

2012 Audi S4

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

ENGINE

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17 LUBRICATION

GENERAL INFORMATION

ENGINE OIL

Oil capacities, specifications and viscosity classes, refer to **MAINTENANCE, DIAGNOSIS**

DESCRIPTION AND OPERATION

OIL CHECK VALVES AND OIL SEPARATOR OVERVIEW

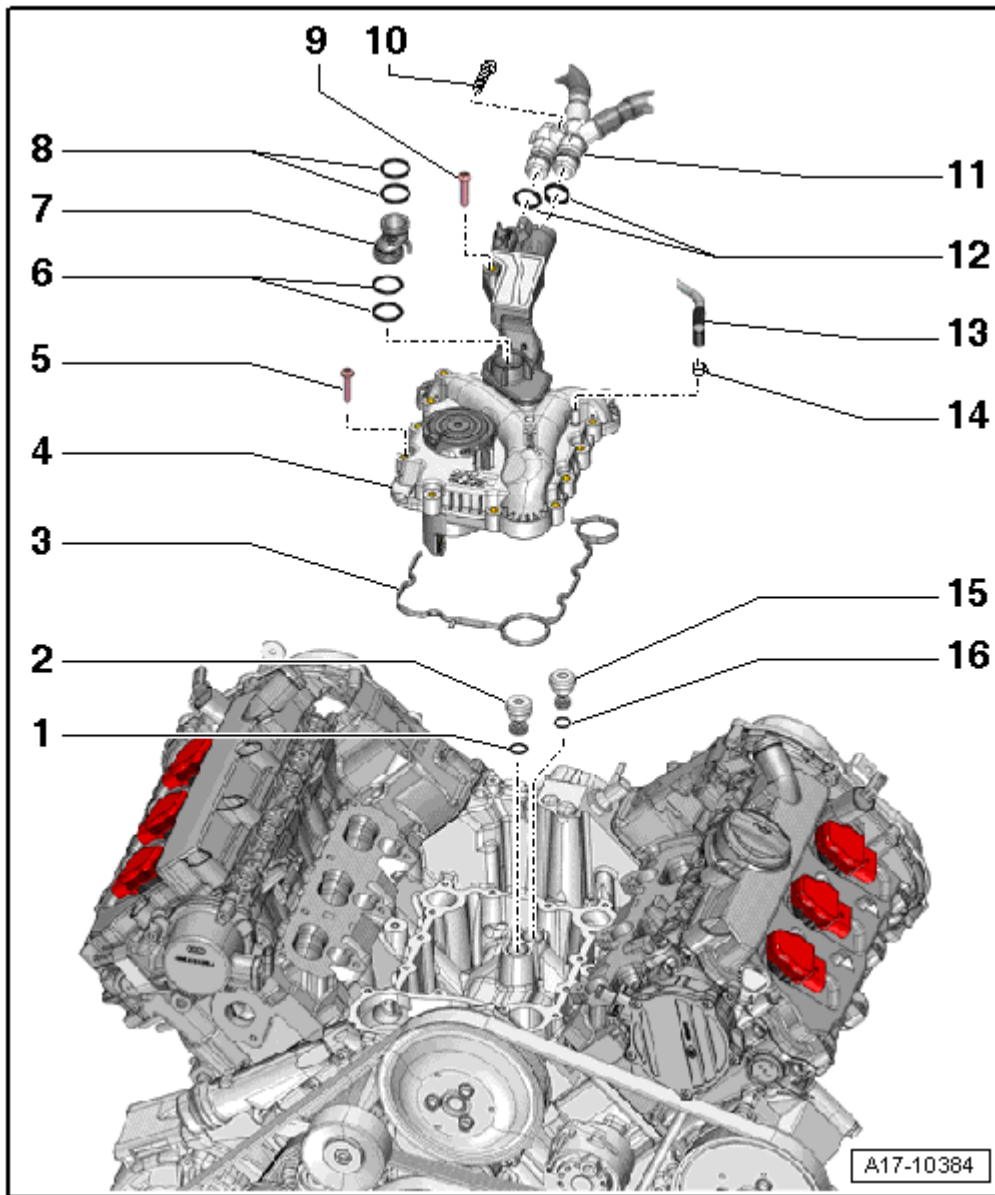


Fig. 1: Identifying Oil Check Valve And Oil Separator Overview
 Courtesy of AUDI OF AMERICA, LLC

1. O-ring
 - Replace
2. Oil Check Valve
 - 20 Nm
 - For oil supply to right cylinder head
3. Gasket
 - Replace
4. Cover with Oil Separator
 - With connection for crankshaft housing ventilation

- Removing and installing, refer to **COVER WITH OIL SEPARATOR**
- 5. Bolt
 - 9 Nm
- 6. O-ring
 - Replace
 - Quantity: 2
- 7. Connecting Piece
 - For crankcase ventilation
 - Installed position, refer to **Fig. 2**
- 8. O-ring
 - Replace
 - Quantity: 2
- 9. Bolt
 - 9 Nm
- 10. Bolt
 - 3 Nm
- 11. Crankcase Ventilation Hose
 - Not for US market
- 12. O-ring
 - Replace
- 13. Hose for Crankcase Ventilation
 - To the air guide pipe
- 14. Hose Clamp
- 15. Oil Check Valve
 - 20 Nm
 - For oil supply to left cylinder head
- 16. O-ring
 - Replace

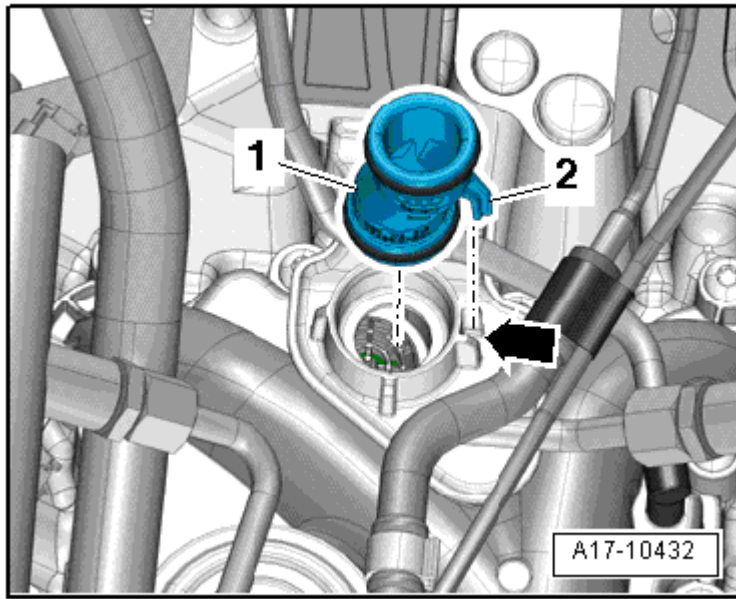


Fig. 2: Identifying Installation Of Crankcase Ventilation Connector
Courtesy of AUDI OF AMERICA, LLC

-- Install the crankcase ventilation connector -1- with new O-rings into the oil separator cover.

- Installed position: The tab -2- must engage into the guide -arrow-.

OIL FILTER HOUSING AND OIL PRESSURE SWITCH OVERVIEW

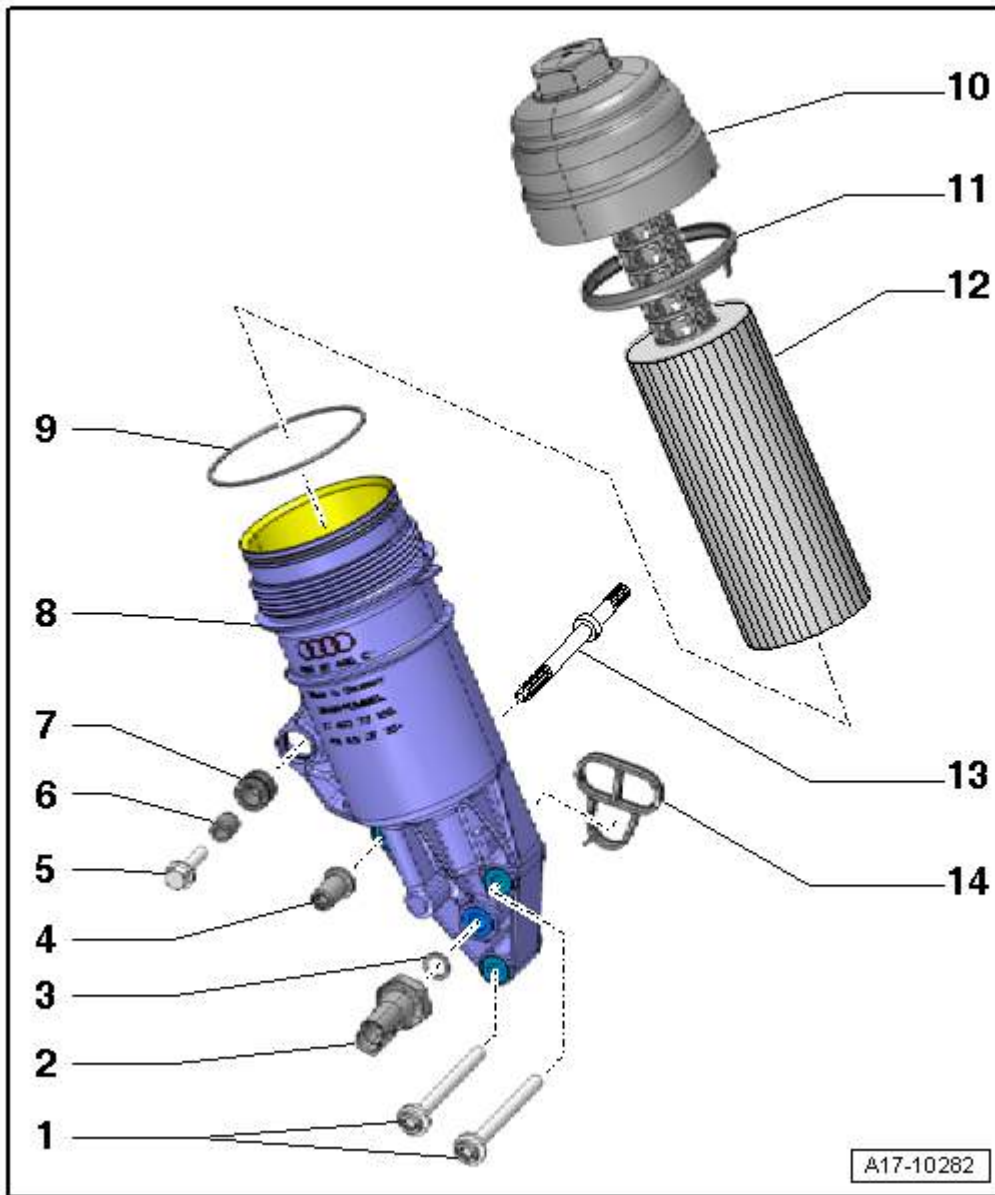


Fig. 3: Identifying Oil Filter Housing Overview

Courtesy of AUDI OF AMERICA, LLC

1. Bolt
 - 13 Nm
2. Oil Pressure Switch -F22-
 - Switching pressure 2.5 to 3.2 bar
 - With gray insulation
 - Checking in **Guided Functions** using the vehicle diagnostic tester
 - Removing and installing, refer to **Oil Pressure Switch -F22-**
 - 20 Nm
3. Seal

- Replace
- 4. Union Nut
 - 13 Nm
- 5. Bolt
 - 9 Nm
- 6. Sleeve
- 7. Rubber Grommet
- 8. Oil Filter Housing
 - With filter bypass valve
 - With oil check valve
 - Oil check valve cannot be replaced
- 9. O-ring
 - Replace
 - Inserting, refer to **Fig. 5**
- 10. Cap
 - 25 Nm
- 11. Seal
 - Replace
 - Removing and installing, refer to **Fig. 4**
- 12. Oil Filter Element
 - Removal and Installation, refer to **MAINTENANCE PROCEDURES**
- 13. Threaded Pin
 - Tightening specification, refer to **Fig. 7**
- 14. Gasket
 - Replace

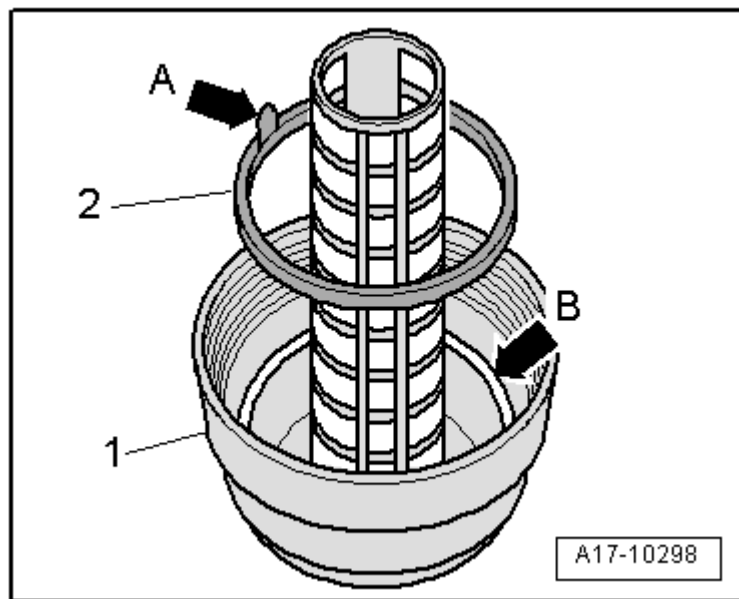


Fig. 4: Identifying Sealing Ring On Cap

Courtesy of AUDI OF AMERICA, LLC

- Remove the gasket -2- from the cap -1- at the pull tab -arrow A-.
- Insert the new sealing ring with the semicircular profile in the groove -arrow B- on the cap.
 - The pull tab -arrow A- must face up.

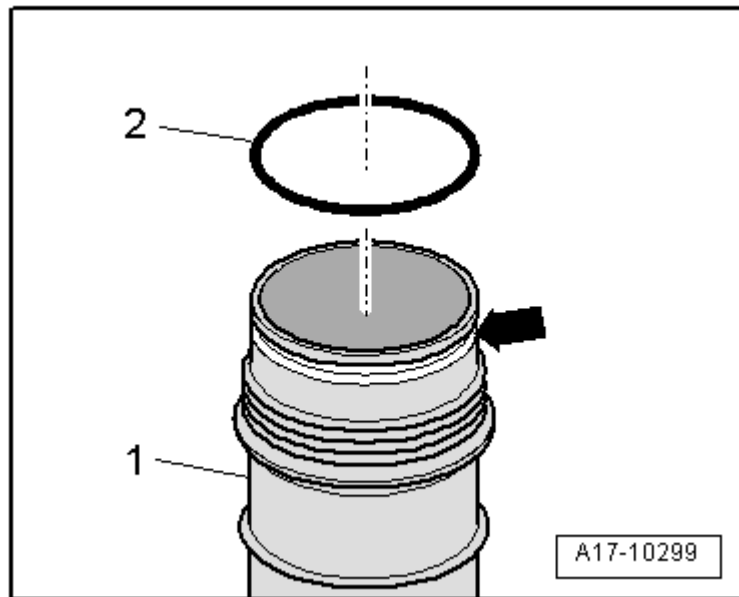


Fig. 5: Identifying Oil Filter Housing O-Ring

Courtesy of AUDI OF AMERICA, LLC

- Insert the O-ring -2- in the groove -arrow- on the oil filter housing -1-.

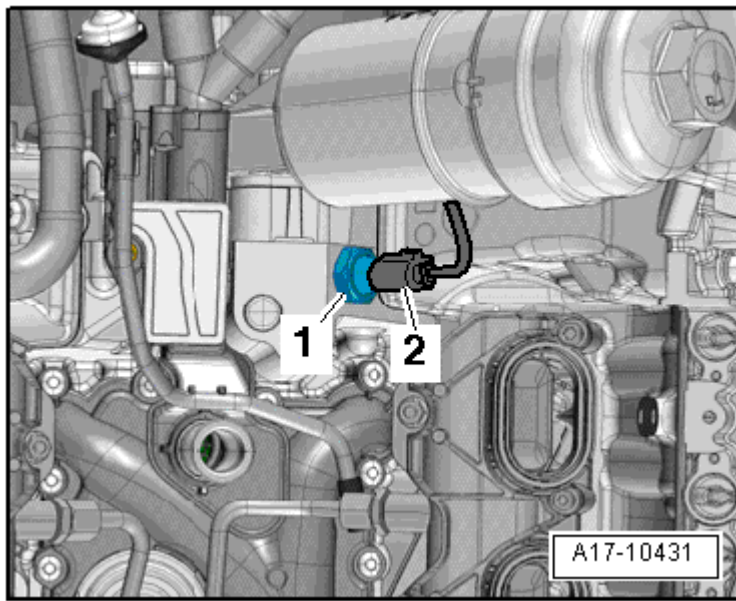


Fig. 6: Identifying Reduced Oil Pressure Switch -F378-
Courtesy of AUDI OF AMERICA, LLC

1. Reduced oil pressure switch
 - Switching pressure 0.75 to 1.05 bar
 - With gray insulation
 - Checking in **Guided Functions** using the vehicle diagnostic tester
 - Removing and installing, refer to **Reduced Oil Pressure Switch -F378-**
 - 20 Nm

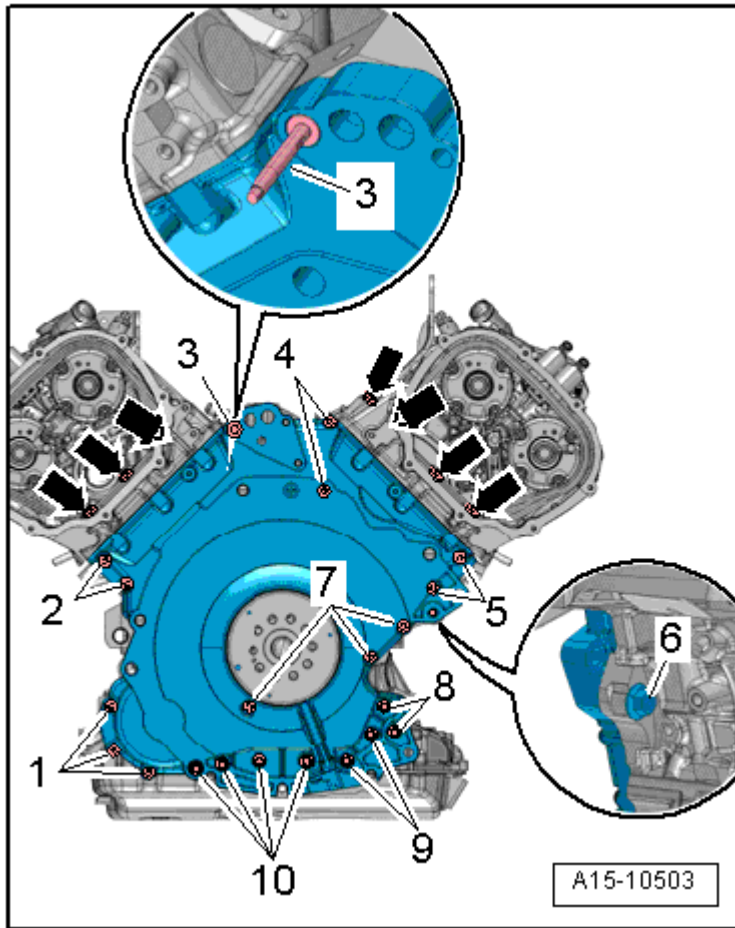


Fig. 7: Identifying Lower Timing Chain Cover Bolt, Tightening Sequence
 Courtesy of AUDI OF AMERICA, LLC

OIL PAN UPPER AND LOWER SECTIONS, OIL PUMP AND OIL COOLER OVERVIEW

CAUTION: Danger of catalytic converter damage.

- The oil level must not exceed the "MAX" marking.

NOTE: If large quantities of metal particles or abraded material are detected during engine repairs, it may mean the crankshaft or rod bearings are damaged. To prevent subsequent damage, the following work must be performed after the repair: Oil channels must be cleaned carefully; replace oil spray jets, engine oil cooler and oil filter.

Oil capacities, specifications and viscosity classes.

Oil injector jet for piston cooling, refer to Fig. 8.

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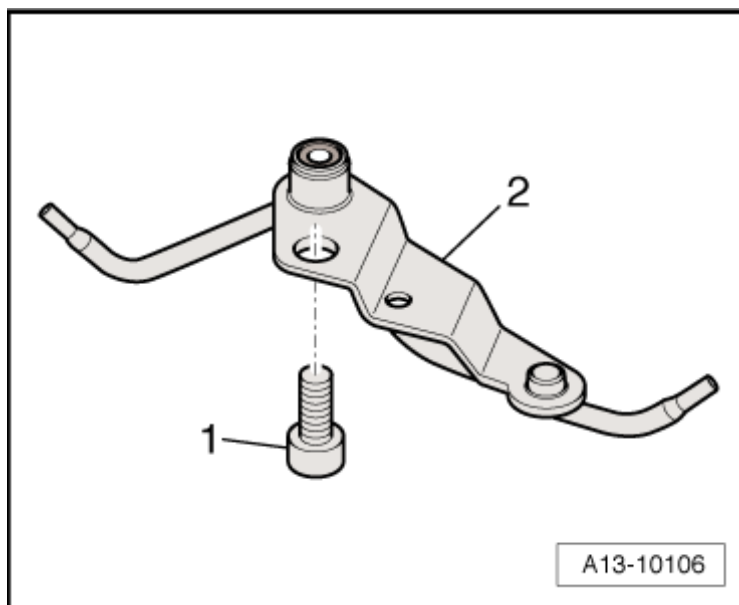


Fig. 8: Identifying Oil Spray Jet For Piston Cooling
Courtesy of AUDI OF AMERICA, LLC

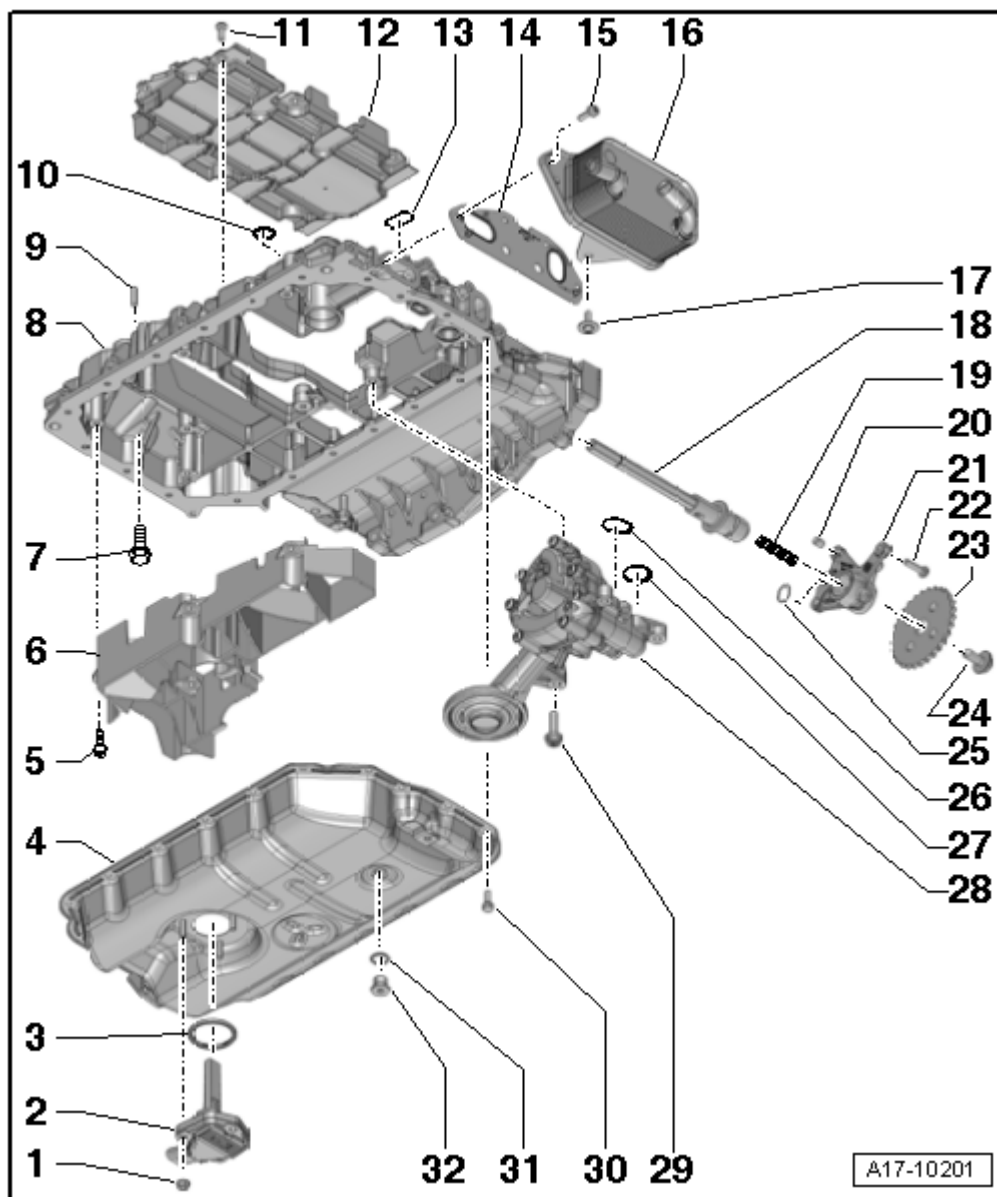


Fig. 9: Identifying Oil Pan, Oil Pump And Oil Cooler Overview

Courtesy of AUDI OF AMERICA, LLC

1. Nut
 - 9 Nm
2. Oil Level Thermal Sensor -G266-
 - Removing and installing, refer to **Oil Level Thermal Sensor -G266-**
3. Seal
 - Replace
4. Lower Oil Pan
 - Removing and installing, refer to **LOWER OIL PAN**
5. Bolt

- Replace
 - 3 Nm plus an additional 90° turn
6. Lower Oil Baffle
 7. Bolt
 - Replace
 - Tightening specification and sequence, refer to **Fig. 11**
 8. Upper Oil Pan
 - Removing and installing, refer to **UPPER OIL PAN**
 9. Alignment Bushing
 - Quantity: 2
 10. O-ring
 - Insert into guide frame
 - Replace
 11. Bolt
 - 9 Nm
 - Insert with locking compound; Locking compound.
 12. Upper Oil Baffle
 13. Gasket
 - Insert into guide frame
 - Replace
 14. Gasket
 - Replace
 15. Bolt
 - 9 Nm
 16. Engine Oil Cooler
 - Refer to **OIL PAN UPPER AND LOWER SECTIONS, OIL PUMP AND OIL COOLER OVERVIEW**.
 - Removing and installing, refer to **ENGINE OIL COOLER**
 - With oil cooler bypass valve
 17. Bolt
 - 9 Nm
 18. Oil Pump Input Shaft
 19. Pressure Spring
 20. Sleeve
 - Quantity: 2
 21. Bracket
 22. Bolt
 - 9 Nm

23. Chain Sprocket for Oil Pump
 - Can only be placed onto driveshaft in one position
24. Bolt
 - 30 Nm plus an additional 90° turn
 - Replace
 - For loosening and tightening, counter hold on the chain sprocket with a spanner wrench 3212
25. O-ring
 - Replace
26. Gasket
 - Replace
27. O-ring
 - Replace
28. Oil Pump
 - Do not disassemble
 - Removing and installing, refer to **OIL PUMP**
29. Bolt
 - 20 Nm
30. Bolt
 - Replace
 - Tightening specification and sequence, refer to **Fig. 10**
31. Seal
 - Replace
32. Oil Drain Plug
 - 30 Nm

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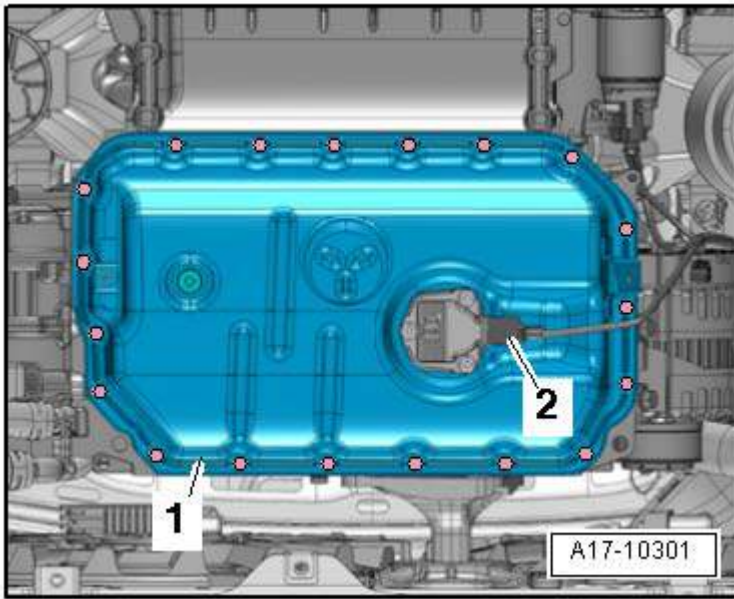


Fig. 10: Identifying Lower Oil Pan Bolt, Tightening Sequence
Courtesy of AUDI OF AMERICA, LLC

NOTE: Replace any bolts that were tightened with an additional turn.

-- Tighten bolts in 2 stages as follows:

Stage	Tightening Specification/Additional Turn
1.	3 Nm in a diagonal sequence
2.	in a diagonal sequence, turn an additional 90°

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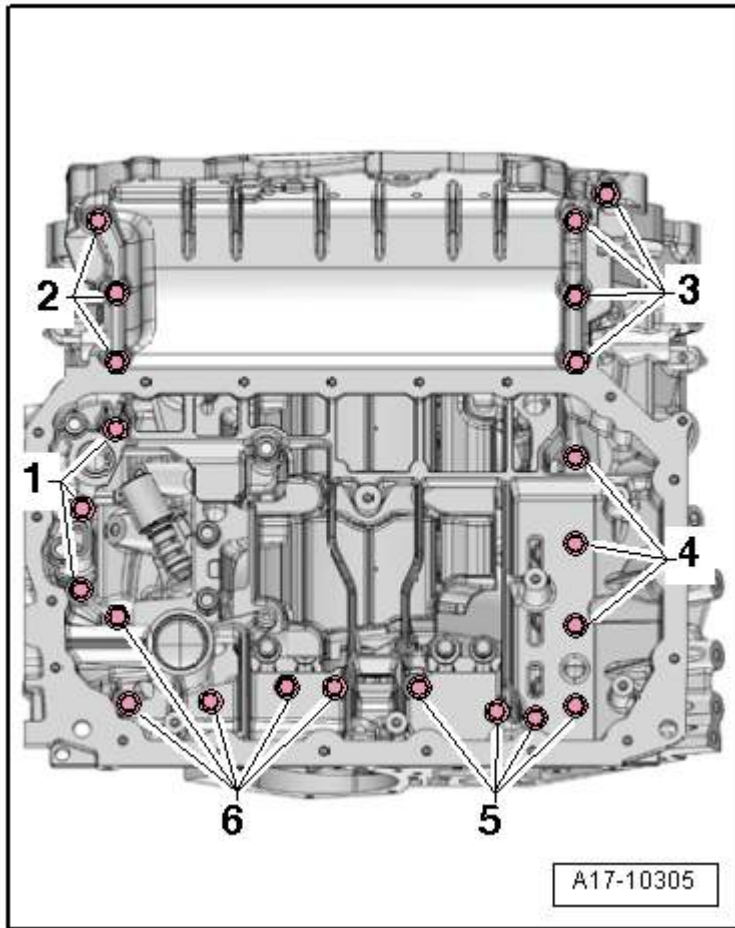


Fig. 11: Identifying Upper Oil Pan Bolt, Tightening Sequence

Courtesy of AUDI OF AMERICA, LLC

NOTE: Replace any bolts that were tightened with an additional turn.

-- Tighten bolts in 2 stages as follows:

Stage	Bolts	Tightening Specification/Additional Turn
1.	-1 through 6-	8 Nm in a diagonal sequence
2.	-1 through 6-	in a diagonal sequence, turn an additional 90°

SPECIFICATIONS

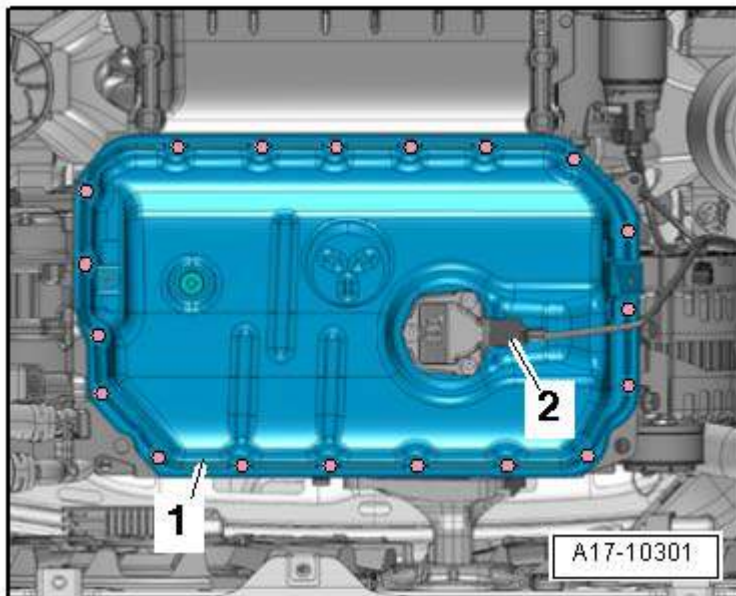
FASTENER TIGHTENING SPECIFICATIONS

Component	Fastener Size	Nm
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Bracket for Driveshaft for Oil Pump	-	9
Chain Sprocket for Oil Pump ¹	-	30 + 90°
Cover with Oil Separator	-	9
Crankcase Ventilation Hose	-	3
Engine Oil Cooler	-	9
Lower Oil Baffle ¹	-	3 + 90°
Oil Drain Plug	-	30
Oil Filter Housing ²		
	-	13
Union Nut	-	13
	-	9
Oil Check Valve	-	20
Oil Filter Housing Cap	-	25
Oil Level Thermal Sensor, Nut	-	9
Oil Pressure Switch	-	20
Oil Pump	-	20
Reduced Oil Pressure Switch	-	20
Upper Oil Baffle	-	9
¹ Always replace ² For bolt tightening clarification, refer to <u>OIL FILTER HOUSING AND OIL PRESSURE SWITCH OVERVIEW</u> Refer to items -1, 4, 5 and 13-		

Lower Oil Pan, Tightening Specifications and Sequence**Fig. 12: Identifying Lower Oil Pan Bolt, Tightening Sequence**

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Courtesy of AUDI OF AMERICA, LLC

NOTE: Replace any bolts that were tightened with an additional turn.

-- Tighten bolts in 2 stages as follows:

Stage	Tightening Specification/Additional Turn
1.	3 Nm in a diagonal sequence
2.	in a diagonal sequence, turn an additional 90°

Upper Oil Pan, Tightening Specifications and Sequence

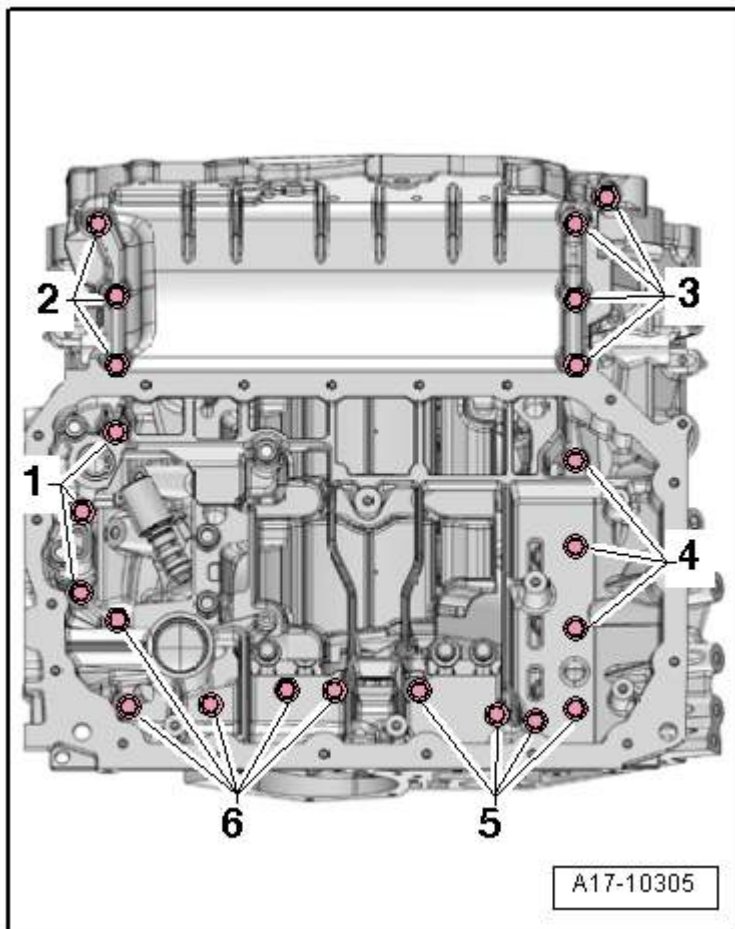


Fig. 13: Identifying Upper Oil Pan Bolt, Tightening Sequence
Courtesy of AUDI OF AMERICA, LLC

NOTE: Replace any bolts that were tightened with an additional turn.

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-- Tighten bolts in 2 stages as follows:

Stage	Bolts	Tightening Specification/Additional Turn
1.	-1 through 6-	8 Nm in a diagonal sequence
2.	-1 through 6-	in a diagonal sequence, turn an additional 90°

DIAGNOSIS AND TESTING

OIL LEVEL, CHECKING

- The engine oil level is displayed on the MMI or radio, depending on vehicle equipment. For the procedure, refer to the Owner's Manual.
- Check the oil level with the Oil Gauge Tester T40178. Refer to **MAINTENANCE PROCEDURES**

OIL PRESSURE, CHECKING

Special tools and workshop equipment required

- Oil Pressure Gauge V.A.G 1342

Procedure

- Oil level OK
- Engine oil temperature approximately 80 °C (176 °F)

-- Remove the oil pressure switch -F22-. Refer to **Oil Pressure Switch -F22-**.

-- Connect the V.A.G 1342 into the opening for the oil pressure switch.

-- Attach the oil pressure switch to the oil pressure gauge.

-- Start the engine.

- Oil pressure at idle: at least 1.2 bar pressure.
- Oil pressure at 2000 RPM: at least 1.5 bar pressure.

Assembling

-- Install the oil pressure switch. Refer to **Oil Pressure Switch -F22-**.

OIL PRESSURE SWITCH -F22- AND REDUCED OIL PRESSURE SWITCH -F378-, CHECKING

Check the oil pressure switch/reduced oil pressure switch in **Guided Fault Finding** using the vehicle diagnostic tester.

REMOVAL AND INSTALLATION

COVER WITH OIL SEPARATOR

Removing

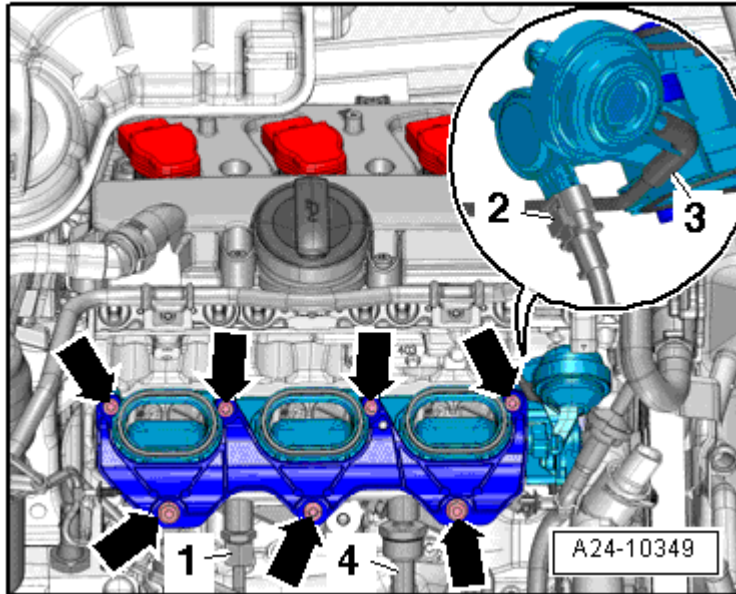


Fig. 14: Locating Manifold Lower Section Bolts -Arrows-
Courtesy of AUDI OF AMERICA, LLC

- Remove the upper coolant pipe. Refer to UPPER COOLANT PIPE .
- Remove the left lower section of the intake manifold. Refer to Removal and Installation .
- Remove the bolts -arrows-.

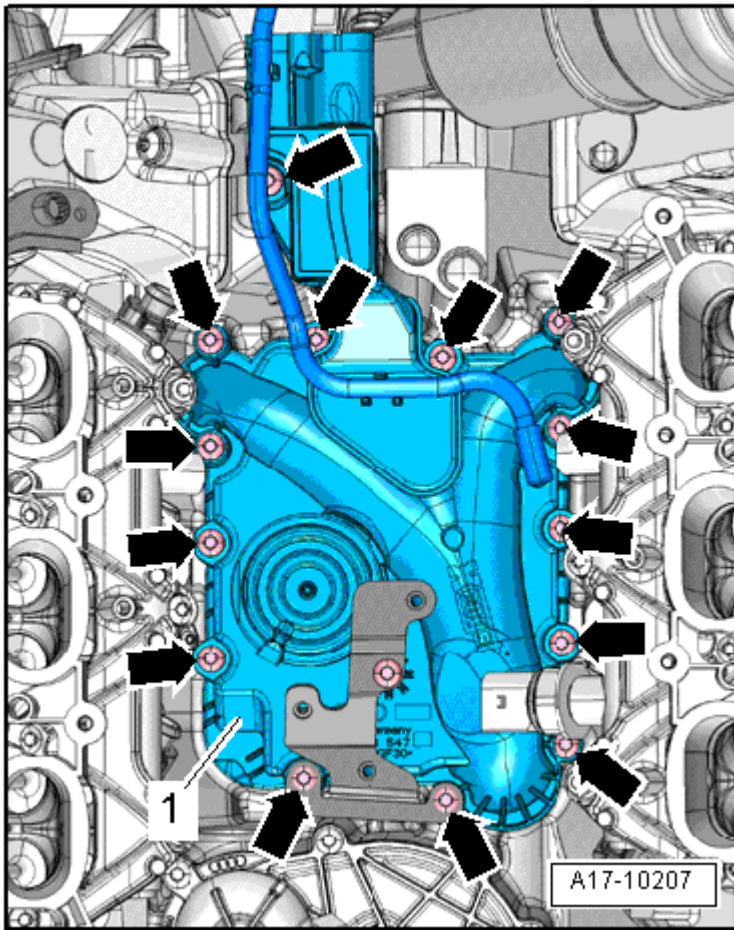


Fig. 15: Identifying Oil Separator Cover
Courtesy of AUDI OF AMERICA, LLC

-- Remove the high pressure lines and oil separator cover -1-.

Installing

Install in reverse order of removal. Note the following:

- Tightening specifications, refer to **OIL CHECK VALVES AND OIL SEPARATOR OVERVIEW**.

NOTE: **Replace the gasket.**

-- Install the lower intake manifold section. Refer to **Removal and Installation** .

-- Install the upper coolant pipe. Refer to **UPPER COOLANT PIPE** .

ENGINE OIL COOLER

Special tools and workshop equipment required

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

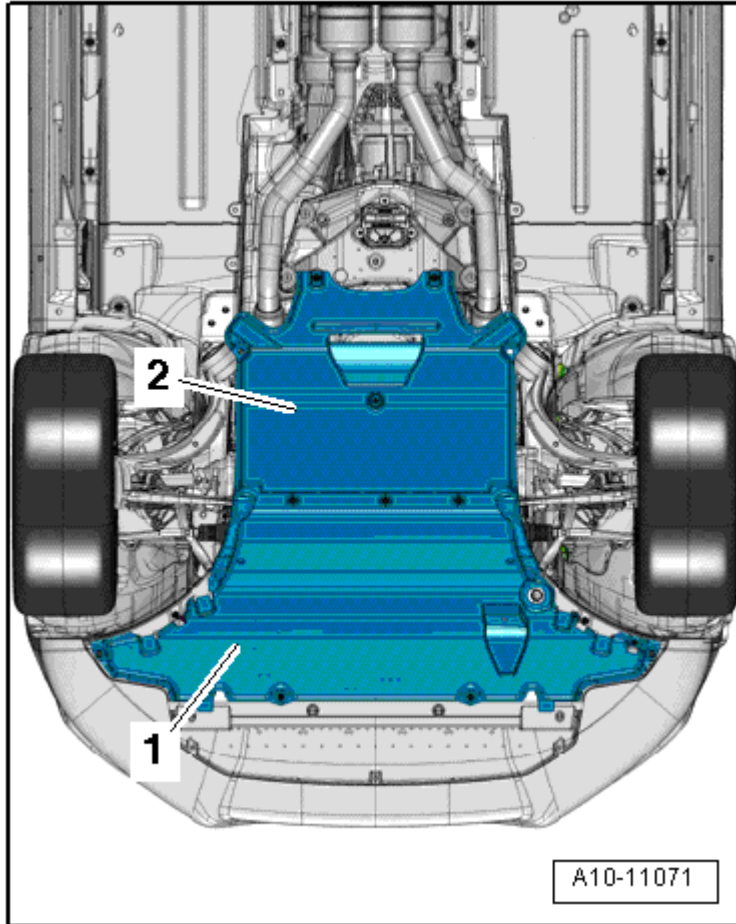
Removing

Fig. 16: Identifying Front Noise Insulation
Courtesy of AUDI OF AMERICA, LLC

- Remove the front noise insulation -1-. Refer to **Description and Operation** .
- Drain the coolant. Refer to **COOLANT, DRAINING AND FILLING** .
- Remove the after-run coolant pump -V51- if the vehicle has one. Refer to **After-Run Coolant Pump -V51-** .
- Remove the bolt -1- and nut -3- and the lock carrier left brace -2-.

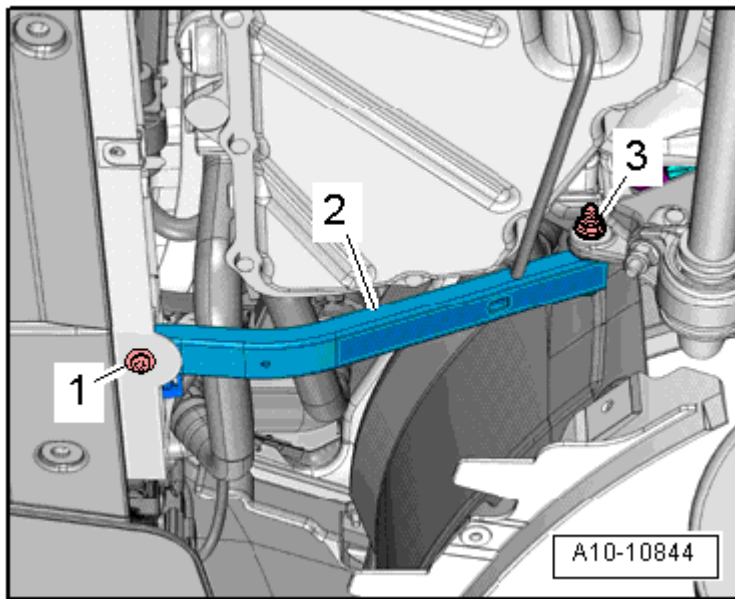


Fig. 17: Identifying Carrier Left Brace Components
Courtesy of AUDI OF AMERICA, LLC

-- Open the clamp and remove the coolant hose -1- and, if necessary, -2- from the oil cooler.

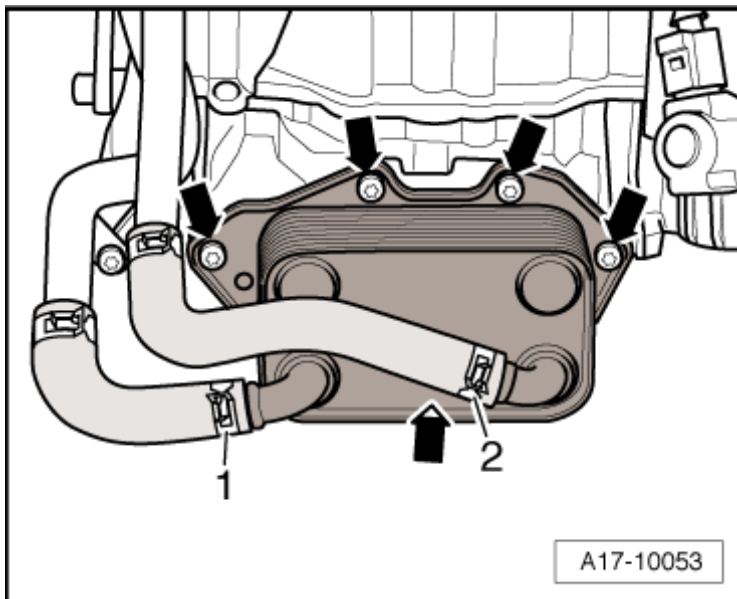


Fig. 18: Connecting/Disconnecting Coolant Hoses With Hose Clamps
Courtesy of AUDI OF AMERICA, LLC

-- Place the V.A.G 1782 under the engine.

-- Remove the bolts -arrows- and remove the engine oil cooler.

Installing

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Install in reverse order of removal. Note the following:

- Tightening specifications, refer to **OIL PAN UPPER AND LOWER SECTIONS, OIL PUMP AND OIL COOLER OVERVIEW**.

NOTE: **Replace the gasket.**

Secure all hose connections with hose clamps of the same type as those equipped by the factory.

- Install the lock carrier brace. Refer to **Description and Operation** .
- Install after-run coolant pump. Refer to **After-Run Coolant Pump -V51-** .
- Check the oil level. Refer to **MAINTENANCE PROCEDURES**
- Fill with coolant. Refer to **FILLING** .

OIL FILTER HOUSING

Special tools and workshop equipment required

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

Removing

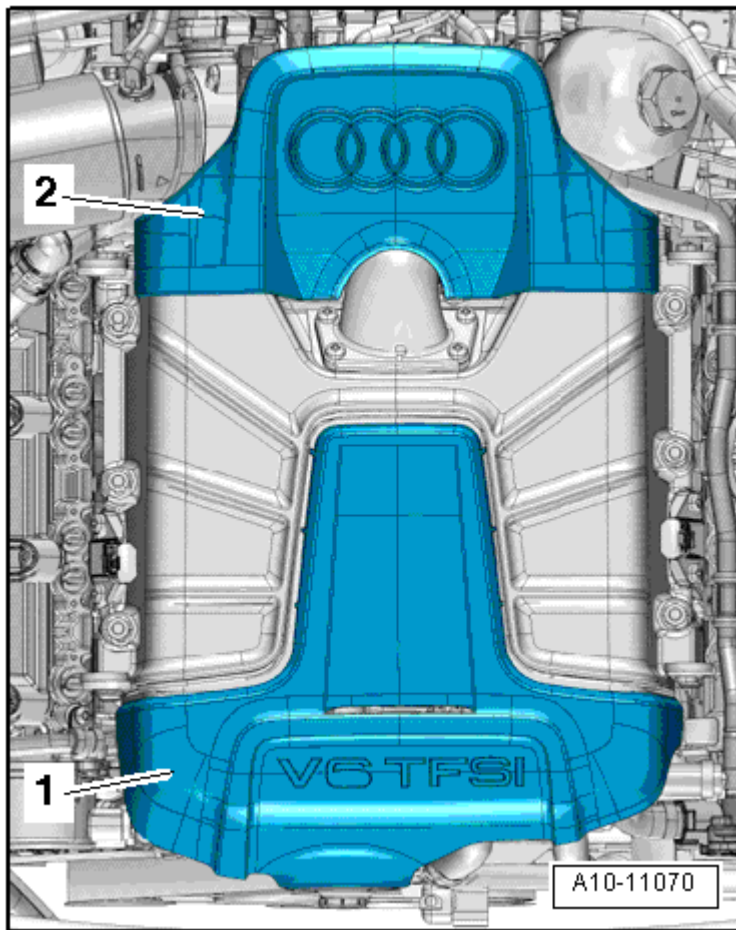


Fig. 19: Identifying Engine Cover -1- And -2-
Courtesy of AUDI OF AMERICA, LLC

- Remove the rear engine cover -2- upward.
- Remove the oil filter element. Refer to **MAINTENANCE PROCEDURES**
- Extract the oil from the oil filter housing using the V.A.G 1782.
- Remove the plenum chamber bulkhead. Refer to **Description and Operation** .
- Free up the wires.

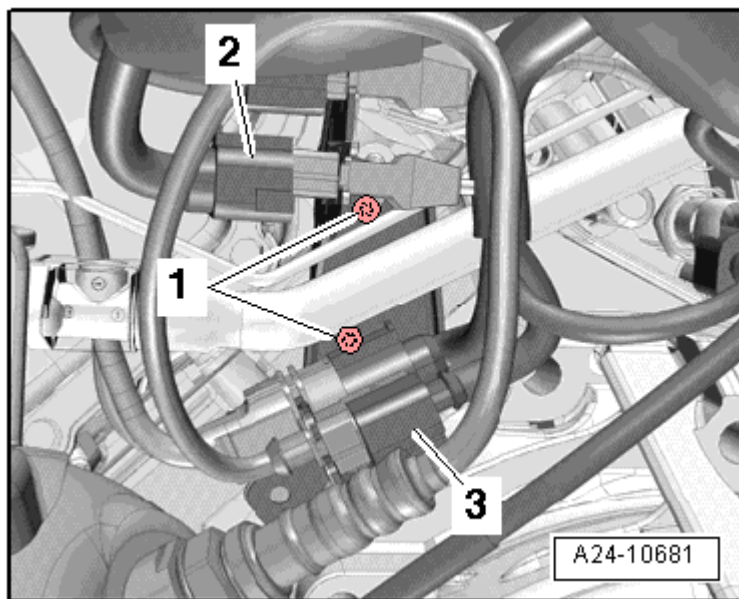


Fig. 20: Disconnecting Connector To Fuel Injectors (Left Cylinder Head)
Courtesy of AUDI OF AMERICA, LLC

-- Remove the bolts -1- and move the bracket together with the wiring harnesses to the side.

NOTE: Ignore -2 and 3-.

NOTE: To collect escaping engine oil, place a clean cloth under oil filter housing.

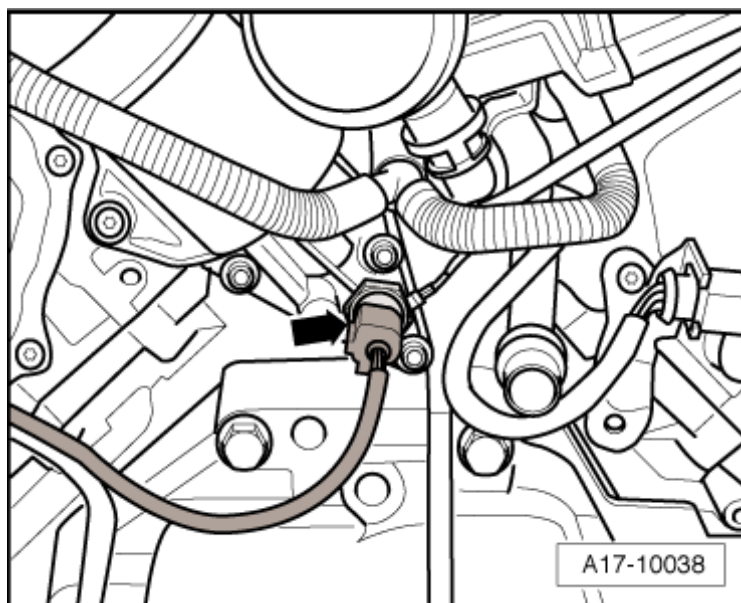


Fig. 21: Disconnecting Electrical Harness Connector From Oil Pressure Switch F1
Courtesy of AUDI OF AMERICA, LLC

- Disconnect the connector -arrow- on the oil pressure switch -F22-.
- Remove the bolts -3- and push the secondary air hose toward the rear.

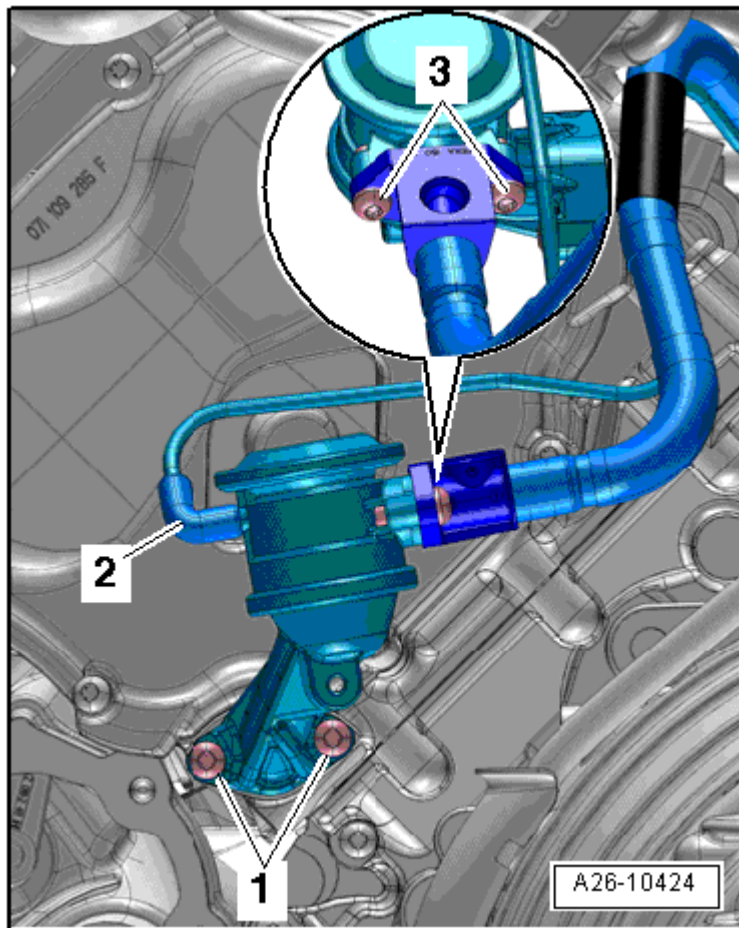


Fig. 22: Identifying Vacuum Line -2- From Secondary Air Injection (Air) Combination Valve, Removal
Courtesy of AUDI OF AMERICA, LLC

NOTE: Ignore -1 and 2-.

- Remove the bolts -arrows-.

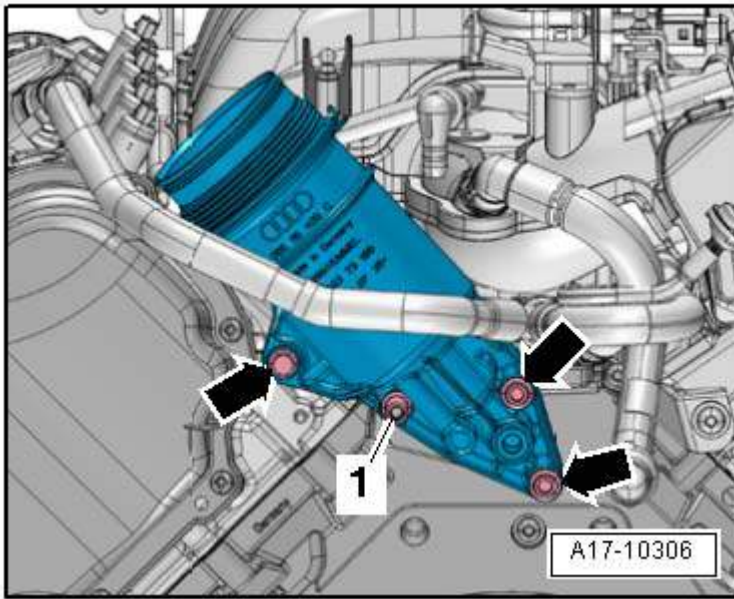


Fig. 23: Identifying Oil Filter Housing Bolts -Arrows-
 Courtesy of AUDI OF AMERICA, LLC

-- Remove the nut -1- and double bolt and then remove the oil filter housing.

Installing

Install in reverse order of removal. Note the following:

- Tightening specifications, refer to **OIL FILTER HOUSING AND OIL PRESSURE SWITCH OVERVIEW**.

NOTE: Replace the sealing ring, the seal and the O-ring.

-- Install the secondary air hose. Refer to **SECONDARY AIR INJECTION SYSTEM OVERVIEW** .

-- Install the plenum chamber bulkhead. Refer to **Description and Operation** ..

-- Install the oil filter element. Refer to **MAINTENANCE PROCEDURES**

-- Fill the engine oil and check the level. Refer to **MAINTENANCE PROCEDURES**

OIL LEVEL THERMAL SENSOR -G266-

Removing

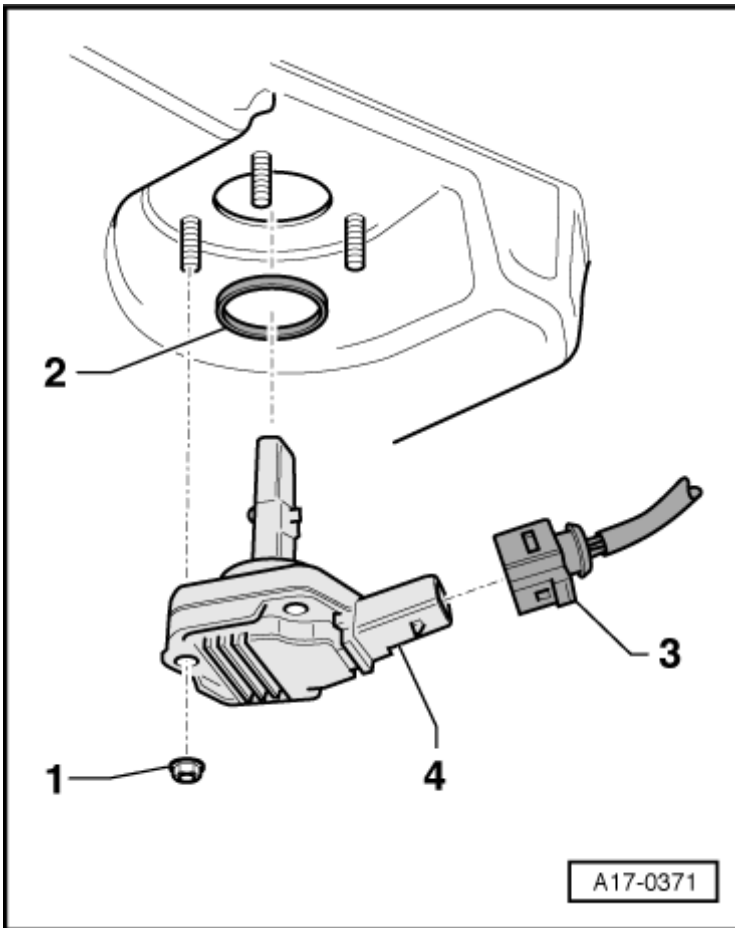


Fig. 24: Identifying Oil Level Thermal Sensor G266

Courtesy of AUDI OF AMERICA, LLC

- Drain the engine oil. Refer to **MAINTENANCE PROCEDURES**
- Disconnect the connector -3-.
- Remove the nuts -1- and the oil level thermal sensor -4-.

Installing

Install in reverse order of removal. Note the following:

- Tightening specifications, refer to **OIL PAN UPPER AND LOWER SECTIONS, OIL PUMP AND OIL COOLER OVERVIEW.**

NOTE: Replace the seal -2-.

- Fill the engine oil and check the level. Refer to **MAINTENANCE PROCEDURES**

LOWER OIL PAN

Special tools and workshop equipment required

- Hand drill with plastic brush attachment
- Protective goggles
- Sealant.

Removing

-- Drain the engine oil. Refer to **MAINTENANCE PROCEDURES**

Vehicles without the After-Run Coolant Pump -V51- :

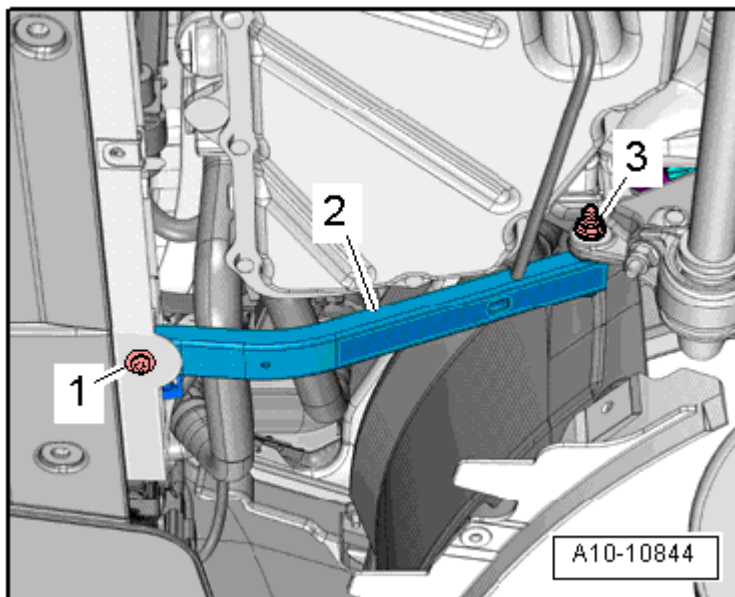


Fig. 25: Identifying Carrier Left Brace Components
Courtesy of AUDI OF AMERICA, LLC

-- Remove the bolt -1- and nut -3- and the lock carrier left brace -2-.

NOTE: To collect escaping motor oil, lay a cloth under the oil cooler.

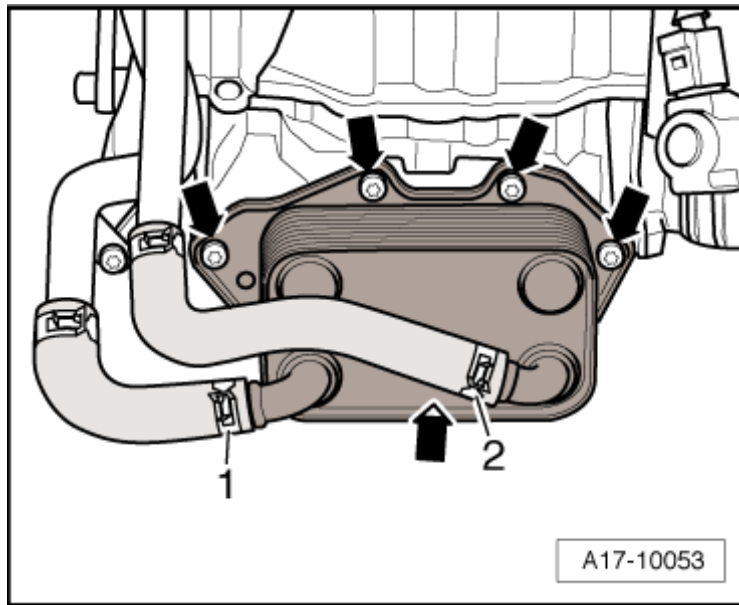


Fig. 26: Connecting/Disconnecting Coolant Hoses With Hose Clamps
Courtesy of AUDI OF AMERICA, LLC

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

Vehicles with the After-Run Coolant Pump -V51- :

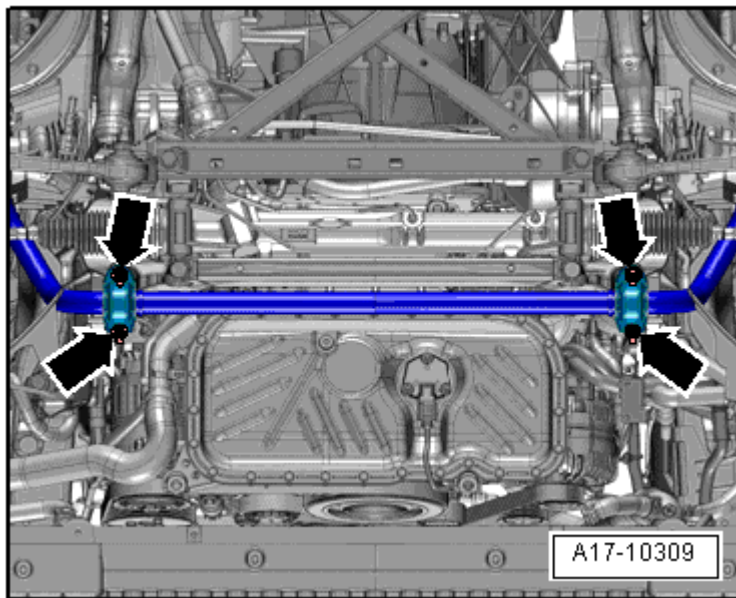


Fig. 27: Identifying Stabilizer Bar Components
Courtesy of AUDI OF AMERICA, LLC

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

-- Remove the nuts -arrows- and the stabilizer bar.

Vehicles with S-Tronic Transmission 0B5

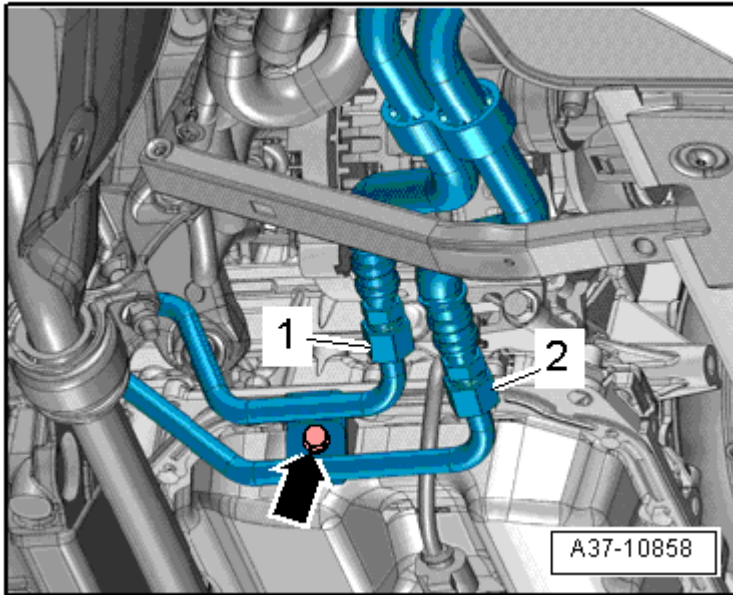


Fig. 28: Identifying ATF Line Bracket
Courtesy of AUDI OF AMERICA, LLC

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

NOTE: Ignore -1 and 2-.

All Vehicles

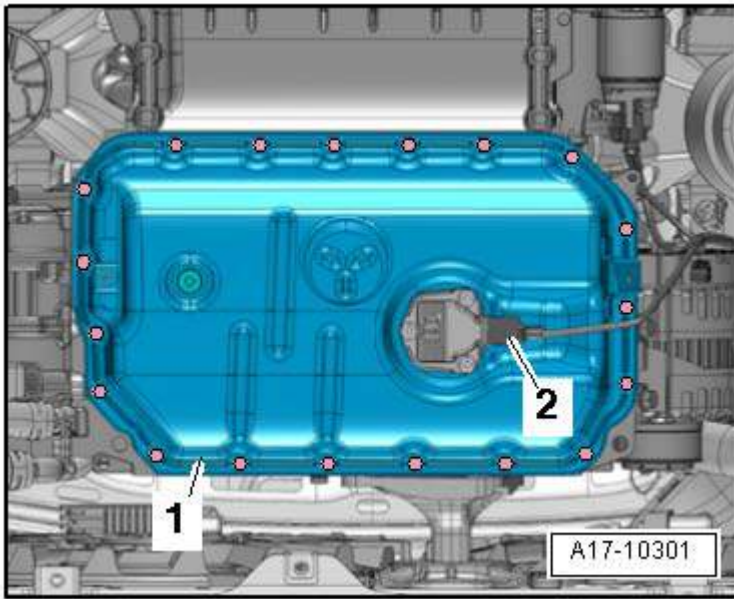


Fig. 29: Identifying Lower Oil Pan Bolt, Tightening Sequence
 Courtesy of AUDI OF AMERICA, LLC

- Disconnect the electrical connector -2- on the oil level thermal sensor -G266- and free up the electrical wire.
- Remove the bolts -1- for the lower section of the oil pan.
- Carefully loosen the lower section of the oil pan from the bond without bending it.

Installing

- Tightening specifications, refer to **Fig. 10**.

NOTE: **Replace sealing rings.**

Replace the lower oil pan if the coating on it is damaged or if it is bent.

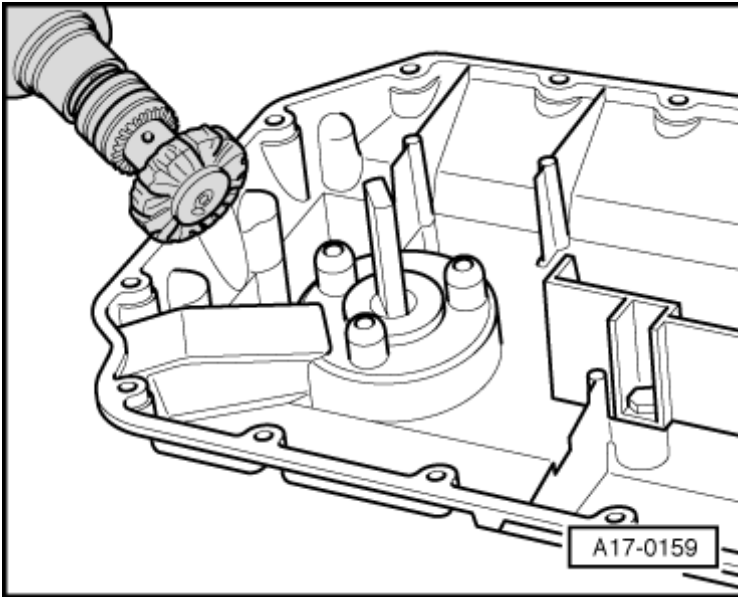


Fig. 30: Identifying Rotating Plastic Brush For Removal Of Sealant From Upper Part Of Oil Pan And Cylinder Block

Courtesy of AUDI OF AMERICA, LLC

CAUTION: Risk of contaminating lubricating system and bearing.

- Cover open parts of engine.

WARNING: Danger of eye injury.

- Wear protective goggles.

-- Remove the sealant residue on the lower and upper sections of the oil pan, for example using a rotating plastic brush.

NOTE: Make sure the coating on the lower oil pan is not damaged.

-- Clean any oil or grease off the sealing surfaces.

NOTE: Note the expiration date of the sealing compound.

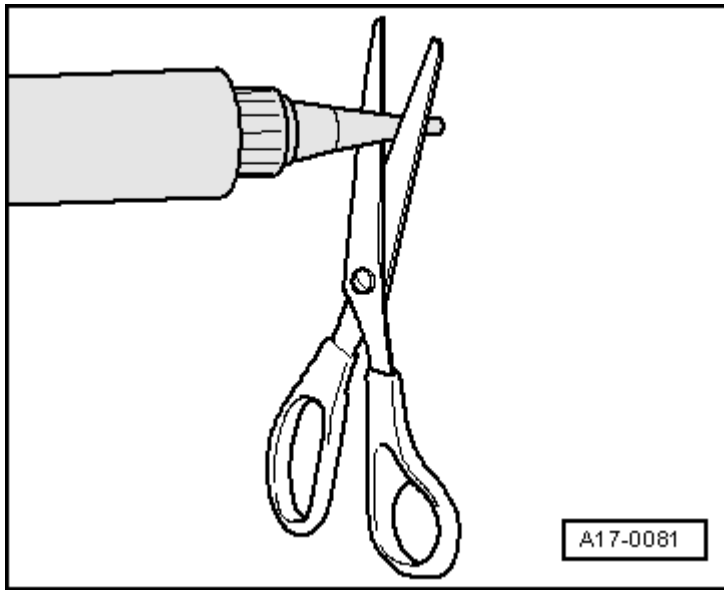


Fig. 31: Cutting Tube Nozzle At Front Marking (Nozzle Diameter Approx. 1 Mm)
Courtesy of AUDI OF AMERICA, LLC

-- Cut the tube nozzle at the front marking (nozzle diameter approximately 1 mm).

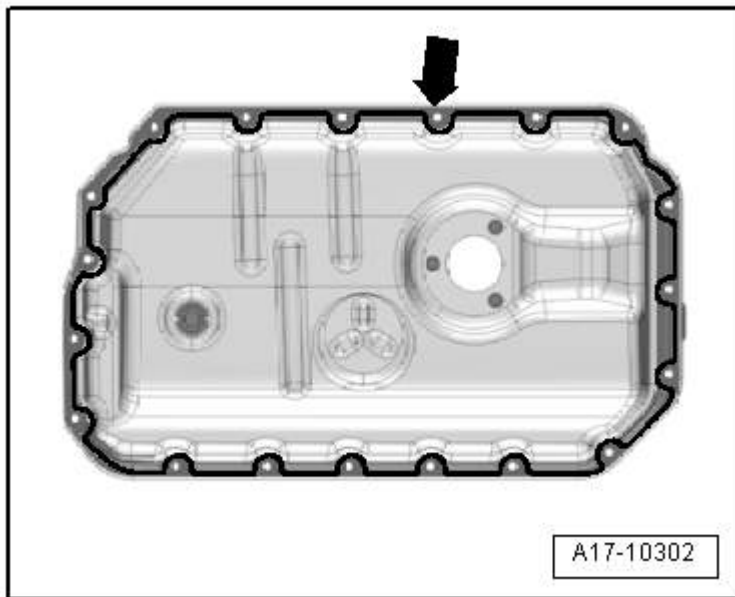


Fig. 32: Identifying Sealant Bead Application Location
Courtesy of AUDI OF AMERICA, LLC

CAUTION: The lubrication system could be plugged with excess sealant.

- Do not apply sealant bead thicker than indicated.

-- Apply the sealant bead -arrow- to the clean sealing surfaces of the lower oil pan as shown in the illustration.

- Thickness of sealant bead: approximately 1.5 mm

NOTE: **Install the lower oil pan within five minutes of applying the sealant.**

-- Position the lower section of the oil pan and tighten the bolts. Refer to **Fig. 10**.

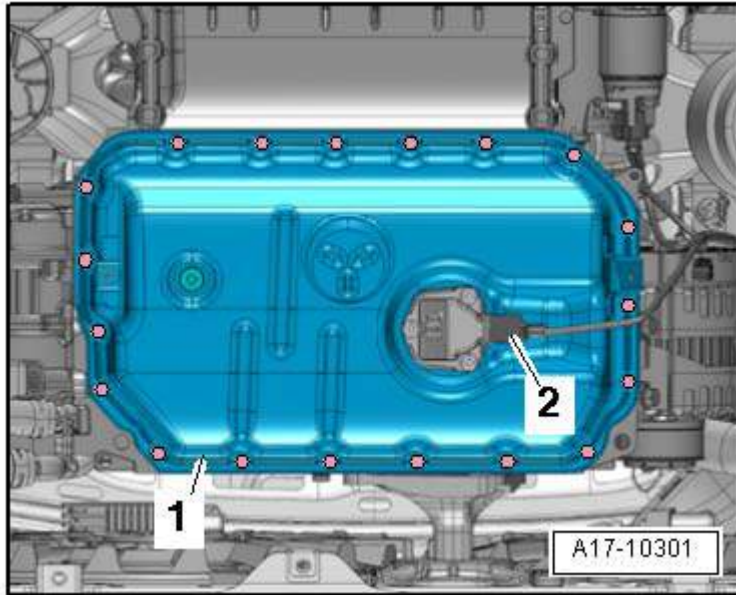


Fig. 33: Identifying Lower Oil Pan Bolt, Tightening Sequence
Courtesy of AUDI OF AMERICA, LLC

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

Vehicles with S-Tronic Transmission

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

All Vehicles

-- Install stabilizer bar. Refer to **Removal and Installation** .

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

-- Fill the engine oil and check the level. Refer to **MAINTENANCE PROCEDURES**

OIL PRESSURE REGULATION VALVE -N428-

Special tools and workshop equipment required

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

Removing

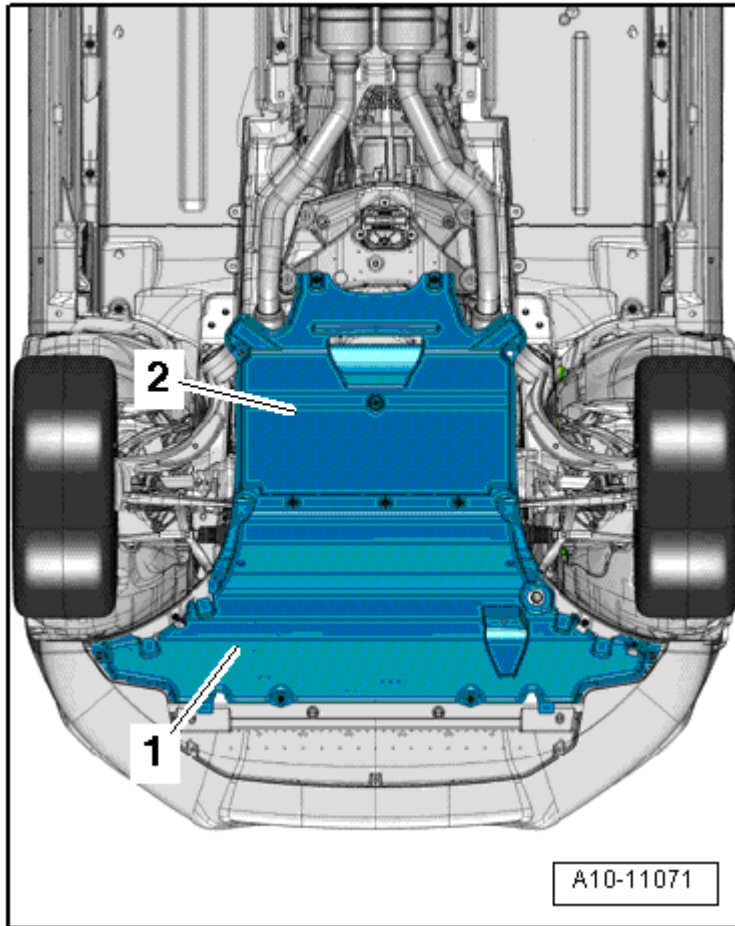


Fig. 34: Identifying Front Noise Insulation
Courtesy of AUDI OF AMERICA, LLC

Vehicles without the After-Run Coolant Pump -V51-

- Remove the front noise insulation -1-. Refer to **Description and Operation** .
- Remove the bolt -1- and nut -3- and the lock carrier left brace -2-.

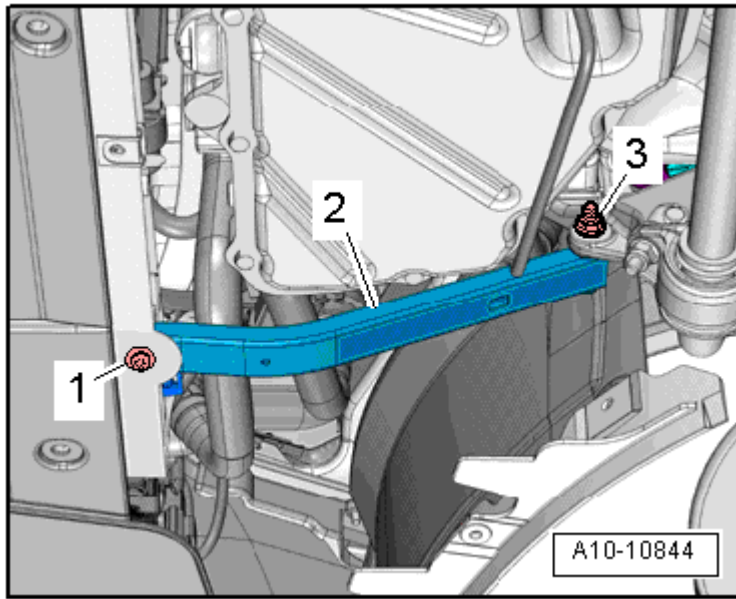


Fig. 35: Identifying Carrier Left Brace Components
Courtesy of AUDI OF AMERICA, LLC

-- Place the V.A.G 1782 under the engine.

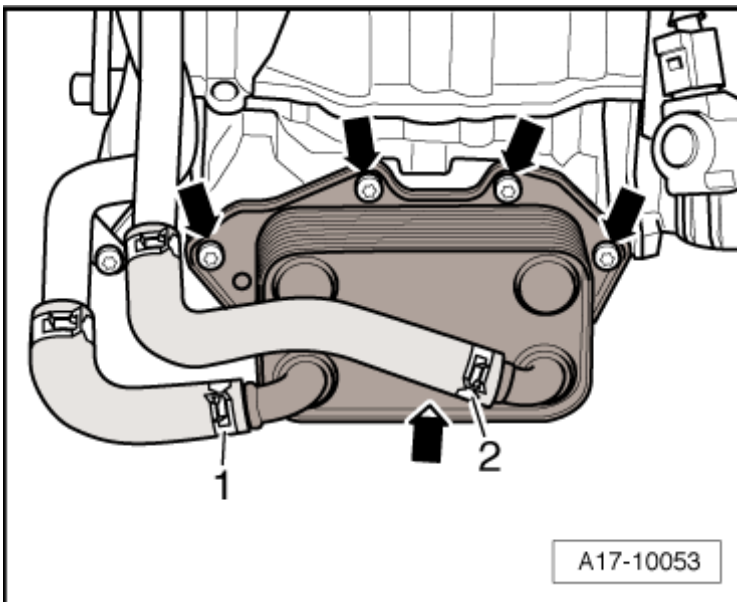


Fig. 36: Connecting/Disconnecting Coolant Hoses With Hose Clamps
Courtesy of AUDI OF AMERICA, LLC

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

Vehicles with the After-Run Coolant Pump -V51-

-- Remove the after-run coolant pump. Refer to **After-Run Coolant Pump -V51-** and then remove the oil

cooler, refer to **ENGINE OIL COOLER**.

All Vehicles

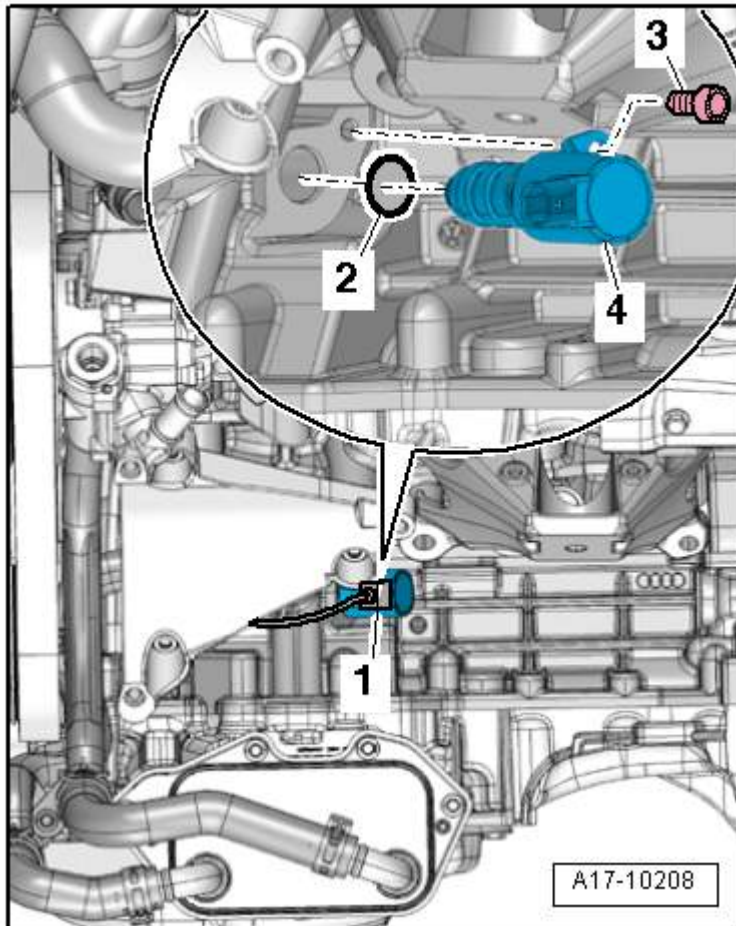


Fig. 37: Identifying Oil Pressure Regulation Valve -N428-
Courtesy of AUDI OF AMERICA, LLC

- Disconnect the connector -1-.
- Remove the bolt -3- and the oil pressure regulation switch -4-.

Installing

Install in reverse order of removal. Note the following:

NOTE: **Replace O-ring -2-.**

- Tighten the screw on the oil pressure regulation valve. Refer to **Fig. 38**.

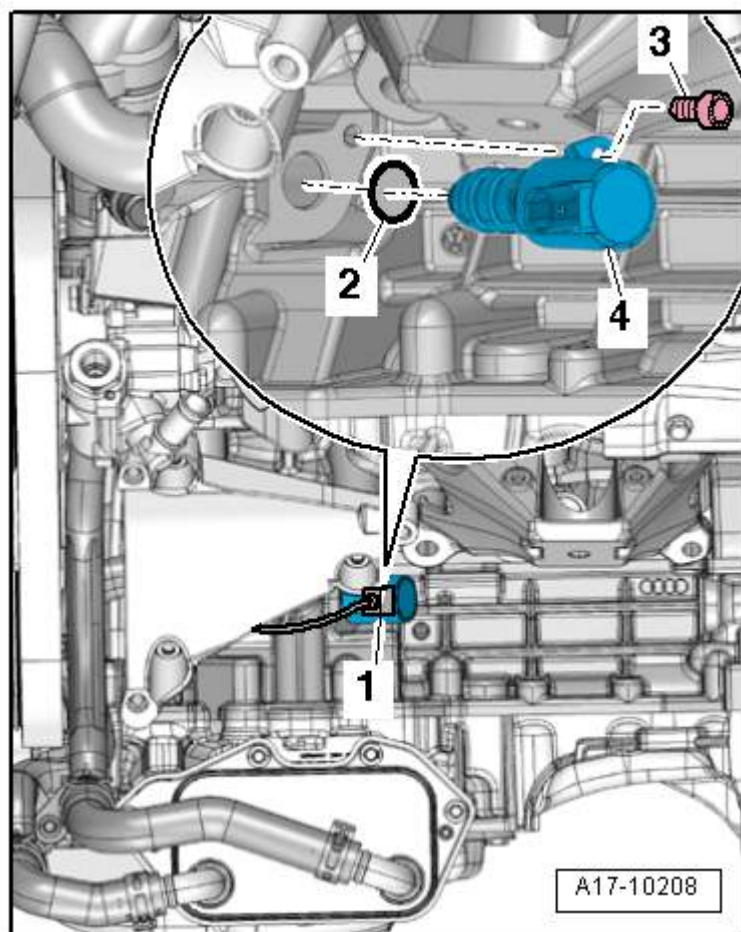


Fig. 38: Identifying Oil Pressure Regulation Valve -N428-
Courtesy of AUDI OF AMERICA, LLC

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

OIL PRESSURE SWITCH -F22-

Removing

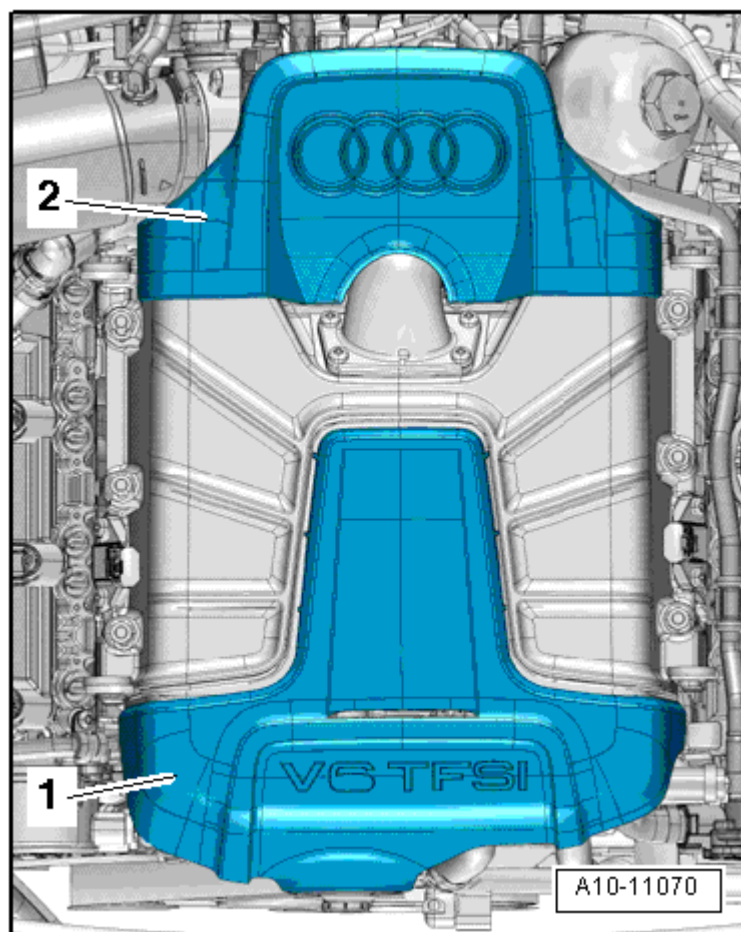


Fig. 39: Identifying Engine Cover -1- And -2-
Courtesy of AUDI OF AMERICA, LLC

- Remove the rear engine cover -2- upward.
- Move the left electric wires on the plenum chamber bulkhead to the side.

Vehicles with Coolant Recirculation Pump -V50-, Version 2

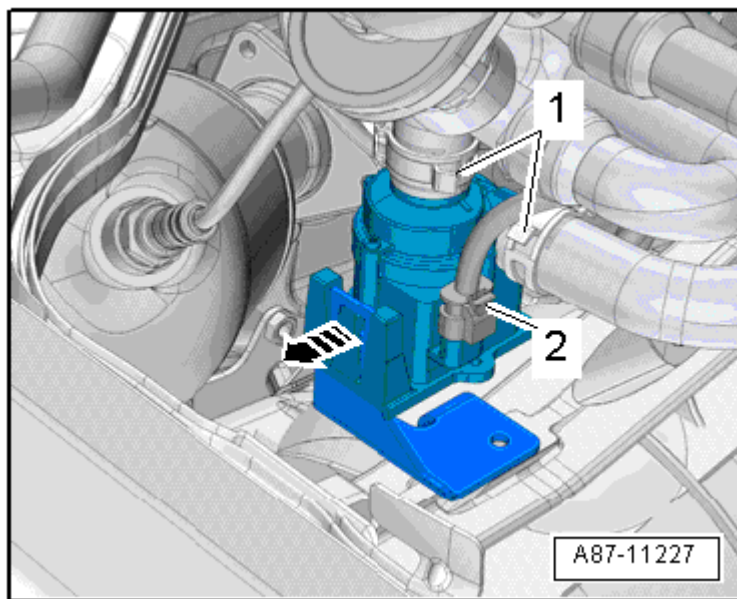


Fig. 40: Identifying Tab -Arrow- & Coolant Recirculation Pump -V50-
Courtesy of AUDI OF AMERICA, LLC

-- Unlock the tab -arrow-, remove the coolant recirculation pump and move it to the side.

NOTE: Ignore -1 and 2-.

All Vehicles

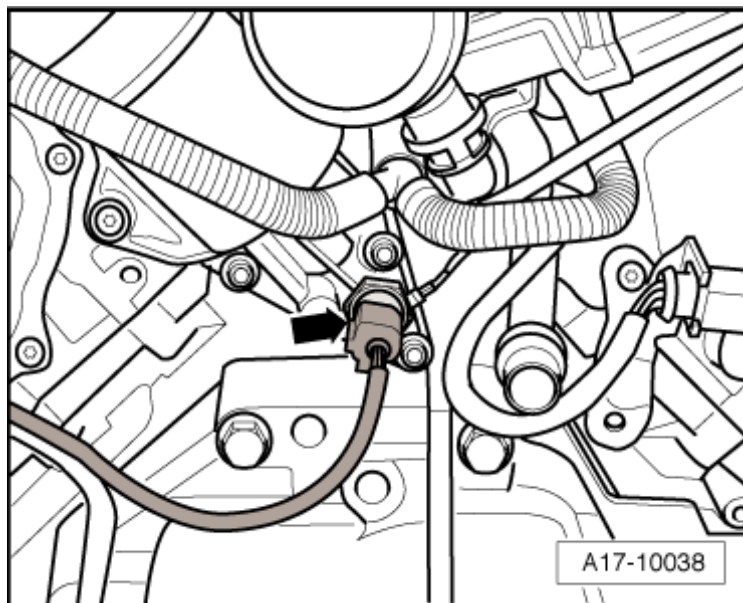


Fig. 41: Disconnecting Electrical Harness Connector From Oil Pressure Switch F1
Courtesy of AUDI OF AMERICA, LLC

NOTE: To collect escaping engine oil, place a clean cloth under oil filter housing.

-- Slide the retainer back, press the release down and disconnect the connector -arrow-.

-- Remove the oil pressure switch.

Installing

Install in reverse order of removal. Note the following:

- Tightening specification, refer to **OIL FILTER HOUSING AND OIL PRESSURE SWITCH OVERVIEW**.

NOTE: Replace the seal.

To prevent coolant loss, insert the new oil pressure switch in the connecting pieces immediately.

-- Check the oil level. Refer to **MAINTENANCE PROCEDURES**

OIL PUMP

Removing

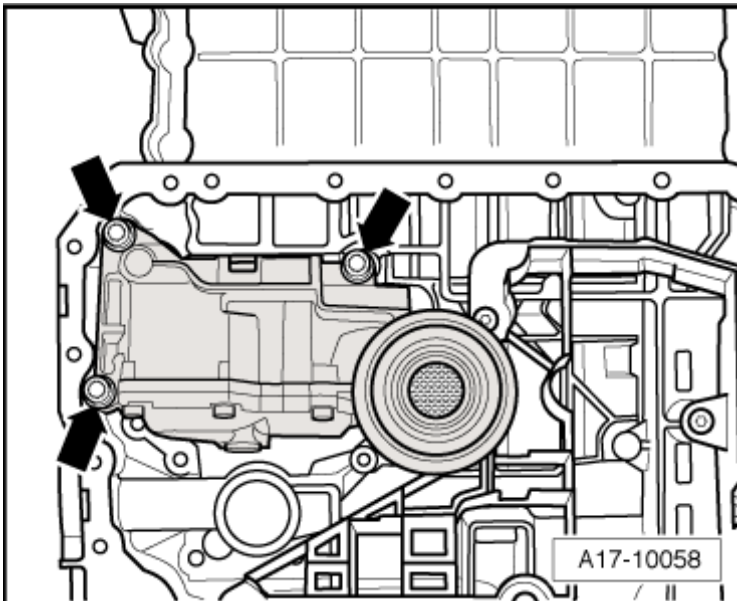


Fig. 42: Locating Oil Pump Bolts

Courtesy of AUDI OF AMERICA, LLC

-- Remove the lower oil pan. Refer to **LOWER OIL PAN**.

-- Remove the bolts -arrows-.

-- Remove the oil pump forward from the input shaft.

Installing

Install in reverse order of removal. Note the following:

- Tightening specifications, refer to **OIL PAN UPPER AND LOWER SECTIONS, OIL PUMP AND OIL COOLER OVERVIEW**.

NOTE: **Replace the seal and O-ring.**

-- Install oil pump onto the driveshaft and fasten.

-- Install the lower oil pan. Refer to **LOWER OIL PAN**.

-- Fill the engine oil and check the level. Refer to **MAINTENANCE PROCEDURES**

REDUCED OIL PRESSURE SWITCH -F378-

Special tools and workshop equipment required

- Assembly Tool T10118
- Socket 24 mm and Jointed Extension T40175

Removing

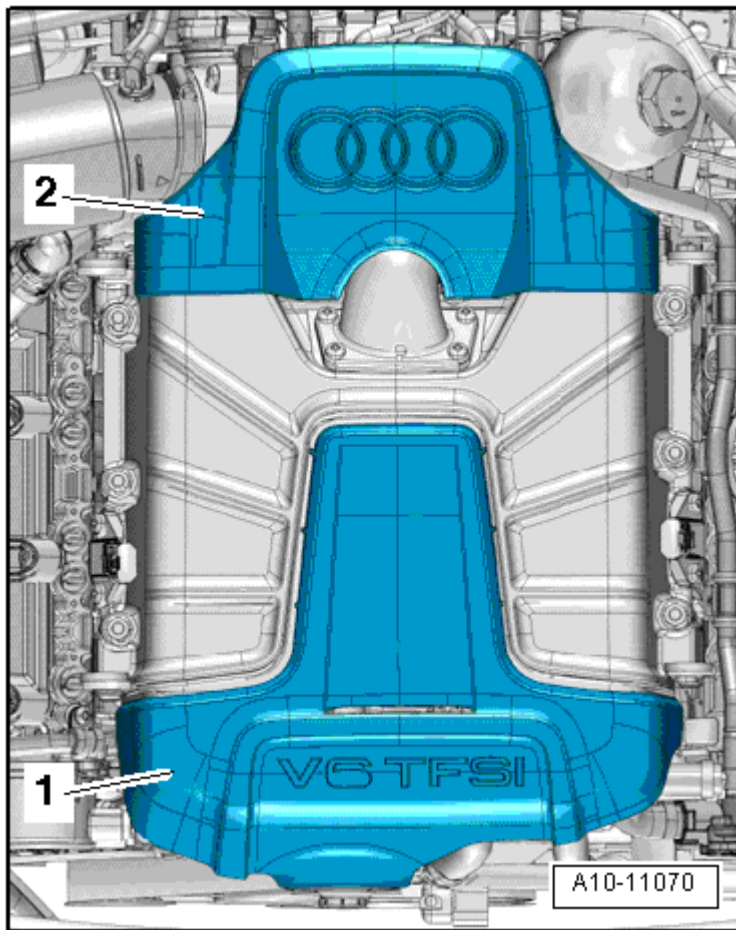


Fig. 43: Identifying Engine Cover -1- And -2-
Courtesy of AUDI OF AMERICA, LLC

- Remove the rear engine cover -2- upward.
- Remove the noise insulation.

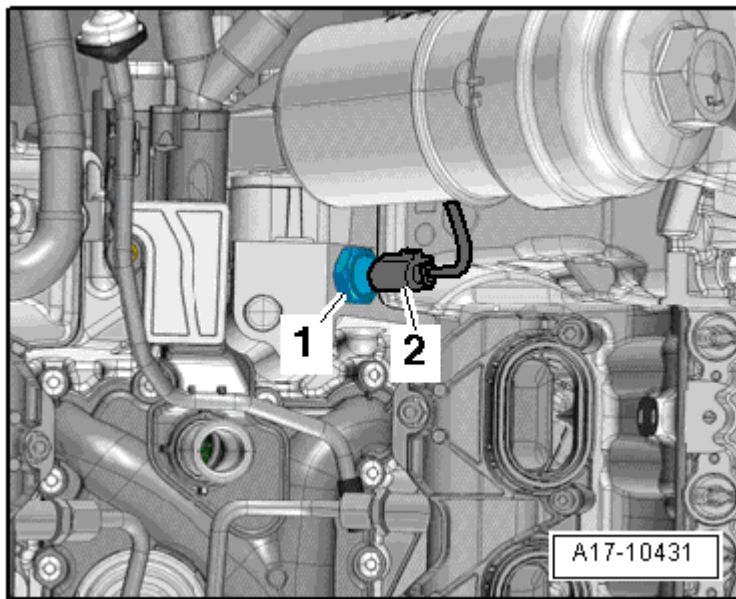


Fig. 44: Identifying Reduced Oil Pressure Switch -F378-
Courtesy of AUDI OF AMERICA, LLC

- Disconnect the electrical connector -2- using the T10118.
- Remove the reduced oil pressure switch -1- with a T40175.

NOTE: The installation location is shown with the compressor removed.

Installing

Install in reverse order of removal. Note the following:

NOTE: Replace the seal.

- Tighten the reduced oil pressure switch. Refer to **Fig. 6**.

UPPER OIL PAN

Special tools and workshop equipment required

- Protective goggles
- Hand drill with plastic brush attachment
- Sealant.

Removing

- Engine fastened to the engine and transmission holder. Refer to **ENGINE, SECURING TO ENGINE AND TRANSMISSION HOLDER**.

- Remove timing chain lower cover. Refer to **LOWER TIMING CHAIN COVER** .
- Remove the oil pump. Refer to **OIL PUMP**.
- Remove the bolts -arrows- and remove the oil baffle downward.

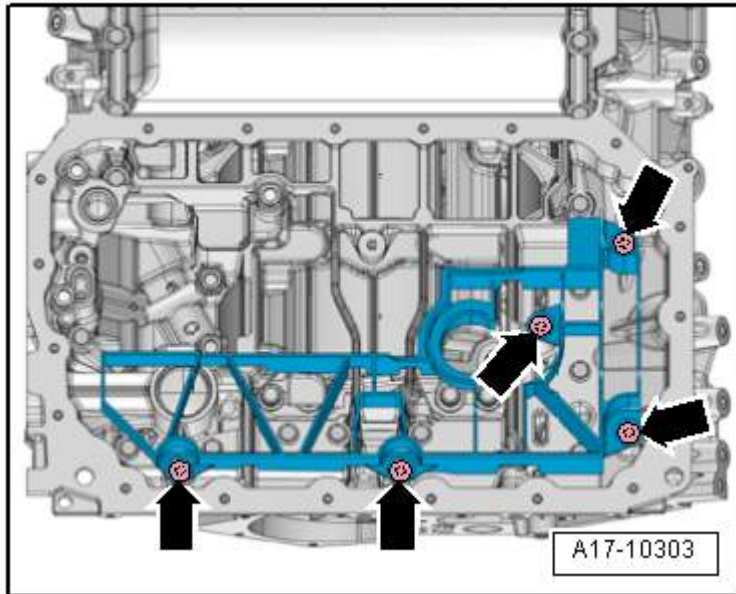


Fig. 45: Locating Oil Baffle Bolts
Courtesy of AUDI OF AMERICA, LLC

- Remove the bolt -arrow- on the left front coolant pipes.

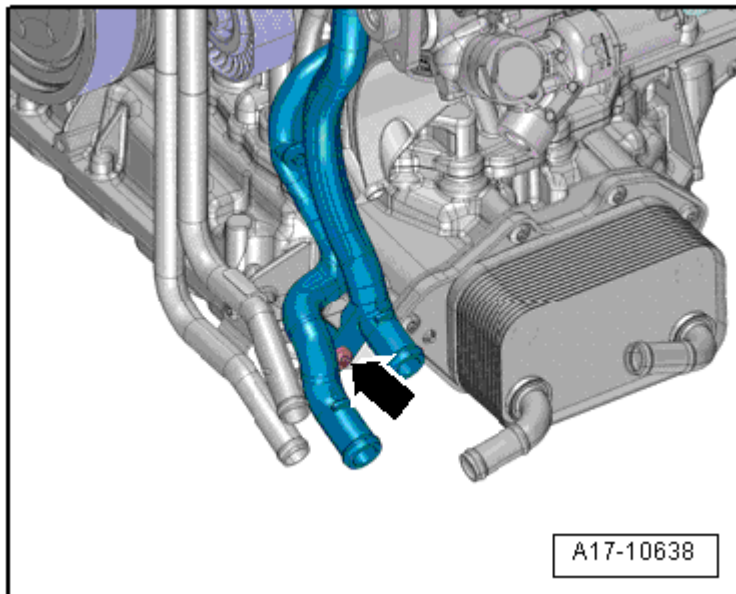


Fig. 46: Identifying Bolt -Arrow- To Left Coolant Pipes
Courtesy of AUDI OF AMERICA, LLC

-- Remove the bolts -1 to 6- for the upper oil pan.

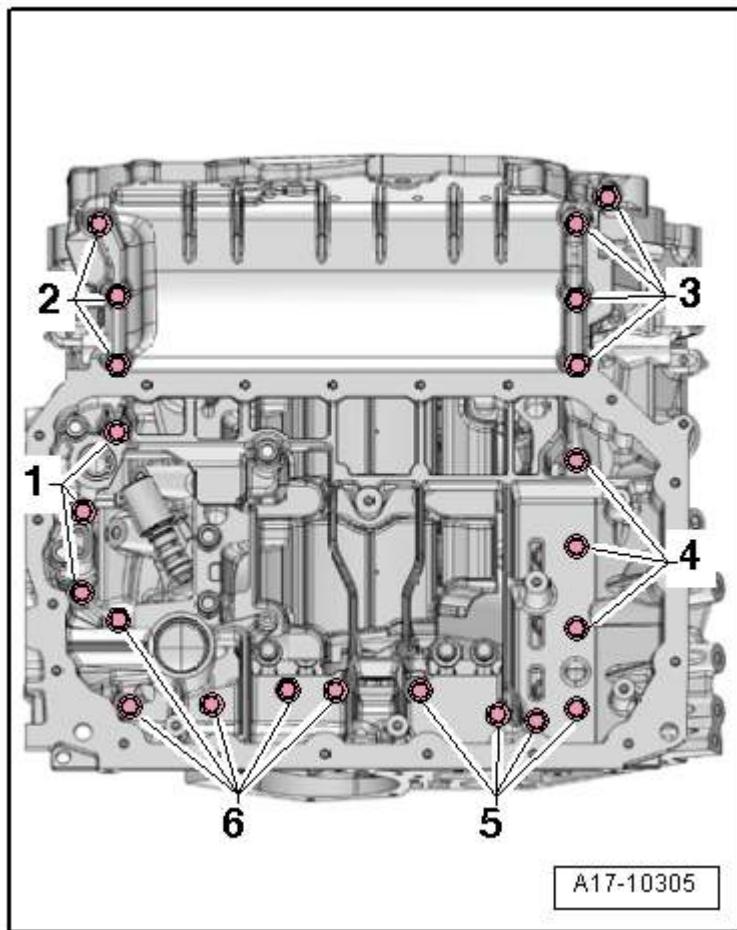


Fig. 47: Identifying Upper Oil Pan Bolt, Tightening Sequence
Courtesy of AUDI OF AMERICA, LLC

-- Carefully loosen the upper oil pan from the bond and press it off the cylinder block alignment bushings.

Installing

- Tightening specifications, refer to **OIL PAN UPPER AND LOWER SECTIONS, OIL PUMP AND OIL COOLER OVERVIEW**.

NOTE: Replace the seal and O-ring.

-- Remove any old sealant from the grooves on the upper oil pan as well as from the sealing surfaces.

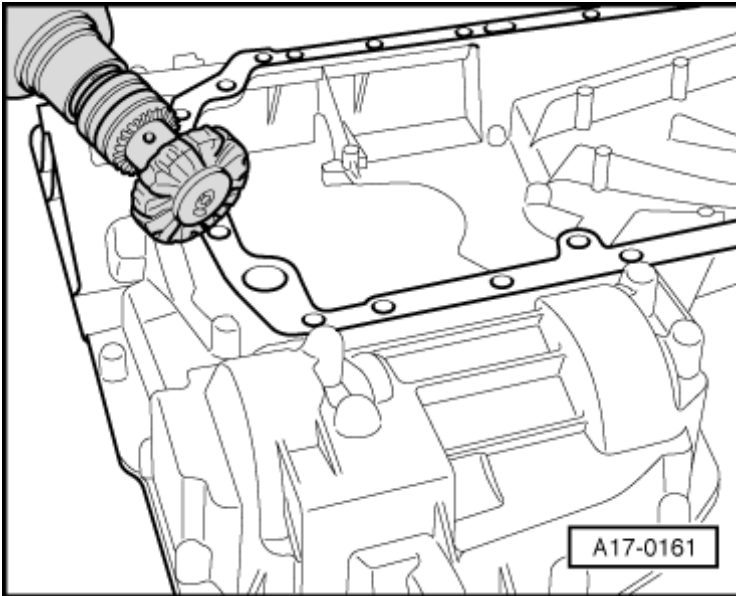


Fig. 48: Identifying Rotating Plastic Brush For Removal Of Sealant From Upper Part Of Oil Pan And Cylinder Block

Courtesy of AUDI OF AMERICA, LLC

CAUTION: Risk of contaminating lubricating system and bearing.

- Cover open parts of the engine.

WARNING: Danger of eye injury.

- Wear protective goggles.

-- Remove the sealant residue on the cylinder block and the upper oil pan, for example using a rotating plastic brush.

-- Clean any oil or grease off the sealing surfaces.

NOTE: Note the expiration date of the sealing compound.

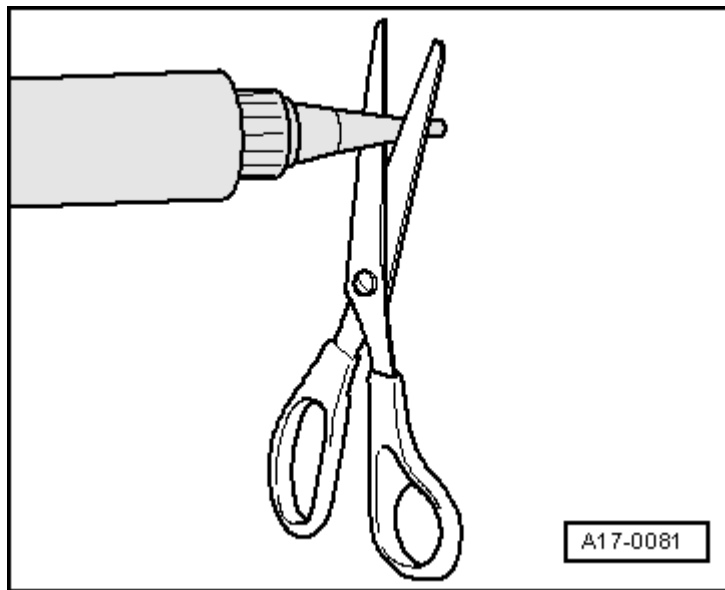


Fig. 49: Cutting Tube Nozzle At Front Marking (Nozzle Diameter Approx. 3 Mm)
Courtesy of AUDI OF AMERICA, LLC

-- Cut the tube nozzle at the front marking (nozzle diameter approximately 1.5 mm).

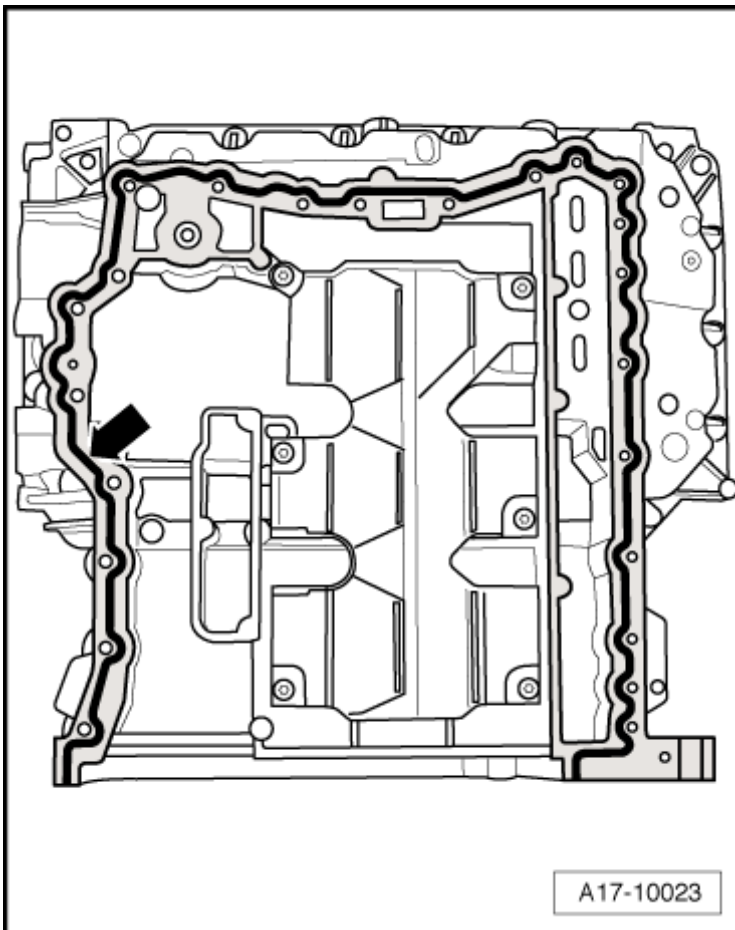


Fig. 50: Applying Sealant Bead On Clean Sealing Surface Of Upper Section Of Oil Pan
Courtesy of AUDI OF AMERICA, LLC

CAUTION: The lubrication system could be plugged with excess sealant.

- Do not apply sealant bead thicker than specified.

-- Apply a sealant bead -arrow- to the clean sealing surface on the upper oil pan as shown in the illustration.

- Completely fill the grooves on the sealing surfaces with sealant.
- The sealant bead must be 1.5 to 2.0 mm above the sealing surface.

NOTE: Install the upper oil pan within five minutes of applying the sealant.

-- Insert the seal -1- and the O-ring -2- in the guide frame.

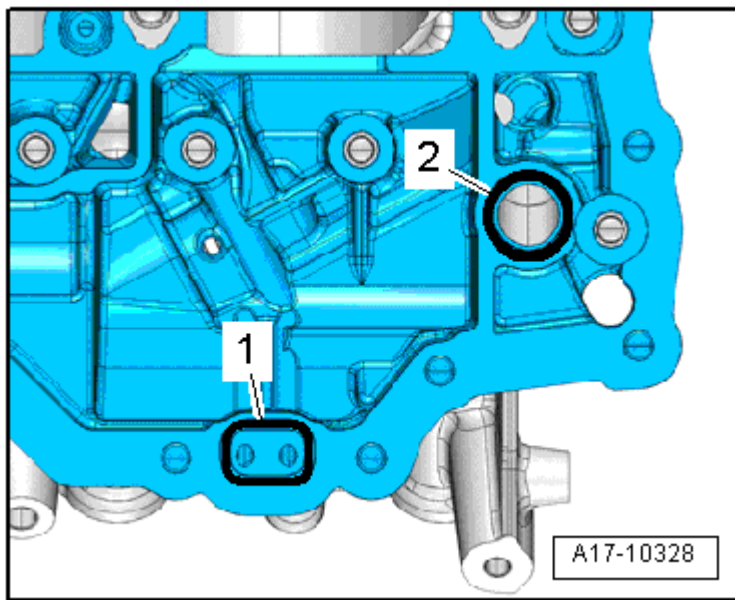


Fig. 51: Inserting Seal And O-Ring In Guide Frame
Courtesy of AUDI OF AMERICA, LLC

-- Position the upper oil pan paying attention to the alignment bushings and tighten the bolts. Refer to **Fig. 11**.

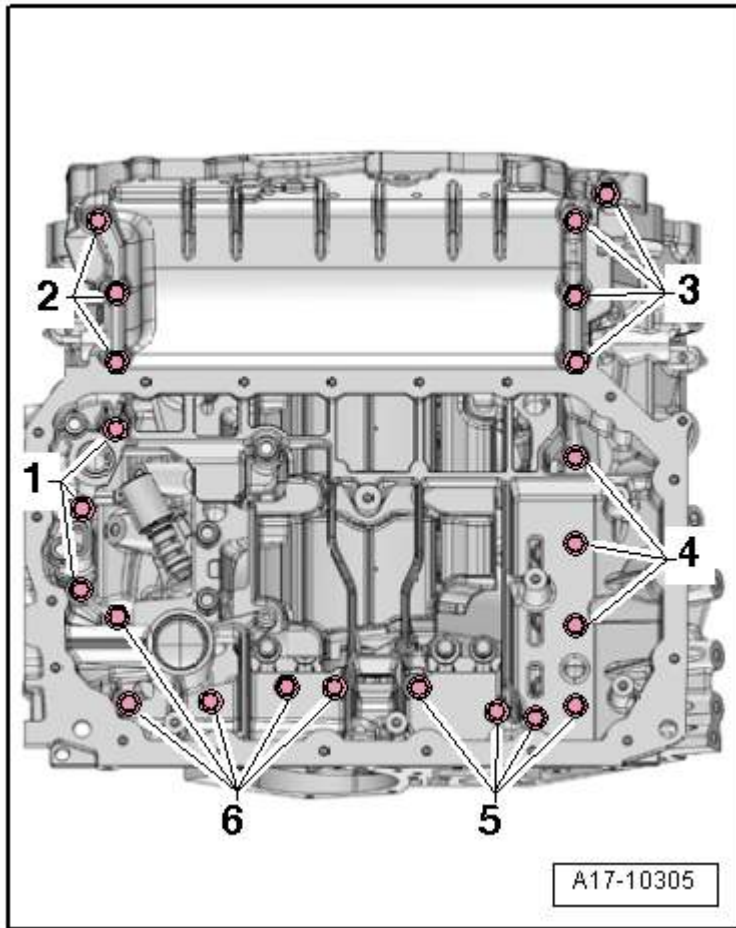


Fig. 52: Identifying Upper Oil Pan Bolt, Tightening Sequence
Courtesy of AUDI OF AMERICA, LLC

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

- Tighten the left coolant pipes. Refer to **COOLANT PIPES OVERVIEW** .
- Install the oil pump. Refer to **OIL PUMP**.
- Install timing chain lower cover. Refer to **LOWER TIMING CHAIN COVER** .

SPECIAL TOOLS

Special tools and workshop equipment required

- Assembly Tool T10118

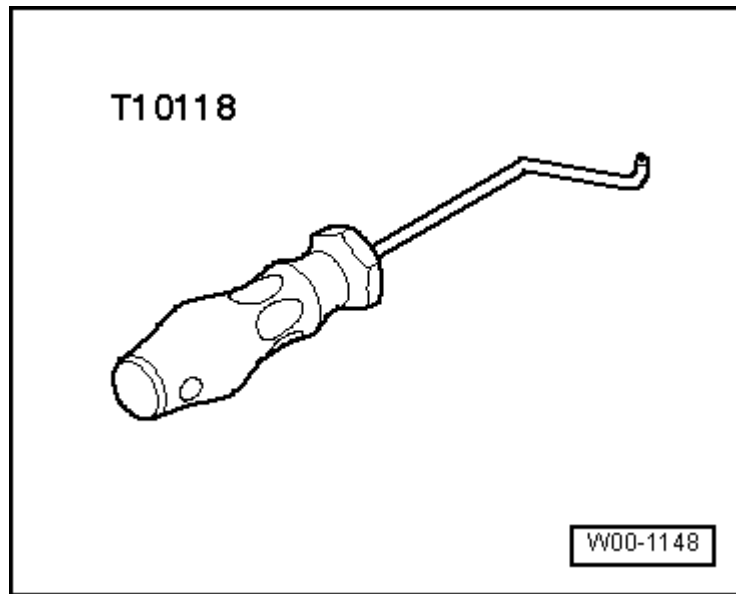


Fig. 53: Identifying Assembly Tool T10118
Courtesy of AUDI OF AMERICA, LLC

- Socket 24 mm and Jointed Extension T40175

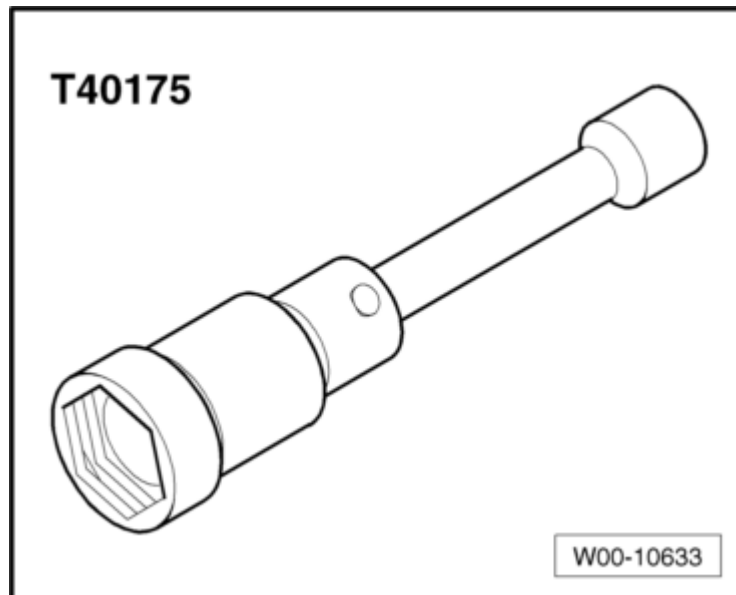


Fig. 54: Identifying Socket 24 mm And Jointed Extension T40175
Courtesy of AUDI OF AMERICA, LLC

- Oil Pressure Gauge V.A.G 1342

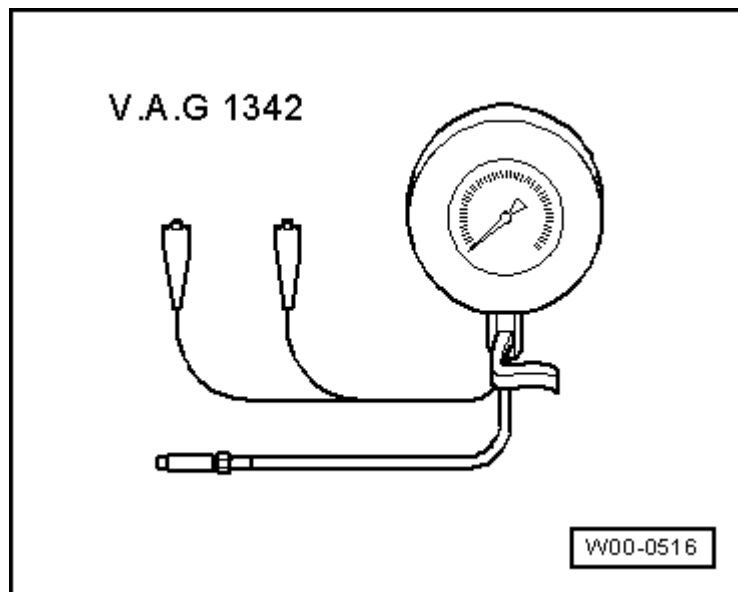


Fig. 55: Identifying Oil Pressure Gauge V.A.G 1342
Courtesy of AUDI OF AMERICA, LLC

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

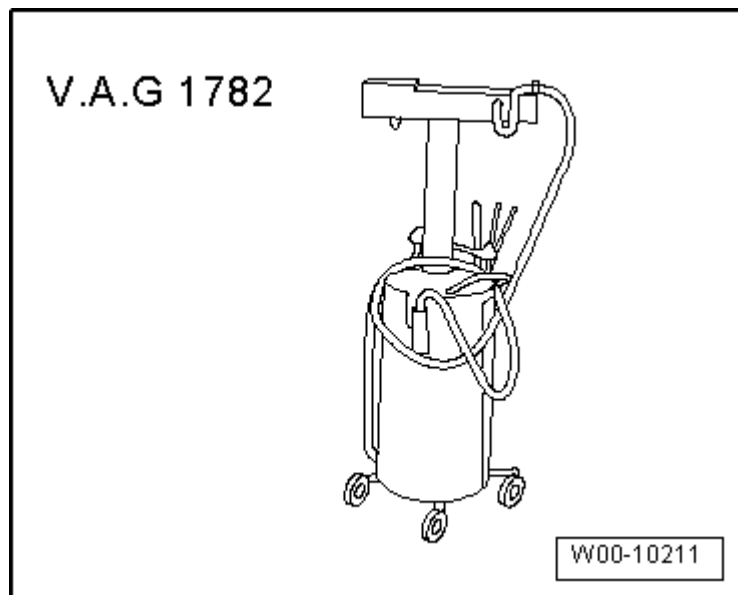


Fig. 56: Identifying Oil Extractor V.A.G 1782
Courtesy of AUDI OF AMERICA, LLC

- Not illustrated:
- Oil Gauge Tester T40178