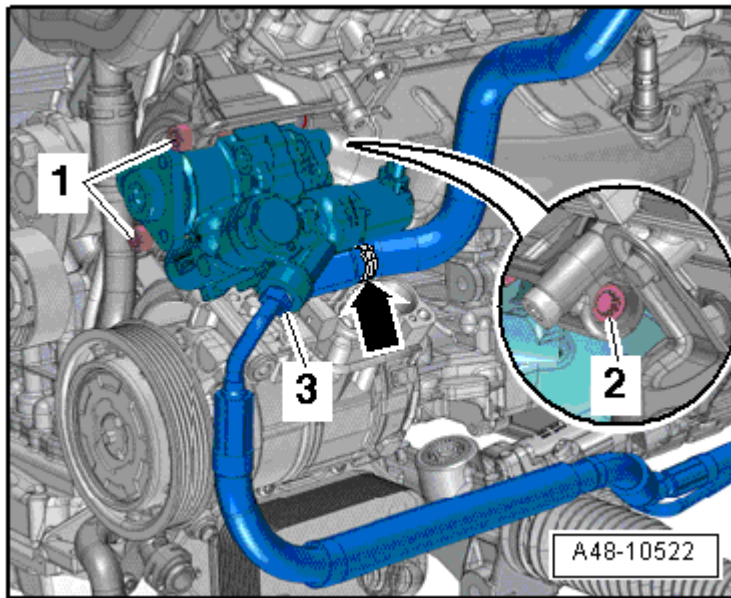


Fig. 9: Identifying Dynamic Steering Installation Location
Courtesy of AUDI OF AMERICA, LLC

-- Remove the threaded connection -3-.

-- Seal any open lines and connections with a clean plug from the VAS 6122.

NOTE:

- The illustration shows the installation location on a vehicle with dynamic steering.
- Ignore -1 and 2- and -arrows-.

All Vehicles

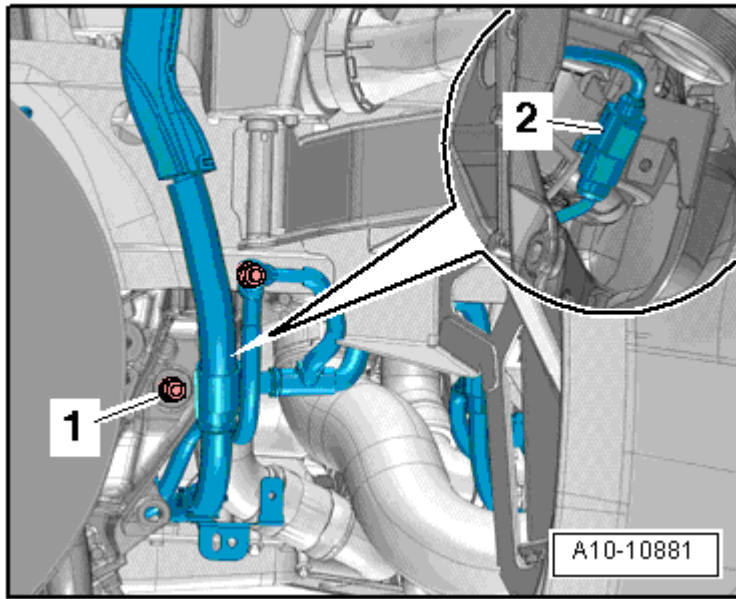


Fig. 10: Loosening Nut On Electrical Wiring Bracket Several Turns
Courtesy of AUDI OF AMERICA, LLC

- Remove and disconnect the connector -2- on the right electrohydraulic engine mount solenoid valve -N145-.
- Remove the nut -1- and remove the bracket with the wiring harness from the subframe.

NOTE: The illustration shows the installation position with the engine installed.

- Engage the 2024 A on the engine lifting eyes and on the shop crane as shown in the illustration.

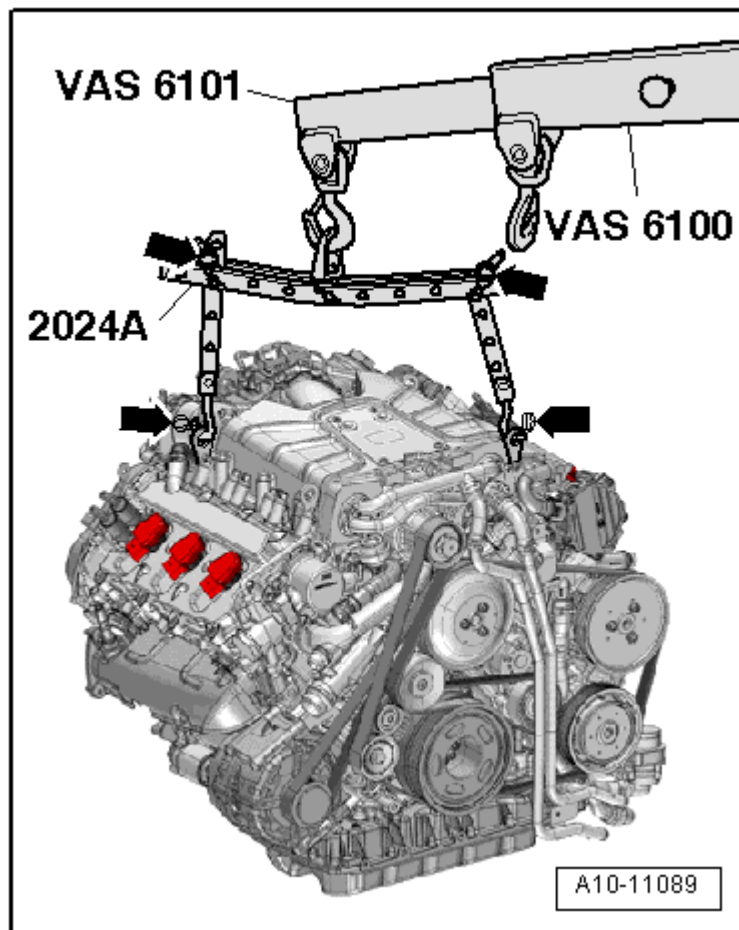


Fig. 11: Identifying 2024 A, Installation

Courtesy of AUDI OF AMERICA, LLC

NOTE: To be aligned to the center of gravity of the engine assembly, the hole rails of the lifting hook must be inserted as shown in the illustration.

WARNING: There is the risk of an accident.

- Lifting hooks and alignment pins on lifting tackle must be secured with securing pins -arrows-.

-- Tension engine slightly with the shop crane, do not raise.

-- Disconnect the connector -3- on the left electrohydraulic engine mount solenoid valve -N144-.

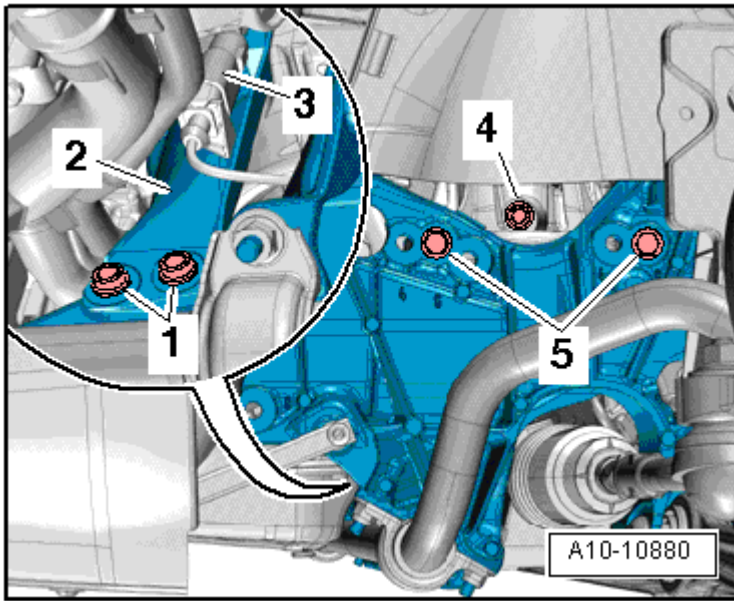


Fig. 12: Identifying Left And Right Engine Mount Bolts
Courtesy of AUDI OF AMERICA, LLC

-- Remove the left engine mount bolt -4-.

NOTE: Ignore -1, 2 and 5-.

-- Remove the right engine mount bolt -2-.

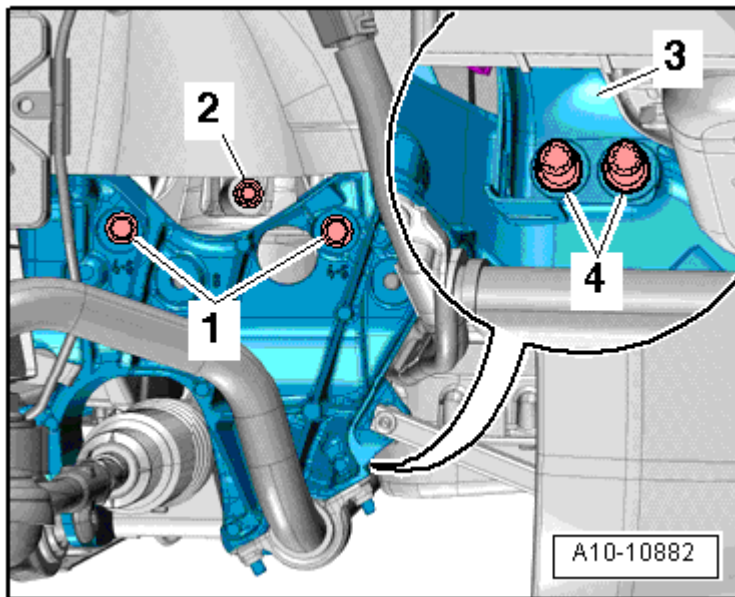


Fig. 13: Identifying Bolts And Right Engine Mount Retaining Plate
Courtesy of AUDI OF AMERICA, LLC

NOTE:

- The illustration shows the installation position with the engine installed.
- Ignore -1, 3 and 4-.

-- Remove the VAS 6131/13-7 from engine.

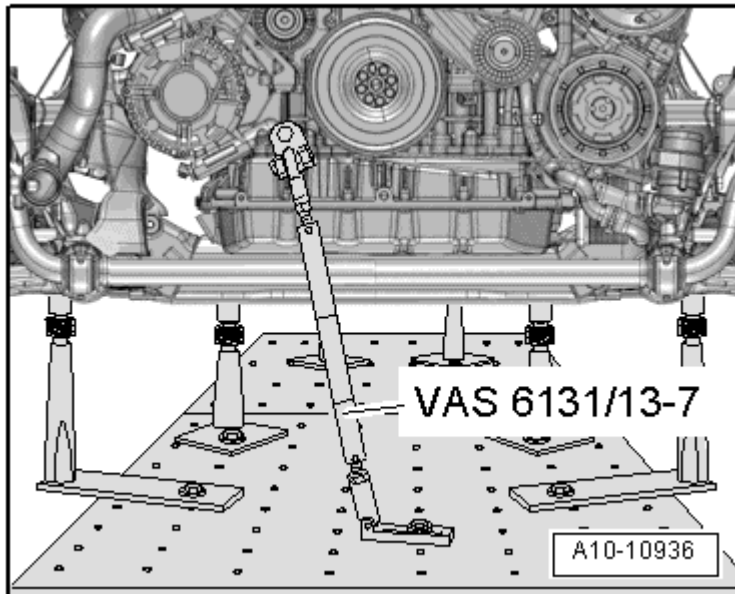


Fig. 14: Raising Engine From Engine Carrier
Courtesy of AUDI OF AMERICA, LLC

-- Raise engine from engine carrier.

-- Remove the bolts -arrows- and the left engine support.

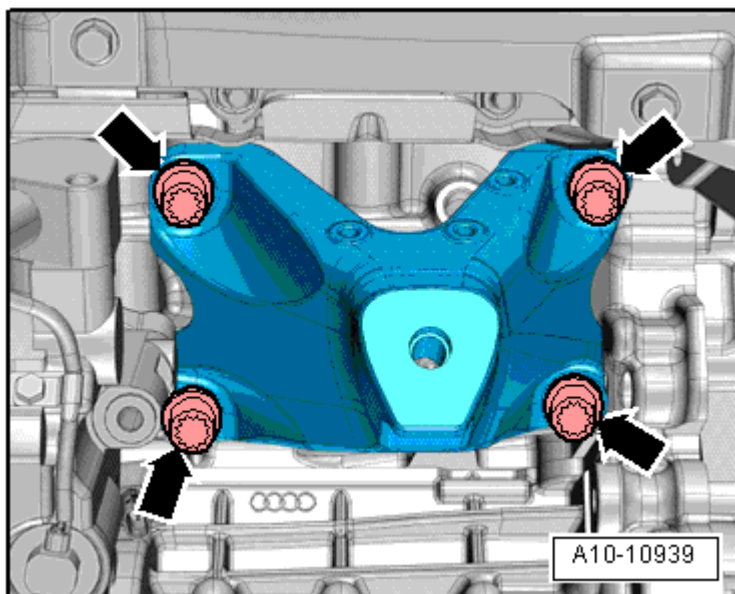


Fig. 15: Identifying Bolts

Courtesy of AUDI OF AMERICA, LLC

-- Remove the nut -1- and free up the Ground (GND) wire at the engine support.

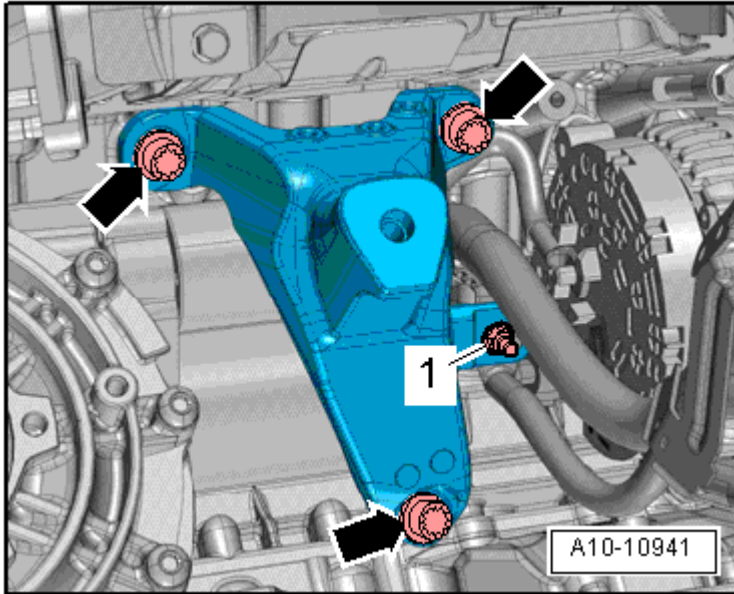


Fig. 16: Identifying Bolts And Right Engine Support

Courtesy of AUDI OF AMERICA, LLC

-- Remove the bolts -arrows- and the right engine support.

-- Secure the starter on the engine.

-- Secure the engine to the VAS 6095/1 and VAS 6095/1-5 on the VAS 6095 to 40 Nm, as illustrated.

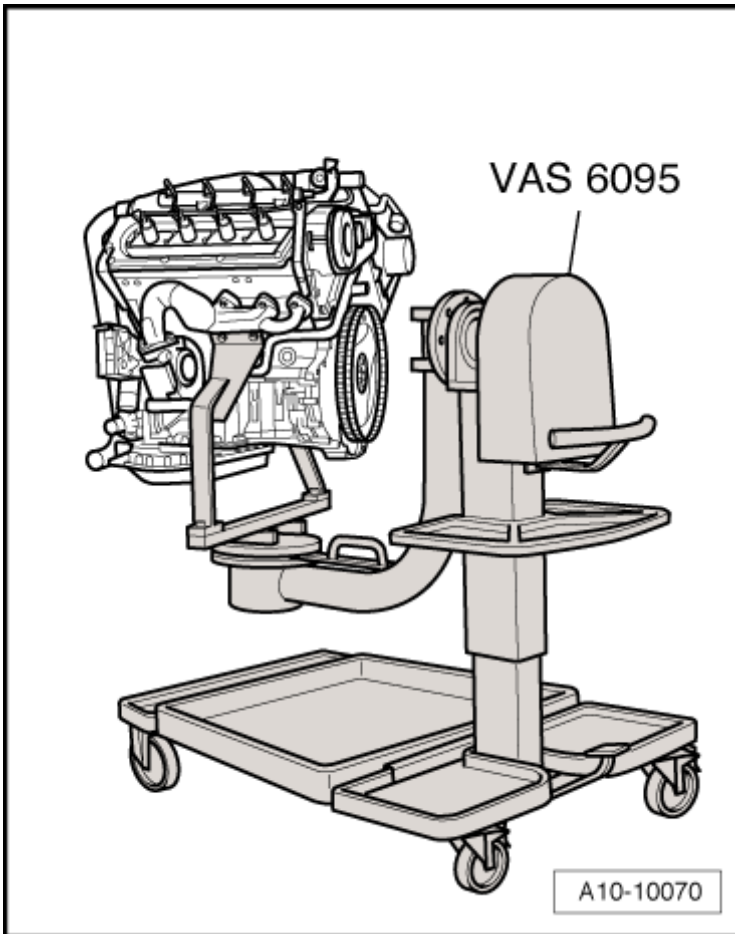


Fig. 17: Identifying Engine, Holder VAS 6095 And Bracket For V6 FSI Engine VAS 6095/1-5
Courtesy of AUDI OF AMERICA, LLC

LEFT ENGINE MOUNT

NOTE:

- To avoid repeat repairs, do the following if the engine mount is faulty:
- Replace the faulty engine mount and its retaining plate.
- Likewise replace the engine mount on the opposite side, check the retaining plate and replace it if necessary.

Special tools and workshop equipment required

- Engine Support Bridge 10 - 222 A
- Spindles 10 - 222 A /11
- Oil Collecting and Extracting Device V.A.G 1782
- Engine Support Supplement Set T40093
- Adapter T40093/6

Removing

2012 Audi S4

ENGINE 3.0 Liter - Engine Assembly - Engine Code(s): CCBA (Sedan)

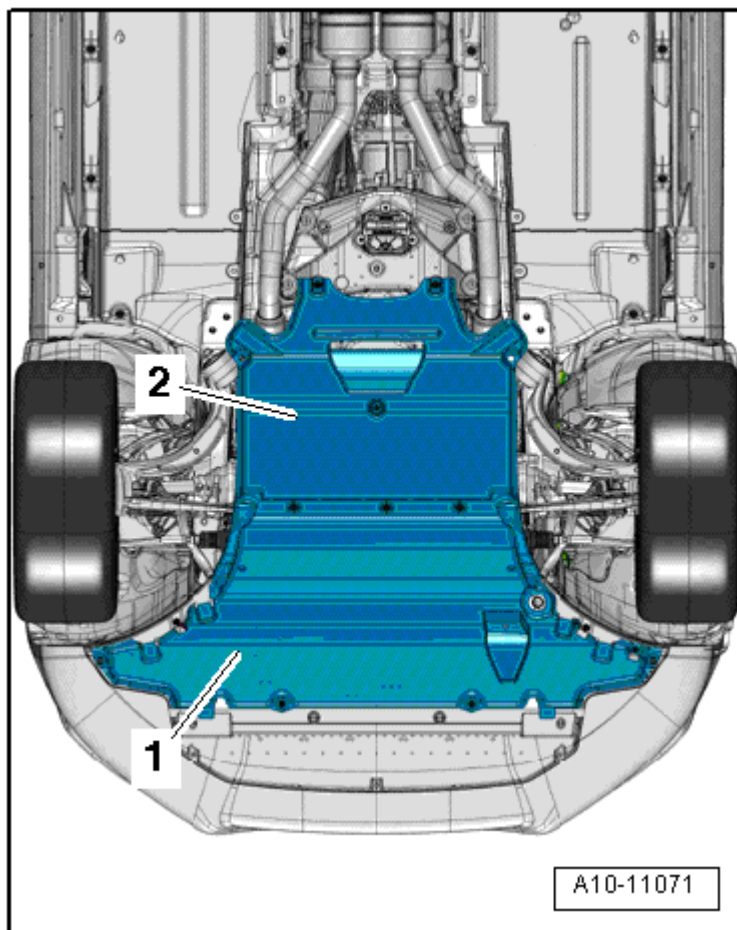


Fig. 18: Identifying Front Noise Insulation
Courtesy of AUDI OF AMERICA, LLC

- Remove the noise insulation -1 and 2-. Refer to **Description and Operation** .
- Place the V.A.G 1782 under the engine.

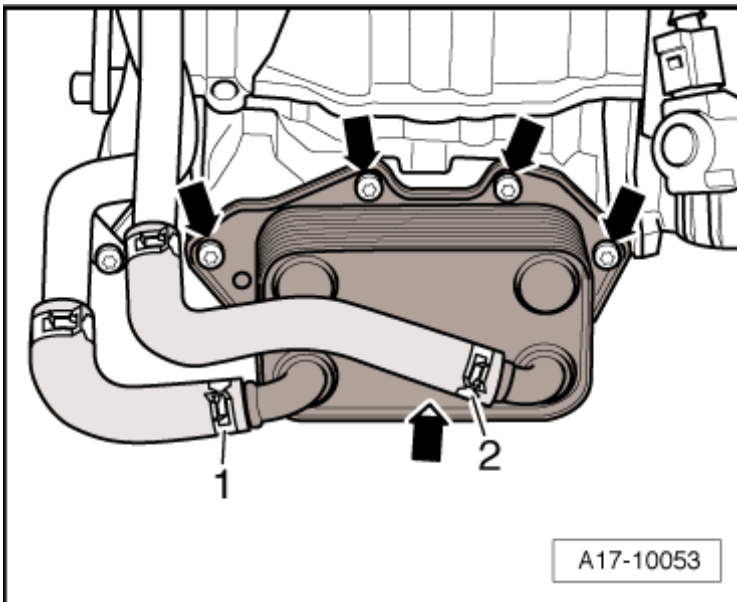


Fig. 19: Connecting/Disconnecting Coolant Hoses With Hose Clamps
 Courtesy of AUDI OF AMERICA, LLC

-- Remove the bolts -arrows- and move oil cooler to the side with the coolant hoses -1 and 2- still connected.

Vehicles with an After-Run Coolant Pump -V51-

-- Remove the after-run coolant pump. Refer to **After-Run Coolant Pump -V51-** and the oil cooler **ENGINE OIL COOLER**.

All Vehicles

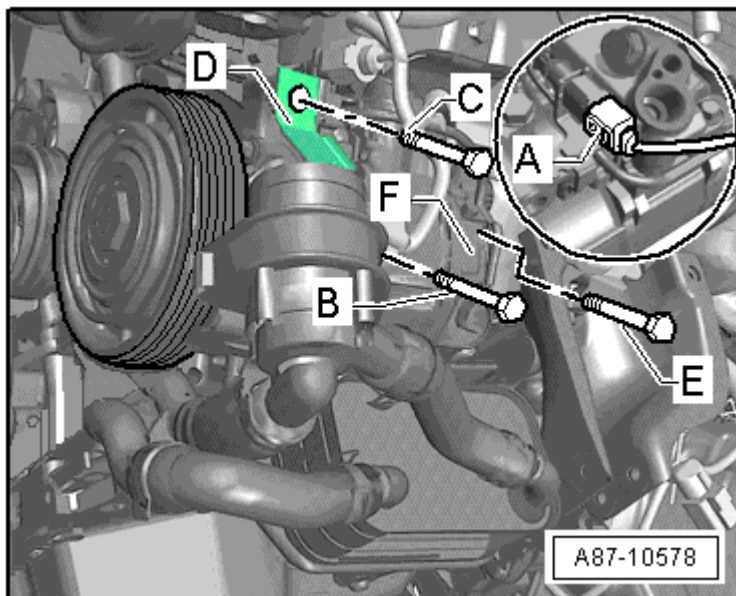


Fig. 20: Identifying A/C Compressor & Bolts

Courtesy of AUDI OF AMERICA, LLC

- Remove Air Conditioning (A/C) compressor. Refer to **Removal and Installation** .
- Install the 10 - 222 A with T40093/6 on the left and right strut towers, as shown in the illustration.

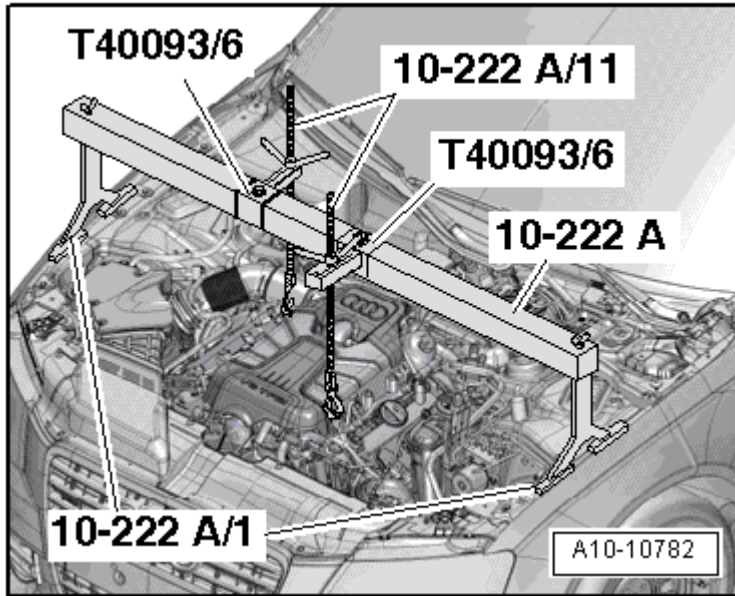


Fig. 21: Mounting 10 - 222 A With T40093/6 On Left And Right Suspension Strut Towers
Courtesy of AUDI OF AMERICA, LLC

- Attach the 10 - 222 A /11 to the left and right engine lifting eyes.
- Lightly pretension engine with spindles.

Vehicles with Hydraulic Power Steering

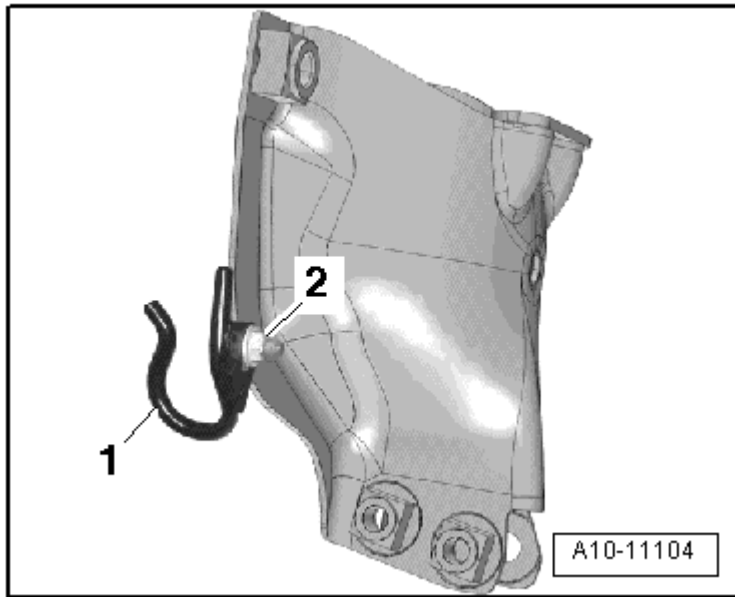


Fig. 22: Identifying Power Steering Fluid Hose Bracket For Vehicles With Hydraulic Power Steering - Tightening Specification

Courtesy of AUDI OF AMERICA, LLC

-- Remove the nut -2- and free up the bracket -1-.

All Vehicles

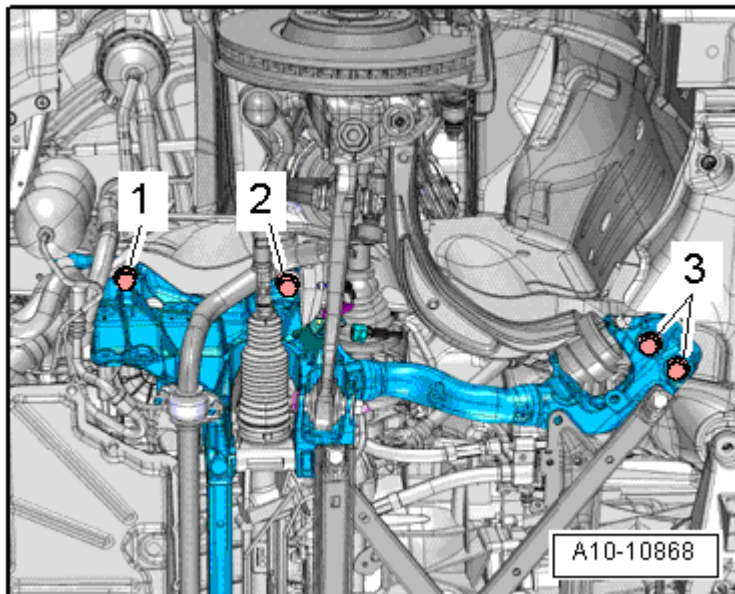


Fig. 23: Identifying Subframe Bolts (Tighten To Specifications)

Courtesy of AUDI OF AMERICA, LLC

-- Remove the left subframe bolt -2-.

NOTE: The left subframe bolts -1 and 3- and all the right subframe bolts remain installed.

-- Disconnect the connector -3- on the left electrohydraulic engine mount solenoid valve -N144-.

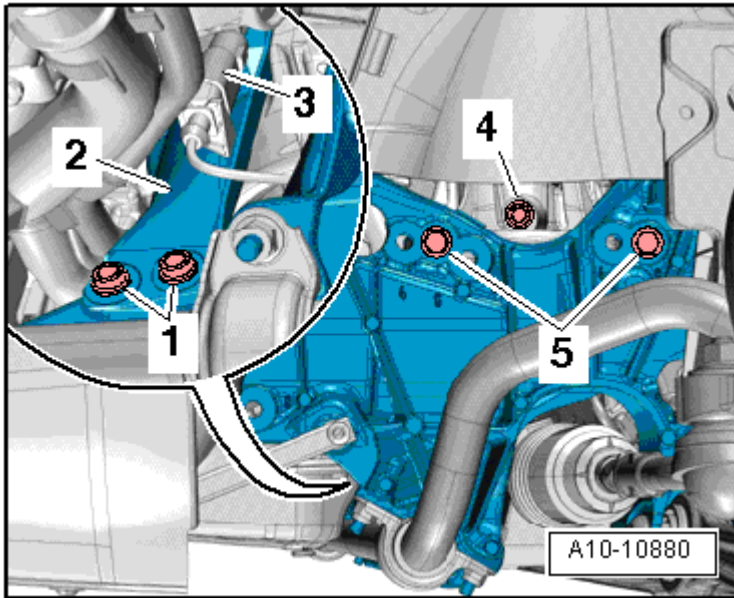


Fig. 24: Identifying Left And Right Engine Mount Bolts
Courtesy of AUDI OF AMERICA, LLC

- Remove the left engine mount bolts -1, 4 and 5-.
- Move the left engine mount retaining plate -2- to the side.
- Remove the left engine mount.

Installing

Install in reverse order of removal. Note the following:

Tightening specifications:

- SUBFRAME MOUNT OVERVIEW
- Fig. 2

NOTE: Replace bolts that are tightened to the specification.

- Tighten the subframe. Refer to Removal and Installation .
- Install A/C compressor. Refer to Removal and Installation .

2012 Audi S4

ENGINE 3.0 Liter - Engine Assembly - Engine Code(s): CCBA (Sedan)

-- Install the oil cooler. Refer to **ENGINE OIL COOLER** .

-- Install the noise insulation. Refer to **Description and Operation** .

MANUAL TRANSMISSION

ENGINE, REMOVING

NOTE:

- With lock carrier installed, engine is removed downward together with the transmission and the subframe.
- Collect escaping coolant in a clean container for disposal or reuse.
- During installation, cable ties must be installed at the same location.

Special tools and workshop equipment required

- Pry Lever - Rmv Outside Mirror 80 - 200
- Oil Collecting and Extracting Device V.A.G 1782
- Step Ladder VAS 5085
- Engine Bung Set VAS 6122
- Scissor-Type Assembly Platform VAS 6131 A with support set VAS 6131/10 and Supplementary set, Audi Q7 VAS 6131/13
- Drip Tray for VAS 6100 VAS 6208
- Hose Clip Pliers VAS 6362
- Puller for Gear Shaft Linkage T40160

Procedure

WARNING: Risk of vehicle tipping over with the engine removed.

- Secure vehicle. Luggage compartment must be empty for this.

There is a risk of injury because the fuel is under very high pressure.

- Reduce the fuel pressure down to residual pressure before opening high pressure area of the fuel injection system.

-- Reduce fuel pressure in high pressure area. Refer to **General Information** .

-- Position the front wheels so they are straight.

NOTE:

Release the electro-mechanical parking brake before disconnecting the battery so the driveshaft can be rotated to remove it.

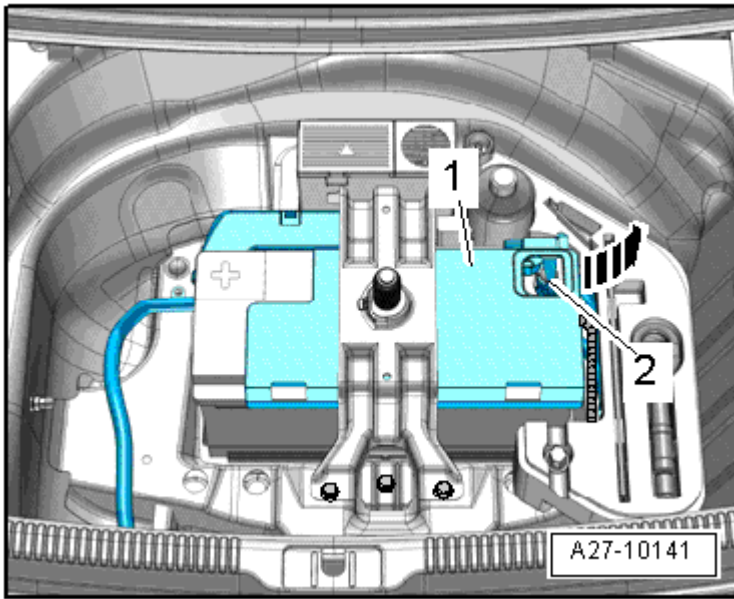


Fig. 25: Identifying Battery

Courtesy of AUDI OF AMERICA, LLC

CAUTION: Risk of destroying electrical components.

- **Observe measures for disconnecting battery.**

- Turn off the ignition and remove the key.
- Disconnect the Ground (GND) cable -2- from the battery post. Refer to **Removal and Installation** .
- Empty coolant circuit. Refer to **GENERAL INFORMATION** .

Vehicles with Hydraulic Power Steering

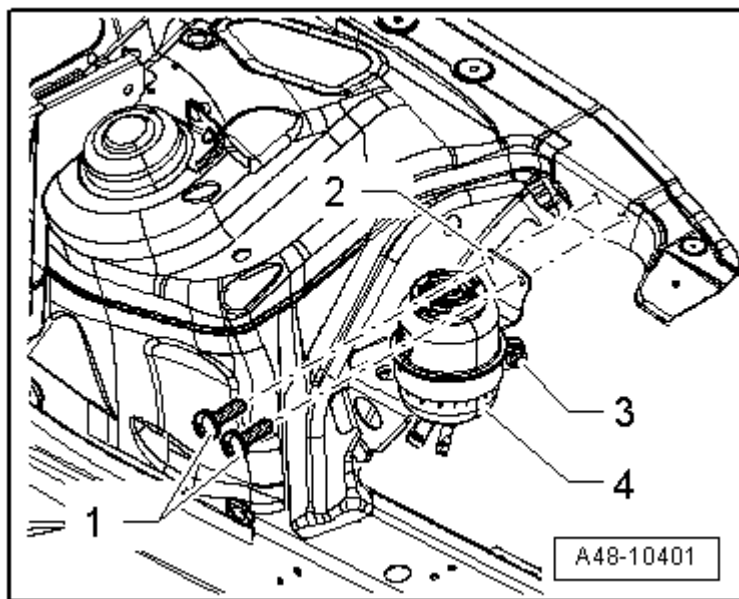


Fig. 26: Identifying Reservoir Bracket To Body
Courtesy of AUDI OF AMERICA, LLC

-- Extract the power steering fluid from the power steering reservoir using the V.A.G 1782 -3-.

NOTE: Ignore -1, 2 and 4-.

All Vehicles

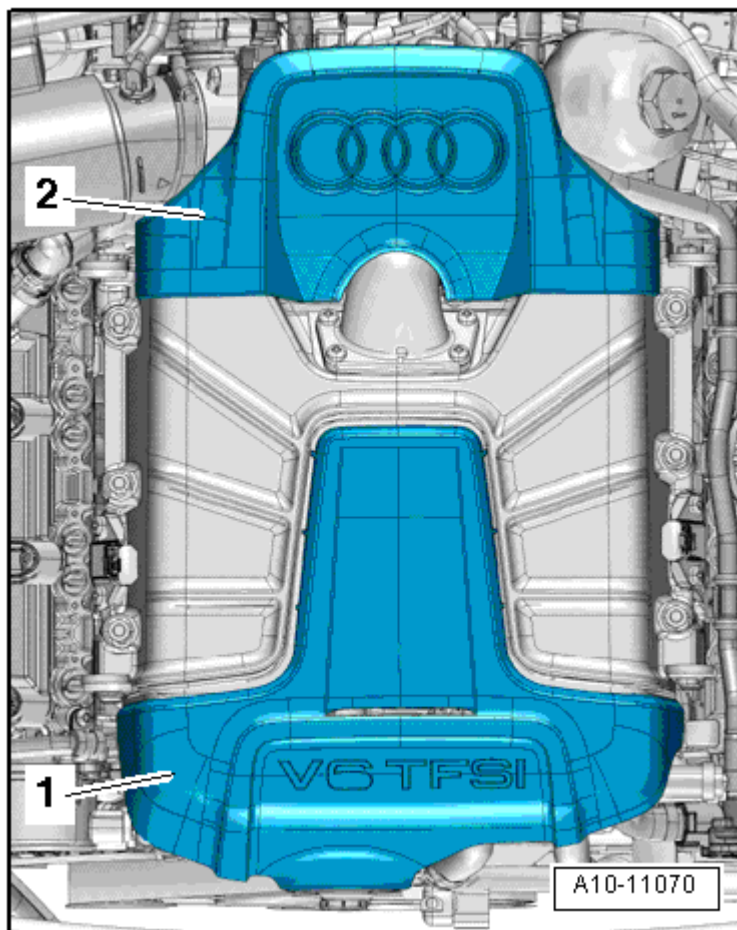


Fig. 27: Identifying Engine Cover -1- And -2-
Courtesy of AUDI OF AMERICA, LLC

-- Remove the engine covers -1 and 2- upward.

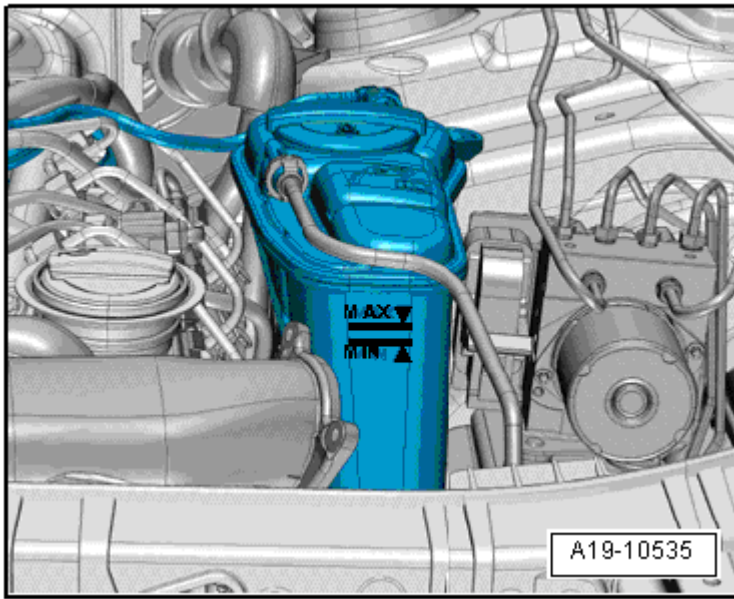


Fig. 28: Identifying Coolant Reservoir Marking
Courtesy of AUDI OF AMERICA, LLC

WARNING: Risk of scalding due to hot steam and hot coolant.

- The coolant system is under pressure when the engine is warm.
- Cover the coolant reservoir cap with a cloth and then open it slowly to release the pressure in the system.

-- Open the coolant reservoir cap.

-- Remove the left and right front wheels. Refer to **Removal and Installation** .

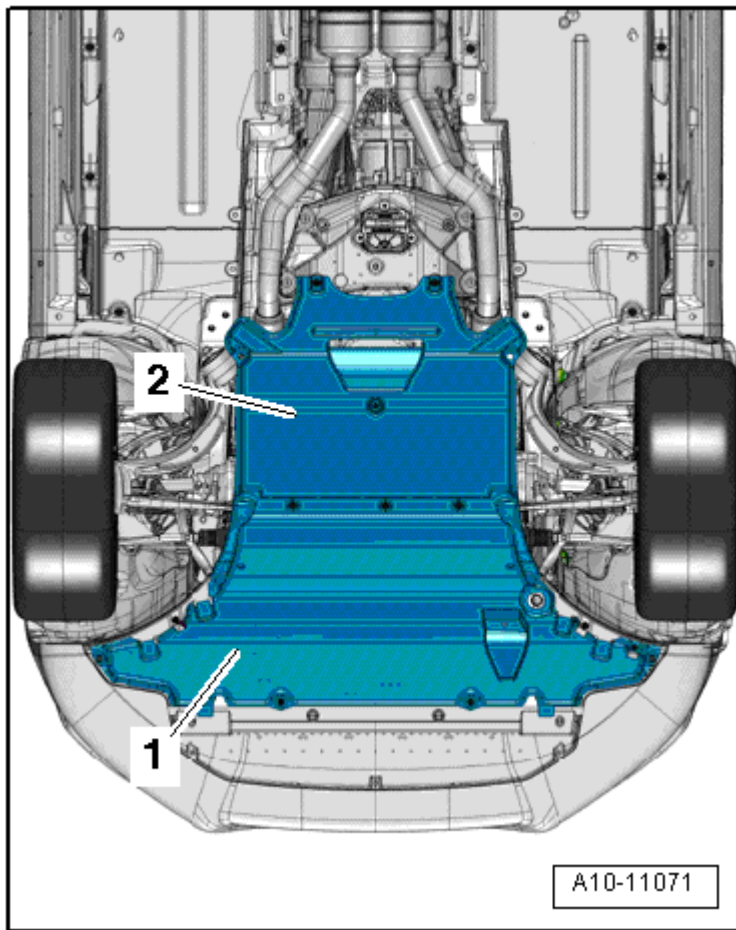


Fig. 29: Identifying Front Noise Insulation
Courtesy of AUDI OF AMERICA, LLC

- Remove left and right front wheel housing liners. Refer to **Removal and Installation** .
- Remove the noise insulation -1 and 2-. Refer to **Description and Operation** .
- Place VAS 6208 under the engine.

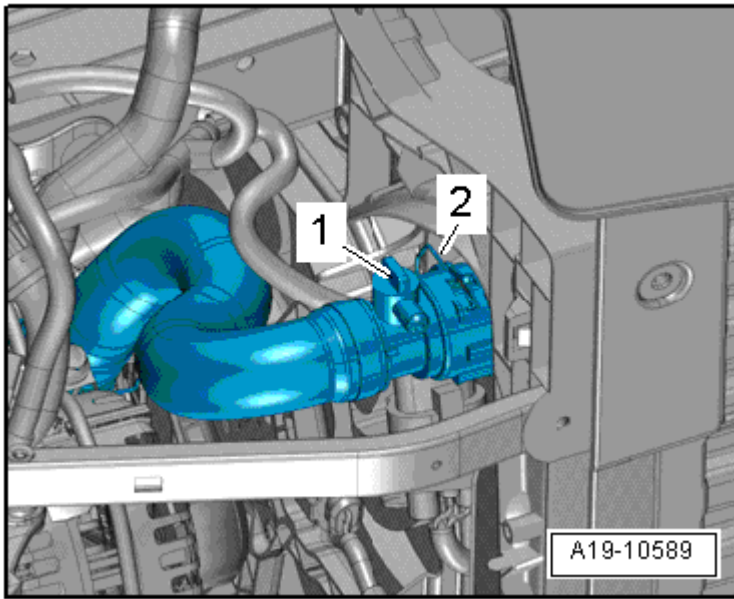


Fig. 30: Identifying Drain Plug To Coolant
Courtesy of AUDI OF AMERICA, LLC

- Remove the drain plug -1- and drain the coolant.
- Lift the clip -2- and disconnect the coolant hose from the radiator.
- Remove the coolant hose from the engine oil cooler by loosening the hose clamp -arrow- and letting the coolant drain out.

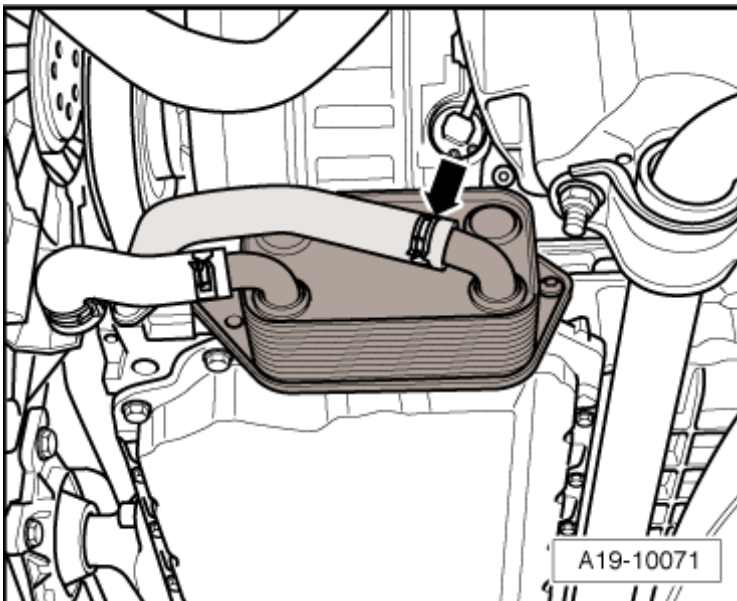


Fig. 31: Disconnecting Coolant Hose From Oil Cooler
Courtesy of AUDI OF AMERICA, LLC

NOTE: The engine is not shown in the following illustrations.

Vehicles with Left Front Coolant Pipes, Version

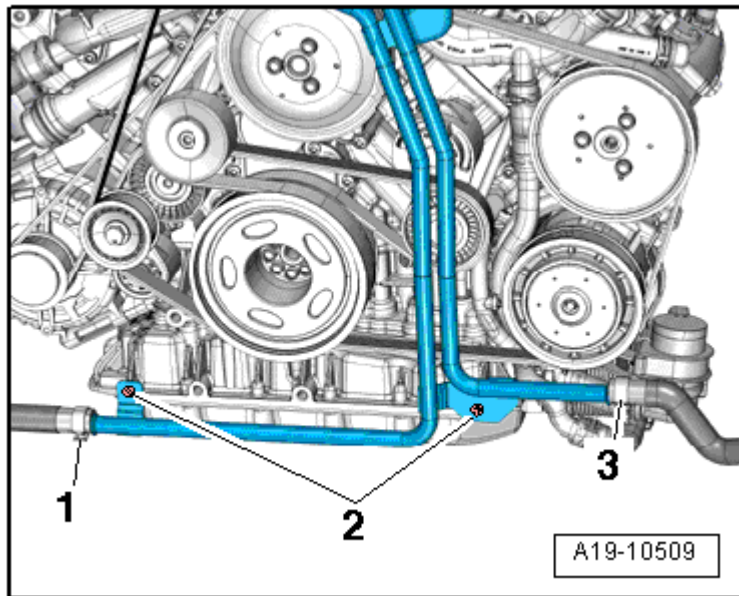


Fig. 32: Identifying Hose Clamps -1 And 3- & Left Front Coolant Hose
Courtesy of AUDI OF AMERICA, LLC

-- Loosen the hose clamps -1 and 3-, remove the left front coolant hoses from the coolant pipes and drain any remaining coolant.

NOTE: Ignore -2-.

Vehicles with Left Front Coolant Pipes, Version 2

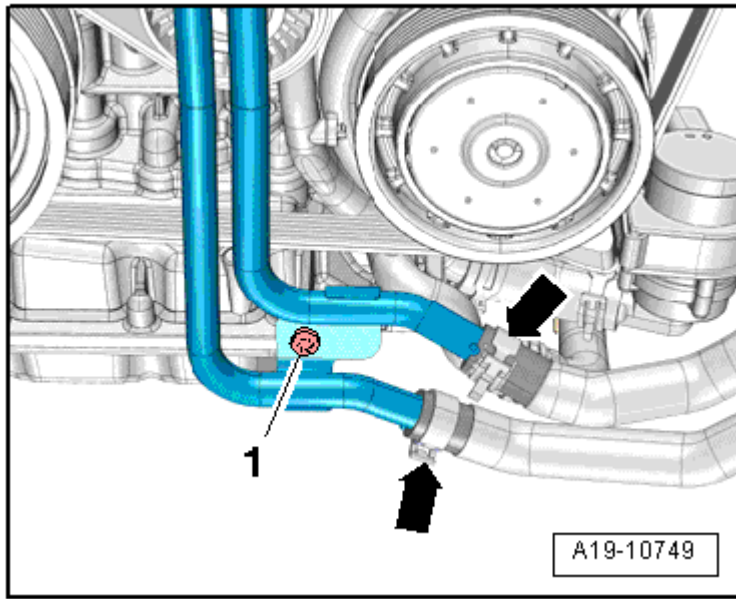


Fig. 33: Locating Lower Coolant Pipe Bolt
Courtesy of AUDI OF AMERICA, LLC

-- Loosen the clamps -arrows-, drain any remaining coolant and then remove the coolant hoses from the left front coolant pipes.

NOTE: Ignore -1-.

All Vehicles

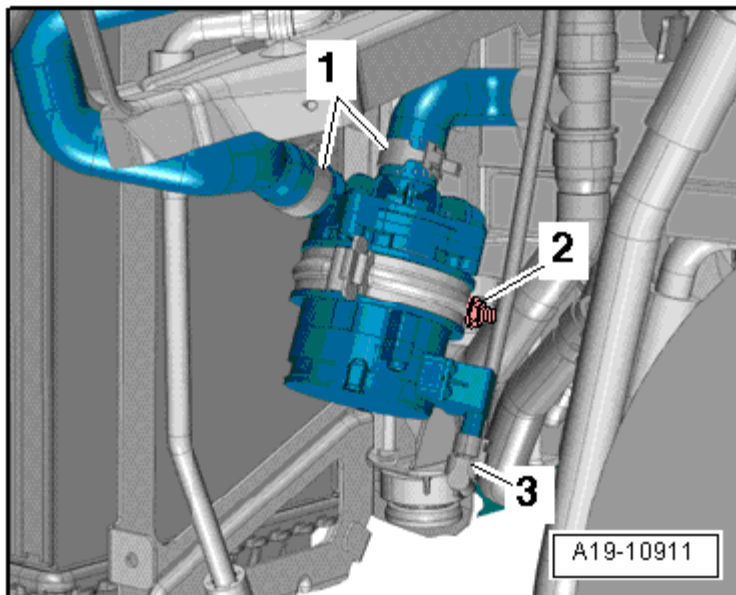


Fig. 34: Identifying Charge Air Cooling Pump -V188-, Tightening Specifications
Courtesy of AUDI OF AMERICA, LLC

-- Disconnect and free up the connector -3- on the charge air cooling pump -V188-.

NOTE: Ignore -1 and 2-.

Vehicles with Hydraulic Power Steering

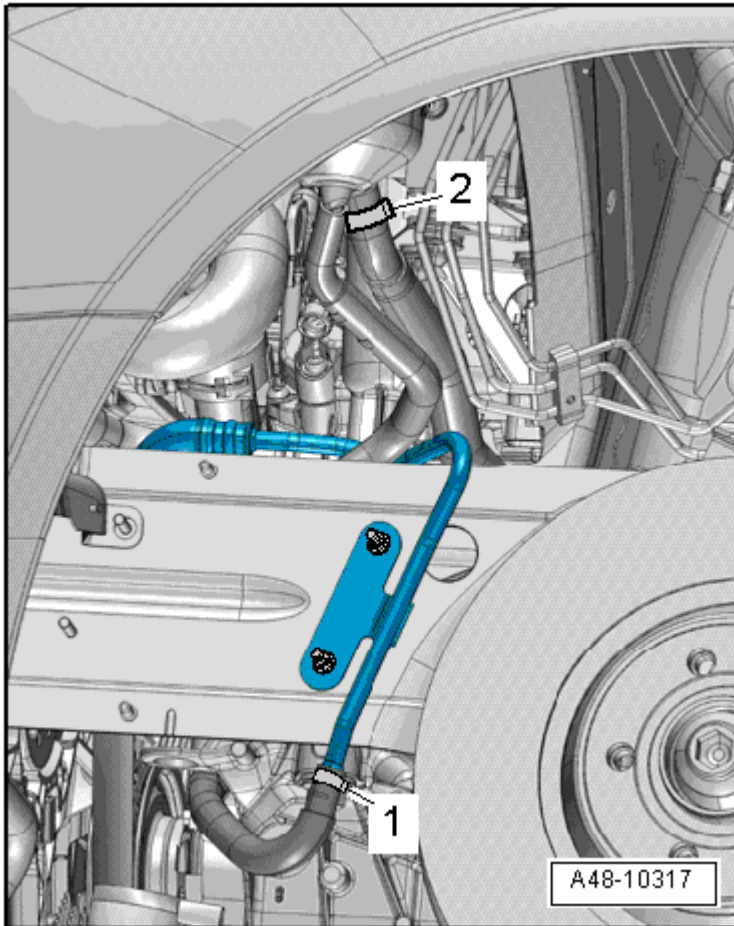


Fig. 35: Disconnecting Power Steering Hydraulic Oil Supply Line
Courtesy of AUDI OF AMERICA, LLC

-- Place the V.A.G 1782 under the disconnection point.

-- Disconnect the power steering hydraulic oil supply line -2- and return line -1- in the left front wheel housing and free them up.

-- Seal any open lines and connections with a clean plug from the VAS 6122.

Vehicles with Coolant Recirculation Pump -V50-, Version 1

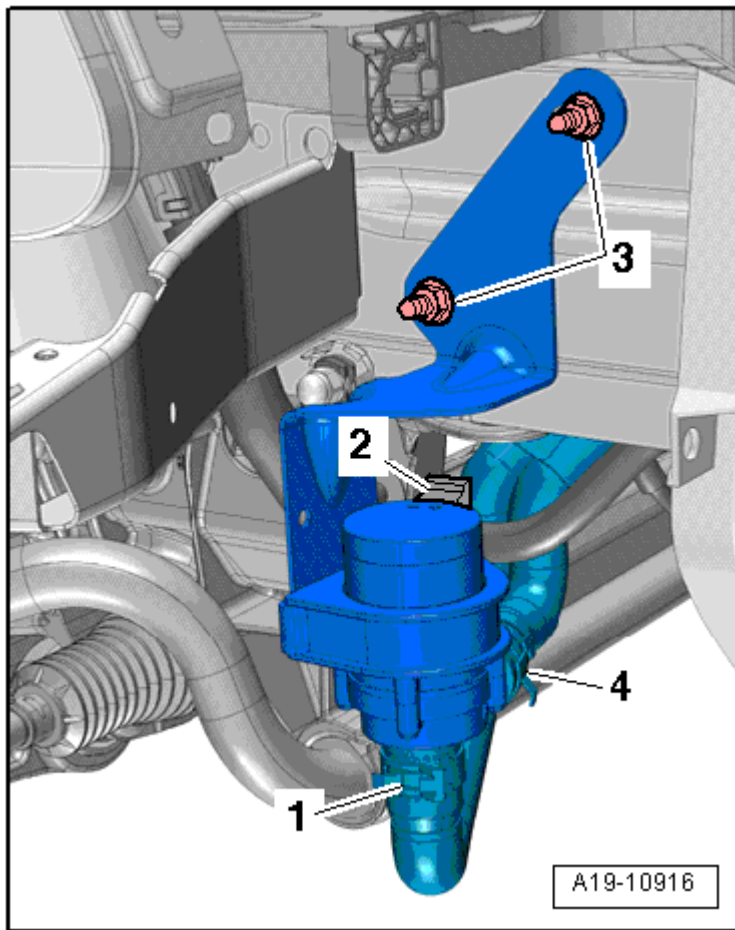


Fig. 36: Identifying Coolant Recirculation Pump Components
Courtesy of AUDI OF AMERICA, LLC

- Disconnect the connector -2-.
- Place VAS 6208 under engine.
- Loosen the hose clamp -1- and remove the coolant hose from the coolant recirculation pump.

NOTE: Ignore -3 and 4-.

All Vehicles

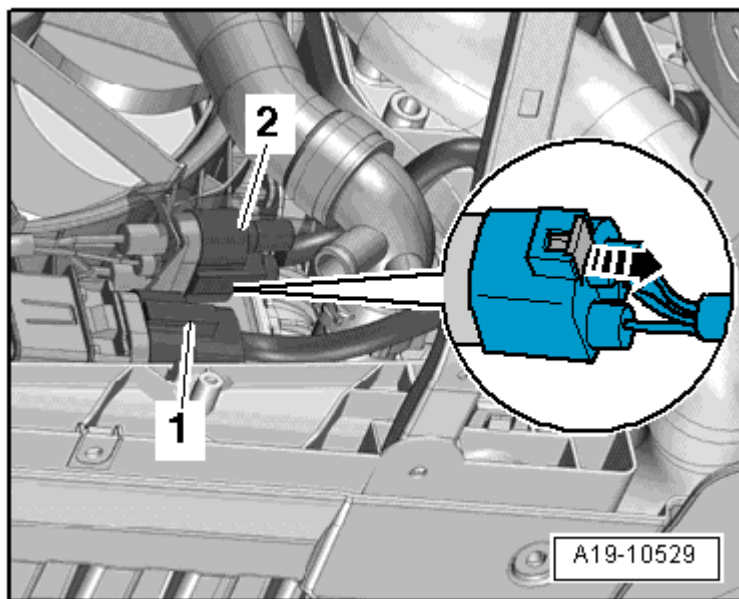


Fig. 37: Freeing Up Electrical Wiring Harness
Courtesy of AUDI OF AMERICA, LLC

-- Disconnect the radiator fan electrical connectors -1 and 2-, to do this, push the clamp to the rear -arrow- and push the release down.

-- Free up the wiring harness.

Vehicles with Secondary Air Injection (AIR) Pump Motor -V101-, Version 1:

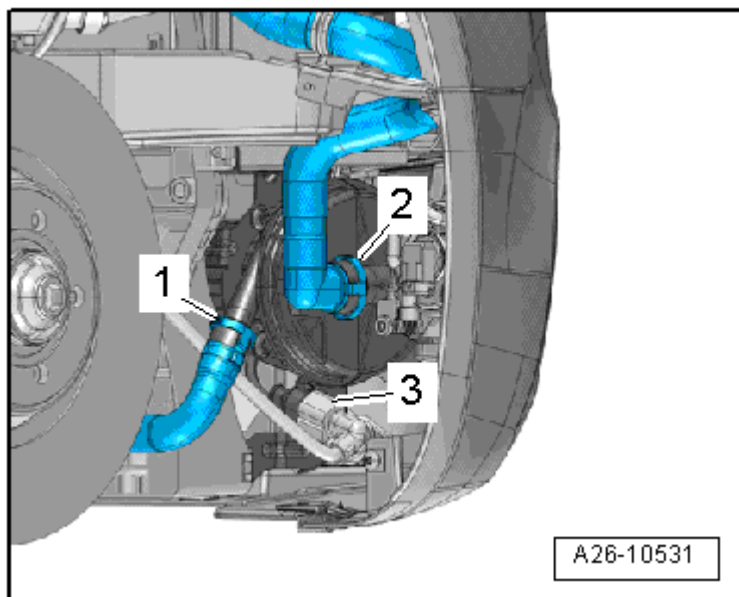


Fig. 38: Locating Secondary Air Injection (AIR) Pump Motor -V101-
Courtesy of AUDI OF AMERICA, LLC

-- Disconnect the connector -3- on the AIR pump motor.

-- Press the release buttons and remove the secondary air hose -1-.

NOTE: Ignore -2-.

Vehicles with Secondary Air Injection (AIR) Pump Motor -V101-, Version 2:

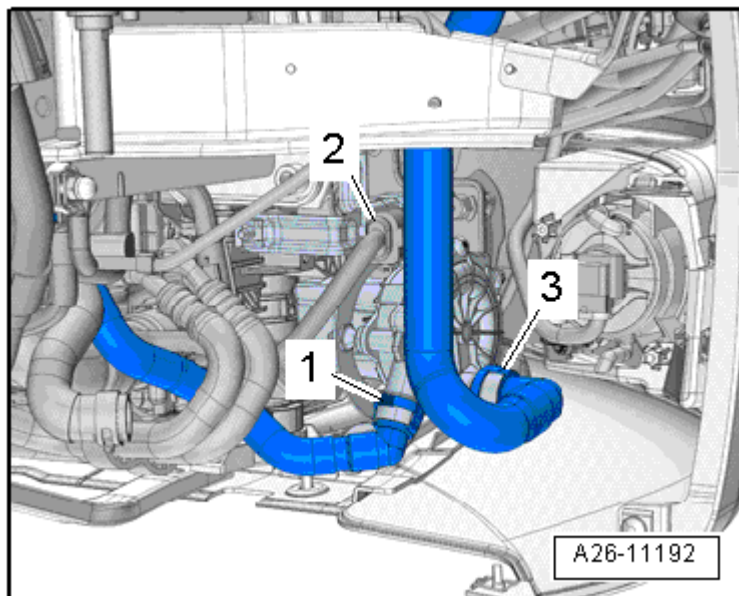


Fig. 39: Identifying Secondary Air Injection (AIR) Pump Motor Components
Courtesy of AUDI OF AMERICA, LLC

-- Disconnect the connector -2- on the AIR pump motor.

-- Press the release buttons and remove the secondary air hose -1-.

NOTE: Ignore -3-.

All Vehicles

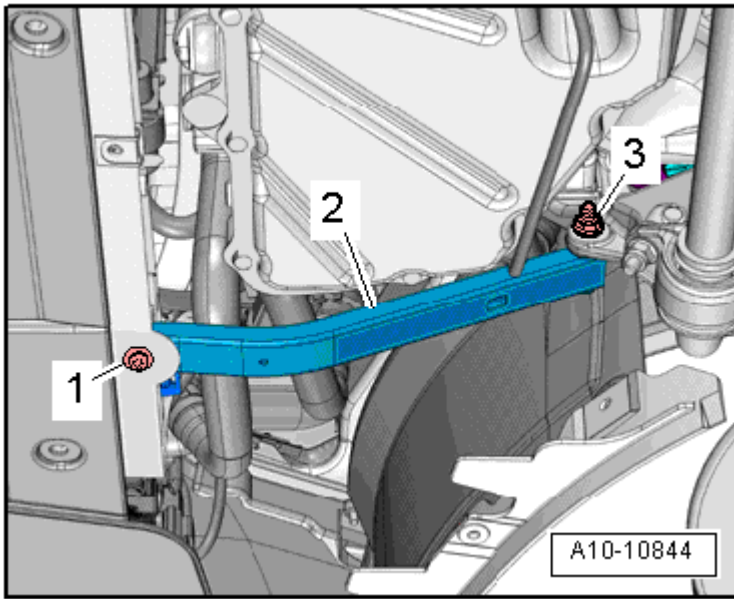


Fig. 40: Identifying Carrier Left Brace Components
Courtesy of AUDI OF AMERICA, LLC

- Remove the left and right bolt -1- and nut -3- and the lock carrier brace -2-.
- Remove the nut -arrow- on the right longitudinal member and free up the ground wires.

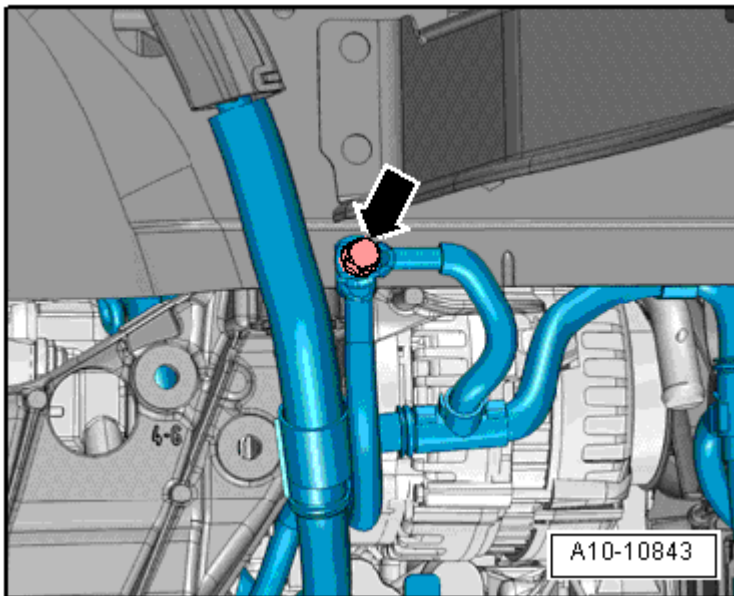


Fig. 41: Identifying Nut -Arrow- To Longitudinal Member
Courtesy of AUDI OF AMERICA, LLC

- Remove the seal from the plenum chamber bulkhead.

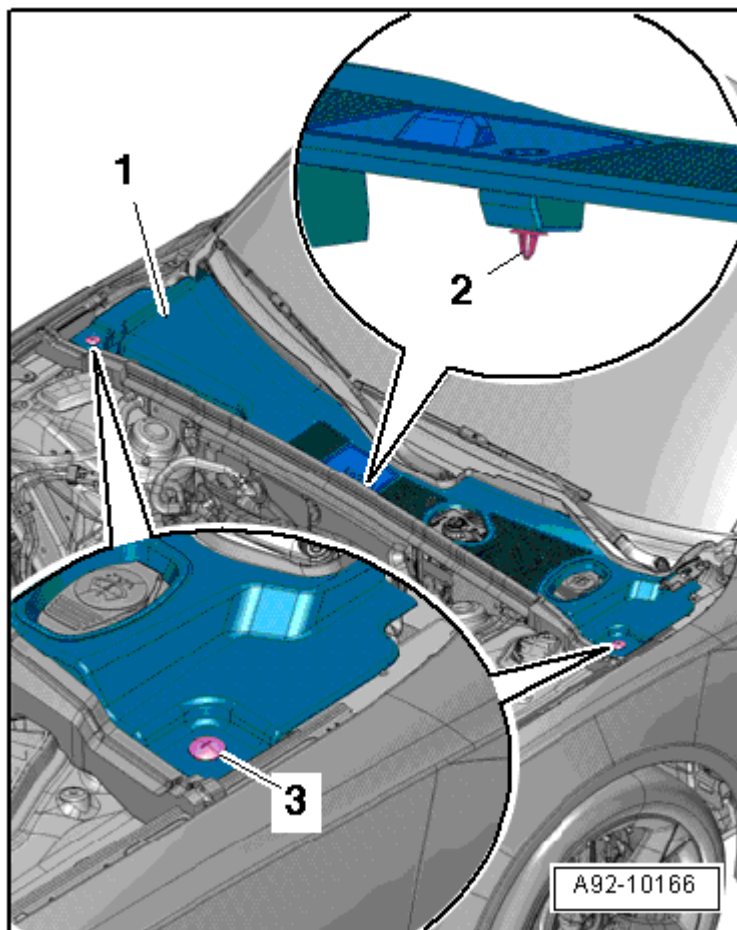


Fig. 42: Identifying Plenum Chamber Cover, Removal
Courtesy of AUDI OF AMERICA, LLC

- Remove the plenum chamber cover. Refer to **Removal and Installation** .
- Remove the air duct -arrows-.

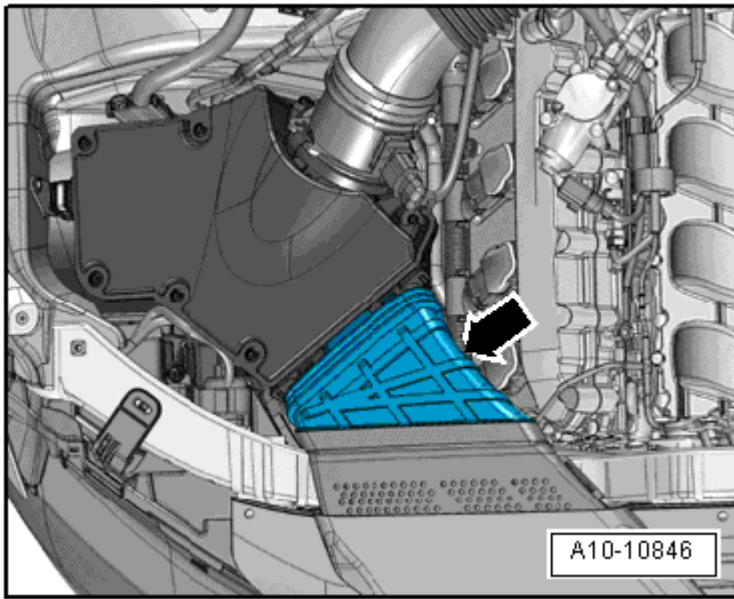


Fig. 43: Identifying Air Duct

Courtesy of AUDI OF AMERICA, LLC

-- Free up the fuel hose -1- and the EVAP canister hose -2- on the air duct pipe.

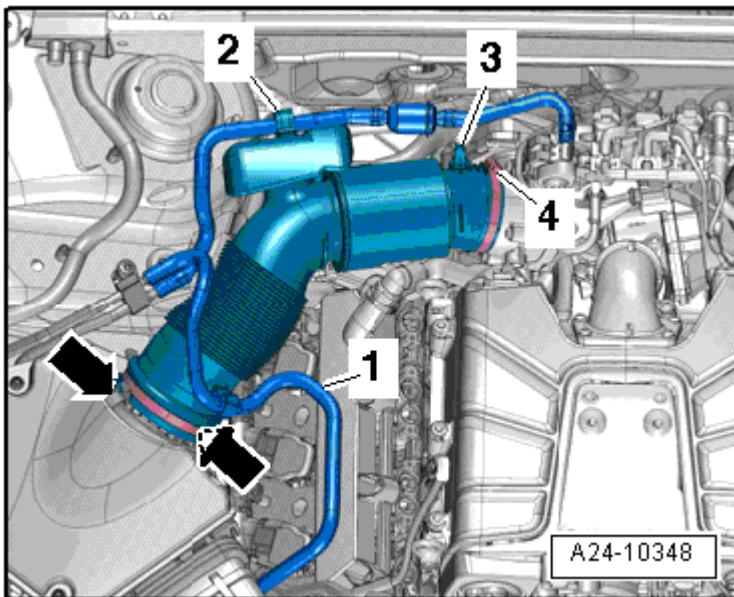


Fig. 44: Identifying Air Guide Pipe

Courtesy of AUDI OF AMERICA, LLC

-- Remove the vacuum hose -3- from the air guide pipe connection.

-- Remove the air guide pipe by loosening the hose clamp -4- and opening the clips -arrows-.

-- Remove the air filter housing and, if applicable, disconnect the electrical connector -arrow- on the rear side at

the intake air switch-over valve -N335-.

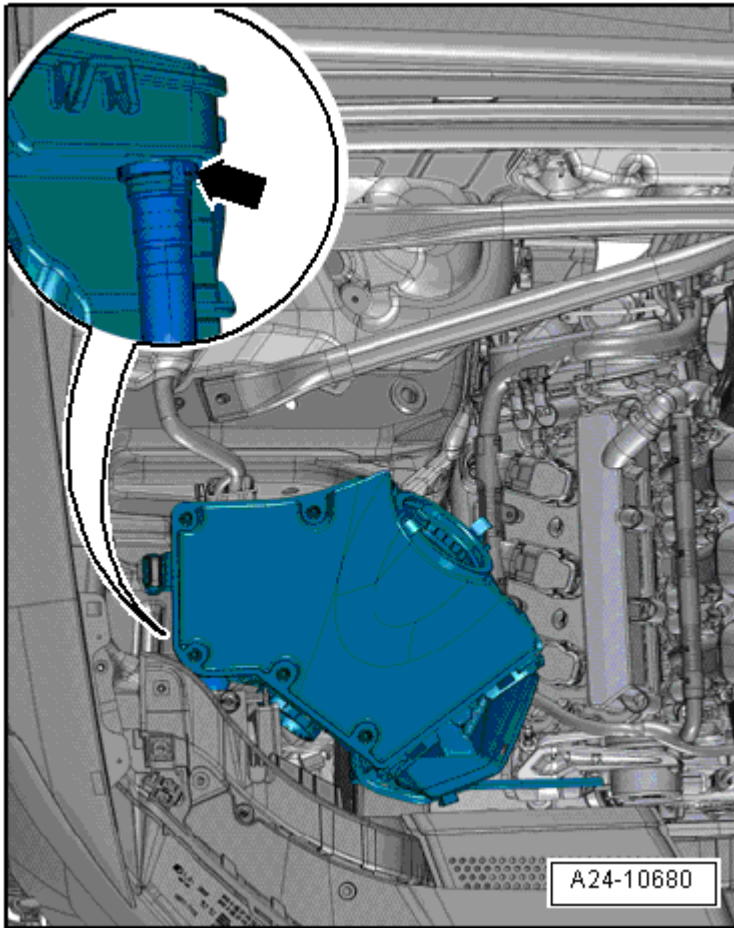


Fig. 45: Identifying Intake Air Switch-Over Valve Connector
Courtesy of AUDI OF AMERICA, LLC

-- Disconnect the vacuum connection -2- from the plenum chamber bulkhead. Remove the vacuum hose -1- on the back.

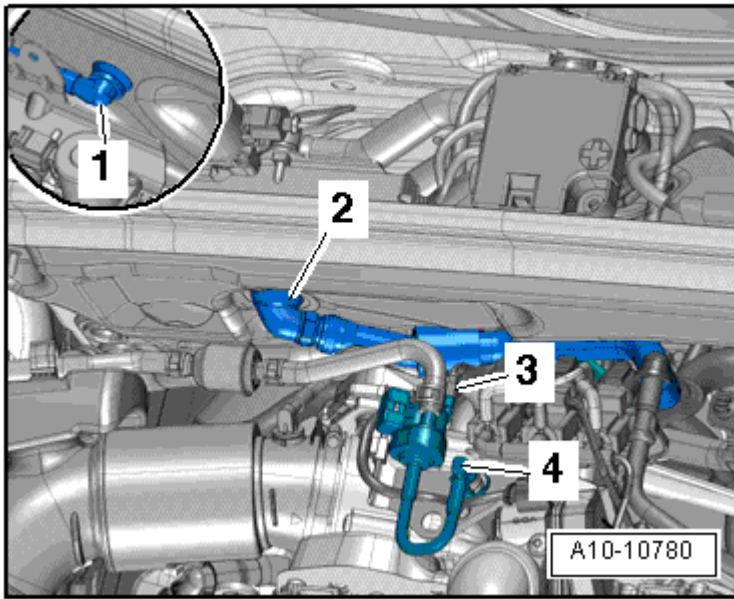


Fig. 46: Identifying Evaporative Emission (EVAP) Canister Purge Regulator Valve 1 -N80- -3- Connector
Courtesy of AUDI OF AMERICA, LLC

- Disconnect the connector -3- on the Evaporative Emission (EVAP) canister purge regulator valve 1 -N80- and disconnect the vacuum hose -4-.
- Disengage the EVAP canister purge regulator valve 1 from the bracket and lay it aside with the hoses connected.
- Disconnect the vacuum hose leading to the leak detection pump -V144- -arrow-.

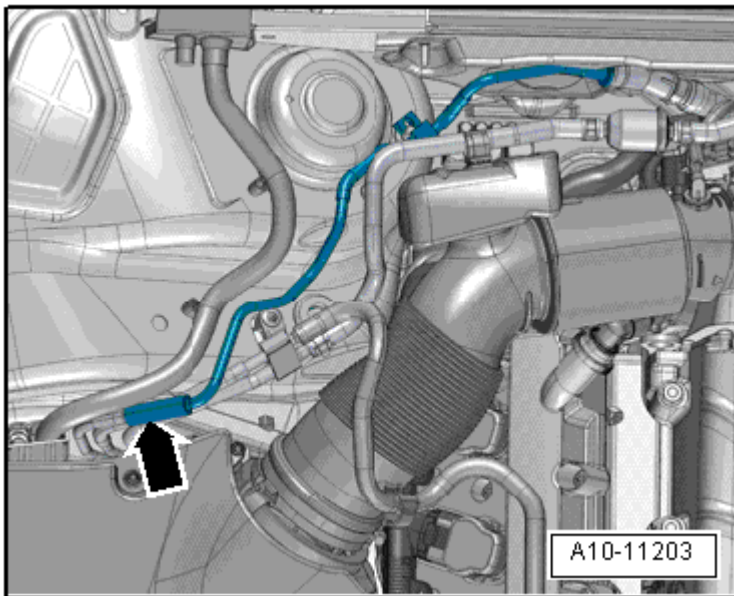


Fig. 47: Identifying Leak Detection Pump Vacuum Hose
Courtesy of AUDI OF AMERICA, LLC

Vehicles with Version 1

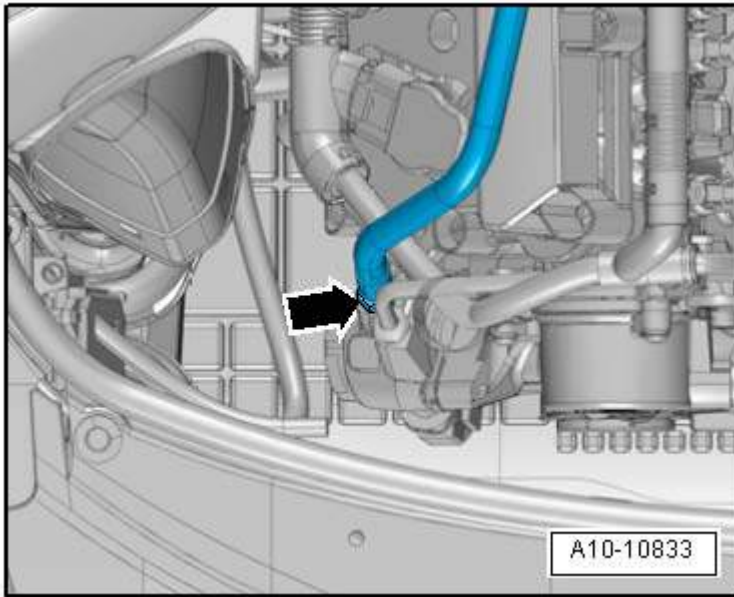


Fig. 48: Identifying Fuel Supply Hose
Courtesy of AUDI OF AMERICA, LLC

WARNING: Risk of injury from fuel.

- To reduce the fuel pressure, lay cloths around the connecting point before opening fuel system and carefully loosen.

CAUTION: There is a risk of contamination.

- Follow the guidelines for cleanliness when working on the fuel supply system. Refer to CLEAN WORKING CONDITIONS .

- Remove the fuel supply line from the high pressure pump -arrow- and lay it aside.
- Seal any open lines and connections with a clean plug from the VAS 6122.
- Lift the clamp -arrow- and remove the coolant hose leading to the back of the heater core on the engine.

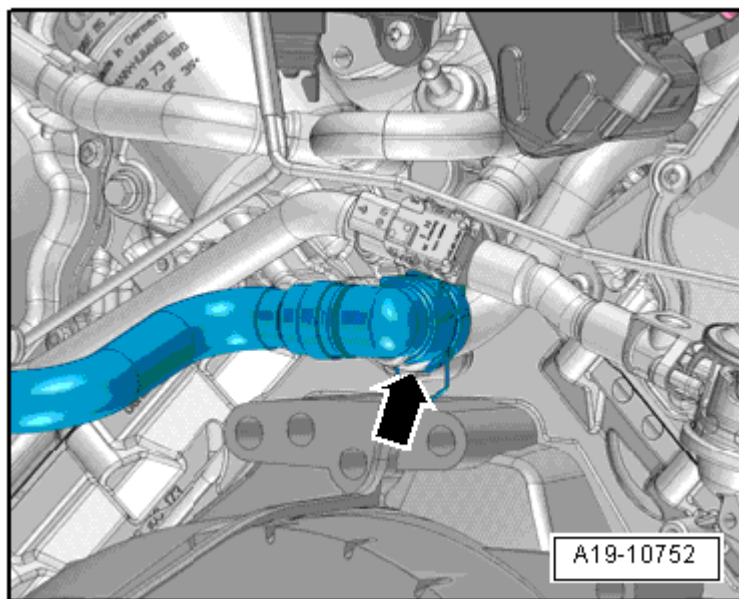


Fig. 49: Identifying Coolant Hose Clamp
 Courtesy of AUDI OF AMERICA, LLC

NOTE: To provide a better illustration, component location is shown from behind with the engine removed.

-- Disconnect the vacuum hose -1- and free it up.

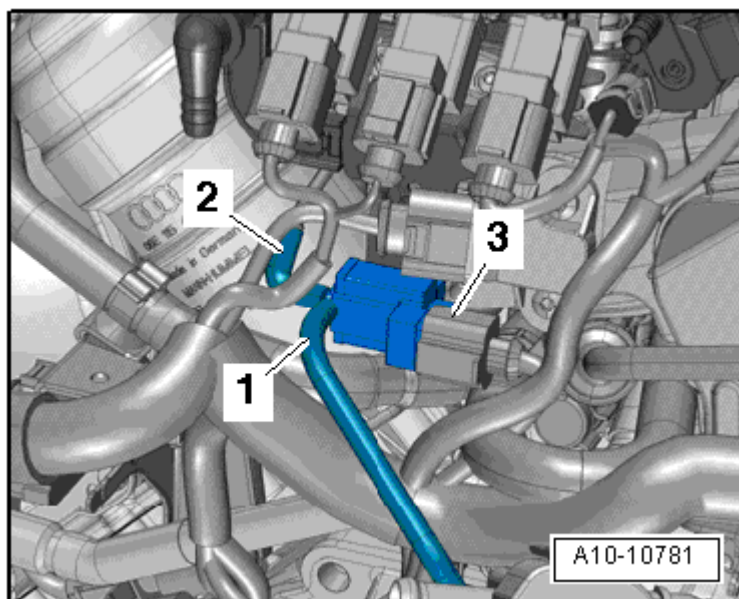


Fig. 50: Disconnecting Connector & Vacuum Hoses
 Courtesy of AUDI OF AMERICA, LLC

NOTE: Ignore -2 and 3-.

Vehicles with Version 2

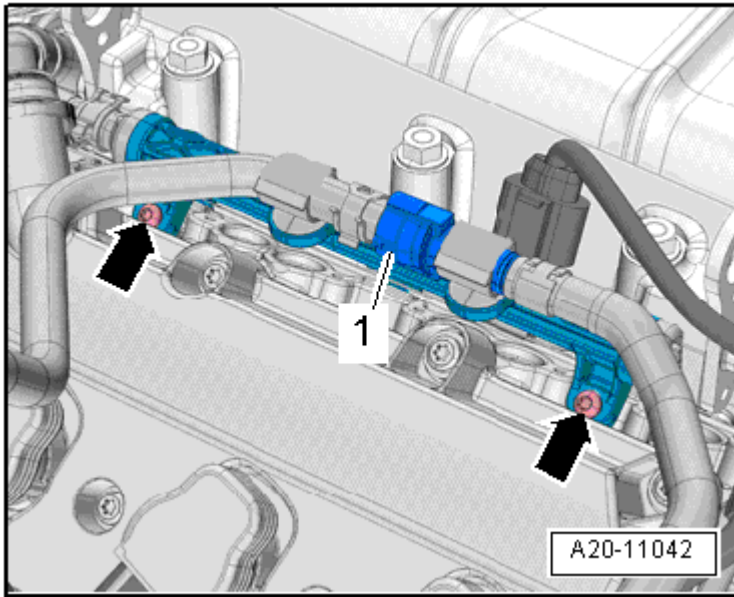


Fig. 51: Identifying Version 2 Cylinder Bank 1 (Right)
Courtesy of AUDI OF AMERICA, LLC

WARNING: Risk of injury from fuel.

- To reduce fuel pressure, lay cloths around the connecting point before opening the fuel system and carefully loosen.

CAUTION: There is a risk of contamination.

- Follow the guidelines for cleanliness when working on the fuel supply system. Refer to CLEAN WORKING CONDITIONS .

-- Press the release buttons and disconnect the fuel hose -1-.

-- Seal any open lines and connections with a clean plug from the VAS 6122.

NOTE: Ignore -arrows-.

-- Lift the clamp -2- and remove the coolant hose leading to the heater core on the plenum chamber bulkhead.

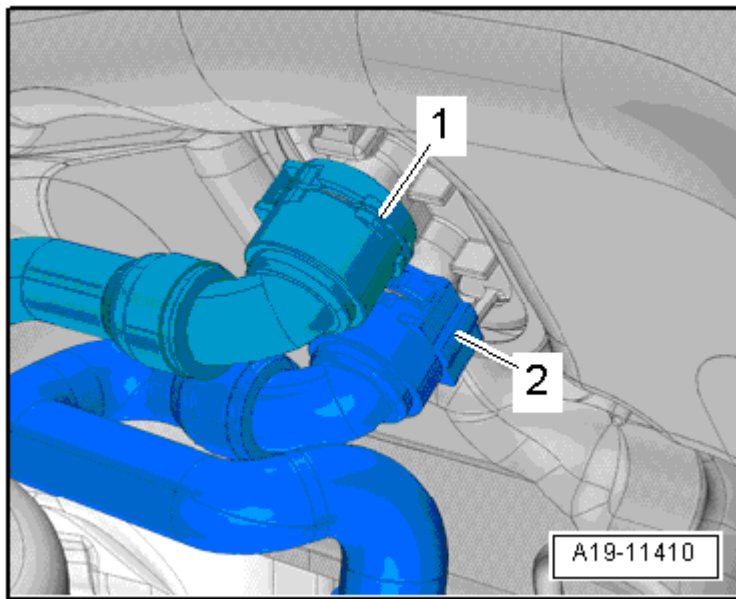


Fig. 52: Identifying Coolant Hose Clamps
Courtesy of AUDI OF AMERICA, LLC

NOTE: Ignore -1-.

All Vehicles

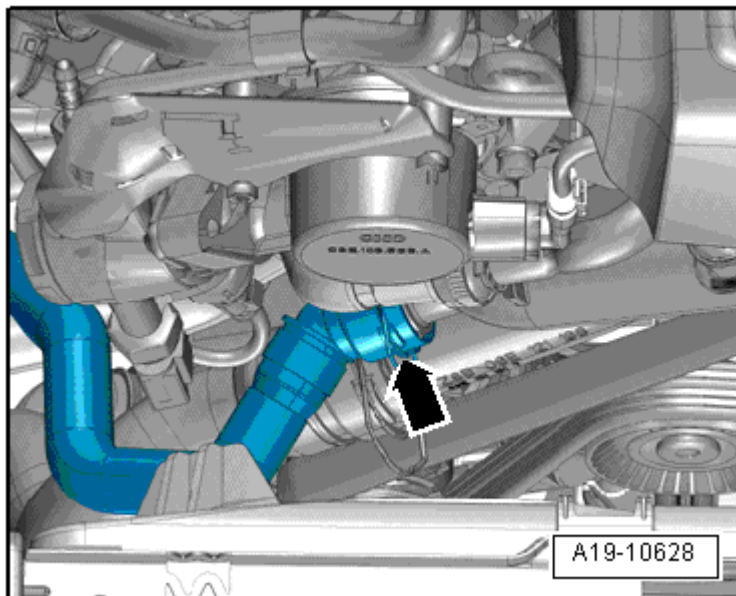


Fig. 53: Identifying Clamp And Right Front Coolant Hose -Arrow- To Front Coolant Pipe
Courtesy of AUDI OF AMERICA, LLC

-- Open the clamp and remove the right front coolant hose -arrow- from the front coolant pipe.

-- Loosen the clamp -arrow- and remove the coolant hose.

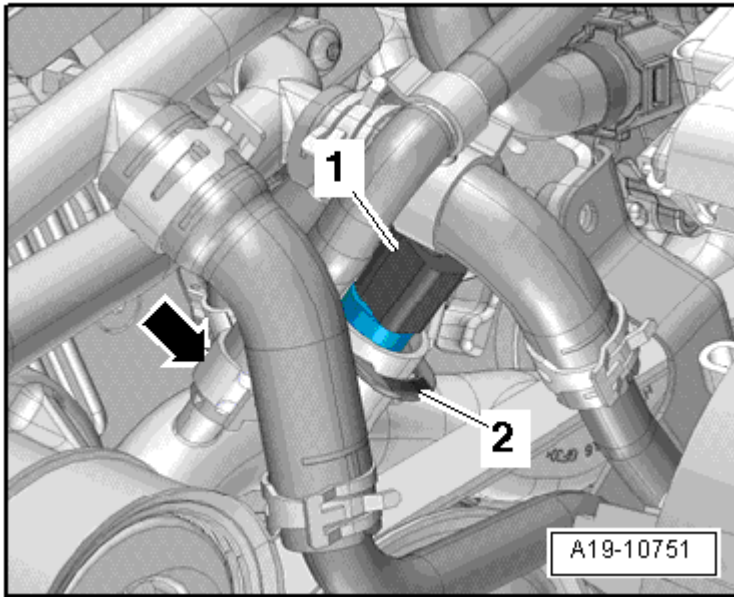


Fig. 54: Identifying Engine Coolant Temperature (ECT) Sensor -G62- And Clip
Courtesy of AUDI OF AMERICA, LLC

NOTE: Ignore -1 and 2-.

-- Lift the clamp -arrow- and remove the coolant hose from the front coolant pipe

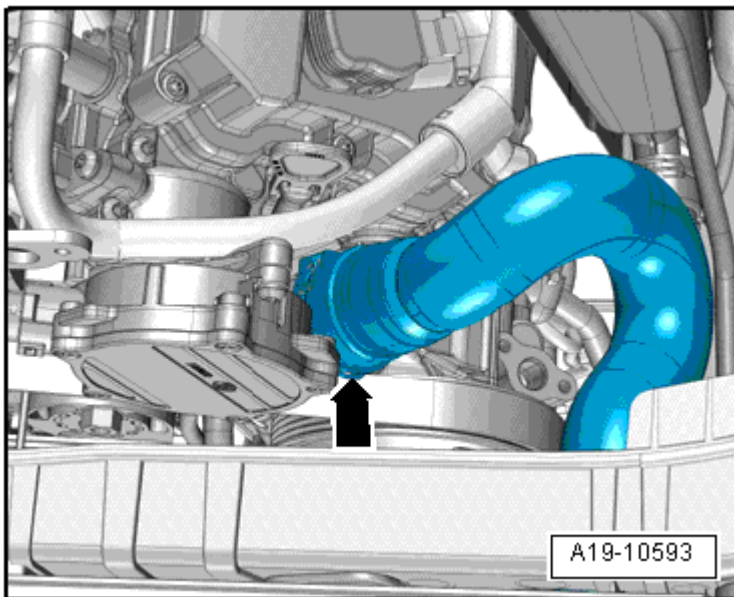
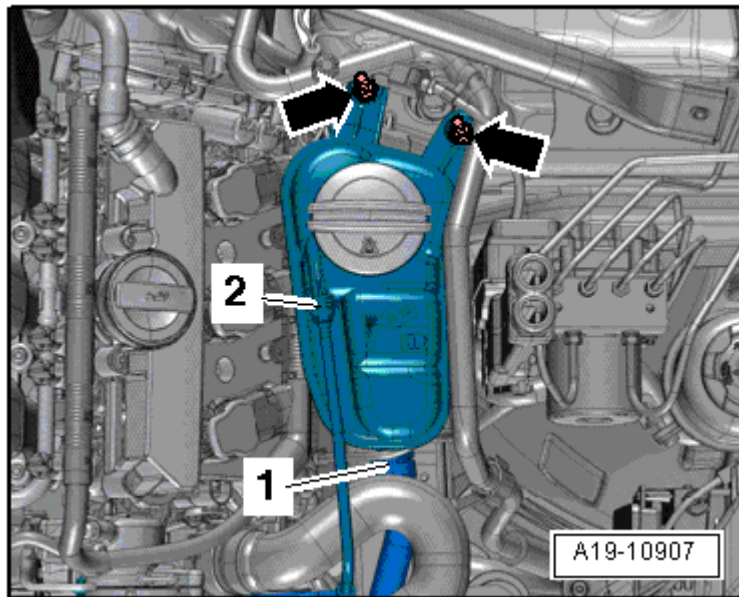
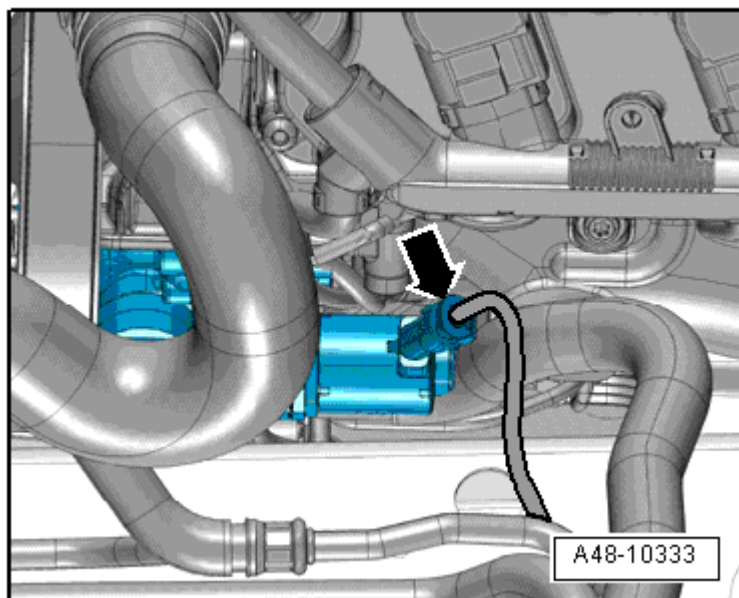


Fig. 55: Identifying Coolant Hose From Front Coolant Pipe By Lifting Retaining Clamp
Courtesy of AUDI OF AMERICA, LLC

Vehicles with Hydraulic Power Steering**Fig. 56: Identifying Coolant Overflow Reservoir**

Courtesy of AUDI OF AMERICA, LLC

- Remove the coolant hoses -1 and 2- from the coolant overflow reservoir.
- Remove the bolts -arrows-, disconnect the connector on the engine coolant level warning switch -F66- and remove the coolant reservoir.
- Disconnect the connector -arrow- from the power steering pump, if applicable.

**Fig. 57: Disconnecting Electrical Connector On Power Steering Pump, If Applicable**

Courtesy of AUDI OF AMERICA, LLC

-- Press the hydraulic hose down slightly.

All Vehicles

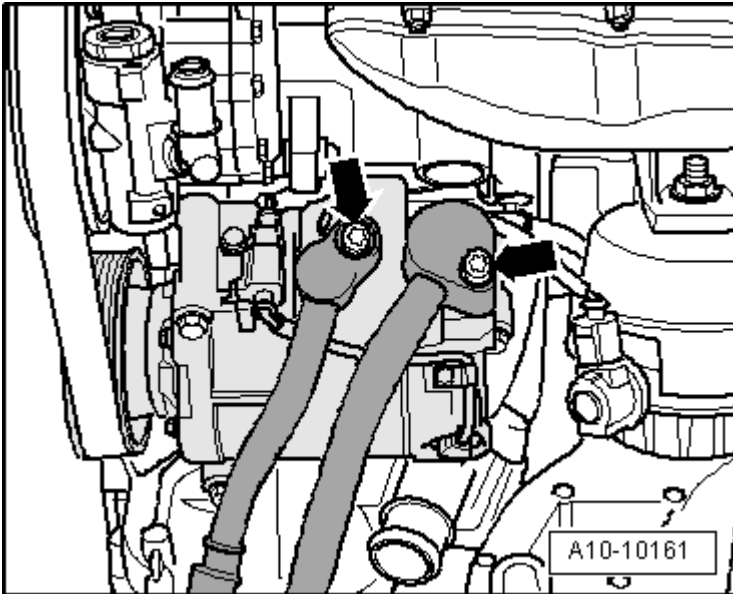


Fig. 58: Identifying Bolts

Courtesy of AUDI OF AMERICA, LLC

CAUTION: Risk of damaging refrigerant lines and hoses.

- **Do not stretch, kink or bend refrigerant lines and hoses.**

-- Remove the bolts -arrows- and the refrigerant lines from the Air Conditioning (A/C) compressor.

-- Seal any open lines and connections with a clean plug from the VAS 6122.

-- Release the retainer -arrow A- and open the cover -arrow B-.

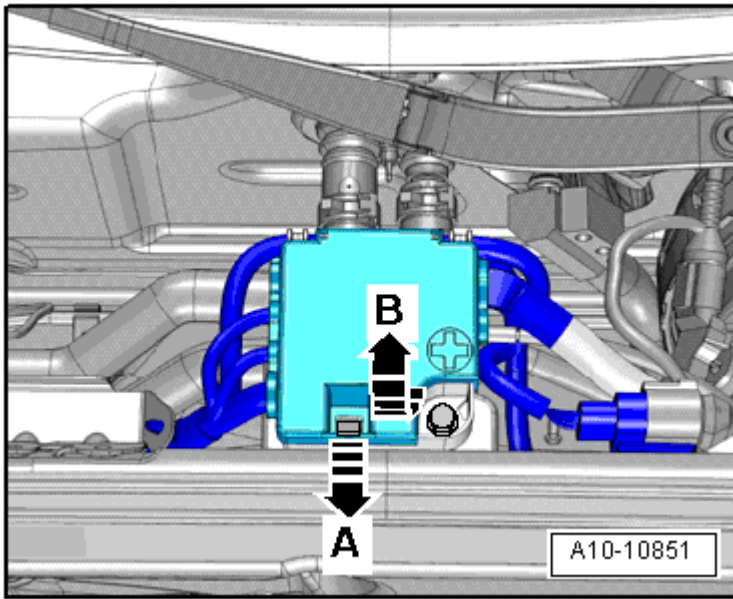


Fig. 59: Opening Terminal Box Cover
Courtesy of AUDI OF AMERICA, LLC

-- Remove the nut -1- from the electric wires.

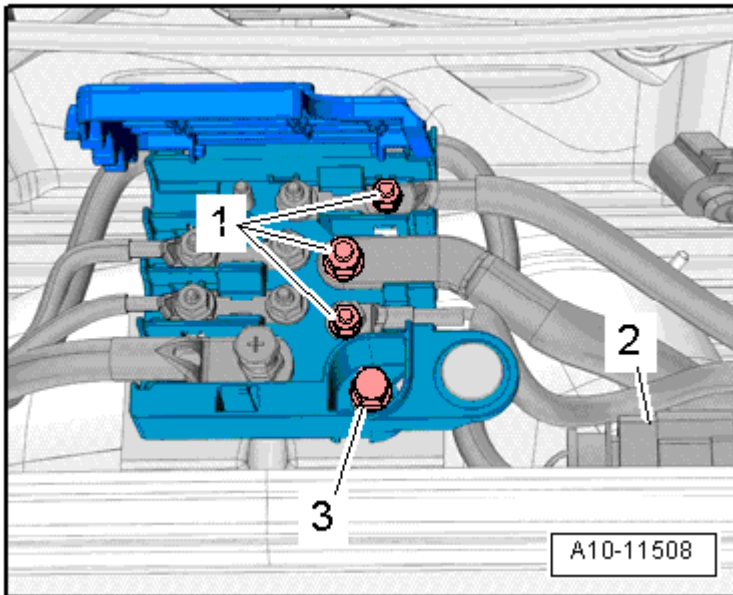


Fig. 60: Identifying Terminal Box Wire Components
Courtesy of AUDI OF AMERICA, LLC

-- Remove the electrical connector -2- from the bracket and disconnect it.

-- Remove the bolt -3- and the terminal 30 wire junction 2 -TV22- from the tower brace -arrow-.

-- Release the retainers from the wheel housing side using a 5.5 mm wrench -1- and remove the wiring bushing

-2- upward.

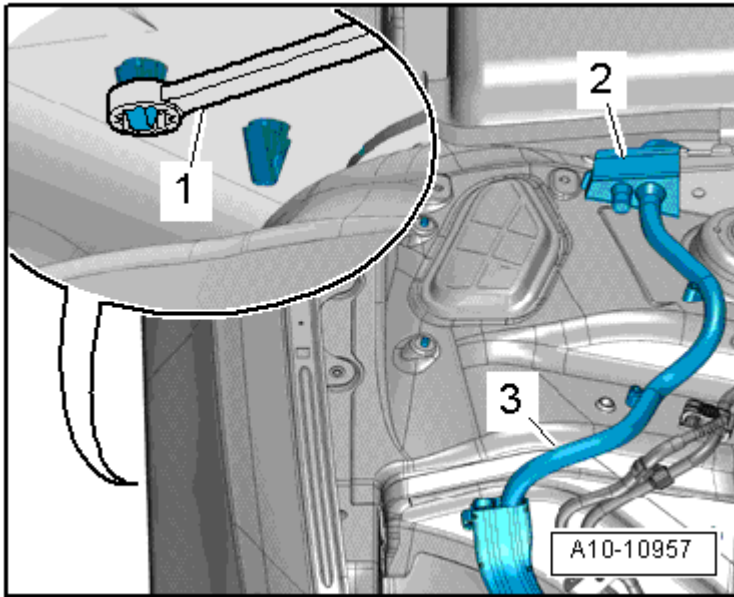


Fig. 61: Using 5.5 mm Open End Wrench To Release Retainers From Wheel Housing Side
Courtesy of AUDI OF AMERICA, LLC

-- Free up the wiring harness -3- to the generator and starter using the 80 - 200.

-- Wiring duct version 1: Free up the wiring harness by releasing the retainer -arrow B- and pulling the duct forward -arrow A-.

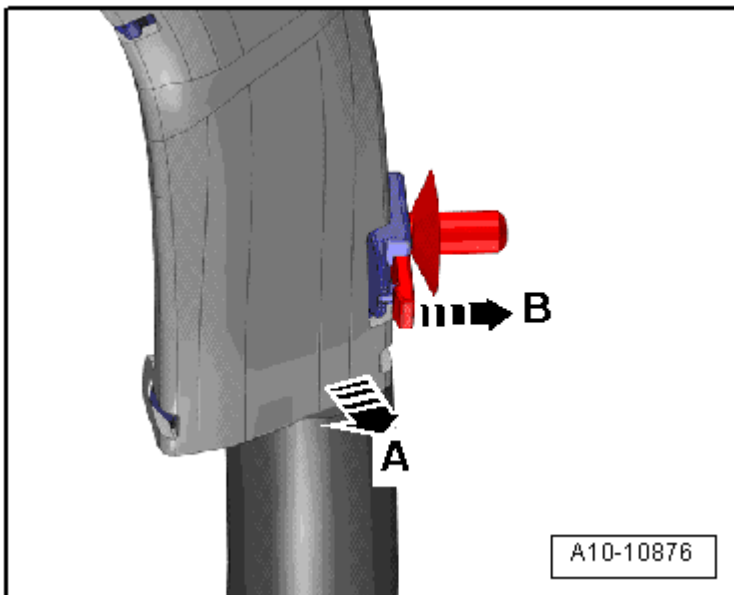


Fig. 62: Freeing Up Wiring Duct By Releasing Retainer
Courtesy of AUDI OF AMERICA, LLC

-- Wiring duct version 2: Open the catch -arrow-, free up the wiring harness and open the wiring duct -1-.

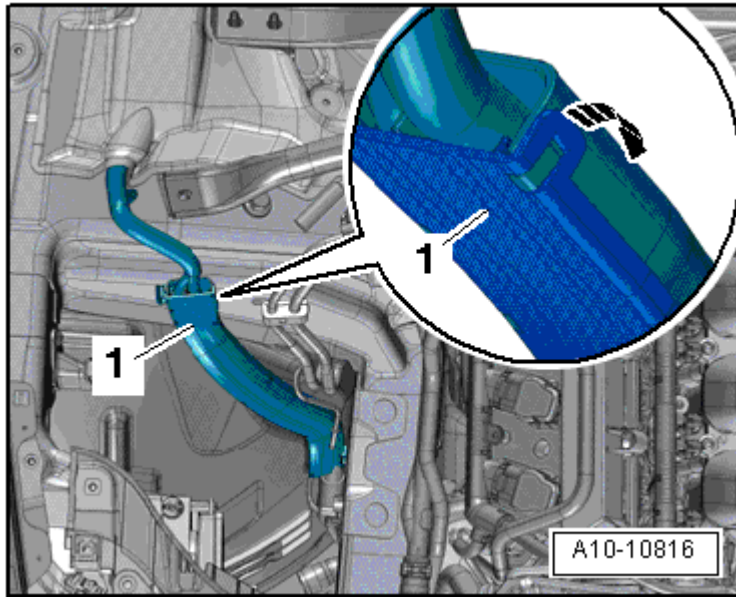


Fig. 63: Identifying Nut And Tilting Washer Fluid Reservoir Filler Neck Upward Slightly
Courtesy of AUDI OF AMERICA, LLC

-- Remove the nut -1- and tilt -arrow A- the washer fluid reservoir filler neck -2- upward slightly.

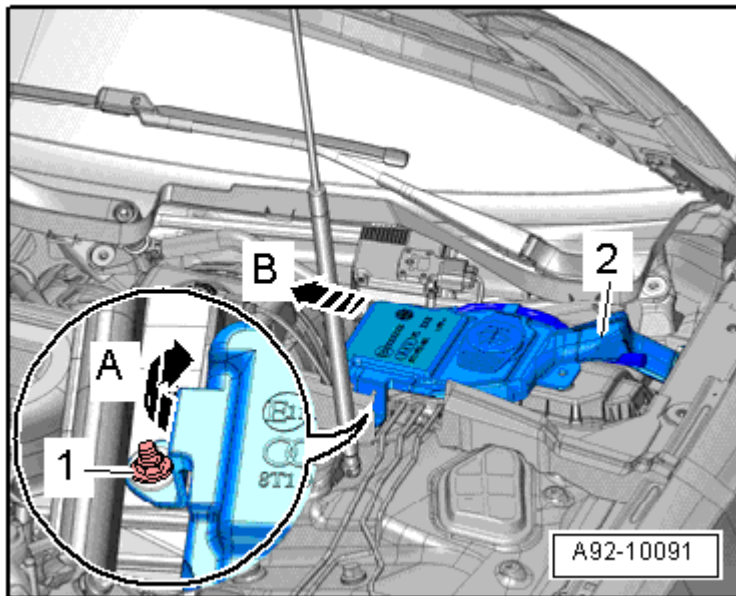


Fig. 64: Identifying Nut And Washer Fluid Reservoir Filler Neck Tilted Upward Slightly
Courtesy of AUDI OF AMERICA, LLC

-- Remove the filler neck with the filler tube from the washer fluid reservoir and the opening in the body -arrow B-.

-- Remove the bolts -1- and nuts -2- and the tower brace -3-.

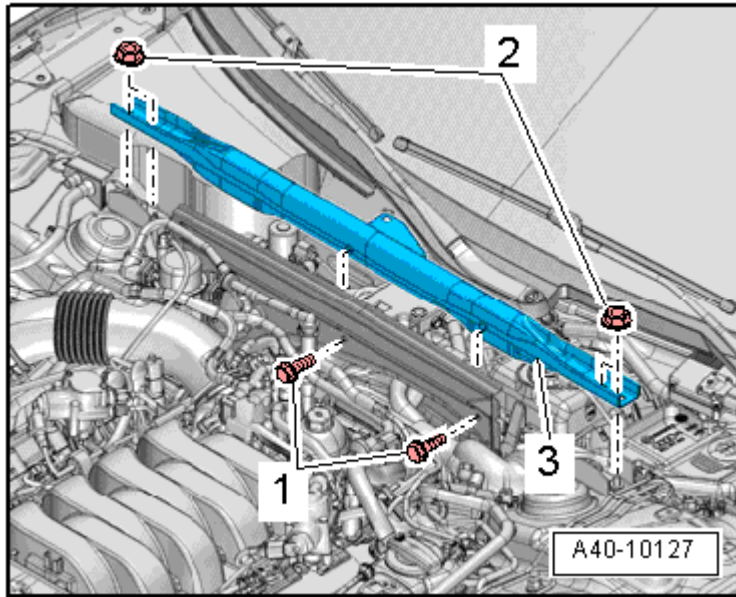


Fig. 65: Identifying Bolts, Nuts And Tower Brace
Courtesy of AUDI OF AMERICA, LLC

-- Remove the bolts -arrows- and the engine compartment E-box cover.

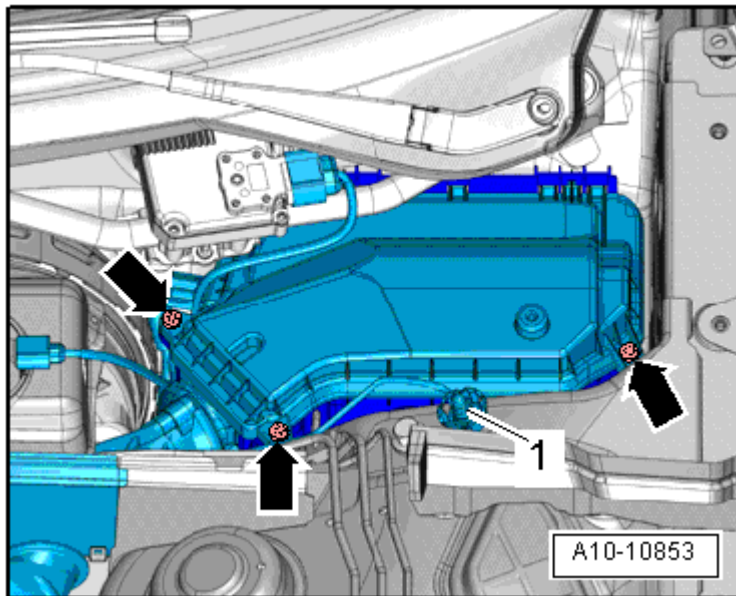


Fig. 66: Identifying E-Box Bolts & Cover
Courtesy of AUDI OF AMERICA, LLC

-- Remove the nut -1- and free up the wire.

-- Release the retainers -A arrows- and remove the Engine Control Module (ECM) -arrow B-.

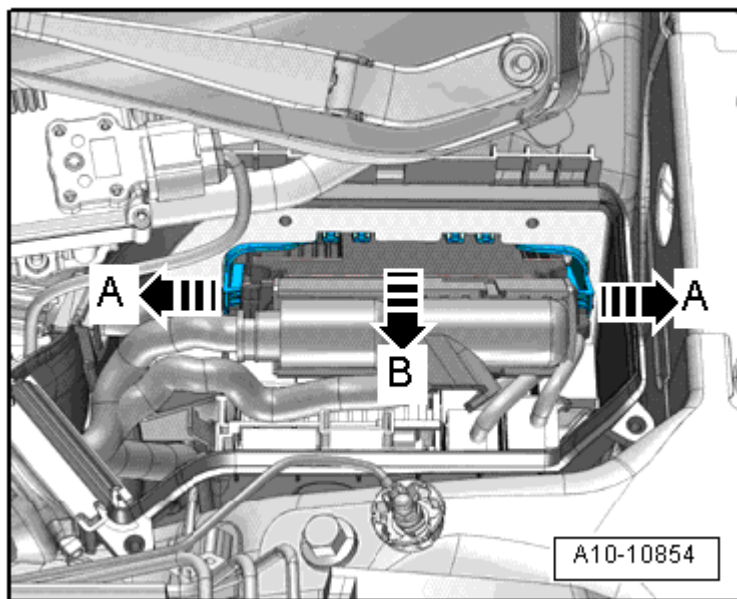


Fig. 67: Identifying Engine Control Module (ECM)
Courtesy of AUDI OF AMERICA, LLC

-- Disconnect the connector -2- if applicable.

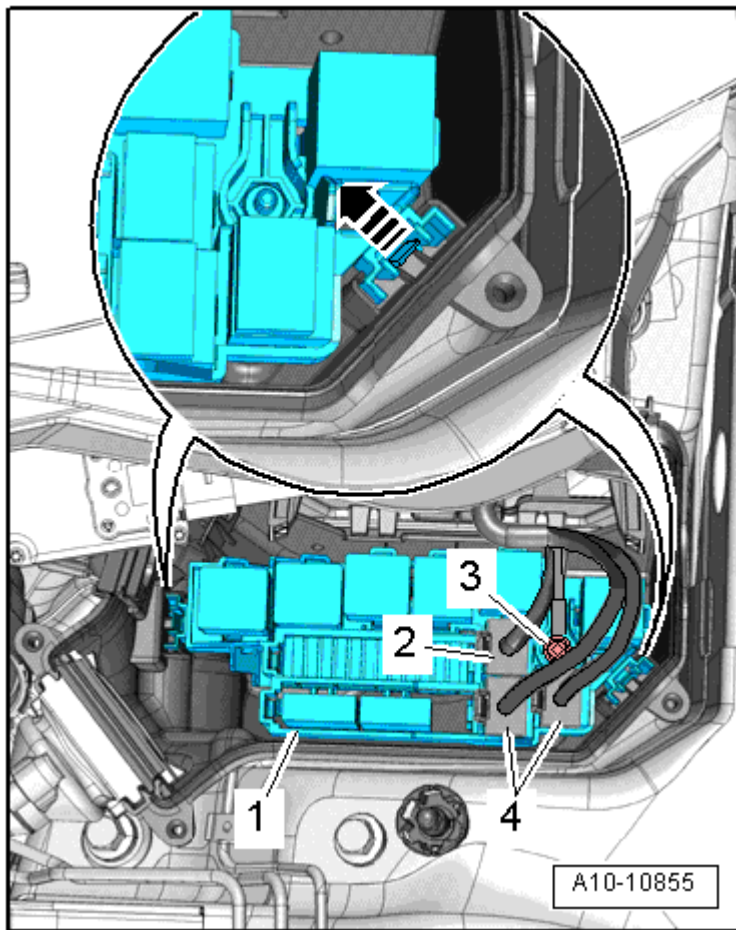


Fig. 68: Disconnecting Electrical Connectors

Courtesy of AUDI OF AMERICA, LLC

- Disconnect the connectors -4- and remove the nut -3- for the electrical wire.
- Release the retainers -arrow- and remove the relay carrier with the fuse holder -1-.
- Disengage the engine wiring harness at the engine compartment E-box and free it up.
- Release the retainers -A arrows- and remove the wiring bushing -2- upward -arrow B-.

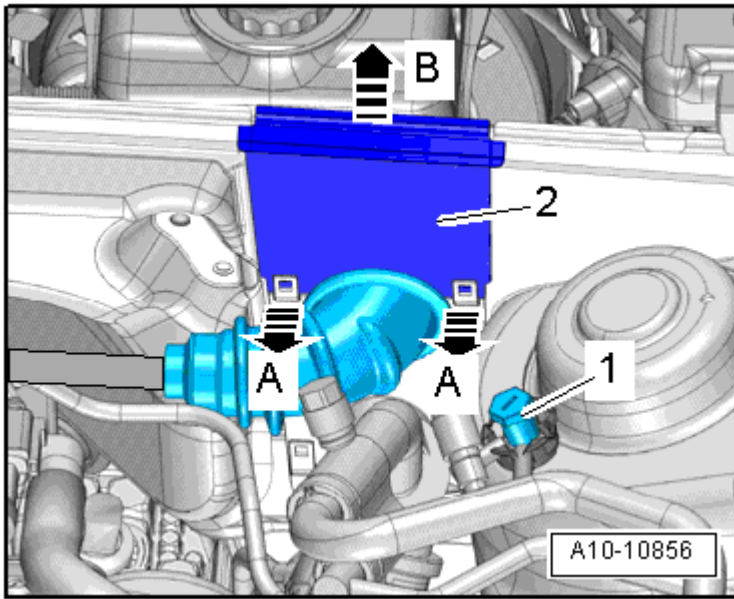


Fig. 69: Identifying Ground Bolt To Strut Tower - Tightening Specification
 Courtesy of AUDI OF AMERICA, LLC

- Remove the ground pin -1- and free up the wiring harness.
- Lay the wiring harness on the engine and secure the ECM so that it cannot fall.
- Disconnect the connectors -arrow- at the left and right on the front speed sensors.

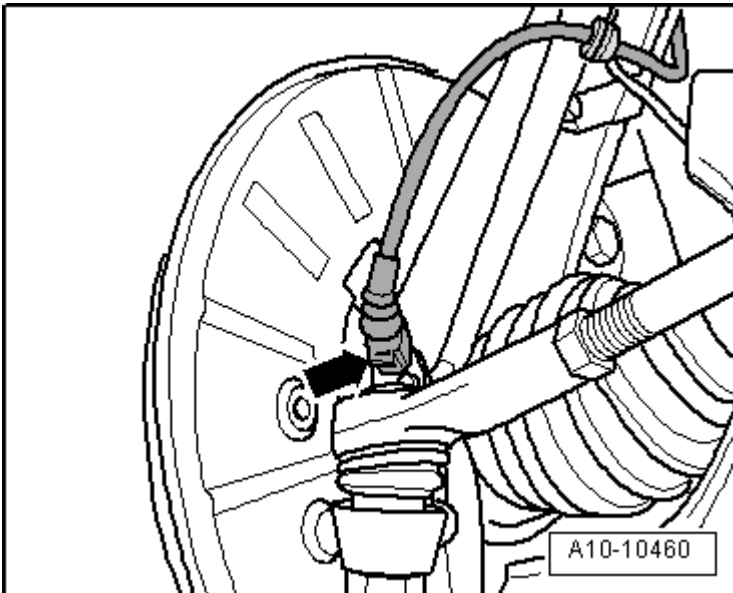


Fig. 70: Identifying Speed Sensor Connector
 Courtesy of AUDI OF AMERICA, LLC

- Disconnect the connector -1- from the left front level control system sensor -G78- and from the right front

level control sensor -G289- and free up the wires -arrow-.

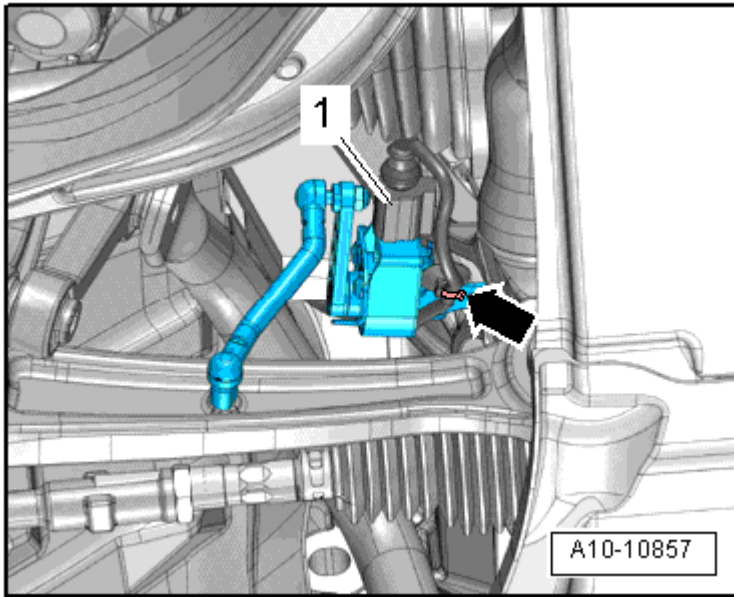


Fig. 71: Disconnecting Electrical Connector On Left Front Level Control System Sensor
Courtesy of AUDI OF AMERICA, LLC

-- Free up the electrical connector -2- on the bracket by pulling the retainer back -arrow A- and turning the connector approximately 90° clockwise -arrow B-.

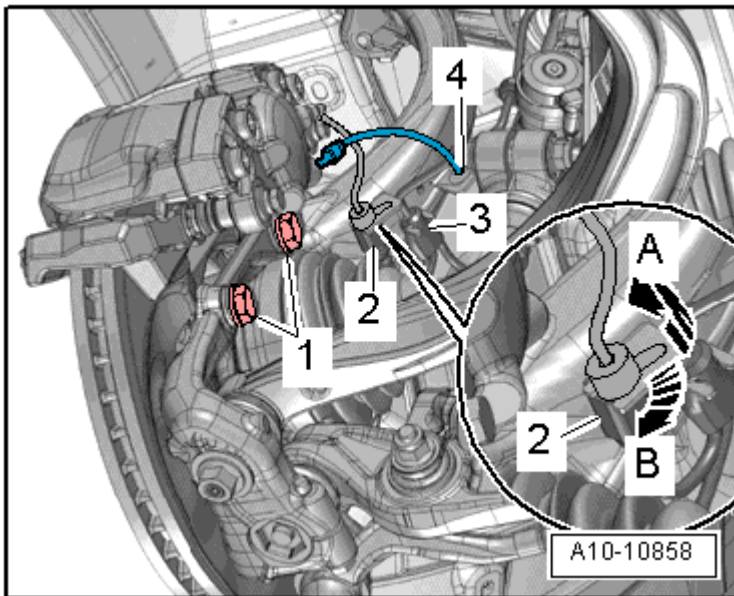


Fig. 72: Freeing Up Electrical Connector
Courtesy of AUDI OF AMERICA, LLC

-- Free up the electrical wiring -3- and brake line -4- on the bracket.

-- Remove the bolts -1- and secure the brake caliper, with the brake line still connected, inside the wheel housing using wire.

CAUTION: Risk of damaging brake pistons.

- **Do not operate the brake pedal when the brake caliper is removed.**

-- Remove the nut -2- and the bolt -1-.

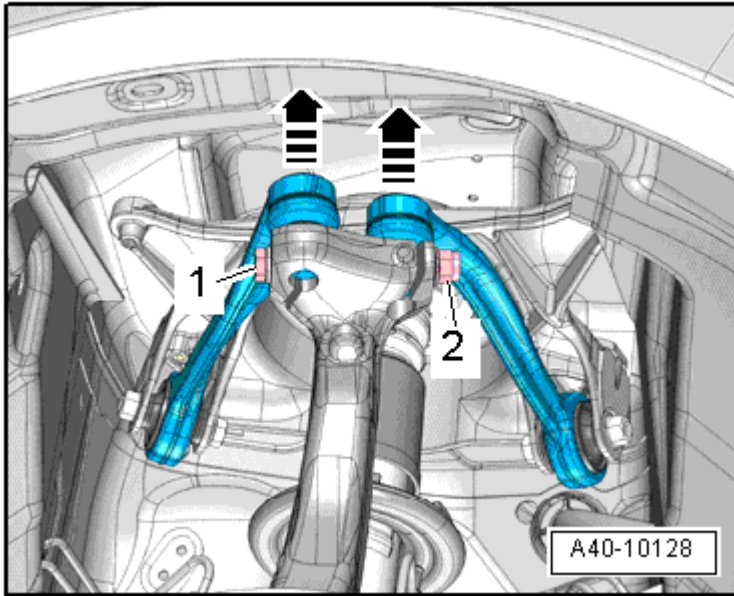


Fig. 73: Identifying Nut And Bolt
Courtesy of AUDI OF AMERICA, LLC

-- Remove the upper control arm upward from the wheel bearing housing -arrows-.

-- Repeat the procedure on the other side of the vehicle.

-- Remove the left and right stabilizer bar bolt -1-.

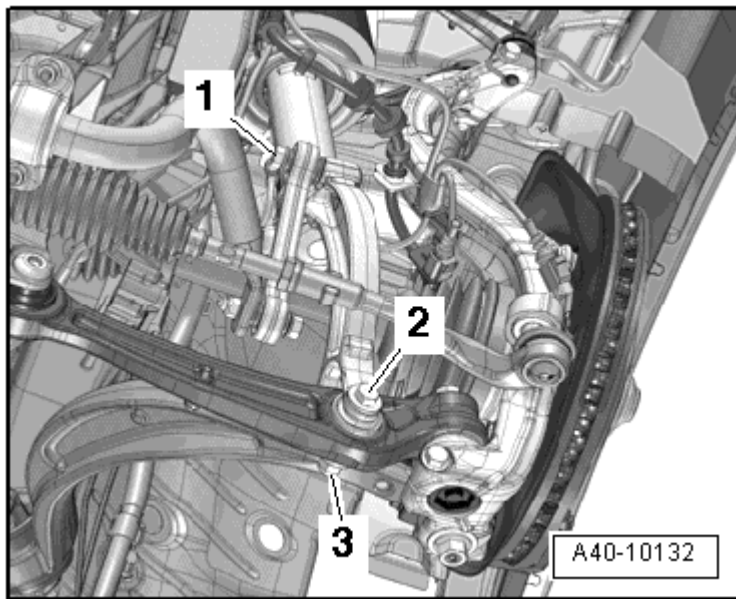


Fig. 74: Identifying Left And Right Stabilizer Bar Bolt
Courtesy of AUDI OF AMERICA, LLC

-- Remove the left and right nuts -3-.

NOTE: The bolts -2- will be removed later.

-- Remove the subframe cross brace. Refer to **Removal and Installation** .

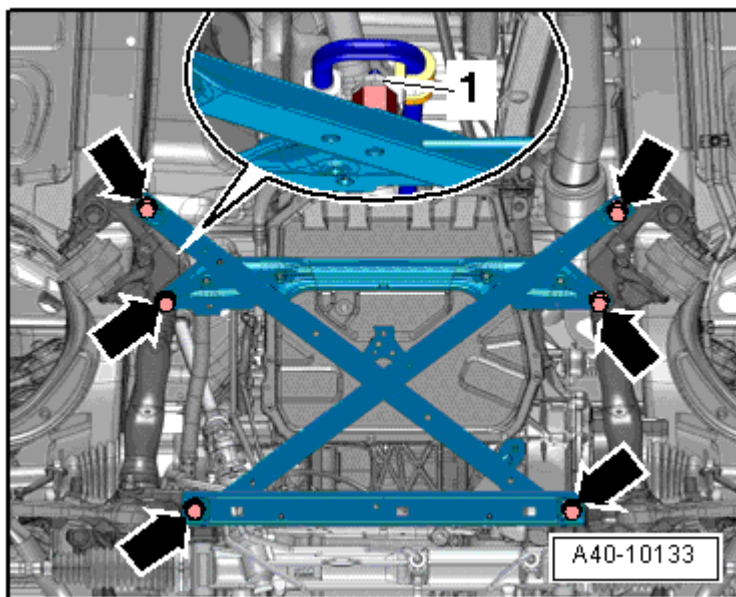


Fig. 75: Locating Power Steering Hydraulic Line
Courtesy of AUDI OF AMERICA, LLC

CAUTION: The suspension components could be damaged.

- Do not rest the vehicle on its wheels if the subframe mount, the steering gear or the subframe cross brace are not installed correctly.

Audi A5 Cabriolet

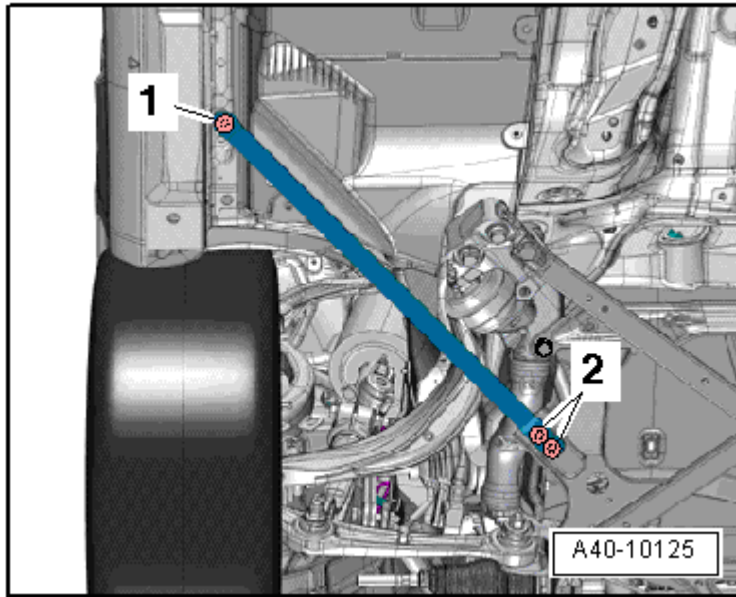


Fig. 76: Loosening Clamping Sleeve
Courtesy of AUDI OF AMERICA, LLC

-- Remove diagonal braces. Refer to **Removal and Installation** .

Vehicles with Electro-Mechanical Power Steering

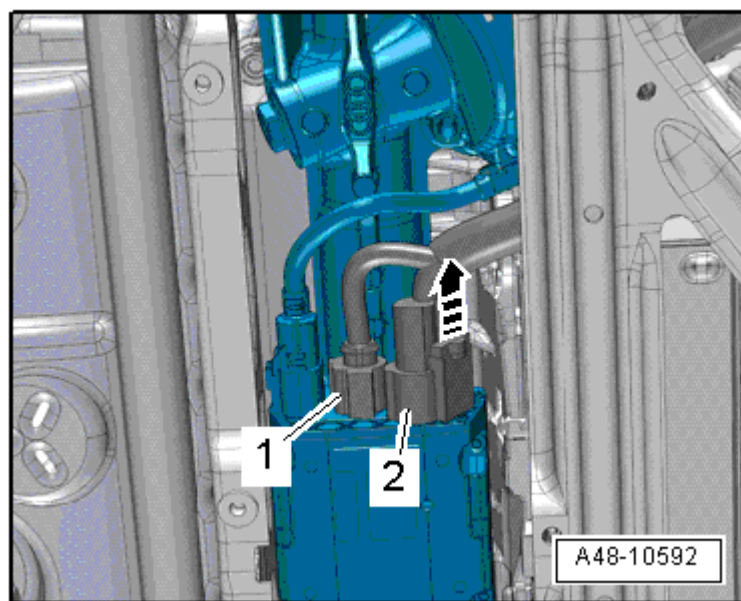


Fig. 77: Identifying Power Steering Control Module
Courtesy of AUDI OF AMERICA, LLC

-- Release the safety catch -arrow-, push the retainer down and disconnect the connector from -2- from the power steering control module -J500-.

-- Free up the wiring harness.

NOTE: Ignore -1-.

All Vehicles

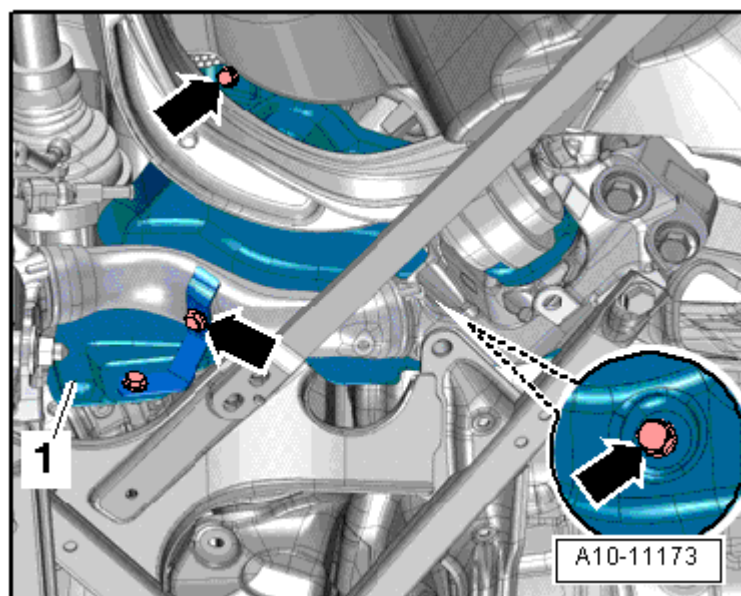


Fig. 78: Locating Left Bolts & Heat Shield

Courtesy of AUDI OF AMERICA, LLC

-- Remove the left and right bolts -arrows-, if applicable, and the heat shield -1-.

-- Remove the bolts -arrows- and the front crossmember, if applicable.

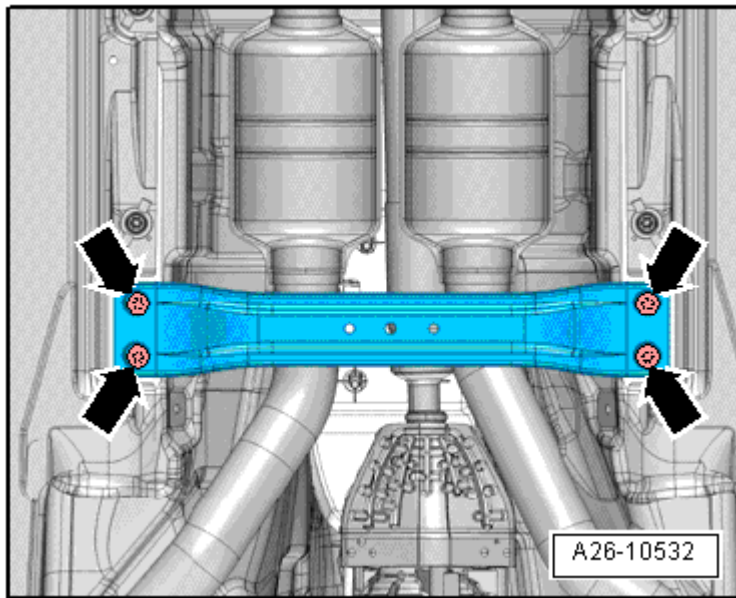


Fig. 79: Identifying Bolts And Front Crossmember

Courtesy of AUDI OF AMERICA, LLC

-- Remove the left front muffler nuts -arrows-.

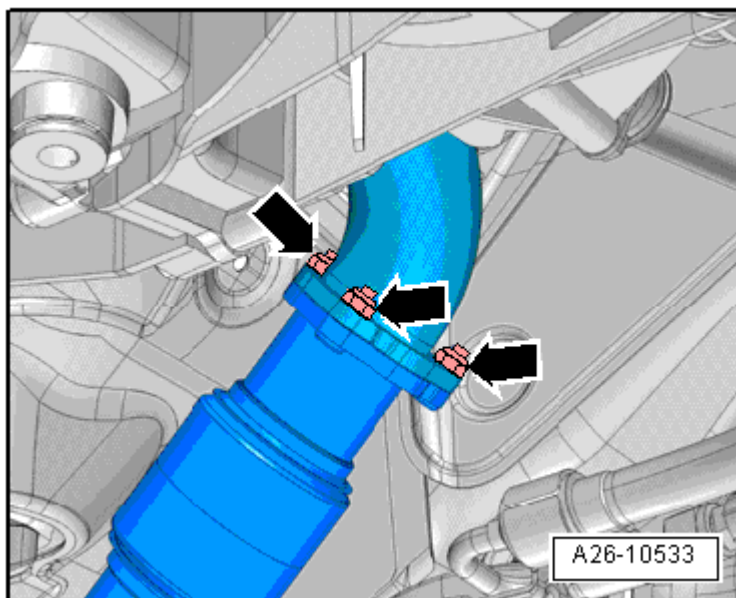


Fig. 80: Identifying Left Front Muffler Nuts

Courtesy of AUDI OF AMERICA, LLC

-- Remove the right front muffler nuts -arrows-.

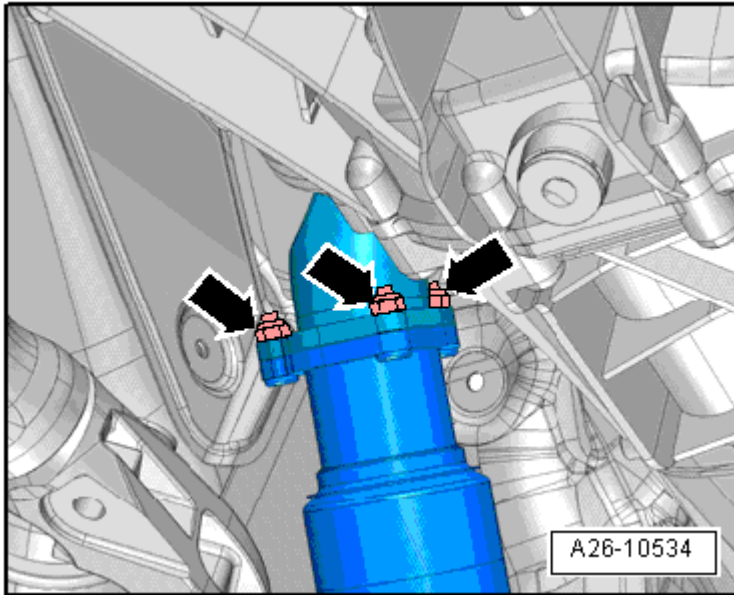


Fig. 81: Identifying Right Front Muffler Nuts
Courtesy of AUDI OF AMERICA, LLC

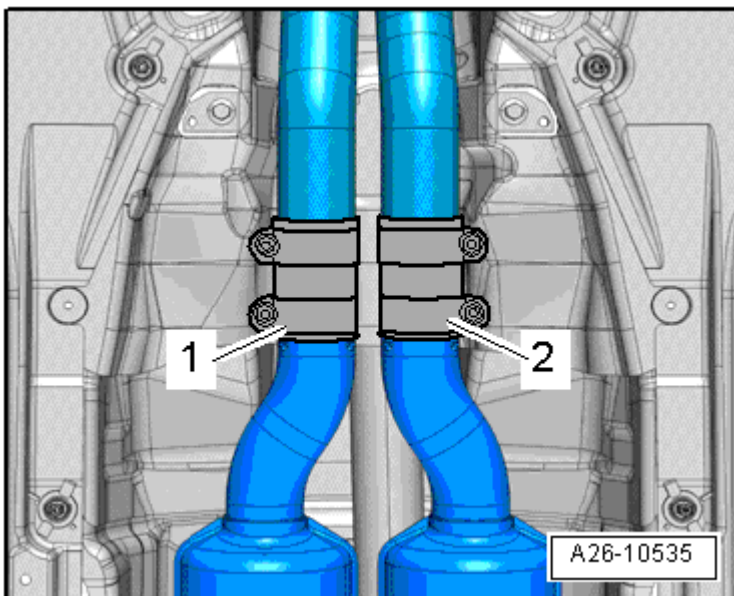


Fig. 82: Loosening Bolts Vehicles With Dual Exhaust System
Courtesy of AUDI OF AMERICA, LLC

CAUTION: The decoupling elements in the front muffler could be damaged.

2012 Audi S4

ENGINE 3.0 Liter - Engine Assembly - Engine Code(s): CCBA (Sedan)

- **Do not bend decoupling element in front muffler more than 10°.**

-- Loosen the clamping sleeves -1 and 2-, slide them back and remove the left and right front mufflers.

Vehicles with a Bolted Driveshaft

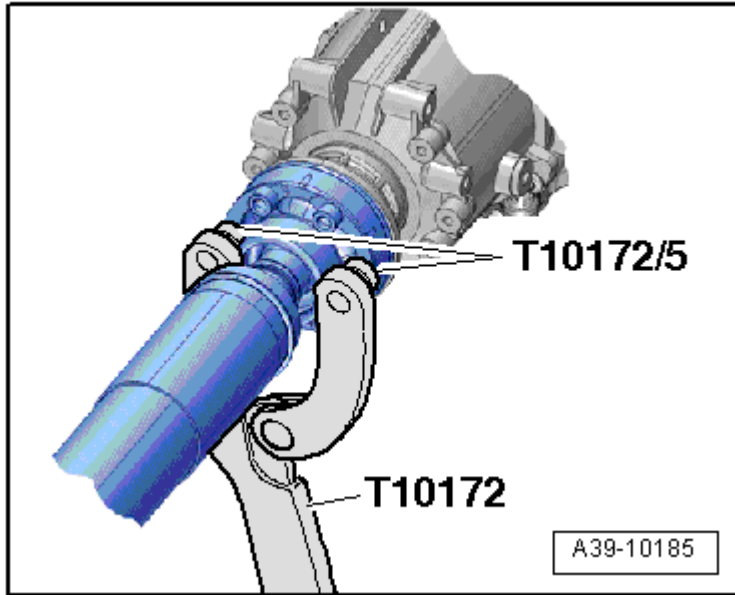


Fig. 83: Using T10172 To Hold Driveshaft

Courtesy of AUDI OF AMERICA, LLC

-- Remove the driveshaft from the transmission. Refer to **Removal and Installation** or **Removal and Installation** .

-- Slide the driveshaft toward the rear final drive; the CV joints can move axially.

-- Secure the driveshaft to the side.

Vehicles with an Attached Driveshaft

-- Remove the driveshaft. Refer to **Removal and Installation** or **Removal and Installation** .

All Vehicles

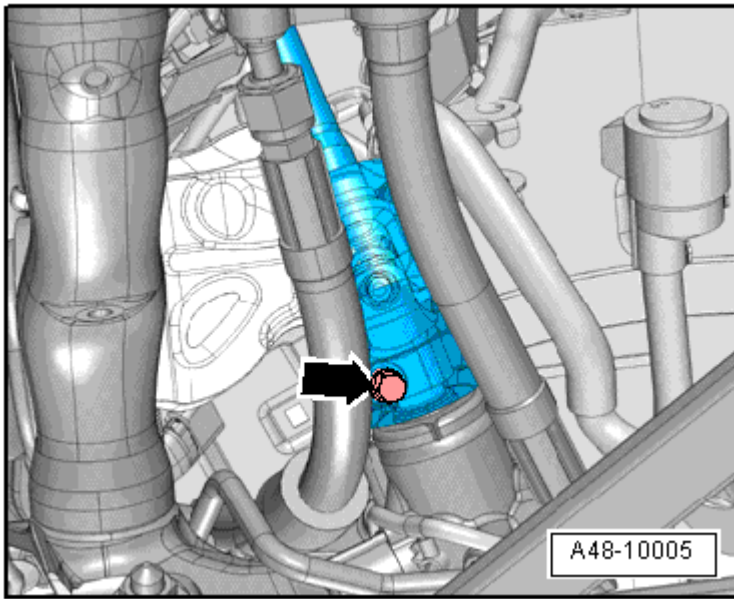


Fig. 84: Locating Universal Joint Bolt
Courtesy of AUDI OF AMERICA, LLC

- Remove the steering intermediate shaft from the steering gear push them upward. Refer to **Removal and Installation** .
- Remove the bolt -2- and secure the clutch slave cylinder sideways in the engine compartment.

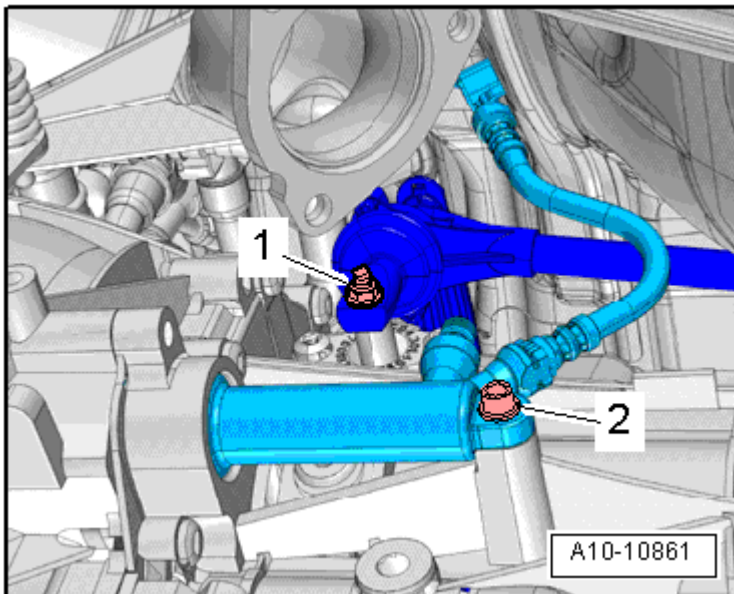


Fig. 85: Identifying Bolt And Clutch Slave Cylinder Secured Sideways In Engine Compartment
Courtesy of AUDI OF AMERICA, LLC

CAUTION: Risk of damaging clutch slave cylinder.

- **Do not operate the clutch pedal anymore after slave cylinder has been removed.**

-- Remove the selector rod nut -1-.

-- Position the T40160 and remove the selector rod -1-.

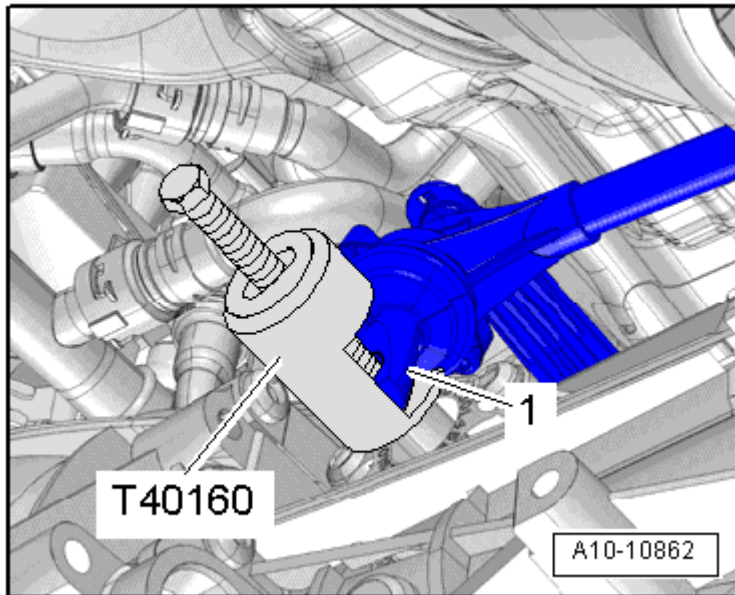


Fig. 86: Positioning Puller T40160 To Remove Selector Rod
Courtesy of AUDI OF AMERICA, LLC

Prepare Scissor Lift Platform:

2012 Audi S4

ENGINE 3.0 Liter - Engine Assembly - Engine Code(s): CCBA (Sedan)

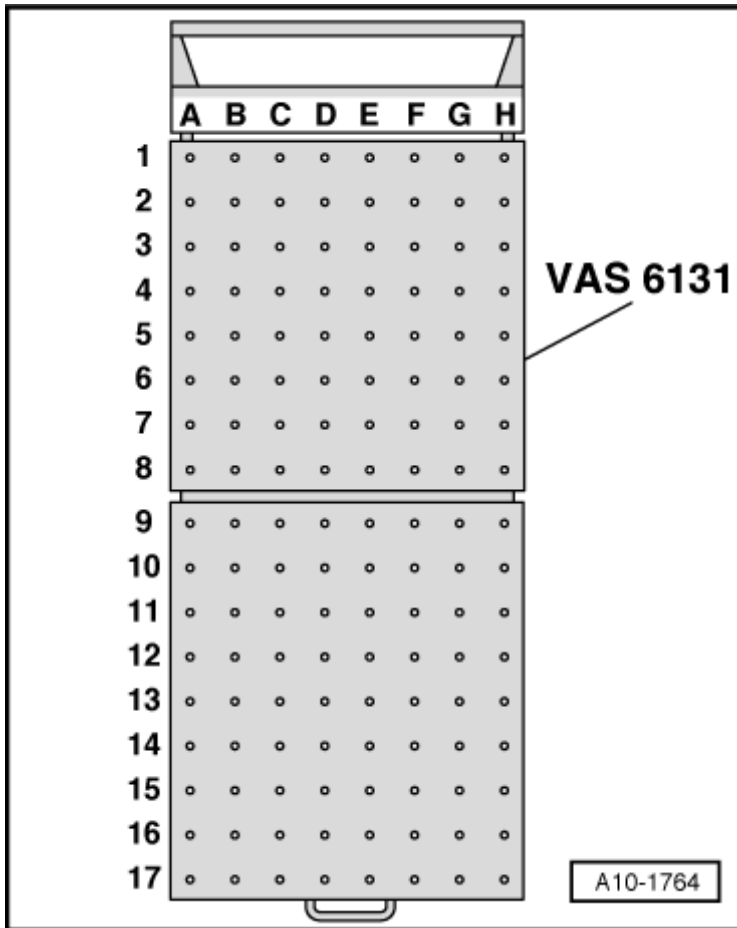


Fig. 87: Identifying Scissor Lift Platform VAS 6131

Courtesy of AUDI OF AMERICA, LLC

-- Equip the VAS 6131 A with the VAS 6131/10 and VAS 6131/13 as follows:

Table Coordinates	Parts from VAS 6131/10 and VAS 6131/13			
B4	/13-4	/10-4	/10-5	/13-1
G4	/13-4	/10-4	/10-5	/13-1
B6	/10-1	/10-2	/10-5	/10-11
G6	/10-1	/10-2	/10-5	/10-11
A8+C8	/13-6	-	-	/13-2
F8+H8	/13-6	-	-	/13-2
C14	/10-1	/10-3	/10-5	/10-13
F14	/10-1	/10-3	/10-5	/10-10

-- Next secure mounting elements to scissor lift table by hand.

-- Position the VAS 6131 A horizontally.

- Note bubble level (sight glass) on support platform.

-- Move the VAS 6131 A under the engine/transmission subassembly.

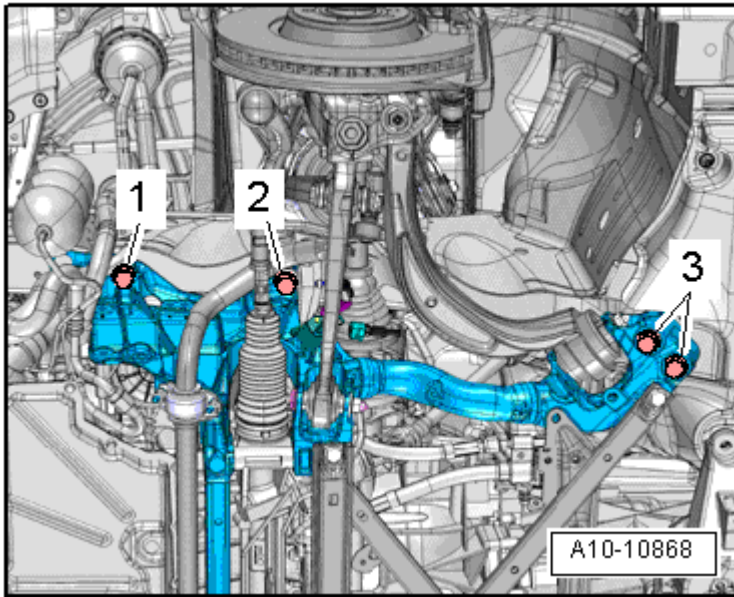


Fig. 88: Identifying Subframe Bolts (Tighten To Specifications)

Courtesy of AUDI OF AMERICA, LLC

WARNING: The subframe could cause an accident if it is not secured.

- Do not loosen the subframe bolts -2 and 3-.

-- Remove the left and right subframe bolts -1-.

-- Attach the mounting elements from the VAS 6131/10 and VAS 6131/13 at the left and right front of the subframe as shown in the illustration.

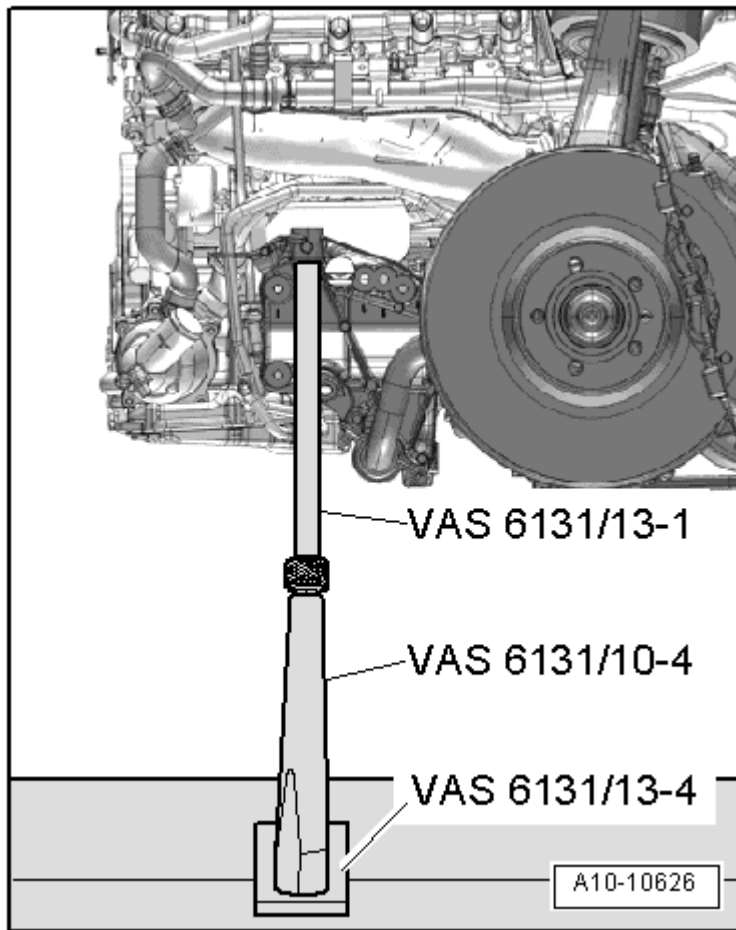


Fig. 89: Attaching Mounting Elements At Left And Right Front Of Subframe
Courtesy of AUDI OF AMERICA, LLC

-- Ensure threaded spindles are completely installed.

-- Attach the mounting elements from the VAS 6131/10 at the left and right rear on the subframe cross brace front connecting points as shown in the illustration.

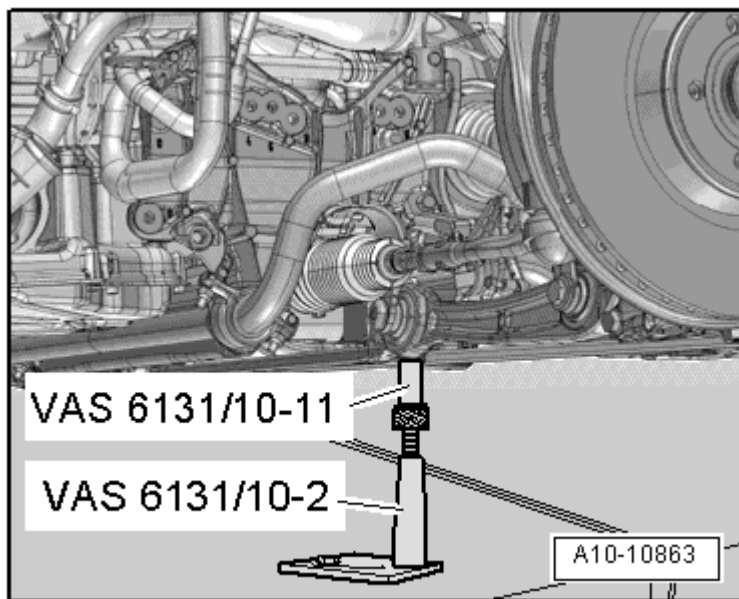


Fig. 90: Attaching Mounting Elements From VAS 6131/13 At Lower Left And Right Of Wheel Bearing Housing

Courtesy of AUDI OF AMERICA, LLC

-- Attach mounting elements from the VAS 6131/13 at the lower left and right of the wheel bearing housing as shown in the illustration.

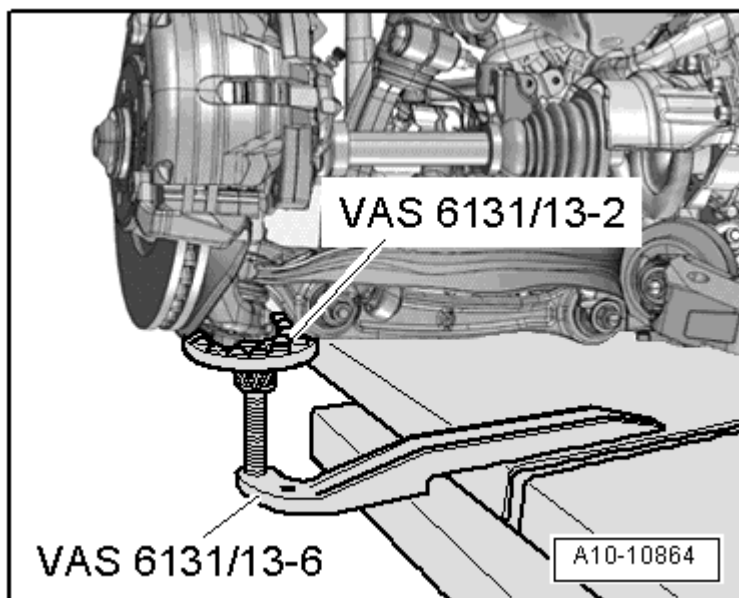


Fig. 91: Attaching Mounting Elements From VAS 6131/13 At Lower Left And Right Of Wheel Bearing Housing

Courtesy of AUDI OF AMERICA, LLC

-- Remove the noise insulation retaining clips from the crossmember.

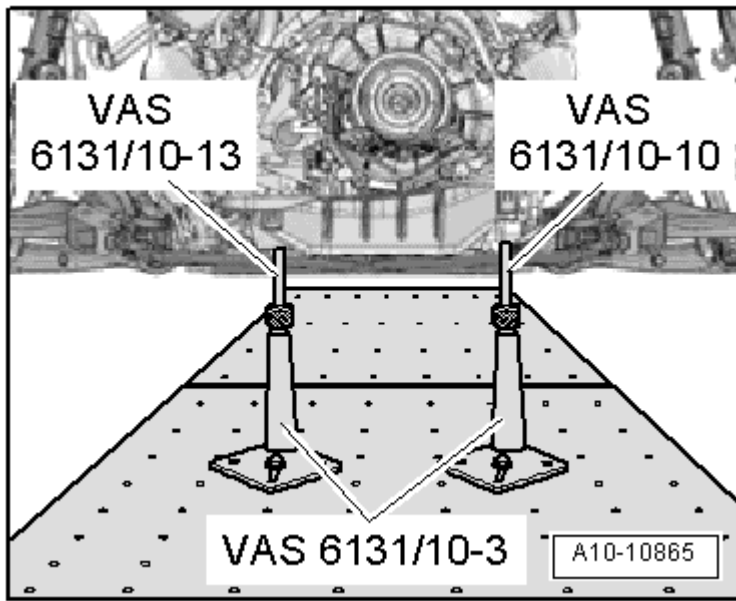


Fig. 92: Attaching Mounting Elements From VAS 6131/10 At Left And Right Rear Of Crossmember
Courtesy of AUDI OF AMERICA, LLC

- Attach the mounting elements from the VAS 6131/10 at the left and right rear of the crossmember as shown in the illustration.
- Rotate the mounting element spindles upward until all the mounting pins come into contact with the mounting points.
- Attach mounting element base plates to the VAS 6131 A and tighten to 20 Nm.
- Mark the location of the subframe and engine carrier to the longitudinal members using a felt-tip pen.

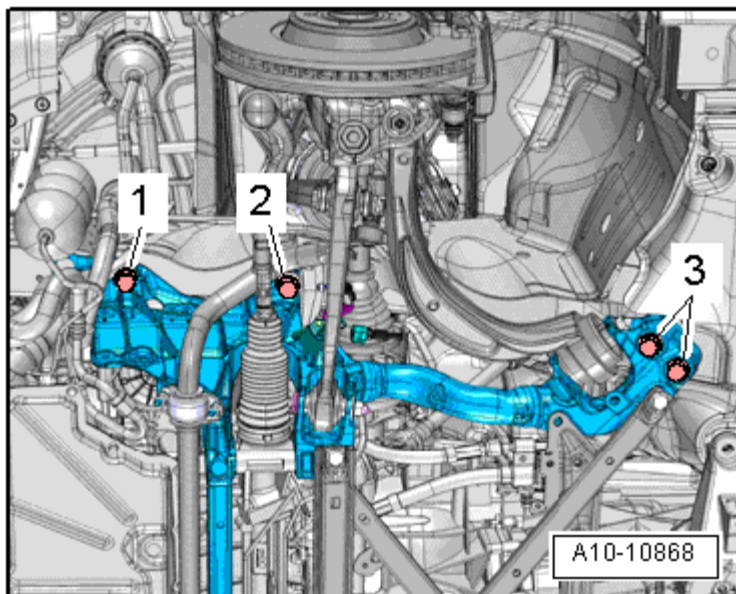
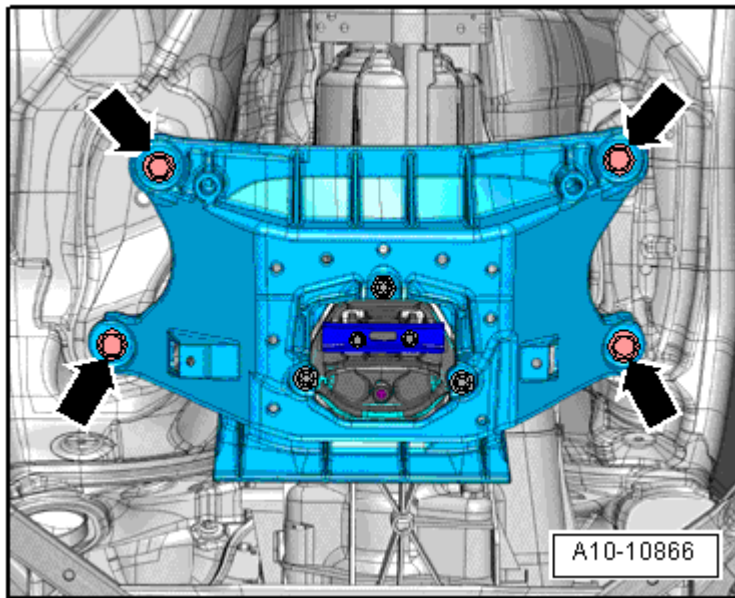


Fig. 93: Identifying Subframe Bolts (Tighten To Specifications)

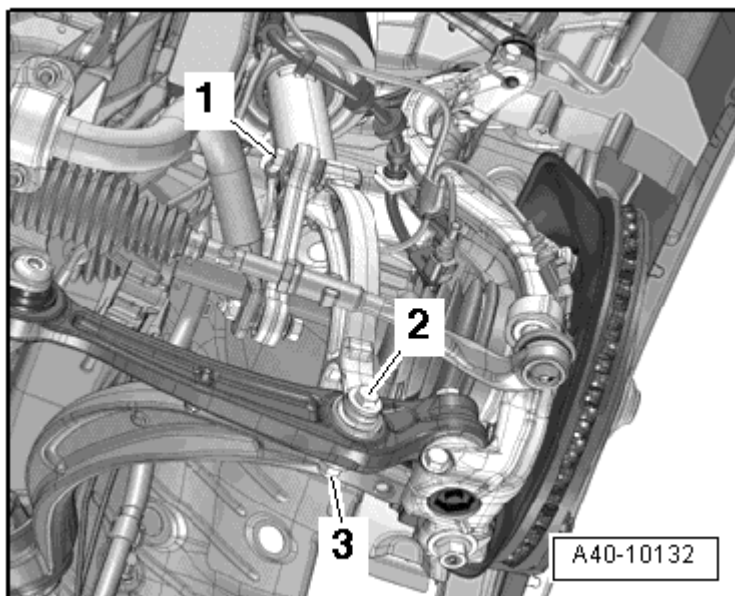
Courtesy of AUDI OF AMERICA, LLC

- Remove the left and right subframe bolts -2 and 3- in a diagonal sequence in stages.
- Remove the bolts -arrows- on the tunnel crossmember.

**Fig. 94: Identifying Bolts To Tunnel Crossmember**

Courtesy of AUDI OF AMERICA, LLC

- Remove the left and right bolts -2-.

**Fig. 95: Identifying Left And Right Stabilizer Bar Bolt**

Courtesy of AUDI OF AMERICA, LLC

CAUTION: Risk of damaging hose and wiring connections as well as the engine compartment.

- Make sure all the hoses and lines between the engine, transmission, subframe and body have been disconnected.
- Carefully guide engine-transmission assembly with subframe out of the engine compartment while lowering.

-- Next lower engine/transmission subassembly with VAS 6131 A only by dimension -a-.

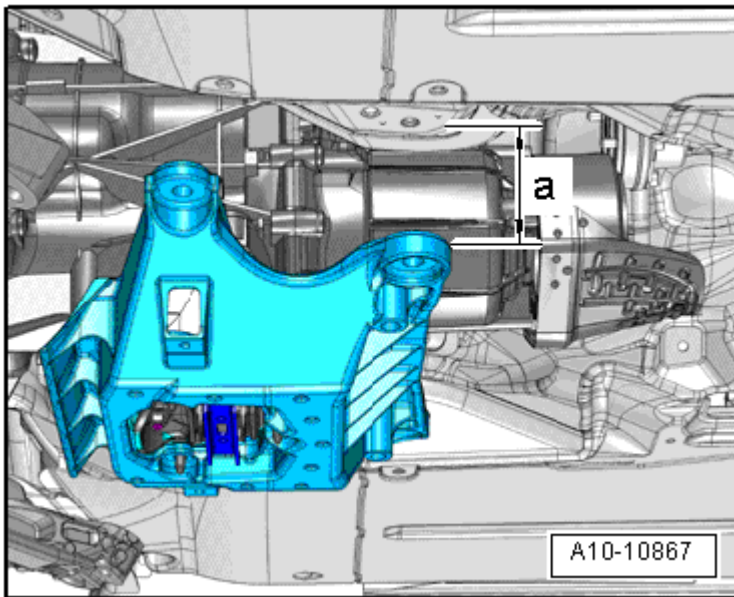


Fig. 96: Lowering Transmission

Courtesy of AUDI OF AMERICA, LLC

- Dimension -a- = 100 mm maximum.

-- Remove the bolts -1 and 3- for the selector rod and push rod.

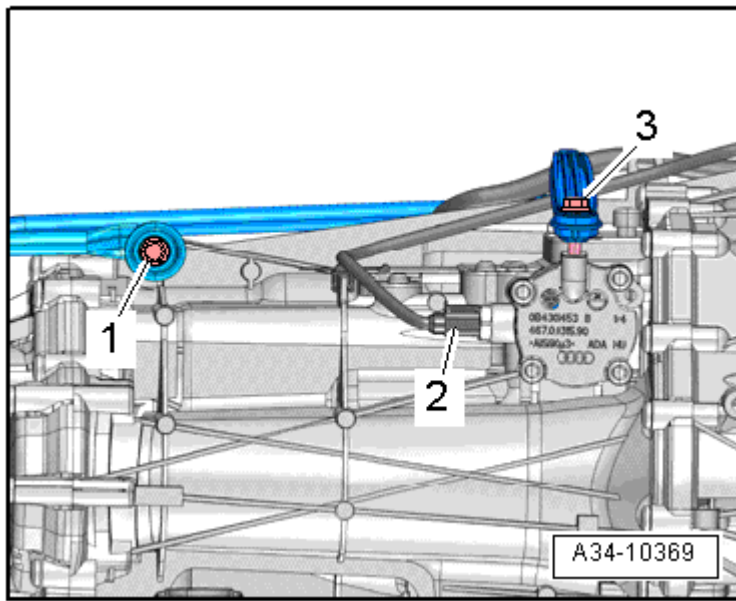


Fig. 97: Identifying Bolts, Selector Rod And Push Rod
Courtesy of AUDI OF AMERICA, LLC

NOTE: Ignore -2-.

-- Lower the engine/transmission subassembly more.

-- Remove the VAS 6131 A with the engine/transmission subassembly under vehicle.

ENGINE AND MANUAL TRANSMISSION, SEPARATING

Special tools and workshop equipment required

- Scissor-Type Assembly Platform VAS 6131 A
- Support Set VAS 6131/10, Supplementary Set VAS 6131/13-7 and Gearbox Support VAS 6131/14
- Socket T40058

Procedure

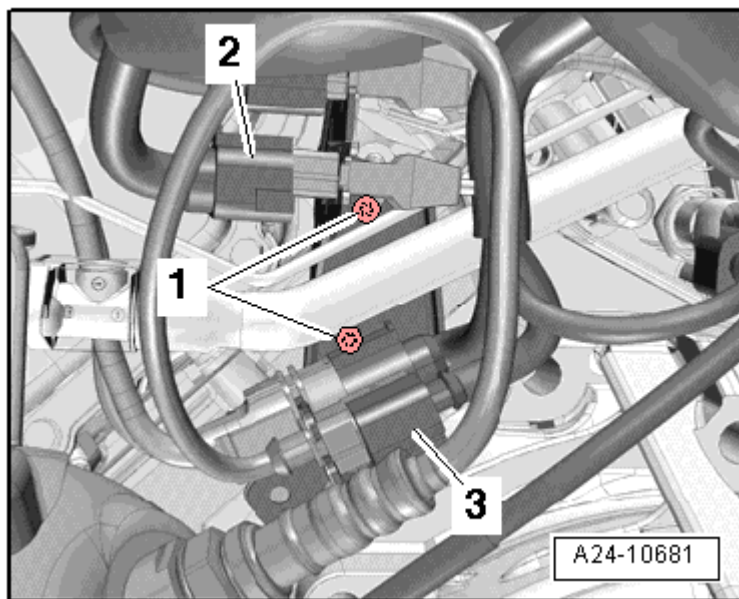


Fig. 98: Disconnecting Connector To Fuel Injectors (Left Cylinder Head)
 Courtesy of AUDI OF AMERICA, LLC

- Engine/transmission assembly removed and placed on VAS 6131 A.

-- Remove the electrical connector -3- for the Oxygen Sensor (O2S) 2 after catalytic converter -G131- from the bracket and disconnect it.

NOTE: Ignore -1 and 2-.

-- Remove the bolt -1- and the nuts -arrows- and then remove the left catalytic converter.

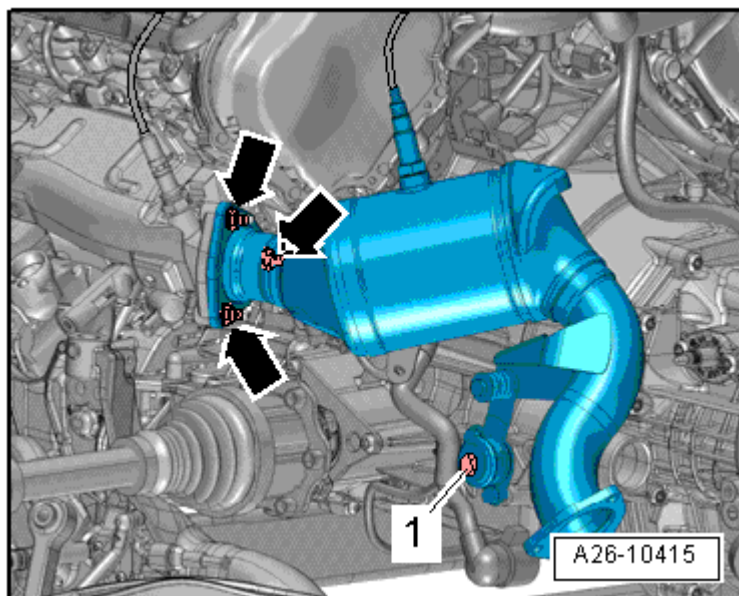
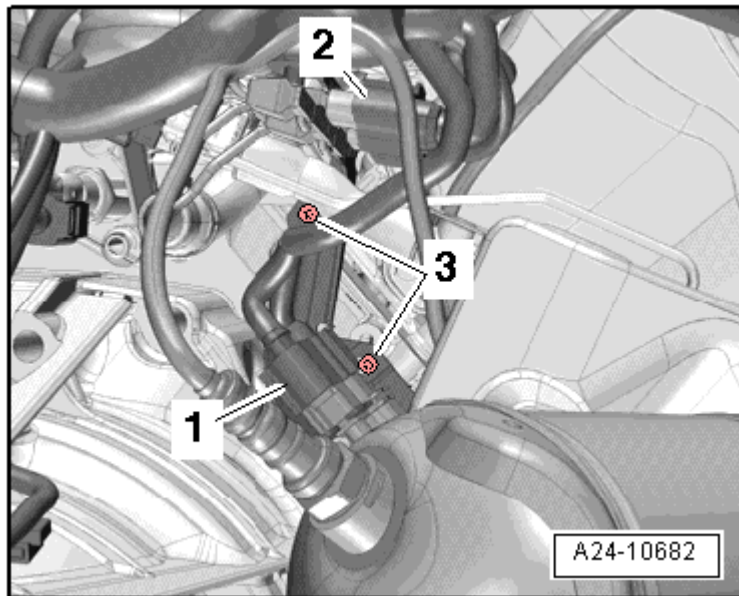


Fig. 99: Identifying Nuts, Bolt And Left Catalytic Converter From Exhaust

Courtesy of AUDI OF AMERICA, LLC

-- Remove the connector -1- for the Oxygen Sensor (O2S) after Three Way Catalytic Converter (TWC) -G130- from the holder and disconnect it.

**Fig. 100: Disconnecting Connector To Fuel Injectors (Right Cylinder Head)**

Courtesy of AUDI OF AMERICA, LLC

NOTE: Ignore -2 and 3-.

-- Remove the bolt -1- and the nuts -arrows- and then remove the right catalytic converter.

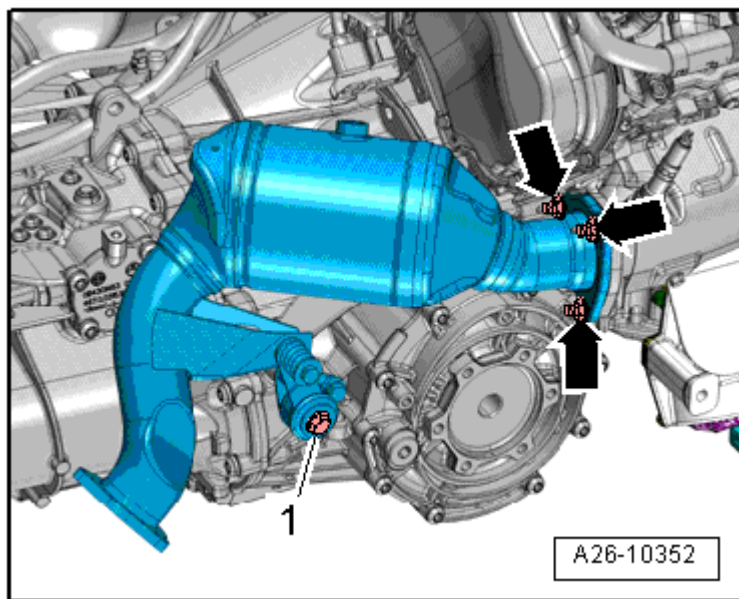


Fig. 101: Identifying Nuts, Bolts And Right Catalytic Converter From Exhaust
Courtesy of AUDI OF AMERICA, LLC

-- Disconnect the connector -2- from the Engine Speed (RPM) sensor -G28-.

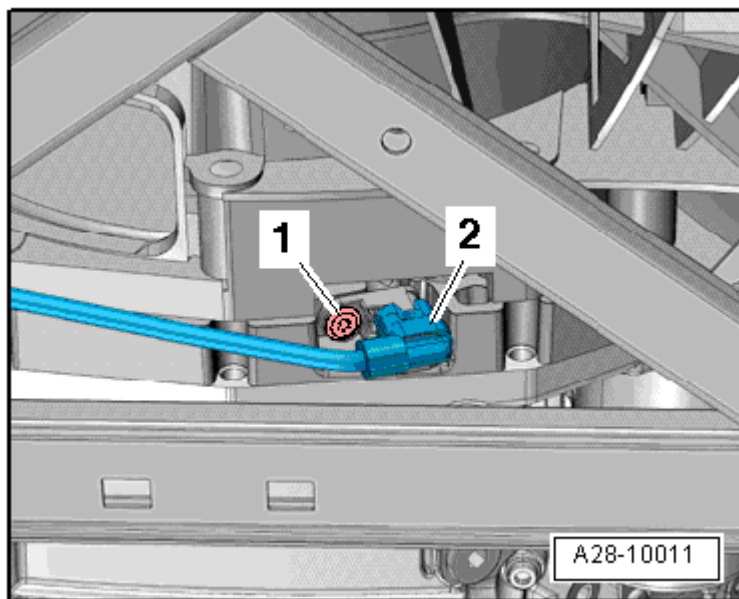


Fig. 102: Locating Engine Speed (RPM) Sensor -G28-
Courtesy of AUDI OF AMERICA, LLC

NOTE: Ignore -1-.

Vehicles with Electro-Mechanical Power Steering

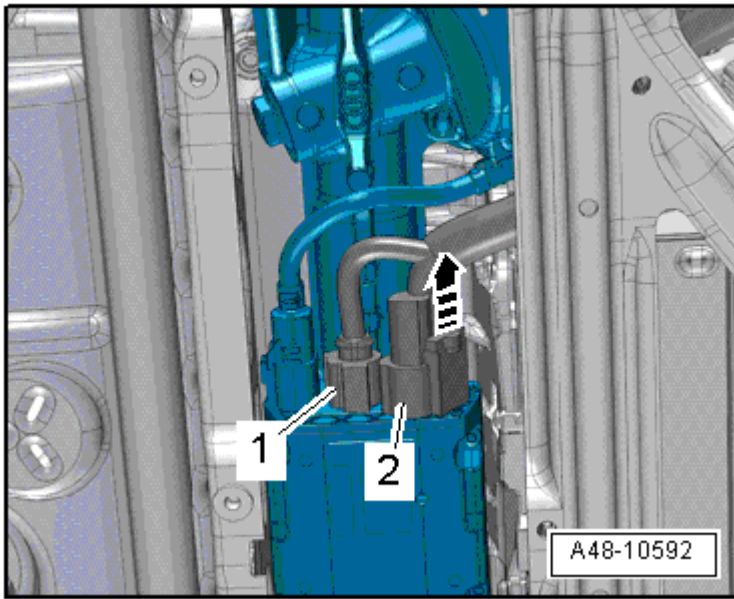


Fig. 103: Identifying Power Steering Control Module
Courtesy of AUDI OF AMERICA, LLC

-- Disconnect the connector -1- from the power steering control module -J500-.

-- Free up the wiring harness.

NOTE: Ignore -2-.

-- Remove the bolt -arrow- and move the coolant recirculation pump -V50- to the side.

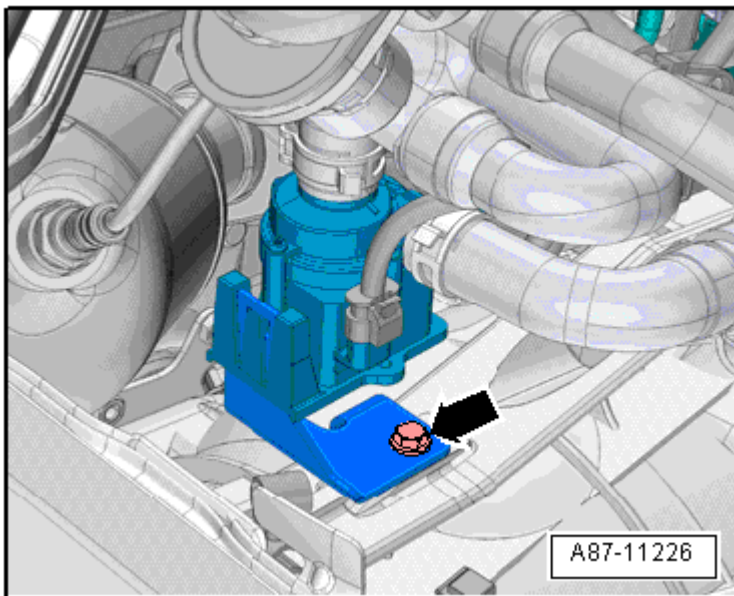


Fig. 104: Identifying Bolt (If Equipped) And Coolant Recirculation Pump

Courtesy of AUDI OF AMERICA, LLC

All Vehicles

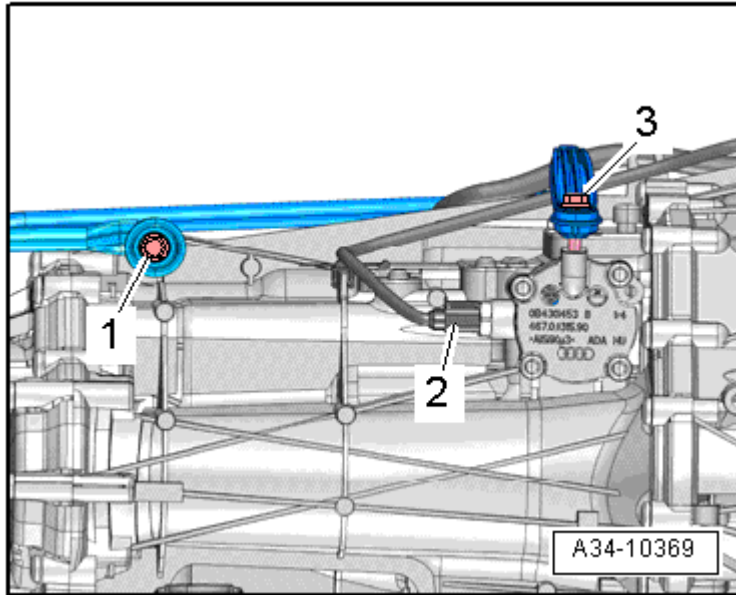


Fig. 105: Identifying Bolts, Selector Rod And Push Rod
Courtesy of AUDI OF AMERICA, LLC

-- Disconnect the connector -2- from the gear recognition sensor -G604-.

NOTE: Ignore -1 and 3-.

-- Remove the left and right drive axles from the transmission flange shafts.

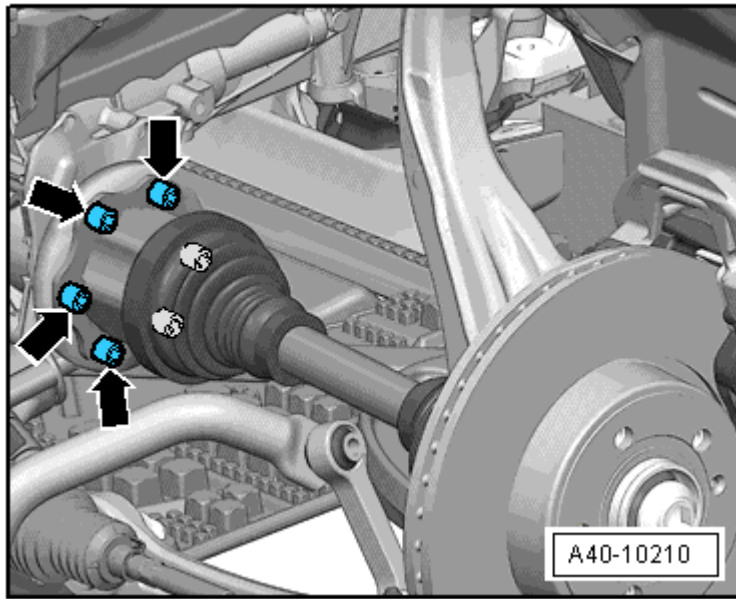


Fig. 106: Identifying Left And Right Drive Axles
Courtesy of AUDI OF AMERICA, LLC

-- Remove the lower cover -1- from the transmission -arrow-.

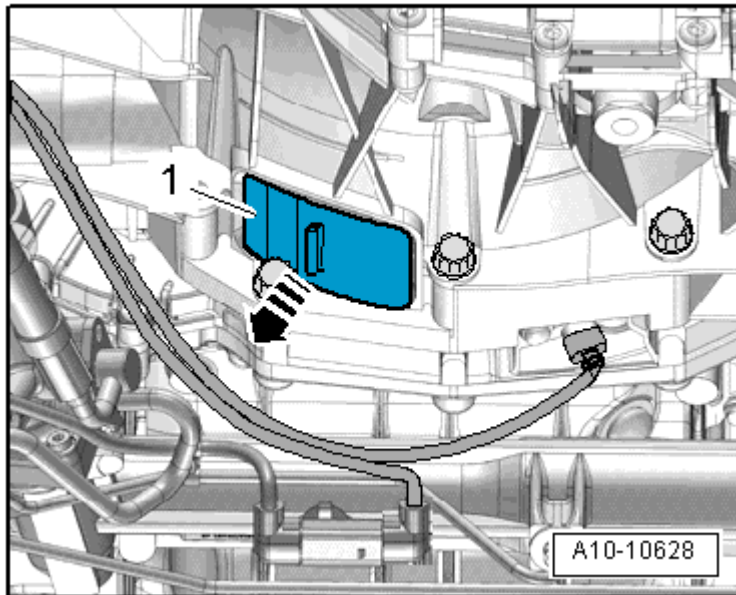


Fig. 107: Identifying Transmission Lower Cover
Courtesy of AUDI OF AMERICA, LLC

-- Insert the T40058 guide pins as follows:

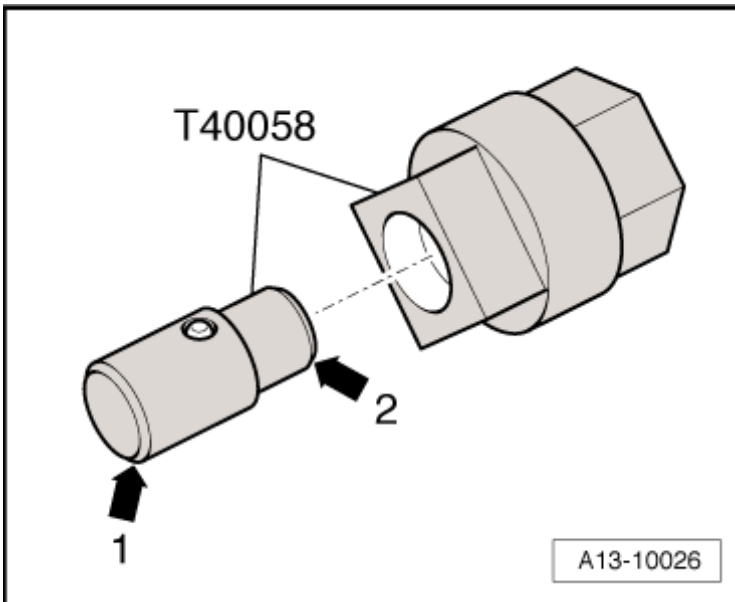


Fig. 108: Identifying Guide Pin And Adapter T40058
Courtesy of AUDI OF AMERICA, LLC

- The large diameter -arrow 1- faces the engine.
- The small diameter -arrow 2- faces the adapter.

-- Counter hold the crankshaft and loosen the drive plate bolts using a T40058 and a ring wrench.

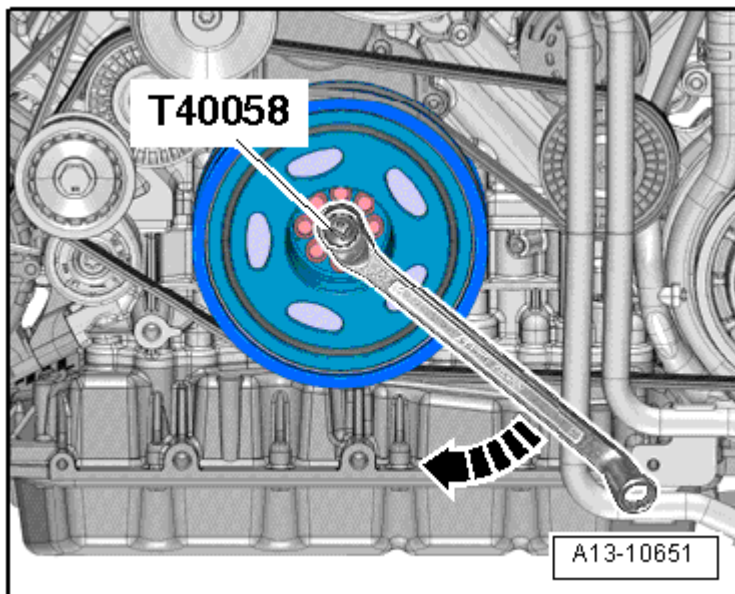


Fig. 109: Using Socket T40058 To Counter Hold Crankshaft
Courtesy of AUDI OF AMERICA, LLC

NOTE: The crankshaft may be turned only in the direction of engine rotation -arrow-.

-- Remove the 6 bolts -arrow- on the clutch module. Turn the crankshaft an additional 60° in the direction of engine rotation.

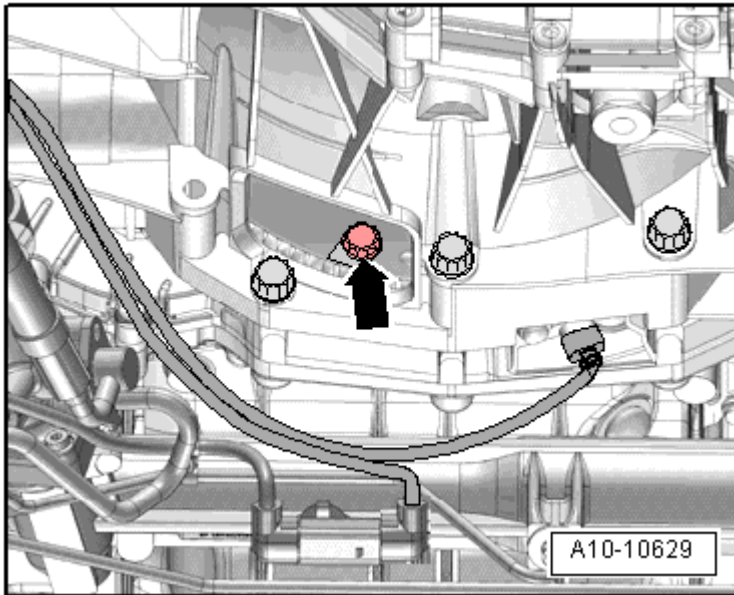


Fig. 110: Identifying Clutch Module First Bolt Installation Location (2 Of 2)
Courtesy of AUDI OF AMERICA, LLC

-- Equip the VAS 6131 A with the VAS 6131/10, VAS 6131/13-7 and VAS 6131/14 as follows:

2012 Audi S4

ENGINE 3.0 Liter - Engine Assembly - Engine Code(s): CCBA (Sedan)

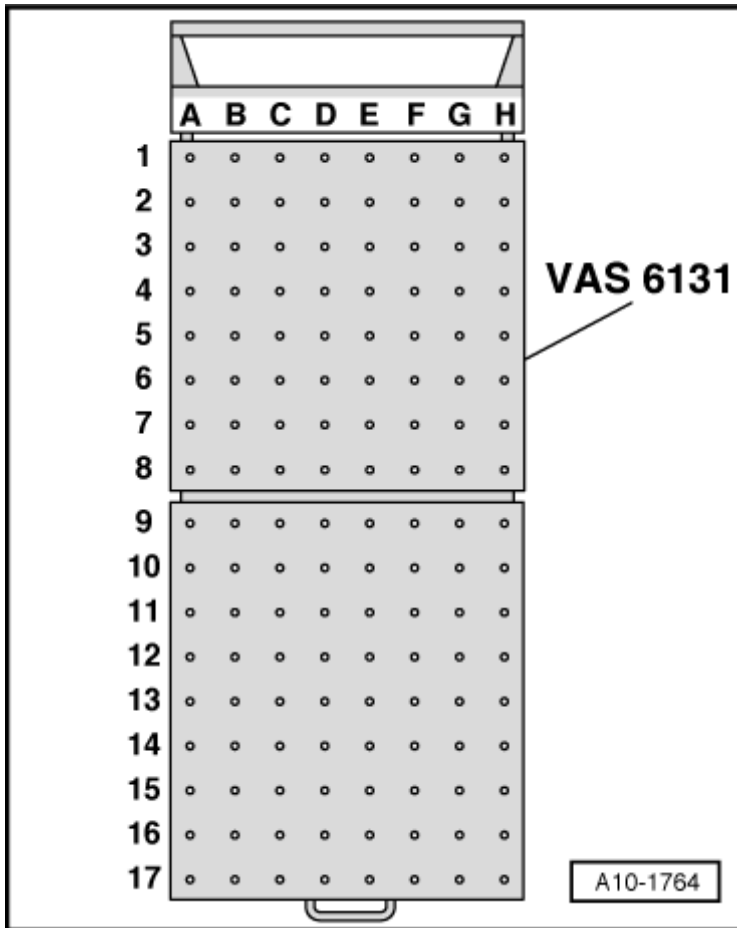


Fig. 111: Identifying Scissor Lift Platform VAS 6131

Courtesy of AUDI OF AMERICA, LLC

NOTE: The other attachments remain unchanged.

Table Coordinates	Parts from the VAS 6131/10, VAS 6131/13-7 and VAS 6131/14			
F2	/13-7			
B10	/10-1	/10-2	/10-5	/14
G10	/10-1	/10-2	/10-5	

-- Install the VAS 6131/13-7 at the right front of the engine in the threaded hole as shown in the illustration.

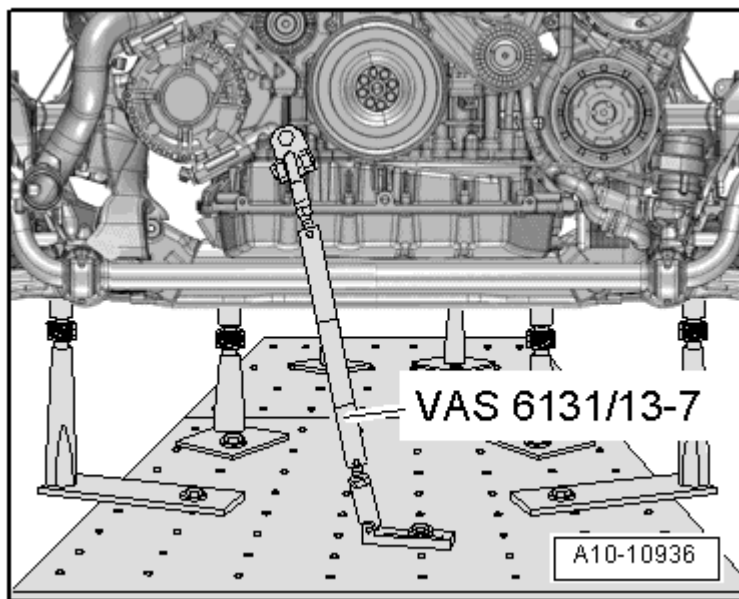


Fig. 112: Raising Engine From Engine Carrier
Courtesy of AUDI OF AMERICA, LLC

-- Install the VAS 6131/13-7 on the scissor lift table and tighten it to 20 Nm.

-- Attach the mounting elements from the VAS 6131/10 and VAS 6131/14 at the front of the transmission as shown in the illustration.

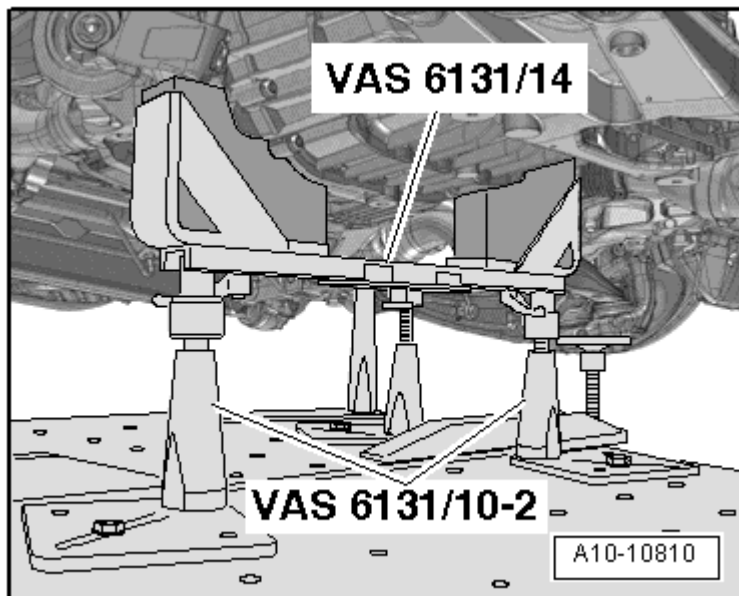


Fig. 113: Attaching Mounting Elements From Support Set VAS 6131/10
Courtesy of AUDI OF AMERICA, LLC

-- Rotate the left and right spindles up until the VAS 6131/14 rests firmly against the transmission.

-- Attach mounting element base plates to the VAS 6131 A and tighten to 20 Nm.

-- Remove the starter bolts -1 and 2-.

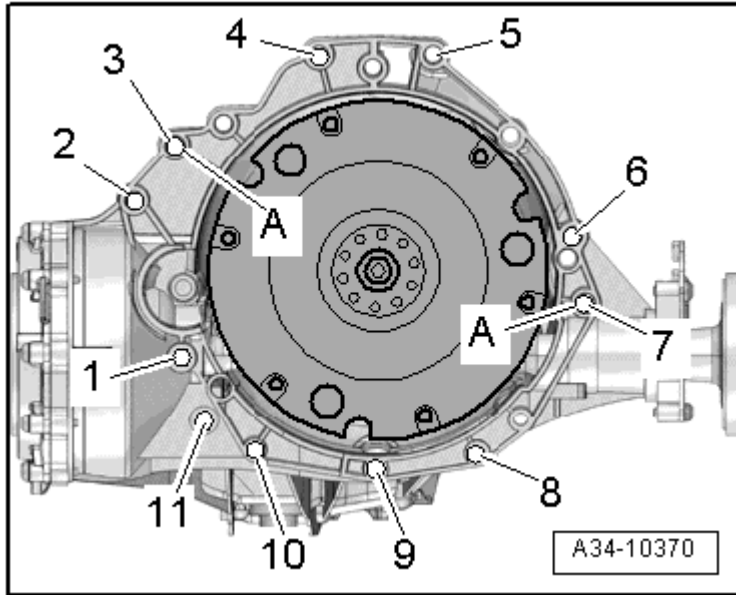


Fig. 114: Inspecting Aluminum Bolts To Connect Engine To Transmission
Courtesy of AUDI OF AMERICA, LLC

-- Press the starter off the transmission and leave it in the installation position.

-- Remove the remaining bolts -3 through 11- that attach the engine to the transmission.

NOTE: Ignore -A-.

-- Loosen clamping bolts -1- on sides of the VAS 6131 A and pull the rear table plate with the transmission toward rear -arrow-.

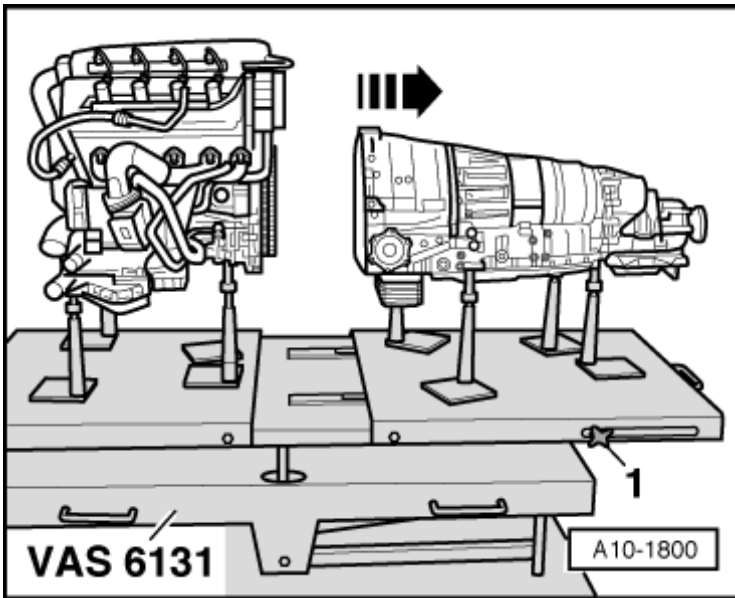


Fig. 115: Loosening Clamping Bolts On Side Of Scissor Lift Table VAS 6131 And Pull Rear Table Section With Transmission Rearward
 Courtesy of AUDI OF AMERICA, LLC

ENGINE, INSTALLING

Special tools and workshop equipment required

- Ring Spanner Insert AF 16 V.A.G 1332/14
- Assembly Aid T40169
- Transportation Lock T40170
- Scissor-Type Assembly Platform VAS 6131 A

Tightening Specifications

NOTE:

- The tightening specifications apply only to lightly greased, oiled, phosphated or blackened nuts and bolts.
- Additional lubricants, such as engine or transmission oil are permissible, although lubricants containing graphite are not.
- Do not use any parts that have had the lubrication removed.
- Tightening specification tolerance +/- 15%.

Component		Nm
Bolts and nuts	M6	9
	M7	15
	M8	20
	M10	40
	M12	65

Subframe mount, refer to **SUBFRAME MOUNT OVERVIEW**.

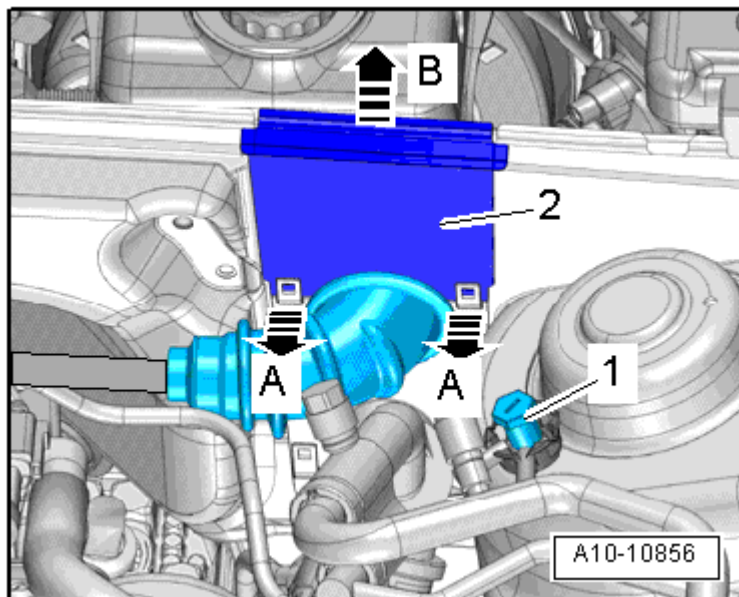


Fig. 116: Identifying Ground Bolt To Strut Tower - Tightening Specification
 Courtesy of AUDI OF AMERICA, LLC

-- Tighten the ground bolt -1- to 9 Nm.

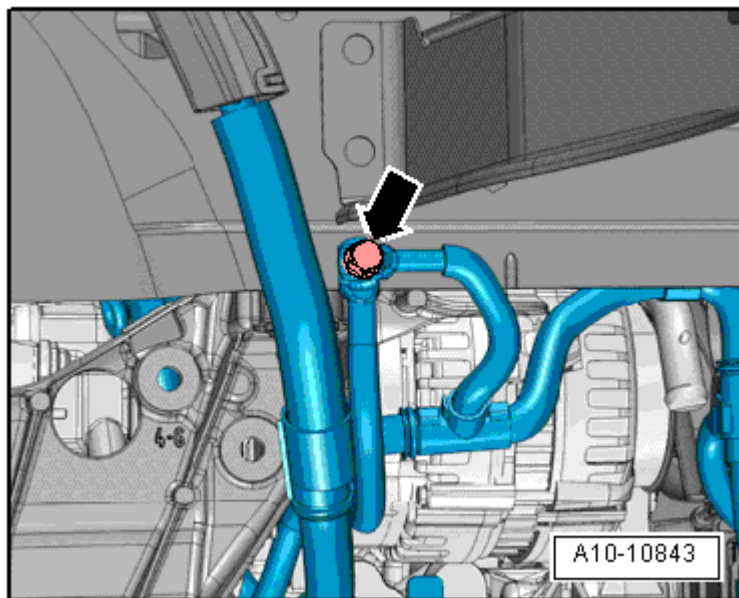


Fig. 117: Identifying Nut -Arrow- To Longitudinal Member
 Courtesy of AUDI OF AMERICA, LLC

-- Tighten the nut -arrow- to 9 Nm.

Engine to Manual Transmission

2012 Audi S4

ENGINE 3.0 Liter - Engine Assembly - Engine Code(s): CCBA (Sedan)

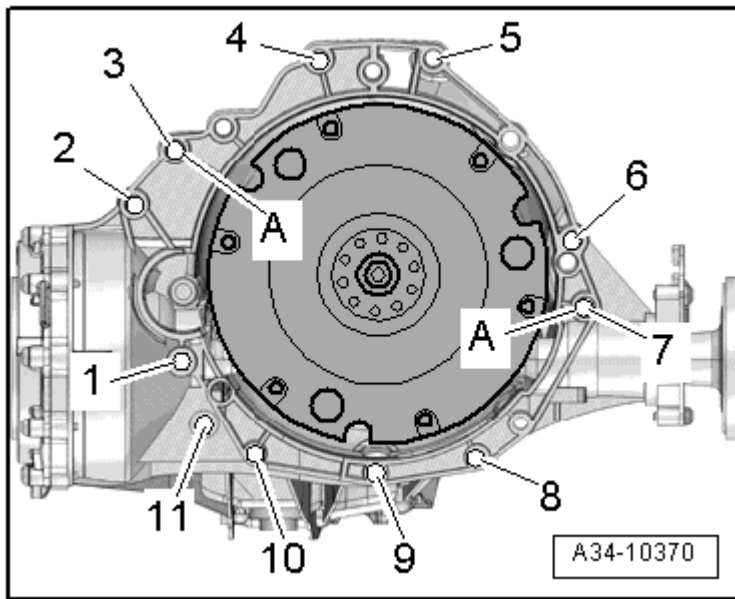


Fig. 118: Inspecting Aluminum Bolts To Connect Engine To Transmission
Courtesy of AUDI OF AMERICA, LLC

Item	Bolt	Nm
1	M10 x 50 ¹⁾	65
2 through 6	M12 x 100 ²⁾	30 + 90°
7	M12 x 125 ²⁾	30 + 90°
8, 11	M10 x 60 ²⁾	15 + 90°
9, 10	M10 x 95 ²⁾	15 + 90°
A	Alignment sleeves for centering	
• ¹⁾ Bolt class 10.9, the steel bolt may be used again unlimited number of times. • ²⁾ The aluminum bolts can be used 2 times, refer to <u>ALUMINUM BOLTS</u>.		
(1) To prevent damaging the bolts when marking them, do not clamp them in a vise. Insert the bolt using a 14 mm socket with a ¹ / ₂ drive, which is inserted in to the vise, as illustrated.		

ALUMINUM BOLTS

NOTE:

- The aluminum bolts -2 through 11- may be used two times. Therefore, the bolts must be marked with two notches "X" made by a chisel after they have been used the first time -arrow-.

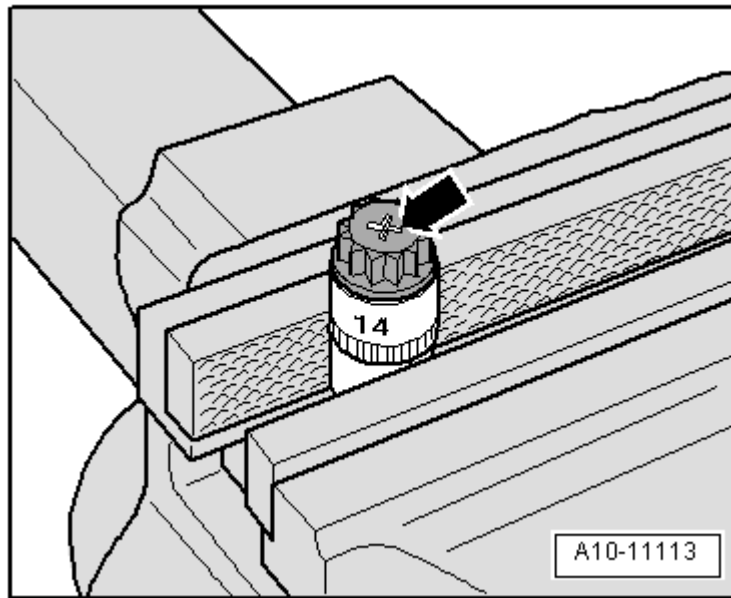


Fig. 119: Identifying Bolts Marked With An "X" May Not Be Used Again
Courtesy of AUDI OF AMERICA, LLC

- Bolts marked with an "X" may not be used again.

PROCEDURE

NOTE:

- Replace the bolts which are being tightened with an additional turn.
- Replace self-locking nuts and bolts and seals, gaskets and O-rings.
- In vehicles with manual transmissions, there is a needle bearing in the drive plate. Check if the needle bearing is inserted before installing. Needle bearing, removing from and installing on drive plate. Refer to **NEEDLE BEARING ON DRIVE PLATE** .
- The hose connections as well as the air guide pipes and hoses must be free of oil and grease before installing.
- Secure all hose connections with hose clamps of the same type as those equipped by the factory.
- To mount the air guide hoses on their connectors securely, spray the bolts on the used clamps with rust remover before installing.
- When installing, bring all cable ties back to the same positions.

-- Install the engine supports and engine mount. Refer to **SUBFRAME MOUNT OVERVIEW**.

-- Clean the threaded holes in the cylinder block for connecting the engine and transmission using a thread tap before installing the transmission.

-- The following preparations must be made before connecting the engine and transmission:

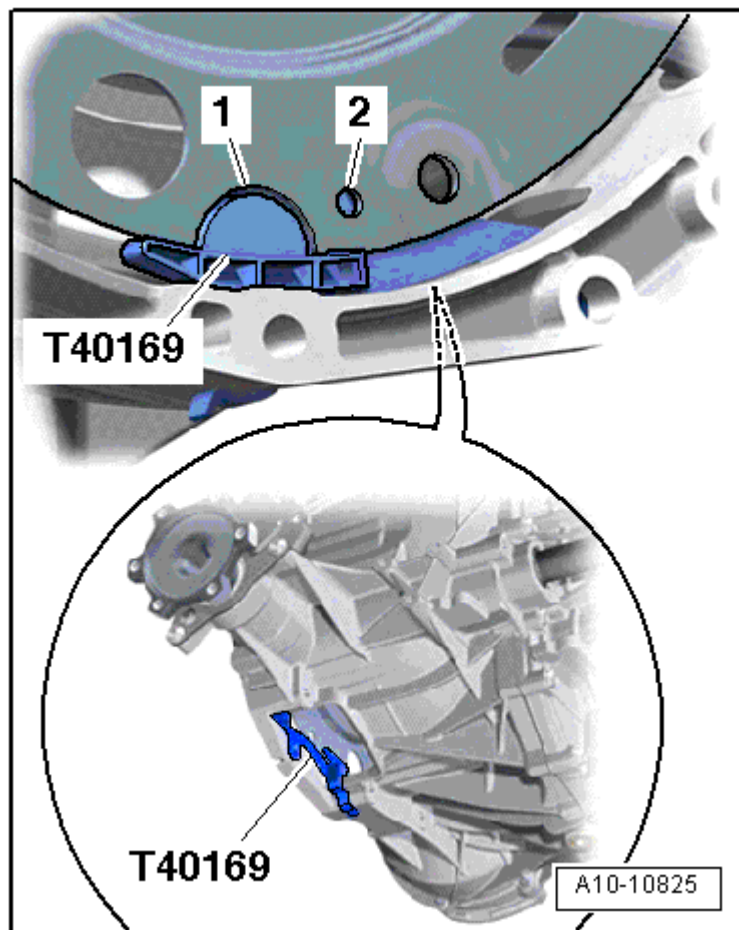


Fig. 120: Inserting Assembly Aid T40169 Into Transmission Housing And Flywheel

Courtesy of AUDI OF AMERICA, LLC

-- Insert the T40169 into the transmission housing and clutch module from underneath as illustrated.

- The assembly aid must engage in the semicircular opening -1- and in the inspection hole -2-.

NOTE: **The inspection hole is only in one location on the circumference so rotate the clutch module as needed.**

-- Install the assembly aid bolt into the hole on the transmission housing.

-- Insert the T40170 in the transmission housing from below and secure it on the flange shaft -1-.

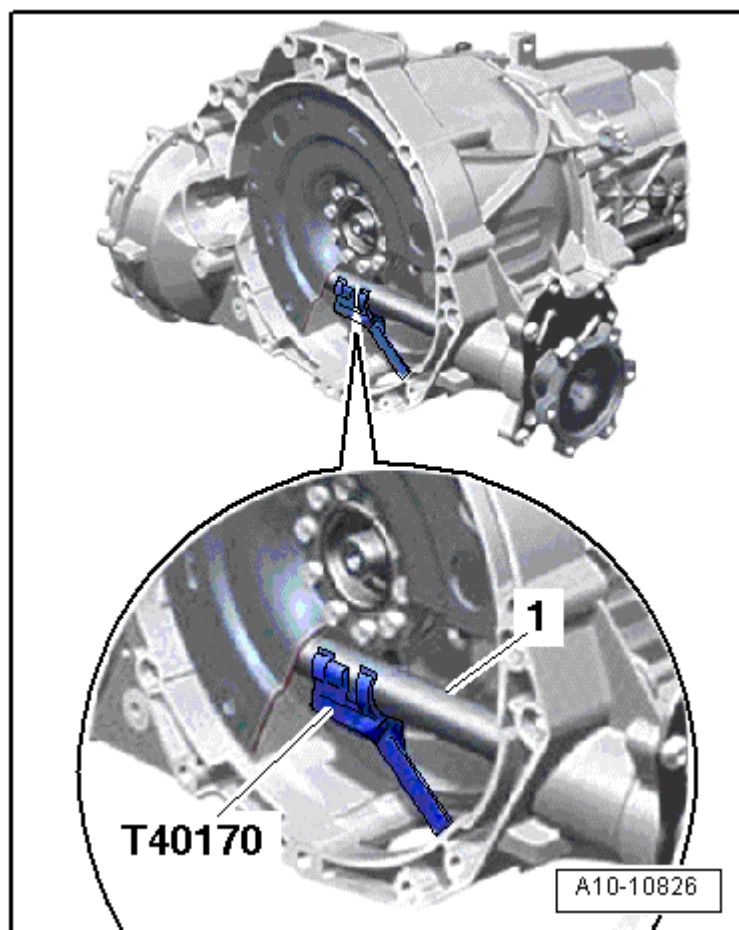


Fig. 121: Identifying Transportation Lock T40170

Courtesy of AUDI OF AMERICA, LLC

-- Check if the alignment sleeves -A- for centering the engine/transmission are in the cylinder block and insert them if they are not.

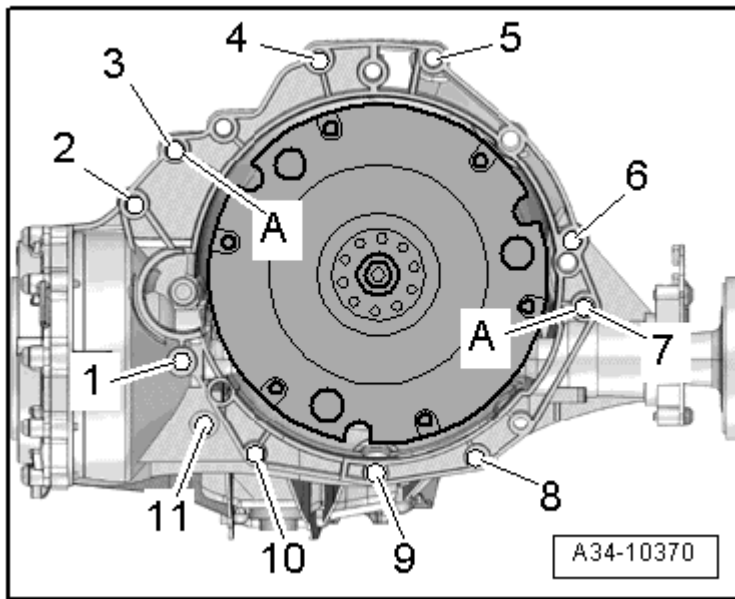


Fig. 122: Inspecting Aluminum Bolts To Connect Engine To Transmission
 Courtesy of AUDI OF AMERICA, LLC

- Inspect the aluminum bolts used to connect the engine to the transmission to see if they can be used again and mark them, if necessary, refer to **Aluminum Bolts**.
- Position the transmission on the engine and tighten the bolts -1 through 11-.
- Remove the T40170 and T40169.

NOTE: The following procedure is necessary to assure that the clutch module contacts the drive plate evenly and does not get bent.

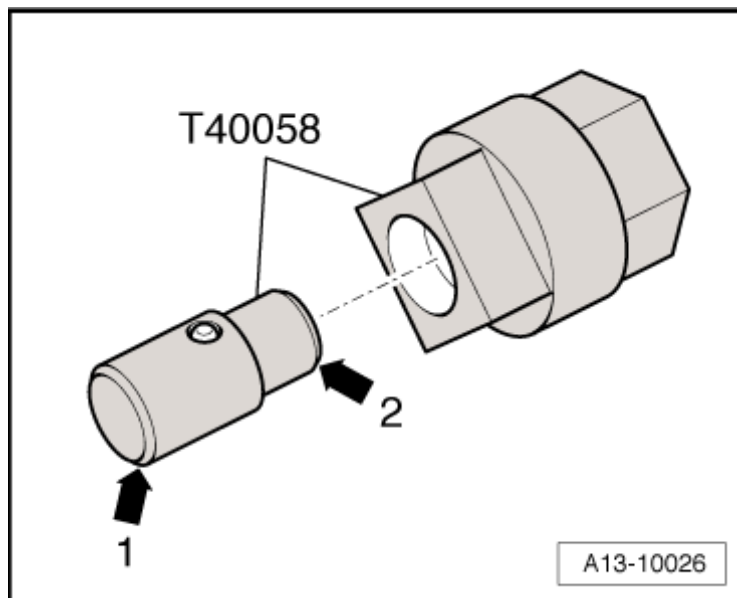


Fig. 123: Identifying Guide Pin And Adapter T40058
Courtesy of AUDI OF AMERICA, LLC

-- Insert the T40058 guide pins as follows:

- The large diameter -arrow 1- faces the engine.
- The small diameter -arrow 2- faces the adapter.

-- Turn the crankshaft further one complete turn (360°) in direction of engine rotation -arrow- using the T40058 and ring wrench.

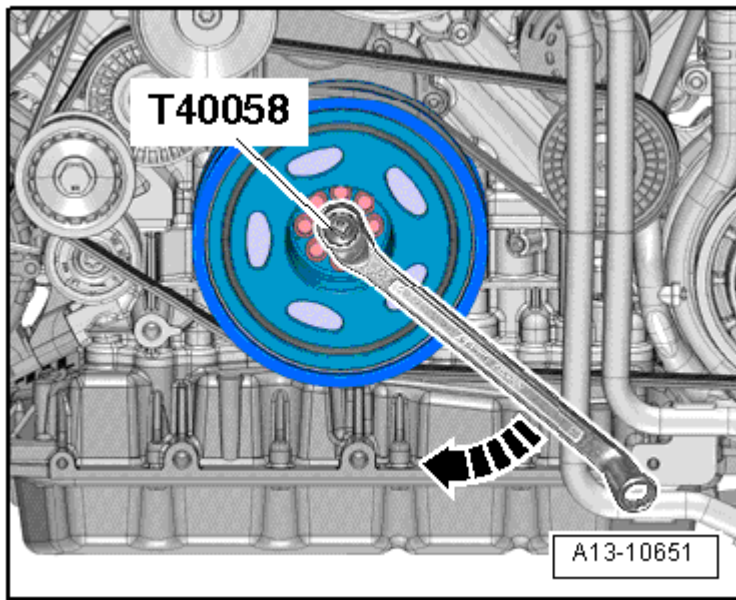


Fig. 124: Using Socket T40058 To Counter Hold Crankshaft
Courtesy of AUDI OF AMERICA, LLC

- The inspection hole -arrow- must be visible through the opening in the transmission housing.

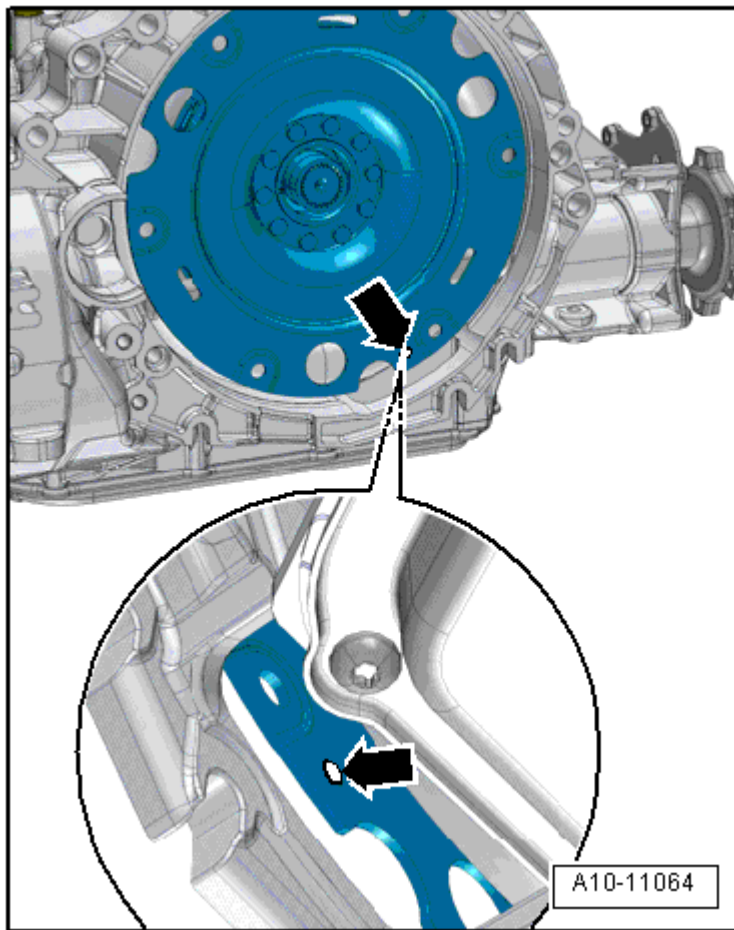


Fig. 125: Locating Transmission Housing Check Hole
Courtesy of AUDI OF AMERICA, LLC

-- Secure the clutch module to the drive plate as follows:

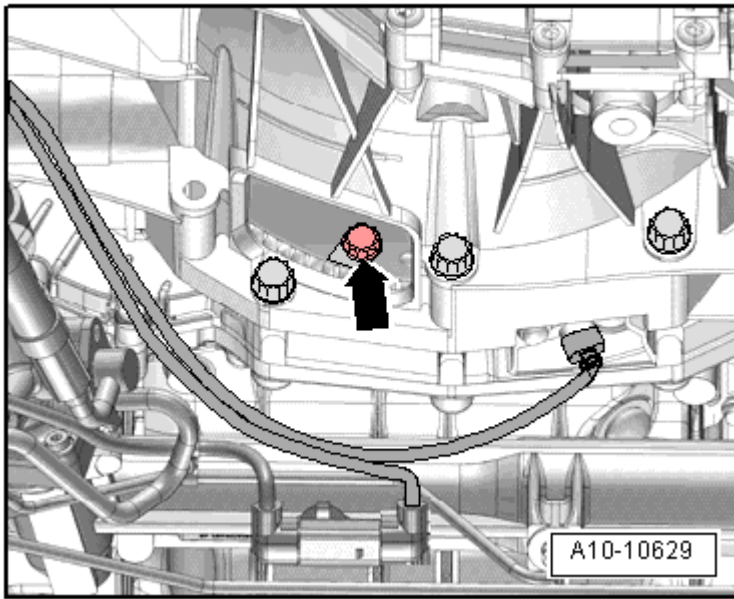


Fig. 126: Identifying Clutch Module First Bolt Installation Location (2 Of 2)
 Courtesy of AUDI OF AMERICA, LLC

NOTE: Tighten the bolt with the V.A.G 1332/14.

- Install the first bolt -arrow- and tighten by hand (2 Nm).
- Rotate the crankshaft with the T40058 180° in direction of engine rotation.
- Tighten the bolts that are accessible in this position to the tightening specification. Refer to Specifications .
- Turn the crankshaft 60° further and tighten the remaining 5 bolts to the tightening specification. Refer to Specifications .
- Install the power steering hydraulic oil lines. Refer to Description and Operation .
- Install the left and right drive axles on the transmission flange shafts. Refer to Removal and Installation .
- Install the catalytic converters: for the left one, refer to LEFT CATALYTIC CONVERTER and for the right one, refer to RIGHT CATALYTIC CONVERTER .
- Next, raise engine/transmission subassembly high enough using VAS 6131 A until dimension -a- is reached between the subframe and body.

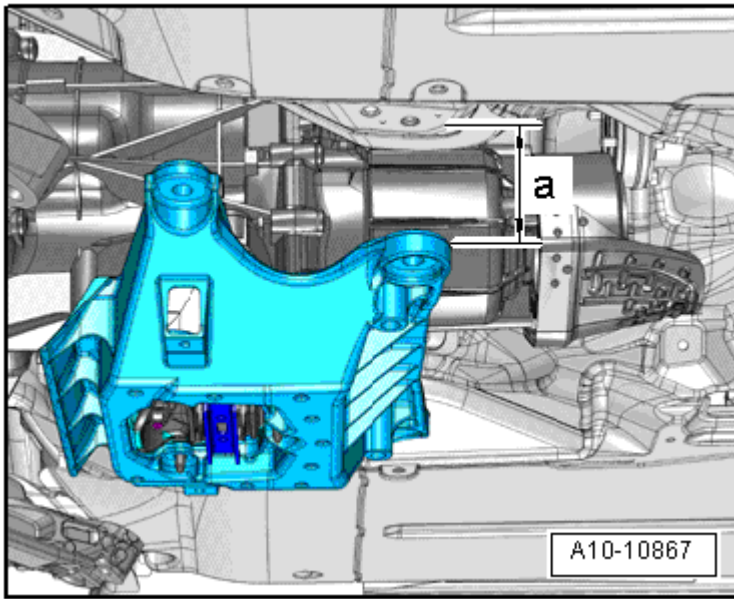


Fig. 127: Lowering Transmission
Courtesy of AUDI OF AMERICA, LLC

- -a- = minimum 100 mm
- Install the shift rod and pivot rod. Refer to **Description and Operation** .
- Continue raising the engine/transmission subassembly using the VAS 6131 A.
- Align the subframe and transmission carrier using the marks made on the longitudinal members during removal.
- Tighten the subframe bolts only to the tightening specifications, do not tighten them further (tighten the bolts only after axle alignment). Refer to **Specifications** .

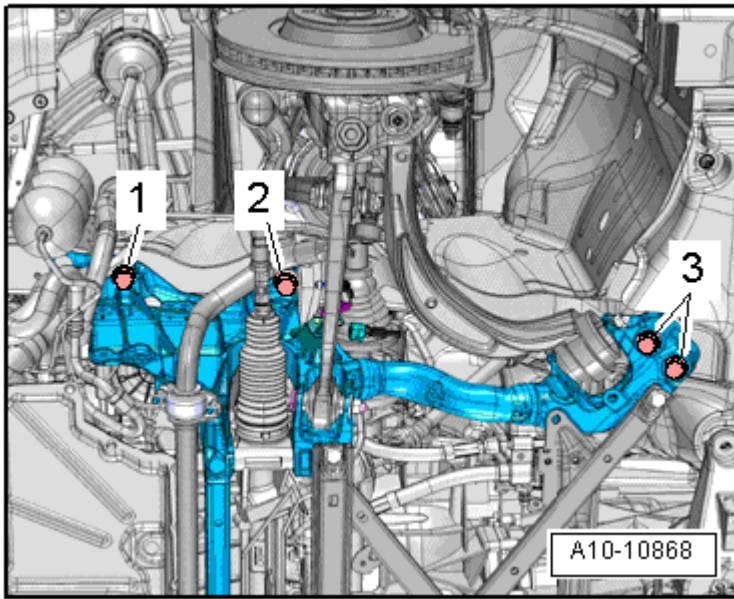


Fig. 128: Identifying Subframe Bolts (Tighten To Specifications)
 Courtesy of AUDI OF AMERICA, LLC

WARNING: Risk of accident due to loose connections.

- If the bolts in the subframe are not tightened to final torque, vehicle must not be driven.

-- Tighten the tunnel crossmember bolts -arrow-. Refer to Specifications .

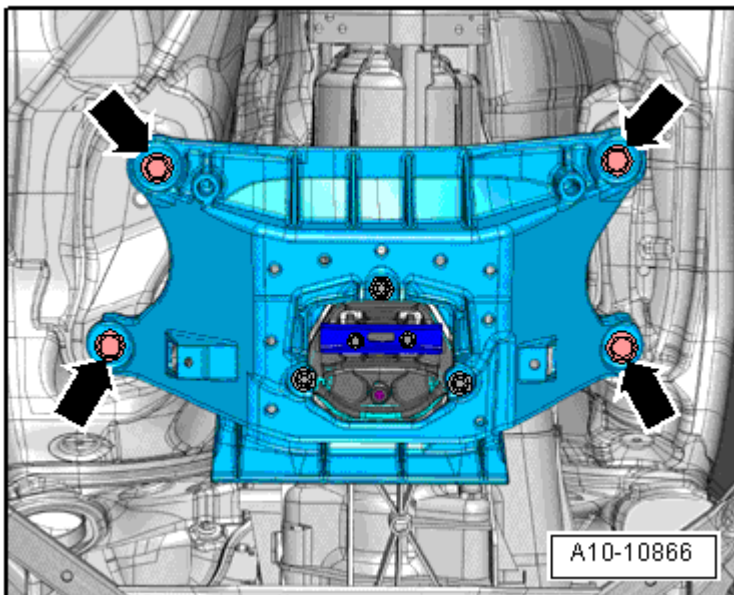


Fig. 129: Identifying Bolts To Tunnel Crossmember
 Courtesy of AUDI OF AMERICA, LLC

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

- Install the clutch slave cylinder. Refer to **Removal and Installation** .
- Attach the steering intermediate shaft to the steering gear. Refer to **Removal and Installation** .
- Install the driveshaft. Refer to **Removal and Installation** or **Removal and Installation** .
- Install the front muffler. Refer to **FRONT MUFFLER** .
- Install exhaust system free of stress. Refer to **EXHAUST SYSTEM, INSTALLING** .
- Install the front crossmember. Refer to **Description and Operation** .
- Install the subframe cross brace, upper control arm and stabilizer bar and tighten the suspension strut on the control arm. Refer to **Removal and Installation** .
- Install diagonal braces. Refer to **Removal and Installation** .
- Install brake caliper. Refer to **Removal and Installation** .
- Install the Engine Control Module (ECM). Refer to **Removal and Installation** .
- Electrical connectors and wiring routing. Refer to the appropriate SYSTEM WIRING DIAGRAMS information.
- Install the wires, terminal 30, wire junction 2 -TV22- and the engine compartment E-box cover. Refer to **Fig. 116, Fig. 117** and **Removal and Installation** .
- Install the tower brace. Refer to **Removal and Installation** .
- Install the windshield wiper fluid reservoir filler tube. Refer to **Removal and Installation** .
- Install refrigerant lines. Refer to **Removal and Installation** .
- Be sure to follow the procedure for connecting the battery and afterwards. Refer to **Removal and Installation** .

CAUTION: There is a risk of destroying control modules with excess voltage.

- **Do not use a charger as a starting aid.**

- Install the fuel supply hose and air filter housing. Refer to **Removal and Installation** .
- Install the lock carrier braces. Refer to **Description and Operation** .
- Fill the engine oil and check the level. Refer to **MAINTENANCE PROCEDURES**

-- Before starting the engine for the first time, check the fluid level in the power steering reservoir. Refer to **General Information** .

NOTE: **The power steering pump must not run dry.**

-- Connect the coolant hose to the coupling. Refer to **Fig. 130**.

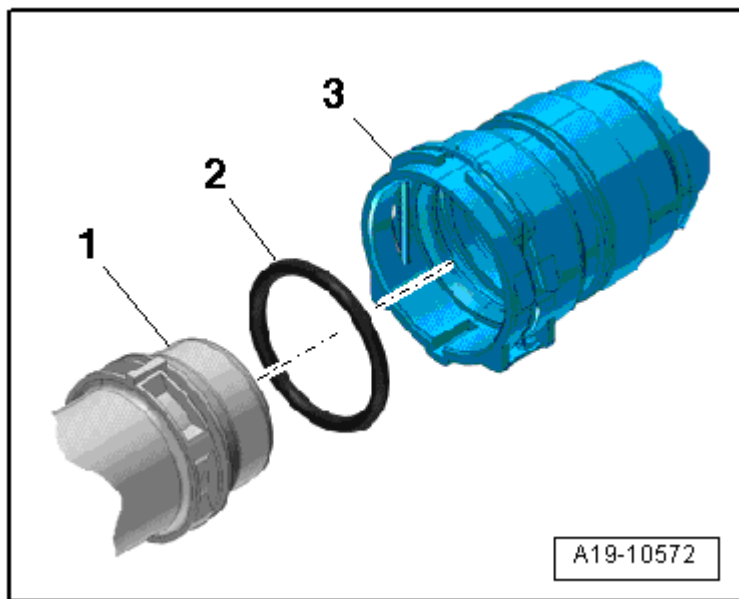


Fig. 130: Connecting Coolant Hose To Coupling
Courtesy of AUDI OF AMERICA, LLC

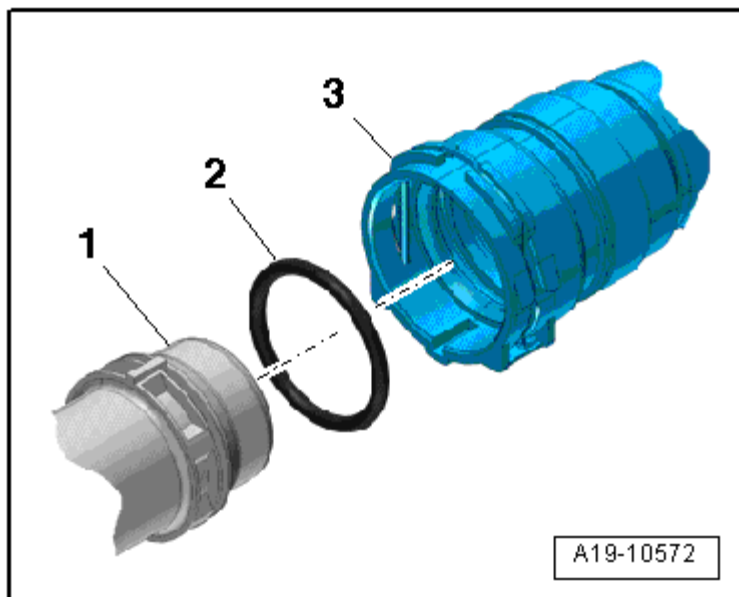


Fig. 131: Connecting Coolant Hose To Coupling
Courtesy of AUDI OF AMERICA, LLC

-- Fill the coolant. Refer to **COOLANT, DRAINING AND FILLING => Filling** .

NOTE:

- Do not use drained coolant in the following situations:
- If the cylinder head or cylinder block was replaced.
- If the coolant is contaminated.

-- Fill the refrigerant circuit. Refer to **GENERAL INFORMATION** .

-- Install the wheel housing liners. Refer to **Removal and Installation** .

-- Install the front wheels. Refer to **Removal and Installation** .

-- Perform axle alignment. Refer to **General Information** .

WARNING: Risk of accident due to loose connections.

- Tighten the subframe bolts to the specification after performing axle alignment.

-- Install the noise insulation. Refer to **Description and Operation** .

RIGHT ENGINE MOUNT**NOTE:**

- To avoid repeat repairs, do the following if the engine mount is faulty:
- Replace the faulty engine mount and its retaining plate.
- Likewise replace the engine mount on the opposite side, check the retaining plate and replace it if necessary.

Special tools and workshop equipment required

- Engine Support Bridge 10 - 222 A
- Spindles 10 - 222 A /11
- Engine Support Supplement Set T40093
- Adapter T40093/6

Removing

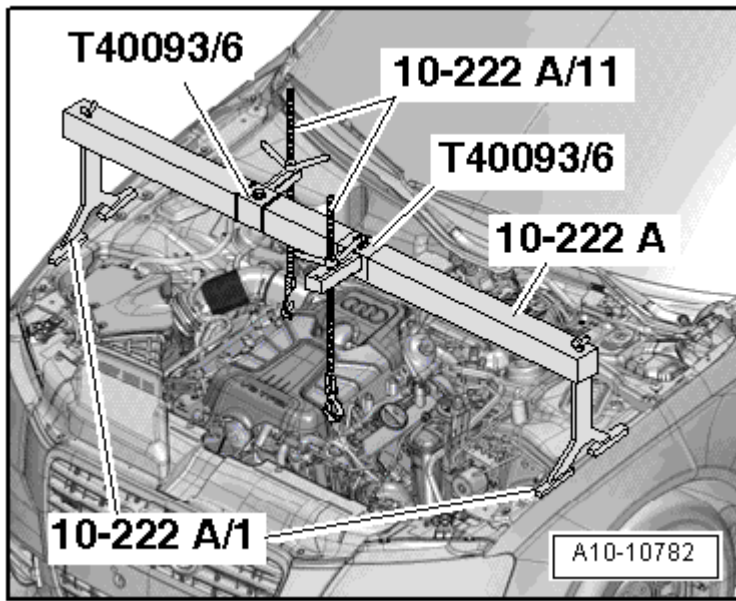


Fig. 132: Mounting 10 - 222 A With T40093/6 On Left And Right Suspension Strut Towers
Courtesy of AUDI OF AMERICA, LLC

- Install the 10 - 222 A with one on the left and right strut towers, as shown in the illustration.
- Attach the 10 - 222 A /11 to the left and right engine lifting eyes.
- Lightly tension the engine with spindles.
- Remove the right front wheel. Refer to **Removal and Installation** .

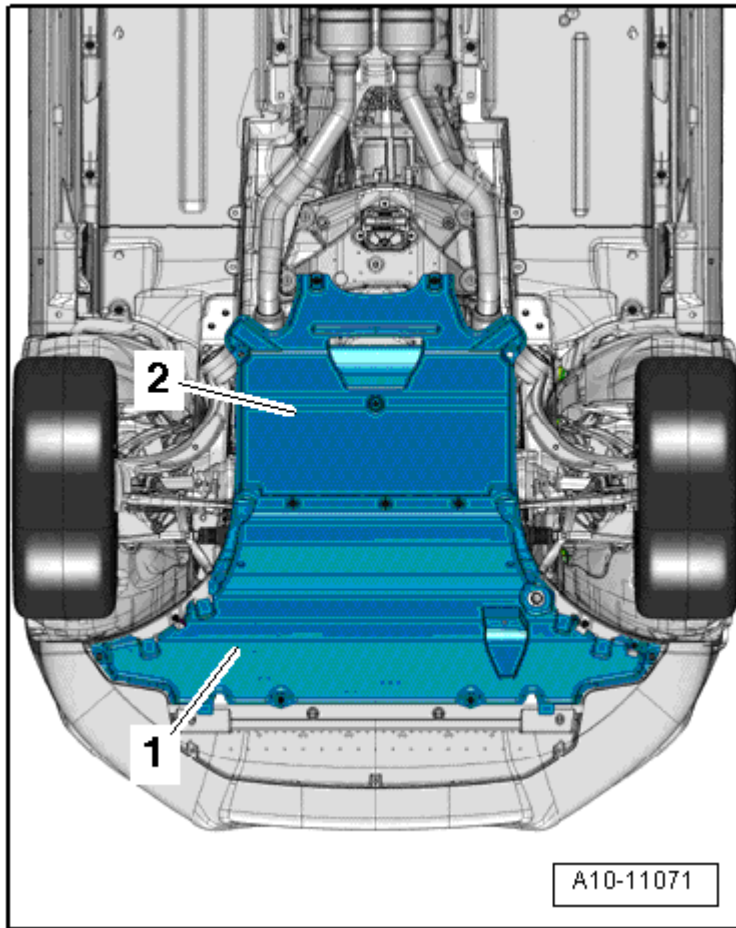


Fig. 133: Identifying Front Noise Insulation

Courtesy of AUDI OF AMERICA, LLC

- Remove the right front wheel housing liner. Refer to **Removal and Installation** .
- Remove the noise insulation -1 and 2-. Refer to **Description and Operation** .
- Remove and disconnect the connector -2- on the right electrohydraulic engine mount solenoid valve -N145-.

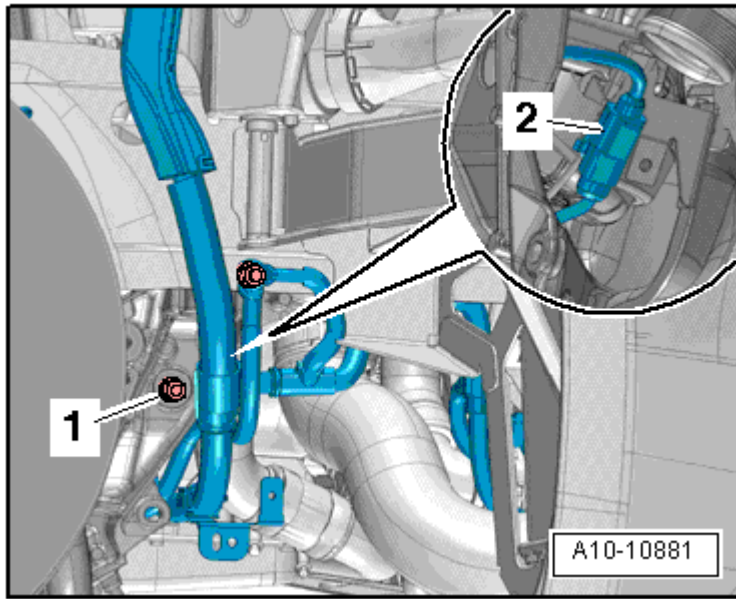


Fig. 134: Loosening Nut On Electrical Wiring Bracket Several Turns
Courtesy of AUDI OF AMERICA, LLC

- Remove the nut -1- and remove the bracket with the wiring harness from the subframe.
- Remove the bolts -1, 2 and 4- and move the right engine mount retaining plate -3- to the side.

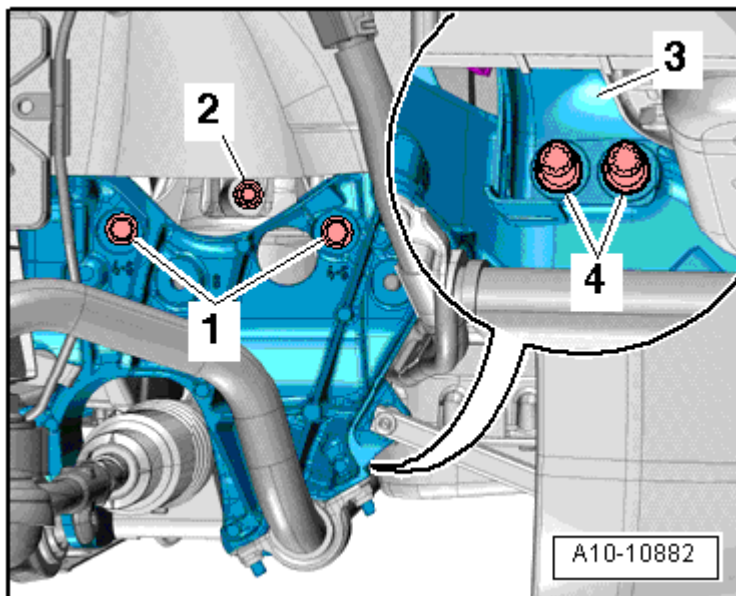


Fig. 135: Identifying Bolts And Right Engine Mount Retaining Plate
Courtesy of AUDI OF AMERICA, LLC

Vehicles with S-Tronic transmission 0B5

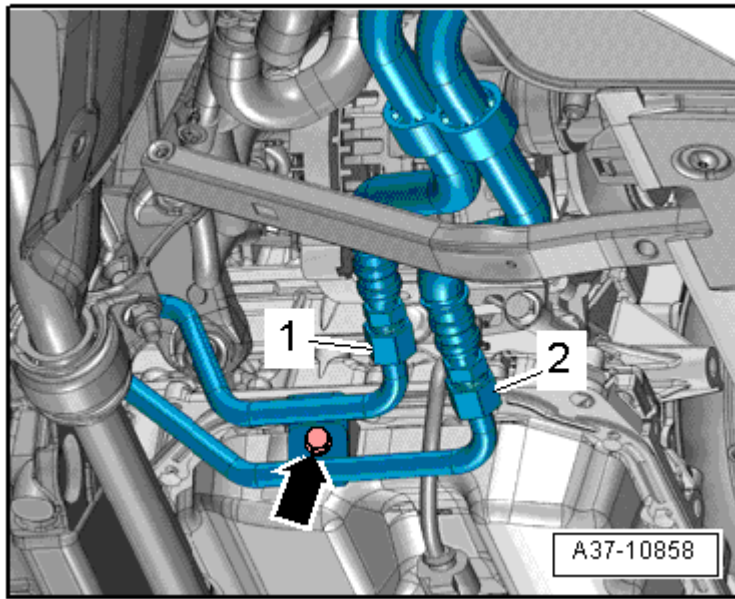


Fig. 136: Identifying ATF Line Bracket
Courtesy of AUDI OF AMERICA, LLC

-- Remove bolt -arrow- on ATF line bracket.

NOTE: Ignore -1 and 2-.

All Vehicles

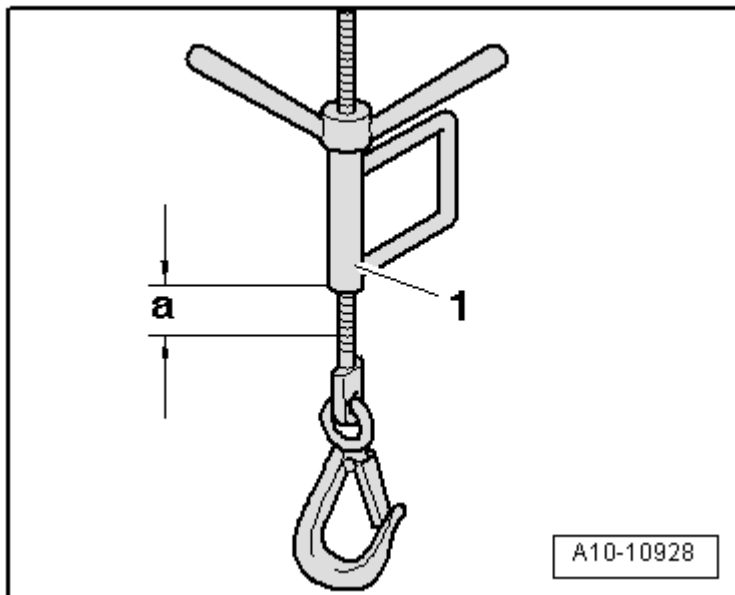


Fig. 137: Identifying Special Tool -- 10 - 222 A /11
Courtesy of AUDI OF AMERICA, LLC

2012 Audi S4

ENGINE 3.0 Liter - Engine Assembly - Engine Code(s): CCBA (Sedan)

-- Lift the engine by the right 10 - 222 A /11 -1- by dimension -a-.

- Dimension -a- = approximately 20 mm.

-- Remove the right engine mount.

Installing

Install in reverse order of removal. Note the following:

- Tightening specifications, refer to **SUBFRAME MOUNT OVERVIEW**.

NOTE: Replace bolts that are tightened to the specification.

Vehicles with S-Tronic Transmission 0B5

-- Install ATF lines. Refer to **Removal and Installation** .

All Vehicles

-- Install the front wheel housing liner and noise insulation. Refer to **Removal and Installation** .

-- Install the front wheel. Refer to **Removal and Installation** .

S-TRONIC TRANSMISSION

ENGINE, REMOVING

- NOTE:**
- With lock carrier installed, engine is removed downward together with the transmission and the subframe.
 - Collect escaping coolant in a clean container for disposal or reuse.
 - During installation, cable ties must be installed at the same location.

Special tools and workshop equipment required

- Pry Lever - Rmv Outside Mirro r80 - 200
- Oil Collecting and Extracting Device V.A.G 1782
- Step Ladder VAS 5085
- Engine Bung Set VAS 6122
- Scissor Lift Table VAS 6131 A with Support Set VAS 6131/10 and Supplementary Set VAS 6131/11 and VAS 6131/13
- Drip Tray for VAS 6100 VAS 6208
- Hose Clip Pliers VAS 6362

Procedure

WARNING: Risk of vehicle tipping over with engine removed.

- Secure vehicle. Luggage compartment must be empty for this.

There is a risk of injury because the fuel is under very high pressure.

- Reduce the fuel pressure down to residual pressure before opening the high pressure area of the fuel injection system.

-- Reduce fuel pressure in high pressure area. Refer to General Information .

-- Position the front wheels so they are straight.

NOTE: Release the electro-mechanical parking brake before disconnecting the battery so the drive axle can be rotated to remove it.

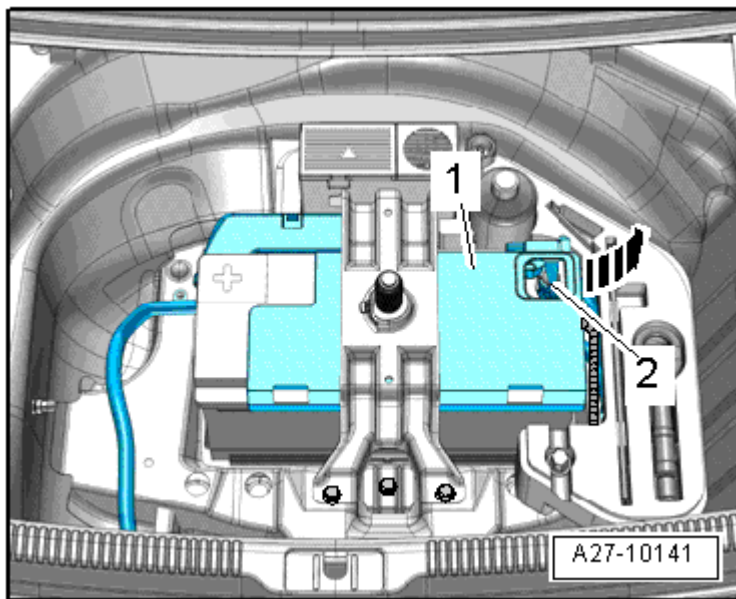


Fig. 138: Identifying Battery

Courtesy of AUDI OF AMERICA, LLC

CAUTION: Risk of destroying electrical components.

- Observe measures for disconnecting battery.

-- Turn off the ignition and remove the key.

-- Disconnect the Ground (GND) cable -2- from the battery post. Refer to Removal and Installation .

-- Empty coolant circuit. Refer to **GENERAL INFORMATION** .

Vehicles with Hydraulic Power Steering

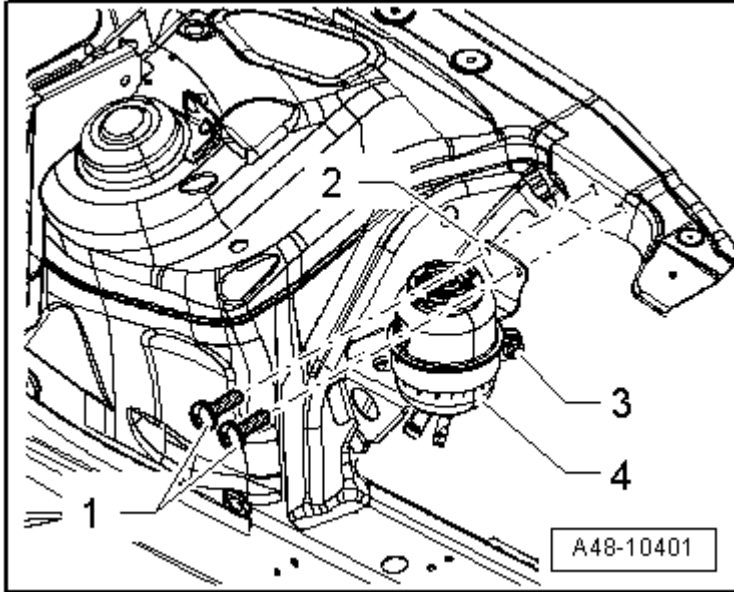


Fig. 139: Identifying Reservoir Bracket To Body
Courtesy of AUDI OF AMERICA, LLC

-- Extract the power steering fluid from the power steering reservoir using the V.A.G 1782 -3-.

NOTE: Ignore -1, 2 and 4-.

All Vehicles

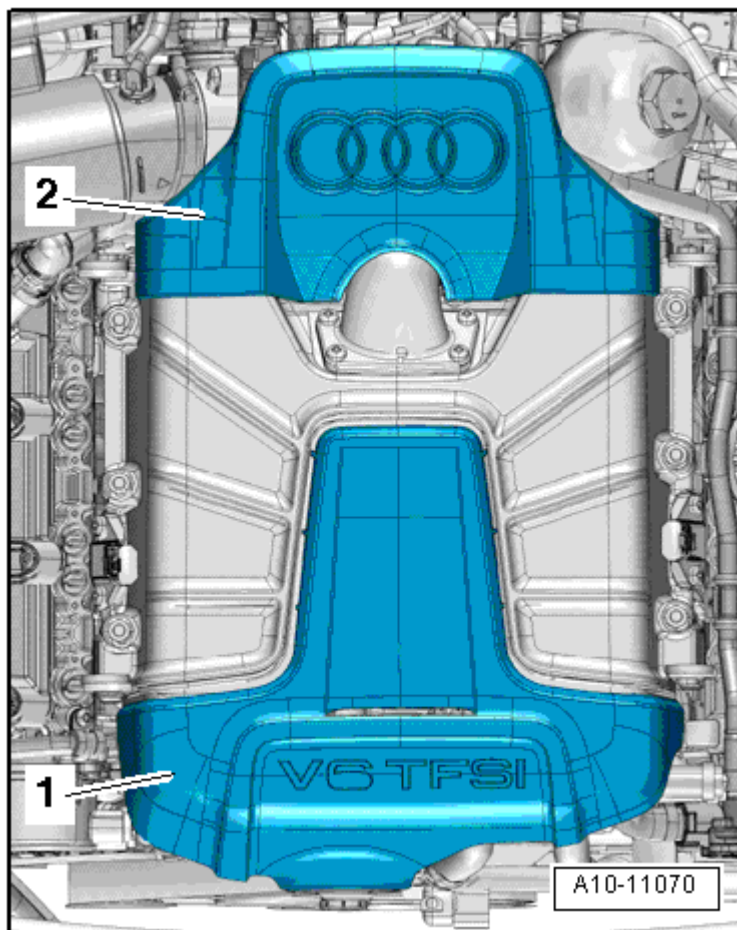


Fig. 140: Identifying Engine Cover -1- And -2-
Courtesy of AUDI OF AMERICA, LLC

-- Remove the engine covers -1 and 2- upward.

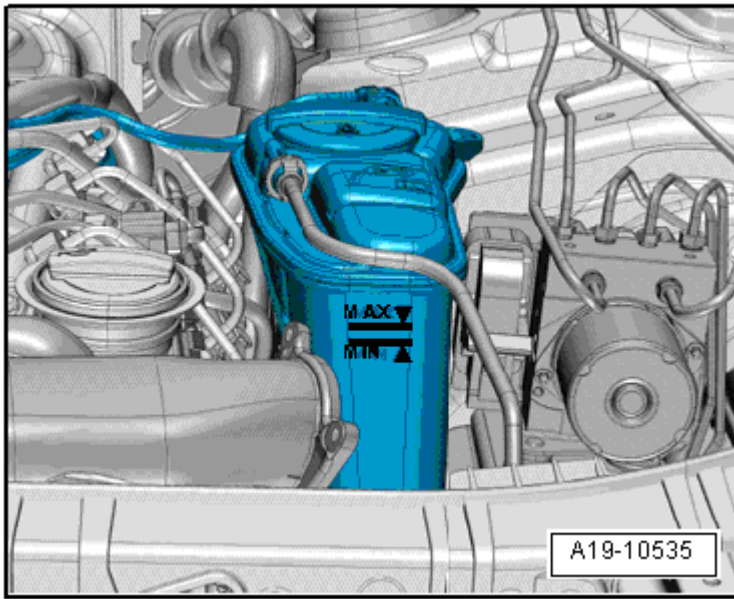


Fig. 141: Identifying Coolant Reservoir Marking
Courtesy of AUDI OF AMERICA, LLC

WARNING: Risk of scalding due to hot steam and hot coolant.

- The coolant system is under pressure when the engine is warm.
- Cover the coolant reservoir cap with a cloth and then open it slowly to release the pressure in the system.

-- Open the coolant reservoir cap.

-- Remove the left and right front wheels. Refer to **Removal and Installation** .

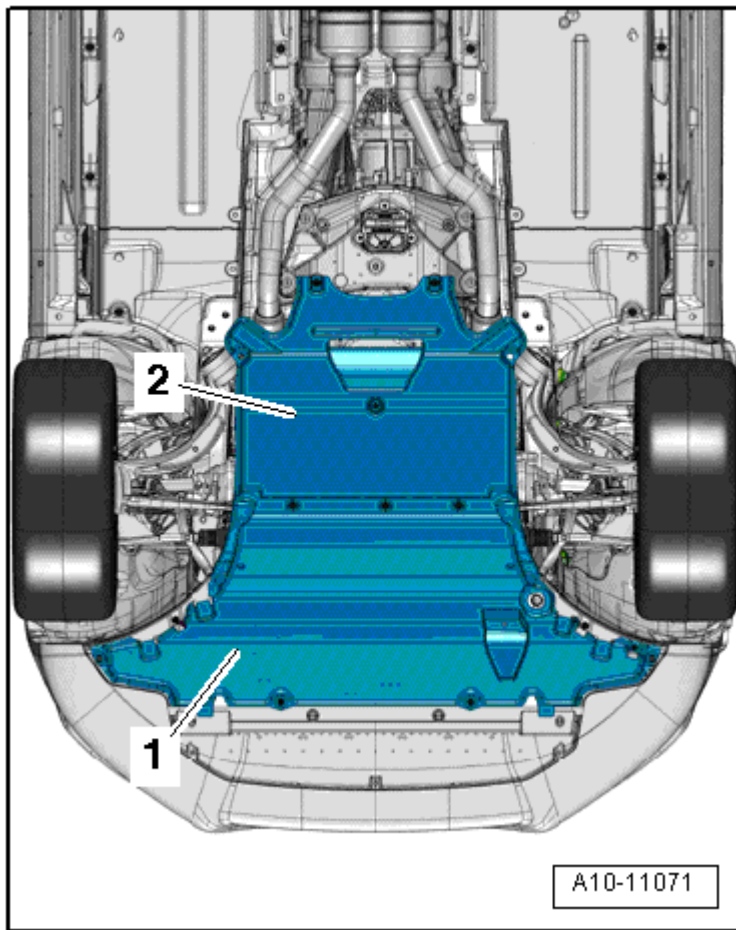


Fig. 142: Identifying Front Noise Insulation

Courtesy of AUDI OF AMERICA, LLC

- Remove left and right front wheel housing liners. Refer to **Removal and Installation** .
- Remove the noise insulation -1 and 2-. Refer to **Description and Operation** .
- Place VAS 6208 under engine.

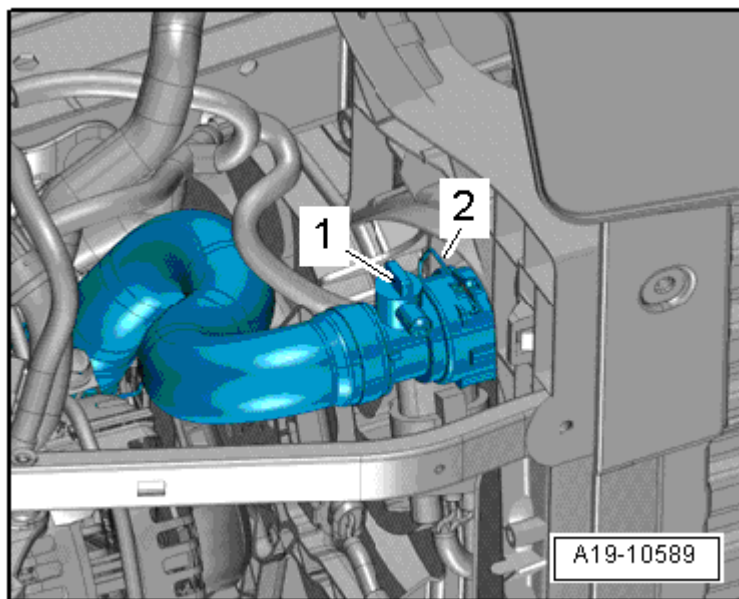


Fig. 143: Identifying Drain Plug To Coolant
Courtesy of AUDI OF AMERICA, LLC

- Remove the drain plug -1- and drain the coolant.
- Lift the clip -2- and disconnect the coolant hose from the radiator.
- Loosen the hose clamp -arrow-, remove the coolant hose from the oil cooler and drain the coolant.

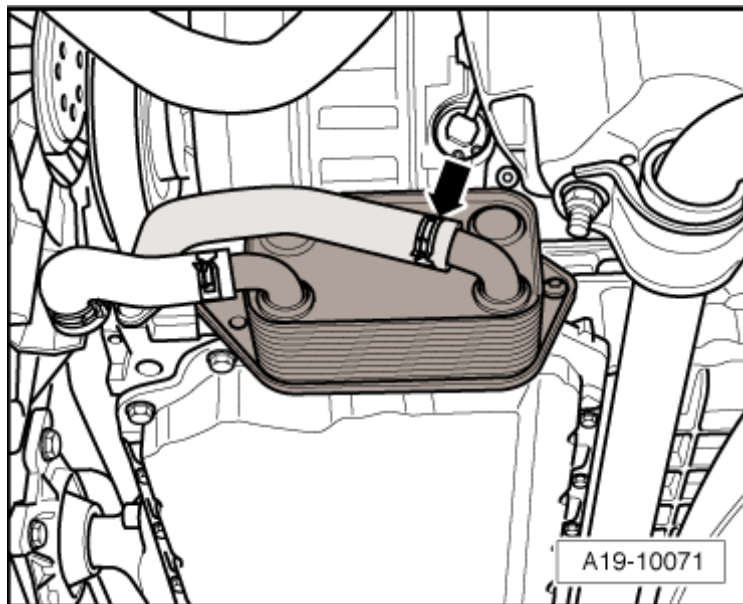


Fig. 144: Disconnecting Coolant Hose From Oil Cooler
Courtesy of AUDI OF AMERICA, LLC

NOTE: The engine is not shown in the following illustrations.

Vehicles with Left Front Coolant Pipes, Version 1

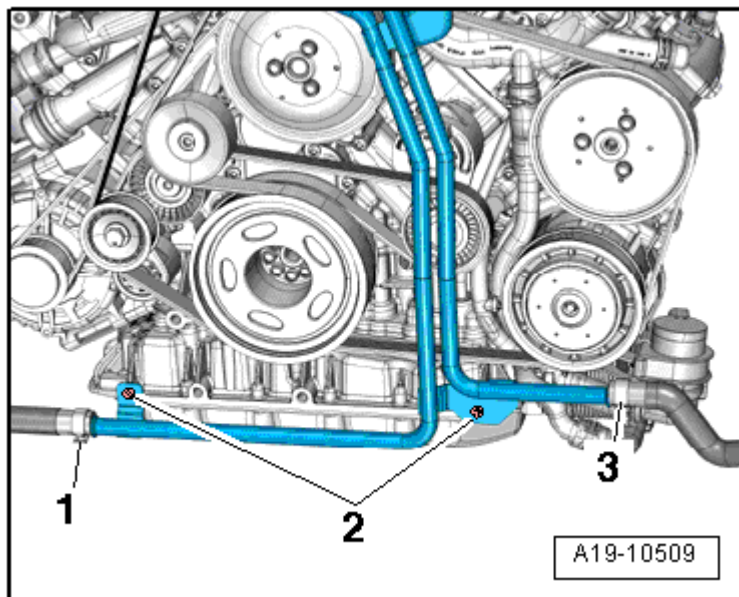


Fig. 145: Identifying Hose Clamps -1 And 3- & Left Front Coolant Hose
 Courtesy of AUDI OF AMERICA, LLC

-- Loosen the hose clamps -1 and 3-, remove the left front coolant hoses from the coolant pipes and drain any remaining coolant.

NOTE: Ignore -2-.

Vehicles with Left Front Coolant Pipes, Version 2

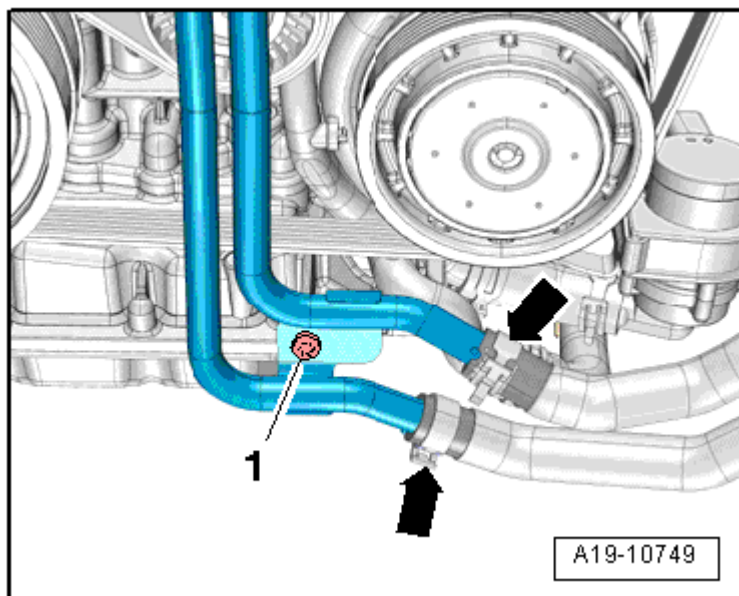


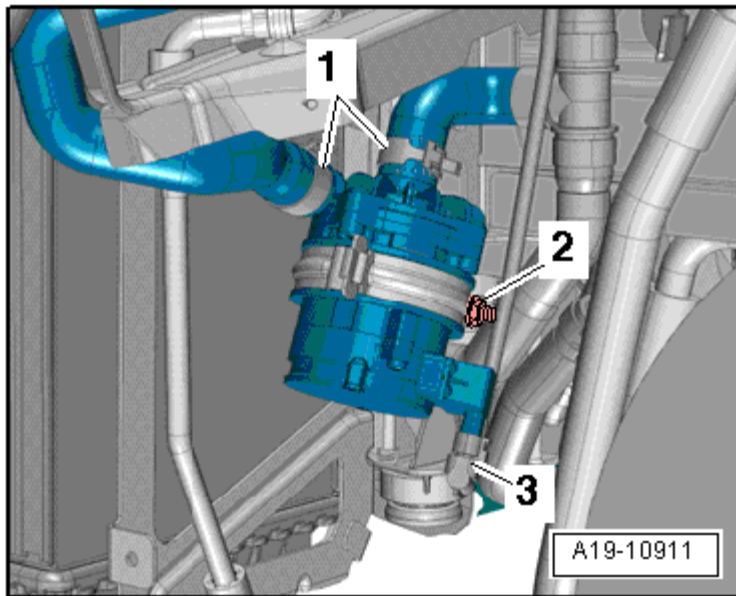
Fig. 146: Locating Lower Coolant Pipe Bolt

Courtesy of AUDI OF AMERICA, LLC

-- Loosen the clamps -arrows-, drain any remaining coolant and then remove the coolant hoses from the left front coolant pipes.

NOTE: Ignore -1-.

All Vehicles

**Fig. 147: Identifying Charge Air Cooling Pump -V188-, Tightening Specifications**

Courtesy of AUDI OF AMERICA, LLC

-- Disconnect and free up the connector -3- on the charge air cooling pump -V188-.

NOTE: Ignore -1 and 2-.

Vehicles with Hydraulic Power Steering

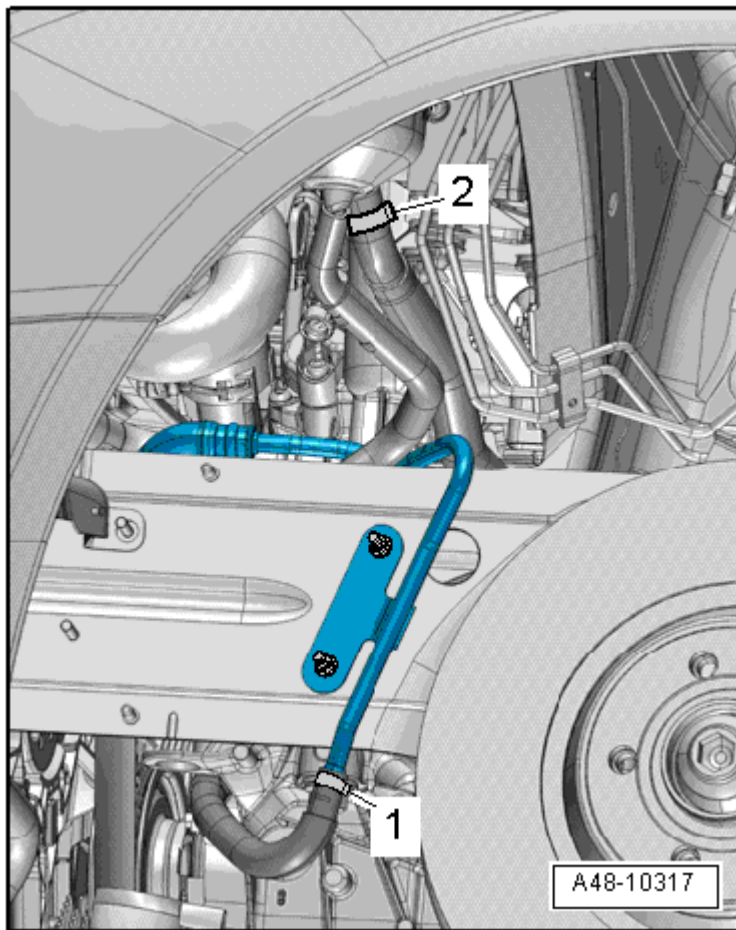


Fig. 148: Disconnecting Power Steering Hydraulic Oil Supply Line
Courtesy of AUDI OF AMERICA, LLC

- Place the V.A.G 1782 under the disconnection point.
- Disconnect the power steering hydraulic oil supply line -2- and return line -1- in the left front wheel housing and free them up.
- Seal any open lines and connections with a clean plug from the VAS 6122.

All Vehicles

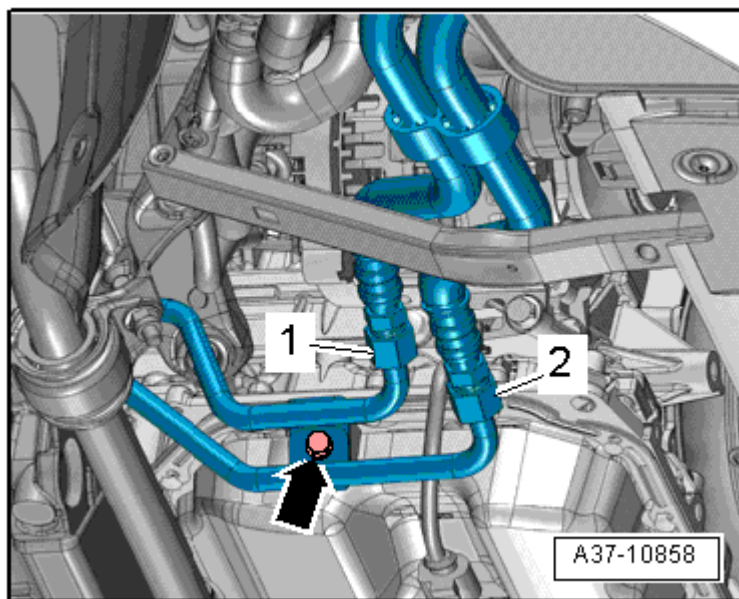


Fig. 149: Identifying ATF Line Bracket
Courtesy of AUDI OF AMERICA, LLC

- Place the V.A.G 1782 under the disconnection point.
- Mark the locations of the ATF lines -1 and 2- so they can be installed later and then disconnect them.
- Seal any open lines and connections with a clean plug from the VAS 6122.

NOTE: Ignore -arrow-.

Vehicles with Coolant Recirculation Pump -V50-, Version 1

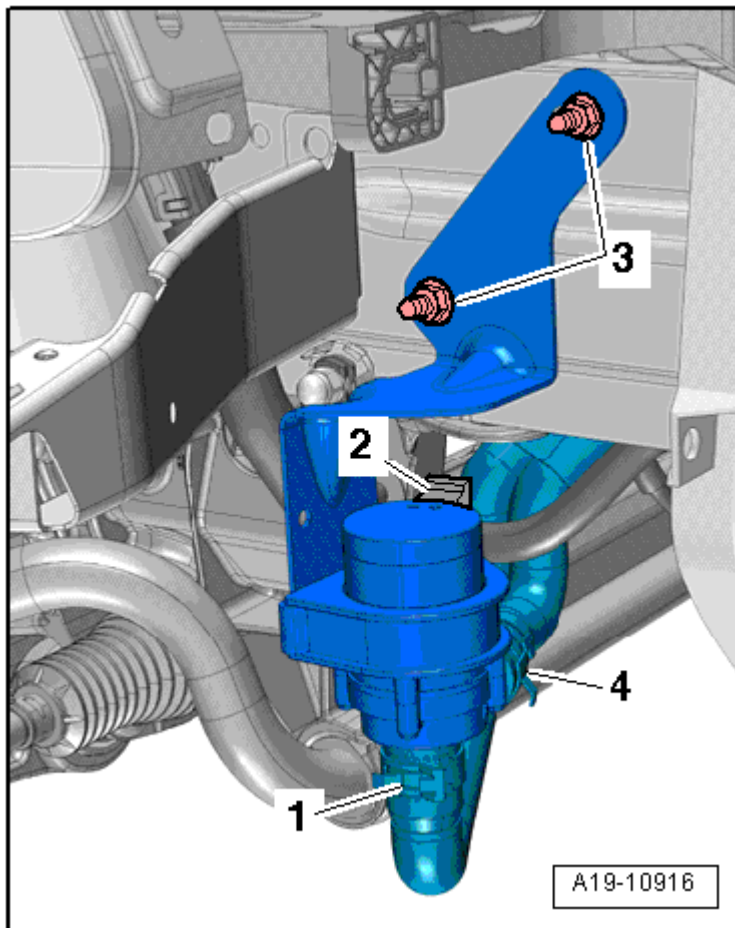


Fig. 150: Identifying Coolant Recirculation Pump Components
Courtesy of AUDI OF AMERICA, LLC

- Disconnect the connector -2-.
- Place the VAS 6208 under the engine.
- Loosen the hose clamp -1- and remove the coolant hose from the coolant recirculation pump.

NOTE: Ignore -3 and 4-.

All Vehicles

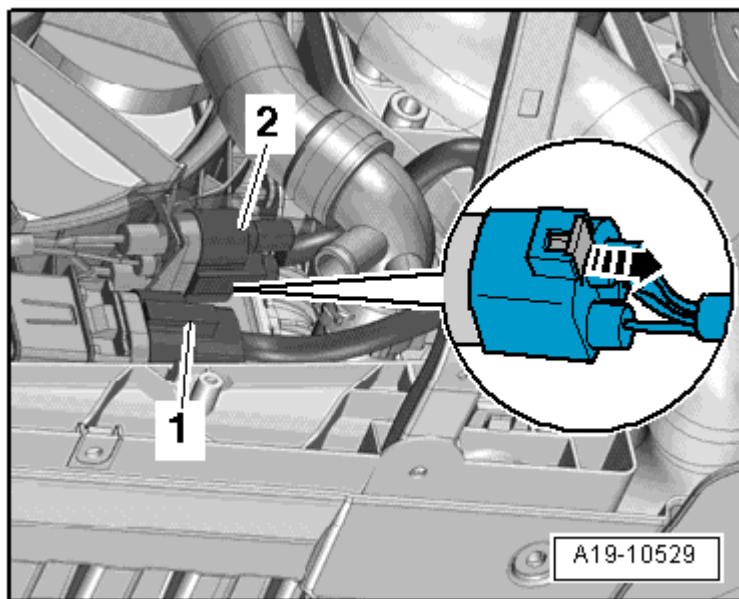


Fig. 151: Freeing Up Electrical Wiring Harness
Courtesy of AUDI OF AMERICA, LLC

-- Disconnect the radiator fan electrical connectors -1 and 2-, to do this, push the clamp to the rear -arrow- and push the release down.

-- Free up the wiring harness.

Vehicles with Secondary Air Injection (AIR) Pump Motor -V101-, Version 1

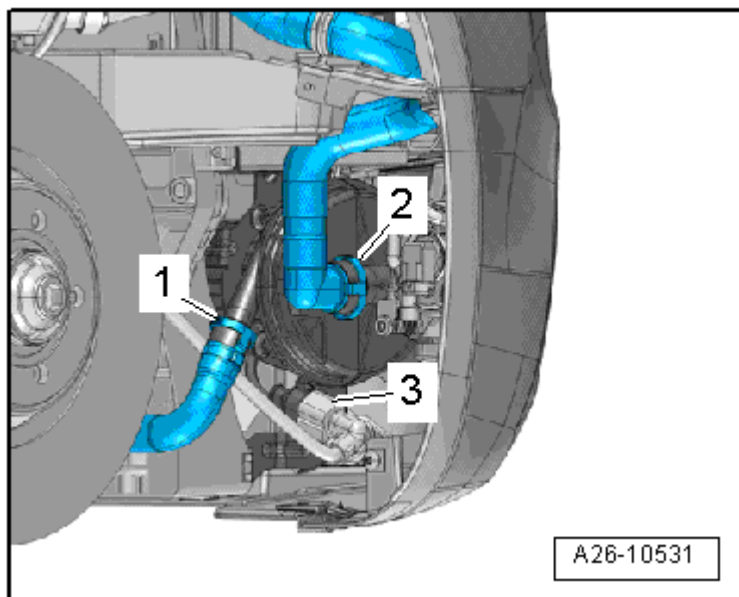


Fig. 152: Locating Secondary Air Injection (AIR) Pump Motor -V101-
Courtesy of AUDI OF AMERICA, LLC

-- Disconnect the connector -3- on the AIR pump motor.

-- Press the release buttons and remove the secondary air hose -1-.

NOTE: Ignore -2-.

Vehicles with Secondary Air Injection (AIR) Pump Motor -V101-, Version 2

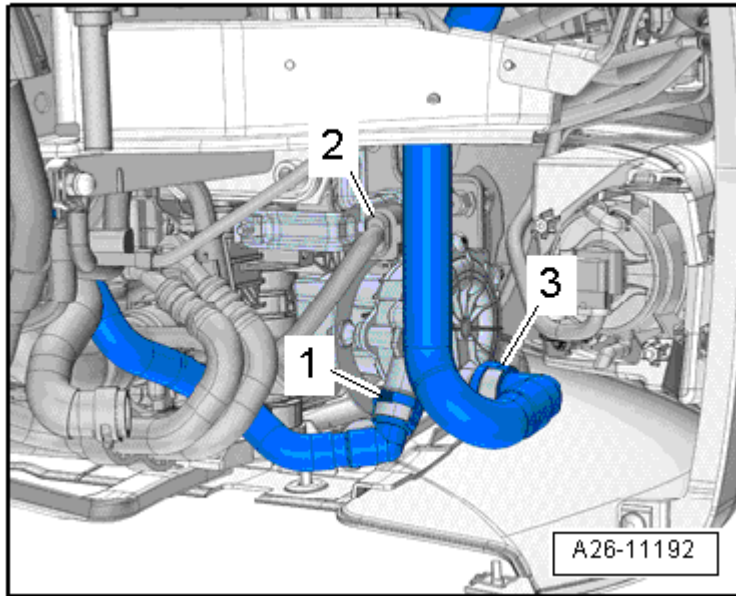


Fig. 153: Identifying Secondary Air Injection (AIR) Pump Motor Components
Courtesy of AUDI OF AMERICA, LLC

-- Disconnect the connector -2- on the AIR pump motor.

-- Press the release buttons and remove the secondary air hose -1-.

NOTE: Ignore -3-.

All Vehicles

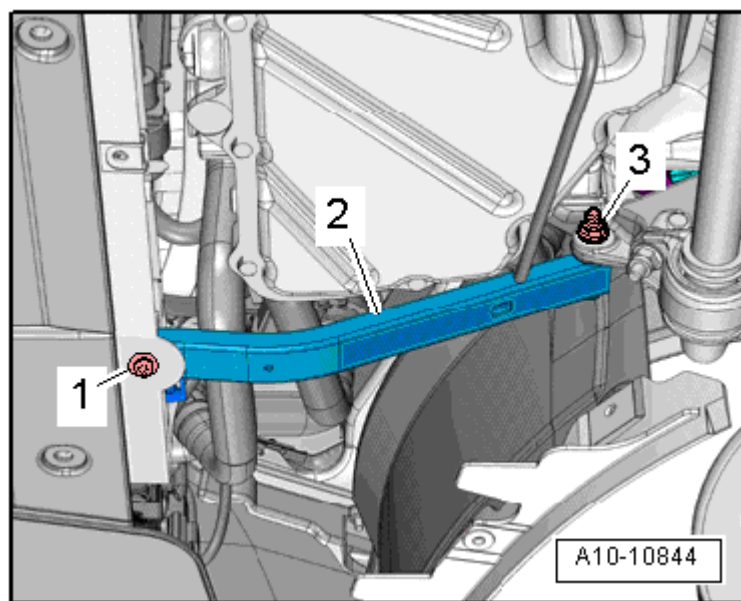


Fig. 154: Identifying Carrier Left Brace Components
Courtesy of AUDI OF AMERICA, LLC

- Remove the left and right bolt -1- and nut -3- and the lock carrier brace -2-.
- Remove the nut -arrow- on the right longitudinal member and free up the Ground (GND) wires.

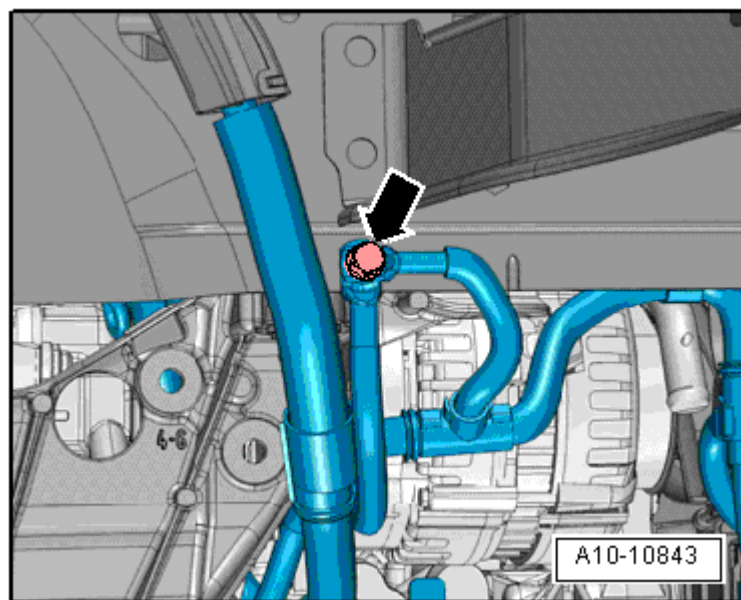


Fig. 155: Identifying Nut -Arrow- To Longitudinal Member
Courtesy of AUDI OF AMERICA, LLC

- Remove the seal from the plenum chamber bulkhead.

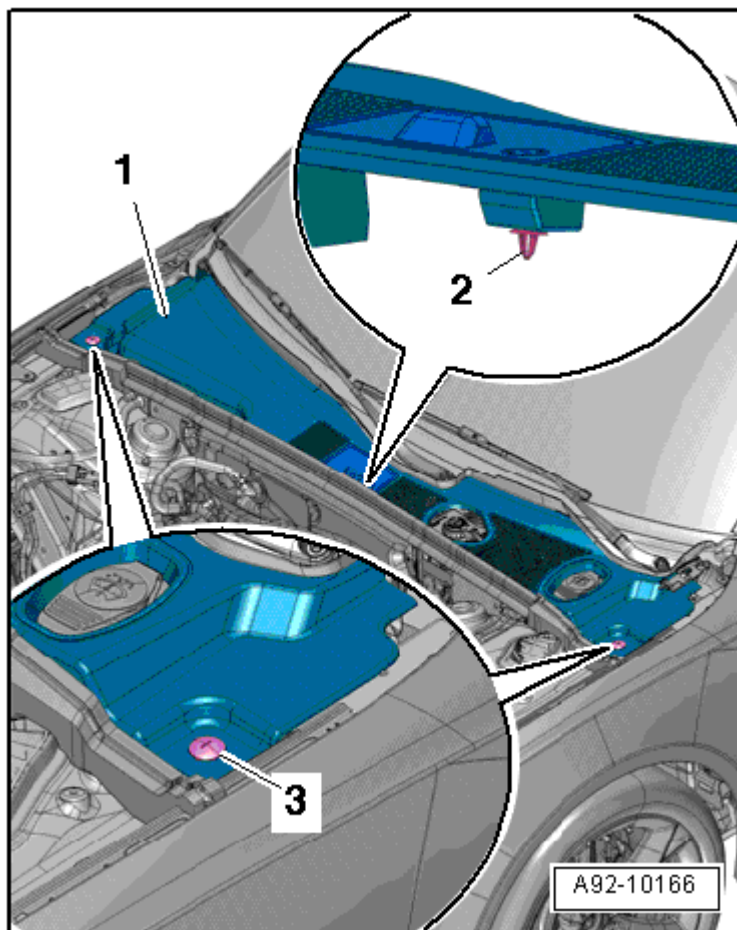


Fig. 156: Identifying Plenum Chamber Cover, Removal
Courtesy of AUDI OF AMERICA, LLC

- Remove the plenum chamber cover. Refer to **Removal and Installation** .
- Remove the air duct -arrows-.

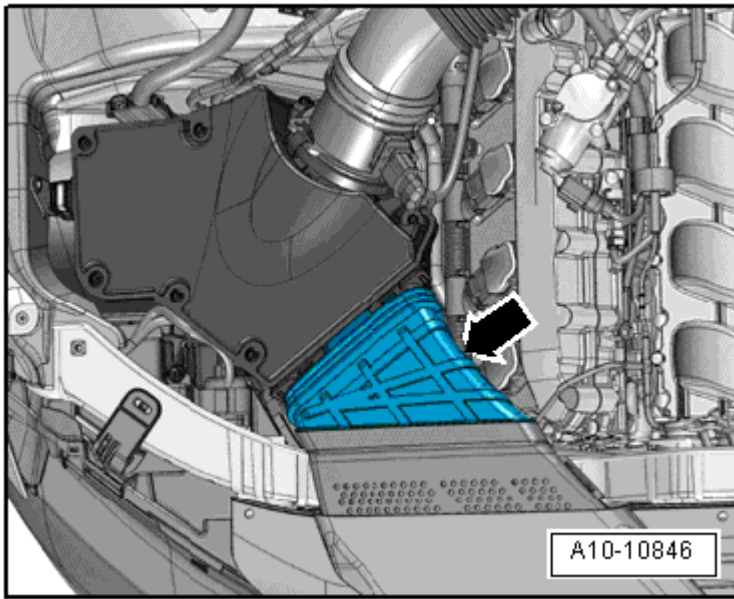


Fig. 157: Identifying Air Duct

Courtesy of AUDI OF AMERICA, LLC

-- Free up the fuel hose -1- and the EVAP canister hose -2- on the air duct pipe.

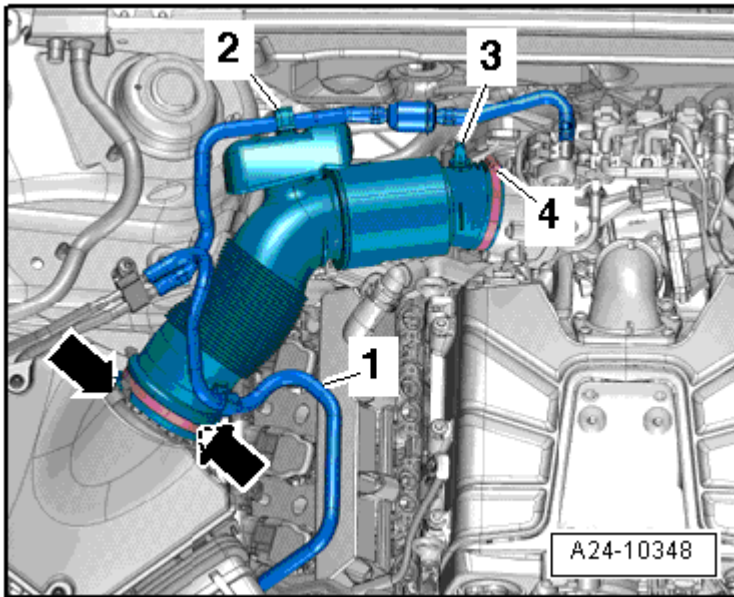


Fig. 158: Identifying Air Guide Pipe

Courtesy of AUDI OF AMERICA, LLC

-- Remove the vacuum hose -3- from the air guide pipe connection.

-- Remove the air guide pipe by loosening the hose clamp -4- and opening the clips -arrows-.

-- Remove the air filter housing and where equipped, disconnect the connector -arrow- on the intake air switch-

over valve -N335-.

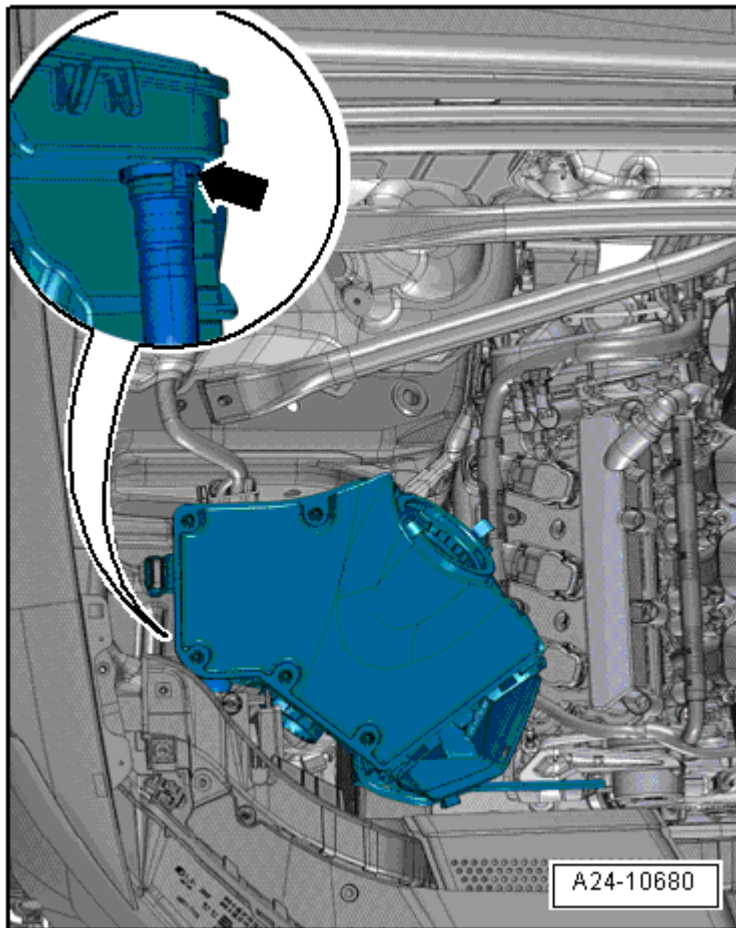


Fig. 159: Identifying Intake Air Switch-Over Valve Connector
Courtesy of AUDI OF AMERICA, LLC

-- Disconnect the vacuum connection -2- from the plenum chamber bulkhead. Remove the vacuum hose -1- on the back.

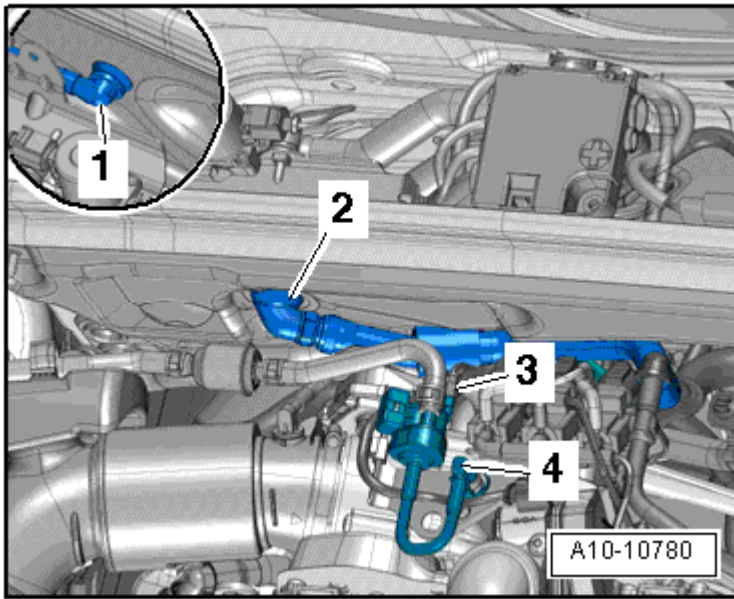


Fig. 160: Identifying Evaporative Emission (EVAP) Canister Purge Regulator Valve 1 -N80- -3- Connector

Courtesy of AUDI OF AMERICA, LLC

-- Disconnect the connector -3- on Evaporative Emission (EVAP) canister purge regulator valve 1 -N80- and disconnect the vacuum hose -4-.

-- Disengage the EVAP canister purge regulator valve 1 from the bracket and lay it aside with the hoses connected.

-- Disconnect the vacuum hose leading to the leak detection pump -V144- -arrow-.

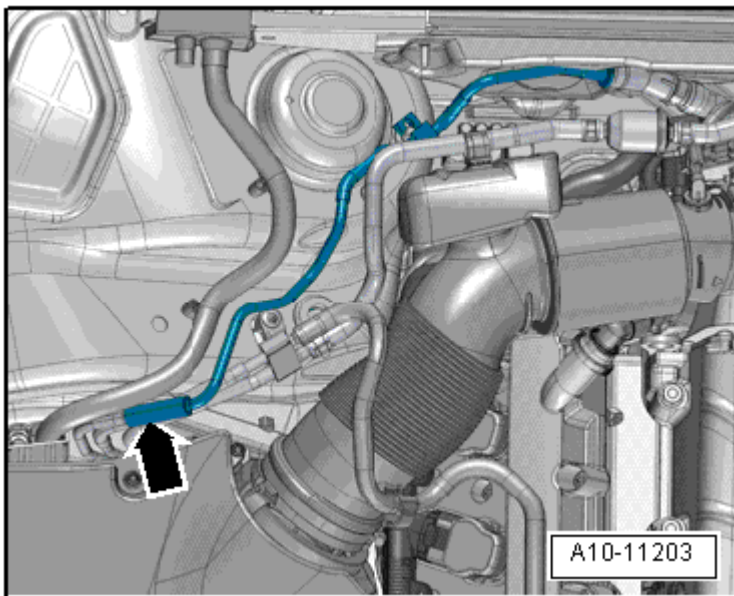


Fig. 161: Identifying Leak Detection Pump Vacuum Hose

Courtesy of AUDI OF AMERICA, LLC

All Vehicles

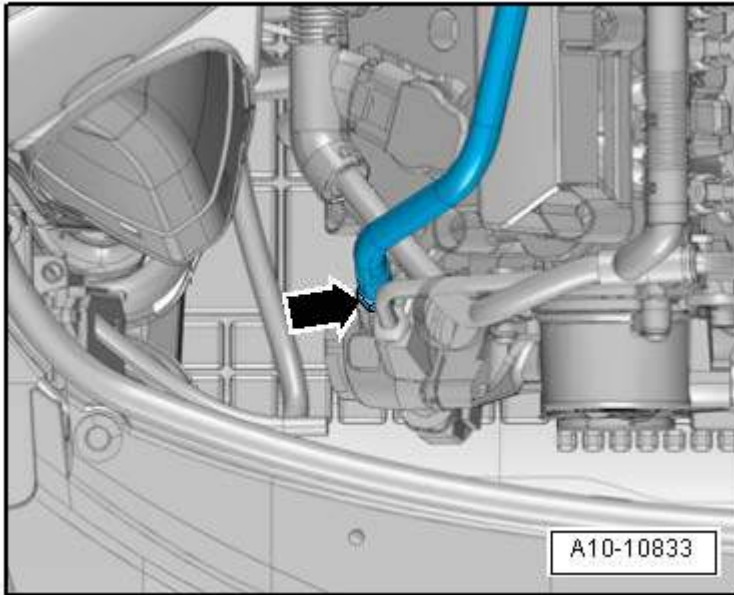


Fig. 162: Identifying Fuel Supply Hose
Courtesy of AUDI OF AMERICA, LLC

WARNING: Risk of injury from fuel.

- To reduce fuel pressure, lay cloths around connecting point before opening the fuel system and carefully loosen.

CAUTION: There is a risk of contamination.

- Follow the guidelines for cleanliness when working on the fuel supply system. Refer to CLEAN WORKING CONDITIONS .

-- Remove the fuel supply line from the high pressure pump -arrow- and lay it aside.

-- Seal any open lines and connections with a clean plug from the VAS 6122.

Vehicles with Version 1

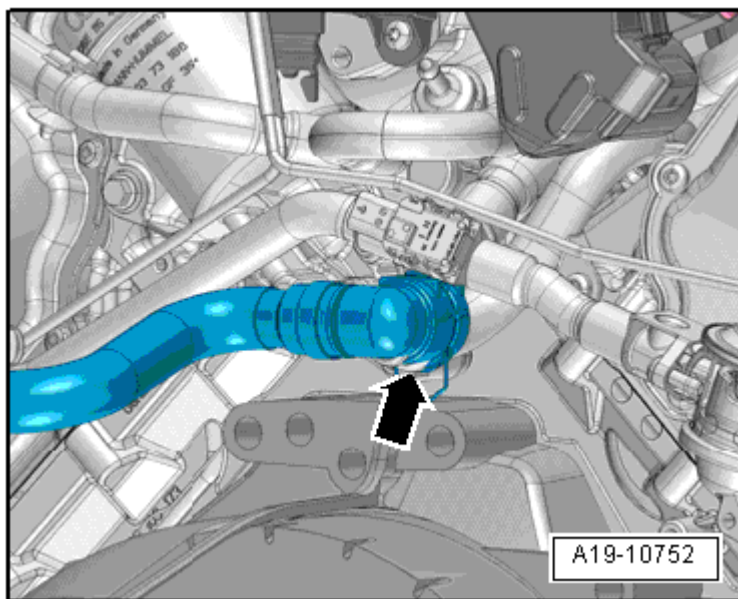


Fig. 163: Identifying Coolant Hose Clamp
Courtesy of AUDI OF AMERICA, LLC

-- Lift the clamp -arrow- and remove the coolant hose leading to the back of the heater core on the engine.

NOTE: To provide a better illustration, component location is shown from behind with engine removed.

-- Remove the vacuum hose -1- for the climatronic refrigerant shut-off valve -N422-.

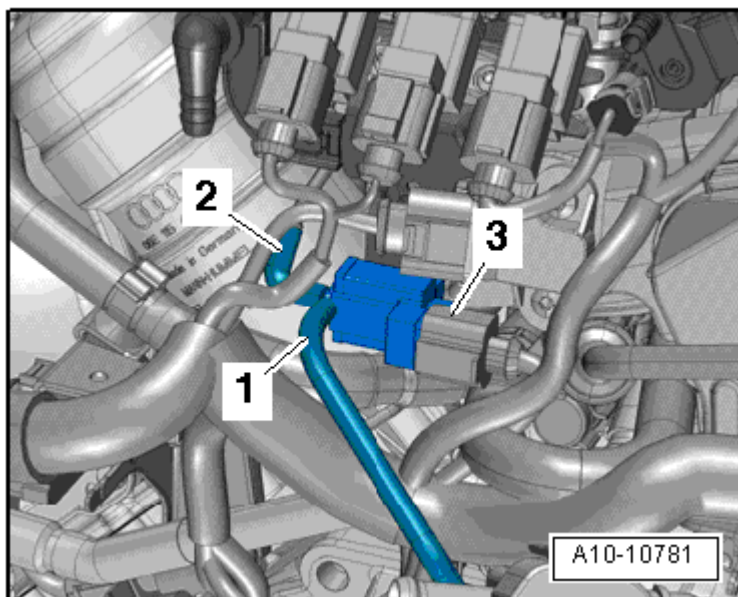


Fig. 164: Disconnecting Connector & Vacuum Hoses
Courtesy of AUDI OF AMERICA, LLC

NOTE: Ignore -2 and 3-.

Vehicles with Version 2

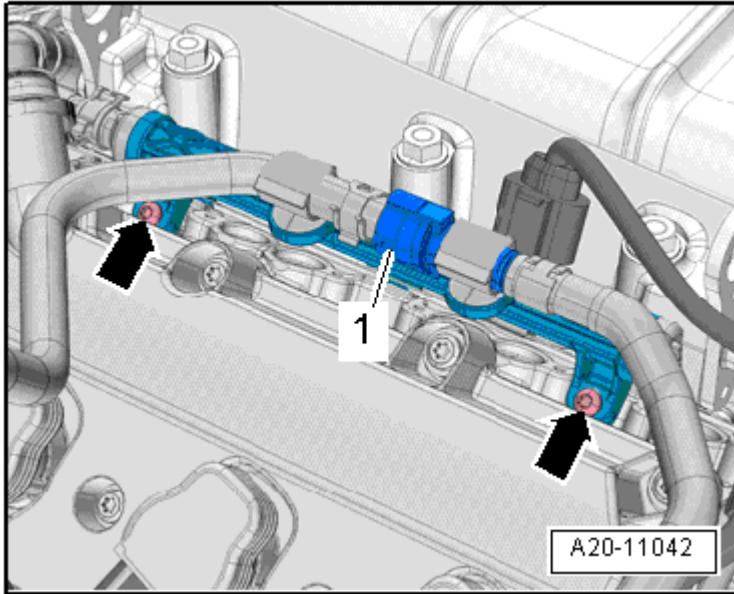


Fig. 165: Identifying Version 2 Cylinder Bank 1 (Right)
Courtesy of AUDI OF AMERICA, LLC

WARNING: Risk of injury from fuel.

- To reduce fuel pressure, lay cloths around connecting point before opening the fuel system and carefully loosen.

CAUTION: There is a risk of contamination.

- Follow the guidelines for cleanliness when working on the fuel supply system. Refer to CLEAN WORKING CONDITIONS .

-- Press the release buttons and disconnect the fuel hose -1-.

-- Seal any open lines and connections with a clean plug from the VAS 6122.

NOTE: Ignore -arrows-.

-- Lift the clamp -2- and remove the coolant hose leading to the heater core on the plenum chamber bulkhead.

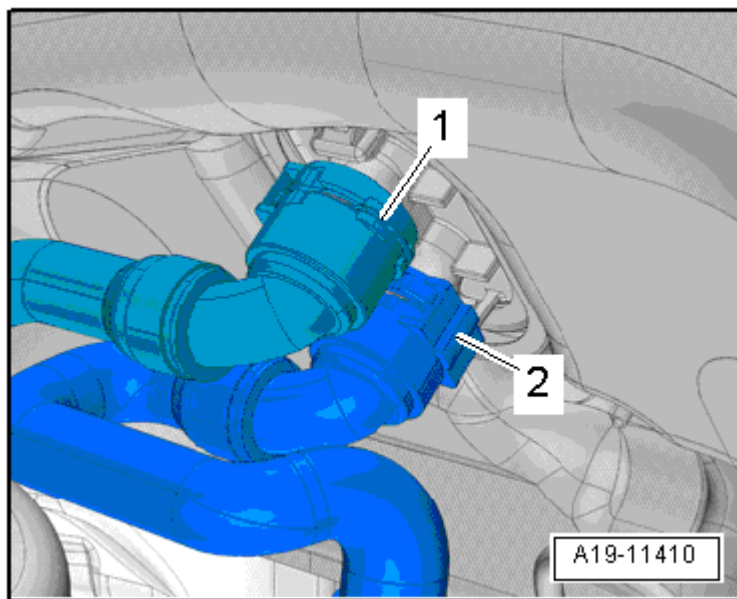


Fig. 166: Identifying Coolant Hose Clamps
Courtesy of AUDI OF AMERICA, LLC

NOTE: Ignore -1-.

All Vehicles

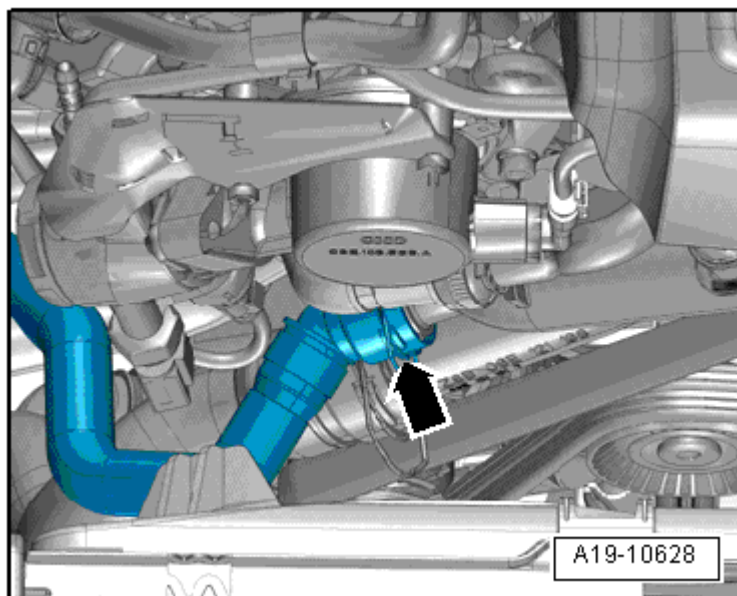


Fig. 167: Identifying Clamp And Right Front Coolant Hose -Arrow- To Front Coolant Pipe
Courtesy of AUDI OF AMERICA, LLC

-- Open the clamp and remove the right front coolant hose -arrow- from the front coolant pipe.

-- Loosen the clamp -arrow- and remove the coolant hose.

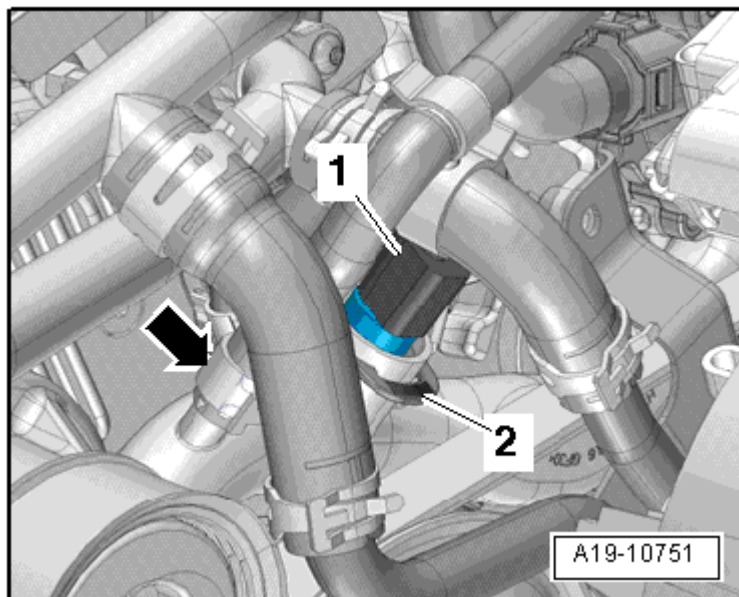


Fig. 168: Identifying Engine Coolant Temperature (ECT) Sensor -G62- And Clip
Courtesy of AUDI OF AMERICA, LLC

NOTE: Ignore -1 and 2-.

-- Lift the clamp -arrow- and remove the coolant hose from the front coolant pipe

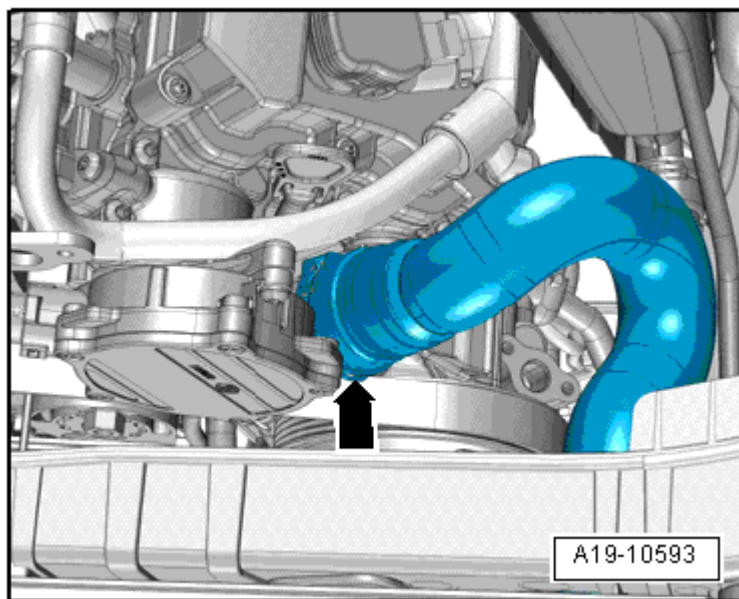
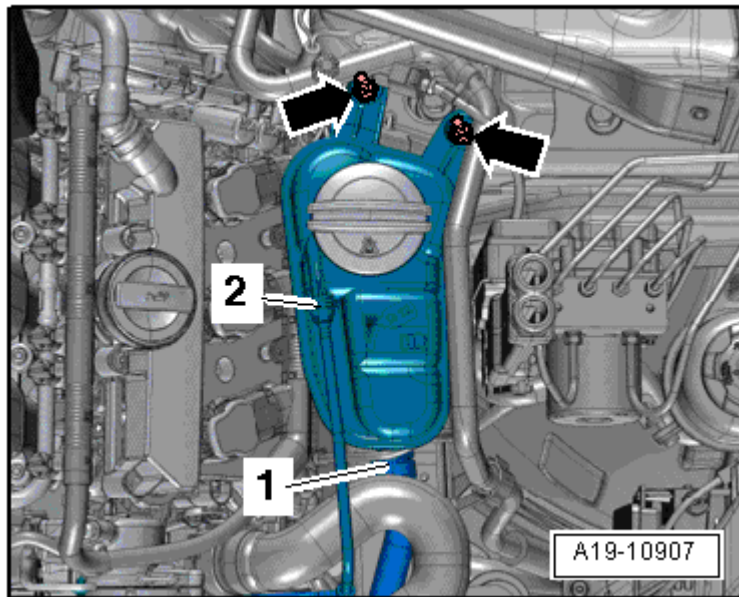
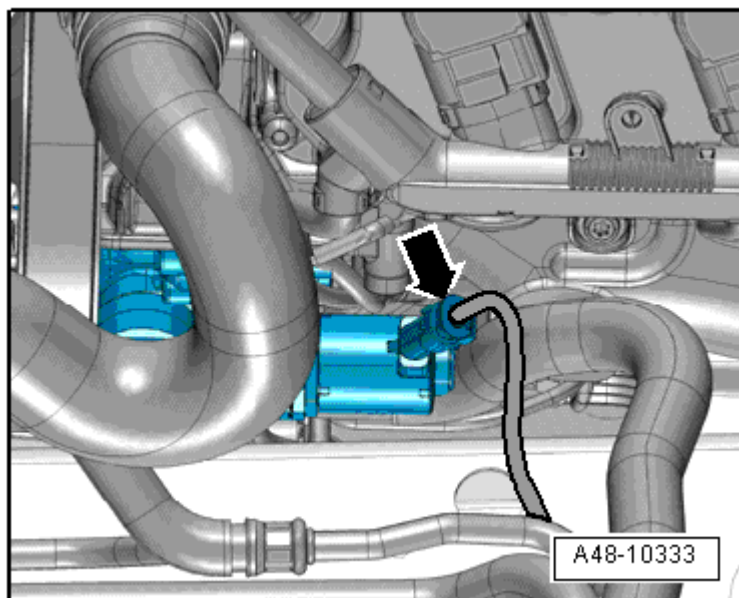


Fig. 169: Identifying Coolant Hose From Front Coolant Pipe By Lifting Retaining Clamp
Courtesy of AUDI OF AMERICA, LLC

Vehicles with Hydraulic Power Steering**Fig. 170: Identifying Coolant Overflow Reservoir**

Courtesy of AUDI OF AMERICA, LLC

- Remove the coolant hoses -1 and 2- from the coolant overflow reservoir.
- Remove the bolts -arrows-, disconnect the connector on the engine coolant level warning switch -F66- and remove the coolant reservoir.
- Disconnect the connector -arrow- from the power steering pump, if applicable.

**Fig. 171: Disconnecting Electrical Connector On Power Steering Pump, If Applicable**

Courtesy of AUDI OF AMERICA, LLC

-- Press the hydraulic hose down slightly.

All Vehicles

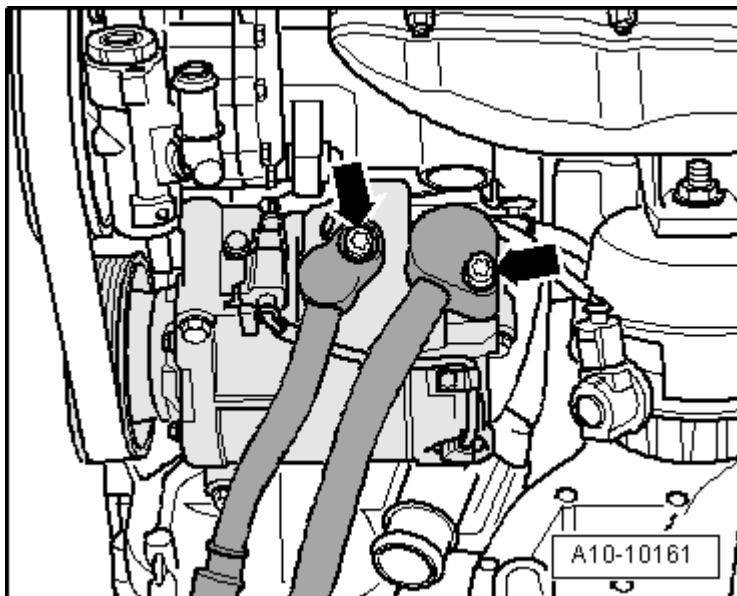


Fig. 172: Identifying Bolts

Courtesy of AUDI OF AMERICA, LLC

CAUTION: Risk of damaging refrigerant lines and hoses.

- **Do not stretch, kink or bend refrigerant lines and hoses.**

-- Remove the bolts -arrows- and the refrigerant lines from the Air Conditioning (A/C) compressor.

-- Seal any open lines and connections with a clean plug from the VAS 6122.

-- Release the retainer -arrow A- and open the cover -arrow B-.

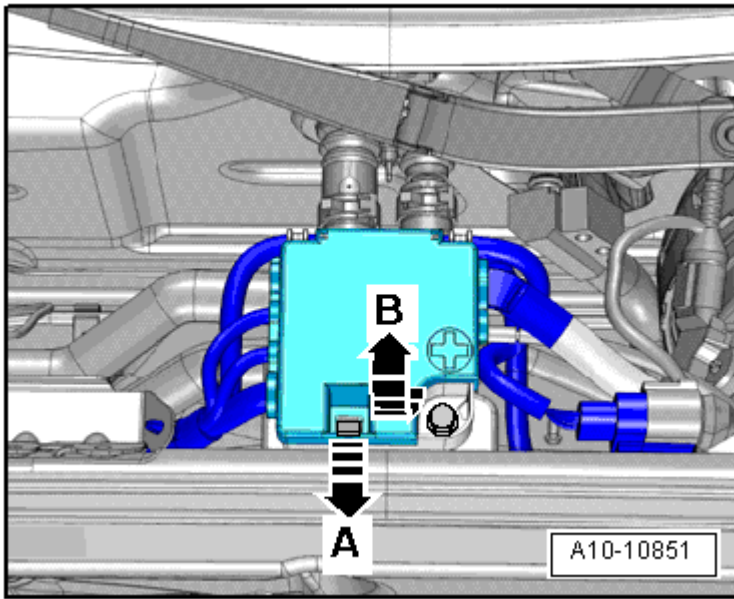


Fig. 173: Opening Terminal Box Cover
Courtesy of AUDI OF AMERICA, LLC

-- Remove the nuts -1- from the electric wires.

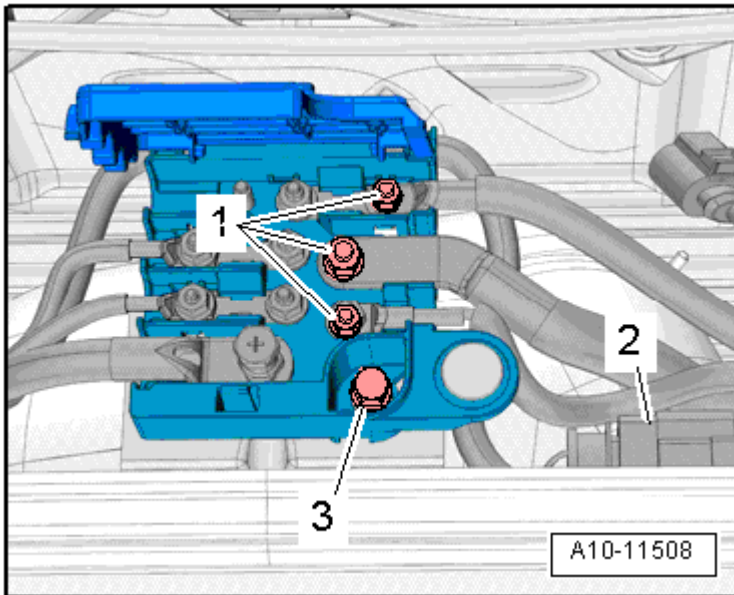


Fig. 174: Identifying Terminal Box Wire Components
Courtesy of AUDI OF AMERICA, LLC

-- Remove the electrical connector -2- from the bracket and disconnect it.

-- Remove the bolt -3- and the terminal 30 wire junction 2 -TV22- from the tower brace -arrow-.

-- Release the retainers from the wheel housing side using a 5.5 mm wrench -1- and remove the wiring bushing

-2- upward.

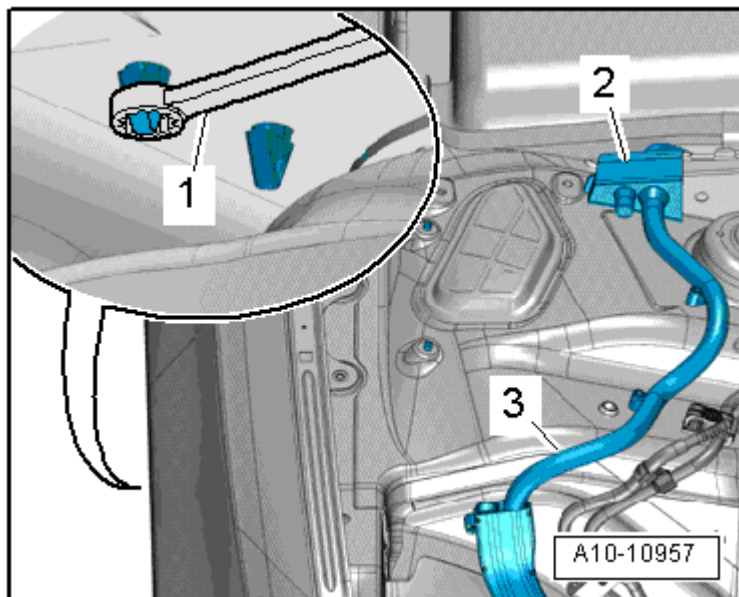


Fig. 175: Using 5.5 mm Open End Wrench To Release Retainers From Wheel Housing Side
 Courtesy of AUDI OF AMERICA, LLC

-- Free up the wiring harness -3- to the generator and starter using the 80 - 200.

-- Wiring duct version 1: Free up the wiring harness by releasing the retainer -arrow B- and pulling the duct forward -arrow A-.

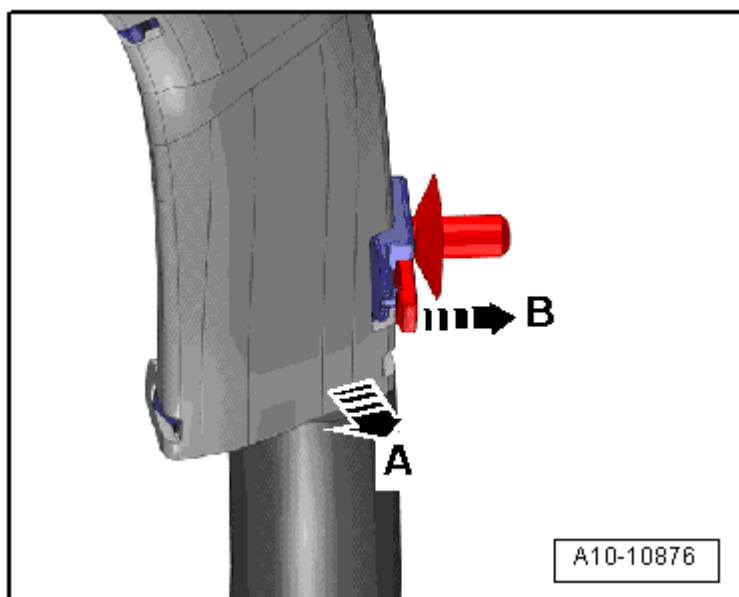


Fig. 176: Freeing Up Wiring Duct By Releasing Retainer
 Courtesy of AUDI OF AMERICA, LLC

-- Wiring duct version 2: Open the catch -arrow-, free up the wiring harness and open the wiring duct -1-.

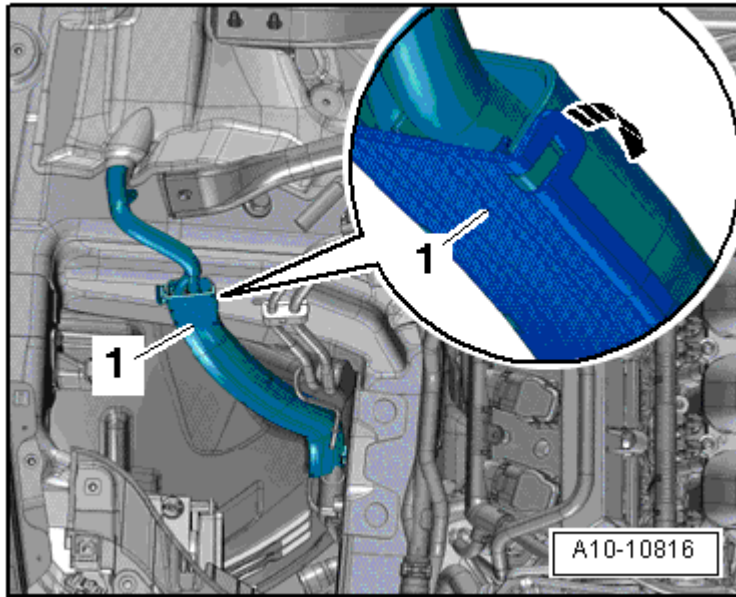


Fig. 177: Identifying Nut And Tilting Washer Fluid Reservoir Filler Neck Upward Slightly
Courtesy of AUDI OF AMERICA, LLC

-- Remove the nut -1- and tilt -arrow A- the washer fluid reservoir filler neck -2- upward slightly.

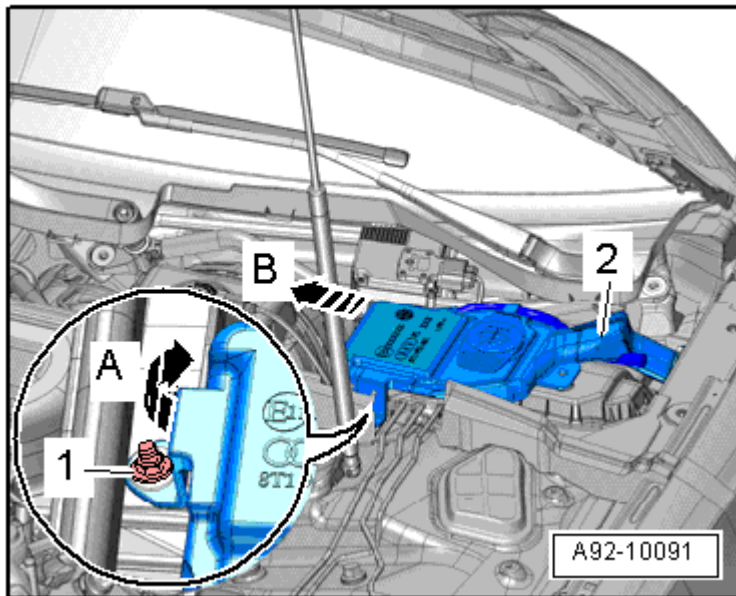


Fig. 178: Identifying Nut And Washer Fluid Reservoir Filler Neck Tilted Upward Slightly
Courtesy of AUDI OF AMERICA, LLC

-- Remove the filler neck with the filler tube from the washer fluid reservoir and the opening in the body -arrow B-.

-- Remove the bolts -1- and nuts -2- and remove the tower brace -3-.

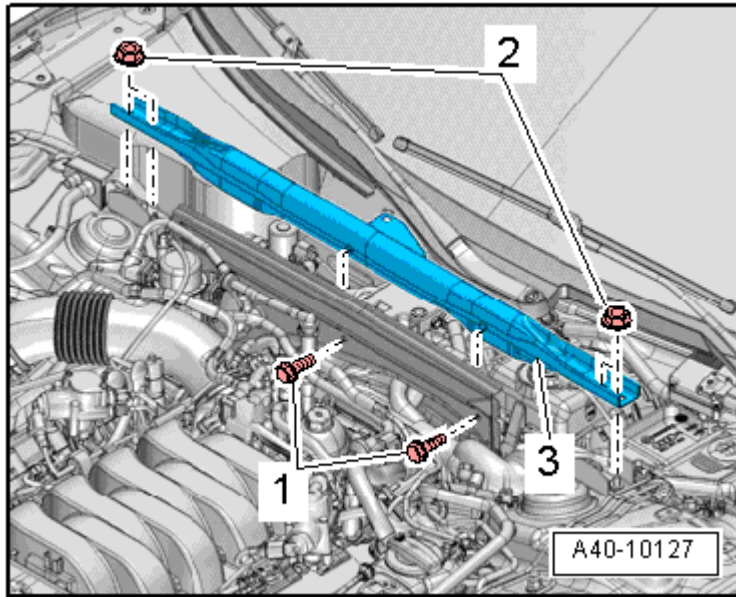


Fig. 179: Identifying Bolts, Nuts And Tower Brace
Courtesy of AUDI OF AMERICA, LLC

-- Remove the bolts -arrows- and the engine compartment E-box cover.

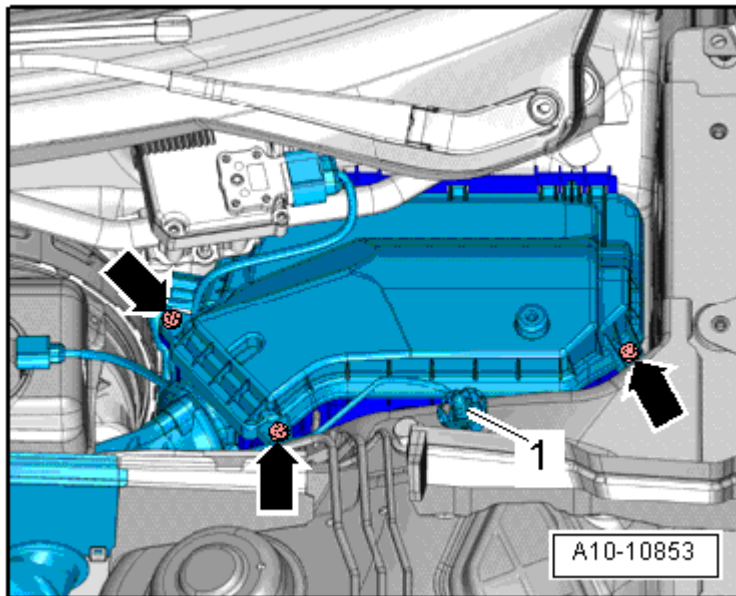


Fig. 180: Identifying E-Box Bolts & Cover
Courtesy of AUDI OF AMERICA, LLC

-- Remove the nut -1- and free up the wire.

-- Release the retainers -A arrows- and remove the Engine Control Module (ECM) -arrow B-.

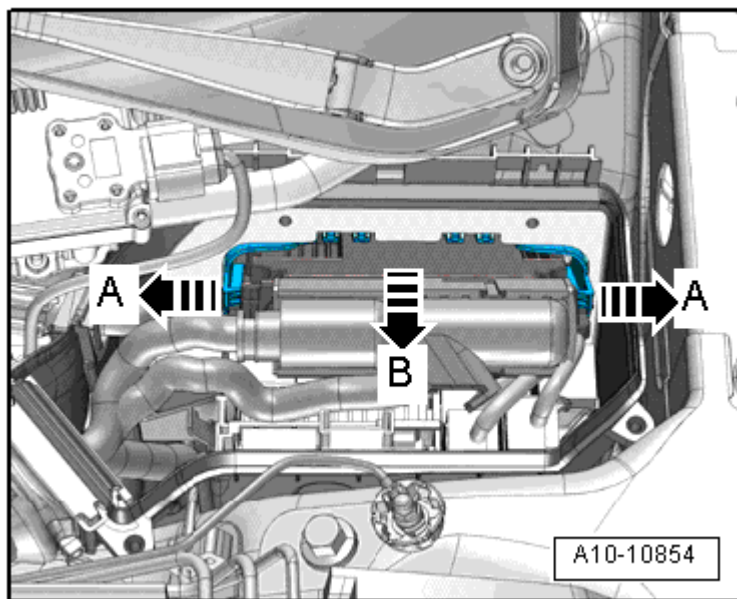


Fig. 181: Identifying Engine Control Module (ECM)
Courtesy of AUDI OF AMERICA, LLC

-- Disconnect the connector -2- if applicable.

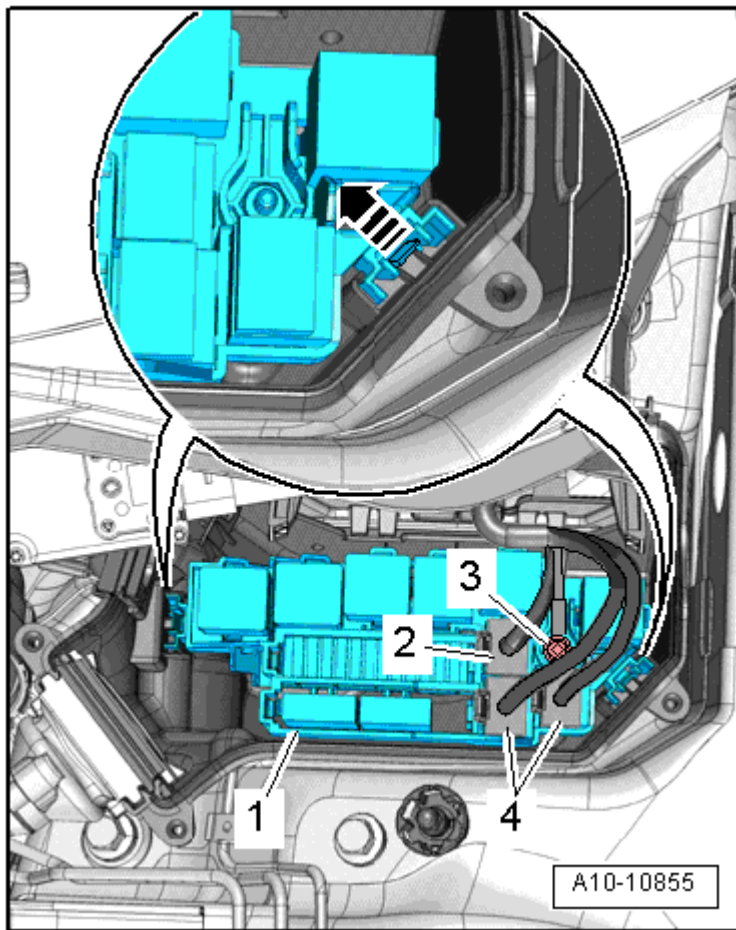


Fig. 182: Disconnecting Electrical Connectors

Courtesy of AUDI OF AMERICA, LLC

- Disconnect the connectors -4- and remove the nut -3- for the electrical wire.
- Release the retainers -arrow- and remove the relay carrier with the fuse holder -1-.
- Disengage the engine wiring harness at the engine compartment E-box and free it up.
- Release the retainers -A arrows- and remove the wiring bushing -2- upward -arrow B-.

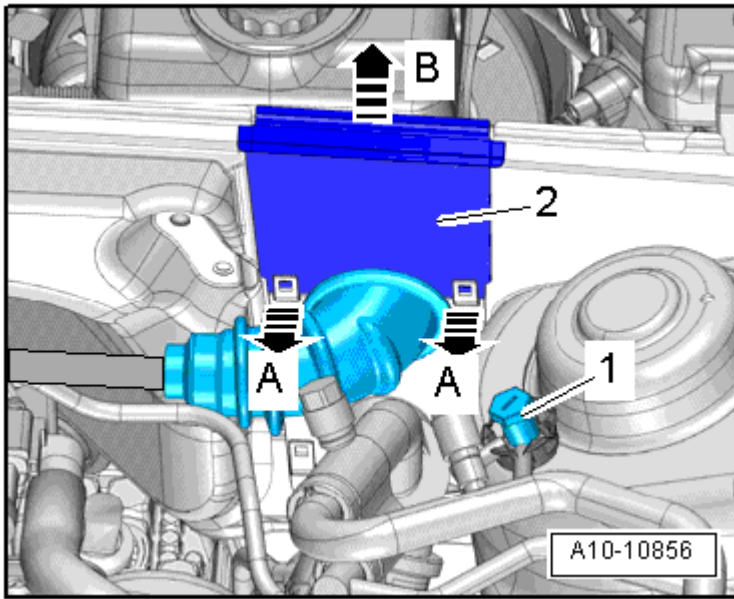


Fig. 183: Identifying Ground Bolt To Strut Tower - Tightening Specification
Courtesy of AUDI OF AMERICA, LLC

- Remove the ground pin -1- and free up the wiring harness.
- Lay the wiring harness on the engine and secure the ECM so that it cannot fall.
- Disconnect the connectors -arrow- at the left and right on the front speed sensors.

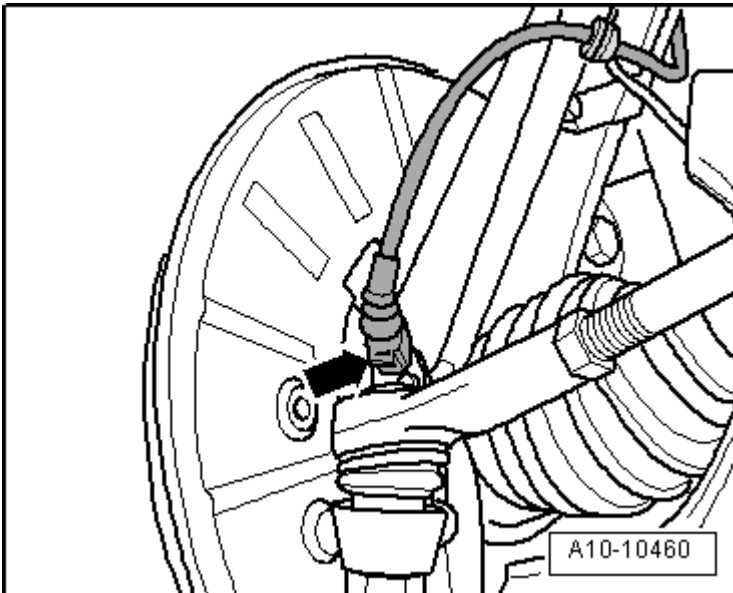


Fig. 184: Identifying Speed Sensor Connector
Courtesy of AUDI OF AMERICA, LLC

- Disconnect the connector -1- from the left front level control system sensor -G78- and from the right front

level control system sensor -G289- and free up the wires -arrow-.

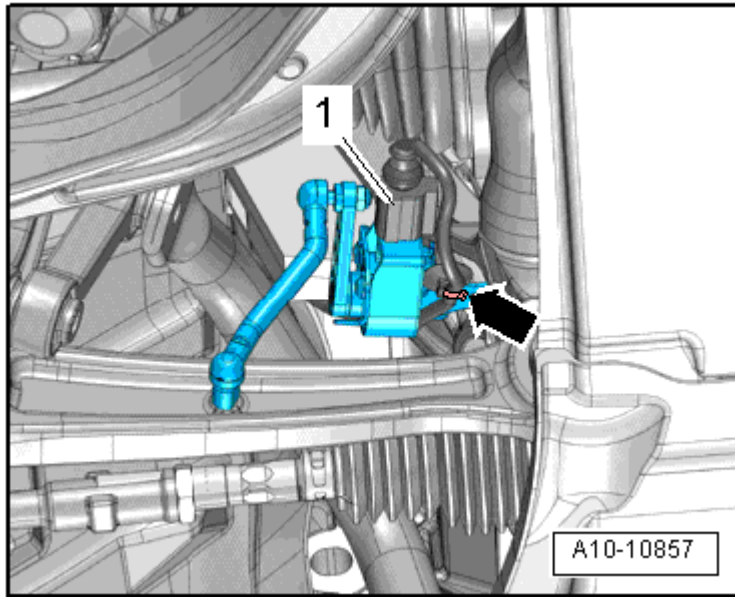


Fig. 185: Disconnecting Electrical Connector On Left Front Level Control System Sensor
Courtesy of AUDI OF AMERICA, LLC

-- Free up the electrical connector -2- on the bracket by pulling the retainer back -arrow A- and turning the connector approximately 90° clockwise -arrow B-.

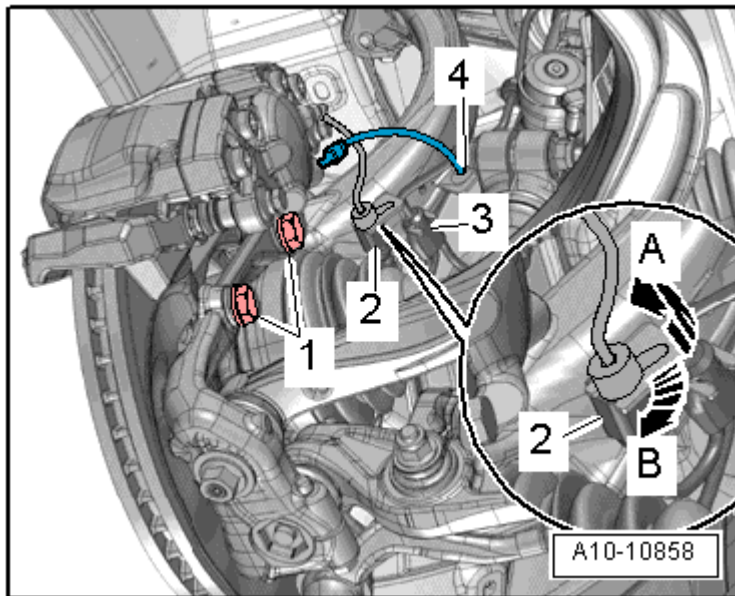


Fig. 186: Freeing Up Electrical Connector
Courtesy of AUDI OF AMERICA, LLC

-- Free up the electrical wiring -3- and brake line -4- on the bracket.

-- Remove the bolts -1- and secure the brake caliper, with the brake line still connected, inside the wheel housing using wire.

CAUTION: Risk of damaging brake pistons.

- **Do not operate brake pedal when the brake caliper is removed.**

-- Remove the nut -2- and the bolt -1-.

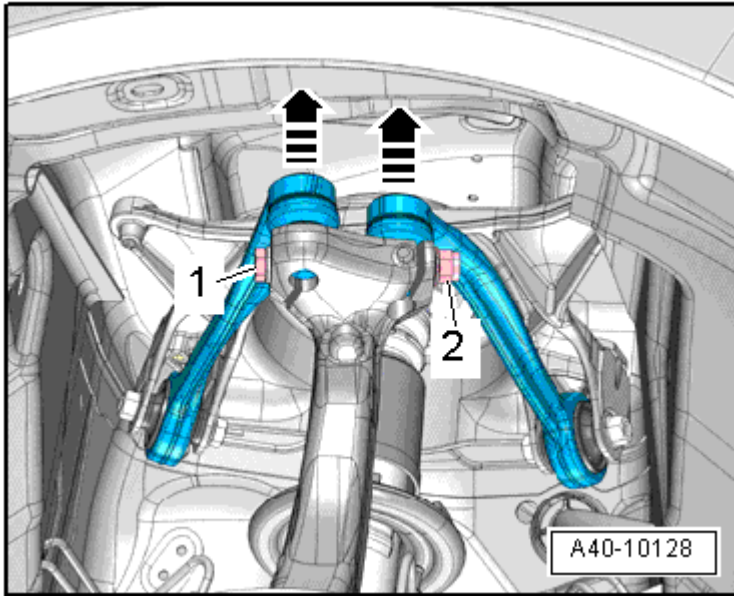


Fig. 187: Identifying Nut And Bolt
Courtesy of AUDI OF AMERICA, LLC

-- Remove the upper control arm upward from the wheel bearing housing -arrows-.

-- Repeat the procedure on the other side of the vehicle.

-- Remove the left and right stabilizer bar bolt -1-.

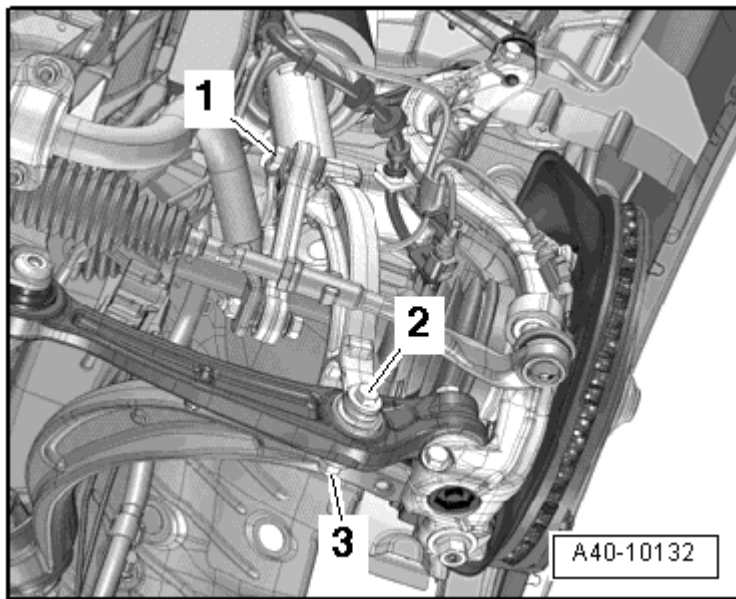


Fig. 188: Identifying Left And Right Stabilizer Bar Bolt
Courtesy of AUDI OF AMERICA, LLC

-- Remove the left and right nuts -3-.

NOTE: The bolts -2- will be removed later.

-- Remove the subframe cross brace. Refer to **Removal and Installation** .

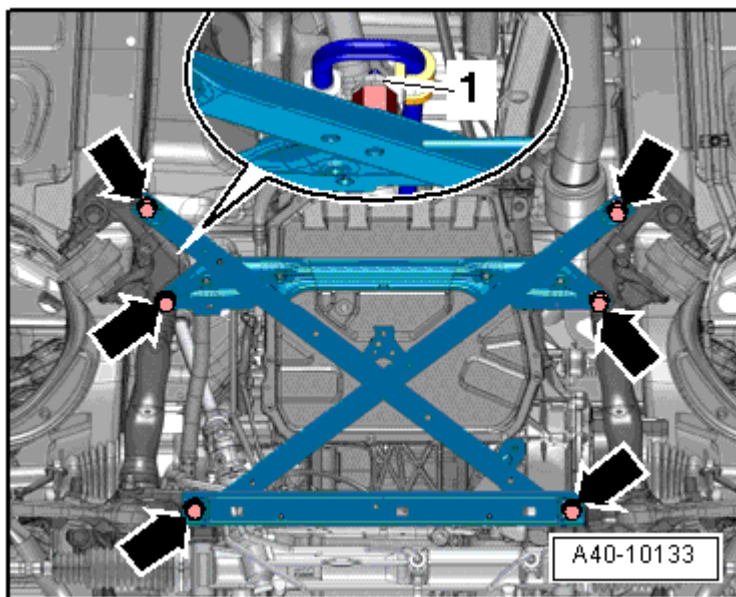


Fig. 189: Locating Power Steering Hydraulic Line
Courtesy of AUDI OF AMERICA, LLC

CAUTION: The suspension components could be damaged.

- Do not rest the vehicle on its wheels if the subframe mount, the steering gear or the subframe cross brace are not installed correctly.

Audi A5 Cabriolet

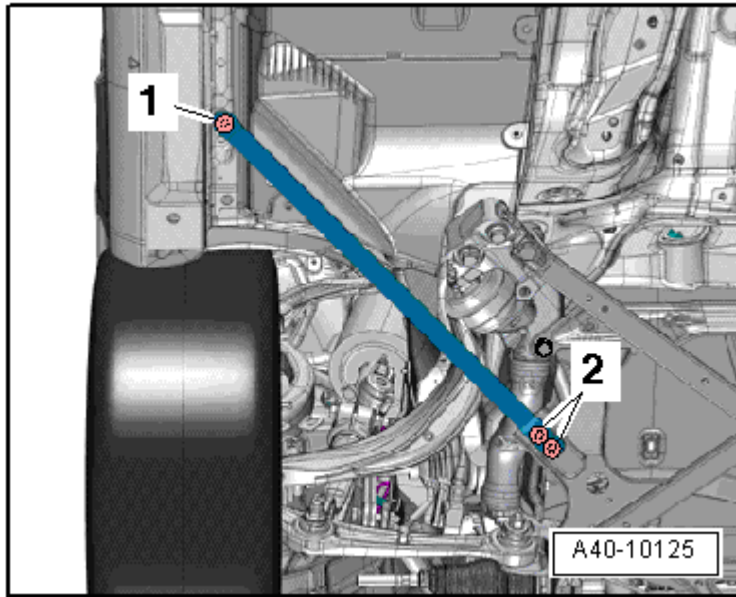


Fig. 190: Loosening Clamping Sleeve
Courtesy of AUDI OF AMERICA, LLC

-- Remove diagonal braces. Refer to **Removal and Installation** .

Vehicles with Electro-Mechanical Power Steering

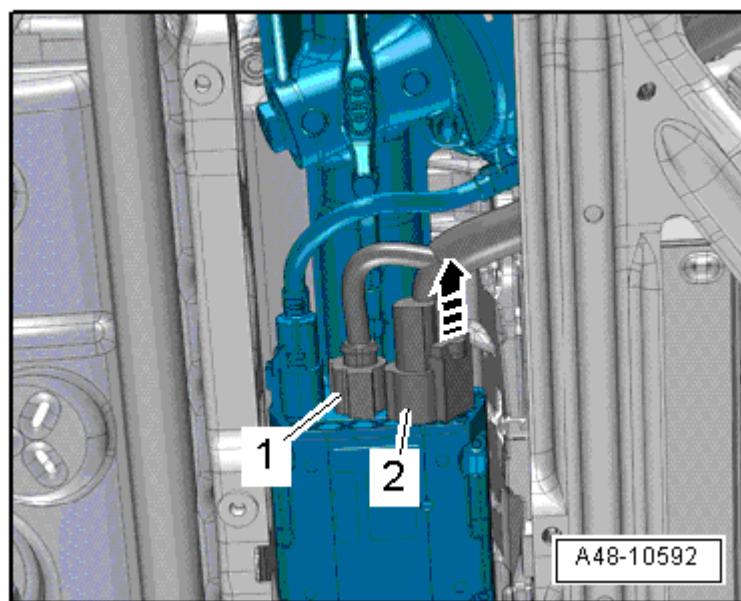


Fig. 191: Identifying Power Steering Control Module
Courtesy of AUDI OF AMERICA, LLC

-- Release the safety catch -arrow-, push the retainer down and disconnect the connector from -2- from the power steering control module -J500-.

-- Free up the wiring harness.

NOTE: Ignore -1-.

All Vehicles

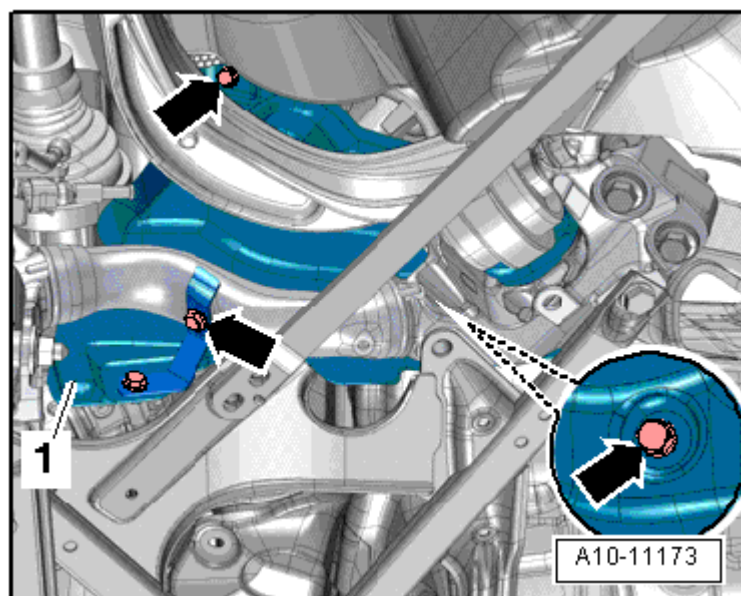
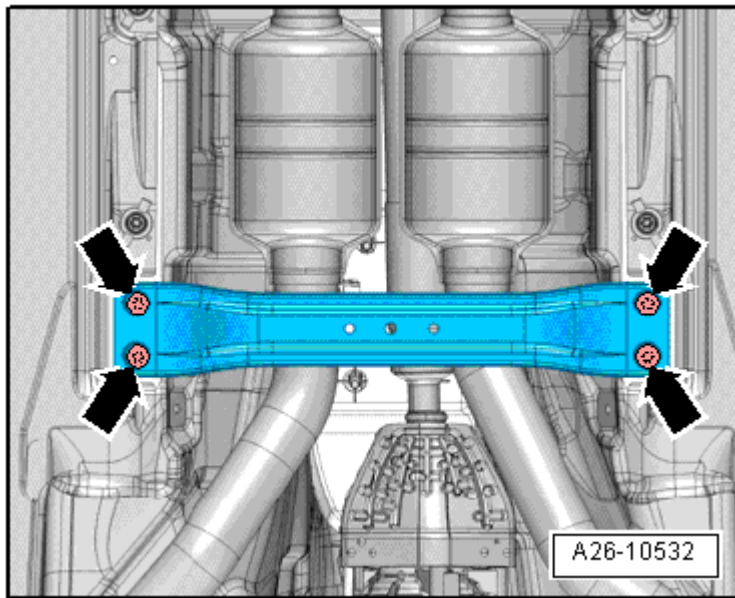


Fig. 192: Locating Left Bolts & Heat Shield

Courtesy of AUDI OF AMERICA, LLC

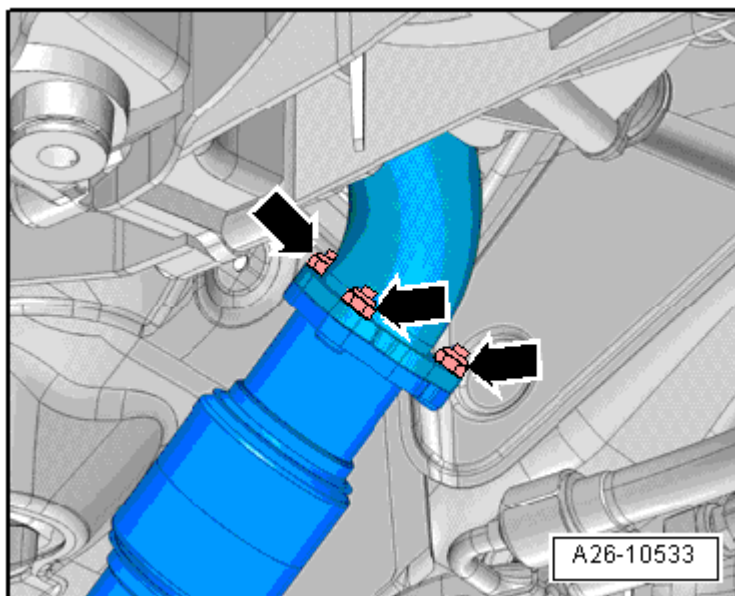
-- Remove the left and right bolts -arrows-, if applicable, and the heat shield -1-.

-- Remove the bolts -arrows- and the front crossmember, if applicable.

**Fig. 193: Identifying Bolts And Front Crossmember**

Courtesy of AUDI OF AMERICA, LLC

-- Remove the left front muffler nuts -arrows-.

**Fig. 194: Identifying Left Front Muffler Nuts**

Courtesy of AUDI OF AMERICA, LLC

-- Remove the right front muffler nuts -arrows-.

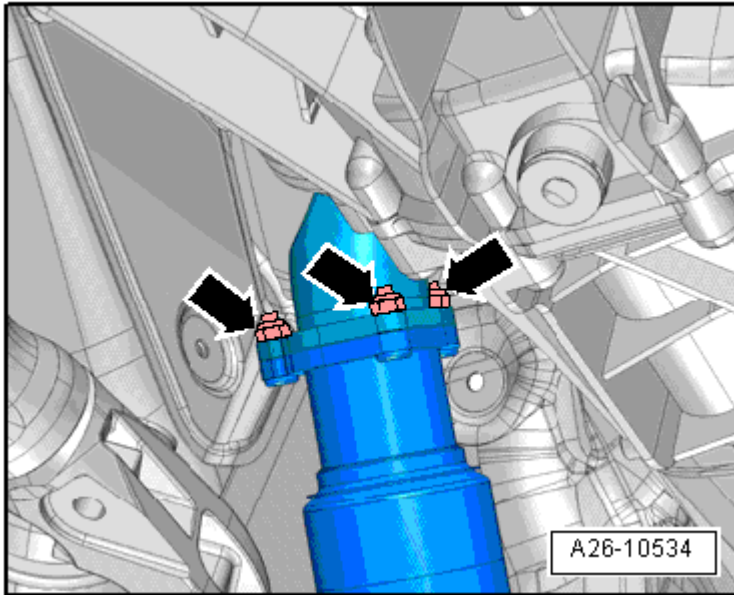


Fig. 195: Identifying Right Front Muffler Nuts
Courtesy of AUDI OF AMERICA, LLC

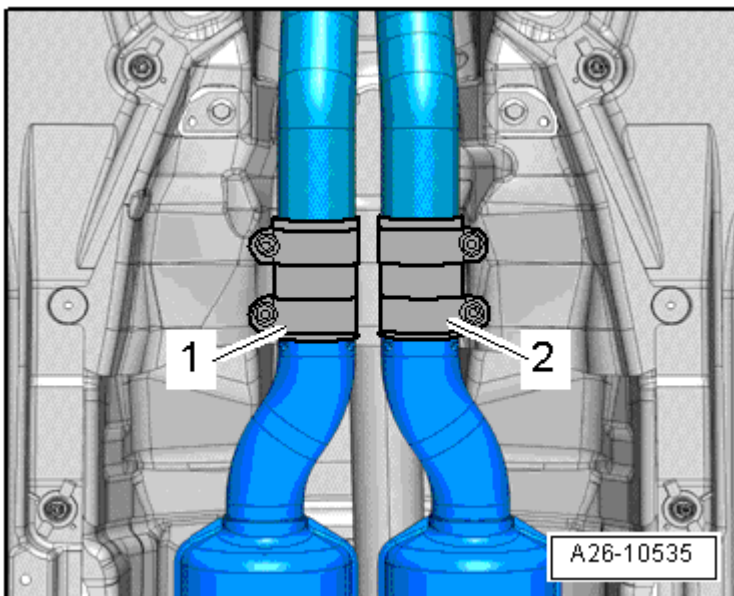


Fig. 196: Loosening Bolts Vehicles With Dual Exhaust System
Courtesy of AUDI OF AMERICA, LLC

CAUTION: The decoupling elements in the front muffler could be damaged.

2012 Audi S4

ENGINE 3.0 Liter - Engine Assembly - Engine Code(s): CCBA (Sedan)

- **Do not bend decoupling element in front muffler more than 10°.**

-- Loosen the clamping sleeves -1 and 2-, slide them back and remove the left and right front mufflers.

Vehicles with a Bolted Driveshaft

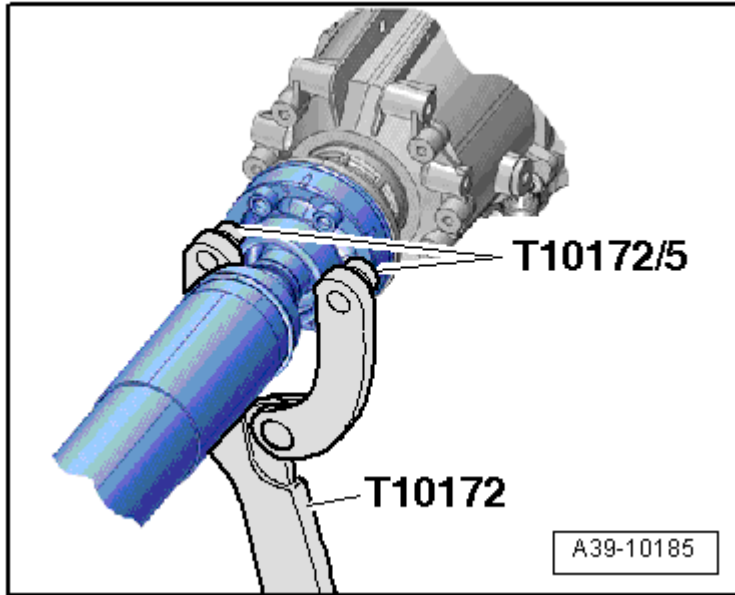


Fig. 197: Using T10172 To Hold Driveshaft

Courtesy of AUDI OF AMERICA, LLC

-- Remove the driveshaft from the transmission. Refer to Removal and Installation or Removal and Installation .

-- Slide the driveshaft toward the rear final drive; the CV joints can move axially.

-- Secure the driveshaft to the side.

Vehicles with an Attached Driveshaft

-- Remove the driveshaft. Refer to Removal and Installation or Removal and Installation .

All Vehicles

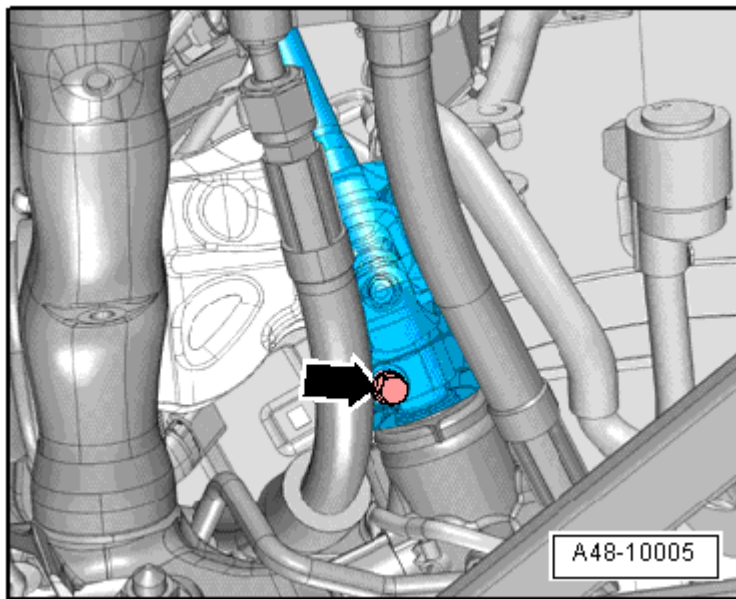


Fig. 198: Locating Universal Joint Bolt
Courtesy of AUDI OF AMERICA, LLC

-- Remove the steering intermediate shaft from the steering gear push them upward. Refer to **Removal and Installation** .

Prepare Scissor Lift Platform

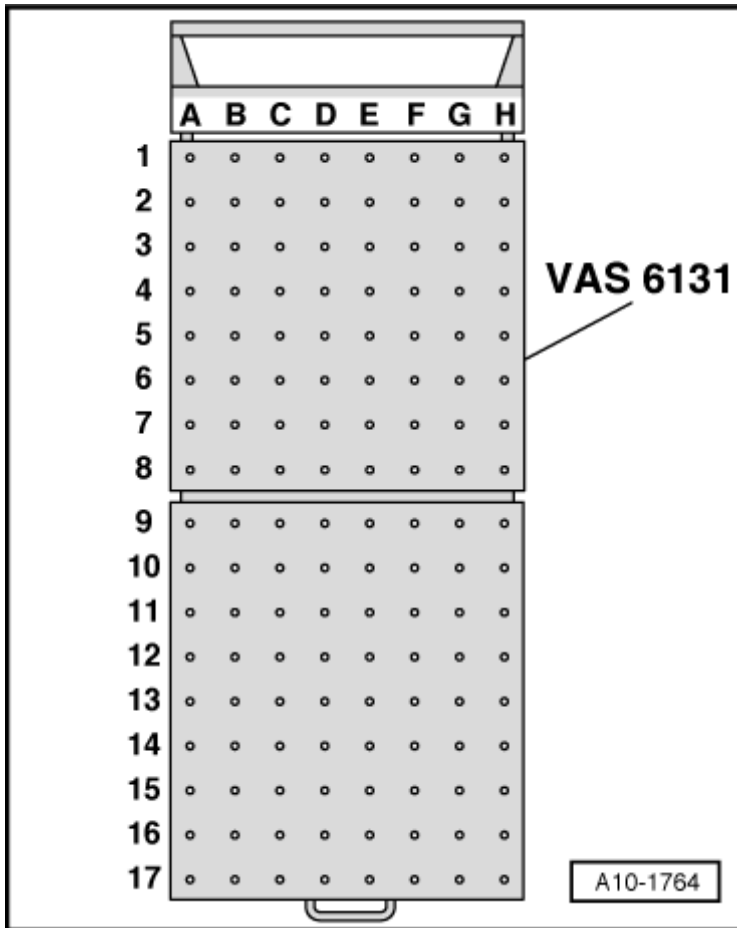


Fig. 199: Identifying Scissor Lift Platform VAS 6131

Courtesy of AUDI OF AMERICA, LLC

-- Equip the VAS 6131 A with the VAS 6131/10, VAS 6131/11 and VAS 6131/13 as follows:

Table Coordinates	Parts from VAS 6131/10, VAS 6131/11 and VAS 6131/13			
B4	/13-4	/10-4	/10-5	/13-1
G4	/13-4	/10-4	/10-5	/13-1
B6	/10-1	/10-2	/10-5	/10-11
G6	/10-1	/10-2	/10-5	/10-11
A8+C8	/13-6	-	-	/13-2
F8+H8	/13-6	-	-	/13-2
C14	/10-1	/10-4	/10-5	/10-7
F14	/10-1	/10-4	/10-5	/11-1

-- Next secure mounting elements to scissor lift table by hand.

-- Position the VAS 6131 A horizontally.

- Note bubble level (sight glass) on support platform.

-- Move the VAS 6131 A under the engine/transmission subassembly.

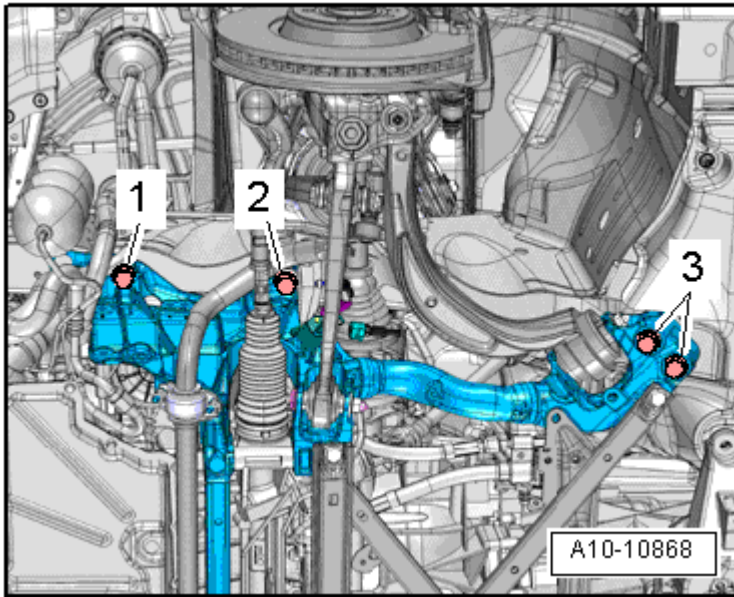


Fig. 200: Identifying Subframe Bolts (Tighten To Specifications)

Courtesy of AUDI OF AMERICA, LLC

WARNING: The subframe could cause an accident if it is not secured.

- Do not loosen the subframe bolts -2 and 3-.

-- Remove the left and right subframe bolts -1-.

-- Attach the mounting elements from the VAS 6131/10 and VAS 6131/13 at the left and right front of the subframe as shown in the illustration.

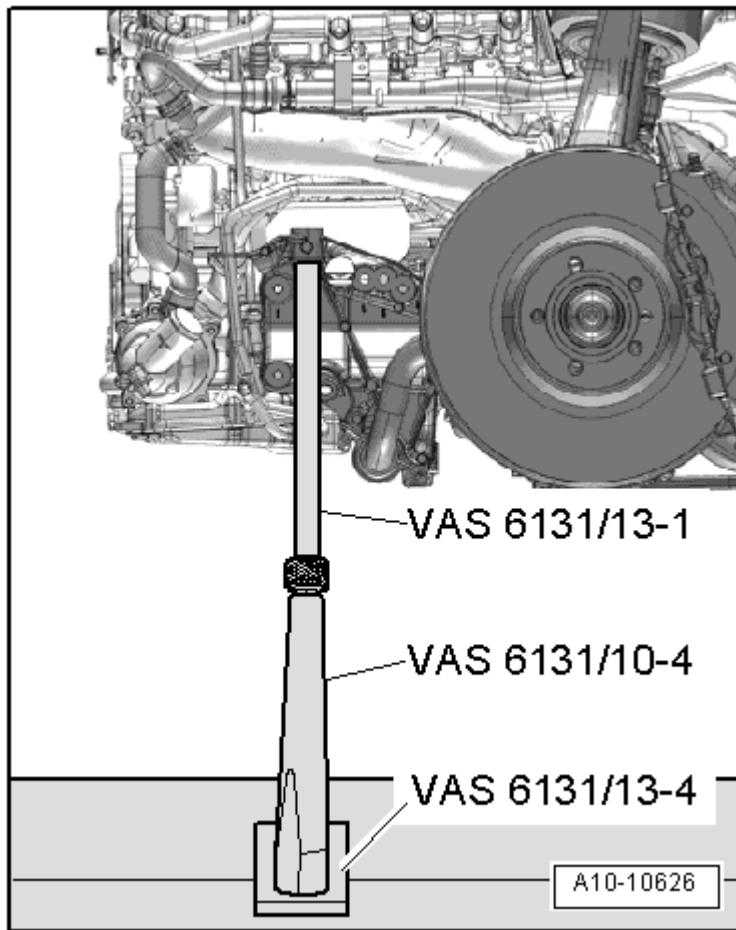


Fig. 201: Attaching Mounting Elements At Left And Right Front Of Subframe
Courtesy of AUDI OF AMERICA, LLC

- Ensure threaded spindles are completely installed.
- Attach the mounting elements from the VAS 6131/10 at the left and right rear on the subframe cross brace front connecting points as shown in the illustration.

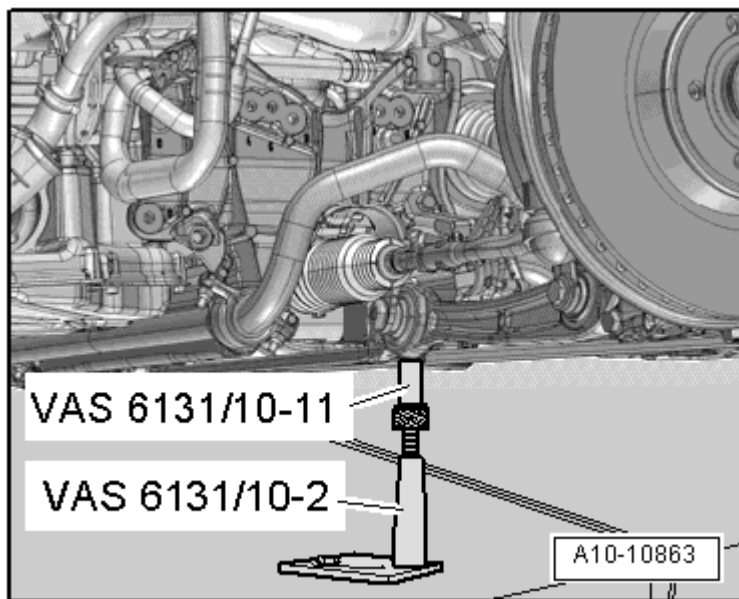


Fig. 202: Attaching Mounting Elements From VAS 6131/13 At Lower Left And Right Of Wheel Bearing Housing

Courtesy of AUDI OF AMERICA, LLC

-- Attach mounting elements from the VAS 6131/13 at the lower left and right of the wheel bearing housing as shown in the illustration.

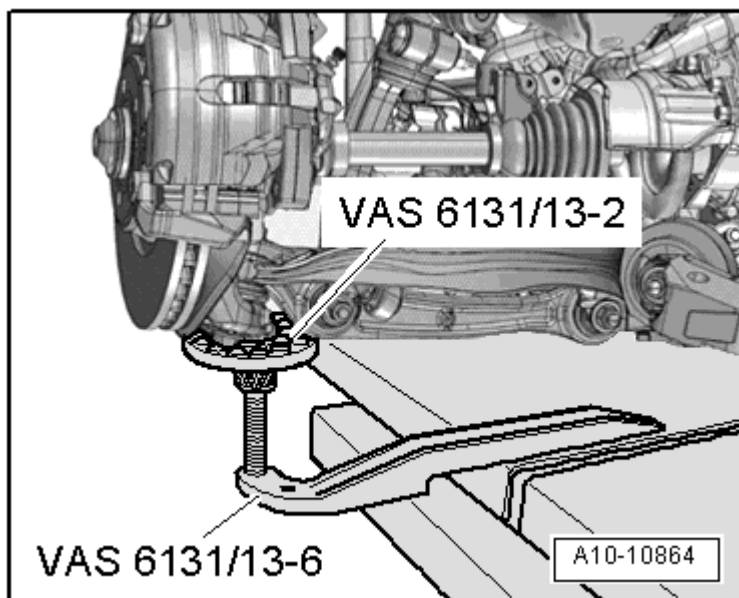


Fig. 203: Attaching Mounting Elements From VAS 6131/13 At Lower Left And Right Of Wheel Bearing Housing

Courtesy of AUDI OF AMERICA, LLC

-- Attach the mounting elements from the VAS 6131/10 and VAS 6131/11 at the left and right rear of the tunnel crossmember as shown in the illustration.

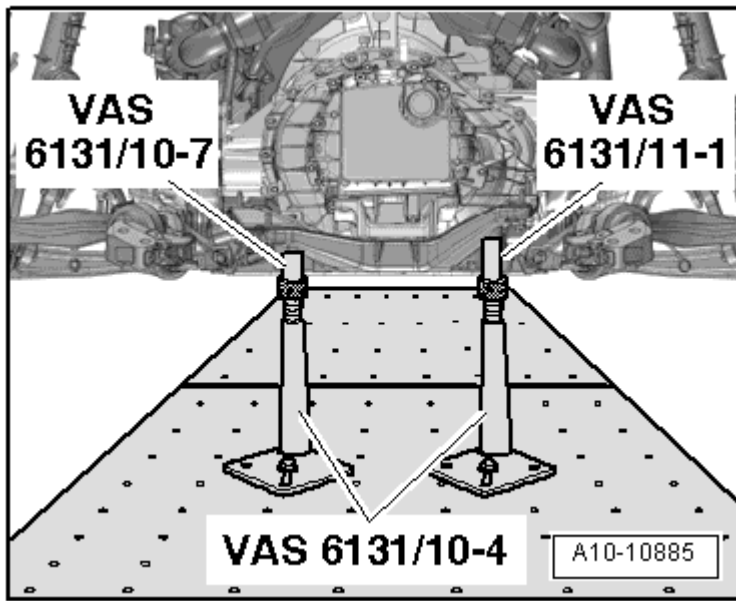


Fig. 204: Rotating Mounting Element Spindles Upward
Courtesy of AUDI OF AMERICA, LLC

- Rotate the mounting element spindles upward until all the mounting pins come into contact with the mounting points.
- Attach mounting element base plates to VAS 6131 A and tighten to 20 Nm.
- Mark the location of the subframe and engine carrier to the longitudinal members using a felt-tip pen.

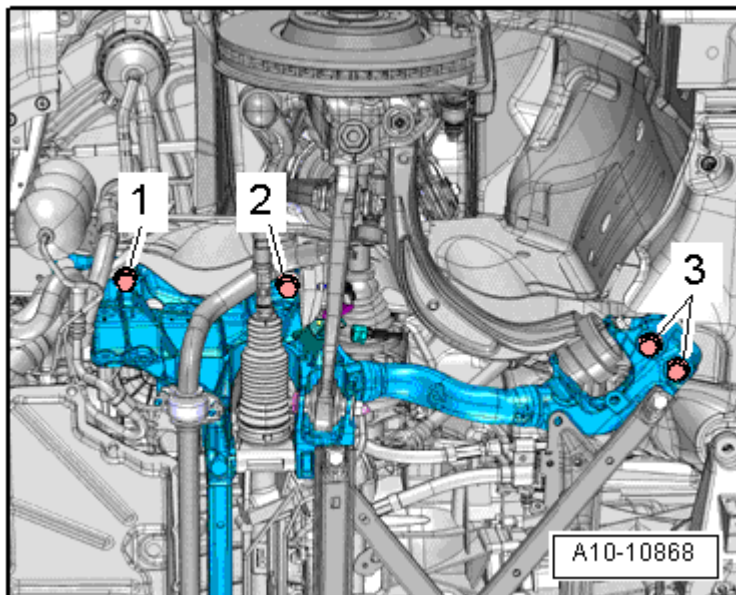


Fig. 205: Identifying Subframe Bolts (Tighten To Specifications)
Courtesy of AUDI OF AMERICA, LLC

- Remove the left and right subframe bolts -2 and 3- in a diagonal sequence in stages.
- Remove the bolts -arrows- on the tunnel crossmember.

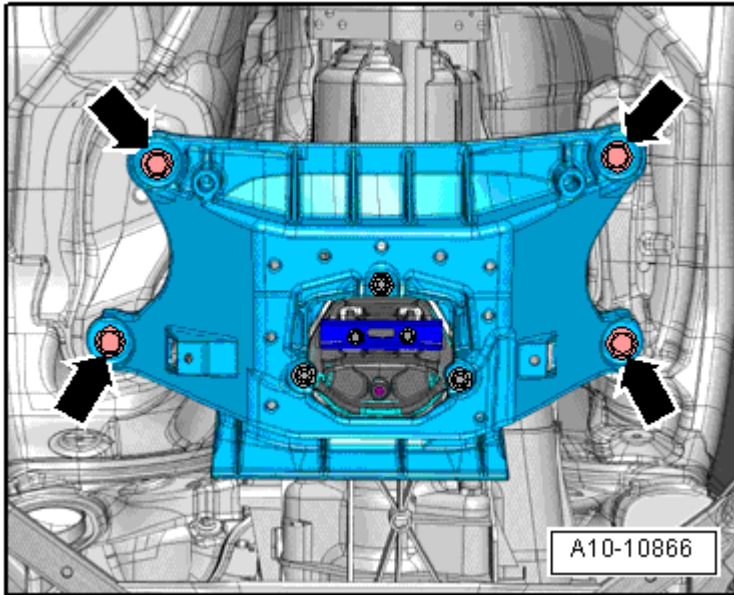


Fig. 206: Identifying Bolts To Tunnel Crossmember
Courtesy of AUDI OF AMERICA, LLC

- Remove the left and right bolts -2-.

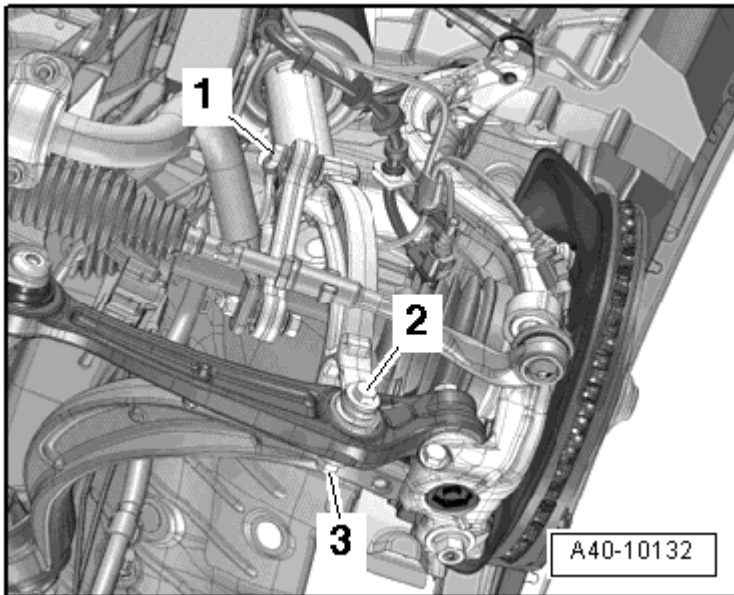


Fig. 207: Identifying Left And Right Stabilizer Bar Bolt
Courtesy of AUDI OF AMERICA, LLC

CAUTION: Risk of damaging hose and wiring connections as well as engine compartment.

- Make sure all the hoses and lines between the engine, transmission, subframe and body have been disconnected.
- Carefully guide engine-transmission assembly with subframe out of engine compartment while lowering.

-- Next lower engine/transmission subassembly with VAS 6131 A only by dimension -a-.

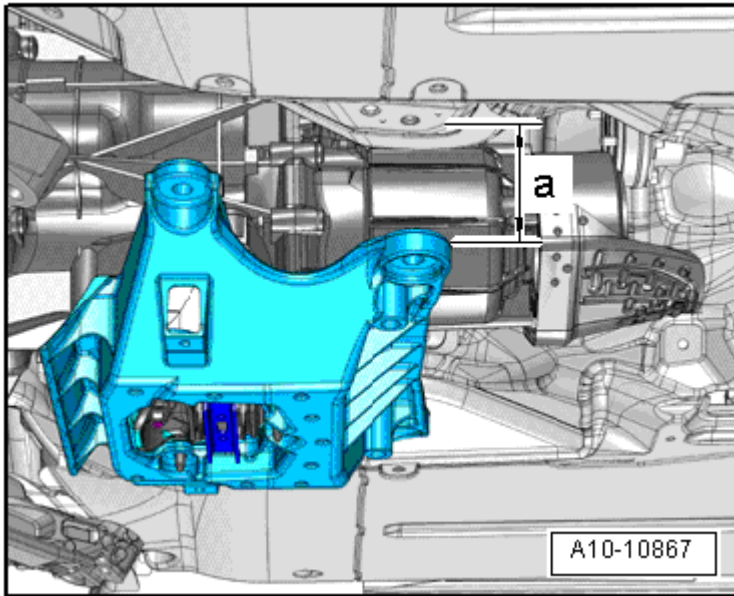


Fig. 208: Lowering Transmission
Courtesy of AUDI OF AMERICA, LLC

- Dimension -a- = 100 mm maximum.

-- Remove the ball socket -2- on the selector lever cable from the selector shaft lever using the 80 - 200.

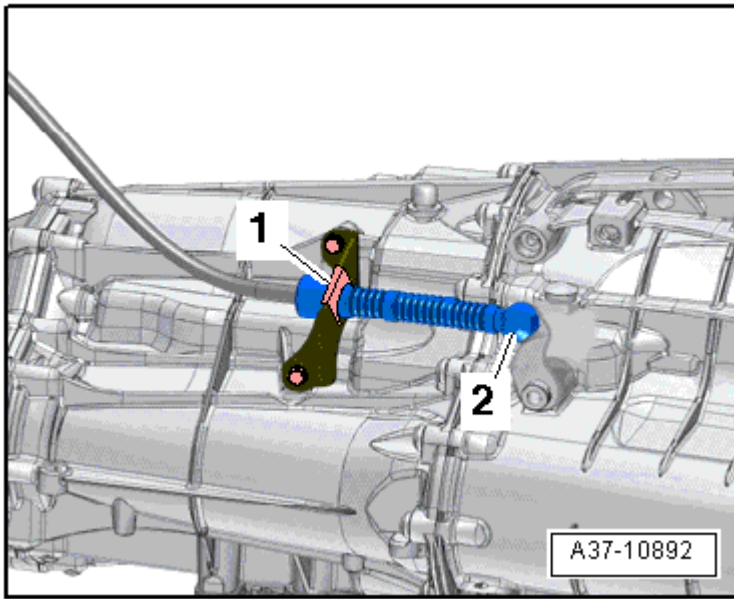


Fig. 209: Identifying Selector Lever Cable
Courtesy of AUDI OF AMERICA, LLC

-- Press the securing clips -1- off and remove the selector lever cable from the transmission.

NOTE: Do not bend or kink the selector lever cable.

-- Lower the engine/transmission subassembly more.

-- Remove the VAS 6131 A with the engine/transmission subassembly under vehicle.

TRANSMISSION, SEPARATING FROM ENGINE

Special tools and workshop equipment required

- Scissor Lift Table VAS 6131 A
- Support Set VAS 6131/10, Supplementary Set VAS 6131/13-7 and Transmission Support VAS 6131/14
- Socket T40058

Procedure

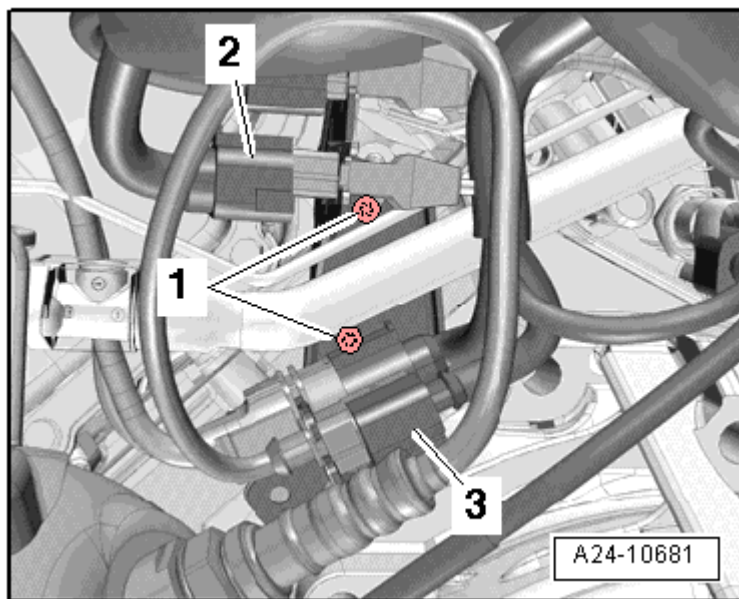


Fig. 210: Disconnecting Connector To Fuel Injectors (Left Cylinder Head)
 Courtesy of AUDI OF AMERICA, LLC

- Engine/transmission assembly removed and placed on VAS 6131 A.

-- Remove the electrical connector -3- for the Oxygen Sensor (O2S) 2 after catalytic converter -G131- from the bracket and disconnect it.

NOTE: Ignore -1 and 2-.

-- Remove the bolt -1- and the nuts -arrows- and then remove the left catalytic converter.

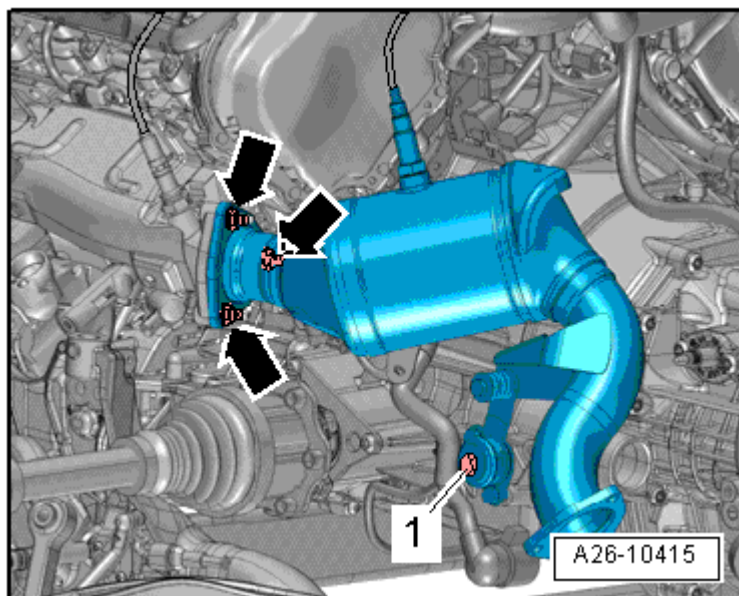
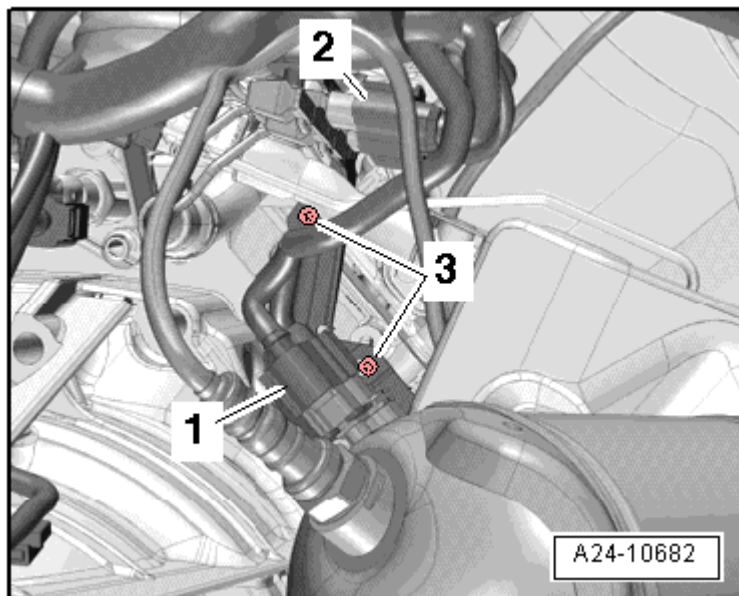


Fig. 211: Identifying Nuts, Bolt And Left Catalytic Converter From Exhaust

Courtesy of AUDI OF AMERICA, LLC

-- Remove the connector -1- for the Oxygen Sensor (O2S) after Three Way Catalytic Converter (TWC) -G130- from the holder and disconnect it.

**Fig. 212: Disconnecting Connector To Fuel Injectors (Right Cylinder Head)**

Courtesy of AUDI OF AMERICA, LLC

-- Remove the bolt -3- and move the bracket to the side.

NOTE: Ignore -2-.

-- Remove the bolt -1- and the nuts -arrows- and then remove the right catalytic converter.

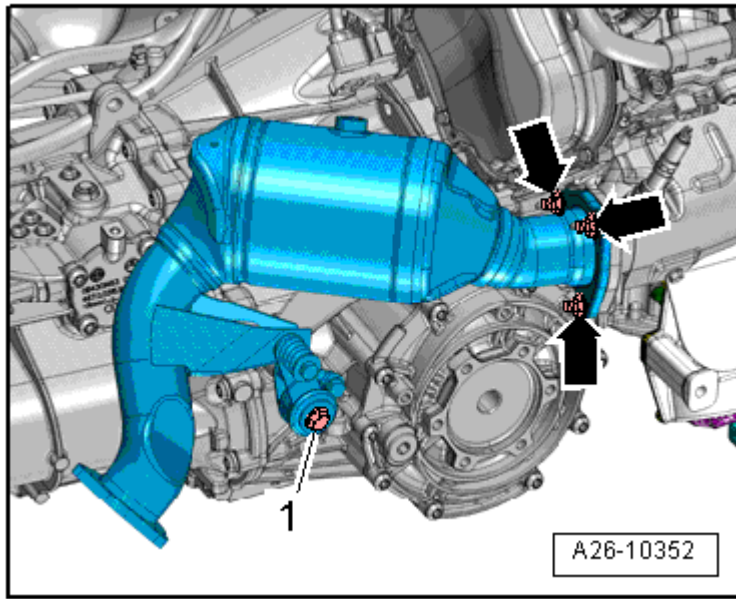


Fig. 213: Identifying Nuts, Bolts And Right Catalytic Converter From Exhaust
 Courtesy of AUDI OF AMERICA, LLC

-- Disconnect the connector -2- from the Engine Speed (RPM) sensor -G28-.

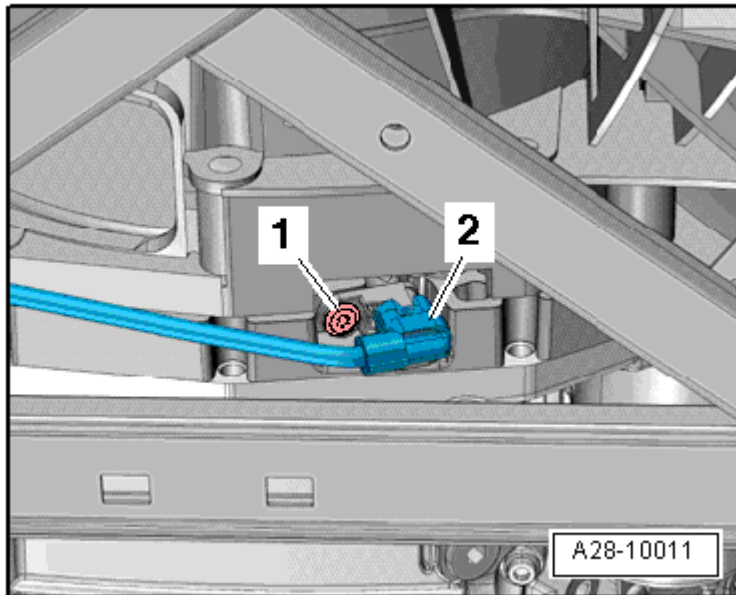


Fig. 214: Locating Engine Speed (RPM) Sensor -G28-
 Courtesy of AUDI OF AMERICA, LLC

NOTE: Ignore -1-.

Vehicles with Electro-Mechanical Power Steering

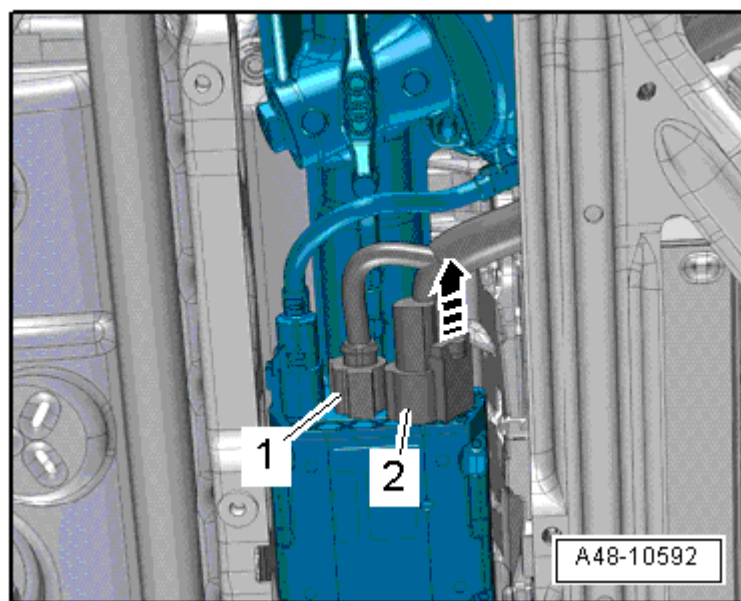


Fig. 215: Identifying Power Steering Control Module
 Courtesy of AUDI OF AMERICA, LLC

-- Release the safety catch -arrow-, push the retainer down and disconnect the connector from -2- from the power steering control module -J500-.

-- Free up the wiring harness.

NOTE: Ignore -1-.

All Vehicles

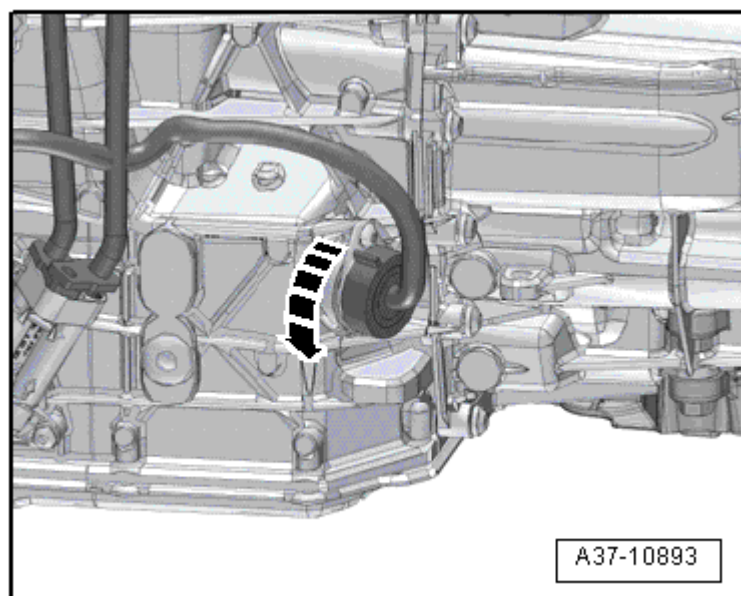


Fig. 216: Moving Selector Lever Into "P"

Courtesy of AUDI OF AMERICA, LLC

CAUTION: There is a risk of destroying the transmission control module (Mechatronic) with static discharge.

- Do not touch contacts in the transmission connector with hands.

- To discharge static electricity, touch the transmission housing (without wearing gloves).
- Turn the twist lock counter-clockwise -arrow- and disconnect the connector from the transmission.
- Free up the wiring harness on the transmission.
- Remove the left and right drive axles from the transmission flange shafts.

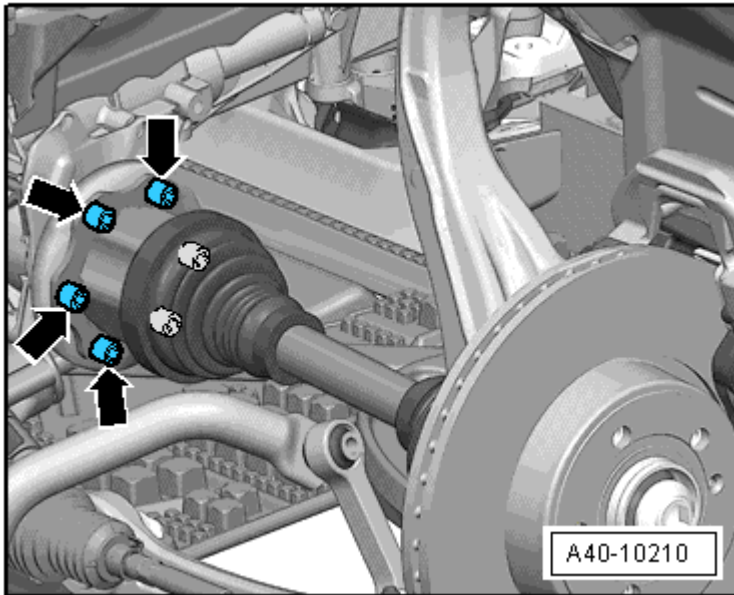


Fig. 217: Identifying Left And Right Drive Axles

Courtesy of AUDI OF AMERICA, LLC

- Remove the lower cover -1- from the transmission -arrow-.

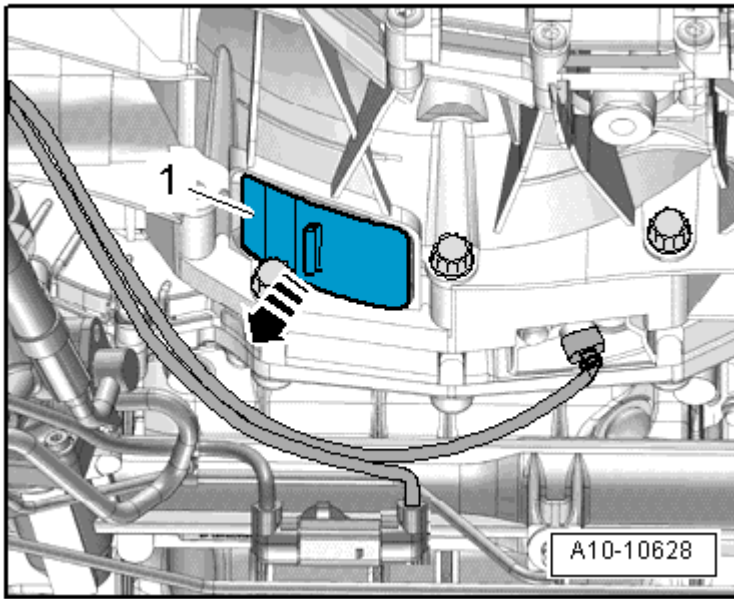


Fig. 218: Identifying Transmission Lower Cover
Courtesy of AUDI OF AMERICA, LLC

-- Insert the T40058 guide pins as follows:

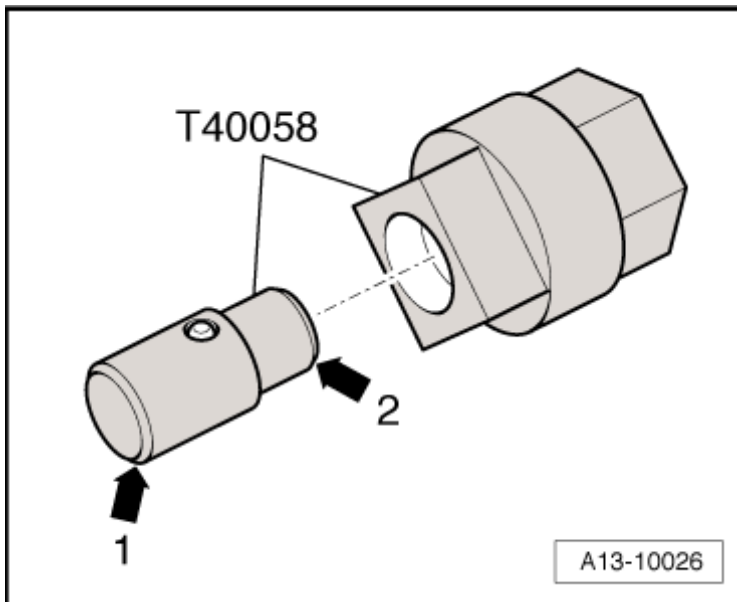


Fig. 219: Identifying Guide Pin And Adapter T40058
Courtesy of AUDI OF AMERICA, LLC

- The large diameter -arrow 1- faces the engine.
- The small diameter -arrow 2- faces the adapter.

-- Counter hold the crankshaft and loosen the drive plate bolts using T40058 and a wrench.

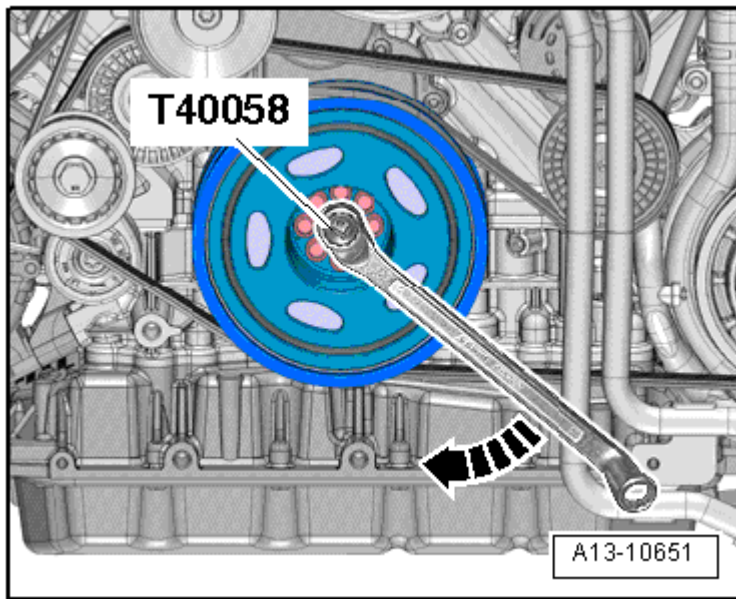


Fig. 220: Using Socket T40058 To Counter Hold Crankshaft
Courtesy of AUDI OF AMERICA, LLC

NOTE: Turn the crankshaft only in direction of -arrow-.

-- Remove the 6 bolts -arrow- from the clutch module. Turn the crankshaft an additional 60° in the direction of engine rotation.

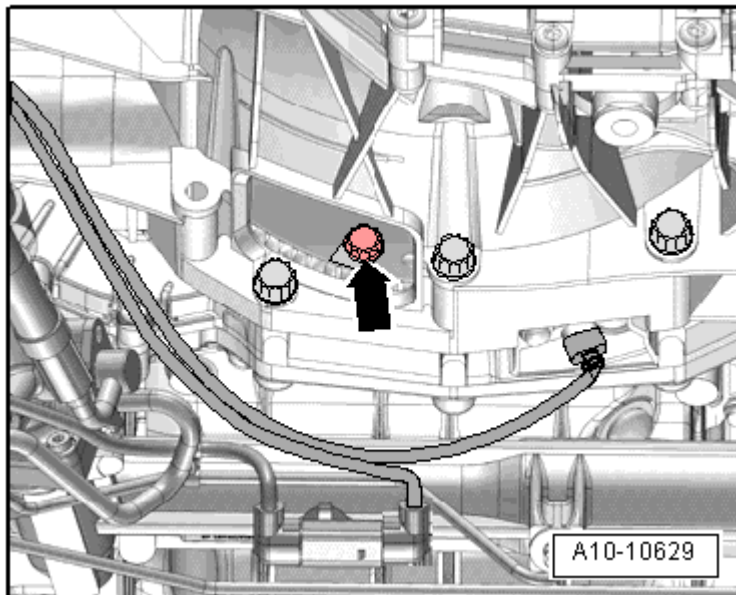


Fig. 221: Identifying Clutch Module First Bolt Installation Location (2 Of 2)
Courtesy of AUDI OF AMERICA, LLC

-- Remove the bolt -arrow- from the ATF pipes.

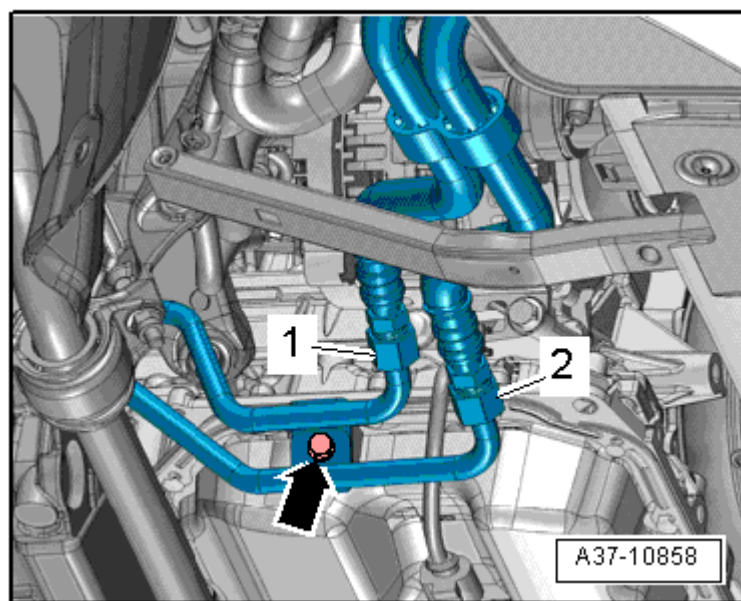


Fig. 222: Identifying ATF Line Bracket
Courtesy of AUDI OF AMERICA, LLC

NOTE: Ignore -1 and 2-.

Vehicles with Version 1 ATF Pipes

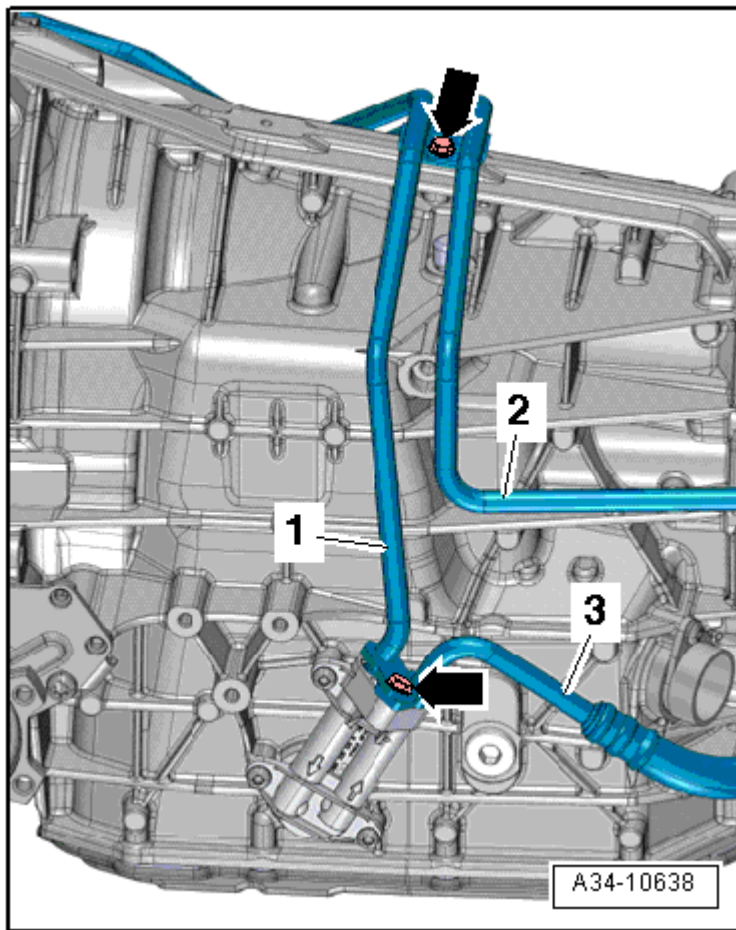


Fig. 223: Identifying Bolts -Arrows- And ATF Line -1-
Courtesy of AUDI OF AMERICA, LLC

NOTE: Place a cloth underneath to soak up any escaping ATF.

-- Remove the bolts -arrows- and then remove the ATF line -1- from the transmission.

NOTE: Ignore -2 and 3-.

-- Remove the bolt -1-.

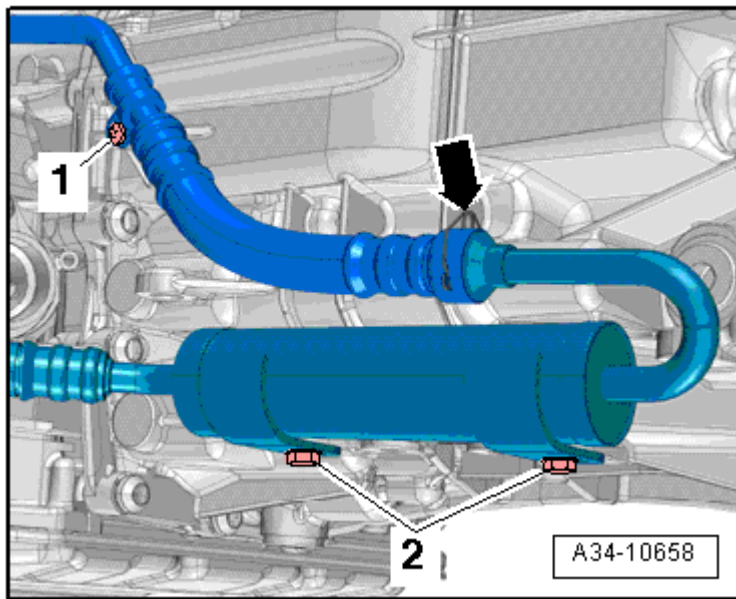


Fig. 224: Identifying ATF Pipe Filter
Courtesy of AUDI OF AMERICA, LLC

-- Remove the circlip -arrow- and then remove the ATF line from the ATF filter.

NOTE: Ignore -2-.

-- Secure the ATF lines -1 and 2- upward.

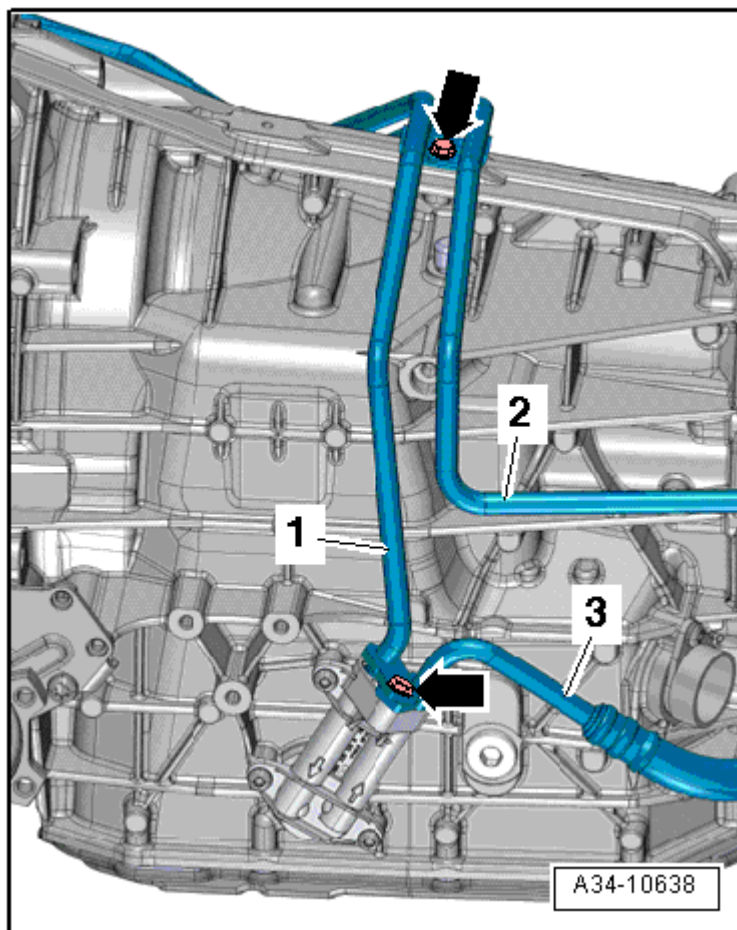


Fig. 225: Identifying Bolts -Arrows- And ATF Line -1-
Courtesy of AUDI OF AMERICA, LLC

NOTE: Ignore -3-.

-- Seal any open lines and connections with a clean plug from the VAS 6122.

Vehicles with Version 2 ATF Pipes

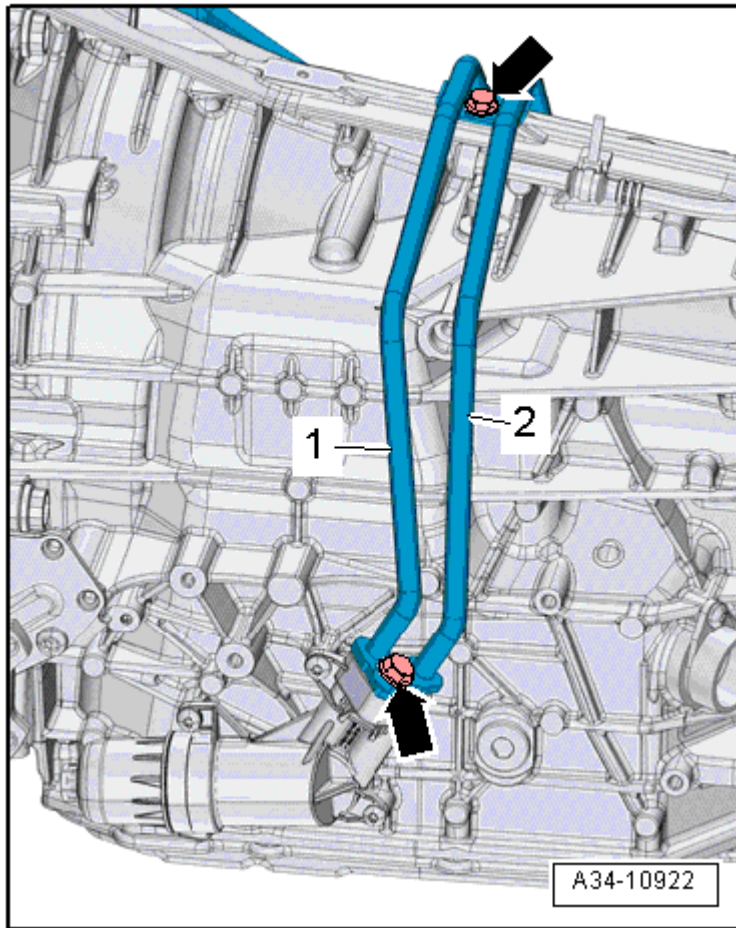


Fig. 226: Identifying Bolts -Arrows-, ATF Pipes -1 And 2- To ATF Filter Housing
Courtesy of AUDI OF AMERICA, LLC

NOTE: Place a cloth underneath to soak up any escaping ATF.

- Remove the bolts -arrows-, remove the ATF pipes -1 and 2- from the ATF filter housing and tie them up.
- Seal any open lines and connections with a clean plug from the VAS 6122.
- Remove the bolt -arrow- and move the coolant recirculation pump -V50- to the side.

2012 Audi S4

ENGINE 3.0 Liter - Engine Assembly - Engine Code(s): CCBA (Sedan)

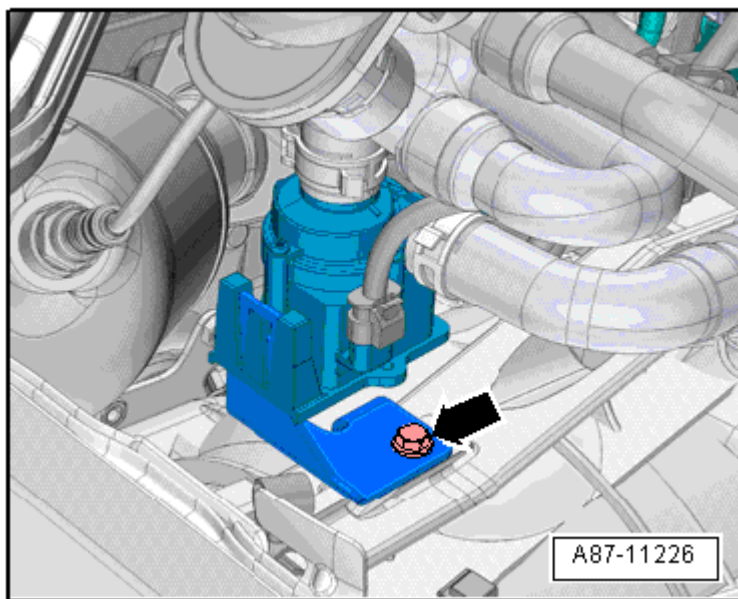


Fig. 227: Identifying Bolt (If Equipped) To Coolant Recirculation Pump
Courtesy of AUDI OF AMERICA, LLC

All Vehicles

2012 Audi S4

ENGINE 3.0 Liter - Engine Assembly - Engine Code(s): CCBA (Sedan)

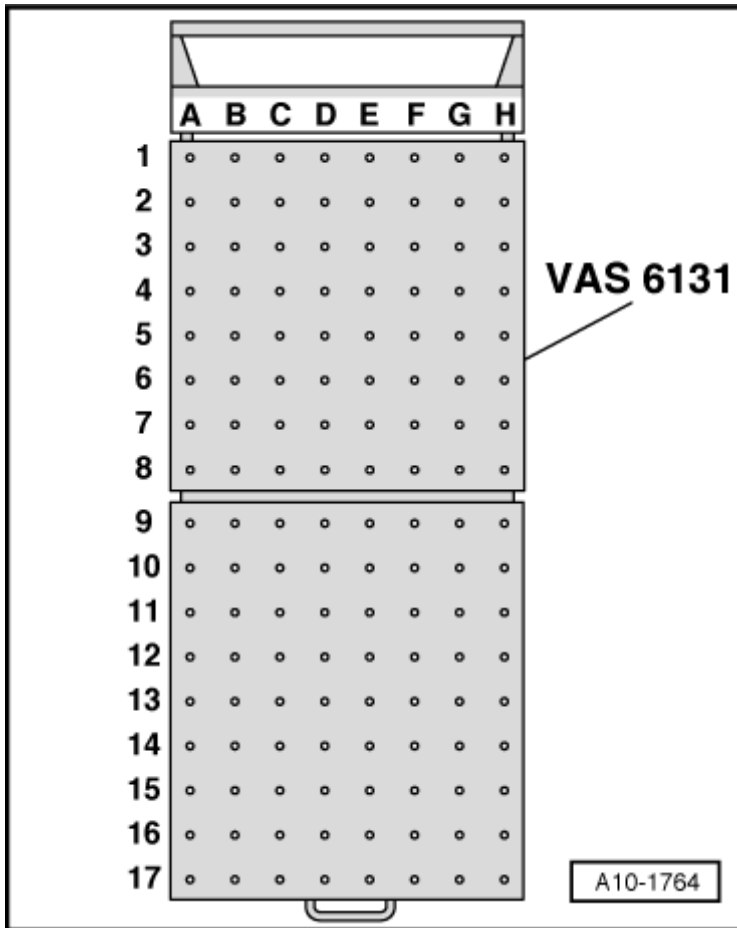


Fig. 228: Identifying Scissor Lift Platform VAS 6131

Courtesy of AUDI OF AMERICA, LLC

-- Equip the VAS 6131 A with the VAS 6131/10, VAS 6131/13-7 and VAS 6131/14 as follows:

NOTE: The other attachments remain unchanged.

Table Coordinates	Parts from the VAS 6131/10, VAS 6131/13-7 and VAS 6131/14			
F2	/13-7			
B10	/10-1	/10-2	/10-5	/14
G10	/10-1	/10-2	/10-5	

-- Install the VAS 6131/13-7 at the right front of the engine in the threaded hole as shown in the illustration.

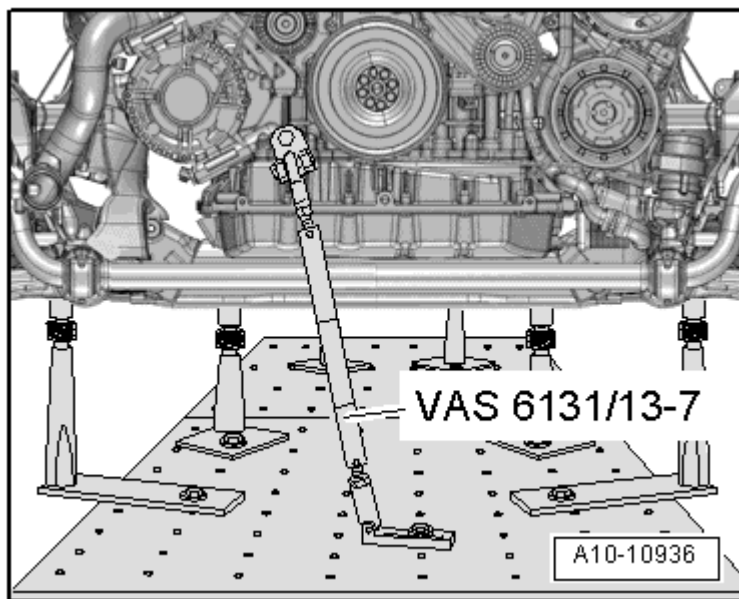


Fig. 229: Raising Engine From Engine Carrier
Courtesy of AUDI OF AMERICA, LLC

-- Install the VAS 6131/13-7 on the scissor lift table and tighten it to 20 Nm.

-- Attach the mounting elements from the VAS 6131/10 and VAS 6131/14 at the front of the transmission as shown in the illustration.

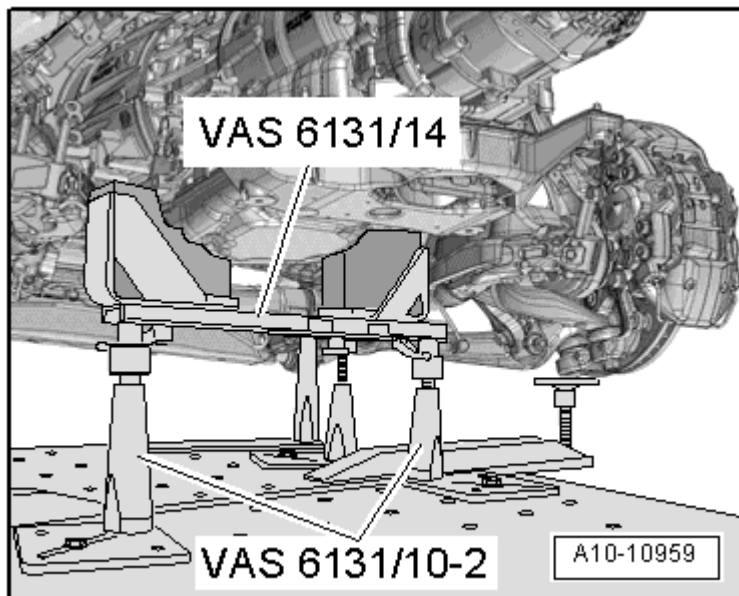


Fig. 230: Attaching Mounting Elements From VAS 6131/10 And Transmission Support
Courtesy of AUDI OF AMERICA, LLC

-- Rotate the left and right spindles up until the VAS 6131/14 rests firmly against the transmission.

-- Attach mounting element base plates to the VAS 6131 A and tighten to 20 Nm.

-- Remove the starter bolts -1 and 2-.

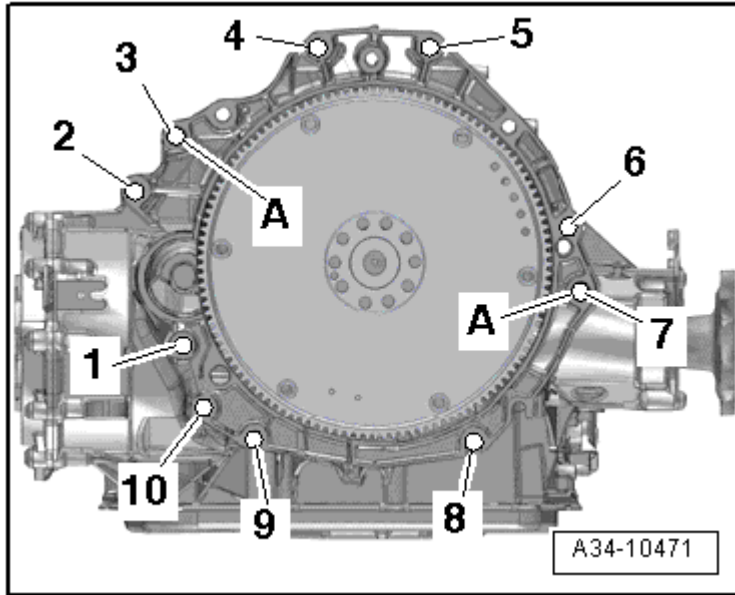


Fig. 231: Identifying Engine/Transmission Connecting Bolts, Tightening Sequence
 Courtesy of AUDI OF AMERICA, LLC

-- Press the starter off the transmission and leave it in the installation position.

-- Remove the remaining bolts -3 through 10- that attach the engine to the transmission.

NOTE: Ignore -A-.

-- Loosen clamping bolts -1- on sides of VAS 6131 A and pull rear table plate with transmission toward rear - arrow-.

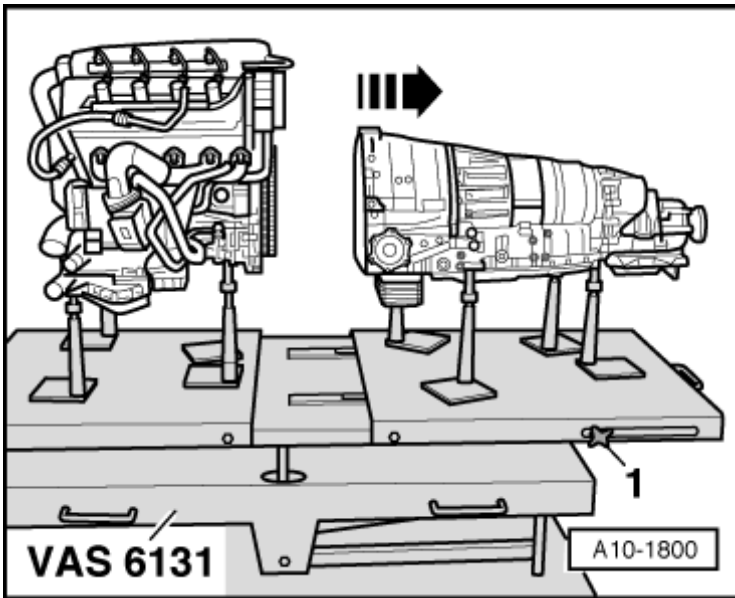


Fig. 232: Loosening Clamping Bolts On Side Of Scissor Lift Table VAS 6131 And Pull Rear Table Section With Transmission Rearward
 Courtesy of AUDI OF AMERICA, LLC

ENGINE, INSTALLING

Special tools and workshop equipment required

- Ring Spanner Insert AF 16 V.A.G 1332/14
- Assembly Aid T40169
- Transportation Lock T40170
- Scissor-Type Assembly Platform VAS 6131 A

Tightening Specifications

NOTE:

- The tightening specifications apply only to lightly greased, oiled, phosphated or blackened nuts and bolts.
- Additional lubricants, such as engine or transmission oil are permissible, although lubricants containing graphite are not.
- Do not use any parts that have had the lubrication removed.
- Tightening specification tolerance +/- 15%.

Component		Nm
Bolts and nuts	M6	9
	M7	15
	M8	20
	M10	40
	M12	65

Subframe mount, refer to **SUBFRAME MOUNT OVERVIEW**.

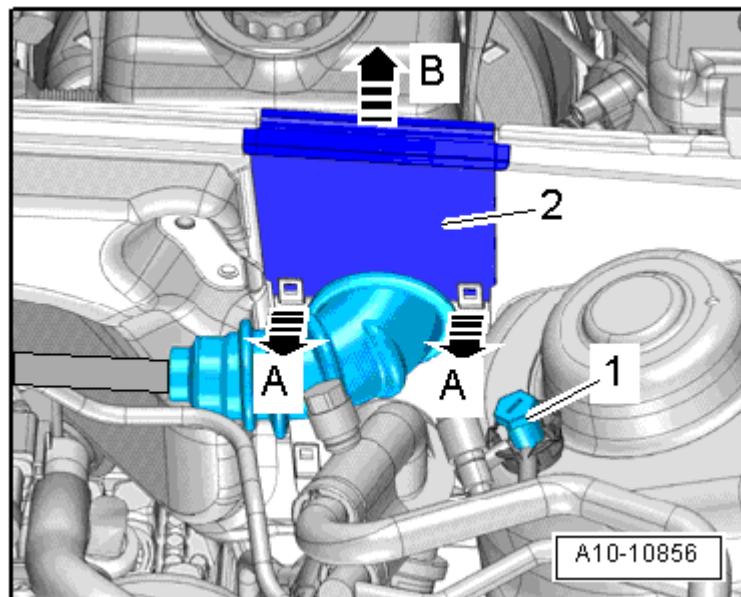


Fig. 233: Identifying Ground Bolt To Strut Tower - Tightening Specification
Courtesy of AUDI OF AMERICA, LLC

-- Tighten the ground bolt -1- to 9 Nm.

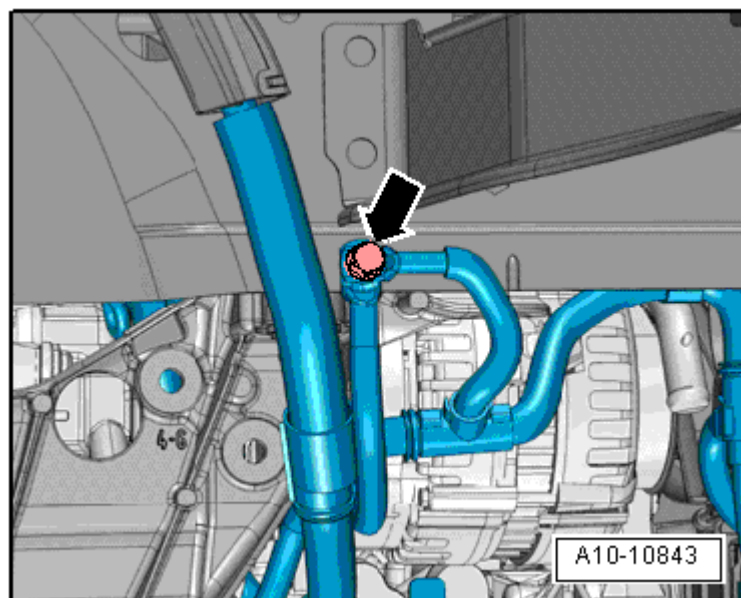


Fig. 234: Identifying Nut -Arrow- To Longitudinal Member
Courtesy of AUDI OF AMERICA, LLC

-- Tighten the nut -arrow- to 9 Nm.

Engine to S-Tronic Transmission 0B5

2012 Audi S4

ENGINE 3.0 Liter - Engine Assembly - Engine Code(s): CCBA (Sedan)

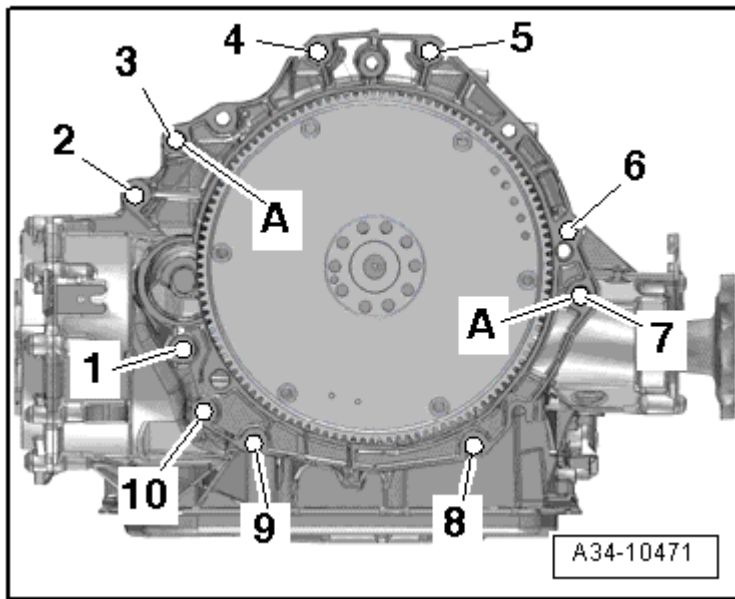


Fig. 235: Identifying Engine/Transmission Connecting Bolts, Tightening Sequence
Courtesy of AUDI OF AMERICA, LLC

Item	Bolt	Nm
1	M10 x 50 ¹⁾	65
2 through 6	M12 x 100 ²⁾	30 + 90°
7	M12 x 125 ²⁾	30 + 90°
8	M10 x 60 ²⁾	15 + 90°
9, 10	M10 x 95 ²⁾	15 + 90°
A	Alignment sleeves for centering	
• ¹⁾ Bolt class 10.9, the steel bolt may be used again unlimited number of times. • ²⁾ The aluminum bolts can be used 2 times, refer to <u>ALUMINUM BOLTS</u>.		
(1) To prevent damaging the bolts when marking them, do not clamp them in a vise. Insert the bolt using a 14 mm socket with a ¹ / ₂ drive, which is inserted in to the vise, as illustrated.		

ALUMINUM BOLTS

NOTE:

- The aluminum bolts -2 through 10- may be used two times. Therefore, the bolts must be marked with two notches "X" made by a chisel after they have be used the first time -arrow-.

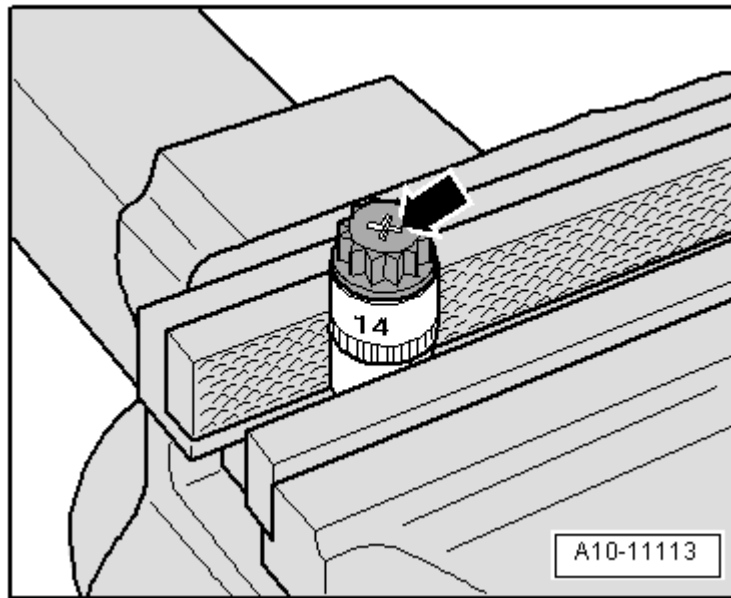


Fig. 236: Identifying Bolts Marked With An "X" May Not Be Used Again
Courtesy of AUDI OF AMERICA, LLC

- Do not use bolts marked with an "X" again.

PROCEDURE

NOTE:

- Replace the bolts which are being tightened with an additional turn.
- Replace self-locking nuts and bolts and seals, gaskets and O-rings.
- In vehicles with S-Tronic transmission 0B5, there is a needle bearing in the drive plate. Check if the needle bearing is inserted before installing. Needle bearing, removing from and installing on drive plate. Refer to **NEEDLE BEARING ON DRIVE PLATE**.
- The hose connections as well as the air guide pipes and hoses must be free of oil and grease before installing.
- Secure all hose connections with hose clamps of the same type as those equipped by the factory.
- To mount the air guide hoses on their connectors securely, spray the bolts on the used clamps with rust remover before installing.
- When installing, bring all cable ties back to same positions.

-- Install the engine supports and engine mount. Refer to **SUBFRAME MOUNT OVERVIEW**.

-- When joining the engine and subframe, hold the ATF lines in their installation position.

-- Clean the threaded holes in the cylinder block for connecting the engine and transmission using a thread tap before installing the transmission.

-- The following preparations must be made before connecting the engine and transmission:

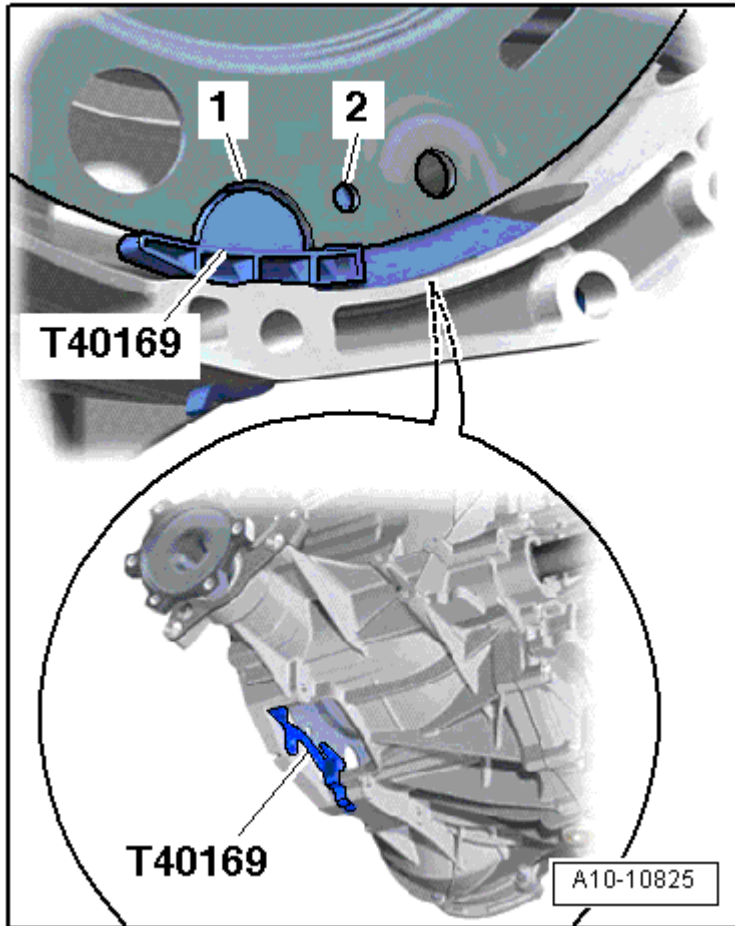


Fig. 237: Inserting Assembly Aid T40169 Into Transmission Housing And Flywheel
 Courtesy of AUDI OF AMERICA, LLC

-- Insert the T40169 into the transmission housing and clutch module from underneath as illustrated.

- The assembly aid must engage in the semicircular opening -1- and in the inspection hole -2-.

NOTE: **The inspection hole is only in one location on the circumference so rotate the clutch module as needed.**

-- Install the assembly aid bolt into the hole on the transmission housing.

-- Install the T40170 into the transmission housing and the clutch module from underneath and secure it to the flange shaft -1-.

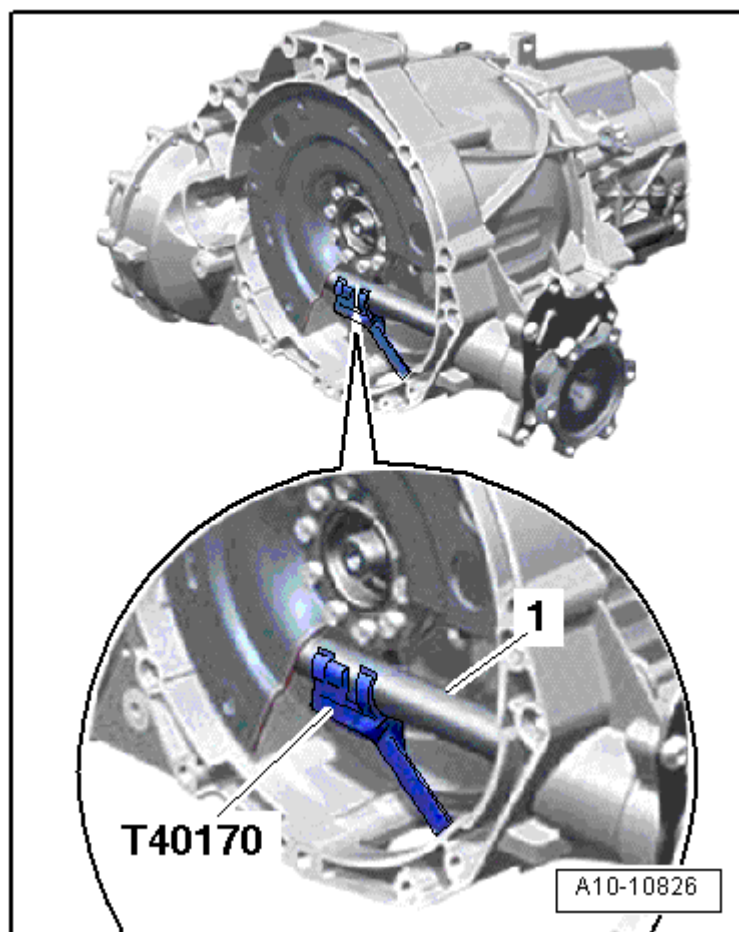


Fig. 238: Identifying Transportation Lock T40170

Courtesy of AUDI OF AMERICA, LLC

-- Check if the alignment sleeves -A- for centering the engine/transmission are in the cylinder block and insert them if they are not.

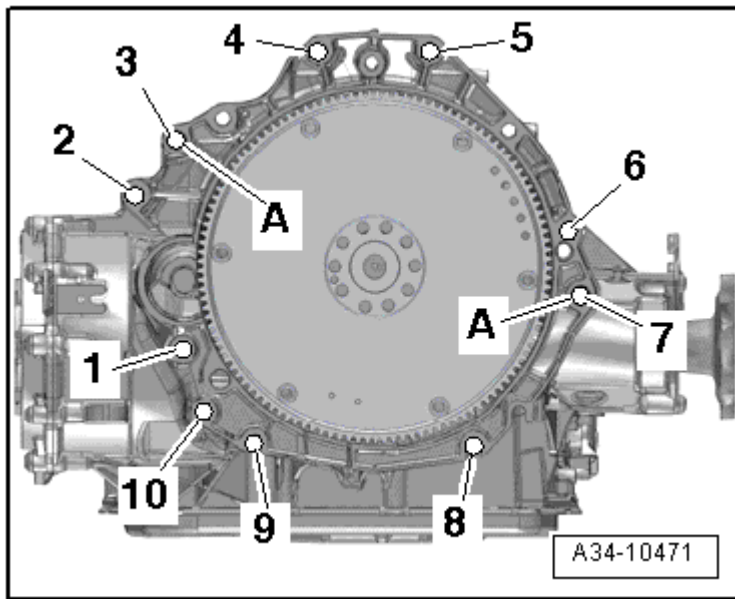


Fig. 239: Identifying Engine/Transmission Connecting Bolts, Tightening Sequence
Courtesy of AUDI OF AMERICA, LLC

- Inspect the aluminum bolts used to connect the engine to the transmission to see if they can be used again and mark them, if necessary **ALUMINUM BOLTS**.
- Attach the transmission to the engine and then tighten the bolts -1 and 6 through 10-.
- Remove the T40170 and T40169.

NOTE: The following procedure is necessary to assure that the clutch module contacts the drive plate evenly and does not get bent.

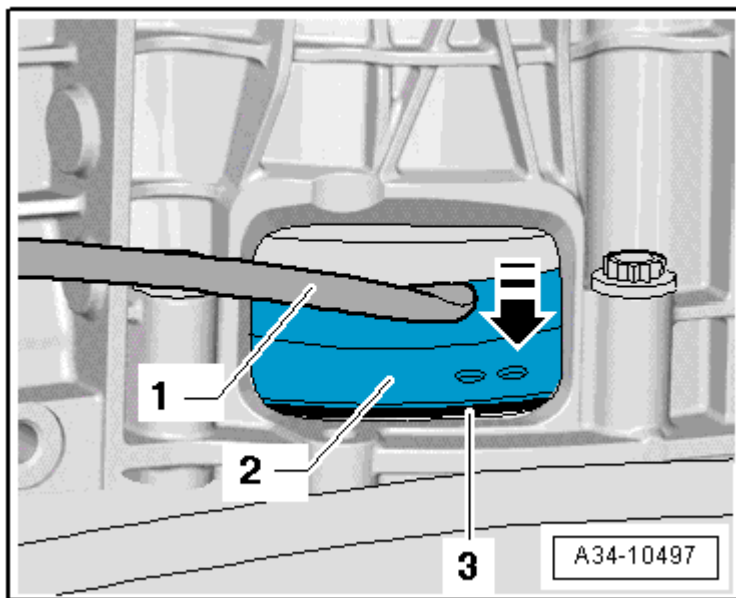


Fig. 240: Pressing Torque Converter
 Courtesy of AUDI OF AMERICA, LLC

-- Press the clutch module -2- slightly against the drive plate -3- using a pry bar -1- in -arrow-.

-- Secure the clutch module to the drive plate as follows:

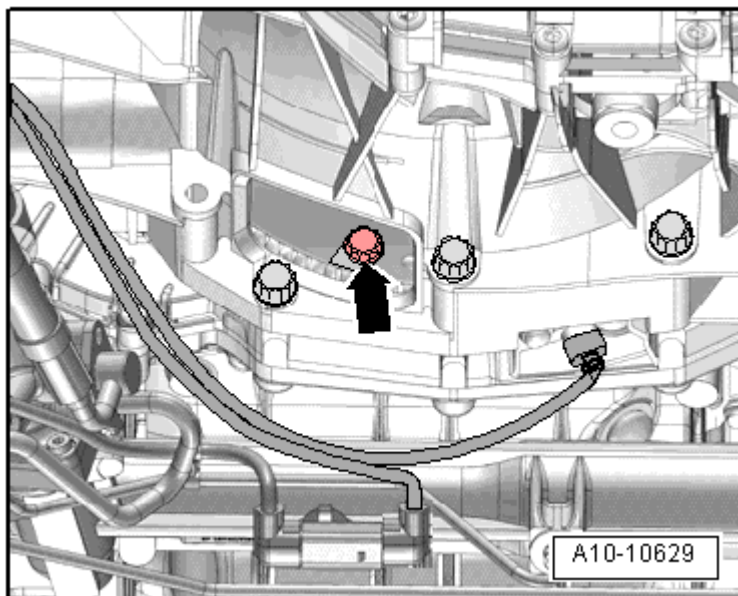


Fig. 241: Identifying Clutch Module First Bolt Installation Location (2 Of 2)
 Courtesy of AUDI OF AMERICA, LLC

NOTE: Tighten the bolt with the V.A.G 1332/14.

-- Install the first bolt -arrow- and tighten by hand (2 Nm).

-- Insert the T40058 guide pins as follows:

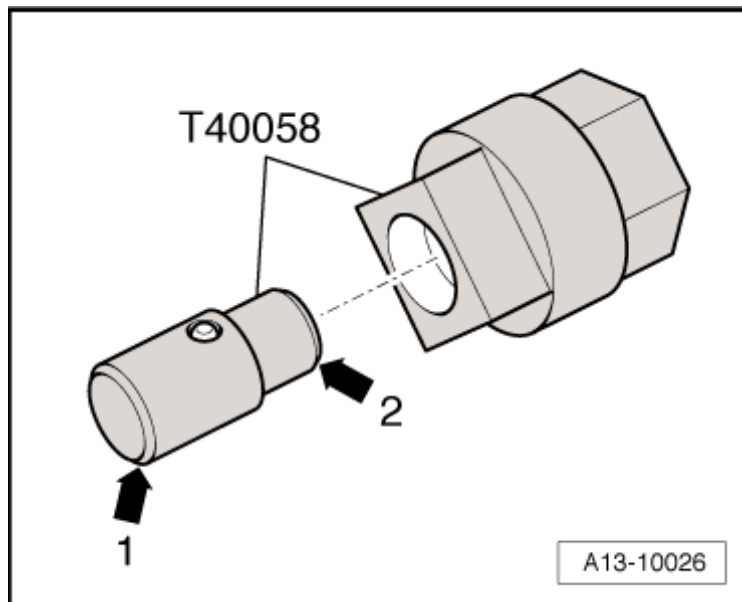


Fig. 242: Identifying Guide Pin And Adapter T40058
Courtesy of AUDI OF AMERICA, LLC

- The large diameter -arrow 1- faces the engine.
- The small diameter -arrow 2- faces the adapter.

-- Rotate the crankshaft 180° further in direction of engine rotation -arrow- using the T40058 and ring wrench.

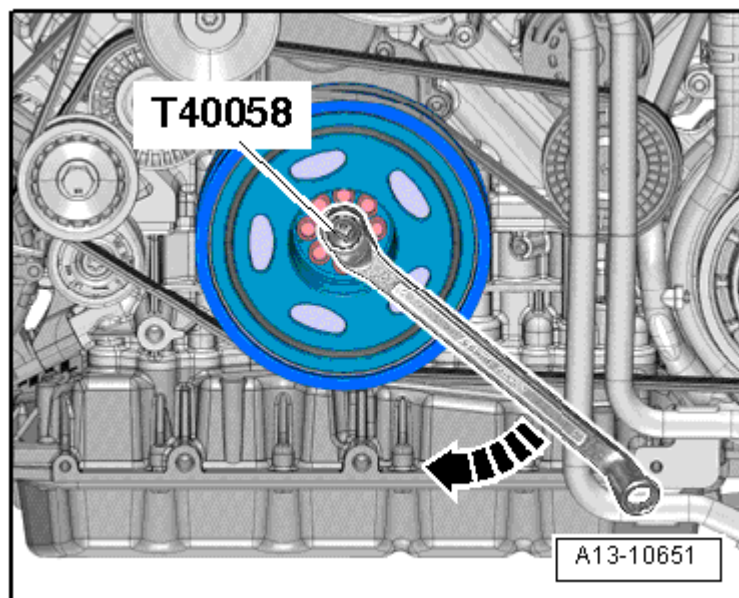
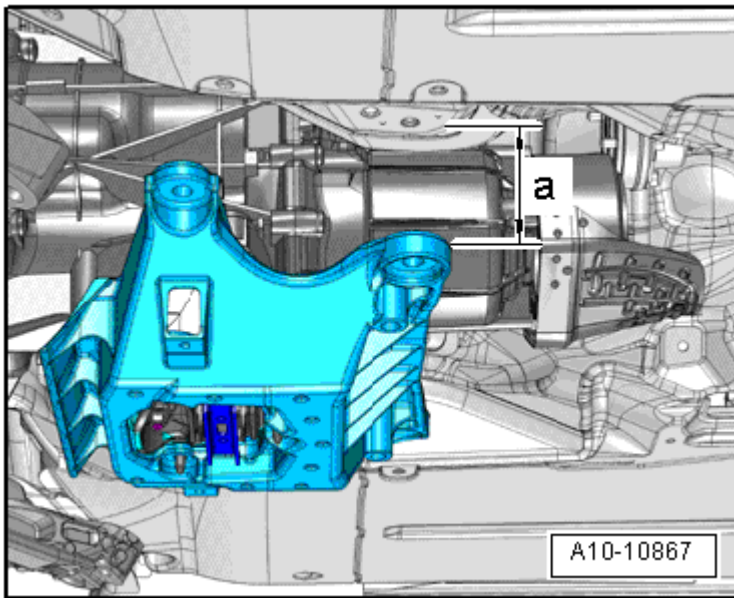


Fig. 243: Using Socket T40058 To Counter Hold Crankshaft

Courtesy of AUDI OF AMERICA, LLC

- Tighten the bolts that are accessible in this position to the tightening specifications. Refer to **Specifications** .
- Turn the crankshaft 60° further and tighten the remaining 5 bolts to the tightening specification. Refer to **Specifications** .
- Install the power steering hydraulic oil lines. Refer to **Description and Operation** .
- Install the coolant recirculation pump. Refer to **Description and Operation** .
- Install ATF lines. Refer to **Removal and Installation** .
- Install the left and right drive axles on the transmission flange shafts. Refer to **Removal and Installation** .
- Install the catalytic converters: for the left one, refer to **LEFT CATALYTIC CONVERTER** and for the right one, refer to **RIGHT CATALYTIC CONVERTER** .
- Next, raise engine/transmission subassembly high enough using VAS 6131 A until dimension -a- is reached between subframe and body.

**Fig. 244: Lowering Transmission****Courtesy of AUDI OF AMERICA, LLC**

- -a- = minimum 100 mm
- Install the selector lever cable and adjust if necessary. Refer to **Removal and Installation** .
- Continue raising the engine/transmission subassembly using the VAS 6131 A.

-- Align the subframe and transmission carrier using the marks made on the longitudinal members during removal.

-- Tighten the subframe bolts only to the tightening specifications, do not tighten them further (tighten the bolts only after axle alignment). Refer to **Specifications** .

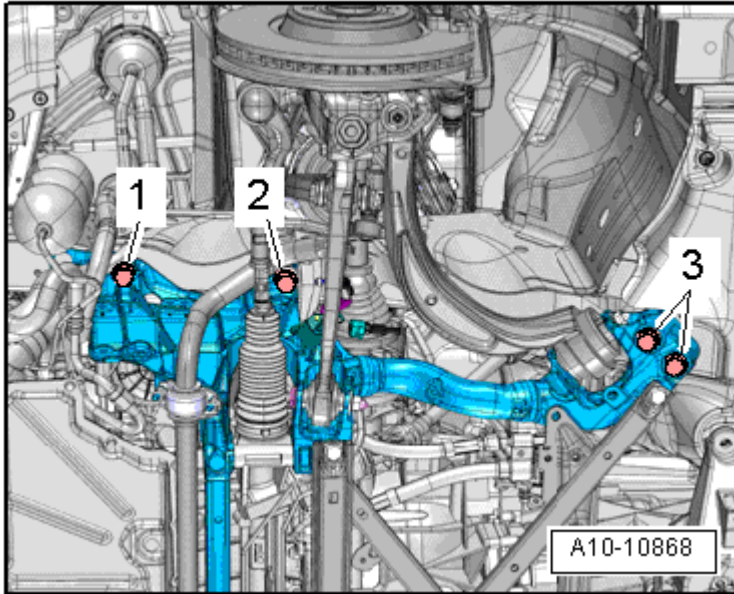


Fig. 245: Identifying Subframe Bolts (Tighten To Specifications)

Courtesy of AUDI OF AMERICA, LLC

WARNING: Risk of accident due to loose connections.

- If the bolts in the subframe are not tightened to final torque, vehicle must not be driven.

-- Tighten the tunnel crossmember bolts -arrow-. Refer to **Removal and Installation** .

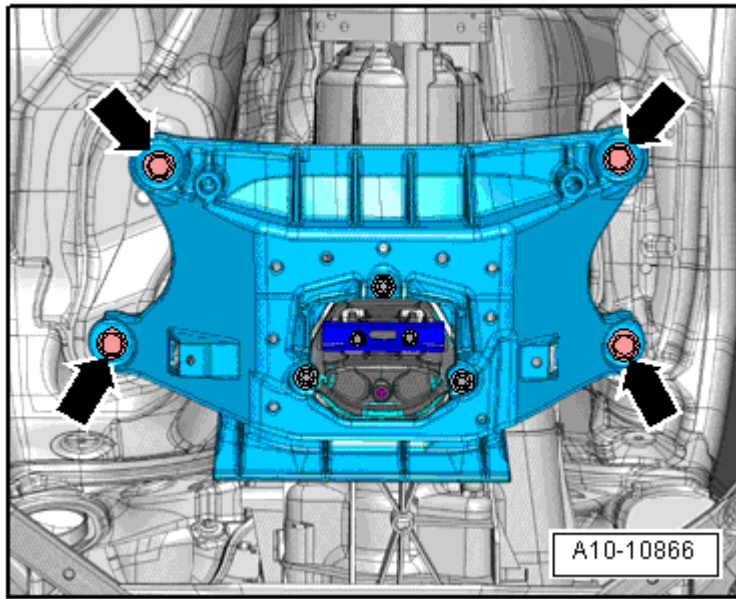


Fig. 246: Identifying Bolts To Tunnel Crossmember
 Courtesy of AUDI OF AMERICA, LLC

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

- Attach the steering intermediate shaft to the steering gear. Refer to **Removal and Installation** .
- Install the driveshaft. Refer to **Removal and Installation** or **Removal and Installation** .
- Install the front muffler. Refer to **FRONT MUFFLER** .
- Install exhaust system free of stress. refer to **EXHAUST SYSTEM, INSTALLING** .
- Install the front crossmember. Refer to **Description and Operation** .
- Install the subframe, cross brace, the upper control arm and stabilizer bar and tighten the suspension strut on the left and right control arms. Refer to **Removal and Installation** .
- Install diagonal braces. Refer to **Removal and Installation** .
- Install brake caliper. Refer to **Removal and Installation** .
- Install Engine Control Module (ECM). Refer to **Removal and Installation** .
- Electrical connectors and wiring routing. Refer to the appropriate SYSTEM WIRING DIAGRAMS information.
- Install the wires, terminal 30, wire junction 2 -TV22- and the engine compartment E-box cover. Refer to **Fig. 233, Fig. 234** and **Removal and Installation** .

- Install the tower brace. Refer to **Removal and Installation** .
- Install the windshield wiper fluid reservoir filler tube. Refer to **Removal and Installation** .
- Install refrigerant lines. Refer to **Removal and Installation** .
- Be sure to follow the procedure for connecting the battery and afterwards. Refer to **Removal and Installation** .

CAUTION: There is a risk of destroying control modules with excess voltage.

- **Do not use a charger as a starting aid.**

- Install the fuel supply hose and air filter housing. Refer to **Removal and Installation** .
- Install the lock carrier braces. Refer to **Description and Operation** .
- Fill the engine oil and check the level. Refer to **MAINTENANCE PROCEDURES**
- Before starting the engine for the first time, check the fluid level in power steering reservoir. Refer to **General Information** .

NOTE: The power steering pump must not run dry.

- Connect the coolant hose to the coupling. Refer to **Fig. 130**.

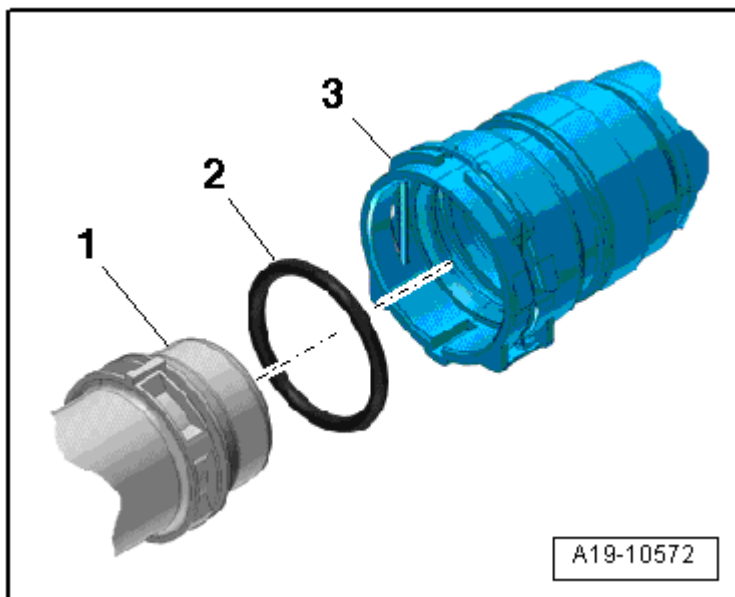


Fig. 247: Connecting Coolant Hose To Coupling
Courtesy of AUDI OF AMERICA, LLC

2012 Audi S4

ENGINE 3.0 Liter - Engine Assembly - Engine Code(s): CCBA (Sedan)

-- Fill with coolant **COOLANT, DRAINING AND FILLING => Filling** .

NOTE:

- Do not use drained coolant in the following situations:
- If the cylinder head or cylinder block was replaced.
- If the coolant is contaminated.

-- Fill the refrigerant circuit. Refer to **GENERAL INFORMATION** .

-- Install the wheel housing liners. Refer to **Removal and Installation** .

-- Install the front wheels. Refer to **Removal and Installation** .

-- Perform axle alignment. Refer to **General Information** .

WARNING: Risk of accident due to loose connections.

- Tighten the subframe bolts to the specification after performing axle alignment.

-- Fill with ATF. Refer to **General Information** .

-- Install the noise insulation. Refer to **Description and Operation** .

SPECIAL TOOLS

2012 Audi S4

ENGINE 3.0 Liter - Engine Assembly - Engine Code(s): CCBA (Sedan)

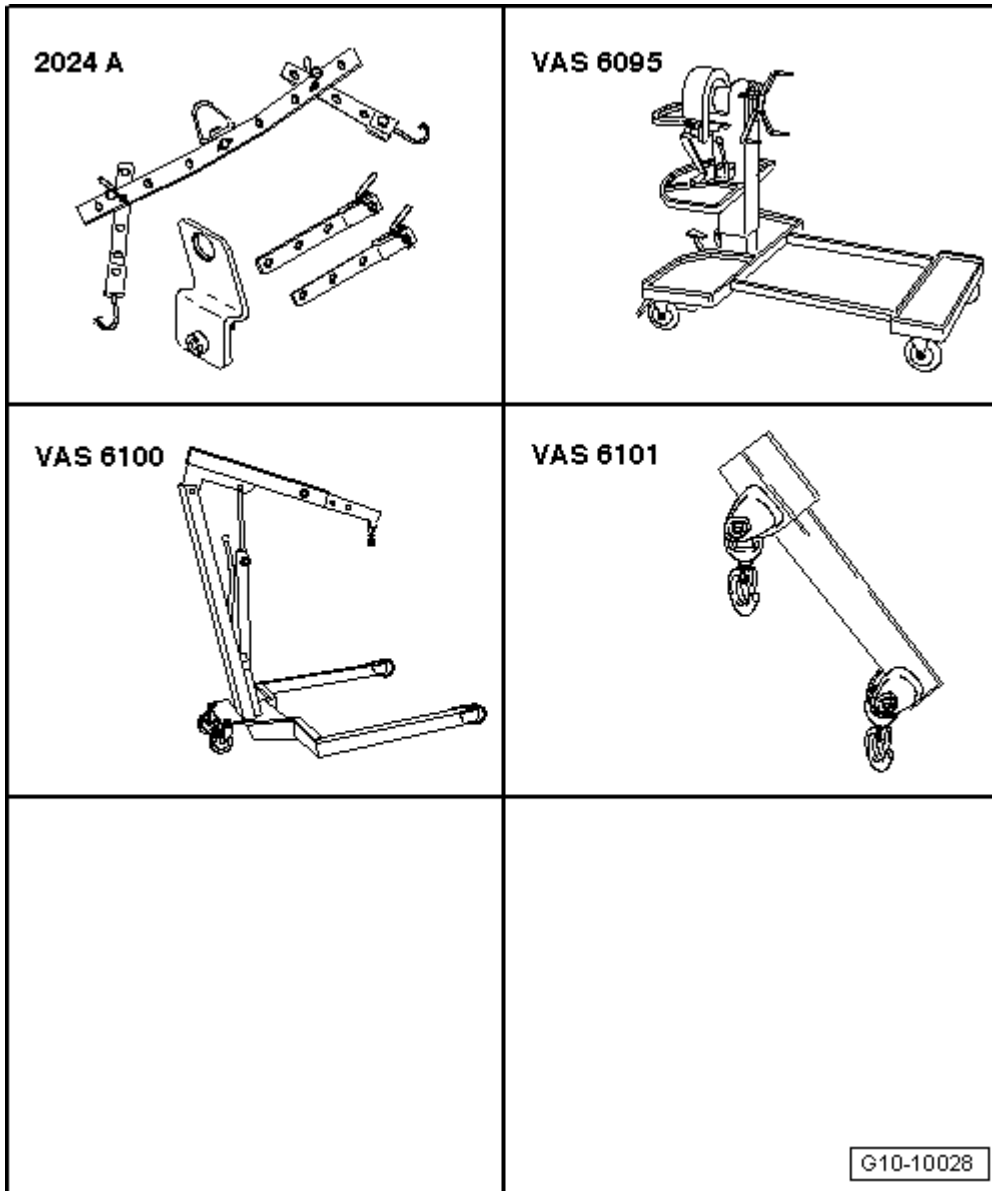


Fig. 248: Identifying Special Tools -- Engine, Securing To Engine And Transmission Holder
Courtesy of AUDI OF AMERICA, LLC

Special tools and workshop equipment required

- Engine Sling 2024 A
- Engine and Transmission Holder VAS 6095 with Universal Mounting VAS 6095/1 and Bracket for V6 FSI Engine, Audi A6 VAS 6095/1-5
- Shop Crane - Load Cap = 700-1200 Kg VAS 6100
- Lift Arm Ext./Workshop Hoist VAS 6101

2012 Audi S4

ENGINE 3.0 Liter - Engine Assembly - Engine Code(s): CCBA (Sedan)

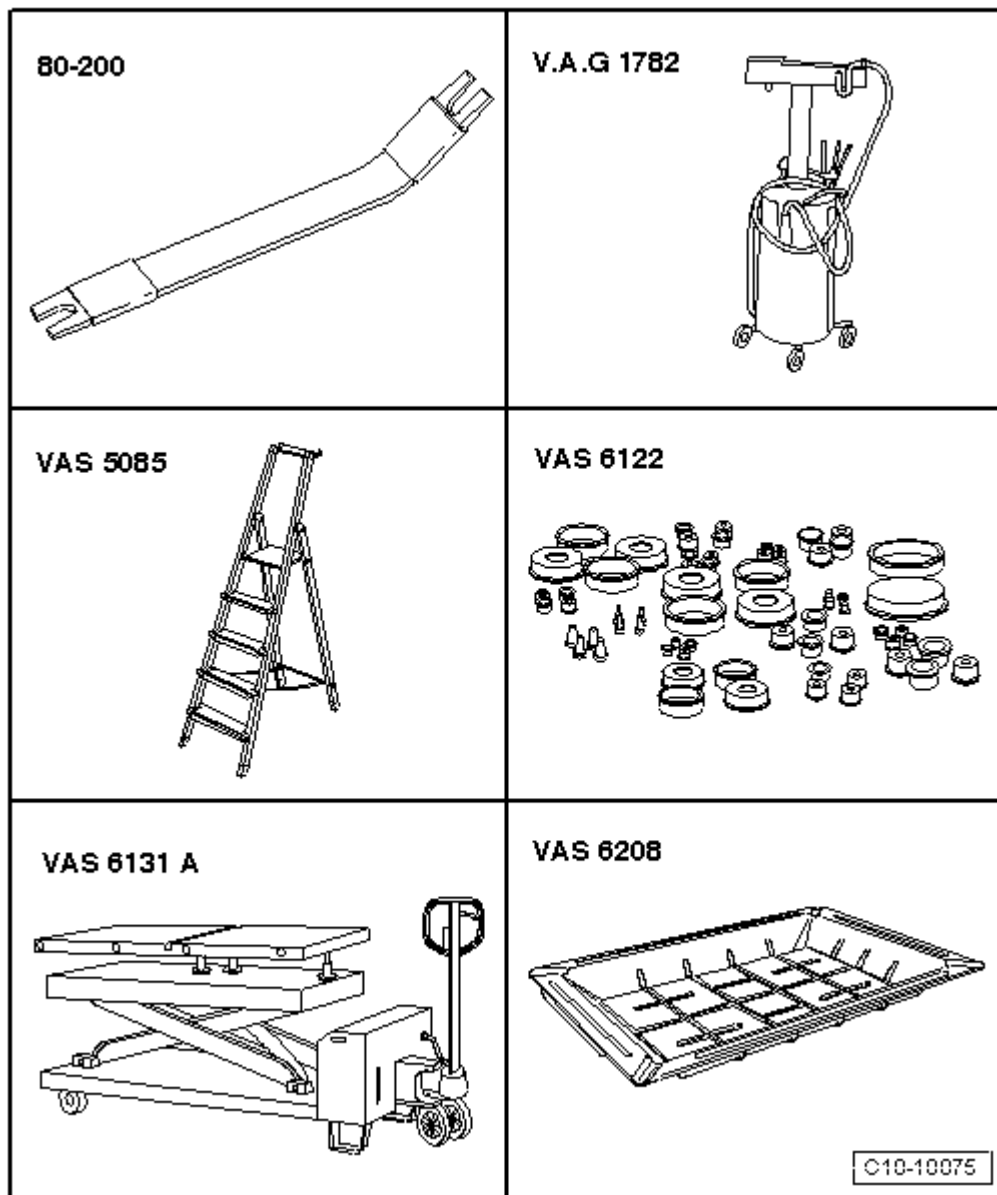


Fig. 249: Identifying Special Tools -- Engine, Removing
Courtesy of AUDI OF AMERICA, LLC

Special tools and workshop equipment required

- Pry Lever - Rmv Outside Mirror 80 - 200
- Oil Collecting and Extracting Device V.A.G 1782
- Step Ladder VAS 5085
- Engine Bung Set VAS 6122
- Scissor-Type Assembly Platform VAS 6131 A with support set VAS 6131/10 and Supplementary set, Audi Q7 VAS 6131/13
- Drip Tray for VAS 6100 VAS 6208

Special tools and workshop equipment required

- Engine Support Bridge 10 - 222 A

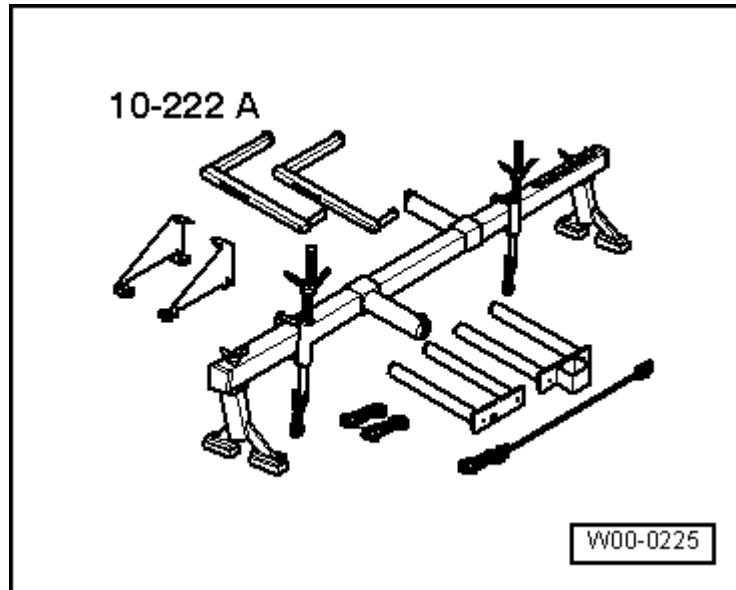


Fig. 250: Identifying Engine Support Bridge 10 - 222 A
Courtesy of AUDI OF AMERICA, LLC

- Socket T40058

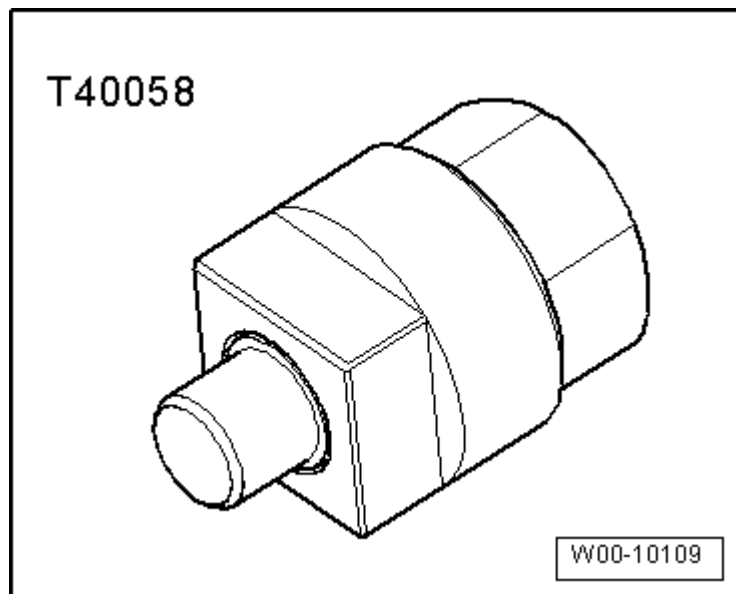


Fig. 251: Identifying Socket T40058
Courtesy of AUDI OF AMERICA, LLC

- Engine Support Supplement Set T40093

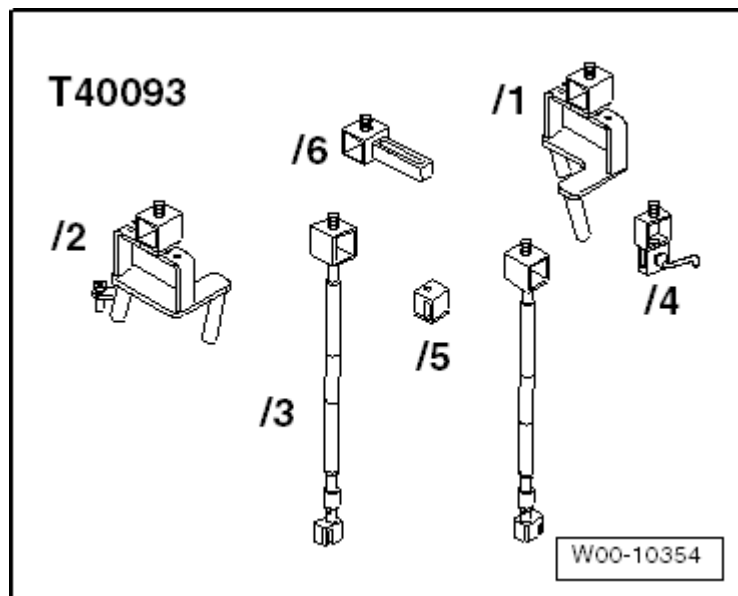


Fig. 252: Identifying Engine Support Supplement Set T40093
 Courtesy of AUDI OF AMERICA, LLC

- Puller for Gear Shaft Linkage T40160

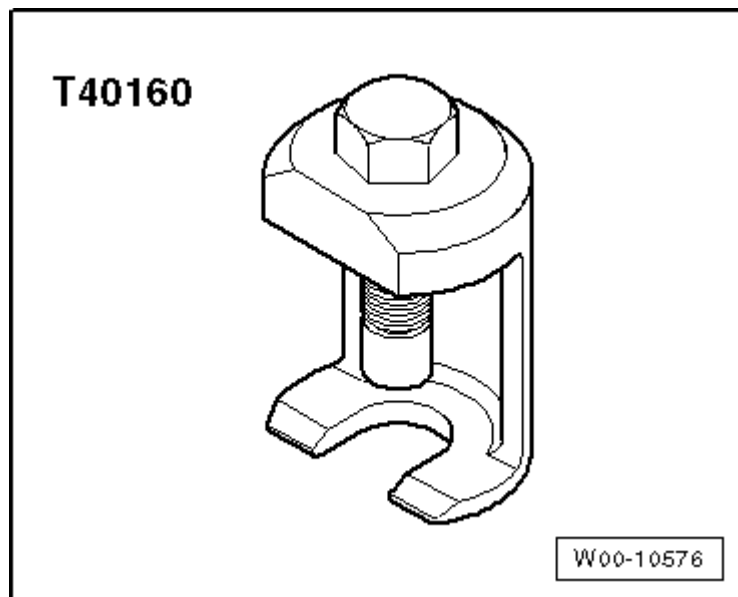


Fig. 253: Identifying Puller for Gear Shaft Linkage T40160
 Courtesy of AUDI OF AMERICA, LLC

- Assembly Aid T40169

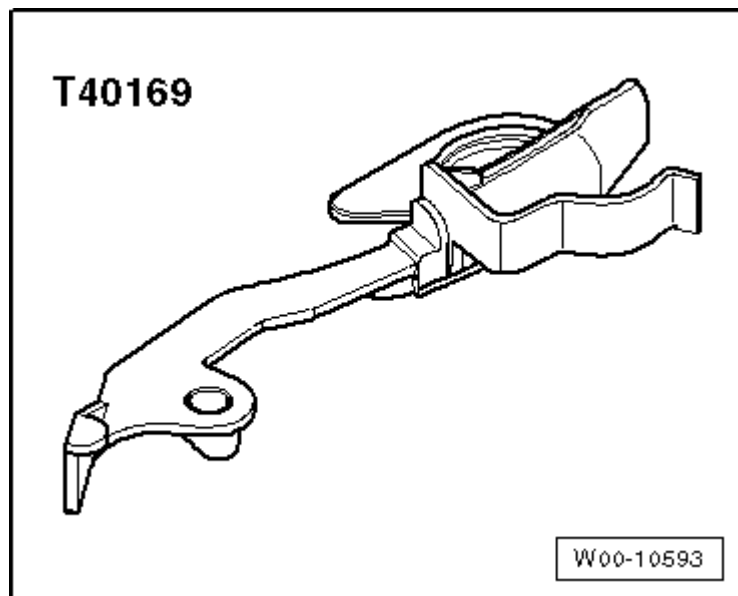


Fig. 254: Identifying Assembly Aid T40169
Courtesy of AUDI OF AMERICA, LLC

- Transportation Lock T40170

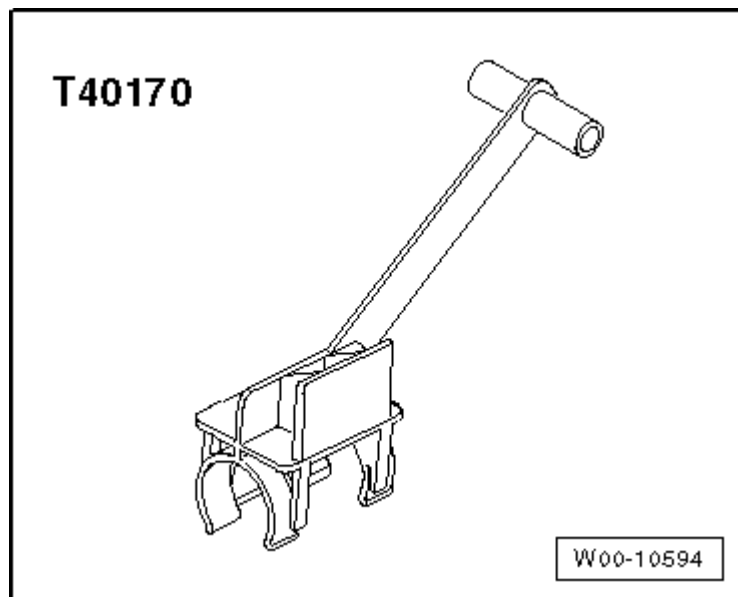


Fig. 255: Identifying Transportation Lock T40170
Courtesy of AUDI OF AMERICA, LLC

- Ring Spanner Insert AF 16 V.A.G 1332/14

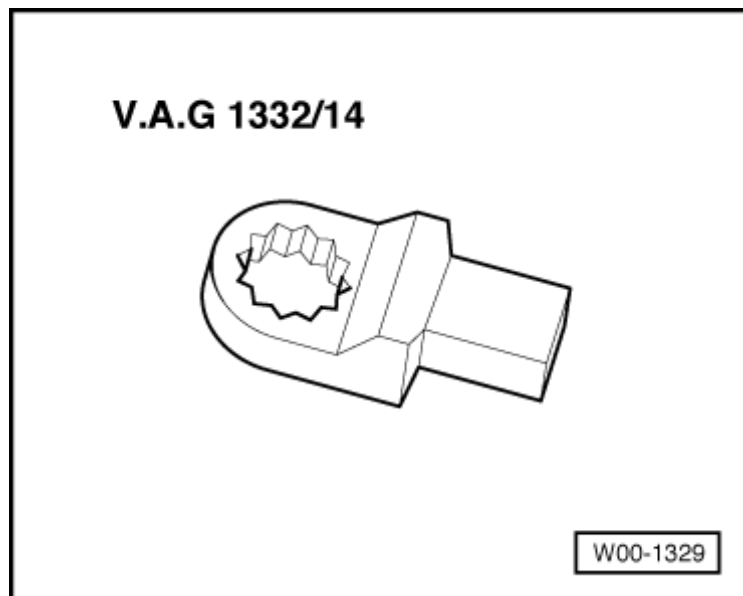


Fig. 256: Identifying Ring Spanner Insert AF 16 V.A.G 1332/14
Courtesy of AUDI OF AMERICA, LLC

- Oil Collecting and Extracting Device V.A.G 1782

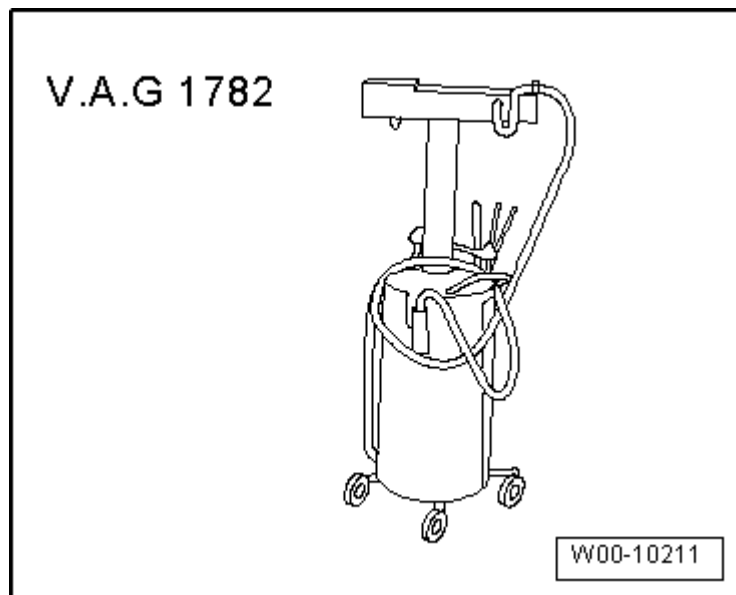


Fig. 257: Identifying Oil Collecting and Extracting Device V.A.G 1782
Courtesy of AUDI OF AMERICA, LLC

- Hose Clip Pliers VAS 6362

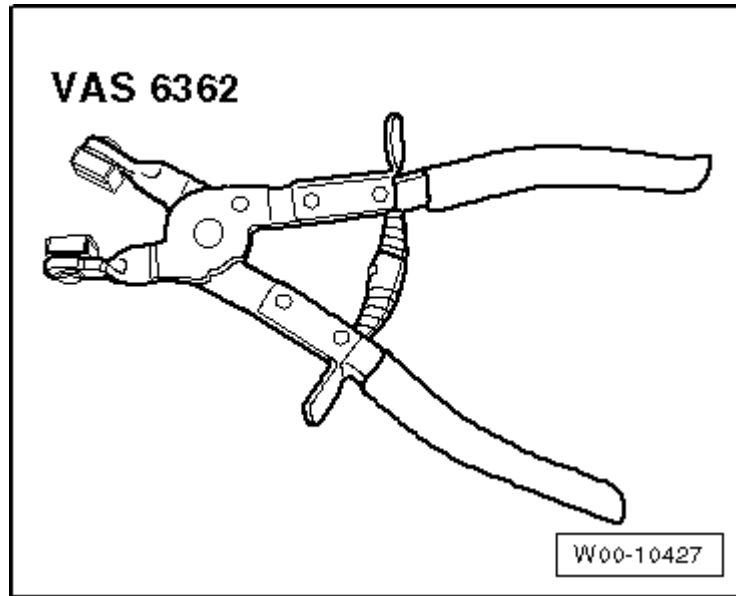


Fig. 258: Identifying Hose Clip Pliers VAS 6362
Courtesy of AUDI OF AMERICA, LLC

- Not illustrated:
- Spindles 10 - 222 A /11
- Engine Support Bridge 10 - 222 A
- Engine Support Supplement Set T40093
- Adapter T40093/6
- Engine Bung Set VAS 6122
- Joint Support VAS 6131/13-7
- Support Set VAS 6131/10, Supplementary Set VAS 6131/13-7 and Gearbox Support VAS 6131/14