



# Service

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## Workshop Manual

Jetta 2005 ➤

Bora 2006 ➤

Golf Variant 2007 ➤

4-cylinder diesel engine with unit injector									
Engine ID	BKC	BLS	BRM	BXE					

Edition 05.2007





## List of Workshop Manual Repair Groups

### Repair Group

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Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

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## 00 – Technical data

### 1 Technical data

Engine number ⇒ [page 1](#)

Engine data ⇒ [page 1](#)

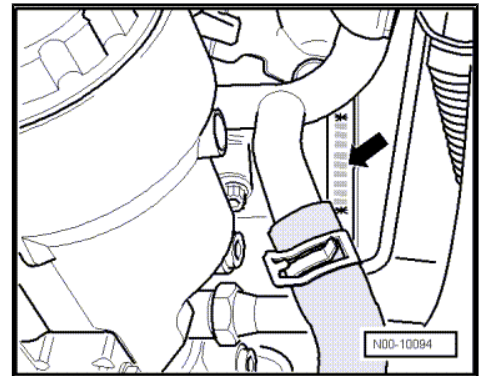
#### 1.1 Engine number

The engine number (“Engine code” and “Serial number”) can be found on the join between engine and gearbox -arrow-.

The engine number consists of up to nine characters (alphanumeric). The first part (up to 3 code letters) represents the “engine code letters”, the second part (6 digits) the “serial number”. If more than 999,999 engines were produced with the same code letters, the first of the 6 digits is replaced by a letter.

Additionally there is a sticker on the toothed belt guard with “engine code” and “serial number”.

The engine code is also located on the vehicle data sticker. The vehicle data sticker is located in the Servicing schedule and in rear of vehicle in the spare wheel recess or the luggage compartment floor.



#### 1.2 Engine data

Engine code		BKC	BLS	BRM	BXE
Manufactured		05.05 ▶	05.05 ▶	11.04 ▶	03.06 ▶
Emissions fulfil		EU4 standard	EU4 standard	Tier 2	EU4 standard
Capacity	l	1.9	1.9	1.9	1.9
Power output	kW at rpm	77/4000	77/4000	74/4000	77/4000
Torque	Nm at rpm	250/1900	250/1900	250/1900	250/1900
Bore	∅ in mm	79.5	79.5	79.5	79.5
Stroke	mm	95.5	95.5	95.5	95.5
Valves per cylinder		2	2	2	2
Compression ratio		19.0	19.0	19.0	19.0
CN	at least	51	51	51	51
Firing order		1-3-4-2	1-3-4-2	1-3-4-2	1-3-4-2
Catalytic converter		yes	yes	yes	yes
Exhaust gas recirculation		yes	yes	yes	yes
Diesel particulate filter		no	depending on version	no	no
Lambda control		no	yes	no	no
Turbocharging/supercharging		yes	yes	yes	yes
Charge air cooler		yes	yes	yes	yes
Electronic power control		yes	yes	yes	yes



## 10 – Removing and installing engine

### 1 Removing and installing engine

Removing engine ⇒ [page 2](#)

Securing engine to assembly stand ⇒ [page 15](#)

Installing engine ⇒ [page 16](#)

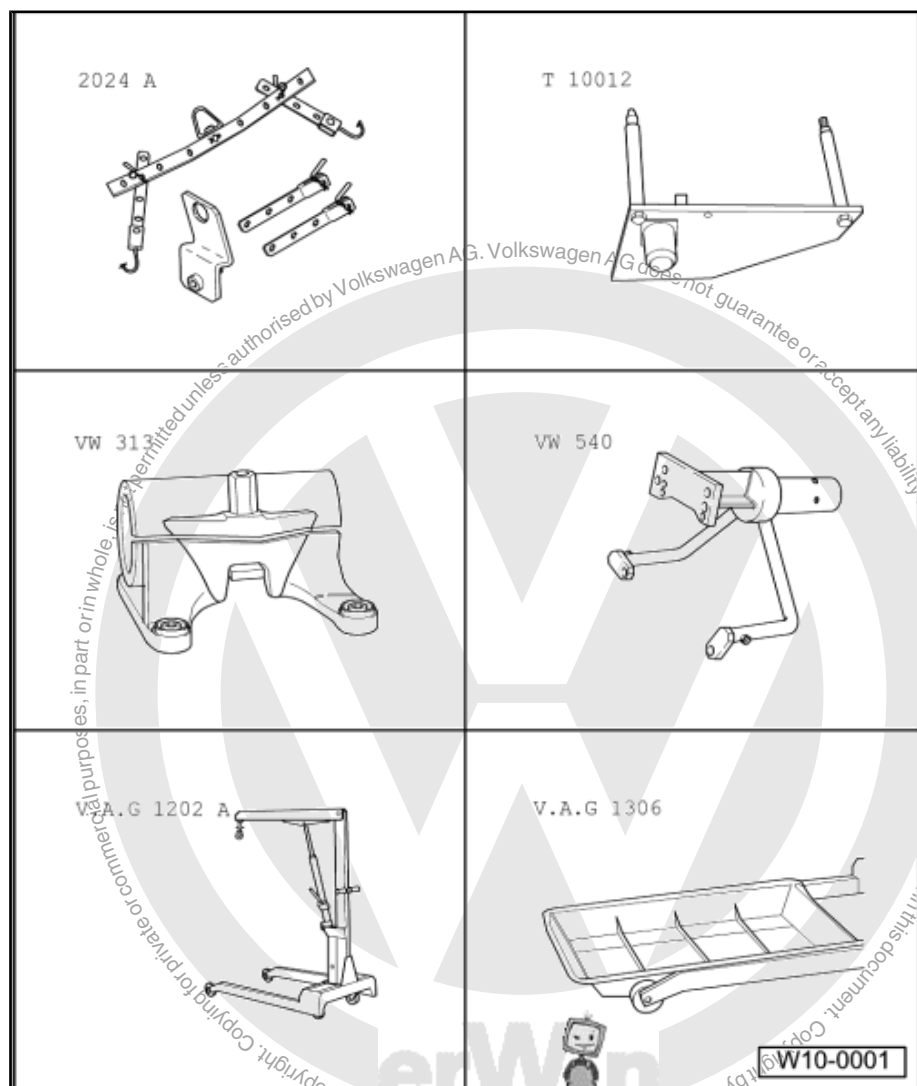
Checking and adjusting assembly mounting ⇒ [page 19](#)

Assembly mounting - Torque settings ⇒ [page 23](#)

#### 1.1 Removing engine

##### Special tools and workshop equipment required

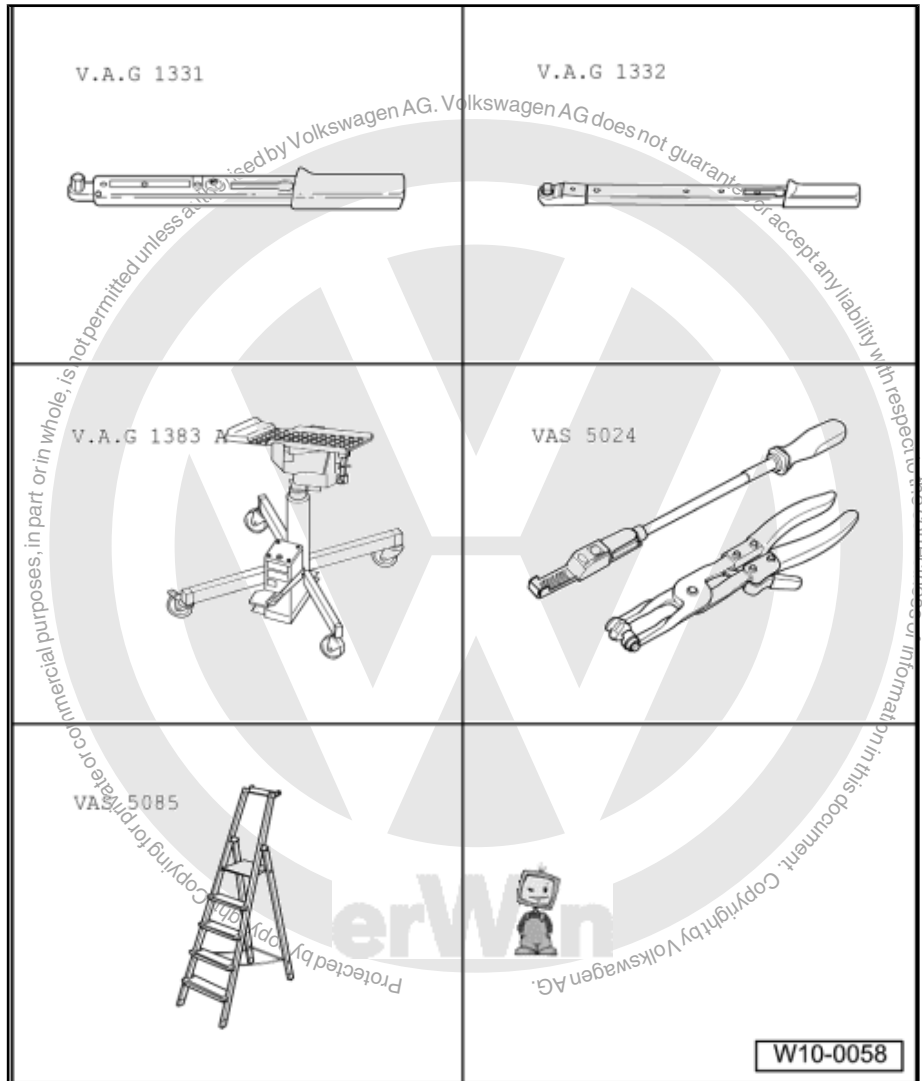
- ◆ Lifting tackle -2024 A-
- ◆ Engine support -T10012-
- ◆ Support clamp -VW 313-
- ◆ Engine and gearbox support -VW 540-
- ◆ Workshop crane -VAS 6100- or
- ◆ Workshop crane -V.A.G 1202 A-
- ◆ Drip tray -V.A.G 1306- or drip tray for workshop hoist -VAS 6208-



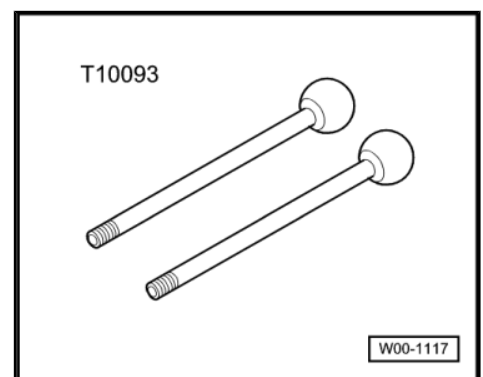




- ◆ Torque wrench -V.A.G 1331-
- ◆ Torque wrench -V.A.G 1332-
- ◆ Engine and gearbox jack - V.A.G 1383 A-
- ◆ Spring-type clip pliers -VAS 5024A-
- ◆ Stepladder -VAS 5085-



- ◆ Guide rods -T10093-



- ◆ Cable ties



### Note

- ◆ Before carrying out further work, disconnect battery earth strap. First check whether a coded radio is fitted. Obtain anti-theft code first if necessary.
- ◆ The engine is removed downwards together with the gearbox.
- ◆ Renew all cable ties which are opened or cut open when removing the engine. Refit in the same position when installing the engine.



### Caution

When doing any repair work, especially in the engine compartment, pay attention to the following due to the cramped conditions:

- ◆ All wirings (e.g. for fuel, hydraulic system, coolant and refrigerant liquid, brake liquid, vacuum) and electrical wirings must be installed in the original way.
- ◆ Ensure that there is sufficient clearance to all moving or hot components.

### Procedure

- With ignition switched off, disconnect earth strap from battery.
- Remove engine cover. To do this, pull engine cover upwards abruptly at front -arrows A- and then pull forwards out of rear fastening -arrow B-.

- Remove bulkhead in plenum chamber ⇒ General Body Repairs, Exterior; Rep. Gr. 50 ; Plenum chamber bulkhead .

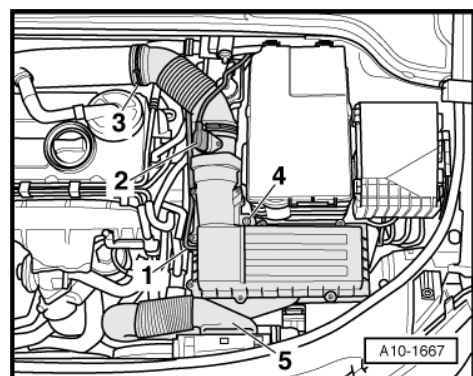
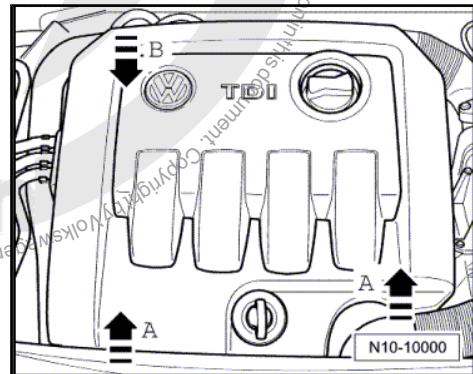
### Vehicles with engine codes BKC, BXE

- Remove air filter housing with air mass meter and connecting pipe.

- Disconnect connector -2- on air mass meter -G70- .
- Pull breather hose -1- and air duct hoses -3- and -5- off.
- Unscrew bolt -4- and take off air filter housing.

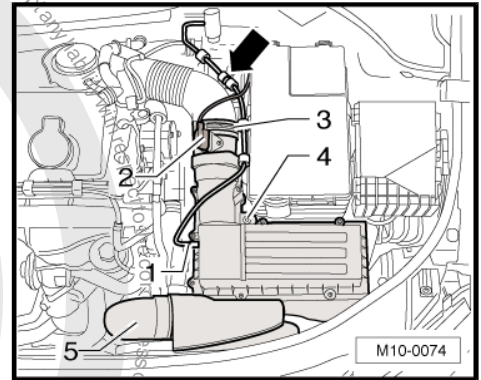
### Vehicles with engine codes BLS, BRM

- Remove air cleaner housing with air mass meter.



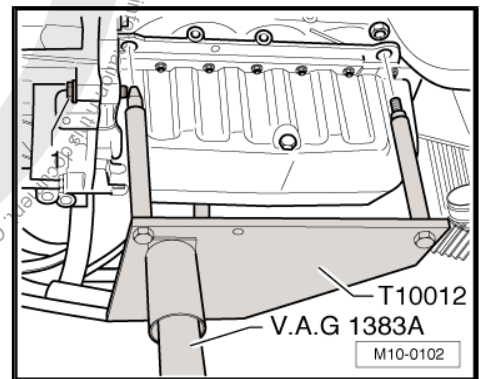


- Disconnect connector -2- on air mass meter -G70- .
- Pull breather hose -1- off and unhook from bracket -arrow-.
- Release spring-type clip -3- with spring-type clip pliers -VAS 5024A- and pull intake hose off air mass meter -G70- .
- Pull intake manifold -5- off the air duct.
- Unscrew bolt -4- and take off air filter housing.



**Vehicles with diesel particulate filter**

- Separate the following connectors -arrows- (on bulkhead):
- ◆ Connector for charge pressure regulation solenoid valve - N75-
- ◆ Connector for bank 1 exhaust gas temperature sender 2 - G448-
- ◆ Connector for bank 1 exhaust gas temperature sender 1 - G235-
- ◆ Connector for Lambda probe -G39-

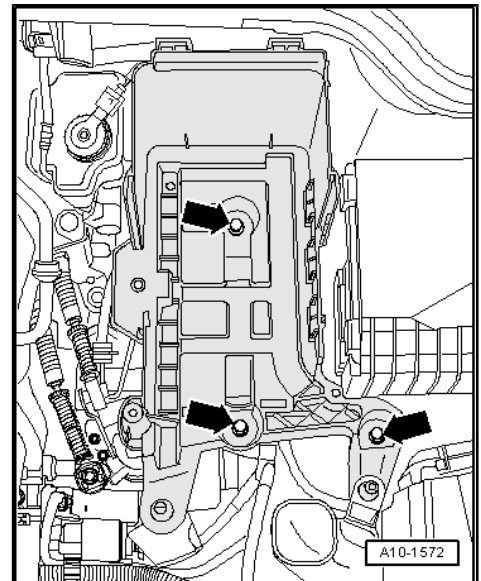


**Continuation for all models**

- Removing battery ⇒ Electrical system; Rep. Gr. 27 ; Removing and installing battery; Vehicles with diesel engine .
- Remove battery tray -arrows-.

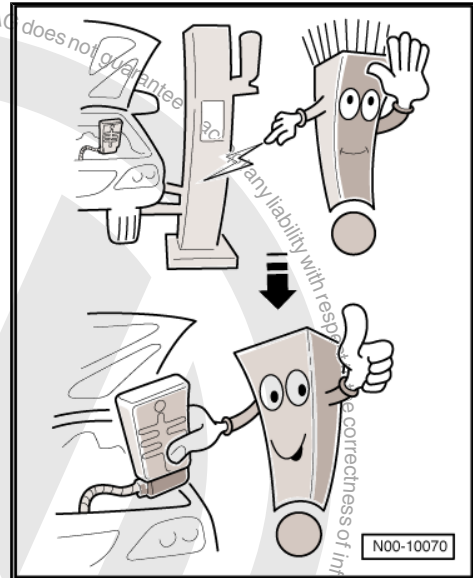
**Vehicles with direct shift gearbox**

If the metal components are touched it is possible to trigger an electrostatic discharge. This is due to the electrostatic charge of the human body. This charge can disturb the function of electrical components of the gearbox and of the shift mechanism.

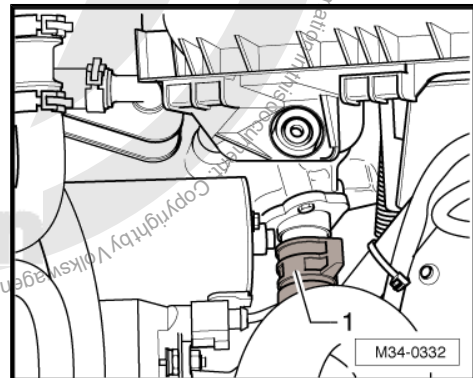




- Before working on Mechatronics, touch an earthed object, such as a water pipe or a lifting platform.
- Do not touch connectors directly.

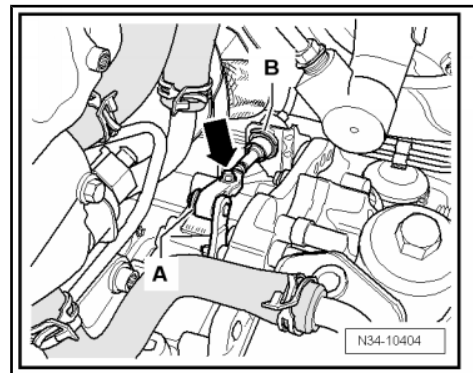


- Turn bayonet connection -1- of connector to left and pull connector off gearbox.

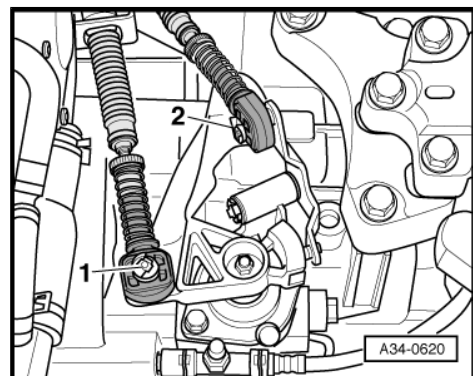


- Release retaining clip -A- off and remove upwards.
- Pull retaining clip -B- off upwards.
- Remove selector lever cable from selector shaft lever and place on the top.

#### Vehicles with manual gearbox

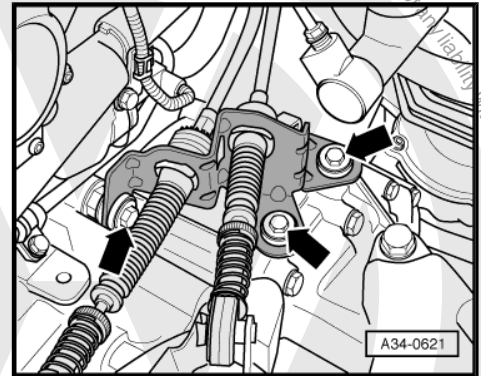


- Unclip circlips -1- and -2- from both selector cables.
- Pull off selector cable end-pieces from gearbox selector lever and relay lever.

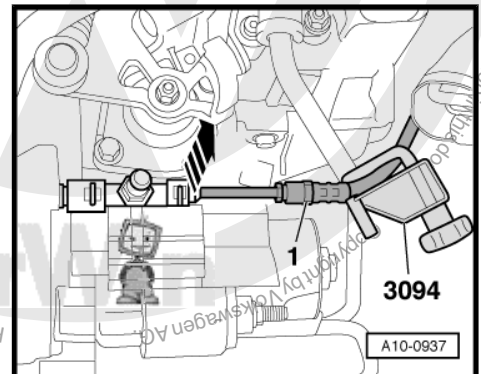




- Remove cable support bracket from gearbox -arrows- and lay to side.



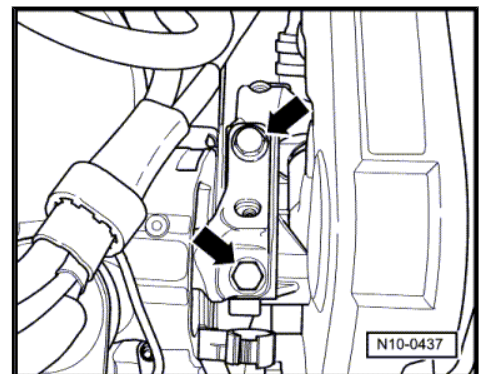
- Clamp off pressure line going to slave cylinder with hose clamps for diameters up to Ø 25 mm -3094- .
- Remove pressure line -1- out of hose coupling. To do this pull retaining clip upwards -arrow-.



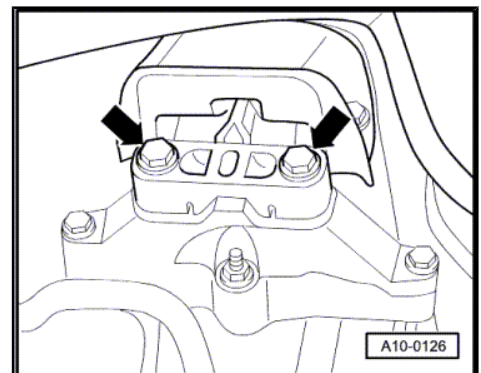
 **Caution**  
*Do not press clutch pedal after removing slave cylinder.*

#### Continuation for all models

- Loosen bolts -arrows- of assembly mounting on engine just a bit (less than 1 turn).



- Loosen bolts -arrows- of assembly mounting on gearbox just a bit (less than 1 turn).



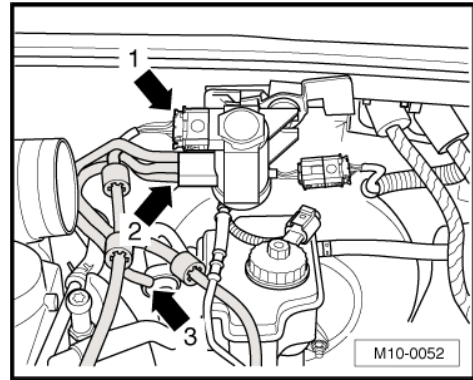
#### Vehicles with engine codes BLS, BRM



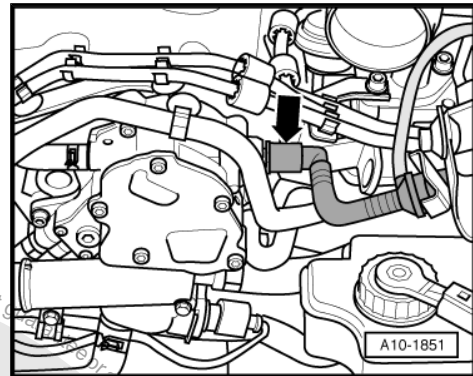
- Pull connector -arrow 1- off.

**Continuation for all models**

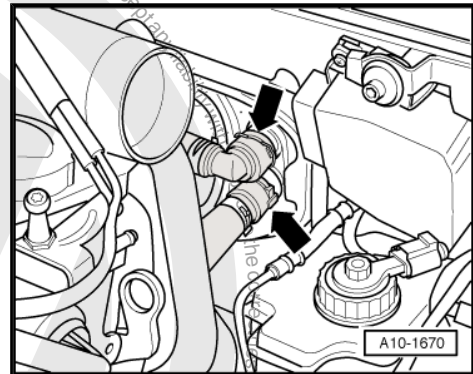
- Pull vacuum hoses -arrow 2- off.
- Pull vacuum hose -arrow 3- off non-return valve for brake servo.



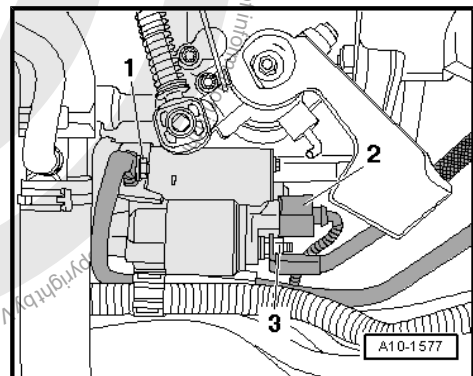
- Pull vacuum hose -arrow- to brake servo off tandem pump.



- Remove coolant hoses -arrows- to heater heat exchanger on bulkhead.

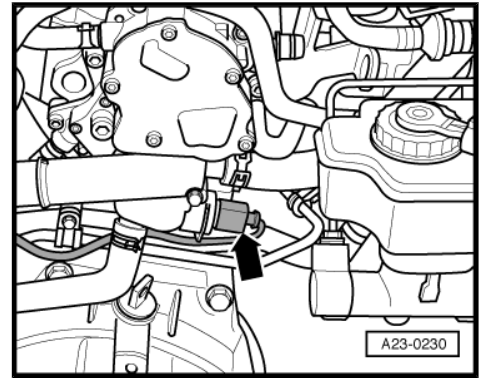


- Unscrew earth cable -1-.
- Remove wiring -2- and -3- on starter.
- Move wiring clear.

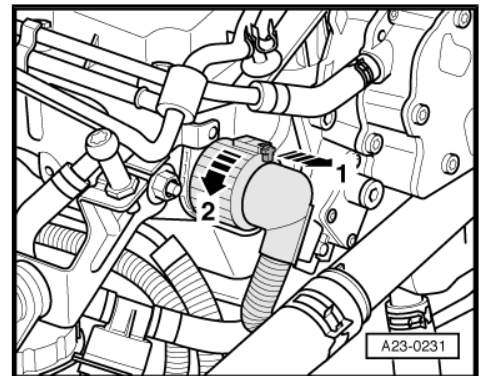




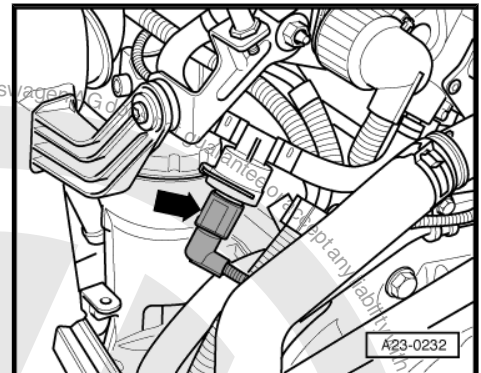
- Remove connector -arrow- on coolant temperature sender - G62- .



- Pull the release pin -arrow 1- and unscrew knurled nut -arrow 2-.
- Pull central switch for unit injectors off and free wiring harness.



- Disconnect connector -arrow- on fuel temperature sender - G81- and free wiring.

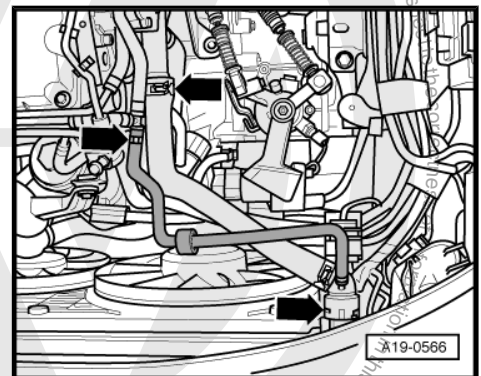


- Remove coolant hose between engine and radiator -arrows-.



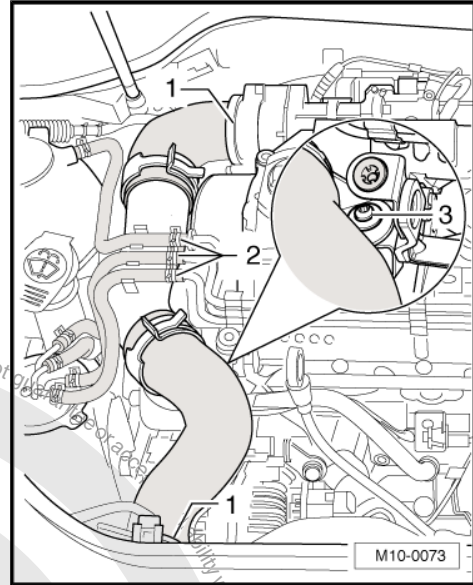
#### WARNING

- ◆ *The fuel and the fuel lines in the fuel system can become very hot (danger of scalding)!*
- ◆ *The fuel system is also under pressure! Before opening the system, place cloths around the connections. Then carefully loosen connection to release the pressure!*
- ◆ *Wear eye and hand protection when performing any type of repair work on the fuel system!*

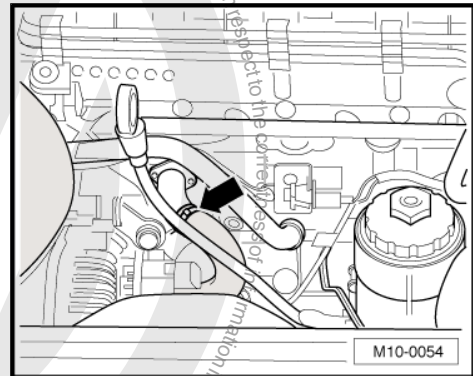




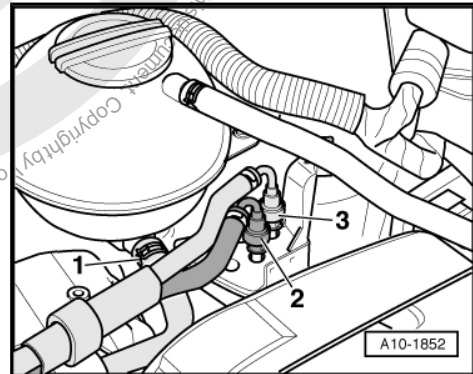
- Mark and pull hoses -2- off and free.
- Remove air pipe. To do this lift retaining clips -1- slightly and remove the bolt -3- from the transport bracket.



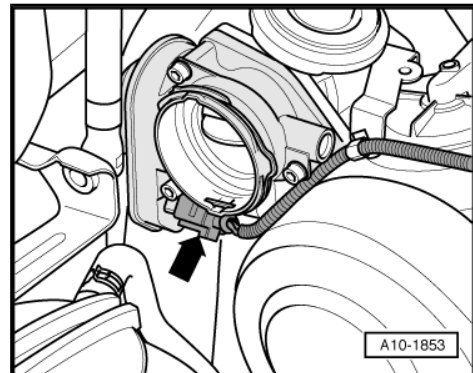
- Pull coolant hose -arrow- off.



- Separate fuel supply pipe -3- and fuel return pipe -2-. To do this, pull release button.
- Pull coolant hose -1- off expansion tank.



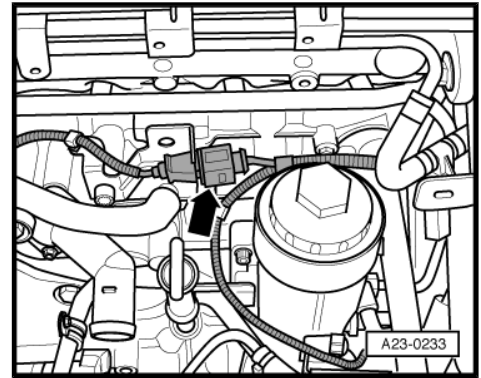
- Disconnect connector -arrow- on intake manifold flap motor -V157-.



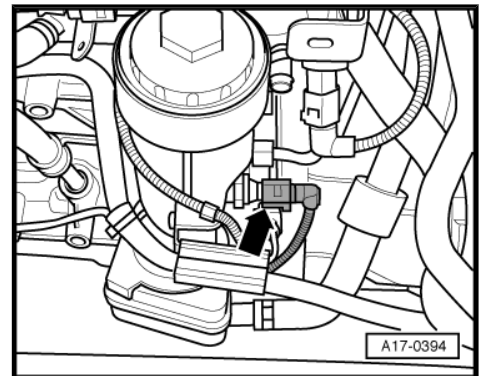




- Take connector -arrow- for Hall sender -G40- out of retainer and separate.



- Disconnect connector -arrow- on oil pressure switch -F1- .
- Unscrew oil pressure switch.

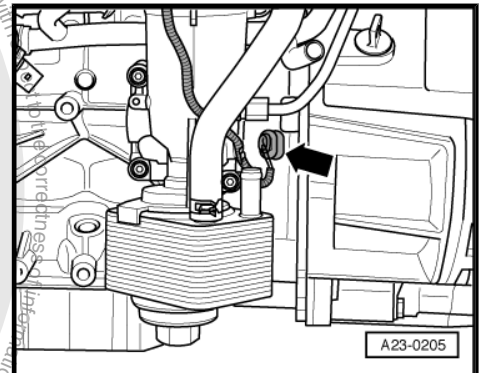


- Disconnect connector -arrow- on engine speed sender -G28- using assembly tool -T10118- .

**i Note**

*To unlock connector without assembly tool -T10118- , press connector to engine speed sender with a screwdriver and raise release button with a thin wire hook at the same time.*

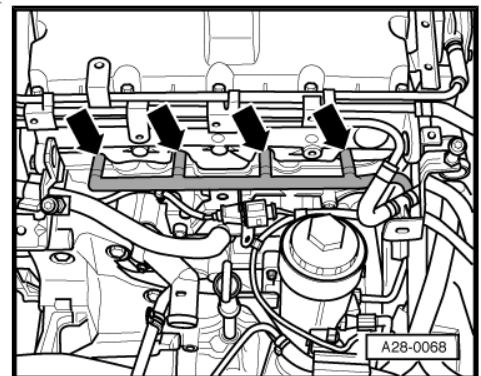
- Move wire clear.
- Pull connector strip off glow plugs -arrows-.
- Free wiring to body.
- Remove noise insulation ⇒ General body repairs, exterior; Rep. Gr. 50 ; Noise insulation .
- Bring lock carrier into service position ⇒ General body repairs, exterior; Rep. Gr. 50 ; Lock carrier .



**Vehicles with air conditioner**

**i Note**

*To prevent damage to condenser or to refrigerant pipes and hoses, ensure that pipes and hoses are not stretched, kinked or bent.*



**WARNING**

*The air conditioner refrigerant circuit must not be opened.*



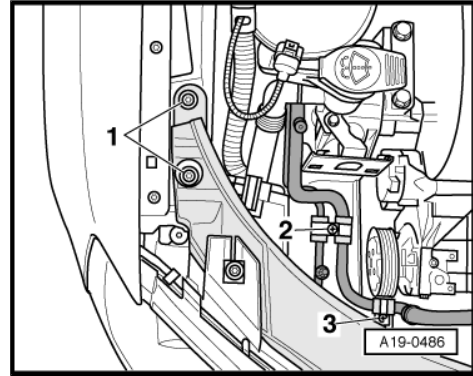
- Remove bolts -2- and -3- on refrigerant lines brackets.

To facilitate removing and installing engine without opening re-  
frigerant circuit:

- Remove poly-V-belt ⇒ [page 29](#) .
- Separate air conditioner compressor ⇒ Heating, Air condi-  
tioning system; Rep. Gr. 87 ; Repair work on refrigerant circuit;  
Removing and installing air conditioner compressor .
- Secure air conditioner compressor to lock carrier so that re-  
frigerant lines are free of stress.

**Continuation for all models**

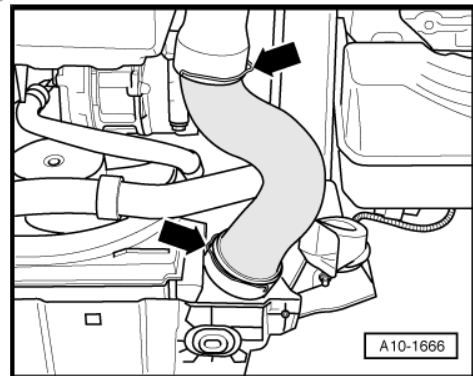
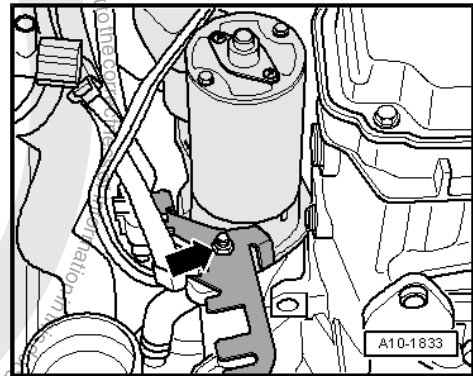
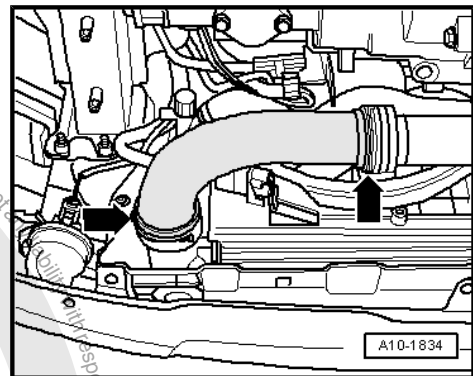
- Remove alternator ⇒ Electrical system; Rep. Gr. 27 ; Alter-  
nator 1.9 l TDI engine .
- Remove radiator ⇒ [page 132](#) .
- Remove left air duct hose, to do this lift retaining clips  
-arrows- lightly.



- Unscrew nut -arrow- and take retainer for wiring harness off  
threaded stud.

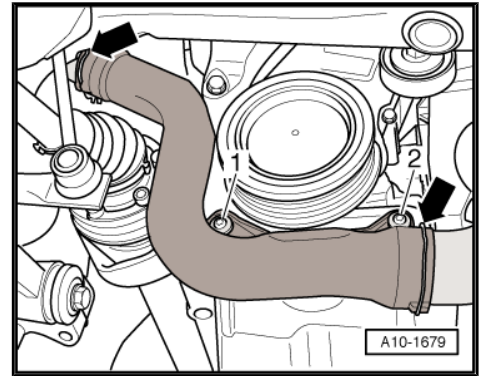
**Vehicles with engine codes BKC, BXE**

- Remove right air duct hose, to do this lift retaining clips  
-arrows- lightly.

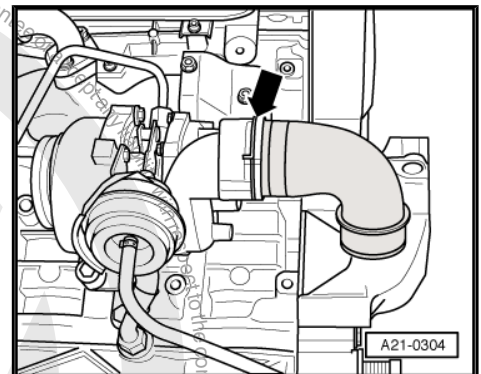




- Remove bolts -1- and -2-.

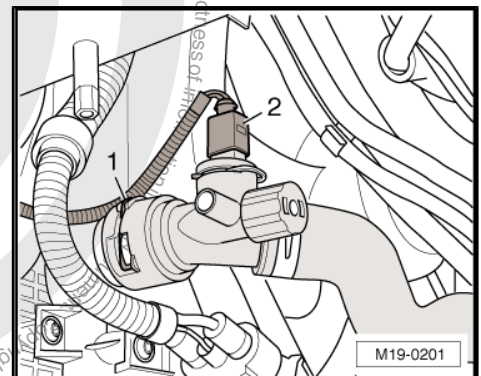


- Remove air hose from turbocharger. To do this lift retaining clip -arrow- lightly.
- Remove right air duct pipe. To do this lift retaining clips -arrow- lightly.

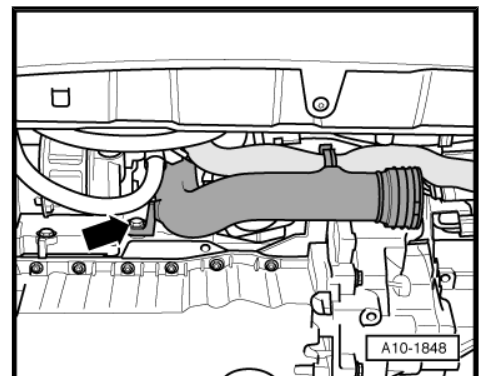


- Remove connector -2- on radiator outlet coolant temperature sender -G83-.

**Continuation for all models**



- Remove locking screw -arrow- for front air duct pipe.
- Remove right-hand and left-hand drive shafts on gearbox => Running gear, axles, steering; Rep. Gr. 40 ; Servicing drive shafts; Removing and installing drive shafts .
- Remove front exhaust pipe => [page 251](#) .
- Disengage and pull off connector on engine control unit => [page 245](#) .



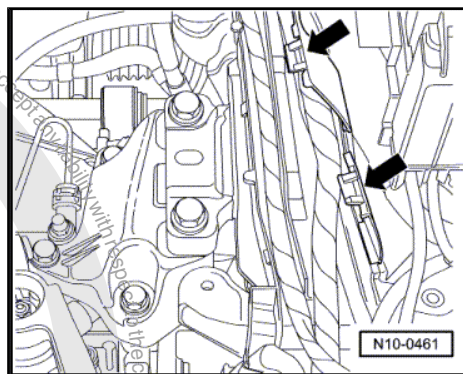
## Diesel Engine 4 Cylinder With Unit Injector

Full download: <http://manualplace.com/download/diesel-engine-4-cylinder-with-unit-injector/>

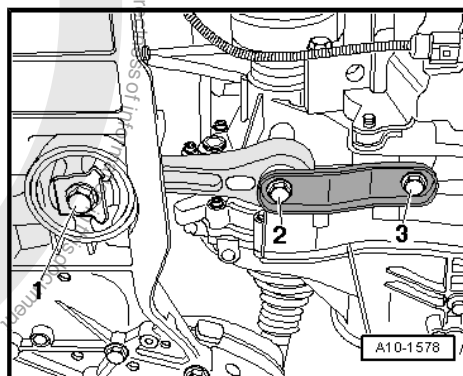


Jetta 2005 > , Bora 2006 > , Golf Variant 2007 >  
4-cylinder diesel engine with unit injector - Edition 05.2007

- Open all cable guide fasteners -arrows-.
- Remove wiring harness from cable guide on longitudinal member and lay to side on engine.
- Pull off or disconnect all other electrical connections from engine and gearbox as necessary and lay to side.
- Separate all connection, coolant, vacuum and intake hoses from engine.



- Unscrew bolt -1 - first.
- Unscrew bolts -2- and -3- and take pendulum support off.



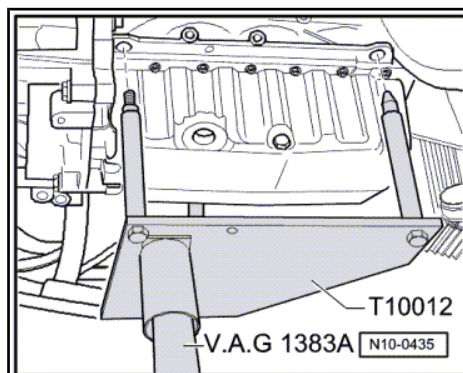
- Insert engine support -T10012- in engine and gearbox jack -V.A.G 1383 A- .



### Note

*Support pins must be secured to engine bracket -T10012- as shown.*

- Fit engine bracket -T10012- to cylinder block with bolt -M10×25/8.8- and tighten to approx. 40 Nm.
- Raise engine and gearbox slightly using engine and gearbox jack -V.A.G 1383 A- .



### Note

*To remove securing bolts use step ladder -VAS 5085- .*

- Unbolt assembly mounting on engine side from engine bracket -arrows-.

