



## INSTALLATION GUIDE BC250/500 VOLVO S/V40 GENERATION 1



Original	BC 250
<b>Volvo S40 2.0T, 1998 –2000 <i>Generation 1</i></b> Power: 160 hp Torque: 240 Nm	<b>Volvo S40 2.0T</b> Power: 197 hp Torque: 280 Nm
<b>Volvo S40 2.0T, 2001-&gt; <i>Generation 2</i></b> Power: 163 hp Torque: 240 Nm	<b>Volvo S40 2.0T</b> Power: 197 hp Torque: 280 Nm
<b>Volvo S40 T4, 1998 –2000 <i>Generation 1</i></b> Power: 200 hp Torque: 300 Nm	<b>Volvo S40 T4</b> Power: 240 hp Torque: 360 Nm
<b>Volvo S40 T4, 2001-&gt; <i>Generation 2</i></b> Power: 200 hp Torque: 300 Nm	<b>Volvo S40 T4</b> Power: 240 hp Torque: 360 Nm

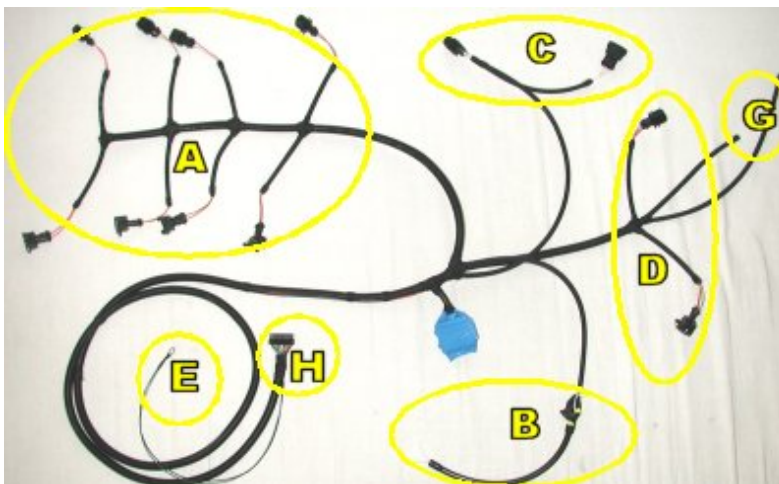
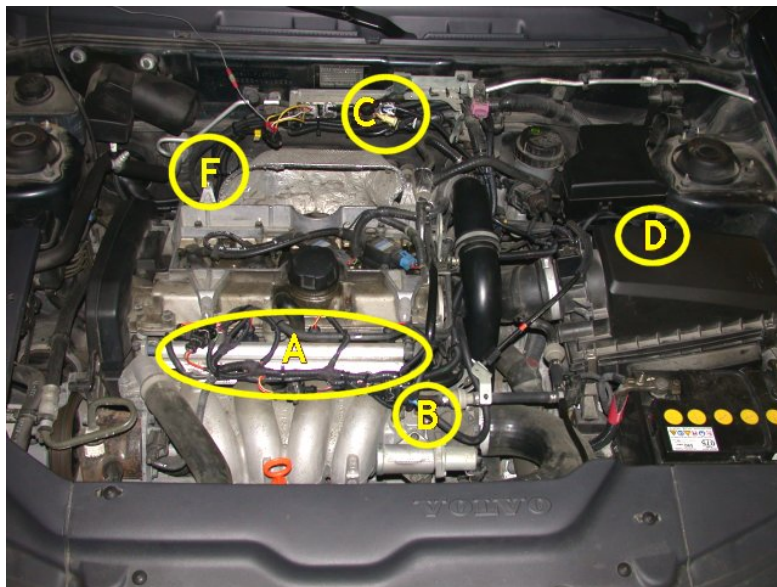


## INSTALLATION

### Basic information about the harness and the installation

The BC-harness is delivered complete with all the connectors. When all the wiring is complete 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.

- (A) Bosch fuel injectors.
- (B) MAP-signal to MAP-sensor through hose.
- (C) RPM signal from cam sensor.
- (D) Boost control valve (Bosch connector) and power supply.
- (E) Grounding through screw into the chassis.
- (F) Suitable hole for harness through firewall
- (G) 2 optional analog in- and outputs
- (H) 24-way connector for the BC-box





## Tools needed for the installation

- 1) Screwdrivers, e.g. torx key.
- 2) Steel wire and soap if the box should be mounted inside the car.
- 3) Solder iron
- 4) Cutting pliers

## Installation

1)

Read the whole instruction first, at least one time.

2)

Turn the ignition off and remove key

3)

Remove engine cover

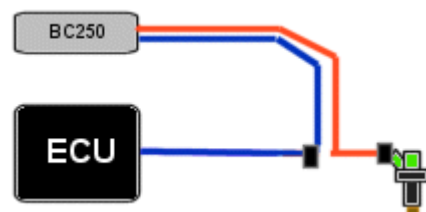
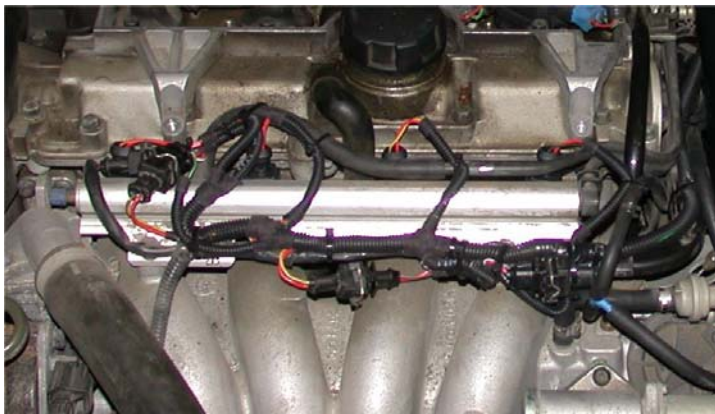
4)

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. This is also our +12V power supply.

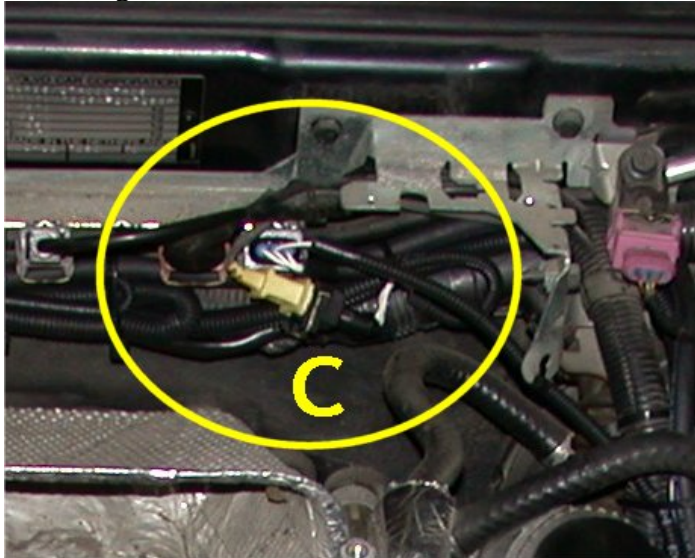




6)

**Cam sensor (C)**

The connector is located against the firewall under the plastic cover. 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 (D)**

The boost control valve is connected with the prepared connectors (D). 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.



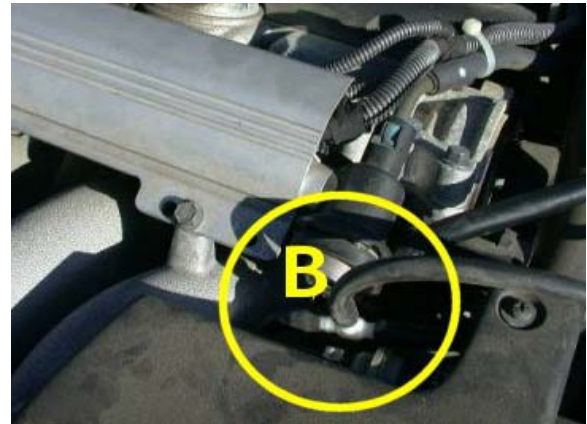




8)

### MAP Sensor

The manifold air pressure is connected through a hose to the BC-box. Disconnect the hose that runs from the throttle valve to the air inlet pipe and connect the BC-box in between through a joint connector. Use a hose designed for the car industry that works under pressure and heat.



9)

### 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 the Volvo S40 this is easiest done on the passenger side. Unwrap the tape around the rubber. 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. Lubricate the connector with soap so that it slides through the firewall.



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.

### 9 Alternative 2)

#### Mounting inside engine compartment

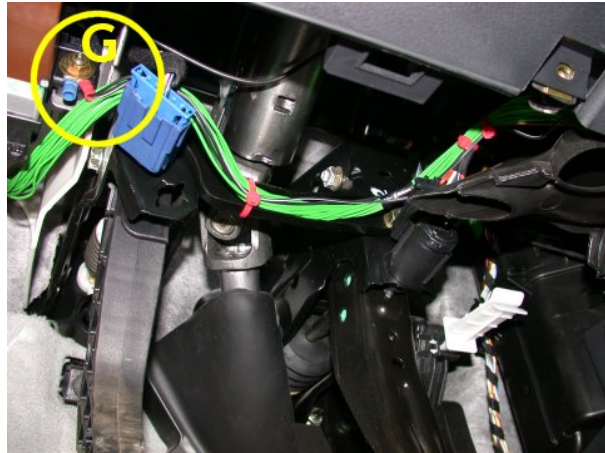
You can also mount the box inside the engine compartment. That way you don't have to get the harness through the firewall. The box isn't waterproof so you want to mount the box in a fairly dry place. Also make sure that you secure the box and harness to avoid damage to the connectors and wiring.



10)

### Grounding

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



11)

### 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

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### 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.



## PIN CONFIGURATION

Microfitkontakt BC250/500 Volvo S40					
1		black/green	GND		Connect to Chassi
2		grey	5v out		Connected to MAP sensor
3					
4					
5					
6		green/red	ANALOG3_IN		MAP sensor via hose
7		orange/blue	ANALOG 2_OUT		
8		green/blue	ANALOG 2_IN		
9		orange	ANALOG1_OUT		
10		green	ANALOG1_IN		
11		blue/yellow	PWM in		From ECU boost control
12		blue/white	PWM out		To boost control valve
13					
14		white	IGNITION IN		From Cam sensor
15		gul/svart	FUEL_D_OUT		To fuel injector
16		vit/svart	FUEL_D_IN		From ECU fuel signal
17		gul/brun	FUEL_C_OUT		To fuel injector
18		vit/brun	FUEL_C_IN		From ECU fuel signal
19		gul/grön	FUEL_B_OUT		To fuel injector
20		vit/grön	FUEL_B_IN		From ECU fuel signal
21		gul/röd	FUEL_A_OUT		To fuel injector
22		vit/röd	FUEL_A_IN		From ECU fuel signal
23		svart	GND_POWER		Connect to Chassi
24		röd	+12Vin		Connect to +12V