

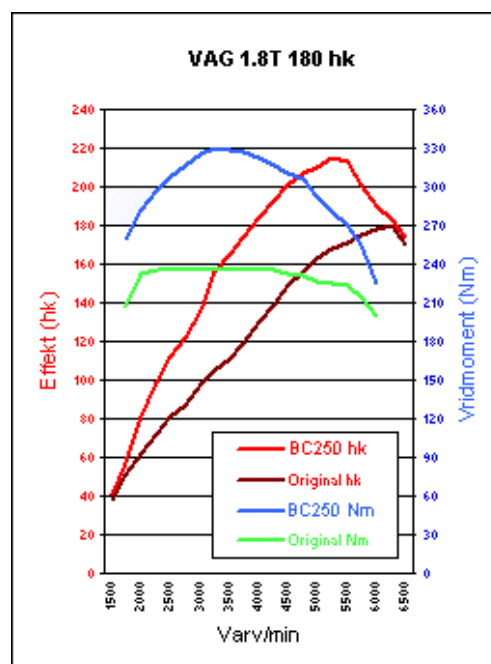


# **INSTALLATION GUIDE BC250/500** **VAG 1.8T TRANSVERSE ENGINE MOUNTING** **(AUDI, SEAT, SKODA, VW)**



Original	Med BC 250
<b>Audi, VW, Skoda &amp; Seat 1996-&gt;</b> Power: 150 hp Torque: 210 Nm	<b>Audi, VW, Skoda &amp; Seat 1996-&gt;</b> Power: Sport 197 hp, Economy* 197 hp Torque: 290 Nm
<b>Audi, VW, Skoda &amp; Seat</b> Power: 180 hp Torque: 235 Nm	<b>Audi, VW, Skoda &amp; Seat</b> Power: Sport 215 hp, Economy * 215 hp Torque: 330 Nm
<b>Audi, VW, Skoda &amp; Seat 2001-&gt;</b> Power: 225 hp Torque: 280 Nm	<b>Audi, VW, Skoda &amp; Seat 2001-&gt;</b> Power: Sport 255 hp, Economy * 255 hp Torque: 350 Nm

\* Softer response with throttle depending boost





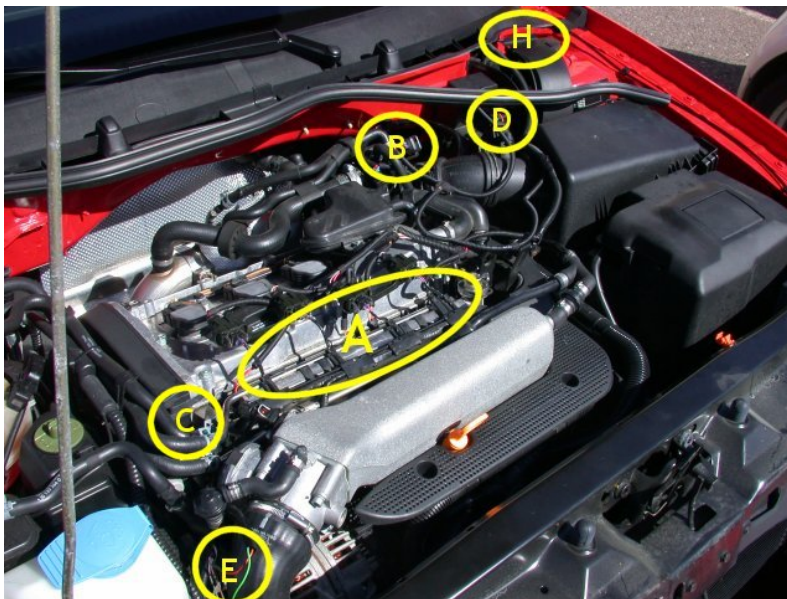
## INSTALLATION

### Basic information about the harness and the installation

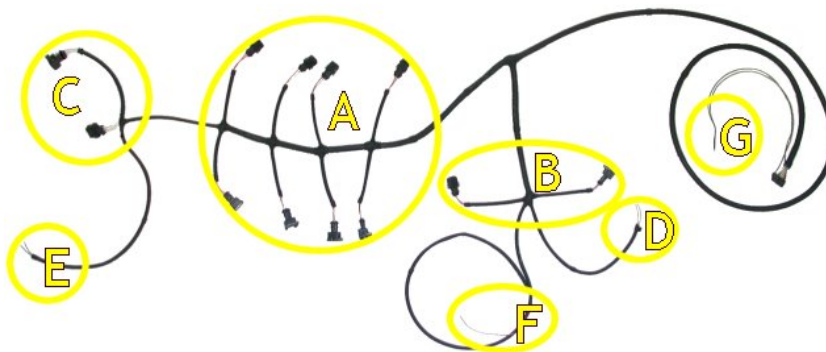
The installation is quite simple but requires some understanding of cars. We've tried to illustrate the different steps of the installation with lots of pictures.

The BC-harness is delivered complete with all the connectors except for MAP and MAF where you will have to cut one wire and solder the harness in between. When it comes to the throttle position sensor we only have to "listen" to the signal (we don't have to cut the wire), and we do this with a wire clamp or to peel the wire and solder the harness onto it.

- (A) Bosch fuel injectors
- (B) Boost control valve (and power supply)
- (C) RPM signal from cam sensor.
- (D) MAF-signal (cut and solder)
- (E) Boost pressure sensor (cut and solder)
- (F) Throttle signal (solder)
- (G) Grounding (screw)
- (H) Suitable hole for harness through firewall



Skoda RS



BC250/500-harness Skoda RS



### Tools needed for the installation

- 1) Solder iron
- 2) Cutting pliers
- 3) A few screwdrivers
- 4) Steel wire to get the harness through the firewall

### Installation

1)

Read the whole instruction first, at least one time.

2)

Turn the ignition off and remove key

3)

Remove engine cover

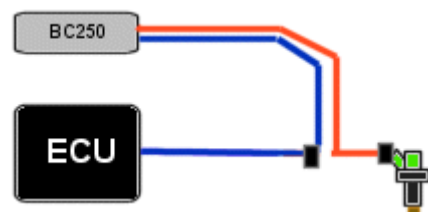
4)

Lay down the harness on top of the engine, as it is supposed to be when finished.

5)

#### Fuel injectors (A)

There are ordinary Bosch fuel injector connectors prepared in the harness. The 8 connectors are paired up male-female. The principle is to connect the box between the fuel injectors and the original harness using a male-female pair of connectors. To get the original harness back in place you can turn the injector 90 degrees.





6)

**Cam sensor (C)**

The cam sensor is connected the same way as the fuel injectors, through the prepared connector (C).

Connect the prebuilt harness to the original harness and to the cam sensor. The BC-box uses the cam sensor signal to measure the RPM.

7)

**Boost control valve and 12V supply (B)**

The boost control valve is connected with the prepared connectors (B). Connect the box to the original harness and to the boost control valve.

This is also the connector where we get a 12V power supply. There's power while the engine is running and a short period of time after the ignition is turned off.



8)

**Boost sensor (E)**

The boost sensor is located on top of the intercooler. The signal wire (often grey/purple) is connected to pin 4 in the boost sensor connector. You need to cut this wire and connect the end from the boost sensor to the green/blue wire in the BC-harness. The end that goes to the ECU is connected to the orange/blue wire in the BC-harness. The best result is achieved by soldering the wires and isolate with tape or heat shrink. Always be careful to isolate the wires.



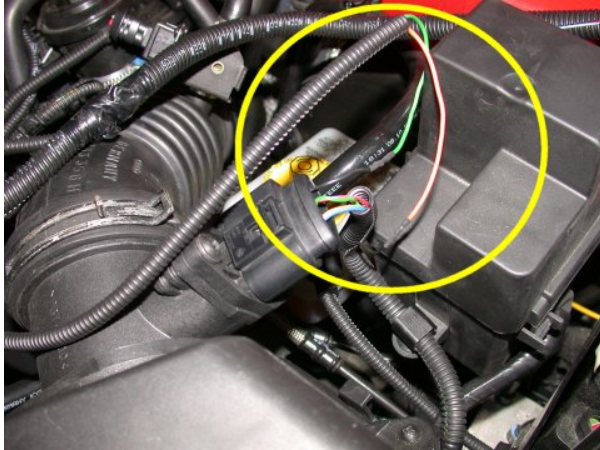




9)

#### Mass air flow sensor (D)

The MAF sensor is located on the pipe after the air filter. The signal wire is pin no 5 from the MAF connector (often black). Cut this wire and solder the end from the MAF sensor to the green wire in the BC-harness. The other wire that goes to the ECU should be soldered together with the orange wire in the BC-harness.



10)

#### Mounting the box inside the car

You can either mount the box in the engine compartment or inside the car. To mount the box inside the car you will have to start by getting the harness through the engine firewall. In most of the Skoda cars this is easiest done on the driver side next to the left windshield wiper. The harness comes through above the brake pedal and is then easy to be further wired to e.g. the mid console.

Unwrap the tape around the rubber (H). Gently cut through it and insert a thick steel wire through the rubber and into the car. Continue all the way so that the wire can be reached from the inside. Be careful not to damage the original harness. Then tape the connector and the wiring for the BC box onto the steel wire in the engine compartment. Try to make the connector and wiring as thin as possible. Wrap it hard and make sure that the wires are taped to the steel wire. Otherwise the connector could fall off.

Push the connector through as far as possible before you go inside and try to pull the steel wire. It's easier if you can get a friend to help you during this. When the connector and harness is all the way through all you have to do is mount the box where you want it.





## 10 Alternative 2)

### Mounting inside engine compartment

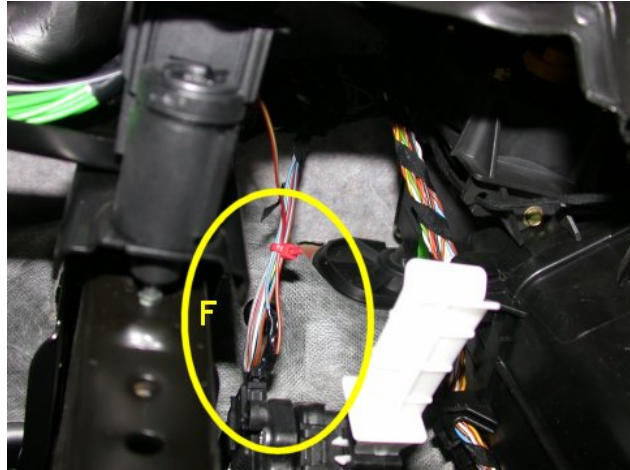
You can also mount the box inside the engine compartment. That way you don't have to get the harness through the firewall. On the other hand you will now have to put the wire to the throttle position sensor through the firewall and connect as shown below.

## 11)

### Throttle sensor

The throttle sensor is positioned above the accelerator pedal. The signal wire is pin no 4 (4<sup>th</sup> wire from the front) and often a gray/blue wire.

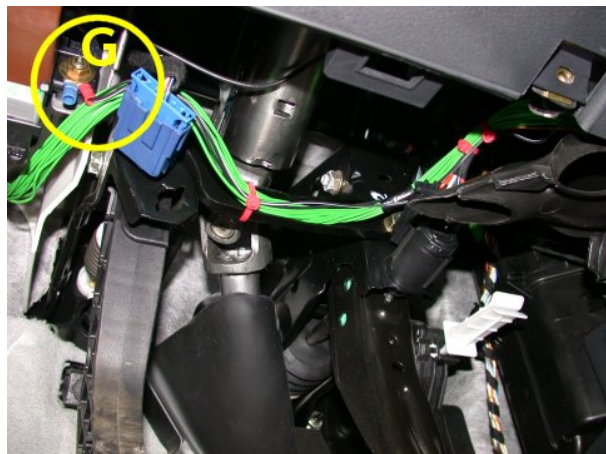
This wire should **NOT** be cut but only peeled for a short bit. Connect this wire to the green/red wire in the BC-harness (either through soldering or with a joint connector). If you have mounted the box in the engine compartment you will have to put this wire through the firewall and in to the car. If the box is mounted inside the car it's possible to shorten the wire from the BC-box by retracting the red/green wire through the isolation tube towards the 24-way connector. This way you will not have to put the isolation tube through the firewall one more time.



## 12)

### Grounding

There are two black wires from the box which are for grounding. Screw these either in the engine compartment or to a screw near the pedals which is connected to the chassis/ground. (In this picture the green wires represents the BC-harness.)





13)

### Start the engine

**Check once more that all the connectors are in place and that all the wiring is isolated so that there is no risk of short circuit. When all the wires are in place it's important to secure the harness and make sure that it's not mounted directly on top of extremely hot engine parts such as the header. You can use cable ties to secure the harness.**

- I) Turn the ignition on and make sure there's a green light on the box. (In Skoda this light will be turned off after a while since the power is taken from the boost control valve and this only gets power when the engine is running.
- II) Start the engine.
- III) Put the original TuneCard into the box (the colored side of the card should be faced upwards)

**If the car doesn't start or runs poorly there is probably something wrong with the wiring. If the car is running properly you can take it for a test run.**

Take it easy in the beginning and make sure that everything seems okay. Push the car a bit more with the original tuning and make sure that the car is still running good. If this test is successful it's time to do the same with the Economy card and the Sport card. The Sport card might seem aggressive the first time you try it.

If you think something isn't working properly you're always welcome to give us a call.

## USER MANUAL

---

### Tune Card

The BC-box is delivered with 3 tune cards, Original, Economy and Sport. If you want to change the tuning, this should be done while the box is powered up (engine is running). The engine should only be idling during the switch.

When you change settings the card should have the side with the chip facing the lights. (NB, different cards have the printing on different sides of the card, but the chip should always be facing the lights). While the new setting is read by the box there is a red light shining and when it's done the green light comes on again. You can now remove the card or let it stay in the box.



When you change cards while the engine is running the RPM can temporarily drop and some cars might even stop. This is nothing to worry about and you can restart the engine.



## **Tune the settings**

If you have bought a BC500 or want to upgrade your BC250 to be able to tune the settings yourself, there are more details in the BCLab-manual.

---

## **IMPORTANT INFORMATION ABOUT VAG-CARS**

---

VAG-cars are originally equipped with a poor MAF-sensor which sometimes creates a problem with tuning of the car. One way to get around this problem is to use the BC-function MAF-simulation. However this is not standard yet.

The BC-box doesn't control the oxygen sensor, which will probably be necessary for VAG-cars in the future to be able to fully control the fuel. Today these cars regulate the fuel depending on the oxygen sensor level. The BC-box which handles fuel enrichment and e.g. an extra fuel injector isn't able to fully control the air to fuel ratio as the user would like to. We are working on an upgrade to fix this problem.