

10 - ENGINE - ASSEMBLY

ENGINE, REMOVING AND INSTALLING

Engine, removing

NOTE:

- The engine is removed downward with transmission and subframe.
- All cable ties which are opened or cut open when removing engine, must be replaced in the same position when installing engine.
- Drained coolant must be stored in a clean container for disposal or reuse.

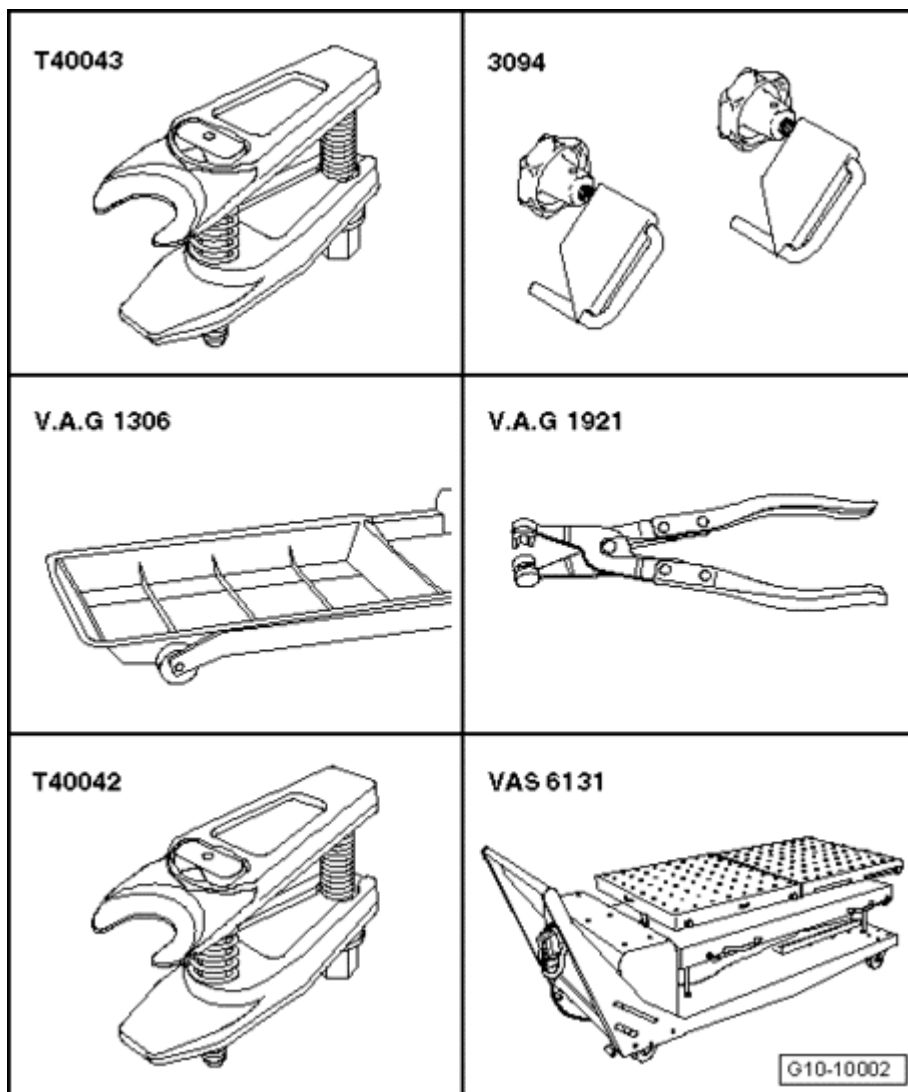
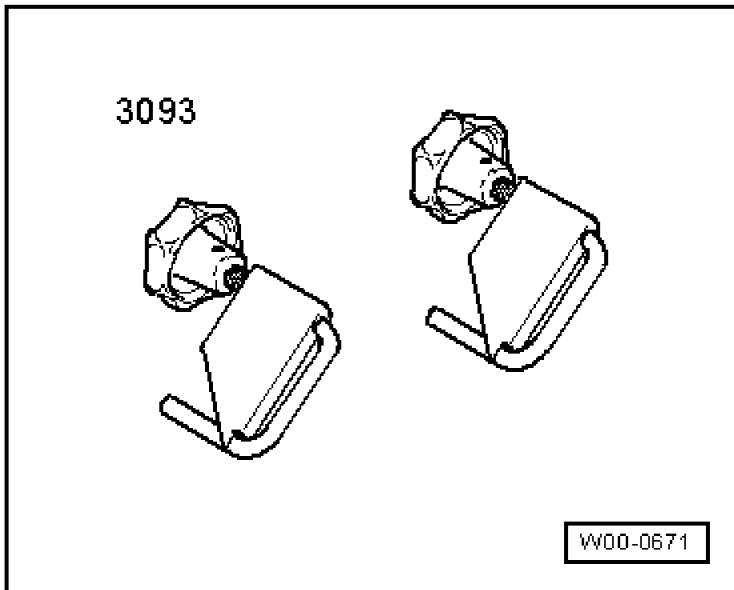


Fig. 3: Identifying Special Tools - Engine, Removing
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Ball Joint Puller T40043
- Hose Clamps Up to 25 mm dia. 3094
- Drip tray for workshop crane VAS 6208 or V.A.G 1306
- Hose clamp pliers V.A.G 1921
- Ball Joint Puller T40042
- Scissor lift platform VAS 6131 A with Support Set VAS 6131/10

Special tools, testers and auxiliary items required**Fig. 4: Hose Clamps 3093**

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Hose Clamps, Up to 40 mm. 3093

Work procedure

CAUTION: Before removing engine, secure vehicle against tipping over. For this the luggage compartment must be empty.

CAUTION: Observe safety precautions when disconnecting the battery --> 27 - STARTER, GENERATOR, CRUISE CONTROL .

NOTE:

- So that the front wheels can still be turned with the battery disconnected, the battery must only be disconnected with ignition key inserted.

2006 Audi A6 Quattro

ENGINE 4.2 Liter V8 4V Engine Mechanical, Engine Code(s): BAT, BNK

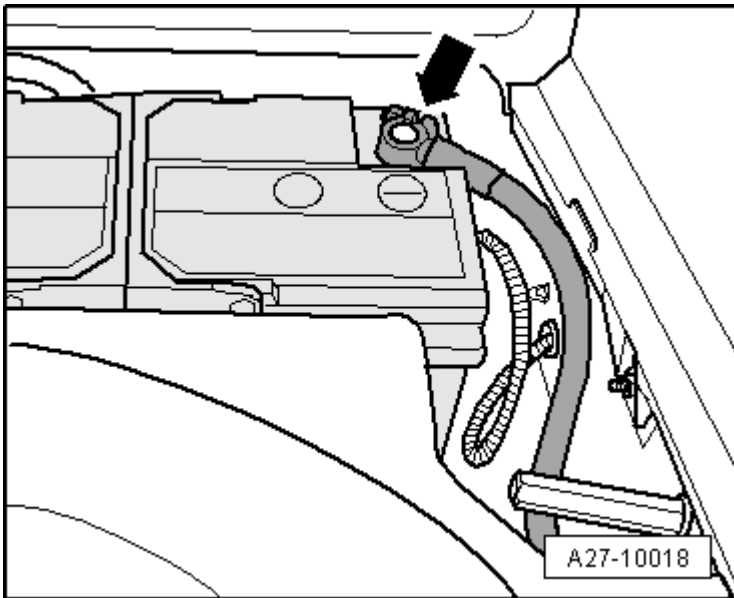


Fig. 5: Disconnecting Ground (GND) Strap At Battery Ground (GND) Terminal
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove luggage compartment floor trim.
- Disconnect Ground (GND) strap - **arrow** - at battery.

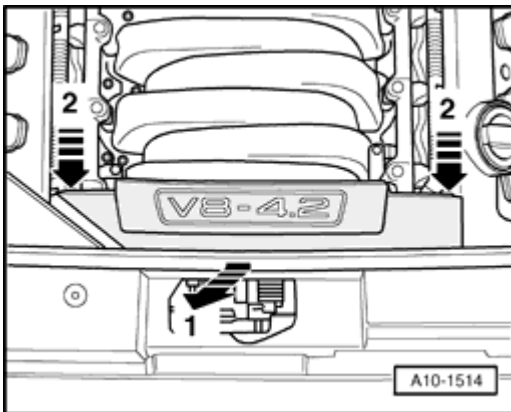


Fig. 6: Removing Front Engine Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove front engine cover - **arrow 1** - and - **arrows 2** -.

2006 Audi A6 Quattro

ENGINE 4.2 Liter V8 4V Engine Mechanical, Engine Code(s): BAT, BNK

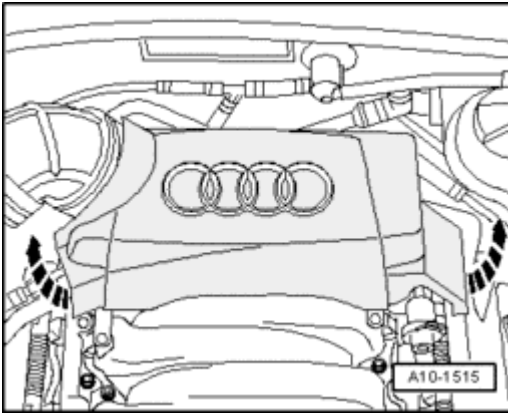


Fig. 7: Removing/Installing Rear Engine Cover

Courtesy of VOLKSWAGEN UNITED STATES, INC.

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

CAUTION: Cover cap of expansion tank with rag and open carefully, as hot steam i.e. hot coolant may escape when opening.

- Open cap of coolant expansion tank.
- Remove both front wheels.

NOTE:

- Secure brake discs using a wheel bolts.

2006 Audi A6 Quattro

ENGINE 4.2 Liter V8 4V Engine Mechanical, Engine Code(s): BAT, BNK

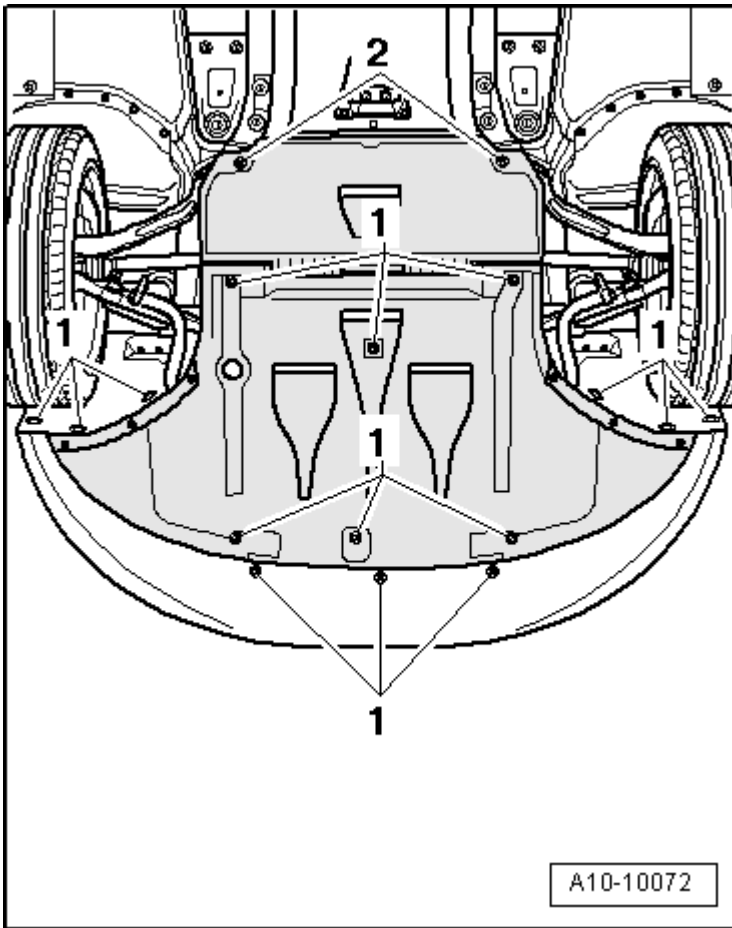


Fig. 8: Identifying Quick-Release Fasteners & Noise Insulation
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Loosen quick-release fasteners - 1 - and - 2 - and remove noise insulation.

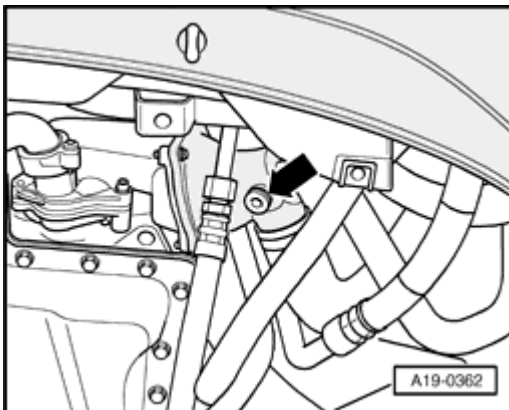


Fig. 9: Removing/Installing Drain Plug On Coolant Thermostat Housing
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Place drip tray for workshop crane VAS 6208 under engine.

- Remove drain plug - **arrow** - on coolant thermostat housing and drain coolant from engine.

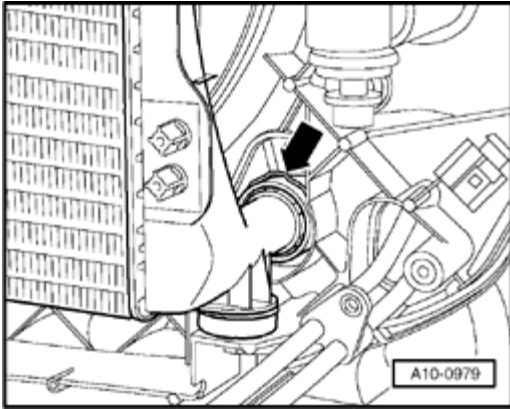


Fig. 10: Disconnecting Lower Coolant Hose From Radiator
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect lower coolant hose from radiator - **arrow** - and drain residual coolant.
- Remove bumper --> **63 - BUMPERS** .
- Remove front end --> **50 - BODY - FRONT** .

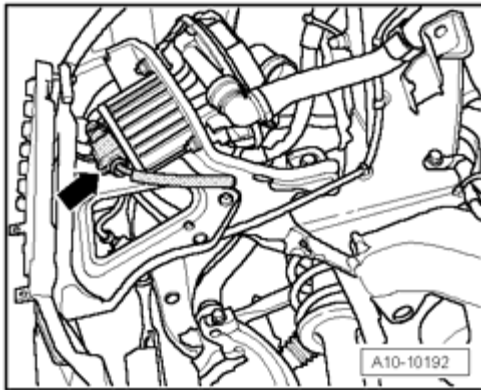
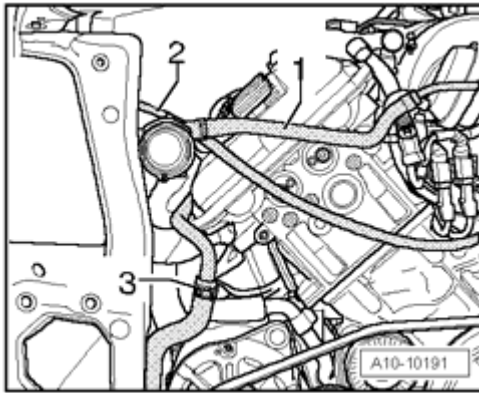


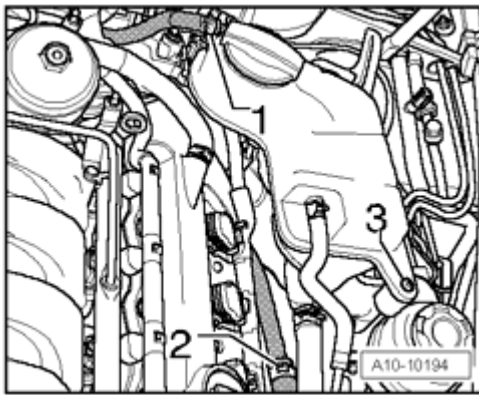
Fig. 11: Disconnecting Connector From Secondary Air Injection Pump And Free Up Wiring
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect connector - **arrow** - from secondary air injection pump and free up wiring.

**Fig. 12: Identifying Hoses & A/C Line**

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Separate coolant hose for permanent ventilation - **1** -.
- Separate hose - **2** - for variable intake manifold.
- Disconnect hose - **3** - to Secondary Air Injection (AIR) pump.
- Disconnect the A/C line - **1** -.
- Disconnect coolant hose - **2** - from thermostat housing.

**Fig. 13: Identifying Coolant Hoses & Coolant Expansion Tank**

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect coolant hose - **1** - for permanent ventilation from expansion tank.
- Disconnect hose - **2** - from coolant line.
- Remove coolant expansion tank - **3** -.
- Disconnect electrical connection at Engine Coolant Level (ECL) Warning Switch F66 at bottom of coolant expansion tank.

2006 Audi A6 Quattro

ENGINE 4.2 Liter V8 4V Engine Mechanical, Engine Code(s): BAT, BNK

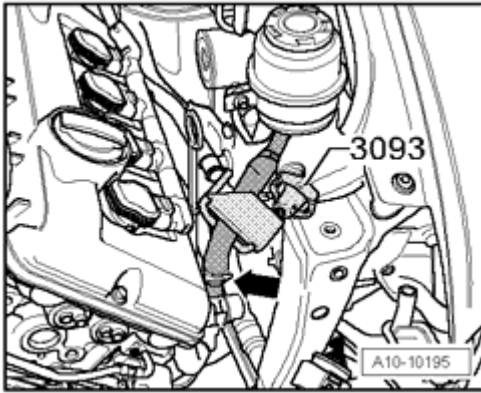


Fig. 14: Disconnecting Hose For Power Steering
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Clamp off oil line of the power steering fluid reservoir with Hose Clamps, Up to 40 mm. 3093
- Disconnect hose for power steering - **arrow** -.

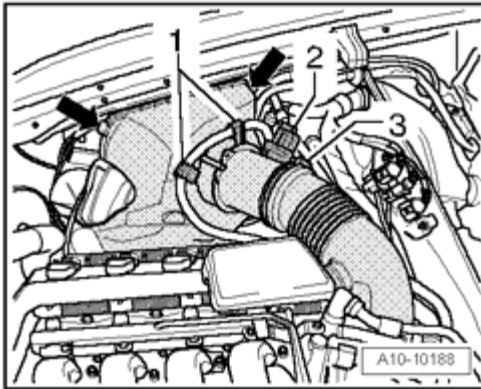


Fig. 15: Disconnecting Mass Air Flow (MAF) Sensor G70 Electrical Harness Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unclip fuel hose - **1** -.
- Disconnect electrical connector - **2** - from mass air flow (MAF) sensor.
- Disconnect mass air flow sensor from intake air duct - **3** -.
- Remove upper part of air filter housing with mass air flow (MAF) sensor - **arrows** -.

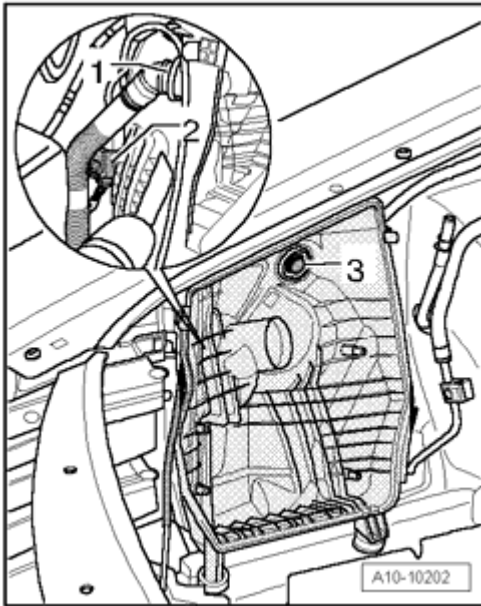


Fig. 16: Identifying Hose, Electrical Connector & Spreader Clip
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Separate hose - 1 - for secondary air injection (AIR) system.
- Disconnect electrical connector - 2 - from Air Flap Positioner V63.
- Remove pin from spreader clip - 3 - and remove lower part of air filter housing.

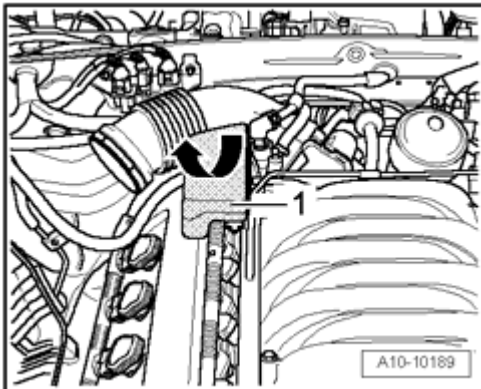


Fig. 17: Removing Resonator
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Pull resonator - 1 - in direction of - **arrow** - upward and unclip it.

CAUTION: Note rules of cleanliness for working on the fuel injection system --> Rules of cleanliness for performing work on fuel injection system.

the fuel injection system, wrap a clean rag around connection and relieve residual pressure by carefully loosening connection.

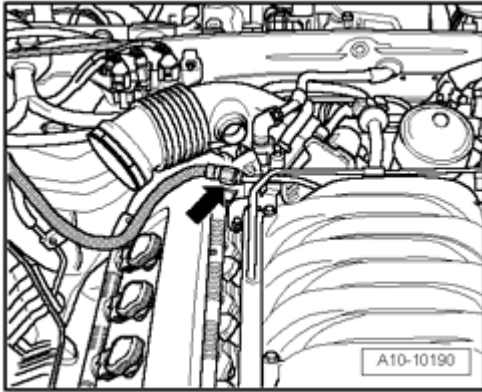


Fig. 18: Disconnecting Fuel Line

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect fuel line - **arrow** -.

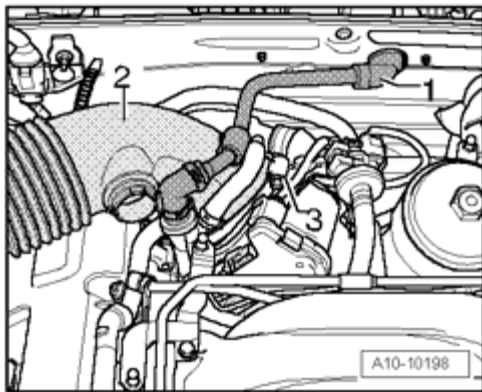


Fig. 19: Identifying Vacuum Hose, Intake Hose & Clamp

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect vacuum hose - **1** - for brake booster at bulkhead.
- Remove intake hose - **2** - , thereby loosening clamp - **3** -.

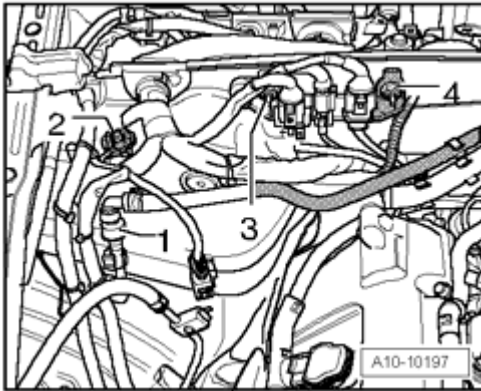


Fig. 20: Identifying Vacuum Hose & Ground (GND) Wire
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect vacuum hose - **1** - to EVAP canister.
- Remove Ground (GND) wire - **2** - on right strut tower.
- Remove nuts - **1 and 2** - and remove right bracket for harness connectors from bulkhead.

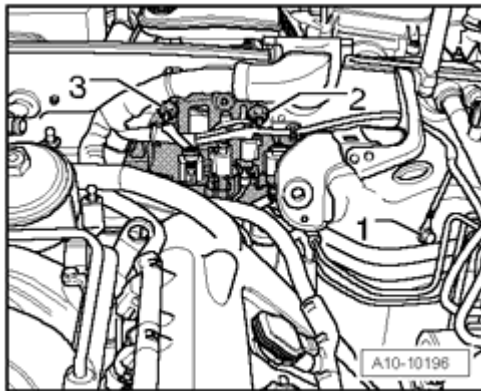


Fig. 21: Identifying Ground (GND) Wire & Nuts
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove Ground (GND) wire - **1** - on left strut tower.
- Remove nuts - **2 and 3** - and remove left bracket for harness connectors from bulkhead.

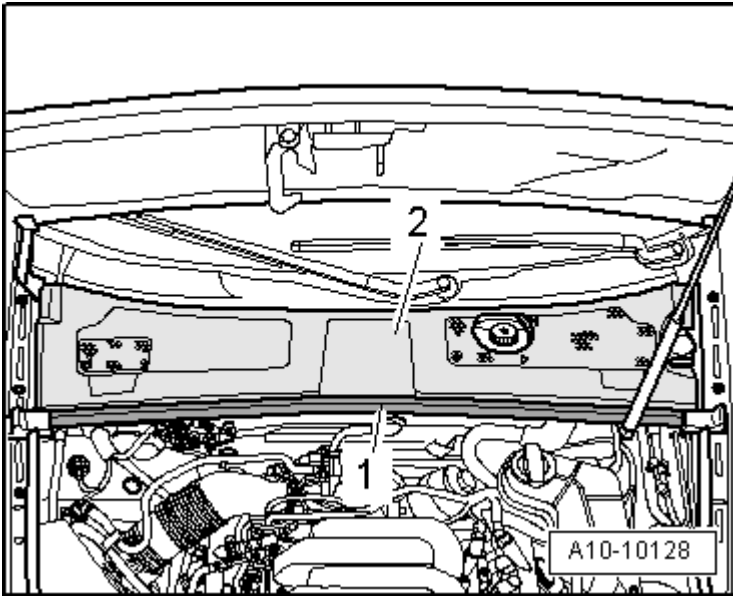


Fig. 22: Removing Rubber Seal For Plenum Chamber Cover & Plenum Chamber Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove rubber seal - 1 - for plenum chamber cover.
- Remove plenum chamber cover - 2 -.
- Pry off caps on wiper arms with a screwdriver and remove the nuts.
- Pull off and remove wiper arms from wiper axles.

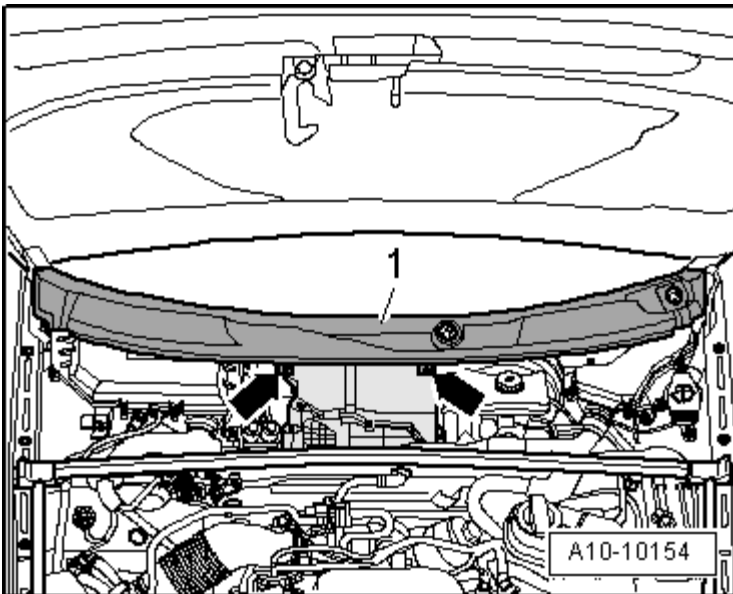


Fig. 23: Removing Bolts For Cowl Grill
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **arrows** - for cowl grill - 1 -.

- Pull cowl grill off from windshield.

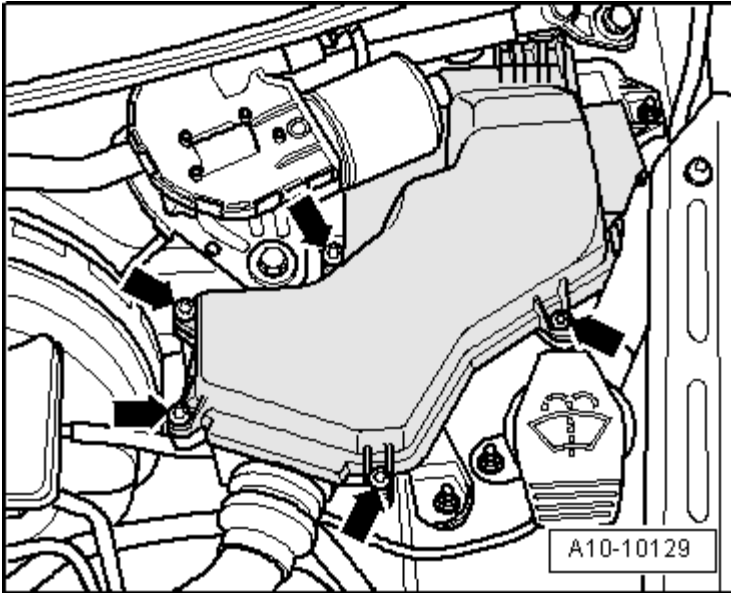


Fig. 24: Removing Bolts And Cover Form E-Box At Left In Engine Compartment
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **arrows** - and remove cover form E-box at left in engine compartment.

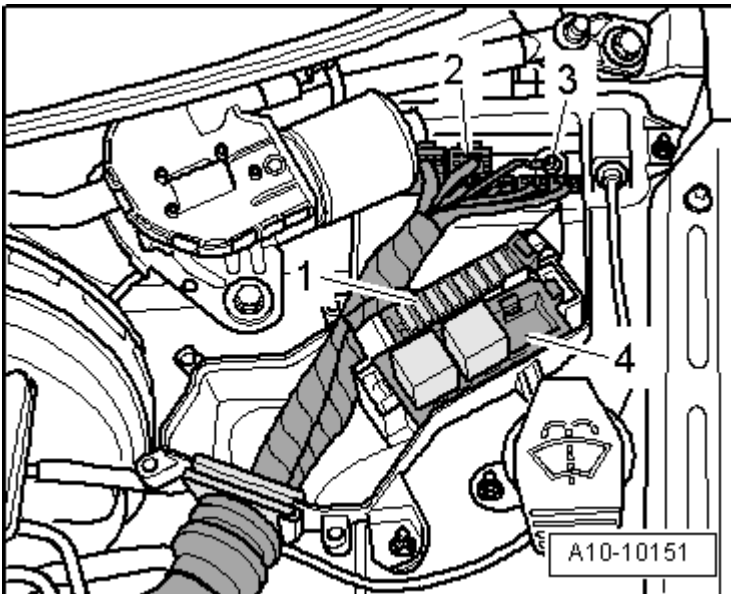


Fig. 25: Identifying Fuse Holder, 3-Socket Relay Carrier, Electrical Wire Connection & Electrical Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Release retaining tabs and pull fuse holder - **1** - and 3-socket relay carrier - **4** - upward and off.
- Remove electrical wire connection - **3** -

- Disconnect all electrical connections - **2** - at rear on connector strip.
- Disengage and free up engine wiring harness at E-Box.

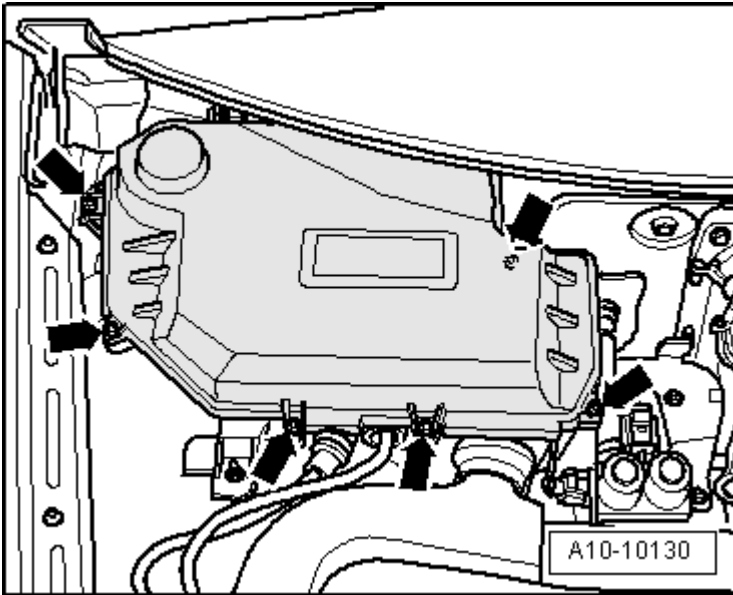


Fig. 26: Removing Bolts And Cover For E-Box At Right In Engine Compartment
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **arrows** - and remove cover for E-box at right in engine compartment.

CAUTION: The heater pump valve unit (left of E-box) becomes very hot during operation - Risk of burning!

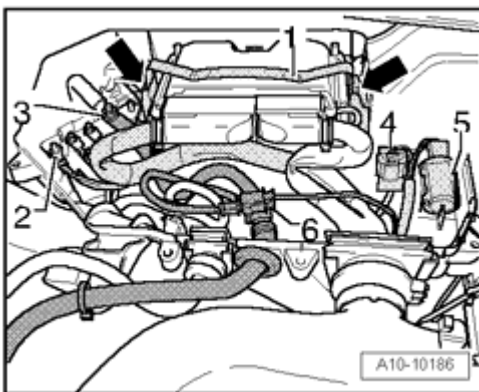


Fig. 27: Prying Off Retaining Clip And Removing ECM From E-Box
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Carefully pry off retaining clip - **1** - with a screwdriver - **arrows** - and remove ECM from E-box.

- **Engine Control Module (ECM) remains connected at wiring harness.**

- Remove electrical wiring connections - 2 - and - 3 -.
- Disconnect electrical connection - 4 - at rear on connector strip.
- Unclip smoothing capacitor - 5 - from bracket in E-box.
- Disconnect electrical connector - 6 -.
- Unclip relay carrier from E-box.
- Free electrical wiring up to generator.
- Set both wiring harnesses on engine and secure Engine Control Module (ECM) against falling down.

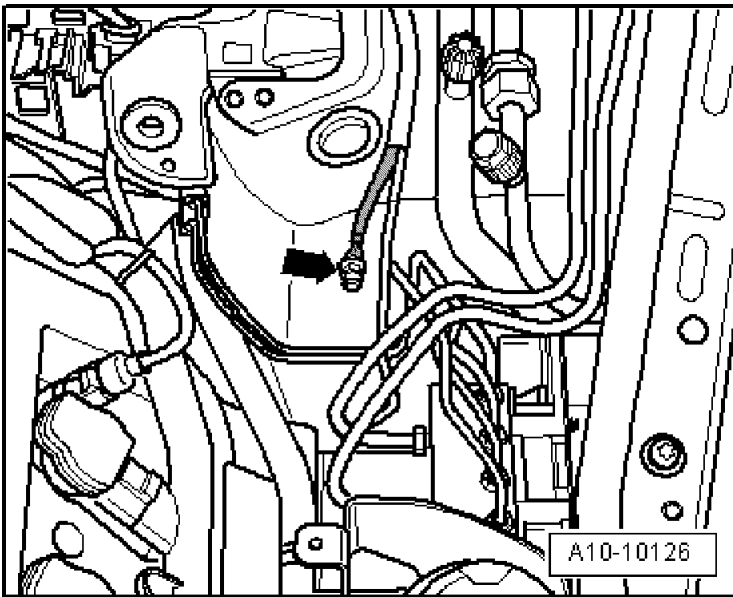


Fig. 28: Removing Ground (GND) Wire On Left Strut Tower
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove Ground (GND) wire - **arrow** - on left strut tower.

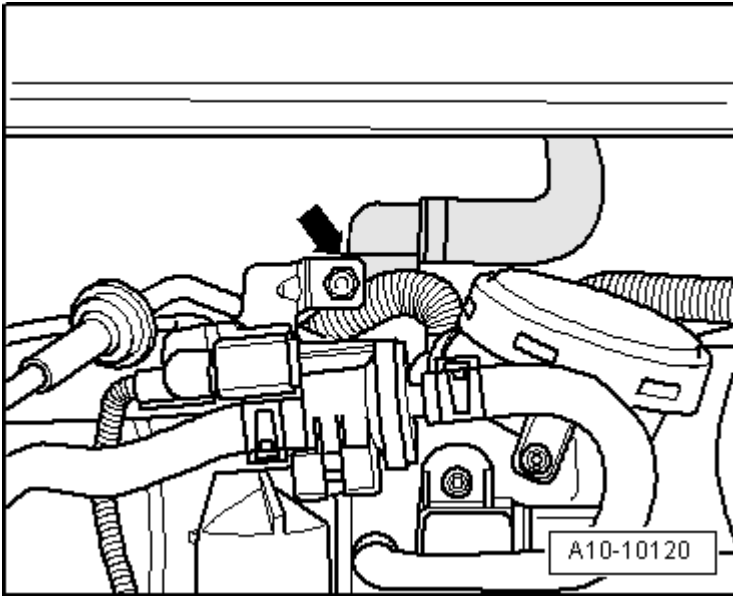


Fig. 29: Disconnecting Coolant Hose To Heater Core On Rear Of Engine
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect coolant hose - **arrow** - to heater core on rear of engine.

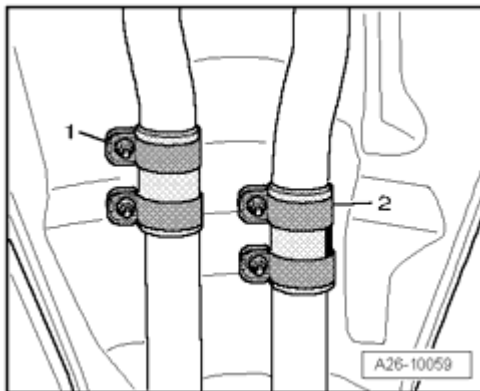


Fig. 30: Loosening Clamping Sleeves
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Loosen clamping sleeves - **1** - and - **2** -.

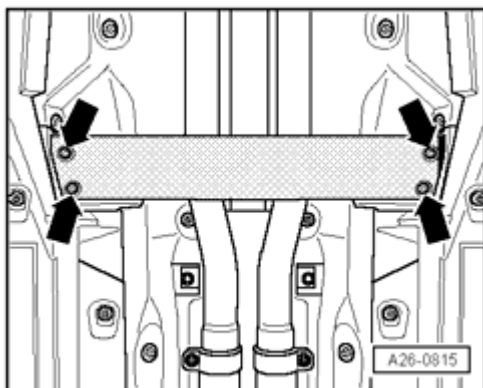


Fig. 31: Removing Front Transverse Beam
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove front transverse beam - **arrows** -.

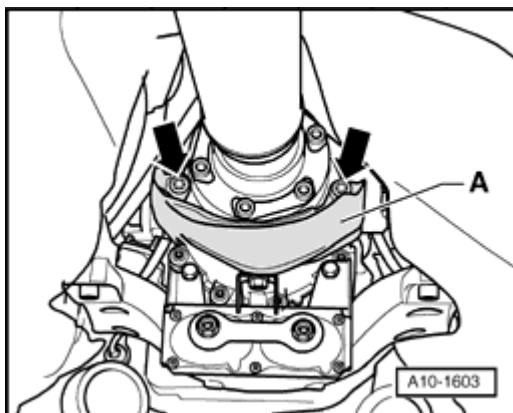


Fig. 32: Removing/Installing Heat Shield For Driveshaft
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove heat shield - **A** - for driveshaft - **arrows** -.
- Remove bolts at transmission/driveshaft flange.
- Push driveshaft together with rear final drive. The constant velocity (CV) joints can move axially.

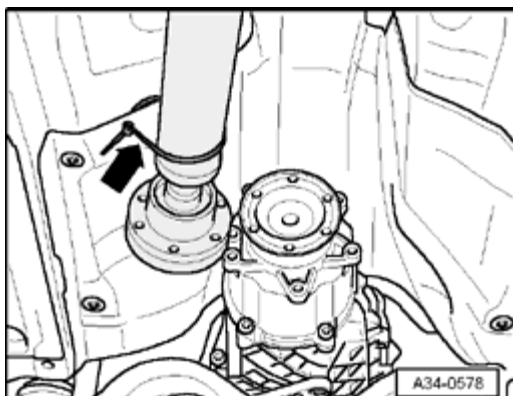


Fig. 33: Drive Shaft Tied To Side, Onto Heat Shield
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Tie driveshaft up and to side against heat shield - **arrow** -.

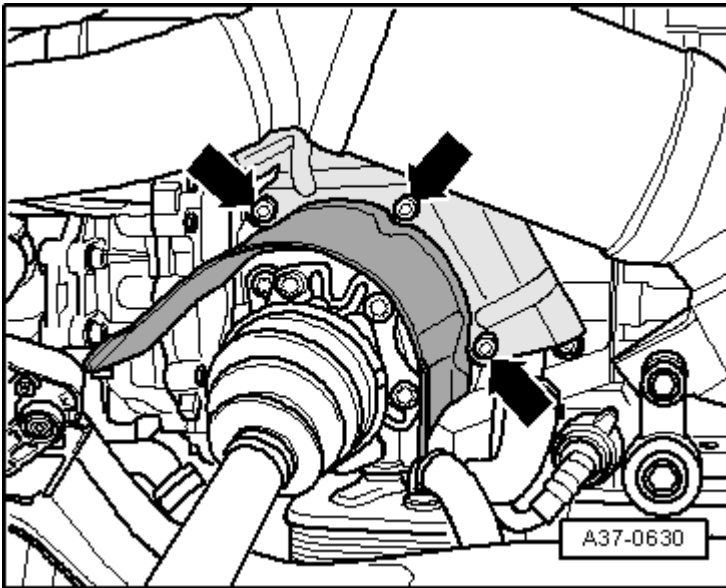


Fig. 34: Removing Heat Shield For Left Drive Axle
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove heat shield for left drive axle - **arrows** -.
- Remove left and right drive axles from transmission.

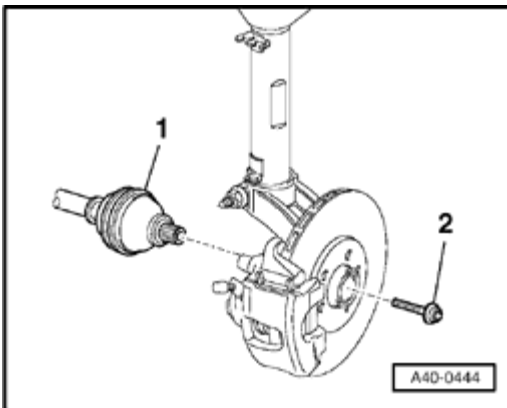


Fig. 35: Removing Collar Bolt At Left/Right Drive Axles
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Have a second technician press brake pedal.

CAUTION: To loosen collar bolt for drive axle, the wheel bearing must not be under load (vehicle must not be standing on its wheels).

- Remove collar bolt - **2** - at left and right drive axles - **1** -.

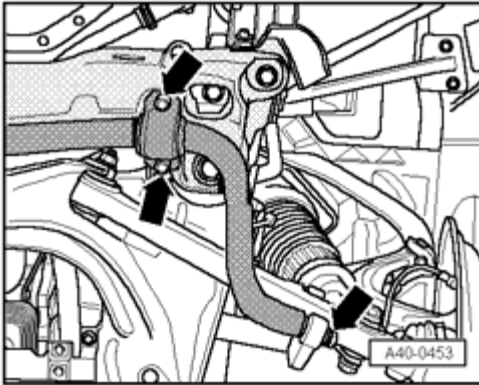


Fig. 36: Removing Bolts Uniformly At Left/Right
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **arrows** - uniformly at left and right.
- Remove stabilizer.

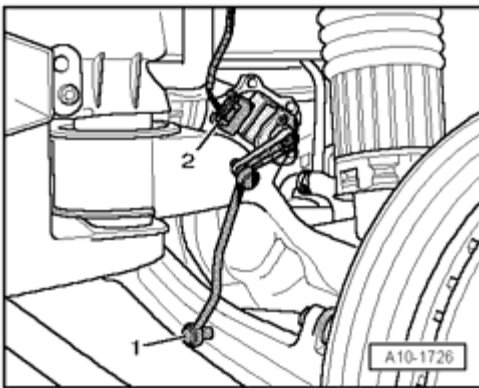


Fig. 37: Disconnecting Electrical Harness Connector At Level Control System Sensor & Disconnecting Connecting Link At Control Arm
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical harness connector - **2** - at Level Control System Sensor.
- Disconnect connecting link - **1** - at control arm.

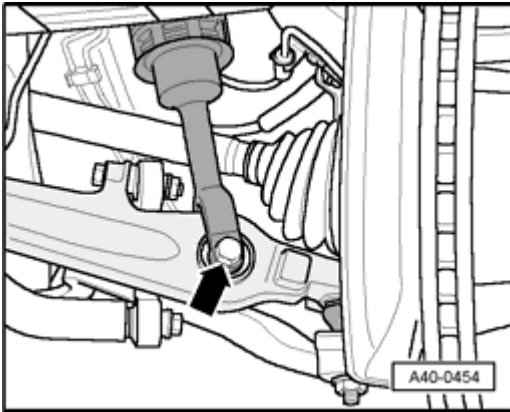


Fig. 38: Removing Suspension Strut From Guide Link
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove suspension strut from guide link - **arrow** -.

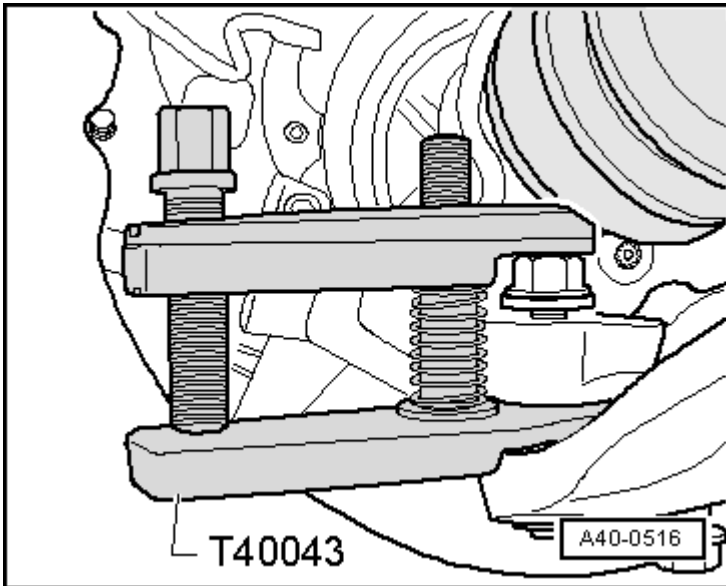


Fig. 39: Using Ball Joint Puller T40043 Press Guide Link Ball Joint Off From Tapered Seat
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Loosen nut of guide link ball joint so far until it is flush with end of thread.

NOTE:

- Make sure that the ball joint protective boot does not become damaged when pressing off.
- Make sure that both lever arms of ball joint puller are positioned parallel to one another while increasing force.
- Secure ball joint puller from falling down.

- Using ball joint puller T40043 press guide link ball joint off from tapered seat.

- If necessary, counter hold ball joint with a 6 mm Allen key.
- Remove nut and remove ball joint from guide.
- Loosen nut of ball joint at control arm so far until it is flush with end of thread.

NOTE:

- **Make sure that the ball joint protective boot does not become damaged when pressing off.**
- **Make sure that both lever arms of ball joint puller are positioned parallel to one another while increasing force.**
- **Secure ball joint puller from falling down.**

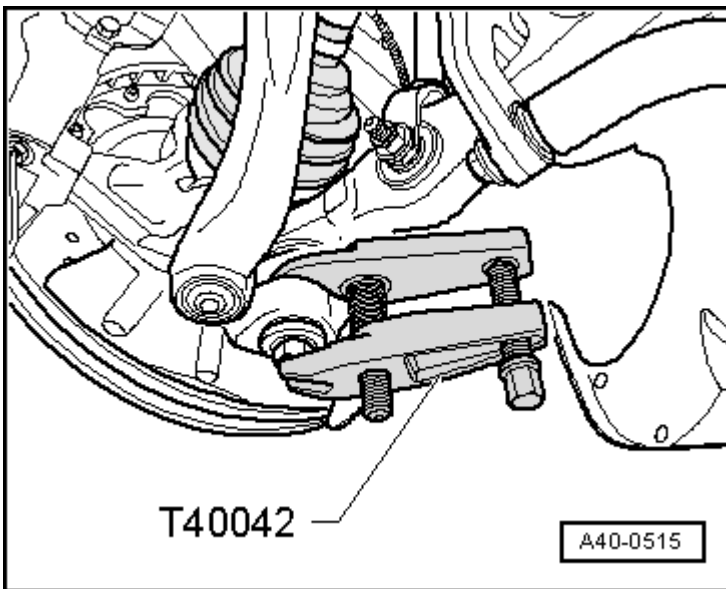


Fig. 40: Using Ball Joint Puller T40042 Press Control Arm Ball Joint Off From Tapered Seat
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Using ball joint puller T40042 press control arm ball joint off from tapered seat.
- If necessary, counter hold ball joint with a 6 mm Allen key.
- Remove nut and remove ball joint from control arm.

2006 Audi A6 Quattro

ENGINE 4.2 Liter V8 4V Engine Mechanical, Engine Code(s): BAT, BNK

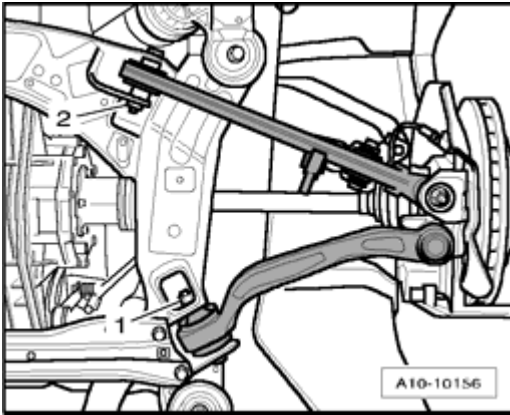


Fig. 41: Removing Guide Link And Control Arm At Subframe
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove guide link - 1 - and control arm - 2 - at subframe and remove them.
- Repeat work procedure on opposite side of vehicle.



Fig. 42: Removing Bolts For Support Bracket From Transmission & Disengaging Selector Lever Cable
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - 1 - for support bracket from transmission.
- Disengage selector lever cable - **arrow** -.

2006 Audi A6 Quattro

ENGINE 4.2 Liter V8 4V Engine Mechanical, Engine Code(s): BAT, BNK

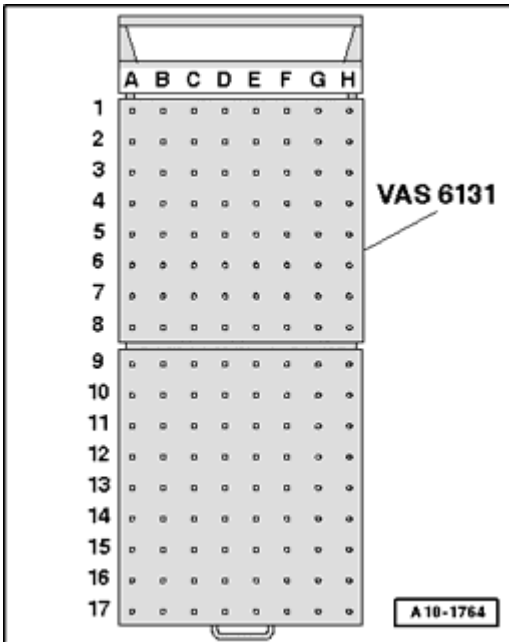


Fig. 43: Identifying Scissor Lift Platform VAS 6131 A
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Prepare scissor lift platform:

- Equip Scissor Lift Platform VAS 6131 A with Support Set VAS 6131/10 and Supplementary Set, Audi A8 (D3) VAS 6131/11 as follows:

Platform coordinates	Parts from Support Set VAS 6131/10			
B4	/10-1	/10-4	/10-5	/10-12
F4	/10-1	/10-4	/10-5	/10-12
B10	/10-1	/10-2	/10-5	/10-8
G10	/10-1	/10-2	/10-5	/10-8
B15	/10-1	/10-4	/10-5	/111
G15	/10-1	/10-4	/10-5	/111

- Install attachments on scissor lift table by hand first.
- Place scissor lift platform VAS 6131 A in horizontal position.
- Note bubble level (sight glass) on support platform.
- Drive scissor lift platform VAS 6131 A under engine/transmission subassembly.

2006 Audi A6 Quattro

ENGINE 4.2 Liter V8 4V Engine Mechanical, Engine Code(s): BAT, BNK

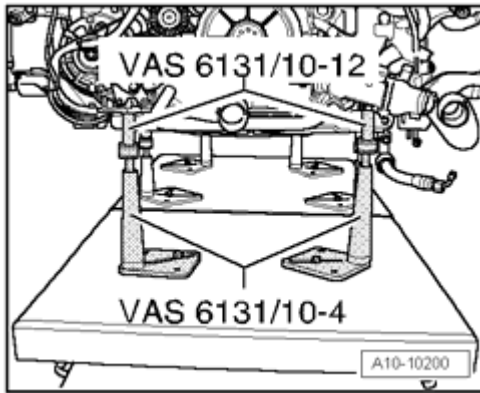


Fig. 44: Positioning Support Elements From Support Set VAS 6131/10 At Front On Engine
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Position support elements from Support Set VAS 6131/10 at front on engine as shown in illustration.

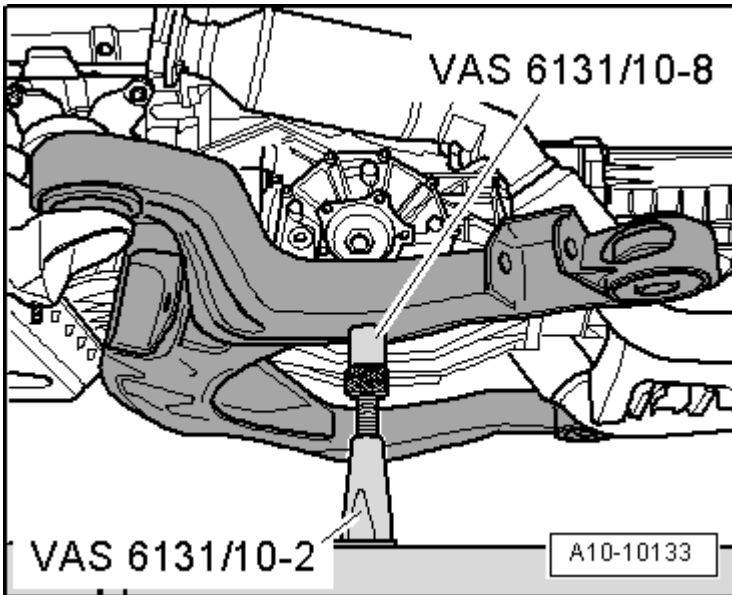


Fig. 45: Positioning Support Elements From Support Set VAS 6131/10 At Left/Right On Subframe
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Position support elements from Support Set VAS 6131/10 at left and right on subframe as shown in illustration.

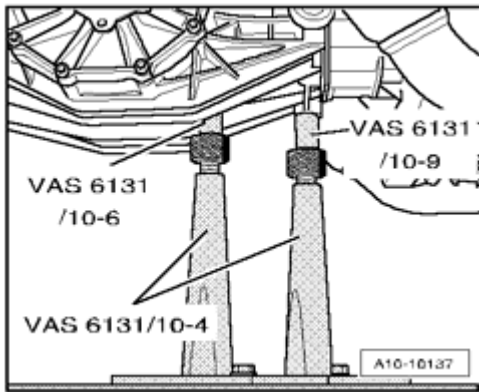


Fig. 46: Positioning Support Elements From Support Set VAS 6131/10 At Rear On Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Position support elements from Support Set VAS 6131/10 at rear on transmission as shown in illustration.

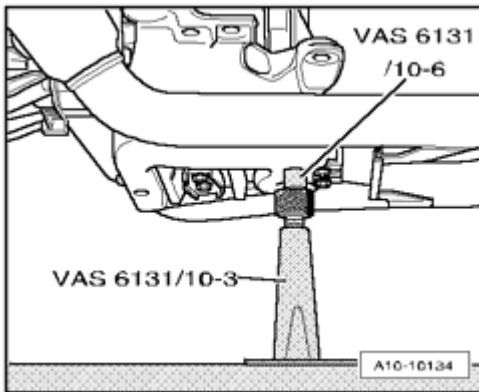


Fig. 47: Positioning Support Elements From Support Set VAS 6131/10 At Rear On Tunnel Cross Member
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Position support elements from Support Set VAS 6131/10 at rear on tunnel cross member, as shown in illustration.
- Twist all spindles of support elements upward far enough until all support pins make contact at support points.
- Tighten base plates for support elements to 20 Nm on scissor lift platform VAS 6131 A.

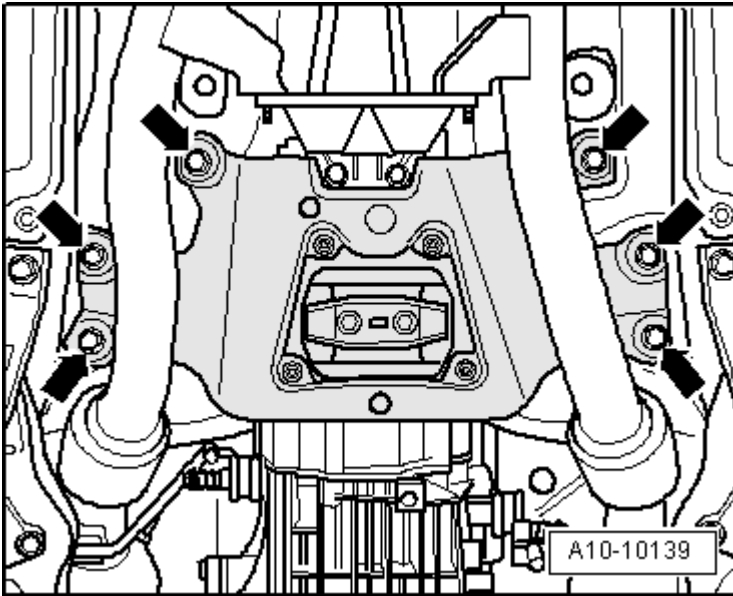


Fig. 48: Removing/Installing Bolts At Tunnel Cross Member
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **arrows** - at tunnel cross member.

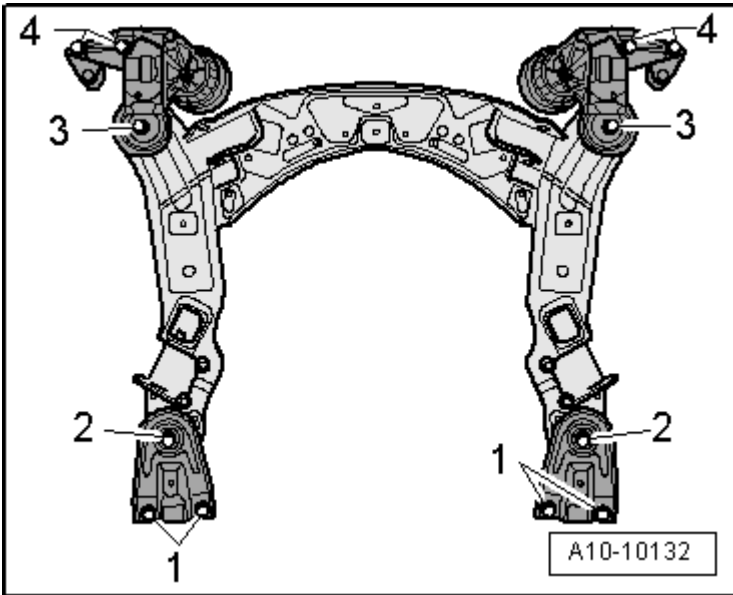


Fig. 49: Bolts Removal Sequence
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **1** -.
- Mark installation position of subframe and of both engine mount plates to long members using a felt-tip marker.
- Remove bolts - **2** - , - **3** - and - **4** - in diagonal sequence and in stages.

2006 Audi A6 Quattro

ENGINE 4.2 Liter V8 4V Engine Mechanical, Engine Code(s): BAT, BNK

NOTE:

- **Verify that all hoses and lines between engine, transmission, subframe and body have been disconnected.**
- **While lowering, carefully guide engine/transmission subassembly with subframe out of engine compartment in order to prevent damage.**

- Slowly lower engine/transmission subassembly downward.
- Remove scissor lift table VAS 6131 A under vehicle.

Engine and transmission, separating

Special tools, testers and auxiliary items required

- Supplementary Set, Audi A8 (D3) VAS 6131/11 and Supplementary Set VAS6131/12

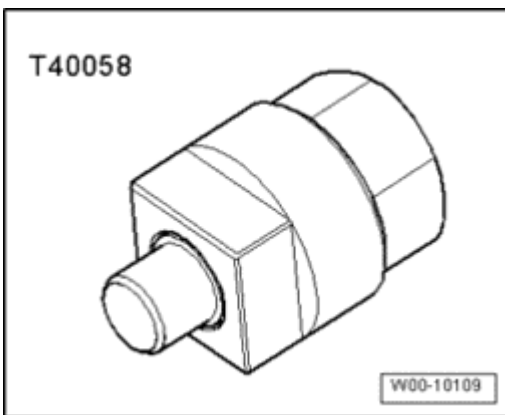


Fig. 50: Socket T40058

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Socket T40058

Work procedure

- Engine/transmission unit removed and attached to scissor lift platform VAS 6131 A.

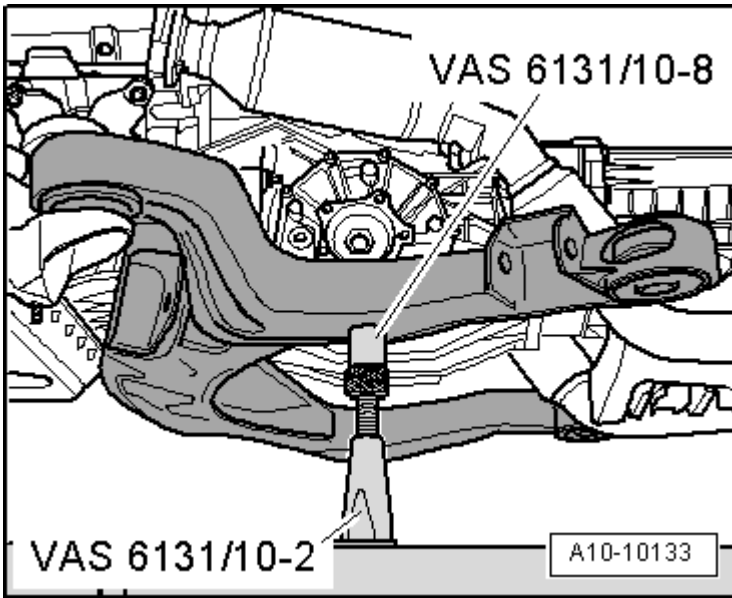


Fig. 51: Positioning Support Elements From Support Set VAS 6131/10 At Left/Right On Subframe
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Twist spindles of support elements from Support Set VAS 6131/10 at left and right at subframe completely downward.
- Remove support pins from spindles.
- Remove subframe to side.

NOTE:

- **A second technician is required to remove subframe.**

- Loosen both base plates of subframe support elements on scissor lift table VAS 6131 A.

NOTE:

- **Support points for front of engine, rear of transmission and tunnel cross member remain unchanged.**

2006 Audi A6 Quattro

ENGINE 4.2 Liter V8 4V Engine Mechanical, Engine Code(s): BAT, BNK

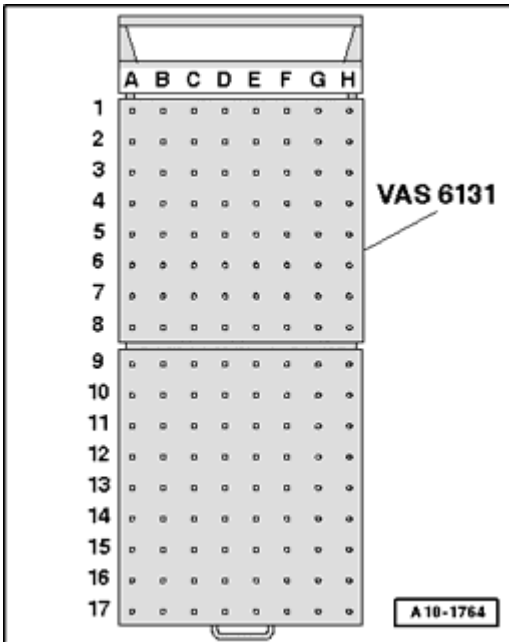


Fig. 52: Identifying Scissor Lift Platform VAS 6131 A
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Equip scissor lift platform VAS 6131 A with Support Set VAS 6131/10 , VAS 6131/11 and VAS 6131/12 as follows:

Platform coordinates	Parts from Support Set VAS 6131/10 , VAS 6131/11 and VAS 6131/12			
B4 * See note	/10-1	/10-4	/10-5	/10-12
F4 * See note	/10-1	/10-4	/10-5	/10-12
C6	/10-1	/10-4	/10-5	/11-2
F6	/10-1	/10-4	/10-5	/11-2
C10	/10-1	/10-3	/10-5	/10-12
G10	/10-1	/10-2	/10-5	/11-3
B15 * See note	/10-1	/10-4	/10-5	/11-1
G15 * See note	/10-1	/10-4	/10-5	/11-1

*Support elements remain unchanged.

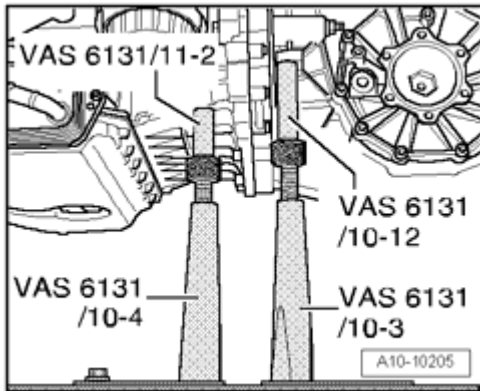


Fig. 53: Positioning Support Elements From Supplementary Set, Audi A8 (D3) VAS 6131/11 And Support Set VAS 6131/10 At Left On Engine/Transmission

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Position support elements from Supplementary Set, Audi A8 (D3) VAS 6131/11 and Support Set VAS 6131/10 at left on engine/transmission as shown in illustration.

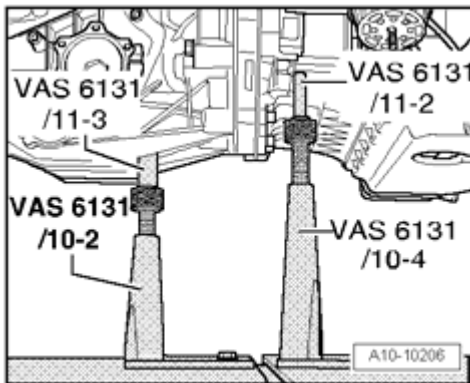


Fig. 54: Positioning Support Elements From Supplementary Set, Audi A8 (D3) VAS 6131/11 At Right On Engine/Transmission

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Position support elements from Supplementary Set, Audi A8 (D3) VAS 6131/11 at right on engine/transmission as shown in illustration.
- Twist spindles of attachments upward far enough until all support pins make contact at support points.
- Tighten base plates for support elements to 20 Nm on scissor lift platform VAS 6131 A.

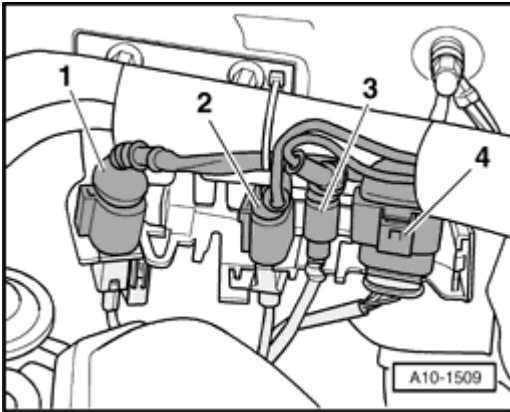


Fig. 55: Disconnecting Scissor Lift Platform VAS 6131 A Electrical Harness Connectors
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical harness connectors - 1 - , - 2 - and - 4 - .
- Free up the cables.

NOTE:

- Harness connectors are depicted in the installation position in the illustration.

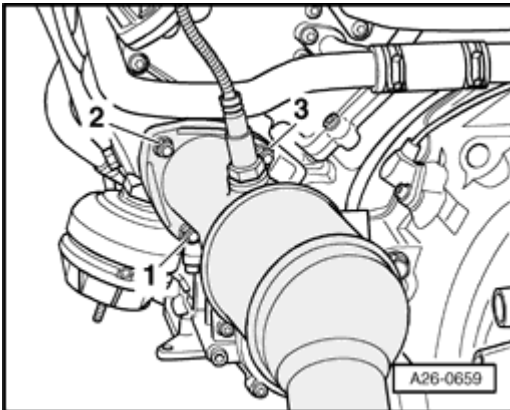


Fig. 56: Removing/Installing Nuts For Left Front Exhaust Pipe/Exhaust Manifold
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove front exhaust pipe from left exhaust manifold nuts - 1 to 3 - .

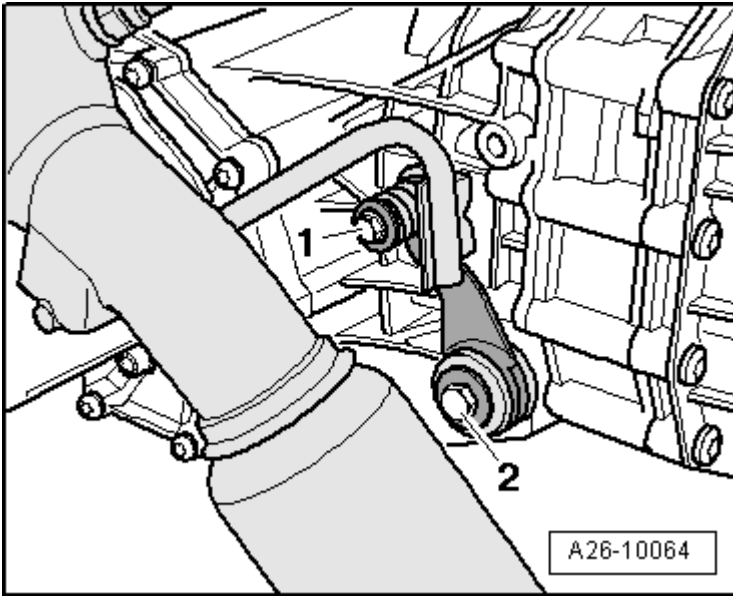


Fig. 57: Removing Bolt At Left Bracket For Front Exhaust Pipe
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolt - 1 - at left bracket for front exhaust pipe.

NOTE:

- Ignore - 2 -.

NOTE:

- Flex joint in front exhaust pipe must not be bent more than 10° , otherwise it may be damaged.

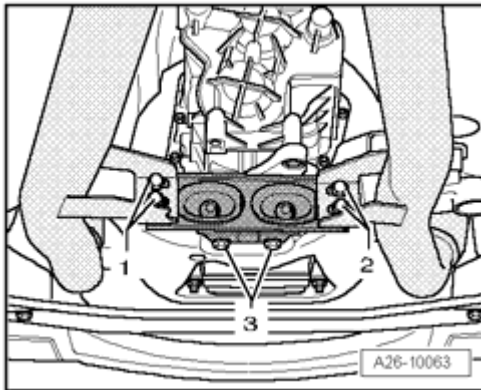


Fig. 58: Removing/Installing Mounting Bolts For Front Exhaust Pipes
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - 1 - at rear bracket for exhaust system.

NOTE:

- Ignore - 2 - and - 3 -.

- Remove left front exhaust pipe with catalytic converter.

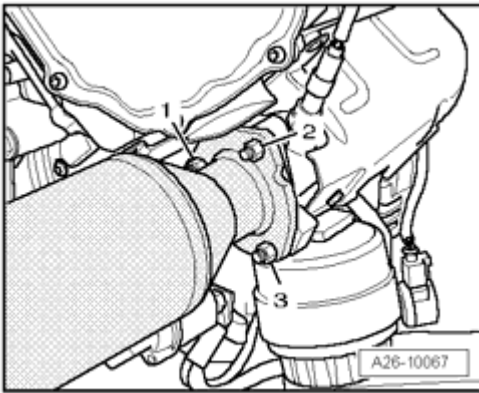


Fig. 59: Removing Nuts & Right Front Exhaust Pipe With Catalytic Converter
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove nuts - 1 to 3 -.

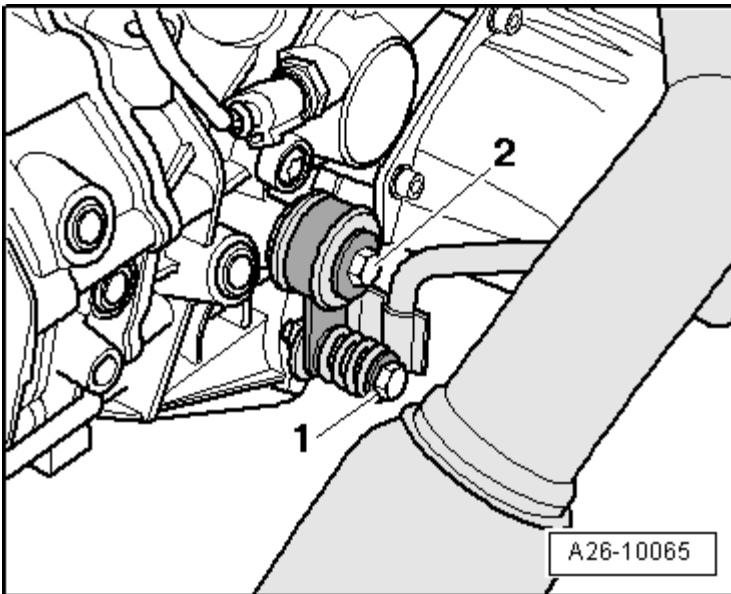


Fig. 60: Removing Bolt At Right Bracket For Front Exhaust Pipe
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolt - 1 - at right bracket for front exhaust pipe.

NOTE:

- Ignore - 2 -.

NOTE:

- Flex joint in front exhaust pipe must not be bent more than 10° , otherwise it may be damaged.

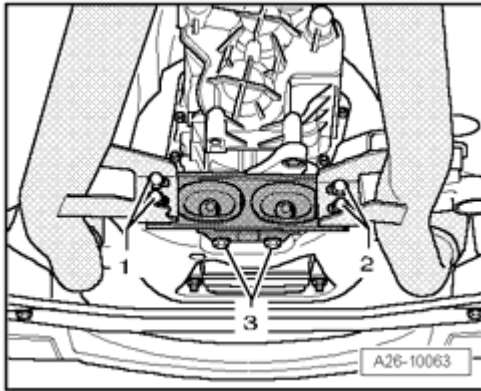


Fig. 61: Removing/Installing Mounting Bolts For Front Exhaust Pipes
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - 2 - at rear bracket for exhaust system.

NOTE:

- Ignore - 1 - and - 3 -.

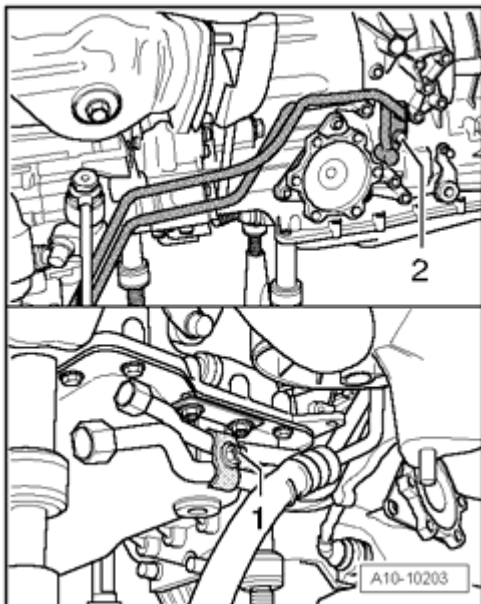


Fig. 62: Removing Oil Lines At Transmission
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove oil lines - 2 - at transmission.
- Remove transmission oil lines from engine and remove.

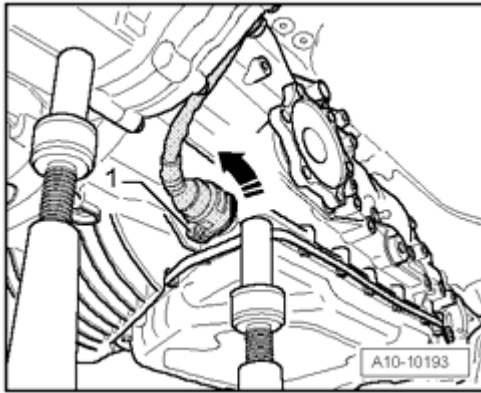


Fig. 63: Separating Electrical Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Separate electrical connector - **1** - and turn in direction of - **arrow** -.

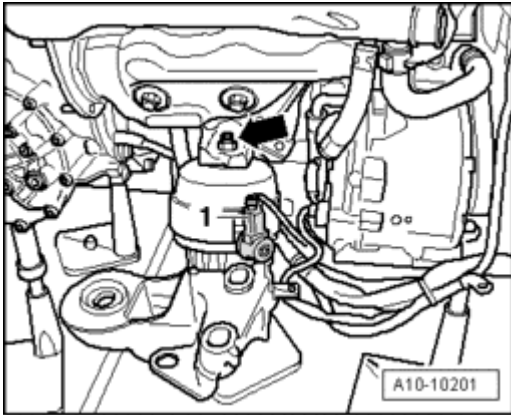


Fig. 64: Disconnecting Electrical Connector & Removing Nut And Right Engine Mount
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical connector - **1** -.
- Remove nut - **arrow** - and remove right engine mount.

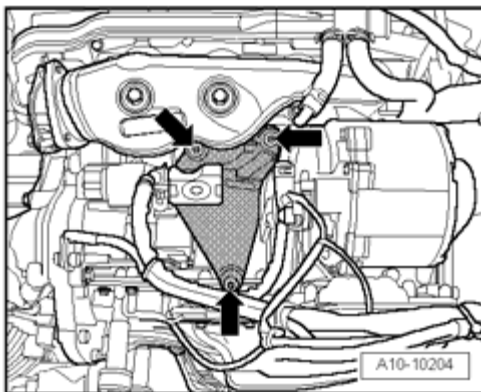


Fig. 65: Removing Bolts And Engine Support

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **arrows** - and remove engine support.

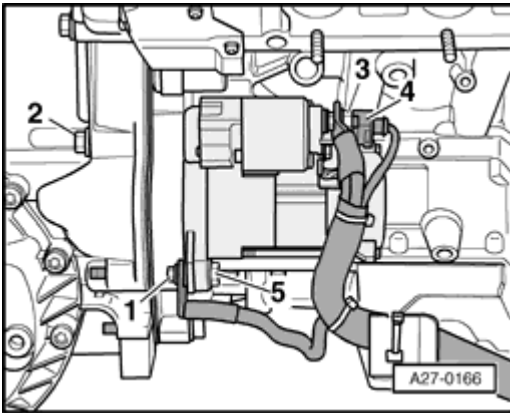


Fig. 66: Identifying Ground (GND) Wire, Starter Electrical Wires, Bolts & Starter

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove Ground (GND) wire - **1** -.
- Disconnect electrical wires - **3** - and - **4** -.
- Remove bolts - **2 and 5** - and remove starter.

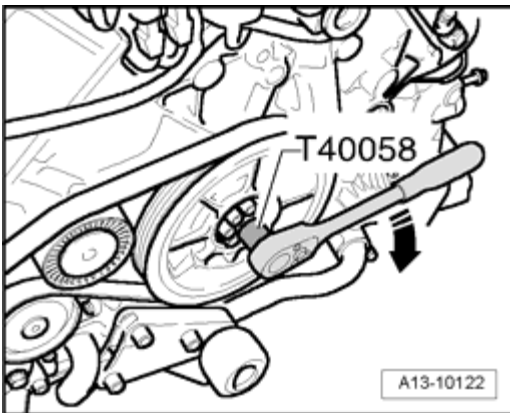


Fig. 67: Counter Holding Crankshaft Using Adapter T40058 To Loosen Torque Converter Bolts

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Turn engine in rotation direction - **arrow** - with Socket T40058 until...

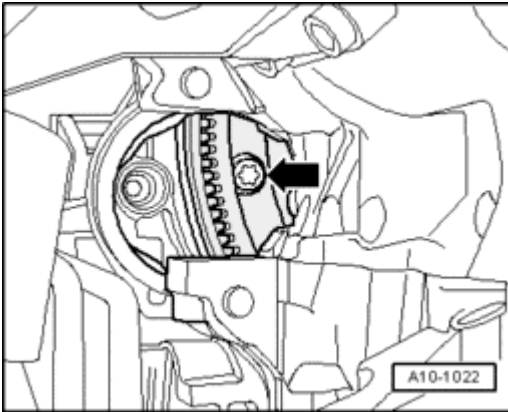


Fig. 68: Torque Converter Bolts

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- ... 3 Torx bolts - **arrow** - of torque converter can be removed through opening of the removed starter.
(Turn crankshaft $\frac{1}{3}$ rotation in each case using Socket T40058).

NOTE:

- **To loosen, counter hold torque converter bolts with Socket T40058.**

- First remove lower and then upper engine/transmission bolts.
- Press off torque converter from drive plate through starter hole in converter housing and at the same time remove engine from transmission.
- Secure torque converter in transmission so that it cannot fall out.

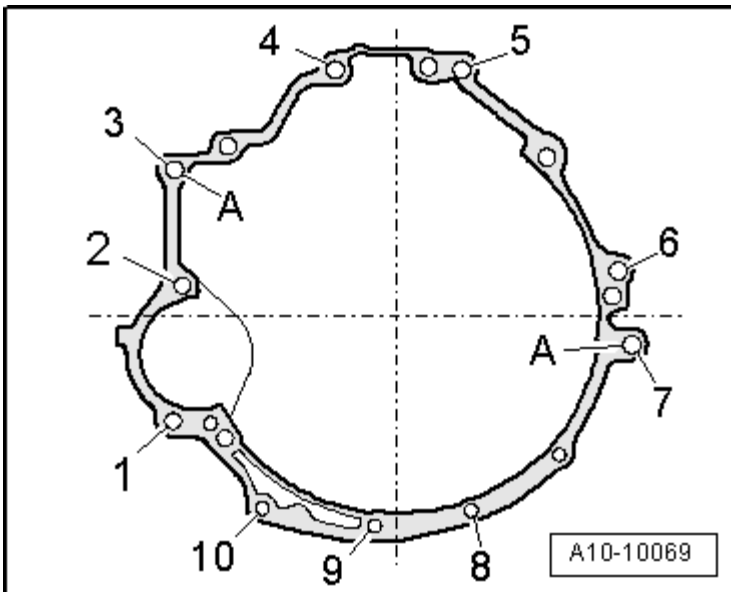


Fig. 69: Identifying Engine/Transmission Threaded Connections

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove engine/transmission threaded connections - **1 to 10** -.

2006 Audi A6 Quattro

ENGINE 4.2 Liter V8 4V Engine Mechanical, Engine Code(s): BAT, BNK

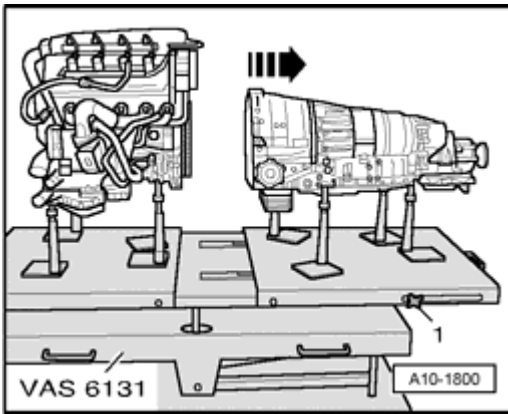


Fig. 70: Loosening Clamping Bolts On Side Of Scissor Lift Table VAS 6131 And Pulling Rear Table Section With Transmission Rearward

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Loosen clamping bolts - **1** - on side of scissor lift table VAS 6131 A and pull rear table section with transmission rearward - **arrow** -.

Engine, securing to assembly stand

2006 Audi A6 Quattro

ENGINE 4.2 Liter V8 4V Engine Mechanical, Engine Code(s): BAT, BNK

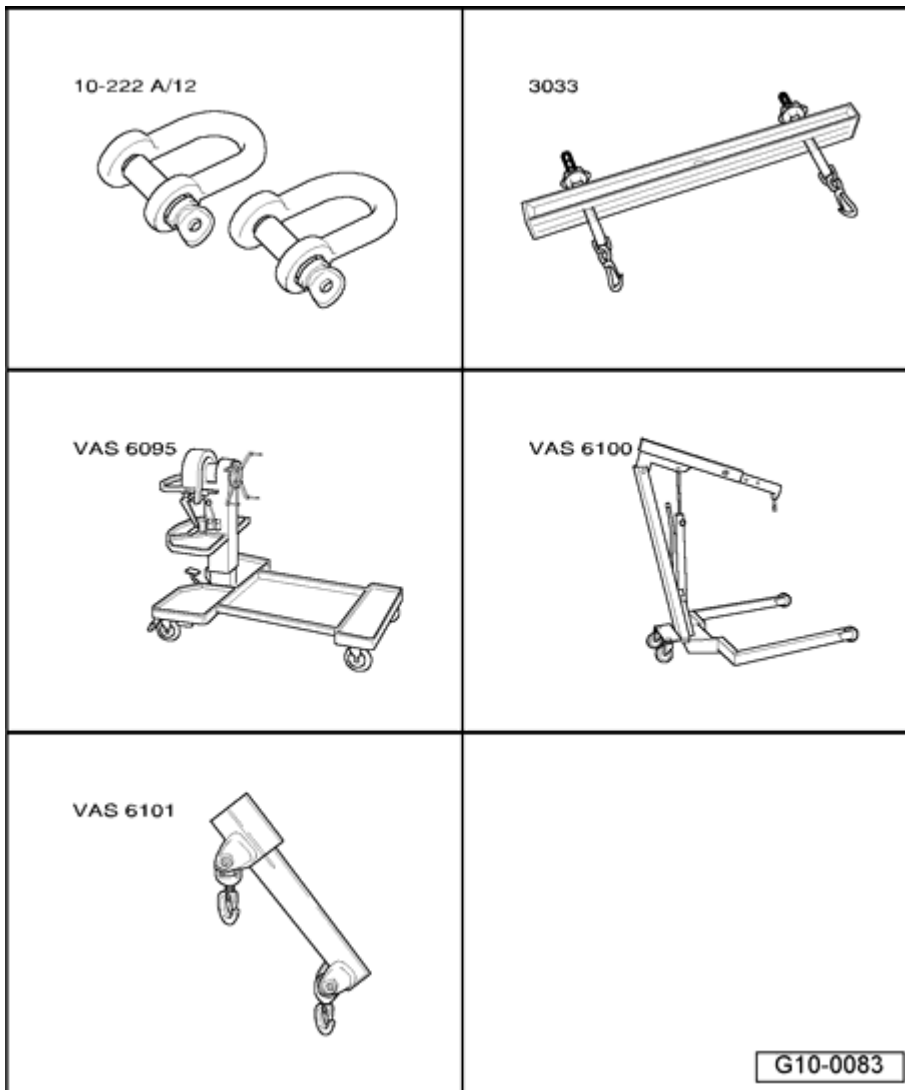


Fig. 71: Identifying Special Tools - Engine, Securing To Assembly Stand
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Special tools, testers and auxiliary items required

- Shackle 10-222 A/12
- Lifting tackle 3033
- Engine and Transmission Holder VAS 6095 with V8 engine holder VAS 6095/1-6 or VAS 6095/1-6A
- Shop crane VAS 6100
- Lift arm extension for workshop crane VAS 6101

Special tools, testers and auxiliary items required

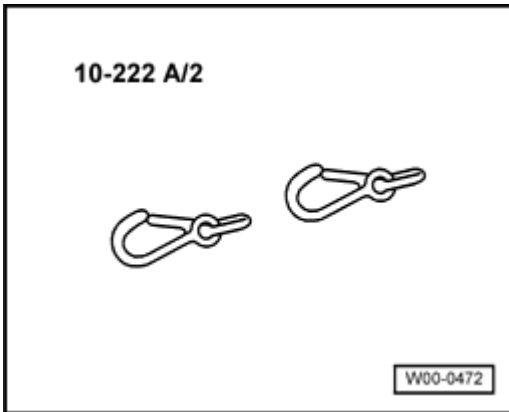


Fig. 72: Additional Hooks 10-222 A/2

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Additional hooks 10-222 A/2

Work procedure

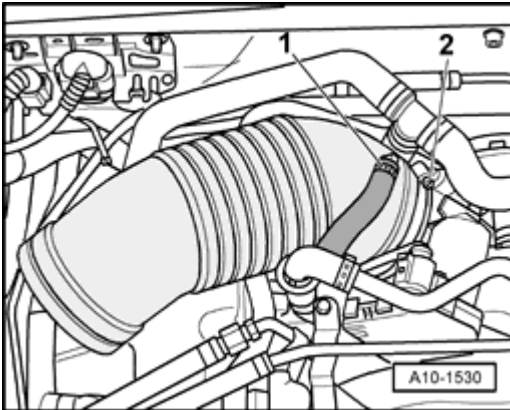


Fig. 73: Disconnecting Vacuum Hose & Air Guide Hose From Throttle Valve Control Module

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect vacuum hose - **1** -.
- Disconnect air guide hose - **2** - from throttle valve control module.

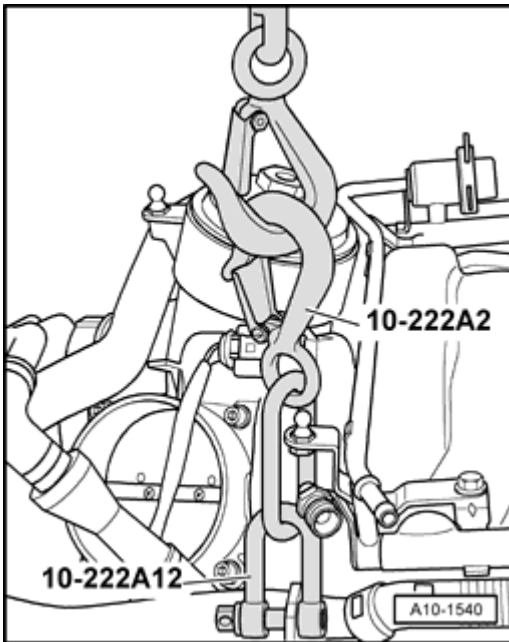


Fig. 74: Securing Shackle 10-222 A/12 To Right Rear Engine Lifting Eyelet & Hooking Additional Hook 10-222 A/2 On Shackle 10-222 A/12

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Secure shackle 10-222 A/12 to right rear engine lifting eyelet.
- Hook additional hook 10-222 A/2 on shackle 10-222 A/12.

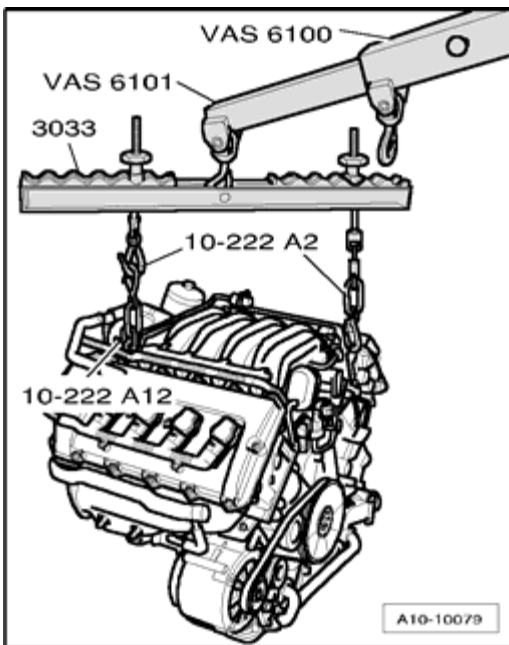


Fig. 75: Engaging Engine Sling 3033 On Additional Hook 10-222 A/2 And On Workshop Crane VAS 6100 With Lift Arm Extension For Workshop Crane VAS 6101

Courtesy of VOLKSWAGEN UNITED STATES, INC.

2006 Audi A6 Quattro

ENGINE 4.2 Liter V8 4V Engine Mechanical, Engine Code(s): BAT, BNK

- Engage engine sling 3033 on additional hook 10-222 A/2 and on workshop crane VAS 6100 with lift arm extension for workshop crane VAS 6101 as shown in the illustration.
- Lift engine from support elements of scissor lift platform VAS 6131.
- Remove engine mount with left engine support.

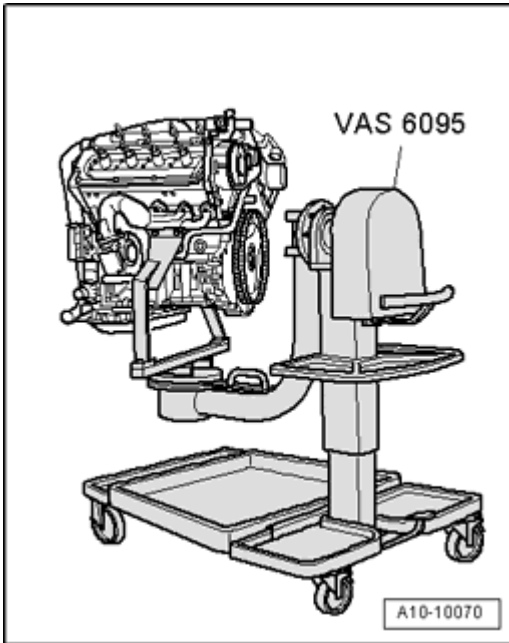


Fig. 76: Securing Engine With Transmission Holder VAS 6095
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Secure engine with V8 engine holder VAS 6095/1-6 or VAS 6095/1-6A on Engine and Transmission Holder VAS 6095 as shown in illustration.

Engine, installing

NOTE:

- During assembly, replace self-locking nuts and bolts.
- Always replace bolts that are tightened to torque as well as sealing rings, gaskets and O-rings.
- Secure all hose connections using hose clamps appropriate for the model type .
- During installation, all cable ties must be re-installed at the same location.

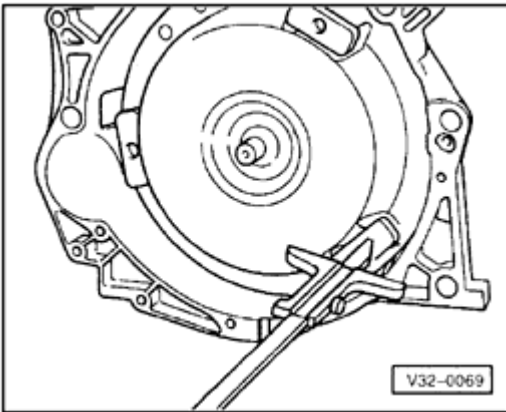


Fig. 77: Checking Torque Converter Is Correctly Positioned
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Installation dimension for torque converter, checking

When torque converter is installed correctly, distance between lower contact surfaces of threaded holes at torque converter and contact surface of bell housing on Automatic Transmission 09L is approx. 19 mm.

CAUTION: If torque converter is incorrectly installed, torque converter coupling and ATF pump could be damaged when transmission and engine are flanged together.

- Make sure alignment sleeves for engine to transmission are installed in cylinder block. Install if necessary.
- Bolt transmission to engine.

CAUTION: Keep checking whether the torque converter behind the drive plate can be turned before and during tightening of the bolts at engine/transmission flange. If the torque converter cannot be turned, it must be assumed that it has not been inserted properly and that the coupling plate of the ATF pump and therefore the transmission will be destroyed during final tightening of the bolts.

NOTE:

- Torque specifications only apply 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 degreased parts.
- Tolerance for torque specifications $\pm 15\%$.

2006 Audi A6 Quattro

ENGINE 4.2 Liter V8 4V Engine Mechanical, Engine Code(s): BAT, BNK

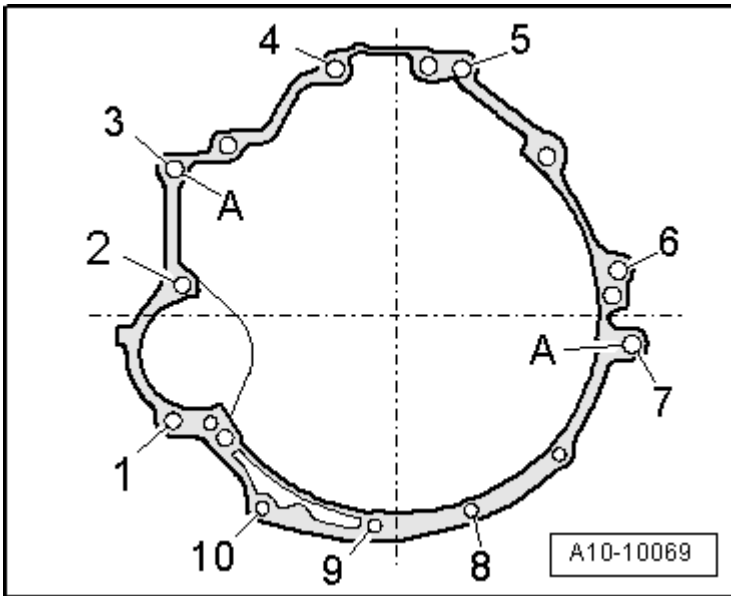


Fig. 78: Identifying Engine/Transmission Threaded Connections
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Engine/transmission, fastening

Item	Bolt	Nm
1	M10x80	65 * See note
2	M12x90	65
3	M12x105	65
4, 5	M12x100	65
6	M12x125	65
7	M12x170	65
8, 9, 10	M10x60	45
A	Alignment sleeves for centering	

*Bolt class 10.9.

Further installation is in reverse order of removal, note the following.

- Install front exhaust pipes: Left --> **Left front exhaust pipe (with catalytic converter), removing and installing** , right --> **Right exhaust pipe (with catalytic converter), removing and installing**.
- Always clean threaded bores in transmission flanged shaft for crankshaft of locking fluid residue using a tap before installation.

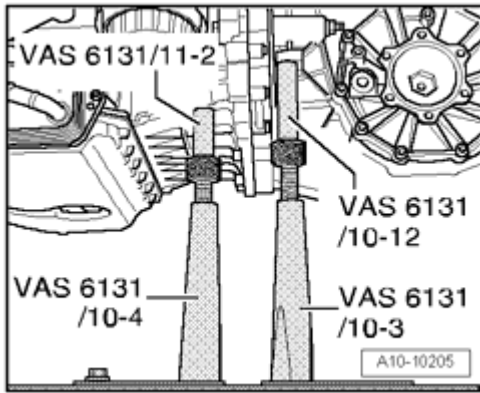


Fig. 79: Positioning Support Elements From Supplementary Set, Audi A8 (D3) VAS 6131/11 And Support Set VAS 6131/10 At Left On Engine/Transmission

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Rotate spindles of support elements downward at left of engine/transmission assembly.
- Remove both base plates for left support element on scissor lift platform VAS 6131 A.

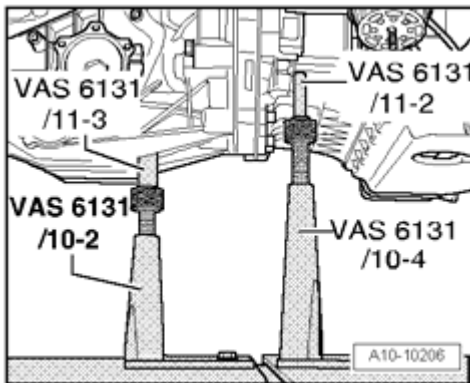


Fig. 80: Positioning Support Elements From Supplementary Set, Audi A8 (D3) VAS 6131/11 At Right On Engine/Transmission

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Rotate spindles of support elements downward at right of engine/transmission assembly.
- Remove both base plates for left support element on scissor lift platform VAS 6131 A.

NOTE:

- **Support points for front of engine, rear of transmission and tunnel cross member remain unchanged.**

2006 Audi A6 Quattro

ENGINE 4.2 Liter V8 4V Engine Mechanical, Engine Code(s): BAT, BNK

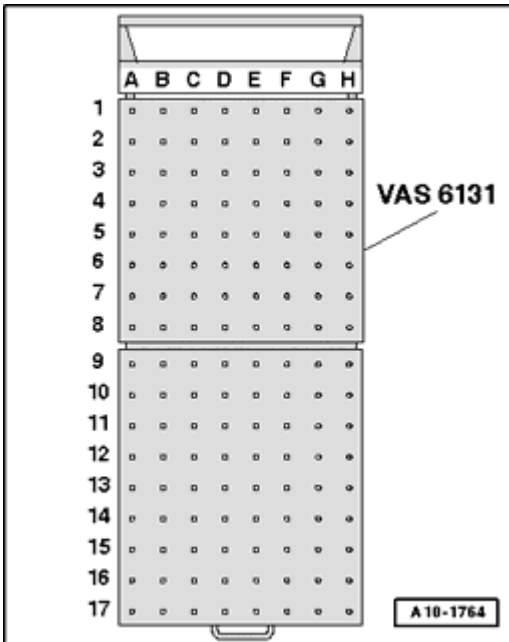


Fig. 81: Identifying Scissor Lift Platform VAS 6131 A
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Equip scissor lift platform VAS 6131 A with Support Set VAS 6131/10 as follows:

Table coordinates	Parts from Support Set VAS 6131/10			
B4 * See note	/10-1	/10-4	/10-5	/10-12
F4 * See note	/10-1	/10-4	/10-5	/10-12
B10	/10-1	/10-2	/10-5	/10-8 * See note
G10	/10-1	/10-2	/10-5	/10-8 * See note
B15 * See note	/10-1	/10-4	/10-5	/11-1
G15 * See note	/10-1	/10-4	/10-5	/11-1

*Support elements remain unchanged.

*Only install support elements after installing subframe.

NOTE:

- A second technician is required to position subframe onto support elements.**

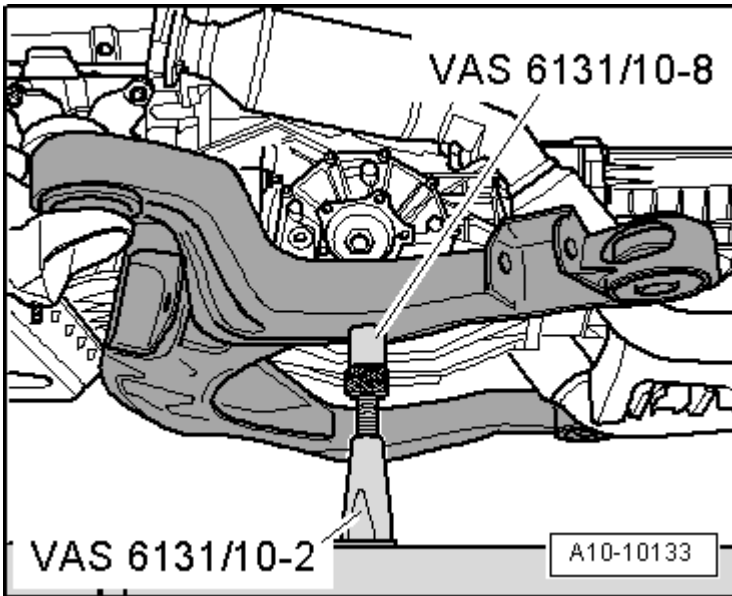


Fig. 82: Positioning Support Elements From Support Set VAS 6131/10 At Left/Right On Subframe
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Position subframe on both attachments VAS 6131/10-8.
- Twist spindles of support elements upward on both sides.
- Tighten base plates for support elements to 20 Nm on scissor lift platform VAS 6131 A.
- Using scissor lift platform VAS 6131 A , slowly guide engine/transmission unit with subframe into body from below.

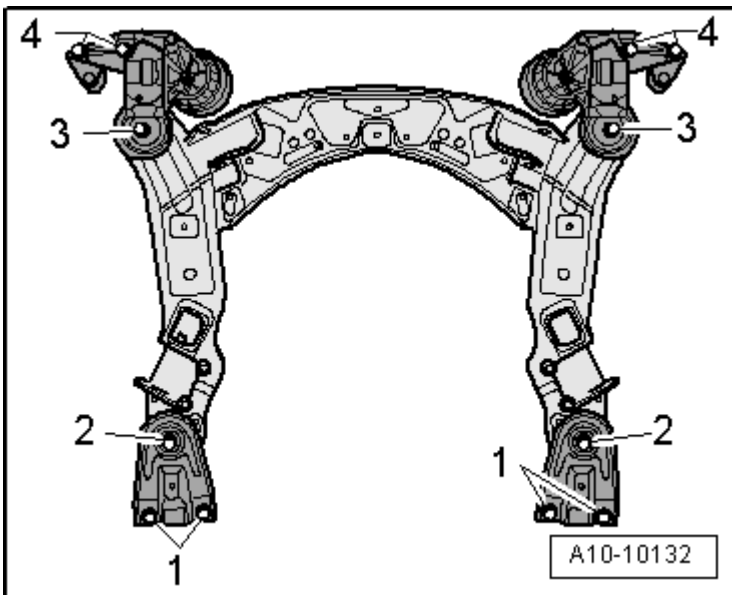


Fig. 83: Bolts Removal/Installing Sequence
Courtesy of VOLKSWAGEN UNITED STATES, INC.

removal.

- Tighten bolts for subframe and engine mount plates only to specified torque. Do not tighten further (tighten bolts only after axle alignment).

1. 50 Nm
2. 150 Nm
3. 150 Nm
4. 75 Nm

CAUTION: Vehicle must not be driven in this condition.

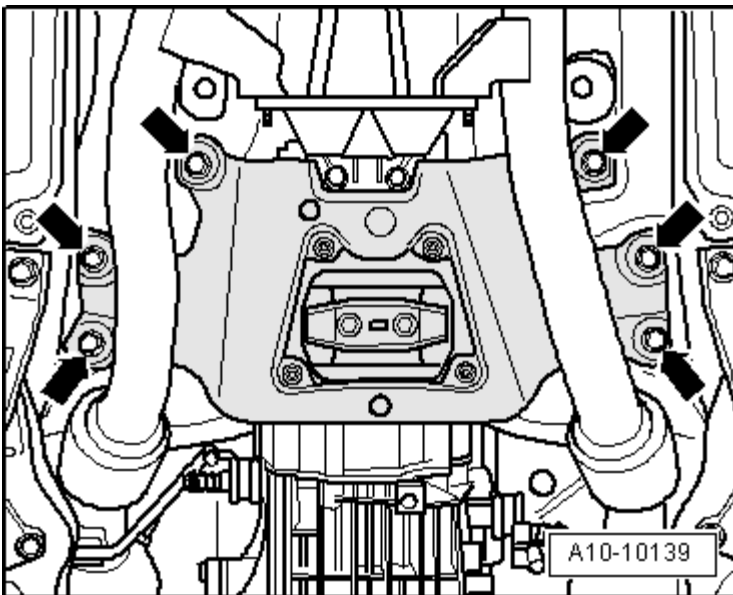


Fig. 84: Removing/Installing Bolts At Tunnel Cross Member
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Fasten bolts - **arrows** - for tunnel cross member.
- Install selector lever cable, adjust if necessary --> **37 - AUTOMATIC TRANSMISSION - CONTROLS, HOUSING** .
- Install driveshaft --> **39 - FINAL DRIVE, DIFFERENTIAL** .
- Fasten ATF lines --> **37 - AUTOMATIC TRANSMISSION - CONTROLS, HOUSING** .
- Install drive axles --> **40 - FRONT SUSPENSION** .
- Install guide link, control arm and stabilizer --> **40 - FRONT SUSPENSION** .
- Install power steering oil lines --> **48 - STEERING** .
- Install refrigerant lines --> **87 - AIR CONDITIONING** .
- Install lock carrier with attachments --> **50 - BODY - FRONT**

2006 Audi A6 Quattro

ENGINE 4.2 Liter V8 4V Engine Mechanical, Engine Code(s): BAT, BNK

- Install front bumper --> **63 - BUMPERS** .
- Adjust headlights --> **94 - LIGHTS, SWITCHES - EXTERIOR** .
- Electrical connections and routing --> Electrical Wiring Diagrams, Troubleshooting and Component Locations.

CAUTION: Do not use a battery charger for starting assistance! There is the risk that the vehicle control modules could be damaged.

NOTE:

- Be sure to activate vehicle features (radio, radio/navigation system, clock, electric window regulator) according to owners manual when the battery is re-connected.
 - Deactivate service mode of Telematics Control Module --> **91 - COMMUNICATION** .
 - Further measures after reconnecting voltage supply --> **24 - FUEL INJECTION SYSTEM** .
- Fill refrigerant circuit --> **87 - AIR CONDITIONING** .
 - Before starting, check engine oil level.
 - Before the first engine start, fill hydraulic oil into power steering system refill tank; power steering pump must not run dry.
 - Fill with coolant --> **Cooling system, draining and filling** .

NOTE:

- Only reuse drained coolant if cylinder head or engine block was not replaced.
 - Dirty coolant must not be re-used.
- Fill power-steering system oil and bleed steering system --> **48 - STEERING** .
 - Check ATF level --> **37 - AUTOMATIC TRANSMISSION - CONTROLS, HOUSING** .

Torque specifications

NOTE:

- Torque specifications only apply 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 degreased parts.
- Tolerance for torque specifications 15%.

Component			Nm
Bolts/nuts		M6	9

2006 Audi A6 Quattro

ENGINE 4.2 Liter V8 4V Engine Mechanical, Engine Code(s): BAT, BNK

		M8	20
		M10	40
		M12	65
Exceptions:			
B+ wire to starter			16
Ground (GND) wire to starter			22
Right engine support to cylinder block			42
Engine mount to	Engine support		23
	Engine plate		23
Hydraulic pressure line to power steering pump			47
Transmission mount to subframe			23
Heat shield for selector lever cable			22
Strap for left front exhaust pipe to transmission			25
Strap for left front exhaust pipe to front exhaust pipe			25
Heat shield to transmission			23
Fuel supply line to fuel rail			25
Ground (GND) wire to chassis			22
Torque support stop to lock carrier			40
Hose clamps for coolant hoses			2