

## 28 - IGNITION SYSTEM

### GENERAL INFORMATION AND SAFETY MEASURES

#### Ignition system, general information

- For trouble-free operation of the electrical components a voltage of at least 12.5 V is necessary.
- It is possible that the control module will recognize a malfunction and store a DTC during some tests. Therefore after completing all checks and repairs the DTC memory must be checked and if necessary erased.
- If the engine only starts briefly and then turns off again after troubleshooting, repair or checking of the components, it may be that the immobilizer is blocking the Engine Control Module (ECM). DTC memory must then be checked and if necessary, control module must be adapted.

#### Safety precautions

If special testing equipment is required during road test, note the following:

- CAUTION:**
- **Test and measuring equipment must always be secured to the rear seat and be operated from there by a second person.**
  - **If test and measuring instruments are operated from the front passengers seat and the vehicle is involved in an accident, there is a possibility that the person sitting in this seat may receive serious injuries when the airbag is triggered.**

To reduce the risk of personal injury and/or damage to the fuel injection and ignition system, always observe the following:

- Do not touch or disconnect wires of ignition system when engine is running or turning at starting RPM.
- Always switch ignition off before disconnecting or reconnecting wires for injection and ignition system, including high voltage wiring and test leads.
- If the engine is to be cranked at starting RPM without starting (e.g. during compression test), disconnect electrical connectors on ignition coils and on fuel injectors. After performing work, check and erase DTC memory.
- Clean engine only with ignition switched off.

- CAUTION:**
- **The battery must only be disconnected and connected with the ignition switched off, since the Engine Control Module (ECM) can otherwise be damaged.**
  - **Observe safety precautions when disconnecting the battery --> 27 - STARTER, GENERATOR, CRUISE CONTROL .**

### IGNITION, SERVICING

## 2008 Audi A6 Quattro

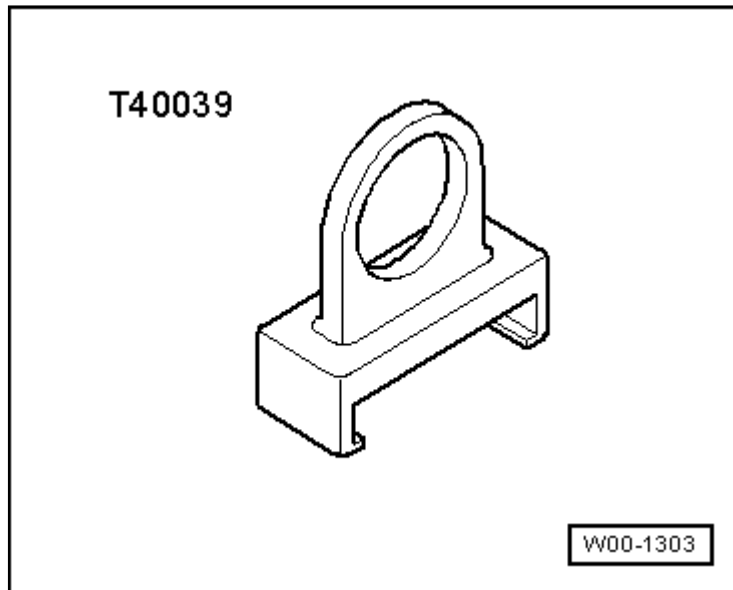
ENGINE PERFORMANCE 3.2 V6 4V Fuel Injection Ignition, Engine Code(s): BKH

### Technical data

Engine code	<b>BKH (3.2 l / 4V / 188 kW engine)</b>
Engine idle speed	650 to 750 RPM (not adjustable)
Ignition timing	Not adjustable, regulated by control module
Ignition system	Single coil ignition system with 6 ignition coils (power output stages integrated) that are inserted directly on spark plugs.
Spark plugs	Torque specification 30 Nm
Ignition sequence	1-5-3-6-2-4

### Ignition coils, removing and installing

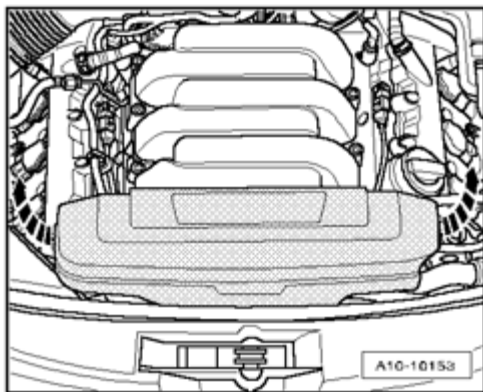
### Special tools, testers and auxiliary items required



**Fig. 127: Identifying Ignition Coil Puller T40039**  
Courtesy of VOLKSWAGEN UNITED STATES, INC.

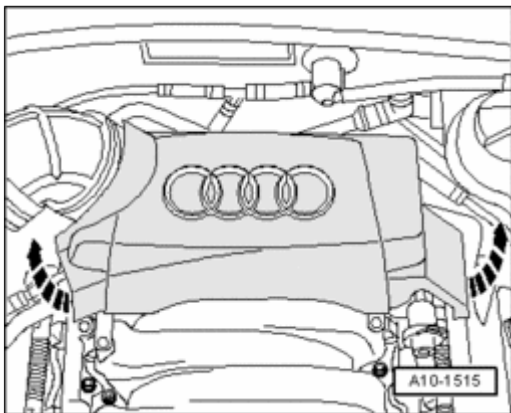
- Puller T40039

### Removing



**Fig. 128: Identifying Front Engine Cover**  
Courtesy of VOLKSWAGEN UNITED STATES, INC.

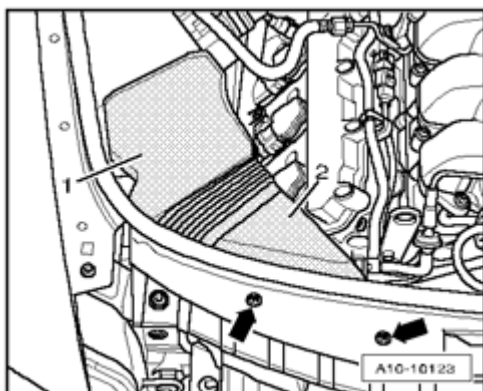
- Remove front engine cover - **arrows** -.



**Fig. 129: Removing Rear Engine Cover**  
Courtesy of VOLKSWAGEN UNITED STATES, INC.

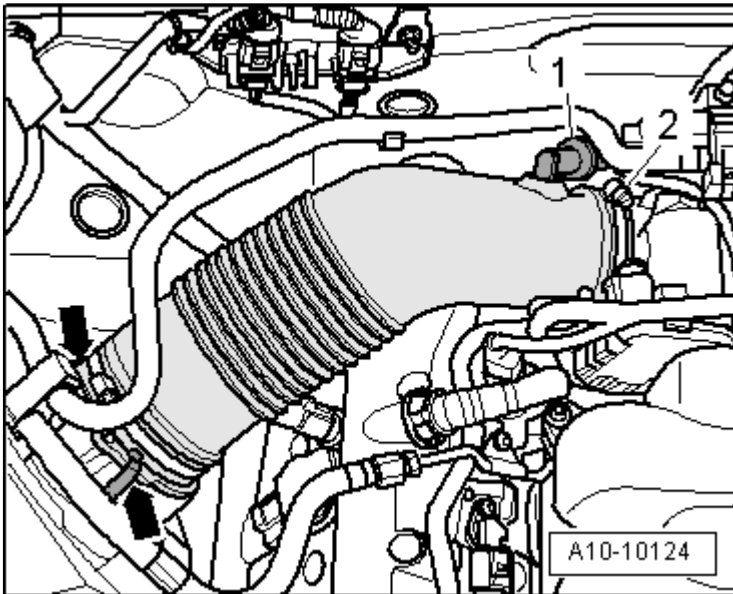
- Remove rear engine cover - **arrows** -.

**Cylinder bank 1 (right):**



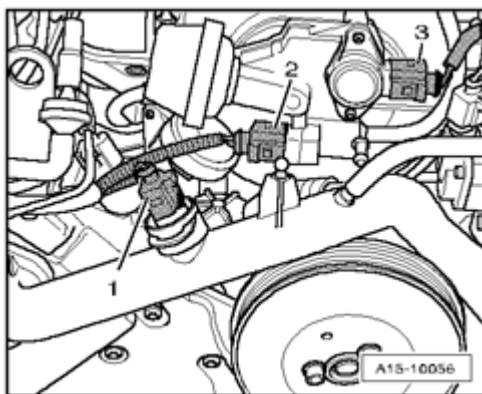
**Fig. 130: Removing Air Duct Screws & Air Ducts**  
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove bolts - **arrows** -.
- Remove air duct - **1** - and - **2** -.



**Fig. 131: Disconnecting Check Valve From Connection At Air Duct Hose & Removing Air Duct Hose**  
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

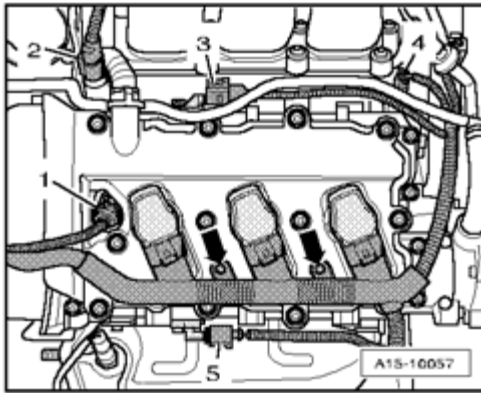
- Disconnect check valve - **1** - from air duct hose.
- Remove air duct hose, thereby loosening hose clamp - **2** - and opening clips - **arrows** -.



**Fig. 132: Disconnecting Electrical Connectors At Engine Coolant Temperature (ECT) Sensor G62 And Intake Manifold Flap Change-Over Valve N239**  
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

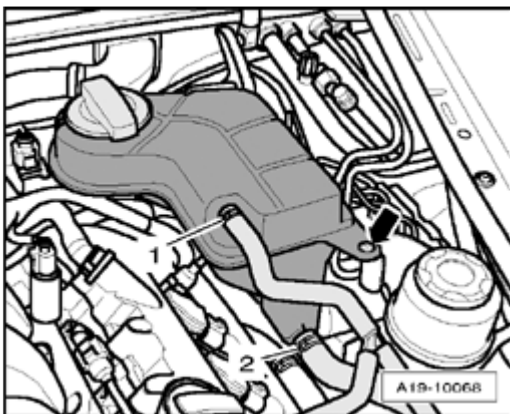
- Disconnect electrical connectors at Engine Coolant Temperature (ECT) Sensor G62 - **1** - and Intake Manifold Flap Change-over Valve N239 - **2** -.

**NOTE:**           • Ignore - 3 -.



**Fig. 133: Disconnecting Electrical Harness Connectors**  
Courtesy of VOLKSWAGEN UNITED STATES, INC.

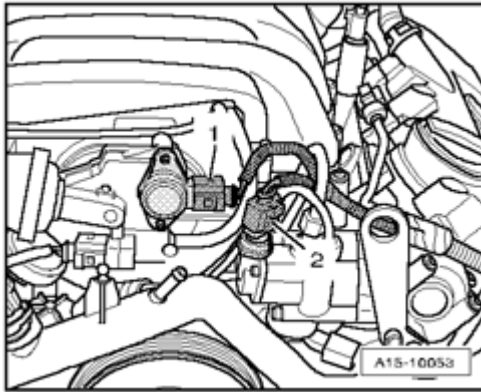
- Disconnect electrical harness connectors.
- 1. Camshaft Adjustment Valve 1 (exhaust) N318
- 2. Camshaft Adjustment Valve 1 N205
- 3. Camshaft Position (CMP) sensor G40
- 4. Intake Manifold Runner Position Sensor G336
- 5. Camshaft position (CMP) sensor 3 G300
- Remove bolts - **arrows** - and disconnect electrical connections at ignition coils.
- Set electrical wiring harness aside.



**Fig. 134: Removing Coolant Hoses At Coolant Expansion Tank**  
Courtesy of VOLKSWAGEN UNITED STATES, INC.

**Cylinder bank 2 (left):**

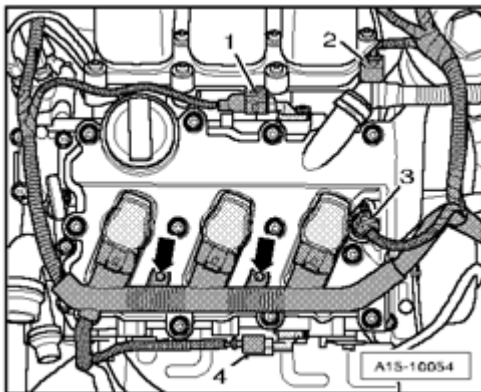
- Remove coolant expansion tank - **arrow** -.
- Disconnect electrical connection from Engine Coolant Level (ECL) Warning Switch F66 at bottom of coolant reservoir and set aside coolant reservoir with coolant hoses - **1** - and - **2** - connected.



**Fig. 135: Disconnecting Electrical Connectors On Intake Manifold Tuning (IMT) Valve Position Sensor G513**

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical connectors at Intake Manifold Tuning (IMT) Valve Position Sensor G513 - **1** - and at high pressure pump - **2** -.



**Fig. 136: Disconnecting Electrical Harness Connectors**

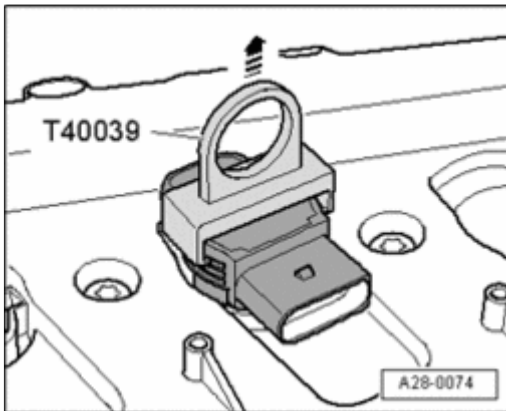
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical harness connectors.
1. Camshaft position (CMP) sensor 2 G163
  2. Camshaft Adjustment Valve 2 N208
  3. Camshaft Adjustment Valve 2 (exhaust) N319
  4. Camshaft position (CMP) sensor 4 G301

- Remove bolts - **arrows** - and disconnect electrical connections at ignition coils.

- Set electrical wiring harness aside.

**Continued for both sides:**



**Fig. 137: Removing Ignition Coils Using Ignition Coil Puller T40039**  
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove ignition coils using ignition coil puller T40039.

### **Installing**

Installation is in reverse order of removal.